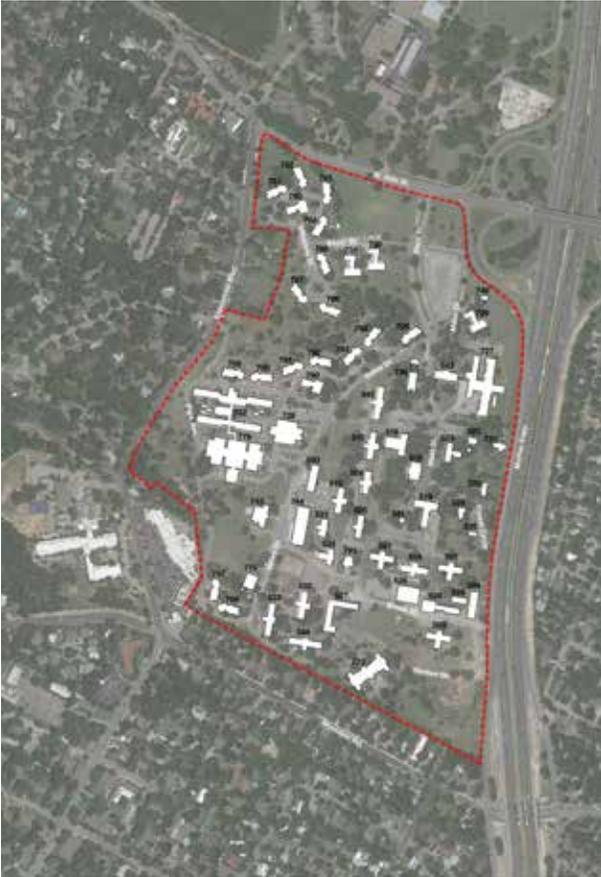


Austin State Hospital & Austin State Supported Living Center Feasibility Study

A report by Page professionals in the process of providing a feasibility study for the Texas Facilities Commission Planning and Real Estate Management Division and the Texas Health and Human Services Commission.



AuSSLC Existing Campus



ASH Existing Campus

Project Team/

STATE AGENCIES

**Texas Health and Human
Services Commission**

**Department of State Health
Services / Austin State Hospital**

**Department of Aging and
Disability Services / Austin State
Supported Living Center**

Texas Facilities Commission

Texas Historical Commission

Texas General Land Office

CONSULTANTS

Lead

Page, Austin, TX
www.pagethink.com

Economic Analysis

HR&A Advisors, Inc., Dallas, TX
www.hraadvisors.com

Cost Estimating

Vermeulens, San Antonio, TX
www.vermeulens.com

Transportation

DeShazo Group, Dallas, TX
www.deshazotang.com

Parking

Ensign Haynes Whaley, Austin, TX
www.ensighthayneswhaley.com

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01 Summary and Planning Assumptions

SUMMARY AND PLANNING ASSUMPTIONS

Study Overview

In Spring 2016, Page was engaged by the Texas Facilities Commission (TFC) and the Texas Health and Human Services Commission (HHSC) to develop a feasibility study for the Austin State Hospital and Austin State Supported Living Center. A portion of this study is a requirement of Senate Bill 200 (SB 200) from the 84th Texas Legislative Session. The bill directs the examination of a potential replacement facility for the Austin State Hospital (ASH) on either State-owned land or land not currently owned by the State and possible sale or lease of the current ASH property in central Austin.

HHSC also received requests from elected officials that led the study to include exploration of the Austin State Supported Living Center (AuSSLC) facility and campus. AuSSLC was incorporated to determine the feasibility of co-locating the institutions and providing new facilities for both. In total, six options were investigated for different parcels and combinations of co-location.

Options Required by SB 200:

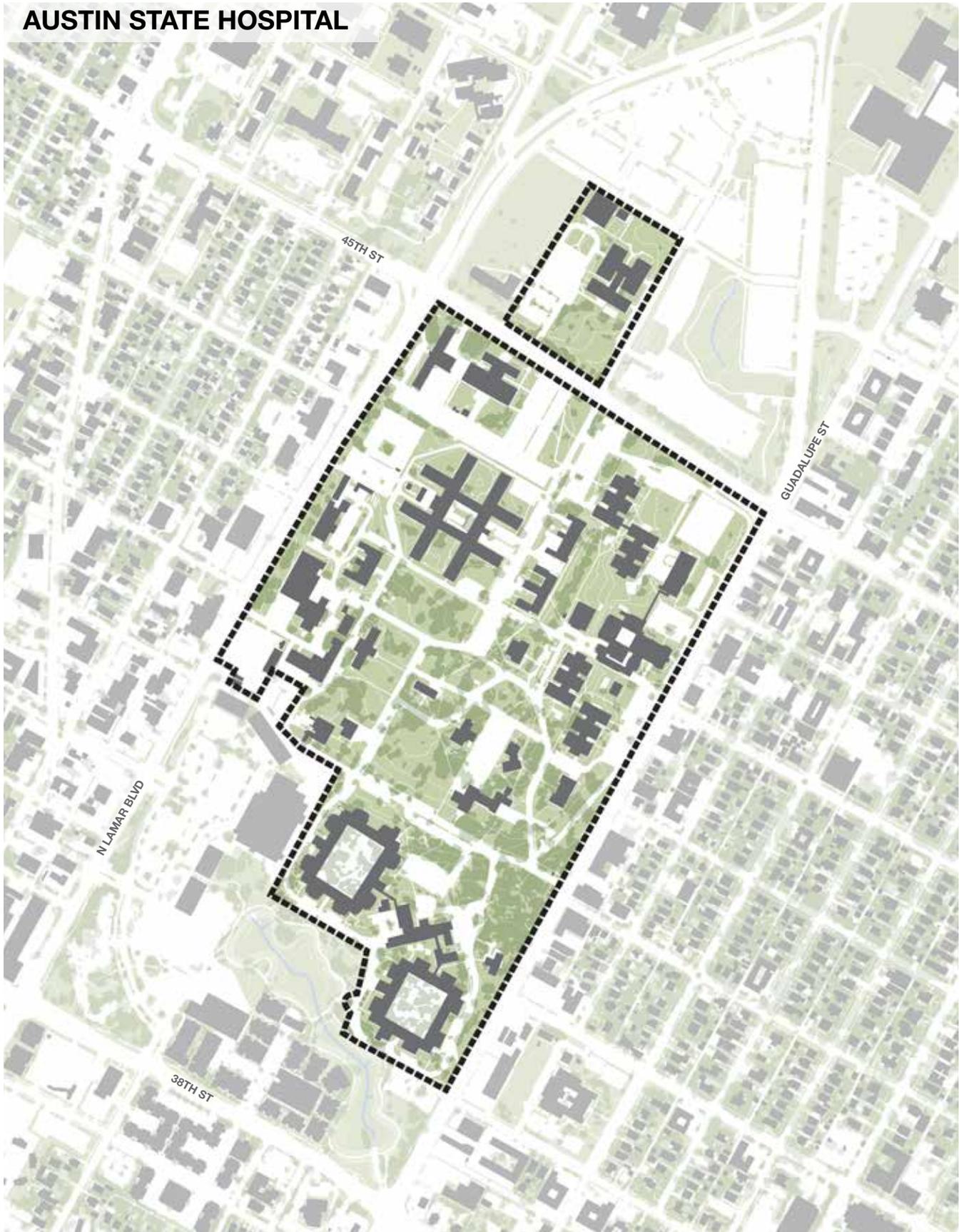
- Option 1 - Replacement ASH on other State-owned land; ASH site available for sale or lease; no impact on AuSSLC facility or campus
- Option 2 - Replacement ASH on land not currently owned by the State; ASH site available for sale or lease; no impact on AuSSLC facility or campus

Options Requested by State Representative Workman and State Senator Watson:

- Option 3 - Replacement ASH and replacement AuSSLC on the existing ASH campus; AuSSLC site available for sale or lease
- Option 4 - Replacement ASH with AuSSLC on the existing AuSSLC campus; ASH site available for sale or lease
- Option 5 - Replacement ASH and replacement AuSSLC on land not currently owned by the State; ASH site and AuSSLC site available for sale or lease
- Option 6 - Replacement ASH on the existing ASH campus; partial ASH site available for sale or lease; no impact on AuSSLC facility or campus

Each of these options examines only the physical costs and implications of the scenario. The Page study does not examine the relative operational benefits or merits of one option over another or as compared to the current operations of either facility. As such, no option is selected in this report as a preferred alternative.

AUSTIN STATE HOSPITAL



SUMMARY AND PLANNING ASSUMPTIONS

Core Assumptions

To determine the feasibility of each site option, a series of assumptions were determined through interviews of administrative staff, meetings with a steering committee, and a vision session conducted with a large user and administration group. The core assumptions are as follows, with more detailed description in the Program section of this document:

- A co-located campus will result in a shared site, but not combined facilities. Resident/patient populations for each facility must remain separate, and only certain support facilities can be combined and shared between the institutions.
- All ASH resident/patient facilities should be located on a single level, with easy access to the exterior without the need to traverse stairs or elevators. Only purely administrative functions may be located in multi-level spaces.
- Campuses should maintain a distinct identity when co-located on a single site. The ASH facility is housing patients for shorter durations, whereas the AuSSLC facility is the permanent home for its residents.
- Overall employee counts will not necessarily be decreased by a co-located facility.

AUSTIN STATE SUPPORTED LIVING CENTER



02 Program Requirements

PROGRAM REQUIREMENTS

General

In Spring 2016 Page developed replacement space programs for both the Austin State Hospital and the Austin State Supported Living Center facilities. The process was iterative, involving numerous review meetings and work sessions with representatives from each State agency involved, sometimes jointly and at other times, individually. At conclusion of the process it was clear that ASH and AuSSLC are unique and distinct to the populations they serve, and that there are limited opportunities to share spaces or services between them. These opportunities will be described further in this narrative.

The process to determine replacement facility space needs for ASH and AuSSLC was done at a very high level in order to establish a baseline amount of square footage (SF) required for each institution. Doing this allowed the design team to create options in this feasibility study for the purposes of comparison. It is important to emphasize that the space programming process undertaken for this study does not negate the need for a detailed space programming process if one of the presented options is to be implemented.

There were two primary reasons for going through the high-level space need determination process:

1. To create of a “prototype” design concept of the two institutions so that those prototype concepts could be utilized to develop the various planning options
2. To use them as a basis for construction cost estimating

Shared Services

During work sessions with representatives from agencies involved with this study there were discussions pertaining to what, if any, services could be shared by the two institutions if they were to be co-located onto a single site. A major theme developed from those discussions that if the two institutions were to be co-located, all services related to direct patient care and public access must remain separate. Support services that are considered “back of house” could, if done so carefully, be shared between ASH and AuSSLC. Because efficiencies gained in co-located and shared facilities were not investigated in depth for this study, it is recommended that more effort be concentrated on this issue in order to more completely reduce overall square footage of construction in a co-located scenario.

At a high level, it was agreed that the following support and administrative services could be shared if appropriately located between the two institutions:

- Central Utilities Plant
- Dietary Services and commercial-style kitchen
- Physical plant facilities & grounds services
- Administrative space not requiring direct patient care
- Motor pool parking and maintenance shop

Approximately 50,000 SF could be eliminated from the space program of one of the institutions if the two facilities are co-located on a single site.

Parking Requirements

When determining parking requirements, each user type (i.e. office, retail, hospitality, residential, etc.) has a parking ratio defined by national and local market standards. Healthcare, however, does not have such standards. Healthcare parking ratios are largely defined by staff shift sizes and a percentage of staff shift change overlap. During the Austin State Hospital/Austin wState Supported Living Center vision session, the group generally discussed the shift sizes for each site and later provided confirmation of those shift numbers. The total number of required spaces for ASH was determined to be 600 spaces in either surface or structured parking. For AuSSLC, the recommended total is 890 spaces dispersed through several lots. More detailed breakdown of the space counts is included in the following section.

Facility Space Type	Target SF
ASH	
Residential	286,609
Administration	48,189
Recreational/Vocational	30,506
Medical/Therapy	41,065
Support	63,247
TOTAL	469,616
AuSSLC	
Residential	106,930
Administration	59,779
Recreational/Vocational	192,845
Medical/Therapy	32,889
Support	54,336
TOTAL	446,779

Program Summary

The table above represents a summary of the determined program areas for each institution when considered independently. The five space type categories shown were utilized as a means of clearly depicting the major operations of each campus. The term "residential" is used throughout this document to describe bed areas for patients on the ASH campus or the homes, whether freestanding cottages or medically fragile care units, of the AuSSLC residents. A more detailed description of the program elements is included in the following section.

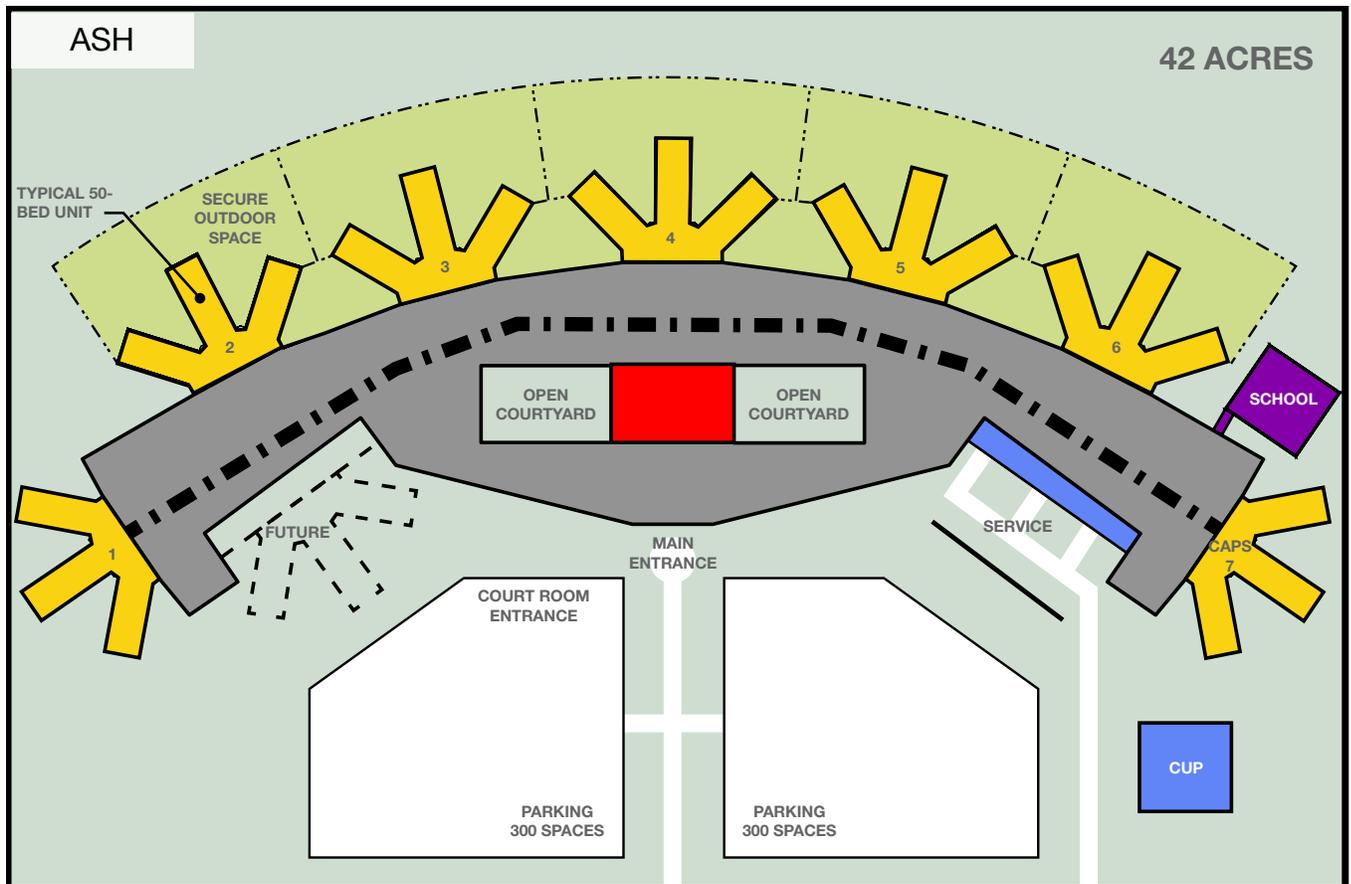
03 Conceptual Ideal Diagram

CONCEPTUAL IDEAL DIAGRAM

Austin State Hospital

Key aspects of the prototype design for ASH

- Total space need for the new facility is projected at approximately 470,000 SF.
- A total of 340 inpatient beds are provided in private rooms that would be broken into individual bed units that are further broken down into 14, 16 or 18-bed wings, or increments thereof (typical 3 wings per unit). This type of design permits the ability of each bed unit to have access to secure outdoor space dedicated to that unit.
- A slightly smaller 40-bed unit is included in the total for contingency bed planning – these beds will be utilized to move either entire or partial bed units for reasons such as maintenance and outbreaks of various conditions such as bed bug or lice infestation.
- Average inpatient bed area is 1,382 SF which is within an expected range for this type of facility.
- One of the bed units is for the 50-bed Child & Adolescent Program (CAP) that is currently located north of 45th Street.
- Connected to the CAP bed unit will be an educational facility (school).
- The main building organization focuses on the “therapy mall” concept where group / educational areas, therapy offices and services like a market are located.
- Circulation would be provided utilizing an “on-stage”, “off-stage” concept. The three-corridor manifestation of that concept will place patients within the most secure zones while allowing staff and visitors to circulate around them to all other parts of the facility. The three distinct types of circulation to be provided are:
 - Public
 - Supervised patient treatment
 - Patient solitude (internal to bed units)
- Due to the desire to eliminate potential hazards like egress stairs and to keep all bed units at ground level, the concept presented is a single story facility. If additional ground level space is needed, it would be permissible for the administrative functions to be multi-level.
- Internal courtyards increase the amount of daylight within internal areas of the facility.
- Expansion space is provided for up to an additional 50 beds
- Other programmatic features include:
 - CAPS play and activity spaces
 - Half-sized gym that also serves as a multi-purpose room and theater
 - Exercise and wellness areas
 - Recreation room
 - Convenience retail store
 - Forensic services
 - Clinical lab
 - Courtroom suite



- Residential
- Support
- Administration
- Combined, including Medical/Therapy
- Recreation / Vocational

- Commercial-style kitchen & dietary services
- Diagnostic and clinic/dental facilities
- Administrative space for external services
- There should be a limited numbers of entrances for this facility:
 - Public (possibly 2 given extensive ground area of the facility)
 - Patient (controlled “sally port” type)
 - Courtroom (external access for judge, legal aids and law enforcement)
 - Clinic/Medical Facility (external access for medical professional coming from outside of facility)
 - Staff
 - Service dock and facility staff

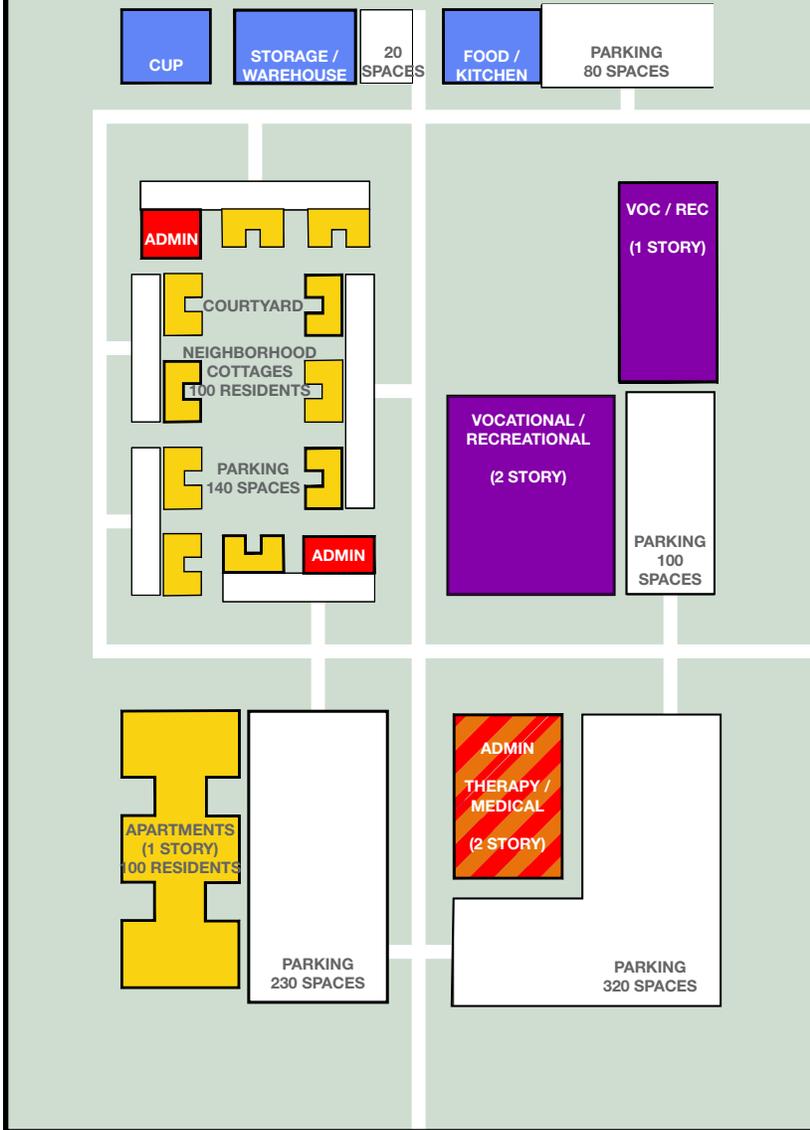
CONCEPTUAL IDEAL DIAGRAM

- Parking
 - The ASH site functions more like a hospital and its parking demand should largely be based from its two largest staff shift sizes.
 - ASH Parking Assumptions
 1. Approx. 900 employees
 - a) Assume 2 day shifts of 350 each and 1-night shift of 200
 - b) 550 employee parking spaces required for shift change
 2. 50-60 daily visitors/vendors
 - a) 20 spaces at a time
 3. 12 spaces requested for the court
 - a) 25 spaces rounded up to accommodate other potential “secure parking” needs
 4. Total 600 spaces assumed in surface lot or structured parking
 - With two shift sizes of 350 staff members, a staff parking need of 550 parking spaces is recommended to allow parking for the ASH largest shift, plus staff shift change overlap. An additional 50 parking spaces are needed for courts, visitors, and other miscellaneous needs. A total parking requirements of 600 spaces is recommended for the ASH site.
- A minimum of 42 acres is required for this concept (primarily because the facility is proposed to be single level)

Austin State Supported Living Center

Below are key aspects of the prototype design for AuSSLC:

- Total space need for the new facility is projected at approximately 450,000 SF.
- A total of 200 resident beds are provided in two types of living spaces;
 - 100 beds in “apartments” for medically fragile residents
 - 100 beds in “neighborhood cottages” for more independent residents (assumed 10 to 12 residents per cottage)
- Average resident bed area is 2,250 SF, which is in the higher range compared with similar facilities.
- Unlike the concept recommended for the ASH facility where entry points should be limited and controlled, the AuSSLC concept is conceived as much more open with numerous entry points to the residential facilities and other support, administrative, and ancillary services.
- Proposed is over 30,000 SF dedicated to recreational and vocational activity spaces.
- Administrative and nursing support services are proposed to be decentralized in order to provide better and more direct access to residents.
- Residential cottages are organized around a landscaped courtyard to allow residents access to the outdoors.



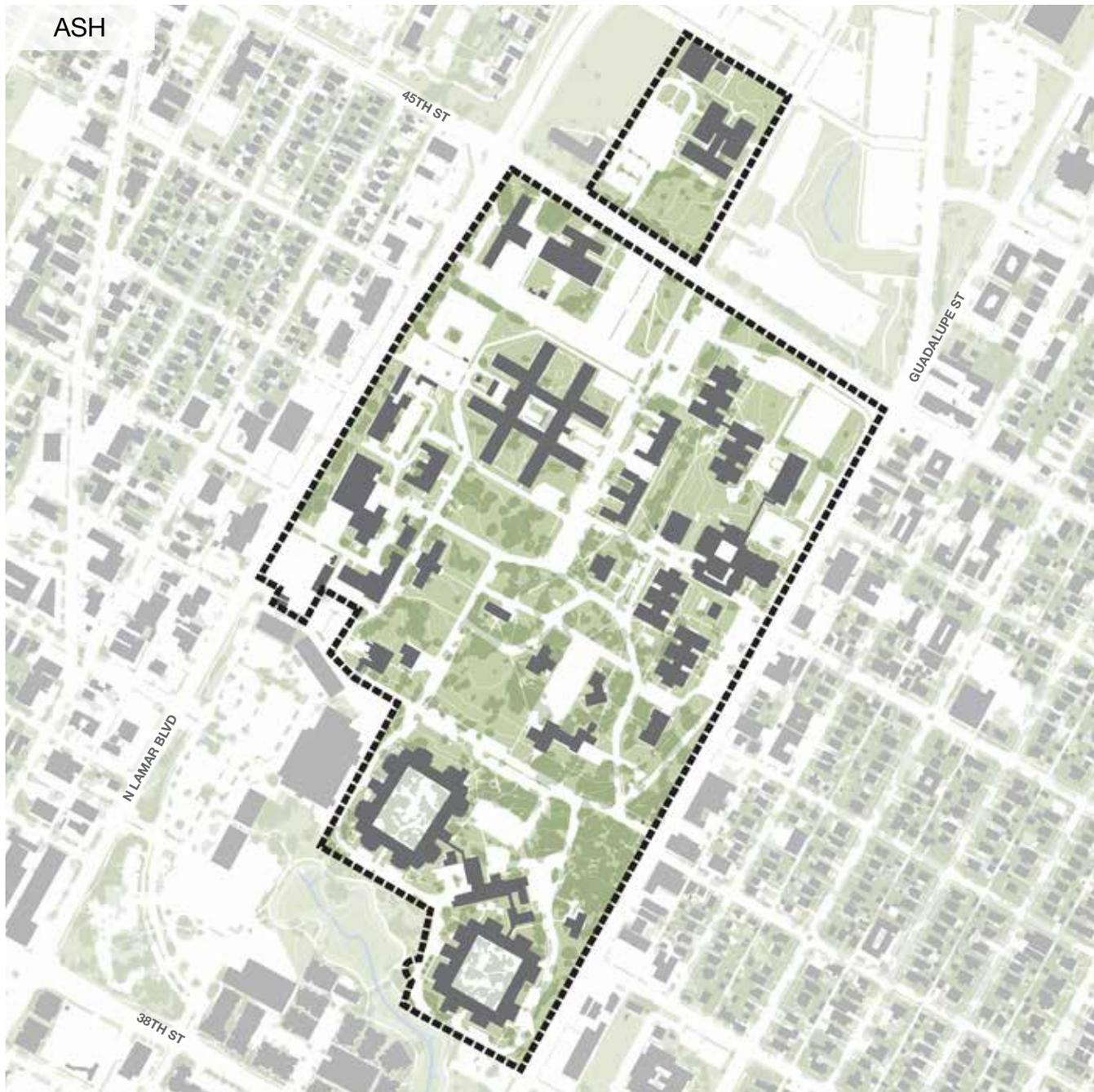
- Residential
- Medical / Therapy
- Administration
- Support
- Recreation / Vocational

CONCEPTUAL IDEAL DIAGRAM

- Parking
 - Hospital parking typically functions best with large condensed parking areas, yet the Austin State Supported Living Center functions better with smaller parking areas sprinkled around the facility, so its parking requirements are based more on its peak staff rather than a staff shift overlap.
 - AuSSSLC Parking Assumptions
 1. Admin & medical/therapy lot
 - a) Admin includes administrative and social worker job groups
 - b) Medical/therapy includes dental, pharmacy, doctors, psychologists, etc. job groups
 - c) Majority 8am-5pm staff
 - d) 320 spaces
 2. Vocational/recreational lot
 - a) Includes vocational and related job groups
 - b) Majority 8am-5pm staff
 - c) 100 spaces
 3. Residential lots
 - a) Medically fragile
 - i) Includes portion of DSP job group
 - ii) Shift workers with largest shift during day
 - iii) 300 spaces to accommodate shift change
 - b) Cottages
 - i) Includes portion of DSP job group
 - ii) Shift workers with largest shift during day
 - iii) (5) lots with 20 spaces each dispersed throughout 10 cottages
 4. Support
 - a) Kitchen
 - i) Includes food/nutrition job group
 - ii) Shift workers
 - iii) 80 spaces to accommodate shift change
 - b) Storage/plant
 - i) Majority 8am-5pm staff
 - ii) 20 spaces associated with loading dock
 - Since parking works best for the AuSSSLC site with more parking lots distributed around the site, the parking requirements were defined by the staff needs for each buildings use. A total of 890 parking spaces are recommended within approximately ten parking lots.
- A minimum of 36 acres is required for this concept.

04 Site Analysis

SITE ANALYSIS: SITE PLAN



The analysis of the Austin State Hospital and Austin State Supported Living Center campuses examines the site features and surrounding context of the existing facilities. Categories surveyed include land use, access and mobility systems, building use and condition, and landscape features.

Both campuses are situated within the city limits of Austin. The Austin State Hospital is located on approximately 95 acres in Central Austin, bounded by Lamar Boulevard to the west and Guadalupe Street to the east. The majority of the campus sits south of W 45th Street, with a 7-acre parcel north of W 45th Street.

AuSSLC



The Austin State Supported Living Center is located on approximately 93 acres in the Tarrytown neighborhood. The campus is bounded by Exposition Boulevard to the west, W 35th Street to the north, and Mopac Expressway to the east.

SITE ANALYSIS: **LAND USE**

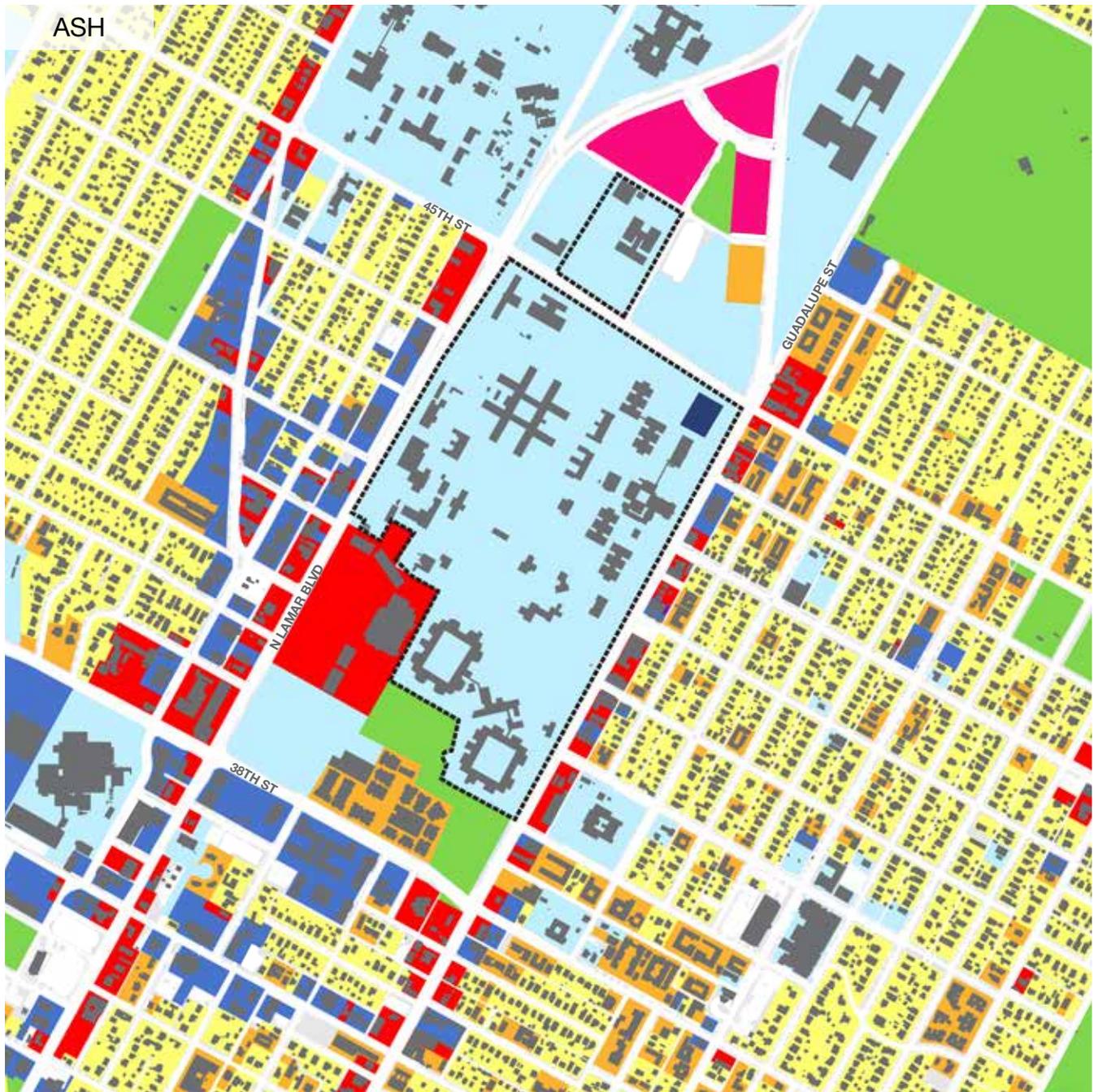
Austin State Hospital

Both ASH and AuSSLC campuses are sited on state-owned land. Uses surrounding both the campuses are predominantly single-family homes, though the ASH site has more diversity of use within its immediate context.

The ASH campus site co-locates the facility with other state-owned tracts that house administrative offices for several of the agencies overseen by Texas Health and Human Services. This includes the Department of State Health Services and the Department of Aging and Disability Services, which are the parent agencies of the state hospitals and state supported living centers, respectively. These other state owned parcels are situated north of the ASH campus, generally surrounding a mixed use development known as the Triangle.

The ASH campus is bounded to the east and west by single-family residential neighborhoods, with Hyde Park to the east and Rosedale to the west. However, the immediately adjacent streets of Lamar Boulevard and Guadalupe Street are commercial corridors. Guadalupe Street is primarily small-scale retail with minor office uses intermixed. Lamar Boulevard incorporates some mid-scale retail and office with a larger shopping center located along the southwest boundary of the ASH site.

Directly to the south of the ASH campus proper is a state-owned parcel encumbered by a long term lease and improved to create park space known as Central Park. The ASH campus also has a 2-acre easement at its northeast corner for an Austin Energy substation.



- | | |
|---|---|
| ■ Civic/Institutional | ■ Mixed Use |
| ■ Commercial | ■ Open Space |
| ■ Single-Family Residential | ■ Office |
| ■ Multi-Family Residential | ■ Utilities |



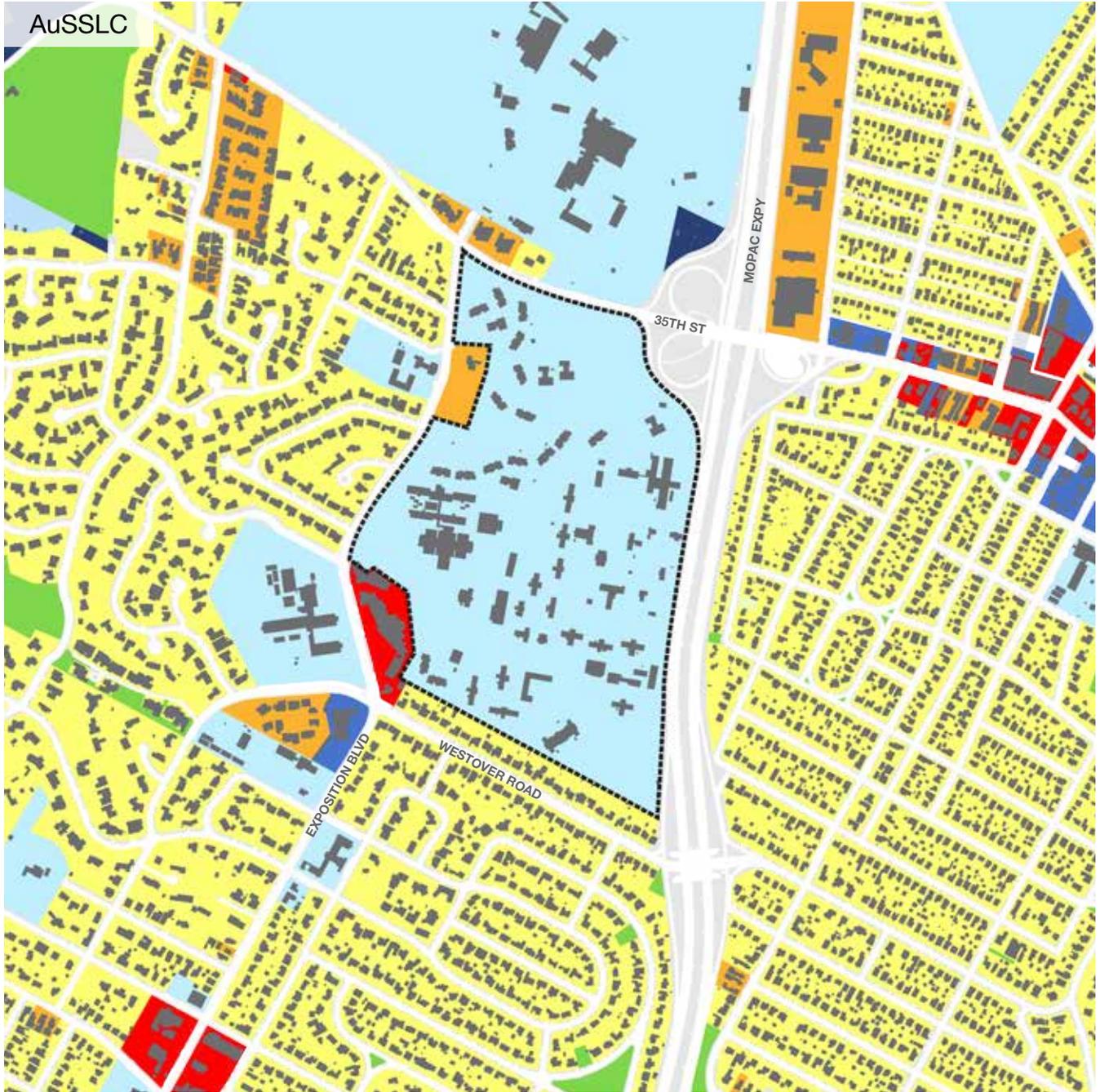
SITE ANALYSIS: **LAND USE**

Austin State Supported Living Center

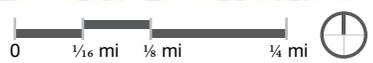
The AuSSLC campus is primarily bounded to the south and west by the Tarrytown single-family residential neighborhood of Austin. The southern boundary of the property is directly adjacent to residential parcels. The eastern edge of the site has frontage along the Mopac Expressway, with a single-family residential neighborhood across the expressway. The majority of the western boundary has frontage on Exposition Boulevard, though a small portion of the site is directly adjacent to a multi-family residential development under construction at the time of this report.

