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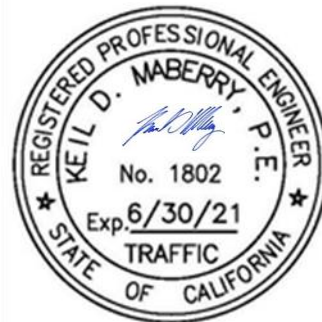
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TRAFFIC IMPACT ANALYSIS REPORT  
**PHILADELPHIA STREET INDUSTRIAL CENTER**  
Chino, California  
February 22, 2021  
(Update of November 23, 2020 Report)

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# EXECUTIVE SUMMARY

## Project Description

- The Philadelphia Street Industrial Center Project applicant is proposing to construct three (3) warehouse buildings totaling 64,500 gross square footage (GSF) on the northwest quadrant of East End Avenue and Philadelphia Street. The Project site is currently located in the unincorporated area of San Bernardino County but will be annexed into the City of Chino as part of a larger ±53-acre annexation area request with LAFCO. The Project is anticipated to be completed by the Year 2022. It should be noted that the proposed Project is consistent with the County of San Bernardino General Plan land use and will continue to be consistent as part of the annexation into the City of Chino.
- The Project is expected to generate 187 daily trips (one half arriving, one half departing), with 41 trips (33 inbound, 8 outbound) produced in the AM peak hour and 46 trips (13 inbound, 33 outbound) produced in the PM peak hour. It should be noted that these estimates include the conversion of truck-related trips to passenger car equivalents (PCE).

## Study Area

- Four (4) key study intersections were designated for evaluation with two (2) additional key study intersections for long-term analysis only based on City of Chino Traffic Impact Analysis (TIA) criteria and discussions with City staff. The key intersections selected for evaluation in this report provide local and regional access to the study area and are listed as follows:
  1. Reservoir Street at Philadelphia Street
  2. East End Avenue at Philadelphia Street
  3. Pipeline Avenue at Philadelphia Street
  4. East End Avenue at Walnut Avenue
  5. East End Avenue at Francis Avenue [*long-term analysis only*]
  6. Ramona Avenue at Philadelphia Street [*long-term analysis only*]

It should be noted that the intersections of East End Avenue at Francis Avenue and Ramona Avenue at Philadelphia Street will be analyzed in the long-term traffic scenario only as part of the annexation analysis.

## Cumulative Projects Description

- The five (5) cumulative projects are expected to generate 2,234 daily trips (one half arriving, one half departing) on a “typical” weekday, with 283 trips (209 inbound and 74 outbound)

forecast during the AM peak hour and 198 trips (57 inbound and 141 outbound) forecast during the PM peak hour.

**Traffic Impact Analysis**

*Existing Traffic Conditions*

- For the Existing traffic conditions, all four (4) key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

*Existing With Project Traffic Conditions*

- For the Existing With Project traffic conditions, all four (4) key study intersections are forecast to operate at acceptable LOS during the AM and PM peak hours.

*Year 2022 With Project Traffic Conditions*

- For the Year 2022 With Project traffic conditions, one (1) of the four (4) key study intersection is forecast to operate at unacceptable levels of service during the PM peak hour when compared to the LOS standards defined in this report. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. The intersection operating at adverse levels of service is:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
2. East End Avenue at Philadelphia Street	--	--	35.8	E

One (1) of the four (4) key study intersections will operate at an unacceptable service level under the Year 2022 With Project traffic conditions when compared to the LOS criteria defined in this report. However, the implementation of recommended improvements at the impacted intersection improves the service level to an acceptable LOS based on the LOS standards outlined in this report

*Year 2040 With Project Traffic Conditions*

- For the Year 2040 With Project traffic conditions, three (3) of the six (6) key study intersection is forecast to operate at unacceptable levels of service during the AM and PM peak hours when compared to the LOS standards defined in this report. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. The intersections operating at adverse levels of service are:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
2. East End Avenue at Philadelphia Street	72.7	F	130.7	F
4. East End Avenue at Walnut Avenue	42.3	E	58.9	F
5. East End Avenue at Francis Avenue	93.6	F	150.7	F

Three (3) of the six (6) key study intersections will operate at an unacceptable service level under the Year 2040 With Project traffic conditions when compared to the LOS criteria defined in this report. However, the implementation of recommended improvements at the impacted intersections improves the service level to an acceptable LOS based on the LOS standards outlined in this report.

## **Recommended Improvements**

### *Existing With Project Traffic Conditions*

- The results of the intersection analyses for Existing With Project traffic conditions indicate that the proposed Project is not forecast to have an impact at any of the four (4) key study intersections. As there are no impacts, no traffic improvements are required under this traffic scenario.

### *Year 2022 With Project Traffic Conditions*

- The results of the Year 2022 With Project traffic conditions level of service analyses indicate that the proposed Project will cumulatively impact one (1) of the four (4) key study intersections. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service under the Year 2022 With Project traffic conditions. The improvements listed below have been identified to address the traffic impacts at the intersection impacted by the Year 2022 With Project traffic:
  - Intersection 2. East End Avenue at Philadelphia Street: Install a traffic signal and design for two-phase operation. Stripe crosswalks on all legs.

### *Year 2040 With Project Traffic Conditions*

- The results of the Year 2040 With Project traffic conditions level of service analyses indicate that the proposed Project will cumulatively impact three (3) of the six (6) key study intersections. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service under the Year 2040 With Project traffic conditions. The improvements listed below have been identified to address the traffic impacts at the intersections impacted by the Year 2040 With Project traffic:
  - Intersection 2. East End Avenue at Philadelphia Street: Install a traffic signal and design for two-phase operation. Stripe crosswalks on all legs.
  - Intersection 4. East End Avenue at Walnut Avenue: Install a traffic signal and design for two-phase operation. Stripe crosswalks on all legs.
  - Intersection 5. East End Avenue at Francis Avenue: Install a traffic signal and design for two-phase operation. Stripe crosswalks on all legs.

## **Traffic Signal Warrant Analysis**

### **Year 2022 With Project Traffic Conditions**

- The results of the peak-hour traffic signal warrant analysis for the Year 2022 With Project traffic conditions indicate that one (1) key unsignalized impacted intersection has future traffic conditions that would exceed the volume thresholds of Warrant #3, Part B for the AM and PM peak hours. The analysis and the recommended improvements show that the intersection of East End Avenue at Philadelphia Street in the Year 2022 With Project traffic conditions is recommended to be signalized. With signalization of this intersection, which is warranted, this intersection is forecast to operate at acceptable service levels during the AM and PM peak hours. Thus, it is concluded that a traffic signal is justified at the location.

### **Year 2040 With Project Traffic Conditions**

- The results of the peak-hour traffic signal warrant analysis for the Year 2040 With Project traffic conditions indicate that three (3) key unsignalized impacted intersections have future traffic conditions that would exceed the volume thresholds of Warrant #3, Part A and/or Part B for the AM and PM peak hours. The analysis and the recommended improvements show that the intersections of East End Avenue at Philadelphia Street, East End Avenue at Walnut Avenue, and East End Avenue at Francis Avenue in the Year 2040 With Project traffic conditions are recommended to be signalized. With signalization of these intersections, which is warranted, these intersections are forecast to operate at acceptable service levels during the AM and PM peak hours. Thus, it is concluded that traffic signals are justified at the locations.

## **Project Fair Share Analysis**

### **Existing With Project Traffic Conditions**

- None of the four (4) key study intersections are forecast to have an impact under Existing With Project traffic conditions when compared to the LOS criteria defined in this report. As there are no impacts, no Project fair share calculation is needed.

### **Year 2022 With Project Traffic Conditions**

- The Project fair share percentage (worse time period impacted) for the one (1) cumulatively impacted intersection for the Year 2022 With Project traffic conditions is shown below:
  - 2. East End Avenue at Philadelphia Street 27.66%

### **Year 2040 With Project Traffic Conditions**

- The Project fair share percentages (worse time period impacted) for the three (3) cumulatively impacted intersection for the Year 2040 With Project traffic conditions are shown below:

- 2. East End Avenue at Philadelphia Street 5.16%
- 4. East End Avenue at Walnut Avenue 0.33%
- 5. East End Avenue at Francis Avenue 0.54%

### **Site Access and Internal Circulation Evaluation**

- The three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Existing With Project traffic conditions.
- The three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Year 2022 With Project traffic conditions.
- The three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Year 2040 With Project traffic conditions.
- A circulation evaluation was performed using the *Turning Vehicle Templates*, developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles. The turning templates were utilized to ensure that a large delivery truck can properly access and circulate throughout the Project site. A large truck (WB-50) turning template was utilized in this evaluation.

The internal circulation layout for the proposed Project has been reviewed and is adequate to accommodate service/delivery trucks. We have confirmed that the turning radii of large trucks (WB-50) are met as these vehicles can access the Project site and circulate throughout the property.

### **VMT Compliance Analysis**

- The proposed Project, which consists of a 64,500 SF warehousing development within three buildings, has a Project parcel (Year 2022 Project completion) daily total VMT/SP of *26.1 VMT per service population* based on the SBCTA VMT Screening Tool. As shown in the output from the SBCTA VMT Screening Tool, the Project TAZ total daily VMT per service population is ***26.1 VMT per service population***, which is less than the Citywide average daily total VMT per service population under General Plan Horizon Year Conditions of ***34.4 VMT per service population***. Therefore, the proposed Philadelphia Street Industrial Center project can be presumed to have a less than significant VMT impact.

**TRAFFIC IMPACT ANALYSIS REPORT**  
**PHILADELPHIA STREET INDUSTRIAL CENTER**

Chino, California  
February 22, 2021  
(Update of November 23, 2020 Report)

## **1.0 INTRODUCTION**

This traffic impact analysis evaluates the potential traffic impacts of the proposed Philadelphia Street Industrial Center (hereinafter referred to as Project), on the area traffic circulation. The Project applicant is proposing to construct three (3) warehouse buildings totaling 64,500 gross square footage (GSF) on the northwest quadrant of East End Avenue and Philadelphia Street. The Project site is currently located in the unincorporated area of San Bernardino County but will be annexed into the City of Chino as part of a larger ±53-acre annexation area request with LAFCO. The Project is anticipated to be completed by the Year 2022. It should be noted that the proposed Project is consistent with the County of San Bernardino General Plan land use and will continue to be consistent as part of the annexation into the City of Chino.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential traffic impacts that the Project may have on the local and regional transportation network in the vicinity of the Project site. The traffic impact analysis evaluates the operating conditions at four (4) existing key study intersections and two (2) additional intersections in the long-term analysis only within the Project vicinity as a result of the annexation, estimates the trip generation potential of the Project and forecasts future (near-term and long-term) operating conditions without and with the Project. In addition, this report assesses the potential SB 743 Vehicle Miles Travelled (VMT) impacts of the proposed Project based the *OPR Technical Advisory* and *City of Chino VMT Guidelines*.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing (i.e. baseline) peak hours traffic information has been collected at six (6) key study intersections on a “typical” weekday for use in the preparation of intersection level of service calculations. This traffic report analyzes existing (i.e. baseline) and future (near-term) weekday AM and PM peak hour traffic conditions for Existing (i.e. baseline) and Year 2022 traffic conditions without and with the proposed Project. Analysis of long-term Year 2040 traffic conditions with the proposed Project has been included for purposes of analyzing the annexation only. Peak hour traffic forecasts for the Year 2022 traffic conditions have been projected by increasing existing traffic volumes by an annual growth rate of two percent (2%) per year and adding the traffic from five (5) cumulative projects.

The work program for this traffic study was developed in conjunction with the City of Chino Development Services Department staff. **Appendix A** contains a copy of the approved City of Chino Traffic Impact Study Scoping Agreement.

## 1.1 Study Area

Four (4) key study intersections were designated for evaluation with two (2) additional key study intersections for long-term analysis only based on City of Chino Traffic Impact Analysis (TIA) criteria and discussions with City staff. The key intersections selected for evaluation in this report provide local and regional access to the study area and are listed as follows:

1. Reservoir Street at Philadelphia Street
2. East End Avenue at Philadelphia Street
3. Pipeline Avenue at Philadelphia Street
4. East End Avenue at Walnut Avenue
5. East End Avenue at Francis Avenue [*long-term analysis only*]
6. Ramona Avenue at Philadelphia Street [*long-term analysis only*]

It should be noted that the intersections of East End Avenue at Francis Avenue and Ramona Avenue at Philadelphia Street will be analyzed in the long-term traffic scenario only as part of the annexation analysis.

## 1.2 Traffic Impact Analysis Components

The Highway Capacity Manual (HCM) Delay and corresponding Level of Service (LOS) calculations at the key study locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the Project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and addresses the impact of the Project.

Included in this Traffic Impact Analysis are:

- Existing Traffic Counts,
- Estimated Project trip generation/distribution/assignment,
- Estimated Cumulative projects trip generation/distribution/assignment,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions with Project traffic,
- AM and PM peak hour LOS analyses for Near-Term (Year 2022) Conditions without and with Project traffic,
- AM and PM peak hour LOS analyses for Long-Term (Year 2040) Conditions with Project traffic,
- Recommended Improvements,
- Traffic Signal Warrant Analysis,
- Site Access and Internal Circulation Evaluation, and
- State Bill (SB) 743 VMT Compliance.

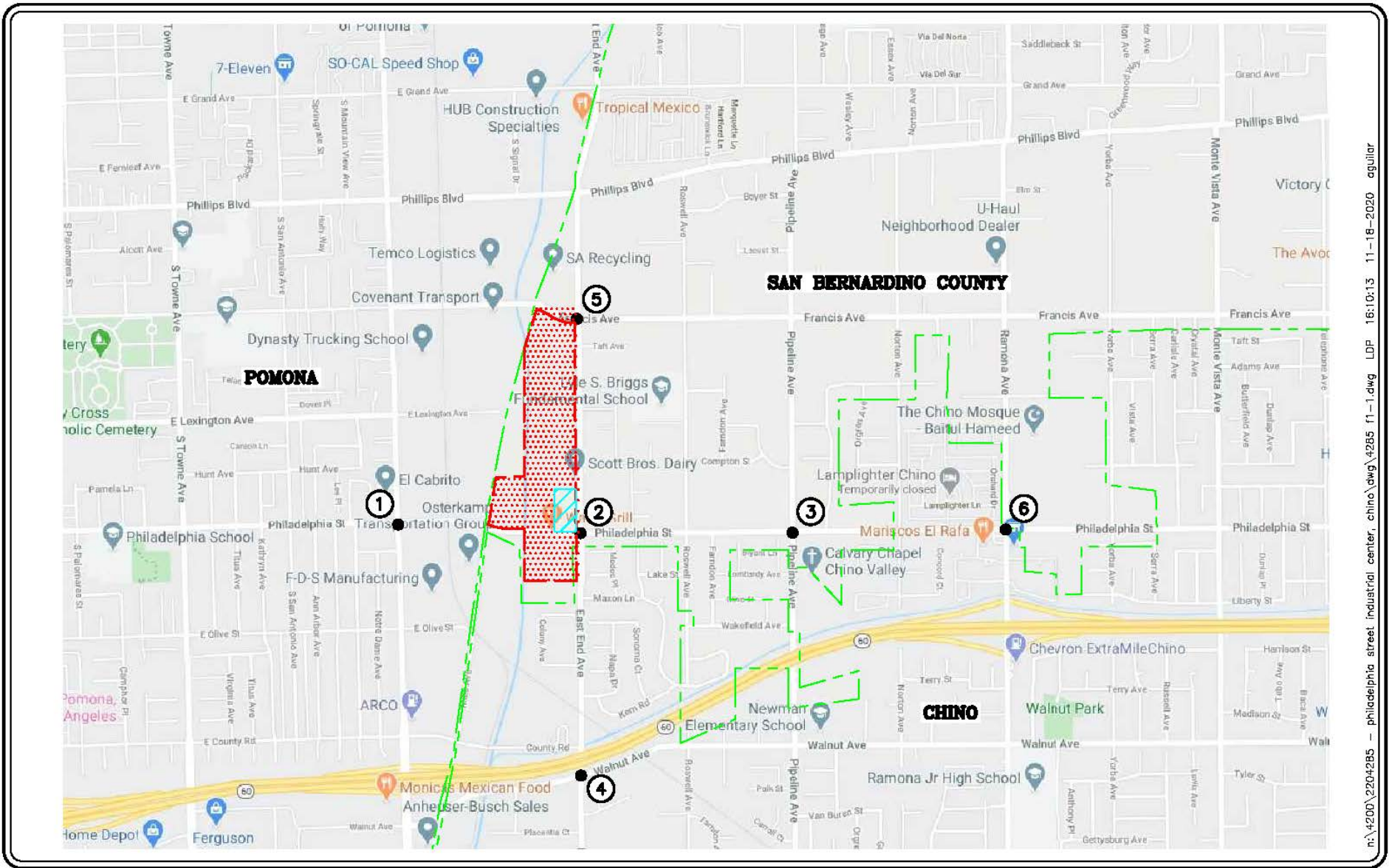
*Figure 1-1* presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system.

### **1.3 Traffic Impact Analysis Scenarios**

The following scenarios are those for which Delay and corresponding LOS calculations have been performed at the key intersections for existing, near-term, and long-term traffic conditions:

- A. Existing (i.e. Baseline) Traffic Conditions,
- B. Existing (i.e. Baseline) With Project Traffic Conditions,
- C. Scenario (B) with Recommended Improvements, if any,
- D. Year 2022 Without Project Traffic Conditions,
- E. Year 2022 With Project Traffic Conditions,
- F. Scenario (E) With Recommended Improvements, if any,
- G. Year 2040 With Project Traffic Conditions (Annexation), and
- H. Scenario (H) With Recommended Improvements, if any.

It should be noted that the Year 2040 With Project scenario is for purposes of analyzing the annexation only.



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SOURCE: GOOGLE

**KEY**

- = PROJECT SITE
- = ANNEXATION AREA

**FIGURE 1-1**

**VICINITY MAP**

PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

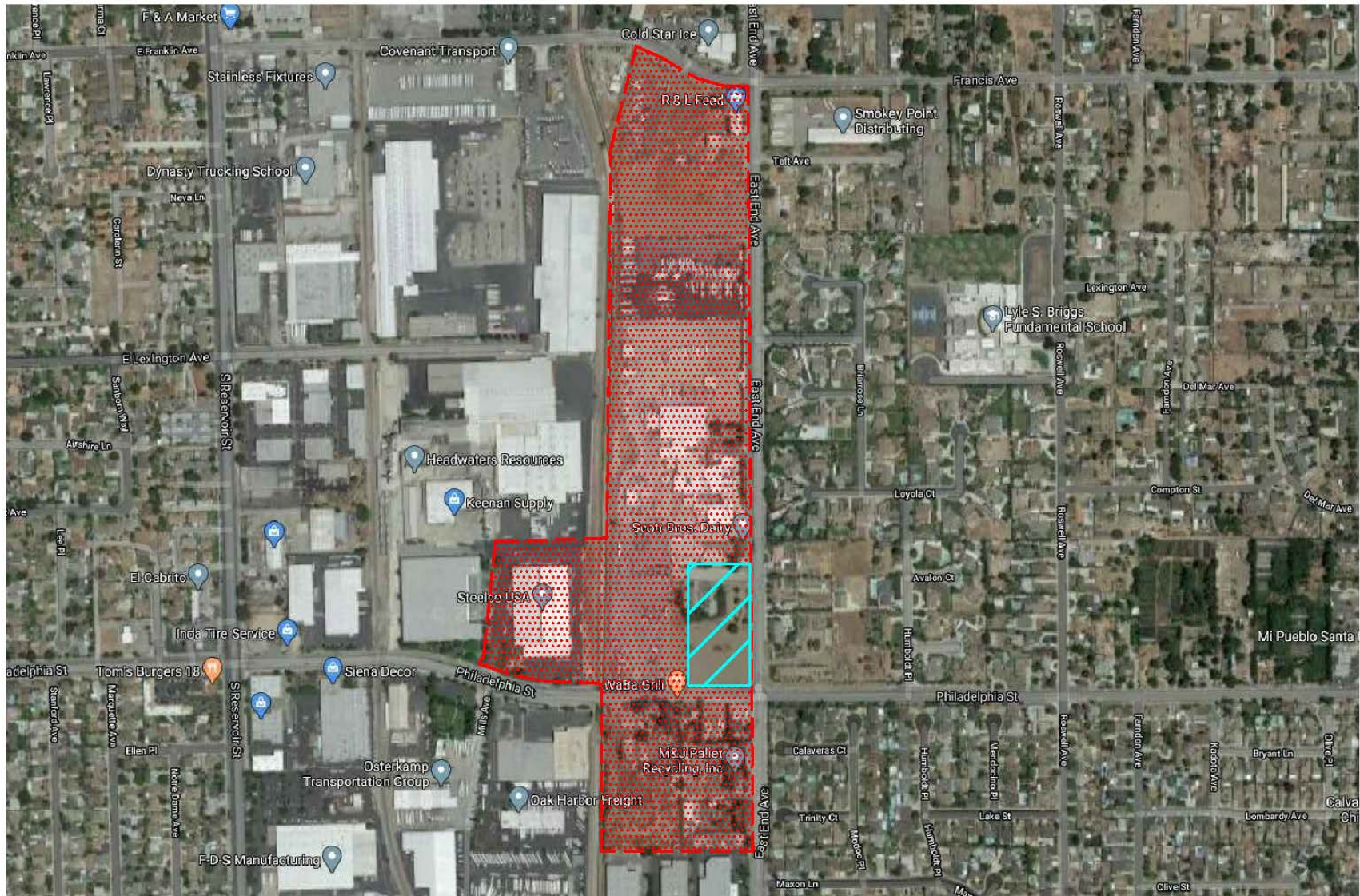
## 2.0 PROJECT DESCRIPTION AND LOCATION

The Project applicant is proposing to construct three (3) warehouse buildings totaling 64,500 gross square footage (GSF) on the northwest quadrant of East End Avenue and Philadelphia Street. The Project site is currently located in the unincorporated area of San Bernardino County but will be annexed into the City of Chino as part of a larger ±53-acre annexation area request with LAFCO. The Project is anticipated to be completed by the Year 2022. It should be noted that the proposed Project is consistent with the County of San Bernardino General Plan land use and will continue to be consistent as part of the annexation into the City of Chino.

*Figure 2-1* presents the existing site aerial for the proposed Project and *Figure 2-2* presents the annexation area, which generally includes the area west of East End Avenue between Philadelphia Street and Francis Avenue. *Figure 2-3* presents the proposed site plan prepared by Architects Orange. As shown in *Figure 2-3*, East End Avenue and Philadelphia Street will be widened along the Project frontage to ultimate conditions, which will allow for a separate southbound right-turn lane on East End Avenue at Philadelphia Street.

### 2.1 Site Access

As presented in *Figure 2-3*, access to the Project site will be provided via one (1) unsignalized full access along Philadelphia Street, and one (1) unsignalized full access driveway and one (1) unsignalized right-in/right-out driveway along East End Avenue.



