Traffic, Transportation, and Parking Consultants

JBA
JANO BAGHDANIAN & ASSOCIATES

833 American Way
Suite 505.
Glendale, CA 91210
Jano@JBAtraffic.com
Ph: 818-694-2880
Fax: 818-888-4541

June 12, 2020

Ali Pezeshkpour,
Senior Planner
City of Santa Ana
20 Civic Center Plaza
Santa Ana, CA 92702

Subject: Tapestry by Hilton, 1580 Brookhollow Drive-VMT Analysis

The purpose of this letter is to provide additional information and augment the previously approved Traffic Impact Study dated March 14, 2019 and the Traffic Study Update dated February 24, 2020 for the proposed Tapestry Hilton. As requested, this letter addresses the project's transportation analysis with respect to Vehicle Traveled Miles (VMT) and whether or not there is a need for VMT Analysis.

The Project site is located at 1580 Brookhollow Drive, in the City of Santa Ana, California. The updated project consists of the construction of a 6-story (139 Suites) business hotel and a 2,000-square-foot freestanding restaurant. The Project will have a surface parking lot that will provide 176 parking spaces. Based on the proposed Tapestry Hotel characteristics and amenities, the hotel cannot be considered a destination or resort hotel because:

- The Hotel does not have amenities such as high- end restaurants, spa facilities, and a roof top bar.
- The Hotel will cater to visitors of local businesses and is in close proximity to a business park.
- The restaurant at the Hotel site is mainly intended to cater to the hotel guests and patrons from the immediate vicinity of the Hotel site.
- The Hotel does not have large conference rooms or banquet facilities that generate long distance trips from adjacent cities in Orange County.

We have reviewed the local guidelines for implementing the California Environmental Quality Act (CEQA) for the City of Santa Ana, adopted in June 2019. The referenced guidelines indicate that projects located within the City's Transit Priority Area (TPA) would have less than significant VMT impact[1].

According to our review of data obtained from Orange County Transportation Authority (attachment 1)[2], majority of the City of Santa Ana is located within TPA including the project site. In addition, secondary checks show the FAR of 0.68 meets the 0.75 TPA FAR requirement.

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[1] Table 1 – 2019 LOCAL GUIDELINES FOR IMPLEMENTING THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR CITY OF SANTA ANA

[2] SB 743. A 101 introduction to implementation for OCTA and Local Agencies, Fehr & Peers

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For RTP consistency, we reviewed the OCTAM v5 (base year 2016, future year 2045) SED data sets and found that the TAZ assumes an employment growth of 7 employees but total employee growth of 227 employees (attachment 2). Therefore, the project is within RTP assumptions resulting in no VMT significant impacts. The Tapestry Hotel project will have less than significant VMT impact and there is no need to prepare a VMT analysis.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
JANO BAGHDANIAN
1174
Exp. 12/31/21
TRAFFIC
STATE OF CALIFORNIA

Jano Baghdanian, P.E.,T.E.,PTOE
President,
JB& Associates, LLC

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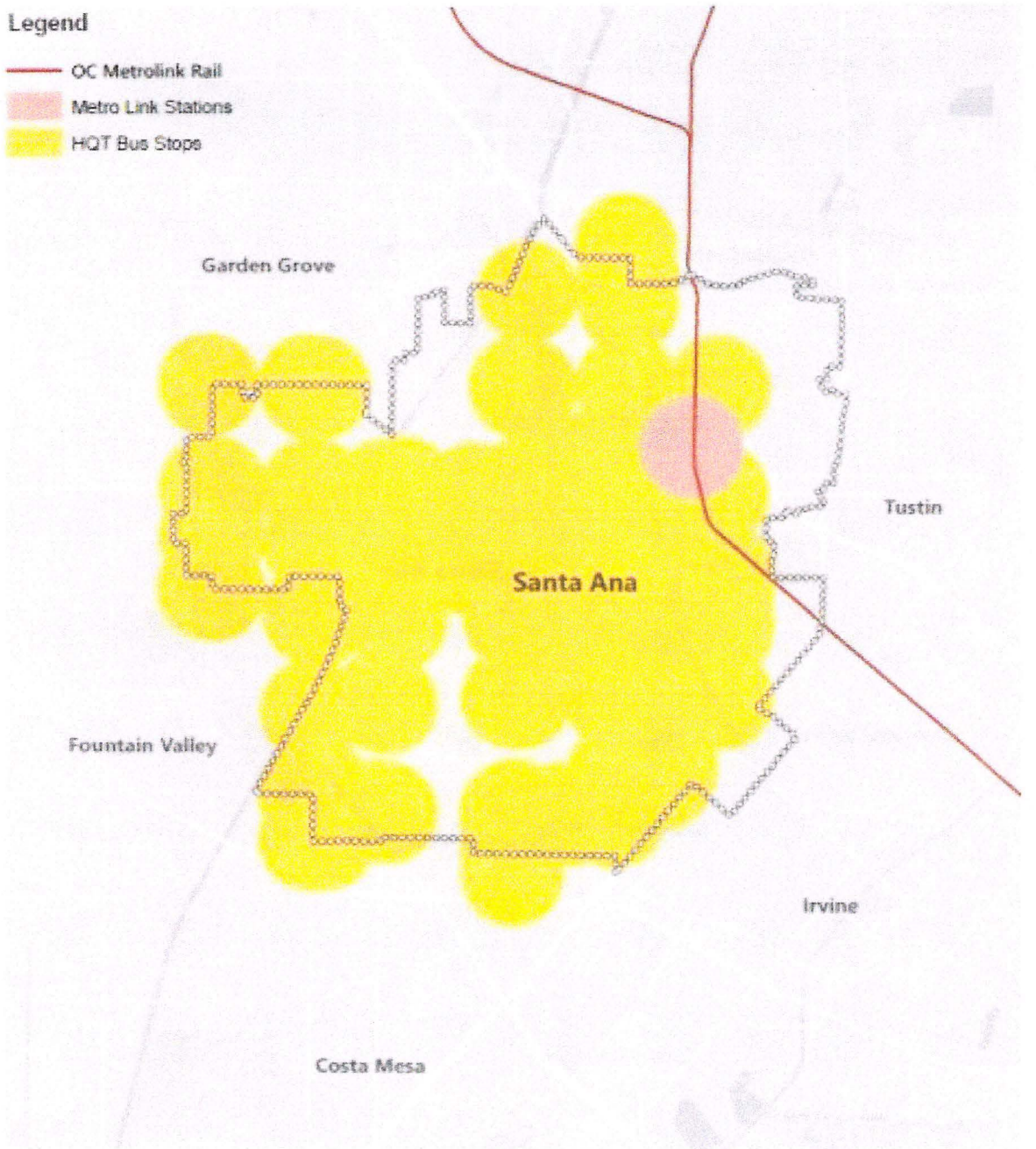
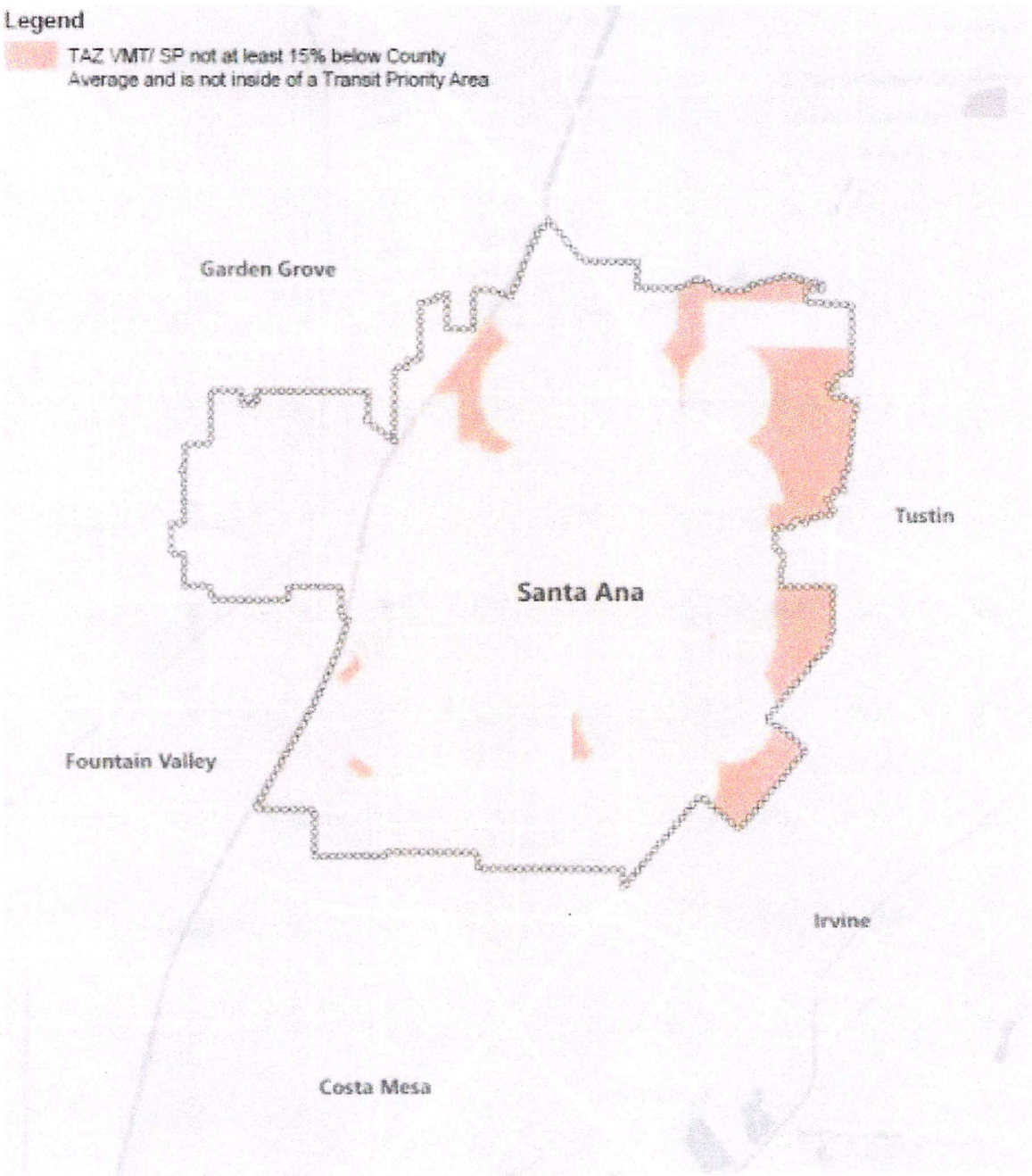
Attachment 1


Legend
OC Metrolink Rail
Metro Link Stations
HQT Bus Stops
Garden Grove
Tustin
Santa Ana
Fountain Valley
Irvine
Costa Mesa


Legend
TAZ VMT/ SP not at least 15% below County Average and is not inside of a Transit Priority Area
Garden Grove
Tustin
Santa Ana
Fountain Valley
Irvine
Costa Mesa

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Attachment 2

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OCTAM v5 SED Data

2016 Baseline

ZONE	TOT_POP	HH_POP	EMP_POP	TOT_HH	MDN_INC	RET_EMP	SVC_EMP	BAS_EMP	SCH_ENR	UNIV_ENR
797	307	307	159	59	76454.84	253	1,101	2,894	42	0

2045 NB

ZONE	TOT_POP	HH_POP	EMP_POP	TOT_HH	MDN_INC	RET_EMP	SVC_EMP	BAS_EMP	SCH_ENR	UNIV_ENR
797	312	312	164	59	76454.84	260	1309	2906	42	0

Growth

ZONE	TOT_POP	HH_POP	EMP_POP	TOT_HH	MDN_INC	RET_EMP	SVC_EMP	BAS_EMP	SCH_ENR	UNIV_ENR
797	5	5	5	0		7	208	12	0	0

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750 N. Glendale Ave.
Glendale, CA 91206
JanoBaghdanian@gmail.com
Ph: 818-694-2880
Fax: 818-888-4541

Tapestry by Hilton
Traffic Impact Study

City of Santa Ana, CA
March 14, 2019

Prepared by:

Jano Baghdanian, P.E., T.E., PTOE
Jano Baghdanian & Associates
Traffic, Transportation & Parking Consultants

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1.0 INTRODUCTION

This Traffic Impact Analysis for the Tapestry by Hilton Project ("the Project") is consistent with the traffic study guidelines as set forth by the City of Santa Ana and follows the requirements of the current *Congestion Management Program for Orange County*. After a consultation with the staff of the City of Santa Ana, it was determined that a total of four (4) intersections and three (3) street segments would be analyzed and evaluated for potential project-related traffic impacts. The method used by this traffic analysis to analyze the required intersections is the Intersection Capacity Utilization (ICU) Method. This method was used to evaluate the Level of Service (LOS) at each intersection by first determining their respective volume-to-capacity ratios. The method for evaluating the Level of Service (LOS) at each street segment was to compare the daily traffic volume of the segment with the Level of Service thresholds provided by the City of Santa Ana.

A review was also conducted to determine if the total daily trips generated by the Project and the locations of the highway system that provides access to the Project site would require a Congestion Management Program (CMP) impact analysis for the proposed Project.

The following scenarios were evaluated in this analysis:

- Existing AM, PM Peak and Daily Conditions
- Existing AM, PM Peak and Daily Conditions with Proposed Project
- Future (Opening Year 2022) AM, PM Peak and Daily Conditions without Project (Existing plus Related Projects and Ambient Growth)
- Future (Opening Year 2022) AM, PM Peak and Daily Conditions with Proposed Project

The potential Project-related impacts were determined and required mitigations, if necessary, are included as part of the traffic analysis.

2.0 PROJECT LOCATION AND SITE DESCRIPTION

2.1 Project Location

As illustrated in **Figure 1**—*Regional Location Map*, the Project site (1580 East Warner Avenue) is located within the City of Santa Ana (the "City") at the southeast corner of South Grand Avenue and Brookhollow Drive. State Route SR-55 (Costa Mesa) Freeway provides regional access to the Project site.

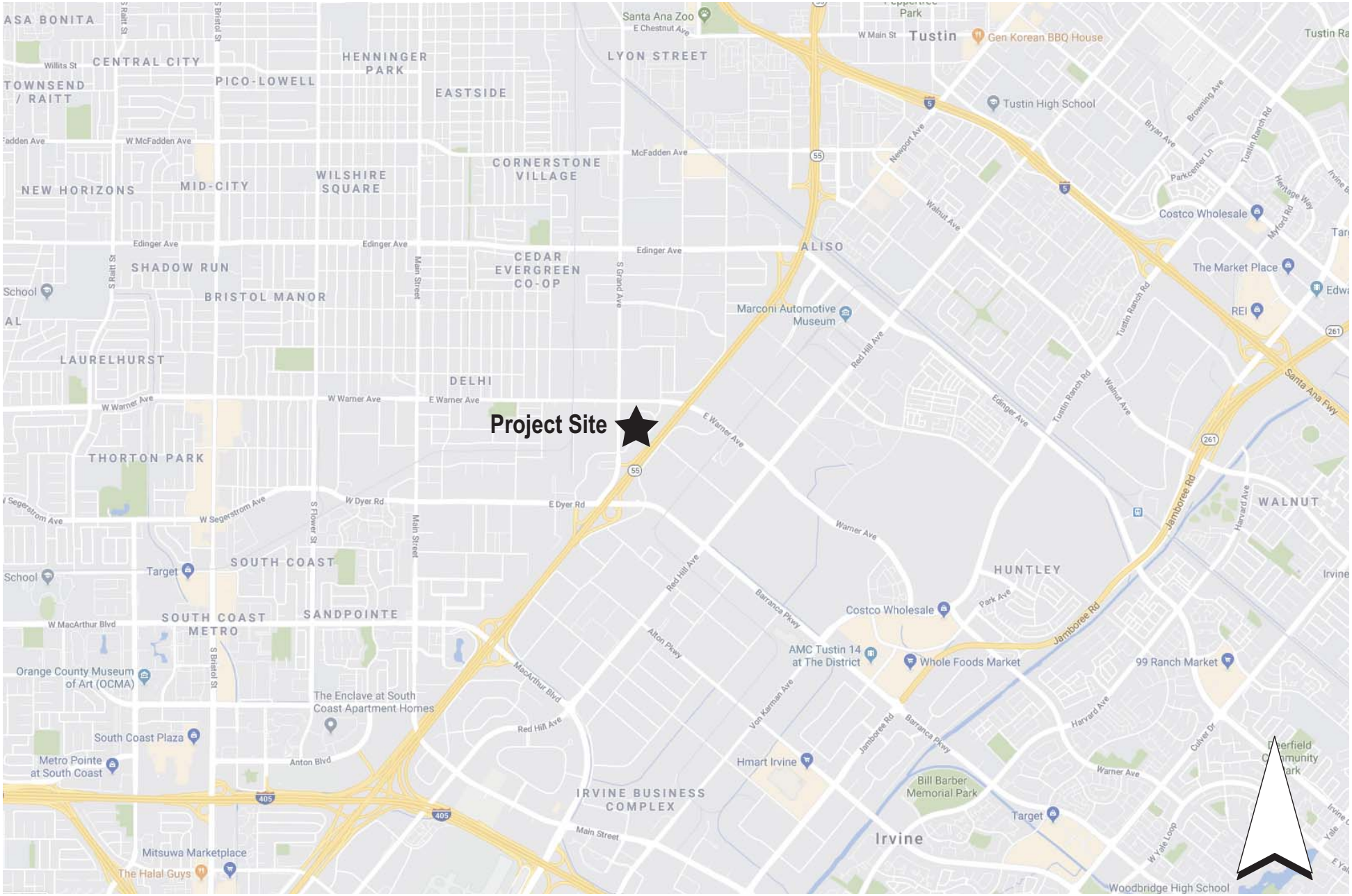
As illustrated in **Figure 2**—*Project Site and Surrounding Uses*, the Project site is bounded by South Grand Avenue to the west, Brookhollow Drive to the north, and the SR-55 Freeway southbound off-ramp on the south. There is an existing office building complex with a surface parking lot to the east of the project site.

2.2 Existing Development

The current Project site is mostly a vacant lot with a small portion on the north side along Brookhollow Drive being used to provide temporary parking for an adjacent development.

2.3 Project Characteristics

The proposed Project consists of the construction of a 6-story (79,375 sq. ft.) business hotel with 138 guest rooms. In addition, there will be a 5,000 square-foot free-standing high-turnover sit-down restaurant. The Project will have a surface parking lot that provides 176 parking spaces. The project is expected to be completed by the Year 2022.



Source: Google Maps 2018

NOT TO SCALE

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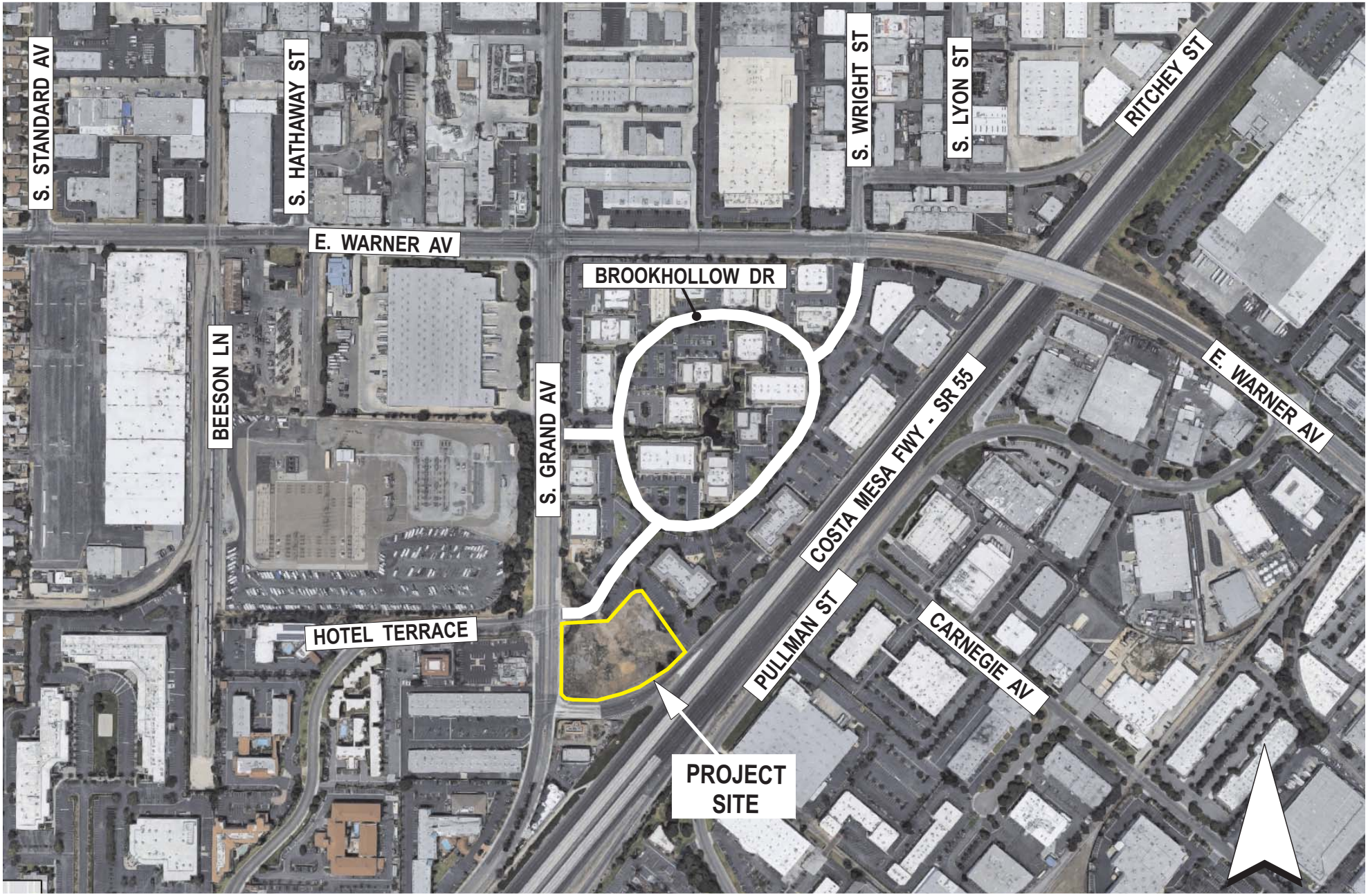
REGIONAL LOCATION MAP

FIGURE 1

1580 WARNER AV, SANTA ANA, CA



Source: Google Maps

NOT TO SCALE

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PROJECT SITE & SURROUNDING USES

FIGURE 2

3.0 SITE ACCESS AND CIRCULATION

3.1 Existing Site Access

Vehicular access to the existing vacant lot and the temporary parking lot is provided through two driveways on Brookhollow Drive.

