

WEST PATTERSON PROJECTS FINAL EIR

VOLUME 2: COMMENTS AND RESPONSES / APPENDICES

WEST PATTERSON PROJECTS REVISED DRAFT EIR: COMMENTS AND RESPONSES

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COMMENTS AND RESPONSES

WEST PATTERSON PROJECTS

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

**WEST PATTERSON BUSINESS PARK
MASTER DEVELOPMENT PLAN**

KEYSTONE PACIFIC BUSINESS PARK

PATTERSON GARDENS

**STATE CLEARINGHOUSE NOS. 2001022031 AND 2001032037
CITY OF PATTERSON**

**REVISED DRAFT EIR PUBLICATION DATE:
OCTOBER 3, 2002**

**REVISED DRAFT EIR PUBLIC COMMENT PERIOD:
OCTOBER 3 THROUGH NOVEMBER 18, 2002**

**COMMENTS AND RESPONSES PUBLICATION DATE:
DECEMBER 11, 2002**

**PREPARED FOR THE CITY OF PATTERSON BY
TURNSTONE CONSULTING**

WEST PATTERSON PROJECTS REVISED DEIR COMMENTS AND RESPONSES

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I. INTRODUCTION

The Revised Draft Environmental Impact Report for the West Patterson Projects (Revised DEIR) was circulated for public review from October 3 through November 18, 2002. The City of Patterson Planning Department held a public hearing to provide the public with an opportunity to present oral comments on the Revised DEIR on November 6, 2002. Written comments were accepted through the end of the public review period.

The California Environmental Quality Act (CEQA) requires that a list of agencies and persons commenting on the DEIR be included, and that written responses be prepared to all substantive comments received that raise environmental issues. In compliance with this requirement, Section II of this Comments and Responses document presents a list of agencies and persons commenting, and Section III presents copies of all comments received during the public comment period and responses to environmental issues. No comments were presented by agencies or members of the public at the public hearing on the Revised DEIR; therefore, a copy of the transcript of the public hearing has not been included.

Each comment letter is designated alphabetically, and environmental issues in each letter are identified by the letter designation and a number (e.g., Letter A includes Comments A.1, A.2, and A.3). Immediately following each comment letter are responses to the comments in that letter, identified by the letter/number designation. Items discussed in comment letters that do not raise environmental issues are not designated and do not require responses. Responses generally explain information in the Revised DEIR and refer to the pages in the Revised DEIR text where the topic being discussed is located. Responses that include minor modifications to the Revised DEIR text identify the new text in bold; text that is deleted is not shown, for ease of reading and understanding the text as revised.

Section IV includes minor revisions and clarifications to the Revised DEIR text that were identified by staff during the public comment period and were not raised in any comment letters. The same system of bold to identify new wording is used here as in the responses in Section III.

II. LIST OF COMMENTORS ON THE REVISED DEIR

Letter	Commentor	Letter/Comment Date
A	United States Fish and Wildlife Service Cay C. Goude, Acting Field Supervisor	October 30, 2002
B	California Department of Fish and Game W.E. Loudermilk, Regional Manager	November 18, 2002
C	Stanislaus County Department of Planning and Community Development Kirk Ford, Deputy Planning Director	November 18, 2002
D	California Department of Conservation Erik Vink, Assistant Director	November 18, 2002
E	California Department of Health Services Joseph O. Spano, P.E., District Engineer	November 14, 2002
F	Regional Water Quality Control Board, Central Valley Region Anne L. Olson, P.E., Water Resources Control Engineer	November 15, 2002
G	San Joaquin Valley Air Pollution Control District John Cadrett, Air Quality Planner	November 18, 2002
H	Stanislaus County Local Agency Formation Commission Fran Sutton-Berardi, Executive Officer	November 8, 2002
I	Stanislaus County Sheriff's Department Richard Breshears, Assistant Sheriff	October 21, 2002
J	Stanislaus Consolidated Fire Protection District Shirley Koelmans, Fire Prevention Specialist	November 4, 2002
K	West Stanislaus County Fire Protection District James W. Kennear, Fire Chief	September 17, 2002
L	Herum, Crabtree & Brown, Attorneys at Law on behalf of Del Puerto Health Care District Steven A. Herum, Attorney at Law	November 18, 2002

List of Commentors on the Revised DEIR

M	Patterson Flying Service Warren Fink, President	October 17, 2002
N	Protect Our Water Steve Burke San Joaquin Raptor Rescue Center Lydia Miller, President	November 18, 2002
O	Scott D. Nelson	November 14, 2002
P	California Department of Transportation Tom Dumas, Chief Office of Intermodal Planning	November 27, 2002
Q	Stanislaus County Environmental Review Committee W. Richard Jantz, Deputy Executive Officer Arlene Stevens, Assoc. Management Consultant	November 26, 2002

III. COMMENTS AND RESPONSES

This section presents the comment letters received on the Revised Draft Environmental Impact Report for the West Patterson Projects and responses to the environmental issues raised in the comments.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

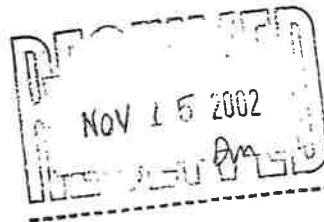
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:

1-1-02-TA-3450

October 30, 2002

Mr. Rod Simpson
Planning Director, City of Patterson
33 South Del Puerto Avenue
P.O. Box 667
Patterson, California 95363



Subject: Endangered San Joaquin Kit Fox and the West Patterson Master Development Plan Revised Draft Environmental Impact Report, Stanislaus County, California

Dear Mr. Simpson:

This letter is in response to the proposed West Patterson Master Development Plan Revised Draft Environmental Impact Report (DEIR) prepared for the City of Patterson by Turnstone Consulting. The DEIR was published on October 3, 2002, and a copy of the DEIR was received by the U.S. Fish and Wildlife Service (Service) on October 16, 2002. The preferred alternative in the DEIR is a commercial and residential development on approximately 1125 acres of land west of the present development in the City of Patterson, Stanislaus County, California. These comments are provided pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act) and express our concerns that the implementation of the proposed alternative is likely to result in take of the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*) (kit fox).

On July 30, 2002, Kirk Ford of Stanislaus County Planning and Community Development, Kent Smith of H.T. Harvey Associates, and Leo Edson of EDAAW, Inc. met with Mike Fris, Susan Jones, and Adam Zerrenner of my staff to discuss a kit fox conservation strategy for west Stanislaus County, a possible habitat conservation plan for this species, and a possible interim letter of agreement between the Service and Stanislaus County. On August 29, 2002, Kirk Ford, Leo Edson, and David Nawi of Shute, Mihaly & Weinberger LLP, met with myself, Mike Fris, Susan Jones, and Adam Zerrenner of the Service to further discuss the issues described above. The Service appreciates Stanislaus County (County) taking the time to meet with the Service to discuss kit fox conservation and encourages County to continue these discussions.

West Patterson Master Development Plan Revised Draft Environmental Impact Report

The DEIR proposes a development project west and adjacent to the present development in the City of

Patterson, known as the West Patterson Business Park Master Development Plan Area. The proposed development that would occur in this area is a light industrial and business park that would occupy 820 acres. Additionally, the DEIR proposes a 305-acre residential development project known as Patterson Gardens to the south of the City of Patterson. Patterson Gardens, separate from the West Patterson Business Park Master Development Plan Area, consists of approximately 940 single-family residential homes, a 47-unit senior residential neighborhood, a 300,000-square-foot commercial/office area, and recreation and open space area. Both of these proposed developments will require various infrastructure improvements, including an expansion to the City of Patterson's wastewater treatment facilities, new and upgraded roadways, new or upgraded drainage facilities, and new or upgraded water supply systems.

The Service has provided technical assistance in two letters dated March 8 and September 21, 2002, regarding the 2001 Draft Environmental Impact Report for the West Patterson Master Development Plan and the Patterson Gardens Project regarding potential adverse affects to the kit fox (file # 1-1-01-TA-1257; 1-1-01-TA-2964). The Service has also provided technical assistance to Stanislaus County Planning and Community Development members on March 18 and April 4, 2002, and in two letters regarding Patterson Gardens Development Project (file # 1-1-02-TA-1230) dated April 3, 2002, and Keystone Development Project dated April 3, 2002 (file # 1-1-02-TA-1435), regarding the kit fox.

Federally endangered San Joaquin kit fox

The Service has concerns regarding the potential adverse effects that will occur from construction of the preferred alternative on the long-term survival and recovery of the kit fox. The preferred alternative lies within an important kit fox movement corridor, which links the northern-most kit fox sub-population to the Santa-Nella kit fox sub-population and Ciervo/Panoche core population (Service 1998). Scientific evidence suggests that corridors facilitate the movement between isolated sub-populations (Tewksbury *et al.* 2002), as well as serving to increase the habitat area for sub-populations to which they are connected.

The Service has information that documents at least seven occurrences of kit foxes within this identified corridor. The land use at the preferred alternative site consists of row crops and ruderal fields, which kit fox are known to use for movement and foraging. Some of the land use at the site also consists of orchards, which kit fox can also utilize for corridors. Based on the land use of the preferred alternative site and its location in the kit fox movement corridor, construction at the preferred alternative site is likely to result in take of the kit fox. Dr. Dan Williams and Dr. Brian Cypher also suggest that areas where the Diablo Mountain Range is adjacent to Interstate 5 (area of preferred alternative) should be protected as part of a kit fox corridor (Williams *in litt.* 2002; Cypher *in litt.* 2002).

A.1

As part of the DEIR, surveys were conducted using Service-approved protocols for the kit fox and the results of the surveys did not indicated the presence of kit foxes in the area during the surveys. The Service appreciates that surveys were conducted for this species and this information will assist in the analysis of effects to the kit fox from implementation of future projects occurring in this area.

The DEIR has designated the lands between the canals as kit fox habitat and has proposed mitigation for the development as part of the preferred alternative that may occur in this area at a 2:1 mitigation ratio. The Service appreciates that the County and City of Patterson have proposed mitigation for the kit fox for these areas, but the Service is concerned that areas, in addition to those mentioned for proposed mitigation, are also kit fox habitat and will require incidental take authorization.

Environmental baseline

Because of the land use conversion that has occurred in the San Joaquin Valley, kit fox habitat has been reduced by approximately 90%, which has created habitat that supports fragmented sub-populations of the species. The Service has concerns that the development in the proposed DIER will further fragment and isolate kit fox sub-populations, reducing gene flow, altering the demographics of the kit fox, and increasing the potential for extirpation of the northern metapopulation. Service biologists estimated that the remaining suitable habitat in the northern range can support approximately 17 to 20 breeding pairs of kit foxes (Bell 2000, personal communication). The small size of the northern sub-population and its isolation from other established populations make this northern-most population vulnerable to extinction owing to predation and competition from coyotes and red foxes, inbreeding, catastrophic events, and disease epidemics (White *et al.* 2000).

The reason the Service is concerned with the area that the preferred alternative is located is that the "environmental baseline" in the "action area" of the preferred alternative has been reduced to a level that may impede survival and recovery of the kit fox. The environmental baseline includes, "the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation process" (50 CFR § 402.02). The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02 (d)).

The City of Patterson has been expanding westward toward the Delta Mendota Canal (DMC) over the last decade. The Service is presently consulting on the Creekside Meadows Development Project (file # 1-1-02-I-2898) located in the western end of the City of Patterson. Construction is also occurring in this area for several other development projects. Development has occurred between the DMC and the California Aqueduct, blocking passage between the canals at the Sperry Road - City of Patterson exit on Interstate 5 (I-5). All of these projects presented above, including I-5, the DMC, and the California Aqueduct, have narrowed the remaining kit fox habitat on the San Joaquin Valley floor in the action area of the preferred alternative.

On the west side of I-5, the Diablo Mountain range runs adjacent to I-5, creating an area of extreme topographic ruggedness west and adjacent to the preferred alternative. Empirical evidence suggests that kit foxes avoid extreme topography and are placed at higher predation risks in these areas as compared to areas of lesser and more gentle terrain (Warrick and Cypher 1988). Additionally, the

Diablo Grande Parkway has been constructed in this area and will serve as the primary access road to the Oak Flat Village, a component of the Diablo Grande Development Project (file # 1-1-93-F-0011). Oak Flat Village will include 1,980 residential units, including single and multi-family units, a town center, shopping center, public services, and resort complex. The Service is concerned that the area west of I-5 creates an area of high mortality risk from the topography, in addition to the Diablo Grande Parkway from traffic and associated maintenance of the road.

A.1
cont.

Regulatory process

Section 9 of the Act prohibits the "take" (e.g., harm, harass, pursue, injure, kill) of federally-listed wildlife species. "Harm" (i.e., "take") is further defined to include habitat modification or degradation that kills or injures wildlife by impairing essential behavioral patterns including breeding, feeding, or sheltering. Congress established two provisions (sections 7 and 10) that allow for the "incidental take" of endangered species of wildlife by Federal agencies, private interests, and non-Federal government agencies. Incidental take is defined as take that is "...incidental to, and not the primary purpose of, the carrying out of an otherwise lawful activity." Such take requires authorization from the Service or the National Marine Fisheries Service, as appropriate, that anticipates a specific level of take for each listed species.

Take incidental to an otherwise lawful activity may be authorized by one of two procedures. If a Federal agency is involved with the permitting, funding, or carrying out of the project, then initiation of formal consultation between that agency and the Service pursuant to section 7 of the Act is required if it is determined that the proposed project may adversely affect a federally listed species. Such consultation would result in a biological opinion that addresses the anticipated effects of the project to the listed species and may authorize a limited level of incidental take. If a Federal agency is not involved with the project, and federally listed species may be taken as part of the project, then an incidental take permit pursuant to section 10(a)(1)(B) of the Act would need to be obtained. The Service may issue such a permit upon completion of a satisfactory habitat conservation plan (HCP) for listed species that would be affected by the project.

A.2

As part of a HCP process, the Service as a Federal agency must demonstrate that it has complied with the requirements of the National Environmental Policy Act (NEPA) by examining the environmental impacts of its actions (40 CFR 1500-1508). The Service demonstrates compliance by completing a Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement. In all cases it is the Service's decision as to the type of documentation that is needed to comply with NEPA.

Service Recommendation

The residential, commercial, industrial, and recreational development associated with this sudden population growth is, and will continue to consume the remaining habitat utilized by the San Joaquin kit fox in its northern range. The development pressure is expected to increase in the future. For the period between 1995 to 2025, California is projected to have the fastest growing population in the United States with an increase of 17.7 million people in 30 years (Campbell 1997). A review of the

A.3

Mr. Kirk Ford

5

actual 2000 population from the most recent census shows that the population has already surpassed that projected population estimates by more than 1.3 million people (U.S. Census Bureau 2001, Campbell 1997), suggesting that future growth rates may be higher than those projected. In Stanislaus County, the population has grown from 375,089 to 459,025 people between 1990 and 2000, and the population is projected to grow to 585,519 and 846,998 people by 2010 and 2030 (CDOF 1998).

Because of the population growth projected to occur in Stanislaus County and the present conditions in western Stanislaus County as it relates to the kit fox, the Service would like to continue to collaborate with the City of Patterson and Stanislaus County toward the development of a regional HCP. A HCP should provide a conservation strategy that will allow kit foxes to utilize the movement corridor, in addition to streamlining the permit process for take authorization of federally listed species that do not have a federal involvement. For those projects that have Federal involvement, the Service recommends obtaining incidental take authorization through section 7 of the Act.

A.3
cont.

We appreciate your efforts to help assist in the recovery of the kit fox. Please contact Adam Zerrenner or Susan Jones of my staff at (916) 414-6630, if you have any questions regarding the West Patterson Master Development Plan Revised Draft Environmental Impact Report.

Sincerely,


Cay C. Goude
Acting Field Supervisor

cc:

U.S. Army Corps of Engineers, Sacramento, California (Attn.: Mike Jewel, Nancy Haley, Kathy Norton)

National Marine Fisheries Service, Sacramento, California (Attn.: Michael Aceituno, Madeline Martinez)

Environmental Protection Agency, San Francisco, California (Attn.: Elizabeth Goldman)

California Department of Fish and Game, Fresno, California (Attn.: Michael Mulligan, Dan Applebee)

California Department of Transportation, Fresno, California (Attn.: Terry Marshall)

Stanislaus County Department of Public Works, Modesto, California (Attn.: George Stillman)

Stanislaus County Planning and Community Development, Modesto, California (Attn.: Kirk Ford)

H.T. Harvey & Associates, San Jose, California (Attn.: Kent Smith)

Foxglove Environmental, Meadow Vista, California (Attn.: Mara Bresnick)

Shute, Mihaly & Weinberger LLP, Sacramento, California (Attn.: David Nawi)

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- Campbell, P.R. 1997. Current Population Reports-Population Projections, States: 1995-2025. U.S. Census Bureau. May 1997. <http://www.census.gov/prod/2/pop/p25/p25-1131.pdf> Accessed June 25, 2002.
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- White, P.J., H.B. William, J.J. Eliason, and M.T. Hanson. 2000. Catastrophic decrease in an isolated population of kit foxes. *Southwestern Naturalist* 45(2):204-211.
- PERSONAL COMMUNICATION**
- Heather Bell, U.S. Fish and Wildlife Service, Sacramento, California.
- IN LITT.**
- Williams, D. 2002. Email correspondence between Adam Zerrenner of the Service and Dr. Dan Williams of the Endangered Species Recovery Program.
- Cypher, B. 2002. Email correspondence between Adam Zerrenner of the Service and Dr. Dan Williams of the Endangered Species Recovery Program.

RESPONSES TO LETTER A, UNITED STATES FISH AND WILDLIFE SERVICE

Response to Comment A.1:

The U.S. Fish and Wildlife Service (Service) is concerned that “the preferred alternative lies within an important kit fox movement corridor....” In fact, only a small portion of the preferred alternative (less than 72 acres) lies within a potentially viable movement corridor for the kit fox. This is the area just west of the Delta Mendota Canal and lies between the canal and the California Aqueduct. This land is specifically identified in the Revised DEIR (Section III.D, Biological Resources, pp. III.D.26 to III.D.28 and III.D.46 to III.D.47) as providing a possible movement corridor for the fox. Measures are identified in the Revised DEIR to specifically address potential impacts to this corridor (pp. III.D.47 to III.D.48).

There is little historical evidence to indicate the extent to which kit foxes regularly occurred in the Valley to the east of the existing Delta Mendota Canal.¹ Grinnell et al.² described the range of the species prior to 1930 as extending to Tracy in San Joaquin County on the west side of the San Joaquin Valley, and believed that by 1930 the range of the kit fox throughout the Valley had been reduced by half. The long history of intense agricultural and urban/industrial development in the northern San Joaquin Valley has made the lands to the east of the Delta Mendota Canal inhospitable and dangerous to kit fox, should one wander into this area. While the Revised DEIR has recognized the potential of the lands between the canal and Interstate 5 (I-5) to serve as kit fox habitat, the Service’s Recovery Plan for Upland Species of the San Joaquin Valley identifies only those open grasslands west of I-5 as the primary “recovery” corridor for the kit fox.³

In response to comments regarding documented occurrences, the map provided by the Service showing known kit fox sightings in western Stanislaus County indicates eight sightings rather than seven. Of these, six occur either along or west of I-5. The

¹ Dan Williams, Endangered Species Recovery Program, Turlock, California, personal communication, May 2, 2002.

² Grinnell, J., J.S. Dixon, and J.M. Linsdale, *Furbearing Mammals of California: Their Natural History, Systematic Status, and Relations to Man*, University of California Press, 1937.

³ U.S. Fish and Wildlife Service, *Recovery Plan for Upland Species of the San Joaquin Valley, California*, Region 1, Portland, Oregon, 1998, p. 225.

remaining two occurrences, both of which were in southernmost Stanislaus County, over 10 miles from the West Patterson project area, occurred east of I-5, but immediately adjacent to, or west of the Delta Mendota Canal. There are no known sightings in the agricultural lands east of the canal. All known sightings in western Stanislaus County are consistent with the recognition of a potential movement corridor west of the Delta Mendota Canal as specifically identified in the Revised DEIR (pp. III.D.46 to III.D.47). Full protocol-level kit fox surveys conducted for the DEIR failed to provide any additional evidence that foxes are using the agricultural lands east of the canal. Mitigation measures have been specifically identified in the DEIR to address potential impacts to lands within the proposed alternative that are west of the canal (pp. III.D.46 to III.D.47).

With respect to statements attributed to Dr. Dan Williams and Dr. Brian Cypher that areas where the Diablo Mountain Range is adjacent to I-5 should be protected as part of a kit fox corridor, our conversations with these two recognized experts have clearly indicated that they both believe that the primary movement corridor for kit foxes in western Stanislaus County is, as stated in the Recovery Plan, through the grassland foothills west of I-5.⁴ This position was reconfirmed with Dr. Cypher by phone on November 22, 2002, in response to the Service's comment letter. While the Service maintains that foxes moving through this area may be subjected to higher predation risk (see below), Dr. Williams commented that, in fact, foxes moving out of the foothills into the agricultural lands along the valley floor are subject to extreme risk from both native (primarily coyote) and non-native (domestic dogs, red foxes, etc.) species.⁵

Stanislaus County and the Service are currently in the process of negotiating a conservation strategy agreement for the kit fox and other listed species in the western portion of the County (Stanislaus County comment letter on the Revised DEIR, November 18, 2002, shown in this document as "Comment Letter C"). The primary focus of this conservation strategy is achieving the Recovery Plan goal of obtaining long-term protection over 80 percent of the grassland community to the west of I-5, up to 800 feet in elevation. This would provide a conservation movement corridor for kit fox through western Stanislaus County. Establishment of this corridor would adequately link

⁴ Dan Williams and Brian Cypher, personal communication, 2002, cited in Revised DEIR on p. III.D.65.

⁵ Dan Williams, personal communication, May 2, 2002.

the northernmost kit fox sub-population to the Santa Nella sub-population and Ciervo/Panoche core population further to the south.

Regarding the Service's concern that areas other than those west of the Delta Mendota Canal will require incidental take authorization, there is no evidence that kit foxes are currently using agricultural lands east of the Delta Mendota Canal. Protocol-level surveys fully support this conclusion. Incidental take authorization may be required for the area west of the canal, should that land be proposed for development in the future. Based on the available data, including the recent protocol-level surveys, incidental take authorization does not appear warranted for development of lands to the east of the canal as the kit fox does not currently occupy this area. However, recognizing that kit fox could, on rare occasions, move through this area, the Revised DEIR contains construction avoidance and minimization measures to protect kit fox during construction activities in Mitigation Measures D.1.a and D.1.b. In addition, it is anticipated that the conservation strategy being discussed between the County and the Service will involve a variety of measures and conditions, such as development setbacks and/or landscape buffers (Comment Letter C), that would be applicable to all development requesting grading or demolition permits after the strategy is agreed upon and established. The City of Patterson and Stanislaus County would comply with any such provisions in permitting activities on lands covered by the conservation strategy, including those within the West Patterson project area.

The Service's contention that the project will cause further fragmentation of kit fox habitat in the region and that the "environmental baseline in the action area of the preferred alternative has been reduced to a level that may impede survival and recovery of the kit fox" is somewhat confusing in its context. There is valid concern for supporting kit fox movements through western Stanislaus County, just as there is in the Santa Nella region of western Merced County further to the south. However, the expressed interest of the Service Recovery Plan for the kit fox, and of recognized kit fox experts, is that the corridor provided in the western portion of the County allow foxes to move through, especially from south to north, as safely as possible. The Service has reiterated this goal in numerous telephone conversations with H.T. Harvey & Associates regarding the proposed project. There is no supporting biological data to indicate that the area east of the Delta Mendota Canal is, or has in recent history, been used for denning or as a movement corridor for the species. As mentioned above, all documented occurrences have been immediately adjacent to, or in the great majority of cases, west of the canal.

Of the eight reported sightings in western Stanislaus County recorded in the Endangered Species Recovery Program "kit fox occurrence records," only four occurred within a 10-mile radius of the West Patterson project area. All four of these records occur west of I-5. Two sightings occurred two miles south of the intersection of Oak Flat Road and I-5, just over four miles south of the project location. Western Ecological Services Company (WESCO) recorded one of these sightings in 1990. The other was made by Vouchilas in 1980. Vouchilas also reported another sighting occurring just west of I-5 in 1990. The USFWS reports a kit fox sighted along Del Puerto Canyon Road in 1973.⁶ Crawford et al. reported a California Natural Diversity Data Base (CNDDB) record with only one documentation of kit fox in the Patterson Quadrangle, presumably the same 1973 record.⁷ This occurrence is located along Del Puerto Canyon Road, approximately three miles northwest of the project site. The other four sightings are from southern Stanislaus County, and include two sightings by Clifton in 1988 and 1998, and single sightings by Briden and Varree in 2001. These are the only sightings that have been recorded in the County over the past 30 years.⁸

No kit foxes were observed during LSA surveys of Oak Flat Valley (approximately three miles south of the project area) in 1990 and 1992.⁹ Small canid scats were located at five potential den sites. However, they could not be identified. In addition, no kit foxes were detected during focused surveys conducted in 1993 in the immediate vicinity of the project area.¹⁰ EDAW did not detect any positive signs of kit foxes during focused surveys conducted in 1999 for the Fink Road Landfill Expansion Draft EIR four miles

⁶ USFWS, Formal Section 7 Consultation for the Authorizations to Fill Wetlands to Construct an Access Road to the Diablo Grande Development in Stanislaus County, California. January 10, 1995; (Reference # 1-1-93-F-11).

⁷ Crawford, Multari & Clark Associates, *Patterson Gardens Project: Draft Environmental Impact Report*, Clearinghouse No. 2001032037, August 2001.

⁸ Endangered species recovery program kit fox occurrence records database, 15 April 2002. Records include Vouchilas 1980, 1990; Clifton 1988, 1998; Western Ecological Services Company (WESCO) 1990; USFWS 1993; Briden 2001; Varree 2001.

⁹ USFWS, Formal Section 7 Consultation for the Authorizations to Fill Wetlands to Construct an Access Road to the Diablo Grande Development in Stanislaus County, California. January 10, 1995; (Reference # 1-1-93-F-11).

¹⁰ Crawford, Multari & Clark Associates, *Patterson Gardens Project: Draft Environmental Impact Report*, Clearinghouse No. 2001032037, August 2001.

south of the project site.¹¹ H.T. Harvey & Associates conducted pre-construction surveys for kit fox along the Diablo Grande access road alignment during May 2002 and did not detect any sign of their presence.¹²

Empirical evidence indicates that kit foxes, while difficult to detect, are routinely detected in areas where they persist in the northern part of their range. The kit fox has been regularly detected with less extensive effort in many places in Alameda, Contra Costa, and San Joaquin Counties. Jones and Stokes in 1987-88 conducted surveys in the Kellogg Creek Watershed and reported 15 kit fox observations during 51 nights of spotlighting.¹³ H.T. Harvey & Associates reported three kit fox observations during 27 nights of spotlighting in the Villages of Laguna San Luis (in western Merced County) in 1988-89.¹⁴ Eight confirmed tracks or scats of kit foxes were also located during these surveys. EIP Associates in 1991-92 conducted detailed surveys for the Western San Joaquin County Habitat Conservation Plan.¹⁵ They did not detect any kit foxes during 12 nights of spotlight surveys, but they did detect kit foxes at 11 of 129 scent stations operated for a total of 827 nights, and four of fifteen camera stations operated for 97 nights.

The H.T. Harvey surveys, conducted for the proposed project and using the current 1999 Protocol guidelines, did not detect any kit foxes. Kit foxes were not detected during 10 spotlight nights, 120 track plate nights, and 125 camera stations nights. Although not surprising because of the highly disturbed habitat and residences, over 61 percent of all carnivore detections (spotlight, track, and camera combined) were of domestic animals.

¹¹ EDAW, *Draft Environmental Report for the Fink Road Landfill Expansions Project*, 2001. Prepared for the County of Stanislaus Department of Public Works.

¹² H.T. Harvey & Associates, *Diablo Grande cut-across road San Joaquin Kit Fox and nesting raptor pre-construction survey*, Project No. 2118-01, 2002.

¹³ Jones and Stokes Associates, *Plant Communities and Special-Status Plants and Animals of the Kellogg Creek Watershed, Contra Costa County, California: Results of Field Inventories and Habitat Evaluations*, Sacramento, California, 1989.

¹⁴ H.T. Harvey & Associates, *The Villages of Laguna San Luis Project Site Wildlife Resources Study*, Project No. 526-02, 1990.

¹⁵ EIP Associates, *Draft Habitat Conservation Plan, San Joaquin Kit Fox, Western San Joaquin County*, prepared for the San Joaquin Community Development Department, Stockton, California, 1993.

The Service contends that “empirical evidence suggests that kit foxes avoid extreme topography and are placed at higher predation risks in these areas as compared to areas of lesser and more gentle terrain.” In essence, the Service believes that because of the steeper topography in the hills just west of I-5, that foxes are being “forced” into the flatter lands of the Valley.¹⁶ In support of this position, the Service has cited a 1998 study (the US Fish and Wildlife Service letter incorrectly cites this study as 1988)¹⁷ conducted in the extreme southwestern portion of the San Joaquin Valley on the Elk Hills Naval Petroleum Reserve.

In fact, the results of the cited study relate to capture rates of foxes that are primarily resident to the area, and not dispersing animals, and do not suggest that topography poses a barrier to foxes moving through an area. The concern in western Stanislaus County is over the ability of foxes to move as safely as possible through the area. It is not an issue of protecting or establishing a population of resident foxes in the area. There is no scientific evidence that topography such as that existing west of I-5 in the West Patterson area poses a barrier to moving or dispersing foxes. H.T. Harvey has studied this issue in detail and discussed the matter with Dr. Cypher, one of the cited study’s co-authors.¹⁸ Topography west of I-5 is not considered a significant barrier to movement by kit fox through this area. Kit foxes in Nevada moved through mountainous areas and other uncharacteristic environments during dispersal.¹⁹ Radio-collared kit foxes have been recorded on slopes up to 71 degrees (290 percent slope).²⁰ Chadwick and Odenweller

¹⁶ Adam Zerrenner, USFWS, meeting with Stanislaus County, July 30, 2002.

¹⁷ Warrick, G.D. and B.L. Cypher, “Factors Affecting the Spatial Distribution of San Joaquin Kit Foxes,” *Journal of Wildlife Management* 62:707-717, 1998.

¹⁸ Brian Cypher, Endangered Species Recovery Program, Bakersfield, California, November 25, 2002.

¹⁹ O’Neal, G.T., J.T. Flinders, and W.P. Clark, “Behavioral Ecology of the Nevada Kit Fox (*Vulpes macrotis nevadensis*) on a Managed Desert Rangeland,” pages 443-481 in *Current Mammalogy* (H.H. Genoways, ed.), Plenum Press, New York, 1987. *Cited in:* Koopman, M.E., B.L. Cypher, and J.H. Scrivner, “Dispersal Patterns of San Joaquin Kit Fox (*Vulpes macrotis mutica*),” *Journal of Mammalogy* 81(1):213-222, 2000.

²⁰ Koopman, M.E., B.L. Cypher, and D.R. McCullough, “Factors Influencing Space and Prey Use by San Joaquin Kit Foxes,” *Transaction of the Western Section of the Wildlife Society* 37:77-83, 2001.

found kit foxes denning on slopes up to 29 degrees (55 percent slope),²¹ and Archon found dens on slopes as steep as 55 degrees (142.8 percent slope).²²

Like topography, elevation west of I-5 is not an impediment to use of the terrain as a corridor. Chadwick and Odenweller located 271 active dens of radio-collared kit foxes in the Los Banos Grandes project areas in western Merced County.²³ Of these, four were reported at elevations between 1400 and 1460 feet, with the remaining 267 between 400 and 1100 feet. The San Joaquin County Multi-Species Habitat Conservation Plan uses 800 feet as the upper elevation of prime habitat for kit fox in areas west of I-5. Using a similar approach would provide for a corridor of approximately 1.5 miles wide west of I-5 and the preferred alternative site.

Response to Comment A.2:

The City of Patterson and Stanislaus County are aware of the regulatory processes associated with the federal Endangered Species Act and the National Environmental Policy Act and the procedures for ensuring compliance with the provisions of these Acts.

Response to Comment A.3:

As noted in Section III.N, Population, Housing and Employment, according to the 2000 U.S. Census, Stanislaus County population was about 447,000, not 459,025 as stated in the comment (see p. III.N.1 and Stanislaus Council of Governments web page Census Data Center at www.stancog.org). The California Department of Finance forecast the County population to have grown by about 2.5 percent per year, to about 469,500 by 2002. The CDOF *Interim County Population Projections*, June 2001, estimated a

²¹ Chadwick, H.K. and D.B. Odenweller, *Los Banos Grandes Project: Fish and Wildlife Resources Final Report*, Interagency Agreement - California Department of Fish and Game and the California Department of Water Resources, 242 pp., September 1988.

²² Archon, M., "Ecology of the San Joaquin Kit Fox in Western Merced County, California." M.A. thesis, California State University, Fresno, 62 pp, 1992. Cited in USFWS, *Recovery Plan for Upland Species of the San Joaquin Valley, California*, Region 1, Portland, Oregon, 1998, 319 pp.

²³ Chadwick, H.K. and D.B. Odenweller, *Los Banos Grandes Project: Fish and Wildlife Resources Final Report*, Interagency Agreement - California Department of Fish and Game and the California Department of Water Resources, 242 pp., September 1988.

Comments and Responses
Letter A

population of about 772,000 in the County by 2020. Regardless of the specific population figures, the City of Patterson and Stanislaus County understand that continued growth and development in the western portion of the County could result in impacts to sensitive resources of the region, including the San Joaquin kit fox. As mentioned in the response to Comment A.1, above, the County is currently working towards an agreement with the Service on a conservation strategy approach that will address impacts to the most threatened of these resources, including the kit fox (see Comment Letter C). The City of Patterson appreciates the continued collaboration between the County and the Service on a conservation strategy for the kit fox.



State of California - The Resources Agency

DEPARTMENT OF FISH AND GAME

<http://www.dfg.ca.gov>

San Joaquin Valley and Southern Sierra Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4014

GRAY DAVIS, Governor



November 20, 2002

Mr. Rod R. Simpson
City of Patterson
33 South Del Puerto Avenue
Patterson, California 95363

Dear Mr. Simpson:

West Patterson Projects Revised Draft EIR:
West Patterson Business Park Master Development Plan, Keystone Pacific Business
Park, and Patterson Gardens Planned Development
(SCH Nos. 2001022031 and 2001032037)

The California Department of Fish and Game (Department) has reviewed the above Project for potential impacts to fish and wildlife resources. The Project is composed of several elements including the Business Park Master Development Plan (MDP), the Keystone Pacific Business Park (KPBP), the Patterson Gardens Planned Development (PGPD), and supporting infrastructure. The MDP would provide a land use plan for the site and amend the General Plans of the City of Patterson and Stanislaus County by establishing zoning, allowable uses, development standards, and an infrastructure framework. The MDP proposes light industrial and distribution/warehouse uses on 820 acres, including the 224-acre KPBP proposed for development at this time. The KPBP proposal includes approximately 2.5 million square feet of light industrial and warehouse space. The PGPD proposes the development of a 305-acre site with 930-970 single family detached residences, 47 similar residences designed for seniors, a 12.4-acre school site, a 21.4-acre commercial site, parks and open space, and possibly a 16-acre lake/flood control basin. Supporting infrastructure planned as part of this proposal would include the widening of Sperry Avenue, Baldwin Road, Ward Avenue, improvements to the City's existing domestic water supply system, and expansion of the City's existing wastewater treatment facilities. The MDP and PGPD are located west of the City of Patterson and east of Interstate 5 in a currently unincorporated portion of Stanislaus County. We believe this Project may have a significant impact on wildlife resources.

We are most concerned with the impact this Project may have on the movements of the San Joaquin kit fox which is listed as Endangered under the Federal Endangered Species Act (ESA) and as Threatened under the California Endangered Species Act (CESA). This Project will focus future industrial and residential development west of the City and east of Interstate 5. The Project will have a growth inducing effect on this area through the improvement of roads, water, and sewer systems. Row crop agriculture currently predominates in this area providing habitat that kit fox can move through without incurring an inordinate risk of predation or other mortality. Preserving a movement

B.1

Mr. Rod R. Simpson
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corridor through the Patterson area is particularly critical since the topography west of Interstate 5 is considered to be too steep for use by kit fox.

While we appreciate that kit fox surveys have been conducted for this Project, we believe the anticipated growth associated with this proposal is likely to result in the "take" of kit fox that may be moving between populations to the north and south of the Project area. Take could be expected from collisions resulting from large increases in commercial and residential traffic, predation by domestic pets, increased predation from coyotes and red fox (species that are known to thrive in suburban environments), destruction of foraging and denning habitat, and by the disruption of normal movement patterns. The kit fox mitigation measures proposed in the EIR (D.1.a, and D.1.b) will not eliminate the possibility of "take" because approval of this Project will result in development in the very area where a movement corridor should be located. We recommend that you consult with the United States Fish and Wildlife Service (Service) to secure Incidental Take Authorization. Since the kit fox is also listed under CESA, you will need to secure Incidental Take Authorization from the Department. For dual listed species this is accomplished under the provisions of Section 2080.1 or Section 2081 of the Fish and Game Code once federal take authorization has been secured. We recommend future growth be directed away from the west side of the City to avoid significant impacts to kit fox.

We are also concerned with potential impacts to Swainson's hawk foraging habitat. We believe proposed mitigation measures D.2.a and D.2.b would adequately address our concerns with a slight modification: the \$600.00 per acre fee may not be adequate to acquire conservation easements in the Patterson area. An appropriate per acre fee should be selected in consultation with the Department that will fund permanent conservation easements on at least 0.75 acres of suitable habitat in the Patterson area. It should be noted that it appears the entire Project area is within the 1-5 mile range of known Swainson's hawk nests, and therefore the 0.75:1 mitigation ratio should be applied to all suitable foraging habitat lost within the Project area unless new nests within one mile of the Project are discovered during Project-related surveys. Please be aware that the Swainson's hawk is a California Threatened Species and direct "take" of the hawk would require an Incidental Take Permit from the Department.

The Project has the potential to impact the white-tailed kite (impact D.13). The kite is a Fully Protected Species as per Fish and Game Code Section 3511. The Department cannot authorize incidental "take" of such species. Therefore, "take" must be avoided. Additionally, the nest tree of any raptor should not be removed without providing for replacement nesting habitat.

