4.0 INTRODUCTION

One of the keys to forecasting future operating conditions along a corridor is to have a firm understanding of the existing conditions. Existing conditions include:

- Traffic Operations – Volume, Signal Timing, Lane Configuration, Parking
- Transit Operations – Headways, Ridership, Stops
- Physical Conditions – Topography, Utilities, Signing, Striping
- Pedestrian Access – Crosswalks, Sidewalks, Transit Stops
- Bicycle Access – Marked Bicycle Lanes, Transit Access,

The interaction of these elements results in the day-to-day operations of University Avenue. The objective of the existing conditions data collection efforts is two-fold: create a model that adequately reflects the existing operations on the corridor and identify the physical constraints that may affect the implementation of the Preferred Concept Plan.

The model established from the existing conditions data will be used to simulate traffic operations without and with the Preferred Concept Plan for the existing and future year alternatives. The VISSIM model melds the data collected for traffic, transit and pedestrian activity with the physical conditions of the roadway.

To establish the physical conditions along the corridor, an aerial photograph of the corridor was taken and ortho-rectified. City street As-Built drawings were researched and utility companies were contacted to identify all existing underground utilities along the corridor, which revealed that the original streetcar tracks remained buried along the centerline of the road. Existing curb, gutter, sidewalk and right-of-way were identified that will be used to estimate the costs of implementing the Refined Concept Plan as discussed in later chapters of this document.

This chapter provides a detailed review of the data collection efforts undertaken as part of the project to establish the existing conditions.

4.1 DESCRIPTION OF STUDY AREA

The project study area extends from Boundary Avenue to Park Boulevard along University Avenue. Due to anticipated diversion of traffic resulting from a decrease in capacity along University Avenue, roadway segments along North Park Way and Lincoln Avenue were also included in this analysis. A total of 12 signalized intersections, 17 unsignalized intersections and 28 roadway segments were analyzed.

Parking is provided on both sides of University Avenue throughout much of the corridor. Although the majority of the parking along the corridor is parallel parking, angled parking is provided between 28th Street and 30th Street. Parking is also permitted along all side streets. The configuration of the side street parking is typically a function of the width of the roadway, although several streets have sufficient curb-to-curb width to accommodate additional on-street parking by converting the existing parallel parking to diagonal parking.

SANDAG currently operates two routes along University Avenue, serving the community of North Park: Route 7 and Route 908. A total of 19 transit stops are located within the limits of the study area. Most transit stops are uncovered and without benches or amenities.

Sidewalks are currently provided along University Avenue on both sides of the street. Sidewalk widths range from 5 to 15 feet. Along the western portion of the corridor, the sidewalks are much older and much narrower than along the eastern portion of the corridor, particularly through the core of the community. Pedestrian crossings are permitted at all signalized intersections. Two intersections, Texas Street and Utah Street, have all-pedestrian phases. Two unsignalized pedestrian crossing locations are currently provided, that include flashing overhead lights to alert drivers of these unsignalized crosswalks:

- Pershing Avenue
- Arnold Avenue

No existing bicycle routes are provided along the study corridor. Bicycles are required to share the travel way with buses and passenger vehicles. No parallel bicycle routes are striped or signed along North Park Way or Lincoln Avenue.

4.2 EXISTING LAND USE

Land uses in the study area are a mix of retail, restaurant, office, and residential uses. Census data was collected in 2000, and used in the City and SANDAG traffic modeling efforts. The following provides a general summary of the existing land use one block north and one block south of University Avenue along the corridor:

- 174 Single Family Homes
- 1,168 Multi-Family Units – Apartments and Condominiums Included
- 24.5 acres of Commercial Retail and/or Restaurant Uses
- 1.8 acres of Office
- 1.3 acres of Church or Religious Uses

However, the community of North Park is evolving. Several new projects are planned and moving forward in the next five to ten years that will bring higher densities to the corridor. Such densities are compatible with the mixed-use and transit-oriented vision, as described in the University Avenue Traffic Calming Study.

4.3 EXISTING UTILITIES MAPPING

As part of the base mapping processes for the corridor, dry utility companies were contacted including gas (SDG&E), telephone (SBC), and cable (Cox Communications). A copy of a map illustrating the study area and a request for utility information was sent out via fax to all identified utility companies along the corridor. Each company contacted provided the requested underground utility information.

As-built maps of the corridor, which illustrate existing right-of-way, curb, gutter, sidewalk, water, sewer and storm drain, were researched through the City of San Diego. RBF staff worked closely with City staff to locate as many as-built drawings as possible. Due to the age of the street, some as-built drawings could not be found.

Property and right-of-way mapping was researched through the County of San Diego. The existing conditions base map information was drafted into AutoCAD and laid over the aerial photograph flown specifically for this project. The aerial photograph was ortho-rectified to account for the curvature of the earth and the topographic conditions along University Avenue.

The existing utilities mapping is illustrated in Exhibit 4-1.

Exhibit 4-1 (Existing Utilities Map – 1 of 3 sheets)

Exhibit 4-1 (Existing Utilities Map – 2 of 3 sheets)

Exhibit 4-1 (Existing Utilities Map – 3 of 3 sheets)

4.4 EXISTING ROADWAY NETWORK

RBF Consulting conducted a detailed field investigation of the existing roadway conditions along University Avenue that involved a survey of all existing parking spaces, existing lane widths, traffic control, bus stop locations and striping at the intersections. Exhibit 4-2 illustrates the intersection geometry observed at all of the intersections along the corridor.

University Avenue: University Avenue is a four-lane secondary arterial as defined by the City of San Diego in the North Park Community Plan circulation element. It extends from Washington Street in the neighborhood of Mission Hills to Baltimore Street in the City of La Mesa. Through the study area, University Avenue narrows to one lane westbound and two lanes eastbound between 30th Street and 32nd Street. University Avenue was previously considered for a couplet design with Lincoln Avenue, through this constrained area per the community plan. Between Utah Street and where Lincoln and University intersect east of I-805, University was previously planned to have 2 lanes eastbound and one lane westbound and Lincoln Avenue was planned to have one lane eastbound and two lanes westbound. Due to opposition from the residents along Lincoln Avenue, the couplet design was never fully implemented.

