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Mercado el Milagro Retail Development
(Central Ave. / 98th St.)

Traffic Impact Study

April 25, 2019

D R A F T



Presented to:

City of Albuquerque
Transportation Development Section

NM Dept. of Transportation
District 3

Prepared for:

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Mercado el Milagro
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Traffic Impact Study

Executive Summary

The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed Mercado el Milagro, determine the impact of the development on the adjacent transportation system and recommend mitigation measures where necessary. This study is prepared to meet the requirements of the City of Albuquerque Transportation Development Section of the Planning Department associated with its review of the Mercado el Milagro. The New Mexico Department of Transportation will be involved in the review of the Traffic Impact Study with regard to the I-40 / 98th St. interchange and surrounding area of influence.

The proposed development is located at the southwest corner of Central Ave. / 98th St. The study area includes the intersections of Central Ave. / Unser Blvd., Central Ave. / 86th St., Central Ave. / 98th St., Tower Rd. / 98th St., I-40 N. Ramp / 98th St., I-40 S. Ramp / 98th St., Central Ave. / Bridge Blvd., and Sunset Gardens Rd. / 98th St., as well as four proposed driveways for the project.

The proposed project is to be developed as a multi-use commercial site. The anticipated implementation year for this site is the year 2024 and there is no horizon year analysis required. According to the Institute of Traffic Engineers' (ITE) trip generation rates, the weekday AM Peak Hour period is anticipated to generate approximately 319 entering trips and 269 exiting trips. During the weekday PM Peak Hour period, it is anticipated that it will generate approximately 303 entering trips and 295 exiting trips.

The development will be accessed via four proposed driveways for this parcel of land, one right-in, right-out driveway on Central Ave., two on 98th St. (one full access and one right-in, right-out), and one full access driveway on Sunset Gardens Rd. See the Appendix Page A-3 for more details regarding site design and access.

Analysis results by analysis year are included in the following tables:

Executive Summary Results Table

			2024 Conditions	
Intersection No. / Name	Signalization	Case	AM Peak	PM Peak
1 - Central Ave. / Unser Blvd.	Signalized	NO BUILD	D - 36.2	D - 51.6
		BUILD	D - 37.6	E - 56.2
2 - Central Ave. / 86th St.	Signalized	NO BUILD	C - 21.0	B - 13.2
		BUILD	B - 19.9	B - 12.6
3 - Central Ave. / 98th St.	Signalized	NO BUILD	D - 40.5	D - 51.0
		BUILD	D - 44.5	E - 65.1
		MIT BLD*	D - 36.4	C - 34.3
4 - Tower Rd. / 98th St.	Signalized	NO BUILD	C - 21.6	D - 38.8
		BUILD	C - 23	D - 39.9
5 - I-40 N. Ramp / 98th St.	Signalized	NO BUILD	C - 21.9	C - 23.5
		BUILD	C - 22.0	C - 24.5
6 - I-40 S. Ramp / 98th St.	Unsignalized	NO BUILD	C - 20.5	F - 140
		BUILD	C - 20.7	F - 159
7 - Central Ave. / Bridge Blvd.	Unsignalized	NO BUILD	B - 14.0	C - 16.2
		BUILD	C - 15.0	C - 17.5
8 - Sunset Gardens Rd. / 98th St.	Unsignalized	NO BUILD	C - 16.7	C - 18.2
		BUILD	C - 20.1	F - 67.4
9 - Driveway "A" / 98th St.	Unsignalized	NO BUILD	N/A	N/A
		BUILD	D - 27.0	F - 742
10. Driveway "B" / 98th St.	Unsignalized	NO BUILD	N/A	N/A
		BUILD	A - 9.9	C - 20.7
11. Sunset Gardens Rd. / Driveway "C"	Unsignalized	NO BUILD	N/A	N/A
		BUILD	A - 9.3	A - 9.5
12. Central Ave. / Driveway "D"	Unsignalized	NO BUILD	N/A	N/A
		BUILD	B - 12.1	B - 10.4

* - Mitigated condition for Central Ave. / 98th St. is proposed re-timing of the traffic signal.

NOTE: Unsignalized intersections / driveways are reported based on worst turning movement.

In summary, the proposed development does not have a significant adverse impact to the adjacent transportation system and the minimal impact to the transportation system can be mitigated by the recommended measures described in this report and summarized in the table above. In summary, the recommendations of this study are:

Recommendations

2024 Conditions:

- Optimize traffic signal phase splits for the traffic signal at Central Ave. / 98th St.
- All design and construction shall maintain adequate sight distances at driveways and intersections.

Access:

Driveway “A” on 98th St. should be a full access unsignalized driveway with a minimum of two exiting lanes (one for left turns and one for right turns) and one entering lane. A southbound right turn deceleration lane and a northbound left turn deceleration lane are warranted at Driveway “A”. Both have been recently constructed to meet City of Albuquerque requirements.

Driveway “B” on 98th St. should be a right-in, right-out unsignalized driveway with one entering lane and one exiting lane.

Driveway “C” on Sunset Gardens Rd. should be a full access unsignalized driveway with a minimum of one entering lane and one exiting lane.

Driveway “D” on Central Ave. should be a right-in, right-out unsignalized driveway with one entering lane and one exiting lane.

**Mercado el Milagro
(Central Ave. / 98th St.)
Traffic Impact Study**

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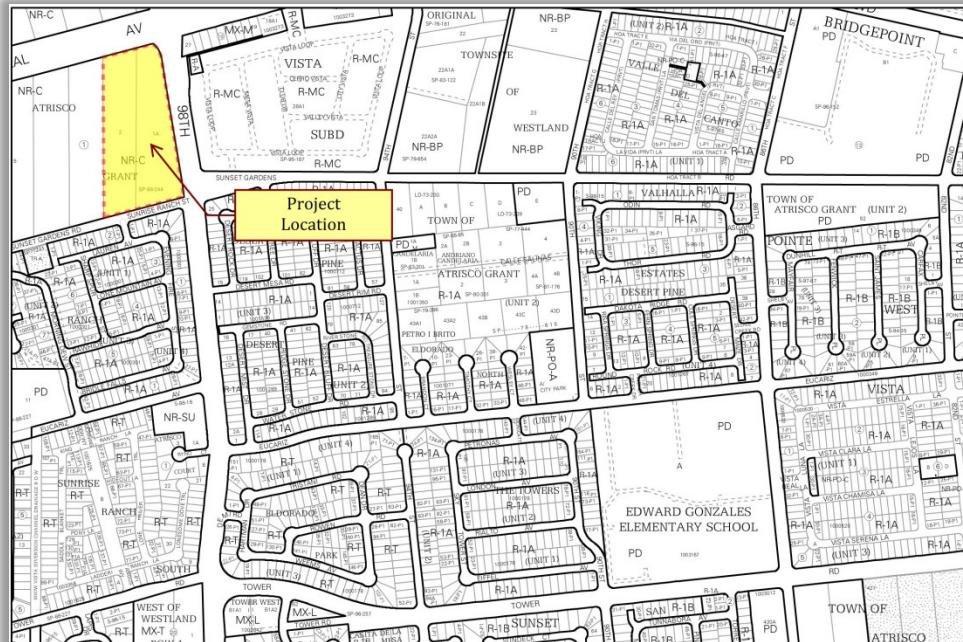
Mercado el Milagro (Central Ave. / 98th St.) Traffic Impact Study

Introduction

The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed Mercado el Milagro and determine the impact of the development on the adjacent transportation system. The recommendations of this study will provide measures to mitigate the impact of the development of the site plan on critical intersections and street segments. This study is prepared to meet the requirements of the City of Albuquerque Transportation Development Section of the Planning Department associated with its review of the Mercado el Milagro as shown on the plan on Page A-3 in the Appendix of this report. It is also prepared to address transportation mitigation issues at the New Mexico Department of Transportation's I-40 / 98th St. Interchange and the surrounding area of influence.

The proposed development is located at the northwest corner of Central Ave. / 98th St. in Albuquerque, New Mexico. If the property was to develop in a manner significantly different than the proposed plan considered in this report such that the number of generated trips is significantly greater, then an update to this study may be required by the City of Albuquerque Transportation Development Section of the Planning Dept.

Following is a vicinity map depicting the location of the proposed project:



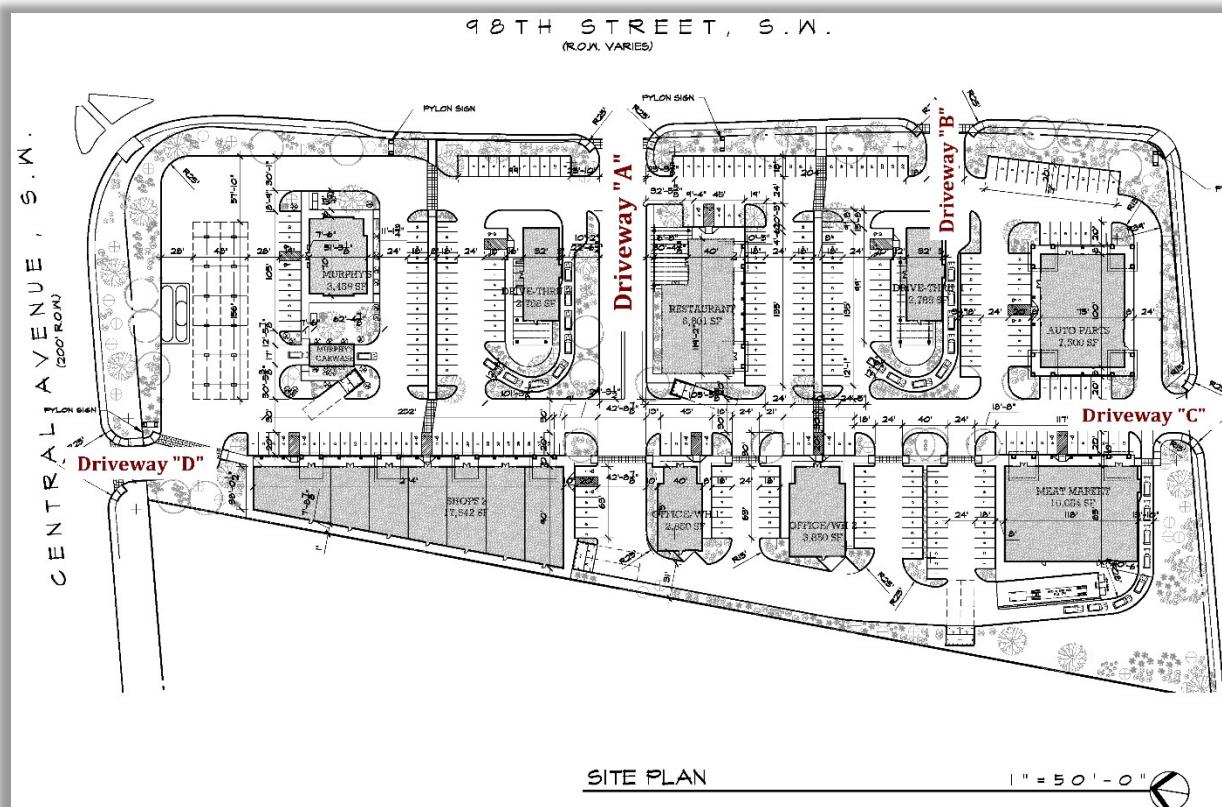
Description of Proposed Development

The proposed project is described as a retail commercial site at the southwest corner of Central Ave. / 98th St. The project lies in the city limits of Albuquerque, NM. The project will be required to comply with the requirements of the City of Albuquerque with regard to the overall development. This Traffic Impact Study includes the analysis of two ramps for Interstate 40 which are maintained by the New Mexico Department of Transportation. The project will be required to comply with the requirements of the City of Albuquerque with regard to the overall development and with the requirements of the New Mexico Department of Transportation with regard to transportation issues along the I-40 / 98th St. interchange and its area of influence.

This study will assume that the development will be constructed in one phase. This study will analyze an implementation year of 2024. No horizon year analysis is required.

The development will be accessed via four proposed driveways for this parcel of land, which will be or are built as shown on the site plan.

Following is the proposed site development plan depicting driveway (access) locations (also, see Appendix Page A-3 for a more complete version of the proposed site development plan):



Study Area Conditions

A Traffic Impact Study Scoping Meeting was held with the City of Albuquerque Transportation Development Section of the Planning Department with staff (Ernest Armijo). During the exchange, it was determined that the study area would include the following list of intersections to be analyzed in the Traffic Impact Study:

1. Central Ave. / Unser Blvd.
2. Central Ave. / 86th St.
3. Central Ave. / 98th St.
4. Tower Rd. / 98th St.
5. I-40 N. Ramp / 98th St.
6. I-40 S. Ramp / 98th St.
7. Central Ave. / Bridge Blvd.
8. Sunset Gardens Rd. / 98th St.
9. Driveway "A" / 98th St. (Full access)
10. Driveway "B" / 98th St. (Right-in, right-out access)
11. Sunset Gardens Rd. / Driveway "C" (Full access)
12. Central Ave. / Driveway "D" (Right-in, right-out access)

This scope of study was based on the assumption that the parcel in question would be developed as a retail commercial site similar to that shown on the proposed site plan.

There are no other known land development projects in the area which need to be incorporated into the background traffic model for this study. There are no known Transportation Improvement Program projects in the area that need to be considered in the Traffic Impact Study.

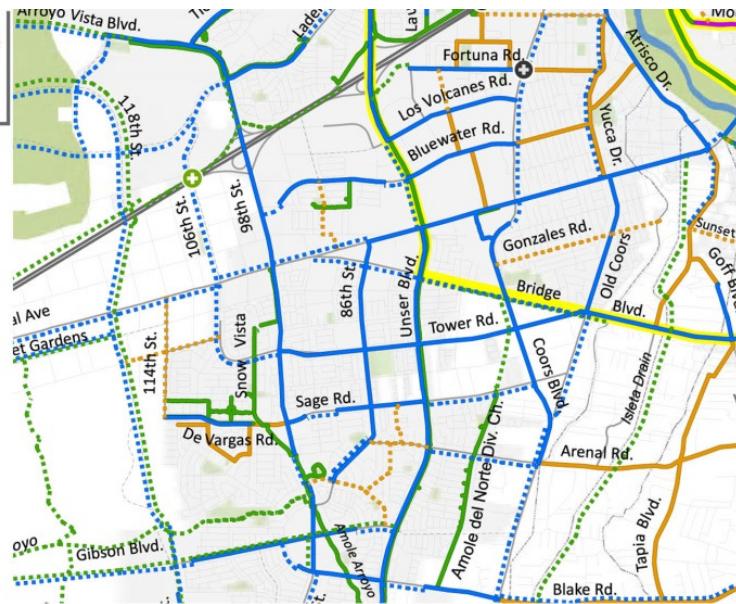
This project is served by public transit services in the area; specifically Routes #54 and #198. These routes run along Central Ave. from Unser Blvd. to 98th and south to either Bridge Blvd. or Dennis Chavez Blvd. See Appendix Pages A-106 thru A-107 for weekday & weekend times.

There are some existing & proposed designated routes in the project area on the Futures 2040 Metropolitan Transportation Plan (2040 Long Range Bikeway System) as shown on the following portion of the map.



2040 Long Range Bikeway System

- Proposed Overpass/Underpass
- Existing Overpass/Underpass
- Existing, Bicycle Boulevard
- Existing, Bicycle Lane
- Existing, Bicycle Route
- Existing, Paved Trail; Existing
- Proposed, Bicycle Boulevard
- Proposed, Bicycle Lane
- Proposed, Bicycle Route
- Proposed, Paved Trail
- 50 Mile Loop



There are pedestrian facilities in the project area – curb & gutter and sidewalks along the roads, as well as raised medians for pedestrians & bicyclists crossing against traffic at major intersections.

98th St. is classified as a Community Principal Arterial Roadway on the Mid-Region Council of Government's Futures 2040 Long Range Roadway System Map. It is a four-lane urban-type roadway with curb and gutter & sidewalks and some raised medians. The posted speed limit along 98th St. is 45 MPH.

Central Ave. is classified as Community Principal Arterial Roadway east of 98th St. & a Regional Principal Arterial Roadway west of 98th St. on the Mid-Region Council of Government's Futures 2040 Long Range Roadway System Map. Central Ave. is a four-lane roadway with curb & gutter and sidewalks; the posted speed limit is 55 MPH.

I-40 is an interstate highway with a posted speed limit of 65 MPH in the vicinity of 98th St.

Analysis of Existing Conditions

Due to the fact that the Implementation Year is just a few years in the future, no existing analysis was performed. Existing traffic volumes (turning movement counts) were collected at the intersections targeted for analysis in this study in February 2019 and are included on Appendix Pages A-95 thru A-105. Traffic counts (turning movement volumes) for the signalized intersection of the I-40 N. Ramp / 98th St. are adjusted for demand based on queueing at the end of each 15-minute count period.

Analysis of Implementation Year Conditions

Traffic Projections

Background traffic was taken from recent traffic counts (Appendix A-95 thru A-105) conducted for this project.

This study assumes that the development will be implemented in one phase with an implementation year of 2024.

Projected trips were calculated based on the Institute of Traffic Engineers (ITE) Trip Generation Manual (10th Edition). Trips for the development were determined based on land use defined on the Conceptual Site Development Plan on Page A-3 in the Appendix of this report. The following table summarized the trip generation rate for the project:

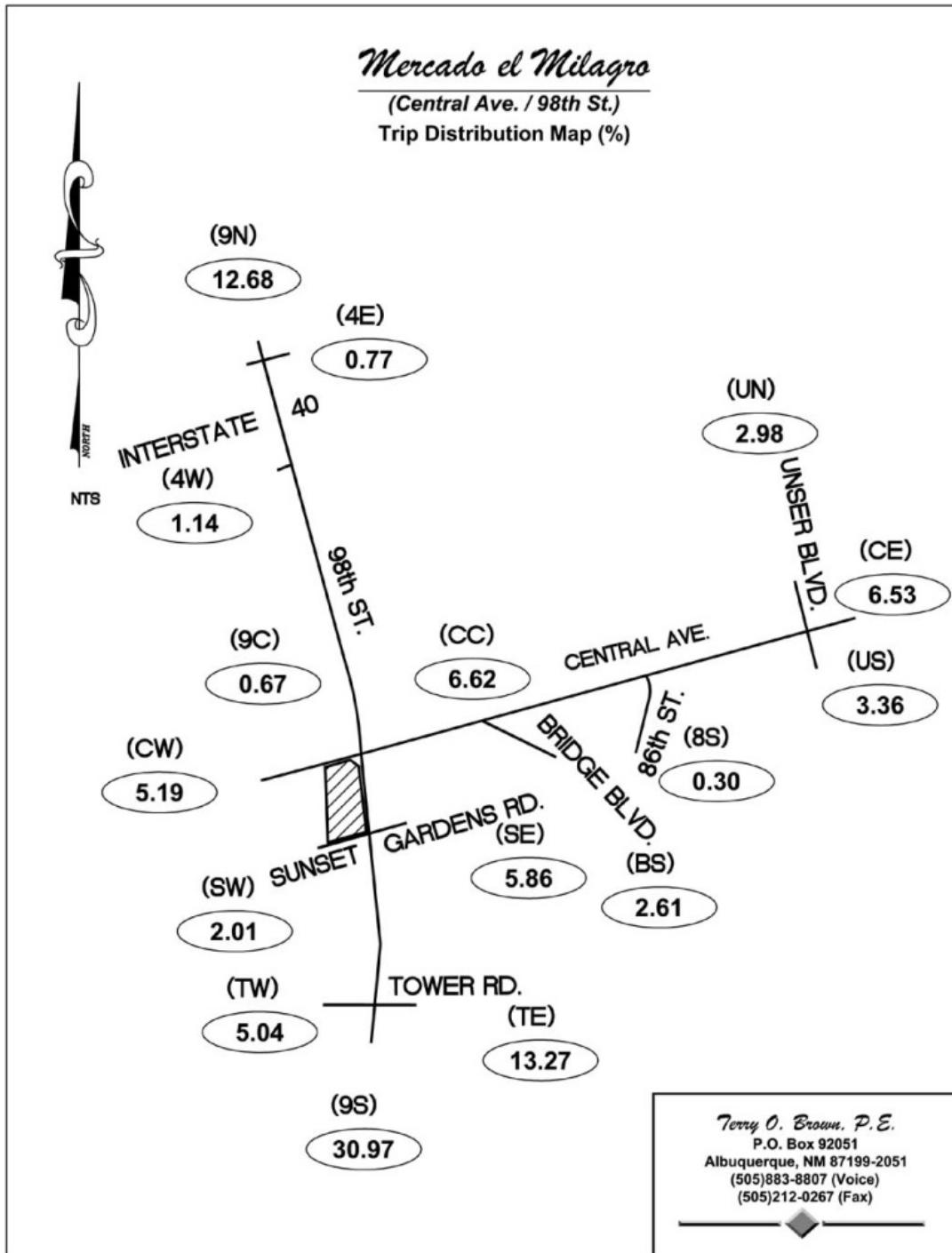
Mercado el Milagro (Central Ave. / 98th St.) Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

COMMENT	USE (ITE CODE)	DESCRIPTION	24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.		
			GROSS	ENTER	EXIT	ENTER	EXIT	
<u>Summary Sheet</u>								
Murphy's	Gasoline / Service Station w/ Convenience Market (945)	Units	24	5,282	183	176	171	165
2 Restaurants	Fast Food Restaurant w/ Drive-Thru Window (934)		5.58	2,626	114	110	95	87
	High Turnover (Sit-Down) Restaurant (932)		3.00	337	16	13	18	11
	Automobile Parts Sales (843)		7.50	409	11	9	18	19
Meat Market	Supermarket (850)		10.05	1,925	23	15	71	69
Shops	Shopping Center (820)		12.06	1,427	98	60	55	59
Offices	Small Office Building (712)		6.70	108	11	2	5	11
	Subtotal			12,114	456	385	433	421
	<i>Pass-By Trips</i>		30%		-137	-116	-130	-126
	Total Primary Trips				319	269	303	295

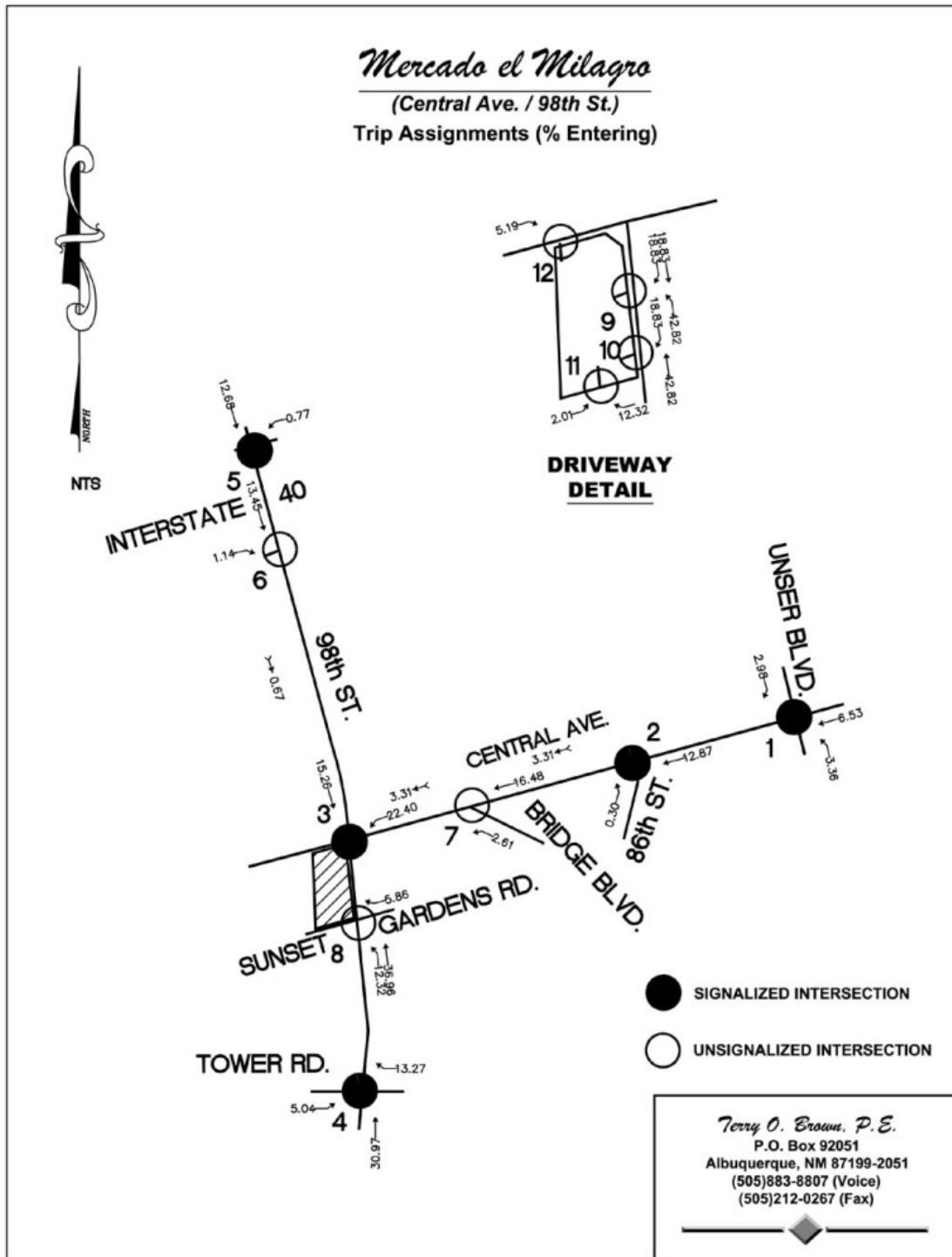
Pass-by trips of 30% were applied to this project. See Appendix Pages A-7 thru A-14 for more information regarding the trip generation.

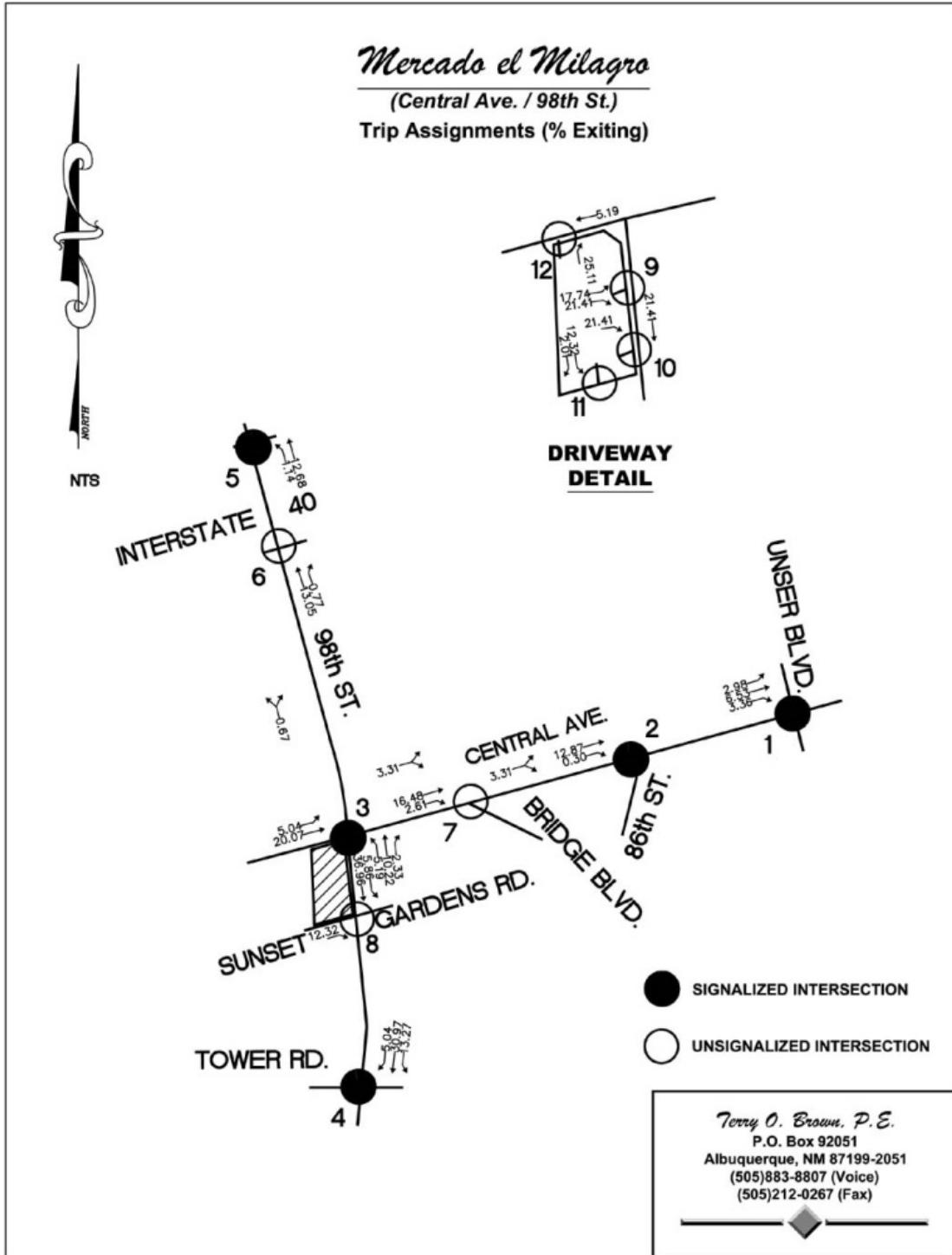
The Gravity Model was used to determine trip distribution where primary trips for the commercial land use development were distributed proportionally to the 2024 projected population of Data Analysis Subzones (DASZ) within a 2-mile radius. Population data for the years 2012 and 2040 were taken from the 2040 Socioeconomic Forecasts by Subareas for the Mid-Region of New Mexico supplied by the Mid-Region Council of Governments (MRCOG). Population data from the years 2012 and 2040 was interpolated linearly to obtain 2024 population data to utilize for this analysis. Population Subzones were grouped based on the most likely major street(s) or route(s) to the subject development. The trip distribution worksheets and associated map of data analysis subzones are shown in the Appendix on

Pages A-15 thru A-21. The commercial Trip Distribution map can be found below and on the map in the Appendix on Page A-22.



Trip assignments are first made on a percentage basis derived from data established in the trip distribution determination process and logical routing. Those percentages are then applied to the projected trips to determine individual traffic movements. Percentage trip assignments for commercial trips are shown below and in the Appendix on Pages A-23 thru A-24.





Background traffic growth rates were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2008 through 2017 Traffic Flow maps prepared by the Mid-Region Council of Governments. Most of the Traffic Flow Data for those years taken from the MRCOG Traffic Flow Maps were Standard Data. The data from those years for each approach was plotted on a graph and a linear “regression trend line” calculated using the equation format $y=mx+b$. The growth rate was determined by calculating the average

volume increase per year during the time period considered and dividing that volume into the most recent AWDT used in the analysis from which future volumes will be calculated. The rate of growth of that trend line was utilized as the annual growth rate for each approach if that calculated rate appeared feasible. However, in every roadway segment considered in this analysis, the rate indicated either an inconsistent or a negative growth trend; therefore, the growth rate was considered to be a generic 0.5%. Historical Growth Rate Graphs with linear regression trend lines are shown in the Appendix on Pages A-26 thru A-42. The growth rate utilized for each approach to an intersection is printed at the top of the Turning Movement sheets for each intersection (Appendix Pages A-47 thru A-70). A growth rate map is on Page A-43 in the Appendix.

2024 PM Peak Hour BUILD Traffic Volumes

Traffic Analysis

A capacity analysis using existing traffic signal timing (see Appendix Pages A-71 thru A-112) was conducted for the Implementation Year (2024) NO BUILD and BUILD Conditions and the results are summarized as follows:

#1 – Central Ave. / Unser Blvd. - Pages A-71 thru A-112

The results of the 2024 analyses of the signalized intersection of Central Ave. / Unser Blvd. are summarized in the following tables:

Central Ave. / Unser Blvd. 2024 Conditions	EB (Central Ave.)			WB (Central Ave.)			NB (Unser Blvd.)			SB (Unser Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	2>	0	1	2	1	1	2>	0	1	1	1
AM Peak Hour												
2024 NO BUILD Conditions Volumes	297	396	19	47	146	90	21	1,476	156	106	456	98
V/C Ratio	0.83	0.79	0.79	0.64	0.50	0.69	0.05	0.84	0.86	0.64	0.46	0.12
Level-of-Service	E	E	E	E	D	E	A	C	C	C	B	B
Control Delay (Seconds)	65.4	59.4	59.5	64.5	53.1	58.6	9.9	28.8	30.2	29.4	15.3	11.2
Intersection LOS	D - 36.2											
95th Percentile Queue (veh)	9.4	11.7	12.1	3.1	4.2	5.6	0.4	28.8	30.5	3.8	12.4	2.4
2024 BUILD Conditions Volumes	305	414	28	47	167	90	32	1,476	156	106	456	108
V/C Ratio	0.83	0.79	0.80	0.64	0.53	0.64	0.07	0.86	0.88	0.65	0.46	0.13
Level-of-Service	E	E	E	E	D	E	B	C	C	C	B	B
Control Delay (Seconds)	65.9	60.2	60.3	64.5	52.8	56.5	10.5	30.7	32.3	30.3	16.0	11.8
Intersection LOS	D - 37.6											
95th Percentile Queue (veh)	9.7	12.5	12.8	3.1	4.8	5.5	0.6	29.6	31.5	3.7	12.6	2.7

PM Peak Hour												
2024 NO BUILD Conditions Volumes	177	390	35	97	373	62	68	1,001	129	130	1,083	145
V/C Ratio	0.88	1.01	1.02	0.94	0.90	0.33	0.55	0.54	0.55	0.41	0.99	0.16
Level-of-Service	F	F	F	F	E	E	D	B	B	B	D	B
Control Delay (Seconds)	95.0	125.0	126.0	132.0	80.0	56.6	37.2	15.0	15.0	12.4	47.5	10.4
Intersection LOS	D - 51.6											
95th Percentile Queue (veh)	7.4	17.0	17.5	9.3	12.4	3.9	2.8	15.1	15.3	2.6	49.7	3.3
2024 BUILD Conditions Volumes	186	409	45	97	393	62	78	1,001	129	130	1,083	154
V/C Ratio	0.93	1.08	1.09	0.94	0.95	0.33	0.62	0.54	0.55	0.41	0.99	0.17
Level-of-Service	F	F	F	F	F	E	D	B	B	B	D	B
Control Delay (Seconds)	105.0	145.0	148.0	132.0	88.0	56.6	41.4	15.0	15.0	12.4	47.5	10.4
Intersection LOS	E - 56.2											
95th Percentile Queue (veh)	8.1	19.1	19.7	9.3	13.5	3.9	3.4	15.1	15.3	2.6	49.7	3.5

The intersection of Central Ave. / Unser Blvd. is currently under construction. This analysis shows that the impact resulting from development of the Mercado el Milagro development is minimal during the AM Peak Hour period and moderate during the 2024 PM Peak Hour period.

The increase in overall intersection delay is 1.4 seconds for the 2024 AM Peak Hour analysis and 4.6 seconds during the 2024 PM Peak Hour analysis. It is assumed in this study that any significant capacity issues at the intersection will be remedied by the current ongoing construction.

The 95th Percentile Queues reported in the preceding table demonstrate that the impact of the proposed Mercado el Milagro development is no more than about 2 vehicle lengths for any turning movement. In most cases, it is less than one vehicle difference in queue length.

No recommendation is made for the signalized intersection of Central Ave. / Unser Blvd.

#2 – Central Ave. / 86th St. - Pages A-71 thru A-112

The results of the 2024 analyses of the full access signalized intersection of Central Ave. / 86th St. are summarized in the following tables:

Central Ave. / 86th St. 2024 Conditions	EB (Central Ave.)			WB (Central Ave.)			NB (86th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry		2>	0	1	2		1		1
AM Peak Hour									
2024 NO BUILD Conditions Volumes	436	3	80	127		37		310	
V/C Ratio	0.21	0.21	0.13	0.05		0.10		0.79	
Level-of-Service	B	B	A	A		D		D	
Control Delay (Seconds)	10.7	10.7	6.9	0.0		37.5		45.9	
Intersection LOS									
	C - 21.0								
95th Percentile Queue (veh)		4.9	5.1	1.2	0.0		1.7		14.5
2024 BUILD Conditions Volumes	471	4	80	168		38		310	
V/C Ratio	0.23	0.23	0.13	0.07		0.10		0.79	
Level-of-Service	B	B	A	A		D		D	
Control Delay (Seconds)	10.9	10.8	7.0	0.1		37.5		45.9	
Intersection LOS									
	B - 19.9								
95th Percentile Queue (veh)		5.3	5.6	1.2	0.0		1.7		14.5

PM Peak Hour									
2024 NO BUILD Conditions Volumes		373	19	158	315		34		175
V/C Ratio		0.16	0.16	0.21	0.12		0.16		0.68
Level-of-Service	A	A	A	A		D		D	
Control Delay (Seconds)		6.4	6.4	3.9	0.1		50.6		53.3
Intersection LOS									
	B - 13.2								
95th Percentile Queue (veh)		3.3	3.4	1.7	0.0		1.9		9.8
2024 BUILD Conditions Volumes		411	20	158	354		35		175
V/C Ratio		0.18	0.18	0.22	0.13		0.16		0.68
Level-of-Service	A	A	A	A		D		D	
Control Delay (Seconds)		6.5	6.5	4.0	0.1		50.6		53.2
Intersection LOS									
	B - 12.6								
95th Percentile Queue (veh)		3.7	3.8	1.7	0.0		2.0		9.8

The 2024 analysis of the intersection of Central Ave. / 86th St. demonstrates that the delays will be acceptable for all conditions analyzed in this report.

The 95th Percentile Queues reported in the preceding table demonstrate that the impact of the proposed Mercado el Milagro development is less than 1 vehicle length for any turning movement.

Therefore, no recommendations are made for the intersection of Central Ave. / 86th St.

#3 – Central Ave. / 98th St. - Pages A-71 thru A-112

The results of the 2024 analyses of the full access signalized intersection of Central Ave. / 98th St. are summarized in the following tables:

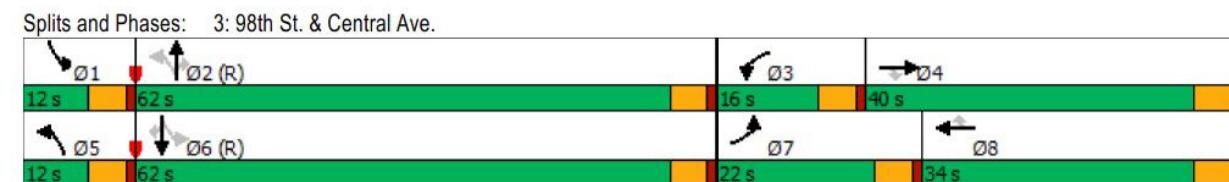
Central Ave. / 98th St. 2024 Conditions	EB (Central Ave.)			WB (Central Ave.)			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	2	2	1	2	2	1	1	2	1	1	2	1
AM Peak Hour												
2024 NO BUILD Conditions Volumes	457	261	20	123	130	215	14	1,590	168	76	505	129
V/C Ratio	1.08	0.58		0.71	0.66		0.03	0.78		0.41	0.25	
Level-of-Service	F	D		E	E		A	C		C	B	
Control Delay (Seconds)	124.0	53.7	0.0	65.4	63.3	0.0	8.1	21.1	0.0	20.6	11.5	0.0
Intersection LOS	D - 40.5											
95th Percentile Queue (veh)	17.7	7.8	0.0	4.1	4.2	0.0	0.3	25.7	0.0	2.1	6.4	0.0
2024 BUILD Conditions Volumes	471	315	20	208	116	215	28	1,617	174	76	554	129
V/C Ratio	1.12	0.77		0.81	0.48		0.05	0.81		0.43	0.28	
Level-of-Service	F	E		E	E		A	C		C	B	
Control Delay (Seconds)	135.0	58.1	0.0	74.2	59.4	0.0	8.9	23.2	0.0	23.2	12.5	0.0
Intersection LOS	D - 44.5											
95th Percentile Queue (veh)	18.9	9.3	0.0	7.5	3.6	0.0	0.6	27.5	0.0	2.3	7.4	0.0
Mitigated Lane Geometry	2	2	1	2	2	1	1	2	1	1	2	1
2024 BUILD Conditions (MITIGATED) Volumes	471	315	20	208	116	215	28	1,617	174	76	554	129
V/C Ratio	0.91	0.72		0.80	0.66		0.06	0.82		0.44	0.28	
Level-of-Service	E	E		E	E		A	C		C	B	
Control Delay (Seconds)	73.5	56.8	0.0	67.5	64.5	0.0	9.4	24.5	0.0	24.4	13.1	0.0
Intersection LOS	D - 36.4											
95th Percentile Queue (veh)	14.6	9.3	0.0	7.1	3.8	0.0	0.6	28.3	0.0	2.4	7.6	0.0

PM Peak Hour												
2024 NO BUILD Conditions Volumes	207	204	39	290	215	149	35	801	158	116	1,463	275
V/C Ratio	0.76	0.22		0.83	0.22		0.25	0.59		0.39	1.05	
Level-of-Service	D	C		E	C		C	C		C	F	
Control Delay (Seconds)	54.4	32.2	0.0	60.2	30.3	0.0	27.1	28.3	0.0	20.9	69.8	0.0
Intersection LOS	D - 51.0											
95th Percentile Queue (veh)	5.4	4.0	0.0	8.1	4.1	0.0	1.0	13.5	0.0	3.3	35.1	0.0
2024 BUILD Conditions Volumes	222	263	39	376	197	149	50	831	165	116	1,509	275
V/C Ratio	0.77	0.29		0.95	0.19		0.35	0.64		0.41	1.12	
Level-of-Service	E	C		E	C		C	C		C	F	
Control Delay (Seconds)	55.5	33.1	0.0	79.7	29.3	0.0	28.1	30.4	0.0	22.3	96.7	0.0
Intersection LOS	E - 65.1											
95th Percentile Queue (veh)	5.9	5.3	0.0	11.3	3.7	0.0	1.5	14.5	0.0	3.4	42.0	0.0
Mitigated Lane Geometry	2	2	1	2	2	1	1	2	1	1	2	1
2024 BUILD Conditions (MITIGATED) Volumes	222	263	39	376	197	149	50	831	165	116	1,509	275
V/C Ratio	0.78	0.52		0.87	0.30		0.28	0.49		0.32	0.88	
Level-of-Service	E	D		E	D		C	B		B	C	
Control Delay (Seconds)	57.1	47.2	0.0	62.0	39.4	0.0	22.5	19.6	0.0	14.5	31.2	0.0
Intersection LOS	C - 34.3											
95th Percentile Queue (veh)	6.1	6.5	0.0	10.1	4.4	0.0	1.1	11.7	0.0	2.6	25.7	0.0

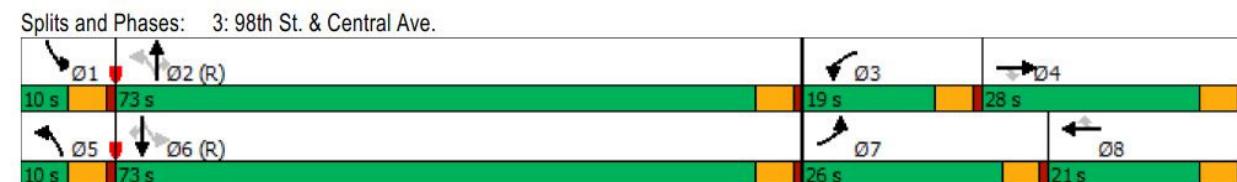
The 2024 analysis of the intersection of Central Ave. / 98th St. demonstrates that the overall intersection delays will be marginally acceptable for all conditions analyzed in this report. Some specific turning movements are projected to be at Level-of-Service "F" for both the 2024 NO BUILD Condition and the 2024 BUILD Condition.

Since the project is located at the southwest corner of this intersection, it makes sense that the impact of the development is greatest at the Central Ave. / 98th St. intersection. There are no physical improvements that are readily apparent that can be made to the intersection to improve operation. However, since this project generates additional traffic volumes at the intersection, it is recommended that the City consider optimizing the traffic signal timing splits (maintaining the cycle length and offsets) in order to mitigate the impact of this development at the signal. The following diagrams demonstrate the existing versus the recommended new signal timing:

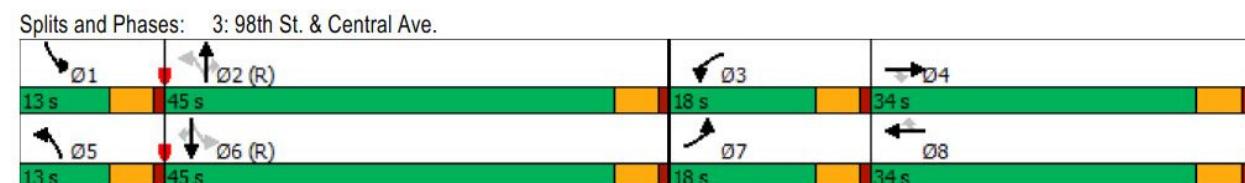
Existing AM Signal timing:



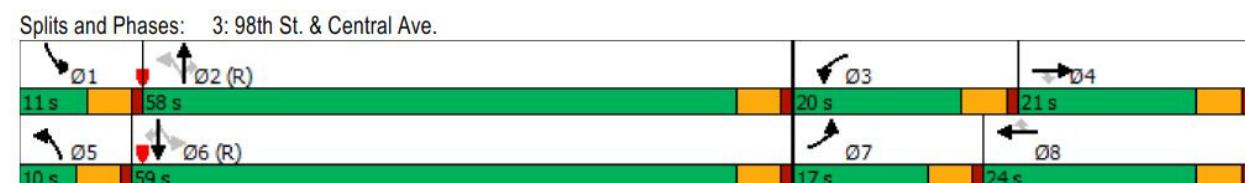
Proposed AM Signal timing:



Existing PM Signal timing:



Proposed PM Signal timing:



Note that the recommended signal timing for both the AM and PM periods increase the green time for northbound and southbound thru traffic (the coordinated phases) so that it should not adversely affect the signal progression. The recommended change would not change the offsets for the signal and would increase the north-south green band.

#4 – Tower Rd. / 98th St. - Pages A-71 thru A-112

The results of the 2024 analyses of the full access signalized intersection of Tower Rd. / 98th St. are summarized in the following tables:

Tower Rd. / 98th St. 2024 Conditions	EB (Tower Rd.)			WB (Tower Rd.)			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2>	0	1	2	1	1	2	1	1	2	1
AM Peak Hour												
2024 NO BUILD Conditions Volumes	213	120	79	49	48	128	35	1,503	38	50	556	54
V/C Ratio	0.73	0.30	0.32	0.23	0.07		0.07	0.72		0.24	0.26	0.06
Level-of-Service	D	D	D	D	D		A	B		B	B	A
Control Delay (Seconds)	54.8	44.1	44.4	49.8	41.7	0.0	7.3	17.5	0.0	14.7	10.4	8.8
Intersection LOS	C - 21.6											
95th Percentile Queue (veh)	12.1	5.4	5.4	2.8	1.2	0.0	0.6	22.2	0.0	1.0	6.7	1.1
2024 BUILD Conditions Volumes	229	120	79	49	48	170	35	1,602	38	86	639	68
V/C Ratio	0.74	0.28	0.30	0.22	0.07		0.08	0.78		0.46	0.31	0.07
Level-of-Service	E	D	D	D	D		A	C		C	B	A
Control Delay (Seconds)	55.1	42.8	43.1	48.2	40.4	0.0	8.0	20.3	0.0	21.5	11.5	9.5
Intersection LOS	C - 23.0											
95th Percentile Queue (veh)	12.9	5.3	5.3	2.8	1.2	0.0	0.7	25.7	0.0	2.6	8.1	1.5

PM Peak Hour												
2024 NO BUILD Conditions Volumes	94	45	12	60	111	51	70	814	44	107	1,195	176
V/C Ratio	0.52	0.13	0.14	0.29	0.26		0.22	0.36		0.22	0.52	0.17
Level-of-Service	D	D	D	D	D		A	A		A	A	A
Control Delay (Seconds)	50.4	42.5	42.6	46.0	43.3	0.0	6.6	7.5	0.0	5.1	9.2	6.5
Intersection LOS	B - 12.7											
95th Percentile Queue (veh)	5.0	1.3	1.4	3.0	2.6	0.0	0.8	7.2	0.0	1.2	11.2	2.7
2024 BUILD Conditions Volumes	109	45	12	60	111	91	70	908	44	146	1,286	191
V/C Ratio	0.56	0.12	0.13	0.27	0.23		0.25	0.41		0.33	0.57	0.19
Level-of-Service	D	D	D	D	D		A	A		A	B	A
Control Delay (Seconds)	49.9	41.3	41.3	44.6	42.0	0.0	7.9	8.5	0.0	6.3	10.5	7.1
Intersection LOS	B - 13.4											
95th Percentile Queue (veh)	5.8	1.3	1.4	2.9	2.6	0.0	0.8	8.5	0.0	1.8	12.9	3.2

The 2024 analysis of the intersection of Tower Rd. / 98th St. demonstrates that the overall intersection delays will be acceptable for all conditions analyzed in this report. There are no individual turning movements that are problematic.

The 95th Percentile Queuing calculations demonstrate minimal impact on queueing for most turning movements. Virtually all of the turning movements are impact by less than 2 vehicle lengths as a result of the proposed Mercado el Milagro development. The maximum impact is for the northbound thru movement which increases from 22.2 vehicles queuing to 25.7 vehicles queuing during the 2024 AM Peak Hour (3.5 vehicle increase queue length).

Therefore, no recommendations are made for the intersection of Tower Rd. / 98th St.

#5 – I-40 N. Ramp / 98th St. – Pages A-71 thru A-112

The results of the analysis of the full access signalized intersection of I-40 N. Ramp / 98th St. are summarized in the following table:

I-40 N. Ramp / 98th St. 2024 Conditions	WB (I-40 N. Ramp)			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	<1	0	1	2	0	0	3>	0
AM Peak Hour									
2024 NO BUILD Conditions Volumes	479	1	0	82	588	0	0	559	1
V/C Ratio	0.38	0.00	0.00	0.19	0.32	0.00	0.00	0.24	0.24
Level-of-Service	C	A	A	B	B	A	A	C	C
Control Delay (Seconds)	30.2	0.0	0.0	16.2	16.6	0.0	0.0	21.1	21.4
Intersection LOS									
C - 21.9									
95th Percentile Queue (veh)	9.8	0.0	0.0	2.3	8.8	0.0	0.0	6.4	7.1
2024 BUILD Conditions Volumes	482	1	0	85	622	0	0	599	0
V/C Ratio	0.38	0.00	0.00	0.20	0.34	0.00	0.00	0.26	0.00
Level-of-Service	C	A	A	B	B	A	A	C	A
Control Delay (Seconds)	30.2	0.0	0.0	16.4	16.9	0.0	0.0	21.4	0.0
Intersection LOS									
C - 22.0									
95th Percentile Queue (veh)	9.9	0.0	0.0	2.5	9.3	0.0	0.0	7.1	0.0

PM Peak Hour									
2024 NO BUILD Conditions Volumes	1,504	1	0	85	308	0	0	399	1
V/C Ratio	0.70	0.00	0.00	0.36	0.35	0.00	0.00	0.51	0.51
Level-of-Service	B	A	A	D	C	A	A	D	D
Control Delay (Seconds)	14.5	0.0	0.0	35.2	33.9	0.0	0.0	45.8	48.6
Intersection LOS									
C - 23.5									
95th Percentile Queue (veh)	17.9	0.0	0.0	3.6	6.6	0.0	0.0	6.6	7.6
2024 BUILD Conditions Volumes	1,507	1	0	88	345	0	0	437	1
V/C Ratio	0.70	0.00	0.00	0.39	0.39	0.00	0.00	0.57	0.57
Level-of-Service	B	A	A	D	C	A	A	D	D
Control Delay (Seconds)	14.5	0.0	0.0	35.5	34.5	0.0	0.0	47.3	50.8
Intersection LOS									
C - 24.5									
95th Percentile Queue (veh)	18.0	0.0	0.0	3.8	7.5	0.0	0.0	7.4	8.4

The 2024 analysis of the intersection of I-40 N. Ramp / 98th St. demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of I-40 N. Ramp / 98th St.

#6 – I-40 S. Ramp / 98th St. – Pages A-71 thru A-112

The results of the analysis of the full access unsignalized intersection of I-40 S. Ramp / 98th St. are summarized in the following table:

I-40 S. Ramp / 98th St. 2024 Conditions	EB (I-40 S. Ramp)			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1>		0	0	2			2	0
AM Peak Hour									
2024 NO BUILD Conditions Volumes	21		1	0	626			842	0
V/C Ratio	0.10								
Level-of-Service	C								
Control Delay (Seconds)	20.5								
Intersection LOS									
95th Percentile Queue (veh)	0.3								
2024 BUILD Conditions Volumes	21		4	0	661			885	0
V/C Ratio	0.11								
Level-of-Service	C								
Control Delay (Seconds)	20.7								
Intersection LOS									
95th Percentile Queue (veh)	0.4								
PM Peak Hour									
2024 NO BUILD Conditions Volumes	26		3	0	367			2,178	0
V/C Ratio	0.58								
Level-of-Service	F								
Control Delay (Seconds)	140.0								
Intersection LOS									
95th Percentile Queue (veh)	2.3								
2024 BUILD Conditions Volumes	26		3	0	405			2,219	0
V/C Ratio	0.63								
Level-of-Service	F								
Control Delay (Seconds)	159.0								
Intersection LOS									
95th Percentile Queue (veh)	2.5								

The 2024 analysis of the intersection of I-40 S. Ramp / 98th St. demonstrates that the delays will be excessive for the eastbound left turn lane on the ramp at 98th St. The forecast volumes for the eastbound left turn movement are 21 vehicles per hour for the 2024 AM Peak Hour period and 26 vehicles per hour for the 2024 PM Peak Hour period. The eastbound right turn movement volumes are even lower, and the eastbound right turn movement is facilitated with a right turn ramp and an add lane so that the movement does not stop and has no delay associated with an unsignalized intersection. Side street volumes that low will not meet any of the warrant criteria for a traffic signal. Therefore, no recommendations are made for the intersection of I-40 S. Ramp / 98th St.

#7 – Central Ave. / Bridge Blvd. – Pages A-71 thru A-112

The results of the analysis of the full access unsignalized intersection of Central Ave. / Bridge Blvd. are summarized in the following table:

Central Ave. / Bridge Blvd. 2024 Conditions	EB (Central Ave.)			WB (Central Ave.)			NB (Bridge Blvd.)			SB (Bridge Blvd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	0	<2	1	1	2>	0	0	<1	1	0	<1>	0
AM Peak Hour												
2024 NO BUILD Conditions Volumes	8	376	201	3	201	1	193	3	3	4	1	3
V/C Ratio	0.01			0.00			0.34	0.00		0.02		
Level-of-Service	A	A		A			B	A		B		
Control Delay (Seconds)	7.5	0.0		8.1			14.0	8.9		11.6		
Intersection LOS	TWSC											
95th Percentile Queue (veh)	0.0			0.0			1.5	0.0		0.0		
2024 BUILD Conditions Volumes	8	420	208	3	254	0	201	3	3	4	1	3
V/C Ratio	0.01			0.00			0.37	0.00		0.01		
Level-of-Service	A	A		A			C	A		B		
Control Delay (Seconds)	7.5	0.0		8.2			15.0	9.0		10.6		
Intersection LOS	TWSC											
95th Percentile Queue (veh)	0.0			0.0			1.7	0.0		0.0		

PM Peak Hour	TWSC											
	2024 NO BUILD Conditions Volumes			2024 BUILD Conditions Volumes			2024 NO BUILD Conditions Volumes			2024 BUILD Conditions Volumes		
	1	336	235	4	439	1	216	1	4	3	2	1
	0.00			0.00			0.43	0.01		0.01		
	A	A		A			C	A		B		
Control Delay (Seconds)	7.7	0.0		8.3			16.2	8.8		12.2		
Intersection LOS	TWSC											
95th Percentile Queue (veh)	0.0			0.0			2.1	0.0		0.0		
2024 NO BUILD Conditions Volumes	1	385	243	4	489	1	224	1	4	3	2	1
V/C Ratio	0.00			0.00			0.47	0.01		0.01		
Level-of-Service	A	A		A			C	A		B		
Control Delay (Seconds)	7.7	0.0		8.4			17.5	8.9		12.6		
Intersection LOS	TWSC											
95th Percentile Queue (veh)	0.0			0.0			2.4	0.0		0.0		

The 2024 analysis of the intersection of Central Ave. / Bridge Blvd. demonstrates that the delays will be acceptable for all conditions analyzed in this report.