The EIR indicates two seasonal ponds totaling 0.15 acres will be lost due to Project construction. The ponds may provide habitat for sensitive amphibian and invertebrate wildlife, including the California tiger salamander, the western spadefoot (both Department Species of Special Concern), and several vernal pool crustaceans (some species listed as Threatened or Endangered under the ESA). Surveys of these ponds should be conducted using established protocols to determine if sensitive species

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B.5

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are present before the ponds are modified. Following the surveys both the Department and the Service should be consulted before removing the ponds.

The EIR indicates that the City's wastewater and domestic water systems will be improved to provide capacity for this Project. Although several alternative scenarios are discussed, no specific plan is detailed in the EIR. We do not believe it is appropriate to adopt this EIR before the specifics of these infrastructure improvements are identified and disclosed. Impacts to fish and wildlife resources may result from the improvements but without specific proposals it is difficult for the Department to make specific recommendations. We would appreciate the opportunity to comment on the improvements when more specific information becomes available.

The commercial and residential construction that will result from this Project will require extensive outdoor lighting. Artificial lighting has been shown to disrupt the normal activity patterns of a wide array of wildlife. To minimize this impact we recommend that shielded directional lighting be used whenever possible.

Please be aware that this Project will require the issuance of a Stream Alteration Agreement as per Fish and Game Code Section 1601 for the proposed modifications to Salado Creek. Notification should be sent to Mr. Craig Kindlin at address on this letterhead. Notification packages are available at: <http://www.dfg.ca.gov/1600/1600.html>. Our approval of a 1601 Agreement is an action subject to California Environmental Quality Act (CEQA) review. The Department may use the lead agency's CEQA document to satisfy the disclosure and public review requirements of the act. To do so, the lead agency's document must contain specific information about: the type of work proposed, estimates of the amount of channel and riparian vegetation that would be disturbed, the type of equipment that would be used, future maintenance needs that are anticipated, and avoidance or mitigation measures proposed.

If you have any questions regarding these comments, please contact Mr. Daniel Applebee, Environmental Scientist, at the address or telephone number that follows: 17635 Murphy Court, Sonoma, California 95370; (209) 588-1879.

Yours sincerely,


W. E. Loudermilk
Regional Manager

cc: See Page Four

B.5
cont.

B.6

B.7

B.8

Mr. Rod R. Simpson
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cc: Mr. Adam Zerrenner
United States Fish and
Wildlife Service
2800 Cottage Way, W-2605
Sacramento, California 95825

Mr. Ron Freitas
Stanislaus County Planning Department
1010 10th Street, Suite 3400
Modesto, California 95354

Office of Planning and Research
State Clearinghouse
Post Office Box 3044
Sacramento, California 95812-3044

Mr. Craig Kindlin
Department of Fish and Game

Mr. Daniel Applebee
Department of Fish and Game

RESPONSES TO LETTER B, CALIFORNIA DEPARTMENT OF FISH AND GAME

Response to Comment B.1:

This concern has been addressed previously in the response to comments from the U.S. Fish and Wildlife Service; please see the response to Comment A.1. As stated in that response, there is no biological data to support the use of lands east of the Delta Mendota Canal as a kit fox movement corridor. The area between the canal and Interstate 5 (I-5) has been recognized in the Revised DEIR as a potential movement corridor and appropriate mitigation has been proposed (pp. III.D.46 to III.D.47). The statement that the topography west of I-5 is considered to be too steep for use by kit fox does not appear to be correct. The Service's Recovery Plan for Upland Species of the San Joaquin Valley specifically identifies this area as the primary movement corridor for kit foxes in the region.¹ Dr. Dan Williams and Dr. Brian Cypher, both recognized experts on the kit fox and authors of the Recovery Plan, believe that the area west of I-5 is, and should be, the primary focus of conservation efforts in western Stanislaus County.^{2, 3} The County is currently negotiating a conservation strategy agreement with the Service that will focus conservation efforts on the west side of I-5 (Comment Letter C).

Response to Comment B.2:

Please see the response to Comment A.1 from the U.S. Fish and Wildlife Service and the response to Comment B.1, above. The statement that "The kit fox mitigation measures proposed in the EIR (D.1.a and D.1.b) will not eliminate the possibility of 'take' because approval of this Project will result in development in the very area where a movement corridor should be located" is not supported, based on all of the available data, including the most recent protocol-level surveys conducted by H.T. Harvey & Associates. In fact, a movement corridor should follow the direction provided in the Recovery Plan, which is

¹ U.S. Fish and Wildlife Service, *Recovery Plan for Upland Species of the San Joaquin Valley, California*, Region 1, Portland, Oregon, 1998, p. 225.

² Dan Williams, Endangered Species Recovery Program, Turlock, California, personal communication, May 2, 2002.

³ Brian Cypher, Endangered Species Recovery Program, Bakersfield, California, personal communication, April 15, 2002.

the area lying west of I-5.⁴ The Revised DEIR specifically recognizes the potential for “take” in the area west of the Delta Mendota Canal (pp. III.D.46 to III.D.47), and it is understood that additional take authorization under both the federal and state Endangered Species Acts may be required for specific projects proposed in this area.

Response to Comment B.3:

The last sentence of the paragraph numbered as “2.” on p. III.D.50, under Mitigation Measure D.2.(b) in Section III.D, Biological Resources, is revised as follows to clarify the effect of potential changes in cost of lands to be set aside and/or protected:

When these funds are ultimately applied for mitigation purposes, should the actual cost of setting aside and protecting lands under this provision be less or greater than the \$600 per developed acre, then the project proponent will, as applicable, be reimbursed the amount less than the \$600 per acre, or, will add additional funds to the account as required to match the actual cost of setting aside the mitigation lands, including reasonable administrative costs for the account holder.

As noted in the Revised DEIR (pp. III.D.29, III.D.48 - III.D.49) the project area lies within one to five miles of the closest known nest site for Swainson’s hawk. The Swainson’s hawk is identified as “Threatened,” as noted in the comment, on Revised DEIR p. III.D.28. The City of Patterson and Stanislaus County staff are aware of the regulatory process for obtaining a permit from the California Department of Fish and Game, should such a permit be required.

Response to Comment B.4:

The status of the White-tailed kite is noted as “fully protected” under state laws on p. III.D.41 in the Revised DEIR. As surveys conducted in 2002 of the Business Park Plan area and Keystone Pacific Business Park Plan area show, little or no nesting habitat for White-tailed kites was observed. Impacts to nesting raptors are discussed on pp. III.D.53 to III.D.54 in the Revised DEIR, including mitigation measures. The phrase “No mitigation necessary” in the Impact D.13 “Mitigation Measures” discussion on p. III.D.58 is augmented with the following to clarify the mitigation necessary for White-

⁴ U.S. Fish and Wildlife Service, *Recovery Plan for Upland Species of the San Joaquin Valley, California*, Region 1, Portland, Oregon, 1998, p. 225.

tailed kites:

No mitigation necessary other than measures D.5.a and D.5.b as identified in Section III.D, Biological Resources, under “Impact D.5,” pp. III.D.53 to III.D.54 for nesting raptors.

Mitigation Measure D.13 in Table S.1, p. I.16 of the Summary chapter, is also revised accordingly.

Response to Comment B.5:

The suitability of the two seasonal ponds on site to support special-status species is discussed in Section III.D, Biological Resources, under “Special-Status Animal Species,” pp. III.D.30 to III.D.36, and further clarified in this response. Both ponds were surveyed, as suggested in the comment, as part of the biological resources assessment for the Revised DEIR. The small pond located at the southwest corner of Sperry Avenue and Ward Avenue appears to collect drain water from the irrigation of the adjacent agricultural fields and is heavily silted. The bottom is composed of mud, and no emergent vegetation is present in the pond. Some ruderal vegetation is present along the outer margins. The water in this pond is of poor overall quality and almost certainly too heavily silted to support any species of amphibians. The uplands surrounding this pond are sufficiently disturbed by urbanization and agriculture that they are very unlikely to be occupied by special-status amphibians that could potentially breed in the pond (see pp. III.D.32, III.D.33, and III.D.36).

The other pond is located to the immediate west of the levee road for the Delta Mendota Canal. As acknowledged in the Revised DEIR, this pond might provide suitable habitat for the California tiger salamander or western spadefoot if other habitat elements were favorable (see pp. III.D.32 and III.D.36). However, the surrounding agricultural and developed lands provide poor upland habitat for both species. The upland habitat disturbances resulting from repeated disking, combined with a paucity of rodent burrows to provide estivation habitat, diminish the overall habitat quality to the extent that it is highly unlikely that California tiger salamanders occur in this pond (see p. III.D.33). If the water quality in the pond is satisfactory, western spadefoots possibly could breed in this pond and occur in the adjacent uplands. However, two separate surveys at this pond conducted in March and April 2002 detected neither California tiger salamander nor western spadefoot larvae, though bullfrogs and two species of tadpoles were detected during the survey (California toads and Pacific treefrogs). The presence of bullfrogs at

this pond, which are known predators of California tiger salamanders and western spadefoots, makes it even less likely that either of those species inhabit the pond.

The survey results and habitat assessment at the two ponds in the West Patterson Business Park Master Development Plan area indicate that the likelihood of any special-status amphibian species occurring at the pond near Sperry and Ward Avenues is negligible, and additional surveys there are unwarranted. While the aquatic habitat at the pond west of the Delta Mendota Canal is marginally better, the surrounding upland habitat is of low quality and unlikely to support California tiger salamanders or western spadefoots. Results of the habitat assessment, combined with the negative results of the two surveys conducted in spring of 2002, provide sufficient evidence that special-status amphibians are unlikely to breed in this pond as well, and additional surveys there are unwarranted. Neither of these ponds provide habitat for vernal pool invertebrate species.

Response to Comment B.6:

The proposed expansion of the Patterson wastewater collection and treatment facilities is discussed and analyzed throughout the Revised DEIR. The Project Description outlines the proposed expansion on p. II.28, including a two-phase, one-million-gallon-per-day expansion of treatment facilities and construction of about 120 acres of percolation ponds for disposal of treated effluent. Implementation of infrastructure improvements is discussed on pp. II.29-II.31. Wastewater collection systems for the proposed development projects at Keystone Pacific Business Park and Patterson Gardens are described in the Project Description on pp. II.41 and II.50.

Impacts of constructing and operating the wastewater treatment facilities expansion are discussed in detail in Section III.J, pp. III.J.1 to III.J.27 of the EIR, including additional detail about the proposed improvements on pp. III.J.10 to III.J.18, and potential impacts and mitigation measures on pp. III.J.19 to III.J.24. Cumulative impacts of the proposed West Patterson projects in combination with other known development projects in Patterson and buildout of the Patterson *General Plan* are discussed on pp. III.J.24 to III.J.27. Other technical sections include discussions of impacts of the proposed wastewater treatment facilities expansion. For example, the Biological Resources section identifies resources found on or likely to be found on the sites identified as potential percolation pond sites, on pp. III.D.25 and III.D.42 to III.D.44, and discusses the impacts of the expansion on plants and wildlife on pp. III.D.48 to III.D.52, and III.D.54 to III.D.56. Air quality impacts of the wastewater treatment facilities expansion are

discussed on pp. III.F.9 to III.F.12 related to construction of new pipelines, and on pp. III.F.14 to III.F.18 related to construction and operation of the new treatment facilities. Noise impacts related to constructing the wastewater treatment facilities is discussed on pp. III.G.10 to III.G.11 as part of the overall discussion of construction noise, with mitigation measures on p. III.G.12. Operational noise is discussed on pp. III.G.17 to III.G.18. Groundwater effects of the proposed wastewater treatment plant expansion are discussed on pp. III.H.12 to III.H.18 and III.H.34 to III.H.35. The wastewater treatment and percolation pond sites were evaluated for potential historic and archaeological resources (see Section III.P), and are discussed in “Growth Inducing Impacts” in Section III.Q, as well as under any other relevant topics.

Expansion of the domestic water supply system is included in the Project Description on pp. II.28, II.29 to II.31, II.41, and II.49 to II.50, and is analyzed in detail in Section III.I, Water Supply. As with the wastewater facilities, temporary impacts of constructing water supply pipelines are discussed on pp. III.G.10 to III.G.12 and III.F.9 to III.F.12.

Response to Comment B.7:

The proposed project will not create areas of habitat suitable for native wildlife species. Therefore, the use of shielded outdoor lighting appears to be unnecessary. However, new outdoor lighting added as part of the proposed project would be governed by existing Standard Conditions of approval that require the following of all development projects: “That on-site illumination shall not be excessive, and shall be shielded and directed to not emit off-site. Lighting fixtures shall be reviewed and approved by the Planning Director, including building sconces and street lighting.” Thus, the recommendation of the California Department of Fish and Game that shielded directional lighting be used whenever possible is already being implemented in Patterson. In addition, the City is considering more detailed Community Design Guidelines to guide development throughout Patterson that would limit the intensity and direction of outdoor lighting, calling for control of outdoor lighting “to provide necessary security, but not create spillage onto adjacent properties or interfere with views or night skies.”⁵ These Design Guidelines would be applicable to any new development in Patterson, including Patterson Gardens and the West Patterson Business Park and would continue the City’s existing practice of requiring shielding on outdoor lighting.

⁵ Draft *City of Patterson Community Design Guidelines*, Section C.3, p. 5, published October 2002, anticipated adoption in December 2002.

Response to Comment B.8:

The requirements for complying with the Streambed Alteration Agreement provisions of the Fish and Game Code are so noted and are referred to in the Revised DEIR, Section II, Project Description, p. II.54, and Section III.D, Biological Resources, p. III.D.20.



DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

1010 10TH Street, Suite 3400, Modesto, CA 95354
Phone: 209.525.6330 Fax: 209.525.5911

November 18, 2002

Rod Simpson, City of Patterson
33 South Del Puerto Ave
PO Box 667
Patterson, CA 95363

Re: Comments regarding San Joaquin kit fox Impact Discussion in the West Patterson Projects Revised Draft Environmental Impact Report.

Dear Mr. Simpson:

This letter is in response to the proposed West Patterson Projects Revised Draft Environmental Impact Report, and provides clarification regarding the County's current efforts in developing a county-wide conservation strategy for San Joaquin kit fox with the US Fish and Wildlife Service.

The County and the Service are currently in the process of finalizing an overall conservation strategy for San Joaquin kit fox in western Stanislaus County. Please note that the strategy is still in preliminary draft form and has yet to be approved or adopted by either the Service or the County Board of Supervisors.

The purpose of the strategy will be to implement the goals and policies of the Service's Recovery Plan for Upland Species of the San Joaquin Valley. The final version of the strategy will presumably act as an interim agreement between the Service and County until such time as a Habitat Conservation Plan for San Joaquin kit fox is completed by the County and the Service. Further, the strategy has been designed to ensure that future development projects are compatible with regional conservation needs of the San Joaquin kit fox and other listed upland species of the San Joaquin Valley.

In the preliminary draft strategy, we have identified the overall goal of Stanislaus County and the Service as eventually obtaining long-term protection of 80 percent of the natural or annual grasslands, between Interstate Highway 5 and the 800-foot elevation to the west to allow for safe movement of San Joaquin kit fox between the Merced County Line and the San Joaquin County Line through Stanislaus County. This goal is clearly identified by the Service in their 1998 Recovery Plan.

Most of the West Patterson projects are located outside any areas identified in the Recovery Plan or the preliminary draft conservation strategy as corridor area or buffer zone for San Joaquin kit fox. Only one parcel (021-26-15) is located between the Delta Mendota Canal and Highway 5.

C.1

Rod Simpson
November 18, 2002
Page 2

We expect that the conservation strategy will suggest various mitigation measures or conditions that may include use of a development setback from the toe of the slope of the highway, canal or aqueduct, and/or a landscape buffer, and/or no buildings within 100 feet of the toe of the slope of either side of the canal or aqueduct. Additionally, project conditions may include requirements such as reduction of glare, compliance with the Noise element of the General Plan, and litter collection to limit the possible impacts to kit fox. Projects may be further conditioned to ensure that project design does not directly affect the ability of San Joaquin kit fox to use the canal, aqueduct or highway rights-of-way for movement. Pre-construction surveys and other assurances to limit impacts to kit fox may also be included.

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The County further anticipates close coordination with the Department of Water Resources and the Bureau of Reclamation to ensure that management of the canal and aqueduct and the surrounding lands meet the goals of the County and the Service in relation to the final conservation strategy.

The County agrees with the conclusion of the EIR, that construction of a small portion of the project area (APN 021-26-15) may result in impacts to San Joaquin kit fox. Except for development proposed within 50-feet immediately adjacent to the eastern Delta Mendota Canal bank, the County agrees that the remaining development will not impact San Joaquin kit fox directly. The mitigation measures described in the Draft EIR seem to more than adequately address the impacts related to San Joaquin kit fox. Specifically, Mitigation Measure D.1.a provides a method for habitat compensation that exceeds the mitigation requirements currently envisioned by the preliminary draft of the conservation strategy. Further, Mitigation Measure D.1.b is fully consistent with suggested mitigation measures and conditions of approval proposed in the preliminary conservation strategy.

Overall, the impact analysis and mitigation program related to San Joaquin kit fox as proposed in the Draft EIR is consistent with the current preliminary San Joaquin kit fox conservation strategy prepared by the County. The County and the Service plan to complete the conservation strategy soon, and then perhaps proceed with a Habitat Conservation Planning process. Please call me at (209)525-6330 if you have any questions.

Sincerely,



Kirk Ford
Deputy Planning Director

**RESPONSE TO LETTER C, STANISLAUS COUNTY DEPARTMENT OF
PLANNING AND COMMUNITY DEVELOPMENT**

Response to Comment C.1:

This letter of comment provides clarification regarding the County's current efforts in developing a county-wide conservation strategy for the San Joaquin kit fox with the USFWS, and requires no response. The clarification it provides was useful in responding to other comments on the Revised DEIR.



DEPARTMENT OF CONSERVATION
STATE OF CALIFORNIA

November 18, 2002

DIVISION OF
LAND RESOURCE
PROTECTION

■ ■ ■

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GRAY DAVIS
GOVERNOR

VIA FACSIMILE (209) 892-6119

Mr. Rod Simpson, Planning Director
City of Patterson
33 S. Del Puerto Avenue
P.O. Box 667
Patterson, CA 95363

Subject: West Patterson Projects - West Patterson Business Park
Master Development Plan, Keystone Pacific Business Park,
Patterson Gardens - Revised Draft Environmental Impact
Report (RDEIR), SCH# 2001022031

Dear Mr. Simpson:

The Department of Conservation's (Department) Division of Land Resource Protection (Division) has reviewed the RDEIR 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 comments and recommendations with respect to the project's impacts on Williamson Act contracts and agricultural land.

Project Description

The proposed project is the conversion and development of approximately 1,127 acres of Prime Farmland for light industrial, business-park, commercial and residential uses. The project site extends from the western boundary of the City of Patterson (City) to Interstate 5 further west, in Stanislaus County (County). Project development includes extending the City's Sphere of Influence and annexing the project site. Current use of the site is primarily irrigated agricultural land in various stages of cultivation. Surrounding land north, south and west is primarily agricultural. The project site and surrounding land is nearly all Prime Farmland according to the Natural Resource Conservation Service.

Ten properties totaling 315 acres in the project area are enforceably restricted by Williamson Act contracts. Notices of nonrenewal have been filed on six of the properties, leaving 44 acres continuing without nonrenewal. The nonrenewal expiration dates range from 2005 to 2010.

Mr. Rod Simpson
November 18, 2002
Page 2 of 5

In addition, eight properties totaling 140 acres identified as potential percolation pond sites are under contracts. Apparently, these contracts are continuing without any notices of nonrenewal.

D.1

DEIR's were prepared for the West Patterson Master Development Plan and Patterson Gardens. However, following receipt of comments and more detailed information, the City and Stanislaus County determined to prepare a revised, combined EIR for the referenced projects. The RDEIR is designed as a Program EIR for the West Patterson Business Park Plan and a Project EIR for the Keystone Pacific Business Park and Patterson Gardens. In addition, it also serves as a Project EIR for: 1) expansion of the City's wastewater treatment plant and collection system; 2) expansion of the City's domestic water system; 3) construction of storm-water and drainage improvements; and 4) improvements to road arterials.

The RDEIR has determined that the project will result in significant impacts to agricultural resources as a result of the direct conversion of 1,127 acres of Prime Farmland to urban uses. In addition, its contribution to cumulative agricultural impacts in the area will be significant, as will growth-inducing impacts to agricultural resources, including the potential that other owners in the area may terminate their Williamson Act contracts.

D.2

Proposed mitigation for the project's significant impacts to agricultural resources is that an applicant for a building permit pursuant to any of the referenced projects shall submit documentation that the applicant has contributed to the California Farmland Conservancy Fund pursuant to Public Resources Code section 10231.5. The amount of the contribution shall, at minimum, reflect the then-current value of an agricultural conservation easement on comparable prime agricultural land equal in size to the acreage for which the permit is being sought. In addition, applicants will pay a pro-rata share for the acreage converted under the City's wastewater treatment plant expansion.

Williamson Act Land

According to the RDEIR, development of the Keystone Pacific Business Park and Patterson Gardens does not involve Williamson Act contracted land. It anticipates that the West Patterson portion could be developed without cancellation of contracts because of a long time frame for build-out. According to statements on page III.C.8 of the RDEIR, the City is planning for the cancellation of contracts involving land planned for percolation pond sites.

As discussed in the RDEIR, the County Board of Supervisors may approve a landowner petition for contract cancellation by making specific findings pursuant to Government Code section 51282. In addition, however, once the petition is determined complete, notification shall be made to the Department pursuant to Government Code section

D.3

51284.1. The Department's comments shall be considered by the County Board of Supervisors prior to action on the petition. Immediate termination via cancellation is reserved for "extraordinary", unforeseen situations (See Sierra Club v. City of Hayward (1981) 28 Cal.3d 840, 852-855). It has been held that "cancellation is inconsistent with the purposes of the (Williamson) Act if the objectives to be served by cancellation should have been predicted and served by nonrenewal at an earlier time, or if such objectives can be served by nonrenewal now" (Sierra Club v. City of Hayward).

D.3
cont.

Termination of a Williamson Act contract by public agency acquisition can only be accomplished by an agency, having the power of eminent domain, for a public improvement. The Department must be notified in advance of any proposed public acquisition (Government Code §51290 - 51292), and specific findings must be made. The property must be acquired by eminent domain or in lieu of eminent domain in order to void the contract. The public agency must consider the Department's comments prior to taking action on the acquisition. School districts are precluded from acquiring land under a Farmland Security Zone contract.

D.4

If land within an agricultural preserve is annexed, the City must succeed to the rights, duties, and powers of administering the preserve and contracts, unless conditions specified in Government Code sections 51243 and 51243.5 apply. The City should also be aware of new legislation that will become effective January 1, 2003, that limits annexation and a change to a sphere of influence involving contracted land (AB 2370, Chapter 614; AB 1515, Chapter 174).

D.5

Mitigation Measures

The proposal for utilizing contributions to the California Farmland Conservancy Program (CFCP) Fund for purchase of agricultural conservation easements offers valid and long-term mitigation for agricultural land losses. To assure the success of this form of mitigation, consideration should be given to exploring the full costs associated with implementation. Typically, the actual cost of performing these transactions is significant, and additional funding to support the work of the local farmland trust holding the easements, as well as easement monitoring endowments, would be warranted. Given that the project involves significant cumulative and growth-inducing impacts to agricultural resources, apart from the direct conversion of Prime Farmland, additional funding appears warranted. Clarification should also be provided that funds deposited in the CFCP Fund are only available for use upon appropriation by the Legislature. If you need further detail on agricultural conservation easements and the CFCP please call Charles Tyson, California Farmland Conservancy Program Manager, at (916) 324-0862.

D.6

Project Alternatives

Several alternatives are presented in the RDEIR, all but one of which reduce the amount of agricultural land directly converted to urban uses. At the same time, it appears that the build alternatives achieve or nearly achieve targets for population/housing and population/jobs ratios. Recognizing that other factors may prevail, the Department encourages the City and County to consider an alternative that adequately meets project objectives and reduces the proposed amount of converted agricultural land.

D.7

Water Supply

The proposed project will, at minimum, accelerate the City's need to treat its groundwater or switch to a new source. Groundwater treatment would result in significant impacts from the requirement to dispose of large quantities of concentrated brine byproduct, which may result in conversion of large amounts of agricultural land. Pumping of groundwater to serve project needs may create a cone of depression that could adversely affect agricultural landowners using the confined aquifer or cause damage to structures, including existing wells. A surface-water supply variant involving obtaining new water entitlements may threaten agricultural sustainability depending on the quality and cost of the water.

In its Project Description, on page II.51, the RDEIR is described as a Project EIR for expansion of the City's water supply system. Yet, in discussing water supply impacts on page III.I.23, it is described as evaluating impacts at a programmatic level, and further project-level review will be conducted as required by CEQA. Mitigation, for the most part, is determined to be unavailable until a treatment process is selected and designed. Quantification of the loss of agricultural land is determined to be speculative and beyond the scope of the RDEIR.

D.8

The Department recommends that the City clarify whether this EIR is a Program or Project EIR for the purpose of evaluating water supply impacts. If it is a Project EIR, we recommend that it be re-circulated with specific design proposals, impact analysis and consideration of feasible mitigation measures. If it is a Program EIR, given the recognized potential for significant impacts to agricultural resources and the significance of agriculture to the local and State economy, we recommend the following mitigation: Any land converted as a result of changes to the City's water supply system shall be mitigated in the same manner as that proposed in Mitigation Measure C.1 for agricultural resources. Notwithstanding discussion of impacts and mitigation, the Department is concerned that a reliable water supply of sufficient quality has not been identified for this project and that agricultural resources are potentially impacted without providing adequate information for public decision-making.

D.9

Mr. Rod Simpson
November 18, 2002
Page 5 of 5

Thank you for the opportunity to comment on this RDEIR. Pursuant to Public Resources Code §21092.5(a), the Department looks forward to receiving your response. 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,

A handwritten signature in black ink, appearing to read 'E. Vink'.

Erik Vink
Assistant Director

cc: Gregoria Garcia
State Clearinghouse

West Stanislaus Resource Conservation District

RESPONSES TO LETTER D, CALIFORNIA DEPARTMENT OF CONSERVATION

Response to Comment D.1:

As of November 2002, no Notice of Nonrenewal has been filed for the eight properties subject to Williamson Act contracts at the potential percolation pond sites.

Response to Comment D.2:

The impact of the loss of prime agricultural land is discussed on pp. III.C.6 to III.C.10. The growth inducement issues are discussed on p. III.Q.4.

Response to Comment D.3:

The discussion of Williamson Act contract cancellation on p. III.C.8 is revised to include a discussion of the Department of Conservation's notice and opportunity to comment on a petition for cancellation, and to cite case law on the standards for cancellation. The following paragraph is inserted after the first paragraph on p. III.C.8:

A petition for cancellation requires notice to the California Department of Conservation. The Department may submit comments advising the County on the required findings with respect to the proposed cancellation. The County must consider the Department's comments, if submitted, prior to acting on the proposed cancellation (Cal. Government Code, Section 51284.1). It is the Department of Conservation's position that immediate termination of a Williamson Act contract is reserved for "extraordinary," unforeseen situations (see *Sierra Club v. City of Hayward* (1981) 28 Cal.3d 840, 852-855: "Cancellation is inconsistent with the purposes of the [Williamson] Act if the objectives to be served by cancellation should have been predicted and served by nonrenewal at an earlier time, or if such objectives can be served by nonrenewal now").

Response to Comment D.4:

The second full paragraph on p. III.C.8 is revised to refer to Government Code Sections 51290-51295 regarding Williamson Act contract cancellation for public improvements, replacing the second sentence of that paragraph, as follows:

Expansion of the City's wastewater treatment plant east of the City, in connection with the West Patterson projects, would entail the cancellation of active Williamson Act contracts to construct percolation ponds. **Termination of a Williamson Act contract for a public improvement is governed by Government Code Sections 51290-51295. Locating the proposed wastewater treatment plant expansion on land subject to a Williamson Act contract would require the City to make the following findings: "(a) [t]he location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve;" and (b) "that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement" (Government Code Section 51292).**

Government Code Section 51291(b), which requires notice to the Department of Conservation and opportunity to comment prior to action on acquisition, "shall not apply to the acquisition of land for the erection, construction, or alteration of ... wastewater ... facilities" (Government Code Section 51291.5).

Response to Comment D.5:

The first paragraph under the heading "Williamson Act Properties," p. III.C.4, is revised to discuss annexation of land subject to Williamson Act contracts to a city or special district, as follows:

The California Land Conservation Act (Williamson Act) of 1965 (Government Code Section 51220) encourages the conservation of agricultural lands by providing a property tax incentive to land owners to restrict land uses to agriculture and compatible uses. It is a voluntary program administered through local governments, which are responsible for contracting with landowners. Properties subject to Williamson Act contracts must remain in agricultural use for the duration of the contract, a minimum of 10 years. **If land subject to a Williamson Act contract is annexed by the City, the City must succeed to the rights, duties and powers of administering the contract. New legislation, to become effective January 1, 2003, would prohibit a reorganization or**

change in a sphere of influence that would result in the annexation to a city or special district of land that is subject to a Williamson Act contract, unless the facilities or services provided would benefit uses that are permitted by the contract, and the landowner consents (Assembly Bill 2370, Senate Bill 1515).

The remaining text in the paragraph is revised to become a separate paragraph following the one above.

Response to Comment D.6:

Mitigation Measure C.1, pp. III.C.8 to III.C.9, is revised to add additional funding to reflect costs of administering the Farmland Conservation Program. The first paragraph on p. III.C.9 is revised as follows:

The amount of such contribution shall, at minimum, reflect the then-current value of an agricultural conservation easement on comparable prime agricultural land in the West Patterson project vicinity equal in size to the acreage of the development parcels for which permits are sought, a pro-rata share of the acreage converted under the City's wastewater treatment plant expansion, and a 10% increment for program administration under the Farmland Conservation Program.

The third paragraph on p. III.C.9 is revised to clarify that use of funding from the Farmland Conservation Program Fund requires an appropriation by the Legislature, as follows:

Use of funding from the Farmland Conservation Program Fund requires an appropriation by the Legislature. Implementation of this measure would encourage the preservation of prime farmland in Stanislaus County, but would not reduce impacts to a less-than-significant level.

Response to Comment D.7:

Alternative 2, No Development on Northern Cozzens and Keystone Properties; Alternative 3, Business Park Uses Relocated East; and Alternative 4, Reduced Sphere of Influence, all would result in loss of less agricultural land than would the proposed project, as noted in the comment. Implementation of Alternative 2 or 3 would remove the

Keystone Pacific Business Park from development and thus would not meet the objectives of that project sponsor. Implementation of Alternative 4 would reduce the size of the Patterson Gardens site by about one-half, and would not meet the objectives of that project sponsor.

The City of Patterson and Stanislaus County decision-makers will consider all alternatives during their deliberation, and will receive copies of all comments received on the Revised DEIR. Thus, they will take the comments of the California Department of Conservation into consideration as part of their decisions on the proposed West Patterson projects.

Response to Comment D.8:

The DEIR is both a Program EIR and a project-level EIR, as discussed on pp. Intro. 2 and Intro. 3 and on pp. II.50 and II.51, in Chapter II, Project Description. The EIR describes and analyzes the impacts of development of Patterson Gardens and the Keystone Pacific Business Park at a project level; these two development projects have specific development programs presented to the City and County by the property owner.¹ The Project Description includes a Conceptual Master Plan and representative Site Plans for development of the Keystone Pacific Business Park as part of the detailed description on pp. II.31 to II.41. The Project Description also includes a section detailing the Patterson Gardens residential/commercial development proposal, with graphics showing the preliminary layout of the residential lots, open space, and commercial space, and showing the building sites and parking lots for the commercial and office space area, on pp. II.42 to II.50.

Impacts analyses are provided in more detail for the two development sites in the West Patterson project area than for the remainder of the Business Park Master Development Plan area. For example, Section III.E, Transportation and Circulation, in Chapter III, Environmental Setting, Impacts, and Mitigation, includes analyses of traffic impacts of developing only the Keystone Pacific Business Park and only the Patterson Gardens site,

¹ The proposed expansion of the City's wastewater treatment plant and extension of the wastewater collection system and domestic water supply distribution infrastructure to serve the West Patterson projects and additional approved residential development to the west of the City are also analyzed at a project level. The EIR is intended to support construction of these projects.

as well as analyses of the overall traffic impacts of the entirety of the West Patterson projects (see pp. III.E.25 to III.E.28 for the analysis of existing conditions plus the Keystone Pacific Business Park and pp. III.E.28 to III.E.30 for the analysis of existing conditions plus the Patterson Gardens project). Similarly, air quality and noise analyses are provided separately for development of only the Keystone Pacific Business Park and only the Patterson Gardens site, on pp. III.F.23 to III.F.25 and III.G.19 to III.G.22. Visual and urban design effects are discussed in general for the overall Business Park Master Development Plan area, and in more detail for the Keystone Pacific Business Park and Patterson Gardens in Section III.O, Visual Resources, with graphics showing representative building designs (in Figures III.O.7 to III.O.11). This level of detail is not provided for the remainder of the Business Park Plan area, for which there are no applications and therefore no building types to evaluate. Because specific development proposals have not been submitted for the remainder of the West Patterson Business Park Master Development Plan area, the entire area is assessed at a “program” level of detail.

The Water Supply discussion and analysis in Section III.I provides a project- or development-level analysis for the Patterson Gardens and Keystone Pacific Business Park projects, including an evaluation of water supply for those projects. The Revised DEIR is not intended, however, to serve as a project-level environmental document for the groundwater treatment “project” itself. Further environmental analysis will be necessary to support actual construction of the groundwater treatment project, including selection and evaluation of a particular treatment technology and method of brine disposal. Similarly, if the City were to decide to implement the surface-water supply variant (pp. III.I.33 to III.I.49), further environmental analysis of the particular source of surface water selected, and of construction of a water treatment plant, would be necessary. The level of detail provided in the Revised DEIR’s analysis of water supply is nevertheless sufficient for project-level analysis of the Keystone Pacific Business Park and Patterson Gardens development projects.

Response to Comment D.9:

The paragraph beginning with the words “Mitigation Measure:” on p. III.I.26 is deleted. The following paragraphs are added in its place:

Mitigation Measure I.1

If the City elects to use evaporation and disposal of solid salts as a method of brine disposal, the City shall require new development to pay its pro-rata share of the cost of an agricultural conservation easement, in the manner discussed in Mitigation Measure C.1, for the acreage converted for use as evaporation ponds.

This impact is considered to be significant and unavoidable after mitigation.

The Summary Chapter, Table S.1, Mitigation Measure I.1, p. I.30, is also revised accordingly to replace the content of Impact I.1 in the Mitigation Measures column with the first paragraph of the text above.

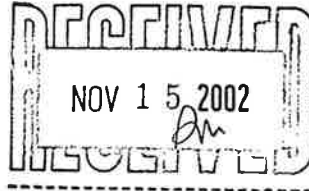
The Revised DEIR concluded, based on the City's Urban Water Management Plan (UWMP), that the City's groundwater, at first untreated and later with desalination treatment, represents a sufficient supply of sufficient quality to serve the West Patterson projects in addition to demand associated with existing and other planned development in the City. The City's groundwater investigation revealed that the quantity of groundwater available to the City, supported by recharge (see the response to Comment N.4), would be sufficient to meet project, existing, and other planned demand in 2020, but that at some point, likely between 2008 and 2012, the groundwater would need to be treated to support domestic uses (see the response to Comment N.1). The comment provides no analysis to support its conclusion that, contrary to the conclusions of the Revised DEIR and the City's UWMP, this water supply is unreliable.

Regarding impacts to agricultural resources, see the response to Comment D.3.



DIANA M. BONTÁ, R.N., Dr. P.H.
Director

State of California—Health and Human Services Agency Department of Health Services



GRAY DAVIS
Governor

November 14, 2002

Mr. Rod Simpson, Planning Director
City of Patterson
33 South Del Puerto Avenue
P.O. Box 667
Patterson, CA 95363

WEST PATTERSON PROJECTS, REVISED DRAFT EIR

The Department has reviewed the revised draft Environmental Impact Report for the West Patterson Projects. With respect to water supply, the EIR presents the position that ground water is an available and satisfactory source of water for the new development. However, the Department's experience with the ground water in use for existing customers of the City of Patterson water system indicates that some of the ground water in the area is unsuitable and some ground water is of marginal quality for domestic use.

E.1

The water currently distributed by the City of Patterson public water system does not meet the 500 mg/L recommended Maximum Contaminant Level (MCL) for Total Dissolved Solids (TDS). Furthermore, in recent years, the City has been having difficulty locating water with TDS levels below the upper MCL of 1000 mg/L. Test wells drilled on the west side of town where most of the development has been occurring have typically yielded water with TDS levels above the 1000 mg/L upper limit.

In recent years, the City has drilled new wells on the east side of town in order to make use of the available water with TDS concentrations below the 1000 mg/L upper limit. Wells Nos. 5, 6, and 7 are on the eastern boundary of the City. Each of these three wells has been monitored several times for TDS since the year 2000. TDS levels in Well 5 have ranged from 790 to 880 mg/L, with an average of 838 mg/L. TDS levels in Well 6 have ranged from 920 to 1030 mg/L, with an average of 958 mg/L. TDS levels in Well 7 have ranged from 720 to 890 mg/L, with an average of 776 mg/L. Therefore, while the TDS levels of the waters from these wells on the eastern side of the City do not currently exceed the 1000 mg/L upper limit, the average value for the three wells is 857 mg/L, which is somewhat less than 1000 mg/L, but is considerably above the 500 mg/L recommended level for drinking water.

E.2

C&R.E-1



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Southern California Drinking Water Field Operations Branch
31 East Channel Street, Room 270, Stockton, CA 95202
(209) 948-7696; (209) 948-7451 FAX

Internet Address: <http://www.dhs.ca.gov/ps/ddwem/technical/dwp/dwpindex.htm>

What is more important to recognize is that the construction of additional wells on the east side of town to support new growth on the west side will result in a considerable deepening of the cone of ground water depression caused by the increased pumping in the localized zone in the eastern part of the City. The Department's experience with ground water from wells closer to the San Joaquin River demonstrates that levels of TDS are typically extremely high close to the River. Wells constructed at depths that avoid the use of shallow ground water, which is influenced by surface water and is unsuitable for domestic use, typically have TDS levels in excess of the 1500 mg/L short-term limit in many areas close to the San Joaquin River.