Lincoln Avenue: Lincoln Avenue is a two-lane collector street located approximately 500 feet north of University Avenue. It extends from Park Boulevard to east of Boundary Street where it merges with University Avenue. Traffic is primarily controlled by stop signs and on-street parking is typically allowed on both sides of the street. East of Utah Street, a two-way left turn lane is provided along Lincoln Avenue increasing the capacity from 8,000 vehicles per day to 15,000 vehicles per day.

North Park Way: North Park Way is a two-lane collector street running parallel to and south of University Avenue. North Park Way extends from Utah Street to I-805, with access to I-805 southbound at its terminus. Parking is generally permitted along North Park Way. On Thursdays, North Park Way is closed to through traffic to allow for a local Farmer's Market street fair.

Park Boulevard: Located on the western end of the study corridor, Park Boulevard is generally four lanes with a striped median. Park Boulevard extends from Adams Avenue in University Heights to C Street in downtown, with a signalized intersection at University Avenue. At the time this report was prepared, Park Boulevard was under consideration for the Showcase Project, a transit improvement project that would integrate Bus Rapid Transit (BRT) concepts to the existing transit lines that operate along Park Boulevard.

Florida Street: Florida Street is a two-lane local road that runs generally north-south through the study area extending from Adams Avenue in University Heights to Pershing Avenue, via Balboa Park. The intersection of University Avenue and Florida Street is signalized.

Exhibit 4-2 Existing Intersection Geometry Map (Sheet 1 of 1)

Mississippi Street: Running north-south through the study area, Mississippi Street is a two-lane local road that intersects with University Avenue at a signalized intersection. Parking is permitted on both sides of Mississippi Street north and south of University Avenue. Mississippi Street provides local access from Adams Avenue to Upas Street.

Texas Street: Texas Street is classified as a two-lane collector and provides access to Interstate 8 approximately 1.5 miles north of the study corridor. South of University Avenue, Texas Street extends to Upas Street along the northern boundary of Balboa Park. Texas Street is an offset intersection at University Avenue, resulting in a need for north-south signal phasing and a pedestrian walk phase. As a result, the minimum cycle length at this intersection exceeds the optimal cycle length for intersections east of Texas Street. Currently this intersection does not operate as part of a coordinated traffic signal system.

Utah Street: Utah Street is a two-lane collector, extending from north of Adams Avenue to Upas Street. Through the study area, parking is permitted on both sides of Utah Avenue. At University Avenue, Utah Street is offset requiring north-south split phasing and an exclusive pedestrian phase.

30th Street: Extending from Adams Avenue in University Heights to National Avenue in the Memorial neighborhood, 30th Street is a collector street with a two-way left turn lane through the study area. Parking is permitted on both sides of 30th Street. The intersection of University Avenue and 30th Street is signalized and has the highest pedestrian and transit activity of all the intersections in the study area.

Ohio Street: Ohio Street is a two-lane local road with on-street parking on both sides. At University Avenue, Ohio Street is a signalized intersection. Ohio Street extends from Adams Avenue to University Avenue.

Grim Avenue: Coupled with Ohio Street, Grim Avenue is also a two-lane local road. Westbound left turn access is prohibited from University Avenue onto Grim Avenue although the intersection is signalized. Grim Avenue extends from University Avenue extends from University Avenue south to Redwood Street.

32nd Street: Extending from El Cajon Boulevard to Juniper Street, 32nd Street is classified as a two-lane collector. At University Avenue, 32nd intersects at a signalized intersection and parking is permitted along both sides of the street.

Boundary Street: Boundary street parallels Interstate 805 to the west from south of El Cajon Boulevard to near the I-805/SR-15 interchange. Through the study area, Boundary Street is currently a two-lane collector. Between the I-805 southbound ramps and Upas Street, Boundary Street is one-way

southbound. At University Avenue, Boundary Street is a signalized intersection. Parking is not permitted along Boundary Street south of University Avenue to the I-805 southbound ramps.

4.5 EXISTING TRAFFIC CONDITIONS

Data Collection Efforts

To evaluate the operations of the roadway segments, signalized intersections and unsignalized intersections along the study corridor, detailed traffic count data was collected for all intersections and several roadway segments along University Avenue.

Average daily traffic count data was collected for a 24-hour period at several locations along the corridor, as illustrated in Exhibit 4-3. This 24-hour data was used to assess the existing roadway segment operating conditions according to City of San Diego roadway classifications and level of service thresholds. The data was also used to determine the peak traffic volumes throughout out the day. The peak hours along the roadway were determined to fall between the hours of 7:00 and 9:00 a.m. and 4:00 and 6:00 p.m.

Based on this confirmation of the peak hours, intersection turning movement data was collected during this peak four hour period of the typical weekday (Tuesday, Wednesday or Thursday). Data for several intersections was provided by the City of San Diego. Where traffic data was not available, RBF Consulting teamed with a traffic count consultant (Counts Unlimited) to collect the remaining data in December 2003. Traffic count data also included counting pedestrian crossings and bicycle activity along the corridor.

Peak hour intersection turning movement volumes are illustrated in Exhibit 4-4.

Exhibit 4-3 Existing ADT Volumes (Sheet 1 of 1)

Exhibit 4-4 Existing Peak Hour Volumes (Sheet 1 of 1)

HCM Level of Service

Existing traffic conditions were analyzed for the intersections and roadway segments in the study area based on the requirements set forth in the City of San Diego Traffic Impact Study Manual (TISM). As described in Chapter 3, study intersections were evaluated using the 2000 Highway Capacity Manual (HCM) methodology. Additionally, the VISSIM software program was utilized to report MOE's for the corridor as a whole and at signalized intersections. Traffic analysis worksheets for the existing conditions analysis are provided in the Appendix at the end of this report.

