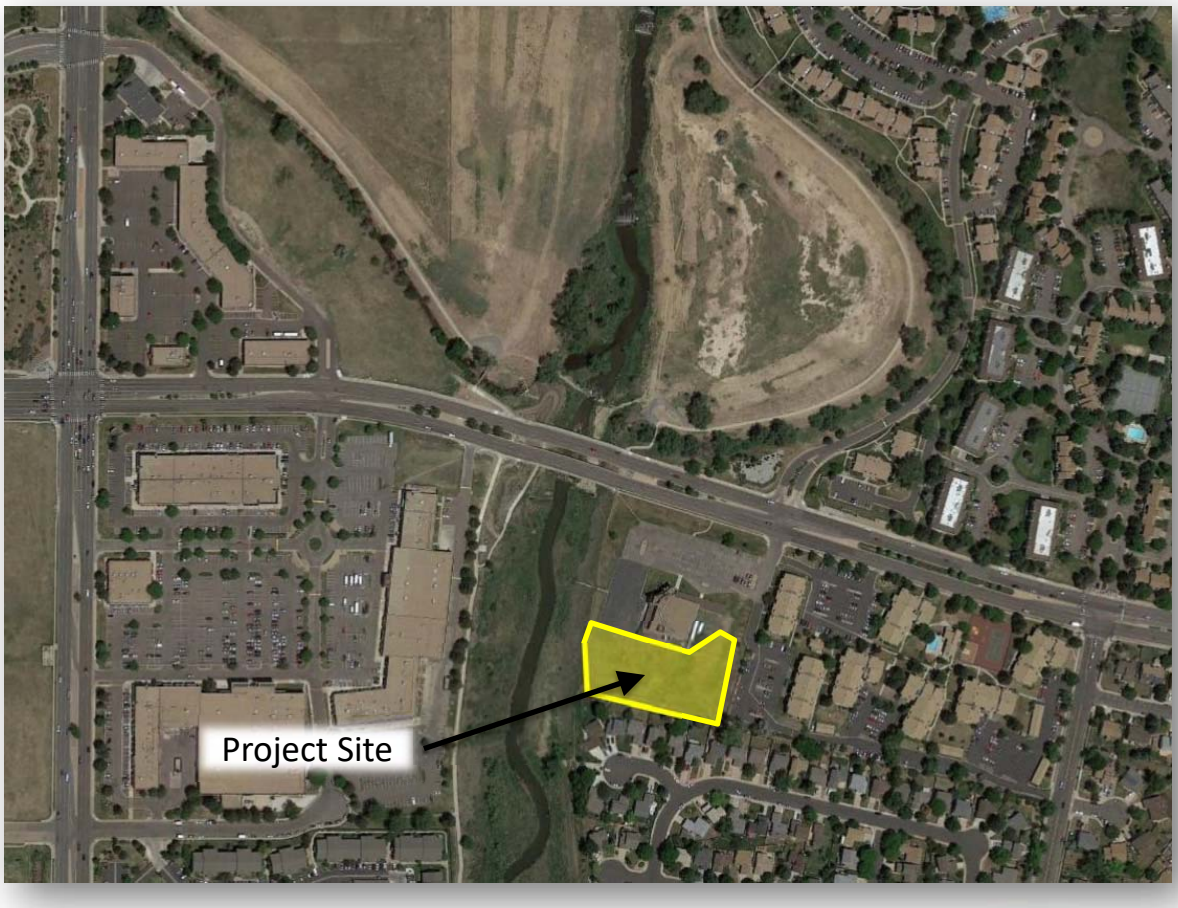
Providence at the Heights

TRAFFIC IMPACT STUDY

Aurora, CO



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TRAFFIC IMPACT STUDY

1.0 INTRODUCTION

The Fox Tuttle Hernandez Transportation Group has prepared this traffic impact study for a proposed affordable housing project in Aurora, CO. The project site is located east of Chambers Road along Alameda Parkway, just south of the existing Elevation Christian Church. The Providence at the Heights project proposes to develop an apartment building to provide permanent supportive housing for those at or below 30% of the area median income (AMI).

The purpose of this study is to assist in identifying potential traffic impacts within the study area as a result of this project. The traffic study addresses existing, short-term (Year 2020), and long-term (Year 2040) peak hour intersection conditions in the study area with and without the project generated traffic. The information contained in this study is anticipated to be used by the City of Aurora in identifying any intersection or roadway deficiencies and potential improvements for the future scenarios.

The traffic impact study is consistent with the City of Aurora requirements as defined in the *Traffic Impact Study Guidelines (June 2015)* and addresses the comments provided by City staff in the pre-application meeting (November 2017).

2.0 PROJECT DESCRIPTION

The project proposes to construct 50 multi-family units (40 one-bedroom units and 10 two-bedroom units) on currently undeveloped land. There will be on-site counseling service for residents as well as other support services. Access to the site is planned via one proposed driveway onto the local street that currently serves the Elevation Christian Church and Terrace Park apartments and connects to Alameda Parkway. The proposed driveway will lead into the parking aisle for the multi-family housing and provide pedestrian access to the existing sidewalks. A vicinity map is shown on **Figure 1**. The site and access plan is provided on **Figure 2**.

3.0 DATA COLLECTION

Weekday AM and PM peak hour turning movement volumes were collected in late February 2018 at one existing intersection. Average daily traffic (ADT) counts were collected for 24-hours on Alameda Parkway and on the local access street adjacent to the church. Historic and projected traffic volumes for the arterial was gathered from the City database and the DRCOG forecasting models. The existing traffic volumes are illustrated on **Figure 3**. The existing intersection geometry and traffic control are also shown on this figure. Count data sheets are provided in the **Appendix**.

4.0 EXISTING CONDITIONS

4.1 Roadways

The study area boundaries are based on the amount of traffic to be generated by the project and potential impact to the existing roadway network. The existing study area street network consists of one major arterial and one local street as shown on **Figure 1**. The primary public roadways that serve the project site are discussed in the following text:

Alameda Parkway is a six-lane east/west major arterial that provides regional access through the City of Aurora. This roadway connects neighborhood communities to the Civic Center, Town Center Mall, and I-225. The posted speed limit is 40 miles per hour (mph) near the site. Alameda Parkway currently serves approximately 32,300 vehicles per day (vpd) just west of Joplin Street/Elevation Christian Church Access. Just east of Airport Boulevard/Buckley Road, Alameda Parkway currently serves approximately 26,600 vpd. Alameda Parkway is approximately 86-feet wide adjacent to the Elevation Christian Church property, which includes 11-foot travel lanes, three per direction, and a 20-foot center median/left-turn lane. This roadway is the northern boundary of the study area.

Joplin Street is a north/south, two-lane local street that extends north of Alameda Parkway into multi-family communities. There is indirect access to Airport Boulevard if Joplin Street were used as a cut-through route. The posted speed limit is 25 mph and there are speed bumps along the way. Joplin Street aligns with the existing Elevation Christian Church access, but it is not anticipated to serve the traffic of the proposed housing residents.

Elevation Christian Church/Terrace Park Apartments Access *(referred to as Access Street in the report)* is a two-lane private street that provides access to Alameda Parkway. The project proposes to add an access to this street just south of the church. The posted speed limit is 25 mph and it serves approximately 850 vpd.

4.2 Intersections

The study area includes one existing intersection: Alameda Parkway at Joplin Street/Access Street. This intersection is side-street stop-controlled with full-movement access. The existing lane configuration is illustrated on **Figure 3**.

4.3 Pedestrian and Bicycle

There are many walkable and bikeable destinations including neighborhood retail (0.25 miles), civic services at the municipal center (0.50 miles) and regional commercial and retail (1.0 miles) near the site. Currently, Alameda Parkway provides an attached sidewalk on both sides (ranging from five feet to 10 feet) and there are no sidewalks along the church/apartment access road. There are no designated on-street bike facilities on Alameda Parkway near the proposed development site; however, it is not illegal in the City of Aurora for people to bike on the sidewalks. There is an on-street bike lane on Kalispell Way, which is located just east of the existing Terrace Park Apartments.

Adjacent to the project site is the TollGate Creek, which has a multi-use trail on the west side of the creek that can be accessed via the sidewalk on Alameda Parkway. The Toll Gate Creek Trail leads south to other recreational areas and trails throughout the City of Aurora, including the Cherry Creek Reservoir. At Alameda Parkway, the Toll Gate Creek Trail travels north under the roadway to link to the 71-mile regional multi-use path, the Highline Canal Trail as well as the Colorado Front Range Trail. Both multi-use trails provide local and regional connections to neighborhoods, civic centers, commercial developments, and transit services.

4.4 Transit

The project site is located less than 500 feet from two existing bus stops along Alameda Parkway with service via the 3L and 133 routes. These bus routes provide connectivity to retail, civic and employment centers in the City of Aurora and connectivity to the regional Front Range area. The Aurora Metro Center R-Line is located less than one mile from the site. Currently, there are four bus routes that serve the area near the project site and link to local and regional destinations as described on the following page.

- **Route 3L (East Alameda Limited)** – Connects the east Alameda Parkway community to the Aurora Metro Center Station (light rail and transit hub), Havana & Alameda park-n-ride, Cherry Creek Shopping Center, and downtown Denver Civic Center Station. Route 3L travels along Alameda Parkway through Aurora and Alameda Avenue through Denver. Route 3L has bus stops on Alameda Parkway just east of the Access Street.

- **Route 133 (Hampden/Tower)** – Loops through the City of Aurora connecting the Nine Mile Station (light rail and transit hub) to the Aurora Metro Center Station (light rail and transit hub). Route 133 travels along Tower Road and winding to Buckley Road to then access Alameda Parkway. There are bus stops near the project site on Alameda Parkway just east of the Access Street (same stops as for Route 3L).

- **Route 169 (Buckley Road)** – Connects the Arapahoe Crossing Shopping Center in south Aurora to the 40th Avenue & Airport Road Station (light rail and transit hub). Route 169 travels along Buckley Road/Airport Boulevard and has bus stops north and south of Alameda Parkway, which is roughly ¾ mile to the east of the proposed project access.

- **Route 169L (Buckley Road / Tower DIA Limited)** – Extends Route 169 to the north to connect to Denver International Airport. This route has the same bus stops as Route 169 on Buckley Road and Airport Boulevard.

5.0 FUTURE CONDITIONS

5.1 Annual Growth Factor and Future Volume Methodology

In order to forecast the future peak hour traffic volumes, background traffic growth assumptions were estimated based on a variety of resources: the Denver Regional Council of Governments (DRCOG) regional FOCUS model, City of Aurora historic traffic volumes, and previous traffic impact studies near the study area. Based on the data, a 1% annual growth rate[1] was assumed to provide a conservative evaluation of future traffic within the vicinity of the project.

[1] DRCOG Focus Model had the following daily volume estimates: Year 2015 – 38,024; Year 2035 – 44,662; Year 2040 – 45,317. This equates to a 0.8% annual growth to Year 2035 and 0.7% to Year 2040.

The estimated trips for the East Creek project and the recently studied development in the northeast corner of Alameda Parkway at Airport Boulevard/Buckley Road were also added to the background traffic. Trips were assigned as documented in the traffic impact studies: *East Creek Traffic Impact Study (LSC, 2017)* and *Northeast Corner of Alameda Parkway at Airport Boulevard/Buckley Road Development Traffic Impact Study (FTH, 2018, under review by the City)*. Both projects plan to construct mixed-use developments.

This study developed future traffic volumes from the annual growth rate and approved developments to determine the short-term (Year 2020) and long-term (Year 2040) conditions. The Year 2020 background traffic is summarized on **Figure 4** and Year 2040 background traffic is summarized on **Figure 5**.

6.0 FUTURE CONDITIONS WITH DEVELOPMENT

6.1 Literature Review

The *Institute of Transportation Engineers (ITE) Trip Generation Manual*[2] is the national standard for estimating trips generated by new developments and is based on data collected by transportation professionals across the country. This methodology has limitations regarding the sensitivity to socio-demographics, non-auto transportation choices, lower-income impacts, and proximity to urban areas.

Affordable housing projects typically generate less automobile trips than most other residential sites. Professionals across the country have been studying the transportation impact for a variety of housing types based on income, socio-demographics, vehicle ownership, and proximity to transit services.

Majority of the studies were conducted in California and a few of the studies specifically studied supportive housing. A research group out of Portland studied data from the 2010-2012 California Household Travel Survey to investigate the differences in transportation impacts between residents of affordable and market-rate housing. The study was published in *The Journal of Transportation and Land Use*[3] and estimated the trip reduction rates by income level.

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[2] Trip Generation 10th Edition, Institute of Transportation Engineers, 2017.

[3] Howell, A., Currans, K., Gehrke, S., Norton, G., and Clifton, K., Transportation Impacts of Affordable Housing: Informing Development Review with Travel Behavior Analysis, The Journal of Transport and Land Use, Volume 11 No. 1, pp. 103-118. Available January 2018.

Providence at the Heights aims to serve those individuals with an income of 30% of the AMI or less; the study identifies this level as "extremely low-income". Based on the data in the travel survey, the daily automobile trip generation for multi-family dwellings (apartment or townhome) in urban districts with extremely low-income represent 37% of the daily trips for 'above moderate income' dwellings located in a suburban neighborhood.

The City of Los Angeles staff gathered similar vehicle trip data at affordable housing throughout the city for families, seniors, special needs, and permanent supportive housing for an update to their *Transportation Impact Study Guidelines (LADOT, December 2016)*[4]. The City's study determined that supportive housing has a daily rate of 1.27 vehicle trips per dwelling unit, which is 20% of the ITE daily rate for a low-rise multi-family housing. In summary, the existing research found that affordable multi-family housing generates vehicle trips at a rate of 20% and 37% of the national standard defined in the *ITE Trip Generation Manual*.

6.2 Trip Generation

A trip generation estimate was performed to determine the traffic characteristics of the proposed Providence at the Heights. Based on the literature review, it was confirmed that affordable housing projects generate fewer trips due to limited means which creates fewer choices in how the individuals can travel. The vehicle trip generation rates established by the LADOT were multiplied by the proposed number of dwelling units to estimate the trips associated with Providence at the Heights, as shown in **Table 1**.

The proposed project is expected to experience mostly new trips, known as 'primary trips', as discussed below:

> Primary Trips. These trips are made specifically to visit the site and are considered "new" trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the total number of trips made on a regional basis.
>
> Non-Auto Trips. These trips are those that are completed by walking, biking, or transit. The existing transit, pedestrian, and bicycle amenities will encourage residents and employees to make non-auto trips to/from the apartments. According to the travel patterns of the existing Second Chance Centers around Aurora and Denver, 75% of the clients ride the bus, walk or bike to their destinations. The Providence at the Heights

[4] City of Los Angeles Transportation Impact Study Guidelines, Los Angeles Department of Transportation, 2016.

affordable apartments are located near transit services and walkable/bikeable destinations. The rate provided by the LADOT accounts for non-auto trips; therefore, an additional reduction was not applied.

Table 1 provides the trip generation estimate for the proposed development. The Providence at the Heights affordable housing was estimated to generate the following new vehicular trips by residents, visitors, volunteers, and employees:

- 64 average daily automobile trips
- 6 weekday AM peak hour automobile trips
- 6 weekday PM peak hour automobile trips

6.3 Trip Distribution and Assignment

The estimated trip volumes were distributed onto the study area street network based on existing traffic characteristics, land uses, and traffic patterns in the area, as well as location of potential employment areas. The overall assumed distributions are listed, as well as presented on **Figures 6**:

- 50% to/from East Alameda Parkway (East Aurora, Business/Industrial Park along I-70, and possibly Denver International Airport)
- 50% to/from West Alameda Parkway (Aurora Civic Center, Town Center Retail, Medical Campus, R-Line Light Rail, I-225 to Denver)

Using the distribution assumptions, the projected site traffic was assigned to the study area roadway network for the weekday AM and PM peak hours. The site-generated volumes are shown on **Figure 6**.

7.0 EVALUATION

It should be noted that the existing peak hour factor (PHF) per approach was utilized in the existing and 2020 scenarios. For Year 2040 scenarios, the average intersection PHF was inputted unless the approach's existing PHF is greater than the average intersection. Data is unavailable regarding the percent of heavy vehicles on Alameda Parkway. CDOT data from 6th Avenue and Parker Road were reviewed, and it was assumed that Alameda Parkway has 4%

heavy vehicles. The turning and side-street movements were assumed to have 1% heavy vehicles.

7.1 Level of Service Capacity Analysis

The traffic operations analysis addressed intersection operations using the procedures and methodologies set forth by the *Highway Capacity Manual (HCM)*[5]. Study intersections were evaluated using Synchro (version 9) software. A level of service analysis was conducted to determine the existing and future performance of the study intersection and to determine the most appropriate lane configuration and traffic control device.

To measure and describe the operational status of an intersection, transportation engineers and planners commonly use a grading system referred to as "Level of Service" (LOS) that is defined by the *HCM.* LOS characterizes the operational conditions of an intersection's traffic flow, ranging from LOS A (indicating very good, free flow operations) and LOS F (indicating congested and sometimes oversaturated conditions). These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with traveling through the intersection. LOS is represented as a delay in seconds per vehicle for the intersection as a whole and for each turning movement.

Typically, LOS A through C is considered to be good for the overall intersection operations and the desired standard for overall intersection performance is LOS D, while individual movements may be allowed to fall to LOS E depending on the circumstances per the City of Aurora's *Traffic Impact Study Guidelines (Year 2015)*. At stop-controlled intersections the left-turns onto major arterials may be allowed to fall below LOS D depending on the situation. Criteria contained in the *HCM* was applied for these analyses in order to determine existing and future peak hour LOS. A more detailed discussion of LOS methodology is contained in the **Appendix** for reference.

5 Highway Capacity Manual, Highway Research Board Special Report 209, Transportation Research Board, National Research Council, 2010.

7.2 Year 2018 Existing Intersection Capacity Analysis

The existing volumes, lane configuration, and traffic control are illustrated on **Figure 3**. The results of the LOS calculations for the study intersections are summarized in **Table 2**. The intersection level of service worksheets are attached in the **Appendix**.

Overall, the study intersection of Alameda Parkway at Joplin Street/Access Street operates at LOS A in both peak hours; however, the side-street left-turns currently operate at LOS F in both periods. A summary of the operations of the critical movements associated with the proposed development are listed below:

- *Eastbound Through + Right* – operates at LOS A in both peak periods with an estimate of zero delay and queues less than 15 feet (less than one vehicle).

- *Westbound Left* – operates at LOS A in the AM peak hour and LOS B in the PM peak hour with the 95th percentile queues measuring 25 feet or less (less than one vehicle). The existing storage length is 120 feet with a 50-foot taper located in the existing raised median.

- *Northbound Left* – operates at LOS F in both peak hours. The 95th percentile queue is estimated to be 38 feet (about two vehicles) in the AM peak hour and 74 feet (about three vehicles) in the PM peak hour. The queues do not impact the arterial operations but temporarily block the access into the Terrace Apartments north parking lot. This parking lot has direct right-out access onto Alameda Parkway just 215 feet to the east of the study intersection.

- *Northbound Through + Right* – operates at LOS A in the AM peak hour and LOS B in the PM peak hour. The 95th percentile queue is estimated to be 30 feet (about one vehicle) in the AM peak hour and 112 feet (about five vehicles) in the PM peak hour. The northbound approach does not have pavement markings to distinguish lanes; however, it is wide enough to accommodate two outbound lanes allowing through and right-turn movements to be minimally impacted by left-turns.

Recommendation: No mitigation measures recommended. High side-street approach delays during both peak hours are typical of unsignalized approaches along a major arterial roadway. The side-street volumes are not yet approaching traffic signal warrant thresholds.

7.3 Year 2020 Background Intersection Capacity Analysis Without Project

The study area intersections were evaluated to determine baseline operations for the Year 2020 background scenario and to identify any capacity constraints associated with background traffic. As discussed in **Section 5.0**, the background traffic was estimated by growing the existing traffic and adding the development trips from East Creek and NE Corner of Alameda Parkway/Airport Boulevard. The Year 2020 background volumes, lane configuration, and traffic control are illustrated on **Figure 4**.

The level of service criteria discussed previously was applied to the study area intersections to determine the impacts with the short-term background volumes. The results of the LOS calculations for the intersections are summarized in **Table 2**. The intersection level of service worksheets are attached in the **Appendix**.