North of the AuSSLC site, across W 35th Street, is a large state-owned parcel of land known as Camp Mabry, which houses the headquarters of the Texas Military Forces. A small portion of the site at the southwest corner is also bounded by a commercial shopping center.

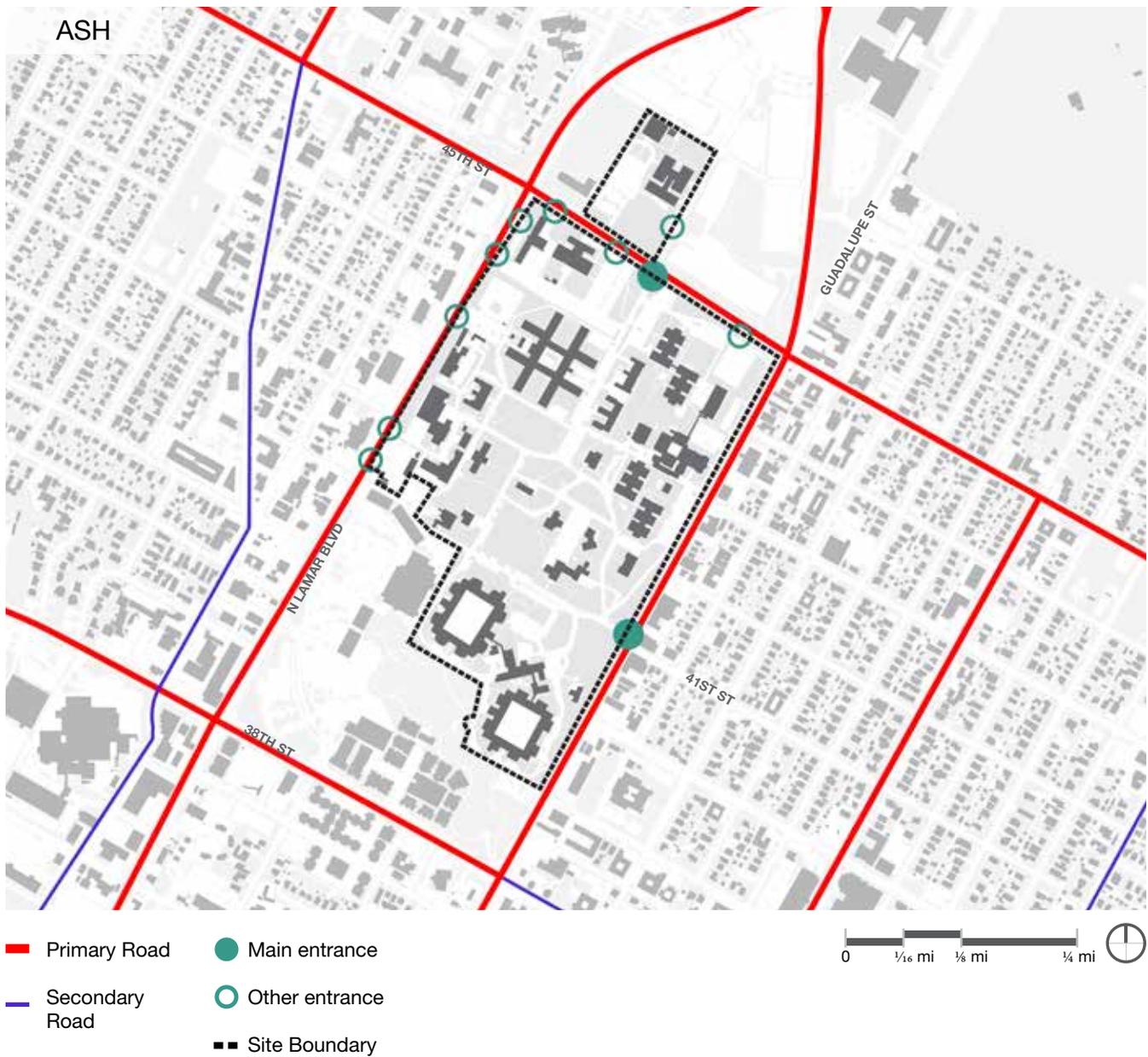
AuSSLC



- Light Blue: Civic/Institutional
- Green: Open Space
- Red: Commercial
- Dark Blue: Office
- Yellow: Single-Family Residential
- Dark Blue/Black: Utilities
- Orange: Multi-Family Residential



SITE ANALYSIS: ACCESS AND MOBILITY SYSTEMS



Street Access - ASH

The ASH campus is surrounded by a regular grid system within the city, allowing vehicular flow to occur from a number of directions. The site is bounded by three primary roads to the west, north, and east. Direct vehicular access to the ASH campus is managed through several entry points on these primary roads. The main visitors' access and formal entry to the site is located along Guadalupe Street, near W 41st Street. Another main entrance to the site is located along W 45th Street, across from Triangle Avenue. Two service and three parking entries are located on Lamar Boulevard and an additional service and two parking entries are located along W 45th Street. Access to the 7-acre parcel north of W 45th Street is from Triangle Avenue.



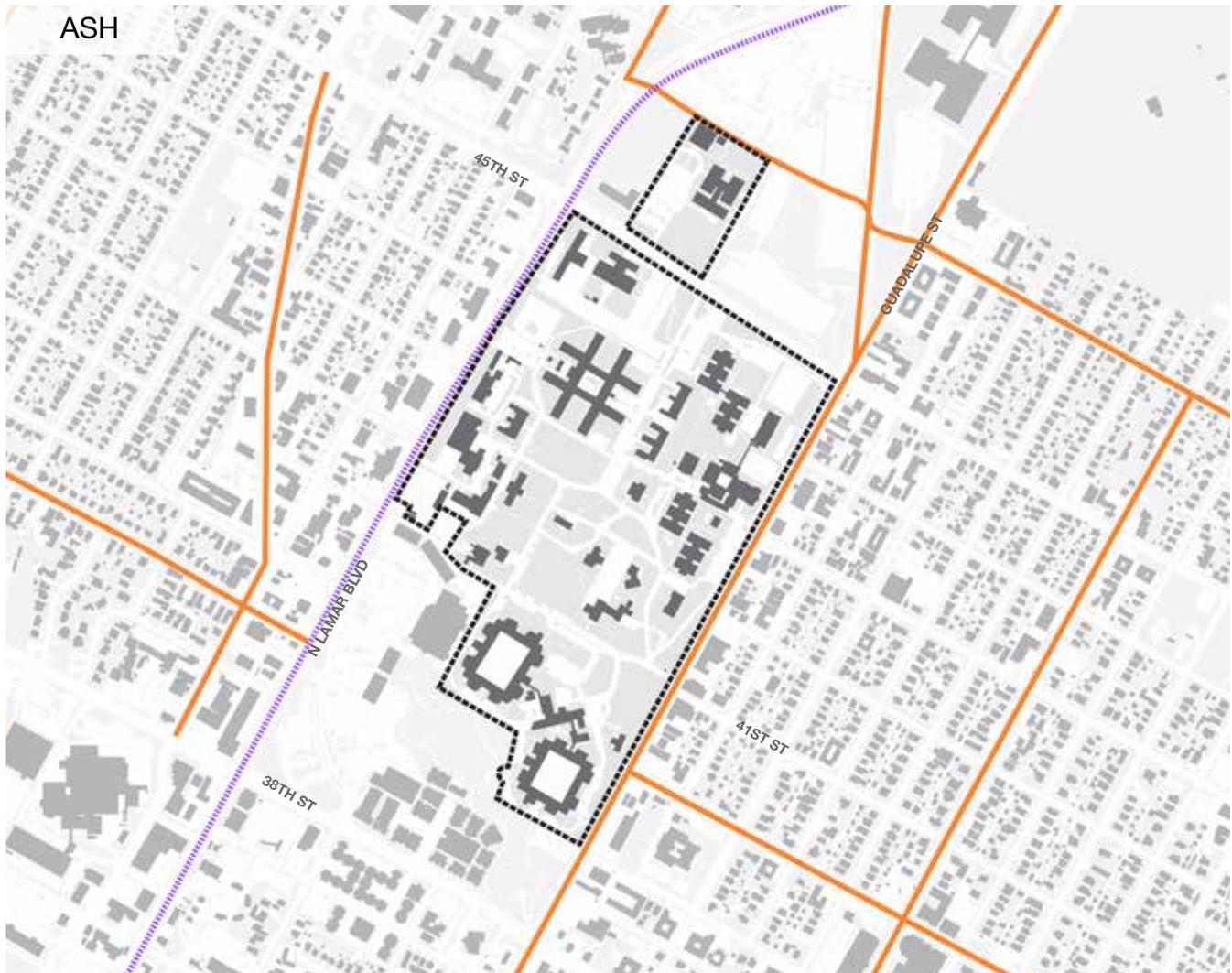
-  Highway
-  Primary Road
-  Secondary Road
-  Main entrance
-  Other entrance
-  Site Boundary



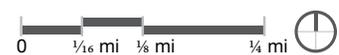
Street Access - AuSSLC

Vehicular access to the AuSSLC campus is more limited than the ASH site. The main site entry for all visitors and employees is located along W 35th Street, which is a primary road. A secondary service entry is situated along Exposition Boulevard, a secondary road. No access is possible on the east side of the site, which is bounded by the Mopac Expressway and its associated frontage road and on/off ramps.

SITE ANALYSIS: ACCESS AND MOBILITY SYSTEMS



- Medium comfort street
- - - Helpful sidewalk
- Site Boundary



Bicycle Access - ASH

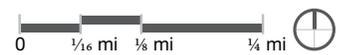
The City of Austin Bike Map classifies specified bicycle routes as high, medium, and low comfort based on the quality of the cycling experience. Though bicycle access to the ASH campus can occur at various points through the regular city grid that surrounds the site, the bike map designates Guadalupe Street and W 40th Street as medium comfort routes on the east side of the site. This provides access to the main entrance. On the west side, Lamar Boulevard is designated as having helpful sidewalks, providing limited bicycle access.

AuSSLC



— Medium comfort street

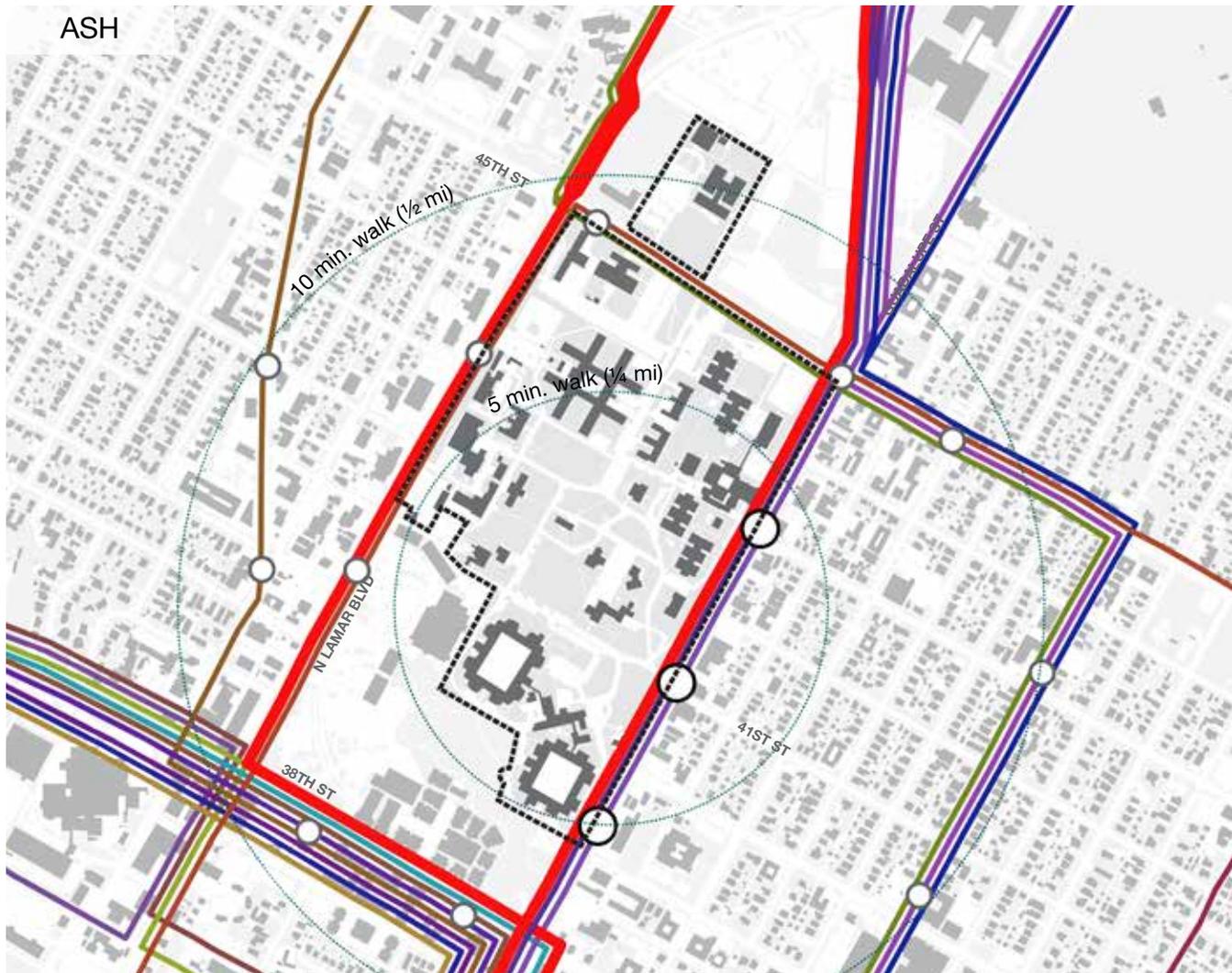
- - Site Boundary



Bicycle Access - AuSSLC

Access to the AuSSLC campus by bicycle is challenged by its limited accessible frontage. Exposition Boulevard to the west is designated as a medium comfort route, though only a service drive allows site access from that side. The only other entrance to the site for bicycles is at the main entrance along W 35th Street, which is not a specifically designated bicycle route by the City of Austin Bike Map.

SITE ANALYSIS: ACCESS AND MOBILITY SYSTEMS



- Bus Route
- Bus Stop within 5 min walk
- Rapid Bus
- Bus Stop 5-10 min walk
- Site Boundary



Public Transit - ASH

According to interviews and work sessions with ASH and AuSSLC staff, transit access is a significant factor for both employees and patients/residents of each campus. The ASH campus is well served by city bus, with 16 local bus routes running adjacent to, or within, a ten minute walking radius (1/2 mile) of the campus center. Additionally, two rapid bus line routes run adjacent to the site, one along Lamar Boulevard and one on Guadalupe Street. There are seven bus stops located directly along the perimeter of the campus, and another eight stops are located within a ten minute walking radius.

AuSSLC



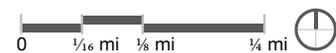
- Bus Route
- Bus Stop within 5 min walk
- Site Boundary
- Bus Stop 5-10 min walk



Public Transit - AuSSLC

Though the AuSSLC campus does not have the quantity of bus routes that the ASH campus does, it is well served by public transit. Two local bus routes run directly adjacent to the site on the north and west sides. Stops are located at the main entrance and the service drive, along with two additional stops located along the site’s western boundary. Five additional bus routes are located to the northeast of the campus, running along W 35th Street and Mopac Expressway. These routes have two stops within a ten minute walking radius of the campus center.

SITE ANALYSIS: BUILDING USE AND CONDITION



Building Use - ASH

Buildings on the ASH and AuSSLC campuses comprise multiple uses to facilitate the needs of patients and residents. This study categorizes facilities into six primary use categories plus vacant buildings. Residential buildings are considered to be the structures that house either patient beds in the case of ASH or residences for AuSSLC. Recreational/Vocational facilities house class space, training programs, game areas, or other recreational uses.

The ASH campus has four residential buildings housing hospital beds. Two buildings are located at the south end of the campus with interior courtyards, and another is located toward the middle of the campus with smaller, separated courtyards. The fourth, the adolescent unit, is located on the 7-acre parcel north of W 45th Street. Support services are located along the west side of the campus, and the main administration building is housed in the original 1857 hospital building (Building 501) near the main entrance. The ASH campus also has a series of buildings along the north and north east boundaries that house other HHSC agencies not directly affiliated with the hospital functions.

AuSSLC



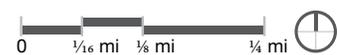
Building Use - AuSSLC

The AuSSLC campus has a scattered pattern of building uses, primarily due to the use of older structures for new purposes. Administrative, support, and recreational/vocational buildings are intermixed throughout the center and southeastern portions of the campus. The majority of residential buildings are sited on the west and northwest portions of campus. Residential buildings are broken into two primary types: several small cottages spread across the campus for more mobile residents, and more medically-fragile residents housed in two larger buildings toward the center-west boundary of the site.

SITE ANALYSIS: BUILDING USE AND CONDITION



- New
- Good
- Satisfactory
- No Data
- Needs Moderate Repairs
- Needs Major Repairs
- Site Boundary

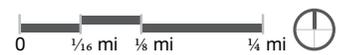


Building Condition - ASH

The Austin State Hospital has structures dating to 1857, and the Austin State Supported Living Center has facilities dating to 1915. As such, buildings are in varied conditions due to age, hazardous materials, or deferred maintenance over the course of their lifespan. For this study, facilities were mapped based on the State's facilities maintenance database which provides a Texas Condition Code for each building.

The majority of buildings on the ASH campus fall into the condition categories of needing moderate or major repairs. A cluster of buildings near the center of campus fall into these categories and include the older buildings on campus. Two of the primary residential units at the south end of campus are included in the category marked as needing major repairs.

AuSSLC



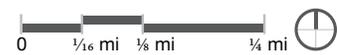
Building Condition - AuSSLC

The AuSSLC campus has a of cluster buildings constructed in the 1910s and 1920s. A majority of these structures are categorized as requiring moderate or major repairs. Surveys of the majority of these buildings indicate they contain hazardous materials, such as lead or asbestos. Most of the residential buildings along the west side of campus were constructed in the 1960s or 1970s. These buildings are primarily categorized as being in satisfactory condition. There are no buildings in "good" or "new" condition on this site.

SITE ANALYSIS: HISTORIC BUILDINGS / DISTRICTS



- Existing State Antiquities
- Potential THC Historic Building
- Site Boundary



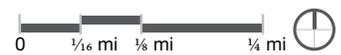
Historic Buildings - ASH

As part of this study, the Texas Historical Commission (THC) toured both campuses to provide an initial review of historical resources on both campuses. The only official historical designation on either campus is the original hospital and current administration building (Building 501) on the ASH campus. It is designated as a State Antiquities Landmark and will be required to adhere to guidelines for this designation in any future renovation. Though no other buildings on campus are designated, THC viewed several of the older or mid-century buildings in the core of campus to have historical significance. Consequently, these are noted as potential historical buildings in the future.

AuSSLC



- Potential THC Historic District
- Site Boundary



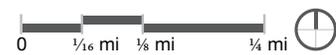
Historic Buildings - AuSSLC

THC indicated that the AuSSLC campus contains a significant assembly of buildings rather than individual buildings of significance. As such, there may be potential to create a historic district around these buildings to preserve them and the surrounding landscape as a cohesive whole. This potential district would occupy the southeast and center-east portions of the site, including most of the buildings constructed in the early Twentieth Century.

SITE ANALYSIS: SIGNIFICANT LANDSCAPE FEATURES



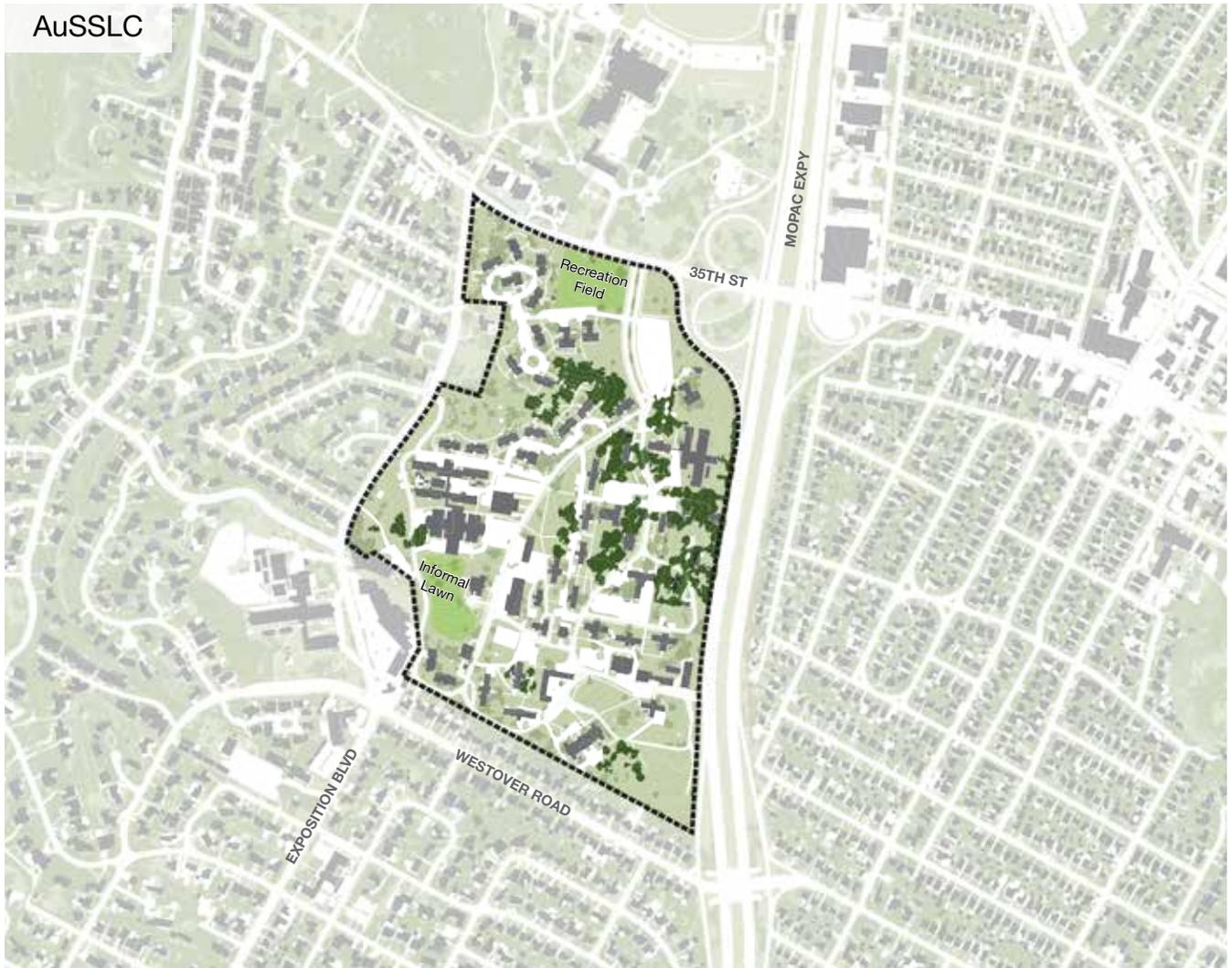
- Notable open spaces
- Groupings of mature trees
- Site Boundary



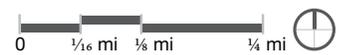
Significant Landscape Features - ASH

Since the ASH and AuSSLC campuses have been in operation for over a century, both contain significant numbers of mature trees that could benefit both current therapeutic environments and/or future development. The ASH campus has significant mature trees clustered around the original hospital and main entrance. It also has an informal lawn space in the center of campus which is utilized and valued by staff.

AuSSLC



- Notable open spaces
- Groupings of mature trees
- Site Boundary



Significant Landscape Features - AuSSLC

Similar to the ASH campus, AuSSLC contains numerous clusters of mature trees around the oldest buildings on campus. The campus also has an informal lawn space used for outdoor gatherings along the southwest border. An active recreational field sits along W 35th Street at the main entry to campus and is utilized by both the campus residents and the surrounding community. The west side of the campus also contains dramatic topography around clusters of residential cottages, which may constrain future development.

05 Site Planning and Site Selection Criteria

SITE PLANNING AND SELECTION CRITERIA: **SITE SELECTION**

Site Selection

The site selection criteria for ASH and AuSSLC were developed through discussions with stakeholders and are designed to be applied to any site options where either facility may ultimately be located.

Criteria in green are preferred for that facility. Criteria in bold are critical to operations and mandatory for the feasibility of that site option.

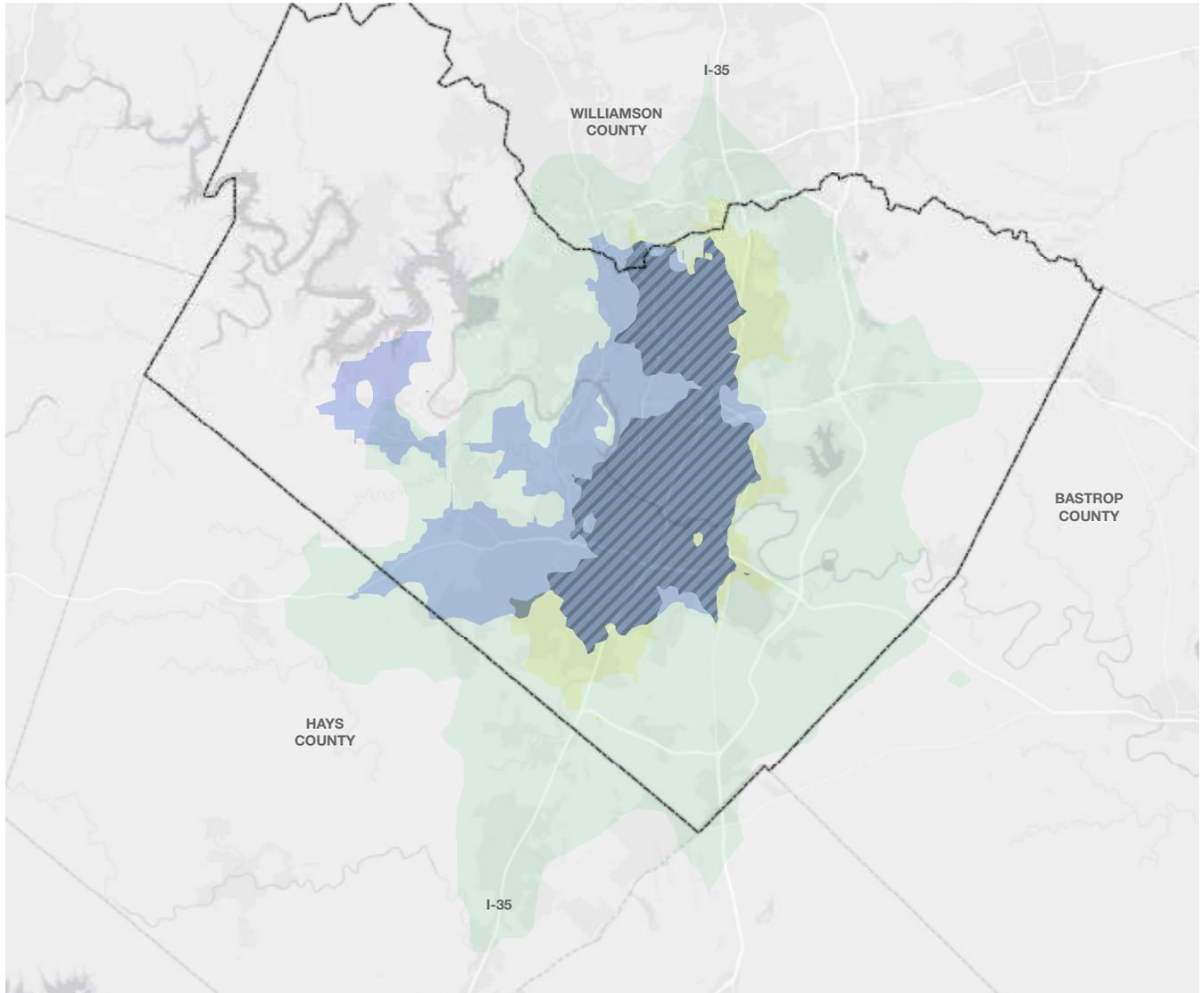
If facilities are co-located, feasibility of a site option depends on a satisfactory fulfillment of both sets of site selection criteria.

SITE SELECTION CRITERIA		
	ASH	AuSSLC
Locational Requirements		
Size- total acres	42 acres	36 acres
Within Travis County	Preferable	Preferable
Land Use Adjacencies (only in case of relocation)		
Residential- Single Family	No	Yes
Residential- Multi-Family	Maybe	Yes
Commercial	Yes	Maybe
Civic	Maybe	Maybe
Office	No	Maybe
Industrial	No	No
Mixed Use	Yes	Maybe
Transit access	Yes	Yes
Vehicular access and convenience		
Easy first responder access, off arterial road, within 5 min	Yes	Yes
Easy access to clinical/hospital facilities, off arterial road, within 5 min	Yes	Yes
Convenient location for staff, off arterial road	Yes	Yes
Nearby amenities	Yes	Yes
Close to Austin metro area	Yes, Within 15 min.	Yes, Within 15 min.
Connection to UT	Yes	Maybe
Site Planning Requirements		
Multiple access points to site	Yes, 2+ (primary and service)	Yes
Ability to secure site areas	Yes	Yes
Positive and safe relationship with community and abutters	Yes	Yes
Ability for continuity of care during construction	Yes	Yes
Ability to build adequate facility with physical, natural, cultural, and regulatory site constraints	Yes	Yes
Facility Requirements		
Ability to build new or expand to create modern facilities that address present and future need	Yes	Yes
Accommodate program square footages (for each and potentially shared)	Yes, See program breakdown	Yes, See program breakdown
New Children's Day School	Yes	N/A

Catchment Area

As shown in this figure, the potential location for an alternative site may fall within the hatched overlap area. This zone is determined by applying some of the locational requests made by stakeholders- within 10 minutes of a police station, 10 minutes of a hospital, and within 30 minutes of the Austin city center.

HHSC may use this general area as a guide for locating a site to increase the likelihood that a potential alternative site would meet the site selection criteria for either facility.



- Travis County Boundary
- Within 10 minutes of a police station
- Within 10 minutes of a hospital
- Within 30 minutes from Austin city center
- Overlay: potentially preferred site location zone

SITE PLANNING AND SELECTION CRITERIA: **SITE PLANNING**

Site Planning

The site planning criteria for ASH and AuSSLC were developed through discussions with stakeholders and were applied to all site layout options to compare the feasibility of each option.

Criteria in green are preferred for that facility. Criteria in bold are critical to operations and mandatory for the feasibility of that option.

If facilities are co-located, feasibility of an option depends on a satisfactory fulfillment of both sets of site planning criteria.

SITE PLANNING CRITERIA		
	ASH	AuSSLC
Site Planning Guidelines		
Separate entry sequences within campus- visitors, service, staff, patients, judges, etc.	Yes, 4 (secure, public, service, staff), accommodate shift change period (7, 3, 11)	May be preferable but not required, but entries must accommodate shift change period (6, 2, 10)
Separate parking areas- visitors, staff, judges/attorneys, etc.	Yes, 4+ (staff/visitors, judges/attorneys, service, and police drop-off), accommodate shift change period (7, 3, 11)	Prefer a more distributed parking layout, but could consolidate, must accommodate shift change period (6, 2, 10)
Central heating and cooling plant	Yes	Yes
Create compact campus with key adjacencies for efficient movement around site	Yes, secure transfer between uses	Yes, ease of transfer for individuals with difficulties moving
Clear access to critical areas of site for fire and other emergency vehicles	Yes	Yes
Prioritize safety and security in planning and design	Yes- can have violent individuals, concern for safety of public, staff, and other patients- need to create contained spaces	Yes- provide safe, intuitive, and clearly laid out spaces with materials appropriate for the needs of this population
Separate uses	Yes- minimize mixing of discrete populations	Yes- separate cottage residents from medically-fragile
Preserves or re-uses most or all of historic buildings, site features, and districts from THC recommendations	Yes, required to preserve 501, if remaining on current site, several others may be protected, if possible	Yes, restore and repurpose E-SE historic district, where possible, if remaining on current site
Maintain significant vegetation	Yes, maintain mature trees (Pecans specifically?), where possible, if remaining on current site	Yes, maintain historic district landscape and mature trees, where possible, if remaining on current site
Establish outdoor activity areas	Yes, secure outdoor active recreation and passive space	Yes, recreation field and open, passive gathering space
Maximize natural landscape features for therapeutic benefits	Yes	Yes
Plan for multi-modal access to site- bicycle, transit, pedestrians, etc.	Yes	Yes
Minimize timeline for coordination and construction to manage cost escalation and interruption to operations	Yes	Yes
Phase work to limit disruption to care and resident's lives	Yes	Yes
Completely separate ASH and AuSSLC populations (only if co-locating)	Yes	Yes
Establish clear institutional operational separation (only if co-locating)	Yes	Yes

06-A Option 1

ASH on State-owned Land

OPTION 1: ASH ON STATE-OWNED LAND

One of the initial options required by SB 200 for this feasibility study was to examine the potential of creating a new ASH facility on an alternate site already owned by the State. Once the required parcel size was determined to be 42 acres through the programming process, the Texas Facilities Commission worked with the General Land Office to determine if any State-owned parcels fit the size requirements.

After review of properties in Travis, Williamson, and Hays Counties, the General Land Office determined that there are currently no available parcels over 40 acres owned by the State. Consequently, no further analysis or test fit was developed for this option. Options for replacement of ASH by itself on State-owned land were re-focused on consolidation within the current campus footprint, as represented in Option 6.

06-B Option 2

ASH on Alternative Site

OPTION 2: ASH ON ALTERNATIVE SITE

Test Fit Layout

Site Identification

For this option, no specific site was selected to develop a test fit. As a potential future implementation plan and schedule is yet to be determined, it is not feasible to select a particular parcel of land outside the State's control and assume it will be available at a time the project is authorized to move forward. Instead, several commercially-available properties were examined to provide a sense of the relative availability of parcels meeting all or some of the specified site requirements.

Parcels meeting the site size requirements for Option 2 were reviewed in Travis County, Williamson County to the north, and Hays County to the south. Properties in Travis County were primarily located at the periphery of Austin or in Pflugerville to the north. Most were located adjacent to or within one mile of a major highway. Land cost varied greatly, from around \$150,000 per acre to about \$450,000 per acre.

In Williamson and Hays Counties, approximately half of the parcels surveyed were located along the I-35 corridor. The other half were located in more rural settings outside the core communities but with access to highways or major arterial roads. Some parcels were also located near other hospitals, which is a primary need of the ASH facility. Land values in these counties range from just under \$50,000 per acre to approximately \$150,000 per acre.

Further study would be required in any site selection process to determine the available utilities, services, access, and developable area for a given parcel.

Site Assumptions

The conceptual ideal diagram, discussed previously in this report, includes the assumed program elements and conditions for a new ASH facility. It informs the process when identifying new sites that may be appropriate for ASH.

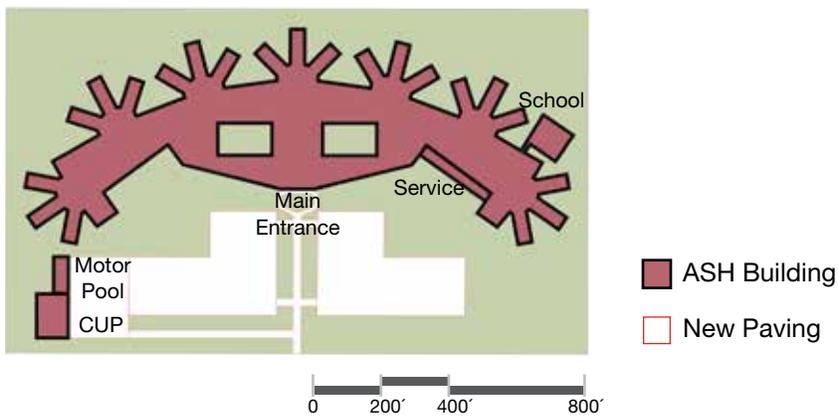
The 42 acre ideal diagram assumes a flat site, free of topographical challenges and specific on-site stormwater retention needs. It does not take into account surrounding site conditions or land uses that may necessitate a site planning response. Zoning and other regulatory restrictions such as easements and setbacks also are not included.

In order to respond to the factors of an existing site, the actual site area may be larger than 42 acres. However, if assumptions for parking or the building configuration change, the required minimum footprint may be reduced. Providing 3-4 levels of structured parking, rather than surface lots could reduce the land area requirements by 3-4 acres. Similarly, a re-configured building layout or stacking some portions of the building could also reduce the land area needed. Altering these assumptions would require a discussion of the trade-offs between the program requirements initially stated and the adjustments to reduce footprint. These include compromises on building and land cost, desired function, and operations.

Option 2 Site Test Fit

This configuration is based on the idealized diagram for the ASH facility, which accommodates all the assumed program elements for ASH. In addition to the idealized diagram elements, this layout includes drive access to the parking lots and a drop-off zone at the main entrance. It also provides a separate parking area for the central plant and motor pool.

By locating another site for a new ASH facility, the impact on existing facility operations is minimized. Construction occurs away from the existing facilities, and the relocation of residents can happen once construction is complete, at whatever pace is deemed appropriate by staff, without impact on phasing or construction timelines.



