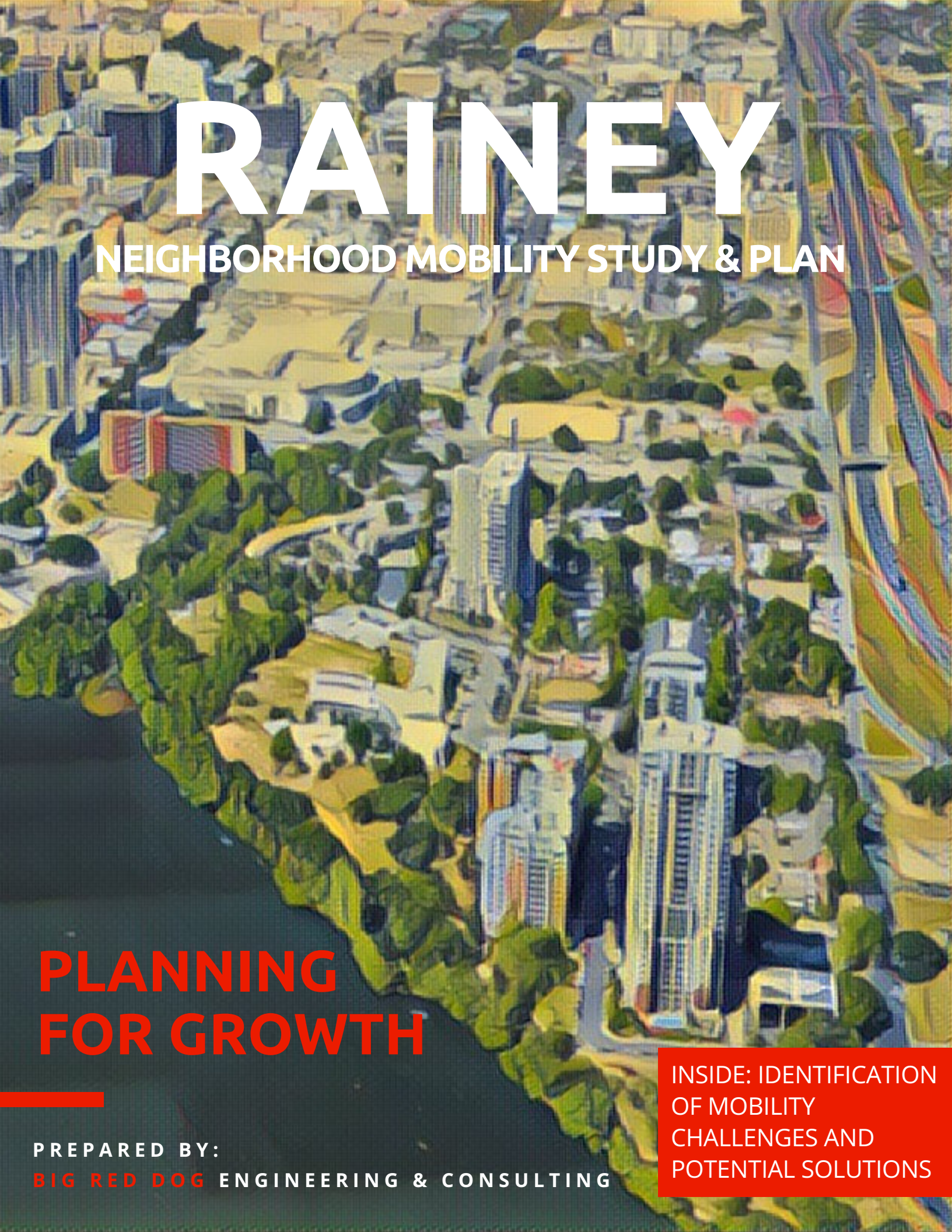


RAINEY

NEIGHBORHOOD MOBILITY STUDY & PLAN

PLANNING FOR GROWTH

INSIDE: IDENTIFICATION OF MOBILITY CHALLENGES AND POTENTIAL SOLUTIONS

PREPARED BY:
BIG RED DOG ENGINEERING & CONSULTING

This page is intentionally left blank.

Rainey Neighborhood Mobility Study & Plan

Prepared for and Submitted to:
Rainey Street Neighborhood Group

May 2017

BIG RED DOG
ENGINEERING | CONSULTING

0773.80.001

This page is intentionally left blank.

Table of Contents

List of Tables

List of Figures

Appendices

ACKNOWLEDGMENTS

The Rainey Neighborhood Mobility Study and Plan was born out of an agreement between the Sutton Company and several neighborhood groups regarding redevelopment of the Villas of Town Lake. We appreciate the Sutton Company financing this much-needed transportation and mobility study for the Rainey Neighborhood. Council Member Kathie Tovo and her staff were also key to making this project a reality.

The "several neighborhood associations" mentioned above comprise of the Rainey Neighbors Association, the Town Lake Neighborhood Association, the Rainey Business Coalition, and the Waterfront Condominium Association. Together, they combined to form the Rainey Street Neighborhood Group, led by a steering committee that included:

- Kitty McMahon, Rainey Neighbors Association
- Landon Turner, Waterfront Condominium Association
- Taylor Vreeland, Rainey Business Coalition
- Michael Abelson, Town Lake Neighborhood Association
- Juan Oyervides, Mexican American Cultural Center Advisory Board
- Carmen Garufo, University of Texas at Austin School of Architecture

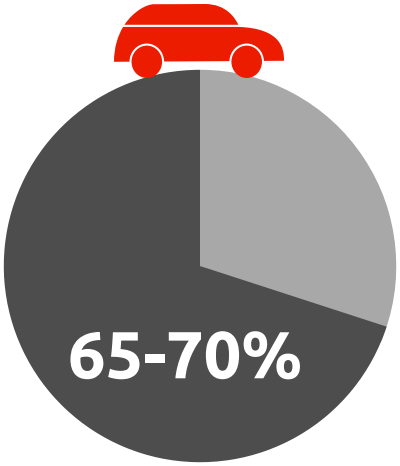
The steering committee helped the project team establish priorities for the neighborhood, aided with outreach, led communication with their respective organizations, and provided information regarding the history of the neighborhood. Without their contribution, this report would not be possible.

City of Austin Transportation Department staff also provided comments on concepts and feasibility of improvements; many thanks to A. Lee Austin for her help completing this report.

The analysis, outreach, and report process was conducted by a team led by BIG RED DOG Engineering. Members of this team include:

- Project Manager: Dan Hennessey, PE
- Co-Planning Lead: Jay Blazek Crossley, M.P.Aff.
- Co-Planning Lead: John Laycock, MSCRP
- Engineering Analyst: Dafne Valle, EIT
- Planning and Research Support: Rachel John, EIT
- Graphics and Design: Eleanor Seaborne

EXISTING CONDITIONS



OF VEHICLE TRAFFIC TO/FROM NEIGHBORHOOD COMES FROM RED RIVER ST OR RIVER ST

PEAK HOUR CONGESTION STEMS FROM

EAST CESAR CHAVEZ & I-35

NO DEDICATED BICYCLE FACILITIES

NO TRANSIT STOPS

EXISTING CONDITIONS

BETWEEN
9:30 PM
-
2:30 AM

1
PEDESTRIAN CROSSES RAINEY/DAVIS INTERSECTION EVERY
3 SECONDS

4X
AS MANY PEDESTRIANS AT RAINEY/DAVIS

VS

AT RAINEY/RIVER

ON
SATURDAY
NIGHTS

STREETS WITH MISSING SIDEWALKS

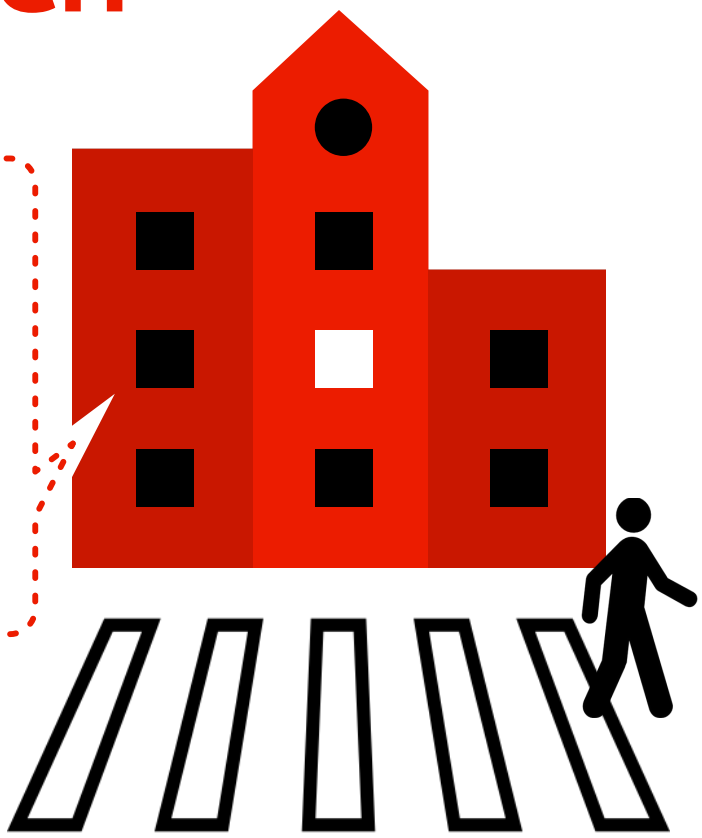
- DRISKILL
- RED RIVER
- RAINEY
- RIVER
- DAVIS

OUTREACH

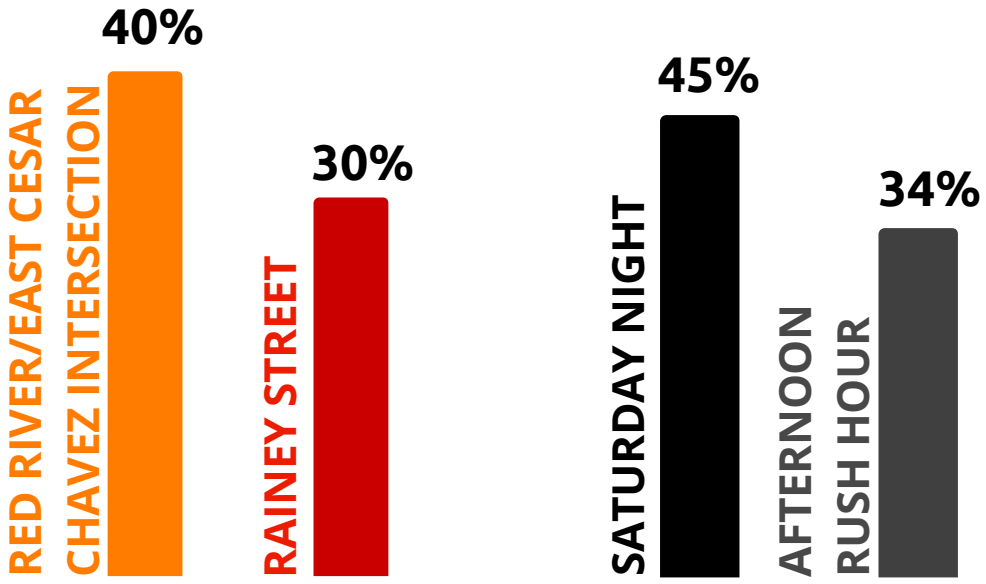
#1 PRIORITY

NEIGHBORHOOD STAKEHOLDERS WANT SIDEWALKS AND PEDESTRIAN ACCESS.

ON-STREET PARKING NOT NEEDED DURING LATE NIGHT FOR BUSINESSES. REMOVAL COULD HELP THE PEDESTRIAN ENVIRONMENT.



WHEN AND WHERE IS THE WORST TRAFFIC?



OUTREACH

VEHICLES

2.75

VEHICLE TRIPS PER WEEKDAY PER PERSON

50%+

OF RESIDENTS TAKE NO MORE THAN 2 CAR TRIPS PER DAY

44%

OF HOUSEHOLDS HAD 1 OR FEWER CARS

OTHER MODES

74%

OF RESIDENTS TAKE TRIPS BY FOOT OR BIKE ON WEEKDAYS, 82% ON WEEKENDS

20%+

OF RESPONDENTS HAD PREVIOUSLY USED CAR2GO, 15% FOR B-CYCLE

75%

OF RESIDENTS USE TAXIS OR A TNC, 30% DO SO SEVERAL TIMES PER MONTH

PARKING

90%

OF RESPONDENTS DO NOT PAY A SEPARATE MONTHLY RATE FOR AT LEAST ONE PARKING SPACE

80%

OF RESPONDENTS HAVE 2 OR MORE PARKING SPOTS

FUTURE GROWTH

2017 >>

DEVELOPMENTS COMING SOON, ADDING...

1,550,000
SF OF OFFICE SPACE

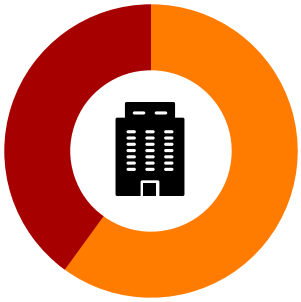
105,000
SF OF RETAIL & RESTAURANT SPACE

2,000
APARTMENTS

750
CONDOS

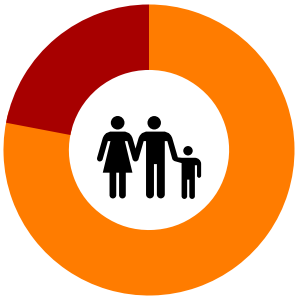
2,000
HOTEL ROOMS

FUTURE GROWTH



45-50%

OF THE PEAK HOUR TRIP GENERATION PROJECTED TO COME FROM 3 SUTTON COMPANY NEIGHBORHOOD DEVELOPMENTS



20-25%

OF THE PEAK HOUR TRIP GENERATION PROJECTED TO COME FROM RESIDENTIAL DEVELOPMENTS

40-45%

OF THE PEAK HOUR TRIP GENERATION PROJECTED TO COME FROM OFFICE SPACE

DEMAND VOLUMES COULD INCREASE

3-4x

AT FULL BUILDOUT OF ALL IDENTIFIED POTENTIAL DEVELOPMENTS

$9 million

WORTH OF MOBILITY IMPROVEMENTS COULD BE SUPPORTED BY DEVELOPMENTS NOT YET APPROVED (UNDER THE CITY OF AUSTIN'S ROUGH PROPORTIONALITY ORDINANCE)

IMPROVEMENT RECOMMENDATIONS

EXTEND RAINEY STREET FROM DRISKILL STREET TO EAST CESAR CHAVEZ STREET

COMPLETE THE PEDESTRIAN NETWORK ALONG ALL ROADWAYS & AT ALL INTERSECTIONS, INCLUDING PEDESTRIAN LIGHTING UPGRADES

PROVIDE VEHICLE & PEDESTRIAN-SCALE WAYFINDING SIGNAGE FOR DESTINATIONS AND PARKING

ADD PUBLIC BICYCLE PARKING AND EXPAND B-CYCLE IN THE NEIGHBORHOOD

IMPROVEMENT RECOMMENDATIONS

IMPROVE PEDESTRIAN/BICYCLE ACCESS ACROSS I-35 WITH NEW BICYCLE LANES & LIGHTING

INSTALL TRAFFIC CALMING DEVICES ON RED RIVER, DRISKILL, RAINEY AND DAVIS STREETS

FORMALIZE BUS STOPS ON EAST CESAR CHAVEZ & SUPPLEMENT TRANSIT SERVICE WITH SHUTTLES

REMOVE SOME ON-STREET PARKING TO CREATE PASSENGER LOADING/UNLOADING ZONES. REDUCE RESERVED PRIVATE PARKING & UNBUNDLE COST OF SPACES

TRANSPORTATION DEMAND MANAGEMENT PLANS FOR ALL NEW DEVELOPMENT

1. INTRODUCTION

PURPOSE AND PROJECT DESCRIPTION

Specifically, the Rainey Neighborhood Mobility Study and Plan was born out of an agreement between a land developer and several neighborhood groups with respect to an upcoming redevelopment project. More holistically, the Rainey Neighborhood area has undergone a change in character in the last decade; what was once a quiet, residential street is now a bar-and-restaurant corridor surrounded by high-rise apartments, condominiums, and hotels. With more change coming after the area was re-zoned as Central Business District (CBD), the neighborhood's transportation network has deserved an expansive planning and engineering study, grounded in standard traffic study methodologies that meet all City of Austin requirements.

The Project team, utilizing unique technical backgrounds as a result of working in dense, mixed-use areas, was assembled to assess: mobility conditions in the study area as the neighborhood currently exists, what it might look like with future redevelopment considered, and how the transportation system might facilitate the movement of and access for all people (not just vehicles) safely and efficiently through the area.

The study area is bounded by East César Chávez Street to the north, Interstate 35 (I-35) to the east, Lady Bird Lake to the south, and Waller Creek to the west, as shown in **Figure 1**.

KEY CONSIDERATIONS

Based on an initial investigation of the study area, discussions with the Rainey Street Neighborhood Group, and other outreach with neighborhood stakeholders, the following key considerations were identified for inclusion with this study:

- Understanding the capacity of roadway segments and intersections to accommodate vehicle traffic
- Identifying gaps in the pedestrian and bicycle network and proposing solutions
- Addressing circulation issues through the number of access points to the area
- Identifying safety concerns for all users
- Identifying transit needs into, out of, and adjacent to the study area
- Reviewing existing and proposed parking supply, demand, and policy in the study area
- Determining how land uses in the study area can complement each other

Figure 1
Study Area

ANALYSIS SCENARIOS

With respect to vehicle operations, the selected study intersections were evaluated during the weekday morning (AM), weekday evening (PM), and weekend late night (SAT) peak hours for the following scenarios:

Scenario 1: *Existing Conditions* – Existing volumes obtained from counts collected in November of 2016.

Scenario 2: *Projected Growth Conditions* – Existing volumes plus traffic from other growth currently projected by 2025, as stated in Chapter 4, with no changes to the transportation network (other than those currently planned).

These scenarios will be highlighted throughout the remaining chapters of the report:

Chapter 2 – Existing Conditions (Scenario 1)

Chapter 6 – Projected Growth Conditions (Scenario 2)

TRAFFIC ANALYSIS METHODS

Operational traffic analyses focus on intersections rather than roadway segments, due to the capacity constraints typically occurring at the intersections. The operational performance of a roadway network is commonly described with the term level of service or LOS. LOS is a qualitative description of operating conditions, ranging from LOS A (free flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the Highway Capacity Manual (Transportation Research Board, 2010) were used in this study. The HCM methods for calculating LOS for signalized intersections and unsignalized intersections are described below.

SIGNALIZED INTERSECTIONS

Traffic operations at signalized intersections were evaluated using the LOS method described in Chapter 18 of the 2010 HCM. The Synchro software package (version 9) was used to model traffic conditions throughout the Project study area. Synchro is a macrosimulation tool that uses deterministic equations to evaluate operations at an intersection.

A signalized intersection's LOS is based on the weighted average control delay measured in seconds per vehicle. Control delay includes initial deceleration delay, queue move-up time (if multiple cycles are needed

to clear the intersection), stopped delay, and final acceleration. **Table 1** summarizes the relationship between the control delay and LOS for signalized intersections.

TABLE 1: SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay (seconds)
A	Operations with very low delay occurring with good traffic signal progression and/or short cycle lengths.	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation.	> 80.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

UNSIGNALIZED INTERSECTIONS

In Chapters 19 and 20 of the Transportation Research Board's 2010 HCM, the LOS for unsignalized intersections (side-street or all-way stop controlled intersections) is also defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, delay is calculated for each stop-controlled movement and for the uncontrolled left turns, if any, from the main street. The delay and LOS for the intersection as a whole and for the worst movement are reported for side-street stop intersections. The intersection average delay is reported for all-way stop intersections. **Table 2** summarizes the relationship between delay and LOS for unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

TABLE 2: UNSIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delays.	10.1 to 15.0
C	Average traffic delays.	15.1 to 25.0
D	Long traffic delays.	25.1 to 35.0
E	Very long traffic delays.	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

ROUNDABOUTS

In Chapters 21 of the Transportation Research Board's 2010 HCM, the LOS for roundabouts is also defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. The delay and LOS for the intersection as a whole and for the worst movement are reported for roundabouts. Table 2 also summarizes the relationship between delay and LOS for roundabouts. Again, the delay ranges for roundabouts are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

MULTIMODAL LEVEL OF SERVICE

As opposed to previous versions of the Highway Capacity Manual, the 2010 HCM presented significantly different HCM methodologies for non-auto modes. Critiques of previous HCM versions identified weaknesses in identifying various users' experiences and highlighting intermodal associations. The updated manual suggested alternative evaluation strategies and provided insight into how these strategies could be implemented.

The 2010 Highway Capacity Manual introduced a complex multimodal level of service (MMLOS) tool. The formulae in the HCM were developed in a series of studies in an effort from the Florida Department of

Transportation to develop their own multimodal performance measures. There are many issues with the baseline assumptions included in developing these methodologies[1]:

- The HCM's MMLOS is based on five studies, all from Florida, none with more than 150 participants, all from 1997 to 2005.
- Neither the bicycle or pedestrian models were ever validated, calibrated, or otherwise tested on roadways and participants other than those used to develop the model.
- The equations in the final 2010 HCM are nearly identical to the equations developed in the paper series leading to the HCM and are thus susceptible to the same issues.
- The HCM metrics' appeal to universality is based on satisfaction scores of a limited set of study 28 participants. However, the complicated regression techniques of HCM suggest that the "universality" of the models is based on a number of assumptions.
- These LOS metrics call upon expert knowledge and behind-the-scenes number-crunching to produce a single letter grade instead of providing metrics for each mode that may provide more information, which could harm the ability of laypersons to engage in public discourse about streets.
- These single-outcome metrics can result in an overly simplistic, perhaps skewed understanding of how diverse user groups experience roadways in diverse ways. What may be an annoyance and impediment for one pedestrian may be a desirable amenity for another.
- Earlier MMLOS critics argue that LOS offers the illusion of accuracy by providing precision. Analysts enter a number of inputs into a model and obtain a precise letter grade. ***But in doing so, these letter grades mask the variation in how different users perceive roads differently.***
- Many of the components lead to unexpected and unintuitive results; for example, provision of sidewalks or bicycle lanes decreasing pedestrian and/or bicycle level of service in some instances. The methodology is also overly sensitive to some changes and completely insensitive to others.

As such, specific MMLOS measures are not included in this report.

SIGNIFICANT IMPACT CRITERIA

While no single project is evaluated within this study, the impacts of the cumulative growth were evaluated by comparing the results of the level of service calculations under Projected Growth Conditions to the results under Existing Conditions. As defined in Section 2.3.4 of the City of Austin Transportation Criteria Manual, LOS D shall be the minimum acceptable standard. If an intersection operates at LOS E or LOS F without the

[1] "Exploration and Implications of Multimodal Street Performance Metrics: What's a Passing Grade?", Brozen, Huff, Liggett, Wang, and Smart, September 2014, University of California Transportation Center.

Proposed Project, the standard is to maintain the level of service with addition of traffic resulting from the Proposed Project. Additionally, the Project has been reviewed with respect to non-auto modes, including:

- Potential conflicts for pedestrians and bicyclists;
- Satisfaction of Americans with Disabilities Act requirements;
- Exacerbation of a current unsafe pedestrian or bicycle condition;
- Potential internal circulation conflicts for pedestrians or motorists;
- Potential transit demand and ability of local providers to accommodate that demand;
- Project parking demand and ability proposed parking supply to accommodate that demand; or
- Insufficient or inadequate accessibility for delivery or service vehicles.

REPORT ORGANIZATION

This report is divided into chapters as described below:

- **Chapter 2 – Existing Conditions** describes the transportation system within the study area, including the surrounding roadway network, existing bicycle, pedestrian, and transit facilities, parking, loading, and construction in the study area, weekday morning and evening and weekend late night peak period intersection turning movement volumes, and intersection levels of service. This chapter also describes certain trip generation characteristics of existing developments within the study area.

- **Chapter 3 – Outreach** summarizes the specific stakeholder outreach and public meetings and workshops that have occurred throughout this plan process.

- **Chapter 4 – Planning Document Review** summarizes existing planning documents, on-going planning efforts, and expected changes to the transportation network. This section will clearly define those changes that are planned but may not happen and those that are expected to occur, with or without the development in the area.

- **Chapter 5 – Potential Development/Re-development Parcels** addresses potential development throughout the study area that could affect transportation conditions. Specific parcels are identified with anticipated land uses, quantities, and timelines. Sources for information are also included.

- **Chapter 6 – Future Transportation Conditions** addresses the conditions with growth from future development. The chapter discusses these conditions and potential improvements to mitigate impacts. Cost estimates have also been developed for improvements for all modes throughout the study area, and funding opportunities for implementing the recommendations have been identified.

2. EXISTING CONDITIONS

This chapter describes the existing condition of the roadway facilities, pedestrian and bicycle facilities, transit service, and parking facilities in the study area.

PROJECT STUDY AREA

As mentioned earlier, the study area is bounded by East César Chávez Street to the north, I-35 to the east, Lady Bird Lake to the south, and Waller Creek to the west. Consultation with the neighborhood group led to the collection of the following data in assessing the transportation network.