Overall, the study intersection of Alameda Parkway at Joplin Street/Access Street is anticipated to operate at LOS A in both peak hours; however, the side-street left-turns continue to operate at LOS F in both periods. A summary of the short-term future operations of the critical movements is as follows:

- *Eastbound Through + Right* – will continue to operate at LOS A in both peak periods with queues less than 26 feet (about one vehicle).

- *Westbound Left* – will continue to operate at LOS A in the AM peak hour and begin to operate at LOS C in the PM peak hour. The 95th percentile queues are anticipated to be similar to existing conditions.

- *Northbound Left* – will continue to operate at LOS F in both peak hours. The 95th percentile queue is estimated to be 51 feet (about two vehicles) in the AM peak hour and 85 feet (about four vehicles, one more than existing) in the PM peak hour.

- *Northbound Through + Right* – will begin to operate at LOS B in the AM peak hour and remain LOS B in the PM peak hour. The 95th percentile queue is the same as existing in the AM peak hour (30 feet, about one vehicle) and 179 feet (about seven vehicles, two more than existing) in the PM peak hour.

Recommendation: No mitigation measures recommended. High side-street approach delays during both peak hours are typical of unsignalized approaches along a major arterial roadway. The side-street volumes are not approaching traffic signal warrant thresholds. If

the delay on the northbound approach becomes uncomfortable, the drivers can access Alameda Parkway via Kalispell Way, to the east, by utilizing the Terrace Park Apartments internal roadway. Kalispell Way is a two-lane collector street that has a signal at the intersection with Alameda Parkway.

7.4 Year 2040 Background Intersection Capacity Analysis Without Project

The study area intersections were evaluated to determine baseline operations for the Year 2040 background scenario and to identify any capacity constraints associated with background traffic. The Year 2040 background volumes, lane configuration, and traffic control are illustrated on **Figure 5**.

The level of service criteria discussed previously was applied to the study intersection to determine the impacts with the long-term background volumes. The results of the LOS calculations are summarized in **Table 2**. The intersection level of service worksheets are attached in the **Appendix**.

Overall, the study intersection of Alameda Parkway at Joplin Street/Access Street is anticipated to begin operating at LOS C in the AM peak hour and LOS E in the PM peak hour. The side-street left-turns continue to operate at LOS F in both periods. A summary of the long-term future operations of the critical movements are listed below:

- *Eastbound Through + Right* – will continue to operate at LOS A in both peak periods with queues less than 50 feet (about two vehicles).

- *Westbound Left* – will continue to operate at LOS A in the AM peak hour and LOS C in the PM peak hour. The 95th percentile queues are anticipated to be similar to existing conditions and less than 32 feet (about two vehicles, one more than existing).

- *Northbound Left* – will continue to operate at LOS F in both peak hours. The 95th percentile queue is estimated to be 73 feet (about three vehicles, two more than existing) in the AM peak hour and 74 feet (about three vehicles) in the PM peak hour.

- *Northbound Through + Right* – will continue to operate at LOS B in both peak hours. The 95th percentile queue becomes 113 feet (about five vehicles, four more than existing) in the AM peak hour and 149 feet (about six vehicles, one more than existing) in the PM peak hour.

Recommendation: No mitigation measures recommended. High side-street approach delays during both peak hours are typical of unsignalized approaches along a major arterial roadway. The side-street volumes are not approaching traffic signal warrant thresholds. The southbound approach is just under the peak hour signal warrant threshold in the AM peak hour; therefore, the City of Aurora should monitor the intersection if long-term background traffic growth and operations are realized. If the delay on the northbound approach becomes uncomfortable, the drivers can access Alameda Parkway via Kalispell Way,

7.5 Year 2020 Background + Project Intersection Capacity Analysis With Project

This section discusses impacts associated with the addition of the Providence at the Heights affordable apartment trips in the short-term scenario. The site-generated volumes were added to the projected Year 2020 background volumes and are illustrated on **Figure 7**. The results of the LOS calculations for the study intersections are summarized in **Table 2**. The intersection level of service worksheets are attached in the **Appendix**.

Overall the project trips do not significantly impact the study area for the short-term scenario. All movements will operate with the same LOS letter grade as the Year 2020 background at the study intersection of Alameda Parkway at Joplin Street/Access Street. The proposed access into the proposed apartment complex is estimated to operate overall at LOS A in both peak hours with the 95th percentile queues less than 16 feet (less than one vehicle).

7.6 Year 2040 Background + Project Intersection Capacity Analysis With Project

This section discusses impacts associated with the addition of the apartment trips in the long-term scenario. The site-generated volumes were added to the projected Year 2040 background volumes and are illustrated on **Figure 8**. The results of the LOS calculations for the intersections are summarized in **Table 2**. The intersection level of service worksheets are attached in the **Appendix**.

Due to the predicted high through volume and nearing the capacity of an unsignalized intersection at Alameda Parkway, the south Joplin Street (Access Street) approach will continue to be delayed with additional trips and impacting the overall intersection LOS. The PM peak hour continues to be LOS E and operating similarly to the background condition. Although the northbound delay may be higher with the project trips, the queues remain within three vehicles or less of the queues estimated in Year 2040 background. It should be noted that the side-street volumes do not meet the peak hour signal warrant threshold and drivers have alternative routes if the delay is perceived to be too great.

The proposed access is estimated to operate overall at LOS A in both peak hours with the 95th percentile queues less than 35 feet (about two vehicles).

8.0 QUEUING ANALYSIS

A queuing analysis was performed to determine if the average and 95th percentile queues would be accommodated by the existing or future storage length and if any of the queues impact an upstream intersection/access. **Table 3a** provides the storage lengths or distance to nearest intersection/access, and the average and 95th percentile queues for each scenario as calculated by Synchro and **Table 3b** summarizes the queues from SimTraffic (v9).

The project trips increase queue lengths by three vehicles or less per movement during the weekday peak hours. The additional queue lengths do not require extending existing storage lengths. As shown in **Tables 3a and 3b**, all the queues are shorter than the provided storage length or nearest upstream intersection/access, except those highlighted with **blue bold** font. It should be noted that the 95th percentile queue length is a theoretical queue that is 1.65 standard deviations above the average queue length. In theory, the 95th percentile queue would be exceeded 5% of the time based on the average queue length, but it is also possible that a queue this long may not occur.

9.0 SENSITIVITY ANALYSIS

A sensitivity analysis was performed to provide the City of Aurora additional information if the multi-family apartments generated as many trips as estimated with the ITE *Trip Generation Manual*. Utilizing the ITE equations for multi-family housing (#220) and applying a conservative 15% non-auto reduction, the apartments would generate approximately: 286 average daily trips; 21 weekday AM peak hour trips; 27 weekday PM peak hour trips. **Table 4** provides the trip generation estimate for the proposed development with the ITE equations. The LOS and queue analysis for Alameda Parkway and Joplin Street/Access Street is detailed in **Tables 5 and 6a and 6b**, respectively.

In summary, the additional trips on the northbound approach increase the delays, impacting the overall LOS, and lengthening the queues by up to three vehicles. It should be noted that the 95th percentile queue on the westbound left-turn movement is a maximum of 45 feet which is contained within the existing 110 feet of storage.

The sensitivity analysis does not change the findings and recommendations of this study and would not trigger mitigation measures at the study intersection. The northbound volumes are not approaching signal warrant thresholds and the southbound approach continues to have the higher side-street volume.

10.0 PARKING STUDY

The Providence at the Heights project anticipates impacting 10 existing parking spaces in the church parking lot that will be replaced at 1:1. It is proposed that the site will provide 38 new parking spaces to accommodate residents, visitors, and staff. During the work day, there will be a maximum of five staff members at the Providence at the Heights. In off-peak periods (night and weekends), there will be one security guard.

The following text discusses the City of Aurora requirements, national standard for estimating parking demand, and best practices for adjusting for affordable housing communities.

10.1 City Parking Requirements

The City of Aurora Parking Ordinance requires 1.5 spaces per one-bedroom unit and 2.0 parking spaces per two-bedroom units, plus 1 visitor space per five units, totaling a **code requirement of 90 parking spaces** for the units proposed. A variance is thus required to support the proposed parking reduction.

10.2 Estimated Trips and Peak Parking Demand

It is generally agreed that affordable housing communities generate less automobile trips, and subsequent parking demand, than other residential uses. This observation is supported by various field studies that have been conducted nationally, field studies that we have conducted in the region for other projects, and field studies that Shopworks Architecture has conducted at similar projects in the Aurora and Denver areas. Unfortunately, there is no industry standard for how to reduce typical residential trip generation and parking rates for lower-income residential uses. The reduction of auto trips and parking demand for affordable housing communities is due to these projects typically being located in more urban conditions with better access to transit use and closer proximity to retail, schools, and employment use where non-auto modes can be effectively utilized. Lower-income residents are also less likely to own a vehicle, or multiple vehicles, given these factors as well as the cost of automobiles and maintenance.

To estimate the parking demand and supply for this project, the following industry guidance and best practices were reviewed:

1. *Institute of Transportation Engineers, Parking Generation[6] (4th Edition).* This publication contains peak parking demand data and parking rates based on field studies or parking at a variety of existing sites. The Parking Generation report data for a "Low/Mid-Rise Apartment" use in urban conditions was utilized for this analysis as it was determined to be the closest/most relevant for this project. However, only four of the 40 sites that were studied to develop this data were identified as affordable housing. Thus, the ITE data is considered conservatively high with respect to parking generation estimates specific to an affordable housing use. The ITE data provides a formula for calculated peak parking demand based on the number of units:

   Peak Parking Demand = 0.92x +4, where "x" equals the number of dwelling units

   The ITE report also notes that the urban data was based on 40 sites with an average size of 1.9 bedrooms per unit, but that the data demonstrated a correlation between number of bedrooms and peak parking demand. The report further offered that study sites with an average of less than 1.5 bedrooms per unit reported peak parking demand at 92% of the average peak parking demand for all study sites.

   Applying the ITE formula and reduction based on the site having an average bedroom count of 1.2 bedrooms per units, the **peak parking demand is calculated at (0.92 x 50 +4) x 0.92 = 46 spaces**, or 0.92 spaces per unit. As mentioned above, as only four of the 40 sites used to develop this data were considered affordable housing, which would be anticipated to generate much less parking demand than a typical residential apartment, this estimate is considered to be conservatively high.

2. *San Diego Affordable Housing Parking Study[7]*. This study was commissioned by the City of San Diego, California with the purpose of determining links between affording housing variables (income, age, transit accessibility, lane use context and housing type) to develop a corresponding regulatory framework for City parking requirements. Screening was conducted at 265 projects and the study included field parking observations at 21 affordable housing communities. The San Diego study represents the most

[6] Parking Generation, 4th Edition. Institute of Transportation Engineers. Washington DC. 2010.
[7] San Diego Affordable Housing Parking Study. Wilbur Smith Associates. December 2011.

comprehensive field data collection effort performed specifically for affordable housing parking requirements in the country.

The findings of the study showed that parking demand for affordable projects was about half of that for typical rental units and almost 50% of the units surveyed had no vehicle. The study also showed that household vehicle availability varies significantly with income and parking demand is less in areas with walkable destinations and more transit services.

Based on the data collected and findings in the statistical analysis for the San Diego Study, a parking model was developed to provide empirically-based rates for four types of affordable housing. The parking requirements are determined based on type of affordable housing and its context in terms of transit availability and walkability ("low", "medium" and "high"). The report provides an index to score each site for walkability/transit based on specific site characteristics, such a proximity to commercial uses, density of nearby commercial uses, office/civic/education services, and frequency and proximity of transit services. Using this index, the Providence at the Heights project would score right on the cusp between a "medium" and "high" walkability/transit site per the San Diego study criteria.

Applying the San Diego model for the "studio-1 bedroom" type (for one-bedroom units) and "family housing" type (for two-bedroom units) and showing both the "medium" and "high" transit and walkability factors for comparison, yields the following results:

Table 7: Parking Requirement based on San Diego Affordable Housing Parking Study

Unit Type	# DU	Base Rate for "Medium" Walkability Transit	Base Rate for "High" Walkability Transit	Subtotal for "Medium" Transit / Availability	Subtotal for "High" Transit / Availability	Visitor Parking (0.15)	Staff Parking (0.05)	Total for "Medium" Transit / Availability	Total for "High" Transit / Availability	Average (between "Medium" and "High)
1-bed	40	0.5	0.1	20	4	6	2	28	12	20
2-bed	10	1.1	0.5	11	5	1.5	0.5	13	7	10
Total	**50**	**-**	**-**	**31**	**9**	**7.5**	**2.5**	**41**	**19**	**30**

As shown on **Table 7** above, using the San Diego criteria and data and incorporating parking spaces for visitors and staff parking, the **projected parking requirement is between 19 and 41 parking spaces, or an average of 30 parking spaces**. This would correspond to an effective parking rate of 0.38 to 0.82 spaces per unit, or 0.60 average between "medium" and "high" walkability/transit.

3. *LADOT Measuring the Miles*[8]*.* This study was commissioned by the City of Los Angeles, California with the purpose of determining links between affording housing variables (income, age, transit accessibility, lane use context and housing type) to develop adjusted trip generation rates and parking requirements for affordable housing for their *Traffic Impact Study Guidelines*. The data was collected for four affordable housing categories: family, senior, special needs, and permanent support.

   Based on the data collected and findings of the parking analysis of the LADOT Study, permanent support affordable housing has a parking demand that is 0.29 to 0.43 per unit depending on the proximity to the transit area.

   Using the LADOT rates, the **projected parking demand is between 15 and 22 parking spaces, or an average of 19 parking spaces**.

4. *Local Data.* Field data was also recently compiled by Shopworks at six examples (similar) affordable (income restricted) housing apartment sites in Aurora and Denver. These existing projects ranged from 30 to 120 apartment units. Based the field studies conducted during evenings at peak parking periods, it was calculated that these projects had peak parking demand rates ranging from 0.46 to 1.06 spaces per unit.

Table 8 summarizes the parking demand rates based on the city requirements, national standards, and localized studies.

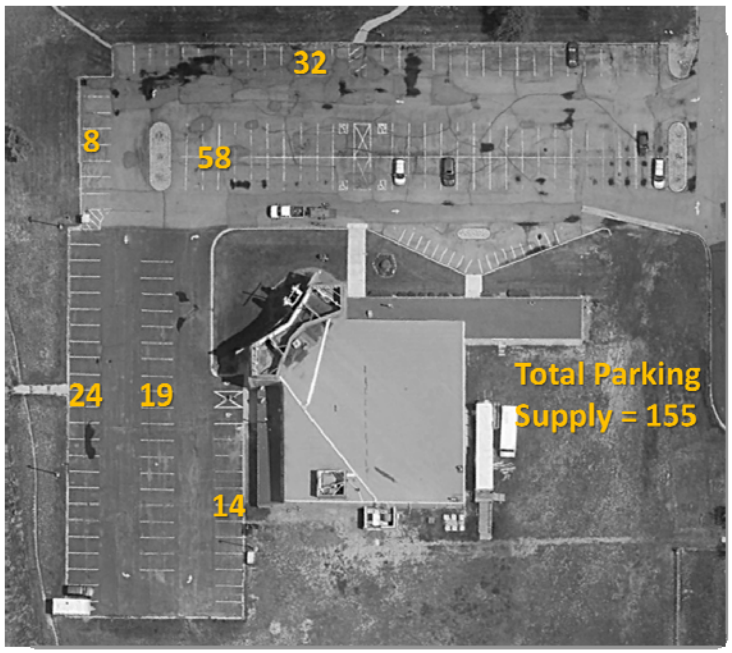
[8] LADOT Measuring the Miles Study. Portland State University. 2015.

Table 8: Parking Rates and Demand Summary

No.	Study	Parking Rate	Parking Demand
n/a	City of Aurora Standards	1.5 (1-bedroom) 2.0 (2-bedroom) 1 visitor space per 5 units	(40 x 1.5) + (10 x 2.0) + (50 / 5) = 90
1	ITE Parking Generation	0.92	0.92 x (50 x 0.92 + 4) = 46
2	San Diego Study	0.38 (“medium” walkability/transit) 0.82 (“high” walkability/transit)	50 x 0.38 = 19 50 x 0.82 = 41 Average = 30
3	LADOT Study	0.29 (inside transit area “high”) 0.43 (outside transit area “moderate”)	50 x 0.29 = 15 50 x 0.43 = 22 Average = 19
4	Local Data by Shopworks Architecture	0.46 to 1.06	Range = 23 to 53 Average = 38

10.3 Elevation Christian Church Parking

The existing church is just north of the Providence at the Heights property. There are currently 155 parking spaces that serve those attending the church. On Sunday, May 20, 2018 the church’s parking demand was gathered during the second service. The parking lot had 152, which equates to 98% utilized with two unoccupied spaces. Outside the peak three hours on Sunday, the church parking lot is mostly empty. The next peak period for the church is Wednesday evenings (6:25-8:35 PM) when youth group is in session, which has parking demand up to 40 (26% utilized, 115 unoccupied spaces). Typically, during the rest of the week,



there are no more than 15 vehicles in the lot (10% utilized, 145 unoccupied spaces). The Providence at the Heights has developed a draft shared parking agreement with the Elevation Christian Church to provide 24 overflow parking spaces as needed. This agreement is subject to change and will be executed and recorded upon finalization of the project.

10.4 Summary of Parking Demand

Taking into account the ITE parking demand projections, San Diego data, LADOT results, and field data provided by Shopworks for similar local sites, **the anticipated parking demand for this project would fall between 0.38 and 1.06 spaces per unit, but closest to 0.60 (30 spaces)** given data and applicability of the San Diego data, which represents the most comprehensive field data collection effort performed specifically for affordable housing parking requirements in the country.

On this basis, we anticipate that the proposed parking provisions for the project (38 spaces or 0.75 spaces per unit) will be sufficient to accommodate the peak parking demand for the Providence at the Heights community. It is anticipated that the estimated demand of 30 parking spaces provides an additional eight spaces for staff members and/or future parking demand.

Given that the residential use would likely experience peak parking demand in the evenings or early mornings when the church parking lot would be expected to be underutilized, the project would not be expected to result in any off-site parking intrusion should parking demand temporarily exceed the site parking supply for any reason. A copy of the draft shared parking agreement with the Elevation Christian Church is provided in the **Appendix**.

11.0 CONCLUSIONS

The project proposes to construct 50 affordable apartments (40 one-bedroom units and 10 two-bedroom units) on currently undeveloped land. The target tenants are those with an AMI at 30% or less. There will be on-site counseling and support services for residents. Access to the site is planned via one proposed driveway onto the local street that currently serves the Elevation Christian Church and Terrace Park apartments. The Access Street leads to Alameda Parkway where full-movement is allowed at the side-street stop-controlled intersection.

The project proposes to be developed within the next two years and is estimated to generate approximately 64 daily trips with 6 trips occurring in the AM peak hour and 6 trips occurring in

the PM peak hour. The site trips are fewer than a typical rental apartment due to the anticipated lower-income that limits the residents' ability to own a vehicle and higher probability of utilizing the transit system and other non-automobile modes of travel.

It was determined that the current roadway system can adequately accommodate the traffic volumes at buildout conditions of the Providence of the Heights and will not trigger intersection or roadway improvements. The proposed 38 parking spaces are anticipated to accommodate the peak demand for this land use. There will be 24 overflow spaces available in the Elevation Christian Church's parking lot.

