

DATE: August 4, 2020
TO: Honorable Mayor & City Council
FROM: John Muns, Chair, Planning & Zoning Commission
SUBJECT: Results of Planning & Zoning Commission Meeting of August 3, 2020

AGENDA ITEM NO. (2A) - PUBLIC HEARING
ZONING CASE 2020-001
APPLICANT: UNITED PENTECOSTAL CHURCH OF PLANO TEXAS

Request for a Specific Use Permit for Independent Living Facility on 3.9 acres located on the west side of Premier Drive, 550 feet north of Enterprise Drive, and to rescind Specific Use Permit No. 31 (S-31) for Day Care Center, but only to the extent that S-31 applies to the subject property. Zoned Corridor Commercial with Specific Use Permit No. 31 for Day Care Center. Tabled April 6, 2020, April 20, 2020, May 18, 2020, June 15, 2020, and July 20, 2020. Project #ZC2020-001.

APPROVED:	<u>8-0</u>	DENIED:	<u> </u>	TABLED:	<u> </u>
Speaker Card(s) Received		Support:	<u>12</u>	Oppose:	<u>0</u> Neutral: <u>0</u>
Letters Received Within 200' Notice Area:		Support:	<u>0</u>	Oppose:	<u>0</u> Neutral: <u>0</u>
Petition Signatures Received:		Support:	<u>0</u>	Oppose:	<u>0</u> Neutral: <u>0</u>
Other Responses:		Support:	<u>1</u>	Oppose:	<u>1</u> Neutral: <u>0</u>

STIPULATIONS:

Recommended for approval subject to:

1. A maximum of 97 independent living facility units are allowed.
2. Balconies and porches are prohibited.
3. Maximum building height is 3 stories.
4. Air intake vents must be located as far away from U.S. Highway 75 as practical.
5. All outdoor amenity areas and building mechanical rooms must be located on the western side of the building.
6. Noise mitigating building materials will be used to ensure interior noise levels will not exceed 45 dBA.

FOR CITY COUNCIL MEETING OF: August 24, 2020 (To view the agenda for this meeting, see www.plano.gov)

PUBLIC HEARING - ORDINANCE

DF/amc

xc: Paul Cook, United Pentecostal Church of Plano Texas
Randy Eardley, Weir & Associates, Inc.
Ryan Combs, Gardner Capital
Jeanna Scott, Building Inspections Manager

<https://goo.gl/maps/mvbP28kd1f9Q3qbw5>

CITY OF PLANO
PLANNING & ZONING COMMISSION

August 3, 2020

Agenda Item No. 2A

Public Hearing: Zoning Case 2020-001

Applicant: United Pentecostal Church of Plano Texas

DESCRIPTION:

Request for a Specific Use Permit for Independent Living Facility on 3.9 acres located on the west side of Premier Drive, 550 feet north of Enterprise Drive, and to rescind Specific Use Permit No. 31 (S-31) for Day Care Center, but only to the extent that S-31 applies to the subject property. Zoned Corridor Commercial with Specific Use Permit No. 31 for Day Care Center. Project #ZC2020-001.

REMARKS:

The applicant is requesting a Specific Use Permit (SUP) for Independent Living Facility on a property which contains parking for the existing religious facility to the south. The Zoning Ordinance defines an independent living facility as a development providing dwelling units specifically designed for the needs of elderly persons. In addition to housing, this type of facility may provide convenience services, such as meals, housekeeping and transportation, and community facilities, such as central dining rooms and activity rooms.

The existing zoning is Corridor Commercial (CC). The CC district is intended to provide for retail, service, office, and limited manufacturing uses within major regional transportation corridors. The regulations and standards of this district are reflective of the high traffic volumes and high visibility of these regional highways.

An SUP authorizes and regulates a use not normally permitted in a district, which could benefit in a particular case the general welfare, provided that adequate development standards and safeguards are established. Additionally, Section 6.100 (Specific Use Permits) of Article 6 (Specific Use Permits and Certificates of Occupancy) states the following:

“The Planning & Zoning Commission in considering and determining its recommendations to the City Council on any request for a specific use permit may require from the applicant plans, information, operating data, and expert evaluation concerning the location, function, and characteristics of any building or use proposed. The City Council may, in the interest of the public welfare and to insure

compliance with this ordinance, establish conditions of operation, location, arrangement, and type and manner of construction of any use for which a permit is authorized. In authorizing the location of any of the uses listed as specific use permits, the City Council may impose such development standards and safeguards as the conditions and locations indicate important to the welfare and protection of adjacent property from noise, vibration, dust, dirt, smoke, fumes, gas, odor, explosion, glare, offensive view, traffic, or other undesirable or hazardous conditions.”

As shown in the companion concept plan, Agenda Item 2B, the applicant is proposing a three story independent living facility building on the subject property.

Surrounding Land Use and Zoning

North	Existing health/fitness center zoned CC.
East	Existing restaurant, retail, and major vehicle repair zoned CC.
South	Existing religious facility and day care center zoned CC with SUP No. 31 for Day Care Center
West	Existing residential neighborhood zoned Single-Family Residence-6 (SF-6).

Conformance to the Comprehensive Plan

Future Land Use Map - The Future Land Use Map of the city's Comprehensive Plan designates the subject property as Expressway Corridor (EXC).

The Expressway Corridor future land use category applies to development along major expressways serving regional and interstate commerce. Development in these corridors is expected to include a mix of retail, service, office, restaurant, medical, hotel, and technology based uses. Uses should be serviced by parking structures to reduce surface parking and encourage efficient use of land. Due to noise and health impacts of expressways, residential development is generally not appropriate in these corridors. Adequate building setbacks must be considered when development is proposed near neighborhoods.



The EXC designation recommends a mix of commercial uses as the primary land uses within these corridors. Residential development is generally not appropriate due to the health impacts of expressways. As described further in the Expressway Corridor Environmental Health Policy analysis below, this location exceeds the recommended noise levels for sensitive land uses within an expressway corridor. Satisfactory mitigation is required to meet city policy as will be discussed in more detail later in this report. Additionally, to the east is a major vehicle repair use with repair bays that face the subject property, which may also create noise concerns for future residents.

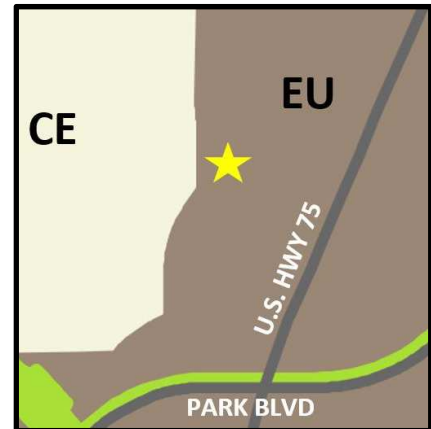
The request complies with the required setbacks from residential zoning to the west, and the applicant is proposing standards to mitigate noise internal to the building, and for

external areas situated behind the building. It may be possible to propose an alternative design for the property as a buffer from the noise and impacts of the expressway and adjacent vehicle repair use. However, at this time, no parking garage or other noise buffer is proposed for the eastern facade. For these reasons, the request is not in conformance with the EXC designation.

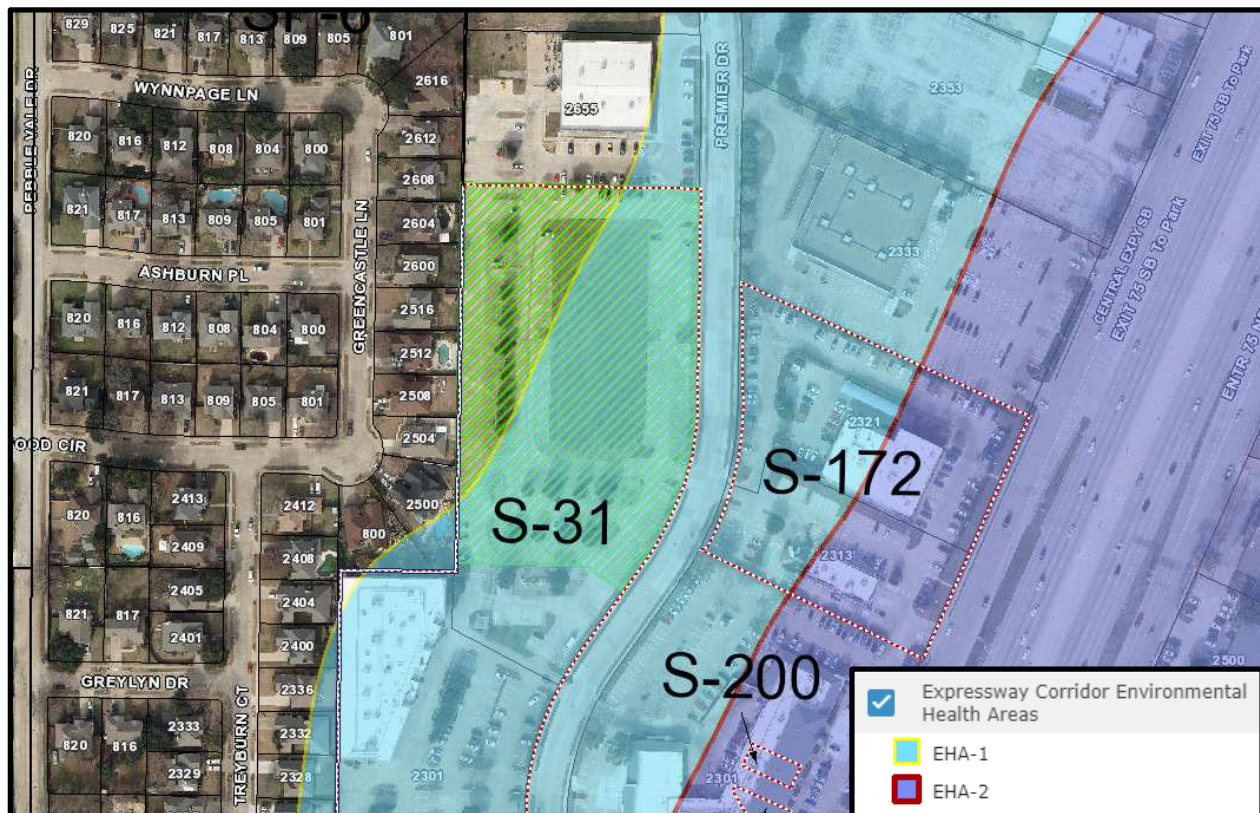
Growth and Change Map - The Growth and Change Map designates the subject property as Evolve Urban (EU).

These existing areas are expected to experience extensive large-scale change through major redevelopment projects that evolve into distinct walkable districts.

The subject property is currently underutilized as excess parking for the adjacent religious facility. This request would allow for new development consistent with the existing area, yard, and bulk requirements of the existing CC zoning. The development is a large-scale change for the property, but does not create a distinct walkable district. However, residents would have access to adjacent properties through public sidewalks. This request is in conformance with the Growth and Change Map designation.



Expressway Corridor Environmental Health Goal – *Sensitive land uses within Expressway Corridor Environmental Health Areas should achieve a maximum outdoor noise level of less than 65 dBA Ldn.*



In 2019, the city adopted guidelines and regulations for development of sensitive land uses, including independent living facilities, adjacent to expressways. The subject property is located within the Expressway Corridor Environmental Health Area One (EHA-1). Sensitive land uses are appropriate in EHA-1 if satisfactory mitigation is achieved to ensure outdoor noise levels are less than 65 dBA Ldn per the Expressway Corridor Environmental Health Goal. An EHA site analysis is necessary to determine the specific impacts of noise and air quality on the subject property.

The applicant has provided a noise study (attached) which shows that outdoor noise levels range from 57 dBA on the west side of the property to 71 dBA on the east side of the property. The northern (66 dBA), eastern (71 dBA), and southern (68 dBA) facades all exceed the recommended noise level as noted in the Executive Summary of the applicant's study. This portion of the building will have residential units with windows to living and bed rooms which will be impacted by these noise levels.

The applicant is proposing stipulations to mitigate the noise concerns. Outdoor amenity areas will be placed on the western portion of the subject property to ensure noise levels are below the 65 dBA Ldn level. Additionally, balconies and porches are prohibited and other building design features are proposed including utilizing noise mitigating building materials to create an interior noise level of less than 45 dBA when windows are closed.