STUDY INTERSECTIONS AND ROADWAY SEGMENTS

Peak period intersection vehicle, bicycle, pedestrian, and truck counts during the following periods (Thursday from 7:00 AM to 9:00 AM, Thursday from 4:00 PM to 6:00 PM, and Saturday from 9:30 PM to 2:30 AM on Sunday) at the following locations:

- Red River Street / East César Chávez Street
- I-35 Southbound Frontage Road / East César Chávez Street ***(weekday data collection only)***
- Rainey Street / Davis Street
- River Street / Rainey Street

72-hour vehicle counts (Thursday, Friday, and Saturday) at the following roadway locations and driveways:

- Red River Street just south of East César Chávez Street
- Driskill Street just west of I-35 Southbound Frontage Road
- East Avenue just south of River Street / Holly Street
- Rainey Street just south of River Street
- Rainey Street between River Street and Davis Street
- Rainey Street between Davis Street and Driskill Street
- River Street just west of I-35 South Frontage Road
- Driveways for the Hotel Van Zandt, Milago Condominiums, and Windsor Apartments

Data collection was originally scheduled for Thursday, November 17, 2016 to Saturday, November 19, 2016. Some data were collected, but equipment malfunctions (for the 72-hour locations) rendered some locations without data, while the integrity of some other data was questionable. All of the intersection count data

come from this data collection period. Two of the seven roadway tube counts were also available from this period. Data were not retrievable from any of the individual property driveways.

A second data collection period was completed between Thursday, December 1, 2016 and Saturday, December 3, 2016. During this period, complete data from six of the seven roadway collection locations have been retrieved; at the "East Avenue just south of River Street / Holly Street" location, data were not recovered on Saturday from 12:00 AM to 6:00 AM or from 10:45 PM to 12:00 AM.

At the individual property driveways, complete data were retrieved from the Hotel Van Zandt and one of the two Milago Condominiums driveways. At the "southern driveway (guest access) to the Milago Condominiums" and the "Windsor Apartments driveway" locations, data was not recovered on Friday from 4:45 PM to 11:45 PM and on Saturday 6:00 PM to 12:00 AM.

Data collection was scheduled before the Thanksgiving holiday as traffic generation between Thanksgiving and New Year's Day can be atypical due to increased retail shopping, vacations and holidays from school and work, and inclement weather in some areas.

In the areas where count data were available for both data collection periods, the December counts were approximately nine percent higher than the November counts. Thursday counts were less than two percent higher in December, but the Friday and Saturday counts were about twelve percent higher in December. Throughout this report, the data collection period represented will be clearly stated with reference to any traffic volumes.

All traffic count data can be seen in **Appendix A**. Data collection locations can be seen in **Figure 2**. Estimated typical cross-sections were also determined for 22 different roadway segments, which can be seen in **Appendix B**.

Lastly, Google traffic data were recorded each fifteen minutes for the 72-hour data collection period to observe where bottlenecks occurred and the extent of queuing throughout the area. A sample of this data is shown in **Figure 3**.

BIG RED DOG
ENGINEERING | CONSULTING

Figure 2
Data Collection Locations

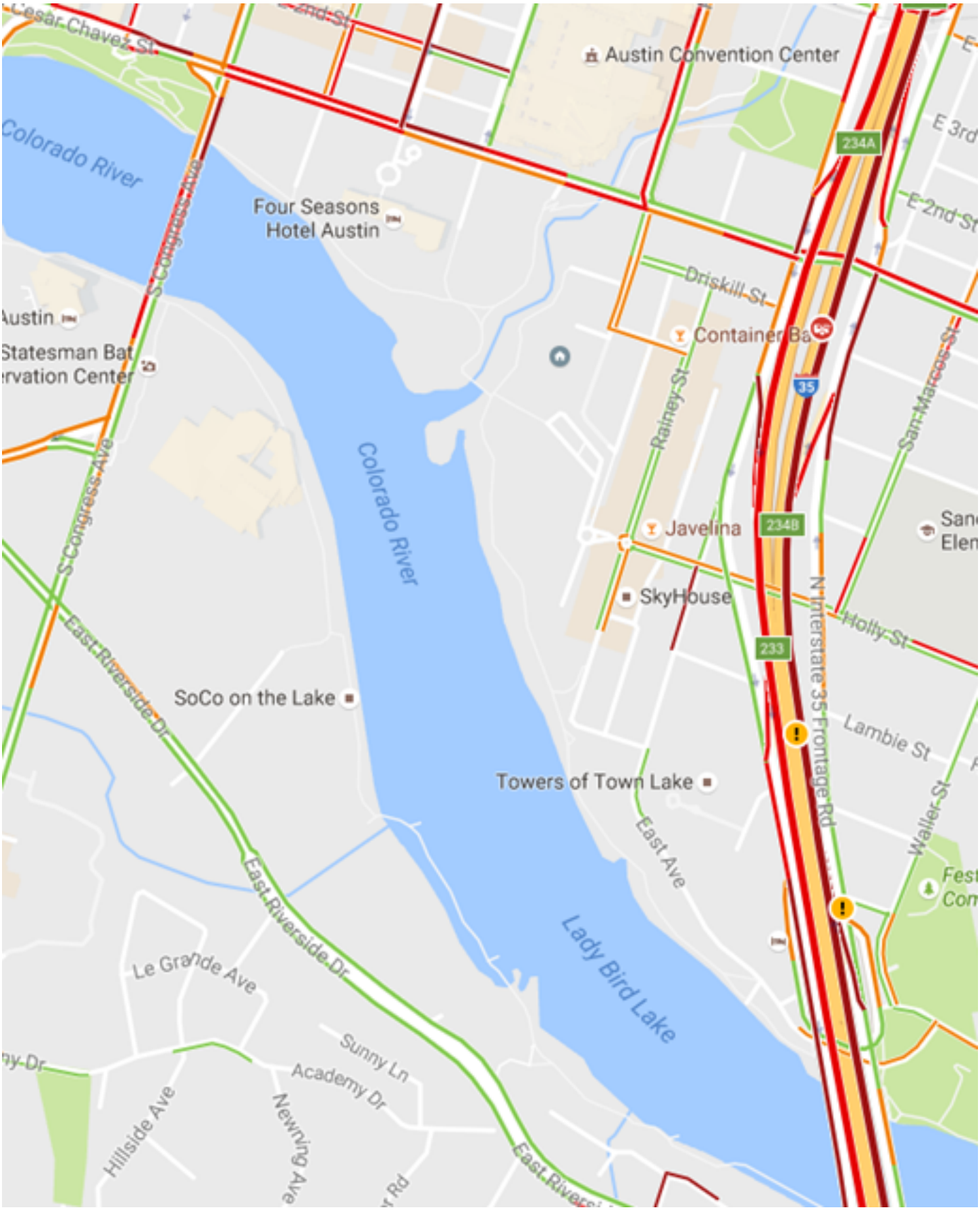


Figure 3
Google Traffic Data on Thursday, November 17 at 5:30 PM (Sample)

VEHICLE TRAVEL PATTERNS

Surrounded on two sides by water and a third side by a freeway with a one-way frontage road, the study area has a limited number of ways for vehicles to enter and exit, as shown on **Figure 4**. **Table 3** shows the most common access points to and from the Rainey Neighborhood throughout the day and during the AM and PM peak hours (December data collection period). This is not intended to provide a complete portrait of where vehicles enter and exit the neighborhood, but rather to provide an overview regarding the concentration of vehicles in different portions of the neighborhood and the limits that the circulation routes offer. As would be expected due to the options these two access points allow, Red River Street and River Street provide access for the majority of vehicle traffic to/from the Rainey Neighborhood.

TABLE 3: VEHICLE ACCESS LOCATIONS BY VOLUME

Location	Daily[1]		AM Peak Hour[2]		PM Peak Hour[3]	
Entering Vehicles						
Red River Street (just south of East César Chávez Street)	3,703	41%	283	41%	207	35%
Driskill Street (just west of I-35 Southbound Frontage Road)	1,010	11%	58	8%	37	6%
River Street (just west of I-35 Southbound Frontage Road)	2,239	25%	162	24%	222	37%
East Avenue (just south of River Street)	733	8%	60	9%	61	10%
Rainey Street (just south of River Street)	1,276	14%	124	18%	67	11%
Total Entering Vehicles	***8,961***		***687***		***594***	
Exiting Vehicles						
Red River Street (just south of East César Chávez Street)	3,535	37%	92	28%	359	43%
Driskill Street (just west of I-35 Southbound Frontage Road)	1,159	12%	19	6%	110	13%
River Street (just west of I-35 Southbound Frontage Road)	2,815	30%	123	37%	153	18%
East Avenue (just south of River Street)	646	7%	46	14%	51	6%
Rainey Street (just south of River Street)	1,369	14%	51	15%	160	19%
Total Exiting Vehicles	***9,524***		***331***		***833***	

Notes:
1. Average of Thursday, Friday, and Saturday volumes
2. Thursday volume for peak hour between 6:00 AM and 10:00 AM
3. Thursday volume for peak hour between 3:00 PM and 7:00 PM
Source: BIG RED DOG Engineering, 2017.

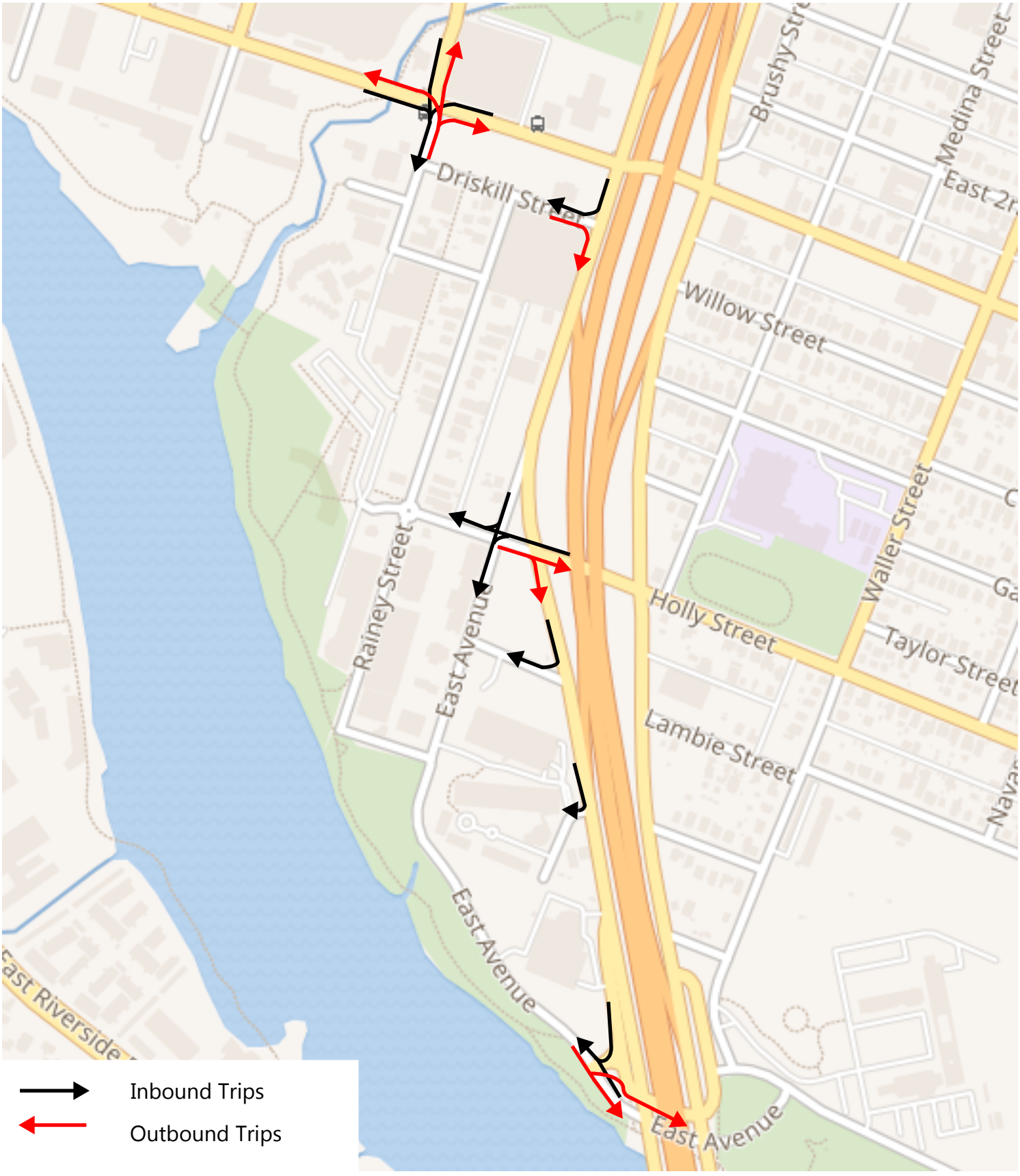


Figure 4
Rainey Neighborhood Area Vehicle Circulation

WEEKDAY PEAK PERIODS

On weekdays during the AM peak period, some vehicle congestion exists on East César Chávez Street and I-35 that affects vehicle operations internal to the study area. During the data collection period, there was congestion on I-35 Northbound that affected the frontage roads and junction intersections with East César Chávez Street. From field observations and video of the intersections recorded during these times, capacity constraints at the intersection of Red River Street / East César Chávez Street are rather due to congestion at other locations that causes vehicles to block the intersection, not due to the physical geometry of the intersection.

Said another way, there are a sufficient number of lanes entering the intersection and sufficient green time for vehicles to clear during each cycle; however, exiting lanes at the study intersections along East César Chávez Street do not have sufficient capacity to accept vehicles as they move through the intersections.

Intersections internal to the neighborhood at Davis Street / Rainey Street and River Street / Rainey Street operate acceptably and do not have any significant queuing during the AM peak period.

During the PM peak period, vehicle congestion is significant along I-35 in both directions. It should be noted that this congestion is carried over from earlier in the afternoon, with congestion beginning as early as 1:30 PM. As a result of freeway bottlenecks, several on-ramps are backed up to the frontage roads and the adjacent intersections.

The slow speeds and queuing on East César Chávez Street as a result of the I-35 congestion also encourage cut-through traffic and trip routes that are not direct from the origin to the destination. As a result, there is increased traffic, most notably on Red River Street and Driskill Street, within the Rainey Neighborhood. Again, without increased capacity on I-35 and/or increased capacity on East César Chávez Street (likely done by removing bottlenecks on I-35), widening roads in this area would be unlikely to solve the peak period congestion issues, but could exacerbate them by providing more capacity for cut-through traffic.

Intersections internal to the neighborhood at Davis Street / Rainey Street and River Street / Rainey Street operate acceptably and do not have any significant queuing during the PM peak period.

WEEKEND LATE NIGHT PERIODS

On weekends, I-35 is not typically congested during the late evening hours, and East César Chávez Street traffic is generally free-flowing. Internal to the Rainey Neighborhood however, there is congestion on Driskill Street, Red River Street south of Driskill Street, and Rainey Street between Driskill Street and Holly Street / River Street. Again, the traffic models that include as inputs the number of lanes, the number of

vehicles, and the traffic control indicate that there exists sufficient capacity for vehicles based on the existing conditions. Through observations and review of video data, congestion in this area at this time is due to a few other factors.

As will be noted in the ensuing section, more than 6,000 pedestrians cross an approach of the Rainey Street / Davis Street intersection in a five-hour span on a Saturday night/Sunday morning. Put another way, on average there is a pedestrian crossing the intersection every three seconds for five hours. With this level of pedestrian volumes and no pedestrian control (pedestrians have the right-of-way in all cases), this significantly limits vehicle capacity.

The second major contributor to congestion in this area on weekend evenings is passenger loading/unloading activity occurring in travel lanes. Many drivers were observed stopped in travel lanes for several minutes as passengers entered or exited a vehicle, or as drivers searched for the passengers they were looking to pick up. With two-lane roads throughout the study area, there is nowhere for vehicles blocked by a stopped vehicle to go. With no designated loading areas and parking spaces generally occupied during these hours, there are few alternatives for drivers attempting to pick-up/drop-off passengers as close to their destinations as possible. These issues were observed mostly on Red River Street south of Driskill Street, Rainey Street between Driskill Street and River Street, and Davis Street.

EXISTING VOLUMES AND LANE CONFIGURATIONS

The peak period counts collected in November (with area schools in session for the weekday counts) were used for the transportation modeling analysis. The single hour with the highest traffic volumes during each count period was identified as the peak hour. Existing lane configurations and signal controls were obtained through field observations. Signal timing worksheets were obtained from the City of Austin and confirmed with field observations. These inputs (existing intersection lane configurations, signal timings, and peak hour turning movement volumes) were used to calculate the levels of service for the key intersections during each peak hour.

EXISTING LEVELS OF SERVICE

The results of the LOS analysis for Existing Conditions are presented in **Table 4**. **Appendix C** contains the corresponding LOS calculation sheets, which show the delay (and corresponding level of service), volume-to-capacity (v/c) ratio, and 95th percentile queue length for each movement. The results of the LOS calculations indicate that only all study intersections operate acceptably. As mentioned in previous sections, other methodologies of data collection and analysis indicate that there is congestion in the area during these time periods.

Though the signalized intersections at Red River Street / East César Chávez Street and I-35 Southbound Frontage Road / East César Chávez Street operate acceptably in the models, this suggests that the congestion experienced at these locations is due to bottlenecks and subsequent queuing at other locations. However, it also conveys that adding capacity at these locations will not alleviate existing vehicle congestion issues. In fact, adding vehicle capacity could incentivize additional cut-through traffic.

The roundabout at River Street / Rainey Street operates at LOS A for all peak hours. The Rainey Street / Davis Street intersection operates acceptably during AM and PM peak hours but operates at deficient level of service during Saturday nights. This is entirely due to the level of pedestrian activity at the intersection during this time period. With pedestrians removed from the Saturday evening model, the intersection would operate similar to the PM peak hour.

TABLE 4: EXISTING INTERSECTION LEVELS OF SERVICE

	Intersection	Control	Peak Hour[1]	Delay[2]	LOS[3]
1	Red River Street / East César Chávez Street	Signal	AM PM SAT	12.9 19.5 15.5	B B B
2	I-35 Southbound Frontage Road / East César Chávez Street	Signal	AM PM	16.5 20.5	B C
3	Rainey Street / Davis Street	SSSC	AM PM SAT	5.8 (9.6) 7.8 (14.9) **>50 (>50)**	A (A) A (B) **F (F)**
4	River Street / Rainey Street	RND	AM PM SAT	4.8 (5.4) 5.8 (6.1) 6.4 (6.8)	A (A) A (A) A (A)

Notes:
1. AM = weekday morning peak hour, PM = weekday evening peak hour, SAT = weekend evening peak hour
2. Entire intersection weighted average control delay expressed in second per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst approach is also presented in parentheses for side-street stop controlled intersections.
3. LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the method described in the Highway Capacity Manual.

Bold text indicates intersection operates at a deficient Level of Service.
AWSC = All-Way Stop Control; SSSC = Side-Street Stop Control; RND = Roundabout
Source: BIG RED DOG Engineering, 2017.

CITY OF AUSTIN DESIRABLE OPERATING LEVELS FOR CERTAIN STREETS

The City of Austin Transportation Criteria Manual can also require the analysis for certain streets if they are considered to be residential streets (Section 2.3.4).

City of Austin Land Development Code Section 25-6-116 provides the desirable operating levels for certain residential local or collector streets. These limits do not suggest that they are the physical capacity of the roadway, nor is there any prohibition on exceeding these limits. These limits are shown below in **Table 5.**

TABLE 5: DESIRABLE OPERATING LEVELS

Pavement Width	Vehicles Per Day
Less than 30 feet	1,200
30 feet to less than 40 feet	1,800
40 feet or wider	4,000

Source: *City of Austin Land Development Code,* 2017.

Table 6 provides information regarding the existing volumes (December data collection period) on neighborhood streets. Many of these streets would not qualify as residential streets, though this analysis is intended for areas where cut-through traffic may be occurring and volumes exceed those that might be expected based on the surrounding land uses and adjacent transportation network.

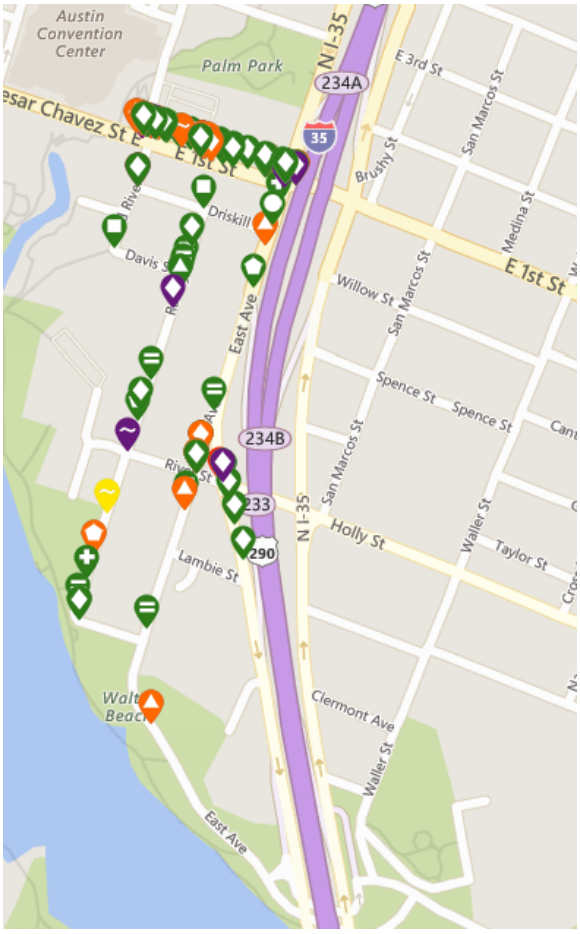
TABLE 6: EXISTING VOLUMES ON NEIGHBORHOOD STREETS

Street Name / Location	Pavement Width	Desirable Operating Level	Thursday Volume	Friday Volume	Saturday Volume
Red River Street (south of East César Chávez)	33 feet	1,800	6,795	7,192	7,715
Driskill Street (west of I-35 SB Frontage Rd)	23 feet	1,200	1,830	2,232	2,469
East Avenue (south of River Street)	22 feet	1,200	1,536	1,555	1,029
Rainey Street (south of River Street)	22 feet	1,200	2,544	2,711	2,684
Rainey Street (north of River Street)	20 feet	1,200	4,455	5,588	5,650
Rainey Street (north of Davis Street)	20 feet	1,200	3,007	3,696	4,303
River Street (west of I-35 SB Frontage Rd)	24 feet	1,200	4,460	5,200	5,615

Source: BIG RED DOG Engineering, 2017.

COLLISION DATA

Collision data were pulled from the Texas Department of Transportation's Crash Records Information System (CRIS). Data were available from 2010 to the end of 2016 (though there are typically lags in data updates to the system). Data were pulled in mid-January, 2017 and locations of collisions are shown below in **Inset 1**.



Inset 1 – Map of collision locations, 2010-2017 (TxDOT CRIS).

Almost 150 collisions were included in the data set, 89 of which occurred on East César Chávez Street. Eighteen collisions occurred on Rainey Street, and the I-35 Southbound Frontage Road had 16 collisions.

Approximately 43 collisions occurred at the Red River Street / East César Chávez Street intersection, 31 collisions occurred at the I-35 Southbound Frontage Road / East César Chávez Street intersection, and five collisions were reported at the Rainey Street / Davis Street intersection.

Only one collision was reported at the Rainey Street / River Street intersection, in which a driver was reported to hit a fixed object.

None of the collisions resulted in fatalities, and more than half were property damage only collisions.

Collisions were also pulled for I-35 in the general area, which revealed more than 600 collisions.

Two of these collisions resulted in fatalities, both with at least one person with a blood alcohol level above the legal limit. One person who died was driving and the other was walking.

PEDESTRIAN VOLUMES AND FACILITIES

As mentioned earlier, pedestrian counts were recorded during typical weekday peak periods, as well as the late Saturday night/early Sunday morning period. **Table 7** summarizes the total number of pedestrians observed at each intersection during these periods. These counts represent the data collected in November.

TABLE 7: INTERSECTION PEDESTRIAN VOLUMES

	Intersection	Peak Period	Pedestrians
1	Red River Street / East César Chávez Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	152 256 1,284
2	I-35 Southbound Frontage Road / East César Chávez Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM)	119 108
3	Rainey Street / Davis Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	93 423 6,183
4	River Street / Rainey Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	135 371 1,593

Source: BIG RED DOG Engineering, 2017.

Pedestrian crossings at the study intersections are fairly consistent during the weekday peak hours. During most signal cycles, pedestrians utilize each crossing. Almost all locations average more than one pedestrian per minute. Rainey Street in particular experiences higher number of pedestrians during the PM peak period, likely as a result of people beginning to arrive at the drinking establishments.

At the intersection of I-35 Southbound Frontage Road / East César Chávez Street, approximately 70 percent of people are crossing I-35 Southbound Frontage Road and continuing on East César Chávez Street. A few pedestrians were observed crossing on the east side of the intersection, where there is no crosswalk.

At the intersection of Red River Street / East César Chávez Street, approximately 75 percent of people are crossing East César Chávez Street and continuing on Red River Street. Very few pedestrians were observed crossing on the east side of the intersection during the weekday peak periods, where there is no crosswalk. However, during the Saturday evening data collection period, 47 pedestrians were observed to cross at this location during the five-hour period.

During the Saturday evening peak period, pedestrians flood the area though. Almost 80 percent of the pedestrians at the Red River Street / East César Chávez Street intersection are crossing East César Chávez

Street, and the highest confluence of pedestrians occurs at the Rainey Street / Davis Street intersection. There are significant pedestrian volumes in all directions at this location during this period. It is worth noting that there are approximately four times as many pedestrians at the Rainey Street / Davis Street intersection as there are at the Rainey Street / River Street intersection, which suggests that much of the activity in the area is to and from the north. This congregation of pedestrians is likely due to the location of the neighborhood (including the lack of connectivity to the east), the complementary uses to the north, and the availability of parking to the north.

Figure 5 summarizes all existing dedicated pedestrian facilities throughout the study area, as well as any gaps in the pedestrian network. Along East César Chávez Street, there are not continuous sidewalks in the study area. West of Red River Street, sidewalks are provided continuously though are narrow from the Waller Creek bridge to Red River Street on both sides of the street.