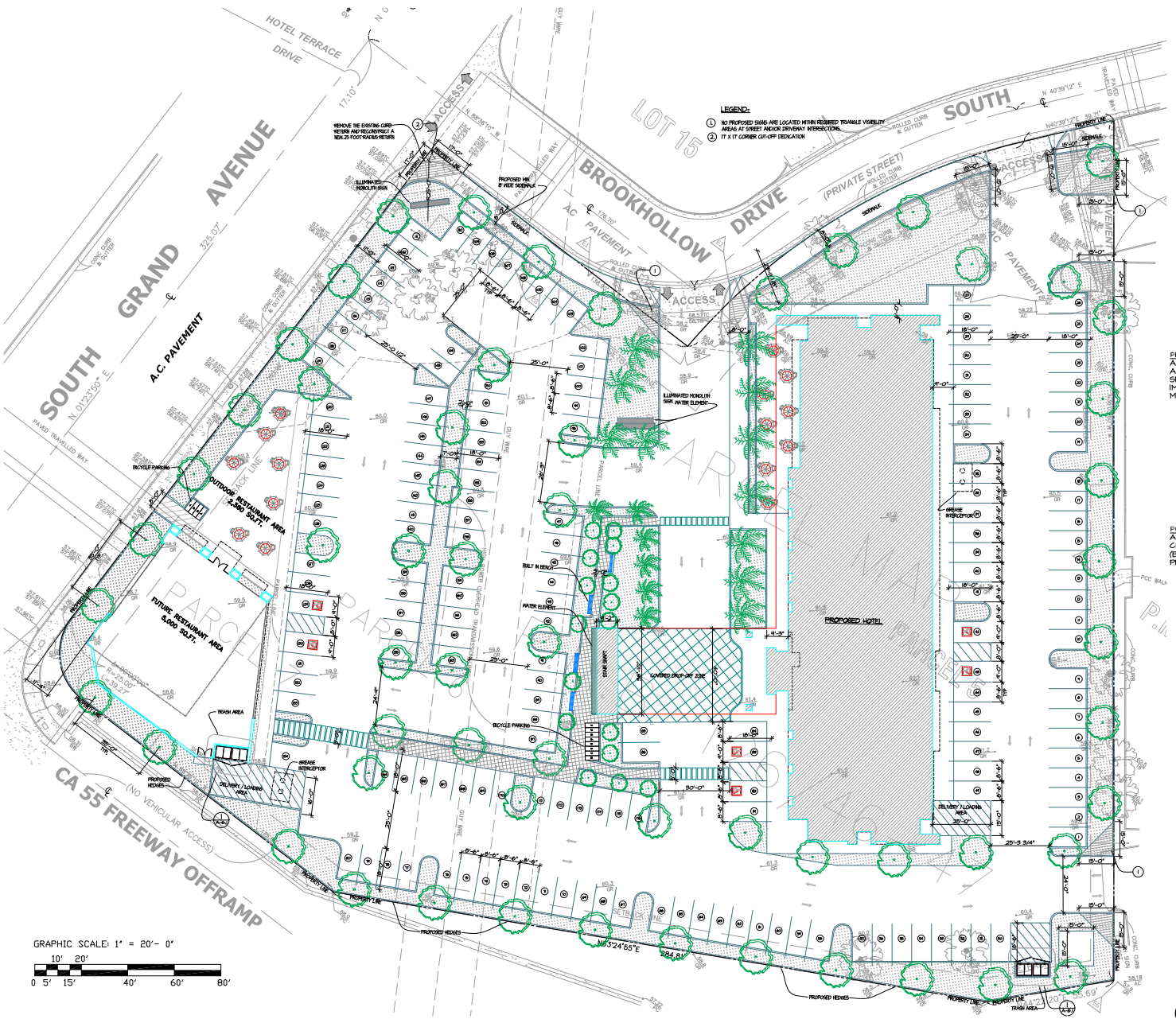
3.2 Proposed Project Site Access

Please refer to **Figure 3—***Proposed Project Site Plan* for an illustration of the proposed site layout. Access to and from the Project will be from the following locations:

(1) One westerly full-service driveway on Brookhollow Drive: This driveway will be approximately 25 feet wide and provide ingress and egress to and from the Project. It leads to the main drop-off and pick-up area of the hotel.

(2) One easterly full-service driveway on Brookhollow Drive: This driveway will be approximately 28 feet wide and also provide ingress and egress to and from the project. It connects to the surface parking lot on site.

(3) Two access points located at the southeast and northeast corners of the Project site connecting to the parking lot of the adjacent office development.



NOTE:

1. INSTALLATION OF 24A BOX STREET TREES AT 35' ON CENTER ON GRAND AVENUE, INCLUDING DEEP ROOT IRRIGATION SYSTEMS, PER CITY STANDARDS. CONTACT THE TREE SECTION SUPERVISOR AT (714) 647-3331 FOR TREE SPECIES AND FOR NUMBER AND SIZE OF REQUIRED TREE REPLACEMENTS.
2. THE INSTALLATION OF ALL PUBLIC UTILITIES REQUIRED TO SERVICE THE PROJECT SITE (I.E., NEW SEWER LATERAL, WATER LATERALS, AND STORM DRAIN).
3. THE PROPOSED PROJECT TO BE SERVED BY INDIVIDUAL PUBLIC WATER METERS FOR EACH AND EVERY SEPARATE COMMERCIAL/RETAIL AREAS, AND FOR THE LANDSCAPE AREA. PUBLIC METER TO BE PROPERLY SIZED AND TO BE PLACED AT THE PROJECT'S PRONTAGE IN PUBLIC RIGHT-OF-WAY.
4. GREASE INTERCEPTOR MUST COMPLY WITH THE CITY'S ORDINANCE NO. NS 26-70.

NOTE: ALL NEW FOOD SERVICE ESTABLISHMENTS SHALL COMPLY WITH THE CITY'S ORDINANCE NO. NS-26-70, FOR FAT, OIL AND GREASE (FOG) CONTROL PROGRAM, AND ITS SUBSEQUENT REQUIREMENT FOR CONSTRUCTION OF A GRAVITY GREASE INTERCEPTOR. DEVELOPER SHALL CONTACT CITY'S PLANNING AND BUILDING DEPARTMENT TO INCORPORATE DESIGN OF THE REQUIRED GREASE INTERCEPTOR OF ADEQUATE SIZE, INTO THE PROJECT'S PLUMBING PLANS, AND TO DETERMINE AN APPROPRIATE LOCATION FOR IT WITHIN THE PROJECT SITE

5. 15' X 15' SIGHT DISTANCE TRIANGLE AREA AT THE VEHICULAR SITE ACCESS LOCATIONS
6. 17'X17' CORNER CUT-OFF DEDICATION AT THE SOUTHEAST CORNER OF GRAND AVE. AND BROOKHOLLOW DRIVE.
7. ALL TRAFFIC IMPACT ANALYSIS (TIA) RECOMMENDATION(S) WILL BE IMPLEMENTED PRIOR TO THE BUILDING PERMIT, SOLELY AT THE DEVELOPER'S EXPENSE.

PROPOSED IMPROVEMENTS:
ALL IMPROVEMENT AS SHOWN HEREON TO BE CONSTRUCTED AND INSTALLED AT EXPENSE IN ACCORDANCE WITH THE CITY DESIGN STANDARDS AND SPECIFICATIONS, THE SANTA ANA MUNICIPAL CODE, APPROVED STREET IMPROVEMENT PLANS AND THE REQUIREMENTS OF THE STATE SUBDIVISION MAP ACT.

1. ALL TRAFFIC IMPACT ANALYSIS (TIA) RECOMMENDATION(S) WILL BE IMPLEMENTED PRIOR TO THE BUILDING PERMIT, SOLELY AT THE DEVELOPER'S EXPENSE.
2. THIS SITE WILL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SANTA ANA REGION ORDER NO. R8-2009-0030 DISCHARGE REQUIREMENTS (NPDES PERMIT).A CONTACT MINDY LY (714) 647-5665 FOR ADDITIONAL INFORMATION.
3. ANY EXISTING SEWER LATERAL(S) SERVING THE PROJECT SITE SHALL BE PROPERLY CAPPED AND ABANDONED AT THE PROPERTY LINE. CONTACT MIR FATTAHI, AT (714) 647-5038 FOR ASSISTANCE.

POLICE DEPARTMENT:
ALL STRUCTURES AND PARKING LOTS COMPLY WITH THE PROVISIONS OF CHAPTER 8, ARTICLE II, DIVISION 3 OF THE SANTA ANA MUNICIPAL CODE (BUILDING SECURITY ORDINANCE). ALL APPLICABLE SECTIONS MUST BE PRINTED VERBATIM ON THE SET OF PLANS.

SCOPE OF WORKS:

CONSTRUCTION OF A NEW 82'-0" HEIGHT 6 STORY BUILDING WITH 138 SUITS AND ROOF TOP LOUNGE.

CODE ANALYSIS:

USE:	HOTEL
ZONE:	79-6.9: SD-8 - Specific Development
LOT SIZE:	123,042.5 SQ.FT. (2.82 ACRES)
OCCUPANCY:	R-2
CONSTRUCTION TYPE:	TYPE III-M MODIFIED
PROPOSED HEIGHT:	6 STORIES, 82'-0"
SPRINKLED:	YES

HOTEL - 142 KEYS	
FIRST FLOOR -	FLOOR AREA 13,355 SQ.FT.
2ND FLOOR - HOTEL GUEST ROOMS - 26 KEYS, FLOOR AREA 13,400 SQ.FT.	
3RD FLOORS - HOTEL GUEST ROOMS - 24 KEYS, FLOOR AREA 13,400 SQ.FT.	
4TH FLOORS - HOTEL GUEST ROOMS - 24 KEYS, FLOOR AREA 13,400 SQ.FT.	
5TH FLOORS - HOTEL GUEST ROOMS - 24 KEYS, FLOOR AREA 12,410 SQ.FT.	
6TH FLOORS - HOTEL GUEST ROOMS - 24 KEYS, FLOOR AREA 12,410 SQ.FT.	
TOTAL -	74,375 SQ.FT
HOTEL PARKING:	
REQUIRED PARKING: 138+14 (ONE ADDITIONAL PARKING FOR EVERY 10 ROOMS) = 152 SPACES	
REQUIRED BICYCLE PARING: 5% OF THE TOTAL REQUIRED PARKING = 152 X .05 =7.6 SPACES	
PROPOSED BICYCLE PARKING: 8 SPACES	

FREE STANDING RESTAURANT AREA: 5,000 SQ.FT.	
ASSUMED 60% DINING AREA: 3,600 SQ.FT. 24 PARKING SPACE REQUIRED (8 PER 1,000 S.F.)	
REQUIRED BICYCLE PARING: 5% OF THE TOTAL REQUIRED PARKING = 24 X .05 =1.45 SPACES	
PROPOSED BICYCLE PARKING: 4 SPACES	
TOTAL PARKING SPACES REQUIRED FOR THE PROJECT:	- 152+24 =176 SPACES
STANDARD PARKING PROVIDED:	- 170 SPACES
HANDICAPPED PARKING PROVIDED:	- 6 SPACES
TOTAL PARKING SPACE PROVIDED FOR THE PROJECT:	- 176 SPACES

FAR: HOTEL (74,375 S.F.) + RESTAURANT (5,000S.F.) =84,375 SQ.FT.
83,875/123,042.5= .68

Figure 3

1 **SITE PLAN** SCALE: 1"=20'-0"

Alajajian Marcoosi Architects Inc.
320 W. Arden Ave. Suite 120
Glendale, CA 91203
Phone: (818) 244-5130
Fax: (818) 551-1613
E-mail: araman@worldnet.att.net

Owner:
MODA HOTELS, LLC

Owner Address:
17510 PIONEER BLVD. #221-A ARTESIA,CA 90701

Project Name:
TAPESTRY BY HILTON

Project Adress:
1580 BROOKHOLLOW AVE. SANTA ANA

SITE PLAN

Scale: 1"=20'-0"

- APPROVED
- APPROVED
- REVISION
- REVISION
- REVISION
- DRAWN BY
- PRINT DATE 8-6-18
- JOB NO
- SHEET NO

A-1.1

4.0 EXISTING TRANSPORTATION FACILITIES

4.1 Freeway Access to Region

The Project area is served by the following freeway:

- **The SR-55 (Costa Mesa) Freeway** is basically a north/south freeway that begins at the SR-91 (Riverside) Freeway to the north in the City of Anaheim and terminates at 19th street in the City of Costa Mesa. It then becomes a local arterial and connects to the SR-1 (Pacific Coast Highway) to the south in the City of Newport Beach. In addition, the SR-55 Freeway also provides connections to the I-5 (Santa Ana) Freeway and the I-405 (San Diego) Freeway, as well as other state routes (SR-22 and SR-73). The segment of the SR-55 Freeway in the vicinity of the Project area consists of four mixed-flow travel lanes and one high occupancy vehicle (HOV) lane in each direction. On/Off Ramps that provide access to and from the Project are located on South Grand Avenue and East Dyer Road.

4.2 Surrounding Roadway Systems

The Project area is served by the following surrounding roadways:

- **South Grand Avenue** is a north-south Major Arterial that provides access to the City of Orange to the north and terminates at East Dyer Road to the south. Within the study area, South Grand Avenue consists of three travel lanes in each direction separated by a continuous two-way left-turn lane with exclusive left-turn lanes at major intersections. Parking is prohibited on both sides of the street. The speed limit is 45 miles per hour. There is a southbound SR-55 Freeway off-ramp at South Grand Avenue.
- **East Warner Avenue** is classified as an east-west Major Arterial that connects the City of Tustin to the east and the City of Fountain Valley to the west. Within the study area, East Warner Avenue has two westbound lanes and three eastbound lanes separated by a continuous two-way left-turn lane with exclusive left and right turns lanes at major intersections. Parking is not allowed on both sides of the street. The speed limit is 45 miles per hour east of S. Grand Avenue and 40 miles per hour west of S. Grand Avenue.
- **East Dyer Road** is an east-west Major Arterial that connects to the city boundaries of Tustin and Irvine to the east. West of South Flower Street, it becomes West Segerstrom Avenue and connects with the City of Fountain Valley to the west. Within the study area, East Dyer Road generally consists of three travel lanes in each direction with exclusive left-turn lanes at intersections. There is a raised median island on East Dyer Road separating opposing traffic East of South Grand Avenue and west of Hotel Terrace. Parking is prohibited on both

sides of the street. The speed limit is 45 miles per hour east of Main Street and 40 miles per hour west of Main Street. There are northbound and southbound on and off-ramps for the SR-55 Freeway at East Dyer Road.

- **Brookhollow Drive** is a local circular road that provides internal circulation for a triangular area of mix development complex bounded by South Grand Avenue, East Warner Avenue and the SR-55 (Costa Mesa) Freeway. It also has access connections at East Warner Avenue and South Grand Avenue. Brookhollow Drive has one lane in each direction separated by a double yellow center line. There is no parking on both sides of the street. As mentioned above, the Project has two driveways on Brookhollow Drive.

4.3 Transit Service

Public transit services in the City of Santa Ana is provided by the Orange County Transportation Authority (OCTA). In the vicinity of the Project site, there are four (4) bus routes:

1. Local OCTA Route 55—runs between Santa Ana and Newport Beach via Standard Avenue, Warner Avenue, Bristol Street, Fairview Street and 17th Street.
2. Local OCTA Route 59—runs between Anaheim and Irvine via Kraemer Boulevard, Glassell Street, Grand Avenue, Von Karman Avenue.
3. Local OCTA Route 72—runs between Sunset Beach and Tustin via Warner Avenue.
4. Metrolink Stationlink Route 463—runs between Santa Ana Regional Transportation Intermodal Center and Hutton Centre via Grand Avenue.

The nearest bus stops to the project site are located on South Grand Avenue at Hollowbrook Drive and on East Warner Avenue at South Grand Avenue. Please refer to **Figure 4** for an illustration of the existing public transit routes.

Routes offering 15 minutes (or less) Weekday rush hour frequency

Local Routes (1-99)

Community Routes (100-199)

OC Express Routes (200-299) Weekday Rush Hour Only

Metrolink Stationlink Routes (400-499) Weekday Rush Hour Only

Bravo Limited Stop Service (500-599)

Express Service (700-799) Weekday Rush Hour Only

Rail Stations

OC Bus Transit Centers

Project Site
1580 Brookhollow Ave
Santa Ana, CA 92705

NOT TO SCALE

Source: Orange County Transportation Authority

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EXISTING PUBLIC TRANSIT ROUTE (OCTA)

FIGURE 4

5.0 EXISTING TRAFFIC VOLUMES

Manual traffic counts were obtained for vehicular turning movements on Wednesday, November 14, 2018 at the following four (4) study intersections:

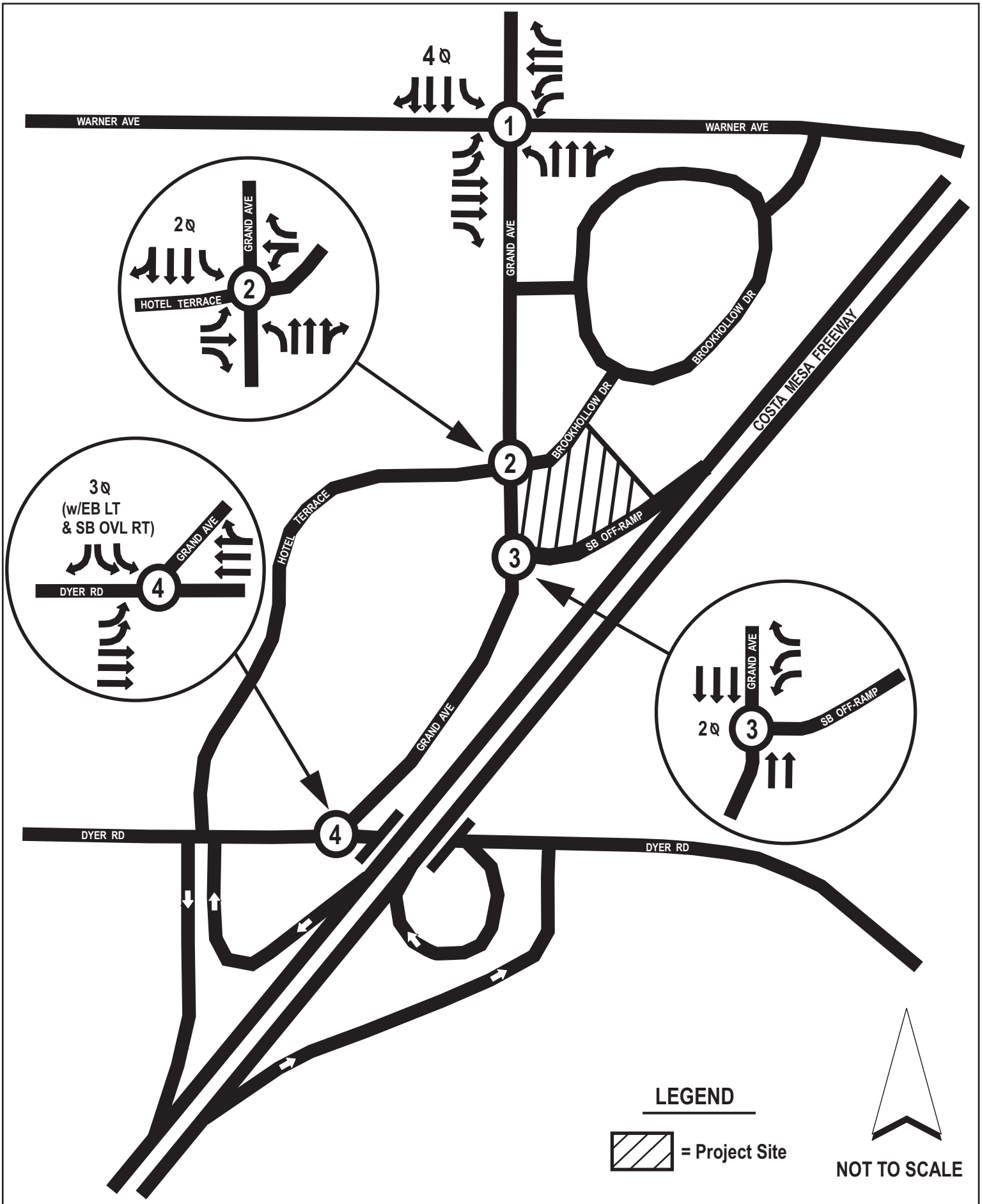
(1) Grand Avenue & Warner Avenue
(2) Grand Avenue & Brookhollow Drive/Hotel Terrace
(3) Grand Avenue & SR-55 Freeway southbound off-ramp
(4) Grand Avenue & Dyer Road

Traffic counts were obtained during typical commuter hours to determine peak traffic counts. The findings show that typical peak traffic for morning and afternoon hours occur during the hours of 7:00 - 9:00 A.M. and 4:00 – 6:00 P.M. respectively.