OPTION 2: ASH ON ALTERNATIVE SITE

Facility	Target SF	SF Accommodated in Option 2	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	63247		
Unassigned				
TOTAL	469616	469616		

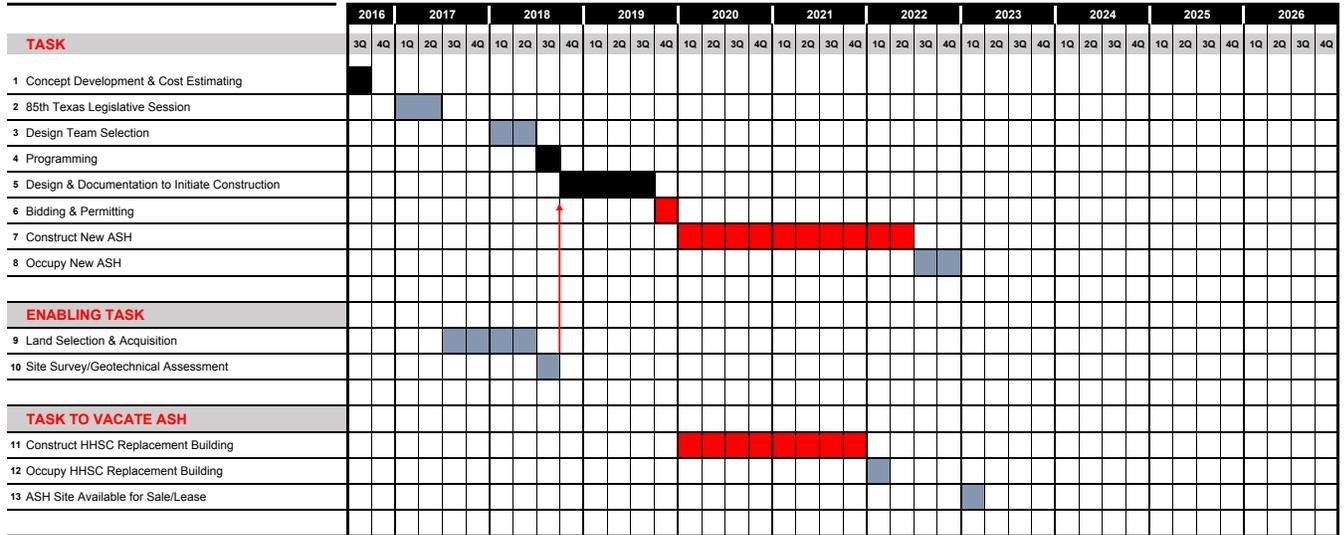
Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. As Option 2 is absent a specific site with existing structures or site influences, the total program accommodated matches exactly the area prescribed in the program requirements.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 2 - ASH ON ALTERNATIVE SITE



- Owner Responsibility
- Architect Responsibility
- Contractor Responsibility

Schedule and Sequencing

Schedule

The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

In this option, land must be purchased following legislative approval. Consequently, design activities are delayed until a point in the land acquisition process that the State can be reasonable certain about the site selection.

Option 2 considers development on a currently undeveloped site. As such, a new ASH facility can be constructed in a single phase without demolition of existing facilities. Final occupancy for ASH is estimated to be late 2022.

Non-ASH employees housed on the ASH campus must be moved in this scenario only in time to vacate the ASH site for sale or lease. It is assumed they will remain in place until a replacement facility is constructed off-site.

Sequencing

Option 2 assumes a single phase of construction to be managed by a general contractor at the time the project commences. Vacation of the existing ASH facilities is only required for sale or lease of the property.

06-C Option 3

**ASH & AuSSLC on
ASH Site**

OPTION 3: ASH & AUSSLC ON ASH SITE

Test Fit Layout

Existing ASH Site Suitability

The current ASH site fulfills the required site criteria for both the ASH and AuSSLC facilities. Its size and location within a quiet, yet friendly, residential area with easy access to major streets, transit, and amenities make it an especially attractive home for both the residents and staff.

The primary concern regarding site suitability is that since ASH will remain open during site work and building construction, there will need to be a phasing strategy to maintain operations. While every effort will be made to provide a continuous level of care, ASH will need to make some temporary accommodations to support the construction of new facilities.

Option 3 Site Test Fit

This layout establishes three distinct site areas with separate access points- a main entrance on W 45th Street for ASH's campus on the north portion of the site, a main entrance on Guadalupe for AuSSLC's campus on the southern portion of the site, and access on Lamar for a shared support area on the western portion of the site. The site divisions in this configuration allow for the required operation and population separation for each facility. Entry sequences and parking access routes are also clear and distinct within each facility's campus.

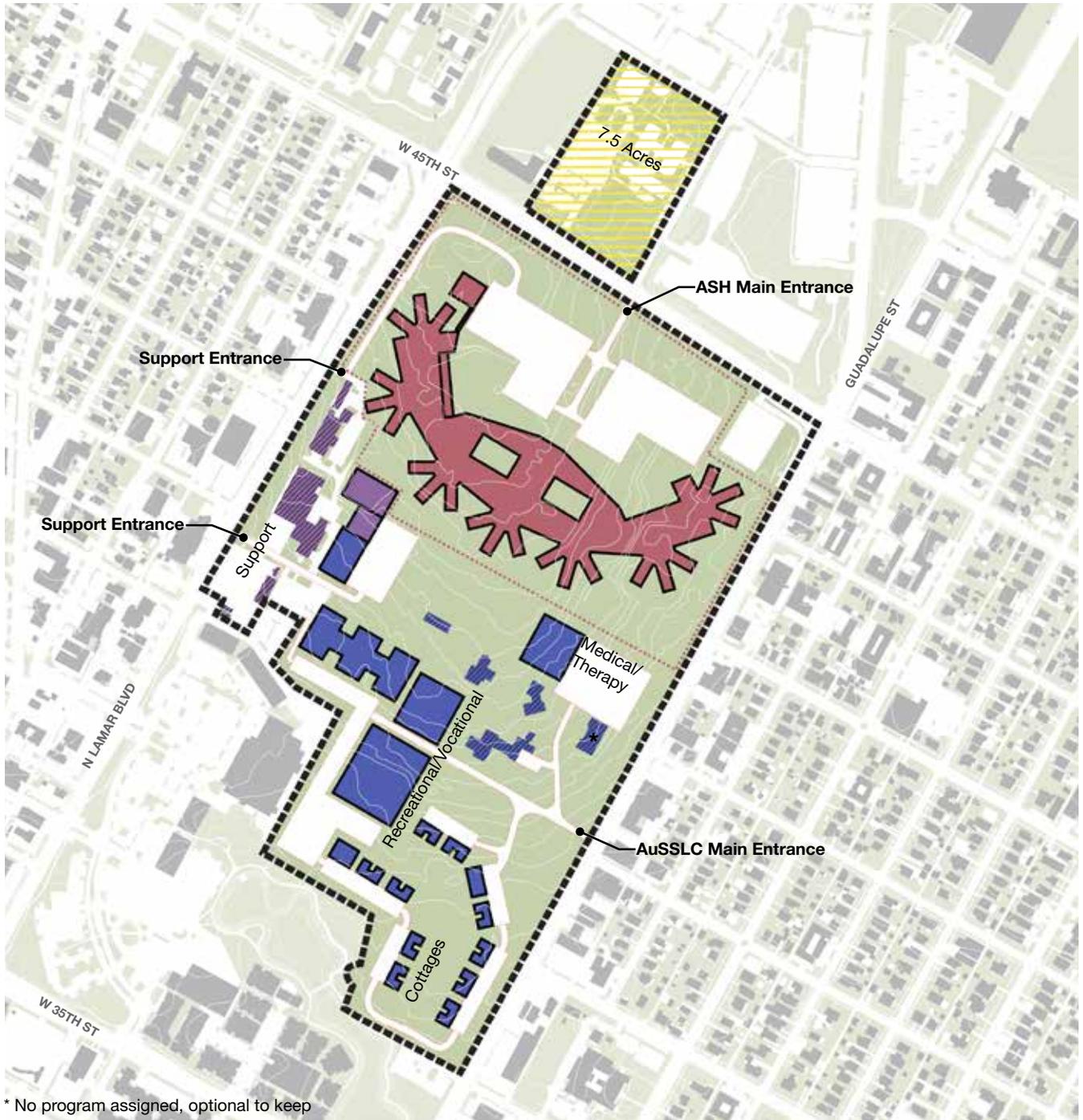
The majority of the site's significant mature tree areas can remain near the existing main entrance for ASH, which is the proposed new entrance for AuSSLC. Building 501 is required to remain as a State Antiquities Landmark and could make an attractive and functional administration building if renovated. A few surrounding existing buildings may also be re-purposed for AuSSLC administration space. Building 554 is not necessary to meet AuSSLC's space needs but could be retained for additional storage.

AuSSLC's campus in the southern portion of the site provides a quiet and insular environment for its residents. The administration and recreational/vocational buildings are centrally located to provide convenient access for residents and staff. The cottages are arranged in a cluster, away from busy Guadalupe Street and are located near the public park to the south, providing a therapeutic landscape view.

Both ASH and AuSSLC are much more compact in this configuration than on their existing campuses. This increases efficiency and convenience for staff and residents, but it also reduces the amount of open space, both active and passive, they have surrounding their buildings.

Consolidating the ASH facility into a single building makes the 7.5 acre parcel north of W 45th Street available for development in addition to creating operational efficiency within the new building. The new ASH facility is located to minimize impact on existing facilities during construction. The main residential buildings for ASH are currently located at the northern and southern portions of the site. Carefully phasing these areas allows for ASH to continue operations in the existing space until new space is available. HHSC's schedule to vacate their existing buildings will also impact this phasing.

Since ASH and AuSSLC are sharing some support space, some efficiency can be gained, rather than building two of each type of space. There is also a surplus of support space in existing ASH buildings that could remain to serve both facilities.



* No program assigned, optional to keep

- New Building
- New Paving
- ASH Building
- Existing Building
- AuSSLC Building
- Shared Building
- Site Boundary



Total Site Area: 97.5 Acres
ASH: 40 Acres
AuSSLC: 42 Acres
Shared: 8 Acres
Development Area: 7.5 Acres

OPTION 3: ASH & AUSSLC ON ASH SITE

Facility	Target SF	SF Accommodated in Option 3	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	50747		ASH only new support space, see table below for combined support
Unassigned				
TOTAL	469616	457116		
AuSSLC				
Residential	106930	106930		
Administration	59779	66500	6721	
Recreational/Vocational	192845	192845		
Medical/Therapy	32889	32889		Could reduce new building size if repurposing 554 and/or taking surplus admin space in existing buildings
Support	54336	25506		Only support space dedicated to AuSSLC is the storage/warehouse, see below for combined support
Unassigned		13523	13523	Building 554, no program assigned
TOTAL	446779	438193	20244	Deficit is made up in shared support space, see below
SHARED SUPPORT				
AuSSLC only		25506		Total existing support space able to remain: 54912 SF Total new support space: 101472 SF
ASH only		50747		
Shared		80131		
TOTAL SUPPORT		156384		

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 3 retains several buildings from the existing ASH facilities, including support spaces, the main administration building, and additional building noted by the Texas Historical Commission as historically significant. Portions of these buildings are assumed able to be renovated to accommodate similar support functions as their current uses. However, the current condition of these buildings was not studied in detail, nor was the full potential for reuse. Because some buildings are able to be re-used or renovated, there is an overall surplus of support space that can be used to accommodate both ASH and AuSSLC functions. Further study is needed to evaluate strategies that could increase space efficiency.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 3 - ASH & AuSSLC on ASH CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection					█	█																																				
4 Programming						█	█	█																																		
5 Design & Documentation to Initiate Construction							█	█	█	█																																
6 Bidding & Permitting																																										
7 Demolition to Prepare for Phase 1																																										
8 Construct Phase 1 of ASH																																										
9 Occupy Phase 1 of ASH																																										
10 Demolish Building 794																																										
11 Construct Phase 2 of ASH																																										
12 Occupy Phase 2 of ASH																																										
13 Demolish Buildings 781, 784 & 785																																										
14 Construct SSLC																																										
15 Occupy SSLC																																										
ENABLING TASK																																										
16 Date HHSC Employees Must be Vacated from ASH																																										
17 HHSC Employees housed in lease space																																										
18 Construct HHSC Replacement Building																																										
19 Occupy HHSC Replacement Building																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

Schedule

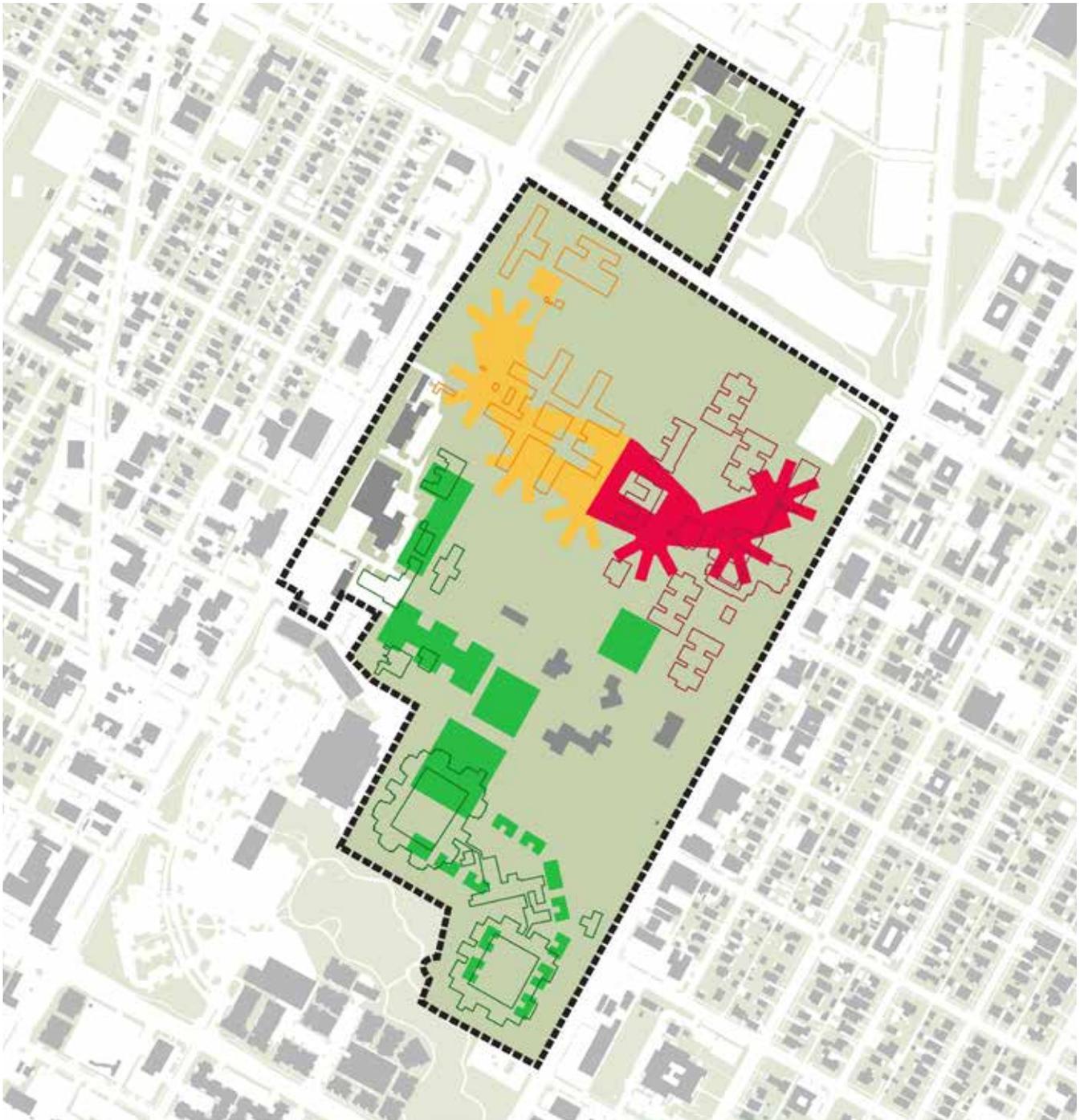
The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

Option 3 on the ASH campus reflects the construction of a new ASH facility to make space for later construction of the AuSSLC facility. In order to do this and maintain existing operations, a first phase of construction must be placed in a location currently occupied by HHSC employees not directly related to ASH. The study assumes these employees will be placed in temporary lease space while a permanent office building is constructed to house them off-site. Final occupancy for AuSSLC is estimated in late 2026.

Sequencing

All sequencing for the construction is based on maintaining current ASH operations until a new facility is completely or partially open. The primary ASH facility in Option 3 is to be sequenced in two construction phases in order to accomplish this, with the east half constructed first, followed by the west half once the first phase is occupied. Once ASH has fully occupied its new facility on the northern portion of the site, demolition and construction for the AuSSLC facility can take place on the southern portion.

OPTION 3: ASH & AUSSLC ON ASH SITE



- Phase 1 Demo
- Phase 2 Building
- Phase 1 Building
- Phase 3 Demo
- Phase 2 Demo
- Phase 3 Building



Traffic Impacts and Recommendations

Traffic analysis was conducted for the ASH campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

- Additional trips are due to existing relocated AuSSLC trips to ASH site, additional 13.7% vehicular trips were generated by ASH facility and additional 8.1% vehicular trips generated by AuSSLC were generated at this site based on percentage increase in number of beds at both facility.
- Use of public transportation and alternate mode of transportation is assumed to be increased at the same proportion as existing condition.
- Proposed ASH Main Entrance from Guadalupe Street is expected to experience approximately 180 left turning and 215 right turning vehicles entering to the driveway during morning peak hour. Similarly, the total vehicles exiting out of proposed drive is approximately 150 and 175 respectively for left and right turns during afternoon peak hours.
- These turning movements meet the warrant for providing exclusive left and right turn lanes based on TxDOT Access Management Manual.
- The existing ASH entrance from Guadalupe Street is proposed to be main entrance for AuSSLC under this option. The existing traffic volume using this driveway is comparable to proposed traffic volume for AuSSLC expected to use this driveway. The operation of traffic signal is expected to stay relatively unchanged at this driveway.
- All major surrounding roadway links (W 45th Street, W 38th Street, Guadalupe Street and North Lamar Blvd) to this facility have two lanes in each direction and has sufficient capacity to handle additional trips generated. The surrounding intersections will require signal timing adjustments based on added volumes.
- Both of the support entrances will be un-signalized and is expected to function well and it is assumed that these support entrances will be primarily used by staff and other delivery to the facility.

Recommended Mitigation

- Provide geometric improvements at proposed main entrance. The geometric improvements should include addition of new exclusive left and right turn lanes with acceleration and deceleration lanes.
- Signalize proposed ASH main driveway entrance from W 45th Street as the traffic volumes at this driveway is expected to meet Texas MUTCD traffic signal Warrant.
- Upgrade traffic signal at the proposed AuSSLC Main Entrance from Guadalupe Street.
- Provide signal timing modification at the following traffic signal to accommodate additional traffic volumes.
 - W 45th St. and N Lamar Blvd.,
 - W 40th St. and N Lamar Blvd.,
 - W 38th St. and N Lamar Blvd.,
 - W 38th St. and West Ave.,
 - W 38th St. and Guadalupe St.,
 - W 45th St. and Guadalupe St.

06-D Option 4

**ASH & AuSSLC on
AuSSLC Site**

OPTION 4A: ASH & AUSSLC ON AUSSLC SITE

Three sub-options were tested under Option 4. As the language of SB 200 focuses on a replacement ASH facility, the first two sub-options studied the potential of developing a new hospital facility, while reducing the impact on existing AuSSLC facilities. Option 4A examined an optimal separation between ASH and AuSSLC, and Option 4B attempted to preserve a portion of the historic core of the campus that the Texas Historical Commission determined to be of historical value. The last sub-option, Option 4C, proposed two completely new facilities on the site. This provides a parallel scenario to that of Option 3 on the ASH site.

Test Fit Layout

Existing ASH Site Suitability

The current AuSSLC site imposes a series of constraints on a co-location for both ASH and AuSSLC. However, it is likely able to feasibly fulfill most of the required site criteria for ASH and AuSSLC. Its size and location within a quiet, yet friendly, residential area with easy access to major streets, transit, and amenities make it an especially attractive home for both the residents and staff. The existing AuSSLC site configuration in its spacious and pastoral arrangement will change significantly with the addition of more buildings to accommodate ASH.

Access to the site is constrained by the Mopac Expressway to the east, residential property abutters to the south, and a combination of steep topography and a privately owned parcel on the west side of the site. Therefore, the main entrance for both facilities will likely be located on the northern edge of the site on W 35th Street, which may challenge institutional separation and emergency access. An existing cemetery on the southern boundary of the site cannot be disturbed or moved, so that establishes further constraints on building in that area.

While every effort will be made to provide a continuous level of care, AuSSLC will need to make some temporary accommodations to support the construction of new facilities on this site. This may have a significant impact on the more sensitive residents already living in the existing AuSSLC facilities

Option 4A Site Test Fit

In this layout, the ASH facility is located on the eastern side of the site, with AuSSLC on the western side, separated by the existing Valley Drive. Some shared support facilities are located along the boundary between the facilities, toward the southern end of the site. The main entrances for both campuses are located on W 35th Street with a support entrance on Exposition. ASH uses the existing AuSSLC entrance, and AuSSLC builds a new entrance to the west.

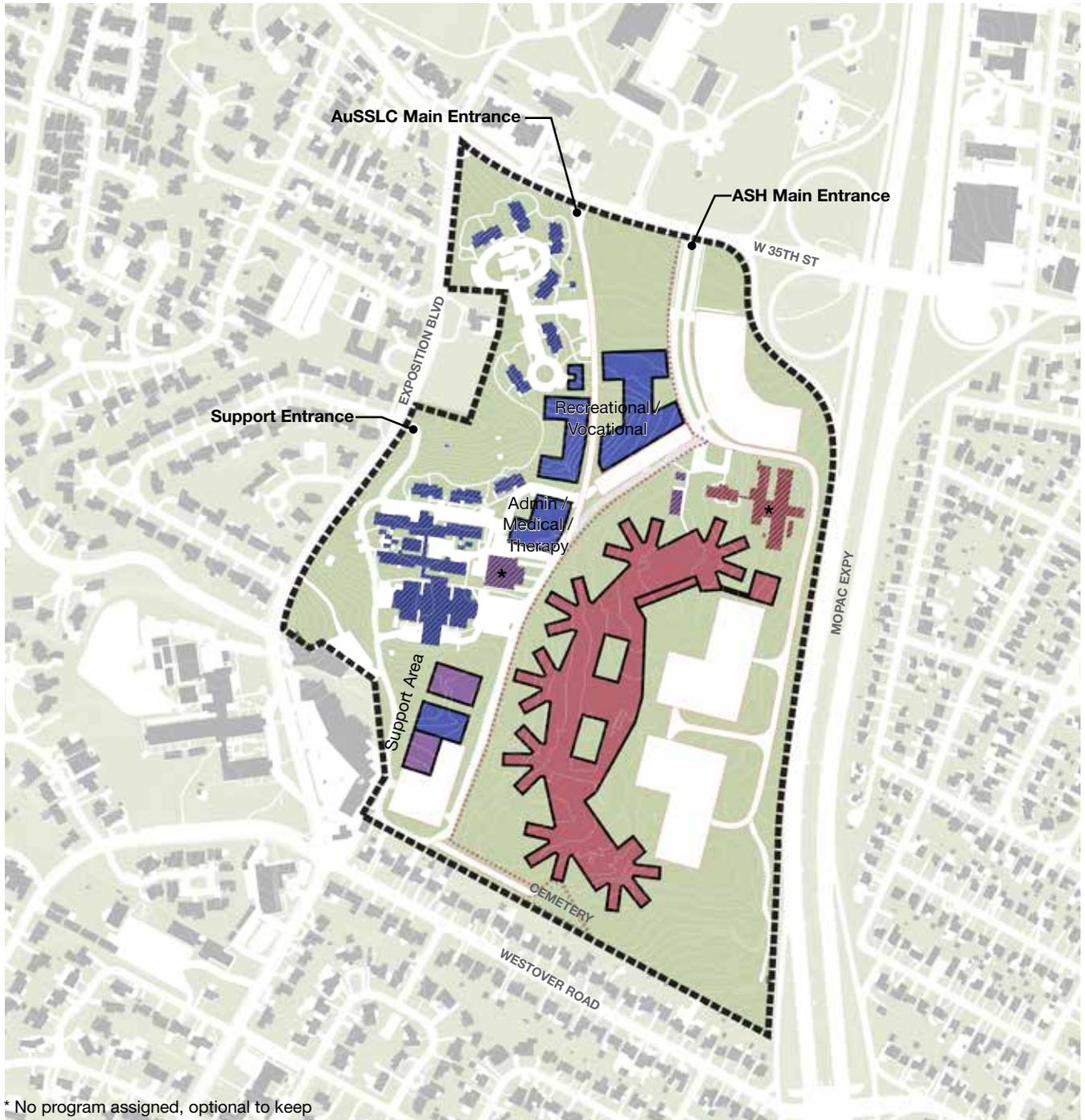
A gated connector between the ASH and AuSSLC road network could provide access for support vehicles or staff that move between facilities.

AuSSLC will retain its existing space for medically fragile residents as well as most of the cottages. Since AuSSLC currently has more residential cottage buildings than it needs, several will be demolished. With the additional site demands, this layout cannot accommodate cottages in a remote location for sensitive populations, as AuSSLC has today. New recreational/vocational and administrative/medical/therapy buildings for AuSSLC are needed to clear space for ASH's new facilities. Removal of a grouping of mature trees and careful site grading is required to accommodate these new recreational/vocational buildings. A existing recreation field for AuSSLC is maintained and expanded on the northern edge of the site since the southern field is eliminated.

To accommodate the ASH facility, the entirety of the potential historical district, as described by the Texas Historical Commission, will need to be removed, along with the majority of the mature trees in this area. The existing AuSSLC chapel and medical/therapy buildings can remain for either shared or ASH's use, if preferred. However, it is not necessary to meet space demand. To accommodate parking demand, most of AuSSLC's parking is located in the northeastern corner of the site, adjacent to the highway ramp, along with other parking distributed throughout the site.

Since ASH and AuSSLC are sharing some support space, some efficiency can be gained, rather than building two of each type of space. The existing AuSSLC maintenance facility is not required to meet the space need, so it is optional to remain.

AuSSLC's existing campus will see a significant impact from the construction process and eventual addition of the ASH campus. AuSSLC facilities are mostly remaining as they are, which is in satisfactory or worse condition according to the Texas Condition Code.



* No program assigned, optional to keep

- New Building
- New Paving
- ASH Building
- Existing Building
- AuSSLC Building
- Shared Building
- Site Boundary



Total Site Area: 95 Acres
ASH: 47 Acres
AuSSLC: 40 Acres
Shared: 8 Acres

OPTION 4A: ASH & AUSSLC ON AUSSLC SITE

Facility	Target SF	SF Accommodated in Option 4A	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		Could reduce bldg footprint if using 543 and 727
Recreational/Vocational	30506	30506		Share AuSSLC's chapel if desired to reduce single building size
Medical/Therapy	41065	41065		
Support	63247	50747		Within new ASH facility, see table below for combined support
Unassigned		40830	40830	543 and 727 available to repurpose for ASH, no program assigned
TOTAL	469616	497946	28330	
AuSSLC				
Residential	106930	136866	29936	Existing cottages are larger than required
Administration	59779	59779		
Recreational/Vocational	192845	192845		Chapel is shared w/ ASH
Medical/Therapy	32889	32889		
Support	54336	20033		AuSSLC only warehouse/storage, see below for combined
Unassigned				
TOTAL	446779	442412	-4367	Deficit is made up in shared support space, see below
SHARED SUPPORT				
AuSSLC only		20033		Existing maintenance building is surplus support space
ASH only		50747		
Shared		53716		Total existing support space able to remain: 17551 SF Total new support space: 106945 SF
TOTAL SUPPORT		124496		

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 4A retains many buildings currently used in the AuSSLC facilities, primarily in the residential areas. These buildings do not match the exact area noted in the program requirements, resulting in a surplus of space for the AuSSLC facilities. Additionally, two existing AuSSLC buildings are retained in the ASH campus for this option as well as the existing maintenance facility. The current condition of these buildings was not studied in detail, nor was the potential for reuse. Therefore, it is not assumed that they will accommodate a specific portion of the required program area. This results in a surplus of space that can be used to accommodate ASH or AuSSLC functions. Further study is needed to evaluate strategies that could increase space efficiency.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 4A - ASH & AuSSLC on SSLC CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection				█	█																																					
4 Programming						█	█																																			
5 Design & Documentation to Initiate Construction						█	█	█	█																																	
6 Bidding & Permitting										█	█																															
7 Demolish Buildings for New SSLC Construction											█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█							
8 Construct Vocational/Recreational SSLC Buildings												█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█							
9 Occupy New SSLC Buildings																																										
10 Demolish Vacated SSLC Buildings																																										
11 Construct New ASH																																										
12 Occupy New ASH																																										
TASK TO VACATE ASH																																										
13 Construct HHSC Replacement Building																																										
14 Occupy HHSC Replacement Building																																										
15 ASH Site Available for Sale/Lease																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

Schedule

The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

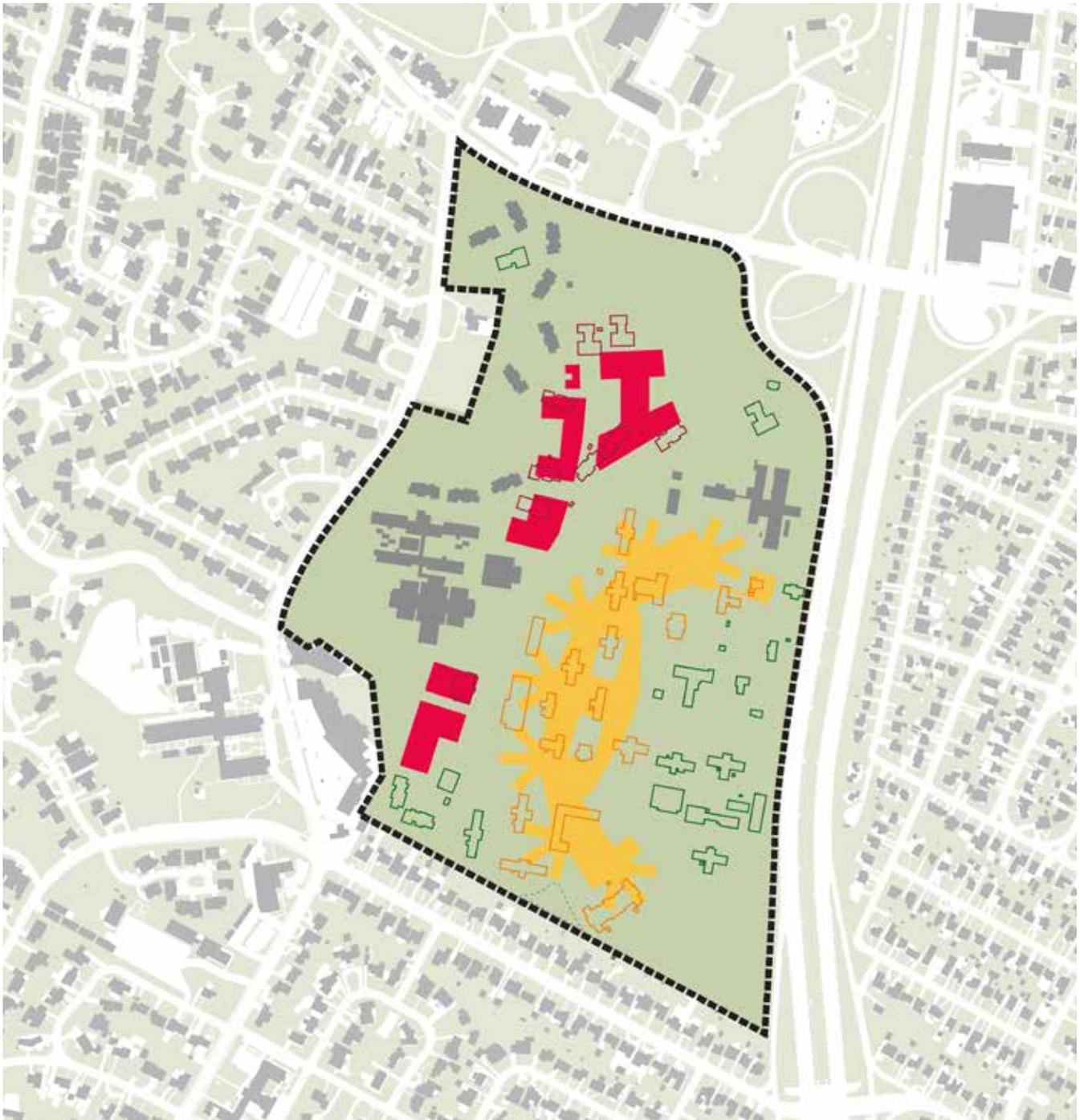
Options 4A and 4B are assumed to maintain a similar schedule. For these options, limited new facilities are constructed for the AuSSLC facility in order to vacate the east half of the site. This is followed by demolition and construction of the ASH facility. Final occupancy for ASH is estimated in late 2024.

Non-ASH employees housed on the ASH campus must be moved in this scenario only in time to vacate the ASH site for sale or lease. It is assumed they will remain in place until a replacement facility is constructed off-site. An estimated timeline is shown, though this can shift some without impacting the site’s availability, as ASH is to remain in place until 2024.

Sequencing

All sequencing for the construction is based on maintaining current AuSSLC operations until a new facility is completely. New facilities for administrative and vocational functions must be constructed first in order for AuSSLC to vacate the east half of the site. Following this, demolition and construction of the ASH facility can commence.

OPTION 4A: ASH & AUSSLC ON AUSSLC SITE



- Phase 1 Demo
- Phase 2 Building
- Phase 1 Building
- Phase 3 Demo
- Phase 2 Demo



Traffic Impacts and Recommendations

Traffic analysis was conducted for the AuSSLC campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

- Under this option, all ASH trips are added to existing AuSSLC site. Since ASH has higher trips compared to AuSSLC, more than 350 cars are expected to turn left from W 35th St. onto proposed ASH main entrance during morning peak hour. The number of vehicles turning left is much higher at this site because this site has major highway (Mopac Expressway) in close proximity on east side. Due to this the directional split for cars using this site is approximately 90% from east and 10% from west side.
- The proposed ASH main entrance is approximately 150 feet from the exit ramp from Mopac Expressway. This driveway and exit ramp is located on the opposite side of the road. Since there is a significant traffic that is expected to use this exit ramp to enter proposed ASH main entrance, these vehicles have to cross two lanes of through traffic in approximately 150 feet. Therefore, this section of roadway is expected to experience significant weaving movements and a short distance would be a safety concern.
- Based on the available imagery and site observation, it appears that there is limited sight distance available at this location due to vertical curve on W 35th Street and horizontal sight obstruction due to tree line for traffic coming from exit ramps.
- The separation of proposed driveway between ASH and AuSSLC appears to meet the 300 feet separation requirement for hill country roadways of the City of Austin Transportation Requirement Manual. However, this does not meet the spacing requirement between the exit ramp and proposed ASH main entrance. Also 300 feet is not sufficient distance to weaving movement as discussed above.
- The proposed AuSSLC entrance is expected to function well as it is further away from exit ramp and has significantly less left turning traffic compared to proposed ASH Main Entrance.
- Given the proximity to the major highway and two through lanes in each direction along W 35th Street, the roadway link has enough capacity to handle added traffic.

Recommended Mitigation

- Consider relocating ASH Main entrance to Exposition Blvd or move as much further west as practical to provide maximum possible weaving length.
- Provide an exclusive left turn lane at both ASH and AuSSLC traffic turning left from W 35th Street.
- Signalize proposed ASH Driveway as it is expected to Texas MUTCD meet the traffic signal warrant.
- Depending on the final location of driveway, provide signage to warn vehicles about the limited sight distance for the drivers.

OPTION 4B: ASH & AUSSLC ON AUSSLC SITE

Test Fit Layout

Option 4B Site Test Fit

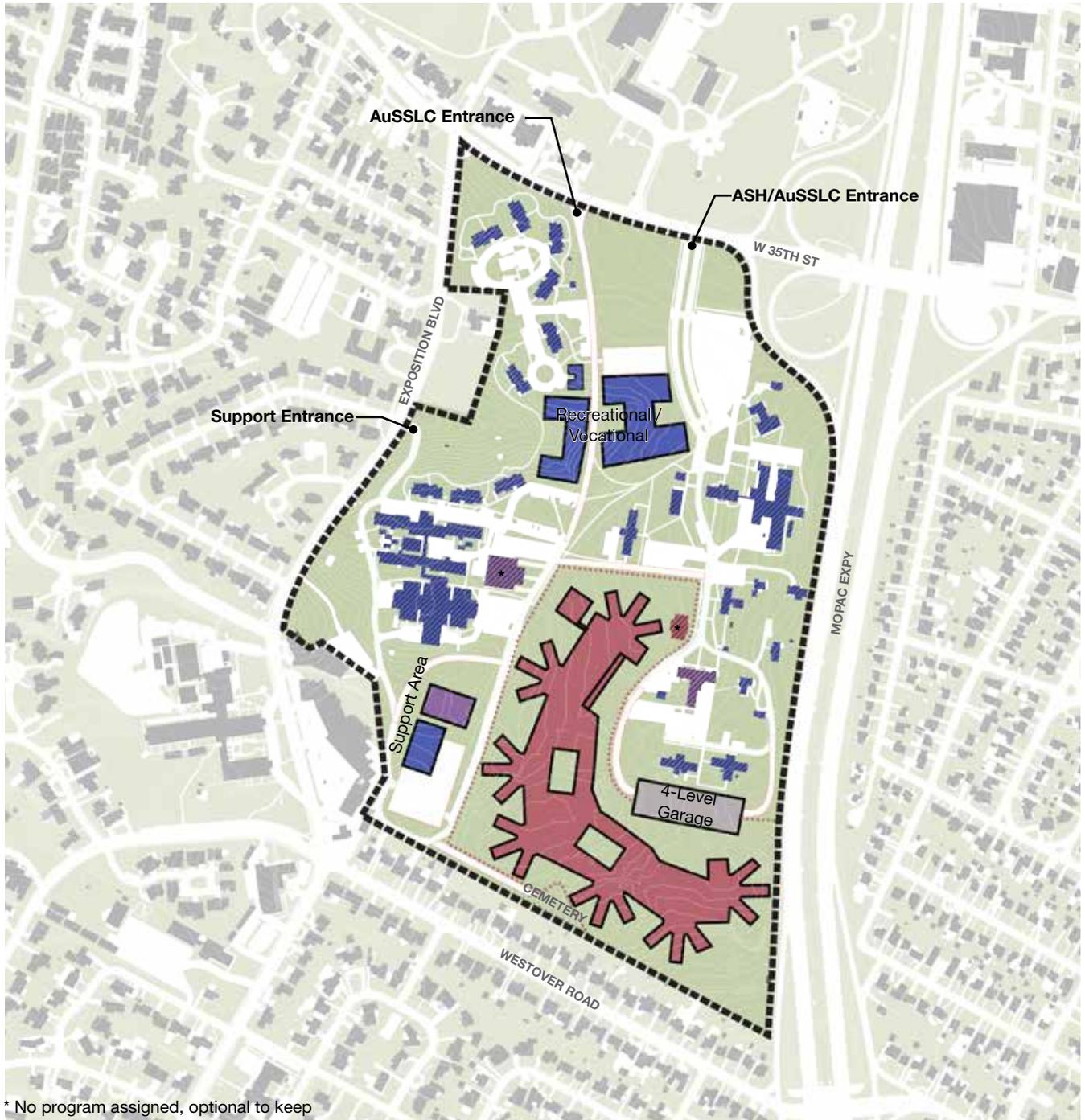
The objective for this alternative is to preserve as much of the potential historical district and mature tree groupings as possible on the eastern portion of the site. The ASH facility is located in the southern portion of the site with AuSSLC and shared support facilities surrounding it. Both main entrances are on W 35th Street with a support entrance on Exposition Blvd. ASH will use the existing AuSSLC entrance, and AuSSLC will build a new entrance to the west. In this configuration, AuSSLC will likely also use the ASH entrance, especially those staff and visitors driving to the eastern portion of the site. This degrades the desired separation of entrances for each campus.