Tables and Figures:

Providence at the Heights
Traffic Impact Study

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Table 1 - Trip Generation Summary

Generator	Land Use Code	Size	Unit	Average Daily Trips			AM Peak Hour				PM Peak Hour			
				Rate[1]	Total	In	Out	Rate[1]	Total	In	Out	Rate[1]	Total	In	Out
Multi-Family Housing (Apartments)	220	50	DU	1.27	64	32	32	0.12	6	3	3	0.12	6	4	2
Total New Auto Trips for Site:					**64**	**32**	**32**		**6**	**3**	**3**		**6**	**4**	**2**

[1] *Source: City of Los Angeles Transportation Impact Study Guidelines, Los Angeles Department of Transportation, 2016.*

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Table 2 - Peak Hour Intersection Level of Service Summary

Intersection and Lanes Groups	Existing				2020 Background				2020 Background + Project				2040 Background				2040 Background + Project			
	AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
STOP SIGN CONTROL																				
Alameda Parkway at Joplin Street / Access Street	**4**	**A**	**7**	**A**	**6**	**A**	**12**	**B**	**7**	**A**	**14**	**B**	**14**	**B**	**36**	**E**	**14**	**B**	**39**	**E**
Eastbound Left	*16*	*C*	*11*	*B*	*19*	*C*	*13*	*B*	*19*	*C*	*13*	*B*	*27*	*D*	*15*	*C*	*27*	*D*	*15*	*C*
Eastbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Westbound Left	*9*	*A*	*14*	*B*	*10*	*A*	*16*	*C*	*10*	*A*	*17*	*C*	*10*	*A*	*20*	*C*	*10*	*A*	*20*	*C*
Westbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Northbound Left	*113*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*
Northbound Through+Right	*10*	*A*	*13*	*B*	*10*	*B*	*14*	*B*	*10*	*B*	*14*	*B*	*10*	*B*	*15*	*B*	*10*	*B*	*15*	*B*
Southbound Left	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*
Southbound Through+Right	*17*	*C*	*16*	*C*	*19*	*C*	*22*	*C*	*19*	*C*	*22*	*C*	*23*	*C*	*51*	*F*	*23*	*C*	*52*	*F*
Access Street at Proposed Driveway	**0**	**A**	**0**	**A**	**0**	**A**	**0**	**A**	**1**	**A**	**1**	**A**	**0**	**A**	**0**	**A**	**1**	**A**	**1**	**A**
Eastbound Left+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*9*	*A*	*9*	*A*	*0*	*A*	*0*	*A*	*9*	*A*	*9*	*A*
Northbound Left+Through	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Southbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*

Note: Delay represented in average seconds per vehicle.

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Table 3a - 95th Percentile Queue Summary (Synchro)

Intersection and Lanes Groups	Storage Length or Dist. to Adj. Int	Existing		2020 Background		2020 Bkgrd + Project		2040 Background		2040 Bkgrd + Project	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
STOP SIGN CONTROL											
Alameda Parkway at Joplin Street / Access Street											
Eastbound Left	150'	12'	18'	15'	23'	15'	23'	26'	35'	26'	35'
Eastbound Through+Right	770'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Westbound Left	110'	0'	1'	0'	1'	0'	2'	1'	3'	1'	4'
Westbound Through+Right	740'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Northbound Left	70'	21'	66'	31'	**77'**	37'	**85'**	59'	*	66'	*
Northbound Through+Right	245'	1'	2'	1'	3'	1'	3'	1'	2'	1'	2'
Southbound Left	140'	63'	52'	78'	74'	78'	75'	93'	102'	94'	102'
Southbound Through+Right	420'	42'	21'	49'	32'	49'	33'	55'	73'	55'	74'
Access Street at Proposed Driveway											
Eastbound Left+Right	75'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Northbound Left+Through	50'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Southbound Through+Right	90'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

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Table 3b - Peak Hour Average and 95th Percentile Queues (SimTraffic)

Intersection and Lanes Groups	Storage Length or Dist. to Adj. Int	Existing				2020 Background				2020 Bkgrd + Project				2040 Background				2040 Bkgrd + Project			
		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
		Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th
STOP SIGN CONTROL																					
Alameda Parkway at Joplin Street / Access Street																					
Eastbound Left	150'	26'	59'	41'	78'	30'	65'	49'	91'	30'	69'	47'	86'	46'	109'	64'	124'	51'	117'	63'	120'
Eastbound Through+Right	770'	1'	11'	1'	13'	1'	8'	4'	26'	1'	10'	1'	11'	3'	43'	5'	48'	8'	78'	6'	44'
Westbound Left	110'	2'	12'	6'	24'	2'	11'	7'	26'	3'	16'	6'	24'	3'	18'	9'	32'	4'	19'	10'	36'
Westbound Through+Right	740'	1'	14'	3'	21'	3'	20'	3'	21'	3'	22'	2'	19'	2'	17'	3'	21'	3'	20'	1'	12'
Northbound Left	70'	12'	38'	37'	**74'**	21'	51'	43'	**85'**	20'	56'	36'	**79'**	42'	**73'**	45'	**74'**	54'	**85'**	35'	**74'**
Northbound Through+Right	245'	8'	30'	32'	112'	7'	30'	67'	179'	9'	44'	39'	127'	30'	113'	47'	149'	108'	**255'**	79'	224'
Southbound Left	140'	48'	131'	40'	103'	73'	**153'**	88'	**185'**	70'	**162'**	111'	**197'**	125'	**198'**	124'	**206'**	127'	**195'**	105'	**201'**
Southbound Through+Right	420'	93'	334'	62'	209'	111'	378'	255'	**663'**	132'	**422'**	149'	**456'**	352'	**775'**	**461'**	**826'**	327'	**726'**	390'	**795'**
Access Street at Proposed Driveway																					
Eastbound Left+Right	75'	0'	0'	0'	0'	0'	0'	0'	0'	2'	16'	2'	16'	0'	0'	0'	0'	4'	21'	3'	17'
Northbound Left+Through	50'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	5'	32'	1'	9'
Southbound Through+Right	90'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

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Table 4 - Trip Generation Summary for Sensitivity Analysis (ITE Equation)

Generator	Land Use Code	Size	Unit	Average Daily Trips				AM Peak Hour				PM Peak Hour			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Multi-Family Housing (Apartments)	220	50	DU	[a]	337	169	168	[a]	25	6	19	[a]	32	20	12
Non-Auto Mode Choice:				*15%*	*(51)*	*(25)*	*(26)*		*(4)*	*(1)*	*(3)*		*(5)*	*(3)*	*(2)*
Total New Auto Trips for Site:					**286**	**144**	**142**		**21**	**5**	**16**		**27**	**17**	**10**

Source: ITE Trip Generation 10th Edition, 2017.

[a] ITE equation used instead of rate. Daily: T = 7.56(X) - 40.86; AM Peak: Ln(T) = 0.95 Ln(X) - 0.51; PM Peak: Ln(T) = 0.89 Ln(X) - 0.02
where T = Trip Ends and X = number of dwelling units

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Table 5 - Peak Hour Intersection Level of Service Summary for Sensitivity Analysis (ITE Equations)

Intersection and Lanes Groups	2020 Background + Project				2040 Background + Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
STOP SIGN CONTROL								
Alameda Parkway at Joplin Street / Access Street	**8**	**A**	**95**	**F**	**17**	**C**	**61**	**F**
Eastbound Left	*19*	*C*	*13*	*B*	*27*	*D*	*15*	*C*
Eastbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Westbound Left	*10*	*A*	*17*	*C*	*10*	*A*	*20*	*C*
Westbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Northbound Left	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*
Northbound Through+Right	*10*	*B*	*14*	*B*	*10*	*B*	*15*	*C*
Southbound Left	*>120*	*F*	*>120*	*F*	*>120*	*F*	*>120*	*F*
Southbound Through+Right	*19*	*C*	*23*	*C*	*23*	*C*	*57*	*F*
Access Street at Proposed Driveway	**4**	**A**	**2**	**A**	**3**	**A**	**1**	**A**
Eastbound Left+Right	*9*	*A*	*9*	*A*	*9*	*A*	*9*	*A*
Northbound Left+Through	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*
Southbound Through+Right	*0*	*A*	*0*	*A*	*0*	*A*	*0*	*A*

Note: Delay represented in average seconds per vehicle.

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Table 3a - 95th Percentile Queue Summary (ITE equation from Synchro)

Intersection and Lanes Groups	Storage Length or Dist. to Adj. Int	Existing		2020 Background		2020 Bkgrd + Project		2040 Background		2040 Bkgrd + Project	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
STOP SIGN CONTROL											
Alameda Parkway at Joplin Street / Access Street											
Eastbound Left	150'	12'	18'	15'	23'	15'	23'	26'	35'	26'	35'
Eastbound Through+Right	770'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Westbound Left	110'	0'	1'	0'	1'	1'	4'	1'	3'	1'	6'
Westbound Through+Right	740'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Northbound Left	70'	21'	66'	31'	**77'**	58'	*	59'	*	**86'**	*
Northbound Through+Right	245'	1'	2'	1'	3'	2'	5'	1'	2'	2'	4'
Southbound Left	140'	63'	52'	78'	74'	79'	79'	93'	102'	94'	104'
Southbound Through+Right	420'	42'	21'	49'	32'	49'	34'	55'	73'	55'	79'
Access Street at Proposed Driveway											
Eastbound Left+Right	75'	0'	0'	0'	0'	1'	1'	0'	0'	1'	1'
Northbound Left+Through	50'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'
Southbound Through+Right	90'	0'	0'	0'	0'	0'	0'	0'	0'	0'	0'

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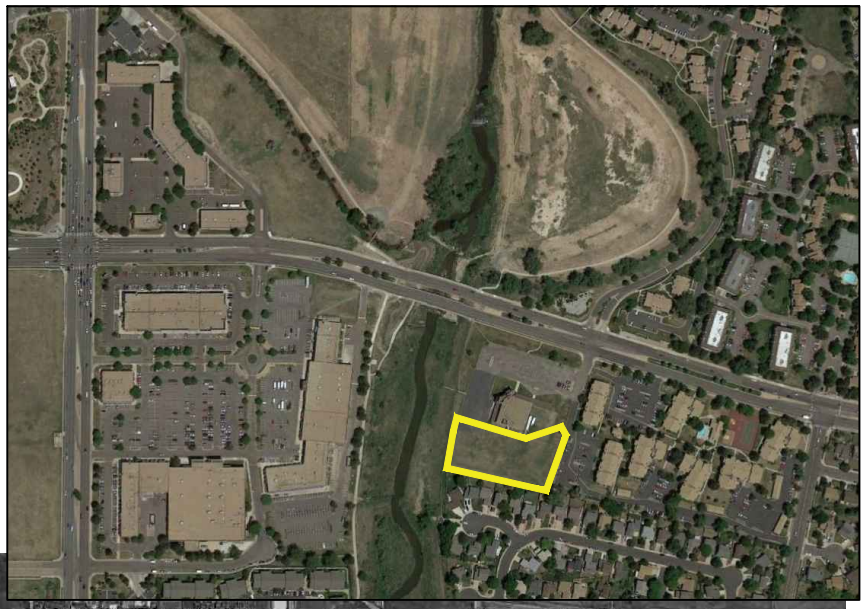
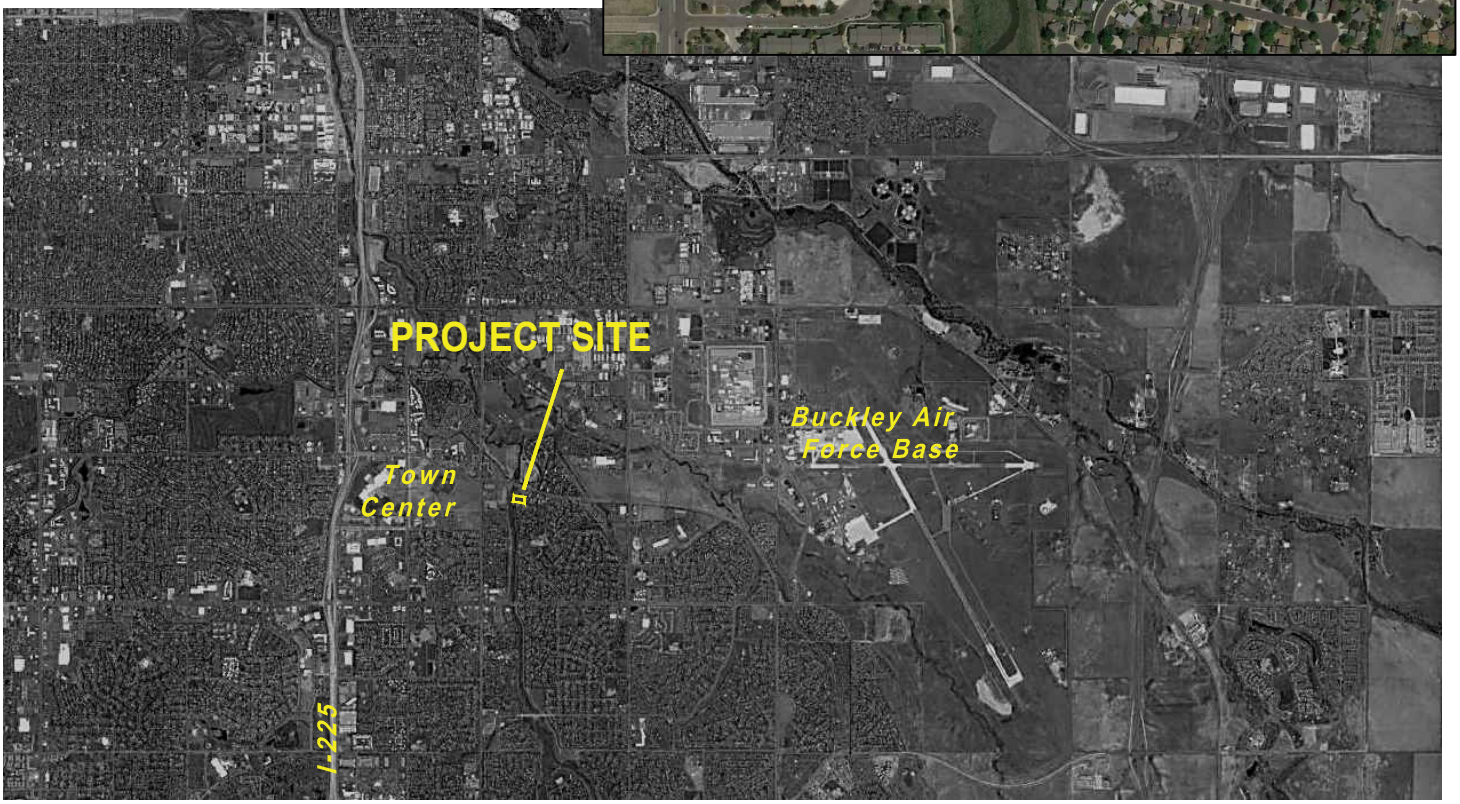
Table 6b - Average and 95th Percentile Queues for Sensitivity Analysis (ITE Equations from SimTraffic)

Intersection and Lanes Groups	Storage Length or Dist. to Adj. Int	2020 Bkgrd + Project (ITE Eq.)				2040 Bkgrd + Project (ITE Eq.)			
		AM		PM		AM		PM	
		Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th
STOP SIGN CONTROL									
Alameda Parkway at Joplin Street / Access Street									
Eastbound Left	150'	29'	65'	49'	93'	46'	97'	67'	127'
Eastbound Through+Right	770'	1'	13'	2'	16'	3'	29'	6'	55'
Westbound Left	110'	5'	22'	12'	36'	5'	22'	16'	45'
Westbound Through+Right	740'	5'	27'	2'	17'	3'	21'	2'	19'
Northbound Left	70'	40'	**82'**	59'	**79'**	53'	**88'**	57'	**78'**
Northbound Through+Right	245'	47'	169'	144'	**284'**	152'	**306'**	152'	**301'**
Southbound Left	140'	70'	**164'**	115'	**202'**	105'	**198'**	116'	**186'**
Southbound Through+Right	420'	139'	**443'**	256'	**667'**	249'	**670'**	353'	**776'**
Access Street at Proposed Driveway									
Eastbound Left+Right	75'	13'	40'	17'	57'	31'	**84'**	24'	69'
Northbound Left+Through	50'	2'	14'	11'	48'	20'	**66'**	15'	**54'**
Southbound Through+Right	90'	0'	0'	0'	0'	0'	0'	0'	0'





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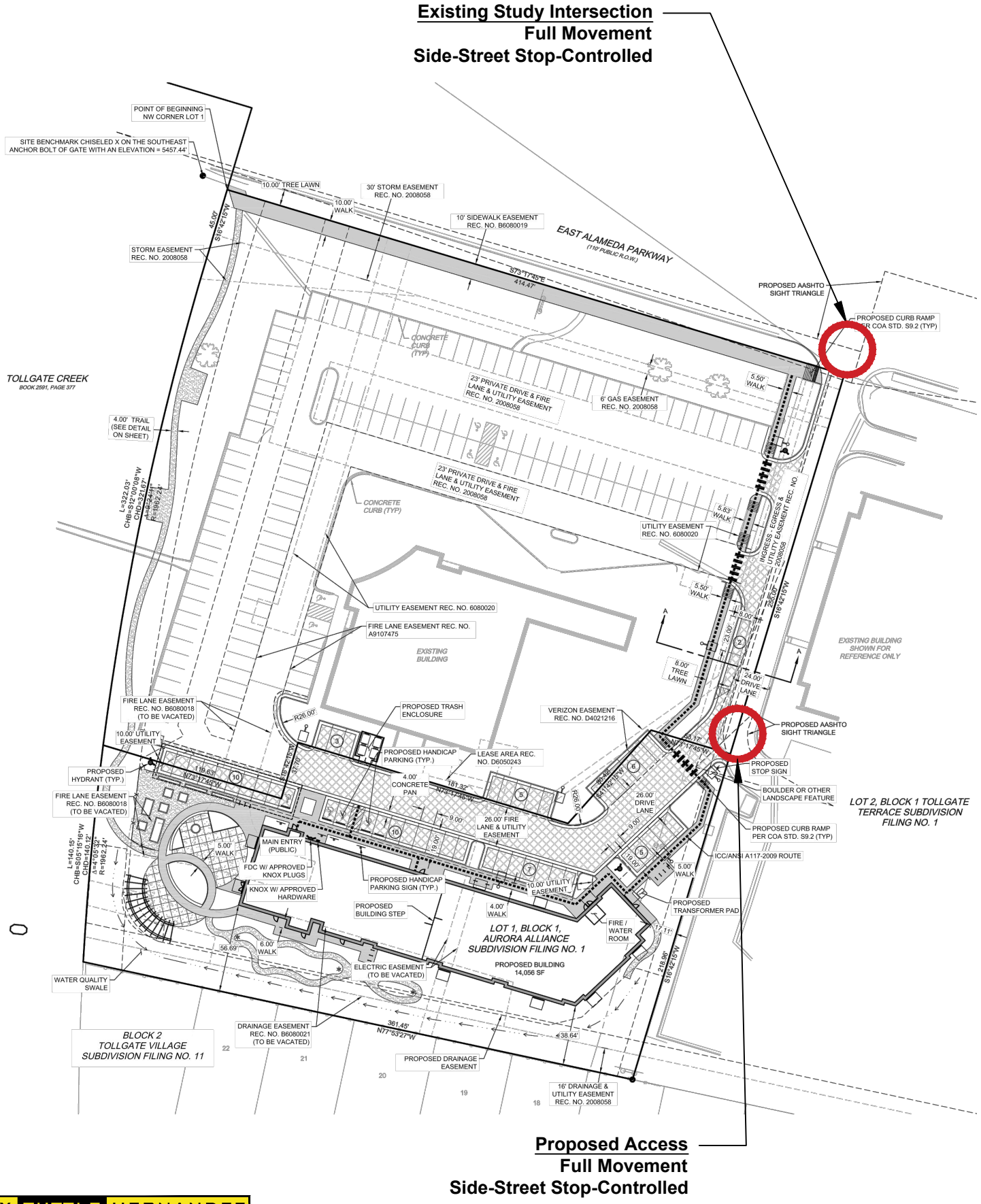
PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