E.3

The ground water available on the west side of Patterson (about 1 mile west of Wells Nos. 5, 6, and 7) is too mineralized for domestic use, and the water from the aquifers close to the San Joaquin River, which is only between 1 mile and 1.5 miles east of Wells Nos. 5, 6, and 7, is also highly mineralized. Therefore, locating additional wells in the eastern area of Patterson will ultimately result in a deep cone of depression that will cause highly mineralized ground water from the unsuitable areas west of Patterson and the other unsuitable areas closer to the San Joaquin River to flow into the cone of depression in the eastern area where Wells Nos. 5, 6, and 7 exist and where Wells Nos. 9, 10, and 11 are planned. This flow of highly mineralized water into the cone of depression will result in degradation of the water available to the City from the eastern area that the City has identified as the best source of ground water in the vicinity of Patterson.

Although the Domestic Water Quality and Monitoring Regulations include a short-term limit of 1500 mg/L for TDS, that limit should not be considered as an acceptable objective for the Patterson water system. If TDS levels in the City's existing wells continue to increase and exceed the upper limit of 1000 mg/L, water with TDS between 1000 and 1500 mg/L may be served on a short term basis while measures are being implemented to either institute treatment to lower the TDS or replace the highly mineralized water with water from a better source.

E.4

Other water systems in reasonable proximity to Patterson and close to the San Joaquin River have evaluated treatment of the ground water to lower TDS concentrations to acceptable levels. However, the treatment processes are costly to install, expensive to operate, and create waste brine streams that constitute a daunting and costly disposal problem. As a result, such treatment has repeatedly been determined to be uneconomical.

E.5

Surface water might emerge as an acceptable alternate source for domestic supply. The Department recognizes the California Aqueduct as an acceptable source of water for domestic use. However, in attempting to get the City of Tracy to convert from

E.6

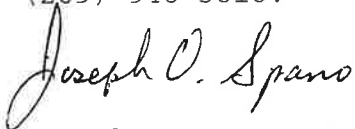
using water from the Delta Mendota Canal to water from the California Aqueduct as a source of supply within the past year, the Department discovered that the Department of Water Resources, which operates the State Water Project, including the California Aqueduct, would not permit such a transfer due to a lack of capacity in the aqueduct and due to concerns related to the reliability of a supply from the California Aqueduct when maintenance and other events interrupt the flow of water in the aqueduct.

E.6
cont.

Therefore, the Department does not consider the further use of ground water to supply domestic water to support growth in Patterson to be a practical approach to the water supply problem. If surface water is considered as a viable alternative, the proposed development should be deferred until either the State Water Project is able to make a commitment of a water supply from the California Aqueduct or until the joint point of diversion of water from the Delta into both the California Aqueduct and the Delta Mendota Canal is implemented in order to assure a source water from the Delta Mendota Canal having quality comparable to water from the California Aqueduct.

E.7

If you have any questions regarding this matter, contact me at (209) 948-3816.



Joseph O. Spano, P.E.
District Engineer
Drinking Water Field Operations Branch
Stockton District

cc: Steve Burke
Wayne Hubbard
State Clearinghouse

A:\5010017\West Patterson Projects EIR Comments.1102

RESPONSES TO LETTER E, CALIFORNIA DEPARTMENT OF HEALTH SERVICES

Response to Comment E.1:

The comment correctly notes that some of the groundwater in the City's vicinity is of unsuitable or marginal quality for domestic uses.¹ As described in the Revised DEIR, the City plans to locate new wells to take advantage of good-quality groundwater, while avoiding poor-quality groundwater (pp. III.I.21, III.I.30 [Mitigation Measure I.3.a]). See the response to Comment E.3.

Response to Comment E.2:

As shown in Table III.I.1 (p. III.I.13), although concentrations of total dissolved solids (TDS) in the City's groundwater fail to meet "recommended" secondary maximum contaminant levels (MCLs), they meet the mandatory "upper" secondary MCLs in each of the City's wells. Moreover, there is no indication that TDS concentrations in the City's existing wells are increasing. Monitoring data indicate that TDS concentrations fluctuate in the City's well water and that no clear trend is discernible in TDS concentrations in the City's wells. Although the comment correctly states that test wells drilled to the west of the City have encountered poorer quality groundwater,² the City has no plans to install wells in that area (see, e.g., Figure III.I.3, p. III.I.32, which shows existing and proposed water supply wells all east of Ward Avenue, and potential new wells [#s 8 to 11 are typical examples on the graphic] all located east of State Route 33). Rather, the City proposes to closely monitor groundwater quality and implement groundwater treatment prior to exceeding the upper secondary MCLs (p. III.I.21). See also the response to Comment E.4.

Response to Comment E.3:

The Revised DEIR and the City's groundwater investigation³ recognized that concentrated pumping in the area adjacent to the eastern edge of the City may produce a substantial cone

¹ Kenneth D. Schmidt & Associates, *Groundwater Supply Evaluation for City of Patterson*, April 2002.

² Ibid.

³ Ibid.

of depression that could have adverse effects on nearby users of the confined aquifer and may lead to a decline in local groundwater quality by drawing poorer quality groundwater into the City's well field from areas east and west of the City (pp. III.I.27 to III.I.29). Nevertheless, the potential for adverse impacts on other users is substantially reduced by the absence of other users of the confined aquifer in proximity to the City's wells (p. III.I.28). Moreover, the Revised DEIR proposes several mitigation measures to reduce the severity of the cone of depression and to respond to its potential adverse effects, including locating wells to optimize groundwater quality (p. III.I.30). In any event, no wells are planned in the areas of poor water quality to the west and farther east of the City. In the interest of caution, however, the potential impacts associated with the cone of depression have been presumed to be significant and unavoidable, though they may prove to be less than significant given the absence of other users in the area (p. III.I.30).

Response to Comment E.4:

The City's groundwater treatment proposal contemplates that the City will begin to implement treatment when the City's water supply fails to meet the upper TDS secondary MCL of 1000 mg/L. If necessary, the City might seek approval from DHS to deliver water between the upper and short-term secondary MCLs while that treatment system is implemented, but otherwise does not plan to rely on water exceeding the upper limit. Before treatment is instituted, if an individual well were to begin producing water that exceeded the upper MCL, the City would avoid the use of that well except as necessary to meet peak dry-season demand and provide fire protection.

Response to Comment E.5:

The Revised DEIR (based on the City's Urban Water Management Plan) concludes that groundwater treatment is a viable water supply option (pp. III.I.20 to III.I.23). Indeed, reverse osmosis has been used effectively by other communities in California to treat groundwater with high levels of TDS (e.g., City of Chino 2002). The comment's conclusory statement that "such treatment has repeatedly been determined to be uneconomical" lacks support in the record.

The list of references at the end of Section III.I, Water Supply, of the Revised DEIR is revised to add a reference to the Draft Environmental Impact Report for the City of Chino. The following text is inserted between the first reference ("Bookman-Edmonston Engineering") and the second reference ("Department of Water Resources") on p. III.I.50:

City of Chino, 2002. *The Preserve, Chino Sphere of Influence – Subarea 2, Partial Recirculated Draft Environmental Impact Report*, August.

Response to Comment E.6:

The Revised DEIR does not rely on surface water as a source of supply for the West Patterson projects. The surface water variant evaluated in the Revised DEIR (pp. III.I.33 to III.I.49) contemplates that the Delta Mendota Canal (DMC) or the California Aqueduct (Aqueduct) would be the principal source of supply and that a surplus of entitlements would be obtained to control the risk that deliveries would fall short of contractual entitlements (pp. III.I.37 to III.I.39). The risk of temporary service interruptions would be further reduced by operating an aquifer storage and recovery system (pp. III.I.38 to III.I.39).⁴ The City of Tracy, referred to in the comment, continues to use DMC water to supply domestic uses. Whether water were derived from the DMC or the Aqueduct, however, the City would treat that water to meet mandatory primary and secondary domestic water quality standards (pp. III.I.36 to III.I.37). If the Department of Water Resources were to prohibit new domestic uses of the Aqueduct pending infrastructural improvements, in the interim, the City would rely on water from the DMC, as does the City of Tracy, rather than the Aqueduct.

Response to Comment E.7:

The City's Urban Water Management Plan,⁵ the Water Supply Assessment prepared for the project,⁶ and the Revised DEIR (Section III.I, Water Supply) support the conclusion that groundwater, at first untreated and in later years subjected to well-head desalination, represents a viable source of supply for the West Patterson projects in addition to existing and planned future water demand. The comment supplies no analysis to support a contrary conclusion.

⁴ Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002, pp. 27-28.

⁵ Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002.

⁶ Stoddard & Associates, *Water Supply Assessment for the West Patterson Business Park Master Development Plan and Patterson Gardens Residential Development*, August 2002.

Likewise, the comment provides no basis for concluding that Delta Mendota Canal (DMC) water is not a suitable water supply source to serve the West Patterson projects. Indeed, the City of Tracy's continuing use of that water for domestic purposes suggests the contrary.

Moreover, the Revised DEIR identifies several potentially willing sellers of DMC water (pp. III.I.35 to III.I.36) and indicates that the City lies within the "place of use" for that water under the Bureau of Reclamation's permits from the State Water Resources Control Board (pp. III.I.35 to III.I.36). DMC water can be effectively treated to meet applicable domestic water quality standards. Accordingly, the Revised DEIR concludes that the program proposed in the surface water supply variant (pp. III.I.33 to III.I.49) would deliver a sufficient supply of surface water of adequate quality.



Winston H. Hickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board Central Valley Region

Robert Schneider, Chair

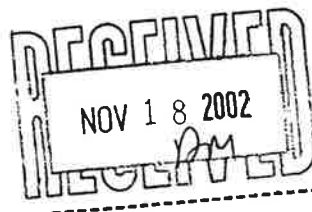
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Gray Davis
Governor

15 November 2002

Mr. Rod Simpson, Planning Director
City of Patterson
33 South Del Puerto Avenue
Patterson, CA 95363



COMMENTS ON DRAFT ENVIRONMENTAL IMPACT REPORT, WEST PATTERSON PROJECTS, SCH# 2001022031, STANISLAUS COUNTY

Pursuant to the State Clearinghouse's 3 October 2002 request, Regional Board staff has reviewed the Draft Environmental Impact Report (EIR) for the subject project. We understand that the project will consist of four key project components:

1. Development of the West Patterson Business Park;
2. Development of the Keystone Business Park;
3. Development of the Patterson Gardens Subdivision; and
4. Expansion of the City of Patterson's wastewater treatment facility to accommodate those developments.

Food processing and other water-intensive industrial uses will not be allowed in the business parks, and major sewer improvements will be needed to convey wastewater to the existing wastewater treatment facility.

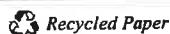
Regional Board staff offers the following specific comments, which we expect will be addressed in the Final EIR:

1. Because expansion of the City's wastewater treatment facility is part of the proposed project, most maps and figures should show its location. Specifically, Figures II.2 through II.7, III.A.1, III.D.3, III.E.1, III.H.2, and III.H.5 should include this information.
2. Page III.H.9, fifth paragraph: Surface water quality for the San Joaquin River should be discussed in more detail with respect to typical wastewater constituents (total dissolved solids, sodium, chloride, ammonia, total Kjeldahl nitrogen (TKN), nitrate nitrogen, and total coliform bacteria). If available, the EIR should provide summary surface water monitoring data for the San Joaquin River in the vicinity of the wastewater treatment facility.
3. Page III.H.10: The discussion of the environmental setting for groundwater needs additional detail on depth to the first saturated zone (or water table) specific to the project sites, local gradients, and

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F.2
F.3

California Environmental Protection Agency

C&R.F-1



factors affecting those gradients (e.g., the river and agricultural, municipal, and industrial supply wells). Ideally, the EIR should include a figure depicting typical local shallow groundwater elevation contours and supply well locations.

F.3
cont.

4. Page III.H.12, third paragraph: The existence of groundwater monitoring wells at the wastewater treatment facility and compliance with the City's Monitoring and Reporting Program do not ensure compliance with the groundwater limitations set forth in Waste Discharge Requirements (WDRs) Order No. 5-00-146. The purpose of groundwater monitoring is to provide information to show whether groundwater is being degraded. Best Practicable Treatment and Control (BPTC) Measures such as industrial pretreatment programs, prohibition of certain types of industrial discharges, advanced treatment, disinfection, and the use of lined ponds and/or impervious treatment structures could be considered as means to ensure compliance with the groundwater limitations. The Regional Board is currently implementing numeric groundwater limitations and a program to ensure that each discharger implements BPTC as necessary to meet those limitations. The planned expansion of the City's wastewater treatment plant will trigger revision of the WDRs, and it is likely that the revised WDRs will include these requirements.
5. Pages III.H.14-16: Although groundwater monitoring data to date for salts and coliform organisms indicate that the existing wastewater treatment facility has not degraded groundwater quality, the recent nitrate nitrogen data for monitoring well MW-5 indicate otherwise. It should be noted that nitrate data alone are not sufficient to characterize existing and potential future groundwater quality impacts by nitrogen. Depending on the treatment process used, most of the nitrogen in typical municipal treatment plant effluent may be in the form of ammonia and organic nitrogen (TKN), which will ultimately be converted to nitrate nitrogen. A more thorough analysis would compare total nitrogen (TKN plus nitrate nitrogen) in the effluent discharged to the percolation ponds to that in groundwater upgradient and downgradient of the facility.
6. Page III.H.17, second paragraph: Coliform bacteria are not viruses. It would be correct to say that coliform bacteria are used as an indicator organism to assess the presence of potentially disease-causing microorganisms, including viruses. It is likely that the coliform of the City's undisinfected effluent in the treatment ponds and as discharged to the percolation ponds routinely exceeds 1,600 MPN per 100 mL.
7. Page III.H.17, second paragraph: Water quality objectives for any water resource are determined based on the beneficial uses of the resource. As correctly stated later in the EIR (Impact H.6), the Basin Plan designates the beneficial uses of groundwater as municipal, agricultural, and industrial supply. In accordance with the Basin Plan and the State Water Resources Control Board's Antidegradation Policy (Resolution No. 68-16), the Regional Board considers background groundwater concentrations and the most stringent of the applicable water quality goals (not only maximum contaminant levels, or MCLs) in determining whether degradation has occurred or will occur. In fact, the water quality objective for total dissolved solids in groundwater is 450 mg/L, based on the agricultural water quality goal.
8. Page III.H.26 (Significance Criteria): To comply with applicable State and Regional Board policy as discussed above, the fifth bullet item should state that any degradation of groundwater or surface

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cont.

water quality would be considered a significant impact. This is particularly critical because the potentially affected groundwater and surface water resources already exceed certain water quality objectives.

9. Pages III.H.34-35 (Impact H.6): The impact analysis is not sufficient to show that the potential for the wastewater treatment facility expansion will cause a less-than-significant impact to groundwater quality. Although Regional Board staff will evaluate the potential impact during development of revised WDRs, our assessment is not a substitute for a thorough CEQA analysis. The EIR should present more details on the effluent quality, fate and transport of waste constituents, and an analysis of potential groundwater quality impacts based on site-specific hydrogeological information. If the analysis shows that any degradation will occur, then the impact must be considered potentially significant. Appropriate mitigation measures would consist of BPTC measures, as discussed above, to minimize the potential degradation. Alternatives to percolation ponds, such as effluent recycling, could also be considered.
10. The analysis of potential water quality impacts must consider impacts to surface water quality caused by the wastewater treatment facility. Given that the existing wastewater treatment facility is adjacent to the San Joaquin River and that the groundwater gradient is typically towards the river, groundwater beneath the facility is seeping into the river. The rate of seepage and the mass loading of key wastewater constituents such as TDS and nitrate should be estimated and compared to typical river flows and concentrations.
11. The potential for sewer leakage to degrade shallow groundwater must also be considered.
12. Page III.J.7, Footnote 1: The definition of BOD is incorrect. It is a measure of the amount of biodegradable organic compounds present in the wastewater. The oxygen demand is exerted by aerobic microorganisms as they consume the organic materials. In groundwater, high BOD is also an indication of groundwater degradation.
13. Mitigation Measures J.1 and J.2: These measures should provide a specific means to ensure that the required sewer and wastewater treatment facility improvements are in place before any structures are occupied. Typically, the EIR would specify a trigger event, such as issuance of building permits, which would not take place unless the improvements had been completed.
14. Page III.J.23, Impact J.3: As discussed above (see comments 4 and 5), it is premature to state that the impact is less than significant based on the fact that the City would be required to comply with WDRs.
15. Chapter IV: The EIR should include an analysis of cumulative water quality impacts associated with past, present, and future development and their demand for wastewater treatment and disposal.
16. Chapter V: It would be appropriate to include some alternatives to the wastewater treatment facility as proposed. Such alternatives might include alternate methods of treatment, alternate sites for treatment and disposal, and/or alternate methods of effluent disposal (i.e., water recycling).

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Mr. Rod Simpson
City of Patterson

- 4 -

15 November 2002

If you have any questions about these comments or other matters pertaining to preparation of the EIR, please feel free to contact me at (916) 255-3140. Comments pertaining to storm water and water quality certification may be transmitted separately within the next week. If you have questions about those issues, please contact George Day at (916) 255-3506.



ANNE L. OLSON, P.E.
Water Resources Control Engineer

cc: Gregoria Garcia, State Clearinghouse, Sacramento
George Day, Regional Water Quality Control Board, Sacramento
Denise Wood, Stanislaus County Environmental Resources Department, Modesto

RESPONSES TO LETTER F, REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION

Response to Comment F.1:

Information on the wastewater treatment plant site and potential percolation pond sites (with respect to their location, acreage, assessor's lots, General Plan designation, zoning, or land use) is provided in graphic and/or narrative form throughout the EIR document under the relevant section topic (Wastewater, Land Use, Agricultural Resources). Figure III.2, p. III.J.5, shows the location of the wastewater treatment plant in relation to the City of Patterson. Figure III.C.3, p. III.C.7, identifies agricultural land adjacent to the wastewater treatment plant on the potential percolation pond sites. Figure III.D.2, p. III.D.16, shows biological resources at the wastewater treatment plant site.

The Project Description chapter is revised to clarify, early in the EIR document, the location of the City's wastewater treatment plant, and to include an additional figure to show the location of the plant in relation to the West Patterson project area. The new paragraph and figure are inserted at the end of the "Project Location" section of Chapter II, Project Description, p. II.10, as follows:

The City's wastewater treatment plant is about three miles east of the West Patterson project area on an approximately 160-acre site along the San Joaquin River (see Figure II.3a: Location of the City of Patterson Wastewater Treatment Plant). Immediately to the east of the treatment plant site is the San Joaquin River floodplain. The adjacent land to the north, south and west of the plant, including the areas identified as potential sites for expansion of the plant, is primarily in agricultural use.

The new figure is shown on the following page.

To include the wastewater treatment plant in Figures II.2, II.3, II.4, II.5, II.6, II.7, III.A.1, III.D.3, III.E.1, III.H.2 and III.H.5 would be impracticable. In order to encompass both the West Patterson project area and wastewater treatment plant (three miles away) in the same figure would require that the former be rendered at an unreadable scale (even as an 11"x17" foldout) to convey the necessary information.

Response to Comment F.2:

The City does not now discharge treated wastewater to the San Joaquin River, nor does it plan to do so in the future. The City has not conducted water quality monitoring of the San Joaquin River, and no monitoring study for the segment of the River near the City that specifically focused on typical wastewater constituents is available.

However, the US Geological Survey (USGS) did complete a detailed water quality study of the San Joaquin-Tulare basins in 1998, which includes a San Joaquin River sampling station near Patterson.¹ The USGS study monitored both surface water and groundwater for a wide array of pollutants, including some that would typically be associated with wastewater treatment plants. The study found that nitrate concentrations have been increasing in the San Joaquin River over the past 40 years. To quote from the study's findings:

“Increasing nitrate concentrations in the San Joaquin River could be attributed to several sources, including subsurface agricultural drainage, runoff from fertilizer applications, wastewater-treatment plant effluent, and runoff from dairies. The relative contribution of these sources was evaluated with estimates of nitrate loads and with trends in ammonia and phosphorus concentrations. Wastewater-treatment plant effluent and runoff from dairies have especially high concentrations of ammonia and phosphorus, yet concentrations of ammonia and phosphorus in the San Joaquin River generally declined or remained stable while nitrate concentrations steadily increased.”

This conclusion indicates that since ammonia and phosphorous levels declined, it is unlikely that wastewater treatment plants are an important cause of increased nitrate concentrations. It should be noted that, despite this long-term increase in the San Joaquin River nitrate concentrations, the levels are still well below the USEPA drinking-water standard. Additionally, the San Joaquin River is not listed as impaired for nitrate on the 303(d) list.

¹ Neil M. Dubrovsky, Charles R. Kratzer, Larry R. Brown, Jo Ann M. Gronberg, Karen R. Burow, 1998, Water Quality in the San Joaquin-Tulare Basins, California, 1992-95, on line at <URL: <http://water.usgs.gov/pubs/circ1159>>, updated April 20, 1998.

Response to Comment F.3:

Groundwater level measurements have been collected from the five monitoring wells installed in the vicinity of the existing wastewater treatment plant on approximately ten occasions since the spring of 2001. The shallow groundwater table around the existing treatment plant is shown on the graph on the following page that identifies groundwater levels in each of the monitoring wells. (See Figure C&R-1, based on Figure 1 in *City of Patterson Wastewater Treatment Plant 3rd & 4th Quarterly Monitoring Report 2002*, submitted to the Regional Water Quality Board in December 2002.) Although it varies seasonally, the depth to first groundwater in the vicinity of the plant is typically 10 to 20 feet below the ground surface.

The groundwater gradient at the treatment plant generally travels east towards the river as noted on Figure III.H.6: Groundwater Monitoring Well Locations at Wastewater Treatment Plant, p. III.H.13 in the Revised DEIR. Water supply well locations are shown on Figure III.I.3, on p. III.I.32 in the Water Supply section of the Revised DEIR.

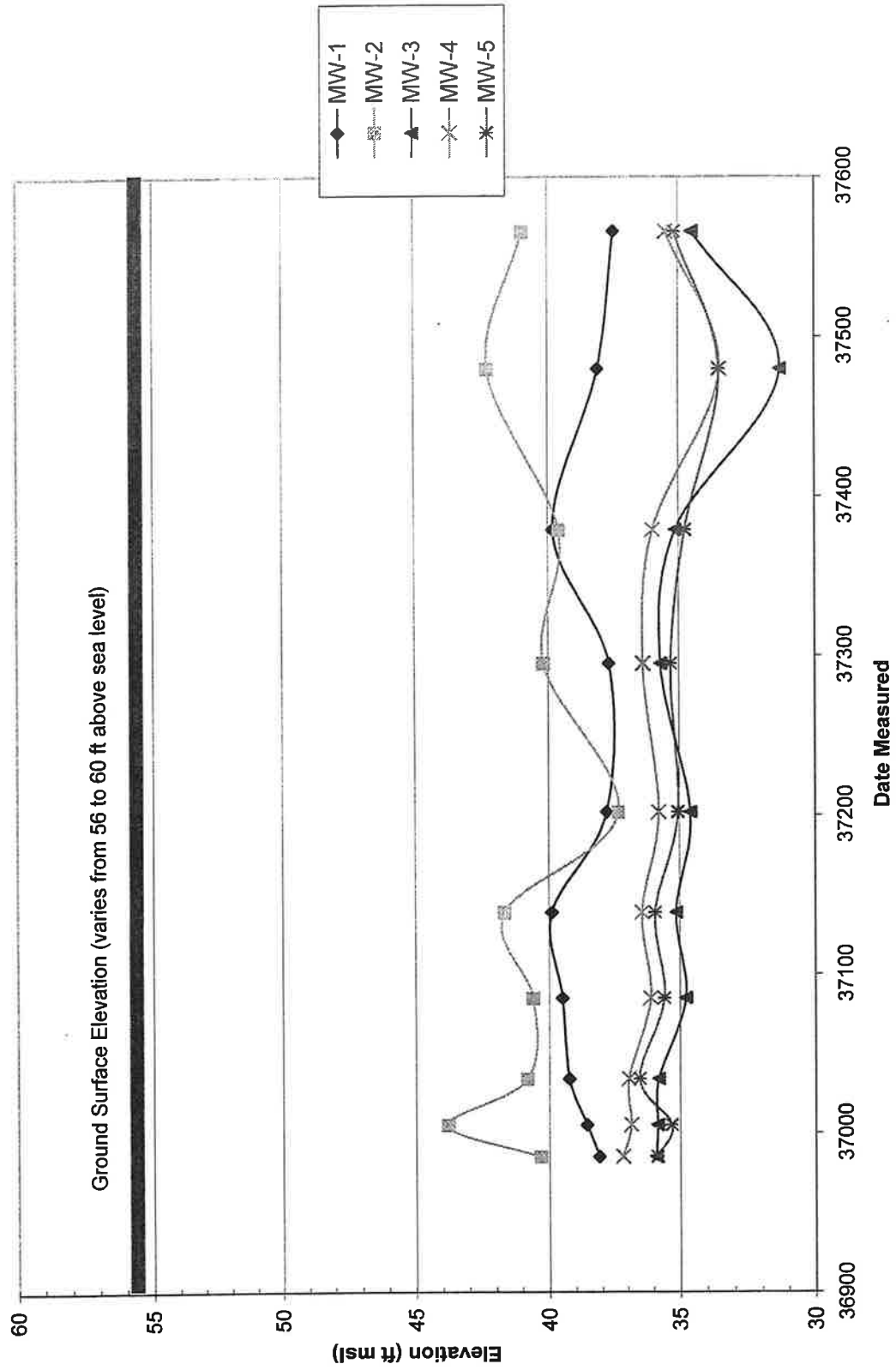
Response to Comment F.4:

The preparers of the Revised DEIR agree with the comment that the existence of groundwater monitoring wells at the existing wastewater treatment plant do not *ensure* compliance with the antidegradation policy. The last sentence in the second full paragraph on p. III.H.12 is revised to read:

To aid in verification that the existing treatment plant is in compliance with these groundwater limitations and with the State Water Resources Control Board's (SWRCB) groundwater antidegradation policy (State Board Resolution No. 68-16), the WDRs require the City to develop and implement a groundwater monitoring program and to provide quarterly monitoring reports to the RWQCB.

The results of groundwater monitoring, as required by the existing Waste Discharge Requirements (WDRs), do not suggest that the existing treatment and percolation ponds significantly impact (degrade) the quality of the shallow groundwater around the plant. In fact, when compared to background water quality, the plant appears to have created a plume of slightly better quality water (with respect to TDS, electrical conductivity, coliform, and nitrate) beneath and down-gradient of the plant.

Figure C&R-1
Groundwater Elevations in Patterson WWTP Monitoring Wells



Source : Lee and Ro, December 2002.

Based on the content of the comment, it appears that the commentor is in agreement that the data do not indicate that the existing wastewater treatment plant has degraded groundwater quality (first sentence, second paragraph, Comment F.4), with the possible exception of nitrates in the vicinity of MW-5. The commentor correctly identifies that the most recent *reported* monitoring event (May 2002) indicates an elevated nitrate level (29 mg/L [as N]) at MW-5 (refer to p. III.H.15 of the DEIR). However, it should be noted that prior to the last reported sampling event, the mean concentration of nitrate at MW-5 was 4.9 mg/L [as N] (with a standard deviation of 3.4), well below the USEPA drinking-water standard and background levels (as indicated in MW-1 and MW-2). In addition, the two monitoring events that have been performed since May 2002² indicate that the nitrate levels at MW-5 have returned to levels closer to the historic norm: 1.0 mg/L in July 2002 and <0.25 mg/L in November 2002.³ The mean concentration of nitrate at MW-5, including the May 2002 event, is 6.8 mg/L, substantially below the drinking water standard.

Based on the monitoring data available (five previous and two subsequent sampling events did not indicate a single sample that exceeded 10 mg/L nitrate [as N]), it appears possible that the May 2002 sample collected from MW-5 represents an aberration and is not representative of actual groundwater quality.

In summary, it appears that the preparers of the Revised DEIR and the Regional Water Quality Control Board (RWQCB) staff are essentially in agreement that the existing plant is not causing substantial groundwater quality degradation.

It is possible that an expanded monitoring program, which may include sampling of existing and newly installed monitoring wells, may be required by the RWQCB as a condition of the WDRs for the expanded treatment plant. Under this program, samples may be analyzed for ammonia, total nitrogen, and TKN, as appropriate. The City would cooperate fully with such requirements if, in the permitting process, it was determined that this type of information would provide additional protection of the public health and safety.

² As of December 2, 2002, the data has not yet been compiled into a report.

³ Bob Godwin, Lee & Ro, written communication with Bruce Abelli-Amen of BASELINE Environmental Consulting, December 2, 2002.

Response to Comment F.5:

The comment is correct that coliform bacteria are not viruses. Monitoring of fecal and total coliform is typically used to suggest possible contamination by human waste. Coliforms are also present in animal waste and found naturally in most surface waters. The first four sentences of the first full paragraph on p. III.H.17 are revised as follows to clarify coliform testing related to the effects of wastewater treatment facilities on nearby groundwater:

A common method for determining whether water contains infectious organisms that could threaten human health is to use an indicator species such as coliform bacteria (a common group of bacteria used as an indicator of fecal pollution and an indirect indicator of the presence of organisms that could cause human disease). Typically, the most probable number assay (MPN) is used to assess the concentration of coliform in a water sample. This assay involves making a dilution series from the sample to be analyzed. At a certain dilution level (or factor) the chance of finding **coliform bacteria** in the solution is statistically rare. The objective listed in the Basin Plan for coliform organisms (total coliform) in drinking water sources is 2.2/100 ml MPN.

As noted later in that paragraph, the City does not sample effluent from the wastewater treatment plant to test for coliform levels. The comment is correct in stating that the effluent will normally contain relatively high levels of coliforms. No increase in coliform concentrations is anticipated due to increased flows and increased treatment capacity in the proposed project, because future waste characteristics and treatment methods are expected to be similar to existing conditions.

Response to Comment F.6:

We acknowledge that the Regional Board considers background groundwater concentrations and the most stringent of the applicable water quality goals in determining whether degradation has or will occur. The fourth bullet item on p. III.H.26 of the Revised DEIR is modified as follows:

Any measurable degradation of water quality, including violation of applicable water quality standards;

Response to Comment F.7:

The preparers of the Revised DEIR acknowledge that it would be appropriate to provide clarification regarding how it was determined that the potential impacts associated with the proposed expansion of the wastewater treatment plant were considered less than significant. This additional information follows:

As discussed in the response to Comment F.4, it does not appear that the existing wastewater treatment plant is causing substantial degradation of groundwater quality in the vicinity of the plant. It is, therefore, reasonable to assume that an expanded plant (as proposed by the project) that would be operated at the same location but be required to include more rigorous treatment technologies and protocols (more on these below), similarly would not be expected to cause substantial impact to groundwater quality. The preparers of the Revised DEIR recognized this as a reasonable conclusion. However, if an existing regulatory program to ensure that the expanded treatment plant was designed, constructed, and operated so that water resources are protected were not in place, the Revised DEIR would have found the impact significant and provided appropriate mitigation measures. An agency does exist that regulates the construction and operation of wastewater treatment plants: the RWQCB.

The RWQCB is responsible for regulating land use activities that could impact surface water or groundwater quality. One of the best-developed and successful programs maintained by the RWQCBs is the regulation of wastewater treatment plants (considered one of the most important point sources of pollution). As stated by the USEPA,⁴

“Over the last two decades, significant achievements have been made nationally in the protection and enhancement of water quality. Much of this progress, however, has resulted from controlling point sources of pollution.”

As specified by the RWQCB, any person discharging waste or proposing to discharge waste that could affect the quality of the waters of the state, other than into a community sewer system is required to file a Report of Waste Discharge (ROWD) with the RWQCB. A ROWD is a detailed document that would include the proposed plant design, specify the Best Practicable Treatment and Control (BTC) Measures that would be implemented at the plant, and a suggested monitoring program. The RWQCB will not accept a ROWD

⁴ USEPA, Monitoring Guidance for Determining the Effectiveness of Nonpoint Source Controls, EPA 841-B-96-004, September 1997, p. 1-1.

and issue Waste Discharge Requirements (essentially the operating permit for a treatment plant) unless the RWQCB staff is satisfied that the BTCP Measures and monitoring program are adequate to protect water quality.

Although it is not practical to specify the particular BTCP Measures that would be employed at the expanded plant during the environmental review period, the measures may include one or more of the following:

- Disinfection of treated effluent before disposal in percolation ponds
- Pre-treatment program for industrial discharges
- Containment of or lining of treatment units/ponds
- Biological or chemical nutrient removal
- Treated effluent filtration

In addition, there is no evidence that the plant effluent increases pollutant concentrations in the shallow groundwater or in the seepage into the San Joaquin River. As discussed in the response to Comment F.2, it has been determined by the USGS that the concentrations of some of the pollutants typically associated with wastewater treatment plant effluent have actually declined in the San Joaquin River over the past several decades.

Response to Comment F.8:

Old sewage collection systems are notorious for both leakage (waste leaking from the pipe into the surrounding soil) and infiltration/inflow (storm water and/or groundwater flowing into the pipe). Typically, more attention is paid to infiltration and inflow since this phenomenon can greatly increase the amount of wastewater requiring treatment that is delivered to the treatment plant. However, older collection systems can release a significant quantity of untreated wastewater to the subsurface. Frequently older collection systems were not made to be watertight. They were often constructed using brick or ceramic pipe. In the older systems the joints connecting pipe segments were rarely sealed. Often trench backfill settlement would cause the joints to become partially disconnected.

The new sewage collection system that would service the proposed project would be constructed of watertight materials (i.e. PVC pipes and components), sealed at all the joints, riser rings, and castings (using ASTM D3034-00 materials and methods), and be confirmed to be watertight using a vacuum testing procedure (using ASTM's F1417-92(1998) Standard TEST Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure.

A new collection system is expected to operate for many decades with negligible leakage.

Response to Comment F.9:

The comment is correct that the definition of biological oxygen demand is not accurate. Footnote 1 on p. III.J.7 is revised as follows:

Biological oxygen demand (BOD) is a measure for the quantity of organic material that can be oxidized by aerobic microorganisms and is typically expressed in milligrams per liter. Reduced oxygen levels in surface water (i.e., caused by high BOD) can adversely affect fish and other aquatic organisms that rely on the dissolved oxygen for respiration. Presence of BOD in groundwater might also indicate degradation by human activities.

Response to Comment F.10:

As of the time of publication of the Revised DEIR, excess treatment capacity at the existing plant is estimated to be approximately 500,000 gallons per day, as shown on Table III.J.5. It is expected that the existing capacity would provide sufficient capacity for currently approved development and for development of West Patterson projects until the end of 2004. However, the City will continue to monitor development and impose limits on construction if there are delays in the treatment plant expansion or growth rates exceed estimates. If necessary, the City would limit the number of building permits for new construction.

Response to Comment F.11:

See the response to Comment F.7.

Response to Comment F.12:

By their nature, most potential impacts to water quality are cumulative impacts. With the exception of accidental chemical releases or spills, most well-designed individual mixed-use development projects would not cause violations of water quality standards in surface water or groundwater systems. The Revised DEIR presents analyses of potential water quality impacts associated with the proposed project (at the project site) and the required treatment plant expansion (in the vicinity of the existing plant site). Some of the impacts were found to be less than significant (with no mitigation required). The remaining significant impacts required mitigation, but were reduced to a less-than-significant level after mitigation.

Typically, it is the cumulative pollutant load contributed by existing land uses that represents an existing condition. It must be determined whether the proposed individual project would likely result in an additional pollutant load that would cause water quality standards to be violated.

In the case of the proposed project, it is unlikely that pollutants associated with increased urbanization would cause water quality standards to be violated. As noted on page III.H.10 of the Revised DEIR, the San Joaquin River is listed as impaired for boron, chlorpyrifos, diazinon, DDT, electrical conductivity, group A pesticides, selenium, and unknown toxicity. Agriculture has been identified as the source for each of these pollutants (with the exception of unknown toxicity). None of these pollutants are typically associated with increased urbanization or wastewater treatment plant effluent (particularly considering the recent USEPA ban of diazinon for domestic use). Since these pollutants would not be used at all (or in substantially lesser quantities) at the completed project relative to the existing agricultural land use, it is expected that water quality in the San Joaquin River may incrementally benefit from the project.

Response to Comment F.13:

Alternatives to the current treatment plant location and disposal sites are not discussed in the Revised DEIR. The proposal is to expand the existing treatment facilities. An analysis of alternative treatment plant locations or alternative discharge methods would not be expected to identify any viable alternatives. For example, alternatives such as river discharge to the San Joaquin River would present additional significant environmental impacts that would be more difficult to mitigate compared to those

Comments and Responses
Letter F

identified for the proposed expansion. The percolation pond locations include alternatives, as a greater amount of acreage than the necessary 120 acres has been identified in the Revised DEIR on pp. III.J.12 and III.J.17 and in Figure III.J.4 on p. III.J.13, and all alternative locations have been analyzed. Specific Best Practicable Treatment and Control measures would be expected to be evaluated in the Reports of Waste Discharge.



San Joaquin Valley Air Pollution Control District

November 18, 2002

Rod Simpson, Planning Director
City of Patterson
33 S. Del Puerto Avenue
P.O. Box 667
Patterson CA 95363

SUBJECT: WEST PATTERSON PROJECTS REVISED DRAFT ENVIRONMENTAL
IMPACT REPORT

Dear Mr. Simpson:

The San Joaquin Valley Air Pollution Control District (District) has reviewed the proposed project and offers the following comments:

The DEIR adequately addresses existing air pollution conditions and current regulations. Based on the information provided in Section F "Air Quality" of the DEIR, the District concurs with the findings of significant impacts identified in the report. However, the District would like to suggest the following items as additional mitigation measures:

- Any proposed renovation/demolition of existing building in the project area is subject to compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS). Specifically, the primary air pollutant of concern is asbestos. Leaf Sexton is the Northern Region's District contact for the program and is available should you need further assistance.
- Prior to the issuance of construction contracts the City of Patterson should perform a review of new technology, as it relates to heavy-duty equipment, to determine what if any advances in emission reduction are available for use. It is anticipated that in the near future both NOx and PM10 control equipment will be available. The District would be available for consultation on this process.

