FINAL ENVIRONMENTAL IMPACT REPORT
SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, CHINO, CALIFORNIA

VOLUME III

State Clearinghouse Number 2002071120

Prepared For:

City Of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

Prepared By:

Sapphos Environmental, Inc.
133 Martin Alley
Pasadena, CA 91105

June 2004

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VOLUME I (Under Separate Cover)

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SECTION 12.0
CLARIFICATIONS AND REVISIONS TO THE DRAFT ENVIRONMENTAL IMPACT REPORT

Note to reader:

Section 12.0 consists of clarifications and revisions to the Draft Environmental Impact Report (EIR), which have resulted from responses to comments received from agencies and the public. All clarifications and revisions to the Draft EIR were made to increase the understanding of the EIR. This approach was taken in an effort to preclude the need for the reproduction of Volumes I and II of this EIR. The Draft EIR was released for a 45-day public review period between July 8, 2003, and August 21, 2003, and the City of Chino (City) received 17 timely letters and 3 late letters of comment on the Draft EIR.

SECTION 2.0 PROJECT DESCRIPTION

2.4 PROJECT IMPROVEMENTS

Page 2-10 Please add the following immediately after the third sentence of the first paragraph, under the heading ***Infrastructure***:

> The new road will be approximately 12,000 feet long and 30 feet wide for most of the length. The road width will increase to approximately 40 feet as it approaches the alignment of Merrill. There is a 45-foot-diameter cul-de-sac turnaround at the SCE easement.

2.6 INTENDED USES OF THE EIR

Page 2-17 Please add the following bullets immediately following the last bullet:

- California Department of Fish and Game Section 1603 Streambed Alteration Agreement and Incidental Take Permit
- U.S. Army Corps of Engineers Section 404 Permit for potential impacts to waters of the United States

2.7 RELATED PROJECTS

Page 2-17 Please add the following row to the bottom of Table 2.7-1, *Related Proposed and Approved Projects*:

8	Electric Fence Project	City of Chino, CIM East	Approximately 4,000 linear feet	Institutional

SECTION 3.0 REGULATORY FRAMEWORK, EXISTING CONDITIONS, IMPACTS, MITIGATION, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

3.1 AESTHETICS

3.1.6 Mitigation Measures

Page 3.1-8 Please add the following language after the second sentence of measure Aesthetics-3:

> Prior to construction of the recreation component, the final lighting plans and specifications shall be provided to the California Department of Corrections for review and discussion with the City of Chino, as necessary, to ensure that the plans do not compromise the California Institution for Men perimeter security.

3.4 BIOLOGICAL RESOURCES

3.4.2 Existing Conditions

Page 3.4-9 Please add the following sentence immediately following the first sentence of the third full paragraph:

> The survey area is larger than, and includes, the proposed project area.

Page 3.4-10 Please add the following sentence immediately following the first sentence of the first paragraph, after Footnote 25:

> Repeated coordination was undertaken by the City of Chino, the California Department of General Services, and Sapphos Environmental, Inc. with the California Department of Fish and Game regarding the characterization of baseline conditions for the burrowing owl.

Please add the following sentences immediately following the last sentence of the first full paragraph:

> Following Burrowing Owl Survey Protocols, the survey area included potential habitat for burrowing owls within 150 meters (approximately 500 feet) of the proposed project site (impact zone) in order to assess potential impacts to owls outside the proposed project site. The survey area included the entire proposed project area and all accessible areas within approximately 150 meters of the anticipated impact zone, including the Southern California Edison easement north of the proposed project site, Cypress Channel north of the proposed project site, and the property owned by the California Department of Corrections south of the proposed project site.

Page 3.4-33 Please add the following sentences immediately following the last sentence of the last full paragraph:

> Habitat for burrowing owls within the proposed project area is marginal due to active operations and maintenance related to existing agricultural, recreational, and utilities land uses. Such activities include irrigation, soil discing and vegetation clearing, applications of herbicides and pesticides, and human activities. The viability of breeding pairs within the proposed project site is vulnerable to displacement by ongoing operations and maintenance activities associated with existing land uses. The existing conditions in the 150-meter zone outside the proposed project area contain roads, residences, and significant sources of noise and disturbance.

3.4.4 Impact Analysis

Page 3.4.-37 Please add the following paragraph immediately after the second paragraph under the heading *Sensitive Wildlife Species*:

> Temporary construction impacts will affect approximately 20 feet on either side of the roadway, for a total construction width of 70 to 80 feet to accommodate construction of the east-west access road. The east-west access road has been designed to avoid the eight burrowing owl nest sites that occur, approximately 1,500 to 2,000 feet south of the proposed project, on lands that will continue to be operated by the California Department of Corrections (Figure 3.4.4-1, *Burrowing Owl Burrow Locations*).

Please insert the new Figure 3.4.4-1, *Burrowing Owl Burrow Locations*, immediately following Page 3.4-37.

3.4.5 Cumulative Impacts

Page 3.4-39 Please add the following two paragraphs immediately following the second paragraph under heading **Cumulative Impacts**:

> Regarding cumulative impacts, two burrowing owl burrows were found on the CIM East property during the course of field surveys, and these owls could be adversely affected by the construction of an electrified perimeter fence by the California Department of Corrections (CDC) (Figure 3.4.5-1, *Burrowing Owl Burrow Locations at CIM East*).
>
> The CDC project had been approved and scheduled for construction, and mitigation for construction effects to the burrowing owl were not included in the EIR adopted by CDC in 2001 for the Electric Fence Project. CDC has been notified of the presence of burrowing owl on their site, and CDC has committed to preparing CEQA documentation to address potential impacts to this species. [Footnote: Sher Daniels. *Personal Communication*. 2004.) Although the City has no means to ensure that CDC would mitigate for this impact, a review of EIRs and mitigation measures adopted by CDC on prior projects and their commitment to address potential burrowing owl impacts on the CIM East element of the Electric Fence Project provide reasonable assurance that impacts to burrowing owl by the CDC project will be mitigated. Thus, the CIM East element would not be expected to contribute to cumulative impacts to burrowing owls.

Page 3.4-39 Please include the new Figure 3.4.5-1, *Burrowing Owl Burrow Locations at CIM East,* immediately following page 3.4-39.

LEGEND

- Burrowing Owl Burrow Locations
- Proposed Access Road
- Survey Area

N

0 500 1,000 2,000 3,000 Feet

Source: SEI, RBF Engineering
Projection: State Plane - Zone V - NAD 83 - feet
Map by SEI - 6-4-04
BurrowingOwl.mxd

FIGURE 3.4.4-1
Burrowing Owl Burrow Locations

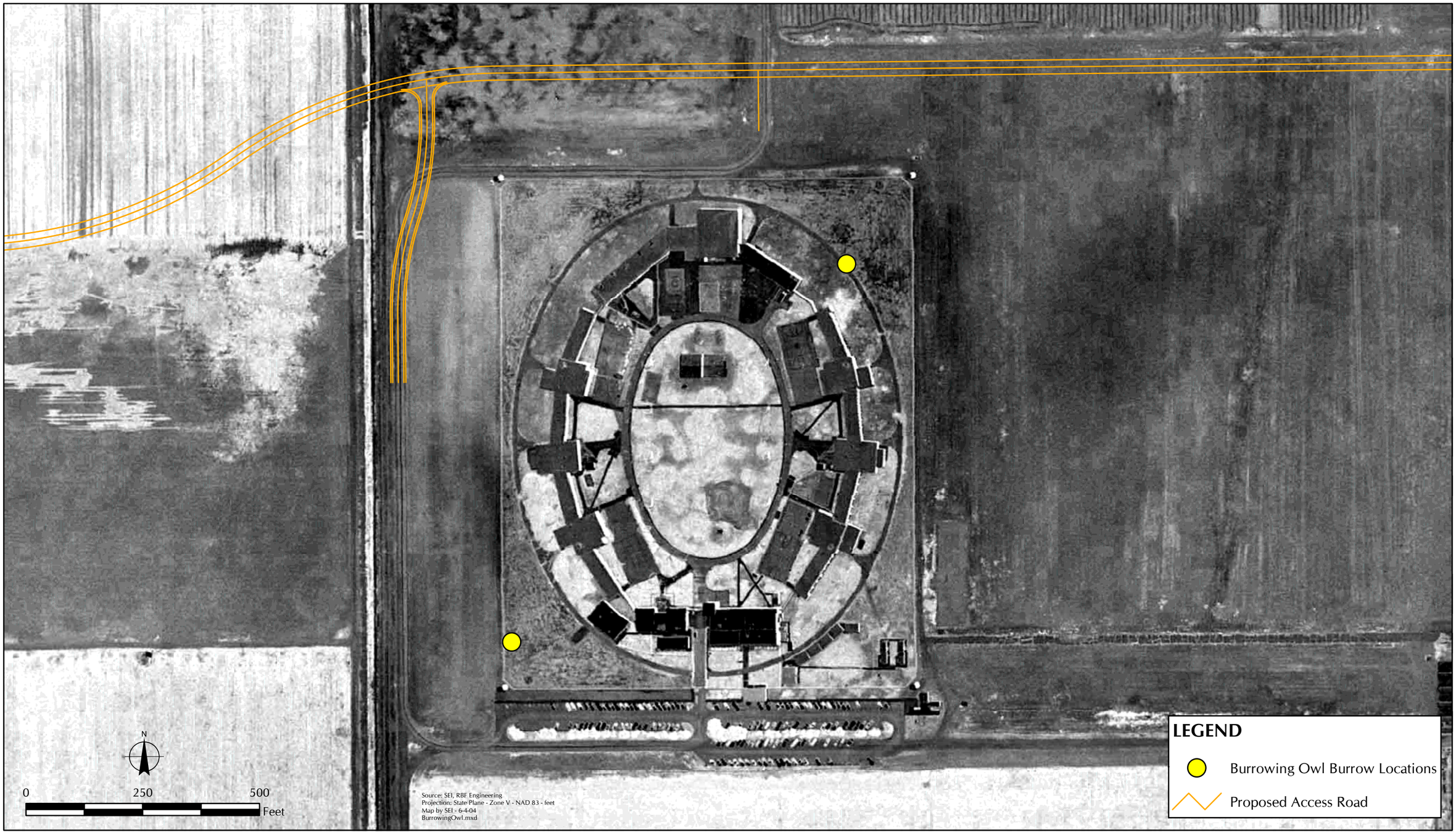

FIGURE 3.4.5-1
Burrowing Owl Burrow Locations at CIM East

3.4.6 Mitigation Measures

Page 3.4-40 Please add the following language immediately following the first full paragraph under the heading *Sensitive Wildlife Species*:

> The eight mitigation measures for burrowing owl specified in Section 3.4.6 of the EIR are in substantial conformance with current successful, ongoing management for the burrowing owl, including the specifications of the California Department of Fish and Game.[6] The recommended mitigation program for the burrowing owls was based on literature review and previous experience. Specifications for the mitigation package relied on information regarding species biology, including the following partial list: *The Birds of North America*,[7] *The Condor*,[8,9] and the Proceedings of the 16th Vertebrate Pest Conference. As recommended by the California Burrowing Owl Consortium,[10] and the California Department of Fish and Game,[11] an on-site mitigation package was developed.

Page 3.4-40 Please add the following language immediately following the first sentence of measure Burrowing Owl-1:

> It is acknowledged that the movement corridor is an existing corridor and would be managed in such a way as to not impede routine operations and maintenance requirements performed in conjunction with use as a utility corridor as specified in the easement agreement.

Page 3.4-40 Please add the following language immediately following the third sentence of measure Burrowing Owl-1:

> Mitigation for burrowing owls will consist of 6.5 acres per pair, and will be accomplished through a combined use of the Southern California Edison

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[6] California Department of Fish and Game, 17 October 1995. Memorandum to Division Chiefs. Subject: Staff Report on Burrowing Owls. Prepared by: California Department of Fish and Game, 1416, 9th Street, Sacramento, CA 95814.

[7] E.A. Haug, B.A. Millsap, and M.S. Martell, 1993. "*Speotyto cunicularia,* Burrowing Owl." In *The Birds of North America*, No. 61.

[8] H. Coulombe, 1971. "Behavior and Population Ecology of the Burrowing Owl, Speotyto Cunicularia, in the Imperial Valley of California." *The Condor*, *73*:162–176.

[9] D. Martin, 1973. "Selected Aspects of Burrowing Owl Ecology and Behavior." *The Condor*, *75*: 446–456.

[10] The Burrowing Owl Consortium, April 1993. "Burrowing Owl Survey Protocol and Mitigation Guidelines." Prepared by: The Burrowing Owl Consortium.

[11] California Department of Fish and Game, Environmental Services Division, October 1995. "Staff Report on Burrowing Owl Mitigation."

easement, Cypress Channel, detention ponds, or the possible acquisition of off-site mitigation lands with comparable habitat value and capable of supporting burrowing owls.

Page 3.4-40 Please add the following language immediately following the last sentence of measure Burrowing Owl-1:

> A conservation easement for mitigation lands for burrowing owls within the detention basin and the Cypress Channel will be developed and enforced. The conservation easement will protect occupied habitat during the breeding season and require all maintenance activities to be reviewed by a qualified biologist to ensure that there is no net loss of habitat values or functions, as specified in measures Burrowing Owl-7 and Burrowing Owl-8.

Page 3.4-40 Following Page 3.4-40, please revise the statement from the legend on Figure 3.4.6-1, *Conceptual Burrowing Owl Mitigation Plan*, which reads "Well No. 7 to be retained" to read as follows:

> Well No. 3 to be retained

Page 3.4-41 Please add the following language immediately following the last sentence of measure Burrowing Owl-2:

> A conservation easement for mitigation lands for burrowing owls within the detention basin and the Cypress Channel will be developed and enforced. The conservation easement will protect occupied habitat during the breeding season and require all maintenance activities to be reviewed by a qualified biologist to ensure that there is no net loss of habitat values or functions, as specified in measures Burrowing Owl-7 and Burrowing Owl-8.

Page 3.4-41 Please add the following language at the beginning of measure Burrowing Owl-3:

> A 62-acre burrowing owl mitigation area will be established in conformance with CDFG burrowing owl mitigation guidelines, even though only 39 acres are required to mitigate for the impacts to burrowing owls by the proposed project. The 62 acres include approximately 4.5 acres within the Chaffey College campus (at the proposed pond), approximately 26 acres in the detention ponds, approximately 11.3 acres at the Cypress Channel, and 20 acres in the Southern California Edison easement.

Page 3.4-41 Please add the following language immediately following the fourth sentence of measure Burrowing Owl-4:

> All artificial burrows should be placed in the drainage ponds of the Magnolia Channel and the Cypress Channel at least 50 feet away from existing utility poles and away from regularly disturbed areas such as existing and proposed maintenance roads.

Page 3.4-42 Please add the following language immediately following the last sentence of measure Burrowing Owl-4:

> In the event that it is determined that off-site mitigation is required to fully mitigate proposed project impacts to burrowing owls, then active relocation to off-site mitigation areas may be required to avoid direct impacts to burrowing owls. Any active relocation shall be performed outside of the breeding season for burrowing owls and approved by CDFG prior to implementation of active relocation efforts, and the biologist performing the active relocation shall hold a scientific collecting permit and a Memorandum of Understanding with CDFG to perform such relocation. Every effort shall be made to perform passive relocation of owls, and active relocation would be used only as a last resort.

Page 3.4-42 Please delete the following language from measure Sensitive Species-1:

> ...so as to allow a qualified biologist familiar with the sensitive biological resources that may occur within the proposed project area to perform preconstruction surveys for sensitive wildlife species. Based on previous surveys, these species may include burrowing owl, California horned lark, Cooper's hawk, sharp-shinned hawk, and golden eagle.

Page 3.4-42 Please add the following language to measure Sensitive Species-2 after the first sentence:

> Based on previous surveys, these species may include burrowing owl, California horned lark, Cooper's hawk, sharp-shinned hawk, and golden eagle.

Page 3.4-43 In the first sentence of measure Sensitive Species-3, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-43 In the first sentence of measure Sensitive Species-4, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-43 In the first sentence of measure Sensitive Species-5, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-44 In the first sentence of measure Sensitive Species-6, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-44 In the first sentence of measure Sensitive Species-7, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-45 Please add the following language immediately following the last sentence of measure Burrowing Owl-6:

> In the event that it is determined that off-site mitigation is required to fully mitigate proposed project impacts to burrowing owls, then active relocation to off-site mitigation areas may be required to avoid direct impacts to burrowing owls. Any active relocation shall be performed outside of the breeding season for burrowing owls and approved by CDFG prior to implementation of active relocation efforts, and the biologist performing the active relocation shall hold a scientific collecting permit and a Memorandum of Understanding with CDFG to perform such relocation. Every effort shall be made to perform passive relocation of owls, and active relocation would be used only as a last resort.

Page 3.4-46 Please add the following language immediately following the last sentence of measure Burrowing Owl-7:

> In the event that off-site mitigation is used to partially mitigate for proposed project impacts to burrowing owls, long-term monitoring and management would be implemented as described in this mitigation measure for the off-site mitigation area as well. If off-site mitigation is accomplished through participation in a mitigation bank designed to mitigate for local project impacts to burrowing owls, then it is assumed that the bank operator shall be responsible for monitoring the burrowing owl population and managing the vegetation within the bank.

Page 3.4-46 In the first sentence of measure Burrowing Owl-8, please change the reference to "Sensitive Species-1" to "Sensitive Species-2."

Page 3.4-46 Please add the following language immediately following the last sentence of measure Burrowing Owl-8:

> The Southern California Edison easement is to be maintained in its current native state, and no landscaping will be implemented.

3.7 HAZARDS AND HAZARDOUS MATERIALS

3.7.6 Mitigation Measures

Page 3.7-15 In measure Hazards-1, please replace "San Bernardino County Fire Department" with "Chino Valley Independent Fire District."

In measure Hazards-2, please replace "San Bernardino County Fire Department" with "Chino Valley Independent Fire District."

In measure Hazards-3, please replace "San Bernardino County Fire Department" with "Chino Valley Independent Fire District."

Page 3.7-16 In measure Hazards-4, please replace "San Bernardino County Fire Department" with "Chino Valley Independent Fire District."

In the last sentence of measure Hazards-5, please delete "and San Bernardino Fire Department."

3.8 HYDROLOGY AND WATER QUALITY

3.8.2 Existing Conditions

Page 3.8-7 Please revise Footnote 23 to read as follows:

> City of Chino, 1993. *Master Plan of Drainages*. Prepared by: BSI Consultants, Inc., 2001 East First Street, Santa Ana, CA 92705.

3.11 PUBLIC SERVICES

3.11.2 Existing Conditions

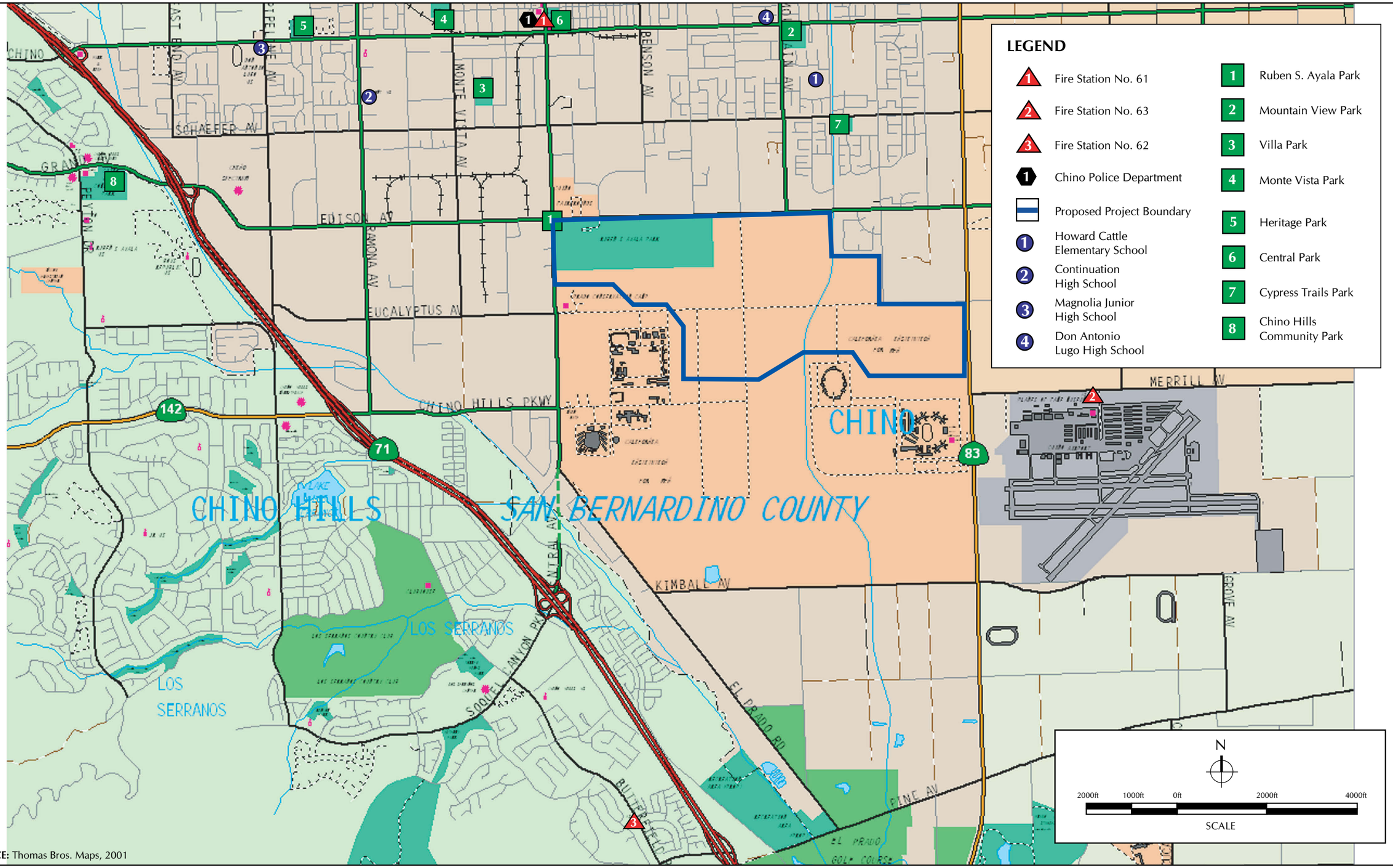
Page 3.11-3 Please revise the last sentence of the first paragraph under the heading ***Fire Protection*** to read as follows:

> The CVIFD average response time to structure fires in the year 2002 was 5 minutes, 45 seconds.[15]

Page 3.11-3 Please revise Footnote 15 to read as follows:

> Chino Valley Independent Fire District, 9 April 2003. *Chino Valley Independent Fire District Master Plan*. Available at: http://www.cvifd.org/pdf/masterplan.pdf.

Page 3.11-4 Please replace Figure 3.11.2-1, *Public Services in the Proposed Project Vicinity*, with the revised figure.



SOURCE: Thomas Bros. Maps, 2001

FIGURE 3.11.2-1
Public Services in the Proposed Project Vicinity

3.13 TRANSPORTATION/TRAFFIC

Page 3.13-1 Please add the following language immediately after the second paragraph:

> A technical memorandum documenting the methods and findings of additional traffic impact analysis was prepared by Kaku Associates, Inc. to supplement analysis documented in the traffic impact analysis for the proposed project. The analysis documented in the memorandum (Appendix O, *Technical Memorandum: Additional Traffic/Transportation Analysis of Proposed College Park Project*) was undertaken to address additional local concerns that have been raised by members of the public and City of Chino staff subsequent to the release of the Draft EIR. These concerns include the identification of six additional local intersections for traffic impact analysis, including the following intersections:
>
> - Chino Avenue and Euclid Avenue
> - Schaefer Avenue and Central Avenue
> - Schaefer Avenue and Mountain Avenue
> - Schaefer Avenue and San Antonio Avenue
> - Schaefer Avenue and Fern Avenue
> - Schaefer Avenue and Euclid Avenue

3.13.2 Existing Conditions

Page 3.13-4 Please replace Figure 3.13.2-1, *Local Roadway System and Study Intersection Locations*, with the revised figure.

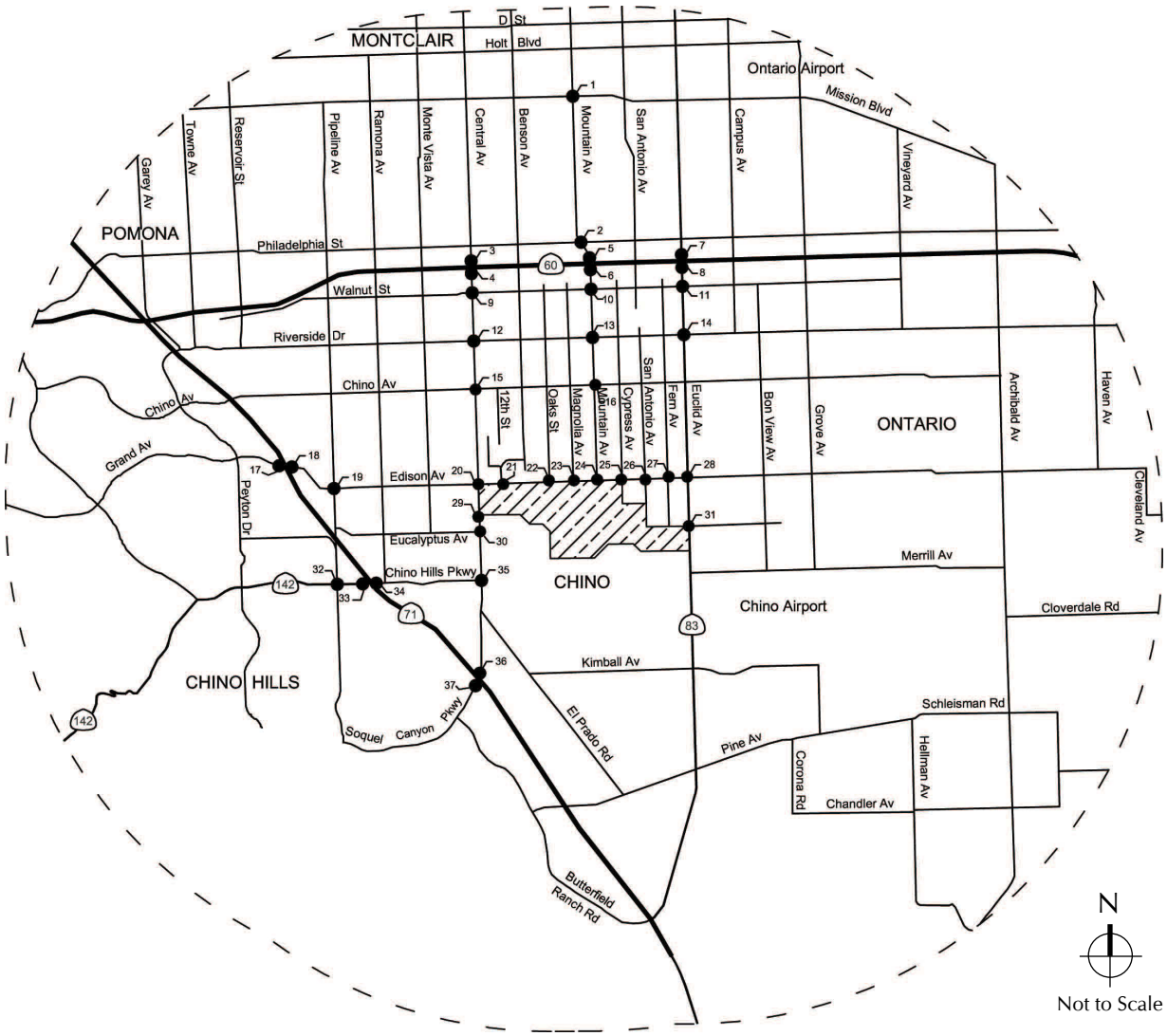
Page 3.13-6 Please revise the fourth sentence of the third paragraph as follows:

> Of the intersections that were studied, 32 out of the 36 currently operate at an acceptable LOS (D or better) during the a.m. and p.m. peak hours.

Page 3.13-6 Please revise the fifth sentence of the third paragraph as follows:

> The four intersections currently operating at LOS E or LOS F (based either on delay or on a V/C ratio in excess of 1.00) in either the a.m. or p.m. peak hour include the following:

Intersection 1:	Mountain Avenue and Mission Boulevard
Intersection 5:	Mountain Avenue and State Route 60 westbound ramps
Intersection 6:	Mountain Avenue and State Route 60 eastbound ramps
Intersection 10:	Mountain Avenue and Walnut Avenue



SOURCE: Kaku Associates

LEGEND

- 5-Mile Radius from Project Site
- Analyzed Intersections

FIGURE 3.13.2-1
Local Roadway System and Study Intersection Locations

Page 3.13-6 Please add the following section at the end of the page:

Existing Local (Non-Congestion Management Program) Roadways

Although Schaefer Avenue itself is a primary arterial, no intersections along Schaefer Avenue are Congestion Management Program (CMP) monitoring locations. In response to these additional concerns, traffic impact analysis has been conducted at the following intersections, numbered 38–43 to avoid confusion with the intersections analyzed in the traffic impact analysis:

Intersection 38.	Chino Avenue and Euclid Avenue
Intersection 39.	Schaefer Avenue and Central Avenue
Intersection 40.	Schaefer Avenue and Mountain Avenue
Intersection 41.	Schaefer Avenue and San Antonio Avenue
Intersection 42.	Schaefer Avenue and Fern Avenue
Intersection 43.	Schaefer Avenue and Euclid Avenue

3.13.4 Impacts

Page 3.13-16 Please revise the last paragraph to read as follows:

In the interim year 2012 without project conditions, the following seven study area intersections are projected to operate at LOS E or LOS F or have a V/C ratio greater then 1.00 during one or both peak hours and are therefore deficient according to City of Chino criteria:[25]

Intersection 1.	Mountain Avenue and Mission Boulevard
Intersection 6.	Mountain Avenue and State Route 60 eastbound ramps
Intersection 10.	Mountain Avenue and Walnut Avenue
Intersection 13.	Mountain Avenue and Riverside Drive
Intersection 14.	Euclid Avenue and Riverside Drive
Intersection 22.	Oaks Street and Edison Avenue
Intersection 31.	Euclid Avenue and Eucalyptus Avenue

Page 3.13-17 In Table 3.13.4-4, *Intersection Delay and Level of Service Cumulative Base Conditions for Interim Year 2012*, please revise the LOS for the P.M. Peak-Hour column for Intersection 3 (Central Ave. and SR 60 WB ramps) to read as LOS F.

Page 3.13-18 In Table 3.13.4-4, *Intersection Delay and Level of Service Cumulative Base Conditions for Interim Year 2012*, please revise the LOS for the A.M. Peak-Hour column for Intersection 24 (Mountain Ave. and Edison Ave.) to read as LOS C.

Page 3.13-19 Please revise the second paragraph to read as follows:

> At full build-out in 2012, the proposed project is expected to generate approximately 3,000 trips in the morning peak hour, 4,400 trips in the afternoon peak hour, and 42,300 daily weekday trips (Table 3.13.4-3). In the interim year 2012 with project conditions, the 15 study area intersections listed below are projected to operate at LOS E or LOS F or have a V/C ratio greater than 1.00 during one or both peak hours and are therefore deficient according to City of Chino criteria:

Intersection 1.	Mountain Avenue and Mission Boulevard
Intersection 2.	Mountain Avenue and Philadelphia Street
Intersection 5.	Mountain Avenue and State Route 60 westbound ramps
Intersection 6.	Mountain Avenue and State Route 60 eastbound ramps
Intersection 10.	Mountain Avenue and Walnut Avenue
Intersection 12.	Central Avenue and Riverside Drive
Intersection 13.	Mountain Avenue and Riverside Drive
Intersection 14.	Euclid Avenue and Riverside Drive
Intersection 18.	State Route 71 northbound off-ramp Roswell and Grand
Intersection 20.	Central Avenue and Edison Avenue
Intersection 22.	Oaks Street and Edison Avenue
Intersection 24.	Mountain Avenue and Edison Avenue
Intersection 28.	Euclid Avenue and Edison Avenue
Intersection 29.	Central Avenue and "A" Street
Intersection 31.	Euclid Avenue and Eucalyptus Avenue

Page 3.13-21 In Table 3.13.4-5, *Intersection Delay and Level of Service Cumulative Base Plus Project Conditions for Interim Year 2012*, please revise the LOS for the P.M. Peak-Hour column for Intersection 23 (Magnolia Ave. and Edison Ave.) to read as LOS B.

Page 3.13-21 In Table 3.13.4-5, *Intersection Delay and Level of Service Cumulative Base Plus Project Conditions for Interim Year 2012*, please revise the LOS for the A.M. Peak Hour column for Intersection 33 (SR 71 SB ramps and Chino Hills Pkwy.) to read as LOS F.

Page 3.13-22 Please revise the second paragraph to read as follows:

In the year 2025 without project conditions, the 22 study area intersections listed below are projected to operate at LOS E or LOS F or have a V/C ratio greater than 1.00 during one or both peak hours and are therefore deficient according to City of Chino criteria:

Intersection 1.	Mountain Avenue and Mission Boulevard
Intersection 2.	Mountain Avenue and Philadelphia Street
Intersection 3.	Central Avenue and State Route 60 westbound ramps
Intersection 4.	Central Avenue and State Route 60 eastbound ramps
Intersection 5.	Mountain Avenue and State Route 60 westbound ramps
Intersection 6.	Mountain Avenue and State Route 60 eastbound ramps
Intersection 7.	Euclid Avenue and State Route 60 westbound ramps
Intersection 8.	Euclid Avenue and State Route 60 eastbound ramps
Intersection 10.	Mountain Avenue and Walnut Avenue
Intersection 11.	Euclid Avenue and Walnut Street
Intersection 12.	Central Avenue and Riverside Drive
Intersection 13.	Mountain Avenue and Riverside Drive
Intersection 14.	Euclid Avenue and Riverside Drive
Intersection 17.	State Route 71 southbound ramps and Grand Avenue
Intersection 18.	State Route 71 northbound off-ramp Roswell and Grand
Intersection 20.	Central Avenue and Edison Avenue
Intersection 22.	Oaks Street and Edison Avenue
Intersection 24.	Mountain Avenue and Edison Avenue
Intersection 26.	San Antonio Avenue and Edison Avenue
Intersection 28.	Euclid Avenue and Edison Avenue
Intersection 31.	Euclid Avenue and Eucalyptus Avenue
Intersection 35.	Central Avenue and Chino Hills Parkway

Page 3.13-23 In Table 3.13.4-6, *Intersection Delay and Level of Service Cumulative Base Conditions for Year 2025*, please revise the LOS for both the A.M. and the P.M. Peak-Hour columns for Intersection 11 (Euclid Ave. and Walnut Ave.) to read as LOS F.

Page 3.13-23 In Table 3.13.4-6, *Intersection Delay and Level of Service Cumulative Base Conditions for Year 2025*, please revise the LOS for the P.M. Peak-Hour column for Intersection 17 (SR 71 SB ramps and Grand Ave.) to read as LOS F.

Page 3.13-29 Please revise the first sentence of the first paragraph to read as follows:

Incorporation of the following mitigation measures will improve the LOS as shown in Appendix I, *Traffic Impact Analysis* (Table 11, *Intersections Delay and Level of Service (LOS) Cumulative Base Plus Project Conditions with Improvements for Year 2025*).

Page 3.13-29 Please add the following language immediately after the first paragraph, before the heading **3.13.5 Mitigation Measures**:

Impacts to Local (Non-Congestion Management Program) Roadways

Interim Year 2012 without Project

Each of the six additional, analyzed local roadway intersections is projected to continue operating acceptably in the interim year 2012 without project traffic.

Interim Year 2012 with Project Conditions

In the interim year 2012 with project conditions, each of the six additional, analyzed local roadway intersections is projected to continue operating acceptably.

Year 2025 without Project Conditions

In the interim year 2025 without project conditions, the following three of the six additional, analyzed local roadway intersections are projected to operate at LOS E or LOS F (based either on delay or a V/C ratio in excess of 1.00) during one or both peak hours and are therefore deficient according to City of Chino criteria:

Intersection 38.	Chino Avenue and Euclid Avenue
Intersection 39.	Schaefer Avenue and Central Avenue
Intersection 43.	Schaefer Avenue and Euclid Avenue

Year 2025 with Project Conditions

In the interim year 2025 with project conditions, three of the six additional, analyzed local roadway intersections are projected to operate at LOS E or LOS F (based either on delay or a V/C ratio in excess of 1.00) during one or both peak hours and are therefore deficient according to City of Chino criteria:

Intersection 38.	Chino Avenue and Euclid Avenue
Intersection 39.	Schaefer Avenue and Central Avenue
Intersection 43.	Schaefer Avenue and Euclid Avenue

3.13.5 Mitigation Measures

Page 3.13-29 Please add the following revised language after the last sentence of the second paragraph under the heading **Mitigation Measures**:

> Based on responses to the City of Chino's concerns regarding mitigation fees for particular on-ramps, please see the revised Table 8, *Summary of Intersection and Roadway Improvements and Costs - Year 2025,* in Appendix O, *Technical Memorandum: Additional Traffic/Transportation Analysis of Proposed College Park Project*, of the Environmental Impact Report.

Page 3.13-29 Please replace measure Transportation-1 with the following revised text:

> Full build-out of the residential, retail, and park uses is anticipated by 2012, at which time the community college population is expected to reach 7,500 students. The City shall collect regional and local traffic improvement fees through the Development Impact Fees and the Development Agreement, prior to issuance of building permits, for traffic improvements requiring a fair-share contribution from the developer. Chaffey College shall be required to pay its fair share pursuant to the requirements of its agreements with the State and the City.
>
> 1. Mountain Avenue and Mission Boulevard
> (Developer = 65 percent, College = 35 percent)
> - Second northbound left-turn lane
> - Northbound right-turn lane
> - Second southbound left-turn lane
> - Third southbound through lane
> - Second westbound left-turn lane
> - Eastbound right-turn lane
> - Provide overlapping right-turn phasing E-W and N-S
>
> 2. Mountain Avenue and Philadelphia Street
> (Developer = 57 percent, College = 43 percent)
> - Second northbound left-turn lane
> - Third northbound through lane
> - Northbound right-turn lane
> - Second southbound left-turn lane
> - Third southbound through lane
> - Southbound right-turn lane
> - Provide overlapping right-turn phasing E-W and N-S
> - Second eastbound left-turn lane
> - Second westbound left-turn lane

3. Central Avenue and State Route 60 westbound ramps
(Developer = 39 percent, College = 61 percent)
- Reconstruct interchange

4. Central Avenue and State Route 60 eastbound ramps
(Developer = 47 percent, College = 53 percent)
- Reconstruct interchange

5. Mountain Avenue and State Route 60 westbound ramps
(Developer = 64 percent, College = 36 percent)
- Southbound right-turn Lane
- Second northbound left-turn lane and widen on-ramp to 2 lanes

6. Mountain Avenue and State Route 60 eastbound ramps
(Developer = 62 percent, College = 38 percent)
- Northbound right-turn lane
- Shared left-turn and right-turn lane eastbound and widen off-ramp
- Second southbound left-turn lane and widen on-ramp to 2 lanes

10. Mountain Avenue and Walnut Avenue
(Developer = 59 percent, College = 41 percent)
- Northbound right-turn lane
- Second southbound left-turn lane
- Additional eastbound through lane
- Additional westbound through lane

12. Central Avenue and Riverside Drive
(Developer = 53 percent, College = 47 percent)
- Second southbound left-turn lane

13. Mountain Avenue and Riverside Drive
(Developer = 66 percent, College = 34 percent)
- Northbound right-turn lane
- Southbound right-turn lane
- Provide overlapping right-turn phasing southbound
- Second eastbound left-turn lane

14. Euclid Avenue and Riverside Drive
(Developer = 67 percent, College = 33 percent)
- Third Northbound through lane
- Third Southbound through lane
- Second southbound left-turn lane
- Eastbound left-turn lane

- Second eastbound left-turn lane
- Westbound left-turn lane

18. State Route 71 northbound ramps and Grand Avenue
(Developer = 14 percent, College = 86 percent)
    - Upgrade existing signal to provide overlapping right-turn phasing westbound
    - Southbound right-turn lane
    - Southbound left-turn lane
    - Westbound right-turn lane
    - Eastbound right-turn lane

20. Central Avenue and Edison Avenue
(Developer = 56 percent, College = 44 percent)
    - Second eastbound left-turn lane
    - Second westbound left-turn lane

22. Oaks Street and Edison Avenue
(Developer = 73 percent, College = 27 percent)
    - First and second northbound left-turn lanes
    - Northbound right-turn lane
    - First and second northbound through lanes
    - First and second southbound left-turn lanes
    - First and second southbound left-turn lanes
    - Southbound shared through-right-turn lane
    - Second eastbound left-turn lane
    - Third eastbound through lane
    - Eastbound right-turn lane
    - Westbound dual left-turn lanes
    - Third westbound through lane
    - Install new traffic signal

24. Mountain Avenue and Edison Avenue
(Developer = 62 percent, College = 38 percent)
    - Northbound left-turn lane
    - First and second northbound through lanes
    - Northbound right-turn lane
    - Convert southbound left-turn, right-turn lane to through lane
    - Second southbound through lane
    - Add north-south left-turn phasing
    - Third eastbound through lane
    - Third westbound through lane
    - Upgrade existing intersection signalization

28. Euclid Avenue and Edison Avenue
(Developer = 60 percent, College = 40 percent)
- Third eastbound through lane
- Third westbound through lane
- Northbound right-turn lane

29. Central Avenue and "A" Street
(Developer = 36 percent, College = 64 percent)
- Install new traffic signal
- Westbound right-turn lane
- Westbound left-turn lane
- Northbound right-turn lane
- Southbound left-turn lane

31. Euclid Avenue and Eucalyptus Avenue
(Developer = 53 percent, College = 47 percent)
- Install new traffic signal

Page 3.13-32 Please replace measure Transportation-2 with the following revised text:

Full build-out of Chaffey College to an enrollment of 15,000 students is anticipated by 2025. The City shall collect regional and local traffic impact improvement fees through the Development Impact Fees and the Development Agreement, prior to issuance of building permits, for traffic improvements requiring a fair-share contribution from the developer. Chaffey College shall be required to pay its fair share pursuant to the requirements of the State and the City.

2. Mountain Avenue and Philadelphia Street
(Developer = 57 percent, College = 43 percent)
- Convert eastbound right-turn lane to shared right/through

7. Euclid Avenue and State Route 60 westbound ramps
(Developer = 67 percent, College = 33 percent)
- Change northbound left-turn phasing to protected only

8. Euclid Avenue and State Route 60 eastbound ramps
(Developer = 64 percent, College = 36 percent)
- Provide overlapping right-turn phasing northbound
- Widen off-ramp to add eastbound right-turn lane

11. Euclid Avenue and Walnut Avenue
(Developer = 71 percent, College = 29 percent)
- Northbound right-turn lane
- Provide eastbound and westbound left-turn phasing

16. Mountain Avenue and Chino Avenue
(Developer = 54 percent, College = 46 percent)
- Additional northbound through lane
- Additional southbound through lane

17. State Route 71 southbound ramps and Grand Avenue
(Developer = 55 percent, College = 45 percent)
- Eastbound right-turn lane
- Widen freeway off-ramp to provide third southbound left-turn lane

18. State Route 71 northbound ramps and Grand Avenue
(Developer = 14 percent, College = 86 percent)
- Widen off-ramp-northbound right-turn lane

19. Pipeline Avenue and Edison Avenue
(Developer = 52 percent, College = 48 percent)
- Fourth eastbound through lane

20. Central Avenue and Edison Avenue
(Developer = 56 percent, College = 44 percent)
- Third eastbound left-turn lane
- Eastbound right-turn lane
- Third westbound through lane

21. 12th Street and Edison Avenue
(Developer = 77 percent, College = 23 percent)
- Third eastbound through lane
- Third westbound through lane

23. Magnolia Avenue and Edison Avenue
(Developer = 71 percent, College = 29 percent)
- Third eastbound through lane
- Third westbound through lane

25. Cypress Avenue and Edison Avenue
(Developer = 41 percent, College = 59 percent)
- Third eastbound through lane
- Third westbound through lane

26. San Antonio Avenue and Edison Avenue

(Developer = 62 percent, College = 38 percent)
- Third eastbound through lane
- Third westbound through lane

27. Fern Avenue and Edison Avenue
(Developer = 61 percent, College = 39 percent)
- Convert eastbound right-turn lane to eastbound through lane
- Third westbound through lane
- Second northbound through lane
- Second southbound through lane
- Eastbound left-turn lane
- Westbound left-turn lane

28. Euclid Avenue and Edison Avenue
(Developer = 60 percent, College = 40 percent)
- Third northbound through lane
- Third southbound through lane

29. Central Avenue and "A" Street
(Developer = 36 percent, College = 64 percent)
- Second southbound left-turn lane

30. Central Avenue and Eucalyptus Avenue
(Developer = 46 percent, College = 54 percent)
- Third northbound through lane
- Third southbound through lane

31. Euclid Avenue and Eucalyptus Avenue
(Developer = 47 percent, College = 53 percent)
- Second northbound left-turn lane
- Third northbound through lane
- Third southbound through lane
- Eastbound left-turn lane
- Eastbound right-turn lane
- Westbound left-turn lane
- Westbound right-turn lane

35. Central Avenue and Chino Hills Parkway
(Developer = 40 percent, College = 60 percent)
- Second northbound left-turn lane

38. Euclid Avenue and Chino Avenue
(Developer = 0 percent, College = 100 percent)
- Westbound left-turn lane
- Third northbound through/right-turn lane
- Second eastbound through/right-turn lane

39. Central Avenue and Schaefer Avenue
(Developer = 0 percent, College = 100 percent)
- Northbound right-turn lane
- Eastbound right-turn lane

43. Euclid Avenue and Schaefer Avenue
(Developer = 0 percent, College = 100 percent)
- Third southbound through/right-turn lane
- Westbound left-turn lane
- Third northbound through lane
- Eastbound left turn lane

3.14 UTILITIES AND SERVICE SYSTEMS

3.14.2 Existing Conditions

Page 3.14-5 Please replace the paragraph under the heading ***Sanitary Sewer*** with the following:

> Major sewer lines have been installed along the perimeter of the proposed project site (Figure 3.14.2-1, *Existing Sewer System*). The sewer lines convey raw sewage to the Inland Empire Utility Agency's wastewater treatment facility.

Page 3.14-5 Please remove the last sentence of the paragraph under the heading ***Solid Waste***, which reads "A facility that processes vegetation waste (a green facility) is also located in the east-central part of the CIM site."

SECTION 13.0
RESPONSE TO COMMENTS
ON DRAFT ENVIRONMENTAL IMPACT REPORT

The Draft Environmental Impact Report (EIR) was completed and received by the Governor's Office of Planning and Research (OPR) on July 8, 2003; a Notice of Completion (NOC) was posted at both OPR and the Office of the San Bernardino County Clerk on the same day (July 8, 2003). A Notice of Availability (NOA) of the Draft EIR for public review was then advertised in the *Daily Bulletin* and the *Chino Champion*, and the NOA was forwarded via regular mail to more than 1,000 interested parties. The NOA was also mailed to federal, state, and local agencies potentially having an interest in this project. Finally, copies of the Draft EIR and NOA were mailed to approximately 50 agency representatives, and the Draft EIR was made available for public review at a local public library for a period of 45 days (July 8, 2003, through August 21, 2003).

In addition, copies of the Draft EIR were available for public review at the offices of the City of Chino (City).

The public comment period closed on August 21, 2003, at 5:00 p.m; a total of 17 timely letters and three late letters of comment were received on the Draft EIR.

This section of the EIR contains a summary of the distribution list for the Draft EIR and a listing of the parties that provided comments during the public review period. The distribution list/respondents have been divided into the following categories: (1) Federal Agencies, (2) State Agencies, (3) Regional Agencies, (4) County Agencies, (5) Local Agencies, (6) Private Organizations, and (7) Individuals.

13.1 SUMMARY DISTRIBUTION LIST/RESPONDENTS

13.1.1 Federal Agencies

The three federal agencies listed below received copies of the NOA or the Draft EIR. No comment letters were received from any of the agencies listed below.

- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency, District 9
- U.S. Fish and Wildlife Service

13.1.2 State Agencies

The 19 State of California agencies listed below received copies of the NOA or the Draft EIR. Five timely letters of comment were received from the California Department of Corrections, California Department of Toxic Substances Control, California Department of Transportation, California Department of the Youth Authority, and OPR. Two late comment letters were received from the California Department of Conservation and OPR.

- California Highway Patrol
- California Integrated Waste Management Board
- California Department of Conservation
- California Department of Corrections
- California Department of Fish and Game
- California Department of Food and Agriculture
- California Department of General Services, Real Estate Services Division
- California Department of Housing and Community Development, Housing Policy Division
- California Department of Parks and Recreation
- California Department of Toxic Substances Control
- California Department of Transportation
- California Department of Water Resources
- California Department of the Youth Authority
- California Division of the State Architect
- California Energy Commission
- California Native American Heritage Commission
- California Resources Agency
- Governor's Office of Planning and Research
- State Water Resources Control Board

13.1.3 Regional Agencies

The 17 regional agencies listed below received copies of the NOA or the Draft EIR. Four timely letters of comment were received from the Chino Valley Independent Fire District, the Southern California Association of Governments, Southern California Edison, and the Transportation Corridor Agencies. One late comment letter was received from the California Regional Water Quality Control Board, Santa Ana Region.

- California Regional Water Quality Control Board, Santa Ana Region
- Chino Basin Watermaster
- Chino Valley Independent Fire District
- Chino Valley Unified School District
- Chino Valley Water Conservation District
- Inland Empire Utilities Agency
- Inland Empire Water Resources Conservation District
- Local Agency Formation Commission
- Monte Vista Water District
- San Bernardino Association of Governments
- Santa Ana Watershed
- South Coast Air Quality Management District
- Southern California Association of Governments
- Southern California Edison
- Southern California Metropolitan Transportation Authority
- Transportation Corridor Agencies
- West Valley Mosquito and Vector Control

13.1.4 County Agencies

The 17 county agencies listed below received copies of the NOA or the Draft EIR. One timely letter of comment was received from the County of San Bernardino Department of Public Works.

- County of Cucamonga Water District
- County of Orange Flood Control District
- County of Orange Planning and Development Services
- County of Orange Public Facilities and Resources Agency
- County of Orange Water District
- County of Riverside Planning Department
- County of Riverside Transportation Commission
- County of San Bernardino Agriculture Commissioner
- County of San Bernardino Clerk of the Board of Supervisors
- County of San Bernardino Community Services Department
- County of San Bernardino Department of Public Health
- County of San Bernardino Department of Public Works
- County of San Bernardino Director of Airports
- County of San Bernardino Land Use Services Department
- County of San Bernardino Office of Assessor
- County of San Bernardino Real Estate Services
- County of San Bernardino Solid Waste Management Division

13.1.5 Local Agencies

Of the eight local agencies listed below, one timely letter of comment on the Draft EIR was received from the City of Chino Hills.

- City of Chino City Manager
- City of Chino Community Development Department
- City of Chino Hills
- City of Chino Police Department
- City of Chino Redevelopment Agency
- City of Corona
- City of Ontario Planning Department
- San Bernardino Sheriff Department

Copies of the NOA and Draft EIR were also provided to one local library.

- Chino Branch Library

13.1.6 Private Organizations

Of the 40 private organizations listed below, four timely letters of comment on the Draft EIR were received from the Endangered Habitats League, the Gateway Community Church, SunCal Companies, and the Tri-County Conservation League.

- Adelphia Communications
- Associated Engineers
- Chino Valley Chamber of Commerce
- Chino Valley Fuel, Inc.
- Chino Valley Medical
- Cihigoyenetche, Grossberg & Clouse
- Communities LLC
- Durrington Farms
- Endangered Habitats League
- Environmental Management
- Fair View Farms
- Farm Credit Services of Southern California
- FORMA
- Gateway Community Church
- Good Times Ski Park, Inc.
- Goodell Brackenbush
- GTE
- GTE Area Forecasting
- Kaku Associates
- King, Weiser, Bazar & Jacobs
- League of California Cities
- Lewis Operating Company
- Los Angeles Times
- Los Serranos Group
- Milk Producers Council
- National Audubon Society
- Omnitrans
- RDM Electric
- Seldon Investments
- Siemon, Larsen & Marsh
- Sierra Club
- Southern California Agricultural Land Foundation
- SunCal Companies
- Tom Dodson and Associates
- Tri-County Conservation League
- Union Pacific Railroad
- USA Waste
- Water 3 Engineering, Inc.
- West Edge Architects
- Young Men's Christian Association (YMCA) of Chino

13.1.7 Individuals

The distribution list for the NOA and the Draft EIR for public review included a total of approximately 1,000 individuals. Two timely letters of comment were received from individuals.

13.2 LETTERS OF COMMENT AND RESPONSES

The letters of comment received on the Draft EIR are presented in this subsection with the comments numbered and annotated in the right margin. Responses to the comments follow each comment letter. All changes and additions to the mitigation measures are made for clarification only.

13.2.1 Federal Agencies

There were no responses from federal agencies.

13.2.2 State Agencies

California Department of Conservation - LATE LETTER
Erik Vink
Assistant Director
801 K Street
Sacramento, California 95814

California Department of Corrections
Mr. George A. Sifuentes
Chief Project Development and Management Branch
Facilities Management Division
P.O. Box 942883
Sacramento, California 94283-0001

California Department of Toxic Substances Control
Ken Chiang
Senior Hazardous Substances Scientist
School Property Evaluation and Cleanup Division
1011 North Grandview Avenue
Glendale, California 91201

California Department of Transportation
District 8
Ramakrishna Tadi, PhD
Acting Chief
Office of Forecasting/IGR-CEQA Review
Transportation Planning Division
464 West Fourth Street, 6th Floor, MS 726
San Bernardino, California 92401-1400

California Department of the Youth Authority
Jerry L. Harper
Director
4241 Williamsbourgh Drive
Sacramento, California 95823

Governor's Office of Planning and Research
State Clearinghouse
Terry Roberts
Director
1400 Tenth Street
P.O. Box 3044
Sacramento, California 95812-3044

Governor's Office of Planning and Research - LATE LETTER
State Clearinghouse
Terry Roberts
Senior Planner
1400 Tenth Street
P.O. Box 3044
Sacramento, California 95812-3044

DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

DIVISION OF
LAND RESOURCE
PROTECTION

801 K STREET
SACRAMENTO
CALIFORNIA
95814

PHONE
916/324-0850

FAX
916/327-3430

INTERNET
consrv.ca.gov

GRAY DAVIS
GOVERNOR

August 25, 2003

VIA FACSIMILE (909) 590-5535
Mr. Salvador Salazar, Principal Planner
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

Subject: Specific Plan for Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area, Chino, California, Draft Environmental Impact Report (DEIR) - SCH# 2002071120, San Bernardino County

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the DEIR for the referenced project. The Division monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. We offer the following recommendations with respect to the project's impacts on agricultural land and resources.

Project Description

The proposed project is the transfer of 710 acres of State surplus property from California Institution for Men (CIM) to the City of Chino, Chaffey Community College District and a private developer. The City would receive 140 acres for park and road/utility easements, including land currently leased. The College would develop 100 acres into a community college campus, and the remaining, approximate 470 acres would be developed into a master planned residential community. The project site is located in the northwestern portion of the CIM, City of Chino, San Bernardino County. It is five miles south of State Route 60, one mile east of State Route 71 and is bounded by Central and Edison Avenues. The project site is currently used primarily for agriculture, secondarily for recreation. Adjacent land uses are industrial to the north and west, residential to the north and east and the Chino Airport to the southeast. The CIM facility lies immediately south and east of the project site.

The project will directly and significantly impact 607 acres of Prime Farmland and Farmland of Statewide Importance. The project does not involve Williamson Act contracted land on site or in the vicinity. It would have growth-inducing impacts from development of a college campus and residential community and would be cumulatively considerable in contributing to farmland conversion in the Chino Basin. The extent of the DEIR discussion and consideration of mitigation is the following statement: "There are no feasible mitigation measures available to partially or wholly mitigate the significant impacts related to the conversion of Farmland (3.2.6, page 3.2-8)."

Project Impacts and Mitigation Measures

The Department commends the City and its consultants for utilizing the Land Evaluation Site Assessment (LESA) Model in determining the significance of agricultural impacts. We are concerned, however, that despite Department recommendations, mitigation measures apparently were not considered. The only reference to mitigation of agricultural impacts appears to be the statement noted above or similar versions. There appears to be no discussion of the measures considered and the reasons for rejecting them and no evidence that there are no feasible measures available. In its comments on the Initial Study/Notice of Preparation dated August 20, 2002, the Department offered several potential measures and encouraged specifically the use of agricultural conservation easements and Farmland Security Zone contracts.

In order to satisfy CEQA requirements and in the interest of public disclosure, the Final EIR (FEIR) should provide evidence of consideration of mitigation noted above that appears to be missing in the DEIR. Several lead agencies have utilized the measures offered and recommended by the Department in its August 20, 2002 letter to partially or wholly reduce significant impacts. The City should explain its rationale for rejection. 1

In preparing the FEIR, we recommend that the City consider that a Statement of Overriding Considerations does not absolve the lead agency of the requirement to implement specific, feasible mitigation that lessens a project's impacts. This includes "compensating for the impact (§15370(e))," such as purchasing agricultural conservation easements or donating a fee to an organization that purchases such easements to protect the State's remaining resources. The criterion for mitigation is not to reduce the impact to less than significance but rather to lessen the impact. Easement mitigation partially, if not wholly, lessens the agricultural impact of farmland conversion even though it may be implemented on a regional or statewide basis.

Redevelopment

The project includes an amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area to conform land uses. It is also an objective of the project to comply with requirements of the Redevelopment Plan. The project site is located within the boundaries of the Redevelopment area. Beyond this, there does not appear to be a discussion of how the project's development of agricultural land relates to Redevelopment. The Department offers the following information and recommends that the FEIR clarify the issues noted below.

Agricultural and open space lands have repeatedly been held by the courts to be off limits to redevelopment agencies (Sweetwater Valley Civic Assn. v. City of National City (1976) 18 Cal.3d 270; Emmington v. Solano County Redevelopment Agency (1987) 195 Cal.App.3d 491. In each case, the court reasoned that open space and agricultural lands have a positive public value and, therefore, are incompatible with redevelopment. 2

The Division recommends that the FEIR evaluate whether blighted conditions, in fact, are present on agricultural and open space lands. If blighted conditions do not exist, these lands should not be included in the redevelopment area.

Agricultural land that is enforceably restricted (e.g., by a Williamson Act contract) cannot be included within a redevelopment project boundary. Even if not enforceably restricted, an agricultural parcel of land larger than two acres may not be included within a redevelopment area unless specific findings are made by the redevelopment agency (Health and Safety Code §33321.5). If an agricultural parcel greater than two acres is involved, we recommend that the FEIR discuss the findings required. 2

Thank you for the opportunity to comment on this DEIR. If you have questions on our comments or require technical assistance or information on agricultural land conservation, please contact Bob Blanford at 801 K Street, MS 13-71, Sacramento, California 95814; or, phone (916) 327-2145.

Sincerely,

Erik Vink
Assistant Director

cc: State Clearinghouse

Inland Empire West Resource Conservation District
1609 S. Grove Avenue, Suite 103
Ontario, CA 91761

California Department of Conservation - LATE LETTER
Erik Vink
Assistant Director
801 K Street
Sacramento, California 95814

Response to Comment No. 1:

Thank you for your comment. The City of Chino, during its preparation of the draft environmental documentation, considered mitigation measures to substantially lessen or avoid significant impacts to agricultural land, including those described in the California Department of Conservation's comment letter on the Initial Study/Notice of Preparation dated August 20, 2002.

It was determined that these and other mitigation measures were not feasible, because the impacts were not considered proportional to the recommended mitigation per California Environmental Quality Act (CEQA) Guidelines, Section 15041. The farmland is not used for high-value crops and is surrounded by urban development. The remainder of the California Institution for Men (CIM) facility is being retained for agricultural uses and other State uses. The use of buffers is a common mitigation measure that would have been feasible for the proposed project; however, the proposed project description already includes a buffer wall that would assist in maintaining the integrity of the agricultural lands to the south. Therefore, no additional mitigation measures requiring buffers were developed.

Per CEQA Guidelines Section 15093, a Statement of Overriding Considerations for the significant impact to agricultural resources would include the rationale behind the decision to approve a project that would result in unavoidable impacts to the environment in light of the economic, legal, social, technological, or other benefits. The Statement of Overriding Considerations would be based on substantial evidence in the record.

It was determined that there were no feasible mitigation measures, defined as both roughly proportional to the impact and exhibiting a clear nexus to the proposed project, that would substantially lessen or avoid the impacts to agricultural resources not included in the proposed project description.

Response to Comment No. 2

Thank you for your comment. The land referred to in your comment is not designated for agricultural production.

STATE OF CALIFORNIA—YOUTH AND ADULT CORRECTIONAL AGENCY GRAY DAVIS, Governor

DEPARTMENT OF CORRECTIONS
P.O. Box 942883
Sacramento, CA 94283-0001

COMMUNITY DEVELOPMENT
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AUG 11 2003

August 8, 2003

Sal Salazar
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

Dear Mr. Salazar:

DRAFT ENVIRONMENTAL IMPACT REPORT – SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, CHINO, CALIFORNIA-CLEARINGHOUSE NUMBER 2002071120

The California Department of Corrections (CDC) received for review and comment the July 2003 Draft Environmental Impact Report (DEIR) for the proposed specific plan for the development of State surplus property. We want to thank you for the opportunity of allowing us to review and comment about the document. The CDC has the following comments:

Section 3.1.2 Existing condition - - Page 3.1-3 Light and Glare

The environmental impact report address light and glare produced by the development of the surplus property and proposed mitigation of the same, but does not address the night lighting effect of the correctional facilities on the southern boundary of the proposed development. 1

Consideration should be given to require homebuyers in the proposed development to acknowledge that they are aware of correctional facilities as neighbors, and their knowledge of the affect of security lighting on their enjoyment of dark evenings. Acknowledgment should be included in the Codes, Covenants and Restrictions (CC&R's) for each parcel as it goes through and is recorded in escrow.

Section 3.1.4 Aesthetics, Impact, Light and Glare:

The CDC supports the proposed additional soccer fields. However, we are concerned that the additional lighting for the soccer fields may a significantly compromise our ability to provide for a secure perimeter. The additional lighting if not properly designed or constructed could produce either direct light or glare along our secure fence line or onto our staff in our perimeter security towers. This inadvertent light or glare or both could significantly affect the ability of staff to clearly see along the perimeter fence line. If that were to occur, the perimeter security of the California Institution for Men (CIM) would be severely compromised. Therefore, we request 2

that we be allowed to meet with the City and its designers in advance of construction to review and discuss the lighting plans for the soccer fields. 2

Figure 3.4.6-1 Conceptual Burrowing Owl Mitigation Plan

The legend states "Well No. 7 to be retained". The legend should read "Well No. 3 to be retained". 3

Section 3.14.2 Existing Conditions, Sanitary Sewer

This section states that existing sewer lines convey raw sewage to CIM Wastewater Treatment Plant. This is incorrect. The referenced sewer lines convey raw sewage to the Inland Empire Utility Agency 4

Section 3.14.2 Existing Conditions, Solid Waste

This section refers to "A facility that processes vegetation waste (a green facility) is also located in the east-central part of the CIM site. This facility is now closed and no longer exists on the site. 5

Section 4.4 Alternative 4: Detention Pond Relocation:

The Detention Pond Relocation Alternative is not a viable alternative. The CIM property referenced ("north and just south of the master planned community") is not State surplus land and is not part of the proposed project. The CDC cannot permit the relocation of the project's detention ponds onto state property. The State does not have the authority to donate such land nor does the State have the authority to assume the liability. 6

If you have any questions, please call me at (916) 323-2254.

Sincerely,

GEORGE A. SIFUENTES, Chief
Project Development and Management Branch
Facilities Management Division

cc: Lori DiCarlo
Carol Roddy
Chris Swanberg
Geoffrey A. Simcoe

California Department of Corrections
Mr. George A. Sifuentes
Chief Project Development and Management Branch
Facilities Management Division
P.O. Box 942883
Sacramento, California 94283-0001

Response to Comment No. 1:

Thank you for your comment. Please note that the project proponent would include a disclosure to potential home buyers regarding adjacent land uses and to the presence of light and glare from adjacent operations.

Response to Comment No. 2:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the mitigation measures for aesthetics that required coordination with the California Department of Corrections prior to finalization of lighting plans.

Response to Comment No. 3:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to Section 3.4, Biological Resources, correcting the statement.

Response to Comment No. 4:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to Section 3.14, Utilities and Service Systems, correcting the statement.

Response to Comment No. 5:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to Section 3.14, Utilities and Service Systems, correcting the statement.

Response to Comment No. 6:

Thank you for your comment. The City of Chino has analyzed the detention pond relocation alternative in order to analyze the potential impacts that would result from relocating the detention ponds outside the proposed project area. The City of Chino has determined that the impacts would remain the same and no additional impacts would be avoided as a result of the relocation; therefore, the alternative would not reduce impacts in comparison to those of the proposed project. As described in Section 4.4, Alternative 4: Detention Pond Relocation, of the Environmental Impact Report, the Detention Pond

Relocation Alternative would not be preferred to the proposed project when considering all environmental impacts.

Department of Toxic Substances Control

Edwin F. Lowry, Director
1011 N. Grandview Avenue
Glendale, California 91201

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

July 24, 2003

Mr. Sal Salazar
City of Chino
Community Development Department
13220 Central Avenue
Chino, California 91710

DRAFT ENVIRONMENTAL IMPACT REPORT FOR CITY OF CHINO, SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, EDISON AVENUE, EUCLID AVENUE, CENTRAL AVENUE, KIMBALL AVENUE, CHINO, SAN BERNARDINO COUNTY, CALIFORNIA (SCH 2002071120)

Dear Mr. Salazar:

The Department of Toxic Substances Control (DTSC) has reviewed the Draft Environmental Impact Report (EIR), dated July, 2003, for the subject project. The due date to submit comments is Aug. 21, 2003.

Based on a review of the EIR, DTSC is providing the following comments:

1. Because the project includes a proposed elementary school and other school related areas, DTSC recommends that an environmental review, such as Phase I Environmental Site Assessment (Phase I) and/or Preliminary Endangerment Assessment (PEA), be conducted to determine whether there has been or may have been a release or threatened release of a hazardous material, or whether a naturally occurring hazardous material is present, based on reasonably available information about the property and the area in its vicinity. 1

2. The City of Chino is invited to participate in DTSC's School Property Evaluation and Cleanup Program authorized by AB 387, SB162, AB 2644 and AB 972. If you wish to investigate this program's applicability to the project, please contact the California Department of Education, School Facilities Planning Division at (916) 322-2470. If City of Chino elects to proceed to conduct a PEA at the site, it shall enter into an Environmental Oversight Agreement (EOA) with DTSC to oversee the preparation of the PEA. 2

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.dtsc.ca.gov.

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DTSC is also administering the $85 million Cleanup Loans and Environmental Assistance to Neighborhoods (CLEAN) Program which provides low-interest loans to investigate and cleanup hazardous materials at properties where redevelopment is likely to have a beneficial impact to a community. These loans are available to developers, businesses, schools, and local governments. 3

For additional information on the EOA or CLEAN Program, please visit DTSC's web site at www.dtsc.ca.gov. If you would like to meet and discuss this matter further, please contact me at (818) 551-2860. 4

Sincerely,

for Ken Chiang
Senior Hazardous Substances Scientist
School Property Evaluation and Cleanup Division

cc: Mr. Michael O'Neill
School Facilities Planning Division
California Department of Education
660 J Street, Suite 350
Sacramento, California 95814

Mr. Scott Morgan
State Clearinghouse
1400 Tenth Street
P.O. Box 3044
Sacramento, California 95812-3044

Department of Toxic Substances Control
CEQA Tracking Center
1001 I Street, 22nd Floor
P.O. Box 806
Sacramento, California 95812-0806

Chino Valley Unified School District
5130 Riverside Drive
Chino, CA 91710

Sapphos Environmental, Inc.
133 Martin Alley
Pasadena, CA 91105

SPECD Reading File

CEQA Reading File

California Department of Toxic Substances Control
Ken Chiang
Senior Hazardous Substances Scientist
School Property Evaluation and Cleanup Division
1011 North Grandview Avenue
Glendale, California 91201

Response to Comment No. 1:

Thank you for your comment. A Phase I Environmental Site Assessment (ESA) was conducted in 2002 as included in Appendix G of the Environmental Impact Report. The project proponent has completed a Phase II Environmental Site Assessment. The Draft Preliminary Endangerment Assessment (PEA) is being finalized and will be submitted to the California Department of Toxic Substances Control with the final school site location.

Response to Comment No. 2:

Thank you for your comment. The information will be forwarded to the decision-making body for consideration.

Response to Comment No. 3:

Thank you for your comment. The information will be forwarded to the decision-making body for consideration.

Response to Comment No. 4:

Thank you for providing us with the Internet link to additional information on the Environmental Oversight Agreement and Cleanup Loans and Environmental Assistance to Neighborhoods Programs.

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
464 W Fourth Street, 6th Floor MS 726
San Bernardino, CA 92401-1400
PHONE (909) 383-6327
FAX (909) 383-6890

COMMUNITY DEVELOPMENT
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AUG 2 2 2003

August 20, 2003

08-SBd-83-PM 4.42+/-
SCH# 2002071120

Mr. Sal Salazar
Community Development Department
City of Chino
13220 Central Avenue
Chino, CA 91710

Dear Mr. Salazar:

Draft Environmental Impact Report (DEIR), Specific Plan for the Development of 717 Acres of State Surplus Property from the California Institution for Men (CIM).

We have received a copy of the above notice for Specific Plan for CIM, located on the west side of State Route 83 (SR-83). This 717-acre development proposes low- medium density residential units, estate residential, along with commercial, community college, elementary school, park and open space uses.

We have the following comments for your consideration:

Traffic Operations Comments.

1- Widen the existing one lane westbound off-ramp from SR-60 to Euclid Ave to two lanes and add a third lane 100 meters in advance of the ramp intersection with Euclid Avenue. 1

2- Widen the westbound SR-60 / Euclid Avenue on-ramp to add a second lane. 2

3- Add an auxiliary lane along westbound SR-60 from Euclid Avenue on-ramp to Mountain Avenue off-ramp. 3

4- Widen the existing one lane westbound off-ramp from SR-60 to Mountain Ave to two lanes and add a third lane 100 meters in advance of ramp intersection with Mountain Ave. 4

5- Widen the westbound SR-60 / Mountain Ave on-ramp to add a second lane. 5

6- Add an auxiliary lane along westbound SR-60 from Mountain Avenue on-ramp to Central Avenue off-ramp. 6

7- Widen the westbound SR-60 / Central Ave on-ramp to add a second lane. 7

8- Widen the existing one lane eastbound off-ramp from SR-60 to Central Avenue to two lanes and add a third lane 100 meters in advance of ramp intersection with Central Avenue. 8

9- Add a second lane to existing eastbound SR-60 / Central Avenue on-ramp. 9

10- Add an auxiliary lane along eastbound SR-60 from Central Avenue on-ramp to Mountain Avenue off-ramp. 10

11- Widen the existing one lane eastbound off-ramp to Mountain Avenue to two lanes and add a third lane 100 meters in advance of ramp intersection with Mountain Avenue. 11

12- Add a second lane to existing eastbound SR-60 / Mountain Avenue on-ramp. 12

13- Add an auxiliary lane along eastbound SR-60 from Mountain Avenue on-ramp to Euclid Avenue off-ramp. 13

14- Widen the existing 2 lane eastbound off-ramp from SR-60 to Euclid Ave to 3 lanes 125 meters in advance of ramp intersection to Euclid Ave. 14

15- Add second lane to existing eastbound on-ramp SR-60 / Euclid Avenue. 15

16- Add two lanes to State Route 83 (Euclid Avenue) one in each direction from Edison Avenue to State Route 71. 16

San Bernardino County Planning

- SR-83 south of Pine Avenue may be found too environmentally sensitive to be widened. A possible alternative to SR-83 widening would be to widen Pine Avenue from SR 83 to SR 71 and to complete the easterly connection of Pine Avenue to SR-71/Pine Avenue interchange. 17

- The City of Chino should explore the possibility of Caltrans relinquishing to the City that portion of SR-83 that is within the City's sphere of influence. With relinquishment of this portion of SR-83, the City would have the advantage of street improvement project no longer having to meet Caltrans design standards but only the standard of the City. Additionally, a layer bureaucracy would be eliminated expediting the approval process for those improvements. 18

Thank you for providing us this opportunity to review and offer our comments on the DEIR for the CIM Specific Plan. If you have any questions regarding this letter, please contact Kee T Ooi of my staff at (909) 383-4149 for assistance.

Sincerely,

RAMAKRISHNA TADI, Ph.D., Acting Chief
Office of Forecasting/IGR-CEQA Review
Transportation Planning Division

cc: Robert McKinnon – Department of General Services
Scott Morgan –State Clearinghouse.
John Marcinek – Office Chief – Traffic Operations
Dan Kopulsky – Office Chief – San Bernardino County Transportation Planning.

California Department of Transportation
District 8
Dr. Ramakrishna Tadi
Acting Chief
Office of Forecasting/IGR-CEQA Review
Transportation Planning Division
464 West Fourth Street, 6th Floor, MS 726
San Bernardino, California 92401-1400

Response to Comment No. 1:

Thank you for your comment. The Environmental Impact Report (EIR) includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 2:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 3:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

This impact has been identified in the Congestion Management Program (CMP), and the proposed project will pay its fair share.

Response to Comment No. 4:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 5:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Please see Table 8, *Summary of Intersection and Roadway Improvements and Costs - Year 2025,* in Appendix O of the EIR for the addition of a lane to the SR-60/ Mountain Avenue on-ramp.

Response to Comment No. 6:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 7:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. The CMP identified reconstruction of the SR-60/Central Avenue interchange, which will address the requested improvements.

Response to Comment No. 8:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. The CMP identified reconstruction of the SR-60/Central Avenue interchange, which will address the requested improvements.

Response to Comment No. 9:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. The CMP identified reconstruction of the SR-60/Central Avenue interchange, which will address the requested improvements.

Response to Comment No. 10:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 11:

Thank you for your comment. The updated CMP will add a second eastbound lane at the SR-60/Mountain Avenue off-ramp.

Response to Comment No. 12:

Thank you for your comment. The updated CMP will add a second eastbound lane at the SR-60/Mountain Avenue off-ramp.

Response to Comment No. 13:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

This impact has been identified in the Congestion Management Program (CMP), and the proposed project will pay its fair share.

Response to Comment No. 14:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 15:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Response to Comment No. 16:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

Please see Table 8 in Appendix O of the EIR for descriptions of the proposed improvements.

Response to Comment No. 17:

Thank you for your comment. Non-parkland, in which the potential improvements would be necessary, may exist adjacent to the roadway. Prior to the implementation of the improvements, a more detailed study would be conducted to determine specific areas that need to be avoided, if any.

Response to Comment No. 18:

Thank you for your comment. The EIR includes measures that would mitigate all potential traffic impacts caused by the proposed project. Your suggestions are helpful, and they will be forwarded to the decision-making body for consideration.

STATE OF CALIFORNIA--YOUTH AND ADULT CORRECTIONAL AGENCY GRAY DAVIS, GOVERNOR

DEPARTMENT OF THE YOUTH AUTHORITY
4241 Williamsbourgh Drive
Sacramento, California 95823
Telephone (916) 262-1467

COMMUNITY DEVELOPMENT
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AUG 1 3 2003

August 13, 2003

Mr. Sal Salazar
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

Draft Environmental Impact Report, Specific Plan for Development of State Surplus Property & Amendment to the Redevelopment Plan for Merged Chino - Development Project Area, Chino, California
Clearing House Number 2002071120

Dear Mr. Salazar:

The California Youth Authority (CYA) received for review and comment, the July 2003 Draft Environmental Impact Report (DEIR) for the proposed specific plan for the development of State surplus property in Chino, California. I would like to thank you for the opportunity to review and comment on the DEIR. CYA has the following comments: 1

Section 3.1.2 Existing conditions – Page 3.1-3 Light and Glare
The environmental impact report addresses light and glare produced by the proposed development of the surplus property and proposed mitigation of the same, but does not address the night lighting effect of the correctional facilities high-mast security lighting on the southern boundary of the proposed development. 2

Consideration should be given to require homebuyers in the proposed development to acknowledge that they are aware of correctional facilities as neighbors, and the effect of high-mast security lighting on their enjoyment of dark evenings. Acknowledgement should be included in the Codes, Covenants and Restrictions (CC&R's) for each parcel as it goes through and is recorded in escrow.

Additionally, the DEIR does not address CYA's future plan to construct a 600-bed Mental Health Facility on our property to the immediate North of our existing Heman G. Stark Youth Correctional Facility. This piece of land abuts the southern boundary of the proposed development. When the initial Land Use Analysis of the CIM site was prepared by the Department of General Services, in association with Kitchell CEM, the expansion of our facility was included and discussed. The impact of this facility including the effect of high-mast security lighting needs to be addressed in the final EIR. 3

If you have any questions, please call Mr. Geoffrey A. Simcoe at (916) 262-1427.

Sincerely,

Jerry L. Harper
Director

California Department of the Youth Authority
Jerry L. Harper
Director
4241 Williamsbourgh Drive
Sacramento, California 95823

Response to Comment No. 1:

Thank you for providing comments. Please note that the project proponent would include a disclosure to potential home buyers regarding adjacent land uses and to the presence of light and glare from adjacent operations.

Response to Comment No. 2:

Thank you for your comment. Your suggestion will be forwarded to the decision-making body for consideration.

Response to Comment No. 3:

Thank you for your comment. The City of Chino recognizes that the State of California has the right to use the remainder of its property in accordance with applicable legal requirements, including preparation of applicable studies and documents in compliance with the California Environmental Quality Act. Based on further investigation, it is our understanding that the California Department of the Youth Authority has no project in its five-year plan for a large youth counseling and psychiatric facility. There are no elements in the proposed project for the anticipated development of the regional park, the residential and mixed use area, and the Chaffey College campus that would interfere with the ability of the State of California to use its property. The City of Chino agrees that it would be advisable for the developer(s) to place prospective purchasers on notice regarding the State of California's intent to use the adjacent property for a youth correctional facility and an adult prison facility. The City of Chino sees no need to impose covenants, conditions, and restrictions on the proposed project properties.

Gray Davis
Governor

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Tal Finney
Interim Director

August 22, 2003

COMMUNITY DEVELOPMENT
RECEIVED
AUG 2 " 2003

Sal Salazar
City of Chino Department of Community Services
13220 Central Avenue
Chino, CA 91710

Subject: Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area
SCH#: 2002071120

Dear Sal Salazar:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on August 21, 2003, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that: 1

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. 2

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
(916)445-0613 FAX(916)323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH#	2002071120
Project Title	Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area
Lead Agency	Chino, City of

Type	EIR Draft EIR
Description	The proposed project addresses 710 acres located in the northern portion of the 2,460-acre California Institution for Men (CIM), located in the City of Chino, County of San Bernardino, California. The proposed project site is also located within the boundaries of the redevelopment project area delineated in the City's Redevelopment Plan for the Merged Chino Redevelopment Project Area. The boundaries of the redevelopment area are beyond the boundaries of the proposed project area.

Lead Agency Contact

Name	Sal Salazar		
Agency	City of Chino Department of Community Services		
Phone	909-464-8324	*Fax*	
email			
Address	13220 Central Avenue		
City	Chino	*State* CA	*Zip* 91710

Project Location

County	San Bernardino			
City	Chino			
Region				
Cross Streets	Edison Ave., Euclid Ave., Central Ave., Kimball Ave.			
Parcel No.				
Township	2S	*Range* 8W	*Section*	*Base*

Proximity to:

Highways	SR 83, 71
Airports	Chino Airport
Railways	Southern Pacific
Waterways	Cypress Channel
Schools	
Land Use	Open Space-Recreation/Education, Open Space-Urban Reserve

Project Issues	Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Flood Plain/Flooding; Geologic/Seismic; Job Generation; Housing; Cumulative Effects; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Noise; Public Services; Schools/Universities; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing
Reviewing Agencies	Resources Agency; Department of Fish and Game, Region 6; Department of Parks and Recreation; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 8; Department of Housing and Community Development; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; Other Agency(ies); Native American Heritage Commission; State Lands Commission

Date Received 07/08/2003 *Start of Review* 07/08/2003 *End of Review* 08/21/2003

Note: Blanks in data fields result from insufficient information provided by lead agency.

Governor's Office of Planning and Research
State Clearinghouse
Terry Roberts
Director
1400 Tenth Street
P.O. Box 3044
Sacramento, California 95812-3044

Response to Comment No. 1:

Thank you for forwarding the Draft Environmental Impact Report to state agencies for review. The City of Chino has received the comments from the responding agencies.

Response to Comment No. 2:

Thank you for acknowledging that the City of Chino has complied with the State Clearinghouse review requirements for draft environmental documents. The City of Chino will contact the State Clearinghouse with any further questions.

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse

Gray Davis
Governor

Tal Finney
Interim Director

COMMUNITY DEVELOPMENT

August 26, 2003

Sal Salazar
City of Chino Department of Community Services
13220 Central Avenue
Chino, CA 91710

Subject: Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area
SCH#: 2002071120

Dear Sal Salazar:

The enclosed comment (s) on your Draft EIR was (were) received by the State Clearinghouse after the end of the state review period, which closed on August 21, 2003. We are forwarding these comments to you because they provide information or raise issues that should be addressed in your final environmental document.

The California Environmental Quality Act does not require Lead Agencies to respond to late comments. However, we encourage you to incorporate these additional comments into your final environmental document and to consider them prior to taking final action on the proposed project

Please contact the State Clearinghouse at (916) 445-0613 if you have any questions concerning the environmental review process. If you have a question regarding the above-named project, please refer to the ten-digit State Clearinghouse number (2002071120) when contacting this office

Sincerely,

Terry Roberts

Terry Roberts
Senior Planner, State Clearinghouse

Enclosures
cc: Resources Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
(916)445-0613 FAX(916)323-3018 www.opr.ca.gov

Governor's Office of Planning and Research - LATE LETTER
State Clearinghouse
Terry Roberts
Senior Planner
1400 Tenth Street
P.O. Box 3044
Sacramento, California 95812-3044

Response to Comment No. 1:

Thank you for forwarding all late comments to the City of Chino. The City of Chino responded to all late comments received prior to finalization of the Final Environmental Impact Report.

13.2.3 Regional Agencies

California Regional Water Quality Control Board - LATE LETTER
Santa Ana Region
David G. Woelfel
Planning Section
3737 Main Street, Suite 500
Riverside, California 92501-3348

Chino Valley Independent Fire District
Paul L. Benson
Fire Chief
2005 Grand Avenue
Chino Hills, California 91709

Southern California Association of Governments
Jeffrey M. Smith
Senior Regional Planner
Intergovernmental Review
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

Southern California Edison
Raymond Hicks
Region Manager
1351 East Francis Street
Ontario, California 91761-5715

Transportation Corridor Agencies
Valarie McFall
Principal Environmental Analyst
Environmental and Planning
125 Pacifica, Suite 100
Irvine, California 92618-3304

California Regional Water Quality Control Board
Santa Ana Region

Vinston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

COMMUNITY DEVELOPMENT
RECEIVED
AUG 2 7 2003

August 26, 2003

Mr. Sal Salazar
City of Chino
13220 Central Avenue
Chino, CA 91710

NOTICE OF COMPLETION (NOC) OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, CHINO, SAN BERNARDINO COUNTY / STATE CLEARING HOUSE NUMBER 2002071120

Dear Mr. Salazar:

Staff of the Regional Water Quality Control Board, Santa Ana Region (RWQCB), has reviewed the Draft Environmental Impact Report for the above referenced project. The proposed project is composed of the development of approximately 710 acres of former state surplus property. 1

There is widespread experience that urban development activity impacts water quality. There is the potential that the development of this area will substantially impact the water quality and the associated beneficial uses. Therefore, to lessen impacts to water quality standards and protect beneficial uses, the following principals and policies should be considered for the project.

1. Avoid disturbance to any natural water bodies and drainage systems; conserve natural areas; protect slopes, drainage systems, and water bodies. Natural drainage systems and water bodies reduce impacts to water quality standards and will improve impacted waters. In addition, they provide beneficial uses for wildlife and recreation. Encourage riparian vegetation in drainage systems, if feasible. Provide adequate vegetated buffer areas to capture storm flows, to lessen erosion, and protect water quality. All disturbances to natural waters and drainages require mitigation. 2

   Man-made soft-bottom drainages also provide water quality benefits over time, especially if habitat is allowed to establish itself. Soft-bottom channels may support groundwater recharge, and wildlife habitat, as well as providing retention of urban runoff and filtration and removal of pollutants. Concrete lining, as well as the use of grouted or non-grouted rip-rap, should be avoided. The use of bio-engineered erosion control methods (i.e., native riparian vegetation, permeable erosion control blankets, willow posts) should be considered as alternatives. 3

2. Please be advised that any impacts to Waters of the United States/State require a Section 401 Water Quality Standards Certification from the Regional Board. Impacts to these waters should first and foremost be avoided. Where that is not practicable, impacts to these waters 4

should be minimized. Mitigation of unavoidable impacts must replace the full function and value of the impacted waterbody. Information concerning Section 401 certification can be found at the Regional Board's website, www.swrcb.ca.gov/rwqcb8/html/401.html. Impacts to the waters of the United States also require a Clean Water Act Section 404 permit from the United States Army Corps of Engineers and a Streambed Alteration Agreement from the California Department of Fish and Game. 4

3. Development in this area will increase the amount of area covered with pavement or structures. This will alter the rate and volumes of groundwater recharge and surface water runoff. We encourage the use of pervious materials to retain absorption and allow more percolation of storm water into the ground within the site. The use of pervious materials, such as vegetated basins, permeable/porous pavement, etc., for all development is strongly encouraged. Any increase in runoff due to development should be mitigated to prevent damage to water quality and beneficial uses downstream. 5

   Biological/vegetated treatment basins reduce the pollutants in storm or urban water runoff by filtering the runoff through the vegetation and the soil matrix and/or allowing infiltration into the underlying soils. Studies have shown that these wetlands and biofilters remove many of the harmful pollutants found in urban runoff, and also help mitigate the increased volume of runoff. 6

   Porous pavement is an alternative to standard impervious pavement and should be considered for use in parking areas of the project. One type of porous pavement contains an underlying stone reservoir to temporarily store surface runoff allowing it to infiltrate into the subsoil. 7

4. Construction of detention basins or holding ponds and/ or constructed wetlands within a project site to capture and treat dry weather urban runoff and the first flush of rainfall runoff should be utilized. These basins should be designed to detain runoff for a minimum time (e.g., 24 hours) to allow particles and associated pollutants to settle and to provide for natural treatment. 8

5. Consider retaining areas of open space to aid in the recharge and retention of runoff. Native plant materials should be used in replanting and hydroseeding operations. Native plants provide effective slope soil retention, help filter and clean runoff, maintain habitat for native animal species, and have other water quality benefits. 9

6. Post-development storm water runoff flow rates (Q) should not differ from the pre-development Q. Changes in Q, either in a positive or negative manner can lead to erosion or sedimentation. Such a change in Q may create potential downstream impacts affecting 303 (d) listed water bodies, as well as flood control facilities. 10

7. This project should be designed and constructed to protect, and if possible, improve the quality of underlying groundwater. Incorporating the principals and policies mentioned above will help protect the underlying groundwater basin. 11

8. No waste material may be discharged to any drainage areas, channels, streambeds, or streams. Spoil sites must not be located within any streams or areas where spoil material could be washed into a water body. 12

9. As a result of the proposed construction activity occurring in an area over five acres, a General Construction Activity Storm Water Runoff Permit must be obtained by the project proponent. A Notice of Intent (NOI) with the appropriate fees for coverage of the project under the General Construction Activity Storm Water Runoff Permit must be submitted to the State Water Resources Control Board at least 30-days prior to the initiation of construction activity at the site. Contact Milasol Gaslan at (909) 782-4419 or review the Construction Activity General Permit and Fact Sheet on the SWRCB website (www.swrcb.ca.gov) for information. 13

10. Appropriate best management practices (BMPs) must be implemented during construction to control the discharge of pollutants, prevent sewage spills, and to avoid discharge of sediments into the streets, storm water conveyance channels, or waterways. 14

11. A National Pollutant Discharge Elimination System (NPDES) permit for any discharge of wastes to surface waters, or Waste Discharge Requirements for any discharge of wastes to land, is required by the California Water Code. 15

For more information on the construction of the Best Management Practices (BMPs) mentioned above (grassed swales, porous pavement, constructed wetlands, and dry/wet detention ponds) please review the EPA website www.epa.gov/npdes/menuofbmps/post.htm. 16

If you should have any questions, please call me at (909) 782-7960 or Mark Adelson at (909) 782-3234.

Sincerely,

David Woelfel

David G. Woelfel
Planning Section

cc: Becky Frank – State Clearinghouse

California Regional Water Quality Control Board - LATE LETTER
Santa Ana Region
David G. Woelfel
Planning Section
3737 Main Street, Suite 500
Riverside, California 92501-3348

Response to Comment No. 1:

Thank you for your comment. The proposed project includes all best management practices (BMP) to protect water quality within Cypress Channel and Magnolia Channel in the proposed project area. Buffers around the channels would capture runoff from the proposed development and detention basins on the southern boundary of the proposed project area.

Response to Comment No. 2:

Thank you for your comment. Within the proposed project area, Cypress Channel is a concrete-lined channel. Magnolia Channel contains a natural bottom. The Cypress Channel, within the limits of the proposed project area, would be reconstructed to current standards to control a 100-year storm. Vegetated buffers would be provided around the Magnolia and Cypress Channels consistent with mitigation measure Burrowing Owl-1. The proposed project also calls for detention basins along the southern boundary of the proposed project area to capture runoff.

Response to Comment No. 3:

Thank you for your comment. The Cypress Channel, within the limits of the proposed project area, would be reconstructed to current standards to control a 100-year storm. Magnolia Channel will be realigned through the proposed project area; however, concrete lining is not being considered. Erosion control measures are included in the proposed project as mentioned in responses to comments No. 1 and No. 2.

Response to Comment No. 4:

Thank you for your comment. All required permits would be obtained by the project proponent or its designee prior to implementation. Impacts to waters of the United States would be avoided or minimized, wherever possible, in accordance with Section 401 and 404 permits and a Streambed Alteration Agreement, as required. Please note that the project proponent has updated the previously prepared Jurisdictional Delineation. The revised report is included as Appendix M, *Final Jurisdictional Delineation Report*, of this Final Environmental Impact Report (EIR).

Response to Comment No. 5:

Thank you for your comment. The proposed project includes detention basins and vegetated buffers surrounding existing drainage basins within the proposed project area to collect additional runoff that may be associated with development of the proposed project elements. Please note that the proposed project includes use of pervious materials, wherever possible, and the mitigation of runoff.

Response to Comment No. 6:

Thank you for your comment. The proposed project includes detention basins in the southern portion of the proposed project area. Native vegetation would also be incorporated to assist with reduction of pollutants in captured runoff.

Response to Comment No. 7:

Thank you for your comment. The suggestion for the use of porous pavement would be passed on to the City of Chino for consideration during the EIR certification process. However, the proposed project includes use of pervious surfaces wherever possible.

Response to Comment No. 8:

Thank you for your comment. The proposed project includes detention basins in the southern portion of the proposed project area and shall be designed to detain runoff for at least 24 hours.

Response to Comment No. 9:

Thank you for your comment. The proposed project includes retention of open space associated with the proposed Ruben S. Ayala Park expansion, mitigation areas, and open space associated with Chaffey College. Native plant materials are specified in the vegetation of the burrowing owl mitigation areas.

Response to Comment No. 10:

Thank you for your comment. The proposed project includes detention basins, remaining open space, and vegetated buffers around existing channels that are designed to capture any additional runoff associated with development of the proposed project. A change in the runoff rates would not be expected.

Response to Comment No. 11:

Thank you for your comment. The proposed project incorporates vegetated buffers, detention basins, and open space that would be expected to protect the existing quality of groundwater within the proposed project area.

Response to Comment No. 12:

Thank you for your comment. The proposed project would comply with all applicable BMPs and would incorporate measures to ensure that no waste material would be discharged into waste areas. No spoil piles would be located where they could impact an existing waterbody.

Response to Comment No. 13:

Thank you for your comment. All appropriate permits would be acquired by the project proponent prior to the initiation of construction.

Response to Comment No. 14:

Thank you for your comment. All BMP shall be implemented by the project proponent.

Response to Comment No. 15:

Thank you for your comment. All appropriate permits would be acquired by the project proponent prior to the initiation of construction.

Response to Comment No. 16:

Thank you for providing the City of Chino with information regarding the construction and implementation of BMP for the proposed project.

Chino Valley Independent Fire District

2005 Grand Avenue
Chino Hills, CA 91709
(909) 902-5260 Administration
(909) 902-5280 Fire Prevention
(909) 902-5250 Fax

Board of Directors
Tina Revane, President
David A. Voigt, Vice President
Patti Aguiar
James S. Espinosa
Ed Gray

Fire Chief
Paul L. Benson

COMMUNITY DEVELOPMENT
RECEIVED
JUL 15 2003

July 11, 2003

City of Chino
Community Development Department
Attn: Mr. Sal Salazar, AICP, Principal Planner
13220 Central Avenue
Chino, CA 91710

RE: DRAFT ENVIRONMENTAL IMPACT REPORT (July 2003)
710 ACRES OF SURPLUS PROPERTY-CIM

Dear Mr. Salazar:

The Fire District has reviewed the Draft EIR for the development of 710 acres of State surplus property at the California Institute for Men-Chino. We appreciate the opportunity to involved in the entire planning process for this important project. 1

Fire District comments regarding the project are outlined below:

1. The re-location of the California Department of Forestry helicopter currently located on the project site to a new location on the south side of Prado Conservation Camp is of vital importance to the Fire District. This needs to be done without interruption in helicopter service. 2

2. Traffic signals within the project area to be equipped with emergency response signal control devices per current specifications. 3

3. Buildings with fire sprinklers require a maximum of 4,000 gpm for a 4-hour duration and a minimum of 1,500 gpm for a 2-hour duration. 4

4. Recycled water is not to be used for fire protection systems. 5

5. All Fire District access standards to be complied with, including roads widths to City of Chino standards and at a minimum of a 26 foot width (without parking). 6

6. All development to comply with current fire protection requirements, including Fire District standards. 7

7. A minimum of two (2) points of vehicular access and egress is required to all areas of this development. 8

8. Referencing page 3.11-3, the average response time to structure fires in 2002 was 5 minutes and 42 seconds. Footnote 15 can be updated to reflect CVIFD Master Plan dated April 9, 2003. 9

9. Referencing figure 3.11.2-1, the fire stations are not identified in the correct location and are not the same fire stations as listed on page 3.11-4. 10

10. A fire station planned for the area of Chino Hills Parkway, west of Central Avenue needs to be constructed by the City of Chino at a time mutually agreed upon by the City and the Fire District. 11

The Fire District contact for this project is:

Tom J. Maxham, Division Chief/Fire Marshal
2005 Grand Avenue
Chino Hills, CA 91710
909/ 902-5260 12

Please let us know if further clarification is needed.

Sincerely,

Paul L. Benson
Fire Chief

Tom J. Maxham

By: Tom J. Maxham
Division Chief/Fire Marshal

Chino Valley Independent Fire District
Paul L. Benson
Fire Chief
2005 Grand Avenue
Chino Hills, California 91709

Response to Comment No. 1:

Thank you for reviewing the Draft Environmental Impact Report (EIR).

Response to Comment No. 2:

Thank you for your comment. The relocation of the helicopter pad would be done as a two-step process, which would include construction of a new pad and transfer of services to the new pad after it is completed and ready for service.

Response to Comment No. 3:

Thank you for your comment. The traffic improvements would include the standard specifications, which include the emergency response signal control devices. The current standards within the City of Chino would be adhered to for installation of all traffic signals.

Response to Comment No. 4:

Thank you for your comment. The buildings would be equipped with the standard specifications, which include the fire sprinkler capacities of a maximum of 4,000 gallons per minute for a 4-hour duration and a minimum of 1,500 gallons per minute for a 2-hour duration.

Response to Comment No. 5:

Thank you for your comment. The use of recycled water is not planned for fire protection services.

Response to Comment No. 6:

Thank you for your comment. The current road width standards with the City of Chino and the Chino Valley Independent Fire District would be adhered to for all roads within the proposed development.

Response to Comment No. 7:

Thank you for your comment. The development would comply with all current fire protection requirements, including Chino Valley Independent Fire District standards.

Response to Comment No. 8:

Thank you for your comment. The development would include at least two points of vehicular ingress and egress. These would include proposed ingress and egress from Central Avenue, Edison Avenue, and Euclid Avenue.

Response to Comment No. 9:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for the update to the Chino Valley Independent Fire District response time and footnote.

Response to Comment No. 10:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for the revisions to Figure 3.11.2-1, *Public Services in the Proposed Project Vicinity*.

Response to Comment No. 11:

Thank you for your comment. The fire station planned for the area of Chino Hills Parkway, west of Central Avenue, is to be constructed by the City of Chino at a mutually agreed-upon time and place by the City of Chino and the Chino Valley Independent Fire District.

Response to Comment No. 12:

Thank you for providing the City of Chino with contact information for the Chino Valley Independent Fire District.

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

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ent: Councilmember Ronald Bates, Los
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• Paul Talbot, Alhambra • Sidney Tyler, Jr.,
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Grand Terrace • Susan Longville, San
no • Gary Ovitt, Ontario • Deborah
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erra, Simi Valley • Carl Morehouse, San
ntura • Toni Young, Port Hueneme

County Transportation Commission:
re, Hemet

County Transportation Commission: Bill
ni Valley

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August 14, 2003

COMMUNITY DEVELOPMENT
RECEIVED

AUG 1 : 2003

Mr. Sal Salazar, AICP
Principal Planner
City of Chino
Community Development Department
13220 Central Avenue
Chino, CA 91710

RE: **Comments on the Draft Environmental Impact Report for the Development of State Surplus Property Project – SCAG No. I 20030376**

Dear Mr. Salazar:

Thank you for submitting the **Draft Environmental Impact Report for the Development of State Surplus Property Project** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies. 1

We have reviewed the **Draft Environmental Impact Report for the Development of State Surplus Property Project.** The proposed Project is regionally significant per California Environmental Quality Act (CEQA) Guidelines (Section 15206). **The proposed Project considers a residential development of more than 500 dwelling units.** CEQA requires that EIRs discuss any inconsistencies between the proposed project and applicable general plans and **regional plans (Section 15125 [d]).** If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided. The Draft EIR does not provide an analysis/discussion of SCAG policies that may be applicable to the **Development of State Surplus Property Project.** 2

Policies of SCAG's Regional Comprehensive Plan and Guide and Regional Transportation Plan, which may be applicable to your project, are outlined in the attachment. **It would be helpful if the Final EIR would specifically cite the appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies or supportive of applicable ancillary policies. Please use our policy numbers to refer to them in your Draft EIR. Also, we would encourage you to use a side-by-side comparison of SCAG policies with a discussion of the consistency or support of the policy with the Proposed Project.** 3

Please provide a minimum of 45 days for SCAG to review the Final EIR when this document is available. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you. 4

Sincerely,

JEFFREY M. SMITH, AICP
Senior Regional Planner
Intergovernmental Review

COMMENTS ON THE PROPOSAL TO DEVELOP A DRAFT MASTER ENVIRONMENTAL IMPACT REPORT FOR THE STATE SURPLUS PROPERTY DEVELOPMENT PROJECT SCAG NO. I 20030376

PROJECT DESCRIPTION

The proposed Project considers the development of a premier living environment, designed to on the principles of "smart" development, including efficient use of land resources, full use of urban services, mix of uses, transportation options, and detailed human scale design that is unique because of its accessibility to regional, educational and recreational opportunities. Specifically, the proposed Project seeks to the following:

- Develop the proposed Project area consistent with the adopted Redevelopment Plan.
- Provide an integrated mix of residential densities and product types, including estate lot residential, single-family residences on a variety of smaller lots, and multi family residences such as townhouses, duplexes, clustered products, flats and condominiums.
- Identify and adopt a land-use plan that will be fiscally efficient and capable of financing the construction and maintenance of required public improvements.

The proposed Project area consists of 710 acres, located in the northern portion of the 2,460-acre California Institute of Men located within the City of Chino, San Bernardino County.

INTRODUCTION TO SCAG REVIEW PROCESS

The document that provides the primary reference for SCAG's project review activity is the Regional Comprehensive Plan and Guide (RCPG). The RCPG chapters fall into three categories: core, ancillary, and bridge. The Growth Management (adopted June 1994), Regional Transportation Plan (adopted April 2001), Air Quality (adopted October 1995), Hazardous Waste Management (adopted November 1994), and Water Quality (adopted January 1995) chapters constitute the core chapters. These core chapters respond directly to federal and state planning requirements. The core chapters constitute the base on which local governments ensure consistency of their plans with applicable regional plans under CEQA. The Air Quality and Growth Management chapters contain both core and ancillary policies, which are differentiated in the comment portion of this

letter. The Regional Transportation Plan (RTP) constitutes the region's Transportation Plan. The RTP policies are incorporated into the RCPG.

Ancillary chapters are those on the Economy, Housing, Human Resources and Services, Finance, Open Space and Conservation, Water Resources, Energy, and Integrated Solid Waste Management. These chapters address important issues facing the region and may reflect other regional plans. Ancillary chapters, however, do not contain actions or policies required of local government. Hence, they are entirely advisory and establish no new mandates or policies for the region. 6

Bridge chapters include the Strategy and Implementation chapters, functioning as links between the Core and Ancillary chapters of the RCPG.

Each of the applicable policies related to the proposed project are identified by number and reproduced below in italics followed by SCAG staff comments regarding the consistency of the Project with those policies.

SUMMARY OF SCAG STAFF COMMENTS

1. The Draft EIR does not addresses the relationship of the proposed project to **applicable regional plans** as required by Section 15125 [d] of *Guidelines for Implementation of the California Environmental Quality Act.* 7

2. The Final EIR should address the relationships (consistency with core policies and support of ancillary policies) to SCAG's Regional Comprehensive Plan and Guide, utilizing commentary from the following detailed SCAG staff comments. The response should also discuss any inconsistencies between the proposed project and applicable regional plans. We suggest that you identify the specific policies, by policy number, with a discussion of consistency or support with each policy. 8

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The **Growth Management Chapter (GMC)** of the Regional Comprehensive Plan and Guide (RCPG) contains the following policies that are particularly applicable and should be addressed in the Draft Master EIR for the State Surplus Property. 9

3.01 The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.

Regional Growth Forecasts

The Draft EIR should reflect the most current SCAG forecasts which are the 2001 RTP (April 2001) Population, Household and Employment forecasts for San Bernardino Associated Governments (SANBAG) subregion and the City of Chino. These forecasts are as follows:

SANBAG Subregional Forecasts	**2000**	**2005**	**2010**	**2015**	**2020**
Population	1,743,438	1,855,434	2,031,708	2,238,937	2,486,564
Households	543,171	582,536	640,917	708,521	789,375
Employment	582,543	715,070	852,025	932,992	1,007,013

City of Chino Forecasts	**2000**	**2005**	**2010**	**2015**	**2020**
Population	65,725	69,659	72,069	75,256	79,473
Households	17,215	18,580	19,324	20,222	21,389
Employment	36,397	46,857	57,667	64,059	69,903

3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.

9

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The evaluation of the proposed project in relation to the following policies would be intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers.

10

3.05 Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.

3.09 Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.

3.10 Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

10

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates.

3.12 Encourage existing or proposed local jurisdictions' programs aimed at designing land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunities for residents to walk and bike.

11

3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.

3.15 Support local jurisdictions strategies to establish mixed-use clusters and other transit-oriented developments around transit stations and along transit corridors.

3.16 Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.

3.17 Support and encourage settlement patterns, which contain a range of urban densities.

3.18 Encourage planned development in locations least likely to cause environmental impact.

3.20 Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.

3.21 Encourage the implementation of measures aimed at the preservation and

protection of recorded and unrecorded cultural resources and archaeological sites.

3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.

3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.

11

GMC POLICIES RELATED TO THE RCPG GOAL TO PROVIDE SOCIAL, POLITICAL, AND CULTURAL EQUITY

The Growth Management Goal to develop urban forms that avoid economic and social polarization promotes the regional strategic goal of minimizing social and geographic disparities and of reaching equity among all segments of society. The evaluation of the proposed project in relation to the policy stated below is intended guide direction for the accomplishment of this goal, and does not infer regional mandates and interference with local land use powers.

12

3.24 Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.

3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

REGIONAL TRANSPORTATION PLAN

The **Regional Transportation Plan (RTP)** also has goals, objectives, policies and actions pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. Among the relevant goals, objectives, policies and actions of the RTP are the following:

13

Core Regional Transportation Plan Policies

4.01 Transportation investments shall be based on SCAG's adopted Regional Performance Indicators:

Mobility - Transportation Systems should meet the public need for improved access, and for safe, comfortable, convenient, faster and economical movements of people and goods.

- *Average Work Trip Travel Time in Minutes – 25 minutes (Auto)*
- *PM Peak Freeway Travel Speed – 45 minutes (Transit)*
- *PM Peak Non-Freeway Travel Speed*
- *Percent of PM Peak Travel in Delay (Fwy)*
- *Percent of PM Peak Travel in Delay (Non-Fwy)*

Accessibility - Transportation system should ensure the ease with which opportunities are reached. Transportation and land use measures should be employed to ensure minimal time and cost.

- *Work Opportunities within 45 Minutes door to door travel time (Mode Neutral)*
- *Average transit access time*

Environment - Transportation system should sustain development and preservation of the existing system and the environment. (All Trips)

- *CO, ROG, NOx, PM10, PM2.5 – Meet the applicable SIP Emission Budget and the Transportation Conformity requirements*

Reliability – Transportation system should have reasonable and dependable levels of service by mode. (All Trips)

- *Transit – 63%*
- *Highway – 76%*

Safety - Transportation systems should provide minimal accident, death and injury. (All Trips)

- *Fatalities Per Million Passenger Miles – 0*
- *Injury Accidents – 0*

Equity/Environmental Justice - The benefits of transportation investments should be equitably distributed among all ethnic, age and income groups. (All trips)

- *By Income Groups Share of Net Benefits – Equitable Distribution of Benefits among all Income Quintiles*

13

Cost-Effectiveness - Maximize return on transportation investment (All Trips). Air Quality, Mobility, Accessibility and Safety

- *Return on Total Investment – Optimize return on Transportation Investments*

4.02 Transportation investments shall mitigate environmental impacts to an acceptable level. 13

4.04 Transportation Control Measures shall be a priority.

4.16 Maintaining and operating the existing transportation system will be a priority over expanding capacity.

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter** core actions related to the proposed project includes:

5.07 Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed. 14

5.11 Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.

OPEN SPACE CHAPTER ANCILLARY GOALS

Outdoor Recreation

9.01 Provide adequate land resources to meet the outdoor recreation needs of the present and future residents in the region and to promote tourism in the region. 15

9.02 Increase the accessibility to open space lands for outdoor recreation.

9.03 Promote self-sustaining regional recreation resources and facilities.

Public Health and Safety

9.04 Maintain open space for adequate protection of lives and properties against natural and man-made hazards.

9.05 Minimize potentially hazardous developments in hillsides, canyons, areas susceptible to flooding, earthquakes, wildfire and other known hazards, and areas with limited access for emergency equipment.

Resource Production

9.07 Maintain adequate viable resource production land, particularly lands devoted to commercial agriculture and mining operations.

Resource Protection

9.08 Develop well-managed viable ecosystems or known habitats of rare, threatened and endangered species, including wetlands.

15

WATER QUALITY CHAPTER RECOMMENDATIONS AND POLICY OPTIONS

The **Water Quality Chapter** core recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters.

11.02 Encourage "watershed management" programs and strategies, recognizing the primary role of local governments in such efforts.

11.05 Support regional efforts to identify and cooperatively plan for wetlands to facilitate both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.

11.07 Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.

16

CONCLUSIONS

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA. 17

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. '134, 49 U.S.C. '5301 et seq., 23 C.F.R. '450, and 49 C.F.R. '613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080 and 65082 respectively.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. '7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the State Implementation Plan, pursuant to 42 U.S.C. '7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, Environmental Impacts Reports of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. '1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency***.

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the Association of Bay Area Governments, the Sacramento Area Council of Governments, and the Association of Monterey Bay Area Governments) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

Revised July 2001

Southern California Association of Governments
Jeffrey M. Smith
Senior Regional Planner
Intergovernmental Review
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

Response to Comment No. 1:

Thank you for providing the City of Chino with information regarding the Southern California Association of Governments's (SCAG's) roles and responsibilities.

Response to Comment No. 2:

Thank you for reviewing the Draft Environmental Impact Report (EIR).

Response to Comment No. 3:

Thank you for your comment. The City of Chino has responded to each comment and described how and where the document and proposed project comply. Please see Appendix N, *April 27, 2004, College Park Community Meeting: Responses to Community Concerns and Comments*, of this Final EIR for responses to the community concerns and comments from the April 27, 2004, City of Chino Community Comment Meeting. The responses include a description of the proposed projects elements for sustainability.

Response to Comment No. 4:

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15089, the Public Resources Code 21092.5 required the lead agency to provide a written proposed response to each public agency that commented on the EIR. The proposed response must be provided to the pertinent public agency 10 days prior to the lead agency's certification of the Final EIR. Therefore, SCAG shall have 10 days to review the City of Chino's responses, which are contained in the Final EIR.

Response to Comment No. 5:

Thank you for your summary of the proposed project.

Response to Comment No. 6:

Thank you for your summary of SCAG's review process.

Response to Comment No. 7:

Thank you for your comment. Please see the following sections for discussions regarding regional policies:

- Agricultural Resources – Sections 3.2.1, Regulatory Framework
- Air Quality – Sections 3.3.1, Regulatory Framework
- Hydrology and Water Quality – Sections 3.8.1, Regulatory Framework
- Population and Housing – Sections 3.10.1, Regulatory Framework
- Recreation – Sections 3.12.1, Regulatory Framework
- Transportation/Traffic – Sections 3.13.1, Regulatory Framework

Response to Comment No. 8:

Thank you for your suggestion. Please see the responses to comments No. 9 through 17**.**

Response to Comment No. 9:

Thank you for your comment. Please see Table 3.10.2-1, *SCAG Regional Growth Forecasts*, in the Draft EIR for the inclusion of the existing conditions for population trends and forecasts. The Draft EIR reflects the most current SCAG forecasts, as listed in your comment.

Response to Comment No. 10:

Thank you for your comment. The proposed development would be built in a traditional style, which would cluster development around a central commercial area. This would be efficient in the use of natural resources and the use of utility lines. Therefore, there would be reduced costs on infrastructure construction and make better use of the existing facilities, such as the roadways surrounding the proposed project area.

Response to Comment No. 11:

Thank you for your comment. The proposed Master Plan includes the opportunity for a mix of jobs and housing within the same development. The plan includes a variety of uses and is in close proximity to dense urban areas.

The plan includes a network of nonmotorized facilities, including bike trails, sidewalks, pedestrian trails, and an enhanced transit system. The plan would encourage use of trail systems, which would link existing trail systems and park systems that the plan would include. The proposed development would be built in a traditional style, which would cluster development around a central commercial area. This would center the development around activity centers and provide access via a variety of nonmotorized methods.

The plan includes the allocation of a variety of types of open space, including a park system, detention ponds, and owl mitigation areas.

The EIR includes mitigation measures that would reduce impacts to Biological Resources (please see Section 3.3.5, Cumulative Impacts, of the Draft EIR), Cultural Resources (please see Section 3.5.5 of the Draft EIR), Hazards and Hazardous Material (please see Section 3.6.5, Cumulative Impacts, of the Draft EIR), Geology and Soils, which include seismic hazards (please see Section 3.7.5, Cumulative Impacts of the Draft EIR), and Noise (please see Section 3.9.5, Cumulative Impacts, of the Draft EIR).

Response to Comment No. 12:

Thank you for your comments. The proposed project objectives include compliance with all requirements of the City of Chino and the Redevelopment Plan for inclusionary housing. Specifically, at least 15 percent of all new residences, inside or outside the proposed project area, would be made affordable to low- and moderate-income households.

The proposed project also includes land for the development of an elementary school and land for parks, as well as the formation of a services facility district.

Response to Comment No. 13:

Thank you for your comment. Please see Section 3.13, Transportation/Traffic, of the Draft EIR, as well as Appendix I, *Traffic Impact Analysis for the Specific Plan for the Development of State Surplus Property from the California Institution for Men, Chino, California*. These sections include a complete analysis of traffic impacts and mitigation measures. Please also note that the traffic impact analysis was supplemented to include additional local intersections. This supplemental traffic impact analysis is in the form of a Technical Memorandum and can be found in Appendix O, *Technical Memorandum: Additional Traffic/Transportation Analysis of Proposed College Park Project,* of this Final EIR.

The proposed Master Plan includes the opportunity for a mix of jobs and housing within the same development. The plan includes a variety of uses and is in close proximity to dense urban areas.

The plan also includes a network of nonmotorized facilities, including bike trails, sidewalks, pedestrian trails, and an enhanced transit system.

Response to Comment No. 14:

Thank you for your comments. Please see Section 3.2, Agricultural Resources, of the Draft EIR. This section includes an air quality analysis and mitigation measures that would reduce impacts to air quality from construction of the proposed project elements. Although short-term, construction-related impacts may occur, the long-term air quality impacts are reduced to below the level of significance.

Again, the proposed project would include a variety of nonmotorized elements and encourage the use of trail systems and transit systems for access throughout the proposed project area.

Response to Comment No. 15:

Thank you for your comments. The proposed project includes a variety of elements aimed to enhance the recreational facilities that exist on and around the proposed project area and to create new recreational facilities and opportunities.

As part of the proposed project, the State of California would convey approximately 140 acres, which includes the existing 40-acre Ruben S. Ayala Park, to the City of Chino. The park would be expanded to include a variety of additional recreation facilities and opportunities. Please see Section 2.4.1, Recreation, of the Draft EIR for a description of the park expansion.

The proposed project also includes the development of an additional 15 acres of parkland, which would consist of a variety of 1-acre parks and a 3.5-acre park.

The proposed project would include approximately 216 acres of the 710 acres to be considered passive and active open space.

Response to Comment No. 16:

Thank you for your comment. Please see Section 3.8, Hydrology and Water Quality, of the Draft EIR for the analysis of hydrology and water quality for the proposed project and the implementation of best management practices that would reduce any impacts that the proposed project would have on hydrology and water quality to below the level of significance. The proposed project was specifically designed to avoid significant impacts related to alteration of the existing drainage patterns or an increased contribution of runoff through project design. Detention ponds are proposed along the southern boundary of the site to compensate for the increase in impervious surfaces within the proposed project area, such that no significance thresholds related to alterations on drainage patterns or runoff are exceeded.

Please also note that wherever possible, the proposed project shall avoid impacts to wetlands and waters of the United States, and that where it is not feasible to avoid impacts, the necessary permits would be acquired.

Response to Comment No. 17:

Thank you for your comment. The Draft EIR includes the incorporation of mitigation measures that would reduce environmental impacts on 11 of the 14 environmental issue areas to below the level of significance. Please see the Findings of Fact and Statement of Overriding Considerations for a detailed analysis of those three remaining impacts areas that would not be able to be mitigated to below the level of significance.

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Raymond F. Hicks
Region Manager
Public Affairs Department

COMMUNITY DEVELOPMENT
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AUG 20 2003

August 20, 2003

City of Chino Community Development Department
Attn: Mr. Sal Salazar
13220 Central Avenue
Chino, CA 91710

Subject: Draft Environmental Impact Report regarding 717 Acres State Surplus Property
from the California Institution for Men, Chino, CA
also known as Merged Chino Redevelopment Project, City of Chino

Dear Mr. Salazar,

Thank you for including the Southern California Edison Company (SCE) in the review process for the above-referenced Draft Environmental Impact Report (DEIR).

The 717 Acre Chino Institute for Men Project (Project) is located within the service territory of SCE. SCE is prepared to deliver the necessary electricity to this Project. 1

However, the delivery of electricity to the Project may require the relocation, reconstruction, extension or undergrounding of SCE's electrical distribution system. This work would be performed by Edison in accordance with SCE's effective Tariff Schedules approved by and filed with the California Public Utilities Commission. The work being performed by SCE should be included within the DEIR.

In addition, please find comments to the DEIR on the various subjects listed below:

Biology
The Project proponent is proposing to use 25.7 acres of SCE transmission line right of way area as mitigation for Project impacts to the burrowing owl. The proposed use of SCE's transmission line right-of-way for the proponent's environmental mitigation activities had not previously been discussed with SCE representatives. The burrowing owl is currently a California Species of Special Concern and is proposed for state listing. Constructing artificial burrows and providing habitat for the burrowing owl within the right-of-way will interfere with and restrict SCE's ability to carry out operations and maintenance activities that are required by the California Public Utilities Commission for the delivery of a safe and reliable power supply. Such activities would also restrict SCE's ability to use our right of way to expand our electrical transmission facilities, thereby interfering with our obligation to serve future increased load demands. Therefore, SCE will not authorize the proponents proposed use of SCE's transmission right of way, as set forth in the DEIR. 2

Transportation/Traffic
One of the mitigation measures proposed to reduce significant traffic impacts is the widening of Edison Avenue. A drawing provided by RBF Consulting dated July 28, 2003 indicates that Edison Avenue will be widened 17' south of the existing edge of pavement. SCE has a number of distribution and transmission lines that may need to be relocated to accommodate the road widening. Potential impacts resulting from these relocations should be discussed with SCE prior to the final EIR. 3

Utilities and Service Systems
Maps provided in the DEIR indicate a number of new encroachments (roads, storm drains, potable water, and sewer system) across SCE's transmission line right of way. The easement document giving SCE the rights to use the right of way for transmission purposes states that "no other easement or easements shall be granted on, under or over said strip of land by grantor to any person, firm or corporation without the previous written consent of said grantee." 4

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Ontario, CA 91761-5715
909-930-8446/PAX 16446
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raymond.hicks@sce.com

Such encroachments will have to be evaluated further to assess their potential impact to access and use of SCE's transmission facilities. If the encroachments cannot be accommodated within the right of way area, the final EIR should show those facilities in another location, and address the environmental impacts, if any, of the new location. 4

SCE requests that the DEIR clarify the discussion regarding improvements to Magnolia Channel. The DEIR states (page ES-4) that "the new alignment would be moved to the east to be immediately adjacent to the west boundary of the Southern California easement." The RBF Consulting drawing labeled "Chino College Park SCE Easement Encroachment Exhibit" shows a proposed 55' wide "Magnolia Channel and Utility Corridor" that appears to be a parallel encroachment on the existing SCE transmission line corridor. In addition to the existing 220 kV transmission line, there is a 66 kV subtransmission line and distribution line located adjacent to Magnolia Channel that may be impacted by the Magnolia Channel improvements. SCE requests that the City staff assigned to this Project work with SCE to determine if the Magnolia Channel improvements would impact the SCE transmission line right of way, and if so, the final EIR should require mitigation or elimination of those impacts. 5

The DEIR states (page 3.14-8) that a joint trench distribution system holding lines for electrical, telephone, gas, cable television, and fiber-optic communications would be constructed. It appears that the joint trench was proposed within the SCE right of way which would be a violation of the easement, therefore, it would not be allowed. For a joint trench installation outside the SCE right of way, please utilize the enclosed diagram. Of course, the Project proponent will need to work with the other utility companies to arrange for the joint trench installation. 6

If you have any questions or need additional information, please do not hesitate to contact me at (909) 930-8446.