Tables 4-1 and 4-2 present the level of service at the signalized and unsignalized study intersections, respectively, based on the HCM methodology. As shown in the tables, the intersections of University Avenue/Park Boulevard and Boundary Street/I-805 Southbound Ramps currently operate at LOS F in the p.m. peak hour. The stop-controlled northbound approach of University Avenue/Alabama Street also operates at LOS F in the p.m. peak hour. The intersections of University Avenue/Boundary Street and University Avenue/Wabash Avenue currently operate at LOS D in the p.m. peak hour. The stop-controlled approaches to University Avenue at Louisiana Street and 29th Street also operate at LOS D in the p.m. peak hour. LOS D operations are typically considered acceptable but also marginal since it serves as the transition into LOS E and F operations, which are undesirable. All other intersections operate at LOS C or better in the a.m. and p.m. peak hours.

Delay at unsignalized intersections is measured only on the stop controlled approach and the left turn movements on the uncontrolled approach. As shown in Table 4-2, University Avenue/Alabama Street Northbound currently operates at LOS F in the p.m. peak due to the delays imposed to traffic along Alabama Street. Louisiana Street and 29th Street operate at LOS D, indicating marginal operating conditions in the p.m. peak hour. Boundary Street at I-805 is controlled by an all-way stop, so that delay is imposed to all movements at the intersection. As shown in Table 4-2, this intersection currently operates at LOS F in the p.m. peak hour.

Table 4-1
Existing Conditions
Signalized Study Intersection LOS

Study Intersection	AM Peak Hour Delay - LOS	PM Peak Hour Delay – LOS
University Avenue/Park Avenue	22.4 – C	127.6 – F
University Avenue/Florida Street	10.0 – A	18.9 – B
University Avenue/Mississippi Street	8.9 – A	9.0 – A
University Avenue/Texas Street	21.5 – C	28.5 – C
University Avenue/Utah Street	11.7 – B	15.6 – B
University Avenue/30th Street	13.9 – B	24.2 – C
University Avenue/Ohio Street	4.4 – A	7.5 – A
University Avenue/Grim Street	3.5 – A	4.6 – A
University Avenue/Illinois Street	3.6 – A	6.3 – A
University Avenue/32nd Street	23.0 – C	13.2 – B
University Avenue/Boundary Street	22.1 – C	35.8 – D
University Avenue/Wabash Street	21.9 – C	51.6 – D
Lincoln Avenue/Wabash Street	13.2 – B	12.7 – B

Note: Deficient intersection operation showed in bold.

Table 4-2
Existing Conditions
Unsignalized Study Intersection LOS

Study Intersection	AM Peak Hour		PM Peak Hour	
	Minor Approach Delay - LOS	Overall Delay	Minor Approach Delay - LOS	Overall Delay
University Avenue/Alabama Street (NB)	16.3 – C	1.6	67.7 – F	3.1
University Avenue/Alabama (SB)	13.4 – B	0.4	16.4 – C	0.6
University Avenue/Louisiana Street	16.8 – C	1.1	29.6 – D	1.2
University Avenue/Arizona Street (NB)	12.2 – B	0.6	17.4 – C	0.5
University Avenue/Arizona Street (SB)	12.7 – B	0.8	15.9 – C	0.7
University Avenue/Arnold Street	15.7 – C	1.2	23.9 – C	1.4
University Avenue/Hamilton Street	12.2 – B	0.6	17.9 – C	0.8
University Avenue/Oregon Street	16.0 – C	0.3	21.9 – C	1.0
University Avenue/Idaho Street	12.2 – B	0.6	18.8 – C	1.3
University Avenue/28th Street	12.4 – B	0.6	17.2 – C	0.3
University Avenue/Granada Street	10.4 – B	0.5	14.3 – B	1.1
University Avenue/Kansas Street	13.0 – B	0.9	21.7 – C	1.2
University Avenue/29th Street	11.3 – B	0.5	25.9 – D	1.5
University Avenue/31st Street	10.4 – B	0.4	14.1 – B	0.7
University Avenue/Iowa Street	18.0 – C	0.7	24.0 – C	1.0
University Avenue/Herman Avenue	10.2 – B	0.2	12.0 – B	0.1
University Avenue/Bancroft Street	12.4 – B	1.1	13.8 - B	1.1
Boundary/I-805 SB Ramps	-	20.4 - C	-	94.8 – F
Boundary Street/Lincoln Avenue	12.1 – B	2.3	10.7 - B	0.6

Note: Deficient intersection operation shown in bold.

VISSIM Delay Summary

In addition to the HCM analysis, the VISSIM software program was used to evaluate the existing travel time, delay and operating conditions along the corridor. By running the VISSIM model for multiple seeding scenarios, the average delay, travel time and other associated data can be reported. The basic measures of effectiveness reported by VISSIM are as follows:

- Intersections Delay
- Passenger Vehicle Travel Time
- Concurrent Intersection Delay
- Conflicting Intersection Delay
- Person Delay
- Stops per Vehicle

Table 4-3 summarizes the results of the a.m. and p.m. peak hour delay summary for the corridor as a whole and for the individual signalized intersections along the corridor. VISSIM is not an effective tool for reporting data at unsignalized intersections. Therefore, data is only reported for the twelve existing signalized intersections along the study corridor. The VISSIM data summarized in Table 4-3 was used as a basis of comparison for all future scenarios.

Roadway Segment Operational Analysis

The City of San Diego aims to maintain roadway segment operations LOS D or better. Roadway segment level of service is based on capacity thresholds that correspond to roadway classifications established in the North Park Community Plan. Average daily traffic volumes (ADT) collected for this project show that University Avenue, from Florida Street to 32nd Street, and east of Boundary Street, currently operates at LOS F. The remaining segments operate at LOS D. Study roadway segments parallel or intersecting University Avenue operate at LOS D or better on a daily level, with the exception of:

- North Park Way, from 32nd Street to Boundary Street
- 30th Street, from University Avenue to Lincoln Avenue
- 32nd Street, from University Avenue to North Park Way
- Boundary Street, from University Avenue to North Park Way

The segment of 30th Street, from University Avenue to Lincoln Avenue, operates at LOS E. The segments of North Park Way, from 32nd Street to Boundary Street; 32nd Street, from University Avenue to North Park Way; and Boundary Street, from University Avenue to North Park Way, operate at LOS F based on the estimated capacities of the roadways. The roadway segment level of service analysis for the study area is summarized in Table 4-4.