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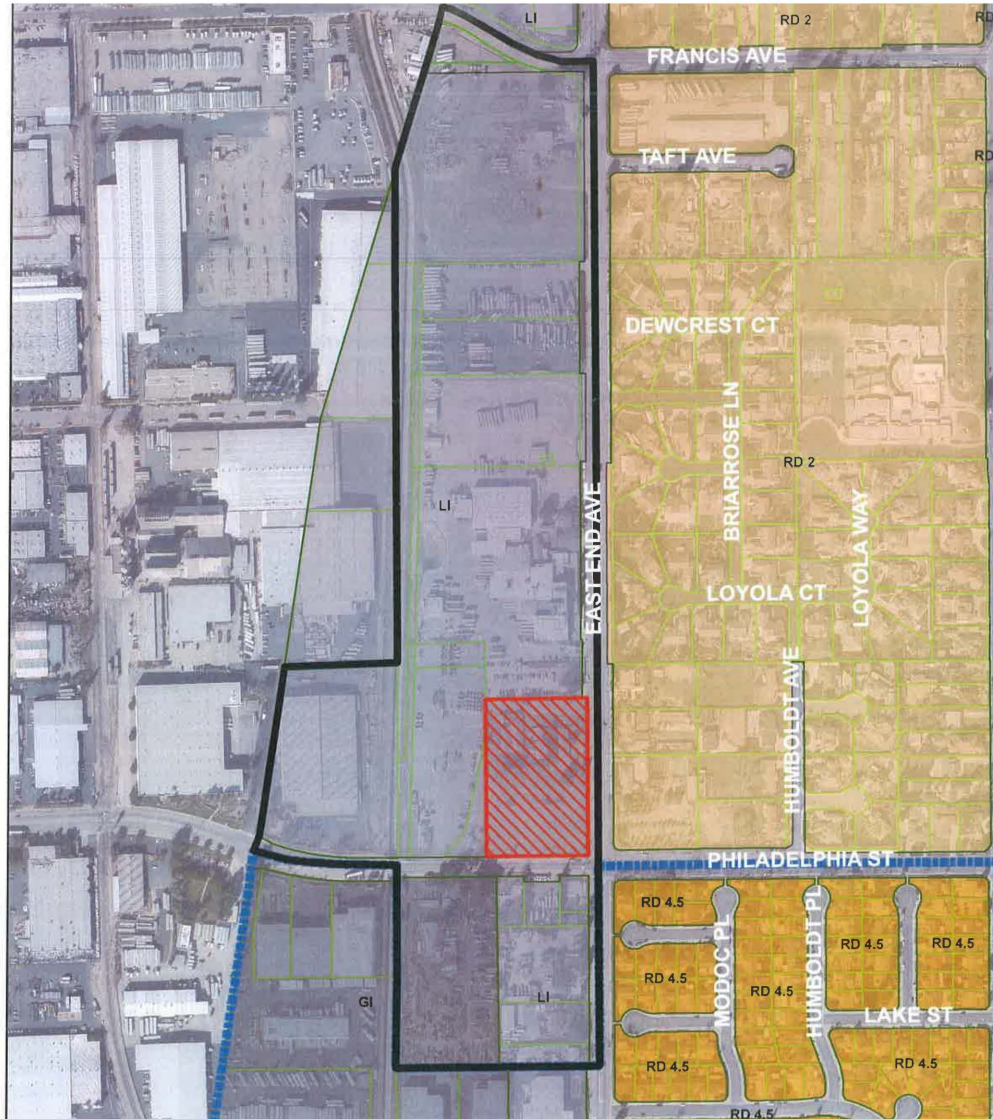
**KEY**

= PROJECT SITE

= ANNEXATION AREA

# FIGURE 2-1

**EXISTING AERIAL SITE PLAN**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



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**FIGURE 2-2**

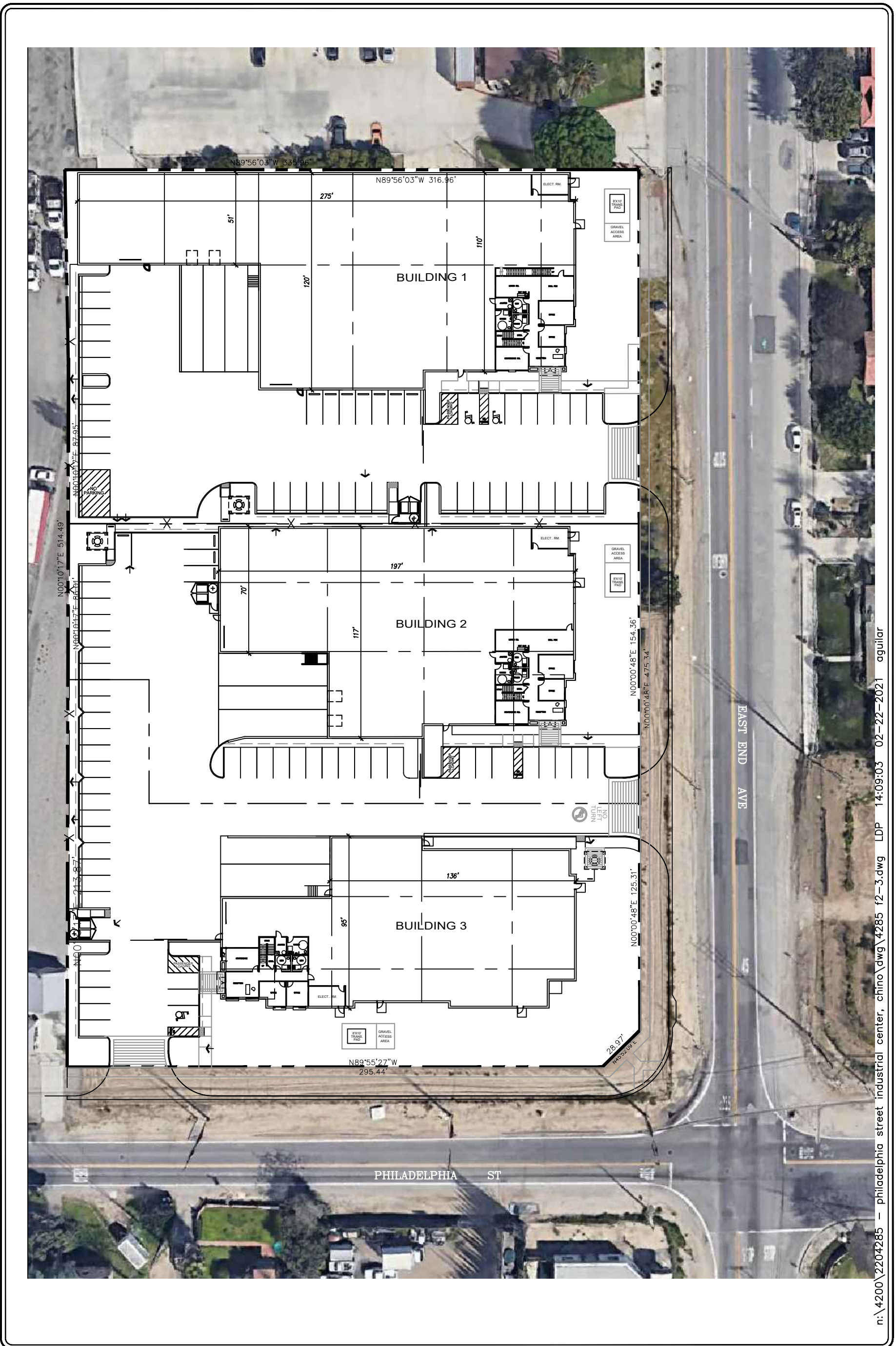
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**ANNEXATION AREA MAP**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



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## 3.0 ANALYSIS CONDITIONS AND METHODOLOGY

### 3.1 Existing Street Network

The principal local network of streets serving the site consists of East End Avenue and Philadelphia Street. The following discussion provides a brief synopsis of the key area streets.

**East End Avenue** is a two-lane undivided roadway located east of the Project site. Two (2) unsignalized full access driveways will provide access to the Project site from East End Avenue. Parking is generally allowed on both sides of the roadway between Francis Avenue and Philadelphia Street and restricted elsewhere. East End Avenue has a posted speed limit of 45 miles per hour (mph). The intersections of East End Avenue at Francis Avenue, Philadelphia Street, and Walnut Avenue are stop-controlled.

**Philadelphia Street** is a four-lane divided roadway west of Philadelphia Street, two-lane undivided roadway between East End Avenue and Pipeline Avenue, and four-lane divided roadway east of Pipeline Avenue. It is located south of the Project site. Parking is generally restricted on the north side of the roadway within the vicinity of the Project. Philadelphia Street has a posted speed limit of 35 mph west of East End Avenue and 40 mph east of East End Avenue. The intersections of Philadelphia Street at Reservoir Street, Pipeline Avenue, and Ramona Avenue are controlled by a traffic signal.

*Figure 3-1* presents an inventory of the existing roadway conditions within the study area evaluated in this report. The number of travel lanes and intersection controls for the key area study intersections and roadway segments are identified.

### 3.2 Existing Traffic Volumes

The AM and PM peak hour traffic volumes for the four (4) key study intersections as well as the two (2) additional study intersections for the long-term analysis were collected by *Counts Unlimited* in May 2020. Given that the traffic counts at these intersections were conducted during the COVID-19 pandemic, historical data was researched in the area. Based on the research, recent AM and PM peak period traffic count data was acquired (April 18, 2018) for the intersection of Ramona Avenue at Philadelphia Street and current AM and PM peak period traffic counts (May 14, 2020) were conducted to create a growth factor to be applied to the six (6) key study locations. Based on the AM and PM peak hour traffic count comparison by movement and averaged for the entire Ramona Avenue/Philadelphia Street intersection, the AM peak hour growth factor is 2.1411 (214.11%) and the PM peak hour growth factor is 1.3090 (130.90%). These factors were applied to the current traffic count data at the six (6) study intersections in order to develop appropriate Year 2020 baseline traffic conditions.

*Figures 3-2* and *3-3* present the existing AM and PM peak hour traffic volumes, respectively, for the four (4) key study intersections.

*Appendix B* contains the existing intersection turning movement count data and the growth factor calculation tables for the intersection of Ramona Avenue at Philadelphia Street.

### 3.3 Level Of Service (LOS) Analysis Methodologies

Existing AM and PM peak hour operating conditions for the six (6) key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections and the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections.

#### 3.3.1 Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

In conformance with City of Chino requirements, AM and PM peak hour operating conditions for the key study intersections were evaluated using the HCM operations method of analysis. Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in *Table 3-1*.

#### 3.3.2 Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in *Table 3-2*.

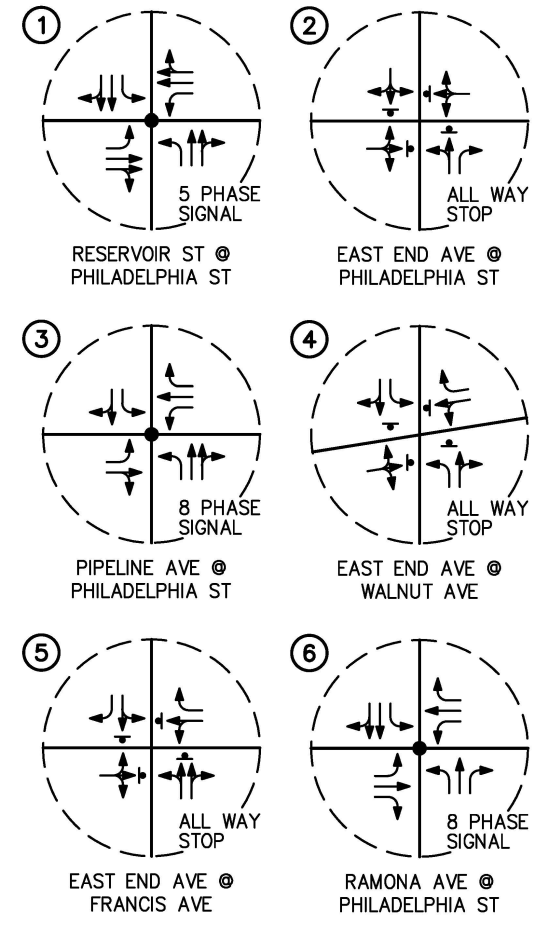
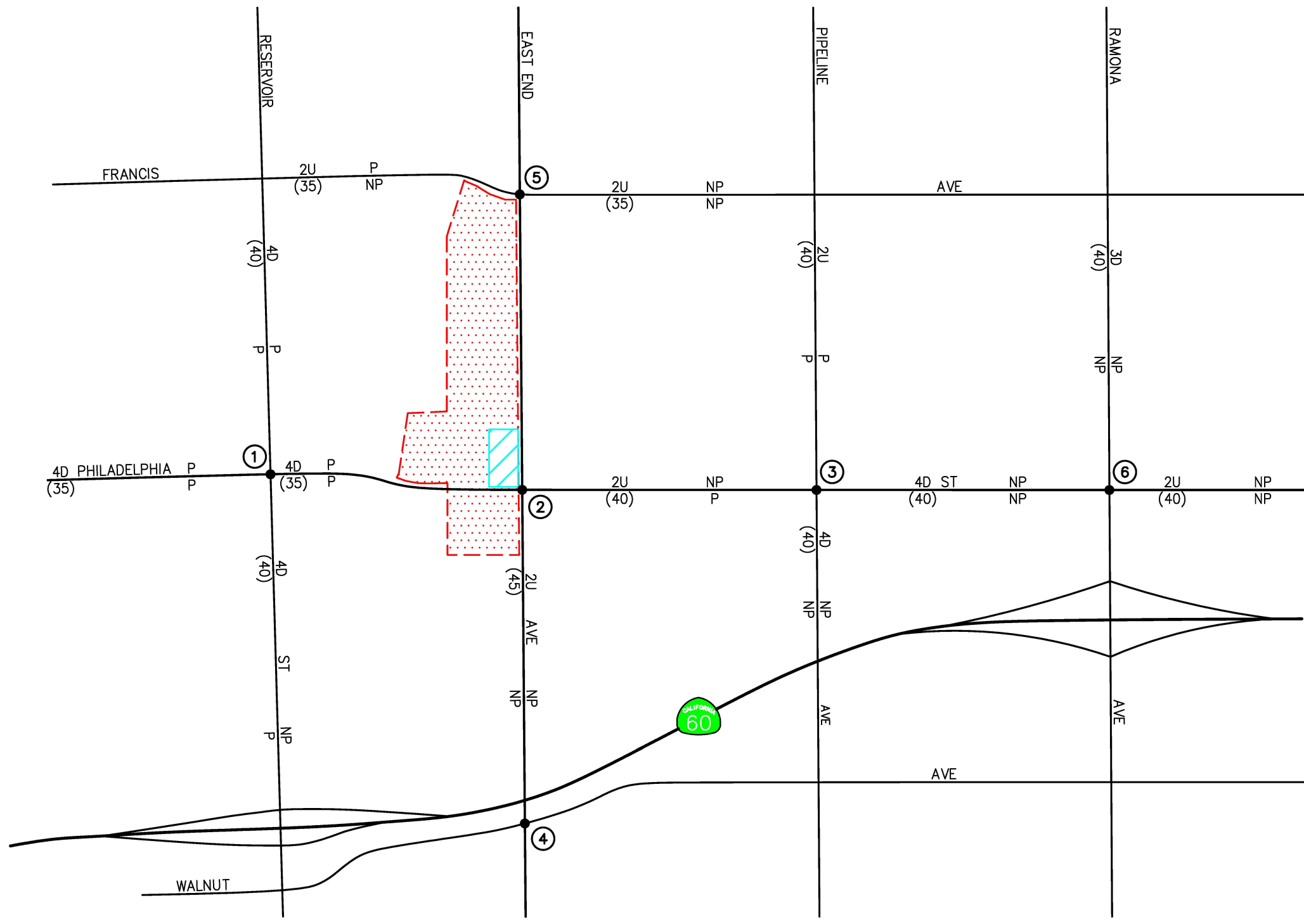
All-way stop-controlled intersections require every vehicle to stop at the intersection before proceeding. Because each driver must stop, the decision to proceed into the intersection is a function of traffic conditions on the other approaches. The time between subsequent vehicle departures depends on the degree of conflict that results between the vehicles and vehicles on the other approaches. This methodology determines the control delay for each lane on the approach, computes a weighted average for the whole approach, and computes a weighted average for the intersection as a whole. Level of service (LOS) at the approach and intersection levels is based solely on control

delay. The HCM control delay value range for all-way stop-controlled intersections is shown in *Table 3-2*.

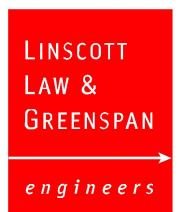
### **3.4 Impact Criteria and Thresholds**

The City of Chino indicates that Level of Service (LOS) D shall be maintained at intersections and roadways. Therefore, any intersections operating at LOS E or F shall be considered deficient.

Furthermore, for the purposes of this traffic impact study, the Project is considered to cause a traffic impact if the addition of Project-generated traffic at a key intersection worsens traffic operations from acceptable service levels (i.e., LOS D or better) to deficient LOS E or F.

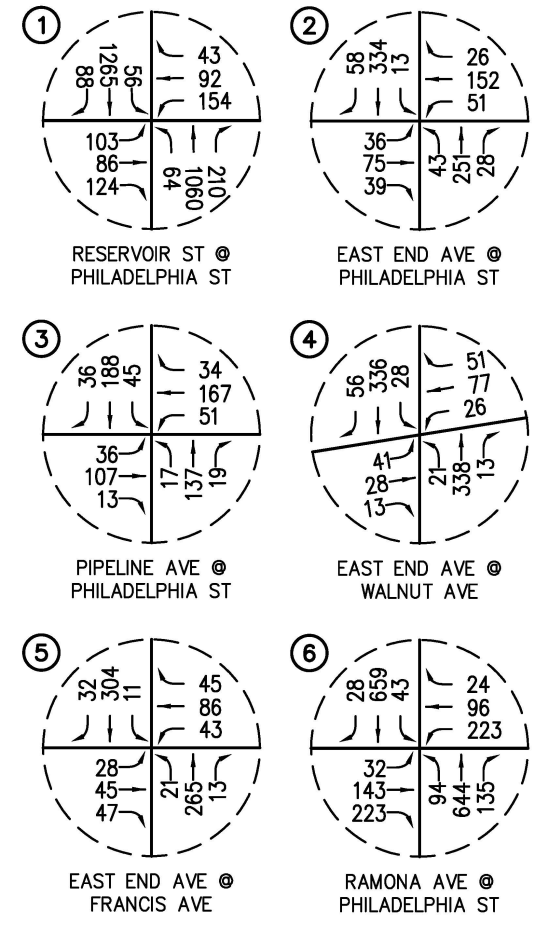
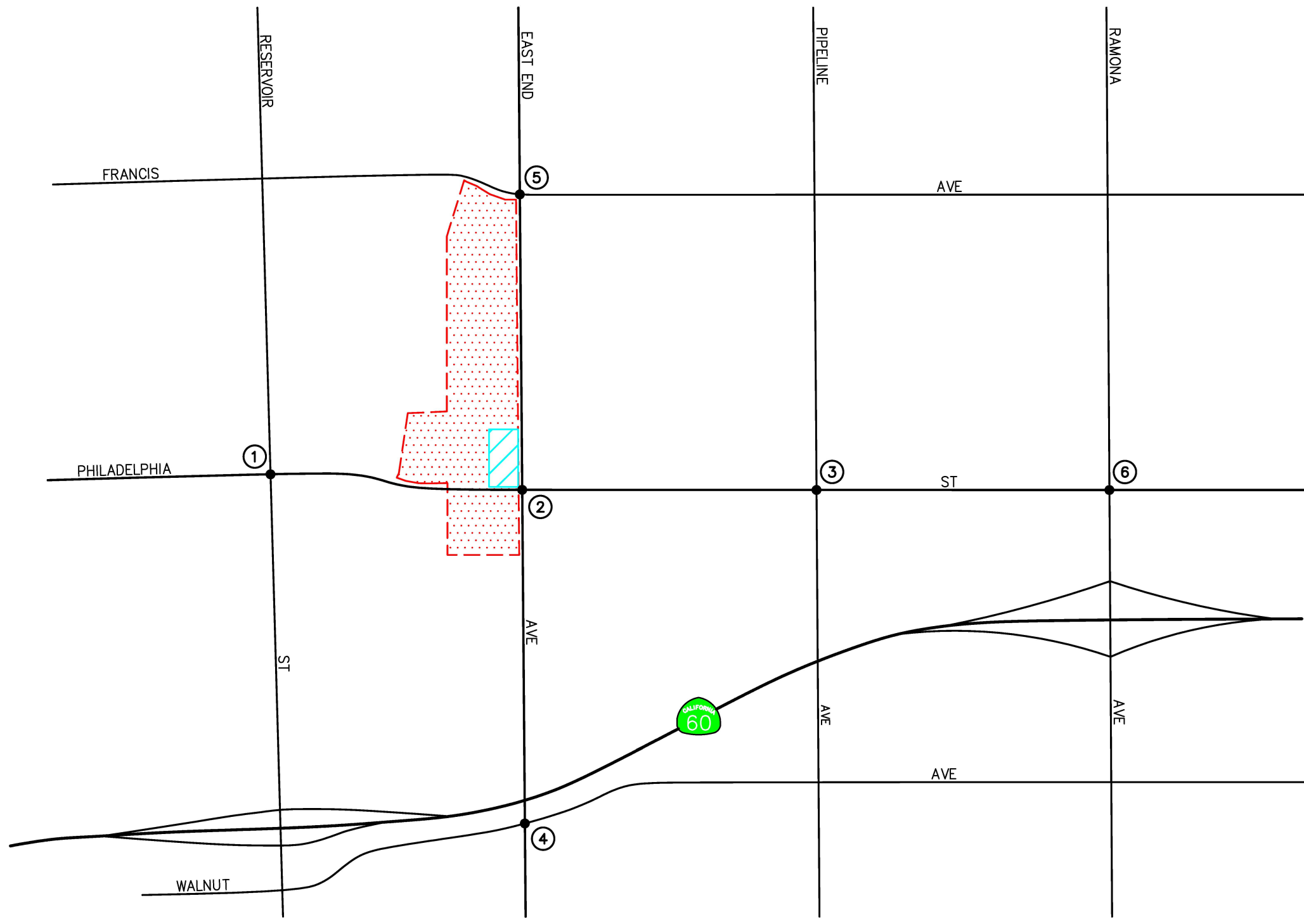


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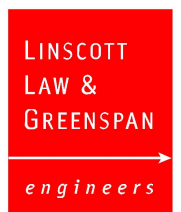


KEY	
①	= STUDY INTERSECTION
▨	= PROJECT SITE
▤	= ANNEXATION AREA
→	= APPROACH LANE ASSIGNMENT
●	= TRAFFIC SIGNAL, ▼ = STOP SIGN
P	= PARKING, NP = NO PARKING
U	= UNDIVIDED, D = DIVIDED
2	= NUMBER OF TRAVEL LANES
(XX)	= POSTED SPEED LIMIT (MPH)
F	= FREE-RIGHT

**FIGURE 3-1**  
**EXISTING INTERSECTION CONTROLS AND ROADWAY CONDITIONS**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



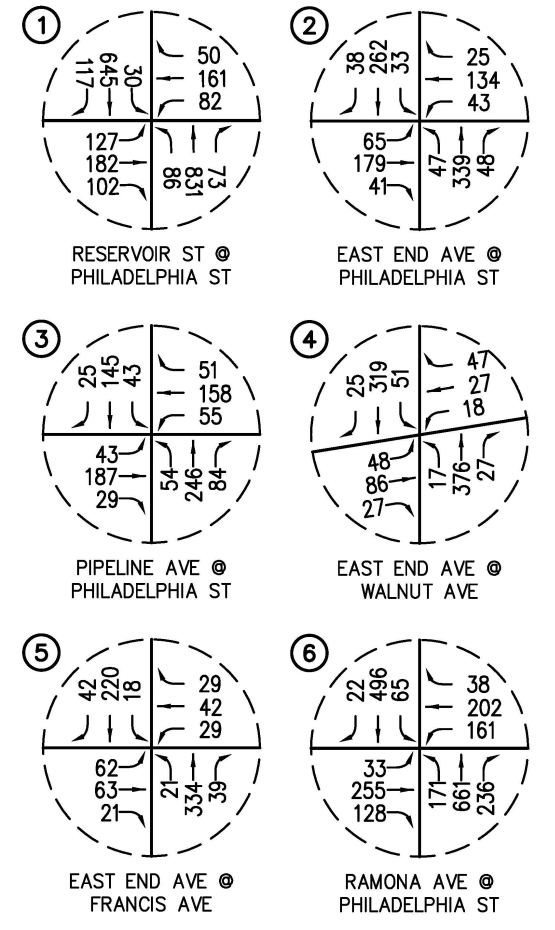
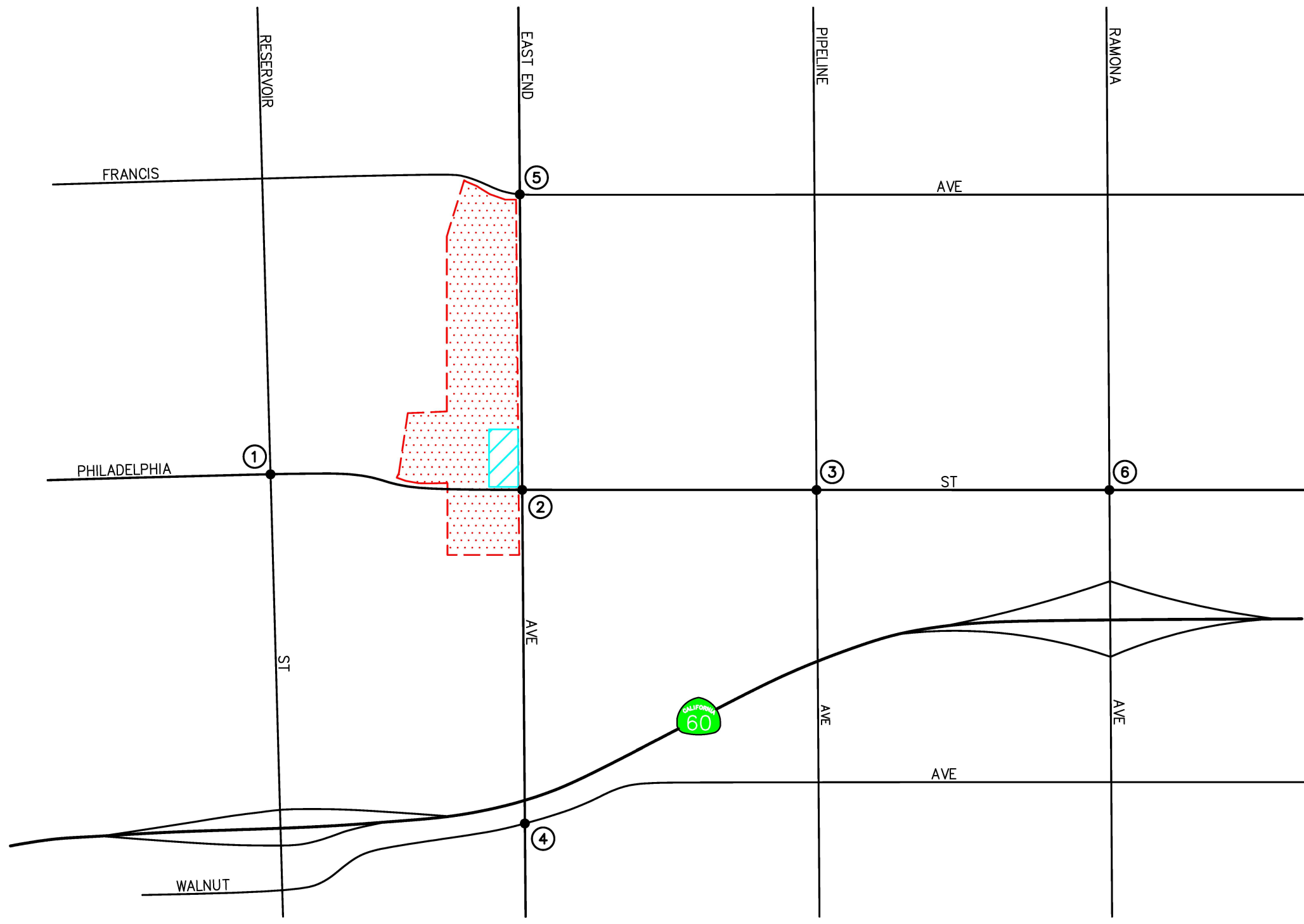
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- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 3-2**

**EXISTING AM PEAK HOUR TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 3-3**

**EXISTING PM PEAK HOUR TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

**TABLE 3-1**  
**LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)<sup>1</sup>**

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	$\leq 10.0$	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	$> 10.0$ and $\leq 20.0$	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	$> 20.0$ and $\leq 35.0$	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	$> 35.0$ and $\leq 55.0$	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high $v/c$ ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	$> 55.0$ and $\leq 80.0$	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths and high $v/c$ ratios. Individual cycle failures are frequent occurrences.
F	$\geq 80.0$	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high $v/c$ ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

<sup>1</sup> Source: *Highway Capacity Manual 6*, Chapter 19: Signalized Intersections.