In addition, daily (24-hour) machine counts were also collected on the same day for the following three (3) roadway segments:

1. Grand Avenue between Warner Avenue and Brookhollow Drive/Hotel Terrace
2. Grand Avenue between Brookhollow Drive/Hotel Terrace and the SR-55 Freeway southbound off-ramp
3. Grand Avenue between the SR-55 Freeway southbound off-ramp and East Dyer Road.

Please refer to **Appendix A** for the manual and machine traffic counts. Please also refer to **Figure 5** for a depiction of the lane configurations for the study intersections, and **Figure 6** for an illustration of the existing daily and AM/PM peak traffic volumes for the study area.



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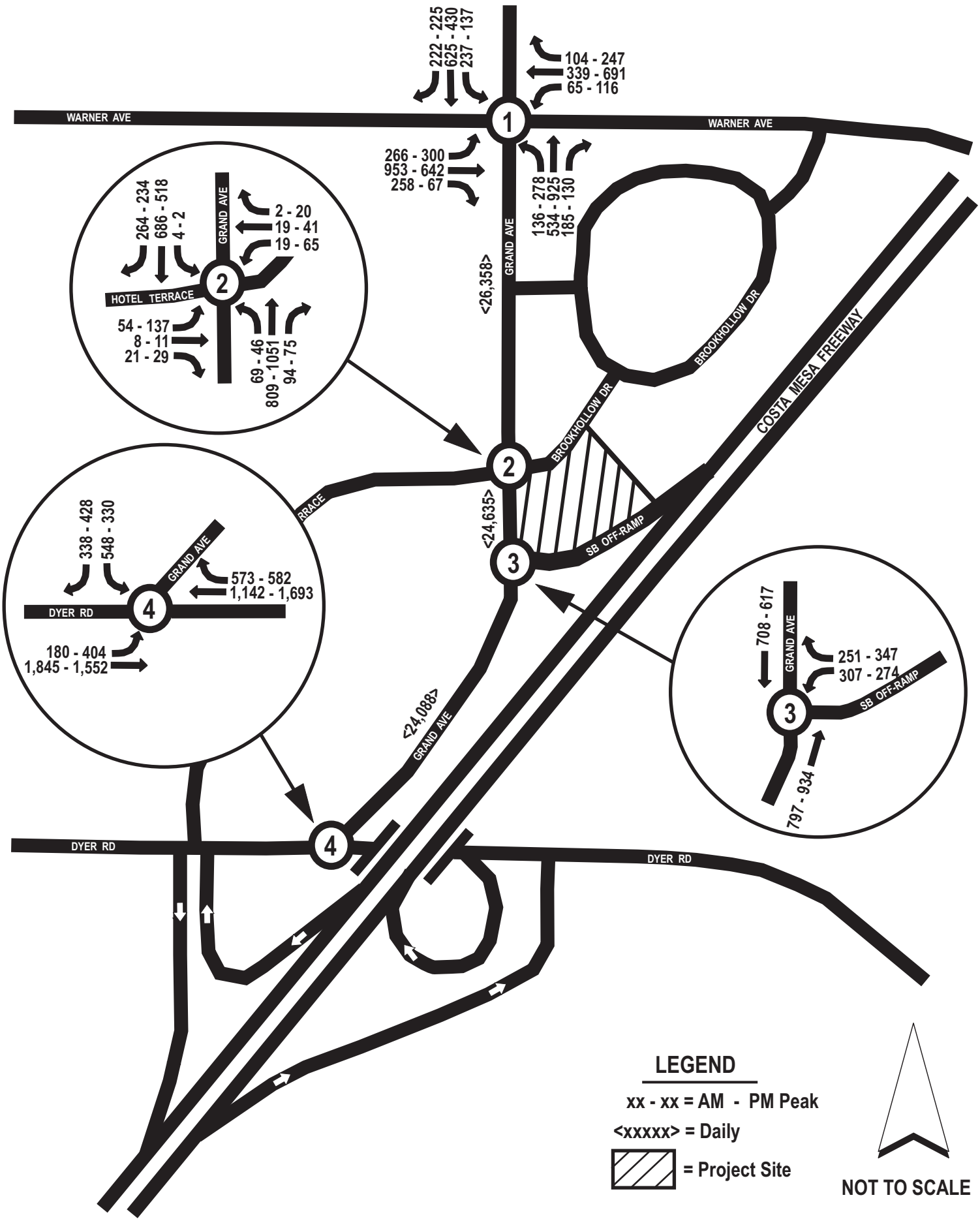
LANE CONFIGURATIONS & INTERSECTION CONTROLS AT STUDY INTERSECTIONS

FIGURE 5



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EXISTING TRAFFIC VOLUMES

FIGURE 6

6.0 PROJECT TRAFFIC GENERATION ANALYSIS

The Project consists of the construction of a 138-room business hotel and a 5,000-square-foot free-standing high-turnover sit-down restaurant. The purpose of this section is to document the proposed project trip generation and resulting traffic study area to be evaluated as part of this traffic analysis.

6.1 Project Trip Generation Methodology

Trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual 10th Edition* were used in this analysis. **Table 1** summarizes the trip generation findings. As shown in the table, the proposed project is forecast to result in 99 new a.m. peak-hour trips, 88 new p.m. peak-hour trips and 1,060 daily trips. A ten percent (10%) internal capture reduction was applied to the high-turnover sit-down restaurant trips to account for the internal trips made between the hotel and the restaurant. Those trips begin and end within the development complex without using the external road system.

Table 1: Project Trip Generation[1]

Land Use (ITE Code)	Size	Units	AM Peak Hour Trips				PM Peak Hour Trips				Daily Trips	
			Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total
New Project Land Use Added												
Business Hotel (312)	138	room	0.39	54	23	31	0.32	44	24	20	4.02	555
High-Turnover Sit-Down Restaurant (932)	5	tsf	9.94	50	28	22	9.77	49	30	19	112.18	561
Internal Capture Reduction (10%)				*-5*	*-3*	*-2*		*-5*	*-3*	*-2*		*-56*
Total Trip Generation				99	48	51		88	51	37		1,060

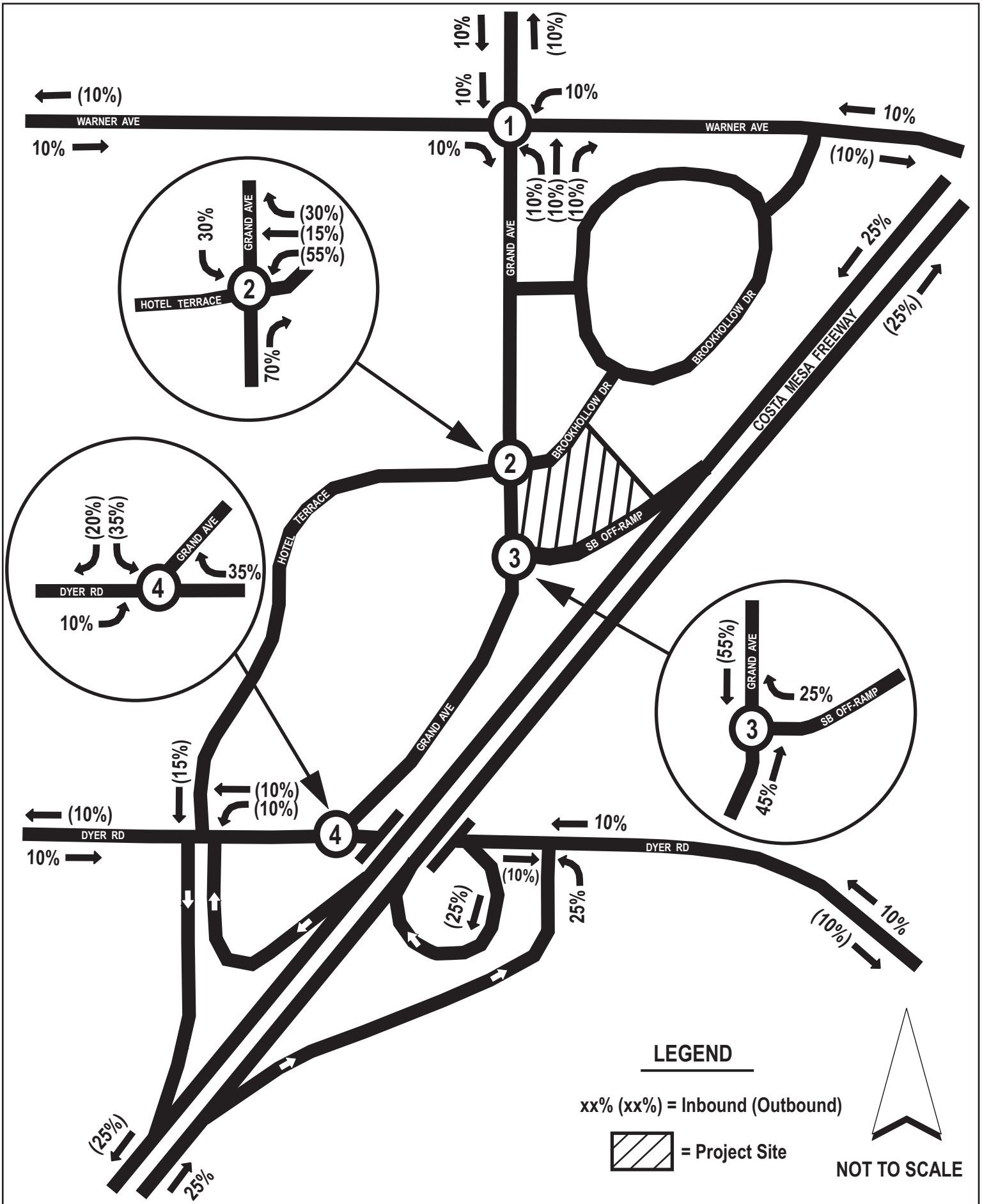
[1] ITE "Trip Generation" Manual, 10th Edition, 2017

6.2 Project Trip Distribution & Assignment

Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the project. The geographic distribution of project trips is based on the functional classifications of streets in the vicinity, the magnitude of traffic volumes, as well as local knowledge of the roadway network.

Based on the project trip generation shown in **Table 1** and the expected regional trip distribution, a proposed study area for the traffic analysis was derived. The proposed study area includes 4 signalized intersections and 3 roadway segments. The locations and the number of the intersections and roadway segments to be analyzed was reviewed and approved by the City of Santa Ana.

Figures 7 & 8 illustrate the Trip Distribution and Trip Assignments at the study intersections and roadway segments.



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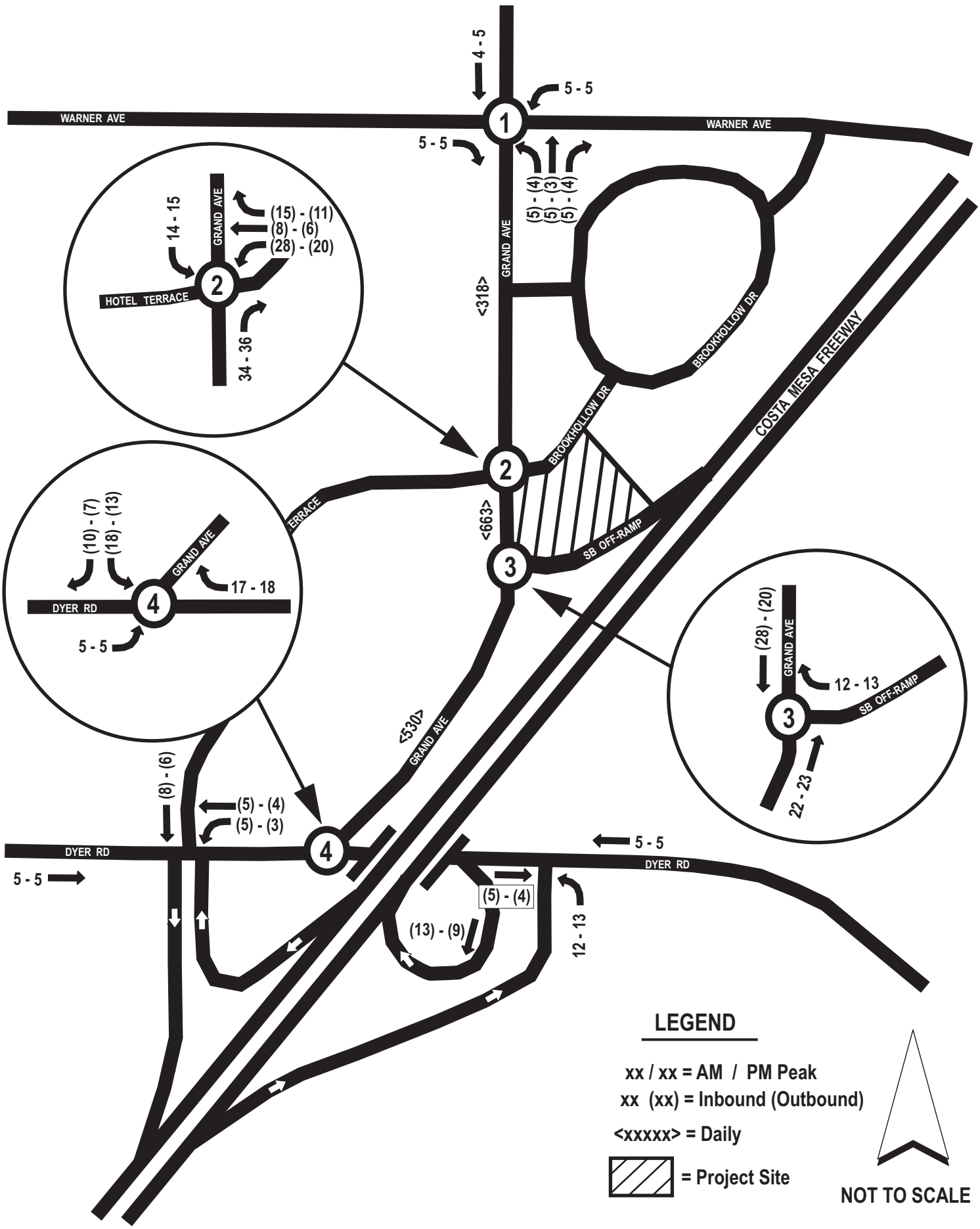
PROJECT TRIP DISTRIBUTION

FIGURE 7



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PROJECT TRIP ASSIGNMENT

FIGURE 8

7.0 RELATED PROJECTS & AMBIENT GROWTH

Future traffic projections for the study intersections have been evaluated to include growth due to (1) other related projects in development located within one mile of the project site and (2) ambient traffic growth.

7.1 Trip Generation for Related Projects

To understand the relative traffic impacts for the projected year of completion (2022), this traffic study analyzed potential traffic trips due to the development of other related projects in the area. A list of 12 related projects was provided by the cities of Santa Ana, Tustin and Irvine. Their locations and descriptions are shown in **Table 2**. The associated trip generations for the related project were calculated using the ITE Trip Generation Manual, 10th edition and from relevant traffic impact studies and they are shown in **Table 3**. The related project trip assignment at the study intersections can be viewed in **Figure 9.** Moreover, a map of the locations of these related projects is shown in **Figure 10**.

Only those projects with a potentially significant impact, and therefore a documented trip generation, were included in the related projects list. Any other developing projects, that were considered small in nature, were encompassed in area wide ambient growth.

7.2 Ambient Traffic Growth

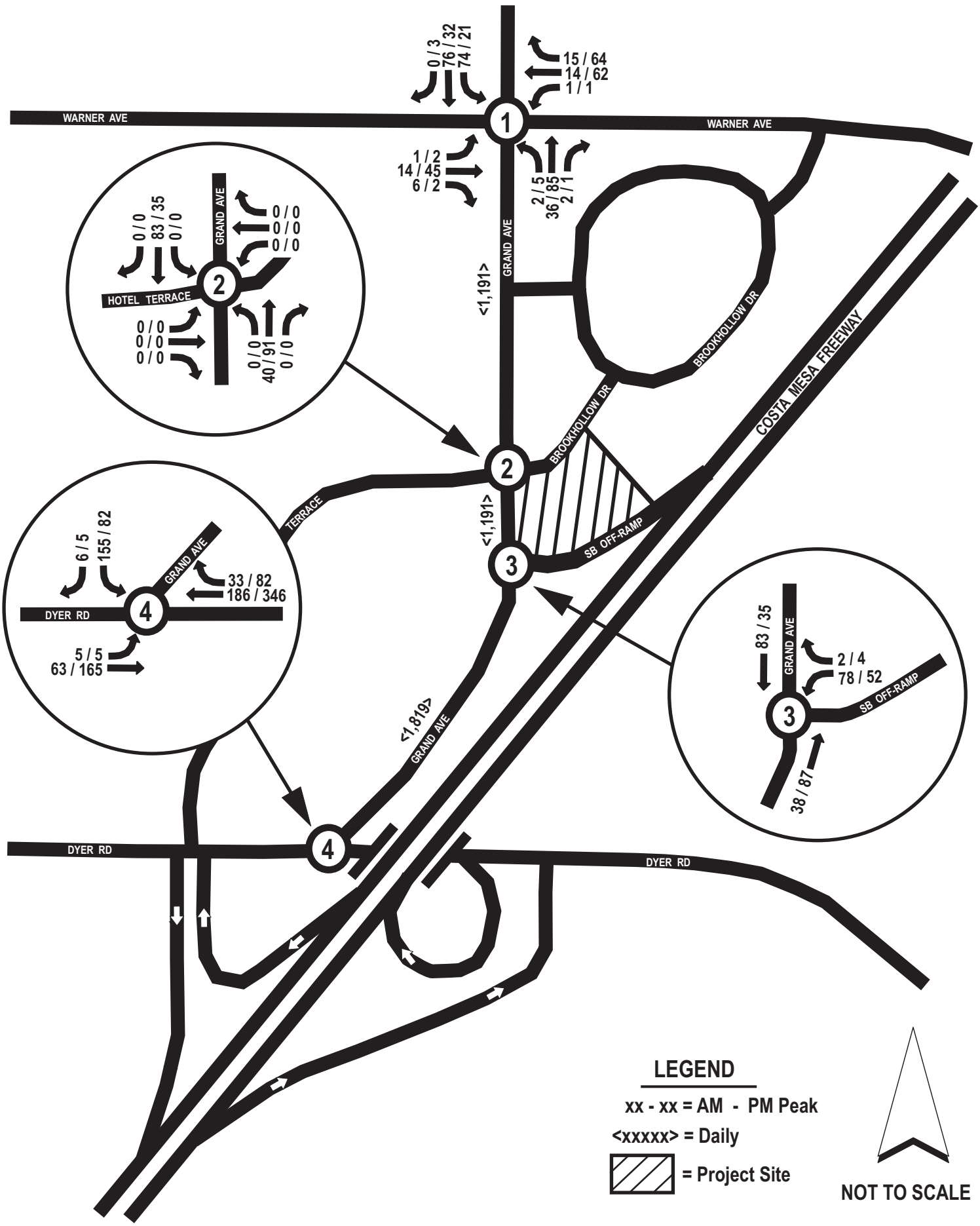
To account for the future traffic growth not included in the above related projects list (i.e. continuing development and intensification of existing development), the existing traffic volumes were increased by an ambient growth rate of 4% (1% per year). The use of 1% annual growth rate was approved by the City of Santa Ana. These values were then added to the potential traffic generated by the aforementioned related projects to accurately forecast future traffic conditions.