Very truly yours,

Raymond Hicks

Raymond Hicks
Region Manager

Attachments
/aa

cc: Glen Rojas
Chuck Coe

COMMUNITY DEVELOPMENT
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RAYMOND HICKS
Region Manager
Eastern Region, Public Affairs
Ontario Service Center
PAX 16446 Fax 16407

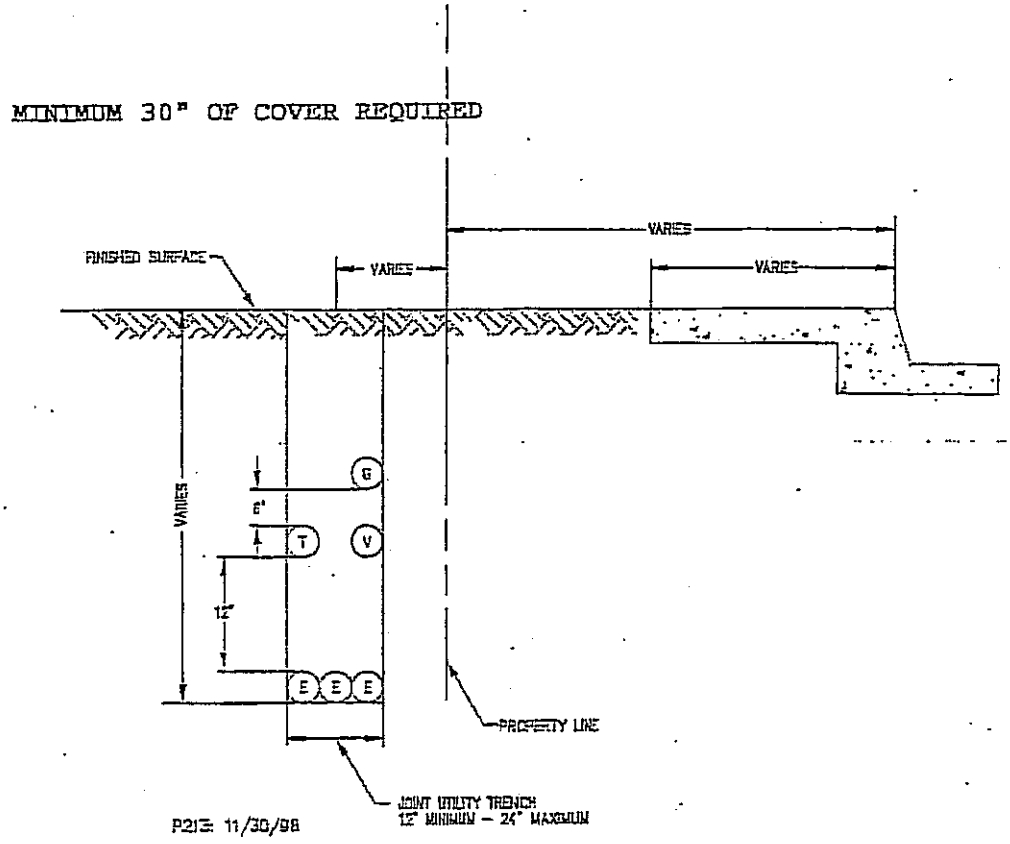
To: Chuck Coe

Subject: Trenching Diagram

Please find enclosed, the diagram formerly e-mailed to you which should accompany the EIR letter delivered to your office yesterday.

Thank you.

JOINT TRENCH INSTALLATION



P213

Southern California Edison
Raymond Hicks
Region Manager
1351 East Francis Street
Ontario, California 91761-5715

Response to Comment No. 1:

Thank you for reviewing the Draft Environmental Impact Report (EIR).

Response to Comment No. 2:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for clarifications to the biological resources mitigation measures. The clarifications are intended to make clear that the easement would continue to be dedicated for use as a utility corridor. As evidenced by the mapping of burrowing owl burrows contained in Figure 3.4.6-1, *Conceptual Burrowing Owl Mitigation Plan,* of the EIR, it is evident that the Southern California Edison (SCE) utility corridor currently serves as a wildlife movement corridor. Eight of the burrowing owl burrows, observed as a result of directed surveys conducted over a two-year period of time, are located within 200 feet of the SCE easement. This makes sense given that the surrounding agricultural fields are disced annually. Designation of this area as a wildlife movement corridor ensures continuation of the existing utility corridor use and the associated benefits for burrowing owl.

Although the existing easement allows SCE the right to install and maintain power lines within the easement, it does not grant SCE the right of ownership. The land that underlies the easement is owned by the State of California. To the extent that burrowing owls are currently using the SCE easement for wildlife movement, the use of 25.73 acres as a wildlife movement corridor presents no greater constraint to operations and maintenance activities or to the expansion of electrical transmission facilities than currently exists.

Of the six burrowing owl burrows with the potential to be adversely affected by construction of the proposed project, three are located more than 200 feet from the SCE easement and would be mitigated within the Cypress Channel or the proposed detention ponds. The remaining three, currently located in or immediately adjacent to the SCE easement, would be potentially affected by the City of Chino's expansion of the existing sports complex. To the extent that those burrows would be potentially disturbed during construction, artificial nests would be provided at alternate locations along Magnolia Channel outside of the SCE easement. The mitigation measure has been clarified to show that the artificial nests would not be located within 50 feet of existing utility poles and would be located outside of existing and proposed maintenance roads. As clarified, the mitigation measure would also allow the City of Chino, the developer, and SCE to work cooperatively to seek off-site mitigation options.

Response to Comment No. 3:

Thank you for your comment. The existing electrical power lines on wooden poles located on the south side of Edison Avenue from Central Avenue to Cypress Avenue within the Southern California

Edison (SCE) easement may require relocation due to roadway improvements. The City of Chino is currently working to reduce the number of power poles to be relocated. The City of Chino has initiated coordination of the relocation of the poles with SCE. In any case, the private developer would be required to coordinate any work within the SCE easement prior to the issuance of a grading permit.

Response to Comment No. 4:

Thank you for your comment. The private developer would work with SCE prior to any work in the SCE transmission line right of way. The developer, as the prospective owner of the property, would be required to dedicate the roadway and public utility easements for dry utilities. It is the State of California's position that the SCE easement is not an exclusive easement; therefore, it does not limit SCE to exclusive rights to the property, limiting the ability to grant the public utility easements required by the City of Chino and necessary for the development of the adjacent property. Please note that the plans for the dry utilities would go through the same review process as those for proposed roads and wet utilities.

The State of California, as current owner of the property and the easement area, currently utilizes the easement area for a variety of lines needed to operate the State of California's facilities. The State of California plans to continue its utilization of a small portion of the SCE easement area to centrally-located waterlines to and from the State of California's potable water treatment plant to continue service to the remainder of the State of California's property.

In relation to the Magnolia Channel relocation, please note that the proposed project does not suggest that such relocation would encroach onto the SCE easement, and as such, would not require a relocation of the transmission lines. The area within which the relocation would occur is outside of the SCE easement area; therefore, the State of California and its prospective developer would not be coordinating with SCE on this element of the proposed project.

Response to Comment No. 5:

Thank you for your comment. The private developer would continue to work with SCE prior to any improvements to Magnolia Channel that would have the potential to impact the SCE transmission line right of way. Please note that in relation to the Magnolia Channel relocation, the proposed project does not suggest that such relocation would encroach onto the SCE easement, nor would it require a relocation of the transmission lines. The area within which the relocation would occur is outside of the SCE easement area; therefore, the State of California and its prospective developer would not be coordinating with SCE on this element of the proposed project. In any case, the private developer would be required to coordinate any work within the SCE easement prior to the issuance of a grading permit.

Response to Comment No. 6:

Thank you for your comment. Your suggestions are very helpful. Please be assured that prior to any joint trench work within areas that may impact the SCE transmission line right of way, there would be coordination with the private developer and SCE. Please note that the joint trench distribution system is not parallel to the SCE easement. The crossing would be similar to the encroachment addressed in response to comment No. 4 above. The developer, as the prospective owner of the property, would be required to dedicate the roadway and public utility easements for dry utilities. It is the State of California's position that the SCE easement is not an exclusive easement, and therefore, does not limit SCE to exclusive rights to the property, limiting the ability to grant the public utility easements required by the City of Chino and necessary for the development of the adjacent property. Please note that the plans for the dry utilities would go through the same review process as those for proposed roads and wet utilities.

San Joaquin Hills
Corridor Agency

Chairwoman:
Linda Lindholm
Laguna Niguel

TRANSPORTATION CORRIDOR AGENCIES

Foothill/Eastern
Corridor Agency

Chairman:
Peter Herzog
Lake Forest

July 18, 2003

COMMUNITY DEVELOPMENT
RECEIVED
JUL 21 2003

City of Chino Community Development Department
Attn: Mr. Sal Salazar
13220 Central Avenue
Chino, CA 91710

Subject: Notice of Availability for Draft Environmental Impact Report
Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area, Chino, California

Dear Mr. Salazar:

The Transportation Corridor Agencies (TCA) wishes to thank you for the opportunity to review and comment on the above-mentioned environmental notification. The TCA has reviewed the notification and has no comments at this time.

Should you have any questions or concerns regarding this information, please feel free to contact me at (949) 754-3475.

Sincerely,

Valarie McFall
Principal Environmental Analyst
Environmental and Planning

Walter D. Kreutzen, Chief Executive Officer

125 PACIFICA, SUITE 100, IRVINE CA 92618-3304 • P.O. BOX 53770, IRVINE CA 92619-3770 • 949/754-3400 FAX 949/754-3467
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Transportation Corridor Agencies
Valarie McFall
Principal Environmental Analyst
Environmental and Planning
125 Pacifica, Suite 100
Irvine, California 92618-3304

Response to Comment No. 1:

Thank you for reviewing the Draft Environmental Impact Report and for providing the City of Chino with your contact information. If any questions or concerns arise in the future, the City of Chino will contact you.

13.2.4 County Agencies

County of San Bernardino Department of Public Works
Naresh P. Varma
Division Chief
Environmental Management Division
825 East Third Street
San Bernardino, California 92415-0835

DEPARTMENT OF PUBLIC WORKS
FLOOD CONTROL • REGIONAL PARKS • SOLID WASTE MGMT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

KEN A. MILLER
Director of Public Works

August 28, 2003

Mr. Sal Salazar, Principal Planner
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

File# 10(ENV)-4.01

REFERENCE: DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, CHINO

Dear Mr. Salazar:

Thank you for giving the San Bernardino County Department of Public Works (Department) the opportunity to comment on the above-referenced project.

After reviewing the submitted document, our Department has comments concerning this project, as it may affect San Bernardino County Department of Public Works or its operations.

The proposed project is located on State surplus property, namely the California Institution for Men (CIM), and it is generally bound by Edison Avenue to the north, Euclid Avenue to the east, the main CIM facilities to the south, and Central Avenue to the west.

The Water Resources Division's comments are as follows:

We have previously commented on this project. Our comments remain the same. (See attachment, dated August 6, 2003).

The Flood Control Planning Division's comments and recommendations are as follows:

1. The "Master Plan of Drainage" (MPD), City of Chino, prepared by BSI Consultants, Inc., dated November 1993, is the Master Plan study that covers the Specific Plan area. The first line of page 3.8-1 states, 'proposed project lies within the City of Chino Drainage Master Plan area...'; with the footnote referencing the MPD, dated 1998. The Specific Plan area is outside the 1998 MPD. There is no mention of the 1993 Study in the EIR. Please clarify. 1

2. The Specific Plan makes major changes affecting land use densities and drainage patterns; however, the EIR does not address the impact on the MPD. If 'ponds' (?) are used to mitigate impacts, then the MPD should be revised by the City to insure that the 'ponds' are an integral and documented element in the MPD for the Specific Plan area. 2

RE: DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) FOR SPECIFIC PLAN FOR THE DEVELOPMENT OF STATE SURPLUS PROPERTY AND AMENDMENT TO THE REDEVELOPMENT PLAN FOR THE MERGED CHINO REDEVELOPMENT PROJECT AREA, CHINO

3. Second paragraph of page 3.8-7 states, 'Cypress Channel...are considered to be adequate for controlling a 100–year storm within the proposed project area'. A footnote references the "California Department of General Services, October 1997 Land Use Analysis, CIM site, Chino, CA". This statement conflicts with the recommendation of the 1993 MPD. It is recommended that the EIR ensure that improvements to the Cypress Channel should be in accordance with the recommendation of the 1993 MPD. 3

4. Page 3.8-11, "Direct and Indirect Impacts", states that the 'proposed drainage system neither directs runoff into an adjacent drainage district nor increases the runoff...when compared with existing'. A footnote references California Department of General Services. There is no documentation in the EIR Technical Appendices to support the above statement. 4

5. Page 3.8-11 discusses the installation of three detention ponds to reduce storm water runoff. If these proposed ponds are essential to the drainage scheme of the Specific Plan area, then the City of Chino, 1993 MPD should be revised to reflect the new land uses and incorporate the detention basins that are essential to development. 5

6. It is assumed that, if the City of Chino is to approve use of the detention ponds in the Specific Plan area, the City will accept operation and maintenance responsibilities for the basins to ensure that the basins function as designed. A continual maintenance program will be essential to insure that no increase in flows will occur that could negatively impact downstream developments. 6

7. It is recommended that a statement be incorporated into the EIR: "improvements to the Cypress Channel, as noted in the City of Chino MPD, dated November 1993, shall be accomplished in conjunction with development of the Specific Plan area." 7

Should there be any changes to this project, please notify our Department so that we may have the opportunity to comment on the changes. If you have any questions or need additional information, please contact Kelly A. Rozich at (909) 387-8114.

Sincerely,

NARESH P. VARMA, P.E., Division Chief
Environmental Management Division

NPV:KAR:jm/ChinoSpecificPlanDevelopmnet-Response.doc

cc: Mike Fox, Water Resources
Annesley Ignatius, Flood Control Planning
Kelly A. Rozich, EMD
KAM/PJM Reading File

INTEROFFICE MEMO

DATE: August 6, 2002

FROM: MIKE FOX, Chief
Water Resources Division

PHONE: 78213

MAIL CODE: 0835

TO: NARESH VARMA, Chief
Environmental Management Division

File. 1-901/1.00

SUBJECT: ZONE 1 – NOTICE OF PREPARATION OF MASTER EIR FOR SPECIFIC PLAN FOR DEVELOPMENT OF 717 ACRES OF STATE SURPLUS PROPERTY (CALIF. INSTITUTE FOR MEN), CITY OF CHINO

Reference is made to your August 1, 2002, Interoffice Memo, together with accompanying documents, requesting our review and recommendations for the subject Notice of Preparation. The project is located southerly of State Route 60,and is adjacent to Cypress Channel.

Our comments are as follows:

1. Cypress Channel is not within the Flood Control District's (District) maintained system and is currently in a state of disrepair. We recommend that the channel be re-constructed as a trapezoidal concrete channel to be consistent with the existing upstream and downstream District channel sections. 8

2. The engineer should refer to the "Hydrology Report For Cypress Channel, Chino" by BSI Consultants, Inc., dated August, 1993 during preparation of the hydrology study for this reach of Cypress Channel 9

If you have any questions, or if you need additional information, please call MaryLou Memulliod at (909) 387-8213.

MJF:MLM:CN:bf ID18212

cc: Frank Molina

Country of San Bernardino Department of Public Works
Naresh P. Varma
Division Chief
Environmental Management Division
825 East Third Street
San Bernardino, California 92415-0835

Response to Comment No. 1:

Thank you for your comment. There was a typographical error in the footnote to the first line of page 3.8-1 of the Master Plan. The footnote should reference the 1993 Master Plan of Drainages. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the footnote.

Response to Comment No. 2:

The proposed project was specifically designed to avoid significant impacts related to alteration of the existing drainage pattern or an increased contribution of runoff through project design. Detention ponds are proposed along the southern boundary of the site to compensate for the increase in impervious surfaces within the proposed project area such that no significance thresholds related to alterations on drainage patterns or runoff are exceeded. Therefore, there are no impacts and no mitigation measures. The project developer has prepared an updated hydrology and drainage study that concludes the detention basins' effectiveness in mitigating for increased flows due to the increased impervious surfaces, the effectiveness of Magnolia Channel to handle drainage from Chaffey College, and postconstruction best management practices (BMP). [Footnote: RBF Consulting. February 27, 2004. *Preliminary Hydrology Report for the Tributary Areas of Magnolia Channel and Cypress Channel within the College Park Specific Plan*. Contact: RBF Consulting, 14725 Alton Parkway, Irvine, CA 92618.] Please also note that the approval of the detention basins as part of the Specific Plan would be deemed as an amendment to the existing Master Plan of Drainages.

Response to Comment No. 3:

Thank you for your comments. The Cypress Channel, within the limits of the proposed project area, would be reconstructed to current standards to control a 100-year storm. Please note that the project proponent has updated the previously prepared Jurisdictional Delineation for the Cypress Channel. The revised report is included as Appendix M, *Final Jurisdictional Delineation Report*, of this Final Environmental Impact Report (EIR).

Response to Comment No. 4:

Thank you for your comment. It is correct that the referenced document was not among the technical appendices. The complete reference is as follows, and is also provided on Page 3.8-1 of Volume I of the Draft EIR:

> California Department of General Services. January 2003. *Technical Studies, State Disposition Property–Chino*. Contact: California Department of General Services, 707

Third Street, Suite 6-130, West Sacramento, CA 95605. Prepared by: Associated Engineers, Inc., 3311 East Shelby Street, Ontario, CA 91764.

Please note, however, that the project proponent has prepared an updated hydrology and drainage study that concludes the detention basins' effectiveness in mitigating for increased flows due to the increased impervious surfaces, the effectiveness of Magnolia Channel to handle drainage from Chaffey College, and postconstruction BMP. [Footnote: RBF Consulting. February 27, 2004. *Preliminary Hydrology Report for the Tributary Areas of Magnolia Channel and Cypress Channel within the College Park Specific Plan*. Contact: RBF Consulting, 14725 Alton Parkway, Irvine, CA 92618.] as well as postconstruction BMP.

Response to Comment No. 5:

Thank you for your comment. The following document was not included as an appendix to the EIR:

California Department of General Services. January 2003. *Technical Studies, State Disposition Property–Chino*. Contact: California Department of General Services, 707 Third Street, Suite 6-130, West Sacramento, CA 95605. Prepared by: Associated Engineers, Inc., 3311 East Shelby Street, Ontario, CA 91764.

Please note, however, that the project proponent has prepared an updated hydrology and drainage study that concludes the detention basins' effectiveness in mitigating for increased flows due to the increased impervious surfaces, the effectiveness of Magnolia Channel to handle drainage from Chaffey College, and postconstruction BMP. [Footnote: RBF Consulting. February 27, 2004. *Preliminary Hydrology Report for the Tributary Areas of Magnolia Channel and Cypress Channel within the College Park Specific Plan*. Contact: RBF Consulting, 14725 Alton Parkway, Irvine, CA 92618.] as well as postconstruction BMP.

Response to Comment No. 6:

Thank you for your comment. The City of Chino, in conjunction with the College Park Homeowners Association, would provide inspection and maintenance services to ensure proper performance of the detention basins.

Response to Comment No. 7:

Thank you for your comments. Improvements to Cypress Channel, within the limits of the proposed project area, would be implemented in conjunction with development of the Specific Plan area. Please note that the project proponent has updated the previously prepared Jurisdictional Delineation for the Cypress Channel. The revised report is included as Appendix M of this Final EIR.

Response to Comment No. 8:

Thank you for your comments. The Cypress Channel, within the limits of the proposed project area, would be reconstructed to current standards to control a 100-year storm. Please note that the project

proponent has updated the previously prepared Jurisdictional Delineation for the Cypress Channel. The revised report is included as Appendix M of this Final EIR.

Response to Comment No. 9:

Thank you for your recommendation. Please note, however, that the project proponent has prepared an updated hydrology and drainage study that concludes the detention basins' effectiveness in mitigating for increased flows due to the increased impervious surfaces, the effectiveness of Magnolia Channel to handle drainage from Chaffey College, and postconstruction BMP. [Footnote: RBF Consulting. February 27, 2004. *Preliminary Hydrology Report for the Tributary Areas of Magnolia Channel and Cypress Channel within the College Park Specific Plan*. Contact: RBF Consulting, 14725 Alton Parkway, Irvine, CA 92618.] as well as postconstruction BMP.

13.2.5 Local Agencies

City of Chino Hills
Jeffrey S. Adams
City Planner
2001 Grand Avenue
Chino Hills, California 91709-4869

CITY OF CHINO HILLS

2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 364-2600 ♦ (909) 364-2695 FAX

CITY COUNCIL
ED M. GRAHAM
W.C. "BILL" KRUGER
GARY G. LARSON
GWENN E. NORTON-PERRY
JAMES S. THALMAN

COMMUNITY DEVELOPMENT
RECEIVED
AUG 2 7 2003

August 21, 2003

Mr. Sal Salazar, AICP, Principal Planner
Community Development Department
City of Chino
13220 Central Avenue
Chino, California 91710

Subject: Draft Environmental Impact Report for the Specific Plan for Development of State Surplus Property and Amendment to the Merged Chino Redevelopment Plan

Dear Mr. Salazar:

The City of Chino Hills commented on the Notice of Preparation for the above-referenced Draft Environmental Impact Report (EIR) in a letter dated August 19, 2002. Our concerns remain focused on traffic, school impacts, and hydrology. 1

Traffic: The Traffic Impact Analysis (Appendix I) identified several study intersections and freeway segments in or bordering the City of Chino Hills that will be affected by project traffic. By 2025 the project is expected to generate an average of 53,891 daily trips, with approximately 4,127 trips in the AM peak hour, and 5,636 trips in the PM peak hour. It is of interest to the City of Chino Hills that 38 percent of the project traffic is headed our way, with 20 percent headed west on Edison/Grand toward SR-71, and 18 percent headed south down Central Avenue. Most of this traffic is then projected to use SR-71. Figures 26 and 28 of the Traffic Impact Analysis estimate that approximately 500 ADT will be added to Grand Avenue and 1,000 ADT will be added to Chino Hills Parkway. This seems inconsistent with current traffic patterns observed in Chino Hills; specifically, this projection may be underestimating traffic on Chino Hills Parkway, which is the feeder to Carbon Canyon Road. The incremental effects of the project traffic will add to the severe congestion at Chino Hills Parkway/Carbon Canyon Road. As this intersection is within the 5-mile study radius required by the Congestion Management Plan, the City of Chino Hills requests that this intersection be included in the analysis, even though there are no improvements currently programmed for that intersection 2

The following is the only study intersection located in or bordering Chino Hills that requires mitigation, according to the TIA:

Intersection # and Location	Improvements	Project Share / Total Cost
17: SR-71 SB Ramps/Grand	Add EB RT Lane Add 3rd SB LT Lane	At this intersection: $609,000 / $141,276

Abbreviations: SR-71: State Route 71, SB: Southbound, EB: Eastbound, RT: Right Turn, LT: Left Turn

According to the TIA, with the mitigation for Intersection #17 listed above, the levels of service in the AM peak hour (LOS C) and PM peak hour (LOS D) remain acceptable, and no further mitigation is required for this intersection. Will the number of through lanes on Grand Avenue (3 lanes) be adequate to serve the turning movements? Please address whether additional eastbound through lanes will be necessary, considering the constraints of the existing bridge and proximity of the northbound SR-71 exit onto eastbound Grand Avenue. Please provide the traffic analysis worksheets and CTP traffic model printouts for our review. 2

Schools: School impacts are of concern as the Chino Valley Unified School District serves both cities. The project includes a new elementary school of adequate size to serve the project. However, other than requiring the standard school fees, no other mitigation is identified nor is the school site (existing or future) identified for 725 new students in grades 7 through 12. What schools will be used for these grades, and what will be the indirect traffic impact at those schools? The Final EIR should address this issue and determine if any further mitigation will be necessary. 3

Hydrology: The City of Chino Hills also has previously noted concerns regarding water supply and regional drainage. In terms of water supply, the Draft EIR concluded that a surplus of water supply would be available from several sources, including reclaimed water. However, the determination of the potential for future subsidence and long-term effects on local groundwater wells has been deferred in Mitigation Measure Geology-5 which requires further study sometime in the future. Adequate studies must be conducted, and the recommended mitigation determined, with an opportunity for public review as required by CEQA, prior to project approval. If the study concludes that ground fissures or significant subsidence may be expected in an area, then steps should be taken to address safety risks and provide more appropriate land use designations as part of the project approval. The potential future requirement for groundwater recharge and storage may also impact the suggested mitigation measures and should also be addressed at this time. 4

The risk of deferring the analysis until later could result in having to rescind or modify entitlements previously approved by the City. 4

In terms of surface drainage, the Prado Dam floodplain is a regional resource that affects Chino Hills. Possible effects, incremental or otherwise, on the Prado Dam floodplain were not conclusively addressed. Please identify the related impacts and related mitigation measures, as appropriate, regarding surface drainage. 5

The City of Chino Hills appreciates this opportunity to comment on the Draft EIR. If you have any questions regarding these comments, please feel free to contact me at (909) 364-2750. 6

Sincerely,
COMMUNITY DEVELOPMENT DEPARTMENT

Jeffery S. Adams, City Planner

JSA:ch

cc: Jeffrey W. Collier, Community Development Director

FACT SHEET

Project:
Draft Environmental Impact Report for the Specific Plan for Development of State Surplus Property and Amendment to the Merged Chino Redevelopment Plan.

Summary:
The proposed Specific Plan is located between Central and Euclid Avenues, south of Edison Avenue and north of the California Institution for Men. The project would include approximately 2,500 dwelling units on 329 acres, a Chaffey College campus on 100 acres to serve up to 15,000 students, and a 15-acre area for a village center, retail, office and service uses. The Specific Plan also would include 32 acres for schools and parks and 6 acres for trails. The remainder of the Specific Plan area would include utility easements, and drainage and road improvements.

Traffic:
The following study intersections are located in or bordering Chino Hills:

Intersection # and Location	Improvements	Project Share/Total Cost
17 SR-71 SB Ramps/Grand	Add EB RT Lane Add 3rd SB LT Lane	At this intersection: $609,000 /$141,276
32 Pipeline/Chino Hills Pkwy	No improvements needed.	
33 SR-71 SB Ramps/ Chino Hills Pkwy	No improvements needed.	
34 SR-71 NB Ramps/ Chino Hills Pkwy *(in Chino)*	No improvements needed.	
36 SR-71 NB Ramps/ Soquel Cyn Pkwy	No improvements needed.	
37 SR-71 SB Ramps/ Soquel Cyn Pkwy	No improvements needed.	

Abbreviations: SR-71: State Route 71, SB: Southbound, EB: Eastbound, RT: Right Turn, LT : Left Turn

The project fair share is identified for all intersections and freeway segments that require mitigation, and the project share of the total is anticipated to be $8,5910,711 out of $74,418,000 from all sources.

Comments due:
August 20, 2003

City of Chino Hills
Jeffrey S. Adams
City Planner
2001 Grand Avenue
Chino Hills, California 91709-4869

Response to Comment No. 1:

Thank you for your comment.

Response to Comment No. 2:

Thank you for your comment. The average daily trips, volumes, and a.m. and p.m. peak trips are derived directly from the Comprehensive Transportation Plan (CTP) models. Output from the CTP models are available by contacting Mr. Robert Wirts, traffic engineer with San Bernardino Associated Governments (SANBAG), or Mr. Michael Ainsworth, principal planner with the Southern California Association of Governments (SCAG), to obtain copies of the CTP-model plots used in the traffic analysis of the proposed project.

The future distance of trips is not necessarily going to be the same as the existing distance of trips, due to the trends in growth in the area. Most of the growth in the area is expected to occur toward the northeastern portion of the City of Chino. Therefore, the future distance is not related to the existing traffic patterns but more on future land use growth patterns.

The Carbon Canyon Road and Chino Hills Parkway area were not included in the traffic impact analysis, although it is in close proximity to the proposed project area. The reason for the exclusion was because it fell below the threshold for inclusion and because most of the traffic from Grand Avenue/Edison Avenue and Chino Hills Parkway is expected to be diverted into SR-71; therefore, the traffic going into the City of Chino Hills will be minimal. The traffic impact analysis used a threshold of 80 peak-hour trips, as described on page 15 of Section III.D of the traffic impact analysis, which is included as an Appendix I, *Traffic Impact Analysis for the Specific Plan for the Development of State Surplus Property from the California Institute for Men, Chino, California*, to the Draft Environmental Impact Report (EIR). Therefore, this section fell below the threshold. Please note, however, that the traffic impact analysis was supplemented to include additional local intersections. This supplemental traffic impact analysis is in the form of a technical memorandum and can be found in Appendix O, *Technical Memorandum: Additional Traffic/Transportation Analysis of Proposed College Park Project*, of this EIR.

Thank you for your comment concerning the additional eastbound through lanes. The freeway bridge is right above where the through lane would be added; therefore, the traffic impact analysis does not suggest additional eastbound through lanes would be necessary.

You may obtain copies of all traffic analysis worksheets by contacting the City of Chino Community Development Department at (909) 591-9812.

Response to Comment No. 3:

Thank you for your comment regarding impacts to schools. Due to the social and political issues related to financing public facilities, state law has proscribed limits to mitigation for residential development that attempt to balance the impacts of a proposed project with the needs of the larger community. Therefore, as described on page 3.11-2, "SB50 declares that payment of the specified development fees, where necessary, is full and complete mitigation for impacts to school facilities...." The Draft EIR analysis of public services is limited to determining the need for new or expanded public facilities that may result in potential environmental effects. The location of new public facilities would be speculative at this time and is a civic decision, which would be subject to a separate California Environmental Quality Act analysis.

With respect to potential indirect traffic impacts, Section 3.11, Traffic and Transportation, of the Draft EIR includes an analysis of indirect impacts that are reasonably foreseeable. Indirect impacts related to unknown school locations would be speculative at the time of the Draft EIR.

Response to Comment No. 4:

The City of Chino Hills is an active member of the Watermaster board. Over the past few years, the City of Chino Hills has actively participated in the decisions that resulted in the Watermaster's program of investigation of the subsidence phenomenon, which has been occurring on the northwestern area of the California Institution for Men and a portion of the City of Chino. The City of Chino Hills maintains and operates water wells in the area of known subsidence. The exact causes and mechanisms of the subsidence are unknown, but several studies have identified water production operations as a likely cause. The area proposed for active residential, commercial, and community college development is located at a substantial distance to the east of the area being investigated.

Response to Comment No. 5:

The proposed project was specifically designed to avoid significant impacts related to alteration of the existing drainage pattern or an increased contribution of runoff. Detention ponds are proposed along the southern boundary of the site to compensate for the increase in impervious surfaces within the proposed project area, such that no significance thresholds related to alterations on drainage patterns or runoff are exceeded. Therefore, there are no impacts and no mitigation measures.

Response to Comment No. 6:

Thank you for providing the City of Chino with contact information for the City of Chino Hills.

13.2.6 Private Organizations

Endangered Habitats League
Dan Silver
Executive Director
8424-A Santa Monica Boulevard, #592
Los Angeles, California 90069-4267

Gateway Community Church
Dr. Lynn Thrush
Senior Pastor
5885 Schaefer Avenue
Chino, California 91710

SunCal Companies
Larry Lazar
Vice President
5109 East La Palma, Suite D
Anaheim, California 92807

Tri-County Conservation League (TCCL)
Dr. Jack Bath
President
P.O.Box 51127
Riverside, California 92517

Salazar, Sal

From: Dan Silver [dsilverla@earthlink.net]
Sent: Saturday, August 23, 2003 12:05 PM
To: Salazar, Sal
Cc: Coe, Chuck; Jack Bath
Subject: College Park

August 23, 2003

VIA ELECTRONIC MAIL ONLY

Mr. Sal Salazar
Dept of Community Development
13220 Central Ave.
Chino, CA 91710

RE: College Park project

Dear Mr. Salazar:

The Endangered Habitats League appreciates the opportunity to comment on the draft EIR for this project. The project site is predominantly non-native grassland, partially occupied by burrowing owls. EHL concurs that viable burrowing owl habitat should be set aside on site. However, this alone does not mitigate impacts to non-native grassland to an insignificant level, nor constitute maximal feasible mitigation.

Non-native grassland is a naturalized habitat that supports a variety of sensitive native species and provides important ecosystem benefits. In particular, many sensitive species of raptors utilize non-native grassland for foraging, such as the white-tailed kite. Such foraging habitat is in significant decline throughout Southern California, and especially in the rapidly developing Chino-Ontario-Eastvale area. The DEIR for this project does not adequately analyze project impacts to non-native grassland, either individually or cumulatively with past, present, and foreseeable projects. 1

Impacts to non-native grassland are routinely mitigated by other jurisdictions. For example, the County of San Diego generally requires mitigation on or off site at a ratio of 1/2 to 1, and sometimes at a 1:1 ratio. Such feasible mitigation measures must be applied to this project. 2

EHL recommends that the applicant be required to provide mitigation for impacts to good quality non-native grassland at a 1:1 basis, and to low quality non-native grassland at a 1/2 to 1 ratio. Avoided lands with long term biological value that are preserved on site can be credited. Otherwise, off site mitigation should be utilized, either through purchase of property or payment of an in lieu fee. The City of Chino has collected such fees for The Preserve, and there is no reason why this applicant should obtain special consideration and avoid feasible mitigation. 3

Thank you for considering our views. An electronic reply confirming receipt of these comments would be appreciated.

Sincerely,

Dan Silver

8/25/2003

Executive Director
Endangered Habitats League
8424-A Santa Monica Blvd., #592
Los Angeles, CA 90069-4267

Tel 213-804-2750
Fax 323-654-1931
dsilverla@earthlink.net
www.ehleague.org

Endangered Habitats League
Dan Silver
Executive Director
8424-A Santa Monica Boulevard, #592
Los Angeles, California 90069-4267

Response to Comment No. 1:

Thank you for your comment. Nonnative grassland within the proposed project area is confined to hedgerows and other margins. Most of this acreage would be preserved and enhanced within the proposed burrowing owl mitigation areas on site. The vast majority of the proposed project area is actively used for agricultural purposes or is actively disced for fire control purposes by the Chino Institute for Men (CIM). The nonnative grassland species within these areas are confined to weedy species that establish between periods of tilling by CIM. Section 3.4, Biological Resources, of the Environmental Impact Report (EIR) concluded that the proposed project would not result in direct or indirect impacts to any sensitive plant communities, nor any sensitive, listed, or locally important plant species, including nonnative grasslands. The EIR does acknowledge in the cumulative impact section that there is a potentially significant loss of foraging habitat for raptors that would occur through implementation of the proposed project.

Response to Comment No. 2:

Thank you for your comment. Please consult response to comment No. 1 regarding the extent of nonnative grassland within the proposed project area. The City of Chino does not currently have guidelines or requirements regarding mitigation for project impacts to nonnative grasslands. There are no significant impacts to nonnative grasslands due to implementation of the proposed project. The EIR describes the proposed project's attempt to preserve and enhance existing nonnative grassland areas within the proposed project area by setting aside mitigation areas and calling for planting of native plant species. The proposed project also calls for open space to be set aside within the proposed Chaffey Community College portion of the proposed project.

Response to Comment No. 3:

Thank you for your comment. As mentioned in response to comment No. 2, the City of Chino has no guidelines or requirements concerning mitigation for impacts to nonnative grassland and the vast majority of the proposed project area consists of actively-managed agricultural land. Please consult Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for a discussion of potential off-site mitigation for impacts to biological resources. Off-site mitigation for impacts to biological resources may be considered if impacts cannot be appropriately and completely mitigated on site. Whenever possible, it is desirable to mitigate project impacts on site to the greatest extent possible.

Gateway Community Church

COMMUNITY DEVELOPMENT
RECEIVED
JUL 21 2003

July 18, 2003

City of Chino Community Development Department
Attn: Mr. Sal Salazar
13220 Central Avenue
Chino, CA 91710

Dear Mr. Salazar,

A year ago today it was my privilege, along with Mr. Wes Lenhert, a Board member of Gateway Community Church, to meet with you regarding the possibility of including a church site(s) in the development plans for the land north of CIM. At that time you were very helpful to me in contacting Mr. Jim Goodell of Goodell Brackenbush. At your counsel I attended the July 23, 2002 Joint Workshop at City Hall. It was there that I included my input that the state/city include a church site(s) as the process would be sent on to a developer. You graciously allowed me to borrow a large schematic of the proposed development so I could show that to my church leadership on August 6, 2002 when I met with my church leaders. I also attended the August 7, 2002 Public Scoping Meeting at the City of Chino Council Chambers. I review these dates and meetings to say that we have tracked with the process from the very outset, and you have been most helpful to us.

On June 18, 2003 Mr. Chuck Coe returned my phone call where I had asked what our next steps should be. He referred me to Bob McKinnon, and I talked to him on that same day; Mr. McKinnon alerted me to the meeting with SunCal Companies at the YMCA on June 25, 2003. I attended that June 25 meeting and heard the Vice President in charge of this project give an early overview of what is anticipated. I also met Lynn Rogers, a community liaison with SunCal to the Chino community, and I talked with him about our interest in a church site in the development.

On July 16, 2003 I called Lynn Rogers to see what next steps he would recommend in moving ahead on our interest. He had talked with the Vice President in charge of the project, who indicated that with the EIR coming out this was an ideal time to submit our interests, and that I should communicate with Mr. Sal Salazar! I was happy to inform him that I knew you, and that we had started the process with you.

The question/statements Lynn Rogers made to me on July 16, 2003 were:
1) "Does the City of Chino have interest in supporting our (Gateway's) vision of

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providing acreage for a church site?" And 2) "From the Vice President's (of SunCal) perspective, 'The City is driving the train.'"

This, then, is the journey that brings us to communicating once again with you. You have a copy of my July 18, 2002 letter to Mr. Jim Goodell. In that early correspondence I spoke of the City and the Church having -

> *parallel interests in quality community life. Together we want to see healthy families, and children who are growing productively. Further, both the church and the city desire to see persons serving others. Thus the church serves to prevent crime and destructive behavior in a community; indeed, "an ounce of prevention is worth a pound of cure." Beyond that, having a church/churches included in the masterplan of this development serves to contribute to a full-orbed concept of community.*

One of the conversations I remember at the July 23, 2002 workshop was one of the representatives of the state telling me of growing up in the northeast of our country, and remembering that the Church was often at the center of town life. He had warm affirmation for the thinking that we were doing.

At every stage I have been well received, and in my conversations with persons who know SunCal Companies, they have indicated that SunCal is particularly responsive to the desires of the community.

It does appear now that SunCal would like to have the City of Chino express its affirmation of including a church site in the development plan. My specific request to you, Mr. Salazar, is to receive counsel from you as to how we may most appropriately make our appeal to the City of our interest, how the City might communicate this matter to SunCal, and how we, with the City if necessary, might communicate with SunCal.

This letter has gotten long, but I have wanted to chronicle our interest to indicate that we have sought to appropriately, and in a timely fashion, work with the deliberative process of the development of the surplus state property. This letter does not provide all of the advocacy we have for a church site. That will come in another form of communication as per your counsel.

I look forward to hearing from you.

Sincerely,

Dr. Lynn Thrush

Dr. Lynn Thrush
Senior Pastor
Gateway Community Church

Gateway Community Church
Dr. Lynn Thrush
Senior Pastor
5885 Schaefer Avenue
Chino, California 91710

Response to Comment No. 1:

Thank you for providing the City of Chino with the steps that the Gateway Community Church has taken to become involved in the planning process.

Response to Comment No. 2:

Thank you for your comment. The Specific Plan includes land use designations that would allow for churches in the mixed-use areas and two neighborhoods along Euclid Avenue. The comment will be forwarded to the decision-making body for consideration.

Response to Comment No. 3:

Thank you for your comment.

Response to Comment No. 4:

Thank you for your comment.

Response to Comment No. 5:

Thank you for your comment. The City of Chino shall pass this comment letter and information onto SunCal Companies for consideration. The Gateway Community Church will be included in all mailings of upcoming community workshops designed to incorporate the recommendations from the public on the future of the proposed project.

Response to Comment No. 6:

Thank you for your comments and letter of interest in becoming a part of the master planning process.

SunCal Companies

COMMUNITY DEVELOPMENT
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August 21, 2003

Mr. Sal Salazar, Principal Planner
City of Chino Community Development Department
13220 Central Avenue
Chino, CA 91710

Subject: **Draft Environmental Impact Report**
Chino College Park

Dear Mr. Salazar:

The State of California has selected SunCal Companies as the master developer for the Chino College Park community. We look forward to working with the City as we create the plans for this exciting and vibrant community. We appreciate the opportunity to review and comment on the Draft Environmental Impact Report (DEIR) for the project.

SunCal Companies requested that several members of our development team review the DEIR. These team members include Andrew Hartzell of Hewitt O'Neil, our land use attorney, Susan Trager, our water rights attorney, and Paul Wilkinson and Trissa (de Jesus) Allen of Linscott, Law & Greenspan, our traffic engineers. Based upon our collective review, we have comments on four substantive issues; 1) burrowing owl mitigation, 2) wetlands and waters as regulated pursuant to the Clean Water Act, 3) the water supply analysis and project hydrology, and 4) proposed project traffic and circulation. 1

Burrowing Owl

Proposed Mitigation Measures Burrowing Owl-1, Burrowing Owl-2, Burrowing Owl-3, Burrowing Owl-4 and Burrowing Owl-6 (DEIR pg. 3.4-40 through -42 and 45) The City should provide an alternative mitigation measure (or set of measures) that would be available for the private developer (to be used at its election in lieu of, where applicable, mitigation measures Burrowing Owl-1, -2, -3, -4 and -6) that would allow for an alternative land dedication of, or allow for the placement of a conservation easement on, other land off-site of the project that would aid burrowing owl conservation to a similar degree and allow for active relocation of owls to this area if necessary. The EIR should provide that this alternative measure (or set of measures) could be selected by the private developer if the mitigation measures described in Burrowing Owl-1, -2, -3, -4 and -6 relating to on-site relocation and conservation of burrowing owls were unavailable to, or impracticable for, the private developer. 2

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At present, the draft EIR (DEIR) does not demonstrate or provide studies that assure that the lands within the Cypress Channel and the Southern California Edison easement would be available for the private developer to use to benefit the burrowing owl, as described and anticipated in the language of the proposed mitigation measures.

That an off-site mitigation alternative for burrowing owl conservation (involving active relocation and land dedication) should be feasible and acceptable to the City is demonstrated by the City's recent acceptance of the City of Chino Subarea 2 Resources Management Plan (herein "The Preserve RMP"), dated January 2003. Additionally, participation in a mitigation bank for owls should be considered.

This off-site, alternative mitigation measure should entail the dedication of 39 acres of suitable or restorable habitat for the burrowing owl in lieu of the restoration of set aside of 39 acres of such habitat within the project site (within the areas of the Southern California Edison Easement, Cypress Channel and the "Ecoponds"). Alternatively, the City could require that a qualified biologist identify and approve any project developer proposed 39-acre off-site area as being suitable burrowing owl habitat or as being capable of being restored or enhanced as suitable burrowing owl habitat. A requirement for the creation of artificial burrows at a ratio of 2:1 for every occupied burrowing owl burrow identified in preconstruction surveying (up to a maximum of 18 burrows) could be included in this measure. Applicable components of the Mitigation Measures Burrowing Owl-3 through -7 (such as management plan development, monitoring, etc.) could likewise be incorporated into this alternative off-site mitigation measure (or set of measures). 2

Moreover, should the species be listed by the State of California as either Endangered or Threatened, the State may require a different set of mitigation measures to adequately mitigate under the California Endangered Species Act for impacts to the species. Thus, the City also should provide an alternative mitigation measure in lieu of Burrowing Owl-1 through -4 and -6 and -7 which provides that the City may relieve the project developer of these particular measures if the project developer is later required to obtain an incidental take authorization from the State for impacts to burrowing owls <u>and</u> the City staff finds that the mitigation measures imposed by the CDFG through that take authorization provide an equivalent or greater level of protection or mitigation for the burrowing owl than the measures in the EIR, so as not to subject the project developer to inconsistent and "duplicative" mitigation for the same impact.

Finally, regardless of the ultimate mitigation measure adopted, the costs of implementing the mitigation program for impacts to burrowing owls should be distributed on a fair share basis among the three proposed landowners (the City, Chaffey College, and the private developer) dependant upon where the affected owl burrows are located.

<u>Proposed Mitigation Measure Burrowing Owl-4 (DEIR pg. 3.4-41–42)</u> This measure should provide for active relocation of owls, as well as passive relocation, if necessary in the opinion of the project biologist, to properly relocate existing owls in burrows to be impacted by project development. 3

This measure should also more clearly identify how many artificial burrows need to be created for each pair of burrowing owls to be impacted by the private developer. If the appropriate ratio is 2:1 for impacted, occupied burrows, this ratio should be based on the number of occupied burrows in 2002 (that would be impacted by the project) or the number of occupied burrows found in the preconstruction survey; <u>however</u>, the City should <u>cap</u> the maximum number of burrows at a fixed number representing the upper end of a reasonable population fluctuation (for example, 20% of the Year 2002 number) so as to provide some certainty to the planning process for the private developer, the College and the City, as landowners. This cap would be reasonable inasmuch as population numbers for the burrowing owl can be expected to fluctuate up and down to some extent from year to year, with data from one year simply representing a single snapshot in time. Project planners need to be able to plan in longer time frames and rely on a reasonable degree of regulatory certainty, especially when this fluctuating number can alter the necessary amount of habitat acreage that needs to be dedicated to owl conservation, and nothing in CEQA prevents the City from adopting such a cap. 3

<u>Sensitive Species-1 and Sensitive Species-2 (DEIR pg. 3.4-42–43)</u> It is not clear why two separate measures are proposed which appear to be largely duplicative of one another. We suggest that one of these measures be eliminated as redundant, or more clearly worded to explain how the two measures differ and how the objectives of the two measures differ. 4

<u>Sensitive Species-2 (DEIR pg. 3.4-43)</u> The phrasing should be modified in the fifth sentence to remove the phrase "*all activities*," which, as currently proposed, is too broad of a prohibition. Instead of the term "*all activities*," we suggest the phrase "*all grading which would disturb active nests or burrows or otherwise result in prohibited "take" of the listed wildlife species*" be substituted in this sentence. 5

<u>Burrowing Owl-6 (DEIR pg. 3.4-45)</u> As with our previous comments on the burrowing owl mitigation measures, this measure should also provide flexibility for active relocation if the most appropriate area for burrowing owl habitat mitigation is off-site and the project has otherwise adopted the alternative mitigation measure of acquiring land (or a conservation easement) off-site for the relocation and conservation of burrowing owls to be impacted by the project. 6

<u>Burrowing Owl –7 (DEIR pg. 3.4-45)</u> The monitoring plan should provide for monitoring the use of off-site mitigation areas by burrowing owls if this alternative is selected by the private developer. Similarly, the fifth sentence should be modified to incorporate the possibility of providing for a preserved population of burrowing owls at an off-site location. 7

<u>Burrowing Owl-8 (DEIR pg. 3.4-46)</u> This measure should be modified to allow for the possibility that off-site mitigation be established for nesting and foraging burrowing owl habitat, as an alternative to establishing on-site habitat. In such case, this measure would not apply where the private developer or other project developer did not have the right to conduct such measures given existing easement holder rights in such land. 8

<u>Mitigation Measure Waters-2 (DEIR pg. 3.40-47)</u> As discussed in our first two comments on burrowing owl mitigation measures, this measure should provide an alternative means of 9

mitigation for impacts to burrowing owls utilizing off-site mitigation should the private developer conclude that the Cypress Channel cannot practicably be utilized as burrowing owl habitat or cannot be enhanced as anticipated in this measure without compromising the other necessary flood control elements or project usages of the Cypress Channel. 9

Impacts to Jurisdictional Areas under Section 1603 of the California Fish & Game Code

(DEIR pg.3.4-38, -46 and -47) We are concerned that the DEIR, while recognizing that the project site does contain areas which are under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) (pursuant to Section 404 of the Clean Water Act) and the California Department of Fish & Game (CDFG) (under California Fish & Game Code Section 1600 *et seq.*), does not recognize and explain the expected amount of such acreage to be impacted by the project, nor sufficiently identify and describe proposed mitigation measures for such impact. 10

First, we believe that the DEIR should acknowledge that as much as 13.15 acres of CDFG jurisdictional streambed area may exist on the project site (as a combination of making required flood control improvements to both Cypress and Magnolia Channels). This calculation was recently performed by RBF Consulting and a copy of their delineation report and map is attached. The DEIR suggests that total CDFG jurisdiction acreage on site is only 5.06. Second, the DEIR fails to acknowledge that approximately 1.58 acres of ACOE jurisdictional areas (non-wetland) may be impacted by the proposed project and that approximately 3.43 acres of CDFG jurisdictional areas are expected to be impacted by the project. Although the DEIR states at pg. 3.4-38 that some roadway crossings of Cypress Channel could potentially impact CDFG jurisdictional areas, no quantification of potential impacts is provided, and the mitigation measures proposed for such impacts do not appear to be sufficiently clear to enable the CDFG to comment as to their adequacy or enable the project developer to understand what is being required to mitigate for the impact to the CDFG jurisdictional acreage. 11

The CDFG requires that a project EIR disclose the expected impact to CDFG jurisdictional areas and propose adequate mitigation for such impacts so that the CDFG may evaluate and comment on the adequacy of such mitigation measures in the course of the initial CEQA review process. Without the identification of acreage and area impacted and proposed mitigation measures, the CDFG would subject the project to undergo another round of CEQA review before issuing the Section 1603 Streambed Alteration Agreement. 12

Approximately 3.43 acres of CDFG jurisdiction are expected to be impacted. The EIR ought to require the project developer to create 2.16 acres of riparian habitat within the southern portion of the project site (in the areas of the proposed Ecobasins). This mitigation acreage would reflect the provision of riparian habitat at a 1:1 ratio for impacts to the Magnolia Channel and at a 1:0.5 ratio for impacts to Cypress Channel. A 1:1 ratio is proposed due to the Magnolia Channel's existing condition and poor functions and values. A 1:0.5 ratio is proposed for impacts to the Cypress Channel since the impact areas are currently concrete-lined and devoid of any natural habitat. It should also be noted that the Cypress Channel is anticipated to be widened to accept 100-year flows, thus increasing volume and "waters of the U.S." 13

An ACOE individual permit under the federal Clean Water Act (Section 404) is also expected to be required of the project developer, and the EIR should note this. 14

Biology – Cumulative Impacts (DEIR pg. 3.4-39) The EIR should explain that any significant cumulative biological impacts have been reduced below a level of significance by the imposition of the listed mitigation measures. 15

Intended Uses of EIR (DEIR pg. 2-17) The discussion at Section 2.6 should note that this EIR is intended to be used by the California Department of Fish & Game in issuing any Section 1603 Streambed Alteration Agreement and Incidental Take Permit. 16

Water Supply Analysis, Hydrology and Utilities

Water Supply Analysis

The DEIR correctly points out that SB 610 and 221 (codified largely at Water Code section 10910 et seq.) requires the preparation of a water supply assessment (WSA). However, the WSA attached to the DEIR does not address the question of whether an adequate water supply exists to serve the proposed College Park project in normal, dry, and multiple dry year periods for the next 20 years, as the statute requires. The attached WSA was prepared for a *different* environmental impact report, relating to the approval of the development of the Chino Subarea 2 within the Chino Valley Dairy Preserve (the "Preserve EIR"). The Chino Valley Dairy Preserve does not include the College Park project. We are concerned that the DEIR would rely on a WSA prepared for a different project.

Compounding the problem, the City's most recent Urban Water Management Plan Update also does not take into account the water demand for the College Park project. That document assumes the current water demand, rather than the demand at buildout. The WSA does not state whether the College Park project was included in the baseline assumptions or whether the College Park project will be relying on the surplus. The drafters of the Preserve WSA, Psomas, have orally confirmed that the College Park project was not in the baseline. Members of the City's Department of Public Works have also indicated that the College Park project was not included in the projections referring to "The City." 17

This is not to say that there is insufficient water available to the City to serve the College Park project, the existing customers of the City, and the project new customers that will result from other anticipated residential and commercial development. But the WSA attached to the DEIR does not appear to contain the analysis necessary to make that determination one way or another.

A new WSA should consider whether the City has surplus water available for the next 20 years to meet the demands of existing customers as well as the College Park project, the Preserve project, and any other new projects that the City is contemplating approving.

DEIR Hydrology

The stormwater flow discussion should analyze whether the 7 cfs increase in runoff flow rate to the Cypress Channel is a significant impact. If the Cypress Channel is at or near capacity, even the addition of 7 cfs could conceivably be significant. The stormwater flows analysis should also further develop a discussion of cumulative impacts. The thresholds of significance should be clarified. 18

Utilities

The infrastructure discussion should include more than a discussion about pipes. There should be a comprehensive discussion of all the regional facilities to which all the pipes are connected. The DEIR should analyze the capacity of the wastewater treatment plant which will serve the project, the ability of the City of keep adequate pressure in the water lines for fire service and the ability of the gas company to meet the expected demand. 19

Traffic and Circulation

Comments on Minor Errata

(DEIR pg. 3.13-6) The last paragraph indicates that "*34 out of 36 currently operate at an acceptable LOS (D or better) during the a.m. and p.m. peak hours.*" Table 3.13.2-1 indicates that four intersections (Intersections 1, 5, 6, and 10) currently operate at deficient levels of service. Therefore, 32 out of the 36 existing intersections operate at acceptable levels of service under existing conditions. The text in the last paragraph should be revised in the Final EIR to reflect this, and the list of intersections updated to include Intersection 5 (Mountain Avenue and SR-60 westbound ramps). 20

(DEIR pg. 3.13-16) The last paragraph states that "*In the interim year 2012 without project conditions, the following seven study intersections are projected to operate at LOS E or LOS F...* " Table 3.13.4-4 indicates that nine intersections (Intersections 1, 5, 6, 10, 13, 14, 18, 22, and 31) are projected to operate at deficient levels of service under Year 2012 conditions without the project. Therefore, the text in the last paragraph should be revised in the Final EIR to reflect the nine deficient intersections, and the list of intersections updated to include Intersection 5 (Mountain Avenue and SR-60 westbound ramps) and Intersection 18 (SR-71 northbound off-ramp/Roswell and Grand). 21

(DEIR pg. 3.13-19) The second paragraph indicates that "*In the interim year 2012 with project conditions, the 15 study area intersections listed below are projected to operate at LOS E or LOS F...* " Table 3.13.4-5 indicates that 13 intersections (Intersections 1, 2, 3, 5, 6, 10, 12, 13, 14, 18, 20, 28, and 31) are projected to operate at deficient levels of service under Year 2012 conditions with the project. Therefore, the text in the second paragraph should be revised in the Final EIR to reflect these 13 intersections, and the list of intersections updated to include Intersection 3 (Central Avenue and SR-60 westbound ramps). The intersection list on this page should be further revised 22

to delete Intersections 22, 24, and 29. As discussed in the last paragraph, project-related design features will be implemented at these three locations, resulting in acceptable levels of service at all three intersections. 22

(DEIR pg. 3.13-22) The second paragraph indicates that "*In the year 2025 without project conditions, the 22 study area intersections listed below are projected to operate at LOS E or LOS F...*" Table 3.13.4-6 indicates that 20 intersections (Intersections 1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 14, 18, 20, 22, 24, 26, 28, 31 and 35) are projected to operate at deficient levels of service under Year 2025 conditions without the project. Therefore, the text in the second paragraph should be revised in the Final EIR to reflect these 20 intersections, and the list of intersections updated to remove Intersection 11 (Euclid Avenue and Walnut Avenue) and Intersection 17 (SR-71 southbound ramps and Grand Avenue). 23

(DEIR pg. 3.13-29) The "COS" appearing on the first line of the page should be revised to "LOS" in the Final EIR. 24

Comments on Technical Elaboration

(DEIR pg. 3.13-29) The first paragraph refers to Table 11, contained in Appendix I. We recommend that Table 8 and Table 11 (or at a minimum, the mitigated service level results) be included in the main body of the Final EIR to provide clarity on the effectiveness of the mitigation measures, and to illustrate that the implementation of these mitigation measures will alleviate all of the project's direct, indirect, and cumulative traffic impacts to a level of insignificance. This recommendation is further discussed in the next section. 25

(DEIR pg. 3.13-29) The third paragraph states that "*The project should contribute to the cost of necessary study area improvements on a proportional fair-share basis...pay applicable impact fees and/or construct arterial roadway improvements adjacent to the project.*" We recommend that the issue of fair-share calculations for the project be elaborated further under a specific mitigation measure category (like the Transportation-1 and Transportation-2 measures already in the DEIR). This is further discussed in the next section. 26

(DEIR pgs. 3.13-29 through 3.13-33) The intersection improvements listed under Transportation-1 and Transportation-2 are not consistent with Table 8 and Table 11 in Appendix I. The text descriptions of the improvements and Tables 8 and 11 should be revised in the Final EIR to reflect the exact same set of intersection improvements. 27

Suggestions for Further Technical Elaboration

Analysis of Internal Circulation – The internal circulation needs of the project are not specifically addressed in the DEIR. By using the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003) as a basis, LLG prepared a preliminary internal circulation study for the project that is currently under review by City staff. This preliminary study is attached to this letter. It identifies 28

specific internal traffic volume forecasts derived by extending the "external" forecasts of the DEIR to roadways inside the site. Internal circulation findings and recommendations, as a supplement to the Kaku Associates study, are included. 28

Project Fair-Share Analysis – The fair-share analysis is presented in detail in Appendix I of the DEIR. However, we recommend that key findings from the fair-share calculations be included in the main body of the Final EIR, and that greater clarity be given to the fair-share responsibilities of the project by outlining these costs under specific traffic mitigation headings or categories of the Final EIR. The discussion of these fair-share costs should emphasize that the costs were estimated through direct correlation with the trip generation forecasted for a specific project description. Because the fair-share costs are a function of the project's tripmaking potential, any changes to the anticipated development program and/or the project's tripmaking potential would necessitate a recalculation of the project's fair-share contribution. 29

Effectiveness of Mitigation Measures – The DEIR concludes that the implementation of the recommended mitigation measures will improve deficient levels of service to acceptable levels. On a technical basis, we conclude that the findings of the traffic impact analysis are valid. However, the DEIR traffic section, as now written, may not provide guidance and conveniently located evidence to the reader that the direct, indirect, and cumulative impacts of the project are mitigated. Table 8 (for year 2012) and Table 11 (for year 2025) provide this evidence, and indicate the acceptable levels of service that result from the implementation of the mitigation measures. Therefore, we recommend that these tables (or only Table 11 at the minimum) be included in the main body of the Final EIR, and that the related discussion cite the effectiveness of these mitigation measures in alleviating direct, indirect, and cumulative traffic impacts. 30

In conclusion, we have focused our comments on those areas that we believe should be modified prior to certification of the Final EIR. We hope you find these comments helpful in the City's efforts to ensure the project EIR complies with the complexities of CEQA. We stand ready to answer any questions you may have regarding our comments, and appreciate the opportunity to work with City staff to resolve these issues. 31

Respectfully submitted,

Larry Lazar (KHS)

Larry Lazar
Vice President

Attachments: 1) Delineation Report for College Park, August 11, 2003, RBF Consulting
2) Preliminary Internal Circulation Study for College Park, August 5, 2003, Linscott, Law & Greenspan

cc: Andrew Hartzell, Hewitt O'Neil
Susan Trager, Law Offices of Susan M. Trager
Paul Wilkinson and Trissa (de Jesus) Allen, Linscott, Law & Greenspan
Robert McKinnon, California Department of General Services
Donald Brackenbush, Goodell Brackenbush

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RBF CONSULTING

August 11, 2003

JN 10-102885

COMMUNITY DEVELOPMENT
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Ms. Kelly Buffa
SunCal Companies
5109 E. La Palma, Suite D
Anaheim, California 92807

Dear Ms. Buffa:

This delineation was prepared for SunCal Companies in order to delineate the U.S. Army Corps of Engineers' (Corps), California Department of Fish and Game's (CDFG), and Regional Water Quality Control Board's (RWQCB) jurisdictional authority for drainages located within the College Park Project, herein referred to as the project site. The project site is located within the City of Chino, County of San Bernardino, State of California (T.2S, R.7W and 8W, SBBM). More specifically, the project site is generally located within the California Institute of Men property, bounded by Edison Avenue to the north, Euclid Avenue to the east, Kimball Avenue to the south, and Central Avenue to the west. On-site access is provided via Euclid Avenue; existing unimproved and improved roadways are located within the boundaries of the subject site.

RBF Consulting (RBF) delineated areas within the project site that have a high potential of being considered jurisdictional by the regulatory agencies. This delineation has been designed to document the regulatory authority of the regulatory agencies, the methodology undertaken by RBF to document jurisdictional authority, and the findings made by RBF within the boundaries of the project site. This report presents our best effort at determining the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies; however, only the regulatory agencies can make a final determination of jurisdictional boundaries.

Methodology

U.S. Army Corps of Engineers (Corps) jurisdictional wetlands are delineated using the methods outlined in the Corps of Engineers *Wetland Delineation Manual* (1987). The methodology set forth in the 1987 Manual is based on the following **three (3)** indicators that are normally present in wetlands: (1) hydrology providing permanent or periodic inundation by groundwater or surface water, (2) hydric soils, and (3) hydrophytic vegetation. In order to be considered a wetland, an area must exhibit at least minimal hydric characteristics within these three parameters.

Corps non-wetland waters of the U.S. are delineated based on the limits of the ordinary high water mark (OHWM) as determined by erosion, the deposition of vegetation or debris, and changes in the vegetation. The CDFG's jurisdiction is defined to the top of bank of the stream/channel or to the limit of the adjacent riparian vegetation.

Analysis presented in this document consists of field surveys and verification of current conditions conducted on June 24, 2003. While in the field, jurisdictional areas were recorded onto a base map at an approximate scale of 1"= 200' using the topographic contours and visible landmarks as guidelines.

Findings

Corps Wetlands:

An area must exhibit **all three (3)** of the wetland parameters described in the *Corps Wetland Delineation Manual* to be considered a jurisdictional wetland. Based on the results of the field investigations, it was determined that no portion of the project site contained all three parameters. Based on the literature review and soil samples obtained during the field visit, no hydric soils are present and hydrophytic vegetation was limited. Based on the site conditions, no jurisdictional wetlands are present.

However, areas within the proposed project site exhibited water flow and evidence of hydrology (drift/debris lines, scouring, and cut) sufficient to document the OHWM, thus meeting the criteria for Corps jurisdictional waters (non-wetland).

RWQCB Jurisdiction:

No isolated waters (wetland or non-wetland) are located within the boundaries of the project site; therefore, the RWQCB follows that of Corps (Federal) jurisdictional waters.

CDFG Jurisdiction:

The CDFG jurisdiction extended from the top of each bank slightly below the unimproved dirt roads (no riparian vegetation was noted). Table 1, *Jurisdictional Summary*, identifies agency jurisdictions and proposed impacts. Also, refer to Exhibit 1, *Jurisdictional Map*, for an illustration of agency jurisdiction.

Opinion and Recommendations

U.S. Army Corps of Engineers (Corps):

The Corps regulates discharges of dredged fill materials into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA). A permit will be required from the Corps Regulatory Branch-Los Angeles District Office since improvements associated with the proposed project will result in the discharge of material within the Corps' jurisdiction. Utilizing the most current development plans, and based on the amount of jurisdictional impacts, it is anticipated that the proposed improvements can be authorized via an Individual Permit (IP).

Table 1
Jurisdictional Summary

Channel		Corps Jurisdiction* (Acres)	Proposed Corps Impacts (Acres)	CDFG Jurisdiction (Acres)	Proposed CDFG Impacts (Acres)
Cypress	(Concrete)	2.39	0.90	6.68	2.53
	(Earthen)	3.01	0.00	4.65	0.00
Magnolia		0.96	0.68	1.82	0.90
Totals		**6.36**	**1.58**	**13.15**	**3.43**

* All jurisdictional areas are non-wetland.

It should be noted that one (1) roadside drainage was observed along the southern Edison Avenue right-of-way (ROW). This roadside drainage conveys water runoff generated from Edison Avenue and adjacent urban uses and does not appeared to be a natural watercourse. The subject drainage was observed to be a small segment of a larger surface conveyance facility, typical of the surrounding roadway network. Generally, the regulatory agencies do not consider such roadside drainages "waters of the U.S." or "State". Should the Corps and/or the CDFG claim jurisdiction over this facility, the level of permitting effort would not be impacted; however, the project applicant would be required to compensate for any loss associated with Edison Avenue improvements. Exhibit 1 illustrates the location of the roadside drainage for discussion purposes only.

It is recommended that a concurrence with the Corps be achieved; as with any project, impacts to jurisdictional areas should be avoided or minimized to the highest extent possible. It should be noted that the IP process generally takes approximately twelve (12) months processing time. No fee is required for the Corps permit process at this time. Prior to issuance of the Corps permit, a Section 401 Water Quality Certification from the RWQCB must be obtained.

Regional Water Quality Control Board (RWQCB):

For the Corps 404 permit to be approved, a 401 Water Quality Certification from the Santa Ana RWQCB will be required. The RWQCB requires that a California Environmental Quality Act (CEQA) compliance certification be obtained prior to starting the Corps permit process. Processing time should not exceed ninety (90) days, following submission of a complete application (determination of what constitutes a complete application is made by the RWQCB). Additionally, the RWQCB requires that water quality concerns related to urban storm water runoff be addressed. Any 401

Certification application submitted to the RWQCB should incorporate the use of Best Management Practices (BMPs) for the treatment of pollutants carried by storm water runoff in order to be considered a complete application. The RWQCB also requires a 401 Certification Application Fee of $2,250.00 for projects that impact one (1) acre or less. Should one or more acre be impacted by project implementation, an additional $2,250.00 is required per acre or part thereof.

California Department of Fish and Game (CDFG):

As noted in Table 1, the on-site channels meet the CDFG's definition as streambed and thus would be regulated by the Department. Since improvements associated with the proposed project will impact CDFG Jurisdiction, a 1603 Streambed Alteration Agreement (SAA) must be obtained. The CDFG Agreement will require a $1,390.50 fee and approximately 45 days processing time. CEQA compliance is necessary in order for the SAA to be issued.

Global Recommendations

Agency Concurrence and Pre-Application Field Meeting:

Prior to the application process, it is highly recommended that the delineation be forwarded to each of the regulatory agencies for their concurrence. Once the delineation is approved, RBF has found it extremely beneficial and pro-active to have an on-site meeting with the Corps, CDFG, and RWQCB to discuss potential permitting strategies and mitigation opportunities (if any). In short, these Pre-Application Field Meetings often help streamline the permitting process.

Potential Mitigation:

Mitigation can take several forms. It can consist of (1) avoidance or minimization of impacts, (2) compensation in the form of habitat creation, or (3) compensation through participation in a mitigation bank. The first type of mitigation (avoidance or minimization of impacts) is preferred by the agencies and should be investigated to the maximum extent possible. For any project that impacts riparian vegetation, it is preferred by the agencies that compensation through the creation of habitat be performed on-site and in kind (i.e., riparian woodland for riparian woodland; sandy bottom for sandy bottom). The exact requirements of any special conditions established in the permit would be dictated by the regulatory agencies following review of the formally submitted project application.

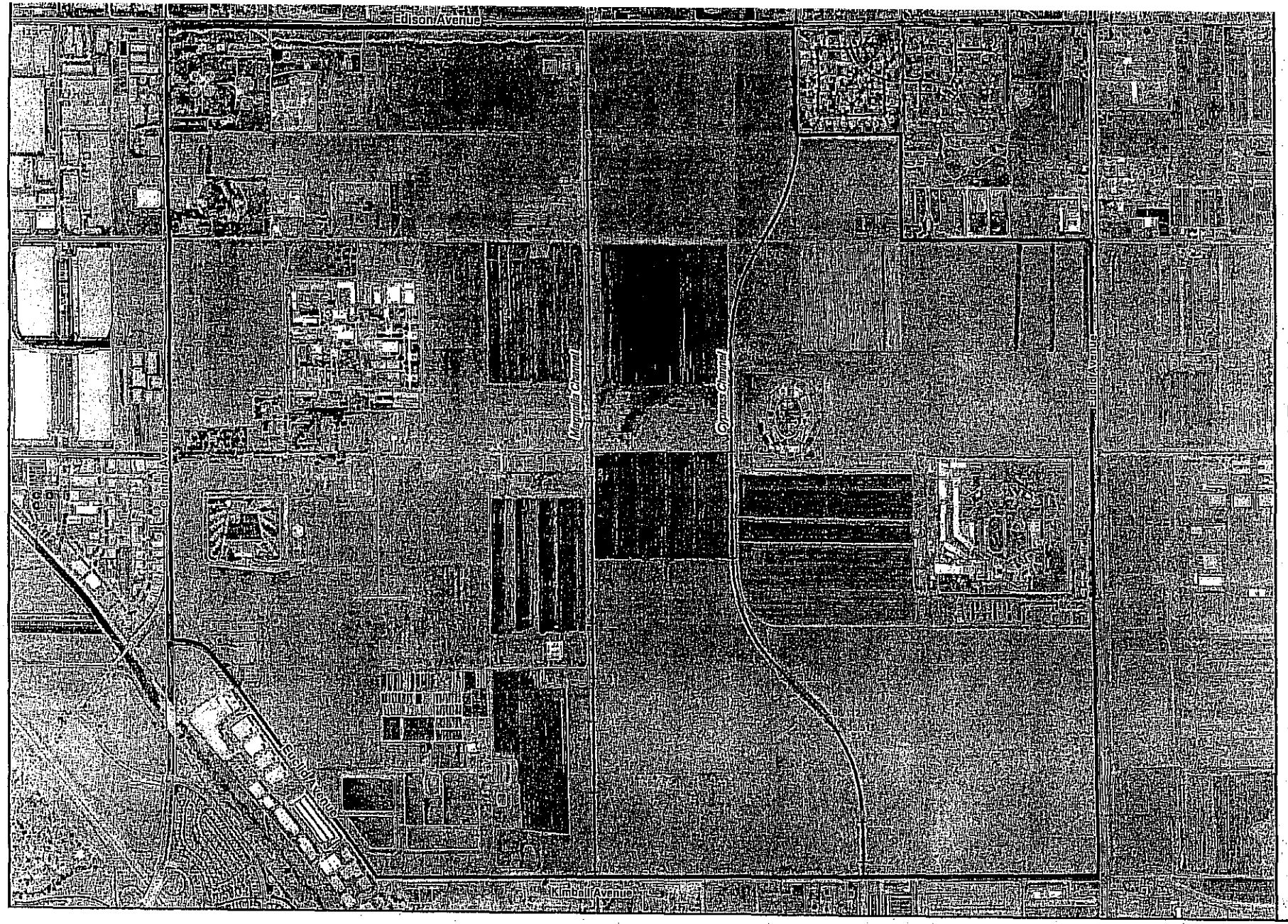
The Applicant is currently proposing to mitigate and lessen impacts to the Cypress and Magnolia Channels. The Applicant has proposed to create 2.16-acres of riparian habitat within the southern portion of the State property. This threshold was designed based on a 1:1 ratio for impacts to the Magnolia Channel and a 1:0.5 ratio for impacts to the Cypress Channel. A 1:1 ratio is proposed due to the Magnolia Channel's existing condition and poor functions/values. A 1:0.5 ratio is proposed to impacts to the Cypress Channel since the impact areas are currently concrete-lined and void of any natural habitat. It should also be noted that the Cypress Channel is anticipated to be widened to accept 100-year flows, thus increasing volume and "waters of the U.S."

Please do not hesitate to contact me at 949/855-3687, or Bruce Grove at 949/855-3686, should you have any questions.

Sincerely,

Richard Beck
Regulatory Coordinator
Environmental Services-Special Projects

Bruce R. Grove, Jr.
Project Manager
Environmental Services-Special Projects



Legend

- Proposed Jurisdictic Drainage Improvem
- Corps/CDFG Jurisdi Drainage (Width in F
- Soil Pit
- Property Boundary
- Edison Avenue Roa Drainage (Non-Juris

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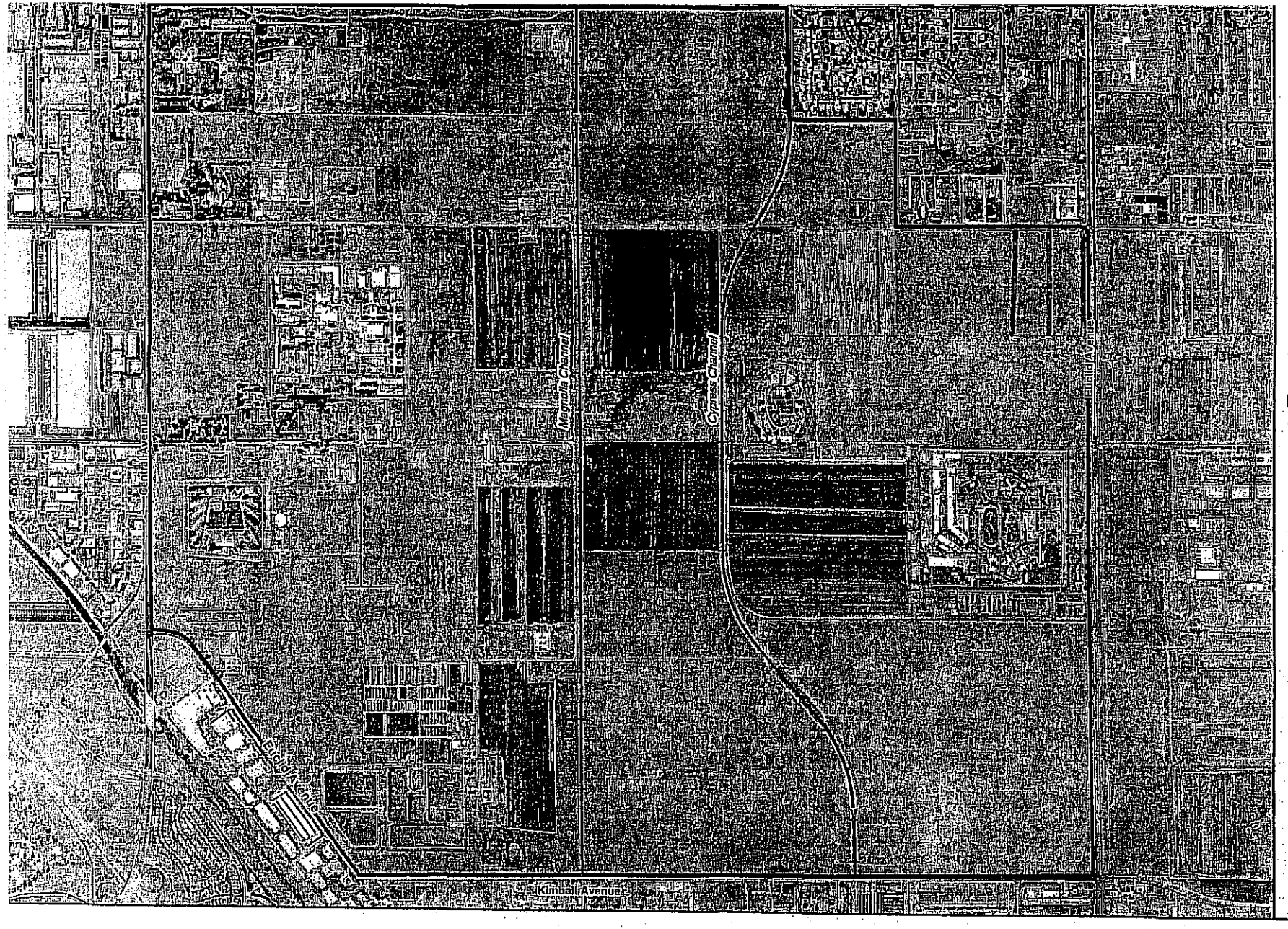

Legend

- Proposed Jurisdictional Drainage Improvements
- Corps/CDFG Jurisdictional Drainage (Width in Feet)
- Soil Pit
- Property Boundary
- Edison Avenue Roadside Drainage (Non-Jurisdictional)

N

0 550 1,100 Feet

Exhibit 1
Jurisdictional Map
College Park

RBF

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

Philip M. Linscott, P.E. (1924-2000)
Jack M. Greenspan, P.E.
William A. Law, P.E. (Ret.)
Paul W. Wilkinson, P.E.
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ENGINEERS & PLANNERS • TRAFFIC, TRANSPORTATION, PARKING

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COMMUNITY DEVELOPMENT
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AUG 2 1 2003

August 5, 2003

Mr. Larry Lazar
SUNCAL COMPANIES
5109 E. La Palma, Suite D
Anaheim, CA 92807

Subject: **PRELIMINARY INTERNAL CIRCULATION STUDY FOR COLLEGE PARK**
Chino, California

Dear Mr. Lazar:

Per your request, Linscott, Law & Greenspan, Engineers (LLG) is pleased to present the preliminary findings of an internal circulation study prepared for the College Park project located in the City of Chino.

As you know, internal circulation aspects are not discussed in the Draft EIR (DEIR) now in circulation. Thus, the need for this focused evaluation is to determine internal circulation cross-sectional needs and characteristics. This internal traffic study focused on the following elements:

- Estimated the project's tripmaking potential based upon a more refined development tabulation for SunCal-owned residential components of the project, in addition to other aspects of the overall project (i.e., Chaffey College, an elementary school, Ayala Park, a shopping center, and a supermarket) that had trip generation estimates included in the DEIR for College Park.

- Developed an internal traffic model for assigning project-generated volumes within the local traffic setting.

- Developed a preliminary set of recommendations on the internal transportation infrastructure needs of the project.

In summary, the key findings of our internal traffic study reflect the following:

1. The following two networks were developed as part of the internal traffic model, and evaluated for infrastructure needs:

   - **Baseline Internal Street System:** This network was created based upon SunCal's current street circulation plan for College Park (i.e., site plan prepared by Michael Madden Associates, dated April 21, 2003).

   - **Alternative Internal Street System:** This alternative network includes an additional, east-west public roadway on the southern limits of Chaffey College, and was developed based upon discussions with SunCal and Chaffey College representatives.

2. Based on current site planning information, the College Park project is comprised of 2,299 dwelling units (1,931 single-family homes and 368 apartments), Chaffey College with an expected enrollment of 15,000 students, an elementary school with 55 employees, Ayala Park (119.2 acres), a shopping center (70,000 SF), and a supermarket (50,000 SF). There are also several small parks disbursed throughout the project.

3. **Table 1** summarizes the trip generation rates applied to the various project components. These rates are consistent with the trip rates used in the DEIR's traffic study, with the one exception of the shopping center. The DEIR applied shopping center trip rates, but as a conservative measure for this internal circulation study, the shopping center trip equations were applied instead.

4. **Table 2** presents the resulting trip generation estimates on a daily (typical weekday), AM peak hour, and PM peak hour basis, segregated into 18 Traffic Analysis Zones (TAZs). Each TAZ is a sub-area, or a logical grouping of various project components based upon their relative location within the College Park site, and relation to driveway access connections with the surrounding street system. The numbering and locations of these zones are taken from the initial planning areas and their development tabulations indicated in the SunCal plan. As indicated on the last two pages of **Table 2**, the project is expected to generate approximately 52,081 daily trips, 3,921 AM peak hour trips, and 5,464 PM peak hour trips. Inherent in these total project-generated trips is the application of a 30% pass-by reduction factor to the shopping center and supermarket in TAZ 15 (this is the same pass-by reduction percentage used in the DEIR's traffic study).

5. The same external project traffic distribution pattern used in the DEIR (Figure 14 of the DEIR's traffic study; attached to this letter) was used to distribute and assign project-generated trips throughout each of the two networks in the internal traffic model (i.e., Baseline Internal Street System, and Alternative Internal Street System). The inbound and outbound distribution percentages assumed at each of the "gates" or external portals in the

DEIR's traffic study provided the basis for this internal circulation study to route the project trips between each of the 18 TAZs and the various "gates", via each TAZ's "centroid connector" or theoretical project driveway and the surrounding internal street system (Baseline and Alternative).

6. By applying the project traffic distribution pattern described above to the project trip generation estimates for each TAZ presented in **Table 2**, the project trips were assigned on each of the two networks (Baseline and Alternative). **Exhibits 1** through **3** illustrate the daily, AM peak hour, and PM peak hour project-generated traffic volumes, respectively, on the Baseline network, and **Exhibit 4** depicts the daily project-generated traffic assuming the Alternative network.

7. In order to describe what roadways the College-related trips would likely use, and the amount of these College-related trips along each roadway, a specific traffic assignment was performed that solely evaluated College-generated traffic. College-only daily traffic is shown on **Exhibit 5**. **Exhibits 6** and **7** illustrate the total AM peak hour and PM peak hour project-generated traffic volumes, respectively, on the Alternative network (concluded to be a more desirable network than the Baseline).

8. Based on our review of the traffic volume exhibits developed in this study, our initial conclusions and recommendations are as follows (these preliminary recommendations are illustrated on **Exhibit 8**):

   a) The added east-west roadway ("College Road") located south of Chaffey College (included in the Alternative network) is desirable as a public street, since it could remove about 5,000 daily trips from Eucalyptus Avenue in the town center area, and roughly 4,000 daily trips from the east end of "A" Street. It is a recommended addition to the SunCal plan. It is understood that its addition cannot be presumed as final without further discussion with the College team.

   b) A roundabout at the Oaks Avenue/Eucalyptus Avenue/"A" Street intersection is not recommended, based upon the significant amount of traffic expected to occur at the intersection, and instead, this location should be designed as a conventional intersection

   c) **Oaks Avenue and Eucalyptus Avenue extensions into the site:** require the full-section of four lanes, consistent with the Specific Plan.

   d) **"A" Street:** four lanes would be needed west of the College and immediately west of Oaks Avenue. The intervening segment must also be four lanes if the recommended "College Road" of Item (a), described above, is not integrated into the plan. With its integration, the intervening segment of "A" Street could be two lanes, with the likely need for left-turn pockets at College or park driveways if they adjoin this segment.

e) **Mountain Avenue extension into the site:** two lanes would be needed or desirable, consistent with a local collector.

f) **Added roadway south of Chaffey College ("College Road" in Alternative network):** two lanes would be needed or desirable as a collector, and as a public street (as concluded above).

g) **Arched roadway connecting Oaks Avenue and "B" Street, serving the retail components of the project, located on the northeast quadrant of the Oaks Avenue/Eucalyptus Avenue/"A" Street intersection:** two lanes would be needed as a collector.

h) **"B" Street:** also a two-lane collector. Note from **Exhibit 8** that the current thinking is not to extend "B" Street east of Mountain Avenue, but to create a loop with both ends connecting to Mountain Avenue. This adjustment is being made in conjunction with school site refinement in this area.

9. We anticipate that the next steps for this internal circulation study will be to investigate the specific geometry or lane configurations, and necessary traffic control, at key internal intersections, as well as those at the project site perimeter.

• • • • • •

We appreciate the opportunity to provide this information. If you have any questions regarding this analysis, please call us at (714) 641-1587.

Very truly yours,
LINSCOTT, LAW & GREENSPAN, ENGINEERS

Paul W. Wilkinson, P.E.
Principal

Trissa (de Jesus) Allen
Transportation Engineer III

Attachments

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LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 1
PROJECT TRIP GENERATION RATES
College Park, Chino

ITE CODE & LAND USE	DAILY	AM PEAK HOUR			PM PEAK HOUR		
	RATE	RATE	% IN	% OUT	RATE	% IN	% OUT
210: Single-Family Residential (Trips per DU)	9.57	0.75	25%	75%	1.01	64%	36%
220: Apartment (Trips per DU)	6.63	0.51	16%	84%	0.62	67%	33%
540: Community College (Trips per Student)	1.54	0.14	91%	9%	0.17	68%	32%
820: Shopping Center (Trips per 1,000 SF)	[a]	[a]	61%	39%	[a]	48%	52%
850: Supermarket (Trips per 1,000 SF)	111.51	3.25	61%	39%	11.51	51%	49%
Estimated: Elementary School (Trips per Employee)	2.4	1	88%	12%	Nominal	Nominal	Nominal
SANDAG: City Park (Trips per Acre)	20.00	0.08	50%	50%	1.60	50%	50%

Sources:

Trip Generation (6th Edition), Institute of Transportation Engineers (ITE), 1997.

San Deigo Traffic Generators, San Diego Association of Governments (SANDAG), July 1998.

Notes:

DU = Dwelling Units

SF = Square Feet

[a] Trip generation for shopping centers/retail uses were calculated using the following equations:

Daily Rate: $Ln(T) = 0.643Ln(X) + 5.866$

AM Commuter Peak Hour Rate: $Ln(T) = 0.596Ln(X) + 2.329$

PM Commuter Peak Hour Rate: $Ln(T) = 0.660Ln(X) + 3.403$

Ln = Natural logarithm

T = Two-way volume of traffic (total trip ends)

X = Area in 1,000 gross square feet of leasable area

LINSCOTT LAW & GREENSPAN
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TABLE 2
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
1	50x100 Alley SF	SF Residential	11.00	68	5.00	651	13	38	51	44	25	69
1	55x80	SF Residential	16.90	97	4.40	928	18	55	73	63	35	98
1	Park	Park	1.10	-	-	22	1	0	1	1	1	2
					Subtotal for TAZ 1	*1,601*	*32*	*93*	*125*	*108*	*61*	*169*
2	55x100 Alley	SF Residential	8.40	44	5.50	421	8	25	33	28	16	44
2	65x100	SF Residential	11.25	39	6.50	373	7	22	29	25	14	39
2	100x150	SF Residential	11.25	21	15.00	201	4	12	16	13	8	21
2	Park	Park	1.10	-	-	22	1	0	1	1	1	2
					Subtotal for TAZ 2	*1,017*	*20*	*59*	*79*	*67*	*39*	*106*
3	50x100 Alley	SF Residential	10.50	63	5.00	603	12	35	47	41	23	64
3	45x100	SF Residential	14.70	80	4.50	766	15	45	60	52	29	81
3	Triplex	SF Residential	3.25	18	-	172	4	10	14	12	6	18
3	Park	Park	0.95	-	-	19	1	0	1	1	1	2
					Subtotal for TAZ 3	*1,560*	*32*	*90*	*122*	*106*	*59*	*165*
4	55x100 Alley	SF Residential	10.60	38	5.50	364	7	22	29	24	14	38
4	Triplex	SF Residential	2.10	10	-	96	2	6	8	6	4	10
4	Elementary School	Elementary School [a]	55	-	-	132	48	7	55	0	0	0
					Subtotal for TAZ 4	*592*	*57*	*35*	*92*	*30*	*18*	*48*
5	65x100	SF Residential	11.10	44	6.50	421	8	25	33	28	16	44
5	Triplex	SF Residential	2.71	14	-	134	3	8	11	9	5	14
5	Park	Park	0.50	-	-	10	0	0	0	1	0	1
					Subtotal for TAZ 5	*565*	*11*	*33*	*44*	*38*	*21*	*59*
6	100x150	SF Residential	22.70	47	15.00	450	9	26	35	30	17	47
6	Triplex	SF Residential	2.10	12	-	115	2	7	9	8	4	12
					Subtotal for TAZ 6	*565*	*11*	*33*	*44*	*38*	*21*	*59*

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TABLE 2 (Continued)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ#	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
7	Cluster SFD	SF Residential	16.79	245	-	2,345	46	138	184	158	89	247
					Subtotal for TAZ 7	*2,345*	*46*	*138*	*184*	*158*	*89*	*247*
8	45x75 Alley	SF Residential	23.20	144	3.375	1,378	27	81	108	93	52	145
8	Triplex	SF Residential	4.00	19	-	182	4	10	14	12	7	19
8	Park	Park	1.20	-	-	24	1	0	1	1	1	2
					Subtotal for TAZ 8	*1,584*	*32*	*91*	*123*	*106*	*60*	*166*
9	45x75 Alley	SF Residential	4.45	20	3.375	191	4	11	15	13	7	20
9	Triplex	SF Residential	2.00	11	-	105	2	6	8	7	4	11
					Subtotal for TAZ 9	*296*	*6*	*17*	*23*	*20*	*11*	*31*
10	45x100	SF Residential	16.30	88	4.50	842	17	49	66	57	32	89
10	Triplex	SF Residential	6.10	35	-	335	7	19	26	22	13	35
10	Townhomes	SF Residential	11.10	128	-	1,225	24	72	96	83	46	129
10	Park	Park	1.00	-	-	20	1	0	1	1	1	2
					Subtotal for TAZ 10	*2,422*	*49*	*140*	*189*	*163*	*92*	*255*
11	55x80	SF Residential	21.70	133	4.40	1,273	25	75	100	86	48	134
11	45x80	SF Residential	15.55	113	3.60	1,081	21	64	85	73	41	114
11	Auto-court (Centex 9A)	SF Residential	8.30	78	-	746	15	44	59	51	28	79
11	Park	Park	3.45	-	-	69	2	1	3	3	3	6
					Subtotal for TAZ 11	*3,169*	*63*	*184*	*247*	*213*	*120*	*333*
12	Auto-court (Centex 9A)	SF Residential	12.25	138	-	1,321	26	78	104	89	50	139
					Subtotal for TAZ 12	*1,321*	*26*	*78*	*104*	*89*	*50*	*139*
13	Townhomes (MBK Amerige Hts.)	SF Residential	10.90	160	-	1,531	30	90	120	104	58	162
					Subtotal for TAZ 13	*1,531*	*30*	*90*	*120*	*104*	*58*	*162*

LINSCOTT LAW & GREENSPAN ENGINEERS

TABLE 2 (Continued)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
14	Apartments (Morgan Group)	Apartment	15.40	368	-	102	1	7	8	7	3	10
					Subtotal for TAZ 14	*102*	*1*	*7*	*8*	*7*	*3*	*10*
15	Live/Work (Village Ctr./KMP)	SF Residential	-	24	-	230	5	13	18	15	9	24
15	Retail	Shopping Center	-	-	70.00	5,420	79	50	129	238	258	496
	Pass-By Reduction (30%)	-	-	-	-	-1,626	-24	-15	-39	-71	-78	-149
	Net Trips	-	-	-	-	3,794	55	35	90	167	180	347
15	Supermarket	Supermarket	-	-	50.00	5,576	99	64	163	294	282	576
	Pass-By Reduction (30%)	-	-	-	-	-1,673	-30	-19	-49	-88	-85	-173
	Net Trips	-	-	-	-	3,903	69	45	114	206	197	403
					Subtotal for TAZ 15	*7,927*	*129*	*93*	*222*	*388*	*386*	*774*
16	Community Center	[b]	-	-	-	-	-	-	-	-	-	-
					Subtotal for TAZ 16	-	-	-	-	-	-	-
17	Chaffey College	Community College [c]	15,000	-	-	23,100	1,911	189	2,100	1,734	816	2,550
					Subtotal for TAZ 17	*23,100*	*1,911*	*189*	*2,100*	*1,734*	*816*	*2,550*
18	Ayala Park	City Park	119.20	-	-	2,384	48	47	95	96	95	191
					Subtotal for TAZ 18	*2,384*	*48*	*47*	*95*	*96*	*95*	*191*
TOTAL						52,081	2,504	1,417	3,921	3,465	1,999	5,464

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TABLE 2 (Continued)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
BREAKDOWN BY LAND USE												
		Apartment	15.40	368	-	102	1	7	8	7	3	10
		Community College [c]	15,000 students		-	23,100	1,911	189	2,100	1,734	816	2,550
		Elementary School [a]	55 employees		-	132	48	7	55	0	0	0
		Park	9.30	-	-	186	7	1	8	9	8	17
		Regional Park	119.20	-	-	2,384	48	47	95	96	95	191
		SF Residential	291.20	1,931	77.15	18,480	365	1,086	1,451	1,246	700	1,946
		Shopping Center	-	-	70.00	3,794	55	35	90	167	180	347
		Supermarket	-	-	50.00	3,903	69	45	114	206	197	403
		TOTAL	-	-	-	**52,081**	**2,504**	**1,417**	**3,921**	**3,465**	**1,999**	**5,464**

Notes:

DU = Dwelling Unit

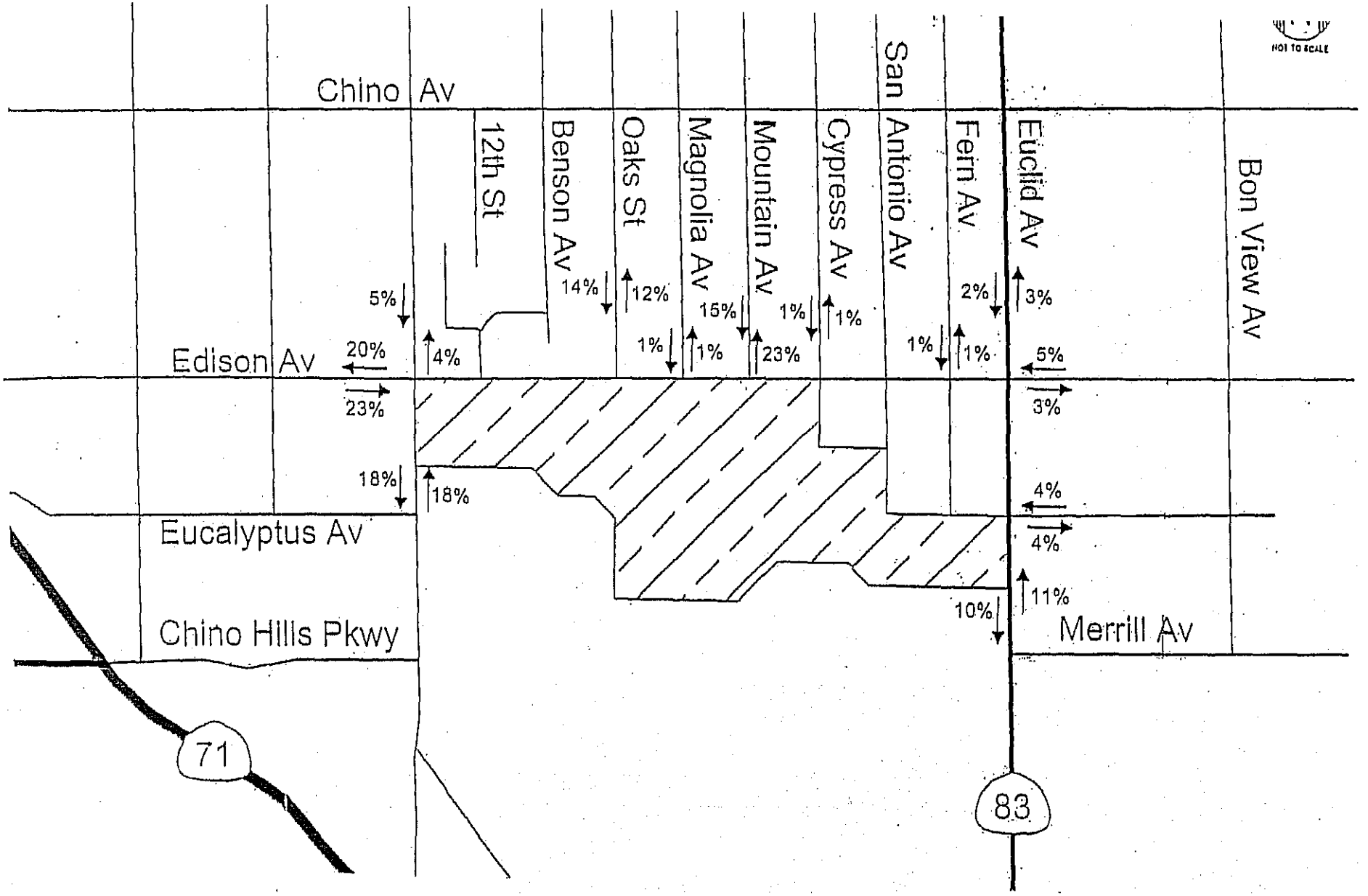
TSF = 1,000 square feet

SF Residential = Single-Family Residential

[a] Based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003), the elementary school is expected to have 55 employees.

[b] The Community Center is assumed to be part of the 119.20-acre regional park.

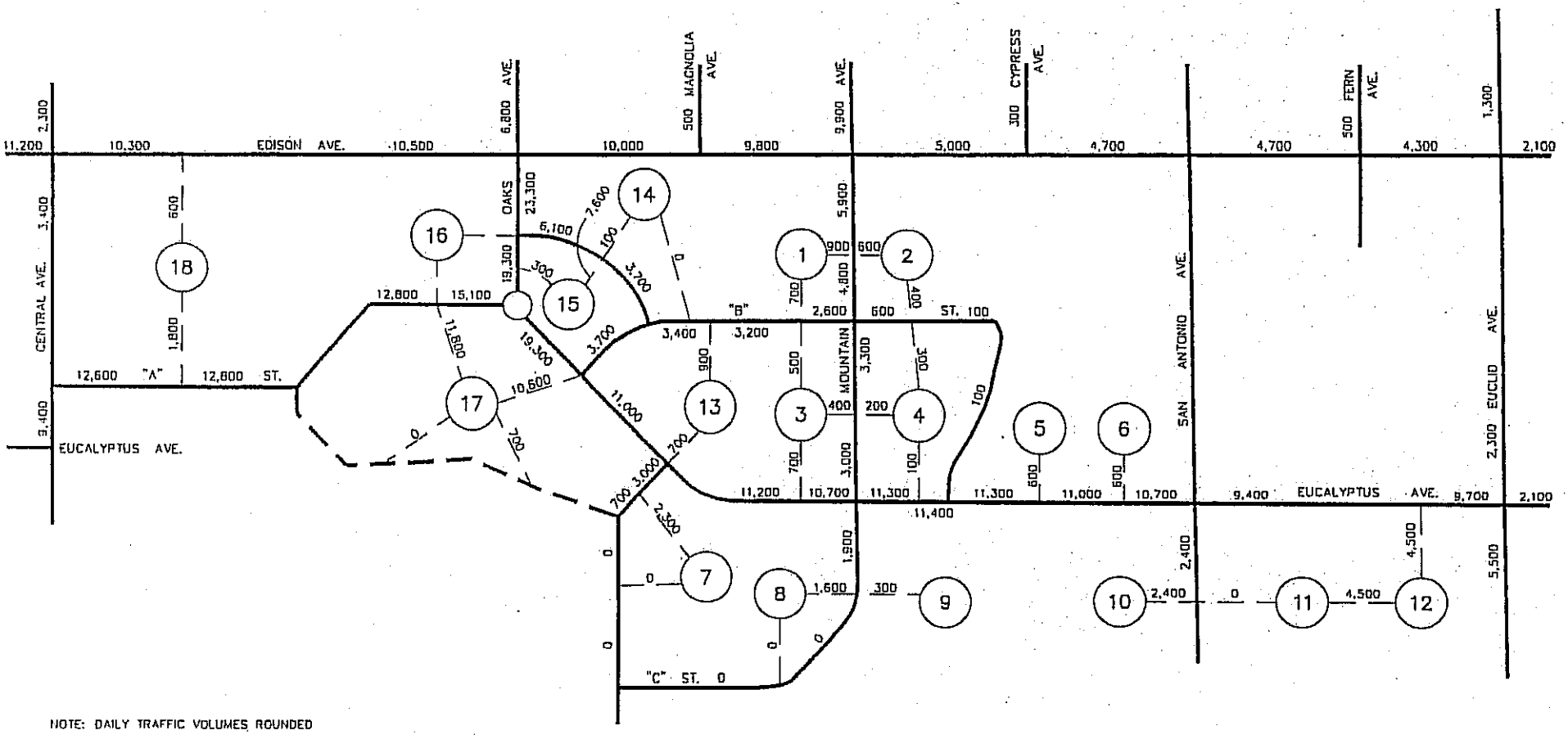
[c] Based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003), the expected enrollment for Chaffey College is 15,000 students.



KAKU ASSOCIATES

FIGURE 14

GENERALIZED PROJECT TRIP DISTRIBUTION



NO SCALE

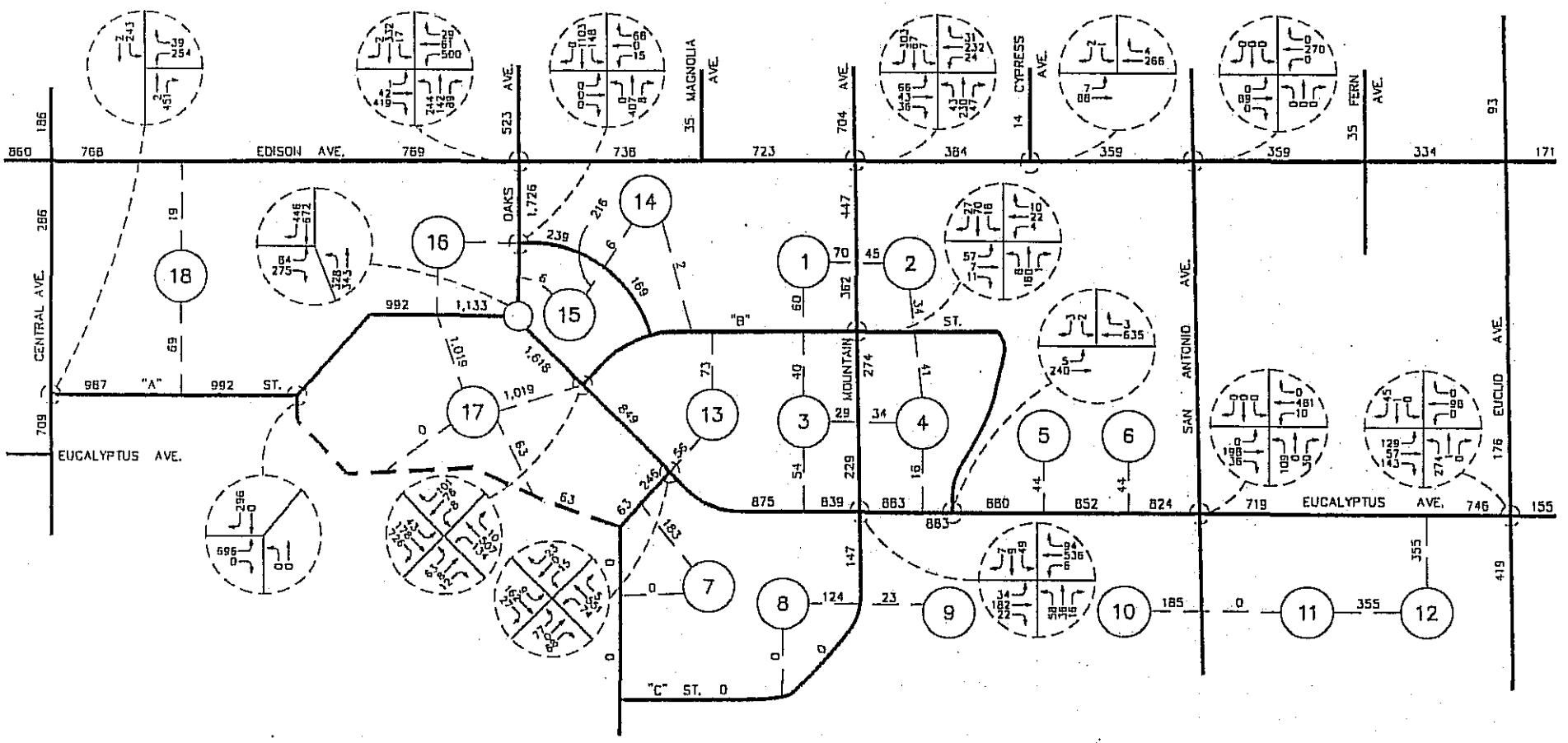
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

- (1) = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 1

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
BASELINE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



N NO SCALE

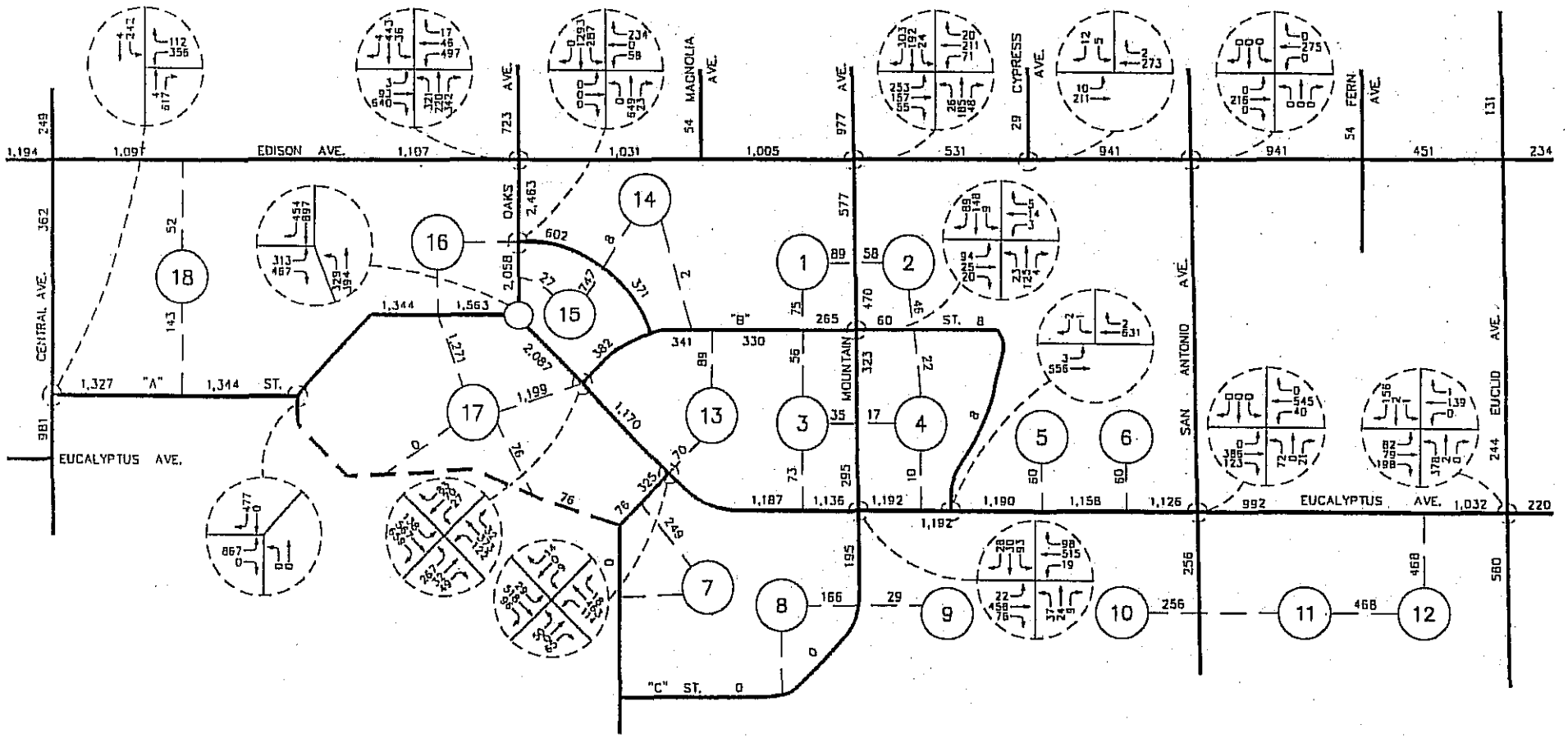
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

- ① = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 2

AM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
BASELINE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



KEY

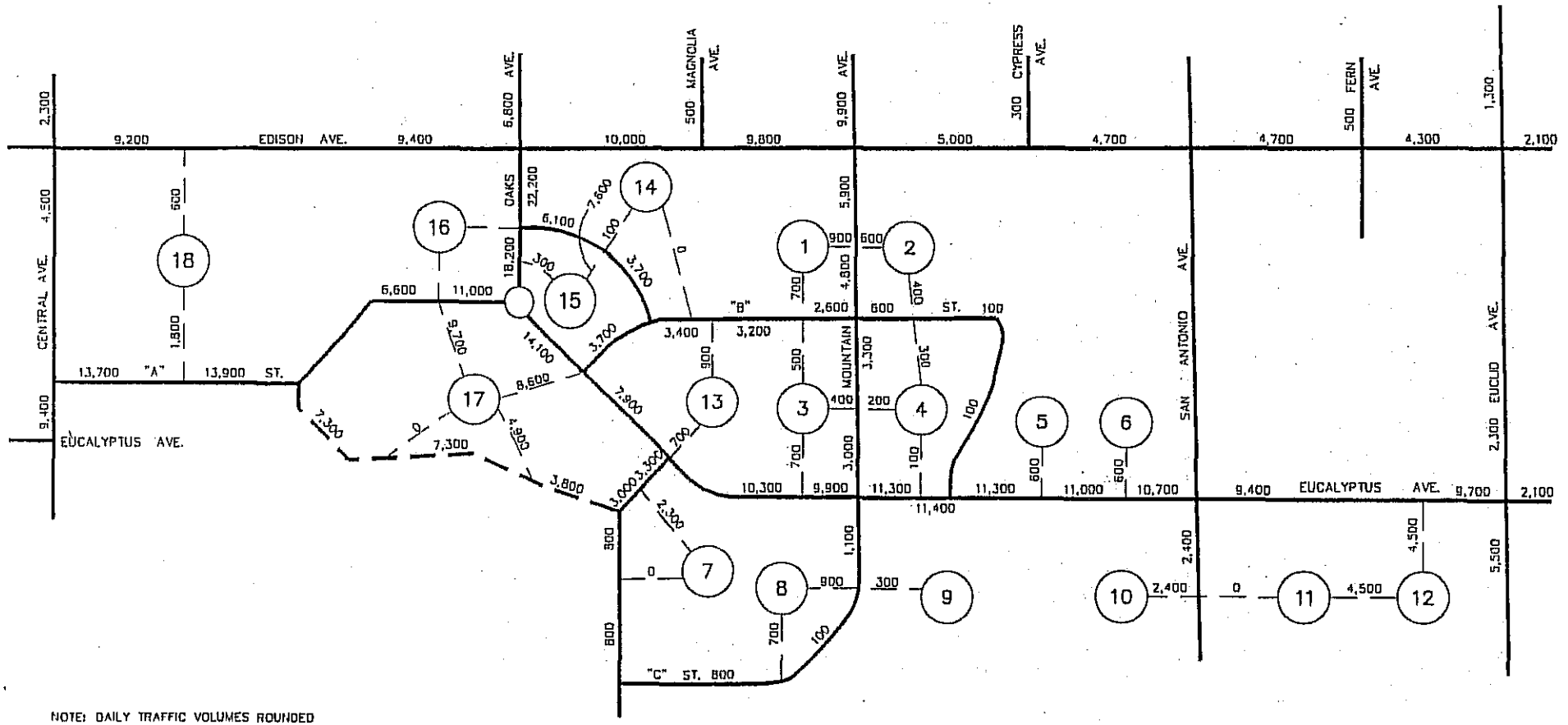
- ① = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

EXHIBIT 3

PM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
BASELINE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

① = TRAFFIC ANALYSIS ZONE (TAZ)

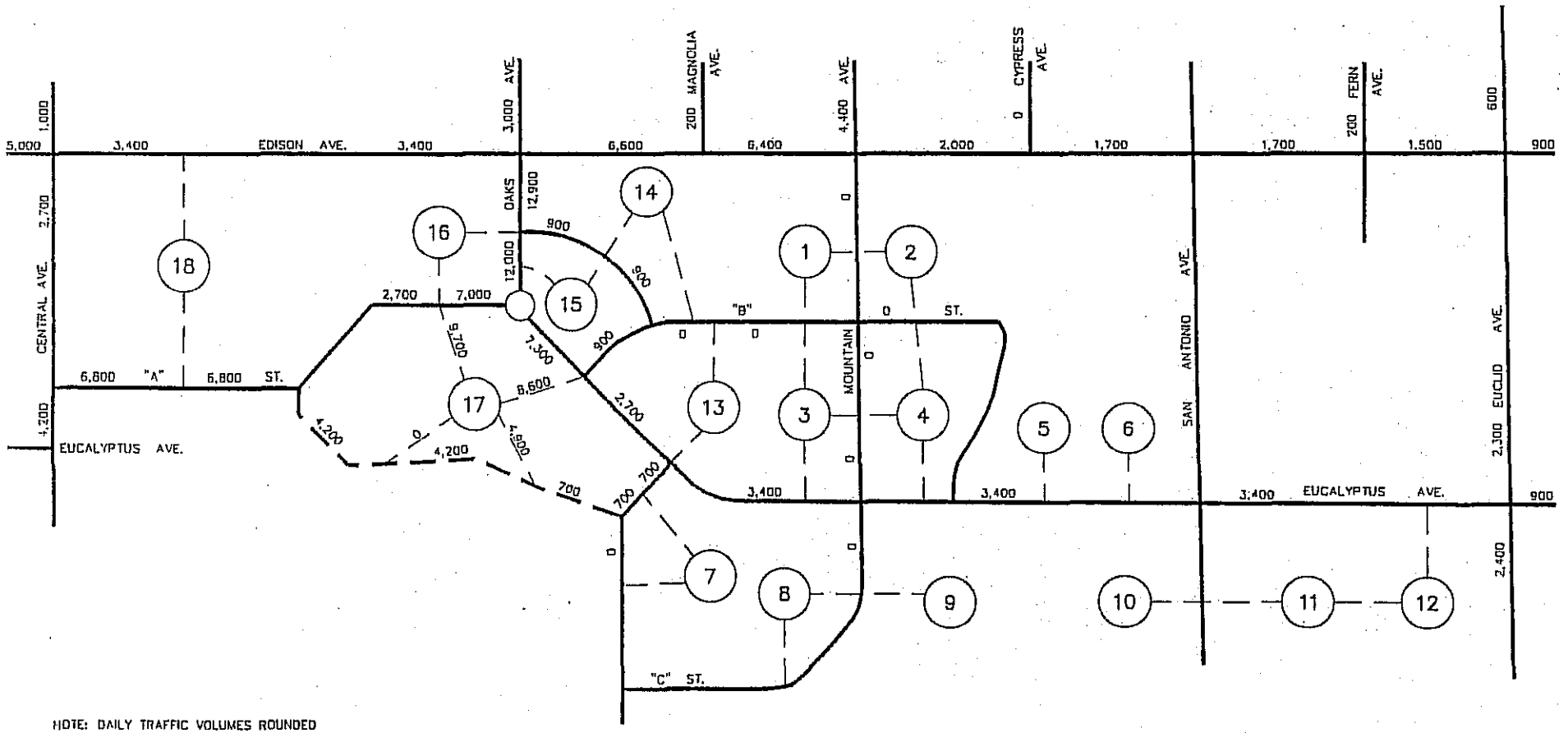
= EXISTING/PROPOSED ROADWAY

= ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN

= CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 4

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
ALTERNATIVE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



NOTE: DAILY TRAFFIC VOLUMES ROUNDED TO NEAREST 100 VEHICLES

N NO SCALE

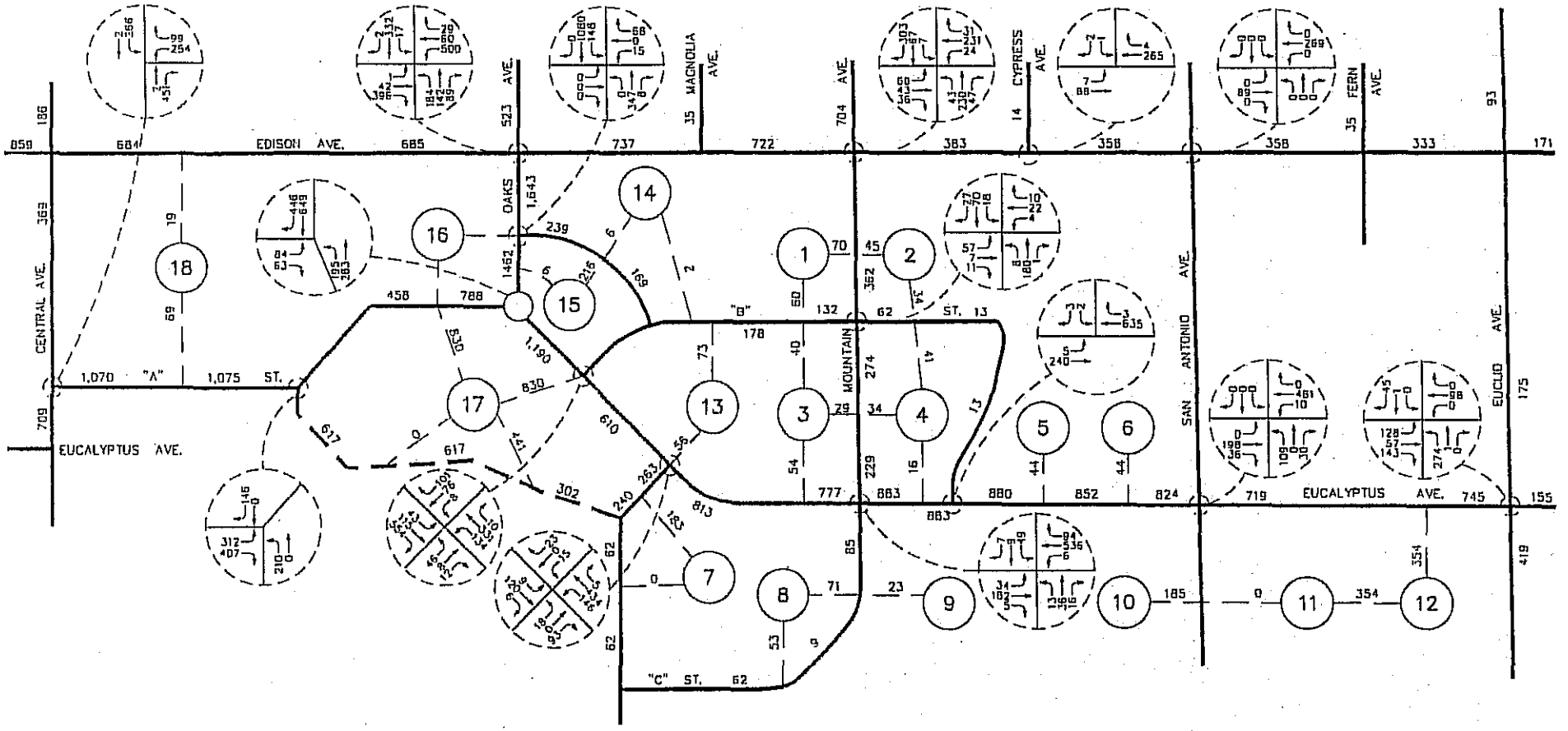
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

- (1) = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 5

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES (COLLEGE ONLY)
ALTERNATIVE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



N NO SCALE

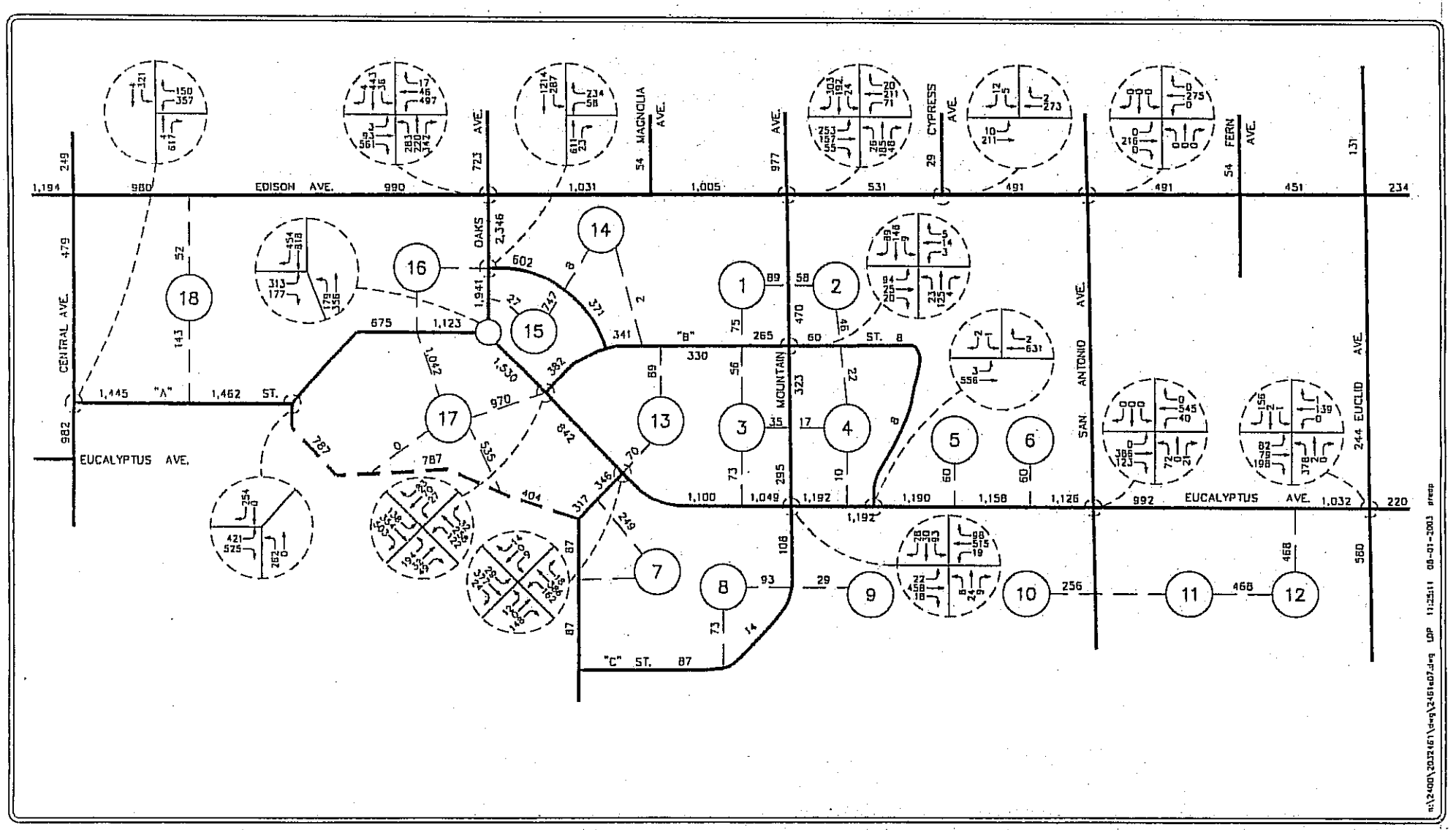
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

- ① = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 6

AM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
ALTERNATIVE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



KEY

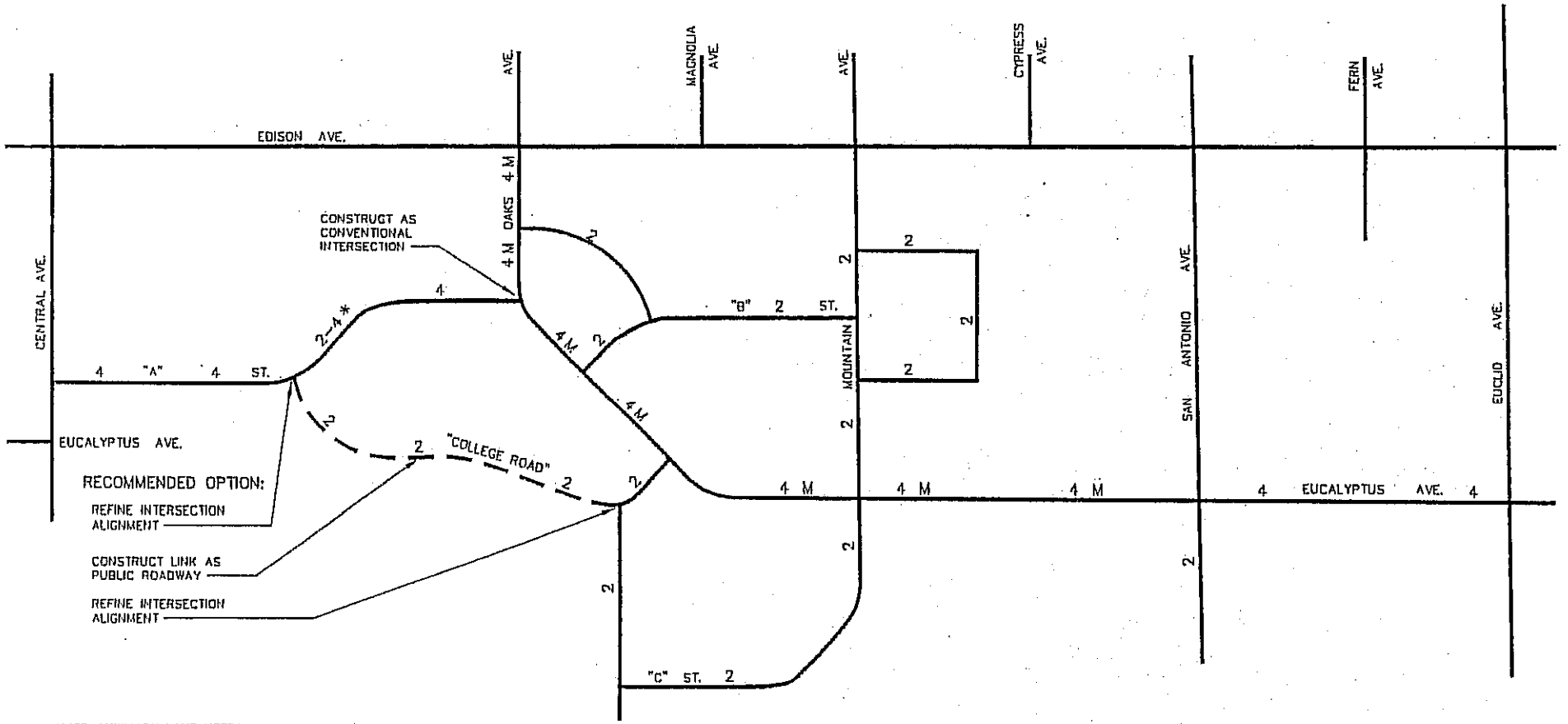
- ① = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

EXHIBIT 7

PM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
ALTERNATIVE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO



N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

X = NUMBER OF MID-BLOCK "THROUGH" LANES; TURNING LANES, WHERE NEEDED WOULD BE ADDITIONAL

M = RAISED MEDIAN ANTICIPATED IN CROSS-SECTION

= EXISTING/PROPOSED ROADWAY

= RECOMMENDED ROADWAY PLANNED ONLY IN ALTERNATIVE CIRCULATION PLAN

EXHIBIT 8

PRELIMINARY INTERNAL CIRCULATION RECOMMENDATIONS (NETWORK AND MID-BLOCK TRAVEL LANES)

COLLEGE PARK, CHINO

SunCal Companies
Larry Lazar
Vice President
5109 East La Palma, Suite D
Anaheim, California 92807

Response to Comment No. 1:

Thank you for your comment.