**TABLE 3-2**  
**LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY)<sup>2,3</sup>**

Level of Service (LOS)	Highway Capacity Manual (HCM) Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	$\leq 10.0$	Little or no delay
B	$> 10.0$ and $\leq 15.0$	Short traffic delays
C	$> 15.0$ and $\leq 25.0$	Average traffic delays
D	$> 25.0$ and $\leq 35.0$	Long traffic delays
E	$> 35.0$ and $\leq 50.0$	Very long traffic delays
F	$> 50.0$	Severe congestion

<sup>2</sup> Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

<sup>3</sup> Source: *Highway Capacity Manual 6*, Chapter 21: All-Way Stop-Controlled Intersections. For approaches and intersection-wide assessment, LOS is defined solely by control delay.

## 4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations and rates to the Project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds.

Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway segments and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast Project traffic. If necessary, the need for site-specific and cumulative local area improvements can then be evaluated.

## 5.0 PROJECT TRAFFIC CHARACTERISTICS

### 5.1 Project Trip Generation Forecast

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and rates used in the traffic forecasting procedure are found in the 10<sup>th</sup> Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2017].

*Table 5-1* summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and presents the forecast daily and peak hour traffic volumes for a “typical” weekday. As shown in the upper portion of *Table 5-1*, the trip generation potential for the proposed Project was estimated using the ITE Land Use 150: Warehousing trip rates. The upper portion of *Table 5-1* summarizes the trip generation rates used in forecasting the vehicular trips generated by the Project. The middle portion of *Table 2* summarizes the trip generation potential used in forecasting the vehicular trips, both autos and trucks, generated by the Project using recommended factors published in the *Truck Trip Generation Study – City of Fontana, August 2003*. Consistent with standard traffic engineering practice, passenger car equivalent (PCE) factors have been utilized due to the expected heavy truck component of the Project uses. A PCE factor of 1.5, 2.0, and 3.0 has been applied to large 2-axle, 3-axle, and 4+-axle trucks, respectively.

Review of the lower portion of *Table 5-1* shows that the proposed Project is forecast to generate 187 daily trips (one half arriving, one half departing), with 41 trips (33 inbound, 8 outbound) produced in the AM peak hour and 46 trips (13 inbound, 33 outbound) produced in the PM peak hour. It should be noted that these estimates include the conversion of truck-related trips to passenger car equivalents (PCE).

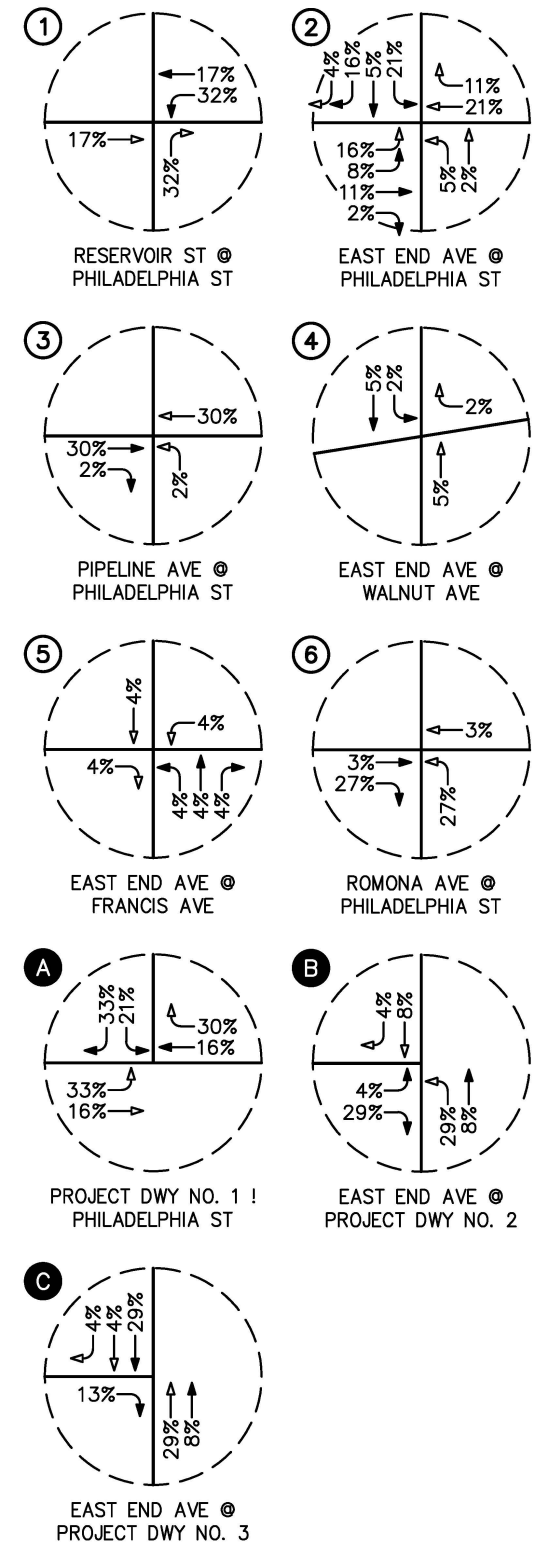
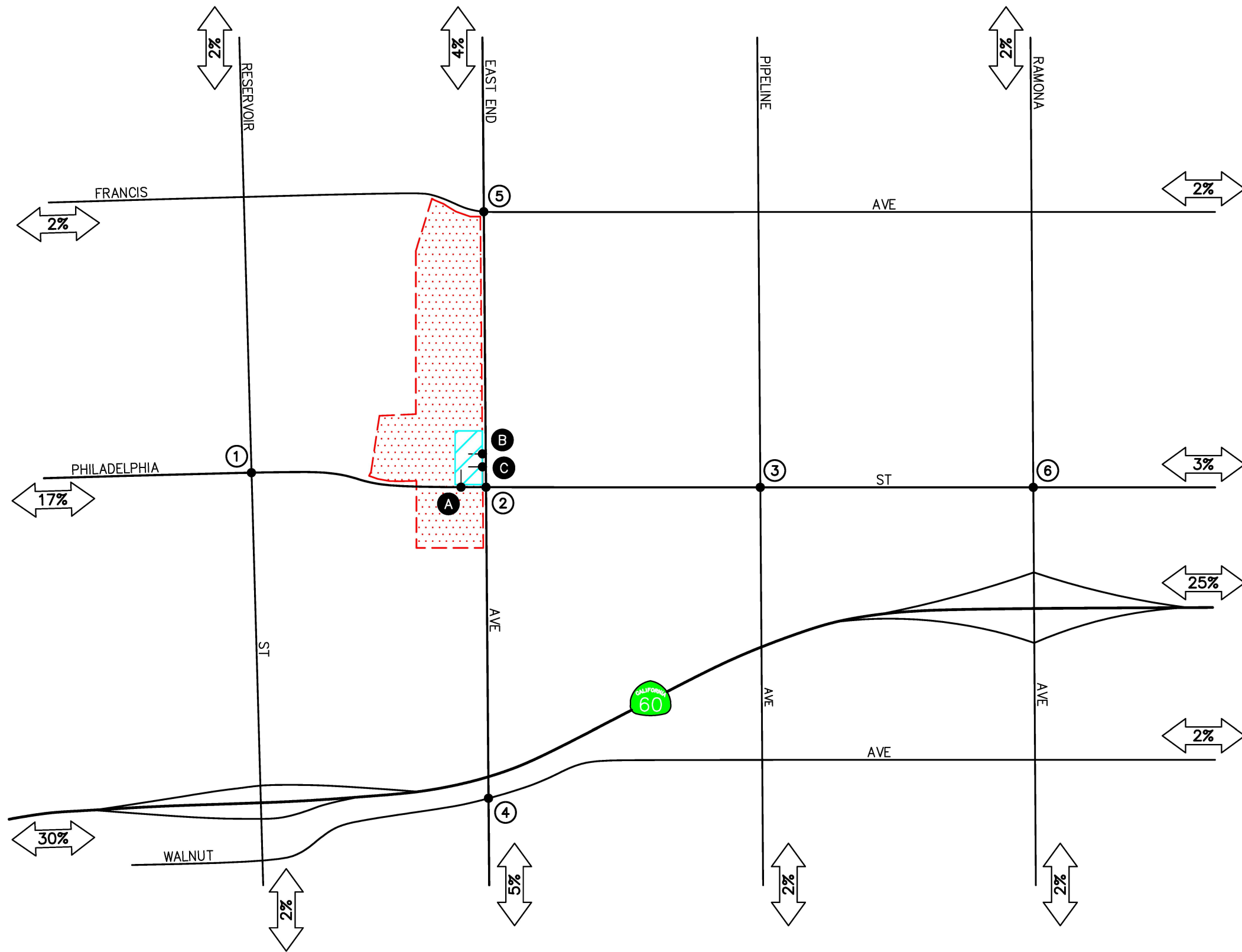
### 5.2 Project Trip Distribution and Assignment

The Project directional trip distribution pattern for passenger cars (employees) and truck components for the Project are presented in *Figures 5-1* and *5-2*, respectively. Project traffic volumes, both entering and existing the site, have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. SR-71 and SR-60 Freeway, etc.),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals,
- the traffic-carrying capacity and travel speed available on roadways serving the Project site, and
- ingress/egress availability at the Project site.

The Project trip distribution patterns were submitted to the City staff for their review and approval prior to proceeding with further analyses.

The anticipated AM and PM peak hour Project traffic volumes at the six (6) key study intersections are presented in **Figures 5-2** and **5-3**, respectively. The traffic volume assignment presented in the above-mentioned figures reflect the Project trip distribution characteristics shown in *Figures 5-1* and *5-2* and the Project trip generation forecast presented in the *Table 5-1*.

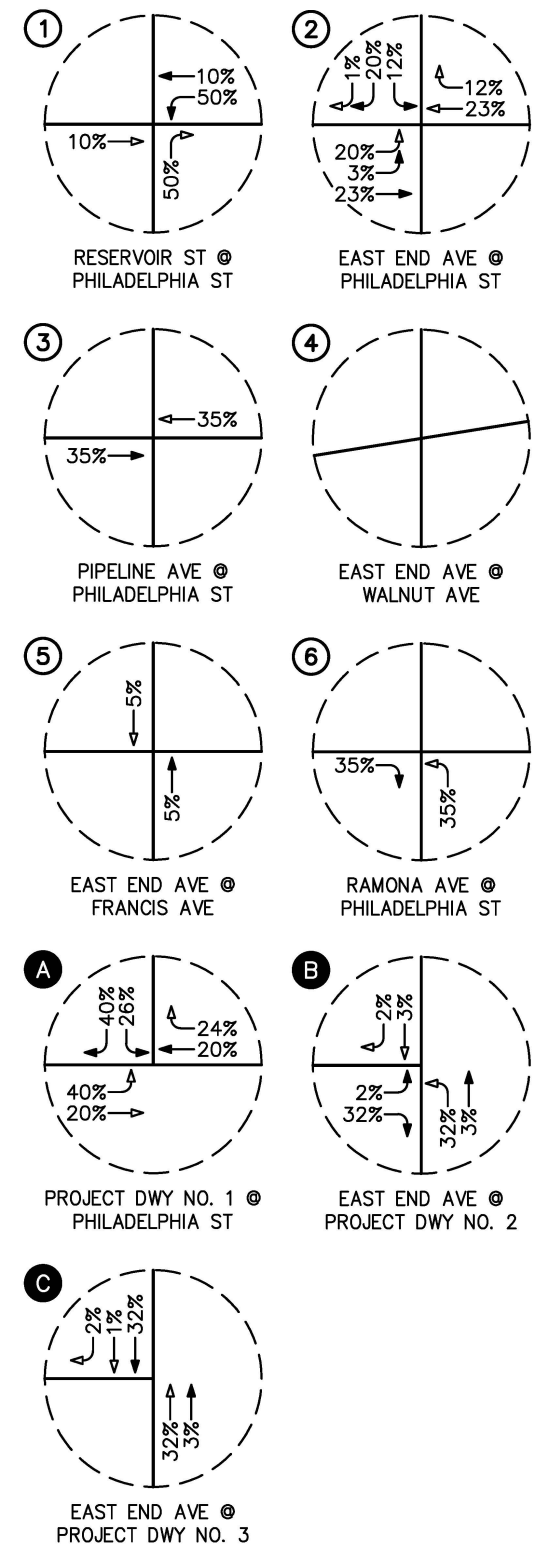
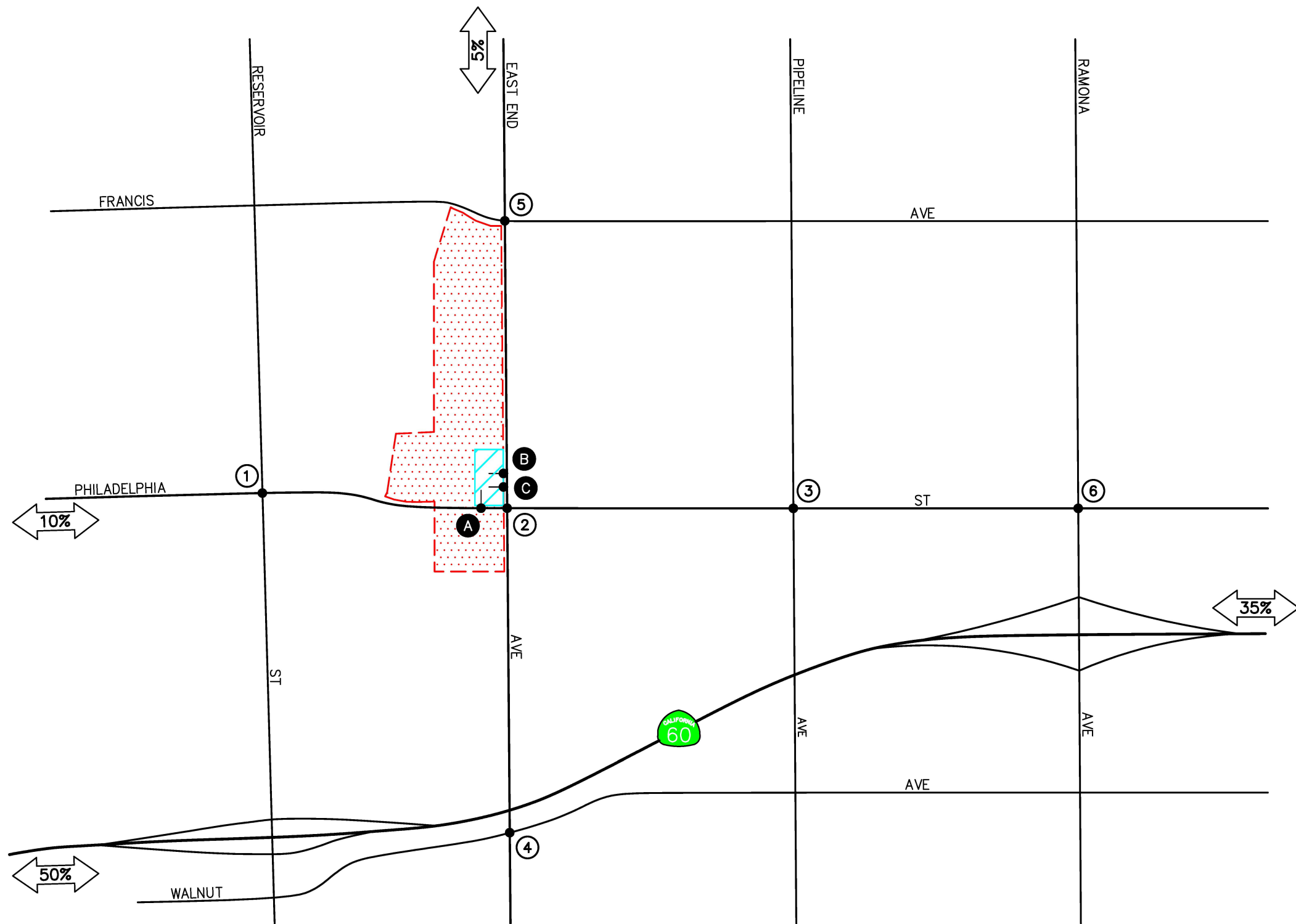


- KEY**
- ⊕ = STUDY INTERSECTION
  - ↑ = INBOUND PERCENTAGE
  - ↓ = OUTBOUND PERCENTAGE
  - ▨ = PROJECT SITE
  - ⋯ = ANNEXATION AREA

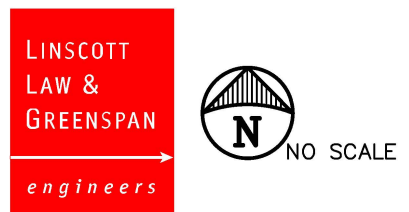
LINSCOTT  
LAW &  
GREENSPAN  
engineers

NO SCALE

**FIGURE 5-1**  
**PROJECT DISTRIBUTION PATTERN – EMPLOYEES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



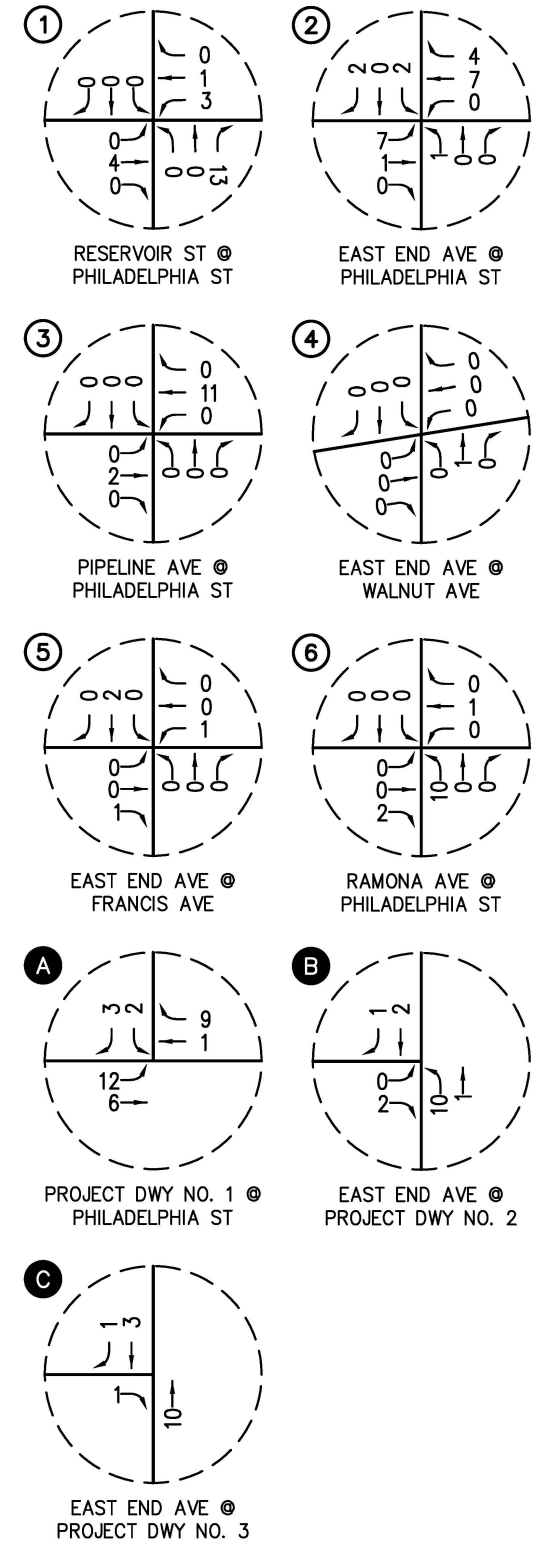
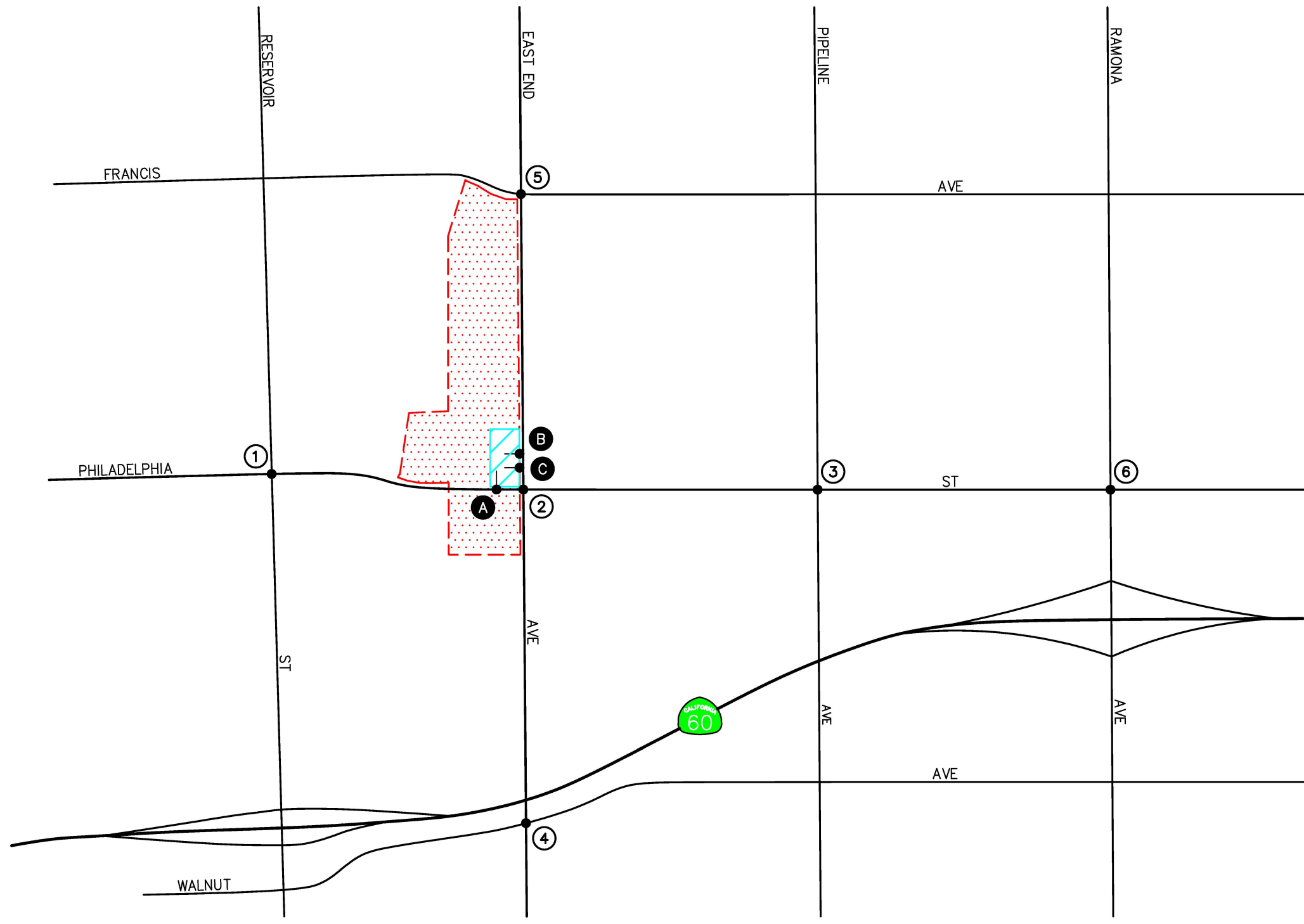
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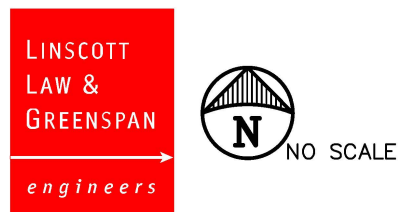
**KEY**