Table 2: Location & Description of Related Projects

No.	Related Project	Loaction/Address	Description
City of Santa Ana			
S1	McFadden Village Chevron	2120 E. Edinger Ave	2,037 S.F. Gasoline/Service Station
S2	TLC Care Facility	2032 S. Cypress Ave	12-Bed Care Facility
S3	Elk's Lodge	1751 Lyon Street	32,000 S.F. Lodge & 20,453 S. F. Commercial
S4	Our Lady of Guadalupe	542 E. Central Ave	6,372 S.F. Office/Residential Apartment
S5	Heritage Village	2001 E. Dyer Road	9,400 S.F. Commercial & 1,221 D.U. Apartments
S6	Shea ITT	666 E. Dyer Road	40,000 S.F. Industrial
S7	Legado at the MET	200 E. First American Way	278 D.U. Apartments
City of Tustin			
T1	Levity at Tustin Legacy	Tustin Ranch Rd/Park Ave/Legacy Rd.	218 D.U. Attached/Detached Residential
T2	Animal Care Facility	1630 Victory Road	50,000 S.F. Animal Care Facility
T3	Flight at Tustin Legacy	NWC Barranca Pkwy/Armstrong Ave	870,000 S.F Commercial Mixed Use
City of Irvine			
I1	Homewood Suites	17330 Red Hill Avenue	162-Rm. Hotel, 2,500-S.F. Fast-Food Restaurant
I2	Edwards Lifesciences Expansion	1150 Alton Parkway	200,057 S.F. Office, 149,750 S.F. Industrial, -157,735 S.F. Manufacturing, -10,398 S.F. Warehouse

Table 3: Related Project Trip Generation

Project #	Project Name	Location	Daily Trips	Weekday Peak Hour					
				Morning			Afternoon		
				Inbound	Outbound	Total	Inbound	Outbound	Total
City of Santa Ana									
S1	McFadden Village Chevron	2120 E. Edinger Avenue	1,225	43	43	86	56	56	112
S2	TLC Care Facility	2032 S. Cypress Avenue	37	1	1	2	1	2	3
S3	Elk's Lodge	1751 Lyon Street	994	19	11	30	44	50	94
S4	Our Lady of Guadalupe	542 E. Central Avenue	32	3	1	4	2	2	4
S5	Heritage Village	2001 E. Dyer Road	6,997	120	329	449	345	228	573
S6	Shea ITT	666 E. Dyer Road	198	25	3	28	3	22	25
S7	Legado at the MET	200 E. American Way	1,512	26	74	100	74	48	122
City of Tustin									
T1	Levity at Tustin Legacy	Tustin Ranch Rd./Park Ave./Legacy Rd.	1,186	20	58	78	59	37	96
T2	Animal Care Facility	1630 Victory Road	1,075	122	60	182	71	106	177
T3	Flight at Tustin Legacy	Barranca Pkwy/Armstrong Ave. NWC	9,484	1,249	219	1,467	288	1,102	1,386
City of Irvine									
I1	Homewood Suites	17330 Red Hill Avenue	2,531	96	80	176	92	87	179
I2	Edwards Lifesciences	1150 Alton Parkway	2,054	215	22	237	15	201	216



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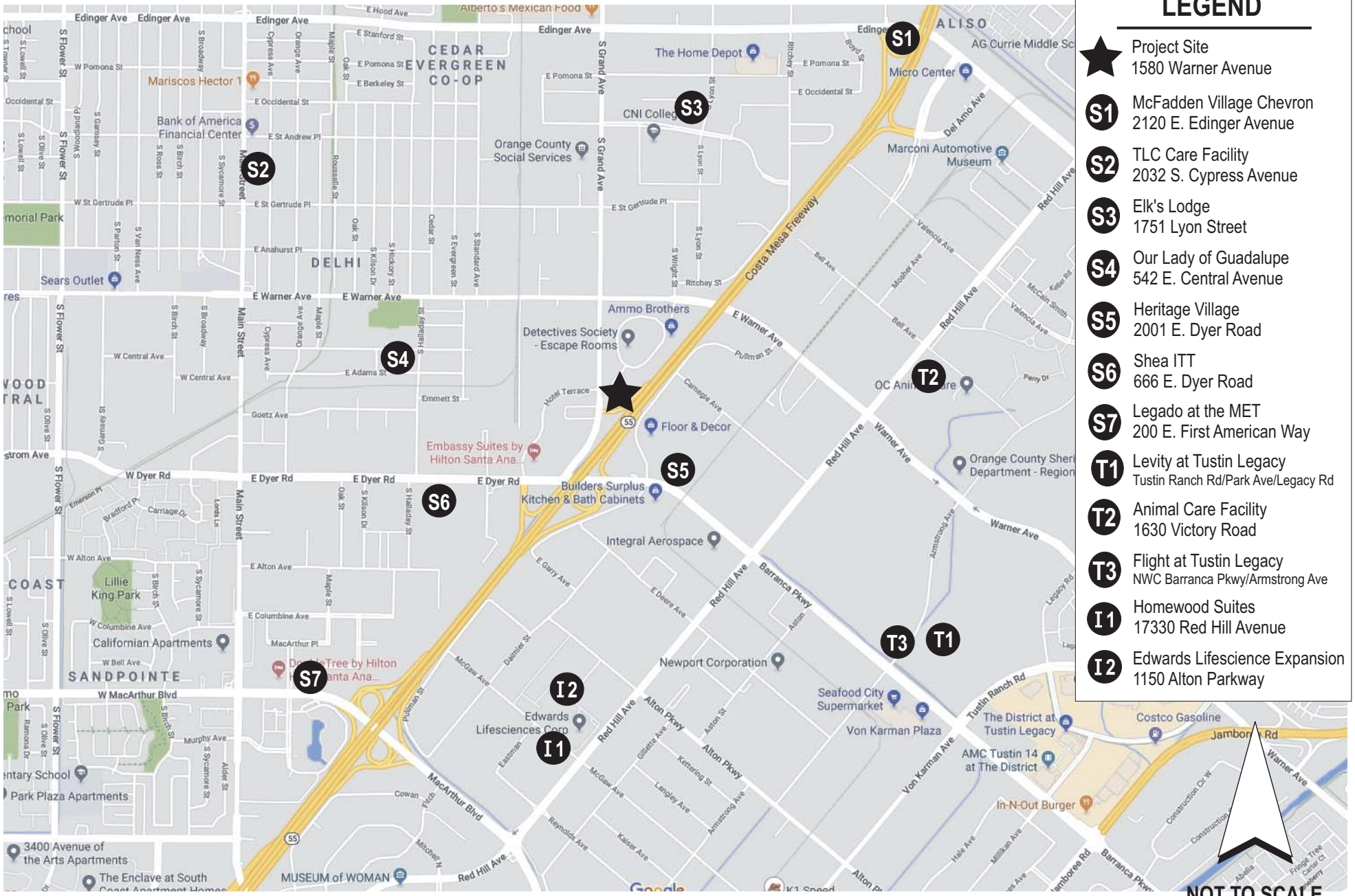
RELATED PROJECT TRIP ASSIGNMENT

FIGURE 9

1580 Brookhollow Ave



Source: Google Maps 2018

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LOCATION MAP OF RELATED PROJECTS

FIGURE 10

8.0 METHOD OF TRAFFIC IMPACT ANALYSIS

8.1 Signalized Intersections

For signalized intersections, the City of Santa Ana uses the Intersection Capacity Utilization (ICU) method to analyze the potential traffic related impacts created by the proposed development. This method relies on the determination of a Level of Service (LOS) at each of the study intersections by first determining their corresponding Volume-to-Capacity (v/c) ratios. The ICU method therefore essentially compares the volume of traffic against the capacity of an intersection. Please refer to **Appendix B** for the ICU calculations for the study intersections.

8.2 Roadway Segments

For roadway segments, the Levels of Service were determined by first calculating the daily Volume-to-Capacity (v/c) ratios at the study roadway segments using the 24-hour traffic volumes divided by the daily roadway capacities based on the Orange County Master Plan of Arterial Highways street classifications shown in **Table 4** below. It is then used to estimate the LOS of the roadway segments.

Table 4: Daily Roadway Capacity

Street Classification	Lane Configuration	Capacity (Vehicles Per Day)
Principal Arterial	8 Lanes Divided	75,000
Major Arterial	6 Lanes Divided	56,300
Primary Arterial	4 Lanes Divided	37,500
Secondary Arterial	4 Lanes Undivided	25,000
Commuter Street	2 Lanes Undivided	12,500

Level of Service varies from at best LOS A (free flow/excellent) to at worst LOS of F (stop-and-go/failure). A LOS A and F, according to the Highway Capacity Manual, correspond to a v/c ratio less than 0.600 and a v/c greater than 1.001 respectively. Please refer to **Appendix C** for a more detailed description of the various Levels of Services.

The Volume-to-Capacity ratios and Levels of Service are determined for the study intersections and roadway segments for each of the following scenarios:

(1) Existing Traffic Conditions
(2) Existing Plus Project Traffic Conditions
(3) Future (Year 2022) Without Project Traffic Conditions (Existing plus ambient growth & related projects)
(4) Future (Year 2022) With Project Traffic Conditions

To determine if the project would cause a significant impact in traffic, relative to the existing traffic system, the City of Santa Ana uses the following criteria and thresholds in **Table 5** that apply to the project study area:

Table 5: City of Santa Ana LOS Thresholds

Level of Service	v/c Ratio Increase	Significant Impact
A	n/a	No
B	n/a	No
C	n/a	No
D	n/a	No
E	v/c Ratio Increase ≥ 1%	Yes
F	v/c Ratio Increase ≥ 1%	Yes

Essentially, a significant traffic impact would result and mitigations may be required if a signalized intersection or roadway segment is estimated to 1) degrade from a LOS D or better to a LOS of E or F and 2) if the existing LOS is E or F and a project-related increase in the Volume-to-Capacity ratio of 1% or more.

9.0 TRAFFIC IMPACT ANALYSIS FINDINGS

The following scenarios were analyzed to determine the proposed project impact at the 4 study intersections and 3 study roadway segments. Each individual scenario is presented and analyzed in a table form to show the Volume to Capacity ratios and resulting Levels of Service (LOS). Each table also includes a corresponding figure:

1) Existing Traffic Conditions ……**Tables 6A, 6B, Figure 6**
2) Existing Plus Project Traffic Conditions ……**Tables 7A, 7B, Figure 11**
3) Future (2022) Without Project Traffic Conditions ……**Tables 8A, 8B, Figure 12** (Existing plus ambient growth & related projects)
4) Future (2022) With Project Traffic Conditions……**Tables 9A, 9B, Figure 13**

Overall, as shown in **Table 6A** through **Table 9-B,** there are no significant impacts at the study intersections and the study roadway segments due to the addition of the project for any of the listed scenarios.

9.1 Existing Level of Service

Please refer to **Table 6A** for a list of the study intersections and their corresponding existing v/c ratios and Levels of Services. Please note that all of the study intersections perform at a LOS C or better during both the AM & PM peak hours.

Table 6A: Existing Conditions AM/PM Peak LOS for Intersection

Study Intersections		Existing Conditions			
		AM Peak		PM Peak	
		V/C	LOS	V/C	LOS
1	Grand Ave. & Warner Ave.	0.546	A	0.649	B
2	Grand Ave. & Hotel Terrace/Brookhollow Dr.	0.336	A	0.420	A
3	Grand Ave. & SR 55-Fwy. SB off-ramp	0.441	A	0.542	A
4	Grand Ave. & Dyer Rd.	0.614	B	0.764	C

Please refer to **Table 6B** for a list of study roadway segments and their corresponding existing v/c ratios and Levels of Services. As shown in the table, all segments are operating at LOS A.

Table 6B: Existing Conditions Daily LOS for Roadway Segment

Study Street Segments		Existing Conditions	
		Daily	
		V/C	LOS
1	Grand Ave.--Warner Ave. to Hotel Terrace/Brookhollow Dr.	0.468	A
2	Grand Ave.--Hotel Terrace/Brookhollow Dr. to SR-55 Fwy. SB off-ramp	0.438	A
3	Grand Ave.--SR 55-Fwy. SB off-ramp to Dyer Rd.	0.428	A

9.2 Existing Plus Project Traffic Conditions

Please refer to **Table 7A** and **Table 7B** for the study intersections and roadway segments and their corresponding v/c ratios and Levels of Services for the Existing Plus Project Traffic Conditions scenario.

To determine the Existing Plus Project Traffic Conditions, the project traffic was added to existing traffic conditions. Please refer to **Figure 11** for an illustration of the Existing Plus Project daily and AM/PM peak traffic volumes.

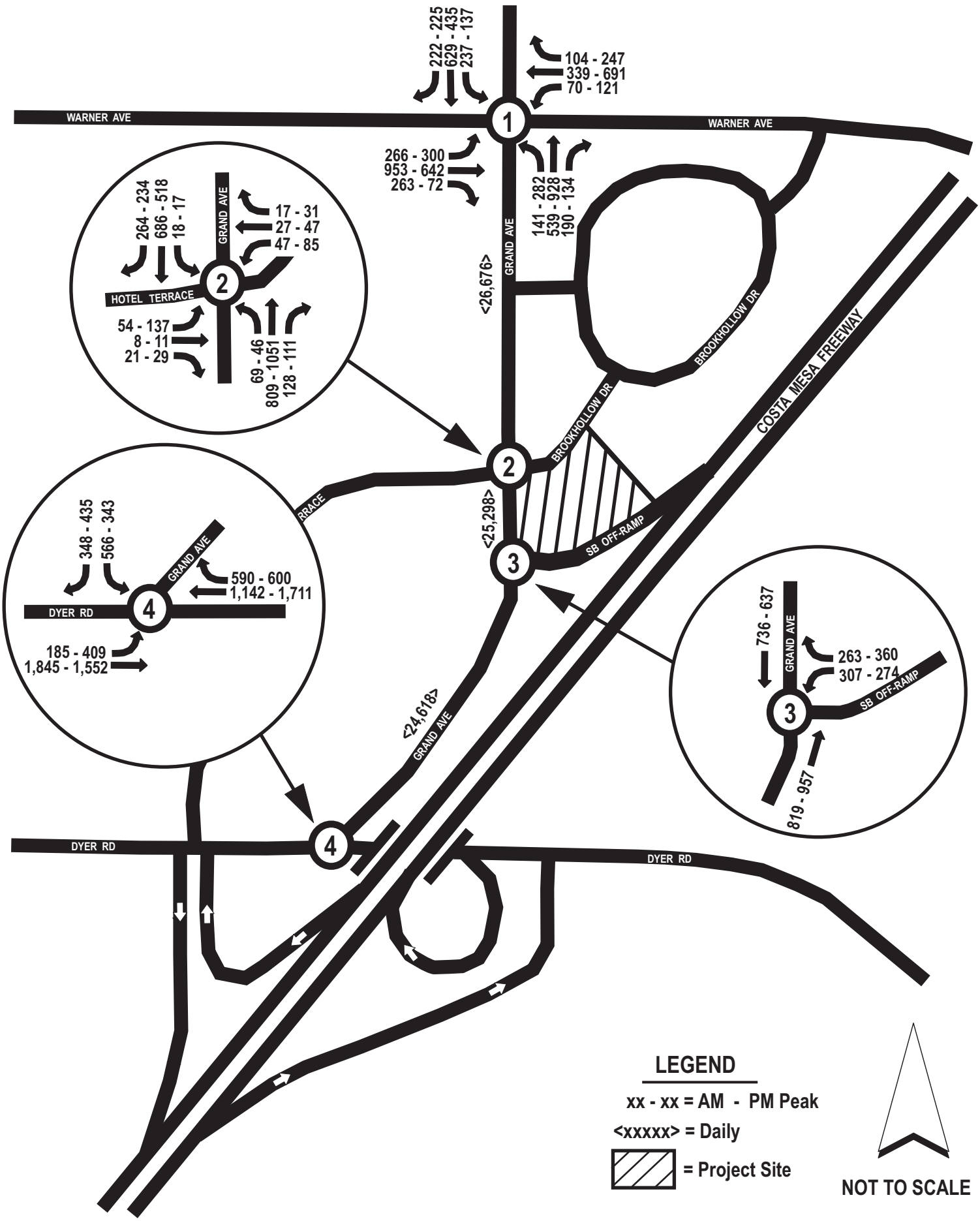
Based on the City's significance criteria, the study intersections and roadway segments would not be significantly impacted as a result of the addition of the project traffic.

Table 7A: Existing Plus Project Conditions AM/PM Peak LOS for Intersection

	Study Intersections	Existing Conditions				Existing Plus Project Conditions							
		AM Peak		PM Peak		AM Peak				PM Peak			
		V/C	LOS	V/C	LOS	V/C	LOS	Change in v/c	Significant Impact	V/C	LOS	Change in v/c	Significant Impact
1	Grand Ave. & Warner Ave.	0.546	A	0.649	B	0.550	A	0.004	no	0.653	B	0.004	no
2	Grand Ave. & Hotel Terrace/Brookhollow Dr.	0.336	A	0.420	A	0.357	A	0.021	no	0.452	A	0.032	no
3	Grand Ave. & SR 55-Fwy. SB off-ramp	0.441	A	0.542	A	0.455	A	0.014	no	0.556	A	0.014	no
4	Grand Ave. & Dyer Rd.	0.614	B	0.764	C	0.624	B	0.010	no	0.771	C	0.007	no

Table 7B: Existing Plus Project Conditions Daily LOS for Roadway Segment

	Study Intersections	Existing Conditions		Existing Plus Project Conditions			
		Daily		Daily			
		V/C	LOS	V/C	LOS	Change in V/C	Significant Impact
1	Grand Ave.--Warner Ave. to Hotel Terrace/Brookhollow Dr.	0.468	A	0.474	A	0.006	no
2	Grand Ave.--Hotel Terrace/Brookhollow Dr. to SR-55 Fwy. SB off-ramp	0.438	A	0.449	A	0.011	no
3	Grand Ave.--SR 55-Fwy. SB off-ramp to Dyer Rd.	0.428	A	0.437	A	0.009	no



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EXISTING PLUS PROJECT TRAFFIC VOLUMES

FIGURE 11

9.3 Future (Year 2022) Without Project Traffic Conditions

Please refer to **Table 8A** for a list of the study intersections and their corresponding v/c ratios and Levels of Services for the Future (Year 2022) Without Project Traffic Conditions scenario.

To determine the Future (Year 2022) Without Project Traffic Conditions, the trips generated by related projects (projects under construction, approved, and planned) was added to existing conditions. Please refer to **Figure 12** for an illustration of the Future without Project daily and AM/PM peak traffic volumes. In addition, the existing traffic volumes were increased by an ambient growth rate of 4% (1% per year). This will ensure that the evaluation of the future without project conditions versus the future with project conditions are done in a way that more accurately depicts actual future conditions.

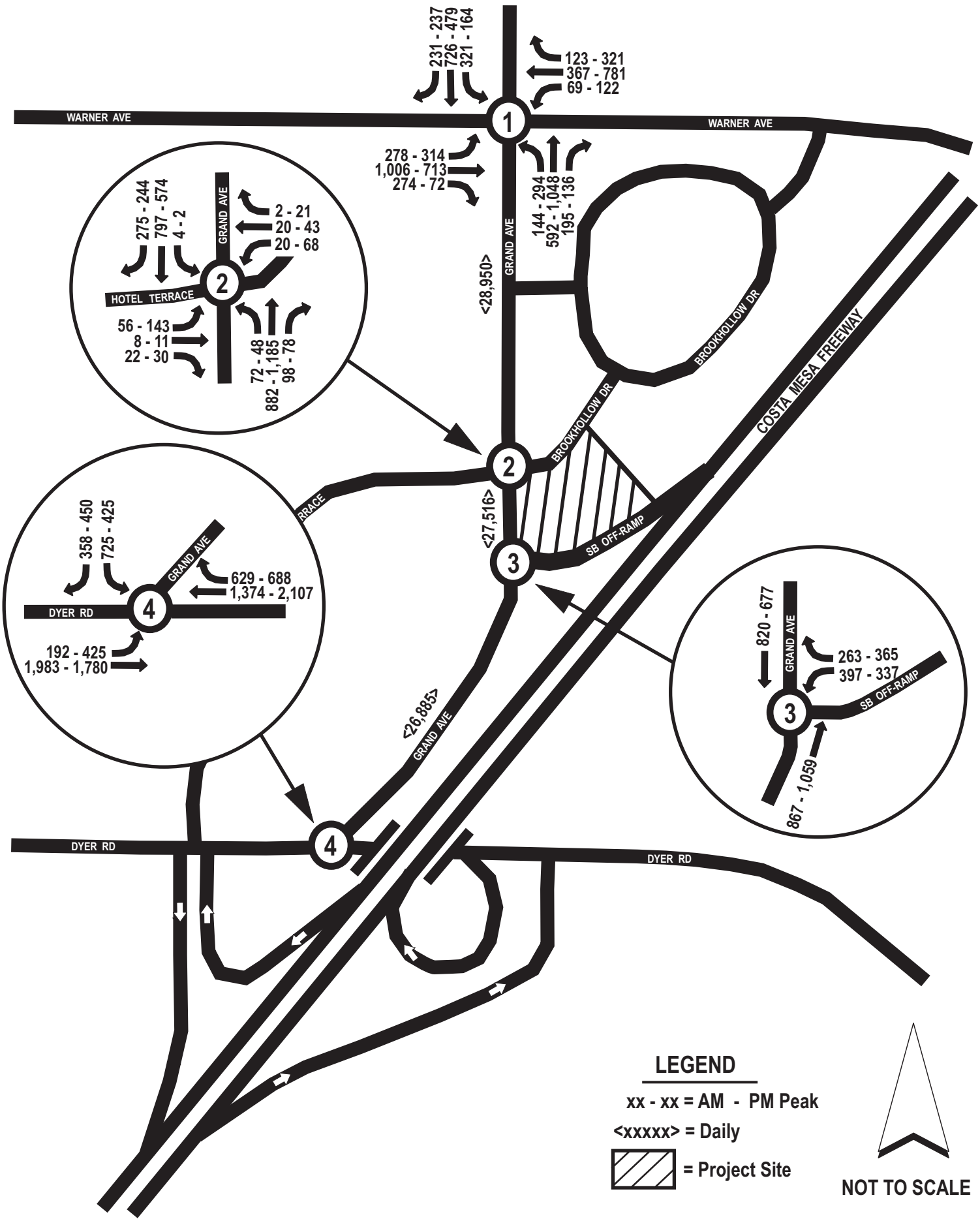
Table 8A: Future (Year 2022) Without Project Conditions AM/PM Peak LOS for Intersection

Study Intersections		Future Conditions			
		AM Peak		PM Peak	
		V/C	LOS	V/C	LOS
1	Grand Ave. & Warner Ave.	0.623	B	0.712	C
2	Grand Ave. & Hotel Terrace/Brookhollow Dr.	0.364	A	0.453	A
3	Grand Ave. & SR 55-Fwy. SB off-ramp	0.469	A	0.589	A
4	Grand Ave. & Dyer Rd.	0.729	C	0.879	D

Please refer to **Table 8B** for a list of study roadway segments and their corresponding v/c ratios and Levels of Services.