VICINITY MAP

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	1



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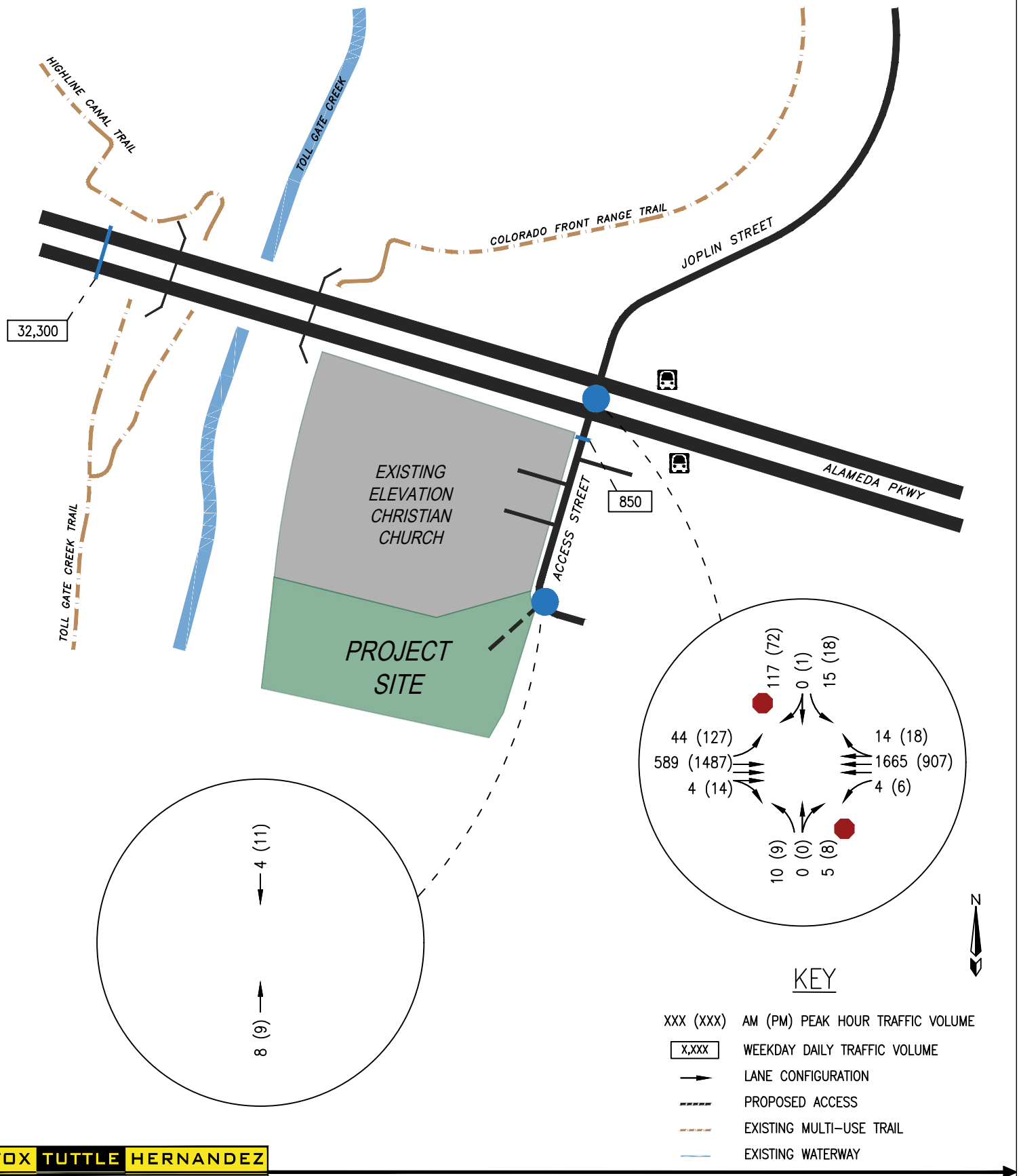
PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

CONCEPTUAL SITE PLAN

Project #	18018	Original Scale	NTS	Date	5/31/18	Drawn by	CRS	Figure #	2



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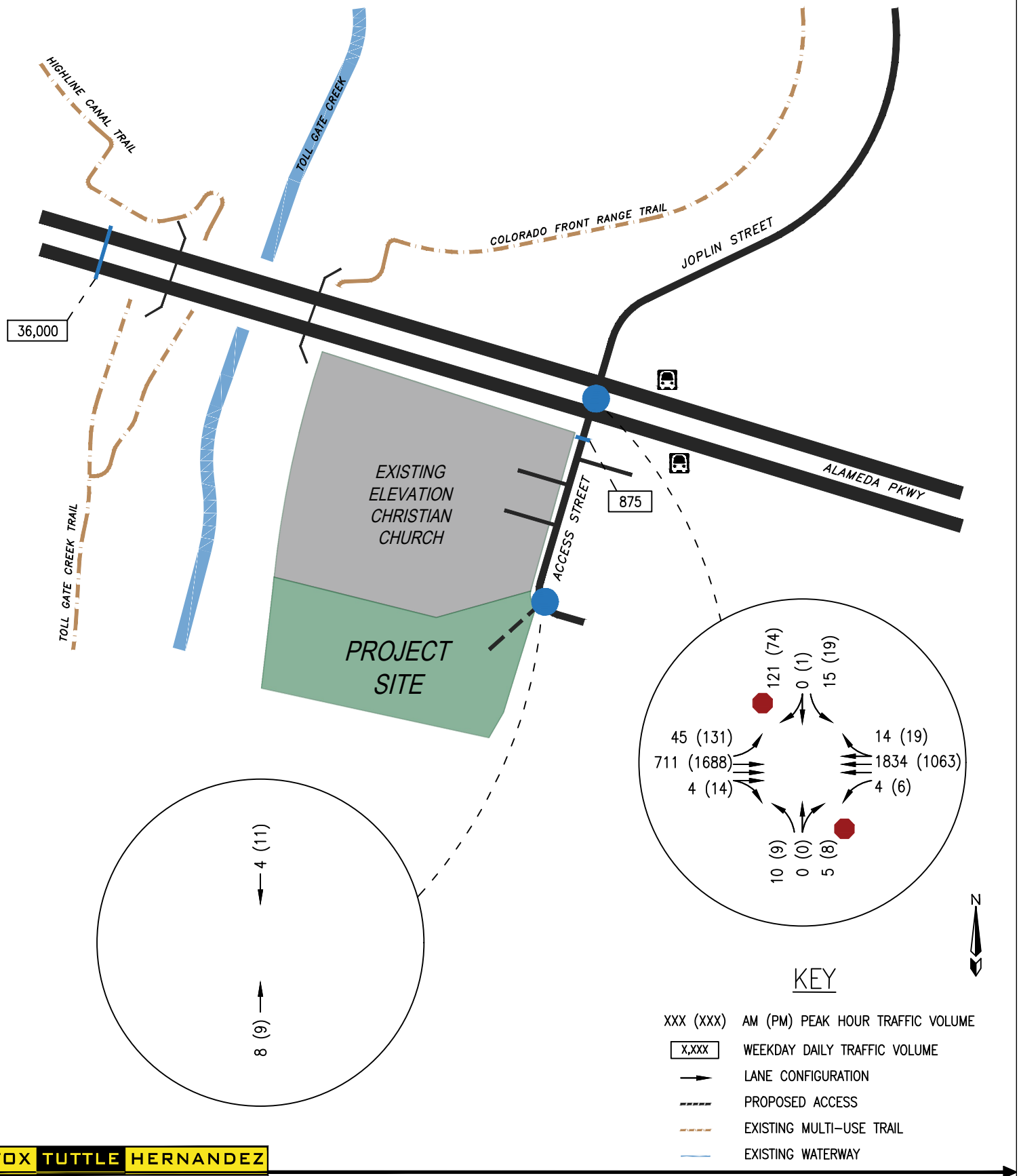
PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

YEAR 2018 EXISTING WEEKDAY TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	3



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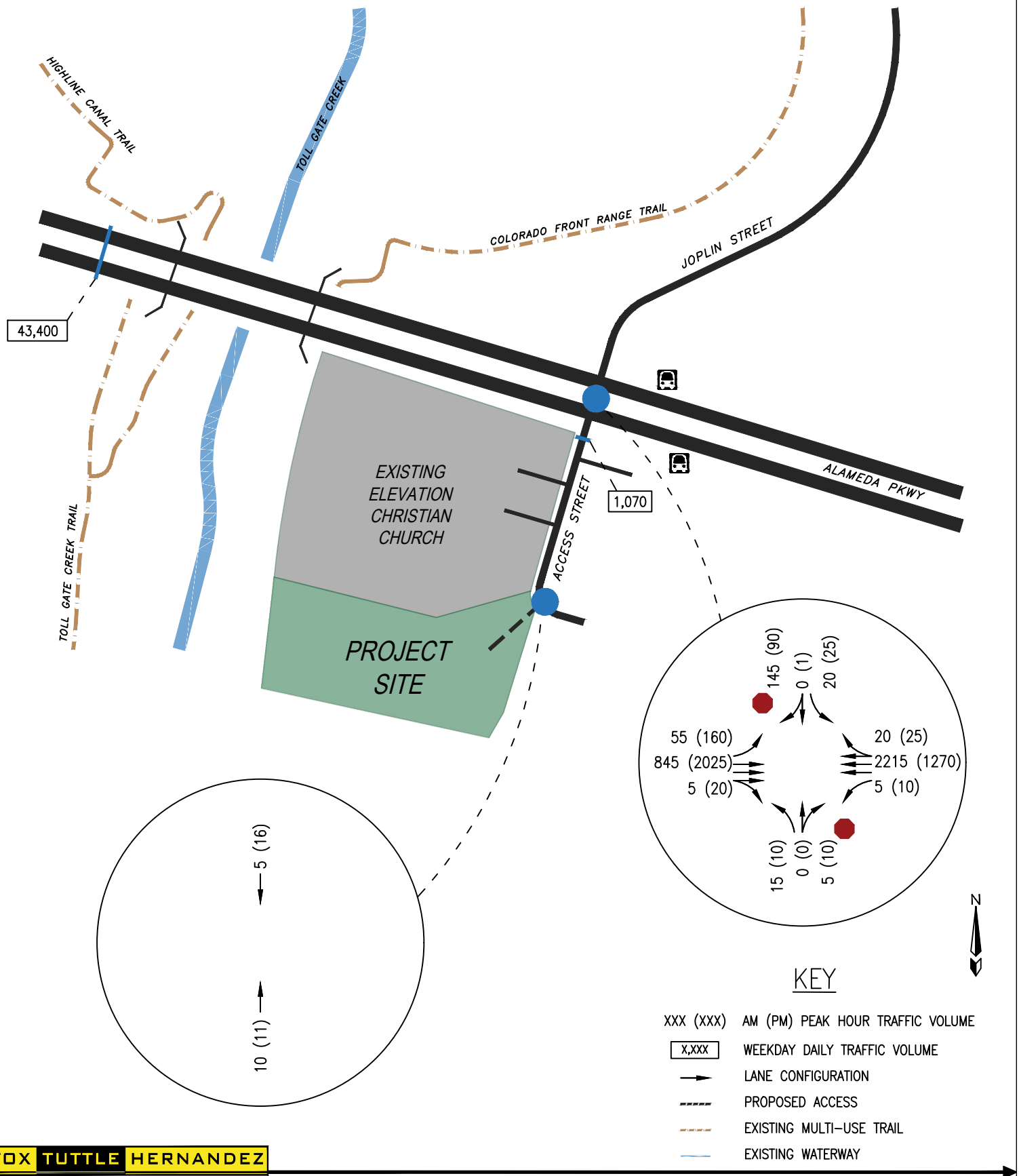
PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

YEAR 2020 BACKGROUND WEEKDAY TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	4



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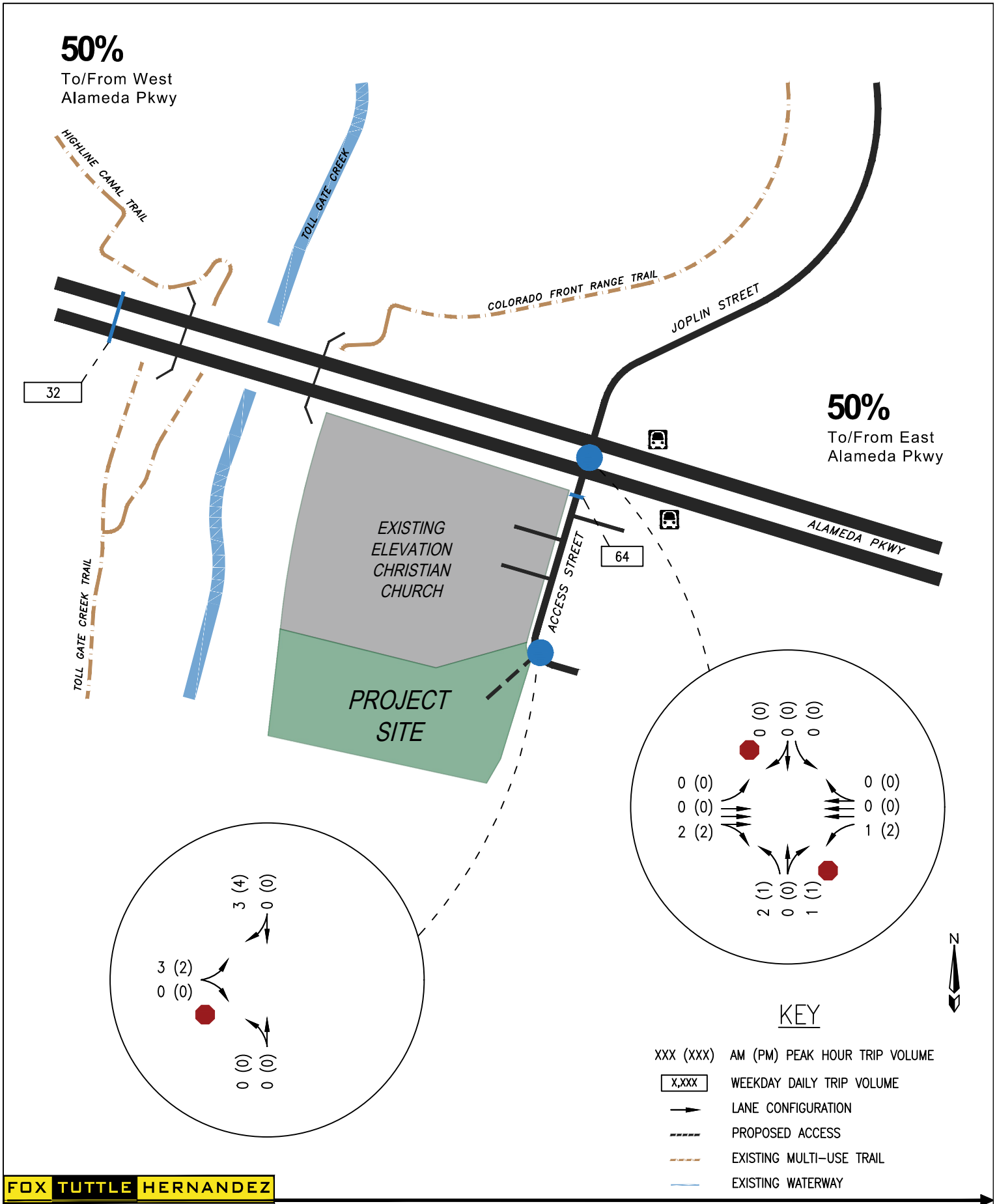
PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

YEAR 2040 BACKGROUND WEEKDAY TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	5

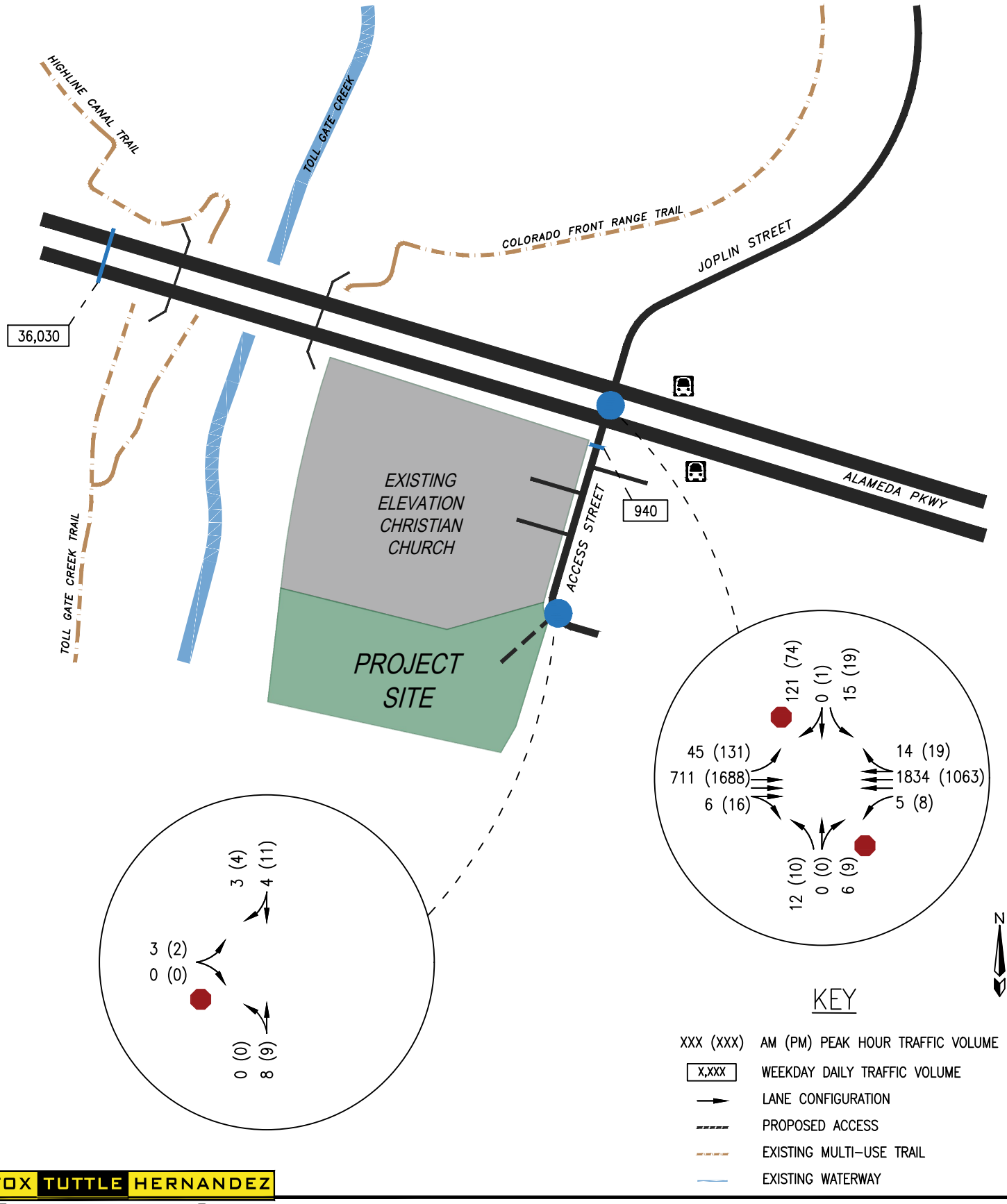


FOX TUTTLE HERNANDEZ
TRANSPORTATION GROUP

PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

SITE TRIP DISTRIBUTION AND SITE-GENERATED TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	6

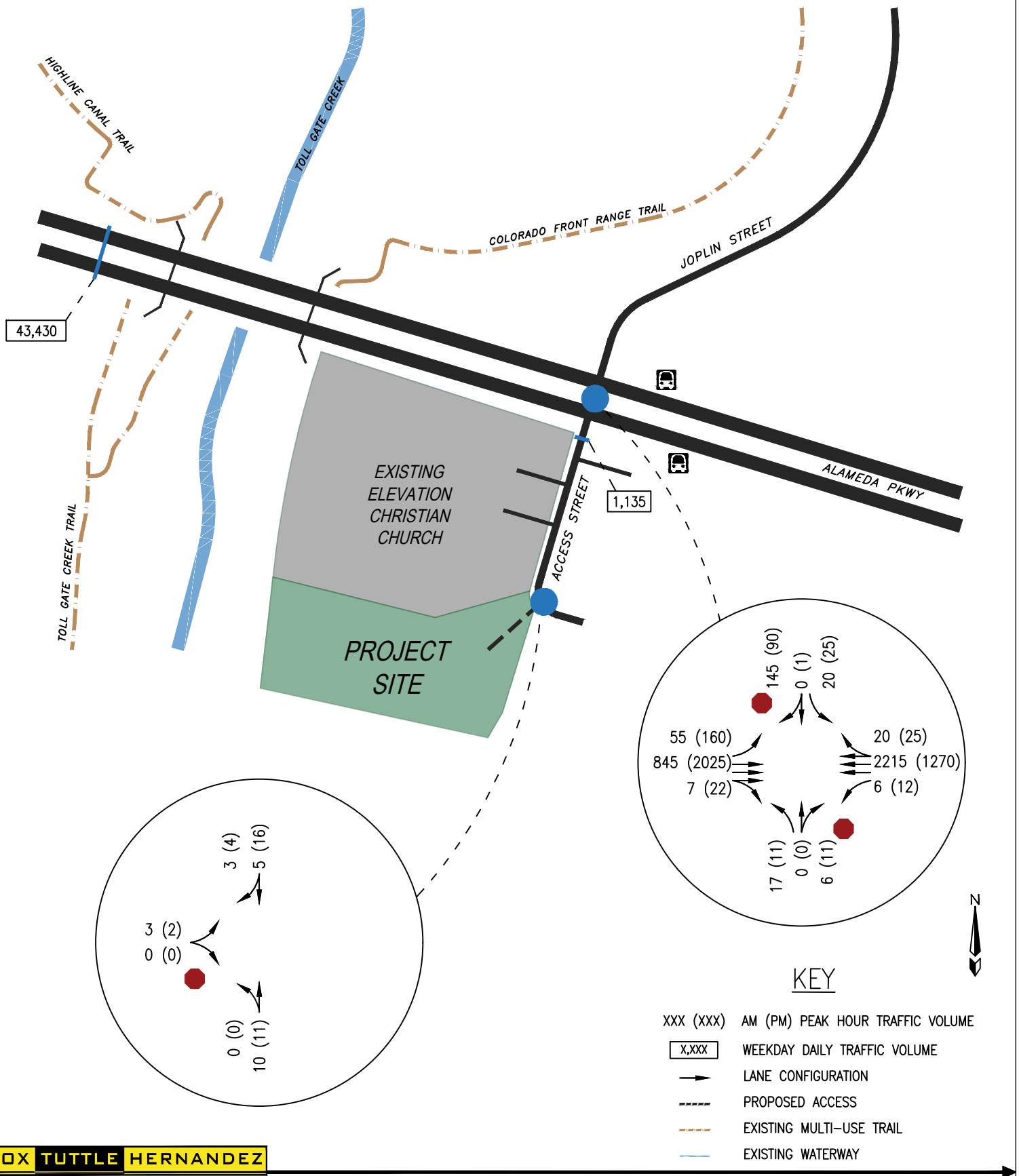


FOX TUTTLE HERNANDEZ
TRANSPORTATION GROUP

PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

YEAR 2020 BACKGROUND + SITE-GENERATED TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	7



FOX TUTTLE HERNANDEZ
TRANSPORTATION GROUP

PROVIDENCE AT THE HEIGHTS TRAFFIC IMPACT STUDY

YEAR 2040 BACKGROUND + SITE-GENERATED TRAFFIC VOLUMES

Project #	18018	Original Scale	NTS	Date	5/22/18	Drawn by	CRS	Figure #	8

Appendix:

Level of Service Definitions

Existing Traffic Data

Research Data

Intersection Capacity Worksheets

Shared Parking Agreement

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

In rating roadway and intersection operating conditions with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. Levels of service at signalized and unsignalized intersections are closely associated with vehicle delays experienced in seconds per vehicle. More complete level of service definitions and delay data for signal and stop sign controlled intersections are contained in the following table for reference.