Table 4-3
Existing Conditions
VISSIM Measures of Effectiveness Summary

Study Intersection	Intersection Delay[1]		Concurrent Delay[2]		Conflicting Delay[3]		Person Delay[4]	
	AM	PM	AM	AM	AM	PM	AM	PM
University Avenue/Park Avenue	28.5	41.4	27.1	43.7	30.6	38.7	33.3	44.4
University Avenue/Florida Street	10.4	17.6	9.2	13.2	16.7	35.1	10.8	16.9
University Avenue/Mississippi Street	6.6	11.5	4.3	9.6	24.0	28.3	7.6	12.2
University Avenue/Texas Street	20.7	35.4	18.5	33.2	27.0	41.7	21.0	36.0
University Avenue/Utah Street	14.0	26.5	12.4	24.4	22.1	37.2	15.9	30.7
University Avenue/30th Street	15.2	25.6	12.5	22.3	20.2	31.0	16.7	26.4
University Avenue/Ohio Street	3.3	12.8	0.8	6.7	5.5	5.3	3.2	12.2
University Avenue/Grim Street	3.0	6.4	1.7	5.1	19.2	25.7	4.3	6.6
University Avenue/Illinois Street	5.0	8.6	4.3	7.3	17.8	25.5	5.7	8.9
University Avenue/32nd Street	15.0	18.1	14.2	17.7	17.3	20.1	15.5	19.6
University Avenue/Boundary Street	15.4	21.6	15.3	19.6	16.7	29.5	15.3	21.0
University Avenue/Wabash Street	25.0	45.7	23.7	54.7	26.9	28.6	27.1	49.0

Travel Direction	Travel Time[5]		Stops[6]	
	AM	PM	AM	AM
Eastbound	5.6	7.0	3.8	5.1
Westbound	5.9	7.1	4.0	5.9

1 Intersection Delay = Average delay for all movements at the intersection (sec/veh)
2 Concurrent Delay = Delay imposed to eastbound & westbound vehicles along University Avenue (sec/veh)
3 Conflicting Delay = Delay imposed to northbound & southbound vehicles entering or crossing University Avenue (sec/veh)
4 Seconds per person.
5 Minutes per vehicle.
6 Stops per vehicle.

Table 4-4
Existing Conditions
Roadway Segment Level of Service Analysis

Street	Limit	Class (Lanes)	Capacity	ADT	LOS	V/C
University Avenue	Centre to Park	C + LTL (4)	30,000	21,580	D	0.72
	Park to Florida	C + LTL (4)	30,000	20,040	D	0.67
	Florida to Texas	Collector (4)	15,000	**20,402**	**F**	**1.36**
	Texas to Utah	Collector (4)	15,000	**20,192**	**F**	**1.35**
	Utah to 30th	Collector (4)	15,000	**20,684**	**F**	**1.38**
	30th to 32nd	Collector (3)	12,000	**22,020**	**F**	**1.84**
	32nd to Boundary	C + LTL (4)	30,000	22,348	D	0.74
	Boundary to Wabash	Collector (4)	15,000	**23,962**	**F**	**1.60**
Lincoln Avenue	Louisiana to Texas	Collector (2)	8,000	2,740	B	0.34
	Texas to Utah	Collector (2)	8,000	2,341	A	0.29
	Utah to 30th	C + TWLTL (2)	15,000	4,790	A	0.32
	30th to Boundary	C + TWLTL (2)	15,000	5,288	B	0.35
	Boundary to Wabash	C + TWLTL (2)	15,000	4,290	A	0.29
North Park Way	Utah to 30th	Collector (2)	8,000	2,200	A	0.28
	30th to 32nd	Collector (2)	8,000	6,420	D	0.80
	32nd to Boundary	Collector (2)	8,000	**8,050**	**F**	**1.01**
Park Boulevard	Lincoln to University	Major (4)	40,000	14,690	A	0.37
	University to Essex	Major (4)	40,000	14,380	A	0.36
Texas Street	Lincoln to University	C + TWLTL (2)	15,000	8,830	C	0.59
	University to Wightman	Collector (2)	8,000	4,140	C	0.52
Utah Street	Lincoln to University	Collector (2)	8,000	2,830	B	0.35
	University to North Park	Collector (2)	8,000	3,600	C	0.45
30th Street	Lincoln to University	C + TWLTL (2)	15,000	**13,017**	**E**	**0.87**
	University to North Park	C + TWLTL (2)	15,000	12,960	D	0.86
32nd Street	Lincoln to University	Collector (2)	8,000	3,550	C	0.44
	University to North Park	Collector (2)	8,000	**8,660**	**F**	**1.08**
Boundary Street	Lincoln to University	Collector (2)	8,000	1,682	A	0.21
	University to North Park	Collector (2)	8,000	**13,110**	**F**	**1.64**

Note: C+TWLTL = Collector with Two-Way Left Turn Lane
C+LTL = Collector with Left Turn Lanes
ADT = Average Daily Traffic
LOS = Level of Service
V/C = Volume to Capacity Ratio

4.6 EXISTING PARKING

On-street parking is currently allowed through much of the study corridor along University Avenue and along the side streets. Between 28th Street and 30th Street diagonal parking spaces are provided on the south side of University Avenue. Approximately 28 diagonal parking spaces are provided. Exhibit 4-5 illustrates the location of all existing on-street parking along University Avenue. All side streets allow parking either diagonal or parallel. Table 4-5 summarizes the roadway width of each of the side streets and the type of parking, parallel (P) or diagonal (D), on either side of the street.