Table 8B: Future (Year 2022) Without Project Conditions Daily LOS for Roadway Segment

Study Street Segments		Future Conditions	
		Daily	
		V/C	LOS
1	Grand Ave.--Warner Ave. to Hotel Terrace/Brookhollow Dr.	0.514	A
2	Grand Ave.--Hotel Terrace/Brookhollow Dr. to SR-55 Fwy. SB off-ramp	0.489	A
3	Grand Ave.--SR 55-Fwy. SB off-ramp to Dyer Rd.	0.478	A



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FUTURE (YEAR 2022) WITHOUT PROJECT TRAFFIC VOLUMES

FIGURE 12

9.4 Future (Year 2022) With Project Traffic Conditions

Please refer to **Table 9A** and **Table 9B** for the study intersections and roadway segments and their corresponding v/c ratios and Levels of Services for the Future (Year 2022) With Project Traffic Conditions scenario.

To determine the Future (Year 2022) With Project Traffic Conditions, the traffic generated by the proposed project was added to the Future (Year 2022) Without Project Traffic Conditions. Please refer to **Figure 13** for an illustration of the Future (Year 2022) with project traffic daily and AM/PM peak traffic volumes.

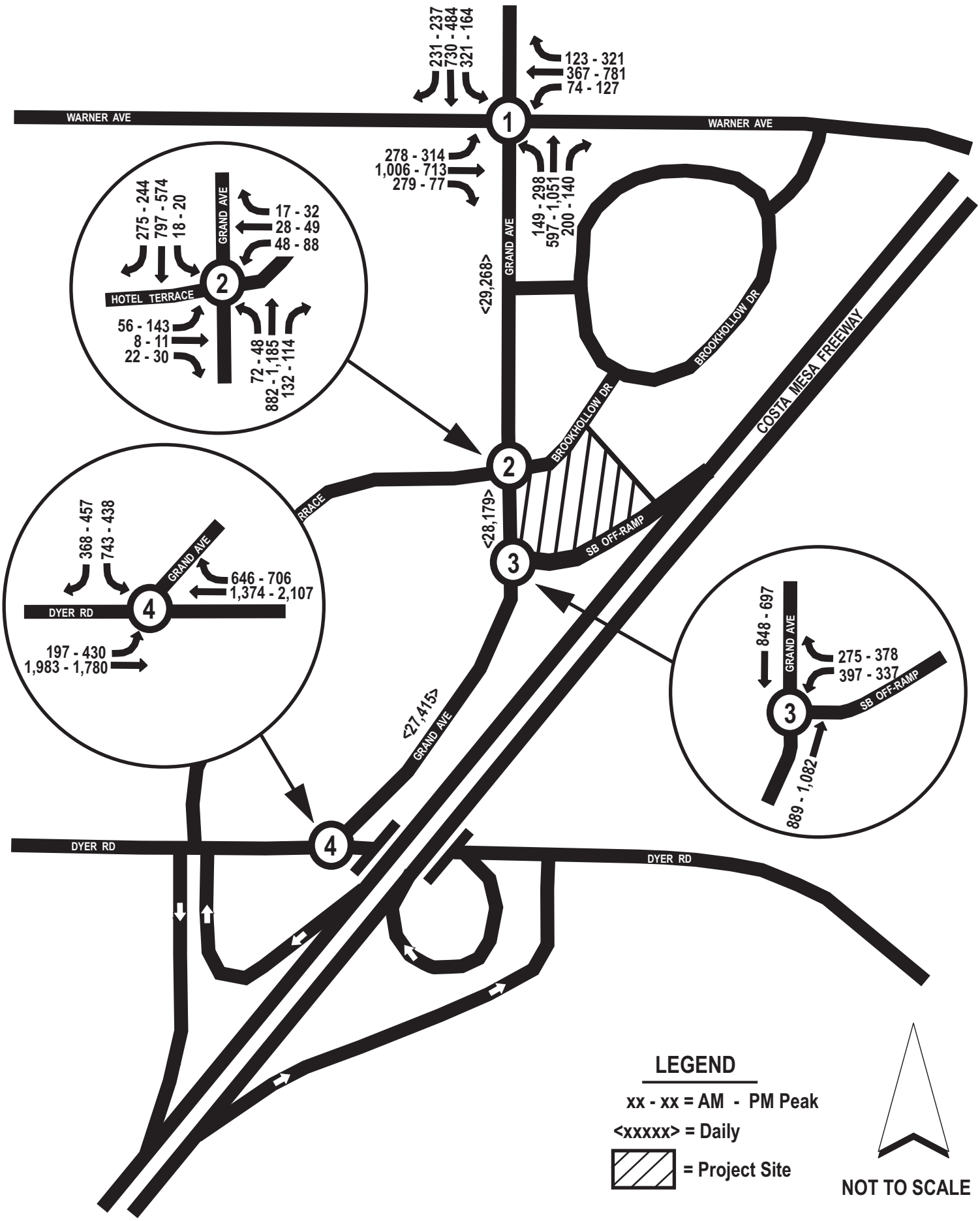
Based on the City's significance criteria, the study intersections and roadway segments would not be significantly impacted as a result of the addition of the project traffic.

Table 9A: Future (Year 2022) with Project Conditions AM/PM Peak LOS for Intersection

Study Intersections		Future Conditions				Future Plus Project Conditions							
		AM Peak		PM Peak		AM Peak				PM Peak			
		V/C	LOS	V/C	LOS	V/C	LOS	Change in v/c	Significant Impact	V/C	LOS	Change in v/c	Significant Impact
1	Grand Ave. & Warner Ave.	0.623	B	0.712	C	0.626	B	0.003	no	0.713	C	0.001	no
2	Grand Ave. & Hotel Terrace/Brookhollow Dr.	0.364	A	0.453	A	0.385	A	0.021	no	0.484	A	0.031	no
3	Grand Ave. & SR 55-Fwy. SB off-ramp	0.469	A	0.589	A	0.483	A	0.014	no	0.604	B	0.015	no
4	Grand Ave. & Dyer Rd.	0.729	C	0.879	D	0.740	C	0.011	no	0.887	D	0.008	no

Table 9B: Future (Year 2022) with Project Conditions Daily LOS for Roadway Segment

Study Intersections		Future Conditions		Future with Project Conditions			
		Daily		Daily			
		V/C	LOS	V/C	LOS	Change in V/C	Significant Impact
1	Grand Ave.--Warner Ave. to Hotel Terrace/Brookhollow Dr.	0.514	A	0.520	A	0.006	no
2	Grand Ave.--Hotel Terrace/Brookhollow Dr. to SR-55 Fwy. SB off-ramp	0.489	A	0.501	A	0.012	no
3	Grand Ave.--SR 55-Fwy. SB off-ramp to Dyer Rd.	0.478	A	0.487	A	0.009	no



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FUTURE (YEAR 2022) WITH PROJECT TRAFFIC VOLUMES

FIGURE 13

10.0 CONGESTION MANAGEMENT PROGRAM (CMP) TRAFFIC IMPACT

Proposition 111, enacted in June 1990 by California voters, established a nine cent per gallon gas tax for the purpose of funding transportation related improvements statewide. In order to be eligible for the revenues created by the proposition, counties in California must adopt a Congestion Management Program. The purpose of the CMP is to ensure that a more collaborative approach is taken towards addressing traffic related impacts due to local growth. This traffic impact study follows the guidelines as set forth by the *Congestion Management Program for Orange County*.

As set forth in the *Congestion Management Program for Orange County*, a traffic impact analysis will be required for CMP purposes for all proposed developments generating 2,400 or more daily trips. For developments which will directly access a CMP Highway System link, the threshold for requiring a traffic impact analysis should be reduced to 1,600 or more trip per day.

As shown in **Table 1,** *Project Trip Generation*, the proposed project is estimated to generation 1,060 daily trips, which is below the threshold for requiring a traffic impact analysis. In addition, there is no CMP monitoring intersection within the project study area. Therefore, no further review of potential impacts on any CMP Highway System is needed to be in compliance with the CMP.

11.0 PROJECT ACCESS QUEUEING ANALYSIS

At the request of the City of Santa Ana, a queueing analysis was performed to estimate the potential future queueing at the westbound approach of Brookhollow Drive between Grand Avenue and the westerly project driveway due to the addition of the proposed project traffic.

A methodology for analyzing the capacity and level of service of signalized intersections based on the Highway Capacity Manual 6th Edition was used to analyze the potential queueing at the Grand Avenue and Hotel Terrace/Brookhollow Drive intersection (see Vistro calculation worksheets in **Appendix B**). Morning and afternoon peak hours for the Future Year 2022 with Project conditions were analyzed and the results are as follows:

Table 10: Project Queueing Analysis

Future Year 2022 with Project	95th Percentile Queue Length (feet/lane)	
	Westbound Approach on Brookhollow Dr	
	Left + Thru Lane	Right Lane
AM Peak	46.12 ft	10.04 ft
PM Peak	80.61 ft	16.87 ft

The distance between the westbound limit line and the western edge the westerly project driveway is approximately 95 feet. The estimated queueing in the westbound approach is not expected to impede project traffic exiting the project site.

12.0 CONCLUSION

The Traffic Impact Analysis projected the trips generated by the proposed 138-room business hotel and the 5,000 square-foot high-turnover sit-down restaurant. To evaluate the impacts of the trips projected to be generated by the Project, 4 intersections were analyzed. Traffic counts were obtained at the study locations and the Level of Service (LOS) of these intersections were evaluated under the following scenarios:

(1) Existing Traffic Conditions
(2) Existing Plus Project Traffic Conditions
(3) Future (2022) Without Project Traffic Conditions (Existing plus ambient growth & related projects)
(4) Future (2022) With Project Traffic Conditions

Based on the City's significance criteria, none of the four (4) study intersections would be significantly impacted as a result of the addition of the project traffic.

APPENDIX A

Manual Traffic Counts

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Warner
Site Code : 00000000
Start Date : 11/14/2018
Page No : 1

Groups Printed- Vehicles

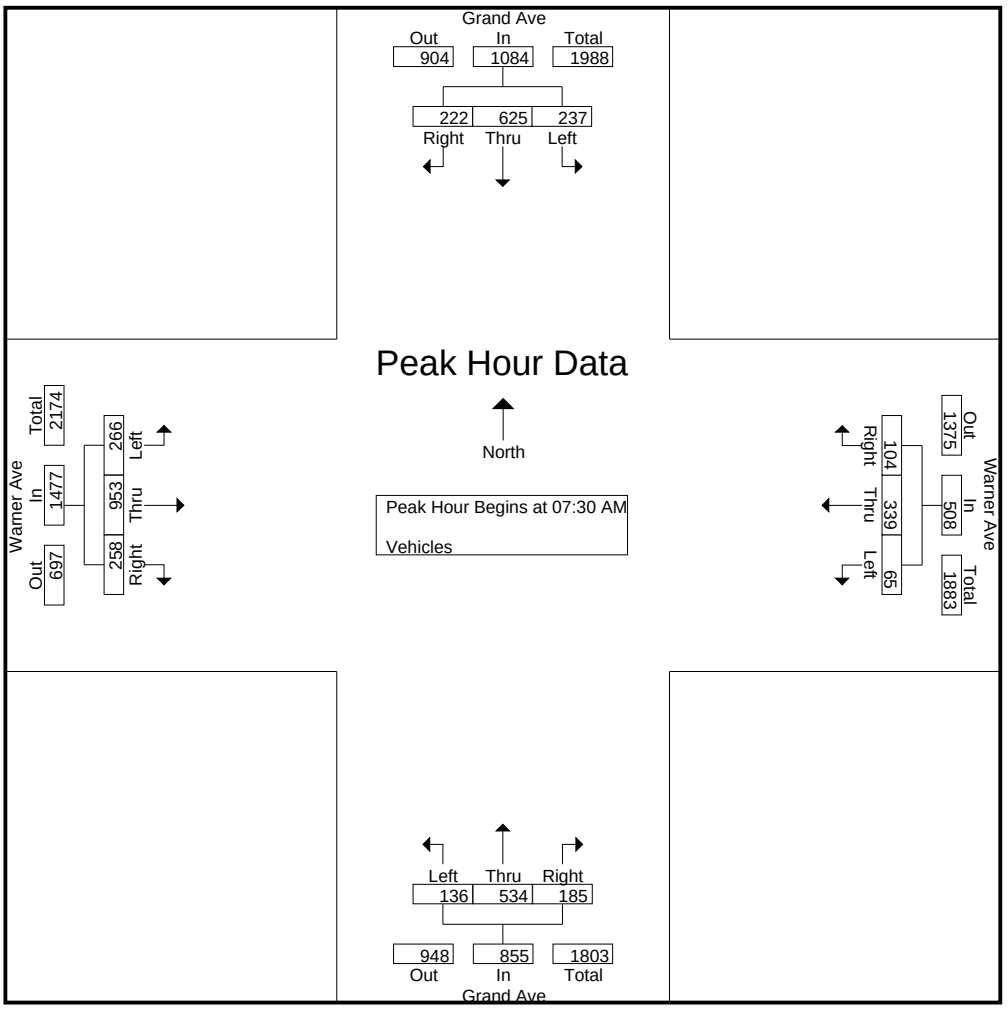
	Grand Ave Southbound			Warner Ave Westbound			Grand Ave Northbound			Warner Ave Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	50	113	41	14	80	10	43	105	22	41	175	53	747
07:15 AM	42	151	63	16	81	17	44	106	42	62	172	70	866
07:30 AM	59	151	57	17	71	27	36	126	53	69	235	79	980
07:45 AM	64	157	51	16	104	27	44	149	46	71	234	55	1018
Total	215	572	212	63	336	81	167	486	163	243	816	257	3611
08:00 AM	61	139	57	19	72	25	28	141	46	63	259	65	975
08:15 AM	53	178	57	13	92	25	28	118	40	63	225	59	951
08:30 AM	45	172	56	16	81	17	32	105	37	64	209	42	876
08:45 AM	71	158	56	13	88	27	15	113	39	68	224	43	915
Total	230	647	226	61	333	94	103	477	162	258	917	209	3717
04:00 PM	35	115	64	25	200	75	45	182	42	97	110	18	1008
04:15 PM	32	85	55	38	215	73	55	184	29	71	148	24	1009
04:30 PM	38	113	49	35	230	61	58	177	41	82	141	26	1051
04:45 PM	29	94	45	25	169	80	66	221	28	64	172	30	1023
Total	134	407	213	123	814	289	224	764	140	314	571	98	4091
05:00 PM	33	135	64	36	138	53	79	221	38	62	160	15	1034
05:15 PM	39	118	53	41	139	65	73	213	29	83	149	16	1018
05:30 PM	38	103	49	18	206	77	58	223	28	74	163	16	1053
05:45 PM	27	74	59	21	208	52	68	268	35	81	170	20	1083
Total	137	430	225	116	691	247	278	925	130	300	642	67	4188
Grand Total	716	2056	876	363	2174	711	772	2652	595	1115	2946	631	15607
Apprch %	19.6	56.4	24	11.2	66.9	21.9	19.2	66	14.8	23.8	62.8	13.4	
Total %	4.6	13.2	5.6	2.3	13.9	4.6	4.9	17	3.8	7.1	18.9	4	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Warner
Site Code : 00000000
Start Date : 11/14/2018
Page No : 2

	Grand Ave Southbound				Warner Ave Westbound				Grand Ave Northbound				Warner Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	59	151	**57**	267	17	71	**27**	115	36	126	**53**	215	69	235	**79**	383	980
07:45 AM	**64**	157	51	272	16	**104**	27	**147**	**44**	**149**	46	**239**	**71**	234	55	360	**1018**
08:00 AM	61	139	57	257	**19**	72	25	116	28	141	46	215	63	**259**	65	**387**	975
08:15 AM	53	**178**	57	**288**	13	92	25	130	28	118	40	186	63	225	59	347	951
Total Volume	237	625	222	1084	65	339	104	508	136	534	185	855	266	953	258	1477	3924
% App. Total	21.9	57.7	20.5		12.8	66.7	20.5		15.9	62.5	21.6		18	64.5	17.5		
PHF	.926	.878	.974	.941	.855	.815	.963	.864	.773	.896	.873	.894	.937	.920	.816	.954	.964

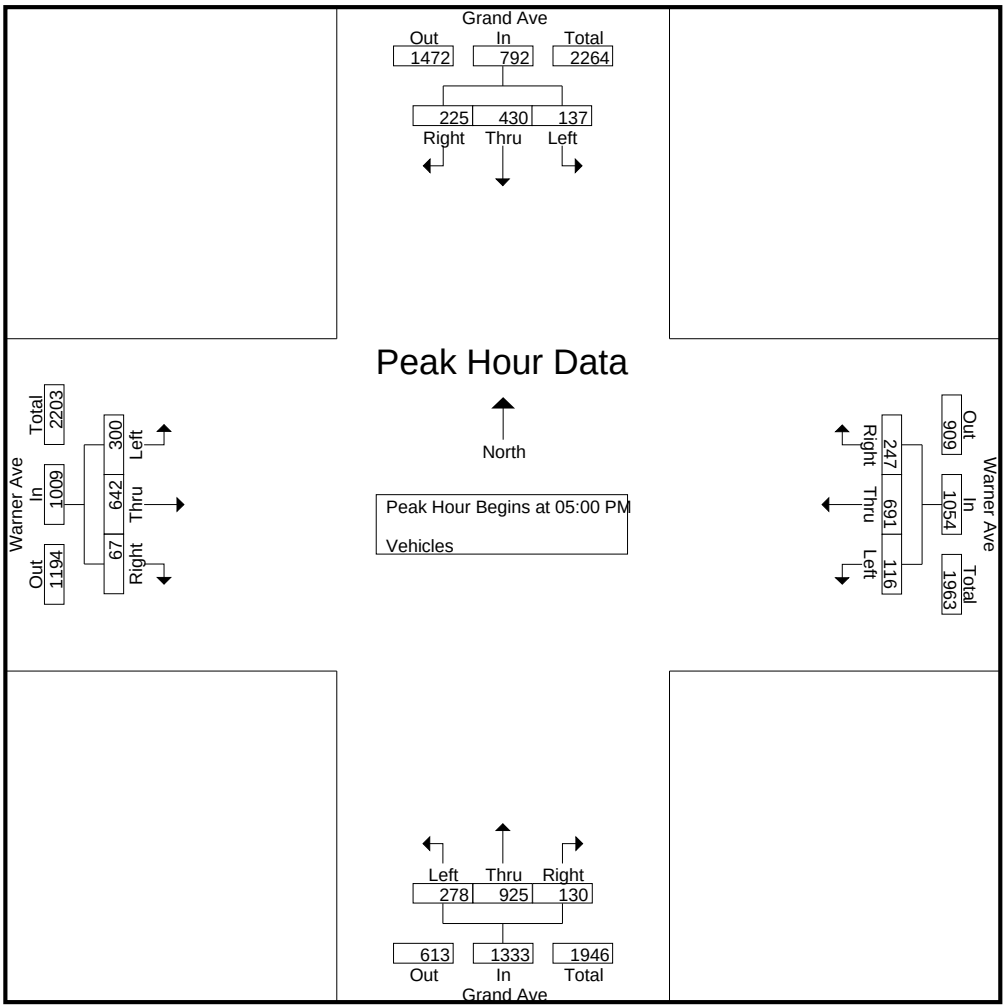


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Warner
Site Code : 00000000
Start Date : 11/14/2018
Page No : 3