Between Red River Street and the I-35 Southbound Frontage Road, construction of the Fairmont Hotel on the northeast corner of the Red River Street / East César Chávez Street has temporarily removed sidewalk on the north side of the street, as well as the crosswalk across the north leg of that intersection **(Inset 2)**. Sidewalk begins again at Sabine Street. On the south side of the street, a pedestrian path connects the entire block, though a portion of that path exists through a parking lot **(Inset 3)** and requires a set of stairs at the western end to reconnect to street level due a grade difference. There is also no sidewalk on which to wait to cross at the Red River Street / East César Chávez Street once a pedestrian descends those stairs **(Inset 4)**.

Inset 2 – Blocked Sidewalk/Crosswalk on East César Chávez Street

Inset 3 – Sidewalk on south side of East César Chávez Street

Inset 4 – Staircase and landing area on southeast corner of Red River Street / East César Chávez Street intersection

At the intersection of I-35 Southbound Frontage Road / East César Chávez Street, crosswalks exist at three of the four crossings, and sidewalks continue to the east on both sides of the street.

There are also marked crosswalks at all four legs of the East Avenue / River Street intersection, as well as across the I-35 South Frontage Road at the I-35 South Frontage Road / River Street intersection. There is also a pedestrian signal for a crosswalk across the west leg of this intersection, but no crosswalk is marked.

A final marked crosswalk is located across Lambie Street at its intersection with the I-35 South Frontage Road. No other marked crosswalks exist in the study area.

Sidewalks exist in various locations and differing states throughout the study area. Sidewalks are missing on at least a portion of the following roadway segments:

- Driskill Street (south side, west of Rainey Street)
- Red River Street (east side, East César Chávez Street to Davis Street) – in-street pedestrian area
- Rainey Street (west side, Davis Street to River Street) – in-street pedestrian area
- River Street (south side, Rainey Street to East Avenue)
- East Avenue (both sides, south of Cummings Street)
- Davis Street (both sides, some areas between Red River Street and Rainey Street)
- I-35 Southbound Frontage Road (east side, East César Chávez Street to East Avenue)

Construction of new sidewalks along the south side of Cummings Street and continuing on a portion of the west side of East Avenue was observed during data collection.

The area on Rainey Street mentioned above is shown more clearly in **Inset 5** below.

Inset 5 – Pedestrian area on the west side of a section of Rainey Street (looking south)

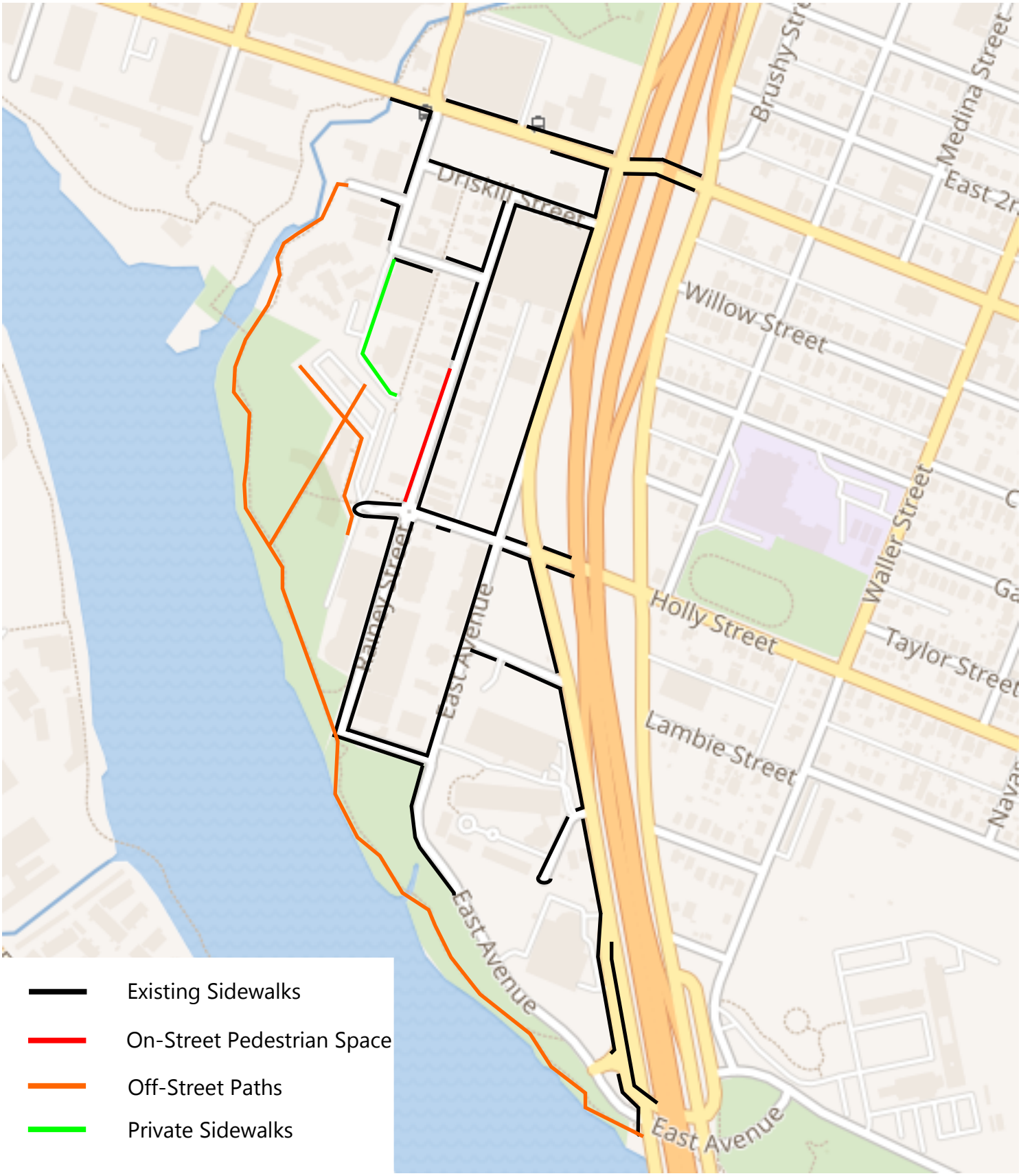


Figure 5
Existing Pedestrian Network

BICYCLE VOLUMES AND FACILITIES

As mentioned earlier, bicycle counts were recorded during typical weekday peak periods, as well as the late Saturday night/early Sunday morning period. **Table 8** summarizes the total number of bicyclists observed at each intersection during these periods. These counts represent the data collected in November.

TABLE 8: BICYCLE VOLUMES

	Intersection	Peak Period	Bicyclists
1	Red River Street / East César Chávez Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	25 41 126
2	I-35 Southbound Frontage Road / East César Chávez Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM)	4 8
3	Rainey Street / Davis Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	29 69 161
4	River Street / Rainey Street	AM (7:00 AM to 9:00 AM) PM (4:00 PM to 6:00 PM) SAT (9:30 PM to 2:30 AM)	40 95 55

Source: BIG RED DOG Engineering, 2017.

It should also be noted that a group of approximately 25 cyclists turned right onto southbound Red River Street from East César Chávez Street, then continued on Davis Street and Rainey Street at approximately 7:10 AM during the Thursday morning data collection period. These cyclists are not included in the counts above in Table 8.

The Ann and Roy Butler Hike-and-Bike Trail runs along the southern edge of the study area as an off-street mixed path. The path is approximately ten miles long and runs on both sides of Lady Bird Lake from Pleasant Valley Road in the east to MoPac (TX-1) in the west.

Currently, there are no other dedicated bicycle facilities within the study area. The *City of Austin Bicycle Master Plan* (November, 2014) includes protected bicycle lanes on Red River Street, César Chávez Street, River Street, Davis Street, Rainey Street, and the I-35 Southbound Frontage Road, as well as bicycle lanes on East Avenue south of Cummings Street.

Lastly, public bicycle parking is available throughout the study area, though the highest supply of bicycle parking is available in areas that are not always visible to the general public. Adjacent to the street or sidewalks, about 50 bicycle parking spaces are clearly available to the public throughout the study area.

Another 50 bicycle parking spaces are available with enough knowledge of the area, though these are located within the public areas of the Milago Condominiums and Skyhouse Apartments parking garages, as well as near the entrance to The Shore Condominiums.

AUSTIN B-CYCLE

Austin B-Cycle is a bicycle sharing service within Austin's core that provides on-demand bicycle access at any time for Austinites or visitors. Annual, monthly, 3-day, and 24-hour passes are available to check out a bicycle. Two Austin B-Cycle stations exist in the study area. One is located at the northwest corner of Davis Street / Rainey Street and provides docking space for seventeen bicycles. The other is located west of Rainey Street just north of Cummings Street and provides docking space for thirteen bicycles. Per B-Cycle data, the two stations ranked second (Cummings Street) and sixth (Davis Street) in terms of popularity within the system in the last year. Each of the two stations provides an average of 40 check-outs and returns daily as of November 2016.

A third station previously existed at the northwest corner of Rainey Street and River Street but was removed due to construction. Austin B-Cycle has indicated that they would like to bring the station back someday, and further expand within the neighborhood, but have no timeline for doing so. A significant amount of publicly available bicycle parking was also located at this same location, but has been removed due to the construction.

Figure 6 summarizes all of the existing and anticipated bicycle facilities within the study area.

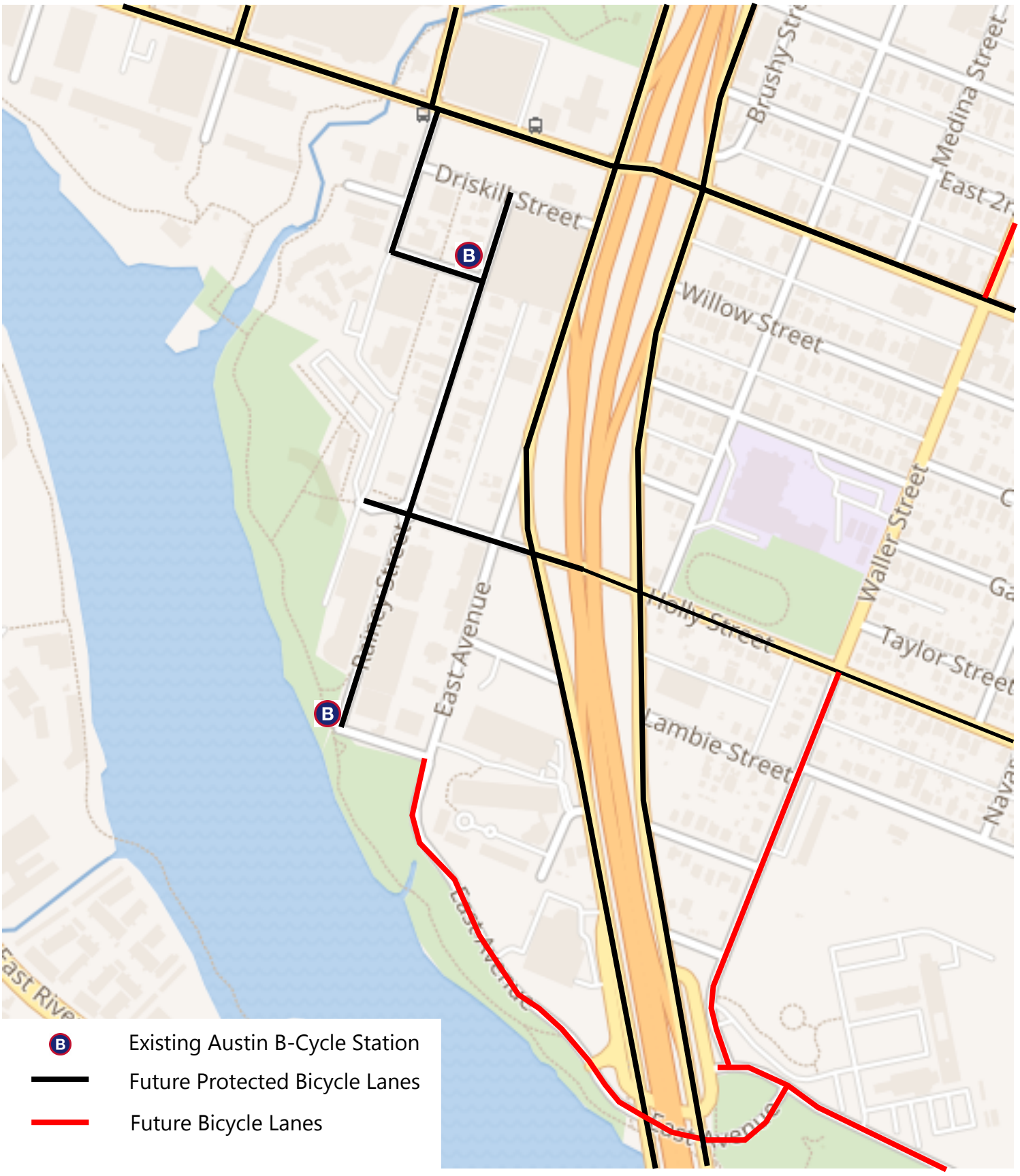


Figure 6
Existing Bicycle Network

TRANSIT

CAPITAL METRO

Capital Metro is the City of Austin's regional public transportation provider. Since 1985, Capital Metro has provided service and now provides more than 32 million boardings per year. Capital Metro provides 50 local routes, ten Express and MetroRapid routes, and almost twenty shuttle routes to the University of Texas – Austin. Existing public transit facilities in the vicinity of the study area are discussed below and summarized on **Table 9**.

The **MetroBus Local 17 César Chávez** provides bus service between downtown Austin and Eastside Memorial High School. In the eastbound direction, the route runs along 8th Street, Guadalupe Street, César Chávez Street, East 2nd Street, North Pleasant Valley Road, Lyons Road, Bolm Road, Gardner Road, and Levander Loop. In the westbound direction, the route runs along Levander Loop, Airport Boulevard, Bolm Road, Lyons Road, North Pleasant Valley Road, East 2nd Street, César Chávez Street, Red River Street, and 8th Street.

The nearest stop is on East César Chávez Street, just west of Red River Street. The route operates seven days per week, running from before 5:00 AM to after 12:00 AM on weekdays with twenty-minute headways typically. On weekends, the route operates for the same duration, but with longer headways.

The **MetroBus Local 21 Exposition** and **MetroBus Local 22 Chicon** provide bus service in the clockwise and counterclockwise direction within the downtown Austin area, respectively. The 21 Exposition route starts at the RBJ Residential Towers and continues to various downtown destinations such as the Austin Convention Center, Seton Hospital, LBJ Library/Museum, UT campus, St. Davis Hospital, and Huston-Tillotson University among others. The route starts from the RBJ Parking Lot and continues on Waller Street, César Chávez Street, Trinity Street, 4th Street, Nueces Street , 6th Street to Lake Austin Boulevard, Exposition Boulevard, West 35th Street to 38th Street, North Lamar Boulevard, West 34th Street, Guadalupe Street, Dean Keeton Street, north along the loop on to I-35 NB Frontage Road, East 38 ½ Street, Cherrywood Road, Manor Road, Chicon Street , East 2nd Street, Robert T. Martinez Street, and Holly Street before arriving back at Waller Street and entering the RBJ Residential Tower. The 22 Chicon follows the same pattern for most of the route, only diverting where one-way streets would prevent it from taking the same route.

The nearest stop for the 21 Exposition is on East César Chávez Street east of Sabine Street. The route operates seven days per week, running approximately from 5:00 AM to midnight on weekdays with thirty-minute headways typically. On weekends, the route operates from 5:00 AM to after 10:00 PM, with longer headways.

The nearest stop for the 22 Chicon is on East César Chávez Street just west of Red River Street. The route operates seven days per week, running approximately from 5:00 AM to 11:00 PM with thirty-minute headways typically. On weekends, the route operates from approximately 5:30 AM to 10:00 PM with longer headways.

The **MetroBus 122 Four Points Limited** bus service runs in both the northbound and southbound directions between Capital Metro Headquarters to the Lakeline Station Park & Ride in North Austin. In the Northbound direction, it starts south on Pleasant Valley Road and continues to 2nd Street, Chalmers Avenue, César Chávez Street, Red River Street, 4th Street, Lavaca Street, 6th Street to Mopac, RM 2222, McNeil Drive, Scotch Trail, River Place Boulevard, Tech Trail/Four Points Drive, FM 620 to US-183 North, Lakeline Boulevard before arriving at the Lakeline Station destination.

In the southbound direction, Route 122 starts from the Lakeline Station and continues on Lyndhurst Street, Lakeline Boulevard, Lake Creek Parkway, Lakeline Mall Drive, Pecan Park Boulevard, FM 620, Four Points Drive, River Place Boulevard, Scotch Trail, McNeil Drive, RM 2222, Mopac, 5th Street, Red River Street, 7th Street, and South Pleasant Valley Road back at Capital Metro Headquarters.

The closest stop is at Trinity Street and East 4th Street, approximately one-third of a mile from the Red River Street / César Chávez Street intersection. The route operates only on weekdays; in the northbound direction, it only runs once in the morning approximately from 6:00 AM to 7:00 AM. The southbound route runs twice in the afternoon between approximately from 5:00 PM to 7:30 PM typically with a one-hour headway.

The **MetroBus 127 Dove Springs Flyer** bus service runs in both the northbound and southbound directions between William Cannon Drive to St. David's Hospital at Red River Street and 32nd Street. Buses on the Flyer routes stop less often, and as a Flyer route, it offers direct service between neighborhoods and downtown Austin.

In the northbound direction, the route begins on Bluff Springs Road before continuing on Blue Meadow Drive, Meadow Lake Boulevard, William Cannon Drive, Pleasant Valley Road, Dove Springs Road, Pino Lane, Palo Blanco Lane, Stassney Lane, I-35, César Chávez Street, Lavaca Street, 11th Street, Trinity Street, San Jacinto Boulevard, Dean Keeton Street, and Red River Street before arriving at St David's Hospital.

The closest stop is at Lavaca Street / West 3rd Street, about two-thirds of a mile from the Red River Street / East César Chávez Street intersection. The northbound Route 127 operates only on weekdays with only one service in the morning which is approximately from 6:30 AM to 7:30 PM; there are no afternoon services for this route in the northbound direction.

In the southbound direction, Route 127 starts on Red River Street and continues on 32nd Street, Dean Keeton Street, San Jacinto Boulevard, 11th Street, Guadalupe Street, César Chávez Street, I-35, Stassney Lane, Palo Blanco Lane, Pino Lane, Dove Springs Road, Pleasant Valley Road, William Cannon Drive, Meadow Lake Boulevard, Blue Meadow Drive, Bluff Springs Road, Boggy Creek Drive, I-35 NB Frontage Road, Nelms Drive, before arriving back to Bluff Springs Road.

The nearest stop on for the southbound route is on East César Chávez Street just east Trinity Street. The southbound Route 127 operates only on weekdays with one service in the afternoon, which is approximately from 4:30 PM to 5:30 PM; there are no morning services for this route in the southbound direction.

Capital Metro's lone rail line, **Route 550 MetroRail Red Line,** offers service Monday through Friday between Leander and Downtown Austin, and from Lakeline to Downtown Austin on Saturday. There are nine stops along the 32-mile service line, starting at Leander in the north and continuing to the Lakeline, Howard, Kramer, Crestview, Highland, MLK, Jr., Plaza Saltillo and Downtown Stations.

The nearest stop is the Downtown Station, located at East 4th Street and Trinity Street. The station is approximately one-third of a mile from the Red River Street / East César Chávez Street intersection. The route operates six days per week, running from before 5:00 AM to 7:23 PM on weekdays with approximately thirty-minute headways typically during the morning and afternoon peaks and one-hour headways during off-peak periods. On Fridays, the route runs on one-hour headways until 1:23 AM as well. On Saturdays, the route operates from 4:00 PM to 12:50 AM, with approximately thirty-minute headways.

TABLE 9: TRANSIT SERVICE SUMMARY

Route	Nearest Stop Location	Hours of Operation		Peak Service Headways	
		Weekdays	Weekends	Weekdays	Weekends
17 César Chávez	César Chávez Street / Red River Street	4:50 AM to 12:07 AM	5:33 AM to 11:30 PM	20 minutes	30 minutes
21 Exposition	César Chávez Street / Red River Street	5:19 AM to 11:45 PM	5:30 AM to 10:22 PM	30 minutes	45 minutes
22 Chicón	César Chávez Street / Red River Street	5:26 AM to 11:00 PM	5:40 AM to 10:00 PM	30 minutes	45 minutes
122 Four Points Limited	4th Street / Trinity Street	6:06 AM to 7:03 AM 5:11 PM to 7:23 PM	N/A	1 AM run 2 PM runs	N/A
127 Dove Springs Flyer	César Chávez Street / Trinity Street	6:30 AM to 7:23 AM 4:27 PM and 5:34 PM	N/A	1 AM run 1 PM run	N/A
550 Red Line	4th Street / Trinity Street	5:00 AM to 7:23 PM (M-R) 5:00 AM to 1:23 AM (F)	4:00 PM to 12:50 AM	30 minutes	30 minutes

Source: Capital Metro, January 2017.

EXISTING RIDERSHIP

Capital Metro was able to supply ridership information for some of the routes discussed above from the spring of 2016. Ridership data are summarized in **Table 10.** At the stops mentioned above, 196 people use the 4th Street / Trinity Street bus stops and 82 use the East César Chávez Street / Red River Street stops on an average weekday. Almost 1,700 riders use the Downtown Austin stop for the Red Line on an average weekday. As mentioned earlier, construction of the Fairmont Hotel has removed some pedestrian access from stops near the East César Chávez Street / Red River Street intersection.

TABLE 10: CAPITAL METRO WEEKDAY RIDERSHIP SUMMARY

Route	Average Daily Ridership		
	Weekdays	Saturday	Sunday
17 César Chávez	2,334	1,442	1,209
21 Exposition	564	310	**146**
22 Chicón	581	335	139
122 Four Points Limited	n/a	-	-
127 Dove Springs Flyer	n/a	-	-
Red Line	2,645	1,013	-

Source: Capital Metro, January 2017.

THE 'DILLO

The 'Dillo was a free shuttle system that began operating during the 1980s and was terminated in 2009. Several routes, operated by Capital Metro, moved people around the downtown Austin area. Vehicles looked like old-style trolleys that operated on wheels instead of on rails. On weekdays, the typical headway was five minutes. Late in the 'Dillo's operation, a fifty-cent charge was implemented, which had an effect on ridership. The 'Dillo was terminated as a result of lower ridership, the new Metro Rail commuter line, and alternative service along several of the major corridors. According to Capital Metro, "the 'Dillo routes currently serve only two passengers per trip and just eight passengers per hour on weekdays, both figures among the very lowest of all routes in the system," as of July 2009. The most recent map for the routes indicated that the closest stop to the neighborhood was at Trinity Street / Second Street.

UT SHUTTLE SYSTEM

The UT Shuttle System is one of the largest university shuttle systems in the country, with 10 routes and over 5.2 million passengers annually. The shuttle system provides an easy and cost effective way for students, faculty, staff, and visitors to access the UT campus. UT students, faculty, and staff may ride the shuttles at no charge with a valid UT photo ID. It is not currently available to the general public. Three shuttles currently run past the neighborhood along I-35 and connect the campus area to residential areas along East Riverside Drive.

CHARIOT

Shuttle van startup Chariot has recently announced that it will expand its services from San Francisco and enter Austin as its second market service area. In the fall, Chariot's initial service offering attempted to serve employees at Whole Foods Market and GSD&M. These initial routes are downtown circulators that pick up employees at the MetroRail Downtown stop and Republic Square for Capital Metro buses. Chariot will bring riders the rest of the way to their offices in the West End, and then back at the end of the day.

More recently, Chariot announced that they will offer a late-night service between 10:00 PM and 1:00 AM on Friday and Saturday nights that will run between the West Sixth Street and Rainey Street in an attempt to connect the two nightlife districts.

As of this writing, service began on January 27 for a month-long trial. The shuttles seat up to 14 passengers and will have 30-minute headways. Potential riders will be able to view the pickup and drop-off locations with a mobile application. The cost per ride is $3.50 per person, but new riders can get up to five rides free with a promotional code. The route will include bus stops at Republic Square and stops one block from the Downtown MetroRail stop.

Within the neighborhood, Chariot vehicles will enter at Driskill Street from the I-35 Southbound Frontage Road, stop at the corner of Driskill Street and Rainey Street, and continue on Driskill Street to Red River Street before exiting westbound onto East César Chávez Street.

WITHIN THE NEIGHBORHOOD

There are a few constraints to transit vehicles entering the neighborhood. As shown on the circulation routes in Figure 4, once a transit vehicle enters the neighborhood, it could be difficult to exit in the same direction. A route entering the neighborhood would almost by necessity have to be a portion of a loop route, without a corresponding route in the other direction. The narrow streets and tight radii at several of the corners also make navigating the neighborhood a challenge for transit vehicles.