The applicant could redesign the building and site to attempt to buffer the noise from the expressway. This opportunity was discussed with the applicant. Although the stipulations mitigate some of the noise concerns on the subject property, there are still significant portions of the subject property which will exceed the recommended noise level from U.S. Highway 75. This request is not in conformance with this policy.

The proximity of independent living facility units to the expressway is inappropriate without proposed standards that would protect residents from the impacts of the expressway. The city has long maintained policies separating housing from major thoroughfares. The purpose for these policies has been to reserve the frontage roads for significant commercial development, and to encourage a high quality of living for all residents within Plano. As currently proposed, and without mitigation to ensure noise level recommendations are fully met, staff is not in support of this request.

Special Needs Housing Policy - *Plano will accommodate senior and special needs housing through inclusive regulations and the goals stated in the Consolidated Plan.*

This policy recommends regulations which support additional housing for seniors and individuals with special needs; however, rezoning requests must be carefully examined to consider the suitability of residential development based on the location proposed. Quality of life via appropriate zoning is afforded to all residents. Plano has inclusive regulations, which consider how and where housing can be provided appropriately within the community.

Housing Trends Analysis and Strategic Plan - Plano residents and workforce over 55 years of age noted quality construction, lack of HOA fees, lower-maintenance living and walkability to be chief considerations in affecting housing decisions. The city's aging population has difficulty finding diversity of housing inventory to suit their housing needs

and remain in the city, sometimes due to housing affordability or ability to maintain a home. This proposal does offer a low-maintenance living situation and could be affordable.

Adequacy of Public Facilities - Water and sanitary sewer services are available to serve the subject property. However, the applicant will need to verify that sanitary sewer capacity is sufficient to accommodate the proposed change in use from commercial to senior housing.

Traffic Impact Analysis (TIA) - A TIA is not required for this rezoning request. However, in considering the traffic impact using the average Institute of Traffic Engineers (ITE) trip generation rates, staff compared the proposed development with the potential build-out of the subject property as general office. Using a similar professional/general administrative office building footprint and related parking requirement as is proposed by the associated concept plan, it's possible that 112,000 square feet of office could be constructed on the subject property. The table below shows the estimated traffic generation for a single hour during weekday peak hours (7:00-9:00 a.m. and 4:00-6:00 p.m.):

	AM	PM
Independent Living Facility (97 units, 112,007 square feet)	28	33
Professional/General Administrative Office (112,000 square feet)	174	167

From the table above, it is evident that independent living facility development would generate significantly less peak hour morning and evening traffic than a professional/general administrative office.

Public Safety Response Time - Based upon existing personnel, equipment, and facilities, fire emergency response times will be sufficient to serve the site.

Other Considerations

Independent Living Facility Use

Independent living facilities are part of the “institutional” use category within Article 14 (Allowed Uses and Use Classifications) of the Zoning Ordinance because they provide services and care to residents. In addition to the services they provide, they also function as housing, as is specifically mentioned in the definition. As a type of housing, the city should be cautious when considering an appropriate location for these uses. It would be to the detriment of future residents if the city were to ignore the housing functions of this use, and instead look at them only as “institutions.”

Independent Living Facility Setback

Subsection 15.1300.3 (Minimum Residential Setback) of Section 15.1300 (Retirement Housing) or Article 15 (Use-specific Regulations) of the Zoning Ordinance requires

independent living facilities to be separated from residential zoning districts as noted below:

Height	Minimum Setback
One Story	20 feet
Two Story	60 feet
Three Story	150 feet

As proposed in the associated concept plan, the building is three stories and is compliant with the minimum 150 foot setback.

SUP Restrictions

The applicant is proposing the following stipulations with the SUP request:

1. A maximum of 97 independent living facility units are allowed.
2. Balconies and porches are prohibited.
3. Maximum building height is 3 stories.
4. Air intake vents must be located as far away from U.S. Highway 75 as practical.
5. All outdoor amenity areas and building mechanical rooms must be located on the western side of the building.
6. Noise mitigating building materials will be used to ensure interior noise levels will not exceed 45 dBA.

The requested stipulations will limit the number of units and the building height on the subject property. Additionally, the building restrictions will help mitigate noise levels for outdoor areas, and meet other recommended construction mitigation methods of the Expressway Corridor Environmental Health Policy by placing air intake vents and mechanical areas away from U.S. Highway 75.

Although these stipulations will limit some of the impacts of noise for residents, the applicant is proposing retirement housing units which will face toward the expressway, and the proposed stipulations are not sufficient to meet the noise level recommendations. Applicants will not be able to open windows for ventilation to those units without noise concerns, since mitigation is dependent on the windows as a barrier.

Rescission of a portion of S-31 for Daycare Center

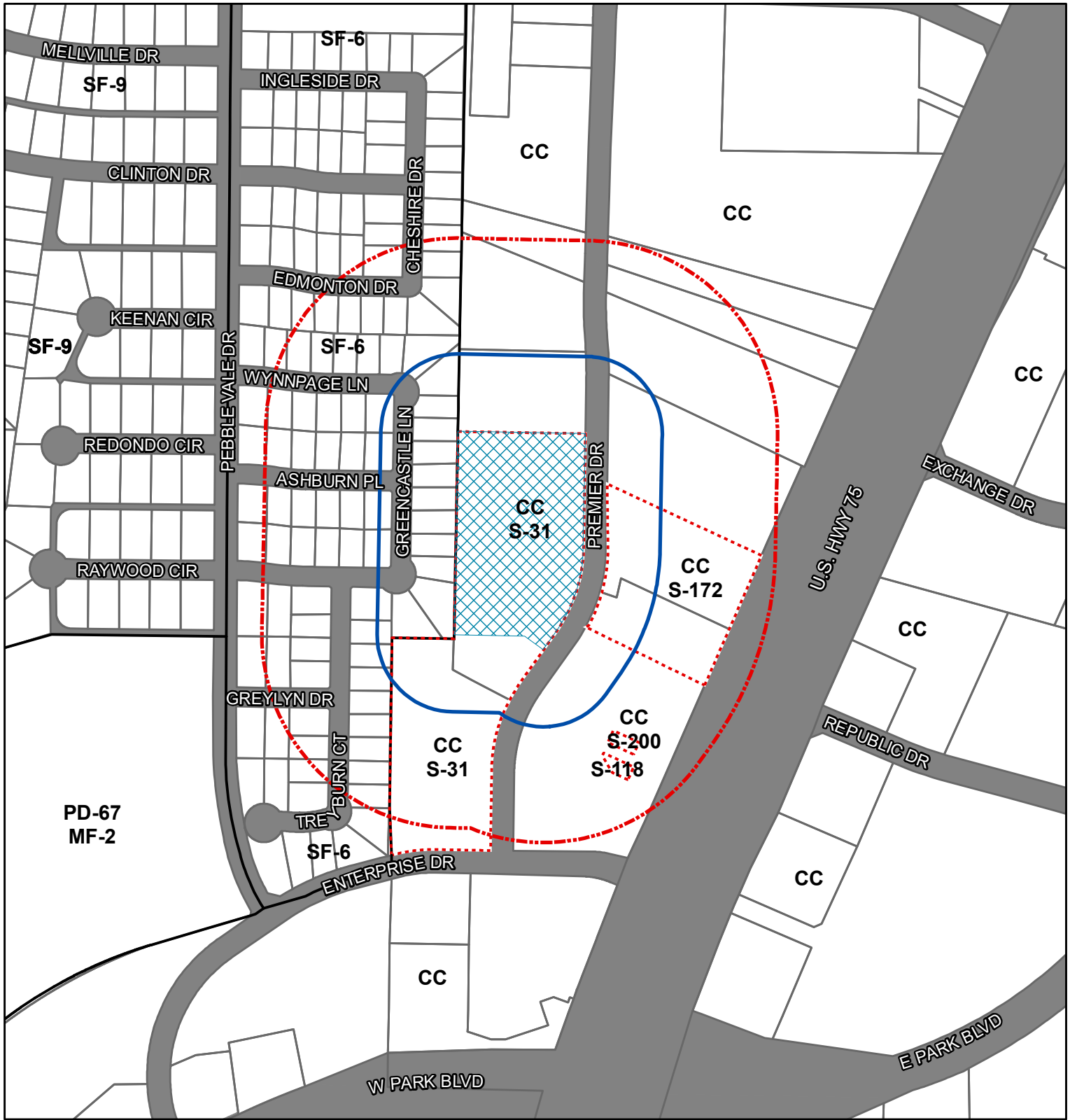
With this request, the applicant is also requesting to rescind Specific Use Permit No. 31 (S-31) for Day Care Center, but only to the extent that S-31 applies to the subject property. S-31 was originally approved in 2016 and is currently being utilized by the existing religious facility to the south. Since a day care will not be operated on the subject property, the applicant is proposing to rescind the portion of S-31 as it applies to the proposed independent living facility property. Staff is in support of this request; however, if the zoning case is denied, this change will not occur.

SUMMARY:

The applicant is requesting an SUP for Independent Living Facility and to rescind a portion of S-31 for Day Care Center as it applies to the subject property. The requested SUP is not in conformance with the Comprehensive Plan's environmental health standards and may be impacted further by the existing major vehicle repair use to the east. The associated noise study shows noise levels which exceed the recommendations of the Expressway Corridor Environmental Health Goal, requiring a maximum outdoor noise level of less than 65 dBA Ldn. The standards intended to mitigate the effects of noise and air pollution from the expressway for future residents are not sufficient to provide a development that supports the quality of life needed for future residents. For these reasons, staff recommends denial of the request.

RECOMMENDATION:

Recommended for denial.

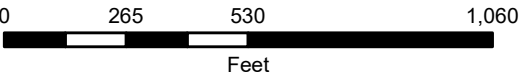
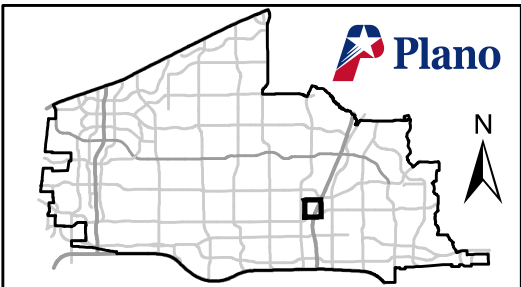


Zoning Case: 2020-001

Existing Zoning: Corridor Commercial with Specific Use Permit No. 31 for Day Care Center (CC w/ S-31)

Proposed Zoning: Specific Use Permit for Independent Living Facility

- 500' Courtesy Notification Buffer
- 200' Notification Buffer
- Subject Property
- Streets
- Zoning Boundary
- Zoning Boundary Change/SUP
- Specific Use Permit
- Municipal Boundaries

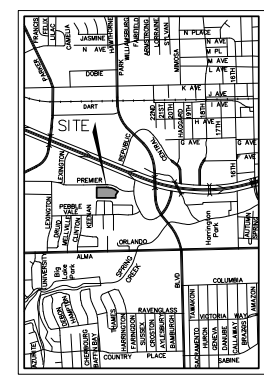
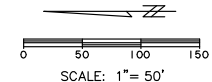
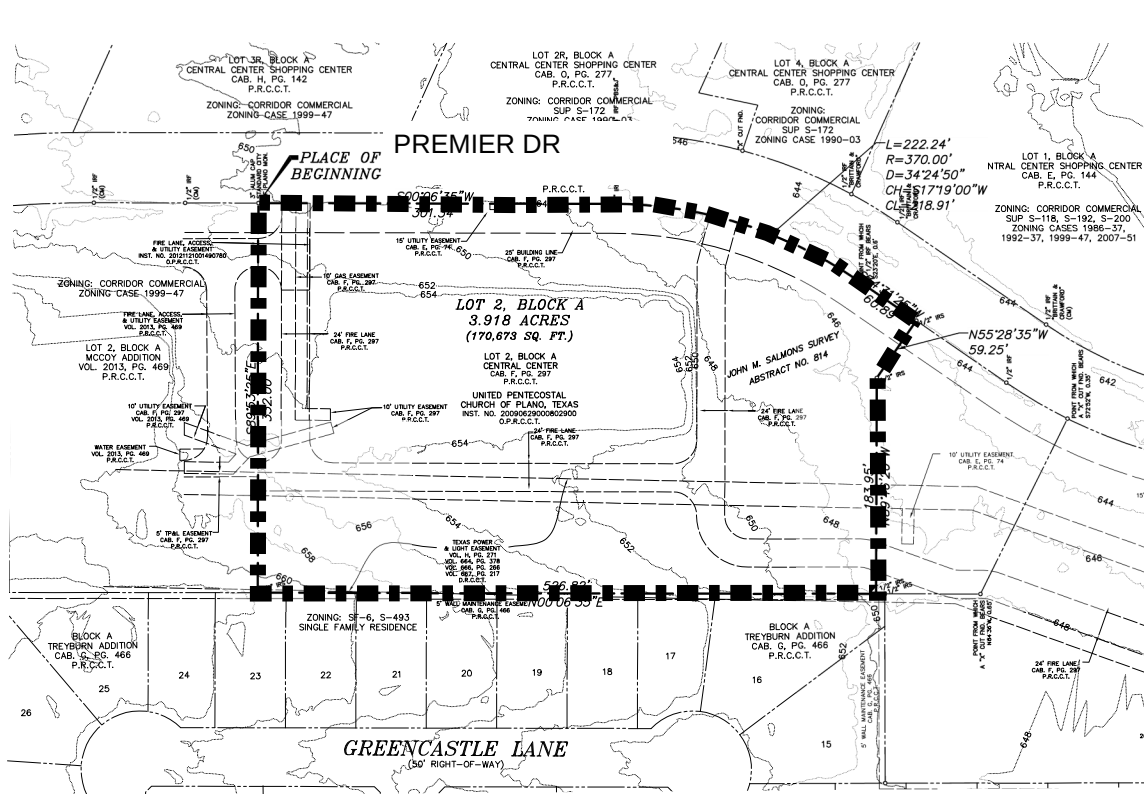