The impact to the 95th Percentile calculated queue lengths is minimal. The queuing increase is less than 1 vehicle for every turning movement at the intersection.

Therefore, no recommendations are made for the intersection of Central Ave. / Bridge Blvd.

#8 – Sunset Gardens Rd. / 98th St. – Pages A-71 thru A-112

The results of the analysis of the full access unsignalized intersection of Sunset Gardens Rd. / 98th St. are summarized in the following table:

Sunset Gardens / 98th St. 2024 Conditions	EB (Sunset Gardens)			WB (Sunset Gardens)			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	0	<1>	0	0	<1>	0	1	2>	0	1	2>	0
AM Peak Hour												
2024 NO BUILD Conditions Volumes	27	4	25	4	2	41	17	1,690	17	7	622	9
V/C Ratio		0.15			0.14		0.01			0.01		
Level-of-Service		C			C		A			B		
Control Delay (Seconds)		16.3			16.7		7.9			11.5		
Intersection LOS							TWSC					
95th Percentile Queue (veh)		0.5			0.5		0.0			0.0		
2024 BUILD Conditions Volumes	27	4	58	4	2	60	56	1,808	17	23	721	9
V/C Ratio		0.25			0.22		0.05			0.05		
Level-of-Service		C			C		A			B		
Control Delay (Seconds)		17.8			20.1		8.2			12.7		
Intersection LOS							TWSC					
95th Percentile Queue (veh)		1.0			0.8		0.2			0.2		

PM Peak Hour												
2024 NO BUILD Conditions Volumes	14	1	27	5	6	23	26	977	7	31	1,611	43
V/C Ratio		0.14			0.09		0.04			0.03		
Level-of-Service		C			B		B			A		
Control Delay (Seconds)		18.2			14.8		11.0			8.7		
Intersection LOS							TWSC					
95th Percentile Queue (veh)		0.5			0.3		0.1			0.1		
2024 BUILD Conditions Volumes	110	1	63	5	6	41	63	1,089	7	48	1,720	43
V/C Ratio		0.71	0.19		0.15		0.12			0.06		
Level-of-Service		F			C		B			A		
Control Delay (Seconds)		88.0			16.4		12.6			9.1		
Intersection LOS							TWSC					
95th Percentile Queue (veh)		4.3	7.2		0.5		0.4			0.2		

The 2024 analysis of the intersection of Sunset Gardens Rd. / 98th St. demonstrates that the delays will be acceptable for all conditions analyzed in this report except the PM Peak Hour BUILD Condition. It should be noted that Driveway "A" (which is analyzed later in this report) experiences excessive delays for the eastbound left turn movement during the PM Peak Hour period. Therefore, most of those eastbound left turn movements were also routed to the south to Sunset Gardens to allow the eastbound left turn traffic exiting the project to turn left from Sunset Gardens Rd. rather than Driveway "A" during the PM Peak period. As a result, the eastbound approach on Sunset Gardens is projected to experience long delays and a 95th Percentile queuing in the range of 7.2 vehicles during the PM Peak Hour. However, no recommendations are made for the intersection of Sunset Gardens Rd. / 98th St.

#9 – Driveway “A” / 98th St. – Pages A-71 thru A-112

The results of the analysis of the full access unsignalized intersection of Driveway “A” / 98th St. are summarized in the following table:

Driveway "A" / 98th St. 2024 Conditions	EB (Driveway "A")			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry									
AM Peak Hour									
2024 BUILD Conditions Volumes	105		93	160	1,749			615	153
V/C Ratio	0.57			0.16					
Level-of-Service	D			A					
Control Delay (Seconds)	27.0			9.0					
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	3.4			0.6					
Mitigated Lane Geometry	1>		0	1	2			2	1
2024 BUILD Conditions (MITIGATED) Volumes	105		93	160	1,749			615	153
V/C Ratio	0.57			0.16					
Level-of-Service	D			A					
Control Delay (Seconds)	27.0			9.0					
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	3.4			0.6					
PM Peak Hour									
2024 BUILD Conditions Volumes	89		126	155	969			1,818	88
V/C Ratio	2.16		0.48	0.54					
Level-of-Service	F		D	D					
Control Delay (Seconds)	742.0		30.2	30.8					
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	9.6		2.4	3.0					
Mitigated Lane Geometry	1>		0	1	2			2	1
2024 BUILD Conditions (MITIGATED) Volumes	89		126	155	969			1,818	88
V/C Ratio	2.16		0.48	0.54					
Level-of-Service	F		D	D					
Control Delay (Seconds)	742.0		30.2	30.8					
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	9.6		2.4	3.0					

The 2024 analysis of the intersection of Driveway “A” / 98th St. demonstrates that the delays will be acceptable for all conditions analyzed in this report except the eastbound exiting left turn movement during the 2024 PM Peak Hour period. Improvements were recently constructed to provide a new northbound left turn lane and a southbound right turn lane into the proposed new Driveway “A”. Therefore, no recommendations are made for the intersection of Driveway “A” / 98th St.

#10 – Driveway “B” / 98th St. – Pages A-71 thru A-112

The results of the analysis of the full access unsignalized intersection of Driveway “B” / 98th St. are summarized in the following table:

Driveway "B" / 98th St. 2024 Conditions	EB (Driveway "B")			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry									
AM Peak Hour									
2024 BUILD Conditions Volumes	0		68	0	1,909			688	72
V/C Ratio			0.09						
Level-of-Service			A						
Control Delay (Seconds)			9.9						
Intersection LOS									
TWSC									
95th Percentile Queue (veh)			0.3						
Mitigated Lane Geometry	0		1	0	2			2>	0
2024 BUILD Conditions (MITIGATED) Volumes	0		68	0	1,909			688	72
V/C Ratio			0.09						
Level-of-Service			A						
Control Delay (Seconds)			9.9						
Intersection LOS									
TWSC									
95th Percentile Queue (veh)			0.3						

PM Peak Hour	EB (Driveway "B")			NB (98th St.)			SB (98th St.)		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry									
2024 BUILD Conditions Volumes	0		76	0	1,124			1,840	70
V/C Ratio			0.25						
Level-of-Service			C						
Control Delay (Seconds)			20.7						
Intersection LOS									
TWSC									
95th Percentile Queue (veh)			1.0						
Mitigated Lane Geometry	0		1	0	2			2>	0
2024 BUILD Conditions (MITIGATED) Volumes	0		76	0	1,124			1,840	70
V/C Ratio			0.25						
Level-of-Service			C						
Control Delay (Seconds)			20.7						
Intersection LOS									
TWSC									
95th Percentile Queue (veh)			1.0						

The 2024 analysis of the intersection of Driveway “B” / 98th St. demonstrates that the delays and calculated 95th Percentile queuing will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Driveway “B” / 98th St.

#11 – Sunset Gardens Rd. / Driveway “C” - Pages A-71 thru A-112

The results of the 2024 analyses of the full access unsignalized intersection of Sunset Gardens Rd. / Driveway “C” are summarized in the following tables:

Sunset Gardens / Driveway "C" 2024 Conditions	EB (Sunset Gardens)			WB (Sunset Gardens)			SB (Driveway "C")		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry									
AM Peak Hour									
2024 BUILD Conditions Volumes	6	56			28	39	33		5
V/C Ratio	0.00						0.05		
Level-of-Service	A	A					A		
Control Delay (Seconds)	7.4	0.0					9.3		
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	0.0						0.1		
Mitigated Lane Geometry	0	<1			1>	0	1>		0
2024 BUILD Conditions (MITIGATED) Volumes	6	56			28	39	33		5
V/C Ratio	0.00						0.05		
Level-of-Service	A	A					A		
Control Delay (Seconds)	7.4	0.0					9.3		
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	0.0						0.1		

PM Peak Hour									
2024 BUILD Conditions Volumes	6	42			75	37	150		6
V/C Ratio	0.00						0.19		
Level-of-Service	A	A					B		
Control Delay (Seconds)	7.5	0.0					10.3		
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	0.0						0.7		
Mitigated Lane Geometry	0	<1			1>	0	1>		0
2024 BUILD Conditions (MITIGATED) Volumes	6	42			75	37	36		6
V/C Ratio	0.00						0.05		
Level-of-Service	A	A					A		
Control Delay (Seconds)	7.5	0.0					9.5		
Intersection LOS									
TWSC									
95th Percentile Queue (veh)	0.0						0.2		

The 2024 analysis of the intersection of Sunset Gardens Rd. / Driveway “C” demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Sunset Gardens Rd. / Driveway “C”

#12 – Central Ave. / Driveway “D” – Pages A-71 thru A-112

The results of the analysis of the right-in, right-out only unsignalized intersection of Central Ave. / Driveway “D” are summarized in the following table:

Central Ave. / Driveway "D" 2024 Conditions	EB (Central Ave.)			WB (Central Ave.)			NB (Driveway "D")		
	L	T	R	L	T	R	L	T	R
Existing Lane Geometry									
AM Peak Hour									
2024 BUILD Conditions Volumes		722	33	0	287		0		82
V/C Ratio									0.15
Level-of-Service									B
Control Delay (Seconds)									12.1
Intersection LOS	TWSC								
95th Percentile Queue (veh)									0.5
Mitigated Lane Geometry		2>	0	0	2		0		1
2024 BUILD Conditions (MITIGATED) Volumes		722	33	0	287		0		82
V/C Ratio									0.15
Level-of-Service									B
Control Delay (Seconds)									12.1
Intersection LOS	TWSC								
95th Percentile Queue (veh)									0.5
PM Peak Hour									
2024 BUILD Conditions Volumes		434	32	0	540		0		150
V/C Ratio									0.20
Level-of-Service									B
Control Delay (Seconds)									10.9
Intersection LOS	TWSC								
95th Percentile Queue (veh)									0.7
Mitigated Lane Geometry		2>	0	0	2		0		1
2024 BUILD Conditions (MITIGATED) Volumes		434	32	0	540		0		89
V/C Ratio									0.12
Level-of-Service									B
Control Delay (Seconds)									10.4
Intersection LOS	TWSC								
95th Percentile Queue (veh)									0.4

The 2024 analysis of the intersection of Central Ave. / Driveway “D” demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made for the intersection of Central Ave. / Driveway “D”.

Impact Assessment

The proposed development will have minimal adverse impact on the adjacent transportation system. The intersection of Central Ave. / 98th St. will be impacted moderately as the project is located at the southwest corner of this signalized intersection. The impact of this development on the intersection of Central Ave. / 98th St. can be mitigated.

Access Design Specifications

Sight distance at Driveway "A" is adequate. There are no vertical or horizontal curves along this portion of 98th St. and there are no structures that are blocking sight distance into and out of the driveway. Sight distance is also adequate at the secondary driveways (Driveway "B", "C", and "D"). Adequate sight distances should be maintained at all of the driveways proposed for this project as well as at the signalized intersection of Central Ave. / 98th St.

The proposed driveways for this project fall under the jurisdiction of the City of Albuquerque and, therefore, will be required to be designed and constructed to meet their regulatory criteria. A northbound left turn lane and a southbound right turn lane on 98th St. are warranted at Driveway "A". Both auxiliary lanes have recently been constructed to meet the City of Albuquerque's design criteria.

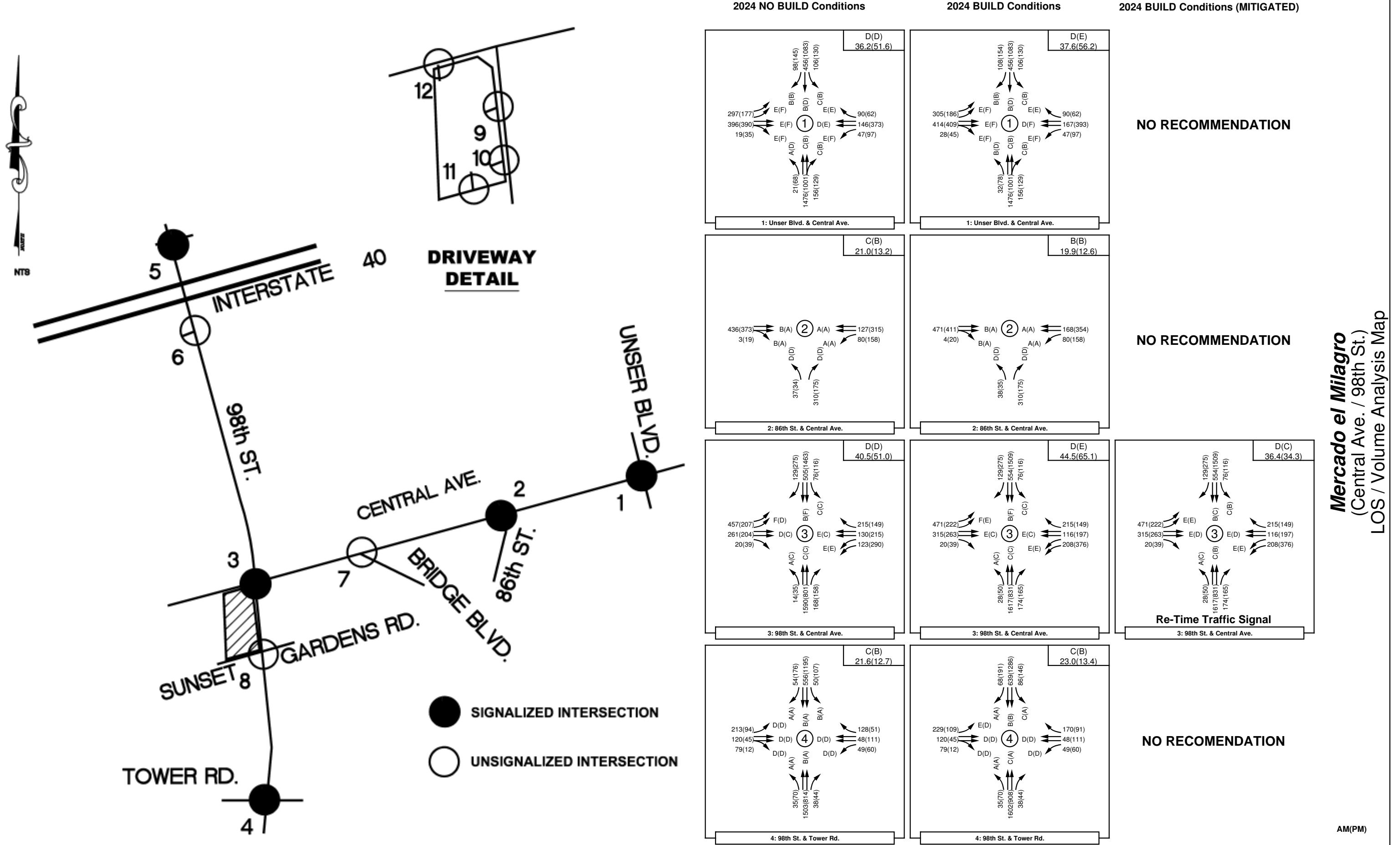
Driveway "A" on the west side of 98th St. is located approximately 525 feet south of the signalized intersection of Central Ave. / 98th St. (centerline to centerline) and approximately 510 feet north of the Sunset Gardens Rd. / 98th St. intersection (centerline to centerline). Driveway "B" on the west side of 98th St. is located approximately 285 feet south of Driveway "A" (centerline to centerline) and approximately 230 feet north of Sunset Gardens Rd. (centerline to centerline). Driveway "C" is located approximately 320 feet west of 98th St. (centerline to centerline). Driveway "D" is located approximately 400 feet west of 98th St. (centerline to centerline).

Summary of Deficiencies, Anticipated Impacts, and Recommendations

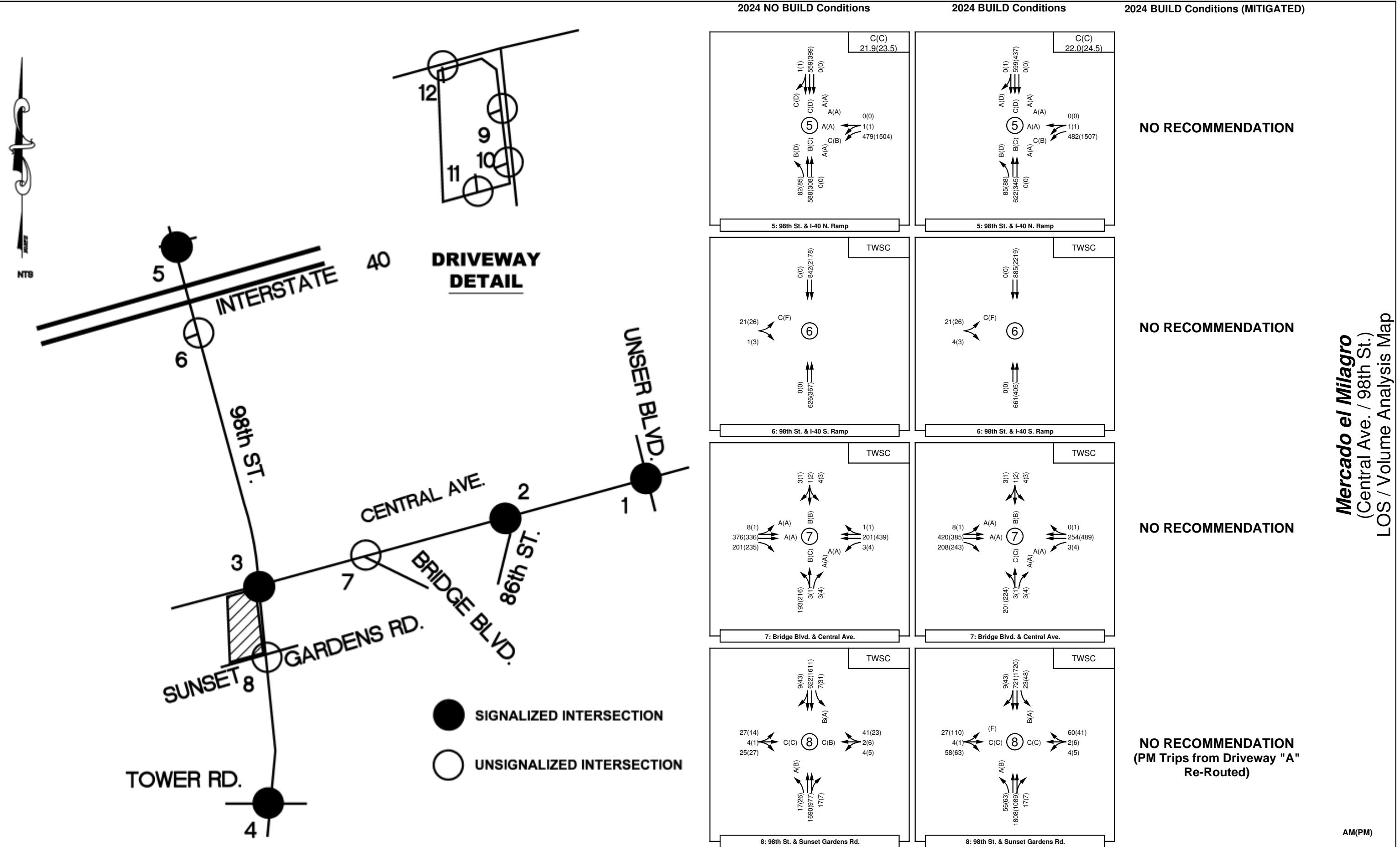
The existing 2024 analysis did not determine any significant deficiencies in the adjacent transportation system. The only moderate impact to the adjacent transportation system demonstrated in this study was at the signalized intersection of Central Ave. / 98th St. The impact resulting from the proposed Mercado el Milagro development can be mitigated by adjusting the signal timing split as discussed on Page 14 of this report.

Recommended mitigation measures are explained at the end of the Executive Summary of this report. The following pages (Lanes / Volumes / Analysis Maps) summarize the results of the signalized and unsignalized intersection analysis in graphic format.

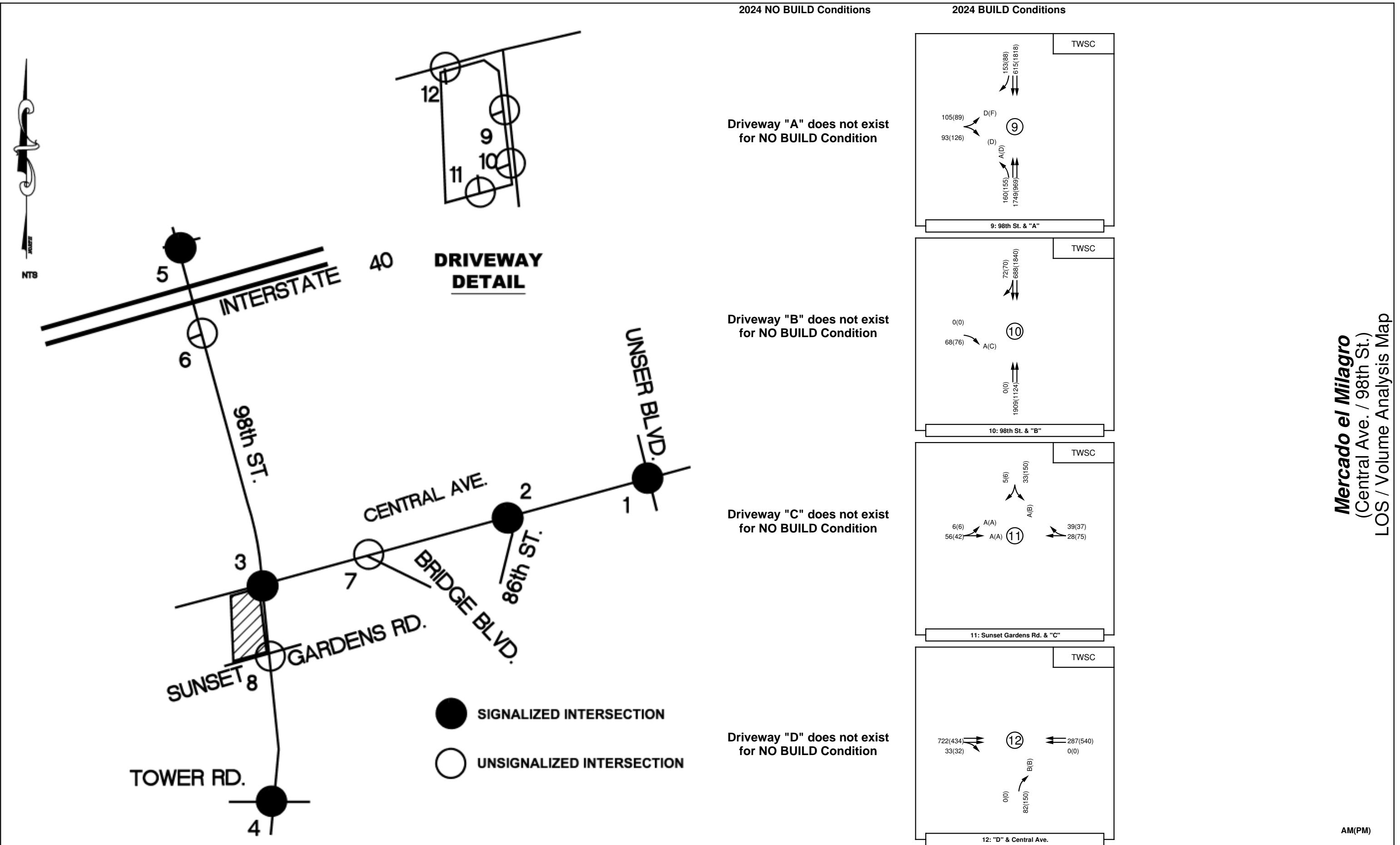
Mercado el Milagro
 (Central Ave. / 98th St.)
 LOS / Volume Analysis Map



Mercado el Milagro
 (Central Ave. / 98th St.)
 LOS / Volume Analysis Map



Mercado el Milagro
 (Central Ave. / 98th St.)
 LOS / Volume Analysis Map



Appendix

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APPENDIX

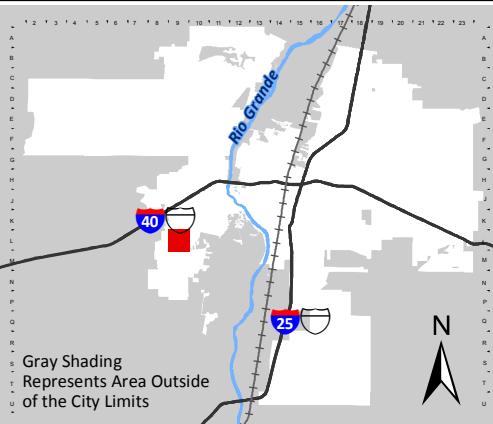


IDO Zone Atlas May 2018



IDO Zoning information as of May 17, 2018

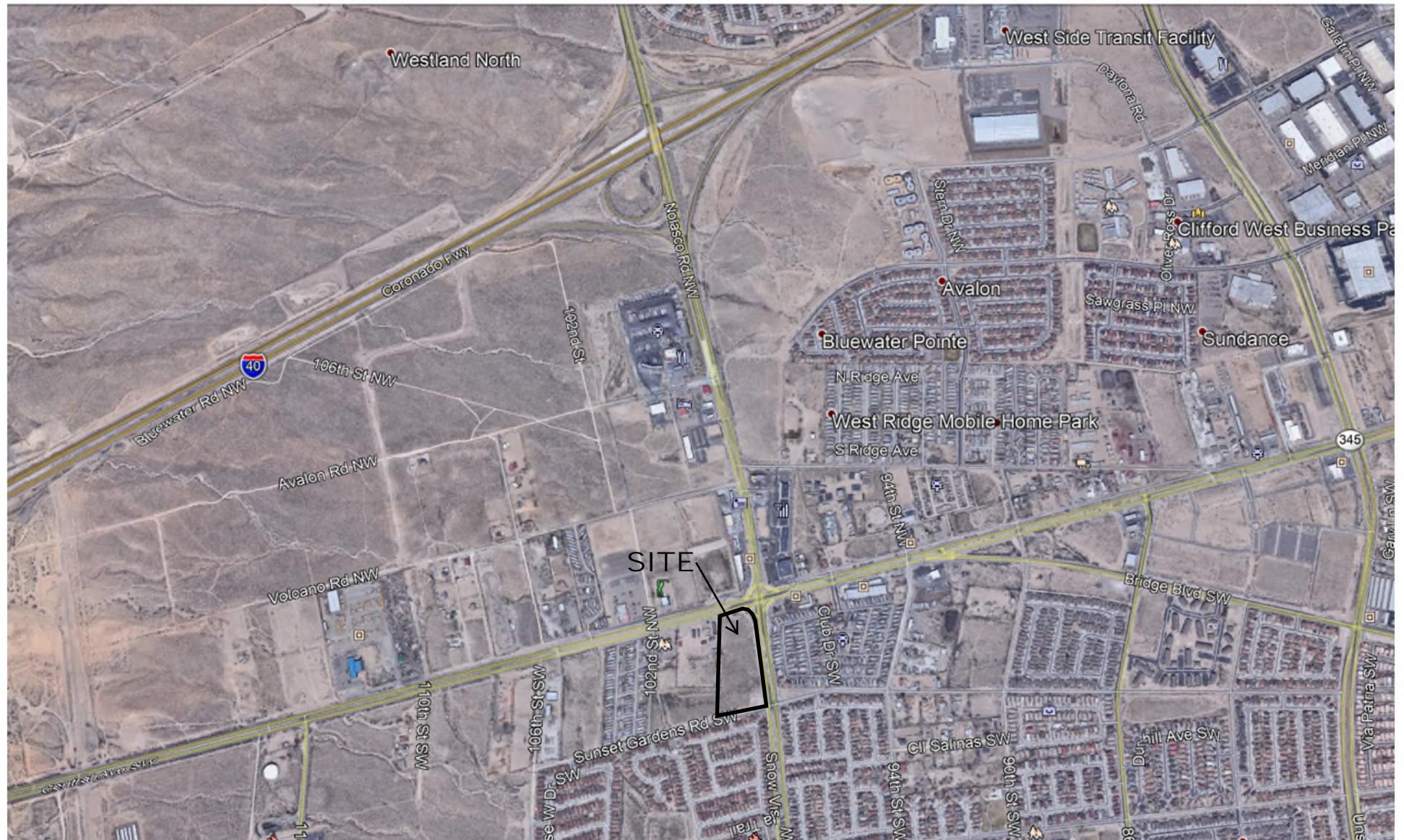
The Zone Districts and Overlay Zones
are established by the
Integrated Development Ordinance (IDO).



Zone Atlas Page:

L-09-Z

- - - Easement
 - Escarpment
 - Petroglyph National Monument
 - Areas Outside of City Limits
 - Airport Protection Overlay (APO) Zone
 - Character Protection Overlay (CPO) Zone
 - Historic Protection Overlay (HPO) Zone
 - View Protection Overlay (VPO) Zone
- 0 250 500 1,000 Feet



Mercado el Milagro

(Central Ave. / 98th St.)

Aerial Map

MERCADO EL MILAGRO

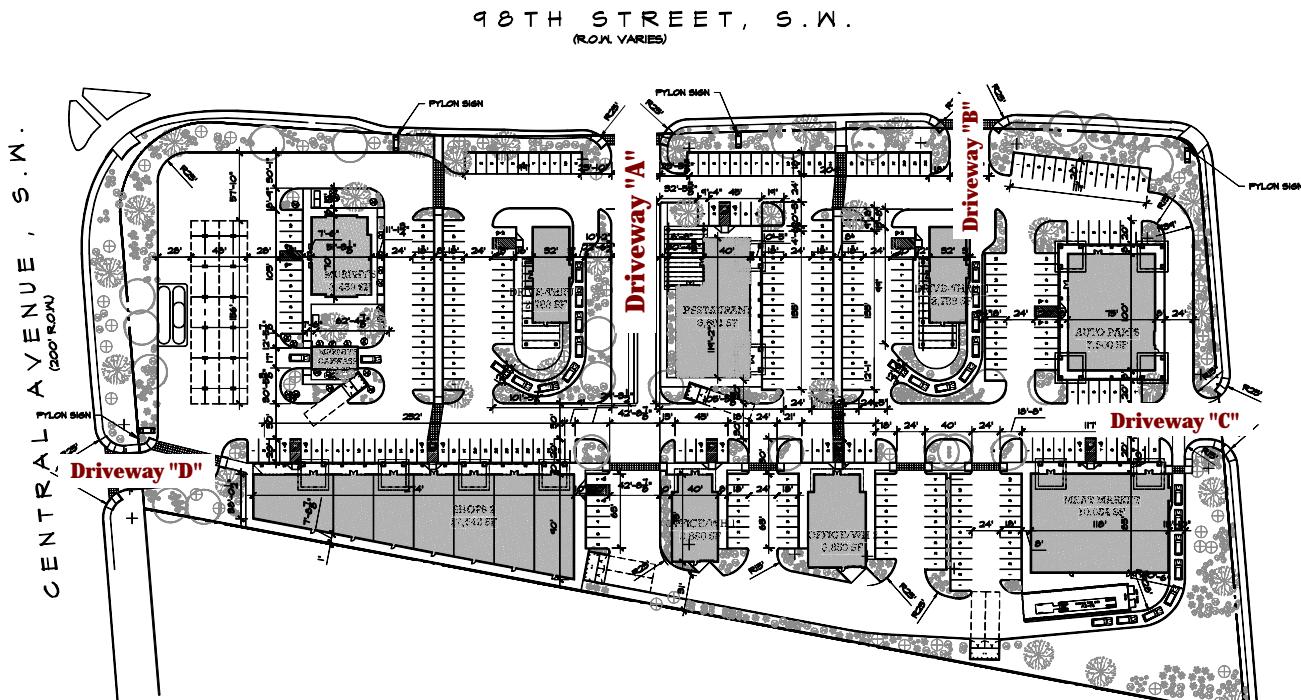
PETERSON PROPERTIES

SITE PLAN

**10000 CENTRAL AVENUE SW
ALBUQUERQUE, NEW MEXICO 87121**



VICINITY MAP
L-09-Z
NTS



SITE PLAN

1" = 50'-0"

ALL DIMENSIONS ARE TO BE FIELD VERIFIED IF THERE ARE DISCREPANCIES. PLEASE NOTIFY THE ARCHITECT. DRAWINGS ARE NOT TO BE SCALED. USE DIMENSIONS FOR ACCURACY.

DATE: 14 JAN 14
DRAWN BY: MPMS
CHECKED BY:
VERIFIED BY:

REVISIONS

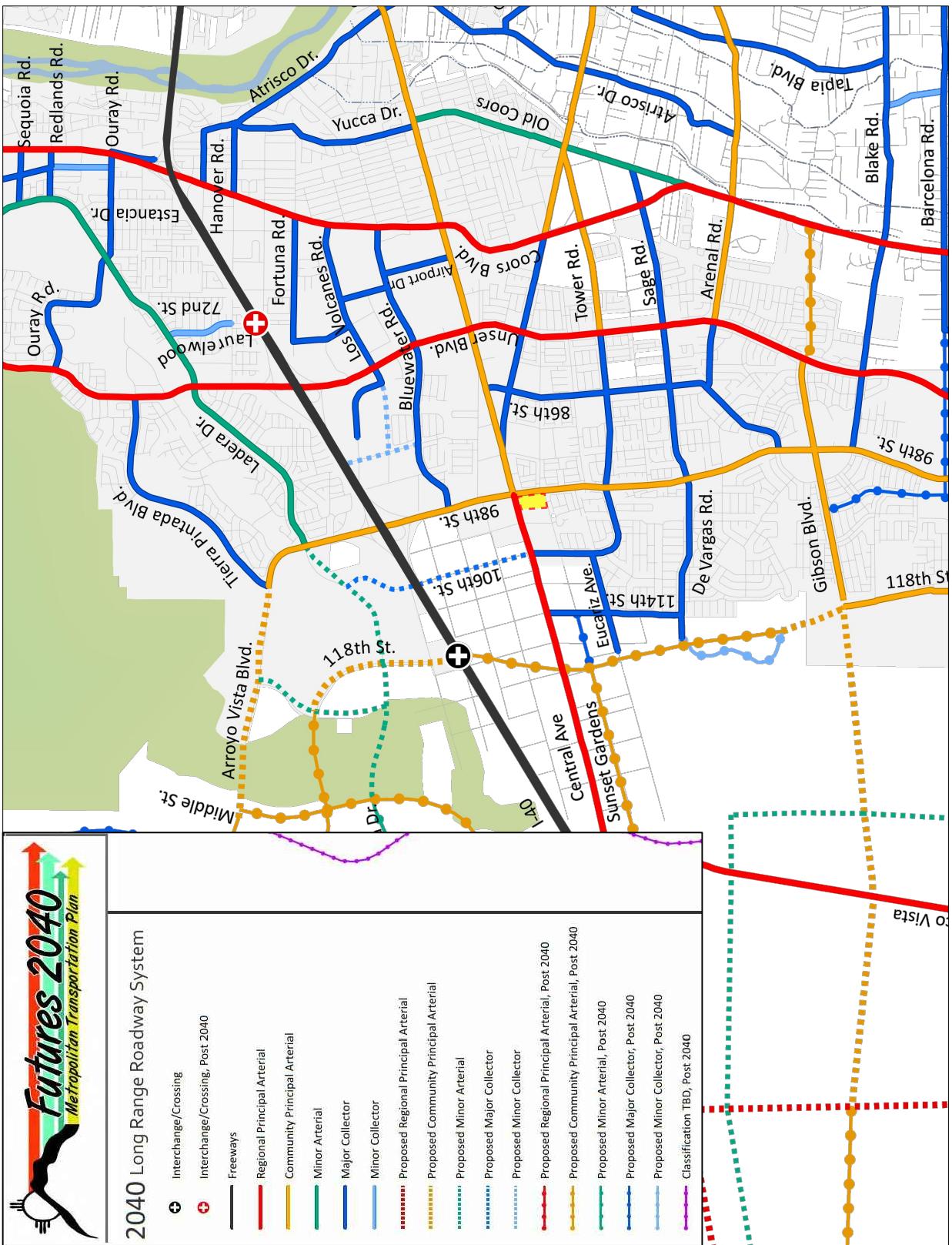
SHEET NO:
A1.1

MERCADO EL MILAGRO
NEW SITE PLAN
10000 CENTRAL AVENUE SW
ALBUQUERQUE, NEW MEXICO 87121

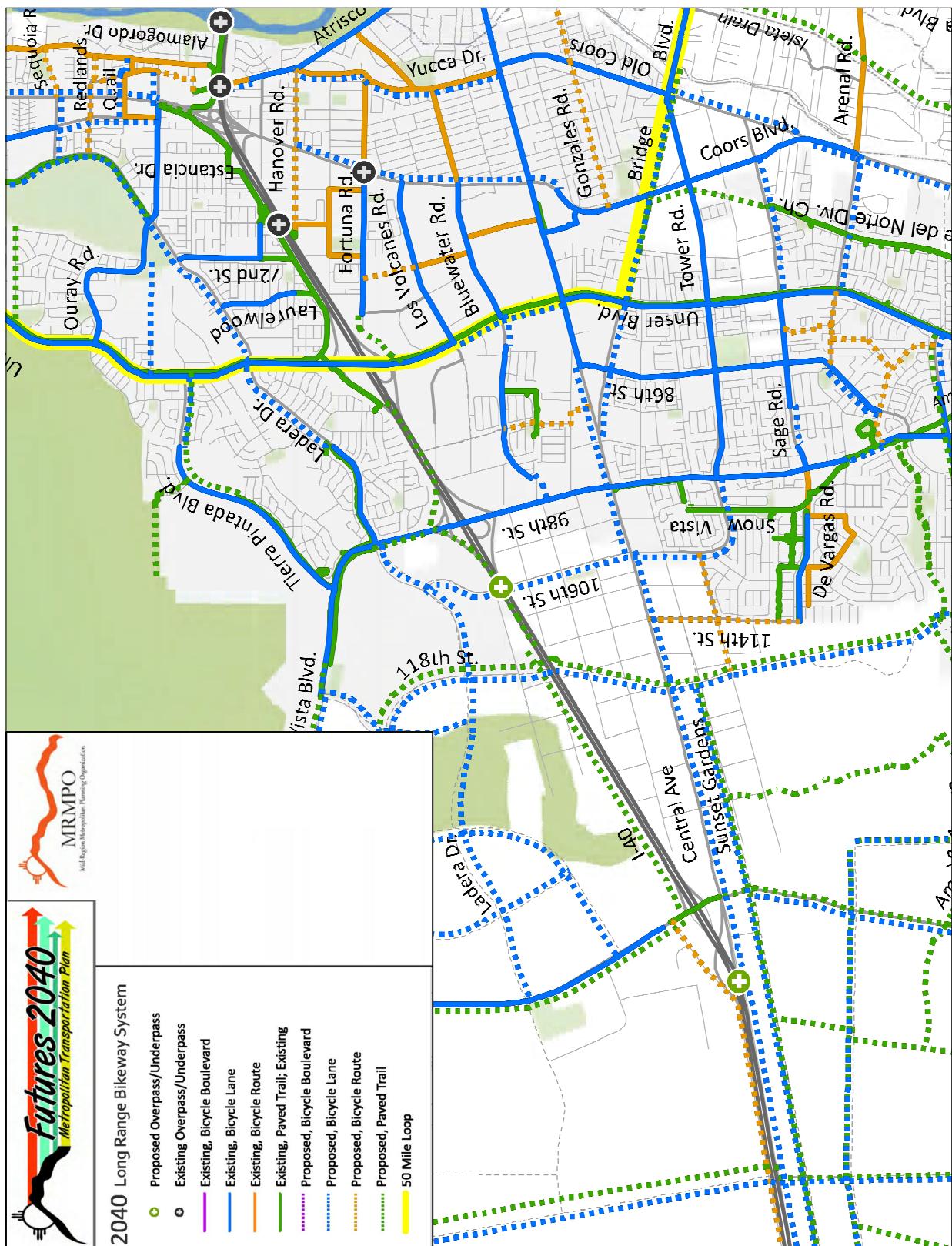


SITE PLAN

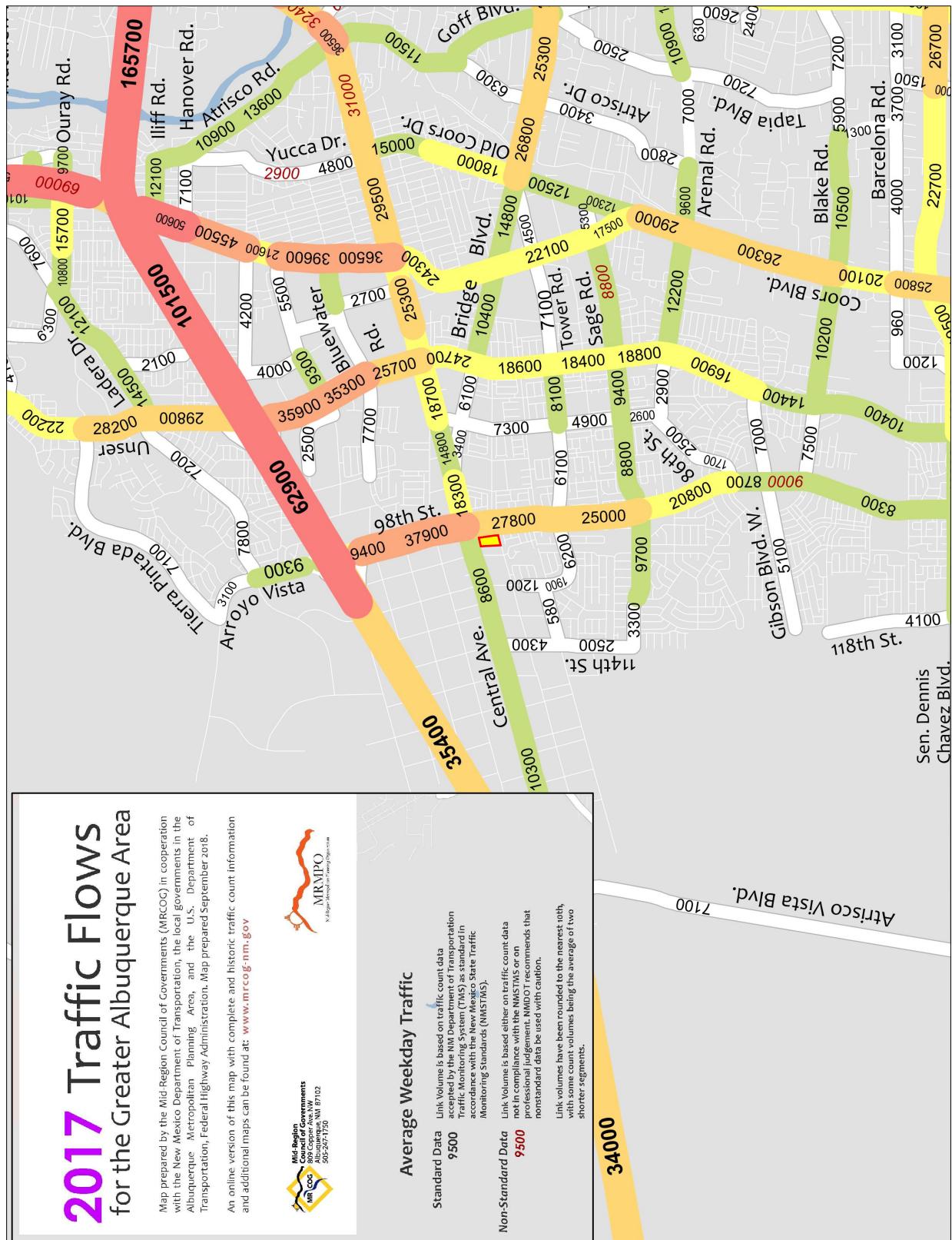
Portion of Futures 2040 Long Range Roadway System (from Mid-Region Council of Governments)



Portion of Futures 2040 Long Range Bikeway System (from Mid-Region Council of Governments)



Portion of 2017 Traffic Flow Map (from Mid-Region Council of Governments)



Mercado el Milagro (Central Ave. / 98th St.)

Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

COMMENT	USE (ITE CODE)	DESCRIPTION	24 HR VOL		A. M. PEAK HR.		P. M. PEAK HR.	
			GROSS	ENTER	EXIT	ENTER	EXIT	
Summary Sheet								
			Units					
Murphy's 2 Restaurants	Gasoline / Service Station w/ Convenience Market (945)		24	5,282	183	176	171	165
	Fast Food Restaurant w/ Drive-Thru Window (934)		5.58	2,626	114	110	95	87
	High Turnover (Sit-Down) Restaurant (932)		3.00	337	16	13	18	11
	Automobile Parts Sales (843)		7.50	409	11	9	18	19
Meat Market	Supermarket (850)		10.05	1,925	23	15	71	69
Shops	Shopping Center (820)		12.06	1,427	98	60	55	59
Offices	Small Office Building (712)		6.70	108	11	2	5	11
	Subtotal		12,114	456	385	433	421	
	<i>Pass-By Trips</i>		30%	-137	-116	-130	-126	
	Total Primary Trips		319	269	303	295		

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR			P.M. PEAK HOUR		
		GROSS	ENTER	EXIT	ENTER	EXIT	
Gasoline / Service Station w/ Convenience Market (945)	24	5,282	183	176	171	165	
Fueling Positions							

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 268.46 (X) + 50\% \text{ Enter, } 50\% \text{ Exit}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 19 (X) + 51\% \text{ Enter, } 49\% \text{ Exit}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 13.99 (X) + 51\% \text{ Enter, } 49\% \text{ Exit}$$

Comments:
Murphy's

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR	P.M. PEAK HOUR	ENTER	EXIT	ENTER	EXIT
				GROSS	ENTER	EXIT	
Fast Food Restaurant w/ Drive-Thru Window (934)	5.58	2,626	114	110	95	87	

Units
1,000 S.F.

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 470.95 (X) + 0$$

50% Enter,
50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 40.19 (X) + 0$$

51% Enter,
49% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 32.67 (X) + 0$$

52% Enter,
48% Exit

Comments:
2 Restaurants

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR	P.M. PEAK HOUR	ENTER			ENTER	EXIT	ENTER	EXIT
				GROSS	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT
High Turnover (Sit-Down) Restaurant (932)	3,00	337	16	13	18	11				
	1,000 S.F.									

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 112.18 (X) + 0$$

50% Enter,
50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 9.94 (X) + 0$$

55% Enter,
45% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 9.77 (X) + 0$$

62% Enter,
38% Exit

Comments:
Tract No.

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR			P.M. PEAK HOUR		
		GROSS	ENTER	EXIT	ENTER	EXIT	
Automobile Parts Sales (843)	7.50	409	11	9	18	19	
Units	1,000 S.F.						

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 71.62 (X) + 50\% \text{ Enter, } 50\% \text{ Exit} \quad -127.66$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 2.59 (X) + 55\% \text{ Enter, } 45\% \text{ Exit} \quad 0$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 4.91 (X) + 48\% \text{ Enter, } 52\% \text{ Exit} \quad 0$$

Comments:
Tract No.

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR	P.M. PEAK HOUR	ENTER	EXIT	ENTER	EXIT
				GROSS	ENTER	EXIT	
Supermarket (850)	10,05	1,925	23	15	71	69	

Units
1,000 S.F.

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 70.89 (X) + 1212.64$$

50% Enter,
50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 3.82 (X) + 0$$

60% Enter,
40% Exit

$$\ln(T) = 0.75 \ln(X) + 3.21$$

51% Enter,
49% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

Comments:
Meat Market

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR	P.M. PEAK HOUR	ENTER	EXIT	ENTER	EXIT
				GROSS	ENTER	EXIT	
Shopping Center (820)	1206	1,427	98	60	55	59	
		Units					
		1,000 S.F.					

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$\ln(T) = \frac{0.68}{50\%} \ln(X) + \frac{5.57}{50\%} \text{ Exit}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = \frac{0.5}{62\%} (X) + \frac{151.78}{38\%} \text{ Exit}$$

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$\ln(T) = \frac{0.74}{48\%} \ln(X) + \frac{2.89}{52\%} \text{ Exit}$$

Comments:
Shops

Based on ITE Trip Generation Manual - 10th Edition

Mercado el Milagro (Central Ave. / 98th St.)
Trip Generation Data (ITE Trip Generation Manual - 10th Edition)

USE (ITE CODE)	24 HOUR TWO-WAY VOLUME	A.M. PEAK HOUR	P.M. PEAK HOUR	ENTER			ENTER	EXIT	ENTER	EXIT
				GROSS	ENTER	EXIT	ENTER	EXIT	ENTER	EXIT
Small Office Building (712)	6.70			108	11	2	5	11		
				1,000 S.F.						

ITE Trip Generation Equations:

Average Vehicle Trip Ends on a Weekday (24 HOUR TWO-WAY VOLUME)

$$T = 16.19 (X) + 0$$

50% Enter, 50% Exit

Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 7am and 9am (A.M. PEAK HOUR)

$$T = 1.92 (X) + 0$$

83% Enter, 17% Exit

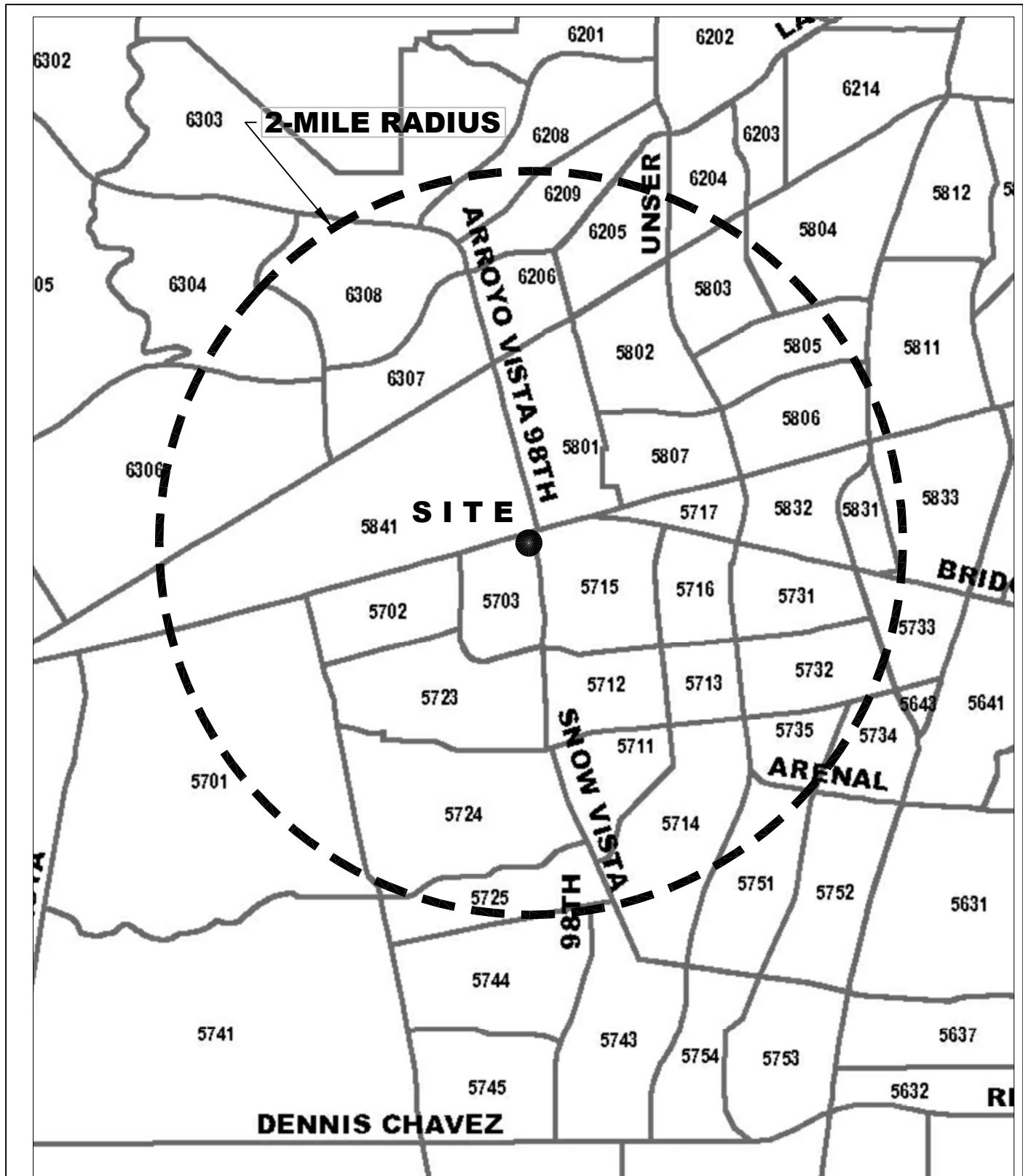
Average Vehicle Trip Ends on a Weekday, Peak Hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm (P.M. PEAK HOUR)

$$T = 2.45 (X) + 0$$

32% Enter, 68% Exit

Comments:
Offices

Based on ITE Trip Generation Manual - 10th Edition



DATA ANALYSIS SUBZONE (DASZ) MAP
Mercado el Milagro (Central Ave. / 98th St.)

Trip Distribution Table

Mercado el Millagro (Central Ave. / 98th St.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial Trips

2012 and 2040 Data Taken from Mid-Region Council of Governments
2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year 2024	Population in Study	Percent Population	98th St. North			4E			Interstate 40 East			(UN) Unser Blvd. North		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map																		
5701	35%	1099	3972	2,330	816	1.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5702	100%	28	105	61	61	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5703	100%	2470	2412	2,445	2,445	4.46%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5711	100%	1866	1827	1,849	1,849	3.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5712	100%	2769	2324	2,578	2,578	4.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5713	100%	995	859	937	937	1.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5714	75%	5423	5000	5,242	3,932	7.18%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5715	100%	4039	4232	4,122	4,122	7.52%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5716	100%	2780	2608	2,706	2,706	4.94%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5717	100%	6	1529	659	659	1.20%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5723	100%	4569	5779	5,088	5,088	9.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5724	100%	4793	5913	5,273	5,273	9.63%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5725	65%	2332	2916	2,582	1,678	3.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5731	100%	1330	1632	1,459	1,459	2.66%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5732	95%	389	1086	688	654	1.19%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5733	25%	100	94	97	24	0.04%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5734	10%	961	1000	978	98	0.18%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5735	100%	1721	1612	1,674	1,674	3.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5751	20%	5698	4668	5,257	1,051	1.92%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5801	100%	1452	3303	2,245	2,245	4.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5802	100%	592	758	663	663	1.21%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5803	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5804	10%	2474	3928	3,054	305	0.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5805	90%	138	343	226	203	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5806	100%	847	2144	1,403	1,403	2.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5807	100%	1730	2227	1,943	1,943	3.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5811	5%	4435	4231	4,348	217	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5831	100%	668	671	669	669	1.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5832	100%	1221	1808	1,473	1,473	2.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5833	10%	3969	3511	3,773	377	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5841	90%	161	269	207	186	0.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6204	20%	1931	2366	2,117	423	0.77%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6205	85%	2223	2133	2,184	1,856	3.39%	100%	3.39%	1,856	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6206	100%	1365	1735	1,524	1,524	2.78%	100%	2.78%	1,524	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6208	25%	1785	4155	2,801	700	1.28%	100%	1.28%	700	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6209	60%	1571	2055	1,778	1,067	1.95%	100%	1.95%	1,067	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6303	5%	0	2667	1,143	57	0.10%	100%	0.10%	57	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6304	30%	0	97	42	13	0.02%	100%	0.02%	13	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6306	45%	0	3224	1,382	622	1.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6307	100%	0	1356	581	1,06%	100%	1.06%	581	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	
6308	90%	0	2980	1,277	1,149	2.10%	100%	2.10%	1,149	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0

423 6,947 80,858 54,780 100.00% 12.68% 0.77%

1,635 2.98%

Trip Distribution Table Mercado el Milagro (Central Ave. / 98th St.)