Table 4-5
Existing Conditions
Side Street Parking Configuration

Street	North of University Ave.			South of University Ave.		
	Parking		Street Width (Curb-to-Curb)	Parking		Street Width (Curb-to-Curb)
	East Side	West Side		East Side	West Side	
Florida Street	P	P	40’	P	P	38’
Alabama Street	D	P	60’	P	P	40’
Mississippi Street	D	P	52’	P	P	38’
Louisiana Street	P	P	42’	P	P	40’
Texas Street	P	P	52’	P	P	40’
Arizona Street	P	P	52’	P	P	40’
Arnold Avenue	--	--	--	P	P	45’
Hamilton Street	P	P	52’	--	--	--
Oregon Street	P	P	52’ *	--	--	--
Pershing Avenue	--	--	--	P	P	45’
Idaho/28th Street	P	D	51’	P	P	30’
Utah Street	P	P	52*	P	P	51’*
Granada Street	--	--	--	D	D	52’
Kansas Street	D	D	52’	--	--	--
29th Street	--	--	--	D	D	52’
30th Street	P	P	52’	P	P	52’
Ray Street (One-Way)	--	--	--	P	P	33’
Ohio Street	P	D	52’*	--	--	--
Grim Street	--	--	--	P	P	40’
Illinois Street	P	D	52’*	--	--	--
31st Street	--	--	--	P	P	45’
Iowa Street	D	P	52’*	--	--	--
Herman Street	--	--	--	P	P	40’
32nd Street	P	P	52’	P	P	45’

Note: P = Parallel, D = Diagonal or Angled. * = sidewalks greater than 10 feet wide.

Exhibit 4-5: Existing On-Street Parking (Sheet 1 of 3)

Exhibit 4-5: Existing On-Street Parking (Sheet 2 of 3)

Exhibit 4-5: Existing On-Street Parking (Sheet 3 of 3)

4.7 EXISTING TRANSIT CONDITIONS

Two routes currently serve the community of North Park along University Avenue: Route 7 and Route 908. Both Routes 7 and 908 enter and exit the project study area at Interstate 805 and Park Boulevard. Also, both routes connect with multiple transfers of other routes at locations along University Avenue. The two (2) highest transfer locations in the study area are 30th Street and Park Boulevard.

Route Description

Route 7: Currently Route 7 provides transit service along the University Avenue corridor. Route 7 begins in La Mesa and travels on University Avenue to Park Boulevard where it heads south into downtown San Diego, as illustrated in Exhibit 4-6. The overall route distance is 12.6 miles, with approximately 1.9-miles existing within the project study area. In addition to Route 7 there is also Route 7A, which operates as a limited stop service. The 7A service begins at 33rd Street and University Avenue and also ends in downtown San Diego. However, Route 7A only travels westbound and only operates during the a.m. peak periods at a 6- minute headway. Route 7 operates with a 6-minute headway during peak commute periods and a 10-minute headway during most other times. On the average weekday, 101 inbound and 101 outbound trips are operated. Standard 40-foot long transit coaches and 60-foot long articulated coaches are both employed for Route 7. The articulated coaches are used more frequently during the peak periods because of the heavy passenger loads during this time. Typically weekday-operating hours for Route 7 are from about 5 a.m. to 12 a.m.

Route 908: The 908 route begins in City Heights and travels on University Avenue to Old Town, as is shown in Exhibit 4-7. The overall route distance is 7.5 miles, with approximately 1.9 miles existing within the project study area. Route 908 operates on a 15-minute headway and after 8:30 p.m. headways increase to 30-minute headways. On the average weekday, 65 inbound and 62 outbound trips are operated. Similar to Route 7, standard and articulated coaches are both used for Route 908 during the course of the day. Route 908's weekday operating hours are from 6 a.m. to 11 p.m.

Ridership and Passenger Counts

To assess the operating conditions of transit along the corridor, boarding and alighting data, pedestrian access data, and on-time arrival data was collected for each of the transit routes. The ridership data was provided by SANDAG for use in this study. This ridership information was averaged from a span of three (3) years from 2001 to 2003.

Exhibit 4-6: Route 7 (Sheet 1 of 1)

Exhibit 4-7: Route 908 (Sheet 1 of 1)

The results of the ridership analysis show that both transit lines are well utilized, with Route 7 having one of the highest ridership rates in the city. The "Daily Ridership Boarding and Alighting" for both Routes 7 and 908 within the study area are illustrated in Table 4-6. This figure provides the daily passenger boarding and alighting for each of the transit stops located in the project study area. For both routes, approximately 7,800 boarding and alighting of passengers occur within just the study area. This is an extremely high volume of ridership.

The transit stops along the corridor with the highest ridership activity are at 30th Street and Park Boulevard, where daily boardings and alightings exceed 4,000 per day. This is the combined amount for the Route 7 and Route 908. These two (2) intersections also happen to have the highest transfer activity as well. The lowest boarding and alighting occurs at Bancroft Street and Florida Street (westbound) and Arnold Avenue and Florida Street (eastbound).

Transit Stop Locations

Currently 20 transit stops are located within the 1.9-mile study area. The general locations of the stops are illustrated in Exhibit 4-8. The study area has 10 stops serving westbound transit vehicles, and 10 stops serving eastbound transit vehicles. The average spacing between each of the stops is approximately 0.12 miles or 633-feet, with the shortest distance of approximately 370-feet between Louisiana Street and Arizona Street. The longest distance between stops is between Utah Street and 30th Street at 844-feet. SANDAG/MTS does not have standards for distances between transit stops for the city's urbanized areas. These distances are typically based on activity centers, needs, and requests. Nationally, typical spacing for similar type transit stops is from 750 to 800-feet in urban areas not associated with central downtowns. Thus, the transit stops along University Avenue are much closer than normal, especially the stops spacing less than 400 feet. Significant time delays can result from the closer than normal spacing of transit stops.

The existing transit stops are made up of both nearside and far side locations. At a near side transit stop, the transit vehicle stops prior to entering the intersection. At a far side transit stop, the transit vehicle passes through the intersection, then stops when it reaches the other side. Because of offset intersections, some of the stops could be considered mid-block. For the westbound route, there are 6-nearside locations and 4-farside locations including the Arizona Street stop, which could be considered a mid-block location.

For the eastbound transit route, there are also 6-nearside and 4-farside locations. It should be noted that from an operational standpoint, far side stops are the preferred locations by most transit authorities including SANDAG/MTS.