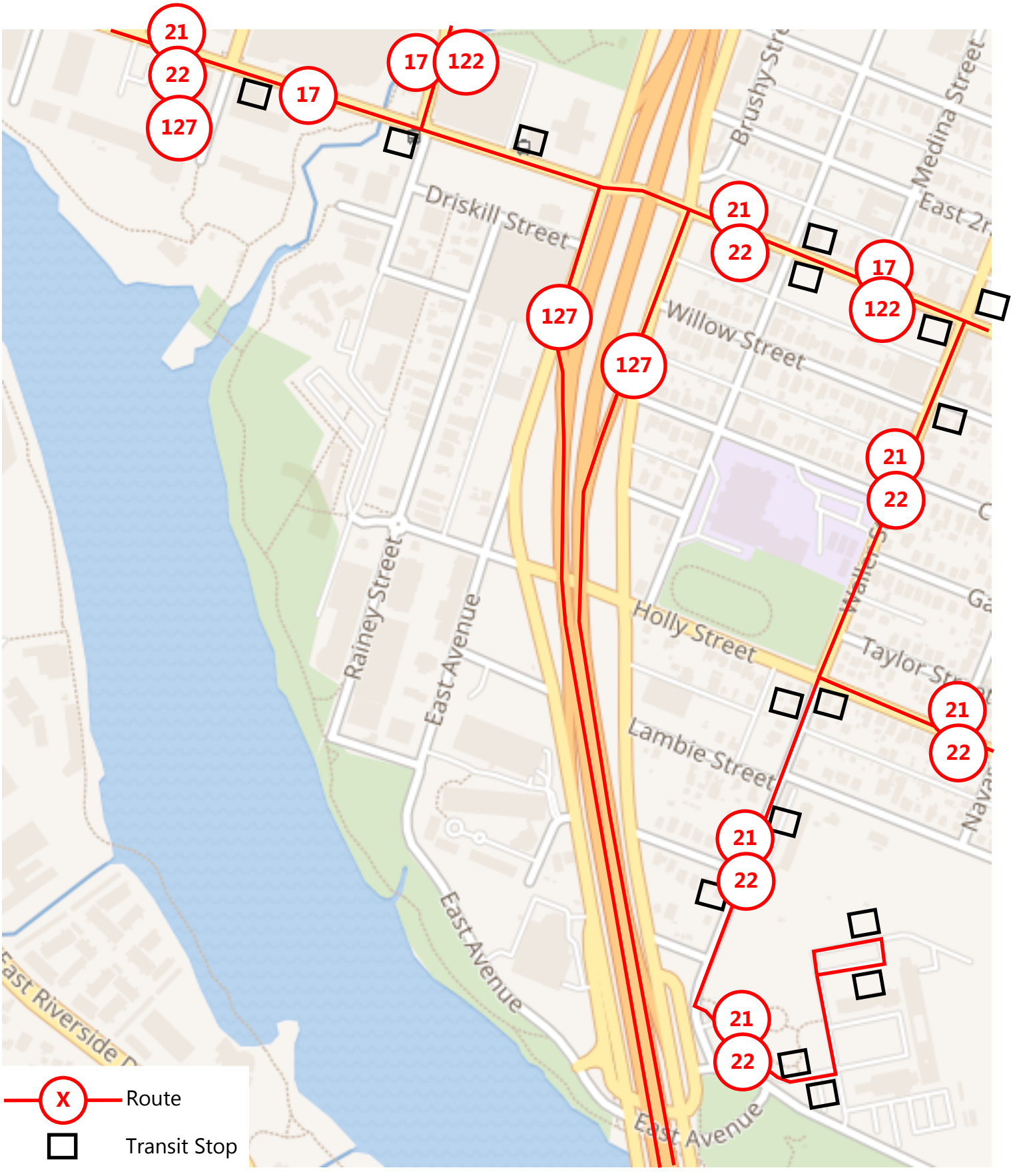


Figure 7
Existing Transit Network

PARKING

In November 2016, the Downtown Austin Alliance released the *Draft Downtown Austin Parking Strategy Briefing Book*, completed by a consultant team led by Nelson/Nygaard Consulting Associates. The goal of the project was to develop a set of state-of-the-practice strategies specific to Austin to improve parking in the downtown area. As part of the Project, the consultant team completed an inventory of available parking spaces, as well as occupancy rates throughout a typical week and an assessment of future parking needs. The *Draft Downtown Austin Parking Strategy Briefing Book* was used as a resource to plan parking supply data collection and for the parking occupancy rates at seven different periods throughout a week.

Figure 8 shows the available on-street and off-street parking spaces throughout the study area. These spaces are controlled by a variety of regulations and restrictions, including:

- Paid and/or Permitted Off-Street Parking
- On-Street Parking Meters
- 15-minute Customer Service Zone
- 30-minute Commercial Zone for Loading/Unloading
- Special Event Parking by Permit Only
- Handicap Reserved Parking
- Car2Go Vehicles

The study area also provides parking meters in some locations of the neighborhood. Metered on-street parking throughout the study area currently costs $1.20 per hour.

Over one-third (219 spaces) of the total spaces are contained within the two privately-owned but publicly-available LAZ public parking lots. The Emma S. Barrientos Mexican American Culture Center provides 126 parking spaces. There is a reserved parking space on Rainey Street for Car2Go users. **Table 11** summarizes the parking supply of the Rainey Neighborhood.

The overall parking supply within the study area boundary was estimated as 781 total parking spaces available to the general public in the study area. As mentioned, not all of these parking spaces are available to the public at all times.

TABLE 11: PARKING INVENTORY SUMMARY

Category	No. of Spaces
LAZ Parking (Off-Street)	219
Emma S. Barrientos Mexican American Culture Center (Off-Street)	126
Pay To Park (On-Street)	249
Paid and Permit Parking (Off- & On-Street)	31
IHOP Restaurant (Off-Street)	60
Empty Lot (Red River St / Davis St intersection)	32
Other (Handicap, Special Event Parking, Commercial Zone Parking, Customer Service Zone, Parking Meters Spaces and Car2Go)	64
Total	**781**

Source: BIG RED DOG Engineering, 2017.

From the *Draft Downtown Austin Parking Strategy Briefing Book,* parking occupancy data were collected at following seven time periods:

- Wednesday Morning
- Wednesday Mid-Day – Weekday Peak
- Wednesday Evening
- Friday Evening
- Saturday Morning
- Saturday Mid-Day
- Saturday Evening – Weekend Peak

The data for the Rainey Street District, defined in the report as the area between Lady Bird Lake, South Congress Avenue, East César Chávez Street, and I-35, show that less than 60 percent of all publicly available parking spaces are used during six of the seven times, with the exception being Friday evenings, when parking utilization approaches 90 percent. The report also found that on-street parking is generally underpriced, resulting in high demand given that off-street spaces are so comparatively expensive.

Lastly, the study also provided data about commute patterns taken from the United States Census American Community Survey. The study found that approximately 79 percent of employees in the northern part of the study area and 61 percent of employees in the southern part of the study area drive alone to work (a

significant portion of employees in the southern area are categorized as "other," which includes those who work from home). There are some transit trips included and a few walk trips included, but no bicycle trips in the data set.

The study also found that approximately 63 percent of employees in the northern part of the study area and 86 percent of employees in the southern part of the study area drive alone to work. While there are many people who carpool and many who fall into the category "other," there are no responses included in the transit/walk/bicycle categories.

Lastly, the study found that almost 11 percent of households in the downtown area do not own a vehicle and households in the downtown area own an average of 1.26 vehicles, as compared to 1.80 vehicles per household in the City of Austin.

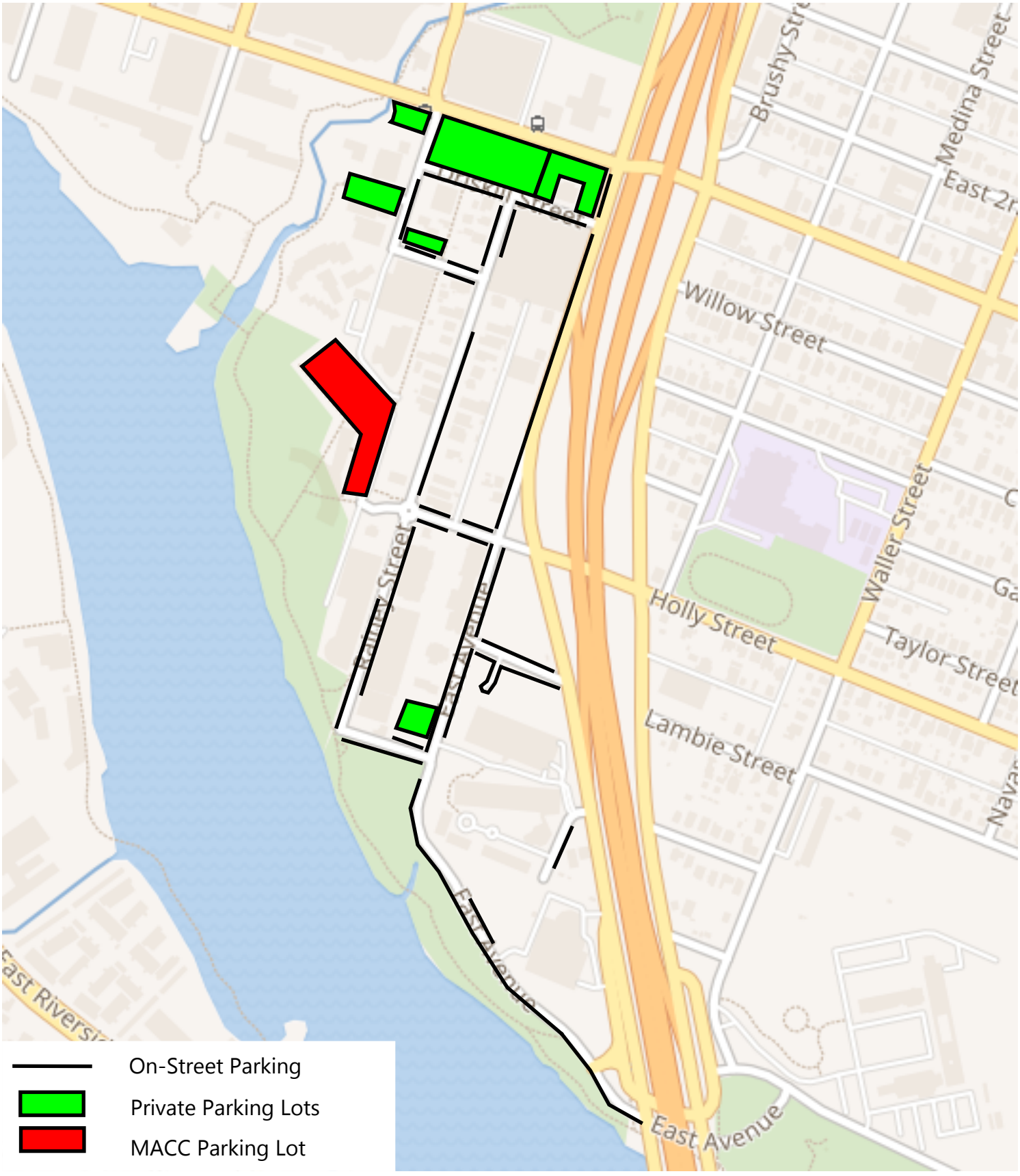


Figure 8
Existing Parking Supply

LOADING

As mentioned earlier, there are few designated loading areas for commercial delivery and passenger loading/unloading. In the evening and late weekend hours, passenger loading/unloading within travel lanes is often the source of congestion within the neighborhood.

Through observations, many vehicles were observed to be stopped in travel lanes for several minutes as passengers entered or exited a vehicle, or as drivers searched for the passengers they were looking to pick up. Without designated loading areas and parking spaces generally occupied during these hours, there are few alternatives for drivers attempting to pick-up/drop-off passengers as close to their destinations as possible. These issues were observed mostly on Red River Street south of Driskill Street, Rainey Street between Driskill Street and Holly Street / River Street, and Davis Street. The only designated passenger loading/unloading zones are the 15-minute customer service zones on the very south end of Rainey Street in front of the Windsor Apartments (one space) and the Milago Condominiums (two spaces).

Passenger loading also includes larger tour buses that tend to congregate near the Hotel Van Zandt and the Mexican American Cultural Center. While the MACC has a large parking lot that can accommodate these vehicles, there are no such spaces near the Hotel Van Zandt to accommodate these vehicles. Many individuals indicated throughout the outreach process that these vehicles also affect operations at the Red River Street / Davis Street intersection and the adjacent areas (particularly access to The Shore Condominiums and The Villas Condominiums).

With respect to commercial delivery, there are several areas with designated 30-minute commercial zones that are always in effect. One such space is adjacent to the 15-minute customer service zone in front of the Windsor Apartments. There is also a commercial loading zone on the south side of Driskill Street just west of Rainey Street with room for two to three delivery vehicles, in effect from 7:00 AM to 5:00 PM and available for public parking outside of those hours. Lastly, there is a similar commercial loading zone on the east side of Rainey Street with room for two to four delivery vehicles, in effect from 7:00 AM to 5:00 PM and available for public parking outside of those hours.

South of Driskill Street and north of River Street, there are informal, unpaved alleys between Rainey Street and I-35 Southbound Frontage Road and Rainey Street and Red River Street on which commercial loading was observed. Anecdotally, these areas are used by several of the businesses in the area for loading and unloading. South of River Street, there are more formal areas for commercial loading with the new developments all having commercial docks off of Rainey Street.

Lastly, as with the transit vehicles, the narrow streets and tight radii at several of the corners also make navigating the neighborhood a challenge for larger commercial delivery vehicles.

CONSTRUCTION

During data collection, there were two locations where construction was underway:

- Fairmont Hotel (101 Red River Street), a 37-story hotel that will offer more than 1,000 rooms when completed. This hotel is planned to be open during the summer of 2017. Construction of this hotel has temporarily removed a westbound left-turn lane from East César Chávez Street to southbound Red River Street, further limiting access to and from the neighborhood. Construction has also temporarily removed multiple sidewalks and two crosswalks at the intersection of East César Chávez Street / Red River Street. Construction at the site began at the end of 2014.
- Homewood Suites at East Avenue (78/80 East Avenue), a 17-story hotel that will offer approximately 150 rooms when completed. This hotel is planned to be open sometime in 2018. Construction of this hotel has temporarily removed sidewalk along the I-35 Southbound Frontage Road / East Avenue. The detour for this construction is around the project site and back to the unpaved alley between Rainey Street and I-35 Southbound Frontage Road / East Avenue, where a connection is re-made at River Street. Construction at the site began in early 2016.

Additionally, site preparation for construction of an upscale residential condominium tower at 70 Rainey Street was underway during the data collection. This construction will further limit sidewalk access on the west side of Rainey Street just north of River Street. This site was also the location of the since-removed B-Cycle station and bicycle parking mentioned earlier.

TRIP GENERATION CHARACTERISTICS

In assessing land use development projects, overestimating vehicle trips generated by land uses can lead to excessive traffic impacts and related mitigation that can discourage development of otherwise desirable projects, or a transportation network that is not sized to the setting of the development. There are many variables to consider for trip generation.

Trip generation estimates for specific land uses are traditionally gathered from rates included in the most current version of a handbook entitled *Trip Generation,* produced by the Institute of Transportation Engineers (ITE). Data collected to develop these rates have typically been collected at suburban, single-use, freestanding sites. These defining characteristics limit their applicability to mixed-use development projects, which, given land use mix, design features, and setting, could include characteristics that influence travel behavior differently from typical single-use suburban developments.

As such, traditional data and methodologies (such as ITE) would not accurately estimate the Project vehicle trip generation for mixed-use development, developments in more dense, urban areas, or developments with significant opportunity to use alternative modes. A 2011 study[2] found that trip generation at mixed-use developments would generate 49 percent more traffic if they were distributed among single-use site in suburban settings, and that the ITE methodology would overestimate peak hour traffic by an average of 35 percent.

Factors that could influence trip generation include:

- Density of development
- Diversity of uses within the development
- Design (including connectivity and walkability)
- Destinations nearby (adjacent land uses)
- Distance to non-auto modes
- Development scale
- Demographic profile

As mentioned, using ITE rates without any adjustments almost assuredly does not take into consideration the context of the development. As a result of the factors listed above, some trips that would other be external vehicle trips may stay internal to the site, or alternative modes may be more attractive for trips within the project site and to surrounding complementary land uses.

[2] "Getting Trip Generation Right: Eliminating the Bias Against Mixed Use Development," Walters, Bochner, and Ewing, American Planning Association, May 2013.

Other methodologies exist to develop trip generation estimates. One such methodology was developed from a national study sponsored by the US Environmental Protection Agency (EPA). Travel survey data was gathered from 239 mixed-use developments in six major metropolitan regions, and correlated with the characteristics of the sites and their surroundings. Characteristics listed earlier were related statistically to trip behavior observed at the study development sites, which produced equations allowing better predictions for external vehicle trip reduction as a function of the mixed-use development characteristics. These equations have been approved by the EPA, peer-reviewed by several planning journals and boards, recommended by several planning associations, and used successfully in many certified environmental documents.

These equations have been used for urban, suburban, and exurban mixed-use projects. Some development projects in dense, urban areas have shown reductions of 30 to 50 percent. Mixed-use development projects in suburban areas more often show reductions between 10 and 20 percent. Single-use projects without transit connections, or mixed-use projects without complementary land uses, often show very low reductions.

Many transportation planners and traffic engineers will use the standard ITE rates without questioning their appropriateness, though the ITE handbook itself says that local data should be weighted more heavily than the standard rates, should it be available. It is important that planners and engineers take the time to understand the specifics of a project, determine the appropriate trip generation methodology, and compile compelling documentation to support their estimates. Overestimating trip generation can lead to excessively conservative traffic analysis and additional capacity for vehicles that is neither warranted nor consistent with a jurisdiction's vision for their mobility network.

WITHIN THE NEIGHBORHOOD

As mentioned earlier, 72-hour vehicle counts (Thursday, Friday, and Saturday) were conducted of the driveways for the Hotel Van Zandt, Milago Condominiums, and Windsor Apartments. Trip generation rates were estimated using the following land uses:

- Apartments (Category 220)
- Residential Condominium / Townhouses (Category 230)
- Hotel (Category 310)

The trip generation rates were calculated by dividing the daily traffic (vehicles) by the number of units for each land use. **Table 12** summarizes the estimated trip generation rates for each of the land uses, as well as the standard ITE rate for each land use category and whether the collected data were higher or lower than the ITE rate.

TABLE 12: DAILY VEHICLE TRIP GENERATION SUMMARY

Development Name / Land Use Category	Units	Day of the Week	Daily Vehicles	Calculated Rate	ITE (9th) Rate	Comparison to ITE rate
Hotel Van Zandt / Category 310	326	Thursday	652	2.00	8.17	24%
		Friday	610	1.87	8.17	23%
		Saturday	774	2.37	8.19	29%
The Milago (Condos) / Category 230	240	Thursday	589	2.45	4.18	59%
		Friday	542	2.26	4.18	54%
		Saturday	540	2.25	4.31	52%
Windsor (Apartments) / Category 220	187	Thursday	559	2.99	4.20	71%
		Friday	373	1.99	4.20	47%
		Saturday	294	1.57	4.98	32%

Source: BIG RED DOG Engineering, 2017.

As shown in Table 12, the daily trip generation for each development was lower than what would be anticipated according to standard ITE rates, for which there are several explanations. With the mix of uses in both the Rainey Neighborhood area and the downtown area, the density of both the land uses and the transportation network throughout the area, the availability of alternative modes, and the demographic profile of the Rainey Neighborhood (including a lower car ownership rate), other methodologies that consider these subtleties would anticipate a much lower vehicle trip generation total.

The data collection at the Hotel Van Zandt included the driveway for the parking garage only. No data were collected at the valet driveway, or the parking lot across Davis Street that is occasionally used for overflow parking. As such, this is the least reliable data collected; however, data were collected at all driveway locations for both the Milago Condominiums and Windsor Apartments. Any underestimation would be due to those parking on the street or in other publicly available parking, likely to be guests. The provision of parking spaces for both residents and guests is another important factor in vehicle trip generation – if parking is free and available, people are more likely to choose to make their trips by vehicle rather than another mode. Table 12 was also re-created for the AM, PM, and weekend peak hour rates, as shown in **Table 13**. The peak hour rates show a similar pattern to the daily rates.

TABLE 13: PEAK HOUR VEHICLE TRIP GENERATION SUMMARY

Development Name / Land Use Category	Units	Day of the Week	Peak Hour	Peak Hour Vehicles	Calculated Rate	ITE (9th) Rate	Comparison to ITE rate
Hotel Van Zandt / Category 310	326 rooms	Thursday	AM	47	0.14	0.53	27%
			PM	60	0.18	0.60	31%
		Friday	AM	30	0.09	0.53	17%
			PM	50	0.15	0.60	26%
		Saturday	Weekend	76	0.23	0.72	32%
The Milago (Condos) / Category 230	240 DU	Thursday	AM	57	0.24	0.34	70%
			PM	43	0.18	0.38	47%
		Friday	AM	55	0.23	0.34	67%
			PM	56	0.23	0.38	61%
		Saturday	Weekend	49	0.20	0.35	58%
Windsor (Apartments) / Category 220	187 DU	Thursday	AM	43	0.23	0.30	77%
			PM	60	0.32	0.35	92%
		Friday	AM	45	0.24	0.30	80%
			PM	n/a	n/a	0.35	n/a
		Saturday	Weekend	47	0.25	0.40	63%

Source: BIG RED DOG Engineering, 2017.

3. OUTREACH

Due to the complex challenges and opportunities available within the neighborhood, a key portion of this study was to understand the needs and wants of each set of stakeholders.

As a result, the Project team cast a wide net in order to seek input from a number of sources. With the diverse set of users who live, work, and play in the Rainey Neighborhood, it was important to gather ideas and issues from all of these people. Ultimately, the goal of the study was to have the stakeholders provide the set of recommendations included in this report, with technical vetting and organization/coordination from the project team.

The project began with several meetings and discussions with a Neighborhood Steering Committee, the client group composed of various community groups in the Rainey Neighborhood. Next, the project team held a series of stakeholder meetings, followed by a series of community workshops open to the general public. The remainder of this chapter summarizes these meetings.

STAKEHOLDER MEETINGS

Stakeholder meetings were conducted beginning in late November 2016. These meetings were with entities specified by the neighborhood as well as contacts the project team thought to be critical to the process.

These meetings helped to ensure that the best available information about various developments and changes impacting access and mobility in the Rainey Neighborhood today and in the future was considered. These meetings were the opportunity for key stakeholders to hear and consider various solutions to be proposed in the study. Meetings were also conducted with City of Austin staff to vet previous plans and potential improvement recommendations.

Additional documentation of some of these stakeholder meetings can be found in **Appendix D**.

NEIGHBORHOOD ASSOCIATION LEADERSHIP

The project team met with leaders of the residential neighborhood associations from the Rainey Neighborhood on December 13, 2016. They emphasized the problems of a perceived lack of public transportation, poor vehicle traffic circulation (as well as the lack of options for getting in and out of the neighborhood by vehicle), drivers searching for parking spots and circling around the neighborhood, and delivery trucks blocking travel lanes, among other concerns.

A particular concern noted is the East César Chávez Street / Red River Street intersection, where they noted there were many collisions and that the intersection was not designed well for pedestrians. Near the end of the conversation, the group stated that sidewalks are consistently the foremost priority of neighborhood. They were also wary of this process not resulting in anything tangible, and they hoped the City would prioritize implementing the solutions for having gone through this process again.

RAINEY BUSINESS COALITION

The project team met with owners and representatives of neighborhood businesses on December 2, 2016. They emphasized issues connecting the neighborhood from and through nearby neighborhoods, particularly the lack of a safe and comfortable pedestrian environment throughout the eastern half of downtown. They also noted the lack of comfortable bicycling routes to the neighborhood from the north and east.

They believe that much of the traffic on weekend nights is transportation network company (TNC) traffic and would be very happy to have designated pick up and drop off locations for TNC, taxis, and pedicabs, even if it meant their customers were not dropped off immediately at their door. They believe the on-street parking on Rainey Street is detrimental to the pedestrian environment and insignificant when thousands of people are visiting; however, they felt strongly that having on-street parking available in the early evening for customers stopping in for dinner on the way home was important to viability of some of their businesses.

WALLER CREEK CONSERVANCY

The project team met with a representative from the Waller Creek Conservancy on December 20, 2016. Waller Creek Conservancy has done extensive work on transportation issues in the area, with a heavy focus on safe pedestrian and bike access (beyond just their own projects). They believe that the lack of safe and comfortable pedestrian treatment for crossing I-35 at East César Chávez Street is a major impediment for the area.

The section of Waller Creek between Davis Street and 2nd Street does not have enough space to make the trail as wide as the rest of the project, so they are hoping to divert bicycle traffic off the trail at least for that section. They also have a conceptual plan to turn Sabine Street between 4th Street and 7th Street into a promenade that can be opened to all users (and closed to cars) for weekend evenings or special events. There are various concerns about bridges over Waller Creek. They expect the collective park experience of the changes to become a major attractor similar, to the City of Houston's Discovery Green.

SUTTON COMPANY DEVELOPMENT

The project team met with the senior leadership of the Sutton Company on December 14, 2016. They are planning to build approximately 3.5 million square feet of space in the next three to six years in the Rainey Neighborhood. The development would consist of condominiums, apartments, office, retail, and parking.

They would like to extend the public street on Rainey Street from Driskill Street to East César Chávez Street, provided that this would not reduce the amount of development or their floor-area ratio (FAR). This would likely require building above the new street extension.

The development team also worked with the City of Austin on a plan to give up some of their land for improvement of the intersection of Red River Street / East César Chávez Street, but the City chose not to pursue that concept. While improving the intersection is a key priority for them and the neighborhood, they are also concerned that now that they have their building permits for their first building, the building footprint will be a constraint to some potential solutions.

THE EMMA S. BARRIENTOS MEXICAN AMERICAN CULTURAL CENTER

The project team met with representatives of the MACC and the City of Austin Parks and Recreation Department on January 3, 2017. They have recently finalized an agreement to conduct a new strategic plan for the MACC.

Ideas that they expect to pursue in that plan include supplying additional parking for themselves and the neighborhood and extending the eastern entrance to the MACC to Rainey Street, which would modify the last block of River Street into a type of grand entrance that welcomes people into the cultural center and serves as a public plaza, optimized for the pedestrian experience. The MACC is also interested in extending Red River Street south past The Shore Condominiums and connecting to River Street through the MACC.

They also have specific constituents, including high school students, who are not able to fully utilize the space because of the lack of transit. They have previously supported a proposal to connect Red River Street through their parking lot to River Street to make the MACC accessible and opening to the north and east.