Zoning Case 2020-001

 Area of Request

0 200 400
Feet



VICINITY MAP
NOT TO SCALE

FIELD NOTES

WHEREAS UNITED PENTECOSTAL CHURCH OF PLANO, TEXAS ARE THE OWNERS OF A TRACT OF LAND LOCATED IN THE JOHN M. SALMONS SURVEY, ABSTRACT NO. 814, COLLIN COUNTY, TEXAS, PER SPECIAL WARRANTY DEED RECORDED IN INSTRUMENT NUMBER 2009062900002900, OFFICIAL PUBLIC RECORDS, COLLIN COUNTY TEXAS (O.P.R.C.C.T.), BEING A PORTION OF LOT 2, BLOCK A, MCCOY ADDITION, AN ADDITION TO THE CITY OF PLANO, COLLIN COUNTY, TEXAS ACCORDING TO THE PLAT RECORDED IN CABINET F, PAGE 297, PLAT RECORDS, COLLIN COUNTY, TEXAS (P.R.C.C.T.), AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS:

BEGINNING AT A STANDARD CITY OF PLANO MONUMENT WITH A 3" ALUMINUM CAP FOUND IN THE WEST RIGHT-OF-WAY LINE OF PREMIER DRIVE, (A 60' RIGHT-OF-WAY), BEING THE NORTHEAST CORNER OF SAID LOT 2 AND THE SOUTHEAST CORNER OF LOT 2, BLOCK A, MCCOY ADDITION, AN ADDITION TO THE CITY OF PLANO, COLLIN COUNTY, TEXAS ACCORDING TO THE PLAT RECORDED IN VOLUME 2013, PAGE 469, P.R.C.C.T., FROM WHICH A 1/2" IRON ROD FOUND BEARS N 00°06'35" E, 140.40 FEET;

THENCE ALONG THE EAST LINE OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE WEST RIGHT-OF-WAY LINE OF SAID PREMIER DRIVE, AS FOLLOWS:

- 1) S 00°06'35" W, 301.34 FEET TO A 1" IRON ROD FOUND, BEING THE BEGINNING OF A CURVE TO THE RIGHT;
 - 2) SOUTHWESTERLY, AN ARC LENGTH OF 222.24 FEET ALONG SAID CURVE TO THE RIGHT, HAVING A CENTRAL ANGLE OF 34°24'50", A RADIUS OF 370.00 FEET, AND A CHORD BEARING S 17°19'00" W, 218.91 FEET TO A POINT, FROM WHICH A 1/2" IRON ROD FOUND BEARS S 23°20' E, 0.6 FEET;
 - 3) S 34°31'25" W, 60.89 FEET TO A POINT, FROM WHICH A 1/2" IRON ROD FOUND BEARS S 34°31'25" W, 93.01 FEET;
- THENCE N 55°28'35" W, DEPARTING THE EAST LINE OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE WEST RIGHT-OF-WAY LINE OF SAID PREMIER DRIVE, 59.25 FEET TO A POINT;
- THENCE N 89°46'20" W, 183.95 FEET TO A POINT IN THE WEST LINE OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE EAST LINE OF BLOCK A, TREBURN ADDITION, AN ADDITION TO THE CITY OF PLANO, COLLIN COUNTY, TEXAS ACCORDING TO THE PLAT RECORDED IN CABINET G, PAGE 466, P.R.C.C.T.;
- THENCE N 00°06'35" E, ALONG THE WEST LINE OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE EAST LINE OF SAID BLOCK A, TREBURN ADDITION, 526.82 FEET TO A POINT, BEING THE NORTHWEST CORNER OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE SOUTHWEST CORNER OF SAID LOT 2, BLOCK A, MCCOY ADDITION;
- THENCE S 89°53'25" E, DEPARTING THE EAST LINE OF SAID BLOCK A, TREBURN ADDITION, AND ALONG THE NORTH LINE OF SAID LOT 2, BLOCK A, CENTRAL CENTER AND THE SOUTH LINE OF SAID LOT 2, BLOCK A, MCCOY ADDITION, 332.00 FEET TO THE PLACE OF BEGINNING AND CONTAINING 3.918 ACRES (170,673 SQUARE FEET) OF LAND, MORE OR LESS.

NOTES

1. APPROVAL OF THE ZONING CASE ASSOCIATED WITH THIS EXHIBIT SHALL NOT IMPLY APPROVAL OF ANY ASSOCIATED STUDY, PLAT, OR PLAN, APPROVAL OF DEVELOPMENT STANDARDS SHOWN HEREON, OR THE INITIATION OF THE DEVELOPMENT PROCESS. PLANNING & ZONING COMMISSION AND/OR CITY COUNCIL ACTION ON STUDIES PLATS, OR PLANS RELATING TO DEVELOPMENT OF THIS PROPERTY SHALL BE CONSIDERED AS AN ACTION SEPARATE FROM ACTION TAKEN ON THIS ZONING CASE.
2. ALL BEARINGS SHOWN HEREON ARE CORRELATED TO THE WEST LINE OF LOT 1, BLOCK A, CENTRAL CENTER AS SHOWN ON THE PLAT RECORDED IN CABINET F, PAGE 297, P.R.C.C.T.
3. THIS SURVEY WAS PREPARED WITHOUT BENEFIT OF A COPY OF COMMITMENT FOR TITLE INSURANCE.

OWNER / APPLICANT

GALA AT PREMIER, L.P.
2501 N. HARWOOD ST., Ste. 1520
DALLAS, TX 75201
CONTACT: RYAN COMBS
EMAIL: RCombs@garnercapital.com
PH: (314) 561-5900

ENGINEER / SURVEYOR

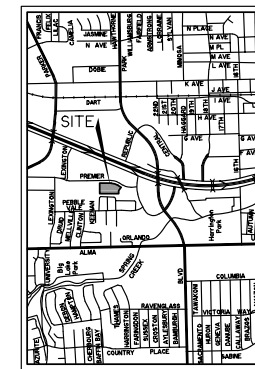
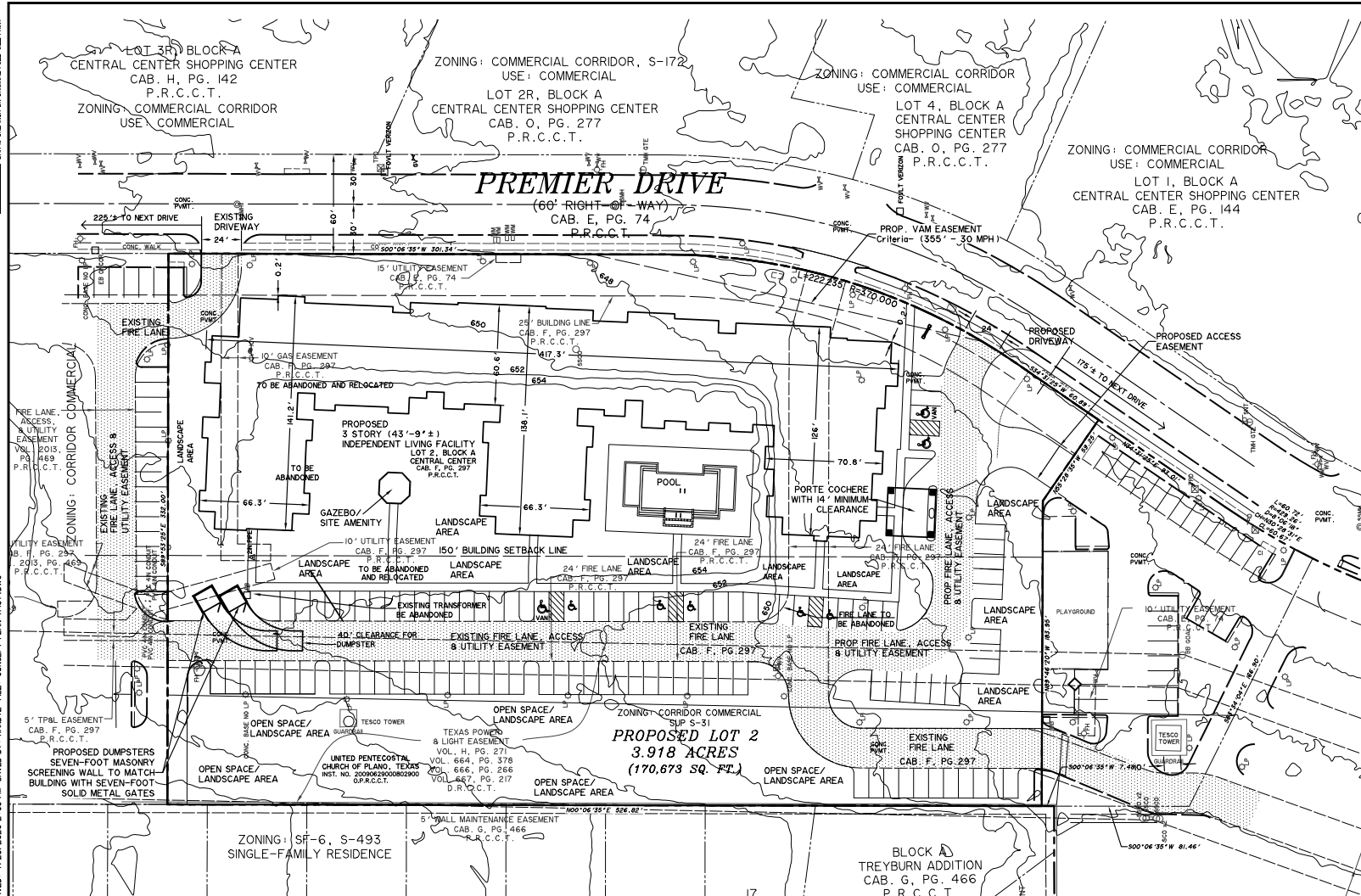
WIER & ASSOCIATES, INC.
2201 E. LAMAR BLVD., SUITE 200E
ARLINGTON, TEXAS 76006
CONTACT: RANDALL EARDLEY, P.E.
EMAIL: Randy@WierAssociates.com
PH: (817) 467-7700
FAX: (817) 467-7713

**ZONING EXHIBIT
CITY PROJECT #ZC2020-001
LOT 2, BLOCK A
CENTRAL CENTER**

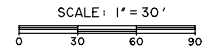
AN ADDITION TO THE CITY OF PLANO, COLLIN COUNTY, TEXAS
BEING 3.918 ACRES OF LAND LOCATED IN THE
JOHN M. SALMONS SURVEY, ABSTRACT NO. 814, COLLIN COUNTY, TEXAS

PREPARED BY:
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ENGINEERS SURVEYORS LAND PLANNERS
2201 E. LAMAR BLVD., SUITE 200E, ARLINGTON, TEXAS 76006 (817) 467-7700
Texas Firm Registration No. 1-2776 www.wierassociates.com
Texas Board of Professional Land Surveying Registration No. 1603390

PRINTED: 7/28/2020 5:18 PM FILE: WEB-PAVING STB LAST SAVED: 7/28/2020 2:53 PM SAVED BY: RANDY E. WIER ASSOCIATES, INC. CONCEPT PLAN-17187.DWG