Table 4-6
Existing Conditions
Transit Ridership Data

Westbound Station Locations	Route 7	Route 908	Total	RANK
Bancroft Street	126	64	190	**10**
Iowa Street	149	43	192	**9**
Illinois Street	177	43	220	**7**
30th Street	758	383	1141	**1**
Utah Street	178	63	241	**4**
Oregon Street	141	69	210	**8**
Arizona Street	190	64	254	**3**
Louisiana Street	167	61	228	**6**
Alabama Street	153	87	240	**5**
Florida Street	74	40	114	**11**
Park Boulevard	805	224	1029	**2**
Eastbound Station Locations	**Route 7**	**Route 908**	**Total**	**RANK**
Park Boulevard	629	193	822	**2**
Florida Street	75	51	126	**10**
Alabama Street	117	47	164	**7**
Louisiana Street	191	76	267	**4**
Texas Street	122	49	171	**6**
Arnold Avenue	76	27	103	**11**
Pershing Avenue	96	43	139	**9**
Utah Street	179	42	221	**5**
30th Street	803	360	1163	**1**
Grim Street	104	57	161	**8**
Herman Avenue	228	79	307	**3**
Boundary Street	39	58	97	**12**

Note: Ridership based on total boardings and alightings at each transit stop

Exhibit 4-8: Existing Transit Stops (Sheet 1 of 1)

Dwell Time

The dwell time at each of the stops is a critical feature in defining the overall travel time for the transit service. The existing dwell times were used to assist in defining the current transit travel time within the project study area. Although both transit routes extend beyond the project study area, the existing dwell times at the stops were established from Park Boulevard to Interstate 805. The dwell time is determined by:

- Total passengers boarding and alighting, arrival and departure of the transit vehicle.
- Features at the transit stop.
- Width and number of the doors.
- Number of wheelchair and other mobility impaired riders.
- Passenger information needs.

It should be noted that it typically takes longer to board the first passenger than the other passengers due to the time required for passengers to reach the front door of the transit vehicles. Various features of the bus stop can also add to the dwell time. These include ability of the transit driver to maneuver into to the stop location, fare pre-payment, and mobility of the passengers (i.e., carrying groceries, accompanying small children, and physical or medical disabilities).

In this analysis the dwell time calculations are based on the number of passengers identified for each of the stops, as illustrated in Table 4-7. Dwell time was calculated using the VISSIM software program. Based on the model run. The longest dwell times were calculated at 30th Street and Park Boulevard. This is consistent with the existing high ridership at these locations.

Table 4-7
Existing Conditions
Dwell Time Summary – Route 908

Eastbound Route 908 Stop Locations	Existing					
	AM			PM		
	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop
Park Boulevard	3	19%	10.4	13	13%	14.3
Florida Street	0	5%	8.6	1	2%	8.8
Alabama Street	0	11%	9.2	5	1%	10.5
Louisiana Street	3	0%	9.0	4	8%	11.0
Texas Street	3	0%	9.5	1	4%	9.5
Arnold Avenue	3	6%	9.0	1	6%	10.3
Pershing Avenue	4	3%	10.5	3	1%	9.3
Utah Street	0	3%	8.3	3	6%	9.9
30th Street	12	28%	14.0	20	34%	19.3
Grim Avenue	1	5%	8.6	3	3%	9.3
Herman Avenue	1	3%	8.5	7	6%	11.1
Boundary Street	1	5%	8.6	0	8%	10.3

Westbound Route 908 Stop Locations	Existing					
	AM			PM		
	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop
Wabash Avenue	12	5%	12.5	3	0%	9.0
Bancroft Street	1	1%	8.5	11	4%	12.0
Iowa Street	1	0%	8.5	5	1%	10.5
Illinois Street	7	1%	11.5	0	2%	8.6
30th Street	27	14%	21.5	13	39%	17.3
Utah Street	4	3%	10.0	8	2%	11.0
Oregon Street	7	1%	11.5	3	6%	9.2
Arizona Street	1	0%	9.0	7	6%	10.5
Louisiana Street	4	3%	10.5	5	9%	10.5
Alabama Street	4	2%	10.0	9	4%	12.0
Florida Street	0	2%	8.9	4	0%	9.5
Park Boulevard	15	13%	14.0	12	13%	13.5

Table 4-7 (Continued)
Existing Conditions
Dwell Time Summary – Route 7

Eastbound Route 7 Stop Locations	Existing					
	AM			PM		
	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop
Park Boulevard	14	16%	13.7	46	13%	18.8
Florida Street	3	1%	9.1	4	1%	9.1
Alabama Street	5	1%	10.2	6	3%	9.6
Louisiana Street	3	4%	9.3	12	6%	11.0
Texas Street	3	3%	9.4	6	3%	9.5
Arnold Avenue	4	2%	9.7	5	2%	9.1
Pershing Avenue	3	3%	9.3	4	3%	9.3
Utah Street	4	7%	10.1	9	9%	11.7
30th Street	16	12%	14.5	58	18%	22.6
Grim Avenue	6	3%	10.5	30	4%	15.9
Herman Avenue	5	3%	10.1	10	5%	10.6
Boundary Street	3	1%	9.3	2	1%	8.6
	5	3%	9.9	4	3%	9.4

Westbound Route 7 Stop Locations	Existing					
	AM			PM		
	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop	Boarding Pass./Hr	Alighting Trip %	Average Dwell Sec/Stop
Wabash Avenue	10	1%	12.2	6	3%	10.1
Bancroft Street	4	2%	9.7	3	3%	9.2
Iowa Street	8	2%	11.5	11	4%	11.8
Illinois Street	5	3%	9.9	6	9%	11.3
30th Street	16	16%	16.8	32	20%	19.5
Utah Street	9	4%	11.9	7	3%	10.5
Oregon Street	7	2%	11.1	2	3%	9.1
Arizona Street	17	1%	14.9	8	4%	10.7
Louisiana Street	6	1%	10.6	8	4%	10.7
Alabama Street	7	1%	11.1	1	3%	9.0
Florida Street	2	0%	8.7	4	3%	9.3
Park Boulevard	23	10%	17.4	31	16%	19.1

Existing Transit Travel Time

The existing transit travel time in the corridor was determined by combining the dwell times at the transit stops with the average travel times of the transit vehicles between the stops when traversing the project study area from Interstate 805 to Park Boulevard. The travel time for both routes at a.m. and p.m. peak periods are illustrated in Table 4-8.