G.1

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

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Fresno, CA 93726-0244
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(661) 326-6900 • FAX (661) 326-6985

www.valleyair.org C&R.G-1

- Planting of deciduous trees on the south and westerly facing sides of buildings.
- Natural gas lines and electrical outlets should be installed in patio areas to encourage the use of gas and/or electric barbecues.
- Air Quality impact fees should be developed to help fund additional air quality mitigation measure to further reduce air quality impacts.
- Clean fuel transit vehicles (this could include compressed natural gas and/or electric vehicles or other as technology improves or becomes available).
- Establishment of clean fuel fueling stations open to the public (this could include electric charging stations, natural gas fueling stations, ect.).
- Promote the use of low emission vehicles, this will not reduce vehicles miles traveled, but rather promote the use of fuels and vehicles that are less polluting then gasoline or diesel. Air quality impact fees could be used to provide incentives to business or individual who purchase/use low emission vehicles.
- Allow business or individual through the zoning and building permit process the option of installing electric/natural gas fuel hookups.
- Telecommuting should be encouraged through land use mixes and zoning ordinances to provide incentives that minimize restrictions for in hone offices and satellite work centers.

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cont.

Thank you for the opportunity to comment. If you have any questions, please feel free to contact me at (209) 557-6400.

Sincerely,

John Cadrett
Air Quality Planner
Northern Region

APCD REF # 20020037

CC Kirk Ford, Deputy Director
Stanislaus County
Planning and Community Development
1010 10th Street Suite 3400
Modesto, CA 95354

RESPONSES TO LETTER G, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT

Response to Comment G.1:

The SJVAPCD suggests that a list of additional measures be considered to further reduce air quality impacts. Several of the measures will be added to the list, as discussed below; however, there is no evidence that these measures will reduce impacts identified as significant and unmitigable to less-than-significant levels. Some of the items on the list do not qualify as mitigation measures because they are already required by laws or regulations. For example, the first bullet calls for compliance with the National Emission Standards for Hazardous Air Pollutants related to asbestos. Every developer will be required to comply with these standards pursuant to existing laws and regulations. Therefore, there is no need to list compliance as a mitigation measure that could be imposed by decision-makers. Each developer that proposes to demolish a building that could contain asbestos materials will be required to retain appropriately qualified contractors to carry out the asbestos removal and to notify the APCD and other public agencies, as required in state and federal laws. These requirements apply whether or not City and County decision-makers explicitly identify them as mitigation measures and impose them as conditions of approval.

The third item on page 2 of the letter, related to air quality impact fees, has not been added because it is unclear how this measure could be implemented or what impacts it would mitigate. The fourth item, related to clean-fuel transit vehicles, has not been added because no new transit systems are proposed as part of the project nor are any planned for the project area. The final item in the list, related to encouraging telecommuting, has not been added because telecommuting can now be done without any amendments to City ordinances. The City and County objectives related to the Business Park include an objective to achieve an improved jobs/housing balance and reduce long commutes, both of which would improve air quality in the region.

The next-to-last item on page 2 of the APCD letter, to allow businesses or individuals to install electric or natural gas fuel hookups, could encourage use of alternative-fuel transportation methods such as electric cars. It is not added to the lists of mitigation measures in the Air Quality section because it is already available as long as installers follow the safety and other requirements in the California Building Code. It is not clear that electric cars requiring separate charging facilities will be a major source of

automobile transportation in the near future, as hybrid autos that charge while in operation are becoming more available and do not require separate charging facilities.

The second item on page 1 of the APCD letter, to perform a review of new technology for heavy-duty construction equipment prior to allowing construction activities to begin, is essentially addressed in Mitigation Measure F.1(b) by the measure to use alternative fueled or catalyst-equipped diesel construction equipment where possible. The measure is clarified by adding text from the APCD-suggested measure to the first bullet under Measure F.1(b) on p. III.F.11, as follows:

Alternative fueled or catalyst equipped diesel construction equipment, or NO_x or PM₁₀ controlled equipment shall be used, where possible.

The Summary chapter, Table S.1, Mitigation Measure F.1(b), p. I.20 is also revised accordingly, as follows:

b) Ozone precursors shall be limited, where possible, by: use of alternative fueled or catalyst equipped diesel construction equipment, **NO_x or PM₁₀ controlled equipment**; minimal idling time for all equipment;...

It is important to note that this and other mitigation measures are not expected to reduce impacts of ozone precursors like NO_x to less-than-significant levels.

Other suggested measures are added to air quality mitigation measures as listed below.

The second bulleted item in Mitigation Measure F.6(d), pp. III.F.22-III.F.23, is expanded as follows:

Energy efficiency measures shall be incorporated into the design of new or substantially remodeled structures (including new residential structures) to increase energy efficiency. Such measures may include, but need not be limited to:

- The use of insulation in attics and walls that exceeds Title 24 requirements;
- Orientation of buildings to maximize heating and cooling;
- **Planting of deciduous trees on south- and west-facing sides of**

buildings;

- The use of double-paned windows; and
- The use of solar water heaters.

A new bulleted item is added at the end of Mitigation Measure F.6(d):

- **Natural gas lines or electrical outlets shall be installed in patio areas when feasible to discourage use of charcoal or wood barbeques.**

The Summary chapter, Table S.1, Mitigation Measure F.6.(d), p. I.22, is also revised accordingly, to add the above mitigation measure at the end of Mitigation Measure F.6(d).

New bulleted items are added at the end of Mitigation Measure F.6(a), p. III.F.21:

- **Use of low-emission vehicles by businesses in the Business Park shall be encouraged by permitting additional parking exclusively for use by alternative fuel vehicles.**
- **Clean-fuel fueling stations, such as electric charging stations or natural gas fueling stations, open to the public, shall be permitted as an allowable use in the Business Park.**

The Summary chapter, Table S.1, Mitigation Measure F.6.(a), p. I.22, is also revised accordingly, to add the above mitigation measures at the end of Mitigation Measure F.6(a), as follows:

F.6: a) The Business Park Plan shall incorporate park-and-ride lots, require new uses/occupants employing 100 or more full-time-equivalent employees to submit to the reviewing authority an employee trip reduction plan, **permit additional parking exclusively for alternative fuel vehicles, and permit clean-fuel fueling stations as an allowable use in the Business Park.**

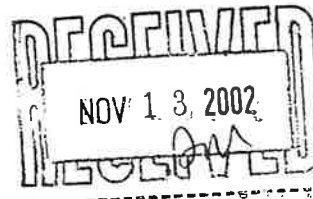
LAFCO

S T A N I S L A U S

LOCAL AGENCY FORMATION COMMISSION

1010 TENTH STREET, SUITE 3400 MODESTO, CALIFORNIA 95354
PHONE: (209) 525-7660 FAX: (209) 525-5911

November 8, 2002



Rod Simpson, Planning Director
City of Patterson
33 So. Del Puerto Avenue
P. O. Box 667
Patterson, CA 95363

SUBJECT: West Patterson Projects -- Draft EIR (State Clearing House Nos. 2001022031 and 2001032037)

Dear Mr. Simpson:

The above West Patterson Projects and Draft Environmental Impact Report (DEIR) includes components which will require LAFCO consideration and approval. LAFCO has been identified as a Responsible Agency under CEQA and, when any subsequent action item comes before the Commission, it must review the EIR, and take all actions necessary as a Responsible Agency. Therefore, the following comments are offered for the City's consideration, as Lead Agency, in the preparation of the Final EIR document:

1. The West Patterson Business Park Master Development Plan and Keystone Pacific Business Park proposes an expansion of the City of Patterson's sphere of influence (SOI), detachment from the West Stanislaus Irrigation District and a City-County Public Services Agreement for the extension of City services prior to annexation.

Pursuant to State Law, the City by contract, may extend services outside its boundary but within its sphere of influence in anticipation of a later annexation only if it first requests and receives approval from the Commission. (See Government Code Section 56133, attached). The discussion of this component of the project is vague throughout the document. Specifically, the approvals required on pages I.8 and II.53 identify a "City-County Public Service Agreement". This should be clarified to include an Out-of-Boundary Services Extension pursuant to Government Code Section 56133. Also, the project description contained in Section II should clearly include this aspect, with a map identifying the area where the proposed out-of-boundary services would be extended and the implications associated with Government Code Section 56133 and adopted Commission policies regarding the extension of services outside jurisdictional boundaries (Commission Policy 15, attached).

The same pages identify the removal of properties from the irrigation district. The description should specifically identify the irrigation district as the West Stanislaus Irrigation District. Also, the project description and analysis should include a map

C&R.H-1

H.1

H.2

H.3

SUBJECT: West Patterson Projects -- Draft FIR (State Clearing House Nos. 2001022031 and 2001032037)

Page 2

depicting the area to be detached, a discussion of the impacts of the detachment on the West Stanislaus Irrigation District, and the District's views and/or position on this aspect of the proposal. The detachment from the District should also be included in Section III.I, Water Supplies.

2. A component of the proposal project includes the annexation of Patterson Gardens to the City and detachment of the territory from both the West Stanislaus Fire Protection District and the West Stanislaus Irrigation District. Again, these districts should be specifically identified in the Approval Required sections of the EIR and a discussion of the impacts of detachment from both districts where appropriate in the EIR. All the affected districts should be contacted regarding the detachment of territory and any comments included in the final document.
3. The reference sections contained in the EIR should include the Stanislaus LAFCO Policies and Procedures Manual, adopted December 5, 2001, where appropriate.
4. Pages III. M.7 - The discussion identifies that the desired standard for fire protection services in Patterson is to maintain a ratio of about 4.7 firefighters per 1,000 population and a ratio of about 1.0 to 1.25 full-time fire protection personnel per 1,000 population. What is the current level of fire services in Patterson and what level will be achieved after the mitigation measures are implemented? How will the mitigation measures be implemented to achieve the identified level of service?
5. Page III. M.10 - The desired ratio of police personnel to population in Patterson is about 1.5 full-time police personnel per 1,000 population. The current level is identified a 1.5 officers per 1,000 population, thus meeting this goal. What level will be provided after the mitigation measures are implemented and how will these be implemented to achieve the identified service level?

H.3
cont.

H.4

H.5

H.6

H.7

Thank you for the opportunity to review the Draft EIR and provide the City with my comments. If you have any questions or would like to discuss these responses further, please call me at your earliest convenience.

Sincerely



Fran Sutton-Berardi
Executive Officer

FSB:dh
Attachment

(I:\LAFCO\West Patterson\Simpson St Clring Nos.wpd)

GOVERNMENT CODE SECTION

56133. (a) A city or district may provide new or extended services by contract or agreement outside its jurisdictional boundaries only if it first requests and receives written approval from the commission in the affected county.

(b) The commission may authorize a city or district to provide new or extended services outside its jurisdictional boundaries but within its sphere of influence in anticipation of a later change of organization.

(c) The commission may authorize a city or district to provide new or extended services outside its jurisdictional boundaries and outside its sphere of influence to respond to an existing or impending threat to the public health or safety of the residents of the affected territory if both of the following requirements are met:

(1) The entity applying for the contract approval has provided the commission with documentation of a threat to the health and safety of the public or the affected residents.

(2) The commission has notified any alternate service provider, including any water corporation as defined in Section 241 of the Public Utilities Code, or sewer system corporation as defined in Section 230.6 of the Public Utilities Code, that has filed a map and a statement of its service capabilities with the commission.

(d) The executive officer, within 30 days of receipt of a request for approval by a city or district of a contract to extend services outside its jurisdictional boundary, shall determine whether the request is complete and acceptable for filing or whether the request is incomplete. If a request is determined not to be complete, the executive officer shall immediately transmit that determination to the requester, specifying those parts of the request that are incomplete and the manner in which they can be made complete. When the request is deemed complete, the executive officer shall place the request on the agenda of the next commission meeting for which adequate notice can be given but not more than 90 days from the date that the request is deemed complete, unless the commission has delegated approval of those requests to the executive officer. The commission or executive officer shall approve, disapprove, or approve with conditions the contract for extended services. If the contract is disapproved or approved with conditions, the applicant may request reconsideration, citing the reasons for reconsideration.

(e) This section does not apply to contracts or agreements solely involving two or more public agencies where the public service to be provided is an alternative to, or substitute for, public services already being provided by an existing public service provider and where the level of service to be provided is consistent with the level of service contemplated by the existing service provider. This section does not apply to contracts for the transfer of nonpotable or nontreated water. This section does not apply to contracts or agreements solely involving the provision of surplus water to agricultural lands and facilities, including, but not limited to, incidental residential structures, for projects that serve conservation purposes or that directly support agricultural industries. However, prior to extending surplus water service to any project that will support or induce development, the city or district shall first request and receive written approval from the commission in the affected county. This section does not apply to an extended service that a city or district was providing on or before January 1, 2001. This section does not apply to a local publicly owned electric utility, as defined by Section 9604 of the Public Utilities Code, providing electric services that do not involve the acquisition, construction, or installation of electric distribution facilities by the local publicly owned electric utility, outside of the utility's jurisdictional boundaries.

POLICY 15 - OUT-OF-AGENCY SERVICE CONTRACTS OR AGREEMENTS.

- A. The Commission has determined that the Executive Officer shall have the authority to approve, or conditionally approve, proposals to extend services outside jurisdictional boundaries in cases where the service extension is proposed to remedy a clear health and safety concern, is within the agency's primary area of the sphere of influence and anticipates a later change of organization, or is the result of a city or district action which serves to accommodate relocation of existing development. In addition, the Executive Officer shall have the authority to approve or conditionally approve service extensions where the services in question will not facilitate development (for example, an inter-agency contract for fire protection services). In cases where the Executive Officer recommends denial of a proposed service extension, that proposal shall be placed on the next agenda for which notice can be provided. After the public hearing, the Commission may approve, conditionally approve, or deny the contract.
- B. In the case where a city or district has acquired the system of a private or mutual water company prior to the enactment of this legislation, those agencies shall be authorized to continue such service and provide additional connections within the certificated service area of the private or mutual water company defined by the Public Utilities Commission or other appropriate agency, at the time of acquisition without LAFCO review or approval as outlined in Government Code Section 56133. The continuation of service connections under this policy shall not be constrained by the sphere of influence of that local agency at that time.
- Proposals to extend service outside this previously defined certificated area would come under the provisions of Government Code Section 56133 for the review and approval by the Commission prior to the signing of a contract/agreement for the provision of the service.
- C. These requirements do not apply to an existing service that a city or district was providing on January 1, 1994. A service may be deemed to exist when a service main-line had been constructed adjacent to a property prior to January 1, 1994, and only a single-service lateral is subsequently proposed and there is no extension or enlargement of the main-line required.
- D. These requirements do not apply to a local publicly owned electrical utility, as defined by Section 9604 of the Public Utilities Code, providing electrical services that do not involve the acquisition, construction, or installation of electrical distribution facilities by the local publicly owned electric utility, outside of the utility's jurisdictional boundaries.

RESPONSES TO LETTER H, STANISLAUS COUNTY LOCAL AGENCY FORMATION

Response to Comment H.1:

Government Code Section 56133 requires LAFCo approval of out-of-boundary services extensions. This requirement will be added to the list of required LAFCo approvals provided on p. I.8. The following text is added to the second bullet under the heading “Local Agency Formation Commission” on p. I.8:

**City-County Public Services Agreement and Out-of-Boundary Services
Extension pursuant to Government Code Section 56133.**

The following text is added to the second bullet under the heading “Local Agency Formation Commission” on p. II.53:

**City-County Public Services Agreement and Out-of-Boundary Services
Extension pursuant to Government Code Section 56133 (see Figure
II.19: Proposed Out-of-Boundary Services Extension).**

The above-referenced figure, identifying the area where the proposed out-of-boundary services would be extended, is added to the EIR to follow the new text. The new figure is shown on the next page.

Response to Comment H.2:

Government Code section 56133(a) states that a city or district may provide new or extended services by contract or agreement outside its jurisdictional boundaries if it first receives written approval from the commission in the affected county. Section (b) states that a city or county may provide new or extended services outside its jurisdictional boundaries but within its sphere of influence in anticipation of a later change of organization.

The area to be served by the City outside of its current service area includes lands within the City’s sphere of influence as it proposes to be amended by the West Patterson Business Park Master Development Plan and within an area expected to be annexed to the City within ten years. Thus, the project complies with the criteria set forth in Government Code section 56133 (a) and (b). The City and County will execute an agreement for the out-of-boundary

Response to Comment I.4:

The fourth paragraph on p. III.M.10, in the Community Services section of the Revised DEIR, is revised to read as follows:

The desired ratio of police personnel to population in Patterson is about 1.5 full-time police personnel per 1,000 population. Currently, Patterson Police Department has about 17 officers and 3 volunteers, which means the City has maintained the desired ratio of about 1.5 police personnel per 1,000 population. **There are at least two officers on duty at any given time.**

Response to Comment I.5:

The last paragraph on p. III.M.10, in the Community Services section of the Revised DEIR, is revised to read as follows:

Current response time to any part of the City is estimated to be under three minutes, which is within the desired response time. City police units are currently dispatched to City emergencies through the Stanislaus County Communications Center in Modesto. **The Stanislaus Communications Center provides dispatch services which are part of the service contract with the Stanislaus County Sheriff's Department.**

Response to Comment I.6:

The final paragraph on p. III.M.11, which continues on p. III.M.12, in the Community Services section of the Revised DEIR, is revised to read as follows:

Based on the desired standard of about 1.5 full-time police officers per 1,000 population, residential development of the Patterson Gardens proposal would require an additional 4.5 police officers. **The Stanislaus County Sheriff's Office Assistant Sheriff Richard Breshears estimates that the light industrial and commercial uses proposed by the West Patterson projects, including the Business Park Plan development and commercial uses in the Patterson Gardens proposal, would require additional police personnel at the minimum rate of 1.2 full-time officers per 1,000 employees per a 24-hour period. This means that if all businesses operated over a 24-hour time span, a minimum of 20 additional police officers may be needed. The demand for**

additional personnel and/or police equipment is not considered to be a significant physical environmental impact, although it could be a fiscal impact in the City. **Given the location of the Patterson Police Station in relation to the location of the West Patterson project area, and given the number of additional officers needed, a new police facility would be needed in the area.**



Stanislaus Consolidated Fire Protection District
3705 Oakdale Road
Modesto, California 95357
Phone (209) 552-3700
Fax (209) 552-3705

TO: Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

FROM: Stanislaus Consolidated Fire Protection District *sd*

PROJECT: General Plan Amendment Application 2002-08, Rezone Application 2002-20,
Parcel Map Application 2002-30, Ordinance Amendment 2002-02 -- Keystone
Pacific Business Park

Based on this agencies particular field(s) of expertise, it is our position the above described project:

- ☐ Will not have a significant effect on the environment.
☒ May have a significant effect on the environment.
☐ No Comment.

Listed below are specific impacts which support our determination (e.g. traffic general, carrying capacity, soil types, air quality, etc.) - (attach additional sheet if necessary)

1. *Increased impact on fire services.*
2. *Fire department access and water for fire protection.*
- 3.
- 4.

Listed below are possible mitigation measures for the above-listed impacts:

1. *Pay fire service impact/development fees.*
2. *No development without approved fire department access and water for fire protection.*
- 3.
- 4.

In addition, our agency has the following comments (attach additional sheets if necessary).

Proposed project shall comply with current fire code requirements.

<u>Shirley Koelmans</u>	<u>Fire Prevention Specialist</u>	<u>November 5, 2002</u>
Name	Title	Date

**RESPONSE TO LETTER J, STANISLAUS CONSOLIDATED FIRE
PROTECTION DISTRICT**

Response to Comment J.1:

The West Patterson projects' effects on fire service are discussed in the Revised DEIR in Section III.M, Community Services, beginning on p. III.M.6. As explained on p. III.M.9, the demand for additional personnel and/or firefighting equipment alone is not considered to be a significant impact on the physical environment.

The Patterson Fire Department estimates that a new fire station would be necessary to serve the Business Park Plan area, as noted on p. III.M.9. With construction of a new fire station, impacts were determined to be less than significant. The City of Patterson has established a municipal facilities fee, including a fire protection fee, as suggested in the comment. This fee would be applicable to development in the West Patterson project area. Review of improvement plans and building permits by the City or County (depending on the jurisdiction of the particular development site) will ensure adequate fire access and water for firefighting.

The last sentence of the last paragraph on p. III.M.6, which continues on p. III.M.7, is revised to clarify the relationship of the Stanislaus Consolidated Fire Protection District to the Patterson Fire District and the West Stanislaus Fire District:

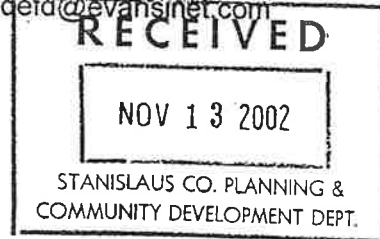
The Patterson Fire Department and WSFD have mutual aid agreements with all adjoining fire districts, including the Woodland Avenue Fire District, the Salida Fire District, the Westport Fire District, the Mountain View Fire District, and the Stanislaus Consolidated Fire Protection District. The agreement with the Stanislaus Consolidated District is not for initial response but for secondary response, because of the distance between that district's headquarters and Patterson.

The residential portion of the project, along with other residential developers of properties west of downtown Patterson, will pay for the fire station through participation in a Community Facilities District pursuant to the Mello-Roos Community Facilities Act of 1982. The business park area will continue to pay the facilities fee and participate in an assessment district for operations.



WEST STANISLAUS COUNTY FIRE PROTECTION DISTRICT

P.O. Box 565, Patterson, CA 95363
(209) 892-5621 fax (209) 892-7896
email: wsided@evansinet.com



James W. Kinnear
Fire Chief

September 17, 2002

Stanislaus County
Department of Planning and Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

Re: **West Stanislaus County Fire Protection District's Impacts From GENERAL PLAN
AMENDMENT APPLICATION 2002-08, REZONE APPLICATION 2002-20, PARCEL MAP
APPLICATION 2002-30, ORDINANCE AMENDMENT 2002-02- KEYSTONE PACIFIC
BUSINESS PARK**

Upon review of the proposed GPAA 2002-08, RA 2002-20, PMA 2002-30, OA 2002-02, the West Stanislaus County Fire Protection District feels that the creation of a business park will have an accumulative, detrimental effect upon the ability of this district to continue to provide emergency services to its existing constituents. To mitigate these negative effects, the District requires that any new buildings constructed on any parcels created by this action pay this fire district's standard CEQA development fee and that all parcels pay the fire districts standard annual fire suppression assessment

K.1

Should there be any further questions on this issue, please refer them to this office immediately.

Respectfully,

A handwritten signature in cursive script, appearing to read "James W. Kinnear".
James W. Kinnear
Fire Chief

**RESPONSE TO LETTER K, WEST STANISLAUS COUNTY FIRE
PROTECTION DISTRICT**

Response to Comment K.1:

The comment addresses the necessity of mitigating the financial effects resulting from buildings added in the West Stanislaus County Fire Protection District as a result of the West Patterson projects. Fiscal impacts are not considered physical environmental impacts under CEQA and therefore do not require mitigation. The fees mentioned in the comment are already established by ordinance, as explained on p. III.M.9 in Section III.M, Community Services. Totals for the fees have been calculated based on estimates for development in the West Patterson projects and are presented on p. III.M.9.



Steven A. Herum
sherum@herumcrabtree.com

November 18, 2002

Mr. Rod Simpson
City of Patterson Planning Director
33 S. Del Puerto Avenue
Patterson, CA 95363

VIA FACSIMILE & U.S. MAIL

Re: West Patterson Projects/Draft EIR

Dear Mr. Simpson:

My client, the Del Puerto Health Care District ("District") has asked me to review the draft Environmental Impact Report dated October 3, 2002 for the West Patterson Projects which include the West Patterson Business Park Master Development Plan, Keystone Pacific Business Park and Patterson Gardens ("Project"). After review, I have found that this draft Environmental Impact Report is fatally defective for failing to adequately analyze the potential environmental effect that new growth will have on the availability of health care services for the new and increased population. The provisions for health care should be provided by a public district, and akin to the consideration of police, fire and schools, this draft EIR must adequately address the impact of growth to the District.

Accordingly, the draft EIR is deficient in several areas. The Environmental Setting (CEQA Guideline §15125) fails to identify unmet medical needs and fails to fully describe the District. The draft EIR neglects to consider the foreseeable impacts that growth will have on the District. CEQA Guideline §15126 and §15126.2. **["The discussion should include relevant specifics of the area...health and safety problems caused by the physical changes, and other aspects of the resource base such as...public services."]** Under CEQA Guideline section 15126.2(a), an EIR is required to evaluate the secondary impacts that are likely to result from a project. For example, in *El Dorado Union High School v. City of Placerville* (1983) 144 Cal. App.3d 123, the court held that increased school enrollment that would result from a residential development, leading to the need to construct a new school, was an environmental effect of the project and should have been analyzed in the EIR.

Following is a brief analysis of the potential health care needs of the District in order to service the community and residents that will result from the Project. Health care facilities will need to be constructed to support the Project. The following needs and costs

Mr. Rod Simpson
November 18, 2002
Page 2 of 2

are estimated to be short term to long term in scope. It is estimated that over the next 3 to 15 years, an investment in excess of \$40 million will be required. Below are estimates of some current value construction costs for the necessary services:

- Urgent Care: The cost of urgent care is variable and is dependant upon the determining factors for the best long term, quality community option. This may entail the purchasing of equipment or facilities to supply this new service. Cost will range from about \$25,000-\$150,000 for equipment to \$500,000 to \$750,000 to purchase and rehabilitate a building.
- Physician Office Building: The cost of construction for a physicians office building will be about \$200-\$250 per square foot excluding the land that will be needed.
- Skilled Nursing: A skilled nursing facility ranges from \$70,000 to \$75,000 per bed. To fill the community needs and to create a cost effective operation the size should be in the 60 to 100 bed range. The cost, exclusive of the land, would be in the range of \$4,200,000 to 7,500,000.
- Hospital: The current cost of a full service hospital varies by service and community. The range quoted is dependent upon the size of the community and demand for services. At this time we are estimating a downsized community facility, which could be expanded as the community expands. The current cost is \$500,000 to \$700,000 per bed for a small hospital to \$1,000,000 per bed for a full service urban facility. To start, we would be looking at a 40-bed hospital. A facility of this type would provide emergency room, acute care beds, a lab, and radiology services. Estimated cost would range from \$20,000,000 to \$28,000,000.
- Senior Housing/Assisted Living: The cost for this service would be about \$200 per square foot, excluding the land.

Therefore, the draft EIR is legally deficient for failing to adequately consider the impacts of the Project to the District. The District will be impacted as a result of the Project and this is a significant avoidable environmental effect. CEQA Guideline §15064. This deficiency can be cured by an adequate mitigation measure that provides sufficient capital facilities to the District to meet the increased public health needs of the new residents. Without such mitigation, this EIR is legally deficient.

Very truly yours,



STEVEN A. HERUM
Attorney-at-Law

cc: Ms. Margo Arnold- Del Puerto Health Care District

C&R.L-2

L.1
cont.

RESPONSE TO LETTER L, STEVEN HERUM FOR DEL PUERTO HEALTH CARE DISTRICT

Response to Comment L.1:

The comment is correct that EIRs must assess secondary impacts that are likely to result from a project and that EIRs must identify health and safety problems caused by a project. The West Patterson projects Revised DEIR does include analyses of health and safety issues. For example, Section III.F, Air Quality, calculates levels of air pollutants that could be generated by development in the West Patterson area. The pollutants of concern have been identified by the U.S. EPA and the California Air Resources Board as those that could cause health effects in people. Section III.H, Hydrology and Water Quality, discusses water quality effects of the proposed expansion of the wastewater treatment plant.

The potential need for additional health care services is not, itself, a health and safety issue. There are three acute health care facilities located in Modesto and Turlock, about 20 to 30 minutes from Patterson, that serve the Patterson population. The community hospital operated by the Del Puerto Health Care District recently closed in 1998 due to lack of demand.

There is no information in the analysis of the Patterson Gardens component of the project or the analysis of the West Patterson Business Park Master Development Plan that provides evidence of the need for new health care facilities. Section III.N, Population, Housing and Employment, provides an estimate that Patterson Gardens would add about 2,960 residents to the City of Patterson at full buildout. This population increase alone would not result in the demand for a new hospital or other major medical facilities such as senior assisted-living or skilled nursing facilities. The comment provides no evidence that population growth resulting from the proposed project would cause a demand for the facilities listed in the comment. Rather, the analysis appears to identify the cost of providing facilities that the District would like to construct, without addressing any specific demand from the potential 2,960 new residents. Since the communities of Patterson, Westley and Newman, with a population well over 12,000 people, could not support a community hospital, there is no basis for determining that an addition of fewer than 3,000 people to the population of Patterson would create a demand for a new community hospital or other medical facilities.

As noted in the comment, California courts have held that increased demand for community services, such as schools, can result from residential development. The EIR addresses this in Section III.M, Community Services. However, the courts have limited this requirement to an analysis of the need to construct new structures, such as a school building or a fire station, as noted in the *El Dorado Union High School* case cited in the comment, and the more recent decision in *Goleta Union School District v. The Regents of the University of California*, decided in 1995. There is no evidence that the West Patterson projects would result in the need for construction of any new health-care-related structures. No significant impacts would result, and there is no need to identify new mitigation measures.

The City of Patterson and the District have, in the past, cooperated on future planning for District facilities, and the City has passed on to the District portions of development fees collected on new residential development. The City Manager has met with the Health Care District Administrator and agreed in concept that the \$500 per residential unit fee that the City collects to be used for special districts will be used for capital improvements for the Health Care District pending identified and approved projects.

Letter M

Oct 17 02 10:36a



P.O. BOX 692
PATTERSON, CA 95363-0692
(209) 892-8241
(209) 892-8275 FAX

P.O. BOX 341
FIREBAUGH, CA 93622-0341
(209) 364-6232
(209) 364-6280 FAX

DATE 10/17/02

TO: Barbara Sahn

FROM: Patterson Flying Service

REGARDING: Patterson Airport

MESSAGE: Barbara, where did you
get 26ac of Agricultural
Land? there is 19ac of Farm
ground and 11ac of Runway, Apron,
buildings and Parking, otherwise
good job. Regards, WARRPA

TOTAL PAGES SENT (INCLUDING THIS PAGE) 1

IF THERE ARE ANY PROBLEMS WITH THE TELEFAX PLEASE CALL
209-892-8241

M.1

RESPONSE TO LETTER M, PATTERSON FLYING SERVICE

Response to Comment M.1:

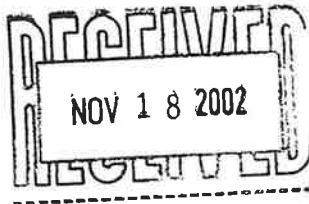
The correction by the comment is appreciated. The first sentence on p. III.D.10 is revised to accurately reflect the area of the Patterson Airport property that is an agricultural field, as follows:

Approximately 19 acres of the 30-acre Patterson Airport property is comprised of a disked agricultural field (see Figure III.D.1).

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November 18, 2002

Re: Comments on Revised Draft Environmental Impact Report for West Patterson Business Park Master Development Plan, Keystone Pacific Business Park, and Patterson Gardens.

Dear Mr. Simpson,

These comments are not meant to be exhaustive and will focus on but a few of the areas of concern in the RDEIR, those of water supply and biological resources. Boldfacing of text has been added for emphasis.

Water Supply

The section dealing with this, III.I, is fairly confusing, internally inconsistent, and contains many contradictory statements, defeating the purpose of the EIR under CEQA as an informational document.

First regarding the issue of amount available; there is reference to the City of Patterson's recently approved Urban Water Management Plan (UWMP), which says, as stated on page III.I.2:

" the UWMP concluded that the City's groundwater is sufficient to serve projected demand through 2020 associated with the land uses (identified in the City's 1992 General Plan) within the City's sphere of influence as it is proposed to be amended for the West Patterson Business Park Master Development Plan."

Further down the page the City's Water Supply Assessment (WSA) is noted as containing a similar conclusion (though based primarily on the UWMP):

" Based mainly on the City's UWMP, the Assessment concluded that a sufficient water supply - groundwater - is available to serve the West Patterson projects in addition to the City's existing water demand and water demand associated with other planned development through 2020 projected in the City's 1992 General Plan, as proposed to be amended."

But other statements made in the DEIR are at odds with these conclusions, statements that apparently concern themselves ONLY with existing demand (actual water production in year 2000, or 2,357 acre-feet annually, or "afa"), and not including the Project addressed by this EIR. First on page III.I.15 by the statement:

"In sum, the City's existing water supply is not believed to be sufficient to supply baseline demand much beyond the early part of the next decade."

N.1
cont.

Is the supply adequate or isn't it? The conflicting statements must be resolved.

Page III.I.20 states:

" Assuming the West Patterson projects were not approved and no further growth were approved within the City's present sphere of influence, the City would be expected to deplete the available supply of groundwater meeting Domestic Water Quality Standards beneath the City at some point between 2009 and 2014. If no growth were to occur at all beyond 2000, those dates would be 2011 and 2020, respectively. **Approval of the West Patterson projects, in combination with other planned development in the City's sphere of influence, would accelerate the depletion of good quality groundwater, from these earlier and later time horizons to 2008 and 2012, respectively. Although the City would need to look beyond untreated groundwater to meet its projected water demand even without the West Patterson projects, the projects would cause the problem to arise earlier.**"

N.2

It is difficult to track the amount of water being referred to in various statements about supply. The "Year 2000 Existing Demand" is defined as 2,357 afa on page III.I.14. Another category titled "Year 2000 Plus Approved Development Demand" (Year 2000 Plus Approved) is estimated at 3,600 afa on page III.I.15. On page III.I.17 is the statement that the West Patterson Projects would account for an annual water demand of approximately 3,018 afa. Thus the total of the West Patterson Projects plus "Year 2000 Plus Approved" is **6,675 afa**, as stated on page III.I.17.

What then is the meaning of the figure listed on page III.I.18 for "total water demand":

" In 2020, total water demand in the City's sphere of influence including the West Patterson projects (cumulative demand) is anticipated to be approximately **7,589 acre-feet annually**..." ?

How did 6,675 acre feet become 7,589 acre-feet? This discrepancy needs to be clarified.

Related to the above confusing and contradictory statements are ones made with reference to the present source of the water, groundwater in the confined aquifer above which the city sits, and its recharge capability and condition, both now and in the future.

Page III.I.9 states:

" The City lies within the Delta-Mendota Groundwater Basin (Basin), as defined by the Department of Water Resources (DWR) in Bulletin 118-80 (DWR 1980). "

And page III.I.11 is the statement:

" In a 1995 study, DWR concluded **that** the Delta Mendota Basin was overdrafted by 24,000 acre-feet annually, 5 percent of the total annual withdrawals from the Basin (DWR, 1995). "

N.3

Yet supposedly this overdraft does not affect the city supply. Page III.I.11 further states that there is:

"... a total quantity of at least 80,000 acre-feet of water in the aquifer beneath the City, 30,000 to 50,000 acre-feet of which were estimated to be of adequate water quality for municipal and industrial uses served by the City. The 80,000 acre-foot total is sustained by an estimated 9,300 acre-feet of annual recharge..."

And on page III.I.22 is stated:

"... there appears to be sufficient surplus water in the confined aquifer to support the City's proposed appropriative use to serve the West Patterson projects in addition to existing and planned water uses. "

And at the bottom of the same page:

" Because overdraft is unlikely, groundwater is considered to be a legally reliable source of supply. "

N.3
cont.

This is at odds with the statement on page III.I.20 (already quoted in this letter on the first page) that even without the West Patterson Projects or any further growth within the city's sphere of influence:

" the City would be expected to deplete the available supply of groundwater meeting Domestic Water Quality Standards beneath the City at some point between 2009 and 2014. "

On the subject of recharge, there also confusion and contradiction. While on the one hand the purported 80,000 acre-feet available to the city is "sustained by... 9,300 acre feet of annual recharge, we are told, on page III.I.18 that:

"...very little water is anticipated to reach groundwater once the West Patterson projects are built out and most unconsumed and waste water is diverted to the City's storm drainage and sanitary sewer systems. "

Based on this latter statement there would seem to be cause for concern with regard to recharge.

A footnote to this statement explains however, that:

" The reduction in recharge to the shallow aquifer from curtailed irrigation return flows will have a negligible effect on the volume of groundwater available to the City. The City withdraws from the deep confined aquifer, which is largely isolated from the shallow aquifer by a layer of semipermeable Corcoran Clay..."

N.4

And if we go back to page III.I.11 we are told:

" The confined aquifer is recharged primarily by lateral inflow and secondarily by leakage from the shallow aquifer through the Corcoran Clay."

What conclusions can be drawn from all of this? If the curtailment of recharge from the shallow aquifer is not a problem for the deep confined aquifer the city draws upon, then this aquifer's recharge in connection to the broader basin is important. And this broader basin is in overdraft, as already noted.

Related to the issue of water quantity is that of water quality, which looms large also in consideration of the West Patterson Projects, and indeed the city's present condition and its potential future even without the Projects. Page III.I.23 states:

" The principal impact of the West Patterson projects when considered alone is that the City would need to begin treating its groundwater sooner (at some point between 2008 and 2012) than if the projects did not go forward. **At some point, the City will need to begin treating its groundwater or switch to a new source altogether, whether or not the West Patterson projects are approved.**"

N.5

Another problem with continued groundwater pumping is that of land subsidence, as noted on page III.I.29:

" The longer and more intensively the City relies on groundwater, the greater the risk that these impacts could manifest and the greater their potential severity".

As the city continues to pump groundwater it will have to treat the water, and the impacts related to such treatment are not adequately addressed or mitigated. Neither the question of the amount of electricity needed, nor the disposal of the salts, are resolved. These are both critical flaws in the RDEIR.

Salt disposal is inappropriately deferred, and the treatment of the energy question is conclusory and unsupported. On page III.I.27 it states:

" Compared to *present* annual usage of 110,000 megawatts, **this represents more than three times the 3 percent annual load growth projected for the area.** Nevertheless, this power consumption would increase gradually over time as the West Patterson projects build out, and by the time the 9,937 megawatt hour level is reached, total usage in the area **can be expected** to be considerably greater given 3 percent annual growth in the interim. Accordingly, the energy demand associated with treating groundwater is not anticipated to interfere with or exceed the capacity of local power generation and transmission facilities. "

N.5
cont.