- ⊕ = STUDY INTERSECTION
- ← = INBOUND PERCENTAGE
- = OUTBOUND PERCENTAGE
- ▨ = PROJECT SITE
- ▤ = ANNEXATION AREA

**FIGURE 5-2**  
**PROJECT DISTRIBUTION PATTERN - TRUCKS**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



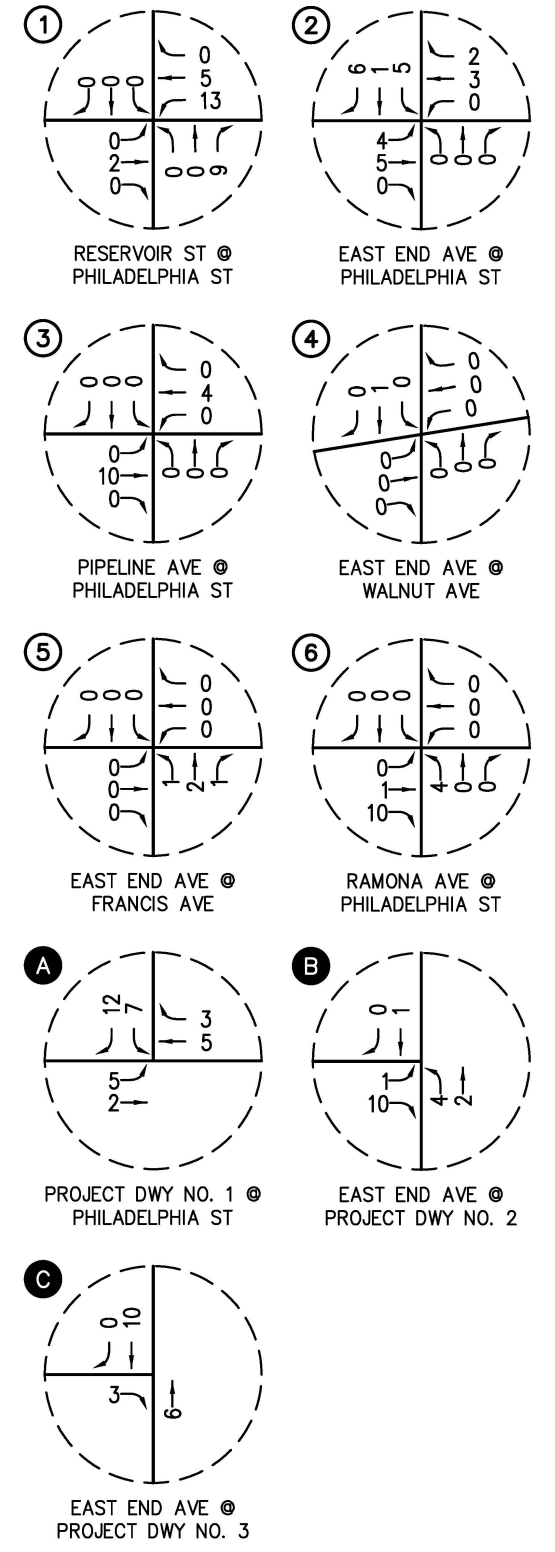
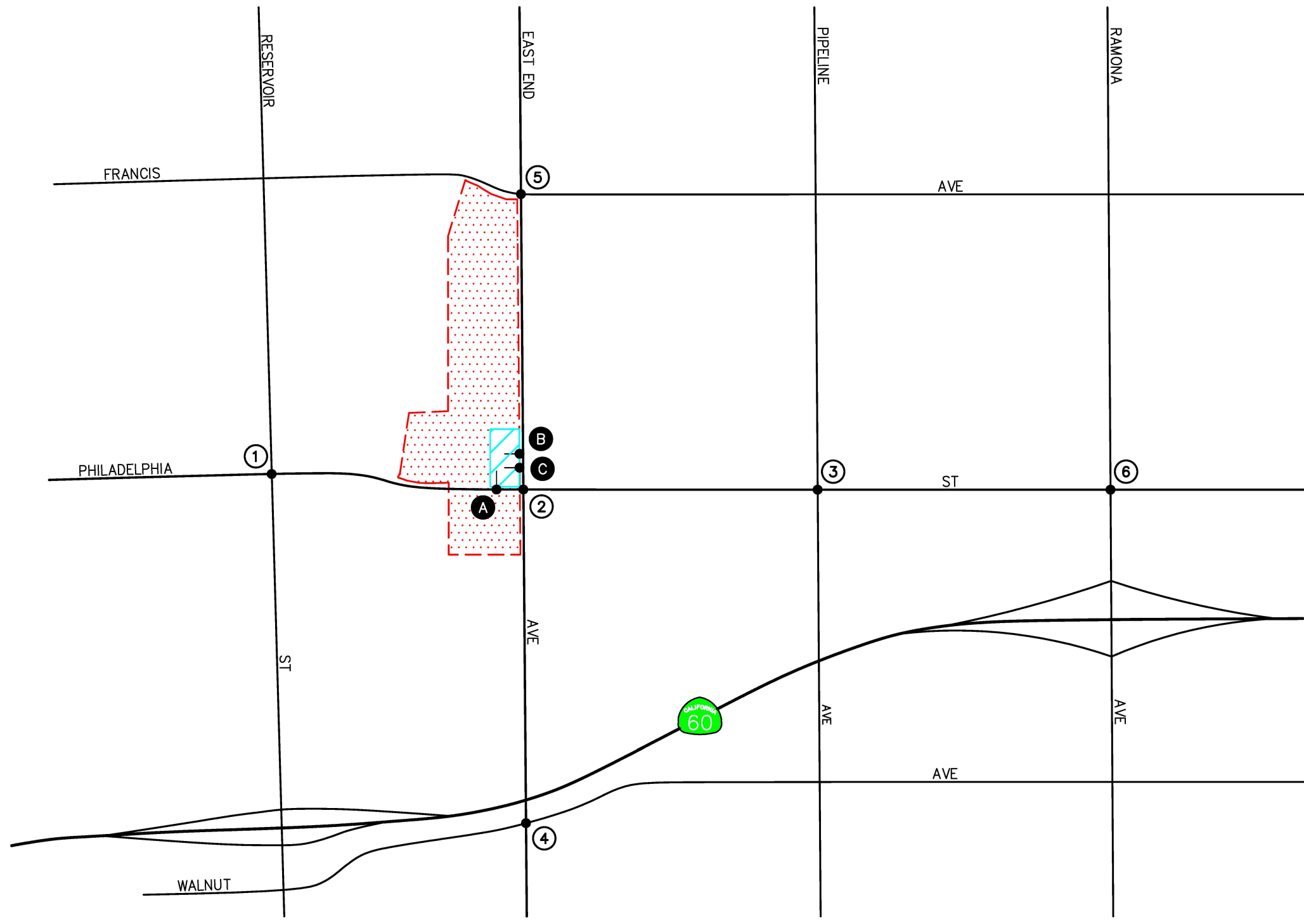
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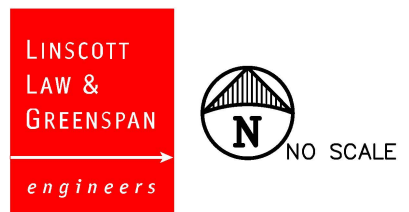
**KEY**  
 Ⓜ = STUDY INTERSECTION  
 ▨ = PROJECT SITE  
 ▤ = ANNEXATION AREA

**FIGURE 5-3**

**AM PEAK HOUR PROJECT TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



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**KEY**  
 Ⓜ = STUDY INTERSECTION  
 [Hatched] = PROJECT SITE  
 [Dotted] = ANNEXATION AREA

**FIGURE 5-4**

**PM PEAK HOUR PROJECT TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

**TABLE 5-1  
PROJECT TRIP GENERATION RATES AND FORECAST<sup>4</sup>**

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
<b><u>Trip Generation Factors:</u></b>							
▪ 150: Warehousing (TE/TSF) <sup>5</sup>	<b>2.29</b>	<b>0.39</b>	<b>0.12</b>	<b>0.51</b>	<b>0.15</b>	<b>0.40</b>	<b>0.55</b>
□ Passenger Cars – 80.3% of Daily (TE/TSF)	1.84	0.31	0.10	0.41	0.12	0.32	0.44
□ 2-Axle Trucks – 5.2% Daily (TE/TSF)	0.12	0.03	0.00	0.03	0.01	0.02	0.03
□ 3-Axle Trucks- 4.5% Daily (TE/TSF)	0.10	0.01	0.01	0.02	0.00	0.02	0.02
□ 4+ Axle Trucks – 10.0% Daily (TE/TSF)	0.23	0.04	0.01	0.05	0.02	0.04	0.06
<b><u>Warehousing Trip Generation Forecast:</u></b>							
<b>150: Warehousing (64,500 SF)</b>	<b>147</b>	<b>25</b>	<b>8</b>	<b>33</b>	<b>10</b>	<b>26</b>	<b>36</b>
□ Passenger Cars	118	19	8	27	8	21	29
□ 2-Axle Trucks	8	2	0	2	1	1	2
□ 3-Axle Trucks	6	1	0	1	0	1	1
□ 4+ Axle Trucks	<u>15</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>1</u>	<u>3</u>	<u>4</u>
<b>Warehousing Gross Trip Generation Forecast</b>	<b>147</b>	<b>25</b>	<b>8</b>	<b>33</b>	<b>10</b>	<b>26</b>	<b>36</b>
<b><u>PCE<sup>6</sup> Warehousing Trip Generation Forecast:</u></b>							
<b>150: Warehousing (64,500 SF)</b>							
□ Passenger Cars	118	19	8	27	8	21	29
□ 2-Axle Trucks	12	3	0	3	2	1	3
□ 3-Axle Trucks	12	2	0	2	0	2	2
□ 4+ Axle Trucks	<u>45</u>	<u>9</u>	<u>0</u>	<u>9</u>	<u>3</u>	<u>9</u>	<u>12</u>
<b>PCE Warehousing Trip Generation Forecast</b>	<b>187</b>	<b>33</b>	<b>8</b>	<b>41</b>	<b>13</b>	<b>33</b>	<b>46</b>

**Notes:**

- TE/TSF = Trip Ends per Thousand Square Feet

<sup>4</sup> Source: *Trip Generation*, 10<sup>th</sup> Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

<sup>5</sup> All 2-axle, 3-axle and 4+axles trucks converted to passenger car equivalents using a factor of 1.5 vehicles per truck, 2.0 vehicles per truck and 3.0 vehicles per truck, respectively.

<sup>6</sup> Trip Generation rates based on the following equations:

- Daily:  $T = 1.58*(X) + 45.54$
- AM Peak Hour:  $T = 0.12*(X) + 25.32$
- PM Peak Hour:  $T = 0.12*(X) + 27.82$

## 6.0 FUTURE TRAFFIC CONDITIONS

### 6.1 Existing With Project Traffic Volumes

The estimates of Project generated traffic volumes were added to the Existing traffic conditions to develop traffic projections for the Existing With Project traffic conditions. *Figures 6-1* and *6-2* present the anticipated AM and PM peak hour Existing With Project traffic volumes, respectively, at the four (4) key study intersections.

### 6.2 Year 2022 Without Project Traffic Volumes

#### 6.2.1 Ambient Growth Traffic

Near-term horizon year, traffic growth estimates have been calculated using an ambient growth factor. The ambient growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The application of the two percent (2%) annual growth rate to baseline Year 2020 traffic volumes results in a four percent (4%) growth.

#### 6.2.2 Cumulative Projects Traffic

The City of Chino identified five (5) cumulative projects within the Project study area. Cumulative projects, as defined by Section 15355 of the CEQA Guidelines, are “closely related past, present and reasonably foreseeable probable future projects”. The Traffic Impact Analysis assumes that these cumulative projects will be developed and operational when the proposed Project is operational. This is the most conservative, worst-case approach since the exact timing of each related project is uncertain. In addition, impacts for these cumulative projects would likely be, or have been, subject to mitigation measures, which could reduce potential impacts. Under this analysis, however, those mitigation measures are not considered. The locations of these cumulative projects are presented in *Figure 6-3*.

*Table 6-1* presents the location, description and development totals of the cumulative projects. *Table 6-2* presents the resultant trip generation for the cumulative projects. As shown in *Table 6-2*, the cumulative projects are expected to generate 2,234 daily trips (one half arriving, one half departing) on a “typical” weekday, with 283 trips (209 inbound and 74 outbound) forecast during the AM peak hour and 198 trips (57 inbound and 141 outbound) forecast during the PM peak hour.

The anticipated AM and PM peak hour cumulative projects traffic volumes at the four (4) key study intersections are presented in *Figures 6-4* and *6-5*, respectively.

*Figures 6-6* and *6-7* present Year 2022 Without Project AM and PM peak hour traffic volumes at the four (4) key study intersections, respectively. It should be noted that the Year 2022 Without Project traffic volumes include ambient traffic growth as well as the traffic from the five (5) cumulative projects.

It should again be emphasized that because this traffic impact analysis utilizes both an ambient growth factor along with a list of cumulative projects approach to analyze cumulative impacts, this traffic impact analysis is highly conservative and would tend to overstate cumulative traffic impacts.

### **6.3 Year 2022 With Project Traffic Volumes**

The estimates of Project generated traffic volumes were added to the Year 2022 Without Project traffic conditions to develop traffic projections for the Year 2022 With Project traffic conditions. *Figures 6-8* and *6-9* present the anticipated AM and PM peak hour Year 2022 With Project traffic volumes, respectively, at the four (4) key study intersections.

### **6.4 Year 2040 Travel Demand Methodology**

The Year 2040 traffic volume forecasts were obtained through utilization of the San Bernardino Traffic Analysis Model (SBTAM) travel demand model.

#### **6.4.1 Volume Adjustment**

Using the SBTAM, Year 2040 projected traffic volumes were developed for each intersection. The model produces peak period and off-peak period volumes (6 AM – 9 AM, 9 AM – 3 PM, 3 PM – 7 PM and 7 PM – 6 AM). Before converting the model peak period link volumes to future turning movement volumes for analysis, the model volumes must be reviewed and adjusted.

The first step is to obtain the approach and departure volumes from the model for each leg of the analyzed intersections. The next step converts the model approach and departure volumes from AM and PM peak period volumes to peak hour volumes. The AM peak hour volumes are calculated by multiplying the AM peak period volumes by 38%. Similarly, the PM peak hour volumes are calculated by multiplying the PM period volumes by 28%. These are the percentages of vehicles that are assumed to occur in the peak hour of the peak period. These factors are derived from SCAG research. The next step is to determine the difference between the base year (2016) peak hour model volumes and the Year 2040 peak hour model volumes. This “difference” represents the projected growth in traffic on each approach to the Year 2040 using the SBTAM.

#### **6.4.2 B-turn Methodology**

The base year turning movement counts (Year 2020) for each intersection must be converted to approach and departure volumes for each leg of the intersection. Once the base counts are in this format, the difference between the Year 2040 model and base model are then added to the base year counts for each corresponding approach and departure volume. This step provides the adjusted volumes that will be used to determine the Year 2040 turning movement volumes. The next process in the forecasting of future turning volumes applies the B-turn methodology. The B-turn methodology is generally described in the “*National Cooperative Highway Research Program Report (NCHRP) 255: Highway Traffic Data for Urbanized Area Project Planning and Design*”, Chapter 8. The B-turn method uses the base year turning percentages (from traffic counts) and proceeds through an iterative computational technique to produce a final set of future year turning volumes. The computations involve alternatively balancing the rows (approaches) and the columns (departures) of a turning movement matrix until an acceptable convergence is obtained. Future year

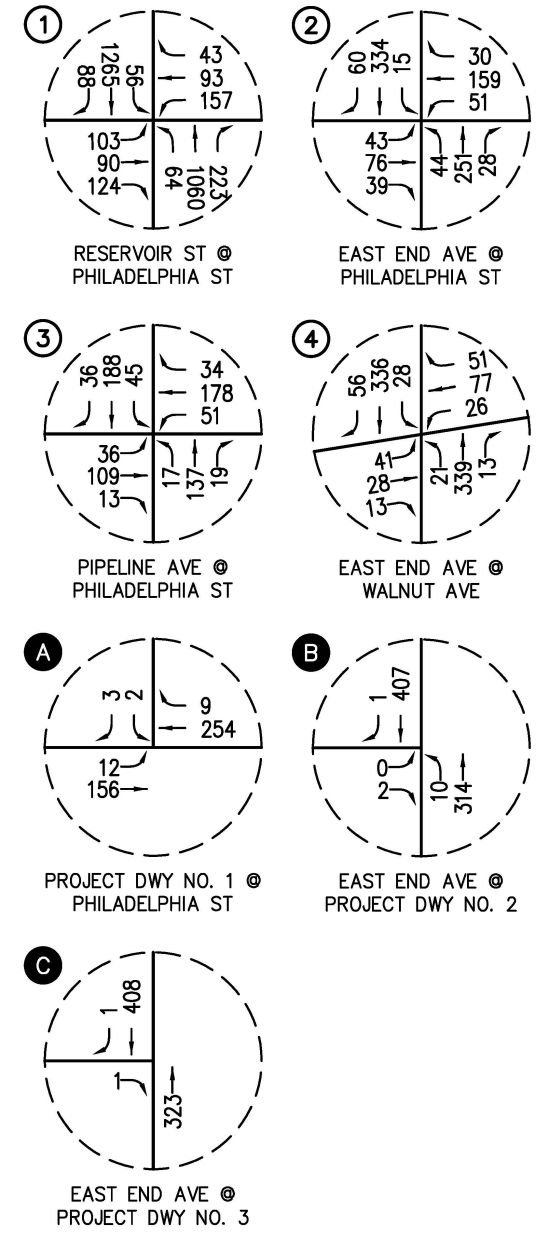
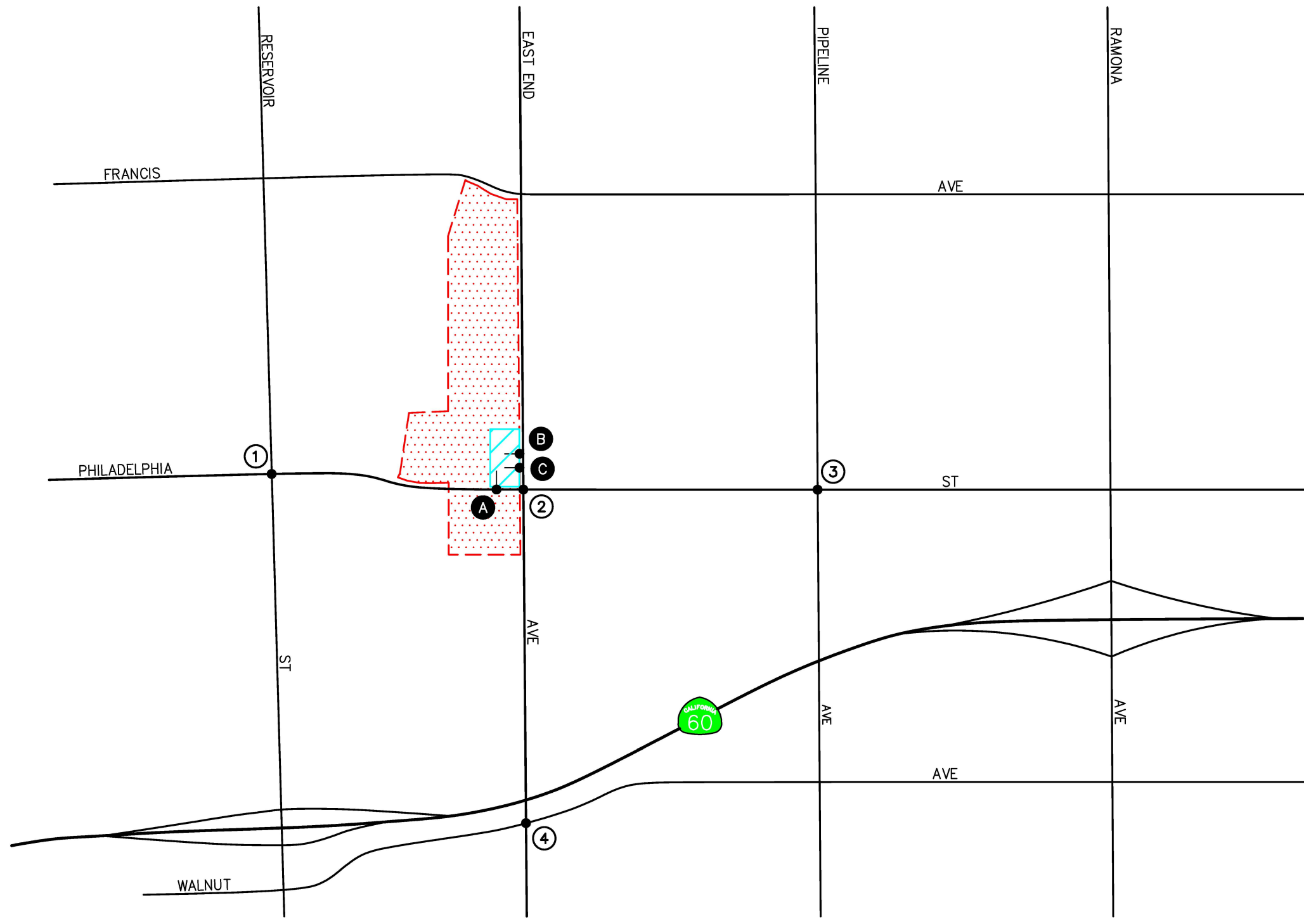
link volumes are fixed using this method and the turning movements are adjusted to match. The results must be checked for reasonableness, and manual adjustments are sometimes necessary.

Finally, it should be noted that all provided volumes are from a Citywide General Plan level model that was not specifically developed for analysis of individual intersection turning movements. Therefore each projected volume was reviewed carefully and adjustments were applied as warranted based on local conditions and professional judgment.

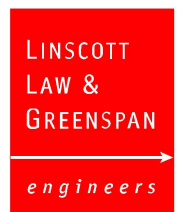
Copies of the traffic model post-processing worksheets and a detailed description of the traffic volume derivation are contained in **Appendix B**. Please note that the post-processing methodology utilized in this report is consistent with SCAG requirements.

## **6.5 Year 2040 With Project Traffic Volumes**

The estimates of Project generated traffic volumes were added to the Year 2040 Without Project traffic conditions to develop traffic projections for the Year 2040 With Project traffic conditions. **Figures 6-10** and **6-11** present the anticipated AM and PM peak hour Year 2040 With Project traffic volumes, respectively, at the six (6) key study intersections.