Table 4-8
Existing Conditions
Transit Travel Times (I-805 to Park Boulevard)

Route 7	AM	PM
Westbound Interstate 805 to Park Boulevard	8.5 min.	9.2 min.
Eastbound Park Boulevard to Interstate 805	6.8 min.	9.3 min.
Route 908	**AM**	**PM**
Westbound Interstate 805 to Park Boulevard	7.3 min.	9.3 min.
Eastbound Park Boulevard to Interstate 805	6.6 min.	9.9 min.

Wait Time and On-Time Performance

As described earlier, the peak period headways for both Routes 7 and 908 are approximately 6-minutes. This means that during the highest ridership period a transit vehicle should arrive every 6-minues to pick up passengers. During non-peak periods, this wait time increases to approximately 10 minutes between transit vehicles.

However, headway expectation and on-time performance can vary. Wait time for existing on-time performance is based on figures provided by SANDAG dating back to 2003. The figures for Route 7 and 908 are shown in Tables 4-9 and 4-10. The tables demonstrate that both the 7 and 908 currently experience either a delay or early departure rate of approximately 30 percent. Therefore they have an average on-time percentage rate of 70 percent. However, the 908 eastbound p.m. period is the most inefficient, as it experiences a 65 percent late/early departure performance.

Table 4-9
Existing Conditions – Route 7 Weekdays
On-Time Performance by Time Period

Direction: Inbound (101 trips counted)				Direction: Outbound (101 trips counted)			
Peak	**Percent "Slow"**	**Percent "Hot"**	**Total**	**Peak**	**Percent "Slow"**	**Percent "Hot"**	**Total**
AM	16.3	17.3	33.7	AM	16.4	12.9	29.3
Mid-Day	20.1	15.0	35.2	Mid-Day	24.4	5.2	29.5
PM	23.1	3.7	26.9	PM	38.1	5.0	43.1
Other	10.0	13.7	23.7	Other	18.7	6.7	25.4
TOTAL	17.3	13.4	30.8	TOTAL	25.2	6.6	31.7

Note: "Hot" refers to transit vehicles that left the stop early.

Table 4-10
Existing Conditions – Route 908 Weekdays
On-Time Performance by Time Period

Direction: Inbound (59 trips counted)				Direction: Outbound (59 trips counted)			
Peak	**Percent "Slow"**	**Percent "Hot"**	**Total**	**Peak**	**Percent "Slow"**	**Percent "Hot"**	**Total**
AM	4.3	23.2	27.5	AM	4.9	13.4	18.3
Mid-Day	18.6	6.6	25.2	Mid-Day	12.4	16.6	29.0
PM	64.3	1.2	65.5	PM	41.0	10.8	51.8
Other	28.0	1.1	29.0	Other	1.3	8.9	10.1
Daily	27.6	7.0	34.6	Daily	14.5	13.3	27.8

It should also be noted that both Route 7 and 908 experience "bunching" in the University Avenue corridor. This "bunching" occurs when a transit vehicle catches up to an earlier bus and impacts their on-time arrival performance. The bunching occurs when traffic congestions or traffic conflicts occur, slowing down the previous bus and allowing for the later bus to catch up to it.

4.8 PEDESTRIAN AND BICYCLE ACTIVITY ON CORRIDOR

Pedestrian Activity

Marked pedestrian crossings along the corridor are provided at signalized intersections and at two unsignalized locations. These existing unsignalized locations have overhead flashing lights and signs indicating that a crosswalk is present. Through the public outreach efforts, it was determined that in general this design is unclear to the driver and is not effective in these locations. The average distance between crosswalks, either signalized or unsignalized is provided in Table 4-11.

Table 4-11
Existing Distance Between Marked
Crosswalks Across University Avenue (North-South)

From	To	Distance	Topography
Park Boulevard	Florida Street	705’	Steep Grade Under Georgia Bridge
Florida Street	Mississippi Street	685’	Steep Grade
Mississippi Street	Texas Street	510’	Steep Grade
Texas Street	Arnold Street	535’	Steep Grade
Arnold Street	Pershing Street	700’	Steep Grade
Pershing Street	Utah Street	485’	Level
Utah Street	30th Street	680’	Level
30th Street	Ohio Street	300’	Level
Ohio Street	Grim Street	200’	Level
Grim Street	Illinois Street	100’	Level
Illinois Street	32nd Street	690’	Level
32nd Street	Boundary Street	575’	Level

Pedestrian activity was monitored on three occasions:

- In December 2003 in conjunction with the intersection count data collection efforts
- In February 2004 in conjunction with the transit study analysis
- In April 2004 specifically relating to the analysis of pedestrian activity

Pedestrian activity at each of the study intersections is illustrated in Exhibit 4-9. Table 4-12, summarizes the total number of pedestrian crossings for two two-hour periods on a typical weekday.

Table 4-12
Existing Conditions
Peak Hour Pedestrian Activity by Intersection

Study Intersection	AM (7:00-9:00 a.m.)	PM (4:00-6:00 p.m.)	TOTAL
University Avenue/Park Avenue	151	233	**384**
University Avenue/Florida Street	28	39	67
University Avenue/Alabama Street	30	91	121
University Avenue/Mississippi Street	31	85	116
University Avenue/Louisiana Street	52	48	100
University Avenue/Texas Street	53	76	129
University Avenue/Arizona Street	6	4	10
University Avenue/Arnold Street	31	60	91
University Avenue/Hamilton Street	15	25	40
University Avenue/Villa Terrace	1	4	5
University Avenue/Oregon Street	48	42	90
University Avenue/Idaho Street	20	39	59
University Avenue/28th Street	25	43	68
University Avenue/Utah Street	53	178	**231**
University Avenue/Granada Street	9	43	52
University Avenue/Kansas Street	39	72	111
University Avenue/29th Street	21	54	75
University Avenue/30th Street	183	310	**493**
University Avenue/Ray Street	71	286	**357**
University Avenue/Ohio Street	37	84	121
University Avenue/Grim Street	53	149	**202**
University Avenue/Illinois Street	11	70	81
University Avenue/31st Street	29	87	116
University Avenue/Iowa Street	14	17	31
University Avenue/32nd Street	32	75	107
University Avenue/Boundary Street	17	52	69

Note: Total peak period pedestrian crossing volumes greater than 200 are shown in bold.

