Appendix K
Traffic Volume Review

ESA

DRAFT

MEMORANDUM

TO: Rick Gable, Adler Realty

FROM: Eugene Tang, AICP
Casey Le, EIT

DATE: December 14, 2017

RE: Preliminary Driveway Traffic Volume Review
De Soto/Burbank Master Plan Project
Warner Center, California **Ref:** J1315

This memorandum summarizes our preliminary review of the traffic volume assignments at key driveways of the proposed De Soto/Burbank Master Plan Project (Project) in the Warner Center community of Los Angeles.

The Los Angeles Department of Transportation (LADOT) requested preliminary traffic volume data at the key Project driveways for the purposes of providing comments on site access design. Our discussions with LADOT focused on the Warner Center Lane & De Soto Avenue and Burbank Boulevard & Warner Center Lane driveways into and out of the Project site (Site).

BACKGROUND

The Site, on the northwest corner of Burbank Boulevard & De Soto Avenue, is bordered by existing development immediately to the north and west. The Site is currently occupied by a combination of 12 single-level and multi-level buildings, primarily functioning as office space with ancillary commercial uses. Primary access into the Site is provided by Warner Center Lane, a private street, which provides a continuous connection between Burbank Boulevard and De Soto Avenue through the Site.

The Project involves the redevelopment of the Site into a mixed-use development that includes residential, office, and commercial uses consistent with *Warner Center 2035 Plan* (Los Angeles Department of City Planning, October 2013) (WC2035 Plan). The Project includes eight development phases, with completion of the first phase anticipated in 2022 and completion of the last phase anticipated in 2035. Throughout the phased development, the primary site access will continue to be provided to and from Warner Center Lane. Figure 1 illustrates the overall site plan upon completion.

TRAFFIC VOLUMES

Existing traffic volumes were collected at the three existing site driveways on a Thursday in April 2017 for the morning (7:00AM-10:00AM) and afternoon (3:00PM-6:00PM) peak periods. Figure 2 illustrates the existing traffic volumes at the driveways.

Future traffic volumes were developed by factoring the existing volumes by an annual growth rate developed from the WC2035 Plan Traffic Model. The annual growth rate includes the background traffic growth assumed as a result of the development anticipated by the WC2035 Plan and provides the future background traffic conditions on the street network.

TRIP GENERATION

Trip generation estimates for the Project were developed based on the trip generation rates identified in *Trip Generation, 9th Edition* (Institute of Transportation Engineers [ITE], 2012). The trip rates utilized include:

- Apartment – ITE Land Use Code 220
- Condominium – ITE Land Use Code 230
- Hotel – ITE Land Use Code 310
- Office – ITE Land Use Code 710
- Retail – ITE Land Use Code 814
- Restaurant (Quality) – ITE Land Use Code 931
- Restaurant (High-turnover) – ITE Land Use Code 932

In addition to the ITE rates, LADOT has previously required a specific trip generation rate for the health club/fitness club land use.

Specific trip credits were also applied consistent with the methodology identified in the WC2035 Plan environmental impact report. These credits include:

- Transportation Demand Management (TDM) adjustment – Accounts for the WC2035 Plan requirement that all Warner Center development implement some form of a TDM program. The adjustment is specific per land use and applied where applicable.

- Pass-by adjustment – Accounts for those trips not originally destined to the Site but already on the street network. The adjustment is specific per land use and applied where applicable.

- Transit Oriented Development (TOD) adjustment – Accounts for a project's opportunity to be TOD compliant per WC2035 Plan. This adjustment is applied to all projects, based on location.

- Internal Capture adjustment – Accounts for the WC2035 Plan development requirements, which encourage interaction among adjacent land uses. This adjustment is applied to all projects.

- Model to ITE adjustment – Accounts for the methodology differences in trip generation development between the WC2035 Plan Traffic Model and ITE rate based trip estimates. This allows for an easier comparison between and the trip generation development in the WC2035 Plan Traffic Model. This adjustment is applied to all projects.

The trip rates and adjustments described above were applied where appropriate to the existing and proposed land uses. The Project trip generation estimates were developed by the anticipated development phase[1], as detailed in Table 1. The following summarizes the net new (proposed trip generation less existing use credit) trip generation estimates by the anticipated development phase:

- Phase 1 – 2,001 daily trips
  - 112 AM trips (-17 in,129 out) and 146 PM trips (132 in,14 out)
- Phase 2 – 884 daily trips
  - 48 AM trips (-17 in, 65 out) and 64 PM trips (62 in, 2 out)
- Phase 3 - 3,072 daily trips
  - 414 AM trips (363 in, 51 out) and 401 PM trips (71 in, 330 out)
- Phase 4 - 1,385 daily trips
  - 59 AM trips (26 in, 33 out) and 90 PM trips (60 in, 30 out)
- Phase 5 – 353 daily trips
  - -21 AM trips (-31 in, 10 out) and -16 PM trips (16 in, -32 out)
- Phase 6 - 853 daily trips
  - 15 AM trips (-50 in, 65 out) and 50 PM trips (70 in, -20 out)
- Phase 7 – 2,042 daily trips
  - 272 AM trips (239 in, 33 out) and 263 PM trips (46 in, 217 out)
- Phase 8 – 3,463 daily trips
  - 410 AM trips (346 in, 64 out) and 401 PM trips (89 in, 312 out)

TRIP DISTRIBUTION

The Project trips are one component of the preliminary driveway traffic volumes. Similar to the trip generation discussion above, the distribution of Project traffic to the street network was developed from the WC2035 Plan Traffic Model.

[1] The anticipated development phases assume a specific building construction sequence. To the extent that the development sequence is modified in the future, these trip generation estimates may require updating.

Specifically, the distribution patterns for the Project's office, residential, and retail components were adapted from the model patterns for the same land uses as well as consideration of existing traffic patterns and future access schemes[2]. Figures 3A-10A illustrate the trip distribution patterns of Project traffic through each phase of development.

PRELIMINARY DRIVEWAY VOLUMES

Figures 3B-10B show the combination of the components described above. The trip distribution patterns were applied to each phase of the Project trip generation; this results in the Project traffic assignment. These traffic assignments were then added to the future background traffic conditions to generate the preliminary driveway traffic volumes by phase. In turn, these preliminary traffic volumes were utilized to perform the signal warrant and queuing analyses at the Warner Center Lane intersections.

PRELIMINARY SIGNAL WARRANT ANALYSIS

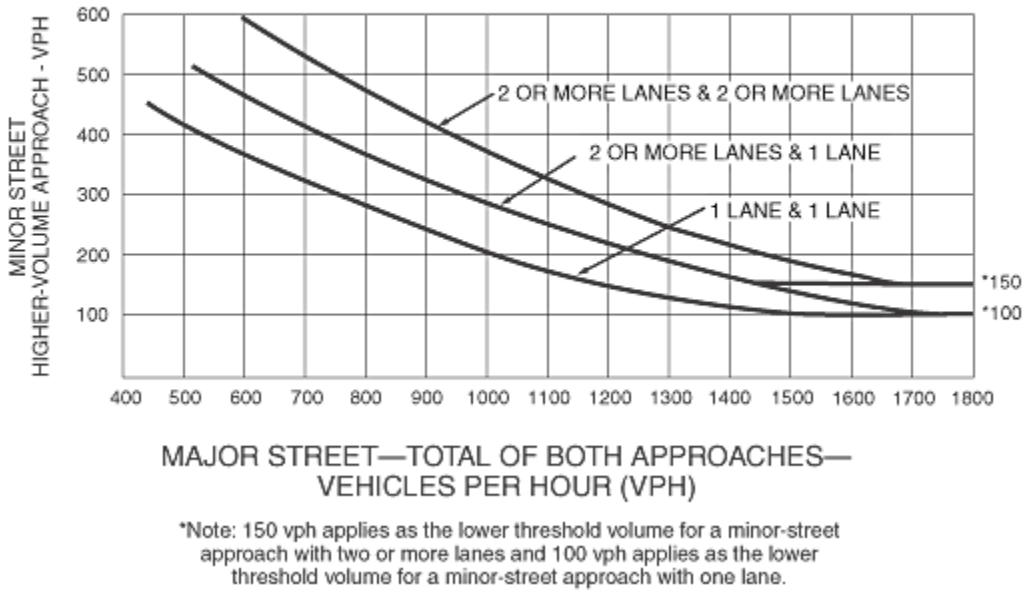
As part of the development of the Project, interest has been expressed in the installation of a new traffic signal at the existing intersection of Warner Center Lane & De Soto Avenue/Serrania Avenue; the traffic signal is intended to facilitate access to the Site. Before installation of any new traffic signal, a technical analysis following the guidelines set in *Manual of Policies and Procedures* (LADOT, December 2008) and *California Manual on Uniform Traffic Control Devices* (California Department of Transportation, 2014) (CA MUTCD) is required.

Therefore, a signal warrant analysis was performed for three site conditions: Existing, Future with Project Phase 1, and Future with Project Phase 2. Analysis of the existing condition provides context for the installation a traffic signal, while analysis of the two Project phases is intended to test the traffic anticipated to be generated during the early development phases on the eastern portion of the site. The preliminary traffic volumes described above were utilized for the signal warrant analysis, which utilized LADOT/CA MUTCD Warrant 3 (Peak Hour). As described in the CA MUTCD, the methodology for Warrant 3 (Peak Hour) is based on:

> ***Warrant 3, Peak-Hour Vehicular Volume Warrant***
>
> *Signal Warrant 3 is intended for use at a location where traffic conditions are such that for a minimum of one hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street. Combined volumes for both approaches of the major street are included while only the volume from the higher minor street approach is included. At an intersection with a high volume of left-turn traffic from the major street, the analysis may include the major street left-turn volumes plus the minor street approach volume as the total "minor street" volume. The warrant is satisfied if traffic volumes for any one hour of an average day exceed the plotted lines shown in the following figure.*

[2] The access scheme utilized in this analysis conservatively assumes that vehicular movements onto Adler Drive (which is anticipated to be constructed with Phase 8) are restricted to inbound-only right turns from Burbank Boulevard. To the extent that the access scheme is revised in the future, the trip distribution assumptions utilized may require updating.

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Effectively, the CA MUTCD exhibit above indicates that, to meet the peak hour signal warrant, the minimum requirement is both:

- The total volume on the two major street approaches of 1,800 vehicles per hour
- The minor street approach volume must be
    - o 100 vehicles per hour for a single lane approach OR
    - o 150 vehicles per hour for an approach with two or more lanes.

If both of these conditions are met, the peak hour signal warrant is deemed to be satisfied.

The results of the signal warrant analyses are summarized below and worksheets are provided in the Attachment.

Warner Center Lane & De Soto Avenue/Serrania Avenue

Under Existing Conditions, a total of 3,595 vehicles per hour on the major street approaches, with 105 vehicles per hour on the single lane minor street approach, are anticipated at the Warner Center Lane & De Soto Avenue/Serrania Avenue intersection. Therefore, the peak hour warrant is satisfied under Existing Conditions.

Under Future with Project Phase 1 Conditions, Warner Center Lane is reconfigured to a two-lane eastbound approach (exiting the Site). The total anticipated volume on the major street approaches is 3,823 vehicles per hour, with 132 vehicles per hour on the two-lane minor street approach. Because this is slightly less than the 150 vehicle per hour threshold for a two lane

approach on a minor street, the peak hour warrant is not met under the Future with Project Phase 1 Conditions.

Phase 2 continues redevelopment of the Site and the reconfigured Warner Center Lane approach from Phase 1 is unchanged. The total anticipated volume of the major street approaches is 3,894 vehicles per hour, with 141 vehicles per hour on the minor street approach. This is also slightly less than the 150 vehicle threshold for a two lane minor street approach and the peak hour warrant is not met under the Future with Project Phase 2 Conditions.

Following the completion of Phase 3, the total anticipated volume of the major street approaches is 4,006 vehicles per hour, with 342 vehicles per hour on the minor street approach. The peak hour warrant is satisfied with the Future Project Phase 3 Conditions.

Based on the existing/projected traffic volumes, the peak hour signal warrant for Warner Center Lane & De Soto Avenue/Serrania Avenue is satisfied by current traffic volumes and the projections of Future with Project Phase 3 traffic volumes. Although the Future with Project Phase 1 and Phase 2 conditions do not meet the signal warrant, it should be noted that the minor street volume projections are, respectively, 18 and nine vehicles less than the minimum minor street volume threshold. The application of engineering judgment or other contributing factors (i.e., request by Project, community request, public safety, etc.) may be utilized to determine satisfaction of the signal warrant in instances where the technical basis for satisfaction are nominally below the threshold.

Additional Considerations. As observed by the landlord and tenants for the past several years, drivers exiting the Site often avoid the intersection of Warner Center Lane & De Soto Avenue/Serrania Avenue during the peak periods. Based on landlord and tenant feedback, there is a general perception that vehicles travel at high speeds along De Soto Avenue and that leaving the Site through this intersection is, therefore, potentially unsafe.

To investigate the perception of unsafe speeds, collision data from the Statewide Integrated Traffic Records System (SWITRS) was reviewed for locations adjacent to the Warner Center Lane & De Soto Avenue/Serrania Avenue intersection. The segment of De Soto Avenue between approximately Califa Street and Burbank Boulevard was selected for analysis in order to capture collisions that occurred to the north or south of the Warner Center Lane intersection. The collisions reported between January 1, 2013 and June 30, 2017 were reviewed for collision factors, including speeding, improper turns, automobile right-of-way, etc., that could be addressed through installation of a traffic signal.

During this four-and-half-year period, a total of 41 collisions resulting in property damage or injury were reported; no fatalities were indicated. Of this total, eight collisions were identified as being caused by an unsafe speed and 12 collisions a result of automobile right-of-way conflicts or improper turning. The remaining 21 collisions resulted from other factors.

The table below summarizes the review of the 2013-2017 SWITRS collision records. Although a reporting period for 2017 was included, it is possible that not all collision records have been entered into SWITRS:

SWITRS Collision Data Summary
De Soto Avenue between Califa Street & Burbank Blvd.

Year	Unsafe Speed	Auto ROW	Improper Turning	Other Factors	Total
2013	1	3	1	2	7
2014	2	1	0	7	10
2015	1	2	2	5	10
2016	4	2	1	7	14
2017	-	-	-	-	-
Total	8	8	4	21	41

SWITRS collision data accessed from 1/1/2013 through 6/30/17.

As summarized, the number of reported incidents in this segment increased from seven collisions in 2013 to 14 collisions in 2016. Collisions caused by unsafe speeds increased from one collision in 2013 to four collisions in 2016.

The risk of future collisions may be addressed through the installation of a traffic signal, which could improve traffic/speed control through this segment and allow for protected turn movements from the major street. Signalization of Warner Center Lane & De Soto Avenue/Serrania Avenue is anticipated to reduce the potential for high speeds along De Soto Avenue and enhance the operational safety at the intersection.

The installation of a signal would also be consistent with the goals of *Vision Zero: Eliminating Traffic Deaths in Los Angeles by 2025* (City of Los Angeles, August 2015). Vision Zero is a citywide effort to increase and improve safety by reducing traffic collisions, with the goal of reducing traffic related deaths by 20% by the end of 2017 and the elimination of all traffic related deaths by 2025. Although zero fatalities were associated with the collisions reported above, the increasing number of collisions between 2013 and 2016 is contrary to the goals of Vision Zero.

Burbank Boulevard & Warner Center Lane

Under Existing Conditions, the Burbank Boulevard & Warner Center Lane intersection is a single lane approach on Warner Center Lane, with a total of 1,275 vehicles per hour on the major street approaches and 182 vehicles per hour on the minor street approach. The major street traffic volumes do not meet the threshold and the peak hour warrant is not met under the Existing Conditions.

Under Future with Project Phase 1 Conditions, the intersection configuration will remain the same as Existing Conditions. The total projected volume on the major street approaches is 1,511 vehicles per hour, with 190 vehicles per hour on the Warner Center Lane approach. Although potential signalization of this intersection is not desired until a later Project phase, the peak hour warrant is satisfied with the Future with Project Phase 1 Conditions.

Burbank Boulevard & Building 8 / Kaiser Driveway

Under Existing Conditions, the Kaiser Driveway forms the south leg of the "T" intersection at Burbank Boulevard; the south leg is a private driveway that provides two exit lanes. The Existing Conditions signal warrant was performed for informational purposes only, as no existing Project traffic turns into this intersection. A total of 1,225 vehicles per hour on the major street approaches and 364 vehicles per hour on the minor street approach were observed during the afternoon peak hour. The major street traffic volume threshold and the peak hour warrant are met under the Existing Conditions without the proposed Project.

Phase 3 proposes to add a north leg to the existing intersection to create a four-legged intersection; the north leg will also be a private driveway into the Building 8 portion of the Project. The resulting lane configuration in the southbound direction (on the north leg) will provide two exit lanes with three entry lanes; corresponding eastbound left-turn and westbound right-turn lanes will be added. The total projected volume on the major street approach is 1,818 vehicles, with 363 vehicles on the Kaiser Driveway approach during the afternoon peak hour. As such, the peak hour warrant is projected to be satisfied. Although potential signalization of this intersection is not proposed until at least Project Phase 3, the peak hour warrant is satisfied under Existing Conditions.

PRELIMINARY QUEUING ANALYSIS

In addition to the signal warrant analysis, preliminary queuing analyses were performed for the Warner Center Lane & De Soto Avenue/Serrania Avenue, Burbank Boulevard & Warner Center Lane, and Burbank Boulevard & Building 8/Kaiser Driveway intersections.

Warner Center Lane & De Soto Avenue/Serrania Avenue will be reconfigured as part of the Project's Phase 1 development. As illustrated in Figure 11, the eastbound approach will transition from a single lane along Warner Center Lane into two outbound lanes at De Soto Avenue; a shared left/through lane and a right-turn lane will be provided. The outbound queuing capacity at this approach is over 250 feet for the shared left/through lane and approximately 210 feet for the right-turn lane. This total queue capacity does not include the approximately 30 feet designated as a "Keep Clear" area directly in front of the Building 9 driveway, which bisects the available storage area into 125 feet of storage at De Soto Avenue and spillover storage of 85-125 feet beyond the Building 9 driveway, respectively, for the right-turn and shared left-turn/through lanes.

Burbank Boulevard & Warner Center Lane will be improved as part of the Project's Phase 7 development. The north leg of the intersection will transition from a single travel lane in each direction on Warner Center Lane into a five-lane cross-section at Burbank Boulevard, as illustrated in Figure 12. A total of three outbound lanes and two inbound lanes will be provided. There is approximately 90 feet of queuing capacity for each outbound lane (one right-turn and two left-turn lanes) with over 150 feet for spillover queuing capacity beyond the five lane cross-section.

Burbank Boulevard & Building 8/Kaiser Driveway will be constructed as part of the Project's Phase 3 development, creating a four-legged intersection. The north leg of this intersection is comprised of the Building 8 driveway, a private drive with access to both guest and monthly

parking. The driveway will be constructed to align with the existing Kaiser Driveway, which is the south leg of the intersection. The Building 8 driveway will provide a total of five lanes with three inbound and two outbound lanes.

The reported queues are the 85th percentile queues calculated using the *2010 Highway Capacity Manual* (Transportation Research Board, 2010) signalized intersection methodology. For the purposes of this analysis, the length of a vehicle in queue is assumed to be 22 feet; this includes the length of the vehicle with some buffer ahead/behind the vehicle.

Tables 2-5 summarize the results of the preliminary queuing analysis on a phase-by-phase basis, the results of which are discussed below.

Warner Center Lane & De Soto Avenue/Serrania Avenue

Under Phases 1 through 8 conditions and assuming signalized operation at Phase 1, the projected queuing along the eastbound approach is not anticipated to exceed the available queue storage in either outbound lane. The maximum right-turn storage spillover of 85 feet projected to occur beginning at Phase 3 and is not projected to exceed the available queue storage. Similarly, the maximum left/through storage spillover of 151 feet projected during Phase 7 and 255 feet during Phase 8 is anticipated to be accommodated by the available storage spillover.

On De Soto Avenue, the queues of the northbound left-turn and southbound right-turn (inbound) movements to the Project site were also analyzed. Approximately 200 feet of queue storage is available for the northbound left turn and approximately 300 feet of queue storage is available for the southbound right turn. The maximum projected northbound left-turn queue of 176 feet projected during Phase 4 does not exceed the available queue storage. The maximum projected southbound right-turn queue of 132 feet projected during Phase 8 does not exceed the available queue storage.