Level of Service Rating	Delay in seconds per vehicle *(a)*		Definition
	Signalized	Unsignalized	
A	0.0 to 10.0	0.0 to 10.0	Low vehicular traffic volumes; primarily free flow operations. Density is low and vehicles can freely maneuver within the traffic stream. Drivers are able to maintain their desired speeds with little or no delay.
B	10.1 to 20.0	10.1 to 15.0	Stable vehicular traffic volume flow with potential for some restriction of operating speeds due to traffic conditions. Vehicle maneuvering is only slightly restricted. The stopped delays are not bothersome and drivers are not subject to appreciable tension.
C	20.1 to 35.0	15.1 to 25.0	Stable traffic operations, however the ability for vehicles to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer vehicle queues cause delays along the corridor.
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable vehicular traffic flow where small increases in volume could cause substantial delays. Most drivers are restricted in ability to maneuver and selection of travel speeds due to congestion. Driver comfort and convenience are low, but tolerable.
E	55.1 to 80.0	35.1 to 50.0	Traffic operations characterized by significant approach delays and average travel speeds of one-half to one-third the free flow speed. Vehicular flow is unstable and there is potential for stoppages of brief duration. High signal density, extensive vehicle queuing, or corridor signal progression/timing are the typical causes of vehicle delays at signalized corridors.
F	> 80.0	> 50.0	Forced vehicular traffic flow and operations with high approach delays at critical intersections. Vehicle speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion.

(a) Delay ranges based on 2010 Highway Capacity Manual criteria.

Existing Traffic Data

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: JOPLIN ST / CHURCH ACCESS
E/W STREET: ALAMEDA PKWY
CITY: AURORA
COUNTY: ARAPAHOE

File Name : JOPLALAM
Site Code : 00000026
Start Date : 2/21/2018
Page No : 1

Groups Printed- VEHICLES

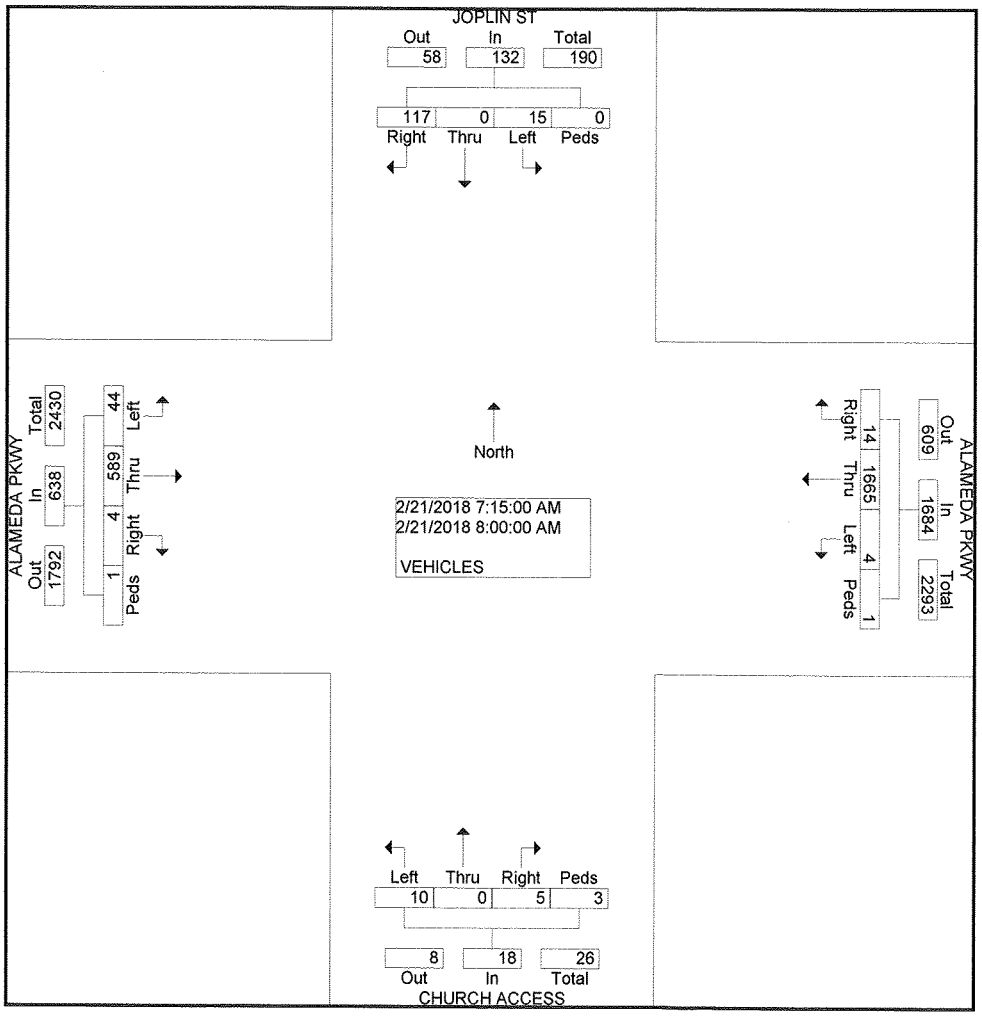
	JOPLIN ST Southbound				ALAMEDA PKWY Westbound				CHURCH ACCESS Northbound				ALAMEDA PKWY Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	3	0	24	0	0	349	3	0	4	0	0	1	13	115	0	0	512
07:15 AM	7	0	41	0	1	412	6	0	1	0	2	2	12	149	1	1	635
07:30 AM	2	0	32	0	0	432	0	0	3	0	1	1	13	176	0	0	660
07:45 AM	3	0	16	0	2	416	6	0	3	0	2	0	7	122	2	0	579
Total	15	0	113	0	3	1609	15	0	11	0	5	4	45	562	3	1	2386
08:00 AM	3	0	28	0	1	405	2	1	3	0	0	0	12	142	1	0	598
08:15 AM	6	0	30	0	0	390	6	0	4	0	0	0	15	162	0	0	613
08:30 AM	12	0	15	0	1	368	6	0	2	0	1	0	15	131	0	0	551
08:45 AM	5	0	11	0	0	299	1	0	0	0	0	0	11	121	0	0	448
Total	26	0	84	0	2	1462	15	1	9	0	1	0	53	556	1	0	2210
04:00 PM	3	0	17	0	1	207	7	1	1	0	0	0	40	332	1	2	612
04:15 PM	6	0	22	1	2	239	5	0	4	0	4	0	34	372	4	0	693
04:30 PM	4	0	16	1	0	233	5	2	2	0	0	0	30	363	3	0	659
04:45 PM	7	1	15	0	1	231	2	6	3	0	2	0	29	343	3	2	645
Total	20	1	70	2	4	910	19	9	10	0	6	0	133	1410	11	4	2609
05:00 PM	1	0	19	0	3	204	6	2	0	0	2	1	34	409	4	0	685
05:15 PM	11	0	23	0	0	213	7	1	2	0	1	0	42	352	2	1	655
05:30 PM	6	0	30	0	1	229	6	0	0	0	0	2	39	337	3	1	654
05:45 PM	8	0	26	1	5	209	6	0	2	0	2	0	25	251	3	5	543
Total	26	0	98	1	9	855	25	3	4	0	5	3	140	1349	12	7	2537
Grand Total	87	1	365	3	18	4836	74	13	34	0	17	7	371	3877	27	12	9742
Apprch %	19.1	0.2	80.0	0.7	0.4	97.9	1.5	0.3	58.6	0.0	29.3	12.1	8.7	90.4	0.6	0.3	
Total %	0.9	0.0	3.7	0.0	0.2	49.6	0.8	0.1	0.3	0.0	0.2	0.1	3.8	39.8	0.3	0.1	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER,COLORADO
303-333-7409

N/S STREET: JOPLIN ST / CHURCH ACCESS
E/W STREET: ALAMEDA PKWY
CITY: AURORA
COUNTY: ARAPAHOE

File Name : JOPLALAM
Site Code : 00000026
Start Date : 2/21/2018
Page No : 2

	JOPLIN ST Southbound					ALAMEDA PKWY Westbound					CHURCH ACCESS Northbound					ALAMEDA PKWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	15	0	117	0	132	4	1665	14	1	1684	10	0	5	3	18	44	589	4	1	638	2472
Percent	11.4	0.0	88.6	0.0		0.2	98.9	0.8	0.1		55.6	0.0	27.8	16.7		6.9	92.3	0.6	0.2		
07:30 Volume	2	0	32	0	34	0	432	0	0	432	3	0	1	1	5	13	176	0	0	189	660
Peak Factor																					0.936
High Int.	07:15 AM					07:30 AM					07:15 AM					07:30 AM					
Volume	7	0	41	0	48	0	432	0	0	432	1	0	2	2	5	13	176	0	0	189	
Peak Factor					0.688					0.975					0.900					0.844	



COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: JOPLIN ST / CHURCH ACCESS
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CITY: AURORA
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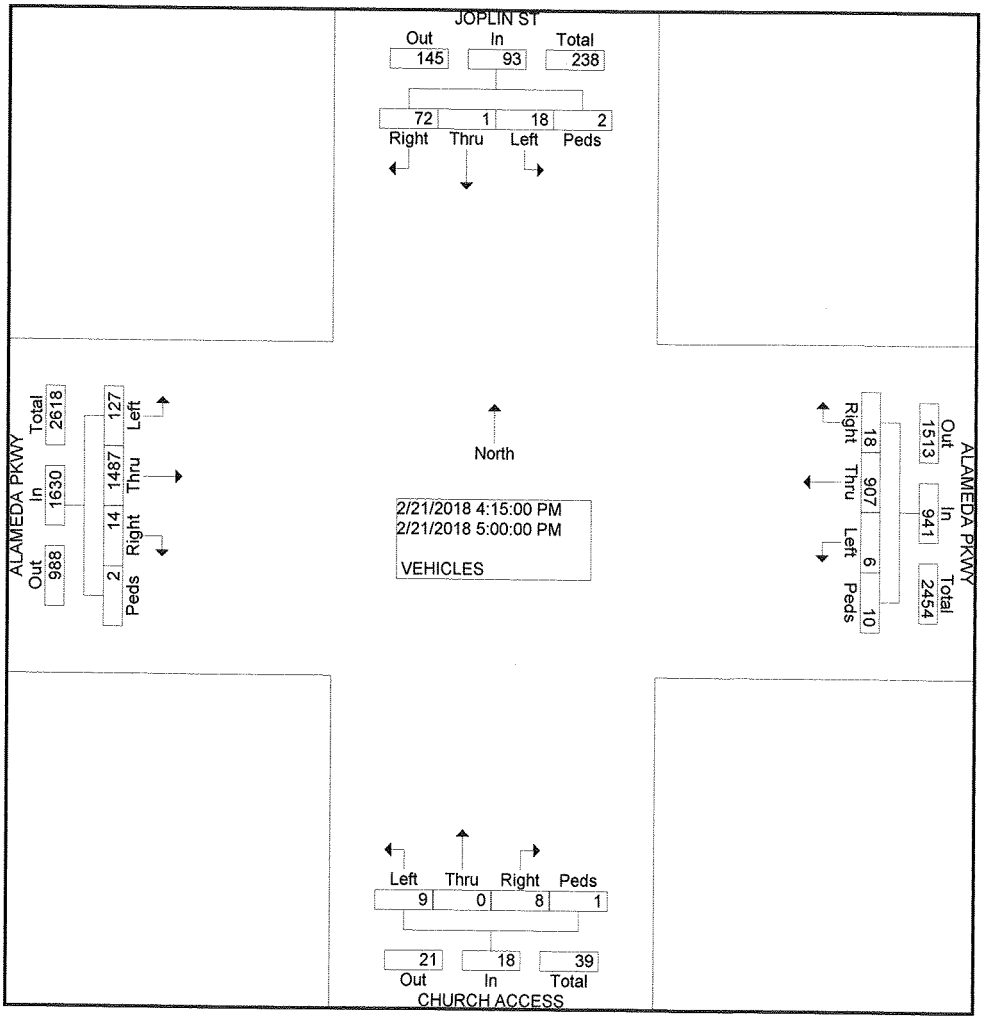
File Name : JOPLALAM
Site Code : 00000026
Start Date : 2/21/2018
Page No : 2

	JOPLIN ST Southbound					ALAMEDA PKWY Westbound					CHURCH ACCESS Northbound					ALAMEDA PKWY Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	18	1	72	2	93	6	907	18	10	941	9	0	8	1	18	127	1487	14	2	1630	2682
Percent	19.4	1.1	77.4	2.2		0.6	96.4	1.9	1.1		50.0	0.0	44.4	5.6		7.8	91.2	0.9	0.1		
04:15 Volume	6	0	22	1	29	2	239	5	0	246	4	0	4	0	8	34	372	4	0	410	693
Peak Factor																					0.968
High Int.	04:15 PM					04:15 PM					04:15 PM					05:00 PM					
Volume	6	0	22	1	29	2	239	5	0	246	4	0	4	0	8	34	409	4	0	447	
Peak Factor					0.802					0.956					0.563					0.912	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: ALAMEDA PKWY W/O JOPLIN ST
City: AURORA
County: ARAPAHOE
Direction: EASTBOUND-WESTBOUND

Site Code: 022212
Station ID: 022212

Start Time	22-Feb-1 Thu	EB	WB	Total
12:00 AM		158	77	235
01:00		83	44	127
02:00		63	63	126
03:00		47	71	118
04:00		57	161	218
05:00		136	498	634
06:00		331	1136	1467
07:00		**810**	**1936**	**2746**
08:00		612	1286	1898
09:00		567	847	1414
10:00		594	828	1422
11:00		746	853	1599
12:00 PM		870	882	1752
01:00		804	735	1539
02:00		1088	920	2008
03:00		1496	1058	2554
04:00		**1840**	**1121**	**2961**
05:00		1836	1036	2872
06:00		1330	814	2144
07:00		899	516	1415
08:00		785	400	1185
09:00		578	318	896
10:00		380	218	598
11:00		262	126	388
Total		16372	15944	32316
Percent		50.7%	49.3%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	810	1936	2746
PM Peak	-	16:00	16:00	16:00
Vol.	-	1840	1121	2961
Grand Total		16372	15944	32316
Percent		50.7%	49.3%	

ADT ADT 31,312 AADT 31,312

COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: CHURCH ACCESS S/O ALAMEDA PKWY
City: AURORA
County: ARAPAHOE
Direction: SOUTHBOUND-NORTHBOUND

Site Code: 022213
Station ID: 022213

Start Time	22-Feb-1 Thu	SB	NB	Total
12:00 AM		8	5	13
01:00		0	0	0
02:00		3	2	5
03:00		4	3	7
04:00		1	1	2
05:00		4	0	4
06:00		16	15	31
07:00		**24**	**21**	**45**
08:00		16	11	27
09:00		18	12	30
10:00		18	18	36
11:00		17	16	33
12:00 PM		34	**40**	**74**
01:00		34	36	70
02:00		30	28	58
03:00		**40**	33	73
04:00		27	22	49
05:00		32	23	55
06:00		36	24	60
07:00		39	30	69
08:00		28	26	54
09:00		10	6	16
10:00		11	9	20
11:00		10	6	16
Total		460	387	847
Percent		54.3%	45.7%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	24	21	45
PM Peak	-	15:00	12:00	12:00
Vol.	-	40	40	74
Grand Total		460	387	847
Percent		54.3%	45.7%	
ADT		ADT 612	AADT 612	

Research Data

Land Use: 221
Low/Mid-Rise Apartment

Description

Low/mid-rise apartments are rental dwelling units located within the same building with at least three other dwelling units: for example, quadraplexes and all types of apartment buildings. The study sites in this land use have one, two, three, or four levels. High-rise apartment (Land Use 222) is a related use.

Database Description

The database consisted of a mix of suburban and urban sites. Parking demand rates at the suburban sites differed from those at urban sites and, therefore, the data were analyzed separately.

- Average parking supply ratio: 1.4 parking spaces per dwelling unit (68 study sites). This ratio was the same at both the suburban and urban sites.
- Suburban site data: average size of the dwelling units at suburban study sites was 1.7 bedrooms, and the average parking supply ratio was 0.9 parking spaces per bedroom (three study sites).
- Urban site data: average size of the dwelling units was 1.9 bedrooms with an average parking supply ratio of 1.0 space per bedroom (11 study sites).

Saturday parking demand data were only provided at two suburban sites. One site with 1,236 dwelling units had a parking demand ratio of 1.33 vehicles per dwelling unit based on a single hourly count between 10:00 and 11:00 p.m. The other site with 55 dwelling units had a parking demand ratio of 0.92 vehicles per dwelling unit based on counts between the hours of 12:00 and 5:00 a.m.

Sunday parking demand data were only provided at two urban sites. One site with 15 dwelling units was counted during consecutive hours between 1:00 p.m. and 5:00 a.m. The peak parking demand ratio at this site was 1.00 vehicle per dwelling unit. The peak parking demand occurred between 12:00 and 5:00 a.m. The other site with 438 dwelling units had a parking demand ratio of 1.10 vehicles per dwelling unit based on a single hourly count between 11:00 p.m. and 12:00 a.m.

Four of the urban sites were identified as affordable housing.