VICINITY MAP
NOT TO SCALE



APPROVED
SUBJECT TO STIPULATIONS
AUGUST 3, 2020
CITY OF PLANO
P&Z COMMISSION

EXPIRES
AUGUST 3, 2022
CITY OF PLANO

**CITY PROJECT #CP2020-002
CONCEPT PLAN
LOT 2, BLOCK A
CENTRAL CENTER**

AN ADDITION TO THE CITY OF PLANO, COLLIN COUNTY, TEXAS
BEING 3.918 ACRES OF LAND LOCATED IN THE
JOHN M. SALMONS SURVEY, ABSTRACT NO. 814, COLLIN COUNTY, TEXAS

PREPARED BY:
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Texas State Professional Land Surveying License No. 0023290

SHEET 1 OF 1

DATE: 7/28/2020
W.A. No. 17187

ITEM	
GENERAL SITE DATA	
ZONING	LOT 1 BLOCK A
LAND USE	CORRIDOR COMMERCIAL
TOTAL BUILDING AREA	INDEPENDENT LIVING FACILITY
BUILDING FOOTPRINT AREA	3,918 ACRES (170,673 SQ. FT.)
BUILDING STORIES	112,007 SQ. FT.
BUILDING HEIGHT	37,648 SQ. FT.
LOT COVERAGE	3
FLOOR AREA RATIO	43'-9"
PARKING	22.06%
PARKING RATIO	0.655
REQUIRED PARKING (BY DWELLING UNITS)	1 SPACE PER DWELLING UNIT
PROVIDED ON-SITE PARKING	97
ACCESSIBLE PARKING REQUIRED	98
ACCESSIBLE PARKING PROVIDED	4
PARKING IN EXCESS OF 110% OF REQUIRED PARKING	8

OWNER / APPLICANT
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FAX: (817) 467-7713

July 30, 2020

Planning & Zoning Commission
City of Plano
1520 K Avenue
Plano, TX 75074

RE: ZC2020-001

Dear Commissioners,

I am writing this letter on behalf of the Gala at Premier, the Applicant in the matter referenced above, to request your support for the Special Use Permit requested on 3.9 acres on Premier Drive for an independent senior living community called Gala at Premier adjacent to the Life Central Church. For years we have been trying to bring high quality affordable housing for seniors to the west side of Plano as housing costs are simply leaving seniors there vulnerable and affordable housing is dramatically underserved.

The 3.9 acres we sit on is a small infill site immediately north of the Life Central Church. We have reached out to the Church and made arrangements whereby the Church will provide recreational and support services to the residents of the Gala at Premier. We have also reached out to the residents in the adjacent neighborhood to the west and, at their request, designed the site to push our proposed building as far east on the site as possible. Our building ends up 150 feet away from their property line and because of the proximity, limits any visual impact to those neighbors. We have included a proximity slope diagram in our package that shows that we will have no visual impact on our neighbors. We will be a great neighbor for both the Church and the adjacent neighborhood.

As indicated by City Staff, our property falls within the EHA-1 area which says that sensitive land uses are appropriate if satisfactory mitigation is achieved. We have mitigated all areas of our property per the EHA-1 guidelines for indoor noise and outdoor noise in all areas where residents can congregate. The building does not include balconies or porches and we have defined specific building materials and standards to bring our interior noise levels to an acceptable level throughout the property. The rear of the proposed building is located in an area in which the noise levels fall below the City standards for exterior noise. It is in these areas in which we have located the outdoor amenities. The only areas of the site where the outdoor noise is above 65 dbA are areas where seniors will not be congregating, like the already existing sidewalk at the front of the property, and therefore will not affect their quality of life. It is of utmost importance to us that our residents maintain a high quality of life and we believe we are providing such with our plan. We hope this mitigation can be considered.

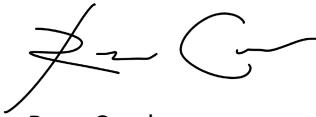
Further, our proposed building is approximately **450** feet from the outer edge of the US 75 main highway lanes. The City of Plano's Expressway Corridor Environmental Health Study states that exposure to highway-based air pollutants is greatly reduced at approximately **300** feet from the expressway edge.

Taking into consideration surrounding uses, nearby amenities, and the transportation system near this property, independent living is an ideal use for this property. Additionally, the nearby amenities and services, as well as the site design, add to a high quality of life for our prospective residents. Further, an independent living use is more compatible to the Church and adjacent single family neighborhood than other uses permitted by right on the property. The Commercial Corridor zoning allows by right uses like light manufacturing, veterinary clinics, vehicle sales, hotels, office and other uses that are not suitable adjacent to a church, a childcare center and single family housing. Independent senior living is the use that fits best in this environment and on this specific site.

We have a unique opportunity to place affordable senior housing on land adjacent to a church that will provide supportive services and one that is within walking distance of restaurants and transportation. With the convenient on-site and nearby amenities, and extremely high quality construction, we are providing a high quality of life for our future residents. Therefore, we respectfully request a recommendation of approval to our request.

Thank you for your attention to this matter.

Sincerely,

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

Ryan Combs
Gala at Premier, LP

GALA AT PREMIER ENVIRONMENTAL HEALTH AREA SITE ANALYSIS – ACOUSTIC ASSESSMENT

Prepared by: Emily Piersol, P.E.
Wrightson, Johnson, Haddon, and Williams, Inc.
20 July 2020

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EXECUTIVE SUMMARY

Wrightson, Johnson, Haddon, & Williams, Inc. was retained to perform an Environmental Health Area Site Analysis regarding the acoustic conditions for the proposed Gala at Premier Independent Senior Living Facility located at the northwest corner of Enterprise Dr and Premier Dr in Plano, TX. Noise level measurements were performed at the site over a 48-hour period from July 8-10; the recorded noise level during the measurement period was 72 dBA Ldn on both days. Further noise measurements were performed over a 15-minute period on July 10 and were accompanied by traffic counts along US-75 to compare and calibrate the FHWA noise model to site specific conditions. Noise modeling performed in SoundPlan with the FHWA TNM procedure, using projected traffic data from 2040, confirms that noise levels across the site are anticipated to be 65-71 dBA Ldn. This is consistent with Expressway Corridor Environmental Health Area One; per the City of Plano Expressway Corridor Environmental Health Guidelines, sensitive land uses are considered appropriate in EHA-1 if satisfactory mitigation is achieved.

The siting of the building provides a barrier effect so that the maximum outdoor noise level in the area of all outdoor amenities are less than 60 dBA Ldn, therefore meeting the City's requirements. At the building façade, maximum Ldn values are predicted to be 71 dBA on the east side, 66 dBA on the north side, 68 dBA on the south side, and 57 dBA on the west side. The building construction will provide for interior noise levels of 45 dBA or less if the STC ratings included in this report are met; several assemblies are provided for the wall and glazing constructions to meet these requirements.

PROJECT OVERVIEW

The Gala at Premier independent senior living center is a 3-story building located within the City of Plano's Expressway Corridor Environmental Health Area One (EHA-1). This acoustic assessment provides a prediction of future noise levels using 2040 projected traffic and 3-D noise modeling software to show the noise levels over the entire property and prescribing the building envelope elements required to meet the interior noise level goals.

ACOUSTICS TERMINOLOGY AND DEFINITIONS

The following definitions are relevant to this discussion.

Sound Pressure Level (SPL) – The logarithmic value of the measured sound pressure to a standard reference value. SPL describes how loud a sound is perceived and is measured in decibels.

Decibel (dB) – The unit of measure of sound pressure level. dB is the logarithmic ratio of the measured sound pressure level to a standard value (p_{ref}). The reference sound pressure level (p_{ref}) used in acoustics is 2×10^{-5} Pa.

Decibel A-weighted (dBA) – The A-weighted sound pressure level. A-weighting attempts to simulate the unequal sensitivity of human hearing at various frequencies. This weighting system generally reduces the impact of low frequency sound as human hearing is less sensitive to lower frequencies. The City of Allen's noise ordinance is based on dB(A) criteria.

Hourly Equivalent Sound Level (Leq) – The average sound level measured over an hour period. This measurement is the foundation for community noise level measurements as it is generally well-correlated with disturbances due to noise events.

Day/Night Average Noise Level (Ldn or DNL) – The average of the hourly Leq sound levels over a 24-hour period, with a +10 dB weighting (penalty) applied to sounds during nighttime hours (10 pm – 7 am). The nighttime penalty is applied because people respond to nighttime noise events as though they are twice as loud as daytime exposures, and a 10 dB increase/decrease in noise level is generally experienced as a doubling/halving of loudness.

Sound Transmission Class (STC) – A single-number classification for noise isolation of a barrier material (e.g. partition or door) construction. Higher STC values relate to higher sound isolation

APPLICABLE NOISE STANDARDS

The City of Plano Expressway Corridor Environmental Health Study, ordinance number 2019-10-8, defines health areas based on the anticipated outdoor noise levels due to transportation noise sources.

Expressway Corridor Environmental Health Area One (EHA-1) contains properties where outdoor noise levels are greater than or equal to 65 dBA L_{dn} and less than 75 dBA L_{dn} . Sensitive Land uses are appropriate in EHA-1 if satisfactory mitigation is achieved. Expressway Corridor Environmental Health Area Two (EHA-2) contains properties where outdoor noise levels are greater than or equal to 75 dBA L_{dn} . Sensitive land uses are generally inappropriate in EHA-2, but may be appropriate if satisfactory mitigation is achieved.

Satisfactory mitigation provided within the environmental health guidelines include:

1. Locating the sensitive land use further away from the expressway
2. Placing buildings or parking structure between the sensitive land use and the expressway to function as a barrier.

3. Adjusting the site design so that bedrooms, balconies, and open space are located further from and facing away from the expressway.
4. Providing indoor air quality filtration systems that reduce at least 90 percent of particulate matter emissions.
5. Locating building air intake vents as far away from the expressway as practical.
6. Enhancing the building design using improved window, door, and wall material and/or treatments.

SITE NOISE EVALUATION

WJHW performed noise levels measurements at the project property from Wednesday, July 8, 2020 to Friday, July 10, 2020 to determine the current noise levels on site and to calibrate the SoundPlan FHWA noise model to measured levels. The measurement locations are shown in Figure 1 below.