Burbank Boulevard & Warner Center Lane

Although this intersection is projected to meet the signal warrant in Phase 1, the completion of the proposed improvements is not anticipated until Phase 7. Therefore, this queuing analysis was performed under Phase 7 and 8 conditions.

Assuming signalization with Phase 7, the maximum southbound right-turn queue is projected at 117 feet; this queue occupies the right-turn storage of 90 feet, with a spillover of 27 feet. The maximum southbound left-turn queue of 25 feet does not exceed the available storage. In total, both projected queues could be accommodated by the available spillover storage on the southbound approach.

Under Phase 8 conditions, the maximum southbound right-turn queue is projected at 216 feet, which results in a spillover of approximately 126 feet. The southbound left-turn queue is projected at 60 feet, which could be accommodated in both left-turn lanes. Both projected queues could be accommodated within the available spillover storage on the southbound approach.

Burbank Boulevard & Building 8 / Kaiser Driveway

Although this intersection is projected to meet the signal warrant under Existing Conditions, the completion of the proposed improvements is not anticipated until Phase 3. Therefore, this queuing analysis was performed beginning with the Phase 3 conditions. All outbound queuing at this driveway will be accommodated on-site within the garage. The queuing analysis below examines the projected queuing outside the garage along Burbank Boulevard.

Assuming signalization with completion of Phase 3, the maximum eastbound left-turn queue is projected at 35 feet with a westbound right-turn queue of 57 feet into the Project during the morning peak hour. These queues are projected to be satisfied by the available queue storage area of approximately 75 feet in each lane. The projected queues during the afternoon peak hour are projected to be less than one vehicle for both the eastbound left-turn and westbound right-turn. The projected queues for the morning and afternoon peak hours could be accommodated by the available storage on Burbank Boulevard.

This trend continues through the Phase 8 conditions, where the projected queues of the eastbound left-turn (37 feet) and westbound right-turn (55 feet) into the site can be accommodated by the available storage of the respective turn lane.

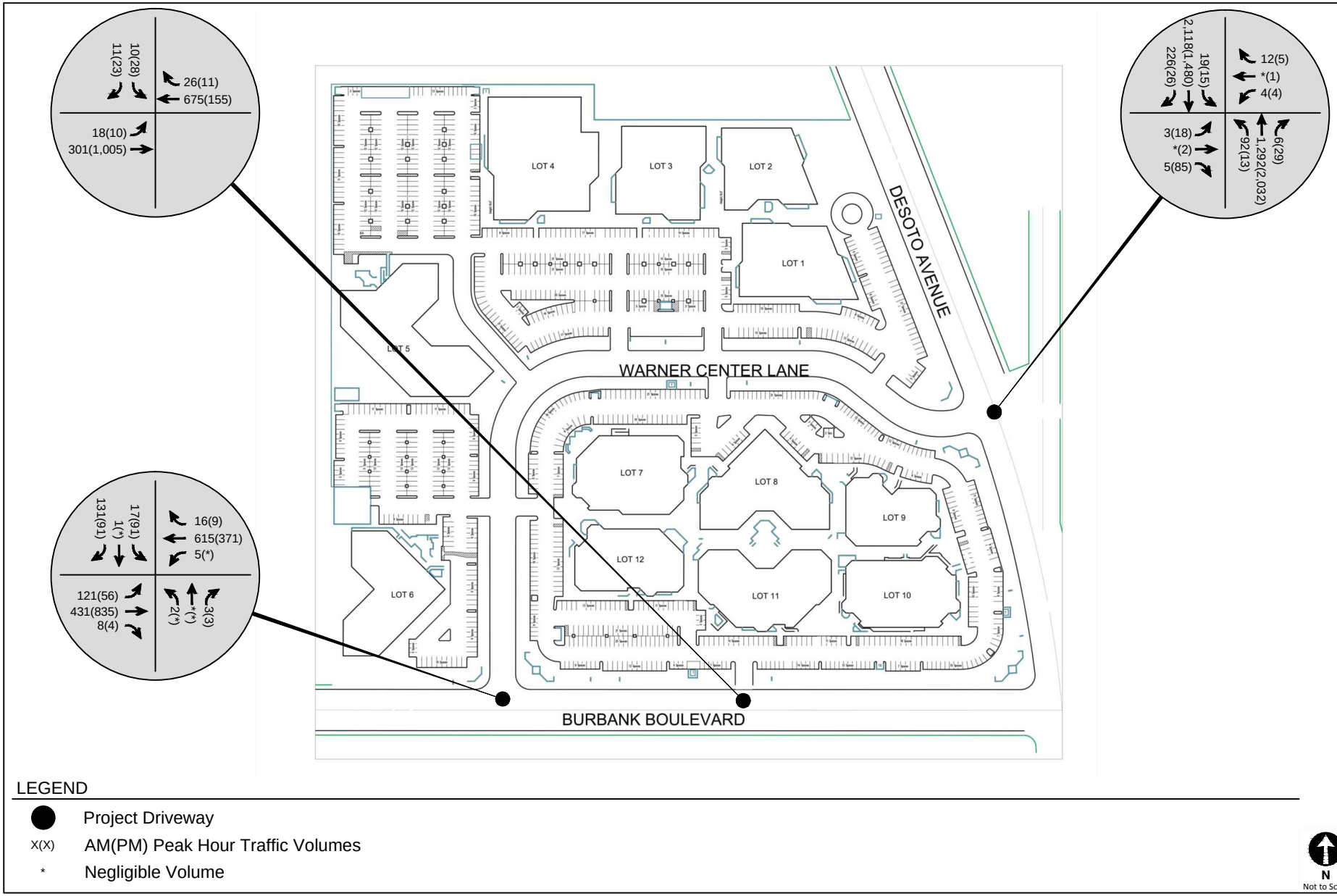
SUMMARY

Based on the traffic volumes developed for this preliminary analysis, the site access design is able to adequately serve the projected volumes of the Project with implementation of the proposed improvements.

N
Not to Scale

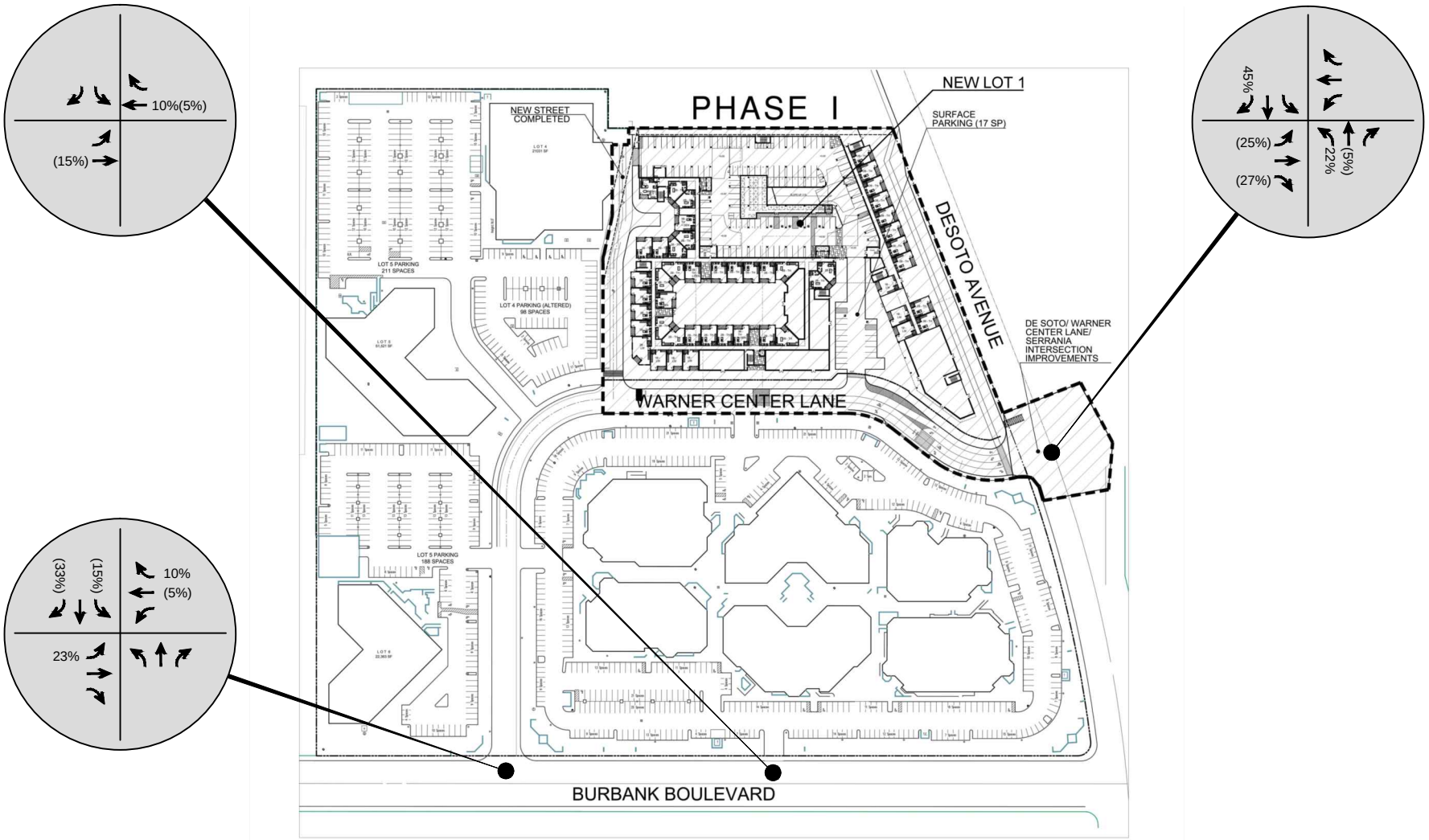
PROJECT SITE PLAN (ILLUSTRATIVE)

FIGURE 1



EXISTING CONDITIONS (YEAR 2017)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
2



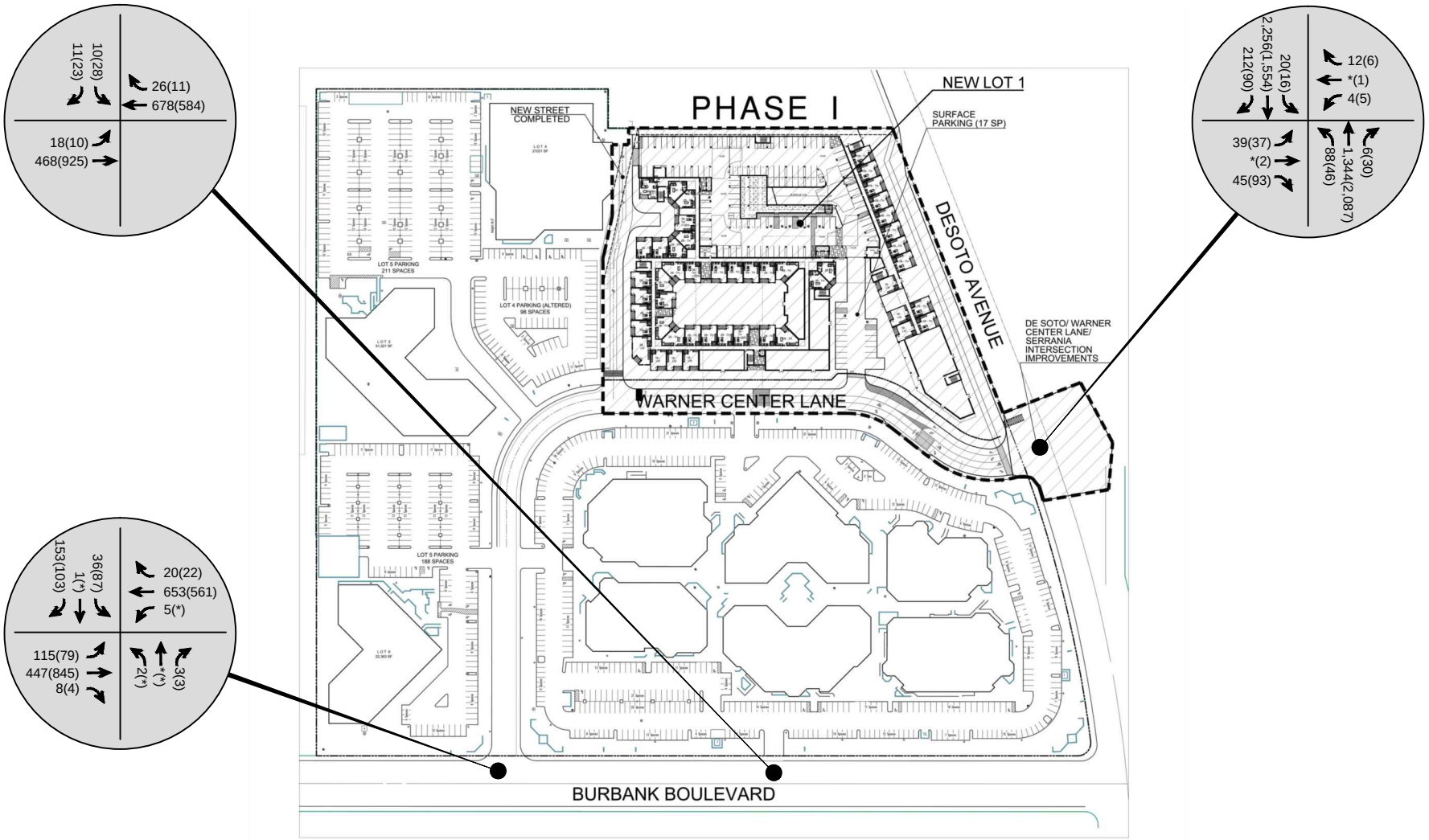
LEGEND

- Project Driveway
- X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 1 CONDITIONS (YEAR 2022)
TRIP DISTRIBUTION