Response to Comment No. 2:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for a discussion of the potential use of off-site mitigation for burrowing owl impacts. If it is determined that adequate and complete mitigation for impacts to burrowing owls within the proposed project area cannot be accomplished, then off-site mitigation measures would be considered, including providing funding to a mitigation bank for project impacts related to burrowing owls. Wherever possible, impacts to burrowing owls should be mitigated on site to preserve existing owls. The delineation of methods and responsible parties for each mitigation measure are described within the measure.

Response to Comment No. 3:

Thank you for your comment. If off-site mitigation is determined to be necessary to properly mitigate all project impacts to burrowing owls, then active relocation of individual owls may be necessary. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for contingencies that would allow for active relocation of owls. Relocation of owls should be passive relocation to the maximum extent possible as determined by California Department of Fish and Game (CDFG) and Burrowing Owl Consortium Guidelines. A cap on the number of artificial burrows to be constructed may not fully mitigate proposed project impacts on burrowing owls. Although it is true that a large increase or decrease in the burrowing owl population within the proposed project area due to limited suitable habitat would not be expected, the full extent of proposed project impacts cannot be completely assessed until preconstruction surveys are conducted. If project impacts are found to be incompletely mitigated by proposed on-site mitigation, then off-site mitigation would be considered and mitigation costs would be distributed on a fair share basis to all proposed landowners.

Response to Comment No. 4:

Thank you for your comment. Measure Sensitive Species-1 calls for staking of impact areas at least 45 days prior to initiation of construction activities. Measure Sensitive Species-2 calls for conducting preconstruction surveys at least 30 days prior to the initiation of construction. The two measures are linked but have separate mitigation requirements. Consult Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for clarification of these measures.

Response to Comment No. 5:

Thank you for your comment. Please consult Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revised language for measure Sensitive Species-2.

Response to Comment No. 6:

Thank you for your comment. Please consult Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revised language for measure Burrowing Owl-6. Passive relocation should be used whenever possible for project impacts. However, active relocation may be necessary. Any active relocation of owls from within the proposed project area would be subject to CDFG approval.

Response to Comment No. 7:

Thank you for your comment. Please consult Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revised language for measure Burrowing Owl-7. Long-term monitoring shall be extended to off-site mitigation, if necessary, for mitigation of impacts to burrowing owls. If mitigation banks are utilized for off-site mitigation, it is assumed that the mitigation bank operator would conduct long-term monitoring.

Response to Comment No. 8:

Thank you for your comment. It is acknowledged that there is the potential for off-site mitigation to be implemented for a portion of the proposed project's potential impacts to burrowing owls. However, the Cypress Channel mitigation area was designed with the intention of preserving a movement corridor for burrowing owls that currently utilize the Cypress Channel to suitable owl habitat to the north and south of the proposed project area. Therefore, even if some off-site mitigation for burrowing owls is necessary, some owl mitigation would be accomplished on-site, and therefore, measure Burrowing Owl-8 would still be required.

Response to Comment No. 9:

Thank you for your comment. Please see response to comment No. 8 regarding the retention of Cypress Channel for on-site mitigation. Measure Waters-2 specifically calls for designing the mitigation corridor to be consistent with the anticipated increase in runoff associated with proposed project elements. These measures are consistent not only with burrowing owl mitigation, but requirements of the California Regional Water Quality Control Board, which commented on the proposed project. As such, the requirements of measure Waters-2 would still apply even if some off-site mitigation for burrowing owl impacts is necessary.

Response to Comment No. 10:

Thank you for your comment. All applicable permits would be obtained by the project proponent or its designee prior to implementation. Impacts to waters of the United States would be avoided or minimized wherever possible. Please note that we have included the Final Jurisdictional Delineation

Report in Appendix M, *Final Jurisdictional Delineation Report*, of the Environmental Impact Report (EIR). The U.S. Army Corp of Engineers and CDFG, as responsible agencies, are accountable for specifying the conditions of their permits. The EIR provides information for those agencies to make informal decisions on their areas of responsibility.

Response to Comment No. 11:

Thank you for your comment. All applicable permits would be obtained by the project proponent or its designee prior to implementation. Impacts to waters of the United States would be avoided or minimized wherever possible. Please note that we have included the Final Jurisdictional Delineation Report in Appendix M of the EIR. The U.S. Army Corp of Engineers and CDFG, as responsible agencies, are accountable for specifying the conditions of their permits. The EIR provides information for those agencies to make informal decisions on their areas of responsibility.

Response to Comment No. 12:

Thank you for your comment. All applicable permits would be obtained by the project proponent or its designee prior to implementation. Impacts to waters of the United States would be avoided or minimized wherever possible. Please note that we have included the Final Jurisdictional Delineation Report in Appendix M of the EIR. The U.S. Army Corp of Engineers and CDFG, as responsible agencies, are accountable for specifying the conditions of their permits. The EIR provides information for those agencies to make informal decisions on their areas of responsibility.

Response to Comment No. 13:

Thank you for your comment. All applicable permits would be obtained by the project proponent or its designee prior to implementation. Impacts to waters of the United States would be avoided or minimized wherever possible. Please note that we have included the Final Jurisdictional Delineation Report in Appendix M of the EIR. The U.S. Army Corp of Engineers and CDFG, as responsible agencies, are accountable for specifying the conditions of their permits. The EIR provides information for those agencies to make informal decisions on their areas of responsibility.

Response to Comment No. 14:

Thank you for your comment. Permit requirements under Section 401 of the Clean Water Act are included in the first paragraph of page 3.8-2 of the Draft EIR. Please also see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for inclusion of the suggested language into Section 2.6.

Response to Comment No. 15:

Thank you for your comments. There is, unfortunately, a cumulative impact on biological resources as a result of the implementation of the proposed project. The proposed project, when considered with the related projects in the area that include the conversion of open space to development, would contribute to the loss of foraging habitat for native wildlife species. Imposition of the mitigation

measures identified for the proposed project would not reduce the cumulative impacts to a less than significant level.

Response to Comment No. 16:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for inclusion of the suggested language into Section 2.6, Intended Uses of the EIR.

Response to Comment No. 17:

Thank you for your comment. The City of Chino understands that a new Water Supply Assessment has been conducted and ensures that adequate water supply is available. Please see Appendix P, *City of Chino Water Supply Assessment*, for inclusion of the new Water Supply Assessment.

Response to Comment No. 18:

Thank you for your comment. The Draft EIR determined that the 7 cubic feet per second increase in runoff flow rate is neither significant nor cumulatively considerable based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the Draft 2002 Associated Engineers Report for the State Disposition Property. These thresholds are listed in their entirety in Section 3.8, Significance Thresholds.

Response to Comment No. 19:

Thank you for your comment. Section 3.14.5, Cumulative Impacts, of the Draft EIR includes mitigation measures for any potential impacts that the proposed project would have on the utilities, including the contribution into systems and the ability for the capacity of the systems to handle the increases.

Section 3.14.2, Existing Conditions, of the Draft EIR also contains a description of the existing conditions of the utilities systems, including what facilities are being used and the existing capacity of those systems, such as the current and expected impacts to the capacity of the wastewater treatment plant. The scope of the impact analysis related to each of the significance thresholds described in Section 3.14.3, Significance Thresholds, of the EIR.

Response to Comment No. 20:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the number of intersections currently operating at acceptable levels and the list of intersections that are not operating at acceptable levels.

Response to Comment No. 21:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the number of intersections that are projected to operate at deficient levels of service under year 2012 conditions without the project.

Response to Comment No. 22:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the number of intersections that are projected to operate at deficient levels of service under year 2012 conditions with the project.

Response to Comment No. 23:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the number of intersections that are projected to operate at deficient levels of service under year 2025 conditions without the project.

Response to Comment No. 24:

Thank you for your comment. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the term COS to LOS.

Response to Comment No. 25:

Thank you for your recommendation. Due to the format of Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, the table will not be included at this point. In the future, this recommendation will be taken into consideration to make it easier for readers.

Response to Comment No. 26:

Thank you for your comment. The objectives of CEQA are to disclose to decision makers and the public significant environmental effects of proposed activities, to identify ways to reduce environmental damage, to prevent environmental damage by requiring the implementation of feasible alternatives or mitigation measures, to disclose to the public reasons for agency approval of projects with significant environmental effects, to foster interagency coordination in the review of projects, and to enhance public participation in the planning process. CEQA does not include the analysis of costs to implement projects and/or their mitigation measures.

Response to Comment No. 27:

Thank you for your comments. Please see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for revisions to the measures Transportation-1 and 2.

Response to Comment No. 28:

Thank you for including the Internal Study. Please note the Alternative Internal Circulation Study for the proposed project, which is based on refined site access characteristics for Chaffey Community College, is included in Appendix Q, *Alternative Internal Circulation Study for College Park,* of this EIR,. Please also note the inclusion of the Phase I Traffic Analysis for proposed project is located in Appendix R, *Phase 1 Traffic Analysis, College Park, Chino*. SunCal Companies shall work with the City

of Chino to refine the layout and decision of final internal roadway systems. At this time, the final plans are not known and will not be included in the Final EIR.

Response to Comment No. 29:

Thank you for your comment. The objectives of CEQA are to disclose to decision makers and the public significant environmental effects of proposed activities, to identify ways to reduce environmental damage, to prevent environmental damage by requiring the implementation of feasible alternatives or mitigation measures, to disclose to the public reasons for agency approval of projects with significant environmental effects, to foster interagency coordination in the review of projects, and to enhance public participation in the planning process. CEQA does not include the analysis of costs to implement projects and/or their mitigation measures.

Response to Comment No. 30:

Thank you for your recommendation. Due to the format of Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, the table will not be included at this point. In the future, this recommendation will be taken into consideration to make it easier for readers.

Response to Comment No. 31:

Thank you again for all your comments and recommendations. The City of Chino will contact you with any questions.

P. O. Box 51127,

August 21, 2003

Mr. Sal Salazar, Principal Planner
Community Development
City of Chino
13220 Central Avenue
Chino, CA 91710

RE: Surplus State Property...etc
Draft Environmental Impact Report
SCH # 2002071120

Dear Mr. Salazar:

I have been asked by Tri-County Conservation League (TCCL) to comment on the above Draft Environmental Impact Report (DEIR). TCCL is a 501 C(4) corporation striving to conserve and preserve the natural, educational, and recreational values of the Santa Ana River and its tributaries and adjacent lands in Orange, Riverside, and San Bernardino Counties. 1

I am a professor (now emeritus) of 32 years service in the Biological Sciences Department at this California State Polytechnic University, Pomona where I have taught the subjects of Life Science, Limnology and Human Anatomy. I am a member of the Raptor Research Foundation. I have developed a long-standing (28 years) familiarity of the Chino Valley area and the larger the San Bernardino County Agricultural Preserve area as a consequence of direct observations and my research on Burrowing Owls and the migratory waterfowl.

TCCL has these comments:

1. The DEIR failed to survey off site: "The first step in the survey process is to access the presence of burrowing owl habitat on the project site including a 150-meter (approx. 500ft.) buffer zone around the project boundary (Thomsen 1971, Martin 1973." (Phase I, paragraph 1 of the Burrowing Owl Survey Protocol). There are suitable occupied and unoccupied sites in this buffer zone, and all are readily seen from public streets using binoculars (at least one consultant stated to me that they were not going to look at the buffer zone since it was on private property). 2

2. Surveyors did not properly survey project using the protocol: Walking with a consultant to a site just south of Well No. 12 during breeding season, I found three owl burrows that the consultant was unaware of, but no owls were present. This site within the project should have been examined in the winter. "If now owls are observed using the site during the breeding season, a winter survey is required." (Phase III, paragraph 1 of the Burrowing Owl Survey Protocol). Without examining the project in the winter...just how many owls are actually present? 3

3. The survey of avian species is inadequate. I have observed the following list of avian species in the subject project or immediately adjacent areas: 4

Great Blue Heron	Least Sandpiper	Western Scrub Jay
Great Egret	Dowitcher species	American Crow
Snowy Egret	Common Snipe	Bushtit
Cattle Egret	Ring-billed Gull	House Wren
White-faced Ibis	Western Gull	Northern Mockingbird

Canada Goose	Rock Dove	California Thrasher
Mallard	Spotted Dove	American Pipit
Cinnamon Teal	Mourning Dove	Loggerhead Shrike
Northern Shoveler	Burrowing Owl	European Starling
Turkey Vulture	White-throated Swift	Yellow-rumped Warbler
Red tailed Hawk	Anna's Hummingbird	Common Yellowthroat
Golden Eagle	Nuttall's Woodpecker	California Towhee
American Kestrel	Black Phoebe	Savannah Sparrow
Common Moorhen	Say's Phoebe	Song Sparrow
American Coot	Cassin's Kingbird	Red-winged Blackbird
Killdeer	Western Kingbird	Western Meadowlark
Black-necked Stilt	Rough-winged swallow	House Finch
American Avocet	Cliff Swallow	Lesser Goldfinch
Greater Yellowlegs	Barn Swallow	House Sparrow
Lesser Yellowlegs		

The consultants only examined the project area from April to June (DEIR Vol. 2, Appendix C, Page 4). By limiting their site visits the consultant failed to survey fall through winter migrants. 4

4. DEIR fails to provide an "Environmentally Superior Alternative" that provides the essential project ingredients however would lessen the impacts on the biological and other resources. 5

5. DEIR Incremental loss of raptor (especially the Golden Eagles and hawks) foraging habitat, a concern of the Department of Fish & Game (DFG) - - The present DEIR does not access the significance of this loss (as required by CEQA) in the light of the loss contributed by past and known future projects in the Chino Valley. 6

6. At SUMMARY OF IMPACTS, Measure Burrowing Owl-6: The private developer should be required to examine the 500 foot buffer area around their specific project site. (Phase I, paragraph 1 of the Burrowing Owl Survey Protocol). 7

7. The use of artificial burrows at detention basins or other areas "SUMMARY OF IMPACTS", Measure Burrowing Owl-4 is experimental as is the entire mitigation protocol. A plan should be devised so that in the event that passive relocation fails to work, the developer should be required to contribute to a land bank to purchase off-site suitable habitat. Such a contribution should be at the rate established by the Burrowing Owl Mitigation Guidelines, "Off site Mitigation":

   a. Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 acres per pair or single bird, or
   b. Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2.0 times 6.5 acres per pair or single bird, or
   c. Replacement of occupied habitat with suitable unoccupied habitat: 3.0 times 6.5 acres per pair or single bird

   (Lewis Operating Corp.-Contact person: Jeanne Cockrell: (909) 949-6774) has considerable knowledge of suitable owl habitat locally that may become available for mitigation). 8

8. DEIR does not analyze for the loss of wildlife due to road kills in the project 9

9. The DEIR has not actually surveyed for the Southwestern Pond Turtle, known historically to occur in Cypress Channel. It is highly sensitive urban run-off including insecticides and rodenticides. The reader is not told if the City of Chino has implemented an ordinance regulating these.. 10

10. The DEIR does not provide any feasible open field grassland mitigation that would help to soften the effects of the project on the numerous migrating waterfowl, including the Canada Goose, of local interest. 11

11. The DEIR does not analyze the effects of this project on regional wildlife, e.g. several important raptors such as the Golden Eagles depend upon foraging on the surplus property for nesting success even though the birds actually nest in Chino Hills. 12

We have been grateful for having had this opportunity to comment on the project. Please enter our comments into the administrative record for this project, and inform us of the hearing dates and times for this project. Thank you. 13

Sincerely,

Jack L. Bath

Jack L. Bath, Ph.D.
President

C: Lewis Operating Corp., Jeanne Cockrell

Tri-County Conservation League (TCCL)
Dr. Jack Bath
President
P.O.Box 51127
Riverside, California 92517

Response to Comment No. 1:

Thank you for the summary of your background and experience in relation to the proposed project. The City of Chino (City) and the proposed project proponents recognize your expertise in this matter and have worked to ensure that concerns regarding potential impacts to biological resources associated with the proposed project are properly addressed.

Please also note that the Memorandum for the Record summarizing the May 27, 2004, City Outreach Meeting with the Tri-county Conservation League is included as Appendix S, *Memorandum for the Record: Summary of May 27, 2004, City of Chino Outreach Meeting with Tri-County Conservation League*, of this Environmental Impact Report (EIR). The Memorandum for the Record includes responses to your comments made at a meeting hosted by the Inland Empire Utilities Agency on April 1, 2004, and a subsequent meeting on May 6, 2004. Specifically, you had articulated concerns in five areas:

- Conformity with California Department of Fish and Game (CDFG) survey protocols for the burrowing owl to characterize existing conditions
- Direct, indirect, and cumulative impacts to burrowing owls
- Conformity with CDFG recommendations for mitigation of impacts to burrowing owl
- Habitat quality of proposed mitigation sites
- Mitigation Monitoring

Given the known sensitivity of the burrowing owl, repeated coordination was undertaken by the City, the State of California Department of General Services, and Sapphos Environmental, Inc. with the CDFG regarding the characterization of baseline conditions, impact evaluation, and the development of mitigation measures. The results of subsequent work undertaken by SunCal Companies and their subconsultants in 2004 has validated the results of 2001 and 2002 directed surveys for burrowing owl. Again, please see responses to your concerns listed above in the Memorandum for the Record. Please also see Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for clarifications made to Section 3.4, Biological Resources, based on your comments.

Response to Comment No. 2:

Thank you for your comment. Off-site surveys were conducted, where possible, within the limitation of encroaching upon private property. Figure 3.4.2.3, *Sensitive Wildlife Locations in the Proposed Project Site,* of the Draft EIR provides eight known locations of burrowing owl burrows outside of the proposed project boundary that were located during burrowing owl surveys. The proposed mitigation program for burrowing owls was designed in part to maintain a connection to burrowing owl populations known to occur to the north and south of the proposed project boundary. The intent of surveying 150 meters outside of the project boundary was to ensure that indirect project impacts do

not affect owl populations that occur directly adjacent to but not within the boundaries of a proposed project. Since owls are known to occur within the boundaries of the proposed project and were detected adjacent to the proposed project area, the requirements of the survey protocol were met and provisions were made within the proposed mitigation program to minimize impacts to adjacent owl populations through maintaining connectivity.

Response to Comment No. 3:

Thank you for your comment. Burrowing owl surveys were performed according to CDFG survey protocol in 2001 and again in 2002. The proposed mitigation program also calls for additional preconstruction surveys for burrowing owls prior to the initiation of construction activity to ensure that no additional burrow sites were missed during previous surveys. Surveys conducted in 2001 confirmed the presence of breeding owls. Surveys conducted in 2002 were performed in September and October, which is outside of the breeding season for burrowing owls. Burrowing owls were found on site during the 2002 surveys; it is confirmed that at least some owls are present on site throughout the year. Owl utilization within an area can fluctuate from year to year, so preconstruction surveys are called for in the mitigation measures for the proposed project.

The locations of owl burrows are limited to active burrows that could potentially impact owl populations on site. An active burrow approximately 15–20 feet from the burrows mentioned by TCCL was depicted because it was active, whereas the burrows mentioned by TCCL were inactive. The preconstruction survey is designed to determine the extent of active burrows just prior to the start of construction.

Response to Comment No. 4:

Thank you for your comment. The avian species list provided by TCCL contains numerous species that would not occur on the subject property due to lack of suitable habitat. These include red-winged blackbird, savannah sparrow, common yellowthroat, American pipit, California thrasher, Nuttall's woodpecker, lesser yellowlegs, American avocet, black-necked stilt, American coot, common moorhen, northern shoveler, cinnamon teal, ring-billed gull, western gull, common snipe, dowitcher species, least sandpiper, white-faced ibis, cattle egret, snowy egret, great egret, and great blue heron. These species require specific habitat types, such as wetlands, marshlands, standing pools, woodlands, or scrublands, that are not present on the subject property.

The remaining species mentioned in the list—western scrub jay, American crow, bushtit, house wren, northern mockingbird, Canada goose, turkey vulture, red-tailed hawk, golden eagle, American kestrel, killdeer, rock dove, spotted dove, mourning dove, burrowing owl, white-throated swift, Anna's hummingbird, black phoebe, Say's phoebe, Cassin's kingbird, western kingbird, rough-winged swallow, barn swallow, loggerhead shrike, European starling, yellow-rumped warbler, California towhee, song sparrow, western meadowlark, house finch, lesser goldfinch, and house sparrow—could potentially occur on the subject property. Of these, rock dove, spotted dove, European starling, and house sparrow are not native to North America and do not have any protection or special status associated with them. Northern mockingbird, Canada goose, turkey vulture, red-tailed hawk, golden eagle, killdeer, rock dove, mourning dove, burrowing owl, black phoebe, western kingbird, rough-winged swallow, barn swallow, loggerhead shrike, European starling, song sparrow, western

meadowlark, house finch, and house sparrow were found on the subject property and are mentioned either in the biological resources section, Appendix C (*Biological Resources Report*) of Volume II of the Draft EIR, or both. The species with special status according to state or federal wildlife agencies that could potentially occur on site are golden eagle, burrowing owl, and loggerhead shrike. These three species are all specifically mentioned in the biological resource section of the Draft EIR as occurring on site. A detailed mitigation program was devised for potential impacts to burrowing owls.

The statement that the site was only surveyed from April through June is incorrect. Those were surveys performed in 2001. As mentioned on page 3.4-9 of the Draft EIR, additional site surveys were performed in 2002 on September 16–18, 25–26, and October 10, 2002. These surveys were performed at a time when any fall migrants would be expected to be found if they were utilizing the subject property. Avian species surveys are sufficient to characterize winter and fall migrants. The mitigation program also calls for additional preconstruction surveys to ensure that no unanticipated impacts to native wildlife species occur within the proposed project area.

Response to Comment No. 5:

Thank you for your comment. Page 4-31 of the Draft EIR states that the no-project alternative is the environmentally superior alternative among those analyzed. Since this neither meets the proposed project objectives nor the requirements of CEQA to identify an environmentally superior alternative among the action alternatives that are capable of meeting most of the project objectives, the Draft EIR identifies the compact project/increased open space alternative as the alternative that meets most of the project objectives while reducing impacts to biological and other resources.

Response to Comment No. 6:

Thank you for your comment. Page 3.4-39 of the Draft EIR states, "The loss of foraging habitat for native wildlife species would be an avoidable adverse impact." While suitable foraging habitat would remain on the California Institution for Men (CIM) property to the south of the proposed project area, the Draft EIR recognizes that loss of foraging habitat would still be a significant cumulative adverse impact. In addition, the proposed project includes open space elements such as burrowing owl mitigation areas, open-space associated with expansion of Ruben S. Ayala Park, and open space associated with the proposed Chaffey Community College campus.

Response to Comment No. 7:

Thank you for your comment. As mentioned in response to comment No. 2 of this letter, the proposed project boundaries were surveyed when possible, and the project proponent knows that owls currently occupy areas outside but immediately adjacent to the proposed project area. The proposed mitigation program is designed to maintain as many connections as possible to these populations. Therefore, additional surveys within the 500-foot buffer are not deemed necessary at this time.

Response to Comment No. 8:

Thank you for your comment. The proposed mitigation plan was devised according to mitigation guidelines proposed by CDFG and the Burrowing Owl Consortium for project-related impacts to

burrowing owls. As the result of this comment and additional comments received on the Draft EIR, an off-site mitigation contingency would be added to the existing mitigation measures. Please review Section 12, Clarifications and Revisions to the Draft Environmental Impact Report, for a discussion of potential off-site mitigation for burrowing owl impacts. Thank you for the information regarding off-site mitigation for burrowing owls. This information will be passed on to the City Council for consideration during the EIR certification process.

Response to Comment No. 9:

Thank you for your comment. The proposed project calls for residential, commercial, and community college elements. All roadways associated with these elements would have residential speed limits associated with them (usually 25 mph). The impact of road kills on wildlife from the proposed project would be expected to be minimal and less than significant.

Response to Comment No. 10:

Thank you for your comment. Southwestern pond turtles are addressed in the Draft EIR under potentially-occurring sensitive wildlife species. Cypress Channel within the proposed project area is a concrete box channel with scattered clumps of sediment deposits. Therefore, it does not provide habitat for southwestern pond turtles. The Draft EIR addressed the potential for increased urban runoff by proposing detention basins and vegetated buffers around Cypress Channel designed to capture runoff and remove pollutants. All applicable water quality measures associated with the proposed project would be adhered to.

Response to Comment No. 11:

Thank you for your comment. The City currently does not provide any guidelines or requirements for impacts to nonnative grassland or agricultural areas. The proposed project attempts to preserve open space and additional agricultural and nonnative grassland that exist on CIM property to the south of the proposed project area. As mentioned previously, the Draft EIR acknowledges that the loss of foraging habitat for wildlife is a significant unmitigable impact that the decision-making body would have to consider during the certification process.

Response to Comment No. 12:

Thank you for your comment. Please see response to comment No. 6 of this comment letter regarding loss of foraging habitat as a significant impact.

Response to Comment No. 13:

All formal comments are entered and responded to in this Final EIR, and a copy of responses to comment are provided to all who commented. The public shall be notified regarding hearing dates and times. Thank you for your comments regarding the Draft EIR.

13.2.7 Individuals

Joleen M. Borba
Attorney-at-Law
11838 Deer Park Drive
Nevada City, California 95959

Susan Fekete
13517 Francesca Court
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COMMUNITY DEVELOPMENT
RECEIVED
AUG 21 2003

15 August 2003

City of Chino Community Development Department
Attn: Mr. Sal Salazar
13220 Central Avenue
Chino, CA 91710

Re: Redevelopment Plan for the Merged Chino Redevelopment Project Area

Dear Mr. Salazar:

I represent the Joseph A. Borba family, owners of property ("Owners") on the north side of Chino Airport. The Owners object to the proposed Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area, Chino, California ("Proposed Project") on the grounds that it does not adequately address issues affecting property owners to the north and east of the Chino Airport. 1

The Proposed Project does not allow adequate expansion of the Airport to the south and the west, thus forcing growth to the north and east. This adversely impacts both financial and environmental aspects of the Owners' properties.

This letter serves as official objection to the Proposed Project, and includes, but does not limit, possible causes of action. Any and all rights under the law, expressed herein or not, are preserved for any potential future litigation on this Proposed Project. 2

Very truly yours,

Joleen M. Borba

Joleen M. Borba

JMB:dr

Joleen M. Borba
Attorney-at-Law
11838 Deer Park Drive
Nevada City, California 95959

Response to Comment No. 1:

The Chino Airport runways are located to the south and east of the proposed project. In addition, Highway 87 runs along the western boundary of the runways precluding expansion of the airport to the west. Therefore, to the extent that there is likely to be any expansion of the current runways, such expansion would be to the east and northwest of the current airport. As such, the proposed project would not be located within the probable direction of any future expansion.

Response to Comment No. 2:

Thank you for your comment. The information contained will be forwarded to the decision-making body for consideration.

Salazar, Sal

From: FEKETEFIVE@aol.com
Sent: Thursday, August 21, 2003 2:14 PM
To: Salazar, Sal
Subject: Questions regarding EIR

Sal:

Here are my written comments regarding the EIR on the College Park Development.

1. The EIR states that the CVUSD is operating at or near capacity in all grade levels. School Board Policy Administration Regulation No.7220.1 calls for junior high schools to be sized for 1,000 students and high schools to be sized for 2,000 students. Taking into consideration that the projected enrollment for the 2003-2004 school year at Magnolia Junior High is 1063 and Chino High School is 2656, where will the children in these grade levels attend school when this development is built? 1
Where will the money come from that will be needed to build the new junior high schools and an additional high school? 2

2. The Chino Valley Independent Fire District has identified the necessity to build new fire stations to maintain fire emergency response objectives. When and where will the new fire stations be built? 3

3. The Police Department will need a new police facility because of this development. Even though the Developer will pay Developer Impact Fees, this will not cover the complete costs of the facility. Where is the additional money needed coming from? 4

4. The mitigation measures regarding traffic impacts include trip reduction. How is that going to be enforced? 5
Further mitigation measures for traffic improvements "include both funded improvements and any additional improvements necessary to achieve acceptable LOS during peak hours." Who is responsible including fiscally for the "additional improvements necessary?" 6
Some of the traffic improvements noted are the responsibility of Caltrans. Where is the money going to come from for these improvements given the States dire financial situation? 7
What recourse do we have if the traffic improvements are not implemented? (regarding the traffic improvements needed for the years 2012 and 2025) 8

After speaking with you today, I am sure that my questions are not significant. But as I told you, I decided to write them anyway. Thanks for your help on the phone. 9

Susan Fekete

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AUG 2 1 2003

Susan Fekete
13517 Francesca Court
Chino, California 91710-7354

Response to Comment No. 1:

Thank you for your comment. As described on page 3.11-5, the Chino Valley Unified School District (CVUSD) has developed a school development schedule based on population projections. Currently, two junior high schools and one high school are in development.

Response to Comment No. 2:

All projects within the City of Chino are expected to pay a development impact fee. Therefore, the proposed project would contribute its fair share for the construction of additional schools and the remaining portion of the cost would be collected from other projects in the City of Chino.

Response to Comment No. 3:

The Chino Valley Independent Fire District (CVIFD) would build new fire stations in accordance with their Master Plan at locations mutually agreed upon by the CVIFD and the City of Chino. Please see Appendix N, *April 27, 2004, College Park Community Meeting: Responses to Community Concerns and Comments*, of this Final Environmental Impact Report (EIR) for responses to the community concerns and comments from the April 27, 2004, City of Chino Community Comment Meeting. The responses include information regarding public services, including fire and police protection.

Response to Comment No. 4:

As described in the analysis of police protection services, the proposed project would not result in indirect impacts to the police protection services greater than already planned as indirect population growth, and the corresponding maintenance of public service objectives are already included in the City of Chino General Plan.

The proposed project would pay its fair share for the construction of the police facility through the Development Impact Fees. The remaining portion of the cost would be collected from other projects in the City of Chino. Please see Appendix N of this Final EIR for responses to the community concerns and comments from the April 27, 2004, City of Chino Community Comment Meeting. The responses include information regarding public services, including fire and police protection.

Response to Comment No. 5:

Thank you for your comments. The City of Chino Municipal Code, Section 20.16.040, *Trip Reduction Measures*, establishes trip reduction measures such as bicycle facilities and showers; transit facilities such as bus turn-outs, and enhanced transit system, and shelters; pedestrian walkways; and passenger loading zones. These measures are conditioned during the tract map development phase and applied as required.

Response to Comment No. 6:

Thank you for your comments. The traffic impact analysis considers the impacts to the adjoining areas adjacent to the proposed project site. Included in this analysis are impacts to the freeway systems. The analysis methodology first considers impacts to the freeway systems without the project. This background traffic considers many different elements including population growth trends, city expansion, employment center growth, and residential, commercial, and industrial development projects outside the City boundaries. The San Bernardino Association of Governments (SANBAG) has defined this factor as 12 percent over existing traffic conditions. Level of service (LOS) for the freeways was calculated utilizing this growth factor and projected out for the years 2012 and 2025. This approach defines the freeway segments that would operate at a deficient LOS without the project. A cost estimate is prepared to determine the funding necessary to upgrade the facility to a satisfactory LOS.

Once the LOS and freeway deficiencies for the existing conditions with background traffic have been identified, the methodology then considers the proposed project development traffic. The traffic from the project is added to the background traffic at the 2012 and 2025 years in order to identify any further improvements required beyond the projected background traffic. A cost is determined for these additional improvements.

A developer fair-share cost is prepared considering the combination of needed improvements for both the background traffic and project traffic. These fair-share costs are typically a percentage of the total improvement costs. The fair-share costs are necessary since the development projects alone may not trigger these freeway improvements.

In regards to the regional improvements identified by the proposed project Congestion Management Program analysis, a methodology for collecting and accounting for the project's fair-share cost for impacts is still being finalized by SANBAG. While this process has not been formalized by SANBAG, the City of Chino would be collecting these fees from the developer through the Development Agreement process.

Response to Comment No. 7:

Thank you for your comments. Please refer to response to comment No. 6 above.

Response to Comment No. 8:

Thank you for your comments. The City of Chino would require completion of traffic improvements to be constructed by the developer prior to issuance of Certificates of Occupancy for related development projects. The City would also collect regional and local traffic improvement fees through the Development Impact Fees and the Development Agreement, prior to issuance of building permits, for traffic improvements requiring a fair-share contribution from the developer. Chaffey Community College would be required to pay its fair share pursuant to the requirements of its agreements with the State and City. This requirement would prohibit the developer from selling any property within this development.

The developer is only responsible for its fair share of the costs, since the development project alone may not trigger these improvements. The developer is required by the development agreement to pay its fair-share costs for future improvements. In the future (2012 and beyond), when a location has been identified as operating at an unsatisfactory LOS, the agency responsible for the said facility is responsible for initiating an improvement project and identifying all of the funding sources.

Response to Comment No. 9:

Thank you for your comments. All comments are considered during the preparation of the Final EIR and the City of Chino appreciates the questions and comments, which assist in preparing a technically and procedurally adequate environmental document.

APPENDIX M
FINAL JURISDICTIONAL DELINEATION REPORT

GLENN LUKOS ASSOCIATES

Regulatory Services

June 1, 2004

Kelly Buffa
Development Planning Solutions
22735 East La Palma
Yorba Linda, California 92887

SUBJECT: Jurisdictional Delineation of the Chino College Park Project, A 715-Acre Property Located in the City of Chino, San Bernardino County, California.

Dear Ms. Buffa:

This letter report summarizes our preliminary findings of U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) jurisdiction for the above-referenced property.[1]

The Chino College Park Project (Project) is located at a latitude of 34° 00'00''N and a longitude of 117° 40'00''W, Township 2 South, Ranges 7 and 8 West in the City of Chino, San Bernardino County, California [Exhibits 1 and 2]. The Project area totals approximately 715 acres and supports no blue-line streams (as depicted on the U.S. Geological Survey (USGS) topographic map Prado Dam, California [dated 1967 and photorevised in 1981]) [Exhibit 2]. On October 29-October 30, 2003 and May 14, 2004, regulatory specialists of Glenn Lukos Associates, Inc. (GLA) examined the Project site to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act, and (2) CDFG jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code. Enclosed is a 400-scale map [Exhibit 3A] and a 100-scale map [Exhibit 3B] depicting the boundaries of Corps and CDFG jurisdiction. Photographs documenting the topography, vegetative communities, and jurisdictional waters on site are provided as Exhibit 4. Delineation data sheets are attached as Appendix A.

Approximately 72,103 square feet (1.66 acres) of Corps jurisdictional waters, of which 326 square feet (0.01 acre) consist of jurisdictional wetlands, were identified within the Project area in two jurisdictional drainages and three non-jurisdictional isolated ditches. Characteristics used to identify these drainages include the presence of an ordinary high water mark (OHWM), litter

[1] This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, GLA can assist in getting written confirmation of jurisdictional boundaries from the agencies.

29 Orchard ▪ Lake Forest ▪ California 92630-8300
Telephone: (949) 837-0404 Facsimile: (949) 837-5834

and debris, shelving, destruction of terrestrial vegetation, and changes in the character of the soil as well as a bed, bank, and channel.

In addition, the three isolated, non-jurisdictional roadside ditches located off site north of the Project area support 18,962 square feet (0.43 acre) of Corps isolated waters, none of which consist of wetlands. The three roadside ditches are located along Edison Avenue and along Oaks Avenue. Each ditch supports an OHWM, but does not support a surficial connection to another Corps jurisdictional water pursuant to the January 9, 2001 SWANCC Decision.

Total permanent impacts to Corps jurisdictional waters related to the proposed Project are 15,410 square feet (0.35 acre), of which 326 square feet (0.01 acre) consist of jurisdictional wetlands. Temporary impacts to Corps jurisdictional waters total 55,477 square feet (1.27 acres), none of which consist of jurisdictional wetlands.

Total CDFG jurisdiction associated with the Project area is approximately 93,993 square feet (2.16 acres), of which 4,764 square feet (0.11 acre) consist of vegetated riparian habitat. Total permanent impacts to CDFG jurisdiction related to the proposed Project are 36,118 square feet (0.83 acre), of which 2,661 square feet (0.06 acre) consist of vegetated riparian habitat. Temporary impacts to CDFG jurisdiction total 56,657 square feet (1.30 acres), of which 2,102 square feet (0.05 acre) consist of vegetated riparian habitat.

I. METHODOLOGY

Prior to beginning the field delineation, a 200-scale topographic base map and aerial of the Project site and the previously cited USGS topographic map were examined to determine the locations of potential areas of Corps/CDFG jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Suspected wetland habitats on the site were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[2] (Wetland Manual). While in the field the jurisdictional areas were recorded onto a 100 to 200-scale topographic map and later transferred to a similarly scaled topographic base map.

The Soil Conservation Service (SCS)[3] has mapped the following soil types as occurring in the general vicinity of the project site:

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[2] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

[3] SCS is now known as the National Resource Conservation Service or NRCS.

Chino Silt Loam (Cb)

Soils of the Chino series consist of somewhat poorly drained, nearly level soils. These soils are in broad, smooth areas on alluvial valley bottoms and in basins. The upper eight inches consist of gray (10YR 5/1) silt loam when dry and very dark gray (10YR 3/1) silt loam when moist. Arbuckle soils are used for irrigated crops, such as corn silage, alfalfa, grains, and pasture plants. Small areas are used for home sites.

Merrill Silt Loam (Me)

The Merill series consists of somewhat poorly drained, nearly level soils that formed on alluvial fans in medium-textured granitic alluvium. These nearly level soils occur on alluvial fans. The upper six inches consist of gray (5Y 5/1) silt when dry and dark olive gray (5Y 3/2) silt loam when moist. The Cortina soils are used for irrigated pasture plants, alfalfa, small grains, and some truck crops.

None of these soils are identified as hydric in the SCS's publication, Hydric Soils of the United States[4]. However, the local hydric soils list for San Bernardino County Southwestern Part states that the Chino Silt Loam does contain hydric inclusions in the form of swales, while the Merrill Silt Loam contains hydric inclusions in the form of depressions. These soils are considered to be hydric if they possess a frequently occurring water table at less than 1.5 feet from the surface for a significant period (usually more than 2 weeks) during the growing season if permeability is less than 6.0 in/hr in any layer within 20 inches.

II. JURISDICTION

A. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

[4] United States Department of Agriculture, Soil Conservation Service. 1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number 1491. (In cooperation with the National Technical Committee for Hydric Soils.)

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide;
(2) All interstate waters including interstate wetlands;
(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or
(iii) Which are used or could be used for industrial purpose by industries in interstate commerce...

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;
(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;
(6) The territorial seas;
(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

(8) Waters of the United States do not include prior converted cropland.[5] *Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA.*

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(e) as:

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[5] The term "prior converted cropland" is defined in the Corps' Regulatory Guidance Letter 90-7 (dated September 26, 1990) as "wetlands which were both manipulated (drained or otherwise physically altered to remove excess water from the land) and cropped before 23 December 1985, to the extent that they no longer exhibit important wetland values. Specifically, prior converted cropland is inundated for no more than 14 consecutive days during the growing season...." [Emphasis added.]

> *...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

Pursuant to Article I, Section 8 of the U.S. Constitution, federal regulatory authority extends only to activities that affect interstate commerce. In the early 1980s the Corps interpreted the interstate commerce requirement in a manner that restricted Corps jurisdiction on isolated (intrastate) waters. On September 12, 1985, EPA asserted that Corps jurisdiction extended to isolated waters that are used or could be used by migratory birds or endangered species, and the definition of "waters of the United States" in Corps regulations was modified as quoted above from 33 CFR 328.3(a).

On January 9, 2001, the Supreme Court of the United States issued a ruling on *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al.* (SWANCC). In this case the Court was asked whether use of an isolated, intrastate pond by migratory birds is a sufficient interstate commerce connection to bring the pond into federal jurisdiction of Section 404 of the Clean Water Act.

The written opinion notes that the court's previous support of the Corps' expansion of jurisdiction beyond navigable waters (*United States v. Riverside Bayview Homes, Inc.*) was for a wetland that <u>abutted</u> a navigable water and that the court did not express any opinion on the question of the authority of the Corps to regulate wetlands that are not adjacent to bodies of open water. The current opinion goes on to state:

> *In order to rule for the respondents here, we would have to hold that the jurisdiction of the Corps extends to ponds that are not adjacent to open water. We conclude that the text of the statute will not allow this.*

Therefore, we believe that the court's opinion goes beyond the migratory bird issue and says that no isolated, intrastate water is subject to the provisions of Section 404(a) of the Clean Water Act (regardless of any interstate commerce connection). However, the Corps and EPA have issued a joint memorandum, which states that they are interpreting the ruling to address only the migratory bird issue and leaving the other interstate commerce clause nexuses intact.

The term "wetlands" (a subset of "waters of the United States") is defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated

soil conditions." In 1987 the Corps published a manual to guide its field personnel in determining jurisdictional wetland boundaries. In 1989 the Federal Interagency Committee for Wetland Delineation developed an updated methodology, which was adopted by the Corps, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), and SCS, which replaced the 1987 Wetland Delineation Manual.[6] The use of this 1989 manual was perceived by many to excessively increase the jurisdictional limits of wetlands. After several congressional hearings, EPA, Corps, SCS, and USFWS published proposed 1991 revisions to the 1989 manual.[7] A few days afterwards, the President signed the Energy and Water Development Appropriations Act of 1992, which, in effect, prohibits the use of the 1989 manual. Because the 1991 proposed revisions to the 1989 manual have not yet been adopted, the only remaining valid methodology is the 1987 Wetland Delineation Manual.[8] The methodology set forth in the 1987 Wetland Delineation Manual generally requires that, in order to be considered a wetland, the vegetation, soils, and hydrology of an area exhibit at least minimal hydric characteristics. While the manual provides great detail in methodology and allows for varying special conditions, a wetland should normally meet each of the following three criteria:

- more than 50 percent of the dominant plant species at the site must be typical of wetlands (i.e., rated as facultative or wetter in the National List of Plant Species that Occur in Wetlands[9]);

- soils must exhibit physical and/or chemical characteristics indicative of permanent or periodic saturation (e.g., a gleyed color, or mottles with a matrix of low chroma indicating a relatively consistent fluctuation between aerobic and anaerobic conditions); and

- hydrologic characteristics must indicate that the ground is saturated to within 12 inches of the surface for at least five percent of the growing season during a normal rainfall year[10].

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[6] Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington, DC Cooperative technical publication.

[7] Government Printing Office. 1991. Federal Register, "1989 Federal Manual for Identifying Jurisdictional Wetlands; Proposed Revisions." August 14, 1991, Vol. 56, No. 157, pp 40446-40480.

[8] This delineation was performed using, where appropriate, the 1987 Wetland Manual. It is unlikely that any actions will be taken on a revised wetland manual in the near future. If a new manual is adopted, it may be necessary to review our delineation to determine its compliance with any changes set forth.

[9] Reed, P.B., Jr. 1988. National List of Plant Species that Occur in Wetlands. U.S. Fish and Wildlife Service Biological Report 88(26.10).

[10] For most of low-lying southern California, five percent of the growing season is equivalent to 18 days.

1. Corps Jurisdiction on Agricultural Lands

Section 404 of the Clean Water Act requires a landowner to obtain a permit from the Corps prior to beginning any non-exempt activity involving the placement of dredged or fill material in waters of the U.S. Certain ongoing, normal farming practices in wetlands (and other waters of the U.S.) are exempt and do not require a permit. These practices include plowing, harvesting, seeding, minor drainage, and cultivation. Farmed waters of the U.S. fall into one of two categories:

> The first of these is "prior converted cropland". *Prior converted croplands are wetlands that were drained, dredged, filled, leveled, or otherwise manipulated, including the removal of woody vegetation, before December 23, 1985, to make production of an agricultural commodity possible, and that (1) do not meet specific hydrologic criteria, (2) have had an agricultural commodity planted or produced at least once prior to December 23, 1985, and (3) have not since been abandoned.* Activities in prior converted cropland are not regulated under Section 404.
>
> The second is "farmed wetlands". *Farmed wetlands are similar to prior converted cropland in that they were drained, dredged, filled, leveled, or otherwise manipulated before December 23, 1985, to make production of an agricultural commodity possible, but are often wet enough to still be valuable wetland habitat subject to ... Section 404.* Non-exempt activities in farmed wetlands are regulated under Section 404.

B. Regional Water Quality Control Board

Subsequent to the SWANCC decision, the Chief Counsel for the State Water Resources Control Board issued a memorandum that addressed the effects of the SWANCC decision on the Section 401 Water Quality Certification Program.[11] The memorandum states:

> *California's right and duty to evaluate certification requests under section 401 is pendant to (or dependent upon) a valid application for a section 404 permit from the Corps, or another application for a federal license or permit. Thus if the Corps determines that the water body in question is not subject to regulation under the COE's 404 program, for instance, no application for 401 certification will be required...*

[11] Wilson, Craig M. January 25, 2001. Memorandum addressed to State Board Members and Regional Board Executive Officers.

> *The SWANCC decision does not affect the Porter Cologne authorities to regulate discharges to isolated, non-navigable waters of the states....*
>
> *Water Code section 13260 requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." (Water Code § 13260(a)(1) (emphasis added).) The term "waters of the state" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." (Water Code § 13050(e).) The U.S. Supreme Court's ruling in SWANCC has no bearing on the Porter-Cologne definition. While all waters of the United States that are within the borders of California are also waters of the state, the converse is not true—waters of the United States is a subset of waters of the state. Thus, since Porter-Cologne was enacted California always had and retains authority to regulate discharges of waste into any waters of the state, regardless of whether the COE has concurrent jurisdiction under section 404. The fact that often Regional Boards opted to regulate discharges to, e.g., vernal pools, through the 401 program in lieu of or in addition to issuing waste discharge requirements (or waivers thereof) does not preclude the regions from issuing WDRs (or waivers of WDRs) in the absence of a request for 401 certification....*

Thus, discharge of fill material into waters of the State that do not fall under the jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act may require authorization through application for waste discharge requirements (WDRs) or through waiver of WDRs).

C. <u>California Department of Fish and Game</u>

F

Pursuant to Division 2, Chapter 6, Sections 1602of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife.

CDFG defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFG's definition of "lake" includes "natural lakes or man-made reservoirs."

CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFG Legal Advisor has prepared the following opinion:

Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways...

- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated by [CDFG] as natural waterways...

- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions...

Thus, CDFG jurisdictional limits closely mirror those of the Corps. Exceptions are CDFG's exclusion of isolated wetlands (those not associated with a river, stream, or lake), the addition of artificial stock ponds and irrigation ditches constructed on uplands, and the addition of riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status.

III. RESULTS

A. Corps Jurisdiction

There is one ephemeral drainage, one intermittent drainage supported by flows from an adjacent wastewater treatment plant, and three non-jurisdictional, isolated roadside ditches within the Project area. Cypress Channel and Magnolia Channel are the two jurisdictional drainages on site and both are influenced by anthropogenic sources of flow. These drainages are Corps jurisdictional waters since they exhibit OHWMs, debris racks, changes in soil characteristics, and sediment deposits. Total Corps jurisdiction associated with the Project area is approximately 72,103 square feet (1.66 acres), of which 326 square feet (0.01 acre) consist of jurisdictional wetlands. The boundaries of Corps jurisdictional maps [Exhibits 3A and 3B].

1. Cypress Channel

Corps jurisdiction associated with Cypress Channel totals approximately 50,228 square feet (1.15 acres), none of which consist of jurisdictional wetlands. Cypress Channel is a man-made concrete lined channel that supports stream flow due to urban runoff from the surrounding area. Cypress Channel enters the Project area from Edison Avenue to the north and traverses the

western boundary of the Project area for approximately 3,827 linear feet before exiting the site and entering Chino Creek. The off-site portion of Cypress Channel extends another 550 linear feet, and adds approximately 8,250 square feet (0.19 acre) of Corps jurisdiction. Cypress Channel supports an OHWM exhibiting intermittent changes in soil characteristics, debris racks, and/or intermittent water marks. The OHWM remains constant at 15 feet wide throughout the Project area.

Cypress Channel contains scattered clumps of sediment deposits that include patches of mostly exotic weedy grasses including bermuda grass (*Cynodon dactylon*), horseweed (*Conyza canadensis*) and Mexican sprangletop (*Leptochloa uninervia*). No soil pits were taken within Cypress Channel since the drainage is concrete-lined and is dominated by weedy grasses.

2. Magnolia Channel

Corps jurisdiction associated with Magnolia Channel totals approximately 21,875 square feet (0.50 acre), of which 326 square feet (0.01 acre) consist of jurisdictional wetlands. Magnolia Channel is a man-made mechanically flooded drainage. Water from storm drains is pumped daily into this earthen channel creating flow patterns. The drainage contains several areas in the upper portion that have been eroded away by storm flow, and created steeply incised banks. Magnolia Channel enters the Project area from Edison Avenue and traverses the central section of the Project area for approximately 4,234 linear feet before exiting the site and entering the Chino Creek. The off-site portion of Magnolia Channel extends another 350 linear feet, and adds approximately 2,450 square feet (0.06 acre) of Corps jurisdiction. Magnolia Channel supports an OHWM exhibiting intermittent changes in soil characteristics, debris racks, and/or intermittent water marks. The OHWM ranges in width from three to nine feet wide and consists mostly of sandy and silty clay loam.

Magnolia Channel is dominated by mostly non-native weedy plants such as bermuda grass (*Cynodon dactylon*), horseweed (*Conyza canadensis*) and Mexican sprangletop (*Leptochloa uninervia*). Soil pits 1 through 3 were examined in this drainage. Soil pit 1 was within a wetland that developed because the channel bed is periodically inundated with man-made flows, while soil pits 2 and 3 were not located within wetlands due to a lack of hydric soils.

3. Drainage C

Corps isolated waters associated with Drainage C total approximately 14,817 square feet (0.34 acre), none of which consist of wetlands. Drainage C is a man-made roadside ditch that supports occasional stream flow due to urban runoff from the surrounding area. Drainage C runs parallel to Edison Avenue at the northern boundary of the Project site and traverses west to east for

approximately 2,460 linear feet before exiting the site and entering a storm drain standpipe. Drainage C supports an OHWM exhibiting shelving, debris racks, and/or intermittent water marks. The OHWM averages to approximately 6 feet wide throughout the Project area, but does not support a surficial connection to another Corps jurisdictional water. Therefore, pusuantt ooo

Drainage C contains upland grasses including hare barley (*Hordeum leporinum*), red brome (*Bromus rubens*), and mediterranean grass (*Schismus arabicus*). The drainage also contains black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), flat-topped buckwheat (*Eriogonum fasciculatum*), common sunflower (*Helianthus annuus*), Mediterranean fan palm (*Chamaerops humilis*), and horseweed (*Conyza canadensis*). No soil pits were taken within Drainage C since no hydrophytic vegetation was present.

4. Drainage D

No Corps jurisdiction is associated with Drainage D since drainage D is an isolated water and does not support a surficial connection to another Corps jurisdictional water. Approximately 2,335 square feet (0.05 acre) of Corps waters, none of which consist of wetlands, were located on site. Drainage D is a man-made roadside ditch that supports occasional flows within Oaks Avenue, which is located off-site just above the northern boundary of the Project site. This roadside ditch traverses north to south for approximately 603 linear feet before entering a culvert along Edison Avenue. Drainage D supports an OHWM exhibiting shelving, debris racks, and/or intermittent water marks. The OHWM averages to approximately 3 feet wide. No soil pits were taken because Drainage D is unvegetated.

5. Drainage E

No Corps jurisdiction is associated with Drainage E. Drainage E is an isolated, non-jurisdictional drainage feature supporting approximately 1,810 square feet (0.04 acre) of Corps waters, none of which consist of wetlands. Drainage E is a man-made roadside ditch that supports occasional stream flow due to urban runoff from the surrounding area. Drainage E runs along the eastern side of Oaks Avenue, which is located off-site just above the northern boundary of the Project site. This roadside ditch traverses north to south for approximately 778 linear feet before entering a culvert along Edison Avenue. Drainage E supports an OHWM exhibiting shelving, debris racks, and/or intermittent water marks. The OHWM averages to approximately 3 feet wide. No soil pits were taken because Drainage E is unvegetated.

B. Regional Water Quality Control Board Jurisdiction

None of the on site drainages were determined to be intrastate/isolated waters outside of Corps jurisdiction and, therefore, do not need to be addressed separately pursuant to the Porter-Cologne Act. Three isolated, non-jurisdictional roadside ditches are also located on site. Whereas these ditches do not support a surficial connection to another Corps jurisdictional water, they may be subject to the Regional Board's jurisdiction pursuant to the Porter-Cologne Act.

C. CDFG Jurisdiction

There are five drainages subject to CDFG jurisdiction within the Project area. Cypress Channel and Magnolia Channel are the two jurisdictional drainages on site, while Drainages C, D and E are jurisdictional roadside ditches. Although these ditches do not support CDFG resources, they do support a defined bed and bank, thus making them CDFG jurisdiction. Total CDFG jurisdiction associated with the Project area is approximately 93,993 square feet (2.16 acres), of which 4,764 square feet (0.11 acre) consist of vegetated riparian habitat. The boundaries of CDFG jurisdiction are depicted on the enclosed delineation maps [Exhibits 3A and 3B].

1. Cypress Channel

CDFG jurisdiction associated with Cypress Channel totals approximately 50,228 square feet (1.15 acres), none of which consist of riparian vegetated habitat. Cypress Channel is a man-made concrete lined channel that has flow due to urban runoff from the surrounding area. Cypress Channel enters the Project area from Edison Avenue to the north and traverses the western boundary of the Project area for approximately 3,827 linear feet before exiting the site and entering Chino Creek. The off-site portion of Cypress Channel extends another 550 linear feet, and adds approximately 8,250 square feet (0.19 acre) of CDFG jurisdiction. Cypress Channel supports a high watermark exhibiting intermittent changes in soil characteristics, debris racks, and/or intermittent water marks. The HWM remains constant at 15 feet wide throughout the Project area.

Cypress Channel contains scattered clumps of sediment deposits that include patches of mostly exotic weedy grasses including bermuda grass (*Cynodon dactylon*), horseweed (*Conyza canadensis*) and Mexican sprangletop (*Leptochloa uninervia*).

2. Magnolia Channel

CDFG jurisdiction associated with Magnolia Channel totals approximately 24,803 square feet (0.57 acre), of which 4,764 square feet (0.11 acre) consist of vegetated riparian habitat. Magnolia Channel is a man-made mechanically flooded drainage. Water from storm drains is pumped daily into this earthen channel creating flow patterns. The drainage contains several areas in the upper portion that have been eroded away by storm flow, and created steeply incised banks. Magnolia Channel enters the Project area from Edison Avenue and traverses the central section of the Project area for approximately 4,234 linear feet before exiting the site and entering the Chino Creek. The off-site portion of Magnolia Channel extends another 350 linear feet, and adds approximately 2,450 square feet (0.06 acre) of CDFG jurisdiction. Magnolia Channel supports a HWM exhibiting intermittent changes in soil characteristics, debris racks, and/or intermittent water marks. The HWM ranges in width from three to nine feet wide and consists mostly of sandy and silty clay loam.

Magnolia Channel is dominated by mostly non-native weedy plants such as bermuda grass (*Cynodon dactylon*), horseweed (*Conyza canadensis*) and Mexican sprangletop (*Leptochloa uninervia*).

3. Drainage C

CDFG jurisdiction associated with Drainage C totals approximately 14,817 square feet (0.34 acre), none of which consist of jurisdictional wetlands. Drainage C is a man-made roadside ditch that supports occasional stream flow due to urban runoff from the surrounding area. Drainage C runs parallel to Edison Avenue at the northern boundary of the Project site and traverses west to east for approximately 2,460 linear feet before exiting the site and entering a storm drain standpipe. Drainage C supports a HWM exhibiting shelving, debris racks, and/or intermittent water marks. The HWM averages to approximately 6 feet wide throughout the Project area.

Drainage C contains upland grasses including hare barley (*Hordeum leporinum*), red brome (*Bromus rubens*), and mediterranean grass (*Schismus arabicus*). The drainage also contains black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), flat-topped buckwheat (*Eriogonum fasciculatum*), common sunflower (*Helianthus annuus*), Mediterranean fan palm (*Chamaerops humilis*), and horseweed (*Conyza canadensis*).

4. Drainage D

CDFG jurisdiction associated with Drainage D totals approximately 2,335 square feet (0.05 acre), none of which consist of jurisdictional wetlands. Drainage D is a man-made roadside ditch

that supports occasional stream flow due to urban runoff from the surrounding area. Drainage D runs along the western side of Oaks Avenue, which is located off-site just above the northern boundary of the Project site. This roadside ditch traverses north to south for approximately 603 linear feet before entering a culvert and converging with Drainage C along Edison Avenue. Drainage D supports a HWM exhibiting shelving, debris racks, and/or intermittent water marks. The HWM averages to approximately 3 feet wide.

5. Drainage E

CDFG jurisdiction associated with Drainage E totals approximately 1,810 square feet (0.04 acre), none of which consist of jurisdictional wetlands. Drainage E is a man-made roadside ditch that supports occasional stream flow due to urban runoff from the surrounding area. Drainage E runs along the eastern side of Oaks Avenue, which is located off-site just above the northern boundary of the Project site. This roadside ditch traverses north to south for approximately 778 linear feet before entering a culvert and eventually converging with Drainage C along Edison Avenue. Drainage E supports a HWM exhibiting shelving, debris racks, and/or intermittent water marks. The HWM averages to approximately 3 feet wide.

IV. DISCUSSION

A. Impact Analysis

1. Impacts to Corps Jurisdiction

According to the grading plans, the Project will permanently impact 12,210 square feet (0.28 acre) of Corps jurisdictional waters, of which 326 square feet (0.01 acre) consist of jurisdictional wetlands, and temporarily impact 47,977 square feet (1.10 acres), none of which consist of jurisdictional wetlands. Permanent impacts to off site areas will total 3,200 square feet (0.07 acre), none of which consist of jurisdictional wetlands. Temporary impacts to off site areas total 7,500 square feet (0.17 acre), none of which consist of jurisdictional wetlands.

Total permanent Corps impacts related to the proposed Project are 15,410 square feet (0.35 acre), of which 326 square feet (0.01 acre) consist of jurisdictional wetlands. Temporary impacts to Corps jurisdictional waters total 55,477 square feet (1.27 acres), none of which consist of jurisdictional wetlands. See Exhibit 5 for the jurisdictional impact map.

2. Impacts to CDFG Jurisdiction

According to the grading plans, the Project will permanently impact 13,956 square feet (0.32 acre) of CDFG jurisdiction, of which 2,661 square feet (0.06 acre) consist of vegetated riparian habitat, and temporarily impact 49,157 square feet (1.13 acres) of CDFG jurisdiction, of which 2,102 square feet (0.05 acre) consist of vegetated riparian habitat. Permanent impacts to off site areas will total 22,162 square feet (0.51 acre) of CDFG jurisdiction, none of which consist of vegetated riparian habitat. Temporary impacts to off site areas total 7,500 square feet (0.17 acre) of CDFG jurisdiction, none of which consist of vegetated riparian habitat.

Total permanent impacts to CDFG jurisdiction related to the proposed Project are 36,118 square feet (0.83 acre), of which 2,661 square feet (0.06 acre) consist of vegetated riparian habitat. Temporary impacts to CDFG jurisdiction total 56,657 square feet (1.30 acres), of which 2,102 square feet (0.05 acre) consist of vegetated riparian habitat. See Exhibit 5 for the jurisdictional impact map.

If you have any questions, please call me at (949) 837-0404 to discuss this report.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

For Martin A. Rasnick
Regulatory Specialist

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Exhibit 1

Regional Location Map

Adapted from USGS San Bernardino and Santa Ana Quadrangles

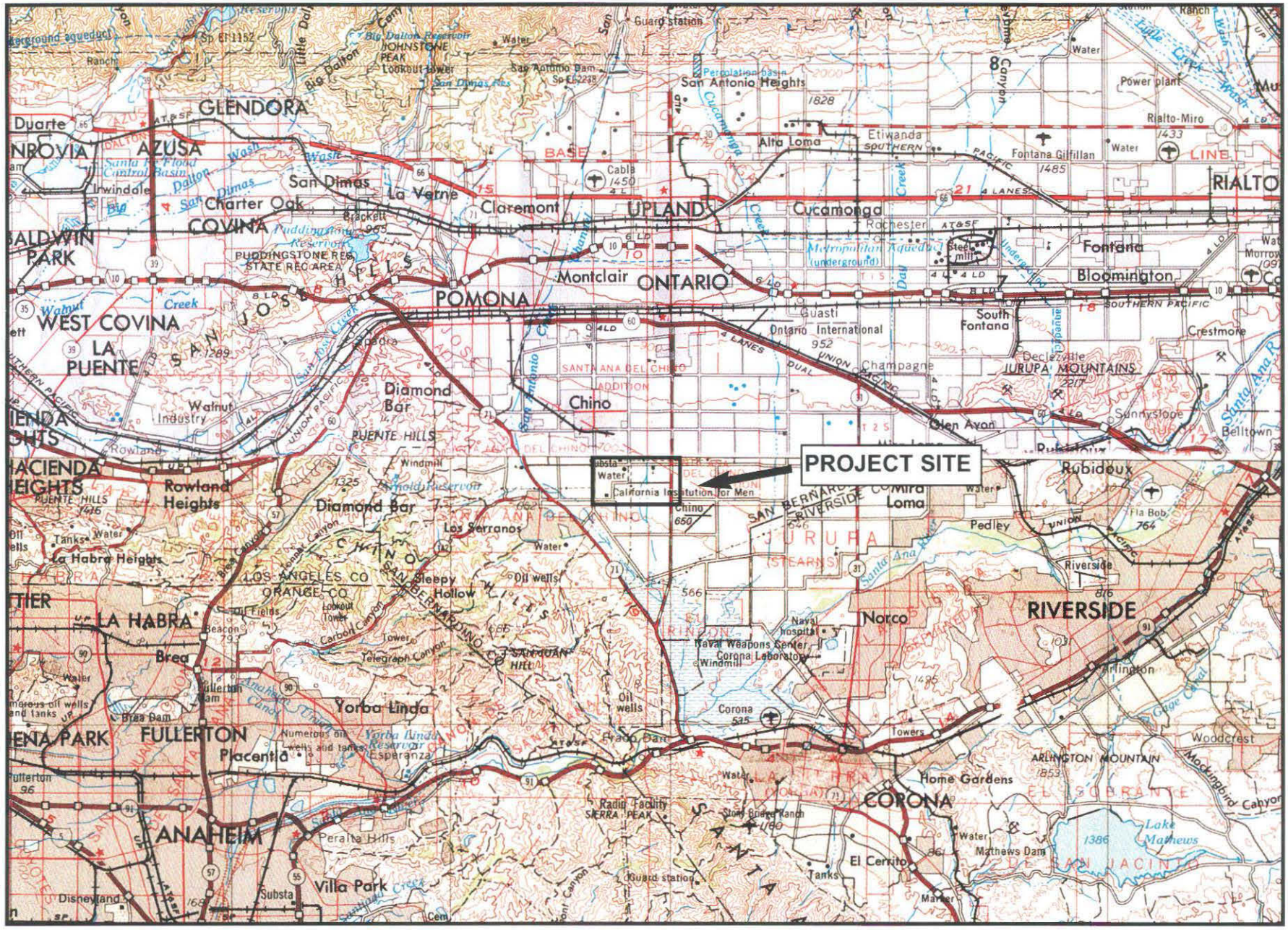
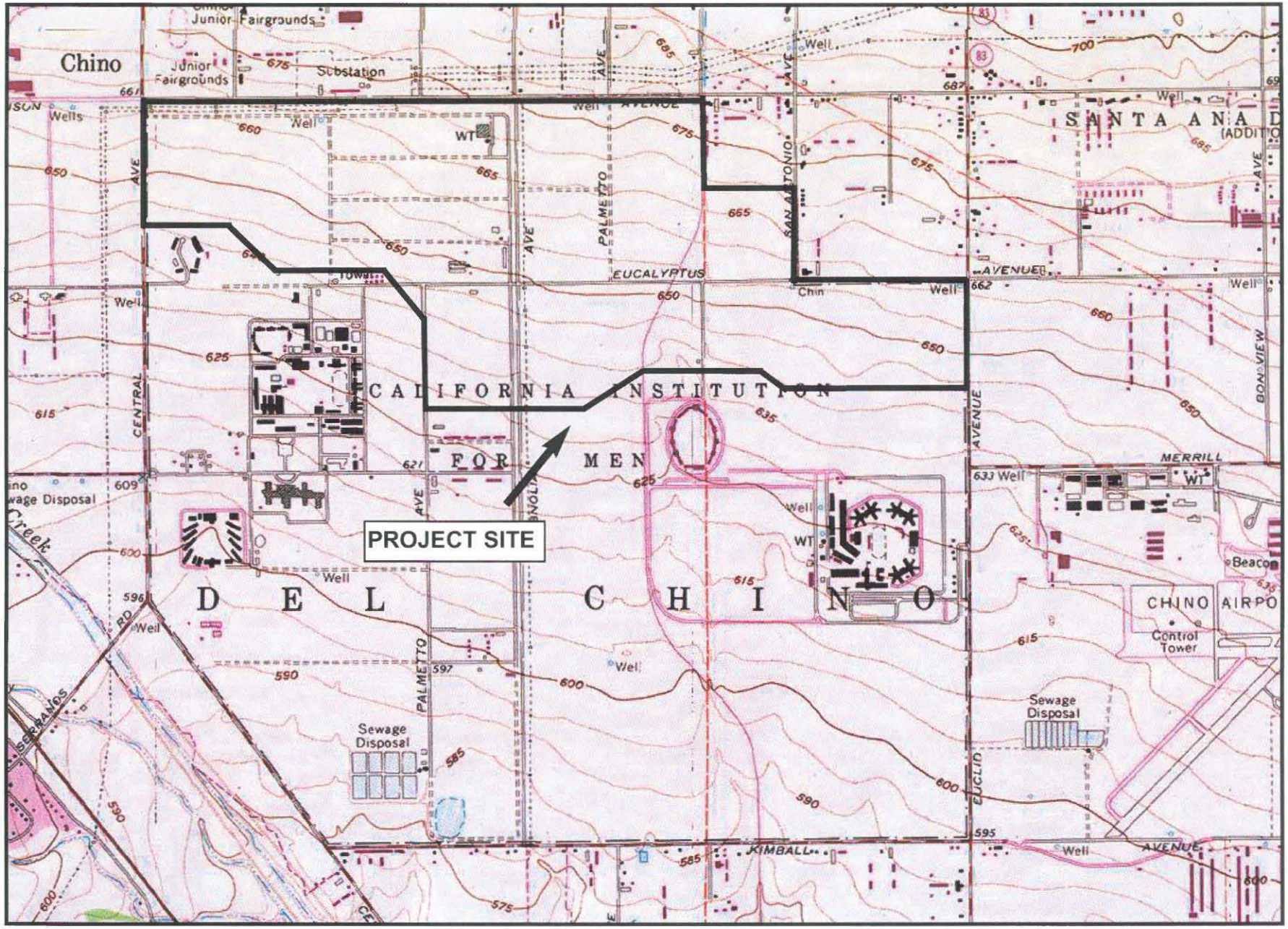

PROJECT SITE
GLENDORA
AZUSA
Duarte
Irwindale
San Dimas
Charter Oak
COVINA
La Verne
Claremont
UPLAND
Cucamonga
RIALTO
BALDWIN PARK
WEST COVINA
LA PUENTE
POMONA
Montclair
ONTARIO
Fontana
Bloomington
Chino
Diamond Bar
Rowland Heights
La Habra Heights
LA HABRA
Brea
FULLERTON
Placentia
Yorba Linda
ANAHEIM
Disneyland
Villa Park
Norco
RIVERSIDE
CORONA
Home Gardens
El Cerrito
Mira Loma
Rubidoux
Pedley
Riverside
Corona
Crestmore
Jurupa Mountains
Sunnyslope
Belltown
Glen Avon
Ontario International
Guasti
South Fontana
Rialto-Miro
Fontana Gilfillan
Etiwanda
Alta Loma
San Antonio Heights
Cable
Rochester
Champagne
Sleepy Hollow
Los Serranos
Naval Weapons Center Corona Laboratory
Naval hospital
Radio Facility SIERRA PEAK
Lake Mathews
Mathews Dam
Woodcrest
Arlington
Mockingbird Canyon
Prado Dam
Peralta Hills
Substa
Water
Power plant
Guard station
Windmill
Oil wells
Tanks
Towers
Cemetery
California Institution for Men
Chino
Fla Bob
Arnold Reservoir
Puddingstone Reservoir
Puddingstone Res State Rec Area
Santa Fe Flood Control Basin
Big Dalton Reservoir
Metropolitan Aqueduct (underground)
Santa Ana R.
Santa Ana Canyon
Carbon Canyon
Telegraph Canyon
Brea Canyon
Tonner Canyon
Chino Hills
Puente Hills
San Jose Hills
Sierra Peak
Arlington Mountain
Lake Mathews
Santa Ana Del Chino
Jurupa Mountains
Stearns
Rowland
Industry
Walnut
Brea Dam
Fullerton Dam
Esperanza
Numerous oil wells and tanks
Lookout Tower
Beacon
Telegraph Canyon
Carbon Canyon
Tonner Canyon
Chino Hills
Puente Hills
San Jose Hills
Sierra Peak
Arlington Mountain
Lake Mathews
Santa Ana R.
Santa Ana Canyon
Carbon Canyon
Telegraph Canyon
Brea

Exhibit 2

Location Map

Adapted from USGS Prado Dam Quadrangle



NORTH

0 1000 2000 3000
FEET

CHINO COLLEGE PARK

Vicinity Map

GLENN LUKOS ASSOCIATES

EXHIBIT 2

Exhibit 1

Regional Location Map

Exhibit 3

Delineation Graphics

Note: Three non-jurisdictional isolated roadside ditches are located north of the property. Each ditch averages two to three feet in width.

Edison Avenue

Drainage C

Photo 2

Drainage C

Photo 3

DS2

DS1

5/2w

See Detail Map

5

DS3

5/15R

5/15R

Magnolia Channel

8

3/7R

Photo 4

3/7R

6

Central Avenue

15

Cypress Channel

15

Photo 1

15

Magnolia Channel

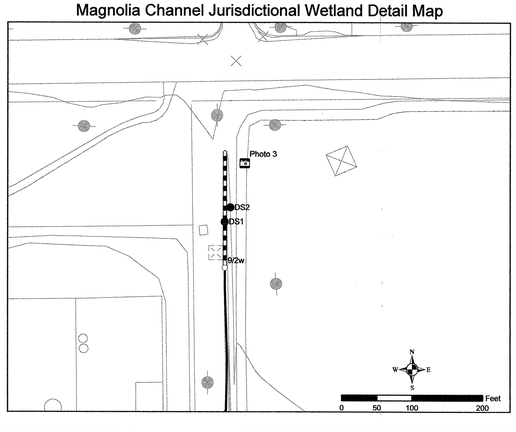
3

Euclid Avenue

N
W E
S

Feet
0 200 400 800

Magnolia Channel Jurisdictional Wetland Detail Map



LEGEND

- OHWM or Streambed Width\Wetland Width\Riparian Width*
- Photo Locations
- Data Sheet Locations
- Jurisdictional Features (CORPS and CDFG)
- Jurisdictional Wetlands
- Jurisdictional Road Ditch (CORPS and CDFG)
- Project Boundary

*Note: Portions of the drainage with Corps wetlands (W) or CDFG riparian vegetation (R) will be followed by the appropriate letter. If the drainage has no wetland or riparian vegetation, the space demarcated will be left blank.
Examples:
5=5 foot channel with no wetlands or riparian vegetation
5/8R=5 foot channel with 8 feet of riparian vegetation
2/1w/5R=2 foot channel with 1 foot of wetland and 5 feet of riparian vegetation

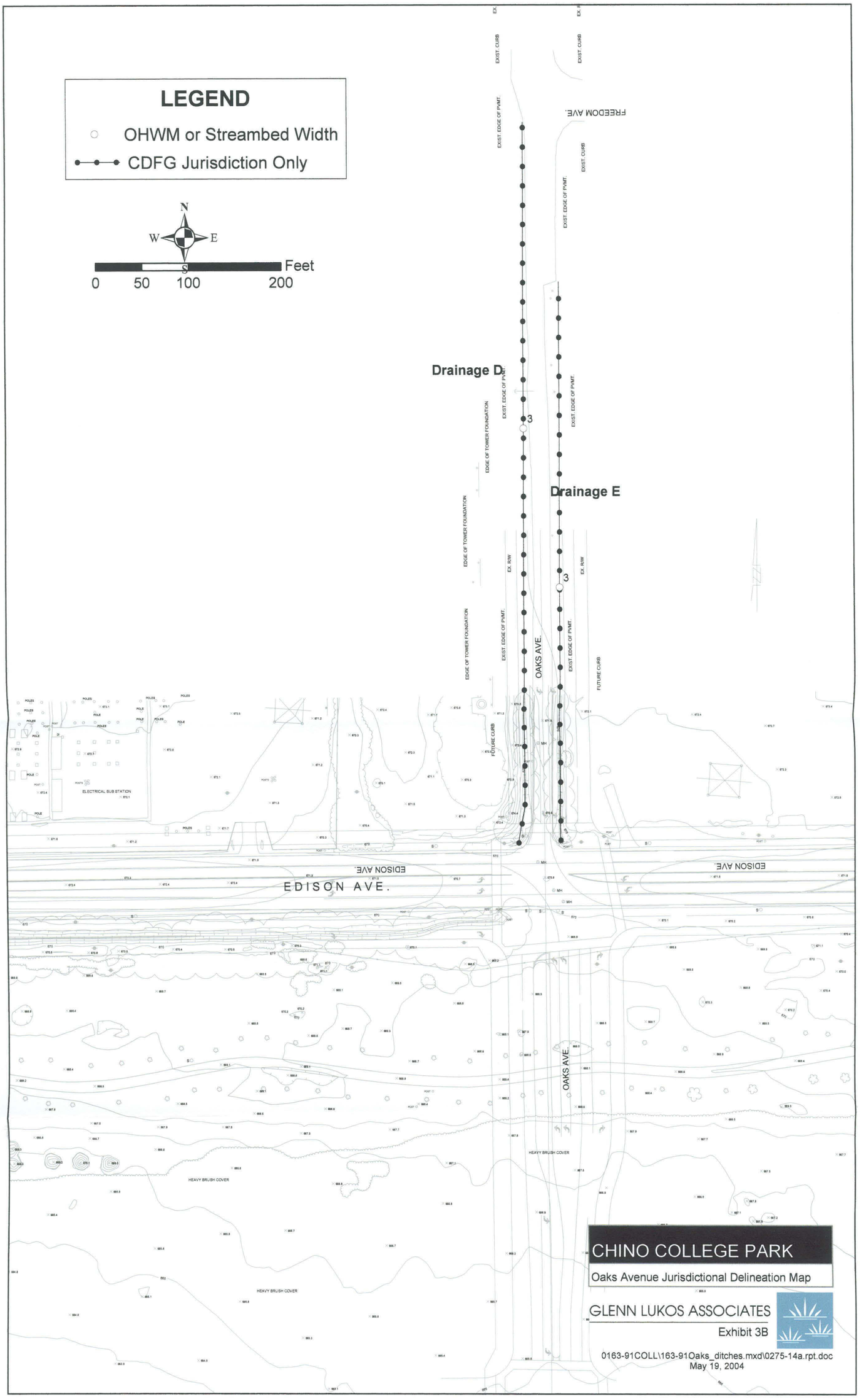
CHINO COLLEGE PARK

Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

Exhibit 3A

0163-91COLL\163-91rev1\163-91delineation.rev3\0275-14a.rpt.doc
May 19, 2004



CHINO COLLEGE PARK

Oaks Avenue Jurisdictional Delineation Map

GLENN LUKOS ASSOCIATES

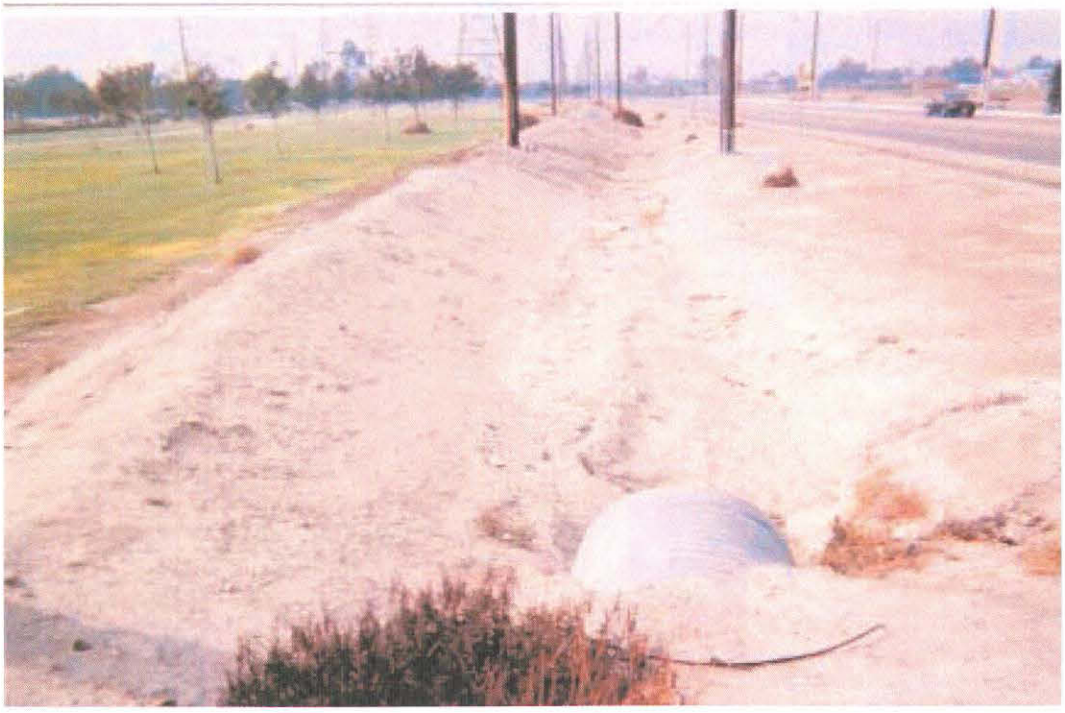
Exhibit 3B

0163-91COLL\163-91Oaks_ditches.mxd\0275-14a.rpt.doc
May 19, 2004

Exhibit 4

Site Photographs

PHOTOGRAPH 1: View of Cypress Channel looking south. Cypress Channel is concrete-lined with scattered clumps of sediment deposits and mostly exotic weedy grasses.



PHOTOGRAPH 2: View of Drainage C looking west. Drainage C parallels Edison Avenue (street located to the right-hand side) and has no hydrophytic vegetation.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

CHINO COLLEGE PARK

Site Photographs

PHOTOGRAPH 3: View of the Magnolia Channel pump station outlet. This channel has stormdrain water pumped into it on a daily basis.

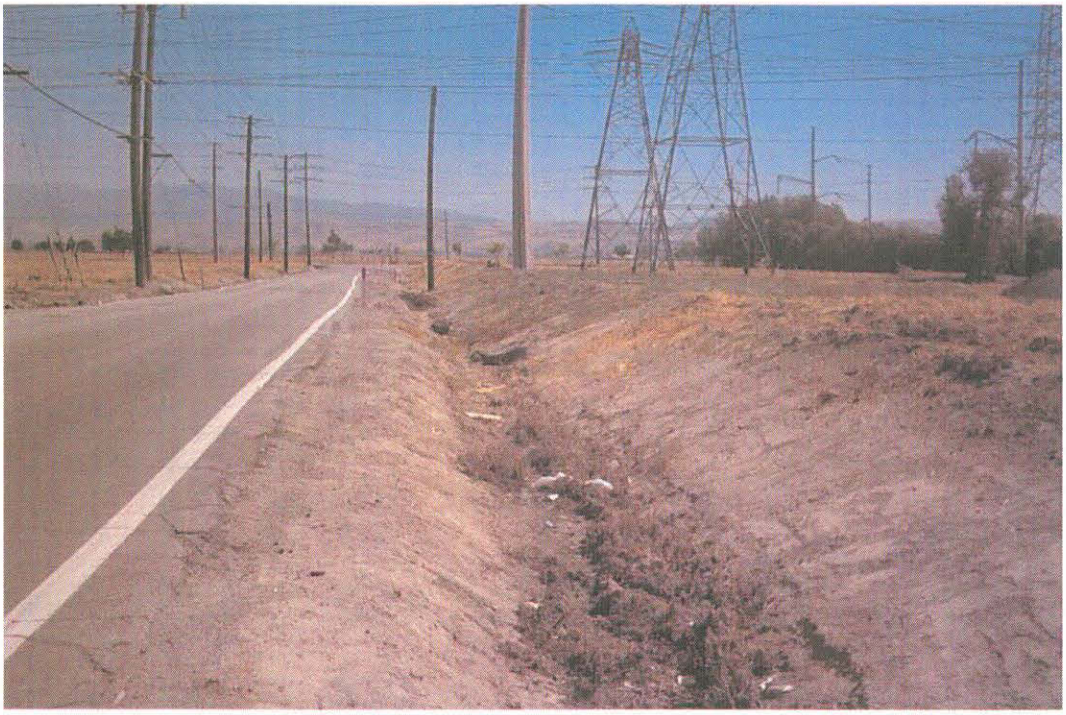
PHOTOGRAPH 4: View of Magnolia Channel looking south. Magnolia Channel is an earthen channel dominated by mostly non-native vegetation.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

CHINO COLLEGE PARK

Site Photographs



PHOTOGRAPH 5: View of Drainage D looking south.

PHOTOGRAPH 6: View of Drainage E looking north.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

CHINO COLLEGE PARK

Site Photographs

Exhibit 5

Project Impact Map

EDISON AVE.

OAKS AVE.

"A" STREET

BOX CULVERT

BEG RECONSTRUCTED SOFT BOTTOM CHANNEL

L= 75'
RCB CULVERT

"B" STREET

MOUNTAIN AVE.

RECONSTRUCTED SOFT BOTTOM CHANNEL

REMOVE AND REPLACE IN KIND

L= 150'
RCB CULVERT

L= 164'
RCB CULVERT

CYPRESS CHANNEL

EUCALYPTUS AVE.

MAGNOLIA CHANNEL

"C" STREET

REMOVE AND REPLACE IN KIND

POTENTIAL IMPROVEMENTS

CIM ACCESS ROAD

"D" STREET

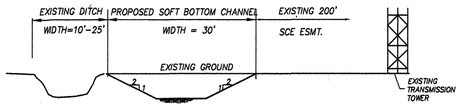
L= 80'
RCB CULVERT

POTENTIAL IMPROVEMENTS

L= 50'
RCB CULVERT

L= 50'
RCB CULVERT

300' 200' 100' 0' 300' 600'
GRAPHIC SCALE: 1" =300'



PROPOSED MAGNOLIA CHANNEL SECTION

LEGEND

- EXIST DRAINAGE FACILITY
- BOX CULVERT
- RCP STORM DRAIN
- SOFT BOTTOM TRAP CHANNEL

NO.	DATE	REVISIONS	APP'D	DATE

JOB NO.: 10-102885
SCALE: 1" = 300'
DATE: 12-01-03
DESIGNED BY: S.P.G.

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
14725 ALTON PARKWAY
IRVINE, CALIFORNIA 92618-2027
949.472.3505 • FAX 949.472.8122 • www.RBF.com

CHINO COLLEGE PARK
ENVIRONMENTAL ENCROACHMENT EXHIBIT

CHINO, CA

SHEET 1 OF 1 SHTS.

R:\PDATA\10102885\CADD\LAND\EXHIBITS\ENVIRONMENTAL ENCROACHMENT.DWG JLEONARD 4/8/04 3:10 pm

Appendix A

Wetland Data Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Kino Ranch	Date: 10-30-07
Applicant/Owner:	County:
Investigator:	State:
Do Normal Circumstances exist on the site? Yes No	Community ID: wetland
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID: 1
Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Plot ID: 5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Bermuda		FAC	9.		
2. Sprangletop		FACW	10.		
3. Horsenettle		FAC	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
___ Stream, Lake, or Tide Gauge
___ Aerial Photographs
___ Other
✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: 0 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:
Primary Indicators:
___ Inundated
___ Saturated in Upper 12 Inches
___ Water Marks
___ Drift Lines
___ Sediment Deposits
___ Drainage Patterns in Wetlands
Secondary Indicators (2 or more required):
___ Oxidized Root Channels in Upper 12 Inches
___ Water-Stained Leaves
___ Local Soil Survey Data
___ FAC-Neutral Test
___ Other (Explain in Remarks)

Remarks: Channel flooded mechanically

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____
Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 4/2	—	—	[illegible] sandy loam
8-12		2.5Y 2/1	—	—	[illegible] clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

Is this Sampling Point Within a Wetland? (Circle) Yes No

Remarks: Wetland developed in channel bed resulting from man-made flows

Near intersection of Edison & Magnolia Ave.

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Chino Ranch Applicant/Owner: Investigator:	Date: 10-30-07 County: State:
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: 2 Transect ID: Plot ID: 5 (random)

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Bermuda grass		FAC	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

✓ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

___ No Recorded Data Available

Field Observations:

Depth of Surface Water: — (in.)

Depth to Free Water in Pit: — (in.)

Depth to Saturated Soil: — (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: terrace along channel

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____
Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 3/2	—	—	sandy loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: not hydric

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes No (Circle)
Wetland Hydrology Present? Yes No
Hydric Soils Present? Yes No

(Circle)
Is this Sampling Point Within a Wetland? Yes No

Remarks: Not a 3 parameter wetland

Approved by HQUSACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Chino Prison Applicant/Owner: Investigator:	Date: 10-30-03 County: State:
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: Transect ID: Plot ID: 3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cynodon dactylon	H	FACW	9.		
2. Paspalum vaginatum	H	FAC	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-).

Remarks:

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

✓ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ✓ Water Marks
- ✓ Drift Lines
- ✓ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ✓ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes No

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	2.5Y 3/2	—	—	silt clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- ___ Reducing Conditions
- ___ Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this Sampling Point Within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

APPENDIX N
APRIL 27, 2004, COLLEGE PARK COMMUNITY MEETING: RESPONSES TO COMMUNITY CONCERNS AND COMMENTS

College Park Community Meeting
April 27, 2004

The City's Response to the Community's Concerns and Comments

PRIORITY CONCERNS
(The top three concerns expressed by each focus group)

1. CONGESTION and DENSITY

RESPONSE: The density of development within the College Park Specific Plan is higher than other existing single-family detached residential areas within the City. The reason for this higher density is because the College Park Specific Plan is not intended to be a conventional land use development. It is different from the City's current land use pattern; the residential units are concentrated in order to provide land for large and small open space amenities including, a park in each neighborhood, a community center, a sports park, bikeways and pedestrian trails, and wider parkways and medians. The emphasis of the living environment within College Park is on community character and access to amenities. Less emphasis is on individual private yards/open space, although this type of housing product is provided. Because the housing is clustered, more attention is focused on architectural design/detail and development standards, landscape design within private and public rights-of-way, and street design. These activities help to enhance the character of the community.

The vision for College Park is to provide a mix of uses with the character and ambiance of a small college town emphasizing connections between neighborhoods through a street grid system and a series of bikeways and pedestrian paths. In order to provide for this connectivity and community amenities, which are key elements to establishing a sense of community, development has been clustered. The plan also provides a wide variety of housing types and opportunities but the majority of units are single-family detached products. One-half acre estate lots are one of the detached products. The plan is balanced in terms of the variety of housing opportunities and product type.

2. PARKING

RESPONSE: The College Park Specific Plan utilizes the same parking standards as other areas within the community. Parking is provided on the street and visitor parking is provided within the high-density areas. Street widths allow for

parking on both sides of the street. Housing areas with alleys have garage and street parking. The community will be governed by a Master Homeowner's Association, which will have primary responsibility for regulation of parking and the use of parking areas. Higher density developments will be provided with guest parking.

3. PROXIMITY TO PRISON

RESPONSE: Residential development is located in close proximity to both minimum and maximum-security correctional facilities throughout the State (i.e., Vacaville). The State acknowledged this when they offered the property for residential development. The State has coordinated with the developer to establish minimum design standards for the area where the prison and the development share property boundaries. An eight-foot wall with an adjacent 30-foot buffer/landscape area is currently planned. However, the primary security measure is within the prison. No homes within the development directly abut the prison property.

4. SINGLE-STORY HOMES versus NUMBER OF SINGLE-STORY HOMES

RESPONSE: There are currently no single-story homes proposed within the College Park Specific Plan. The developer intends to provide a certain number of single-story dominant homes (homes that are the same height as single story homes), which have the master bedroom and primary living area on the first floor. The second level is typically a small area located within the attic area and is utilized for an office/recreation room or bedroom.

5. THE NEED FOR MORE INFORMATION REGARDING THE BASIC PLAN AND HOUSING SIZES

RESPONSE: For a project of this magnitude, the planning process occurs in stages. At this time, review of the College Park Specific Plan is in the land use entitlement phase of planning. The project is being analyzed for appropriate land uses and supporting infrastructure. At subsequent planning stages, developers will submit Tentative Tract Maps and submit information that details the development products (dwelling unit types); architectural details and materials; landscape design; and infrastructure. When the tract level plans are submitted to the City, they will be reviewed by staff and be subject to approval by the Planning Commission. A neighborhood meeting will be scheduled with those property owners who live near the proposed tract. Information regarding house plans and other details will be available at that time.

6. TRAFFIC ROUNDABOUT

RESPONSE: The College Park roundabout was the subject of a detailed engineering study, which was required and reviewed by the City. This study addressed concerns of design, additional roadways, parking, vehicular access points, pedestrian safety, congestion, the ability to accommodate larger vehicles (such as emergency vehicles and delivery trucks), and accommodations for bicycles. The study also considered growth within College Park from Phase I, which consist of homes east of the Cypress storm drainage channel, Phase II of the college, which consists of 3,500 students, to its ultimate build out of 15,000 students. Although today the developer is proposing 2,200 housing units on the site, the analysis was conducted using 2,500 housing units at build-out.

7. TRAFFIC - FUNDING FOR CITY ARTERIALS AND FREEWAYS

RESPONSE: Funding of transportation improvements from the College Park development for City arterial improvements will be incorporated into the College Park Development Impact Fees. These fees, which are paid by the developer, are based on the project's "Fair Share" cost for impacts identified in the Congestion Management Program (CMP) required by the State and the San Bernardino Association of Governments (SANBAG).

In regard to the regional improvements identified by the College Park CMP analysis, a methodology for collecting and accounting for the project's "Fair Share" cost for impacts are still being finalized by the San Bernardino Association of Governments (SANBAG). While this process has not been formalized by SANBAG, the City of Chino will be collecting these fees from the developer through a development agreement between the City and the developer.

8. TRAFFIC - BUS TURN-OUTS

RESPONSE: The City required that the College Park development incorporate an enhanced transit system in an effort to reduce vehicular trips within and around College Park. As part of the developer's proposal to the City, eleven bus turnouts will be provided with enhanced bus shelters. Also, the City, Omnitrans, and the developer are considering additional enhancements such as dedicated transit lanes or a local shuttle service with connection points to other City locations.

9. TRAFFIC - EDISON and EUCLID WILL BE TOO WIDE

RESPONSE: In 1991 the City considered future growth in Chino and identified Edison Avenue as a Major Arterial with six lanes. The developer will be

conditioned to maintain this width on sections that front their project. Euclid was also identified as a Major Arterial with improvements conditioned to maintain consistency along this roadway.

10. TRAFFIC - WILL PLANNED IMPROVEMENT PROVIDE CAPACITY FOR TRAFFIC?

RESPONSE: Cumulative funding provided from Measure I, the half-cent sales tax collected by the County for transportation improvements, and the City Development Impact Fee program will fund capacity enhancement projects throughout the City. Examples of these projects, which are currently under design, are the widening of Edison Avenue from Ramona to Central and Central Avenue from Walnut to Philadelphia. Also new traffic signals and modifications to existing traffic signals are planned to improve existing intersections.

11. AFFORDABLE OR SUBSIDIZED HOUSING

RESPONSE: The proposed project is within a redevelopment project area. California Community Redevelopment Law (CCRL) requires that 6% of all housing units built within a redevelopment project area must be made available at affordable prices/rents to very low-income persons/families, and that nine percent (9%) of all units developed in a redevelopment project area must be made available at affordable prices/rents to moderate income persons/families. The requirement that affordable housing units be developed within each redevelopment project is commonly referred to as the "redevelopment housing production requirement".

Very low-income families are those earning between 31% and 50% of the San Bernardino County median income. Moderate-income families are those earning between 81% and 120% of the county median income. CCRL does provide for the required affordable units to be developed outside of the project area, however, if this option is chosen, twice as many affordable units must be developed to satisfy the requirements of the law.

12. CITY SERVICES - ADEQUATE POLICE AND FIRE SERVICES

RESPONSE:

Police Services

The Draft Environmental Impact Report determined the need for an additional 7.5 officers as a result of the implementation of the proposed College Park project. The City contemplates adding officers through the budget process during the phased construction of the project, and would intend to add the number of officers needed to maintain a safe community.

Fire Services

The Draft Environmental Impact Report determined the need for an additional fire station in order to adequately serve the proposed College Park project. The Fire District has a new (additional) station in their master plan of facilities, to be located at Chino Hills Parkway and Central Avenue. The property has been purchased and construction will be funded from development impact fees. The District has indicated that this station will be a very good location to serve College Park. Personnel costs have been provided for this facility through the District's budget process.

13. CITY SERVICES - IS OPERATION/MAINTENANCE FUNDING AND ARE FACILITIES ADEQUATE FOR THE NUMBER OF OFFICERS/FIREMEN REQUIRED?

RESPONSE:

Police Services

The City is working with the developer to provide a revenue stream to fund the annual operational costs for the new officers. With regard to facilities, the City is currently analyzing the needs for additional Police facilities, and will take into account the additional Police staff that will be needed for College Park.

Fire Services

The Fire District has provided for the personnel costs to staff the station that is contemplated for Chino Hills Parkway and Central. The property for the facility has been purchased, and the building is being constructed with development impact fees.

14. CITY SERVICES - INCREASE IN CRIME RATE WITHIN ALLEYS

RESPONSE: The College Park Specific Plan proposes an alley-loaded dwelling unit as part of their development plan. The product is called alley-loaded because vehicular access to the garage is from an alley behind the house as opposed to a public street. This product has been built within the City and in numerous other communities. According to the Chino Police Department there has not been an increase in crime due to the use of an alley in the Cypress Creek project located within the City. Staff surveyed other developments within the region during field trips and found that the alley is not a source of criminal activity because they are designed with a focus on providing a secure and defensible area for use by homeowners. These design principles have been included in the City's development process for several years.

15. COST OF DEVELOPMENT ON CITY BUDGET – WILL THERE BE A BOND ISSUE? DO EXISTING RESIDENTS PAY FOR THE PROJECT? WILL THERE BE INCREASED TAXES FOR EXISTING RESIDENTS?

RESPONSE: The City Council directed staff to ensure that the existing City residents are not burdened with costs associated with the College Park development. Based on this, staff has been negotiating with the developer to ensure the development generates sufficient revenue to pay for services attributable to it. There will be no bond issue for the development other than a Community Facilities District formation that will be paid only by the College Park properties.

16. WILDLIFE

RESPONSE: The City of Chino has fully considered the burrowing owl (*Athene cuniculata*) in the evaluation of the potential environmental impacts associated with Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Redevelopment Project Area. Although not afforded protection pursuant to the State or Federal Endangered Species Act, the burrowing owl is designated as a Federal Species of Special Concern by the U.S. Fish and Wildlife Service and a Species of Special Concern by the California Department of Fish and Game. Given the known sensitivity of the burrowing owl, extensive coordination was undertaken with the California Department of Fish and Game regarding the characterization of baseline conditions, impact evaluation, and the development of mitigation measures.

Burrowing owl surveys were performed according to the California Department of Fish and Game survey protocol in 2001 and again in 2002. According to the results of the directed surveys, the proposed project has the potential to impact a maximum of six of the sixteen burrowing owl breeding nests that were recorded as a result of the 2001 directed surveys within the proposed project area and adjacent lands that would remain within the California Institution for Men.

As a means of protecting breeding burrowing owls, the EIR requires the initial grubbing and grading to be completed outside the breeding season (February 15 to September 15, 2004). In addition, the EIR provides for mitigation of the maximum worst-case potential impacts to the six known active nest sites recorded during the 2001 and 2002 surveys through the integration of 39 acres of burrowing owl habitat into the proposed project plan. The proposed mitigation plan of 6.5 acres per nest site is in accordance with mitigation guidelines proposed (or adopted, or promulgated?) by the California Department of Fish and Game and Burrowing Owl Consortium of 6.5 acres per nest site. The developer is responsible for incorporating 39 acres of suitable habitat of comparable or higher quality habitat into the design of the detention ponds and Cypress Channel. Artificial burrows will be constructed at a ratio 2:1 within the

39 acres of designated habitat. Burrowing owls shall be passively relocated from occupied burrows identified as a result of pursuant to the 2001 and 2002 surveys and any additional burrows identified as a result of pre-construction surveys. In the unanticipated event that there is insufficient area within the detention ponds and Cypress Channel to accommodate the specified mitigation, the City would provide a contingency plan to facilitate offsite mitigation.

17. QUALITY OF LIFE FOR EXISTING RESIDENTS

RESPONSE: The College Park development will not significantly impact the quality of life for existing residents. The plan is well thought out and its impacts are fully disclosed in the Draft Environmental Impact Report (EIR). This document details various impacts related to the project and specifically details the actions required to mitigate the project impacts, especially those activities that have a potential to impact the quality of life of the Chino residents. Many of the subjects noted above are discussed in the EIR. The Environmental Impact Report is currently in a draft form and the final will be completed in June 2004.

RESPONSE TO OTHER CONCERNS
(Additional concerns expressed by each focus group)

1. NO HORSE PROPERTY

RESPONSE: The Estate Residential (ER) land use category permits horse keeping. This land use is located adjacent to existing horse keeping property south of Edison Avenue between San Antonio Avenue and the Cypress Flood Control Channel. There are 31 lots of Estate Residential property.

2. EXISTING LARGE HOMES WILL BE DEVALUATED BY PROXIMITY TO SMALLER LOTS AND APARTMENTS

RESPONSE: Residential property values are established by previous sales activity within the same product type. Values of smaller lots and apartments would not be utilized to establish the value of a large residential home on a larger lot. Buyer preference may come into play and potentially impact the sales of a home if it were located adjacent another type of development. However, the substantial home sales activity within the City does not support this preference assumption.

3. INADEQUATE MEDICAL and/or HOSPITAL FACILITIES

RESPONSE: The College Park Specific Plan does not include plans for a community hospital. Such facilities are usually regional in nature and draw from a wider population base than a development of this size. The project does propose to include approximately 50,000 square feet of retail development for

commercial and office business. The neighborhood–serving uses within this center would allow offices to accommodate medical practitioners such as doctors, dentists and pharmacists.

4. LENGTH OF TIME THAT CONSTRUCTION WILL TAKE

RESPONSE: The Developer expects builders to have models open in summer 2005 and closings as early as late Fall 2005 or possibly in first quarter of 2006. Complete build-out will take about five years, depending on market conditions and other factors that none of us can anticipate or control.

5. WHO WILL MAINTAIN COMMON AREAS INSIDE THE DEVELOPMENT?

RESPONSE: The master developer will maintain the common areas within the development in the short term until a Homeowners Association is formed. A Homeowners Association (HOA) will then be responsible for the maintenance of private facilities held in common ownership, such as project landscaping, private parks, entries, common facilities, and project lighting.

6. ARE LOCAL RETAIL SERVICES PROVIDED?

RESPONSE: The mixed-use component of the Village Center area is expected to include a combination of commercial, office, retail and high density uses. The retail/commercial component of the Village Center mixed-use plaza is designed to provide neighborhood commercial uses to the future residents, students and employees of College Park, as well as surrounding neighborhoods. A variety of commercial/retail, including fast food and full-serve restaurants will also be offered. The office component of the Village Center mixed-use area may include space for small business and college related offices, such as student support services, tutoring and medical offices.

7. NO SENIOR HOUSING

RESPONSE: The developer's marketing studies did not indicate that senior housing was a priority housing product type for this development. The range of housing types and styles proposed for the development will accommodate residents with a variety of life style needs and financial means.

8. HOMES WITH NO YARDS WILL INCREASE LOITERING

RESPONSE: The College Park community has a range of areas that will provide for recreational opportunities including: the development of Ayala Community Park, a civic plaza/community center, neighborhood parks, a community recreational center, a system of pedestrian/equestrian hiking and riding trails. These areas provide other recreational, joint use community and passive open space areas that support the community at large. Most neighborhoods are

designed to include a central neighborhood park that is a minimum of a five-minute walk from a residence. Parks and open spaces are designed to link neighborhoods through a network of sidewalks and walking trails that tie the community together. In addition to the parks and other open space amenities, a recreation center will be constructed in the community. Each of the higher density developments will be required to develop additional open space amenities, as required by City Code. The proximity of the community to Chaffey College will offer an additional benefit since some activities on the campus will be available to residents of College Park (See response to Congestion/Density for further clarification of this comment).

9. NOISE

RESPONSE: The construction of the College Park Project would have the potential to result in significant impacts associated with the exceedance of City noise standards. However, mitigation measures will be implemented that will minimize these impacts by restricting the timing of construction during the hours of 7:00 a.m. until 7:00 p.m. Monday through Friday and 8:00 a.m. and 5:00 p.m. on Saturdays. There will be no construction allowed to occur on Sundays and federal holidays. In addition to the exceedance of the City noise standards, the construction may also have the potential to result in significant impacts to schools from noise. In order to reduce the potentially significant noise impacts to schools from construction, the conformance with the requirements of properly maintained heavy vehicles, including the use of exhaust mufflers and engine enclosure caps would reduce these impacts to below the level of significance.

Lastly, the implementation of the proposed College Park project may have the potential to result in impacts from noise associated with the Chino Airport to residential properties located south of Edison Avenue between Euclid and Magnolia Avenues. In order to reduce noise impacts from the Chino Airport, located just east of the proposed project site, the materials used for construction of the residences must include such materials as doors and windows glazed with sound transmission class (STC) 32 glazing.

10. INCREASED NEED FOR ELECTRIC UTILITY SERVICE

RESPONSE: The California Independent System Operator (CAISO) is the Agency that regulates electric power generating on the statewide power grid. In this Agency's five-year power assessment they project that power availability will exceed demand. For more details refer to www.caiso.com - Five Year Assessment.

RESPONSE TO COMMENT CARDS

1. WHAT ARE THE PLANS FOR OAKS AVENUE IMPROVEMENTS NORTH OF EDISON AVENUE?

RESPONSE: Oaks Avenue will be widened from Edison Avenue, north to Freedom Street. These improvements will address drainage issues as well as traffic operations issues. The intersection at Oaks and Edison will be designed to provide left turn lanes in all directions and the required number of through lanes.

2. WHAT IS A CLUSTER SINGLE FAMILY DEVELOPMENT AND WHY ARE THERE 299 OF THEM?

RESPONSE: A cluster single-family development is a group of 4 to 8 homes around an open space with driveway access. Each home is detached from another and is provided with a private yard. The number of cluster units was proposed by the developer and is subject to change.

APPENDIX O
TECHNICAL MEMORANDUM: ADDITIONAL TRAFFIC/TRANSPORTATION ANALYSIS OF PROPOSED COLLEGE PARK PROJECT

ADDITIONAL TRAFFIC ANALYSIS OF THE PROPOSED COLLEGE PARK PROJECT

JUNE 7, 2004

PREPARED FOR

SAPPHOS ENVIRONMENTAL, INC.

PREPARED BY

KAKU ASSOCIATES
A Corporation

ADDITIONAL TRAFFIC ANALYSIS
OF THE
PROPOSED COLLEGE PARK PROJECT

June 7, 2004

Prepared for:

SAPPHOS ENVIRONMENTAL, INC.

Prepared by:

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I. INTRODUCTION

This report documents the methods and findings of additional traffic impact analysis conducted by Kaku Associates, Inc. to supplement analysis documented in the *Traffic Impact Analysis for the Specific Plan for the Development of State Surplus Property from the California Institution for Men, Chino* (Kaku Associates, Inc., April 2003) (TIA) for the proposed College Park project (project). The project would develop 710 acres of land on the northern portion of the California Institution for Men, in Chino, California. The project site is located between Edison Avenue and Eucalyptus Avenue on the north, Cypress Avenue and Euclid Avenue on the east, Central Avenue on the west, and the CIM on the south. The TIA was prepared in conformity with the *Congestion Management Program for San Bernardino County* (2001 Update, December 5, 2001) (CMP) and the California Environmental Quality Act (CEQA) and was approved by San Bernardino Associated Governments (SANBAG) in April 2003. In all, the TIA analyzed 37 intersections and 20 one-way freeway segments in the weekday a.m. and p.m. peak hours and identified potential project impacts, proposed mitigation measures and fair-share contribution calculations. A draft Environmental Impact Report (draft EIR) for the project was released for comment on July 8, 2003 and several public meetings on the project have since been held.

The analysis documented in this report was undertaken to address additional local concerns that have been raised by members of the public and City of Chino (City) staff subsequent to the release of the draft EIR. These concerns include the identification of six additional local intersections for traffic impact analysis, cost estimates for proposed mitigation measures at two intersections, consistency of estimated average daily traffic (ADT) volume data presented in the TIA with current ADT volume data and the omission of a certain street from some figures in the TIA. Although Schaefer Avenue itself is a primary arterial, no intersections along Schaefer Avenue are CMP monitoring locations. In response to these additional concerns, traffic impact analysis has been conducted at the following intersections, numbered 38-43 to avoid confusion with the intersections analyzed in the TIA:

38. Chino Avenue & Euclid Avenue
39. Schaefer Avenue & Central Avenue
40. Schaefer Avenue & Mountain Avenue
41. Schaefer Avenue & San Antonio Avenue
42. Schaefer Avenue & Fern Avenue
43. Schaefer Avenue & Euclid Avenue

In addition, tables from the TIA summarizing intersection mitigation costs have been updated, as have several figures to conform to current ADT volume data and to include Schaefer Avenue, where applicable.

II. TRAFFIC IMPACT ANALYSIS

METHODOLOGY

The techniques used in this analysis were discussed with and confirmed by City staff and are similar to those employed in the TIA. This report summarizes the methodologies used in the analysis, a detailed description of which is provided in the TIA.

The "Operational Analysis" method from the *2000 Highway Capacity Manual* (HCM) (Transportation Research Board, 2000), which determines the average delay incurred per vehicle, was employed to perform the intersection level of service analysis. At signalized intersections, the average delay incurred by all vehicles is calculated. A detailed description of assumptions regarding cycle lengths, loss time, pedestrian crossing time, peak hour factors and saturation flow rates is provided in the TIA. At unsignalized (two-way stop controlled) intersections, the average delay incurred by vehicles making each minor movement, rather than for the intersection as a whole, is calculated. The intersection level of service is related to the average stopped delay as indicated in Table 1.

Existing traffic conditions at study intersections 38 through 43, shown in Figure 1, were established by collecting new traffic counts in the a.m. peak period (7 - 9 a.m.) and the p.m. peak period (4 - 6 p.m.) on May 26, 2004. This traffic count data is provided in Attachment A. Field observations were conducted to identify existing lane configuration, intersection controls and operating characteristics at each location. Figure 2 presents a generalized site plan for the proposed project and Figure 3 shows the project site in the context of the CMP network. Existing lane configurations are illustrated in Figure 4. Existing daily (ADT) and peak hour traffic volumes are illustrated in Figures 5 and 6, respectively. To supplement data used in the TIA on the existing average percentage and type of trucks in the traffic stream, a new truck classification count on Schaefer Avenue (east of Oaks Avenue) was conducted on May 21, 2004. This information was used in the conversion of trucks to passenger car equivalents (PCEs) and the resulting volumes (autos plus trucks as PCEs) were analyzed as existing conditions.

Total project traffic volumes for the future analysis scenarios (years 2012 and 2025) were based on trip generation estimates presented in the TIA. The distribution of project traffic was based on select zone analysis conducted by SCAG staff using the Comprehensive Transportation Model (CTP), and included both link volumes and intersection turning movement volumes. The estimates of project traffic volumes at study intersections 38 through 43 are based upon the forecast upstream and downstream project volumes at adjacent intersections. Figure 7 updates Figure 14 in the TIA and shows the generalized trip distribution of project traffic, as assigned by the model. As documented in the TIA, in 2025 the proposed project is expected to generate approximately 4,100 trips in the a.m. peak hour, 5,600 trips in the p.m. peak hour, and 53,900 daily weekday trips. In 2012, when the community college has not yet reached its maximum anticipated enrollment, the proposed project is expected to generate approximately 3,200 trips in the a.m. peak hour, 4,400 trips in the p.m. peak hour, and 42,300 daily weekday trips. Figures 8 through 11 show the assignment of peak hour and daily project-related trips to the six additional analyzed intersections and to the surrounding street network for the 2025 and 2012 analysis years, respectively. Figures 12 and 13 show the results of the CMP project traffic contribution test and update Figures 20A and 20B in the TIA to include Schaefer Avenue.

The year 2025 cumulative base peak hour directional segment volume forecasts were determined using the growth increment approach. In this approach, the existing turning movement volumes are used as the basis for future traffic volume forecasts. The existing volumes and the forecast increment between the 2004 and 2025 segment auto volumes (21/25 of the growth increment from 2000 to 2025) plus the forecast increment between the 1994 and 2020 segment truck volumes was determined for each intersection approach and departure leg and entered into the “B-Turns” spreadsheet program, consistent with the approach used in the TIA. Project traffic volumes, as assigned by the model, were then added to the year 2025 projected cumulative base traffic volumes. Interim year 2012 background traffic volumes were interpolated from the year 2025 traffic volumes, based on a portion of the future growth increment (8/21 of the increment from 2004 to 2025).

Estimated average daily traffic volumes presented in the TIA were based on the assumption, confirmed with agency staff, that p.m. peak hour volumes represent 9.24% of

daily volumes. These estimates have been updated to conform to current ADT volume data provided by City staff.

A significant traffic impact was identified if the project was shown to contribute measurable traffic to an intersection projected to operate at LOS E or F or with a V/C ratio above 1.00 under future cumulative conditions. Where an impact was projected, necessary mitigation measures were identified to restore traffic operations. The project share of new traffic on the impacted CMP facility was calculated, and the cost of improvements necessary to restore traffic operations to an acceptable level of service was estimated on the basis of standard units costs provided in the CMP. The proportion of the mitigation costs for which the proposed project would be responsible was based on the percentage of increased traffic between the existing and forecast future volumes attributable to the proposed project.

EXISTING CONDITIONS

Table 2 shows the existing control at each study intersection and the calculated levels of service in the a.m. and p.m. peak hours. Detailed level-of-service worksheets are provided in Attachment B. As shown in Table 2, each of the six additional analyzed intersections currently operates at an acceptable LOS (D or better) during the a.m. and p.m. peak hours.

FUTURE ROADWAY IMPROVEMENTS

The City of Chino is currently improving study intersection 38 (Chino Avenue & Euclid Avenue) and study intersection 42 (Schaefer Avenue & Fern Avenue). Subsequent to the completion of these improvements, Fern Avenue will be opened between Edison Avenue and Schaefer Avenue. The eastbound approach to intersection of Chino Avenue & Euclid Avenue is being widened to provide separate left-turn, through and right-turn lanes. The intersection of Schaefer Avenue & Fern Avenue is being improved to provide a traffic signal and a left-turn lane, a through lane and a shared through/right-turn lane on the southbound, northbound and westbound approaches.

INTERIM YEAR 2012 WITHOUT PROJECT CONDITIONS

The a.m. and p.m. peak hour volumes for interim year 2012 without project traffic conditions were determined using the growth interpolation process as described above and in the TIA. These volumes are presented in Figure 14. Estimated ADT volumes are presented in Figure 15.

The interim year 2012 without project traffic volumes were analyzed, and the delay and level of service calculations for the study area roadway network are shown in Table 3. Delay values shown are based on the existing intersection geometry except at Intersections 38 and 42, as noted above. Level of service worksheets are presented in Attachment B. As shown in Table 3, each of the six additional analyzed intersections is projected to continue operating acceptably in the interim year 2012 without project traffic.

INTERIM YEAR 2012 WITH PROJECT CONDITIONS

The a.m. and p.m. peak hour volumes for interim year 2012 with project traffic conditions were determined using the growth interpolation process as described above and the TIA and the addition of project traffic as assigned by the model. These volumes are presented in Figure 16. Estimated ADT volumes are presented in Figure 17.

The interim year 2012 with project traffic volumes were analyzed, and the delay and level of service calculations for the study area roadway network are shown in Table 4. Delay values shown are based on the existing intersection geometry except at Intersections 38 and 42, as noted above. Level of service worksheets are presented in Attachment B. In the Interim Year 2012 with project conditions, each of the six additional analyzed intersections is projected to continue operating acceptably.

YEAR 2025 WITHOUT PROJECT CONDITIONS

The a.m. and p.m. peak hour volumes for year 2025 without project traffic conditions were determined using the growth increment approach as described above and in the TIA. These volumes are presented in Figure 18. Estimated ADT volumes are presented in Figure 19.

The interim year 2025 without project traffic volumes were analyzed, and the delay and level of service calculations for the study area roadway network are shown in Table 5. Delay values shown are based on the existing intersection geometry except at Intersections 38 and 42, as noted above. Level of service worksheets are presented in Attachment B.

In the interim year 2025 without project conditions, the following three of the six additional analyzed intersections are projected to operate at LOS E or LOS F (based either on delay or a V/C in excess of 1.00) during one or both peak hours and are therefore deficient according to City of Chino criteria:

38. Chino Avenue & Euclid Avenue
39. Schaefer Avenue & Central Avenue
43. Schaefer Avenue & Euclid Avenue

YEAR 2025 WITH PROJECT CONDITIONS

The a.m. and p.m. peak hour volumes for year 2025 with project traffic conditions were determined using the growth increment approach as described above and in the TIA and the addition of project traffic as assigned by the model. These volumes are presented in Figure 20. Estimated ADT volumes are presented in Figure 21.

The interim year 2025 with project traffic volumes were analyzed, and the delay and level of service calculations for the study area roadway network are shown in Table 6. Delay values shown are based on the existing intersection geometry except at Intersections 38 and 42, as noted above. Level of service worksheets are presented in Attachment B.

In the interim year 2025 with project conditions, three of the six additional analyzed intersections are projected to operate at LOS E or LOS F (based either on delay or a V/C in excess of 1.00) during one or both peak hours and are therefore deficient according to City of Chino criteria:

38. Chino Avenue & Euclid Avenue
39. Schaefer Avenue & Central Avenue
43. Schaefer Avenue & Euclid Avenue

The interim year 2025 operations analyses with the project and with improvements are summarized in Table 7. Improvements presented in the table include both funded improvements (at Intersections 38 and 42) and additional improvements necessary to achieve acceptable levels of service and V/C ratios during the peak hours. The following additional intersection improvements are needed for 2025 with project conditions:

38. Euclid Avenue & Chino Avenue
    - Third SB through/right-turn lane
    - WB left-turn lane
    - Third NB through/right-turn lane
    - Second EB through/right-turn lane

39. Central Avenue & Schaefer Avenue
    - NB right-turn lane
    - EB right-turn lane

43. Euclid Avenue & Schaefer Avenue
    - Third SB through/right-turn lane
    - WB left-turn lane
    - Third NB through lane
    - EB Left Turn Lane

As shown in Table 7, the study area intersections are projected to operate at LOS D or better with V/C ratios of less than 1.00 during the peak hours with the identified improvements. Level of service worksheets are presented in Appendix B.

III. REQUIRED IMPROVEMENTS AND COSTS

Improvements that will eliminate anticipated roadway operational deficiencies at the six additional analyzed intersections have been identified for interim year 2012 and for year 2025 traffic conditions. The improvements were determined through the operations analysis described above.

The approximate costs for the year 2025 were estimated using cost guidelines in the 2001 CMP document and included in the TIA. The needed improvements and resulting costs are summarized in Table 8 for intersection and roadway links. This table updates Table 14 in the TIA to add the estimated cost of widening the westbound and eastbound freeway on-ramps at Mountain Avenue & SR-60 (Intersections 5 and 6) as well as additional costs at the Intersections 38, 39 and 42. The total cost of the additional needed and currently unfunded roadway improvements is $43,284,000. The total cost of the additional needed freeway improvements on the segments studies is $41,170,000, as documented in the TIA.