OTHER MEETINGS

Other meetings not specifically summarized above include:

- A meeting with the Rainey Neighborhood Association (December 8, 2016)
- A meeting with the City of Austin Area Traffic Engineer (December 16, 2016)
- A meeting with Sackman Enterprises (January 31, 2017)

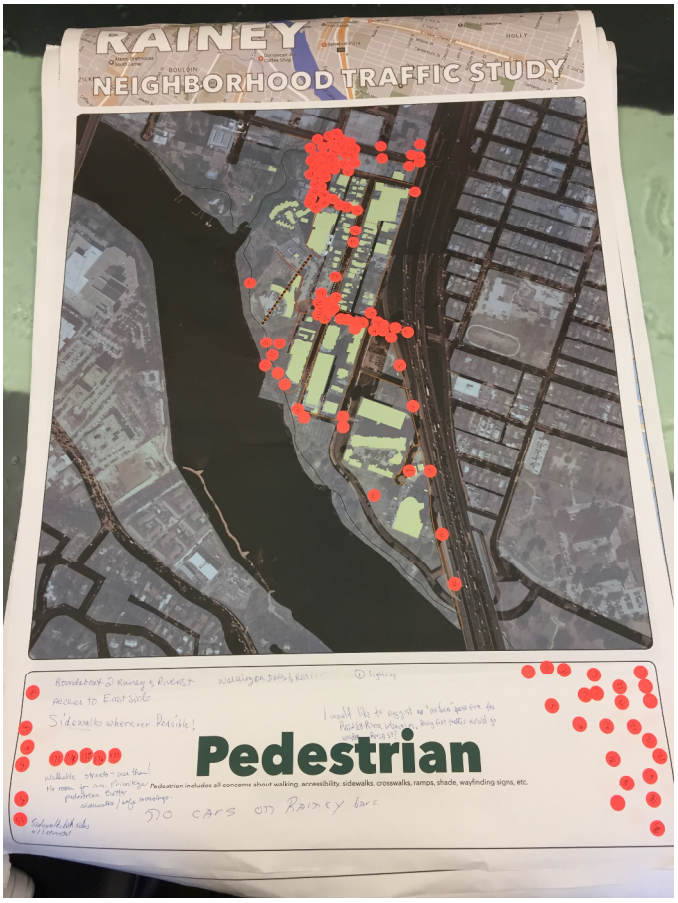
COMMUNITY WORKSHOPS

A key piece of the public input portion of this study was a series of three workshops open to the general public. The first meeting (held on January 12, 2017 at the MACC) provided an opportunity for constituents to express their concerns and present their ideas for improvements, with no respect to feasibility. The second meeting (held on March 8, 2017 at the MACC) was a presentation of a comprehensive set of improvements for the community to react to and provide additional input about changes or items the project team may have initially missed. The third meeting (to be held in late May 2017 at the MACC) is to be a presentation of the final report and improvement recommendations.

The first Community Workshop was attended by roughly 65 people, predominantly residents of the neighborhood, but with developers, non-profit leaders, and public agency staff as well. A brief presentation included an overview of the study's process, the data collected, and what the deliverable would include and provide for the neighborhood.

Participants were asked to record any areas of concern with respect to mobility through the area for each mode and in specific locations. These surveys were summarized as the first step of the public input process.

Participants were asked to contribute to an allocation exercise utilizing a series of maps (see example in **Inset 6**) posted on around the room. Each participant was asked to use up to ten orange stickers to identify the location and type of improvements in which they were interested.



Inset 6 – Example Map for the Improvement Priorities Exercise

Workshop participants prioritized pedestrian improvements, with a strong focus on Red River Street, East César Chávez Street, and River Street. Safety and vehicle capacity (both at intersections and along roadway segments) also received significant support.

One topic of disagreement concerned the intersection of Rainey Street / River Street. Many people asked for consideration of removal of the roundabout and many asked to ensure that it was not removed, although some of those individuals agreed it could be improved.

Other intersections that drew suggestions for improvements included River Street / East Avenue, Davis Street / Red River Street, and East César Chávez Street / Red River Street. In fact, the intersection of East César Chávez Street / Red River Street was the highest priority on the maps asking for concerns about both pedestrian and vehicle mobility.

Participants want to improve vehicle capacity on Rainey Street, as well as on the alley west of Rainey Street. Red River Street and River Street were also areas of concern. Lastly, participants supported the concept of a multimodal bridge connecting the neighborhood across Waller Creek at Davis Street to Trinity Street.

In general, the exercises bore out a call for an improved pedestrian environment throughout the neighborhood as the foremost priority, including better lighting, better sidewalks, and increased safety through design. Other concepts that were popular among respondents included additional grid connections in and out of the neighborhood, designating pick-up and drop-off locations for TNCs, taxis, and pedicabs, and better wayfinding signage both for pedestrians and drivers.

ONLINE SURVEY

In addition to the public meetings, two online surveys were also available, one for residents of the Rainey Neighborhood and one for visitors, including workers and customers. Links to the surveys were sent out on the list hosts of every residential building and through the Twitter account, @RaineyTraffic. Additional outreach was done to certain businesses in the area. Summaries of all the questions and answers can be found in **Appendix E**.

RESULTS OF THE RESIDENT SURVEY

The survey of residents yielded 132 responses, with at least one response from six of the area's seven residential buildings, though only five total responses came from apartment buildings. The survey asked questions about travel activity by all modes, as well as about parking and car ownership. A breakdown of the residences of respondents is included in **Table 14**.

TABLE 14: ONLINE SURVEY RESPONSE SUMMARY

Residential Building	Building Type	Number of Responses
Towers of Town Lake	Condominiums	45
Milago	Condominiums	35
The Shore	Condominiums	31
The Villas	Condominiums	10
The Windsor	Apartments	3
The Millenium Rainey	Apartments	2
The Skyhouse	Apartments	0

Source: BIG RED DOG Engineering, 2017.

Vehicle Travel

The survey asked several questions about travel by private automobile, including about the number of daily trips by car, where and when traffic affected residents the most, and about their particular concerns. The number of trips residents reported was consistent with data collected during the 72-hour counts, approximately 2.75 vehicle trips per weekday per person and slightly more on the weekends.

More than 50 percent of residents reported taking fewer than two trips by car out of the neighborhood per day. Forty percent of residents reported that the Red River Street / East César Chávez Street intersection was the area where they encountered the worst traffic, followed by 30 percent who said Rainey Street itself had the worst traffic. Forty-five percent said Saturday night traffic was worst, while 34 percent said the afternoon rush hour was worst. However, in comments, several residents expressed that they wished they could have picked both options.

Seventy-seven respondents also added comments. In their comments, many residents focused on safety: the top three concerns were pedestrian-car conflicts due to a lack of sidewalks and crosswalks, the two-way stop at the intersection of River Street / East Avenue, and the intersection of River Street / Rainey Street. Other comments focused on the lack of parking, or expressed a general frustration.

Pedestrian, Bicycle, and Transit

Seventy-four percent of residents take trips out of the neighborhood by foot or bike on weekdays; 83 percent complete a trip by foot or bike on weekends. Residents at The Towers on Town Lake are the most likely not to take trips by foot or by bike, likely because their building is at the southeast edge of the study

area. It is farthest from the commercial parts of downtown and abuts I-35, a pedestrian barrier, on its east side. When not considering those particular responses, the percent of respondents that take trips by foot or bike on weekdays and weekends rises to 85 percent and 95 percent, respectively. This indicates that the Rainey Neighborhood is highly bikeable and walkable neighborhood, even without a complete pedestrian or bicycle network.

This section also asked about the bike share and car share programs, B-Cycle and Car2Go. Just over twenty percent of respondents had previously used Car2Go, and only fifteen percent had ever used B-Cycle. Of those who had used these services, less than five respondents said they used them on a more than weekly basis. On the other hand, 75 percent of residents reported using taxis or a rideshare company, with 30 percent saying that they did so several times per month.

Parking and Car Ownership

The survey asked several questions about parking and car ownership. Specifically, it asked whether residents pay for parking or if it is included in the cost of their unit, how many parking spots they have reserved/available for them to use, and how many cars they own.

Overwhelmingly, parking is included in the cost of the units in the neighborhood: almost 90 percent of respondents reported that they do not pay a separate monthly rate for at least one parking space. Most residents were provided with two parking spots, and nearly 80 percent of residents reported having two or more parking spots. However, 44 percent of residents said their household had one or fewer cars. These results suggest that there could be a significant oversupply of reserved parking in the Rainey residential buildings and that developers who are using a ratio of one parking space per bedroom are likely overbuilding. These spaces are a resource that could be used to supplement publicly available parking as well.

The results of the survey show that the Rainey Neighborhood is car independent compared to the rest of Austin. A large majority of Rainey Neighborhood residents already walk and bike as a form of transportation, and more than half take two or fewer vehicle trips per day. If residential developments provided less parking or provided a discount to units with fewer than two parking spaces, car ownership levels among residents may decrease. Car2Go, B-Cycle, and taxi and rideshare companies are all potential options that could assist with any change in mode share as a result (or in a direct attempt to change mode share as a policy).

RESULTS OF THE VISITORS SURVEY

The survey for visitors was shorter than the survey for residents. It asked for the purpose of trips to the neighborhood, the mode used to and from, and if and where visitors found parking. There were 46 responses, split fairly evenly between employees in the area (sixteen) and visitors coming to the neighborhood for bars or entertainment (23). Seven more came for other reasons, such as to visit friends. Fifteen of the sixteen employees responded that they drove to Rainey Street, while only 35 percent of bar patrons said they drove. Respondents, both employees and bar patrons, also indicated that they mostly parked on the street in the area. Although stakeholder groups indicated that there was a problem with cars parking across I-35 in the East César Chávez Neighborhood, where parking is free, not a single respondent stated that that was where they parked.

Of the 23 respondents that stated they came for the nightlife and entertainment options, five stated that they arrived via taxi or a TNC, five responded that they walked, and three stated that they arrived via public transportation.

The survey for visitors likely did not have a large enough response pool, nor was it a random enough sample to truly indicate how the general visitor population of Rainey Street arrives to the area. Intercept surveys, in which people on the street and asked targeted questions, would likely be necessary to understand how and for what purpose people come to the neighborhood. However, it is worth noting that driving remains the primary option for employees.

4. PLANNING DOCUMENT REVIEW

Downtown Austin and the surrounding areas have been experiencing significant growth and change, with many ideas, plans, and initiatives formed for the areas. Some, like a proposal to bury I-35 through downtown between Holly Street and 15th Street, would represent significant mobility and land use changes to the area; others, like the City of Austin's Capital Improvement Plan (CIP), plan out future improvements systematically as part of a funded program. This chapter summarizes the most relevant plans and their potential impacts to the Rainey Neighborhood. They can be categorized as plans that guide development in and around the area, plans that will affect the transportation network, and plans that affect the regulatory environment. Specific developments will be discussed in Chapter 5.

At the outset, it is worth noting that the Rainey Neighborhood has never had a dedicated neighborhood plan. The City of Austin's Planning Department has moved away from neighborhood planning, and it may be unlikely that the neighborhood will have a comprehensive plan. However, this study presents a unique, new opportunity to focus attention and solutions in the area with respect to mobility.

REGULATORY PLANS

A complex set of regulatory and planning documents influence many aspects of life in the Rainey Neighborhood and will in many ways dictate the access for residents, employees, and visitors to the neighborhood. These run from the long-term planning and guidance policy for the entire City of Austin to neighborhood plans developed for nearby neighborhoods.

IMAGINE AUSTIN

City of Austin

In June 2012, the City of Austin City Council adopted a citywide comprehensive plan titled *Imagine Austin*. The plan presents a vision for the future of the city and a framework for achieving that vision. The plan is intended to be a guide that City staff, members of commissions and boards, and elected officials use to align their work with vision and goals of the citizens of Austin. The plan includes elements for land use and transportation, housing and neighborhoods, the economy, conservation and the environment, city facilities and services, society, and creativity, among others.

Imagine Austin calls for compact and connected centers and specifically includes the Rainey Neighborhood in the major center of the region. It also calls for Complete Communities, something that the plan notes is essential to be able to continue to have growth in such centers. The interplay of these concepts are the core

of the issues and opportunities for the Rainey Neighborhood. The neighborhood's growth is actually an essential element of sustainable development of the entire Central Texas region, but on the streets today, basic elements of a complete community are lacking, including sidewalks on both sides of some streets.

A major tenet of *Imagine Austin* is that development "occurs in connected and pedestrian-friendly patterns supporting transit and urban lifestyles and reducing sprawl, while protecting and enhancing neighborhood." Successful development of the Rainey Neighborhood as a complete community will significantly contribute to one of the core goals of Imagine Austin, "increasing transit access and use and reducing vehicle-miles traveled."

EAST CÉSAR CHÁVEZ NEIGHBORHOOD PLAN

City of Austin

The goal of this Neighborhood Plan, which is included as an element of Imagine Austin, is to guide future development, protect the existing neighborhood residents and businesses, and to improve the quality of life of everyone in the neighborhood.

One of the first three pilot neighborhood plans done by the City of Austin in 1999, the East César Chávez Neighborhood Plan covers the area across I-35 from Town Lake to 6th Street and East Avenue to Chicon Street, making it the closest sister neighborhood to the Rainey Neighborhood with a vision from the neighborhood encapsulated in city policy. Several goals articulated in the plan resonate across the I-35 divide, including a desire for safer streets for walking and biking, and specifically making better connections across that divide. The particular unsuitability of the current design of East César Chávez Street to its mixed use urban context was pronounced in this 1999 report and remains an issue on the west side of I-35 as well.

The plan seeks to preserve the single family residential neighborhood character of the area, while allowing for some density to provide more diverse housing. However, feelings from within the neighborhood since adoption of this plan convey that development continues to push out those whose vision was adopted back in 1999.

CODENEXT

City of Austin

One of the first major rewrites of city code since adoption of *Imagine Austin*, CodeNEXT is a comprehensive revamp of the land development code to bring it into the 21st century. The "Land Development Code" determines how land can be used throughout the city – including what can be built, where it can be built, and how much can be built. This process has been in the works for a long time, but is now reaching the phase of a public unveiling of proposed changes and a public process to consider these changes. CodeNEXT

will ultimately be decided by the City Council and as of today, CodeNEXT does not apply to development in the Rainey Neighborhood, but within the scope of the forecasting for this study, it is likely to come into effect.

A major element of CodeNEXT that may be very useful to the Rainey Neighborhood is a comprehensive approach to the use of Travel Demand Management (TDM) by building owners and major tenants. TDM programs are sets of design approaches, policies, and procedures designed to reduce reliance of single-occupancy vehicles. As currently proposed, the City may move toward encouraging or requiring TDM strategies for buildings and enforcing compliance. Some TDM strategies that may be very relevant to developments in the near future in the Rainey Neighborhood would include reducing parking supply, provision of shared vehicles, additional transit access, and decoupling parking spaces from individual housing or office units, which would allow tenants to determine if the specific cost of parking spaces are appropriate for them.

CodeNEXT prescription papers are a set of discussion documents that lay out the various policies expected to be changed in this process. One element included in these is a focus on connectivity in redeveloping areas, which means trying to ensure the pedestrian environment is a pleasant, continuous experience throughout a district that allows many different direct trips, along with an emphasis on connecting the urban grid for all travel. This seems particularly relevant in the Rainey Neighborhood, with a need to coordinate between developers and the city to ensure a functional, beautiful pedestrian environment as a mesh throughout the neighborhood. The study will consider various proposals for better connecting the area.

DOWNTOWN AUSTIN PLAN

City of Austin

The Downtown Austin Plan (DAP) has both an inspiring vision and a detailed action plan for downtown. It includes seven transformative steps for the next 10 years:

- Historic Preservation – Preserve the unique history and culture of the downtown.
- Activities and Uses – Ensure the future growth of the downtown supports a diverse and user friendly urban district.
- Density and Design – Ensure that the downtown can evolve into a compact and dense urban district.
- The Public Realm – Interconnect and enhance downtown's public parks, open spaces and streets.
- Transportation and Parking – Develop a multimodal transportation system to improve access and mobility within downtown.
- Utilities and Infrastructure – Provide a phased utility and infrastructure upgrades that supports the downtown redevelopment.

- Leadership and Implementation – Implement the Plan within the resources and prioritize the community.

These listed items will transform the downtown Austin to a more user-friendly and livable place with adequate infrastructure to accommodate the growth.

GREAT STREETS PROGRAM

City of Austin

The Great Streets program establishes a set of design guidelines for the streetscape and development that create great pedestrian friendly places accessible to all modes of travel. Second Street is a recent example of right-of-way designed per Great Streets guidelines that could be implemented for Red River Street or other streets in the Rainey Neighborhood.

Many planning documents and programs leave the Rainey Neighborhood out of downtown, including the Great Streets program. When the Great Streets program was adopted in 1999, the Rainey Neighborhood remained predominantly a single-family home neighborhood and was not zoned as Central Business District (CBD). However, the intent of the program clearly applies to the entire neighborhood at this point. Per discussion with the Sutton Company, their developments will be planned to treat Red River Street according to the Great Streets program, even though they technically did not necessary need to. Expanding the Great Streets boundaries to the entire district could ease regulatory burden, provide a more predictable market for development and for infrastructure expectations, and provide pedestrians accessibility that many stakeholders held as a priority issue.

DOWNTOWN PUBLIC IMPROVEMENT DISTRICT

City of Austin

The Downtown Public improvement District (PID) reaches across East César Chávez Street to Driskill Street and covers most of the Sutton Company properties (on both sides of Red River Street), but stops there. The existing IHOP is included in that district, but most of the Rainey Neighborhood is outside the PID. The key intersection of East César Chávez Street / Red River Street is within the Austin Downtown Public Improvement District and most of the Sutton Company development (as well as the Fairmont Hotel development) will be paying into that fund.

ZONING OVERLAYS

City of Austin

All parcels within the study area not owned by public entities currently are zoned as Central Business District (CBD), though zoning overlays apply to parts of the area. These zoning overlays add or remove restrictions that might otherwise be applied.

Inside the neighborhood, Central Urban Renewal (C.U.R.E) zoning applies only west of Red River Street and to the Sutton Company tract between Driskill Street and East César Chávez Street. C.U.R.E Zoning Overlay is intended "to provide flexibility and incentives for development within the designated boundaries, including changes to site development standards and waivers from development fees with one application."

The Convention Center overlay applies to the entire neighborhood and is intended to "to protect and enhance the health, safety, and welfare of the public, to promote pedestrian activity and vitality in the Convention Center area, and to protect the existing character of the area."

A Downtown Creeks Overlay applies to a small buffer along the creek and "is intended for combination with the CBD and DMU base districts in order to promote public accessibility and pedestrian use along downtown creeks, and to protect and enhance the scenic character of these creek corridors."

All properties on Rainey Street between Driskill Street and River Street are in the National Register of Historic Districts, which establishes a "geographically-defined area possessing a significant concentration of buildings united by their history and/or architecture" and restricts development in ways intended to preserve this historic character.

All of the neighborhood is within the Waterfront Zoning Overlay, which is "intended to provide a more harmonious interaction and transition between urban development and the park land and shoreline of Town Lake and the Colorado River."

CLIMATE ACTION PLAN

City of Austin

Austin's Climate Action Plan charts an ambitious course to make the city carbon neutral by pursuing a number of policies, many of which focus on land use and transportation. On the whole, these policies endorse dense center city development, TDM policies, and reduced parking requirements, strategies that the Rainey Neighborhood, through its redevelopment, could adopt.

500-YEAR FLOOD PLAIN

City of Austin

A large portion of the neighborhood is inside the 500-year flood plain, something rather rare in Austin for developed areas. Generally, land south of the Van Zandt Hotel is in the 500-year flood plain. This may impact various planning processes and affect insurance for specific parcels. This could impact design considerations for transportation projects, most pronounced being the proposals to sink and cap I-35.

DEVELOPMENT PLANS

As many of those living, working, and visiting the Rainey Neighborhood today are likely aware, the area has been itself been under development for a decade and will continue to grow and change. Several plans contemplate large developments bordering the Rainey Neighborhood, including a major proposed Convention Center expansion and the South Central Waterfront Vision Framework Plan, an award-winning vision that aims to transform the opposite side of Town Lake.

If fully developed, these plans would put as much as 12.5 million square feet of new developed space adjacent to the edges of the Rainey Neighborhood, in addition to the 4.5 to 6.5 million square feet in the Rainey Neighborhood itself. Exploring these expansion plans is both a key input for mobility considerations and a set of opportunities to guide future development to improve the quality of life of current and future residents, employees, and visitors.

AUSTIN CONVENTION CENTER LONG-RANGE MASTER PLAN (2015)

City of Austin, Austin Convention Center Department

The long-range master plan illustrates the future expansion of the Convention Center Facilities, and improvements to the existing infrastructure. The Convention Center was originally built in 1992, and the phase II expansion was completed in 2002. The proposed Phase III expansion will be developed on the west side of Trinity Street, connected to the existing Convention Center via pedestrian bridges to the upper level concourse. Phase III will be a multi-level structure with below grade levels for visitor parking and loading docks. The expansion will allow Austin to advance its goals to become a leader in conventions and events, enhancing Austin's competitiveness in the convention/trade show industry. As more and larger events could draw additional out-of-town visitors, there is potential that this could impact the nearby Rainey Neighborhood, particularly due to the increase in hotels in the area.

The Master Plan calls for improving the streetscape on East César Chávez Street, as it would be the ceremonial front door for accessing the Convention Center. The Master Plan also hopes to enhance the

pedestrian corridors / streetscape on Red River Street north of East César Chávez Street. The preferred expansion plan would eliminate 2nd Street and 3rd Street between Trinity Street and San Jacinto Street, as well as three adjacent alleys in that same span, in favor of new buildings. All of those currently terminate at Trinity Street and the existing Convention Center. While this would extend the street closures created by the original Convention Center, it would also create long blocks on Trinity Street and San Jacinto Street and reduce connectivity in the downtown area.

The recommended plan for the Convention Center expansion does not identify funding that allows for any of the major improvements in area. Additionally, the Master Plan does not clearly state or indicate how the streetscapes or circulation patterns for any mode may be changed with the recommended plan.

WALLER CREEK CORRIDOR FRAMEWORK PLAN (2015)

Waller Creek Conservancy

The Waller Creek Conservancy is a non-profit organization and partner to the City of Austin in revitalizing Waller Creek and the surrounding district. The Conservancy is leading the design and construction of a chain of parks, trails, and public spaces around Waller Creek in downtown Austin. It runs from Waterloo Park at 15th Street to Lady Bird Lake. The first park, Waterloo Park, will be opened in 2018, and the design of other parks are underway. The Waller Creek Conservancy plan hopes to renew the natural environment, as well as to shine light on the creativity and experiences that reflect the diversity and dynamic spirit of Austin.

The Waller Creek Corridor Framework Plan would transform Waller Creek west and north of the neighborhood into a signature park for the City of Austin. The plan would enhance pedestrian connections across Waller Creek itself as well as under the Red River Street / East César Chávez Street intersection. It would potentially generate additional pedestrians in the study area, and the additional and improved connections would provide additional circulation options in the area, including adjacent to the Rainey Neighborhood. The Waller Creek plan would also put a pedestrian-only bridge across Town Lake, connecting the neighborhood to the proposed developments on the opposite waterfront. It is unclear when the Waller Creek project will be funded, although the Waller Park Place development will likely construct a portion of the improvements adjacent to its frontage.

SOUTH CENTRAL WATERFRONT VISION FRAMEWORK PLAN (2016)

City of Austin

The City of Austin recently adopted the *South Central Waterfront Vision Framework Plan* (June 2016). The Plan is an amendment to *Imagine Austin*. The *Plan* aims to establish a vision and provide a cohesive set of recommendations, tools, and programs to guide up to 8.5 million square feet of public and private

development over the next 20-plus years and approximately 118 acres of land. The goal is to ensure that, as this area inevitably changes, every increment of change will contribute to making a great new district that establishes a lively, attractive pedestrian environment, expands open space and create great public spaces, enhances connections to and along the waterfront, and includes 20 percent of new housing units as affordable.

The transportation network established for the South Central Waterfront takes a complete streets approach, to "invest in a compact and connected" city. Complete streets approaches aim to ensure that roadways serve all users and modes of transportation regardless of their age, ability, or mode choice. Roadways are public spaces that serve people walking, biking, driving, or taking transit. The balanced accommodations for all modes through this transportation framework is supportive of this effort for complete streets.

Some specific recommendations are made in the study area with respect to transportation network improvements, and it is clear that pedestrians, bicyclists, and transit riders are to be made a priority in the study area. The *Plan* includes information about adding right-of-way to increase the pedestrian space throughout the study area, removing vehicle travel lanes in certain areas of the study area, adds buffered and protected bicycle lanes adjacent to the Project on West Riverside Drive and Barton Springs Road, and adds raised curb transit stops away from the sidewalk.

Much of this development would be within a twenty minute walk of the Rainey Neighborhood. Increased density directly across the lake may also facilitate greater transit for the area. Capital Metro is exploring the concept of a new transit bridge across Town Lake at Trinity Street in its Project Connect process that would serve both sides of the lake with new high capacity transit.

TRANSPORTATION PLANS

With its location at the center of a metropolitan region currently home to over two million people, and potentially growing to perhaps four million in the next 25 years, many plans have looked at transportation issues and potential solutions that may improve, impact, or in some other manner affect the Rainey Neighborhood. These plans range from long range visions for freeways to a citywide comfortable bicycle and pedestrian network to specific plans for the Rainey Neighborhood and the greater downtown Austin area.