HOW is the usage to "...be expected" to be greater? This needs to be explained. Without such explanation and analysis the conclusion that the impact is "...considered to be less than significant" is unsupported and indefensible.

The city's methods of providing of an adequate supply of adequate quality water are not sustainable, even without the proposed Projects. The DEIR does not present an adequate mitigation plan to address these problems, with or without the project. What are presented are, as is all too common in EIRs, plans to make plans. These are not legally adequate under CEQA. The assumed success of unproven, unsubstantiated plans, cannot be used as mitigation. Huge unknowns remain. The outcome of the proposals to treat the wells for contamination, mostly from Total Dissolved Solids (TDS) is unknown. The ability of the city to dispose of the tremendous amounts of salt produced from such wellhead treatment is unknown. We note here that the San Joaquin Valley has a longstanding problem with salt disposal, as demonstrated by the TMDL (Total Managed Daily Load) process for salt and boron now underway to address this very issue. Amounts in excess of one million tons per year accumulate, without a disposal means. This is the background scenario within which the City of Patterson would have to derive a means to dispose of its addition to this salt overload.

The ability of the city to provide surface water supply to substitute for its groundwater supplies is unknown. Access to either State Water Project or Central Valley Project water involves undergoing an substantial process in either case, with no outcome assured, especially in these days of increasing demands on a finite supply, from a local, regional, or statewide perspective. To base a mitigation on the outcome of either is not adequate for the purposes of CEQA.

N.6

In short, the water supply proposal is as leaky as a sieve. The city and the project currently rely exclusively on groundwater. The groundwater basin is overdrafted but it supposedly doesn't matter. Recharge would be curtailed with project buildout but that supposedly doesn't matter either. Conflicting statements are made that there is adequate supply and there isn't, with or without the project. Continued pumping will result in problems with treatment for salt contamination and energy needs, neither of which are resolved or adequately analyzed. The preferred future scenario of accessing surface water supplies is unproven. Against this woefully inadequate backdrop of water supply "planning" it is clearly indefensible to approve this project as presently presented.

N.7

Biological Resources

Please note relevant documents incorporated by reference at the end of this letter.

The DEIR, including the Appendices, neglects to reference and assess the importance of the project area as a resource for migratory and resident species using the Pacific Flyway and state and federal refuge systems. The document and mitigation measures omit the importance of species associated to Salado Creek, the San Joaquin River, and the wastewater treatment plant. The surveys are inadequate, and therefore mitigation is inadequate. Future pre-construction surveys are inappropriate, as species need to be identified through ground-truthing if feasible mitigation measures are to be defined at this stage of the process, to determine whether and how the project is to move forward. This document recognizes the importance of state and federal listed species but fails to provide mitigation except for the San Joaquin Kit Fox, and even that is inadequate.

N.8

The importance of Salado Creek as a vital seasonal tributary that has already been grossly disrupted by Diablo Grande, needs to be assessed and protected as a whole viable system, for aquatic flora and fauna.

N.9

Even though the project area is primarily in agricultural use it has high value for species that rely on it for foraging and nesting habitat. The surveys that were done were grossly inadequate for this purpose and should have been done over a period of seasons. Since the project inception there has been more than adequate time to do such surveys, and the project proponents and lead agency should have insured this.

N.10

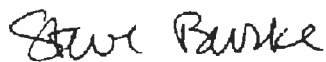
There is no review at all of cumulative impacts; this must be provided. This is a gross oversight and violation of CEQA. This document needs to be re-done for this reason alone.

N.11

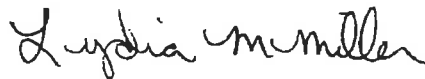
The EIR is the heart of CEQA, and is intended to be an informational document to provide all parties - elected officials, agency staff, the public and others - the ability to assess project impacts and mitigations. This document fails to do so in critical areas and is not legally adequate to allow for project approval.

N.12

Thank you for the opportunity to comment. We look forward to further participation in the process.



Steve Burke



Lydia M. Miller

Documents incorporated by reference:

- "Sliding Towards Extinction"
- "Riparian Bird Conservation Plan", August 2002
- "Avian Uses of Vernal Pools and Implications for Conservation Practice", by Joseph G. Silveira

Cc: Interested parties

RESPONSES TO LETTER N, PROTECT OUR WATER

Response to Comment N.1:

The statements quoted from the Revised DEIR in the comment are consistent. The *quantity* of groundwater available to serve the West Patterson projects is sufficient to meet the anticipated demand of the projects in addition to existing and other projected future demand. The *quality* of that groundwater, however, is anticipated to become insufficient for domestic uses at some point in the future, estimated to be between 2008 and 2012 (pp. III.I.20, III.I.22). At that point, the City will need to begin treating its groundwater or switch to a source of surface water. Even without the West Patterson projects, groundwater quality is expected to decline to the point at which it will be unable to support baseline water demand, at some point between 2009 and 2014 (pp. III.I.15, III.I.20).

To clarify, the sentence beginning “In sum” in the third paragraph on p. III.I.15 is revised as follows:

In sum, **due to anticipated water quality limitations**, the City’s **untreated groundwater** is not believed to be sufficient to supply baseline demand much beyond the early part of the next decade.

Response to Comment N.2:

The 7,589 afa figure cited in the comment refers to “cumulative demand,” which is comprised of (1) existing demand and that associated with already approved development, (2) demand associated with the West Patterson projects, and (3) demand associated with additional development planned for in the City’s General Plan elsewhere in the City’s sphere of influence. This cumulative demand estimate is based on the City’s Urban Water Management Plan.¹ The third component of cumulative demand, which can be derived from Table III.I.6 by subtracting baseline and West Patterson projects demand (6,675 afa) from cumulative demand (7,589 afa), is projected to be 914 afa by 2020. Although this development is not likely to occur by 2020, the analysis in the Revised DEIR includes demand associated with that development to ensure that sufficient water is

¹ Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002, p. 9.

planned to be available in the event that it is needed (*cf.* p. III.I.18, note 10). Thus, the Revised DEIR uses a conservative approach to the cumulative impact analysis.

Response to Comment N.3:

The City's Urban Water Management Plan (UWMP) is cited in the Revised DEIR (see full cite on p. III.I.50) and is a main basis for the Revised DEIR water supply discussion and the City of Patterson Water Supply Assessment. The UWMP includes an extensive discussion of groundwater conditions in the Patterson area and in the broader Delta-Mendota Groundwater Basin.² That discussion in turn relies on a series of studies of groundwater in the Basin, including the City's own investigation of groundwater in the immediate vicinity of the City.³ Although one study by the state Department of Water Resources found the Delta-Mendota Groundwater Basin to be overdrafted in some areas, other studies show that local groundwater conditions in the vicinity of the City do not indicate overdraft.⁴ The UWMP concluded that "[t]he City's [groundwater] study confirmed that the City has access to a sufficient *quantity* of groundwater to serve its existing and planned water demands projected through 2020" (emphasis added).⁵ The UWMP also concluded, however, that the *quality* of that groundwater could not be expected to support domestic uses beyond 2012 given projected growth in the City (including the West Patterson projects).⁶ At that time, the City would begin treating its groundwater to meet Domestic Water Quality Standards or switch to a source of surface water (see Revised DEIR pp. III.I.20 to III.I.23 and III.I.34 to III.I.40). The City's groundwater, at first untreated and later with treatment, is accordingly considered to be a sufficient source of supply for the West Patterson projects.

² Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002, pp. 13-23.

³ Kenneth D. Schmidt & Associates, *Groundwater Supply Evaluation for City of Patterson*, April 2002.

⁴ Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002, pp. 18-23.

⁵ *Ibid.*, p. 21.

⁶ *Ibid.*

Response to Comment N.4:

Sources of recharge for the confined aquifer include rainfall, seepage from unlined canals and natural streams, and deep percolation of applied irrigation water, all of which enter the groundwater basin to the west of the edge of the Corcoran Clay (located west of the City near the California Aqueduct) and flow laterally through the confined aquifer to beneath the City (pp. III.I.8-III.I.9, III.I.11).⁷ Some recharge also comes from the unconfined zone above the Corcoran Clay by leakage through the clay. The amount of leakage is dependent upon the thickness of the clay and the hydrostatic pressure difference across the clay. As water is pumped from the confined layer, the hydrostatic pressure difference increases, which in turn increases the recharge to the confined aquifer from above. As the City increases pumping from the confined aquifer, this recharge will increase. The aquifer tests to be performed by the City⁸ will refine the City's understanding of recharge to the confined zone.

Recharge from the unconfined, shallow aquifer is believed to be less substantial than the lateral recharge, which is derived from areas to the west of the project area and which would not be affected by the West Patterson projects (see p. III.I.11). Accordingly, the increase in impervious surface in the project area is not anticipated to significantly affect recharge to the confined aquifer.

Response to Comment N.5:

The comment correctly notes that the groundwater treatment process proposed to respond to declining groundwater quality would require a substantial amount of electricity and would produce considerable volumes of salt, in the form of brine or solid salts, as a byproduct of the desalination process (pp. III.I.24 to III.I.27). These impacts have been analyzed in the Revised DEIR.

That analysis concludes that the impacts associated with disposing of residual salt from the desalination process are presumed to be significant and unavoidable (pp. III.I.24 to

⁷ Kenneth D. Schmidt & Associates, *Groundwater Supply Evaluation for City of Patterson*, April 2002, p. 1.

⁸ Stoddard & Associates, *City of Patterson Year 2000 Urban Water Management Plan*, August 2002, p. 20; Kenneth D. Schmidt & Associates, *Groundwater Supply Evaluation for City of Patterson*, April 2002, pp. 17-20.

III.I.26). The analysis estimates the quantity of brine likely to be produced in the process and evaluates the impacts of two alternative disposal methods: deep-well injection and evaporation. Although the comment correctly notes that the San Joaquin Valley has experienced problems with salt levels in the region's water bodies and that Total Maximum Daily Loads (TMDLs) are now being established for the San Joaquin River, the comment does not indicate how these facts bear on the adequacy of the Revised DEIR, which evaluates the impacts of deep-well injection and evaporation and off-site disposal of solid salts. The Revised DEIR does not propose that brine or evaporated salts be disposed of directly in the San Joaquin River or in a location that would lead to further increases in the salt concentrations in the river.

The Revised DEIR also evaluates the electricity demand expected to be associated with treating groundwater to meet domestic water quality standards. This analysis states that "this power consumption would increase gradually over time as the West Patterson projects build out, and by the time the 9,937 megawatt-hour level is reached, total usage in the area can be expected to be considerably greater given 3 percent annual growth in the interim" (p. III.I.27). That is, given 3 percent normal annual growth and existing annual use of 110,000 megawatt-hours (p. III.I.27), total annual demand by 2012 (by which time groundwater treatment likely will be necessary) can be expected to be roughly 134,390 megawatt-hours, and in 2020, 170,240 megawatt-hours. Assuming approximately 5,500 afa will need to be treated in 2012 (derived from Table III.I.4), electricity demand associated with treating that water can be expected to be approximately 6,000 megawatt-hours at 1.1 megawatt-hours/acre-foot (p. III.I.27). Accordingly, in the first year of groundwater treatment, there would be a sharp increase in electricity demand associated with treatment, roughly 4 percent of total demand, but thereafter electricity demand would increase much more gradually, in step with increases in water withdrawals. Neither the initial sharp increase nor the later gradual increases are substantially out of line with the normal 3 percent annual electricity growth projected in the area. Consequently, the Revised DEIR concludes that groundwater treatment would not exceed expected electric generating capacity.

The Revised DEIR concludes that the City's groundwater represents a sufficient water supply for the West Patterson projects in addition to existing and planned future development. The City's groundwater, without treatment, is anticipated to serve the City's demand, including the West Patterson projects, until some point between 2008 to 2012, after which point groundwater treatment would be necessary. The Revised DEIR accordingly evaluates the environmental impacts of treated groundwater as a second-

stage supply. The level of detail provided in this analysis is appropriate to a project-level environmental document for a land use project; it is not intended to serve as a project-level document for the groundwater treatment project itself (see the response to Comment D.6). Further environmental analysis accordingly will precede implementation of groundwater treatment.

Response to Comment N.6:

Because the City's groundwater represents an adequate source of supply, the Revised DEIR does not rely on surface water to supply the projects. Nevertheless, the City has evaluated the environmental impacts of supplying the West Patterson projects with surface water as a variant in the event that the City decides to obtain such a source of supply in lieu of treating groundwater at some point in the six to ten years before treatment or a new source of supply is required. The Revised DEIR is not intended to serve as a project-level environmental document for the implementation of a surface water supply variant; further analysis, for example, of the impacts associated with the "project" of building a surface water treatment plant and turnout from the Delta-Mendota Canal and/or California Aqueduct will need to be performed prior to construction of that plant and turnout(s) (see the response to Comment D.6). The purpose of identifying a source of supply in an environmental document is to show that a supply exists for a proposed development project and to identify the environmental impacts that are reasonably foreseeable at the time the development project is proposed. The Revised DEIR has done that. Providing more information at this point about the impacts associated with a surface water supply would demand speculation, which CEQA does not require.

Response to Comment N.7:

See the responses to Comments N.1 through N.6.

Response to Comment N.8:

The agricultural habitat within the preferred alternative may serve as foraging and/or stopover habitat for a number of bird species including waterfowl, shorebirds, songbirds, and raptors. The potential impacts to all special-status bird species, whether resident or migratory, were considered during preparation of the Revised DEIR (see pp. III.D.21 to III.D.44); e.g., use by greater sandhill cranes and mountain plovers is discussed under

“Special-Status Animal Species,” pp. III.D.34 to III.D.35. Further, mitigation measures are provided for several species or groups of species (see “Project Impacts and Mitigation,” pp. III.D.46 to III.D.58) including Swainson’s hawks, burrowing owls, and nesting raptors. In addition, the mitigation for the Swainson’s hawk includes compensation for the loss of foraging habitat in the form of the acquisition of Habitat Management lands. These lands would also serve as compensation for loss of foraging habitat for other species associated with the San Joaquin River that forage in the agricultural fields on site. Please see the responses to Comments A.1, B.1 and B.2 regarding the San Joaquin kit fox.

The reach of Salado Creek that runs through the Patterson Gardens site has been significantly altered from its natural form (as have the downstream reaches). It is now an actively maintained farm ditch with steep banks and a mostly bare channel. As explained in the Revised DEIR, the creek was channelized in about 1906 to 1912 (pp. III.P.7 to III.P.8). There are only narrow fringes of emergent vegetation in the ditch and infrequent patches of wetland vegetation. Dirt roads bound the nearly vertical, 8-foot-high channel banks of the creek throughout its course within the project area. In its current state, Salado Creek provides low-quality habitat for wildlife species (pp. III.D.14 to III.D.15). However, the proposed mitigation for impacts to Salado Creek (pp. III.D.52 to III.D.53) involves habitat restoration, including establishment of oak savannah adjacent to the creek and seeding of the channel bottom with wet meadow species. The establishment of oak savannah would not only provide nesting and foraging habitat for a variety of bird species but will also provide cover for wildlife species using the creek as a movement corridor between different habitats. The seeding of the channel bottom would also improve the quality and value of the aquatic habitat. These enhancements would improve the overall quality and value of Salado Creek for wildlife species.

Response to Comment N.9:

Salado Creek is thoroughly assessed in the Revised DEIR, including the discussions on pp. III.D.14 to III.D.15 and III.D.52 to III.D.53, as well as the discussion of various special-status wildlife in the West Patterson project area. Salado Creek has been significantly altered from its natural form as discussed above in the response to Comment N.9). The Patterson Gardens project would result in an improvement of the quality and value of Salado Creek to the flora and fauna associated with it through restoration and enhancement of the land immediately adjacent to the creek and the creek itself (pp. III.D.52 to III.D.53).

Response to Comment N.10:

Numerous species may indeed use the project site for foraging and nesting habitat. The likelihood of special-status species occurring on site was assessed by several methods, discussed in Section III.D, Biological Resources, under "Biotic Surveys," p. III.D.5 and "Special-Status Plant and Wildlife Species," pp. III.D.21 to III.D.23. The determination of potential impacts to wildlife species as a result of the proposed project was based on a comprehensive analysis, using current and appropriate assessment methods. For example, if a particular species was predicted to occur on site based on the information obtained from the California Wildlife Habitat Relationships Program, lack of a sighting during reconnaissance surveys did not automatically preclude it from consideration as a potentially impacted species. Surveys were carried out during various times during September, October and November 2001, March and April 2002, and May, June and July 2002. If the potential existed for special-status species to occur within the project area, they were considered, and, where necessary, additional site-specific surveys were recommended prior to construction activities as part of mitigation measures.

In addition, although the agricultural crops on the project site may serve as foraging habitat for numerous bird species, such habitat is regionally abundant. Further, the proposed mitigation for the Swainson's hawk includes compensation for the loss of foraging habitat in the form of the acquisition of Habitat Management lands (pp. III.D.48 to III.D.51). These lands will also provide foraging habitat for other species, such as the White-tailed kite and burrowing owl, that may forage in the agricultural fields on site.

Response to Comment N.11:

There is considerable review of cumulative impacts in the West Patterson Projects Revised DEIR. The commentor may have been looking for a separate chapter on cumulative impacts. However, cumulative impacts are not required to be addressed in a separate section. As explained in the Introduction to the Revised DEIR, "cumulative impacts are addressed under appropriate topics..."(p. Intro.3). That is, cumulative traffic impacts are discussed on pp. III.E.30 to III.E.45, at the end of the Transportation and Circulation section. Cumulative air quality impacts are discussed on pp. III.F.25 to III.F.27, at the end of the Air Quality section.

The Biological Resources section does not include a separate discussion of cumulative impacts to Salado Creek, as may be requested by the comment, because the Patterson

Gardens development project proposes to restore and improve the portion of Salado Creek that is within the project area, as described on pp. III.D.52 to III.D.53. The reaches of Salado Creek within and downstream of the Patterson Gardens site have been heavily altered by farming and other related activities, including channelization, piping, routine ditch maintenance, and irrigation. The portion of the creek through the Patterson Gardens site was channelized in the early 1900s (see Section III.P, Cultural Resources, pp. III.P.4 to III.P.5). Within the past several years, improvements were made to the creek channel north and east of the Patterson Gardens site for flood control purposes, including deepening of the creek in several segments and installing a pipe from approximately Sperry Avenue to the San Joaquin River. The Patterson Gardens project proposes a deepening and widening of the creek to increase flood conveyance in conformance with improvements immediately downstream, and the provision of oak savanna buffers on both sides of the recontoured creek. Thus, impacts to Salado Creek, with mitigation, would be less than significant. No other portion of Salado Creek is proposed to be changed by the West Patterson projects or other development in the City of Patterson or its immediate vicinity. Cumulative loss of agricultural resources is discussed in the Revised DEIR on pp. III.C.10 to III.C.11, and in Section III.Q, Growth Inducing Impacts, where the potential to encourage other development in the western part of Stanislaus County could result in additional loss of agricultural land (p. III.Q.4).

The following section is added immediately after “Impact D.13” on p. III.D.58 of the Revised DEIR to clarify the assessment of cumulative impacts to biological resources that is included in the document:

CUMULATIVE IMPACTS

Consideration of concerns and issues regarding potential cumulative impacts on biological resources have been included as part of the detailed biological resources assessment conducted for the Revised Draft EIR, and is reflected in the discussions regarding special-status plant and animal species (Section III.D, Biological Resources, pp. III.D.23-44) and in the identified impacts and mitigation measures for the proposed project (Section III.D, Biological Resources, Impacts and Mitigation, pp. III.D.44-45 [Significance Criteria], pp. 45-46 [Assumptions], pp. 46-58 [Project Impacts and Mitigation, Impacts D.1-D.13].

Cumulative impact concerns relate primarily to the removal of the agricultural lands that predominate the site of the preferred

alternative. These lands provide somewhat limited, albeit important, habitat values for a variety of wildlife species, including several special-status animals. However, most plant and animal species expected to be affected are considered common in agricultural areas throughout the Central Valley.

The annual cropping pattern over most of the project area creates a situation, depending on what crops are grown and harvested at what time of year, that results in varying value of the landscape to wildlife over the course of a growing season, or from year to year. Because much of the region surrounding the proposed project site is also in agriculture, the impact associated with such variation is lessened. While removal of the proposed project area from agriculture will have some effect on the wildlife of the region, adequate agricultural lands remain, and will likely remain into the foreseeable future, to support wildlife populations, including special-status species. In addition, mitigation measures are identified in the Revised Draft EIR that would result in lands being set permanently aside for conservation purposes. Therefore, implementation of the identified mitigation measures would reduce any cumulative impacts from the project to a level that is less than significant.

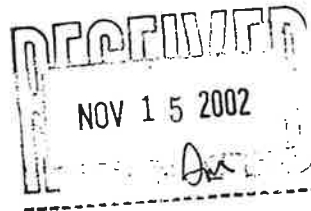
Response to Comment N.12:

The commentors' assertion that the Revised DEIR "is not legally adequate to allow for project approval" is unsubstantiated. *CEQA Guidelines*, Section 1515.1 state that "[a]n EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences." The Lead Agency believes that the West Patterson Projects Revised Draft EIR meets and surpasses this standard of adequacy.

Letter O

Scott D. Nelson
17013 Elm Ave.
Patterson California 95363
November 14, 2002

Greg Peretti, Patterson Planning Commission
Rod Simpson, Planning Director
c/o Patterson City Hall
33 S. Del Puerto Ave.
Patterson, CA 95363



These comments are in regards to the West Patterson Business Park Master Development Plan / Keystone Pacific Business Park / Patterson Gardens document (October 3, 2002) with a public comment period from October 3 to November 18, 2002. The document was prepared by Turnstone Consulting for the City of Patterson.

My comments on the draft EIR document are grouped into six topics:

1. Environment impacts of electrical services and infrastructure to the new developments
2. Increased odor caused by the proposed Water Treatment Plant expansion
3. Water quality impacts to the private residential wells around the Water Treatment Plant due to the expansion
4. Comments on the Patterson Gardens Representative House Designs
5. Comments on the document's references to the Southern Bypass
6. Alternatives for a Bicycle infrastructure around the City of Patterson

with a series of recommendations in the final section.

1. Environmental impacts of electrical services and infrastructure to the new developments

The new Business Park and the Patterson Gardens residential neighborhood will need electrical power but there is no discussion in the EIR about how power will reach the areas. If tall towers are used then there is a potential conflict with the airport. If trenching is used then there are potential problems crossing Salado Creek. Likewise transformers and power distribution substations will also need citing. Based on the environmental issues that were raised during the proposed T.I.D. extension through Patterson (from the I-5 north/south power lines to the Turlock Irrigation District's trunk line near Turlock), there should be a discussion about power requirements, infrastructure, and environmental impact in the EIR.

2. Increased odor caused by the proposed Water Treatment Plant expansion

Mitigation measure F.5 (on page I.21) states

The City shall ensure that appropriate engineering controls have been incorporated into the design and construction of the proposed wastewater treatment and conveyance facilities to minimize production of objectionable odors. During operation of the expanded facilities the City shall ensure that engineering controls designed

to suppress odors are functioning properly by periodically evaluating odor levels adjacent to the facilities. Should objectionable odors be present, the City shall take appropriate action to correct them.

and from the discussion of the impact of F.5 (page III.F.16): *odors are most prevalent during warm weather conditions (70 degrees Fahrenheit and warmer).*

However, the public comment period on the waste water treatment expansion is during the winter and spring months when the weather is cool and the consultants that are evaluating the system and generating the EIR are disconnected from the issue. Also, *objectionable odor* needs to be quantified to avoid problems of who, when, and how long. i.e. a citizen living across the street may have a different definition and tolerance level than a visitor who only spends 5 minutes on the side-bank of the expanded waste water treatment plant. Also, many citizens would disagree with the statement (page III.F.18, mitigation measure F.5): *Increases in objectionable odors would remain a significant and unavoidable impact* especially since measure F.5 says that *the city shall take appropriate action to correct [objectionable odors]*.

Due to the traffic level on Las Palmas, the consequences of this are similar to the events in Tracy. For many years, Tracy had a processing plant immediately north of highway 205 which emitted a very strong odor. Although this odor was very localized and most Tracy residents never smelled it, the impression to all of the thousands of people traveling on highway 205 was that *Tracy was a stinky city*. When I first told many coworkers that I lived in Tracy, their immediate response was "Tracy is stinky" and they were reluctant to even consider moving there. Similarly, there is a considerable amount of traffic on Las Palmas coming into Patterson. There is also a zone on Las Palmas Avenue (one-quarter mile east of the San Joaquin River bridge) that is very stinky during all of the warm months. For many people, that is their impression of Patterson. And it would be a hard-sell to attract businesses to our shiny new business park if, the day after their scoping visit, they sat around their corporate conference table and talked about *Patterson, the stinky city*.

O.2
cont.

3. Water quality impacts to the private residential wells around the Water Treatment Plant due to the expansion

There are two main aquifers in the Patterson sphere of influence; a lower aquifer that the city draws its water from and an upper aquifer that residents in the outlying areas draw their water from. The waste water treatment plant uses percolation ponds which put water into the upper aquifer. City-owned monitoring wells around the waste water treatment plant verify that contaminants are not spreading.

Even though there is minimal water migration between the upper and lower aquifers, the water extracted from the lower aquifer is expected to fall below applicable drinking water standards (page I.5) between 2008 and 2012 due to the extraction of the higher quality water. But there is no mention of monitoring private wells in the area around the waste water treatment plant due to: the extraction of high quality water from the lower aquifer for use in the city; and the depositing of the treated waste water into the upper aquifer.

Also note that the policy on page III.J.7 states that

Under the Federal Clean Water Act, discharges to surface waters (e.g. San Joaquin River) require issuance of a National Pollutant Discharge Elimination System permit, whereas discharges to land (i.e. percolation ponds, farmland irrigation) do not.

and no river discharge is currently permitted (page III.J.6, 1st paragraph). However, the proximity of the percolation ponds to the river bank may be leaching water from the settling ponds into the ground and then into the river. It is unclear from the document if this quantity is monitored, what the legal policy is

O.3

for this case (if it is happening), and what the effect of the expanded water treatment plant would have on this process.

0.3
cont.

4. Comments on the Patterson Gardens Representative House Designs

The representative houses shown in Figure III.O.7 (on page III.O.15) do not conform to the guidelines in the City of Patterson Community Design Guidelines — specifically in regards to the garages that are illustrated (CDG Section 4.1: *reduce the visual dominance of the automobile.*) Although at this point it is understood that the representative houses that are illustrated are just representative, pictures should be selected that minimize the garage facade. Also, the amount of driveway space shown in the middle dimensioned drawing can not accommodate 3 cars since the driveway is only 24 feet long (and two cars wide).

0.4

5. Comments on the document's references to the Southern Bypass

The first complete paragraph on page III.B.5 cites the Transportation and Circulation Policy:

The City shall promote development of an expressway to facilitate east-west travel and to divert through-traffic from Sperry Avenue and East Las Palmas Avenue

The next paragraph indicates that this refers to a project known as the Southern Bypass and that the EIR evaluated the need for this bypass but it was not required to maintain Level of Service "C" after mitigation. However, there is no mention if the Sperry / Orange Avenue straightening alternative was evaluated in order to reduce the need for the other mentioned required mitigation measures (extensive widening and signaling of numerous streets). The Sperry / Orange Avenue straightening alternative had been mentioned in other city planning documents.

0.5

6. Alternatives for a Bicycle infrastructure around the City of Patterson

The issue of bicycle lanes, paths, and service is stated as goals in the Patterson General Plan. But this EIR report only touches on bicycle infrastructure (p. III.E.6 and p. III.E.13), and the widening of numerous streets (as part of mitigation efforts to maintain Level of Service "A"- "C") could eliminate several bicycle lanes. As paraphrased from the Patterson General Plan:

The City shall create and maintain a safe and convenient system of bicycle pathways that encourage bicycling as an alternative to driving. The City shall establish a safe and convenient network of identified bicycle routes connecting residential areas by the shortest possible routes with recreation, shopping, and employment areas within the city. Bicycle routes shall emphasize paths separated from vehicle traffic to the maximum extent possible. The City shall limit on-street bicycle routes to those streets where the available roadway width and traffic volumes permit safe coexistence of bicycle and motor vehicle traffic.

0.6

Unfortunately, the various street traffic mitigation activities would drastically increase the width of streets and complicate intersections for bicycle users. The utilization of bicycles becomes more difficult, less safe, and would be effectively discouraged. However, the creation of a separate bicycle elevated pathway system would allow:

- * Recent residential subdivisions to have easy access to the new business park
- * Residential development to have easy and safe access to schools and parks
- * Business park access to established downtown businesses and eating establishments

and would eventually tie-in older neighborhoods also. A quick analysis shows that several miles of elevated pathway would be required for the desired interconnectivity. There would be two up/down ramps in the business park, one to two ramps per subdivision, one ramp per school and park, and one to two ramps near downtown.

A fence or colonnade lined 10 foot wide pathway, supported 20 feet up, would allow people to bicycle from home to work, from home to school and to parks, and from work to downtown and the surrounding businesses. Unlike many typical bicycle bridges designed to go over streets, this elevated pathway would be at a constant 20 foot height over the pathway's entire course above the city. Up/down access ramps would allow people to get onto the pathway, but the entire course will be flat thus making it much easier for people to bicycle around the city. Patterson is in a unique position for an elevated bicycle pathway because of its flat topography.

Not only would this elevated bicycle pathway accomplish the goals for the General Plan's bicycle section, it would also provide greater connectivity to the downtown area and assist in revitalization activities. It may also defer some of the street traffic mitigation plans that are proposed in the EIR since some of those mitigation plans would have been implemented to compensate for people going from houses (in the recent subdivisions near Sperry) to the new Business Park. This is automobile traffic that can easily be replaced with bicycle traffic as long as the bicycle system is safe, convenient, and effective.

Most importantly, note that the time to start implementing this elevated bicycle pathway is before too much development evolves in the area. Presently, the greatest impact would be in the regions near the downtown area. But there are a number of public and quasi-public properties along the route to downtown such that the impact could be minimized (i.e. an elevated bicycle pathway running along the edge of the schoolyard).

Also, since Patterson would be fairly unique as a community with the elevated bicycle pathway, it would be a positive publicity draw, a positive community asset, promote greater park use and connectivity, and also would attract Silicon Valley companies whose employees lead an active lifestyle. Patterson's 9 months of ideallic bicycle and outdoor weather make the plan attractive.

Cost is an issue that is beyond the scope of the EIR. But a narrow elevated bicycle pathway is considerably less expensive than a street lane.

O.6
cont.

7. Recommendations

* There should be a discussion about power requirements, infrastructure, citing, and environmental impact for the Business Park and Patterson Gardens in the EIR. Additionally, motivations for fuel-cell powered back-ups for subdivisions and/or fuel-cell powered businesses could be mentioned as a mitigation technique.

O.1
cont.

* Odor from the waste water treatment plant is prevalent in the warmer months (70 degrees or more) but the *strength* of odor is not quantified in the EIR other than stating in the F.5 guideline: *Should objectionable odors be present, the City shall take appropriate action to correct them.* The *objectionable odor* needs to be quantified such that the odor level can be instrumented, measured, and monitored for compliance. This is typically done with ppb statistics for the gases in the air from the water treatment plant. Once the odor can be measured, mitigation can be sized appropriately (be it striated AIPS ponds, a plastic sheeting greenhouse, air scrubber, or whatever engineernig controls are appropriate).

O.2
cont.

* Since only the city owned monitor wells around the waste water treatment plant are monitored for water quality from the waste water treatment plant, there is no way to gauge the impact of the city's effective pumping of high quality water from the lower aquifer to treated waste water deposited in the upper aquifer. The city should collect water samples from volunteer residents around the waste water treatment plant once per year. This would also allow greater monitoring of the waste water's movement and hydraulic pressure as different bodies of water move underground and are diluted or concentrated. It would also capture a running snapshot, on a yearly basis, of the water quality over a greater area.

0.3
cont.

* The EIR should include an analysis of the Sperry / Orange Avenue straightening proposal (which would serve as a bypass around the downtown area and to reduce congestion on the in-town portion of Las Palmas) to see if it would reduce the need for some of the other listed mitigation measures (extensive widening and signaling of several east-side streets).

0.5
cont.

* Figure III.O.7 should have new representative illustrations that conform to the City of Patterson Community Design Guidelines, de-emphasize the garage doors, and have space for 3 cars in the driveway.

0.4
cont.

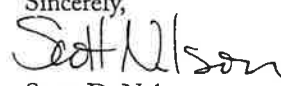
* Since the traffic mitigation plans in the EIR are extensive, include an environmental analysis of the elevated bicycle pathway and determine which traffic mitigation options could be postponed via the implementation of the pathway.

0.6
cont.

8. Conclusions

Finally, I would like to note that "Salado Creek" is mentioned in the document a *zillion* times and if the sole result of the Plan is the fixing of this decades-old flooding problem then that in itself would be a worthy accomplishment.

I would like to thank the Patterson Planning Department and the Planning Commission for their efforts and I'd like to commend Turnstone Consulting for their in-depth analysis.

Sincerely,

Scott D. Nelson

RESPONSES TO LETTER O, SCOTT D. NELSON

Response to Comment O.1:

The West Patterson projects would comply with Policy IV.I.3, of the *City of Patterson General Plan*, which requires that “all new electrical ... facilities ... be installed underground or, in the case of transformers, pad mounted.” The impacts and mitigation for construction activities related to the installation of underground electrical facilities are those identified throughout the document for construction-related activities for the West Patterson projects (particularly, Impact F.1, pp. III.F.9 to III.F.12 for air quality impacts; and Impact G.1, pp. III.G.10 to III.G.12 for noise impacts).

Response to Comment O.2:

Odors in domestic wastewater usually are caused by gases produced by the decomposition of organic matter or by substances added to the wastewater.¹ It is true that odors are more likely during periods of warm weather. The principal source of odors in wastewater is hydrogen sulfide (rotten egg smell). Hydrogen sulfide is generated from anaerobic organisms. A simple method to prevent the formation of hydrogen sulfide is to maintain a dissolved oxygen concentration in the wastewater and thus prevent anaerobic digestion/respiration. Maintaining a high velocity in the collection sewers, and therefore a short travel time to the treatment plant, reduces odors at the plant by keeping the wastewater oxygenated.

In general, odors are not considered a nuisance unless they are detected by someone who finds them objectionable. The City of Patterson attempts to be a good neighbor and minimize odors emitted from the treatment plant. Based on interviews with the Chief Plant Operator for the City of Patterson Wastewater Treatment Plant,¹ no complaints of odor nuisance have been received by the plant staff for at least six years (it may be longer, but of the current operators at the plant, the individual who has worked there the longest started in 1996²). According to the plant's Waste Discharge Requirements (issued by the RWQCB), if the plant were to receive an odor complaint from an off-site

¹ Joel Cockrell, Chief Plant Operator, City of Patterson Wastewater Treatment Plant, personal communication with Bruce Abelli-Amen of BASELINE, December 6, 2002.

² Millis Manafihas been working at the treatment plant as an operator since 1996.

receptor, the complaint must be investigated, and if verified, a remedial action considered and implemented.

The City plant operations staff has implemented a program to identify odor sources and to minimize these odors. When feasible, sources of odor will be controlled by use of liquid chlorine solution. Chlorine has successfully been used to oxidize odorous chemicals such as hydrogen sulfide at treatment plants. Odor-generating sources would be taken into consideration during the treatment plant expansion design. The new project design would also attempt to provide a land buffer around odor-generating sources. Percolation ponds are not considered an important source of odors. Therefore, they would be located along the outer perimeter of the plant to provide the maximum buffer distance from the principal odor sources.

Response to Comment O.3:

As described in detail in the response to Comment F.4, based on the monitoring data from the shallow wells located around the existing wastewater treatment plant, the plant operations are not causing measurable degradation of groundwater quality. As indicated by the comment, most of the residents of the outlying areas have wells screened in this upper zone. If groundwater quality below and adjacent to the plant is not being degraded by plant operations, it is reasonable to assume that water quality in the vicinity of nearby domestic wells is similarly not impacted. In addition, it would not be expected that more distant groundwater resources or surface water quality in the San Joaquin River would be impacted.

It is possible that an expanded monitoring program, which may include sampling of nearby private domestic wells, may be required by the RWQCB as a condition of the WDRs for the expanded treatment plant. The City would cooperate fully with such requirements if, in the permitting process, it was determined that this type of information would provide additional protection of the public health and safety.

Response to Comment O.4:

Draft *City of Patterson Community Design Guidelines* were published in October 2002. They are anticipated to be adopted in December 2002. The representative house designs for Patterson Gardens are consistent with the draft guidelines, reducing the visual dominance of the automobile by limiting house frontages devoted to the garage to two

garage door bays (see Figure III.O.7, p. III.O.15). Where three parking spaces are provided, the third space is “stacked” behind another parking space (to make a third parking space independently accessible would require a third garage door bay).

Other features of the representative house designs are intended to create an inviting pedestrian-oriented environment such as prominent front entryways, porches, and porticos. Sidewalks are proposed throughout the residential development as described in Chapter II, Project Description, p. II.48. Front paths lead from the sidewalk to the front door, as well as from the driveway, anticipating pedestrian activity. Varied massing, detail and complex rooflines create a sense of variety, rhythm and scale for pedestrians. Additionally, the project includes features such as bicycle paths, landscaping, and community parks to encourage alternative forms of transportation (see pp. III.O.11 through III.O.16).

As the comment points out, these designs are representative for the purposes of this EIR. The comments on the representative house designs will be considered by the decision-makers in approving, disapproving or modifying the project.

Response to Comment O.5:

The transportation and circulation analysis in the Revised DEIR is based on and summarized from a detailed traffic background report cited on p. III.E.1: *West Patterson Master Plan EIR Traffic Study in the City of Patterson*. A copy of this report is provided in Appendix D. The traffic impact analysis in Section III.E of the Revised DEIR provides mitigation measures that would reduce all traffic impacts to less-than-significant levels except along Interstate 5 in the vicinity of the Sperry Avenue interchange. Based on these results, the Traffic Study in Appendix D concludes that the Southern Bypass would not be necessary to accommodate traffic from the West Patterson projects and other growth in the 2025 future scenario (p. 34 in Appendix D). Thus, the Southern Bypass is not discussed in the main transportation section of the Revised DEIR.