In order to reduce the overall footprint of the ASH facility, all ASH parking is concentrated in a single, 4-level parking structure. Separate parking areas can be provided within the garage as well as separate building entrances. With the ASH facility tightly constrained, avoiding the existing cemetery will be a challenge, especially during construction.

Since many of the existing AuSSLC buildings remain, only the recreational/vocational facilities need to be completely relocated into a new building. A storage building and a cottage are the only other new structures dedicated to AuSSLC.

Since ASH and AuSSLC are sharing some support space, some efficiency can be gained, rather than building two of each type of support space. The existing AuSSLC maintenance facility is not required to meet the space need, so it is optional to remain.

AuSSLC's existing campus will see a significant impact from the construction process and eventual addition of the ASH campus. AuSSLC facilities are mostly remaining as they are, which is in satisfactory or worse condition according to the Texas Condition Code.



* No program assigned, optional to keep

- New Building
- New Paving
- ASH Building
- Existing Building
- AuSSLC Building
- Shared Building
- Site Boundary



Total Site Area: 95 Acres
ASH: 28 Acres
AuSSLC: 59 Acres
Shared: 8 Acres

OPTION 4B: ASH & AUSSLC ON AUSSLC SITE

Facility	Target SF	SF Accommodated in Option 4B	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		Share AuSSLC's chapel if desired to reduce single building size
Medical/Therapy	41065	41065		
Support	63247	50747		Within new ASH facility, could reduce footprint if using 518, see below for combined support
Unassigned		12578	12578	518 available to renovate for ASH, no program assigned
TOTAL	469616	469694	78	
AuSSLC				
Residential	106930	144880	37950	Existing cottages are larger than required
Administration	59779	59779		Keep some existing admin space and renovate some residential and vacant buildings to accommodate the rest
Recreational/Vocational	192845	192845		Recreational/vocational building uses will remain as is, with new buildings accommodating the remaining program
Medical/Therapy	32889	32889		Keep existing space and 4,812 SF of renovated space
Support	54336	20033		AuSSLC only warehouse/storage, see below for combined
Unassigned		6002	6002	Unprogrammed space in existing buildings
TOTAL	446779	456428		
SHARED SUPPORT				
AuSSLC only		20033		Existing maintenance building is surplus support space
ASH only		50747		
Shared		53759		Total existing support space able to remain: 35009 SF
TOTAL SUPPORT		124539		Total new support space: 89530 SF

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 4B retains a number of buildings within a district noted as historically significant by the Texas Historical Commission. Though it is assumed many of these can be renovated and reused, the current condition of these buildings was not studied in detail, nor was the potential for reuse. Further study is needed to evaluate renovation and space efficiency strategies.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 4B - ASH & AuSSLC on SSLC CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█	█																																					
3 Design Team Selection					█	█																																				
4 Programming						█	█	█	█																																	
5 Design & Documentation to Initiate Construction						█	█	█	█	█																																
6 Bidding & Permitting											█	█																														
7 Demolish Buildings for New SSLC Construction												█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
8 Construct Vocational/Recreational SSLC Buildings													█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
9 Occupy New SSLC Buildings																																										
10 Demolish Vacated SSLC Buildings																																										
11 Construct New ASH																																										
12 Occupy New ASH																																										
TASK TO VACATE ASH																																										
13 Construct HHSC Replacement Building																																										
14 Occupy HHSC Replacement Building																																										
15 ASH Site Available for Sale/Lease																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

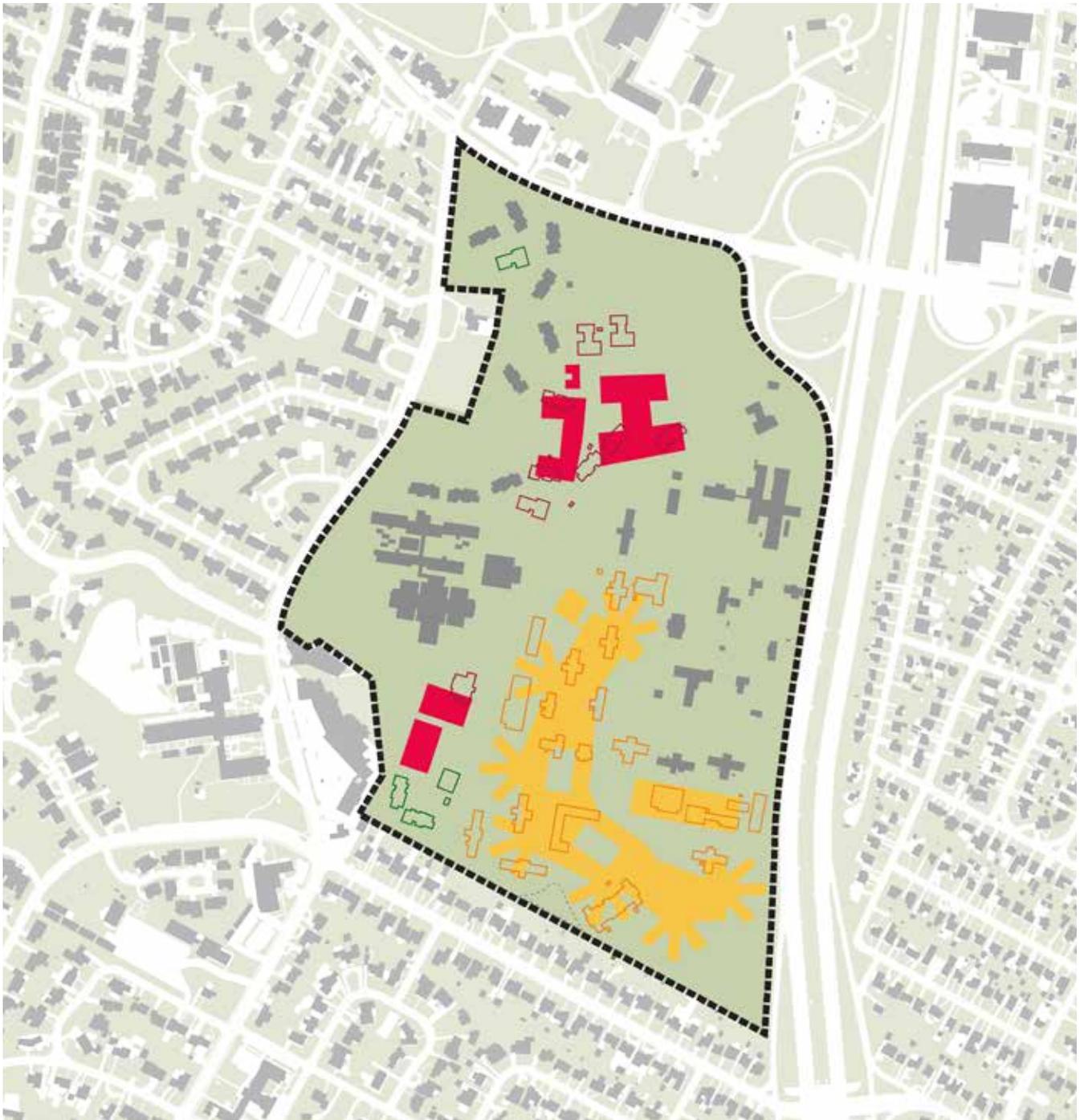
Schedule

The above schedule matches that shown previously in Option 4A. It is assumed that construction of either option will have a similar duration.

Sequencing

Sequencing for Option 4B closely mimics that of Option 4A. New administrative and vocational facilities must first be constructed on the west half of the site. This would be followed by demolition and construction of a new ASH facility on the east half. This construction phase can also include renovation of existing structures to be maintained on the east half of the site.

OPTION 4B: ASH & AUSSLC ON AUSSLC SITE



- Phase 1 Demo
- Phase 2 Building
- Phase 1 Building
- Phase 3 Demo
- Phase 2 Demo



Traffic Impacts and Recommendations

Traffic analysis was conducted for the AuSSLC campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

- This option is similar to Option 4A, except under this option, ASH main entrance is shared by some additional AuSSLC traffic. Based on the trip generation and distribution, under this alternative, the number of vehicles turning left at this combined driveway is expected to increase more. There will be more than 400 vehicles turning more at this driveway which means there will be more weaving traffic. As a result the problem discussed under Option 4A will be worsened further.
- Since this option is very similar to Option 4A, all other issues discussed Option 4A will be applicable to this option.

Recommended Mitigation

- Since this option will have more weaving movement, it is recommended to combine the proposed ASH and AuSSLC entrance to one entrance and possibly locating this drive to the proposed AuSSLC location on the west side of proposed ASH/AuSSLC entrance.
- Assess relocating this driveways from Exposition Blvd to eliminate the need of weave.
- Implement other applicable recommendation as discussed under Option 4A

OPTION 4C: ASH & AUSSLC ON AUSSLC SITE

Test Fit Layout

Option 4C Site Test Fit

This site layout assumes that both ASH and AuSSLC receive new facilities on the existing AuSSLC site. In this layout, ASH uses the existing AuSSLC site entrance on W 35th Street and AuSSLC builds a new entrance to the west, also on W 35th Street. The shared support entrance is located on Exposition Blvd.

The ASH entrance drive wraps along the east side of the site to access the parking areas for the new ASH facility. The ASH building is contained within the existing drives to the north and west, dedicating the rest of the site to the AuSSLC campus as well as the shared support facilities to the south. Sharing these support facilities increases site efficiency since two of each type of support space would not need to be constructed.

The drives within the site connect the two campuses via the existing central street, Valley Drive. Using this central spine, the ASH facility is surrounded by a loop road for ease of service access and any necessary movement between campuses.

Compared to the other alternatives on the AuSSLC site, this configuration provides ASH with the most open space surrounding the facility as well as additional space for future expansion.

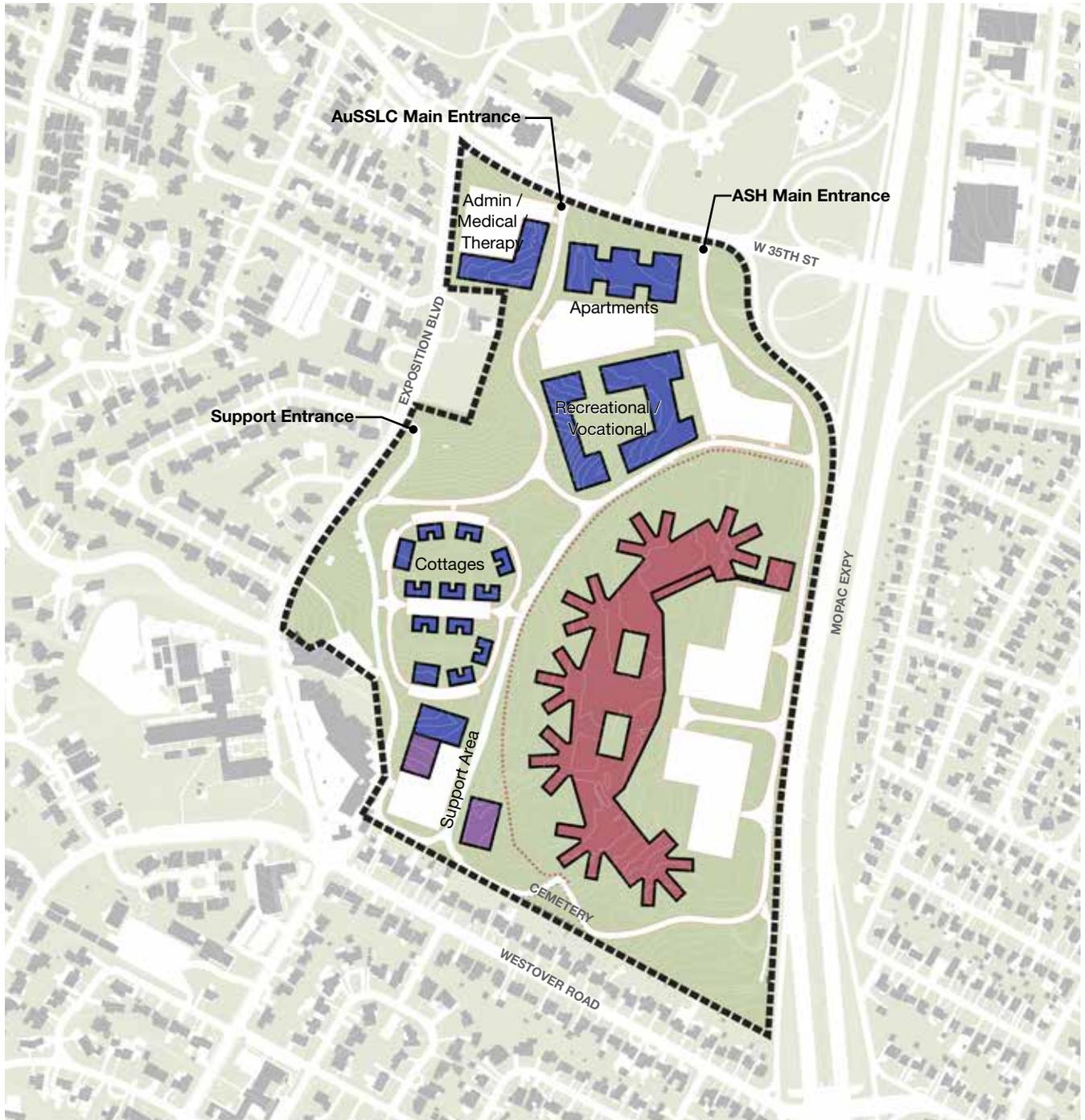
Since AuSSLC's current building stock is rated by the Texas Condition Code as satisfactory or below, new facilities could better serve AuSSLC's facility needs and reduce the burden of maintaining buildings that are vacant and/or need major repairs.

In this layout, AuSSLC has a relatively compact campus with program concentrated in single buildings or areas of the site, in contrast to the existing configuration where uses are more scattered around the campus. This could make the site more easily navigable for residents, visitors, and staff.

With the topographical constraints on the western portion of the site, the AuSSLC campus will require a significant amount of site work to create level areas for buildings, roads, and parking lots. Drainage and accessibility will also need to be addressed through further site planning.

All the proposed historical district buildings as well as nearly all of the mature canopy trees would need to be removed to accommodate this layout.

Constructing all new buildings on this site requires removal of AuSSLC's existing buildings, which is likely to have a significant impact on AuSSLC operations, even with a careful phasing strategy. The phasing strategy for this configuration is the most complex of all alternatives shown, increasing the exposure to disturbance.



- New Building
- New Paving
- ASH Building
- AuSSLC Building
- Shared Building
- Site Boundary
- Existing Building



Total Site Area: 95 Acres
ASH: 47 Acres
AuSSLC: 40 Acres
Shared: 8 Acres

OPTION 4C: ASH & AUSSLC ON AUSSLC SITE

Facility	Target SF	SF Accommodated in Option 4C	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	50747		All internal support space, central plant is shared
Unassigned				
TOTAL	469616	457116		
AUSSLC				
Residential	106930	106930		
Administration	59779	59779		
Recreational/Vocational	192845	192845		
Medical/Therapy	32889	32889		
Support	54336	20,033		AUSSLC only warehouse/storage, see below for combined
Unassigned				
TOTAL	446779	412476		
SHARED SUPPORT				
AUSSLC only		20033		Shared central plant and kitchen
ASH only		50747		
Shared		34915		
TOTAL SUPPORT		105695		

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 4C shows demolishing all existing structures on the AuSSLC campus and replaces them with new buildings. The test fit shows all building areas accommodated as represented in the idealized diagram for each campus, with the exception of a shared central plant that is assumed to be 150% the size of a single plant, rather than two separate full size plants. This gains some efficiency, though further study is needed to evaluate shared support space and strategies for increased space efficiency.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 4C - ASH & AuSSLC on SSLC CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection					█	█																																				
4 Programming						█	█																																			
5 Design & Documentation to Initiate Construction							█	█	█	█																																
6 Bidding & Permitting																																										
7 Construct New AuSSLC Medically-Fragile Building																																										
8 Demolish Buildings for New SSLC Construction																																										
9 Construct New AuSSLC Cottages and Buildings																																										
10 Demolish Buildings for New SSLC Construction																																										
11 Construct Final AuSSLC Cottages and Building																																										
12 Complete AuSSLC Occupancy																																										
13 Demolish Vacated SSLC Buildings																																										
14 Construct New ASH																																										
15 Occupy New ASH																																										
TASK TO VACATE ASH																																										
16 Construct HHSC Replacement Building																																										
17 Occupy HHSC Replacement Building																																										
18 ASH Site Available for Sale/Lease																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

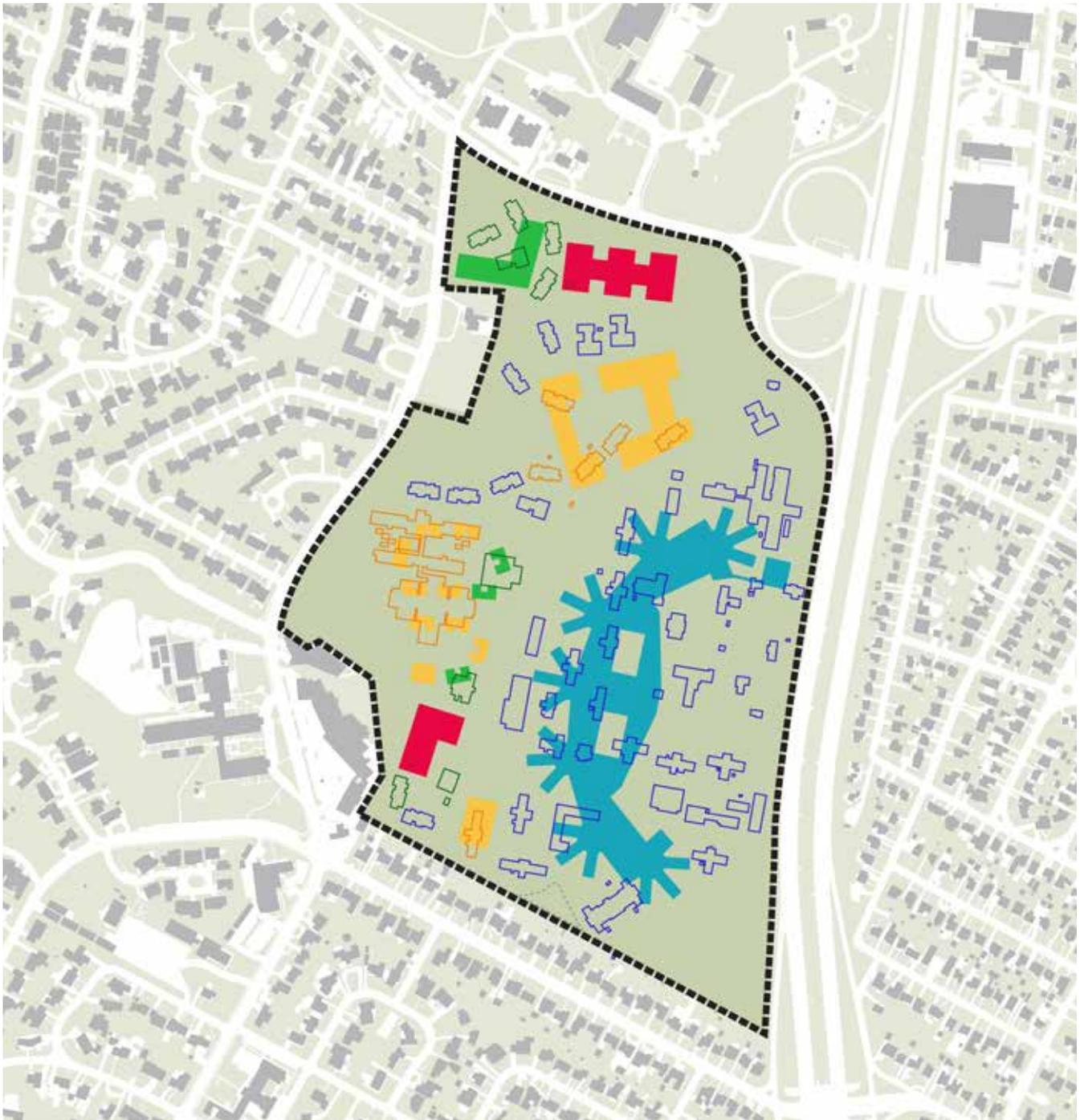
Schedule

The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

Option 4C involves several construction phases that must occur in sequence to minimize interruption to the existing campus operations and ensure that residents of AuSSLC only move one time during the process. This involves three different building phases to complete the AuSSLC portion of the campus. This is followed by demolition and construction of the ASH facility. Final occupancy for ASH in this scenario is in late 2026.

Non-ASH employees housed on the ASH campus must be moved in this scenario only in time to vacate the ASH site for sale or lease. It is assumed they will remain in place until a replacement facility is constructed off-site. An estimated timeline is shown, though this can shift some without impacting the site’s availability, as ASH is to remain in place until 2026.

OPTION 4C: ASH & AUSSLC ON AUSSLC SITE



- Phase 1 Demo
- Phase 1 Building
- Phase 2 Demo
- Phase 2 Building
- Phase 3 Demo
- Phase 3 Building
- Phase 4 Demo
- Phase 4 Building



Sequencing

Sequencing for a complete replacement of AuSSLC and new ASH facility on this site requires several construction phases. This is done to ensure that residents only move one time during the process to minimize the impact to their care. First, a new building must be constructed for the medically-fragile residents. This would be followed by construction of new cottages for the rest of the residents in the location of the former medically-fragile building. These first two phases can also incorporate the construction of new administration and vocational facilities. The third phase of construction would complete the last cottages and vocational space for AuSSLC. These phases would allow the east half of the site to be fully vacated for demolition and construction of a new ASH facility.

Traffic Impacts and Recommendations

Traffic analysis was conducted for the AuSSLC campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

Even though the site layout for this alternative is different than Option 4A, the access point location and expected traffic is same. All the traffic impacts discussed for Option 4A are valid for this alternative.

Recommended Mitigation

Refer to mitigation measure recommended for Option 4A.

06-E Option 5

ASH & AuSSLC on Alternative Site

OPTION 5: ASH & AUSSLC ON ALTERNATIVE SITE

Test Fit Layout

Site Identification

Similar to Option 2, no specific site was selected to develop a test fit for both ASH and AuSSLC replacement facilities co-locating on an alternative site. Again, a variety of commercially-available properties were examined to determine the availability of parcels meeting the requirements of both facilities.

Parcels of the necessary size in Travis County were sparsely available. A couple parcels were identified with an overall size just slightly below the determined requirement for a combined campus. Site specific study would need to be evaluated to determine the feasibility of a smaller site using strategies such as structured parking or multi-level buildings. These parcels ranged in cost from about \$185,000 per acre to \$450,000 per acre.

Numerous parcels were available in Williamson County and Hays county that met the size requirements for a combined campus. Roughly one-third of the available parcels were located along or near I-35, and the remainder were located along secondary highways or arterial rounds outside the core communities. Land value for these parcels ranged from about \$40,000 per acre to just over \$150,000 per acre.

Further study would be required in any site selection process to determine the available utilities, services, access, and developable area for a given parcel.

Site Assumptions

The conceptual ideal diagrams, discussed previously in this report, include the assumed program elements and conditions for new ASH and AuSSLC facilities. These conceptual diagrams inform the process when identifying new sites that may be appropriate.

The combined 78 acre ideal diagrams assume a flat site, free of topographical challenges and specific on-site stormwater retention needs. The ideal diagrams do not take into account surrounding site conditions or land uses that may necessitate a site planning response. Zoning and other regulatory restrictions such as easements and setbacks also are not included.

In order to respond to the factors of an existing site, the actual site area may be larger than 78 acres. However, if assumptions for parking or the building configuration change, the required footprint may be reduced. Providing some or all structured parking, rather than surface lots could reduce the land area requirements by 6-9 acres. Similarly, re-configured building footprints or stacking some buildings 2 or more stories could also reduce the land area needed. Altering these assumptions would require a discussion of the trade-offs between the program requirements initially stated and the adjustments to reduce the overall footprint. These include compromises on building and land cost, desired function, and operations.

Option 5 Site Test Fit

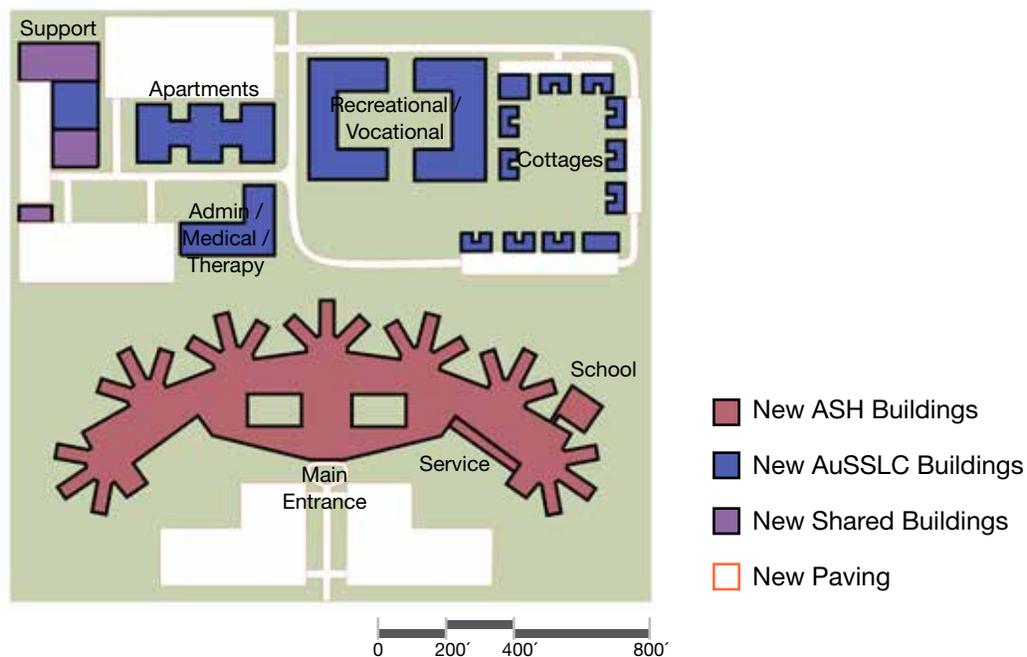
This configuration is based on the idealized diagrams for both the ASH and AuSSLC facilities, which accommodate all the assumed program elements for each. This layout also provides drive access through the site, including parking lots and a drop-off zone at the main entrance for ASH.

The AuSSLC campus is configured with the support functions consolidated together at the edge of the site. Vehicles from this support area have easy access to AuSSLC facilities. Depending on adjacent site conditions and traffic, service vehicles could either access ASH via surrounding streets or on a drive created through the site.

In this configuration, the desire to replicate the open, pastoral quality of the existing AuSSLC campus balances with the desire to minimize the required development footprint for site efficiency. Therefore, a series of open spaces organize the site by providing connections as well as the necessary spaces for passive enjoyment, active recreation, and aesthetic and therapeutic benefits.

AuSSLC has a cluster of cottages surrounding a central open space that connects with the larger and more active open spaces associated with the recreational and vocational buildings. The administrative/medical/therapy building and the medically fragile apartments also front a secondary open space for passive enjoyment.

By locating another site for new ASH and AuSSLC facilities, the impact on existing facility operations is minimized. Construction occurs away from the existing facilities, and the relocation of residents can happen once construction is complete, at whatever pace is deemed appropriate by staff, without impact on phasing or construction timelines.



OPTION 5: ASH & AUSSLC ON ALTERNATIVE SITE

Facility	Target SF	SF Accommodated in Option 5	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	50747		All internal support space, central plant is shared
Unassigned				
TOTAL	469616	457116		
AuSSLC				
Residential	106930	106930		
Administration	59779	59779		
Recreational/Vocational	192845	192845		
Medical/Therapy	32889	32889		
Support	54336	20,033		AuSSLC only warehouse/storage, see below for combined
Unassigned				
TOTAL	446779	412476		
SHARED SUPPORT				
AuSSLC only		20033		Shared central plant and kitchen
ASH only		50747		
Shared		34915		
TOTAL SUPPORT		105695		

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. As Option 5 is absent a specific site with existing structures or site influences, the total program accommodated for primary functions matches the area prescribed in the program requirements, though some efficiency can be gained through a shared central plant that is assumed to be 150% the size of a single, rather than building two full size plants. Support facilities for the two facilities are partially combined into a shared support area, but consolidation should be studied in more detail for a co-located campus.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 5 - ASH & AuSSLC ON ALTERNATIVE SITE

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection						█	█																																			
4 Programming								█	█																																	
5 Design & Documentation to Initiate Construction									█	█	█	█																														
6 Bidding & Permitting																																										
7 Construct New ASH & SSLC																																										
8 Occupy New ASH & SSLC																																										
ENABLING TASK																																										
9 Land Selection & Acquisition																																										
10 Site Survey/Geotechnical Assessment																																										
TASK TO VACATE ASH & SSLC																																										
11 Construct HHSC Replacement Building																																										
12 Occupy HHSC Replacement Building																																										
13 ASH & SSLC Sites Available for Sale/Lease																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

Schedule

The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

In this option, land must be purchased following legislative approval. Consequently, design activities are delayed until a point in the land acquisition process that the State can be reasonable certain about the site selection.

Option 5 considers development on a currently undeveloped site. As such, new ASH and AuSSLC facilities can be constructed simultaneously without demolition of existing facilities. Final occupancy for ASH is estimated to be early 2023.

Non-ASH employees housed on the ASH campus must be moved in this scenario only in time to vacate the ASH site for sale or lease. It is assumed they will remain in place until a replacement facility is constructed off-site.

Sequencing

Option 5 assumes a single phase of construction for both ASH and AuSSLC to be managed by a general contractor at the time the project commences. Vacation of the existing ASH and AuSSLC facilities is only required for sale or lease of the properties.

06-F Option 6

ASH on ASH Site

OPTION 6A: ASH ON ASH SITE

Two sub-options were tested under Option 6, proposing variations on the organization of a new ASH facility on the ASH campus. The first such variation, Option 6A, examined a layout in which ASH can organize around the original historic hospital building, maintain the current main entrance, and utilize existing support services. This arrangement creates two separate parcels for future development. As a consequence, a second sub-option focused on consolidating future development area by focusing a new ASH facility on the northern end of the site.

Test Fit Layout

Existing ASH Site Suitability

The current ASH site fulfills the required site criteria for the new ASH facility. Its size and location within a quiet, yet friendly, residential area with easy access to major streets, transit, and amenities make it an especially attractive home for both the residents and staff.

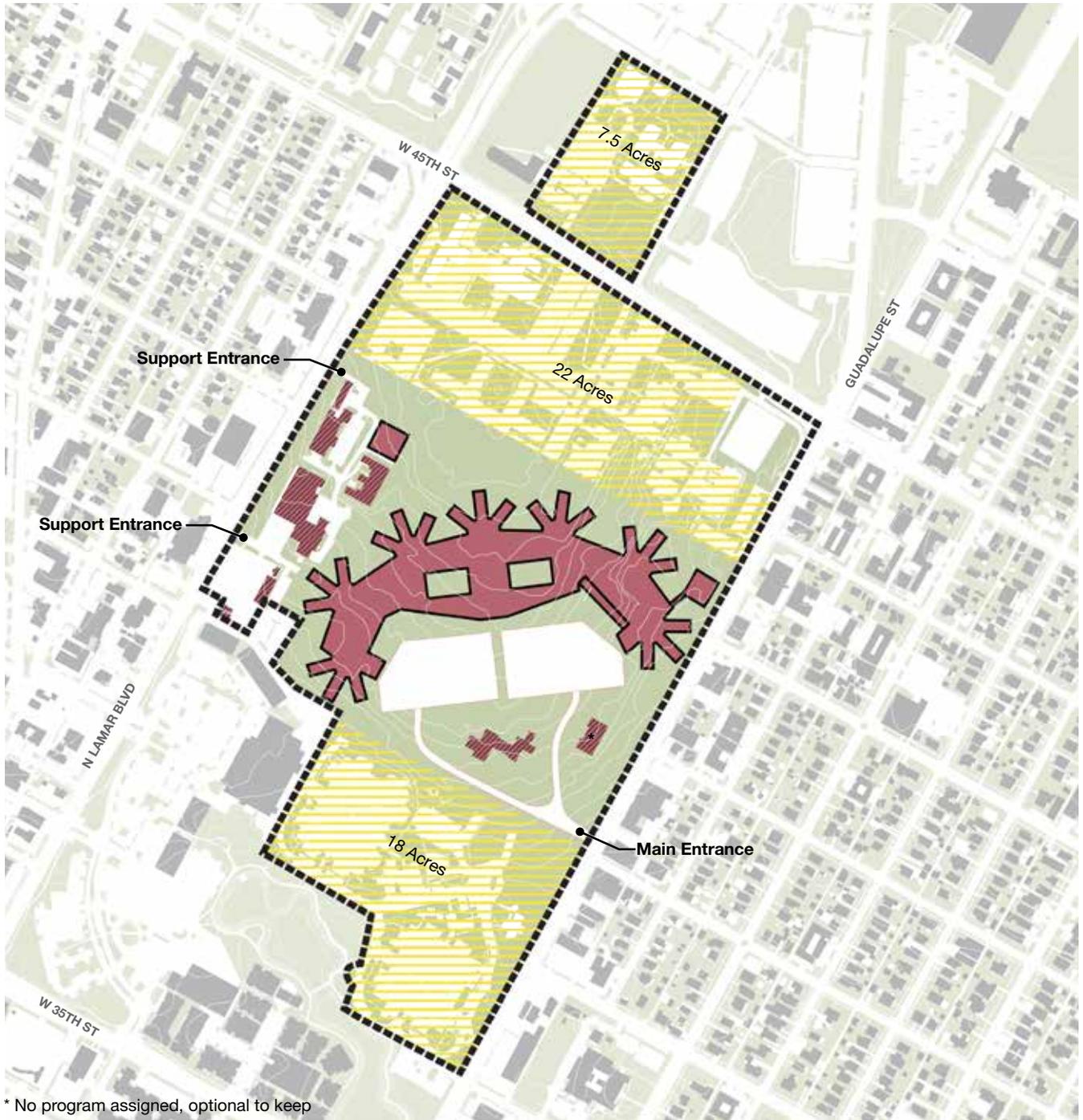
The primary concern regarding site suitability is that since ASH will remain open during site work and building construction, there will need to be a phasing strategy to maintain operations. While every effort will be made to provide a continuous level of care, ASH will need to make some temporary accommodations to support the construction of new facilities.

Option 6A Site Test Fit

This layout consolidates the new ASH facility in the center of the site to allow for an easier phasing process, minimizing disruption to operations and care. The surplus site area available for sale is divided into three separate areas- the 7.5 acre site north of 45th, the northern portion of the site south of W 45th Street, and the southern portion of the site south of the main entrance. In total, approximately 47.5 acres are available for development. Compared to Option 6B, HHSC's migration off-site has less impact on construction for the new ASH facility.

ASH maintains its existing entrance as well as the historic Building 501 and mature tree groupings in that area. 501 can be re-purposed for administrative space for ASH or shared with another related user. Some support buildings and 554 can also likely stay, if desired. However, those buildings are not required to accommodate the space need assumptions.

In this configuration, ASH is allocated 50 acres, which is more than specified to meet the needs of an ASH site. Future building design and configuration could potentially increase site efficiency, requiring less land area, which would provide more acreage available for development.



- New Building
- ▨ Existing Building
- New Paving
- Site Boundary
- ▨ Development Area
- ASH Building



Total Site Area: 97.5 Acres
ASH: 50 Acres
Development Area: 47.5 Acres

OPTION 6A: ASH ON ASH SITE

Facility	Target SF	SF Accommodated in Option 6A	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	139436	76189	Existing support buildings remain on site for surplus support
Unassigned		71017	71017	Existing buildings, 501 and 554, remain with no program
TOTAL	469616	616822	147206	

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 6A retains several support buildings, resulting in surplus support space, and the existing State Antiquities Landmark administration building. The administration building and building 554, which is a currently vacant structure noted as historically significant by the Texas Historical Commission, are not assigned program in this option, but could accommodate space needs if desired. The current condition of the existing buildings was not studied in detail, nor was the potential for reuse. Therefore, further study is needed to determine renovation and space efficiency strategies.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 6A - ASH ON ASH CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection					█	█																																				
4 Programming							█	█																																		
5 Design & Documentation to Initiate Construction							█	█	█	█																																
6 Bidding & Permitting																																										
7 Demolition to Prepare for New ASH Site																																										
8 Construct New ASH																																										
9 Occupy New ASH																																										
ENABLING TASK																																										
10 Date HHSC Employees Must be Vacated from ASH																																										
11 HHSC Employees housed in lease space																																										
12 Construct HHSC Replacement Building																																										
13 Occupy HHSC Replacement Building																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

Schedule

The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

Option 6A on the ASH campus reflects a construction of a new ASH facility, which vacates a portion of the site for sale or lease. In order to maintain existing operations, the new facility is constructed in much of the space currently occupied by non-ASH employees of HHSC. The study assumes these employees will be placed in temporary lease space while a permanent office building is constructed to house them off-site. Final occupancy for ASH is estimated in mid 2022.