FIGURE 3A

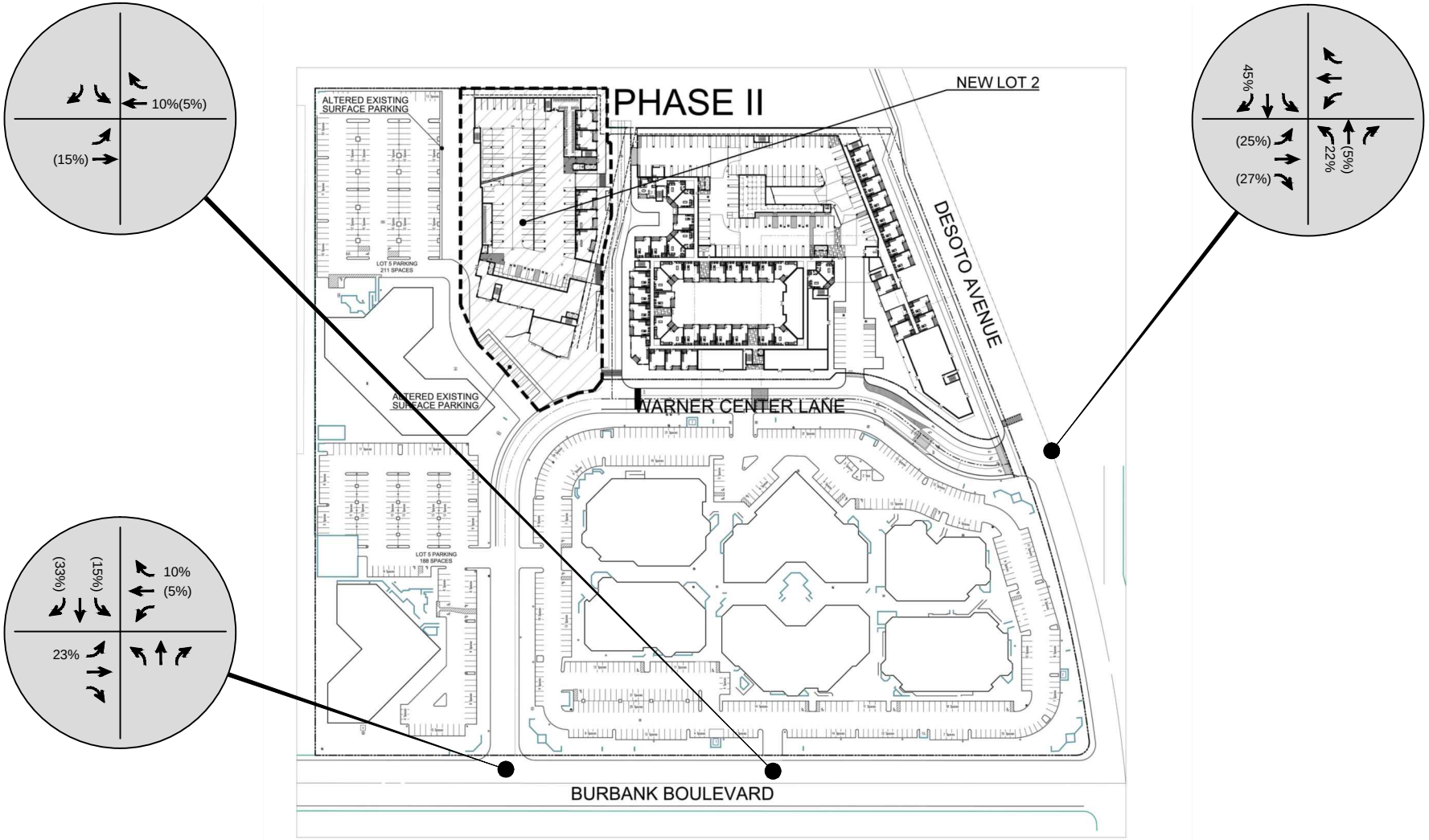


LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

FUTURE WITH PROJECT PHASE 1 CONDITIONS (YEAR 2023)
PEAK HOUR INTERSECTION VOLUMES

FIGURE 3B



LEGEND

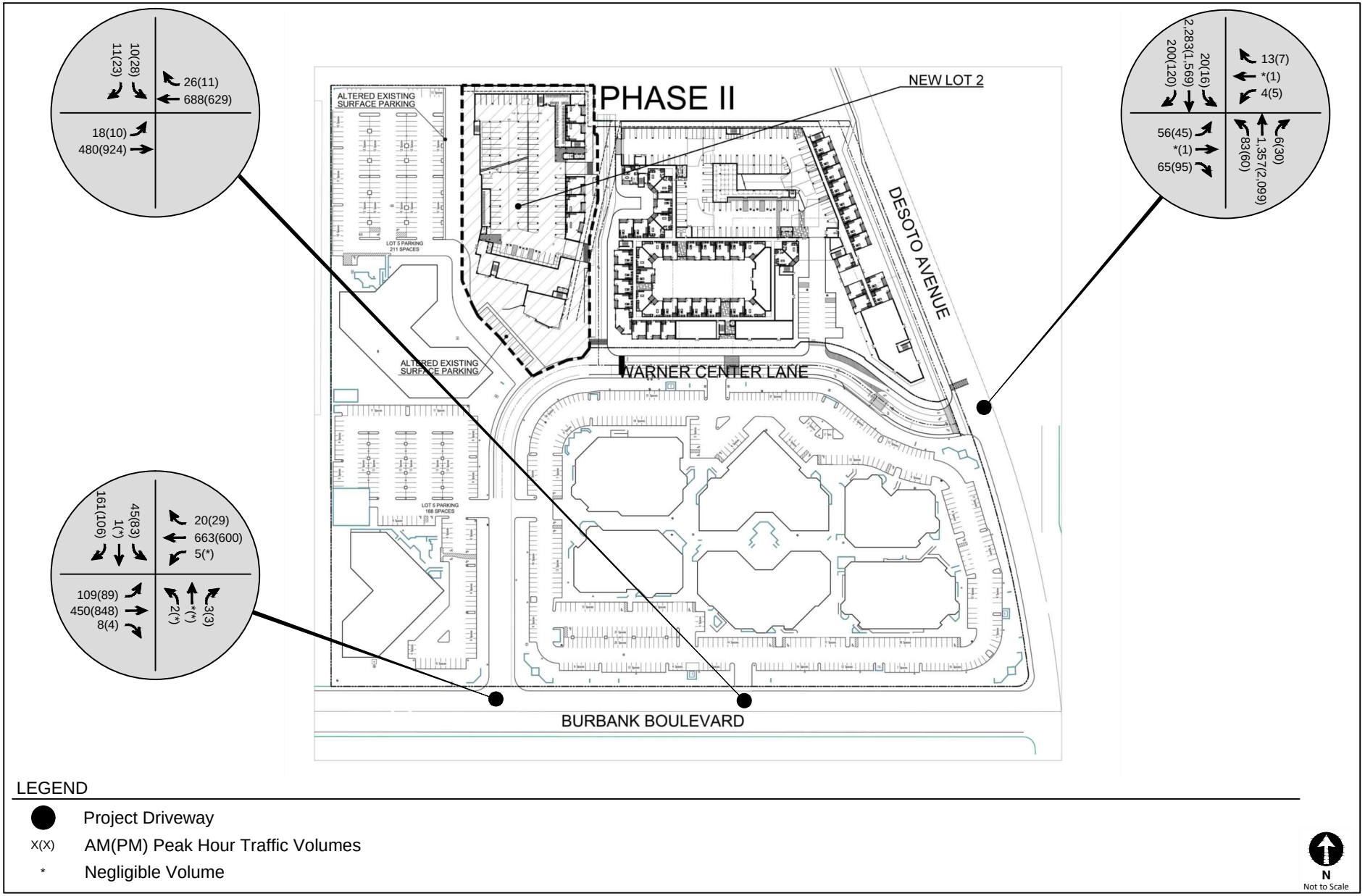
● Project Driveway

X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

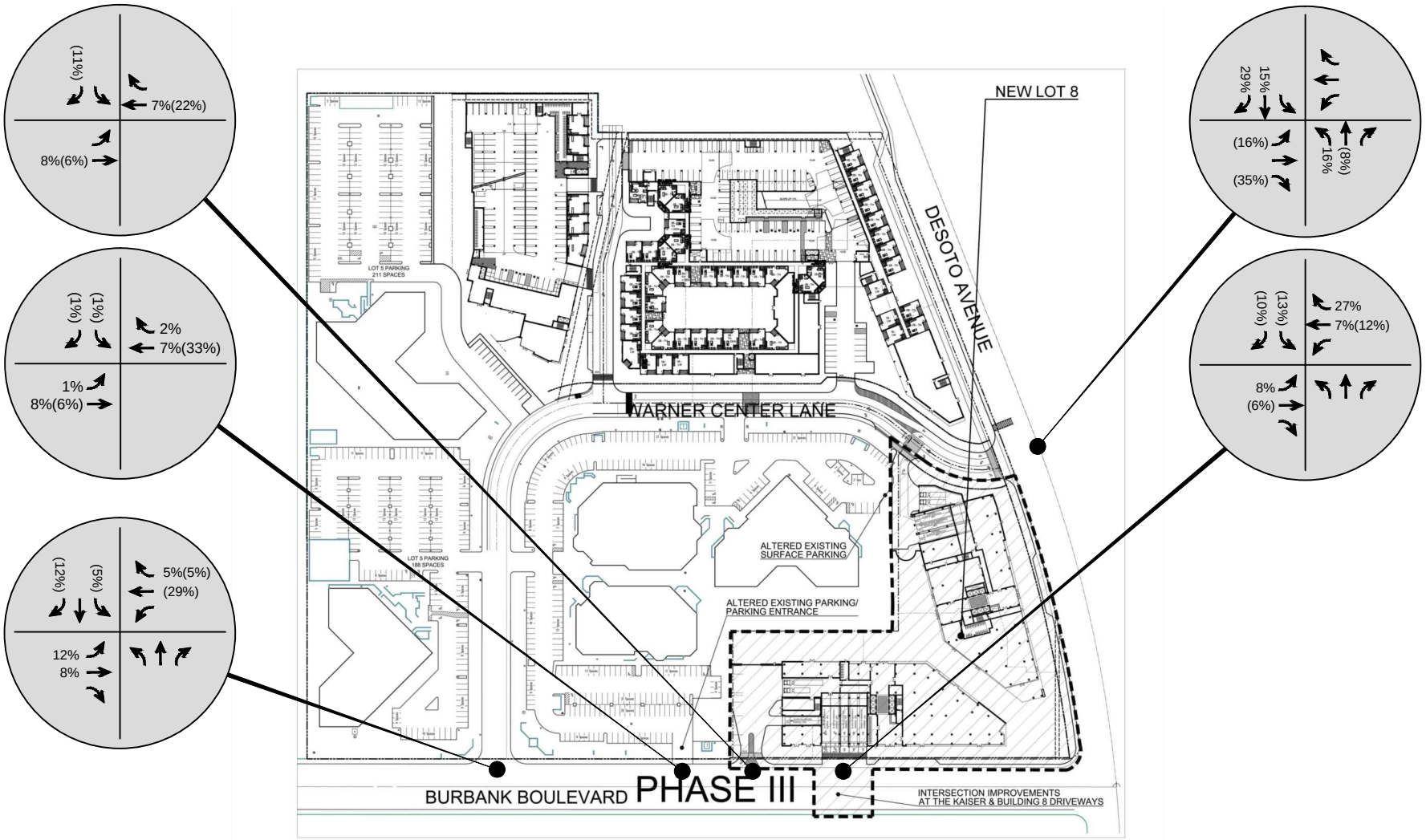
FUTURE WITH PROJECT PHASE 2 CONDITIONS (YEAR 2023)
TRIP DISTRIBUTION

FIGURE
4A



FUTURE WITH PROJECT PHASE 2 CONDITIONS (YEAR 2023)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
4B



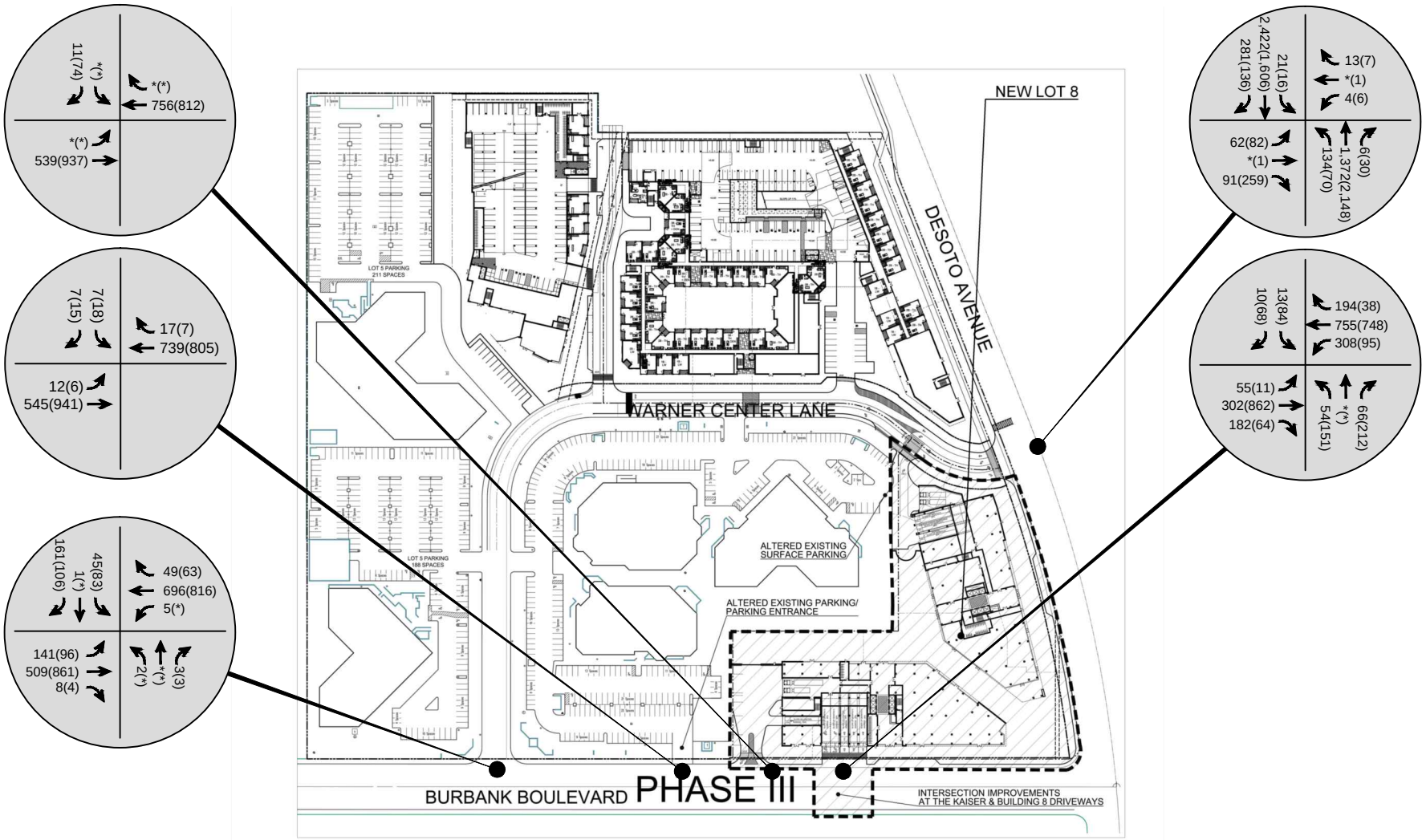
LEGEND

- Project Driveway
- X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 3 CONDITIONS (YEAR 2024)
TRIP DISTRIBUTION

FIGURE
5A



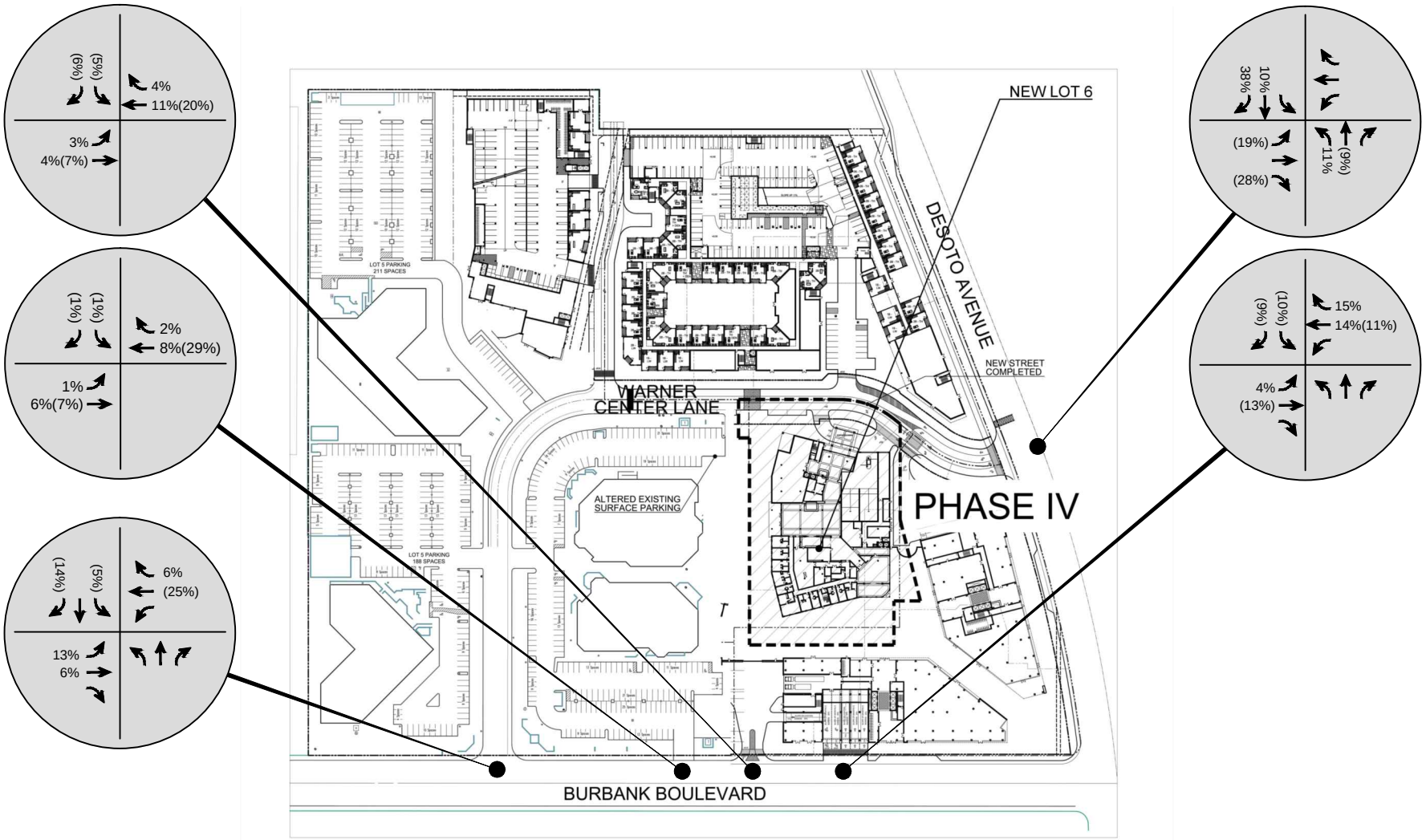
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

FUTURE WITH PROJECT PHASE 3 CONDITIONS (YEAR 2024)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
5B



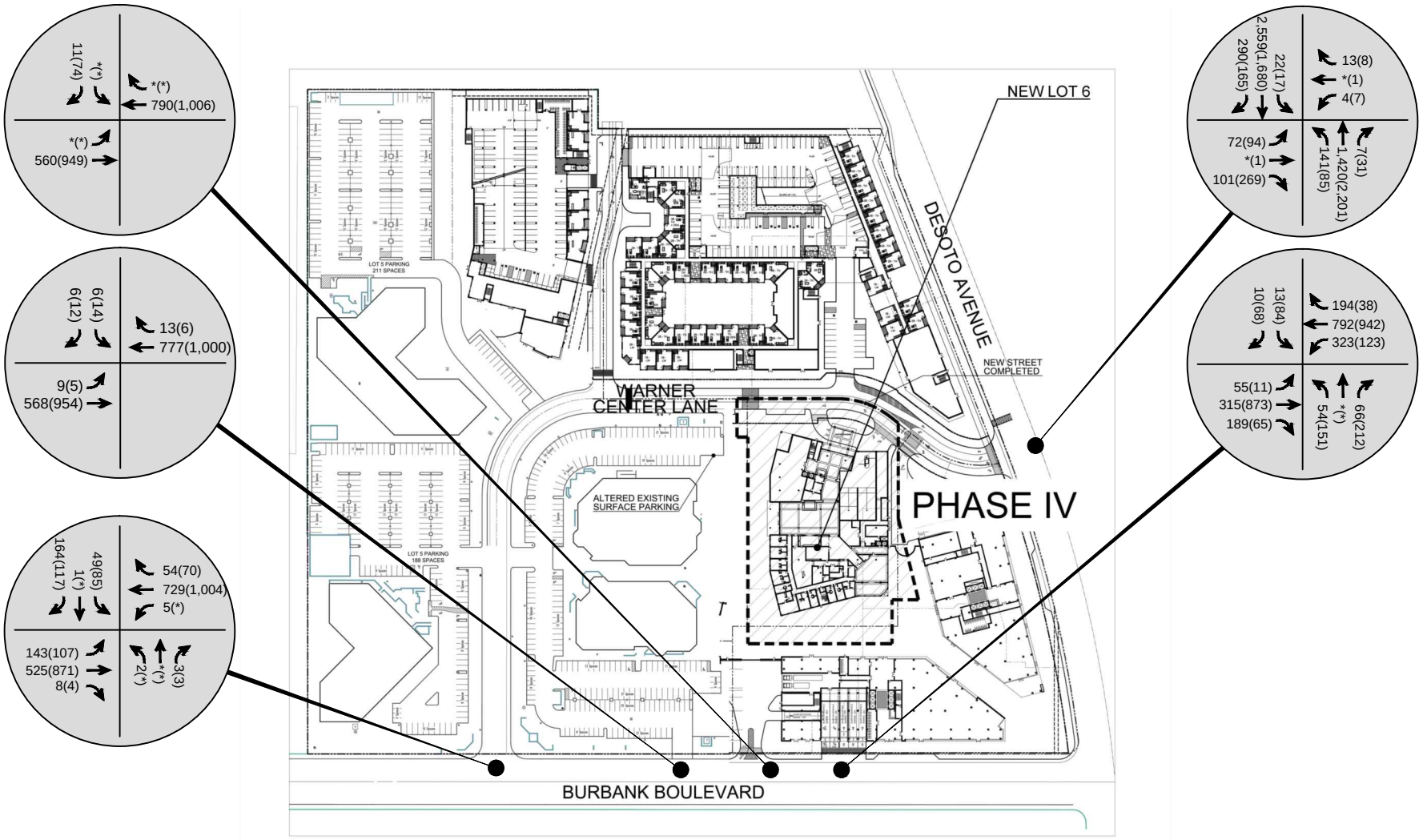
LEGEND

- Project Driveway
- X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 4 CONDITIONS (YEAR 2029)
TRIP DISTRIBUTION

FIGURE 6A



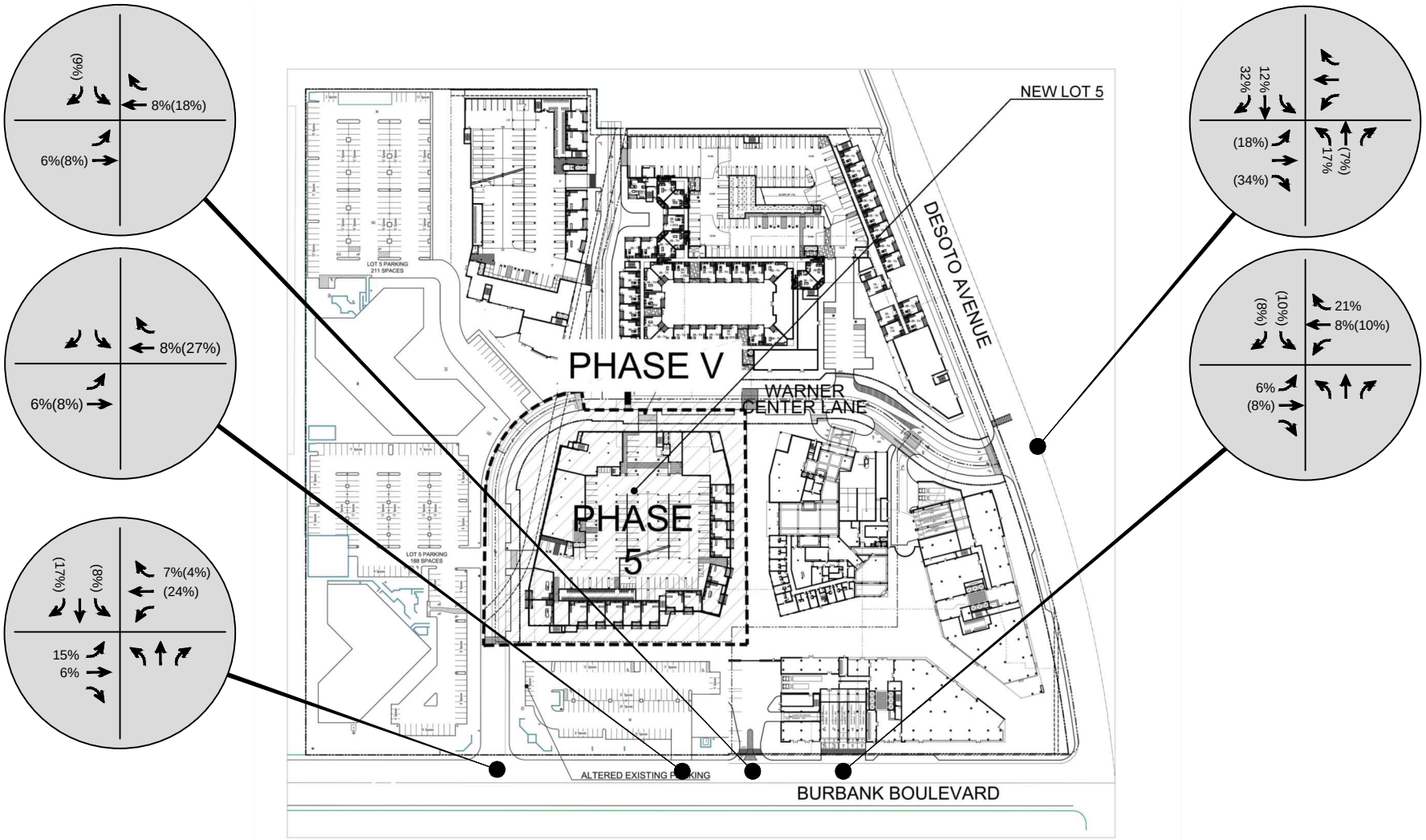
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