ATD RAINEY STREET RECOMMENDATIONS (2013)

City of Austin Transportation Department

The Austin Transportation Department attempted to address transportation issues in the Rainey Neighborhood in 2013 with a process that engaged multiple departments with the neighborhood and brought a set of recommendations to City Council. There is some disagreement among the residents why these recommendations were not further pursued, but the major changes have so far not been pursued. A January 16, 2013 report contains these recommendations:

- Convert Rainey Street to one-way northbound from River Street to Driskill Street.
- Incorporate a buffered cycle track into the design (similar to Rio Grande).
- Add/repair sidewalks and bulb-outs as required to achieve ADA compliance.
- Redesign the traffic circle at the River Street / Rainey Street intersection to clearly identify pedestrian pathways.
- **Modify the traffic calming devices on Rainey Street and Davis Street.**
- Provide for delivery hours/zones.
- Implement Parking Management District to finance improvements.
- **Add reverse angle parking on East Avenue and meter the parking.**
- **Meter the parking at the MACC lot per MACC Board recommendation.**
- Improve roadway/pedestrian lighting.
- Collaborate on promenade connecting to Sabine Street.
- Collaborate on realigning East César Chávez Street / Red River Street intersection.

A revised presentation in July of 2013 changed these recommendations to maintain Rainey Street with two-way circulation with **parking on the east side and a striped shoulder, bicycle racks, and pedicab stands on the west side (with sharrows in travel lanes)**. Only bolded items have been implemented in the interim.

MOBILITY35 IMPLEMENTATION PLAN (2015)

Texas Department of Transportation

The Mobility35 Implementation Plan, formerly known as the I-35 Capital Area Improvement Program Corridor Implementation Plan, is based on a study that focused on the Travis County, Williamson County, and Hays County portions of I-35. Freeway expansions have significant impacts on regional travel patterns and land use. Potential expansion and/or re-configuration of I-35 could Rainey Neighborhood impact with respect to the circulation and mobility in and around the neighborhood, as well as a potential increase in vehicle traffic from any capacity expansion in the I-35 corridor, its frontage roads, or ramp terminal intersections.

The Texas Department of Transportation (TxDOT) is currently evaluating two alternatives for the seven-mile core of Austin, both of which include adding a lane of travel in each direction as a High Occupancy Toll (HOT) lane, which could also be used for Bus Rapid Transit (BRT). One alternative is to raise the new expanded freeway above the existing grade and the other is to bury it underground from Holly Street to 15th Street, with the ability for caps to be installed over the freeway.

Both plans could induce additional future vehicle traffic through the study area, as the expansion of the freeway will encourage people to drive longer distances and choose housing locations that utilize the additional freeway capacity. However, the additional land available from the could be used for a variety of residential and commercial development, park space, and additional mobility connections, which would help alleviate the existing constraints for travel in the northbound direction through the neighborhood.

2040 REGIONAL TRANSPORTATION PLAN

Capital Area Metropolitan Planning Organization

Capital Area Metropolitan Planning Organization (CAMPO) conducts transportation planning and coordination in the Capital Area, a six-county region that stretches from Austin to San Marcos to Bastrop to Georgetown to Johnson City. The major guiding document for the region's transportation future is the 2040 Regional Transportation Plan (RTP), which includes all major projects that local and state governments, transit agencies, regional mobility authorities, and others plan to build over a significant horizon.

2045 ACTIVE TRANSPORTATION PLAN

Capital Area Metropolitan Planning Organization

The 2045 Active Transportation Plan has just begun with a series of community workshops occurring in January and February 2017. The plan will provide a framework for the region to facilitate pedestrian and bicycle facilities integrated into the regional transportation network and pursue policies to allow and encourage active transportation.

CAMPO has conducted a focused study along the Near Northwest Corridor Study, the area along US-183 from MoPac (TX-1) in Austin to Cypress Creek Road in Cedar Park. This plan includes recommendations for developing a grid network of safe and comfortable streets across the study area for all modes of travel, reconnecting the urban street grid where necessary. CAMPO plans to use the findings from this study for similar places across the region, of which the Rainey Neighborhood is one, with its relationship to a major freeway and disconnected street grid.

Elements of the proposals for the Near Northwest Corridor Study seem applicable to the Rainey Neighborhood, such as designing surface streets for a safe speed of travel, ensuring a functioning grid, and

reducing the barrier effects of freeways separating neighborhoods. The final 2045 Active Transportation Plan should dramatically impact regionally significant projects, such as the rebuilding of I-35.

CONNECTIONS 2025

Capital Metro

Connections 2025 is Capital Metro's 10-year plan, which wrapped up in the middle of 2016. The major initiative of Connections 2025 is a radically different bus map that would create frequent, direct routes across the city. The Rainey Neighborhood itself will not see significant changes from this revision: currently, there are no buses through the neighborhood and there is no plan for buses through the neighborhood. A bus route, the #17, that currently goes west across the north edge of the neighborhood on East César Chávez Street and then north on Red River Street, will instead stay on East César Chávez Street. However, the improvements to the rest of the network could result in increased transit use to the neighborhood.

Other proposals in Connections 2025 would have a more dramatic effect. These include a downtown circulator route, increased frequencies on MetroRail, and Bus Rapid Transit on I-35. These proposals would provide additional options for moving to and around the east side of downtown, including the Rainey Neighborhood. There is no timeline for these improvements, however.

PROJECT CONNECT 2.0

Capital Metro

Project Connect 2.0 is a study to identify a potential high capacity transit network connecting Central Austin. Possible projects could include a light rail line or BRT. Its impact on the Rainey Neighborhood will depend on what projects move forward in the process, as well as the potential timelines. Project Connect 2.0 is intended to build an initial plan ready to go to the voters in 2018 and a more ambitious regional plan in 2020.

Several proposals on the table would impact the Rainey Neighborhood. A proposal to optimize new managed lanes in I-35 for BRT could bring a high capacity transit station directly to the neighborhood. Significant upgrades to the existing MetroRail red line could reduce headways during peak periods. A circulator route is proposed to run from the UT Medical area along Red River Street from East Martin Luther King Jr. Boulevard to East César Chávez Street, but would stop short of the Rainey Neighborhood. Proposals for various other high capacity transit lines that would run across downtown could provide greater access to and from the Rainey Neighborhood.

METRORAIL DOWNTOWN STATION PLAN

Capital Metro

Capital Metro is moving forward with TxDOT grant funding to rebuild the Downtown Station of MetroRail at East 4th Street / Red River Street. The changes will allow running trains more frequently, moving up to every 15 minutes at peak travel times. Additionally, the Austin Transportation Department worked with Capital Metro to consider various design issues that will dramatically transform the area. Closing two blocks of East 4th Street to car traffic will allow a large pedestrian plaza with an innovative curb-less ADA treatment.

While studying the impacts of closing the street, ATD conducted traffic counts in Downtown Austin during weekend evenings. Armed with a new understanding of the traffic patterns, they have designed a set of changes which include converting East 5th Street to a two-way street, which they believe will reduce a congestion issue that slows vehicles on East 5th Street during typical weekend evenings.

AUSTIN STRATEGIC MOBILITY PLAN

City of Austin

The Austin Strategic Mobility Plan is currently under development and will expand the vision of the Imagine Austin Comprehensive Plan into actionable mobility-related goals and objectives to guide Austin's near- and long-term transportation investments. The planning process to develop the Austin Strategic Mobility Plan launched in fall 2016 and is being coordinated with other mobility planning initiatives. Following a robust community engagement and technical evaluation and coordination process, staff anticipates bringing the ASMP to the Austin City Council for adoption in early 2018. The ASMP will include prioritized policies, programs and projects throughout the city of Austin, will be inclusive of all modes of transportation (biking, walking, driving, taking transit, etc.) and will guide Austin's transportation investments for the next 10+ years. It is being conducted in conjunction with Project Connect and will wrap up in early 2018.

CAPITAL IMPROVEMENT PROGRAM

City of Austin

The Austin Capital Improvement Project Program is updated yearly, and identifies important infrastructure projects for the City to fund based on a number of criteria, including a needs assessment and existing city plans. Current projects slated for the Rainey Neighborhood include landscape improvements for the MACC, paving the alley between Rainey Street and the I-35 Southbound Frontage Road, and park improvements to make the hike-and-bike trail ADA accessible at the south end of the neighborhood. The final improvement was under construction at the time of this writing.

VISION ZERO ACTION PLAN

City of Austin

The Cities of Austin and San Antonio are currently the only cities in Texas with an explicit policy goal of ending traffic-related deaths through a comprehensive, multi-disciplinary approach. The City of Austin Vision Zero Task Force has created a Vision Zero Action Plan that was added as an amendment to *Imagine Austin* by City Council. Elements of the plan may affect the neighborhood as it redevelops with a preference for prioritizing safety in roadway and transportation system design. Another element of the Vision Zero Action Plan that may affect the Rainey Neighborhood will be efforts to curb the deaths and serious injuries from drunk driving, from police enforcement strategies to providing safe travel options.

DOWNTOWN PARKING STRATEGY

Downtown Austin Alliance

As mentioned, the Downtown Austin Alliance initiated an extensive assessment of parking in downtown Austin, including the Rainey Neighborhood. A Briefing Book containing data on parking spaces, rates, and use as well as assessments of policies, is published, but the second phase of the report that will include recommended solutions will not be published until the Spring of 2017.

This section of findings seems especially relevant to the Rainey Neighborhood:

> "There is a significant number of past and present planning efforts for downtown. In general, all of these plans reinforce a downtown vision that prioritizes ongoing vitality, economic growth, multimodal access, and reduced reliance on single-occupancy vehicle trips.
>
> All of the planning efforts acknowledge the key role of parking in downtown Austin, and most recognize that parking can and should be improved with new management approaches.
>
> The plans reveal a tremendous amount of future growth. From a parking perspective, most of the plans address that growth by seeking to add a significant amount of parking.
>
> Within each plan, there is limited thinking of building or managing parking from a unified 'downtown' perspective. The plans for new parking supply largely envision that supply as targeted to a specific or limited set of users. This 'silo' approach does not respect the vision for a 'park-once' downtown, where parking is shared extensively."

According to the report, parking meter revenues for the entire downtown study area were approximately $4.3 million for the 2015-16 fiscal year, most of which was spent on transportation-related solutions around downtown. The largest designation was $1.3 million for six new signals and six new pedestrian hybrid beacons. The report does not indicate how the funds were allocated across the greater downtown area. It may be feasible for some of these funds to be used for improvements in the Rainey Neighborhood.

One element the study noted was that existing three-hour time limits are not obeyed. Along with another conclusion that on-street parking meters are underpriced across the City, the report suggests raising prices while removing the time limit (along with enforcing violations), such that the free market can maintain the availability of parking and drivers will self-regulate. This would present a solution to an issue heard during stakeholder outreach; service staff could not use metered parking spots because they could not leave their shifts to refill the meter.

The report also advocates for shared use of parking spaces, including possibly finding ways to free up private spots that are often underutilized. Downtown Austin currently has 65,099 off-street parking spots and 6,405 on-street parking spots. The average hourly rate of private parking spots in downtown Austin is $3.65 while the City hourly rate is $1.20 an hour. The average monthly rate is $200.

5. POTENTIAL DEVELOPMENT/RE-DEVELOPMENT PARCELS

The Rainey Neighborhood is still transitioning from a low-density residential neighborhood into part of downtown Austin. There are nearly a dozen projects that are currently under construction, planned for development, or announced for development. These are detailed below, divided into sites where ground has been broken, sites with an approved site plan, sites where a site plan has been filed, and sites where developers have indicated they will develop, but have not filed a site plan.

In addition, several more parcels in the area are currently held by development companies and are likely to be built on at some point, even though no plans have been indicated. All sites are mapped in **Figure 9**.

UNDER CONSTRUCTION

HOMEWOOD SUITES

- **Location:** 78 East Avenue, along the I-35 Southbound Frontage Road, South of the Millennium.
- **Description:** The Homewood Suites at East Avenue is a hotel development, expected to be 17 stories with 150 rooms.

70 RAINEY

- **Location:** 70 Rainey Street, just north of River Street.
- **Description:** 70 Rainey is proposed to be a condominium tower. It will be 34 stories and have approximately 173 units.

SITE PLAN APPROVED

WALLER PARK PLACE

- **Location:** On the west side of Red River Street between East César Chávez Street and Davis Street. It abuts the east bank of Waller Creek.
- **Description:** The largest development in the area to date, Waller Park Place will have three large towers: a 26-story office tower, a 54-story residential tower, and a 55-story hotel and condominium tower. In total, the development will be about 1.4 million square feet. A portion of the Waller Park

Place development is along Waller Creek and will provide significant improvements to the water frontages.

HOTEL RAINEY

- **Location:** 62 East Avenue, just north of River Street.
- **Description:** This site is planned to be a four- to six-story boutique story hotel, with 24 to 28 rooms. It was originally permitted in 2015 and then re-permitted in August 2016. However, ground has not been broken. In 2015 the original developer, Kimber Modern, pulled out of the project.

SITE PLAN FILED

48 EAST AVENUE

- **Location:** 48 East Avenue, mid-block between Cummings Street and Rainey Street.
- **Description:** 48 East Avenue is a proposed residential tower with ground floor retail and a restaurant. It is proposed to be 31 stories in height and have 246 units, with 11,250 feet of retail, and 267,500 total square feet of development.

CAMBRIA HOTEL

- **Location:** 68 East Avenue, mid-block between Driskill Street and River Street.
- **Description:** This is a proposed 12- to 15-story hotel. An initial site plan was submitted in November 2016, and as yet the number of rooms and exact height are unknown.

EAST AVENUE APARTMENTS

- **Location:** 16 East Avenue. The East Avenue Apartments are located at the southeast end of the study area, between East Avenue, the I-35 Southbound Frontage Road, and the Holiday Inn.
- **Description:** This development has been proposed and withdrawn several times, first as the North Shore Lofts, then as the Town Lake Lofts, and now as the East Avenue apartments. The current proposal is for a 32-story tower with 226 units.

PLANNED DEVELOPMENT

THE VILLAS

- **Location:** 80 Red River Street, at the southwest corner of Davis Street and Red River Street, across from the Shore Condominiums and the Hotel Van Zandt.
- **Description:** The site is currently several three- to four-story condominium buildings with a total of 66 units. As of 2017, the Sutton Company is under contract to purchase the site. They are expected to demolish the existing buildings, and build approximately 1.1 million square feet of commercial and residential development.

SUTTON COMPANY PROPERTY AT DRISKILL

- **Location:** This is currently the surface parking lot east of Red River Street, north of Driskill Street, south of East César Chávez Street, and west of the IHOP.
- **Description:** No firm plans have been announced, but the Sutton Company is expected to develop 900,000 square feet here.

MEXICAN AMERICAN CULTURAL CENTER MASTER PLAN

- **Location:** 600 River Street. The Mexican American Cultural Center is located in the southwest corner of the study area, between Rainey Street and Lady Bird Lake.
- **Description:** The Mexican American Cultural Center is undertaking a master plan to begin sometime in mid-2017. There are some indications that there will be a substantial expansion, including possibly some large multi-story buildings or a large parking garage.

POSSIBLE REDEVELOPMENT

Several lots have potential for redevelopment, as identified by ownership groups with interests in the land and discussions with various stakeholders. No developer has announced plans yet for any of these sites, which are laid out in **Table 15**.

TABLE 15: POTENTIAL REDEVELOPMENT SITES

Address	Owner	Current Use
91 Red River	91 Red River Redevelopment Group (Endeavor)	Small house and surface parking lot
93 Red River	93 Red River Redevelopment Group (Endeavor)	Small warehouse and surface parking lot
707 East César Chávez	World Class Capital Group	IHOP
76 East Avenue	Endeavor Capital LLC	Undeveloped
50-56 East Avenue	WC 56 East Avenue LLC	Travis County Psychiatric Emergency Services
74-78 Rainey Street	Vacant	Sackman Enterprises Offices

Source: BIG RED DOG Engineering, 2017.

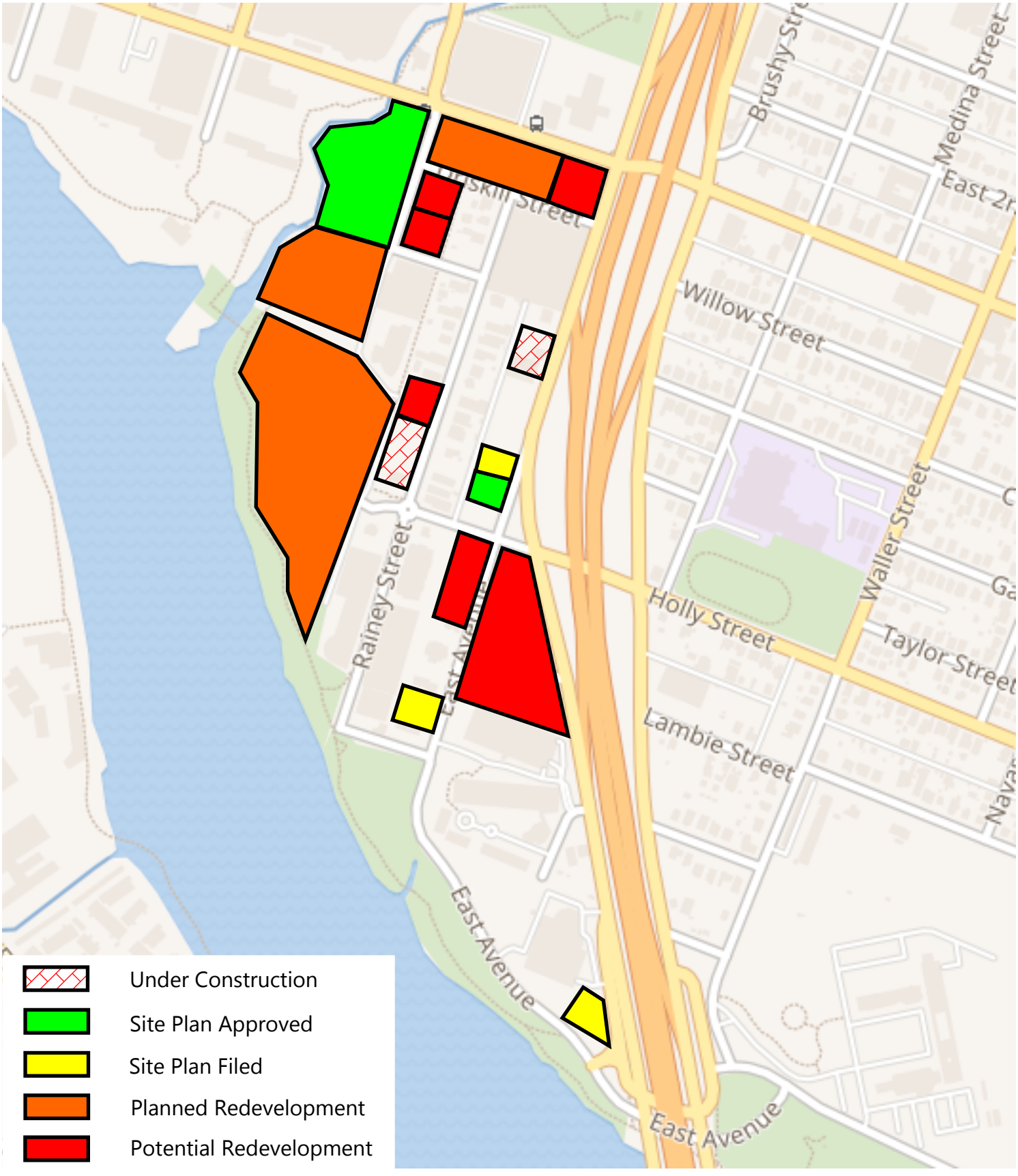


Figure 9
Potential Growth Parcels

TRIP GENERATION FOR IDENTIFIED PARCELS

As mentioned in Chapter 2, there are many variables to consider for trip generation, many of which are more subtle than can be considered using traditional trip generation estimates from rates included in the most current version of a handbook entitled *Trip Generation,* produced by the Institute of Transportation Engineers (ITE). The ITE handbook itself says that local data should be weighted more heavily than the standard rates, should it be available.

From Table 12 in Chapter 2, the daily trip generation for each development was lower than what would be anticipated according to standard ITE rates, for which there are several explanations. With the mix of uses in both the Rainey Neighborhood area and the downtown area, the density of both the land uses and the transportation network throughout the area, the availability of alternative modes, and the demographic profile of the Rainey Neighborhood, other methodologies that consider these subtleties would anticipate a much lower vehicle trip generation total.

With this understanding, vehicle trip generation estimates were developed using standard ITE rates for most of the presumed land uses, then reducing those estimates by 30 percent. Based on the data collected, it is anticipated that land uses in the Rainey Neighborhood generate at most 70 percent of the vehicles that would be estimated using ITE's *Trip Generation*.

In truth, it is likely that the true trip generation totals would be even lower as the neighborhood continues to grow. A greater mix of uses, a greater density, and greater connectivity with downtown Austin would all contribute to vehicle trip generation reduction. Additionally, the City of Austin will begin requiring new developments to further reduce trips as part of their new transportation requirements for site plan and zoning approvals. These TDM techniques typically measure reductions as compared to standard ITE trip generation rates and totals, although most of these projects will have a 30 percent head start before they begin construction.

The reduced trip generation estimates for each of the parcels mentioned in this chapter are included in **Table 16**. A complete set of tables and trip generation rates is included in **Appendix F**.

All told, these developments represent approximately:

- 2,000 new hotel rooms
- 2,000 new apartments
- 750 new condominiums
- 1,550,000 square feet of new office space
- 105,000 square feet of new retail and restaurant space

The office space represents about 40 to 45 percent of the peak hour trip generation, but only 25 percent on the daily trip generation. The residential developments represent between 20 and 25 percent of the vehicle trip generation during both peak hours and throughout the day. The three Sutton Company developments (Waller Park Place, Villas on Town Lake redevelopment, and development of the parking lot on Driskill Street) represent 40 percent of the daily trip generation and 45 to 50 percent of peak hour trip generation. The Fairmont Hotel represents about 11 percent of peak hour trip generation as well, though it is not technically within the Rainey Neighborhood.

TABLE 16: ESTIMATED TRIP GENERATION FOR IDENTIFIED REDEVELOPMENT SITES

Development Name	Land Use	Daily Trips	AM Peak Hour Trips	PM Peak Hour Trips
Homewood Suites	Hotel	858	56	63
70 Rainey	Condo	704	53	63
Waller Park Place	Condo, Hotel, Apartment & Office	5,641	575	587
Hotel Rainey	Hotel	160	10	12
48 East Avenue	Apartment & Retail	1,853	94	166
Hotel Cambria	Hotel	858	56	63
East Avenue Apartments	Apartment	1,052	81	98
Villas on Town Lake	Condo, Hotel, Apartment & Office	5,641	575	587
Sutton Company (Parking Lot)	Office & Retail	4,846	573	630
MACC Master Plan	Parks and Recreation	N/A	26	95
91 & 93 Red River Street	Condo	704	53	63
World Class Capital (IHOP)	Office & Retail	2,748	328	343
54 East Avenue	Apartment & Retail	3,675	188	329
76 East Avenue	Hotel	858	56	63
74 & 78 Rainey Street	Office & Restaurant	1,851	96	204
47, 49 & 51 East Avenue	Apartment & Retail	3,675	188	329
Fairmont Hotel (Red River)	Hotel	6,005	390	441
TOTAL		***41,129***	***3,398***	***4,136***

Source: BIG RED DOG Engineering, 2017.

TRIP DISTRIBUTION AND ASSIGNMENT FOR ADDITIONAL TRIPS

Trip distribution is defined as the directions of approach and departure that vehicles would use to arrive at and depart from the Rainey Neighborhood. Trip distribution for trips related to future development was based on existing travel patterns in the area. Entry and exit vehicles at the access points to and from the neighborhood were totaled and percentages were developed for both the AM and PM peak hours and for both inbound and outbound trips.

While the neighborhood is currently predominantly residential, significant office, retail, and restaurant is anticipated to be included with future development. As such, existing travel patterns were supplemented with U.S. Census data originating in this area of the City of Austin to further refine the anticipated distribution.

The destinations were generally tied to nearby significant generators (downtown Austin) and regional routes (including I-35 and TX-1). The general directions of approach and departure for the AM and PM peak hours are summarized below in **Table 17.**

TABLE 17: TRIP DISTRIBUTION

Location	Trip Distribution
East César Chávez Street (west)	25%
East César Chávez Street (east)	15%
I-35 and Frontage Roads (north)	15%
I-35 and Frontage Roads (south)	15%
Red River Street (north)	15%
Holly Street (east)	10%
East Avenue (south/east)	5%

Source: BIG RED DOG Engineering, 2017.

The Project trips were assigned to the roadway system based on the directions of approach and departure discussed above. Project trips were also assigned to the roadway network based on their desired paths and did not take into account existing queuing or maneuverability at the driveway entrances. Currently, no westbound left turns are allowed due to construction of the Fairmont Hotel. However, new vehicle trips due to future development were assumed to be allowed to make this movement.

Additionally, the lack of access from certain parcels to certain destinations and vice versa due to I-35 and its one-way frontage roads, Waller Creek, and Lady Bird Lake led to some long and indirect routes.

Table 18 updates the volumes shown in Table 3 with anticipated vehicles from future development. Many of these roadway segments would be expected to see significant increases to vehicle volumes. However, these volumes do not consider the constraints of East César Chávez Street and I-35 mentioned throughout this document; as such, these volumes represent demand volumes and would not be anticipated to actually materialize at these locations. The numbers in Table 18 also reflect all developments to be built out at the intensities mentioned earlier in this chapter.