Sequencing

All sequencing for the construction is based on maintaining current ASH operations until a new facility is completed. Demolition of facilities housing non-ASH employees and demolition of some support facilities allows the enables the construction of the new ASH facility. Some additional demolition will occur during this phase for sitework. Demolition of the remaining site buildings would be left to the purchaser of the available portions of the site.

OPTION 6A: ASH ON ASH SITE



- Phase 1 Demo
- Phase 1 Building
- Phase 2 Demo
- Phase 3 Demo (by Future Developer)



Traffic Impacts and Recommendations

Traffic analysis was conducted for the ASH campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

- Under this option, no relocation of AuSSLC is proposed at the existing ASH site and only include the replacement of ASH. The option will close the ASH drive of W 45th Street and only maintain driveway of Guadalupe Street. So all ASH traffic will be redirected to Guadalupe Street.
- Based on the trip generation, there are approximately 190 vehicles turning left and 230 vehicles turning right onto ASH drive during morning peak hours, whereas there are approximately 175 vehicles exiting left and 140 vehicles exiting right out of ASH driveway during afternoon peak hour.
- These turning meets the warrant for providing exclusive left and right turn lanes based on TxDOT Access Management Manual.
- This option will have less traffic than Option 3 and the surrounding roadways is expected to have enough capacity to handle additional traffic. However some signal timing modifications will be necessary for surrounding intersection. Even though, there are two support entrances located at the North Lamar Street, the added trips is expected to have minimal impact on North Lamar Blvd.
- Similar to Option 3, the surrounding roadway links is expected to have enough capacity to handle added traffic.

Recommended Mitigation

- Provide geometric improvements at the existing traffic signal at the ASH main entrance. As discussed on Option 3 these geometric improvements shall include providing exclusive left and right turn lanes to and from proposed ASH main entrance.
- Upgrade traffic signal and provide additional phases necessary to accommodate added exclusive left and right turn lanes.
- Close existing ASH driveway located from W 45th Street.
- Provide signal timing modification at the following traffic signal to accommodate additional traffic volumes.
 - W 38th St. and West Ave.,
 - W 38th St. and Guadalupe St.,
 - W 45th St. and Guadalupe St.

OPTION 6B: ASH ON ASH SITE

Test Fit Layout

Option 6B Site Test Fit

The objective of this site configuration for a new ASH facility is to maximize the size and accessibility of a parcel to release for development. This could maximize the revenue of the land sale, providing more resources for new facility construction.

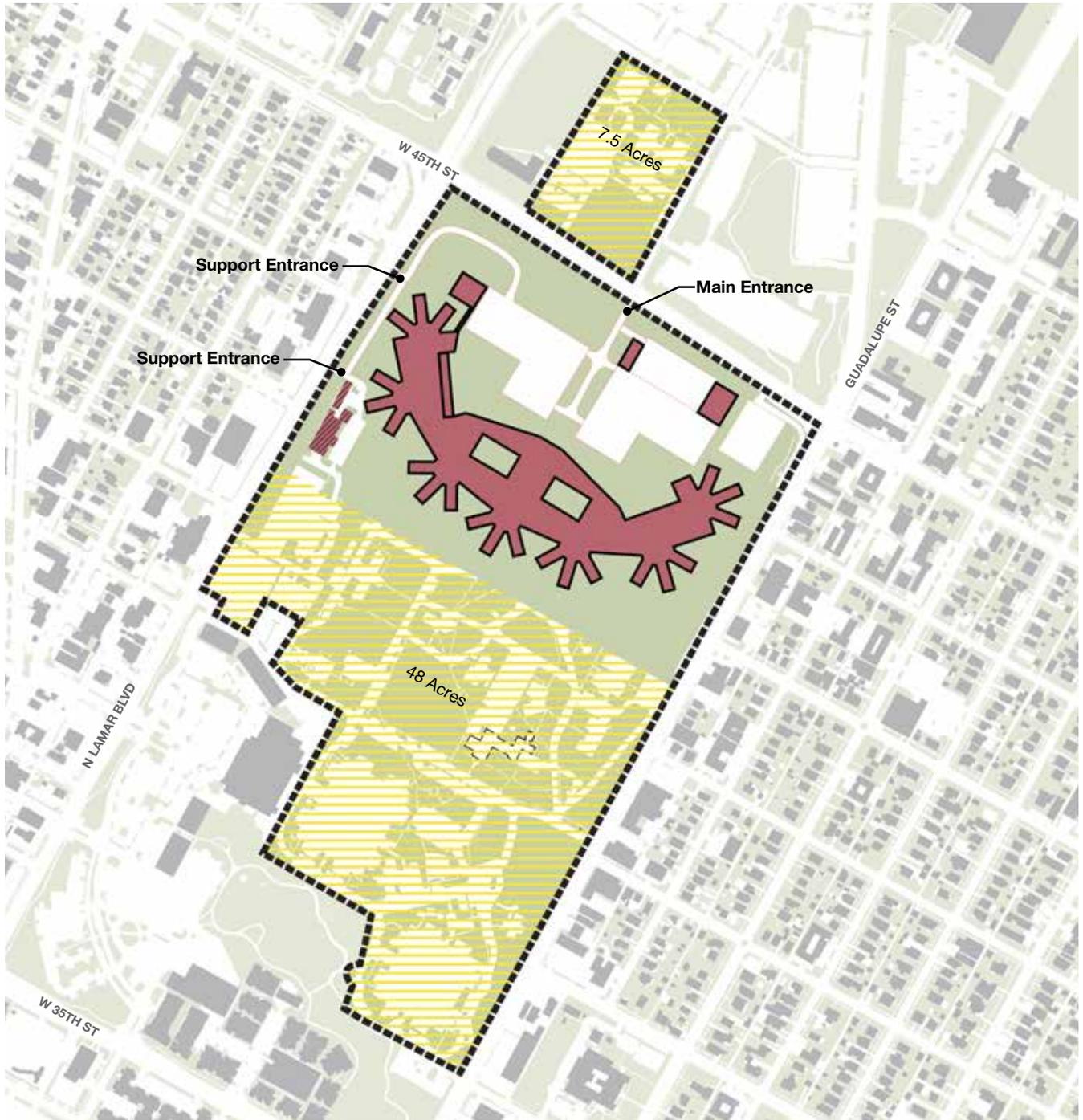
The parcel north of W 45th Street as well as the southern portion of the site, stretching from Lamar to Guadalupe, together equal about 55.5 acres available for development. However, Building 501 would need to be released through the sale. This places a constraint on the developable parcel, as any future development would be required to retain Building 501 as a landmark structure.

The only buildings to remain in this alternative are two support buildings on the west side of the site. The rest are new structures.

A new main entrance for ASH is accessed from the north on 45th Street in this configuration.

ASH is organized to minimize land area, requiring about 42 acres, in order to maximize developable area.

In this scenario, there is an involved phasing process that requires HHSC to find new space early in the process, and ASH will need to relocate in phases.



- New Building
- New Paving
- ▨ Development Area
- ASH Building
- Site Boundary



Total Site Area: 97.5 Acres
ASH: 42 Acres
Development Area: 55.5 Acres

OPTION 6B: ASH ON ASH SITE

Facility	Target SF	SF Accommodated in Option 6B	SF Above Target	Notes
ASH				
Residential	286609	286609		
Administration	48189	48189		
Recreational/Vocational	30506	30506		
Medical/Therapy	41065	41065		
Support	63247	92120	28873	Existing buildings remain on site as surplus support
Unassigned				
TOTAL	469616	498489	28873	

Program Accommodation

The table above reflects total program accommodated in this option. The target indicates the total area required from the program section of this document, and the following column shows the total space included in the test fit. Option 6B retains two existing support buildings from the existing ASH campus that result in surplus support space. The current condition of these buildings was not studied in detail, nor was the potential for reuse. Therefore, further study is needed to determine renovation and space efficiency strategies.

Cost Estimate

Construction cost and total project cost estimates were created for this option. Cost information and the detailed cost model can be found in Appendix B.

OPTION 6B - ASH ON ASH CAMPUS

TASK	2016		2017				2018				2019				2020				2021				2022				2023				2024				2025				2026			
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
1 Concept Development & Cost Estimating	█																																									
2 85th Texas Legislative Session			█	█																																						
3 Design Team Selection					█	█																																				
4 Programming							█	█																																		
5 Design & Documentation to Initiate Construction							█	█	█	█																																
6 Bidding & Permitting																																										
7 Demolition to Prepare for Phase 1																																										
8 Construct Phase 1 of ASH																																										
9 Occupy Phase 1 of ASH																																										
10 Demolish Building 794																																										
11 Construct Phase 2 of ASH																																										
12 Occupy Phase 2 of ASH																																										
ENABLING TASK																																										
13 Date HHSC Employees Must be Vacated from ASH																																										
14 HHSC Employees housed in lease space																																										
15 Construct HHSC Replacement Building																																										
16 Occupy HHSC Replacement Building																																										

- █ Owner Responsibility
- █ Architect Responsibility
- █ Contractor Responsibility

Schedule and Sequencing

Schedule

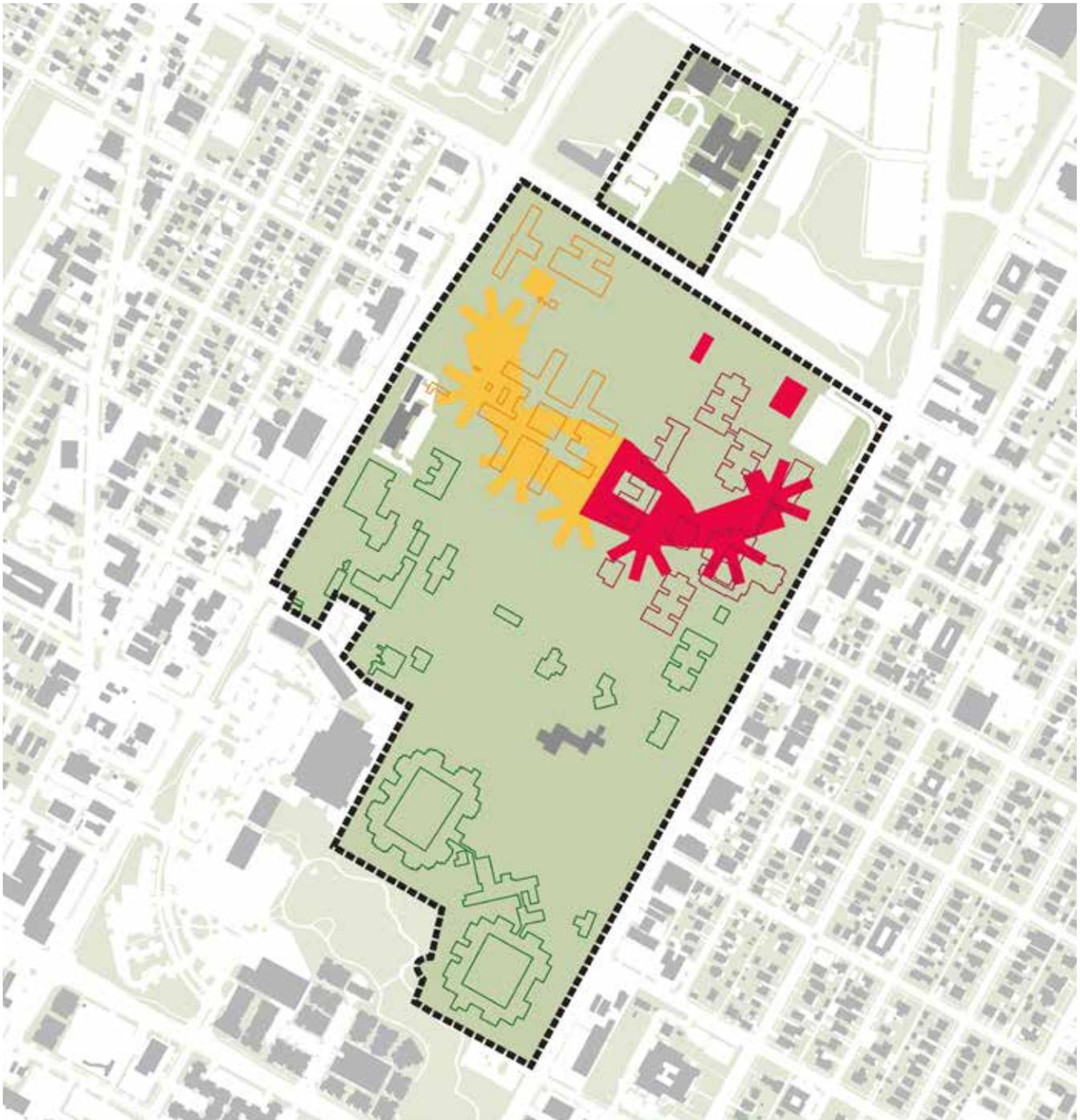
The above schedule reflects an estimated timeline to complete construction and occupy the facilities. Only major milestones and durations are reflected. It is assumed that, after the initial design phase, all subsequent design or study needs will be completed prior to the associated construction phase. For purposes of the study, the 85th Texas Legislative Session in 2017 was used as a starting point for project approval. Though this could shift to a later session, a baseline was needed to establish a starting point for durations and cost estimates.

Option 6B on the ASH campus reflects a similar construction of a new ASH facility and vacation of a consolidated portion of the site for sale or lease. In order to do this and maintain existing operations, a first phase of construction must be placed in a location currently occupied by HHSC employees not directly related to ASH. The study assumes these employees will be placed in temporary lease space while a permanent office building is constructed to house them off-site. Final occupancy for ASH is estimated in mid 2024.

Sequencing

Sequencing for this option is similar to that discussed earlier in Option 3, without the AuSSLC component. All sequencing for the construction is based on maintaining current ASH operations until a new facility is completely or partially open. The primary ASH facility is to be sequenced in two construction phases in order to accomplish this, with the east half constructed first, followed by the west half once the first phase is occupied. Buildings remaining on the south portion of the site will remain for a purchaser of the site to demolish.

OPTION 6B: ASH ON ASH SITE



- Phase 1 Demo
- Phase 1 Building
- Phase 2 Demo
- Phase 2 Building
- Phase 3 Demo (by Future Developer)



Traffic Impacts and Recommendations

Traffic analysis was conducted for the ASH campus and projected impacts were determined based on the proposed layout. Traffic counts were taken at each site entrance along adjacent roadway links and existing link capacity was determined. Below is a summary of the traffic impacts and associated mitigation recommendations for this option. Additional detail on the traffic analysis approach and detailed count data can be found in Appendix C.

Traffic Impacts

- This option is similar to Option 3 with proposed ASH main entrance is off W 45th Street and one support entrance off North Lamar Blvd.
- Similar to Option 3, total vehicles turning left and right from proposed ASH driveway are approximately 180 and 215 respectively during morning peak hour and the total vehicle exiting out of proposed drive is approximately 150 and 175 respectively for left and right turn during afternoon peak hours.
- Similar to Option 3, the surrounding roadway links is expected to have enough capacity to handle added traffic.
- Under this option W 35th Street is not expected to have significant traffic impact. Signal timing along N Lamar Blvd., W 45th Street and Guadalupe Street is expected to required minor modifications.
- Similar to Option 3, the surrounding roadway links is expected to have enough capacity to handle added traffic.

Recommended Mitigation

- Provide geometric improvements at proposed main entrance. The geometric improvements shall include addition of new exclusive left and right turn lanes with acceleration and deceleration lanes.
- Signalize proposed ASH main driveway entrance from W 45th Street as the traffic volumes at this driveway is expected to meet Texas MUTCD traffic signal Warrant.
- Close existing ASH driveway off Guadalupe Street and remove traffic signal.
- Provide signal timing modification at the following traffic signal to accommodate additional traffic volumes.
 - W 45th St. and N Lamar Blvd.,
 - W 40th St. and N Lamar Blvd.,
 - W 38th St. and N Lamar Blvd.,
 - W 45th St. and Guadalupe St.

07 Land Value Market Analysis

LAND VALUE MARKET ANALYSIS

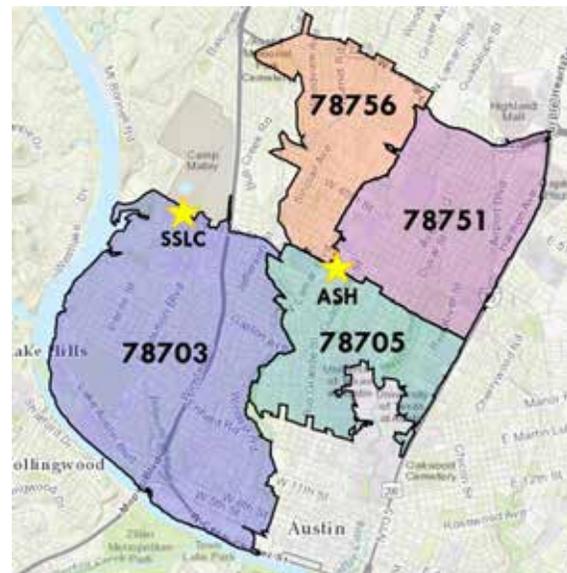
HR&A Advisors, Inc. (HR&A) conducted a high-level market scan and residual land value analysis of the Austin State Hospital and Austin State Supported Living Center sites. This analysis draws on scenarios developed by Page, informational interviews with local brokers and market participants, demographic indicators, and multi- and single-family residential market data. HR&A estimates residual land values for full-site or partial-site disposition ranging from \$14 million to \$50 million for the ASH site and \$39 million to \$64 million for the AuSSLC site.

Site Context - Demographics & Housing

To gain an understanding of site context to inform the analysis, HR&A reviewed ZIP code level demographic and housing data for both site areas, as well as for the city of Austin.¹ For a site and ZIP code level map of the study area, see Figure 1.

As demonstrated in Table 1 below, the ASH site context is largely defined by its proximity to the University of Texas campus to the south and the moderate-income Central Austin neighborhood to the north. In contrast, the AuSSLC surroundings reflect a more stable, owner-occupied housing market and wealthier existing population relative to ASH and Austin overall. The prevalence of a student population around the ASH site is reflected in the younger median age of the area as well as a low median income and high rates of renter-occupied housing. The ASH-adjacent zip codes, 78751 and 78756, house a slightly older and higher-income population with higher rates of owner-occupancy. In contrast, the Tarrytown neighborhood around AuSSLC has a higher-income population and a significantly higher rate of home ownership. For additional demographic and housing information, see Table 1 below.

Figure 1
Site and Zip Code Map



Source: Esri Business Analyst

Table 1
Demographic Context
Comparison Table
2016

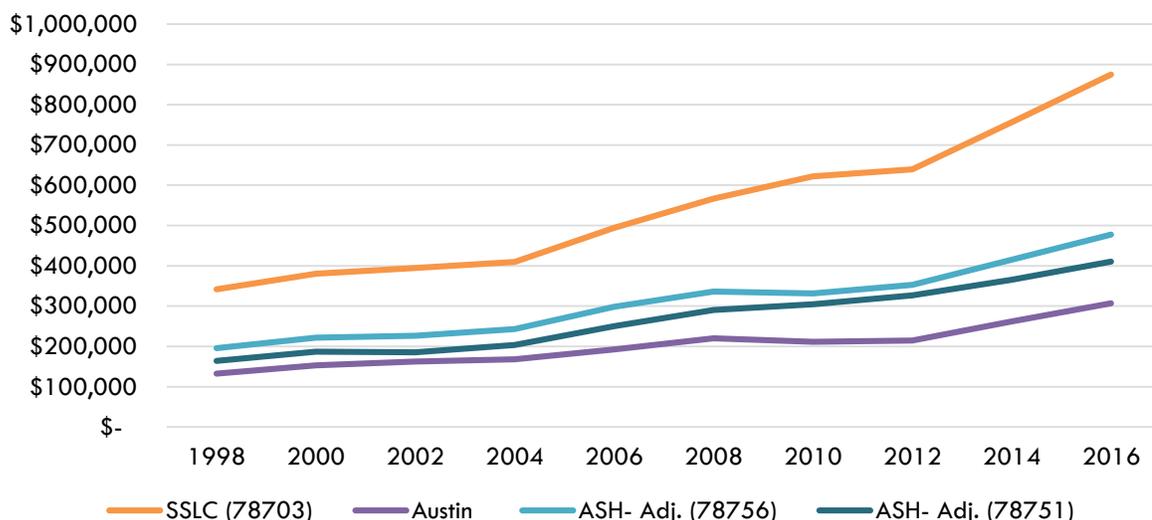
	ASH- Zip Code	ASH- Adj. Zip Code	ASH-Adj. Zip Code	SSLC- Zip Code	Austin
	78705	78751	78756	78703	City
Current Population	29,229	15,289	9,294	21,646	903,753
Median Household Income	\$13,865	\$37,646	\$55,665	\$87,789	\$55,174
Median Age	22.4	28.6	36.4	36.3	32.3
2016 Housing Units	11,896	8,652	5,622	11,949	400,429
% Owner-Occupied Units	9.2%	19.9%	31.6%	39.5%	38.6%
% Renter-Occupied Units	85.2%	72.7%	59.1%	48.2%	53.6%
% Vacant Units	5.6%	7.4%	9.3%	12.3%	7.8%
Average Year Structure Built	1980	1967	1964	1967	1985

Source: Esri Business Analyst; U.S. Census Bureau

¹ The ASH site is located within the boundaries of the 78705 zip code; however, because of its proximity to The University of Texas at Austin campus and a large student population, HR&A has also analyzed the ASH-adjacent 78751 and 78756 zip codes. HR&A included data from the 78751 and 78756 areas in order to have a clearer understanding of the potential land value of an established neighborhood, which is not primarily driven by a student-based, renter-dominant population. Partial-site disposition ranging from \$14 million to \$50 million for the ASH site and \$39 million to \$64 million for the AuSSLC site.

HR&A also reviewed historical and current median single-family home value data to inform residual land value projections. In general, homes in the neighborhoods surrounding the ASH and AuSSLC sites have greater values relative to Austin overall. Homes values near the AuSSLC site have historically been nearly double those near the ASH site and have grown more quickly over time. For historical trend data on median home values, see Figure 2 below.

Figure 2
Median Home Value (1998-2016)
 Single-Family Residence



Source: Zillow

Note: Zillow data for 78705 (ASH site) was unavailable

While home value data for existing homes is relevant for understanding local market context, projecting residual land value for vacant sites requires an understanding of value specifically for new construction. HR&A gathered current data on new construction for the neighborhoods surrounding the AuSSLC and ASH sites from real estate sources including Zillow and local brokers. While the list prices for recently built homes vary widely, homes built in the last three-to-five years have typically been listed for an approximate average of \$800,000 near the ASH site and \$1 million near the AuSSLC site.²

² Listing Prices: Rave Real Estate, Home Search, http://search.mlsaustintexas.com/search?single_family=1&rel=nofollow.

LAND VALUE MARKET ANALYSIS

Residual Land Value Analysis

Introduction to Methodology

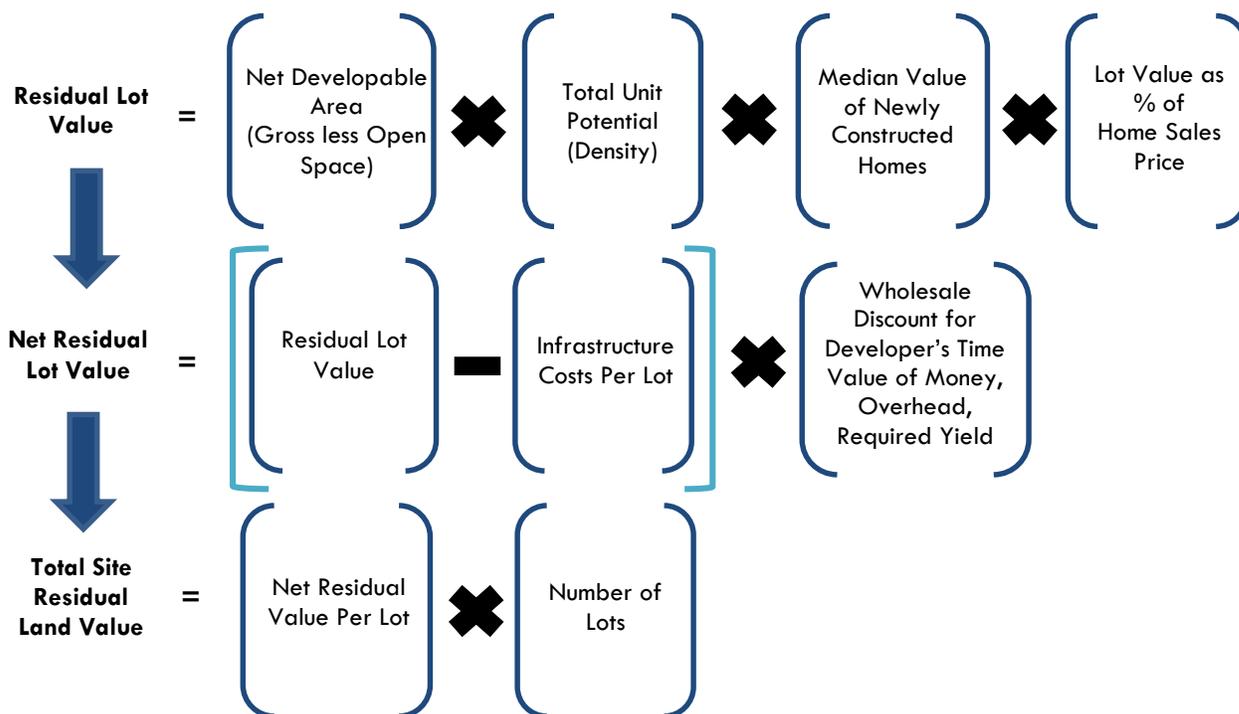
Residual Land Value (RLV) is the value that rational buyers will pay for real property based on existing market values, available land, and required costs of development (including infrastructure and permitting costs, among others). For the TFC properties, HR&A estimated the price that bidders would be likely to pay under current market and regulatory conditions for various developable land scenarios. To inform assumptions and understand how developers would approach pricing vacant, unentitled land, HR&A interviewed local brokers, land developers, and home builders. Interviews were supplemented with analysis of existing land values and demographic conditions. HR&A took a conservative approach to valuation to allow TFC to understand a “base case” scenario. Other scenarios are possible, but would require development of consensus on the institutional value of such courses of action to TFC, as well as allocation of greater resources for further investigation.

The current local market consensus view on how vacant, unentitled land is valued is that developers will consider entitlement feasibility more than market demand-driven “highest and best” use as the driving consideration. Developers are becoming more risk-averse – while the site may optimally be a mixed-use, mixed density site, the lack of current entitlements along with the current local political landscape indicates that most bidders would underwrite this property and take the path of least resistance as single-family housing. This attitude is a direct result of the challenges faced by the developer of The Grove at Shoal Creek. HR&A spoke with four of the six bidders on this Bull Creek-area property, situated near the ASH and AuSSLC sites at Mopac Expressway and 45th Street, and learned that bids on the previously TxDOT-owned property ranged from approximately \$30 million to \$47 million with most developers valuing the site based on single-family zoning. TxDOT sold the land in 2014 for just under \$47 million to ARG Bull Creek LTD. The developers proposed a mixed-used development with affordable housing, retail, multi-family residential and single-family homes, among other master plan elements. The developer has been in negotiations with both the City of Austin and the surrounding neighborhood group, which will likely result in the developer reducing the planned density for the site. Additionally, as noted in local media, a lawsuit has been filed against the developer by members of the surrounding community on the issue of the valid petition rights, which is slowing the developer’s ability to take the proposed PUD before the City’s Zoning and Platting Commission.

For this analysis, HR&A assumed a fee simple disposition. While the State may desire to ground lease all or portions of these properties, this is not feasible if the property is entitled purely as single-family residential. Neither homeowners nor residential mortgage lenders will be comfortable with the limited ownership rights associated with ground leases of 99 years or less. Projecting a ground lease value would require assuming a commercial use. If the State were to either take the property through the entitlement process or, more plausibly, enter into a contingent contract where the buyer was able to entitle the property before closing on the acquisition of the land, then the State may be able to obtain a higher overall value and/or ground lease high-value commercial parcels that may become available as a result of the entitlement process.

The scenarios analyzed include full-site disposition for ASH and AuSSLC, and alternatives for partial-site disposition of the ASH site developed by Page Southerland Page. For each of these scenarios, HR&A tested potential value using open space requirements of 15% and 30%, which were based on the code minimum for parkland dedication and the percentage being requested of the developer by the community surrounding The Grove at Shoal Creek. Additionally, HR&A varied residual lot value as a percent of home sales price between 22.5% and 27.5% based upon interviews with local homebuilders.

HR&A used the following approach to estimate residual land value:



Based on feedback from local brokers and developers as well as contextual data for the sites, HR&A developed a number of assumptions for calculating high-level land values for each site, summarized in Table 2 below.

Table 2
Assumptions

Assumption	Value	Rationale
Developable Area	15-30% Open Space	Range established using general application of City of Austin requirement for parkland dedication of 9 acres/1,000 residents and higher open space set-aside demanded by communities near Bull Creek development site.
Discount for Overhead, Yield, and Time Value of Money	30%	Market norm, based on interviews with local brokers and developers
Infrastructure Costs	\$6.50-\$8.00 per developable SF	Estimated cost range for infrastructure installation for infill, single-family development in Austin, based on land developer interviews.
Lot Value as Percentage of Home Value	22.5%-27.5%	Market norm, based on interviews with local developers
New Home Values	\$800K for ASH Site \$1M for SSLC Site	Based on median list prices for newly constructed homes near SSLC & ASH sites
Zoning (SF-3 Zoning)	5 Lots/Acre	Likely entitlement to be pursued, based on local brokers and developers' perception of regulatory and community feasibility

LAND VALUE MARKET ANALYSIS

Results

As summarized in Table 3, HR&A estimates residual land value to be \$29-\$50 million for the full ASH site, \$14-\$24 million for partial development of the ASH site, and \$39-\$64 million for the AuSSLC site.³

Table 3
Residual Land Value Results by Site and Scenario

Scenario	Gross Developable Area	Net Developable Area	Site Value	Value/Acre (Gross)	Value/SF (Gross)
1 - Full ASH Site @ 15% Open Space	98 acres	83 acres	\$38M-\$50M	\$390K-\$510K	\$9-\$12
2 - Full ASH Site @ 30% Open Space	98 acres	68 acres	\$29M-\$39M	\$300K-\$400K	\$7-\$9
3 - ASH Alternative A @ 15% Open Space	48 acres	40 acres	\$19M-\$24M	\$390K-\$510K	\$9-\$12
4 - ASH Alternative A @ 30% Open Space	48 acres	33 acres	\$14M-\$19M	\$300K-\$400K	\$7-\$9
5 - ASH Alternative C @ 15% Open Space	52 acres	44 acres	\$20M-\$26M	\$390K-\$510K	\$9-\$12
6 - ASH Alternative C @ 30% Open Space	52 acres	36 acres	\$16M-\$20M	\$300K-\$400K	\$7-\$9
7 - Full SSLC Site @ 15% Open Space	95 acres	81 acres	\$50M-\$64M	\$530K-\$680K	\$12-\$15
8 - Full SSLC Site @ 30% Open Space	95 acres	67 acres	\$39M-\$51M	\$410K-\$530K	\$9-\$12

Conclusion & Next Steps

HR&A's approach provides a high-level estimate of the value TFC could expect to achieve through an out-right sale of the ASH and AuSSLC sites under multiple site configuration scenarios. There may be opportunities to unlock additional value by taking the land through an entitlement process to permit denser, and more valuable, development on portions of the site with commercial frontage. TFC may also consider separately disposing of portions of the sites, such as the 7.5-acre ASH site north of 45th Street, which may present the greatest opportunity for commercial use with less entitlement risk given the surrounding commercial uses.

Should TFC wish to further its analysis of the potential value of these sites, HR&A recommends the following additional scope:

- A more rigorous master planning exercise and residual land value analysis of multiple build-out scenarios, including denser mixed-use development,
- A full market study for residential and commercial uses on both sites to more accurately project market supply and demand,
- Additional high-level planning for a mixed-use, mixed-density site with civil infrastructure that could better inform a market-driven residual land value analysis of the sites' highest and best uses with better understanding of developable acreage based on topography, heritage trees, historic structures, and other factors affecting development potential.

³ These residual land value estimates do not include demolition costs for existing buildings and infrastructure on each site. Additional demolition expenses may affect total valuation estimates.

08 Appendices

APPENDIX A: VISION SESSION DOCUMENTATION

The following reflects documentation of a vision session conducted with stakeholder groups in Austin, TX on March 31, 2016.

Project Mandate

The current study is being undertaken with the following general mandate:

- To study the feasibility of the project options proposed, not generate a detailed plan.
- To identify the costs and benefits for each option
- To maintain complete operations for both current facilities during any work
- To maximize land use - but not necessarily assume the combination of the two complexes.
- To thoroughly consider the following options:

Option 1

Develop a concept that locates a replacement ASH facility on other State-owned land and identify financial scenarios for either sale or lease options for the Austin State Hospital campus to be vacated by ASH. (GLO will have the responsibility to search for suitable parcels once size and features are identified.)

Option 2

Develop a concept that locates a replacement ASH facility on a site not currently owned by the State and identify financial scenarios for either sale or lease options for the Austin State Hospital campus to be vacated by ASH. (TFC will have the responsibility to search for suitable parcels once size and features are identified.)

Option 3

Develop a concept for a consolidated ASH/AuSSLC facility at the existing Austin State Hospital campus and identify financial scenarios for either sale or lease options for the Austin State Supported Living Center campus to be vacated by AuSSLC. This study will maintain the historical building #501.

Option 4

Develop a concept for a consolidated ASH/AuSSLC facility at the Austin State Supported Living Center campus and identify financial scenarios for either sale or lease options for the Austin State Hospital campus to be evacuated by ASH. This study will clearly identify that the historical building #501 will be maintained.

Additional Options Discussed

- What if ASH and AuSSLC are not combined, but a phased approach is taken to build new facilities for ASH on the ASH campus in available space and then the second phase would repurpose the old part of the campus for real estate value?
- Investigate whether space is available at the Camp Mabry site (though the use is largely constrained by an existing historic designation)?
- Consider whether there is space at Williamson County Park - the back side of the property held is not currently in use.

Considerations - Generally

**CHALLENGES
ANTICIPATED**

■ POPULATIONS DIFFER...
BRAIN ASH + SSLC

■ LIMITED SYNERGIES
IN COMBINATION

NEIGHBORHOOD
BELOVED

COMMUNITY CARES ABOUT
WHAT HAPPENS

**CURRENT
REALITIES**

PLAIN TALK...