IV. PROJECT CONTRIBUTION AND FAIR SHARE COSTS

Project fair share contributions were calculated for the year 2025 identified improvements. The project share of the cost was based on the proportion of project peak hour traffic contributed to the improvement location relative to the total new peak hour 2025 traffic volumes. Calculations were made for both the a.m. and the p.m. peak hours, and the maximum project contribution was identified.

Tables 9, 10 and 11 update Tables 16A, 16B, and 16C in the TIA to present a summary of the updated improvement costs and the project cost shares at each of the year 2025 improvement locations. The intersection fair share cost calculations shown in Table 11 are based on the higher of the a.m. and p.m. peak hour contributions. As shown in Table 11, the project's fair share of identified intersection and roadway link costs is $7,598,259. The project's fair share of identified freeway segment costs is $1,296,653, as shown in Table 17C of the TIA. The overall calculated project fair share contribution for both intersection and freeway improvements is $8,894,912.

V. SUMMARY AND CONCLUSIONS

This report documents additional analysis that was undertaken to supplement the *Traffic Impact Analysis for the Specific Plan for the Development of State Surplus Property from the California Institution For Men, Chino* (Kaku Associates, Inc., April 2003). The following summarizes the key findings:

- Analysis of the existing conditions showed that each of the six additional analyzed intersections is currently operating at acceptable levels of service in either the a.m. or p.m. peak hours.

- Analysis of future traffic conditions (year 2025 and interim year 2012) was conducted using the methodologies used in the TIA analysis and fully described in the TIA.

- Analysis of the proposed project showed that the project would contribute to forecast operating deficiencies at three of the six additional analyzed intersections in the year 2025. No deficiencies are projected at the six additional analyzed intersections in the interim year 2012 with the addition of project traffic.

- Improvements were identified at each location that would result in acceptable operating conditions (level of service D or better at intersections with a V/C less than 1.00) in year 2025.

- Preliminary cost estimates were prepared for each improvement needed in the year 2025. Based on the total forecast traffic growth at each location and the portion of that growth that can be attributed to traffic related to the proposed project, the project's "fair share" contribution to these improvements is estimated at a total of $8,894,912, including $7,598,259 for intersection improvements and $1,296,653 for freeway improvements.

- The necessary off-site improvements are described in previous sections of this report and in the TIA. The project should contribute toward the cost of necessary improvements on a proportional fair-share basis.

- To ensure that study area roadway improvements are provided in conjunction with each phase of the proposed development as they occur, traffic impact study reports should be required with the submittal of tentative tract maps and/or specific development proposals. New traffic count data should be obtained and evaluated as individual projects are constructed.

FIGURES

1 Study Area and Analyzed Intersections (updates TIA Figure 1)
2 Generalized Site Plan (same as TIA Figure 2)
3 CMP Network and Study Area Limits (updates TIA Figure 3)
4 Existing (2002) Lane Configurations (similar to TIA Figure 4)
5 Existing Average Daily Traffic (ADT) Volumes (updates TIA Figure 5)
6 Existing AM & PM Peak Hour Turning Movement Volumes (similar to TIA Figures 6A & 6B)
7 Generalized Project Trip Distribution (updates TIA Figure 14)
8 2025 Project Trip Assignment – AM Peak Hour (similar to TIA Figures 15A & 15B)
9 Project Average Daily Traffic (ADT) Volumes – 2025 (updates TIA Figure 16)
10 2012 Project Trip Assignment – AM & PM Peak Hours (similar to TIA Figures 17 & 18)
11 Project Average Daily Traffic (ADT) Volumes – 2012 (updates TIA Figure 19)
12 CMP Project Traffic Contribution Test Volumes - AM (updates TIA Figure 20A)
13 CMP Project Traffic Contribution Test Volumes - PM (updates TIA Figure 20B)
14 Interim Year (2012) without Project AM & PM Peak Hour Turning Movement Volumes (similar to TIA Figures 21A & 21B)
15 Interim Year (2012) without Project Average Daily Traffic (ADT) Volumes (updates TIA Figure 22)
16 Interim Year (2012) with Project AM & PM Peak Hour Turning Movement Volumes (similar to TIA Figures 23A and 23B)
17 Interim Year (2012) with Project Average Daily Traffic (ADT) Volumes (updates TIA Figure 24)
18 Year 2025 without Project AM & PM Peak Hour Turning Movement Volumes (similar to TIA Figure 25A & 25B)
19 Year 2025 without Project Average Daily Traffic (ADT) Volumes (updates TIA Figure 26)
20 Year 2025 with Project AM & PM Peak Hour Turning Movement Volumes (similar to TIA Figures 27A and 27B)
21 Year 2025 with Project Average Daily Traffic (ADT) Volumes (updates TIA Figure 28)

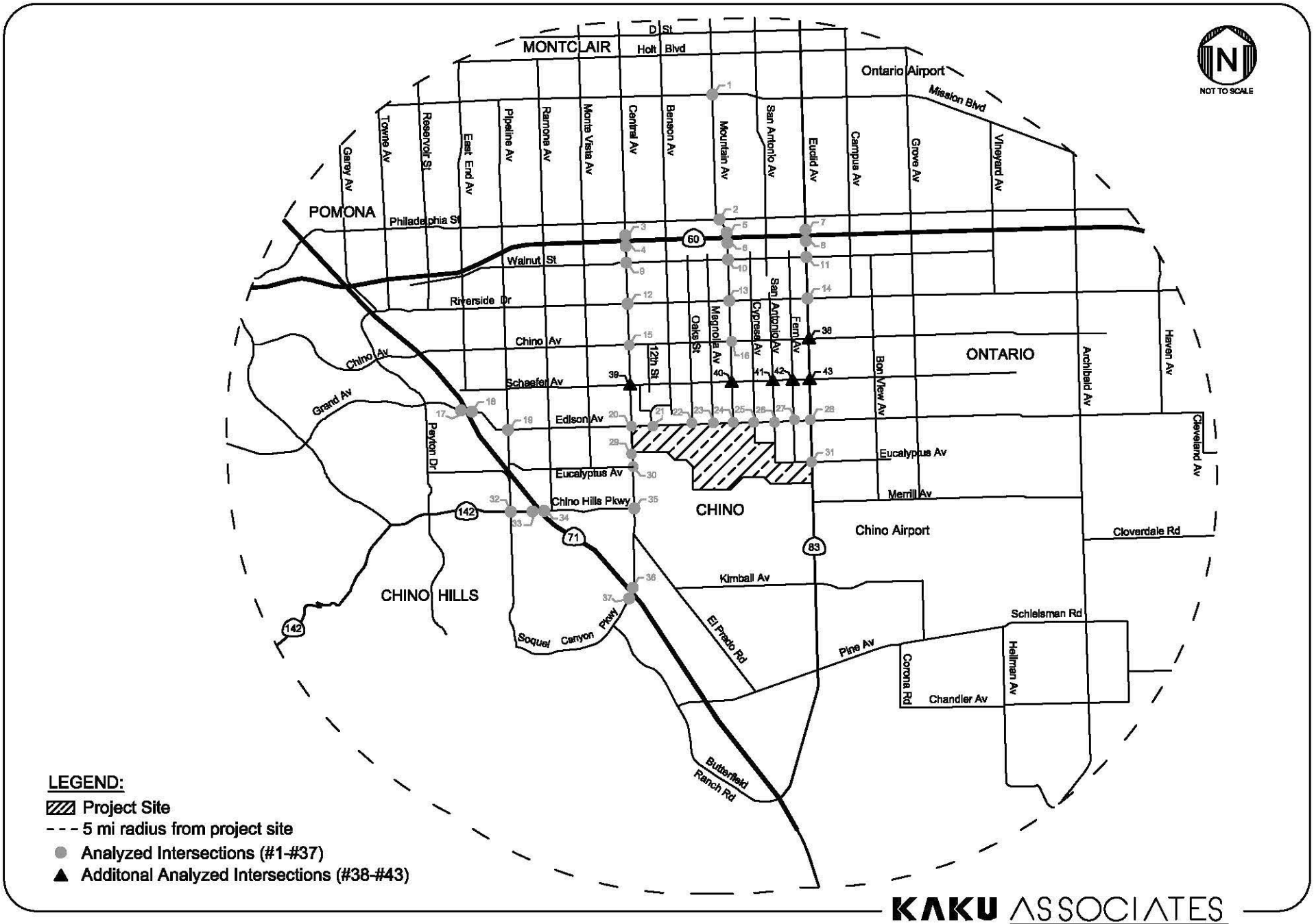

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FIGURE 1

STUDY AREA AND ANALYZED INTERSECTIONS

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FIGURE 2
GENERALIZED SITE PLAN

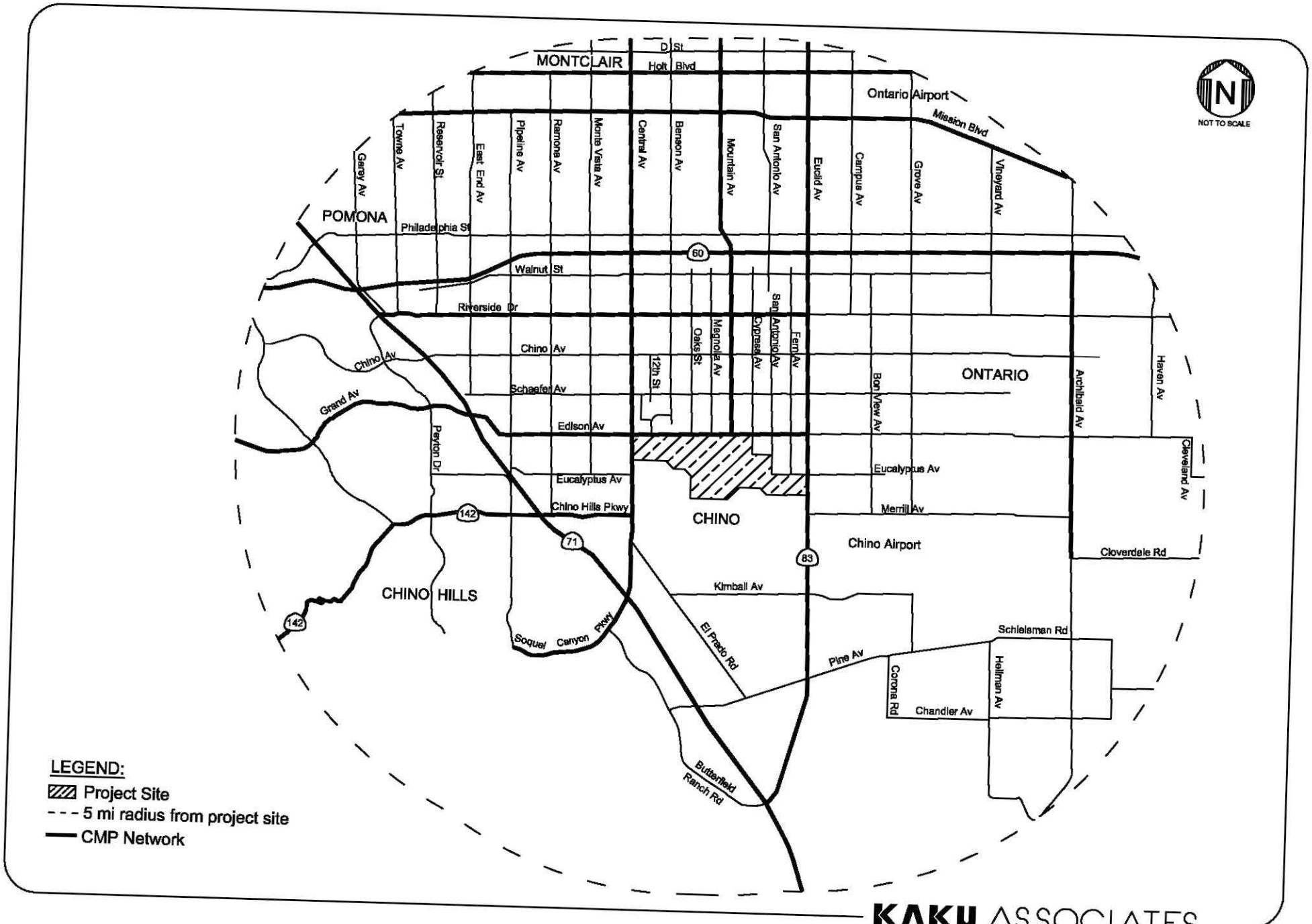

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FIGURE 3

CMP NETWORK AND STUDY AREA LIMITS

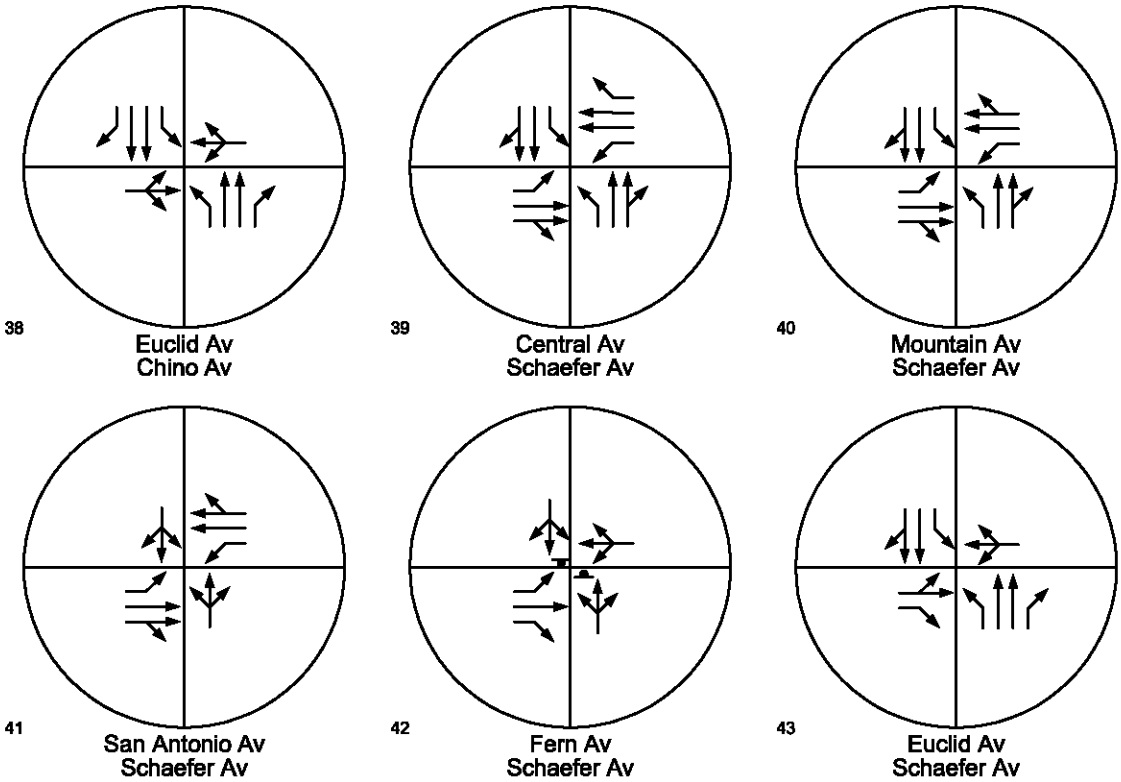

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FIGURE 4

EXISTING LANE CONFIGURATIONS

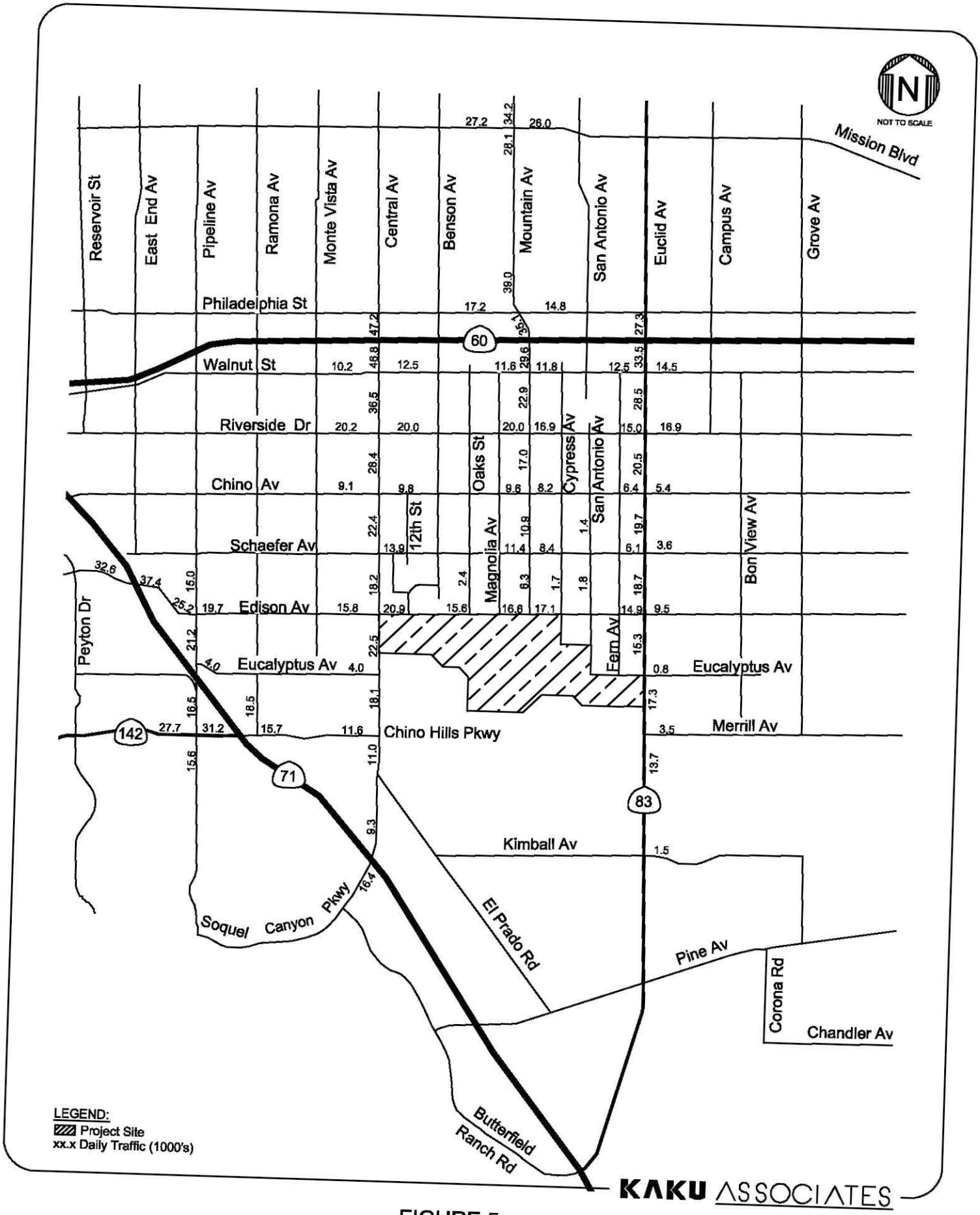
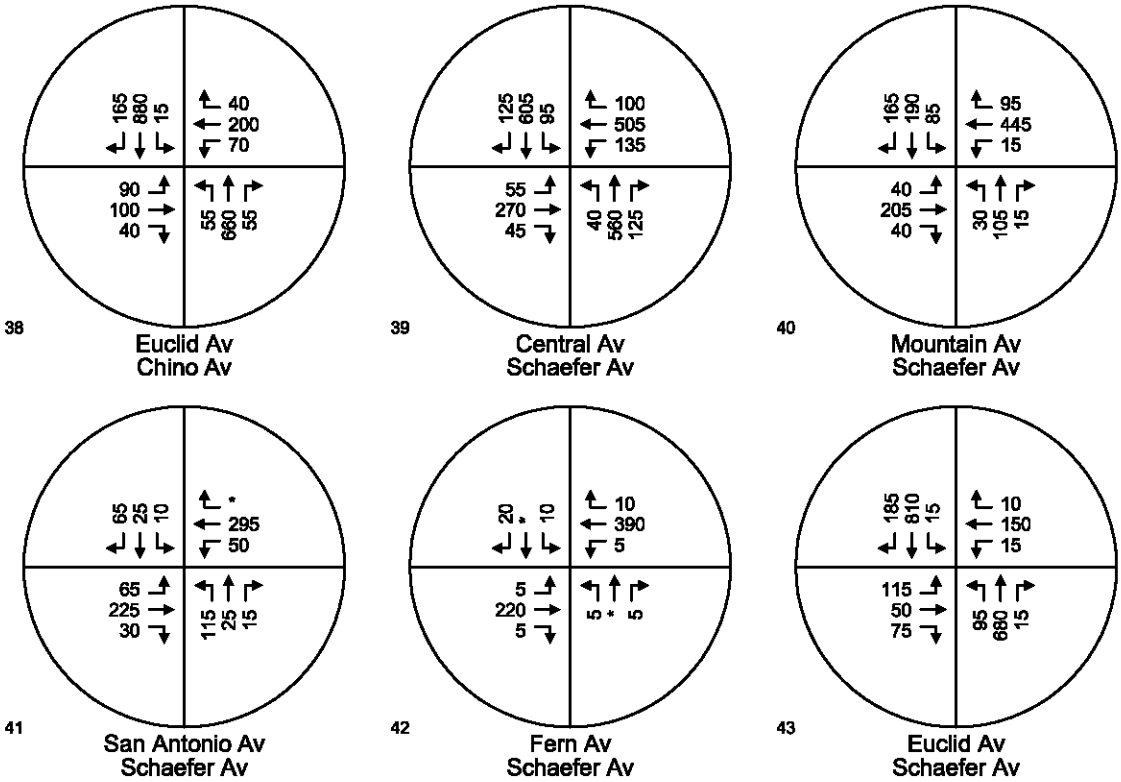
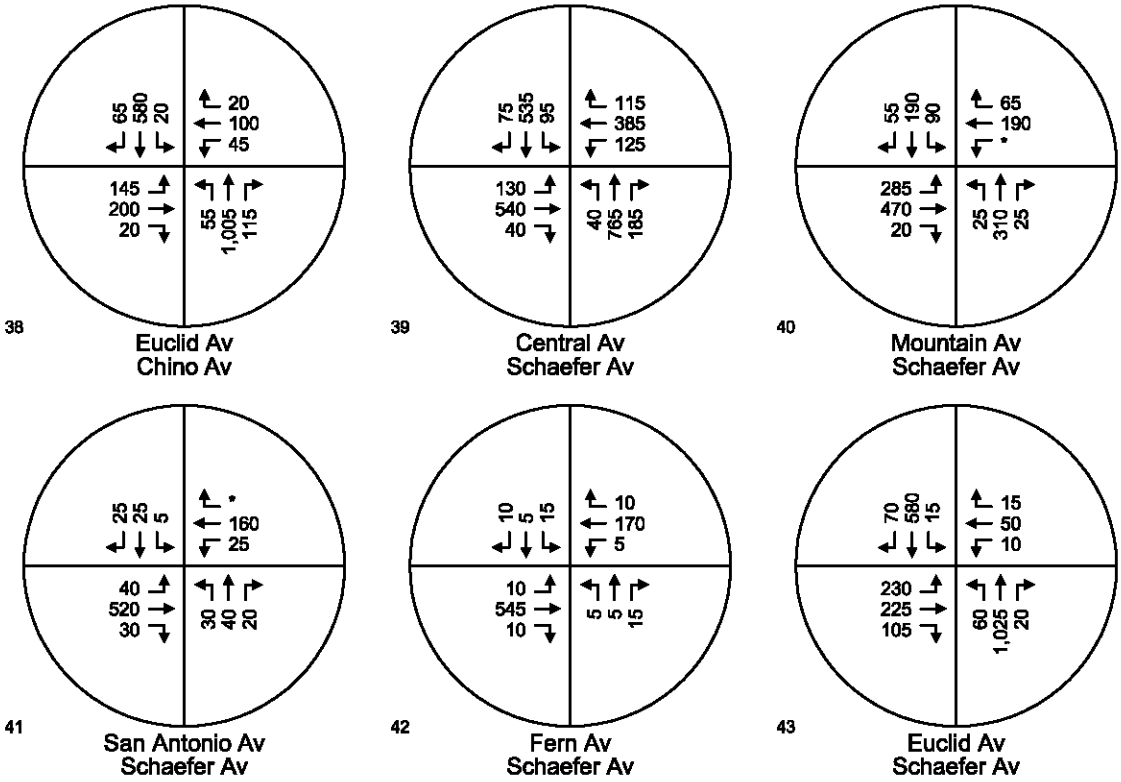


FIGURE 5
EXISTING AVERAGE DAILY TRAFFIC (ADT) VOLUMES



AM Peak Hour



PM Peak Hour

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FIGURE 6

EXISTING AM & PM PEAK HOUR TURNING MOVEMENT VOLUMES

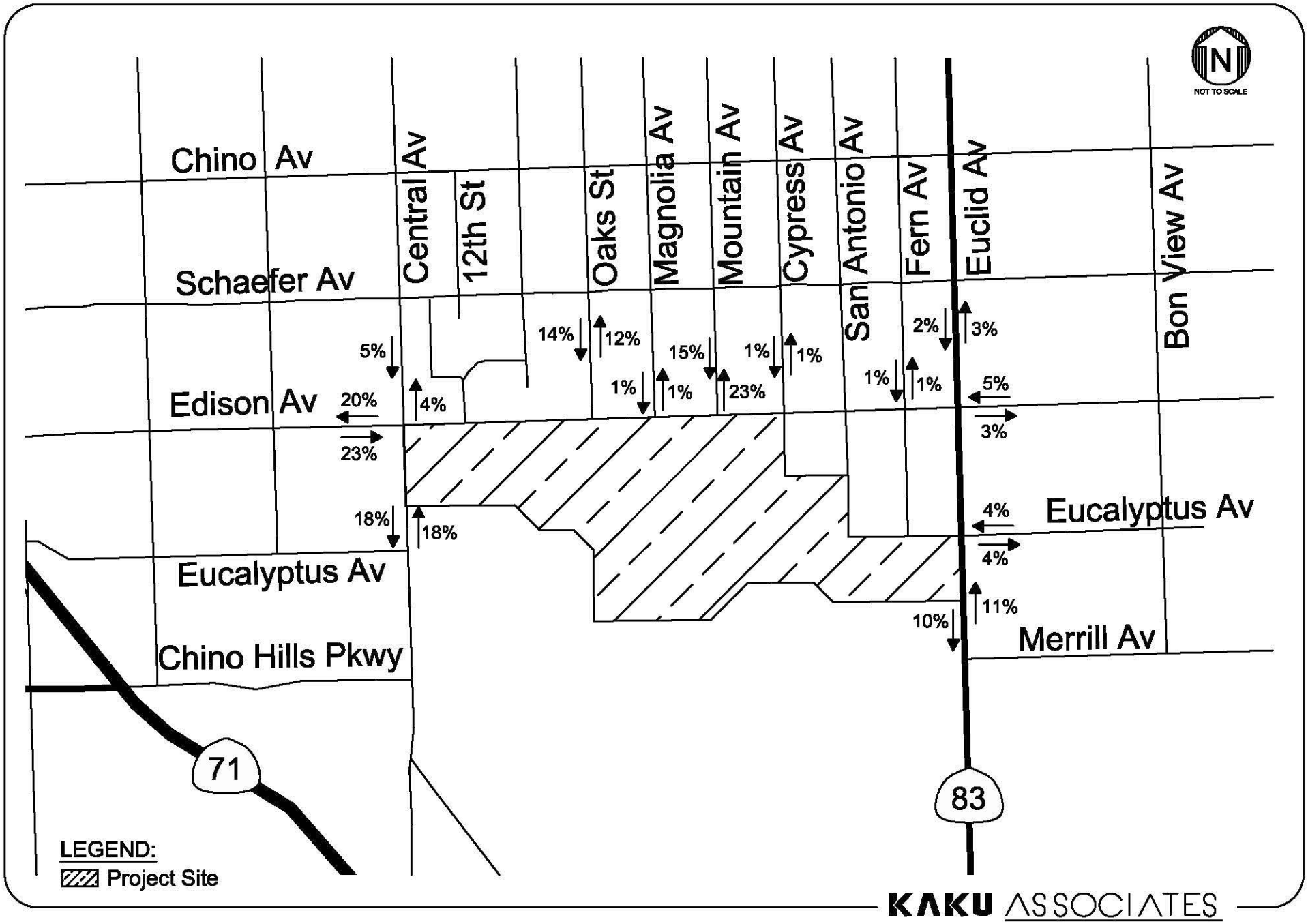

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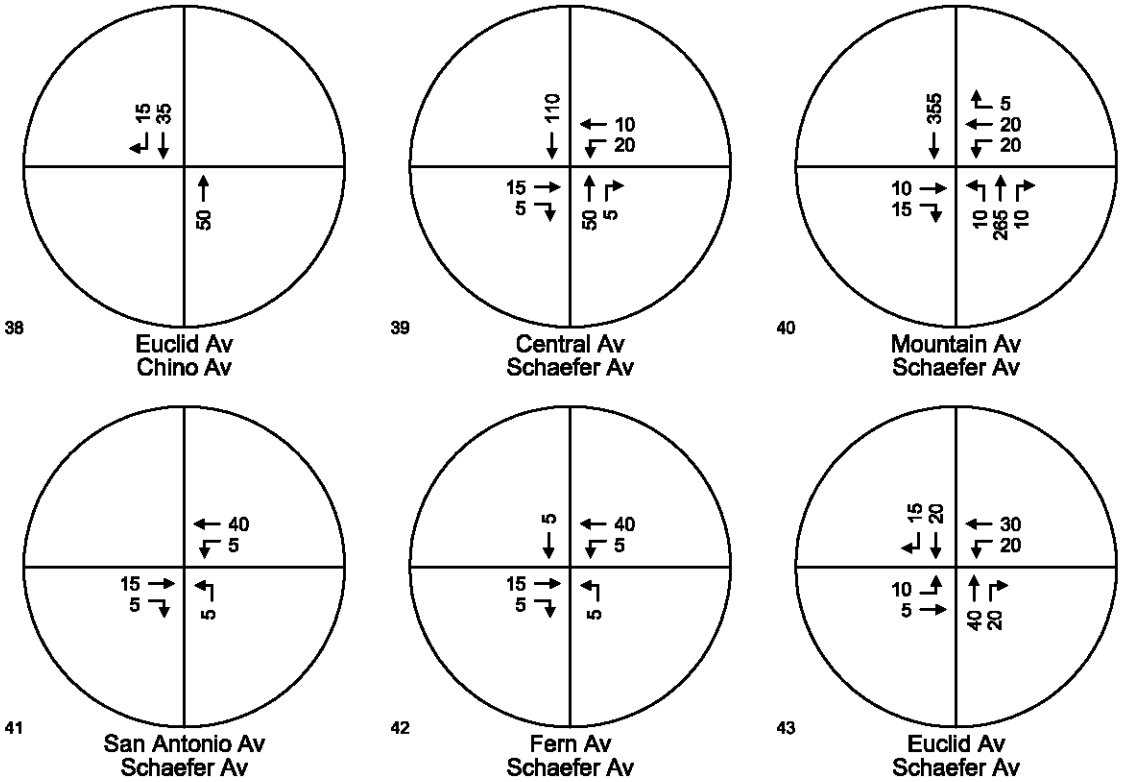
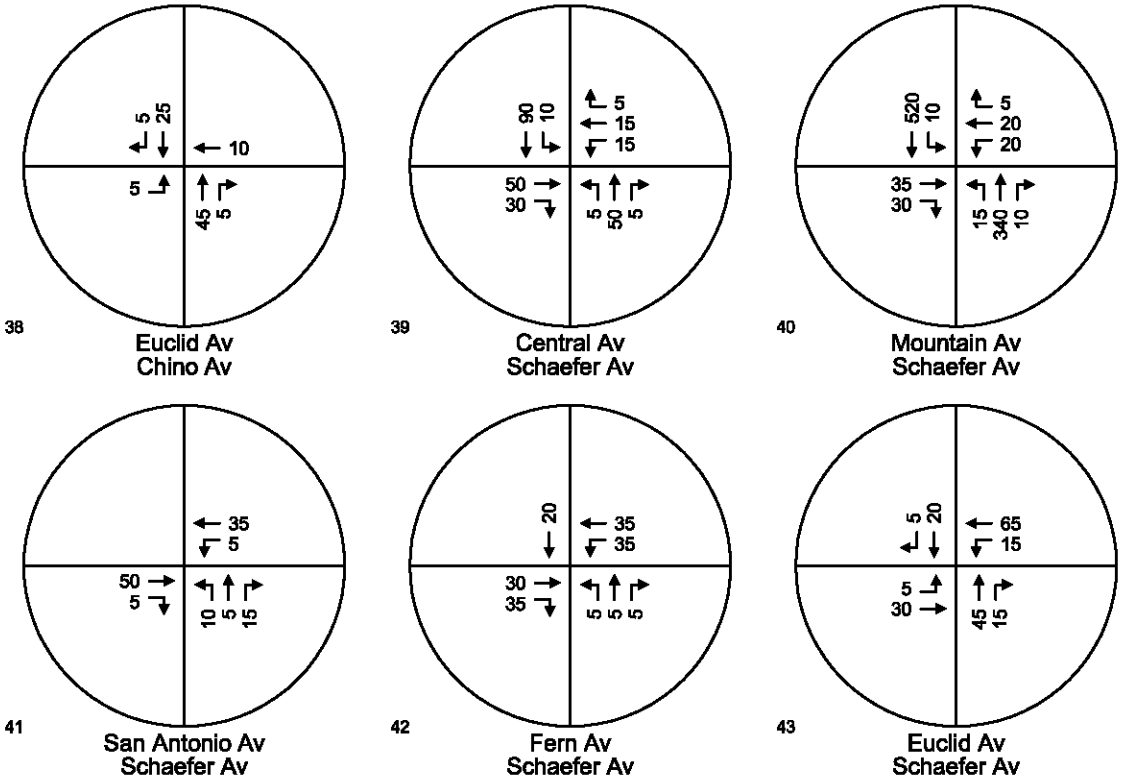
FIGURE 7

GENERALIZED PROJECT TRIP DISTRIBUTION



AM Peak Hour



PM Peak Hour

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FIGURE 8

2025 PROJECT TRIP ASSIGNMENT

AM & PM PEAK HOURS

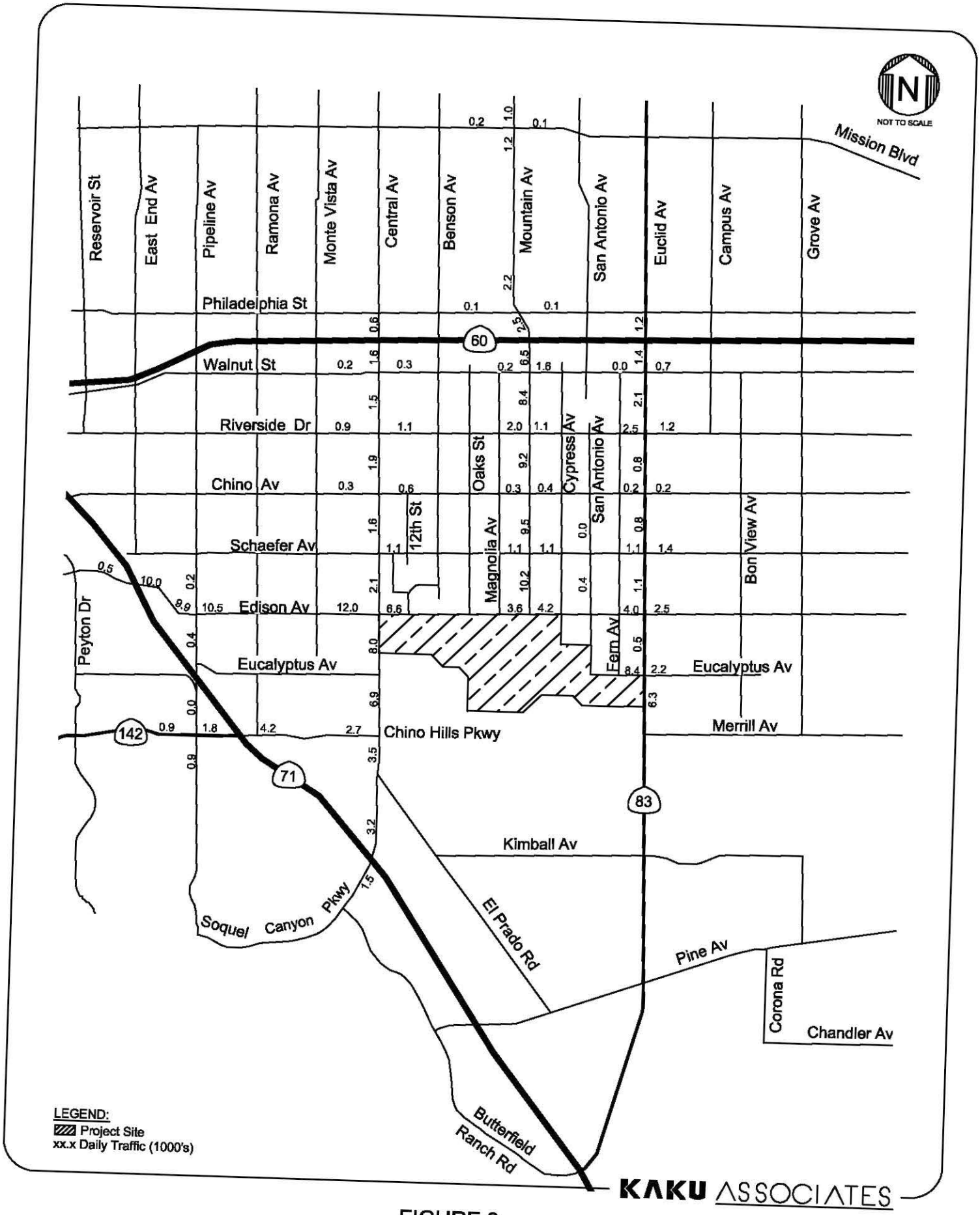
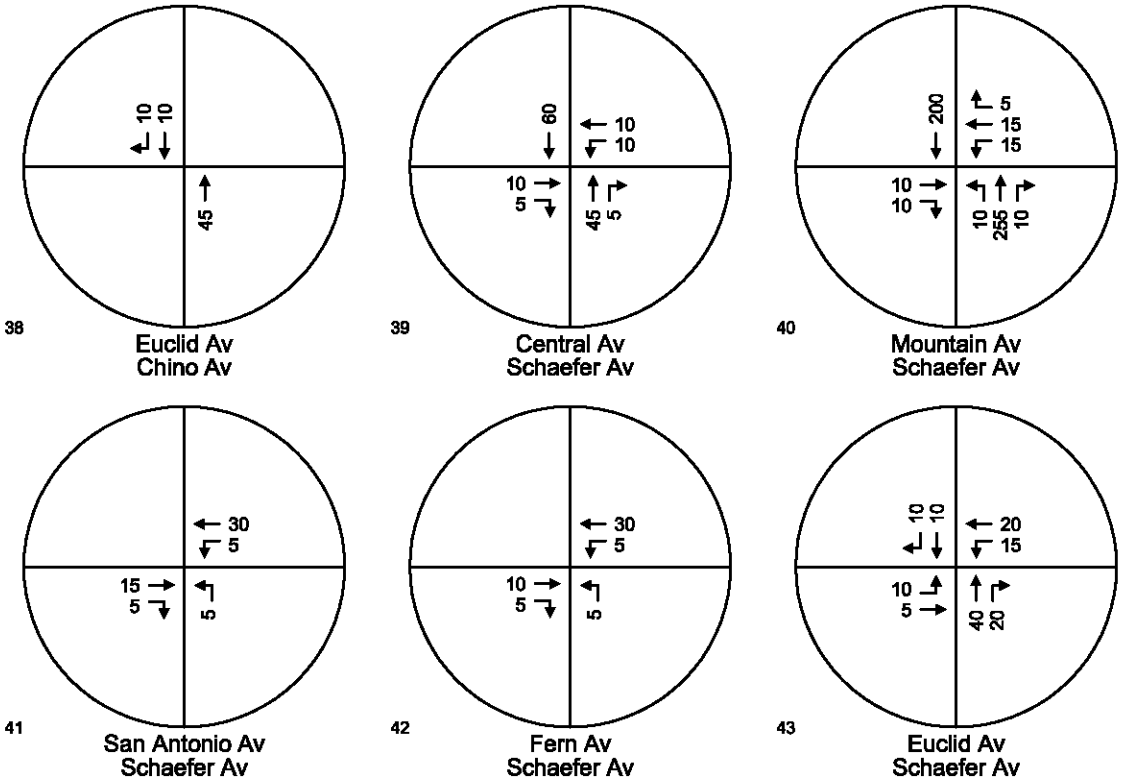
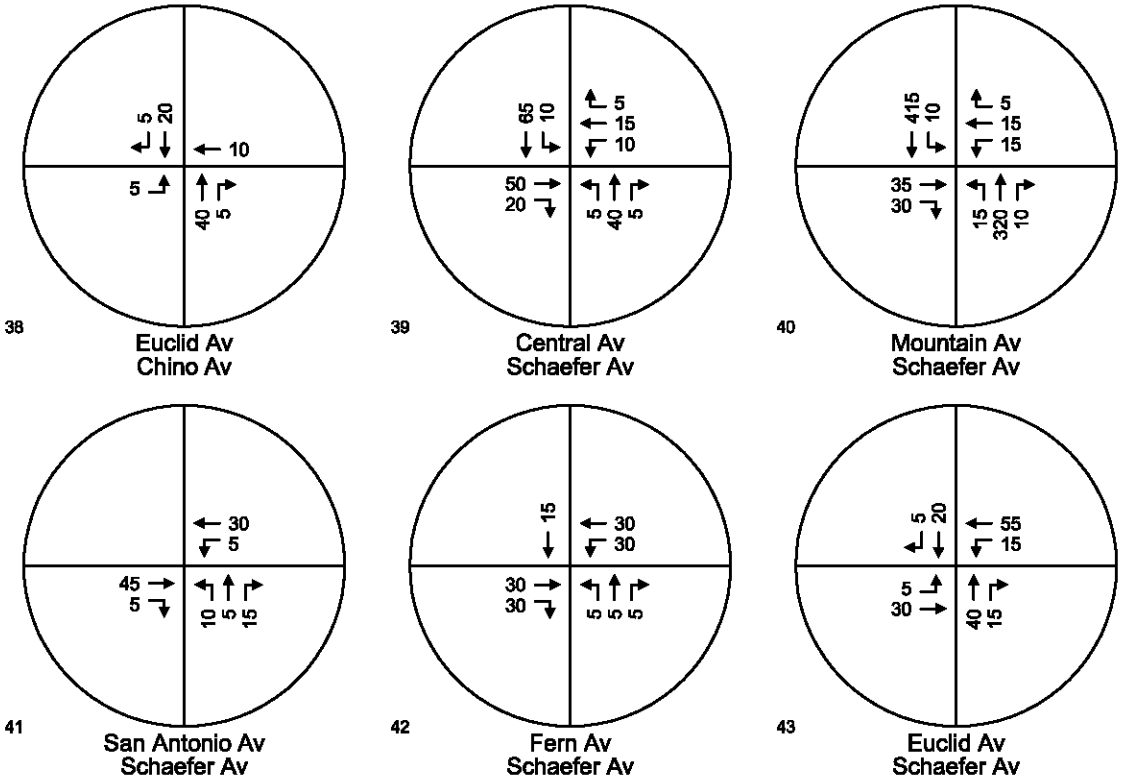


FIGURE 9
PROJECT AVERAGE DAILY TRAFFIC (ADT) VOLUMES - 2025



AM Peak Hour



PM Peak Hour

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FIGURE 10

2012 PROJECT TRIP ASSIGNMENT

AM & PM PEAK HOURS

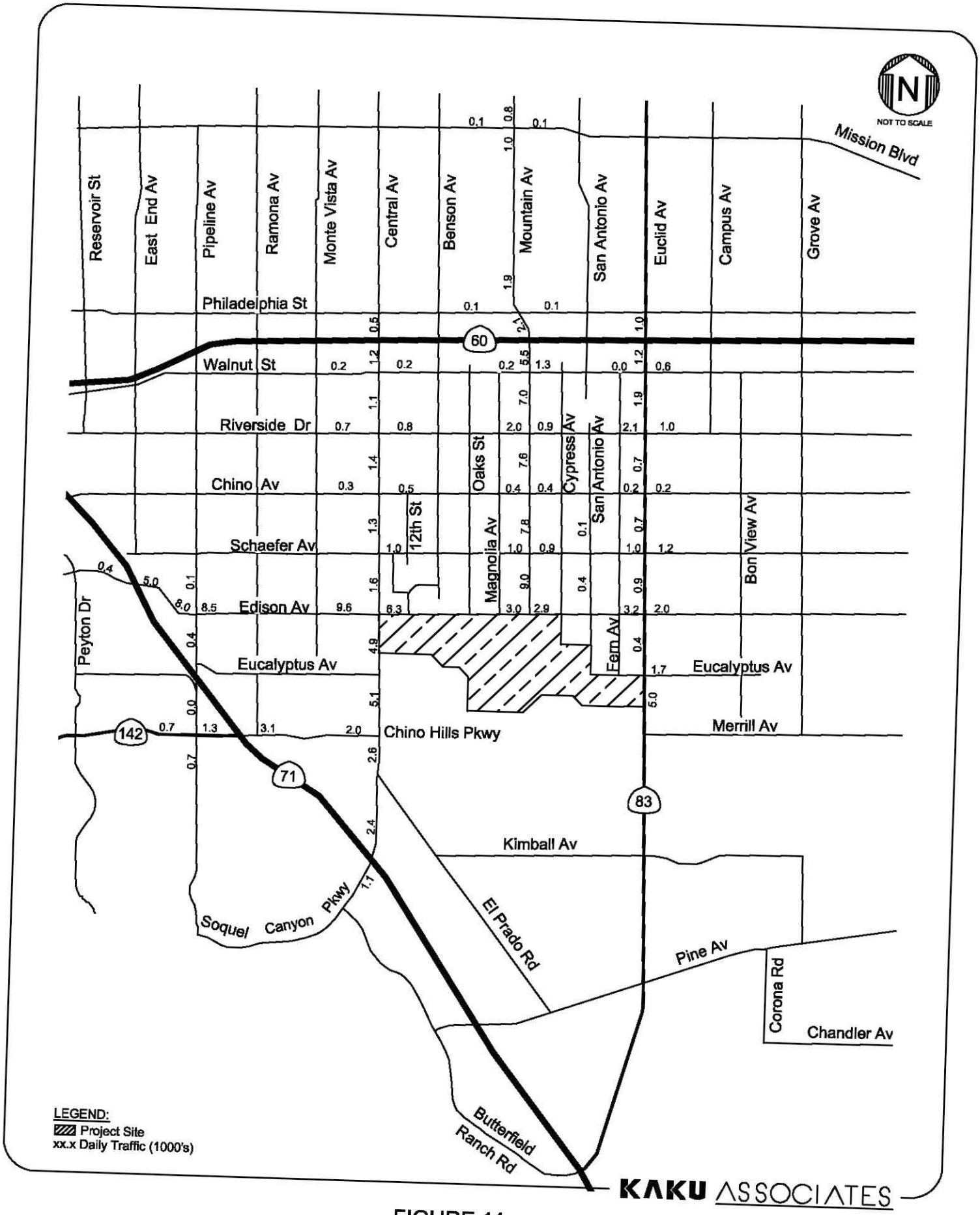

FIGURE 11
PROJECT AVERAGE DAILY TRAFFIC (ADT) VOLUMES - 2012

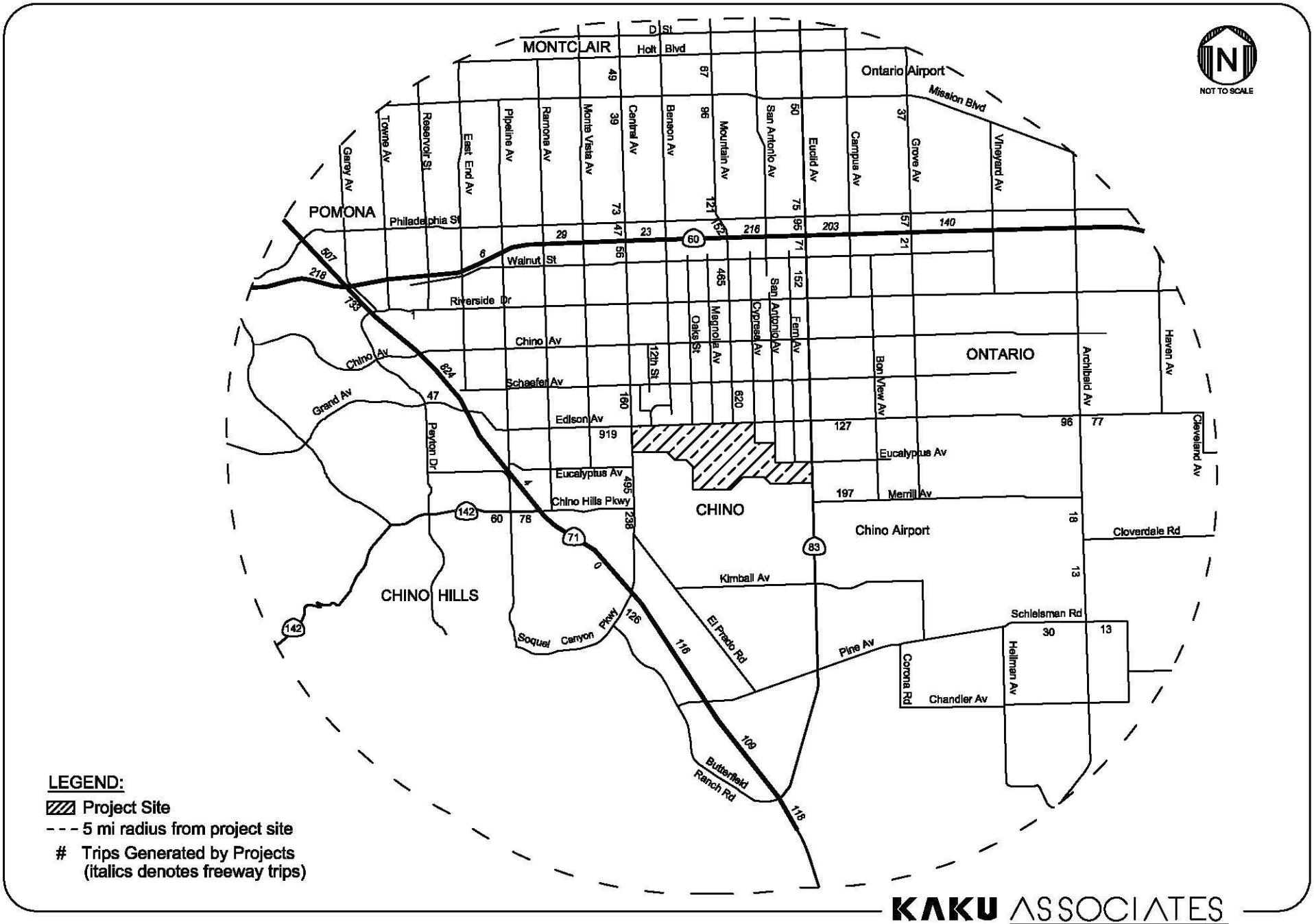

FIGURE 12

CMP PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES - AM

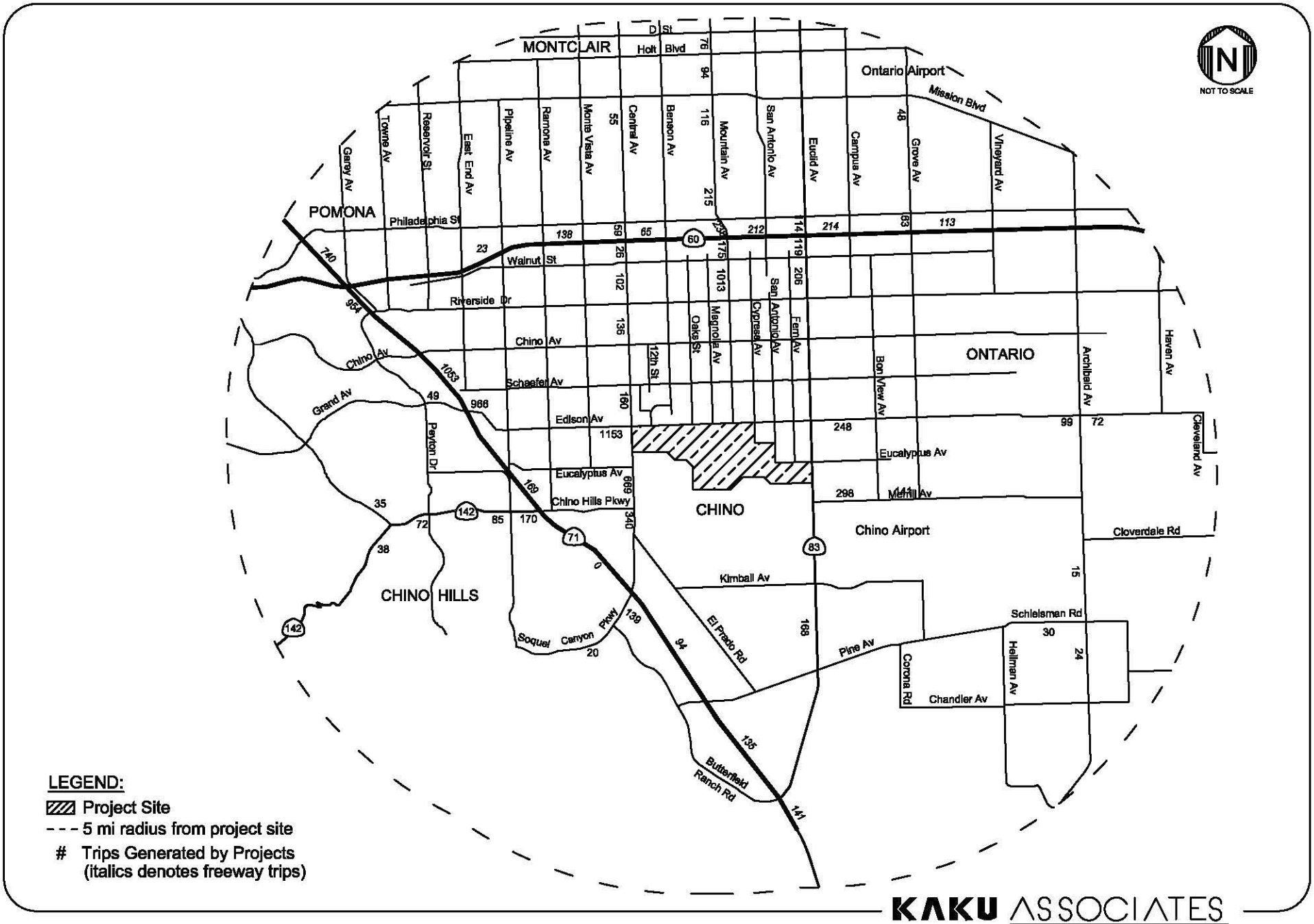

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FIGURE 13

CMP PROJECT TRAFFIC CONTRIBUTION TEST VOLUMES - PM

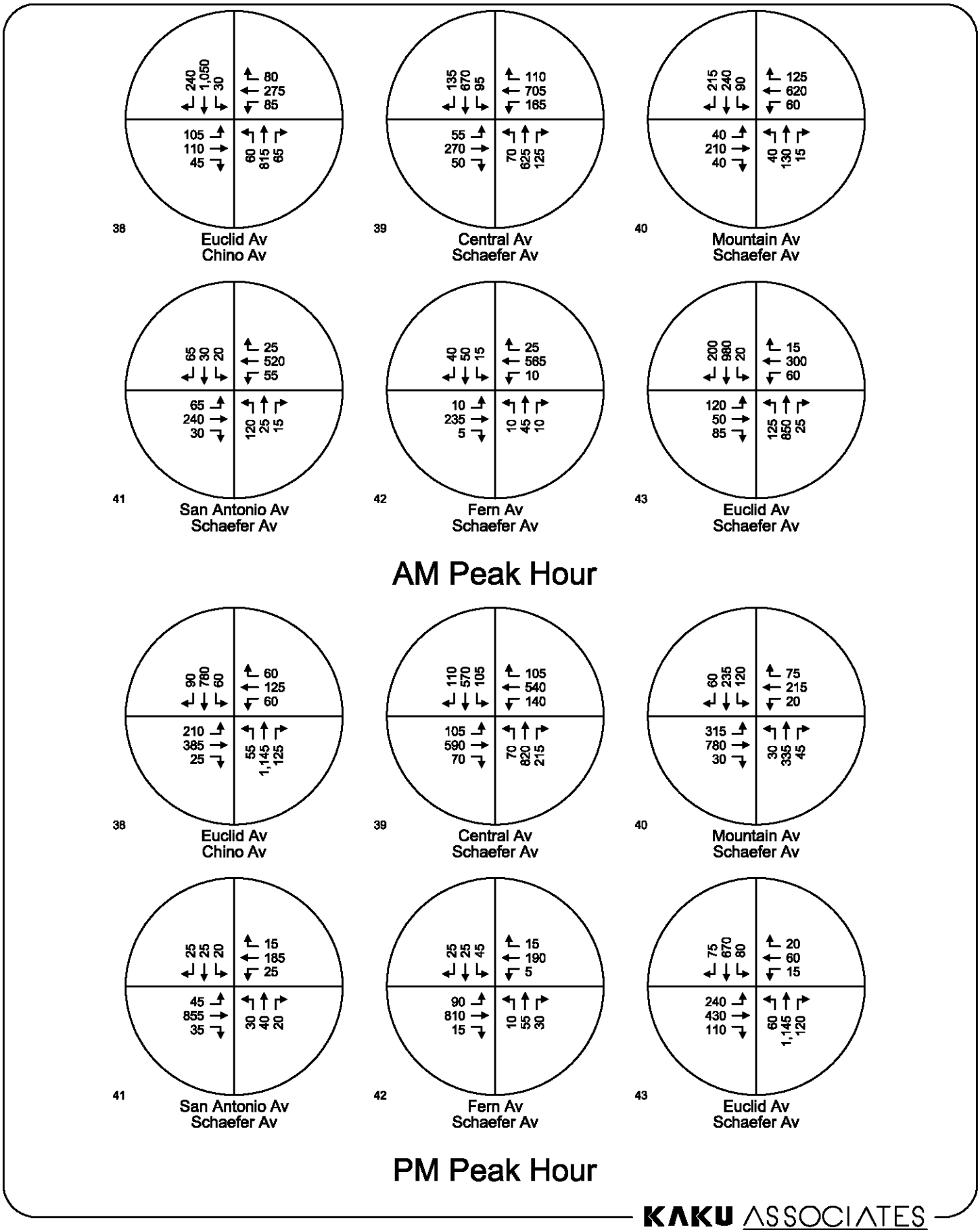


FIGURE 14

INTERIM YEAR (2012) WITHOUT PROJECT

AM & PM PEAK HOUR TURNING MOVEMENT VOLUMES

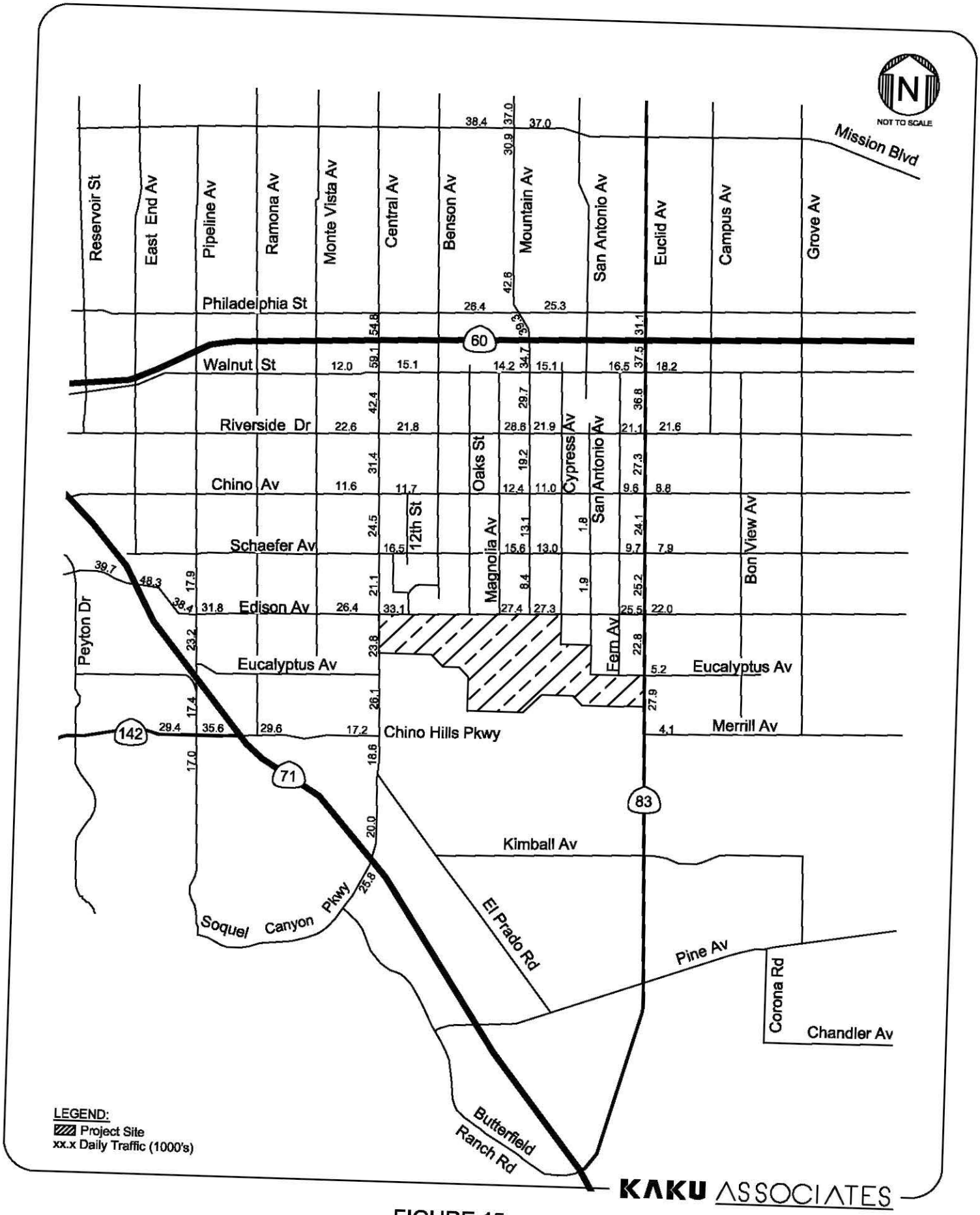
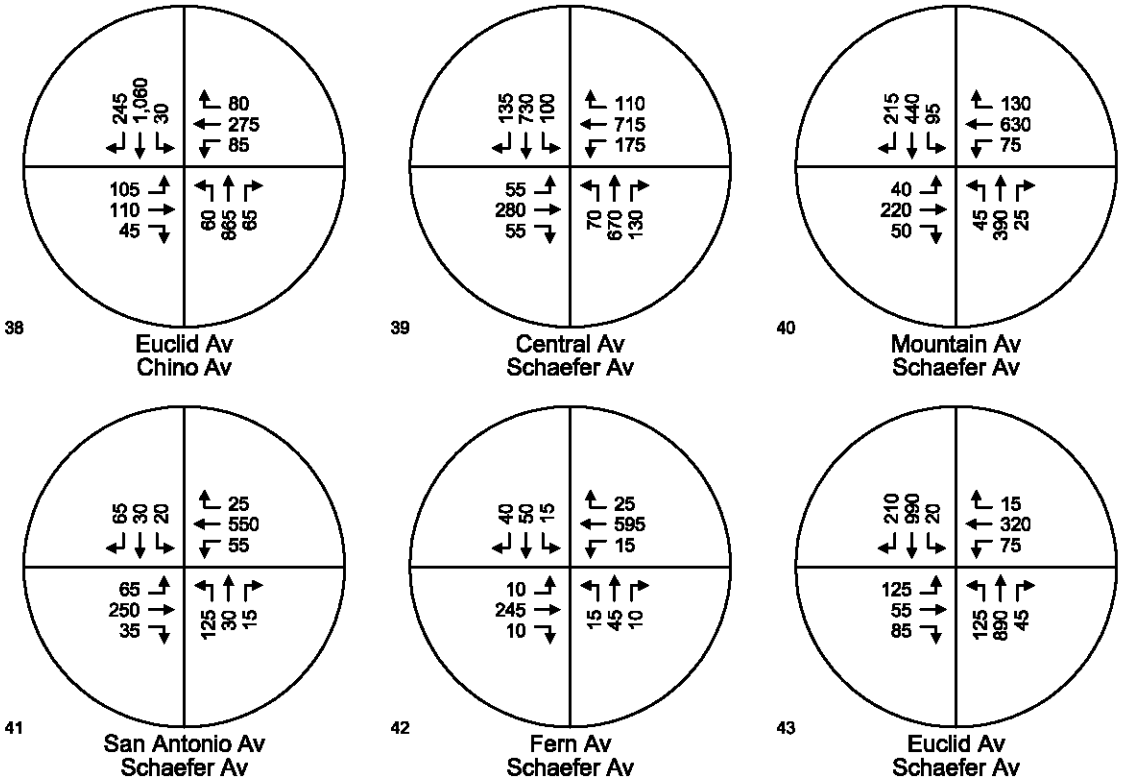
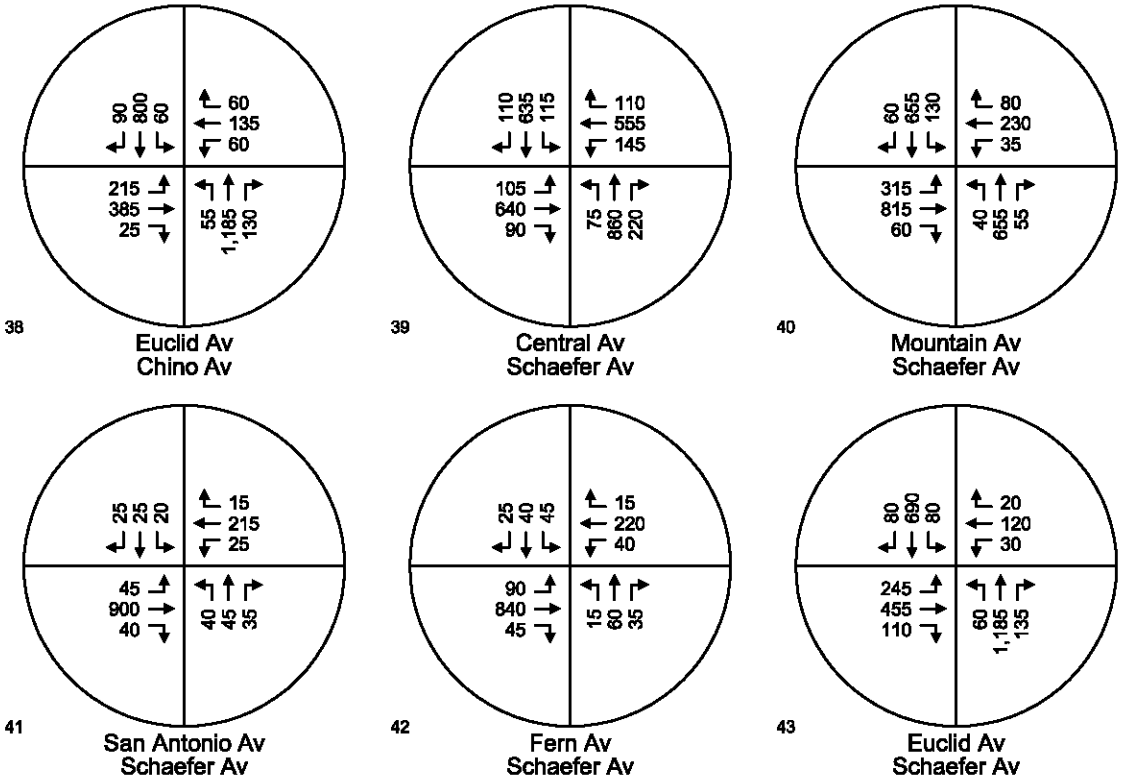


FIGURE 15
INTERIM YEAR (2012) WITHOUT PROJECT
AVERAGE DAILY TRAFFIC (ADT) VOLUMES



AM Peak Hour



PM Peak Hour

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FIGURE 16

INTERIM YEAR (2012) WITH PROJECT

AM & PM PEAK HOUR TURNING MOVEMENT VOLUMES

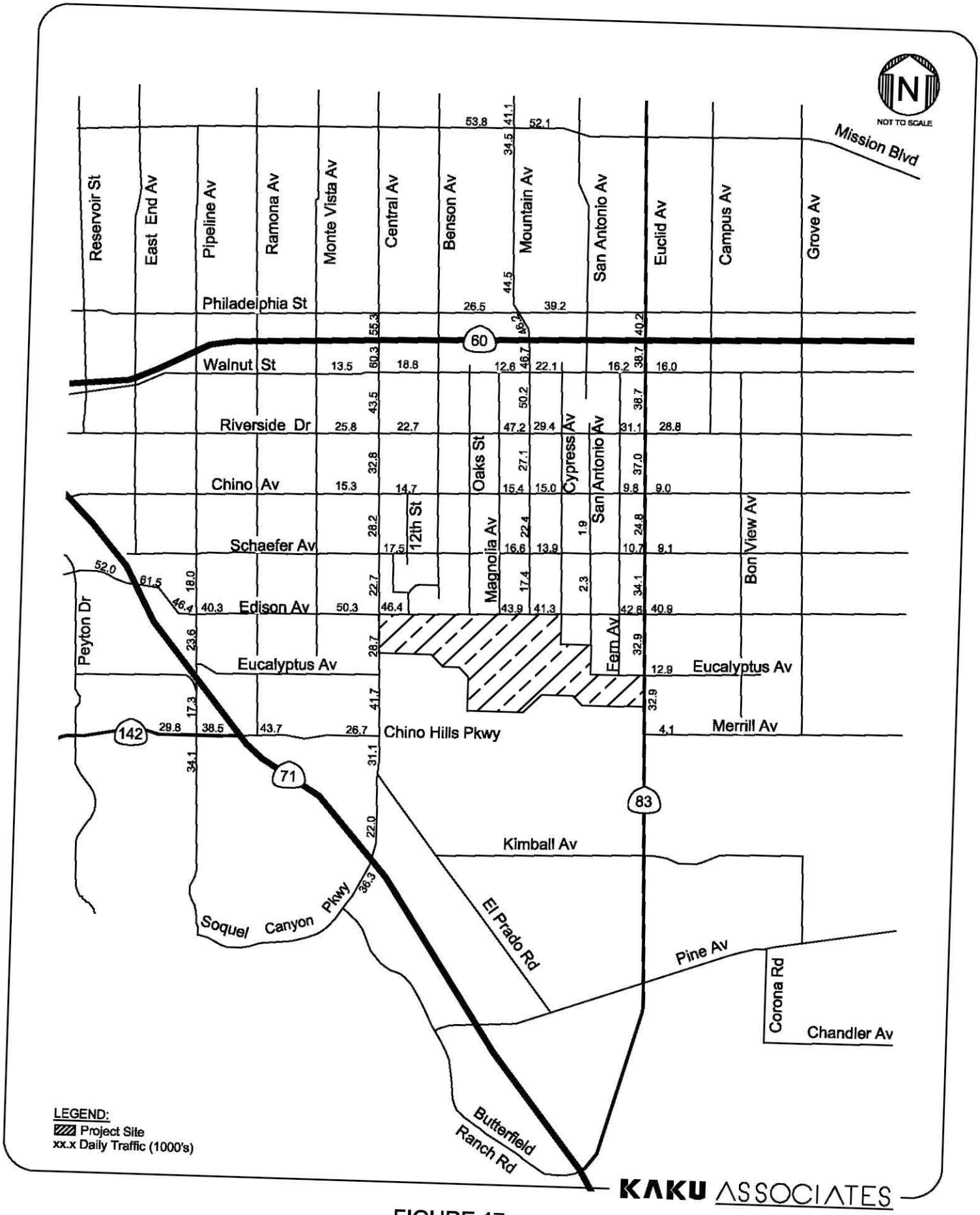
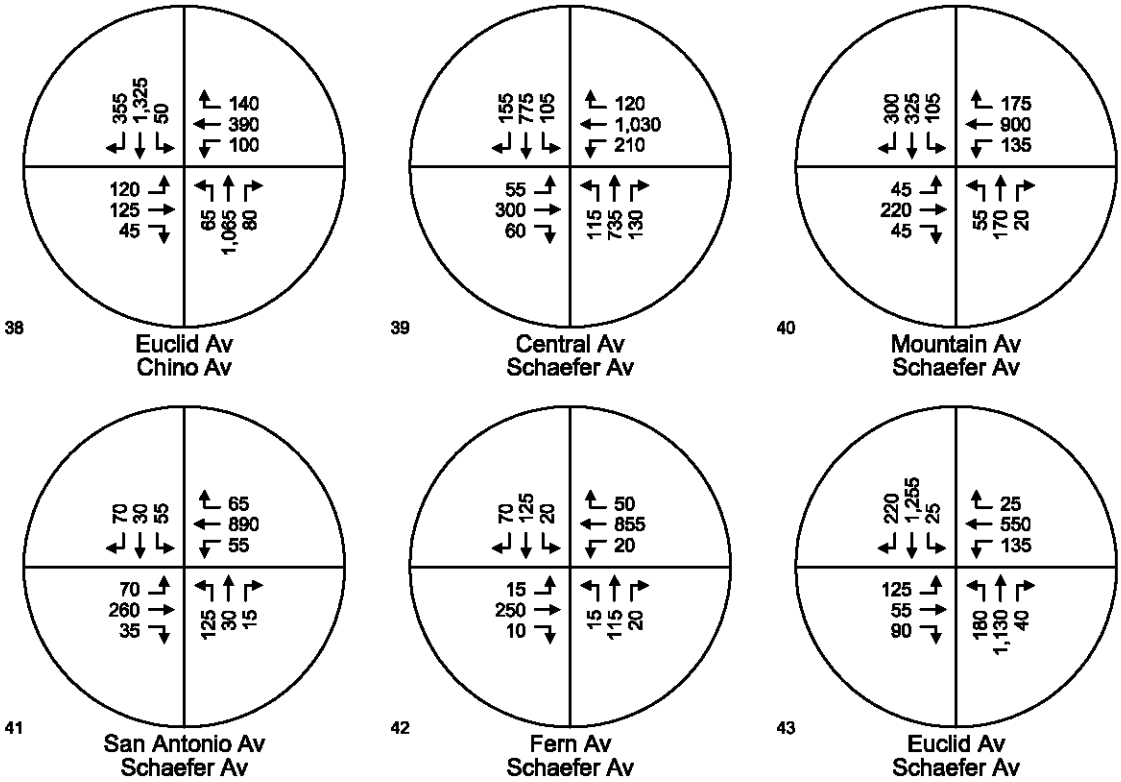
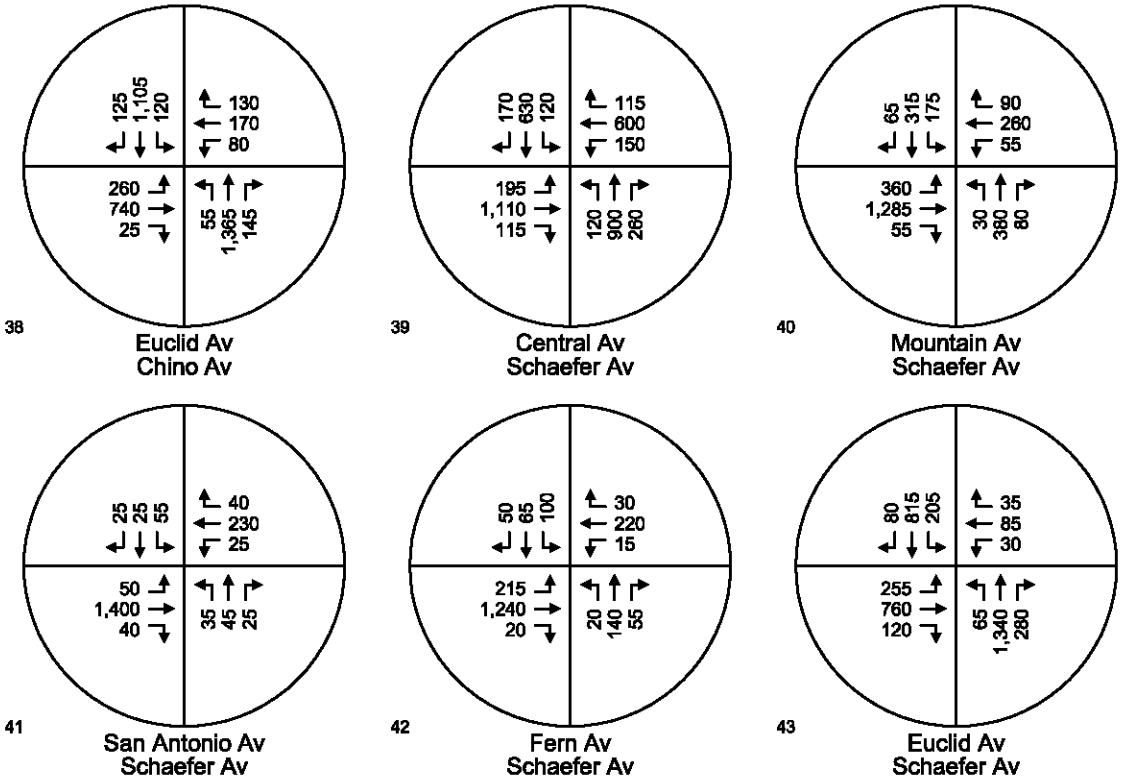


FIGURE 17
INTERIM YEAR (2012) WITH PROJECT
AVERAGE DAILY TRAFFIC (ADT) VOLUMES



AM Peak Hour



PM Peak Hour

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FIGURE 18

YEAR 2025 WITHOUT PROJECT

AM & PM PEAK HOUR TURNING MOVEMENT VOLUMES

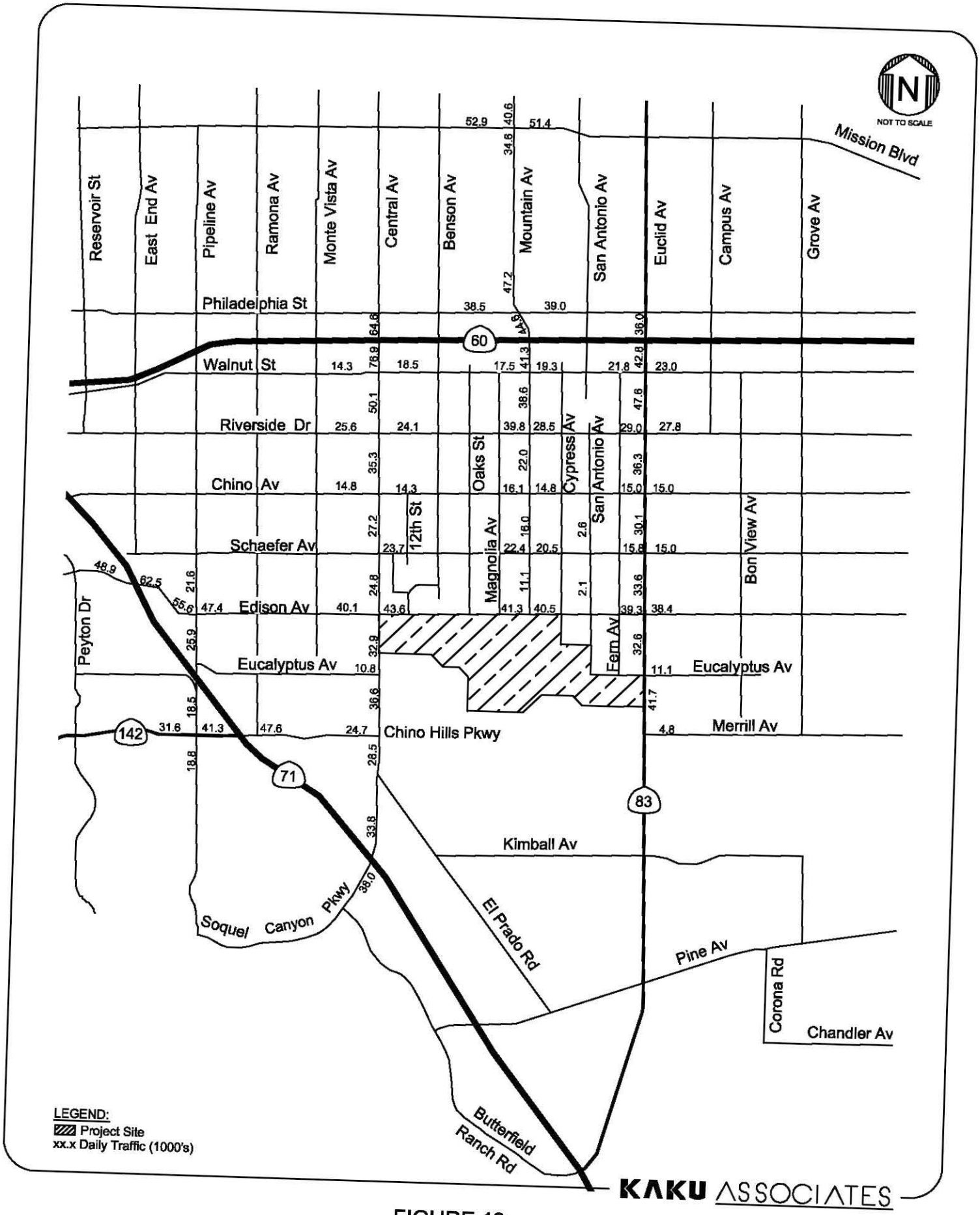
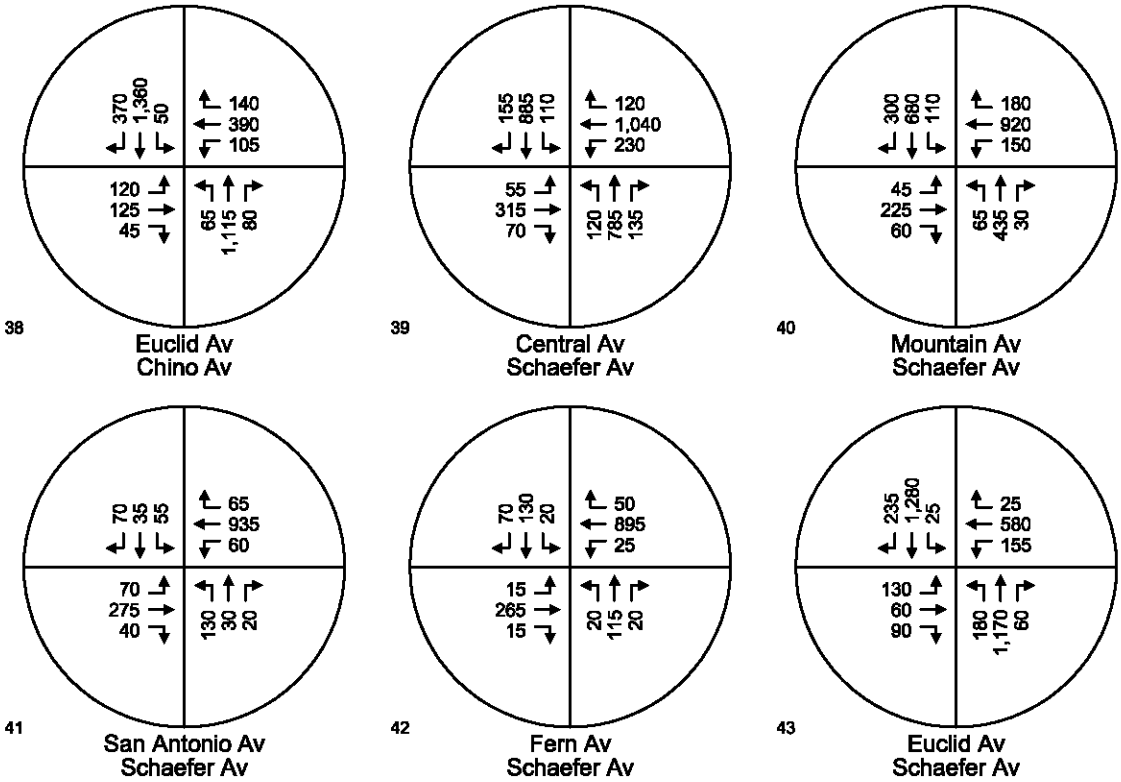
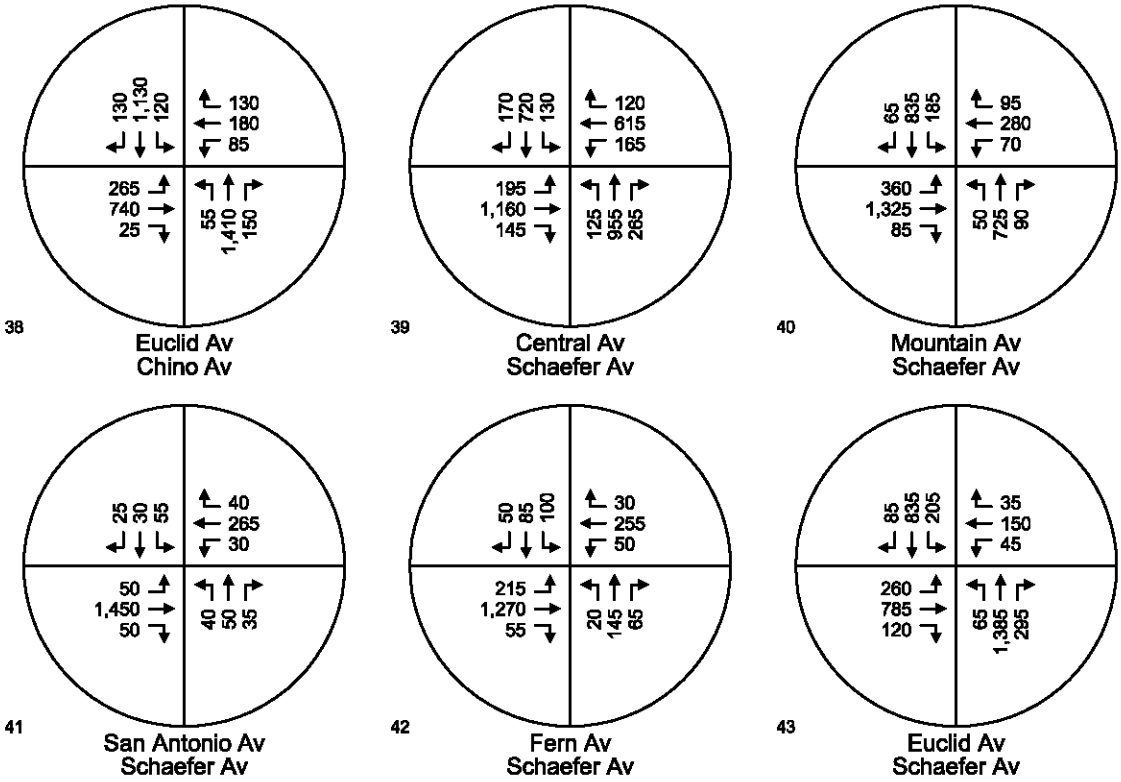


FIGURE 19
YEAR 2025 WITHOUT PROJECT
AVERAGE DAILY TRAFFIC (ADT) VOLUMES



AM Peak Hour



PM Peak Hour

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FIGURE 20

YEAR 2025 WITH PROJECT

AM & PM PEAK HOUR TURNING MOVEMENT VOLUMES

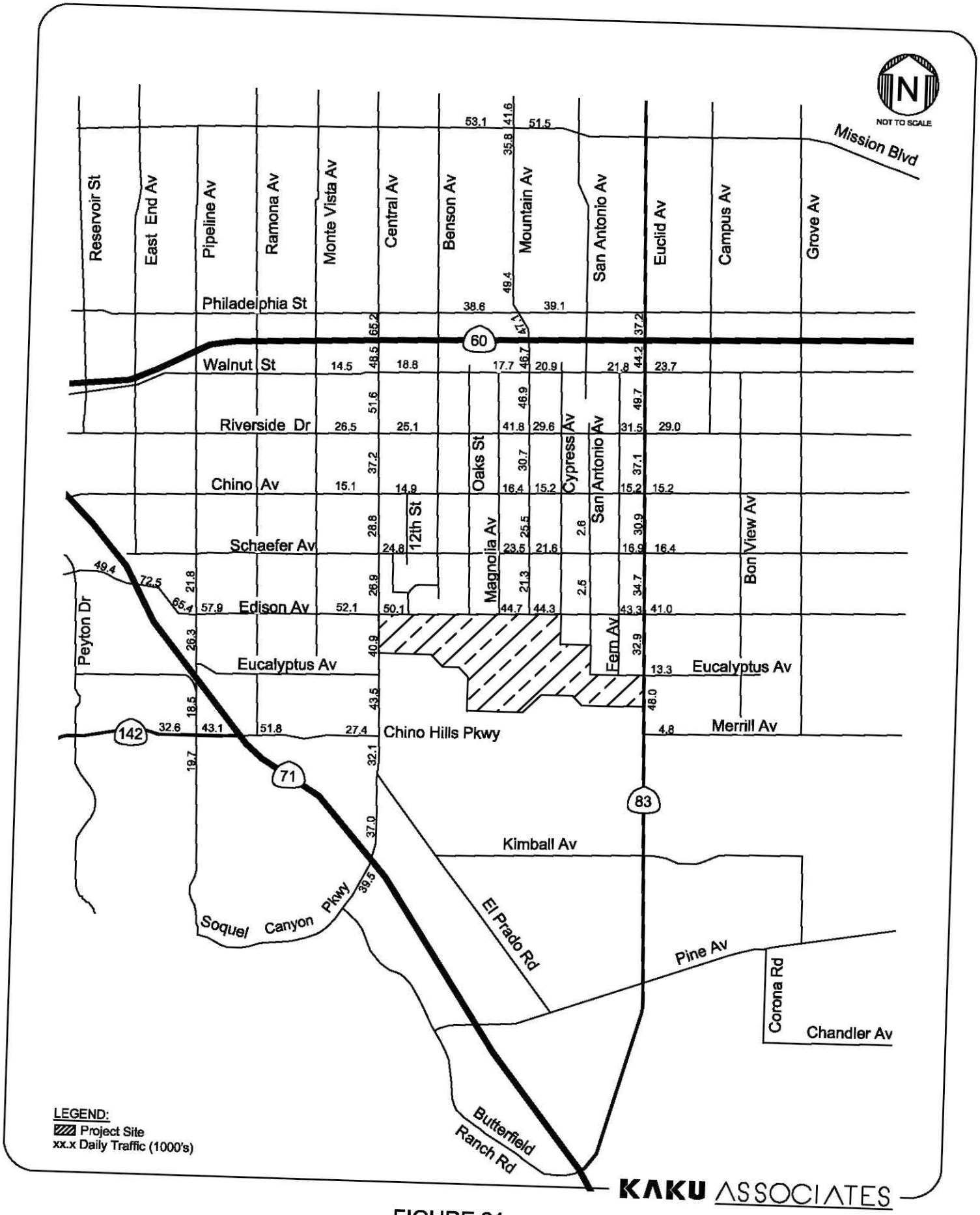


FIGURE 21
YEAR 2025 WITH PROJECT
AVERAGE DAILY TRAFFIC (ADT) VOLUMES

TABLES

1 Level of Service Criteria for Signalized and Unsignalized Intersections (same as TIA Table 1)
2 Intersection Delay and Level of Service (LOS), Existing Conditions – Year 2002 (similar to TIA Table 2)
3 Intersection Delay and Level of Service (LOS), Cumulative Base Conditions – Interim Year 2012 (similar to TIA Table 6)
4 Intersection Delay and Level of Service (LOS), Cumulative Base plus Project Conditions – Interim Year 2012 (similar to TIA Table 7)
5 Intersection Delay and Level of Service (LOS), Cumulative Base Conditions – Year 2025 (similar to TIA Table 9)
6 Intersection Delay and Level of Service (LOS), Cumulative Base plus Project Conditions –Year 2025 (similar to TIA Table 10)
7 Intersection Delay and Level of Service (LOS), Cumulative Base plus Project Conditions with Improvements – Year 2025 (similar to TIA Table 11)
8 Summary of Intersection and Roadway Improvements and Costs – Year 2025 (updates TIA Table 14)
9 2025 Project Fair Share Intersection Traffic Contribution - AM Peak Hour (updates TIA Table 16A)
10 025 Project Fair Share Intersection Traffic Contribution - PM Peak Hour (updates TIA Table 16B)
11 2025 Project Fair Share Intersection Traffic Contribution - Maximum Contribution (updates TIA Table 16C)

TABLE 1
LOS CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (Seconds per Vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	0 - 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 30 - 50
F	> 80	> 50

TABLE 2
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
EXISTING CONDITIONS - YEAR 2004

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	2	1	1	2	1	0.33	0.34	0.33	0.33	0.34	0.33	20.4	C	0.58	22.2	B	0.68
39	Central Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2	1	25.4	C	0.62	27.9	C	0.73
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	15.5	B	0.31	16.7	B	0.43
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	13.5	B	0.22	13.8	B	0.25
42	Fern Av & Schaefer Av	CSS	0.33	0.34	0.33	0.33	0.34	0.33	1	1	1	0.33	0.34	0.33	12.5	B	0.06	16.1	C	0.08
43	Euclid Av & Schaefer Av	TS	1	2	1	1	1.5	0.5	0.5	0.5	1	0.33	0.34	0.33	23.2	C	0.56	26.2	C	0.74

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

TABLE 3
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
CUMULATIVE BASE WITHOUT PROJECT CONDITIONS - INTERIM YEAR 2012

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	2	1	1	2	1	**1**	**1**	**1**	0.33	0.34	0.33	23.3	C	0.70	23.4	C	0.69
39	Central Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2	1	26.8	C	0.70	28.9	C	0.76
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	16.4	B	0.39	19.4	B	0.53
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	14.0	B	0.30	15.4	B	0.34
42	Fern Av & Schaefer Av	**TS**	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	1	1	1	**1**	**1.5**	**0.5**	9.7	A	0.22	13.3	B	0.52
43	Euclid Av & Schaefer Av	TS	1	2	1	1	1.5	0.5	0.5	0.5	1	0.33	0.34	0.33	26.4	C	0.74	40.8	D	0.92

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

Bold numbers indicate funded improvements.

TABLE 4
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
CUMULATIVE BASE PLUS PROJECT CONDITIONS - INTERIM YEAR 2012

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	2	1	1	2	1	**1**	**1**	**1**	0.33	0.34	0.33	23.6	C	0.71	24.4	C	0.72
39	Central Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2	1	27.4	C	0.73	30.5	C	0.81
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	16.4	B	0.46	19.6	B	0.66
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	14.2	B	0.32	15.7	B	0.38
42	Fern Av & Schaefer Av	TS	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	1	1	1	**1**	**1.5**	**0.5**	9.7	A	0.22	13.6	B	0.54
43	Euclid Av & Schaefer Av	TS	1	2	1	1	1.5	0.5	0.5	0.5	1	0.33	0.34	0.33	27.5	C	0.78	51.6	D	0.99

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

Bold numbers indicate funded improvements.

TABLE 5
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
CUMULATIVE BASE WITHOUT PROJECT CONDITIONS - YEAR 2025

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	2	1	1	2	1	**1**	**1**	**1**	0.33	0.34	0.33	61.3	E	0.94	99.9	F	1.11
39	Central Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2	1	34.0	C	0.88	61.1	E	0.96
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	19.5	B	0.55	29.7	C	0.72
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	16.2	B	0.45	21.7	C	0.53
42	Fern Av & Schaefer Av	TS	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	1	1	1	**1**	**1.5**	**0.5**	11.7	B	0.35	28.8	C	0.84
43	Euclid Av & Schaefer Av	TS	1	2	1	1	1.5	0.5	0.5	0.5	1	0.33	0.34	0.33	79.7	E	1.14	99.9	F	1.25

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

Bold numbers indicate funded improvements.

TABLE 6
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
CUMULATIVE BASE PLUS PROJECT CONDITIONS - YEAR 2025

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	2	1	1	2	1	**1**	**1**	**1**	0.33	0.34	0.33	72.2	E	0.95	99.9	F	1.14
39	Central Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	2	1	39.3	D	0.92	75.6	E	0.97
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	19.9	B	0.67	30.2	C	0.99
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	16.6	B	0.46	26.0	C	0.59
42	Fern Av & Schaefer Av	TS	**1**	**1.5**	**0.5**	**1**	**1.5**	**0.5**	1	1	1	**1**	**1.5**	**0.5**	11.7	B	0.36	31.9	C	0.86
43	Euclid Av & Schaefer Av	TS	1	2	1	1	1.5	0.5	0.5	0.5	1	0.33	0.34	0.33	99.5	F	1.22	86.5	F	1.08

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

Bold numbers indicate funded improvements.

TABLE 7
INTERSECTION DELAY AND LEVEL OF SERVICE (LOS)
CUMULATIVE BASE PLUS PROJECT CONDITIONS WITH IMPROVEMENTS - YEAR 2025

			Intersection Approach Lanes[1]												Peak-Hour Delay-LOS[2]					
		Traffic	Northbound			Southbound			Eastbound			Westbound			AM			PM		
Int #	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	Delay[4]	LOS	v/c	Delay[4]	LOS	v/c
38	Euclid Av & Chino Av	TS	1	**2.5**	**0.5**	1	**2.5**	**0.5**	1	**1.5**	**0.5**	**1**	**0.5**	**0.5**	40.9	D	0.83	30.7	C	0.85
39	Central Av & Schaefer Av	TS	1	**2**	**1**	1	1.5	0.5	1	**2**	**1**	1	2	1	37.2	D	0.92	38.8	D	0.93
40	Mountain Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	19.9	B	0.67	30.2	C	0.99
41	San Antonio Ave & Schaefer Av	TS	0.33	0.34	0.33	0.33	0.34	0.33	1	1.5	0.5	1	1.5	0.5	16.6	B	0.46	26.0	C	0.59
42	Fern Av & Schaefer Av	TS	1	1.5	0.5	1	1.5	0.5	1	1	1	1	1.5	0.5	11.7	B	0.36	31.9	C	0.86
43	Euclid Av & Schaefer Av	TS	1	**3**	1	1	**2.5**	0.5	**1**	**1**	1	**1**	**0.5**	**0.5**	35.2	D	0.88	33.5	C	0.95

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn

[2] Delay and level of service calculated using Highway Capacity Software Version 4.1c. Per the 2000 Highway Capacity Manual (HCM), overall average intersection delay and level of service are shown for intersections with traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. LOS F assigned to intersections with V/C ratio greater than or equal to 1.00, regardless of average delay.

[3] TS = Traffic Signal; CSS = Cross Street Stop

[4] 99.9-F = Delay High, Intersection Unstable, Level of Service F.

Bold numbers indicate funded improvements and proposed mitigation measures.

TABLE 8 (page 1 of 3)
SUMMARY OF INTERSECTION & ROADWAY IMPROVEMENTS AND COSTS - YEAR 2025

Int #	Intersection	2025 Improvement	Cost
1	Mountain Av & Mission Bl	Second NB Left Turn Lane	$50,000
		NB Right Turn Lane	$50,000
		Second SB Left Turn Lane	$50,000
		Third SB Through Lane	$259,000
		Second WB Left Turn Lane	$50,000
		EB Right Turn Lane	$50,000
		Provide overlapping RT phasing E-W and N-S	$25,000
2	Mountain Av & Philadelphia St	Second NB Left Turn Lane	$50,000
		Third NB Through Lane	$259,000
		NB Right Turn Lane	$50,000
		Second SB Left Turn Lane	$50,000
		Third SB Through Lane	$259,000
		SB Right Turn Lane	$50,000
		Provide overlapping RT phasing E-W and N-S	$25,000
		Second EB Left Turn Lane	$50,000
		Convert EB Right Turn Lane to Shared Right/Through *	$25,000
		Second WB Left Turn Lane	$50,000
			$50,000
3 4	Central Av & SR 60 WB Ramps Central Av & SR 60 EB Ramps	Reconstruct Interchange	$25,000,000
5	Mountain Av & SR 60 WB Ramps	SB Right Turn Lane	$50,000
		Second NB LT Lane **& Widen On-Ramp to 2 Lanes**	**$400,000**
6	Mountain Av & SR 60 EB Ramps	NB Right Turn Lane	$50,000
		Widen EB Off-Ramp to add shared LT/RT Lane	$350,000
		Second SB LT Lane **& Widen On-Ramp to 2 Lanes**	**$400,000**
7	Euclid Av & SR 60 WB Ramps	Change NB Left Turn Phasing to Protected Only *	$25,000
8	Euclid Av & SR 60 EB Ramps	Provide overlapping RT phasing NB *	$25,000
		Widen Offramp to Add EB Right-turn Lane *	$350,000
10	Mountain Av & Walnut St	NB Right Turn Lane	$50,000
		Second SB Left Turn Lane	$50,000
		Additional EB Through Lane	$259,000
		Additional WB Through Lane	$259,000
11	Euclid Av & Walnut St	NB Right Turn Lane *	$50,000
		Add EB and WB Left Turn Phasing *	$25,000
12	Central Av & Riverside Dr	Second SB Left Turn Lane	$50,000
13	Mountain Av & Riverside Dr	NB Right Turn Lane	$50,000
		SB Right Turn Lane	$50,000
		Provide overlapping RT phasing SB	$25,000
		Second EB Left Turn Lane	$50,000
14	Euclid Av & Riverside Dr	Third NB Through.Lane	$259,000
		Third SB Through Lane	$259,000
		Second SB Left Turn Lane	$50,000
		First EB Left Turn Lane	$50,000
		Second EB Left Turn Lane	$50,000
		WB Left Turn Lane	$50,000
16	Mountain Av & Chino Av	Additional NB Through Lane *	$259,000
		Additional SB Through Lane *	$259,000
17	SR 71 SB Ramps & Grand Av	EB Right Turn Lane *	$259,000
		Widen Offramp to Add Third SB Left Turn Lane *	$350,000
18	SR 71 NB Off-Ramp & Grand Av	Upgrade existing signal to provide overlapping RT phasing WB	$75,000
		SB Right Turn Lane	$50,000
		SB Left Turn Lane	$50,000
		WB Right Turn Lane	$50,000
		Widen Off-Ramp - NB Right Turn Lane *	$750,000
		EB Right Turn Lane	$50,000
19	Pipeline Av & Edison Av	Fourth EB Through Lane *	$259,000

TABLE 8 (page 2 of 3)
SUMMARY OF INTERSECTION & ROADWAY IMPROVEMENTS AND COSTS - YEAR 2025

Int #	Intersection	2025 Improvement	Cost
20	Central Av & Edison Av	Second EB Left Turn Lane	$50,000
		Third EB Through Lane *	$259,000
		EB Right Turn Lane *	$50,000
		Third WB Through Lane *	$259,000
		Second WB Left Turn Lane	$50,000
21	12th St & Edison Av	Third EB Through Lane *	$259,000
		Third WB Through Lane *	$259,000
22	Oaks St & Edison Av	First and Second NB Left Turn Lanes	$100,000
		NB Right Turn Lane	$50,000
		First and Second NB Through Lanes	$518,000
		First and Second SB Left Turn Lanes	$100,000
		SB Through Lane	$259,000
		SB Right Turn Lane	$50,000
		Second EB Left Turn Lane	$50,000
		Third EB Through Lane	$259,000
		EB Right Turn Lane	$50,000
		First and Second WB Left Turn Lanes	$50,000
		Third WB Through Lane	$259,000
		Install Traffic Signal	$90,000
23	Magolia Av & Edison Av	Third EB Through Lane *	$259,000
		Third WB Through Lane *	$259,000
24	Mountain Av & Edison Av	NB Left Turn Lane	$50,000
		First and Second NB Through Lanes	$518,000
		NB Right Turn Lane	$50,000
		Convert SB Left Turn/Righ Turn Lane to Through Lane	$25,000
		Second SB Through Lane	$259,000
		Add North-South Left Turn Phasing	$25,000
		Third EB Through Lane	$259,000
		Third WB Through Lane	$259,000
		Upgrade Existing Intersection Signalization	$75,000
25	Cypress Av & Edison Av	Third EB Through Lane *	$259,000
		Third WB Through Lane *	$259,000
26	San Antonio Av & Edison Av	Third EB Through Lane *	$259,000
		Third WB Through Lane *	$259,000
27	Fern Av & Edison Av	Convert EB Right Turn Lane to EB Through Lane *	$25,000
		Third WB Through Lane *	$259,000
		EB Left Turn Lane *	$50,000
		WB Left Turn Lane *	$50,000
		Second NB Through Lane *	$259,000
		Second SB Through Lane *	$259,000
28	Euclid Av & Edison Av	NB Right Turn Lane	$50,000
		Third NB Through Lane *	$259,000
		Third EB Through Lane	$259,000
		Third SB Through Lane *	$259,000
		Third WB Through Lane	$259,000
29	Central Av & A Street	Install New Traffic Signal	$90,000
		Second SB Left Turn Lane *	$50,000
		WB Right Turn Lane	$50,000
		WB Left Turn Lane	$50,000
		NB Right Turn Lane	$50,000
		SB Left Turn Lane	$50,000
30	Central Av & Eucalyptus Av	Third NB Through Lane *	$259,000
		Third SB Through Lane *	$259,000
31	Euclid Av & Eucalyptus Av	Install New Traffic Signal	$90,000
		Second NB Left Turn Lane *	$50,000
		Third NB Through Lane *	$259,000
		Third SB Through Lane *	$259,000
		EB Left Turn Lane *	$50,000
		EB Right Turn Lane *	$50,000
		WB Left Turn Lane *	$50,000
		WB Right Turn Lane *	$50,000
35	Central Av & Chino Hills Pkwy	Second NB Left Turn Lane *	$50,000

TABLE 8 (page 3 of 3)
SUMMARY OF INTERSECTION & ROADWAY IMPROVEMENTS AND COSTS - YEAR 2025

Int #	Intersection	2025 Improvement	Cost
38	**Euclid Avenue & Chino Avenue**	**WB Left Turn Lane ***	**$50,000**
		Third NB Through/Right Turn Lane *	**$259,000**
		Second EB Through/Right Turn Lane *	**$259,000**
39	**Central Avenue & Schaefer Ave.**	**NB Right Turn Lane ***	**$50,000**
		EB Right Turn Lane *	**$50,000**
43	**Euclid Avenue & Schaefer Ave.**	**Third SB Through/Right Turn Lane ***	**$259,000**
		WB Left Turn Lane *	**$50,000**
		Third NB Through Lane *	**$259,000**
		EB Left Turn Lane *	**$50,000**
Total			**$43,284,000**

Notes: Improvements marked with an asterisk (*) are needed with the project in 2025 but not in 2012.
Intersections not shown do not require improvements to maintain acceptable operations in either 2025 or 2012.
Boldface type indicates changes from Table 14 in the TIA (Intersections 5, 6, 38, 39 and 42 and Total).

TABLE 9
2025 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION - AM PEAK HOUR

Int #	Intersection	Total Cost	Existing Traffic	2025 With Project Traffic	Project Traffic	Total New Traffic	Project % of New Traffic	Project Cost Share
1	Mountain Av & Mission Bl	$534,000	4,652	7,551	98	2,899	3.4%	$18,056
2	Mountain Av & Philadelphia St *	$918,000	3,353	5,367	184	2,014	9.1%	$83,811
3	Central Av & SR 60 WB Ramps **	$25,000,000	2,589	3,975	46	1,386	3.3%	$829,726
4	Central Av & SR 60 EB Ramps **							
5	Mountain Av & SR 60 WB Ramps	$450,000	3,455	4,748	293	1,294	22.7%	$102,050
6	Mountain Av & SR 60 EB Ramps	$800,000	3,101	4,827	411	1,726	23.8%	$190,632
7	Euclid Av & SR 60 WB Ramps **	$25,000	3,012	4,602	100	1,589	6%	$1,567
8	Euclid Av & SR 60 EB Ramps **	$375,000	2,855	4,807	104	1,952	5.3%	$19,985
10	Mountain Av & Walnut St	$618,000	4,169	5,765	564	1,596	35.3%	$218,420
11	Euclid Av & Walnut St **	$75,000	3,003	5,134	154	2,131	7.2%	$5,421
12	Central Av & Riverside Dr	$50,000	3,025	4,758	186	1,733	11%	$5,380
13	Mountain Av & Riverside Dr	$175,000	3,263	5,763	658	2,500	26.3%	$46,066
14	Euclid Av & Riverside Dr	$718,000	2,917	5,660	193	2,743	7.0%	$50,489
16	Mountain Av & Chino Av **	$518,000	1,489	2,856	634	1,367	46.4%	$240,131
17	SR 71 SB Ramps & Grand Av **	$609,000	2,587	4,542	409	1,955	20.9%	$127,410
18	SR 71 NB Ramps & Grand Av *	$1,025,000	2,939	5,877	786	2,937	26.7%	$274,116
19	Pipeline Av & Edison Av **	$259,000	2,033	5,146	855	3,114	27.5%	$71,154
20	Central Av & Edison Av *	$668,000	3,077	6,559	1,128	3,482	32.4%	$216,464
21	12th St & Edison Av **	$518,000	2,032	3,894	585	1,862	31.4%	$162,852
22	Oaks St & Edison Av	$1,835,000	2,020	4,511	1,105	2,491	100.0%	$1,835,000
23	Magnolia Av & Edison Av **	$518,000	1,567	3,479	328	1,912	17.2%	$88,978
24	Mountain Av & Edison Av	$1,520,000	1,760	4,555	1,123	2,795	100.0%	$1,520,000
25	Cypress Av & Edison **	$518,000	1,295	2,851	277	1,556	17.8%	$92,229
26	San Antonio Av & Edison Av **	$518,000	1,545	3,190	277	1,645	16.8%	$87,278
27	Fern Av & Edison Av **	$902,000	1,174	2,401	304	1,228	24.8%	$223,595
28	Euclid Av & Edison Av *	$1,086,000	2,546	5,843	285	3,298	8.7%	$93,960
29	Central Av & A St *	$340,000	0	3,883	1,393	3,883	100.0%	$340,000
30	Central Av & Eucalyptus Av **	$518,000	1,720	3,794	749	2,073	36.1%	$187,047
31	Euclid Av & Eucalyptus Av *	$858,000	1,309	4,573	673	3,264	20.6%	$176,860
35	Central Av & Chino Hills Pkwy **	$50,000	1,856	3,288	523	1,432	36.5%	$18,250
38	Euclid Avenue & Chino Avenue **	$568,000	2,379	3,968	99	1,589	6.2%	$35,388
39	Central Avenue & Schaefer Avenue **	$100,000	2,659	4,010	220	1,351	16.3%	$16,284
43	Euclid Avenue & Schaefer Avenue **	$618,000	2,215	3,993	162	1,778	9.1%	$56,308
Total								$7,434,907

Note: Intersections not shown do not require improvements to maintain acceptable operations in either 2025 or 2012.
* Not all improvements identified for 2025 with project conditions are needed in 2012 with project conditions.
** No improvements are needed in 2012 with project conditions.

TABLE 10
2025 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION - PM PEAK HOUR

Int #	Intersection	Total Cost	Existing Traffic	2025 With Project Traffic	Project Traffic	Total New Traffic	Project % of New Traffic	Project Cost Share
1	Mountain Av & Mission Bl	$534,000	5,337	8,409	111	3,072	3.6%	$19,216
2	Mountain Av & Philadelphia St *	$918,000	3,994	7,107	226	3,113	7.3%	$66,726
3	Central Av & SR 60 WB Ramps **	$25,000,000	3,700	5,972	57	2,272	2.5%	$627,201
4	Central Av & SR 60 EB Ramps **							
5	Mountain Av & SR 60 WB Ramps	$450,000	3,924	5,339	325	1,416	23.0%	$103,466
6	Mountain Av & SR 60 EB Ramps	$800,000	3,815	5,464	494	1,650	30.0%	$239,761
7	Euclid Av & SR 60 WB Ramps **	$25,000	3,288	4,344	147	1,056	14%	$3,481
8	Euclid Av & SR 60 EB Ramps **	$375,000	3,469	4,746	148	1,277	11.6%	$43,349
10	Mountain Av & Walnut St	$618,000	3,386	6,111	772	2,725	28.3%	$175,073
11	Euclid Av & Walnut St **	$75,000	3,381	5,761	196	2,380	8.3%	$6,190
12	Central Av & Riverside Dr	$50,000	4,192	5,664	225	1,472	15%	$7,630
13	Mountain Av & Riverside Dr	$175,000	3,486	6,561	933	3,075	30.3%	$53,112
14	Euclid Av & Riverside Dr	$718,000	3,400	6,471	307	3,070	10.0%	$71,719
16	Mountain Av & Chino Av **	$518,000	1,950	3,945	902	1,995	45.2%	$234,142
17	SR 71 SB Ramps & Grand Av **	$609,000	3,884	6,410	586	2,525	23.2%	$141,276
18	SR 71 NB Ramps & Grand Av *	$1,025,000	4,516	9,096	925	4,580	20.2%	$206,998
19	Pipeline Av & Edison Av **	$259,000	3,646	7,825	968	4,179	23.2%	$59,984
20	Central Av & Edison Av *	$668,000	3,471	7,262	1,300	3,791	34.3%	$229,057
21	12th St & Edison Av **	$518,000	2,429	4,837	684	2,407	28.4%	$147,072
22	Oaks St & Edison Av	$1,835,000	2,236	6,834	1,483	4,598	100.0%	$1,835,000
23	Magnolia Av & Edison Av **	$518,000	1,807	4,053	373	2,246	16.6%	$85,941
24	Mountain Av & Edison Av	$1,520,000	1,845	5,901	1,544	4,056	100.0%	$1,520,000
25	Cypress Av & Edison **	$518,000	1,600	4,038	361	2,438	14.8%	$76,632
26	San Antonio Av & Edison Av **	$518,000	1,499	4,171	462	2,672	17.3%	$89,495
27	Fern Av & Edison Av **	$902,000	1,257	3,864	470	2,607	18.0%	$162,732
28	Euclid Av & Edison Av *	$1,086,000	2,694	6,989	367	4,295	8.5%	$92,774
29	Central Av & A St *	$340,000	0	4,787	1,863	4,787	100.0%	$340,000
30	Central Av & Eucalyptus Av **	$518,000	2,011	4,954	1,151	2,943	39.1%	$202,593
31	Euclid Av & Eucalyptus Av *	$858,000	1,298	5,226	804	3,928	20.5%	$175,657
35	Central Av & Chino Hills Pkwy **	$50,000	1,987	4,979	637	2,992	21.3%	$10,640
38	Euclid Avenue & Chino Avenue **	$568,000	2,370	4,427	94	2,057	4.6%	$25,956
39	Central Avenue & Schaefer Avenue **	$100,000	3,038	4,761	279	1,723	16.2%	$16,193
43	Euclid Avenue & Schaefer Avenue **	$618,000	2,401	4,269	203	1,868	10.9%	$67,160
Total								$7,136,226

Note: Intersections not shown do not require improvements to maintain acceptable operations in either 2025 or 2012.

* Not all improvements identified for 2025 with project conditions are needed in 2012 with project conditions.

** No improvements are needed in 2012 with project conditions.

TABLE 11
2025 PROJECT FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION - MAXIMUM CONTRIBUTION

Int #	Intersection	Total Cost	Project Cost Share		
			AM Peak Hour	PM Peak Hour	Maximum
1	Mountain Av & Mission Bl	$534,000	$18,056	$19,216	$19,216
2	Mountain Av & Philadelphia St *	$918,000	$83,811	$66,726	$83,811
3	Central Av & SR 60 WB Ramps **	$25,000,000	$829,726	$627,201	$829,726
4	Central Av & SR 60 EB Ramps **				
5	Mountain Av & SR 60 WB Ramps	$450,000	$102,050	$103,466	$103,466
6	Mountain Av & SR 60 EB Ramps	$800,000	$190,632	$239,761	$239,761
7	Euclid Av & SR 60 WB Ramps **	$25,000	$1,567	$3,481	$3,481
8	Euclid Av & SR 60 EB Ramps **	$375,000	$19,985	$43,349	$43,349
10	Mountain Av & Walnut St	$618,000	$218,420	$175,073	$218,420
11	Euclid Av & Walnut St **	$75,000	$5,421	$6,190	$6,190
12	Central Av & Riverside Dr	$50,000	$5,380	$7,630	$7,630
13	Mountain Av & Riverside Dr	$175,000	$46,066	$53,112	$53,112
14	Euclid Av & Riverside Dr	$718,000	$50,489	$71,719	$71,719
16	Mountain Av & Chino Av **	$518,000	$240,131	$234,142	$240,131
17	SR 71 SB Ramps & Grand Av **	$609,000	$127,410	$141,276	$141,276
18	SR 71 NB Ramps & Grand Av *	$1,025,000	$274,116	$206,998	$274,116
19	Pipeline Av & Edison Av **	$259,000	$71,154	$59,984	$71,154
20	Central Av & Edison Av *	$668,000	$216,464	$229,057	$229,057
21	12th St & Edison Av **	$518,000	$162,852	$147,072	$162,852
22	Oaks St & Edison Av	$1,835,000	$1,835,000	$1,835,000	$1,835,000
23	Magnolia Av & Edison Av **	$518,000	$88,978	$85,941	$88,978
24	Mountain Av & Edison Av	$1,520,000	$1,520,000	$1,520,000	$1,520,000
25	Cypress Av & Edison **	$518,000	$92,229	$76,632	$92,229
26	San Antonio Av & Edison Av **	$518,000	$87,278	$89,495	$89,495
27	Fern Av & Edison Av **	$902,000	$223,595	$162,732	$223,595
28	Euclid Av & Edison Av *	$1,086,000	$93,960	$92,774	$93,960
29	Central Av & A St *	$340,000	$340,000	$340,000	$340,000
30	Central Av & Eucalyptus Av **	$518,000	$187,047	$202,593	$202,593
31	Euclid Av & Eucalyptus Av *	$858,000	$176,860	$175,657	$176,860
35	Central Av & Chino Hills Pkwy **	$50,000	$18,250	$10,640	$18,250
38	Euclid Avenue & Chino Avenue **	$568,000	$35,388	$25,956	$35,388
39	Central Avenue & Schaefer Avenue **	$100,000	$16,284	$16,193	$16,284
43	Euclid Avenue & Schaefer Avenue **	$618,000	$56,308	$67,160	$67,160
Total		$43,284,000	$7,434,907	$7,136,226	$7,598,259

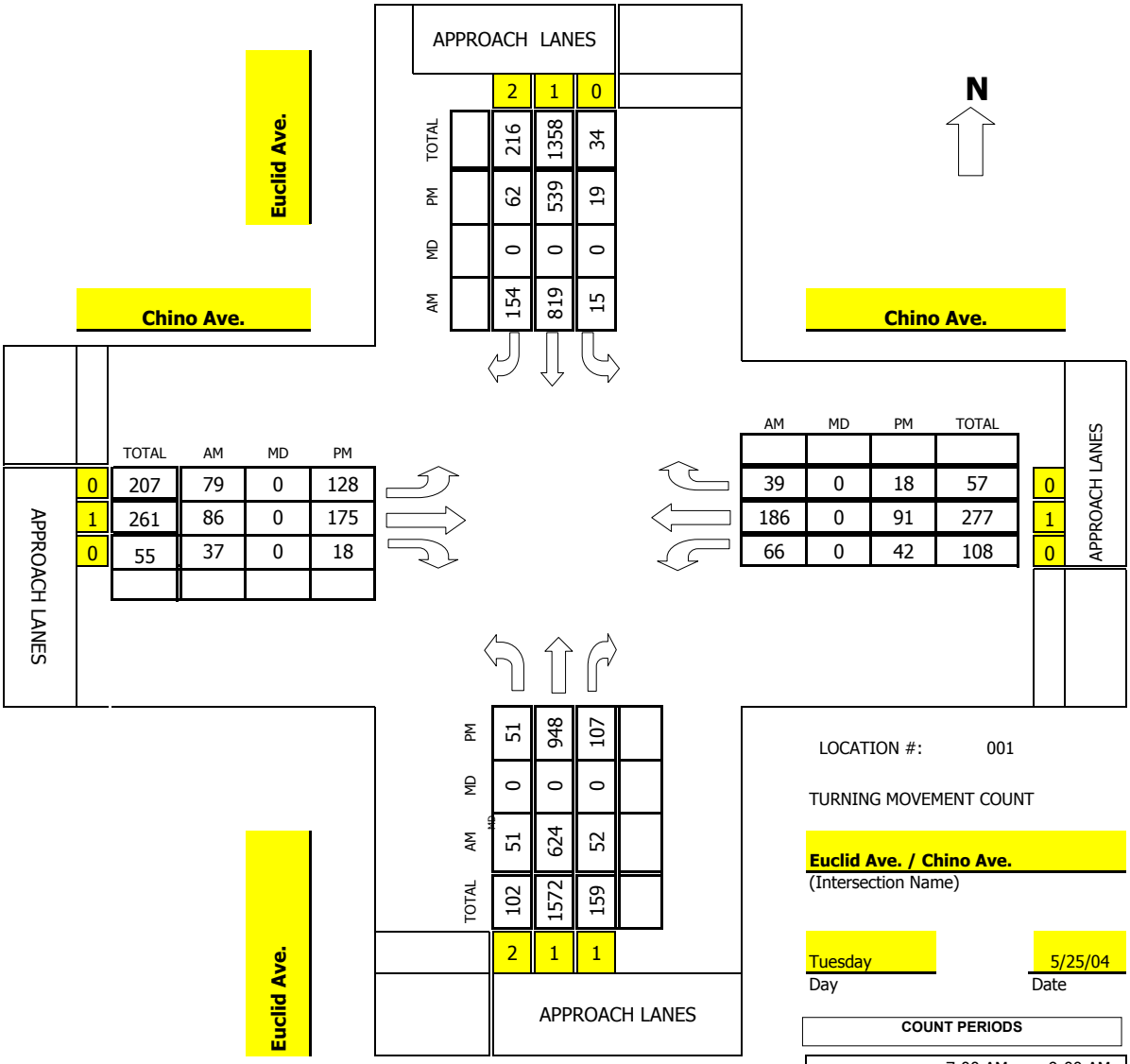
Note: Intersections not shown do not require improvements to maintain acceptable operations in either 2025 or 2012.
* Not all improvements identified for 2025 with project conditions are needed in 2012 with project conditions.
** No improvements are needed in 2012 with project conditions.
Project fair share freeway improvement costs = $1,296,653, as shown in Table 17C of the TIA.
Total (intersection and freeway) project fair share improvement costs = $8,894,912.