Data Analysis Subzone Population Data for determination of Local Trin Distribution for Proposed Retail Commercial

040 | Socioeconomic Forecasts by Data Analysis, Subzones for the Mid-Region of New Mexico

Trip Distribution Table
Mercado el Millagro (Central Ave. / 98th St.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial

2012 and 2040 Data Taken from Mid-Region Council of Governments
 2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year 2024	Population in Study	Percent Population	Bridge Blvd. South			Sunset Gardens Rd. East			(TE) Towere Rd. East		
							% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population	% Utilizing	% Population Utilizing	Population
Boundary Specified on DASZ Map															
5701	35%	1099	3972	2,330	816	1.49%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5702	100%	28	105	61	0.11%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0
5703	100%	2470	2412	2,445	4,46%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0
5711	100%	1866	1827	1,849	3.38%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	0
5712	100%	2769	2324	2,578	4.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	1,289
5713	100%	995	859	937	1.71%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0	937
5714	75%	5423	5000	5,242	3,932	7.18%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5715	100%	4039	4232	4,122	4,122	7.52%	5%	0.38%	206	45%	3.39%	1,855	40%	3.01%	1,649
5716	100%	2780	2608	2,706	2,706	4.94%	20%	0.99%	541	50%	2.47%	1,353	30%	1.48%	812
5717	100%	6	1529	659	659	1.20%	25%	0.30%	165	0%	0.00%	0	0%	0.00%	0
5723	100%	4569	5779	5,088	5,088	9.29%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5724	100%	4793	5913	5,273	5,273	9.63%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5725	65%	2332	2916	2,582	1,678	3.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5731	100%	1330	1632	1,459	1,459	2.66%	35%	0.93%	511	0%	0.00%	0	35%	0.93%	511
5732	95%	389	1086	688	654	1.19%	0%	0.00%	0	0%	0.00%	0	100%	1.19%	654
5733	25%	100	94	97	24	0.04%	35%	0.02%	8	0%	0.00%	0	35%	0.02%	8
5734	10%	961	1000	978	98	0.18%	0%	0.00%	0	0%	0.00%	0	50%	0.09%	49
5735	100%	1721	1612	1,674	1,674	3.06%	0%	0.00%	0	0%	0.00%	0	50%	1.53%	837
5751	20%	5698	4668	5,257	1,051	1.92%	0%	0.00%	0	0%	0.00%	0	50%	0.96%	526
5801	100%	1452	3303	2,245	2,245	4.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5802	100%	592	758	663	663	1.21%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5803	95%	0	0	0	0	0.00%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5804	10%	2474	3928	3,054	305	0.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5805	90%	138	343	226	203	0.37%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5806	100%	847	2144	1,403	1,403	2.56%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5807	100%	1730	2227	1,943	1,943	3.55%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5811	5%	4435	4231	4,348	217	0.40%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5831	100%	668	671	669	669	1.22%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5832	100%	1221	1808	1,473	1,473	2.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5833	10%	3969	3511	3,773	377	0.69%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
5841	90%	161	269	207	186	0.34%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6204	20%	1931	2366	2,117	423	0.77%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6205	85%	2223	2133	2,184	1,856	3.39%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6206	100%	1365	1735	1,524	1,524	2.78%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6208	25%	1785	4155	2,801	700	1.28%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6209	60%	1571	2055	1,778	1,067	1.95%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6303	5%	0	2667	1,143	57	0.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6304	30%	0	97	42	13	0.02%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6306	45%	0	3224	1,382	622	1.14%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6307	100%	0	1356	581	581	1.06%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
6308	90%	0	2980	1,277	1,149	2.10%	0%	0.00%	0	0%	0.00%	0	0%	0.00%	0
															7,271
															13.27%
															3,208
															5.86%
															2,61%

Trip Distribution Table Mercado el Millagro (Central Ave. / 98th St.)

Retail Commercial Data Analysis Subzone Population Data for determination of local distribution for proposed

**2012 and 2040 Data Taken from Mid-Region Council of Governments
Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico**

Trip Distribution Table
Mercado el Milagro (Central Ave. / 98th St.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial

2012 and 2040 Data Taken from Mid-Region Council of Governments
 2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	Central Ave. West (CW)		Interstate 40 West (IW)	
							% Utilizing	% Population Utilizing	Population	% Utilizing
Boundary Specified on DASZ Map										
5701	35%	1099	3972	2,330	816	1.49%	100%	1.49%	816	0%
5702	100%	28	105	61	61	0.11%	100%	0.11%	61	0%
5703	100%	2470	2412	2,445	2,445	4.46%	0%	0.00%	0	0.00%
5711	100%	1866	1827	1,849	1,849	3.38%	0%	0.00%	0	0.00%
5712	100%	2769	2324	2,578	2,578	4.71%	0%	0.00%	0	0.00%
5713	100%	995	899	937	937	1.71%	0%	0.00%	0	0.00%
5714	75%	5423	5000	5,242	3,932	7.18%	0%	0.00%	0	0.00%
5715	100%	4039	4232	4,122	4,122	7.52%	0%	0.00%	0	0.00%
5716	100%	2780	2608	2,706	2,706	4.94%	0%	0.00%	0	0.00%
5717	100%	6	1529	659	659	1.20%	0%	0.00%	0	0.00%
5723	100%	4569	5779	5,088	5,088	9.29%	35%	3.25%	1,781	0%
5724	100%	4793	5913	5,273	5,273	9.63%	0%	0.00%	0	0.00%
5725	65%	2332	2916	2,582	1,678	3.06%	0%	0.00%	0	0.00%
5731	100%	1330	1632	1,459	1,459	2.66%	0%	0.00%	0	0.00%
5732	95%	389	1086	688	654	1.19%	0%	0.00%	0	0.00%
5733	25%	100	94	97	24	0.04%	0%	0.00%	0	0.00%
5734	10%	961	1000	978	98	0.18%	0%	0.00%	0	0.00%
5735	100%	1721	1612	1,674	1,674	3.06%	0%	0.00%	0	0.00%
5751	20%	5698	4668	5,257	1,051	1.92%	0%	0.00%	0	0.00%
5801	100%	1452	3303	2,245	2,245	4.10%	0%	0.00%	0	0.00%
5802	100%	592	758	663	663	1.21%	0%	0.00%	0	0.00%
5803	95%	0	0	0	0	0.00%	0%	0.00%	0	0.00%
5804	10%	2474	3828	3,054	305	0.56%	0%	0.00%	0	0.00%
5805	90%	138	343	226	203	0.37%	0%	0.00%	0	0.00%
5806	100%	847	2144	1,403	1,403	2.56%	0%	0.00%	0	0.00%
5807	100%	1730	2227	1,943	1,943	3.55%	0%	0.00%	0	0.00%
5811	5%	4435	4231	4,348	217	0.40%	0%	0.00%	0	0.00%
5831	100%	668	671	669	669	1.22%	0%	0.00%	0	0.00%
5832	100%	1221	1808	1,473	1,473	2.69%	0%	0.00%	0	0.00%
5833	10%	3969	3511	3,773	377	0.69%	0%	0.00%	0	0.00%
5841	90%	161	269	207	186	0.34%	100%	0.34%	186	0%
6204	20%	1931	2366	2,117	423	0.77%	0%	0.00%	0	0.00%
6205	85%	2223	2133	2,184	1,856	3.39%	0%	0.00%	0	0.00%
6206	100%	1365	1735	1,524	1,524	2.78%	0%	0.00%	0	0.00%
6208	25%	1785	4155	2,801	700	1.28%	0%	0.00%	0	0.00%
6209	60%	1571	2055	1,778	1,067	1.95%	0%	0.00%	0	0.00%
6303	5%	0	2667	1,143	57	0.10%	0%	0.00%	0	0.00%
6304	30%	0	97	42	13	0.02%	0%	0.00%	0	0.00%
6306	45%	0	3224	1,382	622	1.14%	0%	0.00%	0	1.14%
6307	100%	0	1356	581	581	1.06%	0%	0.00%	0	0.00%
6308	90%	0	2980	1,277	1,149	2.10%	0%	0.00%	0	0.00%
					80,858	54,780	100.00%	2,844	622	1.14%
										5.19%

Trip Distribution Table
Mercado el Milagro (Central Ave. / 98th St.)

Data Analysis Subzone Population Data for determination of Local Trip Distribution for Proposed Retail Commercial

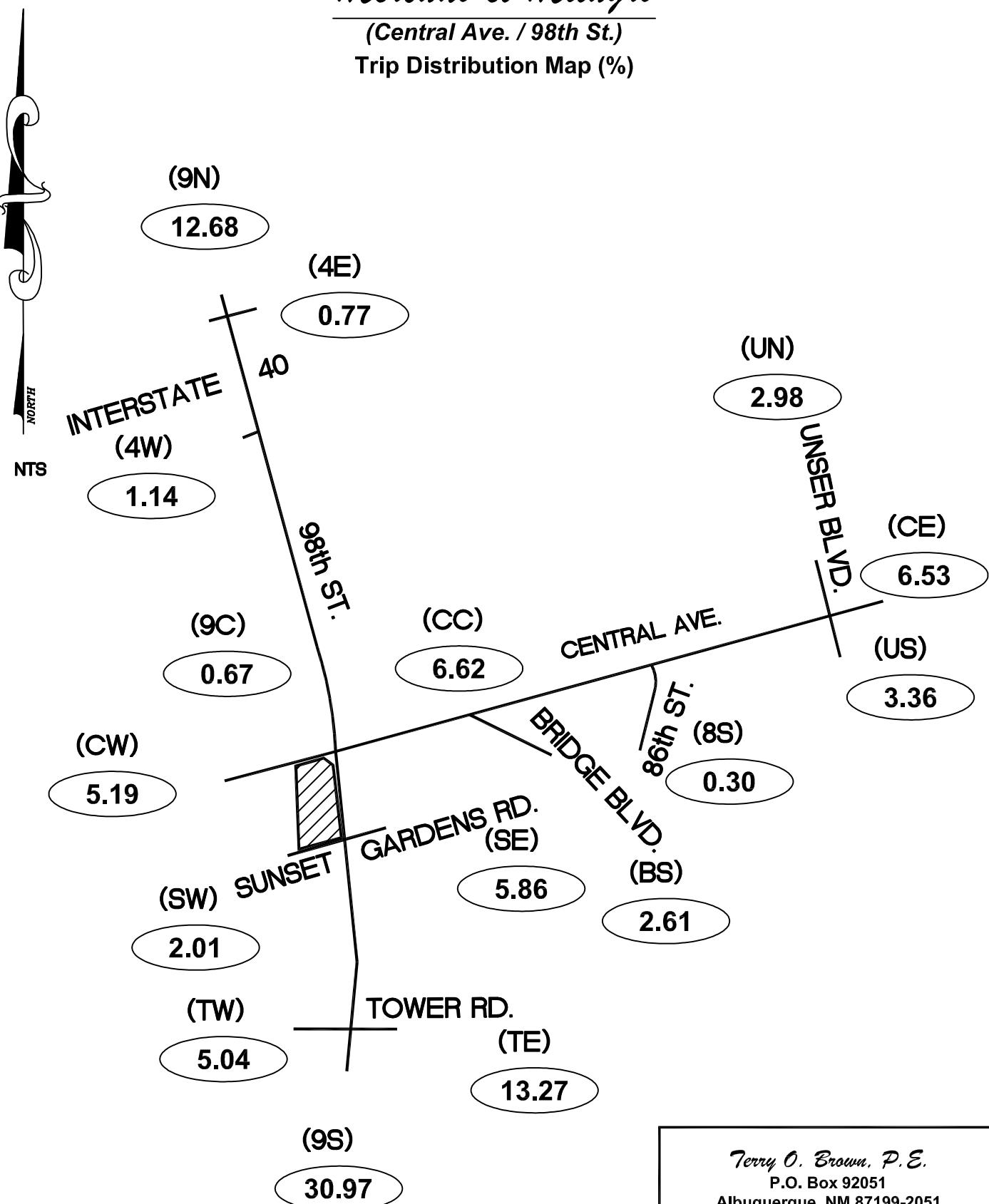
2012 and 2040 Data Taken from Mid-Region Council of Governments
 2040 Socioeconomic Forecasts by Data Analysis Subzones for the Mid-Region of New Mexico

DASZ #	% Sub Area in Study	2012 Population	2040 Population	Interpolated Population for the Year	Population in Study	Percent Population	98th St. Central (9C)			Central Ave. Central (CC)		
							2012	2040	% Utilizing	% Population Utilizing	Population	% Utilizing
Boundary Specified on DASZ Map												
5701	35%	1099	3972	2,330	816	1.49%	0%	0.00%	0%	0.00%	0	
5702	100%	28	105	61	61	0.11%	0%	0.00%	0%	0.00%	0	
5703	100%	2470	2412	2,445	2,445	4.46%	15%	0.67%	367	0%	0	
5711	100%	1866	1827	1,849	1,849	3.38%	0%	0.00%	0	0.00%	0	
5712	100%	2769	2324	2,578	2,578	4.71%	0%	0.00%	0	0.00%	0	
5713	100%	995	899	937	937	1.71%	0%	0.00%	0	0.00%	0	
5714	75%	5423	5000	5,242	3,932	7.18%	0%	0.00%	0	0.00%	0	
5715	100%	4039	4232	4,122	4,122	7.52%	0%	0.00%	0	10%	412	
5716	100%	2780	2608	2,706	2,706	4.94%	0%	0.00%	0	0.00%	0	
5717	100%	6	1529	659	659	1.20%	0%	0.00%	0	0.00%	0	
5723	100%	4569	5779	5,088	5,088	9.29%	0%	0.00%	0	0.00%	0	
5724	100%	4793	5913	5,273	5,273	9.63%	0%	0.00%	0	0.00%	0	
5725	65%	2332	2916	2,582	1,678	3.06%	0%	0.00%	0	0.00%	0	
5731	100%	1330	1632	1,459	1,459	2.66%	0%	0.00%	0	0.00%	0	
5732	95%	389	1086	688	654	1.19%	0%	0.00%	0	0.00%	0	
5733	25%	100	94	97	24	0.04%	0%	0.00%	0	0.00%	0	
5734	10%	961	1000	978	98	0.18%	0%	0.00%	0	0.00%	0	
5735	100%	1721	1612	1,674	1,674	3.06%	0%	0.00%	0	0.00%	0	
5751	20%	5698	4668	5,257	1,051	1.92%	0%	0.00%	0	0.00%	0	
5801	100%	1452	3303	2,245	2,245	4.10%	0%	0.00%	0	100%	4,10%	
5802	100%	592	758	663	663	1.21%	0%	0.00%	0	0.00%	0	
5803	95%	0	0	0	0	0.00%	0%	0.00%	0	0.00%	0	
5804	10%	2474	3828	3,054	305	0.56%	0%	0.00%	0	0.00%	0	
5805	90%	138	343	226	203	0.37%	0%	0.00%	0	0.00%	0	
5806	100%	847	2144	1,403	1,403	2.56%	0%	0.00%	0	0.00%	0	
5807	100%	1730	2227	1,943	1,943	3.55%	0%	0.00%	0	50%	1.77%	
5811	5%	4435	4231	4,348	217	0.40%	0%	0.00%	0	0.00%	0	
5831	100%	668	671	669	669	1.22%	0%	0.00%	0	0.00%	0	
5832	100%	1221	1808	1,473	1,473	2.69%	0%	0.00%	0	0.00%	0	
5833	10%	3969	3511	3,773	377	0.69%	0%	0.00%	0	0.00%	0	
5841	90%	161	269	207	186	0.34%	0%	0.00%	0	0.00%	0	
6204	20%	1931	2366	2,117	423	0.77%	0%	0.00%	0	0.00%	0	
6205	85%	2223	2133	2,184	1,856	3.39%	0%	0.00%	0	0.00%	0	
6206	100%	1365	1735	1,524	1,524	2.78%	0%	0.00%	0	0.00%	0	
6208	25%	1785	4155	2,801	700	1.28%	0%	0.00%	0	0.00%	0	
6209	60%	1571	2055	1,778	1,067	1.95%	0%	0.00%	0	0.00%	0	
6303	5%	0	2667	1,143	57	0.10%	0%	0.00%	0	0.00%	0	
6304	30%	0	97	42	13	0.02%	0%	0.00%	0	0.00%	0	
6306	45%	0	3224	1,382	622	1.14%	0%	0.00%	0	0.00%	0	
6307	100%	0	1356	581	581	1.06%	0%	0.00%	0	0.00%	0	
6308	90%	0	2980	1,277	1,149	2.10%	0%	0.00%	0	0.00%	0	
					80,858	54,780	100.00%		367		0.67%	
											3,629	
											6.62%	

Mercado el Milagro

(Central Ave. / 98th St.)

Trip Distribution Map (%)

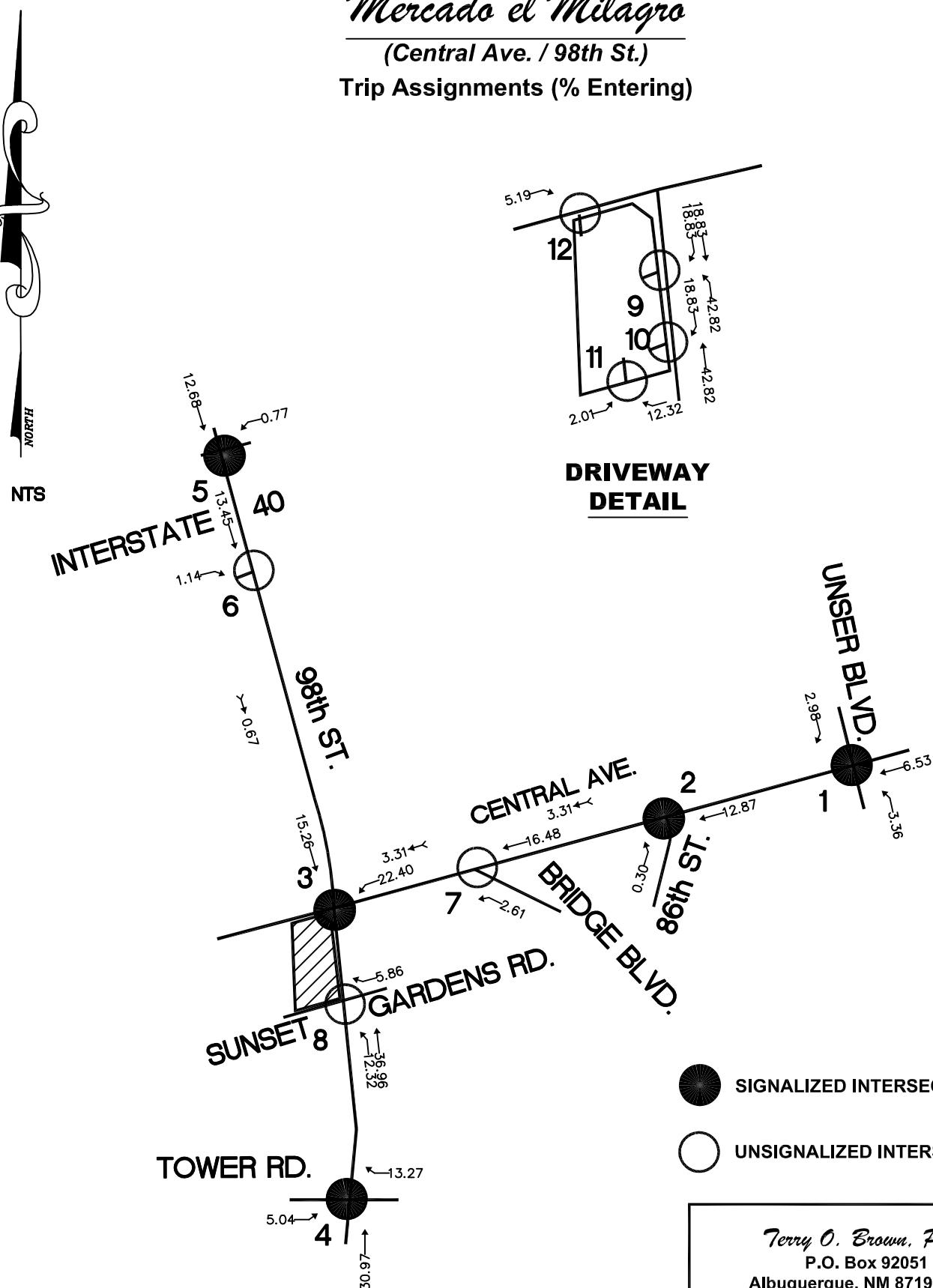


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Mercado el Milagro

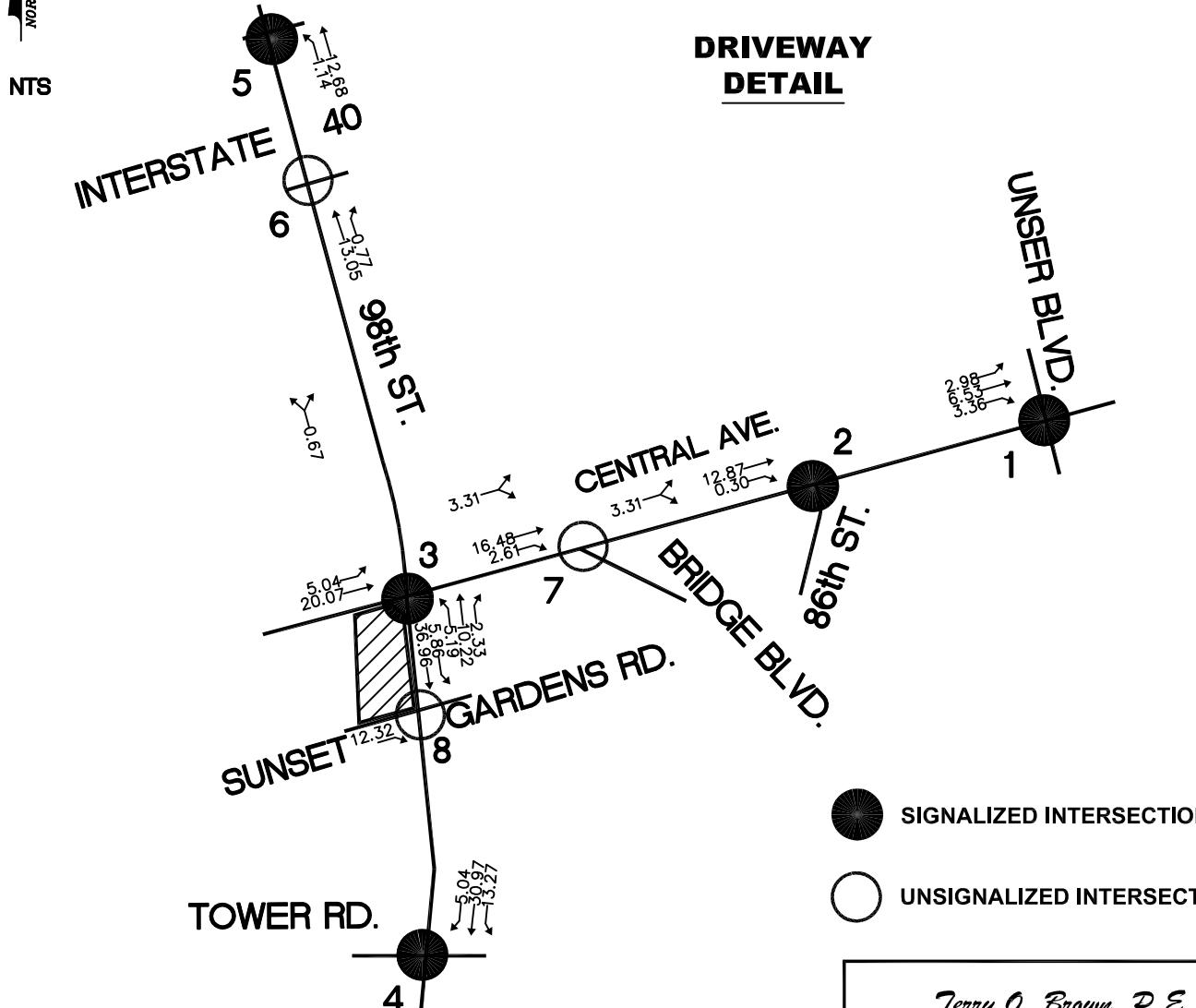
(Central Ave. / 98th St.)

Trip Assignments (% Entering)



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Mercado el Milagro
 (Central Ave. / 98th St.)
 Trip Assignments (% Exiting)



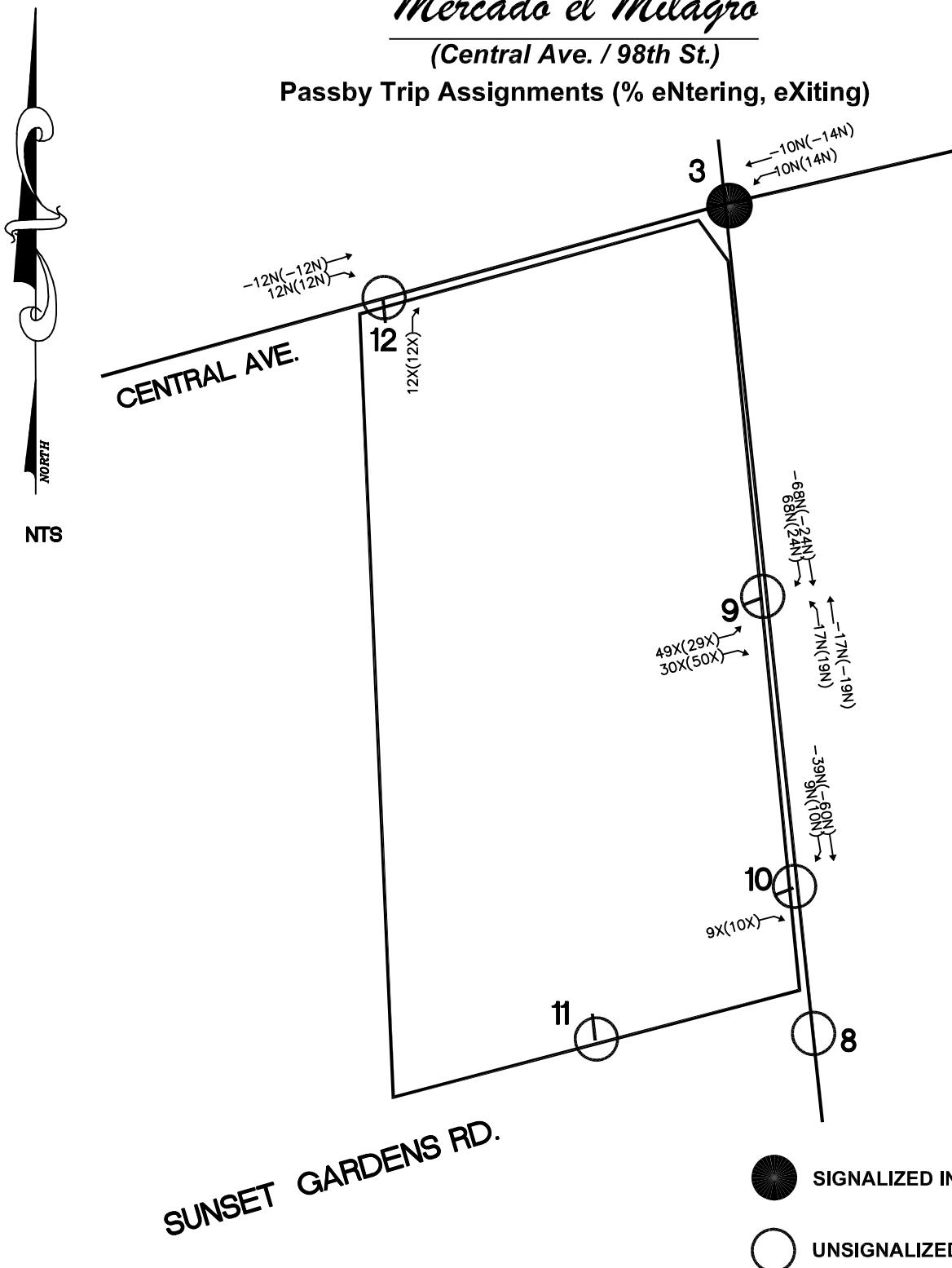
SIGNALIZED INTERSECTION
 UNSIGNALIZED INTERSECTION

Terry O. Brown, P.E.
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Mercado el Milagro

(Central Ave. / 98th St.)

Passby Trip Assignments (% eNtering, eXiting)



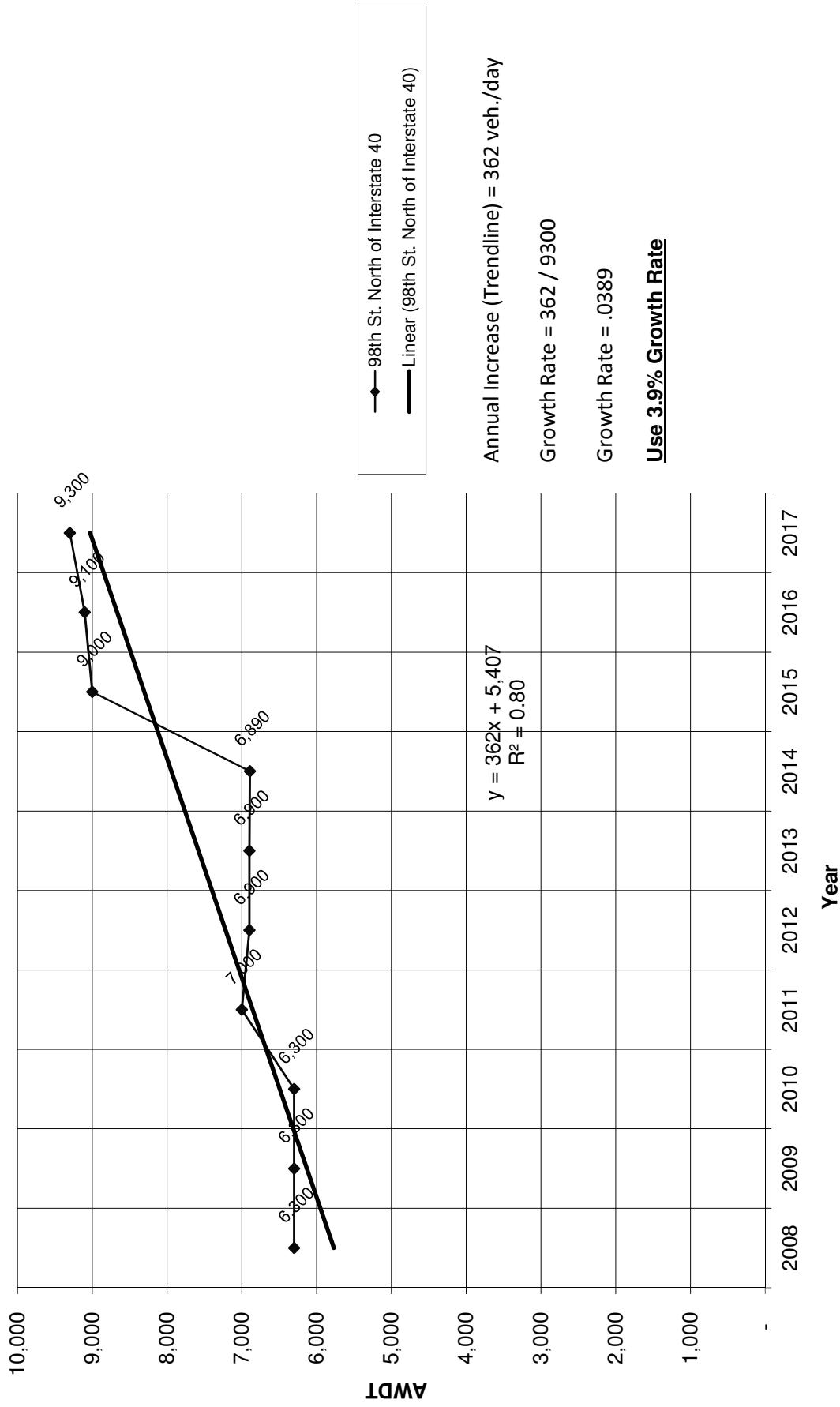
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Mercado el Milagro (Central Ave. / 98th St.)
Historic Growth Rate Table

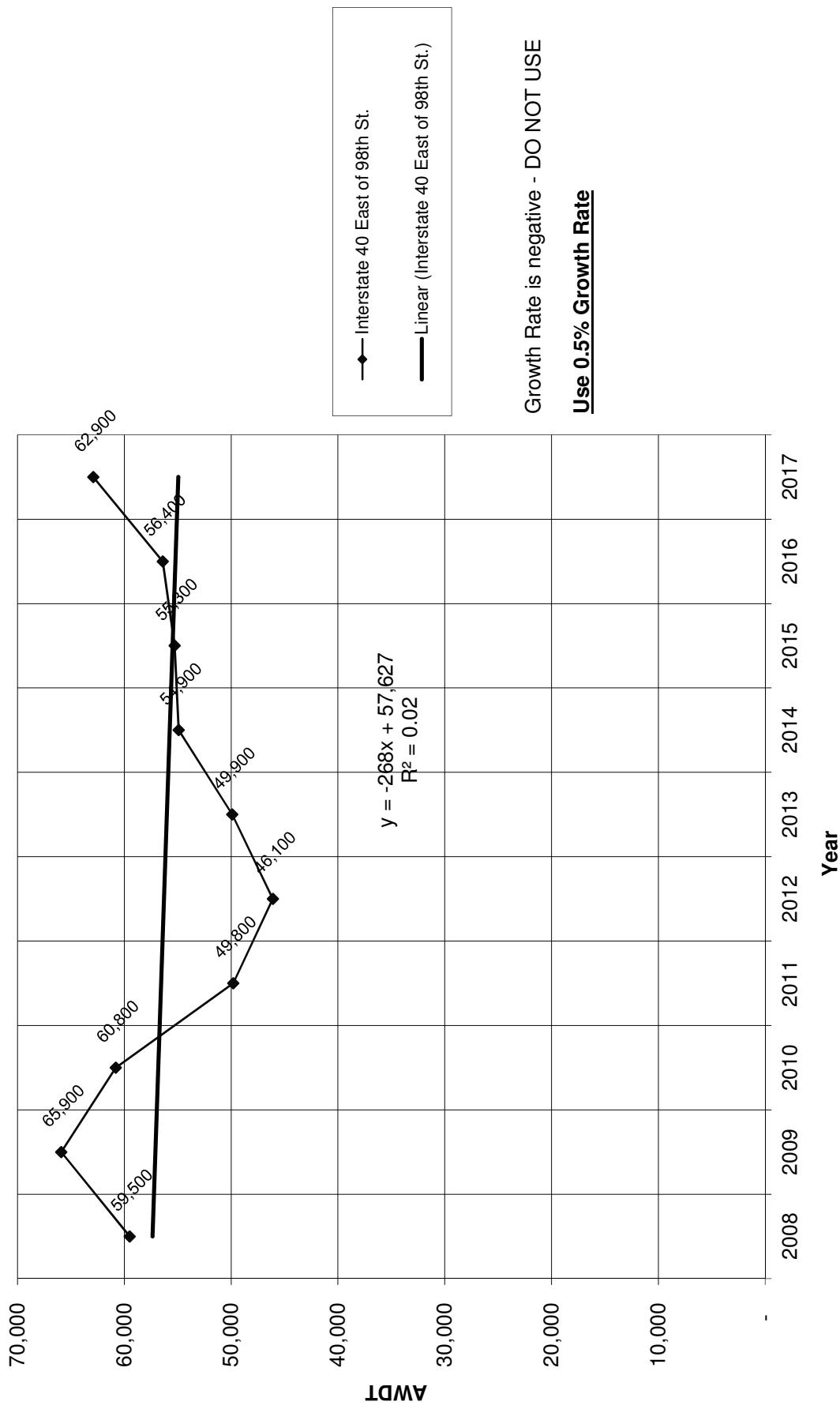
Traffic Flows from MRCOG Map

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
98th St. North of Interstate 40	6,300	6,300	6,300	7,000	6,900	6,900	6,890	9,000	9,100	9,300
Interstate 40 East of 98th St.	59,500	65,900	60,800	49,800	46,100	49,900	54,900	55,300	56,400	62,900
Central Ave. btwn 98th St. & Bridge Blvd.	14,700	14,700	14,500	14,200	14,800	15,400	15,440	15,800	17,300	18,300
Central Ave. btwn Bridge Blvd. & 86th St.	1	1	1	1	1	1	10,840	11,100	12,000	14,800
Central Ave. btwn 86th St. & Unser Blvd.	22,600	22,600	21,800	21,500	18,200	17,700	17,740	18,200	17,700	18,700
Unser Blvd. North of Central Ave.	31,800	31,800	21,300	21,000	29,900	25,800	26,310	26,400	29,200	25,700
Central Ave. East of Unser Blvd.	24,700	19,800	16,700	18,000	15,000	17,600	15,720	23,200	23,700	25,300
Unser Blvd. South of Central Ave.	9,400	7,200	15,300	15,100	18,100	23,600	23,640	24,200	23,400	24,700
Bridge Blvd. South of Central Ave.	2,200	2,200	2,200	3,000	2,900	3,000	5,210	5,600	5,800	3,400
98th St. btwn Central Ave. & Tower Rd.	37,500	37,400	36,900	29,300	28,800	28,300	28,470	29,200	30,300	27,800
Tower Rd. East of 98th St.	5,600	5,600	5,500	5,900	5,800	5,700	5,690	5,800	6,100	6,100
98th St. South of Tower Rd.	18,000	23,400	23,400	23,100	23,000	21,700	21,690	22,200	23,700	25,000
Tower Rd. West of 98th St.	6,300	6,300	6,200	6,600	6,500	6,400	6,580	6,700	7,000	6,200
Central Ave. West of 98th St.	7,900	7,900	7,800	7,600	7,500	10,700	10,700	11,000	8,100	8,600
98th St. North of Central Ave.	27,400	26,600	26,200	25,900	31,000	30,500	30,490	34,700	36,000	37,900
Interstate 40 West of 98th St.	27,700	34,400	34,900	26,400	28,200	21,900	30,000	32,900	32,500	35,400

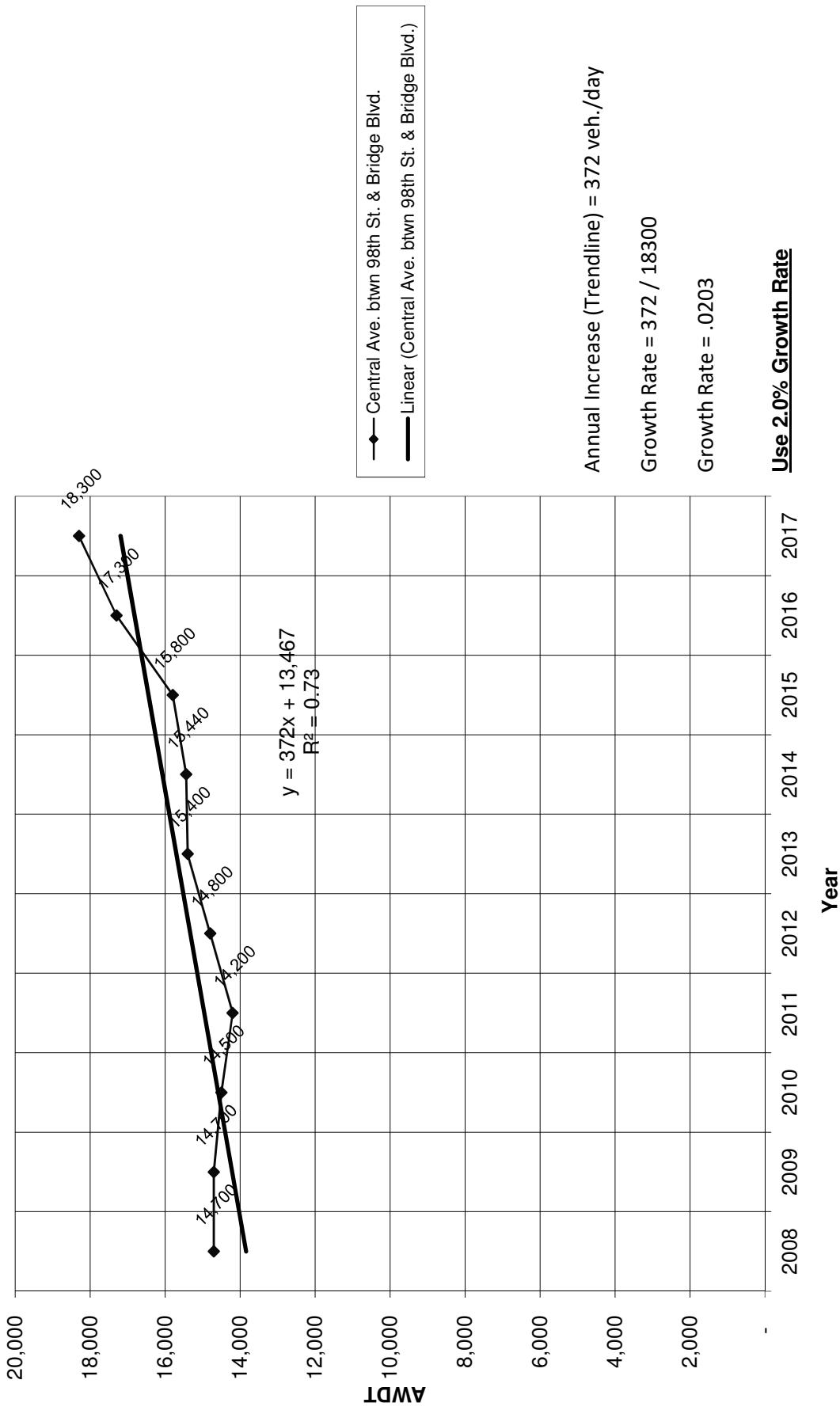
Historic Growth Chart 98th St. North of Interstate 40 (2008-2017)



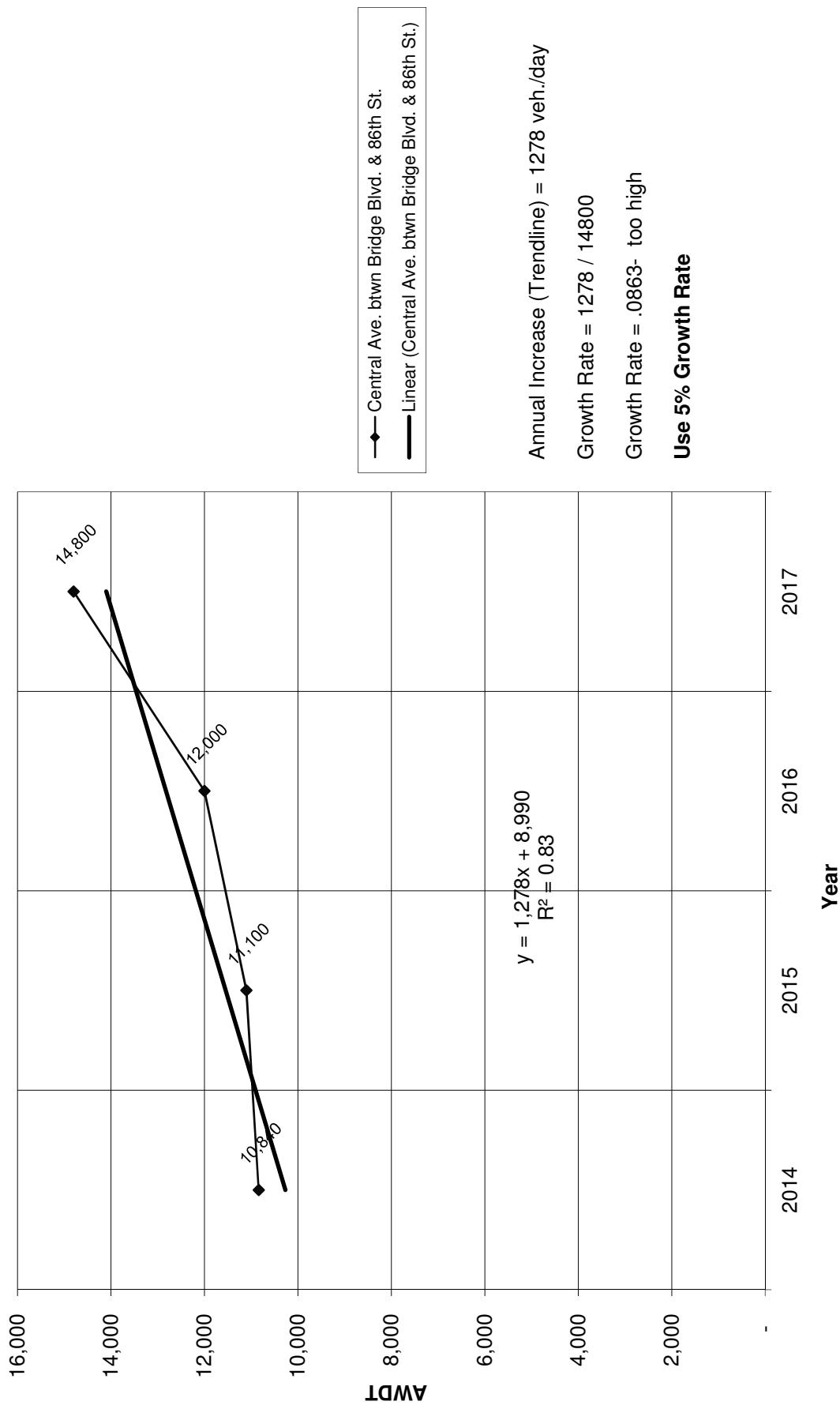
Historic Growth Chart Interstate 40 East of 98th St. (2008-2017)



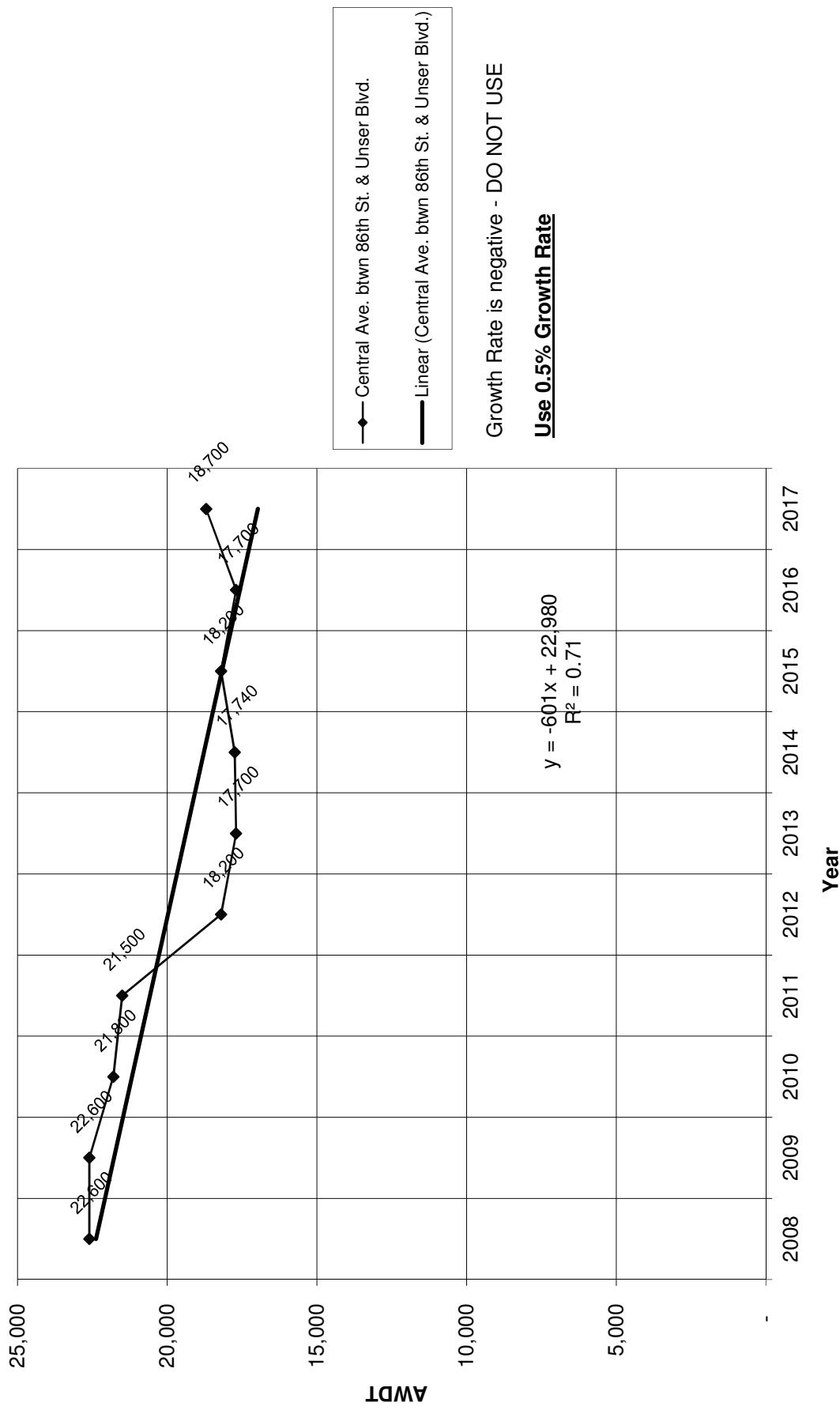
Historic Growth Chart Central Ave. btwn 98th St. & Bridge Blvd. (2008-2017)



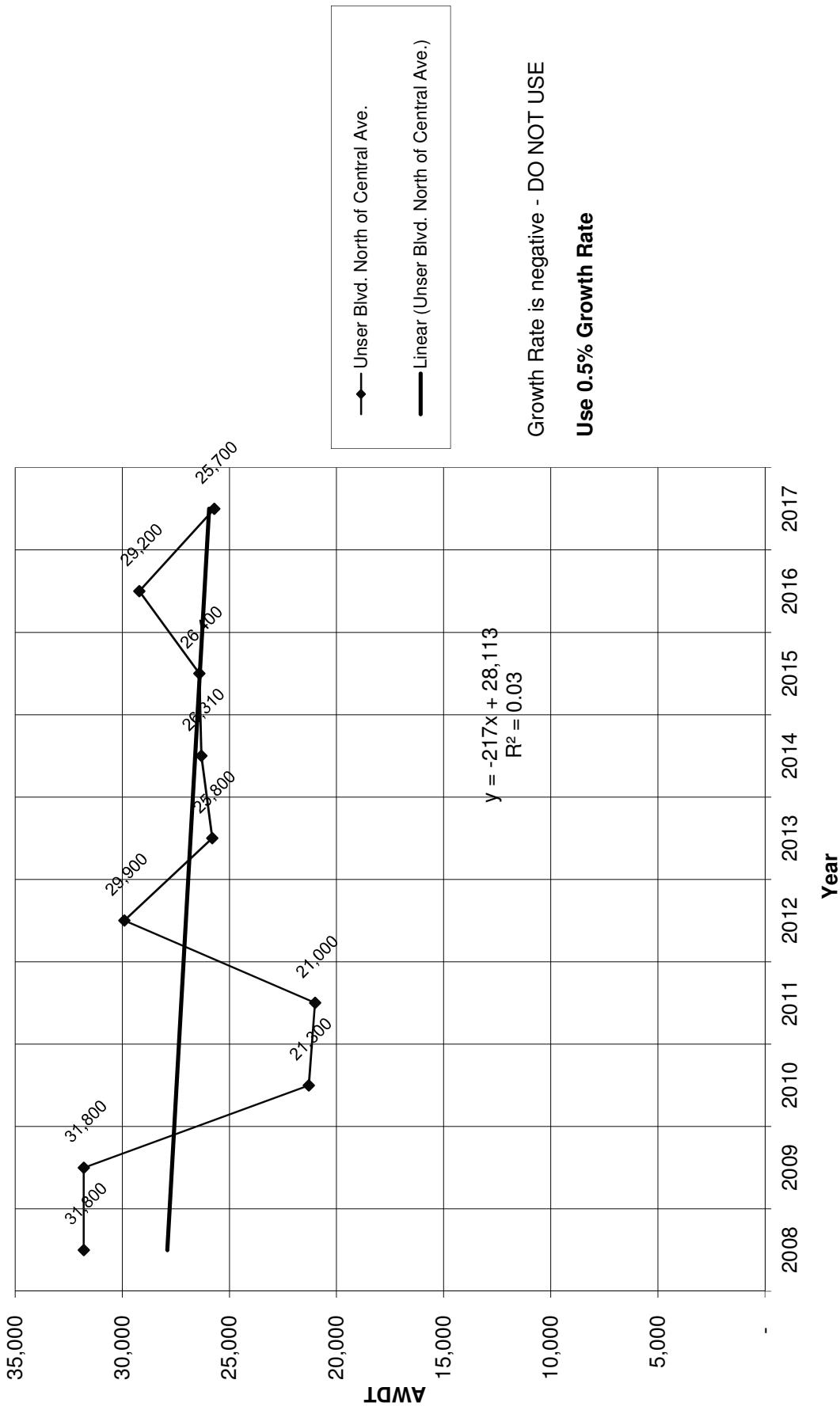
Historic Growth Chart Central Ave. btwn Bridge Blvd. & 86th St.. (2014-2017)