■ SHC IS UNDER RESOURCED
TODAY

■ COMBINATION WILL LIKELY
LEAD TO ACHIEVING
EFFECTIVENESS

DOCUMENTATION OF RATIOS

■ LEGISLATURE EXPECTS
FTE EFFICIENCIES
NARRATIVE MUST BE
CLEAR + DEFENSIBLE

DETAILS TO BE
INTERNALLY FIGURED
SPACE REACTS

Preservation Considerations

HISTORIC PRESERVATION AUTHORITY

ASH HISTORIC STATE LANDMARK
 MAIN ADMIN BLDG #501
 MUST REVIEW CHANGES TO EXTERIOR + PUBLIC INTERIOR
STRONGEST POWER TO STOP/CHANGE WORK

BOTH CAMPUSES
 OVERALL
 - NOTIFY
 - REVIEW
 - ADVISORY RECOMMENDATION

PRESERVATION RECOMMENDATIONS

PRESERVATION PRIORITIES
 - BUILDINGS OLDER THAN 50 YRS
 - DESIGNED AT SAME TIME
 - FUNCTION AS A COLLECTION

CONSIDER HAZARDS
 - LEAD PIPES
 - FAILED LINES
 - OTHER HAZMATS

CONSIDER ESTABLISHED TREES
PRESERVATION
 A BEST PRACTICE

BUT GENERALLY OUTSIDE HISTORIC PRESERVATION

SSLC

OLDER BUILDINGS TO SOUTH WEST # SSLC
 - **PRESERVE MOST** UNLESS NOT FEASIBLE
 - **COHESIVE CAMPUS** REALLY REQUIRES GENERAL/BROAD PRESERVATION
 - **LANDSCAPE**

IF SSLC STAYS IN PLACE... ON NORTH + WEST SIDE

DISPOSITION OF REST OF SITE COMPLEX
 POPULATION INCOMPATIBILITIES

CONSIDER PUBLIC ENTITY
 - ALLOWS DIFF PRIORITIES THAN PRIVATE DEVELOPERS
 - STATE OFFICES

DISPOSITION COULD INCLUDE PROTECTIONS

COVENANTS TO MAINTAIN INPUT + OVERSIGHT
 TAX CREDITS AVAILABLE TO COVER REPAIR COSTS

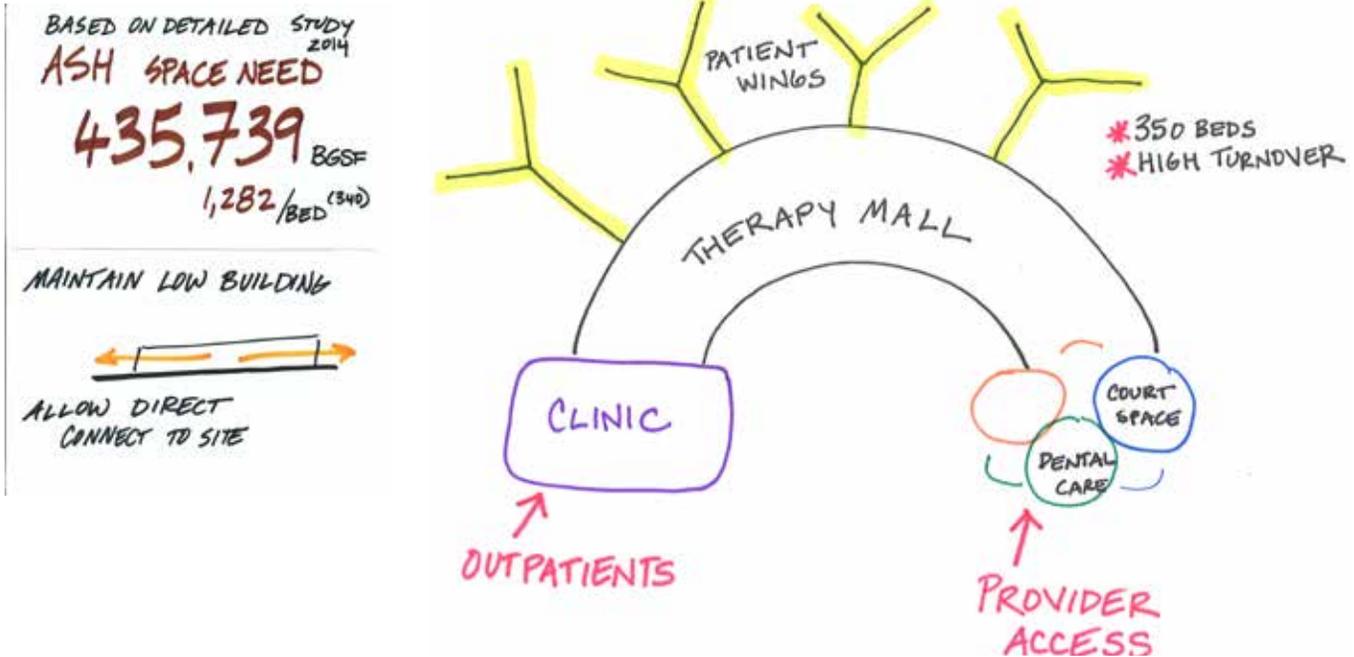
CONSIDER **CEMETERY**
OFF-LIMITS
 DUE TO HEALTH, SAFETY +

ASH

ASH CAMPUS MORE PIECEMEAL
 - #554 ART MODERNE
 - BOILER + POWER PLANT
 - 540 - 524
 - 519 - 736
 - 582

APPENDIX A: VISION SESSION DOCUMENTATION

ASH Concept and Considerations



AuSSLC Concept and Considerations

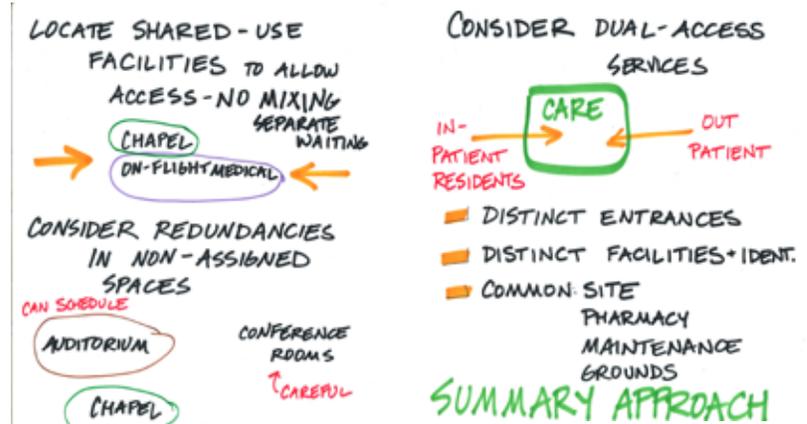


Sharing and Overlap Ideas and Considerations

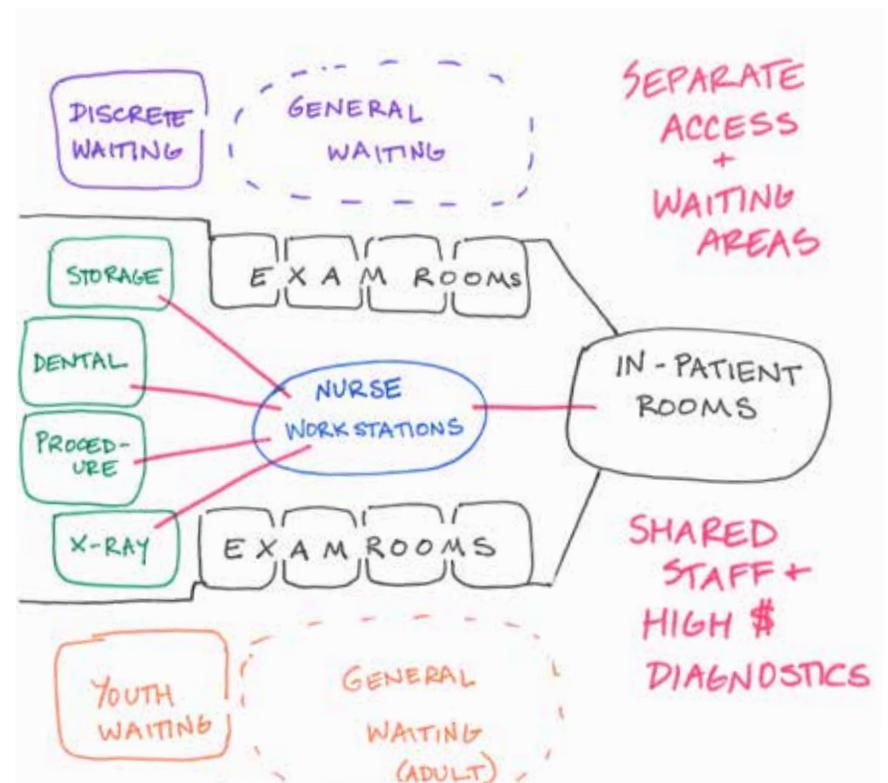
What Might Be Shared?



Strategies Discussed

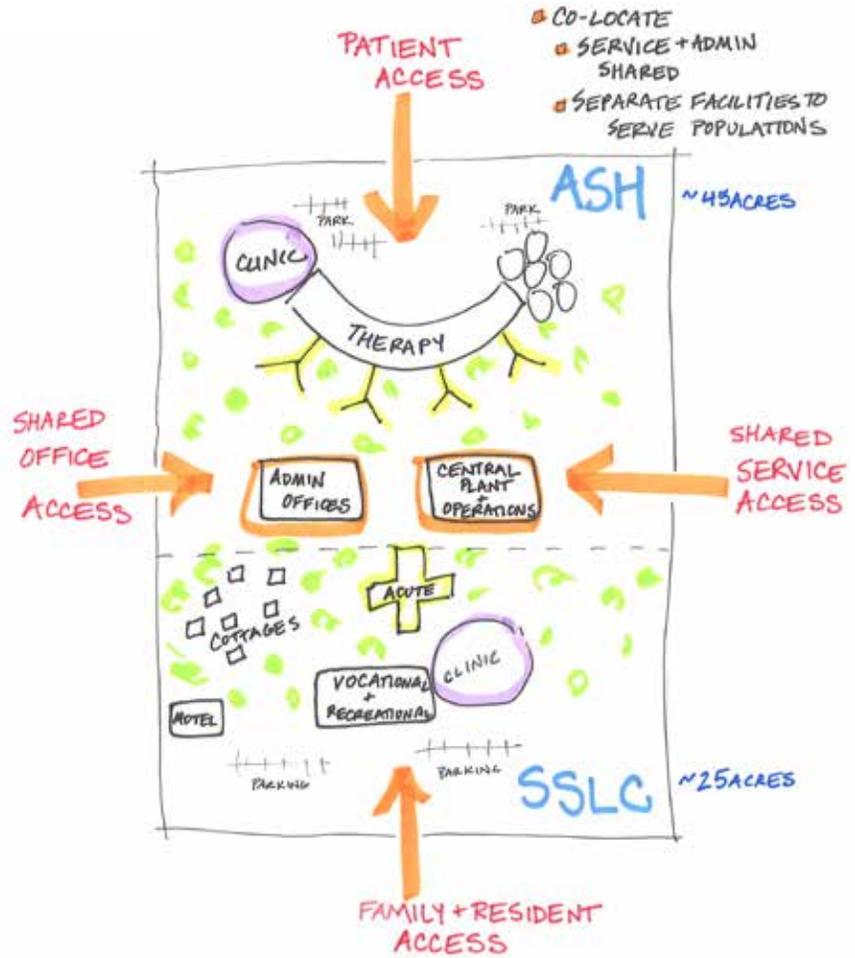


Possibility for Sharing Clinic Resources



APPENDIX A: VISION SESSION DOCUMENTATION

Ideal Shared Site Concept



Co-Location Discussion Summary

PROS

- SHARE EXPERTISE
MENTAL HEALTH + IDD
BCBA CROSS-OVER
- BETTER SPECIALIST ACCESS - CROSS-FACILITY
- NEW FACILITY
- MAINTENANCE
- QUALITY
- ENERGY USE
- PATIENT QUALITY OF LIFE IMPROVEMENTS
SMALLER PATIENT ROOMS
THOUGHTFUL DESIGN
POPULATION SEGREGATION
STAFF SAFETY
- OPERATIONAL IMPROVEMENTS
ACCESS
- SHARED SUPPORT EFFICIENCIES

CONS

- SSLC NOT COMPATIBLE W/ SH POPULATION
MUST BE SEPARATED
SAFETY, HOME-LIKE, LOW RISK

PARKING

MUST MODEL BASED ON SSLC WANTS...

- TRIPS
- DEMAND
- PEAKS
- SHARING DYNAMICS

CONDUCTING STUDY TO GATHER DATA.....

MINDSET OF APPROACHING A HOME



PARKING TYPICALLY

SHIFT CHANGE ^{SSLC} 6-2 2-10 10-6
ADMIN STAFF WORKS 8-5m

ASH ^{ASH} 7-3 8-11 11-7
30 MINUTE OVERLAPS FOR SHIFT Δs

COURT

POLICE/OFFICERS

VISITOR (OTHER CRIMINAL COURT)

- ATTORNEYS (COUNTY SHERIFF REPRESENTS)
- JUDGES
- CLERKS

~15 SECURE

INDUSTRY STANDARDS

- DO NOT EXIST FOR THESE SPECIFIC USES
- NO AVAILABLE KNOWNS ABOUT TRIP GENERATION

CONSIDER UNPREDICTABILITY OF OFFICER TRAFFIC WITH NEW DROP-OFFS

Site Selection Discussion Summary

	ASH SITE	SSLC SITE	OTHER
LOCATION	IDEAL	<ul style="list-style-type: none"> LACKS AMENITIES HAS TRANSIT (BUS) 	MUST CONSIDER: <ul style="list-style-type: none"> COUNTY EMS RECRUIT/RETAIN
CONSTRAINTS	<ul style="list-style-type: none"> HOSPITAL OPERATION HISTORIC ADMIN BLDG ON-SITE STATE EES OTHER TENANTS 	<ul style="list-style-type: none"> LARGE PORTION TO PRESERVE DISRUPTION TO POPULATION LIMITED ACCESS EAST - LIMITED SOUTH - NONE CEMETERY 	UNKNOWN
VALUE	<ul style="list-style-type: none"> WILL NOT PAY TO REPLACE ASH * TO DOCUMENT 	<ul style="list-style-type: none"> VERY HIGH 93 ACRES IF VACATED TO STUDY * SEPARATELY 	

APPENDIX B: COST ESTIMATES

For each option presented in this feasibility study, a cost estimate was developed based on the program requirements and the test fit configuration of each site. The following pages provide the cost assumptions, individual option estimates, escalation tables, and a detailed cost model used to develop the base construction costs.

No cost estimate was developed for Option 1, as the option was determined not to be feasible due to lack of available State land that fit the size criteria in the desired search area.

Options Cost Summary

	Midpoint Construction	Construction Area (GSF)	Total Project Cost (Future \$/SF)	Total Project Cost (Future \$)
Option 2	Q1 2021	794,616	593	\$ 471,000,000
Option 3	Q2 2023	1,237,048	660	\$ 816,000,000
Option 4A	Q1 2022	1,126,878	632	\$ 712,000,000
Option 4B	Q1 2022	1,240,923	550	\$ 682,000,000
Option 4C	Q1 2023	1,229,507	670	\$ 824,000,000
Option 5	Q2 2021	1,229,507	634	\$ 779,000,000
Option 6A	Q4 2019	794,616	539	\$ 428,000,000
Option 6B	Q4 2020	794,616	569	\$ 452,000,000

Cost Estimate Assumptions

At this high level of study, multiple assumptions are required to determine a total project cost. The primary cost assumptions used to develop the cost estimates are as follows:

- Costs are to be considered "order of magnitude" +/-20% for the purpose of site selection and prioritization.
- The cost model assumes no major medical program: i.e. surgery, diagnostic, treatment.
- Costs exclude the following: loose furniture, A/V equipment & medical equipment, moving costs, contaminated soils or unforeseen underground conditions.
- Costs assume a construction manager at risk including CM contingency.
- Escalation rates are to the midpoint of construction (variable for each option); see the included escalation tables for specific calculations.
- Other Project Costs include A/E design fee, project management fee, and other expenses such as programming, surveying, testing, and commissioning.
- Owner change order contingency is included at 5% and project contingency is included at 10%.
- Site development costs assume an institutional campus with distributed power, data, and thermals.
- New building costs assume single-story construction.
- Land acquisition costs are included at \$10/SF, where applicable.
- Demolition costs are not included for buildings remaining on land to be sold or leased.
- Other (Non-Essential) Renovations are included for existing structures remaining in each option that are available for use by ASH or AuSSLC but that are not used to accommodate the required program. These costs are included only in current construction dollars and do not include other project costs,

Option 2 - ASH on Alternative Site

The following table reflects a cost estimate for a replacement ASH facility on an alternative site to be determined in the future. The midpoint of construction for this option is estimated to be Q1 2021.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	469,616	443	\$ 208,039,888
New Construction Type 2 (Commercial-Grade)	0	345	\$ -
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	0	8	\$ -
Buildings to Remain (No Construction)	0	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	42	450,000	\$ 18,900,000
Limited/no Improvements	0	0	\$ -
Left for Developer	0	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	794,616	347	\$ 275,439,888
<i>Escalation - see escalation tables for details</i>	<i>Q1 2021</i>	<i>21.70%</i>	<i>\$ 59,780,874</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	794,616	422	\$ 335,220,762
Other Project Costs	16%		\$ 53,635,322
FF&E (% excludes parking, demo, site)	4.5%		\$ 13,447,410
Change Order Contingency	5%		\$ 16,761,038
Project Contingency	10%		\$ 33,522,076
SUBTOTAL PROJECT COSTS	794,616	570	\$ 452,586,608
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	42	435,600	\$ 18,295,200
GRAND TOTAL PROJECT COST	794,616	593	\$ 470,881,808
Optional (Non-Essential) Renovations²	Quantity (SF)	\$/SF	\$
Renovation	0	300	\$ -
Renovation w/Abatement	0	315	\$ -
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

APPENDIX B: COST ESTIMATES

Option 3 - ASH & AuSSLC on ASH Site

The following table reflects a cost estimate for replacement facilities of both ASH and AuSSLC on the ASH site. The midpoint of construction for this option is estimated to be Q2 2023.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	519,209	443	\$ 230,009,587
New Construction Type 2 (Commercial-Grade)	314,695	345	\$ 108,569,775
Parking Garage Construction	0	55	\$ -
Renovation - Gut	5,473	300	\$ 1,641,900
Renovation w/Abatement - Gut	15,197	315	\$ 4,787,055
Historic Rehabilitation - Allow	57,474	300	\$ 17,242,200
Demolition	658,966	8	\$ 5,271,728
Buildings to Remain (No Construction)	40,663	0	\$ -
Off-site New Construction - Institutional Office ³	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ³	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	82	450,000	\$ 36,900,000
Limited/no Improvements	8	0	\$ -
Left for Developer	7.5	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	1,237,048	366	\$ 452,922,245
<i>Escalation - see escalation tables for details</i>	<i>Q2 2023</i>	<i>33.6%</i>	<i>\$ 151,978,336</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	1,237,048	489	\$ 604,900,581
Other Project Costs	16%		\$ 96,784,093
FF&E (% excludes parking, demo, site)	4.5%		\$ 24,024,917
Change Order Contingency	5%		\$ 30,245,029
Project Contingency	10%		\$ 60,490,058
SUBTOTAL PROJECT COSTS	1,237,048	660	\$ 816,444,678
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	1,237,048	660	\$ 816,444,678
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	4,378	300	\$ 1,313,400
Renovation w/Abatement	59,064	315	\$ 18,605,160
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ 19,918,560

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

³ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to vacate the ASH site for a new ASH facility. These costs only include construction related expenses. As indicated in the schedule, this option may also incur lease expenses at an estimated \$2,500,000 per year (\$20/SF) during construction.

Option 4A - ASH & AuSSLC on AuSSLC Site

The following table reflects a cost estimate for replacement facilities of both ASH and AuSSLC on the AuSSLC site. The midpoint of construction for this option is estimated to be Q1 2022.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	519,209	443	\$ 230,009,587
New Construction Type 2 (Commercial-Grade)	282,669	345	\$ 97,520,805
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	480,364	8	\$ 3,842,912
Buildings to Remain (No Construction)	133,815	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	77	450,000	\$ 34,650,000
Limited/no Improvements	18	0	\$ -
Left for Developer	0	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	1,126,878	368	\$ 414,523,304
<i>Escalation - see escalation tables for details</i>	<i>Q1 2022</i>	<i>27.2%</i>	<i>\$ 112,669,311</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	1,126,878	468	\$ 527,192,615
Other Project Costs	16%		\$ 84,350,818
FF&E (% excludes parking, demo, site)	4.5%		\$ 20,891,129
Change Order Contingency	5%		\$ 26,359,631
Project Contingency	10%		\$ 52,719,262
SUBTOTAL PROJECT COSTS	1,126,878	631	\$ 711,513,454
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	1,126,878	631	\$ 711,513,454
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	0	300	\$ -
Renovation w/Abatement	58,381	315	\$ 18,390,015
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ 18,390,015

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

APPENDIX B: COST ESTIMATES

Option 4B - ASH & AuSSLC on AuSSLC Site

The following table reflects a cost estimate for replacement facilities of both ASH and AuSSLC on the AuSSLC site. The midpoint of construction for this option is estimated to be Q1 2022.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	519,209	443	\$ 230,009,587
New Construction Type 2 (Commercial-Grade)	178,180	345	\$ 61,472,100
Parking Garage Construction	187,200	55	\$ 10,296,000
Renovation - Gut	13,876	300	\$ 4,162,800
Renovation w/Abatement - Gut	17,458	315	\$ 5,499,270
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	390,068	8	\$ 3,120,544
Buildings to Remain (No Construction)	221,029	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	77	450,000	\$ 34,650,000
Limited/no Improvements	18	0	\$ -
Left for Developer	0	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	1,240,923	320	\$ 397,710,301
<i>Escalation - see escalation tables for details</i>	<i>Q1 2022</i>	<i>27.2%</i>	<i>\$ 108,099,460</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	1,240,923	408	\$ 505,809,761
Other Project Costs	16%		\$ 80,929,562
FF&E (% excludes parking, demo, site)	4.5%		\$ 19,380,990
Change Order Contingency	5%		\$ 25,290,488
Project Contingency	10%		\$ 50,580,976
SUBTOTAL PROJECT COSTS	1,240,923	550	\$ 681,991,777
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	1,240,923	550	\$ 681,991,777
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	12,578	300	\$ 3,773,400
Renovation w/Abatement	17,551	315	\$ 5,528,565
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ 9,301,965

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

Option 4C - ASH & AuSSLC on AuSSLC Site

The following table reflects a cost estimate for replacement facilities of both ASH and AuSSLC on the AuSSLC site. The midpoint of construction for this option is estimated to be Q1 2023.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	519,209	443	\$ 230,009,587
New Construction Type 2 (Commercial-Grade)	385,298	345	\$ 132,927,810
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	672,560	8	\$ 5,380,480
Buildings to Remain (No Construction)	0	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	95	450,000	\$ 42,750,000
Limited/no Improvements	0	0	\$ -
Left for Developer	0	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	1,229,507	374	\$ 459,567,877
<i>Escalation - see escalation tables for details</i>	<i>Q1 2023</i>	<i>32.9%</i>	<i>\$ 151,214,252</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	1,229,507	497	\$ 610,782,129
Other Project Costs	16%		\$ 97,725,141
FF&E (% excludes parking, demo, site)	4.5%		\$ 23,948,802
Change Order Contingency	5%		\$ 30,539,106
Project Contingency	10%		\$ 61,078,213
SUBTOTAL PROJECT COSTS	1,229,507	670	\$ 824,073,391
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	1,229,507	670	\$ 824,073,391
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	0	300	\$ -
Renovation w/Abatement	0	315	\$ -
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ -

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

APPENDIX B: COST ESTIMATES

Option 5 - ASH & AuSSLC on Alternative Site

The following table reflects a cost estimate for replacement facilities of both ASH and AuSSLC on an alternative site to be determined in the future. The midpoint of construction for this option is estimated to be Q2 2021.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	519,209	443	\$ 230,009,587
New Construction Type 2 (Commercial-Grade)	385,298	345	\$ 132,927,810
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	0	8	\$ -
Buildings to Remain (No Construction)	0	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	78	450,000	\$ 35,100,000
Limited/no Improvements	0	0	\$ -
Left for Developer	0	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	1,229,507	363	\$ 446,537,397
<i>Escalation - see escalation tables for details</i>	<i>Q2 2021</i>	<i>23.49%</i>	<i>\$ 104,907,460</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	1,229,507	449	\$ 551,444,857
Other Project Costs	16%		\$ 88,231,177
FF&E (% excludes parking, demo, site)	4.5%		\$ 22,253,145
Change Order Contingency	5%		\$ 27,572,243
Project Contingency	10%		\$ 55,144,486
SUBTOTAL PROJECT COSTS	1,229,507	606	\$ 744,645,908
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	78	435,600	\$ 33,976,800
GRAND TOTAL PROJECT COST	1,229,507	641	\$ 778,622,708
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	0	300	\$ -
Renovation w/Abatement	0	315	\$ -
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ -

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

Option 6A - ASH on ASH Site

The following table reflects a cost estimate for a replacement ASH facility on the ASH site. The midpoint of construction for this option is estimated to be Q4 2019.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	469,616	443	\$ 208,039,888
New Construction Type 2 (Commercial-Grade)	0	345	\$ -
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	282,727	8	\$ 2,261,816
Buildings to Remain (No Construction)	411,282	0	\$ -
Off-site New Construction - Institutional Office ¹	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ¹	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	42	450,000	\$ 18,900,000
Limited/no Improvements	8	0	\$ -
Left for Developer	47.5	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	794,616	349	\$ 277,701,704
<i>Escalation - see escalation tables for details</i>	<i>Q4 2019</i>	<i>14.18%</i>	<i>\$ 39,376,331</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	794,616	399	\$ 317,078,035
Other Project Costs	16%		\$ 50,732,486
FF&E (% excludes parking, demo, site)	4.5%		\$ 12,616,015
Change Order Contingency	5%		\$ 15,853,902
Project Contingency	10%		\$ 31,707,804
SUBTOTAL PROJECT COSTS	794,616	539	\$ 427,988,240
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	794,616	539	\$ 427,988,240
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	30,668	300	\$ 9,200,400
Renovation w/Abatement	59,064	315	\$ 18,605,160
Historic Rehabilitation	57,474	300	\$ 17,242,200
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ 45,047,760

¹ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to fully vacate the northern portion of the ASH site for commercial development. These costs may be reduced if all or some of these employees remain in place and that portion of the site is not sold or leased.

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

APPENDIX B: COST ESTIMATES

Option 6B - ASH on ASH Site

The following table reflects a cost estimate for a replacement ASH facility on the ASH site. The midpoint of construction for this option is estimated to be Q4 2020.

Construction Type	Quantity (SF)	\$/SF	\$
New Construction Type 1 (Institutional-Grade)	469,616	443	\$ 208,039,888
New Construction Type 2 (Commercial-Grade)	0	345	\$ -
Parking Garage Construction	0	55	\$ -
Renovation - Gut	0	300	\$ -
Renovation w/Abatement - Gut	0	315	\$ -
Historic Rehabilitation - Allow	0	300	\$ -
Demolition	430,942	8	\$ 3,447,536
Buildings to Remain (No Construction)	381,400	0	\$ -
Off-site New Construction - Institutional Office ³	125,000	300	\$ 37,500,000
Off-site New Parking Garage Construction ³	200,200	55	\$ 11,000,000
Site Improvements	Area (Acres)	\$/Acre	\$
Full Sitework	46	450,000	\$ 20,700,000
Limited/no Improvements	0	0	\$ -
Left for Developer	51.5	0	\$ -
SUBTOTAL CONSTRUCTION COSTS - current	794,616	353	\$ 280,687,424
<i>Escalation - see escalation tables for details</i>	<i>Q4 2020</i>	<i>19.32%</i>	<i>\$ 54,221,607</i>
SUBTOTAL FUTURE CONSTRUCTION COSTS	794,616	421	\$ 334,909,031
Other Project Costs	16%		\$ 53,585,445
FF&E (% excludes parking, demo, site)	4.5%		\$ 13,183,735
Change Order Contingency	5%		\$ 16,745,452
Project Contingency	10%		\$ 33,490,903
SUBTOTAL PROJECT COSTS	794,616	569	\$ 451,914,566
Land Acquisition	Area (Acres)	\$/Acre	\$
Land Purchase Cost	0	435,600	\$ -
GRAND TOTAL PROJECT COST	794,616	569	\$ 451,914,566
Optional (Non-Essential) Renovations ²	Quantity (SF)	\$/SF	\$
Renovation	16,746	300	\$ 5,023,800
Renovation w/Abatement	12,127	315	\$ 3,820,005
Historic Rehabilitation	0	300	\$ -
SUBTOTAL NON ESSENTIAL RENOVATIONS			\$ 8,843,805

² Non-essential renovations include existing buildings available for use by either ASH or AuSSLC but that are not required to accommodate the designated program. These estimates are for current construction dollars only and do not include soft costs or escalation.

³ Off-site construction includes new space for HHSC employees currently located on the ASH campus who are not directly affiliated with ASH. Relocation is required in order to vacate the ASH site for a new ASH facility. These costs only include construction related expenses. As indicated in the schedule, this option may also incur lease expenses at an estimated \$2,500,000 per year (\$20/SF) during construction.

Escalation Tables

Base construction costs for each option were calculated using current dollars (Q3 2016). Each estimate then includes escalation to the midpoint of construction. Though actual escalation is an uncertain figure, the study utilized trend data, as well as discussions with a major national contractor, to determine an assumption of escalation rates through the duration of the project. The following tables reflect these assumptions and the resultant compounded escalation calculations by year for each option.

OPTION 2 ASH on Alternative Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$275,439,888	2.5%	\$6,885,997	\$6,885,997	\$282,325,885	2.50%
Year 2		2017	2018	\$282,325,885	5.0%	\$14,116,294	\$21,002,291	\$296,442,179	7.63%
Year 3		2018	2019	\$296,442,179	3.0%	\$8,893,265	\$29,895,557	\$305,335,445	10.85%
Year 4		2019	2020	\$305,335,445	3.0%	\$9,160,063	\$39,055,620	\$314,495,508	14.18%
Year 5		2020	2021	\$314,495,508	4.5%	\$14,152,298	\$53,207,918	\$328,647,806	19.32%
Year 6	Q1	2021	2022	\$328,647,806	2.0%	\$6,572,956	\$59,780,874	\$335,220,762	21.70%

OPTION 3 ASH / AuSSLC on ASH Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$452,922,245	2.5%	\$11,323,056	\$11,323,056	\$464,245,301	2.50%
Year 2		2017	2018	\$464,245,301	5.0%	\$23,212,265	\$34,535,321	\$487,457,566	7.63%
Year 3		2018	2019	\$487,457,566	3.0%	\$14,623,727	\$49,159,048	\$502,081,293	10.85%
Year 4		2019	2020	\$502,081,293	3.0%	\$15,062,439	\$64,221,487	\$517,143,732	14.18%
Year 5		2020	2021	\$517,143,732	4.5%	\$23,271,468	\$87,492,955	\$540,415,200	19.32%
Year 6		2021	2022	\$540,415,200	4.5%	\$24,318,684	\$111,811,639	\$564,733,884	24.69%
Year 7		2022	2023	\$564,733,884	4.5%	\$25,413,025	\$137,224,664	\$590,146,909	30.30%
Year 8	Q2	2023	2024	\$590,146,909	2.5%	\$14,753,673	\$151,978,336	\$604,900,581	33.56%

OPTION 4A ASH / AuSSLC on AuSSLC Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$414,523,304	2.5%	\$10,363,083	\$10,363,083	\$424,886,387	2.50%
Year 2		2017	2018	\$424,886,387	5.0%	\$21,244,319	\$31,607,402	\$446,130,706	7.63%
Year 3		2018	2019	\$446,130,706	3.0%	\$13,383,921	\$44,991,323	\$459,514,627	10.85%
Year 4		2019	2020	\$459,514,627	3.0%	\$13,785,439	\$58,776,762	\$473,300,066	14.18%
Year 5		2020	2021	\$473,300,066	4.5%	\$21,298,503	\$80,075,265	\$494,598,569	19.32%
Year 6		2021	2022	\$494,598,569	4.5%	\$22,256,936	\$102,332,200	\$516,855,504	24.69%
Year 7	Q1	2022	2023	\$516,855,504	2.0%	\$10,337,110	\$112,669,311	\$527,192,615	27.18%

APPENDIX B: COST ESTIMATES

OPTION 4B ASH / AuSSLC on AuSSLC Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$397,710,301	2.5%	\$9,942,758	\$9,942,758	\$407,653,059	2.50%
Year 2		2017	2018	\$407,653,059	5.0%	\$20,382,653	\$30,325,410	\$428,035,711	7.63%
Year 3		2018	2019	\$428,035,711	3.0%	\$12,841,071	\$43,166,482	\$440,876,783	10.85%
Year 4		2019	2020	\$440,876,783	3.0%	\$13,226,303	\$56,392,785	\$454,103,086	14.18%
Year 5		2020	2021	\$454,103,086	4.5%	\$20,434,639	\$76,827,424	\$474,537,725	19.32%
Year 6		2021	2022	\$474,537,725	4.5%	\$21,354,198	\$98,181,622	\$495,891,923	24.69%
Year 7	Q1	2022	2023	\$495,891,923	2.0%	\$9,917,838	\$108,099,460	\$505,809,761	27.18%

OPTION 4C ASH / AuSSLC on AuSSLC Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$459,567,877	2.5%	\$11,489,197	\$11,489,197	\$471,057,074	2.50%
Year 2		2017	2018	\$471,057,074	5.0%	\$23,552,854	\$35,042,051	\$494,609,928	7.63%
Year 3		2018	2019	\$494,609,928	3.0%	\$14,838,298	\$49,880,348	\$509,448,225	10.85%
Year 4		2019	2020	\$509,448,225	3.0%	\$15,283,447	\$65,163,795	\$524,731,672	14.18%
Year 5		2020	2021	\$524,731,672	4.5%	\$23,612,925	\$88,776,720	\$548,344,597	19.32%
Year 6		2021	2022	\$548,344,597	4.5%	\$24,675,507	\$113,452,227	\$573,020,104	24.69%
Year 7		2022	2023	\$573,020,104	4.5%	\$25,785,905	\$139,238,132	\$598,806,009	30.30%
Year 8	Q1	2023	2024	\$598,806,009	2.0%	\$11,976,120	\$151,214,252	\$610,782,129	32.90%

OPTION 5 ASH / AuSSLC on Alt. Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$446,537,397	2.5%	\$11,163,435	\$11,163,435	\$457,700,832	2.50%
Year 2		2017	2018	\$457,700,832	5.0%	\$22,885,042	\$34,048,477	\$480,585,874	7.63%
Year 3		2018	2019	\$480,585,874	3.0%	\$14,417,576	\$48,466,053	\$495,003,450	10.85%
Year 4		2019	2020	\$495,003,450	3.0%	\$14,850,103	\$63,316,156	\$509,853,553	14.18%
Year 5		2020	2021	\$509,853,553	4.5%	\$22,943,410	\$86,259,566	\$532,796,963	19.32%
Year 6	Q2	2021	2022	\$532,796,963	3.5%	\$18,647,894	\$104,907,460	\$551,444,857	23.49%

OPTION 6A ASH on ASH Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$277,701,704	2.5%	\$6,942,543	\$6,942,543	\$284,644,247	2.50%
Year 2		2017	2018	\$284,644,247	5.0%	\$14,232,212	\$21,174,755	\$298,876,459	7.63%
Year 3		2018	2019	\$298,876,459	3.0%	\$8,966,294	\$30,141,049	\$307,842,753	10.85%
Year 4	Q4	2019	2020	\$307,842,753	3.0%	\$9,235,283	\$39,376,331	\$317,078,035	14.18%

OPTION 6B ASH on ASH Site				Construction Cost / Year	Rate / Year	Escalation / Year	Total Escalation	Total w/ Escalation	Total Escalation %
Year 1	Q3	2016	2017	\$280,687,424	2.5%	\$7,017,186	\$7,017,186	\$287,704,610	2.50%
Year 2		2017	2018	\$287,704,610	5.0%	\$14,385,230	\$21,402,416	\$302,089,840	7.63%
Year 3		2018	2019	\$302,089,840	3.0%	\$9,062,695	\$30,465,111	\$311,152,535	10.85%
Year 4		2019	2020	\$311,152,535	3.0%	\$9,334,576	\$39,799,687	\$320,487,111	14.18%
Year 5	Q4	2020	2021	\$320,487,111	4.5%	\$14,421,920	\$54,221,607	\$334,909,031	19.32%

Detailed Cost Model - New Construction Type 1 (Institutional Mental Health)

The cost model below was developed using metrics from The Commonwealth of Massachusetts Worcester Recovery Center & Hospital. The project was completed in 2012 for a construction cost of \$250M (\$577/GSF). The project was 433,000 GSF on a 27acre site. Unit rates and scope have been tailored to reflect the local Austin market and our interpretation of the design/program direction. The purpose of this cost model is to provide the team a direction to achieve the budget and evaluate the budget. There are many unique requirements of this program type, of which many are identified below.