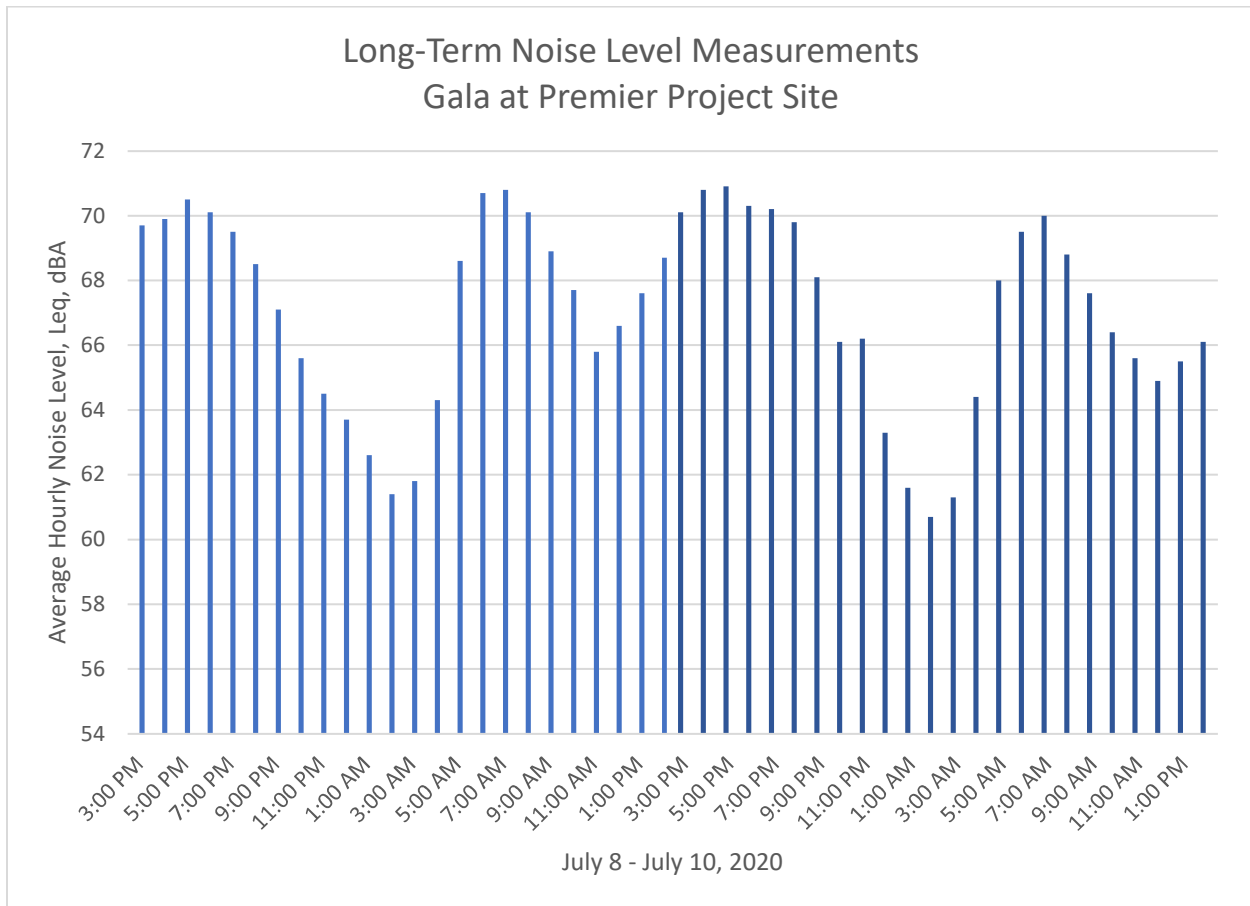
Figure 1: Measurement Locations



At measurement location 1, a noise level meter was left for a 48-hour period in order to measure the day-night average noise levels (Ldn) on the site. The measurement system used was an NTi XL2 sound level analyzer equipped with an NTi M2230 ½-inch microphone; this represents Class 1 instrumentation per ANSI standards. The microphone was equipped with a windscreen and was mounted at 8 ft. AFF, affixed to a light pole.

The measured hourly Leqs are presented in Figure 2 below. The calculated Ldn (which includes a 10 dBA penalty for noise at night - i.e. between 10pm and 7am) was 72 dBA from July 8-9, and 72 dBA from July 9-10. The primary noise source observed during the setup of the equipment was traffic along US-75, but occasional traffic along Premier drive and insect/frog/bird noise also contributed. Activity at the collision repair center was audible, but was at a lower level than the traffic noise.

Figure 2: Long Term Noise Level Measurements



At measurement locations 2 & 3, a 15-minute average noise level measurement (Leq) was performed while also counting the traffic along US-75 southbound and the US-75 southbound frontage road. The measurement system used were two NTi XL2 sound level analyzer equipped with an NTi M2230 ½-inch microphone; this represents Class 1 instrumentation per ANSI standards. The microphones were equipped with windscreens and were mounted on tripods at approximately 5 feet high.

The traffic counts during this period were input into the SoundPlan FHWA noise model (described in the following section) to calibrate the model to this specific site. The results of the noise level measurements and the model calibration are presented in Table 1 below. Because the calculated results were within 3 dBA of the measured levels, no correction factor is needed.

Table 1: Traffic Calibration Noise Measurements

Measurement Location	15-minute Leq, dBA	
	Measured	Calculated
2	64	67
3	64	65

NOISE MODELING

WJHW's noise modeling was completed using SoundPlan™, an industry standard environmental sound modeling software. This software analyzes environmental sound propagation using inputs such as sound sources and locations, exterior barriers (include buildings and walls), ground absorption, and other environmental factors. WJHW modeled the proposed building based on the site and building plans provided by the project architect. Topographical information was modeled from Google Maps GIS data and aerial imagery. The noise modeling for the site includes assumptions on the building heights for the surrounding properties; we have assumed the two-story shopping center to be 20 feet tall and the single-story buildings around the project site to be 13 feet tall. Excluded from the sound modeling were ambient sound levels on site, the sound produced by mechanical equipment or other building services, and atmospheric effects such as wind.

Traffic noise sources identified for the site as part of the expressway corridor noise study are US-75 and the US-75 northbound and southbound frontage roads. The traffic data used for the analysis are 2017/2018 traffic and the projections of 2040 traffic along US-75 and the frontage roads included in the City of Plano Environmental Health Assessment report (prepared by HMMH). The average traffic speeds were assumed to be the posted speed limits (70 mph on US-75, 50 mph on the frontage roads). The percentage of automobiles, medium trucks, and heavy trucks, and the traffic volume histograms (the percentage of daytime and nighttime traffic) was provided by HMMH. Noise levels due to traffic were calculated using the FHWA Traffic Noise Model v2.5 calculations (corrected) in SoundPlan.

The output of the modeling software is a series of sound contours indicating A-weighted decibel levels overlaid on an aerial view of the site. To calculate the interior noise levels, octave band sound levels were also calculated at several locations around the building façade, on all three levels of the building. These levels are included in Appendix A for your reference.

Figure 3 below presents the calculated existing noise condition, with traffic levels from 2017/2018 and no buildings on site. Figure 4 shows the calculated sound contours with 2040 traffic levels with no buildings on the site, and Figure 5 shows the calculated sound contours with the proposed senior living center on the site. While the predicted noise levels on the east side of the property are greater than 65 dBA, that portion of the property includes only the east façade of the building and a sidewalk with no outdoor gathering spaces, porches, or balconies. The levels at the outdoor amenity areas (within the wings of the building on the west side of the property) are less than 60 dBA. In addition to meeting the City of Plano guidelines for noise mitigation, the shielding of the amenity areas follows HUD guidelines for exterior noise levels.

Figure 3: Day/Night Average Noise Level Contours – Empty Site
2017/2018 Traffic Volumes

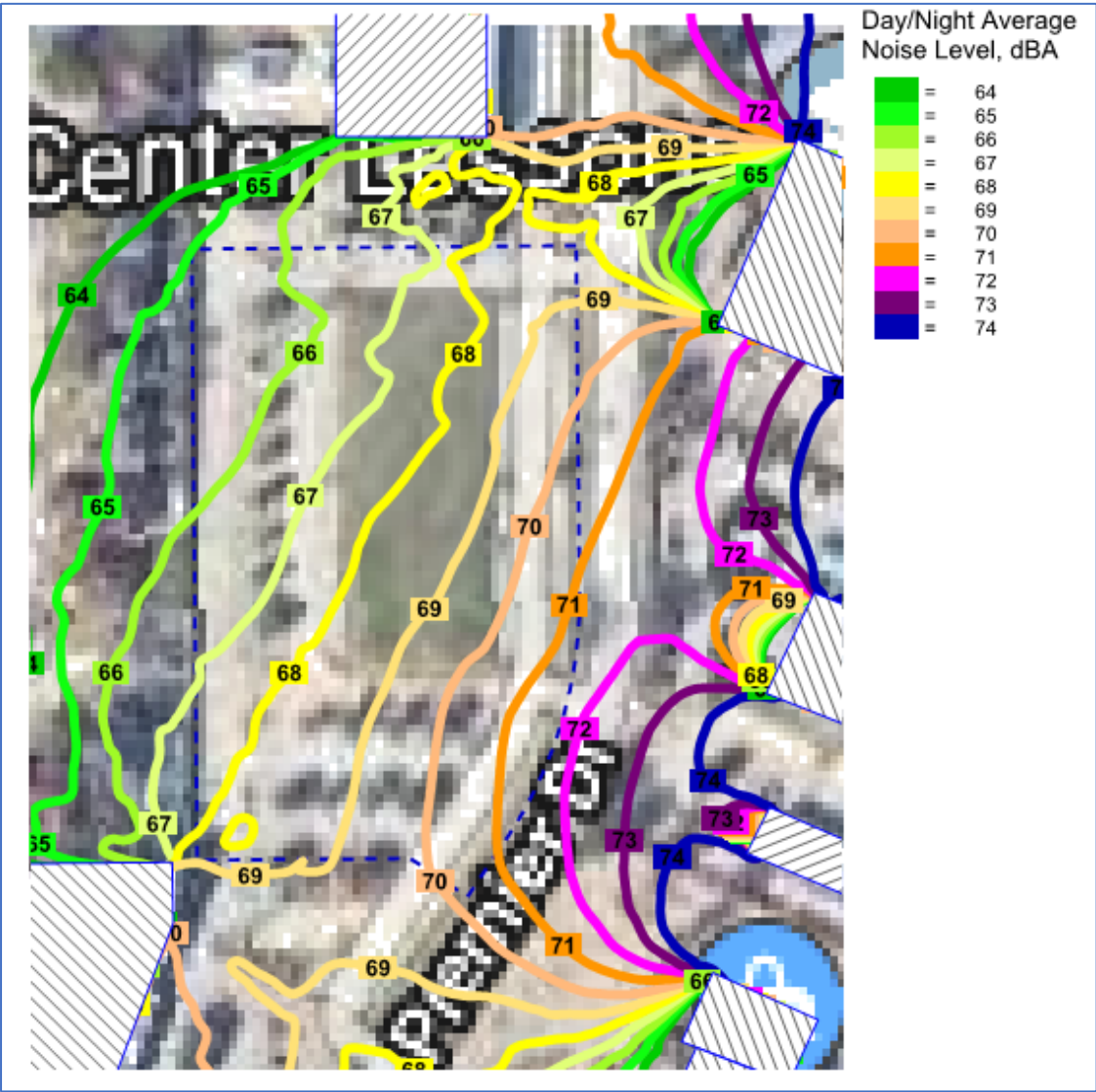


Figure 4: Day/Night Average Noise Level Contours – Empty Site
2040 Traffic Projections