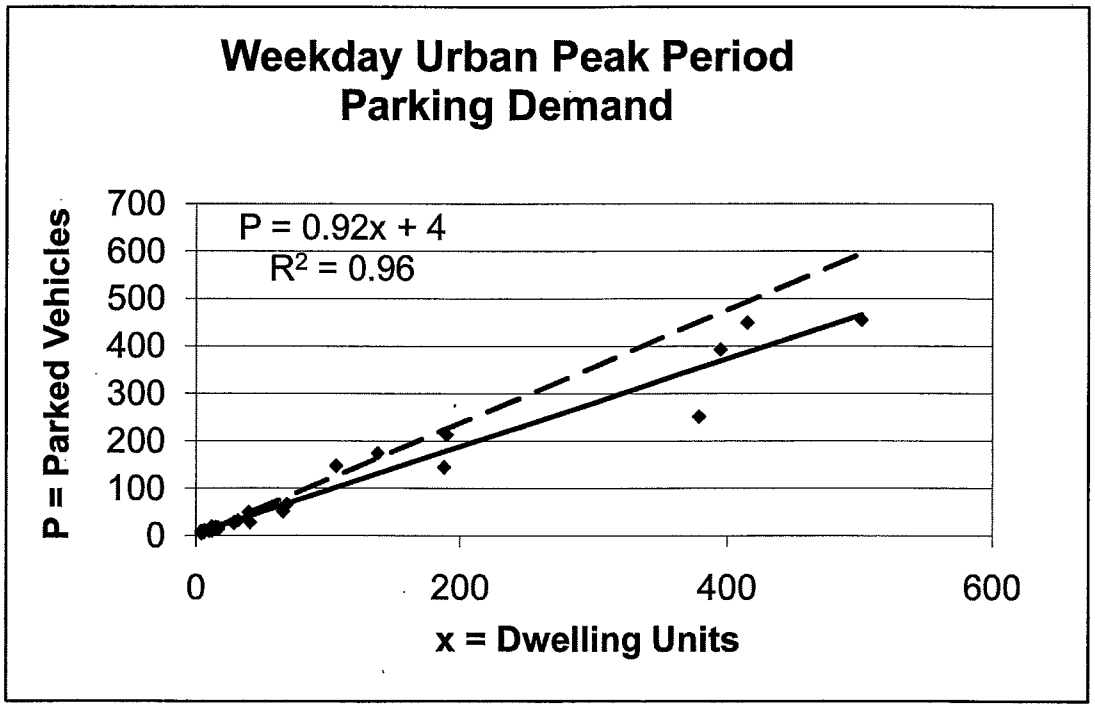
Several of the suburban study sites provided data regarding the number of bedrooms in the apartment complex. Although these data represented only a subset of the complete database for this land use, they demonstrated a correlation between number of bedrooms and peak parking demand. Study sites with an average of less than 1.5 bedrooms per dwelling unit in the apartment complex reported peak parking demand at 92 percent of the average peak parking demand for all study sites with bedroom data. Study sites with less than 2.0 but greater than or equal to 1.5 bedrooms per dwelling unit reported peak parking demand at 98 percent of the average. Study sites with an average of 2.0 or greater bedrooms per dwelling unit reported peak parking demand at 13 percent greater than the average.

For the urban study sites, the parking demand data consisted of single or discontinuous hourly counts and therefore a time-of-day distribution was not produced. The following table presents a time-of-day distribution of parking demand at the suburban study sites.

Land Use: 221
Low/Mid-Rise Apartment

Average Peak Period Parking Demand vs. Dwelling Units
On a: Weekday
Location: Urban

Statistic	Peak Period Demand
Peak Period	10:00 p.m.–5:00 a.m.
Number of Study Sites	40
Average Size of Study Sites	70 dwelling units
Average Peak Period Parking Demand	1.20 vehicles per dwelling unit
Standard Deviation	0.42
Coefficient of Variation	35%
95% Confidence Interval	1.07–1.33 vehicles per dwelling unit
Range	0.66–2.50 vehicles per dwelling unit
85th Percentile	1.61 vehicles per dwelling unit
33rd Percentile	0.93 vehicles per dwelling unit



Executive Summary

Type of project		A. Total units	B. Studio Low/Med/ High	C. 1 BR Low/Med/ High	D. 2 BR Low/Med/ High	E. 3 BR Low/Med/ High	F. Subtotal for units (sum B3 – E3)	G. Visitor parking (G2*A1)	H. Staff parking (H2*A1)	I. Subtotal w/ staff + visitor (F3+G3+H3)	J. Total requirement with vacancy factor adjustment (I3*J2) Vacancy adj./no vacancy adj.
Family Housing	1. Units										
	2. Rate		N/A	1.0/0.6/ 0.33	1.3/1.1/ 0.5	1.75/1.4/0. 75		0.15	0.05		1.1/1.0
	3. Spaces										
Living Unit/ SRO	1. Units										
	2. Rate		0.5/0.3/0.1	N/A	N/A	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Senior Housing	1. Units										
	2. Rate		0.5/0.3/ 0.1	0.75/0.6/ 0.15	1.0/0.85/0.2	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Studio – 1 bed-room	1. Units										
	2. Rate		0.5/0.2/ 0.1	0.75/0.5/ 0.1	N/A	N/A		0.15	0.05		1.1/1.0
	3. Spaces										
Special Needs	1. Units										
	2. Rate		0.5/0.2/ 0.1	0.75/0.5/ 0.1	N/A	N/A		0.15	0.10		1.1/1.0
	3. Spaces										

Notes on Model & Parking Requirements:

1. Requirements should be developed based on the four housing types outlined in this table.
2. Requirements are based on mean (average) vehicle availability.
3. Requirements should be based on walkability/transit indices (Suburban, urban and core designations have been simplified to low, medium and high, respectively).
4. 10% base vacancy factor is adjustable if using unassigned parking. Unassigned parking is the preferred method.
5. Visitor parking = 0.15 spaces/unit, or zero for dense urban areas, or unassigned lots.
6. Staff Parking should be considered on a case by case basis, with 0.1 for staff intensive developments.
7. Parking management tools and travel demand management strategies should be considered for appropriate developments to supplement minimum requirements.

Table 4: Predicted home-based vehicle trips (Model 1) relative to base case scenario

Income Category	Non-Urban	Suburban Neighborhood	Urban Neighborhood	Urban District	Urban Core
Single-Family Dwellings					
Extremely Low-Income	46%	55%	52%	44%	27%
Very Low-Income	60%	71%	67%	56%	35%
Low-Income	72%	85%	81%	68%	42%
Median/Moderate-Income	77%	92%	87%	73%	46%
Above Moderate-Income	84%	**100%**	95%	80%	50%
Multifamily Dwellings					
Extremely Low-Income	39%	46%	44%	37%	23%
Very Low-Income	50%	60%	57%	47%	30%
Low-Income	60%	71%	68%	57%	36%
Median/Moderate-Income	65%	77%	73%	61%	38%
Above Moderate-Income	71%	84%	80%	67%	42%

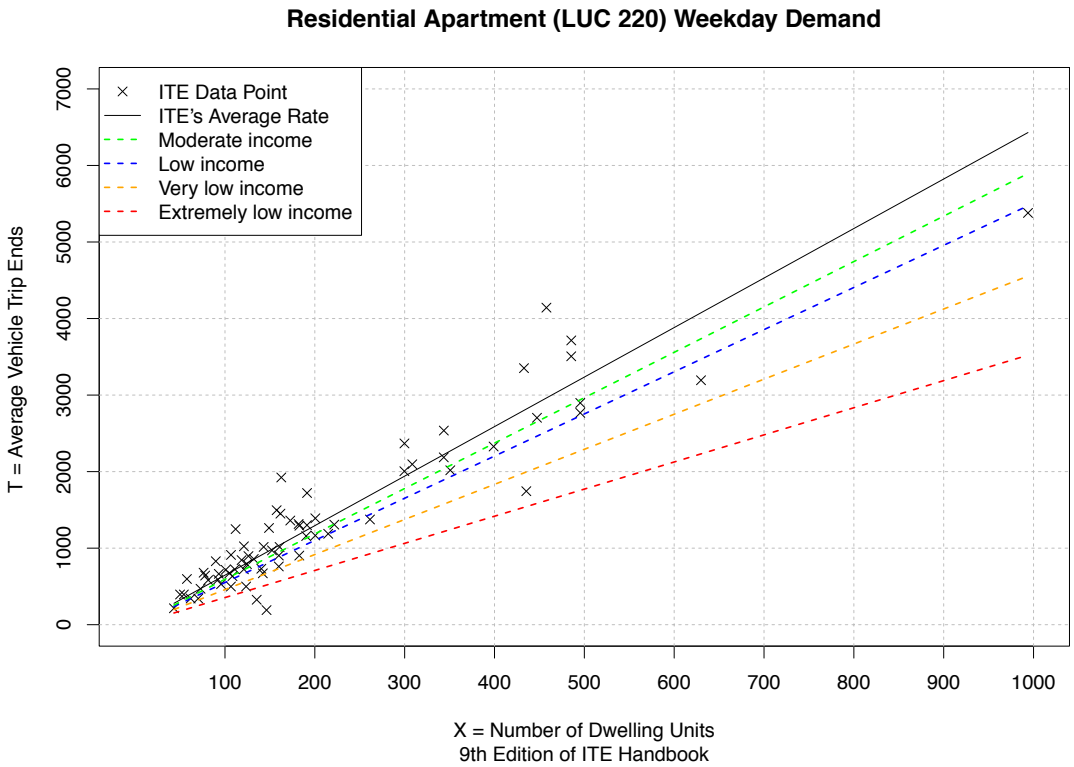


Figure 2: ITE residential apartment (LUC 220) weekday vehicle trips compared to home-based vehicle trip estimates from Model 1

8 Implications for affordable housing development

Many impact fee rates are developed using methodologies based upon vehicle trip estimates from ITE. If these rates are not sensitive to the issues we have been discussing—urban context and socioeconomics—they assume that all housing development will have same impact. Some fee structures fail to distinguish

  - » Provide continuous paved sidewalks / walkways with adequate lighting from all buildings in the Project to nearby transit services and stops. This may include mid-block paseos.
  - » Implement transit shelter enhancements.
- If the Development Project is not within ¼-mile walking distance of a transit station or a RapidBus stop, the Project may still qualify for up to 10% trip generation adjustment. To be eligible for this adjustment, the Project should include design features that promote alternative travel modes and provide certain amenities to tenants and employees. Features and amenities that may qualify a Project for this adjustment include the following:
  - » An on-site transit information kiosk and/or on-site transit pass sales;
  - » On-site facilities such as ATM machines, cafeteria, convenience shopping, showers, and changing rooms;
  - » Pricing for single-occupancy auto parking;
  - » Publicly accessible car share or bike share station, contingent on LADOT approval;
  - » Bicycle racks or amenities for people traveling by bicycle;
  - » Provision of on-site concierge service to facilitate use of transit, taxis, or private shuttles by employees/ residents;
  - » Provision of shuttle service for employees and/or customers.

  Transit trip adjustment will not be automatically granted to Development Projects located in an area with infrequent transit service. However, all reasonable efforts by the developer to promote the use of public transit or walking will be considered for transit adjustments on a case-by-case basis.

  NOTE: Refer to ***Section 4.2*** of these TIS Guidelines for transit-related impact mitigation measures.

- Affordable Housing Projects

  Residential or mixed-use developments that include Affordable Housing Units [as defined in LAMC 12.22-A.25 (b)] are eligible to use the trip generation rates presented in **Table 5**, which are based on the total number and type of dwelling units reserved as affordable. These trip generation rates are based on vehicle trip count data collected at affordable housing sites in the City of Los Angeles in 2016. These trip generation rates for Affordable Housing units are not subject to any of the aforementioned adjustments in this Section.

Table 5: Trip Generation Rates for Affordable Housing Projects

Affordable Housing Type	***Daily Rate*** *(Trips per DU)*	***Average AM Peak Hr Rate*** *(Trips per DU)*	***% AM Trips In***	***% AM Trips Out***	***Average PM Peak Hr Rate*** *(Trips per DU)*	***% PM Trips In***	***% PM Trips Out***
Family	4.08	0.50	40%	60%	0.34	55%	45%
Seniors	1.72	0.12	38%	62%	0.15	52%	48%
Permanent Supportive Housing / Special Needs	1.27	0.12	44%	56%	0.12	59%	41%

Family affordable housing offers affordable dwelling units designed for households with children. Senior affordable

housing provides affordable dwelling units designed for mature residents. Permanent supportive housing provides long-term housing with supportive services designed to enable homeless persons and individuals/families at risk of homelessness to ensure that they remain housed and live as independently as possible.

3.3C TRAFFIC COUNTS

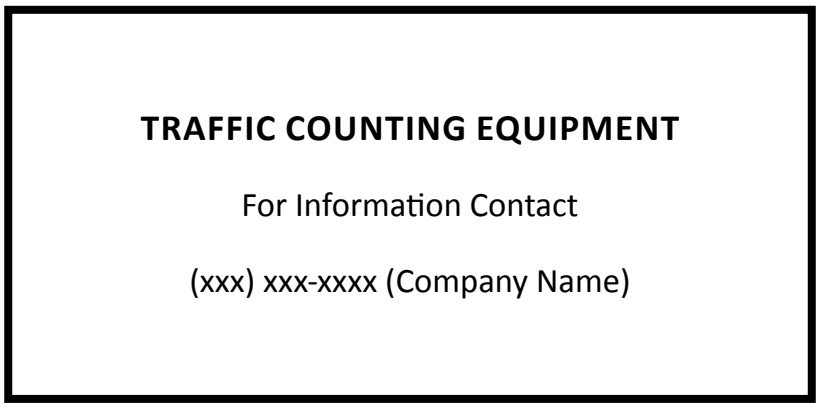
The LADOT traffic count database should be searched for any recent traffic counts at the Study intersections. The TIS should not use any traffic counts that are more than two years old. If recent LADOT traffic counts are not available, then new traffic counts shall be collected by a qualified data collection firm. Turning movement data at the study intersections should be collected in 15-minute intervals during the hours of 7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 6:00 p.m., unless LADOT specifies other hours (e.g., for a signal warrant determination or weekend analysis). Unless otherwise required, all traffic counts should generally be conducted when local schools or colleges are in session, on days of good weather, on Tuesdays through Thursdays during non-Summer months, and should avoid being taken on weeks with a holiday. Relative to the proposed Project description, the TIS may be required to collect traffic data on and evaluate special circumstances, such as:

- Summer weekend activity in recreational areas
- Holidays or special events
- Alternative Project scenarios if required by another City Department or adjacent jurisdiction

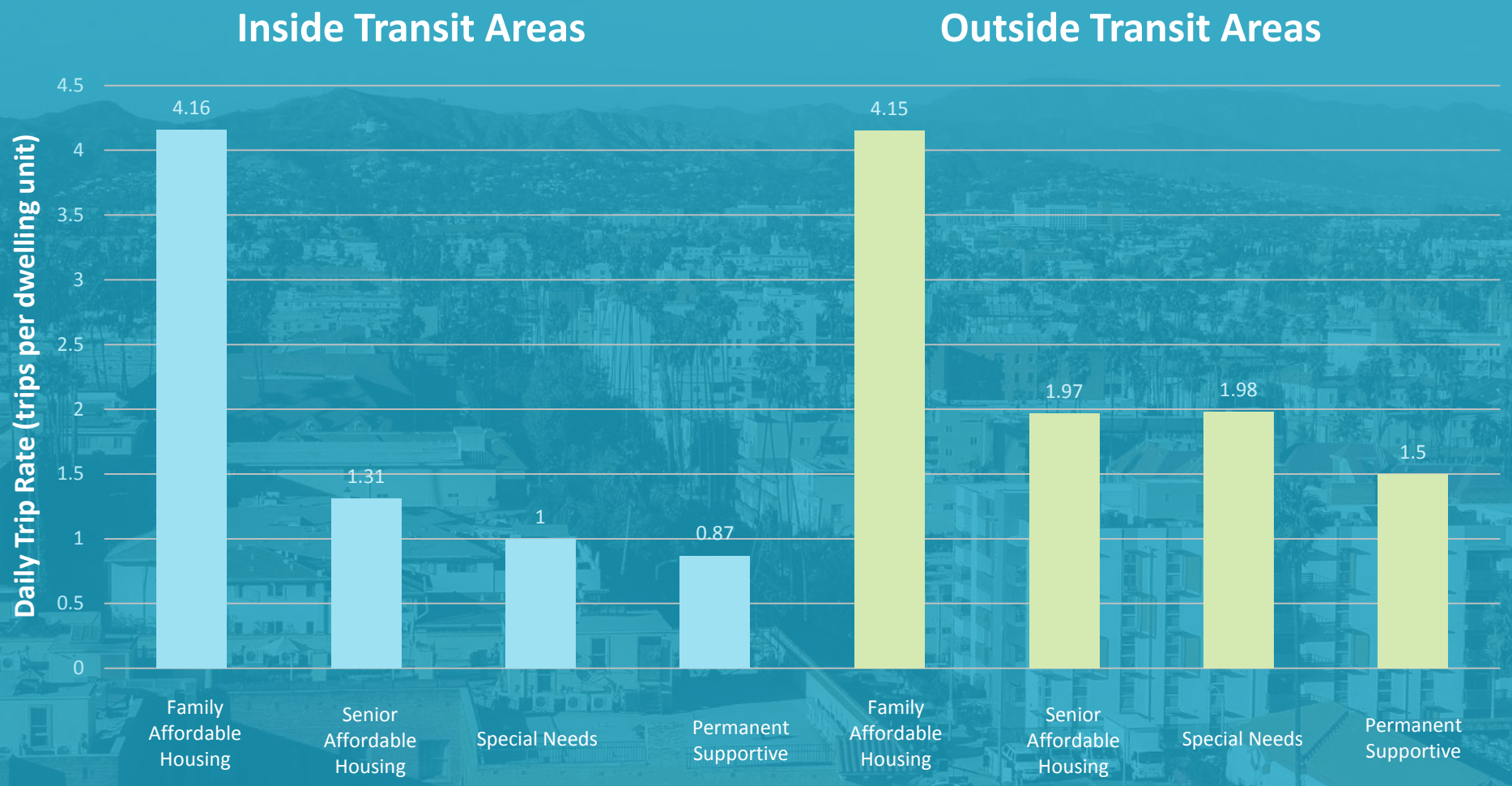
Traffic counts should include vehicle classifications, pedestrian volume counts, and bicycle counts. If traffic count data is collected utilizing video technology equipment that is left unattended in the public right-of-way, the video equipment should be clearly labeled as traffic counting equipment and should include the name and contact information of the company conducting the count, as shown in **Figure 2**. All traffic data collected should be summarized and presented in the standard LADOT format depicting turning movement volumes for all required modes as shown in **Attachments G and H**, and submitted in digital and hard copy formats.

The TIS should include map(s) showing the "existing" (specify base year) traffic volumes for both the a.m. and p.m. peak hours at the study intersections and the average daily traffic (ADT) on any analyzed street segments. Additionally, the TIS should include map(s) showing future traffic volumes with ambient growth without Project at the Study intersections and street segments. This map should specify the future year used in the impact analysis and should be based on the expected date of project buildout. The future year identified in this step shall remain consistent for all other analyses and maps used to illustrate future traffic projections.