Cost Model: Based on 910,587gsf generally in a 1 story configuration

		Quantity	Unit	Rate	\$
COST MODEL SUMMARY					
Structure		910,587	sf	70	\$ 64,044,619
Enclosure		910,587	sf	74	\$ 67,656,614
Interiors		910,587	sf	67	\$ 61,139,244
Mechanical		910,587	sf	83	\$ 75,899,319
Electrical		910,587	sf	43	\$ 39,079,359
Sitework	minimal - with unit rates per acre	910,587	sf	3	\$ 2,276,468
Markups	15% OH&P, 15% contingency	910,587	sf	102	\$ 93,028,687
TOTAL COST MODEL		910,587	sf	443	\$ 403,124,309

		Quantity	Unit	Rate	\$
STRUCTURE					
Foundations	allow for drilled pier foundations on grade beams	910,587	sf	25	\$ 22,764,675
Earthwork	assume 3' of excavation and select backfill - dispose soils on site	101,176	cy	30	\$ 3,035,290
Lowest Floor	allow for slab on void form - crawlspace not assumed	910,587	sf	15	\$ 13,658,805
Upper Floor Structure	not required - assume single story - allow for misc metals, and minor mezzanines	910,587	sf	2	\$ 1,821,174
Roof Structure	structural steel roof, fireproofing, pads, dunnage	910,587	sf	25	\$ 22,764,675
TOTAL STRUCTURE		910,587	sf	70	\$ 64,044,619

		Quantity	Unit	Rate	\$
ENCLOSURE					
Cladding	assume 0.7sf of exterior wall per gsf. 70% solid, 30% glass solid walls - mix of brick, stone accents and metal panels	446,188	sf	35	\$ 15,616,567
Backup	lgmf, avb, sheathing, rigid, spray foam, sealing & caulking, safety barricade, misc metals	446,188	sf	25	\$ 11,154,691
Glazing	exterior glazing - mix of storefront and curtainwall premium for integral blinds and polycarbonate panels	191,223	sf	65	\$ 12,429,513
Entrances	exterior entries - typically glazed (1/5000sf)	182	no	5,000	\$ 910,587
Roofing	membrane roofing system, parapet backs, coping, flashing and accessories - assume internal drains with plumbing	910,587	sf	20	\$ 18,211,740
Projections	entrance canopy, loading docks, porches, screen walls, soffits, column covers	910,587	sf	5	\$ 4,552,935
TOTAL ENCLOSURE		910,587	sf	74	\$ 67,656,614

APPENDIX B: COST ESTIMATES

INTERIORS		Quantity	Unit	Rate	\$
Partitions	block assemblies, gyp assemblies, wire mesh security partitions, polycarbonate glass allowed for break resistance [ratio 1.45]	1,320,351	sf	12.25	\$ 16,174,302
Railings	mechanical and loading railings - minor since single story overhead coiling shutters, sally ports, glazed entrances, solid core wood doors, hollow metal support room doors [ratio 1no : 220sf]	225	lf	105	\$ 23,625
Doors	security portal control entrances	4	no	100,000	\$ 400,000
SUBTOTAL PARTITIONS & DOORS		910,587	sf	27	\$ 24,221,446
Floor Finishes	porcelain tile to washrooms, vinyl wood flooring to patient rooms, linoleum to circulation, carpet tile to administration and quiet Ares, sealed concrete at loading and mechanical [ratio 0.85]	773,999	sf	8.75	\$ 6,772,491
	bases - 20% of the floor value	1,354,498	ls	1	\$ 1,354,498
Ceiling Finishes	acoustic tile varieties common throughout, painted gyp soffits and detailing, metal and wood feature upgrades, paint exposed mechanical spaces [ratio 0.85]	773,999	sf	10.00	\$ 7,739,990
Wall Finishes	low voc paint common throughout, ceramic tile to washrooms, wood veneer and brick veneer to common neighborhoods and main circulation spine [ratio 2.35]	2,139,879	sf	2.50	\$ 5,349,699
	premium for tough primer	910,587	gfa	1.00	\$ 910,587
SUBTOTAL FINISHES		910,587	sf	24	\$ 22,127,264
Casework	patient room storage and vanities, base cabinet and upper cabinets to support spaces, work counter and shelving to administrative spaces, sills, reception and display, wood blocking	28,908	lf	225	\$ 6,504,193
Specialties	washroom accessories and partitions, visual display, wall protection, window treatments, lockers, fire extinguisher cabinets, signage	910,587	gfa	4.00	\$ 3,642,348
	signage and wayfinding, exterior building signage	910,587	gfa	2.00	\$ 1,821,174
	food service equipment	910,587	gfa	2.50	\$ 2,276,468
	athletic equipment	910,587	gfa	0.25	\$ 227,647
	residential kitchen equipment, loading dock equipment, av assumed by owner	910,587	gfa	0.35	\$ 318,705
Elevators	not required	0	stp	0.00	\$ -
SUBTOTAL FITTINGS & EQUIPMENT		910,587	sf	16	\$ 14,790,535
TOTAL INTERIORS		910,587	GFA	67.14	\$ 61,139,244
MECHANICAL		Quantity	Unit	Rate	\$
Plumbing Equipment	service entry, booster pumps, grease traps, hot water heaters, circulation pumps	910,587	sf	1.50	\$ 1,365,881
Major Fixtures	water closets, urinals, sinks, drinking fountains, showers [ratio 1 fixture : 280sf]	3,252	no	1,250	\$ 4,065,121
Minor Fixtures	food service connection, floor drains, roof drains, wall hydrants, hose bibs [ratio 1 fixture : 1000sf]	911	no	500	\$ 455,294
Piping	water, sanitary, gas, storm [ratio 45lf : fixture]	187,321	lf	44	\$ 8,242,113
Medical	medical outlets, equipment and gases - not required	0	sf	0	\$ -
SUBTOTAL PLUMBING		910,587	sf	15.5	\$ 14,128,408
Fire Service	service entry, fire pump, fire department connections, hose valves	910,587	sf	0.75	\$ 682,940
Sprinklers	sprinklers and piping [ratio 1sprinkler : 110sf]	8,278	no	250	\$ 2,069,516
	premium for safety sprinklers - 80%	6,622	no	50.00	\$ 331,123
Specialty Systems	dry systems to loading, canopies, soffits - allow	910,587	sf	0.50	\$ 455,294
SUBTOTAL FIRE PROTECTION		910,587	sf	3.9	\$ 3,538,872
AHU's	custom air handling units, heat recovery, vfd [ratio 1cfm : 1sf]	910,587	cfm	10	\$ 9,105,870
Fans	exhaust fans, return fans, vfds [ratio 0.5cfm : 1sf]	455,294	cfm	1.50	\$ 682,940
Heating Plant	boilers, pumps, heat exchangers, vfds [ratio 1mbh : 15sf]	60,706	mbh	30.00	\$ 1,821,174
Cooling Plant	chillers, towers, pumps, VFD's[ratio 1ton : 200sf]	4,553	ton	1,500	\$ 6,829,403
Air Distribution	ductwork, vav, diffusers, grilles, dampers, insulation [ratio 1.5lbs : 1sf]	1,365,881	lbs	15.00	\$ 20,488,208
Terminal Units	reheat coils, unit heaters, CRAC units [ratio 1no: 500sf]	1,821	no	600	\$ 1,092,704
HVAC Piping	hot water, chilled water, condensate (steam not required) 100lf per terminal	182,117	lf	50	\$ 9,105,870
Misc HVAC	test, balance, 3rd party assist, fuel oil system	910,587	sf	2.00	\$ 1,821,174
Controls	DDC Controls System	910,587	sf	8.00	\$ 7,284,696
SUBTOTAL HVAC		910,587	sf	64	\$ 58,232,039
TOTAL MECHANICAL		910,587	GFA	83.35	\$ 75,899,319

ELECTRICAL		Quantity	Unit	Rate	\$
Normal Power	incoming feeder, substation, panelboard, feeder, grounding [ratio 1A : 100sf]	9,106	A	400.00	\$ 3,642,348
Emergency Power	generator, ATS, switch gear, panelboards, feeder[ratio 1KW: 200sf]	4,553	kw	1,250	\$ 5,691,169
Motor Wiring	power to mechanical equipment	910,587	sf	2	\$ 1,821,174
SUBTOTAL SERVICE & DISTRIBUTION		910,587	sf	12.3	\$ 11,154,691
Lighting	Light Fixtures - LED, wiring, switching [ratio 1fixture : 50sf]	18,212	no	500	\$ 9,105,870
	lighting controls	910,587	sf	1	\$ 910,587
Branch Power	branch power outlets [ratio 1no : 60sf]	15,176	no	300	\$ 4,552,935
SUBTOTAL LIGHTING & DEVICES		910,587	sf	16.0	\$ 14,569,392
Fire Alarm	full fire alarm system	910,587	sf	2.5	\$ 2,276,468
Tel/Data	conduit drops, cable tray, horizontal cable, backbone, equipment[ratio 1drop : 250sf]	3,642	no	1,500	\$ 5,463,522
Security	card readers, cameras, headend equipment - full system [ratio 1drop : 300sf]	3,035	no	1,250	\$ 3,794,113
Other Systems	lightning protection, DAS, nurse call, clock, a/v infrastructure, misc electrical	910,587	gfa	2.00	\$ 1,821,174
SUBTOTAL LOW VOLTAGE SYSTEMS		910,587	sf	15	\$ 13,355,276
TOTAL ELECTRICAL		910,587	GFA	42.92	\$ 39,079,359
SITE DEVELOPMENT		Quantity	Unit	Rate	\$
Site Preparation	included with site development costs	0	sf	2.50	\$ -
Paving & Landscape	included with site development costs	0	sf	6.5	\$ -
Utilities	water, sanitary, fire, gas, storm, power, data - with site development	0	sf	10	\$ -
Lighting	site lighting - with site development costs	0	sf	2	\$ -
Misc Site	Allow for misc pavilions, terraces, upgrades to base site development package	910,587	sf	2.5	\$ 2,276,468
TOTAL SITE DEVELOPMENT		910,587	sf	2.5	\$ 2,276,468
SUBTOTAL DIRECT CONSTRUCTION COSTS		910,587	sf	341	\$ 310,095,622
MARKUPS					
Overhead & Profit	general conditions (labor), general requirements (hoisting, trailers, temp provisions), insurance & bonds, profit/fee	15%			\$ 46,514,343
Design Contingency	maintained low as this should be a ROM range. Above costs should be achievable as a design to budget	10%			\$ 31,009,562
Escalation Contingency	see project summary - costs in current dollars	0%			\$ -
Construction Contingency	CM construction contingency - change orders with owner soft costs	5%			\$ 15,504,781
SUBTOTAL MARKUPS		910,587	sf	102	\$ 93,028,687
TOTAL ESTIMATED CONSTRUCTION COSTS		910,587	sf	443	\$ 403,124,309

APPENDIX B: COST ESTIMATES

New Construction Type 2 (Commercial / Residential)

The focus of this costing effort was on institutional cost modeling. A portion of this program may fall into what is termed in the study as "Type 2" construction. This assumes simpler structure, finishes, and MEP more in line with commercial/residential grade construction. Items such as block/plank, punched windows, fan coil systems, plenum returns, and simple finishes must be considered to use this cost model.

		Institutional	Commercial	Delta
<i>COST MODEL SUMMARY</i>				
Structure		70	56	80%
Enclosure		74	60	81%
Interiors		67	55	82%
Mechanical		83	67	80%
Electrical		43	35	82%
Sitework	minimal - with unit rates per acre	3	2	80%
Markups	15% OH&P, 10% contingency	102	70	69%
<i>TOTAL COST MODEL</i>		443	345	78%

Site Development - Institutional Site

Site Preparation	clear vegetation, demo utilities, rough grading, construction entrances, construction fencing, erosion control	2,684,800	sf	0.75	\$	2,013,60
Hardscape	roads, parking, sidewalks, curbs - 20% of site - reinforced concrete	536,960	sf	8.0	\$	4,295,68
	premium for features/plaza's - 10% of hardscape	53,696	sf	15.0	\$	805,44
Improvements	retaining walls, landscape walls, railings, signage, bike racks, trellis, water features (NIC)	2,684,800	sf	1.0	\$	2,684,80
Softscape	top soil (4"), trees, shrubs, groundcover, irrigation (full site) - 50% of site	1,342,400	sf	2.0	\$	2,684,80
Civil	water, fire, sanitary, meters, vaults, connections - campus loop	20,000	lf	175.0	\$	3,500,00
	storm main, storm branch, landscape	10,000	lf	250.0	\$	2,500,00
	storm water retention - allow	2,684,800	sf	0.50	\$	1,342,40
Mechanical	hot water, chilled water, vaults - full campus loop	5,000	lf	1,000.0	\$	5,000,00
Electrical	primary ductbank (dual feed), telecom ductbank - campus loop	10,000	lf	375.0	\$	3,750,00
	new site electrical site services - campus switch/substation	2,000,000	ls	1.0	\$	2,000,00
	secondary ductbank, building switch, building transformer - with building costs	0	lf	0.0	\$	-
	primary cable & fiber to site - by utility	0	lf	0.0	\$	-
	lighting - street lights, pedestrian lights, landscape lights	536,960	sf	1.5	\$	805,44
Subtotal Site Development		2,684,800	sf	11.7	\$	31,382,16
Overhead & Profit				15%	\$	4,707,32
Contingency				0%	\$	-
Total Site Development		2,684,800	sf	13.4	\$	36,089,48
Acre		80	acre	451,119	\$	36,089,48

Site Development - Commercial Site

Site Preparation	clear vegetation, demo utilities, rough grading, construction entrances, construction fencing, erosion control	2,178,000	sf	0.50	\$	1,089,000
Hardscape	roads, parking, sidewalks, curbs - 20% of site - asphalt	435,600	sf	6.0	\$	2,613,600
	premium for features/plaza's - 10% of hardscape	43,560	sf	10.0	\$	435,600
Improvements	retaining walls, landscape walls, railings, signage, bike racks, trellis, water features (NIC)	2,178,000	sf	0.5	\$	1,089,000
Softscape	top soil, trees, shrubs, groundcover, irrigation - 50% of site	1,089,000	sf	2.0	\$	2,178,000
Civil	water, fire, sanitary, meters, vaults, connections - single feed	10,000	lf	125.0	\$	1,250,000
	storm main, storm branch, landscape	7,000	lf	175.0	\$	1,225,000
	storm water retention - allow	2,178,000	sf	0.50	\$	1,089,000
Mechanical	hot water, chilled water, vaults - not required for commercial	-	lf	1,000.0	\$	-
Electrical	primary ductbank - single feed, telecom ductbank	5,000	lf	300.0	\$	1,500,000
	new site electrical site services - campus switch/substation	1,000,000	ls	1.0	\$	1,000,000
	secondary ductbank, building switch, building transformer - with building costs	-	lf	0.0	\$	-
	primary cable & fiber to site - by utility	-	lf	0.0	\$	-
	lighting - street lights, pedestrian lights, landscape lights	435,600	sf	1.5	\$	653,400
Subtotal Site Development		2,178,000	sf	6.5	\$	14,122,600
Overhead & Profit				11%	\$	1,553,486
Contingency				0%	\$	-
Total Site Development		2,178,000	sf	7.2	\$	15,676,086
Acre		50	acre	313,522	\$	15,676,086

APPENDIX C: TRAFFIC ANALYSIS

Traffic Analysis was performed for each of the development options included in this study. The following describes the procedure used for traffic analysis for each options.

Approach

The traffic analysis presented in this report analyzed the operational conditions for the peak hours and study area as defined above using standardized analytical methodologies where applicable. Current (or recent) traffic volume data were collected on a typical day throughout the study area to represent existing traffic conditions. Current traffic volumes were collected during the analysis periods at the study area intersections on March 22, 2016 between the period of 6:00 AM and 10:00 PM. Peak hour traffic volumes are summarized in the Traffic Count Data section below; detailed raw traffic counts were collected but are not included in this document.

Because of the preliminary nature of this study, the analysis was performed for the current year traffic condition without projecting traffic for the build out year. Then, traffic generated by the proposed development was projected using the standard three-step approach: Trip Generation, Trip Distribution, and Traffic Assignment. By adding the site-generated traffic to the background traffic, the resulting site-plus-background traffic was obtained which was used to determine the traffic impacts from which mitigation measures were recommended. Trip generation is calculated in terms of “trip ends” – a trip end is a one-way vehicular trip entering or exiting a site driveway (i.e., a single vehicle entering and exiting a site represents two trip ends). Trip generation for each options outlined in the this project was calculated using current trips obtained from current traffic counts and were adjusted based on the percentage increase on the total number of beds provided on Austin State Hospital (ASH) as well as State-Supported Living Center (AuSSLC). The number of trip ends obtained from this approach was compared with the trips obtained from the procedure outlined in the Institute of Transportation Engineers (ITE) Trip Generation manual (9th Edition) based on the number of beds on proposed facility. Based on this comparison, the actual trips generated currently at these facilities are found to be generally higher than the ITE suggested trips on their ITE Trip Generation Manual. In addition, the existing trips obtained from the traffic counts are based on the actual site. Therefore, the trips based on the actual data were used for this analysis.

Internal trip capture, pass-by trips and mode splits are not considered as the proposed trips are based on the existing actual trips for this facility. It is assumed that the proportions of trip capture, pass-by and alternate modes of trips would remain unchanged. In other words, it is assumed that these number will increase as same ratio as the actual vehicular trip number increase.

The distribution and assignment of site-generated trip ends to the driveways and surrounding roadway system is determined by proportionally estimating the orientation of travel via various travel routes. This is a subjective exercise based upon professional judgment considering such factors as directional characteristics of existing local traffic; trip attributes (e.g., trip purpose, trip length, travel time, etc.), roadway features (e.g., capacity, operational conditions, character of environment), regional demographics, etc.

The proposed traffic volumes for morning and afternoon peak hours obtained from the trip distribution and traffic assignment calculations are summarized below. The assumptions for determining trip distributions for each options are discussed in detail below.

Option 1 - No Traffic Analysis Completed

Option 2 - No Traffic Analysis Completed

Option 3 - ASH and AuSSLC on ASH Site

Trip Generation

Trip generation for this option was determined based on existing traffic data collected. As discussed above, these trips are adjusted based on the percentage of total number of bed increase in the facility. These trip rates obtained were compared with the rate suggested by ITE Trip Generation Manual. Actual trip data was used as these data are generally higher that of ITE suggested data. The anticipated total trips for this option are summarized below.

Table 1. Option 3 Projected Trip Generation Summary

Facility	No. of Beds (Exist)	No. of Beds (Prop)	Exist. Trips				Prop. Trips				ITE (Prop.)			
			AM		PM		AM		PM		AM		PM	
			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
ASH	299	340	420	72	34	322	478	82	39	366	323	126	159	324
AuSSLC	185	200	159	30	58	160	172	32	63	173	17	17	15	29
Total			579	102	92	482	650	114	104	539	340	143	174	353

Trip Distribution and Assignment

Based on the current driveway usage, the eastern driveway from W 45th street to the ASH property and the northern driveway on Guadalupe Street currently function as the main driveways to ASH. The other three driveways located on N Lamar Street functions as support driveways based on existing traffic pattern. These driveways experiences minimal traffic compared to other two main driveways. Based on the proposed layout developed for this option, the proportion of traffic using support entrances from N Lamar Blvd. are assumed to be similar as existing usage. Whereas the remaining ASH traffic from other two existing drives are assigned to proposed ASH Main entrance from W 45th Street. The proposed driveway from Guadalupe Street will be primarily used by the AuSSLC traffic. Existing ASH traffic using the current driveway from Guadalupe Street is reassigned to proposed ASH main entrance from W 45th Street. Based on these assumptions and existing data, 12% of both ASH and AuSSLC generated traffic are assigned to the proposed support entrances located off N Lamar Blvd. The remaining ASH and AuSSLC traffic is expected to use their respective main entrance off W 45th Street and Guadalupe Street.

The anticipated traffic volumes at each driveways based on the trip distribution, traffic assignment and diversion are shown in the Traffic Count Data section below.

Traffic Impact and Mitigation Assessment

Based on the proposed site layout and generated trips based on analysis shown above, during morning peak hours there will be approximately 180 cars turning left and 215 cars turning right from W 45th Street on to ASH driveway. The turning volume at this intersection is more than two times compared to existing usage at this drive. Similarly, this driveway is expected to have approximately 150 cars turning both left and right during afternoon peak hours. These are due to the redirecting most of the ASH traffic to the driveway located at W 45th as well as additional site generated trips.

Based on TxDOT Access Management Manual, the turning movement at proposed ASH main entrance warrant exclusive left and right turn lane at the intersection. In addition to that the traffic volumes at this driveway is expected to meet the warrant for installation of new traffic signal based on Texas MUTCD. Therefore, anticipated improvements at this intersection may include signalization of this intersection with extra lanes for exclusive left and right turn lanes for traffic entering and exiting out of ASH site. If signalized, the intersection control should also include Triangle Avenue approach to form a four way signalize intersection. If this option is chosen, a detail study on the traffic signal warrant analysis as well as capacity analysis for this intersection should be included in the Final Traffic Impact Analysis (TIA).

Under proposed site layout and trip distribution, proposed driveway from Guadalupe Street will be the main entrance for AuSSLC. Even though most of the AuSSLC trips utilize this driveway, the number of vehicles turning left and right at this driveway is similar to the number of vehicles using this driveway under existing condition. The overall traffic volumes changes at this driveway is minimal as there are higher existing ASH trips compared to the relocated AuSSLC trips to this driveway.

APPENDIX C: TRAFFIC ANALYSIS

The operation at the proposed AuSSLC main entrance is expected to remain relatively similar as there is no significant changes on the traffic volumes at this intersection. Currently, this driveway is signalized and it is recommended to upgrade this signal and provide signal timing adjustments. It is also recommended to perform capacity analysis to evaluate the operational condition of the intersection to be included on the Final TIA if this option is chosen.

Similarly, the additional trips generated by the relocation of AuSSLC and replacement of ASH is expected to have minimal impacts in W 45th Street, North Lamar Blvd, W 38th Street and Guadalupe Street. However, it is recommended to perform capacity analysis and signal timing optimization at following intersections if this option is selected.

- o W 45th St. and N Lamar Blvd.,
- o W 40th St. and N Lamar Blvd.,
- o W 38th St. and N Lamar Blvd.,
- o W 38th St. and West Ave.,
- o W 38th St. and Guadalupe St.,
- o W 45th St. and Guadalupe St.

Option 4 - ASH and AuSSLC on AuSSLC Site

Trip Generation

Similar to Option 3, trip generation for this approach was determined based on existing traffic data collected. The trips obtained are adjusted based on the percentage of total number of bed increase in the facility. This option also includes combining both ASH and AuSSLC on Existing AuSSLC property, the anticipated total trips obtained for this option is shown on table below.

Table 2. Option 4 Projected Trip Generation Summary

Facility	No. of Beds (Exist)	No. of Beds (Prop)	Exist. Trips				Prop. Trips				ITE (Prop.)			
			AM		PM		AM		PM		AM		PM	
			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
ASH	299	340	420	72	34	322	478	82	39	366	323	126	159	324
AuSSLC	185	200	159	30	58	160	172	32	63	173	17	17	15	29
Total			579	102	92	482	650	114	104	539	340	143	174	353

Trip Distribution and Assignment

The existing AuSSLC site has two access points to its site. The main driveway is located off W 35th Street and the second driveway is located off Exposition Blvd. There are three proposed alternatives developed for this option. The access point locations on all three alternatives are same with little variation on their usage. Option 4B, AuSSLC has a separate drive as well as shared drive with ASH whereas Option 4A and Option 4C have one driveway for ASH and AuSSLC. Under all alternatives there is one support driveway off Exposition Blvd. Currently this driveway off Exposition Blvd. is closed off at the time of traffic count. Based on the current support driveway usage on ASH site, a conservative assumption of 15% of total combined trips generated by ASH and AuSSLC was used in assigning the total trips to this entrance when this driveway is open. It is assumed that this entrance will be primarily used by employees and other delivery needed for the site. The remaining 85% traffic is expected to use respective main entrances to each facility under Option 4A and Option 4C whereas remaining AuSSLC trips were spitted to both drives based on the direction of traffic as well as proportion of traffic.

The anticipated traffic volumes at each driveways based on the trip distribution and traffic assignment are shown in the Traffic Count Data section below.

Traffic Impact and Mitigation Assessment

The traffic volume obtained for Option 4A and Option 4C from the trip assignment under this option has more than 350 vehicles that is expected to turn left at the proposed ASH main entrance. This traffic volume warrant an exclusive left turn lane based on TxDOT Access Management Manual.

The proposed ASH main entrance is approximately 100 feet from the exit ramp from North Mopac Expressway. As most of the traffic is expected to use this ramp to access ASH site on left side of the W 35th street, the section between this exit ramp (on right side of W 35th Street) and ASH driveway (on left side of W 35th Street) is expected to have significant weaving movement. Most of the vehicles entering ASH site has to cross two through lanes of traffic within 100 feet to turn left onto ASH driveway which is likely to create operational issues on this section of roadway.

In addition, the sight distance available for westbound traffic from this ramp and on W 35th Street appears to be substandard based on the available imagery and site observation. Based on City of Austin Transportation Requirement Manual, the spacing between driveways should be at least 300 ft. along a hill country roadway. However, the suggested 300 feet spacing do not account for the necessary weaving length needed. Hence it is recommended to move this driveway further on W 35th Street, possibly relocating to Exposition Blvd. If relocating this drive on to exposition Blvd is not feasible, it will be beneficial to combine the driveways for both ASH and AuSSLC into one driveway and providing the maximum extent possible separation between exit ramp and combined driveway.

The added traffic volume may require the installation of traffic signal at proposed ASH driveway, whereas the proposed AuSSLC driveway is not anticipated to meet the warrant for traffic signal installation. Final TIA should include a detail study on traffic signal warrant analysis, capacity analysis as well as weaving analysis to confirm these assumption if this site is selected.

Similarly, Option 4B included in this option has combined entrance for ASH and AuSSLC in addition to a separate AuSSLC entrance. Since, this option has additional AuSSLC traffic using the ASH entrance, the operation at the combined driveway is expected to worsen more than Option 4A and Option 4C. The recommendation proposed above for Option 4A and Option 4C should be evaluated for this alternative as well.

The relocation of ASH to the existing AuSSLC sites will add more than 540 trips during morning peak hours. Current lane configuration provides 2 through lanes of traffic on each direction along W 35th Street. Even though the number of added trips are considerable, the existing roadway has enough capacity to handle these trips. In addition to that, due to proximity of this site with Mopac expressway, the traffic is expected to disperse faster onto the expressway, hence minimizing the impact on surrounding roadways.

Option 5 - No Traffic Analysis Completed

Option 6 - ASH on ASH Site

Trip Generation

Similar to Option 3 and Option 4, trip generation for this approach was determined based on existing traffic data collected. The proposed trips are calculated based on the percentage increase in total number of beds increase in the facility. Since this option includes the replacement of ASH on to its existing facility, the resulting trips are shown below.

Table 3. Option 6 Projected Trip Generation Summary

Facility	No. of Beds (Exist)	No. of Beds (Prop)	Exist. Trips				Prop. Trips				ITE (Prop.)			
			AM		PM		AM		PM		AM		PM	
			In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
ASH	299	340	420	72	34	322	478	82	39	366	323	126	159	324

APPENDIX C: TRAFFIC ANALYSIS

Trip Distribution and Assignment

This option is similar to the Option 3 except relocation of AuSSLC was not proposed. There are two different alternatives proposed for this option. Option 6A has ASH main entrance located off Guadalupe Street along with two support entrance located off N. Lamar Blvd. whereas Option 6B has the ASH main entrance off the W. 45th Street and one support entrance off N. Lamar Blvd. Similar to Option 3, for both alternatives included on this option, 12% trips are assigned to the support entrance(s) off N. Lamar Blvd. based on the existing site traffic usage. The remaining traffic will use respective ASH main entrance under each alternative. The proposed traffic volumes for both alternatives included in this option are included in the Traffic Count Data section below.

Traffic Impact and Mitigation Assessment

Similar to Option 3, under both alternatives included on this option, the left and right turns in and out of driveway are significant. Based on the traffic assignment under Option 6A there are approximately 190 left turns and 230 right turns into the site during morning peak hour. Similarly during afternoon peak hour the left and right turning traffic exiting out of the driveways are approximately 175 and 145 respectively. Based on this traffic volumes, the existing signal system at the ASH driveway on Guadalupe Street shall be upgraded and additional left and right turn lanes provided for traffic entering and exiting out of the drive. The two support entrances included on this alternative is expected to have minimal change in traffic operation and it is expected to function acceptable under un-signalized condition.

In addition, it is recommended to provide signal timing modification on following intersections.

- W 38th St. and West Ave.,
- W 38th St. and Guadalupe St.,
- W 45th St. and Guadalupe St.

Similarly, for Option 6B, a new traffic signal may be install at ASH driveway on W 45th Street as it is anticipated to meet the warrant for traffic signal installation based on Texas MUTCD. The left and right turns entering this driveway for proposed condition during morning peak hour are approximately 190 and 215 respectively. Similarly, the left and right turns exiting out of this drive during afternoon peak hour are approximately 165 and 140 respectively. Also the new intersection with this driveway will require exclusive left and right turn lanes for traffic entering and exiting out of ASH. This alternative would also require removal of existing traffic signal at the current ASH driveway. This traffic signal is not expected to meet traffic signal warrant once ASH traffic is re-distributed to new ASH driveway.

In addition, it is recommended to analyze necessary signal timing modification on following intersections:

- W 45th St. and N Lamar Blvd.,
- W 40th St. and N Lamar Blvd.,
- W 38th St. and N Lamar Blvd.,
- W 45th St. and Guadalupe St.

Similar to Option 3, the surrounding roadway links will have minimal impacts with the added traffic and expected to function well under both alternatives included in this option.

Traffic Count Data

The following pages include tables and diagrams that represent the traffic collection data incorporated into the preceding traffic analysis.

The first set of tables reflect the peak hour traffic for all site entrances around both the ASH and AuSSLC campus. Data was collected for all hours between 6:00 AM and 10:00 PM, but the complete set of data is not included in this document.

The second series of diagrams represent traffic volumes for site entrances surrounding both the ASH and AuSSLC sites for each feasibility option. For each option studied, existing and proposed diagrams are shown. These diagrams depict the AM and PM peak hour for each option.

APPENDIX C: TRAFFIC ANALYSIS

Intersection Traffic Movements													DeShazo Group, Inc.					
Location: Site Driveway 1 at N Lamar Blvd													Data Collector(s): Camera					
City/State: Austin/TX													Weather Conditions: Mild/Normal Conditions					
Day/Date: Tuesday, March 22, 2016													Traffic Control: Unsignalized					
Project-ID #: 16010													Description: Minor-Street STOP Controlled					
Data Source: CJ Hensch																		
Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	1	0	164	5	0	0	382	0	0	0	0	0	0	0	0	0	1
7:30 AM	7:45 AM	0	0	179	5	0	3	393	0	0	0	0	3	0	0	0	0	0
7:45 AM	8:00 AM	0	0	212	3	0	2	463	0	0	0	0	1	0	0	0	0	0
8:00 AM	8:15 AM	0	0	181	4	0	2	480	1	0	0	0	0	0	0	0	0	0
8:15 AM	8:30 AM	0	0	179	2	0	1	431	0	0	0	0	0	0	0	0	0	1
8:30 AM	8:45 AM	0	0	176	2	0	0	441	0	0	0	0	0	0	0	0	0	0
8:45 AM	9:00 AM	0	0	164	1	0	1	430	1	0	0	0	0	0	0	0	0	1
9:00 AM	9:15 AM	0	0	165	0	0	0	363	0	0	0	0	1	0	0	0	0	2
Intersection PHV:		0	0	748	11	0	5	1,815	1	0	0	0	1	0	0	0	0	1
PHF:		0.00	0.00	0.88	0.69	0.00	0.63	0.95	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.25
Intersection Peak Hour: 7:45 AM - 8:45 AM													Intersection PHF: 0.95					
Study Area PHV:		0	0	748	11	0	5	1,815	1	0	0	0	1	0	0	0	0	1
PHF:		0.00	0.00	0.88	0.69	0.00	0.63	0.95	0.25	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.25
Study Peak Hour: 7:45 AM - 8:45 AM													Study Area PHF: 0.95					
4:15 PM	4:30 PM	0	1	474	0	0	0	314	2	0	0	0	1	0	0	0	0	2
4:30 PM	4:45 PM	0	0	430	0	0	1	353	0	0	1	0	1	0	0	0	0	2
4:45 PM	5:00 PM	0	0	465	0	0	0	322	0	0	0	0	0	0	1	0	0	3
5:00 PM	5:15 PM	0	0	427	0	0	0	328	0	0	0	0	0	0	0	0	0	4
5:15 PM	5:30 PM	0	0	489	0	0	0	353	0	0	1	0	0	0	1	0	0	1
5:30 PM	5:45 PM	0	0	467	0	0	0	303	1	0	0	0	2	0	0	0	0	0
5:45 PM	6:00 PM	0	0	469	2	0	0	329	0	0	0	0	0	0	0	0	0	0
6:00 PM	6:15 PM	0	0	479	0	0	0	322	0	0	0	0	1	0	0	0	0	0
Intersection PHV:		0	0	1,904	2	0	0	1,307	1	0	1	0	3	0	1	0	0	1
PHF:		0.00	0.00	0.97	0.25	0.00	0.00	0.93	0.25	0.00	0.25	0.00	0.38	0.00	0.25	0.00	0.25	0.25
Intersection Peak Hour: 5:15 PM - 6:15 PM													Intersection PHF: 0.95					
Study Area PHV:		0	0	1,848	0	0	0	1,306	1	0	1	0	2	0	2	0	0	8
PHF:		0.00	0.00	0.94	0.00	0.00	0.00	0.92	0.25	0.00	0.25	0.00	0.25	0.00	0.50	0.00	0.50	0.50
Study Peak Hour: 4:45 PM - 5:45 PM													Study Area PHF: 0.94					
Observations:																		

File: C2X3HRS - 4L&12Mv_Peds.XLS

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **Site Driveway 2 at N Lamar Blvd**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**

Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	0	0	147	0	0	1	387	0	0	0	0	0	0	0	0	0	1
7:30 AM	7:45 AM	0	0	171	0	0	0	424	0	0	0	0	0	0	0	0	0	0
7:45 AM	8:00 AM	0	0	211	0	0	0	474	0	0	0	0	0	0	0	0	0	0
8:00 AM	8:15 AM	0	0	161	0	0	2	489	0	0	0	0	0	0	0	0	0	0
8:15 AM	8:30 AM	0	0	171	0	0	2	450	0	0	0	0	0	0	0	0	0	0
8:30 AM	8:45 AM	0	0	162	0	2	0	465	0	0	0	0	0	0	0	0	0	0
8:45 AM	9:00 AM	0	0	157	0	0	0	442	0	0	0	0	0	0	0	0	0	1
9:00 AM	9:15 AM	0	0	166	0	1	0	372	0	0	0	0	0	0	1	0	0	0
Intersection PHV:		0	0	705	0	2	4	1,878	0	0	0	0	0	0	0	0	0	0
PHF:		0.00	0.00	0.84	0.00	0.25	0.50	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intersection Peak Hour: 7:45 AM - 8:45 AM																Intersection PHF: 0.94		
Study Area PHV:		0	0	705	0	2	4	1,878	0	0	0	0	0	0	0	0	0	0
PHF:		0.00	0.00	0.84	0.00	0.25	0.50	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Study Peak Hour: 7:45 AM - 8:45 AM																Study Area PHF: 0.94		
4:15 PM	4:30 PM	0	0	466	0	0	0	323	0	0	0	0	0	0	0	0	0	0
4:30 PM	4:45 PM	0	0	421	0	0	1	349	0	0	0	0	0	0	0	0	0	0
4:45 PM	5:00 PM	0	0	476	0	0	0	325	0	0	0	0	0	0	0	0	0	0
5:00 PM	5:15 PM	0	0	381	0	0	0	318	0	0	0	0	0	0	0	0	0	2
5:15 PM	5:30 PM	0	0	476	0	0	0	333	0	0	0	0	0	0	0	0	0	1
5:30 PM	5:45 PM	0	0	470	0	0	0	293	0	0	0	0	0	0	0	0	0	0
5:45 PM	6:00 PM	0	0	436	0	0	0	315	0	0	0	0	0	0	0	0	0	0
6:00 PM	6:15 PM	0	0	470	0	0	0	313	0	0	0	0	0	0	0	0	0	0
Intersection PHV:		0	0	1,852	0	0	0	1,254	0	0	0	0	0	0	0	0	0	1
PHF:		0.00	0.00	0.97	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
Intersection Peak Hour: 5:15 PM - 6:15 PM																Intersection PHF: 0.96		
Study Area PHV:		0	0	1,803	0	0	0	1,269	0	0	0	0	0	0	0	0	0	3
PHF:		0.00	0.00	0.95	0.00	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
Study Peak Hour: 4:45 PM - 5:45 PM																Study Area PHF: 0.95		

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

APPENDIX C: TRAFFIC ANALYSIS

DeShazo Group, Inc.

Intersection Traffic Movements

Location: **Site Driveway 3 at N Lamar Blvd**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**
 Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	0	0	144	4	0	3	392	0	0	0	0	0	0	1	0	0	1
7:30 AM	7:45 AM	0	0	176	2	0	9	419	0	0	0	0	0	0	0	0	0	0
7:45 AM	8:00 AM	0	0	209	3	0	5	469	0	0	0	0	0	0	0	0	0	1
8:00 AM	8:15 AM	0	0	155	6	0	6	483	0	0	0	0	0	0	1	0	0	0
8:15 AM	8:30 AM	0	0	166	6	0	4	468	0	0	0	0	0	0	0	0	0	0
8:30 AM	8:45 AM	0	0	160	1	2	8	466	0	0	0	0	0	0	0	0	0	0
8:45 AM	9:00 AM	0	0	154	0	0	8	438	0	0	0	0	0	0	0	0	0	2
9:00 AM	9:15 AM	0	0	168	3	1	4	370	0	0	0	0	0	0	0	0	0	0
Intersection PHV:		0	0	690	16	2	23	1,886	0	0	0	0	0	0	1	0	0	1
PHF:		0.00	0.00	0.83	0.67	0.25	0.72	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	
Intersection Peak Hour: 7:45 AM - 8:45 AM										Intersection PHF: 0.95								
Study Area PHV:		0	0	690	16	2	23	1,886	0	0	0	0	0	0	1	0	0	1
PHF:		0.00	0.00	0.83	0.67	0.25	0.72	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	
Study Peak Hour: 7:45 AM - 8:45 AM										Study Area PHF: 0.95								
4:15 PM	4:30 PM	0	0	457	0	0	0	318	0	0	0	0	0	0	0	0	0	2
4:30 PM	4:45 PM	0	0	409	0	0	0	345	0	0	0	0	0	0	0	0	0	3
4:45 PM	5:00 PM	0	0	494	1	0	0	322	0	0	0	0	0	0	0	0	0	3
5:00 PM	5:15 PM	0	0	384	0	0	0	324	0	0	0	0	0	0	0	0	0	6
5:15 PM	5:30 PM	0	0	472	0	0	0	326	0	0	0	0	0	0	0	0	0	5
5:30 PM	5:45 PM	0	0	479	0	0	0	299	0	0	0	0	0	0	0	0	0	2
5:45 PM	6:00 PM	0	0	418	0	0	0	306	0	0	0	0	0	0	0	0	0	2
6:00 PM	6:15 PM	0	0	482	0	0	0	320	0	0	0	0	0	0	0	0	0	3
Intersection PHV:		0	0	1,829	1	0	0	1,271	0	0	0	0	0	0	0	0	0	16
PHF:		0.00	0.00	0.93	0.25	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
Intersection Peak Hour: 4:45 PM - 5:45 PM										Intersection PHF: 0.95								
Study Area PHV:		0	0	1,829	1	0	0	1,271	0	0	0	0	0	0	0	0	0	16
PHF:		0.00	0.00	0.93	0.25	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
Study Peak Hour: 4:45 PM - 5:45 PM										Study Area PHF: 0.95								

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **Site Driveway 4 at 45th street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**

Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street			
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
7:15 AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	171	3	1	1	135	0
7:30 AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	225	1	0	2	212	0
7:45 AM	8:00 AM	0	0	0	1	0	0	0	0	0	0	257	4	0	2	195	0
8:00 AM	8:15 AM	0	0	0	0	0	0	0	0	0	0	241	3	0	1	205	0
8:15 AM	8:30 AM	0	0	0	1	0	0	0	0	0	0	252	2	0	2	195	0
8:30 AM	8:45 AM	0	0	0	0	0	0	0	0	0	0	229	1	0	1	189	0
8:45 AM	9:00 AM	0	0	0	1	0	0	0	0	0	0	240	4	0	0	194	0
9:00 AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	207	1	0	1	183	0
<i>Intersection PHV:</i>		0	0	0	2	0	0	0	0	0	0	975	10	0	7	807	0
<i>PHF:</i>		0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.63	0.00	0.88	0.95	0.00
<i>Intersection Peak Hour: 7:30 AM - 8:30 AM</i>															<i>Intersection PHF: 0.98</i>		
Study Area PHV:		0	0	0	2	0	0	0	0	0	0	979	10	0	6	784	0
PHF:		0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.63	0.00	0.75	0.96	0.00
Study Peak Hour: 7:45 AM - 8:45 AM															Study Area PHF: 0.97		
4:15 PM	4:30 PM	0	0	0	2	0	0	0	0	0	0	213	0	0	0	244	0
4:30 PM	4:45 PM	0	0	0	3	0	0	0	0	0	0	240	2	0	0	237	0
4:45 PM	5:00 PM	0	0	0	3	0	0	0	0	1	0	284	1	0	0	261	0
5:00 PM	5:15 PM	0	0	0	2	0	0	0	0	0	0	278	0	0	0	247	0
5:15 PM	5:30 PM	0	0	0	1	0	0	0	0	0	0	293	0	0	1	256	0
5:30 PM	5:45 PM	0	0	0	0	0	0	0	0	0	0	280	0	0	0	274	0
5:45 PM	6:00 PM	0	1	0	0	0	0	0	0	0	0	274	0	0	0	264	0
6:00 PM	6:15 PM	0	0	0	0	0	0	0	0	0	0	290	0	0	0	249	0
<i>Intersection PHV:</i>		0	1	0	1	0	0	0	0	0	0	1,137	0	0	1	1,043	0
<i>PHF:</i>		0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.25	0.95	0.00
<i>Intersection Peak Hour: 5:15 PM - 6:15 PM</i>															<i>Intersection PHF: 0.99</i>		
Study Area PHV:		0	0	0	6	0	0	0	0	1	0	1,135	1	0	1	1,038	0
PHF:		0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.25	0.00	0.97	0.25	0.00	0.25	0.95	0.00
Study Peak Hour: 4:45 PM - 5:45 PM															Study Area PHF: 0.98		

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

APPENDIX C: TRAFFIC ANALYSIS

DeShazo Group, Inc.