TABLE 18: VEHICLE ACCESS LOCATIONS BY FUTURE VOLUME

Location	Daily[1]		AM Peak Hour[2]		PM Peak Hour[3]	
	Existing	Future	Existing	Future	Existing	Future
Entering Vehicles						
Red River Street (just south of East César Chávez Street)	3,703	10,487	283	1,021	207	673
Driskill Street (just west of I-35 Southbound Frontage Road)	1,010	4,919	58	514	37	268
River Street (just west of I-35 Southbound Frontage Road)	2,239	6,477	162	568	222	580
East Avenue (just south of River Street)	733	4,375	60	191	61	634
Rainey Street (just south of River Street)	1,276	1,778	124	151	67	135
Total Entering Vehicles	***8,961***	***28,036***	***687***	***2,445***	***594***	***2,290***
Exiting Vehicles						
Red River Street (just south of East César Chávez Street)	3,535	11,813	92	546	359	1,471
Driskill Street (just west of I-35 Southbound Frontage Road)	1,159	2,782	19	104	110	333
River Street (just west of I-35 Southbound Frontage Road)	2,815	8,070	123	568	153	668
East Avenue (just south of River Street)	646	4,587	46	444	51	359
Rainey Street (just south of River Street)	1,369	1,998	51	122	160	200
Total Exiting Vehicles	***9,524***	***29,249***	***331***	***1,784***	***833***	***3,031***

Source: BIG RED DOG Engineering, 2017.

ROUGH PROPORTIONALITY

Rough proportionality establishes a maximum cost of the additional traffic to the surrounding transportation system. Cities maintain that developers should pay roughly that amount to the jurisdiction to fund either specific improvements or future unidentified improvements. Developers maintain that cities can hold them responsible for no more than the rough proportionality standard. For years, cities throughout Texas have had a rough proportionality standard in their respective ordinances, which have been enforced to various degrees.

Often, developers have paid for only their share of specific improvements identified in transportation impact studies; this manner of collecting for improvements can miss the larger picture regarding the surrounding transportation network and leave identified improvements unfunded and often unbuilt. Transportation impact studies are also limited to the extent of the studied area and do not consider the full impacts of the project on the transportation system.

If developers pay for only their fair share of specific improvements, it can be difficult for jurisdictions to guarantee the remaining funds needed to construct those improvements before developments are occupied and begin generating traffic.

Jurisdictions can request that an improvement be fully constructed by a developer instead of collecting the fair share cost of a specific improvement; this is typically done in lieu of payments for other improvements (and this should also be done only if the cost of that improvement is roughly proportional to the impact of the development). This provides security for the governing jurisdiction that improvements are built.

Developers are not under legal obligation within Texas to comply with these requests, though many do comply to improve the communities they are developing within, to show to their new neighbors and other stakeholders their willingness to make improvements, and to help expedite review processes (i.e. eliminate negotiations with the reviewing jurisdiction).

By enforcing rough proportionality, jurisdictions are effectively establishing a cap on an impact fee per development, but are also not tying payments to any specific projects. Under this methodology, some developments can pay nothing if they are not found to directly impact existing facilities, while others foot the bill for significant improvements simply based on their location.

IMPACT FEES

As an alternative, some jurisdictions require payment of impact fees, in addition to determining the appropriateness of improvements specific to the development identified in impact studies. These impact fees are typically based on Capital Improvement Programs (CIPs) and other long-term planning documents that determine the transportation needs of the surrounding area. Fees are then collected from every development, regardless of their specific impacts.

Impact fee programs are by their definition roughly proportional, and many jurisdictions allow for a credit for the cost of any specific improvements offered by developers or required by the jurisdictions against the impact fee payment.

Under this method of fee collection, jurisdictions take a larger view of their transportation network and can ensure that improvements are consistent with all planning documents applicable, including bicycle and pedestrian master plans, transit plans, and specific area or corridor plans. This also ensures that jurisdictions ensure that their transportation network grows per their local vision and in proportion to their land uses, allowing the transportation network to effectively serve both existing and future citizens and guests.

Impact fees and rough proportionality parameters are determined from the cost of the anticipated improvement projects and the anticipated proportion of the traffic due to future growth. This is an important point – these fees should only include the proportion of the cost that is attributable to growth. It cannot be used to maintain existing facilities or alleviate existing issues. As such, it may not be directly applicable in this instance.

These fees are then whittled down to a cost per unit, where they represent maximums that can be charged to development as the cost of maintaining the transportation system on account of future growth.

Fees are subject to jurisdiction approval and a public review process. Fees can be per land use unit (square foot or dwelling unit) or per vehicle trip generated by the development.

This type of development impact fee could be instituted within a smaller area (such as the Rainey Neighborhood), should a defined set of improvements be created and a methodology codified. The City of Austin is currently reviewing their rough proportionality policy and undergoing initial investigation into a potential transportation impact fee.

CITY OF AUSTIN ROUGH PROPORTIONALITY CALCULATION

The City of Austin requires transportation-related improvements from developers as a condition of development approval. The border street policy requires dedication of ROW and/or construction or fees in lieu for streets adjoining proposed development. Per the City's *Rough Proportionality Determination Procedures (August 2015),* "the amount of ROW and street construction is determined by the adopted thoroughfare criteria in the City of Austin's Austin Metropolitan Area Transportation Plan (AMATP or Transportation Plan) and Transportation Criteria Manual (TCM), an approved collector plan, or an established capital improvement project."

The traffic mitigation policy "authorizes staff to require ROW, construction, and/or fees in lieu to offset the effects generated by development...identified by a Neighborhood Traffic Analysis (NTA) or a Traffic Impact Analysis (TIA)."

The document states that if the requirements are more than five percent higher than the estimated demand generated by the proposed project, they are not roughly proportional and need to be adjusted to meet the rough proportionality standard. Requirements that total less than the rough proportionality demand calculation must still meet the nexus established above in the two City policies. The rough proportionality demand calculation is not a total by which the City can require additional exactions that do not meet the nexus established above. The same document states that the impact of development on the transportation network:

"...is based on the transportation demand in vehicle-miles and the estimated average cost per vehicle mile of roadway in Austin, including costs for construction, engineering and administration, and right-of-way. The estimated average cost per vehicle-mile is calculated for each roadway classification on the Summary of Roadway Costs tab."

It should be noted that new development cannot legally be required to fix issues created by past land use and transportation planning decisions. The City's own presentation to the Mobility Committee in August of 2015 indicates the need for a CIP and a transportation impact fee to effectively enforce this standard.

Currently, the City of Austin's calculation indicates that approximately $3,400 per peak hour trip can be collected for transportation improvements. Based on the trips included Table 16 for future development, approximately $13.4 million could be collected from developers for transportation improvements in the area. This includes the 30 percent trip generation reduction for the neighborhood. Removing the under construction and site plan approved sites (Fairmont Hotel, Homewood Suites, 70 Rainey, Waller Park Place, and Hotel Rainey) would reduce the total rough proportionality calculation to ***$9.3 million.***

6. FUTURE CONDITIONS / RECOMMENDED IMPROVEMENTS

The Rainey Neighborhood Mobility Study & Plan consisted of two major phases: the first included data collection, outreach, and identification of mobility challenges, while the second comprised visioning and potential implementation of the improvement plan.

This chapter contains detailed recommendations for proposed modifications throughout the Rainey Neighborhood. Improvements that address all modes of travel are described and illustrated for major segments and key intersections. Each includes a description of current conditions, alternatives considered and rejected (if applicable), proposed improvements, projected operations and performance assessment, and design considerations and any physical or infrastructure constraints (if applicable). Plan and section diagrams and other graphics provide additional guidance and illustrate desired outcomes.

These recommendations collectively form the basis for preliminary cost estimation, financing, and other implementation actions to be undertaken.

Table 19 summarizes the issues that were generated throughout the data collection and stakeholder outreach process. The issues are categorized by the mode or area of transportation that they are most likely to impact, even though several of these issues/improvements have effects on multiple modes. Potential improvements are described, as well as a timeline for potential implementation (generally for construction of the potential improvement, not including planning, engineering, etc.). Each of these improvements are discussed in further detail throughout this chapter. A set of figures in **Appendix G** lay out these improvements throughout the neighborhood.

TABLE 19: RAINEY NEIGHBORHOOD POTENTIAL MOBILITY IMPROVEMENTS

Category	Issue	Strategy Description
Vehicle Mobility	Peak Period Congestion	Congestion stems from I-35 and East César Chávez Street – adding capacity within the neighborhood would only encourage cut-through traffic. Instead, the neighborhood should focus on new connections to the west (extending Davis Street across Waller Creek), south (to connect to the South Central Waterfront developments), and east (burying I-35).
	Additional Connections into/out of Neighborhood	Extend Rainey Street to East César Chávez Street for right-in, right-out intersection.
		Extend Davis Street across Waller Creek and connect to Trinity Street.
	Wayfinding Signage	Provide neighborhood-specific wayfinding signage for important locations, parking.
	Weekend Late Night Congestion	Pedestrians and passenger loading create much of the vehicle congestion in the area. With a complete pedestrian network and designated loading area for passenger vehicles, travel lanes would not be blocked during weekend late night time periods.
	Northbound/Southbound Connectivity	Upgrade alleys between Davis Street and River Street and re-consider treatment at 70 Rainey and MACC.
		Consider extending Red River Street through MACC and connect to River Street.
	Cut-through Traffic	There is currently some evidence of cut-through traffic on Red River Street and Driskill Street around eastbound East César Chávez Street congestion. Traffic calming devices for Driskill Street should be considered to reduce speeds on this street. This could become a greater issue with more connections and increased vehicle capacity internal to the neighborhood.
	Queuing at Development Access Points	Security gates at parking garages should be farther from right-of-way and should be designed to contain queuing on-site.
		Access points for new developments should be kept off of major streets within neighborhood (Rainey Street, Red River Street, East César Chávez Street, River Street).
	Policy	Require TDM Plans for each new development with detailed standards / enforcement plans.

TABLE 19: RAINEY NEIGHBORHOOD POTENTIAL MOBILITY IMPROVEMENTS

Category	Issue	Strategy Description
Pedestrian Mobility	Lack of Continuous Sidewalks Internal to Neighborhood	Provide curb-separated pedestrian facilities on both sides of all streets.
	Missing crosswalks/sidewalks along East César Chávez Street	Require Sutton Company development on this parcel to provide appropriate pedestrian access along East César Chávez Street.
	Red River Street / East César Chávez Street Intersection	There are several options to improve the intersection, but modifying the northwest corner of the intersection may be the most practical. Leading pedestrian intervals could also be provided to enhance the visibility of pedestrians at the intersection.
	Pedestrian Access Across I-35	Improve crossings, lighting, and aesthetics at East César Chávez Street and River Street.
	Rainey Street / River Street intersection	Improve pedestrian conditions (including sight distance) at roundabout; formalize crossings.
	River Street / East Avenue / I-35 Southbound Frontage intersection couplet	Leading pedestrian intervals could be provided to enhance the visibility of pedestrians at the intersection.
	Pedestrian-Scale Lighting	Provide pedestrian-scale lighting at identified locations throughout neighborhood.
	Pedestrian-Scale Wayfinding	Provide neighborhood-specific wayfinding signage for important locations.
	Pedestrian Connections	Consider pedestrian connections across Lady Bird Lake and Waller Creek, regardless of potential vehicle connections.
	Other Pedestrian Safety Issues	Include speed tables and other traffic calming improvements at certain locations.
Bicycle Mobility	Establishing Comfortable Bicycling Routes	Bicycle routes through neighborhood should be established with traffic calming, sharrows.
	B-Cycle Stations	Replace station lost at 64 Rainey. Consider MACC as potential replacement.
	Public Bicycle Parking	Replace bicycle parking equivalent to or greater than what was lost at 64 Rainey.
		Convert some public on-street parking spaces to public bicycle parking.
	Connections to Regional Routes	Consider additional connections to Butler Hike-and-Bike Trail at MACC, from East Avenue, along Bierce Street, and Waller Creek and Waller Creek developments.
Transit Mobility	Transit Access Within Neighborhood	Supplement CapMetro service with shuttles (Chariot, TMA, Project Connect UT circulator).
		Ask Capital Metro to consider extending the 21/22 to MACC
	Pedestrian Access to Transit Stops	Complete pedestrian network and add connections / crossings to shorten trips to existing transit stops.
	Transit Stop Improvements	Formalize stops on East César Chávez Street.

TABLE 19: RAINEY NEIGHBORHOOD POTENTIAL MOBILITY IMPROVEMENTS

Category	Issue	Strategy Description
Parking	On-Street Public Parking	Remove on-street parking on Rainey (and north of River Street) on evenings after 8:00 PM.
	Off-Street Public Parking	Provide wayfinding signage for parking lots/garages.
		Consider electronic signage with locations, costs, and/or available spaces.
	Off-Street Reserved Parking	Reduce reserved parking and make individuals pay true cost of space.
	Parking Policy	Standardize / raise parking price for on-street and off-street spaces.
		Lengthen duration of parking allowance.
		Apply for Parking and Transportation Management District, but do not add on-street parking spaces.
Loading	Establishing Passenger Loading Zones	Designate areas on River Street, Rainey Street, and Driskill Street for TNCs, taxis, and pedicabs.
	Establishing and Enforcing Commercial Loading Zones	Pave alleys and provide appropriate turning radii through the ability to jump curbs and removal of fixed objects.
		Remove tour buses, tourist vans from streets without appropriate loading areas.
		Design appropriate loading areas for private buildings.
Construction	Construction Within Right-of-Way	Develop traffic control plans to maintain pedestrian right-of-way.
		Develop traffic control plans to not block travel lanes.
		Use parking/loading areas for construction staging.
	Construction-Related Congestion	Consider off-site parking and shuttles for construction workers to reduce parking demand.
		Consider policies to reduce vehicle traffic due to construction (trucks and workers).

Source: BIG RED DOG Engineering, 2017.

VEHICLE MOBILITY

PEAK PERIOD CONGESTION

As stated throughout this document, peak period congestion within and adjacent to the Rainey Neighborhood stems from I-35 and East César Chávez Street. Capacity would need to be added to these routes to have an impact on congestion experienced by residents, employees, and visitors to the Rainey Neighborhood during peak hours. Adding capacity within the neighborhood or to the gateway intersections would only serve to encourage cut-through traffic. Additionally, more vehicle capacity on those routes will almost certainly increase vehicle traffic through the neighborhood.

Instead, the neighborhood should focus on new connections into and out of the area. Possibilities exist to the west (via a Davis Street extension across Waller Creek), south (via a connection to the South Central Waterfront developments), and east (via burying I-35 to create additional connections). Connections to the west and south are discussed later in this chapter.

As mentioned, TxDOT is currently investigating options to lower I-35, some of which would include the section east of the Rainey Neighborhood. This would allow for additional at-grade connections to the East César Chávez Neighborhood, which would include a more pleasant pedestrian and bicycle environment as well as opportunities for additional transit service. Based on the preferences indicated throughout the outreach process, these proposals should generally draw support from the Rainey Neighborhood.

There are no known plans that consider widening East César Chávez Street at this time. Given the physical constraints surrounding East César Chávez Street, it is very likely that the current cross-section will remain in the future.

Cost to implement: Unknown

Timeline to implement: Long-term (More than ten years)

ADDITIONAL CONNECTIONS INTO/OUT OF NEIGHBORHOOD

The I-35 Plan mentioned above currently has a great deal of uncertainty and would not be built for many years, and the connections across I-35 would probably be a decade or more off in the future.

The desire to have additional options to get into and out of the neighborhood is rational though. One possibility is to extend Rainey Street from Driskill Street to East César Chávez Street. This extension would go through the property of one of the future developments; however, during outreach to that developer, they indicated that they would be amenable to a connection through their property such that they would not lose any constructible building space.

This connection would certainly allow pedestrians and bicycles access and could be designed in such a manner to allow right-turn only vehicle access onto and off of East César Chávez Street. The connection at East César Chávez Street could also provide a pedestrian/bicycle crossing across East César Chávez Street, which would connect to Sabine Street and eventually to the Sabine Street Promenade currently planned between East 4th Street and East 7th Street. Significant planning, engineering, and design work would need to be completed to determine the optimal solution at this potential new connection.

There is also an option to extend Willow Street or Davis Street over Waller Creek to connect with Trinity Street. While this would produce additional connectivity to and from the Rainey Neighborhood, several potential obstacles stand in the way:

- The Waller Creek Conservancy has various concerns about bridges over Waller Creek that include access for vehicles as well. The current plan includes several bridges across Waller Creek for pedestrian and bicycle access, as well as a pedestrian/bicycle bridge across Town Lake.
- The United States federal government owns the land on the west side of Waller Creek where the bridge would land and connect to Trinity Street. Currently, the Housing Authority of the City of Austin is in charge of Lakeside Apartments (85 Trinity Street), which provides housing for senior citizens. Though future plans for these parcels were not available throughout this process, it is anticipated that government ownership of the land will add hurdles with respect to an additional connection.
- Construction of the Waller Creek Tunnel in this area could also complicate an additional connection.
- During outreach, pushback was reported from those on the west side of Waller Creek about an additional connection to the Rainey Neighborhood.

Cost to implement: Unknown

Timeline to implement: Concurrent with Development Projects

WAYFINDING SIGNAGE

Along with the additional connectivity discussed in previous sections, wayfinding signage could help alleviate congestion in multiple ways:

- There is more capacity for vehicles to enter/exit the Rainey Neighborhood along River Street. More signage directing those in the southern portion of the neighborhood and those closer to River Street in that direction could help alleviate congestion closer to East César Chávez Street.
- Much of the weekend congestion is due to drivers looking for parking and loading areas. Increased signage regarding the location of these areas could alleviate some of the congestion.
- Wayfinding signage would also highlight the areas within the Rainey Neighborhood that are citywide destinations, including (but not limited to) the MACC, Waller Creek, and the Butler Hike-and-Bike Trail.

Additional detail about pedestrian and parking wayfinding signage is located later in this chapter. The City of Austin developed a Wayfinding Master Plan in 2013; while not specific to the Rainey Neighborhood, it does lay out several standards for implementing wayfinding signage in particular areas of the City.

Cost to implement: $50,000 to $500,000

Timeline to implement: Two months to one year, depending on scope of project

WEEKEND LATE NIGHT CONGESTION

Two conditions create most late night congestion. First, there are a significant number of pedestrians crossing roadways and intersections throughout these late night periods. While a complete pedestrian network would remove some potentially unnecessary crossings, it is unlikely that congestion due to pedestrian volumes and behavior will be significantly reduced by any policy or design. Wider sidewalks could aid to keep more pedestrians out of vehicle travel lanes. Particularly south of Davis Street, many pedestrians cross from the west side to the east side of Rainey Street due to mobility constraints in the area.

However, passenger loading creates much of the vehicle congestion in the area. By providing designated loading areas for passenger vehicles, travel lanes would not be blocked during weekend late night time periods. These areas are addressed later in this chapter.

Cost to implement: See sections "Pedestrian Mobility" and "Loading"

Timeline to implement: See sections "Pedestrian Mobility" and "Loading"

NORTHBOUND / SOUTHBOUND CONNECTIVITY

As shown on Figure 4, there is only one formal northbound connection between River Street and Davis Street (Rainey Street). When congested, particularly in weekend late night situations, there are no alternatives for northbound travel through the neighborhood. Several options would be available to supplement the vehicle circulation:

- Red River Street could be extended south of Davis Street through the MACC property before connecting to River Street. Currently, Red River Street south of Davis Street serves as a driveway to the Hotel Van Zandt and The Shore Condominiums before it meets an alley that connects to River Street. It is private property. With potential redevelopment of the Villas at Town Lake and an update to the MACC Master Plan, there could be an opportunity to make the connection public and continuous from Davis Street to River Street. This also allows the vehicle access directly to The Shore Condominiums to be more private. Residents of The Shore Condominiums were resistant to this proposal during the outreach, concerned with traffic near the building and at the garage driveway. Because the existing driveway is private property and would require right-of-way on City of Austin property through the MACC, this approach has number of significant challenges.
- Alternatively, the northbound/southbound alley between Davis Street and River Street could be upgraded to have two-way vehicle traffic. The western edge of this alley cannot be moved, with the Hotel Van Zandt and The Shore Condominiums having been recently constructed. Expansion would need to occur on the east side of the existing alley.

In addition to the challenges associated with widening the alley, plans for the under construction 70 Rainey development project have the developer vacating the southern end of the alley and providing that land to the MACC. The southern end of the alley would be redirected around the 70 Rainey project to Rainey Street. Driveway access to the 70 Rainey project would be provided on the alley side of the development.

This circulation pattern is almost certain to increase traffic on Rainey Street and adds a driveway access on a heavily traveled pedestrian corridor. The MACC should reconsider having vehicle access remain on the existing alley area and connect to Rainey Street. The driveway access is also planned to be within 150 feet of the River Street / Rainey Street intersection; congestion turning to/from this driveway could affect traffic operations throughout the roundabout, particularly as inbound traffic attempts to turn left.

Cost to implement: Unknown

Timeline to implement: More than five years

CUT-THROUGH TRAFFIC

There is some evidence of existing cut-through traffic along Red River Street and Driskill Street around eastbound East César Chávez Street congestion. Traffic calming devices should be considered to reduce speeds on these streets. This could become a greater issue with more connections and increased vehicle capacity internal to the neighborhood. It should be noted that the frontages of Red River Street and Driskill Street and the cross-sections of those streets could be changing with the currently planned developments.

Driskill Street is currently 30 feet wide (typically), which provides two travel lanes and a parallel parking lane. Speed humps could be placed along Driskill Street to decrease speed. Driskill Street could be narrower, particularly at intersections, which would improve the pedestrian environment and offer traffic calming. It does appear that similar treatments were in place before construction of the Millennium Apartments.

These improvements could also be completed on a temporary basis with impermanent materials in order to re-evaluate. These types of low-cost, temporary changes to the built environment are called Tactical Urbanism. These efforts provide the opportunity for stakeholders and decision makers to experience proposed changes and to collect data without significant cost, without a long-term commitment, and without a long planning/design process. See Inset 7 for Tactical Urbanism examples.

Cost to implement: $5,000 to $100,000

Timeline to implement: One to two months for Tactical Urbanism, six months for Complete Upgrade

Inset 7 – Previous Tactical Urbanism efforts in Austin at East 6th Street / Waller Street and on McBee Street in the Mueller Neighborhood

QUEUING AT DEVELOPMENT ACCESS POINTS

Some residents expressed concern about the queuing that exists emanating from certain existing developments back into the right-of-way. In particular, it was noted that gates for the Milago Condominiums are adjacent to the sidewalk; as such, a vehicle attempting to enter always blocks the sidewalk, and when a second vehicle arrives at the same time, that vehicle extends into the vehicle travelway on Rainey Street. Development plans should be reviewed with respect to the locations of gated roadways and driveways and appropriate queue length and queue capacity calculations should be provided with those development plans. Additionally, moving access points from major streets to minor streets also helps circulation throughout the area. Driveway locations on Rainey Street, Red River Street, River Street, and East César Chávez Street should carefully scrutinized if alternative access points are not availability.

Cost to implement: Developer Responsibility

Timeline to implement: Concurrent with Development Projects

TRANSPORTATION DEMAND MANAGEMENT (TDM)

A major element of CodeNEXT that may be particularly applicable to the Rainey Neighborhood is a comprehensive approach to the use of TDM by building owners and major tenants. As currently proposed, the City may move toward encouraging or requiring TDM strategies for buildings and enforcing compliance. Some TDM strategies that may be relevant to developments in the near future in the Rainey Neighborhood would including reducing parking supply through employee policies, shared vehicles, transit, and decoupling parking spaces from individual housing or office units, which would allow tenants to determine if the specific cost of parking spaces are appropriate for them.

The neighborhood should encourage TDM Plans for individual developments that would set specific goals for vehicle trip reduction and help reduce peak hour congestion. The City would enforce the plans and help keep individual developments accountable for their peak hour vehicle trip generation.

Without TDM programs, demand for individual intersections with anticipated future development in this document, as well as the corresponding average delay and level of service, is shown in **Table 20**. These reflect demand volumes and existing vehicle trip generation rates (and are unlikely to be experienced due to upstream capacity constraints on I-35 and East César Chávez Street), but the values in Table 20 provide a glimpse at how the area could change with future development.

Cost to implement: Developer Responsibility

Timeline to implement: Concurrent with Development Projects

TABLE 20: FUTURE INTERSECTION LEVELS OF SERVICE

	Intersection	Control	Peak Hour[1]	Existing Conditions		Future Conditions	
				Delay[2]	LOS[3]	Delay[2]	LOS[3]
1	Red River Street / East César Chávez Street	Signal	AM PM SAT	12.9 19.5 15.5	B B B	**>80** **>80** -	**F** **F** -
2	I-35 Southbound Frontage Road / East César Chávez Street	Signal	AM PM	16.5 20.5	B C	**56** **>80**	**E** **F**
3	Rainey Street / Davis Street	SSSC	AM PM SAT	5.8 (9.6) 7.8 (14.9) **>50 (>50)**	A (A) A (B) **F (F)**	5.7 (14.5) **>50 (>50)** **-**	A (B) **F (F)** **-**
4	River Street / Rainey Street	RND	AM PM SAT	4.8 (5.4) 5.8 (6.1) 6.4 (6.8)	A (A) A (A) A (A)	12.1 (16.1) 14.1 (17.1) -	B (C) B (C) -

Notes:
1. AM = weekday morning peak hour, PM = weekday evening peak hour, SAT = weekend evening peak hour
2. Entire intersection weighted average control delay expressed in second per vehicle for signalized intersections and all-way stop-controlled intersections. Total control delay for the worst approach is also presented in parentheses for side-street stop controlled intersections.
3. LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the method described in the Highway Capacity Manual.

Bold text indicates intersection operates at a deficient Level of Service.
AWSC = All-Way Stop Control; SSSC = Side-Street Stop Control; RND = Roundabout
Source: BIG RED DOG Engineering, 2017.

PEDESTRIAN MOBILITY

LACK OF CONTINUOUS SIDEWALKS INTERNAL TO NEIGHBORHOOD

The City of Austin Sidewalk Master Plan (2016) includes 2,400 miles of existing sidewalk and 2,580 miles of missing sidewalk. The plan contains an implementation strategy for approximately 390 miles of new sidewalk over the next ten years from the City budget ($250 million). Several streets in the neighborhood scored highly on the prioritization list for missing sidewalks, including Driskill Street, Davis Street, Red River Street, Rainey Street, and East Avenue. While possible additional funds were identified, none have been secured to this point.