ATTACHMENT A

TRAFFIC COUNT WORKSHEETS

TMC SUMMARY OF Euclid Ave. / Chino Ave.

Project #: 04-3211-001



LOCATION #: 001

TURNING MOVEMENT COUNT

Euclid Ave. / Chino Ave.
(Intersection Name)

Tuesday
Day

5/25/04
Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	700 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Euclid Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Chino Ave. DAY: TUESDAY PROJECT# 04-3211-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	13	142	12	1	193	45	18	13	6	13	45	9	510
7:15 AM	16	135	11	3	201	39	13	16	8	17	41	5	505
7:30 AM	11	173	16	4	192	41	24	27	14	16	48	12	578
7:45 AM	11	174	13	7	233	29	24	30	9	20	52	13	615
8:00 AM	4	164	14	4	191	16	20	26	6	18	34	9	506
8:15 AM	4	165	9	6	154	15	24	25	8	12	27	2	451
8:30 AM	5	130	11	4	138	14	30	22	13	9	19	7	402
8:45 AM	4	134	7	2	124	11	22	19	11	8	13	6	361
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 68	NT 1217	NR 93	SL 31	ST 1426	SR 210	EL 175	ET 178	ER 75	WL 113	WT 279	WR 63	TOTAL 3928

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES =	51	624	52	15	819	154	79	86	37	66	186	39	2208
PEAK HR. FACTOR:		0.909			0.918			0.777			0.856		0.898

CONTROL: signalized, 1

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Euclid Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Chino Ave. DAY: TUESDAY PROJECT# 04-3211-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	8	228	26	4	132	12	26	38	8	7	17	4	510
4:15 PM	8	242	33	7	138	19	27	24	10	10	26	5	549
4:30 PM	9	240	20	4	132	21	34	36	9	10	22	3	540
4:45 PM	11	213	32	2	149	13	31	50	2	5	23	5	536
5:00 PM	14	244	32	6	120	13	29	45	5	15	26	7	556
5:15 PM	17	251	23	7	138	15	34	44	2	12	20	3	566
5:30 PM	8	198	23	4	141	17	15	30	3	6	20	8	473
5:45 PM	10	203	24	6	133	14	22	23	4	8	19	2	468
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	85	1819	213	40	1083	124	218	290	43	73	173	37	4198

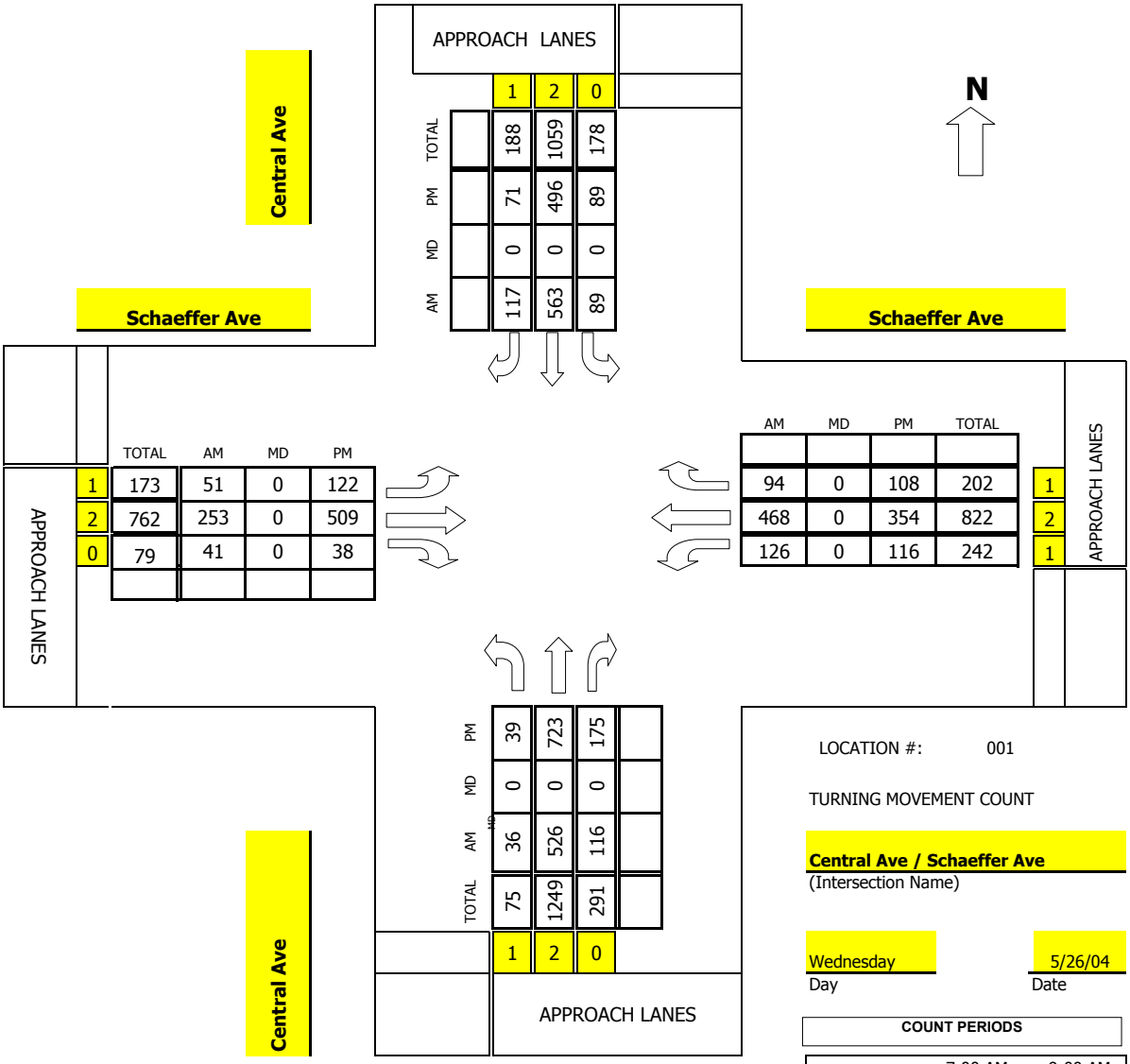
PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	51	948	107	19	539	62	128	175	18	42	91	18	2198
PEAK HR. FACTOR:		0.950			0.945			0.967			0.786		0.971

CONTROL: signalized, 1

TMC SUMMARY OF Central Ave / Schaeffer Ave

Project #: 04-3211-006



	1	2	0
TOTAL	188	1059	178
PM	71	496	89
MD	0	0	0
AM	117	563	89

	TOTAL	AM	MD	PM
1	173	51	0	122
2	762	253	0	509
0	79	41	0	38

AM	MD	PM	TOTAL	
94	0	108	202	1
468	0	354	822	2
126	0	116	242	1

	1	2	0
PM	39	723	175
MD	0	0	0
AM	36	526	116
TOTAL	75	1249	291

LOCATION #: 001

TURNING MOVEMENT COUNT

Central Ave / Schaeffer Ave
(Intersection Name)

Wednesday
Day

5/26/04
Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	715 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	400 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Central Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	10	96	17	10	114	16	7	52	7	29	131	19	508
7:15 AM	6	144	19	14	138	24	12	59	13	26	118	25	598
7:30 AM	9	110	26	22	161	22	15	56	10	36	121	33	621
7:45 AM	12	136	41	34	160	41	9	68	9	46	107	18	681
8:00 AM	9	136	30	19	104	30	15	70	9	18	122	18	580
8:15 AM	7	139	23	22	113	23	11	55	12	25	84	30	544
8:30 AM	8	116	21	13	98	18	9	72	10	25	84	22	496
8:45 AM	17	127	22	22	94	12	12	44	12	25	59	27	473
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 78	NT 1004	NR 199	SL 156	ST 982	SR 186	EL 90	ET 476	ER 82	WL 230	WT 826	WR 192	TOTAL 4501

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	36	526	116	89	563	117	51	253	41	126	468	94	2480
PEAK HR. FACTOR:		0.897			0.818			0.918			0.905		0.910

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Central Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	6	195	41	30	136	21	39	179	5	27	111	21	811
4:15 PM	3	173	39	16	126	17	16	102	9	21	80	25	627
4:30 PM	20	178	56	24	129	19	46	140	16	42	78	39	787
4:45 PM	10	177	39	19	105	14	21	88	8	26	85	23	615
5:00 PM	8	142	39	18	102	16	35	148	12	40	94	33	687
5:15 PM	8	154	39	33	133	11	30	91	6	17	76	17	615
5:30 PM	9	124	22	21	123	14	20	99	14	23	70	26	565
5:45 PM	5	133	20	16	115	6	18	77	7	10	56	14	477
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	NL 69	NT 1276	NR 295	SL 177	ST 969	SR 118	EL 225	ET 924	ER 77	WL 206	WT 650	WR 198	TOTAL 5184

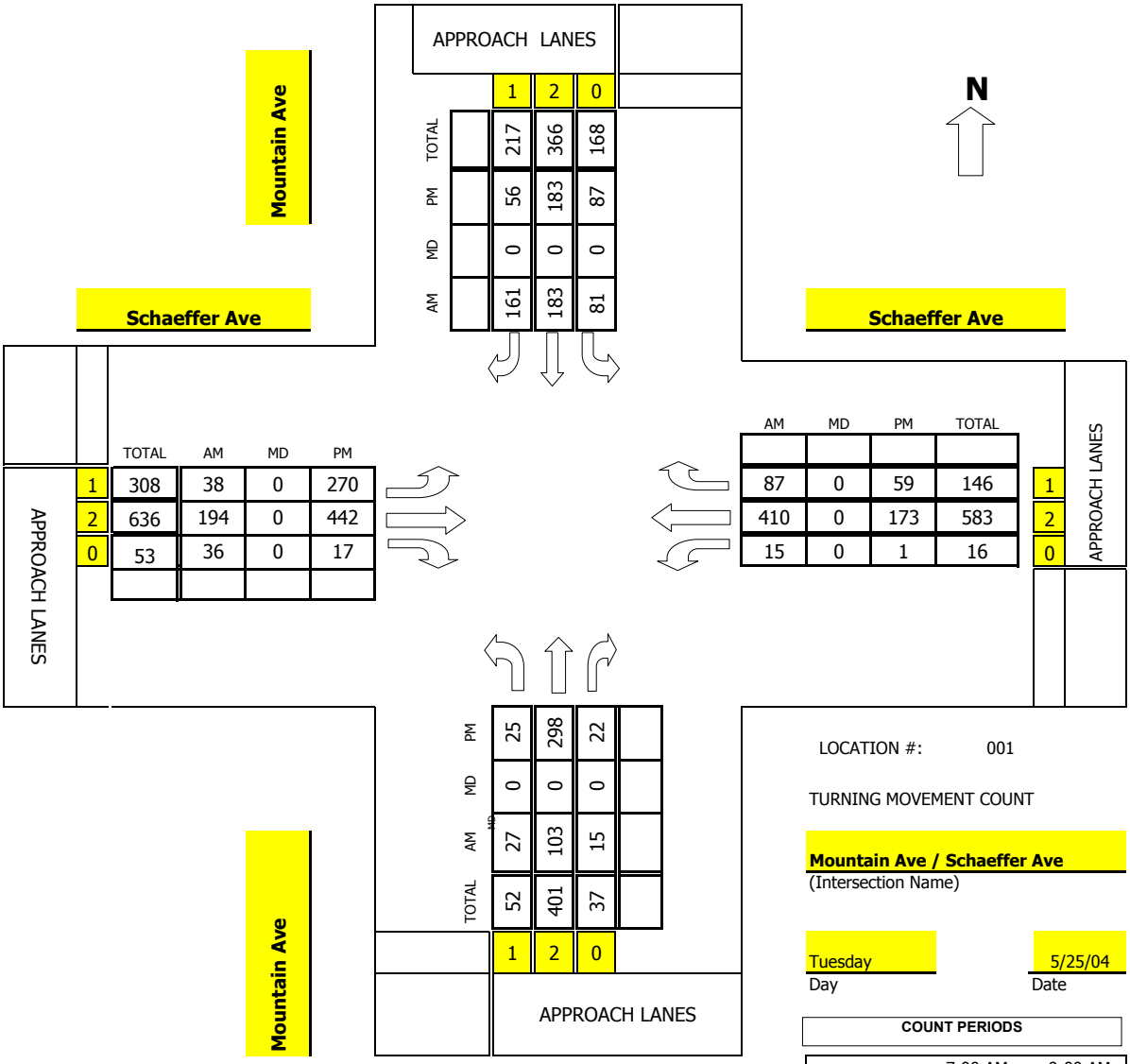
PM Peak Hr Begins at: 400 PM

PEAK VOLUMES =	39	723	175	89	496	71	122	509	38	116	354	108	2840
PEAK HR. FACTOR:		0.922			0.877			0.750			0.909		0.875

CONTROL: signalized

TMC SUMMARY OF Mountain Ave / Schaeffer Ave

Project #: 04-3211-005



	1	2	0
TOTAL	217	366	168
PM	56	183	87
MD	0	0	0
AM	161	183	81

	TOTAL	AM	MD	PM
1	308	38	0	270
2	636	194	0	442
0	53	36	0	17

AM	MD	PM	TOTAL	
87	0	59	146	1
410	0	173	583	2
15	0	1	16	0

	1	2	0
PM	25	298	22
MD	0	0	0
AM	27	103	15
TOTAL	52	401	37

LOCATION #: 001

TURNING MOVEMENT COUNT

Mountain Ave / Schaeffer Ave
(Intersection Name)

Tuesday — Day

5/25/04 — Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	745 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Mountain Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	32	2	12	42	20	4	24	3	1	69	10	221
7:15 AM	3	43	0	10	50	35	8	38	9	2	72	11	281
7:30 AM	7	26	3	19	56	22	6	46	5	4	84	18	296
7:45 AM	4	18	1	21	64	55	9	57	11	7	101	21	369
8:00 AM	9	22	4	14	48	46	7	33	8	2	92	24	309
8:15 AM	8	30	2	20	30	37	10	49	12	1	112	19	330
8:30 AM	6	33	8	26	41	23	12	55	5	5	105	23	342
8:45 AM	4	21	1	18	33	21	4	30	6	3	88	13	242
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 43	NT 225	NR 21	SL 140	ST 364	SR 259	EL 60	ET 332	ER 59	WL 25	WT 723	WR 139	TOTAL 2390

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	27	103	15	81	183	161	38	194	36	15	410	87	1350
PEAK HR. FACTOR:		0.771			0.759			0.870			0.962		0.915

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Mountain Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	4	62	3	17	30	17	61	102	5	0	48	11	360
4:15 PM	3	57	4	19	34	12	53	93	9	1	42	10	337
4:30 PM	6	68	5	16	38	14	70	104	5	0	36	15	377
4:45 PM	8	76	7	20	49	13	69	132	3	0	47	12	436
5:00 PM	6	89	8	26	42	10	65	108	5	0	53	14	426
5:15 PM	5	65	2	25	54	19	66	98	4	1	37	18	394
5:30 PM	2	51	2	11	40	11	52	94	2	0	26	25	316
5:45 PM	4	48	3	16	33	10	46	92	1	1	20	18	292
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	NL 38	NT 516	NR 34	SL 150	ST 320	SR 106	EL 482	ET 823	ER 34	WL 3	WT 309	WR 123	TOTAL 2938

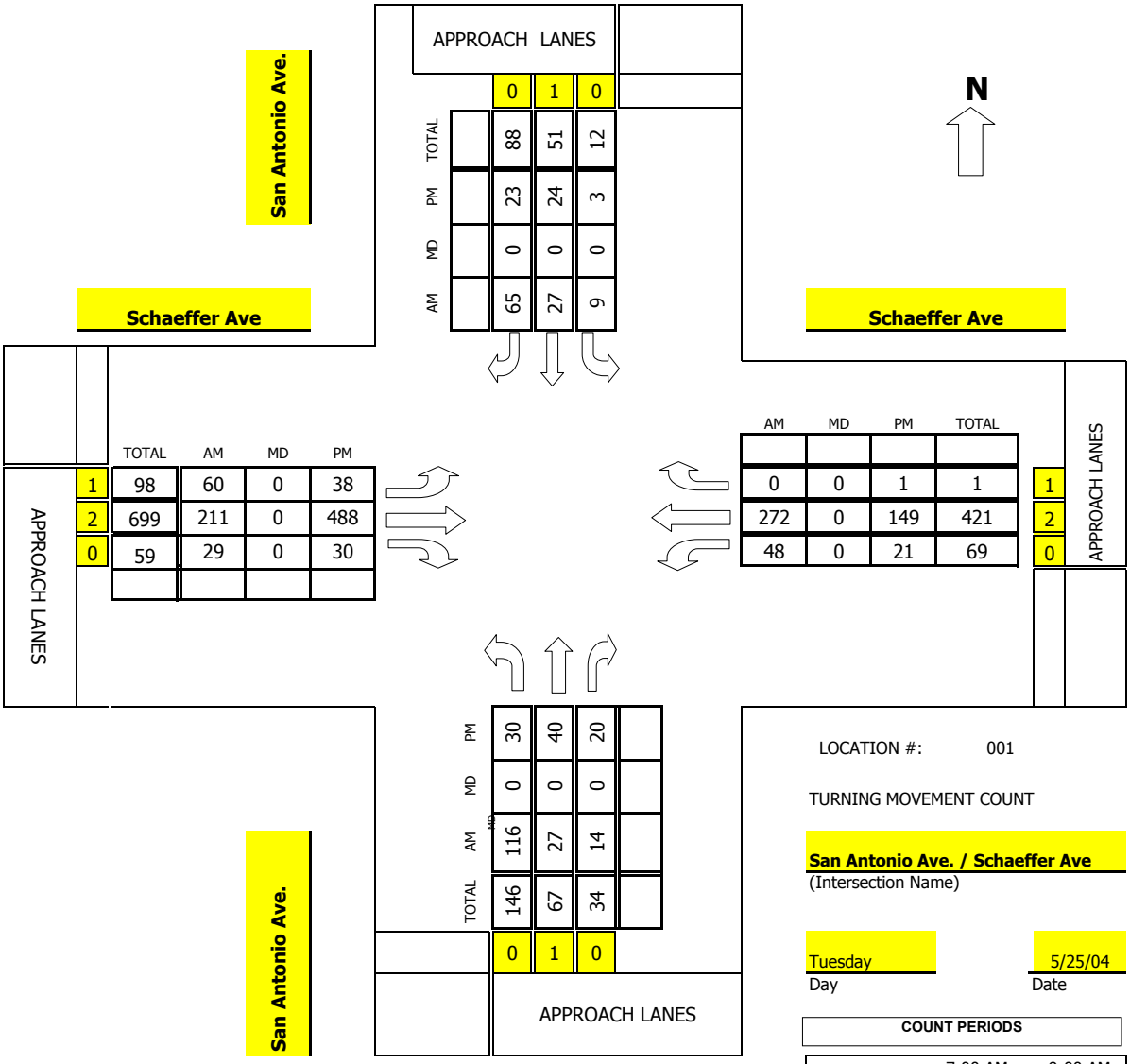
PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	25	298	22	87	183	56	270	442	17	1	173	59	1633
PEAK HR. FACTOR:		0.837			0.832			0.893			0.869		0.936

CONTROL: signalized

TMC SUMMARY OF San Antonio Ave. / Schaeffer Ave

Project #: 04-3211-004



LOCATION #: 001

TURNING MOVEMENT COUNT

San Antonio Ave. / Schaeffer Ave
(Intersection Name)

Tuesday
Day

5/25/04
Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	745 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	445 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: San Antonio Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	23	10	5	3	8	12	1	42	3	2	75	2	186
7:15 AM	26	12	4	2	9	14	2	40	4	8	83	1	205
7:30 AM	17	6	7	3	1	4	0	40	8	9	102	0	197
7:45 AM	35	8	2	2	4	23	14	50	9	11	76	0	234
8:00 AM	19	3	1	2	8	12	4	54	9	3	62	0	177
8:15 AM	34	5	3	1	6	17	24	61	8	16	63	0	238
8:30 AM	28	11	8	4	9	13	18	46	3	18	71	0	229
8:45 AM	17	4	1	0	9	7	13	38	2	10	59	1	161
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 199	NT 59	NR 31	SL 17	ST 54	SR 102	EL 76	ET 371	ER 46	WL 77	WT 591	WR 4	TOTAL 1627

AM Peak Hr Begins at: 745 AM

PEAK VOLUMES =	116	27	14	9	27	65	60	211	29	48	272	0	878
PEAK HR. FACTOR:		0.835			0.871			0.806			0.899		0.922

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: San Antonio Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	8	9	3	2	2	2	7	84	5	2	24	0	148
4:15 PM	6	11	4	2	5	3	10	100	8	3	35	1	188
4:30 PM	3	6	5	3	3	4	11	112	7	4	56	0	214
4:45 PM	7	8	2	0	0	1	5	135	5	5	38	0	206
5:00 PM	9	12	6	1	8	9	14	108	10	8	33	0	218
5:15 PM	3	13	3	2	12	5	13	114	11	2	32	0	210
5:30 PM	11	7	9	0	4	8	6	131	4	6	46	1	233
5:45 PM	6	4	2	1	7	3	2	110	4	7	41	0	187
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	NL 53	NT 70	NR 34	SL 11	ST 41	SR 35	EL 68	ET 894	ER 54	WL 37	WT 305	WR 2	TOTAL 1604

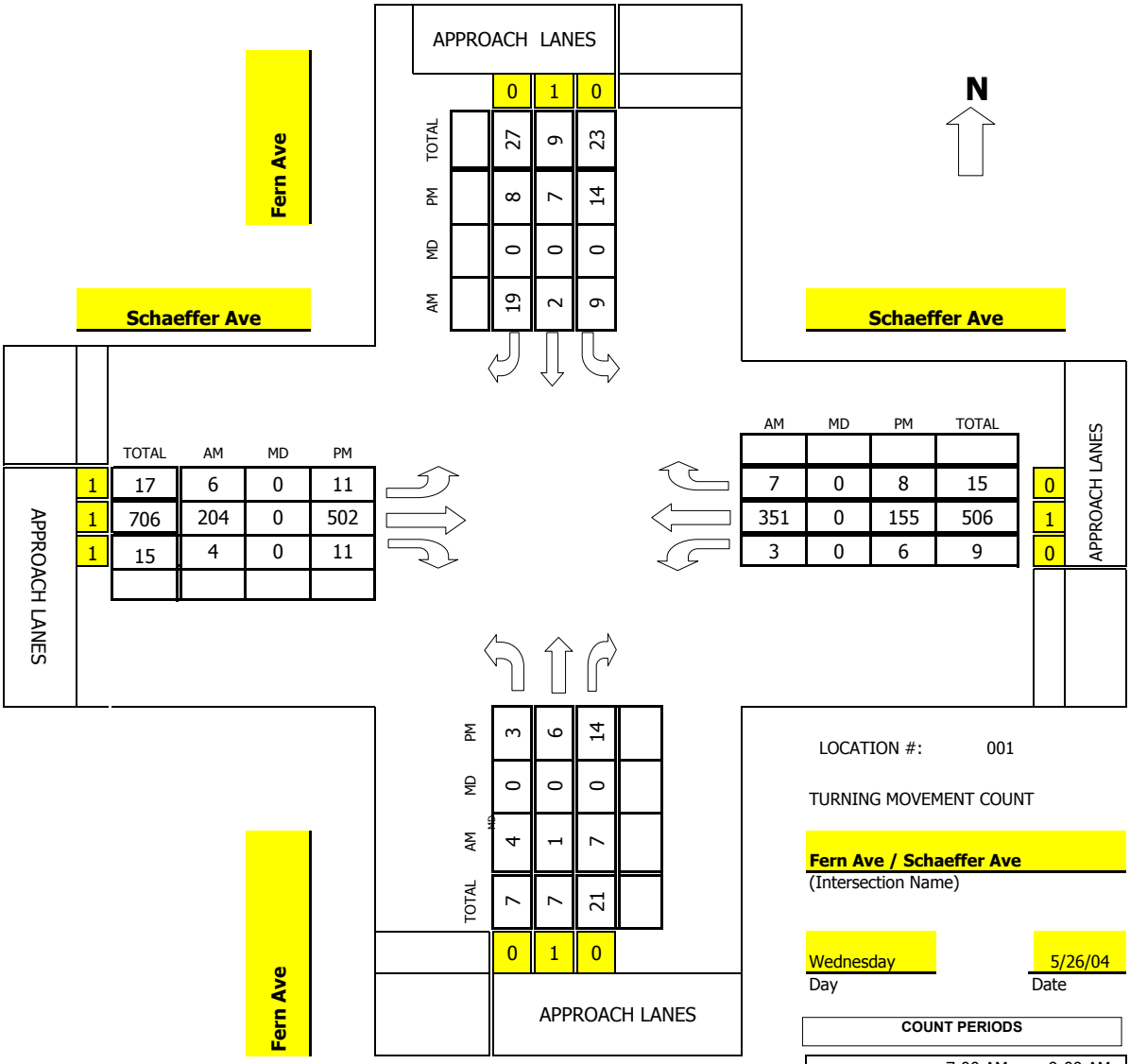
PM Peak Hr Begins at: 445 PM

PEAK VOLUMES =	30	40	20	3	24	23	38	488	30	21	149	1	867
PEAK HR. FACTOR:		0.833			0.658			0.959			0.807		0.930

CONTROL: signalized

TMC SUMMARY OF Fern Ave / Schaeffer Ave

Project #: 04-3211-003



LOCATION #: 001

TURNING MOVEMENT COUNT

Fern Ave / Schaeffer Ave
(Intersection Name)

Wednesday
Day

5/26/04
Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	715 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Fern Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	0	3	5	0	2	1	44	0	0	59	1	116
7:15 AM	1	0	2	2	0	3	2	51	2	2	84	2	151
7:30 AM	0	1	1	0	2	5	1	53	0	0	105	2	170
7:45 AM	2	0	2	4	0	6	2	48	1	0	106	1	172
8:00 AM	1	0	2	3	0	5	1	52	1	1	56	2	124
8:15 AM	1	1	3	4	0	2	1	45	0	0	50	2	109
8:30 AM	1	0	1	1	0	2	2	36	1	0	65	3	112
8:45 AM	0	0	0	0	0	0	2	32	0	1	25	0	60
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 7	NT 2	NR 14	SL 19	ST 2	SR 25	EL 12	ET 361	ER 5	WL 4	WT 550	WR 13	TOTAL 1014

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	4	1	7	9	2	19	6	204	4	3	351	7	617
PEAK HR. FACTOR:		0.750			0.750			0.973			0.843		0.897

CONTROL: 2-way stop

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Fern Ave DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	3	4	0	0	0	112	0	2	43	3	167
4:15 PM	1	0	2	3	0	3	3	98	2	1	34	4	151
4:30 PM	1	1	3	6	4	3	4	117	3	1	30	3	176
4:45 PM	2	2	2	4	2	2	2	138	4	2	47	1	208
5:00 PM	0	2	6	2	1	1	2	129	4	3	42	1	193
5:15 PM	0	1	3	2	0	2	3	118	0	0	36	3	168
5:30 PM	1	0	4	0	1	3	2	77	2	0	44	1	135
5:45 PM	0	1	2	1	0	2	2	79	2	2	43	2	136
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	5	7	25	22	8	16	18	868	17	11	319	18	1334

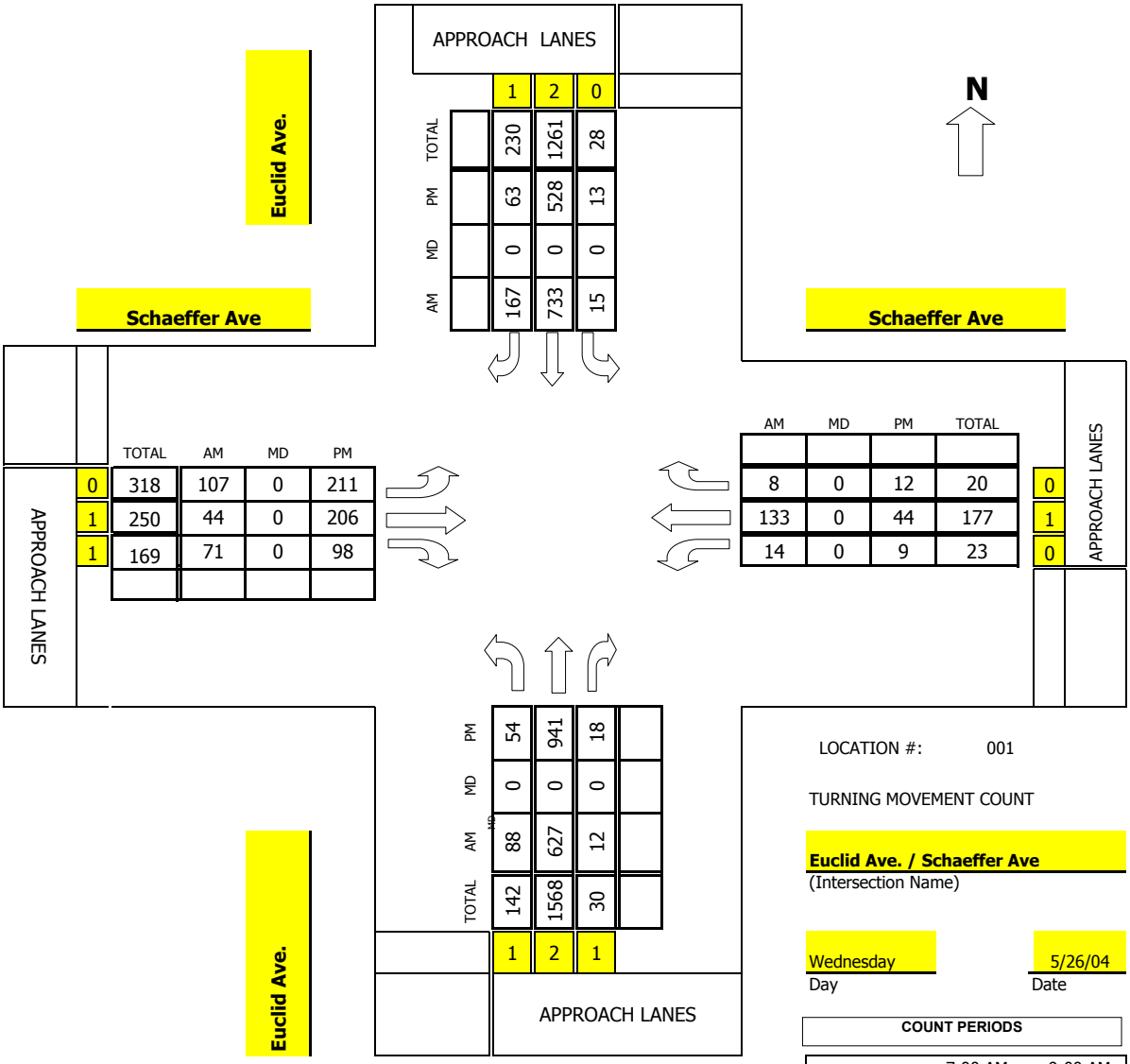
PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	3	6	14	14	7	8	11	502	11	6	155	8	745
PEAK HR. FACTOR:		0.719			0.558			0.910			0.845		0.895

CONTROL: 2-way stop

TMC SUMMARY OF Euclid Ave. / Schaeffer Ave

Project #: 04-3211-002



	1	2	0
TOTAL	230	1261	28
PM	63	528	13
MD	0	0	0
AM	167	733	15

	TOTAL	AM	MD	PM
0	318	107	0	211
1	250	44	0	206
1	169	71	0	98

AM	MD	PM	TOTAL	
8	0	12	20	0
133	0	44	177	1
14	0	9	23	0

	1	2	1
PM	54	941	18
MD	0	0	0
AM	88	627	12
TOTAL	142	1568	30

LOCATION #: 001

TURNING MOVEMENT COUNT

Euclid Ave. / Schaeffer Ave
(Intersection Name)

Wednesday
Day

5/26/04
Date

COUNT PERIODS

am	7:00 AM	-	9:00 AM
noon	4:00 PM	-	6:00 PM
pm	4:00 PM	-	6:00 PM

AM PEAK HOUR	715 AM
NOON PEAK HOUR	0 AM
PM PEAK HOUR	430 PM

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Euclid Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	19	121	1	2	175	36	26	7	20	2	12	4	425
7:15 AM	20	137	2	4	177	44	23	14	18	2	35	1	477
7:30 AM	36	167	0	5	179	38	30	10	13	3	44	2	527
7:45 AM	16	165	7	2	211	50	28	8	20	4	42	2	555
8:00 AM	16	158	3	4	166	35	26	12	20	5	12	3	460
8:15 AM	9	148	2	2	133	25	30	13	8	2	19	3	394
8:30 AM	12	112	1	4	106	40	22	2	14	3	16	0	332
8:45 AM	6	134	2	2	121	12	21	5	7	2	5	5	322
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
TOTAL VOLUMES =	NL 134	NT 1142	NR 18	SL 25	ST 1268	SR 280	EL 206	ET 71	ER 120	WL 23	WT 185	WR 20	TOTAL 3492

AM Peak Hr Begins at: 715 AM

PEAK VOLUMES =	88	627	12	15	733	167	107	44	71	14	133	8	2019
PEAK HR. FACTOR:		0.895			0.870			0.957			0.791		0.909

CONTROL: signalized

Intersection Turning Movement

Prepared by: Southland Car Counters

N-S STREET: Euclid Ave. DATE: 5/25/2004 LOCATION: City of Chino

E-W STREET: Schaeffer Ave DAY: TUESDAY PROJECT# 04-3211-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	16	224	2	2	125	20	41	43	32	3	16	1	525
4:15 PM	11	232	7	5	129	17	39	44	17	2	9	3	515
4:30 PM	14	245	4	4	145	11	46	53	25	2	9	1	559
4:45 PM	16	206	5	1	137	19	64	49	25	2	12	3	539
5:00 PM	12	250	4	6	111	22	60	50	22	2	8	5	552
5:15 PM	12	240	5	2	135	11	41	54	26	3	15	3	547
5:30 PM	16	198	5	4	123	19	27	40	14	2	8	5	461
5:45 PM	12	185	10	3	115	20	28	32	19	1	12	0	437
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													
TOTAL VOLUMES =	NL 109	NT 1780	NR 42	SL 27	ST 1020	SR 139	EL 346	ET 365	ER 180	WL 17	WT 89	WR 21	TOTAL 4135

PM Peak Hr Begins at: 430 PM

PEAK VOLUMES =	54	941	18	13	528	63	211	206	98	9	44	12	2197
PEAK HR. FACTOR:		0.952			0.944			0.933			0.774		0.983

CONTROL: signalized

ATTACHMENT B

INTERSECTION DELAY WORKSHEETS

INTERSECTION DELAY WORKSHEETS

EXISTING (2004) CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Lane group		LTR			LTR		L	T	R	L	T	R
Volume (vph)	90	98	42	72	202	42	54	662	55	16	880	166
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type		3			3		3	3	3	3	3	3
Unit Extension		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0		0	0	0	0	0	0
Unit Extension		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		242			333		57	697	58	17	926	175
Lane group cap.		426			508		338	1558	697	421	1558	697
v/c ratio		0.57			0.66		0.17	0.45	0.08	0.04	0.59	0.25
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1		24.7			25.6		9.5	16.8	13.9	8.2	18.3	15.1
Delay factor k		0.16			0.23		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2		1.8			3.1		0.2	0.9	0.2	0.0	1.7	0.9
PF factor		1.000			1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay		26.5			28.7		9.8	17.7	14.1	8.2	20.0-	15.9
Lane group LOS		C			C		A	B	B	A	B	B
Apprch. delay	26.5			28.7			16.9			19.2		
Approach LOS	C			C			B			B		
Intersec. delay	20.4			Intersection LOS						C		

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38 EX AM

CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group		LTR			LTR		L	T	R	L	T	R
Adj. flow rate		242			333		57	697	58	17	926	175
Satflow rate		1277			1524		1615	3420	1530	1615	3420	1530
Lost time		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.		426			508		338	1558	697	421	1558	697
v/c ratio		0.57			0.66		0.17	0.45	0.08	0.04	0.59	0.25
Flow ratio		0.19			0.22			0.20	0.04		0.27	0.11
Crit. lane group		N			Y		N	N	N	N	Y	N
Sum flow ratios	0.52											
Lost time/cycle	9.00											
Critical v/c ratio	0.58											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group		LTR			LTR		L	T	R	L	T	R
Adj. flow rate		242			333		57	697	58	17	926	175
Lane group cap.		426			508		338	1558	697	421	1558	697
v/c ratio		0.57			0.66		0.17	0.45	0.08	0.04	0.59	0.25
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1		24.7			25.6		9.5	16.8	13.9	8.2	18.3	15.1
Delay factor k		0.16			0.23		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2		1.8			3.1		0.2	0.9	0.2	0.0	1.7	0.9
PF factor		1.000			1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay		26.5			28.7		9.8	17.7	14.1	8.2	20.0-	15.9
Lane group LOS		C			C		A	B	B	A	B	B
Apprch. delay	26.5			28.7			16.9			19.2		
Approach LOS	C			C			B			B		
Intersec. delay	20.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	54	269	44	137	507	102	38	558	123	96	605	126
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	57	329		144	534	107	40	716		101	770	
Lane group cap.	323	930		411	950	425	319	1220		337	1221	
v/c ratio	0.18	0.35		0.35	0.56	0.25	0.13	0.59		0.30	0.63	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	16.4	26.0		16.8	27.8	25.2	12.7	23.0		13.0	23.5	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.3	1.1		0.5	2.4	1.4	0.2	2.1		0.5	2.5	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	16.7	27.1		17.3	30.2	26.7	12.8	25.1		13.5	26.0	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.6			27.4			24.4			24.5		
Approach LOS	C			C			C			C		
Intersec. delay	25.4			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	57	329		144	534	107	40	716		101	770	
Satflow rate	1615	3348		1615	3420	1530*	1615	3328		1615	3331	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	323	930		411	950	425	319	1220		337	1221	
v/c ratio	0.18	0.35		0.35	0.56	0.25	0.13	0.59		0.30	0.63	
Flow ratio		0.10			0.16	0.07		0.22			0.23	
Crit. lane group	N	N		N	Y	N	N	N		N	Y	
Sum flow ratios	0.54											
Lost time/cycle	12.00											
Critical v/c ratio	0.62											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	57	329		144	534	107	40	716		101	770	
Lane group cap.	323	930		411	950	425	319	1220		337	1221	
v/c ratio	0.18	0.35		0.35	0.56	0.25	0.13	0.59		0.30	0.63	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	16.4	26.0		16.8	27.8	25.2	12.7	23.0		13.0	23.5	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.3	1.1		0.5	2.4	1.4	0.2	2.1		0.5	2.5	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	16.7	27.1		17.3	30.2	26.7	12.8	25.1		13.5	26.0	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.6			27.4			24.4			24.5		
Approach LOS	C			C			C			C		
Intersec. delay	25.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	40	206	38	16	444	94	28	107	16	83	188	165
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	42	257		17	566		29	130		87	372	
Lane group cap.	280	1447		448	1443		450	1677		601	1590	
v/c ratio	0.15	0.18		0.04	0.39		0.06	0.08		0.14	0.23	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	15.5	15.7		14.7	17.4		11.6	11.7		12.1	12.7	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	1.1	0.3		0.2	0.8		0.3	0.1		0.5	0.3	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	16.6	15.9		14.8	18.2		11.9	11.8		12.6	13.1	
Lane group LOS	B	B		B	B		B	B		B	B	
Apprch. delay	16.0			18.1			11.8			13.0		
Approach LOS	B			B			B			B		
Intersec. delay	15.5			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	42	257		17	566		29	130		87	372	
Satflow rate	645	3340		1033	3330		899	3353		1201	3180	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	280	1447		448	1443		450	1677		601	1590	
v/c ratio	0.15	0.18		0.04	0.39		0.06	0.08		0.14	0.23	
Flow ratio	0.07	0.08		0.02	0.17		0.03	0.04		0.07	0.12	
Crit. lane group	N	N		N	Y		N	N		N	Y	
Sum flow ratios	0.29											
Lost time/cycle	6.00											
Critical v/c ratio	0.31											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	42	257		17	566		29	130		87	372	
Lane group cap.	280	1447		448	1443		450	1677		601	1590	
v/c ratio	0.15	0.18		0.04	0.39		0.06	0.08		0.14	0.23	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	15.5	15.7		14.7	17.4		11.6	11.7		12.1	12.7	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	1.1	0.3		0.2	0.8		0.3	0.1		0.5	0.3	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	16.6	15.9		14.8	18.2		11.9	11.8		12.6	13.1	
Lane group LOS	B	B		B	B		B	B		B	B	
Apprch. delay	16.0			18.1			11.8			13.0		
Approach LOS	B			B			B			B		
Intersec. delay	15.5			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	64	225	31	52	295	0	116	27	14	9	27	65
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	67	270		55	311			165			105	
Lane group cap.	488	1679		516	1710			618			665	
v/c ratio	0.14	0.16		0.11	0.18			0.27			0.16	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.1	12.2		11.9	12.4			16.3			15.5	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.6	0.2		0.4	0.2			0.2			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.7	12.4		12.3	12.6			16.6			15.6	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.5			12.6			16.6			15.6		
Approach LOS	B			B			B			B		
Intersec. delay	13.5			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	67	270		55	311			165			105	
Satflow rate	976	3357		1031	3420			1427			1535	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	488	1679		516	1710			618			665	
v/c ratio	0.14	0.16		0.11	0.18			0.27			0.16	
Flow ratio	0.07	0.08		0.05	0.09			0.12			0.07	
Crit. lane group	N	N		N	Y			Y			N	
Sum flow ratios	0.21											
Lost time/cycle	6.00											
Critical v/c ratio	0.22											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	67	270		55	311			165			105	
Lane group cap.	488	1679		516	1710			618			665	
v/c ratio	0.14	0.16		0.11	0.18			0.27			0.16	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.1	12.2		11.9	12.4			16.3			15.5	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.6	0.2		0.4	0.2			0.2			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.7	12.4		12.3	12.6			16.6			15.6	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.5			12.6			16.6			15.6		
Approach LOS	B			B			B			B		
Intersec. delay	13.5			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Shaefer Av
Agency/Co.	Kaku Associates, Inc.	Jurisdiction	
Date Performed	5/25/2004	Analysis Year	
Analysis Time Period	Existing AM		

Project Description

East/West Street: Schaefer Av	North/South Street: Fern Av
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	7	222	4	3	390	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	7	233	4	3	410	8
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	1	1	1	0	1	0
Configuration	L	T	R	LTR		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	4	1	7	9	2	20
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR	4	1	7	9	2	21
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	LTR		LTR			LTR	
v (vph)	7	3		12			32	
C (m) (vph)	1152	1342		530			512	
v/c	0.01	0.00		0.02			0.06	
95% queue length	0.02	0.01		0.07			0.20	
Control Delay	8.1	7.7		11.9			12.5	
LOS	A	A		B			B	
Approach Delay	--	--	11.9			12.5		
Approach LOS	--	--	B			B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	117	48	77	16	148	9	96	682	13	17	808	184
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 34.0	G =	G =	G =	G = 10.0	G = 37.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		174	81		182		101	718	14	18	1045	
Lane group cap.		508	578		627		270	1406	629	375	1367	
v/c ratio		0.34	0.14		0.29		0.37	0.51	0.02	0.05	0.76	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Unif. delay d1		20.0	18.4		19.6		13.3	19.8	15.7	10.1	22.8	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		1.8	0.5		1.2		0.9	1.3	0.1	0.1	4.1	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		21.8	18.9		20.7		14.2	21.1	15.8	10.2	26.9	
Lane group LOS		C	B		C		B	C	B	B	C	
Apprch. delay	20.9			20.7			20.2			26.6		
Approach LOS	C			C			C			C		
Intersec. delay	23.2			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	174	81	182	101	718	14	18	1045
Satflow rate	1346	1530	1661	1615	3420	1530	1615	3325
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Lane group cap.	508	578	627	270	1406	629	375	1367
v/c ratio	0.34	0.14	0.29	0.37	0.51	0.02	0.05	0.76
Flow ratio	0.13	0.05	0.11		0.21	0.01		0.31
Crit. lane group	Y	N	N	N	N	N	N	Y
Sum flow ratios	0.51							
Lost time/cycle	9.00							
Critical v/c ratio	0.56							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	174	81	182	101	718	14	18	1045
Lane group cap.	508	578	627	270	1406	629	375	1367
v/c ratio	0.34	0.14	0.29	0.37	0.51	0.02	0.05	0.76
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Unif. delay d1	20.0	18.4	19.6	13.3	19.8	15.7	10.1	22.8
Delay factor k	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50
Increm. delay d2	1.8	0.5	1.2	0.9	1.3	0.1	0.1	4.1
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	21.8	18.9	20.7	14.2	21.1	15.8	10.2	26.9
Lane group LOS	C	B	C	B	C	B	B	C
Apprch. delay	20.9		20.7	20.2			26.6	
Approach LOS	C		C	C			C	
Intersec. delay	23.2		Intersection LOS				C	

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Lane group		LTR			LTR		L	T	R	L	T	R
Volume (vph)	146	200	21	46	99	20	54	1005	113	20	579	67
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type		3			3		3	3	3	3	3	3
Unit Extension		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0		0	0	0	0	0	0
Unit Extension		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		387			173		57	1058	119	21	609	71
Lane group cap.		481			483		460	1558	697	298	1558	697
v/c ratio		0.80			0.36		0.12	0.68	0.17	0.07	0.39	0.10
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1		27.3			22.7		8.1	19.3	14.5	10.1	16.2	14.0
Delay factor k		0.35			0.11		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2		10.4			0.5		0.1	2.4	0.5	0.1	0.7	0.3
PF factor		1.000			1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay		37.7			23.2		8.3	21.7	15.0	10.2	17.0	14.3
Lane group LOS		D			C		A	C	B	B	B	B
Apprch. delay	37.7			23.2			20.5			16.5		
Approach LOS	D			C			C			B		
Intersec. delay	22.2			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group		LTR			LTR		L	T	R	L	T	R
Adj. flow rate		387			173		57	1058	119	21	609	71
Satflow rate		1442			1448		1615	3420	1530	1615	3420	1530
Lost time		2.0			2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.		481			483		460	1558	697	298	1558	697
v/c ratio		0.80			0.36		0.12	0.68	0.17	0.07	0.39	0.10
Flow ratio		0.27			0.12			0.31	0.08		0.18	0.05
Crit. lane group		Y			N		N	Y	N	N	N	N
Sum flow ratios	0.61											
Lost time/cycle	9.00											
Critical v/c ratio	0.68											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group		LTR			LTR		L	T	R	L	T	R
Adj. flow rate		387			173		57	1058	119	21	609	71
Lane group cap.		481			483		460	1558	697	298	1558	697
v/c ratio		0.80			0.36		0.12	0.68	0.17	0.07	0.39	0.10
Green ratio		0.33			0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1		27.3			22.7		8.1	19.3	14.5	10.1	16.2	14.0
Delay factor k		0.35			0.11		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2		10.4			0.5		0.1	2.4	0.5	0.1	0.7	0.3
PF factor		1.000			1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay		37.7			23.2		8.3	21.7	15.0	10.2	17.0	14.3
Lane group LOS		D			C		A	C	B	B	B	B
Apprch. delay	37.7			23.2			20.5			16.5		
Approach LOS	D			C			C			B		
Intersec. delay	22.2			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	130	542	40	126	384	117	41	767	186	96	533	76
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	137	613		133	404	123	43	1003		101	641	
Lane group cap.	377	940		294	950	425	365	1217		259	1231	
v/c ratio	0.36	0.65		0.45	0.43	0.29	0.12	0.82		0.39	0.52	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	16.9	28.7		17.7	26.6	25.5	12.1	25.9		15.3	22.3	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.6	3.5		1.1	1.4	1.7	0.1	6.4		1.0	1.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.5	32.2		18.8	28.0	27.2	12.2	32.3		16.3	23.9	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	29.5			26.0			31.5			22.8		
Approach LOS	C			C			C			C		
Intersec. delay	27.9			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	137	613		133	404	123	43	1003		101	641	
Satflow rate	1615	3385		1615	3420	1530	1615	3320		1615	3356	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	377	940		294	950	425	365	1217		259	1231	
v/c ratio	0.36	0.65		0.45	0.43	0.29	0.12	0.82		0.39	0.52	
Flow ratio		0.18			0.12	0.08		0.30			0.19	
Crit. lane group	N	Y		N	N	N	N	Y		N	N	
Sum flow ratios	0.63											
Lost time/cycle	12.00											
Critical v/c ratio	0.73											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	137	613		133	404	123	43	1003		101	641	
Lane group cap.	377	940		294	950	425	365	1217		259	1231	
v/c ratio	0.36	0.65		0.45	0.43	0.29	0.12	0.82		0.39	0.52	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	16.9	28.7		17.7	26.6	25.5	12.1	25.9		15.3	22.3	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.6	3.5		1.1	1.4	1.7	0.1	6.4		1.0	1.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.5	32.2		18.8	28.0	27.2	12.2	32.3		16.3	23.9	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	29.5			26.0			31.5			22.8		
Approach LOS	C			C			C			C		
Intersec. delay	27.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	287	470	18	1	188	64	26	309	23	89	188	57
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 41.0	G =	G =	G =	G = 43.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	302	514		1	265		27	349		94	258	
Lane group cap.	468	1549		326	1499		498	1617		440	1577	
v/c ratio	0.65	0.33		0.00	0.18		0.05	0.22		0.21	0.16	
Green ratio	0.46	0.46		0.46	0.46		0.48	0.48		0.48	0.48	
Unif. delay d1	18.9	15.7		13.4	14.5		12.6	13.7		13.7	13.3	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	6.7	0.6		0.0	0.3		0.2	0.3		1.1	0.2	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	25.6	16.3		13.4	14.8		12.8	14.0		14.8	13.5	
Lane group LOS	C	B		B	B		B	B		B	B	
Apprch. delay	19.7			14.8			13.9			13.9		
Approach LOS	B			B			B			B		
Intersec. delay	16.7			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	302	514		1	265		27	349		94	258	
Satflow rate	1027	3401		715	3290		1042	3385		920	3301	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.46	0.46		0.46	0.46		0.48	0.48		0.48	0.48	
Lane group cap.	468	1549		326	1499		498	1617		440	1577	
v/c ratio	0.65	0.33		0.00	0.18		0.05	0.22		0.21	0.16	
Flow ratio	0.29	0.15		0.00	0.08		0.03	0.10		0.10	0.08	
Crit. lane group	Y	N		N	N		N	Y		N	N	
Sum flow ratios	0.40											
Lost time/cycle	6.00											
Critical v/c ratio	0.43											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	302	514		1	265		27	349		94	258	
Lane group cap.	468	1549		326	1499		498	1617		440	1577	
v/c ratio	0.65	0.33		0.00	0.18		0.05	0.22		0.21	0.16	
Green ratio	0.46	0.46		0.46	0.46		0.48	0.48		0.48	0.48	
Unif. delay d1	18.9	15.7		13.4	14.5		12.6	13.7		13.7	13.3	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	6.7	0.6		0.0	0.3		0.2	0.3		1.1	0.2	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	25.6	16.3		13.4	14.8		12.8	14.0		14.8	13.5	
Lane group LOS	C	B		B	B		B	B		B	B	
Apprch. delay	19.7			14.8			13.9			13.9		
Approach LOS	B			B			B			B		
Intersec. delay	16.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	40	519	32	23	162	1	30	40	20	3	24	23
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	42	580		24	172			95			52	
Lane group cap.	577	1695		336	1709			688			689	
v/c ratio	0.07	0.34		0.07	0.10			0.14			0.08	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.7	13.6		11.7	11.8			15.4			14.9	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.2	0.6		0.4	0.1			0.1			0.0	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	11.9	14.1		12.1	12.0			15.5			15.0	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	14.0			12.0			15.5			15.0		
Approach LOS	B			B			B			B		
Intersec. delay	13.8			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	42	580		24	172			95			52	
Satflow rate	1154	3390		671	3417			1588			1589	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	577	1695		336	1709			688			689	
v/c ratio	0.07	0.34		0.07	0.10			0.14			0.08	
Flow ratio	0.04	0.17		0.04	0.05			0.06			0.03	
Crit. lane group	N	Y		N	N			Y			N	
Sum flow ratios	0.23											
Lost time/cycle	6.00											
Critical v/c ratio	0.25											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	42	580		24	172			95			52	
Lane group cap.	577	1695		336	1709			688			689	
v/c ratio	0.07	0.34		0.07	0.10			0.14			0.08	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.7	13.6		11.7	11.8			15.4			14.9	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.2	0.6		0.4	0.1			0.1			0.0	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	11.9	14.1		12.1	12.0			15.5			15.0	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	14.0			12.0			15.5			15.0		
Approach LOS	B			B			B			B		
Intersec. delay	13.8			Intersection LOS						B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*rr*
Agency/Co.	*Kaku Associates, Inc.*
Date Performed	*5/25/2004*
Analysis Time Period	*Existing PM*

Site Information

Intersection	*#42 Fern Av & Schaefer Av*
Jurisdiction	
Analysis Year	

Project Description

East/West Street: *Schaefer Av* | North/South Street: *Fern Av*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*12*	*547*	*12*	*7*	*172*	*9*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*12*	*575*	*12*	*7*	*181*	*9*
Percent Heavy Vehicles	*0*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*0*	*1*	*0*
Configuration	*L*	*T*	*R*	*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*3*	*6*	*15*	*15*	*7*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR	*3*	*6*	*15*	*15*	*7*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*LTR*		*LTR*			*LTR*	
v (vph)	*12*	*7*		*24*			*30*	
C (m) (vph)	*1396*	*998*		*412*			*353*	
v/c	*0.01*	*0.01*		*0.06*			*0.08*	
95% queue length	*0.03*	*0.02*		*0.18*			*0.28*	
Control Delay	*7.6*	*8.6*		*14.3*			*16.1*	
LOS	*A*	*A*		*B*			*C*	
Approach Delay	--	--	*14.3*			*16.1*		
Approach LOS	--	--	*B*			*C*		

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Existing PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	230	225	107	10	49	13	59	1023	20	14	582	69
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 34.0	G =	G =	G =	G = 10.0	G = 37.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		479	113		77		62	1077	21	15	686	
Lane group cap.		579	578		597		387	1406	629	262	1383	
v/c ratio		0.83	0.20		0.13		0.16	0.77	0.03	0.06	0.50	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Unif. delay d1		25.3	18.8		18.3		10.3	22.8	15.8	12.4	19.6	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		12.8	0.8		0.4		0.2	4.0	0.1	0.1	1.3	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		38.1	19.6		18.8		10.5	26.8	15.9	12.5	20.9	
Lane group LOS		D	B		B		B	C	B	B	C	
Apprch. delay	34.6			18.8			25.7			20.7		
Approach LOS	C			B			C			C		
Intersec. delay	26.2			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group		LT	R		LTR		L	T	R	L	TR	
Adj. flow rate		479	113		77		62	1077	21	15	686	
Satflow rate		1533	1530		1581		1615	3420	1530	1615	3365	
Lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Lane group cap.		579	578		597		387	1406	629	262	1383	
v/c ratio		0.83	0.20		0.13		0.16	0.77	0.03	0.06	0.50	
Flow ratio		0.31	0.07		0.05			0.31	0.01		0.20	
Crit. lane group		Y	N		N		N	Y	N	N	N	
Sum flow ratios	0.67											
Lost time/cycle	9.00											
Critical v/c ratio	0.74											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group		LT	R		LTR		L	T	R	L	TR	
Adj. flow rate		479	113		77		62	1077	21	15	686	
Lane group cap.		579	578		597		387	1406	629	262	1383	
v/c ratio		0.83	0.20		0.13		0.16	0.77	0.03	0.06	0.50	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Unif. delay d1		25.3	18.8		18.3		10.3	22.8	15.8	12.4	19.6	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		12.8	0.8		0.4		0.2	4.0	0.1	0.1	1.3	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		38.1	19.6		18.8		10.5	26.8	15.9	12.5	20.9	
Lane group LOS		D	B		B		B	C	B	B	C	
Apprch. delay	34.6			18.8			25.7			20.7		
Approach LOS	C			B			C			C		
Intersec. delay	26.2			Intersection LOS						C		

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INTERSECTION DELAY WORKSHEETS

INTERIM YEAR 2012 WITHOUT PROJECT CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	103	109	43	83	274	80	59	816	65	30	1049	238
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	108	115	45		459		62	859	68	32	1104	251
Lane group cap.	203	633	538		533		297	1645	736	372	1645	736
v/c ratio	0.53	0.18	0.08		0.86		0.21	0.52	0.09	0.09	0.67	0.34
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	24.3	21.3	20.6		28.1		11.0	17.5	13.9	8.9	19.2	15.8
Delay factor k	0.13	0.11	0.11		0.39		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	2.7	0.1	0.1		15.5		0.4	1.2	0.2	0.1	2.2	1.3
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	27.0	21.4	20.6		43.5		11.3	18.7	14.2	9.0	21.4	17.1
Lane group LOS	C	C	C		D		B	B	B	A	C	B
Apprch. delay	23.6			43.5			17.9			20.4		
Approach LOS	C			D			B			C		
Intersec. delay	23.3			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	108	115	45		459		62	859	68	32	1104	251
Satflow rate	608	1900	1615		1600		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.	203	633	538		533		297	1645	736	372	1645	736
v/c ratio	0.53	0.18	0.08		0.86		0.21	0.52	0.09	0.09	0.67	0.34
Flow ratio	0.18	0.06	0.03		0.29			0.24	0.04		0.31	0.16
Crit. lane group	N	N	N		Y		N	N	N	N	Y	N
Sum flow ratios	0.63											
Lost time/cycle	9.00											
Critical v/c ratio	0.70											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	108	115	45		459		62	859	68	32	1104	251
Lane group cap.	203	633	538		533		297	1645	736	372	1645	736
v/c ratio	0.53	0.18	0.08		0.86		0.21	0.52	0.09	0.09	0.67	0.34
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	24.3	21.3	20.6		28.1		11.0	17.5	13.9	8.9	19.2	15.8
Delay factor k	0.13	0.11	0.11		0.39		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	2.7	0.1	0.1		15.5		0.4	1.2	0.2	0.1	2.2	1.3
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	27.0	21.4	20.6		43.5		11.3	18.7	14.2	9.0	21.4	17.1
Lane group LOS	C	C	C		D		B	B	B	A	C	B
Apprch. delay	23.6			43.5			17.9			20.4		
Approach LOS	C			D			B			C		
Intersec. delay	23.3			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	55	270	51	165	706	108	68	625	125	96	670	137
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	58	338		174	743	114	72	790		101	849	
Lane group cap.	270	979		419	1003	449	304	1291		323	1290	
v/c ratio	0.21	0.35		0.42	0.74	0.25	0.24	0.61		0.31	0.66	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.5	26.0		17.1	29.6	25.3	13.5	23.3		13.4	23.8	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	1.0		0.7	4.9	1.4	0.4	2.2		0.6	2.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.9	26.9		17.7	34.5	26.6	13.9	25.4		13.9	26.4	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.6			30.8			24.5			25.1		
Approach LOS	C			C			C			C		
Intersec. delay	26.8			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	58	338		174	743	114	72	790		101	849	
Satflow rate	1710	3523		1710	3610	1615	1710	3520		1710	3518	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	270	979		419	1003	449	304	1291		323	1290	
v/c ratio	0.21	0.35		0.42	0.74	0.25	0.24	0.61		0.31	0.66	
Flow ratio		0.10			0.21	0.07		0.22			0.24	
Crit. lane group	N	N		N	Y	N	N	N		N	Y	
Sum flow ratios	0.61											
Lost time/cycle	12.00											
Critical v/c ratio	0.70											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	58	338		174	743	114	72	790		101	849	
Lane group cap.	270	979		419	1003	449	304	1291		323	1290	
v/c ratio	0.21	0.35		0.42	0.74	0.25	0.24	0.61		0.31	0.66	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.5	26.0		17.1	29.6	25.3	13.5	23.3		13.4	23.8	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	1.0		0.7	4.9	1.4	0.4	2.2		0.6	2.6	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.9	26.9		17.7	34.5	26.6	13.9	25.4		13.9	26.4	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.6			30.8			24.5			25.1		
Approach LOS	C			C			C			C		
Intersec. delay	26.8			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	42	211	41	61	618	124	38	132	17	92	241	216
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	44	265		64	782		40	157		97	481	
Lane group cap.	191	1526		444	1525		388	1774		587	1677	
v/c ratio	0.23	0.17		0.14	0.51		0.10	0.09		0.17	0.29	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	16.1	15.6		15.4	18.6		11.9	11.8		12.3	13.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	2.8	0.2		0.7	1.2		0.5	0.1		0.6	0.4	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	18.9	15.9		16.1	19.8		12.4	11.9		12.9	13.6	
Lane group LOS	B	B		B	B		B	B		B	B	
Apprch. delay	16.3			19.5			12.0			13.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.4			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	44	265		64	782		40	157		97	481	
Satflow rate	441	3522		1024	3519		776	3548		1174	3354	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	191	1526		444	1525		388	1774		587	1677	
v/c ratio	0.23	0.17		0.14	0.51		0.10	0.09		0.17	0.29	
Flow ratio	0.10	0.08		0.06	0.22		0.05	0.04		0.08	0.14	
Crit. lane group	N	N		N	Y		N	N		N	Y	
Sum flow ratios	0.37											
Lost time/cycle	6.00											
Critical v/c ratio	0.39											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	44	265		64	782		40	157		97	481	
Lane group cap.	191	1526		444	1525		388	1774		587	1677	
v/c ratio	0.23	0.17		0.14	0.51		0.10	0.09		0.17	0.29	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	16.1	15.6		15.4	18.6		11.9	11.8		12.3	13.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	2.8	0.2		0.7	1.2		0.5	0.1		0.6	0.4	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	18.9	15.9		16.1	19.8		12.4	11.9		12.9	13.6	
Lane group LOS	B	B		B	B		B	B		B	B	
Apprch. delay	16.3			19.5			12.0			13.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	66	238	31	53	522	25	120	27	15	20	29	67
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	69	284		56	575			170			123	
Lane group cap.	339	1774		508	1793			601			690	
v/c ratio	0.20	0.16		0.11	0.32			0.28			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.5	12.2		11.9	13.4			16.5			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	1.4	0.2		0.4	0.5			0.3			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	13.9	12.4		12.3	13.9			16.7			15.8	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.7			13.7			16.7			15.8		
Approach LOS	B			B			B			B		
Intersec. delay	14.0			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	69	284		56	575			170			123	
Satflow rate	678	3547		1015	3586			1386			1592	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	339	1774		508	1793			601			690	
v/c ratio	0.20	0.16		0.11	0.32			0.28			0.18	
Flow ratio	0.10	0.08		0.06	0.16			0.12			0.08	
Crit. lane group	N	N		N	Y			Y			N	
Sum flow ratios	0.28											
Lost time/cycle	6.00											
Critical v/c ratio	0.30											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	69	284		56	575			170			123	
Lane group cap.	339	1774		508	1793			601			690	
v/c ratio	0.20	0.16		0.11	0.32			0.28			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.5	12.2		11.9	13.4			16.5			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	1.4	0.2		0.4	0.5			0.3			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	13.9	12.4		12.3	13.9			16.7			15.8	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.7			13.7			16.7			15.8		
Approach LOS	B			B			B			B		
Intersec. delay	14.0			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	11	233	7	9	566	24	10	44	8	13	48	40
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	12	245	7	9	621		11	54		14	93	
Lane group cap.	449	1224	1041	679	2312		361	1020		374	972	
v/c ratio	0.03	0.20	0.01	0.01	0.27		0.03	0.05		0.04	0.10	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.8	6.5	5.7	5.7	6.9		23.0	23.1		23.0	23.4	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.1	0.4	0.0	0.0	0.3		0.0	0.0		0.0	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	5.9	6.9	5.7	5.8	7.2		23.0	23.1		23.0	23.4	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.8			7.1			23.1			23.4		
Approach LOS	A			A			C			C		
Intersec. delay	9.7			Intersection LOS						A		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	12	245	7	9	621		11	54		14	93	
Satflow rate	697	1900	1615	1054	3588		1249	3530		1296	3365	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	449	1224	1041	679	2312		361	1020		374	972	
v/c ratio	0.03	0.20	0.01	0.01	0.27		0.03	0.05		0.04	0.10	
Flow ratio	0.02	0.13	0.00	0.01	0.17		0.01	0.02		0.01	0.03	
Crit. lane group	N	N	N	N	Y		N	N		N	Y	
Sum flow ratios	0.20											
Lost time/cycle	6.00											
Critical v/c ratio	0.22											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	12	245	7	9	621		11	54		14	93	
Lane group cap.	449	1224	1041	679	2312		361	1020		374	972	
v/c ratio	0.03	0.20	0.01	0.01	0.27		0.03	0.05		0.04	0.10	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.8	6.5	5.7	5.7	6.9		23.0	23.1		23.0	23.4	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.1	0.4	0.0	0.0	0.3		0.0	0.0		0.0	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	5.9	6.9	5.7	5.8	7.2		23.0	23.1		23.0	23.4	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.8			7.1			23.1			23.4		
Approach LOS	A			A			C			C		
Intersec. delay	9.7			Intersection LOS						A		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	119	51	83	61	300	16	127	852	23	19	979	198
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 34.0	G =	G =	G =	G = 10.0	G = 37.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		179	87		397		134	897	24	20	1239	
Lane group cap.		374	610		635		270	1484	664	324	1447	
v/c ratio		0.48	0.14		0.63		0.50	0.60	0.04	0.06	0.86	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Unif. delay d1		21.3	18.4		22.8		15.8	20.8	15.8	11.0	24.1	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		4.3	0.5		4.6		1.4	1.8	0.1	0.1	6.7	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		25.6	18.9		27.4		17.3	22.6	15.9	11.1	30.8	
Lane group LOS		C	B		C		B	C	B	B	C	
Apprch. delay	23.4			27.4			21.8			30.5		
Approach LOS	C			C			C			C		
Intersec. delay	26.4			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	179	87	397	134	897	24	20	1239
Satflow rate	989	1615	1682	1710	3610	1615	1710	3519
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Lane group cap.	374	610	635	270	1484	664	324	1447
v/c ratio	0.48	0.14	0.63	0.50	0.60	0.04	0.06	0.86
Flow ratio	0.18	0.05	0.24		0.25	0.01		0.35
Crit. lane group	N	N	Y	N	N	N	N	Y
Sum flow ratios	0.67							
Lost time/cycle	9.00							
Critical v/c ratio	0.74							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	179	87	397	134	897	24	20	1239
Lane group cap.	374	610	635	270	1484	664	324	1447
v/c ratio	0.48	0.14	0.63	0.50	0.60	0.04	0.06	0.86
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Unif. delay d1	21.3	18.4	22.8	15.8	20.8	15.8	11.0	24.1
Delay factor k	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50
Increm. delay d2	4.3	0.5	4.6	1.4	1.8	0.1	0.1	6.7
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	25.6	18.9	27.4	17.3	22.6	15.9	11.1	30.8
Lane group LOS	C	B	C	B	C	B	B	C
Apprch. delay	23.4		27.4	21.8			30.5	
Approach LOS	C		C	C			C	
Intersec. delay	26.4		Intersection LOS				C	

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	212	384	23	59	127	61	55	1143	126	59	780	89
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	223	404	24		260		58	1203	133	62	821	94
Lane group cap.	300	633	538		341		385	1645	736	272	1645	736
v/c ratio	0.74	0.64	0.04		0.76		0.15	0.73	0.18	0.23	0.50	0.13
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	26.6	25.4	20.3		26.8		8.9	20.0	14.5	12.1	17.3	14.2
Delay factor k	0.30	0.22	0.11		0.31		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	10.2	2.2	0.0		10.4		0.2	3.0	0.5	0.4	1.1	0.4
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	36.8	27.6	20.3		37.2		9.1	23.0	15.1	12.5	18.4	14.5
Lane group LOS	D	C	C		D		A	C	B	B	B	B
Apprch. delay	30.5			37.2			21.6			17.6		
Approach LOS	C			D			C			B		
Intersec. delay	23.4			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	223	404	24		260		58	1203	133	62	821	94
Satflow rate	901	1900	1615		1024		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.	300	633	538		341		385	1645	736	272	1645	736
v/c ratio	0.74	0.64	0.04		0.76		0.15	0.73	0.18	0.23	0.50	0.13
Flow ratio	0.25	0.21	0.01		0.25			0.33	0.08		0.23	0.06
Crit. lane group	N	N	N		Y		N	Y	N	N	N	N
Sum flow ratios	0.62											
Lost time/cycle	9.00											
Critical v/c ratio	0.69											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	223	404	24		260		58	1203	133	62	821	94
Lane group cap.	300	633	538		341		385	1645	736	272	1645	736
v/c ratio	0.74	0.64	0.04		0.76		0.15	0.73	0.18	0.23	0.50	0.13
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	26.6	25.4	20.3		26.8		8.9	20.0	14.5	12.1	17.3	14.2
Delay factor k	0.30	0.22	0.11		0.31		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	10.2	2.2	0.0		10.4		0.2	3.0	0.5	0.4	1.1	0.4
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	36.8	27.6	20.3		37.2		9.1	23.0	15.1	12.5	18.4	14.5
Lane group LOS	D	C	C		D		A	C	B	B	B	B
Apprch. delay	30.5			37.2			21.6			17.6		
Approach LOS	C			D			C			B		
Intersec. delay	23.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	107	590	70	138	542	103	72	818	214	105	570	112
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	113	695		145	571	108	76	1086		111	718	
Lane group cap.	321	987		278	1003	449	348	1283		270	1291	
v/c ratio	0.35	0.70		0.52	0.57	0.24	0.22	0.85		0.41	0.56	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.2	29.2		18.3	27.9	25.2	12.7	26.2		16.1	22.7	
Delay factor k	0.11	0.50		0.13	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.7	4.2		1.8	2.3	1.3	0.3	7.0		1.0	1.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.9	33.4		20.1	30.2	26.4	13.0	33.2		17.1	24.4	
Lane group LOS	B	C		C	C	C	B	C		B	C	
Apprch. delay	31.2			27.9			31.9			23.4		
Approach LOS	C			C			C			C		
Intersec. delay	28.9			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	113	695		145	571	108	76	1086		111	718	
Satflow rate	1710	3552		1710	3610	1615	1710	3498		1710	3521	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	321	987		278	1003	449	348	1283		270	1291	
v/c ratio	0.35	0.70		0.52	0.57	0.24	0.22	0.85		0.41	0.56	
Flow ratio		0.20			0.16	0.07		0.31			0.20	
Crit. lane group	N	Y		N	N	N	N	Y		N	N	
Sum flow ratios	0.66											
Lost time/cycle	12.00											
Critical v/c ratio	0.76											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	113	695		145	571	108	76	1086		111	718	
Lane group cap.	321	987		278	1003	449	348	1283		270	1291	
v/c ratio	0.35	0.70		0.52	0.57	0.24	0.22	0.85		0.41	0.56	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.2	29.2		18.3	27.9	25.2	12.7	26.2		16.1	22.7	
Delay factor k	0.11	0.50		0.13	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.7	4.2		1.8	2.3	1.3	0.3	7.0		1.0	1.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.9	33.4		20.1	30.2	26.4	13.0	33.2		17.1	24.4	
Lane group LOS	B	C		C	C	C	B	C		B	C	
Apprch. delay	31.2			27.9			31.9			23.4		
Approach LOS	C			C			C			C		
Intersec. delay	28.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	316	782	31	21	215	73	28	337	45	122	236	59
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	333	856		22	303		29	402		128	310	
Lane group cap.	420	1555		165	1505		490	1774		433	1751	
v/c ratio	0.79	0.55		0.13	0.20		0.06	0.23		0.30	0.18	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	22.0	19.0		15.3	15.8		11.6	12.7		13.2	12.3	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	14.2	1.4		1.7	0.3		0.2	0.3		1.7	0.2	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	36.2	20.4		17.0	16.1		11.8	13.0		14.9	12.6	
Lane group LOS	D	C		B	B		B	B		B	B	
Apprch. delay	24.8			16.2			12.9			13.3		
Approach LOS	C			B			B			B		
Intersec. delay	19.4			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	333	856		22	303		29	402		128	310	
Satflow rate	970	3589		381	3472		980	3547		866	3502	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	420	1555		165	1505		490	1774		433	1751	
v/c ratio	0.79	0.55		0.13	0.20		0.06	0.23		0.30	0.18	
Flow ratio	0.34	0.24		0.06	0.09		0.03	0.11		0.15	0.09	
Crit. lane group	Y	N		N	N		N	N		Y	N	
Sum flow ratios	0.49											
Lost time/cycle	6.00											
Critical v/c ratio	0.53											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	333	856		22	303		29	402		128	310	
Lane group cap.	420	1555		165	1505		490	1774		433	1751	
v/c ratio	0.79	0.55		0.13	0.20		0.06	0.23		0.30	0.18	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	22.0	19.0		15.3	15.8		11.6	12.7		13.2	12.3	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	14.2	1.4		1.7	0.3		0.2	0.3		1.7	0.2	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	36.2	20.4		17.0	16.1		11.8	13.0		14.9	12.6	
Lane group LOS	D	C		B	B		B	B		B	B	
Apprch. delay	24.8			16.2			12.9			13.3		
Approach LOS	C			B			B			B		
Intersec. delay	19.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	45	855	36	24	187	15	31	40	21	20	24	24
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	47	938		25	213			97			71	
Lane group cap.	557	1794		189	1785			707			703	
v/c ratio	0.08	0.52		0.13	0.12			0.14			0.10	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.7	15.2		12.0	12.0			15.4			15.1	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.3	1.1		1.4	0.1			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.0	16.3		13.5	12.1			15.5			15.2	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	16.1			12.2			15.5			15.2		
Approach LOS	B			B			B			B		
Intersec. delay	15.4			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	47	938		25	213			97			71	
Satflow rate	1113	3588		378	3569			1631			1623	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	557	1794		189	1785			707			703	
v/c ratio	0.08	0.52		0.13	0.12			0.14			0.10	
Flow ratio	0.04	0.26		0.07	0.06			0.06			0.04	
Crit. lane group	N	Y		N	N			Y			N	
Sum flow ratios	0.32											
Lost time/cycle	6.00											
Critical v/c ratio	0.34											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	47	938		25	213			97			71	
Lane group cap.	557	1794		189	1785			707			703	
v/c ratio	0.08	0.52		0.13	0.12			0.14			0.10	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.7	15.2		12.0	12.0			15.4			15.1	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.3	1.1		1.4	0.1			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.0	16.3		13.5	12.1			15.5			15.2	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	16.1			12.2			15.5			15.2		
Approach LOS	B			B			B			B		
Intersec. delay	15.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	89	812	14	7	190	17	12	56	31	47	25	25
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	94	855	15	7	218		13	92		49	52	
Lane group cap.	714	1224	1041	221	2297		375	987		361	965	
v/c ratio	0.13	0.70	0.01	0.03	0.09		0.03	0.09		0.14	0.05	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	6.2	10.3	5.7	5.8	6.1		23.0	23.4		23.7	23.1	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	3.3	0.0	0.3	0.1		0.0	0.0		0.2	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	13.7	5.8	6.1	6.1		23.0	23.4		23.9	23.1	
Lane group LOS	A	B	A	A	A		C	C		C	C	
Apprch. delay	12.9			6.1			23.4			23.5		
Approach LOS	B			A			C			C		
Intersec. delay	13.3			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	94	855	15	7	218		13	92		49	52	
Satflow rate	1108	1900	1615	343	3565		1298	3416		1250	3339	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	714	1224	1041	221	2297		375	987		361	965	
v/c ratio	0.13	0.70	0.01	0.03	0.09		0.03	0.09		0.14	0.05	
Flow ratio	0.08	0.45	0.01	0.02	0.06		0.01	0.03		0.04	0.02	
Crit. lane group	N	Y	N	N	N		N	N		Y	N	
Sum flow ratios	0.49											
Lost time/cycle	6.00											
Critical v/c ratio	0.52											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	94	855	15	7	218		13	92		49	52	
Lane group cap.	714	1224	1041	221	2297		375	987		361	965	
v/c ratio	0.13	0.70	0.01	0.03	0.09		0.03	0.09		0.14	0.05	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	6.2	10.3	5.7	5.8	6.1		23.0	23.4		23.7	23.1	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	3.3	0.0	0.3	0.1		0.0	0.0		0.2	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	13.7	5.8	6.1	6.1		23.0	23.4		23.9	23.1	
Lane group LOS	A	B	A	A	A		C	C		C	C	
Apprch. delay	12.9			6.1			23.4			23.5		
Approach LOS	B			A			C			C		
Intersec. delay	13.3			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	240	428	112	17	62	21	62	1144	119	82	670	74
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 40.0	G =	G =	G =	G = 10.0	G = 31.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		704	118		105		65	1204	125	86	783	
Lane group cap.		701	718		696		307	1243	556	270	1225	
v/c ratio		1.00	0.16		0.15		0.21	0.97	0.22	0.32	0.64	
Green ratio		0.44	0.44		0.44		0.49	0.34	0.34	0.49	0.34	
Unif. delay d1		25.0	15.0		14.9		14.1	29.0	21.0	17.6	24.8	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		35.0	0.5		0.5		0.3	19.0	0.9	0.7	2.6	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		60.0	15.5		15.3		14.5	48.1	21.9	18.3	27.4	
Lane group LOS		E	B		B		B	D	C	B	C	
Apprch. delay	53.6			15.3			44.1			26.5		
Approach LOS	D			B			D			C		
Intersec. delay	40.8			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	704	118	105	65	1204	125	86	783
Satflow rate	1577	1615	1567	1710	3610	1615	1710	3556
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.44	0.44	0.44	0.49	0.34	0.34	0.49	0.34
Lane group cap.	701	718	696	307	1243	556	270	1225
v/c ratio	1.00	0.16	0.15	0.21	0.97	0.22	0.32	0.64
Flow ratio	0.45	0.07	0.07		0.33	0.08		0.22
Crit. lane group	Y	N	N	N	Y	N	N	N
Sum flow ratios	0.83							
Lost time/cycle	9.00							
Critical v/c ratio	0.92							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	704	118	105	65	1204	125	86	783
Lane group cap.	701	718	696	307	1243	556	270	1225
v/c ratio	1.00	0.16	0.15	0.21	0.97	0.22	0.32	0.64
Green ratio	0.44	0.44	0.44	0.49	0.34	0.34	0.49	0.34
Unif. delay d1	25.0	15.0	14.9	14.1	29.0	21.0	17.6	24.8
Delay factor k	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50
Increm. delay d2	35.0	0.5	0.5	0.3	19.0	0.9	0.7	2.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	60.0	15.5	15.3	14.5	48.1	21.9	18.3	27.4
Lane group LOS	E	B	B	B	D	C	B	C
Apprch. delay	53.6		15.3	44.1			26.5	
Approach LOS	D		B	D			C	
Intersec. delay	40.8		Intersection LOS				D	

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INTERSECTION DELAY WORKSHEETS

INTERIM YEAR 2012 WITH PROJECT CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	103	109	43	85	274	80	59	863	65	30	1059	246
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	108	115	45		461		62	908	68	32	1115	259
Lane group cap.	203	633	538		530		294	1645	736	355	1645	736
v/c ratio	0.53	0.18	0.08		0.87		0.21	0.55	0.09	0.09	0.68	0.35
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	24.3	21.3	20.6		28.2		11.1	17.8	13.9	9.2	19.3	15.9
Delay factor k	0.13	0.11	0.11		0.40		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	2.7	0.1	0.1		16.9		0.4	1.3	0.2	0.1	2.3	1.3
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	27.0	21.4	20.6		45.0		11.4	19.2	14.2	9.3	21.6	17.2
Lane group LOS	C	C	C		D		B	B	B	A	C	B
Apprch. delay	23.6			45.0			18.4			20.5		
Approach LOS	C			D			B			C		
Intersec. delay	23.6			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	108	115	45		461		62	908	68	32	1115	259
Satflow rate	608	1900	1615		1589		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.	203	633	538		530		294	1645	736	355	1645	736
v/c ratio	0.53	0.18	0.08		0.87		0.21	0.55	0.09	0.09	0.68	0.35
Flow ratio	0.18	0.06	0.03		0.29			0.25	0.04		0.31	0.16
Crit. lane group	N	N	N		Y		N	N	N	N	Y	N
Sum flow ratios	0.64											
Lost time/cycle	9.00											
Critical v/c ratio	0.71											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	108	115	45		461		62	908	68	32	1115	259
Lane group cap.	203	633	538		530		294	1645	736	355	1645	736
v/c ratio	0.53	0.18	0.08		0.87		0.21	0.55	0.09	0.09	0.68	0.35
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	24.3	21.3	20.6		28.2		11.1	17.8	13.9	9.2	19.3	15.9
Delay factor k	0.13	0.11	0.11		0.40		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	2.7	0.1	0.1		16.9		0.4	1.3	0.2	0.1	2.3	1.3
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	27.0	21.4	20.6		45.0		11.4	19.2	14.2	9.3	21.6	17.2
Lane group LOS	C	C	C		D		B	B	B	A	C	B
Apprch. delay	23.6			45.0			18.4			20.5		
Approach LOS	C			D			B			C		
Intersec. delay	23.6			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	55	281	54	177	715	109	70	668	131	98	731	137
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	58	353		186	753	115	74	841		103	913	
Lane group cap.	270	979		412	1003	449	285	1291		307	1293	
v/c ratio	0.21	0.36		0.45	0.75	0.26	0.26	0.65		0.34	0.71	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.6	26.1		17.2	29.7	25.3	14.0	23.7		13.8	24.4	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	1.0		0.8	5.2	1.4	0.5	2.6		0.6	3.3	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.0	27.1		18.0	34.8	26.6	14.5	26.3		14.4	27.6	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.8			31.0			25.3			26.3		
Approach LOS	C			C			C			C		
Intersec. delay	27.4			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	58	353		186	753	115	74	841		103	913	
Satflow rate	1710	3523		1710	3610	1615	1710	3521		1710	3525	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	270	979		412	1003	449	285	1291		307	1293	
v/c ratio	0.21	0.36		0.45	0.75	0.26	0.26	0.65		0.34	0.71	
Flow ratio		0.10			0.21	0.07		0.24			0.26	
Crit. lane group	N	N		N	Y	N	N	N		N	Y	
Sum flow ratios	0.64											
Lost time/cycle	12.00											
Critical v/c ratio	0.73											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	58	353		186	753	115	74	841		103	913	
Lane group cap.	270	979		412	1003	449	285	1291		307	1293	
v/c ratio	0.21	0.36		0.45	0.75	0.26	0.26	0.65		0.34	0.71	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.6	26.1		17.2	29.7	25.3	14.0	23.7		13.8	24.4	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	1.0		0.8	5.2	1.4	0.5	2.6		0.6	3.3	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.0	27.1		18.0	34.8	26.6	14.5	26.3		14.4	27.6	
Lane group LOS	B	C		B	C	C	B	C		B	C	
Apprch. delay	25.8			31.0			25.3			26.3		
Approach LOS	C			C			C			C		
Intersec. delay	27.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	42	219	52	75	631	130	47	388	26	94	441	216
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	44	286		79	801		49	435		99	691	
Lane group cap.	184	1519		431	1524		285	1788		414	1716	
v/c ratio	0.24	0.19		0.18	0.53		0.17	0.24		0.24	0.40	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	16.1	15.7		15.7	18.7		12.3	12.8		12.8	14.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	3.0	0.3		0.9	1.3		1.3	0.3		1.4	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	19.2	16.0		16.6	20.0+		13.6	13.1		14.1	14.8	
Lane group LOS	B	B		B	C		B	B		B	B	
Apprch. delay	16.4			19.7			13.2			14.7		
Approach LOS	B			B			B			B		
Intersec. delay	16.4			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	44	286		79	801		49	435		99	691	
Satflow rate	425	3506		994	3517		569	3576		827	3432	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	184	1519		431	1524		285	1788		414	1716	
v/c ratio	0.24	0.19		0.18	0.53		0.17	0.24		0.24	0.40	
Flow ratio	0.10	0.08		0.08	0.23		0.09	0.12		0.12	0.20	
Crit. lane group	N	N		N	Y		N	N		N	Y	
Sum flow ratios	0.43											
Lost time/cycle	6.00											
Critical v/c ratio	0.46											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	44	286		79	801		49	435		99	691	
Lane group cap.	184	1519		431	1524		285	1788		414	1716	
v/c ratio	0.24	0.19		0.18	0.53		0.17	0.24		0.24	0.40	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	16.1	15.7		15.7	18.7		12.3	12.8		12.8	14.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	3.0	0.3		0.9	1.3		1.3	0.3		1.4	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	19.2	16.0		16.6	20.0+		13.6	13.1		14.1	14.8	
Lane group LOS	B	B		B	C		B	B		B	B	
Apprch. delay	16.4			19.7			13.2			14.7		
Approach LOS	B			B			B			B		
Intersec. delay	16.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	66	252	34	56	552	25	123	28	16	20	30	67
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	69	301		59	607			175			124	
Lane group cap.	324	1773		496	1794			600			690	
v/c ratio	0.21	0.17		0.12	0.34			0.29			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.6	12.3		12.0	13.5			16.5			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	1.5	0.2		0.5	0.5			0.3			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	14.1	12.5		12.5	14.1			16.8			15.8	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.8			13.9			16.8			15.8		
Approach LOS	B			B			B			B		
Intersec. delay	14.2			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	69	301		59	607			175			124	
Satflow rate	647	3545		992	3587			1384			1592	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	324	1773		496	1794			600			690	
v/c ratio	0.21	0.17		0.12	0.34			0.29			0.18	
Flow ratio	0.11	0.08		0.06	0.17			0.13			0.08	
Crit. lane group	N	N		N	Y			Y			N	
Sum flow ratios	0.30											
Lost time/cycle	6.00											
Critical v/c ratio	0.32											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	69	301		59	607			175			124	
Lane group cap.	324	1773		496	1794			600			690	
v/c ratio	0.21	0.17		0.12	0.34			0.29			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.6	12.3		12.0	13.5			16.5			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	1.5	0.2		0.5	0.5			0.3			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	14.1	12.5		12.5	14.1			16.8			15.8	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	12.8			13.9			16.8			15.8		
Approach LOS	B			B			B			B		
Intersec. delay	14.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	11	245	10	14	595	24	14	46	10	13	50	40
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	12	258	11	15	651		15	59		14	95	
Lane group cap.	432	1224	1041	668	2313		360	1014		373	974	
v/c ratio	0.03	0.21	0.01	0.02	0.28		0.04	0.06		0.04	0.10	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.8	6.6	5.7	5.8	6.9		23.0	23.1		23.0	23.4	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.1	0.4	0.0	0.1	0.3		0.0	0.0		0.0	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	5.9	7.0	5.7	5.8	7.3		23.1	23.2		23.0	23.5	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.9			7.2			23.2			23.4		
Approach LOS	A			A			C			C		
Intersec. delay	9.7			Intersection LOS						A		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	12	258	11	15	651		15	59		14	95	
Satflow rate	671	1900	1615	1036	3589		1246	3509		1290	3371	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	432	1224	1041	668	2313		360	1014		373	974	
v/c ratio	0.03	0.21	0.01	0.02	0.28		0.04	0.06		0.04	0.10	
Flow ratio	0.02	0.14	0.01	0.01	0.18		0.01	0.02		0.01	0.03	
Crit. lane group	N	N	N	N	Y		N	N		N	Y	
Sum flow ratios	0.21											
Lost time/cycle	6.00											
Critical v/c ratio	0.22											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	12	258	11	15	651		15	59		14	95	
Lane group cap.	432	1224	1041	668	2313		360	1014		373	974	
v/c ratio	0.03	0.21	0.01	0.02	0.28		0.04	0.06		0.04	0.10	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.8	6.6	5.7	5.8	6.9		23.0	23.1		23.0	23.4	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.1	0.4	0.0	0.1	0.3		0.0	0.0		0.0	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	5.9	7.0	5.7	5.8	7.3		23.1	23.2		23.0	23.5	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.9			7.2			23.2			23.4		
Approach LOS	A			A			C			C		
Intersec. delay	9.7			Intersection LOS						A		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	127	57	83	75	320	16	127	891	43	19	991	208
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 34.0	G =	G =	G =	G = 10.0	G = 37.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		194	87		433		134	938	45	20	1262	
Lane group cap.		354	610		610		270	1484	664	312	1445	
v/c ratio		0.55	0.14		0.71		0.50	0.63	0.07	0.06	0.87	
Green ratio		0.38	0.38		0.38		0.56	0.41	0.41	0.56	0.41	
Unif. delay d1		22.0	18.4		23.8		16.1	21.1	16.1	11.3	24.3	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		6.0	0.5		6.9		1.4	2.1	0.2	0.1	7.6	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		28.0	18.9		30.7		17.5	23.1	16.2	11.4	31.9	
Lane group LOS		C	B		C		B	C	B	B	C	
Apprch. delay	25.2			30.7			22.2			31.6		
Approach LOS	C			C			C			C		
Intersec. delay	27.5			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	194	87	433	134	938	45	20	1262
Satflow rate	938	1615	1616	1710	3610	1615	1710	3516
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Lane group cap.	354	610	610	270	1484	664	312	1445
v/c ratio	0.55	0.14	0.71	0.50	0.63	0.07	0.06	0.87
Flow ratio	0.21	0.05	0.27		0.26	0.03		0.36
Crit. lane group	N	N	Y	N	N	N	N	Y
Sum flow ratios	0.71							
Lost time/cycle	9.00							
Critical v/c ratio	0.78							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	194	87	433	134	938	45	20	1262
Lane group cap.	354	610	610	270	1484	664	312	1445
v/c ratio	0.55	0.14	0.71	0.50	0.63	0.07	0.06	0.87
Green ratio	0.38	0.38	0.38	0.56	0.41	0.41	0.56	0.41
Unif. delay d1	22.0	18.4	23.8	16.1	21.1	16.1	11.3	24.3
Delay factor k	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.50
Increm. delay d2	6.0	0.5	6.9	1.4	2.1	0.2	0.1	7.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	28.0	18.9	30.7	17.5	23.1	16.2	11.4	31.9
Lane group LOS	C	B	C	B	C	B	B	C
Apprch. delay	25.2		30.7	22.2			31.6	
Approach LOS	C		C	C			C	
Intersec. delay	27.5		Intersection LOS				C	

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	215	386	23	61	136	61	55	1184	129	59	801	92
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 10.0	G = 41.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB		NB			SB		
Adj. flow rate	226	406	24		271		58	1246	136	62	843	97
Lane group cap.	294	633	538		336		377	1645	736	270	1645	736
v/c ratio	0.77	0.64	0.04		0.81		0.15	0.76	0.18	0.23	0.51	0.13
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	26.9	25.4	20.3		27.4		9.0	20.4	14.6	12.5	17.4	14.2
Delay factor k	0.32	0.22	0.11		0.35		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	12.6	2.2	0.0		15.0		0.2	3.4	0.6	0.4	1.1	0.4
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	39.5	27.7	20.3		42.3		9.2	23.8	15.1	13.0	18.5	14.6
Lane group LOS	D	C	C		D		A	C	B	B	B	B
Apprch. delay	31.5			42.3			22.4			17.8		
Approach LOS	C			D			C			B		
Intersec. delay	24.4			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	226	406	24		271		58	1246	136	62	843	97
Satflow rate	882	1900	1615		1009		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Lane group cap.	294	633	538		336		377	1645	736	270	1645	736
v/c ratio	0.77	0.64	0.04		0.81		0.15	0.76	0.18	0.23	0.51	0.13
Flow ratio	0.26	0.21	0.01		0.27			0.35	0.08		0.23	0.06
Crit. lane group	N	N	N		Y		N	Y	N	N	N	N
Sum flow ratios	0.65											
Lost time/cycle	9.00											
Critical v/c ratio	0.72											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	226	406	24		271		58	1246	136	62	843	97
Lane group cap.	294	633	538		336		377	1645	736	270	1645	736
v/c ratio	0.77	0.64	0.04		0.81		0.15	0.76	0.18	0.23	0.51	0.13
Green ratio	0.33	0.33	0.33		0.33		0.60	0.46	0.46	0.60	0.46	0.46
Unif. delay d1	26.9	25.4	20.3		27.4		9.0	20.4	14.6	12.5	17.4	14.2
Delay factor k	0.32	0.22	0.11		0.35		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	12.6	2.2	0.0		15.0		0.2	3.4	0.6	0.4	1.1	0.4
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	39.5	27.7	20.3		42.3		9.2	23.8	15.1	13.0	18.5	14.6
Lane group LOS	D	C	C		D		A	C	B	B	B	B
Apprch. delay	31.5			42.3			22.4			17.8		
Approach LOS	C			D			C			B		
Intersec. delay	24.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	107	640	91	147	556	108	77	860	218	115	634	112
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 25.0	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	113	770		155	585	114	81	1134		121	785	
Lane group cap.	316	984		270	1003	449	325	1284		270	1294	
v/c ratio	0.36	0.78		0.57	0.58	0.25	0.25	0.88		0.45	0.61	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.3	30.0		19.0	28.0	25.3	13.1	26.7		16.7	23.2	
Delay factor k	0.11	0.50		0.17	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.7	6.2		3.0	2.5	1.4	0.4	9.0		1.2	2.1	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.0	36.2		22.0	30.5	26.6	13.5	35.7		17.9	25.3	
Lane group LOS	B	D		C	C	C	B	D		B	C	
Apprch. delay	33.8			28.4			34.3			24.3		
Approach LOS	C			C			C			C		
Intersec. delay	30.5			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	113	770		155	585	114	81	1134		121	785	
Satflow rate	1710	3542		1710	3610	1615	1710	3501		1710	3529	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Lane group cap.	316	984		270	1003	449	325	1284		270	1294	
v/c ratio	0.36	0.78		0.57	0.58	0.25	0.25	0.88		0.45	0.61	
Flow ratio		0.22			0.16	0.07		0.32			0.22	
Crit. lane group	N	Y		N	N	N	N	Y		N	N	
Sum flow ratios	0.70											
Lost time/cycle	12.00											
Critical v/c ratio	0.81											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	113	770		155	585	114	81	1134		121	785	
Lane group cap.	316	984		270	1003	449	325	1284		270	1294	
v/c ratio	0.36	0.78		0.57	0.58	0.25	0.25	0.88		0.45	0.61	
Green ratio	0.42	0.28		0.42	0.28	0.28	0.51	0.37		0.51	0.37	
Unif. delay d1	17.3	30.0		19.0	28.0	25.3	13.1	26.7		16.7	23.2	
Delay factor k	0.11	0.50		0.17	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.7	6.2		3.0	2.5	1.4	0.4	9.0		1.2	2.1	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.0	36.2		22.0	30.5	26.6	13.5	35.7		17.9	25.3	
Lane group LOS	B	D		C	C	C	B	D		B	C	
Apprch. delay	33.8			28.4			34.3			24.3		
Approach LOS	C			C			C			C		
Intersec. delay	30.5			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	316	815	62	37	229	78	42	655	55	130	653	59
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	333	923		39	323		44	747		137	749	
Lane group cap.	408	1548		143	1505		260	1784		261	1783	
v/c ratio	0.82	0.60		0.27	0.21		0.17	0.42		0.52	0.42	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	22.4	19.5		16.4	15.9		12.3	14.2		15.3	14.2	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	16.4	1.7		4.7	0.3		1.4	0.7		7.4	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	38.7	21.2		21.0	16.3		13.7	15.0		22.6	15.0	
Lane group LOS	D	C		C	B		B	B		C	B	
Apprch. delay	25.8			16.8			14.9			16.2		
Approach LOS	C			B			B			B		
Intersec. delay	19.6			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	333	923		39	323		44	747		137	749	
Satflow rate	942	3572		331	3473		520	3568		522	3565	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	408	1548		143	1505		260	1784		261	1783	
v/c ratio	0.82	0.60		0.27	0.21		0.17	0.42		0.52	0.42	
Flow ratio	0.35	0.26		0.12	0.09		0.08	0.21		0.26	0.21	
Crit. lane group	Y	N		N	N		N	N		Y	N	
Sum flow ratios	0.62											
Lost time/cycle	6.00											
Critical v/c ratio	0.66											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	333	923		39	323		44	747		137	749	
Lane group cap.	408	1548		143	1505		260	1784		261	1783	
v/c ratio	0.82	0.60		0.27	0.21		0.17	0.42		0.52	0.42	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	22.4	19.5		16.4	15.9		12.3	14.2		15.3	14.2	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	16.4	1.7		4.7	0.3		1.4	0.7		7.4	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	38.7	21.2		21.0	16.3		13.7	15.0		22.6	15.0	
Lane group LOS	D	C		C	B		B	B		C	B	
Apprch. delay	25.8			16.8			14.9			16.2		
Approach LOS	C			B			B			B		
Intersec. delay	19.6			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	45	900	42	27	217	15	39	44	35	20	25	24
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	47	991		28	244			124			72	
Lane group cap.	535	1793		172	1787			697			701	
v/c ratio	0.09	0.55		0.16	0.14			0.18			0.10	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.8	15.5		12.2	12.1			15.7			15.1	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.3	1.2		2.0	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.1	16.8		14.3	12.2			15.8			15.2	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	16.6			12.4			15.8			15.2		
Approach LOS	B			B			B			B		
Intersec. delay	15.7			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	47	991		28	244			124			72	
Satflow rate	1069	3586		343	3574			1608			1617	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	535	1793		172	1787			697			701	
v/c ratio	0.09	0.55		0.16	0.14			0.18			0.10	
Flow ratio	0.04	0.28		0.08	0.07			0.08			0.04	
Crit. lane group	N	Y		N	N			Y			N	
Sum flow ratios	0.35											
Lost time/cycle	6.00											
Critical v/c ratio	0.38											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	47	991		28	244			124			72	
Lane group cap.	535	1793		172	1787			697			701	
v/c ratio	0.09	0.55		0.16	0.14			0.18			0.10	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.8	15.5		12.2	12.1			15.7			15.1	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.3	1.2		2.0	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.1	16.8		14.3	12.2			15.8			15.2	
Lane group LOS	B	B		B	B			B			B	
Apprch. delay	16.6			12.4			15.8			15.2		
Approach LOS	B			B			B			B		
Intersec. delay	15.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	89	840	45	38	220	17	15	62	37	47	38	25
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	94	884	47	40	250		16	104		49	66	
Lane group cap.	692	1224	1041	202	2301		370	984		357	981	
v/c ratio	0.14	0.72	0.05	0.20	0.11		0.04	0.11		0.14	0.07	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	6.2	10.6	5.9	6.5	6.1		23.0	23.5		23.7	23.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	3.7	0.1	2.2	0.1		0.0	0.0		0.2	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	14.4	5.9	8.7	6.2		23.1	23.5		23.9	23.2	
Lane group LOS	A	B	A	A	A		C	C		C	C	
Apprch. delay	13.3			6.6			23.5			23.5		
Approach LOS	B			A			C			C		
Intersec. delay	13.6			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	94	884	47	40	250		16	104		49	66	
Satflow rate	1074	1900	1615	314	3571		1281	3407		1236	3397	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	692	1224	1041	202	2301		370	984		357	981	
v/c ratio	0.14	0.72	0.05	0.20	0.11		0.04	0.11		0.14	0.07	
Flow ratio	0.09	0.47	0.03	0.13	0.07		0.01	0.03		0.04	0.02	
Crit. lane group	N	Y	N	N	N		N	N		Y	N	
Sum flow ratios	0.50											
Lost time/cycle	6.00											
Critical v/c ratio	0.54											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	94	884	47	40	250		16	104		49	66	
Lane group cap.	692	1224	1041	202	2301		370	984		357	981	
v/c ratio	0.14	0.72	0.05	0.20	0.11		0.04	0.11		0.14	0.07	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	6.2	10.6	5.9	6.5	6.1		23.0	23.5		23.7	23.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	3.7	0.1	2.2	0.1		0.0	0.0		0.2	0.0	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	14.4	5.9	8.7	6.2		23.1	23.5		23.9	23.2	
Lane group LOS	A	B	A	A	A		C	C		C	C	
Apprch. delay	13.3			6.6			23.5			23.5		
Approach LOS	B			A			C			C		
Intersec. delay	13.6			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2012 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	245	457	112	31	119	21	62	1183	133	82	689	78
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 40.0	G =	G =	G =	G = 10.0	G = 31.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		739	118		180		65	1245	140	86	807	
Lane group cap.		660	718		586		300	1243	556	270	1225	
v/c ratio		1.12	0.16		0.31		0.22	1.00	0.25	0.32	0.66	
Green ratio		0.44	0.44		0.44		0.49	0.34	0.34	0.49	0.34	
Unif. delay d1		25.0	15.0		16.1		14.3	29.5	21.2	17.6	25.0	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		72.8	0.5		1.4		0.4	25.9	1.1	0.7	2.8	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		97.8	15.5		17.4		14.6	55.4	22.3	18.3	27.8	
Lane group LOS		F	B		B		B	E	C	B	C	
Apprch. delay	86.4			17.4			50.4			26.9		
Approach LOS	F			B			D			C		
Intersec. delay	51.6			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group		LT	R		LTR		L	T	R	L	TR	
Adj. flow rate		739	118		180		65	1245	140	86	807	
Satflow rate		1485	1615		1319		1710	3610	1615	1710	3555	
Lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio		0.44	0.44		0.44		0.49	0.34	0.34	0.49	0.34	
Lane group cap.		660	718		586		300	1243	556	270	1225	
v/c ratio		1.12	0.16		0.31		0.22	1.00	0.25	0.32	0.66	
Flow ratio		0.50	0.07		0.14			0.34	0.09		0.23	
Crit. lane group		Y	N		N		N	Y	N	N	N	
Sum flow ratios	0.89											
Lost time/cycle	9.00											
Critical v/c ratio	0.99											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group		LT	R		LTR		L	T	R	L	TR	
Adj. flow rate		739	118		180		65	1245	140	86	807	
Lane group cap.		660	718		586		300	1243	556	270	1225	
v/c ratio		1.12	0.16		0.31		0.22	1.00	0.25	0.32	0.66	
Green ratio		0.44	0.44		0.44		0.49	0.34	0.34	0.49	0.34	
Unif. delay d1		25.0	15.0		16.1		14.3	29.5	21.2	17.6	25.0	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.11	0.50	
Increm. delay d2		72.8	0.5		1.4		0.4	25.9	1.1	0.7	2.8	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		97.8	15.5		17.4		14.6	55.4	22.3	18.3	27.8	
Lane group LOS		F	B		B		B	E	C	B	C	
Apprch. delay	86.4			17.4			50.4			26.9		
Approach LOS	F			B			D			C		
Intersec. delay	51.6			Intersection LOS						D		

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INTERSECTION DELAY WORKSHEETS

YEAR 2025 WITHOUT PROJECT CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	122	125	45	101	390	142	67	1065	81	52	1323	356
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 36.0	G =	G =	G =	G = 10.0	G = 35.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =

Duration of Analysis (hrs) = 1.00 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	128	132	47		666		71	1121	85	55	1393	375
Lane group cap.	200	760	646		637		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.80	0.14	0.20	0.99	0.60
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Unif. delay d1	21.8	17.4	16.7		27.0		16.9	24.4	17.7	14.5	27.4	21.9
Delay factor k	0.22	0.11	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	6.9	0.1	0.0		124.6		0.5	5.0	0.4	0.4	41.3	4.2
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	28.7	17.5	16.7		151.6		17.4	29.4	18.2	14.9	68.7	26.1
Lane group LOS	C	B	B		F		B	C	B	B	E	C
Apprch. delay	22.1			151.6			28.0			58.3		
Approach LOS	C			F			C			E		
Intersec. delay	61.3			Intersection LOS						E		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	128	132	47		666		71	1121	85	55	1393	375
Satflow rate	501	1900	1615		1593		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Lane group cap.	200	760	646		637		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.80	0.14	0.20	0.99	0.60
Flow ratio	0.26	0.07	0.03		0.42			0.31	0.05		0.39	0.23
Crit. lane group	N	N	N		Y		N	N	N	N	Y	N
Sum flow ratios	0.85											
Lost time/cycle	9.00											
Critical v/c ratio	0.94											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	128	132	47		666		71	1121	85	55	1393	375
Lane group cap.	200	760	646		637		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.80	0.14	0.20	0.99	0.60
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Unif. delay d1	21.8	17.4	16.7		27.0		16.9	24.4	17.7	14.5	27.4	21.9
Delay factor k	0.22	0.11	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	6.9	0.1	0.0		124.6		0.5	5.0	0.4	0.4	41.3	4.2
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	28.7	17.5	16.7		151.6		17.4	29.4	18.2	14.9	68.7	26.1
Lane group LOS	C	B	B		F		B	C	B	B	E	C
Apprch. delay	22.1			151.6			28.0			58.3		
Approach LOS	C			F			C			E		
Intersec. delay	61.3			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	57	301	62	210	1028	118	116	734	129	106	775	154
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	60	382		221	1082	124	122	909		112	978	
Lane group cap.	270	1173		458	1203	538	270	1098		270	1095	
v/c ratio	0.22	0.33		0.48	0.90	0.23	0.45	0.83		0.41	0.89	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	17.2	22.4		14.5	28.6	21.7	18.2	28.8		17.5	29.6	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	0.7		0.8	10.8	1.0	1.2	7.2		1.0	11.2	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.6	23.2		15.3	39.4	22.7	19.4	36.0		18.5	40.7	
Lane group LOS	B	C		B	D	C	B	D		B	D	
Apprch. delay	22.4			34.2			34.0			38.4		
Approach LOS	C			C			C			D		
Intersec. delay	34.0			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	60	382		221	1082	124	122	909		112	978	
Satflow rate	1710	3518		1710	3610	1615	1710	3529		1710	3520	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Lane group cap.	270	1173		458	1203	538	270	1098		270	1095	
v/c ratio	0.22	0.33		0.48	0.90	0.23	0.45	0.83		0.41	0.89	
Flow ratio		0.11			0.30	0.08		0.26			0.28	
Crit. lane group	N	N		N	Y	N	N	N		N	Y	
Sum flow ratios	0.76											
Lost time/cycle	12.00											
Critical v/c ratio	0.88											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	60	382		221	1082	124	122	909		112	978	
Lane group cap.	270	1173		458	1203	538	270	1098		270	1095	
v/c ratio	0.22	0.33		0.48	0.90	0.23	0.45	0.83		0.41	0.89	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	17.2	22.4		14.5	28.6	21.7	18.2	28.8		17.5	29.6	
Delay factor k	0.11	0.50		0.11	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	0.7		0.8	10.8	1.0	1.2	7.2		1.0	11.2	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.6	23.2		15.3	39.4	22.7	19.4	36.0		18.5	40.7	
Lane group LOS	B	C		B	D	C	B	D		B	D	
Apprch. delay	22.4			34.2			34.0			38.4		
Approach LOS	C			C			C			D		
Intersec. delay	34.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	45	219	44	134	899	173	53	172	21	107	327	299
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	47	277		141	1128		56	203		113	659	
Lane group cap.	85	1525		436	1527		299	1776		562	1676	
v/c ratio	0.55	0.18		0.32	0.74		0.19	0.11		0.20	0.39	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	19.0	15.7		16.8	21.3		12.4	11.9		12.5	14.0	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	23.5	0.3		2.0	3.2		1.4	0.1		0.8	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	42.5	15.9		18.8	24.5		13.8	12.1		13.3	14.7	
Lane group LOS	D	B		B	C		B	B		B	B	
Apprch. delay	19.8			23.9			12.4			14.5		
Approach LOS	B			C			B			B		
Intersec. delay	19.5			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	47	277		141	1128		56	203		113	659	
Satflow rate	197	3520		1007	3523		598	3551		1124	3351	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	85	1525		436	1527		299	1776		562	1676	
v/c ratio	0.55	0.18		0.32	0.74		0.19	0.11		0.20	0.39	
Flow ratio	0.24	0.08		0.14	0.32		0.09	0.06		0.10	0.20	
Crit. lane group	N	N		N	Y		N	N		N	Y	
Sum flow ratios	0.52											
Lost time/cycle	6.00											
Critical v/c ratio	0.55											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	47	277		141	1128		56	203		113	659	
Lane group cap.	85	1525		436	1527		299	1776		562	1676	
v/c ratio	0.55	0.18		0.32	0.74		0.19	0.11		0.20	0.39	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	19.0	15.7		16.8	21.3		12.4	11.9		12.5	14.0	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	23.5	0.3		2.0	3.2		1.4	0.1		0.8	0.7	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	42.5	15.9		18.8	24.5		13.8	12.1		13.3	14.7	
Lane group LOS	D	B		B	C		B	B		B	B	
Apprch. delay	19.8			23.9			12.4			14.5		
Approach LOS	B			C			B			B		
Intersec. delay	19.5			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	69	259	34	55	892	66	127	30	17	53	31	69
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	73	309		58	1008			184			162	
Lane group cap.	166	1774		491	1787			592			650	
v/c ratio	0.44	0.17		0.12	0.56			0.31			0.25	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	14.4	12.3		12.0	15.7			16.7			16.2	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	8.2	0.2		0.5	1.3			0.3			0.2	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	22.7	12.5		12.4	17.0			17.0			16.4	
Lane group LOS	C	B		B	B			B			B	
Apprch. delay	14.5			16.7			17.0			16.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.2			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	73	309		58	1008			184			162	
Satflow rate	332	3547		982	3573			1365			1499	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	166	1774		491	1787			592			650	
v/c ratio	0.44	0.17		0.12	0.56			0.31			0.25	
Flow ratio	0.22	0.09		0.06	0.28			0.13			0.11	
Crit. lane group	N	N		N	Y			Y			N	
Sum flow ratios	0.42											
Lost time/cycle	6.00											
Critical v/c ratio	0.45											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	73	309		58	1008			184			162	
Lane group cap.	166	1774		491	1787			592			650	
v/c ratio	0.44	0.17		0.12	0.56			0.31			0.25	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	14.4	12.3		12.0	15.7			16.7			16.2	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	8.2	0.2		0.5	1.3			0.3			0.2	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	22.7	12.5		12.4	17.0			17.0			16.4	
Lane group LOS	C	B		B	B			B			B	
Apprch. delay	14.5			16.7			17.0			16.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	17	251	10	19	853	50	14	115	20	19	125	72
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	18	264	11	20	951		15	142		20	208	
Lane group cap.	293	1224	1041	662	2307		309	1020		344	986	
v/c ratio	0.06	0.22	0.01	0.03	0.41		0.05	0.14		0.06	0.21	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.9	6.6	5.7	5.8	7.7		23.1	23.7		23.1	24.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	0.4	0.0	0.1	0.5		0.1	0.1		0.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.3	7.0	5.7	5.9	8.3		23.1	23.8		23.2	24.3	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.9			8.2			23.7			24.2		
Approach LOS	A			A			C			C		
Intersec. delay	11.7			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	18	264	11	20	951		15	142		20	208	
Satflow rate	455	1900	1615	1027	3580		1069	3530		1191	3412	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	293	1224	1041	662	2307		309	1020		344	986	
v/c ratio	0.06	0.22	0.01	0.03	0.41		0.05	0.14		0.06	0.21	
Flow ratio	0.04	0.14	0.01	0.02	0.27		0.01	0.04		0.02	0.06	
Crit. lane group	N	N	N	N	Y		N	N		N	Y	
Sum flow ratios	0.33											
Lost time/cycle	6.00											
Critical v/c ratio	0.35											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	18	264	11	20	951		15	142		20	208	
Lane group cap.	293	1224	1041	662	2307		309	1020		344	986	
v/c ratio	0.06	0.22	0.01	0.03	0.41		0.05	0.14		0.06	0.21	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.9	6.6	5.7	5.8	7.7		23.1	23.7		23.1	24.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.4	0.4	0.0	0.1	0.5		0.1	0.1		0.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.3	7.0	5.7	5.9	8.3		23.1	23.8		23.2	24.3	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	6.9			8.2			23.7			24.2		
Approach LOS	A			A			C			C		
Intersec. delay	11.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	123	55	92	136	548	27	179	1130	39	24	1257	221
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 35.5	G =	G =	G =	G = 9.8	G = 35.7	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		187	97		748		188	1189	41	25	1556	
Lane group cap.		282	637		570		266	1432	641	266	1400	
v/c ratio		0.66	0.15		1.31		0.71	0.83	0.06	0.09	1.11	
Green ratio		0.39	0.39		0.39		0.54	0.40	0.40	0.54	0.40	
Unif. delay d1		22.3	17.6		27.3		18.4	24.4	16.8	14.5	27.1	
Delay factor k		0.50	0.50		0.50		0.27	0.50	0.50	0.11	0.50	
Increm. delay d2		11.7	0.5		152.7		8.3	5.7	0.2	0.2	60.7	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		34.0	18.1		180.0		26.8	30.1	17.0	14.7	87.9	
Lane group LOS		C	B		F		C	C	B	B	F	
Apprch. delay	28.6			180.0			29.3			86.7		
Approach LOS	C			F			C			F		
Intersec. delay	79.7			Intersection LOS						E		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB		NB			SB	
Lane group	LT	R	LTR		L	T	R	L	TR
Adj. flow rate	187	97	748		188	1189	41	25	1556
Satflow rate	715	1615	1444		1710	3610	1615	1710	3529
Lost time	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
Green ratio	0.39	0.39	0.39		0.54	0.40	0.40	0.54	0.40
Lane group cap.	282	637	570		266	1432	641	266	1400
v/c ratio	0.66	0.15	1.31		0.71	0.83	0.06	0.09	1.11
Flow ratio	0.26	0.06	0.52			0.33	0.03		0.40
Crit. lane group	N	N	Y		N	N	N	N	Y
Sum flow ratios	1.02								
Lost time/cycle	9.00								
Critical v/c ratio	1.14								

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB		NB			SB	
Lane group	LT	R	LTR		L	T	R	L	TR
Adj. flow rate	187	97	748		188	1189	41	25	1556
Lane group cap.	282	637	570		266	1432	641	266	1400
v/c ratio	0.66	0.15	1.31		0.71	0.83	0.06	0.09	1.11
Green ratio	0.39	0.39	0.39		0.54	0.40	0.40	0.54	0.40
Unif. delay d1	22.3	17.6	27.3		18.4	24.4	16.8	14.5	27.1
Delay factor k	0.50	0.50	0.50		0.27	0.50	0.50	0.11	0.50
Increm. delay d2	11.7	0.5	152.7		8.3	5.7	0.2	0.2	60.7
PF factor	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000
Control delay	34.0	18.1	180.0		26.8	30.1	17.0	14.7	87.9
Lane group LOS	C	B	F		C	C	B	B	F
Apprch. delay	28.6		180.0		29.3			86.7	
Approach LOS	C		F		C			F	
Intersec. delay	79.7		Intersection LOS					E	