Intersection Traffic Movements

Location: **Site Driveway 5 at 45th Street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**
 Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street			
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
7:15 AM	7:30 AM	0	1	0	0	0	0	0	0	0	0	170	1	0	6	147	0
7:30 AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	221	4	0	1	222	0
7:45 AM	8:00 AM	0	0	0	1	0	0	0	0	0	0	257	4	0	5	184	0
8:00 AM	8:15 AM	0	0	0	2	0	0	0	0	0	0	239	4	0	8	214	0
8:15 AM	8:30 AM	0	0	0	0	0	0	0	0	2	0	235	7	0	3	185	0
8:30 AM	8:45 AM	0	1	0	1	0	0	0	0	0	0	220	1	0	3	191	0
8:45 AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	234	4	0	3	201	0
9:00 AM	9:15 AM	0	0	0	1	0	0	0	0	0	0	206	0	0	3	191	0
Intersection PHV:		0	0	0	3	0	0	0	0	2	0	952	19	0	17	805	0
PHF:		0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.25	0.00	0.93	0.68	0.00	0.53	0.91	0.00
Intersection Peak Hour: 7:30 AM - 8:30 AM													Intersection PHF: 0.96				
Study Area PHV:		0	1	0	4	0	0	0	0	2	0	951	16	0	19	774	0
PHF:		0.00	0.25	0.00	0.50	0.00	0.00	0.00	0.00	0.25	0.00	0.93	0.57	0.00	0.59	0.90	0.00
Study Peak Hour: 7:45 AM - 8:45 AM													Study Area PHF: 0.95				

4:15 PM	4:30 PM	0	3	0	4	0	0	0	0	0	0	219	0	0	1	248	0
4:30 PM	4:45 PM	0	5	0	10	0	0	0	0	0	0	238	1	0	0	244	0
4:45 PM	5:00 PM	0	0	0	7	0	0	0	0	0	0	289	0	0	0	230	0
5:00 PM	5:15 PM	0	4	0	6	0	0	0	0	0	0	276	0	0	0	255	0
5:15 PM	5:30 PM	0	2	0	5	0	0	0	0	0	0	293	0	0	1	262	0
5:30 PM	5:45 PM	0	3	0	3	0	0	0	0	0	0	275	0	0	0	272	0
5:45 PM	6:00 PM	0	2	0	6	0	0	0	0	0	0	267	0	0	0	246	0
6:00 PM	6:15 PM	0	5	0	1	0	0	0	0	1	0	288	0	0	0	242	0
Intersection PHV:		0	9	0	21	0	0	0	0	0	0	1,133	0	0	1	1,019	0
PHF:		0.00	0.56	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.25	0.94	0.00
Intersection Peak Hour: 4:45 PM - 5:45 PM													Intersection PHF: 0.97				
Study Area PHV:		0	9	0	21	0	0	0	0	0	0	1,133	0	0	1	1,019	0
PHF:		0.00	0.56	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.25	0.94	0.00
Study Peak Hour: 4:45 PM - 5:45 PM													Study Area PHF: 0.97				

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **Site Driveway 6 at 45th Street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**

Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street			
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
7:15 AM	7:30 AM	0	3	2	7	0	4	1	9	0	4	154	20	0	15	137	5
7:30 AM	7:45 AM	0	2	1	4	0	4	1	21	0	3	205	17	0	18	195	3
7:45 AM	8:00 AM	0	2	2	4	0	2	3	15	0	3	214	39	0	24	182	3
8:00 AM	8:15 AM	1	2	1	3	0	1	5	14	0	6	209	24	0	20	203	4
8:15 AM	8:30 AM	0	1	4	3	0	2	0	13	0	4	213	22	0	16	173	3
8:30 AM	8:45 AM	0	2	2	4	0	5	2	9	0	3	203	16	0	13	181	7
8:45 AM	9:00 AM	0	2	1	2	0	3	2	14	0	5	210	18	0	7	188	3
9:00 AM	9:15 AM	0	2	0	3	0	5	0	16	0	3	191	10	0	8	170	5
<i>Intersection PHV:</i>		1	7	8	14	0	9	9	63	0	16	841	102	0	78	753	13
<i>PHF:</i>		0.25	0.88	0.50	0.88	0.00	0.56	0.45	0.75	0.00	0.67	0.98	0.65	0.00	0.81	0.93	0.81
<i>Intersection Peak Hour: 7:30 AM - 8:30 AM</i>														<i>Intersection PHF: 0.97</i>			
Study Area PHV:		1	7	9	14	0	10	10	51	0	16	839	101	0	73	739	17
PHF:		0.25	0.88	0.56	0.88	0.00	0.50	0.50	0.85	0.00	0.67	0.98	0.65	0.00	0.76	0.91	0.61
Study Peak Hour: 7:45 AM - 8:45 AM														Study Area PHF: 0.96			
4:15 PM	4:30 PM	0	16	0	16	0	11	1	17	0	8	212	4	0	3	211	7
4:30 PM	4:45 PM	0	23	3	29	0	2	0	18	0	5	239	2	0	2	208	9
4:45 PM	5:00 PM	0	10	2	15	0	7	1	9	0	11	283	2	0	2	207	7
5:00 PM	5:15 PM	0	18	3	32	0	3	0	14	0	8	277	1	0	2	225	6
5:15 PM	5:30 PM	0	23	1	15	0	2	0	20	0	15	281	1	0	3	237	2
5:30 PM	5:45 PM	0	9	2	12	0	4	0	19	0	9	271	0	0	2	239	3
5:45 PM	6:00 PM	0	4	1	4	0	3	2	16	0	8	271	1	0	1	200	7
6:00 PM	6:15 PM	0	6	0	8	0	5	1	8	0	12	274	2	0	0	236	11
<i>Intersection PHV:</i>		0	60	8	74	0	16	1	62	0	43	1,112	4	0	9	908	18
<i>PHF:</i>		0.00	0.65	0.67	0.58	0.00	0.57	0.25	0.78	0.00	0.72	0.98	0.50	0.00	0.75	0.95	0.64
<i>Intersection Peak Hour: 4:45 PM - 5:45 PM</i>														<i>Intersection PHF: 0.96</i>			
Study Area PHV:		0	60	8	74	0	16	1	62	0	43	1,112	4	0	9	908	18
PHF:		0.00	0.65	0.67	0.58	0.00	0.57	0.25	0.78	0.00	0.72	0.98	0.50	0.00	0.75	0.95	0.64
Study Peak Hour: 4:45 PM - 5:45 PM														Study Area PHF: 0.96			

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

APPENDIX C: TRAFFIC ANALYSIS

DeShazo Group, Inc.

Intersection Traffic Movements

Location: **Site Driveway 7 at Guadalupe Street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**
 Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Signalized**

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	0	10	66	1	0	2	235	12	0	2	0	1	0	0	0	0	4
7:30 AM	7:45 AM	0	13	113	3	0	8	322	18	0	2	0	4	0	0	0	0	3
7:45 AM	8:00 AM	0	8	116	2	0	3	356	31	0	2	0	3	0	0	1	5	
8:00 AM	8:15 AM	0	9	120	1	0	0	330	19	0	3	0	6	0	3	2	3	
8:15 AM	8:30 AM	0	11	91	3	0	1	347	19	0	6	0	5	0	7	2	3	
8:30 AM	8:45 AM	0	10	92	1	0	2	334	11	0	1	0	1	0	5	0	7	
8:45 AM	9:00 AM	0	11	119	3	0	0	328	9	0	1	1	6	0	7	0	9	
9:00 AM	9:15 AM	0	6	128	1	0	1	322	8	0	1	0	1	0	11	1	4	
Intersection PHV:		0	41	440	9	0	12	1,355	87	0	13	0	18	0	10	5	14	
PHF:		0.00	0.79	0.92	0.75	0.00	0.38	0.95	0.70	0.00	0.54	0.00	0.75	0.00	0.36	0.63	0.70	
Intersection Peak Hour: 7:30 AM - 8:30 AM										Intersection PHF: 0.95								
Study Area PHV:		0	38	419	7	0	6	1,367	80	0	12	0	15	0	15	5	18	
PHF:		0.00	0.86	0.87	0.58	0.00	0.50	0.96	0.65	0.00	0.50	0.00	0.63	0.00	0.54	0.63	0.64	
Study Peak Hour: 7:45 AM - 8:45 AM										Study Area PHF: 0.94								
4:15 PM	4:30 PM	0	4	325	2	0	1	187	3	0	6	1	8	0	5	0	3	
4:30 PM	4:45 PM	0	5	296	6	0	0	246	2	0	16	3	18	0	5	0	7	
4:45 PM	5:00 PM	0	1	387	9	0	1	222	2	0	13	0	13	0	13	0	4	
5:00 PM	5:15 PM	0	0	339	9	0	1	241	1	0	23	0	19	0	17	2	5	
5:15 PM	5:30 PM	0	0	381	5	0	2	211	2	0	12	0	7	0	7	0	5	
5:30 PM	5:45 PM	1	2	361	6	0	2	260	1	0	6	1	14	0	3	0	6	
5:45 PM	6:00 PM	0	3	350	3	0	2	212	0	0	10	1	6	0	8	0	7	
6:00 PM	6:15 PM	0	3	330	1	1	2	245	1	0	4	2	6	0	10	0	9	
Intersection PHV:		1	3	1,468	29	0	6	934	6	0	54	1	53	0	40	2	20	
PHF:		0.25	0.38	0.95	0.81	0.00	0.75	0.90	0.75	0.00	0.59	0.25	0.70	0.00	0.59	0.25	0.83	
Intersection Peak Hour: 4:45 PM - 5:45 PM										Intersection PHF: 0.98								
Study Area PHV:		1	3	1,468	29	0	6	934	6	0	54	1	53	0	40	2	20	
PHF:		0.25	0.38	0.95	0.81	0.00	0.75	0.90	0.75	0.00	0.59	0.25	0.70	0.00	0.59	0.25	0.83	
Study Peak Hour: 4:45 PM - 5:45 PM										Study Area PHF: 0.98								

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **Site Driveway 8 at Guadalupe Street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**

Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	0	0	77	5	0	4	233	1	0	2	0	0	0	0	0	0	5
7:30 AM	7:45 AM	0	0	109	9	0	8	303	2	0	1	0	0	0	10	0	0	12
7:45 AM	8:00 AM	0	0	112	7	0	8	357	1	0	2	0	0	0	8	0	0	10
8:00 AM	8:15 AM	0	0	111	9	0	11	321	1	0	0	0	0	0	3	0	0	10
8:15 AM	8:30 AM	0	0	104	8	0	14	331	3	0	0	0	0	0	2	0	0	6
8:30 AM	8:45 AM	1	3	101	7	0	9	311	0	0	0	0	2	0	3	0	0	2
8:45 AM	9:00 AM	0	0	123	12	0	4	348	0	0	0	1	0	0	12	0	0	8
9:00 AM	9:15 AM	0	0	110	11	0	9	315	0	0	0	0	0	0	7	0	0	7
<i>Intersection PHV:</i>		0	0	436	33	0	41	1,312	7	0	3	0	0	0	23	0	0	38
<i>PHF:</i>		0.00	0.00	0.97	0.92	0.00	0.73	0.92	0.58	0.00	0.38	0.00	0.00	0.00	0.58	0.00	0.79	

Intersection Peak Hour: 7:30 AM - 8:30 AM

Intersection PHF: 0.94

Study Area PHV:	1	3	428	31	0	42	1,320	5	0	2	0	2	0	16	0	28
PHF:	0.25	0.25	0.96	0.86	0.00	0.75	0.92	0.42	0.00	0.25	0.00	0.25	0.00	0.50	0.00	0.70

Study Peak Hour: 7:45 AM - 8:45 AM

Study Area PHF: 0.93

4:15 PM	4:30 PM	0	0	306	5	0	1	207	1	0	1	1	0	0	1	0	11
4:30 PM	4:45 PM	1	0	301	6	0	8	259	0	0	0	1	0	0	7	0	17
4:45 PM	5:00 PM	0	0	369	12	0	3	249	1	0	0	0	1	0	0	0	12
5:00 PM	5:15 PM	2	0	324	7	0	9	246	0	0	0	0	1	0	6	0	15
5:15 PM	5:30 PM	2	4	401	8	1	11	219	0	0	0	0	2	0	3	0	15
5:30 PM	5:45 PM	0	1	336	8	0	8	268	1	0	1	0	2	0	1	0	5
5:45 PM	6:00 PM	0	0	372	2	0	4	225	1	0	0	0	8	0	5	0	7
6:00 PM	6:15 PM	0	1	349	4	0	3	248	0	0	1	1	3	0	3	0	3
<i>Intersection PHV:</i>		4	5	1,430	35	1	31	982	2	0	1	0	6	0	10	0	47
<i>PHF:</i>		0.50	0.31	0.89	0.73	0.25	0.70	0.92	0.50	0.00	0.25	0.00	0.75	0.00	0.42	0.00	0.78

Intersection Peak Hour: 4:45 PM - 5:45 PM

Intersection PHF: 0.96

Study Area PHV:	4	5	1,430	35	1	31	982	2	0	1	0	6	0	10	0	47
PHF:	0.50	0.31	0.89	0.73	0.25	0.70	0.92	0.50	0.00	0.25	0.00	0.75	0.00	0.42	0.00	0.78

Study Peak Hour: 4:45 PM - 5:45 PM

Study Area PHF: 0.96

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

APPENDIX C: TRAFFIC ANALYSIS

DeShazo Group, Inc.

Intersection Traffic Movements

Location: **Site Driveway 1 at Exposition Blv d**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**
 Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street				
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
7:15 AM	7:30 AM	0	0	46	0	0	0	38	0	0	1	0	0	0	0	0	0	0
7:30 AM	7:45 AM	0	1	74	0	0	0	100	0	0	4	0	1	0	0	0	0	0
7:45 AM	8:00 AM	0	0	98	0	0	0	86	2	0	2	0	2	0	0	0	0	0
8:00 AM	8:15 AM	0	0	88	0	0	0	97	1	0	1	0	3	0	0	0	0	0
8:15 AM	8:30 AM	0	0	63	0	0	0	114	0	0	1	0	1	0	0	0	0	0
8:30 AM	8:45 AM	0	0	80	0	0	0	112	1	0	3	0	1	0	0	0	0	0
8:45 AM	9:00 AM	0	0	87	0	0	0	127	1	0	3	0	0	0	0	0	0	0
9:00 AM	9:15 AM	0	0	90	0	0	0	115	0	0	1	0	1	0	0	0	0	0
Intersection PHV:		0	0	320	0	0	0	468	2	0	8	0	3	0	0	0	0	0
PHF:		0.00	0.00	0.89	0.00	0.00	0.00	0.92	0.50	0.00	0.67	0.00	0.75	0.00	0.00	0.00	0.00	0.00

Intersection Peak Hour: 8:15 AM - 9:15 AM

Intersection PHF: 0.92

Study Area PHV:	0	0	329	0	0	0	409	4	0	7	0	7	0	0	0	0	0
PHF:	0.00	0.00	0.84	0.00	0.00	0.00	0.90	0.50	0.00	0.58	0.00	0.58	0.00	0.00	0.00	0.00	

Study Peak Hour: 7:45 AM - 8:45 AM

Study Area PHF: 0.96

4:15 PM	4:30 PM	0	0	228	0	0	0	191	1	0	3	0	1	0	0	0	0
4:30 PM	4:45 PM	0	0	259	0	0	0	159	1	0	0	0	0	0	0	0	0
4:45 PM	5:00 PM	0	0	250	0	0	0	192	1	0	2	0	2	0	0	0	0
5:00 PM	5:15 PM	0	0	255	0	0	0	206	2	0	1	0	0	0	0	0	0
5:15 PM	5:30 PM	0	0	260	0	0	0	198	1	0							
5:30 PM	5:45 PM	0	0	253	0	0	0	200	1	0	2	0	1	0	0	0	0
5:45 PM	6:00 PM	0	0	254	0	0	0	187	2	0	0	0	0	0	0	0	0
6:00 PM	6:15 PM	0	0	238	0	0	0	167	1	0	1	0	0	0	0	0	0
Intersection PHV:		0	0	1,018	0	0	0	796	5	0	5	0	3	0	0	0	0
PHF:		0.00	0.00	0.98	0.00	0.00	0.00	0.97	0.63	0.00	0.63	0.00	0.38	0.00	0.00	0.00	0.00

Intersection Peak Hour: 4:45 PM - 5:45 PM

Intersection PHF: 0.98

Study Area PHV:	0	0	1,018	0	0	0	796	5	0	5	0	3	0	0	0	0
PHF:	0.00	0.00	0.98	0.00	0.00	0.00	0.97	0.63	0.00	0.63	0.00	0.38	0.00	0.00	0.00	

Study Peak Hour: 4:45 PM - 5:45 PM

Study Area PHF: 0.98

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **Site Driveway 2 at 35th Street**
 City/State: **Austin/TX**
 Day/Date: **Tuesday, March 22, 2016**
 Project-ID #: **16010**
 Data Source: **CJ Hensch**
 Data Collector(s): **Camera**
 Weather Conditions: **Mild/Normal Conditions**
 Traffic Control: **Unsignalized**
 Description:

Time of Count		Northbound on Street				Southbound on Street				Eastbound on Street				Westbound on Street			
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
7:15 AM	7:30 AM	0	0	0	7	0	0	0	0	0	0	139	1	0	30	113	0
7:30 AM	7:45 AM	0	0	0	7	0	0	0	0	0	0	230	7	0	41	133	0
7:45 AM	8:00 AM	0	1	0	11	0	0	0	0	0	0	277	4	0	51	172	0
8:00 AM	8:15 AM	0	1	0	5	0	0	0	0	0	0	248	2	0	50	160	0
8:15 AM	8:30 AM	0	0	0	3	0	0	0	0	0	0	206	2	0	33	166	0
8:30 AM	8:45 AM	0	2	0	7	0	0	0	0	0	0	213	5	0	12	173	0
8:45 AM	9:00 AM	0	1	0	4	0	0	0	0	0	0	212	2	0	11	171	0
9:00 AM	9:15 AM	0	1	0	6	0	0	0	0	0	0	203	1	0	12	156	0
<i>Intersection PHV:</i>		0	2	0	26	0	0	0	0	0	0	961	15	0	175	631	0
<i>PHF:</i>		0.00	0.50	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.54	0.00	0.86	0.92	0.00

Intersection Peak Hour: 7:30 AM - 8:30 AM

Intersection PHF: 0.88

Study Area PHV:	0	4	0	26	0	944	13	0	146	671	0						
PHF:	0.00	0.50	0.00	0.59	0.00	0.85	0.65	0.00	0.72	0.97	0.00						

Study Peak Hour: 7:45 AM - 8:45 AM

Study Area PHF: 0.87

4:15 PM	4:30 PM	0	2	0	40	0	0	0	0	0	0	206	4	0	7	238	0
4:30 PM	4:45 PM	0	5	0	55	0	0	0	0	0	0	214	1	1	5	230	0
4:45 PM	5:00 PM	0	2	0	34	0	0	0	0	0	0	183	5	0	6	245	0
5:00 PM	5:15 PM	0	2	0	71	0	0	0	0	0	0	212	1	2	12	218	0
5:15 PM	5:30 PM	0	4	0	24	0	0	0	0	0	0	216	6	0	17	261	0
5:30 PM	5:45 PM	0	1	0	22	0	0	0	0	0	0	241	4	0	7	257	0
5:45 PM	6:00 PM	0	1	0	10	0	0	0	0	0	0	220	1	0	9	229	0
6:00 PM	6:15 PM	0	1	0	12	0	0	0	0	0	0	221	0	0	2	203	0
<i>Intersection PHV:</i>		0	9	0	151	0	0	0	0	0	0	852	16	2	42	981	0
<i>PHF:</i>		0.00	0.56	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.67	0.25	0.62	0.94	0.00

Intersection Peak Hour: 4:45 PM - 5:45 PM

Intersection PHF: 0.96

Study Area PHV:	0	9	0	151	0	852	16	2	42	981	0						
PHF:	0.00	0.56	0.00	0.53	0.00	0.88	0.67	0.25	0.62	0.94	0.00						

Study Peak Hour: 4:45 PM - 5:45 PM

Study Area PHF: 0.96

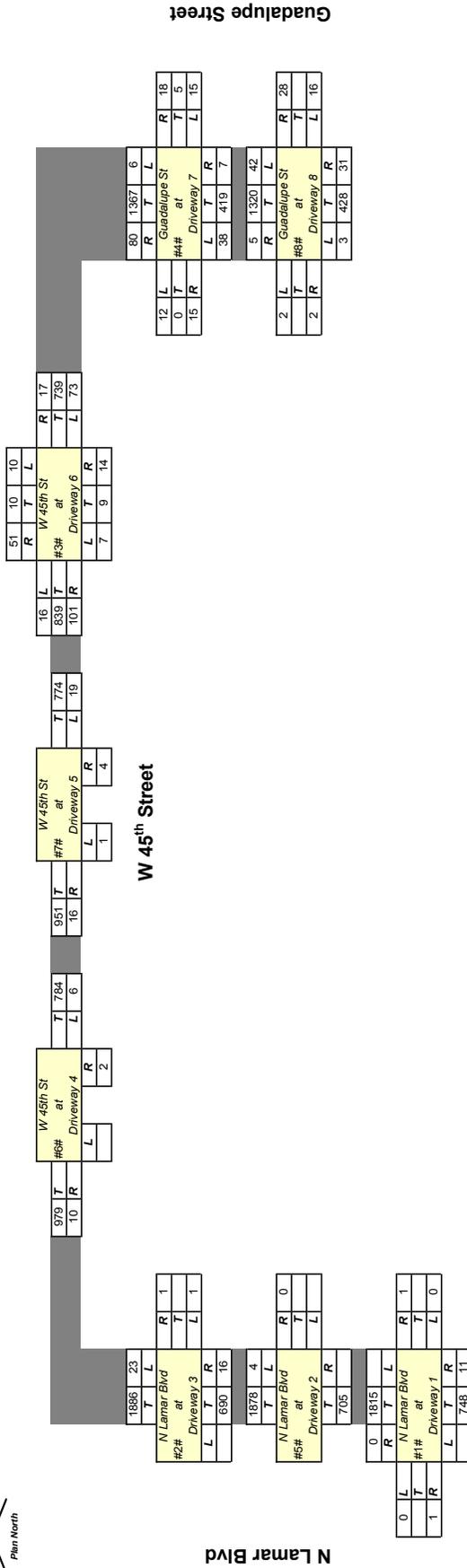
Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

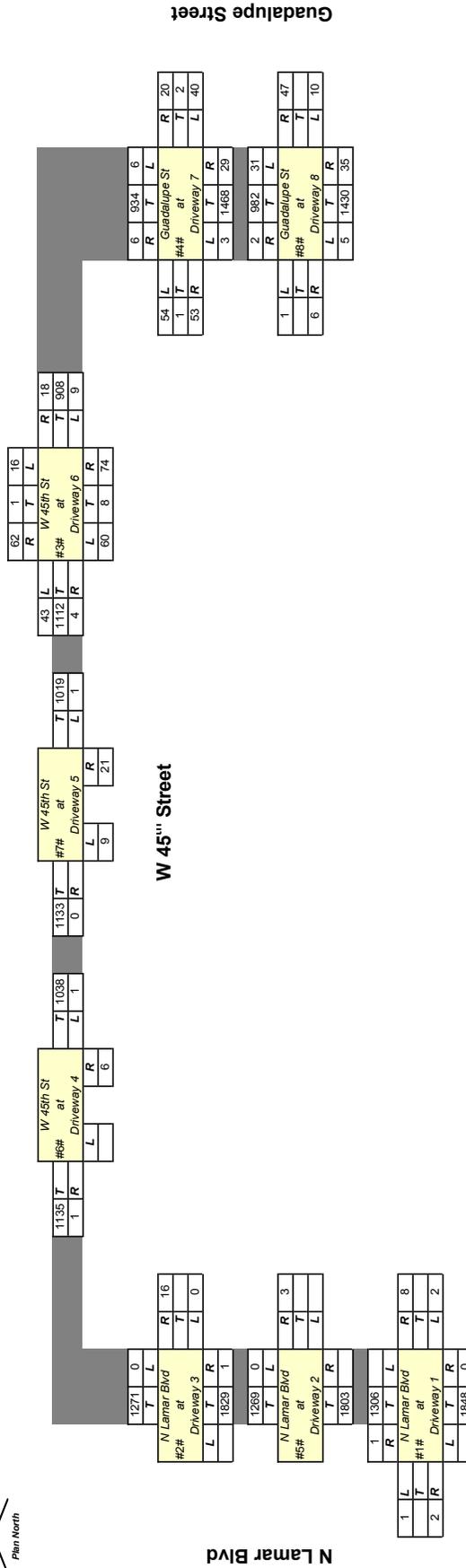
APPENDIX C: TRAFFIC ANALYSIS

Option 3 ASH & SSLC on Existing ASH Site - Existing

AM Peak Hour
Plan North



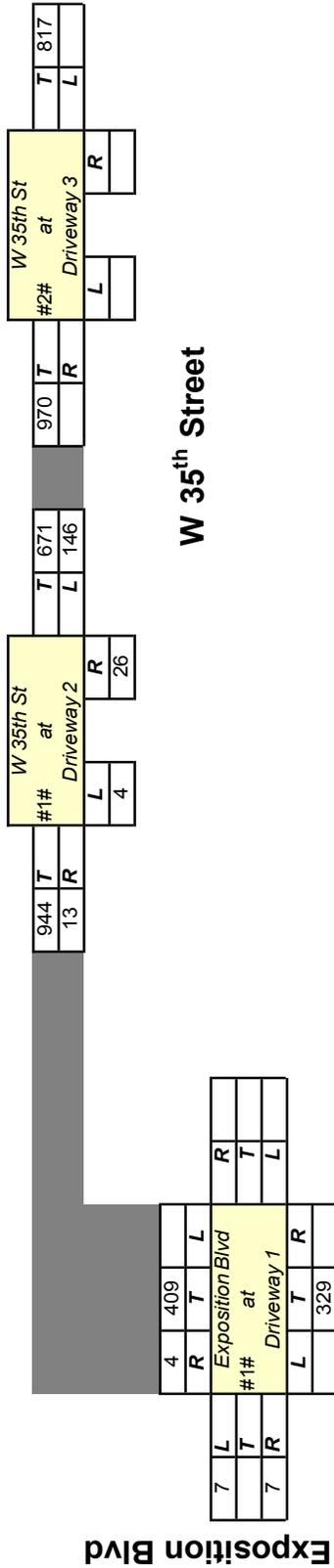
PM Peak Hour
Plan North



Option 4 - ASH & SSLC on Existing SSLC Site - Alternative A - Existing

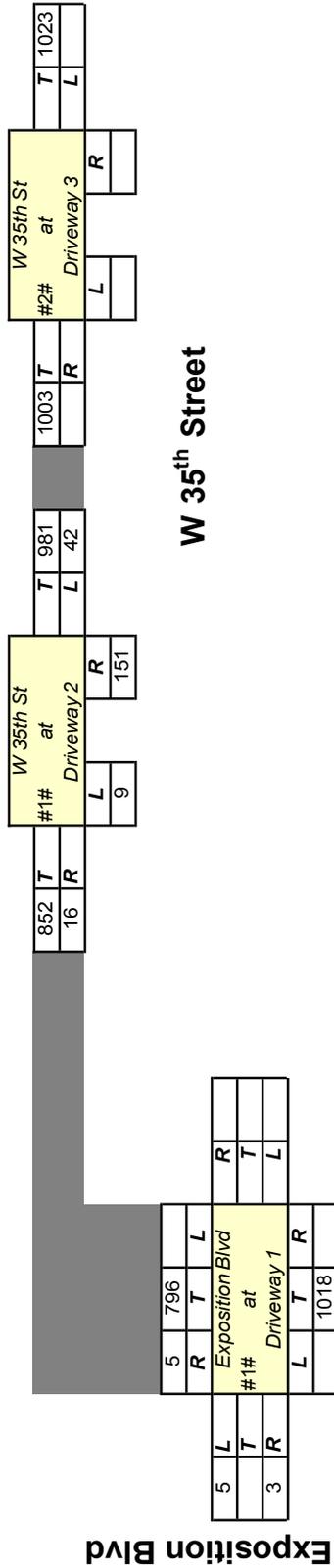
AM Peak Hour

Plan North



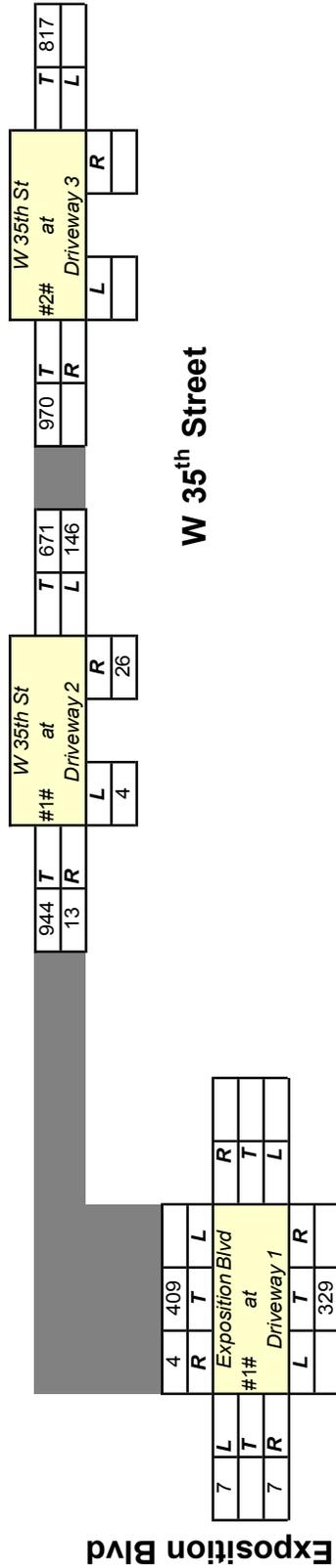
PM Peak Hour

Plan North

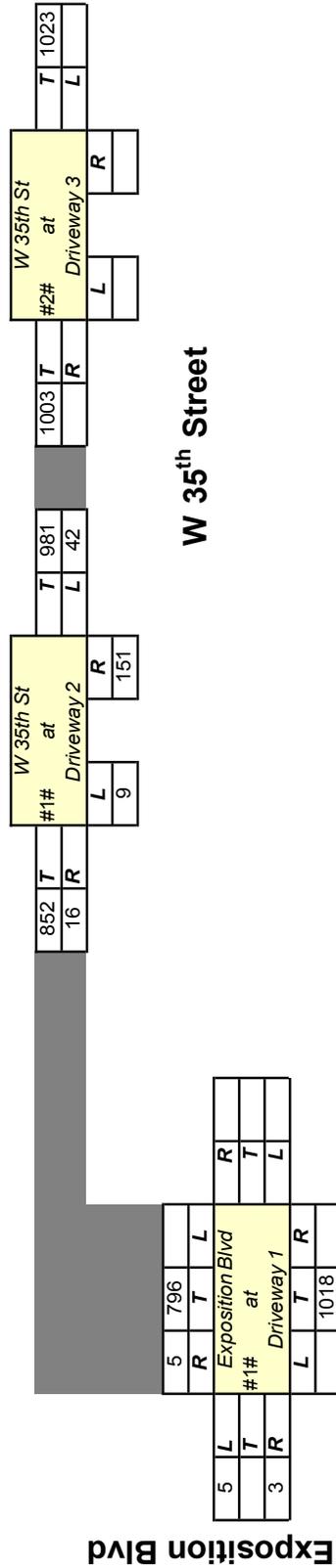


Option 4 - ASH & SSLC on Existing SSLC Site - Alternative B - Existing

AM Peak Hour
Plan North

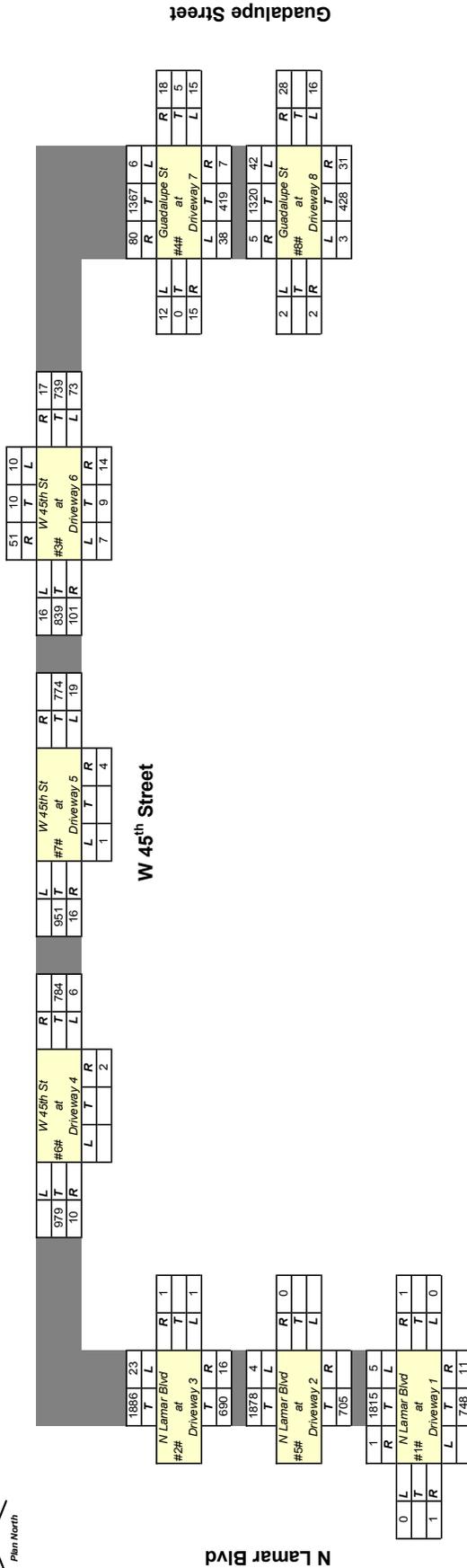


PM Peak Hour
Plan North

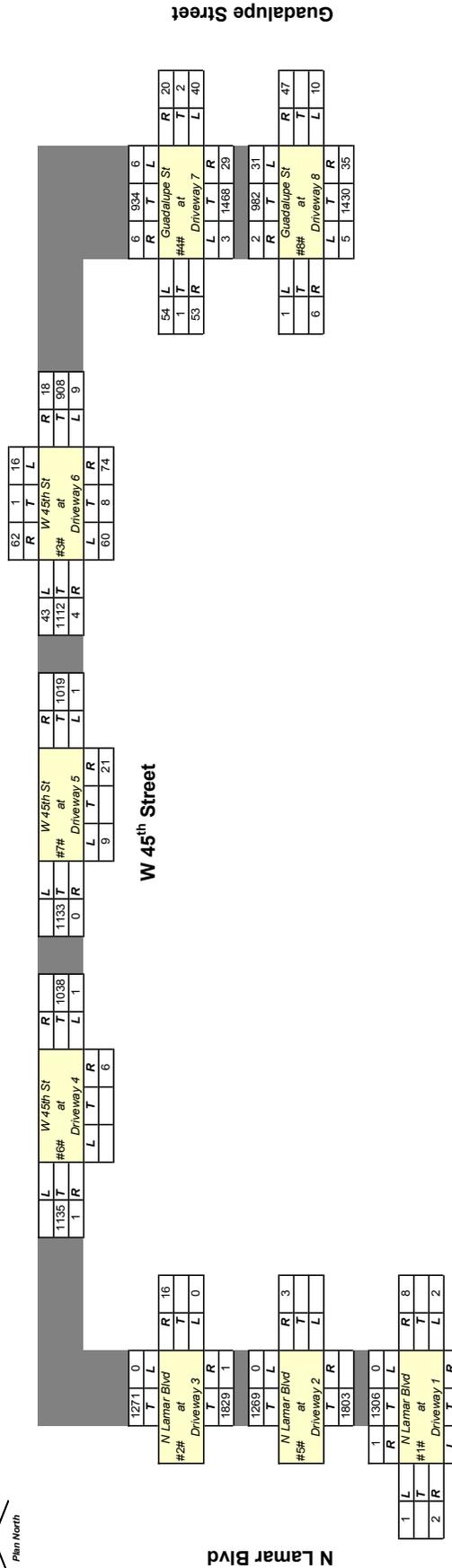


Option 6 - Replacement of ASH on Existing ASH Site - Alternative B - Existing

AM Peak Hour
Plan North



PM Peak Hour
Plan North



Austin

400 W. Cesar Chavez Street
Suite 500
Austin, Texas 78701
TEL 512 472 6721
FAX 512 477 3211

Dallas

1800 Main Street
Suite 123
Dallas, Texas 75201
TEL 214 522 3900
FAX 214 522 4380

Denver

1530 15th Street
Denver, Colorado 80202
TEL 303 595 0491
FAX 303 595 0282

Houston

1100 Louisiana
Suite One
Houston, Texas 77002
TEL 713 871 8484
FAX 713 871 8440

San Francisco

414 Jackson Street
Suite 404
San Francisco, California 94111
TEL 415 249 0130
FAX 415 249 0132

Washington DC

1615 M Street, NW
Suite 700
Washington, DC 20036
TEL 202 909 4900
FAX 202 785 7336

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