The West Patterson projects would not cause significant impacts under future 2025 conditions at the intersections of Orange Avenue with Sycamore Avenue or First Street (see, e.g., Table III.E.11, p. III.E.33, intersections 10 and 17). Thus, straightening the intersection of Sperry/Orange/First is not shown to be necessary as a result of project-generated traffic. No streets on the east side of Patterson are proposed to be widened to mitigate project-related traffic. Signals are not proposed at the two Orange Avenue

intersections analyzed, because no mitigation measures are necessary at those intersections. Signals are recommended to replace stop signs and additional left- or right-turn lanes are recommended at four intersections on the east side of Patterson and east of the City boundary in the list of mitigation measures to reduce traffic impacts from the West Patterson projects. These measures would widen roadways only at intersections, to provide turn lanes; only roadways in the project vicinity, such as Sperry Avenue and Baldwin Road, are proposed to be widened between intersections.

The City of Patterson will continue to consider the Southern Bypass and straightening the Sperry/Orange/First intersection as necessary, related to future growth in the southern and eastern sections of the City.

Response to Comment O.6:

Bicycle lanes are included in the West Patterson projects. The Patterson Gardens project would include bicycle lanes connecting a proposed new bicycle lane along Baldwin Road to the existing bicycle path along Ward Avenue, and connecting the residential areas with Sperry Avenue and American Eagle Avenue, including a separated pathway along Salado Creek. These are shown on Figure II.15, p. II.43. The Keystone Pacific Business Park would include widening and improvements to Baldwin Road north of Sperry Avenue, with separate 6-foot-wide bike lanes on both sides of the street (see Figure II.14, p. II.39). These new bicycle lanes would permit direct bicycle connections to the residential development on the east side of Baldwin Road that is now under construction. Thus, the development proposals that are part of the West Patterson projects do include provision for bicycle lanes in conformity with the Patterson General Plan and the Bicycle Master Plan. Bicycle improvements are discussed in Section III.E, Transportation and Circulation, on pp. III.E.23 and III.E.26.

An elevated bikeway, as suggested in the comment, would provide a separated, Class I bicycle pathway rather than Class II striped bicycle lanes in the roadway right-of-way. Such a facility would provide full separation from motor vehicles, as noted in the comment. It would require bicyclists to cycle “uphill” on access ramps to reach the facility, a potential difficulty for some riders. It would be a visual obstruction in many locations. Because Patterson is relatively flat, provision of at-grade bicycle paths could attract substantial numbers of people to use bicycles as a means of commuting from home to work, particularly if additional jobs are provided near residences as is proposed in the West Patterson Business Park Master Development Plan. It is not expected that increased

Comments and Responses
Letter O

bicycle use would reduce the number of automobile trips by sufficient numbers to eliminate the need for traffic mitigation measures identified in Section III.E of the Revised DEIR. Construction of a safe, elevated bikeway, with numerous up/down access ramps, would be more costly than adding striped bike lanes to roadways as part of other planned roadway improvements.

11/26/02 23:12 FAX 892 0119

CITY OF PATTERSON

Nov 27, 2002 11:24AM CA DEPARTMENT OF TRANSPORTATION

No. 0479 P. 2/1

STATE OF CALIFORNIA -- BUSINESS, TRANSPORTATION AND HOUSING AGENCY

GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION

P.O. BOX 2044 (1976 E. CHARTER WAY)
STOCKTON, CA 95201
TTY: California Relay Service (800) 735-2929
PHONE (209) 948-7190
FAX (209) 948-7164



*Flex your power!
Be energy efficient!*

November 27, 2002

**10-STA-5-15.856
Revised Draft EIR
West Patterson Business Park
SCH: 2001022031**

Mrs. Gregoria Garcia
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Dear Mrs. Garcia:

Thank you for the opportunity to review the West Patterson Business Park Master Development Plan. The proposed project includes light industrial, business park, commercial and residential uses. Development would occur on two separate but adjacent sites west of downtown Patterson. The West Patterson Business Park Master Development Plan, the light industrial and business park component of the project would be developed on an 820-acre site located outside of but contiguous to Patterson's western city boundary, and east of Interstate 5 (I-5).

I have reviewed the proposed project and circulated it with the various Caltrans departments and have the following comments:

TRAFFIC OPERATIONS:

1. Please provide the output data for all analysis done at I-5 ramps, Sperry Avenue/State Route (SR) 33, Ward Avenue/SR-33, Zacharias Road/SR-33, Baldwin Avenue/SR-33 and Roger Road/SR-33. Additional comments will follow after review of this data.

P.1

TRAVEL FORECASTING:

1. On page 3 of the Final West Patterson Master Plan EIR Traffic Study, it says, "As published in the 2000 Caltrans Volume report, the ADT on I-5 was 24,400 vehicles per day (VPD) to the north of Sperry Avenue. Compared to the 1990 volume of approximately 23,500 vpd, the traffic volume increased by approximately four percent." Reviewing the documents they used, these numbers were incorrect. The ahcad volume for the peak month in 2000 is 24,400. In 1990, the ADT for the peak month is 33,500 and the annual ADT is 25,000.
2. Trip distribution and assignment are acceptable.

P.2

ENVIRONMENTAL:

1. This project will increase the ambient air pollution problem existing in the Stanislaus County area. Please be aware that any increase of negative air quality can negatively impact future transportation projects. There may also be cumulative impacts on the air quality with the additional projects in the West Patterson area that should be addressed.

P.3

"Caltrans improves mobility across California"

MAILED 11/27/02 11:24 AM FAX 892 0119

RESPONSES TO LETTER P, CALIFORNIA DEPARTMENT OF TRANSPORTATION

Response to Comment P.1:

The computer output information will be provided to Caltrans by mail, pursuant to this request. It should be noted that the 45-day public comment period for the West Patterson Projects Revised DEIR ended on November 18, 2002. Therefore, additional comments would not be received within the official comment period. No request for output data was received by the City of Patterson during the public review period.

Response to Comment P.2:

The 2000 Caltrans Volume report provides a peak month average daily traffic (ADT) for Interstate-5 (I-5) of 24,400 vehicles per day (vpd), as shown in the Revised DEIR on p. III.E.3 and in Appendix D on p. 3. The annual average ADT was 17,800 vpd for 2000. As noted in the comment, the 1990 Caltrans Volume report shows a peak month ADT of 33,500 vpd and the annual average ADT of 25,000 vpd. Thus, it appears that traffic volumes have reduced during that eleven-year period. The third and fourth sentences of the second paragraph on p. III.E.3 of the Revised DEIR are revised as follows:

As published in the 2000 Caltrans Volume report, the **peak month** ADT on I-5 was 24,400 vehicles per day (vpd) to the north of Sperry Avenue. This traffic volume is a **decrease** compared to the 1990 **peak month** volume of approximately 33,500 vpd. **All or most of this decrease in traffic volume appears to have occurred in the most recent two years.**

The description of traffic on I-5 is in the Setting portion of Section III.E, Transportation and Circulation, and is intended for informational purposes. The ADT numbers reported were not used in the impacts analyses. The peak hour model projections were based on existing peak hour traffic volumes and were calibrated in the model as described on pp. III.E.15 to III.E.16 of the Revised DEIR, and on pp. 7 to 12 in Appendix D. Therefore, no revisions are needed in the impacts analyses in the Revised DEIR.

Response to Comment P.3:

The Revised DEIR analyzes, in detail, the air quality impacts of the West Patterson

projects on the regional air basin. Cumulative impacts on air quality are addressed starting on p. III.F.25. The Revised DEIR concludes that the West Patterson projects, together with other development in the region, would delay the region's progress in attaining air quality standards, a significant and unavoidable impact (see pp. III.F.26 to III.F.27).

Response to Comment P.4:

The comment asserts that the visual impact on a scenic highway is not adequately covered in the Revised DEIR and that a visual impact assessment report should be prepared by qualified personnel. The comment offers no substantiation for a conclusion that the West Patterson projects may have a significant adverse impact on visual resources.

As noted in the Revised DEIR, although construction of the West Patterson projects would momentarily alter views enjoyed by I-5 motorists for the duration of the trip past the project area, the Revised DEIR concludes that the West Patterson projects would not have a substantial adverse effect on a scenic highway. This portion of I-5 is elevated above the project area. Views of the San Joaquin Valley to the east would be over the rooftops of the Business Park, which would become increasingly screened by a cover of vegetation over time as its trees mature.

The author of the Visual Resources section is a qualified specialist in the analysis of visual impacts of new development. With a Masters in Urban Planning, extensive training in urban design, and over eight years of specific professional experience analyzing the visual impacts of new development on visual resources, the author of the Visual Resources section is well qualified to write the assessment of the visual impacts of the West Patterson projects in the Revised DEIR.

Response to Comment P.5:

The requirement for an Encroachment Permit from the California Department of Transportation if construction or work other than normal transportation is carried out on a State Highway is helpful information. As it is possible that work would be needed on State Route 33 to improve intersection service levels to LOS C or better, meeting Patterson and Stanislaus County standards, the following text is added at the end of the last full paragraph on p. III.E.22, before Impact E.2:

Mitigation measures implemented at intersections along State Route 33 may involve construction within property under the jurisdiction of the California Department of Transportation. An encroachment permit may be required from Caltrans before these measures could be constructed.

Response to Comment P.6:

The consulting archeologists for the West Patterson Revised DEIR conducted a thorough review of the available archival record as part of their analysis, including the Central California Information Center among other sources (see p. III.P.11). Archeological survey reports reviewing the archival record and site surveys were prepared by Holman and Associates for the West Patterson project area, and by EDAW for the site of the potential percolation ponds. The conclusions of both reports are cited and summarized in the Revised DEIR. These reports are part of the record of this EIR, and are available for review at the City of Patterson offices.

Response to Comment P.7:

The consulting biologist for the West Patterson Revised DEIR, H.T. Harvey & Associates, conducted a review of the California Natural Diversity Database, among other sources, for threatened, endangered, or other special-status plant and animal species that may occur in the area (see p. III.D.21). A written report, meeting all applicable protocol standards, was prepared documenting the results of the kit fox protocol survey of the site. The conclusions of this report are cited and summarized in the Revised DEIR. This report is part of the record of this EIR and is available for review at the City of Patterson offices. Other surveys were carried out for the range of potential special-status plant and wildlife species that could be found in the West Patterson project area, as explained on pp. III.D.5 and III.D.21 to D.23. See also the response to Comment N.11.

Response to Comment P.8:

If a right-of-way is to be dedicated to Caltrans, as part of or as a result of the West Patterson projects, the applicant would be required by Caltrans to submit a copy of Attachment A, confirming that the land to be dedicated to Caltrans is free of hazardous waste.

Response to Comment P.9:

As noted on p. III.P.13 of the Revised DEIR, a review of the archival record and a systematic surface reconnaissance and survey of the project area and percolation pond sites have uncovered no evidence of the presence of archeological resources from the prehistoric or historic eras in the project area. However, as also noted, as a condition of approval of building permits, the City of Patterson requires compliance with the procedures set forth in CEQA Guidelines 15064.5(e & f) requiring immediate cessation of excavation at the site, and consultation with the Native American Heritage Commission in the event of accidental discovery of Native American remains.

Letter Q**CHIEF EXECUTIVE OFFICE**

Reagan M. Wilson
Chief Executive Officer

1010 10TH Street, Suite 6800, Modesto, CA 95354
PO Box 3404, Modesto, CA 95353-3404

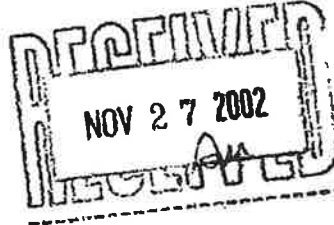
Patricia Hill Thomas
Assistant Executive Officer

Phone: 209.625.6333 Fax: 209.544.6226



November 26, 2002

Rod Simpson
City of Patterson
Planning Dept.
P.O. Box 667
Patterson, CA 95363



**SUBJECT: ENVIRONMENTAL REFERRALS- REVISED DRAFT ENVIRONMENTAL IMPACT
REPORT-CITY OF PATTERSON-WEST PATTERSON BUSINESS PARK MASTER
DEVELOPMENT PLAN**

Mr. Simpson :

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has the following comment(s):

1. No development shall occur without an approved fire department access and water for fire protection.
2. Fire protection development fees shall be paid prior to construction
3. Any proposed renovation/demolition of existing building in the project area is subject to compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS). Specifically, the primary air pollutant of concern is asbestos
4. Prior to the issuance of construction contracts, the County should perform a review of new technology, as it relates to heavy-duty equipment, to determine what, if any, advances in emission reduction are available for use. It is anticipated that in the near future both NOx and PM10 control equipment will be available.
5. Planting of deciduous trees on the south and westerly facing sides of buildings is recommended.
6. Natural gas lines and electrical outlets should be installed in patio areas to encourage the use of gas and/or electric barbecues.
7. Air Quality impact fees should be developed to help fund additional air quality mitigation measures to further reduce air quality impacts.
8. Clean fuel transit vehicles (this could include compressed natural gas and/or electric vehicles or other as technology improves or becomes available) are recommended.
9. Establishment of clean fuel refueling stations open to the public (this could include electric charging stations, natural gas fueling stations, etc.).

Q.1

Q.2

Q.3

ENVIRONMENTAL REFERRALS- REVISED DRAFT ENVIRONMENTAL IMPACT REPORT-CITY OF PATTERSON-WEST PATTERSON BUSINESS PARK MASTER DEVELOPMENT PLAN

Page 2

10. Promote the use of fuels and vehicles that are less polluting than gasoline or diesel. Air quality impact fees could be used to provide incentives to businesses or individuals who purchase/use low emission vehicles.
11. Allow businesses or individuals, through the zoning and building permit process, the option of installing electric/natural gas fuel hookups.
12. Telecommuting should be encouraged through land use mixes and zoning ordinances to provide incentives that minimize restrictions for in-home offices and satellite work centers.
13. Project must hook up with City water & sewer.

Q.3
cont

Q.4

The ERC appreciates the opportunity to comment on this project.

Sincerely,


W. Richard Jantz, Deputy Executive Officer
Arlene Stevens, Associate Management Consultant
Environmental Review Committee

cc: ERC Members

AS:lbh

**RESPONSES TO LETTER Q, STANISLAUS COUNTY ENVIRONMENTAL
REVIEW COMMITTEE**

Response to Comment Q.1:

Fire department access and water for fire protection are addressed in the response to Comment J.1.

Response to Comment Q.2:

Development fees for fire protection are addressed in the responses to Comments J.1 and K.1. The City of Patterson will ensure that all appropriate fees are paid prior to issuance of permits.

Response to Comment Q.3:

This comment lists the same items as the San Joaquin Valley Air Pollution Control District comment letter, dated November 18, 2002. These points are addressed in the response to Comment G.1.

Response to Comment Q.4:

Sewer and water hookups will be required for each new building, as part of the standard building permit process.

IV. STAFF-INITIATED TEXT CHANGES

The following are minor corrections and clarifications in the Revised DEIR text.

CHAPTER I, INTRODUCTION

Page I.6, under “Approvals Required” heading

The heading “City of Patterson and Stanislaus County” is revised to delete “and Stanislaus County”

Page I.7, after the first full bullet

The following bullet is added after the first full bulleted item:

- **Out of Boundary Service Extension pursuant to Government Code Section 56133.**

Page I.7, after the third full bullet

The following two bullets are added after the third bullet on p. I.7, at the end of the listing for the “City of Patterson.”

- **Approval of a Development Agreement Between Keystone Pacific Corporation and the City of Patterson**
- **Approval of a Master Services Element**

CHAPTER II, PROJECT DESCRIPTION

Page II.52, after the third bullet

The following bullet is added after the third bullet in the list at the top of p. II.52:

- **Out of Boundary Service Extension pursuant to Government Code Section 56133.**

Page II.52, after the fifth bullet

The following two bullets are added after the fifth bullet on p. II.52, at the end of the listing for the “City of Patterson.”

- **City Approval of a Development Agreement Between Keystone Pacific Corporation and the City of Patterson**
- **Approval of a Master Services Element**

CHAPTER III, ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

SECTION III.C, AGRICULTURAL RESOURCES

Page III.C.10, second paragraph

In the Revised DEIR, the last sentence of the second paragraph on p. III.C.10 is incomplete. That sentence is revised as follows:

Under the County and City’s Right to Farm policies, impacts from customary agricultural operations on adjacent land are considered **normal and acceptable conditions of rural living**.

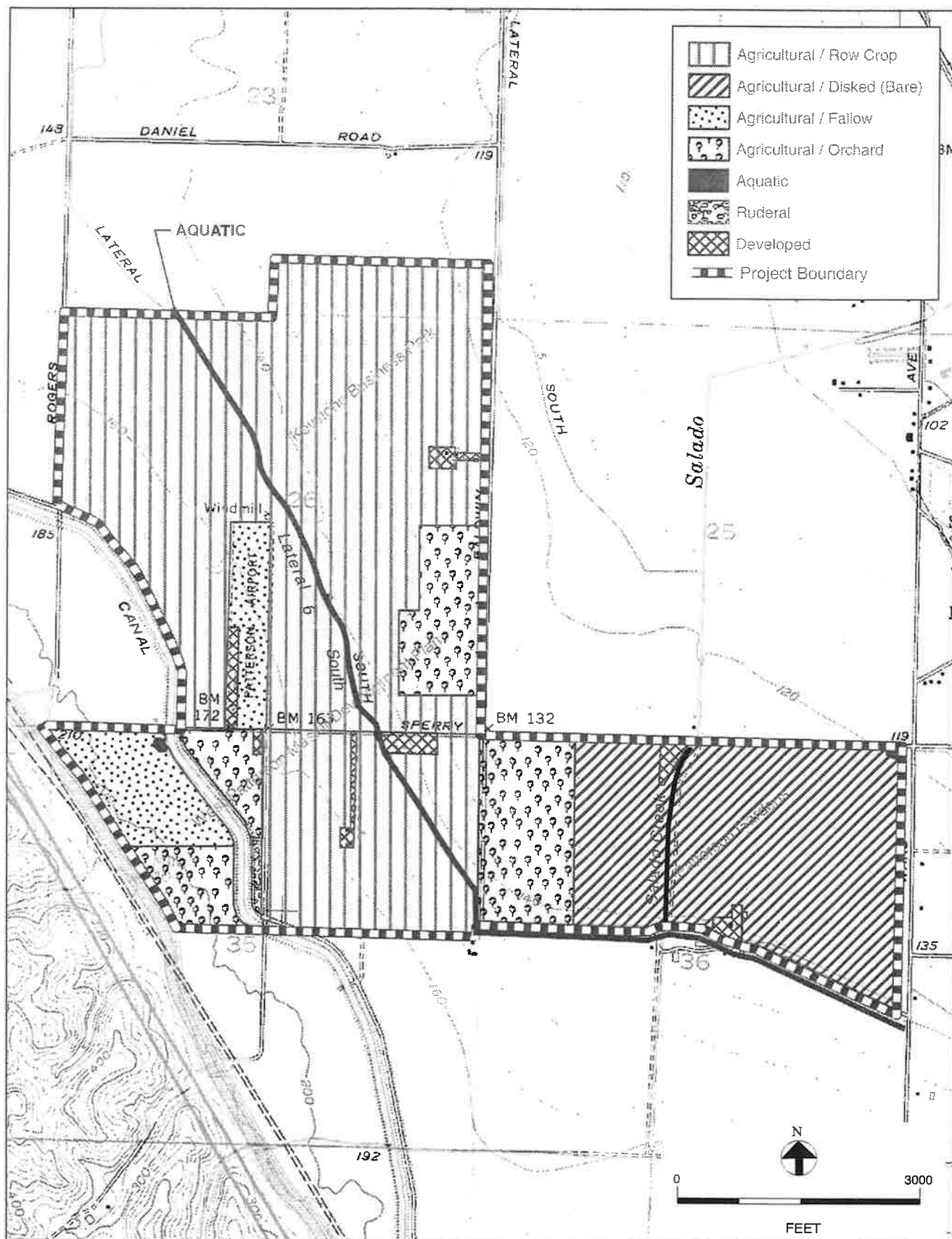
SECTION III.D, BIOLOGICAL RESOURCES

Page III.D.9, Figure III.D.1

This figure, entitled “Habitat Map,” is revised to show Salado Creek as “Aquatic” habitat, as described in the text on p. III.D.14. The revised figure is shown on the next page.

Page III.D.32, fourth paragraph

The second sentence is revised to remove reference to “Pond 2” as this term is not introduced or used elsewhere in the Revised DEIR, as follows.



SOURCE: H.T. Harvey Associates

TURNSTONE CONSULTING

PATTERSON

FIGURE III.D.1: HABITAT MAP

The aquatic habitat at **this pond** is the only habitat potentially suitable for the California tiger salamander within the boundaries of the Plan area.

Page III.D.55, Mitigation Measure D.6, first paragraph, and page I.15, Table S.1, Mitigation Measure D.6

The first sentence is revised to clarify that the mitigation measure applies to percolation ponds, as follows:

Prior to the start of any construction activities within a **percolation** pond, the pond shall be drained.

Mitigation Measure D.6 in Table S.1, p. I.15 of the Summary chapter, is also revised accordingly.

SECTION III.F, AIR QUALITY

Pages III.F.10-F.11, Mitigation Measure F.1(a)

The Mitigation Measures under F.1(a), are revised to read more clearly, as follows:

- All disturbed areas, including storage piles, which are not being actively used for construction purposes, shall be effectively stabilized **to limit** dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized **to limit** dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled **to limit** fugitive dust emissions utilizing application of water or by presoaking.
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of freeboard space from the top of the container shall be maintained.

- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.)
- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized to limit fugitive dust emissions utilizing sufficient water or chemical stabilizer or suppressant.
- Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.
- Traffic speeds on unpaved roads shall be limited to 15 mph.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.

SECTION III.I, WATER SUPPLY

Page III.I.13, Table III.I.1

In Table III.I.1 on p. III.I.13 of the Revised DEIR, certain values that should have been shaded were printed without shading. That table is revised to correct the error. The revised table is shown on the following page.

SECTION III.N, POPULATION, HOUSING AND EMPLOYMENT

Page III.N.1, first paragraph

The West Patterson Projects Revised Draft EIR, published October 3, 2002, includes background data from the *Draft Regional Housing Needs Assessment for Stanislaus County and its Cities, January 1, 2002 - July 1, 2008*, published July 2002 (draft RHNA), by the Stanislaus Council of Governments (StanCOG). After publication and distribution of the Revised Draft EIR, StanCOG adopted a *Regional Housing Needs Assessment for Stanislaus County* in October 2002 (adopted RHNA). Some background data from the draft RHNA that was cited in the Revised DEIR was not included in the adopted RHNA. However, this

Table III.I.1: Water Quality in Existing Wells, Primary Constituents of Concern

CONSTITUENTS	WELLS							MAXIMUM CONTAMINANT LEVEL (MCL) ¹		
	2	4	5	6	7	PRIMARY		REC.	SECONDARY	
								UPPER	SHORT TERM	
Hardness (mg/L)	490	400	430	440	340	N/A				
Calcium (mg/L)	85	65	77	79	60	N/A				
Magnesium (mg/L)	68	59	57	58	47	N/A				
Sodium (mg/L)	150	140	100	140	100	N/A				
HCO ₃ mg/L	240	250	150	230	91	N/A				
Sulfates (mg/L)	340	290	210	380	260			250	500	600
Chlorides (mg/L)	160	120	210	98	160			250	500	600
Nitrates (mg/L)	30	28	5.5	21.8	6.1	45				
Specific Conductance (µmhos/cm)	1500	1300	1260	1360	1100			900	1600	2200
Total Dissolved Solids (mg/L)	1000	860	770	940	890			500	1000	1500
Arsenic (ug/L)	ND	ND	ND	3	3	50				
Chromium (ug/L)	20	19	15	19	16	50				
Iron (ug/L)	ND	ND	80	ND	40			N/A	300	N/A
Manganese (ug/L)	ND	ND	ND	ND	10			N/A	50	N/A
Gross Alpha Particle Activity (pCi/L)	2.44	2	2.13	2.72	2.84	5 ²				

Notes:

¹ Cal Code Regs Title 22, §§ 64431, 64441, 64449.² Requires additional testing for Uranium and/or Radium. Cal. Code Regs. tit. 22, § 64441(b).

Shaded values exceed secondary recommended limits.

ND = None Detected; N/A = No applicable MCL

Source: Stoddard & Assocs. 2002a.

background data continues to be valid, relevant and useful and remains in this EIR in the interest of continuity.

The last sentence of the Introduction paragraph, p. III.N.1, is revised to acknowledge the adoption of the *Regional Housing Needs Assessment for Stanislaus County*, in October 2002, after publication of the Revised DEIR, as follows.

The Population and Housing subsection is based on available site information; a review of the 1992 *City of Patterson General Plan*; information gathered from the Stanislaus Council of Governments (StanCOG), including the *Draft Regional Housing Needs Assessment for Stanislaus County and its Cities, January 1, 2001 - July 1, 2008*; ¹(new footnote) and the 1990 and 2000 U.S. Census data.

¹ After publication of the West Patterson Projects Revised Draft EIR, on October 3, 2002, StanCOG adopted a *Regional Housing Needs Assessment for Stanislaus County* in October 2002. The Revised Draft EIR cited certain background data from the *Draft Regional Housing Needs Assessment for Stanislaus County and its Cities* that were not included in the adopted *Regional Housing Needs Assessment for Stanislaus County*. However, this background data from the *Draft Regional Housing Needs Assessment for Stanislaus County and its Cities* continues to be valid, relevant and useful and remains in this Final EIR in the interest of continuity.

Subsequent footnote numbers in Section N, Population and Housing, are revised to reflect the addition of this new footnote.

Page III.N.6, first continued paragraph

The Revised DEIR, cites the draft RHNA's local housing need allocations by income level. The adopted RHNA revises these allocations. The EIR is revised to reflect the revised allocation from the adopted RHNA. The last sentence of the first continued paragraph on p. III.N.6, is revised to add a footnote to acknowledge the revised housing allocation for Patterson, as follows:

Thus, Patterson has exceeded its share of the countywide housing allocation for the first year of the seven-year planning period. In terms of affordability, the following is the distribution of housing units by income levels for Patterson:

Very Low Income (22%):	170 units
Low Income (17%):	131 units
Moderate Income (21%):	161 units
<u>Above Moderate Income (40%)</u>	<u>308 units</u>
Total	770 units ⁹ (new footnote)

⁹ In the adopted StanCOG *Regional Housing Needs Assessment for Stanislaus County*, October 2002, Patterson's total share of the countywide housing allocation is 634 units, broken down by income level as follows: Very Low Income (22%), 139 units; Low Income (17%), 108 units; Moderate Income (21%), 133 units; and Above Moderate Income (40%), 253 units.

Subsequent footnote numbers in Section N, Population and Housing, are revised to reflect the addition of this new footnote. The revised allocation from the adopted RHNA does not change the EIR's conclusion that Patterson has exceeded its total share of countywide housing allocation for the first year of the seven-year planning period.

APPENDICES

WEST PATTERSON PROJECTS

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT

**WEST PATTERSON BUSINESS PARK
MASTER DEVELOPMENT PLAN**

**KEYSTONE PACIFIC BUSINESS PARK
PATTERSON GARDENS**

**STATE CLEARINGHOUSE NOS. 2001022031 AND 2001032037
CITY OF PATTERSON**

**REVISED DRAFT EIR PUBLICATION DATE:
OCTOBER 3, 2002**

**REVISED DRAFT EIR PUBLIC COMMENT PERIOD:
OCTOBER 3 THROUGH NOVEMBER 18, 2002**

Written comments should be sent to:

**ROD SIMPSON, PLANNING DIRECTOR • CITY OF PATTERSON
33 S. DEL PUERTO AVENUE, P.O. BOX 667, PATTERSON, CA 95363**

**PREPARED FOR THE CITY OF PATTERSON BY
TURNSTONE CONSULTING**

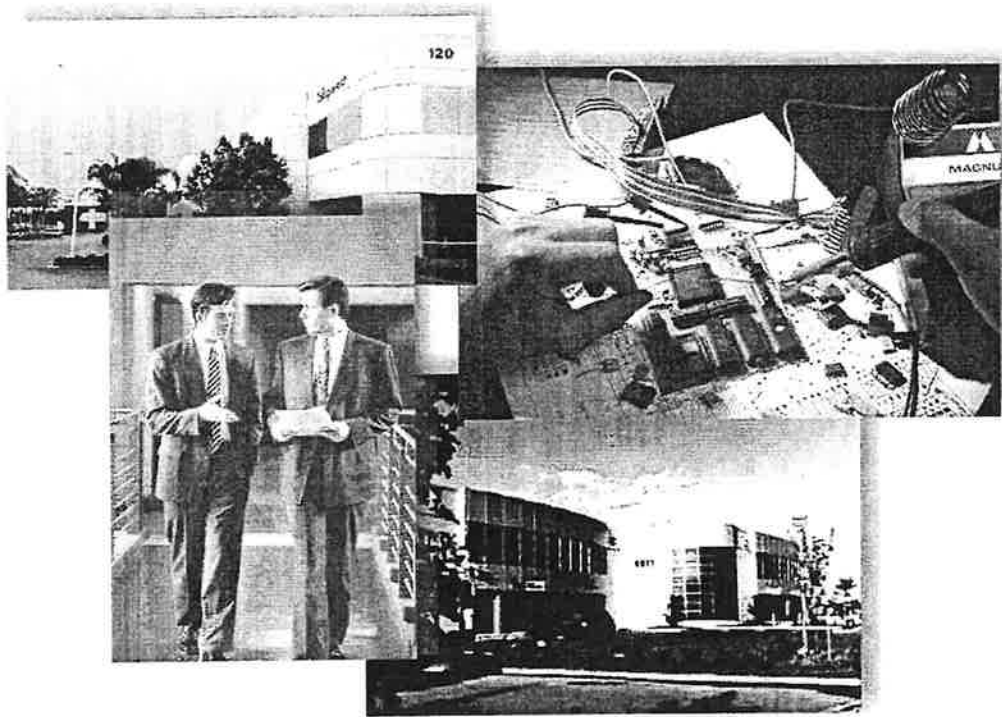
**APPENDIX A: WEST PATTERSON BUSINESS PARK
MASTER DEVELOPMENT PLAN**

The

West Patterson Business Park Master Development Plan

August, 2002

PUBLIC REVIEW DRAFT



A Cooperative Effort of:



And



The City of
Patterson

Prepared by:

Crawford
Multari &
Clark
ASSOCIATES

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I. Introduction

Early in 1999, Stanislaus County hired a consulting firm (EDAW, Inc.) to investigate the feasibility of locating industrial/business park development at five different locations along the I-5 corridor. The study envisioned a cooperative effort among the County, local jurisdictions, and private property owners to attract and retain industrial/business park development as part of an ongoing strategy for economic development. The study concluded that the industrial land between the Sperry Avenue/Interstate 5 interchange and the City of Patterson offered the best opportunity for these initial cooperative efforts. Accordingly, the *West Patterson Business Park Master Development Plan* is the product of a partnership among the City of Patterson, Stanislaus County and property owners in the West Patterson area to establish an infrastructure and regulatory framework for the development of employment-generating land uses in western Stanislaus County.

The goals of the Master Development Plan are:

- ▶ To achieve the economic development goals of the City of Patterson and Stanislaus County by implementing the policies and programs of each jurisdiction's general plans.
- ▶ To establish an infrastructure and regulatory framework conducive for the attraction and retention of light industrial/business park development that emphasizes job creation and high quality development.
- ▶ To establish design guidelines that express the expectations of the City and Stanislaus County for the qualities expected in new development.
- ▶ To provide a comprehensive plan for the financing and installation of infrastructure improvements that will enable full development of the area with job-generating land uses.

To achieve these goals, the Master Development Plan addresses the following topics:

- ❑ Land use and development standards, including design guidelines for new development (Chapter II);

The recommended land use plan for the planning area is described in Chapter II and illustrated by Figure 6. The majority of land is designated *Light Industrial*, with land near the interchange reserved for additional *Highway Commercial* development. Allowable land uses and recommended development standards are contained in

two new zoning districts, West Patterson Industrial Business Park (WPIBP) and West Patterson Light Industrial (WPLI) which are provided in Appendix A. The allowable land uses emphasize high-quality jobs in technology-related support industries, as well as conventional industrial establishments.

In keeping with the overall goal of quality and economic development, Chapter III provides design guidelines for new development to help ensure that the quality and character of new development meets the expectations of the City and the County.

☐ Infrastructure plans (Chapter IV);

In 1992, the City of Patterson prepared and adopted master plans for water supply, wastewater, and storm drainage to guide the infrastructure improvements necessary to achieve the community's vision articulated in the general plan. Since that time, development has proceeded in a manner which has at times necessitated deviating from the recommendations of the various master plans to respond to opportunities which were unforeseen at the time the plans were prepared. Although these changes have enabled the City to achieve its goals under the general plan, the Master Plans have been updated to reflect current circumstances and to reflect a more recent understanding of water supply, wastewater and drainage issues for the Patterson area.

☐ Strategies for implementation(Chapter V);

The Master Development Plan covers properties that lie outside the corporate limits of the City of Patterson but largely within the City's planning area (see Figure 1). The Plan recommends expanding the City's planning area to the north between Baldwin Road and Rogers Road. Until properties within the plan area are annexed to the City, however, they will be developed in the county and provided with City services. Since each jurisdiction will share in the benefits of, and the costs of, development in the planning area, both will exercise development review authority, as described in Chapter I.

Lastly, the Master Development Plan discusses the timing of infrastructure improvements, the phasing of development, and financing strategies. The City and County intend to jointly establish a Mello-Roos assessment district to provide the primary funding mechanism for the considerable infrastructure improvements necessary to serve development of the Master Development Plan area (see below).

Previous and Continuing Planning Efforts

City of Patterson General Plan

In 1992, the City of Patterson completed a comprehensive update of its general plan which designates several hundred acres between Interstate 5 and the City for the development of light industrial, highway commercial and professional/medical office land uses (see Figure 3A). The Plan also designates considerable land for residential development west of the existing city, where several large residential neighborhoods are in various stages of construction and/or approval. Although demand for new housing in Patterson remains high, there has been little interest in the light industrial area until recently, in spite of a favorable location and the availability of infrastructure to serve the area.

Stanislaus County General Plan

The Stanislaus County General Plan was adopted in 1987 and has been amended several times since. In 1992 the County adopted an Agricultural Element which establishes goals and policies aimed at protecting viable agricultural lands within the County. In the west Patterson area, the County General Plan designates the area within the City's planning area as *Planned Industrial* and *Highway Commercial* to be consistent with the City's designations within its sphere of influence (See Figure 3B). The purpose of these designations is to ensure that lands remain in agricultural use until urban development consistent with a city's general plan is approved. Generally, urban development may occur only upon annexation to a city. However, development may be permitted prior to annexation provided the development is consistent with the land use designation of the city general plan.

Mello-Roos District Formation

To help finance the infrastructure improvements necessary to accommodate the continued development of the Master Development Plan area, the City, and the County a Mello-Roos financing district is being formed. District formation is in its preliminary stages; the properties showing initial interest in participating are shown on Figure 4.

Absorption Study

To provide guidance for the timing of needed infrastructure improvements, it is essential to have clear understanding of the potential market demand for new development from which the funding will be generated. To provide this information, the City hired an economist (The Meyers Group) to study the market and absorption capacity for the Patterson area for residential, commercial and light industrial development. Their conclusions are that the City can expect strong demand for residential

development over the next ten or more years, and that the demand for light industrial development could be as much as 100,000 square feet per year for the same time frame.

Plan Preparation and Methodology

Preparation of the Master Development Plan began with a series of meetings among the stakeholders, consisting of representatives of City and County staff and property owners. This process was aided by a consultant hired by the City who prepared a series of issues and options papers that offered strategies for dealing with the complexities associated with this joint economic development and land use planning effort. The issues and options papers addressed a wide range of topics, including:

- ▶ Constraints affecting the planning area;
- ▶ The arrangement of land uses throughout the planning area;
- ▶ Development standards to be applied to new development;
- ▶ The range of appropriate uses for the planning area;
- ▶ The responsibilities of the City and the County in the development review process.

Input provided by the planning team helped shape the preparation of the Master Development Plan so that the needs of both jurisdictions and the property owners are satisfied.

Keystone Development Project

The West Patterson area was chosen for these initial cooperative efforts in part because of the interest expressed by the Keystone Corporation of Raleigh North Carolina, who have a demonstrated record of developing industrial business parks and attracting the types of businesses envisioned for the planning area. The Keystone project involves amending the general plans of both the City and the County to add 342 contiguous acres to the City's planning area and sphere of influence as shown on Figure 1. Keystone intends to develop the 223 easterly acres with business park/light industrial uses which, it is hoped, will provide the initial "seed" that will attract additional business park and light industrial uses to the West Patterson area.

Relationship of the Master Development Plan to the County and City General Plans

The West Patterson Business Park Master Development Plan establishes the regulatory framework that will govern development of the Plan area. Once adopted by both the City and the County, it is intended to supplement the general plans of both jurisdictions by establishing area-specific development standards and design guidelines that will apply to all new development. Accordingly, all new development proposals must be found to be

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consistent with this Master Development Plan, which in turn must be consistent with the general plans for the City of Patterson and Stanislaus County.