As shown, the highest pedestrian activity currently occurs at 30th Street, which is also the highest transit usage station along the corridor. Pedestrian activity is lowest east of Texas Street.

Sidewalk conditions along the corridor vary. Through the downtown core (Idaho Street to Iowa Street), sidewalks are typically wide (15 feet or wider), with existing street trees and bus stop shelters. However, to the west of Idaho Street, sidewalks narrow and are typically 5 to 8 feet wide.

Another key factor for pedestrians is the width of the streets that they cross. By minimizing the pedestrian exposure to vehicular traffic, the risk of pedestrian/vehicular accidents is minimized and the pedestrian comfort level is improved. Table 4-13 summarizes the walking distance for pedestrians at each crossing location.

Bicycle Activity

Bicycle activity along the corridor is minimal, most likely due to the lack of bicycle lanes and high speeds and traffic volumes. In the a.m. peak hour, an average of seven bicycles were observed traveling along the corridor during a two hour period (between 7:00 a.m. and 9:00 a.m. when morning traffic volumes along the corridor are their highest). Similarly, during the p.m. peak period bicycle traffic averaged approximately 15 bicyclists between 4:00 to 6:00 p.m., when afternoon traffic volumes are the highest.

Bicycle lanes or bicycle routes are not designated along University Avenue. Therefore, bicycles are required to share the travel way with passenger vehicles and buses. The outside or curb lane along University Avenue is typically 11 feet wide. As discussed previously, parallel and diagonal parking is permitted along University Avenue along the corridor. This traps bicycles between passenger vehicles traveling along University and the vehicles parked along the curb.

Working with the bicycling community, the City of San Diego has established a Bicycle Master Plan. This plan includes goals and objectives to improve the overall bicycle safety and mobility throughout the City as well as recommendations to improve the bicycle circulation system. No existing or planned bicycle routes are identified along University Avenue, Lincoln Avenue or North Park Way. Recommended bicycle routes are proposed on 30th Street, Texas Street and Park Boulevard, as they cross University Avenue.

Although not designated in the Bicycle Master Plan, alternate routes for bicycles include Lincoln Way, North Park Way, and Wightman Avenue. However, Lincoln Avenue is the only continuous street that extends from Park Boulevard to Boundary Street. Wightman Avenue and North Park Way are discontinuous and require weaving through residential neighborhoods to traverse the length of the study area.

Exhibit 4-9
Pedestrian activity at each of the study intersections

Table 4-13
Existing Conditions
Curb-to-Curb Distances at Marked Crosswalks

Location	Crossing Distance (Curb to Curb)			
	North Leg	South Leg	East Leg	West Leg
University Avenue/Park Avenue	115’	90’	85’	70’
University Avenue/Florida Street	40’	40’	52’	50’
University Avenue/Alabama Street	52’	40’	--	--
University Avenue/Mississippi Street	52’	40’	52’	52’
University Avenue/Louisiana Street	52’	40’	--	--
University Avenue/Texas Street	52’	40’	52’	52’
University Avenue/Arizona Street	52’	40’	--	--
University Avenue/Arnold Street	--	45’	--	52’
University Avenue/Hamilton Street	45’	--	--	--
University Avenue/Villa Terrace	--	38’	--	--
University Avenue/Oregon Street	42’	--	--	--
University Avenue/Pershing Street	--	50’	52’	--
University Avenue/Idaho Street	52’	--	--	--
University Avenue/28th Street	--	30’	--	--
University Avenue/Utah Street	52’	52’	52’	70’
University Avenue/Granada Street	--	52’	--	--
University Avenue/Kansas Street	52’	--	--	--
University Avenue/29th Street	--	52’	--	--
University Avenue/30th Street	52’	52’	62’	76’
University Avenue/Ray Street	--	25’	--	--
University Avenue/Ohio Street	52’	--	52’	50’
University Avenue/Grim Street	--	40’	52’	52’
University Avenue/Illinois Street	52’	--	52’	52’
University Avenue/31st Street	--	45’	--	--
University Avenue/Iowa Street	52’	--	--	--
University Avenue/Herman Street	--	40’	--	--
University Avenue/32nd Street	45’	45’	52’	52’
University Avenue/Bancroft Street	38’	45’	--	--
University Avenue/Boundary Street	65’	40’	50’	--

4.9 SUMMARY OF EXISTING CONDITIONS

From an operational perspective, University Avenue operates within the City defined acceptable levels of service, with the exception of the following locations:

Intersections:

- University Avenue/Park Boulevard (signalized) ..... LOS F, p.m. peak
- University Avenue/Alabama Street Northbound (unsignalized) ..... LOS F, p.m. peak
- Boundary Street/I-805 Southbound Ramps (all-way stop) ..... LOS F, p.m. peak

Roadway Segments:

- University Avenue between 30th & 32nd Street ..... LOS E
- North Park Way, from 32nd Street to Boundary Street ..... LOS F
- 30th Street from, Lincoln Street to University Avenue ..... LOS E
- 32nd Street from, University Avenue to North Park Way ..... LOS F
- Boundary Street from, University Avenue to North Park Way ..... LOS F

Travel times along the 1.9-mile stretch of the corridor are currently at acceptable levels, with average speeds of ranging from 15 to 30 mph. Average passenger vehicle travel times along the corridor are approximately six minutes in the morning and approximately seven minutes in the afternoon based on the VISSIM simulation model established for the study corridor. Average transit vehicle travel times along the corridor are approximately seven minutes eastbound and nine minutes westbound in the a.m. peak hour. In the p.m. peak hour, average transit travel times are approximately nine minutes westbound and ten minutes eastbound.

The highest pedestrian activity currently occurs at the intersections of University Avenue/30th Street and University Avenue/Park Boulevard, which correspond with the highest transit transfer locations. A total of 20 transit stops are provided along University Avenue serving both Route 7 and Route 908. Marked pedestrian crossings are provided at all signalized intersections and at two unsignalized locations.