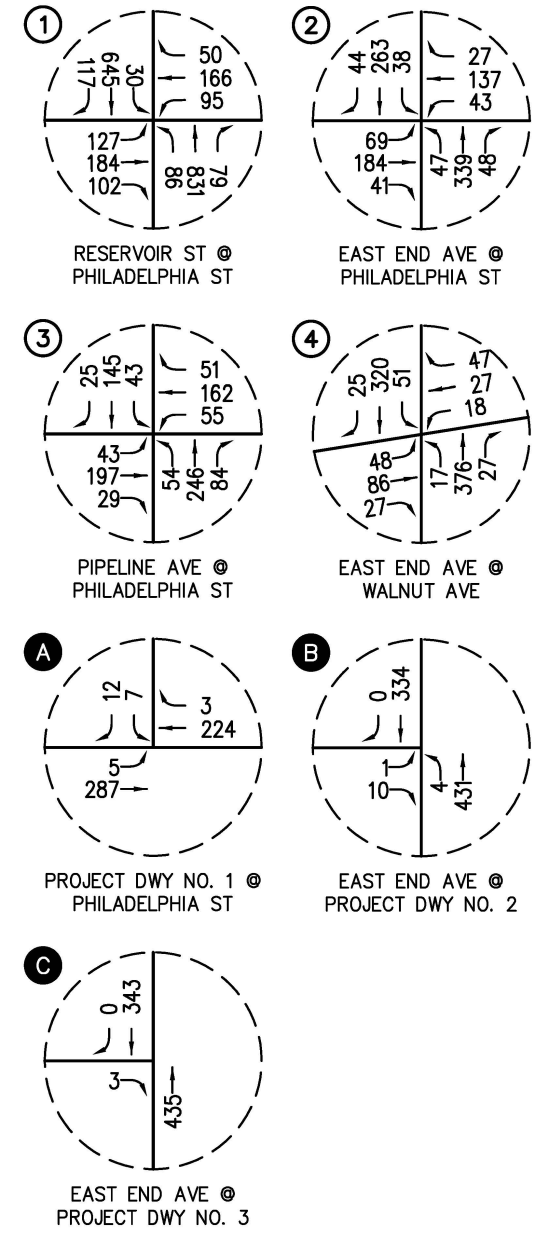
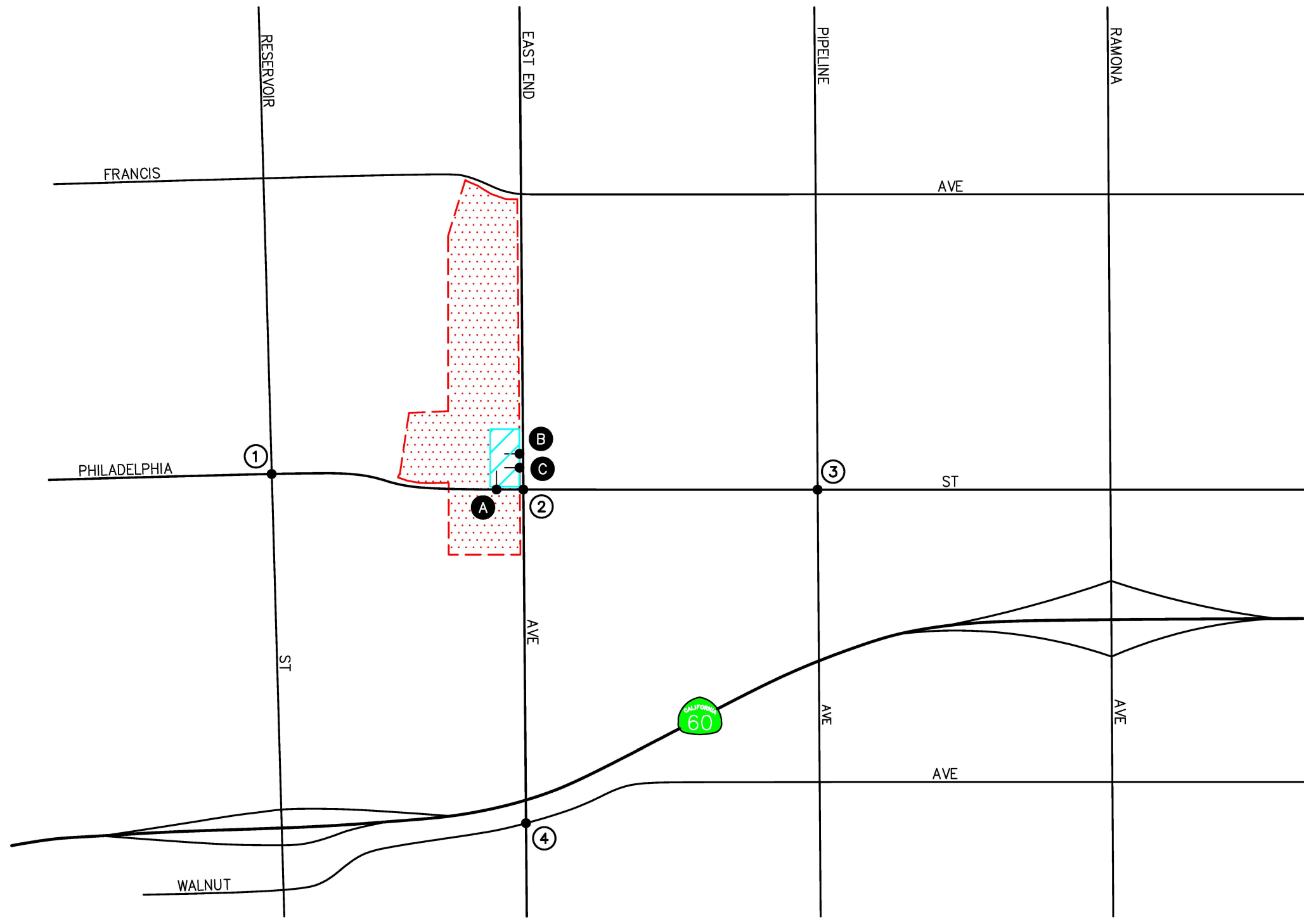


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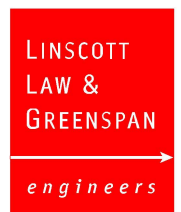


**KEY**  
 Ⓝ = STUDY INTERSECTION  
 [Blue Hatching] = PROJECT SITE  
 [Red Stippling] = ANNEXATION AREA

**FIGURE 6-1**  
**EXISTING WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

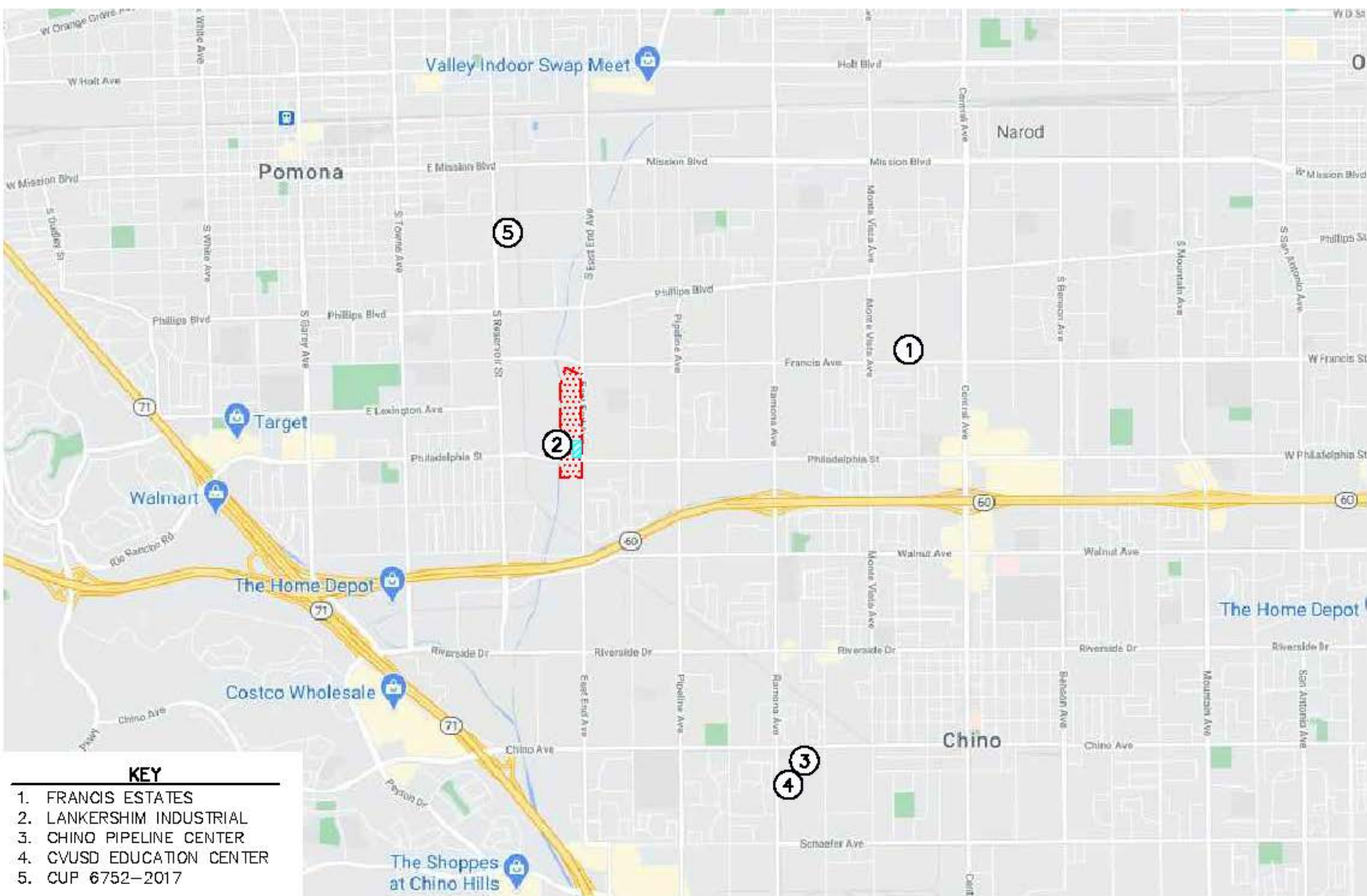


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- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 6-2**  
**EXISTING WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



- KEY**
- 1. FRANCIS ESTATES
  - 2. LANKERSHIM INDUSTRIAL
  - 3. CHINO PIPELINE CENTER
  - 4. CVUSD EDUCATION CENTER
  - 5. CUP 6752-2017

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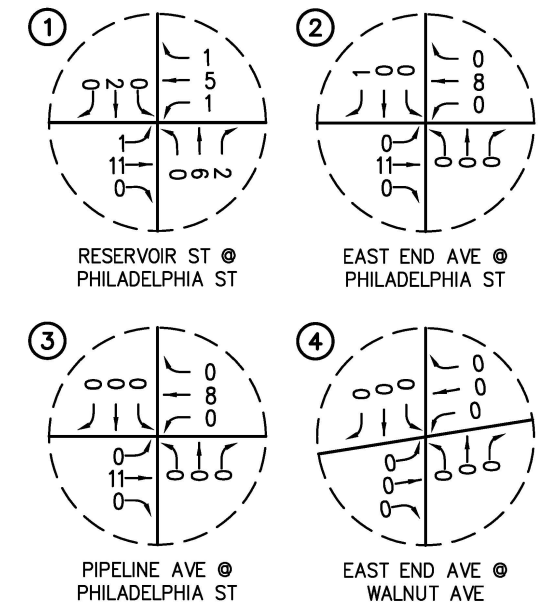
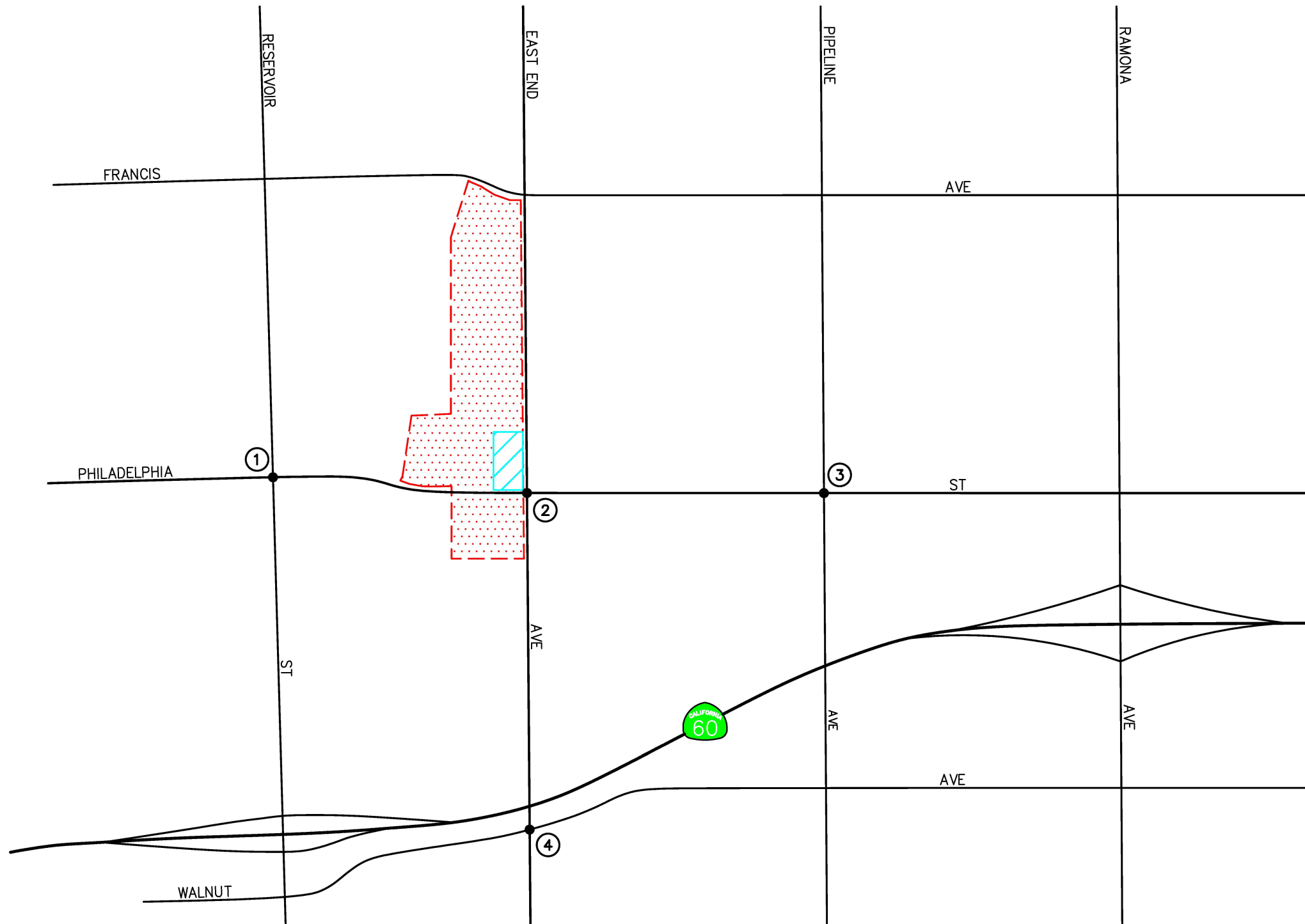
SOURCE: GOOGLE

**KEY**

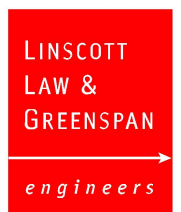
- # = CUMULATIVE PROJECT LOCATION
- [Blue hatched box] = PROJECT SITE
- [Red hatched box] = ANNEXATION AREA

**FIGURE 6-3**

**LOCATION OF CUMULATIVE PROJECTS**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



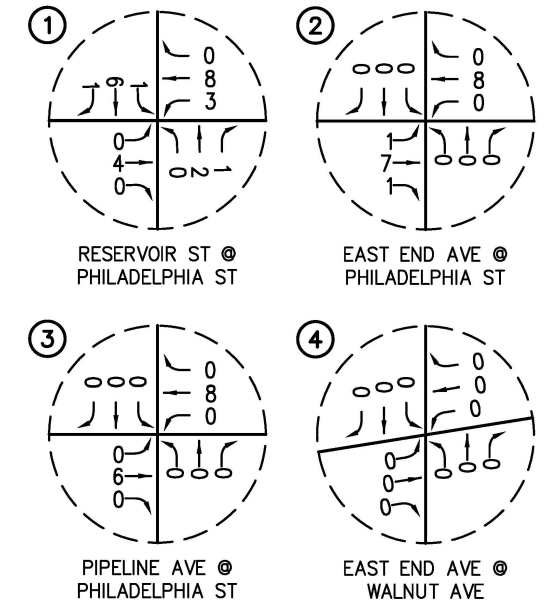
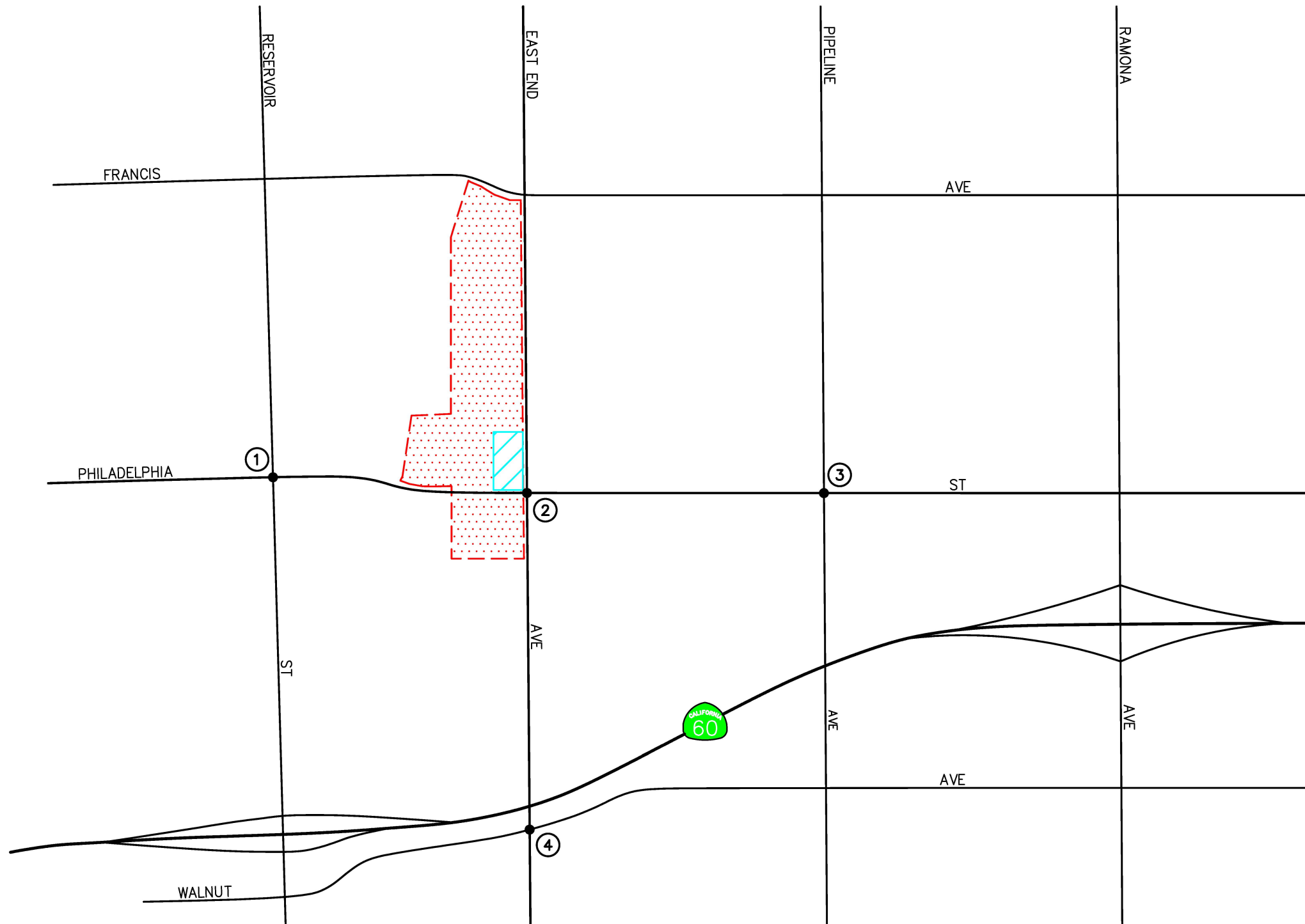
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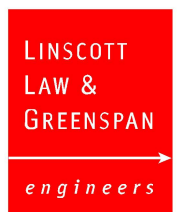
- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 6-4**

**AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



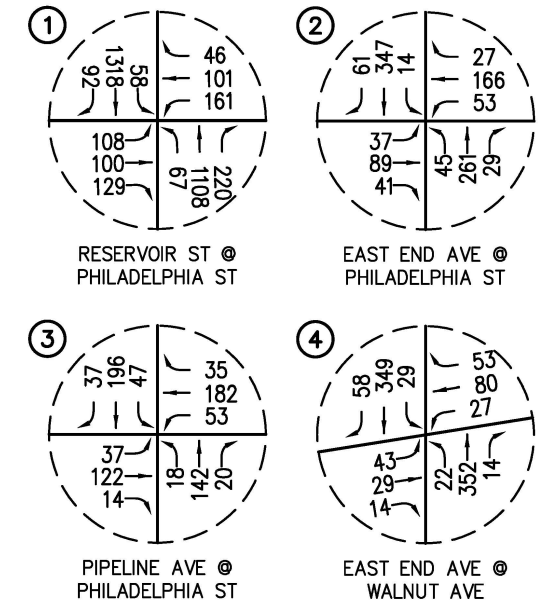
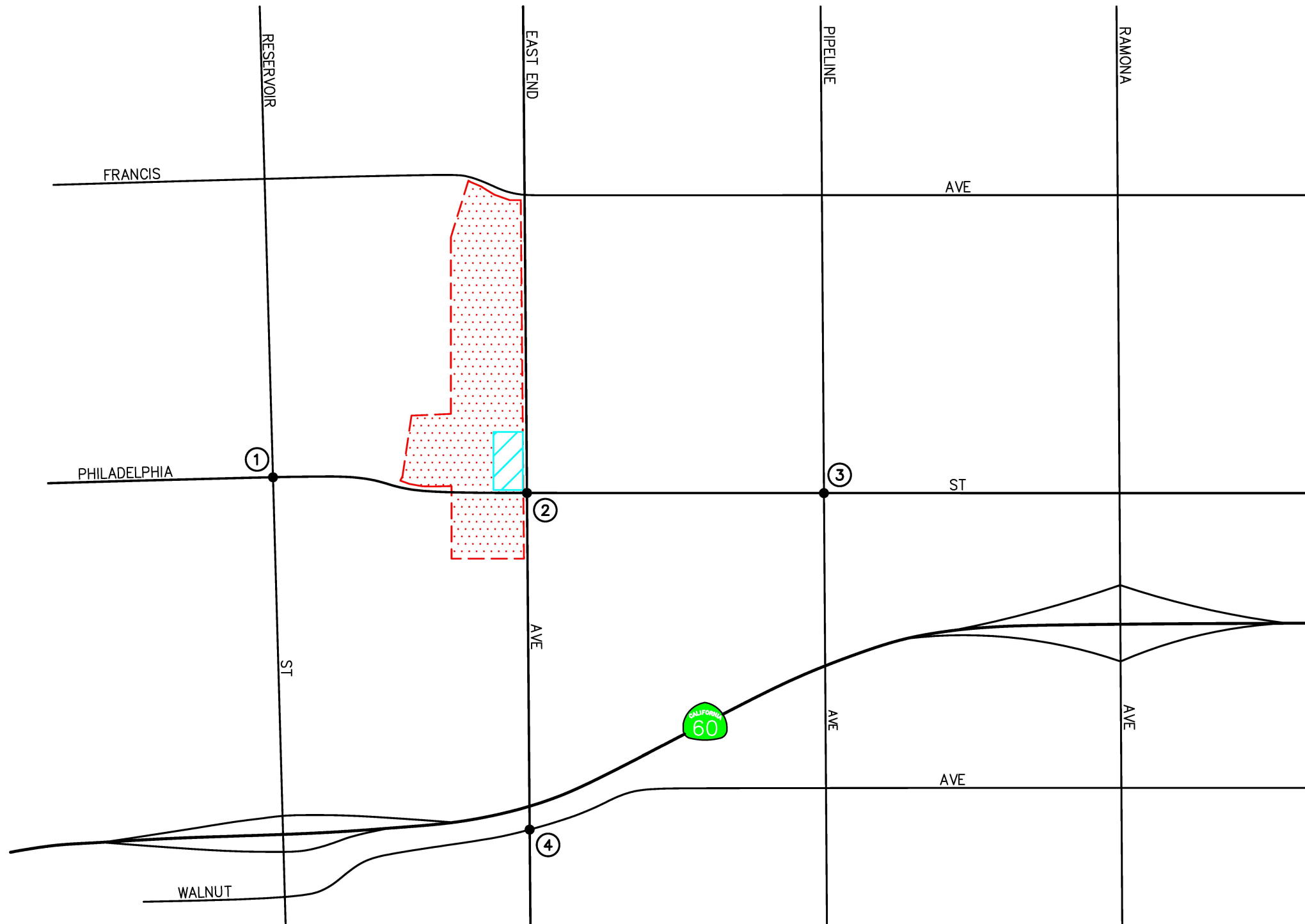
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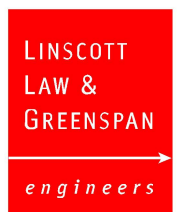
- KEY**
- ⊕ = STUDY INTERSECTION
  - ▨ = PROJECT SITE
  - ⋯ = ANNEXATION AREA