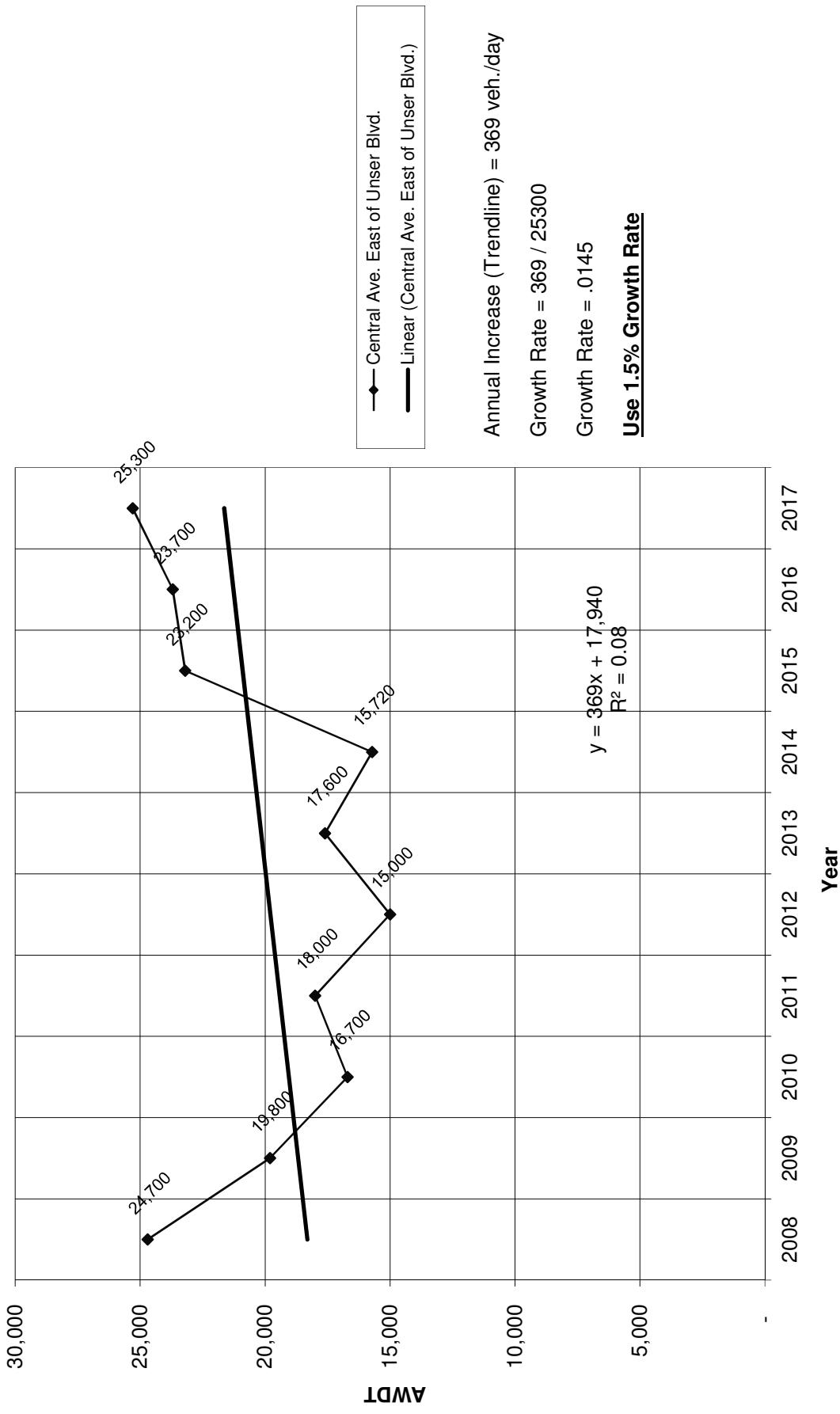
Historic Growth Chart Central Ave btwn 86th St. & Unser Blvd. (2008-2017)



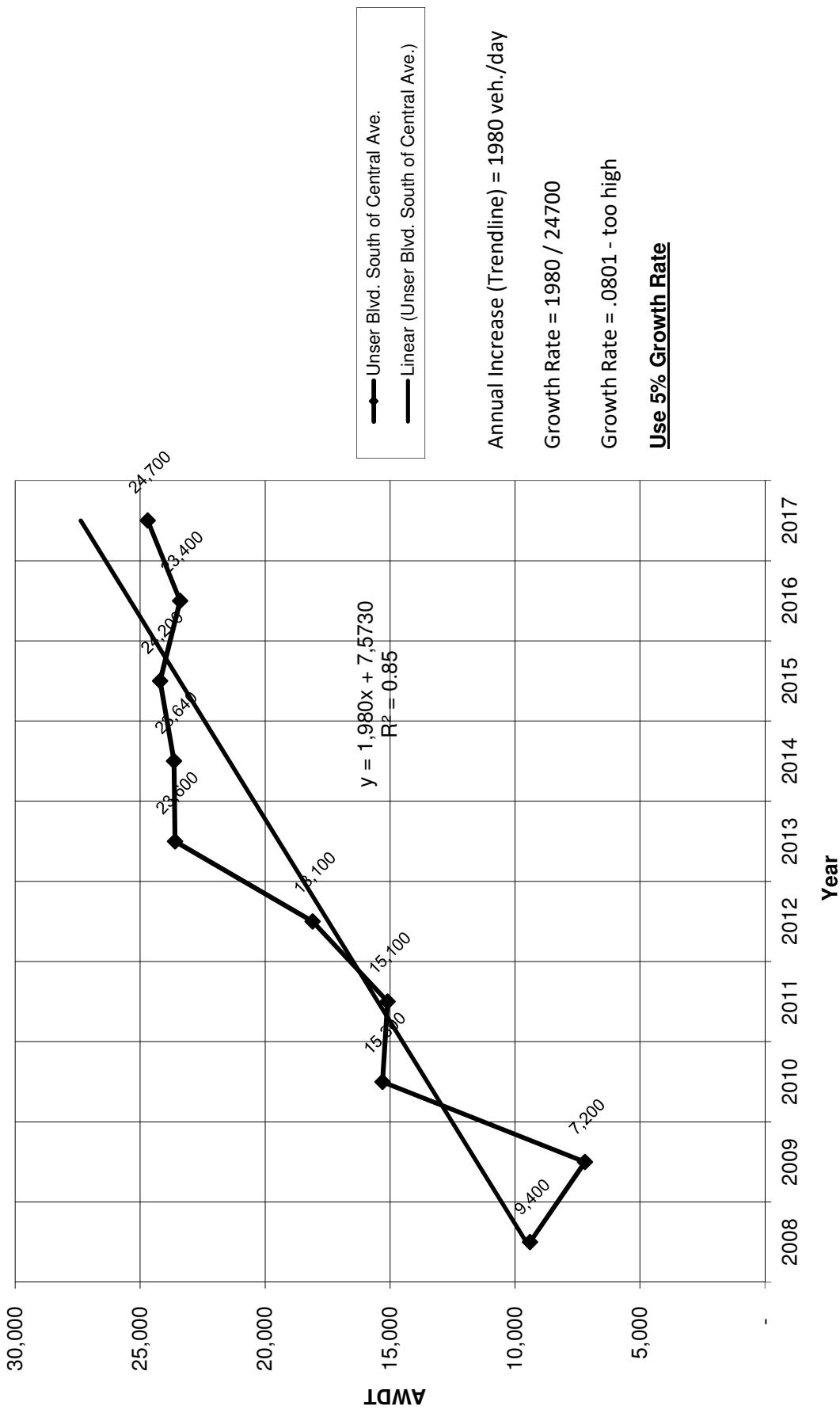
Historic Growth Chart Unser Blvd. North of Central Ave. (2008-2017)



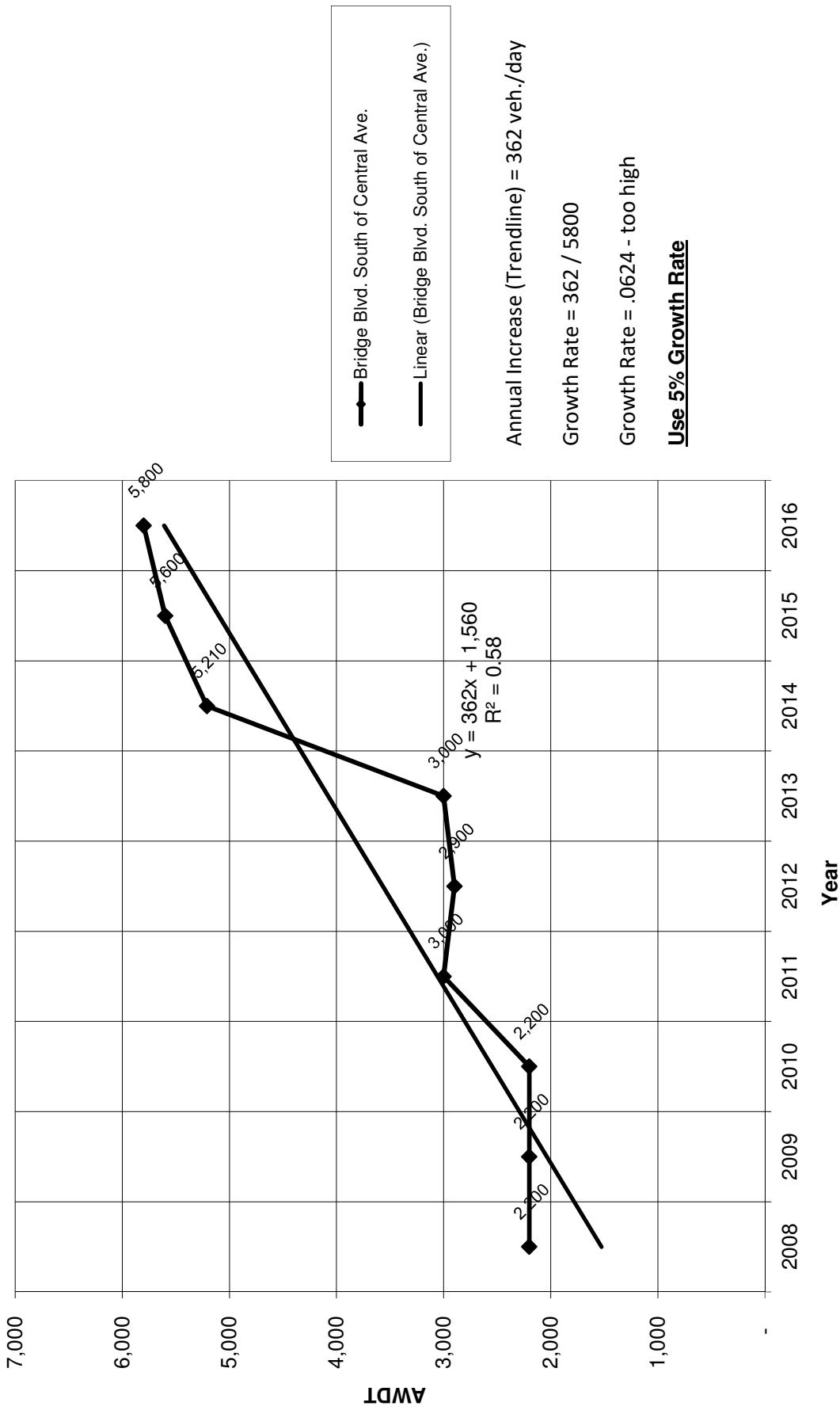
Historic Growth Chart Central Ave. East of Unser Blvd. (2008-2017)



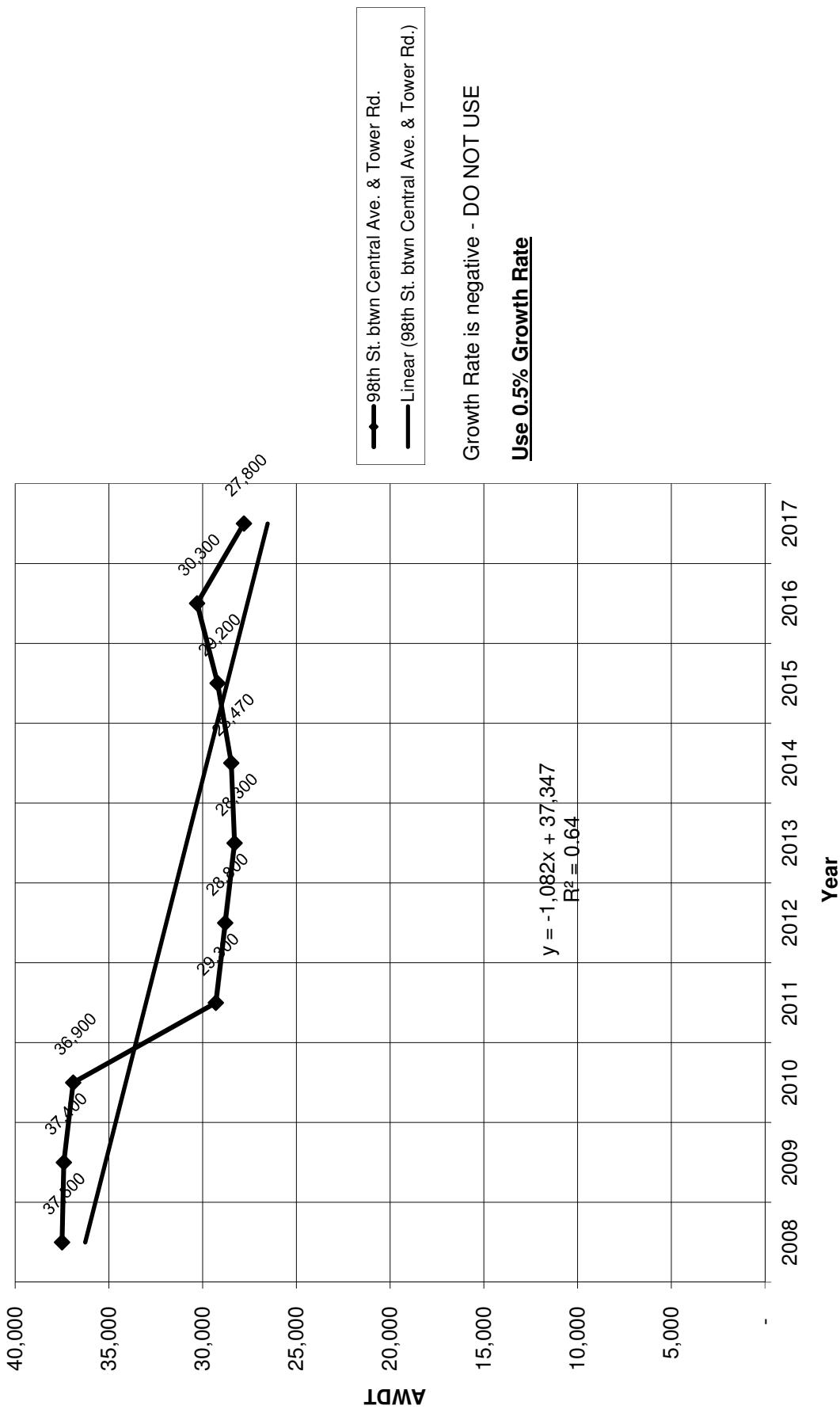
Historic Growth Chart Unser Blvd. South of Central Ave. (2008-2017)



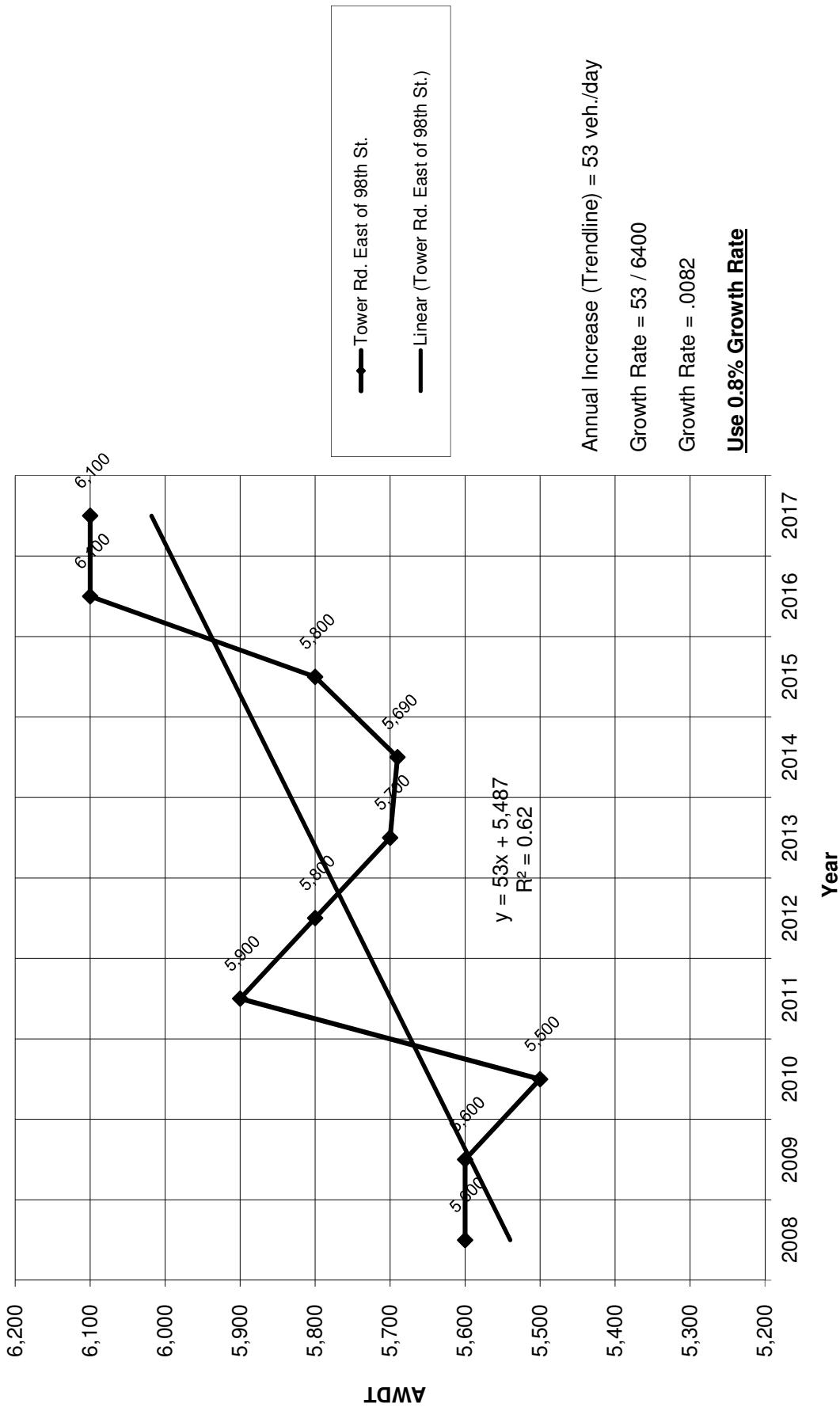
Historic Growth Chart Bridge Blvd. South of Central Ave. (2008-2016)



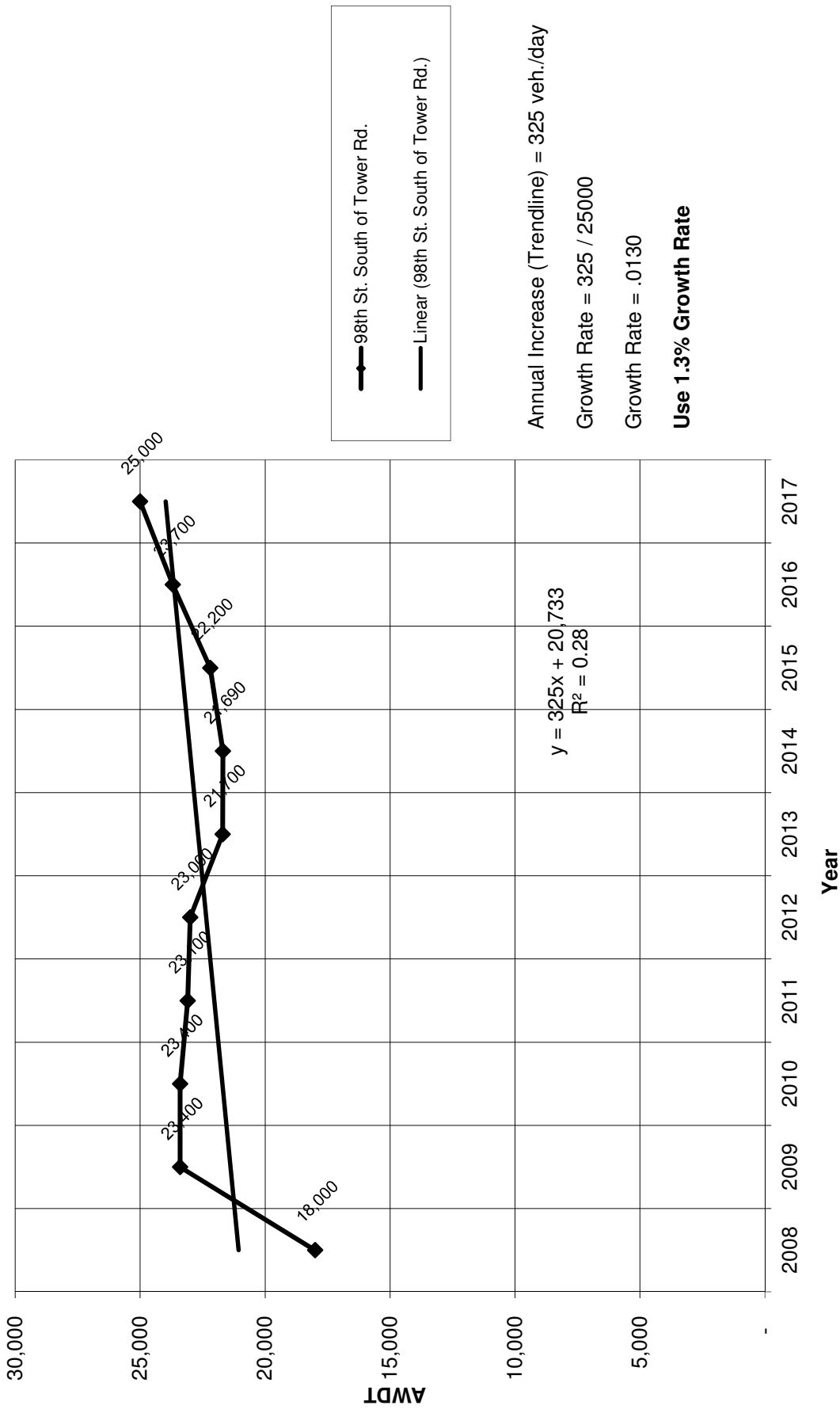
Historic Growth Chart 98th St. btwn Central Ave. & Tower Rd. (2008-2017)



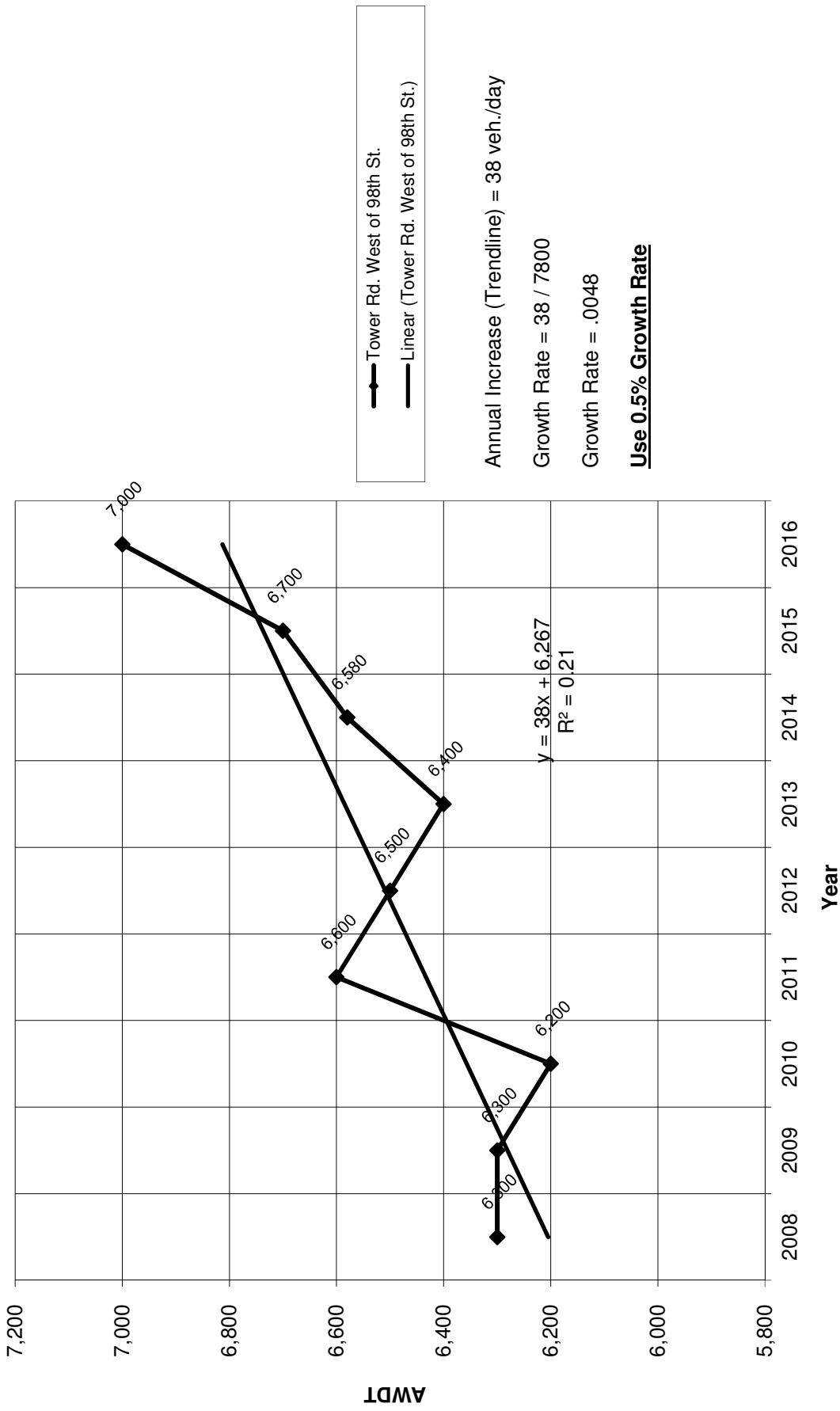
Historic Growth Chart Tower Rd. East of 98th St. (2008-2017)



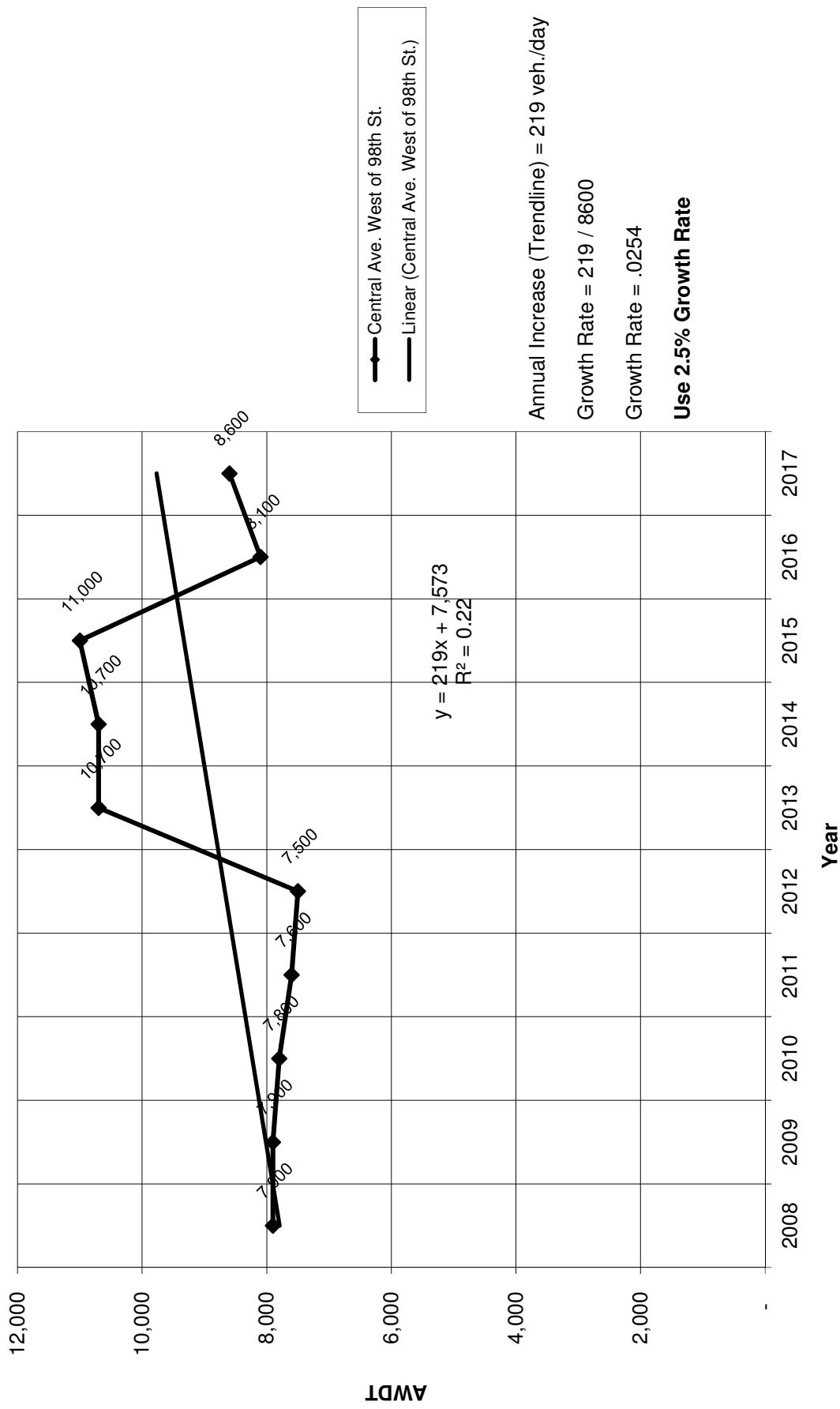
Historic Growth Chart 98th St. South of Tower Rd. (2008-2017)



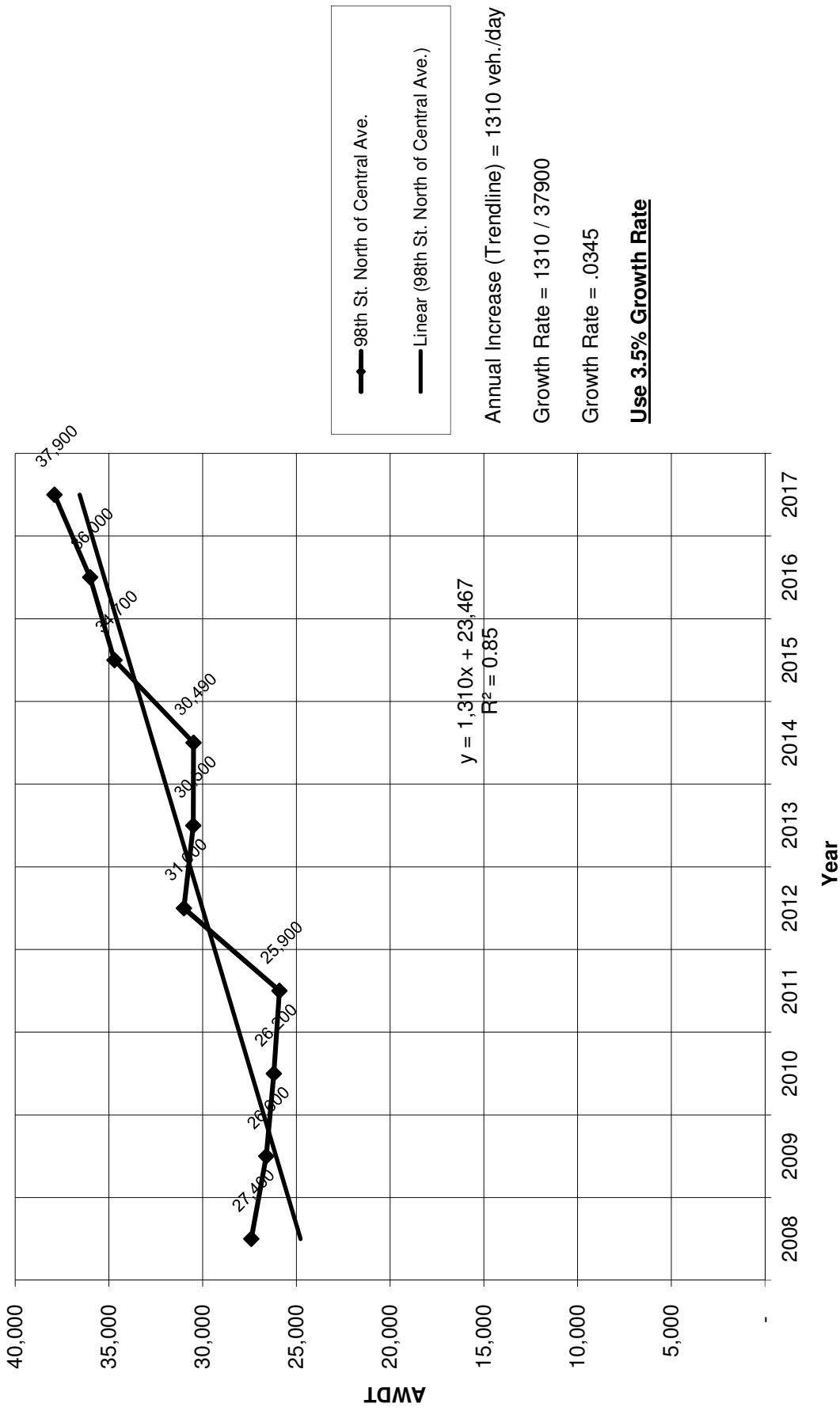
Historic Growth Chart Tower Rd. West of 98th St. (2008-2017)



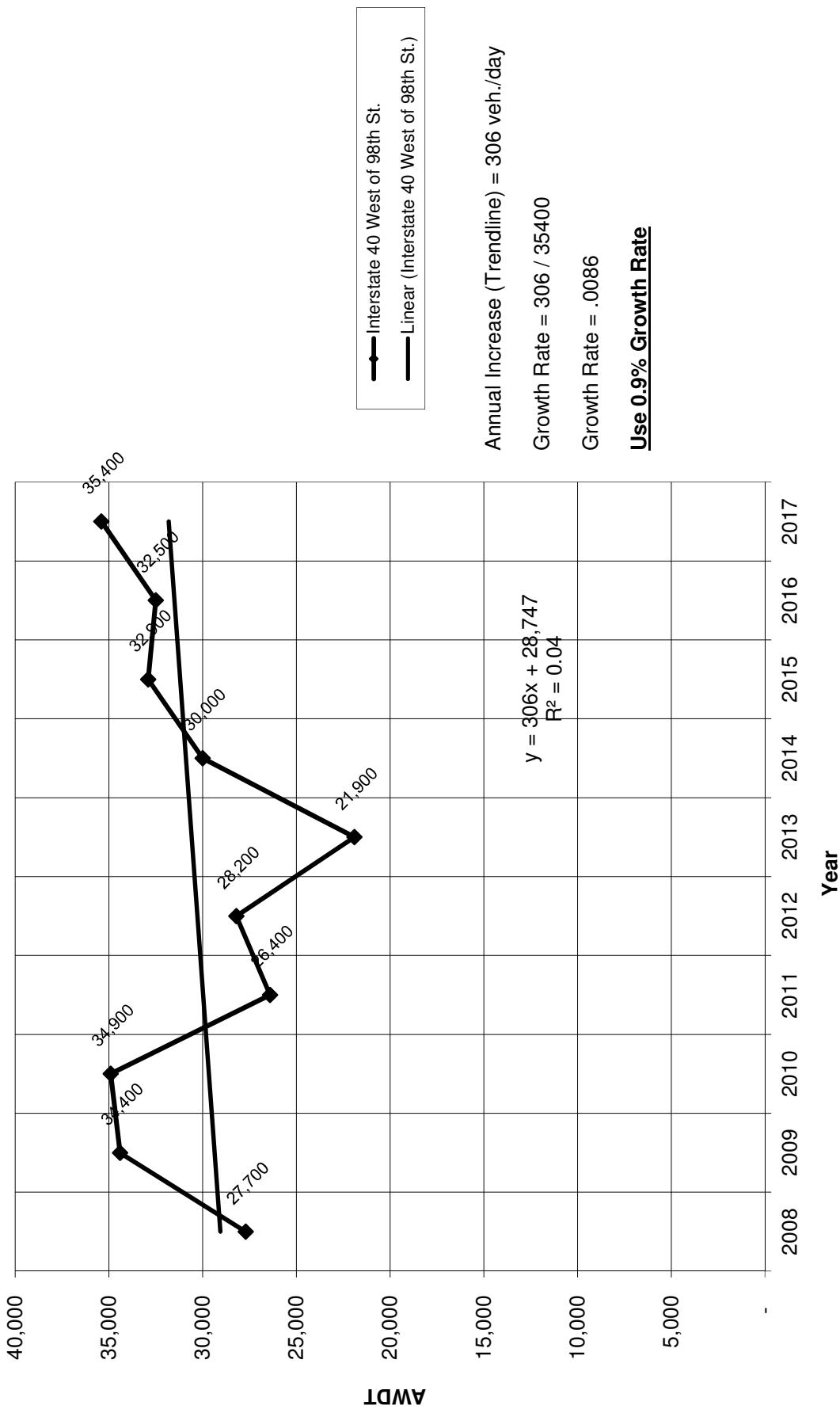
Historic Growth Chart Central Ave. West of 98th St. (2008-2017)



Historic Growth Chart 98th St. North of Central Ave. (2008-2017)



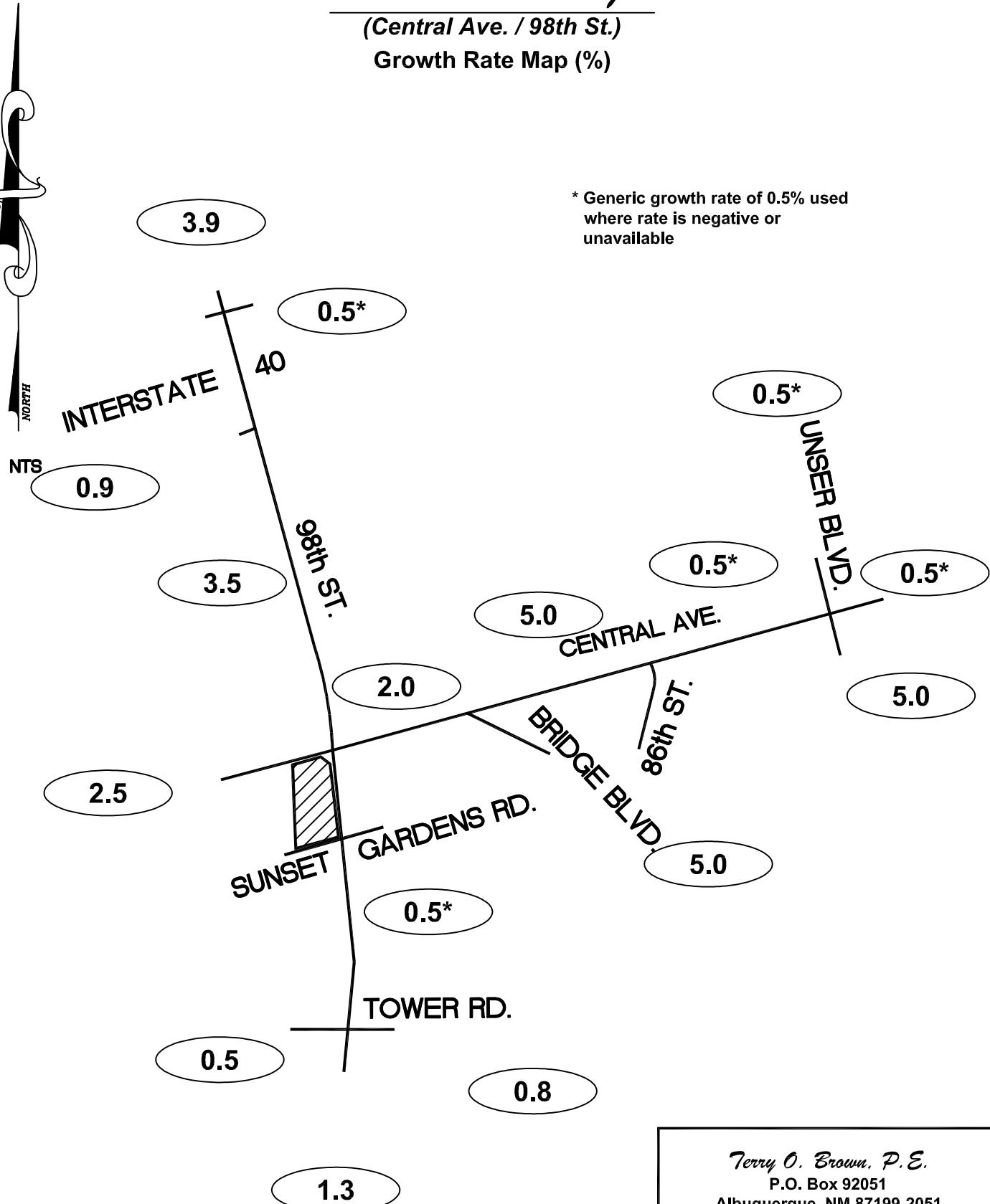
Historic Growth Chart Interstate 40 West of 98th St. (2008-2017)



Mercado el Milagro

(Central Ave. / 98th St.)

Growth Rate Map (%)



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Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2024) - 100% Development

INTERSECTION:**S u m m a r y****Central Ave. / Unser Blvd.**

(1) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Unser Blvd.)			Southbound (Unser Blvd.)			0.92	0.92	0.92	0.92	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
289	386	18	44	136	84	17	1,192	126	104	445	95					
297	396	19	47	146	90	21	1,476	156	106	456	98					
305	414	28	47	167	90	32	1,476	156	106	456	108					

Existing (2019)
2024 (NO BUILD - P.M.)
2024 (BUILD - P.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Unser Blvd.)			Southbound (Unser Blvd.)			0.95	0.95	0.95	0.95	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
173	381	34	90	347	58	55	809	104	127	1,056	142					
177	390	35	97	373	62	68	1,001	129	130	1,083	145					
186	409	45	97	393	62	78	1,001	129	130	1,083	154					

Central Ave. / 86th St.

(2) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (86th St.)			Southbound (86th St.)			0.95	0.95	0.95	0.95	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
0	349	2	78	124	0	36	0	302	0	0	0					
0	436	3	80	127	0	37	0	310	0	0	0					
0	471	4	80	168	0	38	0	310	0	0	0					

Existing (2019)
2024 (NO BUILD - P.M.)
2024 (BUILD - P.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (86th St.)			Southbound (86th St.)			0.95	0.95	0.95	0.95	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
0	298	15	154	307	0	33	0	171	0	0	0					
0	373	19	158	315	0	34	0	175	0	0	0					
0	411	20	158	354	0	35	0	175	0	0	0					

Central Ave. / 98th St.

(3) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (98th St.)			Southbound (98th St.)			0.94	0.94	0.94	0.94	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
406	232	18	112	118	195	14	1,551	164	65	430	110					
457	261	20	123	130	215	14	1,590	168	76	505	129					
471	315	20	208	116	215	28	1,617	174	76	554	129					

Existing (2019)
2024 (NO BUILD - P.M.)
2024 (BUILD - P.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (98th St.)			Southbound (98th St.)			0.98	0.98	0.98	0.98	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
184	181	35	264	195	135	34	781	154	99	1,245	234					
207	204	39	290	215	149	35	801	158	116	1,463	275					
222	263	39	376	197	149	50	831	165	116	1,509	275					

Tower Rd. / 98th St.

(4) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Tower Rd.)			Westbound (Tower Rd.)			Northbound (98th St.)			Southbound (98th St.)			0.93	0.93	0.93	0.93	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
208	117	77	47	46	123	33	1,411	36	49	542	53					
213	120	79	49	48	128	35	1,503	38	50	556	54					
229	120	79	49	48	170	35	1,602	38	86	639	68					

Existing (2019)
2024 (NO BUILD - P.M.)
2024 (BUILD - P.M.)

Eastbound (Tower Rd.)			Westbound (Tower Rd.)			Northbound (98th St.)			Southbound (98th St.)			0.94	0.94	0.94	0.94	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
92	44	12	58	107	49	66	764	41	104	1,166	172					
94	45	12	60	111	51	70	814	44	107	1,195	176					
109	45	12	60	111	91	70	908	44	146	1,286	191					

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2024) - 100% Development

INTERSECTION:

S u m m a r y**I-40 N. Ramp / 98th St.**

(5) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (98th St.)			Southbound (98th St.)			0.96	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	0.94	0.94
0	0	0	467	1	0	70	500	0	0	0	468	0	0
0	0	0	479	1	0	82	588	0	0	0	559	0	0
0	0	0	482	1	0	85	622	0	0	0	599	0	0

I-40 S. Ramp / 98th St.

(6) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (98th St.)			Southbound (98th St.)			0.86	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	0.92	0.92
20	0	0	0	0	0	0	0	533	0	0	705	0	0
21	0	0	0	0	0	0	626	0	0	0	842	0	0
21	0	4	0	0	0	0	661	2	0	0	885	0	0

Central Ave. / Bridge Blvd.

(7) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Bridge Blvd.)			Southbound (Bridge Blvd.)			0.95	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	0.91	0.91
7	342	183	2	161	0	154	2	2	4	1	3	0	0
8	376	201	3	201	0	193	3	3	4	1	3	0	0
8	420	208	3	254	0	201	3	3	4	1	3	0	0

Sunset Gardens Rd. / 98th St.

(8) 11.0% Truck
Existing (2019)
2024 (NO BUILD - A.M.)
2024 (BUILD - A.M.)

Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (98th St.)			Southbound (98th St.)			0.96	PHF
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	0.94	0.94
26	4	24	4	2	40	17	1,649	17	7	607	9	0	0
27	4	25	4	2	41	17	1,690	17	7	622	9	0	0
27	4	58	4	2	60	56	1,808	17	23	721	9	0	0

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements SUMMARY
PROPOSED DEVELOPMENT (2024) - 100% Development

INTERSECTION:**Summary****Driveway "A" / 98th St.**

			0.94			0.94			0.94			0.94 PHF		
			Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (98th St.)			Southbound (98th St.)		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(9)	11.0% Truck		0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	1,772	0	0	648	0
			105	0	93	0	0	0	160	1,749	0	0	615	153
Existing (2019)	2024 (NO BUILD - A.M.)		0.98			0.98			0.98			0.98 PHF		
			Eastbound (Driveway "A")			Westbound (Driveway "A")			Northbound (98th St.)			Southbound (98th St.)		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 (BUILD - A.M.)			0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	994	0	0	1,792	0
			89	0	126	0	0	0	155	969	0	0	1,818	88

Driveway "B" / 98th St.

			0.94			0.94			0.94			0.94 PHF		
			Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(10)	11.0% Truck		0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	1,772	0	0	648	0
			0	0	68	0	0	0	0	1,909	0	0	688	72
Existing (2019)	2024 (NO BUILD - P.M.)		0.98			0.98			0.98			0.98 PHF		
			Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 (BUILD - P.M.)			0	0	0	0	0	0	0	0	0	0	0	0
			0	0	0	0	0	0	0	994	0	0	1,792	0
			0	0	76	0	0	0	0	1,124	0	0	1,840	70

Sunset Gardens Rd. / Driveway "C"

			0.94			0.94			0.94			0.94 PHF		
			Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(11)	11.0% Truck		0	0	0	0	0	0	0	0	0	0	0	0
			0	56	0	0	28	0	0	0	0	0	0	0
			6	56	0	0	28	39	0	0	0	33	0	5
Existing (2019)	2024 (NO BUILD - P.M.)		0.98			0.98			0.98			0.98 PHF		
			Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 (BUILD - P.M.)			0	0	0	0	0	0	0	0	0	0	0	0
			0	42	0	0	75	0	0	0	0	0	0	0
			6	42	0	0	75	37	0	0	0	36	0	6

Central Ave. / Driveway "D"

			0.94			0.94			0.94			0.94 PHF		
			Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
(12)	11.0% Truck		0	0	0	0	0	0	0	0	0	0	0	0
			0	738	0	0	273	0	0	0	0	0	0	0
			0	722	33	0	287	0	0	0	82	0	0	0
Existing (2019)	2024 (NO BUILD - P.M.)		0.98			0.98			0.98			0.98 PHF		
			Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
2024 (BUILD - P.M.)			0	0	0	0	0	0	0	0	0	0	0	0
			0	450	0	0	525	0	0	0	0	0	0	0
			0	434	32	0	540	0	0	0	89	0	0	0

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Central Ave. / Unser Blvd.

INTERSECTION: E-W Street: **Central Ave.** (1)
N-S Street: **Unser Blvd.**

Year of Existing Counts 2018
Horizon Year 2024

Growth Rates

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial

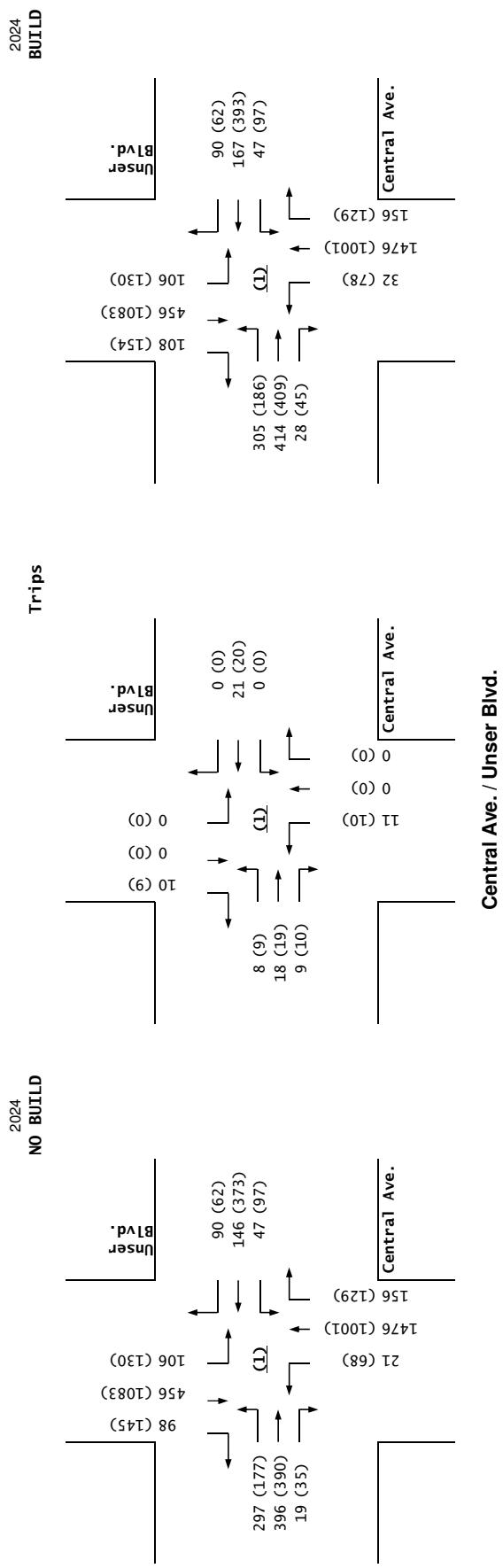
Percent Commercial Trips Generate

	Growth Rates			0.50%			1.50%			5.00%			0.50%		
	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Unser Blvd.)			Southbound (Unser Blvd.)					
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	288	384	18	43	134	83	16	1,135	120	103	443	95			
Background Traffic Growth	9	12	1	4	12	7	5	341	36	3	13	3			
Subtotal (NO BUILD - A.M.)	297	396	19	47	146	90	21	1,476	156	106	456	98			
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	6.53%	0.00%	3.36%	0.00%	0.00%	0.00%	0.00%	2.98%			
Percent Commercial Trips Generated(Exiting)	2.98%	6.53%	3.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
Total Trips Generated	8	18	9	0	21	0	11	0	0	0	0	0			10
Total AM Peak Hour BULL D Volumes	305	414	28	47	167	90	32	1,476	156	106	456	108			

	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Unser Blvd.)			Southbound (Unser Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	172	379	34	89	342	57	52	770	99	126	1,051	141
Background Traffic Growth	5	11	1	8	31	5	16	231	30	4	32	4
Subtotal (NO BUILD - P.M.)	177	390	35	97	373	62	68	1,001	129	130	1,083	145
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	6.53%	0.00%	3.36%	0.00%	0.00%	0.00%	0.00%	2.98%
Percent Commercial Trips Generated(Exiting)	2.98%	6.53%	3.36%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	9	19	10	0	20	0	10	0	0	0	0	9
Total PM Peak Hour BUILD Volumes	186	409	45	97	393	62	78	1,001	129	130	1,083	154

Number of Commercial Trips Generated Entering Exiting 100% Commercial Development

319	269	A.M.	
303	295	P.M.	



Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Central Ave. / 86th St.

INTERSECTION: E-W Street: **Central Ave.** (2)
N-S Street: **86th St.**

Year of Existing Counts 2019
Horizon Year 2024

Growth Rates

Existing Volumes

Background Traffic Growth

Subtotal (N)

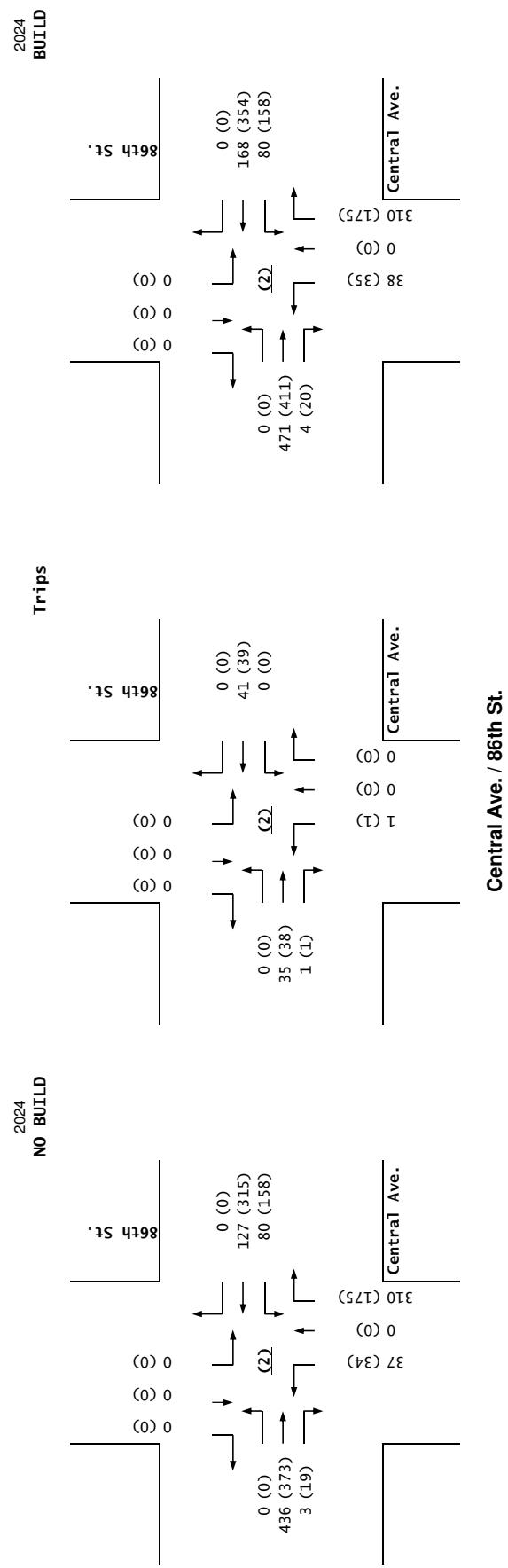
Percent Commercial Trips (%)

Growth Rates	5.00%			0.50%			0.50%			0.50%		
	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (86th St.)			Southbound (86th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Existing Volumes	0	349	2	78	124	0	36	0	302	0	0	0
Background Traffic Growth	0	87	1	2	3	0	1	0	8	0	0	0
Subtotal (NO BUILD - A.M.)	0	436	3	80	127	0	37	0	310	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	12.87%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	12.87%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	35	1	0	41	0	1	0	0	0	0	0
Total AM Peak Hour BUILD Volumes	0	471	4	80	168	0	38	0	310	0	0	0

	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (86th St.)			Southbound (86th St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	298	15	154	307	0	33	0	171	0	0	0
Background Traffic Growth	0	75	4	4	8	0	1	0	4	0	0	0
Subtotal (NO BUILD - P.M.)	0	373	19	158	315	0	34	0	175	0	0	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	12.87%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	12.87%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	38	1	0	39	0	1	0	0	0	0	0
Total PM Peak Hour BUILD Volumes	0	411	20	158	354	0	35	0	175	0	0	0

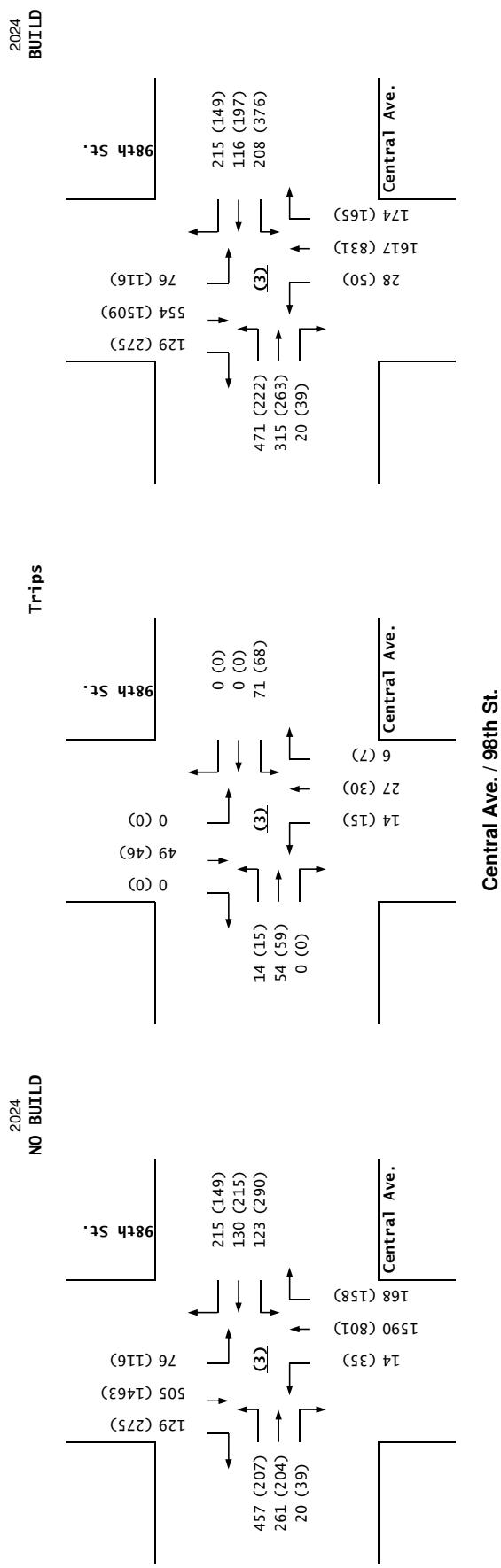
Number of Commercial Trips Generated Entering Exiting 100% Commercial Development

319	269	A.M.	
303	295	P.M.	