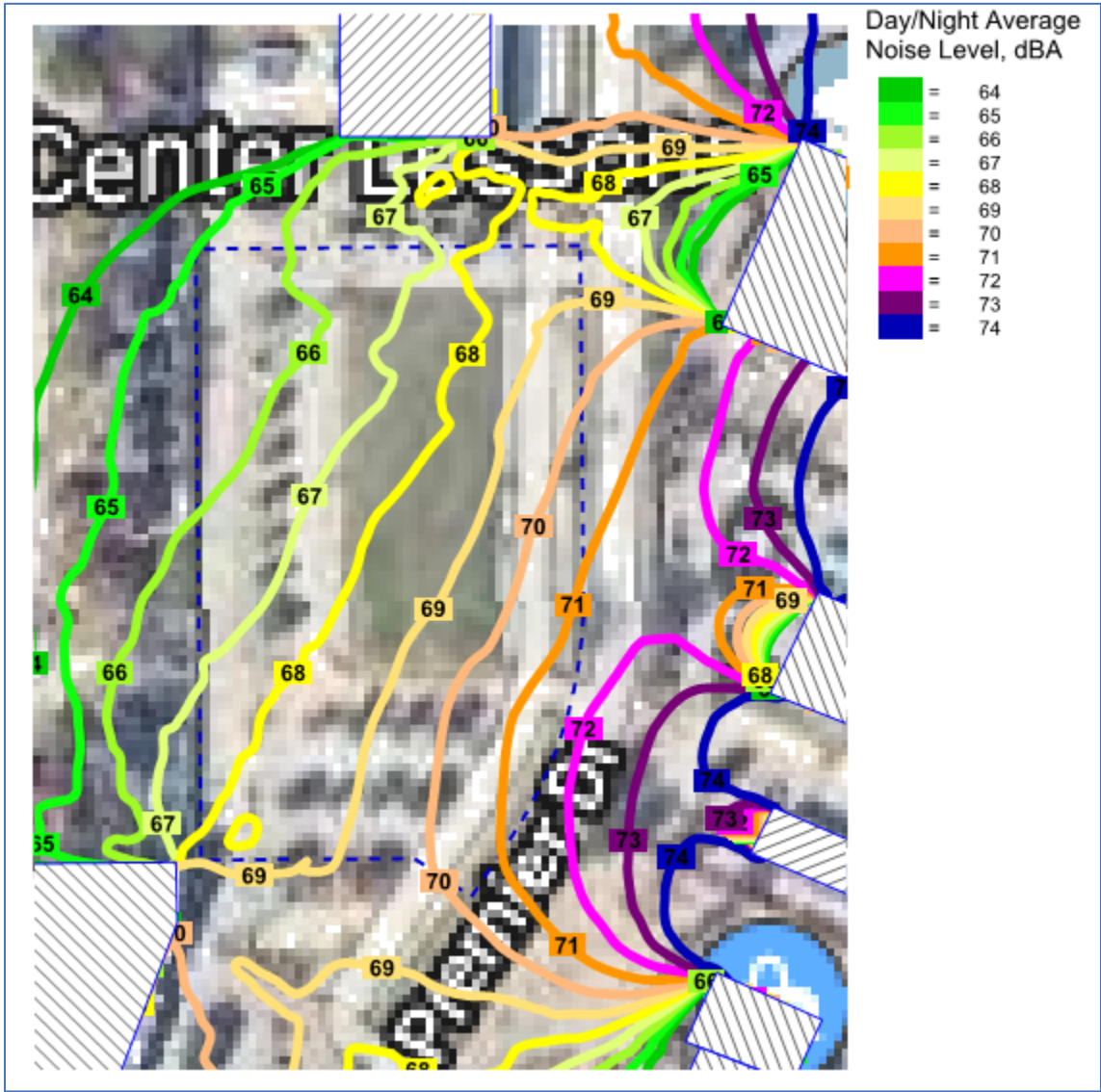
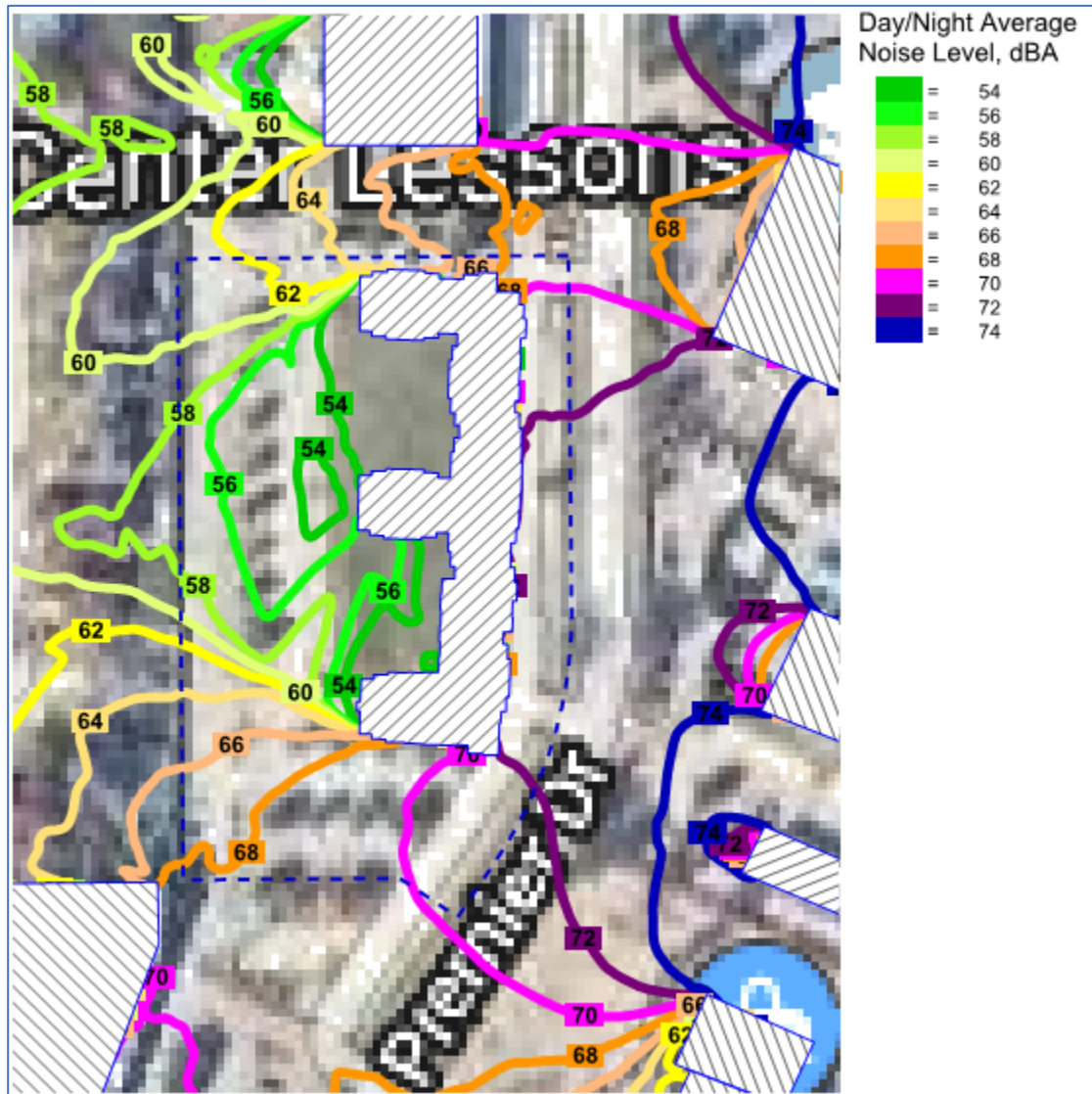


Figure 5: Day/Night Average Noise Level Contours
2040 Traffic Projections



Along the building façade, the highest noise levels were calculated at the southeast corner of the building, with levels of 71 dBA at the first floor, 71 dBA at the second floor, and 71 dBA at the third floor. There are no balconies or porches so no residents will be impacted by these outdoor noise levels at the front of the property. These levels are, however, relevant to designing the appropriate building isolation to ensure that interior noise levels are appropriately quiet.

A full table of the calculated noise levels at all units and all floors of the building is included in Appendix A for your reference.

NOISE REDUCTION THROUGH BUILDING SHELL CONSTRUCTION

Two locations were identified as the worst-case locations for exterior to interior noise intrusion; Unit A1 at the SE corner of the building is exposed to the highest noise levels on the site and Unit B1 on the NE corner of the building has the greatest exterior wall area to allow for noise transmission. These spaces are highlighted in Figure 6, below. The interior noise levels were calculated for the third-floor units, as

they have the additional exterior noise transmission path of the roof. At unit A1, interior noise levels were calculated in the great room and the bedroom. At unit B1, interior noise levels were calculated in the living room and bedroom #2. The preliminary unit floor plans are shown in Figure 7 and Figure 8 below, respectively.

Figure 6: Gala at Premier Site Plan

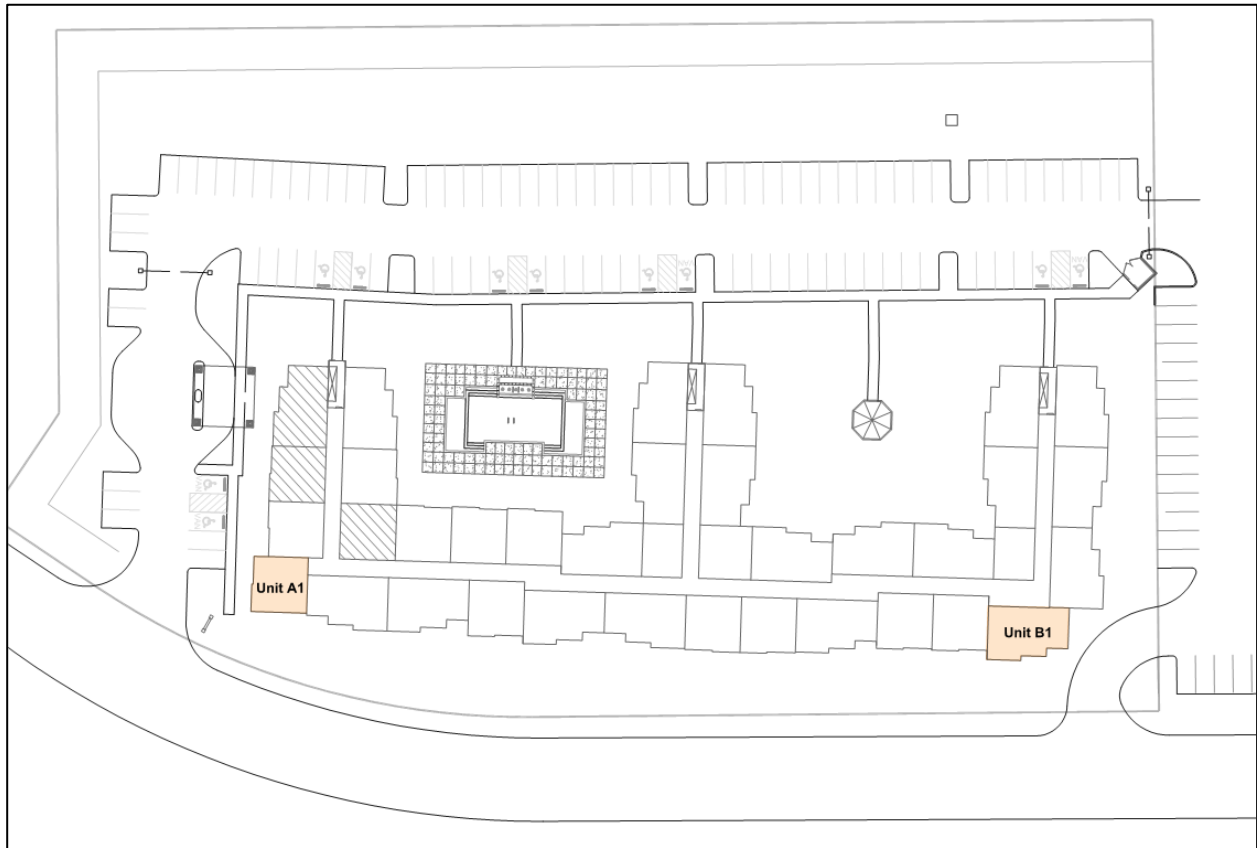
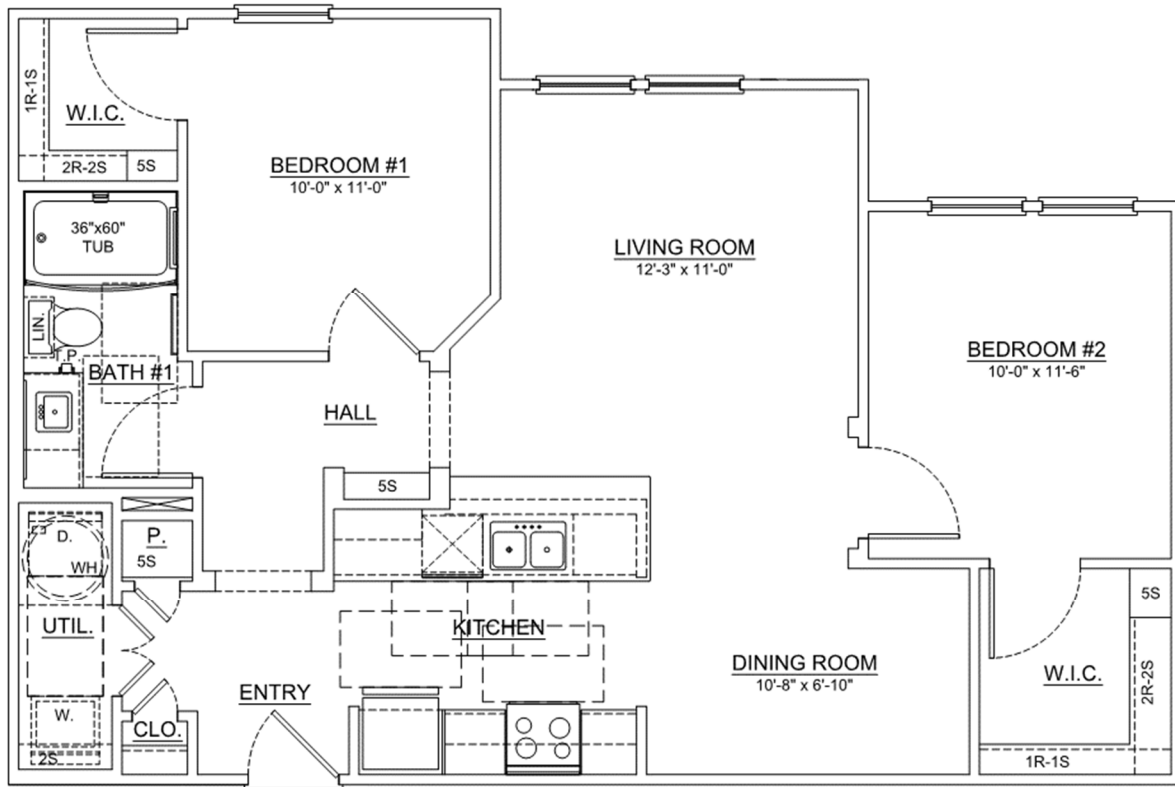


Figure 8: Unit B1 Plan



B1- TWO BEDROOM, ONE BATH

900 S.F.

To calculate the interior noise levels, one-third octave band sound levels at the building façade were gathered from the SoundPlan noise model. The noise reduction into the building was calculated through a weighted average of the noise reduction provided by each building element (windows, exterior walls, roof) based on the surface area of those elements. A 2 dB penalty on the noise isolation was included to account for the operable windows and any construction deficiencies. The effect of the interior finishes of the rooms on the noise levels is also incorporated.