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	262	738	27	81	172	129	57	1367	145	122	1107	126
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 38.0	G =	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	276	777	28		402		60	1439	153	128	1165	133
Lane group cap.	332	802	682		303		270	1324	592	270	1324	592
v/c ratio	0.83	0.97	0.04		1.33		0.22	1.09	0.26	0.47	0.88	0.22
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Unif. delay d1	23.1	25.4	15.3		26.0		16.2	28.5	19.9	17.8	26.6	19.7
Delay factor k	0.37	0.48	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	18.6	39.1	0.0		611.3		0.4	171.8	1.1	1.3	9.5	0.9
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	41.7	64.5	15.3		637.3		16.7	200.3	21.0	19.1	36.2	20.6
Lane group LOS	D	E	B		F		B	F	C	B	D	C
Apprch. delay	57.4			637.3			177.0			33.2		
Approach LOS	E			F			F			C		
Intersec. delay	144.3			Intersection LOS						F		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	276	777	28		402		60	1439	153	128	1165	133
Satflow rate	787	1900	1615		717		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Lane group cap.	332	802	682		303		270	1324	592	270	1324	592
v/c ratio	0.83	0.97	0.04		1.33		0.22	1.09	0.26	0.47	0.88	0.22
Flow ratio	0.35	0.41	0.02		0.56			0.37	0.09		0.32	0.08
Crit. lane group	N	N	N		Y		N	Y	N	N	N	N
Sum flow ratios	1.00											
Lost time/cycle	9.00											
Critical v/c ratio	1.11											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	276	777	28		402		60	1439	153	128	1165	133
Lane group cap.	332	802	682		303		270	1324	592	270	1324	592
v/c ratio	0.83	0.97	0.04		1.33		0.22	1.09	0.26	0.47	0.88	0.22
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Unif. delay d1	23.1	25.4	15.3		26.0		16.2	28.5	19.9	17.8	26.6	19.7
Delay factor k	0.37	0.48	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	18.6	39.1	0.0		611.3		0.4	171.8	1.1	1.3	9.5	0.9
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	41.7	64.5	15.3		637.3		16.7	200.3	21.0	19.1	36.2	20.6
Lane group LOS	D	E	B		F		B	F	C	B	D	C
Apprch. delay	57.4			637.3			177.0			33.2		
Approach LOS	E			F			F			C		
Intersec. delay	144.3			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	193	1110	113	151	599	114	121	902	261	120	629	169
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	203	1287		159	631	120	127	1224		126	840	
Lane group cap.	350	1187		270	1203	538	270	1085		270	1087	
v/c ratio	0.58	1.08		0.59	0.52	0.22	0.47	1.13		0.47	0.77	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	15.3	30.0		18.7	24.2	21.6	17.2	31.0		18.8	28.1	
Delay factor k	0.17	0.50		0.18	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	2.4	52.1		3.4	1.6	1.0	1.3	69.7		1.3	5.4	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.8	82.1		22.0	25.9	22.6	18.5	100.7		20.0+	33.5	
Lane group LOS	B	F		C	C	C	B	F		C	C	
Apprch. delay	73.3			24.8			93.0			31.7		
Approach LOS	E			C			F			C		
Intersec. delay	61.1			Intersection LOS						E		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	203	1287		159	631	120	127	1224		126	840	
Satflow rate	1710	3560		1710	3610	1615	1710	3488		1710	3495	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Lane group cap.	350	1187		270	1203	538	270	1085		270	1087	
v/c ratio	0.58	1.08		0.59	0.52	0.22	0.47	1.13		0.47	0.77	
Flow ratio		0.33			0.17	0.07		0.31			0.24	
Crit. lane group	N	Y		N	N	N	N	Y		N	N	
Sum flow ratios	0.83											
Lost time/cycle	12.00											
Critical v/c ratio	0.96											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	203	1287		159	631	120	127	1224		126	840	
Lane group cap.	350	1187		270	1203	538	270	1085		270	1087	
v/c ratio	0.58	1.08		0.59	0.52	0.22	0.47	1.13		0.47	0.77	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	15.3	30.0		18.7	24.2	21.6	17.2	31.0		18.8	28.1	
Delay factor k	0.17	0.50		0.18	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	2.4	52.1		3.4	1.6	1.0	1.3	69.7		1.3	5.4	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.8	82.1		22.0	25.9	22.6	18.5	100.7		20.0+	33.5	
Lane group LOS	B	F		C	C	C	B	F		C	C	
Apprch. delay	73.3			24.8			93.0			31.7		
Approach LOS	E			C			F			C		
Intersec. delay	61.1			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	362	1287	53	54	259	88	32	382	82	176	314	63
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	381	1411		57	366		34	488		185	397	
Lane group cap.	383	1555		80	1505		436	1758		384	1760	
v/c ratio	0.99	0.91		0.71	0.24		0.08	0.28		0.48	0.23	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	25.4	23.8		20.9	16.2		11.7	13.1		14.8	12.7	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	44.7	9.3		42.1	0.4		0.3	0.4		4.3	0.3	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	70.1	33.1		63.0	16.5		12.1	13.5		19.1	13.0	
Lane group LOS	E	C		E	B		B	B		B	B	
Apprch. delay	41.0			22.8			13.4			14.9		
Approach LOS	D			C			B			B		
Intersec. delay	29.7			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	381	1411		57	366		34	488		185	397	
Satflow rate	884	3589		185	3472		872	3515		768	3520	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	383	1555		80	1505		436	1758		384	1760	
v/c ratio	0.99	0.91		0.71	0.24		0.08	0.28		0.48	0.23	
Flow ratio	0.43	0.39		0.31	0.11		0.04	0.14		0.24	0.11	
Crit. lane group	Y	N		N	N		N	N		Y	N	
Sum flow ratios	0.67											
Lost time/cycle	6.00											
Critical v/c ratio	0.72											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	381	1411		57	366		34	488		185	397	
Lane group cap.	383	1555		80	1505		436	1758		384	1760	
v/c ratio	0.99	0.91		0.71	0.24		0.08	0.28		0.48	0.23	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	25.4	23.8		20.9	16.2		11.7	13.1		14.8	12.7	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	44.7	9.3		42.1	0.4		0.3	0.4		4.3	0.3	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	70.1	33.1		63.0	16.5		12.1	13.5		19.1	13.0	
Lane group LOS	E	C		E	B		B	B		B	B	
Apprch. delay	41.0			22.8			13.4			14.9		
Approach LOS	D			C			B			B		
Intersec. delay	29.7			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	52	1399	42	26	229	39	34	45	23	53	27	26
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	55	1517		27	282			107			111	
Lane group cap.	509	1797		80	1766			698			660	
v/c ratio	0.11	0.84		0.34	0.16			0.15			0.17	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.9	19.5		13.5	12.2			15.5			15.6	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.4	5.1		11.1	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.3	24.5		24.6	12.4			15.6			15.7	
Lane group LOS	B	C		C	B			B			B	
Apprch. delay	24.1			13.5			15.6			15.7		
Approach LOS	C			B			B			B		
Intersec. delay	21.7			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	55	1517		27	282			107			111	
Satflow rate	1018	3594		160	3531			1611			1524	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	509	1797		80	1766			698			660	
v/c ratio	0.11	0.84		0.34	0.16			0.15			0.17	
Flow ratio	0.05	0.42		0.17	0.08			0.07			0.07	
Crit. lane group	N	Y		N	N			N			Y	
Sum flow ratios	0.49											
Lost time/cycle	6.00											
Critical v/c ratio	0.53											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	55	1517		27	282			107			111	
Lane group cap.	509	1797		80	1766			698			660	
v/c ratio	0.11	0.84		0.34	0.16			0.15			0.17	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	11.9	19.5		13.5	12.2			15.5			15.6	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.4	5.1		11.1	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.3	24.5		24.6	12.4			15.6			15.7	
Lane group LOS	B	C		C	B			B			B	
Apprch. delay	24.1			13.5			15.6			15.7		
Approach LOS	C			B			B			B		
Intersec. delay	21.7			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	214	1242	19	15	220	29	19	138	57	100	66	51
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 62.0	G =	G =	G =	G = 22.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	225	1307	20	16	263		20	205		105	123	
Lane group cap.	731	1309	1113	80	2443		297	844		258	824	
v/c ratio	0.31	1.00	0.02	0.20	0.11		0.07	0.24		0.41	0.15	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Unif. delay d1	5.5	14.0	4.4	5.1	4.7		26.1	27.3		28.5	26.7	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	1.1	24.5	0.0	5.5	0.1		0.1	0.2		1.0	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	38.5	4.4	10.6	4.8		26.2	27.5		29.6	26.7	
Lane group LOS	A	D	A	B	A		C	C		C	C	
Apprch. delay	33.4			5.1			27.4			28.0		
Approach LOS	C			A			C			C		
Intersec. delay	28.8			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	225	1307	20	16	263		20	205		105	123	
Satflow rate	1061	1900	1615	116	3546		1213	3452		1054	3372	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Lane group cap.	731	1309	1113	80	2443		297	844		258	824	
v/c ratio	0.31	1.00	0.02	0.20	0.11		0.07	0.24		0.41	0.15	
Flow ratio	0.21	0.69	0.01	0.14	0.07		0.02	0.06		0.10	0.04	
Crit. lane group	N	Y	N	N	N		N	N		Y	N	
Sum flow ratios	0.79											
Lost time/cycle	6.00											
Critical v/c ratio	0.84											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	225	1307	20	16	263		20	205		105	123	
Lane group cap.	731	1309	1113	80	2443		297	844		258	824	
v/c ratio	0.31	1.00	0.02	0.20	0.11		0.07	0.24		0.41	0.15	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Unif. delay d1	5.5	14.0	4.4	5.1	4.7		26.1	27.3		28.5	26.7	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	1.1	24.5	0.0	5.5	0.1		0.1	0.2		1.0	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.6	38.5	4.4	10.6	4.8		26.2	27.5		29.6	26.7	
Lane group LOS	A	D	A	B	A		C	C		C	C	
Apprch. delay	33.4			5.1			27.4			28.0		
Approach LOS	C			A			C			C		
Intersec. delay	28.8			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative Base 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	255	758	121	28	83	33	67	1340	280	207	814	80
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 40.0	G =	G =	G =	G = 8.7	G = 32.3	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		1066	127		151		71	1411	295	218	941	
Lane group cap.		708	718		462		247	1296	580	245	1278	
v/c ratio		1.51	0.18		0.33		0.29	1.09	0.51	0.89	0.74	
Green ratio		0.44	0.44		0.44		0.49	0.36	0.36	0.49	0.36	
Unif. delay d1		25.0	15.1		16.2		15.3	28.9	22.6	21.0	25.1	
Delay factor k		0.50	0.50		0.50		0.11	0.50	0.50	0.41	0.50	
Increm. delay d2		234.9	0.5		1.9		0.6	52.8	3.2	30.4	3.8	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		259.9	15.6		18.1		16.0	81.7	25.8	51.4	28.9	
Lane group LOS		F	B		B		B	F	C	D	C	
Apprch. delay	233.9			18.1			69.8			33.2		
Approach LOS	F			B			E			C		
Intersec. delay	103.8			Intersection LOS						F		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	1066	127	151	71	1411	295	218	941
Satflow rate	1592	1615	1039	1710	3610	1615	1710	3562
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.44	0.44	0.44	0.49	0.36	0.36	0.49	0.36
Lane group cap.	708	718	462	247	1296	580	245	1278
v/c ratio	1.51	0.18	0.33	0.29	1.09	0.51	0.89	0.74
Flow ratio	0.67	0.08	0.15		0.36	0.18		0.26
Crit. lane group	Y	N	N	N	Y	N	N	N
Sum flow ratios	1.13							
Lost time/cycle	9.00							
Critical v/c ratio	1.25							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	1066	127	151	71	1411	295	218	941
Lane group cap.	708	718	462	247	1296	580	245	1278
v/c ratio	1.51	0.18	0.33	0.29	1.09	0.51	0.89	0.74
Green ratio	0.44	0.44	0.44	0.49	0.36	0.36	0.49	0.36
Unif. delay d1	25.0	15.1	16.2	15.3	28.9	22.6	21.0	25.1
Delay factor k	0.50	0.50	0.50	0.11	0.50	0.50	0.41	0.50
Increm. delay d2	234.9	0.5	1.9	0.6	52.8	3.2	30.4	3.8
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	259.9	15.6	18.1	16.0	81.7	25.8	51.4	28.9
Lane group LOS	F	B	B	B	F	C	D	C
Apprch. delay	233.9		18.1	69.8			33.2	
Approach LOS	F		B	E			C	
Intersec. delay	103.8		Intersection LOS				F	

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INTERSECTION DELAY WORKSHEETS

YEAR 2025 WITH PROJECT CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	122	125	45	103	390	142	67	1113	81	52	1358	370
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 36.0	G =	G =	G =	G = 10.0	G = 35.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	128	132	47		668		71	1172	85	55	1429	389
Lane group cap.	201	760	646		634		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.83	0.14	0.20	1.02	0.62
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Unif. delay d1	21.7	17.4	16.7		27.0		16.9	24.9	17.7	15.0	27.5	22.1
Delay factor k	0.22	0.11	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	6.7	0.1	0.0		136.1		0.5	6.3	0.4	0.4	67.1	4.6
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	28.5	17.5	16.7		163.1		17.4	31.2	18.2	15.4	94.6	26.8
Lane group LOS	C	B	B		F		B	C	B	B	F	C
Apprch. delay	22.0			163.1			29.7			78.2		
Approach LOS	C			F			C			E		
Intersec. delay	72.2			Intersection LOS						E		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	128	132	47		668		71	1172	85	55	1429	389
Satflow rate	502	1900	1615		1585		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Lane group cap.	201	760	646		634		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.83	0.14	0.20	1.02	0.62
Flow ratio	0.25	0.07	0.03		0.42			0.32	0.05		0.39	0.24
Crit. lane group	N	N	N		Y		N	N	N	N	Y	N
Sum flow ratios	0.85											
Lost time/cycle	9.00											
Critical v/c ratio	0.95											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	128	132	47		668		71	1172	85	55	1429	389
Lane group cap.	201	760	646		634		270	1404	628	270	1404	628
v/c ratio	0.64	0.17	0.07		1.05		0.26	0.83	0.14	0.20	1.02	0.62
Green ratio	0.40	0.40	0.40		0.40		0.53	0.39	0.39	0.53	0.39	0.39
Unif. delay d1	21.7	17.4	16.7		27.0		16.9	24.9	17.7	15.0	27.5	22.1
Delay factor k	0.22	0.11	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	6.7	0.1	0.0		136.1		0.5	6.3	0.4	0.4	67.1	4.6
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	28.5	17.5	16.7		163.1		17.4	31.2	18.2	15.4	94.6	26.8
Lane group LOS	C	B	B		F		B	C	B	B	F	C
Apprch. delay	22.0			163.1			29.7			78.2		
Approach LOS	C			F			C			E		
Intersec. delay	72.2			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	57	316	69	228	1038	119	118	784	136	108	883	154
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	60	406		240	1093	125	124	968		114	1091	
Lane group cap.	270	1171		446	1203	538	270	1098		270	1098	
v/c ratio	0.22	0.35		0.54	0.91	0.23	0.46	0.88		0.42	0.99	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	17.3	22.6		14.8	28.7	21.7	18.7	29.4		18.0	30.9	
Delay factor k	0.11	0.50		0.14	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	0.8		1.3	11.6	1.0	1.2	10.2		1.1	25.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.7	23.4		16.1	40.3	22.7	20.0-	39.7		19.1	56.6	
Lane group LOS	B	C		B	D	C	B	D		B	E	
Apprch. delay	22.7			34.8			37.4			53.0		
Approach LOS	C			C			D			D		
Intersec. delay	39.3			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	60	406		240	1093	125	124	968		114	1091	
Satflow rate	1710	3513		1710	3610	1615	1710	3530		1710	3530	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Lane group cap.	270	1171		446	1203	538	270	1098		270	1098	
v/c ratio	0.22	0.35		0.54	0.91	0.23	0.46	0.88		0.42	0.99	
Flow ratio		0.12			0.30	0.08		0.27			0.31	
Crit. lane group	N	N		N	Y	N	N	N		N	Y	
Sum flow ratios	0.80											
Lost time/cycle	12.00											
Critical v/c ratio	0.92											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	60	406		240	1093	125	124	968		114	1091	
Lane group cap.	270	1171		446	1203	538	270	1098		270	1098	
v/c ratio	0.22	0.35		0.54	0.91	0.23	0.46	0.88		0.42	0.99	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	17.3	22.6		14.8	28.7	21.7	18.7	29.4		18.0	30.9	
Delay factor k	0.11	0.50		0.14	0.50	0.50	0.11	0.50		0.11	0.50	
Increm. delay d2	0.4	0.8		1.3	11.6	1.0	1.2	10.2		1.1	25.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	17.7	23.4		16.1	40.3	22.7	20.0-	39.7		19.1	56.6	
Lane group LOS	B	C		B	D	C	B	D		B	E	
Apprch. delay	22.7			34.8			37.4			53.0		
Approach LOS	C			C			D			D		
Intersec. delay	39.3			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	45	227	60	152	919	179	63	437	31	109	680	299
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	47	302		160	1155		66	493		115	1031	
Lane group cap.	80	1515		421	1526		159	1787		382	1723	
v/c ratio	0.59	0.20		0.38	0.76		0.42	0.28		0.30	0.60	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	19.4	15.8		17.3	21.5		14.2	13.1		13.2	16.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	27.9	0.3		2.6	3.6		7.8	0.4		2.0	1.5	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	47.2	16.1		19.9	25.1		22.0	13.4		15.3	17.6	
Lane group LOS	D	B		B	C		C	B		B	B	
Apprch. delay	20.3			24.4			14.4			17.4		
Approach LOS	C			C			B			B		
Intersec. delay	19.9			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	47	302		160	1155		66	493		115	1031	
Satflow rate	185	3497		971	3522		318	3574		763	3445	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Lane group cap.	80	1515		421	1526		159	1787		382	1723	
v/c ratio	0.59	0.20		0.38	0.76		0.42	0.28		0.30	0.60	
Flow ratio	0.25	0.09		0.16	0.33		0.21	0.14		0.15	0.30	
Crit. lane group	N	N		N	Y		N	N		N	Y	
Sum flow ratios	0.63											
Lost time/cycle	6.00											
Critical v/c ratio	0.67											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	47	302		160	1155		66	493		115	1031	
Lane group cap.	80	1515		421	1526		159	1787		382	1723	
v/c ratio	0.59	0.20		0.38	0.76		0.42	0.28		0.30	0.60	
Green ratio	0.43	0.43		0.43	0.43		0.50	0.50		0.50	0.50	
Unif. delay d1	19.4	15.8		17.3	21.5		14.2	13.1		13.2	16.1	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	27.9	0.3		2.6	3.6		7.8	0.4		2.0	1.5	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	47.2	16.1		19.9	25.1		22.0	13.4		15.3	17.6	
Lane group LOS	D	B		B	C		C	B		B	B	
Apprch. delay	20.3			24.4			14.4			17.4		
Approach LOS	C			C			B			B		
Intersec. delay	19.9			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	69	275	38	58	933	66	130	31	18	53	33	69
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	73	329		61	1051			189			164	
Lane group cap.	153	1772		478	1787			592			650	
v/c ratio	0.48	0.19		0.13	0.59			0.32			0.25	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	14.8	12.4		12.0	15.9			16.8			16.2	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	10.3	0.2		0.6	1.4			0.3			0.2	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	25.1	12.6		12.6	17.4			17.1			16.4	
Lane group LOS	C	B		B	B			B			B	
Apprch. delay	14.9			17.1			17.1			16.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.6			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	73	329		61	1051			189			164	
Satflow rate	305	3544		956	3574			1365			1500	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	153	1772		478	1787			592			650	
v/c ratio	0.48	0.19		0.13	0.59			0.32			0.25	
Flow ratio	0.24	0.09		0.06	0.29			0.14			0.11	
Crit. lane group	N	N		N	Y			Y			N	
Sum flow ratios	0.43											
Lost time/cycle	6.00											
Critical v/c ratio	0.46											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	73	329		61	1051			189			164	
Lane group cap.	153	1772		478	1787			592			650	
v/c ratio	0.48	0.19		0.13	0.59			0.32			0.25	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	14.8	12.4		12.0	15.9			16.8			16.2	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	10.3	0.2		0.6	1.4			0.3			0.2	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	25.1	12.6		12.6	17.4			17.1			16.4	
Lane group LOS	C	B		B	B			B			B	
Apprch. delay	14.9			17.1			17.1			16.4		
Approach LOS	B			B			B			B		
Intersec. delay	16.6			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	17	265	13	24	893	50	18	117	22	19	128	72
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 58.0	G =	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	18	279	14	25	993		19	146		20	211	
Lane group cap.	276	1224	1041	648	2308		307	1018		343	987	
v/c ratio	0.07	0.23	0.01	0.04	0.43		0.06	0.14		0.06	0.21	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.9	6.7	5.7	5.8	7.9		23.2	23.7		23.1	24.3	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.5	0.4	0.0	0.1	0.6		0.1	0.1		0.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.4	7.1	5.8	5.9	8.5		23.3	23.8		23.2	24.4	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	7.0			8.4			23.7			24.3		
Approach LOS	A			A			C			C		
Intersec. delay	11.7			Intersection LOS						B		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	18	279	14	25	993		19	146		20	211	
Satflow rate	429	1900	1615	1006	3581		1063	3525		1187	3415	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Lane group cap.	276	1224	1041	648	2308		307	1018		343	987	
v/c ratio	0.07	0.23	0.01	0.04	0.43		0.06	0.14		0.06	0.21	
Flow ratio	0.04	0.15	0.01	0.02	0.28		0.02	0.04		0.02	0.06	
Crit. lane group	N	N	N	N	Y		N	N		N	Y	
Sum flow ratios	0.34											
Lost time/cycle	6.00											
Critical v/c ratio	0.36											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	18	279	14	25	993		19	146		20	211	
Lane group cap.	276	1224	1041	648	2308		307	1018		343	987	
v/c ratio	0.07	0.23	0.01	0.04	0.43		0.06	0.14		0.06	0.21	
Green ratio	0.64	0.64	0.64	0.64	0.64		0.29	0.29		0.29	0.29	
Unif. delay d1	5.9	6.7	5.7	5.8	7.9		23.2	23.7		23.1	24.3	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	0.5	0.4	0.0	0.1	0.6		0.1	0.1		0.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.4	7.1	5.8	5.9	8.5		23.3	23.8		23.2	24.4	
Lane group LOS	A	A	A	A	A		C	C		C	C	
Apprch. delay	7.0			8.4			23.7			24.3		
Approach LOS	A			A			C			C		
Intersec. delay	11.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	1	0	1	0	1	2	1	1	2	0
Lane group		LT	R		LTR		L	T	R	L	TR	
Volume (vph)	132	62	92	156	578	27	179	1169	59	24	1279	236
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green		2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type		3	3		3		3	3	3	3	3	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0	0		0		0	0	0	0	0	
Unit Extension		3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 35.5	G =	G =	G =	G = 9.7	G = 35.8	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate		204	97		800		188	1231	62	25	1594	
Lane group cap.		272	637		536		264	1436	642	264	1403	
v/c ratio		0.75	0.15		1.49		0.71	0.86	0.10	0.09	1.14	
Green ratio		0.39	0.39		0.39		0.54	0.40	0.40	0.54	0.40	
Unif. delay d1		23.4	17.6		27.3		18.5	24.8	17.0	15.0	27.1	
Delay factor k		0.50	0.50		0.50		0.28	0.50	0.50	0.11	0.50	
Increm. delay d2		17.2	0.5		231.4		8.7	6.8	0.3	0.2	70.6	
PF factor		1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	
Control delay		40.7	18.1		258.6		27.2	31.6	17.3	15.2	97.7	
Lane group LOS		D	B		F		C	C	B	B	F	
Apprch. delay	33.4			258.6			30.4			96.4		
Approach LOS	C			F			C			F		
Intersec. delay	99.5			Intersection LOS						F		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	204	97	800	188	1231	62	25	1594
Satflow rate	689	1615	1358	1710	3610	1615	1710	3526
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.39	0.39	0.39	0.54	0.40	0.40	0.54	0.40
Lane group cap.	272	637	536	264	1436	642	264	1403
v/c ratio	0.75	0.15	1.49	0.71	0.86	0.10	0.09	1.14
Flow ratio	0.30	0.06	0.59		0.34	0.04		0.40
Crit. lane group	N	N	Y	N	N	N	N	Y
Sum flow ratios	1.09							
Lost time/cycle	9.00							
Critical v/c ratio	1.22							

Lane Group Capacity, Control Delay, and LOS Determination

	EB		WB	NB			SB	
Lane group	LT	R	LTR	L	T	R	L	TR
Adj. flow rate	204	97	800	188	1231	62	25	1594
Lane group cap.	272	637	536	264	1436	642	264	1403
v/c ratio	0.75	0.15	1.49	0.71	0.86	0.10	0.09	1.14
Green ratio	0.39	0.39	0.39	0.54	0.40	0.40	0.54	0.40
Unif. delay d1	23.4	17.6	27.3	18.5	24.8	17.0	15.0	27.1
Delay factor k	0.50	0.50	0.50	0.28	0.50	0.50	0.11	0.50
Increm. delay d2	17.2	0.5	231.4	8.7	6.8	0.3	0.2	70.6
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Control delay	40.7	18.1	258.6	27.2	31.6	17.3	15.2	97.7
Lane group LOS	D	B	F	C	C	B	B	F
Apprch. delay	33.4		258.6	30.4			96.4	
Approach LOS	C		F	C			F	
Intersec. delay	99.5		Intersection LOS				F	

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	0	1	0	1	2	1	1	2	1
Lane group	L	T	R		LTR		L	T	R	L	T	R
Volume (vph)	266	740	27	83	182	129	57	1412	148	122	1132	129
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Ext. eff. green	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Arrival type	3	3	3		3		3	3	3	3	3	3
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0		12.0		12.0	12.0	12.0	12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0		0		0	0	0	0	0	0
Unit Extension	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 38.0	G =	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =

Duration of Analysis (hrs) = 1.00 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	280	779	28		415		60	1486	156	128	1192	136
Lane group cap.	326	802	682		299		270	1324	592	270	1324	592
v/c ratio	0.86	0.97	0.04		1.39		0.22	1.12	0.26	0.47	0.90	0.23
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Unif. delay d1	23.6	25.5	15.3		26.0		16.6	28.5	20.0	17.8	26.9	19.7
Delay factor k	0.39	0.48	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	24.0	40.6	0.0		719.2		0.4	232.1	1.1	1.3	11.5	0.9
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	47.5	66.1	15.3		745.2		17.0	260.6	21.1	19.1	38.5	20.6
Lane group LOS	D	E	B		F		B	F	C	B	D	C
Apprch. delay	60.0			745.2			230.0			35.1		
Approach LOS	E			F			F			D		
Intersec. delay	175.4			Intersection LOS						F		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	280	779	28		415		60	1486	156	128	1192	136
Satflow rate	772	1900	1615		708		1710	3610	1615	1710	3610	1615
Lost time	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0	2.0	2.0
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Lane group cap.	326	802	682		299		270	1324	592	270	1324	592
v/c ratio	0.86	0.97	0.04		1.39		0.22	1.12	0.26	0.47	0.90	0.23
Flow ratio	0.36	0.41	0.02		0.59			0.37	0.10		0.33	0.08
Crit. lane group	N	N	N		Y		N	Y	N	N	N	N
Sum flow ratios	1.03											
Lost time/cycle	9.00											
Critical v/c ratio	1.14											

Lane Group Capacity, Control Delay, and LOS Determination

	EB				WB		NB			SB		
Lane group	L	T	R		LTR		L	T	R	L	T	R
Adj. flow rate	280	779	28		415		60	1486	156	128	1192	136
Lane group cap.	326	802	682		299		270	1324	592	270	1324	592
v/c ratio	0.86	0.97	0.04		1.39		0.22	1.12	0.26	0.47	0.90	0.23
Green ratio	0.42	0.42	0.42		0.42		0.51	0.37	0.37	0.51	0.37	0.37
Unif. delay d1	23.6	25.5	15.3		26.0		16.6	28.5	20.0	17.8	26.9	19.7
Delay factor k	0.39	0.48	0.11		0.50		0.11	0.50	0.50	0.11	0.50	0.50
Increm. delay d2	24.0	40.6	0.0		719.2		0.4	232.1	1.1	1.3	11.5	0.9
PF factor	1.000	1.000	1.000		1.000		1.000	1.000	1.000	1.000	1.000	1.000
Control delay	47.5	66.1	15.3		745.2		17.0	260.6	21.1	19.1	38.5	20.6
Lane group LOS	D	E	B		F		B	F	C	B	D	C
Apprch. delay	60.0			745.2			230.0			35.1		
Approach LOS	E			F			F			D		
Intersec. delay	175.4			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	1	1	2	0	1	2	0
Lane group	L	TR		L	T	R	L	TR		L	TR	
Volume (vph)	193	1161	143	165	615	119	126	953	266	132	719	169
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3	3	3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0	0	0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	203	1373		174	647	125	133	1283		139	935	
Lane group cap.	344	1183		270	1203	538	270	1086		270	1091	
v/c ratio	0.59	1.16		0.64	0.54	0.23	0.49	1.18		0.51	0.86	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	15.4	30.0		18.8	24.4	21.7	18.0	31.0		18.9	29.1	
Delay factor k	0.18	0.50		0.22	0.50	0.50	0.11	0.50		0.12	0.50	
Increm. delay d2	2.7	82.0		5.2	1.7	1.0	1.4	91.3		1.7	8.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.1	112.0		24.0	26.1	22.7	19.4	122.3		20.6	37.8	
Lane group LOS	B	F		C	C	C	B	F		C	D	
Apprch. delay	99.9			25.3			112.6			35.6		
Approach LOS	F			C			F			D		
Intersec. delay	75.6			Intersection LOS						E		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	203	1373		174	647	125	133	1283		139	935	
Satflow rate	1710	3550		1710	3610	1615	1710	3492		1710	3507	
Lost time	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Lane group cap.	344	1183		270	1203	538	270	1086		270	1091	
v/c ratio	0.59	1.16		0.64	0.54	0.23	0.49	1.18		0.51	0.86	
Flow ratio		0.33			0.18	0.08		0.31			0.27	
Crit. lane group	N	Y		N	N	N	N	Y		N	N	
Sum flow ratios	0.84											
Lost time/cycle	12.00											
Critical v/c ratio	0.97											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	T	R	L	TR		L	TR	
Adj. flow rate	203	1373		174	647	125	133	1283		139	935	
Lane group cap.	344	1183		270	1203	538	270	1086		270	1091	
v/c ratio	0.59	1.16		0.64	0.54	0.23	0.49	1.18		0.51	0.86	
Green ratio	0.48	0.33		0.48	0.33	0.33	0.46	0.31		0.46	0.31	
Unif. delay d1	15.4	30.0		18.8	24.4	21.7	18.0	31.0		18.9	29.1	
Delay factor k	0.18	0.50		0.22	0.50	0.50	0.11	0.50		0.12	0.50	
Increm. delay d2	2.7	82.0		5.2	1.7	1.0	1.4	91.3		1.7	8.7	
PF factor	1.000	1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control delay	18.1	112.0		24.0	26.1	22.7	19.4	122.3		20.6	37.8	
Lane group LOS	B	F		C	C	C	B	F		C	D	
Apprch. delay	99.9			25.3			112.6			35.6		
Approach LOS	F			C			F			D		
Intersec. delay	75.6			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#40 Mountain Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	362	1324	84	72	278	93	48	724	92	186	836	63
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 42.0	G =	G =	G =	G = 42.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	381	1482		76	391		51	859		196	946	
Lane group cap.	404	1670		80	1621		161	1656		190	1667	
v/c ratio	0.94	0.89		0.95	0.24		0.32	0.52		1.03	0.57	
Green ratio	0.47	0.47		0.47	0.47		0.47	0.47		0.47	0.47	
Unif. delay d1	22.9	21.8		23.0	14.4		15.0	16.9		24.0	17.4	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	32.5	7.4		87.5	0.4		5.1	1.2		73.8	1.4	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	55.4	29.3		110.5	14.8		20.1	18.1		97.8	18.8	
Lane group LOS	E	C		F	B		C	B		F	B	
Apprch. delay	34.6			30.3			18.2			32.4		
Approach LOS	C			C			B			C		
Intersec. delay	30.2			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	381	1482		76	391		51	859		196	946	
Satflow rate	866	3578		171	3474		345	3549		408	3572	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.47	0.47		0.47	0.47		0.47	0.47		0.47	0.47	
Lane group cap.	404	1670		80	1621		161	1656		190	1667	
v/c ratio	0.94	0.89		0.95	0.24		0.32	0.52		1.03	0.57	
Flow ratio	0.44	0.41		0.44	0.11		0.15	0.24		0.48	0.26	
Crit. lane group	N	N		Y	N		N	N		Y	N	
Sum flow ratios	0.92											
Lost time/cycle	6.00											
Critical v/c ratio	0.99											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	381	1482		76	391		51	859		196	946	
Lane group cap.	404	1670		80	1621		161	1656		190	1667	
v/c ratio	0.94	0.89		0.95	0.24		0.32	0.52		1.03	0.57	
Green ratio	0.47	0.47		0.47	0.47		0.47	0.47		0.47	0.47	
Unif. delay d1	22.9	21.8		23.0	14.4		15.0	16.9		24.0	17.4	
Delay factor k	0.50	0.50		0.50	0.50		0.50	0.50		0.50	0.50	
Increm. delay d2	32.5	7.4		87.5	0.4		5.1	1.2		73.8	1.4	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	55.4	29.3		110.5	14.8		20.1	18.1		97.8	18.8	
Lane group LOS	E	C		F	B		C	B		F	B	
Apprch. delay	34.6			30.3			18.2			32.4		
Approach LOS	C			C			B			C		
Intersec. delay	30.2			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#41 San Antonio & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Lane group	L	TR		L	TR			LTR			LTR	
Volume (vph)	52	1449	49	29	264	39	42	48	36	53	28	26
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Ext. eff. green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0			12.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0			0			0	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	58	1664		32	336			140			119	
Lane group cap.	474	1796		80	1771			685			650	
v/c ratio	0.12	0.93		0.40	0.19			0.20			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.0	21.0		14.1	12.4			15.9			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.5	9.8		14.2	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.5	30.7		28.3	12.7			16.0			15.8	
Lane group LOS	B	C		C	B			B			B	
Apprch. delay	30.1			14.0			16.0			15.8		
Approach LOS	C			B			B			B		
Intersec. delay	26.0			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	58	1664		32	336			140			119	
Satflow rate	947	3592		160	3541			1581			1501	
Lost time	2.0	2.0		2.0	2.0			2.0			2.0	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Lane group cap.	474	1796		80	1771			685			650	
v/c ratio	0.12	0.93		0.40	0.19			0.20			0.18	
Flow ratio	0.06	0.46		0.20	0.09			0.09			0.08	
Crit. lane group	N	Y		N	N			Y			N	
Sum flow ratios	0.55											
Lost time/cycle	6.00											
Critical v/c ratio	0.59											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR			LTR			LTR	
Adj. flow rate	58	1664		32	336			140			119	
Lane group cap.	474	1796		80	1771			685			650	
v/c ratio	0.12	0.93		0.40	0.19			0.20			0.18	
Green ratio	0.50	0.50		0.50	0.50			0.43			0.43	
Unif. delay d1	12.0	21.0		14.1	12.4			15.9			15.7	
Delay factor k	0.50	0.50		0.50	0.50			0.11			0.11	
Increm. delay d2	0.5	9.8		14.2	0.2			0.1			0.1	
PF factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control delay	12.5	30.7		28.3	12.7			16.0			15.8	
Lane group LOS	B	C		C	B			B			B	
Apprch. delay	30.1			14.0			16.0			15.8		
Approach LOS	C			B			B			B		
Intersec. delay	26.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#42 Fern Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	2	0	1	2	0	1	2	0
Lane group	L	T	R	L	TR		L	TR		L	TR	
Volume (vph)	214	1270	54	50	255	29	22	144	63	100	84	51
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	A	A	A	A	A
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3	3	3	3		3	3		3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0		0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 62.0	G =	G =	G =	G = 22.0	G =	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	225	1337	57	53	299		23	218		105	142	
Lane group cap.	706	1309	1113	80	2448		291	842		251	832	
v/c ratio	0.32	1.02	0.05	0.66	0.12		0.08	0.26		0.42	0.17	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Unif. delay d1	5.6	14.0	4.5	8.0	4.8		26.2	27.4		28.6	26.8	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	1.2	30.4	0.1	35.8	0.1		0.1	0.2		1.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.8	44.4	4.6	43.8	4.9		26.3	27.6		29.7	26.9	
Lane group LOS	A	D	A	D	A		C	C		C	C	
Apprch. delay	37.8			10.7			27.5			28.1		
Approach LOS	D			B			C			C		
Intersec. delay	31.9			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	225	1337	57	53	299		23	218		105	142	
Satflow rate	1025	1900	1615	116	3554		1191	3446		1026	3404	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Lane group cap.	706	1309	1113	80	2448		291	842		251	832	
v/c ratio	0.32	1.02	0.05	0.66	0.12		0.08	0.26		0.42	0.17	
Flow ratio	0.22	0.70	0.04	0.46	0.08		0.02	0.06		0.10	0.04	
Crit. lane group	N	Y	N	N	N		N	N		Y	N	
Sum flow ratios	0.81											
Lost time/cycle	6.00											
Critical v/c ratio	0.86											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	TR		L	TR	
Adj. flow rate	225	1337	57	53	299		23	218		105	142	
Lane group cap.	706	1309	1113	80	2448		291	842		251	832	
v/c ratio	0.32	1.02	0.05	0.66	0.12		0.08	0.26		0.42	0.17	
Green ratio	0.69	0.69	0.69	0.69	0.69		0.24	0.24		0.24	0.24	
Unif. delay d1	5.6	14.0	4.5	8.0	4.8		26.2	27.4		28.6	26.8	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.11		0.11	0.11	
Increm. delay d2	1.2	30.4	0.1	35.8	0.1		0.1	0.2		1.1	0.1	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	6.8	44.4	4.6	43.8	4.9		26.3	27.6		29.7	26.9	
Lane group LOS	A	D	A	D	A		C	C		C	C	
Apprch. delay	37.8			10.7			27.5			28.1		
Approach LOS	D			B			C			C		
Intersec. delay	31.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cumulative + Project 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	0	0	1	0	1	2	1	1	2	0
Lane group	L	TR			LTR		L	T	R	L	TR	
Volume (vph)	260	787	121	45	148	33	67	1383	297	207	836	85
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type	3	3			3		3	3	3	3	3	
Unit Extension	3.0	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0			12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0			0		0	0	0	0	0	
Unit Extension	3.0	3.0			3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 42.0	G =	G =	G =	G = 10.0	G = 29.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	274	955			238		71	1456	313	218	969	
Lane group cap.	532	823			469		270	1163	520	270	1147	
v/c ratio	0.52	1.16			0.51		0.26	1.25	0.60	0.81	0.84	
Green ratio	0.47	0.47			0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	16.8	24.0			16.8		16.9	30.5	25.6	19.6	28.4	
Delay factor k	0.50	0.50			0.50		0.11	0.50	0.50	0.35	0.50	
Increm. delay d2	3.5	85.5			3.9		0.5	120.6	5.1	16.4	7.7	
PF factor	1.000	1.000			1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	20.4	109.5			20.7		17.4	151.1	30.7	36.1	36.1	
Lane group LOS	C	F			C		B	F	C	D	D	
Apprch. delay	89.7			20.7			125.5			36.1		
Approach LOS	F			C			F			D		
Intersec. delay	86.5			Intersection LOS						F		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR			LTR		L	T	R	L	TR	
Adj. flow rate	274	955			238		71	1456	313	218	969	
Satflow rate	1140	1764			1005		1710	3610	1615	1710	3560	
Lost time	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio	0.47	0.47			0.47		0.47	0.32	0.32	0.47	0.32	
Lane group cap.	532	823			469		270	1163	520	270	1147	
v/c ratio	0.52	1.16			0.51		0.26	1.25	0.60	0.81	0.84	
Flow ratio	0.24	0.54			0.24			0.32	0.19		0.27	
Crit. lane group	N	Y			N		N	Y	N	N	N	
Sum flow ratios	0.97											
Lost time/cycle	9.00											
Critical v/c ratio	1.08											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR			LTR		L	T	R	L	TR	
Adj. flow rate	274	955			238		71	1456	313	218	969	
Lane group cap.	532	823			469		270	1163	520	270	1147	
v/c ratio	0.52	1.16			0.51		0.26	1.25	0.60	0.81	0.84	
Green ratio	0.47	0.47			0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	16.8	24.0			16.8		16.9	30.5	25.6	19.6	28.4	
Delay factor k	0.50	0.50			0.50		0.11	0.50	0.50	0.35	0.50	
Increm. delay d2	3.5	85.5			3.9		0.5	120.6	5.1	16.4	7.7	
PF factor	1.000	1.000			1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	20.4	109.5			20.7		17.4	151.1	30.7	36.1	36.1	
Lane group LOS	C	F			C		B	F	C	D	D	
Apprch. delay	89.7			20.7			125.5			36.1		
Approach LOS	F			C			F			D		
Intersec. delay	86.5			Intersection LOS						F		

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INTERSECTION DELAY WORKSHEETS

YEAR 2025 WITH PROJECT WITH MITIGATION CONDITIONS

SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/25/2004	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	3	0	1	3	0
Lane group	L	TR		L	TR		L	TR		L	TR	
Volume (vph)	122	125	45	103	390	142	67	1113	81	52	1358	370
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Arrival type	3	3		3	3		3	3		3	3	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 38.0	G =	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	128	179		108	560		71	1257		55	1818	
Lane group cap.	159	1464		541	730		270	1882		270	1841	
v/c ratio	0.81	0.12		0.20	0.77		0.26	0.67		0.20	0.99	
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	
Unif. delay d1	22.8	15.8		16.4	22.2		17.1	23.9		13.6	28.3	
Delay factor k	0.35	0.11		0.11	0.32		0.11	0.50		0.11	0.50	
Increm. delay d2	30.0	0.0		0.2	5.1		0.5	1.9		0.4	31.9	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	52.7	15.9		16.6	27.3		17.7	25.8		13.9	60.2	
Lane group LOS	D	B		B	C		B	C		B	E	
Apprch. delay	31.2			25.6			25.4			58.9		
Approach LOS	C			C			C			E		
Intersec. delay	40.9			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	128	179		108	560		71	1257		55	1818	
Satflow rate	377	3468		1281	1728		1710	5134		1710	5021	
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	
Lane group cap.	159	1464		541	730		270	1882		270	1841	
v/c ratio	0.81	0.12		0.20	0.77		0.26	0.67		0.20	0.99	
Flow ratio	0.34	0.05		0.08	0.32			0.24			0.36	
Crit. lane group	Y	N		N	N		N	N		N	Y	
Sum flow ratios	0.74											
Lost time/cycle	9.00											
Critical v/c ratio	0.83											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	TR	
Adj. flow rate	128	179		108	560		71	1257		55	1818	
Lane group cap.	159	1464		541	730		270	1882		270	1841	
v/c ratio	0.81	0.12		0.20	0.77		0.26	0.67		0.20	0.99	
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	
Unif. delay d1	22.8	15.8		16.4	22.2		17.1	23.9		13.6	28.3	
Delay factor k	0.35	0.11		0.11	0.32		0.11	0.50		0.11	0.50	
Increm. delay d2	30.0	0.0		0.2	5.1		0.5	1.9		0.4	31.9	
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Control delay	52.7	15.9		16.6	27.3		17.7	25.8		13.9	60.2	
Lane group LOS	D	B		B	C		B	C		B	E	
Apprch. delay	31.2			25.6			25.4			58.9		
Approach LOS	C			C			C			E		
Intersec. delay	40.9			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	1	1	2	1	1	2	1	1	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume (vph)	57	316	69	228	1038	119	118	784	136	108	883	154
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type	3	3	3	3	3	3	3	3	3	3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	60	333	73	240	1093	125	124	825	143	114	1091	
Lane group cap.	270	1203	538	482	1203	538	270	1123	502	270	1098	
v/c ratio	0.22	0.28	0.14	0.50	0.91	0.23	0.46	0.73	0.28	0.42	0.99	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Unif. delay d1	17.3	22.0	20.9	14.6	28.7	21.7	18.7	27.7	23.4	16.9	30.9	
Delay factor k	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	
Increm. delay d2	0.4	0.6	0.5	0.8	11.6	1.0	1.2	4.3	1.4	1.1	25.7	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Control delay	17.7	22.6	21.5	15.4	40.3	22.7	20.0-	32.0	24.9	18.0	56.6	
Lane group LOS	B	C	C	B	D	C	B	C	C	B	E	
Apprch. delay	21.8			34.7			29.7			52.9		
Approach LOS	C			C			C			D		
Intersec. delay	37.2			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Adj. flow rate	60	333	73	240	1093	125	124	825	143	114	1091	
Satflow rate	1710	3610	1615	1710	3610	1615	1710	3610	1615	1710	3530	
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Lane group cap.	270	1203	538	482	1203	538	270	1123	502	270	1098	
v/c ratio	0.22	0.28	0.14	0.50	0.91	0.23	0.46	0.73	0.28	0.42	0.99	
Flow ratio		0.09	0.05		0.30	0.08		0.23	0.09		0.31	
Crit. lane group	N	N	N	N	Y	N	N	N	N	N	Y	
Sum flow ratios	0.80											
Lost time/cycle	12.00											
Critical v/c ratio	0.92											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Adj. flow rate	60	333	73	240	1093	125	124	825	143	114	1091	
Lane group cap.	270	1203	538	482	1203	538	270	1123	502	270	1098	
v/c ratio	0.22	0.28	0.14	0.50	0.91	0.23	0.46	0.73	0.28	0.42	0.99	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Unif. delay d1	17.3	22.0	20.9	14.6	28.7	21.7	18.7	27.7	23.4	16.9	30.9	
Delay factor k	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50	
Increm. delay d2	0.4	0.6	0.5	0.8	11.6	1.0	1.2	4.3	1.4	1.1	25.7	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Control delay	17.7	22.6	21.5	15.4	40.3	22.7	20.0-	32.0	24.9	18.0	56.6	
Lane group LOS	B	C	C	B	D	C	B	C	C	B	E	
Apprch. delay	21.8			34.7			29.7			52.9		
Approach LOS	C			C			C			D		
Intersec. delay	37.2			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 AM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	0	1	3	1	1	3	0
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Volume (vph)	132	62	92	156	578	27	179	1169	59	24	1279	236
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type	3	3	3	3	3		3	3	3	3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0	0	0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 42.0	G =	G =	G =	G = 10.0	G = 29.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	139	65	97	164	636		188	1231	62	25	1594	
Lane group cap.	177	840	754	669	834		270	1671	520	270	1632	
v/c ratio	0.79	0.08	0.13	0.25	0.76		0.70	0.74	0.12	0.09	0.98	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	20.2	13.3	13.6	14.5	19.9		19.2	27.1	21.5	15.4	30.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.26	0.50	0.50	0.11	0.50	
Increm. delay d2	28.7	0.2	0.4	0.9	6.5		7.6	2.9	0.5	0.1	17.4	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	48.9	13.5	14.0	15.3	26.4		26.9	30.0	22.0	15.5	47.6	
Lane group LOS	D	B	B	B	C		C	C	C	B	D	
Apprch. delay	30.0			24.1			29.3			47.1		
Approach LOS	C			C			C			D		
Intersec. delay	35.2			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Adj. flow rate	139	65	97	164	636		188	1231	62	25	1594	
Satflow rate	380	1800	1615	1433	1788		1710	5187	1615	1710	5066	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Lane group cap.	177	840	754	669	834		270	1671	520	270	1632	
v/c ratio	0.79	0.08	0.13	0.25	0.76		0.70	0.74	0.12	0.09	0.98	
Flow ratio	0.37	0.04	0.06	0.11	0.36			0.24	0.04		0.31	
Crit. lane group	Y	N	N	N	N		N	N	N	N	Y	
Sum flow ratios	0.79											
Lost time/cycle	9.00											
Critical v/c ratio	0.88											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Adj. flow rate	139	65	97	164	636		188	1231	62	25	1594	
Lane group cap.	177	840	754	669	834		270	1671	520	270	1632	
v/c ratio	0.79	0.08	0.13	0.25	0.76		0.70	0.74	0.12	0.09	0.98	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	20.2	13.3	13.6	14.5	19.9		19.2	27.1	21.5	15.4	30.2	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.26	0.50	0.50	0.11	0.50	
Increm. delay d2	28.7	0.2	0.4	0.9	6.5		7.6	2.9	0.5	0.1	17.4	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	48.9	13.5	14.0	15.3	26.4		26.9	30.0	22.0	15.5	47.6	
Lane group LOS	D	B	B	B	C		C	C	C	B	D	
Apprch. delay	30.0			24.1			29.3			47.1		
Approach LOS	C			C			C			D		
Intersec. delay	35.2			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#38 Euclid Av & Chino Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	0	1	1	0	1	3	0	1	2	1
Lane group	L	TR		L	TR		L	TR		L	T	R
Volume (vph)	266	740	27	83	182	129	57	1412	148	122	1132	129
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	A	A	A	A	A	A	P	P	A	P	P
Startup lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Ext. eff. green	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Arrival type	3	3		3	3		3	3		3	3	3
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0		0	0		0	0		0	0	0
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 38.0	G =	G =	G =	G = 10.0	G = 33.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 1.00					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	280	807		87	328		60	1642		128	1192	136
Lane group cap.	331	1516		193	713		270	1875		270	1324	592
v/c ratio	0.85	0.53		0.45	0.46		0.22	0.88		0.47	0.90	0.23
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	0.37
Unif. delay d1	23.4	19.4		18.6	18.6		16.6	26.6		16.9	26.9	19.7
Delay factor k	0.38	0.14		0.11	0.11		0.11	0.50		0.11	0.50	0.50
Increm. delay d2	21.1	0.4		1.7	0.5		0.4	6.6		1.3	11.5	0.9
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	1.000
Control delay	44.4	19.7		20.2	19.1		17.0	33.2		18.2	38.5	20.6
Lane group LOS	D	B		C	B		B	C		B	D	C
Apprch. delay	26.1			19.4			32.6			35.0+		
Approach LOS	C			B			C			D		
Intersec. delay	30.7			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	T	R
Adj. flow rate	280	807		87	328		60	1642		128	1192	136
Satflow rate	784	3591		457	1688		1710	5113		1710	3610	1615
Lost time	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	0.37
Lane group cap.	331	1516		193	713		270	1875		270	1324	592
v/c ratio	0.85	0.53		0.45	0.46		0.22	0.88		0.47	0.90	0.23
Flow ratio	0.36	0.22		0.19	0.19			0.32			0.33	0.08
Crit. lane group	Y	N		N	N		N	N		N	Y	N
Sum flow ratios	0.76											
Lost time/cycle	9.00											
Critical v/c ratio	0.85											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	TR		L	TR		L	TR		L	T	R
Adj. flow rate	280	807		87	328		60	1642		128	1192	136
Lane group cap.	331	1516		193	713		270	1875		270	1324	592
v/c ratio	0.85	0.53		0.45	0.46		0.22	0.88		0.47	0.90	0.23
Green ratio	0.42	0.42		0.42	0.42		0.51	0.37		0.51	0.37	0.37
Unif. delay d1	23.4	19.4		18.6	18.6		16.6	26.6		16.9	26.9	19.7
Delay factor k	0.38	0.14		0.11	0.11		0.11	0.50		0.11	0.50	0.50
Increm. delay d2	21.1	0.4		1.7	0.5		0.4	6.6		1.3	11.5	0.9
PF factor	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	1.000
Control delay	44.4	19.7		20.2	19.1		17.0	33.2		18.2	38.5	20.6
Lane group LOS	D	B		C	B		B	C		B	D	C
Apprch. delay	26.1			19.4			32.6			35.0+		
Approach LOS	C			B			C			D		
Intersec. delay	30.7			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#39 Central Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/2004	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	2	1	1	2	1	1	2	1	1	2	0
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Volume (vph)	193	1161	143	165	615	119	126	953	266	132	719	169
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	A	P	P	A	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Arrival type	3	3	3	3	3	3	3	3	3	3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0	0	0	0	0	0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	

Phasing	Excl. Left	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 10.0	G = 30.0	G =	G =	G = 10.0	G = 28.0	G =	G =
	Y = 3	Y = 3	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25					Cycle Length C = 90.0			

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	203	1222	151	174	647	125	133	1003	280	139	935	
Lane group cap.	344	1203	538	270	1203	538	270	1123	502	270	1091	
v/c ratio	0.59	1.02	0.28	0.64	0.54	0.23	0.49	0.89	0.56	0.51	0.86	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Unif. delay d1	15.4	30.0	22.1	18.8	24.4	21.7	18.0	29.6	25.8	18.6	29.1	
Delay factor k	0.18	0.50	0.50	0.22	0.50	0.50	0.11	0.50	0.50	0.12	0.50	
Increm. delay d2	2.7	29.9	1.3	5.2	1.7	1.0	1.4	10.9	4.4	1.7	8.7	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Control delay	18.1	59.9	23.4	24.0	26.1	22.7	19.4	40.5	30.3	20.3	37.8	
Lane group LOS	B	E	C	C	C	C	B	D	C	C	D	
Apprch. delay	51.1			25.3			36.5			35.6		
Approach LOS	D			C			D			D		
Intersec. delay	38.8			Intersection LOS						D		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Adj. flow rate	203	1222	151	174	647	125	133	1003	280	139	935	
Satflow rate	1710	3610	1615	1710	3610	1615	1710	3610	1615	1710	3507	
Lost time	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Lane group cap.	344	1203	538	270	1203	538	270	1123	502	270	1091	
v/c ratio	0.59	1.02	0.28	0.64	0.54	0.23	0.49	0.89	0.56	0.51	0.86	
Flow ratio		0.33	0.09		0.18	0.08		0.28	0.17		0.27	
Crit. lane group	N	Y	N	N	N	N	N	Y	N	N	N	
Sum flow ratios	0.80											
Lost time/cycle	12.00											
Critical v/c ratio	0.93											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	T	R	L	T	R	L	TR	
Adj. flow rate	203	1222	151	174	647	125	133	1003	280	139	935	
Lane group cap.	344	1203	538	270	1203	538	270	1123	502	270	1091	
v/c ratio	0.59	1.02	0.28	0.64	0.54	0.23	0.49	0.89	0.56	0.51	0.86	
Green ratio	0.48	0.33	0.33	0.48	0.33	0.33	0.46	0.31	0.31	0.46	0.31	
Unif. delay d1	15.4	30.0	22.1	18.8	24.4	21.7	18.0	29.6	25.8	18.6	29.1	
Delay factor k	0.18	0.50	0.50	0.22	0.50	0.50	0.11	0.50	0.50	0.12	0.50	
Increm. delay d2	2.7	29.9	1.3	5.2	1.7	1.0	1.4	10.9	4.4	1.7	8.7	
PF factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Control delay	18.1	59.9	23.4	24.0	26.1	22.7	19.4	40.5	30.3	20.3	37.8	
Lane group LOS	B	E	C	C	C	C	B	D	C	C	D	
Apprch. delay	51.1			25.3			36.5			35.6		
Approach LOS	D			C			D			D		
Intersec. delay	38.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	rr	Intersection	#43 Euclid Av & Schaefer Av
Agency or Co.	Kaku Associates, Inc.	Area Type	All other areas
Date Performed	5/29/04	Jurisdiction	
Time Period	Cum + Proj with Improv 2025 PM	Analysis Year	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	1	1	1	1	1	0	1	3	1	1	3	0
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Volume (vph)	260	787	121	45	148	33	67	1383	297	207	836	85
% Heavy veh	0	0	0	0	0	0	0	0	0	0	0	0
PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Actuated (P/A)	P	P	P	P	P	P	A	P	P	A	P	P
Startup lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ext. eff. green	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Arrival type	3	3	3	3	3		3	3	3	3	3	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0	0	0	0	0		0	0	0	0	0	
Unit Extension	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 42.0	G =	G =	G =	G = 10.0	G = 29.0	G =	G =
	Y = 3	Y =	Y =	Y =	Y = 3	Y = 3	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	274	828	127	47	191		71	1456	313	218	969	
Lane group cap.	558	840	754	84	817		286	1671	520	270	1648	
v/c ratio	0.49	0.99	0.17	0.56	0.23		0.25	0.87	0.60	0.81	0.59	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	16.6	23.7	13.9	17.3	14.4		14.8	28.7	25.6	19.2	25.5	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.50	0.50	0.35	0.50	
Increm. delay d2	3.1	27.8	0.5	24.3	0.7		0.5	6.6	5.1	16.4	1.5	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	19.7	51.5	14.4	41.6	15.0		15.3	35.3	30.7	35.6	27.1	
Lane group LOS	B	D	B	D	B		B	D	C	D	C	
Apprch. delay	40.6			20.3			33.7			28.6		
Approach LOS	D			C			C			C		
Intersec. delay	33.5			Intersection LOS						C		

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CAPACITY AND LOS WORKSHEET

General Information

Project Description

Capacity Analysis

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Adj. flow rate	274	828	127	47	191		71	1456	313	218	969	
Satflow rate	1196	1800	1615	181	1751		1710	5187	1615	1710	5116	
Lost time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Lane group cap.	558	840	754	84	817		286	1671	520	270	1648	
v/c ratio	0.49	0.99	0.17	0.56	0.23		0.25	0.87	0.60	0.81	0.59	
Flow ratio	0.23	0.46	0.08	0.26	0.11			0.28	0.19		0.19	
Crit. lane group	N	Y	N	N	N		N	Y	N	N	N	
Sum flow ratios	0.85											
Lost time/cycle	9.00											
Critical v/c ratio	0.95											

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Lane group	L	T	R	L	TR		L	T	R	L	TR	
Adj. flow rate	274	828	127	47	191		71	1456	313	218	969	
Lane group cap.	558	840	754	84	817		286	1671	520	270	1648	
v/c ratio	0.49	0.99	0.17	0.56	0.23		0.25	0.87	0.60	0.81	0.59	
Green ratio	0.47	0.47	0.47	0.47	0.47		0.47	0.32	0.32	0.47	0.32	
Unif. delay d1	16.6	23.7	13.9	17.3	14.4		14.8	28.7	25.6	19.2	25.5	
Delay factor k	0.50	0.50	0.50	0.50	0.50		0.11	0.50	0.50	0.35	0.50	
Increm. delay d2	3.1	27.8	0.5	24.3	0.7		0.5	6.6	5.1	16.4	1.5	
PF factor	1.000	1.000	1.000	1.000	1.000		1.000	1.000	1.000	1.000	1.000	
Control delay	19.7	51.5	14.4	41.6	15.0		15.3	35.3	30.7	35.6	27.1	
Lane group LOS	B	D	B	D	B		B	D	C	D	C	
Apprch. delay	40.6			20.3			33.7			28.6		
Approach LOS	D			C			C			C		
Intersec. delay	33.5			Intersection LOS						C		

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APPENDIX P
CITY OF CHINO WATER SUPPLY ASSESSMENT

CITY OF CHINO

WATER SUPPLY ASSESSMENT

February 11, 2004

PSOMAS

CITY OF CHINO
WATER SUPPLY ASSESSMENT

February 11, 2004

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CITY OF CHINO WATER SUPPLY ASSESSMENT
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CHINO WATER SUPPLY ASSESSMENT

EXECUTIVE SUMMARY

The City of Chino ("City") was responsible for the preparation of The Preserve Environmental Impact Report (EIR) and is now responsible for the preparation of the College Park EIR. Each EIR includes an assessment of utilities, including water supply. Recent legislation, SB 221 and SB 610, requires that a water supply assessment be prepared to document the sufficiency of an available water supply for the City and a proposed project. This water supply assessment identifies water supply and reliability to the City, now and into the future, including a sufficient water supply for Chino Subarea 2, also known as The Preserve, and the College Park development.

The City currently obtains water from the following primary water sources: 1) naturally recharged groundwater, 2) imported State Water Project (SWP) water (surface water), 3) desalted water, and most recently 4) recycled water. The City receives approximately 38 percent of its water supply from groundwater, 40 percent from imported water, 20 percent from desalted water, and 2 percent from recycled water. Current and planned improvements will increase the use of recycled and desalted water.

Water Demand

The City's current average demand is approximately 15,345 acre-feet per year (afy). The build out of The Preserve and the College Park developments will increase water demand by approximately 13,693 afy of water (8,074 afy of potable water and 5,619 afy of recycled water).

Phasing of The Preserve will occur over time in approximately a 20 to 30-year period, intended to minimize impacts to local areas. Given the scale of The Preserve, a 30-year buildout time frame is realistic. College Park is expected to be built within a 10-year period. These development phasing plans allow for water demands to be met from sources that are currently being planned, developed and implemented, including desalted water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

Demand and Supply Projections

Analysis of water demand and supply projections for the City, including The Preserve and College Park (Section 3.0, City of Chino Water Demand and Supplies), demonstrate that projected supplies exceed demand through the year 2023. These projections consider land use, water development programs and projects, and water conservation. Analysis shows that as desalted water and recycled water use are maximized, groundwater and imported water will remain stable. Recycled water will supply certain areas currently supplied with potable water, and desalted water will supply areas currently using available groundwater and imported water.

The 20-year projection of water demand at the year 2023 for The Preserve and College Park developments will increase water demand by an estimated 10,109 af of water (6,502 af of potable water and 3,607 af of recycled water).

Additionally, the City has the opportunity to increase supply to meet demand through the following measures: 1) production of groundwater based on safe yield limitations; 2) increasing imported water purchases; 3) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers, and 4) purchasing additional recycled water when other members of the IEUA's regional wastewater contract program are not taking their full entitlement, which will be changed to no maximum entitlement with completion of the Regional Recycled Water System, which merges all the recycled plants together. Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

Reliability of future water supplies to the region will be ensured through continued implementation of the Optimum Basin Management Program, implementation of local agency programs, and combined efforts and programs among member and cooperative agencies, including all water retailers, and the Chino Basin Watermaster, the Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Santa Ana Regional Water Quality Control Board, Santa Ana Watershed Project Authority, and the Chino Basin Water Conservation District.

1.0 INTRODUCTION

The City of Chino was responsible for the preparation of The Preserve Environmental Impact Report (EIR) and is now responsible for the preparation of the College Park EIR. Each EIR includes an assessment of utilities, including water supply. Recent legislation, SB 221 and SB 610, requires that a water supply assessment be prepared to document the sufficiency of an available water supply for the City and the proposed projects. The assessment will identify water supply and water reliability to the City of Chino, now and into the future, including a sufficient water supply for The Preserve and College Park.

The Preserve

The Preserve Planning area encompasses 5,435 acres within the Chino Valley Dairy Preserve. [1] The Preserve is located in the vicinity of the cities of Chino, Chino Hills, Ontario, Norco, and Corona, as well as the unincorporated community of Eastvale in Riverside County, and the Prado Flood Control Basin. This area was incorporated into the City in 2003.

The Preserve is proposed to include up to 9,779 dwelling units on 1,168 acres, 616 acres of business uses (Community Core, Light Industrial, Airport Related, Regional Commercial, Neighborhood Commercial), 445 acres of Public Facilities and Rights-of-ways, and 423 acres of Open Space Recreation, for a total of 2,652 acres of developed land; and approximately 2,564 additional acres in remaining Open Space (Agricultural and Open Space Natural). The remaining 219 acres within the planning area were previously annexed into the City for development of public facilities. Proposed development will be concentrated in the northern portion of The Preserve, above the Prado Dam high water inundation line. Lands generally south of the 566' elevation are planned for low intensity uses (Open Space).

College Park

The California Department of General Services (CDGS) has identified 719 acres of the California Institution for Men (CIM) facility as surplus property. The property is being conveyed to the City of Chino, Chaffey College, and a private developer – SunCal Companies. The City, Chaffey College, and CDGS signed a memorandum of understanding to carry forth the planning, entitlement, and ultimately, development of the surplus property. A Specific Plan adopted by the City will control land use development.

Proposed development of the surplus property consists of three distinct components: 1) the expansion of the existing Ruben S. Ayala Community Park facilities and the relocation of the California Department of Forestry and Fire Protection heliport facility; 2) a Chaffey Community College Campus; and 3) a master-planned community.

The College Park master-planned community will include up to 2,500 dwelling units on 329 acres, 161 acres of Parks and Trails, 55 acres of Open Space and Recreational, 14 acres for mixed use and retail, 110 acres for the college and elementary school, and 50 acres for roads and transit.

[1] The Preserve Final Specific Plan. March 2003. City of Chino

2.0 LEGISLATION

2.1 SB 221 – Kuehl – Land Use: Water Supplies

Senate Bill 221 was chaptered into law October 9, 2001. SB 221 prohibits approval of a tentative map, or a parcel map, or a development agreement for a subdivision of property of more than 500 dwelling units,...unless the legislative body of a city or county or the designated advisory agency provides written verification from the applicable public water system that a sufficient water supply is available or, in addition, a specified finding is made by the local agency that sufficient water supplies are, or will be, available prior to completion of the project. A true statement of the provisions that have been made for water is satisfied by submitting a copy of the written verification of the availability of a sufficient water supply. This is known as a water supply assessment.

Sufficient water supply means the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand associated with the proposed subdivision, in addition to existing and planned future uses. All of the following factors shall be considered:

1. The public water systems' ability to provide sufficient water supply for the proposed subdivision shall be supported by substantial evidence including, but not limited to, any of the following: 1) urban water management plan; 2) water supply assessment – Part 2.10 (commencing with Section 10910) of Division 6 of the Water Code; or 3) other information relating to the sufficiency of the water supply that contains analytical information that is substantially similar to the assessment.
2. Availability of water supplies over a historical record of at least 20 years.
3. Applicability of an urban water shortage contingency analysis that includes action undertaken by the public water system in response to water supply shortages.
4. Reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system.
5. Amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfer, including programs identified under federal, state, and local water initiatives such as CALFED and Colorado River tentative agreements.
6. When verification relies on projected water supplies not currently available, then written verification shall be based on the following:
   a. Written contracts or other proof of valid rights.
   b. Copies of capital outlay program for financing the delivery of a sufficient water supply.
   c. Securing of applicable federal, state, and local permits for construction of necessary infrastructure.
   d. Necessary regulatory approvals required to convey or deliver the water supply.

2.2 SB 610 – Costa – Water Supply Planning

Senate Bill 610 was also chaptered into law on October 9, 2001. SB 610 requires additional information to be included as part of an urban water management plan (UWMP) if groundwater is identified as a source of water available to the supplier.

Information must include a description of all water supply projects and programs that may be undertaken to meet total projected water use.

SB 610 prohibits eligibility for funds from specified bond acts until the plan is submitted to the State. Until January 1, 2006, SB 610 requires the California Department of Water Resources (DWR) to consider if an updated UWMP has been submitted in determining eligibility for funds made available from programs administered by DWR.

SB 610 also requires a city or county that determines a project subject to CEQA to identify any public water system that may supply water for the project and to request those public water systems to prepare a specified water supply assessment. The assessment is to include the following:

1. Discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing.
2. Identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts.
3. Description of the quantities of water received in prior years by the public water system under the existing water supply entitlements, water rights or water service contracts.
4. Water supply entitlements, water rights or water service contracts shall be demonstrated by the following:
   a. Written contracts or other proof of entitlement to an identified water supply.
   b. Copies of capital outlay program for financing the delivery of a water supply that has been adopted by the public water system.
   c. Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply.
   d. Any necessary regulatory approvals that is required in order to be able to convey or deliver the water supply.
5. Identification of other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.
6. If groundwater is included for the supply for a proposed project, the following additional information is required:
   a. Review of any information contained in the UWMP relevant to the identified water supply for the proposed project.
   b. Description of any groundwater basin(s) from which the proposed project will be supplied. Adjudicated basins must have a copy of the court order or decree adopted and a description of the amount of groundwater the public water system has the legal right to pump. For non-adjudicated basins, information on whether the DWR has identified the basin as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of DWR that characterizes the condition of the basin, and a detailed description of the efforts being undertaken in the basin to eliminate the long-term overdraft condition.

c. Description and analysis of the amount and location of groundwater pumped by the public water system for the past 5 years from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.
d. Description and analysis of the amount and location of groundwater projected to be pumped by the public water system from any groundwater basin which the proposed project will be supplied. Analysis should be based on information that is reasonably available, including, but not limited to, historic use records.
e. Analysis of sufficiency of the groundwater from the basin(s) from which the proposed project will be supplied.
f. The water supply assessment shall be included in any environmental document prepared for the project.
g. The assessment may include an evaluation of any information included in that environmental document. A determination shall be made whether the projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses.

SB 221 and SB 610 are similar and contain the same basic requirements for a water supply assessment. The following assessment analyzes the adequacy of water supplies for the City of Chino, The Preserve and College Park now and into the future.

3.0 CITY OF CHINO WATER DEMAND AND SUPPLIES

3.1 Overview of Supply and Demand

The City of Chino ("City") currently serves water to an area of approximately 16.5 square miles and to approximately 14,395 customers. There are small portions of the City that extend beyond the westerly and northwesterly boundary of the City's water service area that are served by other water purveyors.

The City currently obtains water from the following primary water sources: 1) naturally recharged groundwater; 2) imported SWP water; 3) desalted water; and most recently 4) recycled water.

The City receives approximately 38 percent of its water supply from groundwater wells accessing the Chino Water Basin and 40 percent imported water from the Metropolitan Water District of Southern California (MWD) via the Water Facilities Authority-Joint Powers Agency (WFA) through the Inland Empire Utilities Agency (IEUA). Additionally, the City obtains about 20 percent of its supply from desalted water from the Chino I Desalter and 2 percent of its supply from recycled water supplied by IEUA. Current and planned improvements will increase the use of recycled and desalted water. Each of the sources of water for the City are briefly discussed in this section and more fully discussed in the following subsections.

Growth Rate

The high cost of land in the Los Angeles area increased the attraction of the Chino Basin and other suburban area where land was still plentiful during the "urban sprawl" era. The 1950 population of Chino was less than 6,000, while the 1990 census population was almost 60,000. Chino's current population is approximately 67,000, and by the year 2010, the population projection is 72,900; by 2015, 76,700; and by 2020, 80,500.[2] This represents a five percent growth rate every five years, or about a one percent annual growth rate.

Water Demand

The City's average daily demand in early 2003 was approximately 15,345 acre-feet per year (afy) or 13.7 million gallons per day (mgd). This demand is satisfied from groundwater and imported water, with minimal desalted and recycled water supplies being used. Current and planned improvements will increase the use of desalted and recycled water supplies.

The Preserve will increase this demand, generating an additional 30-year build-out need of approximately 11,317 afy or 10.1 mgd of water (7,733 afy at 20 years). This 11,317-afy demand is projected from both potable and recycled sources based on use; 6,835 afy (6.1 mgd) of potable water and 4,482 afy (4.0 mgd) of recycled water.

Phasing of The Preserve will occur over time in approximately a 20-30-year period, intended to minimize impacts to local areas. Given the scale of this project, a 30-year buildout time frame is considered realistic. Development phasing will originate with residential land use south of the Chino Airport. Phasing is consistent with a logical

[2] City of Chino, Urban Water Management Plan Update, January 2002

progression of infrastructure from surrounding developed and developing areas to the north and west, allowing for water demands to be met almost entirely from sources that are currently being planned, developed and implemented, including desalted water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

In order to determine water demand requirements for the College Park development, a water demand analysis was performed and presented to the City in a technical memorandum. The water demand analysis includes all 719 acres of College Park development by land use designation.

The College Park development would be phased over time in approximately 10 years for all but the Chaffey College Campus. The College Campus is anticipated to be approximately 60 percent complete in 10 years and fully complete by the year 2025. For the water demand analysis,[3] the College Campus is shown complete by 2023 to reflect the 20-year planning period. Residential development will be phased with approximately 22 percent completion in the first five years, 75 percent by the year 2010, and the balance by 2012. Open space recreation, mixed use, retail, the elementary school, and median landscaping and parkways will be approximately 40 percent complete by the year 2005, 88 percent complete by 2010, 95 percent complete by 2012, and 100 percent complete by 2015. At build out, the College Park development water demand will be 2,376 afy or 2.1 mgd; 1,239 afy (1.1 mgd) of potable water and 1,137 afy (1.0 mgd) of recycled water.

College Park water demand estimate methodology assumes that recycled water is used for project residential outdoor water demand at 30 percent of total residential use. If it is determined that recycled water will not be served for residential outdoor water use, then an additional 434 afy would be supplied at buildout from potable sources instead of recycled water.

Demand and Supply Comparison

Table 3-1 shows the current and projected water demand and supply for the City of Chino inclusive of The Preserve and College Park through the Year 2023. Demand and supply projections consider land use, water development programs and projects, desalter expansion and development, and connection to recycled water sources. Demand projections also consider water savings resulting from plumbing codes, price effects, and actual and projected implementation of water conservation Best Management Practices.

[3] Psomas Technical Memorandum, College Park Water Demand, October 2003

Table 3-1
Current and Projected Water Demand and Supply
City of Chino, including The Preserve and College Park
(af)

Water Sources	2000	2005	2010	2012	2015	2020	2023
DEMAND							
Potable City	14,977	15,700	13,910	13,622	13,290	12,930	13,167
The Preserve	0	1,680	2,740	3,168	3,810	4,870	5,263
College Park	0	268	913	1,186	1,190	1,233	1,239
Total Potable Demand	**14,977**	**17,648**	**17,563**	**17,976**	**18,290**	**19,033**	**19,669**
Recycled City	368	350	1,750	2,050	2,500	3,000	3,090
El Prado Golf Course	312	312	312	312	312	312	312
The Preserve	0	650	650	930	1,350	2,050	2,470
Prado Park	1,029	1,029	1,029	1,029	1,029	1,029	1,029
College Park	0	240	904	1,084	1,088	1,131	1,137
Total Recycled Demand	**1,709**	**2,581**	**4,645**	**5,405**	**6,279**	**7,522**	**8,038**
Total Water Demand	**16,686**	**20,229**	**22,208**	**23,381**	**24,569**	**26,555**	**27,707**
SUPPLY							
Groundwater – City	13,051	6,447	6,447	6,447	6,447	6,447	6,447
Groundwater – The Preserve	0	1,021	2,042	2,450	3,063	4,084	4,696
Groundwater – College Park	0	340	1,110	1,362	1,364	1,428	1,438
Desalted	3,000	5,000	5,000	5,000	5,000	5,000	5,000
Imported	5,451	5,353	5,353	5,353	5,353	5,353	5,353
Total Potable Supply	**21,502**	**18,161**	**19,952**	**20,612**	**21,227**	**22,312**	**22,934**
Total Recycled Supply	**1,709**	**2,581**	**4,645**	**5,405**	**6,279**	**7,522**	**8.038**
SUPPLY SURPLUS							
Potable Supply Surplus	**6,525**	**513**	**2,389**	**2,636**	**2,937**	**3,279**	**3,265**

Demand Assumptions:

1. **City Potable Demand:** City of Chino Urban Water Management Plan Update, January 2002, demand projections included potable, but not recycled, water demand projections for The Preserve. This Assessment allocates the City's UWMP combined potable demand projections for the City and The Preserve through the year 2023, and then adds in College Park projected potable water demands for each year. Year 2000 is actual demand.
2. **The Preserve Potable Demand:** Regional Water Quality Supply Plan from OBMP for years through 2020; straight-line increase from 2005 through Year 2023. 30-year buildout time frame.
3. **City Recycled Demand:** Year 2000 is actual use; years 2005 through 2023 are based on completion of the Regional Recycled Water System by 2010 and additional efforts to connect customers.
4. **The Preserve Recycled Demand:** Assumed slower demand in earlier development years, increasing significantly by year 2010 through buildout demand of 4,482 afy. 30-year buildout time frame.

Supply Assumptions:

1. **Groundwater – City:** Year 2000 is actual available inclusive of additional leased annual production rights; years 2005-2023 include assigned water rights (4,034 afy) and early transfer rights (2,413 afy) for a total of 6,447 afy. Additional groundwater can be produced for an additional assessment on each acre-foot overproduced, limited to the safe yield of the basin; groundwater replenishment expands the opportunity to overproduce.
2. **Groundwater – The Preserve:** Supply is based on conversion rights for The Preserve, which is calculated consistent with projected development phasing over 30 years. Conversion rights at build out totals 5,304 afy,
3. **Groundwater – College Park:** Supply is based on conversion rights for College Park, which is calculated consistent with projected development phasing over 20 years. Conversion rights at build out totals 1,438 afy.
4. **Desalted:** Chino I Desalter existing contract: 3,000 afy; Chino I Expansion: 2,000 afy; total contract after expansion by September 2004: 5,000 afy; more can be purchased if unused capacity is available.
5. **Imported:** Entitlement to WFA production water: 5.9% of plant 81 mgd capacity = 4.78 mgd (5,353 afy); more can be purchased if unused capacity is available.
6. **Recycled:** Year 2000 is actual use; years 2005-2020 use demand projections from the IEUA Recycled Water System Feasibility Study, Final Draft, October 2001, adjusted in years 2015 and 2020 to more reasonable City projections. Years 2010 - 2023 assume development of Regional Recycled Water Systems by 2010, which merges all the recycled water plants together, creating no maximum entitlement to recycled water. Therefore, supply will meet demand.

The analysis shows that as desalted water and recycled water use is maximized, groundwater and imported water will remain stable. Recycled water will be used to supply certain uses, such as landscape irrigation and industrial uses, currently supplied with potable water, and desalted water will supply other uses and areas currently using available groundwater and imported water. The City of Chino has the opportunity to increase supply to meet demand through the following additional measures: 1) production of groundwater based on safe yield limitations; 2) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers, 3) purchasing additional recycled water when other members are not taking their full entitlement, which will be changed to no maximum entitlement with completion of the Regional Recycled Water System, which merges all the recycled plants together. Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

Reliability of future water supplies to the region will be ensured through continued implementation of the Optimum Basin Management Program (see Section 3.2.5), implementation of local agency programs, and combined efforts and programs among member and cooperative agencies, including all water retailers, and the Chino Basin Watermaster, the Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Santa Ana Regional Water Quality Control Board, Santa Ana Watershed Project Authority, and the Chino Basin Water Conservation District.

Water Supply Introduction

The following briefly discusses each of the water sources for the City of Chino. Each source is more fully discussed in the subsequent sections.

Groundwater

The Chino Basin Watermaster manages groundwater production activities in the Chino Basin. The Watermaster is guided by the provisions of the Chino Basin adjudication and subsequent agreements between the parties to the Judgment. These agreements provide for groundwater production rights that are not fully utilized by the Basin's agricultural interests to be transferred to municipal water purveyors via two methods (i.e., agricultural land use conversion and early transfer.)

The City's current total water rights, based on a share of safe yield, is 4,034 afy from the Chino Groundwater Basin. Additional water rights are received from reallocations of Early Transfers and Land Use Conversions, although they are subject to availability. For FY 2001/02, the City of Chino received their assigned Early Transfer share of 2,413 af and a Land Use Conversion amount of 2,996 af; however, these amounts are subject to a share between the amount required and amount available. The City was assigned a debit for 2001/02 of 285 af based on their share of operating safe yield and the amount available. As a result, total available to the City for reallocation in 2001/02 was 5,125 af.[4] Together with assigned water rights, the City had total water rights of 9,159 af for 2001/02.

Based on The Preserve Specific Plan, which has 2,652 acres of developable land,[5] the production right from land use conversion represents 5,304 acre-feet of water rights. The College Park development of 719 acres is all eligible for land use conversion, and as a result represents 1,438 acre-feet of water rights. Together, this provides the City an additional 6,742 acre-feet of water rights. Combined with the City's current share of water rights of 4,034 afy under the operating safe yield, and an Early Transfer share of 2,413 afy, this equals approximately 13,189 afy of water rights.

Additional groundwater may also be available via a conjunctive use program for the Chino Basin in partnership with the Chino Basin Watermaster, IEUA, and MWD. According to the IEUA 2000 Urban Water Management Plan Update, the program will reduce summertime peaking, deliver State Water Project supplies, minimize or eliminate MWD surface water deliveries during future droughts/emergencies, and allow MWD to export stored water for other member agencies. The program will create improved regional reliability by establishing an initial 150,000 af storage account for MWD and providing a financial incentive to member agencies for shifting demand on MWD surface deliveries to the winter months.

The City of Chino Groundwater Analysis tables that follow provide the amount and location of groundwater pumped for the last five years (Table 3-2) and groundwater projections for the 20-year planning period to 2025 in five year increments (Table 3-3). Well production for the 20-year planning period is projected to remain constant due to the increased development, availability and use of recycled and desalted water supplies to meet increased demand. However, in the same planning period, specific wells are projected to reduce production and other wells are projected to increase production. The projected shift in groundwater production is in anticipation of a shift in water demand

[4] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001
[5] Developable Preserve Land: 1,168 acres Residential, 616 acres Business, 445 Public Facility and Roads, and 423 Open Space Recreational

concentration, and in consideration of other available sources of water supply and corresponding distribution capabilities.

Table 3-2
City of Chino Groundwater Analysis
Location and Amount of Groundwater Pumped
1998-2002
(AF)

Well Location	Well Number	Calendar Year				
		1998	1998	2000	2001	2002
Central / G Street	4	1012.78	1084.17	1067.32	917.83	712.03
Benson / Francis	5	857.82	579.81	586.40	336.22	193.41
H Street / 4th	6	894.67	1016.21	731.58	357.92	620.35
-----	7	0	0	0	0	0
Benson / Francis	9	20.09	5.71	2.35	2.27	0
Phillips / Central	10	0	324.67	0.95	38.16	9.39
San Antonio / Hwy 60	11	2088.28	2312.83	1827.77	1703.19	2218.09
Phillips / Central	12	1044.20	925.30	1237.57	821.74	558.72
Chino / Mountain	13	1301.80	1523.08	1767.80	603.13	682.98
Benson / State	14	2289.10	2352.38	2472.10	1156.50	1557.05
Total Annual Well Production		**9508.74**	**10124.16**	**9693.85**	**5936.96**	**6552.02**

Table 3-3
City of Chino Groundwater Analysis
Location and Projected Amount of Groundwater Pumping for Existing Wells
2005-2025
(AF)

Well Location	Well Number	20-Year Projections				
		2005	2010	2015	2020	2025
Central / G Street	4	0	0	0	0	0
Benson / Francis	5	2100	2100	2100	2100	2100
H Street / 4th	6	0	0	0	0	0
-----	7	0	0	0	0	0
Benson / Francis	9	1857	1857	1857	1857	1857
Phillips / Central	10	0	0	0	0	0
San Antonio / Hwy 60	11	2600	2600	2600	2600	2600
Phillips / Central	12	0	0	0	0	0
Chino / Mountain	13	2300	2300	2300	2300	2300
Benson / State	14	2700	2700	2700	2700	2700
Total Annual Well Production		**11,557**	**11,557**	**11,557**	**11,557**	**11,557**

The *City of Chino Five Year Capital Improvement Program (CIP) Budget, Water Projects,* includes two new wells. The CIP identifies one new well projected for fiscal year 2002-03 and is the 'New East Side Well," and a second well, the 'East Side Well #2 Installation,' is projected for FY 2004-05. Each well is expected to produce 1,500-2.000

gallons per minute. These new wells will facilitate the projected shift in groundwater production. In so doing, the groundwater projection over the 20-year planning period will remain constant. Additionally, in the event that alternative water supplies (recycled and desalted) are less than projected, additional groundwater production from the new wells would be available.

Desalted Water

The City of Chino entered into a contract with Chino Basin Municipal Water District (now IEUA) in 1996 committing to purchase a minimum of 3,000 afy on a "take or pay" basis. Future expansion of the Desalter will increase the City's flow allocation to 5,000 afy by September 2004, and an agreement to purchase the future desalted water will contain a minimum annual quantity of water to be purchased.

The current contract allows the City of Chino to obtain additional product water if the Chino Basin Desalter is capable of producing more Product Water than is necessary to satisfy the requirements of the purchasers. The City shall be entitled to purchase a minimum proportionate share of additional Product Water based on the ratio of the City's minimum annual quantity (3,000 acre-feet) to the total minimum quantity of all purchasers, currently 33 percent for the City of Chino. With the Chino I Expansion, the percentage will increase to 35 percent. Under this contract, Chino would also be entitled to unused Product Water if it remains available after offered to all purchasers up to their respective percentages. Chino also has the opportunity to negotiate the purchase of contracted desalted water with purchasers that are constrained by the "take-or-pay" obligation, but have optimized other sources of local water and do not need to take their full entitlement. The desalter is supplied from groundwater wells. The amount of water produced by the desalter is subject to replenishment by Watermaster to prevent overdrafting. Watermaster has identified a hierarchy of water sources/supplies for replenishment purposes.

Imported Water (Surface Water)

Imported water is supplied to the City by MWD through IEUA. The City of Chino is entitled to 5.9 percent of the Water Facilities Authority Agua de Lejos plant capacity (5,357 afy or 4.78 mgd). However, the City regularly takes up to 7.0 percent of the capacity. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements.

The WFA is permitted to treat 81 mgd of State Water Project water through an MWD import water connection, which delivers water to the Agua de Lejos Plant for treatment. The actual quantity of treated water ranges from 12 mgd in the winter months to as high as 71 mgd during the summer. Historically, there has always been unused capacity available, and Chino has always had an opportunity to meet demands through additional WFA imported water. Many of the WFA members desire lesser dependence on imported water, and greater reliability and control on local supplies. As a result, development of local water supply programs has increased, and continued opportunity for utilization of unused capacity is anticipated.

Recycled Water

A portion of the City of Chino recycled water supply is received from the Carbon Canyon Water Recycling Facility (CCWRF), which has a current capacity of 10 mgd or 11,205 afy of reliable non-potable recycled water. CCWRF treats an annual average of 8 mgd or 8,964 afy.[6] The City provides 368 afy of recycled water to 45 landscape irrigation and industrial customers. Total CCWRF recycled water supply use equals only 24 percent of the total effluent flow.

Under the current regional wastewater treatment contract the City may take delivery of more than its entitlement of recycled water when other members are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System, phased through 2010, which merges all of the recycled water plants together, there will be no maximum entitlement to recycled water.

Based on current regional recycled water production of 65,000 afy, expected to increase to 89,000 afy by 2020, and current annual recycled water use at approximately 5,600 afy, projected to increase to 71,100 afy by 2020, the City of Chino would have sufficient opportunity to take delivery to meet projected recycled water demand.

Current Supplies to The Preserve

The City of Chino does not currently supply The Preserve project area with potable water, with the exception of the Chino Airport. All other water utilized in The Preserve is supplied by a combination of groundwater produced by privately owned wells for overlying use, and City-delivered recycled water for State-approved uses.

Current Supplies to College Park Development

The California Institution for Men (CIM) is a State-owned, State-operated facility, which supplies potable water to the CIM primarily via on-site groundwater wells. There are currently seven CIM wells in production for domestic use in the proposed project area, which will continue use by the CIM. There are eight wells in production for agricultural use, of which four will be abandoned and four will continue to be used by the CIM and Cal Poly Pomona.[7]

3.2 Groundwater - Chino Water Basin

The Chino Groundwater Basin provides the groundwater to the City of Chino. The Basin consists of about 235 square miles in the upper Santa Ana River Watershed. The Basin is a relatively flat alluvial valley from east to west and slopes from north to south at a one to two percent grade. Valley elevations range from about 2,000 feet in the foothills below the San Gabriel Mountains to about 500 feet near Prado Dam. The principal drainage course for the Basin is the Santa Ana River. Year-round flow occurs along the entire reach of the Santa Ana River due to surface inflows at Riverside Narrows, discharges from municipal water recycling plants to the Santa Ana River, and rising groundwater. While still considered to be a single basin, the Basin has been divided into five management zones, based upon similar hydrologic conditions, and three sub-basins, as

[6] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001
[7] Water Wells on CIM Property, February 2, 2004, Correspondence, Robert McKinnon, California Department of General Services, Senior Real Estate Officer

defined in the Optimum Basin Management Program, June 2000, and the 1995 Water Quality Control Plan for the Santa Ana Watershed (Region 8).

The Chino Groundwater Basin stores approximately 5 million acre-feet (maf) of groundwater and has the capability of storing an additional 1 maf. The legally designated safe yield from the basin is 140,000 acre-feet (af), which is the amount of groundwater that can be pumped from the basin each year while maintaining adequate groundwater levels. Purchasing imported water from MWD through the Inland Empire Utilities Agency (IEUA) for basin recharge generally makes up any excess of pumping over the safe yield of the Basin, although supplemental water may be obtained from any available source including recycled water, State water, local import, and Colorado River supplies.

Three documents govern the adjudication and management of the Chino Basin: 1) the 1978 Chino Basin Judgment, 2) the Peace Agreement, and 3) the Optimum Basin Management Program (OBMP). The following sections discuss each of these documents as they pertain to basin management and the City of Chino water supply from groundwater.

3.2.1 Adjudication – 1978 Judgment

In 1978, the Superior Court of the State of California entered a judgment that adjudicated the water rights of the Chino Basin, and imposed a physical solution, which is the heart of the Judgment. A copy of the Judgment is attached to the City's Urban Water Management Plan.

According to the Judgment, there are significant imported water supplies available to supplement the native safe yield of the Basin. Therefore, the purpose of the physical solution was to establish a legal and practical means for making the maximum reasonable beneficial use of the waters of the Chino Basin by providing the optimum economic, long-term, conjunctive utilization of surface waters, ground waters and supplemental water, to meet the requirements of water users having rights in or dependent upon Chino Basin. A fundamental premise of the physical solution was that all water users dependent upon the Chino Basin would be allowed to pump sufficient waters to meet their requirements. To the extent that pumping exceeds the share of the Safe Yield or the Operating Yield, funds are provided by producers to enable the Watermaster to replace overproduction.

Water Rights – 1978 Judgment

Three operating pools were established by the Judgment for Watermaster administration: the Overlying Agricultural Pool, the Overlying Non-Agricultural Pool, and the Appropriative Pool. Rights to the safe yield of the Chino Basin were allocated to each operating pool.

Overlying right is defined as the appurtenant right of an owner of lands overlying the Chino Basin to produce water from the Basin for overlying beneficial use on such lands. Appropriative right is defined as the annual production right of a producer from the Chino Basin other than pursuant to an overlying right.

According to the 1978 Judgment, the safe yield of Chino Basin is 140,000 acre-feet per year (afy). Safe Yield is defined as the long-term average annual quantity of groundwater (excluding replenishment water or stored water but including return flow to the Basin

from use of replenishment or storage water) which can be produced from the Basin under cultural conditions of a particular year without causing an undesirable result.

Aggregate preserved overlying rights in the safe yield for agricultural pool use, including the rights of the State of California, total 82,800 afy, or 414,000 af in any five consecutive years, for over 1,200 parties. Overlying rights for non-agricultural pool use total 7,366 afy for 12 parties. All overlying rights are appurtenant to the land and are fixed, and cannot be assigned or conveyed separate or apart therefrom. However, in accordance with the provisions of the Chino Basin Watermaster process, when land converts from agricultural use to non-agricultural use, the purveyor that will supply water to the converted land may apply for additional groundwater production credit.

Appropriative rights allocated by the Judgment include initial operating safe yield rights of 54,834 afy, as shown in Table 3-4. The City of Chino share of Initial Safe Yield was 3,670 afy. Appropriative rights include rights by prescription and are entitled under the physical solution to share in the remaining safe yield, after satisfaction of overlying rights and rights of the State of California. Operating Safe Yield is defined as the amount of groundwater that the Watermaster shall determine can be produced from the Chino Basin by the Appropriative Pool parties free of replenishment obligation under the physical solution. Any subsequent change in the safe yield would debit or credit the Appropriative Pool.

Water Rights Priority

By reason of the long continued overdraft in Chino Basin, and in light of the complexity of determining appropriative priorities and the need for conserving and making maximum beneficial use of the water resources of the State, each party with appropriative rights is barred from asserting special priorities or preferences. All appropriative rights are deemed and considered of equal priority.

Reallocation of Water Rights

According to the Judgment, in any five years any portion of the share of safe yield allocated to the Overlying Agricultural Pool is not produced, that water is available for reallocation to the Appropriative Pool. Priority of that water is first to supplement water available from Operating Safe Yield to compensate for any reduction in the safe yield after the tenth year of operation (1988), conversion claims, and then for supplement to the Operating Safe Yield without regard to reductions in safe yield. Conversion claims include converting agricultural lands to other uses and permanently is provided water by a party of the Appropriative Pool.

Appropriative rights and corresponding shares of Operating Safe Yield may be assigned or may be leased or licensed to another appropriator, as approved by the Watermaster.

Overdraft - 1978 Judgment

In adopting the Operating Safe Yield for any year, the Watermaster is limited to 200,000 acre-feet of accumulated overdraft, and in no event shall the Operating Safe Yield in any year be less than the Appropriative Pool's share of Safe Yield or exceed the Appropriative Pool's share of Safe Yield by more than 10,000 acre-feet.

Table 3-4
1978 Chino Basin Judgment Appropriative Rights

Party	Appropriative Right (af)	Share of Initial Operating Safe Yield (af)	Share of Operating Safe Yield (%)
City of Chino	**5,271.7**	**3,670.067**	**6.693**
City of Norco	289.5	201.545	0.368
City of Ontario	16,337.4	11,373.816	20.742
City of Pomona	16,110.5	11,215.852	20.454
City of Upland	4,097.2	2,852.401	5.202
Cucamonga County Water District	4,431.0	3,084.786	5.626
Jurupa Community Services District	1,104.1	768.655	1.402
Monte Vista County Water District	5,958.7	4,148.344	7.565
West San Bernardino County Water District	925.5	644.317	1.175
Etiwanda Water Co.	768.0	534.668	0.975
Felspar Gardens Mutual Water Co.	68.3	47.549	0.087
Fontana Union Water Co.	9,188.3	6,396.736	11.666
Marygold Mutual Water Co.	941.3	655.317	1.195
Mira Loma Water Co.	1,116.0	776.940	1.417
Monte Vista Irrigation Co.	972.1	676.759	1.234
Mutual Water Co. of Glen Avon Heights	672.2	467.974	0.853
Park Water Co.	236.1	164.369	0.300
Pomona Valley Water Co.	3,106.3	2,162.553	3.944
San Antonio Water Co.	2,164.5	1,506.888	2.748
Santa Ana River Water Co.	1,869.3	1,301.374	2.373
Southern California Water Co.	1,774.5	1,235.376	2.253
West End Consolidated Water Co.	1,361.3	947.714	1.728
TOTAL	**78,763.8**	**54,834.000**	**100.00**

Source: 1978 Superior Court Judgment of Adjudication

Groundwater Replenishment – 1978 Judgment

Overdraft is defined as a condition wherein the total annual production from the Basin exceeds the safe yield. The Judgment states that the Chino Basin is and since at least 1953 has been in a condition of overdraft.

The Watermaster levies an annual Replenishment Assessment in an amount sufficient to purchase replenishment water to replace production during the preceding year which exceeds the safe yield. Assessments are based on the Pooling Plan for each pool. The Replenishment Assessment for the Appropriative Pool is recovered by a uniform

assessment against all production during the proceeding year equaling 15 percent of replenishment cost of water, and a uniform assessment on each acre-foot of production by each party in excess of his allocated share of Operating Safe Yield during the preceding year equaling 85 percent of costs.

Supplemental water may be used to recharge the Basin either directly by spreading and percolating or injecting the water into the Basin, or indirectly by delivering the water for use in lieu of production and use of safe yield or operating safe yield. Supplemental water may be obtained from any available source including recycled water, State water, local import, and Colorado River supplies.

Much of the available natural surface water runoff in the Santa Ana River Watershed is captured and recharged to the groundwater aquifers. A system of flood control channels and percolation basins have been developed to increase the natural recharge capacity of the Basin. A limited quantity of excess storm water is captured for recharge; however, the groundwater recharge program is being expanded to include greater quantities of storm water, recycled water and lesser quantities of imported water.

Carryover – 1978 Judgment

Any Appropriator who produces less than his assigned share of Operating Safe Yield may carry such unexercised right forward for use in subsequent years. The first water used in any such subsequent year is to be an exercise of that carryover right. If the aggregate carryover of any appropriator exceeds its share of Operating Safe Yield, a storage agreement is executed with the Watermaster as a condition of preserving the surplus carryover. For example,the City of Chino's carryover to 2001-02 was 4,034 af.[8] This amount was determined based on the amount of carryover from 1999-00 (2,854 af), plus the assigned share of safe yield (4,034 af), plus water transaction activity (2,804 af), plus Ag Pool safe yield reallocation (5,125 af) for a total 2000-01 production right (14,814 af), less 2000-01 actual production (7,147 af). This amount equaled 7,667 af, of which 4,034 af is carried over to 2001-02 production and the excess carryover of 3,633 af is eligible for storage. Carry-over water has no limit at this time; however, limitations will be reevaluated in 2005.

Groundwater Storage Capacity – 1978 Judgment

The Judgment states that a substantial amount of available groundwater storage capacity exists in Chino Basin which is not utilized for storage or regulation of Basin waters. The Basin stores approximately 5 maf of groundwater and has the capability of storing an additional 1 maf. Reservoir capacity can appropriately be utilized for storage and conjunctive use of supplemental water with Basin waters. Any person or public entity may make reasonable beneficial use of the available groundwater storage capacity for storage of supplemental water, with allocation preference of storage capacity to the needs and requirements of the lands overlying the Basin and the owners of rights in the Basin.

[8] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001

3.2.2 Interim Watermaster

In February 1998, the Superior Court appointed a nine-member Board as Interim Watermaster for 26 months; March 1998 to June 2000. The Court directed the Interim Watermaster to develop and submit the optimum basin management program (OBMP) for the Chino Basin. The effort to complete the OBMP for the Chino Basin has been divided into two phases. The first phase culminated in the September 1999 submittal of the draft Phase I Report to the Court with continuing jurisdiction over the Basin groundwater resources. The second phase, including a programmatic EIR, was completed and adopted in July 2000 as the Implementation Plan. The OBMP is further discussed in Section 3.2.5.

3.2.3 Peace Agreement

The Peace Agreement was adopted in June 2000, amending the 1978 Chino Basin Judgment, and has a term of 30 years. The Peace Agreement facilitates the implementation of the OBMP, and considers Orange County Water District's petition to change the Santa Ana River to fully appropriated and to appropriate up to 507,000 af of newly declared surplus water.

The Peace Agreement amended the judgment in three areas:

1) Members of the Overlying Non-Agricultural Pool have the right to transfer or lease their quantified production rights within the same pool or to the Watermaster in conformance with specified procedures.
2) Any appropriator who provides water service to overlying lands may exercise overlying rights to the extent necessary to provide water service to overlying lands.
3) For the term of the Peace Agreement, in any year in which sufficient unallocated safe yield from Overlying Agricultural Pool is available for conversion claims, the Watermaster can allocate each appropriator with a conversion claim, 2.0 af of unallocated safe yield water for each converted acre approved.

Overdraft – Peace Agreement

The Watermaster is responsible to conduct recharge and replenishment of the Basin. The Peace Agreement directs that during the five years from fiscal year 2000/2001, the Watermaster will conduct physical recharge of supplemental water of 6,500 afy in one or more of the areas known as Montclair, Brooks, and Upland spreading facilities (Management Zone 1 – MZ1). If the cumulative total of 32,500 af of recharge has not been accomplished at the end of the five years, then recharge will continue at the same annual rate until 32,500 af has been reached.

Recharged supplemental water increases the Operating Safe Yield under the Judgment. Cost and allocation of supplemental water is apportioned pro-rata among members of the Appropriative Pool according to the producer's share of the Initial Safe Yield. At the conclusion of FY 2004/2005, the need to continue recharge activities will be evaluated. The Watermaster provides an annual accounting of the amount and location of recharge.

Current recharge is being accomplished at 6,500 afy, and the City of Chino is being assessed on 478.205 afy, which is their share of safe yield at 7.357 percent.

Individual producers do not currently have a limit on how much they can over-produce; however, they are assessed an amount to replenish the Basin for all overproduction. Producers generally develop annual demand projections that assist in making arrangement with other appropriators for prepurchase of replenishment water through transfers and other agreements. This allows the Watermaster to optimize planning within the OBMP.

In-Lieu

Recharging the Basin may be accomplished either directly by spreading and percolating or injecting the water into the Basin, or indirectly by delivering the water for use in lieu of production and use of safe yield or operating safe yield.

In lieu areas are designated by the Watermaster, who has previously designated the entire Chino Basin as an in-lieu area. Any member of the Appropriative Pool who is willing to abstain for any reason from producing any portion of its share of operating safe yield in any year, may offer the unproduced water to the Watermaster. The Watermaster then may purchase water in place of spreading replenishment water for a calculated price to the appropriator as determined in the Peace Agreement. The price is the lesser of the cost of replenishment water plus the cost of spreading, or the cost of supplemental surface supplies less the appropriator's average cost of groundwater production and the applicable production assessment.

Storage and Recovery– Peace Agreement

Local Storage

Local storage is protected and each party has the right to store its un-produced carry-over water in the Basin. Local storage agreements are approved so long as the total quantity of supplemental water under local storage agreements does not exceed the cumulative total of 50,000 af. Water held in storage is transferable, but storage capacity is not. In 2003, the City of Chino had approximately 5,400 af in local storage.

Parties may continue to produce the actual quantity of carry-over water and supplemental water held in its storage account, subject only to the loss provisions. Rate of loss from local storage is zero percent until 2005, and then it will increase to 2 percent until it is recalculated based on the best available scientific information. Losses will be deducted annually from each storage account.

At the end of FY 2004-05, the Watermaster shall have the general discretion to place reasonable limits on the further accrual of carry-over and supplemental water in local storage. This may be necessary to provide priority for the use of storage capacity for Storage and Recovery Programs that provide broad mutual benefits to all parties.

Storage and Recovery Program

Initial target for cumulative quantity of water held in storage in the Basin is 500,000 af in addition to existing storage accounts. This program is still in development by the Watermaster.

Appropriative and Non-Agricultural Pool members are entitled to the compensation paid for a Storage and Recovery Program paid in any form, including money, revenues, credits, proceeds, programs, facilities, or other contributions. Compensation may also be used to offset the cost of operations, to reduce assessments on the members, and to defray the costs of capital projects at the request of the members.

The Watermaster is responsible to conduct best efforts to do the following: 1) complete the short-term conjunctive use project conducted by IEUA, Three Valleys Municipal Water District (TVMWD) and MWD; 2) develop a seasonal peaking program for in-Basin use and dry year yield to reduce the Basin's demand on MWD water; 3) develop a dry year export program; and 4) develop a seasonal peaking export program.

The short-term conjunctive use project includes construction of facilities to store water and later withdraw it for conjunctive use. The program goals are to reduce summertime peaking on MWD, deliver State Water Project supplies to Chino Basin, minimize MWD surface water deliveries during future droughts/emergencies, and to allow MWD to export storage water for other member agencies. The program will create improved reliability by establishing an initial 150,000 af storage account for MWD and providing a financial incentive for shifting demand on MWD surface deliveries to the winter months. This program is just one example of storage programs that are necessary to optimize Basin storage and supplies, reduce demand on imported water supplies, and make water available that may not have been otherwise.

Transfers – Peace Agreement

Transfers must have the approval of the Watermaster. Transfers include the assignment, lease, or sale of a right to produce water to another producer within the Chino Basin or to another person or entity for use outside the Basin whether the transfer is temporary or permanent. Lease of water rights are also permissible to allow producers to make up for the lessee's over-production.

According to the Watermaster Fiscal Year 2001/02 Assessment Package, the City of Chino had one transfer and two assignments. Transfers are recorded annually as arrangements are made. For 2001-02, the San Antonio Water Company transferred 2,700 af of water rights to the City of Chino. The City was also assigned rights to the Chino Airport and the El Prado Golf Course, 73.8 af to the Non-Ag Pool and 398.3 af to the Ag Pool respectively. The City also receives a share of Early Transfers and Land Use Conversion rights as discussed in the following sections.

Non-Agricultural Pool members have the right to transfer or lease within the pool, and the right to transfer to the Watermaster for the purpose of replenishment for a desalter or for a storage and recovery program.

Early Transfer

An "early transfer" means the reallocation of safe yield not produced by the Agricultural Pool to the Appropriative Pool on an annual basis rather than according to the five-year increment described in the Judgment. The Early Transfer of not less than 32,800 afy was the expected approximate amount of water not produced by the Agricultural Pool. Early transfer is to be the greater of 32,800 af or 32,800 plus the actual quantity of water not produced in a given year after all the land use conversions are satisfied. Early transfer water is allocated among members of the Appropriative Pool in accordance with their

pro-rata share of the initial safe yield. The City of Chino's share of the initial safe yield is 6.693 percent, equaling 2,413 afy.

Land Use Conversion of Water Rights

With the effective date of the Peace Agreement (June 2000), the amount of water rights converted from agricultural land to urban use was changed from 2.6 af per acre with allocation between initial shares of safe yield and service provider to 2.0 af per acre, all of which is allocated upon conversion of the land to the Appropriative Pool member service provider. Upon conversion of water rights, the purveyor pledges the amount of water needed for the urban land use, and up to 2.0 afy per acre of land will be made available.

The Preserve Specific Plan, which has 2,652 acres of development, represents 5,304 acre-feet of water rights. College Park, which has 719 acres of development, represents 1,438 af of water rights. The water rights that the City will receive through the land use conversion process applied to the two developments, when combined with the City's current share of water rights at 4,034 afy under the Chino Basin operating safe yield and an Early Transfer share of 2,413 afy, equals a total of 13,189 af of water rights per year.

An Agricultural Pool member has the right to a voluntary agreement with an appropriator, which has a service area contiguous to or inclusive of the agricultural land, to provide the required water to the overlying land on behalf of the Ag Pool member. The appropriator is then entitled to a credit to off-set production to the extent it is serving the overlying land up to the amount of the historical maximum annual quantity previously used on that property. The credit is debited to the Ag Pool's collective production right.

Total required reallocations from Early Transfers and Land Use Conversions are subject to availability. For example, in FY 2001/02, the City of Chino received an Early Transfer share of 2,413 af and a Land Use Conversion amount of 2,996 af; however, these amounts are subject to a share between the amount of af required and the amount of af available based on Agricultural Pool under (over) production. The City was assigned a debit for 2001/02 of 285 af based on its share of operating safe yield and the amount of under production. Therefore, total available to the City for reallocation in 2001/02 was 5,125 af.[9]

3.2.4 Desalter Water

The existing Chino I Desalter facility is located in the City of Chino. The Chino I Desalter facility was previously owned and operated by IEUA and Western Municipal Water District (WMWD), acting through Project Committee No. 14 (PC14). PC14 is comprised of Santa Ana Watershed Project Authority (SAWPA) members, IEUA, WMWD, and the Orange County Water District (OCWD).

[9] Chino Basin Watermaster, Fiscal Year 2001-2002, Assessment Package, October 2001

Chino Basin Desalter Authority

A newly formed joint powers agency, the Chino Basin Desalter Authority (CDA) has purchased the Chino I Desalter from SAWPA, and, is serving as the lead agency on behalf of several agencies to design, manage, construct and operate both the proposed Chino I Desalter expansion and the proposed Chino II Desalter Project. The CDA participants include the cities of Ontario, Chino Hills, Chino and Norco, Santa Ana River Water Company, Jurupa Community Services District, and Inland Empire Utilities Agency.

The Chino I Desalter is currently operated under the following: 1) "take-or-pay" agreements with the purchasers of the water; 2) an agreement with MWD subsidizing the Desalter to reduce the cost of the water from the Desalter compared to uninterruptible treated imported water; and 3) an agreement with the Watermaster, all groundwater producers, Kaiser Ventures, Inc., and the California Regional Water Quality Control Board, Santa Ana Region, regarding replenishment obligations for operating the Desalter.

Replenishment Water for Desalters

Replenishment water is provided from the following: 1) the Watermaster Desalter Replenishment account; 2) new yield of the Basin; 3) safe yield of the Basin; and 4) additional replenishment water purchased by the Watermaster.

Desalted Water Deliveries

CDA is currently contracted to provide a combined total of 9,200 acre-feet per year (afy) of product water from the Chino I Desalter to Jurupa Community Service District (JFSD) and the cites of Chino, Chino Hills, and Norco. The Chino I Desalter Expansion will result in an additional 5,000 afy of potable water being made available for use. The resultant total of 14,200 afy will be allocated between the cities of Chino, Chino Hills, Norco and Ontario, and the JCSD and the Santa Ana River Water Company. Table 3-5 shows the water deliveries under the existing contracts and the proposed integrated project contracts for the Chino I Desalter and its expansion.

Table 3-5
Desalted Water Deliveries from Chino I Desalter
Under the Proposed Integrated Project Contracts
(afy)

Agency	Existing Contracts	Proposed Contracts	
	Chino I Existing	Chino I Existing	Chino I Expansion
City of Chino	3,000	3,000	2,000
City of Chino Hills	2,000	2,000	2,200
Jurupa Community Service Dist	3,200	2,700	
City of Norco	1,000		
City of Ontario		1,500	
Santa Ana River Water Co.			800
Subtotal		9,200	5,000
TOTAL	9,200	14,200	

Source: Chino I Desalter Expansion and Chino II Desalter Project, Draft Subsequent Environmental Impact Report, November 2001

City of Chino Contract

The City of Chino entered into a contract with Chino Basin Municipal Water District (now IEUA) in 1996 committing to purchase a minimum of 3,000 afy on a "take or pay" contractual basis. That contract has been replaced by a commitment by Chino to purchase 3,000 afy from the CDA. According to the agreement, the current Chino Desalination Project is sufficient to supply 4,482 afy (4.0 mgd), although the minimum was set at 3,000 afy. Future expansion of the Desalter will increase the City's flow allocation to 5,000 afy, and an agreement to purchase the future desalted water will contain a minimum annual quantity of water to be purchased.

The current contract allows the City of Chino to obtain additional product water if the Chino Basin Desalter I is capable of producing more Product Water than is necessary to satisfy the requirements of the purchasers. The City is entitled to purchase a minimum proportionate share of additional Product Water based on the ratio of the City's minimum annual quantity (3,000 acre-feet) to the total maximum quantity of all purchasers; currently 33 percent for the City of Chino. With the Chino I Expansion, the percentage will increase to 35 percent. Under this contract, Chino would also be entitled to unused Product Water if it remains available after offered to all purchasers up to their respective percentages. Chino also has the opportunity to negotiate the purchase of contracted desalted water with purchasers that are constrained by the "take-or-pay" obligation, but have optimized other sources of local water and do not need to take their full entitlement.

Chino I Expansion and Chino II Desalter Project

The Chino I Desalter currently treats groundwater supplied by 11 wells. The proposed expansion of the Chino I Desalter will require the installation of up to five new wells to meet the capacity goals for the water supply facility. The major components of the proposed expansion project include the following: 1) addition of treatment facilities; 2) pipeline for in-plant conveyance of bypass water; 3) clearwell pump station modifications; 4) miscellaneous plant modifications; 5) additional treatment component; 6) new groundwater pumping wells; 7) new raw water pipelines; 8) new potable water pipelines; and 9) two new pump stations. The Chino II Desalter is proposed to deliver product water to JCSD, City of Ontario, City of Norco, and the Santa Ana River Company. Development of the Chino II Desalter would result in a shift in deliveries from the Chino I Desalter after expansion, as shown in Table 3-5.

The Chino I Desalter expansion is scheduled to occur between June 2002 and September 2004. Chino II Desalter construction is scheduled to occur between June 2002 and November 2004. Environmental impacts of these projects are considered in the Draft Subsequent Environmental Impact Report, Chino I Desalter Expansion and Chino II Desalter Project, November 2001.

Sale of Chino I Expansion and Chino II Desalter Water

Chino I Expansion and Chino II Desalter purchase agreements will contain a minimum annual quantity of water available to purchase. Members of the Appropriative Pool and the State of California shall have the first priority right to purchase desalted water, OCWD will have the second priority right, and then it will be open to purchase by other persons. The term of a water supply contract for the Desalters is not to be less than 30

years if requested. A large benefit to purchasers of desalter water is that there is no replenishment assessment obligation on desalter water.

3.2.5 Optimum Basin Management Program for the Chino Basin

In February 1998, the Watermaster (nine-member court appointed Board) was directed by the Court to develop and submit the optimum basin management program (OBMP) for the Chino Basin. The OBMP is intended to formulate and implement a groundwater management program that will preserve and enhance the safe yield and the water quality of the Chino Basin. The Watermaster's goal is to make it possible for all groundwater users to produce water from the basin for beneficial uses at an affordable cost. The OBMP is intended to allow continued reliance on groundwater for beneficial use within the basin while minimizing demand for imported water, and to encourage beneficial use of the large available storage space in the aquifer system. OBMP actions are intended to benefit both local and regional water supply programs.

The effort to complete the OBMP for the Chino Basin has been divided into two phases. The first phase culminated in the September 1999 submittal of the draft Phase 1 Report to the Court with continuing jurisdiction over the Basin groundwater resources. The second phase, including a programmatic EIR, was completed and adopted in July 2000, as the Implementation Plan.

Phase 1 of the OBMP defined the state of the Chino Groundwater Basin, established the goals and objectives concerning major issues identified by stakeholders, and affirmed a management plan for the achievement of the stated goals and objectives. Phase 2 of the OBMP is the Implementation Plan for the installation and operation of OBMP facilities. The major OBMP facilities include pipelines, desalters, possibly an ion exchange facility, recharge basins, pump stations, production wells, and monitoring devices.

The four primary OBMP management goals are to enhance basin water supplies, to protect and enhance water quality, to enhance management of the basin, and to equitably finance the OBMP.

The OBMP includes nine program elements that were developed during the Phase 1 OBMP Report that collectively will meet the goals of the OBMP. The scope of implementation of some of the programs have been combined since they overlap and have synergies between them. The program elements include developing and implementing each of the following:

Element 1 – Comprehensive Monitoring Program
Element 2 – Comprehensive Recharge Program
Element 3 – Water Supply Plan for the Impaired Areas of the Basin
Element 4 – Comprehensive Groundwater Management Plan for Management Zone 1
Element 5 – Regional Supplemental Water Program
Element 6 – Cooperative Programs With the Regional Water Quality Control Board, Santa Ana Region, and Other Agencies to Improve Basin Management
Element 7 – Salt Management Program
Element 8 – Groundwater Storage Management Program
Element 9 – Storage and Recovery Programs

3.3 IMPORTED WATER

The Metropolitan Water District of Southern California (MWD) provides imported water supplies to IEUA. MWD is the wholesale water agency that serves supplemental imported water from northern California (State Water Project) and the Colorado River to 27 member agencies located in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties.

IEUA is the wholesaler of imported water for MWD. The City of Chino is a member agency of IEUA. Five other agencies also receive MWD water through IEUA including the cities of Chino Hills, Ontario, and Upland, Cucamonga County Water District, , and Monte Vista Water District.

IEUA wholesales the water to the City of Chino through the Water Facilities Authority-Joint Powers Agency (WFA). Additional imported water supplies are also used for groundwater replenishment. On average, 6,000 afy of imported water has been used for this purpose.

3.3.1 Water Facilities Authority

A joint powers agreement was entered into in February 1989, creating the WFA, between the IEUA, the Monte Vista County Water District, and the cities of Chino, Upland, Ontario, and Chino Hills. The Agreement provides authority to study, plan and provide facilities for the treatment of water and a distribution system to their members. Other public agencies may join the WFA, through an amendment to the joint powers agreement.

The WFA is permitted to treat 81 mgd of State Water Project water through a MWD import water connection located in the City of Upland. MWD's Rialto Branch of the Foothill feeder delivers water to the Agua de Lejos Plant for treatment. The actual quantity of treated water ranges from 12 mgd in the winter months to as high as 71 mgd during the summer. WFA water enters the City's potable water distribution system at Benson Avenue and State Street. Since it is of higher quality than the City's groundwater, it is then blended with water from City wells to maintain water quality levels within State standards.

The City of Chino is entitled to 5.9 percent of the plant capacity (5,353 afy or 4.78 mgd); however, the City of Chino consistently takes up to 7.0 percent of the capacity. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements. Historically, there has always been unused capacity and Chino has always had an opportunity to meet water quality standards and demands through additional WFA imported water. Many of the WFA members desire less dependence on imported water and greater reliability and control on local supplies. As a result, development of water supply programs has increased and the continued opportunity for purchase of unused capacity is anticipated.

Discussions on the opportunity to increase the capacity of the WFA treatment plant have occurred; however, analysis would need to be done to determine feasibility and economic benefits considering the climate of imported water reliability. The plant could be increased to 88 mgd through re-rating of the existing plant, and further capacity increases would need to be accomplished by plant expansion.

3.3.2 Inland Empire Utilities Agency (IEUA)

IEUA was formed in 1950 to become a member of MWD for the purpose of importing supplemental water, augmenting local stream and groundwater supplies. Since its formation the agency has expanded its services to include production of recycled water, distribution of imported and recycled water supplies, sewage treatment, co-composting of manure and municipal biosolids, desalinization of groundwater supplies and disposal of non-reclaimable industrial wastewater and brine. IEUA serves a population of approximately 700,000.

3.3.3 Metropolitan Water District of Southern California (MWD)

MWD member agencies receive MWD water at various delivery points on its system, and they pay for it at uniform rates for each class of service established by the Board. Historically, MWD has been responsible for importing water into the region through its Colorado River Aqueduct and the State Water Project. Recently, MWD has increased its ability to supply water, particularly in dry years, through implementation of storage and transfer programs.

Municipal and institutional use accounts for 92 percent of water use, while agricultural use is 8 percent and declining. MWD supplies approximately 50 percent of all water demands in its service area 100 percent of the time.

MWD's ability to provide 100 percent reliability is expected to decline as existing imported water supplies from the Colorado River and State Water Project face increasing challenges unless new programs are implemented. Due to competing needs and uses for all of the water sources, and regional water operation issues, MWD undertook a number of planning processes: the Integrated Resources Planning (IRP) Process, the Water Surplus and Drought Management (WSDM) Plan, the Strategic Planning Process, and the Regional Urban Water Management Plan to provide a framework and guideline for optimum water planning into the future.

Historical water demands in the MWD service area have increased from 3.1 maf in 1980 to 3.9 maf in 1990. Total water use is projected to grow from a projected 3.8 maf in 2000 to 4.8 maf in 2020. For the San Bernardino County service area, demands are projected to increase 50.6 percent between 2000 and 2020. This is all attributable to IEUA member agencies since IEUA is the only MWD member agency in San Bernardino County. Table 3-6 shows the historic and projected demands for MWD's San Bernardino County service area.

Reliability of MWD's supply is further discussed in Section 4.0, Reliability of Water Supplies.

Table 3-6
Total Retail Water Demand in MWD's Service Area for San Bernardino County (af)

	Actual				Est.	Projected			
County	1980	1985	1990	1995	2000	2005	2010	2015	2023
San Bernardino	169,700	188,000	209,700	184,300	214,100	239,400	265,900	292,900	340,443

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

Note: Includes total Agricultural and M&I use

Table 3-7 shows the water demands on MWD as a portion of the service area total water demands. The water demand forecasts account for water savings resulting from plumbing codes, price effects, and actual and projected implementation of Best Management Practices.

Table 3-7
Actual and Projected Demands on MWD (af)

	Actual				Est.	Projected			
	1980	1985	1990	1995	2000	2005	2010	2015	2023
Agricultural	179,963	176,810	205,653	89,551	125,687	91,020	80,977	71,146	63,137
Full Service	947,856	1,060,689	1,605,061	1,195,558	1,705,008	1,618,972	1,689,550	1,827,681	2,179,628
Long Term	-	-	-	-	265,065	134,213	126,047	120,286	126,472
Seasonal Shift	-	-	-	-	129,034	119,409	119,771	120,066	129,630
Seasonal Unclassified	-	-	404,568	94,464	-	-	-	-	-
Other*	174,892	422,350	400,695	50,000	37,813	-	-	-	-
MWD Total	1,302,711	1,659,849	2,615,978	1,429,573	2,262,607	1,963,614	2,016,345	2,139,179	2,498,867

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

* Includes Bank, Cooperative Storage, Cyclic Storage, Demonstration Storage, Local Storage, Reimbursable Construction, Pre-deliveries and/or Wheeling

Notes: Forecast does not include SDCWA/IID Transfer and Eastern Seepage Water
1980 and 1995 are wet years; 1985, 1990, and 2000 are dry years

3.4 Recycled Water

Water recycling is a critical component of the water resources management strategy for the region. Reuse of highly treated tertiary water is the only new source of water available to meet the growing water demands of the IEUA service area. Recycled water is a proven technology and will provide a more dependable local supply of water as well as reduce the likelihood of water rationing during droughts. In addition, the use of recycled water for groundwater recharge is an integral part of the OBMP. Region-wide implementation of recycled water projects are vital to the protection and enhancement of the safe yield and water quality of the Chino Groundwater Basin.

IEUA recognizes that a mix of water management strategies will be needed to enable IEUA to continue to provide a high quality, reliable water supply at an affordable rate. The water supply mix will include implementing water conservation programs, increasing the safe storage capacity of the Basin, minimizing dependence on imported water supplies, and maximizing use of available storm water, and achieving a maximum reuse of all available recycled water.

3.4.1 IEUA Regional Wastewater Treatment Plants

IEUA operates four regional wastewater treatment plants that produce disinfected and filtered tertiary treated recycled water in compliance with California's Title 22 regulations: RP-1, RP-2, RP-4 and the Carbon Canyon Water Reclamation Facility. The water quality from these plants is outstanding, with an average level of total dissolved solids (TDS) well below 500 mg/l and a total nitrogen level of less than 10 mg/liter. A fifth plant is under construction and is expected to be on line by 2003-04.

IEUA's total current production of recycled water is 65,000 afy and is expected to increase to 89,000 afy by 2020. Annual water sales were estimated at 5,600 acre-feet for the year 2000. IEUA initiated a recycled water marketing program in 1999, which has been successful in additional recycled water sales.

3.4.2 City of Chino Recycled Water Supplies

The IEUA Regional Sewerage Service Contract defines the manner for a Contracting Agency to claim its respective percentage of the recycled water from the treatment plants. In March of each year, each agency gives IEUA an estimated flow and quantity of recycled effluent demand from each reclamation facility from which that agency is entitled. In April each year, each local agency gives IEUA a purchasing schedule, and in May of each year, IEUA allocates recycled water. With 60 days notice, a local agency can increase its previous request for delivery of recycled water.

A portion of the City of Chino's recycled water supplies are received from the Carbon Canyon Water Recycling Facility (CCWRF), which has a current capacity of 10 mgd or 11,205 afy of reliable non-potable recycled water. CCWRF treats an annual average of 8 mgd or 8,964 afy.[10] Total CCWRF recycled water supply used equals only 24 percent of the total effluent flow.

Under the current contract, the City may take delivery of more than its entitlement when other contracting agencies are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System, phased through 2010, which merges all the recycled water plants together, there will be no limit on entitlement to recycled water.

IEUA facilities serve seven other contracting agencies, including: the cities of Chino Hills, Fontana, Montclair, Ontario, and Upland, plus Cucamonga County Water District and unincorporated areas of San Bernardino County within the IEUA service area.

Additional sources of recycled water within IEUA's service area include the Pomona Water Reclamation Plant (operated by the Los Angeles County Sanitation District), the Upland Hills Water Reclamation Plant (operated by the City of Upland), CIM Water

[10] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

Reclamation Plant (operated by the California Institution for Men at Chino), and the Indian Hills Water Reclamation Plant (operated by Jurupa Community Services District).

3.4.3 IEUA Recycled Water Demand

Recycled water in 2000 was distributed from RP-1/RP-4 and CCWRF. A line connects RP-1 and RP-4 and serves the "northern" recycled water system of IEUA's service area. This system provides water for irrigation of parks and golf courses. CCWRF's "southern" recycled water distribution system delivers water through 21,400 linear feet of pipelines, to the cities of Chino and Chino Hills. Some effluent from RP-1 and RP-2 is discharged into Cucamonga Creek. Effluent from RP-1 is also used to recharge the Chino Basin aquifer via Ely Basin No. 3. RP-2 serves segments of the cities of Chino and Chino Hills; however, portions of RP-2 are scheduled for demolition as the new RP-5 comes on line.

Thirty-eight users are currently connected to, and are taking deliveries of recycled water from, the IEUA recycled water distribution system. The City of Chino has 24 users with a total of 45 connections, including landscape irrigation, agricultural irrigation, industrial reuse, and construction. Total effluent flow and recycled water use beginning in 1982-83 for the IEUA service area is shown in Table 3-8.

Table 3-8
IEUA Regional Wastewater Treatment Plants
Effluent vs. Recycled Water Usage (af)

Year	RWRP-1 / RWRP-4		RWRP-2		CCWRF	
	Effluent Flow	Recycled Water Usage	Effluent Flow	Recycled Water Usage	Effluent Flow	Recycled Water Usage
1982-1983	20,790	1,550	4,290			
1983-1984	20,950	1,080	3,950			
1984-1985	25,160	1,267	4,280			
1984-1986	28,240	1,222	2,660			
1986-1987	27,160	1,306	5,000			
1987-1988	31,290	2,110	5,500			
1988-1989	35,510	2,038	6,180			
1989-1990	34,760	1,961	5,730			
1990-1991	36,840	1,792	6,100			
1991-1992	40,360	1,909	5,780		1,550	
1994-1993	41,510	1,205	5,640		4,720	
1993-1994	37,310	1,978	5,430		7,010	
1994-1995	39,680	3,794	5,360		8,690	
1994-1996	39,590	2,292	4,810		9,060	
1996-1997	39,940	2,075	4,790		9,750	
1997-1998	44,940	1,260	4,969		9,264	
1998-1999	43,354	2,444	5,345		9,534	100
1999-2000	47,269	3,089	4,737		9,310	2,221

Source: IEUA Recycled Water System Feasibility Study, Final Draft, October 2001

3.4.4 City of Chino Recycled Water Demand

The City of Chino provided for the delivery of recycled water from the Carbon Canyon Water Recycling Facility (CCWRF) in FY 1998-99 and Table 3-9 shows that 100 af was used that year. In FY 1999-00, the City used 368 af of recycled water, and projected recycled water use is expected to climb with the planned recycled water system improvements and marketing program.