**FIGURE 6-5**

**PM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



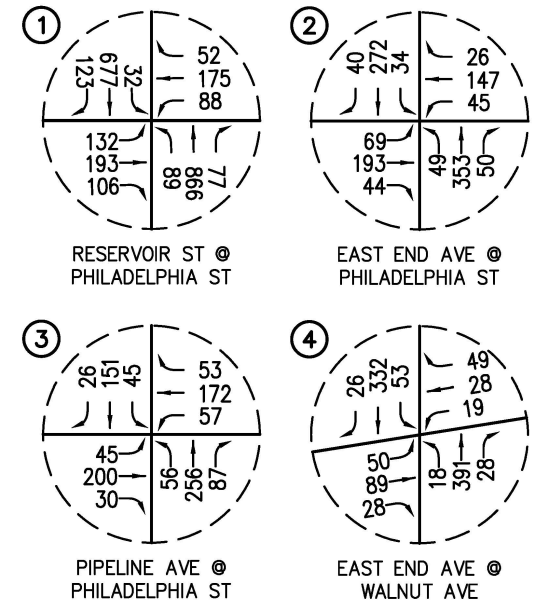
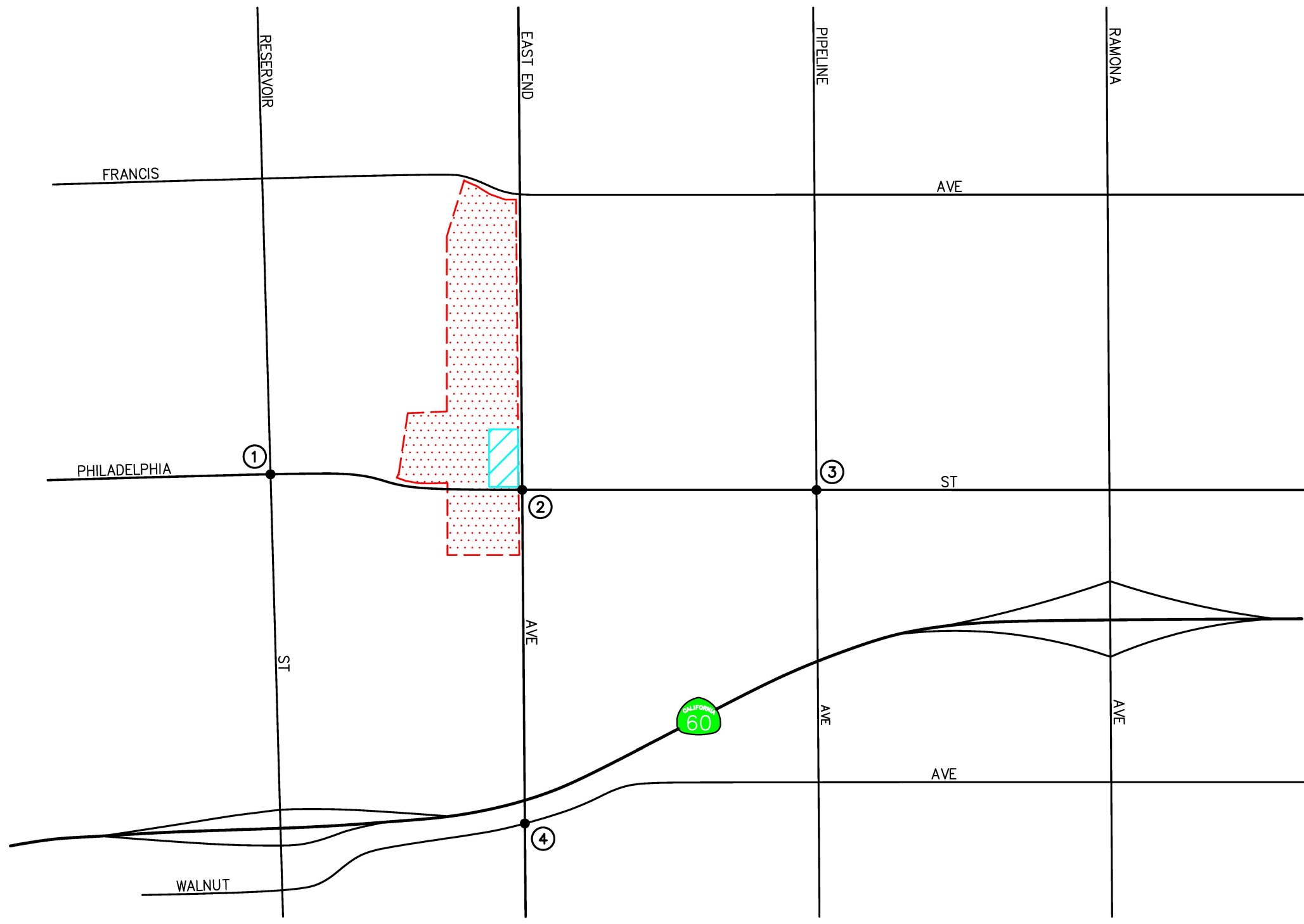
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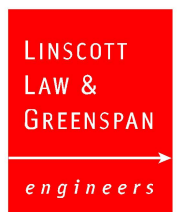
- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 6-6**

**YEAR 2022 WITHOUT PROJECT AM PEAK HOUR TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



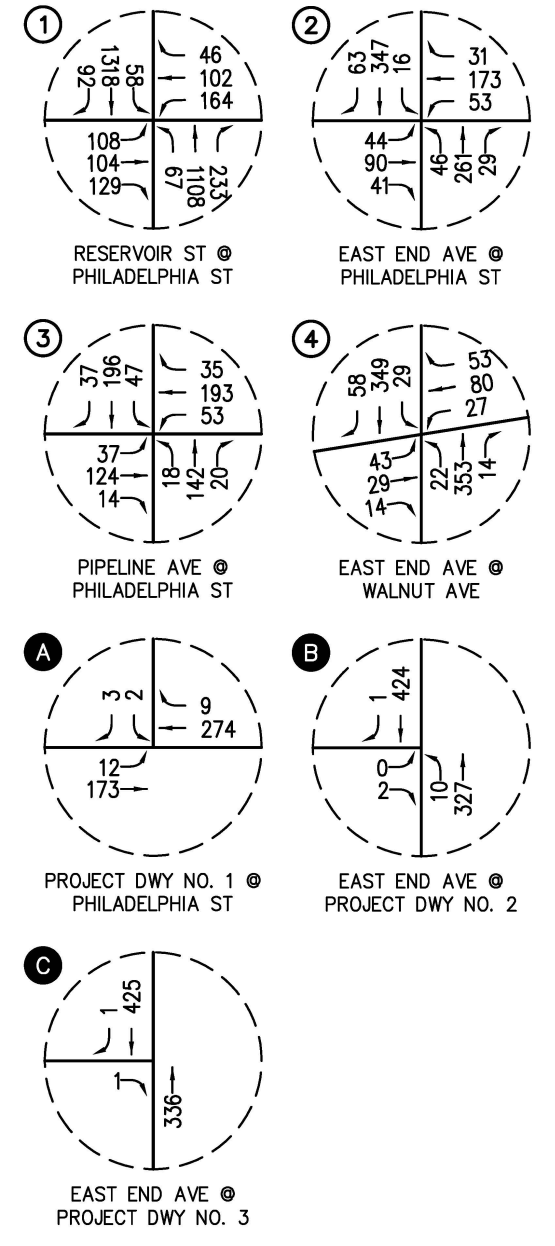
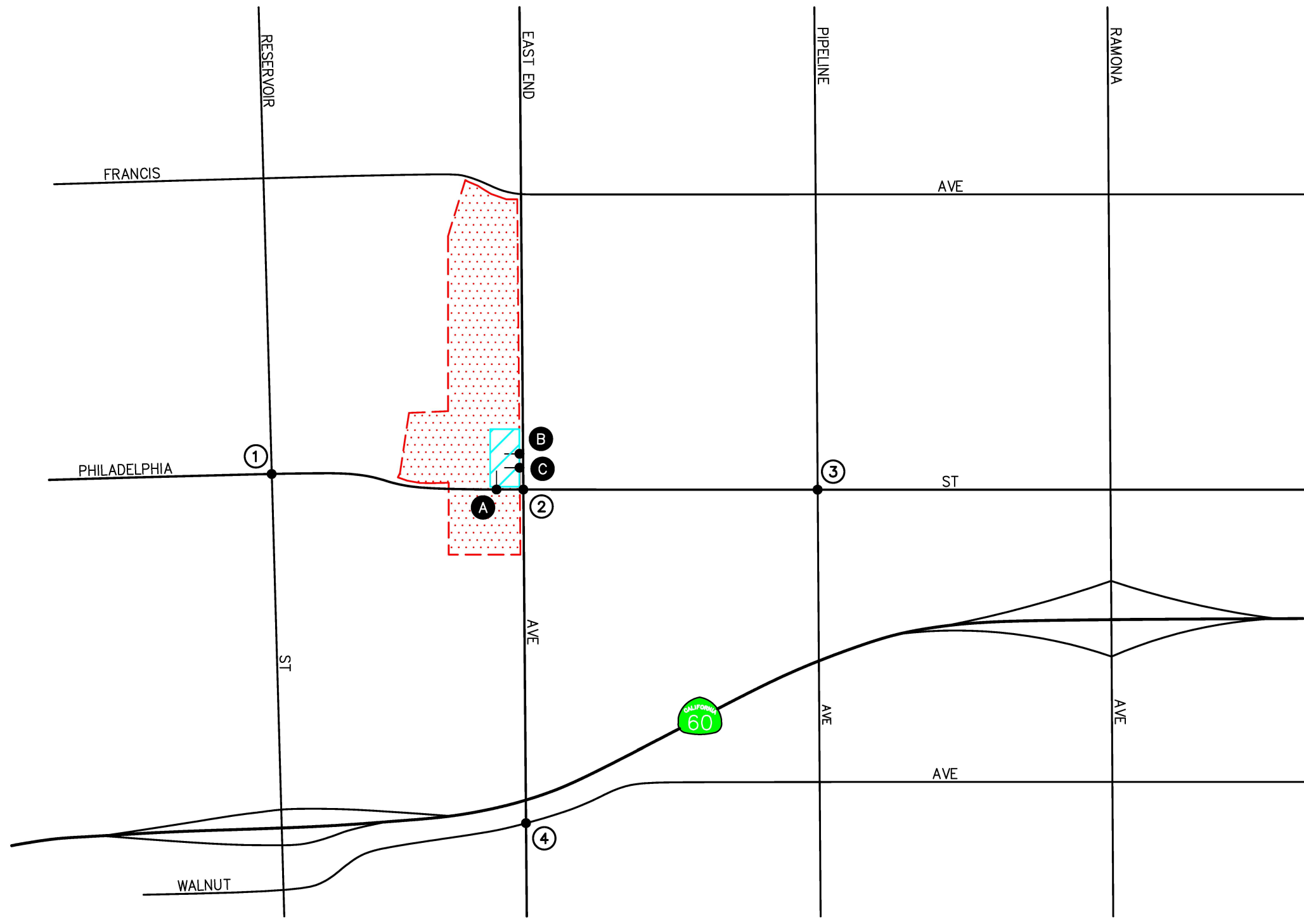
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- KEY**
- = STUDY INTERSECTION
  - = PROJECT SITE
  - = ANNEXATION AREA

**FIGURE 6-7**

**YEAR 2022 WITHOUT PROJECT PM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



**KEY**

- = STUDY INTERSECTION
- = PROJECT SITE
- = ANNEXATION AREA

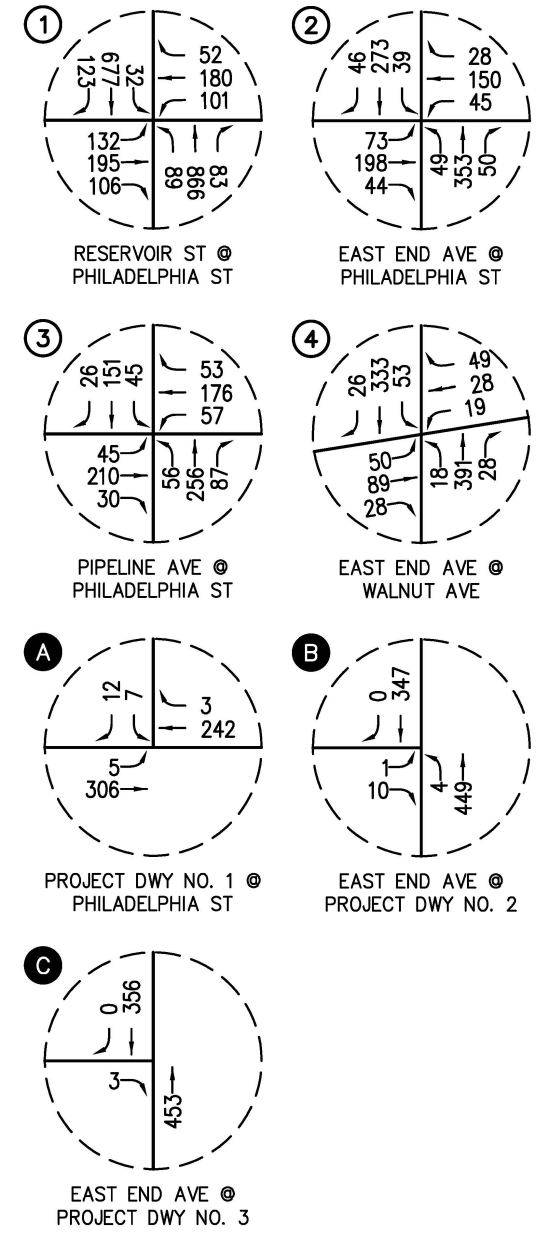
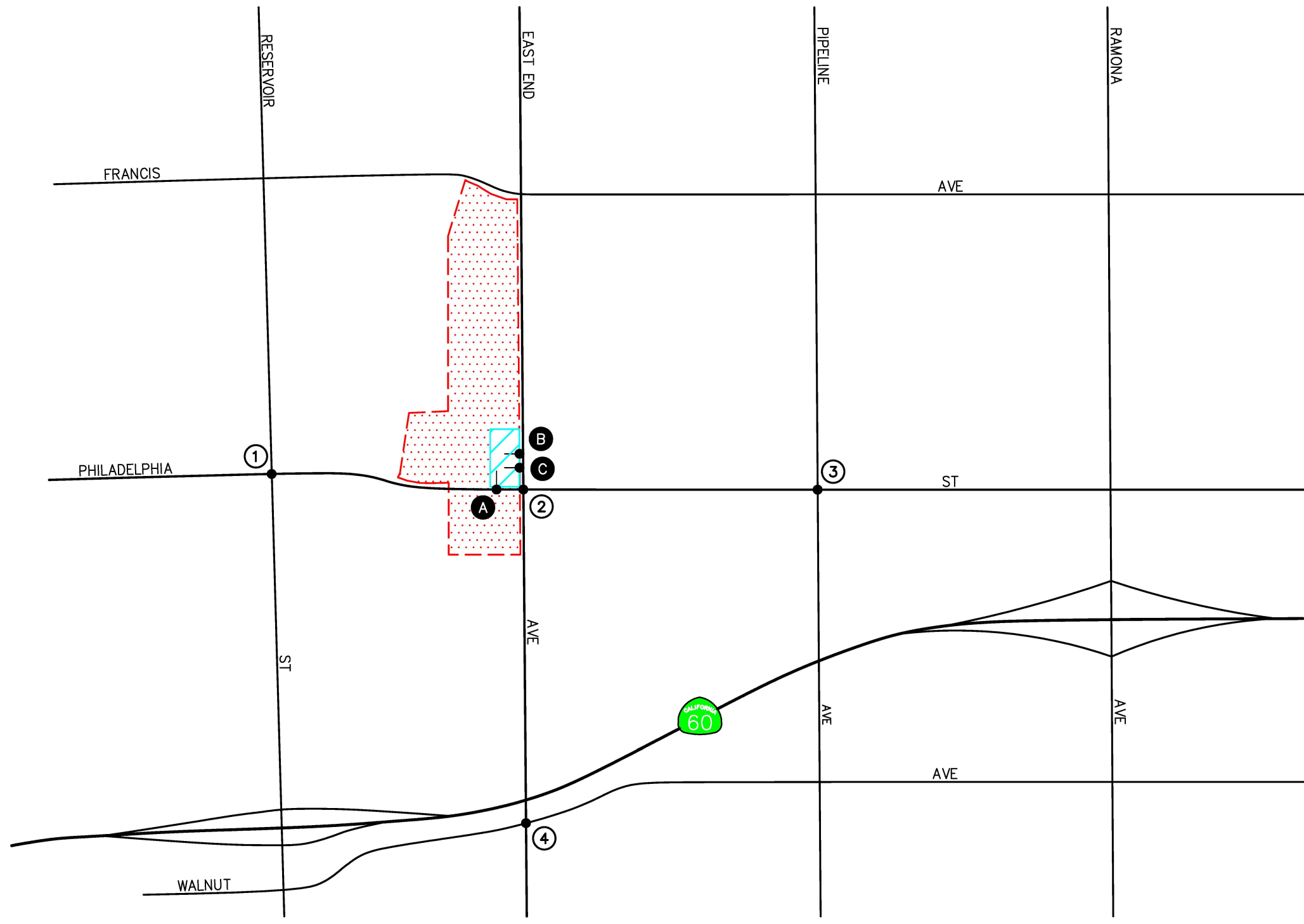
LINSCOTT  
LAW &  
GREENSPAN  
engineers

NO SCALE

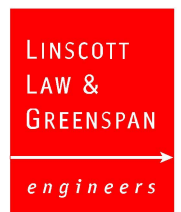
**YEAR 2022 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES**  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

**FIGURE 6-8**

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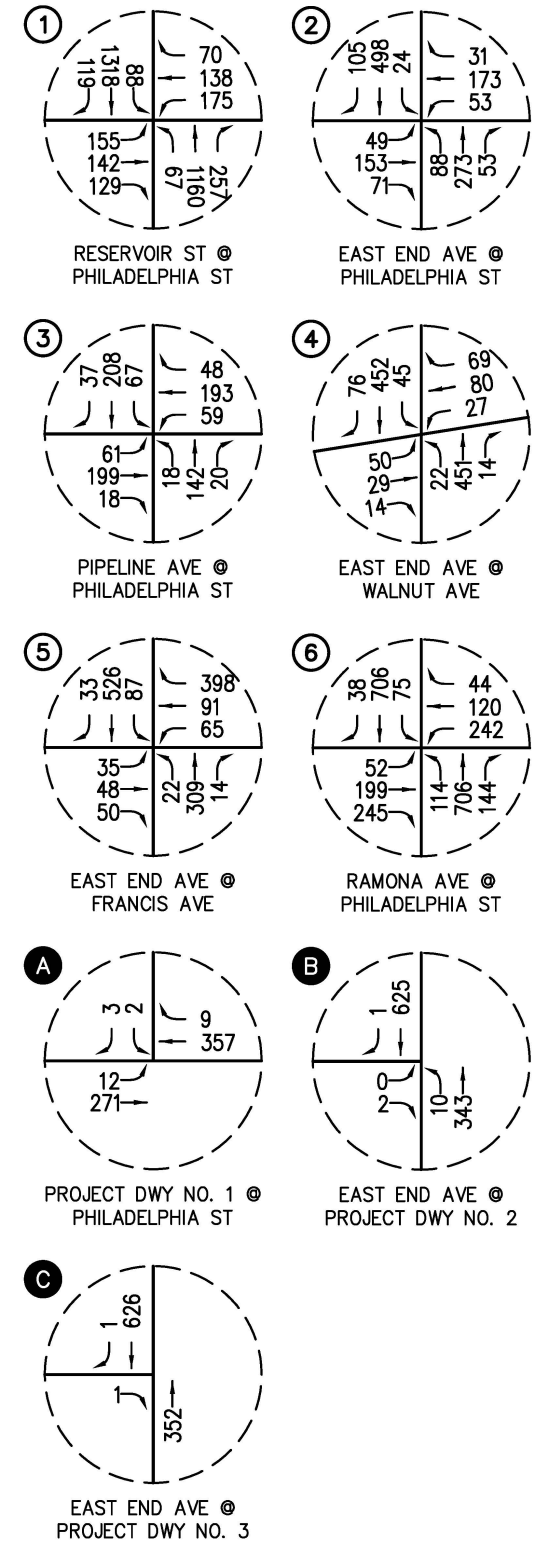
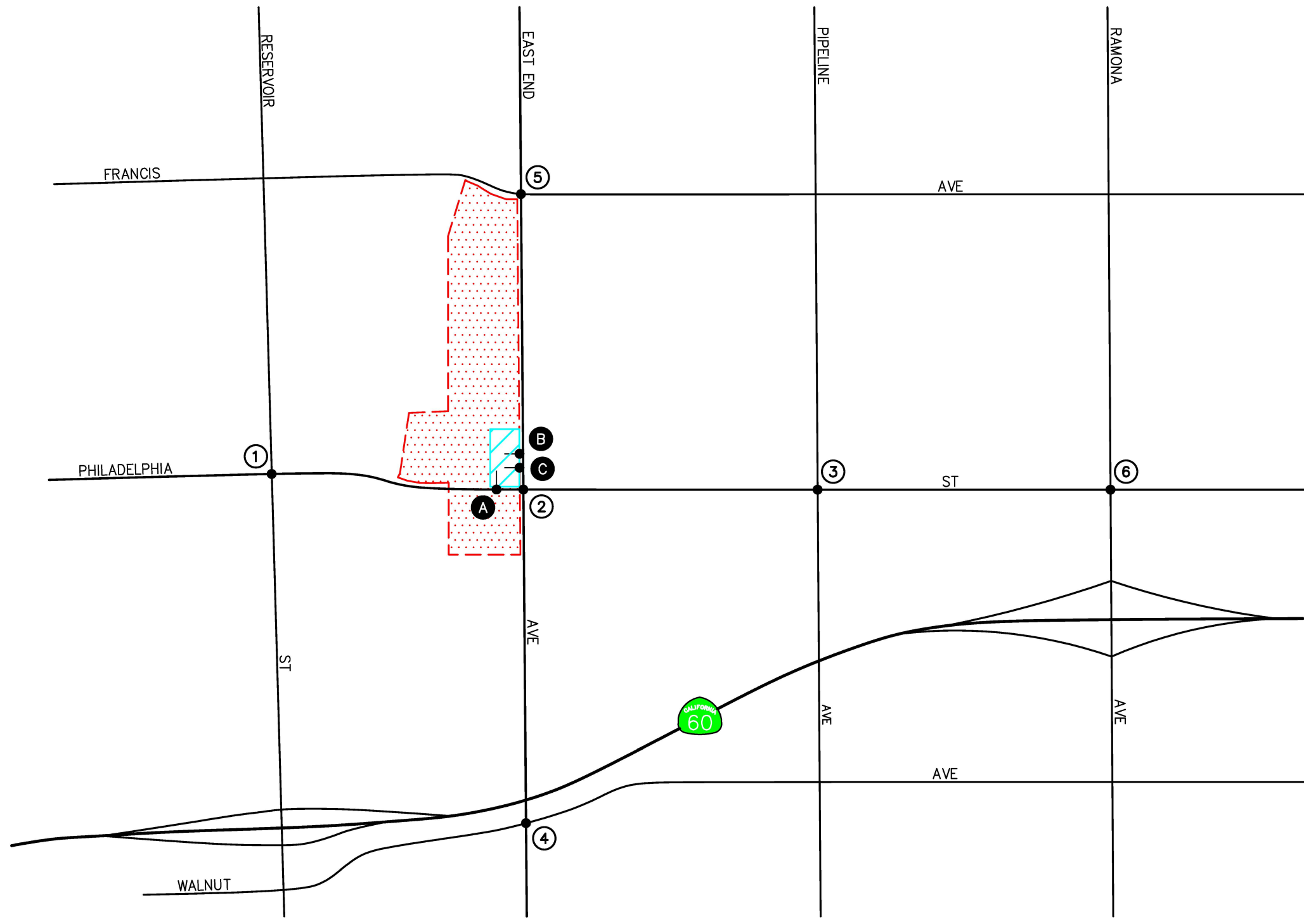