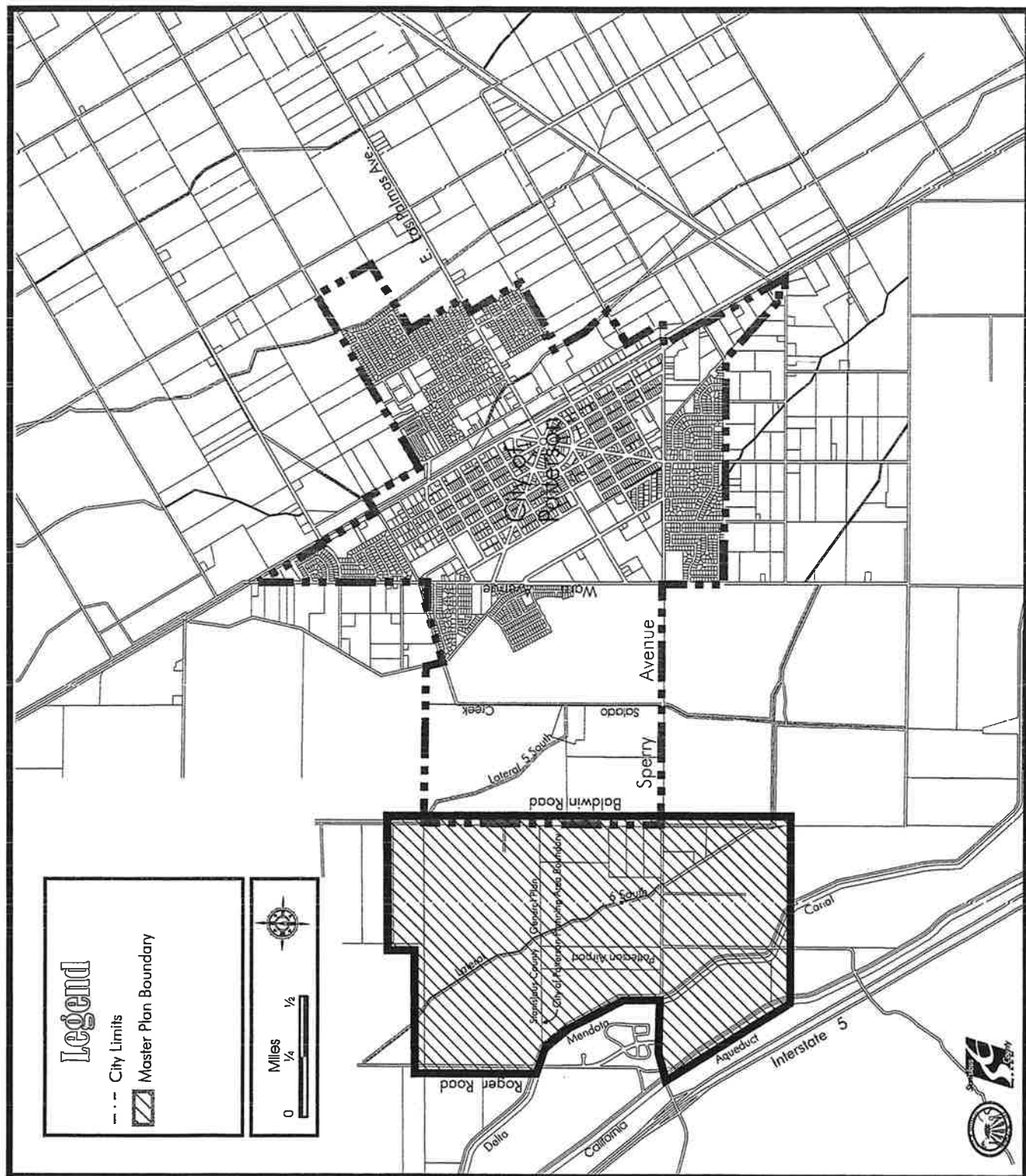
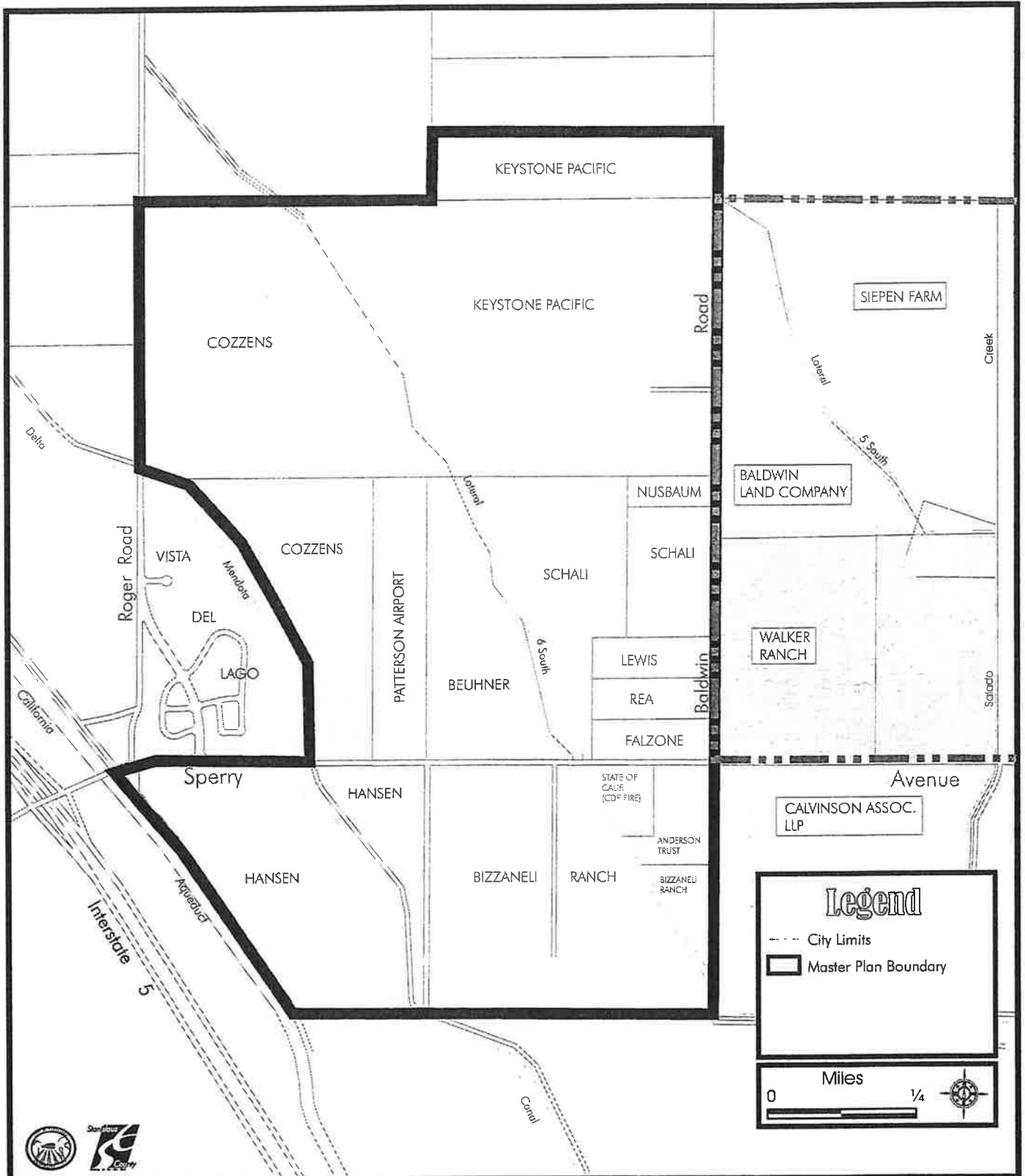
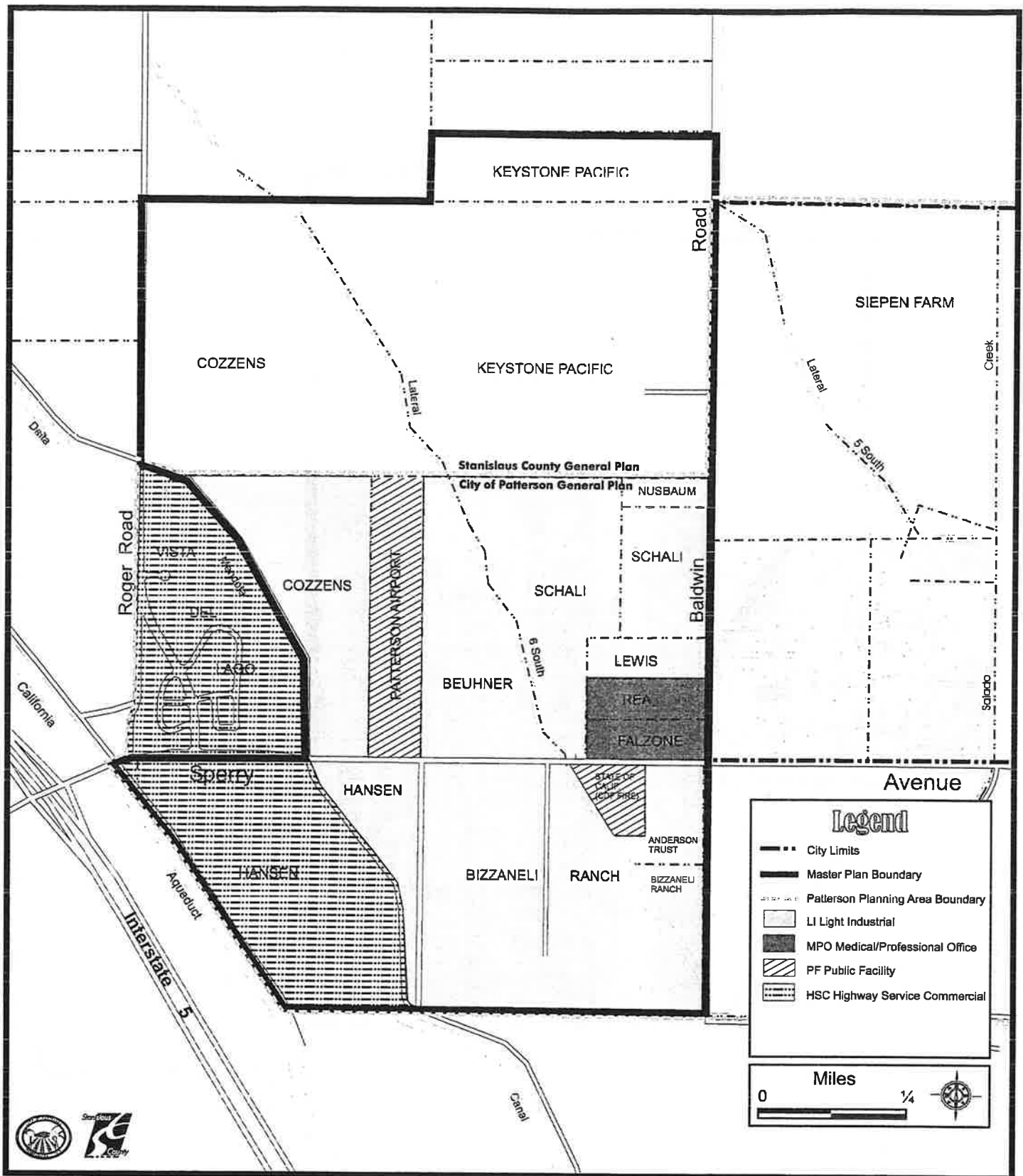


Figure 1
Planning Area & Vicinity



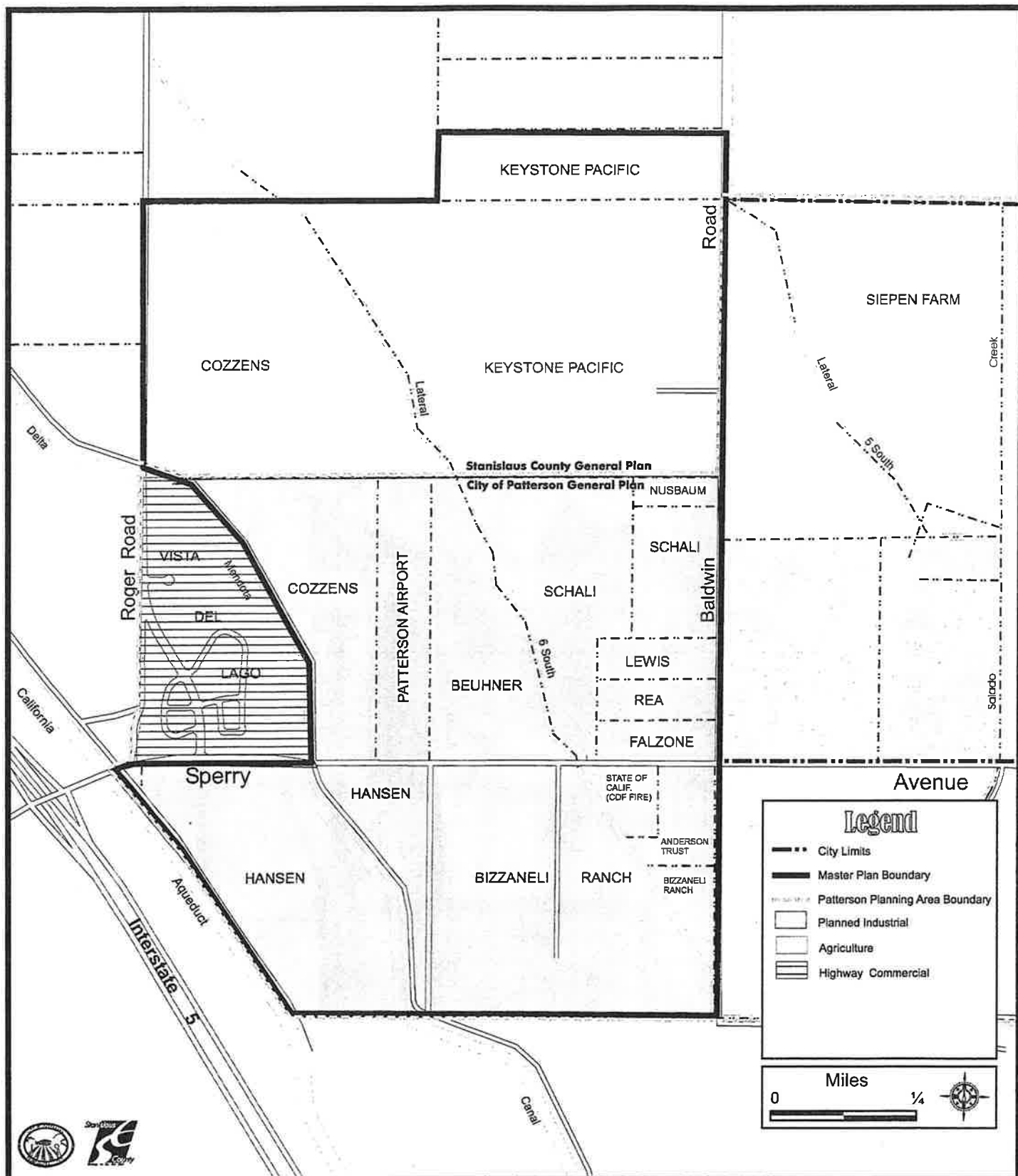
West Patterson Business Park Master Development Plan

Figure 2
Master Plan Boundaries



West Patterson Business Park Master Development Plan

Figure 3A
Existing City General Plan
Land Use Designations



West Patterson Business Park Master Development Plan

Figure 3B
Existing Stanislaus County
General Plan Land Use Designations

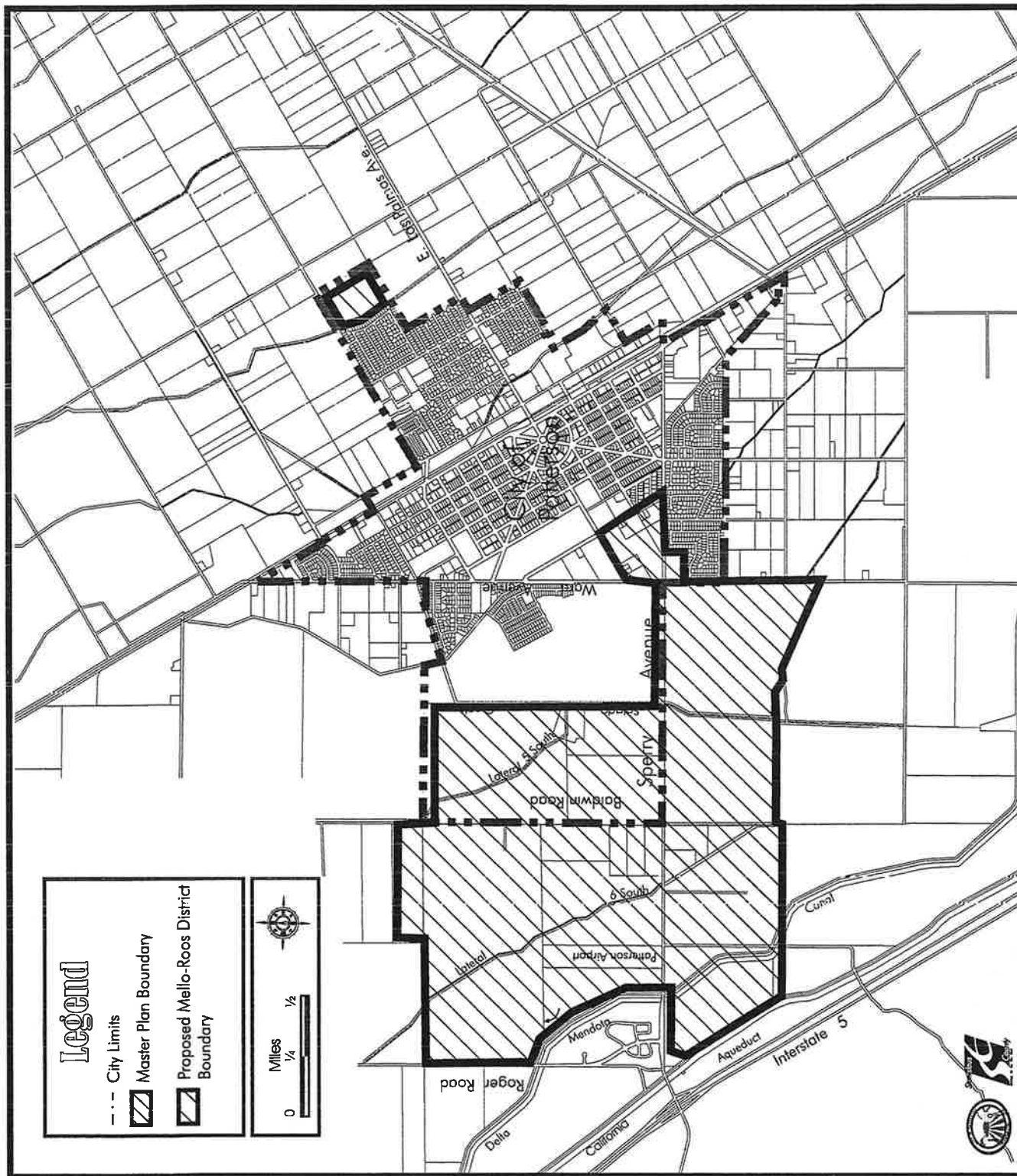


Figure 4
Proposed Mello-Roos District

West Patterson Business Park Master Development Plan

II. Land Use

Overview of the Planning Area

The West Patterson Business Park Master Development Plan covers an area of about 814 acres as shown on Figure 2, which also shows the tentative plans for residential development to the immediate east. Existing land use is primarily agriculture; the Patterson Airport lies almost in the center of the Plan Area and the Caltrans/CDF fire station occupy about 8 acres on the south side of Sperry Avenue just west of Baldwin Road. Closer to the I-5 interchange is the Villa Del Lago highway commercial complex which is about halfway to buildout.

General plan designations applied to the area by both the City of Patterson and Stanislaus County are shown on Figure 3. As stated previously, the Keystone Pacific and Cozzens properties lie outside the City of Patterson general plan area and sphere of influence and are designated *Agriculture* by the Stanislaus County General Plan.

Constraints to Development

The Master Development Plan must be based on a thorough and complete understanding of the constraints affecting the planning area if the goals of the Plan are ever to be achieved. An environmental impact report (EIR) is being prepared which will analyze these issues in detail. Figure 5 illustrates the primary constraints affecting the planning area, which include:

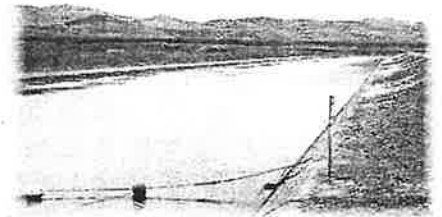
The California Aqueduct, the Delta Mendota Canal, and Associated Bridges

The planning area is crossed by a number of important water conveyances, the most important of which are the California Aqueduct, part of the State Water Project, and the Delta-Mendota Canal, operated by the Department of Interior, Bureau of Reclamation. Farther east are laterals that convey irrigation water to farming operations in the area.

The canals constrain vehicular circulation within the planning area because of the high cost of constructing or expanding the bridges that cross them. Currently, bridges exist for Sperry Avenue and Rogers Road.

Prime Agricultural Land and Existing Williamson Act Contracts

Soils within the planning area are considered "prime" in accordance with the classifications used by the State Farmland



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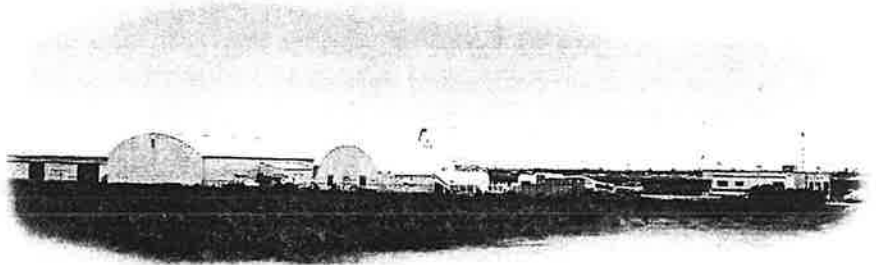
Mapping and Monitoring Program (FMMP) which monitors land use change affecting California's agricultural land.

Within the planning area are several properties subject to Land Conservation Act (Williamson Act) contracts. The California Land Conservation Act (California Government Code Section 51290 et seq.), encourages the conservation of agricultural lands by providing a tax incentive to land owners who contract with the County to restrict land uses to agriculture and compatible uses. Properties subject to an LCA contracts must remain in agricultural use for a minimum of ten years. A property owner may cancel the contract by filing a Notice of Non-renewal and the contract is terminated at the end of ten years. The law provides for the cancellation of a contract but only under special circumstances and only after the Board of Supervisors makes certain specific findings.

The Patterson Airport and Associated Airport Land Use Plan

The Patterson Airport is a general aviation airport located on Sperry Avenue just east of Interstate 5. The Airport Land Use Commission (ALUC) has adopted a land use plan that establishes safety zones around the airport (see Figure 5) to protect the public from potential noise and safety impacts

associated with aircraft overflights. Discussions with County staff indicate that the type of development envisioned for the Plan Area would be consistent with the Airport Land Use Plan which would mostly be concerned with ensuring that the design of individual development projects are consistent with building height restrictions and incorporate non-reflective surfaces to minimize potential hazards to aviation.



Compatibility Between Light Industrial/Business Park Development and Surrounding Land Uses

Another constraint relates to the interface between future light industrial and business park development west of Baldwin Road with continuing residential development to the east. Figure 5 shows the tentative plans for residential development of properties to the immediate east of the planning area. All of these projects are in various stages of approval and/or construction; about 2,300 dwelling units are proposed. Compatibility issues could arise from noise, truck and vehicular traffic, odors and other factors associated with industrial operations.

Similar land use compatibility issues could arise between development within the planning area and ongoing agricultural operations to the north and south.

Sperry Avenue Gateway

Sperry Avenue provides the primary access to the City from the I-5 interchange and is perhaps the City's most important gateway. Accordingly, new development along this important gateway should be designed to create an attractive entry to the City while accommodating access for trucks and employees of future industrial development.

The I-5/Sperry Avenue Interchange

Another important constraint to development of the planning area is the capacity of the Sperry Avenue/I-5 interchange. Interstate 5 is one of the four main north-south highways in California and accommodates regional commuter traffic within Stanislaus County and beyond. For the planning area to become a viable industrial and business center, it is essential that the I-5 interchange be capable of accommodating the volume and size of vehicles associated with such development.

In 2002 Caltrans is completing a Project Study Report of the interchange to determine the level of improvements necessary to accommodate future development in the Patterson area. The Draft Project Study Report examined three potential solutions to the interchange that would accommodate the expected future traffic. Two of the alternatives, described in detail in the Circulation section of this Master Development Plan (Chapter IV.), have been determined to warrant future study. A development impact fee has been adopted by the City and County to help pay for the improvements, once the final design has been approved by Caltrans.

Other Infrastructure

Other important infrastructure constraints include water supply; roads and circulation; drainage and wastewater collection and treatment. These issues are addressed by the updated infrastructure master plans prepared by the City's engineering consultants and discussed in Chapter IV.

Foraging Habitat for Special Status Animals

The San Joaquin Valley is home to a number of special status plant and animal species classified by the California Endangered Species Act and the federal Endangered Species Act. For example, the planning area may have at one time provided foraging habitat for raptors such as the Swainson's Hawk (*Buteo swainsoni*) a species listed as *threatened* by the California Endangered Species Act, and for the San Joaquin kit fox (*Vulpes macrotis mutica*), a federally endangered species.



San Joaquin kit fox

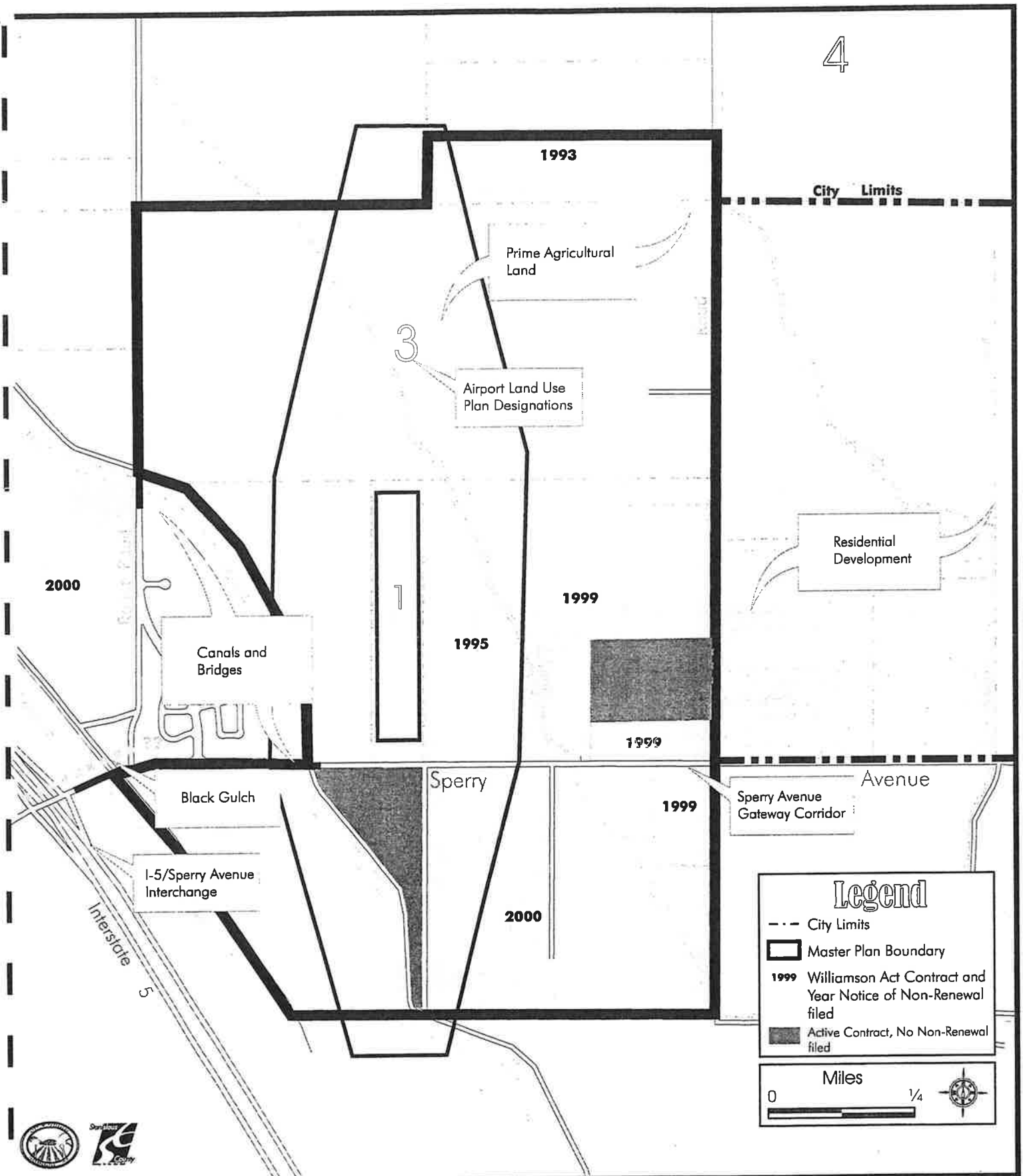
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Field surveys conducted in the fall of 2001 and spring of 2002 found no specific evidence of kit fox within the Master Development Plan area and adjoining properties. The *Recovery Plan for Upland Species of the San Joaquin Valley* (US Fish and Wildlife Service, 1998) recommends protecting linkages between higher quality habitats north and south of the Patterson area. In the Patterson area these higher quality habitat linkages lie in the foothills west of Interstate 5. Nonetheless, future development within the Master Development Plan area would result in the permanent loss of potential habitat for this federally protected species. As a result, all new development will be required to compensate for this loss through one of the following actions:

- ▶ Fee title purchase of a permanent conservation easement for higher quality kit fox habitat west of Interstate 5 at a ratio of 2 acres preserved for each acre developed;
- ▶ Payment of an in-lieu fee of \$2,000.00 per developed acre for the purpose of purchasing suitable habitat elsewhere; or

In either case, the lands selected for conservation must be approved by the US Fish and Wildlife Service.

A similar mitigation program will be required for the potential permanent loss of foraging habitat for Swainson's hawks, in addition to the conduct of pre-construction surveys to determine presence of special status species.



Existing Land Use and Regulatory Setting

The study area consists of mostly level agricultural land in various stages of cultivation. Recent highway oriented commercial development occupies about 20 acres at the I-5/Sperry Avenue interchange in the unincorporated county (Vista de Lago). Further east is the Patterson Airport, a privately operated general aviation airport which occupies about 30 acres on the north side of Sperry Avenue immediately east of the Delta-Mcndota canal. The California Aqueduct crosses the study area from the northwest to southeast about one-half mile east of I-5.

General plan designations applied to the area by both the City of Patterson and Stanislaus County are shown on Figure 3. The Keystone Pacific and the northerly portion of the Cozzens properties currently lie outside the City of Patterson general plan area and sphere of influence and are designated *Agriculture* by the Stanislaus County General Plan. Existing land use by general plan land use category is summarized on Table 1.

Table 1 Summary of Existing Land Use by General Plan Land Use Category	
General Plan Land Use Category	Acres
Light Industrial ¹	318
Medical/Professional Office	24.5
Highway Commercial	64
Public ²	7.7
Agriculture ³	400
TOTAL:	814.2

Notes:

1. Includes 29.73 acres for Patterson Airport
2. California Division of Forestry (CDF) fire station and Caltrans work yard.
3. Stanislaus County General Plan

Patterson General Plan

The Patterson General Plan was adopted in 1992 and includes the following elements:

- Land Use and Community Design
- Housing
- Transportation and Circulation
- Public Facilities and Services
- Recreational and Cultural Resources



Water feature and landscaping at the Villa Del Lago project.

Agricultural and Natural Resources
Health and Safety
Administration and Implementation

The Master Development Plan would help further the following policies and programs of the Patterson General Plan.

Land Use

- I.A. 6 The City shall ensure its designation of land uses and approval of development projects do not hinder the efforts to maintain a positive fiscal balance for the City.*
- I. C. 3 The City shall promote the establishment, maintenance, and expansion of businesses in Patterson that generate high retail sales taxes as important contributors to the local economy.*
- I. C. 1 The City shall promote and assist with the maintenance and expansion of Patterson's commercial sector to meet the needs of Patterson residents, employees, and visitors.*
- I. C. 6 The City shall encourage efforts to attract major commercial and office tenants to Patterson.*
- I. E. 1 The City shall promote and assist the maintenance and expansion of Patterson's industrial sector.*

Public Facilities

- IV.B.2 The City shall ensure the provision of adequate sewer service to all new development in the city and support the extension of sewer service to existing developed areas where this service is lacking.*
- IV.C.3 The City shall expand and develop storm drainage facilities to accommodate the needs of existing and planned development.*

City Design, Structure, and Aesthetics

- VIII.A.6 The City shall create a continuous scenic corridor lined with palm trees extending along East Las Palmas Avenue from near the San Joaquin river west along Las Palmas Avenue through downtown to its planned intersection with Sperry Avenue and then west along Sperry Avenue to Interstate 5.*

Programs

- I.7 The City shall develop an economic development plan/employment strategy to identify strategies to attract new commercial development and industry to Patterson. The City shall create a citizen committee to assist the City in this effort.*

Policies of the Stanislaus County General Plan

The County General Plan contains the following policies concerning development within the unincorporated portion of a city's sphere of influence. Generally, these policies do not allow development to occur if it is inconsistent with a city's adopted general plan. These policies could, however, allow the County to approve development within Patterson's sphere of influence if the proposed development is consistent with the City's general plan.

Policy 24. Non-residential development which requires discretionary approval and is within the sphere of influence of cities, other than Turlock, shall not be approved if its is inconsistent with the city's general plan land use designation...

Policy 25. Non-residential development which requires discretionary approval and is within the sphere of influence of a city must meet the applicable development standards of the affected city.

Agricultural Element

The County's Agricultural Element was adopted in April, 1992 with the overall goal of preserving agricultural lands for agricultural uses. To achieve this goal, the Agricultural Element contains a number of policies and programs for the County's continued participation in the Williamson Act program. The Agricultural Element also includes the following policies concerning "Urbanization and the Conversion of Agricultural Land":

Policy 2.4 To the greatest extent possible, development shall be directed away from the County's most productive agricultural areas.

Policy 2.5 New areas for urban development (as opposed to expansion of existing areas) shall be limited to less productive agricultural areas.

Other relevant policies include those for "Expansion of Cities and Unincorporated Communities".

Policy 2.8 The County recognizes the right of cities and unincorporated communities to grow and prosper and shall not oppose reasonable requests to expand spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities to accommodate growth.

Policy 2.9 In recognition that unincorporated land within spheres of influence of cities or community services districts and sanitary districts serving unincorporated communities in managing development in urban transition areas.

Policies of the Local Agency Formation Commission (LAFCo)

Changes to the organization of local governments are decided by the Stanislaus County Local Agency Formation Commission (LAFCo). As part of the Master Development Plan that relates to the Keystone development project, the City will petition LAFCo to amend the City's *sphere of influence* to include the areas shown on Figure 1. A sphere of influence is a plan adopted by LAFCo which describes the ultimate physical boundaries of the City and represents the areas into which the City will eventually grow and provide municipal services.

LAFCo has adopted rules, procedures and objectives for establishing and amending spheres of influence. To summarize, these objectives encourage the establishment of spheres of influence that correspond to the timely and logical extension of public services. The resolution adopting the City's 1992 sphere of influence states that, as the City amends its General Plan or adopts a specific plan for territory within its planning area, LAFCo will review the sphere of influence for its relevance.

The proposed amendment to the City's sphere of influence is consistent with LAFCo rules, procedures and objectives. The City has demonstrated a commitment to the provision of public services to the area through the adoption of infrastructure master plans (Chapter IV) and a financing plan (Chapter V).

Recommended Land Use Plan

Land use designations recommended for the planning area are shown on Figure 6; recommended zoning districts are shown on Figure 7. The arrangement of land uses was crafted to achieve the goals described in Chapter I and to address the physical constraints discussed above. The arrangement of uses was shaped in part by circulation and access constraints which are addressed by the circulation plan prepared by the City's traffic consultant and summarized in Chapter IV. Business park/research and development uses are concentrated along the Sperry Avenue and Baldwin Road corridors, while the interior areas are reserved for larger, more massive (and inherently less attractive) uses such as warehousing and distribution centers. Accordingly, the majority of the planning area is designated *Light Industrial*, consistent with the definition used by the City of Patterson General Plan and consistent with the County General Plan *planned industrial* designation. The area designated for *Highway Commercial* development on the south side of Sperry Avenue at the I-5 interchange (Hansen) has been reduced, and the properties at the northwest corner of Sperry Avenue at Baldwin Road currently designated for *Medical/Professional Office* are recommended to be re-designated as light industrial. The acreage devoted to different land uses are summarized on Table 2.

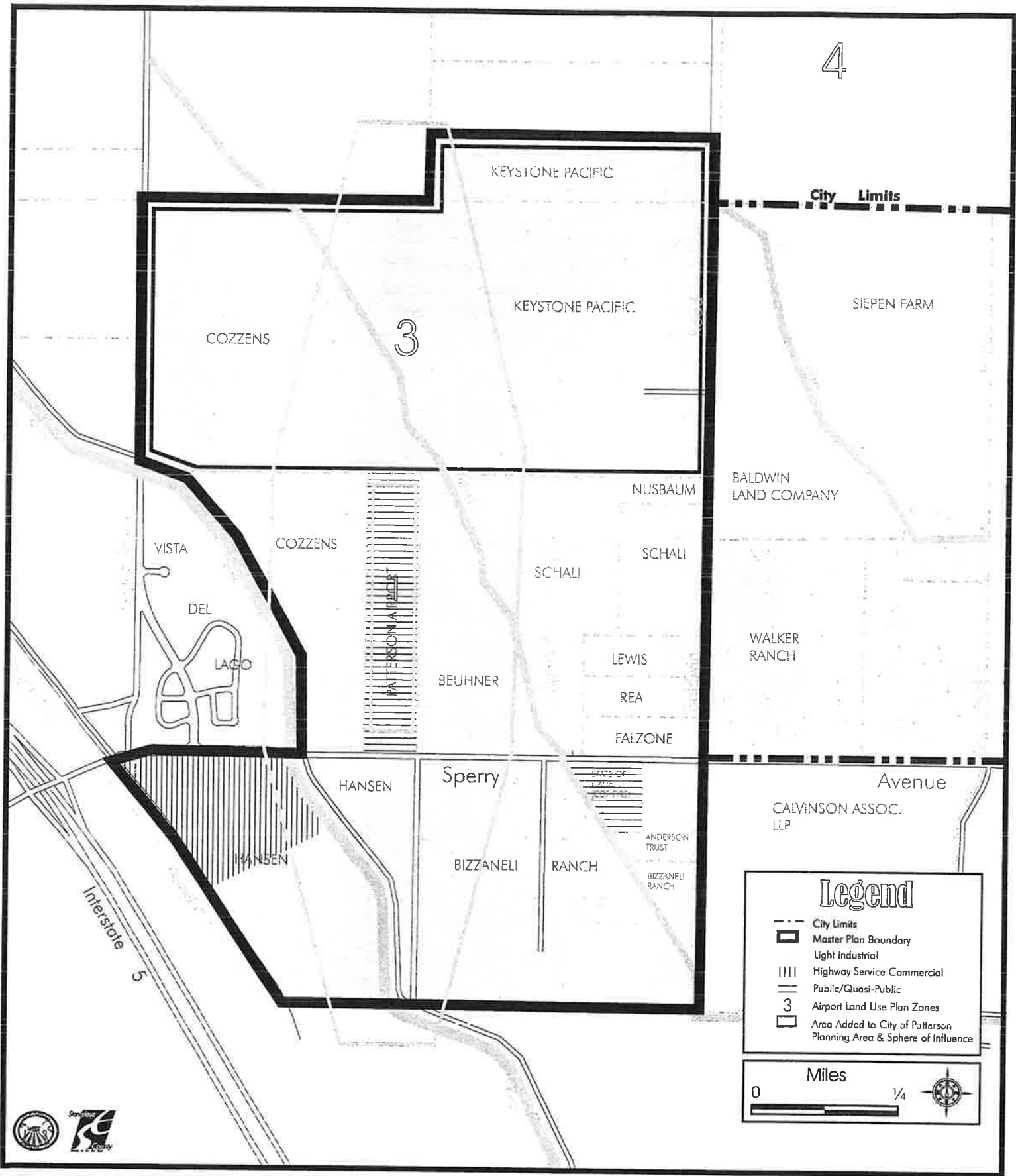
Table 2 Summary of Recommended Land Use Plan	
General Plan Land Use Category	Acres
Light Industrial ¹	772
Highway Commercial	34
Public ²	7.7
TOTAL:	814.2

Notes:

- 1 Includes 29.73 acres for Patterson Airport
2. California Division of Forestry (CDF) fire station and Caltrans work yard.