FUTURE WITH PROJECT PHASE 4 CONDITIONS (YEAR 2029)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
6B



LEGEND

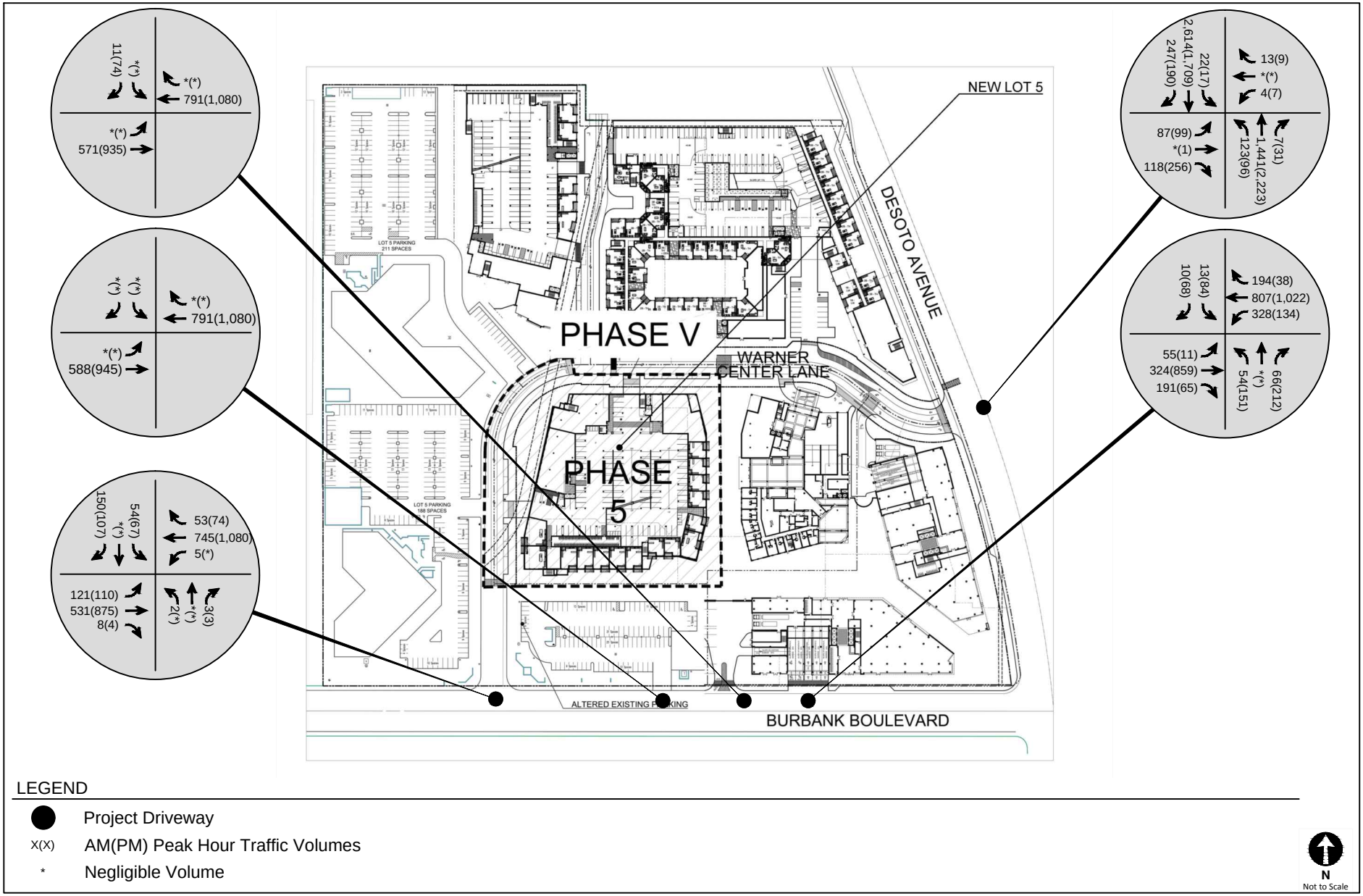
● Project Driveway

X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 5 CONDITIONS (YEAR 2031)
TRIP DISTRIBUTION

FIGURE
7A



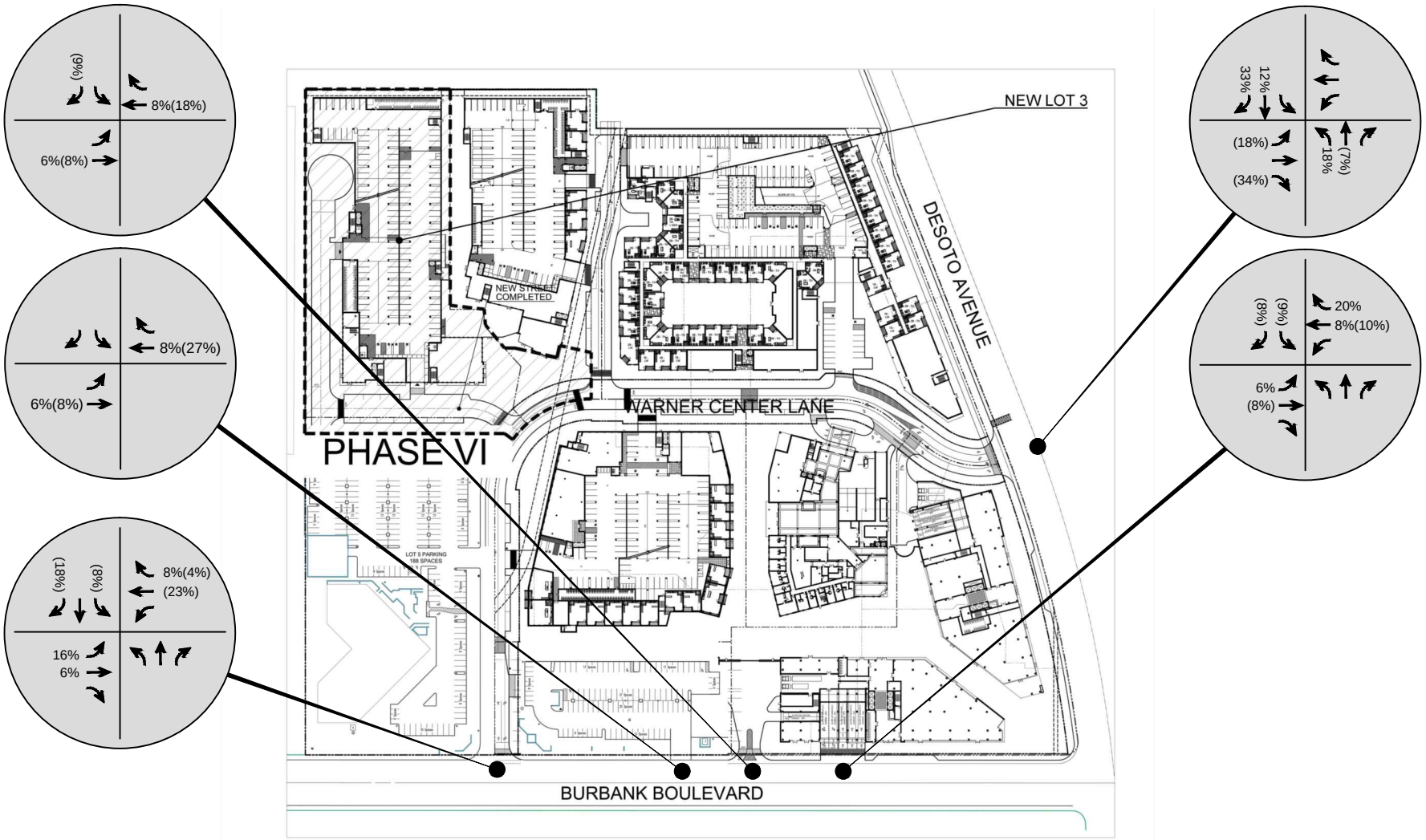
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

FUTURE WITH PROJECT PHASE 5 CONDITIONS (YEAR 2031)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
7B



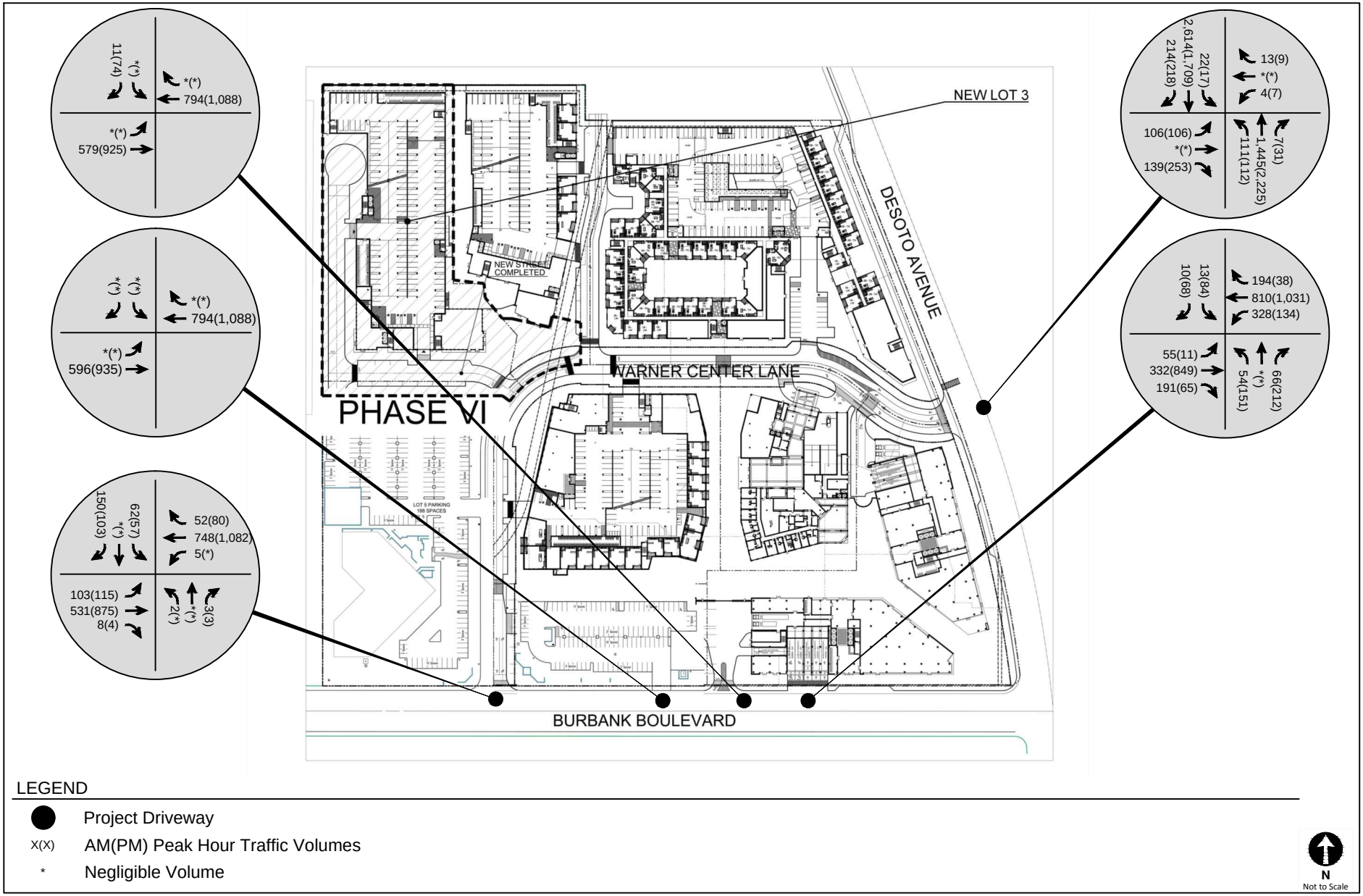
LEGEND

- Project Driveway
- X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 6 CONDITIONS (YEAR 2031)
TRIP DISTRIBUTION

FIGURE
8A



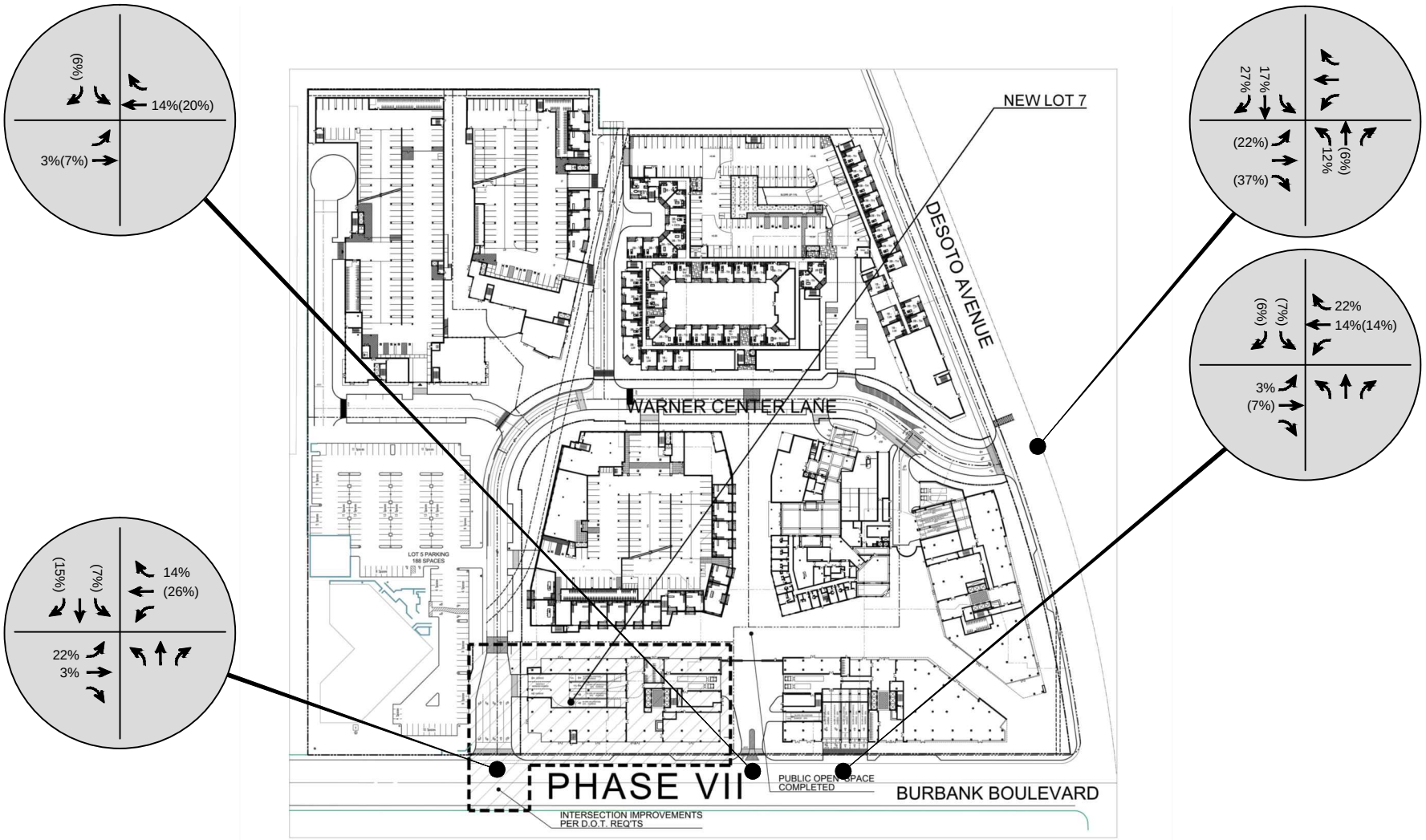
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