Information regarding the exterior constructions was provided in the Architectural Noise Assessment dated March 27, 2020 and in further email conversations between Cross Architects and WJHW. Minimum STC ratings for those assemblies are included in Table 2 below. Interior finishes in the living room and great room are gypsum board walls and ceilings and hard flooring. Interior finishes in the bedrooms are gypsum board walls and ceilings and carpeted flooring. For the calculations, rooms were assumed to be furnished.

Table 2: Building Element Sound Isolation

Assembly	Min. STC
Wall	
5/8-inch gypsum sheathing on the exterior side of nominal 4-inch deep wood studs with batt insulation in the cavity. At the interior, 5/8-inch type X gypsum board will be supported on resilient channels	47
5/8-inch gypsum sheathing on the exterior side of nominal 6-inch deep wood studs with batt insulation in the cavity. At the interior, 5/8-inch type X gypsum board will be supported on resilient channels	48
Roof	
19/32-inch OSB roof deck with 30-year asphalt shingles, 6-inch minimum thickness batt or loose fill insulation (R-19), 5/8" gypsum board ceilings	38
Window	
1/2-inch thick monolithic glass	36
1/2-inch thick laminated glass	36
1-inch insulating glass (1/4-inch thick glass, 1/2-inch airspace, 1/4-thick glass)	35
1-inch laminated insulating glass (1/4-inch thick laminated glass, 1/2-inch airspace, 1/4-thick glass)	39

A full calculation summary is presented in Appendix B for your reference; the calculations were performed with the STC 35 glazing, STC 47 exterior wall, and STC 38 roof construction. Including higher performance isolation elements (larger stud cavities, thicker insulation, additional facing materials on top of the sheathing, or better isolating glass) will further reduce the interior noise levels. Summarized results are included in Table 3, below.

Table 3: Interior Noise Levels

Room	Interior Noise Level (Ldn)
Unit A1, Third Floor, Great Room	42 dBA
Unit A1, Third Floor, Bedroom	42 dBA
Unit B1, Third Floor, Living Room	39 dBA
Unit B1, Third Floor, Bedroom	40 dBA

The constructions modeled allow the building to meet the HUD goals for interior noise levels of less than 45 dBA Ldn. The HUD guidelines are an industry standard for residences built near traffic sources, and the limit of 45 dBA is considered to reduce disturbances to daily life.

As a general comment, the best way to ensure that the interior noise level requirements are met in practice is to follow good construction practices for sound isolation. The exterior façade should be free of cracks, and all penetrations in the building exterior (electrical conduit, ductwork, etc.) should be fully sealed with caulk or acoustical sealant. All interior layers of gypsum board should be fully sealed at all horizontal and vertical perimeter joints.

OTHER ARCHITECTURAL CONSIDERATIONS

In addition to the acoustical mitigation that has been described above, other architectural elements have been included to reduce the environmental impact of a building situated within the expressway corridor and improve the resident's quality of life. From the Cross Architects Memorandum dated 27 March 2020, these items include:

- *Mechanical ventilation should be of a type and design that provides adequate environmental comfort with all doors and windows closed during all seasons.*
- *Design of system should include air intakes and air installation in locations on the interior of the community or furthest away from the roadway corridor as practical.*
- *Vent openings in attic or crawl spaces should be the minimum number and size necessary to provide proper ventilation.*
- *Coated glass fiber duct liner at least one inch thick should be used on a return air duct.*

Studies provided to the City of Plano Planning Department by Harris Miller Miller & Hanson, Inc. (HMMH) indicate most traffic-related air pollution disperses within 350 to 500 feet of the outer edge of an expressway. As identified in the City of Plano's Expressway Corridor Environmental Health Study, exposure to highway-based air pollutants is greatly reduced at approximately 300 feet from the expressway edge and that exposure can be further mitigated through design of building ventilation system.

At its closest point, the boundary of the proposed senior living center property line is located approximately 450 feet from the outer edge of the main highway lanes. The building itself would also be setback an additional 25 feet from the property line. The architectural elements listed above will provide further air quality mitigation.

CONCLUSIONS

Average noise levels across the site, based on 2040 traffic counts, are predicted to be 70-74 dBA Ldn at the ground floor; regardless of where the building is situated on the lot, the exterior noise levels will exceed the City of Plano's goal to have sensitive uses within the 65 Ldn contour. These levels are higher than shown in the City of Plano Expressway Corridor map; our intent with using modeling assumptions that lead to higher exterior noise levels is to ensure that the building design provides appropriate mitigation both to the exterior amenity areas and the interior residential areas when a worst-case situation is considered. The outdoor "occupied spaces" consisting of the pool, pavilion, and other amenities have been shielded by the building and are predicted to have noise levels of less than 60 dBA Ldn. Therefore, the site plan has met HUD noise mitigation standards and has provided a plan where noise levels above 65 dBA are limited to areas of the property, particularly the front of the property, where residents will not congregate outdoors. The interior noise levels due to traffic noise sources will be 45 dBA Ldn or less throughout the building utilizing the included recommended architectural standards. Again, this meets the HUD guidelines for interior noise levels appropriate for reduced noise disturbance to daily life.

APPENDIX A

EXTERIOR NOISE LEVELS

Figure A1: Exterior Noise Level Calculation Locations

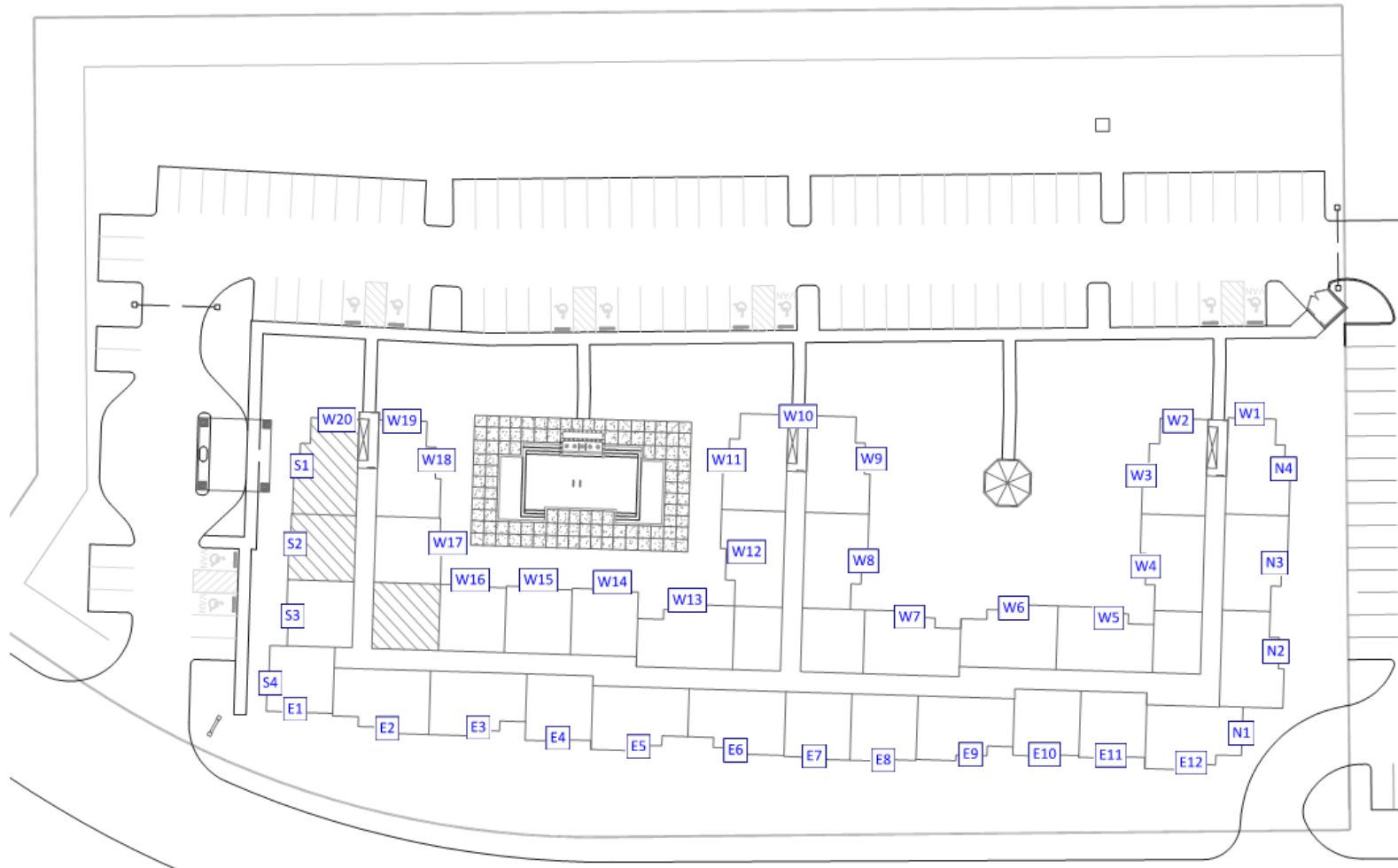


Table A1: Exterior Day/Night Average Sound Level in One-Third Octave Bands

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
E1	F1	71	68	67	65	65	64	64	64	64	63	62	60	57	55	52	47	43
	F2	71	68	67	65	64	64	63	64	64	63	62	61	58	56	53	49	44
	F3	71	68	67	65	64	63	63	64	64	63	63	61	59	56	53	50	45
E2	F1	71	68	67	66	65	64	64	64	65	63	62	60	57	55	52	47	42
	F2	71	68	67	65	64	64	63	64	64	63	62	60	58	55	52	49	44
	F3	71	68	67	65	64	63	63	64	64	63	63	61	59	56	53	49	45
E3	F1	70	68	66	65	65	64	63	64	64	62	62	60	57	54	51	47	41
	F2	70	68	66	65	64	63	63	64	64	62	62	60	58	55	52	48	43
	F3	70	68	66	65	64	63	63	64	63	63	63	60	58	56	52	49	44
E4	F1	70	68	66	65	65	64	63	64	64	62	62	59	57	54	51	47	41
	F2	70	68	66	65	64	63	63	64	64	62	62	60	58	55	52	48	43
	F3	70	68	67	65	64	63	63	64	63	63	62	60	58	56	52	49	44
E5	F1	70	67	66	65	64	64	63	64	64	62	62	59	57	54	50	47	41
	F2	70	68	66	65	64	63	63	64	64	62	62	60	57	55	51	48	42
	F3	70	68	66	65	64	63	63	63	63	62	62	60	58	55	52	48	43
E6	F1	70	68	66	65	64	64	63	64	64	62	62	59	56	54	50	47	40
	F2	70	68	66	65	64	63	63	63	63	62	62	60	57	55	51	48	42
	F3	70	68	67	65	64	63	63	63	63	62	62	60	58	55	52	48	43
E7	F1	70	67	66	65	64	63	63	64	64	62	61	59	56	53	50	47	40
	F2	70	68	66	65	64	63	63	63	63	62	61	59	57	55	51	48	42
	F3	70	68	66	65	63	63	62	63	63	62	62	60	57	55	52	48	43