Figure 2: Sample Label for Traffic Counting Equipment

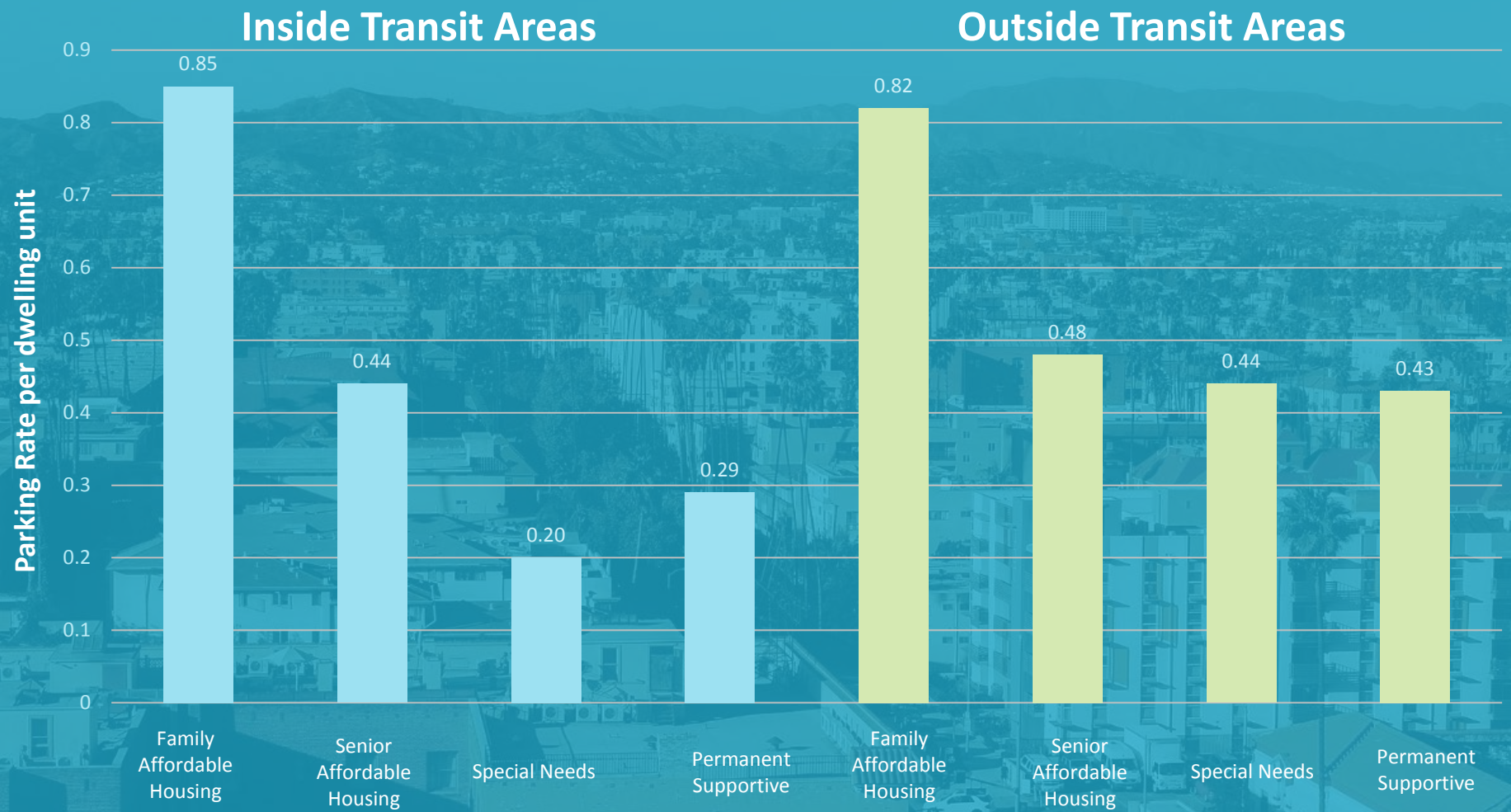


LA Affordable Housing Trip Generation



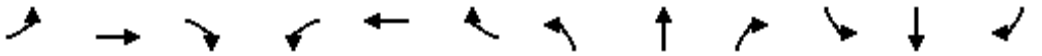
Measuring the Miles

LA Affordable Housing Parking Rates



Measuring the Miles

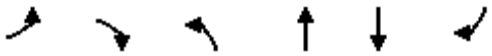
Intersection Capacity Worksheets: 2018 Existing



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	589	4	4	1665	14	10	0	5	15	0	117
Future Volume (Veh/h)	44	589	4	4	1665	14	10	0	5	15	0	117
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.98	0.98	0.98	0.90	0.90	0.90	0.69	0.69	0.69
Hourly flow rate (vph)	52	701	5	4	1699	14	11	0	6	22	0	170
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1714			707			1553	2530	240	2062	2526	574
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1714			707			1553	2530	240	2062	2526	574
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			100			75	100	99	22	100	63
cM capacity (veh/h)	370			893			44	23	761	28	24	464

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	52	280	280	145	4	680	680	354	11	6	22	170
Volume Left	52	0	0	0	4	0	0	0	11	0	22	0
Volume Right	0	0	0	5	0	0	0	14	0	6	0	170
cSH	370	1700	1700	1700	893	1700	1700	1700	44	761	28	464
Volume to Capacity	0.14	0.16	0.16	0.09	0.00	0.40	0.40	0.21	0.25	0.01	0.78	0.37
Queue Length 95th (ft)	12	0	0	0	0	0	0	0	21	1	63	42
Control Delay (s)	16.3	0.0	0.0	0.0	9.0	0.0	0.0	0.0	113.3	9.8	301.2	17.2
Lane LOS	C				A				F	A	F	C
Approach Delay (s)	1.1				0.0				76.7		49.7	
Approach LOS									F		E	

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	51.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	8	4	0
Future Volume (Veh/h)	0	0	0	8	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	9	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1006	1080	1618			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	9	4
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1618	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

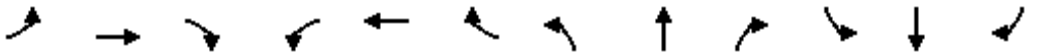
Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	78	21	6	22	51	11	22	48	31	118	299
Average Queue (ft)	26	1	0	2	1	0	1	12	8	48	93
95th Queue (ft)	59	11	4	12	14	6	10	38	30	131	334
Link Distance (ft)		891	891		792	792	792		227		605
Upstream Blk Time (%)											5
Queuing Penalty (veh)											0
Storage Bay Dist (ft)	150			110				50		140	
Storage Blk Time (%)								4	0	13	0
Queuing Penalty (veh)								0	0	22	0

Intersection: 2: Access St. & Proposed Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

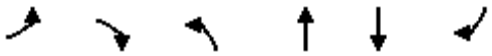
Network wide Queuing Penalty: 23



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	1487	14	6	907	18	9	0	8	18	1	72
Future Volume (Veh/h)	127	1487	14	6	907	18	9	0	8	18	1	72
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.56	0.56	0.56	0.80	0.80	0.80
Hourly flow rate (vph)	140	1634	15	6	945	19	16	0	14	23	1	90
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	974			1651			2343	2910	555	1816	2908	336
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	974			1651			2343	2910	555	1816	2908	336
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	80			98			0	100	97	41	92	86
cM capacity (veh/h)	703			391			13	12	476	39	12	655

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	140	654	654	342	6	378	378	208	16	14	23	91
Volume Left	140	0	0	0	6	0	0	0	16	0	23	0
Volume Right	0	0	0	15	0	0	0	19	0	14	0	90
cSH	703	1700	1700	1700	391	1700	1700	1700	13	476	39	415
Volume to Capacity	0.20	0.38	0.38	0.20	0.02	0.22	0.22	0.12	1.22	0.03	0.59	0.22
Queue Length 95th (ft)	18	0	0	0	1	0	0	0	66	2	52	21
Control Delay (s)	11.4	0.0	0.0	0.0	14.4	0.0	0.0	0.0	721.7	12.8	184.6	16.1
Lane LOS	B				B				F	B	F	C
Approach Delay (s)	0.9				0.1				390.9		50.1	
Approach LOS									F		F	

Intersection Summary				
Average Delay	6.6			
Intersection Capacity Utilization	50.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	9	11	0
Future Volume (Veh/h)	0	0	0	9	11	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	10	12	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	12	12			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	995	1069	1607			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	10	12
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1607	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	120	28	20	6	32	45	22	26	68	123	114	201
Average Queue (ft)	41	1	1	0	6	3	1	1	37	32	40	62
95th Queue (ft)	78	13	11	4	24	21	11	12	74	112	103	209
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	0								48	0	1	6
Queuing Penalty (veh)	0								6	0	1	1

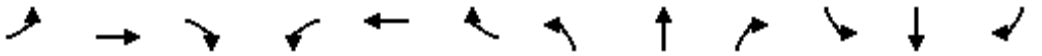
Intersection: 2: Access St. & Proposed Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 8

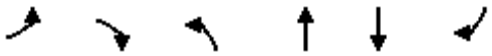
Intersection Capacity Worksheets: 2020 Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	711	4	4	1834	14	10	0	5	15	0	121
Future Volume (Veh/h)	45	711	4	4	1834	14	10	0	5	15	0	121
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.98	0.98	0.98	0.90	0.90	0.90	0.69	0.69	0.69
Hourly flow rate (vph)	54	846	5	4	1871	14	11	0	6	22	0	175
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1886			852			1764	2852	288	2286	2847	632
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1886			852			1764	2852	288	2286	2847	632
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			99			60	100	99	0	100	59
cM capacity (veh/h)	317			788			27	14	708	18	14	425

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	54	338	338	174	4	748	748	388	11	6	22	175
Volume Left	54	0	0	0	4	0	0	0	11	0	22	0
Volume Right	0	0	0	5	0	0	0	14	0	6	0	175
cSH	317	1700	1700	1700	788	1700	1700	1700	27	708	18	425
Volume to Capacity	0.17	0.20	0.20	0.10	0.01	0.44	0.44	0.23	0.40	0.01	1.19	0.41
Queue Length 95th (ft)	15	0	0	0	0	0	0	0	31	1	78	49
Control Delay (s)	18.7	0.0	0.0	0.0	9.6	0.0	0.0	0.0	206.1	10.1	569.4	19.3
Lane LOS	C				A				F	B	F	C
Approach Delay (s)	1.1				0.0				136.9		80.7	
Approach LOS									F		F	

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	8	4	0
Future Volume (Veh/h)	0	0	0	8	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	9	4	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	13	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1006	1080	1618			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	9	4
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1618	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

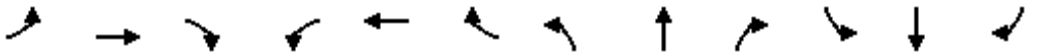
Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	72	16	5	21	38	34	9	53	43	142	341
Average Queue (ft)	30	1	0	2	3	1	0	21	7	73	111
95th Queue (ft)	65	8	4	11	20	13	5	51	30	153	378
Link Distance (ft)		891	891		792	792	792		227		605
Upstream Blk Time (%)											8
Queuing Penalty (veh)											0
Storage Bay Dist (ft)	150			110				50		140	
Storage Blk Time (%)								18	0	20	0
Queuing Penalty (veh)								1	0	32	0

Intersection: 2: Access St. & Proposed Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

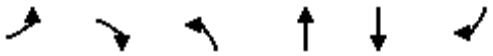
Network wide Queuing Penalty: 33



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1688	14	6	1063	19	9	0	8	19	1	74
Future Volume (Veh/h)	131	1688	14	6	1063	19	9	0	8	19	1	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.56	0.56	0.56	0.80	0.80	0.80
Hourly flow rate (vph)	144	1855	15	6	1107	20	16	0	14	24	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1137			1872			2629	3302	629	2060	3299	391
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1137			1872			2629	3302	629	2060	3299	391
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	76			98			0	100	97	3	84	85
cM capacity (veh/h)	610			321			7	6	426	25	6	604

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	144	742	742	386	6	443	443	241	16	14	24	94
Volume Left	144	0	0	0	6	0	0	0	16	0	24	0
Volume Right	0	0	0	15	0	0	0	20	0	14	0	93
cSH	610	1700	1700	1700	321	1700	1700	1700	7	426	25	302
Volume to Capacity	0.24	0.44	0.44	0.23	0.02	0.26	0.26	0.14	2.28	0.03	0.97	0.31
Queue Length 95th (ft)	23	0	0	0	1	0	0	0	77	3	74	32
Control Delay (s)	12.7	0.0	0.0	0.0	16.4	0.0	0.0	0.0	1590.0	13.7	398.6	22.2
Lane LOS	B				C				F	B	F	C
Approach Delay (s)	0.9				0.1				854.4		98.7	
Approach LOS									F		F	

Intersection Summary				
Average Delay	11.9			
Intersection Capacity Utilization	54.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	9	11	0
Future Volume (Veh/h)	0	0	0	9	11	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	10	12	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	22	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	12	12			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	995	1069	1607			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	10	12
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1607	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	118	55	24	34	36	40	27	19	71	174	164	589
Average Queue (ft)	49	4	1	2	7	3	2	1	43	67	88	255
95th Queue (ft)	91	26	11	18	26	21	13	7	85	179	185	663
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										1		22
Queuing Penalty (veh)										0		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	0								64	0	29	28
Queuing Penalty (veh)	0								8	0	26	6

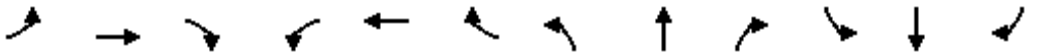
Intersection: 2: Access St. & Proposed Access

Movement	NB
Directions Served	LT
Maximum Queue (ft)	10
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	66
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 41

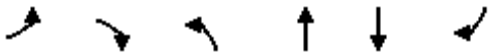
Intersection Capacity Worksheets: 2040 Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	845	5	5	2215	20	15	0	5	20	0	145
Future Volume (Veh/h)	55	845	5	5	2215	20	15	0	5	20	0	145
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	59	899	5	5	2260	20	16	0	5	21	0	154
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2281			905			1938	3312	306	2707	3304	764
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2281			905			1938	3312	306	2707	3304	764
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	73			99			9	100	99	0	100	56
cM capacity (veh/h)	222			753			18	6	690	8	6	348

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	59	360	360	185	5	904	904	472	16	5	21	154
Volume Left	59	0	0	0	5	0	0	0	16	0	21	0
Volume Right	0	0	0	5	0	0	0	20	0	5	0	154
cSH	222	1700	1700	1700	753	1700	1700	1700	18	690	8	348
Volume to Capacity	0.27	0.21	0.21	0.11	0.01	0.53	0.53	0.28	0.91	0.01	2.63	0.44
Queue Length 95th (ft)	26	0	0	0	1	0	0	0	59	1	93	55
Control Delay (s)	26.9	0.0	0.0	0.0	9.8	0.0	0.0	0.0	481.3	10.3	1641.1	23.3
Lane LOS	D				A				F	B	F	C
Approach Delay (s)	1.7				0.0				369.2		217.4	
Approach LOS									F		F	

Intersection Summary				
Average Delay	13.8			
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	10	5	0
Future Volume (Veh/h)	0	0	0	10	5	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	5	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	16	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	5	5			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1002	1078	1616			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	11	5
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1616	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

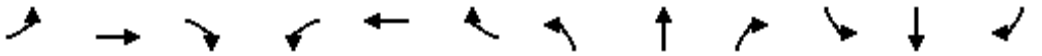
Movement	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	148	87	32	37	16	10	73	142	161	624
Average Queue (ft)	46	3	3	2	1	0	42	30	125	352
95th Queue (ft)	109	43	18	17	10	5	73	113	198	775
Link Distance (ft)		891		792	792	792		227		605
Upstream Blk Time (%)										42
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	150		110				50		140	
Storage Blk Time (%)	2						64	0	72	5
Queuing Penalty (veh)	6						3	0	109	1

Intersection: 2: Access St. & Proposed Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

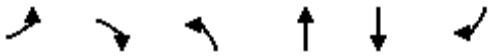
Network wide Queuing Penalty: 119



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	2025	20	10	1270	25	10	0	10	25	1	90
Future Volume (Veh/h)	160	2025	20	10	1270	25	10	0	10	25	1	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	165	2088	21	10	1309	26	10	0	10	26	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1345			2111			2982	3796	710	2389	3793	461
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1345			2111			2982	3796	710	2389	3793	461
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	68			96			0	100	97	0	61	83
cM capacity (veh/h)	508			259			3	3	377	13	3	544

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	165	835	835	439	10	524	524	288	10	10	26	94
Volume Left	165	0	0	0	10	0	0	0	10	0	26	0
Volume Right	0	0	0	21	0	0	0	26	0	10	0	93
cSH	508	1700	1700	1700	259	1700	1700	1700	3	377	13	168
Volume to Capacity	0.32	0.49	0.49	0.26	0.04	0.31	0.31	0.17	3.79	0.03	2.08	0.56
Queue Length 95th (ft)	35	0	0	0	3	0	0	0	Err	2	102	73
Control Delay (s)	15.4	0.0	0.0	0.0	19.5	0.0	0.0	0.0	Err	14.8	1107.0	50.9
Lane LOS	C				C				F	B	F	F
Approach Delay (s)	1.1				0.1				5006.9		279.7	
Approach LOS									F		F	

Intersection Summary				
Average Delay	36.3			
Intersection Capacity Utilization	61.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	11	16	0
Future Volume (Veh/h)	0	0	0	11	16	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	12	17	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	29	17	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29	17	17			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	986	1062	1600			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	12	17
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1600	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	166	105	24	27	42	46	24	21	67	170	165	624
Average Queue (ft)	64	5	1	1	9	3	1	1	45	47	124	461
95th Queue (ft)	124	48	17	14	32	21	13	9	74	149	206	826
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										1		56
Queuing Penalty (veh)										0		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	1	0							73	0	74	14
Queuing Penalty (veh)	6	0							7	0	69	4

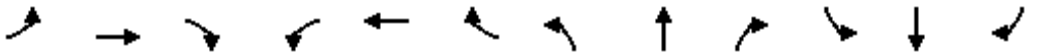
Intersection: 2: Access St. & Proposed Access

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 85

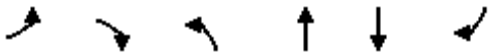
Intersection Capacity Worksheets: 2020 Background + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	711	6	5	1834	14	12	0	6	15	0	121
Future Volume (Veh/h)	45	711	6	5	1834	14	12	0	6	15	0	121
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.98	0.98	0.98	0.90	0.90	0.90	0.69	0.69	0.69
Hourly flow rate (vph)	54	846	7	5	1871	14	13	0	7	22	0	175
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1886			854			1767	2854	290	2289	2851	632
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1886			854			1767	2854	290	2289	2851	632
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			99			52	100	99	0	100	59
cM capacity (veh/h)	317			787			27	14	707	18	14	425

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	54	338	338	176	5	748	748	388	13	7	22	175
Volume Left	54	0	0	0	5	0	0	0	13	0	22	0
Volume Right	0	0	0	7	0	0	0	14	0	7	0	175
cSH	317	1700	1700	1700	787	1700	1700	1700	27	707	18	425
Volume to Capacity	0.17	0.20	0.20	0.10	0.01	0.44	0.44	0.23	0.48	0.01	1.20	0.41
Queue Length 95th (ft)	15	0	0	0	0	0	0	0	37	1	78	49
Control Delay (s)	18.7	0.0	0.0	0.0	9.6	0.0	0.0	0.0	224.8	10.1	575.7	19.3
Lane LOS	C				A				F	B	F	C
Approach Delay (s)	1.1				0.0				149.7		81.4	
Approach LOS									F		F	

Intersection Summary				
Average Delay	6.7			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	0	0	8	4	3
Future Volume (Veh/h)	3	0	0	8	4	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	0	9	4	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	14	6	7			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	14	6	7			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1004	1077	1614			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	3	9	7
Volume Left	3	0	0
Volume Right	0	0	3
cSH	1004	1614	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

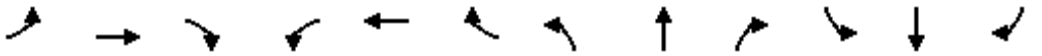
Movement	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	82	21	28	61	42	29	56	52	139	248
Average Queue (ft)	30	1	3	3	2	2	20	9	70	132
95th Queue (ft)	69	10	16	22	22	14	56	44	162	422
Link Distance (ft)		891		792	792	792		227		605
Upstream Blk Time (%)										8
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	150		110				50		140	
Storage Blk Time (%)							19	0	22	1
Queuing Penalty (veh)							1	0	36	0

Intersection: 2: Access St. & Proposed Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	84
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

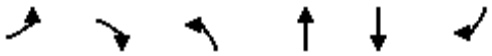
Network wide Queuing Penalty: 38



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1688	16	8	1063	19	10	0	9	19	1	74
Future Volume (Veh/h)	131	1688	16	8	1063	19	10	0	9	19	1	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.56	0.56	0.56	0.80	0.80	0.80
Hourly flow rate (vph)	144	1855	18	8	1107	20	18	0	16	24	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1137			1875			2634	3307	630	2066	3306	391
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1137			1875			2634	3307	630	2066	3306	391
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	76			98			0	100	96	1	84	85
cM capacity (veh/h)	610			320			7	6	425	24	6	604