Earlier this year, a project was conducted to complete sidewalk along Cummings Street, and create additional trail connections from the south end of Rainey Street. Other streets needing sidewalk improvements include:

- East César Chávez Street (south side)
- Driskill Street (south side, west of Rainey Street)
- Red River Street (east side, East César Chávez Street to Davis Street)
- Davis Street (both sides, some areas between Red River Street and Rainey Street)
- Rainey Street (west side, Davis Street to River Street)
- River Street (south side, Rainey Street to East Avenue)
- East Avenue (south of Cummings Street)

Sections of sidewalk adjacent to redevelopment parcels will be upgraded with those individual site plans.

In addition to sidewalks, a few proposals were floated to make Rainey Street pedestrian-only year-round, as it is during large events such as the South by Southwest conference and festival. There was not broad support for this idea, noting that there would be no other continuous northbound access through the neighborhood between River Street and Davis Street. The re-construction of the alley west of Rainey Street due to the 70 Rainey project also provides challenges to closing Rainey Street to vehicles in the future.

Cost to implement: $750,000

Timeline to implement: More than five years

MISSING CROSSWALKS/SIDEWALKS ACROSS EAST CÉSAR CHÁVEZ STREET

As mentioned earlier, a project to connect Rainey Street from Driskill Street to East César Chávez Street is under consideration. With this project, an opportunity to create an additional pedestrian crossing across East César Chávez Street is available (and to create continuous sidewalk on the south side of East César Chávez Street from Red River Street to I-35). This would connect to Sabine Street and eventually to the Sabine Street Promenade currently planned between East 4th Street and East 7th Street. Because of the importance of the East César Chávez Street arterial for vehicle mobility and the constraints of the two adjacent intersections, significant planning, engineering, and design work would need to be completed to determine the optimal solution at this potential new connection. A two-phase crossing could be possible with a short mid-block median to shorten waiting times for drivers. Crosswalk markings could also be upgraded at the East César Chávez Street / I-35 Southbound Frontage Road intersection.

Cost to implement: $400,000

Timeline to implement: One to two years

RED RIVER STREET / EAST CÉSAR CHÁVEZ STREET INTERSECTION

In order to accommodate the demand volumes anticipated on Red River Street south of East César Chávez Street, Red River Street would need to have three lanes northbound, one for each movement. Additional modifications would need to be made on the eastbound and southbound approaches, and these assume that capacity is available on East César Chávez Street to receive the vehicles that move through the intersection (which there is not during peak hours). Additionally, capacity improvements for movements into the neighborhood would likely further incentivize cut-through traffic and increase volumes throughout the neighborhood. As such, no capacity improvements were considered for this intersection.

However, each corner was examined for opportunities, and the overall intersection was examined for options to make the area safer for all users. The northeast corner is currently closed for construction of the Fairmont Hotel. The southeast corner presents no landing area for pedestrians and a set of stairs for pedestrians wishing to continue on East César Chávez Street. Both the southeast corner and southwest corners will be reconstructed with the development of those adjacent properties. Crosswalks should be re-marked across all legs of the intersections upon completion. The northwest corner could be adjusted to provide shorter pedestrian crossings as well. Currently, there is 14 feet of distance at the intersection that is not designated for any user (prohibited for cars). The western curb of Red River Street could be realigned to give this space back to those property owners or create space for other City-provided amenities, such as a B-Cycle station. This would create shorter pedestrian crossings and a more pleasant pedestrian experience. This could also be accomplished through temporary materials and Tactical Urbanism techniques.

Leading pedestrian intervals (LPI) enhance the visibility of pedestrians in the intersection and reinforce their right-of-way with respect to turning vehicles. LPIs typically give pedestrians a three- to five-second start entering an intersection and have been shown to reduce pedestrian-vehicle collisions at intersections. LPIs do remove some green time from vehicle phases, but in an area where congestion is caused by other facilities, that green time is not fully utilized. LPIs would also be an option for implementation at the East César Chávez Street / I-35 Southbound Frontage Road intersection, though this would need to be done in coordination with TxDOT.

Cost to implement: $250,000

Timeline to implement: One year (LPIs and Tactical Urbanism changes could be done in a matter of days)

PEDESTRIAN ACCESS ACROSS I-35

Many stated during the outreach process that I-35 presents a significant barrier to walking between the Rainey Neighborhood and the East César Chávez Neighborhood. Improved lighting and aesthetics could enhance the pedestrian experience and make the area feel safer for potential pedestrians. The Austin Transportation Department has recently announced that construction on improved lighting at this and several other streets (including River Street / Holly Street) will begin this summer with construction anticipated to be completed this fall. These improvements will be paid for from parking lot revenue along I-35.

Cost to implement: Approximately $100,000 for East César Chávez Street and Holly Street / River Street

Timeline to implement: Three to six months (planned to be completed by the end of 2017)

RAINEY STREET / RIVER STREET INTERSECTION

As mentioned earlier, the Austin Transportation Department attempted to address transportation issues in the Rainey Neighborhood in 2013 with a process that engaged multiple departments with the neighborhood and brought a set of recommendations to City Council. While these recommendations were not further pursued, many of the changes reflect desires from the neighborhood. The highest priority among the recommendations that should be re-considered for implementation is the potential re-design of the traffic circle at the River Street / Rainey Street intersection to clearly identify pedestrian pathways. Drainage inlets in the roadway create additional obstacles and could make this infeasible at certain locations without significant infrastructure modifications. As such, the cost estimate below includes a wide range of options.

Cost to implement: $30,000 to $150,000

Timeline to implement: Three to six months

RIVER STREET / EAST AVENUE / I-35 SOUTHBOUND FRONTAGE INTERSECTION COUPLET

This cluster of intersections was a concern of many stakeholders with respect to pedestrian mobility during the outreach process. There are also marked crosswalks at all four legs of the East Avenue / River Street intersection, though River Street is uncontrolled at this location. There are also marked crosswalks across the I-35 South Frontage Road at the I-35 South Frontage Road / River Street intersection. There is also a pedestrian signal for a crosswalk across the west leg of this intersection, but no crosswalk is marked.

Several options were explored to make this a more appealing area for pedestrians. The East Avenue / River Street intersection could be made an all-way stop-controlled intersection, though this could lead to queues backing up into the I-35 South Frontage Road / River Street intersection and creating another unsafe condition. As an alternative, the north leg of the intersection, which provides one lane of parking and one lane for southbound travel, could be removed. This modification could potentially:

- Expand the existing island to provide a more significant area with which to provide additional value to the community (and could be a part of the expanded MACC grand entrance)
- Extend and expand sidewalk along the north side of River Street
- Provide an opportunity for a greater re-design of River Street, which could include bulbouts at intersections, bicycle lanes at the I-35 overpass, and better definition of parking/loading zones

Challenges to this modification include ensuring that increased traffic at the I-35 South Frontage Road / River Street signalized intersection does not create additional impacts, that increased left turn movements at the East Avenue / River Street does not create additional impacts, and that the design provides for access to future development along the west side of East Avenue north of River Street. Additionally, as part of an I-35 frontage road, this would require coordination with TxDOT to remove the north leg of the East Avenue / River Street intersections.

In the interim, short LPIs could be used at the I-35 South Frontage Road / River Street signalized intersection to provide additional pedestrian awareness at the marked crosswalks. Bulbouts along the corridor could be completed through Tactical Urbanism techniques in the interim.

Cost to implement: Unknown, likely to occur with development

Timeline to implement: Unknown

PEDESTRIAN-SCALE LIGHTING

In commercial areas with nighttime pedestrian activity, lighting can enhance the atmosphere of the area and the visibility of pedestrians by motorists. Lights along streets should be placed on both sides to provide a consistent level of lighting. Nighttime pedestrian crossing areas may be supplemented with brighter or additional lighting.

Pedestrian-scale lighting is lower in height (ten to fifteen feet typically) than standard streetlighting and is spaced closer together. As an item of street furniture, these lights are typically placed just inside the curb and can alert drivers to the presence of pedestrians in the area. Lights are typically white (rather than yellow), which is more inviting to pedestrians. Pedestrian-scale lighting is already provided on Rainey Street south of River Street. The cost below reflects implementation of pedestrian-scale lighting on the remainder of Rainey Street, Red River Street, Driskill Street, Davis Street, and East Avenue.

Cost to implement: $500,000 to $800,000

Timeline to implement: Six months to two years

PEDESTRIAN-SCALE WAYFINDING

Similar to the section earlier in this chapter on wayfinding, pedestrian-scale wayfinding would provide supplemental signage that acts both as street art and information for visitors. Signs for pedestrians do not need to be as large and can provide additional detail. They can also be posted at the location the sign refers to, rather than in advance as is need for vehicles.

Coherent signage that is consistent in shape, size, color, height, and lettering gives pedestrians a feeling of order as they walk, can add to a place's identity, and can assist pedestrians with wayfinding, which is crucial since pedestrians may become far more exhausted if they lose their way than is likely for drivers.

Again, wayfinding signage would also highlight the areas within the Rainey Neighborhood that are citywide destinations, including (but not limited to) the MACC, Waller Creek, and the Butler Hike-and-Bike Trail.

Cost to implement: $50,000 to $500,000

Timeline to implement: 2-12 months, depending on scope of project

PEDESTRIAN CONNECTIONS

Additional connections could be made throughout the neighborhood, both in areas that are open currently or will occur with redevelopment:

- The driveway (Bierce Street) west of the Milago Condominiums could connect to the Butler Hike-and-Bike Trail formally; currently a dirt path shows a desire line at this location
- The block length south of River Street between Rainey Street and East Avenue could have additional pedestrian connection. An obvious choice would be a connection to the driveway/sidewalk between the Skyhouse Apartments and the Windsor Apartments. This would likely take place with the redevelopment at 54 East Avenue.
- Completed sidewalk along the west side of Rainey Street in the immediate vicinity of 84 Rainey Street. There is a short 50-foot section where no off-street option for pedestrian access exists that could be filled in.

The Waller Creek plan would also put a pedestrian-only bridge across Town Lake, connecting the neighborhood to the proposed developments on the South Central waterfront. It is unclear when the Waller Creek project will be funded, although the Waller Park Place development will likely construct some of it.

Cost to implement: Unknown

Timeline to implement: Varies, unknown

OTHER PEDESTRIAN SAFETY ISSUES

Given the wide curb-to-curb right-of-way for several of the streets within the neighborhood and the long block lengths mentioned in previous sections, some additional pedestrian safety measures were considered for the area. Many of these measures would also aid in traffic calming efforts as well:

- Speed tables and raised crosswalks (raised intersections) at the following intersections/locations:
  - Red River Street / Driskill Street
  - Rainey Street / Driskill Street
  - Mid-block Rainey Street between Banger's Sausage House & Beer Garden
- Bulbouts throughout the neighborhood at the following locations:
  - Red River Street / Driskill Street
  - Rainey Street / Driskill Street
  - Red River Street / Davis Street
  - Rainey Street / Davis Street
  - River Street / I-35 Southbound Frontage Road
  - River Street / East Avenue
  - River Street / Alley
  - Lambie Street / East Avenue
- Completed sidewalk along the west side of Rainey Street in the immediate vicinity of 84 Rainey Street. There is a short 50-foot section where no off-street option for pedestrian access exists that could be filled in.
- The Red River Street / Davis Street intersection provides no crossings and curb ramps at very few locations. The intersection may need to be redesigned with the pending development on the west side of Red River Street, but accommodations on the existing southeast corner adjacent to the Hotel Van Zandt should be included with any design modifications to this intersection.

Some of these concepts could be tested out with Tactical Urbanism techniques, though permanent improvements should be prioritized given the pedestrian mobility issues throughout the neighborhood.

Cost to implement: $250,000 to $500,000

Timeline to implement: Six months to two years

BICYCLE MOBILITY

ESTABLISH COMFORTABLE BICYCLING ROUTES

There are currently no dedicated bicycle facilities within the study area, save for the Butler Hike-and-Bike Trail. The *City of Austin Bicycle Master Plan* (November, 2014) includes protected bicycle lanes on Red River Street, East César Chávez Street, River Street, Davis Street, Rainey Street, and the I-35 Southbound Frontage Road, as well as bicycle lanes on East Avenue south of Cummings Street.

A previous 2013 attempt to put in protected bicycle lanes on Rainey Street was not completed. Given the constraints of the street, the number of pedestrians, and the generally slow speeds, a dedicated bicycle lane is not a priority on that street. Other streets could become streets that are more comfortable for bicycling through the traffic calming measures mentioned previously. There is room for bicycle lanes on Red River Street, River Street, and Davis Street as they currently exist. Some would require removal of parallel parking spaces.

With only two connections (East César Chávez Street and River Street) to the east, difficult bicycle connections into and out of the neighborhood were a common complaint for bicyclists during outreach. While bicycle facilities on East César Chávez Street would be a major infrastructure project and require significant coordination, bicycle lanes on River Street could be accommodated within the existing curb-to-curb distance.

No parking is allowed on River Street / Holly Street between the frontage roads. The section of River Street / Holly Street has one lane in each direction and has a curb-to-curb distance of 40 feet. Some drivers interpret this wide distance as two lanes and maneuver around vehicles waiting to turn at the intersections. Some cyclists consider this a comfortable bicycling area, while others are concerned about unpredictable maneuvers from drivers. With the improvements for pedestrians at these intersections, buffered bicycle lanes could be striped in both directions and still allow 12-foot vehicle lanes in both directions.

Improvements to Red River north of the study area to make the street safe and comfortable for bicycling may be the most important bicycling improvement available for the neighborhood. Dedicated bicycle lanes in both directions, or a Complete Streets treatment for the length of Red River Street from East César Chávez Street through the UT campus, could provide access to the neighborhood from the most dense areas of the Austin region.

Cost to implement: $2,500

Timeline to implement: One day

B-CYCLE STATIONS

Currently, 30 docking stations for B-cycle bikes are available within the neighborhood, representing two of the most popular stations within the system. A third station previously existed at the northwest corner of Rainey Street and River Street but was removed due to construction.

Austin B-Cycle has indicated that they would like to bring the station back someday, and further expand within the neighborhood, but have no timeline for doing so. The MACC would be an excellent location for an additional B-Cycle station, and developers should work with Austin B-Cycle to expand the system within the neighborhood. A station could also be placed in an existing parking space on the east side of Rainey Street to replace the removed station. A station located in the street would also serve as an additional traffic calming measure. Developments may also find value in investing in a B-Cycle station at their individual locations.

Cost to implement: $40,000

Timeline to implement: One month

PUBLIC BICYCLE PARKING

While almost 100 public bicycle parking spaces are available throughout the study area, the highest supply of bicycle parking is available in areas that are not always visible to the general public. These parking spaces are located within the public areas of the Milago Condominiums and Skyhouse Apartments parking garages, as well as near the entrance to The Shore Condominiums.

A set of parking racks were removed from the northwest corner of the Rainey Street / River Street intersection with construction. There was clearly demand for additional bicycle parking within the neighborhood throughout the data collection period, as evidenced by the number of bicycles locked to sign posts and other fencing. Bicycle parking could be provided in some parking spaces and would also serve as an additional traffic calming measure. Additional bicycle parking (both public and private) should also be provided with each new development.

Cost to implement: $1,000 per rack

Timeline to implement: One day

CONNECTIONS TO REGIONAL ROUTES

See “Pedestrian Connections” section in “Pedestrian Mobility,” this chapter.

TRANSIT MOBILITY

TRANSIT ACCESS WITHIN NEIGHBORHOOD

There are several constraints to transit vehicles traveling through the neighborhood. Because of the limited connectivity and grid network, once a transit vehicle enters the neighborhood, it could be difficult to exit in the same direction. A route entering the neighborhood would almost by necessity have to be a portion of a loop route, without a corresponding route in the other direction. The narrow streets and tight radii at several of the corners also make navigating the neighborhood a challenge for transit vehicles.

It would be possible to supplement Capital Metro service with shuttles. This could be some combination of Chariot shuttles, which recently started entering the neighborhood on weekend late nights, the Red River circulator currently proposed as part of Capital Metro's Project Connect, or a shuttle service provided by private development through a Transportation Management Agency (TMA).

A TMA typically provides an institutional framework for TDM programs on behalf of multiple entities and ensures that programs and services are complementary. Several developers could form a TMA and pool resources to provide a shuttle service that would support Smart Growth efforts and complement other mobility options / solve local transportation challenges. This could be a re-visioning of the 'Dillo, which served the downtown Austin area as a free service for many years.

Perhaps the most likely way to get traditional transit access in the neighborhood would be to have the 21 Exposition / 22 Chicon routes extend into the neighborhood and turn around at the MACC entry. River Street and the MACC traffic circle has enough space to allow transit vehicles to turn around. This would also place the stop in the middle of the neighborhood, which would provide the best access to the southern part of the study area.

As mentioned earlier, a concept including connecting Red River Street to River Street as a new urban boulevard could allow Capital Metro to provide transit service in the neighborhood, though that alternative is not supported by the stakeholders in the neighborhood.

Cost to implement: Unknown

Timeline to implement: Unknown

PEDESTRIAN ACCESS TO TRANSIT STOPS

The nearest stop for the 17 César Chávez and the 22 Chicon is on East César Chávez Street, just west of Red River Street. The nearest stop for 21 Exposition is on East César Chávez Street east of Sabine Street. Because of the incomplete pedestrian network, particularly near East César Chávez Street and including missing crosswalks, routes to the existing transit stops can be circuitous and unpleasant. The long block surrounded by East César Chávez Street, Red River Street, Driskill Street, and the I-35 Southbound Frontage Road also impedes access to these stops. The extension of Rainey Street to East César Chávez Street will shorten the block length and provide an additional connection to these locations. Improving direct pedestrian connections from the MACC and other important destinations in the neighborhood to existing transit stops could improve awareness of transit access in the area (and potentially increase ridership as well).

Cost to implement: Unknown

Timeline to implement: Concurrent with Development Projects, Other Sidewalk Projects

TRANSIT STOP IMPROVEMENTS

Both stops are denoted with a single sign post and have no other amenities. The eastbound stop west of Red River Street is sandwiched between two driveways, a parking lot, and East César Chávez Street. The westbound stop is adjacent to the construction area of the Fairmont Hotel and has been in transition since construction of that hotel began. More formal waiting areas with amenities including pedestrian-scale lighting, shelters, trash cans, and service information could be provided to highlight these locations. Neighborhood entities (private or public) could work with Capital Metro to "adopt a stop" and improve those locations.

Cost to implement: $7,500 per stop

Timeline to implement: One week

PARKING AND LOADING

ON-STREET PUBLIC PARKING
OFF-STREET PUBLIC PARKING
OFF-STREET RESERVED PARKING
PARKING POLICY
ESTABLISHING PASSENGER LOADING ZONES

Approximately 781 publicly-available parking spaces are provided within the study area. Metered on-street parking throughout the study area currently costs $1.20 per hour. Less than 60 percent of all publicly available parking spaces are used during six of the seven periods in which data was collected, according to the *Draft Downtown Austin Parking Strategy Briefing Book*. The exception was Friday evenings, when parking utilization approaches 90 percent. The report also found that on-street parking is generally underpriced, resulting in high demand given that off-street spaces are so comparatively expensive.

Throughout the outreach and data collection process, off-street private parking was significantly underutilized. There are many available parking spaces throughout the neighborhood in the existing private residential buildings, which is consistent with the findings of below-average vehicle trip generation and ownership rates. As a result of the availability of parking within the neighborhood, and the likely provision of additional parking with future development, the following measures are proposed to solve both parking issues and other mobility concerns:

- Remove on-street parking on Rainey Street (north of River Street) on evenings after 8:00 PM. Designate these areas as passenger loading zones for TNCs, taxis, and other pick-up/drop-off activity. This measure should improve circulation in the area by providing loading spaces immediately adjacent to destinations. These areas can also be used for pedicab loading and waiting. The existing 23 parking spaces on Rainey Street would provide significant loading space while the surrounding area would be able to absorb the additional parking demand. This measure could also be considered on Davis Street (eight parking spaces), River Street (twelve parking spaces), and/or Driskill Street (fifteen parking spaces).
- Provide wayfinding signage specific to public parking lots and garages. Consideration should be given to the provision of electronic signage that provides information about costs and/or available spaces. This information could also be relayed virtually to visitors with a mobile application on a smart phone.
- Off-street reserved parking should be reduced and the price of the parking spaces should be unbundled from their unit. The cost of parking is generally passed onto occupants through their

rent or purchase price currently. Unbundling parking reduces the necessary amount of parking supply, can attract residents at different price points, and can encourage property managers to creatively use their excess parking supply (e.g. offer it to the public). This can all be accomplished at no "additional" cost to the end customer.

- Standardize the price and duration of parking spaces. On-street parking spaces are often the most desirable spaces for visitors, yet are priced as though they are the least attractive.
- The City of Austin defines a Parking and Transportation Management District (PTMD) as a "defined geographic area that may include a mix of retail, entertainment, commercial, medical, educational, civic and residential uses in which City Council finds that traffic flow on public streets requires a higher level of management than commonly provided and determines that parking meters will facilitate traffic flow objectives." These districts have to add on-street, metered parking with a goal to promote parking turnover. Revenues are returned to the PTMD in the form of mobility improvements. Through outreach, several long-time residents and employers explained that the neighborhood had previously been promised PTMD status, with revenues helping to pay for some of their desired improvements. This has not yet occurred; while these revenues could help pay for some improvements, adding on-street metered parking spaces is not feasible within the existing boundary, nor is it compatible with the other parking policy improvement measures. If a PTMD could be established without that condition, it should be pursued by residents, neighborhood organizations, and businesses within the study area.

More importantly, parking policy should be revisited and a comprehensive strategy to serve parking demand should be implemented across the neighborhood. Sharing resources would serve the interests of most neighborhood stakeholders.

Cost to implement: Most of these improvements could be done with new signage and would cost very little to implement. Others would be done with development projects. A revised parking strategy that shares resources among parcels and land uses may be the most important recommendation moving forward.

Timeline to implement: Varies

ESTABLISHING AND ENFORCING COMMERCIAL LOADING ZONES

There are few designated loading areas for commercial delivery (one space near the Windsor Apartments, two to three spaces on the south side of Driskill Street just west of Rainey Street, two to four spaces on the east side of Rainey Street). The removal of certain parking spaces on Rainey Street, Davis Street, River Street, and Driskill Street would provide for additional space for designated commercial loading areas.

Commercial vehicles have many of the same issues as transit vehicles with respect to restricted roadway rights-of-way and tight curb radii. The alley east of Rainey Street could be paved and re-built at the River Street intersection to provide access for commercial loading. This would keep commercial delivery vehicles off of Rainey Street throughout the day. This alley would connect to the existing driveway through the Millennium Apartments building. It could also connect to the I-35 Southbound Frontage Road between the new Homewood Suites at East Avenue hotel and the existing restaurant to the north, but right-of-way would need to be secured for that connection. The connection would serve to allow commercial vehicles direct access to the alley to/from the frontage road, thus not needing to enter the neighborhood at all.

Tour buses and vans should also be made to use commercial loading areas for buildings that cannot accommodate them. Future development should be made to design such that they can accommodate the anticipated vehicle types for that land use.

Cost to implement: Varies

Timeline to implement: Varies (coincides with parking modifications)

CONSTRUCTION

CONSTRUCTION WITHIN RIGHT-OF-WAY

Existing construction in the study area has had the following impacts:

- **Fairmont Hotel:** Construction of this hotel has temporarily removed a westbound left-turn lane from East César Chávez Street to southbound Red River Street, further limiting access to and from the neighborhood. Construction has also temporarily removed multiple sidewalks and two crosswalks at the intersection of East César Chávez Street / Red River Street, as well as relocated one bus stop. The construction period upon completion will be more than two and one-half years.
- **Homewood Suites at East Avenue:** Construction of this hotel has temporarily removed sidewalk along the I-35 Southbound Frontage Road / East Avenue. The detour for this construction is around the project site and back to the unpaved alley between Rainey Street and I-35 Southbound Frontage Road / East Avenue, where a connection is re-made at River Street. Parking has also been removed on the I-35 Southbound Frontage Road. The construction period upon completion will be approximately two years.
- **70 Rainey:** Construction has removed sidewalk access on the west side of Rainey Street just north of River Street and replaced it with a temporary covered pedestrian pathway within the street right-of-way. This site was also the location of the since-removed B-Cycle station and bicycle parking mentioned earlier.

At just these three locations, construction has impacted vehicle travel, pedestrian access, bicycle mobility, transit stop locations, and parking. To the extent possible, traffic control plans for development should be developed to maintain the standard pedestrian right-of-way and maintain travel lanes. Parking/loading areas could be used for construction staging.

Cost to implement: Developer Responsibility

Timeline to implement: Concurrent with Development Projects

CONSTRUCTION-RELATED CONGESTION

Construction projects generate new trips as workers develop the site before the land uses are even open for business. Construction-related traffic, which includes construction workers and trucks transporting materials, is generally anticipated to be lower than total Project traffic and is ignored during impact analyses. Much construction traffic also occurs outside of the peak hours. However, in combination with right-of-way closures, construction-related traffic can have an effect on the surrounding transportation network.

Project applicants could help to reduce construction-related traffic through the organization of carpools or the provision of remote parking spaces. These would need to be coordinated with potential contractors. Additionally, provision of lunch options on-site, such as food trucks, could also help to reduce some vehicle trips that would otherwise leave the site.

Cost to implement: Developer Responsibility

Timeline to implement: Concurrent with Development Projects

BIG RED DOG

ENGINEERING | CONSULTING

2021 East 5th Street
Suite 200
Austin, Texas 78702
512.669.5560

WWW.BIGREDDOG.COM