FUTURE WITH PROJECT PHASE 6 CONDITIONS (YEAR 2031)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
8B



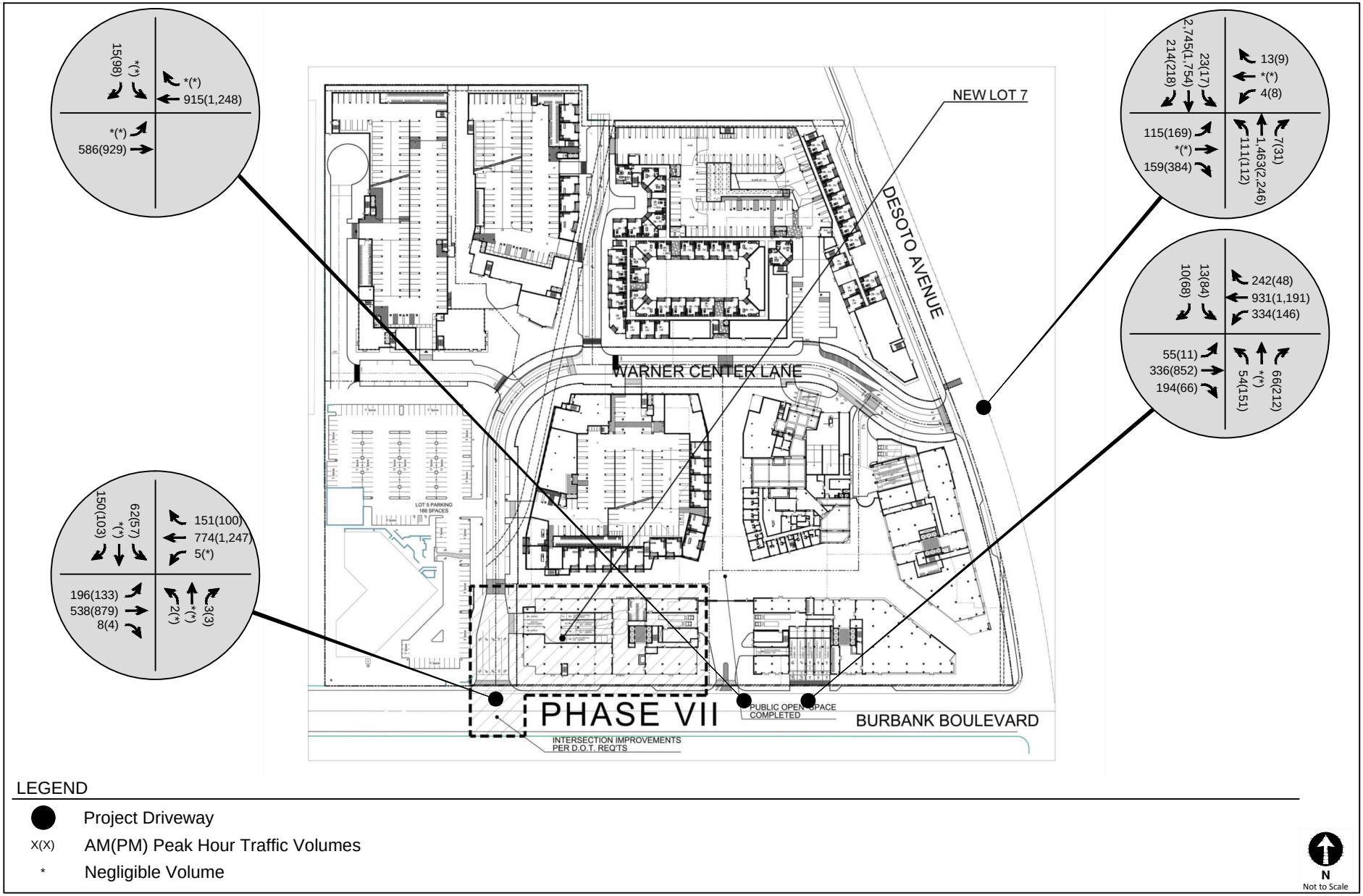
LEGEND

- Project Driveway
- X%(X%) Inbound(Outbound) Trip Percentage

N
Not to Scale

FUTURE WITH PROJECT PHASE 7 CONDITIONS (YEAR 2033)
TRIP DISTRIBUTION

FIGURE
9A



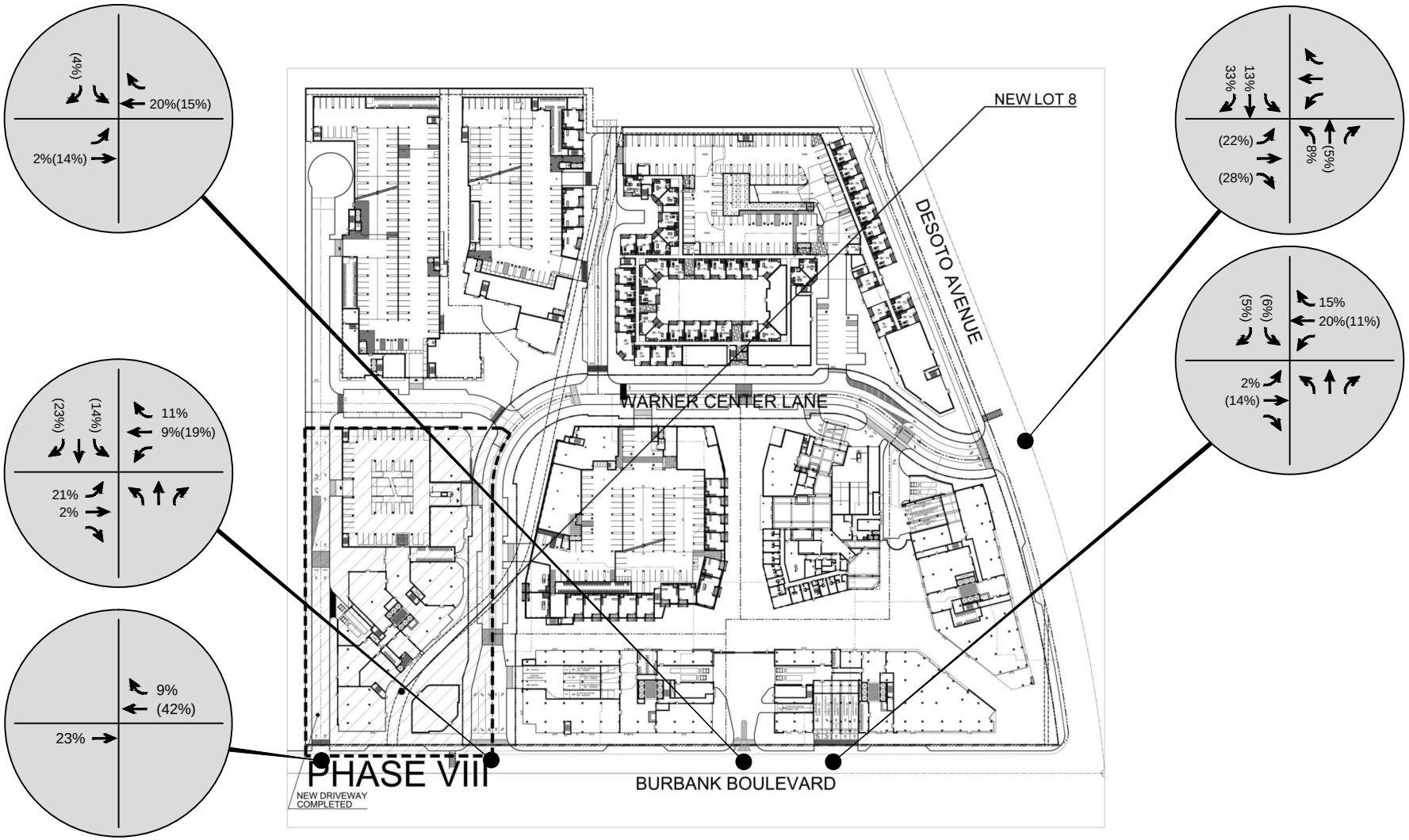
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

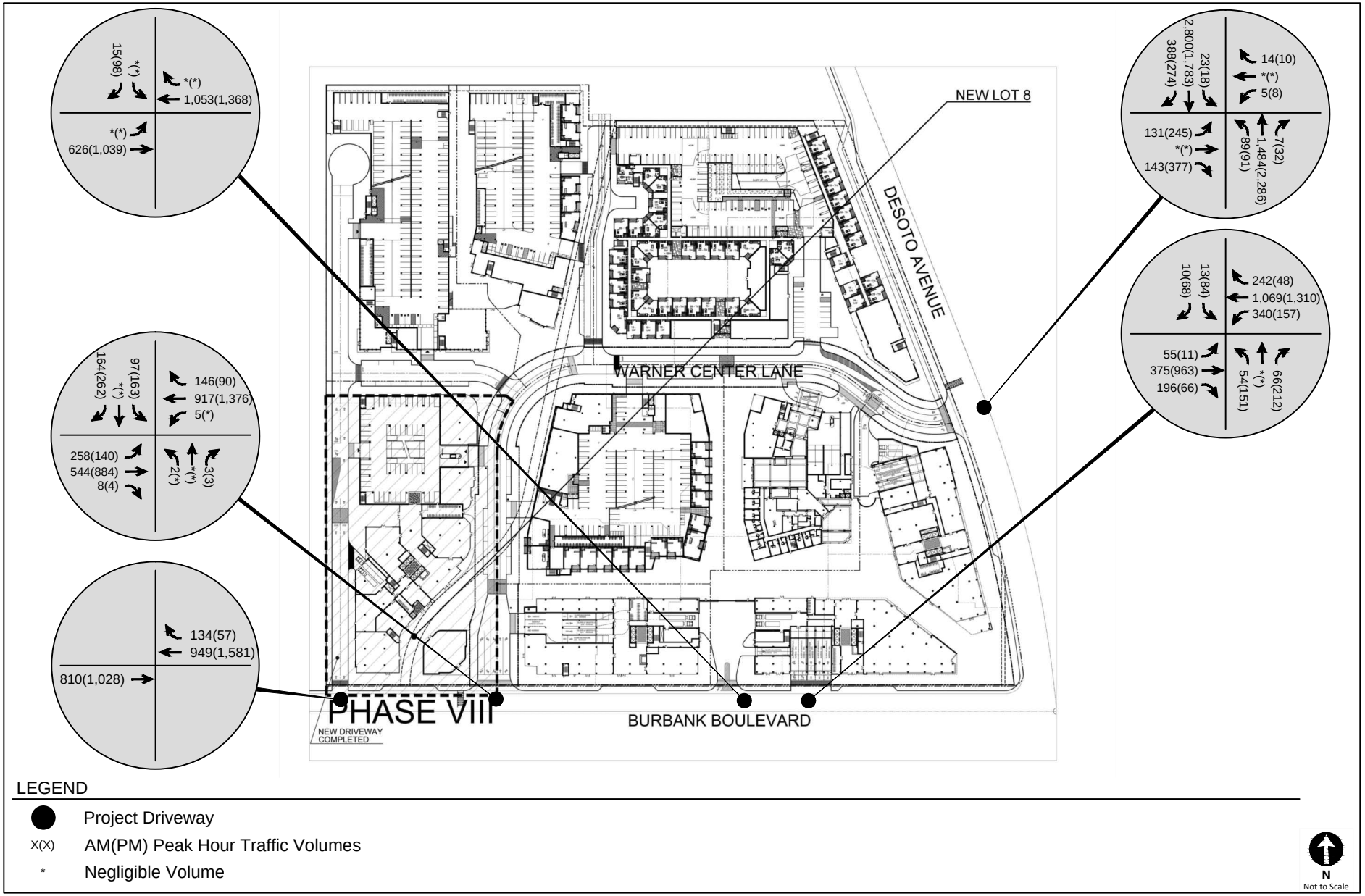
FUTURE WITH PROJECT PHASE 7 CONDITIONS (YEAR 2033)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
9B



FUTURE WITH PROJECT PHASE 8 CONDITIONS (YEAR 2035)
TRIP DISTRIBUTION

FIGURE
10A



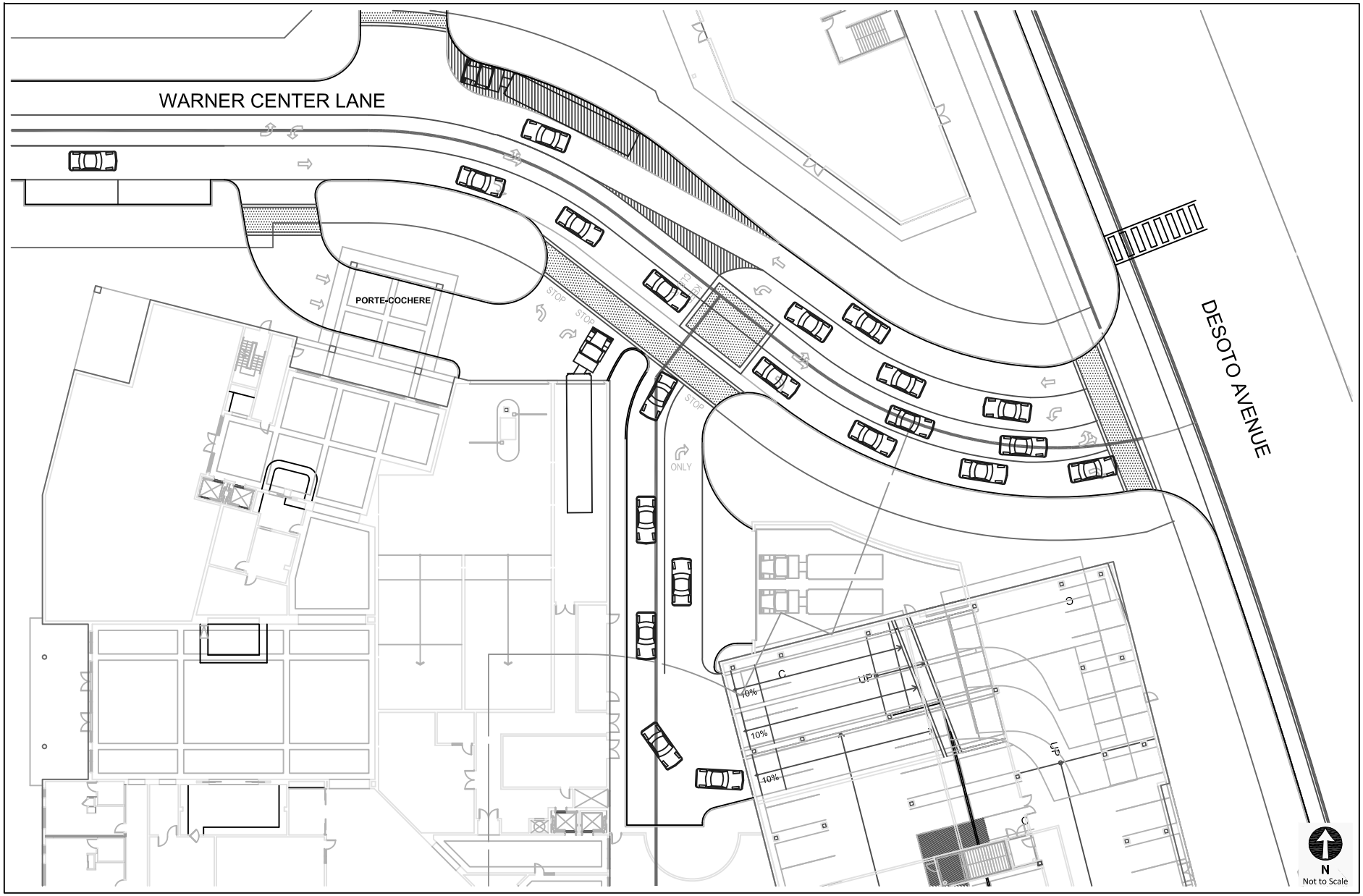
LEGEND

- ● Project Driveway
- X(X) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume

N
Not to Scale

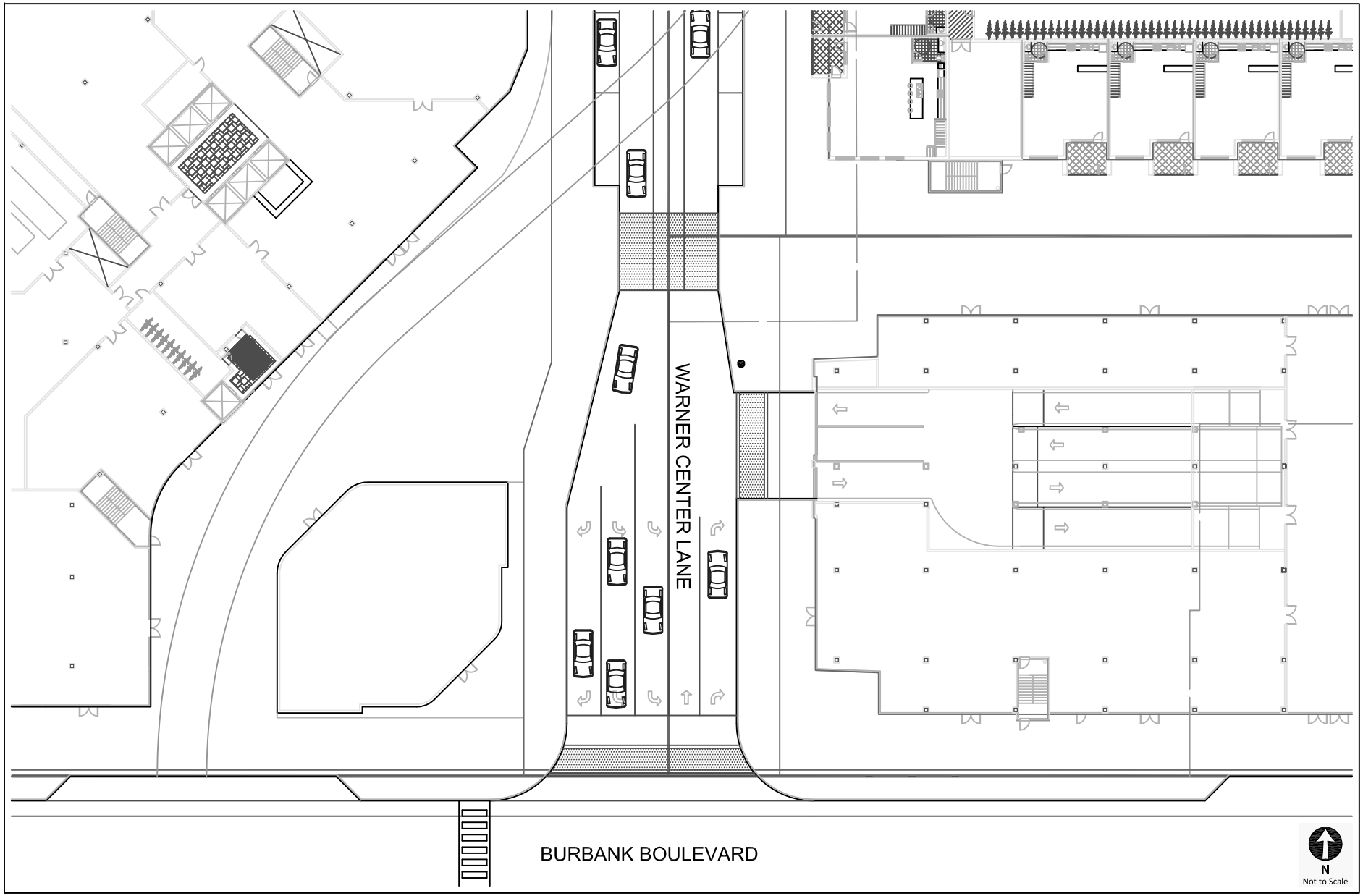
FUTURE WITH PROJECT PHASE 8 CONDITIONS (YEAR 2035)
PEAK HOUR INTERSECTION VOLUMES