Mercado el Milagro (Central Ave. / 98th St.)
Projected Turning Movements Worksheet
Central Ave. / 98th St.

INTERSECTION:		E-W Street: Central Ave.			(3)			N-S Street: 98th St.								
		2019						2024								
		Growth Rates			2.50%			2.00%			0.50%			3.50%		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes		406	232	18	112	118	195	14	1,551	164	65	430	110			
Background Traffic Growth		51	29	2	11	12	20	0	39	4	11	75	19			
Subtotal (NO BUILD - A.M.)		457	261	20	123	130	215	14	1,590	168	76	505	129			
Percent Commercial Trips Generated(Entering)		0.00%	0.00%	0.00%	22.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.26%	0.00%			
Percent Commercial Trips Generated(Exiting)		5.04%	20.07%	0.00%	0.00%	0.00%	0.00%	5.19%	10.22%	2.33%	0.00%	0.00%	0.00%			
Total Trips Generated		14	54	0	71	0	0	14	27	6	0	49	0			
Subtotal AM Pk Hr. BUILD Volumes		471	315	20	194	130	215	28	1,617	174	76	554	129			
Pass-by Trip Adjustments		0	0	0	14	-14	0	0	0	0	0	0	0			
Total AM Peak Hour BUILD Volumes		471	315	20	208	116	215	28	1,617	174	76	554	129			
1,700 (Demand)																
		2.50%			2.00%			0.50%			3.50%					
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes		184	181	35	264	195	135	34	781	154	99	1,245	234			
Background Traffic Growth		23	23	4	26	20	14	1	20	4	17	218	41			
Subtotal (NO BUILD - P.M.)		207	204	39	290	215	149	35	801	158	116	1,463	275			
Percent Commercial Trips Generated(Entering)		0.00%	0.00%	0.00%	22.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.26%	0.00%			
Percent Commercial Trips Generated(Exiting)		5.04%	20.07%	0.00%	0.00%	0.00%	0.00%	5.19%	10.22%	2.33%	0.00%	0.00%	0.00%			
Total Trips Generated		15	59	0	68	0	0	15	30	7	0	46	0			
Subtotal PM Pk Hr. BUILD Volumes		222	263	39	358	215	149	50	831	165	116	1,509	275			
Pass-by Trip Adjustments		0	0	0	18	-18	0	0	0	0	0	0	0			
Total PM Peak Hour BUILD Volumes		222	263	39	376	197	149	50	831	165	116	1,509	275			
1,600 (Demand)																
Number of Commercial Trips Generated		Entering	Exiting	A.M.	100% Commercial Development											
		319	269	A.M.												
		303	295	P.M.												



Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Tower Rd. / 98th St.

INTERSECTION: E-W Street: **Tower Rd.** (4)
N-S Street: **98th St.**

Year of Existing Counts 2019

Horizon Year **2024**

Existing Volumes

Background Traffic Growth

Subtotal (N)

Percent Commercial Trips Generated

*Percent Commercial Trips Generated(Ex-
Total Trips Generated)*

Total Trips Generated

Total AM Peak Hour BUILD Volumes

Existing Volumes

Existing Volumes Background Traffic Growth

Background Traffic Growth

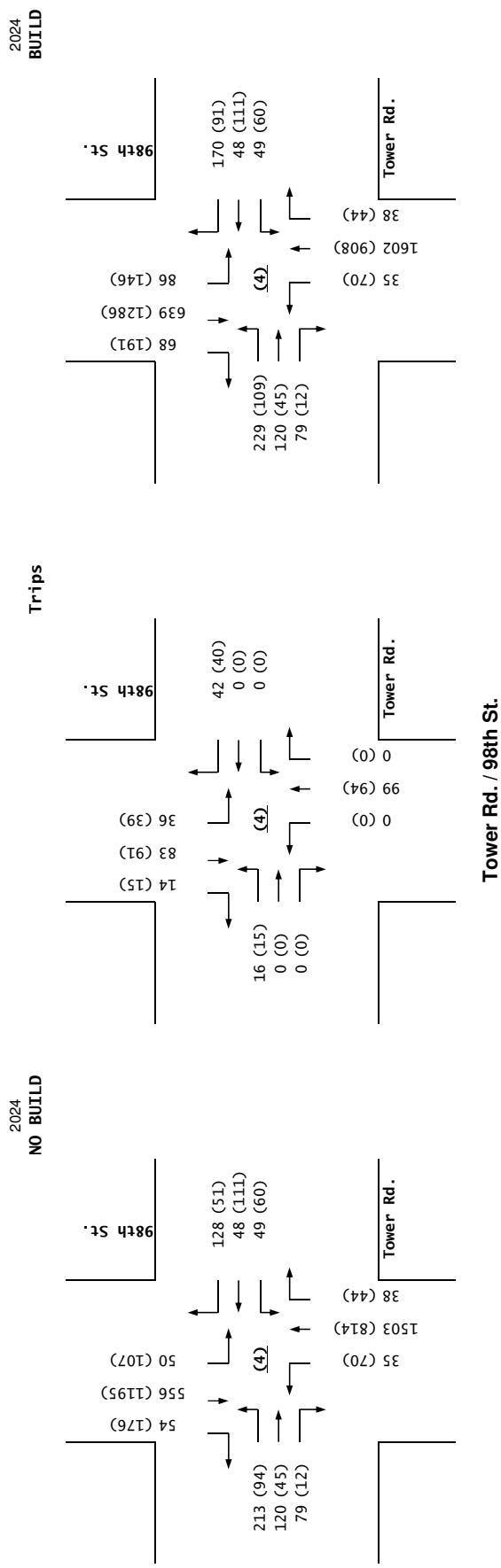
Subtotal (NU)

Percent Commercial Trips Generated(Entering)
Percent Commercial Trips Generated(Exiting)

0.50%			0.80%			1.30%			0.50%		
Eastbound (Tower Rd.)			Westbound (Tower Rd.)			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
208	117	77	47	46	123	33	1,411	36	49	542	53
5	3	2	2	2	5	2	92	2	1	14	1
213	120	79	49	48	128	35	1,503	38	50	556	54
5.04%	0.00%	0.00%	0.00%	0.00%	13.27%	0.00%	30.97%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.27%	30.97%	5.04%
16	0	0	0	0	42	0	99	0	36	83	14
229	120	79	49	48	170	35	1,602	38	86	639	68

Eastbound (Tower Rd.)			Westbound (Tower Rd.)			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
92	44	12	58	107	49	66	764	41	104	1,166	172
2	1	0	2	4	2	4	50	3	3	29	4
94	45	12	60	111	51	70	814	44	107	1,195	176
5.04%	0.00%	0.00%	0.00%	0.00%	13.27%	0.00%	30.97%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.27%	30.97%	5.04%
15	0	0	0	0	40	0	94	0	39	91	15
109	45	12	60	111	91	70	908	44	146	1,286	191

Number of Commercial Trips Generated **Entering** **Exiting** **A.M.** **100% Commercial Development**



Tower Rd. / 98th St.

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

I-40 N. Ramp / 98th St.

INTERSECTION: E-W Street: **I-40 N. Ramp** (5)
 N-S Street: **98th St.**

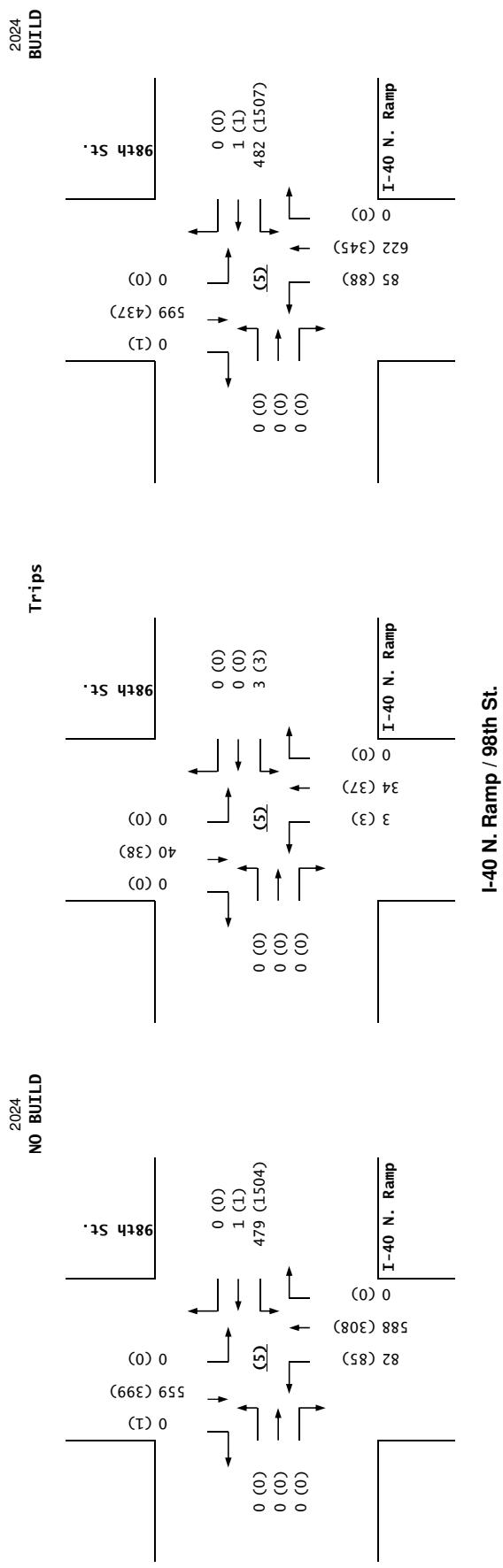
Year of Existing Counts 2019
 Horizon Year 2024

Growth Rates

	0.90%			0.50%			3.50%			3.90%		
	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (98th St.)			Southbound (98th St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	467	1	0	70	500	0	0	468	0
Background Traffic Growth	0	0	0	12	0	0	12	88	0	0	91	0
Subtotal (NO BUILD - A.M.)	0	0	0	479	1	0	82	588	0	0	559	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.68%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.14%	12.68%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	3	0	0	3	34	0	0	40	0
Total AM Peak Hour BUILD Volumes	0	0	0	482	1	0	85	622	0	0	599	0

	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (98th St.)			Southbound (98th St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	0	0	0	1,467	1	0	72	262	0	0	334	1
Background Traffic Growth	0	0	0	37	0	0	13	46	0	0	65	0
Subtotal (NO BUILD - P.M.)	0	0	0	1,504	1	0	85	308	0	0	399	1
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.68%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.14%	12.68%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	0	3	0	0	3	37	0	0	38	0
Total PM Peak Hour BUILD Volumes	0	0	0	1,507	1	0	88	345	0	0	437	1

Entering Exiting
 Number of Commercial Trips Generated 319 269 A.M. 100% Commercial Development
 303 295 P.M.

**I-40 N. Ramp / 98th St.**

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

I-40 S. Ramp / 98th St.

INTERSECTION: E-W Street: **I-40 S. Ramp** (6)
 N-S Street: **98th St.**

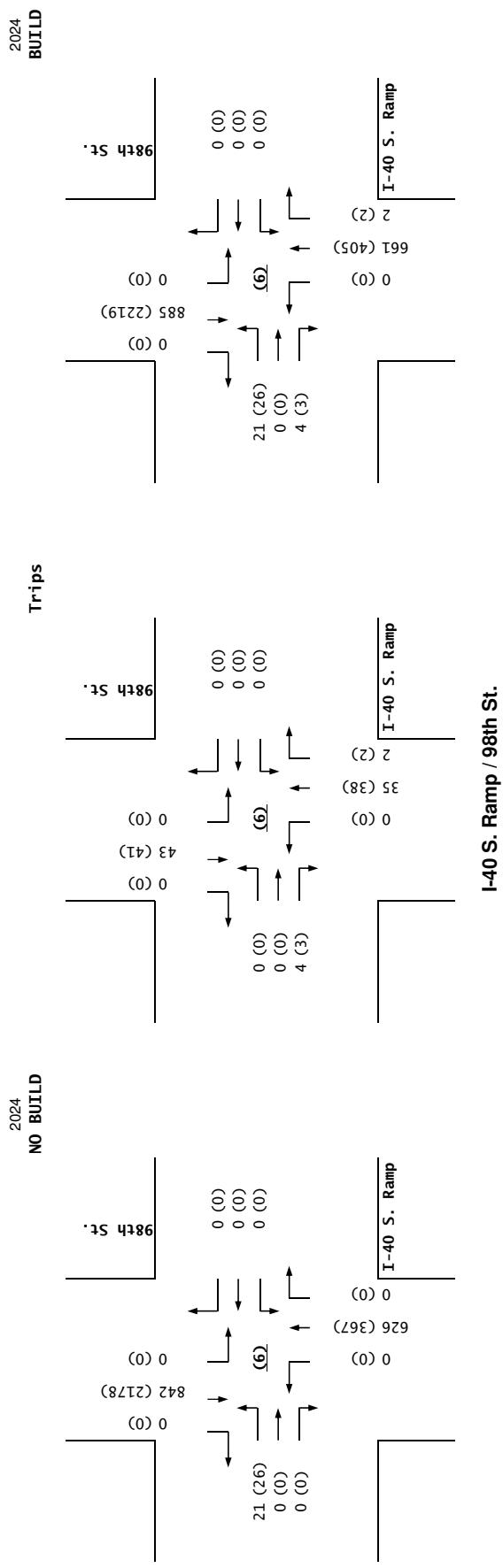
Year of Existing Counts 2019
 Horizon Year 2024

Growth Rates

	0.90%			0.50%			3.50%			3.90%		
	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (98th St.)			Southbound (98th St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	20	0	0	0	0	0	0	533	0	0	705	0
Background Traffic Growth	1	0	0	0	0	0	0	93	0	0	137	0
Subtotal (NO BUILD - A.M.)	21	0	0	0	0	0	0	626	0	0	842	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.45%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.05%	0.77%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	4	0	0	0	0	35	2	0	43	0
Total AM Peak Hour BUILD Volumes	21	0	4	0	0	0	0	661	2	0	885	0

	Eastbound (I-40 S. Ramp)			Westbound (I-40 S. Ramp)			Northbound (98th St.)			Southbound (98th St.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	25	0	0	0	0	0	0	312	0	0	1,823	0
Background Traffic Growth	1	0	0	0	0	0	0	55	0	0	355	0
Subtotal (NO BUILD - P.M.)	26	0	0	0	0	0	0	367	0	0	2,178	0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	1.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.45%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	13.05%	0.77%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	0	3	0	0	0	0	38	2	0	41	0
Total PM Peak Hour BUILD Volumes	26	0	3	0	0	0	0	405	2	0	2,219	0

Entering Exiting
 Number of Commercial Trips Generated 319 269 A.M. 100% Commercial Development
 303 295 P.M.



Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Central Ave. / Bridge Blvd.

INTERSECTION: E-W Street: **Central Ave.** (7)
N-S Street: **Bridge Blvd.**

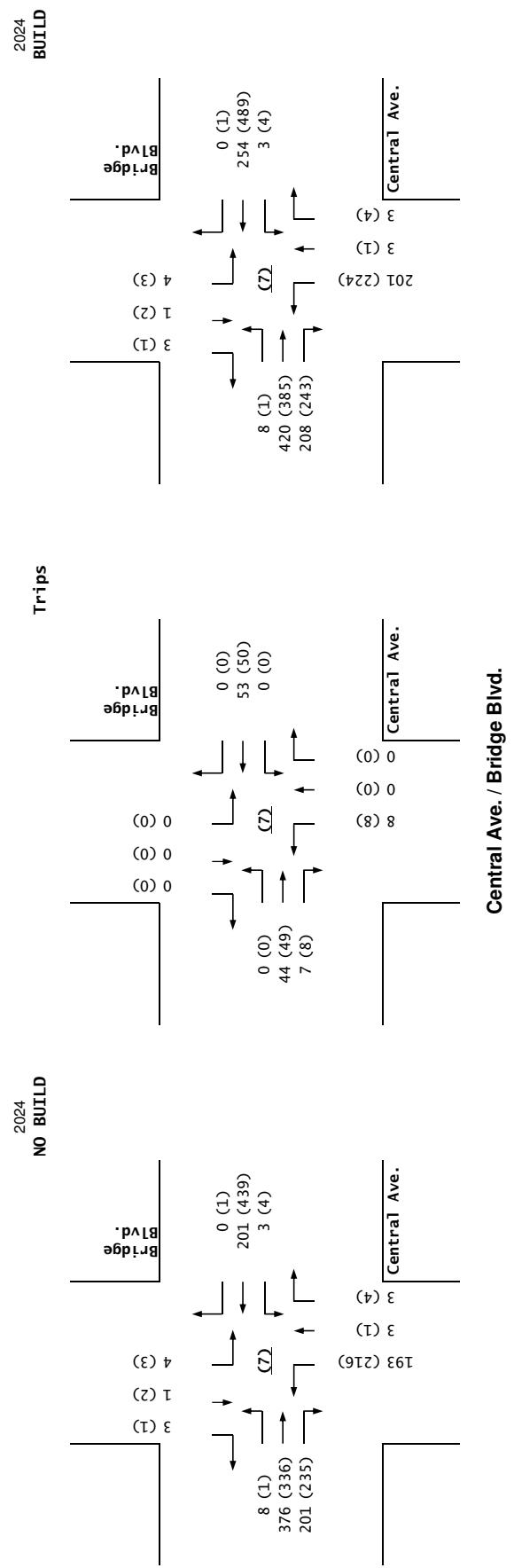
Year of Existing Counts 2019

Horizon Year **2024**

Growth Rates	2.00%			5.00%			5.00%			0.50%		
	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Bridge Blvd.)			Southbound (Bridge Blvd.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Existing Volumes	7	342	183	2	161	0	154	2	2	4	1	3
Background Traffic Growth	1	34	18	1	40	0	39	1	1	0	0	0
Subtotal (NO BUILD - A.M.)	8	376	201	3	201	0	193	3	3	4	1	3
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	16.48%	0.00%	2.61%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	16.48%	2.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	44	7	0	53	0	8	0	0	0	0	0
Total AM Peak Hour BUILD Volumes	8	420	208	3	254	0	201	3	3	4	1	3

	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Bridge Blvd.)			Southbound (Bridge Blvd.)		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes	1	305	214	3	351	1	173	1	3	3	2	1
Background Traffic Growth	0	31	21	1	88	0	43	0	1	0	0	0
Subtotal (NO BUILD - P.M.)	1	336	235	4	439	1	216	1	4	3	2	1
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%	16.48%	0.00%	2.61%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	0.00%	16.48%	2.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Trips Generated	0	49	8	0	50	0	8	0	0	0	0	0
Total PM Peak Hour BUILD Volumes	1	385	243	4	489	1	224	1	4	3	2	1

Number of Commercial Trips Generated Entering Exiting A.M. P.M. 100% Commercial Development



Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Sunset Gardens Rd. / 98th St.

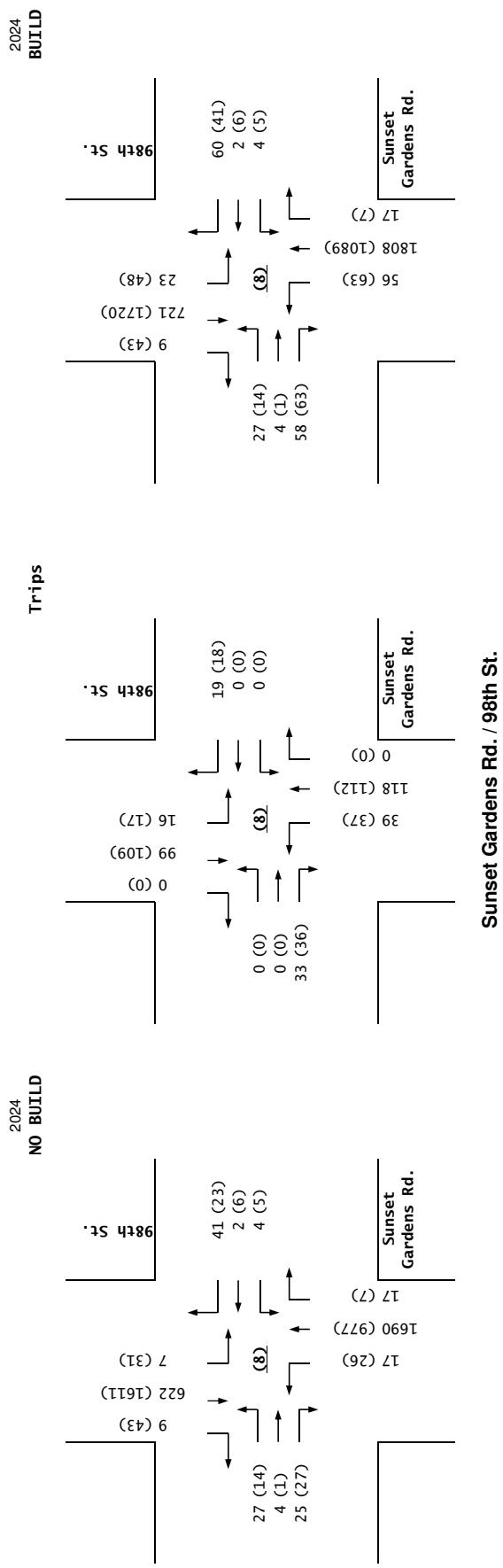
INTERSECTION: E-W Street: **Sunset Gardens Rd.** (8)
 N-S Street: **98th St.**

Year of Existing Counts 2019
 Horizon Year 2024

	Growth Rates	0.50%			0.50%			0.50%			0.50%		
		Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (98th St.)			Southbound (98th St.)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes		26	4	24	4	2	40	17	1,649	17	7	607	9
Background Traffic Growth		1	0	1	0	0	1	0	41	0	0	15	0
Subtotal (NO BUILD - A.M.)		27	4	25	4	2	41	17	1,690	17	7	622	9
Percent Commercial Trips Generated(Entering)		0.00%	0.00%	0.00%	0.00%	0.00%	5.86%	12.32%	36.96%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)		0.00%	0.00%	12.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.86%	36.96%	0.00%
Total Trips Generated		0	0	33	0	0	19	39	118	0	16	99	0
Total AM Peak Hour BUILD Volumes		27	4	58	4	2	60	56	1,808	17	23	721	9

	Growth Rates	0.50%			0.50%			0.50%			0.50%		
		Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (98th St.)			Southbound (98th St.)		
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes		14	1	26	5	6	22	25	953	7	30	1,572	42
Background Traffic Growth		0	0	1	0	0	1	1	24	0	1	39	1
Subtotal (NO BUILD - P.M.)		14	1	27	5	6	23	26	977	7	31	1,611	43
Percent Commercial Trips Generated(Entering)		0.00%	0.00%	0.00%	0.00%	0.00%	5.86%	12.32%	36.96%	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)		0.00%	0.00%	12.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.86%	36.96%	0.00%
Total Trips Generated		0	0	36	0	0	18	37	112	0	17	109	0
Total PM Peak Hour BUILD Volumes		14	1	63	5	6	41	63	1,089	7	48	1,720	43

Number of Commercial Trips Generated Entering 319 Exiting 269 A.M. 100% Commercial Development
 303 295 P.M.



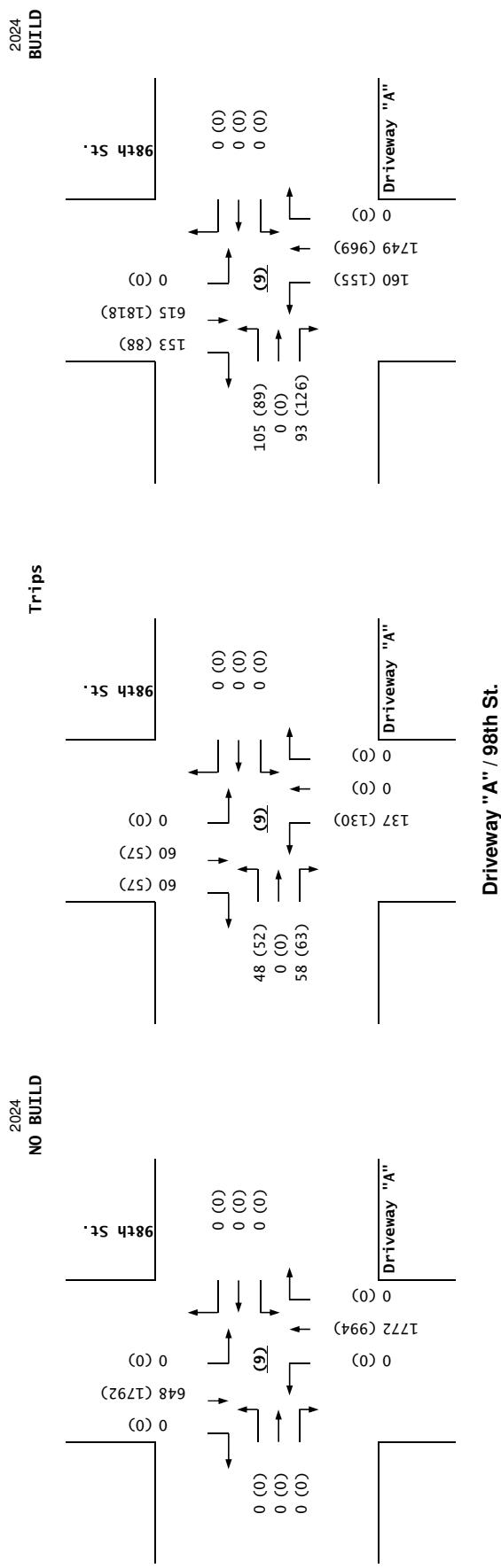
Sunset Gardens Rd. / 98th St.

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Driveway "A" / 98th St.

INTERSECTION:	E-W Street: Driveway "A"	(9)		
Year of Existing Counts	2019			
Horizon Year	2024			
Growth Rates	0.50%	0.50%	0.50%	0.50%
	Eastbound (Driveway "A")	Westbound (Driveway "A")	Northbound (98th St.)	Southbound (98th St.)
Existing Volumes	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Background Traffic Growth	0 0 0	0 0 0	0 0 0	0 0 0
Subtotal (NO BUILD - A.M.)	0 0 0	0 0 0	0 1,772 0	0 0 648 0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	17.74%	0.00%	21.41%	0.00%
Total Trips Generated	48	0 58	0 0	0 137 0
Subtotal AM Pk Hr. BUILD Volumes	48 0 58	0 0 0	0 137 1,772	0 0 708 60
Pass-by Trip Adjustments	57	0 35	0 0	0 23 -23
Total AM Peak Hour BUILD Volumes	105 0 93	0 0 0	0 160 1,749	0 0 615 153
	Eastbound (Driveway "A")	Westbound (Driveway "A")	Northbound (98th St.)	Southbound (98th St.)
Existing Volumes	Left Thru Right	Left Thru Right	Left Thru Right	Left Thru Right
Background Traffic Growth	0 0 0	0 0 0	0 0 0	0 0 0
Subtotal (NO BUILD - P.M.)	0 0 0	0 0 0	0 994 0	0 0 1,792 0
Percent Commercial Trips Generated(Entering)	0.00%	0.00%	0.00%	0.00%
Percent Commercial Trips Generated(Exiting)	17.74%	0.00%	21.41%	0.00%
Total Trips Generated	52	0 63	0 0	0 130 0
Subtotal PM Pk Hr. BUILD Volumes	52 0 63	0 0 0	0 130 994	0 0 1,849 57
Pass-by Trip Adjustments	37	0 63	0 0	0 25 -25
Total PM Peak Hour BUILD Volumes	89 0 126	0 0 0	0 155 969	0 0 1,818 88
Number of Commercial Trips Generated	319 303	269 295	A.M. P.M.	100% Commercial Development
Pass-by Trip Calculations:				
AM Pass-by Trips				
Percent Entering	0.00%	0.00%	0.00%	0.00%
Volume Entering	0	0	0	0
Percent Exiting	49.00%	0.00%	30.00%	0.00%
Volume Exiting	57	0	35	0
Net AM Passby Trips	57 0 35 0	0 0 0	0 23 -23	0 0 -93 93
PM Pass-by Trips				
Percent Entering	0.00%	0.00%	0.00%	0.00%
Growth Rate to Apply to Volume Entering	0	0	0	0
Percent Exiting	29.00%	0.00%	50.00%	0.00%
Volume Exiting	37	0	63	0
Net PM Passby Trips	37 0 63 0	0 0 0	0 0 0	0 0 -31 31
Pass-by Trips	137 130	116 AM 126 PM		



Driveway "A" / 98th St.

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Driveway "B" / 98th St.

INTERSECTION: E-W Street: **Driveway "B"** (10)
 N-S Street: **98th St.**

Year of Existing Counts 2019
 Horizon Year 2024

Growth Rates

0.50%

0.50%

0.50%

0.50%

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Subtotal AM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total AM Peak Hour BUILD Volumes

Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1,772	0	0	648	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.82%	0.00%	0.00%	0.00%	18.83%
0.00%	0.00%	21.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.41%	0.00%
0	0	58	0	0	0	0	137	0	0	58	60
0	0	58	0	0	0	0	1,909	0	0	706	60
0	0	10	0	0	0	0	0	0	0	-18	12
0	0	68	0	0	0	0	1,909	0	0	688	72

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Subtotal PM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total PM Peak Hour BUILD Volumes

Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	994	0	0	1,792	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.82%	0.00%	0.00%	0.00%	18.83%
0.00%	0.00%	21.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	21.41%	0.00%
0	0	63	0	0	0	0	130	0	0	63	57
0	0	63	0	0	0	0	1,124	0	0	1,855	57
0	0	13	0	0	0	0	0	0	0	-15	13
0	0	76	0	0	0	0	1,124	0	0	1,840	70

Number of Commercial Trips Generated
 Entering 319 A.M. 100% Commercial Development
 Exiting 269
 303 P.M.

Pass-by Trip Calculations:

AM Pass-by Trips

Percent Entering

Volume Entering

Percent Exiting

Volume Exiting

Net AM Passby Trips

Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-39.00%	9.00%
0	0	0	0	0	0	0	0	0	0	-53	12
0.00%	0.00%	9.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	30.00%	0.00%
0	0	10	0	0	0	0	0	0	0	35	0
0	0	10	0	0	0	0	0	0	0	-18	12

PM Pass-by Trips

Percent Entering

Growth Rate to Apply to Volume Entering

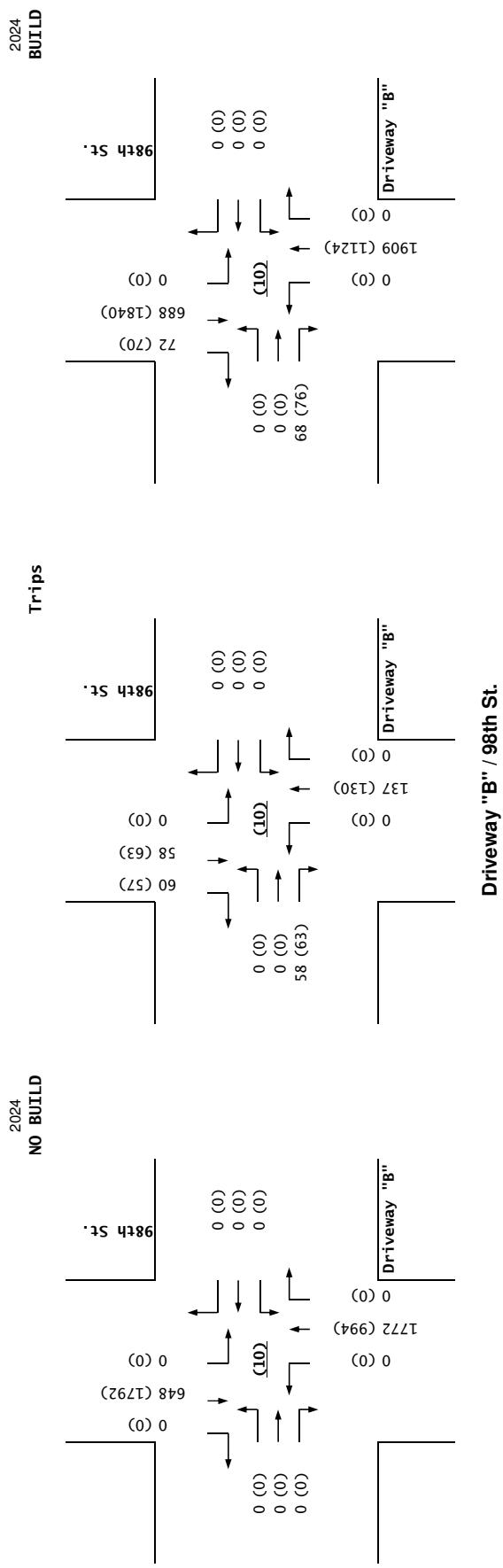
Percent Exiting

Volume Exiting

Net PM Passby Trips

Eastbound (Driveway "B")			Westbound (Driveway "B")			Northbound (98th St.)			Southbound (98th St.)		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-60.00%	10.00%
0	0	0	0	0	0	0	0	0	0	-78	13
0.00%	0.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%
0	0	13	0	0	0	0	0	0	0	63	0
0	0	13	0	0	0	0	0	0	0	-15	13

Entering 137
 Exiting 116 AMPass-by Trips
 130 126 PM



Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Sunset Gardens Rd. / Driveway "C"

INTERSECTION: E-W Street: **Sunset Gardens Rd.** (11)
 N-S Street: **Driveway "C"**

Year of Existing Counts 2019
 Horizon Year 2024

Growth Rates

0.50%

0.50%

0.50%

0.50%

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Total AM Peak Hour BUILD Volumes

Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	56	0	0	28	0	0	0	0	0	0	0
2.01%	0.00%	0.00%	0.00%	0.00%	12.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.32%	0.00%	2.01%
6	0	0	0	0	39	0	0	0	33	0	5
6	56	0	0	28	39	0	0	0	33	0	5

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - P.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

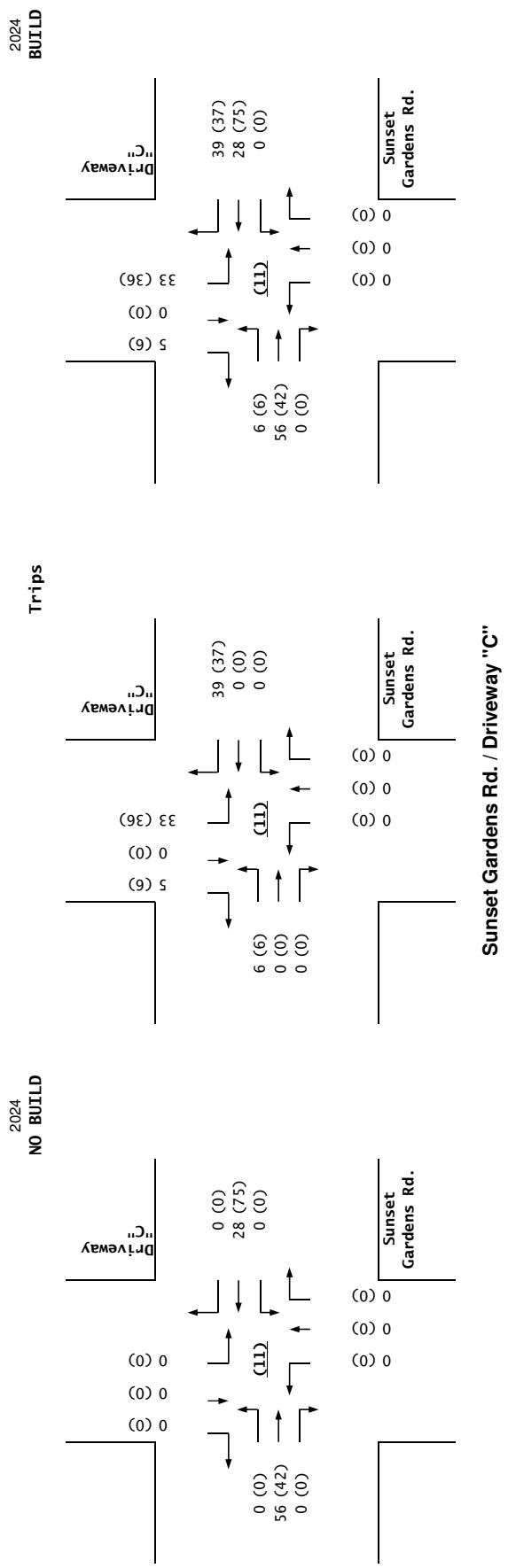
Total PM Peak Hour BUILD Volumes

Eastbound (Sunset Gardens Rd.)			Westbound (Sunset Gardens Rd.)			Northbound (Driveway "C")			Southbound (Driveway "C")		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	42	0	0	75	0	0	0	0	0	0	0
2.01%	0.00%	0.00%	0.00%	0.00%	12.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.32%	0.00%	2.01%
6	0	0	0	0	37	0	0	0	36	0	6
6	42	0	0	75	37	0	0	0	36	0	6

Number of Commercial Trips Generated

Entering
319
303Exiting
269
295A.M.
P.M.

100% Commercial Development



Sunset Gardens Rd. / Driveway "C"

Mercado el Milagro (Central Ave. / 98th St.)

Projected Turning Movements Worksheet

Central Ave. / Driveway "D"

INTERSECTION: E-W Street: **Central Ave.** (12)
 N-S Street: **Driveway "D"**

Year of Existing Counts 2019
 Horizon Year 2024

Growth Rates

0.50%			0.50%			0.50%			0.50%		
Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right

Existing Volumes

Background Traffic Growth

Subtotal (NO BUILD - A.M.)

Percent Commercial Trips Generated(Entering)

Percent Commercial Trips Generated(Exiting)

Total Trips Generated

Subtotal AM Pk Hr. BUILD Volumes

Pass-by Trip Adjustments

Total AM Peak Hour BUILD Volumes

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	738	0	0	273	0	0	0	0	0	0	0
0.00%	0.00%	5.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	5.19%	0.00%	0.00%	0.00%	0.00%	25.11%	0.00%	0.00%
0	0	17	0	14	0	0	0	68	0	0	0
0	738	17	0	287	0	0	0	68	0	0	0
0	-16	16	0	0	0	0	0	14	0	0	0
0	722	33	0	287	0	0	0	82	0	0	0

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	450	0	0	525	0	0	0	0	0	0	0
0.00%	0.00%	5.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.00%	0.00%	0.00%	0.00%	5.19%	0.00%	0.00%	0.00%	25.11%	0.00%	0.00%	0.00%
0	0	16	0	15	0	0	0	74	0	0	0
0	450	16	0	540	0	0	0	74	0	0	0
0	-16	16	0	0	0	0	0	15	0	0	0
0	434	32	0	540	0	0	0	89	0	0	0

Number of Commercial Trips Generated
 Entering 319 A.M. 100% Commercial Development
 Exiting 269
 303 P.M.

Pass-by Trip Calculations:

AM Pass-by Trips

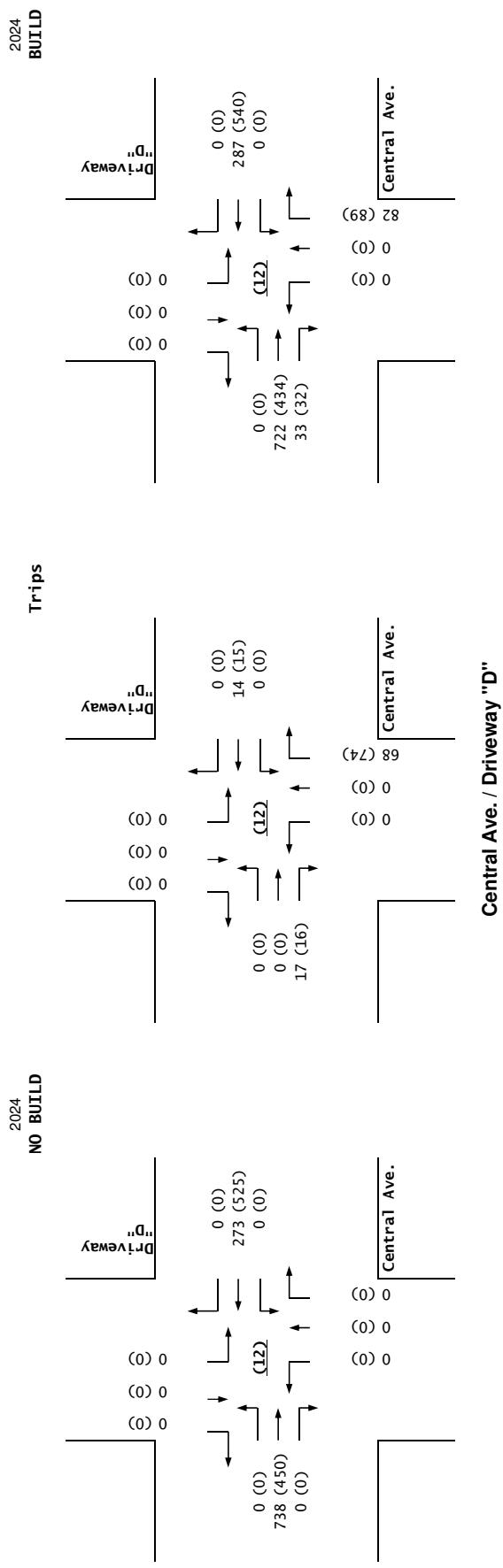
Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
0.00%	-12.00%	12.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	-16	16	0	0	0	0	0	0	0	0	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	0.00%	0.00%	0.00%
0	0	0	0	0	0	0	0	14	0	0	0
0	-16	16	0	0	0	0	0	14	0	0	0

PM Pass-by Trips

Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Driveway "D")			Southbound (Driveway "D")		
0.00%	-12.00%	12.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0	-16	16	0	0	0	0	0	0	0	0	0
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	0.00%	0.00%	0.00%
0	0	0	0	0	0	0	0	15	0	0	0
0	-16	16	0	0	0	0	0	15	0	0	0

Entering 137 AM
 Exiting 116Entering 130 PM
 Exiting 126

4/23/2019



Central Ave. / Driveway "D"

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
1: Unser Blvd. & Central Ave.

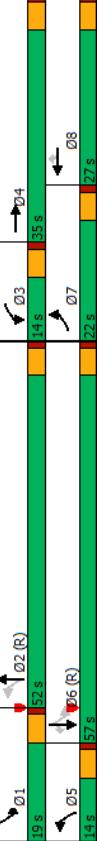
Terry O. Brown, PE
04/23/2019

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
Traffic Volume (vph)	297	396	47	146	90	21	1476	106	456
Future Volume (vph)	297	396	47	146	90	21	1476	106	456
Turn Type	Prot	NA	Prot	NA	Perm	perm+pt	NA	perm	NA
Protected Phases	7	4	3	8	5	2	1	6	6
Permitted Phases									
Detector Phase									
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0
Total Split (s)	22.0	35.0	14.0	27.0	27.0	14.0	52.0	19.0	57.0
Total Split (%)	18.3%	29.2%	11.7%	22.5%	11.7%	43.3%	15.8%	47.5%	15.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	C-Max	Min	C-Max	Min
Act Effct Green (s)	15.5	21.0	8.0	13.4	67.7	61.5	74.0	64.9	64.9
Actuated g/C Ratio	0.13	0.18	0.07	0.11	0.11	0.56	0.51	0.62	0.54
vic Ratio	0.73	0.74	0.44	0.41	0.31	0.05	1.00	0.57	0.50
Control Delay	61.3	54.6	65.4	51.8	3.8	10.5	51.2	29.5	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	54.6	65.4	51.8	3.8	10.5	51.2	29.5	20.7
LOS	E	D	E	A	B	D	C	A	
Approach Delay	57.4	38.8		50.7		19.2			
Approach LOS	E	D	E	D	D	B			
Intersection Summary									
Cycle Length:	120								
Actuated Cycle Length:	120								
Offset:	117.6 (98%), Referenced to phase 2:NBTI and 6:SBTI, Start of Green								
Natural Cycle:	100								
Control Type:	Actuated-Coordinated								
Maximum v/c Ratio: 1.00									
Intersection Signal Delay: 44.8									
Intersection Capacity Utilization: 84.0%									
Analysis Period (min): 15									
Splits and Phases:	1: Unser Blvd. & Central Ave.								
	Q1	Q2 (R)	Q5	Q3	Q4	Q6 (R)	Q7	Q8	Q9
	19.5	5.5	11.5	35.5	11.5	27.5	27.5	27.5	
	Q5	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 117.6 (98%), Referenced to phase 2:NBTI and 6:SBTI, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 44.8
Intersection Capacity Utilization: 84.0%
Analysis Period (min): 15

Splits and Phases:

1: Unser Blvd. & Central Ave.



Unsig. Movement Delay, s/veh
LnGp Delay(d), s/veh
LnGp LOS
Approach Vol, veh/h
Approach Delay, s/veh
Approach LOS
Timer - Assigned Phs
Phs Duration (G+Y+R), s
Change Period (Y+R), s
Max Green Setting (Gmax), s
Max Q Clear Time (g_c+1), s
Green Ext Time (p_c), s
Intersection Summary
HCM 8th Ctrl Delay
HCM 8th LOS

36.2
D

2024 AM Peak NOBUILD Conditions - Existing Geometry

Synchro 10 Report
2024ANX.syn

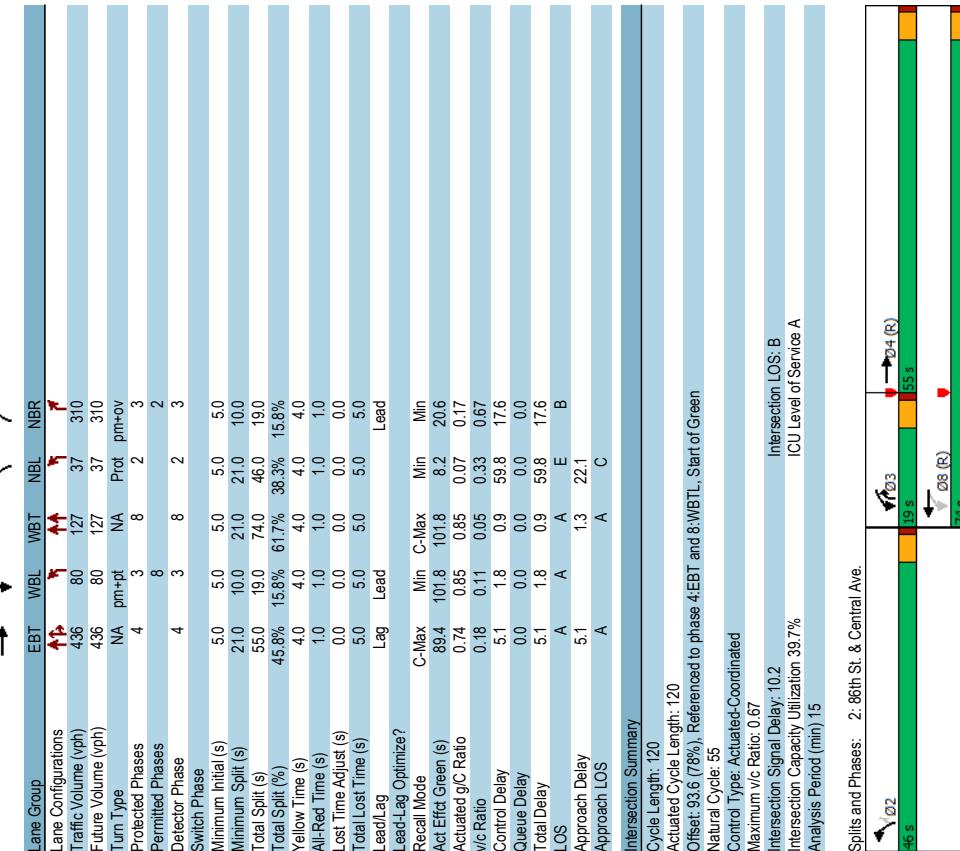
2024 AM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2024ANX.syn

Timings
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019



2024 AM Peak NOBUILD Conditions - Existing Geometry

Synctis 10 Report
2024ANX.syn

Lane Group	EBT	WBL	WBT	NBL	NBR		EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↓↑	↑↓↑	↑↓↑	↑↓↑	↑↓↑		↑↓↑	↑↓↑	↑↓↑	↑↓↑	↑↓↑	↑↓↑
Traffic Volume (vph)	436	80	127	37	310		436	3	80	127	37	310
Future Volume (vph)	436	80	127	37	310		436	3	80	127	37	310
Turn Type	NA	pm+pt	NA	Prot	pm+ov		Initial Q (Q _b)_veh	0	0	0	0	0
Protected Phases	4	3	8	2	3		Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00
Permitted Phases							Parking Bus Adj	1.00	1.00	1.00	1.00	1.00
Detector Phase	4	3	8	2	3		Work Zone On Approach	No	No	No	No	No
Switch Phase							Adj Sat Flow_veh/h/in	1856	1856	1856	1856	1856
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		Adj Flow Rate_veh/h	459	3	84	134	39
Minimum Split (s)	21.0	10.0	21.0	21.0	10.0		Peak Hour Factor	0.96	0.96	0.96	0.96	0.96
Total Split (s)	55.0	19.0	74.0	46.0	9.0		Percent Heavy Veh. %	3	3	3	3	3
Total Split (%)	45.8%	15.8%	61.7%	38.3%	15.8%		Cap_veh/h/in	2205	14	648	2459	388
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		Arrive On Green	0.61	0.61	0.08	1.00	0.22
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		Sat Flow_veh/h/in	3883	23	1767	1767	1572
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		Grp Volume(v)_veh/h/in	1763	237	84	134	39
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		Q_Serve(g_s)_s	6.8	6.8	2.0	2.1	2.32
Lead/Lag	Lag	Lead	Lag	Lead	Lag		Qleve Q_Clear(g_c)_s	6.8	6.8	2.0	2.1	2.32
Lead-Lag Optimize?							Prop In Lane	0.01	0.01	0.0	1.00	1.00
Recall Mode	C-Max	Min	C-Max	Min	Min		Lane Grp Cap(c)_s/veh	1082	1137	648	2459	388
Act Effct Green (s)	89.4	101.8	101.8	8.2	20.6		VIC Ratio(X)	0.21	0.21	0.13	0.06	0.10
Actuated g/C Ratio	0.74	0.85	0.85	0.07	0.17		Avail Cap(c,a)_veh/h	1082	1137	781	2459	604
vic Ratio	0.18	0.11	0.05	0.33	0.67		HCM Prtcon Ratio	1.00	1.00	2.00	1.00	1.00
Control Delay	5.1	1.8	0.9	59.8	7.6		Upstream File(l)	1.00	1.00	0.97	1.00	1.00
Queue Delay	0.0	0.0	0.0	0.0	0.0		Uniform Delay(d)_s/veh	10.2	10.2	6.8	0.0	37.4
Total Delay	5.1	1.8	0.9	59.8	17.6		Incr Delay(d2)_s/veh	0.4	0.4	0.1	0.0	4.45
LOS	A	A	A	E	B		Initial Q_Delay(g33)_s/veh	0.0	0.0	0.0	0.0	0.0
Approach Delay	5.1	1.3	2.21				%ile BackOfQ(95%)_veh/in	4.9	5.1	1.2	0.0	1.7
Approach LOS	A	A	A	C			Unsig. Movement Delay_s/veh					
Intersection Summary							Lngrp Delay(d)_s/veh	10.7	10.7	6.9	0.0	37.5
Cycle Length:	120						Lngrp LOS	B	B	A	A	D
Actuated Cycle Length:	120						Approach Vol_veh/h	462		218	365	
Offset: 93.6 (7%)							Approach Delay_s/veh	10.7		2.7	45.0	
Offset: 93.6 (7%)							Approach LOS	B		A	D	
Control Type: Actuated-Coordinated							Timer - Assigned Phs	2		3	4	
Maximum v/c Ratio: 0.67							Phs Duration (G+Y+R _c)_s	31.3		10.0	78.7	
Intersection Signal Delay: 10.2							Change Period (Y+R _c)_s	5.0		5.0	5.0	
Intersection Capacity Utilization: 39.7%							Max Green Setting (Gmax)_s	410		14.0	50.0	
Analysis Period (min): 15							Max Q Clear Time (g_c+1)_s	25.2		4.0	8.8	
Splits and Phases: 2: 86th St. & Central Ave.							Green Ext Time (p_c)_s	1.1		0.1	3.0	
	↑↓↑	↑↓↑	↑↓↑	↑↓↑	↑↓↑		Intersection Summary					
	9.5	9.5	9.5	55.3	55.3		HCM 8th Ctrl Delay	21.0		C		
	74.5	74.5	74.5	74.5	74.5		HCM 8th Ctrl LOS					

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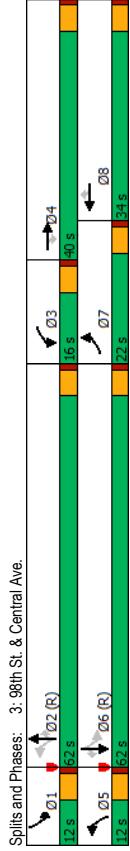
2024 AM Peak NOBUILD Conditions - Existing Geometry

Synctis 10 Report
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Terry O. Brown, PE
04/23/2019
Timings 3: 98th St. & Central Ave.

HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	457	261	20	123	130	215	14	1590	168	76	505	129
Future Volume (vph)	457	261	20	123	130	215	14	1590	168	76	505	129
Turn Type	Prot	NA	Perm	Prot	NA	Perm	perm+pt	NA	perm	perm+pt	NA	perm
Protected Phases	7	4	3	8	8	5	2	5	2	6	6	6
Permitted Phases												
Detector Phase	7	4	4	3	8	8	5	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	10.0	21.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	40.0	40.0	16.0	34.0	34.0	12.0	62.0	62.0	62.0	62.0	62.0
Total Split (%)	16.9%	30.8%	30.8%	12.3%	26.2%	26.2%	9.2%	47.7%	47.7%	47.7%	47.7%	47.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	17.0	21.3	9.8	14.1	76.7	70.8	81.1	73.0	73.0	73.0	73.0	73.0
Actuated g/C Ratio	0.13	0.16	0.16	0.08	0.11	0.11	0.59	0.54	0.54	0.62	0.56	0.56
vic Ratio	1.09	0.49	0.06	0.51	0.36	0.77	0.03	0.89	0.19	0.49	0.27	0.15
Control Delay	122.5	51.6	0.3	64.8	54.9	38.2	16.0	34.4	10.7	34.6	16.3	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	122.5	51.6	0.3	64.8	54.9	38.2	16.0	34.4	10.7	34.6	16.3	5.9
LOS	F	D	A	E	D	D	B	C	B	A	B	A
Approach Delay	94.1				49.8		32.0			16.4		
Approach LOS	F				D		C			B		
Intersection Summary												
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 39 (30%) Referenced to phase 2:NBTl and 6:SBTL, Start of Green												
Natural Cycle: 100												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.09												
Intersection Signal Delay: 43.7												
Intersection Capacity Utilization 82.8%												
Analysis Period (min) 15												
Splits and Phases: 3: 98th St. & Central Ave.	Q1	Q2 (R)	Q3	Q4	Q5	Q6 (R)	Q7	Q8	Q9	Q10	Q11	Q12
	2.5	5.5	16.5	4.5	2.5	12.5	2.5	2.5	2.5	2.5	2.5	2.5



2024 AM Peak NOBUILD Conditions - Existing Geometry
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Terry O. Brown, PE
04/23/2019
HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	457	261	20	123	130	215	14	1590	168	76	505	129
Future Volume (veh/h)	457	261	20	123	130	215	14	1590	168	76	505	129
Initial Q (Q _b) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj												
Work Zone On Approach												
Adj Sat Flow veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	486	273	0	131	138	0	15	169	0	81	537	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3	3	3
Cap. veh/h	448	481	210	596	2177	200	2177	200	2177	200	2177	200
Arrive On Green	0.13	0.14	0.00	0.05	0.06	0.00	0.04	0.62	0.00	0.04	0.62	0.00
Sat Flow, veh/h	3428	3626	3428	3626	3428	3428	3426	3526	3526	3526	3526	3526
Grip Volume(v), veh/h	486	278	0	131	138	0	15	169	0	81	537	0
Grip Flow(s), veh/h/in	1714	1763	1572	1767	1763	1572	1767	1763	1572	1763	1572	1763
Q.Serve(g_s), s	17.0	9.6	0.0	4.9	5.0	0.0	0.4	45.8	0.0	2.1	8.9	0.0
Cycle Q Clearing(g_c), s	17.0	9.6	0.0	4.9	5.0	0.0	0.4	45.8	0.0	2.1	8.9	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Cap(c), veh/h	448	481	210	596	2177	200	2177	200	2177	200	2177	200
VIC Ratio(X)	1.08	0.58	0.71	0.66	0.03	0.78	0.41	0.25	0.25	0.25	0.25	0.25
Avail.Cap(c,a), veh/h	448	949	290	786	623	2177	227	227	227	227	227	227
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	56.5	52.6	0.0	60.5	59.8	0.0	8.1	18.3	0.0	19.3	11.2	0.0
Incr Delay(d2), s/veh	67.0	1.1	0.0	4.9	3.5	0.0	0.0	2.8	0.0	1.3	0.3	0.0
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOff(95%), veh/h/in	17.7	7.8	0.0	4.1	4.2	0.0	0.3	25.7	0.0	2.1	6.4	0.0
Unsig. Movement Delay, s/veh	123.5	53.7	0.0	65.4	63.3	0.0	8.1	21.1	0.0	20.6	11.5	0.0
Lngp LOS	F	D	E	E	A	A	C	C	B	B	B	B
Approach Vol, veh/h	764	269	64.3	210	127							
Approach Delay, s/veh	98.1	F	E	E	C	C	B	B	B	B	B	B
Approach LOS												
Timer - Assigned Phns	1	2	3	4	5	6	7	8				
Pins Duration (G+Y+R _c), s	10.0	85.3	12.0	22.7	10.0	85.3	22.0	12.7				
Change Period (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	57.0	11.0	35.0	7.0	57.0	17.0	29.0				
Max Q Clear Time (g_c+Y+R _c), s	4.1	47.8	6.9	11.6	2.4	10.9	7.0	19.0				
Green Ext Time (p_c), s	0.0	7.1	0.1	1.8	0.0	4.2	0.0	0.8				
Intersection Summary												
HCM 8th Ctrl Delay												
HCM 8th Ctrl LOS												
Notes												

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

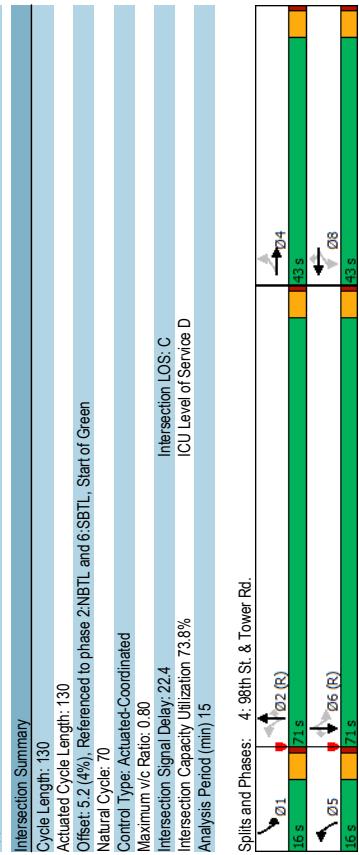
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2024 AM Peak NOBUILD Conditions - Existing Geometry
Syncro 10 Report
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Terry O. Brown, PE
04/23/2019
4: 98th St. & Tower Rd.

HCM 6th Signalized Intersection Summary
4: 98th St. & Tower Rd.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	213	120	49	48	128	35	1603	38	50	556
Future Volume (vph)	213	120	49	48	128	35	1503	38	50	556
Turn Type	Perm	NA	Perm	NA	Perm	perm+pt	NA	perm	0	0
Protected Phases	4	8	5	2	2	1	6	6	6	6
Permitted Phases	4	4	8	8	2	2	1	6	6	6
Detector Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	43.0	43.0	43.0	43.0	16.0	71.0	71.0	16.0	71.0	71.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	12.3%	54.6%	54.6%	12.3%	54.6%	54.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead-Lag	Lead									
Lead-Lag Optimize?	Recall Mode	Min	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max
Act Effct Green (s)	28.0	28.0	28.0	28.0	86.6	80.2	80.2	87.5	80.6	80.6
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.67	0.62	0.62	0.67	0.62	0.62
V/C Ratio	0.80	0.80	0.80	0.80	0.23	0.07	0.31	0.07	0.28	0.06
Control Delay	68.0	24.6	41.8	37.6	7.5	7.8	22.7	1.9	9.0	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.0	24.6	41.8	37.6	7.5	7.8	22.2	1.9	9.0	10.3
LOS	E	C	D	A	A	C	A	B	A	A
Approach Delay	47.0	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
Approach LOS	D	C	C	C	C	C	C	C	C	C



2024 AM Peak NOBUILD Conditions - Existing Geometry

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Movement	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Future Volume (veh/h)	213	120	79	79	49	48	128	38	50	556
Initial Q (Q _b)_veh	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow_veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate_veh/h/in	229	129	85	53	52	0	38	166	0	54
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3
Cap_veh/h/in	315	431	266	229	725	561	228	228	228	2007
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow_veh/h/in	1342	2094	1291	1158	3826	1572	1767	3526	1572	1767
Grip Volume(v)_veh/h/in	1342	1763	1623	1158	1763	1572	1767	1763	1572	1767
Grip Sat Flow(s)_veh/h/in	216	67	7.3	1.5	0.0	0.9	396	0.0	1.3	9.5
Q_Serve(g_s)_s	23.1	67	7.3	12.6	1.5	0.0	0.9	396	0.0	1.3
Cycle Q Clearing(g_c)_s	23.1	67	7.3	12.6	1.5	0.0	0.9	396	0.0	1.3
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Cap(c)_veh/h	315	363	334	229	725	561	228	228	228	2007
V/C Ratio(X)	0.73	0.30	0.32	0.23	0.07	0.07	0.72	0.24	0.26	0.06
Avail Cap(c,a)_veh/h	432	515	474	329	1031	642	228	309	228	2007
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d)_s/veh	50.9	43.7	43.9	49.2	41.6	0.0	7.2	15.5	0.0	14.2
Incr Delay(d2)_s/veh	3.9	0.4	0.5	0.5	0.0	0.1	2.0	0.0	0.5	0.3
Initial Q_Delay(g33)_s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
q/kle Backoff(Q95%)_veh/h/in	12.1	5.4	2.8	1.2	0.0	0.6	22.2	0.0	1.0	6.7
Unsig. Movement Delay_s/veh	54.8	44.1	44.4	49.8	41.7	0.0	7.3	17.5	0.0	14.7
Lngrp Delay(d)_s/veh	D	D	D	D	D	A	B	B	B	B
LnGip LOS	443	497	457	173	105	A	1654	A	710	106
Approach Vol_veh/h	Approach Delay_s/veh	Approach LOS	D	D	D	D	D	D	B	B
Timer - Assigned Phs	1	2	4	5	6					
Phs Duration (G+Y+R _c)_s	10.0	88.3	31.7	10.0	88.3	31.7				
Change Period (Y+R _c)_s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax)_s	11.0	660	380	11.0	660	380	11.0	660	380	380
Max Q Clear Time (g_c+Y _c)_s	3.3	41.6	25.1	2.9	11.5	14.6				
Green Ext Time (p_c)_s	0.0	14.4	1.6	0.0	5.0	0.4	0.4	0.4	0.4	0.4
Intersection Summary	HCM 6th Ctrl Delay	C								
HCM 6th Ctrl LOS	21.6									

Notes

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

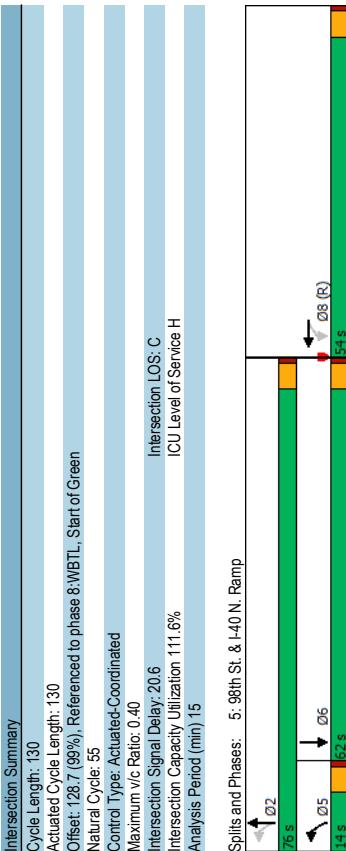
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Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
5: 98th St. & I-40 N. Ramp

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations	↑	↑	↑	↑	↓
Traffic Volume (vph)	479	1	82	588	559
Future Volume (vph)	479	1	82	588	559
Turn Type	Perm	NA	perm+pt	NA	NA
Protected Phases	8	5	2	6	
Permitted Phases	8	8	2	6	
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0	10.0	21.0	
Total Split (s)	54.0	54.0	14.0	76.0	62.0
Total Split (%)	41.5%	41.5%	10.8%	58.5%	47.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag			
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Min	Max	Max	
Act Effct Green (s)	49.0	49.0	71.0	58.0	
Actuated g/C Ratio	0.38	0.38	0.55	0.45	
vic Ratio	0.40	0.40	0.20	0.32	0.26
Control Delay	32.1	32.1	8.4	10.5	23.1
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	32.1	32.1	8.4	10.5	23.1
LOS	C	C	A	B	C
Approach Delay	32.1	32.1	10.2	23.1	
Approach LOS	C	B	C		
Intersection Summary					
Cycle Length: 130					
Actuated Cycle Length: 130					
Offset: 128.7 (99%), Referenced to phase 8:W/B/Tl, Start of Green					
Natural Cycle: 55					
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.40					
Intersection Signal Delay: 20.6					
Intersection Capacity Utilization: 111.6%					
Analysis Period (min): 15					
Splits and Phases: 5: 98th St. & I-40 N. Ramp					



2024 AM Peak NOBUILD Conditions - Existing Geometry

Synchro 10 Report
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Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
5: 98th St. & I-40 N. Ramp

Movement	EBL	EBT	EBC	WBL	WBT	WBC	NBL	NBT	NBC	SBT	SBT	SBC
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	479	1	0	82	588	0	0	559	1
Future Volume (veh/h)	0	0	0	479	1	0	82	588	0	0	559	1
Initial Q (Q _b) veh							0	0	0	0	0	0
Ped/Bike Adj(A_pbt)							1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj							1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach							No	No	No	No	No	No
Adj Sat Flow veh/h/in							1856	0	1856	0	1856	1856
Adj Flow Rate, veh/in							500	0	85	612	0	582
Peak Hour Factor							0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh. %							3	3	3	3	3	3
Cap. veh/h							1332	699	0	457	1926	0
Arrive On Green							0.38	0.00	0.00	0.55	0.00	0.47
Sat Flow, veh/h							3534	1856	0	1767	3618	0
Gap Volume(v), veh/h							500	0	0	85	612	0
Gap Sat Flow(s), veh/h/in							1767	1856	0	1767	1763	0
Q_Serve(g, s), s							13.3	0.0	0.0	3.1	12.4	0.0
Cycle Q Clearing(g, c), s							13.3	0.0	0.0	3.1	12.4	0.0
Prop In Lane							1.00	0.00	0.00	1.00	0.00	0.00
Lane Gap Cap(c), veh/h							1332	699	0	457	1925	0
VIC Ratio(X)							0.38	0.00	0.00	0.19	0.32	0.00
Avail Cap(c, a), veh/h							1332	699	0	509	1925	0
HCM Patron Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)							1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay(d), s/veh							29.4	0.0	0.0	16.0	16.2	0.0
Incr Delay(d2), s/veh							0.8	0.0	0.0	0.2	0.4	0.0
Initial Q Delay(G3), s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/in							9.8	0.0	0.0	2.3	8.8	0.0
Unsig. Movement Delay, s/veh							30.2	0.0	0.0	16.2	16.6	0.0
Lngrp Delay(d), s/veh							C	A	B	B	A	C
Lngrp LOS							500	697	697	16.6	16.6	16.6
Approach Vol, veh/h							30.2	16.6	16.6	16.6	16.6	16.6
Approach Delay, s/veh							C	C	C	C	C	C
Approach LOS												
Timer - Assigned Phs							2	5	6	8	8	8
Phs Duration (G+Y+R _c), s							76.0	10.2	65.8	54.0	54.0	54.0
Change Period (Y+R _c), s							5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s							710	9.0	570	490	490	490
Max Q Clear. Time (g_c+Y _c), s							14.4	5.1	10.7	15.3	15.3	15.3
Green Ext Time (p_c), s							4.9	0.1	4.2	1.9	1.9	1.9
Intersection Summary												
HCM 8th Ctrl Delay							21.9	C	C	C	C	C
HCM 8th Ctrl LOS												
Notes												

User approved volume balancing among the lanes for turning movement.

Synchro 10 Report
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2024 AM Peak NOBUILD Conditions - Existing Geometry

Synchro 10 Report
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Intersection									
Int Delay, s/veh	0.3								
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations	W			↑↑	↑↑				
Traffic Vol, veh/h	21	1	0	626	842	0			
Future Vol, veh/h	21	1	0	626	842	0			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Stop	Stop	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None			
Storage Length	0	-	-	-	-	-			
Veh in Median Storage, #	1	-	-	0	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	86	86	86	86	86	86			
Heavy Vehicles, %	3	3	3	3	3	3			
Mvmt Flow	24	1	0	728	979	0			
Major/Minor	Minor2	Major1		Major2					
Conflicting Flow All	1343	490	-	0	-	0			
Stage 1	979	-	-	-	-	-			
Stage 2	364	-	-	-	-	-			
Critical Hdwy	6.86	6.96	-	-	-	-			
Critical Hdwy Stg 1	5.86	-	-	-	-	-			
Critical Hdwy Stg 2	5.86	-	-	-	-	-			
Follow-up Hdwy	3.53	3.33	-	-	-	-			
Pot Cap-1 Maneuver	142	521	0	-	-	0			
Stage 1	322	-	0	-	-	0			
Stage 2	671	-	0	-	-	0			
Platoon blocked, %			-	-					
Mov Cap-1 Maneuver	142	521	-	-	-	-			
Mov Cap-2 Maneuver	252	-	-	-	-	-			
Stage 1	322	-	-	-	-	-			
Stage 2	671	-	-	-	-	-			
Approach	EB	NB		SB					
HCM Control Delay, s	20.5	0		0					
HCM LOS	C								
Minor Lane/Major Mvmt	NBT	EBLn1	SBT						
Capacity (veh/h)	-	258	-						
HCM Lane V/C Ratio	-	0.099	-						
HCM Control Delay (s)	-	20.5	-						
HCM Lane LOS	-	C	-						
HCM 95th %tile Q(veh)	-	0.3	-						

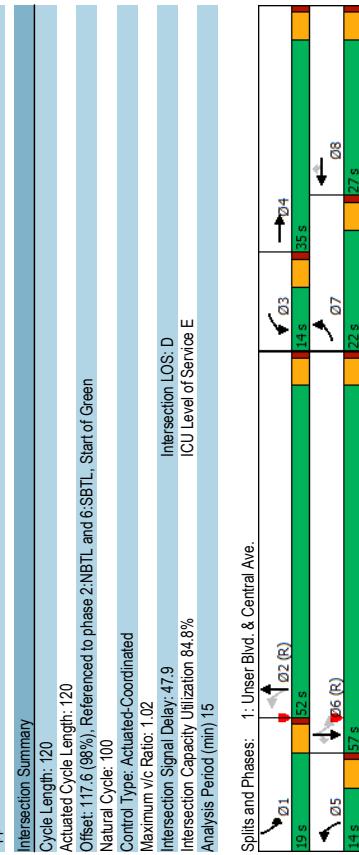
Intersection																
Int Delay, s/veh	2.9															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Vol, veh/h	8	376	201	3	201	1	193	3	3	4	1	3				
Future Vol, veh/h	8	376	201	3	201	1	193	3	3	4	1	3				
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop				
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	0	0	-	-	-	-	0	-	-	-				
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-				
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95				
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3				
Mvmt Flow	8	396	212	3	212	1	203	3	3	4	1	3				
Major/Minor																
Major1		Major2			Minor1			Minor2								
Conflicting Flow All	213	0	0	608	0	0	525	631	198	435	843	107				
Stage 1	-	-	-	-	-	-	412	412	-	219	219	-				
Stage 2	-	-	-	-	-	-	113	219	-	216	624	-				
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96				
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-				
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-				
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33				
Pot Cap-1 Maneuver	1462	-	-	1152	-	-	*433	*394	*928	*502	297	*1020				
Stage 1	-	-	-	-	-	-	*876	*767	-	*893	798	-				
Stage 2	-	-	-	-	-	-	*962	*798	-	*876	606	-				
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	1	-				
Mov Cap-1 Maneuver	1462	-	-	1152	-	-	*427	*389	*928	*493	293	*1020				
Mov Cap-2 Maneuver	-	-	-	-	-	-	*608	*531	-	*493	293	-				
Stage 1	-	-	-	-	-	-	*868	*761	-	*885	795	-				
Stage 2	-	-	-	-	-	-	*955	*795	-	*861	600	-				
Approach																
EB			WB			NB			SB							
HCM Control Delay, s	0.1		0.1		13.9			11.6								
HCM LOS	B						B									
Minor Lane/Major Mvmt		NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1						
Capacity (veh/h)	607	928	1462	-	-	-	1152	-	-	553						
HCM Lane V/C Ratio	0.34	0.003	0.006	-	-	-	0.003	-	-	0.015						
HCM Control Delay (s)	14	8.9	7.5	0	-	-	8.1	-	-	11.6						
HCM Lane LOS	B	A	A	A	-	-	A	-	-	B						
HCM 95th %tile Q(veh)	1.5	0	0	-	-	-	0	-	-	0						
Notes																
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon							

Intersection																
Int Delay, s/veh	0.8															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations	↔			↔			↑	↑↓		↑	↑↓					
Traffic Vol, veh/h	27	4	25	4	2	41	17	1690	17	7	622	9				
Future Vol, veh/h	27	4	25	4	2	41	17	1690	17	7	622	9				
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0				
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free				
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	-	-	-	-	150	-	-	130	-	-				
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-				
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96				
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3				
Mvmt Flow	28	4	26	4	2	43	18	1760	18	7	648	9				
Major/Minor	Minor2	Minor1			Major1			Major2								
Conflicting Flow All	1584	2481	329	2145	2476	889	657	0	0	1778	0	0				
Stage 1	667	667	-	1805	1805	-	-	-	-	-	-	-				
Stage 2	917	1814	-	340	671	-	-	-	-	-	-	-				
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-				
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-				
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-				
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-				
Pot Cap-1 Maneuver	*301	*51	*832	*253	*52	*377	*1244	-	-	*564	-	-				
Stage 1	*785	*688	-	*356	*312	-	-	-	-	-	-	-				
Stage 2	*356	*312	-	*785	*688	-	-	-	-	-	-	-				
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-				
Mov Cap-1 Maneuver	*260	*49	*832	*236	*50	*377	*1244	-	-	*564	-	-				
Mov Cap-2 Maneuver	*273	*209	-	*301	*211	-	-	-	-	-	-	-				
Stage 1	*774	*680	-	*351	*308	-	-	-	-	-	-	-				
Stage 2	*309	*308	-	*747	*680	-	-	-	-	-	-	-				
Approach	EB	WB			NB			SB								
HCM Control Delay, s	16.3	16.7			0.1			0.1								
HCM LOS	C	C														
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR								
Capacity (veh/h)	* 1244	-	-	378	357	* 564	-	-								
HCM Lane V/C Ratio	0.014	-	-	0.154	0.137	0.013	-	-								
HCM Control Delay (s)	7.9	-	-	16.3	16.7	11.5	-	-								
HCM Lane LOS	A	-	-	C	C	B	-	-								
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-								
Notes																
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon								

Terry O. Brown, PE
04/23/2019
1: Unser Blvd. & Central Ave.

HCM 6th Signalized Intersection Summary
1: Unser Blvd. & Central Ave.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	305	414	47	167	90	32	1476	106	456
Future Volume (vph)	305	414	47	167	90	32	1476	106	456
Turn Type	Prot	NA	Prot	NA	Perm	perm+pt	NA	perm	
Protected Phases	7	4	3	8	5	2	1	6	6
Permitted Phases									
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	21.0
Total Split (s)	22.0	35.0	14.0	27.0	27.0	14.0	52.0	19.0	57.0
Total Split (%)	18.3%	29.2%	11.7%	22.5%	11.7%	43.3%	15.8%	47.5%	47.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	Min	Min	Min	Min	C-Max	Min	C-Max	
Act Effct Green (s)	15.7	22.3	8.0	14.6	66.7	60.2	72.5	63.2	63.2
Actuated g/C Ratio	0.13	0.19	0.07	0.12	0.56	0.50	0.60	0.53	0.53
vic Ratio	0.76	0.74	0.44	0.43	0.30	0.08	1.02	0.57	0.51
Control Delay	62.2	53.7	65.4	51.1	3.5	11.2	57.5	29.7	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	53.7	65.4	51.1	3.5	11.2	57.5	29.7	22.1
LOS	E	D	E	A	B	E	C	A	
Approach Delay	57.2	39.2	56.6	32.0	20.0	20.0	20.0	20.0	20.0
Approach LOS	E	D	E	E	E	E	E	E	C



Movement	EBL	EBT	EBC	EBR	WBL	WBT	WBC	NBL	NBT	NBC	SBL	SBT	SBC
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	305	414	47	167	90	32	1476	106	456	106	456	106	456
Future Volume (veh/h)	305	414	47	167	90	32	1476	106	456	106	456	106	456
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj													
Work Zone On Approach	No												
Adj Sat Flow, veh/hlin	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	332	450	30	51	182	98	35	1604	170	115	496	111	496
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	399	565	38	80	343	153	474	1856	194	177	1073	909	1073
Arrive On Green	0.04	0.06	0.06	0.05	0.10	0.10	0.04	0.58	0.58	0.58	0.58	0.58	0.58
Sat Flow, veh/h	3428	3555	223	1767	3526	1572	1767	3220	337	1767	1856	1572	1856
Grp Volume(v), veh/hlin	332	236	244	51	182	98	35	869	905	115	496	117	496
Grp Sat Flow(s),veh/hlin	1714	1815	1767	1763	1572	1767	1763	1767	1767	1767	1856	1856	1856
Q, Serve(g, s), s	11.5	15.9	16.0	3.4	5.9	7.2	0.9	496	51.8	3.2	18.5	4.1	18.5
Cycle Q, Clear(g, c), s	11.5	15.9	16.0	3.4	5.9	7.2	0.9	496	51.8	3.2	18.5	4.1	18.5
Prop In Lane	1.00	0.12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	399	297	306	80	343	153	474	1014	1032	177	1073	909	1073
VIC Ratio(X)	0.83	0.79	0.80	0.64	0.53	0.64	0.07	0.86	0.88	0.66	0.46	0.13	0.13
Avail Cap(c, a), veh/h	486	441	454	133	646	288	533	1014	1032	304	1073	909	1073
HCM Patron Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Upstream File(l)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	56.5	54.7	56.3	51.5	52.1	10.4	21.4	21.8	26.3	26.3	14.6	11.5	14.6
Incr Delay(d2), s/veh	9.4	5.6	5.6	8.2	1.3	4.4	0.1	9.3	10.4	4.0	1.4	0.3	0.3
Initial Q, Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
q/kle BackOfQ(95%), veh/hlin	9.7	12.5	3.1	4.8	5.6	29.6	315	3.7	12.6	2.7			
Unsig. Movement Delay, s/veh	65.9	60.2	60.3	64.5	52.8	56.5	10.5	323	30.3	16.0	11.8		
Lngrp Delay(d), s/veh	E	E	E	E	E	E	E	C	C	C	B	B	B
Approach Vol, veh/h	812	331	331	55.7	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1	31.1
Approach Delay, s/veh	626	E	E	E	E	E	E	C	C	C	B	B	B
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+R), s	10.3	74.0	10.4	25.2	10.0	74.4	19.0	16.7					
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	14.0	470	9.0	300	9.0	520	17.0	22.0					
Max Q, Clear Time (g_c+Y), s	5.2	53.8	5.4	18.0	2.9	20.5	13.5	9.2					
Green Ext Time (p_c), s	0.2	0.0	0.0	2.3	0.0	3.9	0.4	1.1					
Intersection Summary	37.6												
HCM 8th Ctrl Delay													
HCM 8th Ctrl LOS													

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11.6 (98%), Referenced to phase 2:NBTl and 6:SBLt, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 47.9
Intersection Capacity Utilization: 84.8%
Analysis Period (min) 15

Splits and Phases: 1: Unser Blvd. & Central Ave.

HCM 8th Ctrl Delay 37.6 D

2024 AM Peak BUILD Conditions - Existing Geometry

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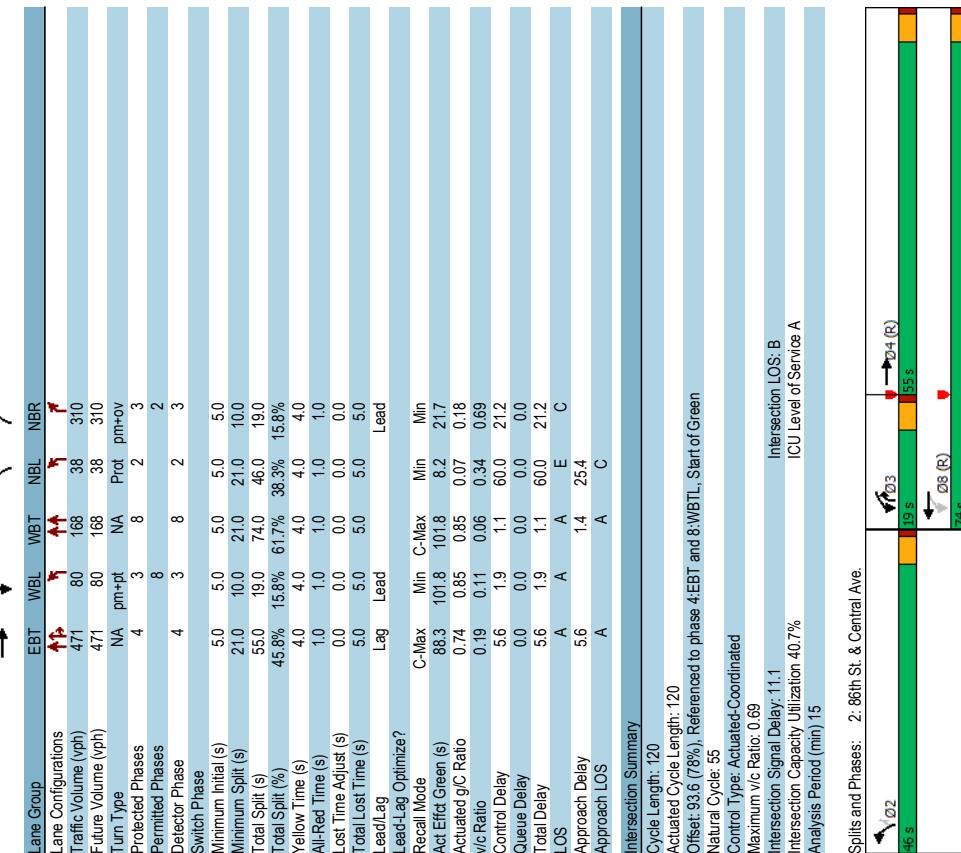
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Timings
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019



2024 AM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
2024ABX.syn

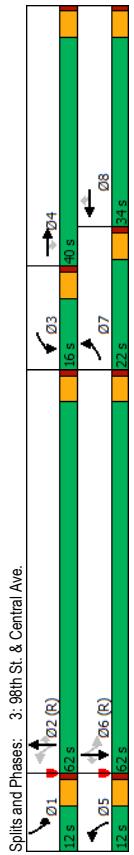
2024 AM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
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Terry O. Brown, PE
04/23/2019
Timings 3: 98th St. & Central Ave.

HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	471	315	20	208	116	215	28	1617	174	76	554	129
Future Volume (vph)	471	315	20	208	116	215	28	1617	174	76	554	129
Turn Type	Prot	NA	Perm	Prot	NA	Perm	perm+pt	NA	perm	1	6	6
Protected Phases	7	4	3	8	8	2	2	6	6	6	6	6
Permitted Phases												
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	10.0	21.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	22.0	40.0	40.0	16.0	34.0	34.0	12.0	62.0	62.0	62.0	62.0	62.0
Total Split (%)	16.9%	30.8%	30.8%	12.3%	26.2%	26.2%	9.2%	47.7%	47.7%	47.7%	47.7%	47.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	17.0	20.2	20.2	10.9	14.1	14.1	77.1	70.8	80.7	72.6	72.6	72.6
Actuated g/C Ratio	0.13	0.16	0.16	0.08	0.11	0.11	0.59	0.54	0.54	0.62	0.56	0.56
vic Ratio	1.13	0.61	0.61	0.06	0.78	0.32	0.77	0.06	0.90	0.20	0.49	0.30
Control Delay	133.0	55.5	55.5	0.3	77.4	54.1	38.2	15.8	37.7	11.8	35.4	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.0	55.5	55.5	0.3	77.4	54.1	38.2	15.8	37.7	11.8	35.4	16.5
LOS	F	E	A	E	D	D	B	D	B	D	B	A
Approach Delay	99.4				56.7		34.9		16.5			
Approach LOS	F				E		C		B			
Intersection Summary												
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 39 (30%) Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 110												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.13												
Intersection Signal Delay: 47.6												
Intersection Capacity Utilization 83.9%												
Analysis Period (min) 15												
Splits and Phases: 3: 98th St. & Central Ave.	Q1	Q2 (R)			Q3	Q4	Q5	Q6	Q7	Q8		
	2.5	5.5			16.5	4.5	2.5	2.5	2.5	2.5		
	Q1	Q2 (R)			Q3	Q4	Q5	Q6	Q7	Q8		
	2.5	5.5			16.5	4.5	2.5	2.5	2.5	2.5		



2024 AM Peak BUILD Conditions - Existing Geometry
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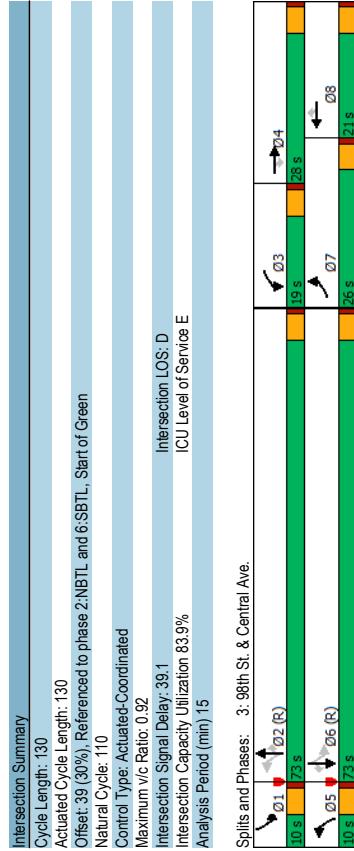
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	471	315	20	208	116	215	28	1617	174	76	554	129
Future Volume (veh/h)	471	315	20	208	116	215	28	1617	174	76	554	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj												
Work Zone On Approach												
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50.1	335	0	221	123	0	30	1720	0	81	589	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	448	436	272	254	555	2132	187	2132	187	0.0	0.0	0.0
Arrive On Green	0.13	0.12	0.00	0.08	0.07	0.00	0.04	0.06	0.00	0.04	0.60	0.00
Sat Flow, veh/h	3428	3526	1572	3428	3526	1572	1767	1767	1767	1767	3526	1572
Grip Volume(v), veh/h	50.1	335	0	221	123	0	30	1720	0	81	589	0
Grip Sat Flow(s), veh/h/in	1714	1763	1572	1714	1763	1572	1767	1763	1767	1763	1572	1572
Q, Serve(g, s), s	17.0	12.0	0.0	8.2	4.4	0.0	0.8	48.9	0.0	2.2	10.3	0.0
Cycle Q, Clear(g, c), s	17.0	12.0	0.0	8.2	4.4	0.0	0.8	48.9	0.0	2.2	10.3	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Cap(g, c), veh/h	448	436	272	254	555	2132	187	2132	187	0.0	0.0	0.0
VIC Ratio(X)	1.12	0.77	0.81	0.48	0.05	0.81	0.43	0.28	0.0	0.0	0.0	0.0
Avail Cap(c, a), veh/h	448	949	290	786	582	2132	215	2132	215	0.0	0.0	0.0
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	56.5	55.2	0.0	58.9	58.0	0.0	8.8	19.8	0.0	21.6	12.2	0.0
Incr Delay(d2), s/veh	78.6	2.9	0.0	15.3	1.4	0.0	0.0	3.4	0.0	1.6	0.3	0.0
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
idle Backoff(95%), veh/h/in	18.9	9.3	0.0	7.5	3.6	0.0	0.6	27.5	0.0	2.3	7.4	0.0
Unsig. Movement Delay, s/veh	135.1	58.1	0.0	74.2	59.4	0.0	8.9	23.2	0.0	23.2	12.5	0.0
LngP LOS	F	E	E	E	E	E	C	C	C	C	B	A
Approach Vol, veh/h	836	A	344	A	1750	A	670	138				
Approach Delay, s/veh	104.2	F	E	E	68.9	C						
Approach LOS												
Timer - Assigned Phs	1	2	3	4	5	6						
Pts Duration (G+Y+R), s	10.0	83.6	15.3	21.1	10.0	83.6	22.0	14.4				
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	570	11.0	350	7.0	570	17.0	29.0				
Max Q Clear Time (g_c+Y), s	4.2	50.9	10.2	14.0	2.8	12.3	19.0	6.4				
Green Ext Time (p_c), s	0.0	50	0.1	2.1	0.0	4.6	0.0	0.7				
Intersection Summary												
HCM 8th Ctrl Delay							D					
HCM 8th Ctrl LOS												
Notes												

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.
Syncro 10 Report
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Terry O. Brown, PE
04/23/2019
Timings 3: 98th St. & Central Ave.

HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓
Traffic Volume (vph)	471	315	20	208	116	215	28	1617	174	76	554	129
Future Volume (vph)	471	315	20	208	116	215	28	1617	174	76	554	129
Turn Type	Prot	NA	Perm	Prot	NA	Perm	perm+pt	NA	perm	NA	perm	NA
Protected Phases	7	4	3	8	5	2	5	1	6	6	6	6
Permitted Phases												
Detector Phase	7	4	3	8	8	5	2	2	6	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	10.0	21.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	26.0	28.0	28.0	19.0	21.0	21.0	10.0	73.0	73.0	10.0	73.0	73.0
Total Split (%)	20.0%	21.5%	14.6%	16.2%	7.7%	56.2%	7.7%	56.2%	56.2%	56.2%	56.2%	56.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	20.8	20.5	20.5	12.8	12.5	12.5	76.0	70.5	70.5	77.5	71.2	71.2
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.10	0.10	0.58	0.54	0.54	0.60	0.55	0.55
V/C Ratio	0.92	0.61	0.61	0.66	0.66	0.37	0.82	0.06	0.91	0.20	0.58	0.31
Control Delay	77.2	55.7	0.3	66.4	57.2	44.9	14.6	32.6	8.6	44.7	19.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.2	55.7	0.3	66.4	57.2	44.9	14.6	32.6	8.6	44.7	19.1	6.8
LOS	E	E	A	E	D	E	B	C	A	D	B	A
Approach Delay	66.9			55.8			30.0			19.5		
Approach LOS	E			E			C			B		
Intersection Summary												
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 39 (30%) Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 110												
Control Type: Actuated-Coordinated												
Maximum V/C Ratio: 0.92												
Intersection Signal Delay: 39.1												
Intersection Capacity Utilization 83.9%												
Analysis Period (min) 15												
Splits and Phases: 3: 98th St. & Central Ave.												
	Q1	Q2 (R)	Q3	Q4	Q5	Q6 (R)	Q7	Q8	Q9	Q10	Q11	



Mitigation Recommendation - optimize signal timing splits

2024 AM Peak BUILD Conditions - Existing Geometry

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04/23/2019
HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

4/23/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓
Traffic Volume (veh/h)	471	315	20	208	116	215	28	1617	174	76	554	129
Future Volume (veh/h)	471	315	20	208	116	215	28	1617	174	76	554	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A, pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No							
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50.1	33.5	0	22.1	12.3	0	30	172.0	0	81	58.9	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	548	464	277	186	545	299	182	209.9	182	0.0	0.0	0.0
Arrive On Green	0.16	0.13	0.00	0.08	0.05	0.00	0.04	0.60	0.00	0.04	0.60	0.00
Sat Flow, veh/h	3428	3626	1572	3428	3626	1572	1767	3526	1572	1767	3526	1572
Grip Volume(v), veh/h	50.1	33.5	0	22.1	12.3	0	30	172.0	0	81	58.9	0
Grip Flow(s), veh/h/in	1714	1763	1572	1714	1763	1572	1767	1763	1572	1763	1572	1763
Q, Serve(g, s), s	18.7	11.9	0.0	8.2	4.5	0.0	0.8	50.1	0.0	2.3	10.6	0.0
Cycle Q, Clear(g, c), s	18.7	11.9	0.0	8.2	4.5	0.0	0.8	50.1	0.0	2.3	10.6	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Cap(c), veh/h	548	464	277	186	545	299	182	209.9	182	0.0	0.0	0.0
VIC Ratio(X)	0.91	0.72	0.80	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Avail Cap(c, a), veh/h	554	624	369	434	545	299	182	209.9	182	0.0	0.0	0.0
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	53.7	54.1	0.0	58.7	60.4	0.0	9.3	20.8	0.0	22.7	12.8	0.0
Incr Delay(d2), s/veh	19.8	2.7	0.0	8.8	4.0	0.0	3.7	0.0	1.7	0.3	0.0	0.0
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Backlog(Q95%), veh/h/in	14.6	9.3	0.0	7.1	3.8	0.0	0.6	28.3	0.0	2.4	7.6	0.0
Unsig. Movement Delay, s/veh	73.5	56.8	0.0	67.5	64.5	0.0	9.4	24.5	0.0	24.4	13.1	0.0
LngP LOS	E	E	E	E	E	E	E	E	E	C	B	A
Approach Vol, veh/h	836	A	344	A	66.8	66.4	24.3	14.5				
Approach Delay, s/veh	66.8	E	E	E	E	E	E	E	E	C	B	A
Approach LOS												
Timer - Assigned Phns	1	2	3	4	5	6	7	8				
Pins Duration (G+Y+R), s	10.0	824	15.5	22.1	10.0	824	25.8	11.8				
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	68.0	14.0	23.0	5.0	68.0	21.0	16.0				
Max Q Clear Time (g_c+1), s	4.3	52.1	10.2	13.9	2.8	12.6	6.5					
Green Ext Time (p_c), s	0.0	11.4	0.3	1.4	0.0	4.7	0.1	0.4				
Intersection Summary												
HCM 8th Ctrt Delay	36.4											
HCM 8th Ctrt LOS	D											

Notes
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Synchro 10 Report
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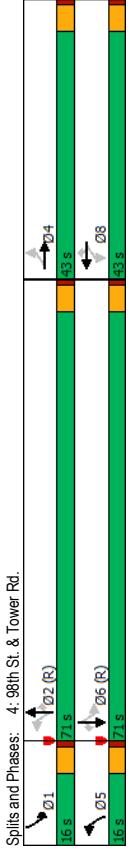
2024 AM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
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Terry O. Brown, PE
04/23/2019
4: 98th St. & Tower Rd.

HCM 6th Signalized Intersection Summary
4: 98th St. & Tower Rd.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓
Traffic Volume (vph)	229	120	49	48	35	1602	38	86	639	68	68
Future Volume (vph)	229	120	49	48	35	1602	38	86	639	68	68
Turn Type	Perm	NA	Perm	NA	Perm	perm+pt	NA	perm	NA	perm	NA
Protected Phases	4	8	5	2	2	2	1	6	6	6	6
Permitted Phases	4	4	8	8	5	2	2	1	6	6	6
Detector Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase	Switch Phase
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	16.0	71.0	16.0	71.0	71.0	71.0
Total Split (%)	33.1%	33.1%	33.1%	33.1%	12.3%	54.6%	12.3%	54.6%	12.3%	54.6%	12.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead-Lag						Lead	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode						Min	Min	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	29.2	29.2	29.2	29.2	84.0	77.5	77.5	87.6	79.3	79.3	79.3
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.65	0.60	0.60	0.67	0.61	0.61	0.61
vic Ratio	0.83	0.83	0.83	0.83	0.27	0.22	0.07	0.38	0.08	0.04	0.05
Control Delay	69.3	24.0	40.7	36.8	9.5	8.3	26.9	2.0	31.1	10.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	24.0	40.7	36.8	9.5	8.3	26.9	2.0	31.1	10.9	3.2
LOS	E	C	D	A	A	C	A	C	B	A	B
Approach Delay	48.2	20.2	25.9	20.2	12.4	12.4	12.4	12.4	12.4	12.4	12.4
Approach LOS	D	C	C	C	B	B	B	B	B	B	B
Intersection Summary											
Cycle Length: 130											
Actuated Cycle Length: 130											
Offset: 5.2 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle: 30											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.83											
Intersection Signal Delay: 25.1											
Intersection Capacity Utilization: 82.6%											
Analysis Period (min): 15											
Splits and Phases: 4: 98th St. & Tower Rd.	Q1 (R) 16.5 s	Q2 (R) 7.5 s	Q3 (R) 16.5 s	Q4 (R) 7.5 s	Q5 (R) 16.5 s	Q6 (R) 7.5 s	Q7 (R) 16.5 s	Q8 (R) 7.5 s	Q9 (R) 16.5 s	Q10 (R) 7.5 s	Q11 (R) 16.5 s



2024 AM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
2024ABX.syn

Movement	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	
Traffic Volume (veh/h)	229	120	49	48	35	1602	38	86	639	68	
Future Volume (veh/h)	229	120	49	48	35	1602	38	86	639	68	
Initial Q (Q _b)_veh	0	0	0	0	0	0	0	0	0	0	
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Parking Bus Adj											
Work Zone On Approach											
Adj Sat Flow veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	
Adj Flow Rate, veh/h	246	129	85	53	52	0	38	1723	0	92	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	
Cap, veh/h/s	332	456	281	244	767	500	2216	200	2216	988	
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.04	0.04	0.63	
Sat Flow, veh/h	1342	2094	1291	1158	3526	1572	1767	3526	1572	1767	
Grip Volume(v), veh/h	246	107	53	52	0	38	1723	0	92	687	
Grip Sat Flow(s), veh/h/in	1342	1763	1623	1158	1767	1767	1767	1767	1767	1763	
Q, Serve(g, s), s	23.2	6.6	7.2	5.2	1.5	0.0	1.0	46.2	0.0	24	
Cycle Q, Clear(g, c), s	24.7	6.6	7.2	12.4	1.5	0.0	1.0	46.2	0.0	11.7	
Prop In Lane	1.00	0.80	0.85	0.70	1.00	1.00	1.00	1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	332	384	344	244	767	500	2216	200	2216	988	
VIC Ratio(X)	0.74	0.28	0.30	0.22	0.07	0.08	0.78	0.46	0.31	0.07	
Avail Cap(c, a), veh/h	432	515	474	330	1031	582	2216	281	2216	988	
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay(d), s/veh	50.2	42.4	42.6	47.8	40.4	0.0	7.9	17.5	0.0	19.8	
Incr Delay(d2), s/veh	4.9	0.4	0.4	0.4	0.0	0.1	2.8	0.0	1.6	0.4	
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
idle Backlog(Q95%), veh/in	12.9	5.3	5.3	2.8	1.2	0.0	0.7	25.7	0.0	8.1	
Unsig. Movement Delay, s/veh	55.1	42.8	43.1	48.2	40.4	0.0	8.0	20.3	0.0	21.5	
Lngrp Delay(d), s/veh	E	D	D	D	A	A	C	C	B	A	
Approach Vol, veh/h	460	494	44.4	20.0	1761	1761	124	124	124	124	
Approach Delay, s/veh	D	D	D	D	C	C	B	B	B	B	
Approach LOS											
Timer - Assigned Phns	1	2	4	5	6	8	8	8	8	8	
Pns Duration (G+Y+R _c), s	10.0	86.7	33.3	10.0	86.7	33.3	33.3	33.3	33.3	33.3	
Change Period (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Max Green Setting (Gmax), s	11.0	66.0	38.0	11.0	66.0	38.0	38.0	38.0	38.0	38.0	
Max Q Clear Time (g_c+Y _c), s	4.4	48.2	26.7	3.0	13.7	14.4	14.4	14.4	14.4	14.4	
Green Ext Time (p_c), s	0.1	12.4	1.6	0.0	5.9	0.4	0.4	0.4	0.4	0.4	
Intersection Summary											
HCM 8th Ctrl Delay											
HCM 8th Ctrl LOS											
Notes											

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Synchro 10 Report
2024ABX.syn

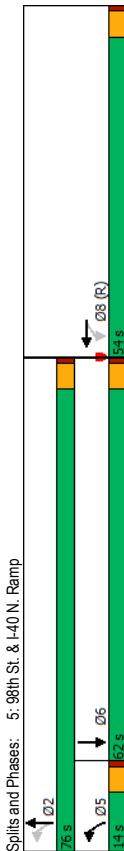
2024 AM Peak BUILD Conditions - Existing Geometry

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Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
5: 98th St. & I-40 N. Ramp

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations	↑	↑	↑	↑	↑
Traffic Volume (vph)	482	1	85	622	599
Future Volume (vph)	482	1	85	622	599
Turn Type	Perm	NA	perm+pt	NA	NA
Protected Phases	8	5	2	6	
Permitted Phases	8	8	2	6	
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0	10.0	21.0	
Total Split (s)	54.0	54.0	14.0	76.0	62.0
Total Split (%)	41.5%	41.5%	10.8%	58.5%	47.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag			
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Min	Max	Max	
Act Effct Green (s)	49.0	49.0	71.0	57.9	
Actuated g/C Ratio	0.38	0.38	0.55	0.45	
vic Ratio	0.40	0.40	0.22	0.34	0.28
Control Delay	32.1	32.1	8.5	10.7	23.4
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	32.1	32.1	8.5	10.7	23.4
LOS	C	C	A	B	C
Approach Delay	32.1	32.1	10.4	23.4	
Approach LOS	C	C	B	C	
Intersection Summary					
Cycle Length: 130					
Actuated Cycle Length: 130					
Offset: 128.7 (99%), Referenced to phase 8:W/B/Tl, Start of Green					
Natural Cycle: 55					
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.40					
Intersection Signal Delay: 20.6					
Intersection Capacity Utilization: 111.9%					
Analysis Period (min): 15					
Splits and Phases: 5: 98th St. & I-40 N. Ramp					
26 s	14 s	14 s	14 s	14 s	14 s
02	05	06	05	06	05



User approved volume balancing among the lanes for turning movement.

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Traffic Vol, veh/h	21	4	0	661	885	0
Future Vol, veh/h	21	4	0	661	885	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	5	0	769	1029	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1414	515	-	0	-	0
Stage 1	1029	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	127	502	0	-	-	0
Stage 1	303	-	0	-	-	0
Stage 2	654	-	0	-	-	0
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	502	-	-	-	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	20.7	0	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	258	-			
HCM Lane V/C Ratio	-	0.113	-			
HCM Control Delay (s)	-	20.7	-			
HCM Lane LOS	-	C	-			
HCM 95th %tile Q(veh)	-	0.4	-			

Intersection																
Int Delay, s/veh	2.9															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Traffic Vol, veh/h	8	420	208	3	254	0	201	3	3	4	1	3				
Future Vol, veh/h	8	420	208	3	254	0	201	3	3	4	1	3				
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0				
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop				
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	0	0	-	-	-	-	0	-	-	-				
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-				
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95				
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3				
Mvmt Flow	8	442	219	3	267	0	212	3	3	4	1	3				
Major/Minor																
Major1		Major2			Minor1			Minor2								
Conflicting Flow All	267	0	0	661	0	0	598	731	221	512	950	134				
Stage 1	-	-	-	-	-	-	458	458	-	273	273	-				
Stage 2	-	-	-	-	-	-	140	273	-	239	677	-				
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96				
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-				
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-				
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33				
Pot Cap-1 Maneuver	1447	-	-	1132	-	-	*384	*345	*904	*443	257	*994				
Stage 1	-	-	-	-	-	-	*853	*748	-	*891	792	-				
Stage 2	-	-	-	-	-	-	*937	*792	-	*853	596	-				
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	1	-				
Mov Cap-1 Maneuver	1447	-	-	1132	-	-	*379	*341	*904	*435	254	*994				
Mov Cap-2 Maneuver	-	-	-	-	-	-	*575	*503	-	*590	420	-				
Stage 1	-	-	-	-	-	-	*846	*741	-	*883	790	-				
Stage 2	-	-	-	-	-	-	*931	*790	-	*839	591	-				
Approach																
EB			WB			NB			SB							
HCM Control Delay, s	0.1		0.1		14.9			10.6								
HCM LOS	B						B									
Minor Lane/Major Mvmt		NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1						
Capacity (veh/h)	574	904	1447	-	-	-	1132	-	-	657						
HCM Lane V/C Ratio	0.374	0.003	0.006	-	-	-	0.003	-	-	0.013						
HCM Control Delay (s)	15	9	7.5	0	-	-	8.2	-	-	10.6						
HCM Lane LOS	C	A	A	A	-	-	A	-	-	B						
HCM 95th %tile Q(veh)	1.7	0	0	-	-	-	0	-	-	0						
Notes																
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon							

Intersection														
Int Delay, s/veh	1.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Vol, veh/h	27	4	58	4	2	60	56	1808	17	23	721	9		
Future Vol, veh/h	27	4	58	4	2	60	56	1808	17	23	721	9		
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free		
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None		
Storage Length	-	-	-	-	-	-	150	-	-	130	-	-		
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96		
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3		
Mvmt Flow	28	4	60	4	2	63	58	1883	18	24	751	9		
Major/Minor														
Minor2		Minor1			Major1			Major2						
Conflicting Flow All	1863	2821	380	2434	2816	951	760	0	0	1901	0	0		
Stage 1	804	804	-	2008	2008	-	-	-	-	-	-	-		
Stage 2	1059	2017	-	426	808	-	-	-	-	-	-	-		
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-		
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-		
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-		
Pot Cap-1 Maneuver	*298	*10	*785	*51	*10	*329	*1173	-	-	*492	-	-		
Stage 1	*740	*649	-	*311	*272	-	-	-	-	-	-	-		
Stage 2	*311	*272	-	*740	*649	-	-	-	-	-	-	-		
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-		
Mov Cap-1 Maneuver	*221	*9	*785	*43	*9	*329	*1173	-	-	*492	-	-		
Mov Cap-2 Maneuver	*194	*159	-	*197	*165	-	-	-	-	-	-	-		
Stage 1	*704	*617	-	*295	*259	-	-	-	-	-	-	-		
Stage 2	*237	*259	-	*646	*617	-	-	-	-	-	-	-		
Approach														
EB			WB			NB			SB					
HCM Control Delay, s	17.8		20.1			0.2			0.4					
HCM LOS	C		C											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	* 1173		-	-	374	307	* 492	-	-					
HCM Lane V/C Ratio	0.05		-	-	0.248	0.224	0.049	-	-					
HCM Control Delay (s)	8.2		-	-	17.8	20.1	12.7	-	-					
HCM Lane LOS	A		-	-	C	C	B	-	-					
HCM 95th %tile Q(veh)	0.2		-	-	1	0.8	0.2	-	-					
Notes														
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		↑	↑↑	↑↑	↑
Traffic Vol, veh/h	105	93	160	1749	615	153
Future Vol, veh/h	105	93	160	1749	615	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	167
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	112	99	170	1861	654	163
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1925	327	817	0	-	0
Stage 1	654	-	-	-	-	-
Stage 2	1271	-	-	-	-	-
Critical Hdwy	6.86	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	*133	*832	1078	-	-	-
Stage 1	*786	-	-	-	-	-
Stage 2	*334	-	-	-	-	-
Platoon blocked, %	1	1	1	-	-	-
Mov Cap-1 Maneuver	*112	*832	1078	-	-	-
Mov Cap-2 Maneuver	*247	-	-	-	-	-
Stage 1	*662	-	-	-	-	-
Stage 2	*334	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	27	0.8	0			
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1078	-	369	-	-	
HCM Lane V/C Ratio	0.158	-	0.571	-	-	
HCM Control Delay (s)	9	-	27	-	-	
HCM Lane LOS	A	-	D	-	-	
HCM 95th %tile Q(veh)	0.6	-	3.4	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s	+: Computation Not Defined		*: All major volume in platoon	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑		↑↑	↑↑	
Traffic Vol, veh/h	0	68	0	1909	688	72
Future Vol, veh/h	0	68	0	1909	688	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	72	0	2031	732	77
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	405	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	*809	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	-	*809	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.9	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	809	-	-		
HCM Lane V/C Ratio	-	0.089	-	-		
HCM Control Delay (s)	-	9.9	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0.3	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

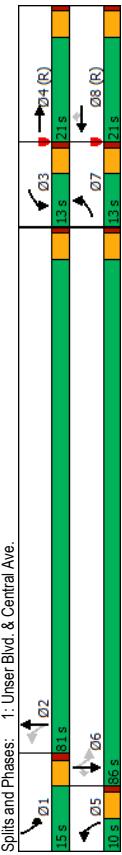
Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	56	28	39	33	5
Future Vol, veh/h	6	56	28	39	33	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	6	60	30	41	35	5
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	71	0	-	0	123	51
Stage 1	-	-	-	-	51	-
Stage 2	-	-	-	-	72	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1523	-	-	-	870	1014
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1523	-	-	-	867	1014
Mov Cap-2 Maneuver	-	-	-	-	867	-
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	948	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.7	0	9.3			
HCM LOS			A			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1523	-	-	-	884	
HCM Lane V/C Ratio	0.004	-	-	-	0.046	
HCM Control Delay (s)	7.4	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Vol, veh/h	722	33	0	287	0	82
Future Vol, veh/h	722	33	0	287	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	768	35	0	305	0	87
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	402
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.33
Pot Cap-1 Maneuver	-	-	0	-	0	595
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	595
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	12.1			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	595	-	-	-	-	
HCM Lane V/C Ratio	0.147	-	-	-	-	
HCM Control Delay (s)	12.1	-	-	-	-	
HCM Lane LOS	B	-	-	-	-	
HCM 95th %tile Q(veh)	0.5	-	-	-	-	

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
1: Unser Blvd. & Central Ave.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	177	390	97	373	62	1001	130	1083	145
Future Volume (vph)	177	390	97	373	62	68	1001	130	1083
Turn Type	Prot	NA	Prot	NA	Perm	perm+pt	NA	Perm	
Protected Phases	7	4	3	8	5	2	1	6	6
Permitted Phases									
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	21.0
Total Split (s)	13.0	21.0	13.0	21.0	10.0	81.0	15.0	86.0	86.0
Total Split (%)	10.0%	16.2%	10.0%	16.2%	7.7%	62.3%	11.5%	66.2%	66.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?									
Recall Mode	Min	C-Max	Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)	8.0	16.0	8.0	16.0	82.4	77.4	89.6	81.0	81.0
Actuated g/C Ratio	0.06	0.12	0.06	0.12	0.63	0.60	0.69	0.62	0.62
vic Ratio	0.89	1.04	0.95	0.91	0.23	0.58	0.46	0.99	0.15
Control Delay	96.9	106.1	135.5	82.4	4.7	34.8	17.5	11.5	49.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.9	106.1	135.5	82.4	4.7	34.8	17.5	11.5	49.5
LOS	F	F	F	A	C	B	D	A	
Approach Delay	103.4	83.0	18.5	40.7					
Approach LOS	F	F	B	D					
Intersection Summary									
Cycle Length:	130								
Actuated Cycle Length:	130								
Offset: 10.4 (8%)	Referenced to phase 4: EBT and 8: WBT, Start of Green								
Natural Cycle:	120								
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 1.04									
Intersection Signal Delay: 49.8	Intersection LOS: D								
Intersection Capacity Utilization 95.1%	ICU Level of Service F								
Analysis Period (min) 15									
Splits and Phases: 1: Unser Blvd. & Central Ave.									