	Grand Ave Southbound				Warner Ave Westbound				Grand Ave Northbound				Warner Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	33	**135**	**64**	**232**	36	138	53	227	**79**	221	**38**	338	62	160	15	237	1034
05:15 PM	**39**	118	53	210	**41**	139	65	245	73	213	29	315	**83**	149	16	248	1018
05:30 PM	38	103	49	190	18	206	**77**	**301**	58	223	28	309	74	163	16	253	1053
05:45 PM	27	74	59	160	21	**208**	52	281	68	**268**	35	**371**	81	**170**	**20**	**271**	**1083**
Total Volume	137	430	225	792	116	691	247	1054	278	925	130	1333	300	642	67	1009	4188
% App. Total	17.3	54.3	28.4		11	65.6	23.4		20.9	69.4	9.8		29.7	63.6	6.6		
PHF	.878	.796	.879	.853	.707	.831	.802	.875	.880	.863	.855	.898	.904	.944	.838	.931	.967



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_HotelTerr-Brookhollow
Site Code : 00000000
Start Date : 11/14/2018
Page No : 1

Groups Printed- Vehicles

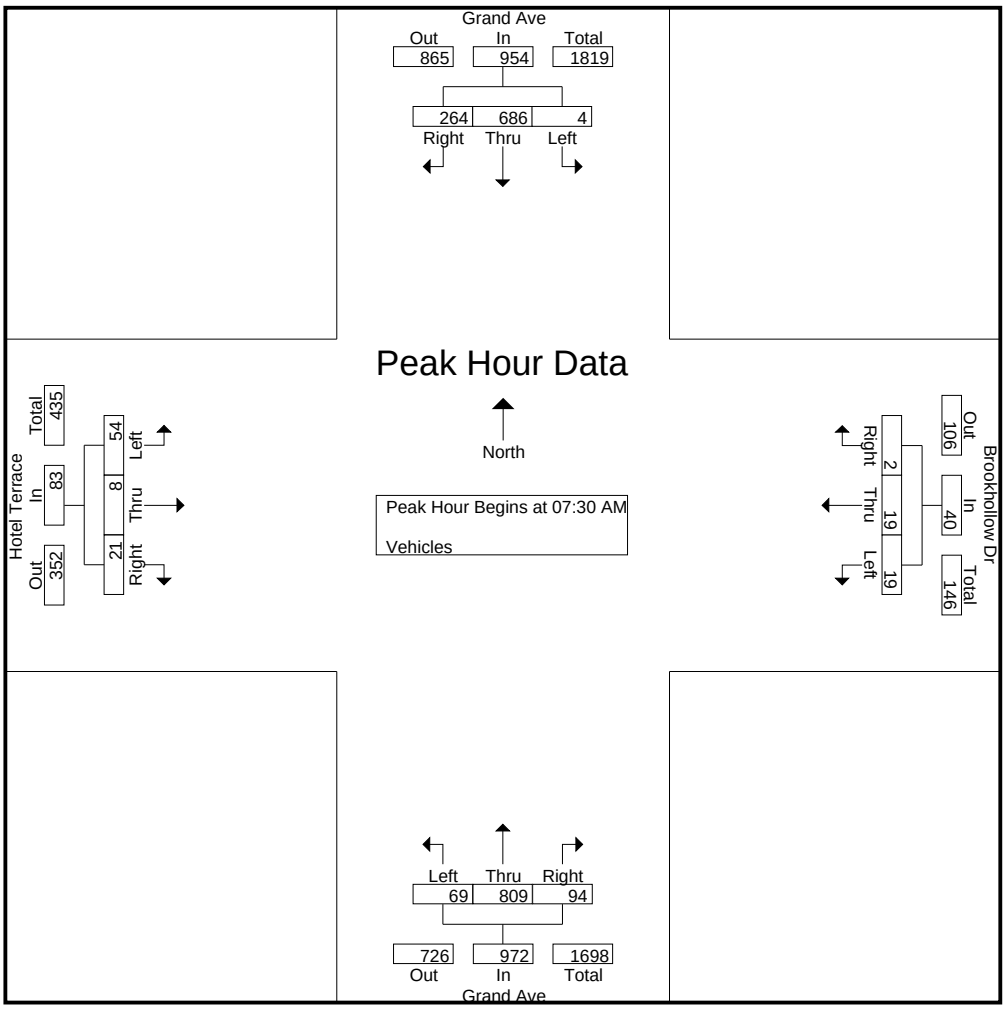
	Grand Ave Southbound			Brookhollow Dr Westbound			Grand Ave Northbound			Hotel Terrace Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	137	49	3	1	0	19	188	20	7	1	5	430
07:15 AM	1	171	66	0	4	1	14	177	22	9	0	4	469
07:30 AM	0	174	72	4	5	1	16	194	21	21	1	9	518
07:45 AM	2	167	64	2	5	0	23	225	20	9	3	7	527
Total	3	649	251	9	15	2	72	784	83	46	5	25	1944
08:00 AM	2	173	49	5	3	0	16	211	26	9	2	4	500
08:15 AM	0	172	79	8	6	1	14	179	27	15	2	1	504
08:30 AM	1	190	57	11	4	0	9	160	34	13	0	4	483
08:45 AM	5	144	55	6	6	1	12	190	37	12	1	5	474
Total	8	679	240	30	19	2	51	740	124	49	5	14	1961
04:00 PM	0	120	54	13	15	3	10	237	17	28	2	8	507
04:15 PM	1	102	61	10	10	6	11	248	28	27	2	5	511
04:30 PM	0	126	49	17	9	1	8	257	25	33	2	4	531
04:45 PM	1	105	60	15	9	3	10	278	17	22	2	5	527
Total	2	453	224	55	43	13	39	1020	87	110	8	22	2076
05:00 PM	0	142	71	16	18	10	13	235	13	45	4	14	581
05:15 PM	1	145	54	17	5	6	15	281	20	37	3	6	590
05:30 PM	2	94	42	12	10	6	11	256	14	52	5	8	512
05:45 PM	1	78	46	8	11	7	8	308	17	28	3	4	519
Total	4	459	213	53	44	29	47	1080	64	162	15	32	2202
Grand Total	17	2240	928	147	121	46	209	3624	358	367	33	93	8183
Apprch %	0.5	70.3	29.1	46.8	38.5	14.6	5	86.5	8.5	74.4	6.7	18.9	
Total %	0.2	27.4	11.3	1.8	1.5	0.6	2.6	44.3	4.4	4.5	0.4	1.1	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_HotelTerr-Brookhollow
Site Code : 00000000
Start Date : 11/14/2018
Page No : 2

	Grand Ave Southbound				Brookhollow Dr Westbound				Grand Ave Northbound				Hotel Terrace Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**174**	72	246	4	5	**1**	10	16	194	21	231	**21**	1	**9**	**31**	518
07:45 AM	**2**	167	64	233	2	5	0	7	**23**	**225**	20	**268**	9	**3**	7	19	**527**
08:00 AM	2	173	49	224	5	3	0	8	16	211	26	253	9	2	4	15	500
08:15 AM	0	172	**79**	**251**	**8**	**6**	1	**15**	14	179	**27**	220	15	2	1	18	504
Total Volume	4	686	264	954	19	19	2	40	69	809	94	972	54	8	21	83	2049
% App. Total	0.4	71.9	27.7		47.5	47.5	5		7.1	83.2	9.7		65.1	9.6	25.3		
PHF	.500	.986	.835	.950	.594	.792	.500	.667	.750	.899	.870	.907	.643	.667	.583	.669	.972

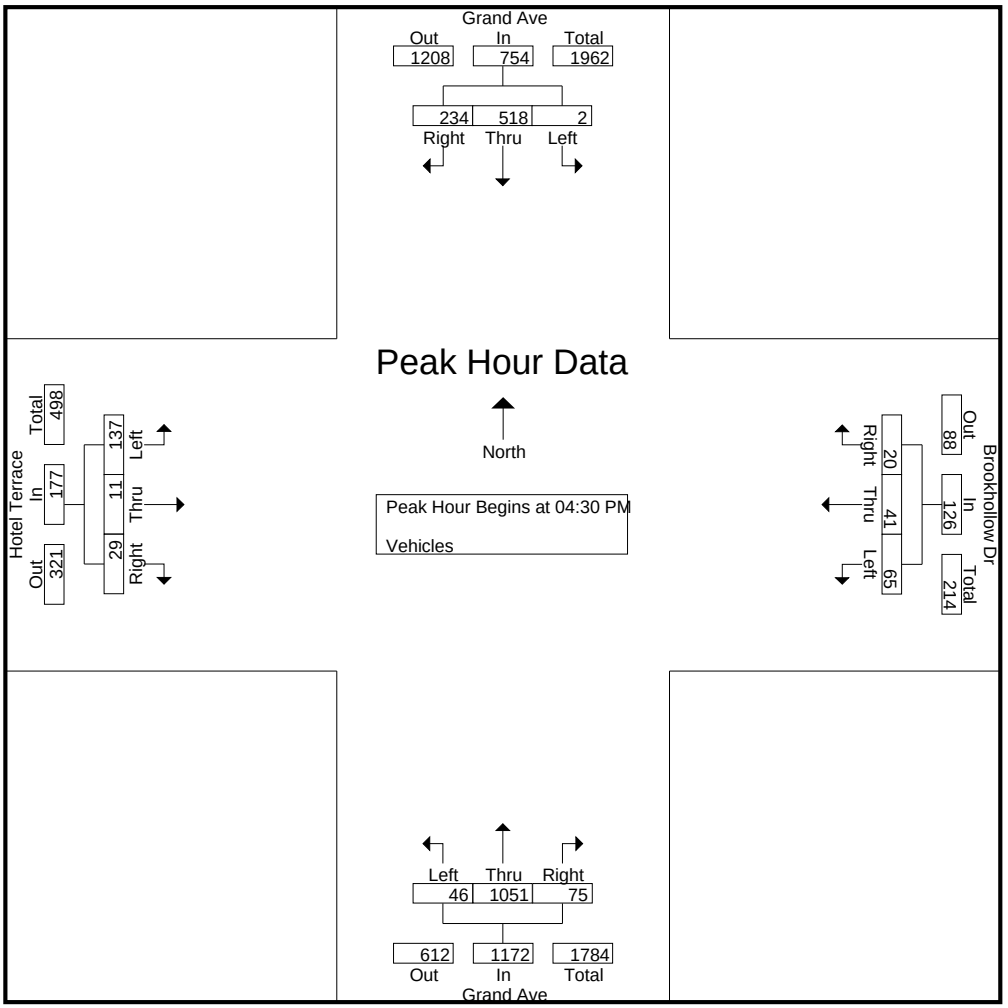


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_HotelTerr-Brookhollow
Site Code : 00000000
Start Date : 11/14/2018
Page No : 3

	Grand Ave Southbound				Brookhollow Dr Westbound				Grand Ave Northbound				Hotel Terrace Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	126	49	175	**17**	9	1	27	8	257	**25**	290	33	2	4	39	531
04:45 PM	**1**	105	60	166	15	9	3	27	10	278	17	305	22	2	5	29	527
05:00 PM	0	142	**71**	**213**	16	**18**	**10**	**44**	13	235	13	261	**45**	**4**	**14**	**63**	581
05:15 PM	1	**145**	54	200	17	5	6	28	**15**	**281**	20	**316**	37	3	6	46	**590**
Total Volume	2	518	234	754	65	41	20	126	46	1051	75	1172	137	11	29	177	2229
% App. Total	0.3	68.7	31		51.6	32.5	15.9		3.9	89.7	6.4		77.4	6.2	16.4		
PHF	.500	.893	.824	.885	.956	.569	.500	.716	.767	.935	.750	.927	.761	.688	.518	.702	.944



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_55FrwySBOff-Ramp
Site Code : 00000000
Start Date : 11/14/2018
Page No : 1

Groups Printed- Vehicles

	Grand Ave Southbound			55 Frwy SB Off-Ramp Westbound			Grand Ave Northbound			Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	139	0	79	0	86	0	140	0	0	0	0	444
07:15 AM	0	183	0	83	0	73	0	140	0	0	0	0	479
07:30 AM	0	188	0	70	0	66	0	174	0	0	0	0	498
07:45 AM	0	168	0	93	0	58	0	230	0	0	0	0	549
Total	0	678	0	325	0	283	0	684	0	0	0	0	1970
08:00 AM	0	172	0	68	0	63	0	217	0	0	0	0	520
08:15 AM	0	180	0	76	0	64	0	176	0	0	0	0	496
08:30 AM	0	193	0	47	0	56	0	156	0	0	0	0	452
08:45 AM	0	143	0	74	0	68	0	211	0	0	0	0	496
Total	0	688	0	265	0	251	0	760	0	0	0	0	1964
04:00 PM	0	147	0	65	0	50	0	229	0	0	0	0	491
04:15 PM	0	119	0	67	0	81	0	227	0	0	0	1	495
04:30 PM	0	154	0	66	0	96	0	229	0	0	0	1	546
04:45 PM	0	123	0	71	0	86	0	256	0	0	0	1	537
Total	0	543	0	269	0	313	0	941	0	0	0	3	2069
05:00 PM	0	175	0	70	0	90	0	184	0	0	0	6	525
05:15 PM	0	165	0	67	0	75	0	265	0	0	0	0	572
05:30 PM	0	120	0	60	0	66	0	247	0	0	0	0	493
05:45 PM	0	93	0	52	0	82	0	273	0	0	0	0	500
Total	0	553	0	249	0	313	0	969	0	0	0	6	2090
Grand Total	0	2462	0	1108	0	1160	0	3354	0	0	0	9	8093
Apprch %	0	100	0	48.9	0	51.1	0	100	0	0	0	100	
Total %	0	30.4	0	13.7	0	14.3	0	41.4	0	0	0	0.1	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_55FrwySBOff-Ramp
Site Code : 00000000
Start Date : 11/14/2018
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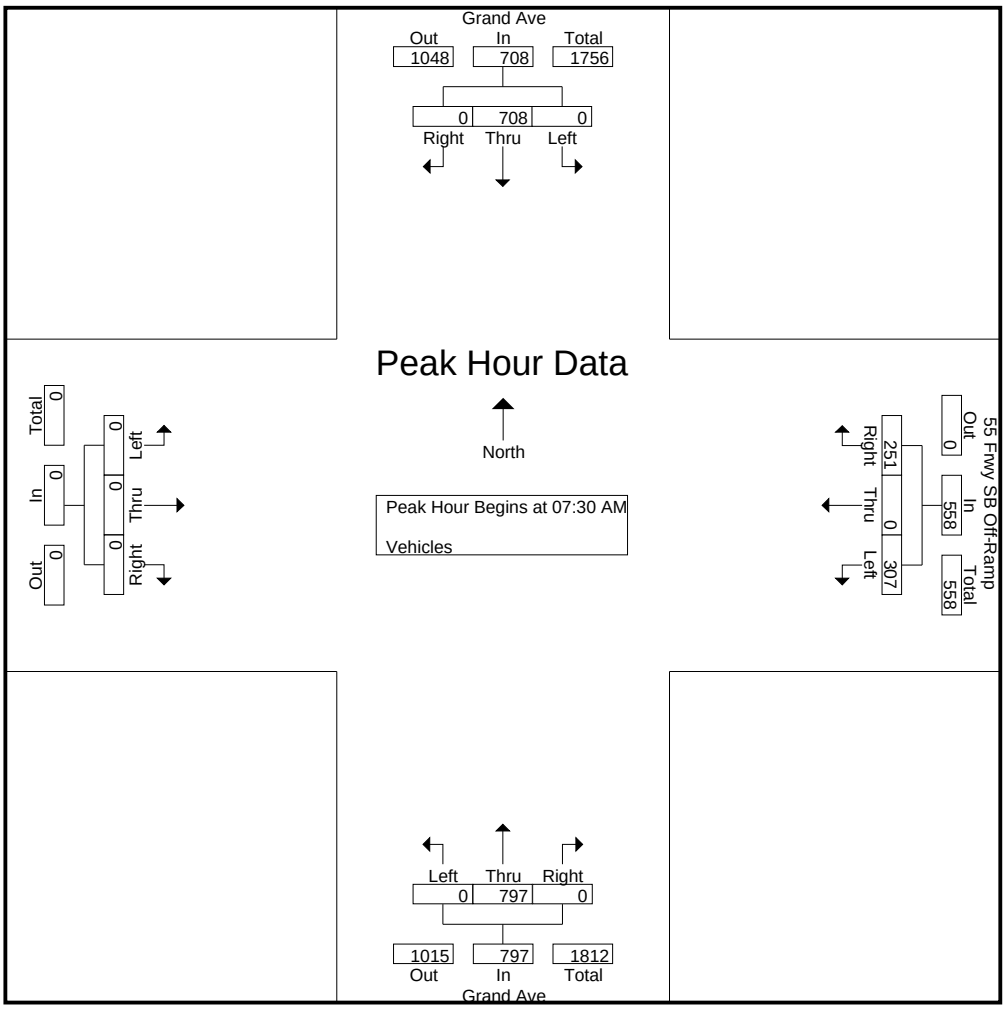
	Grand Ave Southbound				55 Frwy SB Off-Ramp Westbound				Grand Ave Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	**188**	0	**188**	70	0	**66**	136	0	174	0	174	0	0	0	0	498
07:45 AM	0	168	0	168	**93**	0	58	**151**	0	**230**	0	**230**	0	0	0	0	**549**
08:00 AM	0	172	0	172	68	0	63	131	0	217	0	217	0	0	0	0	520
08:15 AM	0	180	0	180	76	0	64	140	0	176	0	176	0	0	0	0	496
Total Volume	0	708	0	708	307	0	251	558	0	797	0	797	0	0	0	0	2063
% App. Total	0	100	0		55	0	45		0	100	0		0	0	0		
PHF	.000	.941	.000	.941	.825	.000	.951	.924	.000	.866	.000	.866	.000	.000	.000	.000	.939

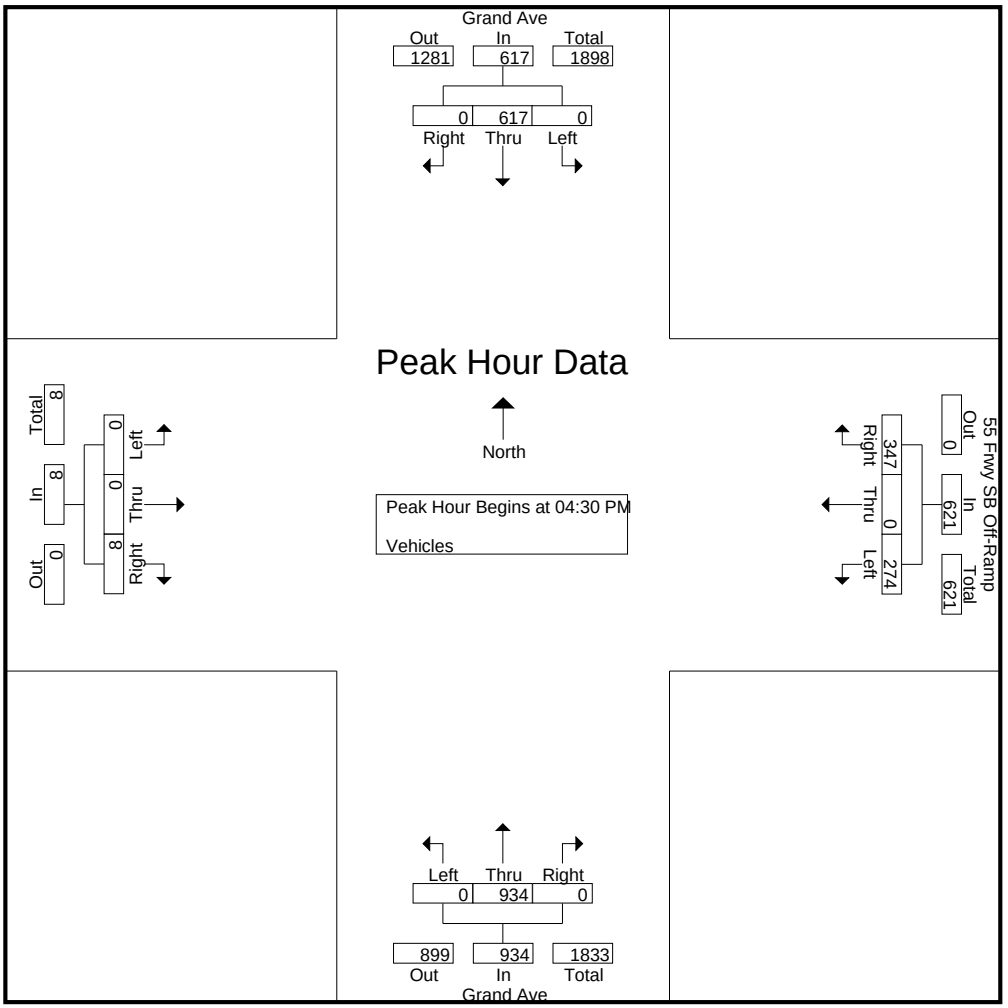


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_55FrwySBOff-Ramp
Site Code : 00000000
Start Date : 11/14/2018
Page No : 3