FIGURE
10B



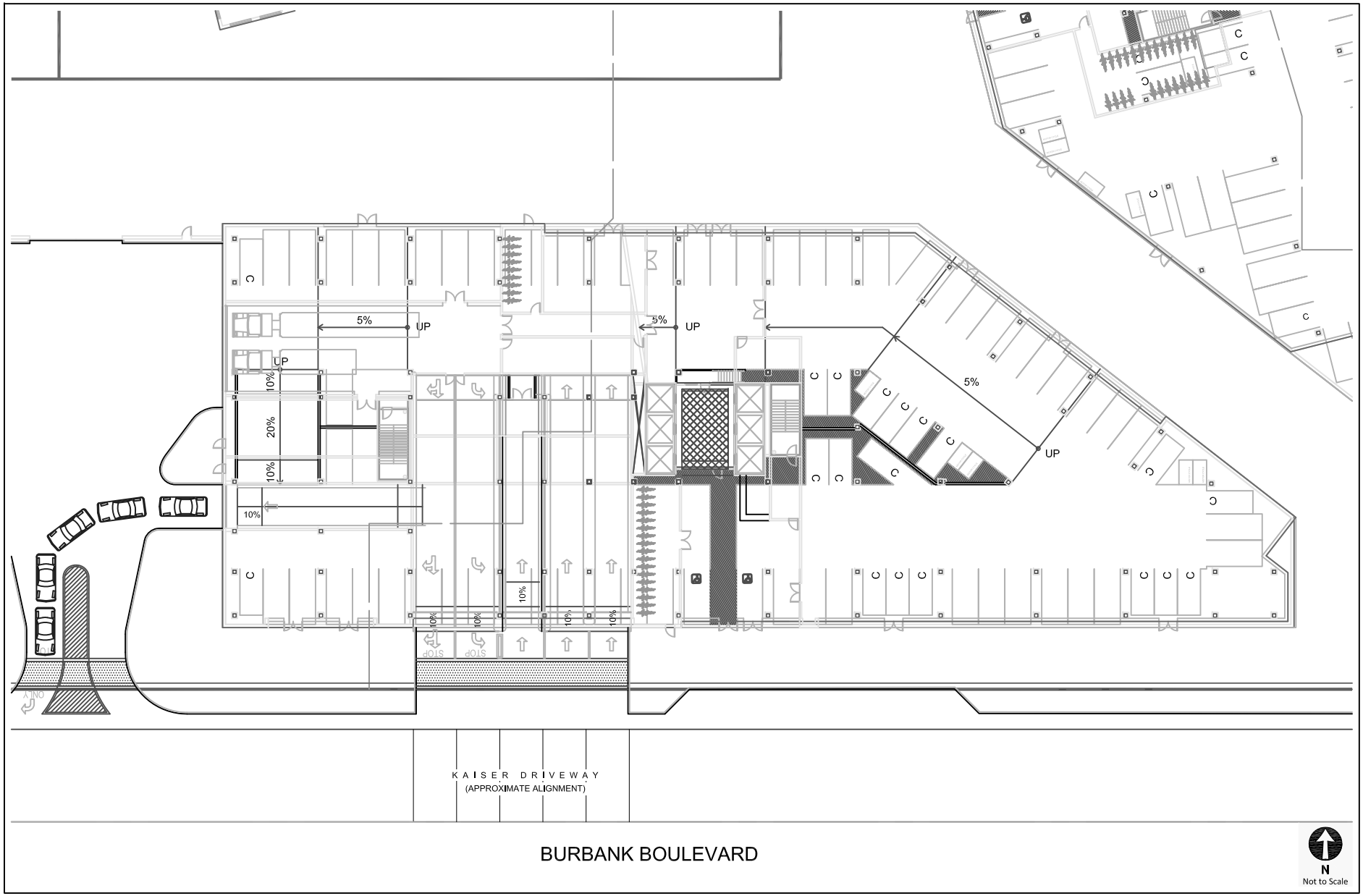
WARNER CENTER LANE &
DESOTO AVENUE

FIGURE
11



WARNER CENTER LANE &
BURBANK BOULEVARD

FIGURE
12



BUILDING 8 / KAISER DRIVEWAY &
BURBANK BOULEVARD

FIGURE
13

TABLE 1

TRIP GENERATION ESTIMATE - BURBANK / DE SOTO MASTER PLAN PROJECT

Land Use	ITE Land Use	Size	Weekday						
			Daily	A.M. Peak Hour			P.M. Peak Hour		
				In	Out	Total	In	Out	Total
Trip Generation Rates [a]									
Apartments	220	per du	6.65	20%	80%	0.51	65%	35%	0.62
Residential Condominium/Townhouse	230	per du	5.81	17%	83%	0.44	67%	33%	0.52
Hotel	310	per room	8.17	59%	41%	0.53	51%	49%	0.60
Office	710	per ksf	11.03	88%	12%	1.56	17%	83%	1.49
Retail	814	per ksf	44.32	62%	38%	0.39	48%	52%	1.51
Health/Fitness Club	[g]	per ksf	32.92	42%	58%	4.54	51%	49%	4.78
High-Turnover (Sit-Down) Restaurant	932	per ksf	127.15	55%	45%	10.81	60%	40%	9.85
Quality Restaurant	931	per ksf	89.95	55%	45%	0.81	67%	33%	7.49
PHASE 1									
Proposed Building 1									
Apartments	220	403 du	2,680	41	165	206	163	87	250
TDM Reduction Program - 6% [b]			(161)	(2)	(10)	(12)	(10)	(5)	(15)
Restaurant - High-Turnover	932	7.456 ksf	948	45	36	81	44	29	73
Pass-By Reduction - 20% [c]			(190)	(9)	(7)	(16)	(9)	(6)	(15)
Retail	931	4.983 ksf	221	1	1	2	4	4	8
TDM Reduction Program - 3% [c]			(7)	0	0	0	0	0	0
Pass-By Reduction - 35% [d]			(77)	0	(1)	(1)	(1)	(2)	(3)
Subtotal Bldg 1			3,414	76	184	260	191	107	298
TOD Reduction by TAZ - 16% [d]			(546)	(12)	(30)	(42)	(31)	(17)	(48)
TAZ Internal Capture - 4% [e]			(115)	(3)	(6)	(9)	(6)	(4)	(10)
Model Adjustment - 5.6% [f]			(154)	(3)	(9)	(12)	(9)	(4)	(13)
Net Trips - Bldg 1			2,599	58	139	197	145	82	227
Existing to be Removed									
Office	710	60.930 ksf	672	84	11	95	15	76	91
TDM Reduction Program - 11% [b]			(74)	(9)	(1)	(10)	(2)	(8)	(10)
Existing Trips to be Removed			598	75	10	85	13	68	81
PHASE 1 Net New Trips			**2,001**	**(17)**	**129**	**112**	**132**	**14**	**146**
PHASE 2									
Proposed Building 2									
Apartments	220	204 du	1,357	21	83	104	82	44	126
TDM Reduction Program - 6% [b]			(81)	(1)	(5)	(6)	(5)	(3)	(8)
Restaurant - High-Turnover	932	3.265 ksf	415	19	16	35	19	13	32
Pass-By Reduction - 20% [c]			(83)	(4)	(3)	(7)	(4)	(2)	(6)
Subtotal			1,608	35	91	126	92	52	144
TOD Reduction by TAZ - 16% [d]			(257)	(6)	(14)	(20)	(15)	(8)	(23)
TAZ Internal Capture - 4% [e]			(54)	(1)	(3)	(4)	(3)	(2)	(5)
Model Adjustment - 5.6% [f]			(73)	(2)	(4)	(6)	(4)	(2)	(6)
Proposed Building 2 Trips			1,224	26	70	96	70	40	110
Existing to be Removed									
Office	710	34.670 ksf	382	48	6	54	9	43	52
TDM Reduction Program - 11% [b]			(42)	(5)	(1)	(6)	(1)	(5)	(6)
Existing Trips to be Removed			340	43	5	48	8	38	46
PHASE 2 Net New Trips			**884**	**(17)**	**65**	**48**	**62**	**2**	**64**
PHASE 3									
Proposed Building 8									
Office	710	239.142 ksf	2,638	328	45	373	61	295	356
TDM Reduction Program - 11% [b]			(290)	(36)	(5)	(41)	(7)	(32)	(39)
Retail	814	2.432 ksf	108	1	0	1	2	2	4
TDM Reduction Program - 3% [c]			(3)	0	0	0	0	0	0
Pass-By Reduction - 35% [d]			(37)	0	0	0	(1)	0	(1)
Subtotal			2,416	293	40	333	55	265	320
TOD Reduction by TAZ - 16% [d]			(387)	(47)	(6)	(53)	(9)	(42)	(51)
TAZ Internal Capture - 4% [e]			(81)	(10)	(1)	(11)	(2)	(9)	(11)
Model Adjustment - 5.6% [f]			(109)	(13)	(2)	(15)	(2)	(12)	(14)
Proposed Building 8 Trips			1,839	223	31	254	42	202	244

TABLE 1

TRIP GENERATION ESTIMATE - BURBANK / DE SOTO MASTER PLAN PROJECT

Land Use	ITE Land Use	Size	Weekday						
			Daily	A.M. Peak Hour			P.M. Peak Hour		
				In	Out	Total	In	Out	Total
Proposed Building 9									
Office	710	229.570 ksf	2,532	315	43	358	58	284	342
TDM Reduction Program - 11% [b]			(279)	(35)	(4)	(39)	(6)	(32)	(38)
Retail	814	5.014 ksf	222	1	1	2	4	4	8
TDM Reduction Program - 3% [c]			(7)	0	0	0	0	0	0
Pass-By Reduction - 35% [d]			(75)	0	(1)	(1)	(1)	(2)	(3)
Subtotal			2,393	281	39	320	55	254	309
TOD Reduction by TAZ - 16% [d]			(383)	(45)	(6)	(51)	(9)	(40)	(49)
TAZ Internal Capture - 4% [e]			(80)	(9)	(2)	(11)	(2)	(8)	(10)
Model Adjustment - 5.6% [f]			(108)	(13)	(1)	(14)	(2)	(12)	(14)
Proposed Building 9 Trips			1,822	214	30	244	42	194	236
Existing to be Removed									
Office	710	60.000 ksf	662	83	11	94	15	74	89
TDM Reduction Program - 11% [b]			(73)	(9)	(1)	(10)	(2)	(8)	(10)
Existing Trips to be Removed			589	74	10	84	13	66	79
PHASE 3 Net New Trips			**3,072**	**363**	**51**	**414**	**71**	**330**	**401**
PHASE 4									
Proposed Building 6									
Hotel	310	228 rooms	1,863	71	50	121	70	67	137
TDM Reduction Program - 3% [b]			(56)	(2)	(2)	(4)	(2)	(2)	(4)
Restaurant - Quality	931	4.466 ksf	402	2	2	4	22	11	33
Pass-By Reduction - 20% [c]			(80)	0	(1)	(1)	(4)	(3)	(7)
Subtotal			2,129	71	49	120	86	73	159
TOD Reduction by TAZ - 16% [d]			(341)	(11)	(8)	(19)	(14)	(11)	(25)
TAZ Internal Capture - 4% [e]			(72)	(2)	(2)	(4)	(3)	(2)	(5)
Model Adjustment - 5.6% [f]			(96)	(3)	(2)	(5)	(4)	(3)	(7)
Proposed Building 6 Trips			1,620	55	37	92	65	57	122
Existing to be Removed									
Office	710	23.970 ksf	264	33	4	37	6	30	36
TDM Reduction Program - 11% [b]			(29)	(4)	0	(4)	(1)	(3)	(4)
Existing Trips to be Removed			235	29	4	33	5	27	32
PHASE 4 Net New Trips			**1,385**	**26**	**33**	**59**	**60**	**30**	**90**
PHASE 5									
Proposed Building 5									
Condominiums	230	153 du	889	11	56	67	54	26	80
TDM Reduction Program - 6% [b]			(53)	(1)	(3)	(4)	(3)	(2)	(5)
Live-Work Units	220	15 du	100	2	6	8	6	3	9
TDM Reduction Program - 6% [b]			(6)	0	0	0	0	(1)	(1)
Restaurant - High-Turnover	932	5.360 ksf	682	32	26	58	32	21	53
Pass-By Reduction - 20% [c]			(136)	(6)	(6)	(12)	(6)	(5)	(11)
Retail	814	3.573 ksf	158	1	0	1	2	3	5
TDM Reduction Program - 3% [b]			(5)	0	0	0	0	0	0
Pass-By Reduction - 35% [c]			(54)	0	0	0	(1)	(1)	(2)
Subtotal			1,575	39	79	118	84	44	128
TOD Reduction by TAZ - 16% [d]			(252)	(6)	(13)	(19)	(13)	(7)	(20)
TAZ Internal Capture - 4% [e]			(53)	(1)	(3)	(4)	(3)	(1)	(4)
Model Adjustment - 5.6% [f]			(71)	(2)	(3)	(5)	(4)	(2)	(6)
Proposed Building 5 Trips			1,199	30	60	90	64	34	98
Existing to be Removed									
Office	710	21.437 ksf	236	29	4	33	5	27	32
TDM Reduction Program - 11% [b]			(26)	(3)	(1)	(4)	(1)	(3)	(4)
Café	932	1.843 ksf	82	1	0	1	1	2	3
TDM Reduction Program - 3% [b]			(2)	0	0	0	0	0	0
Pass-By Reduction - 35% [c]			(28)	0	0	0	0	(1)	(1)
Fitness Club	492	18.300 ksf	602	35	48	83	44	43	87
TDM Reduction Program - 3% [b]			(18)	(1)	(1)	(2)	(1)	(2)	(3)
Existing Trips to be Removed			846	61	50	111	48	66	114
PHASE 5 Net New Trips			**353**	**(31)**	**10**	**(21)**	**16**	**(32)**	**(16)**

TABLE 1

TRIP GENERATION ESTIMATE - BURBANK / DE SOTO MASTER PLAN PROJECT

Land Use	ITE Land Use	Size	Weekday						
			Daily	A.M. Peak Hour			P.M. Peak Hour		
				In	Out	Total	In	Out	Total
PHASE 6									
Proposed Building 3									
Apartments	220	254 du	1,689	26	104	130	102	55	157
TDM Reduction Program - % [c]			(101)	(2)	(6)	(8)	(6)	(3)	(9)
Retail	814	2.040 ksf	90	1	0	1	1	2	3
TDM Reduction Program - 3% [b]			(3)	0	0	0	0	0	0
Pass-By Reduction - 35% [c]			(30)	0	0	0	0	(1)	(1)
Restaurant	931	3.060 ksf	275	1	1	2	15	8	23
Pass-By Reduction - 20% [c]			(55)	0	0	0	(3)	(2)	(5)
Subtotal			1,865	26	99	125	109	59	168
TOD Reduction by TAZ - 16% [d]			(298)	(4)	(16)	(20)	(17)	(10)	(27)
TAZ Internal Capture - 4% [e]			(63)	(1)	(3)	(4)	(4)	(2)	(6)
Model Adjustment - 5.6% [f]			(84)	(1)	(5)	(6)	(5)	(3)	(8)
Proposed Building 3 Trips			1,420	20	75	95	83	44	127
Existing to be Removed									
Office	710	57.794 ksf	637	79	11	90	15	71	86
TDM Reduction Program - 11% [b]			(70)	(9)	(1)	(10)	(2)	(7)	(9)
Existing Trips to be Removed			567	70	10	80	13	64	77
PHASE 6 Net New Trips			**853**	**(50)**	**65**	**15**	**70**	**(20)**	**50**
PHASE 7									
Proposed Building 7									
Office	710	256.287 ksf	2,827	352	48	400	65	317	382
TDM Reduction Program - 11% [b]			(311)	(39)	(5)	(44)	(7)	(35)	(42)
Retail	814	5.935 ksf	263	1	1	2	4	5	9
TDM Reduction Program - 3% [b]			(8)	0	0	0	0	0	0
Pass-By Reduction - 20% [c]			0	0	0	0	0	0	0
Subtotal			2,682	314	43	357	61	285	346
TOD Reduction by TAZ - 16% [d]			(429)	(50)	(7)	(57)	(10)	(45)	(55)
TAZ Internal Capture - 4% [e]			(90)	(11)	(1)	(12)	(2)	(10)	(12)
Model Adjustment - 5.6% [f]			(121)	(14)	(2)	(16)	(3)	(13)	(16)
Net Trips - Bldg 7			2,042	239	33	272	46	217	263
PHASE 7 Net New Trips			**2,042**	**239**	**33**	**272**	**46**	**217**	**263**
PHASE 8									
Proposed Buildings 4/4A									
Office	710	429.128 ksf	4,733	589	80	669	109	530	639
TDM Reduction Program - 11% [b]			(521)	(65)	(9)	(74)	(12)	(58)	(70)
Retail	814	19.463 ksf	863	5	3	8	14	15	29
TDM Reduction Program - 3% [b]			(26)	0	0	0	0	(1)	(1)
Pass-By Reduction - 35% [c]			(293)	(2)	(1)	(3)	(5)	(5)	(10)
Restaurant - High-Turnover	932	5.746 ksf	731	34	28	62	34	23	57
Pass-By Reduction - 20% [d]			(146)	(7)	(5)	(12)	(7)	(4)	(11)
Subtotal			5,341	554	96	650	133	500	633
TOD Reduction by TAZ - 16% [d]			(855)	(89)	(15)	(104)	(21)	(80)	(101)
TAZ Internal Capture - 4% [e]			(179)	(19)	(3)	(22)	(4)	(17)	(21)
Model Adjustment - 5.6% [f]			(241)	(25)	(4)	(29)	(6)	(23)	(29)
Proposed Buildings 4/4A Trips			4,066	421	74	495	102	380	482
Existing to be Removed									
Office	710	61.395 ksf	677	84	12	96	15	76	91
TDM Reduction Program - 11% [b]			(74)	(9)	(2)	(11)	(2)	(8)	(10)
Existing Trips to be Removed			603	75	10	85	13	68	81
PHASE 8 Net New Trips			**3,463**	**346**	**64**	**410**	**89**	**312**	**401**
Total - Proposed Project			**17,831**	**1,286**	**549**	**1,835**	**659**	**1,250**	**1,909**
Total - Existing Uses to be Removed			**3,778**	**427**	**99**	**526**	**113**	**397**	**510**
Total - Net New Project Trips			**14,053**	**859**	**450**	**1,309**	**546**	**853**	**1,399**

ksf: 1,000 square feet; du: dwelling units

[a] Source: *Trip Generation, 9th Edition*(Institute of Transportation Engineers, 2012).

[b] TDM reduction per WC 2035 Plan EIR for the specified land uses.

[c] Pass-by reduction per WC 2035 Plan EIR for the specified land uses.

[d] TOD reduction by TAZ per WC 2035 Plan EIR; Project is located in TAZ 19 with 16% reduction.

[e] TAZ internal capture per WC 2035 Plan EIR.

[f] Model adjustment per WC 2035 Plan EIR and is a proxy for the ITE vs model trip generation comparison.

[g] Health club trip generation rate provided by LADOT, based on empirical surveys of health clubs in the Los Angeles area.

TABLE 2
SIGNALIZED INTERSECTION QUEUE EVALUATION
FUTURE OPERATING CONDITIONS (YEARS 2022 AND 2023)

ID	Signalized Intersection	Lane Description	Vehicle Storage Capacity [a]	Future with Project Phase 1 Conditions				Future with Project Phase 2 Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	De Soto Avenue & Warner Center Lane	Warner Center Lane									
	(Eastbound/Westbound Permitted Left-Turn Phase)	Eastbound Shared Left/Through	125	66		62		86		69	
		Eastbound Right	125	47		108		66		102	
		Additional EBR storage	85	0		0		0		0	
		Additional EB L/TR storage	125+	0	NO	0	NO	0	NO	0	NO
		De Soto Avenue									
		Northbound Left	200	113	NO	60	NO	110	NO	73	NO
		Southbound Right	300	40	NO	16	NO	42	NO	25	NO

[a] Expressed in feet.

[b] 85th Percentile queue results per Traffix (Methodology from 2010 Highway Capacity Manual, Transportation Research Board, 2010).

TABLE 3
SIGNALIZED INTERSECTION QUEUE EVALUATION
FUTURE OPERATING CONDITIONS (YEARS 2024 AND 2029)

ID	Signalized Intersection	Lane Description	Vehicle Storage Capacity [a]	Future with Project Phase 3 Conditions				Future with Project Phase 4 Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	De Soto Avenue & Warner Center Lane	Warner Center Lane									
	(Eastbound/Westbound Permitted Left-Turn Phase)	Eastbound Shared Left/Through	125	97		77		113		93	
		Eastbound Right	125	88		125		97		125	
		Additional EBR storage	85	0		85		0		85	
		Additional EB L/TR storage	125+	0	NO	25	NO	0	NO	34	NO
		De Soto Avenue									
		Northbound Left	200	163	NO	91	NO	176	NO	106	NO
		Southbound Right	300	75	NO	49	NO	80	NO	62	NO
Q-2.	Building 8 / Kaiser Driveway & Burbank Boulevard	Burbank Boulevard									
		Eastbound Left	75	35	NO	7	NO	37	NO	7	NO
		Westbound Right	75	57	NO	15	NO	55	NO	15	NO

[a] Expressed in feet.

[b] 85th Percentile queue results per Traffix (Methodology from 2010 Highway Capacity Manual, Transportation Research Board, 2010).

TABLE 4
SIGNALIZED INTERSECTION QUEUE EVALUATION
FUTURE OPERATING CONDITIONS (YEAR 2031)

ID	Signalized Intersection	Lane Description	Vehicle Storage Capacity [a]	Future with Project Phase 5 Conditions				Future with Project Phase 6 Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	De Soto Avenue & Warner Center Lane	Warner Center Lane									
	(Eastbound/Westbound Permitted Left-Turn Phase)	Eastbound Shared Left/Through	125	125		104		125		115	
		Eastbound Right	125	117		125		125		125	
		Additional EBR storage	85	0		85		14		85	
		Additional EB L/TR storage	125+	3	NO	23	NO	22	NO	19	NO
		De Soto Avenue									
		Northbound Left	200	163	NO	117	NO	152	NO	130	NO
		Southbound Right	300	64	NO	71	NO	58	NO	84	NO
Q-2.	Building 8 / Kaiser Driveway & Burbank Boulevard	Burbank Boulevard									
		Eastbound Left	75	37	NO	7	NO	37	NO	7	NO
		Westbound Right	75	53	NO	13	NO	53	NO	13	NO

[a] Expressed in feet.

[b] 85th Percentile queue results per Traffix (Methodology from 2010 Highway Capacity Manual, Transportation Research Board, 2010).

TABLE 5
SIGNALIZED INTERSECTION QUEUE EVALUATION
FUTURE OPERATING CONDITIONS (YEARS 2033 AND 2035)

ID	Signalized Intersection	Lane Description	Vehicle Storage Capacity [a]	Future with Project Phase 7 Conditions				Future with Project Phase 8 Conditions			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?	Vehicle Queue Length [b]	Exceeds Capacity?
Q-1.	De Soto Avenue & Warner Center Lane	Warner Center Lane									
	(Eastbound/Westbound Permitted Left-Turn Phase)	Eastbound Shared Left/Through	125	125		125		125		125	
		Eastbound Right	125	125		125		125		125	
		Additional EBR storage	85	36		85		18		85	
		Additional EB L/TR storage	125+	36	NO	151	NO	53	NO	255	NO
		De Soto Avenue									
		Northbound Left	200	159	NO	141	NO	139	NO	121	NO
		Southbound Right	300	58	NO	106	NO	117	NO	132	NO
Q-2.	Warner Center Lane & Burbank Boulevard	Warner Center Lane									
		Southbound Left 1	90	22		25		38		60	
		Southbound Left 2	90	22		25		38		60	
		Southbound Right	90	90		90		90		90	
		Additional SB Storage	150+	27	NO	9	NO	46	NO	126	NO
		Burbank Boulevard									
		Eastbound Left	240	141	NO	119	NO	185	NO	146	NO
		Westbound Right	270	66	NO	27	NO	64	NO	31	NO
Q-3.	Building 8 / Kaiser Driveway & Burbank Boulevard	Burbank Boulevard									
		Eastbound Left	75	37	NO	7	NO	40	NO	7	NO
		Westbound Right	75	66	NO	15	NO	59	NO	15	NO

[a] Expressed in feet.

[b] 85th Percentile queue results per Traffix (Methodology from 2010 Highway Capacity Manual, Transportation Research Board, 2010).