Movement	EBL	EBT	EBC	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	177	390	97	373	62	1001	130	1083	145				
Future Volume (veh/h)	177	390	97	373	62	68	1001	130	1083	145			
Initial Q (Q _b)_veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj													
Work Zone On Approach													
Adj Sat Flow veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	186	411	37	102	393	66	72	1054	136	137	1140	153	153
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3	3	3	3
Cap. veh/s	211	406	36	109	438	196	132	194	249	331	1154	978	978
Arrive On Green	0.02	0.04	0.04	0.06	0.12	0.12	0.12	0.12	0.12	0.23	0.62	0.62	0.62
Sat Flow, veh/h	3428	3272	293	1767	3526	1572	1767	3141	405	1767	1856	1856	1856
Grip Volume(v), veh/h	186	221	227	102	393	65	72	591	599	137	1140	153	153
Grip Sat Flow(s), veh/h/in	1714	1763	1803	1767	1763	1767	1767	1763	1767	1763	1767	1767	1767
Q_Serve(g, s), s	7.0	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Cycle Q Clearing(g, c), s	7.0	16.1	7.5	14.3	4.9	1.9	25.2	25.3	3.7	78.3	5.3		
Prop In Lane	1.00	0.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	211	219	224	109	438	195	132	1085	331	1154	978		
VIC Ratio(X)	0.88	1.01	1.02	0.94	0.90	0.33	0.55	0.54	0.55	0.41	0.99	0.16	
Avail Cap(c, a), veh/h	211	219	224	109	438	195	132	1085	338	1156	980		
HCM Priority Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	
Upstream File(l)	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Uniform Delay(d), s/veh	63.2	62.3	60.8	56.1	52.0	32.6	14.4	14.5	14.5	11.6	24.1	10.3	
Incr Delay(d2), s/veh	31.8	62.3	63.9	70.8	23.9	4.5	4.6	6	6	0.8	23.4	0.1	
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%), veh/h/in	7.4	17.0	17.5	9.3	12.4	3.9	2.8	15.1	15.3	2.6	49.7	3.3	
Unsig. Movement Delay, s/veh													
Lngrp Delay(d), s/veh	95.0	124.7	126.2	131.5	80.0	56.6	37.2	15.0	15.0	12.4	47.5	10.4	
Lngrp LOS	F	F	F	E	E	D	B	B	B	D	B	B	
Approach Vol, veh/h	634	560	86.7	16.3	16.3	16.3	16.3	16.3	16.3	16.3	40.2	D	
Approach Delay, s/veh	116.5	F	F	F	F	F	F	F	F	F			
Approach LOS													
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+R), s	10.8	85.0	13.0	21.1	10.0	85.9	13.0	21.1					
Change Period (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0					
Max Green Setting (Gmax), s	10.0	76.0	8.0	16.0	8.0	81.0	8.0	16.0					
Max Q Clear. Time (g_c+Y _c), s	5.7	27.3	9.5	18.1	3.9	80.3	9.0	16.3					
Green Ext. Time (p_c), s	0.1	11.1	0.0	0.0	0.0	0.0	0.0	0.0					
Intersection Summary													
HCM 8th Ctrl Delay													
HCM 8th LOS													

2024 PM Peak NOBUILD Conditions - Existing Geometry
A-92

Synchro 10 Report
2024PNX.syn

Synchro 10 Report
2024PNX.syn

Synchro 10 Report
2024PNX.syn

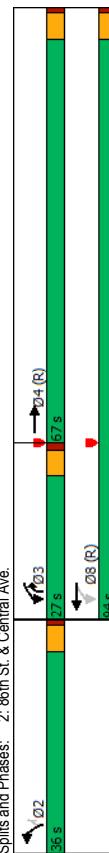
Timings
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
2: 86th St. & Central Ave.

Terry O. Brown, PE
04/23/2019

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	373	158	315	34	175
Future Volume (vph)	373	158	315	34	175
Turn Type	NA	pm+pt	NA	Prot	pm+ov
Protected Phases	4	3	8	2	3
Permitted Phases	8	8	2	2	
Detector Phase	4	3	8	2	3
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	10.0	21.0	21.0	10.0
Total Split (s)	67.0	27.0	94.0	36.0	27.0
Total Split (%)	51.5%	20.8%	72.3%	27.7%	20.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?					
Recall Mode	C-Max	Min C-Max	Min	Min	
Act Effct Green (s)	99.4	111.9	111.9	8.1	20.6
Actuated g/C Ratio	0.76	0.86	0.86	0.06	0.16
V/C Ratio	0.16	0.20	0.11	0.33	0.46
Control Delay	4.4	2.2	0.6	65.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	2.2	0.6	65.5	0.1
LOS	A	A	E	B	
Approach Delay	4.4	1.1	19.1		
Approach LOS	A	A	B		
Intersection Summary					
Cycle Length:	130				
Actuated Cycle Length:	130				
Offset:	6.7 (56%)				
Natural Cycle:	55				
Control Type:	Actuated-Coordinated				
Maximum V/C Ratio:	0.46				
Intersection Signal Delay:	5.8				
Intersection Capacity Utilization:	36.3%				
Analysis Period (min)	15				
Splits and Phases:	2: 86th St. & Central Ave.				
	Q2	Q3	Q4 (R)	Q5 (R)	Q6 (R)
	26.5	27.5	27.5	27.5	27.5



2024 PM Peak NOBUILD Conditions - Existing Geometry

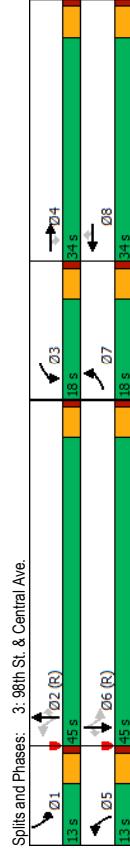
Synchro 10 Report
2024PNX.syn

Movement	EBT	EVR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	373	373	19	158	315	34
Future Volume (veh/h)	373	373	19	158	315	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)						
Parking Bus Adj						
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h lin	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	393	166	332	36	184	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	3	3	3	3	3	3
Cap, veh/h	2429	123	783	2798	229	272
Arrive On Green	0.71	0.71	0.09	1.00	0.13	0.13
Sat Flow, veh/h	3507	173	1767	3618	1767	1572
Grp Volume(v), veh/h	202	211	166	332	36	184
Grp Flow(s), veh/h lin	1763	1824	1763	1767	1767	1572
Q_Serve(g_s), s	4.9	4.9	3.3	0.0	2.4	14.2
Cycle Q Clearing(g_c), s	4.9	4.9	3.3	0.0	2.4	14.2
Prop In Lane	0.09	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	1254	783	2798	229	272	
V/C Ratio(X)	0.16	0.16	0.21	0.12	0.16	0.68
Avail Cap(c,a), veh/h	1254	1298	1005	2798	421	444
HCM Priority Ratio	1.00	1.00	2.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	0.67	1.00	1.00	1.00
Uniform Delay(d), s/veh	6.1	6.1	3.8	0.0	50.3	50.3
Incr Delay(d2), s/veh	0.3	0.3	0.1	0.3	2.9	
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
qile BackOff(95%), veh/h lin	3.3	3.4	1.7	0.0	1.9	9.8
Unsig. Movement Delay, s/veh						
Lngrp Delay(d), s/veh	6.4	6.4	3.9	0.1	50.6	53.3
Lngrp LOS	A	A	A	A	D	D
Approach Vol, veh/h	413		498	220		
Approach Delay, s/veh	6.4		1.3	52.8		
Approach LOS	A		A	D		
Timer - Assigned Phs	2	3	4		8	
Phs Duration (G+Y+Rc), s	21.8	10.7	97.5		108.2	
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	
Max Green Setting (Gmax), s	310	22.0	62.0		89.0	
Max Q Clear. Time (g_c+1), s	16.2	5.3	6.9		2.0	
Green Ext Time (p_c), s	0.6	0.4	2.7		2.5	
Intersection Summary						
HCM 8th Ctrl Delay	13.2					
HCM 8th Ctrl LOS	B					

2024 PM Peak NOBUILD Conditions - Existing Geometry
Synchro 10 Report
2024PNX.syn

Terry O. Brown, PE
04/23/2019
Timings 3: 98th St. & Central Ave.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	207	204	39	290	215	149	35	801	158	116	1463	275
Future Volume (vph)	207	204	39	290	215	149	35	801	158	116	1463	275
Turn Type	Prot	NA	Perm	Prot	NA	Perm	perm+pt	NA	Perm	perm+pt	NA	Perm
Protected Phases	7	4	3	8	8	2	5	2	6	1	6	6
Permitted Phases												
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	10.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	18.0	34.0	34.0	18.0	34.0	34.0	13.0	45.0	13.0	45.0	45.0	45.0
Total Split (%)	16.4%	30.9%	16.4%	30.9%	11.8%	40.9%	11.8%	40.9%	11.8%	40.9%	40.9%	40.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag						
Lead-Lag Optimize?												
Recall Mode	Min	Max	Min	Max	Min	Max	Min	C-Max	Min	C-Max	Min	C-Max
Act Effct Green (s)	11.5	29.4	12.6	30.5	30.5	46.9	40.3	49.1	41.3	41.3	41.3	41.3
Actuated g/C Ratio	0.10	0.27	0.27	0.11	0.28	0.28	0.43	0.37	0.45	0.38	0.38	0.38
vic Ratio	0.59	0.22	0.08	0.76	0.23	0.28	0.21	0.64	0.24	0.46	0.13	0.42
Control Delay	54.0	32.3	0.3	60.7	31.8	6.5	16.4	25.2	2.6	25.4	106.9	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.0	32.3	0.3	60.7	31.8	6.5	16.4	25.2	2.6	25.4	106.9	23.1
LOS	D	C	A	E	C	A	B	C	A	C	F	C
Approach Delay	39.5			38.9			21.3			89.3		
Approach LOS	D			C			D			C		F
Intersection Summary												
Cycle Length: 110												
Actuated Cycle Length: 110												
Offset: 19.8 (18%), Referenced to phase 2:NBTI and 6:SBTI, Start of Green												
Natural Cycle: 90												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.13												
Intersection Signal Delay: 58.2												
Intersection Capacity Utilization 75.2%												
Analysis Period (min) 15												
Splits and Phases: 3: 98th St. & Central Ave.												
01 → 02 (R) 13.5s												
02 (R) 15.5s												
03 13.5s												
04 13.5s												
05 13.5s												
06 (R) 13.5s												
07 13.5s												
08 13.5s												



2024 PM Peak NOBUILD Conditions - Existing Geometry
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HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.
04/23/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	207	204	39	290	215	149	35	801	158	116	1463	275
Future Volume (veh/h)	207	204	39	290	215	149	35	801	158	116	1463	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj												
Work Zone On Approach	No											
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	211	208	208	208	208	208	208	208	208	208	208	208
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	277	929	358	1013	146	1382	306	1426				
Arrive On Green	0.08	0.26	0.00	0.10	0.29	0.00	0.05	0.39	0.00	0.06	0.40	0.00
Sat Flow, veh/h	3428	3526	3526	3526	3526	3526	3526	3526	3526	3526	3526	3526
Grip Volume(v), veh/h	211	208	0	296	219	0	36	817	0	118	1493	0
Grip Flow(s), veh/h/in	1714	1763	1572	1714	1763	1572	1767	1763	1572	1767	1763	1572
Q, Serve(g, s), s	6.6	5.1	0.0	9.3	5.2	0.0	1.3	20.2	0.0	4.3	44.5	0.0
Cycle Q, Clear(g, c), s	6.6	5.1	0.0	9.3	5.2	0.0	1.3	20.2	0.0	4.3	44.5	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Cap(c), veh/h	277	929	358	1013	146	1382	306	1426				
VIC Ratio(X)	0.76	0.22	0.83	0.22	0.25	0.59	0.39	0.39	0.39	0.39	0.39	0.39
Avail Cap(c,a), veh/h	405	929	405	1013	194	1382	333	1426				
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	49.5	31.7	0.0	48.3	29.8	0.0	26.2	26.5	0.0	20.1	32.7	0.0
Incr Delay(d2), s/veh	4.9	0.6	0.0	12.0	0.5	0.0	0.9	1.9	0.0	0.8	37.1	0.0
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
idle Backlog(Q95%), veh/h/in	5.4	4.0	0.81	4.1	0.0	0.0	0.0	0.0	0.0	0.0	3.3	35.1
Unsig. Movement Delay, s/veh	54.4	32.2	0.0	60.2	30.3	0.0	27.1	28.3	0.0	20.9	69.8	0.0
LnGp LOS	D	C	E	C	C	C	C	C	C	C	C	F
Approach Vol, veh/h	419	A	515	A	853	A	853	A	853	A	853	A
Approach Delay, s/veh	43.4	D	47.5	D	28.3	C	28.3	C	28.3	C	28.3	E
Approach LOS												
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Pins Duration (G+Y+R), s	11.4	48.1	16.5	34.0	10.0	49.5	13.9	36.6				
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	8.0	40.0	13.0	29.0	8.0	40.0	13.0	29.0				
Max Q Clear Time (g_c+1), s	6.3	22.2	11.3	7.1	3.3	46.5	8.6	7.2				
Green Ext Time (p_c), s	0.0	5.5	0.2	1.2	0.0	0.0	0.3	1.3				
Intersection Summary												
HCM 6th Ctr Delay	51.0	D										
HCM 6th LOS												
Notes												

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

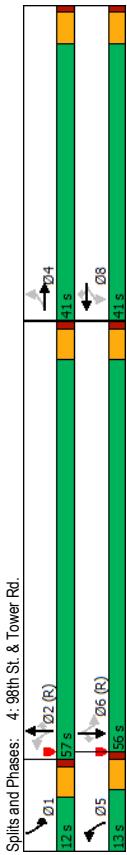
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2024 PM Peak NOBUILD Conditions - Existing Geometry
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Terry O. Brown, PE
04/23/2019
4: 98th St. & Tower Rd.

HCM 6th Signalized Intersection Summary
4: 98th St. & Tower Rd.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	94	45	60	111	51	70	814	44	107	1195
Future Volume (vph)	94	60	111	51	70	814	44	107	1195	176
Turn Type	Perm	NA	Perm	NA	Perm	perm+pt	NA	perm+pt	NA	Perm
Protected Phases	4	8	5	2	2	2	1	6	6	6
Permitted Phases	4	4	8	8	5	2	2	1	6	6
Detector Phase	Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	13.0	57.0	57.0	12.0	56.0
Total Split (%)	37.3%	37.3%	37.3%	37.3%	37.3%	11.8%	51.8%	10.9%	50.9%	50.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead-Lag										
Lead-Lag Optimize?										
Recall Mode										
Act Effct Green (s)	14.2	14.2	14.2	14.2	80.2	73.5	81.4	74.1	74.1	74.1
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.73	0.67	0.67	0.74	0.67	0.67
vic Ratio	0.62	0.62	0.62	0.62	0.38	0.26	0.21	0.23	0.37	0.17
Control Delay	60.9	33.1	48.4	43.0	8.2	5.5	9.4	1.2	3.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	33.1	48.4	43.0	8.2	5.5	9.4	1.2	3.7	6.5
LOS	E	C	D	D	A	A	A	A	A	A
Approach Delay	50.4	36.5	8.7	8.7	5.7	5.7	5.7	5.7	5.7	5.7
Approach LOS	D	D	A	A	A	A	A	A	A	A
Intersection Summary										
Cycle Length:	110									
Actuated Cycle Length:	110									
Offset:	82.5 (7%)									
Maximum v/c Ratio:	0.62									
Intersection Signal Delay:	11.6									
Intersection Capacity Utilization:	61.6%									
Analysis Period (min)	15									
Splits and Phases:	4: 98th St. & Tower Rd.									
	Q1	Q2 (R)	Q3	Q4	Q5	Q6 (R)	Q7	Q8	Q9	Q10
	12.5	57.5	41.5	41.5	13.5	41.5	13.5	41.5	13.5	41.5



Movement	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
Traffic Volume (veh/h)	94	45	60	111	51	70	814	44	107	1195
Future Volume (veh/h)	94	60	111	51	70	814	44	107	1195	176
Initial Q (Q _b)_veh	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj										
Work Zone On Approach										
Adj Sat Flow_veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate_veh/h	100	48	13	64	118	74	86	0	114	1271
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3
Cap_veh/h	193	193	193	193	193	193	193	193	193	193
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow_veh/h	1264	2768	720	1331	3526	1572	1767	3526	1572	1767
Grip Volume(v)_veh/h	100	30	31	64	118	0	74	86	0	114
Grip Sat Flow(s)_veh/h/in	1264	1763	1726	1763	1763	1763	1763	1763	1763	1763
Q_Serve(g_s)_s	8.5	16	1.8	4.9	3.3	0.0	1.3	11.2	0.0	20
Cycle Q Clearing(g_c)_s	11.8	1.6	1.8	6.7	3.3	0.0	1.3	11.2	0.0	20
Prop In Lane	1.00	0.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c)_veh/h	193	231	226	218	462	330	2423	517	2423	1081
VIC Ratio(X)	0.52	0.13	0.14	0.29	0.26	0.22	0.36	0.22	0.52	0.17
Avail Cap(c_a)_veh/h	441	577	565	480	379	2423	549	2423	1081	
HCM Patron Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d)_s/veh	48.3	42.3	42.3	45.3	43.0	0.0	6.3	7.1	0.0	4.9
Incr Delay(d2)_s/veh	2.1	0.3	0.3	0.7	0.3	0.0	0.3	0.4	0.0	0.3
Initial Q_Delay(g33)/s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
qile Backlog(Q95%)_veh/h/in	5.0	1.3	1.4	3.0	2.6	0.0	0.8	7.2	0.0	1.2
Unsig. Movement Delay_s/veh	50.4	42.5	42.6	46.0	43.3	0.0	6.6	7.5	0.0	5.1
Lngrp LOS	D	D	D	D	D	A	A	A	A	A
Approach Vol_veh/h	161	182	182	182	182	44.2	7.5	8.6		
Approach Delay_s/veh	47.4	47.4	47.4	47.4	47.4	D	A	A	A	A
Approach LOS										
Timer - Assigned Phs	1	2	4	5	6					
Phs Duration (G+Y+R) _c s	10.0	80.6	19.4	10.0	80.6	19.4				
Change Period (Y+R) _c s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax) _s	7.0	520	360	8.0	510	360	8.0	510	360	8.0
Max Q Clear. Time (g_c+1), s	4.0	13.2	13.8	3.3	21.4	8.7				
Green Ext Time (p_c), s	0.1	7.4	0.6	0.1	12.6	0.9				
Intersection Summary										
HCM 8th Ctrl Delay						B				
HCM 8th Ctrl LOS										
Notes										

Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

2024 PM Peak NOBUILD Conditions - Existing Geometry

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Terry O. Brown, PE
04/23/2019

2024 PM NOBUILD Conditions - Existing Geometry

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement

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2024 PM Peak NOBULLD Conditions - Existing Geometry

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nro 10 Report

Intersection									
Int Delay, s/veh	1.6								
Movement	EBL	EBC	NBL	NBT	SBT	SBR			
Lane Configurations	W			↑↑	↑↑				
Traffic Vol, veh/h	26	3	0	367	2178	0			
Future Vol, veh/h	26	3	0	367	2178	0			
Conflicting Peds, #/hr	0	0	0	0	0	0			
Sign Control	Stop	Stop	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None			
Storage Length	0	-	-	-	-	-			
Veh in Median Storage, #	1	-	-	0	0	-			
Grade, %	0	-	-	0	0	-			
Peak Hour Factor	92	92	92	92	92	92			
Heavy Vehicles, %	3	3	3	3	3	3			
Mvmt Flow	28	3	0	399	2367	0			
Major/Minor	Minor2	Major1		Major2					
Conflicting Flow All	2567	1184		-	0	-			
Stage 1	2367	-		-	-	-			
Stage 2	200	-		-	-	-			
Critical Hdwy	6.86	6.96		-	-	-			
Critical Hdwy Stg 1	5.86	-		-	-	-			
Critical Hdwy Stg 2	5.86	-		-	-	-			
Follow-up Hdwy	3.53	3.33		-	-	-			
Pot Cap-1 Maneuver	~ 21	180		0	-	0			
Stage 1	56	-		0	-	0			
Stage 2	811	-		0	-	0			
Platoon blocked, %		-		-	-	-			
Mov Cap-1 Maneuver	~ 21	180		-	-	-			
Mov Cap-2 Maneuver	50	-		-	-	-			
Stage 1	56	-		-	-	-			
Stage 2	811	-		-	-	-			
Approach	EB	NB		SB					
HCM Control Delay, s	140.1	0		0					
HCM LOS	F								
Minor Lane/Major Mvmt	NBT	EBLn1	SBT						
Capacity (veh/h)	-	54	-						
HCM Lane V/C Ratio	-	0.584	-						
HCM Control Delay (s)	-	140.1	-						
HCM Lane LOS	-	F	-						
HCM 95th %tile Q(veh)	-	2.3	-						
Notes									
~: Volume exceeds capacity	\$: Delay exceeds 300s	+:	Computation Not Defined	*	All major volume in platoon				

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	336	235	4	439	1	216	1	4	3	2	1
Future Vol, veh/h	1	336	235	4	439	1	216	1	4	3	2	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	0	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	1	369	258	4	482	1	237	1	4	3	2	1
Major/Minor												
Major1		Major2			Minor1			Minor2				
Conflicting Flow All	483	0	0	627	0	0	621	862	185	678	1120	242
Stage 1	-	-	-	-	-	-	371	371	-	491	491	-
Stage 2	-	-	-	-	-	-	250	491	-	187	629	-
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33
Pot Cap-1 Maneuver	*1352	-	-	1085	-	-	*370	289	*958	*336	204	*904
Stage 1	-	-	-	-	-	-	*861	764	-	*847	744	-
Stage 2	-	-	-	-	-	-	*853	744	-	*903	571	-
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	1	-
Mov Cap-1 Maneuver	*1352	-	-	1085	-	-	*367	288	*958	*333	203	*904
Mov Cap-2 Maneuver	-	-	-	-	-	-	*557	474	-	*549	383	-
Stage 1	-	-	-	-	-	-	*860	763	-	*847	741	-
Stage 2	-	-	-	-	-	-	*847	741	-	*897	570	-
Approach												
EB			WB			NB			SB			
HCM Control Delay, s	0			0.1			16.1			12.2		
HCM LOS							C			B		
Minor Lane/Major Mvmt												
Capacity (veh/h)	557	958	* 1352	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1		
HCM Lane V/C Ratio	0.428	0.005	0.001	-	-	-	0.004	-	-	0.013		
HCM Control Delay (s)	16.2	8.8	7.7	0	-	-	8.3	-	-	12.2		
HCM Lane LOS	C	A	A	A	-	-	A	-	-	B		
HCM 95th %tile Q(veh)	2.1	0	0	-	-	-	0	-	-	0		
Notes												
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon			

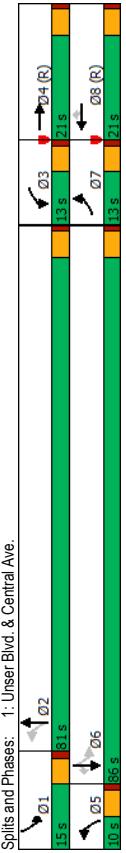
Intersection														
Int Delay, s/veh	0.7													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations	↔			↔			↑	↑↓		↑	↑↓			
Traffic Vol, veh/h	14	1	27	5	6	23	26	977	7	31	1611	43		
Future Vol, veh/h	14	1	27	5	6	23	26	977	7	31	1611	43		
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free		
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None		
Storage Length	-	-	-	-	-	-	150	-	-	130	-	-		
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-		
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-		
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94		
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3		
Mvmt Flow	15	1	29	5	6	24	28	1039	7	33	1714	46		
Major/Minor														
Minor2		Minor1			Major1			Major2						
Conflicting Flow All	2382	2905	880	2023	2925	523	1760	0	0	1046	0	0		
Stage 1	1803	1803	-	1099	1099	-	-	-	-	-	-	-		
Stage 2	579	1102	-	924	1826	-	-	-	-	-	-	-		
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-		
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-		
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-		
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-		
Pot Cap-1 Maneuver	*52	*7	*420	*317	*~ 6	*674	*627	-	-	*1008	-	-		
Stage 1	*396	*347	-	*636	*558	-	-	-	-	-	-	-		
Stage 2	*636	*558	-	*396	*347	-	-	-	-	-	-	-		
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-		
Mov Cap-1 Maneuver	*46	*6	*420	*277	*~ 6	*674	*627	-	-	*1008	-	-		
Mov Cap-2 Maneuver	*224	*186	-	*293	*180	-	-	-	-	-	-	-		
Stage 1	*378	*335	-	*608	*532	-	-	-	-	-	-	-		
Stage 2	*579	*532	-	*356	*335	-	-	-	-	-	-	-		
Approach														
EB			WB			NB			SB					
HCM Control Delay, s	18.2		14.8			0.3			0.2					
HCM LOS	C		B											
Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	* 627		-	-	318	402	* 1008	-	-					
HCM Lane V/C Ratio	0.044		-	-	0.141	0.09	0.033	-	-					
HCM Control Delay (s)	11		-	-	18.2	14.8	8.7	-	-					
HCM Lane LOS	B		-	-	C	B	A	-	-					
HCM 95th %tile Q(veh)	0.1		-	-	0.5	0.3	0.1	-	-					
Notes														
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
1: Unser Blvd. & Central Ave.

Terry O. Brown, PE
04/23/2019

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (vph)	186	409	97	393	62	78	1001	130	1083	154
Future Volume (vph)	186	409	97	393	62	78	1001	130	1083	154
Turn Type	Prot	NA	Prot	NA	Perm	perm+pt	NA	perm	NA	perm
Protected Phases	7	4	3	8	5	2	1	6	6	6
Permitted Phases										
Detector Phase	7	4	3	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	13.0	21.0	13.0	21.0	10.0	81.0	15.0	86.0	86.0	86.0
Total Split (%)	10.0%	16.2%	10.0%	16.2%	7.7%	62.3%	11.5%	66.2%	66.2%	66.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	Min	C-Max	Max	C-Max	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	8.0	16.0	8.0	16.0	82.4	77.4	89.6	81.0	81.0	81.0
Actuated g/C Ratio	0.06	0.12	0.06	0.12	0.63	0.60	0.69	0.62	0.62	0.62
vic Ratio	0.94	1.11	0.95	0.96	0.23	0.66	0.58	0.46	0.99	0.16
Control Delay	105.8	125.4	135.5	91.1	4.7	43.3	17.5	11.5	49.5	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.8	125.4	135.5	91.1	4.7	43.3	17.5	11.5	49.5	1.8
LOS	F	F	F	A	D	B	B	D	A	
Approach Delay	119.7	89.2	19.2	40.5						
Approach LOS	F	F	B	D						
Intersection Summary										
Cycle Length:	130									
Actuated Cycle Length:	130									
Offset: 10.4 (8%)	Referenced to phase 4: EBT and 8: WBT, Start of Green									
Natural Cycle:	120									
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 1.11										
Intersection Signal Delay: 54.2										
Intersection Capacity Utilization: 96.1%										
Analysis Period (min): 15										
Splits and Phases: 1: Unser Blvd. & Central Ave.										



Movement	EBL	EBT	EBS	WBL	WBT	WBS	NBL	NBT	NBS	SBL	SBT	SBS
Lane Configurations	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Traffic Volume (veh/h)	186	409	97	393	62	78	1001	130	1083	154	129	130
Future Volume (veh/h)	186	409	97	393	62	78	1001	130	1083	154	129	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj												
Work Zone On Approach												
Adj Sat Flow, veh/hln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	196	431	47	102	414	66	82	1054	136	137	1140	1140
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh. %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	211	398	43	109	438	196	132	194	249	331	1154	978
Arrive On Green	0.02	0.04	0.04	0.06	0.12	0.12	0.12	0.12	0.12	0.62	0.62	0.62
Sat Flow, veh/h	3428	3208	348	1767	3526	1572	1767	3141	405	1767	1856	1572
Grip Volume(v), veh/hln	196	236	242	102	414	66	82	591	599	137	1140	1140
Grip Sat Flow(s), veh/hln	1714	1793	1767	1763	1767	1767	1763	1767	1767	1767	1767	1767
Q, Serve(g, s), s	7.4	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Cycle Q Clearing(g, c), s	7.4	16.1	7.5	15.2	4.9	2.2	25.2	25.3	3.7	78.3	5.6	5.6
Prop In Lane	1.00	0.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grp Cap(c), veh/h	211	219	222	109	438	196	132	1086	331	1154	978	978
VIC Ratio(X)	0.93	1.08	1.09	0.94	0.95	0.33	0.62	0.54	0.55	0.41	0.99	0.17
Avail Cap(c, a), veh/h	211	219	222	109	438	196	132	1086	388	1156	980	980
HCM Priority Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Upstream File(l)	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay(d), s/veh	63.4	62.3	60.8	56.5	52.0	32.7	14.4	14.5	14.5	11.6	24.1	10.4
Incr Delay(d2), s/veh	42.0	82.7	85.2	70.8	31.5	4.5	8.8	6.6	6.6	23.4	0.1	0.1
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
qale BackOff(0.95%), veh/hln	8.1	19.1	19.7	9.3	13.5	3.9	3.4	15.1	2.6	49.7	3.5	3.5
Unsig. Movement Delay, s/veh												
Lngrp Delay(d), s/veh	105.4	145.0	147.5	131.5	88.0	56.6	41.4	15.0	15.0	12.4	47.5	10.4
Lngrp LOS	F	F	F	F	F	E	D	B	B	D	B	B
Approach Vol, veh/h	674	581	92.1	16.7								
Approach Delay, s/veh	134.4	F	F	F	F	F	F	F	F	D	D	D
Approach LOS												
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+R), s	10.8	85.0	13.0	21.1	10.0	85.9	13.0	21.1				
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	76.0	8.0	16.0	5.0	81.0	8.0	16.0				
Max Q Clear. Time (g_c+1), s	5.7	27.3	9.5	18.1	4.2	80.3	9.4	17.2				
Green Ext. Time (p_c), s	0.1	11.1	0.0	0.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 8th Ctrl Delay	56.2											
HCM 8th LOS	E											

2024 PM Peak BUILD Conditions - Existing Geometry
A-100

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Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↑↓	↑↓	↑↓	↑	↑
Traffic Volume (vph)	411	158	354	35	175
Future Volume (vph)	411	158	354	35	175
Turn Type	NA	pn+pt	NA	Prot	pn+ov
Protected Phases	4	3	8	2	3
Permitted Phases		8			2
Detector Phase	4	3	8	2	3
Switch-Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	10.0	21.0	21.0	10.0
Total Split (s)	67.0	27.0	94.0	36.0	27.0
Total Split (%)	51.5%	20.8%	72.3%	27.7%	20.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?					
Recall Mode	C-Max	Min	C-Max	Min	Min
Act Effic Green (s)	99.3	111.8	111.8	8.2	20.7
Actuated g/C Ratio	0.76	0.86	0.86	0.06	0.16
v/C Ratio	0.17	0.21	0.12	0.34	0.46
Control Delay	4.5	2.3	0.6	65.7	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.5	2.3	0.6	65.7	10.1
LOS	A	A	A	E	B
Approach Delay	4.5	1.1	19.4		
Approach LOS	A	A	B		
Intersection Summary					
Cycle Length:	130				
Actuated Cycle Length:	130				
Offset:	76.7 (56%)				
Natural Cycle:	55				
Control Type:	Actuated-Coordinated				
Maximum v/c Ratio:	0.46				
Intersection Signal Delay:	5.7				
Intersection Capacity Utilization:	37.4%				
Analysis Period (min):	15				
Splits and Phases:	2 - 86th St. & Central Ave.				
36 s	↑ 03	27 s	→ 04 (R)	67 s	↓ 08 (R)

2024 PM PEAK BUILD CONDITIONS - EXISTING GEOMETRY

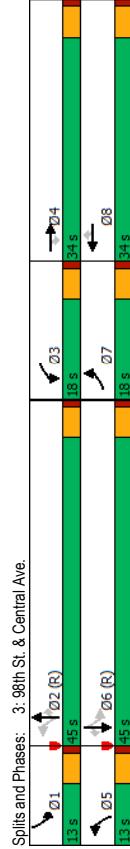
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2024 PM Peak BUILD Conditions - Existing Geometry

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HCM 6th Signalized Intersection Summary 3: 98th St & Central Ave

Lane Group	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	222	263	39	376	197	149	50	831	165	116	1509	275
Traffic Volume (vph)	222	263	39	376	197	149	50	831	165	116	1509	275
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4	3	8	8	5	2	2	1	1	6	6
Permitted Phases	7	4	3	8	8	5	2	2	1	1	6	6
Detector Phase												
Switch Phase												
Minimum Initial Lane(s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0	10.0	21.0
Total Split (s)	18.0	34.0	18.0	34.0	18.0	34.0	13.0	45.0	45.0	13.0	45.0	45.0
Total Split (%)	16.4%	30.9%	16.4%	30.9%	16.4%	30.9%	11.8%	40.9%	40.9%	11.8%	40.9%	40.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead-Lag	Lead	Lag										
Lead-Lag Optimize?												
Recall Mode	Min	Max	Min	Max	Min	Max	Min	C-Max	Min	C-Max	Min	C-Max
Act Effect Green (Ratio)	11.8	29.0	29.0	13.0	30.2	47.3	40.3	40.3	48.7	41.0	41.0	41.0
Actuated g/C Ratio	0.11	0.26	0.26	0.12	0.27	0.27	0.43	0.37	0.44	0.37	0.37	0.37
v/C Ratio	0.62	0.29	0.08	0.96	0.21	0.28	0.29	0.66	0.25	0.48	1.18	0.43
Control Delay	54.8	33.3	0.3	84.4	31.8	6.6	20.8	26.7	3.5	25.4	124.1	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	33.3	0.3	84.4	31.8	6.6	20.8	26.7	3.5	25.4	124.1	22.6
LOS	D	C	A	F	C	A	C	C	A	C	F	C
Approach Delay	40.0				54.0				22.8			103.4
Approach LOS	D				D				C			F



2024 PM Peak BUILD Conditions - Existing Geometry

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2024 PM Peak BUILD Conditions - Existing Geometry

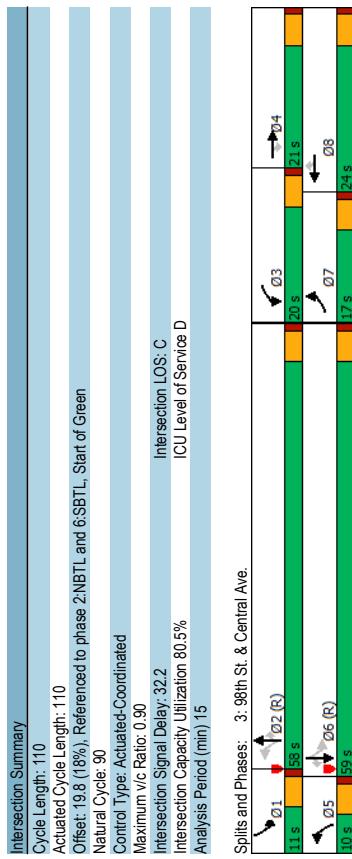
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04/23/2019

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Terry O. Brown, PE
04/23/2019
Timings 3: 98th St. & Central Ave.

HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	222	263	39	376	197	149	50	831	165	116	1609	275
Future Volume (vph)	222	263	39	376	197	149	50	831	165	116	1509	275
Turn Type	Prot	NA	Perm	Prot	NA	Perm	perm+pt	NA	Perm	perm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	5	1	6	6	6	6
Permitted Phases												
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	21.0	21.0	10.0	21.0	21.0	10.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	17.0	21.0	21.0	20.0	24.0	24.0	10.0	58.0	58.0	11.0	59.0	59.0
Total Split (%)	15.5%	19.1%	19.1%	21.8%	21.8%	9.1%	52.7%	52.7%	10.0%	53.6%	53.6%	53.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	Min	Max	Min	Max	Min	C-Max	Min	C-Max	Min	C-Max	Min	C-Max
Act Effct Green (s)	11.3	16.3	14.7	19.7	58.0	53.0	60.0	54.0	54.0	54.0	54.0	54.0
Actuated/g/C Ratio	0.10	0.15	0.15	0.13	0.18	0.53	0.48	0.48	0.55	0.49	0.49	0.49
vic Ratio	0.66	0.52	0.12	0.85	0.32	0.38	0.35	0.50	0.20	0.38	0.90	0.34
Control Delay	56.8	47.3	0.7	64.4	41.2	9.3	19.7	16.3	1.7	17.3	36.4	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	47.3	0.7	64.4	41.2	9.3	19.7	16.3	1.7	17.3	36.4	15.3
LOS	E	D	A	E	D	A	B	A	B	D	B	B
Approach Delay	47.9	46.7	46.7	14.1	32.2							
Approach LOS	D	D	D	B	C							
Intersection Summary												
Cycle Length: 110												
Actuated Cycle Length: 110												
Offset: 19.8 (18%), Referenced to phase 2:NBTI and 6:SBTI, Start of Green												
Natural Cycle: 90												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.90												
Intersection Signal Delay: 32.2												
Intersection Capacity Utilization 80.5%												
Analysis Period (min) 15												
Splits and Phases: 3: 98th St. & Central Ave.	01	02 (R)	03	02 (S)	04	05	06 (R)	07	08	09	05	06 (S)
	11.5	33.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5



Mitigation Recommendation - optimize signal timing splits

2024 PM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
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Terry O. Brown, PE
04/23/2019
HCM 6th Signalized Intersection Summary
3: 98th St. & Central Ave.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	222	263	39	376	197	149	50	831	165	116	1609	275
Future Volume (veh/h)	222	263	39	376	197	149	50	831	165	116	1509	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped/Bike Adj(A_pbt)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj												
Work Zone On Approach	No											
Adj Sat Flow, veh/h/in	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	227	268	0	384	201	0	51	848	0	118	1540	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	291	513	444	669	182	176	369	175	175	175	175	175
Arrive On Green	0.08	0.15	0.00	0.13	0.19	0.00	0.05	0.49	0.00	0.05	0.50	0.00
Sat Flow, veh/h	3428	3626	3428	3626	3428	3626	3526	3526	3526	3526	3526	3526
Grip Volume(v), veh/h	227	268	0	384	201	0	51	848	0	118	1540	0
Grip Sat Flow(s), veh/h/in	1714	1763	1572	1767	1763	1572	1767	1763	1572	1763	1572	1763
Q, Serve(g_s), s	7.1	7.7	0.0	12.1	5.4	0.0	1.5	17.7	0.0	3.6	42.8	0.0
Cycle Q, Clear(g_c), s	7.1	7.7	0.0	12.1	5.4	0.0	1.5	17.7	0.0	3.6	42.8	0.0
Prop In Lane	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Grip Cap(c), s/veh	291	513	444	669	182	1736	369	1755	1755	1755	1755	1755
VIC Ratio(X)	0.78	0.52	0.87	0.30	0.28	0.49	0.32	0.88				
Avail Cap(c_a), veh/h	374	513	467	669	182	1736	376	1755	1755	1755	1755	1755
HCM Priority Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay(d), s/veh	49.3	43.5	46.9	36.3	0.0	21.7	18.7	0.0	14.0	24.6	0.0	0.0
Incr Delay(d2), s/veh	7.8	3.8	0.0	15.1	1.1	0.0	0.8	10	0.0	0.6	6.6	0.0
Initial Q Delay(g33), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOff(Q95%), veh/h/in	6.1	6.5	0.0	10.1	4.4	0.0	1.1	17.7	0.0	2.6	25.7	0.0
Unsig. Movement Delay, s/veh	57.1	47.2	0.0	62.0	39.4	0.0	22.5	19.6	0.0	14.5	31.2	0.0
LngP LOS	E	D	E	D	C	B	C	B	C	C	C	C
Approach Vol, veh/h	495	A	585	A	54.3	19.8	30.0	1658	A	30.0		
Approach Delay, s/veh	51.8	D	D	D	D	D	D	D	D	D		
Approach LOS												
Timer - Assigned Phns	1	2	3	4	5	6	7	8				
Pns Duration (G+Y+R), s	10.6	59.2	19.2	21.0	10.0	59.8	14.3	25.9				
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	6.0	53.0	15.0	16.0	5.0	54.0	12.0	19.0				
Max Q Clear Time (g_c+Y), s	5.6	19.7	14.1	9.7	3.5	44.8	9.1	7.4				
Green Ext Time (p_c), s	0.0	70	0.2	0.8	0.0	67	0.2	0.9				
Intersection Summary												
HCM 6th Ctr Delay	34.3											
HCM 6th Ctrl LOS	C											
Notes												

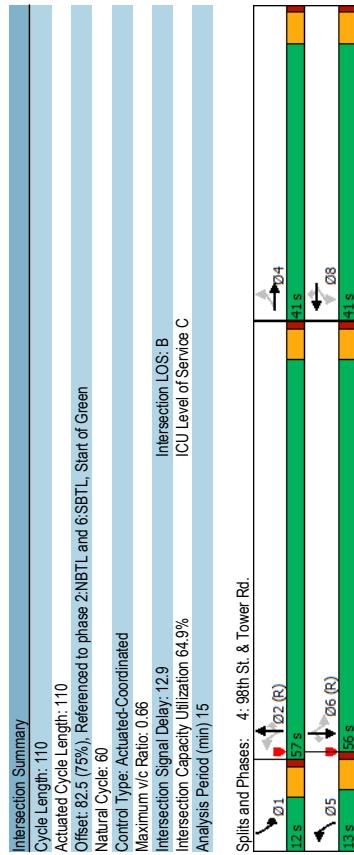
Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

2024 PM Peak BUILD Conditions - Existing Geometry
Synchro 10 Report
2024PB_MIT.syn

Terry O. Brown, PE
04/23/2019
4: 98th St. & Tower Rd.

HCM 6th Signalized Intersection Summary
4: 98th St. & Tower Rd.

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓	↑↓
Traffic Volume (vph)	109	45	60	111	91	70	908	44	146	1286	191
Future Volume (vph)	109	45	60	111	91	70	908	44	146	1286	191
Turn Type	Perm	NA	Perm	NA	Perm	perm+pt	NA	perm	perm+pt	NA	perm
Protected Phases	4	8	5	2	2	2	1	6	6	6	6
Permitted Phases	4	4	8	8	5	2	2	1	6	6	6
Detector Phase	Switch Phase	Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	10.0	21.0	10.0	21.0	21.0	21.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	13.0	57.0	57.0	12.0	56.0	56.0
Total Split (%)	37.3%	37.3%	37.3%	37.3%	37.3%	11.8%	51.8%	10.9%	50.9%	50.9%	50.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead-Lag			Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode			Min	Min	Min	C-Max	C-Max	Min	C-Max	C-Max	C-Max
Act Effct Green (s)	15.6	15.6	15.6	15.6	78.0	71.2	71.2	80.7	72.5	72.5	72.5
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.71	0.65	0.65	0.73	0.66	0.66	0.66
vic Ratio	0.66	0.66	0.12	0.34	0.24	0.32	0.26	0.43	0.05	0.36	0.59
Control Delay	60.9	31.9	45.6	41.4	0.5	6.6	11.1	1.4	5.9	8.4	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	31.9	45.6	41.4	0.5	6.6	11.1	1.4	5.9	8.4	2.6
LOS	E	C	D	D	B	A	A	A	A	A	A
Approach Delay	50.9	31.6	0.4	10.4	7.5						
Approach LOS	D	C	B	A	A	A	A	A	A	A	A
Intersection Summary											
Cycle Length: 110											
Actuated Cycle Length: 110											
Offset: 82.5 (7%), Referenced to phase 2:NBTI and 6:SBTI, Start of Green											
Natural Cycle: 50											
Control Type: Actuated-Coordinated											
Maximum v/c Ratio: 0.66											
Intersection Signal Delay: 12.9											
Intersection Capacity Utilization 64.9%											
Analysis Period (min) 15											
Splits and Phases: 4: 98th St. & Tower Rd.											
	Q1	Q2 (R)	Q3	Q4	Q5	Q6 (R)	Q7	Q8	Q9	Q10	Q11
2.5	5.7	5.7	4.1	4.1	4.1	4.6	4.6	4.6	4.6	4.6	4.6
13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5



2024 PM Peak BUILD Conditions - Existing Geometry
Syncro 10 Report
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Unsignalized Delay for [NBR, WBR] is excluded from calculations of the approach delay and intersection delay.

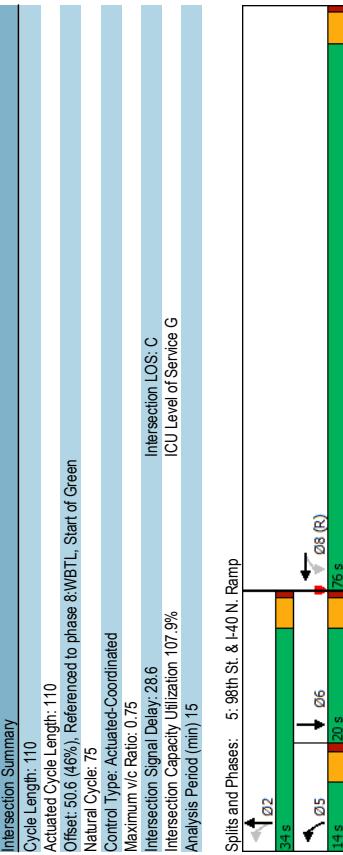
Syncro 10 Report
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Terry O. Brown, PE
04/23/2019

HCM 6th Signalized Intersection Summary
5: 98th St. & I-40 N. Ramp

Terry O. Brown, PE
04/23/2019

Lane Group	WBL	WBT	NBL	NBT	SBT
Lane Configurations	↑	↑	↑	↑	↑
Traffic Volume (vph)	1507	1	88	345	437
Future Volume (vph)	1507	1	88	345	437
Turn Type	Perm	NA	perm+pt	NA	NA
Protected Phases	8	5	2	6	
Permitted Phases	8	8	2	6	
Detector Phase	8	8	5	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	21.0	21.0	10.0	21.0	
Total Split (s)	76.0	76.0	14.0	34.0	20.0
Total Split (%)	69.1%	69.1%	12.7%	30.9%	18.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	
Lead-Lag	Lead	Lag			
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Min	Max	Max	
Act Effct Green (s)	71.0	71.0	29.0	5.6	
Actuated g/C Ratio	0.65	0.65	0.26	0.14	
vic Ratio	0.75	0.75	0.43	0.40	0.65
Control Delay	18.8	18.8	44.7	40.5	49.7
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	18.8	18.8	44.7	40.5	49.7
LOS	B	B	D	D	
Approach Delay	18.8	41.3	49.7		
Approach LOS	B	D	D		
Intersection Summary					
Cycle Length: 110					
Actuated Cycle Length: 110					
Offset: 50.6 (46%), Referenced to phase 8:WBTL, Start of Green					
Natural Cycle: 75					
Control Type: Actuated-Coordinated					
Maximum v/c Ratio: 0.75					
Intersection Signal Delay: 28.6					
Intersection Capacity Utilization: 107.9%					
Analysis Period (min): 15					
Splits and Phases: 5: 98th St. & I-40 N. Ramp					
24.5	24.5	20.5	20.5	Q8 (R)	Q8 (S)
14.5	14.5	14.5	14.5		



Movement	EBL	EBT	EBC	WBL	WBT	WBR	NBL	NBT	NBR	SLB	SLT	SLR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	1507	1	0	88	345	0	0	437	1
Future Volume (veh/h)	0	0	0	1507	1	0	88	345	0	0	437	1
Initial Q (Q _b)_veh							0	0	0	0	0	0
Ped/Bike Adj(A_pbt)							1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj							1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach							No	No	No	No	No	No
Adj Sat Flow veh/h/in							1856	0	1856	0	0	1856
Adj Flow Rate, veh/in							1604	0	94	367	0	465
Peak Hour Factor							0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh. %							3	3	3	3	3	3
Cap, veh/h							2281	1198	0	242	929	0
Arrive On Green							0.65	0.00	0.00	0.26	0.00	0.00
Sat Flow, veh/h							3534	1856	0	1767	3618	0
Gap Volume(v), veh/h							1604	0	0	94	367	0
Gap Sat Flow(s), veh/h/in							1767	1856	0	1767	1763	0
Q_Serv(q_s)_s							324	0	0	4.7	9.4	0.0
Cycle Q Clearing(c), s							324	0	0	4.7	9.4	0.0
Prop In Lane							1.00	0.00	0.00	0.00	0.00	0.00
Lane Grp Cap(c), veh/h							2281	1198	0	242	929	0
VIC Ratio(X)							0.70	0.00	0.00	0.39	0.39	0.00
Avail Cap(c,a), veh/h							2281	1198	0	278	929	0
HCM Patron Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream File(l)							1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay(d), s/veh							12.7	0.0	0.0	34.5	33.3	0.0
Incr Delay(d2), s/veh							1.8	0.0	0.0	1.0	1.3	0.0
Initial Q Delay(g3), s/veh							0.0	0.0	0.0	0.0	0.0	4.4
%ile BackOfQ(95%), veh/in							18.0	0.0	0.0	0.0	0.0	7.8
Unsig. Movement Delay, s/veh							0.0	0.0	0.0	3.8	7.5	0.0
Lngrp Delay(d), s/veh							14.5	0.0	0	35.5	34.5	0.0
Lngrp LOS							B	A	D	C	A	D
Approach Vol, veh/h							1604	461	466	34.7	48.5	D
Approach Delay, s/veh							14.5	0	0	C	0	D
Approach LOS							B	A	D	C	A	D
Timer - Assigned Phs							2	5	6	8	8	D
Phs Duration (G+Y+R _c), s							34.0	11.8	22.2	76.0	5.0	D
Change Period (Y+R _c), s							5.0	5.0	5.0	7.10	7.10	D
Max Green Setting (Gmax), s							290	9.0	15.0	34.4	34.4	D
Max Q Clear. Time (g_c+Y _c), s							11.4	6.7	11.1	9.1	9.1	D
Green Ext Time (p_c), s							2.2	0.0	1.0	0.0	0.0	D
Intersection Summary												
HCM 8th Ctr Delay							24.5					
HCM 8th Ctr LOS							C					
Notes												

2024 PM Peak BUILD Conditions - Existing Geometry

Synchro 10 Report
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User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

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Synchro 10 Report

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A-105

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑↑	↑↑	
Traffic Vol, veh/h	26	3	0	405	2219	0
Future Vol, veh/h	26	3	0	405	2219	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	3	0	440	2412	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2632	1206	-	0	-	0
Stage 1	2412	-	-	-	-	-
Stage 2	220	-	-	-	-	-
Critical Hdwy	6.86	6.96	-	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	-	-	-	-
Pot Cap-1 Maneuver	~ 19	174	0	-	-	0
Stage 1	52	-	0	-	-	0
Stage 2	793	-	0	-	-	0
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	~ 19	174	-	-	-	-
Mov Cap-2 Maneuver	46	-	-	-	-	-
Stage 1	52	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	159.2	0		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT			
Capacity (veh/h)	-	50	-			
HCM Lane V/C Ratio	-	0.63	-			
HCM Control Delay (s)	-	159.2	-			
HCM Lane LOS	-	F	-			
HCM 95th %tile Q(veh)	-	2.5	-			
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s	+:	Computation Not Defined	*	All major volume in platoon

Intersection															
Int Delay, s/veh	3														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Traffic Vol, veh/h	1	385	243	4	489	1	224	1	4	3	2	1			
Future Vol, veh/h	1	385	243	4	489	1	224	1	4	3	2	1			
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0			
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop			
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None			
Storage Length	-	-	0	0	-	-	-	-	0	-	-	-			
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-			
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-			
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91			
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3			
Mvmt Flow	1	423	267	4	537	1	246	1	4	3	2	1			
Major/Minor															
Major1		Major2			Minor1			Minor2							
Conflicting Flow All	538	0	0	690	0	0	703	971	212	760	1238	269			
Stage 1	-	-	-	-	-	-	425	425	-	546	546	-			
Stage 2	-	-	-	-	-	-	278	546	-	214	692	-			
Critical Hdwy	4.16	-	-	4.16	-	-	7.56	6.56	6.96	7.56	6.56	6.96			
Critical Hdwy Stg 1	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	6.56	5.56	-	6.56	5.56	-			
Follow-up Hdwy	2.23	-	-	2.23	-	-	3.53	4.03	3.33	3.53	4.03	3.33			
Pot Cap-1 Maneuver	*1316	-	-	1061	-	-	*322	*250	*929	*293	*173	*880			
Stage 1	-	-	-	-	-	-	*866	*762	-	*831	*728	-			
Stage 2	-	-	-	-	-	-	*831	*728	-	*877	*558	-			
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	1	-			
Mov Cap-1 Maneuver	*1316	-	-	1061	-	-	*319	*249	*929	*290	*172	*880			
Mov Cap-2 Maneuver	-	-	-	-	-	-	*531	*452	-	*519	*363	-			
Stage 1	-	-	-	-	-	-	*866	*761	-	*830	*725	-			
Stage 2	-	-	-	-	-	-	*824	*725	-	*870	*558	-			
Approach															
EB			WB			NB			SB						
HCM Control Delay, s	0		0.1			17.3			12.6						
HCM LOS							C			B					
Minor Lane/Major Mvmt															
Capacity (veh/h)	531	929	* 1316	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
HCM Lane V/C Ratio	0.466	0.005	0.001	-	-	-	0.004	-	-	0.014					
HCM Control Delay (s)	17.5	8.9	7.7	0	-	-	8.4	-	-	12.6					
HCM Lane LOS	C	A	A	A	-	-	A	-	-	B					
HCM 95th %tile Q(veh)	2.4	0	0	-	-	-	0	-	-	0					
Notes															
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon						