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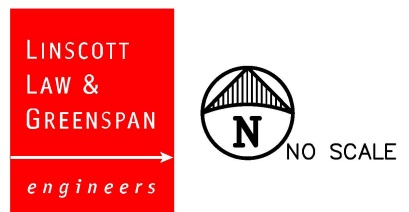


**KEY**  
 Ⓝ = STUDY INTERSECTION  
 ▨ = PROJECT SITE  
 ▨ = ANNEXATION AREA

**FIGURE 6-9**  
**YEAR 2022 WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

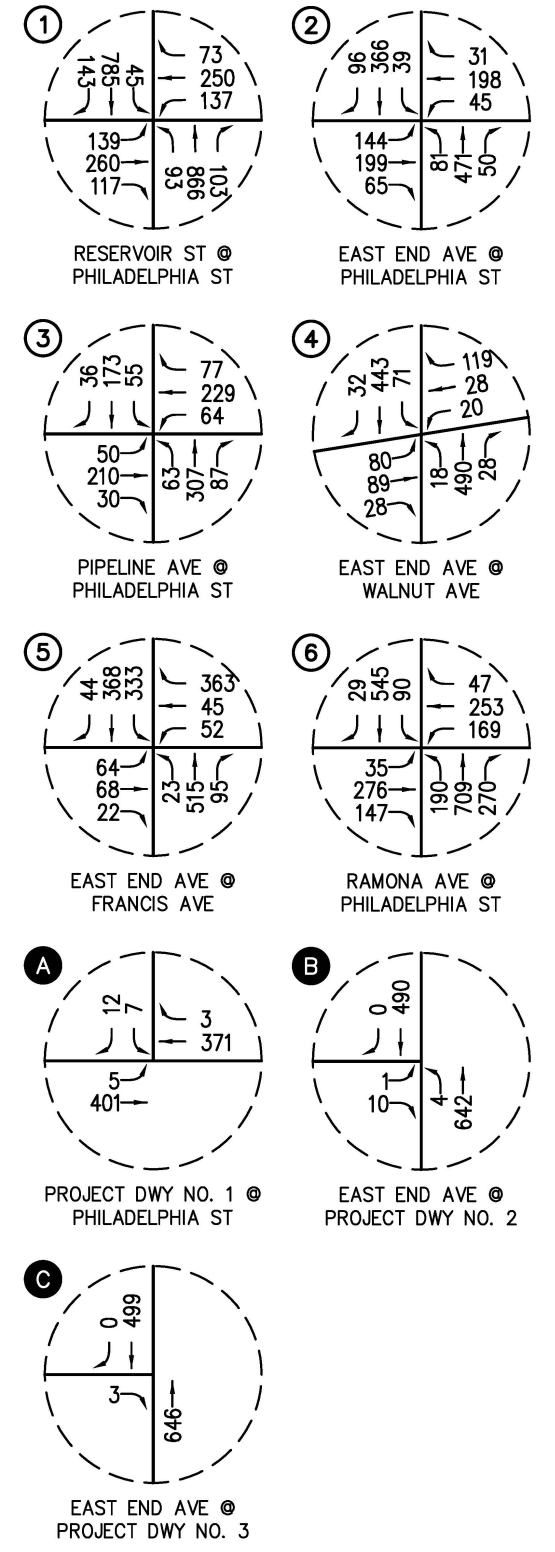
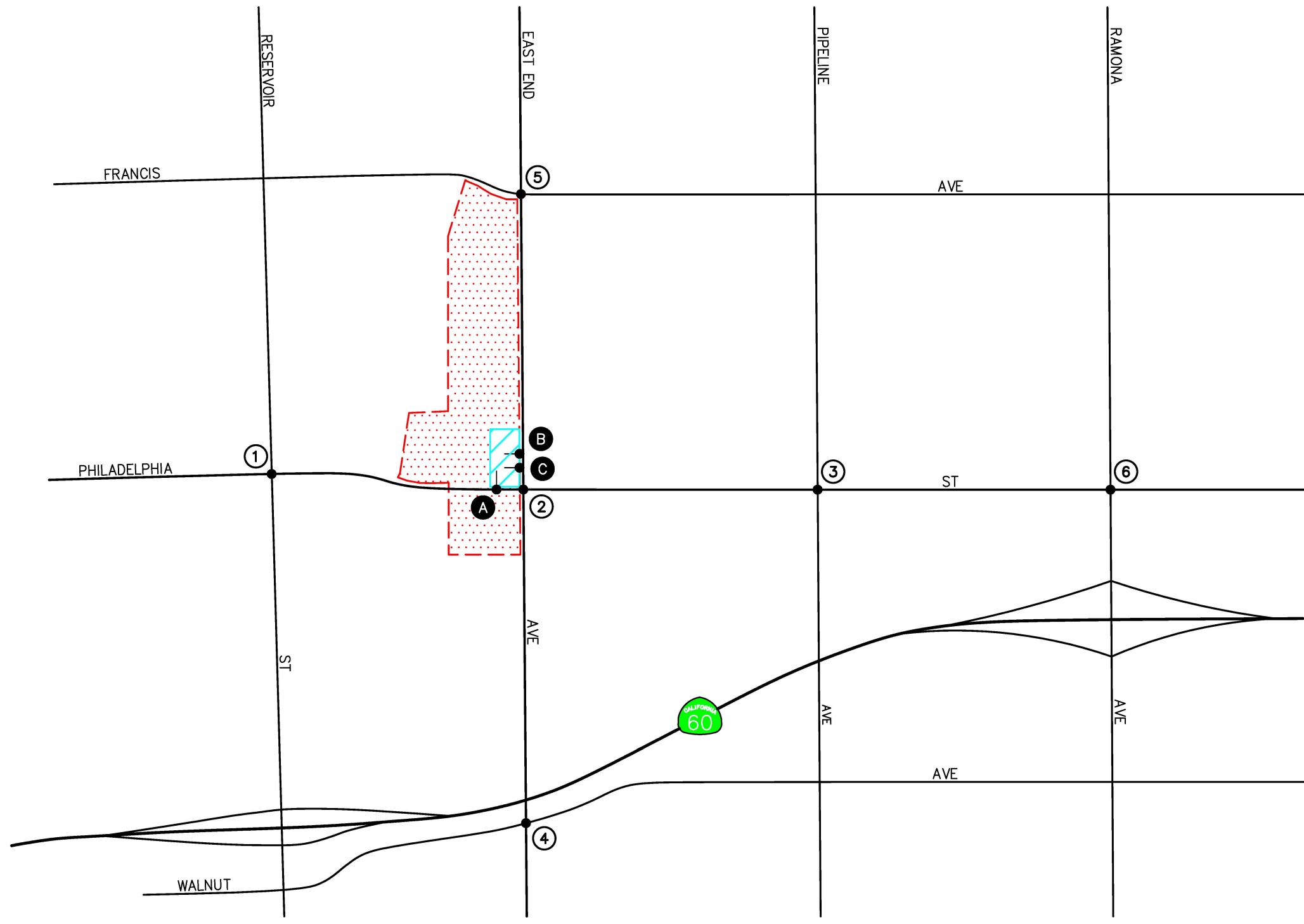


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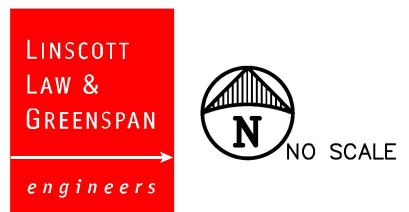


**KEY**  
 Ⓜ = STUDY INTERSECTION  
 [Hatched] = PROJECT SITE  
 [Dotted] = ANNEXATION AREA

**FIGURE 6-10**  
**YEAR 2040 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO



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**KEY**  
 Ⓜ = STUDY INTERSECTION  
 [Hatched] = PROJECT SITE  
 [Dotted] = ANNEXATION AREA

**FIGURE 6-11**

**YEAR 2040 WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES**  
 PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

**TABLE 6-1**  
**LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS**

No.	Cumulative Project	Location/Address	Description
<i>City of Chino</i>			
1.	Francis Estates	5084 Francis Avenue	15 DU Single Family Detached
2.	Lankershim Industrial	Philadelphia/East End	55,500 SF Warehousing
3.	Chino Pipeline Center	13404 Yorba Avenue	295,300 SF Warehousing
4.	CVUSD Education Center	Ramona Avenue	59,755 SF Government
<i>City of Pomona</i>			
5.	CUP 6752-2017	1110 S. Reservoir Street	75,000 SF Warehousing

**TABLE 6-2**  
**CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST<sup>7</sup>**

Cumulative Project Description		Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
1.	Francis Estates	142	3	8	11	9	6	15
2.	Lankershim Industrial	97	7	2	9	3	8	11
3.	Chino Pipeline Center	514	39	11	50	15	41	56
4.	CVUSD Education Center	1,350	150	50	200	26	76	102
5.	CUP 6752-2017	131	10	3	13	4	10	14
<b>Cumulative Projects Total Trip Generation Potential</b>		<b>2,234</b>	<b>209</b>	<b>74</b>	<b>283</b>	<b>57</b>	<b>141</b>	<b>198</b>

<sup>7</sup> Source: *Trip Generation, 10th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017)].

## 7.0 EXISTING CONDITIONS TRAFFIC IMPACT ANALYSIS

The existing conditions traffic analysis establishes the basis for the future forecasts for the Project. This analysis was based on existing intersection as detailed previously in *Section 3.2*. The existing conditions analysis reflects these counts as well as existing lane configurations for all analyzed intersections.

### 7.1 Existing Conditions Intersection Capacity Analysis

*Table 7-1* summarizes the peak hour Level of Service results at the four (4) key study intersections for existing traffic conditions, with and without the Project. The first column (1) of Delay/LOS values in *Table 7-1* presents a summary of Existing AM and PM peak hour traffic conditions. The second column (2) in *Table 7-1* presents forecast Existing With Project traffic conditions. The third column (3) of *Table 7-1* shows whether the traffic associated with the Project will have an impact based on the LOS standards and the impact criteria defined in this report. The fourth column (4) of *Table 7-1* presents the Level of Service with the implementation of traffic improvements, if necessary.

#### 7.1.1 Existing Traffic Conditions

Review of column (1) of *Table 7-1* indicates that all four (4) key study intersections currently operate at acceptable LOS during the AM and PM peak hours.

#### 7.1.2 Existing With Project Traffic Conditions

Review of column (2) of *Table 7-1* indicates that for the Existing With Project traffic conditions, all four (4) key study intersections are forecast to operate at acceptable LOS during the AM and PM peak hours.

*Appendix D* contains the Delay/LOS calculation worksheets for the Existing Traffic Conditions.

**TABLE 7-1**  
**EXISTING CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY<sup>8</sup>**

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Impact	(4) Existing With Project With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1. Reservoir Street at Philadelphia Street	D	AM	27.6	C	28.1	C	No	--	--
		PM	19.4	B	20.3	C	No	--	--
2. East End Avenue at Philadelphia Street	D	AM	22.8	C	21.4	C	No	--	--
		PM	24.6	C	26.6	D	No	--	--
3. Pipeline Avenue at Philadelphia Street	D	AM	27.9	C	28.1	C	No	--	--
		PM	28.1	C	28.3	C	No	--	--
4. East End Avenue at Walnut Avenue	D	AM	21.8	C	21.9	C	No	--	--
		PM	24.3	C	24.4	C	No	--	--

**Notes:**

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

<sup>8</sup> Appendix D contains the Delay/LOS calculation worksheets for all study intersections.

## 8.0 YEAR 2022 CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM peak hour and PM peak hour conditions was evaluated based on analysis of future Year 2022 operating conditions at the four (4) key study intersections, with and without the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay relationships and service level characteristics at each study intersection. The potential impacts of the Project at each key intersection was then evaluated using the traffic impact criteria mentioned in this report.

### 8.1 Year 2022 Conditions Intersection Capacity Analysis

*Table 8-1* summarizes the AM and PM peak hour Level of Service results at the four (4) key study intersections for the Year 2022 traffic conditions. The first column (1) of Delay/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 7-1*). The second column (2) presents forecast Year 2022 Without Project traffic conditions and the third column (3) identifies forecast Year 2022 With Project traffic conditions. The fourth column (4) indicates whether the traffic associated with the Project will have an impact based on the impact criteria mentioned in this report. The fifth column (5) presents the resultant level of service with the inclusion of recommended improvements, where needed, to achieve an acceptable level of service.

#### 8.1.1 Year 2022 Without Project Traffic Conditions

Review of column (2) of *Table 8-1* indicates that for the Year 2022 Without Project traffic conditions, one (1) of the four (4) key study intersection is forecast to operate at an unacceptable level of service during the PM peak hour when compared to the LOS standards defined in this report. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. The intersection operating at adverse levels of service is:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
2. East End Avenue at Philadelphia Street	--	--	35.9	E

#### 8.1.2 Year 2022 With Project Traffic Conditions

Review of column (3) of *Table 8-1* indicates that for the Year 2022 With Project traffic conditions, one (1) of the four (4) key study intersection is forecast to operate at unacceptable levels of service during the PM peak hour when compared to the LOS standards defined in this report. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. The intersection operating at adverse levels of service is:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
2. East End Avenue at Philadelphia Street	--	--	35.8	E

Review of column (4) of *Table 9-1* indicates that one (1) of the four (4) key study intersections will operate at an unacceptable service level under the Year 2022 With Project traffic conditions when compared to the LOS criteria defined in this report. However, as shown in column (5) of *Table 8-1*, the implementation of recommended improvements at the impacted intersection improves the service level to an acceptable LOS based on the LOS standards outlined in this report.

***Appendix E*** contains the Delay/LOS calculation worksheets for the Year 2022 Traffic Conditions.

**TABLE 8-1**  
**YEAR 2022 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY<sup>9</sup>**

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2022 Without Project Traffic Conditions		(3) Year 2022 With Project Traffic Conditions		(4) Impact	(5) Year 2022 With Project With Improvements	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1. Reservoir Street at Philadelphia Street	D	AM	27.6	C	29.7	C	30.2	C	No	--	--
		PM	19.4	B	20.2	C	21.4	C	No	--	--
2. East End Avenue at Philadelphia Street	D	AM	22.8	C	21.6	C	20.3	C	No	16.4	B
		PM	24.6	C	<b>35.9</b>	<b>E</b>	<b>35.8</b>	<b>E</b>	<b>Yes</b>	17.8	B
3. Pipeline Avenue at Philadelphia Street	D	AM	27.9	C	28.3	C	28.4	C	No	--	--
		PM	28.1	C	28.3	C	28.5	C	No	--	--
4. East End Avenue at Walnut Avenue	D	AM	21.8	C	17.8	C	17.8	C	No	--	--
		PM	24.3	C	19.5	C	19.6	C	No	--	--

**Notes:**

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

<sup>9</sup> *Appendices D and E* contain the Delay/LOS calculation worksheets for all study intersections.

## 9.0 YEAR 2040 CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM peak hour and PM peak hour conditions was evaluated based on analysis of future Year 2040 operating conditions at the four (4) key study intersections as well as two (2) additional study intersections, with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay relationships and service level characteristics at each study intersection. The potential impacts of the Project at each key intersection was then evaluated using the traffic impact criteria mentioned in this report. It should be noted that the Year 2040 With Project scenario is for purposes of analyzing the annexation only.

### 9.1 Year 2040 Conditions Intersection Capacity Analysis

*Table 9-1* summarizes the AM and PM peak hour Level of Service results at the six (6) key study intersections for the Year 2040 traffic conditions. The first column (1) identifies forecast Year 2040 With Project traffic conditions. The second column (2) indicates whether the traffic associated with the Project will have an impact based on the impact criteria mentioned in this report. The third column (3) presents the resultant level of service with the inclusion of recommended improvements, where needed, to achieve an acceptable level of service.

#### 9.1.1 Year 2040 With Project Traffic Conditions

Review of column (1) of *Table 9-1* indicates that for the Year 2040 With Project traffic conditions, three (3) of the six (6) key study intersection is forecast to operate at unacceptable levels of service during the AM and PM peak hours when compared to the LOS standards defined in this report. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. The intersections operating at adverse levels of service are:

<u>Key Intersection</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>Delay (s/v)</u>	<u>LOS</u>	<u>Delay (s/v)</u>	<u>LOS</u>
2. East End Avenue at Philadelphia Street	72.7	F	130.7	F
4. East End Avenue at Walnut Avenue	42.3	E	58.9	F
5. East End Avenue at Francis Avenue	93.6	F	150.7	F

Review of column (2) of *Table 9-1* indicates that three (3) of the six (6) key study intersections will operate at an unacceptable service level under the Year 2040 With Project traffic conditions when compared to the LOS criteria defined in this report. However, as shown in column (3) of *Table 9-1*, the implementation of recommended improvements at the impacted intersections improves the service level to an acceptable LOS based on the LOS standards outlined in this report.

*Appendix F* contains the Delay/LOS calculation worksheets for the Year 2040 Traffic Conditions.

**TABLE 9-1**  
**YEAR 2040 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY<sup>10</sup>**

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Year 2040 With Project Traffic Conditions		(2) Impact	(3) Year 2040 With Project With Improvements	
			Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1. Reservoir Street at Philadelphia Street	D	AM	27.7	C	No	--	--
		PM	28.9	C	No	--	--
2. East End Avenue at Philadelphia Street	D	AM	<b>72.7</b>	<b>F</b>	<b>Yes</b>	16.3	B
		PM	<b>130.7</b>	<b>F</b>	<b>Yes</b>	17.9	B
3. Pipeline Avenue at Philadelphia Street	D	AM	30.6	C	No	--	--
		PM	28.7	C	No	--	--
4. East End Avenue at Walnut Avenue	D	AM	<b>42.3</b>	<b>E</b>	<b>Yes</b>	10.4	B
		PM	<b>58.9</b>	<b>F</b>	<b>Yes</b>	12.5	B
5. East End Avenue at Francis Avenue	D	AM	<b>93.6</b>	<b>F</b>	<b>Yes</b>	18.7	B
		PM	<b>150.7</b>	<b>F</b>	<b>Yes</b>	16.2	B
6. Ramona Avenue at Philadelphia Street	D	AM	34.7	C	No	--	--
		PM	33.6	C	No	--	--

**Notes:**

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

<sup>10</sup> *Appendices D and F* contain the Delay/LOS calculation worksheets for all study intersections.

## 10.0 RECOMMENDED IMPROVEMENTS

For those intersections where projected traffic volumes are expected to result in impacts, this report recommends improvements that change the intersection and roadway segments geometry to increase capacity. These capacity improvements involve roadway widening and/or re-striping to reconfigure (add lanes) roadways to specific approaches of a key intersection. The identified improvements are expected to:

- Address the impact of existing traffic, Project traffic and future non-project (ambient traffic growth and cumulative projects) traffic, and
- Improve Levels of Service to an acceptable range and to pre-project conditions.

*Figure 10-1* presents the planned and recommended improvements and intersection controls at the key study intersections. These are discussed in more detail in the sections below.

### 10.1 Existing With Project Traffic Conditions

The results of the intersection analyses for Existing With Project traffic conditions indicate that the proposed Project is not forecast to have an impact at any of the four (4) key study intersections. As there are no impacts, no traffic improvements are required under this traffic scenario.

### 10.2 Year 2022 With Project Traffic Conditions

The results of the Year 2022 With Project traffic conditions level of service analyses indicate that the proposed Project will cumulatively impact one (1) of the four (4) key study intersections. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service under the Year 2022 With Project traffic conditions. The improvements listed below have been identified to address the traffic impacts at the intersection impacted by the Year 2022 With Project traffic:

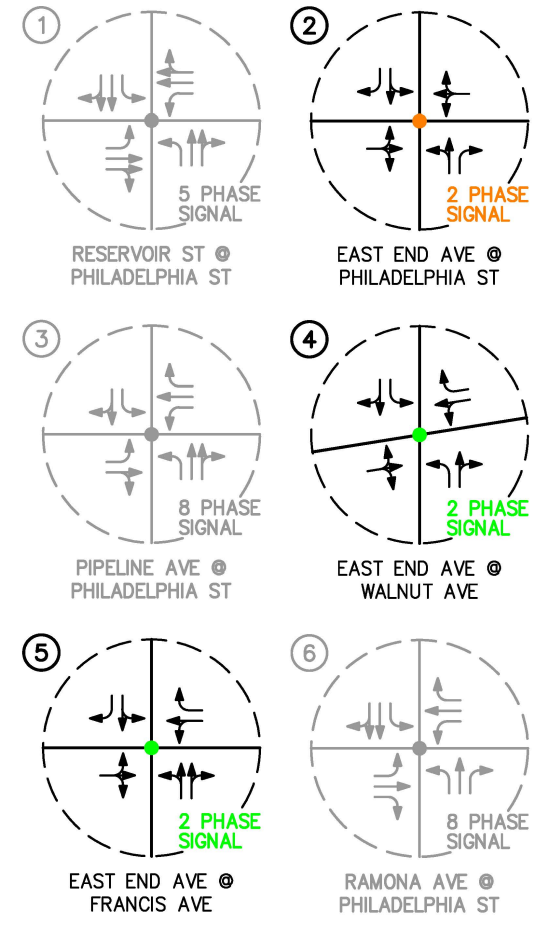
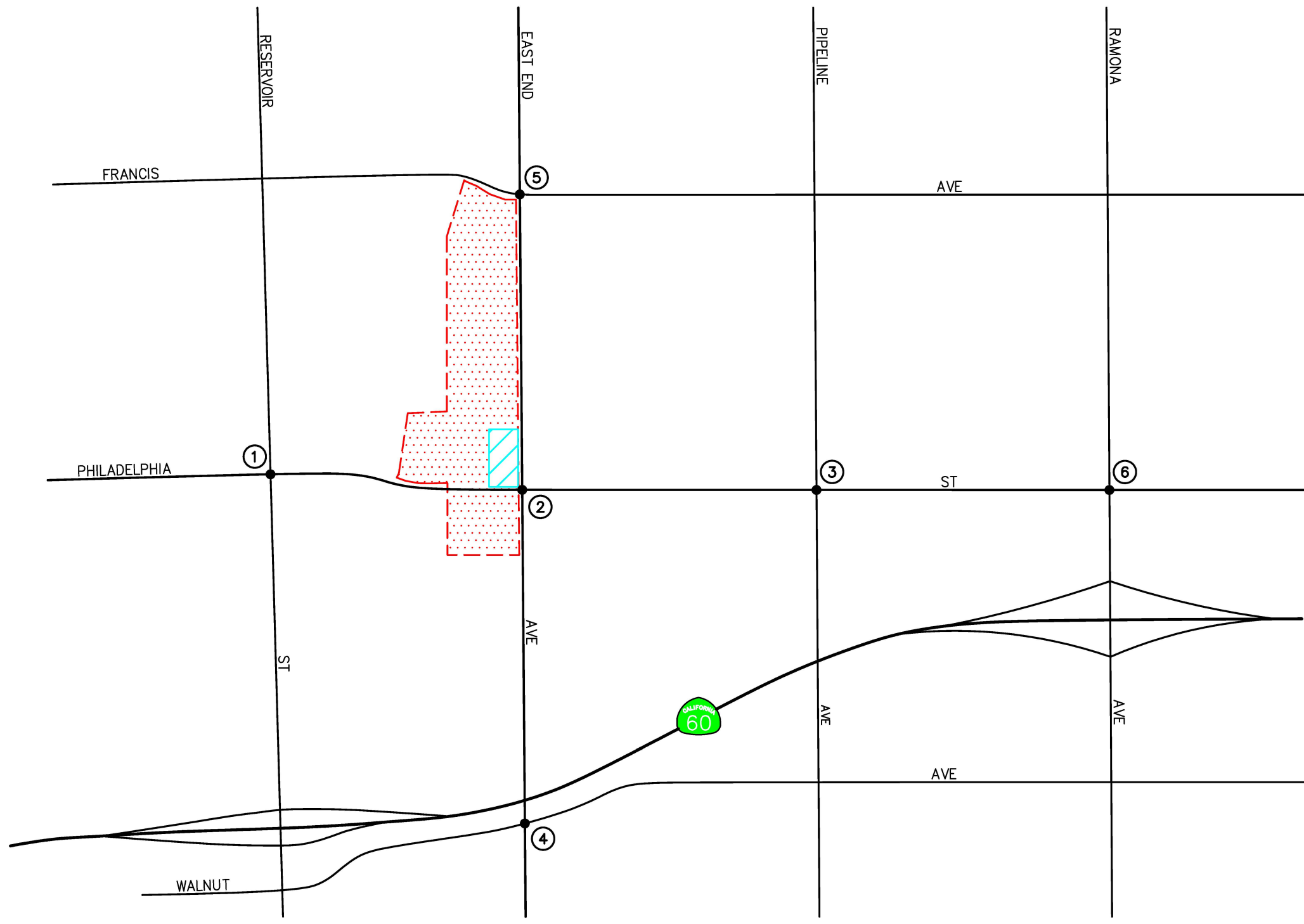
- Intersection 2. East End Avenue at Philadelphia Street: Stripe crosswalks on all legs. Install a traffic signal and design for two-phase operation.