Attachment

Signal Warrant Worksheets

Existing Conditions

SR#

Traffic Signal Warrants Worksheet

DATE 5/4/17 PREPARER GTC REVIEWER _____

MAJOR ST: De Soto Avenue

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 40 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A ☐
SATISFIED YES ☒
NO ☐

✭ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✭

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED YES ☐ NO ☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED YES ☒ NO ☐

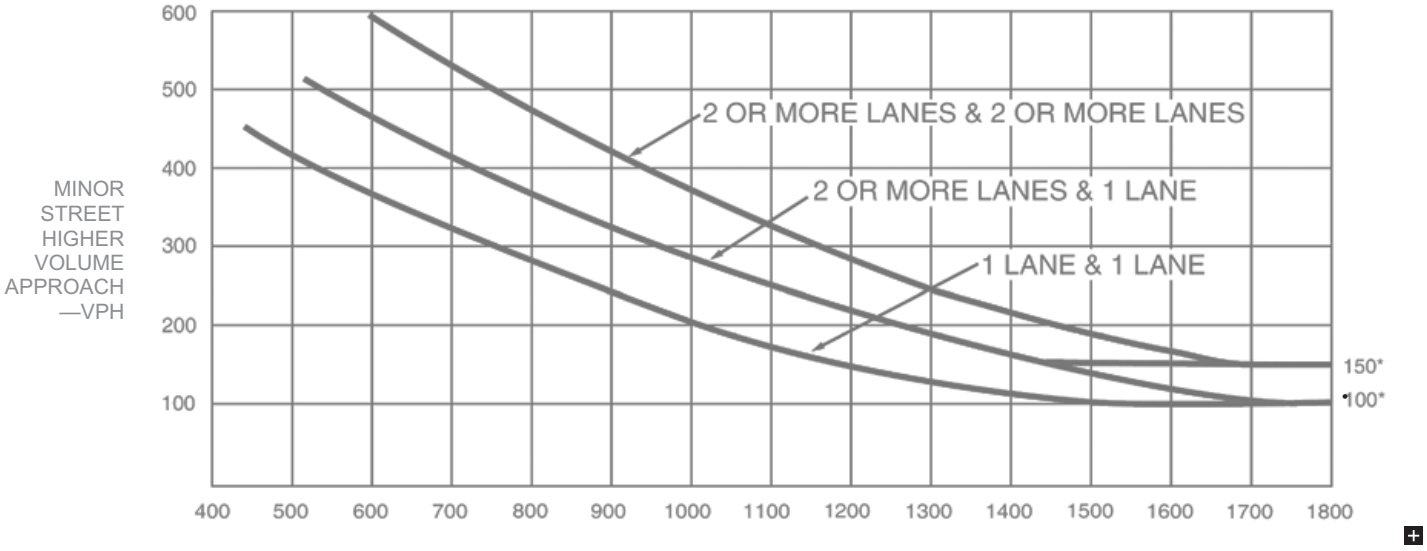
APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	3595
Higher Approach - Minor Street	✓		105

	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☒	☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

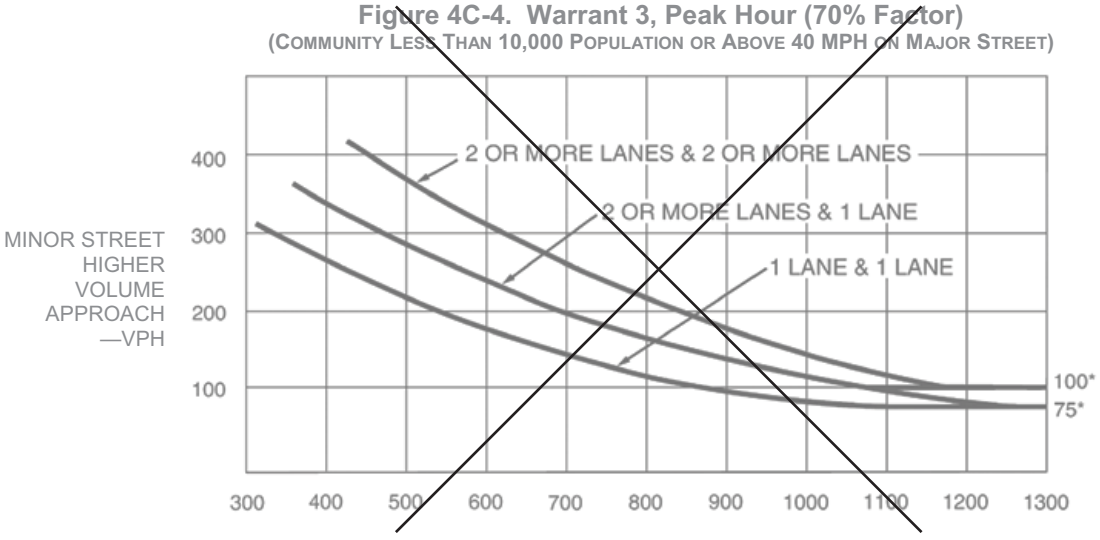
✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN
Figure 4C-3. Warrant 3, Peak Hour



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

SR#

Traffic Signal Warrants Worksheet

DATE 7/11/17 PREPARER GTC REVIEWER _____

MAJOR ST: Burbank Boulevard

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 35 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A	☐
SATISFIED YES	☐
NO	☒

⋆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ⋆

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED	YES	NO
	☐	☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED	YES	NO
	☐	☒

APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	1275
Higher Approach - Minor Street	✓		182

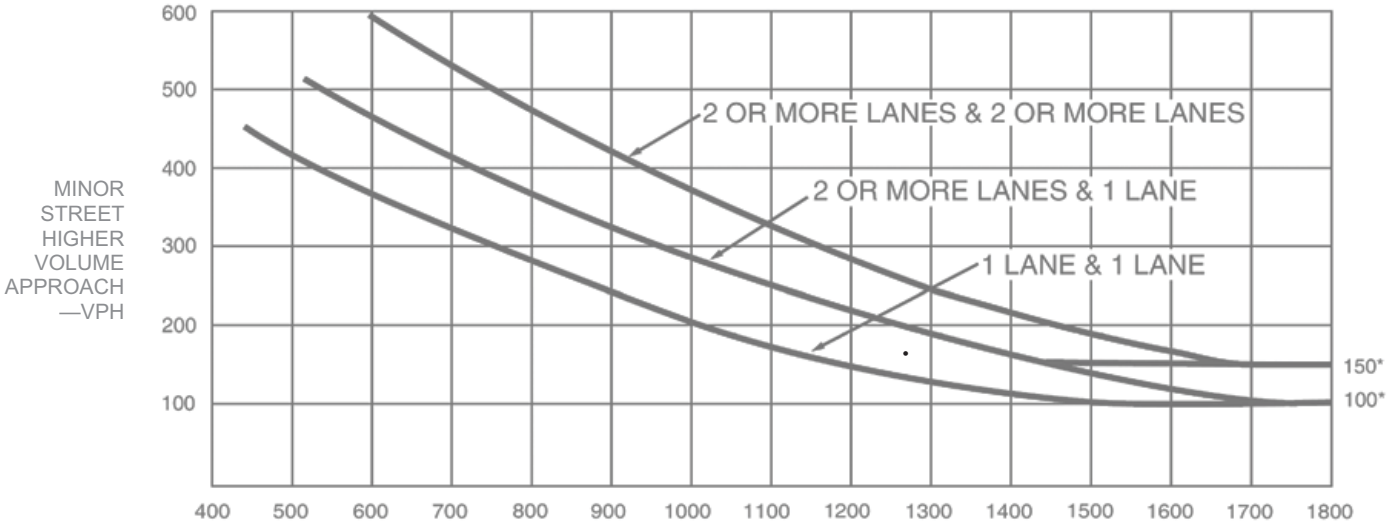
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☐	☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

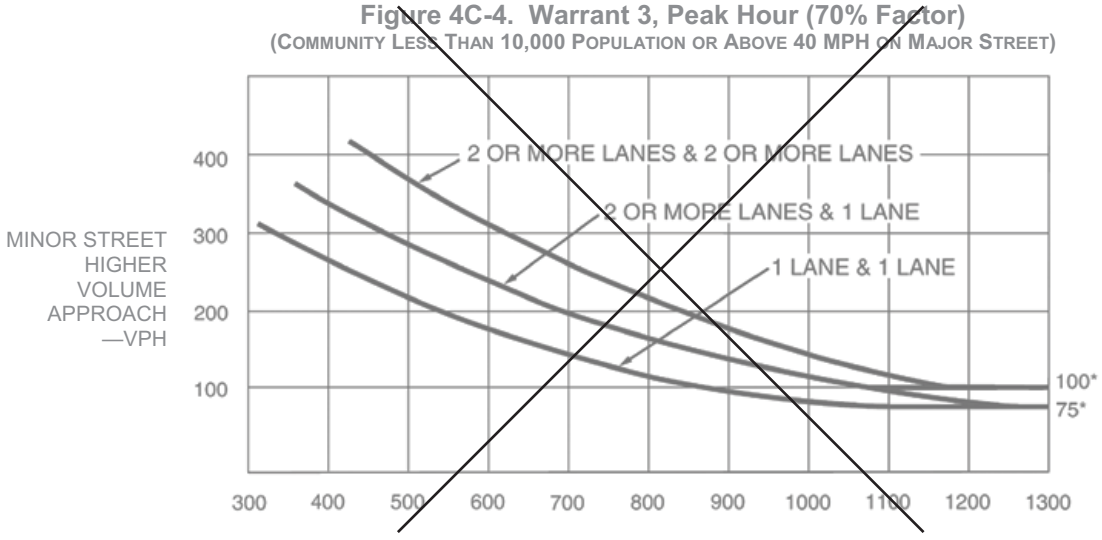


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

SR#

Traffic Signal Warrants Worksheet

DATE 10/19/17 PREPARER GTC REVIEWER _____

MAJOR ST: Burbank Boulevard

MINOR ST: Kaiser Driveway (pvt)

Critical Approach Speed ____ MPH or Speed Limit 35 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A ☐
SATISFIED YES ☒
NO ☐

⋆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ⋆

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED YES ☐ NO ☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED YES ☒ NO ☐

APPROACH LANES	One	2 or More	Hour 16:30
Both Approaches - Major Street		✓	1225
Higher Approach - Minor Street		✓	364

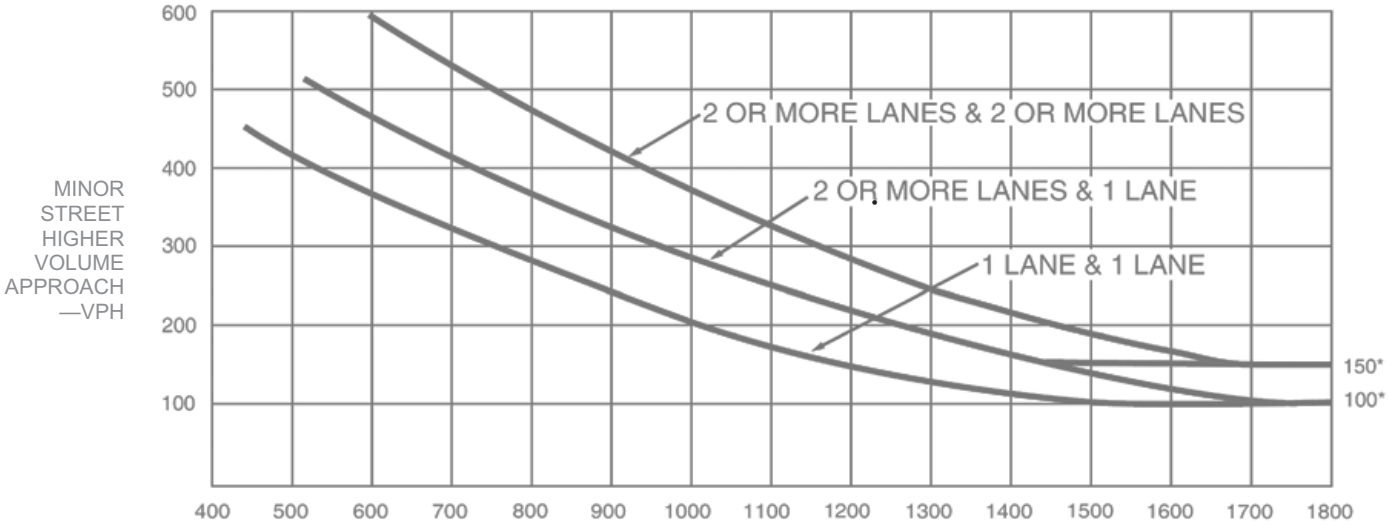
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☒	☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

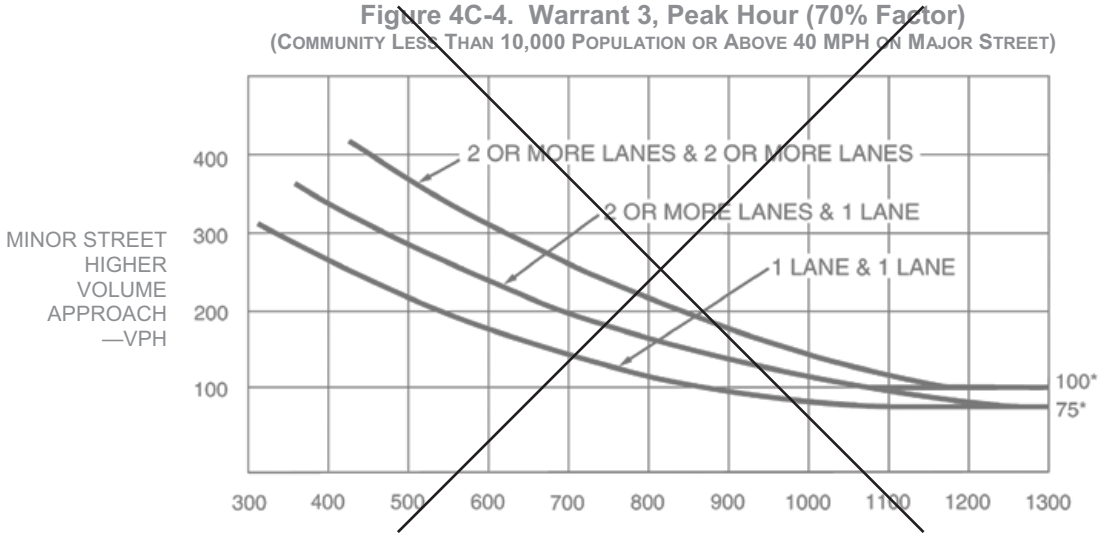


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

Future with Project Phase 1 Conditions

SR#

Traffic Signal Warrants Worksheet

DATE 11/9/17 PREPARER GTC REVIEWER _____

MAJOR ST: De Soto Avenue

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 40 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

SATISFIED — N/A ☐ YES ☐ NO ☒

⋆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ⋆

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED — YES ☐ NO ☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☐	☒	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED — YES ☐ NO ☒

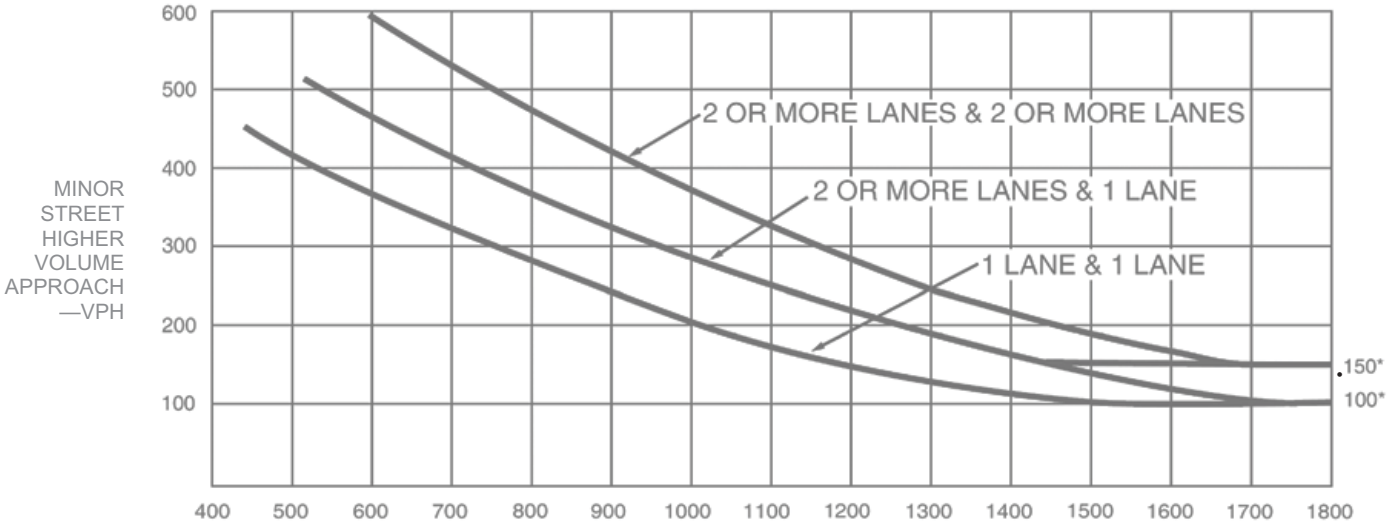
APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	*3823*
Higher Approach - Minor Street		✓	*132*

	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☐	☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

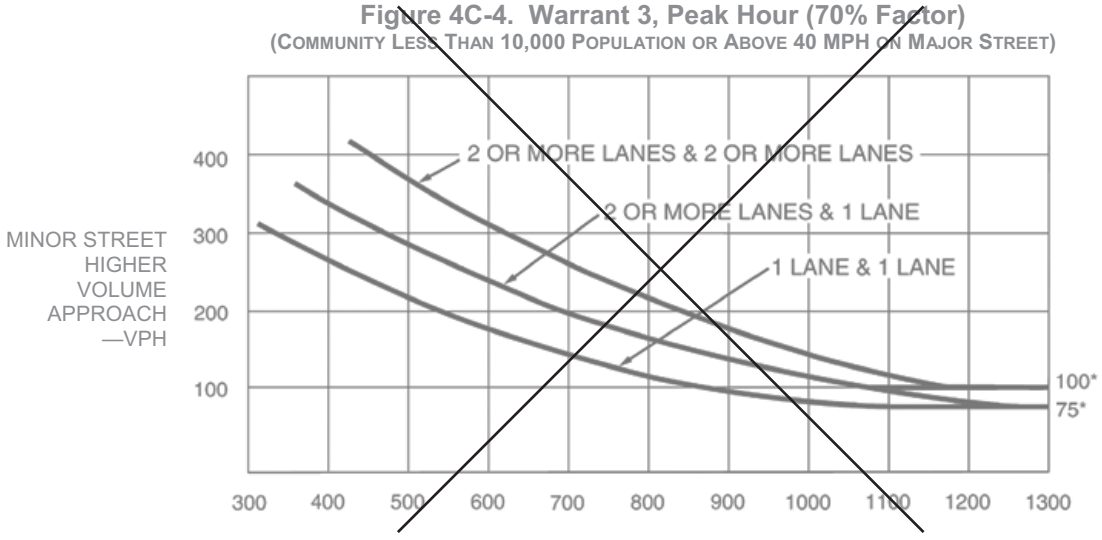
✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN
Figure 4C-3. Warrant 3, Peak Hour



** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

SR#

Traffic Signal Warrants Worksheet

DATE 11/9/17 PREPARER GTC REVIEWER _____

MAJOR ST: Burbank Boulevard

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 35 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A	☐
SATISFIED YES	☒
NO	☐

⋆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ⋆

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED	YES	NO
	☐	☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED	YES	NO
	☒	☐

APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	1511
Higher Approach - Minor Street	✓		190

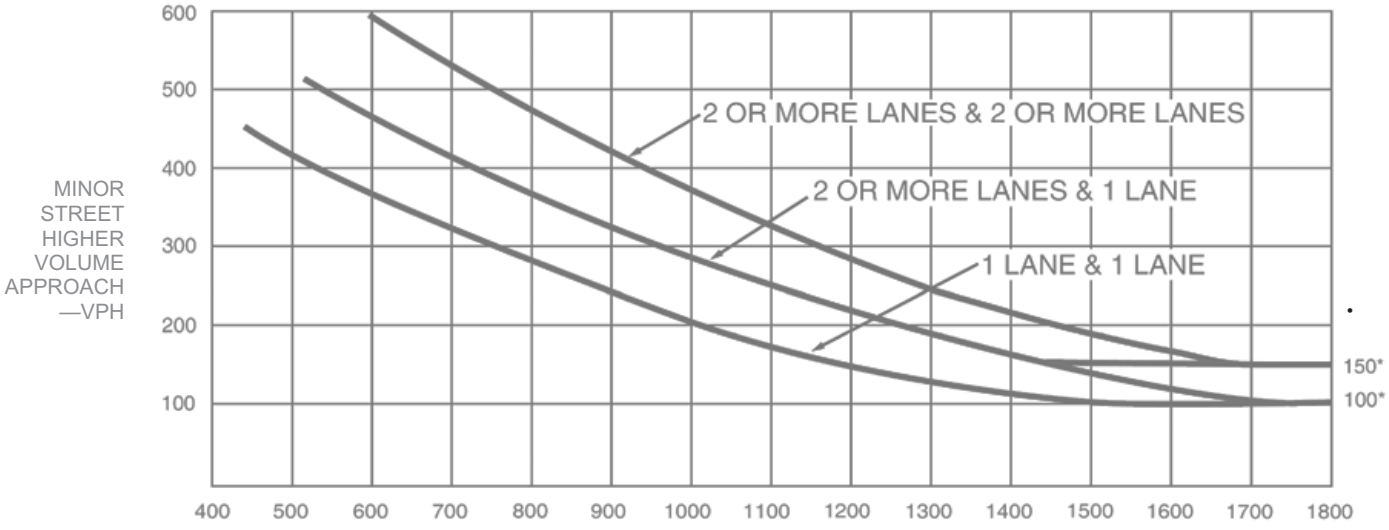
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☒	☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