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↗ ↖		↖ ↗	↗ ↖		↖ ↗	↗ ↖		↖ ↗	↗ ↖	
Traffic Vol, veh/h	110	1	63	5	6	41	63	1089	7	48	1720	43
Future Vol, veh/h	110	1	63	5	6	41	63	1089	7	48	1720	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	150	-	-	130	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	117	1	67	5	6	44	67	1159	7	51	1830	46
Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	2672	3255	938	2315	3275	583	1876	0	0	1166	0	0
Stage 1	1955	1955	-	1297	1297	-	-	-	-	-	-	-
Stage 2	717	1300	-	1018	1978	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	*~ 17	*~ 0	*363	*231	*~ 0	*618	*543	-	-	*924	-	-
Stage 1	*342	*300	-	*565	*499	-	-	-	-	-	-	-
Stage 2	*583	*496	-	*342	*300	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*~ 14	*0	*363	*164	*0	*618	*543	-	-	*924	-	-
Mov Cap-2 Maneuver	*165	*149	-	*176	*132	-	-	-	-	-	-	-
Stage 1	*300	*284	-	*495	*437	-	-	-	-	-	-	-
Stage 2	*468	*435	-	*263	*284	-	-	-	-	-	-	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	49	16.4			0.7			0.2				
HCM LOS	E	C										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR			
Capacity (veh/h)	* 543	-	-	165	355	371	* 924	-	-			
HCM Lane V/C Ratio	0.123	-	-	0.709	0.192	0.149	0.055	-	-			
HCM Control Delay (s)	12.6	-	-	67.4	17.5	16.4	9.1	-	-			
HCM Lane LOS	B	-	-	F	C	C	A	-	-			
HCM 95th %tile Q(veh)	0.4	-	-	4.3	0.7	0.5	0.2	-	-			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

Intersection						
Int Delay, s/veh	23					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↑	↑	↑	↑↑	↑↑	↑
Traffic Vol, veh/h	89	126	155	969	1818	88
Future Vol, veh/h	89	126	155	969	1818	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	100	-	-	167
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	91	129	158	989	1855	90
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2666	928	1945	0	-	0
Stage 1	1855	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Critical Hdwy	6.86	6.96	4.16	-	-	-
Critical Hdwy Stg 1	5.86	-	-	-	-	-
Critical Hdwy Stg 2	5.86	-	-	-	-	-
Follow-up Hdwy	3.53	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	~ 18	268	293	-	-	-
Stage 1	108	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	268	293	-	-	-
Mov Cap-2 Maneuver	~ 42	-	-	-	-	-
Stage 1	~ 50	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s\$	324.8	4.2	0			
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	293	-	42	268	-	-
HCM Lane V/C Ratio	0.54	-	2.162	0.48	-	-
HCM Control Delay (s)	30.8	-	\$ 741.8	30.2	-	-
HCM Lane LOS	D	-	F	D	-	-
HCM 95th %tile Q(veh)	3	-	9.6	2.4	-	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s	+:	Computation Not Defined	*	All major volume in platoon

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
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Lane Configurations						
Traffic Vol, veh/h	0	76	0	1124	1840	70
Future Vol, veh/h	0	76	0	1124	1840	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	78	0	1147	1878	71

Major/Minor	Minor2	Major1	Major2
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Conflicting Flow All	-	975	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	*306	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	-	*306	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
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HCM Control Delay, s	20.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
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Capacity (veh/h)	-	306	-	-
HCM Lane V/C Ratio	-	0.253	-	-
HCM Control Delay (s)	-	20.7	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	42	75	37	150	6
Future Vol, veh/h	6	42	75	37	150	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	6	43	77	38	153	6
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	115	0	-	0	151	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	55	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1468	-	-	-	838	958
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1468	-	-	-	835	958
Mov Cap-2 Maneuver	-	-	-	-	835	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	965	-
Approach	EB	WB	SB			
HCM Control Delay, s	0.9	0	10.3			
HCM LOS			B			
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1468	-	-	-	839	
HCM Lane V/C Ratio	0.004	-	-	-	0.19	
HCM Control Delay (s)	7.5	0	-	-	10.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.7	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Vol, veh/h	434	32	0	540	0	150
Future Vol, veh/h	434	32	0	540	0	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	443	33	0	551	0	153
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	238
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.33
Pot Cap-1 Maneuver	-	-	0	-	0	760
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	760
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	10.9			
HCM LOS			B			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	760	-	-	-		
HCM Lane V/C Ratio	0.201	-	-	-		
HCM Control Delay (s)	10.9	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.7	-	-	-		

Traffic Count Data Sheet

Year Counts Taken:		2018		E-W Street: N-S Street:		Central Av. Unser Bd.		Signalized		Speed Limit (Central Av.) = Speed Limit (Unser Bd.) =		55 MPH 35 MPH			
Begin Time	End Time	Eastbound (Central Av.)			Westbound (Central Av.)			Northbound (Unser Bd.)			Southbound (Unser Bd.)				
		L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians		
7:00 AM	7:15 AM	64	93	3	4	5	26	44	4	253	20	0	14	7/12/18	
7:15 AM	7:30 AM	71	104	2	0	4	29	19	1	6	327	31	0	26	92
7:30 AM	7:45 AM	93	91	7	0	15	27	22	0	2	300	27	0	22	110
7:45 AM	8:00 AM	48	95	6	0	11	41	16	0	5	303	40	0	39	137
8:00 AM	8:15 AM	76	94	3	2	13	37	26	1	3	205	22	0	16	104
8:15 AM	8:30 AM	46	66	3	0	9	44	43	0	2	226	17	0	27	23
8:30 AM	8:45 AM	56	76	3	0	12	44	24	2	14	192	16	0	25	83
8:45 AM	9:00 AM	62	78	5	0	8	42	9	0	4	185	48	5	28	18
AM Peak Hour Volumes		288	384	18	2	43	134	83	2	16	1135	120	0	103	443
% of Total Traffic		10.1%	13.4%	0.6%	1.5%	4.7%	2.9%	0.6%	0.6%	39.6%	4.2%	0.6%	3.6%	15.5%	
% Directional				24.1%		9.1%				44.4%				22.4%	
AM Peak Hour Factor					0.90		0.86			0.92		0.87		0.75	
Begin Time		Eastbound (Central Av.)			Westbound (Central Av.)			Northbound (Unser Bd.)			Southbound (Unser Bd.)				
		L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians		
4:00 PM	4:15 PM	44	74	6	0	49	78	43	0	40	144	20	0	47	37
4:15 PM	4:30 PM	43	70	6	1	36	79	48	0	3	142	25	0	25	27
4:30 PM	4:45 PM	48	89	5	0	27	88	11	0	9	202	22	0	26	269
4:45 PM	5:00 PM	38	96	14	2	18	91	13	0	14	220	29	0	35	265
5:00 PM	5:15 PM	45	94	4	0	23	82	14	0	15	173	21	0	30	263
5:15 PM	5:30 PM	41	100	11	1	21	81	19	2	14	175	27	0	35	254
5:30 PM	5:45 PM	57	86	11	1	24	85	14	0	12	204	24	0	24	244
5:45 PM	6:00 PM	36	103	7	0	24	81	12	0	12	164	29	0	33	272
PM Peak Hour Volumes		172	379	34	3	89	342	57	2	52	770	99	0	126	1051
% of Total Traffic		5.2%	11.4%	1.0%	2.7%	10.3%	1.7%	1.6%	1.6%	23.2%	3.0%	3.8%	3.17%	4.3%	
% Directional				17.6%		14.7%				44.4%			27.8%	39.7%	
PM Peak Hour Factor					0.96		0.97			0.95		0.88		0.98	

Traffic Count Data Sheet

		Year Counts Taken:		2019		E-W Street: N-S Street:		Central Ave. 86th St.		Signalized		Speed Limit (Central Ave.) = Speed Limit (86th St.) = 2/7/19	
Begin Time	End Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians
7:00 AM	7:15 AM	0	99	0	0	19	25	0	0	8	0	84	0
7:15 AM	7:30 AM	0	82	0	0	26	28	0	0	9	0	76	1
7:30 AM	7:45 AM	0	78	2	0	19	36	0	0	7	0	71	2
7:45 AM	8:00 AM	0	90	0	0	14	35	0	0	12	0	71	1
8:00 AM	8:15 AM	0	66	2	0	26	57	0	0	5	0	52	0
8:15 AM	8:30 AM	0	73	2	0	21	47	0	0	3	0	64	0
8:30 AM	8:45 AM	0	76	1	0	26	40	0	0	4	0	59	0
8:45 AM	9:00 AM	0	70	1	0	14	51	0	0	5	0	56	0
AM Peak Hour Volumes		0	349	2	0	78	124	0	0	36	0	302	4
% of Total Traffic		0.0%	39.0%	0.2%	8.7%	13.9%	0.0%	4.0%	0.0%	33.7%	0.0%	0.0%	0.0%
% Directional		39.2%			22.6%			37.8%					0.0%
AM Peak Hour Factor			0.89				0.92	0.95	0.92				
		Eastbound (Central Ave.)		Westbound (Central Ave.)		Northbound (86th St.)		Southbound (86th St.)					
Begin Time	End Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians
4:00 PM	4:15 PM	4	74	4	2	32	76	0	4	7	0	37	4
4:15 PM	4:30 PM	1	72	5	1	35	82	1	0	7	0	39	0
4:30 PM	4:45 PM	0	89	4	0	35	78	0	0	10	0	43	0
4:45 PM	5:00 PM	0	68	5	0	48	73	0	0	7	0	48	0
5:00 PM	5:15 PM	0	69	1	0	36	74	0	0	9	0	41	0
5:15 PM	5:30 PM	0	74	3	0	36	67	0	1	7	0	40	0
5:30 PM	5:45 PM	1	59	2	0	36	77	0	0	8	0	53	0
5:45 PM	6:00 PM	2	76	2	1	33	77	0	0	14	0	47	0
PM Peak Hour Volumes		1	298	15	1	154	307	1	0	33	0	171	0
% of Total Traffic		0.1%	30.4%	1.5%	15.7%	31.3%	0.1%	3.4%	0.0%	17.4%	0.0%	0.0%	0.0%
% Directional		32.0%			47.1%			20.8%					0.0%
PM Peak Hour Factor			0.84			0.95	0.95	0.93					

Traffic Count Data Sheet

Year Counts Taken:		2019		E-W Street: N-S Street:		Central Ave. 98th St.		Signalized		Speed Limit (Central Ave.) = Speed Limit (98th St.) = 2/7/19									
Begin Time		End Time		Eastbound (Central Ave.)				Westbound (Central Ave.)				Northbound (98th St.)				Southbound (98th St.)			
Time	Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians		
7:00 AM	7:15 AM	98	44	0	0	29	26	32	0	3	365	46	0	15	84	28	0		
7:15 AM	7:30 AM	124	67	6	0	21	27	53	0	4	410	35	0	16	122	28	0		
7:30 AM	7:45 AM	96	60	7	0	28	27	76	0	0	381	30	0	20	121	24	1		
7:45 AM	8:00 AM	88	61	5	0	34	38	34	0	7	395	53	1	14	103	30	0		
8:00 AM	8:15 AM	72	42	3	0	38	39	46	0	4	282	49	4	15	120	16	0		
8:15 AM	8:30 AM	46	33	7	0	46	46	39	0	4	287	34	4	22	88	16	0		
8:30 AM	8:45 AM	48	28	5	0	34	44	44	0	5	289	38	0	16	164	20	0		
8:45 AM	9:00 AM	22	24	1	0	11	19	24	0	4	145	22	0	10	54	9	0		
AM Peak Hour Volumes		406	232	18	0	112	118	195	0	14	1551	164	1	65	430	110	1		
% of Total Traffic		11.9%	6.8%	0.5%		3.3%	3.5%	5.7%		0.4%	45.4%	4.8%		1.9%	12.6%	3.2%			
% Directional		19.2%				12.4%				50.6%				17.7%					
AM Peak Hour Factor		0.83				0.81		0.94		0.95				0.91					
Begin Time		Eastbound (Central Ave.)				Westbound (Central Ave.)				Northbound (98th St.)				Southbound (98th St.)					
Time	Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians		
4:00 PM	4:15 PM	43	55	8	0	57	40	31	1	9	207	39	0	35	304	64	1		
4:15 PM	4:30 PM	54	37	13	0	79	54	29	0	8	173	39	0	22	326	40	0		
4:30 PM	4:45 PM	43	40	6	0	58	49	36	0	9	199	41	0	21	332	40	0		
4:45 PM	5:00 PM	44	49	8	0	70	52	39	4	8	202	35	0	21	283	90	0		
5:00 PM	5:15 PM	62	55	14	2	74	57	42	0	44	189	34	4	23	342	26	0		
5:15 PM	5:30 PM	46	57	14	0	76	54	36	0	9	174	26	0	31	362	26	0		
5:30 PM	5:45 PM	36	28	8	1	48	56	42	0	4	200	39	0	23	358	54	0		
5:45 PM	6:00 PM	18	16	3	0	19	22	8	0	4	73	11	0	9	88	17	0		
PM Peak Hour Volumes		184	181	35	0	264	195	135	5	34	781	154	0	99	1245	234	1		
% of Total Traffic		5.2%	5.1%	1.0%		7.4%	5.5%	3.8%		1.0%	22.0%	4.3%		2.8%	35.1%	6.6%			
% Directional		11.3%				16.8%				50.6%				27.3%	44.5%				
PM Peak Hour Factor		0.94				0.92		0.98		0.95				0.91					

Traffic Count Data Sheet

Year Counts Taken: 2019 E-W Street:
N-S Street: **Tower Rd.
98th St.**

Speed Limit (Tower Rd.) = **35 MPH**
Speed Limit (98th St.) = **45 MPH**
2/7/19

		Signalized												Southbound (98th St.)					
		Westbound (Tower Rd.)						Northbound (Tower Rd.)						Pedestrians			Pedestrians		
Begin Time	End Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	L	T	R	L	T	R	Pedestrians
7:00 AM	7:15 AM	75	33	18	0	12	6	20	0	7	351	11	0	6	116	12	0	0	0
7:15 AM	7:30 AM	47	25	22	0	7	7	25	1	7	400	9	0	16	133	12	0	0	0
7:30 AM	7:45 AM	50	42	23	0	16	9	42	0	8	371	9	0	15	141	14	0	0	0
7:45 AM	8:00 AM	36	17	14	0	12	24	36	0	11	289	7	0	12	152	15	0	0	0
8:00 AM	8:15 AM	27	8	13	0	4	7	20	0	4	269	9	0	10	138	24	0	0	0
8:15 AM	8:30 AM	30	14	14	0	7	14	27	0	40	228	12	0	14	133	22	0	0	0
8:30 AM	8:45 AM	49	14	12	0	9	9	18	0	14	249	8	0	14	144	20	0	0	0
8:45 AM	9:00 AM	24	15	15	0	12	14	22	0	9	222	11	0	14	129	16	0	0	0
AM Peak Hour Volumes	208	117	77	0	47	46	123	1	33	1411	36	0	49	542	53	0	0	0	
% of Total Traffic	7.6%	4.3%	2.8%		1.7%	1.7%	4.5%		1.2%	51.4%	1.3%		1.8%	19.8%	1.9%				
% Directional		14.7%				7.9%				54.0%				23.5%					
AM Peak Hour Factor		0.80				0.75			0.93				0.89						0.90
		Signalized												Southbound (98th St.)					
Begin Time	End Time	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	L	T	R	L	T	R	Pedestrians
4:00 PM	4:15 PM	22	7	4	0	18	31	13	0	16	174	13	0	24	287	37	0	0	0
4:15 PM	4:30 PM	20	10	3	0	11	22	16	0	14	233	12	0	32	292	38	0	0	0
4:30 PM	4:45 PM	25	15	1	0	18	31	11	0	22	190	11	0	27	315	43	0	0	0
4:45 PM	5:00 PM	25	12	4	0	11	23	9	0	14	167	5	0	21	272	54	0	0	0
5:00 PM	5:15 PM	26	22	4	0	16	24	14	0	22	160	5	0	20	280	32	0	0	0
5:15 PM	5:30 PM	34	12	10	0	14	27	17	0	15	196	14	0	14	268	57	0	0	0
5:30 PM	5:45 PM	48	17	8	0	19	30	16	0	17	198	10	0	20	264	38	0	0	0
5:45 PM	6:00 PM	4	5	0	0	4	4	2	0	4	35	2	0	2	52	8	0	0	0
PM Peak Hour Volumes	92	44	12	0	58	107	49	0	66	764	41	0	104	1166	172	0	0	0	
% of Total Traffic	3.4%	1.6%	0.4%		2.2%	4.0%	1.8%		2.5%	28.6%	1.5%		3.9%	43.6%	6.4%				
% Directional		5.5%				8.0%				54.0%				32.6%		53.9%			
PM Peak Hour Factor		0.90				0.86			0.94				0.84		0.94				

Traffic Count Data Sheet

Year Counts Taken:		2019		E-W Street: N-S Street:		I-40 N. Ramp 98th St.		Signalized		Northbound (98th St.)		Southbound (98th St.)		Speed Limit (I-40 N. Ramp)= Speed Limit (98th St.)=		45 MPH 45 MPH		
																2/18/19		
Begin Time	End Time	Eastbound (I-40 N. Ramp)		Westbound (I-40 N. Ramp)		Pedestrians		L		R		Pedestrians		L		R		
7:00 AM	7:15 AM	0	0	0	0	0	0	123	0	1	0	0	0	13	69	0	0	
7:15 AM	7:30 AM	0	0	0	0	0	0	138	1	0	0	0	0	14	118	0	0	
7:30 AM	7:45 AM	0	0	0	0	0	0	97	0	0	0	0	0	21	140	0	0	
7:45 AM	8:00 AM	0	0	0	0	0	0	109	0	0	0	0	0	21	166	7	0	
8:00 AM	8:15 AM	0	0	0	0	0	0	93	0	0	0	0	0	6	144	0	0	
8:15 AM	8:30 AM	0	0	0	0	0	0	98	0	0	0	0	0	0	88	0	0	
8:30 AM	8:45 AM	0	0	0	0	0	0	107	0	0	0	0	0	0	17	144	0	
8:45 AM	9:00 AM	0	0	0	0	0	0	118	0	0	0	0	0	0	10	60	0	
AM Peak Hour Volumes	0	0	0	0	0	0	0	467	1	1	0	0	69	493	7	0	0	
Percent Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	99.6%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	12.1%	86.6%	1.2%	0.0%	100.0%	0.0%
AM Peak Hour Factor	#DIV/0!		0.84		Intersection		0.96		0.73		0.73		0.73		0.73		0.73	
Begin Time	End Time	Eastbound (I-40 N. Ramp)		Westbound (I-40 N. Ramp)		Pedestrians		L		R		Pedestrians		L		R		
4:00 PM	4:15 PM	0	0	0	0	0	0	340	0	0	0	0	0	22	67	0	1	
4:15 PM	4:30 PM	0	0	0	0	0	0	386	1	0	0	0	0	19	69	0	0	
4:30 PM	4:45 PM	0	0	0	0	0	0	376	0	0	0	0	0	12	70	0	0	
4:45 PM	5:00 PM	0	0	0	0	0	0	355	0	0	0	0	0	19	55	0	0	
5:00 PM	5:15 PM	0	0	0	0	0	0	309	0	0	0	0	0	24	74	0	0	
5:15 PM	5:30 PM	0	0	0	0	0	0	344	2	0	0	0	0	10	84	0	0	
5:30 PM	5:45 PM	0	0	0	0	0	0	348	0	0	0	0	0	21	78	0	0	
5:45 PM	6:00 PM	0	0	0	0	0	0	364	1	0	0	0	0	15	72	0	0	
PM Peak Hour Volumes	0	0	0	0	0	1457	1	0	0	0	0	0	261	0	1	0	333	1
Percent Approach	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	99.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	21.6%	78.4%	0.0%	0.0%	99.7%	0.3%
PM Peak Hour Factor	#DIV/0!		0.94		Intersection		0.94		0.94		0.61		0.61		0.61		0.61	

Turning Movement Demand Worksheet:

Laneage:			2 1 0			1 2 0			0 3 0				
Lane Length (Ft.):			750 750 0			95 999 0			0 999 0				
Lane Capacity (veh.)			60 30 0			3 78 0			0 117 0				
% Turns	#DIV/0!	#DIV/0!	#DIV/0!	99.6%	0.2%	0.2%	12.1%	86.6%	1.2%	0.0%	100.0%	0.0%	
Begin Time	End Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (98th St.)			Southbound (98th St.)		
7:00 AM	7:15 AM	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians
7:15 AM	7:30 AM	0	0	0		123	0	0		13	69	0	0
End of Period Queue	0					0				12			5
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		1	10	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			123	0	0		14	79	0	0
7:30 AM	7:45 AM	0	0	0		138	1	1		14	118	0	0
End of Period Queue	0					0				8			5
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		1	7	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		-1	-10	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	138	1	0	14	115	0	0
7:45 AM	8:00 AM	0	0	0		109	0	0		21	140	0	0
End of Period Queue	0					0				9			1
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		1	8	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		-1	-7	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	109	0	0	21	165	7	0
8:00 AM	8:15 AM	0	0	0		93	0	0		6	111	0	0
End of Period Queue	0					4				0			0
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			4	0	0		0	0	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			0	0	0		-1	-7	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	97	0	0	5	104	0	0
8:15 AM	8:30 AM	0	0	0		98	0	0		11	88	0	0
End of Period Queue	0					12				0			0
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			12	0	0		0	0	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			-4	0	0		0	0	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	106	0	0	11	88	0	0
8:30 AM	8:45 AM	0	0	0		107	0	0		17	141	0	0
End of Period Queue	0					6				0			0
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			6	0	0		0	0	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			-12	0	0		0	0	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	101	0	0	0	17	141	0
8:45 AM	9:00 AM	0	0	0		118	0	0		10	60	0	0
End of Period Queue	0					10				0			0
Distributed Queue	#DIV/0!	#DIV/0!	#DIV/0!			10	0	0		0	0	0	0
Prev. Queue Credit	#DIV/0!	#DIV/0!	#DIV/0!			-6	0	0		0	0	0	0
15-Minute Demand	#DIV/0!	#DIV/0!	#DIV/0!			0	122	0	0	10	60	0	0
										0	0	104	0

Turning Movement Demand Worksheet:

Laneage:			0	0	0	2	1	0	1	2	0	0	3	0	
Lane Length (Ft.):			0	0	0	750	750	0	95	999	0	0	999	0	
Lane Capacity (veh.)			0	0	0	60	30	0	3	78	0	0	117	0	
% Turns	#DIV/0!	#DIV/0!	#DIV/0!	99.9%	0.1%	0.0%	21.6%	78.4%	0.0%	0.0%	99.7%	0.3%	Video Time		
Begin Time	End Time	Eastbound (I-40 N. Ramp)			Westbound (I-40 N. Ramp)			Northbound (98th St.)			Southbound (98th St.)				
4:00 PM	4:15 PM	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians		
4:15 PM	4:30 PM	0	0	0		340	0	0		22	67	0	0	135	1
4:30 PM	4:45 PM	0	0	0		386	1	0		19	69	0	0	73	0
4:45 PM	5:00 PM	0	0	0		376	0	0		12	70	0	0	58	0
5:00 PM	5:15 PM	0	0	0		355	0	0		10	14	0	0	67	0
5:15 PM	5:30 PM	0	0	0		309	0	0		24	74	0	0	80	0
5:30 PM	5:45 PM	0	0	0		341	2	0		10	81	0	0	98	0
5:45 PM	6:00 PM	0	0	0		348	0	0		21	79	0	0	72	0
6:00 PM	6:15 PM	0	0	0		364	1	0		15	72	0	0	69	0

Traffic Count Data Sheet (Demand Adjusted)

Year Counts Taken:		2019	E-W Street: N-S Street:		I-40 N. Ramp 98th St.		Signalized		Southbound (98th St.)	
Begin Time	End Time		Eastbound (I-40 N. Ramp)		Westbound (I-40 N. Ramp)		Northbound (98th St.)		Southbound (98th St.)	
7:00 AM	7:15 AM	0	0	0	123	0	14	79	0	166
7:15 AM	7:30 AM	0	0	0	138	1	0	115	0	118
7:30 AM	7:45 AM	0	0	0	97	0	0	141	0	102
7:45 AM	8:00 AM	0	0	0	109	0	0	21	165	7
8:00 AM	8:15 AM	0	0	0	97	0	0	5	104	0
8:15 AM	8:30 AM	0	0	0	106	0	0	14	88	0
8:30 AM	8:45 AM	0	0	0	104	0	0	12	144	0
8:45 AM	9:00 AM	0	0	0	122	0	0	10	60	0
AM Peak Hour Volumes		0	0	0	467	1	1	70	500	7
Percent Approach	#DIV/0!	#DIV/0!	#DIV/0!	99.6%	0.2%	0.2%	12.1%	86.7%	1.2%	0.0%
AM Peak Hour Factor					0.84	0.98	0.75			0.70
Begin Time	End Time		Eastbound (I-40 N. Ramp)		Westbound (I-40 N. Ramp)		Northbound (98th St.)		Southbound (98th St.)	
4:00 PM	4:15 PM	0	0	0	345	0	0	25	76	0
4:15 PM	4:30 PM	0	0	0	384	1	0	16	62	0
4:30 PM	4:45 PM	0	0	0	387	0	0	12	68	0
4:45 PM	5:00 PM	0	0	0	351	0	0	19	56	0
5:00 PM	5:15 PM	0	0	0	307	0	0	24	75	0
5:15 PM	5:30 PM	0	0	0	341	2	0	14	82	0
5:30 PM	5:45 PM	0	0	0	340	0	0	24	80	0
5:45 PM	6:00 PM	0	0	0	380	1	0	15	70	0
PM Peak Hour Volumes		0	0	0	1467	1	0	72	262	0
Percent Approach	#DIV/0!	#DIV/0!	#DIV/0!	99.9%	0.1%	0.0%	21.6%	78.4%	0.0%	0.0%
PM Peak Hour Factor					0.95	0.90	0.83			0.57
AM Peak Hour Raw Count	0	0	0	0	467	1	1	0	69	493
% Change	N/A	N/A	N/A	N/A	0.0%	0.0%	N/A	1.4%	1.4%	0.2%
AM Peak Hour Raw Count	0	0	0	0	1457	1	0	72	261	0
% Change	N/A	N/A	N/A	N/A	0.7%	0.0%	N/A	0.4%	N/A	0.3%
AM Peak Hour Raw Count	0	0	0	0	0	0	0	1	0	467
% Change	N/A	N/A	N/A	N/A	0.0%	0.0%	N/A	0.0%	N/A	0.0%
AM Peak Hour Raw Count	0	0	0	0	0	0	0	0	0	0
% Change	N/A	N/A	N/A	N/A	0.0%	0.0%	N/A	0.0%	N/A	N/A

Traffic Count Data Sheet

		Year Counts Taken:		2019		E-W Street:		I-40 S. Ramp		98th St.		Signalized		Speed Limit (I-40 S. Ramp)=		30		
														Speed Limit (98th St.) =		45		
														2/7/19				
Begin Time	End Time	Eastbound (I-40 S. Ramp)		Westbound (I-40 S. Ramp)		Northbound (98th St.)		Southbound (98th St.)										
		L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	
AM Peak Hour Volumes	20	0	0	0	0	0	0	0	0	0	0	0	0	533	0	0	0	
% of Total Traffic	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	42.4%	0.0%	0.0%	56.0%	
% Directional		1.6%													42.4%			56.0%
AM Peak Hour Factor		0.71													0.86	0.73		0.91
Begin Time	End Time	Eastbound (I-40 S. Ramp)		Westbound (I-40 S. Ramp)		Northbound (98th St.)		Southbound (98th St.)										
		L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R	Pedestrians	
PM Peak Hour Volumes	25	0	0	0	0	0	0	0	0	0	0	0	0	312	0	1	0	
% of Total Traffic	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.4%	0.0%	0.0%	84.4%	
% Directional		1.2%													14.4%			84.4%
PM Peak Hour Factor		0.69													0.92	0.87		0.92

Traffic Count Data Sheet

Year Counts Taken:

2019

E-W Street:
N-S Street:Central Ave.
Bridge Blvd.Speed Limit (Central Ave.) =
Speed Limit (Bridge Blvd.) =55 MPH
40 MPH
2/7/19

Unsignalized

Begin Time	End Time	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Bridge Blvd.)			Southbound (Bridge Blvd.)				
		L	T	R	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R
7:00 AM	7:15 AM	2	100	42	0	1	35	0	35	0	1	0	0	0	2
7:15 AM	7:30 AM	1	79	44	0	0	39	0	0	41	0	0	1	0	0
7:30 AM	7:45 AM	2	80	58	0	1	43	0	0	41	1	0	0	1	0
7:45 AM	8:00 AM	2	83	39	0	0	44	0	0	37	1	1	0	2	1
8:00 AM	8:15 AM	1	64	27	0	3	64	1	0	28	0	1	0	1	0
8:15 AM	8:30 AM	0	68	39	0	3	49	0	0	28	0	1	0	1	0
8:30 AM	8:45 AM	1	76	39	0	1	48	0	0	36	0	0	1	0	0
8:45 AM	9:00 AM	0	74	39	0	1	50	0	0	36	0	2	0	1	0
AM Peak Hour Volumes		7	342	183	0	2	161	0	0	154	2	0	4	1	3
% of Total Traffic		0.8%	39.7%	21.3%		0.2%	18.7%	0.0%	17.9%	0.2%	0.2%	0.5%	0.1%	0.3%	
% Directional			61.8%			18.9%			18.4%			0.9%	0.50		
AM Peak Hour Factor			0.92			0.93			0.95			0.94			

Speed Limit (Central Ave.) =
Speed Limit (Bridge Blvd.) =

2/7/19

Signalized

Begin Time	End Time	Eastbound (Central Ave.)			Westbound (Central Ave.)			Northbound (Bridge Blvd.)			Southbound (Bridge Blvd.)				
		L	T	R	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T	R
4:00 PM	4:15 PM	0	75	40	0	7	0	0	28	2	0	0	0	4	0
4:15 PM	4:30 PM	0	77	39	0	2	91	0	0	40	1	0	0	2	0
4:30 PM	4:45 PM	1	90	68	0	0	89	0	0	39	0	2	0	0	0
4:45 PM	5:00 PM	0	65	47	0	1	85	1	0	48	0	1	0	1	0
5:00 PM	5:15 PM	0	73	60	0	0	86	0	0	46	0	0	0	0	0
5:15 PM	5:30 PM	0	75	46	0	1	80	1	0	48	1	2	0	0	0
5:30 PM	5:45 PM	0	65	54	0	1	80	0	0	48	3	0	0	3	0
5:45 PM	6:00 PM	1	80	53	0	0	82	3	0	48	0	0	1	1	0
PM Peak Hour Volumes		1	305	214	0	3	351	1	0	173	1	3	0	2	1
% of Total Traffic		0.1%	28.8%	20.2%		0.3%	33.2%	0.1%	16.4%	0.1%	0.3%	0.3%	0.2%	0.1%	
% Directional			49.1%			33.6%			16.7%			0.6%	0.6%		
PM Peak Hour Factor			0.82			0.95			0.91			0.90		0.38	

Traffic Count Data Sheet

Year Counts Taken:

2019

E-W Street:
N-S Street:**Sunset Gardens
98th St.**

Speed Limit (Sunset Gardens)=

**25
MPH**

Speed Limit (98th St.)=

**45
MPH****2/8/19**

Unsignalized

Begin Time	End Time	Eastbound (Sunset Gardens)			Westbound (Sunset Gardens)			Northbound (98th St.)			Southbound (98th St.)						
		L	T	R	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T			
7:00 AM	7:15 AM	11	1	4	0	1	1	12	0	2	443	3	0	1	145	0	0
7:15 AM	7:30 AM	6	1	7	0	1	0	13	0	4	411	4	0	1	161	3	0
7:30 AM	7:45 AM	3	2	12	0	1	0	7	0	2	431	8	0	4	147	3	0
7:45 AM	8:00 AM	6	0	1	0	1	1	8	0	9	364	2	1	1	154	3	0
8:00 AM	8:15 AM	4	1	4	0	0	0	10	0	2	337	2	0	0	149	3	0
8:15 AM	8:30 AM	4	1	3	0	0	0	4	0	4	330	3	0	3	144	4	2
8:30 AM	8:45 AM	9	1	3	0	3	0	11	0	5	341	3	0	5	139	2	0
8:45 AM	9:00 AM	9	1	2	0	0	0	8	0	4	290	4	0	5	163	6	0
AM Peak Hour Volumes		26	4	24	0	4	2	40	0	17	1649	17	1	7	607	9	0
% of Total Traffic		1.1%	0.2%	1.0%		0.2%		0.1%	1.7%		0.7%	68.5%	0.7%		0.3%	25.2%	0.4%
% Directional			2.2%					1.9%			63.9%				25.9%		
AM Peak Hour Factor				0.79				0.82			0.96				0.94		

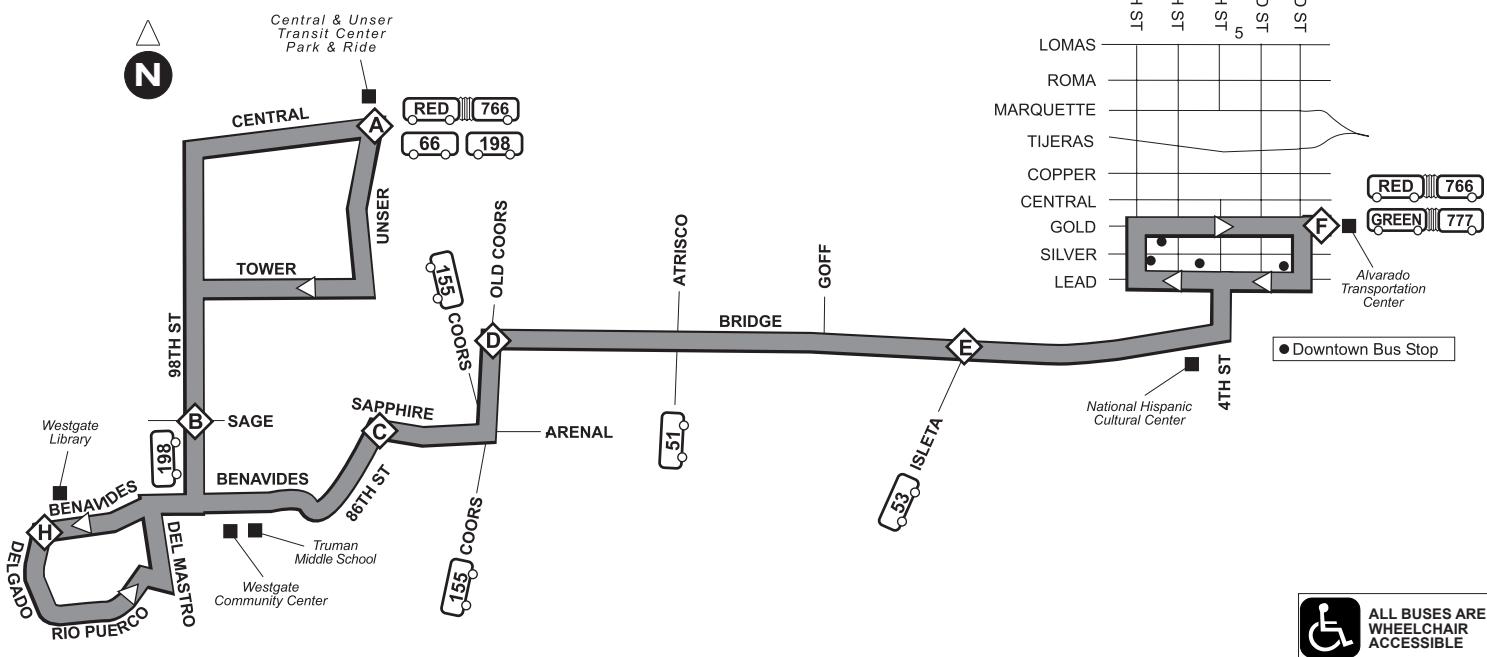
Signalized

Begin Time	End Time	Eastbound (Sunset Gardens)			Westbound (Sunset Gardens)			Northbound (98th St.)			Southbound (98th St.)						
		L	T	R	L	T	R	Pedestrians	L	T	R	Pedestrians	L	T			
4:00 PM	4:15 PM	3	0	6	0	0	4	0	8	260	4	0	10	409	10	7	
4:15 PM	4:30 PM	2	2	8	0	2	7	0	4	244	4	0	9	395	4	7	
4:30 PM	4:45 PM	4	1	5	0	0	0	0	5	230	4	0	7	395	7	0	
4:45 PM	5:00 PM	2	0	5	0	3	0	8	0	210	2	1	10	378	12	0	
5:00 PM	5:15 PM	4	0	9	0	0	1	2	0	3	241	1	0	7	396	9	1
5:15 PM	5:30 PM	4	1	7	0	2	4	3	0	4	253	2	0	5	423	11	0
5:30 PM	5:45 PM	4	0	5	1	0	1	9	0	10	249	2	0	8	375	10	0
5:45 PM	6:00 PM	3	0	4	0	1	7	6	0	7	240	4	0	5	362	7	0
PM Peak Hour Volumes		14	1	26	1	5	6	22	0	25	953	7	1	30	1572	42	1
% of Total Traffic		0.5%	0.0%	1.0%		0.2%		0.2%	0.8%		0.9%	35.2%	0.3%		1.1%	58.1%	1.6%
% Directional			1.5%					1.2%			36.4%				60.8%		
PM Peak Hour Factor				0.79				0.75			0.94				0.94		

Route / Ruta 54

Bridge Blvd. / Westgate

Effective: May 12, 2018



Route 54 - Weekday Eastbound

	TRANSIT CENTER & PARK & RIDE	CENTRAL & UNSER TRANSIT CENTER
A	ALVARADO TRANSPORTATION CENTER	UNSER TRANSIT CENTER & PARK & RIDE
B	BRIDGE & OLD COORS	CENTRAL & UNSER TRANSIT CENTER
C	BRIDGE & SAPPHIRE	UNSER TRANSIT CENTER & PARK & RIDE
D	BRIDGE & OLD COORS	UNSER TRANSIT CENTER & PARK & RIDE
E	BRIDGE & ISLETA	UNSER TRANSIT CENTER & PARK & RIDE
F	ALVARADO TRANSPORTATION CENTER	CENTRAL & UNSER TRANSIT CENTER
5:40a	5:46a 5:50a 5:58a 6:04a 6:13a	
6:38a	6:44a 6:48a 6:56a 7:03a 7:13a	
7:24a	7:32a 7:37a 7:46a 7:54a 8:04a	
8:10a	8:18a 8:23a 8:32a 8:40a 8:50a	
8:59a	9:05a 9:09a 9:17a 9:23a 9:32a	
9:46a	9:52a 9:56a 10:04a 10:10a 10:19a	
10:31a	10:37a 10:41a 10:49a 10:55a 11:04a	
11:16a	11:22a 11:26a 11:34a 11:40a 11:49a	
12:01p	12:07p 12:11p 12:19p 12:25p 12:34p	
12:46p	12:52p 12:56p 1:04p 1:10p 1:19p	
1:31p	1:37p 1:41p 1:49p 1:56p 2:05p	
2:18p	2:24p 2:28p 2:36p 2:43p 2:52p	
3:07p	3:13p 3:17p 3:25p 3:32p 3:43p	
3:52p	4:00p 4:06p 4:14p 4:21p 4:32p	
4:38p	4:46p 4:53p 5:03p 5:10p 5:21p	
5:19p	5:27p 5:34p 5:44p 5:51p 6:02p	
5:57p	6:05p 6:12p 6:22p 6:29p 6:39p	
6:46p	6:52p 6:56p 7:04p 7:10p 7:18p	
8:13p	8:19p 8:23p 8:31p 8:37p 8:45p	

Route 54 - Weekday Westbound

	TRANSIT CENTER & PARK & RIDE	CENTRAL & UNSER TRANSIT CENTER
F	ALVARADO TRANSPORTATION CENTER	CENTRAL & UNSER TRANSIT CENTER
G	BRIDGE & OLD COORS	BRIDGE & OLD COORS
H	BRIDGE & SAPPHIRE	BRIDGE & SAPPHIRE
B	BRIDGE & OLD COORS	BRIDGE & OLD COORS
C	BRIDGE & ISLETA	BRIDGE & ISLETA
D	BRIDGE & OLD COORS	BRIDGE & OLD COORS
E	ALVARADO TRANSPORTATION CENTER	TRANSIT CENTER & PARK & RIDE
5:47a	5:55a 6:01a 6:08a 6:16a 6:22a	5:40a
6:32a	6:40a 6:46a 6:53a 7:01a 7:07a	7:13a
7:21a	7:29a 7:36a 7:44a 7:52a 7:58a	8:04a
8:10a	8:18a 8:25a 8:33a 8:41a 8:47a	8:53a
9:00a	9:08a 9:14a 9:22a 9:30a 9:36a	9:42a
9:45a	9:53a 9:59a 10:07a 10:15a 10:21a	10:27a
10:30a	10:38a 10:44a 10:52a 11:00a 11:06a	11:12a
11:15a	11:23a 11:29a 11:37a 11:45a 11:51a	11:57a
12:00p	12:08p 12:14p 12:22p 12:30p 12:36p	12:42p
12:45p	12:53p 12:59p 1:07p 1:15p 1:21p	1:27p
1:30p	1:38p 1:44p 1:52p 2:00p 2:08p	2:14p
2:15p	2:23p 2:33p 2:41p 2:49p 2:57p	3:03p
3:00p	3:08p 3:18p 3:26p 3:34p 3:42p	3:48p
3:40p	3:48p 3:58p 4:06p 4:14p 4:23p	4:29p
4:20p	4:28p 4:39p 4:47p 4:55p 5:04p	5:10p
5:05p	5:13p 5:24p 5:32p 5:40p 5:49p	5:55p
5:50p	5:58p 6:09p 6:17p 6:25p 6:32p	6:38p
6:43p	6:51p 7:00p 7:08p 7:16p 7:23p	7:29p
7:25p	7:33p 7:39p 7:47p 7:55p 8:02p	8:08p
8:15p	8:23p 8:29p 8:36p 8:44p 8:50p	8:56p
9:07p	9:15p 9:21p 9:28p 9:36p 9:42p	9:48p

Route 54 - Saturday Eastbound

6:00a	6:08a 6:13a 6:18a 6:25a 6:40a
7:00a	7:08a 7:13a 7:18a 7:25a 7:40a
8:00a	8:08a 8:13a 8:18a 8:25a 8:40a
9:00a	9:08a 9:13a 9:18a 9:25a 9:40a
10:00a	10:08a 10:13a 10:18a 10:25a 10:40a
11:00a	11:08a 11:13a 11:18a 11:25a 11:40a
12:00p	12:08p 12:13p 12:18p 12:25p 12:40p
1:00p	1:08p 1:13p 1:18p 1:25p 1:40p
2:00p	2:08p 2:13p 2:18p 2:25p 2:40p
3:00p	3:08p 3:13p 3:18p 3:25p 3:40p
4:00p	4:08p 4:13p 4:18p 4:25p 4:40p
5:00p	5:08p 5:13p 5:18p 5:25p 5:40p
6:00p	6:08p 6:13p 6:18p 6:25p 6:40p
7:00p	7:08p 7:13p 7:18p 7:25p 7:40p
8:00p	8:08p 8:13p 8:18p 8:25p 8:40p
9:00p	9:08p 9:13p 9:18p 9:25p 9:40p

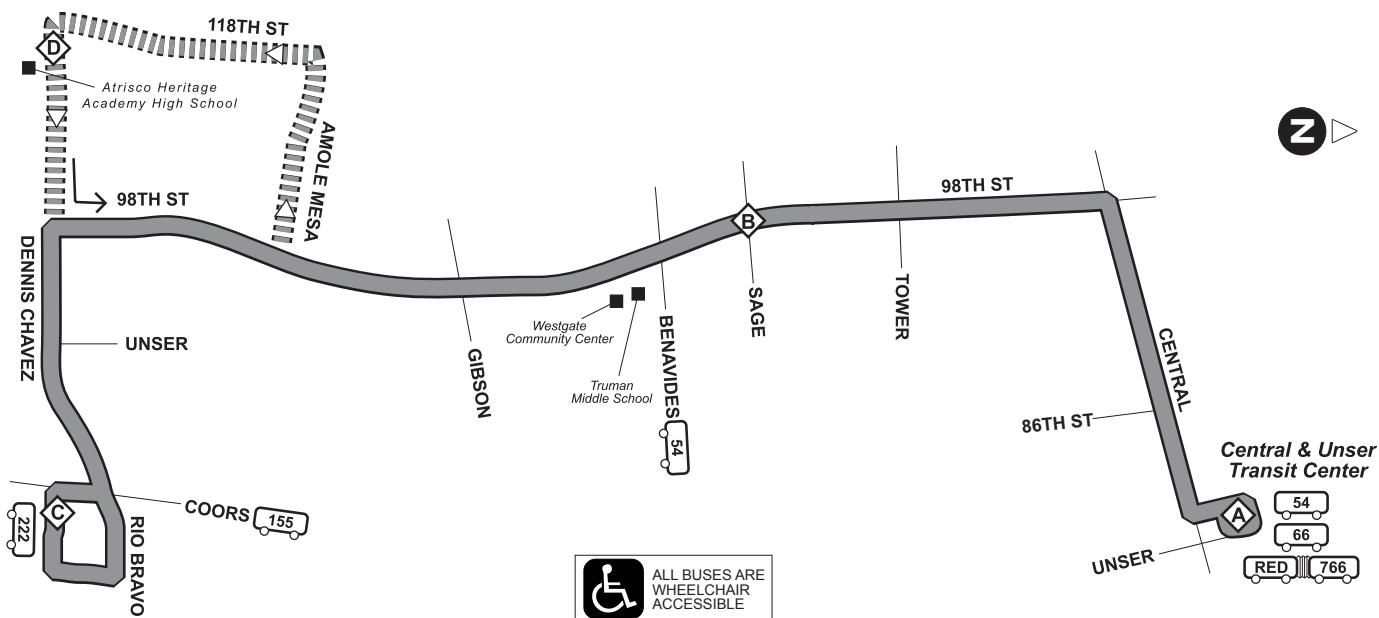
Route 54 - Saturday Westbound

7:00a	7:09a 7:15a 7:21a 7:28a 7:34a
8:00a	8:09a 8:15a 8:21a 8:28a 8:34a
9:00a	9:09a 9:15a 9:21a 9:28a 9:34a
10:00a	10:09a 10:15a 10:21a 10:28a 10:34a
11:00a	11:09a 11:15a 11:21a 11:28a 11:34a
12:00p	12:09p 12:15p 12:21p 12:28p 12:34p
1:00p	1:09p 1:15p 1:21p 1:28p 1:34p
2:00p	2:09p 2:15p 2:21p 2:28p 2:34p
3:00p	3:09p 3:15p 3:21p 3:28p 3:34p
4:00p	4:09p 4:15p 4:21p 4:28p 4:34p
5:00p	5:09p 5:15p 5:21p 5:28p 5:34p
6:12p	6:21p 6:27p 6:33p 6:40p 6:46p
7:10p	7:19p 7:25p 7:31p 7:38p 7:44p
8:00p	8:09p 8:15p 8:21p 8:28p 8:34p
9:00p	9:09p 9:15p 9:21p 9:28p 9:34p

Route / Ruta 198

98th Street / Dennis Chavez

Effective: January 7, 2017



Route 198 - Northbound

Route 198 - Southbound

Weekday		Saturday		Weekday		Saturday	
ATRISCO HERITAGE ACADEMY H.S.		CENTRAL & UNSER TRANSIT CENTER P&R		CENTRAL & UNSER TRANSIT CENTER P&R		CENTRAL & UNSER TRANSIT CENTER P&R	
D	C	B	A	C	B	A	
6:20a	6:29a	6:36a		6:47a	6:55a	7:01a	
6:53a	6:58a	7:05a		7:19a	7:27a	7:33a	
7:26a	7:36a	7:43a		7:50a	7:58a	8:04a	
8:01a	8:10a	8:17a		8:22a	8:30a	8:36a	
8:30a	8:39a	8:46a		8:51a	8:59a	9:05a	
9:00a	9:09a	9:16a		9:22a	9:30a	9:37a	
9:30a	9:39a	9:46a		9:55a	10:03a	10:10a	
10:00a	10:09a	10:16a		10:27a	10:35a	10:42a	
10:30a	10:39a	10:46a		10:59a	11:07a	11:14a	
11:00a	11:09a	11:16a		11:31a	11:39a	11:46a	
11:30a	11:39a	11:46a		12:03p	12:11p	12:18p	
12:00p	12:09p	12:16p		12:38p	12:46p	12:53p	
12:31p	12:40p	12:47p		1:10p	1:18p	1:25p	
1:02p	1:11p	1:18p		1:43p	1:51p	1:58p	
1:33p	1:42p	1:49p		2:15p	2:23p	2:30p	
2:03p	2:12p	2:19p		2:47p	2:55p	3:02p	
2:33p	2:42p	2:49p		3:19p	3:27p	3:34p	
3:07p	3:12p	3:19p		3:53p	4:01p	4:08p	
3:33p	3:42p	3:49p		4:25p	4:33p	4:40p	
4:07p	4:16p	4:23p		4:58p	5:06p	5:13p	
4:41p	4:50p	4:57p		5:30p	5:38p	5:45p	
5:10p	5:15p	5:22p		6:01p	6:09p	6:16p	
5:37p	5:46p	5:52p		6:33p	6:41p	6:48p	
6:08p	6:17p	6:23p		7:04p	7:12p	7:19p	
6:36p	6:45p	6:51p		7:35p	7:43p	7:50p	
7:03p	7:11p	7:17p		8:12p	8:20p	8:27p	
7:31p	7:39p	7:45p		8:56p	9:04p	9:11p	
8:06p	8:14p	8:20p		9:41p	9:49p	9:56p	
8:51p	8:59p	9:05p					
9:33p	9:41p	9:47p					
10:23p	10:31p	10:37p					
Sunday							
6:47a	6:55a	7:01a					
7:19a	7:27a	7:33a					
7:50a	7:58a	8:04a					
8:22a	8:30a	8:36a					
8:51a	8:59a	9:05a					
9:22a	9:30a	9:37a					
9:55a	10:03a	10:10a					
10:27a	10:35a	10:42a					
10:59a	11:07a	11:14a					
11:31a	11:39a	11:46a					
12:03p	12:11p	12:18p					
12:38p	12:46p	12:53p					
1:10p	1:18p	1:25p					
1:43p	1:51p	1:58p					
2:15p	2:23p	2:30p					
2:47p	2:55p	3:02p					
3:19p	3:27p	3:34p					
3:53p	4:01p	4:08p					
4:25p	4:33p	4:40p					
4:58p	5:06p	5:13p					
5:30p	5:38p	5:45p					

SCOPE OF TRAFFIC IMPACT STUDY (TIS)

TO: Terry Brown

MEETING DATE: January 22, 2019

ATTENDEES: Consultant Team; COA Transportation Development Review

PROJECT: Mercado el Milagro, L-09

REQUESTED CITY ACTION: Zone Change Site Development Plan

Subdivision Building Permit Sector Plan Sector Plan Amendment

Curb Cut Permit Conditional Use Annexation Site Plan Amendment

ASSOCIATED APPLICATION: Retail commercial development with shops, restaurants and minimal office space.

SCOPE OF REPORT:

The Traffic Impact Study should follow the standard report format, which is outlined in the DPM. The following supplemental information is provided for the preparation of this specific study.

1. Trip Generation - Use Trip Generation Manual, 10th Edition.

Local data may be used for certain land use types as determined by staff.
Consultant to provide.

2. Appropriate study area:

Signalized Intersections;

- a. I-40 and 98th St. Ramps
- b. Central and 98th
- c. Central and Unser
- d. Central and 86th
- e. Central and Bridge
- f. Tower and 98th

Unsignalized Intersections;

- a. Intersection 1
- b. Intersection 2

Driveway Intersections: all site drives.

3. Intersection turning movement counts

Study Time – 7-9 a.m. peak hour, 4-6 p.m. peak hour
Consultant to provide for all intersections listed above.

4. Type of intersection progression and factors to be used.

Type III arrival type (see "2016 Highway Capacity Manual" or equivalent as approved by staff). Unless otherwise justified, peak hour factors and % heavy commercial should be

taken directly from the MRCOG turning movement data provided or as calculated from current count data by consultant.

5. Boundaries of area to be used for trip distribution.

City Wide - residential, office or industrial;
2 mile radius – commercial;
Interstate or to be determined by consultant - motel/hotel
APS district boundary mapping for each school and bus routes

6. Basis for trip distribution.

Residential – Use inverse relationship based upon distance and employment. Use employment data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Office/Industrial - Use inverse relationship based upon distance and population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Commercial - Use relationship based upon population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Residential - $T_s = (T_t) (S_e / D) / (S_e / D)$

T_s = Development to Individual Subarea Trips

T_t = Total Trips

S_e = Subarea Employment

D = Distance from Development to Subarea

Office/Industrial - $T_s = (T_t) (S_p / D) / (S_p / D)$

T_s = Development to Individual Subarea Trips

T_t = Total Trips

S_p = Subarea Population

D = Distance from Development to Subarea

Commercial -

$T_s = (T_t) (S_p) / (S_p)$

T_s = Development to Individual Subarea Trips

T_t = Total Trips

S_p = Subarea Population

D = Distance from Development to Subarea

7. Traffic Assignment. Logical routing on the major street system.

8. Proposed developments which have been approved but not constructed that are to be Included in the analyses. Projects in the area include:

a. N/A

9. Method of intersection capacity analysis - planning or operational (see “2016 Highway Capacity Manual” or equivalent [i.e. HCS, Synchro, Teapac, etc.] as approved by staff). Must use latest version of design software and/or current edition of design manual.

Implementation Year: 2024

10. Traffic conditions for analysis:
 - a. Existing analysis X yes no - year (2019);
 - b. Phase implementation year(s) without proposed development – 2024
 - c. Phase implementation year(s) with proposed development – 2024
 - d. Project completion year without proposed development – XXXX
 - e. Project completion year with proposed development – XXXX
 - f. Other –
11. Background traffic growth.
Method: use 10-year historical growth based on standard data from the MRCOG Traffic Flow Maps. Minimum growth rate to be used is 1/2%.
12. Planned (programmed) traffic improvements.
List planned CIP improvements in study area and projected project implementation year:
 - a. Project – Location (Implementation Year)
13. Items to be included in the study:
 - a. Intersection analysis.
 - b. Signal progression - An analysis is required if the driveway analysis indicates a traffic signal is possibly warranted. Analysis Method:
 - c. Arterial LOS analysis;
 - d. Recommended street, intersection and signal improvements.
 - e. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility.
 - f. Transportation system impacts.
 - g. Other mitigating measures.
 - h. Accident analyses yes no; Location(s):
 - i. Weaving analyses yes no; Location(s):
14. Other:

SUBMITTAL REQUIREMENTS:

1. Number of copies of report required
 - a. 1 paper copy
 - b. 1 digital copy
2. Submittal Fee – \$1300 for up to 3 reviews

The Traffic Impact Study for this development proposal, project name, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 924-3633.

____ Ernest Armijo _____ 2-15-19 _____
Ernest Armijo, P.E. Date
Senior Engineer for
Transportation Development Section