	Grand Ave Southbound				55 Frwy SB Off-Ramp Westbound				Grand Ave Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	154	0	154	66	0	**96**	**162**	0	229	0	229	0	0	1	1	546
04:45 PM	0	123	0	123	**71**	0	86	157	0	256	0	256	0	0	1	1	537
05:00 PM	0	**175**	0	**175**	70	0	90	160	0	184	0	184	0	0	**6**	**6**	525
05:15 PM	0	165	0	165	67	0	75	142	0	**265**	0	**265**	0	0	0	0	**572**
Total Volume	0	617	0	617	274	0	347	621	0	934	0	934	0	0	8	8	2180
% App. Total	0	100	0		44.1	0	55.9		0	100	0		0	0	100		
PHF	.000	.881	.000	.881	.965	.000	.904	.958	.000	.881	.000	.881	.000	.000	.333	.333	.953



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Dyer
Site Code : 00000000
Start Date : 11/14/2018
Page No : 1

Groups Printed- Vehicles

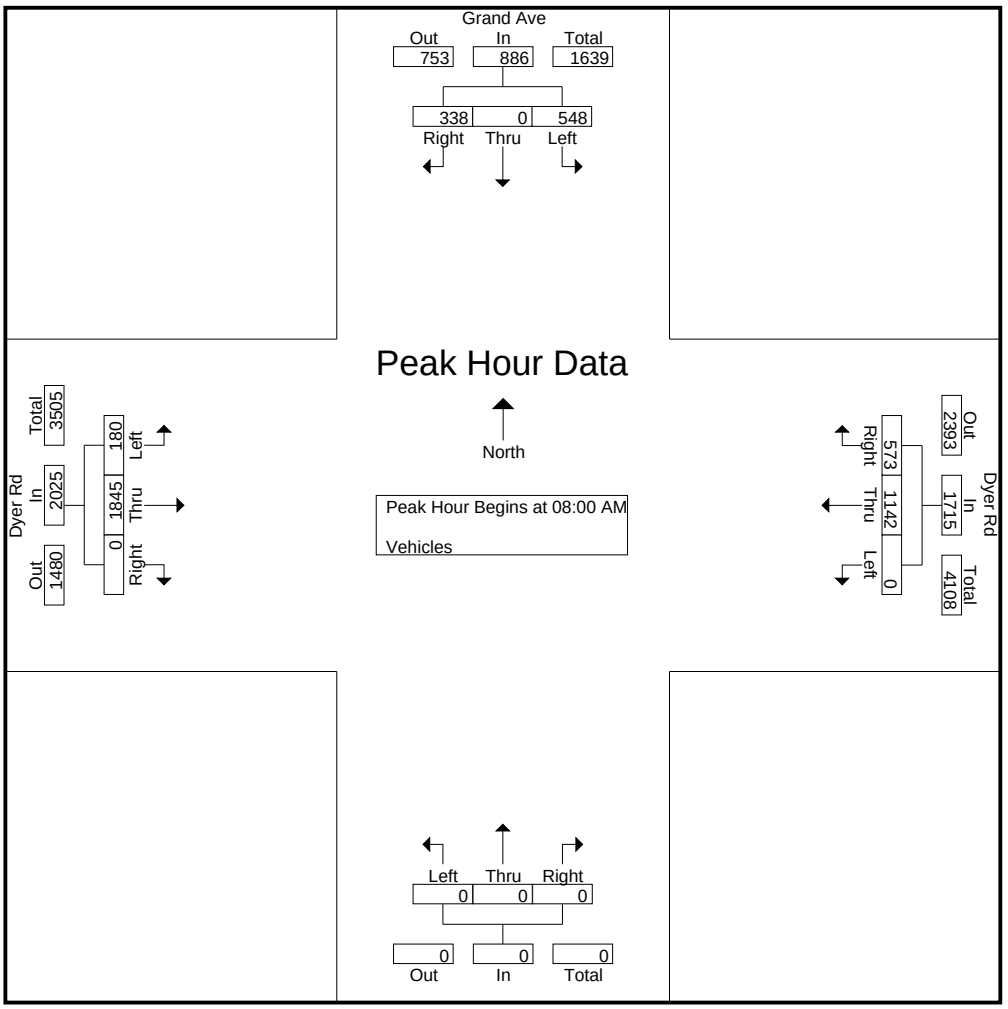
	Grand Ave Southbound			Dyer Rd Westbound			Northbound			Dyer Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	128	0	82	0	211	130	0	0	0	49	332	0	932
07:15 AM	136	0	94	0	246	121	0	0	0	47	372	0	1016
07:30 AM	144	0	98	0	269	137	0	0	0	41	380	0	1069
07:45 AM	147	0	98	0	227	153	0	0	0	65	422	0	1112
Total	555	0	372	0	953	541	0	0	0	202	1506	0	4129
08:00 AM	143	0	94	0	273	165	0	0	0	60	483	0	1218
08:15 AM	145	0	88	0	279	133	0	0	0	28	445	0	1118
08:30 AM	129	0	86	0	292	132	0	0	0	39	465	0	1143
08:45 AM	131	0	70	0	298	143	0	0	0	53	452	0	1147
Total	548	0	338	0	1142	573	0	0	0	180	1845	0	4626
04:00 PM	66	0	125	0	327	139	0	0	0	78	377	0	1112
04:15 PM	78	0	96	0	305	124	0	0	0	86	415	0	1104
04:30 PM	76	0	123	0	353	137	0	0	0	102	351	0	1142
04:45 PM	73	0	115	0	371	147	0	0	0	102	340	0	1148
Total	293	0	459	0	1356	547	0	0	0	368	1483	0	4506
05:00 PM	98	0	138	0	384	135	0	0	0	87	381	0	1223
05:15 PM	85	0	132	0	451	150	0	0	0	97	370	0	1285
05:30 PM	83	0	98	0	473	151	0	0	0	104	411	0	1320
05:45 PM	64	0	60	0	385	146	0	0	0	116	390	0	1161
Total	330	0	428	0	1693	582	0	0	0	404	1552	0	4989
Grand Total	1726	0	1597	0	5144	2243	0	0	0	1154	6386	0	18250
Apprch %	51.9	0	48.1	0	69.6	30.4	0	0	0	15.3	84.7	0	
Total %	9.5	0	8.8	0	28.2	12.3	0	0	0	6.3	35	0	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Dyer
Site Code : 00000000
Start Date : 11/14/2018
Page No : 2

	Grand Ave Southbound				Dyer Rd Westbound				Northbound				Dyer Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	143	0	**94**	**237**	0	273	**165**	438	0	0	0	0	**60**	**483**	0	**543**	**1218**
08:15 AM	**145**	0	88	233	0	279	133	412	0	0	0	0	28	445	0	473	1118
08:30 AM	129	0	86	215	0	292	132	424	0	0	0	0	39	465	0	504	1143
08:45 AM	131	0	70	201	0	**298**	143	**441**	0	0	0	0	53	452	0	505	1147
Total Volume	548	0	338	886	0	1142	573	1715	0	0	0	0	180	1845	0	2025	4626
% App. Total	61.9	0	38.1		0	66.6	33.4		0	0	0		8.9	91.1	0		
PHF	.945	.000	.899	.935	.000	.958	.868	.972	.000	.000	.000	.000	.750	.955	.000	.932	.950

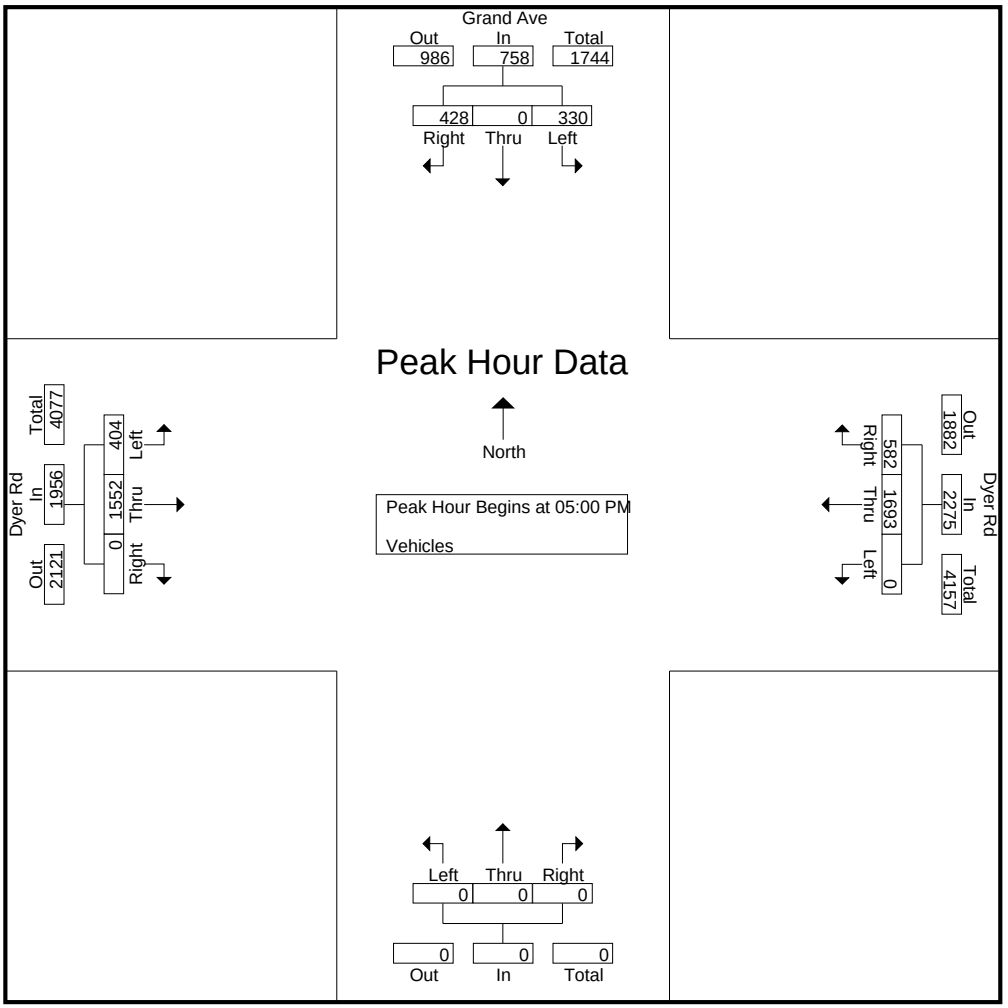


CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Grand_Dyer
Site Code : 00000000
Start Date : 11/14/2018
Page No : 3

	Grand Ave Southbound				Dyer Rd Westbound				Northbound				Dyer Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**98**	0	**138**	**236**	0	384	135	519	0	0	0	0	87	381	0	468	1223
05:15 PM	85	0	132	217	0	451	150	601	0	0	0	0	97	370	0	467	1285
05:30 PM	83	0	98	181	0	**473**	**151**	**624**	0	0	0	0	104	**411**	0	**515**	**1320**
05:45 PM	64	0	60	124	0	385	146	531	0	0	0	0	**116**	390	0	506	1161
Total Volume	330	0	428	758	0	1693	582	2275	0	0	0	0	404	1552	0	1956	4989
% App. Total	43.5	0	56.5		0	74.4	25.6		0	0	0		20.7	79.3	0		
PHF	.842	.000	.775	.803	.000	.895	.964	.911	.000	.000	.000	.000	.871	.944	.000	.950	.945



Grand Ave Btwn Brookhollow Dr
and Hotel Terrace-Brookhollow Dr

Start Time	14-Nov-18 Wed	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		42	267			12	186				
12:15		34	227			8	164				
12:30		27	245			14	182				
12:45		22	283	125	1022	5	183	39	715	164	1737
01:00		18	248			14	170				
01:15		14	223			4	164				
01:30		15	262			6	211				
01:45		14	247	61	980	8	194	32	739	93	1719
02:00		21	251			7	143				
02:15		16	233			2	157				
02:30		36	256			10	204				
02:45		43	318	116	1058	9	153	28	657	144	1715
03:00		15	274			12	176				
03:15		22	248			7	143				
03:30		27	285			20	201				
03:45		40	364	104	1171	29	169	68	689	172	1860
04:00		31	278			25	173				
04:15		53	281			37	158				
04:30		98	310			50	173				
04:45		156	314	338	1183	83	160	195	664	533	1847
05:00		117	292			55	230				
05:15		115	329			93	186				
05:30		118	329			132	132				
05:45		196	341	546	1291	114	134	394	682	940	1973
06:00		188	320			142	112				
06:15		184	297			180	106				
06:30		156	197			199	73				
06:45		234	197	762	1011	205	75	726	366	1488	1377
07:00		201	191			188	86				
07:15		207	149			243	59				
07:30		226	128			253	63				
07:45		249	98	883	566	238	75	922	283	1805	849
08:00		249	72			222	76				
08:15		195	109			258	53				
08:30		190	81			242	58				
08:45		215	95	849	357	197	62	919	249	1768	606
09:00		194	105			211	47				
09:15		200	83			184	57				
09:30		173	72			143	45				
09:45		196	74	763	334	144	56	682	205	1445	539
10:00		205	74			132	32				
10:15		220	88			141	37				
10:30		187	64			128	29				
10:45		237	58	849	284	135	33	536	131	1385	415
11:00		215	58			145	25				
11:15		199	57			145	21				
11:30		237	43			169	22				
11:45		232	35	883	193	162	19	621	87	1504	280
Total		6279	9450			5162	5467			11441	14917
Percent		39.9%	60.1%			48.6%	51.4%			43.4%	56.6%
Grand Total		6279	9450			5162	5467			11441	14917
Percent		39.9%	60.1%			48.6%	51.4%			43.4%	56.6%

ADT ADT 26,358 AADT 26,358

Grand Ave Btwn Hotel Terrace-
Brookhollow Dr & 55 Frwy SB Off-Ramp

Start Time	14-Nov-18 Wed	North Morning	North Afternoon	Hour Totals Morning	Hour Totals Afternoon	South Morning	South Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		38	265			10	165				
12:15		29	233			7	158				
12:30		23	257			10	169				
12:45		18	297	108	1052	6	174	33	666	141	1718
01:00		15	269			11	169				
01:15		14	236			4	156				
01:30		14	260			5	190				
01:45		13	260	56	1025	7	157	27	672	83	1697
02:00		17	250			7	144				
02:15		13	244			2	144				
02:30		34	249			10	165				
02:45		34	319	98	1062	9	116	28	569	126	1631
03:00		15	278			10	134				
03:15		19	246			6	118				
03:30		22	281			18	153				
03:45		35	342	91	1147	25	134	59	539	150	1686
04:00		32	252			30	151				
04:15		52	284			33	120				
04:30		89	290			36	153				
04:45		155	300	328	1126	68	126	167	550	495	1676
05:00		109	248			42	178				
05:15		113	296			72	169				
05:30		120	278			100	119				
05:45		204	317	546	1139	86	97	300	563	846	1702
06:00		193	277			115	108				
06:15		172	256			125	91				
06:30		149	174			145	79				
06:45		238	185	752	892	157	73	542	351	1294	1243
07:00		222	171			135	84				
07:15		207	142			184	62				
07:30		222	119			190	57				
07:45		250	96	901	528	181	72	690	275	1591	803
08:00		260	69			185	67				
08:15		215	105			189	44				
08:30		201	75			202	53				
08:45		222	99	898	348	154	51	730	215	1628	563
09:00		229	99			183	63				
09:15		216	79			166	59				
09:30		189	79			126	42				
09:45		221	71	855	328	128	49	603	213	1458	541
10:00		210	71			122	38				
10:15		225	85			121	43				
10:30		194	65			114	29				
10:45		245	52	874	273	130	32	487	142	1361	415
11:00		225	54			130	23				
11:15		221	55			151	22				
11:30		235	38			167	18				
11:45		235	36	916	183	159	18	607	81	1523	264
Total		6423	9103			4273	4836			10696	13939
Percent		41.4%	58.6%			46.9%	53.1%			43.4%	56.6%
Grand Total		6423	9103			4273	4836			10696	13939
Percent		41.4%	58.6%			46.9%	53.1%			43.4%	56.6%
ADT		ADT 24,635		AADT 24,635							

Grand Ave
Btwn 55 Frwy SB Off-Ramp & Dyer Rd

Start Time	14-Nov-18 Wed	North		Hour Totals		South		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		20	158			21	217				
12:15		13	134			22	198				
12:30		15	142			22	255				
12:45		8	164	56	598	14	232	79	902	135	1500
01:00		5	164			19	219				
01:15		7	137			10	248				
01:30		8	175			10	281				
01:45		8	147	28	623	15	246	54	994	82	1617
02:00		7	150			14	220				
02:15		9	145			10	247				
02:30		13	138			24	227				
02:45		5	213	34	646	28	191	76	885	110	1531
03:00		5	170			28	208				
03:15		4	150			30	177				
03:30		10	200			68	201				
03:45		10	227	29	747	94	187	220	773	249	1520
04:00		9	193			84	215				
04:15		13	194			138	190				
04:30		31	200			170	214				
04:45		40	223	93	810	234	176	626	795	719	1605
05:00		30	171			142	250				
05:15		53	224			178	228				
05:30		44	219			222	172				
05:45		78	250	205	864	239	145	781	795	986	1659
06:00		78	203			241	160				
06:15		98	199			231	124				
06:30		91	111			229	126				
06:45		166	131	433	644	256	134	957	544	1390	1188
07:00		137	137			217	118				
07:15		131	85			255	103				
07:30		157	79			280	88				
07:45		201	47	626	348	265	110	1017	419	1643	767
08:00		202	47			254	105				
08:15		160	59			261	71				
08:30		145	40			248	75				
08:45		168	58	675	204	217	90	980	341	1655	545
09:00		165	46			258	98				
09:15		130	36			220	96				
09:30		117	30			192	73				
09:45		136	34	548	146	198	76	868	343	1416	489
10:00		113	37			182	65				
10:15		126	47			165	67				
10:30		121	29			190	57				
10:45		151	25	511	138	196	48	733	237	1244	375
11:00		125	33			187	54				
11:15		148	33			205	31				
11:30		125	20			248	28				
11:45		152	18	550	104	225	31	865	144	1415	248
Total		3788	5872			7256	7172			11044	13044
Percent		39.2%	60.8%			50.3%	49.7%			45.8%	54.2%
Grand Total		3788	5872			7256	7172			11044	13044
Percent		39.2%	60.8%			50.3%	49.7%			45.8%	54.2%

ADT ADT 24,088 AADT 24,088

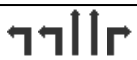
APPENDIX B

Level of Service Calculations

Intersection Level Of Service Report
Intersection 1: Grand Ave & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.546

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	134	46	59	156	56	67	238	65	16	85	26
Total Analysis Volume [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.14	0.14	0.15	0.17	0.17	0.08	0.19	0.16	0.02	0.10	0.07
Intersection LOS	A											
Intersection V/C	0.546											

Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.336

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	202	24	1	172	66	14	2	5	5	5	1
Total Analysis Volume [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.18	0.18	0.00	0.19	0.19	0.03	0.00	0.01	0.01	0.02	0.00
Intersection LOS	A											
Intersection V/C	0.336											

Intersection Level Of Service Report
Intersection 3: Grand Avenue & SB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.441

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	797	0	0	708	307	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	797	0	0	708	307	251
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	199	0	0	177	77	63
Total Analysis Volume [veh/h]	797	0	0	708	307	251
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.00	0.14	0.10	0.16
Intersection LOS	A					
Intersection V/C	0.441					

Intersection Level Of Service Report
Intersection 4: Grand Ave & Dyer Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	548	338	180	1845	1142	573
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	548	338	180	1845	1142	573
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	137	85	45	461	286	143
Total Analysis Volume [veh/h]	548	338	180	1845	1142	573
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

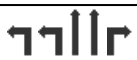
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.16	0.06	0.36	0.34	0.34
Intersection LOS	B					
Intersection V/C	0.614					

Intersection Level Of Service Report
Intersection 1: Grand Avenue & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.550

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	5	5	0	4	0	0	0	5	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	539	190	237	629	222	266	953	263	70	339	104
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	135	48	59	157	56	67	238	66	18	85	26
Total Analysis Volume [veh/h]	141	539	190	237	629	222	266	953	263	70	339	104
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.14	0.14	0.15	0.17	0.17	0.08	0.19	0.16	0.02	0.10	0.07
Intersection LOS	A											
Intersection V/C	0.550											

Intersection Level Of Service Report
Intersection 2: Grand Avenue & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.357

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	34	14	0	0	0	0	0	28	8	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	809	128	18	686	264	54	8	21	47	27	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	202	32	5	172	66	14	2	5	12	7	4
Total Analysis Volume [veh/h]	69	809	128	18	686	264	54	8	21	47	27	17
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.18	0.18	0.01	0.19	0.19	0.03	0.00	0.01	0.03	0.04	0.01
Intersection LOS	A											
Intersection V/C	0.357											

Intersection Level Of Service Report
Intersection 3: Grand Avenue & SB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.455

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	797	0	0	708	307	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	0	0	28	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	819	0	0	736	307	263
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	205	0	0	184	77	66
Total Analysis Volume [veh/h]	819	0	0	736	307	263
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.24	0.00	0.00	0.14	0.10	0.16
Intersection LOS	A					
Intersection V/C	0.455					