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
E8	F1	70	67	66	65	64	63	63	64	64	62	61	59	56	53	49	46	40
	F2	70	67	66	65	64	63	63	63	63	62	61	60	57	55	51	47	42
	F3	70	68	66	65	64	63	62	63	63	62	62	60	57	55	52	48	43
E9	F1	70	67	65	64	64	63	62	64	64	62	61	59	56	53	49	46	40
	F2	70	67	66	64	64	63	62	63	63	62	61	59	57	54	50	47	42
	F3	70	67	66	65	63	63	62	63	63	62	61	60	57	55	51	47	42
E10	F1	69	67	66	64	64	63	62	63	64	62	61	58	55	53	49	45	40
	F2	69	67	66	65	64	63	62	63	63	61	61	59	57	54	50	47	42
	F3	70	68	66	65	63	63	62	63	63	62	61	60	57	55	52	47	42
E11	F1	70	67	66	65	64	63	63	64	64	62	61	59	56	52	48	45	40
	F2	70	68	66	65	64	63	63	63	63	62	61	59	57	54	50	47	42
	F3	70	68	66	65	64	63	62	63	63	62	62	60	58	55	52	48	42
E12	F1	69	66	65	63	63	62	62	63	63	61	60	58	55	51	47	43	39
	F2	69	66	65	64	63	62	62	62	62	61	60	58	56	53	49	45	41
	F3	69	67	65	64	63	62	61	62	62	61	61	59	56	54	51	46	41
N1	F1	66	64	62	61	61	60	59	60	60	58	58	55	52	47	41	34	28
	F2	66	65	63	62	61	60	59	60	60	58	57	54	51	47	43	40	32
	F3	66	65	64	62	61	60	59	60	60	58	58	55	53	50	46	42	36
N2	F1	64	61	60	59	58	58	57	58	58	56	56	53	50	46	40	31	24
	F2	63	62	61	59	58	57	56	57	57	55	54	52	48	45	41	37	31
	F3	63	63	61	60	58	57	56	57	57	55	55	53	50	47	43	39	33
N3	F1	63	62	60	59	57	56	56	56	56	54	54	52	49	45	38	28	21
	F2	62	63	61	59	57	56	55	56	56	54	53	50	46	43	38	35	29
	F3	63	63	62	60	57	56	56	56	56	54	54	52	49	46	42	38	33

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
N4	F1	62	61	60	58	57	56	55	56	56	54	54	52	48	44	37	28	20
	F2	61	62	60	59	57	56	55	55	55	53	52	49	46	42	38	34	28
	F3	62	62	60	59	57	56	55	55	55	53	53	50	48	44	41	36	31
S1	F1	64	63	62	60	59	58	57	58	58	57	56	54	51	48	45	41	34
	F2	64	63	62	60	58	57	57	57	57	56	56	54	52	49	46	43	37
	F3	65	64	62	60	58	57	57	58	58	57	57	55	53	50	46	43	39
S2	F1	67	65	63	62	61	60	60	60	60	59	58	56	53	51	47	43	37
	F2	66	65	63	62	60	59	59	59	59	58	58	56	54	51	48	45	39
	F3	67	65	63	62	60	59	59	60	60	59	59	57	55	52	49	46	41
S3	F1	66	65	63	62	61	60	59	60	60	58	58	56	53	51	47	43	37
	F2	66	65	63	62	60	59	58	59	59	58	58	56	54	51	48	45	39
	F3	67	65	63	62	60	59	59	60	59	59	59	57	55	52	48	45	41
S4	F1	68	66	64	63	63	62	61	62	62	60	60	57	55	53	49	45	40
	F2	68	66	64	63	62	61	60	61	61	60	60	58	56	53	50	46	42
	F3	68	66	64	63	61	60	60	61	61	61	60	58	56	54	50	47	43
W1	F1	48	55	53	51	43	39	36	36	37	36	34	28	25	21	14	7	-1
	F2	49	56	54	51	44	42	41	40	39	36	34	30	26	24	19	15	6
	F3	51	57	55	53	47	45	44	43	42	39	37	34	31	28	23	17	9
W2	F1	48	55	53	50	39	39	40	41	37	33	34	27	24	21	14	8	-1
	F2	48	56	54	51	42	42	40	40	39	35	33	30	26	23	20	15	7
	F3	51	57	55	53	47	45	43	42	41	38	37	34	31	28	22	16	9
W3	F1	51	58	56	54	47	44	39	41	40	39	36	30	29	25	20	12	4
	F2	51	57	55	53	48	45	45	43	43	39	37	33	31	27	23	17	9
	F3	54	58	57	55	51	50	49	48	47	44	42	39	36	32	27	21	13

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
W4	F1	50	56	54	52	45	42	42	41	41	38	36	31	28	24	19	13	4
	F2	50	57	55	53	46	45	44	43	42	39	36	34	30	26	21	15	7
	F3	54	59	57	55	51	50	48	48	47	43	42	38	35	31	26	21	13
W5	F1	47	51	50	48	45	40	40	41	40	34	33	30	26	23	18	10	3
	F2	49	55	53	51	46	43	41	42	40	37	35	32	28	24	19	13	5
	F3	53	59	57	55	49	47	46	46	44	41	39	36	32	28	23	18	10
W6	F1	46	50	48	46	45	39	40	41	39	35	34	30	26	23	16	10	3
	F2	49	55	53	51	45	43	41	41	40	38	36	32	28	25	20	15	7
	F3	52	59	57	55	48	47	45	45	43	40	39	36	32	28	24	18	10
W7	F1	48	52	50	48	46	42	42	42	42	38	36	32	28	24	18	11	4
	F2	50	55	53	51	46	45	43	43	42	39	38	35	31	27	23	18	11
	F3	53	59	57	55	49	48	46	46	44	42	40	37	34	31	26	20	12
W8	F1	49	54	52	50	45	44	42	41	41	38	35	31	27	24	19	12	5
	F2	51	57	55	53	48	45	43	43	41	38	36	33	29	26	21	16	8
	F3	54	59	57	55	51	50	48	47	46	43	42	38	34	31	26	20	13
W9	F1	50	56	54	52	47	44	43	41	41	36	36	31	27	24	18	12	4
	F2	51	56	54	52	48	45	44	43	42	39	37	33	30	26	20	15	6
	F3	55	60	58	56	51	50	49	48	47	44	42	39	35	31	26	20	12
W10	F1	53	52	50	49	49	47	47	48	47	45	44	42	38	33	26	19	14
	F2	53	55	54	52	49	47	46	47	47	45	44	41	38	34	30	26	18
	F3	54	58	56	54	50	48	48	48	47	45	44	42	39	36	32	26	19
W11	F1	55	57	56	54	50	49	49	49	49	47	46	43	39	35	28	21	16
	F2	55	56	55	53	51	50	48	49	49	47	46	43	40	36	32	28	20
	F3	57	60	58	56	53	52	51	51	50	48	47	44	41	39	34	28	22

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
W12	F1	51	56	54	52	48	46	45	45	44	41	40	37	33	29	23	17	11
	F2	52	57	55	53	48	47	45	45	44	41	40	37	34	31	26	22	13
	F3	55	59	57	55	51	50	48	48	47	45	44	41	38	34	30	25	18
W13	F1	48	52	50	48	44	45	42	42	40	37	35	31	27	23	18	13	5
	F2	49	55	53	51	46	44	42	42	39	37	35	33	30	26	21	15	7
	F3	53	59	57	55	49	47	45	45	44	42	41	38	34	31	27	22	14
W14	F1	50	52	50	48	46	46	44	44	44	41	40	37	33	29	23	17	12
	F2	51	55	53	51	47	45	44	44	43	41	40	38	34	31	26	22	14
	F3	54	59	57	55	49	48	46	46	45	43	42	39	36	34	29	24	17
W15	F1	51	51	49	48	47	45	44	45	45	43	42	39	35	30	24	17	12
	F2	51	53	52	50	47	46	45	45	45	43	42	39	36	32	28	24	15
	F3	54	58	56	54	49	48	47	47	46	44	43	40	37	34	30	24	17
W16	F1	54	53	51	50	50	49	48	48	48	46	45	42	38	33	26	20	15
	F2	54	54	52	51	50	49	48	48	48	46	45	42	39	35	31	27	19
	F3	55	58	56	54	51	50	49	49	48	46	45	43	40	37	33	27	19
W17	F1	50	53	51	49	46	46	44	45	44	41	40	37	33	28	22	16	11
	F2	51	56	54	52	48	46	45	45	44	42	40	38	34	30	26	22	14
	F3	54	58	56	54	51	50	48	48	47	45	43	40	37	33	29	23	16
W18	F1	50	55	53	51	46	45	43	44	43	40	38	35	31	26	21	15	9
	F2	51	55	53	51	48	46	44	45	44	41	39	36	33	29	24	19	11
	F3	56	60	58	56	52	51	49	49	48	46	44	41	37	33	29	23	15
W19	F1	47	53	51	49	45	44	41	40	39	36	33	29	26	23	18	14	5
	F2	48	53	51	49	45	43	41	40	38	36	35	33	29	25	21	14	9
	F3	52	58	56	53	47	46	44	43	43	42	40	36	34	31	26	21	14

			Exterior Day/Night Average Sound Level, dB															
			One-Third Octave Center Frequencies															
Location	Floor	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
W20	F1	49	54	52	50	47	45	43	43	42	38	35	31	28	25	22	19	13
	F2	50	55	53	51	47	45	43	42	40	38	37	36	34	30	25	22	15
	F3	54	58	56	54	50	48	46	47	48	44	43	40	36	32	29	22	16

APPENDIX B

SOUTHEAST UNIT A1 INTERIOR NOISE LEVEL CALCULATIONS

		Great Room															
	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
Exterior Sound Levels	71	68	67	65	64	63	63	64	64	63	63	61	59	56	53	50	45
Total TL: Walls STC 47		26	31	35	39	43	45	47	49	50	52	54	53	49	44	48	51
Total TL: Glazing STC 35		30	26	30	33	33	34	36	37	35	32	32	36	40	43	46	50
Total TL: Doors		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TL: Roof & Misc STC 38		24	27	30	31	33	35	36	38	39	41	41	37	35	38	41	44
Composite TL	-	26	29	33	35	37	39	40	42	42	41	41	41	40	41	45	48
Correction Factor	+	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Room Effect	+	5	5	6	6	6	8	8	8	8	8	8	9	9	9	9	9
Interior Noise Level	42	50	45	41	38	35	35	34	32	32	31	29	28	27	22	16	8
Total Noise Reduction	29																

		Bedroom															
	dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
Exterior Sound Levels	71	68	67	65	64	63	63	64	64	63	63	61	59	56	53	50	45
Total TL: Walls STC 47		26	31	35	39	43	45	47	49	50	52	54	53	49	44	48	51
Total TL: Glazing STC 35		20	29	24	26	30	34	36	39	42	43	44	44	41	40	47	52
Total TL: Doors		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TL: Roof & Misc STC 38		24	27	30	31	33	35	36	38	39	41	41	37	35	38	41	44
Composite TL	-	23	28	29	31	34	36	37	40	41	43	43	39	37	39	43	46
Correction Factor	+	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Room Effect	+	5	5	6	6	6	6	6	6	5	5	5	5	5	5	4	4
Interior Noise Level	42	51	45	44	41	38	36	35	32	30	27	25	26	26	20	13	5
Total Noise Reduction	29																

NORTHEAST UNIT B1, THIRD FLOOR INTERIOR NOISE LEVEL CALCULATIONS

		Living Room																
		dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
Exterior Sound Levels		69	67	65	64	63	62	61	62	62	61	61	59	56	54	51	46	41
Total TL: Walls	STC 47		26	31	35	39	43	45	47	49	50	52	54	53	49	44	48	51
Total TL: Glazing	STC 35		30	26	30	33	33	34	36	37	35	32	32	36	40	43	46	50
Total TL: Doors			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TL: Roof & Misc	STC 38		24	27	30	31	33	35	36	38	39	41	41	37	35	38	41	44
Composite TL		-	25	28	32	33	35	37	38	40	40	39	39	39	38	40	44	47
Correction Factor		+	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Room Effect		+	3	3	5	5	5	6	6	6	6	6	6	7	7	7	7	7
Interior Noise Level		39	47	42	39	36	33	32	32	30	29	30	28	25	24	19	11	3
Total Noise Reduction		29																

		Bedroom																
		dBA	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000
Exterior Sound Levels		69	67	65	64	63	62	61	62	62	61	61	59	56	54	51	46	41
Total TL: Walls	STC 47		26	31	35	39	43	45	47	49	50	52	54	53	49	44	48	51
Total TL: Glazing	STC 35		30	26	30	33	33	34	36	37	35	32	32	36	40	43	46	50
Total TL: Doors			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TL: Roof & Misc	STC 38		24	27	30	31	33	35	36	38	39	41	41	37	35	38	41	44
Composite TL		-	25	28	32	34	36	37	39	40	40	40	40	40	39	41	44	47
Correction Factor		+	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Room Effect		+	6	6	7	7	7	7	7	7	6	6	6	5	5	5	5	5
Interior Noise Level		40	49	44	41	38	35	33	32	30	28	29	27	23	22	17	9	1
Total Noise Reduction		29																