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	144	742	742	389	8	443	443	241	18	16	24	94
Volume Left	144	0	0	0	8	0	0	0	18	0	24	0
Volume Right	0	0	0	18	0	0	0	20	0	16	0	93
cSH	610	1700	1700	1700	320	1700	1700	1700	7	425	24	300
Volume to Capacity	0.24	0.44	0.44	0.23	0.02	0.26	0.26	0.14	2.61	0.04	0.99	0.31
Queue Length 95th (ft)	23	0	0	0	2	0	0	0	85	3	75	33
Control Delay (s)	12.7	0.0	0.0	0.0	16.5	0.0	0.0	0.0	1754.3	13.8	411.1	22.4
Lane LOS	B				C				F	B	F	C
Approach Delay (s)	0.9				0.1				935.2		101.5	
Approach LOS									F		F	

Intersection Summary				
Average Delay	13.8			
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	9	11	4
Future Volume (Veh/h)	2	0	0	9	11	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	10	12	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	24	14	16			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	14	16			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	992	1066	1602			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	10	16
Volume Left	2	0	0
Volume Right	0	0	4
cSH	992	1602	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	103	26	21	10	28	50	21	13	70	132	154	486
Average Queue (ft)	47	1	1	0	6	2	0	0	36	39	111	149
95th Queue (ft)	86	11	11	7	24	19	6	6	79	127	197	456
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)												3
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)									47	0	57	3
Queuing Penalty (veh)									7	0	50	1

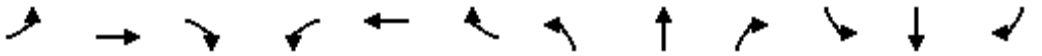
Intersection: 2: Access St. & Proposed Access

Movement	EB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	84
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 58

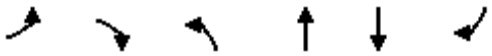
Intersection Capacity Worksheets: 2040 Background + Project



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	845	7	6	2215	20	17	0	6	20	0	145
Future Volume (Veh/h)	55	845	7	6	2215	20	17	0	6	20	0	145
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	59	899	7	6	2260	20	18	0	6	21	0	154
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2281			907			1941	3314	307	2710	3308	764
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2281			907			1941	3314	307	2710	3308	764
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	73			99			0	100	99	0	100	56
cM capacity (veh/h)	222			752			17	6	689	8	6	348

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	59	360	360	187	6	904	904	472	18	6	21	154
Volume Left	59	0	0	0	6	0	0	0	18	0	21	0
Volume Right	0	0	0	7	0	0	0	20	0	6	0	154
cSH	222	1700	1700	1700	752	1700	1700	1700	17	689	8	348
Volume to Capacity	0.27	0.21	0.21	0.11	0.01	0.53	0.53	0.28	1.03	0.01	2.65	0.44
Queue Length 95th (ft)	26	0	0	0	1	0	0	0	66	1	94	55
Control Delay (s)	26.9	0.0	0.0	0.0	9.8	0.0	0.0	0.0	528.6	10.3	1656.5	23.3
Lane LOS	D				A				F	B	F	C
Approach Delay (s)	1.6				0.0				399.0		219.3	
Approach LOS									F		F	

Intersection Summary				
Average Delay	14.4			
Intersection Capacity Utilization	66.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	0	0	10	5	3
Future Volume (Veh/h)	3	0	0	10	5	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	0	11	5	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	18	6	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18	6	8			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	1000	1076	1612			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	3	11	8
Volume Left	3	0	0
Volume Right	0	0	3
cSH	1000	1612	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

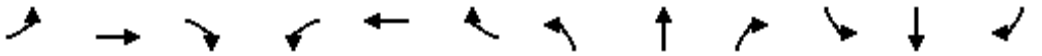
Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	158	180	64	6	28	32	33	34	74	227	163	620
Average Queue (ft)	51	8	4	0	4	3	2	2	54	108	127	327
95th Queue (ft)	117	78	61	4	19	19	20	18	85	255	195	762
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										13		41
Queuing Penalty (veh)										2		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	4	0							82	0	72	2
Queuing Penalty (veh)	11	0							5	0	110	0

Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	34	20
Average Queue (ft)	4	5
95th Queue (ft)	21	32
Link Distance (ft)	84	66
Upstream Blk Time (%)		7
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

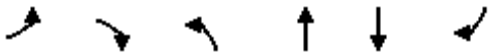
Network wide Queuing Penalty: 127



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	2025	22	12	1270	25	11	0	11	25	1	90
Future Volume (Veh/h)	160	2025	22	12	1270	25	11	0	11	25	1	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	165	2088	23	12	1309	26	11	0	11	26	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1345			2113			2987	3800	710	2394	3799	461
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1345			2113			2987	3800	710	2394	3799	461
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	68			95			0	100	97	0	60	83
cM capacity (veh/h)	508			259			3	3	377	12	3	544

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	165	835	835	441	12	524	524	288	11	11	26	94
Volume Left	165	0	0	0	12	0	0	0	11	0	26	0
Volume Right	0	0	0	23	0	0	0	26	0	11	0	93
cSH	508	1700	1700	1700	259	1700	1700	1700	3	377	12	166
Volume to Capacity	0.32	0.49	0.49	0.26	0.05	0.31	0.31	0.17	4.26	0.03	2.11	0.57
Queue Length 95th (ft)	35	0	0	0	4	0	0	0	Err	2	102	74
Control Delay (s)	15.4	0.0	0.0	0.0	19.6	0.0	0.0	0.0	Err	14.8	1132.0	52.0
Lane LOS	C				C				F	B	F	F
Approach Delay (s)	1.1				0.2				5006.9		286.0	
Approach LOS									F		F	

Intersection Summary				
Average Delay	39.1			
Intersection Capacity Utilization	61.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	11	16	4
Future Volume (Veh/h)	2	0	0	11	16	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	0	12	17	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	31	19	21			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	31	19	21			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	983	1059	1595			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	12	21
Volume Left	2	0	0
Volume Right	0	0	4
cSH	983	1595	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	146	103	40	20	45	17	15	27	65	174	141	616
Average Queue (ft)	63	6	2	1	10	1	1	1	35	79	105	390
95th Queue (ft)	120	44	16	13	36	10	7	12	74	224	201	795
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										10		42
Queuing Penalty (veh)										1		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	1	0			0				56	0	57	24
Queuing Penalty (veh)	4	0			0				6	0	53	6

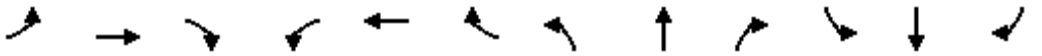
Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	18	16
Average Queue (ft)	3	1
95th Queue (ft)	17	9
Link Distance (ft)	84	66
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 71

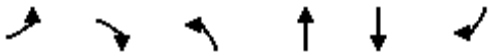
Intersection Capacity Worksheets: Sensitivity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	711	6	7	1834	14	18	0	13	15	0	121
Future Volume (Veh/h)	45	711	6	7	1834	14	18	0	13	15	0	121
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.98	0.98	0.98	0.90	0.90	0.90	0.69	0.69	0.69
Hourly flow rate (vph)	54	846	7	7	1871	14	20	0	14	22	0	175
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1886			854			1771	2858	290	2300	2855	632
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1886			854			1771	2858	290	2300	2855	632
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			99			26	100	98	0	100	59
cM capacity (veh/h)	317			787			27	14	707	18	14	425

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	54	338	338	176	7	748	748	388	20	14	22	175
Volume Left	54	0	0	0	7	0	0	0	20	0	22	0
Volume Right	0	0	0	7	0	0	0	14	0	14	0	175
cSH	317	1700	1700	1700	787	1700	1700	1700	27	707	18	425
Volume to Capacity	0.17	0.20	0.20	0.10	0.01	0.44	0.44	0.23	0.74	0.02	1.24	0.41
Queue Length 95th (ft)	15	0	0	0	1	0	0	0	58	2	79	49
Control Delay (s)	18.7	0.0	0.0	0.0	9.6	0.0	0.0	0.0	298.5	10.2	602.1	19.3
Lane LOS	C				A				F	B	F	C
Approach Delay (s)	1.1				0.0				179.8		84.3	
Approach LOS									F		F	

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	58.2%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	0	0	8	4	5
Future Volume (Veh/h)	16	0	0	8	4	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	0	9	4	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	16	6	9			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	16	6	9			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	1003	1076	1611			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	9	9
Volume Left	17	0	0
Volume Right	0	0	5
cSH	1003	1611	1700
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

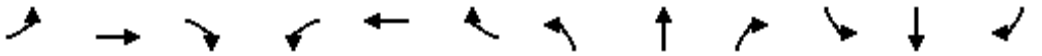
Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	75	26	16	31	51	37	10	70	106	128	351
Average Queue (ft)	29	1	1	5	5	2	1	40	47	70	139
95th Queue (ft)	65	13	7	22	27	16	7	82	169	164	443
Link Distance (ft)		891	891		792	792	792		227		605
Upstream Blk Time (%)									5		7
Queuing Penalty (veh)									1		0
Storage Bay Dist (ft)	150			110				50		140	
Storage Blk Time (%)								52	0	25	2
Queuing Penalty (veh)								7	0	41	0

Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	43	14
Average Queue (ft)	13	2
95th Queue (ft)	40	14
Link Distance (ft)	84	66
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

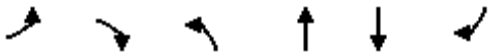
Network wide Queuing Penalty: 49



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1688	22	15	1063	19	17	0	16	19	1	74
Future Volume (Veh/h)	131	1688	22	15	1063	19	17	0	16	19	1	74
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.56	0.56	0.56	0.80	0.80	0.80
Hourly flow rate (vph)	144	1855	24	16	1107	20	30	0	29	24	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1137			1881			2654	3326	633	2095	3328	391
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1137			1881			2654	3326	633	2095	3328	391
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	76			95			0	100	93	0	83	85
cM capacity (veh/h)	610			318			6	6	423	22	6	604

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	144	742	742	395	16	443	443	241	30	29	24	94
Volume Left	144	0	0	0	16	0	0	0	30	0	24	0
Volume Right	0	0	0	24	0	0	0	20	0	29	0	93
cSH	610	1700	1700	1700	318	1700	1700	1700	6	423	22	291
Volume to Capacity	0.24	0.44	0.44	0.23	0.05	0.26	0.26	0.14	4.63	0.07	1.10	0.32
Queue Length 95th (ft)	23	0	0	0	4	0	0	0	Err	5	79	34
Control Delay (s)	12.7	0.0	0.0	0.0	16.9	0.0	0.0	0.0	Err	14.1	480.2	23.2
Lane LOS	B				C				F	B	F	C
Approach Delay (s)	0.9				0.2				5091.2		116.1	
Approach LOS									F		F	

Intersection Summary				
Average Delay	94.6			
Intersection Capacity Utilization	54.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	14	12	17
Future Volume (Veh/h)	10	0	0	14	12	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	0	15	13	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	37	22	31			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	37	22	31			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	975	1055	1582			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	15	31
Volume Left	11	0	0
Volume Right	0	0	18
cSH	975	1582	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	108	40	41	10	42	44	26	13	74	235	164	563
Average Queue (ft)	49	2	2	1	12	2	1	1	59	144	115	256
95th Queue (ft)	93	16	16	8	36	17	13	7	79	284	202	667
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										30		17
Queuing Penalty (veh)										8		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	0								95	1	57	1
Queuing Penalty (veh)	1								24	0	51	0

Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	59	47
Average Queue (ft)	17	11
95th Queue (ft)	57	48
Link Distance (ft)	84	66
Upstream Blk Time (%)	6	12
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

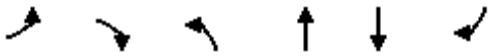
Network Summary

Network wide Queuing Penalty: 84

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	845	7	8	2215	20	23	0	13	20	0	145
Future Volume (Veh/h)	55	845	7	8	2215	20	23	0	13	20	0	145
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.98	0.98	0.98	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	59	899	7	8	2260	20	24	0	14	21	0	154
Pedestrians					3			1			1	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					3.5			3.5			3.5	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2281			907			1945	3318	307	2722	3312	764
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2281			907			1945	3318	307	2722	3312	764
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	73			99			0	100	98	0	100	56
cM capacity (veh/h)	222			752			17	6	689	8	6	348

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	59	360	360	187	8	904	904	472	24	14	21	154
Volume Left	59	0	0	0	8	0	0	0	24	0	21	0
Volume Right	0	0	0	7	0	0	0	20	0	14	0	154
cSH	222	1700	1700	1700	752	1700	1700	1700	17	689	8	348
Volume to Capacity	0.27	0.21	0.21	0.11	0.01	0.53	0.53	0.28	1.39	0.02	2.75	0.44
Queue Length 95th (ft)	26	0	0	0	1	0	0	0	86	2	94	55
Control Delay (s)	26.9	0.0	0.0	0.0	9.8	0.0	0.0	0.0	672.2	10.3	1727.5	23.3
Lane LOS	D				A				F	B	F	C
Approach Delay (s)	1.6				0.0				428.4		227.8	
Approach LOS									F		F	

Intersection Summary				
Average Delay	16.7			
Intersection Capacity Utilization	68.0%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	0	0	15	5	5
Future Volume (Veh/h)	16	0	0	15	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	0	16	5	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	24	8	10			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	8	10			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	993	1075	1610			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	16	10
Volume Left	17	0	0
Volume Right	0	0	5
cSH	993	1610	1700
Volume to Capacity	0.02	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

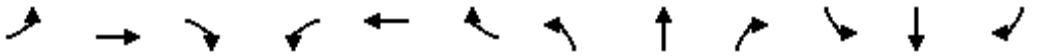
Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	122	65	21	6	33	54	44	10	74	244	139	410
Average Queue (ft)	46	3	1	0	5	3	2	1	53	152	105	249
95th Queue (ft)	97	29	8	4	22	21	18	6	88	306	198	670
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										42		31
Queuing Penalty (veh)										14		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	1	0							80	0	55	0
Queuing Penalty (veh)	2	0							11	0	84	0

Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	83	63
Average Queue (ft)	31	20
95th Queue (ft)	84	66
Link Distance (ft)	84	66
Upstream Blk Time (%)	22	18
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

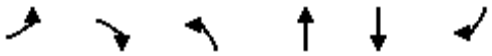
Network wide Queuing Penalty: 111



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	2025	28	19	1270	25	18	0	18	25	1	90
Future Volume (Veh/h)	160	2025	28	19	1270	25	18	0	18	25	1	90
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	165	2088	29	20	1309	26	19	0	19	26	1	93
Pedestrians		2			1			2			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		0			0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1345			2119			3006	3820	714	2418	3821	461
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1345			2119			3006	3820	714	2418	3821	461
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	68			92			0	100	95	0	58	83
cM capacity (veh/h)	508			257			2	2	375	11	2	544

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	165	835	835	447	20	524	524	288	19	19	26	94
Volume Left	165	0	0	0	20	0	0	0	19	0	26	0
Volume Right	0	0	0	29	0	0	0	26	0	19	0	93
cSH	508	1700	1700	1700	257	1700	1700	1700	2	375	11	158
Volume to Capacity	0.32	0.49	0.49	0.26	0.08	0.31	0.31	0.17	8.02	0.05	2.31	0.60
Queue Length 95th (ft)	35	0	0	0	6	0	0	0	Err	4	104	79
Control Delay (s)	15.4	0.0	0.0	0.0	20.2	0.0	0.0	0.0	Err	15.1	1266.5	56.7
Lane LOS	C				C				F	C	F	F
Approach Delay (s)	1.1				0.3				5007.1		318.9	
Approach LOS									F		F	

Intersection Summary				
Average Delay	61.0			
Intersection Capacity Utilization	61.5%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	0	0	11	16	17
Future Volume (Veh/h)	10	0	0	11	16	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	0	0	12	17	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	38	26	35			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	38	26	35			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	974	1050	1576			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	11	12	35
Volume Left	11	0	0
Volume Right	0	0	18
cSH	974	1576	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Access St./Joplin St. & Alameda Pkwy.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	155	95	36	21	57	46	10	21	74	238	157	585
Average Queue (ft)	67	6	2	1	16	2	0	1	57	152	116	353
95th Queue (ft)	127	55	16	11	45	19	5	10	78	301	186	776
Link Distance (ft)		891	891	891		792	792	792		227		605
Upstream Blk Time (%)										44		37
Queuing Penalty (veh)										10		0
Storage Bay Dist (ft)	150				110				50		140	
Storage Blk Time (%)	1				0				94	0	53	22
Queuing Penalty (veh)	7				0				18	0	50	6

Intersection: 2: Access St. & Proposed Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	76	57
Average Queue (ft)	24	15
95th Queue (ft)	69	54
Link Distance (ft)	84	66
Upstream Blk Time (%)	9	13
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 90

Draft Shared Parking Agreement

LICENSE AGREEMENT

_____, a _____ ("Elevation"), and Providence Heights, LLLP, a Colorado limited liability limited partnership ("PATH" and, together with Elevation, the "Parties"), make this License Agreement (this "Agreement") effective as of _____ __, 2018.

RECITALS

A. The Parties are owners of contiguous parcels of real estate located in the City of Aurora, Colorado.

B. Elevation is the owner of real estate located at _____, as further described in Exhibit A, attached hereto (the "Elevation Parcel").

C. PATH is the owner of real estate located at 15602 E. Alameda Parkway, Aurora, Colorado, as further described in Exhibit B, attached hereto (the "PATH Parcel").

D. The Elevation Parcel includes ____ parking spaces, and Elevation desires to provide the PATH Parties (as defined below), access and use of 24 of those spaces (the "Shared Spaces"), as depicted on Exhibit C, attached hereto.

E. The PATH Parcel has physical access to Alameda Parkway via an existing paved surface running through the Elevation Parcel (the "Shared Roadway" and, together with the Shared Spaces, the "License Area"), as depicted on Exhibit C, attached hereto, and Elevation desires to provide the PATH Parties (as defined below), access and use of the Shared Roadway.

AGREEMENT

For good and valuable consideration, the receipt and sufficiency of which the parties acknowledge, the parties agree as follows:

1. **GRANT OF LICENSE BY Elevation**. Elevation hereby grants to PATH, and its respective tenants, occupants, invitees, permitees, licensees, contractors, successors and assigns, including its lenders in the case of foreclosure or by deed in lieu of foreclosure (collectively the "PATH Parties"), for the benefit of the PATH Parcel a non-exclusive use license over and upon the Shared Roadway and a non-exclusive use license for the Shared Spaces (the "License") .

2. **LICENSE PURPOSE**. Elevation is granting the License solely for ingress, egress, the parking of vehicles, and for other vehicular purposes.

3. **LICENSE TERMS AND CONDITIONS**. During the term of the License, the License shall be subject to the following terms and conditions:

(a) Except with the prior written approval of the other party, neither of the Parties will erect any fences or other structures over, under, on, through,

across, or within the License Area, nor will either of the Parties cause or permit any obstruction or planting to be placed over, under, on, through, across or within the License Area which will in any manner materially interfere with the rights set forth in this Agreement.

(b) The Parties will have the right of use, enjoyment and access to the License Area and will have the rights of ingress and egress reasonably necessary for the use and enjoyment of the License.

(c) The Parties and their respective successors and assigns, shall maintain the License Area in a commercially reasonable manner and each of the Parties shall maintain their respective portion of the License Area at their own expense.

4. **TERM**. This Agreement and the rights under it shall have a perpetual duration unless terminated by the mutual decision of the Parties or their respective successors and assigns.

5. **JURISDICTION**. This Agreement shall be construed and governed by the laws of the State of Colorado.

6. **NO RECORDING**. Neither this Agreement nor any memorandum or notice thereof shall be recorded without the prior written consent of the parties, which consent may be withheld in either party's sole and absolute discretion.

7. **COUNTERPARTS**. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original but all of which together will constitute one and the same instrument.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed effective as of the date first above written.

_____, a
_____

By: _____

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed effective as of the date first above written.

PROVIDENCE HEIGHTS, LLLP,
a Colorado limited liability limited partnership

By: Providence Residences LLC, a Colorado limited liability company, its General Partner

By: Second Chance Center, Inc., a Colorado nonprofit corporation, its Manager

By: _____
Hassan Latif
Executive Director

EXHIBIT A

Legal Description of Elevation Parcel

EXHIBIT B

Legal Description of PATH Parcel

EXHIBIT C

Depiction of License Area

(attached)

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