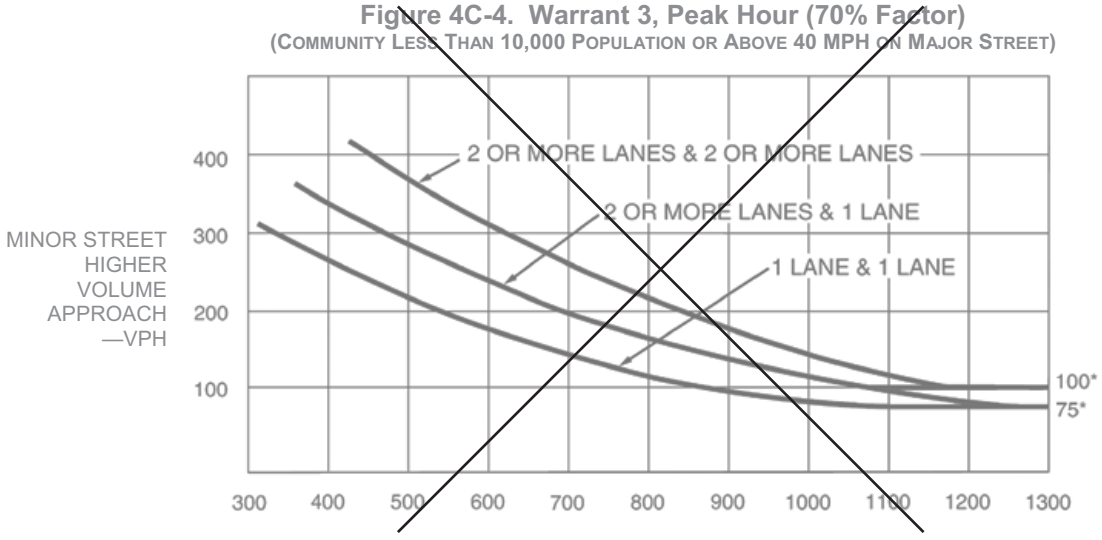


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

Future with Project Phase 2 Conditions

SR#

Traffic Signal Warrants Worksheet

DATE 11/9/17 PREPARER GTC REVIEWER _____

MAJOR ST: De Soto Avenue

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 40 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A	☐
SATISFIED YES	☐
NO	☒

⋆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ⋆

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED	YES	NO
	☐	☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED	YES	NO
	☐	☒

APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	*3894*
Higher Approach - Minor Street		✓	*141*

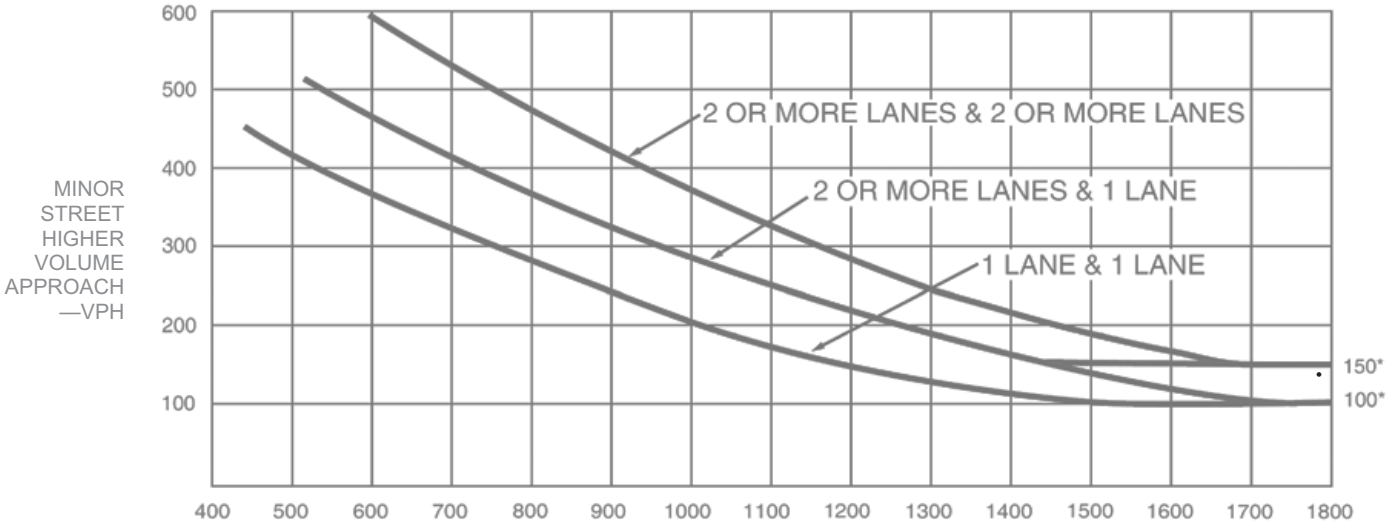
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☐	☒
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

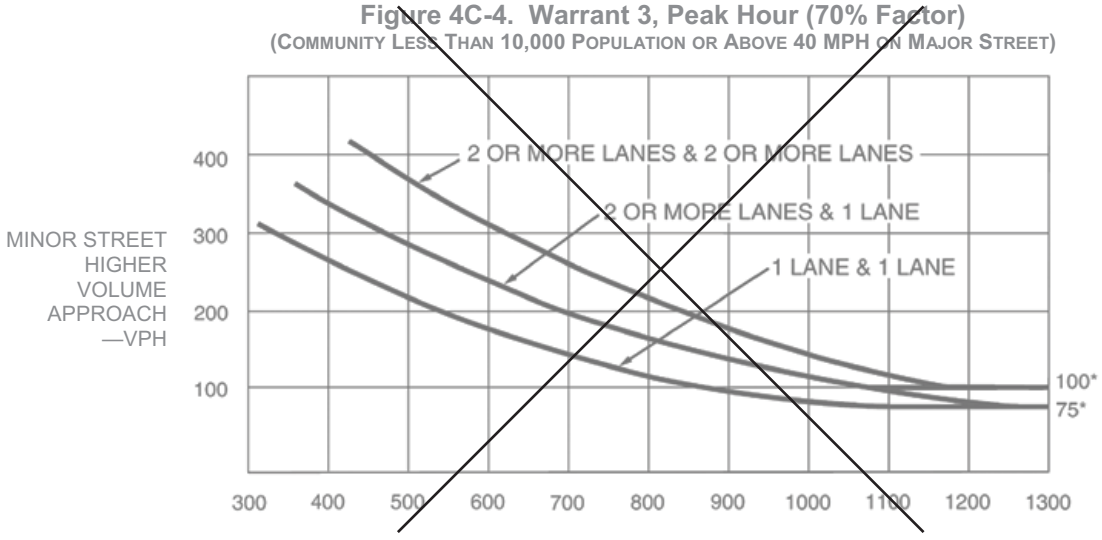


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

Future with Project Phase 3 Conditions

SR#

Traffic Signal Warrants Worksheet

DATE 11/9/17 PREPARER GTC REVIEWER _____

MAJOR ST: De Soto Avenue

MINOR ST: Warner Center Lane

Critical Approach Speed ____ MPH or Speed Limit 40 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐ or

In built up area of isolated community of < 10,000 population..... ☐ } RURAL (R)

☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A ☐
SATISFIED YES ☒
NO ☐

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED YES ☒ NO ☐

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED YES ☒ NO ☐

APPROACH LANES	One	2 or More	Hour 16:45
Both Approaches - Major Street		✓	4006
Higher Approach - Minor Street		✓	342

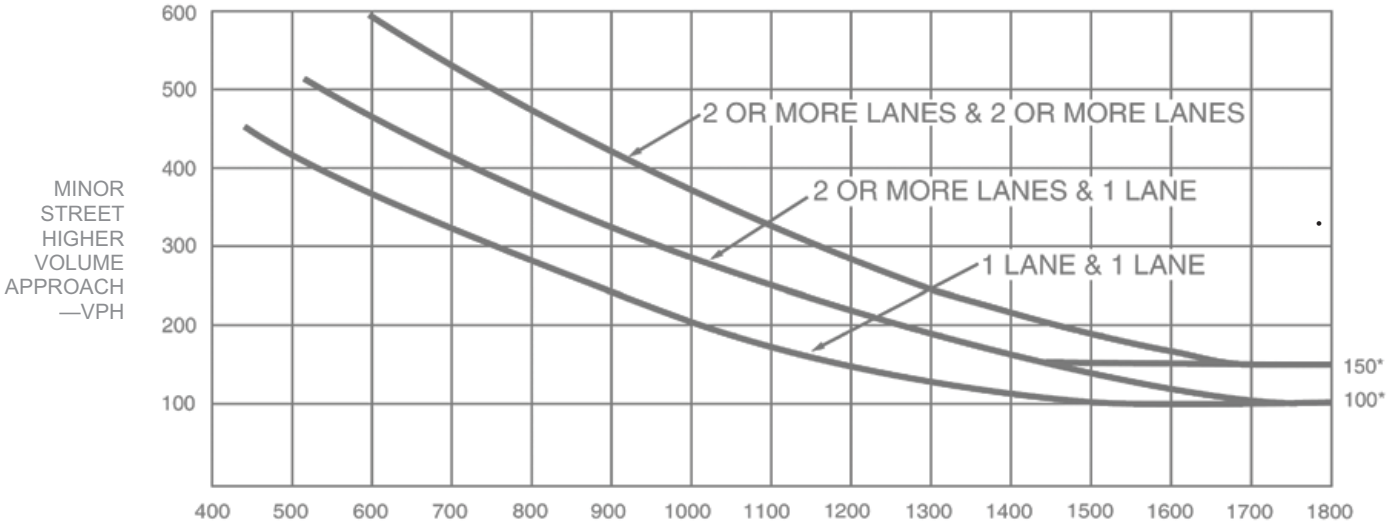
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☒	☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

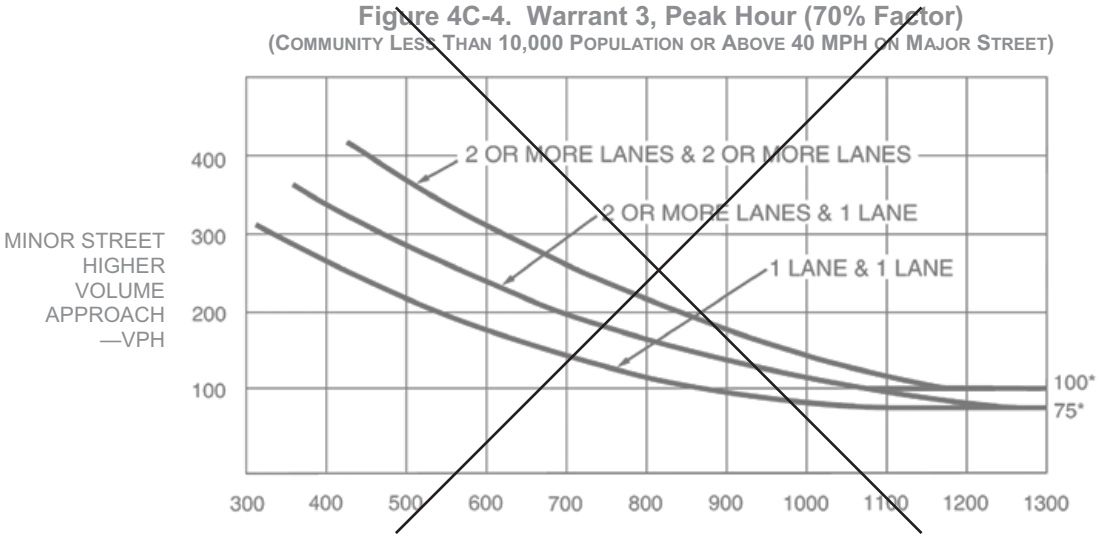


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*

SR#

Traffic Signal Warrants Worksheet

DATE 11/9/17 PREPARER GTC REVIEWER _____

MAJOR ST: Burbank Boulevard

MINOR ST: Building 8 / Kaiser Driveway (pvt)

Critical Approach Speed ____ MPH or Speed Limit 35 MPH

Speed limit or critical speed on major street traffic > 40 mph..... ☐

or

In built up area of isolated community of < 10,000 population..... ☐

☐ RURAL (R) ☒ URBAN (U)

Eight-Hour Vehicular Volume — WARRANT 1

N/A ☒

SATISFIED YES ☐

NO ☐

☆ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ☆

a. Condition A or Condition B or combination of 80% of both parts A and B must be satisfied.
b. A 6-hour Manual Count may be used in a determination that this warrant is not met. However, supplement manual counts should be taken during separate hours for a determination that this warrant is met.
c. In applying each condition, the major street and minor street volumes shall be for the same hours. On the minor street, the higher volume does not need to be the same approach during each of the hours.
d. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
e. Figure 4C-103(CA) should be used for new intersections, significantly reconstructed intersections, where near-term land development will result in increased volumes, or where it is not reasonable to use current traffic volumes.
f. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
g. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

Peak Hour WARRANT 3

N/A ☐
SATISFIED YES ☒
NO ☐

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

a. Part A or Part B must be satisfied.
b. In applying each condition, the major street and minor street volumes shall be for the same hours.
c. The study should consider the effects of the right-turn vehicles from the minor-street approaches. Engineering judgment should be used to determine what, if any, portion of the right-turn traffic is subtracted from the minor-street traffic count.
d. Estimated Peak Hour Volumes may be used for new intersections, significantly reconstructed intersections, or where near-term land development will result in increased volumes.
e. Engineering judgment should also be used in applying various traffic signal warrants to cases where approaches consist of one lane plus one left-turn or right-turn lane. This site-specific traffic characteristics should dictate whether an approach is considered as one lane or two lanes. For example, for an approach with one lane for through and right-turning traffic plus a left-turn lane, if engineering judgment indicates that it should be considered a one-lane approach because the traffic using the left turn lane is minor, the total traffic volume approaching the intersection should be applied against the signal warrants as a one-lane approach. The approach should be considered two lanes if approximately half of the traffic on the approach turns left and the left-turn lane is of sufficient length to accommodate all left-turn vehicles. Similar engineering judgment and rationale should be applied to a street approach with one through/left-turn lane plus a right-turn lane. In this case, the degree of conflict of minor-street right-turn traffic with traffic on the major street should be considered. Thus, right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict. The approach should be evaluated as a one-lane approach with only the traffic volume in the through/left-turn lane considered.
f. At an intersection with a high volume of left-turn traffic from the major street, the signal warrant analysis may be performed in a manner that considers the higher volume of the major-street left-turn volumes plus the higher volume minor-street approach as the “minor street” volume and both approaches of the major street minus the higher of the major-street left-turn volume as “major street” volume. In these cases, engineering judgment should be used to determine if left-turn phasing is necessary to accommodate the high volume of left-turn traffic.

PART A

SATISFIED YES ☐ NO ☒

All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

	YES	NO	N/A
1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	☐	☐	☒
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	☒	☐	☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	☒	☐	☐

PART B

SATISFIED YES ☒ NO ☐

APPROACH LANES	One	2 or More	Hour 16:30
Both Approaches - Major Street		✓	*1818*
Higher Approach - Minor Street		✓	*363*

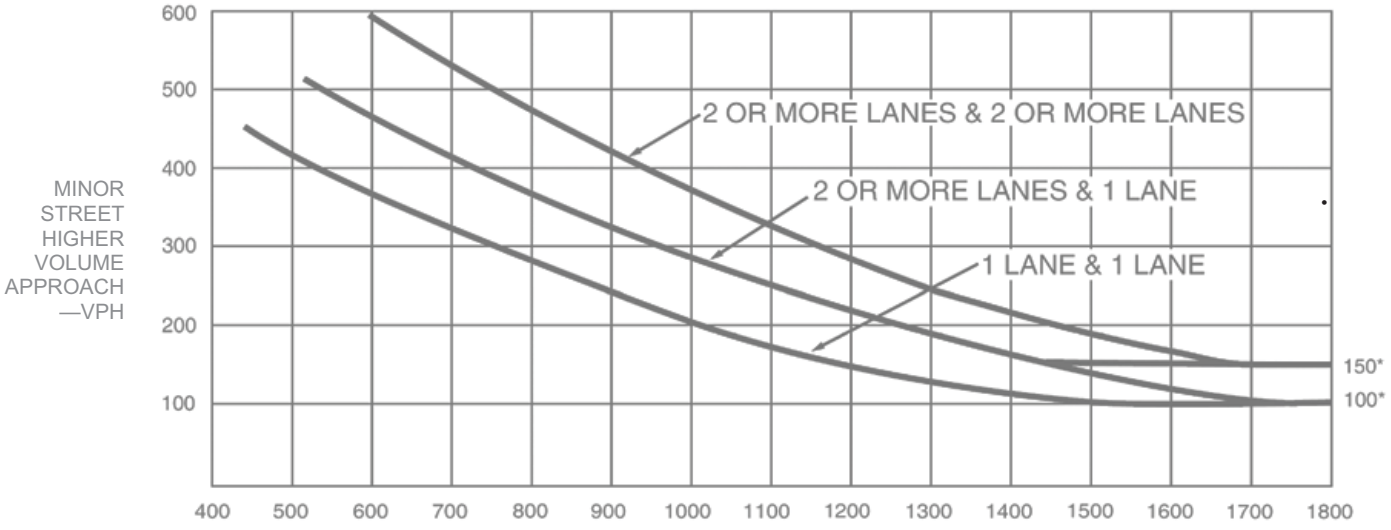
	YES	NO
The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	☒	☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)		

Peak Hour *(continued)*

✯ The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal ✯

URBAN

Figure 4C-3. Warrant 3, Peak Hour

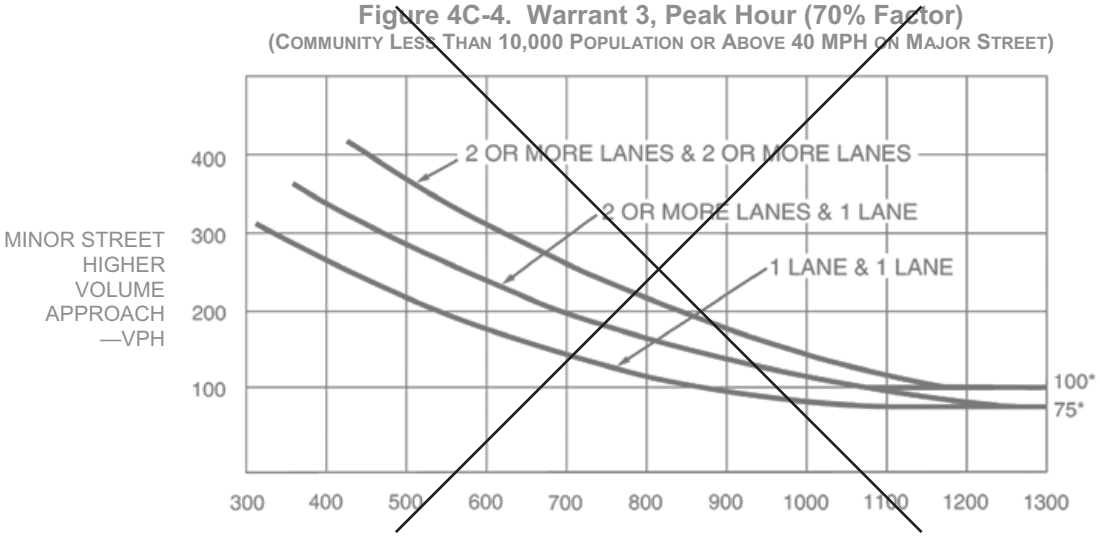


** Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.*

RURAL

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(Community Less Than 10,000 Population or Above 40 MPH on Major Street)



** Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.*