### 10.3 Year 2040 With Project Traffic Conditions

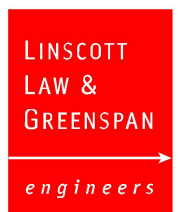
The results of the Year 2040 With Project traffic conditions level of service analyses indicate that the proposed Project will cumulatively impact three (3) of the six (6) key study intersections. The remaining three (3) key study intersections are forecast to operate at acceptable levels of service under the Year 2040 With Project traffic conditions. The improvements listed below have been identified to address the traffic impacts at the intersections impacted by the Year 2040 With Project traffic:

- Intersection 2. East End Avenue at Philadelphia Street: Stripe crosswalks on all legs. Install a traffic signal and design for two-phase operation.
- Intersection 4. East End Avenue at Walnut Avenue: Stripe crosswalks on all legs. Install a traffic signal and design for two-phase operation.

- Intersection 5. East End Avenue at Francis Avenue: Stripe crosswalks on all legs. Install a traffic signal and design for two-phase operation.



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KEY			
	= STUDY INTERSECTION		= APPROACH LANE ASSIGNMENT
	= PROJECT SITE		= YEAR 2022 WITH PROJECT RECOMMENDED IMPROVEMENTS
	= ANNEXATION AREA		= YEAR 2040 WITH PROJECT RECOMMENDED IMPROVEMENTS
			= TRAFFIC SIGNAL,  = STOP SIGN

FIGURE 10-1

RECOMMENDED IMPROVEMENTS  
PHILADELPHIA STREET INDUSTRIAL CENTER, CHINO

## 11.0 TRAFFIC SIGNAL WARRANT ANALYSIS

The level of service analyses at the key unsignalized impacted study intersections that are recommended to be signalized are supplemented with an assessment of the need for signalization of the intersections. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant. Warrant #3 described in the *California Manual on Uniform Traffic Control Devices (MUTCD)*. Warrant #3 has two parts: 1) Part A evaluates peak hour vehicle delay for traffic on the minor street approach with the highest delay and 2) Part B evaluates peak-hour traffic volumes on the major and minor streets. This method provides an indication of whether peak-hour traffic conditions or peak-hour traffic volume levels are, or would be, sufficient to justify installation of a traffic signal. Other traffic signal warrants are available, however, they cannot be checked under future conditions because they rely on data for which forecasts are not available (such as accidents, pedestrian volume, and four- or eight-hour vehicle volumes).

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants are satisfied. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection as well as at adjacent intersections.

### 11.1 Year 2022 With Project Traffic Conditions

The results of the peak-hour traffic signal warrant analysis for the Year 2022 With Project traffic conditions are summarized in column (1) of *Table 11-1*. The results indicate that the following one (1) key unsignalized impacted intersection has future traffic conditions that would exceed the volume thresholds of Warrant #3, Part B for the AM and PM peak hours:

- 2. East End Avenue at Philadelphia Street

The analysis and the recommended improvements show that the above-mentioned one (1) intersection in the Year 2022 With Project traffic conditions is recommended to be signalized. With signalization of this intersection, which is warranted, this intersection is forecast to operate at acceptable service levels during the AM and PM peak hours. Thus, it is concluded from *Table 11-1* that a traffic signal is justified at the location.

The Year 2022 With Project Traffic Conditions Traffic Signal Warrant Analysis worksheets are contained in *Appendix G*.

### 11.2 Year 2040 With Project Traffic Conditions

The results of the peak-hour traffic signal warrant analysis for the Year 2040 With Project traffic conditions are summarized in column (2) of *Table 11-1*. The results indicate that the following three (3) key unsignalized impacted intersections have future traffic conditions that would exceed the volume thresholds of Warrant #3, Part A and/or Part B for the AM and PM peak hours:

- 2. East End Avenue at Philadelphia Street

- 4. East End Avenue at Walnut Avenue
- 5. East End Avenue at Francis Avenue

The analysis and the recommended improvements show that the above-mentioned three (3) intersections in the Year 2040 With Project traffic conditions are recommended to be signalized. With signalization of these intersections, which is warranted, these intersections are forecast to operate at acceptable service levels during the AM and PM peak hours. Thus, it is concluded from *Table 11-1* that a traffic signal is justified at these locations.

The Year 2040 With Project Traffic Conditions Traffic Signal Warrant Analysis worksheets are contained in *Appendix G*.

**TABLE 11-1  
INTERSECTION TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY<sup>11</sup>**

Key Intersection	Time Period	(1) Year 2022 With Project Traffic Conditions		(2) Year 2040 With Project Traffic Conditions	
		Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?	Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?
2. East End Avenue at Philadelphia Street	AM	No	Yes	No	Yes
	PM	No	Yes	Yes	Yes
4. East End Avenue at Walnut Avenue	AM	--	--	No	Yes
	PM	--	--	No	Yes
5. East End Avenue at Francis Avenue	AM	--	--	No	Yes
	PM	--	--	No	Yes

**Notes:**

- Signal Warrant checks based on Warrant 3, Part A - Peak-Hour Delay Warrant and Part B - Peak-Hour Volume Warrant contained in the *California MUTCD*.

<sup>11</sup> Appendix G contains the Traffic Signal Warrant Analysis worksheets for the key unsignalized impacted study intersections.

## 12.0 PROJECT FAIR SHARE ANALYSIS

The transportation impacts associated with the development of the proposed Project were determined based on the future conditions analysis with and without the proposed Project. The key study locations forecast to operate at adverse levels of service are discussed below. As such, the proposed Project's "fair-share" of the recommended traffic improvements has been calculated for the key study locations that are forecast to operate at adverse levels of service in the Year 2022 and Year 2040 traffic conditions.

### 12.1 Existing With Project Traffic Conditions

None of the four (4) key study intersections are forecast to have an impact under Existing With Project traffic conditions when compared to the LOS criteria defined in this report. As there are no impacts, no Project fair share calculation is needed.

### 12.2 Year 2022 With Project Traffic Conditions

*Table 12-1* presents the AM and PM peak hour Project fair share percentage at the key study intersection that is forecast to operate at adverse levels of service in the Year 2022 With Project traffic conditions. As presented in *Table 12-1*, the first column (1) presents a total of all intersection peak hour movements for existing conditions. The second column (2) presents Project traffic. The third column (3) presents future Year 2022 traffic conditions with Project traffic. The fourth column (4) represents the Project's fair share based on the following formula:

- Project Fair Share (4) = Column (2)/[Column (3) – Column (1)]\*100

The Project fair share percentage (worse time period impacted) for the one (1) cumulatively impacted intersection for the Year 2022 With Project traffic conditions is shown below:

- 2. East End Avenue at Philadelphia Street 27.66%

### 12.3 Year 2040 With Project Traffic Conditions

*Table 12-2* presents the AM and PM peak hour Project fair share percentage at the key study intersections that are forecast to operate at adverse levels of service in the Year 2040 With Project traffic conditions and is similar in setup to *Table 12-1*.

The Project fair share percentage (worse time period impacted) for the three (3) cumulatively impacted intersections for the Year 2040 With Project traffic conditions are shown below:

- 2. East End Avenue at Philadelphia Street 5.16%
- 4. East End Avenue at Walnut Avenue 0.33%
- 5. East End Avenue at Francis Avenue 0.54%

**TABLE 12-1**  
**YEAR 2022 WITH PROJECT TRAFFIC CONDITIONS INTERSECTION FAIR SHARE CONTRIBUTION**

Key Intersection	Impacted Time Period	(1) Existing Traffic	(2) Project Traffic	(3) Year 2022 With Project Traffic	(4) Project Fair Share Responsibility
2. East End Avenue at Philadelphia Street	AM	--	--	--	--
	PM	1,254	26	1,348	<b>27.66%</b>

**Notes:**

- Net Project Percent Increase (4) = Column (2) / [Column (3) – Column (1)]
- **Project Fair Share Responsibility** is based on worse case

**TABLE 12-2**  
**YEAR 2040 WITH PROJECT TRAFFIC CONDITIONS INTERSECTION FAIR SHARE CONTRIBUTION**

<b>Key Intersection</b>		<b>Impacted Time Period</b>	<b>(1) Existing Traffic</b>	<b>(2) Project Traffic</b>	<b>(3) Year 2040 With Project Traffic</b>	<b>(4) Project Fair Share Responsibility</b>
2.	East End Avenue at Philadelphia Street	AM	1,106	24	1,571	<b>5.16%</b>
		PM	1,254	26	1,785	4.90%
4.	East End Avenue at Walnut Avenue	AM	1,028	1	1,329	<b>0.33%</b>
		PM	1,068	1	1,446	0.26%
5.	East End Avenue at Francis Avenue	AM	940	4	1,678	<b>0.54%</b>
		PM	920	4	1,992	0.37%

**Notes:**

- Net Project Percent Increase (4) = Column (2) / [Column (3) – Column (1)]
- **Project Fair Share Responsibility** is based on worse case

## 13.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

### 13.1 Site Access

As seen in *Figure 2-3*, access to the Project site will be provided via one (1) unsignalized full access along Philadelphia Street, and one (1) unsignalized full access driveway and one (1) unsignalized right-in/right-out driveway along East End Avenue. *Figure 13-1* shows the conceptual striping plan along the Project frontages with implementation of the proposed Project.

*Table 13-1* summarizes the intersection operations at the Project driveways for Existing With Project, Year 2022 With Project, and Year 2040 With Project traffic conditions. The operations analysis for the Project driveways is based on the *Highway Capacity Manual 6<sup>th</sup> Edition* (HCM 6) methodology for unsignalized intersections.

#### 13.1.1 Existing With Project Traffic Conditions

As shown in column (1) of *Table 13-1*, the three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Existing With Project traffic conditions. *Appendix H* contains the Delay/LOS calculation worksheets for the Existing With Project Traffic Conditions.

#### 13.1.2 Year 2022 With Project Traffic Conditions

As shown in column (2) of *Table 13-1*, the three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Year 2022 With Project traffic conditions. *Appendix H* contains the Delay/LOS calculation worksheets for the Year 2022 With Project Traffic Conditions.

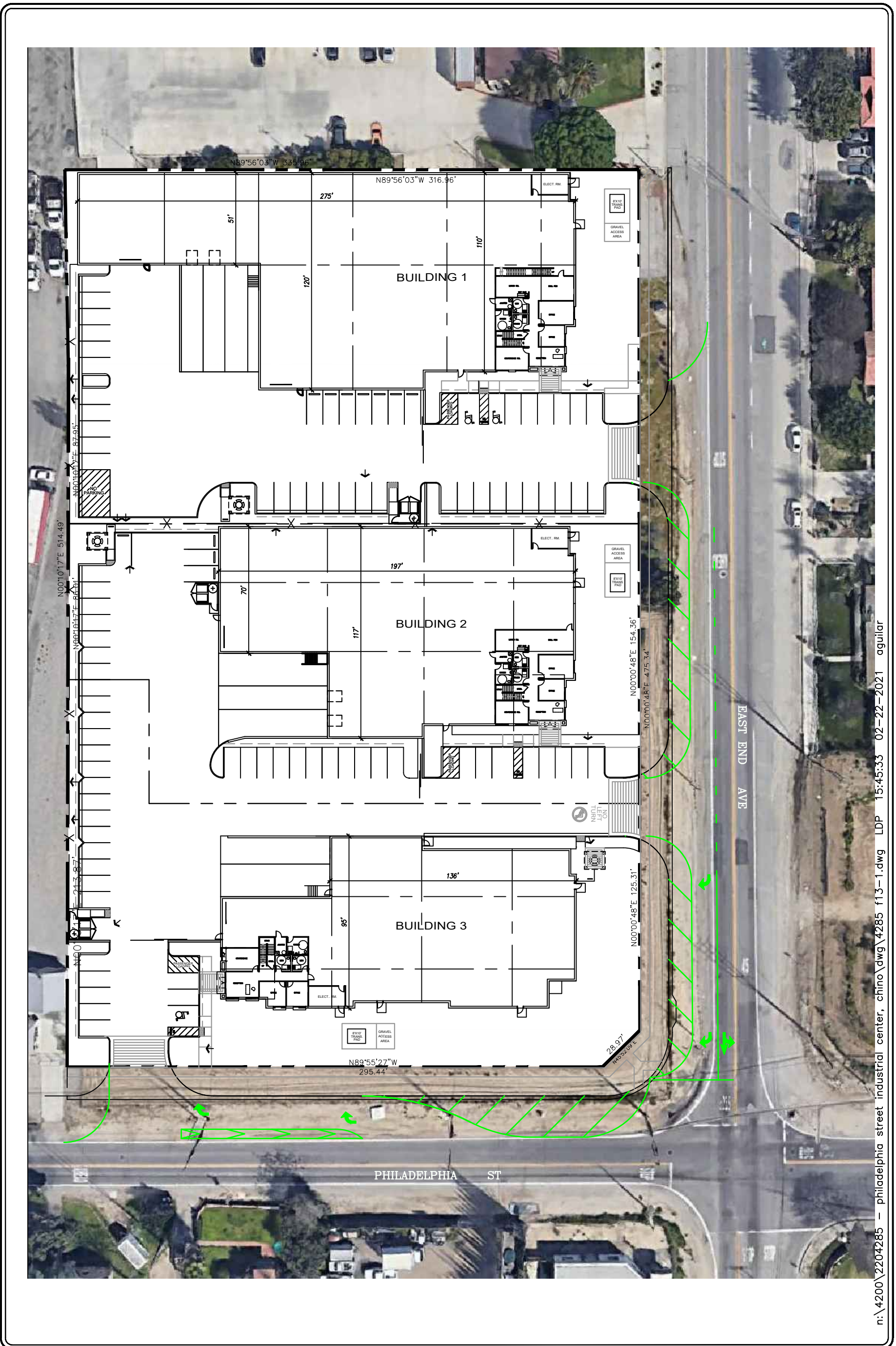
#### 13.1.3 Year 2040 With Project Traffic Conditions

As shown in column (3) of *Table 13-1*, the three (3) Project driveways are forecast to operate at acceptable levels of service LOS B or better during the AM and PM peak hours under the Year 2040 With Project traffic conditions. *Appendix H* contains the Delay/LOS calculation worksheets for the Year 2040 With Project Traffic Conditions.

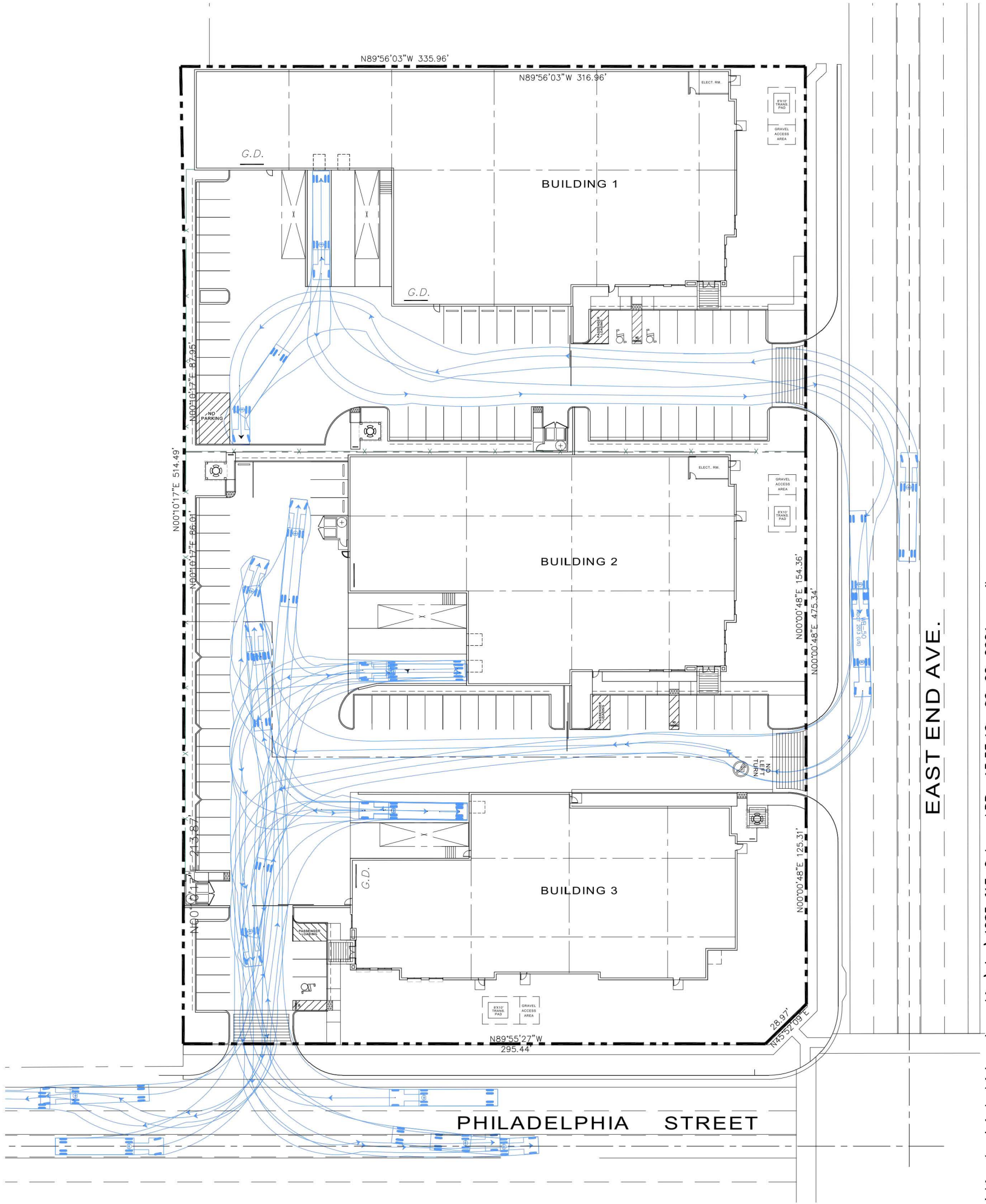
### 13.2 Internal Circulation Evaluation

A circulation evaluation was performed using the *Turning Vehicle Templates*, developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles. The turning templates were utilized to ensure that a large delivery truck can properly access and circulate throughout the Project site. A large truck (WB-50) turning template was utilized in this evaluation.

The internal circulation layout for the proposed Project has been reviewed and is adequate to accommodate service/delivery trucks. *Figure 13-2* illustrates the turning movements required of a large delivery truck (WB-50) as it circulates throughout the site. As shown in this figure, we have confirmed that the turning radii of large trucks (WB-50) are met as these vehicles can access the Project site and circulate throughout the property.



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**TABLE 13-1**  
**PEAK HOUR PROJECT DRIVEWAY CAPACITY ANALYSIS SUMMARY<sup>12</sup>**

Key Intersection	Time Period	(1) Existing With Project Traffic Conditions		(2) Year 2022 With Project Traffic Conditions		(3) Year 2040 With Project Traffic Conditions	
		Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS
A. Project Driveway 1 at Philadelphia Street	AM	10.4	B	10.7	B	11.8	B
	PM	10.6	B	10.9	B	12.6	B
B. East End Avenue at Project Driveway 2	AM	10.8	B	10.9	B	12.8	B
	PM	10.8	B	10.9	B	12.6	B
C. East End Avenue at Project Driveway 3	AM	10.8	B	10.9	B	12.8	B
	PM	10.3	B	10.4	B	11.6	B

**Notes:**

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Table 3-2* for the LOS definitions
- **Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

<sup>12</sup> *Appendix H* contains the Delay/LOS calculation worksheets for the Project driveways.

## 14.0 STATE BILL (SB) 743 COMPLIANCE

On December 28, 2018, the California Natural Resources Agency adopted revised CEQA Guidelines. Among the changes to the guidelines was the removal of vehicle delay and LOS from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled. Lead agencies are allowed to continue using their current impact criteria, or to opt into the revised transportation guidelines. However, the new guidelines must be used starting July 1, 2020, as required in CEQA section 15064.3.

In late 2019, State courts stated that under section 21099, subdivision (b)(2), existing law is that “automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment” under CEQA, except for roadway capacity projects.

As a result of SB 743, the new metric in the CEQA guidelines for transportation impacts is VMT per service population. The legislative intent of SB 743 is to balance the needs of congestion management with statewide goals for infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions.

The approach and methodology is based on the City of Chino *VMT Impact Thresholds (Resolution 2020-0019; June 16, 2020)* and is generally consistent with the *Technical Advisory for Evaluating Transportation Impacts In CEQA*, published by the Governor's Office of Planning and Research (OPR), December 2018 (OPR Technical Advisory), which provides additional detail on the language and approach described in this Technical Memorandum.

Under the VMT methodology, screening is used to determine if a project will be required to conduct a detailed VMT analysis.

San Bernardino County Transportation Authority (SBCTA) has developed a SB 743 VMT Impact Screening Tool to serve as a screening tool for potential VMT impacts associated with select land use projects in the SBCTA planning area and in this case the City of Chino. Based on direction per the City of Chino thresholds, a significant VMT impact would occur for the proposed Project if the listed condition below is met:

- **Project Level Impact:** The Project parcel (Year 2022 Project completion) daily total VMT per service population (VMT/SP) is higher than the Citywide average daily total VMT per service population under General Plan Horizon Year Conditions of ***34.4 VMT per service population***.

In addition, projects can be screened from analysis per the OPR Technical Advisory on Evaluating Transportation Impacts in CEQA, indicating that the development is anticipated to result in a less-than-significant transportation impact based on whether the Project is located within a Transportation Priority Area (TPA), whether the Project is located within a low VMT-generating

traffic analysis zone (TAZ), and/or Project type. As such, the following guidance summarizes the potential project screening, developed for the City of Chino by SBCTA:

- **Transit Priority Area (TPA) Screening:** Presumed less than significant VMT impact for projects located in TPAs or High Quality Transit Area (HQTA), which are defined in the technical advisor as a ½ mile radius around an existing or planned major transit stop or an existing stop along a high quality transit corridor. QTAs are defined in the technical advisory as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

*Based on the above, the proposed Project will not screen-out under this criteria because, while it **is not** located within a TPA or HQTA.*

- **Low VMT Area Screening:** Presumed less than significant VMT impact for projects located in low VMT generating TAZ, in which the TAZ generates a total daily VMT/SP that is 15% below the baseline level for the County.

*Based on the above, the proposed Project will not screen-out under this criteria since it is not located within a low VMT-generating area (<15% below the San Bernardino County Average) as shown in the SBCTA Screening Tool.*

- **Project Type Screening:** Local serving retail projects (Per OPR's *Technical Advisor* less than 50,000 square feet) and neighborhood schools are presumed to have a less than significant VMT impact. Also, projects that generate less than 110 daily trips do not require VMT analysis.

*Based on the above, the proposed Project will not screen-out under this criteria since it is not local serving less than 50,000 SF in size. In addition, the proposed Project is not forecast to generate less than 110 daily trips.*

The proposed Project, which consists of a 64,500 SF warehousing development within three buildings, has a Project parcel (Year 2022 Project completion) daily total VMT/SP of *26.1 VMT per service population* based on the SBCTA VMT Screening Tool. As shown in the output from the SBCTA VMT Screening Tool, the Project TAZ total daily VMT per service population is ***26.1 VMT per service population***, which is less than the Citywide average daily total VMT per service population under General Plan Horizon Year Conditions of ***34.4 VMT per service population***. As a result, the proposed Philadelphia Street Industrial Center project can be presumed to have a less than significant VMT impact. ***Appendix I*** contains the SBCTA Screening Tool Calculator Results for the proposed Project site (parcel).