Intersection Level Of Service Report
Intersection 4: Grand Avenue & Dyer Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.624

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	548	338	180	1845	1142	573
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	10	5	0	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	566	348	185	1845	1142	590
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	142	87	46	461	286	148
Total Analysis Volume [veh/h]	566	348	185	1845	1142	590
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

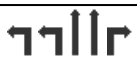
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.16	0.06	0.36	0.34	0.34
Intersection LOS	B					
Intersection V/C	0.624					

Intersection Level Of Service Report
Intersection 1: Grand Avenue & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	2	36	2	74	76	0	1	14	6	1	14	15
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	591	194	320	726	231	278	1005	274	69	367	123
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	148	49	80	182	58	70	251	69	17	92	31
Total Analysis Volume [veh/h]	143	591	194	320	726	231	278	1005	274	69	367	123
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.15	0.15	0.20	0.19	0.19	0.09	0.20	0.17	0.02	0.11	0.08
Intersection LOS	B											
Intersection V/C	0.623											

Intersection Level Of Service Report
Intersection 2: Grand Avenue & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.364

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	40	0	0	83	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	881	98	4	796	275	56	8	22	20	20	2
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	220	25	1	199	69	14	2	6	5	5	1
Total Analysis Volume [veh/h]	72	881	98	4	796	275	56	8	22	20	20	2
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.19	0.19	0.00	0.21	0.21	0.04	0.00	0.01	0.01	0.02	0.00
Intersection LOS	A											
Intersection V/C	0.364											

Intersection Level Of Service Report
Intersection 3: Grand Avenue & SB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.469

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	797	0	0	708	307	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.00	1.00	1.04	1.04	1.04
In-Process Volume [veh/h]	38	0	0	83	78	2
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	867	0	0	819	397	263
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	217	0	0	205	99	66
Total Analysis Volume [veh/h]	867	0	0	819	397	263
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.00	0.00	0.16	0.12	0.16
Intersection LOS	A					
Intersection V/C	0.469					

Intersection Level Of Service Report
Intersection 4: Grand Avenue & Dyer Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	548	338	180	1845	1142	573
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	155	6	5	63	186	33
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	725	358	192	1982	1374	629
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	181	90	48	496	344	157
Total Analysis Volume [veh/h]	725	358	192	1982	1374	629
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

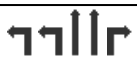
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.16	0.06	0.39	0.39	0.39
Intersection LOS	C					
Intersection V/C	0.729					

Intersection Level Of Service Report
Intersection 1: Grand Avenue & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	136	534	185	237	625	222	266	953	258	65	339	104
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	2	36	2	74	76	0	1	14	6	1	14	15
Site-Generated Trips [veh/h]	5	5	5	0	4	0	0	0	5	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	148	596	199	320	730	231	278	1005	279	74	367	123
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	149	50	80	183	58	70	251	70	19	92	31
Total Analysis Volume [veh/h]	148	596	199	320	730	231	278	1005	279	74	367	123
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.16	0.16	0.20	0.19	0.19	0.09	0.20	0.17	0.02	0.11	0.08
Intersection LOS	B											
Intersection V/C	0.626											

Intersection Level Of Service Report
Intersection 2: Grand Avenue & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	40	0	0	83	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	34	14	0	0	0	0	0	28	8	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	881	132	18	796	275	56	8	22	48	28	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	220	33	5	199	69	14	2	6	12	7	4
Total Analysis Volume [veh/h]	72	881	132	18	796	275	56	8	22	48	28	17
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.20	0.20	0.01	0.21	0.21	0.04	0.00	0.01	0.03	0.04	0.01
Intersection LOS	A											
Intersection V/C	0.385											

Intersection Level Of Service Report
Intersection 3: Grand Avenue & SB Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.483

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	797	0	0	708	307	251
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.00	1.00	1.04	1.04	1.04
In-Process Volume [veh/h]	38	0	0	83	78	2
Site-Generated Trips [veh/h]	22	0	0	28	0	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	889	0	0	847	397	275
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	222	0	0	212	99	69
Total Analysis Volume [veh/h]	889	0	0	847	397	275
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.00	0.00	0.17	0.12	0.17
Intersection LOS	A					
Intersection V/C	0.483					

Intersection Level Of Service Report
Intersection 4: Grand Avenue & Dyer Road

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.740

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	548	338	180	1845	1142	573
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	155	6	5	63	186	33
Site-Generated Trips [veh/h]	18	10	5	0	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	743	368	197	1982	1374	646
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	186	92	49	496	344	162
Total Analysis Volume [veh/h]	743	368	197	1982	1374	646
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

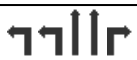
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.17	0.06	0.39	0.40	0.40
Intersection LOS	C					
Intersection V/C	0.740					

Intersection Level Of Service Report
Intersection 1: Grand Ave & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	70	231	33	34	108	56	75	161	17	29	173	62
Total Analysis Volume [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.21	0.21	0.09	0.13	0.13	0.09	0.13	0.04	0.04	0.20	0.15
Intersection LOS	B											
Intersection V/C	0.649											

Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	263	19	1	130	59	34	3	7	16	10	5
Total Analysis Volume [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.22	0.22	0.00	0.15	0.15	0.09	0.01	0.02	0.04	0.06	0.01
Intersection LOS	A											
Intersection V/C	0.420											

Intersection Level Of Service Report
Intersection 3: Grand Ave & Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.542

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	934	0	0	617	274	347
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	934	0	0	617	274	347
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	234	0	0	154	69	87
Total Analysis Volume [veh/h]	934	0	0	617	274	347
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.27	0.00	0.00	0.12	0.09	0.22
Intersection LOS	A					
Intersection V/C	0.542					

Intersection Level Of Service Report
Intersection 4: Grand Ave & Dyer Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.764

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	330	428	404	1552	1693	582
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	330	428	404	1552	1693	582
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	107	101	388	423	146
Total Analysis Volume [veh/h]	330	428	404	1552	1693	582
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

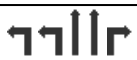
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.14	0.13	0.30	0.45	0.45
Intersection LOS	C					
Intersection V/C	0.764					

Intersection Level Of Service Report
Intersection 1: Grand Ave & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	3	4	0	5	0	0	0	5	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	282	928	134	137	435	225	300	642	72	121	691	247
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	71	232	34	34	109	56	75	161	18	30	173	62
Total Analysis Volume [veh/h]	282	928	134	137	435	225	300	642	72	121	691	247
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.21	0.21	0.09	0.13	0.13	0.09	0.13	0.05	0.04	0.20	0.15
Intersection LOS	B											
Intersection V/C	0.653											

Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.452

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	15	0	0	0	0	0	20	6	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	1051	111	17	518	234	137	11	29	85	47	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	263	28	4	130	59	34	3	7	21	12	8
Total Analysis Volume [veh/h]	46	1051	111	17	518	234	137	11	29	85	47	31
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.23	0.23	0.01	0.15	0.15	0.09	0.01	0.02	0.05	0.08	0.02
Intersection LOS	A											
Intersection V/C	0.452											

Intersection Level Of Service Report
Intersection 3: Grand Ave & Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	934	0	0	617	274	347
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	20	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	957	0	0	637	274	360
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	239	0	0	159	69	90
Total Analysis Volume [veh/h]	957	0	0	637	274	360
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.28	0.00	0.00	0.12	0.09	0.23
Intersection LOS	A					
Intersection V/C	0.556					

Intersection Level Of Service Report
Intersection 4: Grand Ave & Dyer Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.771

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	330	428	404	1552	1693	582
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	7	5	0	0	18
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	343	435	409	1552	1693	600
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	109	102	388	423	150
Total Analysis Volume [veh/h]	343	435	409	1552	1693	600
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

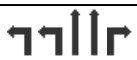
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.14	0.13	0.30	0.45	0.45
Intersection LOS	C					
Intersection V/C	0.771					

Intersection Level Of Service Report
Intersection 1: Grand Ave & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.712

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	5	85	1	21	32	3	2	45	2	1	62	64
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	294	1047	136	163	479	237	314	713	72	122	781	321
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	74	262	34	41	120	59	79	178	18	31	195	80
Total Analysis Volume [veh/h]	294	1047	136	163	479	237	314	713	72	122	781	321
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.18	0.23	0.23	0.10	0.14	0.14	0.10	0.14	0.05	0.04	0.23	0.20
Intersection LOS	C											
Intersection V/C	0.712											

Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.453

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	91	0	0	35	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	1184	78	2	574	243	142	11	30	68	43	21
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	296	20	1	144	61	36	3	8	17	11	5
Total Analysis Volume [veh/h]	48	1184	78	2	574	243	142	11	30	68	43	21
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.25	0.25	0.00	0.16	0.16	0.09	0.01	0.02	0.04	0.07	0.01
Intersection LOS	A											
Intersection V/C	0.453											

Intersection Level Of Service Report
Intersection 3: Grand Ave & Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.589

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	934	0	0	617	274	347
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.00	1.00	1.04	1.04	1.04
In-Process Volume [veh/h]	87	0	0	35	52	4
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1058	0	0	677	337	365
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	265	0	0	169	84	91
Total Analysis Volume [veh/h]	1058	0	0	677	337	365
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.31	0.00	0.00	0.13	0.11	0.23
Intersection LOS	A					
Intersection V/C	0.589					

Intersection Level Of Service Report
Intersection 4: Grand Ave & Dyer Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.879

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	330	428	404	1552	1693	582
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	82	5	5	165	346	82
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	425	450	425	1779	2107	687
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	106	113	106	445	527	172
Total Analysis Volume [veh/h]	425	450	425	1779	2107	687
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

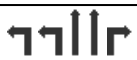
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.15	0.13	0.35	0.55	0.55
Intersection LOS	D					
Intersection V/C	0.879					

Intersection Level Of Service Report
Intersection 1: Grand Ave & Warner Ave

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Warner Ave			Warner Ave		
Base Volume Input [veh/h]	278	925	130	137	430	225	300	642	67	116	691	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	5	85	1	21	32	3	2	45	2	1	62	64
Site-Generated Trips [veh/h]	4	3	4	0	5	0	0	0	5	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	298	1050	140	163	484	237	314	713	77	127	781	321
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	75	263	35	41	121	59	79	178	19	32	195	80
Total Analysis Volume [veh/h]	298	1050	140	163	484	237	314	713	77	127	781	321
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	1	1	0	1	1	0	1	1	0	1	1	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.23	0.23	0.10	0.14	0.14	0.10	0.14	0.05	0.04	0.23	0.20
Intersection LOS	C											
Intersection V/C	0.713											

Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.484

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	91	0	0	35	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	15	0	0	0	0	0	20	6	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	1184	114	17	574	243	142	11	30	88	49	32
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	296	29	4	144	61	36	3	8	22	12	8
Total Analysis Volume [veh/h]	48	1184	114	17	574	243	142	11	30	88	49	32
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	1	0	0	1	0	0	1	0	0	1	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.25	0.25	0.01	0.16	0.16	0.09	0.01	0.02	0.05	0.08	0.02
Intersection LOS	A											
Intersection V/C	0.484											

Intersection Level Of Service Report
Intersection 3: Grand Ave & Off-Ramp

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Grand Ave		SB Off-Ramp	
Base Volume Input [veh/h]	934	0	0	617	274	347
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.00	1.00	1.04	1.04	1.04
In-Process Volume [veh/h]	87	0	0	35	52	4
Site-Generated Trips [veh/h]	23	0	0	20	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1081	0	0	697	337	378
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	270	0	0	174	84	95
Total Analysis Volume [veh/h]	1081	0	0	697	337	378
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	1	0	0	1	1	0
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	Lag	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.00	0.00	0.14	0.11	0.24
Intersection LOS	B					
Intersection V/C	0.604					

Intersection Level Of Service Report
Intersection 4: Grand Ave & Dyer Rd

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.887

Intersection Setup

Name	Grand Ave		Dyer Rd		Dyer Rd	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Grand Ave		Dyer Rd		Dyer Rd	
Base Volume Input [veh/h]	330	428	404	1552	1693	582
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	82	5	5	165	346	82
Site-Generated Trips [veh/h]	13	7	5	0	0	18
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	438	457	430	1779	2107	705
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	110	114	108	445	527	176
Total Analysis Volume [veh/h]	438	457	430	1779	2107	705
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Signal group	1	1	2	1	1	0
Auxiliary Signal Groups		1,2				
Lead / Lag	Lead	-	Lead	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.15	0.13	0.35	0.55	0.55
Intersection LOS	D					
Intersection V/C	0.887					

Intersection Level Of Service Report
Intersection 2: Grand Avenue & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	6.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.315

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	69	809	94	4	686	264	54	8	21	19	19	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	40	0	0	83	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	34	14	0	0	0	0	0	28	8	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	72	881	132	18	796	275	56	8	22	48	28	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	220	33	5	199	69	14	2	6	12	7	4
Total Analysis Volume [veh/h]	72	881	132	18	796	275	56	8	22	48	28	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	39	0	0	39	0	0	21	0	0	21	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C	R
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	42	42	42	42	42	42	6	6	6	6	6
g / C, Green / Cycle	0.69	0.69	0.69	0.69	0.69	0.69	0.11	0.11	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.15	0.21	0.21	0.04	0.23	0.23	0.05	0.00	0.02	0.06	0.01
s, saturation flow rate [veh/h]	474	3204	1573	501	3204	1472	1244	1683	1205	1295	1205
c, Capacity [veh/h]	384	2219	1090	404	2219	1020	162	181	130	237	130
d1, Uniform Delay [s]	6.94	3.60	3.61	5.85	3.68	3.69	29.27	24.04	24.37	25.51	24.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.08	0.36	0.73	0.21	0.40	0.88	1.26	0.10	0.61	0.77	0.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.31	0.31	0.04	0.33	0.33	0.35	0.04	0.17	0.32	0.13
d, Delay for Lane Group [s/veh]	8.02	3.96	4.34	6.06	4.08	4.57	30.53	24.13	24.98	26.28	24.71
Lane Group LOS	A	A	A	A	A	A	C	C	C	C	C
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.50	1.08	1.18	0.10	1.19	1.24	0.83	0.10	0.29	1.02	0.22
50th-Percentile Queue Length [ft/ln]	12.45	26.99	29.46	2.61	29.79	31.02	20.80	2.53	7.27	25.62	5.58
95th-Percentile Queue Length [veh/ln]	0.90	1.94	2.12	0.19	2.15	2.23	1.50	0.18	0.52	1.84	0.40
95th-Percentile Queue Length [ft/ln]	22.40	48.59	53.03	4.71	53.63	55.84	37.44	4.56	13.08	46.12	10.04

Movement, Approach, & Intersection Results

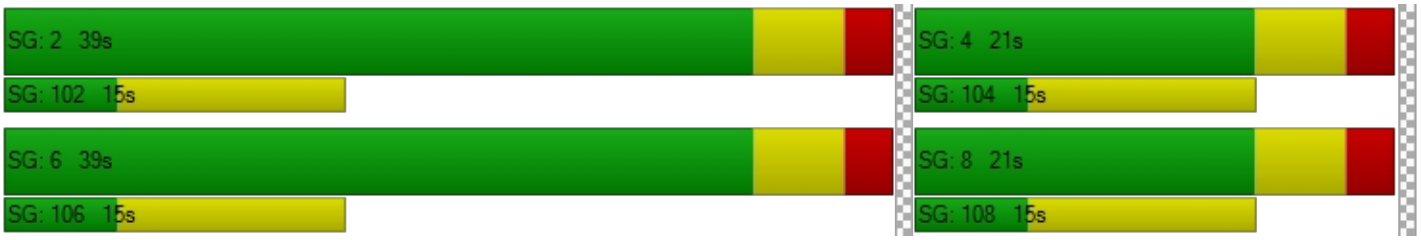
d_M, Delay for Movement [s/veh]	8.02	4.05	4.34	6.06	4.12	4.57	30.53	24.13	24.98	26.28	26.28	24.71
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	4.34			4.26			28.52			26.00		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	6.05											
Intersection LOS	A											
Intersection V/C	0.315											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.915	3.035	2.327	2.028
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1100	1100	500	500
d_b, Bicycle Delay [s]	6.08	6.08	16.88	16.88
l_b,int, Bicycle LOS Score for Intersection	2.156	2.159	1.702	1.713
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Grand Ave & Brookhollow Dr

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.416

Intersection Setup

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Grand Ave			Grand Ave			Brookhollow Dr			Brookhollow Dr		
Base Volume Input [veh/h]	46	1051	75	2	518	234	137	11	29	65	41	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	91	0	0	35	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	36	15	0	0	0	0	0	20	6	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	48	1184	114	17	574	243	142	11	30	88	49	32
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	296	29	4	144	61	36	3	8	22	12	8
Total Analysis Volume [veh/h]	48	1184	114	17	574	243	142	11	30	88	49	32
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	36	0	0	36	0	0	34	0	0	34	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	17	0	0	23	0	0	23	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	42	42	42	42	42	42	20	20	20	20	20
g / C, Green / Cycle	0.60	0.60	0.60	0.60	0.60	0.60	0.28	0.28	0.28	0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.08	0.27	0.27	0.04	0.17	0.18	0.12	0.01	0.02	0.11	0.03
s, saturation flow rate [veh/h]	602	3204	1608	382	3204	1443	1220	1683	1205	1285	1205
c, Capacity [veh/h]	401	1928	968	270	1928	869	275	478	342	449	342
d1, Uniform Delay [s]	9.66	7.60	7.60	11.57	6.72	6.76	29.23	18.06	18.40	20.78	18.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	0.76	1.50	0.45	0.38	0.88	1.50	0.02	0.11	0.38	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.45	0.45	0.06	0.29	0.30	0.52	0.02	0.09	0.30	0.09
d, Delay for Lane Group [s/veh]	10.27	8.36	9.10	12.02	7.10	7.64	30.74	18.08	18.51	21.16	18.55
Lane Group LOS	B	A	A	B	A	A	C	B	B	C	B
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.43	3.06	3.27	0.18	1.74	1.73	2.34	0.13	0.35	1.79	0.37
50th-Percentile Queue Length [ft/ln]	10.67	76.52	81.86	4.41	43.41	43.30	58.50	3.13	8.77	44.79	9.37
95th-Percentile Queue Length [veh/ln]	0.77	5.51	5.89	0.32	3.13	3.12	4.21	0.23	0.63	3.22	0.67
95th-Percentile Queue Length [ft/ln]	19.21	137.74	147.35	7.93	78.14	77.93	105.30	5.63	15.79	80.61	16.87

Movement, Approach, & Intersection Results

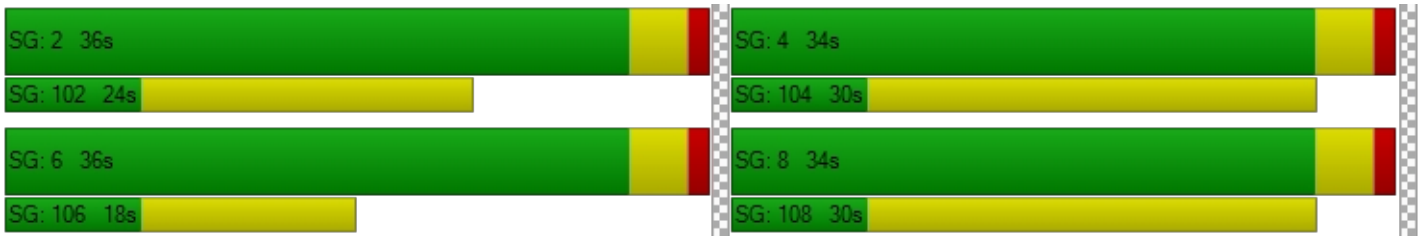
d_M, Delay for Movement [s/veh]	10.27	8.56	9.10	12.02	7.12	7.64	30.74	18.08	18.51	21.16	21.16	18.55
Movement LOS	B	A	A	B	A	A	C	B	B	C	C	B
d_A, Approach Delay [s/veh]	8.66			7.37			27.97			20.67		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	10.43											
Intersection LOS	B											
Intersection V/C	0.416											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.989	3.181	2.313	2.052
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	914	914	857	857
d_b, Bicycle Delay [s]	10.31	10.31	11.43	11.43
l_b,int, Bicycle LOS Score for Intersection	2.300	2.018	1.862	1.838
Bicycle LOS	B	B	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX C

Explanation of Level of Service Categories

Level of Service (LOS) Descriptions[1]

Level of Service	Description	Volume to Capacity (v/c) Ratio	Control Delay Per Vehicle
A	Level of Service A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.600 and below	10 sec and below
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of delay.	0.601 to 0.700	10 to 20 sec
C	Level of Service C generally result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping.	0.701 to 0.800	20 to 35 sec
D	Level of Service D describes a situation in which the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicle that do not have to stop declines. Individual cycle failures are therefore more noticeable.	0.801 to 0.900	35 to 55 sec
E	Level of Service E is considered to be the limit of acceptable conditions. High delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures frequently occur.	0.901 to 1.000	55 to 80 sec
F	Level of Service F is generally considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection.	1.001 and above	80 sec and above

[1] Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council Washington D.C., 2000.