Table 3-9
City of Chino
Historical and Projected Recycled Water Demands (af)

City of Chino	98-99	99-00	2005	2010	2015	2020	2023
Recycled Water Demand	100	368	1,239	3,304	4,939	6,182	6,641
Recycled Water as % of Total Demand	0.7%	2.3%	6.5%	15.8%	21.3%	24.5%	25.0%

Source: IEUA Recycled Water System Feasibility Study, Final Draft, October 2001
Source: Draft Water Master Plan, Subarea 2 – Chino Sphere of Influence, April 2002
Source: Psomas Technical Memorandum, College Park Water Demand, October 23, 2003

Since The Preserve and College Park are newly developing areas, dual (potable and recycled) water systems are being proposed, which will conserve potable water and make best use of available supplies. The planning and construction of dual systems at the beginning of development has several benefits, as opposed to implementation of a recycled water distribution system into an area with existing development and potable water distribution system. Construction costs can be shared by both distribution systems, and the use of recycled water in lieu of potable water for irrigation demands and industrial requirements will reduce the need for additional potable water supplies as the population increases.

The Preserve is perfectly situated for the maximum use of recycled water because of the location of the IEUA's existing recycled water pipelines. The outfall pipeline from RP-1 that connects to RP-2 is aligned through The Preserve. Two branches of this 30-inch diameter RP-1 outfall pipe connect to Prado Lake (30-inch) and Mill Creek (30-inch). These existing pipelines form an excellent "backbone" transmission piping system to supply recycled water to future customers with low capital investments.

Utilizing demand factors and digitized land use areas, the potential recycled water demand for The Preserve was calculated.[11] In total, 85 percent of the potential recycled water demand was selected as the most feasible to be served with the recycled water system. The remaining 15 percent of the potential recycled water demand (the less feasible portion) was added back into the total potable water demand. A total demand of 4,482 afy or 4.0 mgd of recycled water was allocated for the non-potable water demand condition.

College Park development demand for recycled water has been estimated based on the May 2003 City of Chino Water System Master Plan Update. The Master Plan Update recommends 30 percent recycled water use for residential land use, 90 percent recycled water use for parks, 50 percent recycled water use for mixed use, retail and schools, and 100 percent recycled water use for trails, owl habitat, landscaped detention areas, medians and parkways. A total demand of 1,137 afy or 1.0 mgd of recycled water has been allocated for the College Park development.

The City will obtain recycled water for The Preserve and College Park from the IEUA recycled water regional supply and distribution system. In FY 2002-03, the City

[11] City of Chino, Urban Water Management Plan Update, January 2002

provided for the delivery of approximately 1,988 af of recycled water for irrigation in The Preserve and the adjacent El Prado Golf Course from IEUA's RP-1 facility. Also in FY 2002-03, the City delivered approximately 344 af of recycled water for landscape irrigation and industrial use from IEUA's CCWRF. IEUA is currently in the process of interconnecting all of its wastewater treatment facilities in order to facilitate the delivery of recycled water throughout its service area.

Under the current contract the City may take delivery of more than its entitlement when other contracting agencies are not taking delivery of their full entitlements. However, upon completion of the Regional Recycled Water System that merges all the recycled water plants together there will be no limit on entitlement to recycled water.

Based on current recycled water production of 65,000 afy in the Regional Recycled Water System, expected to increase to 89,000 afy by 2020, and annual recycled water use at approximately 5,600 afy (as of early 2003), projected to increase to 71,100 afy by 2020, the City of Chino would have sufficient opportunity to take delivery to meet their projected recycled water demand.[12]

3.4.5 Recycled Water for Groundwater Basin Recharge

IEUA also assumes responsibility for delivery of recycled water to Chino Basin for recharge. All future direct use of recycled water will be given priority service over recharge deliveries. Recycled water recharge for the year 2000 was approximately 500 af. By the year 2020, it is projected that 28,000 afy will be recharged.

A major addition to the Regional Recycled Water Distribution System is the redevelopment and modification of the existing Chino Basin groundwater recharge facilities. These basins have been used primarily for flood control, and as part of the OBMP, the recharge basins will help "drought-proof" the Chino Basin. Redevelopment of the basins is in progress. The basins will be enhanced to capture storm water and provide for the greater ability to import and store water in the Chino Basin.

Recycled recharge water is credited to parties to the Regional Sewer Service Contract, based on the percentage of wastewater flow delivered to the Regional Reclamation Plants by the respective agencies. This provides additional groundwater pumping rights calculated annually as stored water credits. In FY 2001-02, the City of Chino received 51.1 af (1/10 of the total af recharged) of water rights as a result of recycled water recharge activity.

[12] Inland Empire Utilities Agency Urban Water Management Plan 2000 Update, Page 2-14

4.0 RELIABILITY OF WATER SUPPLIES

The City of Chino and the regional agencies are facing increasing challenges and opportunities in their role as stewards of water resources. IEUA's boundaries lie almost entirely within the Chino Groundwater Basin. IEUA is working in cooperation with each of the water management agencies within the Chino Basin to achieve water supply reliability, water quality and watershed management goals for the Santa Ana River Watershed and Southern California region.

The Southern California region faces a challenge between satisfying its water requirements and securing its firm water supplies. Increased environmental regulations and the collaborative competition for water from outside the region have resulted in reduced supplies of imported water. Continued population and economic growth increase water demand within the region, putting an even larger burden on local supplies.

The Preserve proposes 9,779 dwelling units on approximately 1,168 acres, plus 477 acres for business use, 584 acres for public facilities and rights of ways, and 2,987 acres for a variety of open space uses, including 423 for recreational uses. Total developable land is 2,652 acres with approximately 2,564 acres remaining in open space. Total water demand at build out for The Preserve is estimated to be 11,317 afy (10.1 mgd): 6,835 afy (6.1 mgd) of potable water and 4,482 afy (4.0 mgd) of recycled water.

College Park proposes a maximum of 2,500 dwelling units on approximately 329 acres, plus 161 acres for parks and trails, 55 acres of open space, 14 acres for mixed use and retail, 110 acres for schools, and 50 acres for roads and transit. Total water demand for College Park is estimated to be 2,376 afy (2.1 mgd): 1,239 afy (1.1 mgd) of potable water and 1,137 afy (1.0 mgd) of recycled water.

The Preserve and College Park developments present an opportunity to demonstrate reliability of future water supply for the City of Chino. The following agencies work cooperatively to ensure reliability to the region: Inland Empire Utilities Agency, Metropolitan Water District of Southern California, Chino Basin Watermaster, Chino Basin Water Conservation District, Santa Ana Regional Water Quality Control Board, and Santa Ana Watershed Project Authority.

4.1 Inland Empire Utilities Agency (IEUA)

The City of Chino is a member agency of the IEUA. Other agencies within the IEUA service area include the City of Chino Hills, Cucamonga County Water District, Fontana Water Company, Monte Vista Water District, City of Ontario, San Antonio Water Company, and the City of Upland.

IEUA was formed in 1950 to become a member of MWD for the purpose of importing supplemental water, augmenting local stream and groundwater supplies. Since its formation the agency has expanded its services to include production of recycled water, distribution of imported and recycled water supplies, sewage treatment, co-composting of manure and municipal biosolids, desalinization of groundwater supplies and disposal of non-reclaimable industrial wastewater and brine. IEUA serves a population of approximately 700,000, through the following water supplies.

4.1.1 Imported Water

The Metropolitan Water District of Southern California (MWD) provides imported water supplies to IEUA. Since the 1980's the total regional retail water demands within MWD's service area has increased from about 3.0 maf to 3.9 maf in 1999. Between 1990 and 1999, MWD supplied approximately 40 percent of total water demand in the IEUA service area.

4.1.2 Desalter Water

Secondary Effect of Chino I Desalter Expansion and Chino II Desalter Project

The installation and operation of the Chino Basin Desalters is part of the overall OBMP program to enhance basin water supplies, enhance water quality and carry out management of the Chino Basin's groundwater aquifers for the long-term supply of the existing and future population of the areas. The key concept in the OBMP is that the whole program will be implemented to achieve these objectives. The OBMP evaluation of groundwater impacts concludes that implementation of the whole program would not cause significant changes in groundwater levels within the Basin's aquifers. According to the OBMP program element that encompasses the desalters, groundwater production supply to the desalters is to be offset by a program to recharge storm water, State Project Water and recycled water into the Basin. In fact, based on forecast demand, the net result of additional extraction by desalters will be less than one-half the estimated volume of recharge.

According to the Chino I Desalter Expansion and Chino II Desalter Project Environmental Impact Report, Geoscience's Chino Desalter System Projects model forecasts a lowering in groundwater level within the proposed project's area of potential effect. This change in elevation of the groundwater table within the area of potential effect has a potential to interfere with a number of private and public water production wells. However, implementation of mitigation measures will reduce the forecasted potential environmental effects of lowering the groundwater to the lowest achievable level.

One of the secondary or indirect effects of lowering the groundwater table near the Santa Ana River is an inducement of greater recharge from the river to the project area. One of the identified objectives of the OBMP is to increase the amount of safe yield within the Chino Basin and implementation of the proposed desalter projects will contribute to this objective. The OBMP PEIR discussed the existing volume of flow in the Santa Ana River and potential changes resulting from implementation of the OBMP. The five-year moving average flow in the Santa Ana River has ranged between 250,000 and 310,000 afy since 1992. The annual replenishment obligation that must be delivered downstream of Prado Dam to Orange County is 42,500 afy. The near-term (five-year) decrease in quantity of river outflow at Prado Dam is forecast to be 3,000 afy. Over the long-term, the average decrease in quantity of river outflow due to the project is forecast to be 6,000 afy. When placed in the context of the five-year running average of 250,000 afy, the loss of 3,000 to 6,000 afy is not a significant impact.[13]

[13] Chino I Desalter Expansion and Chino II Desalter SEIR, November 2001

Future Desalters

In ten years or after the conversion of 20,000 acres of agricultural lands, the Watermaster will need to determine if future desalters are necessary to implement the OBMP. If it is determined they are necessary, then the IEUA and WMWD acting independently, or in their complete discretion, acting through the Project Committee 14 consistent with the "Peace Agreement" dated June 29, 2000 by the major producers in the Chino Basin, including the Appropriative Pool, Overlying Non-Agricultural Pool, Overlying Agricultural Pool, MWD member agencies IEUA, WMWD, TVMWD, and the State of California, will have 36 months to secure sufficient funding from state or federal sources to pay for all the capital costs. If funding is unavailable, then there is no obligation to construct future desalters, and instead the parties to the Peace Agreement (not including the Ag Pool) will attempt to negotiate new terms and conditions with the producers within 24 months to accomplish implementation efforts of the OBMP.

4.1.3 Recycled Water

Current use of recycled water is 5,600 afy in the IEUA service area. Recycled water production is expected to increase to 100,000 afy with a total utilization of about 70,000 afy with the development of a recycled water program for landscape irrigation (29,000 af), groundwater recharge (producing 28,000 afy of increased yield from the Basin), industrial use (13,000 af) and agricultural use (1,000 af).[14] As storm water recharge is increased, a greater percentage of recycled water can be recharged to the Basin through blending with the higher quality natural waters.

By the year 2020, over 70,000 afy of recycled water is expected to be available within the IEUA service area. This represents about 60 percent of the recycled flow in 2020. Over 40,000 afy will be discharged downstream into the Prado Basin flowing into the Santa Ana River to Orange County. IEUA's goal is to fully utilize the recycled water supply for local beneficial uses. When blended with storm water during wet years and with imported water, the recycled water will help replenish groundwater supplies within the Basin. Maximizing the use of recycled water will reduce the dependence on imported water within the Basin by 50,000 afy at the present rate of flow, and, by more than 70,000 afy within 20 years.

To accomplish this, IEUA has recently completed their Recycled Water System Feasibility Study of project alternatives. The feasibility study identifies that Phase 1 of the Regional Recycled Water Distribution System Program would include recharge basin upgrades/expansions, new basins, regional recycled water pipelines, pumping and storage facilities, and local recycled water pipelines.

IEUA's goal is to construct the Regional Recycled Water Distribution System within 10 years to maximize reuse. The regional system will reduce, and thereby conserve imported water to the Basin and will also conserve natural or storm water, in compliance with the existing Santa Ana River Basin Water Quality Control Plan, the OBMP, and the IEUA Urban Water Management Plan. The California State Legislature has made it mandatory for major water users to use recycled water, if the resource is readily available and meeting specific regulations.

[14] IEUA Recycled Water System Feasibility Study, Final Draft, October 2001, Tables 3-11, 6-2 and 6-10

According to the IEUA Ten-Year Capital Improvement Plan (Fiscal Year 1997-98 through 2007-08) CCWRF, RP-5 and RP-1 have the potential to expand capacity significantly over the next forty years. This multi-source supply increases the reliability of the system, and ensures that adequate resources are available to meet recycled water demands in The Preserve and College Park.

IEUA has been active in seeking grant funding to match the capital investment of IEUA in the construction of the Regional Water Distribution System. IEUA has been seeking funding opportunities through the following sources: 1) Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act, funds through five agencies; 2) Clean Water Act and Water Quality Planning Grants through the US Environmental Protection Agency; 3) US Bureau of Reclamation under the Southern California Initiative, Southern California Comprehensive Water Reclamation and Reuse Program; and 4) an energy conservation funding grant through the California Energy Commission under AB 970.

4.2 Metropolitan Water District of Southern California (MWD)

Inland Empire Utilities Agency is a member agency of the MWD. MWD is a public agency that provides supplemental imported water from Northern California (State Water Project) and the Colorado River to 27 member agencies located in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties.

As a water wholesaler, MWD has no retail customers. It distributes treated and untreated water directly to its member agencies. The district provides an average of 60 percent of the municipal, industrial and agricultural water used within its service area. The remaining 40 percent comes from local groundwater, local surface water, recycled water, and from the City of Los Angeles Aqueduct in the eastern Sierra Nevada.

MWD's primary goal is to provide reliable water supplies to meet the water needs of its service area at the lowest possible cost. MWD's 100 percent reliability has continued to decline as existing imported water supplies from the Colorado River and State Water Project face increasing challenges.

To address these challenges, MWD and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996. The overall objective of the IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies and demand-side management that meet the region's desired reliability goal in a cost-effective and environmentally sound manner. The 1996 IRP was reviewed as part of MWD's strategic plan and rate refinement to guide the development and implementation of revised MWD water management programs through the year 2005.

MWD also provides financial support for local water projects implemented by its member agencies that contribute to an increase in the reliable water supplies available to the region. Currently, MWD sponsors two programs: 1) Local Resources Program that promotes the construction of recycled water and recovered groundwater projects; and 2) financial and technical assistance for implementing water conservation Best Management Practices. MWD also is responsible for distributing $45 million in funds from Proposition 13 funding for development of conjunctive management programs in Southern California.

As demand forecasts are refined, supply goals are also refined. MWD has consistently supplied over 50 percent of water supplies to the Southern California region. To continue to accomplish this, MWD continues to approve new and innovative projects and programs to ensure reliability. For example, in August 2001, MWD took action to move forward initiatives to bolster future supplies by supporting seawater desalination projects, increased commercial conservation efforts, improve water quality by decreasing salinity in supplies from Northern California and the Colorado River, increased underground storage and retrieval facilities, adopted principles for establishing cooperative programs, and endorsed legislation that would further water reliability.

4.3 Water Facilities Authority – Joint Power Agency (WFA)

The City of Chino is one of five members of the WFA. Other members include the Monte Vista Water District, and the cities of Upland, Ontario, and Chino Hills. The WFA is permitted to treat and deliver 81 mgd of State Water Project water. MWD's Rialto Branch of the Foothill Feeder delivers water to the WFA's Agua de Lejos Plant for treatment. The City of Chino is entitled to 5.9 percent, or approximately 5,353 afy (4.7 mgd), of the 81 mgd. The City can take delivery of more than its entitlement when other WFA members are not taking delivery of their full entitlements. This water enters the potable water distribution system of the City at Benson Avenue and State Street.

4.4 Chino Basin Watermaster

The Chino Basin Watermaster was established in 1978 by a judgment entered by the Superior Court of California. The Judgment required that the Watermaster develop a management plan for the Chino Groundwater Basin that meets water quality and water quantity objectives for the region.

In February 1998, the Superior County appointed a nine-member Board as Interim Watermaster for 26 months; March 1998 to June 2000. The Court directed the Interim Watermaster to develop and submit the Optimum Basin Management Program (OBMP) for the Chino Basin.

In 1998, the Chino Basin Watermaster developed an integrated set of water management goals and actions for the Basin. Known as the Optimum Basin Management Program (OBMP), this document describes nine program elements to meet the water quality and local production objectives in the Basin. The OBMP encourages the increased use of local supplies to help "drought proof" the Basin.

In July 2000, the Watermaster's planning process culminated with the adoption of a "Peace Agreement" that ended over 15 years of litigation within the Chino Basin. The Peace Agreement outlines the schedule and actions for implementing the OBMP.

Between 1990 and 1999, local sources supplied about 60 percent of the water demand within IEUA's service area and 38 percent within the City of Chino. The City's Five Year CIP identifies one new well in FY 2002-03, the 'New East Side Well," and a second well, the 'East Side Well #2 Installation,' is projected for FY 2004-05, to facilitate the projected shift in groundwater production and enhance system reliability. In so doing, the groundwater projection over the 20-year planning period will remain constant. Additionally, in the event that alternative water supplies (recycled and desalted) are less than projected, additional groundwater production from the new wells would be

available. Moreover, the two new wells, along with other projected water facility improvements included in the CIP, will enhance system reliability and redundancy. For example, if a well fails or must be taken out of service and cannot produce water for a period of time, the new wells provide an additional measure of system redundancy to ensure adequate water supply, thereby enhancing system reliability. Furthermore, the City's realistic approach to responsible system planning to augment existing infrastructure provides multiple sources of water to the City resulting in more available capacity than demand.

In an effort to continually clean up and enhance the safe yield of the Chino Basin, the City of Chino has worked integrally with IEUA to explore various methods of Organics Management with the goal of reducing and ultimately eliminating the salts from the Basin. Pilot projects are currently being constructed within the City of Chino and other areas within the IEUA service area that will convert dairy manure to methane gas for generating electricity and composting manure for retail sale.[15]

4.5 Chino Basin Water Conservation District (CBWCD)

CBWCD was established in 1949 to protect and replenish the Chino Groundwater Basin with rainfall and stormwater runoff from the San Gabriel Mountains. CBWCD uses a system of percolation ponds and spreading grounds to augment the natural capacity of the region to capture runoff for the recharge of the groundwater basin. CBWCD also promotes water conservation through public education programs.

4.6 Santa Ana Watershed Project Authority (SAWPA)

SAWPA was formed in 1972 as a joint powers agency for the purpose of coordinating regional planning within the Santa Ana Watershed to address water quality and supply improvements. SAWPA is comprised of five major water supply and wastewater management agencies within the Santa Ana Watershed: Inland Empire Utilities Agency, Eastern Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District and Western Municipal Water District.

Since the early 1970's, SAWPA has held a key role in the development and update of the Regional Basin Plan for the Santa Ana Regional Water Quality Control Board. SAWPA conducts water-related investigations and planning studies, and builds facilities needed for regional water supply, wastewater treatment or water quality remediation. Current studies include the Chino Basin Water Resources Management Study, the Colton-Riverside Conjunctive Use Project, an investigation of water quality in Lake Elsinore and studies on the nitrogen and organic carbon levels in the Prado Basin.

In order to facilitate development of improvements to the local water supply system, SAWPA adopted an Integrated Resource Plan in June 1998. SAWPA conducted a stakeholder process, which resulted in identifying potential projects with a total estimated cost of over $1 billion. Approved in March 2000, State Water Bond Act (Proposition 13) included $235 million to the Southern California Integrated Watershed Program (SCIWP). On July 17, 2000 the State Water Resources Control Board (SWRCB) entered into a memorandum of understanding to set forth general procedures and criteria for selecting projects to be funded by SCIWP for the Santa Ana River Watershed. On August

[15] City of Chino, Urban Water Management Plan Update, January 2002

1, 2000, SAWPA approved an Initial Project Priority List of 44 projects with an estimated cost of $689 million, and adopted a policy to ensure that the List is reviewed and updated periodically to ensure timely and cost-effective use of funds.

The Chino Basin received $87 million for the construction of water desalters, groundwater recharge facilities and new wells, of which $48 million has been allocated by SAWPA and the SWRCB for the Chino I Desalter Expansion and construction of the new Chino II Desalter. This is part of the $235 million approved for the Santa Ana River Watershed, subject to administration by SAWPA.

4.7 Santa Ana Regional Water Quality Control Board

The Santa Ana Regional Water Quality Control Board (SARWQCB) is responsible for the development and enforcement of water quality objectives to meet the requirements of the Federal Clean Water Act, California Porter-Cologne Act, and the National Pollution Discharge Elimination System (NPDES).

In 1975, the SARWQCB completed the Water Quality Control Plan for the Upper portion of the Santa Ana Watershed. The plan outlines specific water quality management actions to address water quality and salt (total dissolved solids - TDS) build up in the Chino Groundwater Basin. These include the construction of a large well field and desalters in the lower part of the Basin to extract and treat poor quality water, the construction of a pipeline to export brines from the upper Basin to the ocean, and the use of large volumes of low TDS water for groundwater recharge. The desalter water projects render (via treatment) unusable groundwater usable for potable water purposes.

Since 1975, a brine line (Santa Ana River Interceptor or SARI line) has been built and is in operation. In addition, two groundwater desalting plants are in place. The 2000 Optimum Basin Management Program by the Chino Basin Watermaster has been developed to meet the requirements of the 1975 plan.

4.8 Water Shortage Plans

4.8.1 City of Chino Water Shortage Contingency Plan

The City of Chino has adopted a Water Shortage Contingency Plan, known as the Water Conservation Ordinance, amended, Chapter 13.05 of the Municipal Code. This Plan includes catastrophic interruption, mandatory prohibition, penalties, consumption reduction methods, rationing allocation method, reduction measuring mechanism, and an emergency fund, and is further discussed in Section 4.9 below.

As a member agency of the IEUA, the City of Chino also has adopted and benefits from MWD's Water Surplus and Drought Management Plan.

4.8.2 MWD Water Surplus and Drought Management Plan

MWD has taken the lead on drought planning for the southern California region. In 1999, MWD developed the Water Surplus and Drought Management (WSDM) Plan. This plan addresses both surplus and shortage contingencies. IEUA, and the City of Chino as a member agency of IEAU, have adopted and follow the MWD WSDM Plan. Each year, MWD considers the level of supplies available and the existing levels of water in storage to determine the appropriate management stage for that year. Each stage is associated

with specific resource management actions designed to avoid an Extreme Shortage to the maximum extent possible and minimize adverse impacts to retail customers should an Extreme Shortage occur. MWD's resource management will allow shortages to be mitigated without impacting municipal and industrial customers, except in severe or extreme shortages or emergencies. MWD's extensive analysis of system resources demonstrated that the expected occurrence of a Severe Shortage is four percent or less in most years and it never exceeds six percent. This equates to an expected shortage occurring once every 17 to 25 years.

MWD tested the WSDM Plan by analyzing its ability to meet forecasted demands. The results indicated 100 percent reliability for full-service non-discounted demands through the forecast period under foreseeable hydrologic conditions. To determine the data presented in Table 4-1, MWD examined the hydrologic record and its impacts on the supply/demand balance to find the worst three-year sequence of 1990-1991-1992 for its service area.

Using its resource simulation model IRPSIM, MWD projected the three-year water supply situation, including climate and watershed conditions, on the projected demands for 2001-2002-2003. The model simulated the supply, demands, and the operation of MWD's system to determine its ability to meet those demands. The simulation showed that, despite using the worst three-year sequence of hydrology, MWD would meet its demands through a combination of imported supply, withdrawals from storage programs, and transfers. The same model was used for a single dry year and multiple dry years, and again, the simulations predict that MWD would meet its demands under the worst dry year scenario. The simulation also showed that MWD would be able to meet all full-service, non-discounted demands during average conditions. In fact, in average years MWD would be adding water to storage, but the additional water supplies are not reported in Table 4-1.

Table 4-1
MWD Demand/Supply Balance
Multiple-Dry Year, Single-Dry Year, and Average Year (MAF)

	Near Term			Long Term			
Scenario	**2001**	**2002**	**2003**	**2005**	**2010**	**2015**	**2020**
Multiple Dry Years							
Demands							
Retail	4.19	4.05	3.99	4.16	4.40	4.65	4.94
GW Replenishment	0.18	0.17	0.16	0.17	0.17	0.17	0.18
Total	**4.37**	**4.22**	**4.15**	**4.33**	**4.57**	**4.82**	**5.12**
Supply							
Local	2.05	2.04	2.06	2.13	2.32	2.46	2.55
Metropolitan	2.32	2.18	2.09	2.20	2.25	2.36	2.57
Total	**4.37**	**4.22**	**4.15**	**4.33**	**4.57**	**4.82**	**5.12**
Single Dry Year							
Demands							
Retail	4.04			4.21	4.46	4.71	5.03
GW Replenishment	0.17			0.17	0.17	0.18	0.19
Total	**4.21**			**4.38**	**4.63**	**4.89**	**5.22**
Supply							
Local	2.28			2.47	2.66	2.80	2.90
Metropolitan	1.93			1.91	1.97	2.09	2.32
Total	**4.21**			**4.38**	**4.63**	**4.89**	**5.22**
Average Year							
Demands							
Retail	3.91			4.07	4.31	4.55	4.85
GW Replenishment	0.16			0.16	0.16	0.17	0.18
Total	**4.07**			**4.23**	**4.47**	**4.72**	**5.03**
Supply							
Local	2.18			2.33	2.52	2.64	2.73
Metropolitan	1.89			1.90	1.95	2.08	2.30
Total	**4.07**			**4.23**	**4.47**	**4.72**	**5.03**

Source: The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December 2000

Notes:

MWD supplies include imported supplies, storage programs and transfers

Multiple Dry Years for 2001-2003 are based on the worst three-year sequence from the historical hydrologic record (1990-1991-1992)

Single Dry Year is based on the single worst year from the historical hydrologic record (1977)

Average Year is based on the average over all years in the historical hydrologic record (1922-1998). In average years, MWD will be adding water to storage, but the additional water supplies are not reported in this table.

Additional MWD Catastrophic Loss Planning Measures

To safeguard the region from a catastrophic loss of water supply, MWD and its member agencies have made and are continuing to make substantial investments in emergency storage and interconnections with adjacent water purveyors. MWD's emergency plan assumes that demands are reduced 25 percent from the 2020 baseline demand forecast through extraordinary conservation, while the local supplies are largely undisrupted. With few exceptions, MWD asserts it can deliver emergency supply from its Diamond Valley Lake Reservoir throughout its service area via gravity, thereby eliminating dependence on power sources that could also be disrupted by a major earthquake. MWD's WSDM Plan will guide management of available supplies and resources during an emergency.

IEUA recently completed its emergency response plan for its service area. IEUA expects to meet emergency demands within the region through extraordinary conservation and groundwater pumping measures. Multiple sources of power exist within the service area making any electrical shortages a temporary disruption. In addition, IEUA is pursuing additional mutual aid agreements between local retail agencies.[16]

4.9 Water Conservation as a Reliable Water Source

As signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, IEUA has made the State-mandated Best Management Practices (BMP) for water conservation the cornerstone of its conservation programs and a key element in the overall regional water resource management strategy. As a member of IEUA, the City of Chino benefits from regional programs performed by IEUA on behalf of its member agencies.

Current IEUA conservation programs are saving over 6,000 afy in the IEUA service area. Programs will be significantly expanded by 2020, and IEUA expects to reduce water demands by 24,000 acre-feet of water, or about 7 percent. During the period of 2000 – 2005, IEUA is increasing its funding of water conservation programs[17].

These savings relate directly to additional available water, both groundwater and imported water, for beneficial use within the IEUA service area, including the City of Chino.

Regional programs implemented by IEUA that benefit all member agencies, including the City of Chino:

- BMP 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers. Free residential indoor and outdoor water use surveys offered to the top 20 percent of water users, and to others as requested.
- BMP 2 – Residential Plumbing Retrofits. Distribution of showerheads, aerators and toilet tank leak detection tablets at community fairs, business expos, and during Water Awareness Month.
- BMP 3 – System Water Audits, Leak Detectors, and Repair. Each local agency, including the City of Chino, maintains an active distribution system auditing

[16] Agreement between City of Fontana and the Cucamonga County Water District was developed in 1999.
[17] IEUA Urban Water Management Plan Year 2000 Update, December 2000

program. This program evaluates the systems unaccounted-for water loss with a goal to stay under 6 percent. The City of Chino is consistently at 5 percent.

- BMP 4 – Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections. Assists local agencies with a feasibility study examine incentive programs to move landscape water uses on mixed-use meters to dedicated landscape meters. This program is expected to be complete in the near future.
- BMP 5 – Large Landscape Conservation Programs and Incentives. Large landscape irrigation surveys are offered resulting in Landscape Irrigation Budgets to cost effectively achieve quantifiable water savings.
- BMP 6 – High-Efficiency Washing Machine (HEWM) Rebate Programs. Promotion of HEWMs through consumer education and manufacturer incentives.
- BMP 7 – Public Information Programs. Promotes water conservation in coordination with local agencies. Distribution of public information through bill inserts, brochures, community speakers, special events, and Web pages.
- BMP 8 – School Education Programs. IEUA and the local agencies formed the Water Education Water Awareness Committee (WEWAC) in 1989. WEWAC works with the school districts to promote water conservation, acquaints children and adult consumers with the critical importance of water, provides them with information on water use efficiency, and sponsor teachers' Project Water Education for Teachers (WET) training. Promotion and use of water education programs developed and supported by MWD.
- BMP 9 – Conservation Programs for Commercial, Industrial and Institutional Accounts. Provide water use audits to commercial/industrial/institutional customers. During 1996, local agencies participated in MWD's CII Analyst Survey Program. Based on full implementation of the recommendations contained in the surveys, water demand in three participating agencies alone would be reduced by 420 acre-feet annually.
- BMP 10 – Wholesale Agency Assistance Program. IEUA provides conservation-related technical support and information to member agencies, including ULFT replacement, residential retrofits; CII surveys; residential and large turf irrigation; and conservation-related rates and pricing.
- BMP 11- Conservation Pricing. IEUA assists local agencies to implement inclining multi-block rate structures. IEUA also established a new rate for recycled water to provide an economic incentive for the use of the supply.
- BMP 12 – Conservation Coordinator. IEUA has a designated Conservation Coordinator for conservation programs and BMP implementation, and coordination with local agencies.
- BMP 13 – Water Waste Prohibition. IEUA supports "No Waste" ordinances adopted by local agencies, which are actively enforced.
- BMP 14 – Residential ULFT Replacement Program. IEUA initiated its ultra-low-flush-toilet (ULFT) program in 1991. Includes direct installation, rebate, and high

school distribution programs. MWD co-sponsored ULFT programs with member agencies, each paying an equal portion of the cost per toilet. Water savings associated with the 13,000 ULFTs installed to date is equal to an estimated 521 afy, and $182,000 in avoided water purchases. IEUA plans to continue this program and retrofit an additional 15,000 toilets through 2005. Additional water savings for these 15,000 ULFTs is estimated at 601 afy for a total water savings from ULFT replacement at 1,122 afy by the year 2005.

Along with the regional benefit of IEUA BMP programs, the City of Chino has specifically implemented the following conservation programs:

- Ultra Low Flush Toilet Retrofit Program
- School Education Program
- Commercial/Industrial/Institutional Water Survey Program

Additional conservation or water use efficiency measures or programs implemented by the City of Chino include the following:

Metering

The City requires, including development of The Preserve and College Park, water meters throughout its distribution system, including all residential, commercial, industrial, government and landscaping accounts. Any unmetered use generally occurs at fire hydrants or from distribution system breaks.

To increase the efficiency of water meter calibration, the City contracts with a company to calibrate meters greater than 2 inches in diameter. This calibration is generally performed on an annual basis. Meters 2 inches in diameter and smaller are replaced once every 10 years on the average. Meter calibration and periodic replacement insures that customers are paying for all of the water they consume, and therefore encourages conservation.

Unaccounted-For Water Loss

The City's historic low unaccounted-for water loss suggests that leaking pipelines, uncalibrated water meters, service line breaks, and other unusual events are not significant factors within the City's water system. The industry standard, based on the American Water Works Association, for unaccounted-for water loss is no more than 9-10 percent. The City of Chino typically experiences a 5 percent water loss, which is well below the industry threshold.

Landscape Conservation

The City of Chino enforces landscaping requirements for all new industrial and commercial developments. Included is a requirement that landscape plans be designed by a registered landscape architect and that they include automatic irrigation systems, rain shutoff devices, in-line check valves to prevent low head drainage, and separate landscaping meters. Suggestions and recommendations are made regarding the use of xeriscape landscaping techniques based on conserving water through limiting the size of turf areas, maximizing the use of drought tolerant (low water consuming) plants, and appropriate maintenance.

A xeriscape garden has been planted on San Bernardino Avenue between Monte Vista Avenue and Ramona Avenue by the Chino Conservation District. The garden is open to the public and is designed to show that xeriscape can offer an attractive, cost-effective and water-efficient landscaping alternative.

The City requires that all new commercial and industrial landscape areas include rain-override devices. The rain override device cancels irrigation cycles when rain is present.

The California Irrigation Management Information System (CIMIS), developed by the University of Fresno, has a check-station in Chino, and monitors precipitation and evapotranspiration levels. The CIMIS information programs the irrigation cycles and watering time for the City's public lands, reducing irrigation when allowable. This program is quite effective and is being monitored by the Grounds Section of the Chino Public Works Department. This program also benefits water quality through the management of runoff.

Current landscaping measures for City property include mulching to reduce evapotranspiration, seasonal adjusting of turf heights, and studies on the use of subterranean irrigation systems. These studies are being conducted at the Civic Center facilities. Initial observations indicate that plants watered by subterranean methods tend to accumulate more dirt and dust than plants that are watered by regular sprinklers; otherwise, the system is very efficient. The dirt/dust problem is mitigated by occasional conventional irrigation.

Telemetry

The City has implemented a telemetry system to monitor the City's water production and usage. The system alerts City personnel to water production levels, aids in the prevention of water reservoir overflows, and increases energy efficiency.

Public Education

The City's public education program includes water use efficiency and conservation literature available at the City's Department of Public Works Office.

Water Conservation Ordinance

The City adopted a Water Conservation Ordinance in 1991, amended, Chapter 13.05 of the Municipal Code. The Ordinance identifies actions to be taken by water consumers within the City during periods of adequate water supply, during moderate water shortages, and during high water shortages. Each shortage stage includes such actions as limiting outside irrigation, leak repair, avoiding water use during peak demand hours, and reduced overall water usage.

Water for public health, safety and welfare, water for maintenance of water facilities, and "grey water" use are all exempt from mandatory reductions. Hardship or special case guidelines are established by the City Manager's Office.

Penalties are imposed for violations of prohibited activities as follows:

1st Violation – Warning
2nd Violation – Final Warning
3rd Violation – $50 Fine
4th Violation – $100 Fine
5th Violation – Possible flow restricting device for domestic meters and termination of landscape meters

4.10 Reliability Comparison

The City's water demand in year 2000 was 16,686 afy (14.9 mgd). By the year 2023, The Preserve and the College Park developments will generate the additional need for approximately 10,109 afy (9.03 mgd) of water (6,502 afy of potable water and 3,607 afy of recycled water) increasing the City's water demand to 27,707 afy (24.7 mgd).

Table 4-2 shows the historical water demands for the City of Chino as reported in the IEUA Urban Water Management Plan Year 2000 Update, Table 2-4.

Table 4-2
City of Chino Historical Water Demands

	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00
Groundwater	9,074	8,893	8,765	7,286	3,014	8,530	9,373	10,231	8,821	10,081	9,694
Imported	378	3,692	3,180	4,705	6,266	4,108	4,322	4,325	4,182	4,071	5,451
Recycled											100

Data shows that the San Bernardino semi-arid region, during periods of dry weather, would demand approximately 8 percent more urban water than in a "normal" weather year. Further analyses by MWD and IEUA contained within their Urban Water Management Plan 2000 Updates demonstrate that projected water use during periods of multiple-year drought reflect that water demand would increase in the first and second years of the drought and then decrease in the third year of the drought. This is based on the 1990-1991-1992 hydrologic sequence, with the first of the three years being the most severe. No other three-year sequence in the 77-year hydrologic record had as great an adverse impact on the supply/demand balance. The tabulation below presents the 20-year water supply and demand comparison in dry-year scenarios based on this model, which is consistent with MWD and IEUA projections.

Table 4-3 shows water demand in the City of Chino service area for an average or "normal" water year, a single-dry year, and multiple-dry years. The "normal" year is shown as the year 2020 demand projections from Table 3-1 to reflect the impact of drought in the 20-year projection. This analysis shows that supplies exceed demand during single dry and multiple dry water years.

Table 4-3

20-Year Water Supply and Demand Comparison During Single and Multiple Dry Years Including The Preserve and College Park (afy)

2020 Supply & Demand Through Year 2023	Normal	Single Dry	Multiple 1	Multiple 2	Multiple 3
Demand Total	**26,555**	**28,806**	**28,806**	**30,036**	**28,411**
Groundwater	11,959	12,605	12,605	13,487	14,634
Imported	5,353	4,603	4,603	4,077	3,611
Desalted	5,000	5,000	5,000	5,000	5,000
Recycled	7,522	7,522	7,522	8,327	9,534
Supply Total	**29,834**	**29,730**	**29,730**	**30,891**	**32,779**
Surplus	**3,279**	**923**	**923**	**854**	**4,368**

Dry Year Factors Used For Comparison

Dry Year Factors	Single Dry	Multiple 1	Multiple 2	Multiple 3
Demand	1.08478	1.08478	1.04270	0.94589
Supply				
Groundwater	1.054	1.054	1.070	1.085
Imported	0.85984	0.85984	0.88574	0.88574
Desalted	1.000	1.000	1.000	1.000
Recycled	1.000	1.000	1.107	1.145

(Consistent with IEUA Urban Water Management Plan Update Year 2000, Table 3-14)

Both MWD and IEUA have demonstrated that water supplies would meet demand in normal, single-dry, and multiple-dry years.[18] According to MWD, data shows that during periods of dry weather, the southern California semi-arid region would demand approximately 8 percent more urban water than in a "normal" weather year. Multiple-dry years would be met with increased conservation measures and programs, resulting in a constant demand increase from normal year of 8 percent.

IEUA demonstrates in the Regional Urban Water Management Plan Year 2000 Update that implementation of groundwater banking, the Regional Recycled Water System, and desalter projects, will enhance supply and reliability water sources, while dependence on imported water significantly decreases.

[18] The Regional Urban Water Management Plan for The Metropolitan Water District, December 2000, and IEUA Urban Water Management Plan Year 2000 Update, December 2000

5.0 CONCLUSION

The City of Chino optimizes its water resource supply through an integrated resource approach, utilizing available water programs and projects. The City receives its water supplies from groundwater, desalted water, imported water, and recycled water. Complexities and continuing refinement in groundwater management and rights, evolving development of the regional recycled water system and supplies, desalter expansion and projects, and challenges of imported water reliability make analysis of water demand and supply complicated. This water supply analysis is considered at a point in time when known future projects are considered. It is also understood that new and innovative programs and projects in concept are yet to be designed. Therefore, water supply assessments should be a part of the ongoing planning efforts of the City to optimize its water resource program.

This water supply assessment identifies water supply and reliability to the City, now and into the future, including a sufficient water supply for The Preserve and the College Park development. Phasing of The Preserve and College Park will generally occur over time intended to minimize impacts to local areas. These development phasing plans allow for water demands to be met almost entirely from sources that are currently being planned, developed and implemented, including desalter water, recycled water, and conservation programs. Groundwater demand could remain relatively stable throughout the forecast period with maximum use of these alternative sources.

Water Demand

The build out of The Preserve and the College Park development will increase the City's water demand by the year 2023 by approximately 10,109 afy (9.03 mgd) of water (6,502 afy of potable water and 3,607 afy of recycled water) yielding a total projected City demand of 27,707 afy (24.7 mgd) in the year 2023.

Demand and Supply Projections

Analysis of water demand and supply projections for the City, including The Preserve and College Park, demonstrate that projected supplies exceed demand through the year 2023. These projections consider land use, water development programs and projects, and water conservation. Analysis shows that as desalted water and recycled water use are maximized, groundwater and imported water will remain stable. Recycled water will supply areas currently supplied with potable water, and desalted water will supply areas currently using available groundwater and imported water.

Additionally, the City has the opportunity to increase supply to meet and exceed water demand now and into the future through the following measures: 1) production of groundwater based on safe yield limitations; 2) increasing imported water purchases; 3) purchasing additional desalted water if more is produced than needed to satisfy requirements of other purchasers; and 4) purchasing additional recycled water in proportion to its increased contribution of effluent, plus additional surplus when available when other members are not taking their full entitlement, which will be changed to no maximum entitlement with completion of the Regional Recycled Water System.

Collectively, these additional options will enable water supply to exceed water demand for the City of Chino now and into the future.

6.0 BIBLIOGRAPHY

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PSOMAS

APPENDIX Q
ALTERNATIVE INTERNAL CIRCULATION STUDY FOR COLLEGE PARK

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October 6, 2003

Mr. Larry Lazar
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5109 E. La Palma, Suite D
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Subject: **ALTERNATIVE INTERNAL CIRCULATION STUDY FOR COLLEGE PARK (Based on refined site access characteristics for Chaffey College) Chino, California**

Dear Mr. Lazar:

As a follow-up to discussions with the project team, City staff, and Chaffey College representatives, Linscott, Law & Greenspan, Engineers (LLG) is pleased to present our most recent findings on alternative internal circulation aspects of the project. These alternatives relate to anticipated access and internal circulation adjustments for the Chaffey College site, which in turn may support the notion of a two-lane (rather than four-lane) cross-section on Eucalyptus Avenue between "A" Street and what has come to be known as the "College Road".

Based on these alternatives, this letter report updates two prior submittals we completed: (1) *Preliminary Internal Circulation Study for College Park* (dated August 5, 2003); and (2) *Near-Term Analysis (6,000-student enrollment for Chaffey College) for College Park* (dated September 12, 2003). This letter also includes refinements (based on the alternatives) to our preliminary recommendations on traffic control and lane geometry at key intersections located within, and along the periphery of, the project site. These refinements were developed since we prepared our August 29, 2003 memorandum (this memorandum was distributed to the project team only).

STUDY APPROACH

As you know, internal circulation aspects are not discussed in the Draft EIR (DEIR) now in circulation; thus, the need for subsequent focused evaluations to determine internal circulation cross-sectional needs and characteristics. These internal traffic evaluations have all included the following steps:

- Estimated the project's tripmaking potential based upon a more refined development tabulation for SunCal-owned residential components of the project, in addition to other aspects of the overall project (i.e., Chaffey College, an elementary school, Ayala Park, a shopping center, and a supermarket) that had trip generation estimates included in the DEIR for College Park.

- Developed an internal traffic model for assigning project-generated volumes within the local traffic setting under long-term/buildout and near-term conditions.

- Evaluated long-term/buildout conditions including maximum enrollment at Chaffey College. For the long-term analysis, an enrollment level of 15,000 students was presumed. This letter adds a near-term scenario based on 3,500 students before the College Road might be built.

- Developed a preliminary set of recommendations on the internal transportation infrastructure needs of the project under long-term/buildout and near-term conditions for the defined alternatives. For this letter report, College access provisions are refined to reflect the specifics of the current College Master Plan document (*Chaffey College Chino Campus Plan 2004* dated September 2003). That document shows that the North A and Central lots are the first lots to be constructed, and both lots take access only from "A" Street. These two lots account for 21% of the College's ultimate parking supply, and will be the focus of 21% of its traffic generation. The North B, Southwest, and Southeast lots will ultimately account for 79% of the College's parking, and be the focus of an equal amount of its traffic generation. The Southwest and Southeast lots would be served by an internal campus road in the Baseline case, and a public roadway in the Alternative case. In both the Baseline and Alternative networks, the College has no direct driveway connection on Eucalyptus Avenue between "A" Street and the College Road, and there is no vehicular connection between the Central lot and the Southwest lot.

LONG-TERM/BUILDOUT ANALYSIS (15,000-student enrollment for Chaffey College)

Given the above approach, the key findings of our alternative internal traffic study for long-term/buildout conditions reflect the following:

1. The following two networks were developed as part of the internal traffic model, and evaluated for infrastructure needs:

    - **Baseline Internal Street System:** This network was created based upon SunCal's current street circulation plan for College Park (i.e., site plan prepared by Michael Madden Associates, dated April 21, 2003). It reflects the College access and parking allocations per the *Chaffey College Chino Campus Plan 2004* (Preliminary

Report, September 2003), without any College driveways on Eucalyptus Avenue, and there is no College Road (only an internal campus drive).

- **Alternative Internal Street System:** This alternative network includes an additional, east-west public roadway on the southern limits of Chaffey College, and was developed based upon discussions with SunCal and Chaffey College representatives. The locations and sizing of College parking lots are the same as the Baseline case described above.

2. Based on current site planning information, the College Park project is comprised of 2,299 dwelling units (1,931 single-family homes and 368 apartments), Chaffey College with an expected enrollment of 15,000 students, an elementary school with 55 employees, Ayala Park (119.2 acres), a shopping center (70,000 SF), and a supermarket (50,000 SF). There are also several small parks disbursed throughout the project.

3. **Table 1** summarizes the trip generation rates applied to the various project components. These rates are consistent with the trip rates used in the DEIR's traffic study, with the one exception of the shopping center. The DEIR applied shopping center trip rates, but as a conservative measure for this internal circulation study, the shopping center trip equations were applied instead.

4. **Table 2** presents the resulting trip generation estimates on a daily (typical weekday), AM peak hour, and PM peak hour basis, segregated into 18 Traffic Analysis Zones (TAZs). Each TAZ is a sub-area, or a logical grouping of various project components based upon their relative location within the College Park site, and relation to driveway access connections with the surrounding street system. The numbering and location of each zone is taken from the initial planning areas and their development tabulations indicated in the SunCal plan. As indicated on the last two pages of **Table 2**, the project is expected to generate approximately 54,419 daily trips, 4,101 AM peak hour trips, and 5,682 PM peak hour trips. Inherent in these total project-generated trips is the application of a 30% pass-by reduction factor to the shopping center and supermarket in TAZ 15 (this is the same pass-by reduction percentage used in the DEIR's traffic study).

5. The same external project traffic distribution pattern used in the DEIR (Figure 14 of the DEIR's traffic study; shown in **Exhibit A** of this letter) was used to distribute and assign project-generated trips throughout each of the two alternative networks in the internal traffic model (i.e., Baseline Internal Street System, and Alternative Internal Street System). The inbound and outbound distribution percentages assumed at each of the "gates" or external portals in the DEIR's traffic study provided the basis for this internal circulation study to route the project trips between each of the 18 TAZs and the various "gates", via each TAZ's "centroid connector" or theoretical project driveway and the surrounding internal street system (Baseline and Alternative).

6. **Exhibit B** illustrates the project traffic distribution pattern for Chaffey College based on the planned parking layout (based upon the *Chaffey College Chino Campus Plan 2004* dated September 2003). North A and North B lots (20% of the College's parking supply, and focal point of 20% of College traffic) are accessible via "A" Street and Oaks Avenue, while Central lot (13% of supply, and the focal point of 13% of College traffic) is only accessible via "A" Street. The Southwest (37%) and Southeast (30%) lots could only be accessed via the east-west roadway along the southern boundary of the College. This roadway is an internal campus drive in the Baseline network, and is the public College Road in the Alternative network. While **Exhibit B** infers an internal vehicular connection between the Central and Southwest lots, this analysis assumes such a connection will not be provided.

7. By applying the project traffic distribution patterns described above to the project trip generation estimates for each TAZ presented in **Table 2**, the project trips were assigned on each of the two networks (Baseline and Alternative). **Exhibit C** illustrates the daily project-generated traffic volumes on the Baseline network, and **Exhibit D** depicts the daily project-generated traffic assuming the Alternative network.

8. A review of **Exhibit C** indicates that the Baseline network volumes on Eucalyptus Avenue, south of "A" Street, at 12,900 daily trips, exceed the two-lane planning threshold of 10,000 Average Daily Trips (ADT). Thus, the Baseline network, even with no driveways along Eucalyptus Avenue, does not support the voiced planning goal of a two-lane roadway on Eucalyptus Avenue in the town center area. **Exhibit D**, with the Alternative network to include the public College Road, indicates 9,800 daily trips in this segment of Eucalyptus Avenue south of "A" Street, and thus, could qualify for a two-lane cross-section.

9. In order to describe what roadways the College-related trips would likely use, and the amount of these College-related trips along each roadway, a specific traffic assignment was performed that solely evaluated College-generated traffic on the Alternative network (concluded to be a more desirable network than the Baseline). College-only daily traffic is shown on **Exhibit E**. Note that this College access pattern does shift 1,300 daily trips to Mountain Avenue. Also, "A" Street volumes, as well as those on Eucalyptus Avenue east of the College Road, increase from prior investigations.

10. Based on our review of the traffic volume exhibits developed in this study, our recommendations on the network and number of mid-block travel lanes for the Baseline network are illustrated on **Exhibit F**, and the recommendations for the Alternative network are shown on **Exhibit G.**

11. Recognizing the City and College's desire to construct Eucalyptus Avenue in the town center area as two lanes, the Alternative network is recommended, with characteristics as follows:

a) The added east-west roadway (**"College Road"**) located south of Chaffey College (included in the Alternative network) is required as a public street, since it could remove about 3,000 daily trips from Eucalyptus Avenue (south of "A" Street) in the town center area, and roughly 2,000 daily trips from "A" Street west of Oaks Avenue. As shown on **Exhibit G**, it is a recommended addition to the Specific Plan network. **Exhibit G** illustrates that College Road would need to be four lanes just south of "A" Street, and could narrow to a two-lane cross-section as it extends to the east where the roadway terminates at Eucalyptus Avenue.

b) **Oaks Avenue-Eucalyptus Avenue/"A" Street intersection:** assumed as a three-legged intersection, but a fourth leg could be added to provide a more direct access to the retail portion of town center.

c) **Oaks Avenue and Eucalyptus Avenue extensions into the site:** except from "A" Street to the College Road, require the full-section of four lanes, consistent with the Specific Plan, plus a transit lane under the Alternative network (as illustrated on **Exhibit G**). Between "A" Street and College Road, a two-lane cross-section is possible, consistent with other planning objectives in the town center area.

d) **"A" Street:** requires four lanes between Central Avenue and College Road, and two lanes between College Road and Oaks Avenue-Eucalyptus Avenue, as shown on **Exhibit G** for the Alternative network. "A" Street between College Road and Oaks Avenue-Eucalyptus Avenue would need to be four lanes on the Baseline network (see **Exhibit F**).

e) **Mountain Avenue extension into the site:** two lanes would be sufficient, consistent with a local collector. Given the forecast volumes for Mountain Avenue, it is recommended that the orientation of adjoining units (front on, side on, or rear on) be considered and validated in final project design.

f) **The "arched" roadway connecting Oaks Avenue and "B" Street, serving the retail components of the project, located on the northeast quadrant of the Oaks Avenue-Eucalyptus Avenue/"A" Street intersection:** two lanes would be needed as a collector.

g) **"B" Street:** also a two-lane collector.

h) **"C" Street and "D" Street:** two-lane local streets.

i) **College parking:** must be provided in keeping with **Exhibit B** and described previously, having no internal connection from the Central lot to either the Southwest or Southeast lots.

RECOMMENDATIONS ON INTERSECTION CONTROLS AND GEOMETRY

Table 3 and **Exhibit H** present the results of LLG's evaluation of key intersections located within, and along the periphery of, the project site. The analysis focused on identifying the needs for a specific type of traffic control (side-street stop, two-way stop, four-way stop, or traffic signal) and lane geometry (exclusive left-turn lane or right-turn lane) at each key intersection.

Table 3 lists the 6 "external" intersections and 16 "internal" intersections evaluated. The level of service results and lane geometry for 4 of the 6 intersections located on the periphery of the project site have been modified from the Kaku Associates traffic study. **Exhibit H** illustrates the locations of the 22 intersections listed in **Table 3**.

The traffic volume forecasts that provided the basis for the level of service analyses were based on the Alternative network, which assumes the following:

- The roadway located south of Chaffey College ("College Road") is a public street.
- The intersection of Oaks Avenue-Eucalyptus Avenue with "A" Street (Intersection 10) is assumed to be a T-intersection, not as a four-legged intersection. It could be easily modified to have a fourth leg.

A step-wise process was undertaken to determine the traffic control and lane geometry requirements at each of the 22 key intersections. Two-way stop control was assumed first. If the resulting level of service was deficient (LOS E or LOS F), exclusive turn lanes were added to determine whether acceptable levels were reached (LOS A through LOS D). If poor levels of service were maintained, then four-way stop control was tested next. If the intersection continued to operate poorly with stop signs on all approaches, then the addition of turn lanes was considered.

If the intersection level of service remained unacceptable, then the installation of a traffic signal and/or additional lanes was evaluated. A detailed traffic signal warrant analysis was performed for all 22 key intersections. Under signalized conditions, intersection peak hour level of service, queuing/stacking/turn pocket storage needs, and ensuring "continuity" between intersections, were primarily used as the criteria for determining whether additional left-turn, through, and right-turn lanes would be necessary. **Table 3** summarizes the resulting levels of service for the 22 key intersections.

Exhibit H illustrates the recommended traffic control and lane geometry at the 22 key intersections.

NEAR-TERM (3,500-student enrollment for Chaffey College)

Chaffey College representatives commented that an enrollment level of 15,000 students, which was used as the basis for Year 2025/project buildout conditions for the College in the DEIR and

Preliminary Internal Circulation Study, would not likely be reached in the near future. According to the College, an enrollment of 3,500 students is more realistic in the near term, and would coincide with the construction of the North A and Central lots, but not the North B, Southwest, and Southeast lots. College representatives also asked how much of the buildout infrastructure will actually be necessary to accommodate traffic needs at College Park in the near term.

In order to address the College's comments, a theoretical near-term analysis was completed based upon a 3,500-student enrollment, but assuming full development of all other plan components of College Park. This near-term analysis also assumes that only the North A and Central lots will be constructed, with access only available via "A" Street. The near-term enrollment level of 3,500 students results in a 77% reduction in students and vehicle trips generated by the College, and a 33% to 39% reduction in the overall traffic generation for College Park. The near-term trip generation is summarized on **Table 4**.

Exhibit I illustrates the daily project-generated traffic volumes under near-term conditions. Near-term, College-only daily traffic is shown on **Exhibit J.**

Our findings indicate that in the near term, Oaks Avenue and the segment of Eucalyptus Avenue between "A" Street and "B" Street may still theoretically require four travel lanes (excluding intersection turn lanes and transit lanes). Given the interim nature of Eucalyptus Avenue volumes south of "A" Street, and the long-term rebalancing offered by the College Road with the Southwest and Southeast lots, this temporary upset of the 10,000 vehicles-per-day threshold for a two-lane roadway could be ignored, recognizing that the intersections along the segment are likely to provide an acceptable peak hour level of service.

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We appreciate the opportunity to provide this information. If you have any questions regarding this analysis, please call us at (714) 641-1587.

Very truly yours,
LINSCOTT, LAW & GREENSPAN, ENGINEERS

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Attachments
2461-ltr-rev.doc

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TABLE 1
PROJECT TRIP GENERATION RATES
College Park, Chino

ITE CODE & LAND USE	DAILY RATE	AM PEAK HOUR RATE	AM PEAK HOUR % IN	AM PEAK HOUR % OUT	PM PEAK HOUR RATE	PM PEAK HOUR % IN	PM PEAK HOUR % OUT
210: Single-Family Residential (Trips per DU)	9.57	0.75	25%	75%	1.01	64%	36%
220: Apartment (Trips per DU)	6.63	0.51	16%	84%	0.62	67%	33%
540: Community College (Trips per Student)	1.54	0.14	91%	9%	0.17	68%	32%
820: Shopping Center (Trips per 1,000 SF)	[a]	[a]	61%	39%	[a]	48%	52%
850: Supermarket (Trips per 1,000 SF)	111.51	3.25	61%	39%	11.51	51%	49%
Estimated: Elementary School (Trips per Employee)	2.4	1	88%	12%	Nominal	Nominal	Nominal
SANDAG: City Park (Trips per Acre)	20.00	0.08	50%	50%	1.60	50%	50%

Sources:

Trip Generation (6th Edition), Institute of Transportation Engineers (ITE), 1997.

San Deigo Traffic Generators, San Diego Association of Governments (SANDAG), July 1998.

Notes:

DU = Dwelling Units

SF = Square Feet

[a] Trip generation for shopping centers/retail uses were calculated using the following equations:

Daily Rate: $Ln(T) = 0.643Ln(X) + 5.866$

AM Commuter Peak Hour Rate: $Ln(T) = 0.596Ln(X) + 2.329$

PM Commuter Peak Hour Rate: $Ln(T) = 0.660Ln(X) + 3.403$

Ln = Natural logarithm

T = Two-way volume of traffic (total trip ends)

X = Area in 1,000 gross square feet of leasable area

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TABLE 2
LONG-TERM/PROJECT BUILDOUT (15,000 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
1	50x100 Alley SF	SF Residential	11.00	68	5.00	651	13	38	51	44	25	69
1	55x80	SF Residential	16.90	97	4.40	928	18	55	73	63	35	98
1	Park	Park	1.10	-	-	22	1	0	1	1	1	2
					Subtotal for TAZ 1	*1,601*	*32*	*93*	*125*	*108*	*61*	*169*
2	55x100 Alley	SF Residential	8.40	44	5.50	421	8	25	33	28	16	44
2	65x100	SF Residential	11.25	39	6.50	373	7	22	29	25	14	39
2	100x150	SF Residential	11.25	21	15.00	201	4	12	16	13	8	21
2	Park	Park	1.10	-	-	22	1	0	1	1	1	2
2	Elementary School	Elementary School [a]	55	-	-	132	48	7	55	0	0	0
					Subtotal for TAZ 2	*1,149*	*68*	*66*	*134*	*67*	*39*	*106*
3	50x100 Alley	SF Residential	10.50	63	5.00	603	12	35	47	41	23	64
3	45x100	SF Residential	14.70	80	4.50	766	15	45	60	52	29	81
3	Triplex	SF Residential	3.25	18	-	172	4	10	14	12	6	18
3	Park	Park	0.95	-	-	19	1	0	1	1	1	2
					Subtotal for TAZ 3	*1,560*	*32*	*90*	*122*	*106*	*59*	*165*
4	55x100 Alley	SF Residential	10.60	38	5.50	364	7	22	29	24	14	38
4	Triplex	SF Residential	2.10	10	-	96	2	6	8	6	4	10
					Subtotal for TAZ 4	*460*	*9*	*28*	*37*	*30*	*18*	*48*
5	65x100	SF Residential	11.10	44	6.50	421	8	25	33	28	16	44
5	Triplex	SF Residential	2.71	14	-	134	3	8	11	9	5	14
5	Park	Park	0.50	-	-	10	0	0	0	1	0	1
					Subtotal for TAZ 5	*565*	*11*	*33*	*44*	*38*	*21*	*59*
6	100x150	SF Residential	22.70	47	15.00	450	9	26	35	30	17	47
6	Triplex	SF Residential	2.10	12	-	115	2	7	9	8	4	12
					Subtotal for TAZ 6	*565*	*11*	*33*	*44*	*38*	*21*	*59*

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TABLE 2 (Continued)
LONG-TERM/PROJECT BUILDOUT (15,000 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
7	Cluster SFD	SF Residential	16.79	245	-	2,345	46	138	184	158	89	247
					Subtotal for TAZ 7	*2,345*	*46*	*138*	*184*	*158*	*89*	*247*
8	45x75 Alley	SF Residential	23.20	144	3.375	1,378	27	81	108	93	52	145
8	Triplex	SF Residential	4.00	19	-	182	4	10	14	12	7	19
8	Park	Park	1.20	-	-	24	1	0	1	1	1	2
					Subtotal for TAZ 8	*1,584*	*32*	*91*	*123*	*106*	*60*	*166*
9	45x75 Alley	SF Residential	4.45	20	3.375	191	4	11	15	13	7	20
9	Triplex	SF Residential	2.00	11	-	105	2	6	8	7	4	11
					Subtotal for TAZ 9	*296*	*6*	*17*	*23*	*20*	*11*	*31*
10	45x100	SF Residential	16.30	88	4.50	842	17	49	66	57	32	89
10	Triplex	SF Residential	6.10	35	-	335	7	19	26	22	13	35
10	Townhomes	SF Residential	11.10	128	-	1,225	24	72	96	83	46	129
10	Park	Park	1.00	-	-	20	1	0	1	1	1	2
					Subtotal for TAZ 10	*2,422*	*49*	*140*	*189*	*163*	*92*	*255*
11	55x80	SF Residential	21.70	133	4.40	1,273	25	75	100	86	48	134
11	45x80	SF Residential	15.55	113	3.60	1,081	21	64	85	73	41	114
11	Auto-court (Centex 9A)	SF Residential	8.30	78	-	746	15	44	59	51	28	79
11	Park	Park	3.45	-	-	69	2	1	3	3	3	6
					Subtotal for TAZ 11	*3,169*	*63*	*184*	*247*	*213*	*120*	*333*
12	Auto-court (Centex 9A)	SF Residential	12.25	138	-	1,321	26	78	104	89	50	139
					Subtotal for TAZ 12	*1,321*	*26*	*78*	*104*	*89*	*50*	*139*
13	Townhomes (MBK Amerige Hts.)	SF Residential	10.90	160	-	1,531	30	90	120	104	58	162
					Subtotal for TAZ 13	*1,531*	*30*	*90*	*120*	*104*	*58*	*162*

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TABLE 2 (Continued)
LONG-TERM/PROJECT BUILDOUT (15,000 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
14	Apartments (Morgan Group)	Apartment	15.40	368	-	2,440	30	158	188	153	75	228
					Subtotal for TAZ 14	*2,440*	*30*	*158*	*188*	*153*	*75*	*228*
15	Live/Work (Village Ctr./KMP)	SF Residential	-	24	-	230	5	13	18	15	9	24
15	Retail	Shopping Center	-	-	70.00	5,420	79	50	129	238	258	496
	Pass-By Reduction (30%)	-	-	-	-	-1,626	-24	-15	-39	-71	-78	-149
	Net Trips	-	-	-	-	3,794	55	35	90	167	180	347
15	Supermarket	Supermarket	-	-	50.00	5,576	99	64	163	294	282	576
	Pass-By Reduction (30%)	-	-	-	-	-1,673	-30	-19	-49	-88	-85	-173
	Net Trips	-	-	-	-	3,903	69	45	114	206	197	403
					Subtotal for TAZ 15	*7,927*	*129*	*93*	*222*	*388*	*386*	*774*
16	Community Center	[b]	-	-	-	-	-	-	-	-	-	-
					Subtotal for TAZ 16	-	-	-	-	-	-	-
17	Chaffey College	Community College [c]	15,000	-	-	23,100	1,911	189	2,100	1,734	816	2,550
					Subtotal for TAZ 17	*23,100*	*1,911*	*189*	*2,100*	*1,734*	*816*	*2,550*
18	Ayala Park	City Park	119.20	-	-	2,384	48	47	95	96	95	191
					Subtotal for TAZ 18	*2,384*	*48*	*47*	*95*	*96*	*95*	*191*
TOTAL						54,419	2,533	1,568	4,101	3,611	2,071	5,682

LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 2 (Continued)
LONG-TERM/PROJECT BUILDOUT (15,000 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
BREAKDOWN BY LAND USE												
		Apartment	15.40	368	-	2,440	30	158	188	153	75	228
		Community College [c]	15,000 students		-	23,100	1,911	189	2,100	1,734	816	2,550
		Elementary School [a]	55 employees		-	132	48	7	55	0	0	0
		Park	9.30	-	-	186	7	1	8	9	8	17
		Regional Park	119.20	-	-	2,384	48	47	95	96	95	191
		SF Residential	291.20	1,931	77.15	18,480	365	1,086	1,451	1,246	700	1,946
		Shopping Center	-	-	70.00	3,794	55	35	90	167	180	347
		Supermarket	-	-	50.00	3,903	69	45	114	206	197	403
		TOTAL	-	-	-	**54,419**	**2,533**	**1,568**	**4,101**	**3,611**	**2,071**	**5,682**

Notes:

DU = Dwelling Unit

TSF = 1,000 square feet

SF Residential = Single-Family Residential

[a] Based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003), the elementary school is expected to have 55 employees.

[b] The Community Center is assumed to be part of the 119.20-acre regional park.

[c] Based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003), the expected enrollment for Chaffey College is 15,000 students.

LINSCOTT LAW & GREENSPAN ENGINEERS

TABLE 3
INTERSECTION PEAK HOUR LEVELS OF SERVICE
College Park, Chino

Key Intersections	Kaku Associates ID #	Peak Hour	Year 2025 Cumulative + Project: Unsignalized Level Of Service: Avg. Delay (sec/veh)	LOS	Poor LOS ?	Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Poor LOS ?	Year 2025 Cumulative + Project With Recommendations: Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Recommended Traffic Control and Lane Geometry [a]: Traffic Control	Intersection Geometry
External Intersections (located on periphery of the project site)												
1) Oaks Avenue @		AM	*	F	-	-	-	-	35.7	D	Add	See Exhibit H for Kaku's/LLG's Recommended Intersection Lane Geometry
Edison Avenue	22	PM	*	F	-	-	-	-	44.3	D	Signal	
2) Mountain Avenue @		AM	-	-	-	**	F	Yes	27.4	C	Modify	
Edison Avenue	24	PM	-	-	-	**	F	Yes	42.2	D	Signal	
3) Cypress Avenue @		AM	-	-	-	**	F	Yes	17.9	B	Modify	
Edison Avenue	25	PM	-	-	-	18.8	B	-	9.6	A	Signal	
4) San Antonio Avenue @		AM	-	-	-	**	F	Yes	23.2	C	Modify	
Edison Avenue	26	PM	-	-	-	**	F	Yes	37.5	D	Signal	
5) Central Avenue @		AM	[b]	[b]	[b]	[b]	[b]	[b]	21.9	C	Develop	
"A" Street	29	PM	[b]	[b]	[c]	[b]	[b]	[b]	46.5	D	Intersection With Signal	
6) Euclid Avenue @		AM	*	F	Yes	-	-	-	38.2	D	Add	
Eucalyptus Avenue	31	PM	*	F	Yes	-	-	-	44.6	D	Signal	
Internal Intersections (located within the project site)												
7) Oaks Avenue @		AM	34.8/12.3	D/B	-	-	-	-	13.7	B		See Exhibit H for LLG's Recommended Intersection Lane Geometry
"Arched" Street [c]	-	PM	*/23.2	F/ C	Yes	-	-	-	19.0	B	Signal	
8) College Road @		AM	*/20.6	F/C	Yes	-	-	-	21.7	C		
"A" Street [c]	-	PM	*/*	F/F	Yes	-	-	-	25.6	C	Signal	
9) North (A) Lot-Central Lot @		AM	16.5	C	-	-	-	-	-	-		
"A" Street	-	PM	31.3	D	-	-	-	-	-	-	2-Way Stop	
10) Oaks Ave.-Eucalyptus Ave. @		AM	18.6/12.6	C/B	-	-	-	-	16.3	B		
"A" Street [c]	-	PM	*/24.6	F/D	Yes	-	-	-	20.7	C	Signal	
11) Mountain Avenue @		AM	12.3	B	-	-	-	-	-	-	Side Street	
"School" North	-	PM	11.4	B	-	-	-	-	-	-	Stop	

LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 3 (Continued)
INTERSECTION PEAK HOUR LEVELS OF SERVICE
College Park, Chino

Key Intersections	Kaku Associates ID #	Peak Hour	Year 2025 Cumulative + Project: Unsignalized Level Of Service: Avg. Delay (sec/veh)	LOS	Poor LOS ?	Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Poor LOS ?	Year 2025 Cumulative + Project With Recommendations: Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Recommended Traffic Control and Lane Geometry [a]: Traffic Control	Intersection Geometry
12) Eucalyptus Avenue @		AM	13.5	B	-	-	-	-	-	-	Side Street	See Exhibit H for LLG's Recommended Intersection Lane Geometry
"B" Street [c]	-	PM	19.4	C	-	-	-	-	-	-	Stop	
13) "Arched" Street @		AM	9.9	A	-	-	-	-	-	-	Side Street	
"B" Street	-	PM	11.8	B	-	-	-	-	-	-	Stop	
14) Mountain Avenue @		AM	14.5	B	-	-	-	-	-	-	Side Street	
"B" Street	-	PM	11.7	B	-	-	-	-	-	-	Stop	
15) Mountain Avenue @		AM	10.7	B	-	-	-	-	-	-	Side Street	
"School" South	-	PM	11.7	B	-	-	-	-	-	-	Stop	
16) Eucalyptus Avenue @		AM	30.9/14.2	D/B	-	-	-	-	24.2	C		
College Road [c]	-	PM	*/20.9	F/C	Yes	-	-	-	35.3	D	Signal	
17) Mountain Avenue @		AM	24.9/12.6	C/B	-	-	-	-	15.5	B		
Eucalyptus Avenue [c]	-	PM	*/15.7	F/C	Yes	-	-	-	16.4	B	Signal	
18) San Antonio Avenue @		AM	21.9	C	-	-	-	-	-	-		
Eucalyptus Avenue	-	PM	14.8	B	-	-	-	-	-	-	2-Way Stop	
19) "D" Street @		AM	16.0	C	-	-	-	-	-	-	Side Street	
Eucalyptus Avenue	-	PM	28.2	D	-	-	-	-	-	-	Stop	
20) Southwest Lot @		AM	33.8/14.5	D/B	-	-	-	-	17.0	B		
College Road [c]	-	PM	*/26.1	F/D	Yes	-	-	-	22.3	C	Signal	
21) Southeast Lot @		AM	24.2/13.9	C/B	-	-	-	-	20.3	C		
College Road [c]	-	PM	*/16.0	F/C	Yes	-	-	-	21.3	C	Signal	
22) "C" Street @		AM	15.8	C	-	-	-	-	-	-	Side Street	
College Road	-	PM	19.4	C	-	-	-	-	-	-	Stop	

Notes:

* Overloaded conditions; average delay for unsignalized intersection is greater than 50 seconds per vehicle.

** Overloaded conditions; average delay for signalized intersection is greater than 80 seconds per vehicle.

[a] Intersection improvements based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003).

[b] Intersection currently does not exist.

[c] Average delays (sec/veh) shown are for 2-way stop control/4-way stop control.

LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 4
NEAR-TERM (3,500 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
1	50x100 Alley SF	SF Residential	11.00	68	5.00	651	13	38	51	44	25	69
1	55x80	SF Residential	16.90	97	4.40	928	18	55	73	63	35	98
1	Park	Park	1.10	-	-	22	1	0	1	1	1	2
					Subtotal for TAZ 1	*1,601*	*32*	*93*	*125*	*108*	*61*	*169*
2	55x100 Alley	SF Residential	8.40	44	5.50	421	8	25	33	28	16	44
2	65x100	SF Residential	11.25	39	6.50	373	7	22	29	25	14	39
2	100x150	SF Residential	11.25	21	15.00	201	4	12	16	13	8	21
2	Park	Park	1.10	-	-	22	1	0	1	1	1	2
2	Elementary School	Elementary School [a]	55	-	-	132	48	7	55	0	0	0
					Subtotal for TAZ 2	*1,149*	*68*	*66*	*134*	*67*	*39*	*106*
3	50x100 Alley	SF Residential	10.50	63	5.00	603	12	35	47	41	23	64
3	45x100	SF Residential	14.70	80	4.50	766	15	45	60	52	29	81
3	Triplex	SF Residential	3.25	18	-	172	4	10	14	12	6	18
3	Park	Park	0.95	-	-	19	1	0	1	1	1	2
					Subtotal for TAZ 3	*1,560*	*32*	*90*	*122*	*106*	*59*	*165*
4	55x100 Alley	SF Residential	10.60	38	5.50	364	7	22	29	24	14	38
4	Triplex	SF Residential	2.10	10	-	96	2	6	8	6	4	10
					Subtotal for TAZ 4	*460*	*9*	*28*	*37*	*30*	*18*	*48*
5	65x100	SF Residential	11.10	44	6.50	421	8	25	33	28	16	44
5	Triplex	SF Residential	2.71	14	-	134	3	8	11	9	5	14
5	Park	Park	0.50	-	-	10	0	0	0	1	0	1
					Subtotal for TAZ 5	*565*	*11*	*33*	*44*	*38*	*21*	*59*
6	100x150	SF Residential	22.70	47	15.00	450	9	26	35	30	17	47
6	Triplex	SF Residential	2.10	12	-	115	2	7	9	8	4	12
					Subtotal for TAZ 6	*565*	*11*	*33*	*44*	*38*	*21*	*59*

LINSCOTT LAW & GREENSPAN ENGINEERS

TABLE 4 (Continued)
NEAR-TERM (3,500 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
7	Cluster SFD	SF Residential	16.79	245	-	2,345	46	138	184	158	89	247
					Subtotal for TAZ 7	*2,345*	*46*	*138*	*184*	*158*	*89*	*247*
8	45x75 Alley	SF Residential	23.20	144	3.375	1,378	27	81	108	93	52	145
8	Triplex	SF Residential	4.00	19	-	182	4	10	14	12	7	19
8	Park	Park	1.20	-	-	24	1	0	1	1	1	2
					Subtotal for TAZ 8	*1,584*	*32*	*91*	*123*	*106*	*60*	*166*
9	45x75 Alley	SF Residential	4.45	20	3.375	191	4	11	15	13	7	20
9	Triplex	SF Residential	2.00	11	-	105	2	6	8	7	4	11
					Subtotal for TAZ 9	*296*	*6*	*17*	*23*	*20*	*11*	*31*
10	45x100	SF Residential	16.30	88	4.50	842	17	49	66	57	32	89
10	Triplex	SF Residential	6.10	35	-	335	7	19	26	22	13	35
10	Townhomes	SF Residential	11.10	128	-	1,225	24	72	96	83	46	129
10	Park	Park	1.00	-	-	20	1	0	1	1	1	2
					Subtotal for TAZ 10	*2,422*	*49*	*140*	*189*	*163*	*92*	*255*
11	55x80	SF Residential	21.70	133	4.40	1,273	25	75	100	86	48	134
11	45x80	SF Residential	15.55	113	3.60	1,081	21	64	85	73	41	114
11	Auto-court (Centex 9A)	SF Residential	8.30	78	-	746	15	44	59	51	28	79
11	Park	Park	3.45	-	-	69	2	1	3	3	3	6
					Subtotal for TAZ 11	*3,169*	*63*	*184*	*247*	*213*	*120*	*333*
12	Auto-court (Centex 9A)	SF Residential	12.25	138	-	1,321	26	78	104	89	50	139
					Subtotal for TAZ 12	*1,321*	*26*	*78*	*104*	*89*	*50*	*139*
13	Townhomes (MBK Amerige Hts.)	SF Residential	10.90	160	-	1,531	30	90	120	104	58	162
					Subtotal for TAZ 13	*1,531*	*30*	*90*	*120*	*104*	*58*	*162*

LINSCOTT LAW & GREENSPAN ENGINEERS

TABLE 4 (Continued)
NEAR-TERM (3,500 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
14	Apartments (Morgan Group)	Apartment	15.40	368	-	2,440	30	158	188	153	75	228
					Subtotal for TAZ 14	*2,440*	*30*	*158*	*188*	*153*	*75*	*228*
15	Live/Work (Village Ctr./KMP)	SF Residential	-	24	-	230	5	13	18	15	9	24
15	Retail	Shopping Center	-	-	70.00	5,420	79	50	129	238	258	496
	Pass-By Reduction (30%)	-	-	-	-	-1,626	-24	-15	-39	-71	-78	-149
	Net Trips	-	-	-	-	3,794	55	35	90	167	180	347
15	Supermarket	Supermarket	-	-	50.00	5,576	99	64	163	294	282	576
	Pass-By Reduction (30%)	-	-	-	-	-1,673	-30	-19	-49	-88	-85	-173
	Net Trips	-	-	-	-	3,903	69	45	114	206	197	403
					Subtotal for TAZ 15	*7,927*	*129*	*93*	*222*	*388*	*386*	*774*
16	Community Center	[b]	-	-	-	-	-	-	-	-	-	-
					Subtotal for TAZ 16	-	-	-	-	-	-	-
17	Chaffey College	Community College [c]	3,500	-	-	5,390	446	44	490	405	190	595
					Subtotal for TAZ 17	*5,390*	*446*	*44*	*490*	*405*	*190*	*595*
18	Ayala Park	City Park	119.20	-	-	2,384	48	47	95	96	95	191
					Subtotal for TAZ 18	*2,384*	*48*	*47*	*95*	*96*	*95*	*191*
TOTAL						**36,709**	**1,068**	**1,423**	**2,491**	**2,282**	**1,445**	**3,727**

LINSCOTT LAW & GREENSPAN ENGINEERS

TABLE 4 (Continued)
NEAR-TERM (3,500 Students at Chaffey College)
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION						Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Project Component	Land Use	Acres	DU	TSF	Trips	In	Out	Total	In	Out	Total
BREAKDOWN BY LAND USE												
		Apartment	15.40	368	-	2,440	30	158	188	153	75	228
		Community College [c]	3,500 students		-	5,390	446	44	490	405	190	595
		Elementary School [a]	55 employees		-	132	48	7	55	0	0	0
		Park	9.30	-	-	186	7	1	8	9	8	17
		Regional Park	119.20	-	-	2,384	48	47	95	96	95	191
		SF Residential	291.20	1,931	77.15	18,480	365	1,086	1,451	1,246	700	1,946
		Shopping Center	-	-	70.00	3,794	55	35	90	167	180	347
		Supermarket	-	-	50.00	3,903	69	45	114	206	197	403
		TOTAL	**-**	**-**	**-**	**36,709**	**1,068**	**1,423**	**2,491**	**2,282**	**1,445**	**3,727**

Notes:

DU = Dwelling Unit

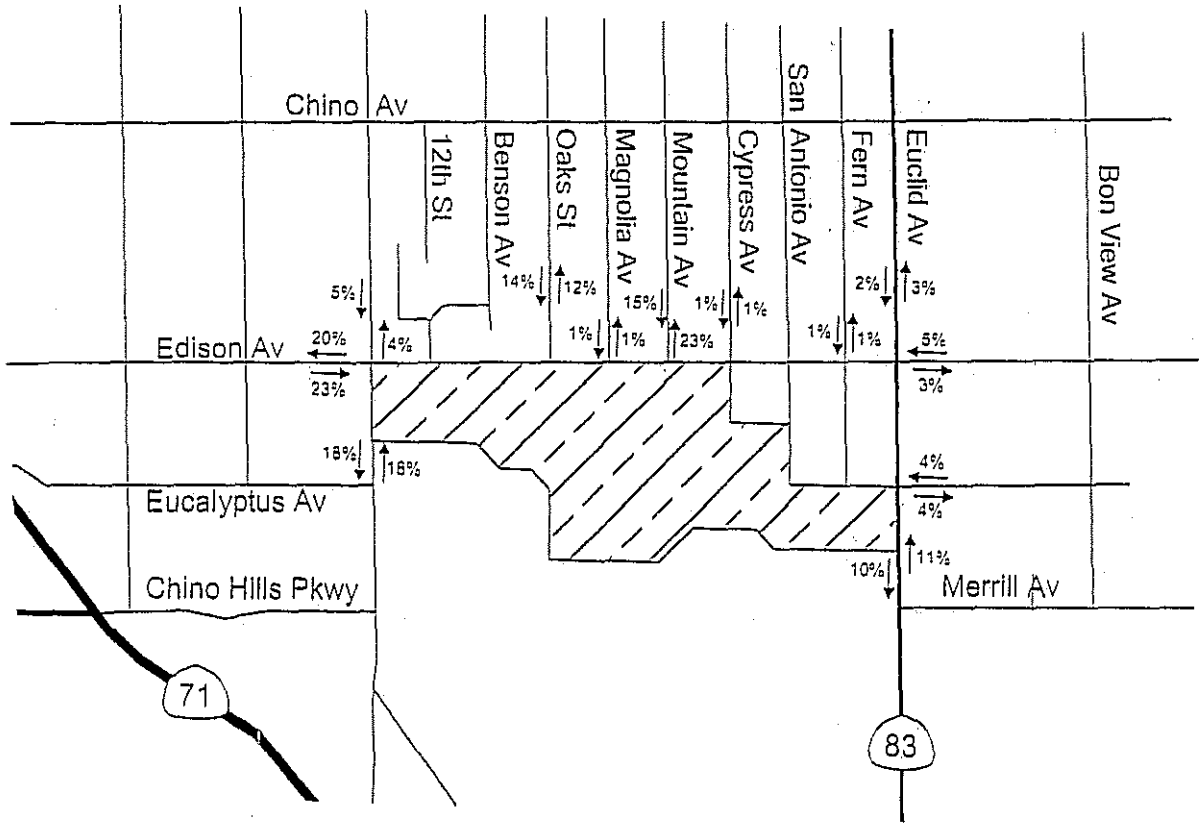
TSF = 1,000 square feet

SF Residential = Single-Family Residential

[a] Based upon the DEIR's traffic study (prepared by Kaku Associates, Inc. in April 2003), the elementary school is expected to have 55 employees.

[b] The Community Center is assumed to be part of the 119.20-acre regional park.

[c] The expected enrollment at Chaffey College in the near term is 3,500 students.



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

SOURCE: DEIR TRAFFIC STUDY
KAKU ASSOCIATES, INC.
(APRIL 2003)

EXHIBIT A

PROJECT TRIP DISTRIBUTION
COLLEGE PARK, CHINO

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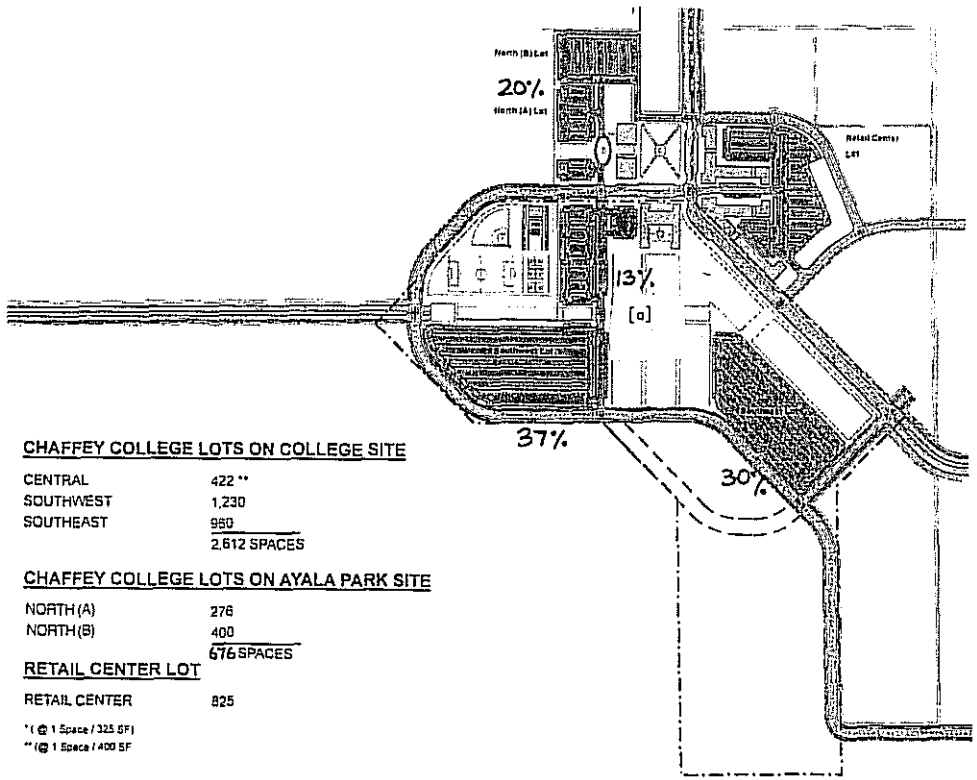

CHAFFEY COLLEGE LOTS ON COLLEGE SITE

CENTRAL	422 **
SOUTHWEST	1,230
SOUTHEAST	960
	2,612 SPACES

CHAFFEY COLLEGE LOTS ON AYALA PARK SITE

NORTH (A)	276
NORTH (B)	400
	676 SPACES

RETAIL CENTER LOT

RETAIL CENTER	825

* (@ 1 Space / 325 SF)
** (@ 1 Space / 400 SF

NOTE:
[a] NO CONNECTION BETWEEN CENTRAL LOT AND SOUTHWEST LOT IS PRESUMED IN LLG STUDY.

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N NO SCALE

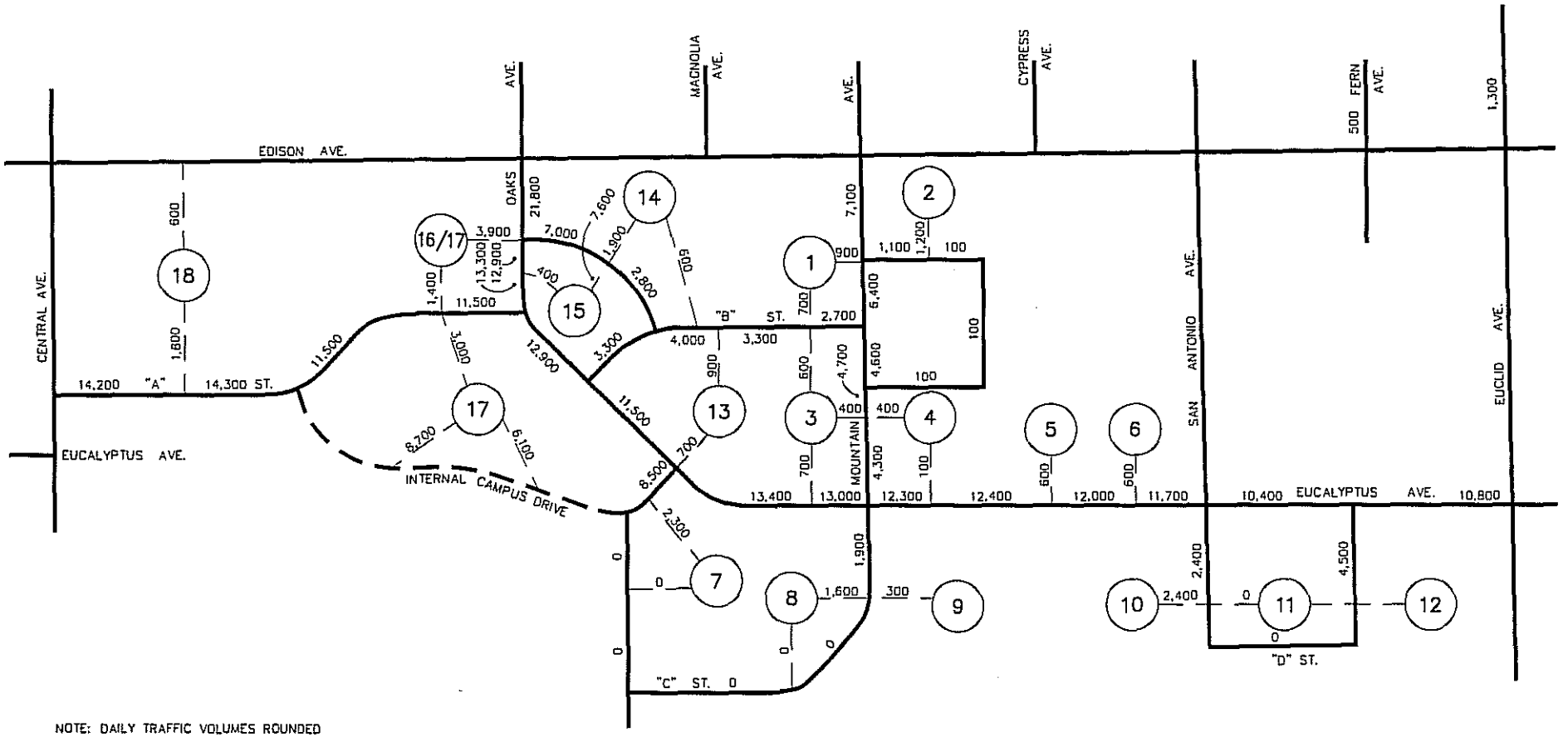
LINSCOTT LAW & GREENSPAN ENGINEERS

SOURCE: CHAFFEY COLLEGE CHINO CAMPUS MASTER PLAN 2004 (SEPT. 2003)

EXHIBIT B

CHAFFEY COLLEGE TRIP DISTRIBUTION BASED ON PARKING LAYOUT

COLLEGE PARK, CHINO



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

- (18) = TRAFFIC ANALYSIS ZONE (TAZ)
- = EXISTING/PROPOSED ROADWAY
- = INTERNAL CHAFFEY COLLEGE CAMPUS DRIVE
- = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT C

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
BASELINE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO

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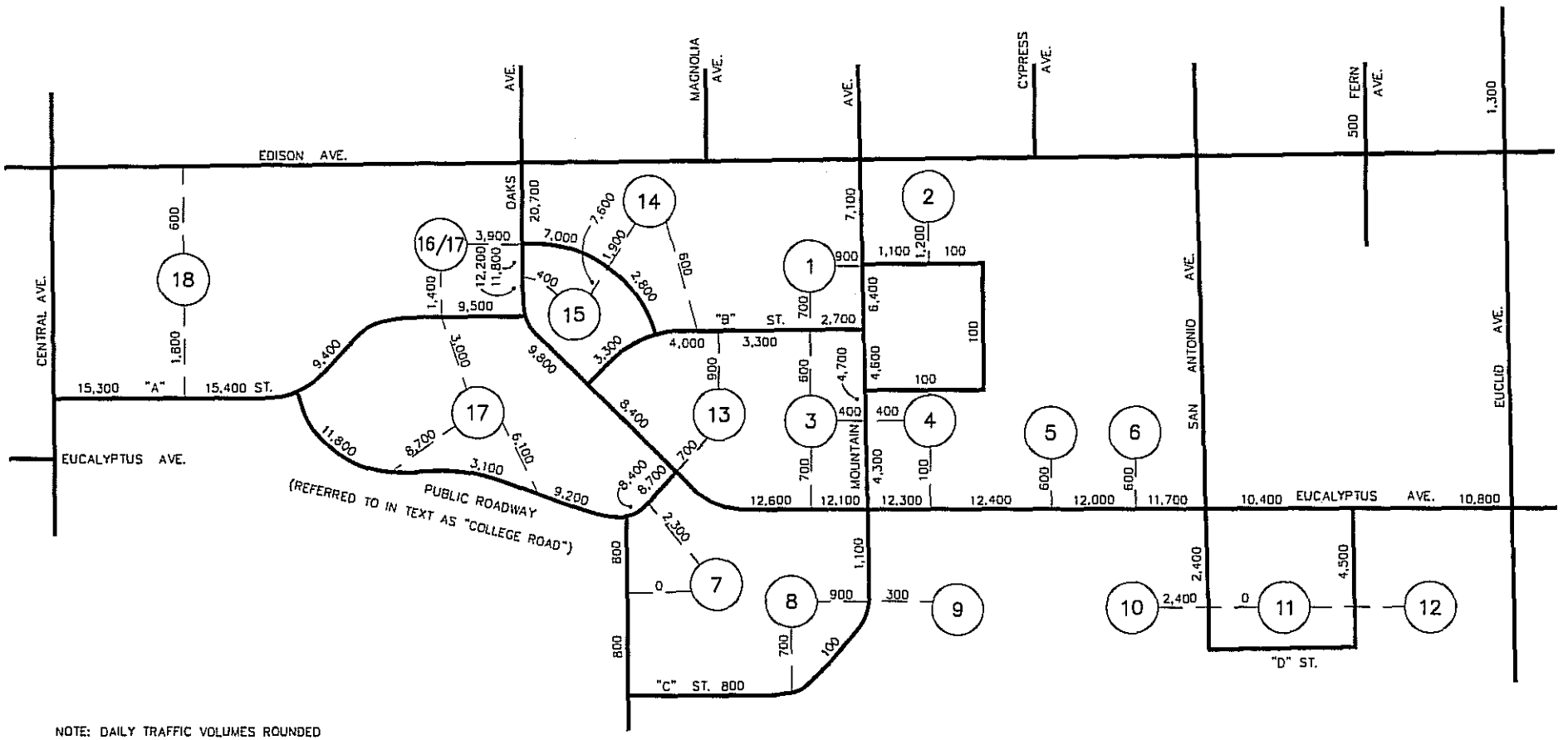

NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

(18) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT D

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
ALTERNATIVE INTERNAL STREET SYSTEM
COLLEGE PARK, CHINO

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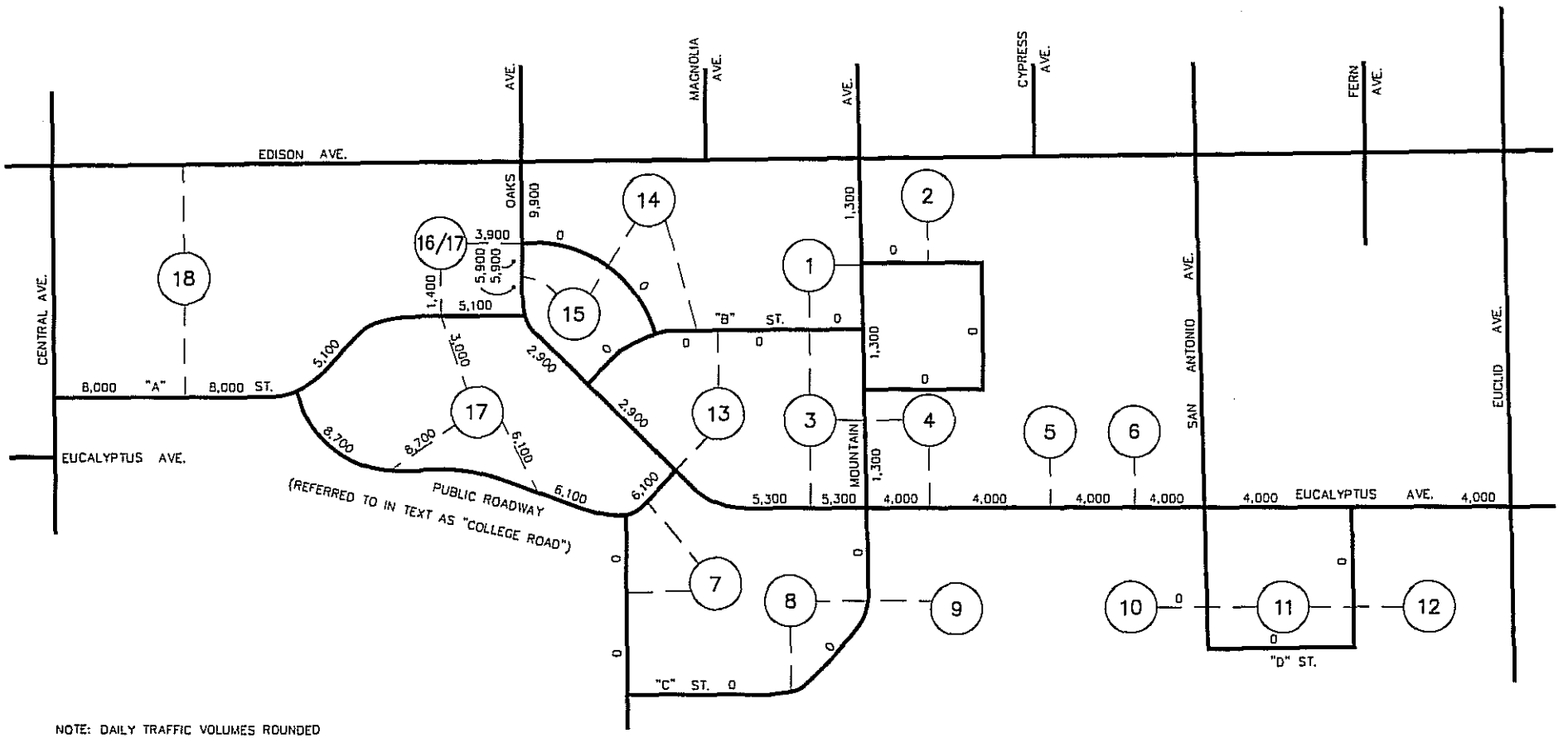

NOTE: DAILY TRAFFIC VOLUMES ROUNDED TO NEAREST 100 VEHICLES

N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

(18) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT E

COLLEGE ONLY (15,000 STUDENTS)

DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES

ALTERNATIVE INTERNAL STREET SYSTEM

COLLEGE PARK, CHINO

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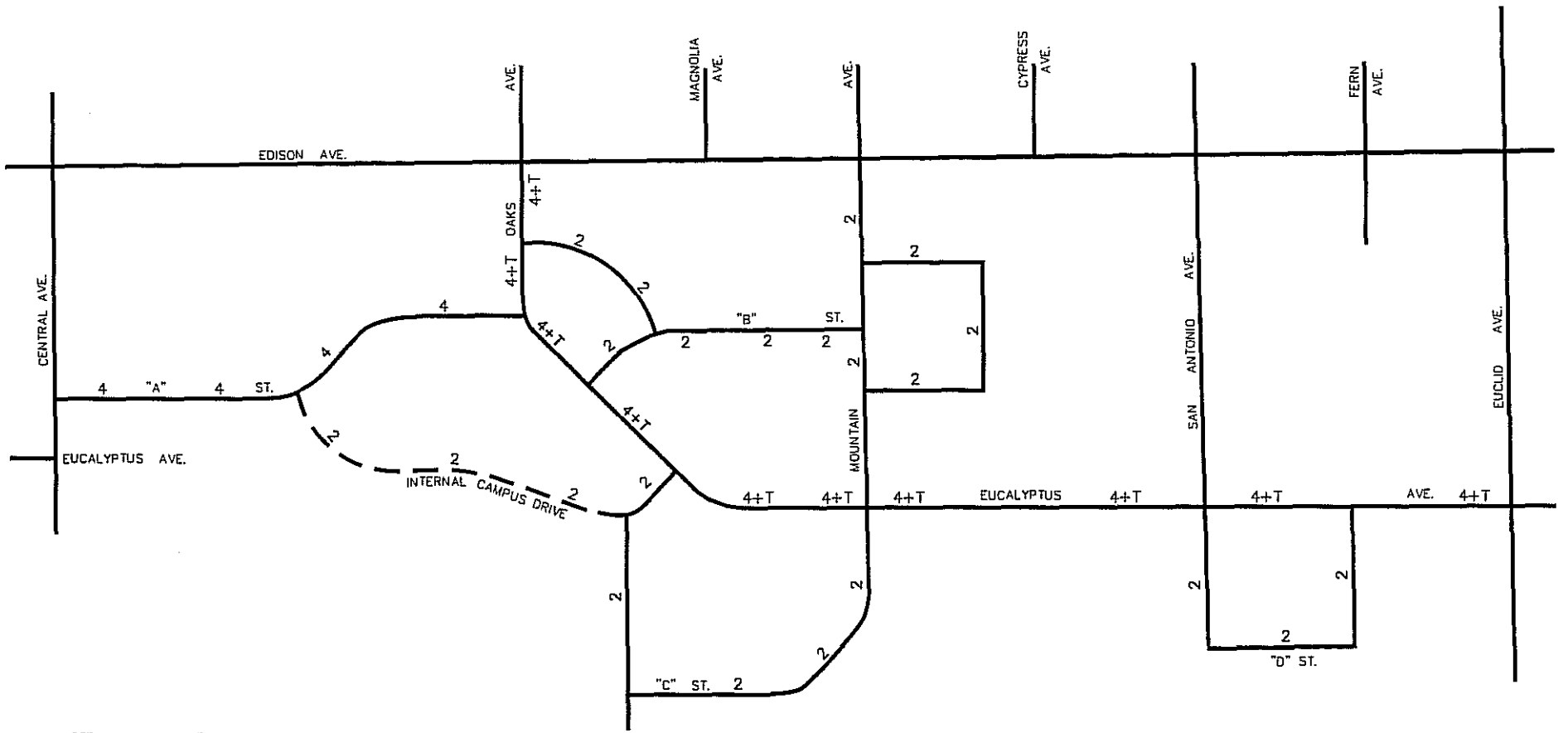

NOTE: AUXILIARY LANE NEEDS
(I.E., RIGHT-TURN AND LEFT-TURN LANES)
AT INTERSECTIONS ARE NOT SHOWN
ON THIS EXHIBIT

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NO SCALE

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

KEY

X = NUMBER OF MID-BLOCK "THROUGH" LANES;
TURNING LANES, WHERE NEEDED WOULD BE ADDITIONAL

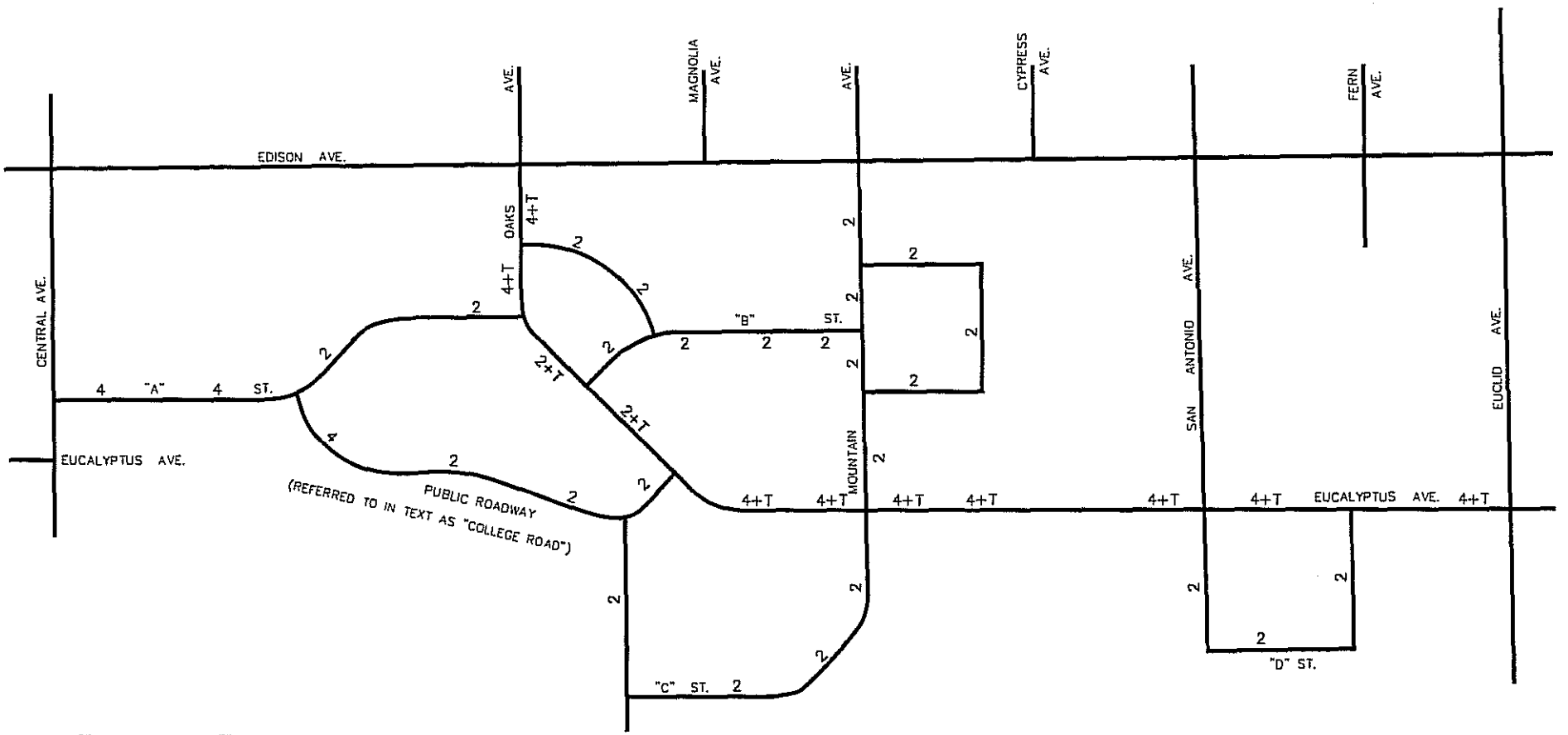
T = TRANSIT LANE

= EXISTING/PROPOSED ROADWAY

= INTERNAL CAMPUS DRIVE; NOT A PUBLIC STREET

EXHIBIT F

BASELINE INTERNAL STREET SYSTEM
INTERNAL CIRCULATION RECOMMENDATIONS
(NETWORK AND MID-BLOCK TRAVEL LANES)
COLLEGE PARK, CHINO



NOTE: AUXILIARY LANE NEEDS
(I.E., RIGHT-TURN AND LEFT-TURN LANES)
AT INTERSECTIONS ARE NOT SHOWN
ON THIS EXHIBIT

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N NO SCALE

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

KEY

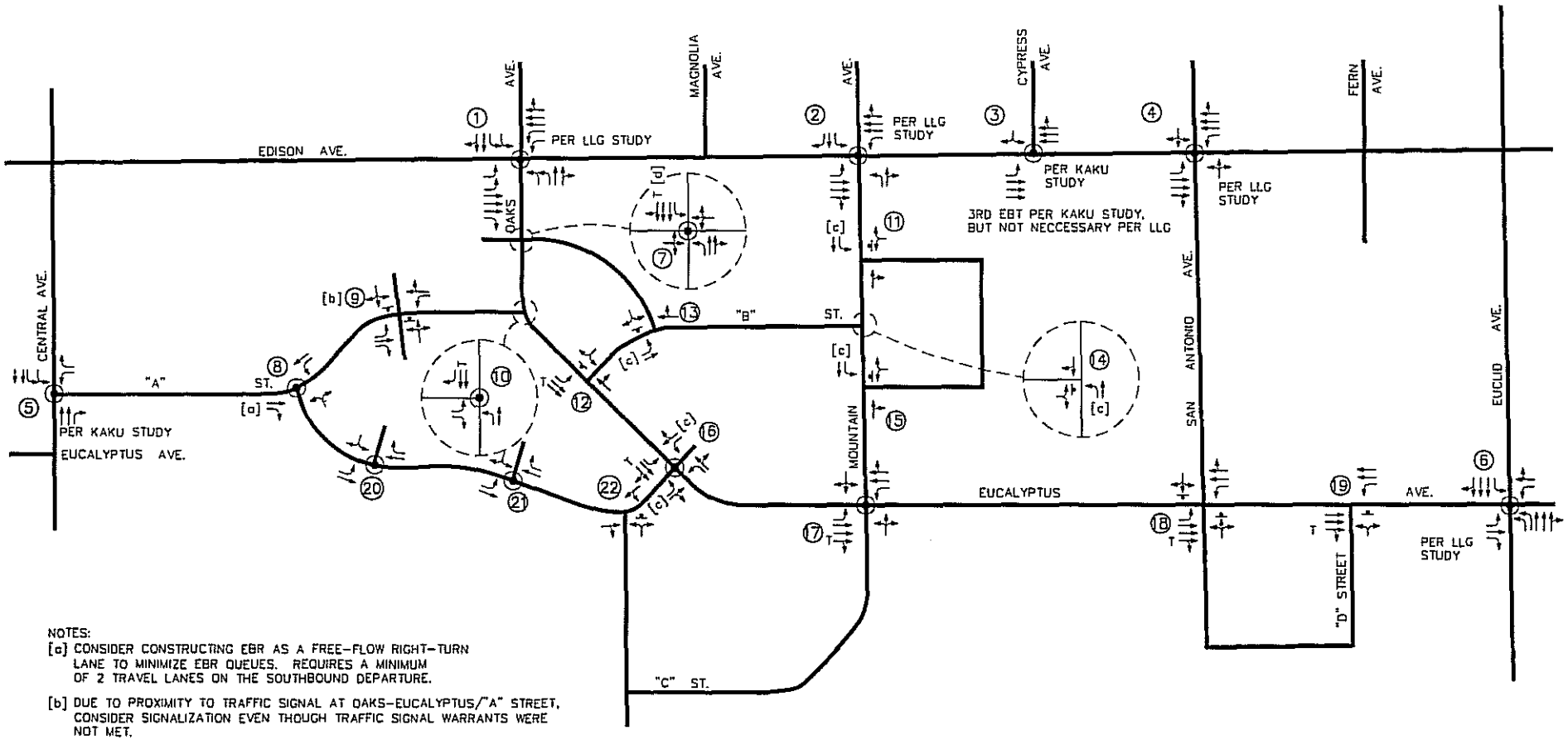
X = NUMBER OF MID-BLOCK "THROUGH" LANES;
TURNING LANES, WHERE NEEDED WOULD BE ADDITIONAL

T = TRANSIT LANE

= EXISTING/PROPOSED ROADWAY

EXHIBIT G

ALTERNATIVE INTERNAL STREET SYSTEM
INTERNAL CIRCULATION RECOMMENDATIONS
(NETWORK AND MID-BLOCK TRAVEL LANES)
COLLEGE PARK, CHINO



NOTES:

[a] CONSIDER CONSTRUCTING EBR AS A FREE-FLOW RIGHT-TURN LANE TO MINIMIZE EBR QUEUES. REQUIRES A MINIMUM OF 2 TRAVEL LANES ON THE SOUTHBOUND DEPARTURE.

[b] DUE TO PROXIMITY TO TRAFFIC SIGNAL AT OAKS-EUCALYPTUS/"A" STREET, CONSIDER SIGNALIZATION EVEN THOUGH TRAFFIC SIGNAL WARRANTS WERE NOT MET.

[c] EXCLUSIVE LEFT-TURN LANES ARE NOT REQUIRED TO ACHIEVE ACCEPTABLE LOS, BUT ARE RECOMMENDED.

[d] TRANSIT LANE WILL ALSO FUNCTION AS A RIGHT-TURN LANE FOR ALL TRAFFIC AT ALL CROSS STREETS, BUT ONLY TRANSIT VEHICLES WILL BE PERMITTED A THROUGH MOVEMENT.

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N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

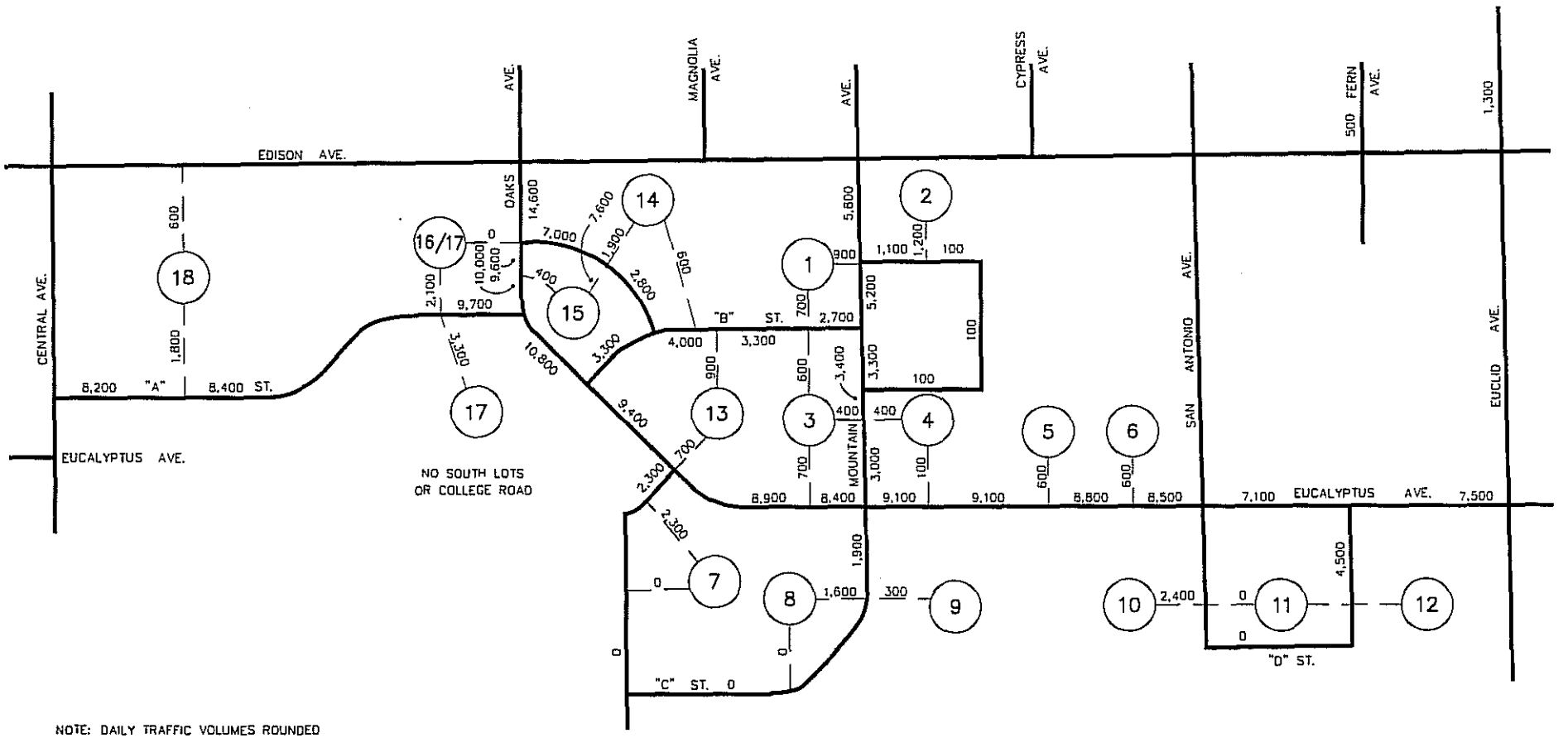
KEY

= EXISTING/PROPOSED ROADWAY
T = TRANSIT LANE
22 = KEY INTERSECTION
= TRAFFIC SIGNAL
= STOP SIGN
= APPROACH LANE

EXHIBIT H

RECOMMENDED INTERSECTION GEOMETRY AND TRAFFIC CONTROL

COLLEGE PARK, CHINO



KEY

(18) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

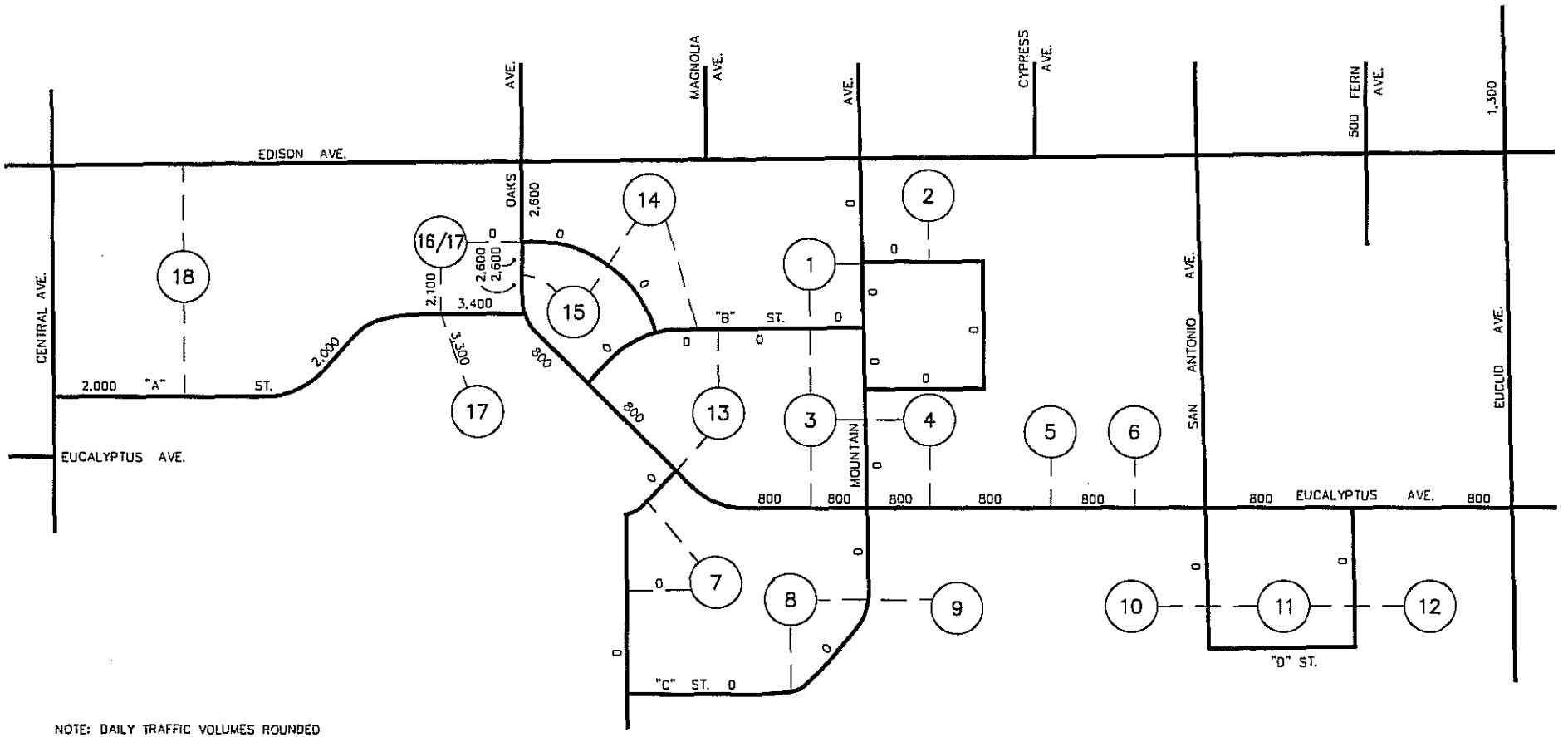
= CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

EXHIBIT I

NEAR-TERM ANALYSIS (3,500 STUDENTS AT CHAFFEY COLLEGE)
DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
COLLEGE PARK, CHINO



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

(18) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT J

COLLEGE ONLY (3,500 STUDENTS) NEAR-TERM ANALYSIS
DAILY (24-HOUR; TWO-WAY) PROJECT-GENERATED TRAFFIC VOLUMES
COLLEGE PARK, CHINO

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APPENDIX R

PHASE 1 TRAFFIC ANALYSIS, COLLEGE PARK, CHINO

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

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William A. Law, P.E. (Ret.)
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May 5, 2004

Mr. Stan Brown
SUNCAL COMPANIES
2392 Morse Avenue
Irvine, CA 92614

LLG Reference: 2032461-1

Subject: ***REVISED (FINAL)***
PHASE 1 TRAFFIC ANALYSIS
COLLEGE PARK, CHINO

Dear Mr. Brown:

In response to comments from City staff on our prior study dated April 7, 2004, Linscott, Law & Greenspan, Engineers (LLG) is pleased to present this updated evaluation of the transportation infrastructure needs for Phase 1 of the College Park project in the City of Chino, California. As requested by City staff, this study update modifies the project trip distribution assumptions in the EIR to reflect a more refined traffic distribution pattern for the residential component (excluding Chaffey College) in Phase 1. **Attachment 1** illustrates the revised trip distribution percentages applied to the residential component of this study. This is a mark-up of the ultimate distribution pattern from the EIR

Based on absorption information provided by the SunCal team, Phase 1 is expected to be completed and fully occupied by the Year 2011, and includes the following two components:

- **Residential (SunCal properties):** 841 single-family dwelling units, corresponding to 35% of the 2,375 total dwelling units originally planned for project buildout (note that subsequent project refinements have reduced this total to 2,200 units). These 841 units are located east of the Cypress Channel. Phase 1 also includes 4.95 acres of neighborhood parks.

- **Chaffey College:** A precise enrollment for the College in the Year 2011 is not known. Our Phase 1 analysis presumes an enrollment of 7,500 students at Chaffey College in that timeframe; this enrollment level is consistent with what was evaluated in the EIR's traffic study (prepared by Kaku Associates, April 2003) for the horizon year of Year 2012. Given the uncertainty of the increase of College enrollment, our analysis is sequenced to first consider only the residential component, and then further add College traffic volumes.

This Phase 1 evaluation re-utilizes the study methodology employed for evaluating the Year 2025 long-term/buildout conditions for College Park, as previously documented in our *Internal Circulation and Roundabout Study for College Park* dated March 26, 2004. The analysis of Phase 1 conditions resulted in recommended intersection geometry and traffic control for 9 key intersections located along the periphery of the project site, and 4 key intersections located within the project limits, under the near-term conditions of Year 2011.

Although this analysis evaluated five different network scenarios (i.e., Scenarios A through E), we have concluded that the provision of the following internal street system (along with the suggested minimum intersection lane geometries and traffic controls) would adequately serve the circulation needs of the project upon the completion of Phase 1 in the Year 2011:

- **Residential Only:** At the minimum, the internal street system that would be required to support the 841 dwelling units planned in Phase 1 corresponds to Scenario A of this study. As illustrated on **Exhibits 1** through **4** (to be discussed in subsequent sections of this report), Scenario A presumes a "baseline" internal network for the residential component of the project that is comprised of the following roadways:

  - San Antonio Avenue between Edison Avenue and Eucalyptus Avenue (existing roadway)
  - Fern Avenue between Edison Avenue and Eucalyptus Avenue (existing and recently repaved roadway)
  - Eucalyptus Avenue between Euclid Avenue and just east of the Cypress Channel
  - "D" Street forming a loop road south of Eucalyptus Avenue, as a southerly extension of San Antonio Avenue, and intersecting Eucalyptus Avenue again just east of Fern Avenue

  For Scenario A, **Exhibit 3** illustrates the mid-block travel lanes needed, and **Exhibit 4** depicts the recommended intersection geometry and traffic controls for the 13 key intersections evaluated for Phase 1. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments. The implementation of the Scenario A internal street system and the intersection recommendations would result in acceptable levels of service (LOS D or better) at the 9 "external" intersections and 4 "internal" intersections during the AM and PM peak hours under Phase 1 conditions with the residential component (without the College).

- **Residential and Chaffey College:** At the minimum, the internal street system that would be required to support the 841 dwelling units planned in Phase 1, plus the 7,500-student near-term enrollment at Chaffey College, corresponds to Scenario D of this study. As illustrated on **Exhibits 7** through **10** (to be discussed in latter sections of this study), Scenario D presumes the same Scenario A "baseline" internal network for the residential component (described above), but adds the following roadways that would provide access to/from Chaffey College:

- Southerly extension of Oaks Avenue into the site from Edison Avenue
- "A" Street between Central Avenue and Oaks Avenue

For Scenario D, **Exhibit 9** illustrates the mid-block travel lanes needed, and **Exhibit 10** shows the suggested intersection geometry and traffic controls for the 13 key intersections evaluated for Phase 1. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments. The implementation of the Scenario D internal network and the intersection recommendations would result in acceptable levels of service (LOS D or better) at the 9 "external" intersections and 4 "internal" intersections during the AM and PM peak hours under Phase 1 conditions with both the residential and College components.

The findings outlined above result from the following analytical steps:

a) **Table 1** summarizes the trip generation rates applied to the project components for Phase 1. These are consistent with prior studies.

b) **Table 2** presents the trip generation estimates for Phase 1. This information establishes the project condition for Year 2011. Phase 1 is comprised of 841 single-family dwelling units, and an enrollment of 7,500 students at Chaffey College. The traffic needs of these two basic components are evaluated sequentially, with the first step being an analysis of the needs for only the residential component. There are also several small parks (totaling 4.95 acres) located throughout the Phase 1 planning areas. As indicated in **Table 2**, it is estimated that on a typical weekday, Phase 1 would generate approximately 19,699 daily trips, 1,685 AM peak hour trips, and 2,132 PM peak hour trips. For the residential component above, forecast trips total 631 trips in the AM peak hour, 848 trips in the PM peak hour, and 8,050 trips per day on a typical weekday. Park trips are negligible. College trips in Phase 1 far exceed those of residential and the parks, especially in the peak hours.

c) As requested by City staff, this study update modifies the project trip distribution assumptions in the EIR to reflect a more refined traffic distribution pattern for the residential component (excluding Chaffey College) in Phase 1. **Attachment 1** illustrates the revised trip distribution percentages applied to the residential component of this study. The original project trip distribution pattern used in the EIR was applied to Chaffey College in Phase 1.

d) **Table 3** presents the Year 2011 level of service (LOS) analysis at 9 "external" intersections and 4 "internal" intersections. Year 2011 Cumulative + Project volumes were estimated by expanding existing counts by 4.34% per year (growth derived from the EIR's traffic study), and layering on our Phase 1 project-generated forecasts. As discussed above, Phase 1 trips for the residential component were distributed based on a refined distribution pattern per City staff comments, and Phase 1 trips for Chaffey College were distributed based on the

EIR's general traffic distribution pattern. **Table 3** also indicates the recommended traffic control at each of the key intersections. The recommendations for the installation of traffic signals at Intersections #8 (Central/"A") and #9 (Euclid/Eucalyptus) under Year 2011 Phase 1 conditions are consistent with the suggested improvements indicated in the EIR's traffic study for Year 2012 conditions.

e) **Exhibits 1** and **2** depict the project-generated traffic volumes for the residential component only (without the College) during the AM and PM peak hours, respectively, at the key intersections for Scenario A.

f) **Exhibit 3** illustrates the daily project-generated traffic volumes for the residential component only (without the College) and the number of mid-block travel lanes for Scenario A. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments under Scenario A.

g) As indicated on **Exhibit 3**, Phase 1-generated daily traffic volumes for the residential component only (without the College) along San Antonio Avenue and Fern Avenue (between Edison Avenue and Eucalyptus Avenue) total 2,400 trips and 1,200 trips, respectively. These two roadway segments exist, are currently built and paved to at least "collector street" standards, and have street widths of up to 45 feet. There are five residential driveways that take direct access off the San Antonio segment (four residential driveways exist on the east side of San Antonio, north of Eucalyptus; one driveway exists on the west side of the street, south of Edison). There is one residential driveway located on Fern, immediately south of Edison. Also, Fern Avenue has been designated as a "secondary arterial" in the City's Master Plan of Arterials in the General Plan Circulation Element. Based on LLG's recent traffic counts (collected on Tuesday, April 6, 2004), the existing daily traffic volumes along the San Antonio Avenue and Fern Avenue segments total 1,200 trips and 300 trips, respectively. Adding the Phase 1-generated traffic volumes to the existing volumes on the two segments yields Existing + Phase 1 daily traffic volumes of 3,600 trips along San Antonio Avenue and 1,500 trips along Fern Avenue. These total daily traffic volumes are consistent with other collector street volumes (i.e., roadway capacities are typically 12,500 trips per day for two-lane collector streets, and 25,000 trips per day for four-lane secondary streets).

h) **Exhibit 4** presents a summary of the recommended lane geometry and traffic control at each of the key intersections for Scenario A. The lane geometries illustrated on **Exhibit 4** correspond to the minimum number of turn lanes and through lanes needed at each intersection approach to achieve an acceptable level of service for Scenario A, and are generally fewer lanes than those recommended in the EIR's traffic study for Year 2012 conditions (the EIR's traffic study presumed the 7,500-student enrollment at Chaffey College, but included the full buildout of the project's residential component in the Year 2012).

i) **Exhibit 5** depicts the daily project-generated traffic volumes for the residential component only (without the College) and the number of mid-block travel lanes for Scenario B. Scenario B builds upon Scenario A by presuming a Mountain Avenue extension south of Edison Avenue to Eucalyptus Avenue. A Mountain extension also requires the extension of Eucalyptus Avenue west of the Cypress Channel to connect with Mountain Avenue. Approximately 1,800 daily trips are estimated along Scenario B's Mountain Avenue segment, decreasing traffic along the existing segments of San Antonio Avenue and Fern Avenue between Edison Avenue and Eucalyptus Avenue, and Eucalyptus Avenue between "D" Street and Euclid Avenue. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments if Scenario B were to be pursued. Because Scenario A will adequately serve the project, the Mountain and Eucalyptus connections of Scenario B are not required.

j) **Exhibit 6** shows the daily project-generated traffic volumes for the residential component only (without the College) and the number of mid-block travel lanes for Scenario C. Scenario C corresponds to the internal street system planned for project buildout, which builds upon Scenario B by extending Oaks Avenue into the site, adding "A" Street between Central Avenue, and Oaks Avenue, and extending Eucalyptus Avenue westerly to Oaks Avenue. Approximately 800 daily trips are estimated along Scenario C's Mountain Avenue segment and 1,200 daily trips are forecasted along Scenario C's Oaks Avenue segment. The addition of both segments could decrease traffic along the existing segments of San Antonio Avenue and Fern Avenue between Edison Avenue and Eucalyptus Avenue, and Eucalyptus Avenue between "D" Street and Euclid Avenue. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments if Scenario C were pursued. However, because Scenario A will adequately serve the residential project, it remains the recommended scenario.

k) **Exhibits 7** and **8** illustrate the project-generated traffic volumes for both the residential component and Chaffey College during the AM and PM peak hours, respectively, at the key intersections for Scenario D.

l) **Exhibit 9** illustrates the daily project-generated traffic volumes for the residential component and Chaffey College, and the number of mid-block travel lanes for Scenario D. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments under Scenario D.

m) **Exhibit 10** presents a summary of the recommended lane geometry and traffic control at each of the key intersections for Scenario D. The lane geometries illustrated on **Exhibit 10** correspond to the minimum number of turn lanes and through lanes needed at each intersection approach to achieve an acceptable level of service for Scenario D, and are generally fewer lanes than those recommended in the EIR's traffic study for Year 2012 conditions (as discussed previously, the EIR's traffic study presumed the 7,500-student enrollment at Chaffey College, but included the full buildout of the project's residential

component in the Year 2012). Scenario D is the recommended street system for all of Phase 1 as defined previously. **Exhibit 10**, therefore, prescribes all of the intersection geometry and traffic controls needed to support the complete Phase 1.

n) **Exhibit 11** shows the daily project-generated traffic volumes for the residential component and Chaffey College, and the number of mid-block travel lanes for Scenario E. Scenario E presumes the total connectivity of the internal street system upon project buildout, but with interim lane provisions. Based on the daily project-generated traffic volumes, two mid-block travel lanes are recommended on all internal roadway segments if Scenario E were pursued. However, Scenario D will adequately serve the Phase 1 residential and College development, and remains to be our recommendation. In essence, that recommendation also says that the Mountain Avenue extension on site, as well as the Eucalyptus Avenue extension from its Phase 1 terminus westward to Oaks Avenue at "A" Street, are not needed until Phase 2.

• • • • • •

We appreciate the opportunity to provide this information. If you have any questions regarding this analysis, please call us at (714) 641-1587.

Very truly yours,
LINSCOTT, LAW & GREENSPAN, ENGINEERS

Paul W. Wilkinson, P.E.
California Registration: Traffic 1118
Principal

Trissa (de Jesus) Allen, P.E.
California Registration: Traffic 2231
Transportation Engineer III

Attachments

2461-rpt-Phase1-revised.doc

LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 1
PHASE 1
PROJECT TRIP GENERATION RATES
College Park, Chino

ITE CODE & LAND USE	DAILY	AM PEAK HOUR			PM PEAK HOUR		
	RATE	RATE	% IN	% OUT	RATE	% IN	% OUT
210: Single-Family Residential (Trips per DU)	9.57	0.75	25%	75%	1.01	64%	36%
540: Community College (Trips per Student)	1.54	0.14	91%	9%	0.17	68%	32%
SANDAG: City Park (Trips per Acre)	20.00	0.08	50%	50%	1.60	50%	50%

Sources:

Trip Generation (6th Edition), Institute of Transportation Engineers (ITE), 1997.

San Diego Traffic Generators, San Diego Association of Governments (SANDAG), July 1998.

Note:

DU = Dwelling Units

LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 2
PHASE 1
PROJECT TRIP GENERATION ESTIMATES
College Park, Chino

PROJECT DESCRIPTION					Daily	AM Peak Hour			PM Peak Hour		
TAZ #	Component	Land Use	Acres	DU	Trips	In	Out	Total	In	Out	Total
5	9,350 SF Lots	SFR	-	44	421	8	25	33	28	16	44
5	Triplex	SFR	-	29	278	6	16	22	19	10	29
5	Park	Park	0.50	-	10	0	0	0	1	0	1
				Subtotal for TAZ 5	*709*	*14*	*41*	*55*	*48*	*26*	*74*
6	20,000 SF Lots	SFR	-	31	297	6	17	23	20	11	31
6	Triplex	SFR	-	8	77	2	4	6	5	3	8
				Subtotal for TAZ 6	*374*	*8*	*21*	*29*	*25*	*14*	*39*
10	5,000 SF Lots	SFR	-	52	498	10	29	39	34	19	53
10	Triplex	SFR	-	46	440	9	26	35	29	17	46
10	4,500 SF Lots	SFR	-	87	833	16	49	65	56	32	88
10	Park	Park	1.00	-	20	1	0	1	1	1	2
				Subtotal for TAZ 10	*1,791*	*36*	*104*	*140*	*120*	*69*	*189*
11	SFD Auto Courts	SFR	-	128	1,225	24	72	96	83	46	129
11	4,400 SF Lots	SFR	-	95	909	18	53	71	61	35	96
11	3,600 SF Lots	SFR	-	103	986	19	58	77	67	37	104
11	Park	Park	3.45	-	69	2	1	3	3	3	6
				Subtotal for TAZ 11	*3,189*	*63*	*184*	*247*	*214*	*121*	*335*
12	Townhomes	SFR	-	134	1,282	25	76	101	86	49	135
12	Cluster SFD	SFR	-	84	804	16	47	63	54	31	85
				Subtotal for TAZ 12	*2,086*	*41*	*123*	*164*	*140*	*80*	*220*
17	Chaffey College	Community College [a]	7,500	-	11,550	956	94	1,050	867	408	1,275
				Subtotal for TAZ 17	*11,550*	*956*	*94*	*1,050*	*867*	*408*	*1,275*
TOTAL PHASE 1 TRIP GENERATION					**19,699**	**1,118**	**567**	**1,685**	**1,414**	**718**	**2,132**
BREAKDOWN BY LAND USE											
		Community College [a]	7,500 students		11,550	956	94	1,050	867	408	1,275
		Park	4.95	-	99	3	1	4	5	4	9
		Single-Family Residential	-	841	8,050	159	472	631	542	306	848
		TOTAL	-	-	**19,699**	**1,118**	**567**	**1,685**	**1,414**	**718**	**2,132**

Notes:

DU = Dwelling Unit

SF = Square-Foot

SFR = Single-Family Residential

[a] The enrollment at Chaffey College for Phase 1 is presumed to be 7,500 students.

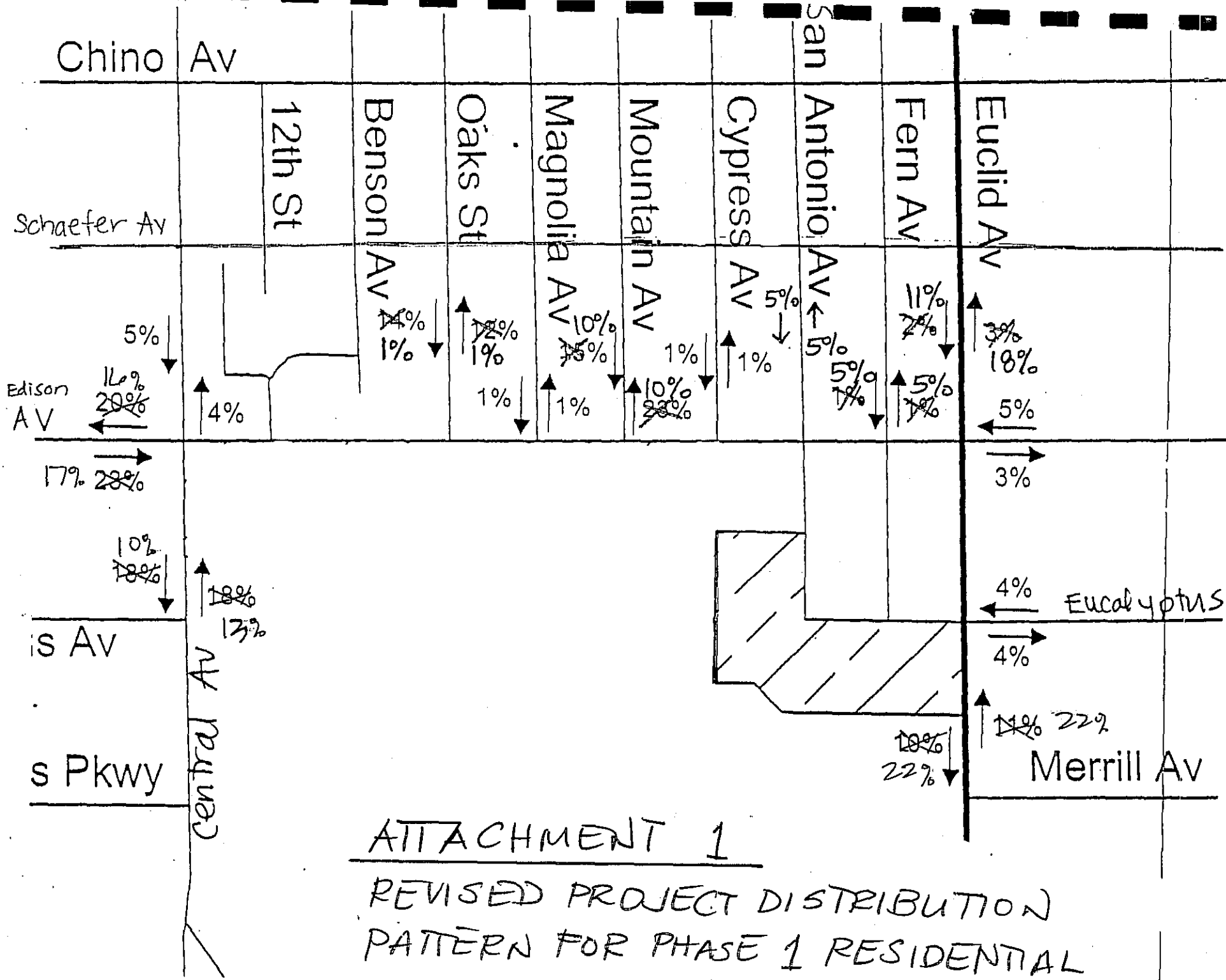
LINSCOTT LAW & GREENSPAN
ENGINEERS

TABLE 3
YEAR 2011 CUMULATIVE + PHASE 1
INTERSECTION PEAK HOUR LEVELS OF SERVICE
College Park, Chino

Key Intersections	Peak Hour	RESIDENTIAL ONLY (Scenario A) Unsignalized/ Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Recommended Traffic Control	RESIDENTIAL & COLLEGE (Scenario D) Unsignalized/ Signalized Level Of Service: Avg. Delay (sec/veh)	LOS	Recommended Traffic Control
External Intersections (located on periphery of the project site)							
1) Central Ave. @ Edison Ave.	AM	27.3	C	Maintain	27.2	C	Maintain
	PM	38.2	D	Existing Signal	39.3	D	Existing Signal
2) Oaks Ave. @ Edison Ave.	AM	31.7	C	Add	46.5	D	Add
	PM	38.9	D	Signal [a]	42.1	D	Signal [a]
3) Mountain Ave. @ Edison Ave.	AM	21.1	C	Maintain	31.3	C	Maintain
	PM	15.2	B	Existing Signal	16.3	B	Existing Signal
4) Cypress Ave. @ Edison Ave.	AM	21.4	C	Maintain	33.4	C	Maintain
	PM	8.7	A	Existing Signal	10.2	B	Existing Signal
5) San Antonio Ave. @ Edison Ave.	AM	27.6	C	Maintain	49.3	D	Maintain
	PM	21.8	C	Existing Signal	23.8	C	Existing Signal
6) Fern Ave. @ Edison Ave.	AM	13.3	B	Add	15.0	B	Add
	PM	21.0	C	Signal [a]	22.2	C	Signal [a]
7) Euclid Ave. @ Edison Ave.	AM	48.0	D	Maintain	46.9	D	Maintain
	PM	28.5	C	Existing Signal	32.1	C	Existing Signal
8) Central Ave. @ "A" St.	AM	-	-		17.0	B	Develop
	PM	-	-	-	10.7	B	Intersection and Signalize [a]
9) Euclid Ave. @ Eucalyptus Ave.	AM	29.3	C	Add	30.2	C	Add
	PM	30.5	C	Signal [a]	35.3	D	Signal [a]
Internal Intersections (located within the project site)							
10) North(A) Lot-Central Lot @ "A" St.	AM	-	-		11.4	B	
	PM	-	-	-	14.3	B	All-Way Stop
11) San Antonio Ave. @ Eucalyptus Ave.	AM	10.3	B		10.3	B	
	PM	12.2	B	2-Way Stop	12.2	B	2-Way Stop
12) Fern Ave. @ Eucalyptus Ave.	AM	9.8	A	Side Street	9.8	A	Side Street
	PM	10.7	B	Stop	10.7	B	Stop
13) "D" St. @ Eucalyptus Ave.	AM	11.9	B	Side Street	11.9	B	Side Street
	PM	14.1	B	Stop	14.1	B	Stop

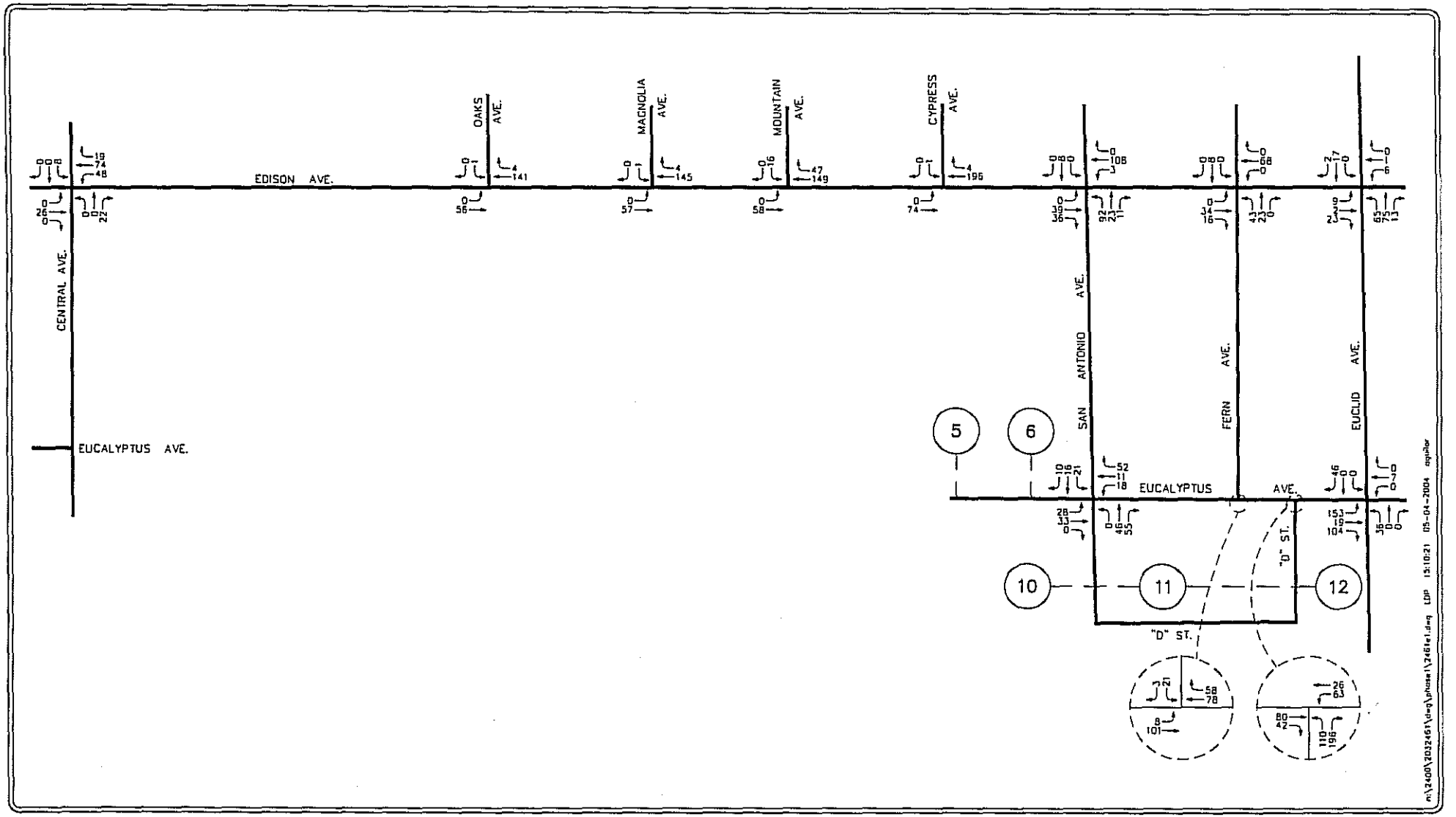
Note:

[a] The installation of a traffic signal is consistent with Year 2012 traffic conditions contained in the EIR's traffic study (prepared by Kaku Associates, Inc. in April 2003).



ATTACHMENT 1

REVISED PROJECT DISTRIBUTION PATTERN FOR PHASE 1 RESIDENTIAL



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

(2) = TRAFFIC ANALYSIS ZONE (TAZ)

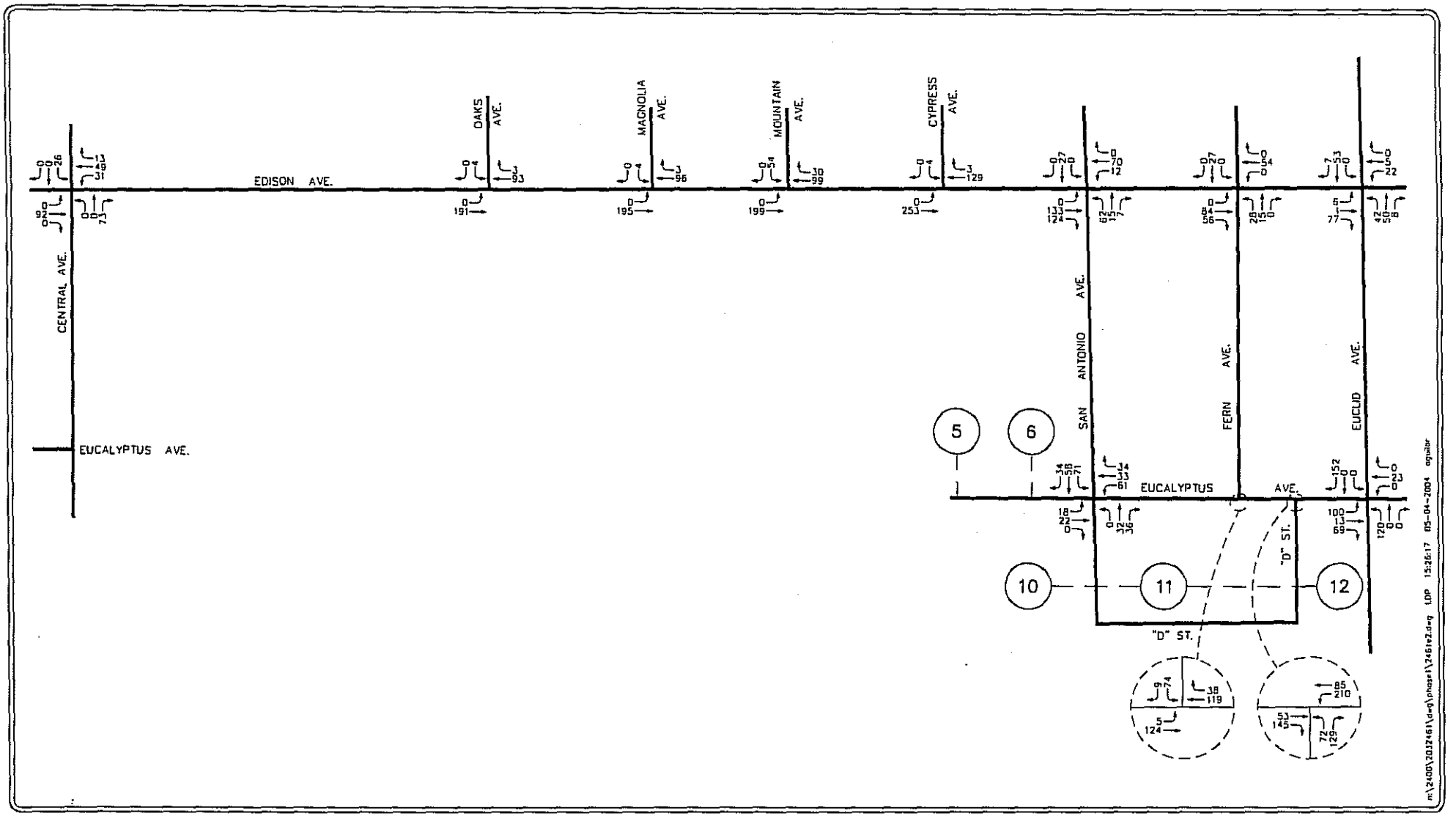
= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 1

AM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
SCENARIO A: RESIDENTIAL ONLY

COLLEGE PARK, CHINO



N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

(12) = TRAFFIC ANALYSIS ZONE (TAZ)

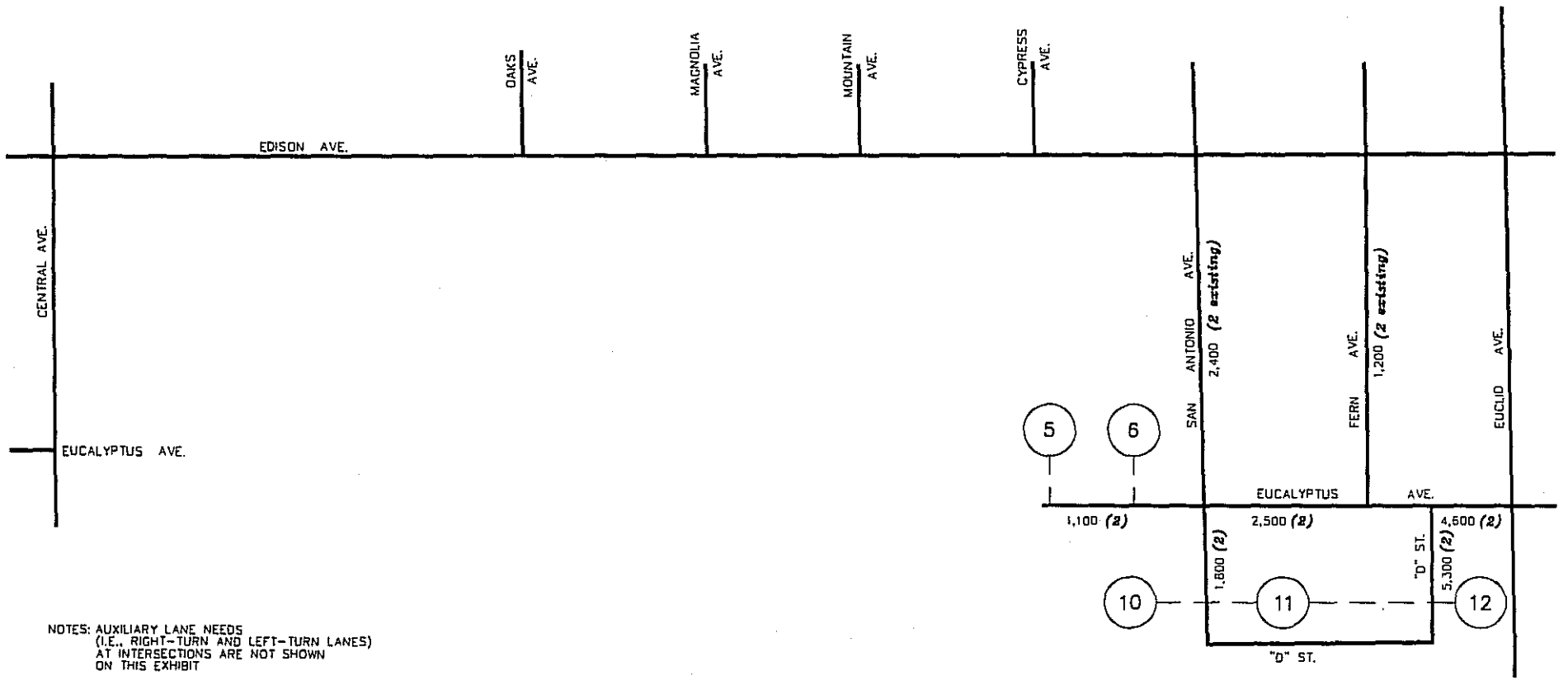
= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 2

PM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
SCENARIO A: RESIDENTIAL ONLY

COLLEGE PARK, CHINO



NOTES: AUXILIARY LANE NEEDS (I.E., RIGHT-TURN AND LEFT-TURN LANES) AT INTERSECTIONS ARE NOT SHOWN ON THIS EXHIBIT

DAILY TRAFFIC VOLUMES ROUNDED TO NEAREST 100 VEHICLES

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N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

X,XXX (Y) = DAILY TRAFFIC VOLUMES (# OF "MID-BLOCK" THROUGH LANES)

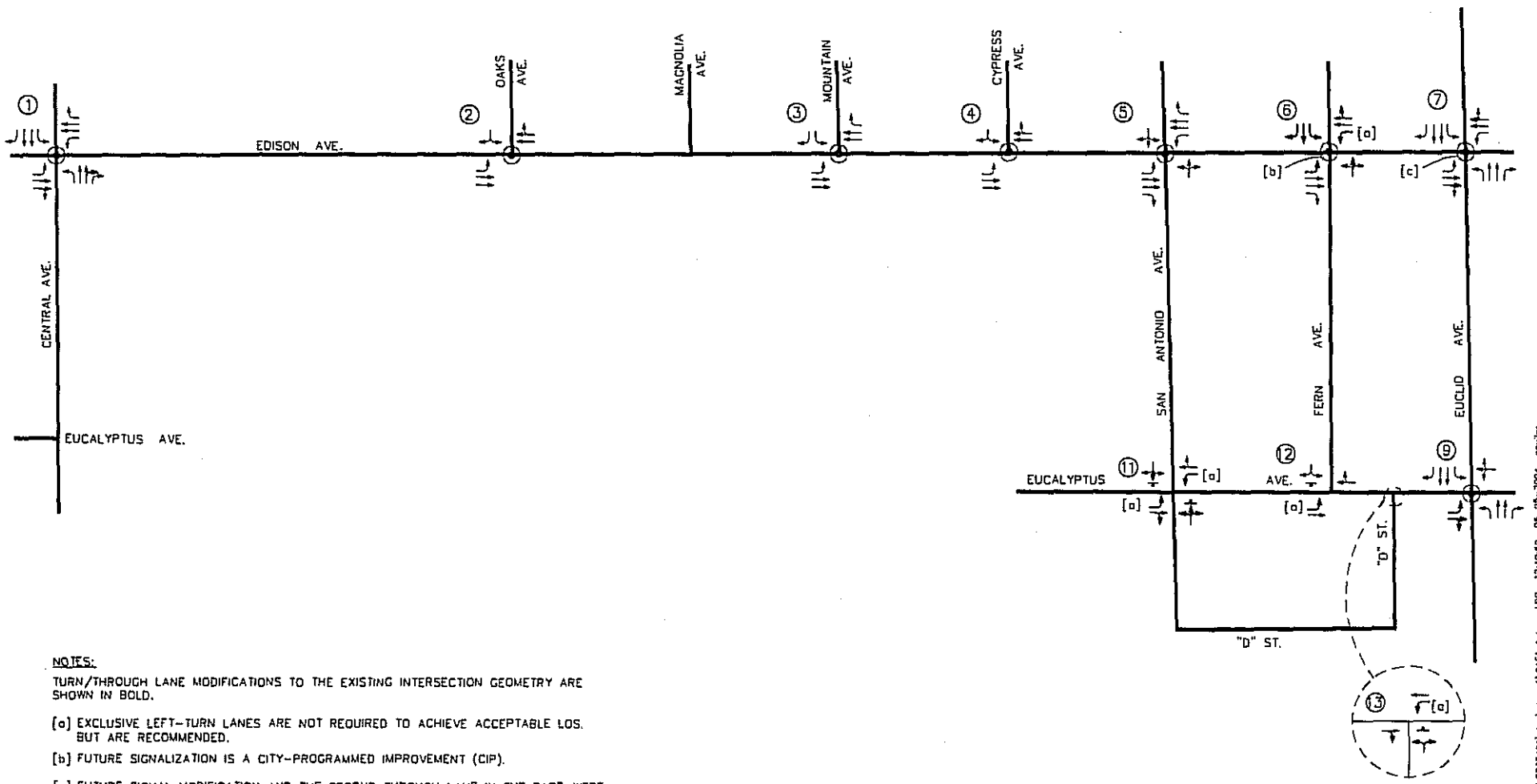
= EXISTING/PROPOSED ROADWAY

= CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

(12) = TRAFFIC ANALYSIS ZONE (TAZ)

EXHIBIT 3

DAILY PROJECT-GENERATED TRAFFIC VOLUMES AND MID-BLOCK TRAVEL LANES
SCENARIO A: RESIDENTIAL ONLY
COLLEGE PARK, CHINO



NOTES:

TURN/THROUGH LANE MODIFICATIONS TO THE EXISTING INTERSECTION GEOMETRY ARE SHOWN IN BOLD.

[a] EXCLUSIVE LEFT-TURN LANES ARE NOT REQUIRED TO ACHIEVE ACCEPTABLE LOS. BUT ARE RECOMMENDED.

[b] FUTURE SIGNALIZATION IS A CITY-PROGRAMMED IMPROVEMENT (CIP).

[c] FUTURE SIGNAL MODIFICATION AND THE SECOND THROUGH LANE IN THE EAST-WEST DIRECTION ARE CITY-PROGRAMMED IMPROVEMENTS (CIP).

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N NO SCALE

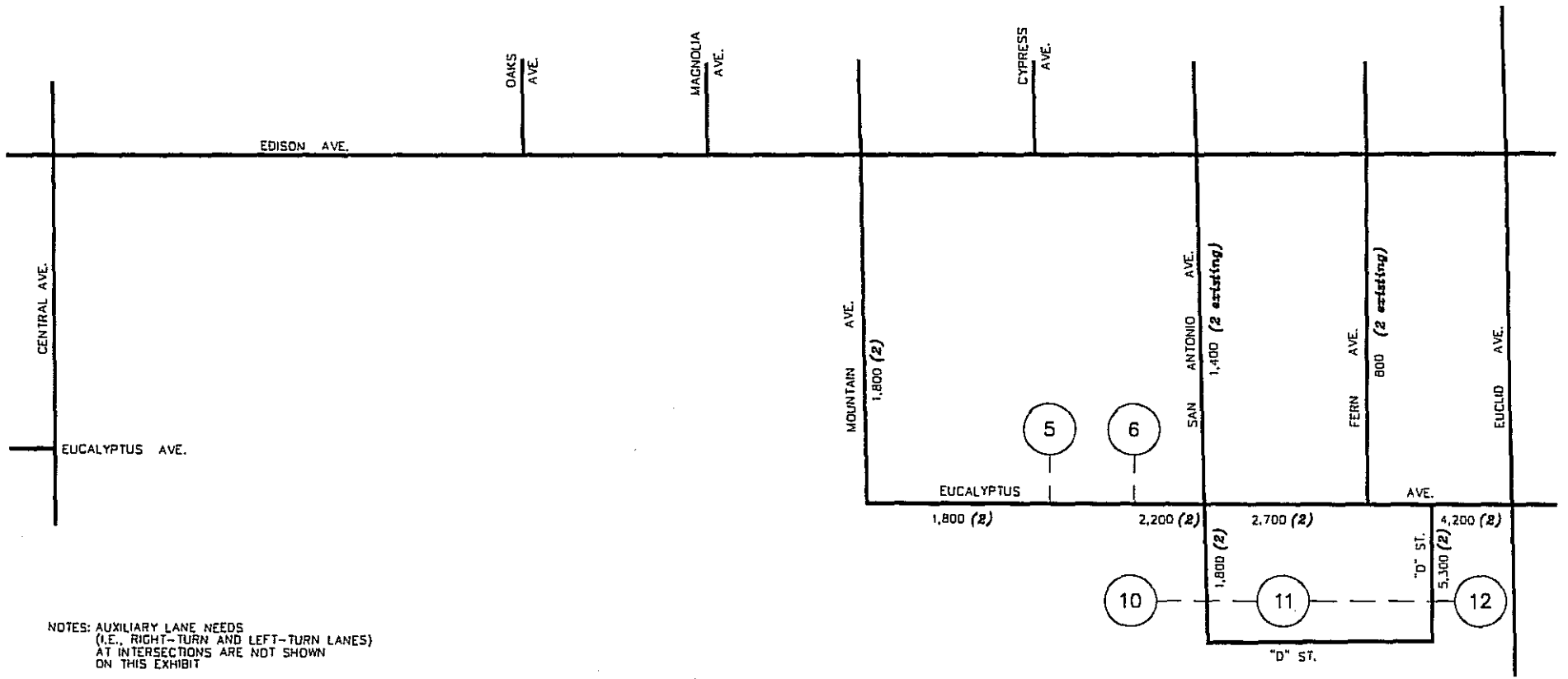
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

= EXISTING/PROPOSED ROADWAY
= TRAFFIC SIGNAL
= STOP SIGN
= APPROACH LANE
= KEY INTERSECTION

EXHIBIT 4

RECOMMENDED INTERSECTION GEOMETRY AND TRAFFIC CONTROL
SCENARIO A: RESIDENTIAL ONLY
COLLEGE PARK, CHINO



NOTES: AUXILIARY LANE NEEDS
(I.E., RIGHT-TURN AND LEFT-TURN LANES)
AT INTERSECTIONS ARE NOT SHOWN
ON THIS EXHIBIT

DAILY TRAFFIC VOLUMES ROUNDED
TO NEAREST 100 VEHICLES

N NO SCALE

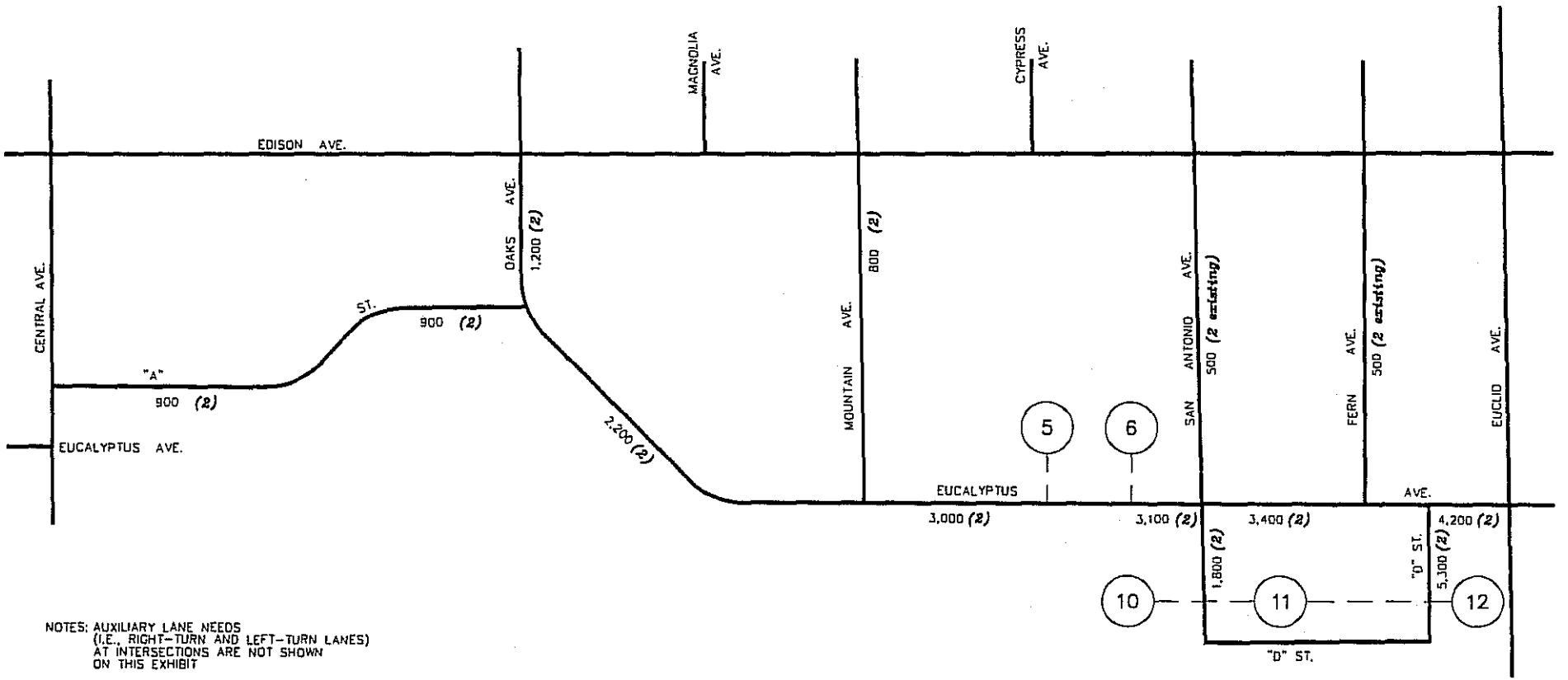
LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

X,XXX (Y) = DAILY TRAFFIC VOLUMES (# OF "MID-BLOCK" THROUGH LANES)
= EXISTING/PROPOSED ROADWAY
= CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ
(12) = TRAFFIC ANALYSIS ZONE (TAZ)

EXHIBIT 5

DAILY PROJECT-GENERATED TRAFFIC VOLUMES AND MID-BLOCK TRAVEL LANES
SCENARIO B: RESIDENTIAL ONLY
COLLEGE PARK, CHINO



NOTES: AUXILIARY LANE NEEDS (I.E., RIGHT-TURN AND LEFT-TURN LANES) AT INTERSECTIONS ARE NOT SHOWN ON THIS EXHIBIT

DAILY TRAFFIC VOLUMES ROUNDED TO NEAREST 100 VEHICLES

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N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

X,XXX (Y) = DAILY TRAFFIC VOLUMES (# OF "MID-BLOCK" THROUGH LANES)

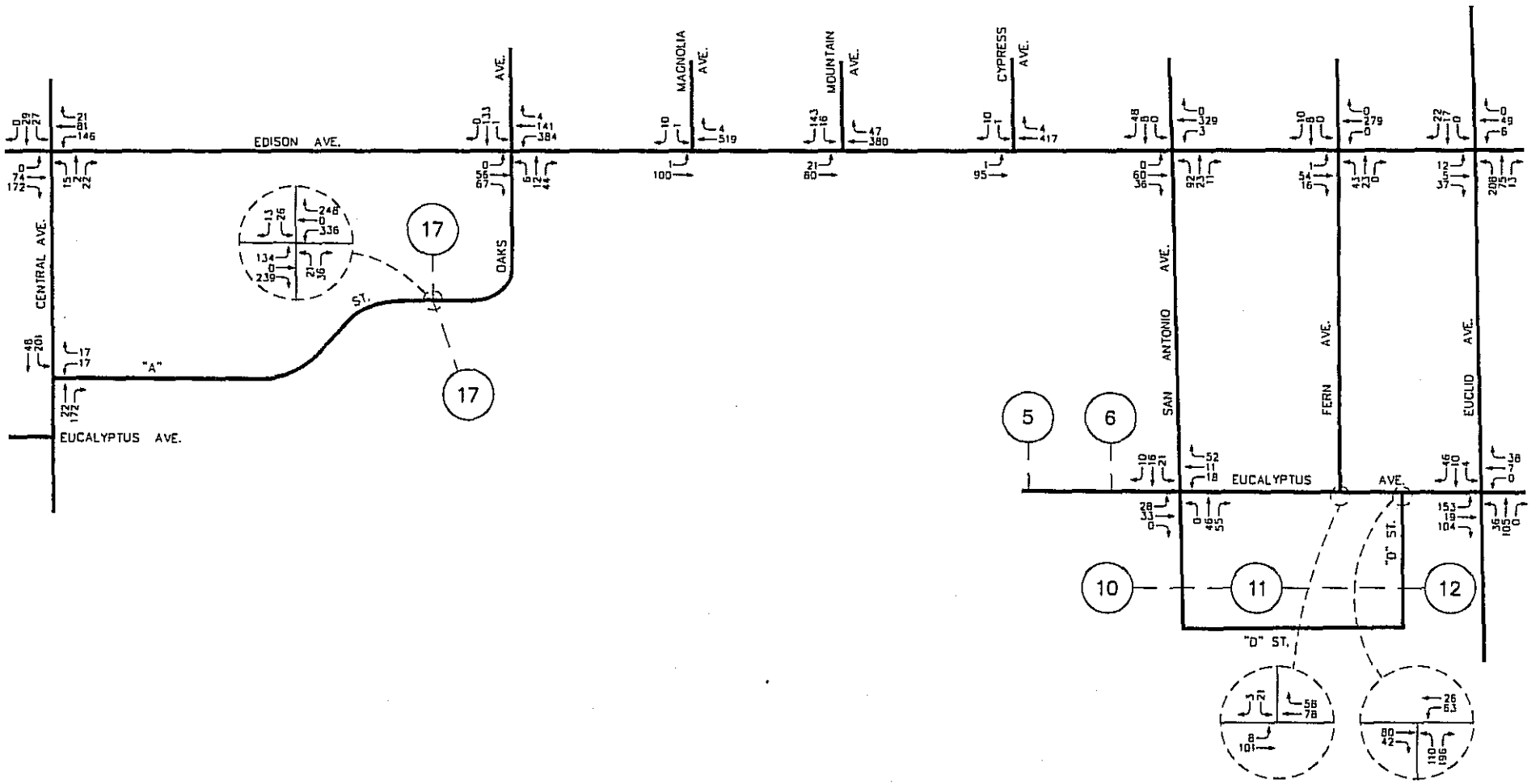
= EXISTING/PROPOSED ROADWAY

= CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

(12) = TRAFFIC ANALYSIS ZONE (TAZ)

EXHIBIT 6

DAILY PROJECT-GENERATED TRAFFIC VOLUMES AND MID-BLOCK TRAVEL LANES
SCENARIO C: RESIDENTIAL ONLY
COLLEGE PARK, CHINO



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

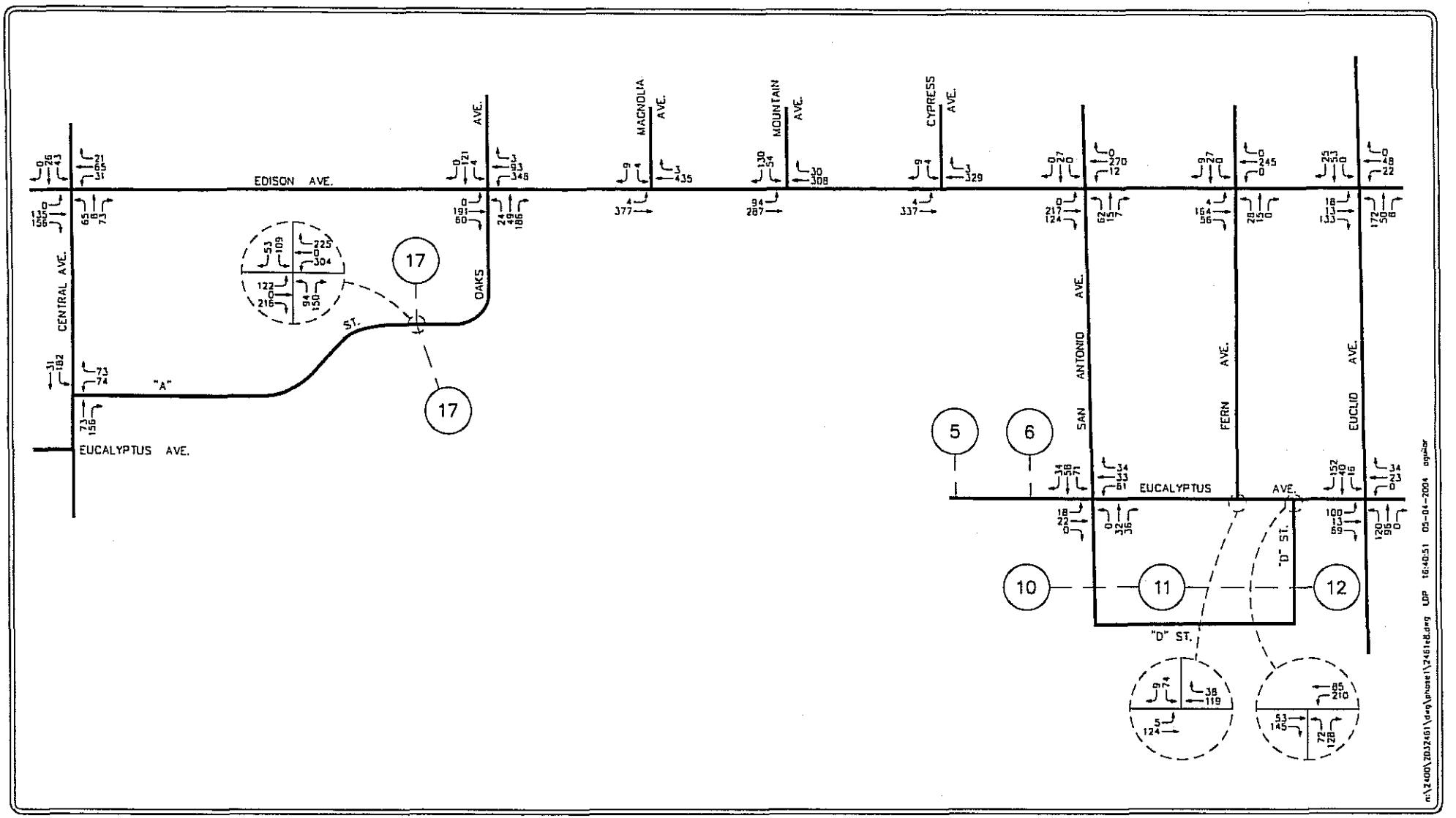
(12) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 7

AM PEAK HOUR PROJECT-GENERATED TRAFFIC VOLUMES
SCENARIO D: RESIDENTIAL AND COLLEGE
COLLEGE PARK, CHINO



NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

KEY

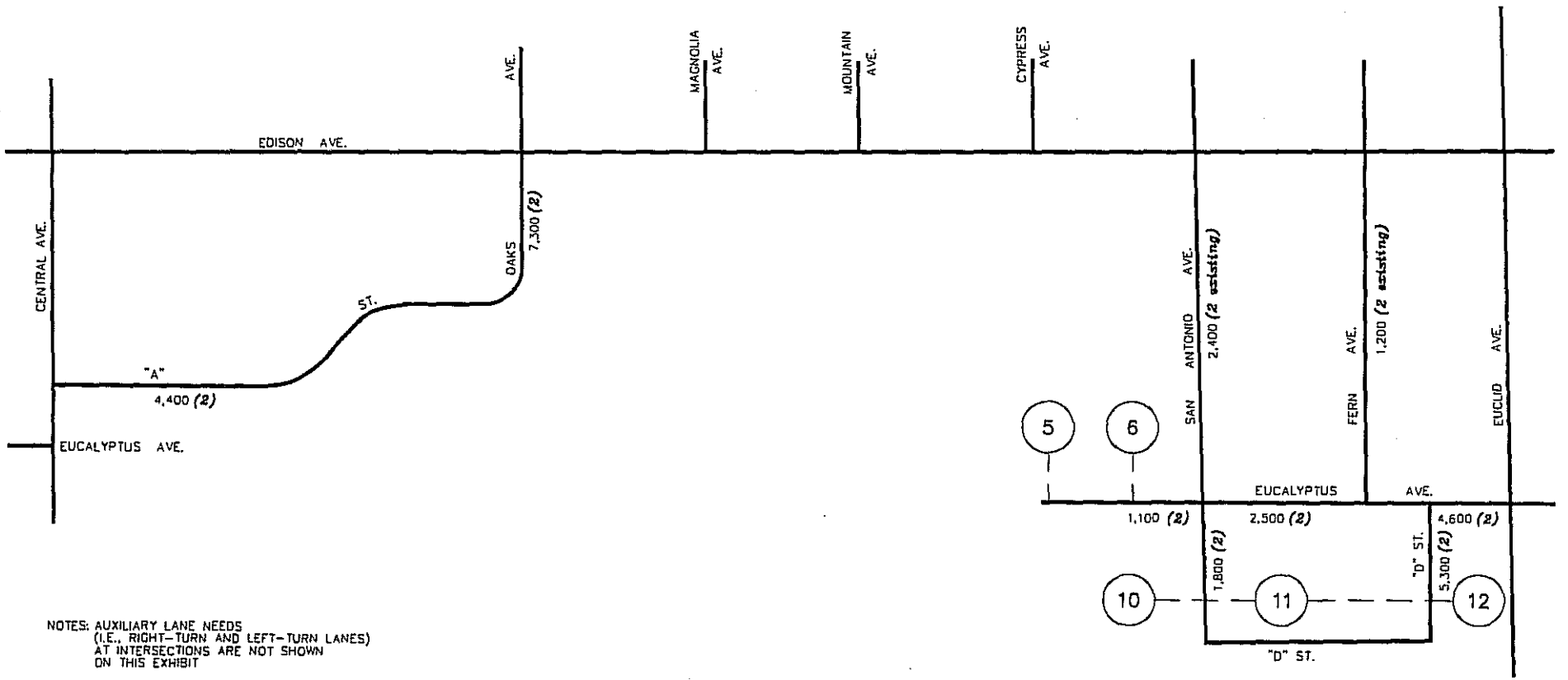
(12) = TRAFFIC ANALYSIS ZONE (TAZ)

= EXISTING/PROPOSED ROADWAY

— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 8

PM PEAK HOUR PROJECT–GENERATED TRAFFIC VOLUMES
SCENARIO D: RESIDENTIAL AND COLLEGE
COLLEGE PARK, CHINO



NOTES: AUXILIARY LANE NEEDS
(I.E., RIGHT-TURN AND LEFT-TURN LANES)
AT INTERSECTIONS ARE NOT SHOWN
ON THIS EXHIBIT

DAILY TRAFFIC VOLUMES ROUNDED
TO NEAREST 100 VEHICLES

N NO SCALE

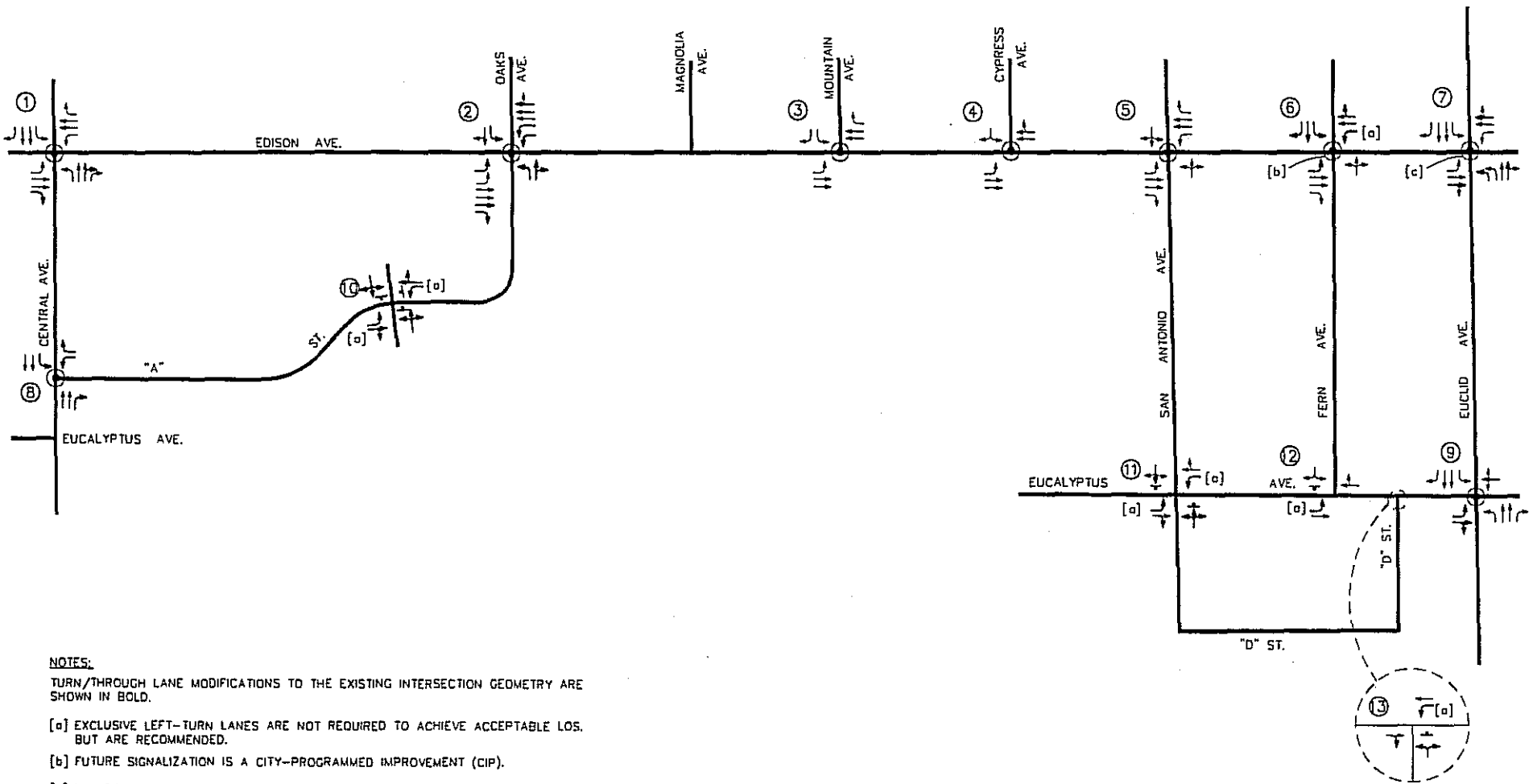
LINSCOTT
LAW &
GREENSPAN
ENGINEERS

KEY

X,XXX (Y) = DAILY TRAFFIC VOLUMES (# OF "MID-BLOCK" THROUGH LANES)
—— = EXISTING/PROPOSED ROADWAY
— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 9

DAILY PROJECT-GENERATED TRAFFIC VOLUMES AND MID-BLOCK TRAVEL LANES
SCENARIO D: RESIDENTIAL AND COLLEGE
COLLEGE PARK, CHINO



NOTES:

TURN/THROUGH LANE MODIFICATIONS TO THE EXISTING INTERSECTION GEOMETRY ARE SHOWN IN BOLD.

[a] EXCLUSIVE LEFT-TURN LANES ARE NOT REQUIRED TO ACHIEVE ACCEPTABLE LOS, BUT ARE RECOMMENDED.

[b] FUTURE SIGNALIZATION IS A CITY-PROGRAMMED IMPROVEMENT (CIP).

[c] FUTURE SIGNAL MODIFICATION AND THE SECOND THROUGH LANE IN THE EAST-WEST DIRECTION ARE CITY-PROGRAMMED IMPROVEMENTS (CIP).

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N NO SCALE

LINSCOTT LAW & GREENSPAN ENGINEERS

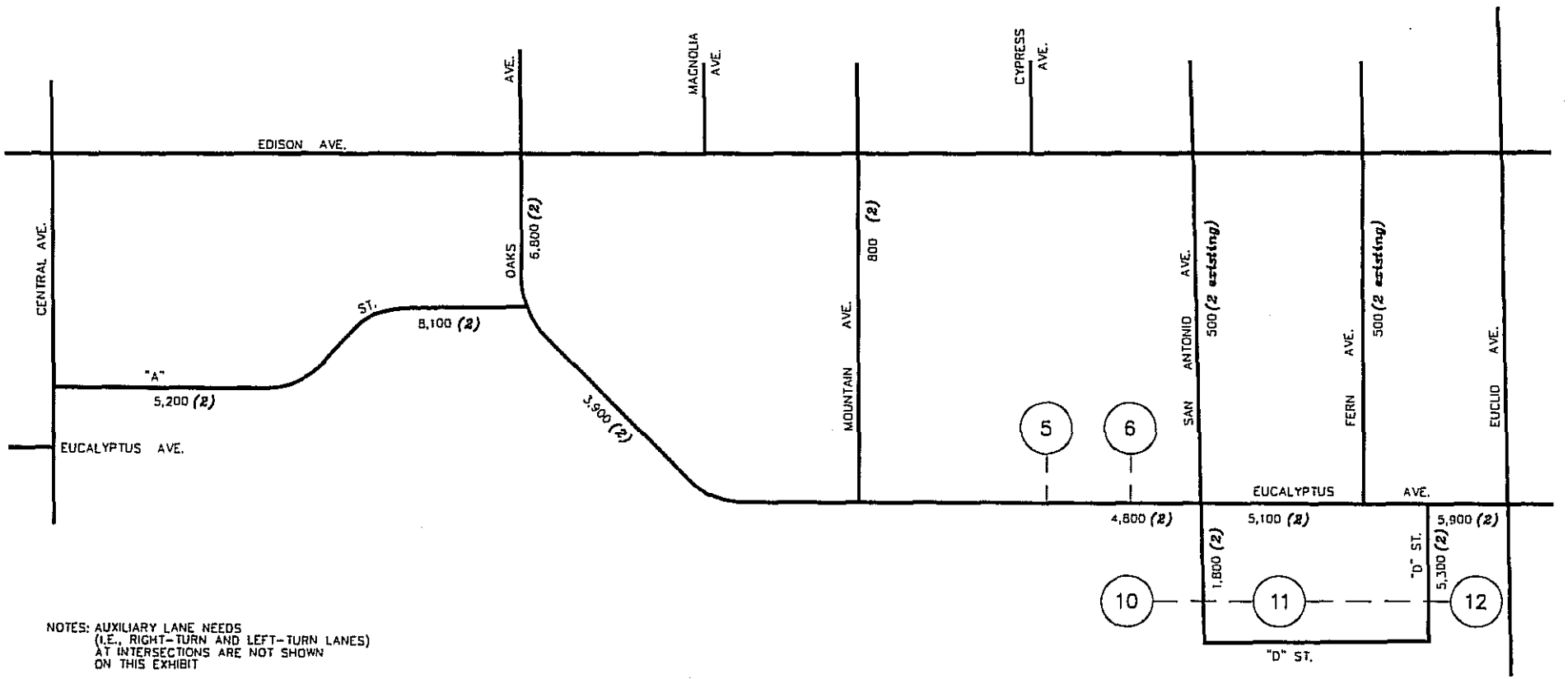
KEY

= EXISTING/PROPOSED ROADWAY
= TRAFFIC SIGNAL
= STOP SIGN
= APPROACH LANE
(13) = KEY INTERSECTION

EXHIBIT 10

RECOMMENDED INTERSECTION GEOMETRY AND TRAFFIC CONTROL
SCENARIO D: RESIDENTIAL AND COLLEGE

COLLEGE PARK, CHINO



NOTES: AUXILIARY LANE NEEDS
(I.E., RIGHT-TURN AND LEFT-TURN LANES)
AT INTERSECTIONS ARE NOT SHOWN
ON THIS EXHIBIT

DAILY TRAFFIC VOLUMES ROUNDED
TO NEAREST 100 VEHICLES

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N NO SCALE

LINSCOTT
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GREENSPAN
ENGINEERS

KEY

X,XXX (Y) = DAILY TRAFFIC VOLUMES (# OF "MID-BLOCK" THROUGH LANES)
= EXISTING/PROPOSED ROADWAY
— — = CENTROID CONNECTOR (THEORETICAL PROJECT DRIVEWAY) FOR EACH TAZ

EXHIBIT 11

DAILY PROJECT-GENERATED TRAFFIC VOLUMES AND MID-BLOCK TRAVEL LANES
SCENARIO E: RESIDENTIAL AND COLLEGE
COLLEGE PARK, CHINO

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

YEAR 2011 CUMULATIVE + PHASE 1
(RESIDENTIAL COMPONENT ONLY)

Level of Service Worksheets
College Park, Chino

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-1am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	1	1	3	0	1	2	1
LGConfig	L	TR		L	T	R	L	TR		L	T	R
Volume	172	457	70	448	1064	89	31	730	352	65	761	241
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A	P			NB	Left	A	P		
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
WB	Left	A	P			SB	Left	A	P		
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		11.5	35.1					7.0	24.4		
Yellow		1.0	1.0					1.0	1.0		
All Red		2.0	2.0					2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	992	1800	0.18	0.55	13.7	B		
TR	1482	3800	0.37	0.39	20.3	C	18.7	B
Westbound								
L	992	1800	0.48	0.55	13.1	B		
T	1482	3800	0.76	0.39	27.4	C	22.9	C
R	741	1900	0.13	0.39	18.0	B		
Northbound								
L	688	1800	0.05	0.38	19.5	B		
TR	1545	5700	0.74	0.27	33.1	C	32.7	C
Southbound								
L	688	1800	0.10	0.38	19.6	B		
T	1030	3800	0.78	0.27	36.1	D	33.9	C
R	515	1900	0.49	0.27	30.9	C		

Intersection Delay = 27.3 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-1pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	1	1	3	0	1	2	1
LGConfig	L	TR		L	T	R	L	TR		L	T	R
Volume	289	1106	56	276	515	108	57	858	845	116	737	149
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A	P			NB	Left	A			
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
WB	Left	A	P			SB	Left	A			
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		12.1	29.3					7.1	29.5		
Yellow		1.0	1.0					1.0	1.0		
All Red		2.0	2.0					2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	888	1800	0.34	0.49	14.9	B		
TR	1237	3800	0.99	0.33	53.2	D	45.6	D
Westbound								
L	888	1800	0.33	0.49	18.5	B		
T	1237	3800	0.44	0.33	25.0	C	22.7	C
R	619	1900	0.18	0.33	22.4	C		
Northbound								
L	142	1800	0.42	0.08	41.5	D		
TR	1868	5700	0.96	0.33	42.9	D	42.8	D
Southbound								
L	142	1800	0.86	0.08	78.8	E		
T	1246	3800	0.62	0.33	27.9	C	33.1	C
R	623	1900	0.25	0.33	23.1	C		

Intersection Delay = 38.2 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-2am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Oaks Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	54	657			1640	48				7		39
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds						Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	7.6	42.9					30.5			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	152	1800	0.38	0.08	45.9	D		
T	2259	3800	0.31	0.59	9.4	A	12.2	B
Westbound								
TR	1811	3800	0.98	0.48	40.3	D	40.3	D
Northbound								
Southbound								
LR	644	1900	0.07	0.34	20.4	C	20.4	C

Intersection Delay = 31.7 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-2pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Oaks Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	104	1943			741	59				60		104
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds						Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	7.3	37.2					36.5			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	146	1800	0.75	0.08	69.4	E		
T	2006	3800	1.02	0.53	46.4	D	47.5	D
Westbound								
TR	1571	3800	0.54	0.41	21.2	C	21.2	C
Northbound								
Southbound								
LR	771	1900	0.22	0.41	18.2	B	18.2	B

Intersection Delay = 38.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-3am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Mountain Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
LGConfig	L	T			T	R				L		R
Volume	149	438			1367	132				79		370
Lane Width	12.0	12.0			12.0	12.0				12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P	P			NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds		X				Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	11.6	43.0					26.4			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1152	1800	0.14	0.64	12.2	B		
T	2432	3800	0.19	0.64	6.8	A	8.2	A
Westbound								
T	1816	3800	0.79	0.48	23.4	C	22.5	C
R	908	1900	0.15	0.48	13.6	B		
Northbound								
Southbound								
L	528	1800	0.16	0.29	24.2	C		
							33.4	C
R	557	1900	0.70	0.29	35.4	D		

Intersection Delay = 21.1 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-3pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Mountain Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
LGConfig	L	T			T	R				L		R
Volume	104	1541			474	86				110		14
Lane Width	12.0	12.0			12.0	12.0				12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left				
	Thru	P	P				Thru				
	Right						Right				
	Peds		X				Peds				
WB	Left					SB	Left	P			
	Thru		P				Thru				
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	42.9					31.1			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.10	0.59	8.7	A		
T	2234	3800	0.73	0.59	15.4	B	15.0	B
Westbound								
T	1811	3800	0.28	0.48	14.6	B	14.3	B
R	906	1900	0.10	0.48	13.2	B		
Northbound								
Southbound								
L	622	1800	0.19	0.35	21.3	C		
							21.1	C
R	657	1900	0.02	0.35	19.5	B		

Intersection Delay = 15.2 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-4am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Cypress Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	25	518			1420	37				11		65
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P	P			NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds						Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	16.4	42.2					22.4			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1232	1800	0.02	0.68	11.6	B		
T	2601	3800	0.21	0.68	5.4	A	5.7	A
Westbound								
TR	1782	3800	0.86	0.47	27.0	C	27.0	C
Northbound								
Southbound								
LR	473	1900	0.17	0.25	27.3	C	27.3	C

Intersection Delay = 21.4 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-4pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Cypress Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	86	1716			724	13				21		54
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left				
	Thru	P	P				Thru				
	Right						Right				
	Peds						Peds				
WB	Left					SB	Left	P			
	Thru		P				Thru				
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		34.5	38.8					7.7			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1526	1800	0.06	0.85	2.3	A		
T	3222	3800	0.56	0.85	2.7	A	2.7	A
Westbound								
TR	1638	3800	0.47	0.43	19.3	B	19.3	B
Northbound								
Southbound								
LR	163	1900	0.48	0.09	49.2	D	49.2	D

Intersection Delay = 8.7 (sec/veh) Intersection LOS = A

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-5am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: San Antionio Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	0	1	0	0	1	0
LGConfig	L	T	R	L	T	R	LTR			LTR		
Volume	22	444	61	10	1615	15	138	33	12	89	21	10
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0			12.0		
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P	P			NB	Left	P			
Thru		P				Thru	P			
Right		P				Right	P			
Peds		X				Peds	X			
WB Left	P	P			SB	Left	P			
Thru		P				Thru	P			
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	7.0	42.9					31.1			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.02	0.59	17.5	B		
T	1811	3800	0.26	0.48	14.4	B	14.4	B
R	906	1900	0.07	0.48	12.9	B		
Westbound								
L	1058	1800	0.01	0.59	8.0	A		
T	1811	3800	0.94	0.48	33.2	C	32.9	C
R	906	1900	0.02	0.48	12.5	B		
Northbound								
LTR	657	1900	0.29	0.35	22.6	C	22.6	C
Southbound								
LTR	657	1900	0.19	0.35	21.3	C	21.3	C

Intersection Delay = 27.6 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-5pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: San Antionio Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	0	1	0	0	1	0
LGConfig	L	T	R	L	T	R		LTR			LTR	
Volume	135	1482	174	22	480	19	94	30	14	4	31	47
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
WB	Left	P	P			SB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	42.9					31.1			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.13	0.59	8.9	A		
T	1811	3800	0.86	0.48	26.6	C	24.0	C
R	906	1900	0.20	0.48	14.1	B		
Westbound								
L	1058	1800	0.02	0.59	15.0	B		
T	1811	3800	0.28	0.48	14.6	B	14.5	B
R	906	1900	0.02	0.48	12.5	B		
Northbound								
LTR	657	1900	0.22	0.35	21.7	C	21.7	C
Southbound								
LTR	657	1900	0.13	0.35	20.6	C	20.6	C

Intersection Delay = 21.8 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-6am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Fern Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	0	1	0	1	1	1
LGConfig	L	T	R	L	TR			LTR		L	T	R
Volume	0	496	16	7	1226	0	43	23	6	0	8	0
Lane Width	12.0	12.0	12.0	12.0	12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
WB	Left	P				SB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		43.0						31.1			
Yellow		1.0						1.0			
All Red		2.0						2.0			

Cycle Length: 80.1 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	966	1800	0.00	0.54	8.6	A		
T	2040	3800	0.26	0.54	10.3	B	10.2	B
R	1020	1900	0.02	0.54	8.7	A		
Westbound								
L	966	1800	0.01	0.54	8.6	A		
TR	2040	3800	0.63	0.54	14.5	B	14.5	B
Northbound								
LTR	738	1900	0.10	0.39	15.9	B	15.9	B
Southbound								
L	699	1800	0.00	0.39	15.0	B		
T	738	1900	0.01	0.39	15.1	B	15.1	B
R	738	1900	0.00	0.39	15.0	B		

Intersection Delay = 13.3 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 3/31/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-6pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Fern Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	0	1	0	1	1	1
LGConfig	L	T	R	L	TR			LTR		L	T	R
Volume	0	1386	56	3	491	0	28	15	7	0	27	0
Lane Width	12.0	12.0	12.0	12.0	12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
WB	Left	P				SB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		42.9						41.1			
Yellow		1.0						1.0			
All Red		2.0						2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	858	1800	0.00	0.48	12.3	B		
T	1811	3800	0.81	0.48	23.9	C	23.5	C
R	906	1900	0.07	0.48	12.9	B		
Westbound								
L	858	1800	0.00	0.48	12.4	B		
TR	1811	3800	0.29	0.48	14.7	B	14.6	B
Northbound								
LTR	868	1900	0.06	0.46	13.8	B	13.8	B
Southbound								
L	822	1800	0.00	0.46	13.3	B		
T	868	1900	0.03	0.46	13.6	B	13.6	B
R	868	1900	0.00	0.46	13.3	B		

Intersection Delay = 21.0 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-7am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	2	1	1	2	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	231	166	133	87	656	47	246	752	37	70	861	466
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left	A			
Thru	P					Thru		P		
Right	P					Right		P		
Peds	X					Peds		X		
WB Left	P				SB	Left	A			
Thru	P					Thru		P		
Right	P					Right		P		
Peds	X					Peds		X		
NB Right					EB	Right				
SB Right					WB	Right				
Green	43.0						7.6	30.4		
Yellow	1.0						1.0	1.0		
All Red	2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	860	1800	0.28	0.48	15.0	B		
TR	1816	3800	0.17	0.48	13.6	B	14.2	B
Westbound								
L	860	1800	0.11	0.48	13.2	B		
TR	1816	3800	0.41	0.48	15.9	B	15.6	B
Northbound								
L	152	1800	1.70	0.08	384.4	F		
T	1284	3800	0.62	0.34	27.2	C	111.8	F
R	642	1900	0.06	0.34	20.3	C		
Southbound								
L	152	1800	0.49	0.08	41.8	D		
T	1284	3800	0.71	0.34	29.2	C	31.8	C
R	642	1900	0.76	0.34	35.1	D		

Intersection Delay = 48.0 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenA-7pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	1	2	1	1	2	1
LGConfig	L	TR		L	TR		L	T	R	L	T	R
Volume	501	762	233	53	212	51	139	1085	98	75	605	204
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	A			
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	A			
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		42.9						7.0	31.1		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	858	1800	0.61	0.48	20.7	C		
TR	1811	3800	0.58	0.48	18.4	B	19.1	B
Westbound								
L	858	1800	0.07	0.48	12.9	B		
TR	1811	3800	0.15	0.48	13.5	B	13.4	B
Northbound								
L	140	1800	1.04	0.08	129.4	F		
T	1313	3800	0.87	0.35	35.6	D	44.4	D
R	657	1900	0.16	0.35	20.9	C		
Southbound								
L	140	1800	0.56	0.08	45.2	D		
T	1313	3800	0.49	0.35	24.4	C	25.9	C
R	657	1900	0.33	0.35	23.1	C		

Intersection Delay = 28.5 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Eucalyptus Avenue

Inter.: 2461\hcs\ScenA-9am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	1	1	2	1
LGConfig	L	TR			LTR		L	T	R	L	T	R
Volume	166	36	130	4	18	18	72	744	6	33	868	103
Lane Width	12.0	12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		25.0						28.0	28.0		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	500	1800	0.35	0.28	27.9	C		
TR	528	1900	0.33	0.28	27.5	C	27.7	C
Westbound								
LTR	528	1900	0.08	0.28	24.3	C	24.3	C
Northbound								
L	1180	1800	0.06	0.66	8.2	A		
T	1182	3800	0.66	0.31	29.8	C	27.9	C
R	591	1900	0.01	0.31	21.5	C		
Southbound								
L	1180	1800	0.03	0.66	7.2	A		
T	1182	3800	0.77	0.31	33.1	C	31.2	C
R	591	1900	0.18	0.31	23.3	C		

Intersection Delay = 29.3 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario A)
E/W St: Eucalyptus Avenue

Inter.: 2461\hcs\ScenA-9pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	1	1	2	1
LGConfig	L	TR			LTR		L	T	R	L	T	R
Volume	119	21	108	10	29	24	127	983	6	46	648	162
Lane Width	12.0	12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		25.0						28.0	28.0		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	500	1800	0.25	0.28	26.4	C		
TR	528	1900	0.26	0.28	26.5	C	26.4	C
Westbound								
LTR	528	1900	0.13	0.28	24.8	C	24.8	C
Northbound								
L	1180	1800	0.11	0.66	7.2	A		
T	1182	3800	0.88	0.31	38.6	D	34.9	C
R	591	1900	0.01	0.31	21.5	C		
Southbound								
L	1180	1800	0.04	0.66	9.0	A		
T	1182	3800	0.58	0.31	28.1	C	26.4	C
R	591	1900	0.29	0.31	24.7	C		

Intersection Delay = 30.5 (sec/veh) Intersection LOS = C

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 San Antionio Ave & Eucalyptus Ave [AM Peak Hour (Phase 1-ScenA) #11

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	1	0	0 0	1! 0	0	1 0 0	1	0	1 0 0	1	0
Volume Module: AM Peak Hour												
Base Vol:	0	46	55	21	16	10	28	33	0	18	11	52
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	46	55	21	16	10	28	33	0	18	11	52
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	46	55	21	16	10	28	33	0	18	11	52
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	48	58	22	17	11	29	35	0	19	12	55
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	48	58	22	17	11	29	35	0	19	12	55
Critical Gap Module:												
Critical Gp:	xxxxx	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	198	35	224	171	39	66	xxxx	xxxxx	35	xxxx	xxxxx
Potent Cap.:	xxxx	701	1044	736	726	1038	1548	xxxx	xxxxx	1590	xxxx	xxxxx
Move Cap.:	xxxx	680	1044	642	704	1038	1548	xxxx	xxxxx	1590	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	839	xxxx	722	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	9.9	xxxxx	10.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	A	*	B	*	*	*	*	*	*	*
ApproachDel:		9.9			10.3			xxxxxx			xxxxxx	
ApproachLOS:		A			B			*			*	

Level Of Service Computation Report #11
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #18 San Antionio Ave & Eucalyptus Ave [PM Peak Hour (Phase 1-ScenA)

Average Delay (sec/veh): 8.2 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			0 0 1! 0 0			1 0 0 1 0			1 0 0 1 0		
Volume Module: PM Peak Hour												
Base Vol:	0	32	36	71	58	34	18	22	0	61	33	34
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	32	36	71	58	34	18	22	0	61	33	34
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	32	36	71	58	34	18	22	0	61	33	34
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	34	38	75	61	36	19	23	0	64	35	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	34	38	75	61	36	19	23	0	64	35	36
Critical Gap Module:												
Critical Gp:	xxxxx	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	260	23	278	242	53	71	xxxx	xxxxx	23	xxxx	xxxxx
Potent Cap.:	xxxx	648	1059	679	663	1021	1543	xxxx	xxxxx	1605	xxxx	xxxxx
Move Cap.:	xxxx	614	1059	602	629	1021	1543	xxxx	xxxxx	1605	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.4	xxxx	xxxxx	7.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	790	xxxx	669	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	10.0	xxxxx	12.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	B	*	B	*	*	*	*	*	*	*
ApproachDel:		10.0			12.2			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

#12

****
Intersection #24 Fern Ave & Eucalyptus Ave [AM Peak Hour (Phase 1-ScenA)]
****
Average Delay (sec/veh): 1.1 Worst Case Level Of Service: A
****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 1! 0 0			1 0 1 0 0			0 0 0 1 0		
Volume Module: AM Peak Hour												
Base Vol:	0	0	0	21	0	3	8	101	0	0	78	58
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	21	0	3	8	101	0	0	78	58
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	21	0	3	8	101	0	0	78	58
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	22	0	3	8	106	0	0	82	61
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	22	0	3	8	106	0	0	82	61
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	236	xxxx	113	143	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	757	xxxx	946	1452	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	754	xxxx	946	1452	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	773	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	9.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	A	*	*	*	*	*	*	*
ApproachDel:	xxxxxx				9.8		xxxxxx			xxxxxx		
ApproachLOS:	*				A		*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

#12

Intersection #24 Fern Ave & Eucalyptus Ave [PM Peak Hour (Phase 1-ScenA)]

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0		0 0	1! 0	0	1 0	1 0	0	0 0	0 1	0
Volume Module: AM Peak Hour												
Base Vol:	0	0	0	74	0	9	5	124	0	0	119	38
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	74	0	9	5	124	0	0	119	38
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	74	0	9	5	124	0	0	119	38
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	78	0	9	5	131	0	0	125	40
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	0	0	78	0	9	5	131	0	0	125	40
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	xxxx	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	xxxx	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	286	xxxx	145	165	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	708	xxxx	907	1425	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	706	xxxx	907	1425	xxxx	xxxxx	xxxx	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	724	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	xxxx	xxxxx	xxxxx	10.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			10.7			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

#13

****
Intersection #19 D Street & Eucalyptus Ave [AM Peak Hour (Phase 1-ScenA)]
****
Average Delay (sec/veh): 7.9 Worst Case Level Of Service: B
****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 0 0 0			0 0 0 1 0			1 0 1 0 0		
Volume Module: AM Peak Hour												
Base Vol:	110	0	196	0	0	0	0	80	42	63	26	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	110	0	196	0	0	0	0	80	42	63	26	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	110	0	196	0	0	0	0	80	42	63	26	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	116	0	206	0	0	0	0	84	44	66	27	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	116	0	206	0	0	0	0	84	44	66	27	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	266	xxxx	106	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	128	xxxx	xxxxx
Potent Cap.:	727	xxxx	953	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1470	xxxx	xxxxx
Move Cap.:	702	xxxx	953	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1470	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	845	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	11.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	*	*	*
ApproachDel:		11.9			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		B			*			*			*	

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

#13

****

Intersection #19 D Street & Eucalyptus Ave [PM Peak Hour (Phase 1-ScenA)]

****

Average Delay (sec/veh): 6.5 Worst Case Level Of Service: B

****

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	0 0	0	0 0	0 1	0	1 0	1 0	0
Volume Module: PM Peak Hour												
Base Vol:	72	0	129	0	0	0	0	53	145	210	85	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	72	0	129	0	0	0	0	53	145	210	85	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	72	0	129	0	0	0	0	53	145	210	85	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	76	0	136	0	0	0	0	56	153	221	89	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	76	0	136	0	0	0	0	56	153	221	89	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	664	xxxx	132	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	208	xxxx	xxxxx
Potent Cap.:	429	xxxx	923	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1375	xxxx	xxxxx
Move Cap.:	376	xxxx	923	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1375	xxxx	xxxxx
Level Of Service Module:												
Stopped Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	607	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Shrd StpDel:	xxxxx	14.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	B	*	*	*	*	*	*	*	*	*	*
ApproachDel:		14.1			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		B			*			*			*	

LINSCOTT
LAW &
GREENSPAN
ENGINEERS

YEAR 2011 CUMULATIVE + PHASE 1
(RESIDENTIAL + CHAFFEY COLLEGE)

Level of Service Worksheets
College Park, Chino

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-1am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	3	0	1	2	1
LGConfig	L	T	R	L	T	R	L	TR		L	T	R
Volume	172	505	242	546	1071	91	46	732	357	84	790	241
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A	P			NB	Left	A	P		
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
WB	Left	A	P			SB	Left	A	P		
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		11.5	35.1					7.0	24.4		
Yellow		1.0	1.0					1.0	1.0		
All Red		2.0	2.0					2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	992	1800	0.18	0.55	13.8	B		
T	1482	3800	0.36	0.39	20.1	C	19.1	B
R	741	1900	0.34	0.39	20.6	C		
Westbound								
L	992	1800	0.58	0.55	15.4	B		
T	1482	3800	0.76	0.39	27.5	C	23.1	C
R	741	1900	0.13	0.39	18.0	B		
Northbound								
L	688	1800	0.07	0.38	19.9	B		
TR	1545	5700	0.74	0.27	33.2	C	32.7	C
Southbound								
L	688	1800	0.13	0.38	19.9	B		
T	1030	3800	0.81	0.27	37.4	D	34.7	C
R	515	1900	0.49	0.27	30.9	C		

Intersection Delay = 27.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-1pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	3	0	1	2	1
LGConfig	L	T	R	L	T	R	L	TR		L	T	R
Volume	289	1149	212	276	531	116	122	866	845	133	763	149
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	A	P			NB	Left	A			
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
WB	Left	A	P			SB	Left	A			
	Thru		P				Thru		P		
	Right		P				Right		P		
	Peds		X				Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		12.1	29.3					7.1	29.5		
Yellow		1.0	1.0					1.0	1.0		
All Red		2.0	2.0					2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	888	1800	0.34	0.49	14.9	B		
T	1237	3800	0.98	0.33	50.7	D	41.1	D
R	619	1900	0.36	0.33	24.8	C		
Westbound								
L	888	1800	0.33	0.49	18.5	B		
T	1237	3800	0.45	0.33	25.2	C	22.9	C
R	619	1900	0.20	0.33	22.6	C		
Northbound								
L	142	1800	0.90	0.08	88.5	F		
TR	1868	5700	0.96	0.33	43.6	D	46.6	D
Southbound								
L	142	1800	0.99	0.08	112.5	F		
T	1246	3800	0.64	0.33	28.4	C	38.3	D
R	623	1900	0.25	0.33	23.1	C		

Intersection Delay = 39.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-2am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Oaks Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	3	1	2	3	0	1	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	54	657	67	384	1640	48	6	12	44	7	133	39
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
WB	Left	P				SB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.6	42.9					30.5			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	287	3400	0.20	0.08	39.9	D		
T	2717	5700	0.25	0.48	14.3	B	15.9	B
R	906	1900	0.08	0.48	13.0	B		
Westbound								
L	287	3400	1.41	0.08	244.2	F		
TR	2717	5700	0.65	0.48	19.1	B	60.8	E
Northbound								
L	610	1800	0.01	0.34	19.8	B		
TR	644	1900	0.09	0.34	20.6	C	20.5	C
Southbound								
L	610	1800	0.01	0.34	19.8	B		
TR	644	1900	0.28	0.34	22.8	C	22.7	C

Intersection Delay = 46.5 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-2pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Oaks Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	3	1	2	3	0	1	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	104	1943	60	348	741	59	24	49	186	60	121	104
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left	P			
Thru		P				Thru	P			
Right		P				Right	P			
Peds		X				Peds	X			
WB Left	P				SB	Left	P			
Thru		P				Thru	P			
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	7.3	37.2					36.5			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	276	3400	0.39	0.08	43.4	D		
T	2356	5700	0.87	0.41	28.8	C	29.2	C
R	785	1900	0.08	0.41	16.2	B		
Westbound								
L	276	3400	1.33	0.08	211.0	F		
TR	2356	5700	0.36	0.41	18.6	B	76.9	E
Northbound								
L	730	1800	0.03	0.41	16.2	B		
TR	771	1900	0.32	0.41	19.4	B	19.1	B
Southbound								
L	730	1800	0.09	0.41	16.7	B		
TR	771	1900	0.31	0.41	19.2	B	18.7	B

Intersection Delay = 42.1 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-3am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Mountain Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
LGConfig	L	T			T	R				L		R
Volume	170	460			1598	132				79		513
Lane Width	12.0	12.0			12.0	12.0				12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P	P			NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds		X				Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	11.6	43.0					26.4			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1152	1800	0.16	0.64	16.3	B		
T	2432	3800	0.20	0.64	6.9	A	9.4	A
Westbound								
T	1816	3800	0.93	0.48	31.7	C	30.3	C
R	908	1900	0.15	0.48	13.6	B		
Northbound								
Southbound								
L	528	1800	0.16	0.29	24.2	C		
							57.6	E
R	557	1900	0.97	0.29	62.7	E		

Intersection Delay = 31.3 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineer
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-3pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Mountain Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
LGConfig	L	T			T	R				L		R
Volume	198	1629			683	86				110		144
Lane Width	12.0	12.0			12.0	12.0				12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left				
	Thru	P	P				Thru				
	Right						Right				
	Peds		X				Peds				
WB	Left					SB	Left	P			
	Thru		P				Thru				
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	42.9					31.1			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.20	0.59	9.9	A		
T	2234	3800	0.77	0.59	16.5	B	15.8	B
Westbound								
T	1811	3800	0.40	0.48	15.9	B	15.6	B
R	906	1900	0.10	0.48	13.2	B		
Northbound								
Southbound								
L	622	1800	0.19	0.35	21.3	C		
							21.6	C
R	657	1900	0.23	0.35	21.8	C		

Intersection Delay = 16.3 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-4am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Cypress Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	26	539			1641	37				11		75
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left				
	Thru	P	P				Thru				
	Right						Right				
	Peds						Peds				
WB	Left					SB	Left	P			
	Thru		P				Thru				
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		16.4	42.2					22.4			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1232	1800	0.02	0.68	14.0	B		
T	2601	3800	0.22	0.68	5.5	A	5.8	A
Westbound								
TR	1782	3800	0.99	0.47	43.0	D	43.0	D
Northbound								
Southbound								
LR	473	1900	0.19	0.25	27.6	C	27.6	C

Intersection Delay = 33.4 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-4pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Cypress Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	0	0	0
LGConfig	L	T			TR						LR	
Volume	90	1800			924	13				21		63
Lane Width	12.0	12.0			12.0						12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P	P			NB	Left				
Thru	P	P				Thru				
Right						Right				
Peds						Peds				
WB Left					SB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds		X				Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	34.5	38.8					7.7			
Yellow	1.0	1.0					1.0			
All Red	2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1526	1800	0.06	0.85	3.3	A		
T	3222	3800	0.59	0.85	2.9	A	2.9	A
Westbound								
TR	1638	3800	0.60	0.43	21.3	C	21.3	C
Northbound								
Southbound								
LR	163	1900	0.54	0.09	51.7	D	51.7	D

Intersection Delay = 10.2 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-5am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: San Antionio Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	0	1	0	0	1	0
LGConfig	L	T	R	L	T	R		LTR			LTR	
Volume	22	465	61	10	1836	15	138	33	12	89	21	58
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
WB	Left	P	P			SB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	42.9					31.1			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.02	0.59	17.5	B		
T	1811	3800	0.27	0.48	14.5	B	14.5	B
R	906	1900	0.07	0.48	12.9	B		
Westbound								
L	1058	1800	0.01	0.59	8.0	A		
T	1811	3800	1.07	0.48	65.3	E	64.5	E
R	906	1900	0.02	0.48	12.5	B		
Northbound								
LTR	657	1900	0.29	0.35	22.6	C	22.6	C
Southbound								
LTR	657	1900	0.27	0.35	22.3	C	22.3	C

Intersection Delay = 49.3 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-5pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: San Antionio Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	0	1	0	0	1	0
LGConfig	L	T	R	L	T	R		LTR			LTR	
Volume	135	1566	174	22	680	19	94	30	14	4	31	47
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0		12.0			12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P	P			NB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
WB	Left	P	P			SB	Left	P			
	Thru		P				Thru	P			
	Right		P				Right	P			
	Peds		X				Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0	42.9					31.1			
Yellow		1.0	1.0					1.0			
All Red		2.0	2.0					2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	1058	1800	0.13	0.59	9.4	A		
T	1811	3800	0.91	0.48	30.1	C	27.1	C
R	906	1900	0.20	0.48	14.1	B		
Westbound								
L	1058	1800	0.02	0.59	16.6	B		
T	1811	3800	0.40	0.48	15.8	B	15.8	B
R	906	1900	0.02	0.48	12.5	B		
Northbound								
LTR	657	1900	0.22	0.35	21.7	C	21.7	C
Southbound								
LTR	657	1900	0.13	0.35	20.6	C	20.6	C

Intersection Delay = 23.8 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-6am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Fern Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	0	1	0	1	1	1
LGConfig	L	T	R	L	TR			LTR		L	T	R
Volume	1	516	16	7	1437	0	43	23	6	0	8	10
Lane Width	12.0	12.0	12.0	12.0	12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left	P			
Thru	P					Thru	P			
Right	P					Right	P			
Peds	X					Peds	X			
WB Left	P				SB	Left	P			
Thru	P					Thru	P			
Right	P					Right	P			
Peds	X					Peds	X			
NB Right					EB	Right				
SB Right					WB	Right				
Green	43.0						31.1			
Yellow	1.0						1.0			
All Red	2.0						2.0			

Cycle Length: 80.1 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	966	1800	0.00	0.54	8.6	A		
T	2040	3800	0.27	0.54	10.3	B	10.3	B
R	1020	1900	0.02	0.54	8.7	A		
Westbound								
L	966	1800	0.01	0.54	8.6	A		
TR	2040	3800	0.74	0.54	16.8	B	16.7	B
Northbound								
LTR	738	1900	0.10	0.39	15.9	B	15.9	B
Southbound								
L	699	1800	0.00	0.39	15.0	B		
T	738	1900	0.01	0.39	15.1	B	15.1	B
R	738	1900	0.01	0.39	15.1	B		

Intersection Delay = 15.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-6pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Fern Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	0	1	0	1	1	1
LGConfig	L	T	R	L	TR			LTR		L	T	R
Volume	4	1466	56	3	682	0	28	15	7	0	27	9
Lane Width	12.0	12.0	12.0	12.0	12.0			12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
WB	Left	P				SB	Left	P			
	Thru	P					Thru	P			
	Right	P					Right	P			
	Peds	X					Peds	X			
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		42.9						41.1			
Yellow		1.0						1.0			
All Red		2.0						2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	858	1800	0.00	0.48	12.4	B		
T	1811	3800	0.85	0.48	26.1	C	25.5	C
R	906	1900	0.07	0.48	12.9	B		
Westbound								
L	858	1800	0.00	0.48	12.4	B		
TR	1811	3800	0.40	0.48	15.8	B	15.8	B
Northbound								
LTR	868	1900	0.06	0.46	13.8	B	13.8	B
Southbound								
L	822	1800	0.00	0.46	13.3	B		
T	868	1900	0.03	0.46	13.6	B	13.5	B
R	868	1900	0.01	0.46	13.4	B		

Intersection Delay = 22.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-7am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	2	2	0	1	2	1
LGConfig	L	TR		L	TR		L	TR		L	T	R
Volume	234	169	147	87	704	47	389	752	37	70	861	486
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	A			
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	A			
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		43.0						7.6	30.4		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	860	1800	0.29	0.48	15.1	B		
TR	1816	3800	0.18	0.48	13.7	B	14.3	B
Westbound								
L	860	1800	0.11	0.48	13.2	B		
TR	1816	3800	0.44	0.48	16.3	B	15.9	B
Northbound								
L	287	3400	1.43	0.08	251.6	F		
TR	1284	3800	0.65	0.34	27.8	C	101.6	F
Southbound								
L	152	1800	0.49	0.08	41.8	D		
T	1284	3800	0.71	0.34	29.2	C	32.5	C
R	642	1900	0.80	0.34	37.0	D		

Intersection Delay = 46.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Edison Avenue

Inter.: 2461\hcs\ScenD-7pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	1	2	0	2	2	0	1	2	1
LGConfig	L	TR		L	TR		L	TR		L	T	R
Volume	513	774	289	53	255	51	269	1085	98	75	605	222
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	P				NB	Left	A			
Thru	P					Thru		P		
Right	P					Right		P		
Peds	X					Peds		X		
WB Left	P				SB	Left	A			
Thru	P					Thru		P		
Right	P					Right		P		
Peds	X					Peds		X		
NB Right					EB	Right				
SB Right					WB	Right				
Green	42.9						7.0	31.1		
Yellow	1.0						1.0	1.0		
All Red	2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	858	1800	0.63	0.48	21.1	C		
TR	1811	3800	0.62	0.48	19.1	B	19.7	B
Westbound								
L	858	1800	0.07	0.48	12.9	B		
TR	1811	3800	0.18	0.48	13.7	B	13.6	B
Northbound								
L	280	3600	1.01	0.08	98.0	F		
TR	1313	3800	0.95	0.35	43.9	D	53.9	D
Southbound								
L	140	1800	0.56	0.08	45.2	D		
T	1313	3800	0.49	0.35	24.4	C	25.9	C
R	657	1900	0.36	0.35	23.5	C		

Intersection Delay = 32.1 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: A Street

Inter.: 2061\ScenD-8am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				17		17		412	172	201	627	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left				
Thru						Thru		P		
Right						Right		P		
Peds						Peds		X		
WB Left	P				SB	Left	P	P		
Thru						Thru	P	P		
Right	P					Right				
Peds	X					Peds		X		
NB Right					EB	Right				
SB Right					WB	Right				
Green	39.1						9.2	32.7		
Yellow	1.0						1.0	1.0		
All Red	2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	782	1800	0.02	0.43	14.6	B		
							14.6	B
R	825	1900	0.02	0.43	14.6	B		
Northbound								
T	1381	3800	0.31	0.36	21.2	C	21.2	C
R	690	1900	0.26	0.36	21.1	C		
Southbound								
L	898	1800	0.24	0.50	13.8	B		
T	1896	3800	0.35	0.50	14.2	B	14.1	B

Intersection Delay = 17.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: A Street

Inter.: 2061\Hcs\ScenD-8pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Central Ave

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
LGConfig				L		R		T	R	L	T	
Volume				74		73		835	156	182	412	
Lane Width				12.0		12.0		12.0	12.0	12.0	12.0	
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left				
	Thru						Thru		P		
	Right						Right		P		
	Peds						Peds		X		
WB	Left		P			SB	Left	P	P		
	Thru						Thru	P	P		
	Right		P				Right				
	Peds		X				Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green			22.9					7.1	51.0		
Yellow			1.0					1.0	1.0		
All Red			2.0					2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
L	458	1800	0.17	0.25	27.0	C		
							26.9	C
R	483	1900	0.16	0.25	26.8	C		
Northbound								
T	2153	3800	0.41	0.57	11.6	B	11.3	B
R	1077	1900	0.15	0.57	9.5	A		
Southbound								
L	1222	1800	0.16	0.68	6.4	A		
T	2580	3800	0.17	0.68	5.4	A	5.7	A

Intersection Delay = 10.7 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: AM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Eucalyptus Avenue

Inter.: 2461\hcs\ScenD-9am-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	1	1	2	1
LGConfig	L	TR			LTR		L	T	R	L	T	R
Volume	166	36	130	4	18	56	72	849	6	37	868	103
Lane Width	12.0	12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		25.0						28.0	28.0		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	500	1800	0.35	0.28	27.9	C		
TR	528	1900	0.33	0.28	27.5	C	27.7	C
Westbound								
LTR	528	1900	0.16	0.28	25.2	C	25.2	C
Northbound								
L	1180	1800	0.06	0.66	8.2	A		
T	1182	3800	0.76	0.31	32.5	C	30.5	C
R	591	1900	0.01	0.31	21.5	C		
Southbound								
L	1180	1800	0.03	0.66	7.9	A		
T	1182	3800	0.77	0.31	33.1	C	31.2	C
R	591	1900	0.18	0.31	23.3	C		

Intersection Delay = 30.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1c

Analyst: SC
Agency: LLG Engineers
Date: 4/30/04
Period: PM Peak Hour
Project ID: Year 2011 Cumulative + Project (Scenario D)
E/W St: Eucalyptus Avenue

Inter.: 2461\hcs\ScenD-9pm-tot
Area Type: All other areas
Jurisd: Chino
Year : 2011
N/S St: Euclid Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	1	2	1	1	2	1
LGConfig	L	TR			LTR		L	T	R	L	T	R
Volume	119	21	108	10	29	58	127	1079	6	62	688	162
Lane Width	12.0	12.0			12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	P				NB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
WB	Left	P				SB	Left	P	P		
	Thru	P					Thru		P		
	Right	P					Right		P		
	Peds	X					Peds		X		
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		25.0						28.0	28.0		
Yellow		1.0						1.0	1.0		
All Red		2.0						2.0	2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	500	1800	0.25	0.28	26.4	C		
TR	528	1900	0.26	0.28	26.5	C	26.4	C
Westbound								
LTR	528	1900	0.20	0.28	25.6	C	25.6	C
Northbound								
L	1180	1800	0.11	0.66	7.4	A		
T	1182	3800	0.96	0.31	48.8	D	44.3	D
R	591	1900	0.01	0.31	21.5	C		
Southbound								
L	1180	1800	0.06	0.66	9.7	A		
T	1182	3800	0.61	0.31	28.8	C	26.7	C
R	591	1900	0.29	0.31	24.7	C		

Intersection Delay = 35.3 (sec/veh) Intersection LOS = D

APPENDIX S
MEMORANDUM FOR THE RECORD: SUMMARY OF MAY 27, 2004, CITY OF CHINO OUTREACH MEETING WITH TRI-COUNTY CONSERVATION LEAGUE

Sapphos Environmental Inc
planning
resource management
environmental compliance

June 9, 2004
Job Number: 1178-003
Outreach Meeting with Tri-County Conservation League

MEMORANDUM FOR THE RECORD
2.6 1178-003.M02

TO: City of Chino
(Ms. Sylvia Scharf and Mr. Chuck Coe)

Tri-County Conservation League
(Dr. Jack Bath)

California Department of General Services
(Mr. Robert McKinnon)

SunCal Companies
(Mr. Brent Caldwell and Mr. Dave Levine)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Mr. Gregg Miller)

SUBJECT: Summary of May 27, 2004, City of Chino Outreach Meeting with Tri-County Conservation League

This Memorandum for the Record summarizes the discussion that occurred in a meeting hosted on May 27, 2004, by the City of Chino (Mr. Chuck Coe and Ms. Sylvia Scharf), and attended by the Tri-County Conservation League (Dr. Jack Bath), the California Department of General Services (Mr. Robert McKinnon), SunCal Companies (Mr. Brent Caldwell and Mr. Dave Levine), and Sapphos Environmental, Inc. (Ms. Marie Campbell and Mr. Gregg Miller). The purpose of the meeting was to discuss comments that were made by Dr. Jack Bath regarding the evaluation of the burrowing owl (*Athene cunicularia*) in the Draft Environmental Impact Report (EIR) for the Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Development Project Area, Chino, California (proposed project).

The EIR was circulated for public review in July 2003. The comments were made by Dr. Bath at a meeting hosted by the Inland Empire Utilities Agency on April 1, 2004, and a subsequent meeting on May 6, 2004. Specifically, Dr. Bath articulated five concerns:

- Conformity with California Department of Fish and Game (CDFG) survey protocols for the burrowing owl to characterize existing conditions
- Direct, indirect, and cumulative impacts to burrowing owls

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- Conformity with CDFG recommendations for mitigation of impacts to burrowing owl
- Habitat quality of proposed mitigation sites
- Mitigation Monitoring

Given the known sensitivity of the burrowing owl, repeated coordination was undertaken by the City of Chino, the California Department of General Services, and Sapphos Environmental, Inc. with CDFG regarding the characterization of baseline conditions, impact evaluation, and the development of mitigation measures. The results of subsequent work undertaken by SunCal Companies and their subconsultants in 2004 have validated the results of 2001 and 2002 directed surveys for burrowing owl.

CALIFORNIA DEPARTMENT OF FISH AND GAME SURVEY PROTOCOLS

Dr. Jack Bath expressed concerns that the habitat assessment was inadequate in that it did not include an assessment of presence or absence of burrowing owls for an approximately 500-foot-wide buffer zone surrounding the proposed project site as specified in the survey protocol, which was originally submitted by The Burrowing Owl Consortium to CDFG.[1] Dr. Bath indicated that the off-site surveys would be necessary to understanding the location of source populations and assess opportunities for off-site mitigation.

The directed surveys that were conducted for the Draft EIR for the burrowing owl conformed to the specifications of the CDFG. Although the burrowing owl survey guidelines, as originally prepared by The Burrowing Owl Consortium, recommended surveys within 150 meters (approximately 500 feet) of the impact zone, the 1995 CDFG staff report makes clear that areas beyond the impact zone need to only be undertaken wherever possible.[2] The purpose of surveys outside the project area is to assess impacts to owls outside the project area. The Burrowing Owl Consortium clearly specifies the purpose for inclusion of the additional 150 meters that are off site is "to account for adjacent burrows and foraging habitat outside the project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the project area . . ."[3] The 150-meter zone outside the proposed project area contains roads, residences, and significant sources of noise and disturbance. The proposed project site is bound by the following developed land uses:

- North – Edison Avenue (75- to 85-feet wide, four-lane County arterial) for approximately 4,650 linear feet, an existing residential development for approximately 750 linear feet, and Eucalyptus Avenue (two-lane local roadway) for 1,380 linear feet

- East – An existing residential development for approximately 750 linear feet, San Antonio Street (40-feet wide, two-lane local roadway) for approximately 750 linear

[1] The California Burrowing Owl Consortium, April 1993. "Burrowing Owl Survey Protocol and Mitigation Guidelines."

[2] California Department of Fish and Game, 17 October 1995. Memorandum to Division Chiefs, Subject: Staff Report on Burrowing Owls. Prepared by: California Department of Fish and Game, 1416, Ninth Street, Sacramento, CA 95814.

[3] The California Burrowing Owl Consortium, April 1993. "Burrowing Owl Survey Protocol and Mitigation Guidelines."

feet, and Euclid Avenue (105- to 135-feet wide, four-lane County arterial) for approximately 750 linear feet

- South – Remaining California Department of Corrections (CDC) property
- West – Central Avenue (82- to 84-feet wide, four-lane County arterial) for approximately 1,080 linear feet

As indicated in Figure 3.4.6-1, *Conceptual Burrowing Owl Mitigation Plan,* of the Draft EIR, Sapphos Environmental, Inc. surveyed the entire proposed project area and all accessible areas within approximately 150-meters of the anticipated impact zone, including the Southern California Edison (SCE) easement north of the proposed project site, Cypress Channel north of the proposed project site, and the property owned by CDC south of the proposed project site. As a result of directed surveys undertaken during the breeding season in 2001, a total of fifteen breeding pairs were mapped, including seven within the proposed project site and eight within CDC property south of the proposed project site. Only six of the seven pairs within the proposed project site will be impacted by the proposed project. Directed surveys undertaken in 2002 confirmed the results of the 2001 survey and showed a possible pair located in the SCE easement north of Edison Avenue.

Site habitat for burrowing owls within the proposed project site is marginal due to active operations and maintenance related to existing agricultural, recreational, and utilities land uses. Such activities include irrigation, soil discing and vegetation clearing, applications of herbicides and pesticides, and human activities. Burrowing normally occurs in association with dry, open, short-grass, treeless plains that are often associated with burrowing mammals. Burrowing owls have also been observed in association with golf courses, cemeteries, and road alignments within cities and other urban landscapes, including vacant lands at airports, vacant lands within residential areas and university campuses, and fairgrounds.[4] The viability of breeding pairs within the proposed project site is vulnerable to displacement by ongoing operations and maintenance activities associated with existing land uses.

DIRECT, INDIRECT, AND CUMULATIVE IMPACTS TO BURROWING OWLS

Dr. Jack Bath identified concerns that there are additional, direct, indirect, and cumulative impacts to burrowing owl not disclosed in the EIR. Specifically, Dr. Bath indicated that the east-west access road that would be constructed south of the proposed project site within the California Institution for Men (CIM)—a CDC property—would result in additional impacts to burrowing owls not disclosed in the EIR. Dr. Bath indicated that it is his understanding that CDFG has issued a depredation permit to the County of San Bernardino Department of Public Works Flood Control District that allows filling of burrowing owl burrows during the nesting season. In addition, Dr. Bath was concerned that the County of San Bernardino Department of Public Works Flood Control District may be considering improvements of the existing earthen section of Cypress Channel located north of Kimball Avenue, thus potentially contributing to cumulative impacts to the burrowing owl. These improvements to Cypress Channel are not part of the proposed project being analyzed in the Draft EIR.

Construction of the east-west access road within the CIM property does not result in direct, indirect, or cumulative impacts to the burrowing owl. The Initial Study prepared for the proposed

[4] E.A. Haug, B.A. Millsap, and M.S. Martell, 1993. "*Speotyto cunicularia,* Burrowing Owl" in The Birds of North America, No. 61.

project discloses the potential need for construction of an east-west access road within the CIM property. This requirement is reiterated in Section 2.4.3, Master-Planned Community, of the Draft EIR that was circulated for public review in July 2003. The road will be approximately 12,000 feet long and 30 feet wide for most of the length. The road will increase to approximately 40 feet in width at Merrill. There is a 45-foot-diameter cul-de-sac turnaround at the SCE easement. Temporary construction impacts will affect approximately 20 feet on either side of the roadway, for a total construction width of 70 to 80 feet to accommodate construction of the east-west access road. The east-west access road has been designed to avoid the eight burrowing owl nest sites that occur approximately 1,500 to 2,000 feet south of the proposed project on lands that will continue to be operated by CDC. The same construction avoidance measures that are required for development of the Specific Plan would apply to development of the east-west access road.

Although the proposed Specific Plan does not change the frequency or duration of flood flows in the Cypress Channel, the developer has agreed, in consultation with the City of Chino and the County of San Bernardino Department of Public Works Flood Control District, to make improvements to the existing deteriorated lining to the Cypress Channel between Edison Avenue and the southern property boundary. That section of the channel is currently maintained by CDC, which would relinquish that responsibility to the developer who becomes responsible upon the sale of the property. The developer proposes to transfer to the County of San Bernardino Department of Public Works Flood Control District the section of Cypress Channel that passes through the Specific Plan area for operation and maintenance. As a condition of that transfer, the developer would be responsible for completing improvements to the section of Cypress Channel that passes through the Specific Plan area. In response to the concerns articulated by Dr. Bath, telephone coordination was undertaken by Sapphos Environmental, Inc. with CDFG and the County of San Bernardino Department of Public Works Flood Control District regarding existing maintenance practices that would potentially contribute to indirect impacts to occupied burrowing owl habitat located within the Cypress Channel easement. There are currently two burrowing owl nests located within the Cypress Channel easement. The analysis of impacts undertaken in the EIR assumes that both of these nest sites will be subject to direct impacts during construction that would be fully mitigated through passive relocation within the Cypress Channel easement. In light of the concerns articulated by Dr. Bath, the City of Chino has modified the two mitigation measures related to habitat conservation for burrowing owls, Burrowing Owl-1 and Burrowing Owl-2, to require a conservation easement for mitigation lands for burrowing owls within the detention basin and the Cypress Channel. The conservation easement would protect occupied habitat during the breeding season and require all maintenance activities to be reviewed by a qualified biologist to ensure no net loss of habitat values or functions, as specified in Burrowing Owl-7 and Burrowing Owl-8.

The EIR adequately addresses the potential for cumulative impacts to burrowing owls from the proposed project. As described in Table 2.7-1, *Related Proposed and Approved Projects,* of the EIR, the analysis of impacts considered all proposed and approved projects in the region. In the response to comments provided by Dr. Bath, the City of Chino coordinated with the California Department of General Services to determine if there were any other potential projects under consideration within their retained area of operations. As indicated in Figure 3.4.6-1, *Conceptual Burrowing Owl Mitigation Plan*, of the EIR, there were no burrowing owls mapped within the portions of the alignments of the Magnolia Channel or the Cypress Channel that would remain within the property operated by CDC. The closest burrowing owl nest site was mapped over 150 feet west of the Magnolia Channel. The California Department of General Services has confirmed

that there are no authorized or proposed plans to improve the portions of the Magnolia Channel and the Cypress Channel within the property operated by CDC.[5]

CDC is moving forward with a previously approved project to install an electrified fence around CIM East. Regarding cumulative impacts, two burrowing owl burrows were found on the CIM East property during the course of field surveys, and these owls could be adversely affected by the construction of an electrified fence around CIM East by CDC (Figure 3.4.5-1, *Burrowing Owl Burrow Locations at CIM East*, of the Final EIR). The CDC project had been approved and scheduled for construction, and mitigation for construction effects to the burrowing owl were not included in the EIR adopted by CDC in 2001 for the Electric Fence project. CDC has been notified of the presence of burrowing owl on their site, and CDC has committed to preparing CEQA documentation to address potential impacts to this species.[6] Although the City has no means to ensure that CDC would mitigate for this impact, a review of EIRs and mitigation measures adopted by CDC on prior projects and their commitment to address potential burrowing owl impacts on the CIM East element of the Electric Fence project provide reasonable assurance that impacts to burrowing owl by the CDC project will be mitigated. Thus, the CIM East element would not be expected to contribute to cumulative impacts to burrowing owls.

CALIFORNIA DEPARTMENT OF FISH AND GAME MITIGATION RECOMMENDATIONS

Dr. Jack Bath indicated that the mitigation for burrowing owls articulated in the EIR was inadequate in its failure to include the acquisition of off-site properties for long-term conservation.

The eight mitigation measures for burrowing owl specified in Section 3.4.6, Mitigation Measures, of the EIR are in substantial conformance with current successful, ongoing management for the burrowing owl, including the specifications of the CDFG.[7] The recommended mitigation program for the burrowing owl was based on literature review and previous experience. Specifications for the mitigation package relied on information regarding species biology from the following partial list: *The Birds of North America*,[8] *The Condor*,[9] "Selected Aspects of Burrowing Owl Ecology and Behavior,"[10] and the Proceedings of the 16th Vertebrate Pest Conference. As recommended by The California Burrowing Owl Consortium,[11] and the CDFG,[12] an on-site mitigation package was developed.

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[5] Robert McKinnon and Ron Small, *Personal Communication*, 27 May 2004. California Department of General Services, 707 Third Street, Sixth Floor, West Sacramento, CA 95814-6280.

[6] Sher Daniels, *Personal Communication,* 2004.

[7] California Department of Fish and Game, 17 October 1995. Memorandum to Division Chiefs. Subject: Staff Report on Burrowing Owls. Prepared by: California Department of Fish and Game, 1416 Ninth Street, Sacramento, CA 95814.

[8] E.A. Haug, B.A. Millsap, and M.S. Martell, 1993. "*Speotyto cunicularia,* Burrowing Owl" in The Birds of North America, No. 61.

[9] H. Coulombe, 1971. "Behavior and Population Ecology of the Burrowing Owl, *Speotyto Cunicularia*, in the Imperial Valley of California." *The Condor*, *73*:162–176.

[10] D. Martin, 1973. "Selected Aspects of Burrowing Owl Ecology and Behavior." *The Condor*, *75*: 446–456.

[11] The Burrowing Owl Consortium, April 1993. "Burrowing Owl Survey Protocol and Mitigation Guidelines." Prepared by: The Burrowing Owl Consortium.

There is substantial existing available information regarding the successful passive relocation of burrowing owls. Mineta San Jose International Airport has been actively managing a resident colony of burrowing owls consistent with a Burrowing Owl Management Plan prepared in 1991 and adopted in 1996 in the airport's Master Plan. Management of the burrowing owl population is based on passive relocation of burrowing owls. Mr. Jack Barclay, principal and senior wildlife biologist at Albion Environmental, has been conducting research of the Mineta San Jose International Airport burrowing owl population for 13 years. Data resulting from this research was presented at the 2003 California Burrowing Owl Symposium and will be published within a year. The research conducted at the Mineta San Jose International Airport verifies that burrowing owls are successfully utilizing the artificial burrows.[13] Monitoring of the burrowing owl population has revealed a population increase of 400 percent over the past 13 years.[14] In addition, the nesting success rate for burrowing owls using artificial burrows was 88 percent, a higher rate than experienced by burrowing owls using natural burrows.[15]

HABITAT QUALITY OF DESIGNATED CONSERVATION AREAS

Concerns were expressed regarding the quality of the areas designated for long-term conservation of burrowing owl habitat. Dr. Bath expressed concerns regarding the potential exposure to urban pollutants in water that would be present during and following flood events in the Magnolia and Cypress channels and project-related runoff that would be present in the retention basins.

As indicated in Figure 3.4.6-1 of the EIR, the only water sources available to burrowing owls in the study area are the Magnolia Channel and Cypress Channel (urban flood control channels) and Ruben S. Ayala Park. The entire foraging area is irrigated with recycled water from CDC Facilities. As indicated in Section 3.8.6, Mitigation Measures, of the EIR, conformance with the standard construction and operation practices required pursuant to the National Pollution Discharge Elimination System permit would reduce impacts to water quality from construction and operation of the proposed project to below the level of significance. Therefore, integration of long-term conservation lands for the burrowing owl with the detention basins provides for a compatible use.

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[12] California Department of Fish and Game, Environmental Services Division, October 1995. "Staff Report on Burrowing Owl Mitigation.

[13] Jack Barclay, 2003. "Burrowing Owl Management at Mineta San Jose International Airport." California Burrowing Owl Symposium, Sacramento, California.

[14] Jack Barclay, January 2004. Personal Communication with Jack Barclay, Albion Environmental.

[15] Jack Barclay, 2003. "Population Dynamics of an Increasing Owl Colony at Mineta San Jose International Airport." California Burrowing Owl Symposium, Sacramento, California.

MITIGATION MONITORING

Dr. Jack Bath specified the importance of providing funding for long-term management of the designated conservation areas, including a five-year monitoring program.

The responsibilities and specification for long-term maintenance of the 39 acres designated for long-term conservation of the burrowing owl are included in mitigation measure Burrowing Owl-8. The EIR describes the recommended requirement for a five-year mitigation monitoring plan for the 39 acres designated for long-term conservation of the burrowing owl in mitigation measure: Burrowing Owl-7.