The Keystone Project

The Keystone project involves amending the County and City general plans to designate 342 contiguous acres adjacent to the City's planning area for *Light Industrial* development and to amend the City's sphere of influence to include the area shown on Figure 2. Keystone intends to develop the eastern 223 acres (APNs 21-26-01 and 21-23-10) with business park/light industrial uses which will help provide the initial "seed" that will attract additional business park and light industrial uses to the West Patterson area.



West Patterson Business Park Master Development Plan

Figure 6
Recommended Land
Use Plan/General Plan
Designations

Recommended Zoning, Development Standards and Allowable Uses

Recommended zoning designations for the planning area are shown on Figure 7. Two new industrial zoning classifications are applied: West Patterson Industrial Business Park (IBP) and West Patterson Light Industrial (LI). The complete recommended ordinances are provided in Appendix A.

Allowable Land Uses

The list of allowable land uses associated with these zoning classifications are summarized on Table 7 and in Appendix A. One of the goals of the Master Development Plan is to provide suitable locations for the development of business park/industrial uses that are not accommodated elsewhere in Stanislaus County. Accordingly, uses such as food processing that are water and sewer intensive have been excluded in favor of research and development and similar businesses that can be supported in an office/business park setting.

The range of allowable uses also distinguishes among the types of "manufacturing" uses that are allowed. Again, manufacturing that is not water/sewer intensive and employs a higher skilled work force is favored over other types of manufacturing. To help clarify the types of desirable manufacturing uses desired for the area, the *North American Industrial Classification System* definition for "computer manufacturing" was used. The uses described by this definition closely match the types of uses Keystone Pacific supports in their existing facilities in North Carolina and intends to pursue for the Plan Area.

Restaurants and retail businesses may be conditionally allowed, but only when integrated into the design of a business park campus and sized to be subordinate to the primary business or businesses.

Lastly, the lists of allowable uses are consistent with the limitations imposed by the Airport Land Use Plan for the Patterson Airport.

Table 3 Allowed Uses and Permit Requirements for Light Industrial and Industrial Business Park Zoning Districts		P CUP –	Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required		
	IL	IBP	
AGRICULTURE AND OPEN SPACE USES			
Interim crop production and horticulture	P	P	
INDUSTRY, MANUFACTURING & PROCESSING USES			
Assembly of products	P	P	
Bakery wholesale and distribution	P	–	
Bottling plant	P	–	
Call centers	P	P	
Communication systems research and development	P	P	
Computer systems research and development	P	P	
Conference center	–	CUP	
Furniture manufacturing	P	CUP	
Electronic repair and assembly	P	P	
Food packaging	P	–	
Interior design and office equipment sales	–	CUP	
Manufacturing and technology support industries	P	P	
Packaging	P	P	
Pharmaceutical manufacturing	CUP	CUP	
Printing and publishing companies, book binding	P	P	
Research and development, laboratories	CUP	CUP	
Seed processing and packaging	CUP	–	
Sheet metal fabrication ¹	CUP	CUP	
Sign fabrication companies ¹	CUP	CUP	
Software development	P	P	
Warehouses as a principle use	P	–	

Table 3 Allowed Uses and Permit Requirements for Light Industrial and Industrial Business Park Zoning Districts		P CUP	Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required		
	IL	IBP	
Wholesale distribution and catalog sales	P	P	
RETAIL AND SERVICES USES			
Banks	CUP	CUP	
Broadcast studios	CUP	CUP	
Convenience store	CUP	CUP	
Day care center	CUP	CUP	
Gymnasium/exercise business	CUP	CUP	
Offices	CUP	CUP	
Parcel delivery service	P	P	
Government buildings and facilities	CUP	CUP	
Copying and reprographics service	CUP	CUP	
Restaurants, food take-out	CUP	CUP	

Notes

1. So long as the use is conducted entirely within an enclosed building and complies with the performance standards established by Section 21.x66.xx. Outdoor storage is prohibited.

Development Standards

Recommended development standards are summarized on Table 4 and in Appendix A. The development standards largely mirror those applied by the City of Patterson Zoning Ordinance for the Light Industrial zone. However, minor deviations are recommended that relate to:

- ▶ Minimum building and lot sizes;
- ▶ The maximum allowable building height;
- ▶ Landscaping requirements and the use of on-site retention basins;

In addition to the development standards described in Appendix A, the Master Development Plan incorporates design guidelines for new development (Chapter III).

Table 4
West Patterson Industrial Zoning Districts
Development Standards

	IL	IBP
Minimum lot size	Minimum area dimensions for parcels proposed in new subdivisions	
Minimum lot area	2 acres	5 acres
Minimum dimensions	100 ft.	100 ft.
Minimum Building Size	25,000 sq.ft.	50,000 sq.ft.
Setbacks(3)		
Front	15 ft.	15 ft.
Sides (each)	10 ft.	10 ft.
Rear	15 ft.	15 ft.
Site coverage	50% maximum	50% maximum
Height limit (1)	45 ft. (2)	45 ft. (2)
Landscaping	As required by Section 21.xx.xx	As required by Section 21.xx.xx
Lighting	As required by Section xx.xx.xx	As required by Section xx.xx.xx
Parking and loading	As required by Section 21.76	As required by Section 21.76
Signs	As required by City of Patterson Sign Regulations	As required by City of Patterson Sign Regulations

Notes:

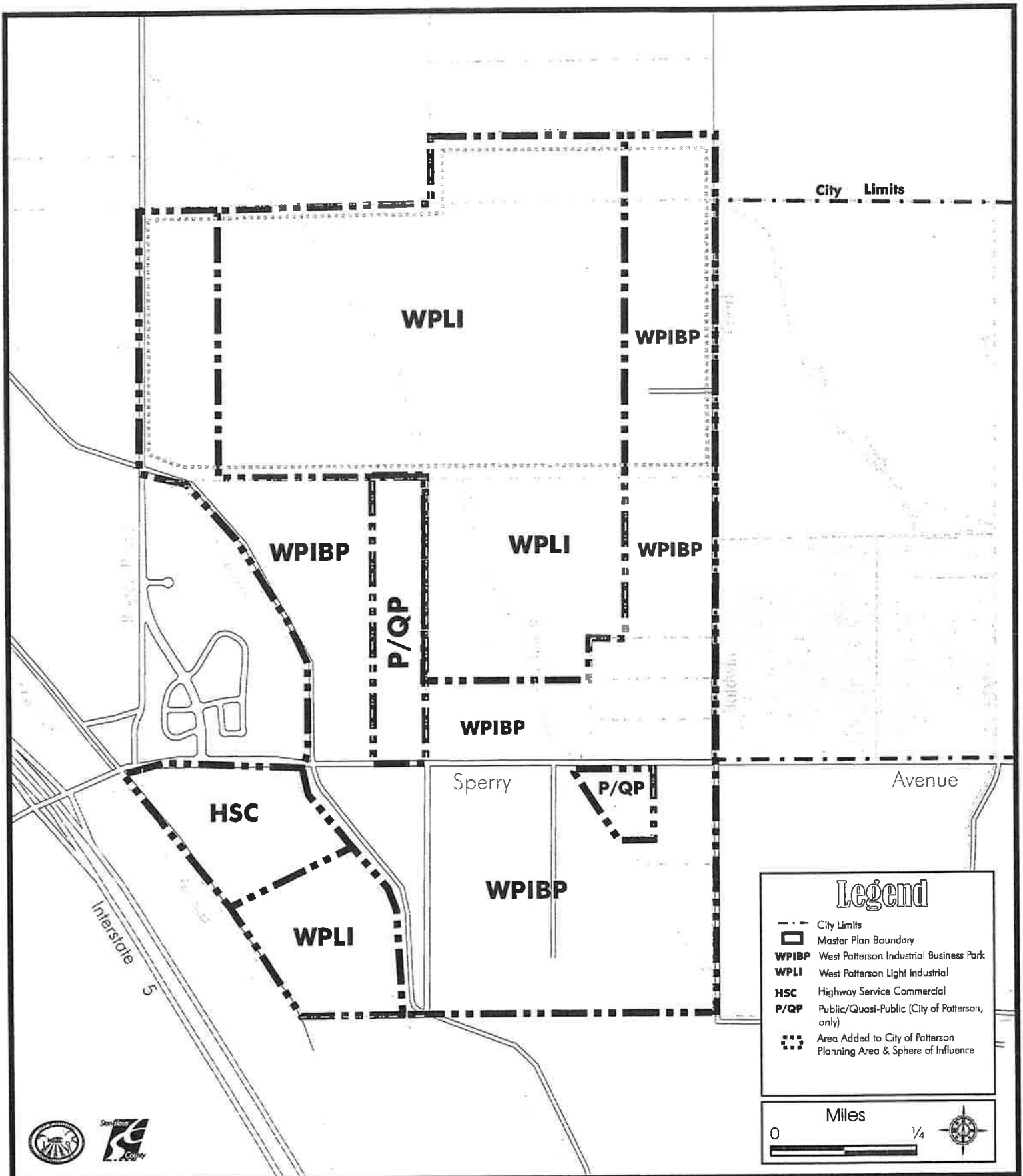
- (1) Maximum allowed height of structures. Exceptions may be allowed by Chapter 21.66.050 (Exceptions).
- (2) Except as may be required by the Airport Land Use Plan for the Patterson Airport.
- (3) The minimum setback for parking, buildings and other structures along Rogers Road, Baldwin Road, Sperry Avenue shall be twenty (20) feet measured from the property line or the adopted right-of-way plan line, whichever is greater.

Employment Targets

The main goal of the West Patterson Business Park Master Development Plan is to attract and retain businesses that provide well-paying jobs. To that end, the following employment targets have been established:

Zoning District	Desired Minimum Employment Generation (jobs per gross acre)
Industrial Business Park (IBP)	35 jobs per gross acre
Light Industrial (IL)	20 jobs per gross acre

It should be emphasized that these are targets, only, and will be one of many factors used to assess the appropriateness of a given use for the area.



Development Holding Capacity

Table 5 provides a summary of the recommended land use by ownership, along with an estimate of the "holding capacity" for the planning area. Holding capacity refers to the commercial and industrial floor space that can be accommodated based on the amount of land designated for these uses. Due to market forces, the size and shape of parcels and other factors, the maximum development potential is rarely achieved. For this reason, holding capacity is typically expressed as 80 percent of the gross development potential (acres x building intensity x 80%).

Note that Table 5 shows buildout potential using *floor-area ratios*, which refer to the ratio of building area to the area of the underlying parcel. For light industrial development, two FARs are used: 0.16 and .30. For commercial development, a floor area ratio of 0.25 is assumed. These ratios were taken from the Patterson General Plan which uses similar floor area ratios to estimate holding capacity. Employee generation assumes one employee per 500 square feet of floor area for commercial and industrial development.

The holding capacity estimate in Table 5 represents a level of development that may be realized over many years. According to an absorption capacity study prepared by the Meyers Group (February, 2001) a more realistic estimate of future demand for light industrial development is about 100,000 square feet of building floor area per year for the next ten years (about 11 acre per year).

Table 5
Summary Holding Capacity
By Recommended Zoning District
West Patterson Business Park Master Development Plan
Source: CMCA

Recommended Zoning District	Acres	Building Floor Area²	Employment³
West Patterson Industrial Business Park	402	4,202,669	8,042
West Patterson Light Industrial	345	4,508,460	7,310
Highway Commercial	34	473,933	788
Public/Quasi-Public ¹	33.2		
TOTAL:	814.2	9,185,062	16,140

Notes:

1. Includes the Patterson Airport, Caltrans Yard and CDF Fire Station.
2. By applying the development standards provided in Appendix A.
3. Based on the following:

One employee per 750 square feet of floor area for warehouse and wholesale businesses;

One employee per 500 square feet of floor area for manufacturing businesses;

One employee per 300 square feet of floor area for offices and labs;

One employee per 500 square feet of floor area for retail and highway serving businesses;

III. Guidelines for the Design of New Development

Purpose and Applicability

One the primary goals of the West Patterson Business Park Master Development Plan is to establish a regulatory and infrastructure framework that serves as a catalyst for the attraction and retention of high-quality industrial and business park development. Accordingly, the Design Guidelines that follow were prepared to aid designers, the public and decision-makers by expressing the community's shared vision for the quality and attractiveness expected from new development in the Plan Area. The Guidelines emphasize the use of landscaping, screening, sign control, and other techniques to improve and enhance the visual qualities of the planning area so that a visitor's first impression is a positive one.

In some instances the Guidelines are fairly precise. However, they are not rigid and inflexible, nor are they intended to stifle creativity by imposing a formula for the design of new development. Their main purpose is to ensure that new development in the West Patterson area enhances the quality of life in Patterson and Stanislaus County and preserves its image as a desirable place to live, work and visit.

The vision embodied by these Guidelines can only be achieved through a cooperative effort among the decision-makers, private property owners and the community. The responsibility of decision-makers is to provide timely review of new projects, and to help foster private investment by implementing public improvements that enable development to occur. These Design Guidelines help achieve the former by providing a greater measure of predictability to the design review process. The role of the community is to be a sounding board with regard to new development so that decision-makers remain in touch with the preferences of County citizens.

The Design Review Process

The design review process for the West Patterson area is illustrated by Figures 15 and 16 in Chapter V of this Master Development Plan. As with all other development-related matters in Patterson and Stanislaus County, design review is handled by the Planning

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Department and the appropriate decision-making body (Planning Commission, Board of Supervisors, City Council). Anyone considering a development project should first make an appointment to discuss the project and these Guidelines with a member of the City or County Planning Department staff. The staff member can help explain the development review procedures and determine if design review is required. The staff member can also provide an approximate timetable for the processing of the project and describe any other permits or approvals that may be required.

Design review is not a separate process apart from other discretionary approvals such as site plan review or a conditional use permit. To the extent allowed by the City or County's codes and ordinances, any additional planning or building permits will usually be processed concurrently.

Exceptions

It is envisioned that the great majority of projects will comply in their entirety with these Guidelines. However, it is possible that there may be unusual circumstances where a project may not be able to meet one or more of the standards due to the peculiarities of the project. In such instances, the Director or the Planning Commission may approve an exception provided that the overall intent of the Guidelines is still being met.

Amendments to the Guidelines

These Design Guidelines express the community's expectations for the design and quality of new development in the West Patterson industrial area. Although they advocate basic principles of "good" design that have been found to apply in almost every occasion, they also encourage innovation and creativity. However, the Guidelines cannot anticipate how the community's expectations are likely to change over time as new design and construction techniques emerge and as tastes change. Thus, the Guidelines should be viewed as a "living document" that will evolve with the changing sentiments of the community. If amendments are deemed necessary in the future, they should be considered carefully and with the full participation of the community.

Who Does the Reviewing?

The Director (or his/her designated staff) handles the task of design review for projects that do not require Planning Commission approval. When Planning Commission approval is required, such as a project requiring a conditional use permit, planned development or other entitlement, the Commission serves as the design review authority. When the Director or Commission determines that a project conforms to all applicable provisions of the City or County Code, the project is approved. The approval may be subject to conditions that bear a reasonable relationship to

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the nature and intensity of development and the potential impacts such development may generate. Before a building permit may be issued, the project must demonstrate compliance with all applicable conditions and codes. Minor exceptions to these Guidelines may be approved by the Director (or the Planning Commission upon appeal) upon finding that the proposed design solution achieves the overall objectives of these Guidelines.

What Standards Will Be Used to Review My Project?

By its nature, design review involves subjective judgments: one person's idea of artistry may appear ugly to another. That is, in part, why these Design Guidelines were incorporated into the Master Development Plan and also why persons contemplating a development project should meet with City or County staff to discuss the design review process.

In their role as the design review authority, the Director and/or Planning Commission will look at the entire design of a project, considering such factors as how the project relates to the natural features of a site and to surrounding development, and the visibility of the site along major corridors and entryways. They will also try to judge the quality of the experience people will have when working or conducting business in the development, as well as the effect the development will have on the visual character and quality of life of the community.

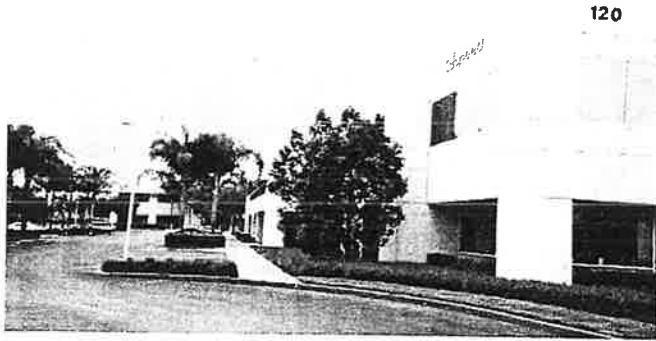
Design Guidelines

General Qualities of Design

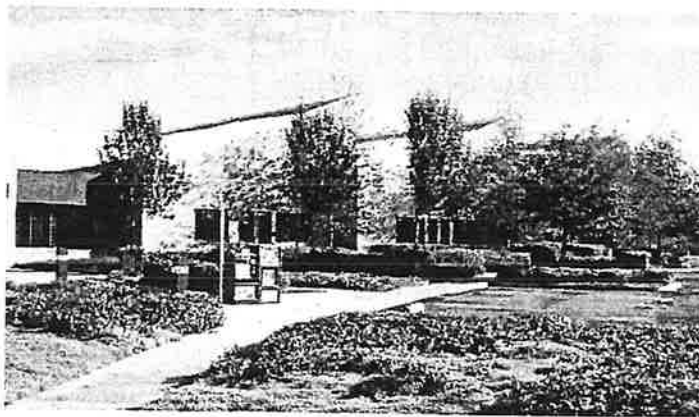
1. Industrial/business park centers shall be designed with a consistent architectural theme that employs elements to visually unify the buildings and signage.
2. Desirable design elements and qualities that should be incorporated into new industrial development include:
 - Variety of surface texture.
 - Wall articulation and relief (awnings, trellises, etc.).
 - Significant landscaping that complements the buildings.
 - Projection that helps identify the entrance.
 - Entries that resemble a quality office in appearance and architecturally integrated with the mass and composition of the building.
3. Large industrial buildings often convey a “box-like” appearance. The following design techniques should be employed to help reduce the box-like appearance of large scale, bulky buildings:
 - Provide articulation to the various components of a building’s façade through the use of color, the arrangement of façade elements, or changes in materials.
 - Incorporating recesses, projections, trim elements and other architectural features to provide visual interest.
 - Incorporate landscaping and architectural detailing at ground level to lessen the bulk of the building.
 - Incorporating indentations, color bands, vertical seams, textured walls and articulated surfaces.



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Examples of business park development.



4. All roof top equipment shall be screened from view by materials compatible with those of the building.
5. The roofline at the top of a structure should not run in a continuous plane. Offsets should be provided in the plane of the roof at intervals proportional to the overall length of the façade.

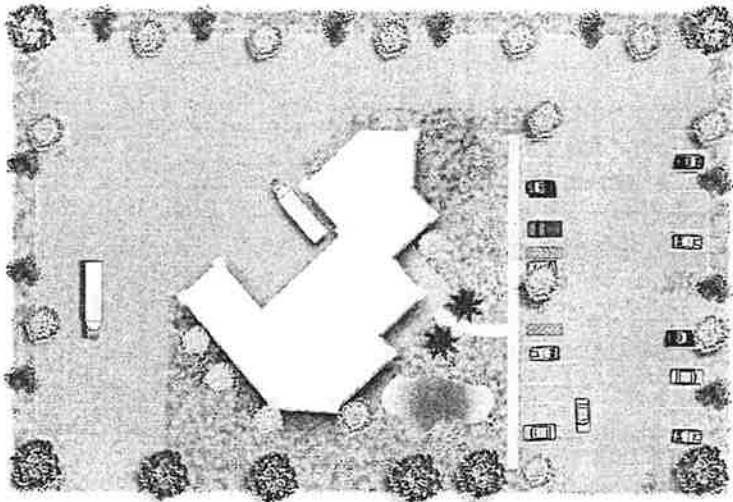
Colors and Materials

6. Colors or logos identified with an individual company should be employed as accent features to a building and should not be incorporated as a main architectural feature.
7. Large areas of bright, intense colors shall be avoided. While more subdued colors usually work best for the overall color, brighter accent colors are appropriate for trim, windows, doors and key architectural elements. Bold stripes of color are not an adequate substitute for architectural detailing.
8. Wherever possible, the number of colors on a building should be minimized. Earth tones should be employed for the body of the building. Examples include shades of brown, beige, tan, brick, and gray. Generally, colors appearing on a building should be complimentary with contrasts provided by detailing or trim with primary colors.
9. Exterior materials should convey quality in design and construction.
10. Metal, tilt-up construction is prohibited. Concrete construction for industrial business park buildings may be used only when accompanied by elements that help provide articulation and visual interest, such as:
 - Texturing of the concrete surface to simulate rough or split-faced block.
 - Trim or other suitable exterior materials.
 - Painting of concrete block is prohibited. Painting on clay and concrete roofing tiles or shake roofs is also prohibited.
11. Roof materials should be functional, durable and consistent with the quality of materials employed on the buildings they serve.

Site Planning/Parking & Access

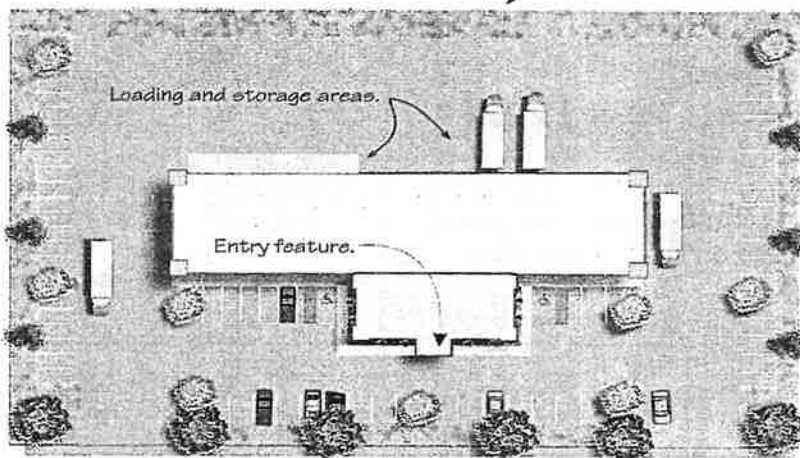
12. Site planning for industrial development should address the following principles:

- Controlled site access;
- Service and loading areas located at the rear or side of the building and screened from view;
- Safe and convenient vehicular access in which truck access is separated from visitor /employee parking;
- Emphasis on the main entrance to the building;
- Landscaping within parking lot areas and in areas visible from the public right of way.
- Building setbacks should be proportionate to the scale of the buildings. Larger structures should be set back further on the lot to provide balance with open space and so that buildings do not impose upon neighboring properties.



An example of a site plan for a business park use incorporating ample landscaping, a water feature and truck loading at the rear. The site plan below depicts a more conventional industrial project with loading in the rear and perimeter landscaping.

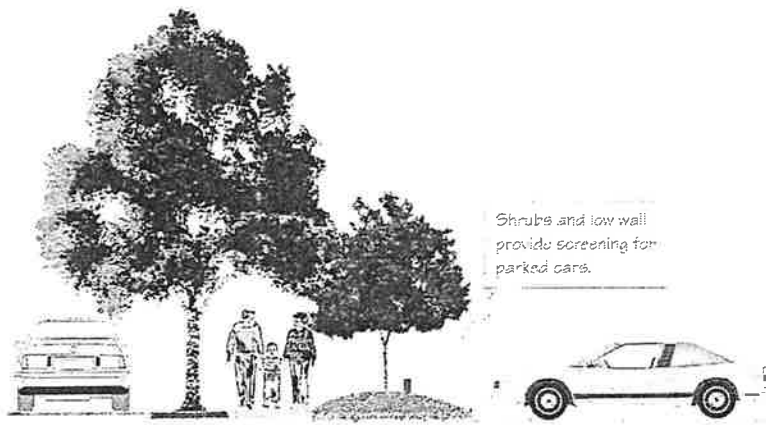
Landscaping to provide screening



Parking screened with landscaped berm.

Wider driveways and aisles to accommodate trucks.

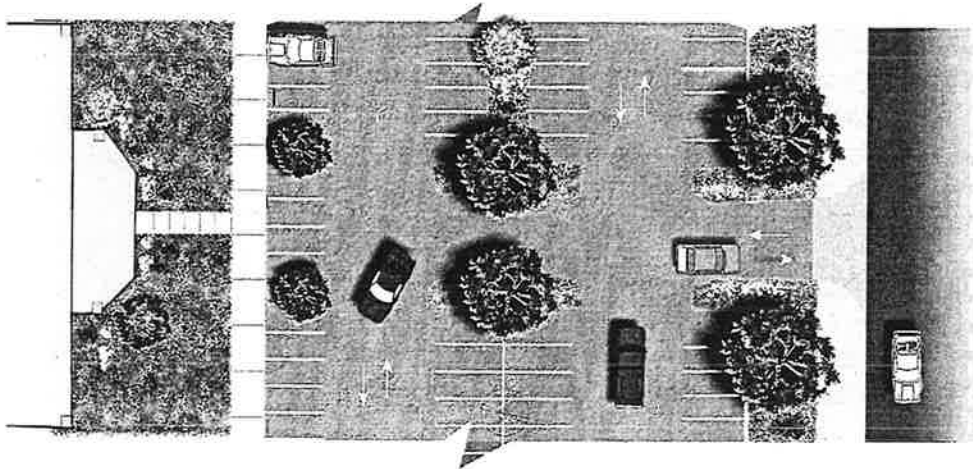
13. Large expanses of parking are to be avoided. Landscaping, including trees, shrubs and ground cover shall be provided throughout parking areas in accordance with City standards. Lighting within parking areas shall be provided in accordance with City standards.
14. Parking should be screened from view and visually subordinate to the development. Parking lots should not overwhelm the appearance of a site, or views from the site, and should incorporate landscaping for all areas not used for vehicle storage, access or circulation. Plants, berms and low walls, or a combination of these features, should be used to help screen parking from adjoining streets.
15. Parking lots shall be landscaped both on the interior and around the perimeter. In general, a planter should be provided at intervals sufficient to achieve an overall canopy of trees and should generally have minimum dimensions of six feet by eight feet.



16. Entrances to parking and loading areas should be clearly marked with appropriate directional signage.
17. On-site circulation should be designed so that vehicles are not required to enter the street to move from one area to another.
18. Common driveways that provide access to more than one industrial site are encouraged and shall be utilized wherever possible.
19. Loading facilities should be located at the rear or side of the building and screened from view. When loading facilities are located on the front of the building they should be adequately screened and designed so that the loading areas do not dominate the view from the street.
20. Loading areas should be designed so that delivery trucks do not have to back onto the street for access.

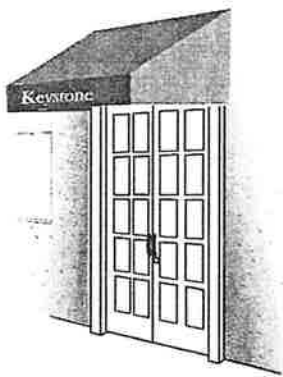
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21. Landscaping should be used to define areas on the site and emphasize the entrances to buildings, parking lots, and loading areas. The use of vines on walls can help soften the appearance of large building walls.



Signs

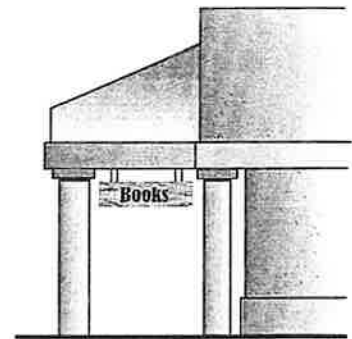
23. All signs shall be consistent with the City of Patterson sign ordinance in addition to the Guidelines in this section.
24. Provisions for the placement of signs shall be considered in the design of buildings. Signs shall bear a direct relationship to the overall design and character of a building and shall be compatible in size, scale, colors and materials with the architectural style of the building(s).



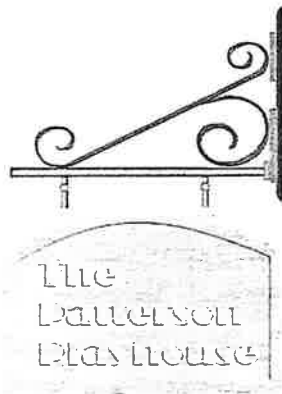
Canopy



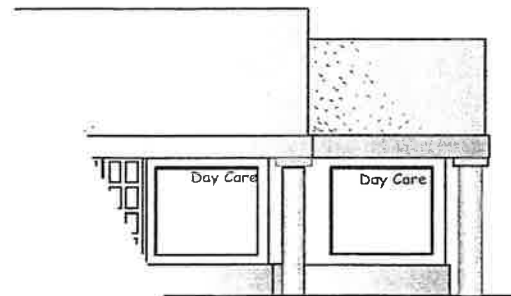
Wall



Under Marquee



Projecting



Window

Signs should be integrated with the style and character of the project.

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32. Monument signs shall be designed to complement the architectural style of the buildings they serve and shall utilize high quality materials such as brick, stone, tile, cast concrete or similar materials. A cabinet sign placed on a base does not meet the intent of these guidelines. Cabinet signs may be allowed provided the entire cabinet exclusive of the sign face is encased in the above mentioned materials, or if the overall design of the sign is unique and meets the intent of these guidelines.
33. Project identification signs should be placed at key project entries and form an attractive entry statement complemented by landscaping.



Landscaping, Walls, Screening and Lighting

Landscaping

In addition to these guidelines, all projects must comply with the City of Patterson's Drought Tolerant Landscaping Ordinance.

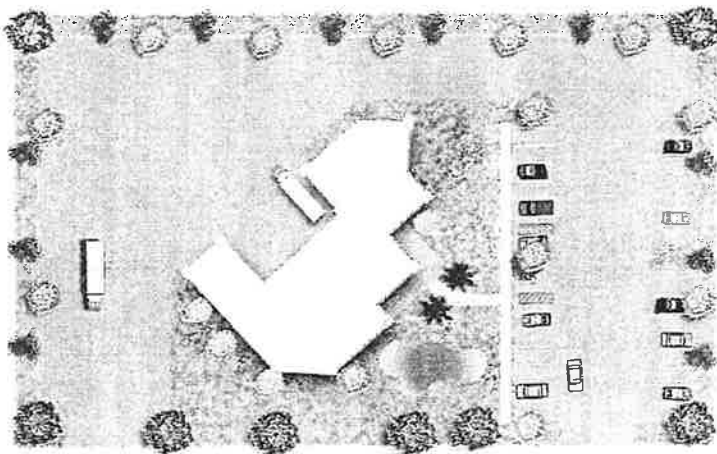
35. Landscaping should achieve the following objectives, as relevant to a particular project.

- Enhance the aesthetic appearance of development.
- Help buffer the transition between industrial and abutting residential development.
- Help control erosion.
- Screen incompatible land uses.
- Preserve the visual integrity of neighborhoods and commercial districts, and enhance pedestrian and vehicular traffic and safety by clearly distinguishing walkways and access points.
- Provide shade in parking areas.

36. Some commonly used planting design concepts include:

- Grouping specimen trees and providing rows at major focal points and entries.
- Flowering vines on walls and arbors.
- Pots, vases, window boxes and raised planters.
- Trees to create canopy and shade, especially in parking areas and along pedestrian ways.
- Flowering trees or seasonal flowers to provide color.
- Berms, plantings and low walls to screen parking areas.

37. Landscaping and other open spaces should be integrated into the overall site design for a project. Landscaping should enhance and complement the design of the building(s), preserve and enhance views, provide buffers, transition areas and screening.



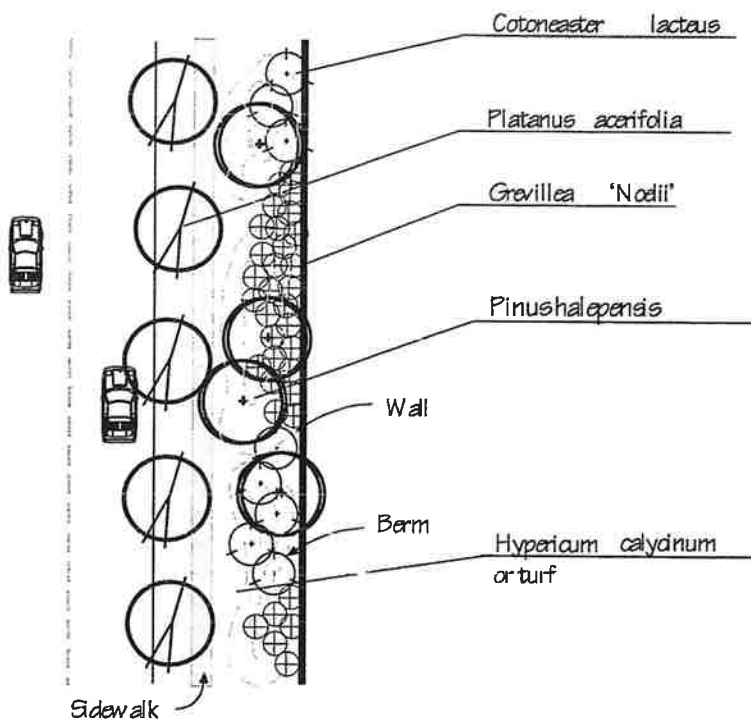
Business park site plan creating a campus-like setting by incorporating ample perimeter and parking lot landscaping, a water feature and entry statement.

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38. Landscaping should employ drought-tolerant varieties of plants, consistent with the City's Drought Tolerant Landscaping Ordinance.
39. A combination of deciduous and evergreen trees should be used to provide a variety of texture, color, and form in planting areas.
40. Trees with large canopies are required in parking lots, with accent trees at entries.

Walls and Screening

42. Screen walls should be designed to be compatible with the style and materials of the architecture of a site. Landscaping should be used in combination with such walls which covers at least 50% of the wall within five years. Berms should be incorporated into such landscaping. A conceptual landscaping plan that accomplishes these goals is provided below.



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43. Long expanses of walls or fences should be interrupted with offsets and provided with accents to prevent monotony. Landscape pockets and pedestrian access through walls should be provided.



Staggered wall surface helps break up linearity.



Planter incorporated into wall provides relief from flat surface.



Variation in wall height along with foundation planting soften its appearance.

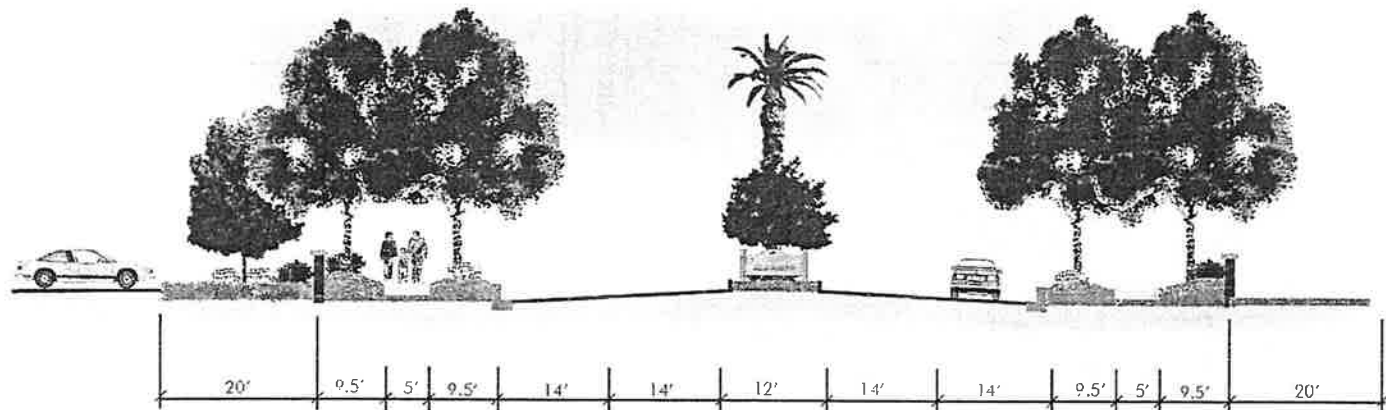


Materials that give texture to walls

44. Screening of outdoor storage should generally be solid, with a minimum height of six feet, in accordance with the City's fence height regulations. Vinyl-coated chain link fencing with slats may be appropriate for screening when not visible from the street in industrial zones. Chain link fencing is prohibited in commercial areas. Exposed chain link fencing may be used in industrial areas.
45. The use of barbed-wire or "razor wire" fencing is discouraged but may be considered in industrial areas where security of outdoor storage is a problem.
46. Where screening is required, a combination of elements should be used, including solid fences, walls, landscaped fences, landscaped berms and other landscaping.

Arterials and Streetscape Improvements

47. Sperry Avenue, Baldwin Road and Roger Road are important visual gateways and/or occupy prominent visual corridors. The design of new development along these key visual corridors shall incorporate elements to protect and enhance the viewshed.
48. The Sperry Avenue corridor shall be improved and landscaped in accordance with the street section and landscaping plan adopted by the City of Patterson. The street section is illustrated below.

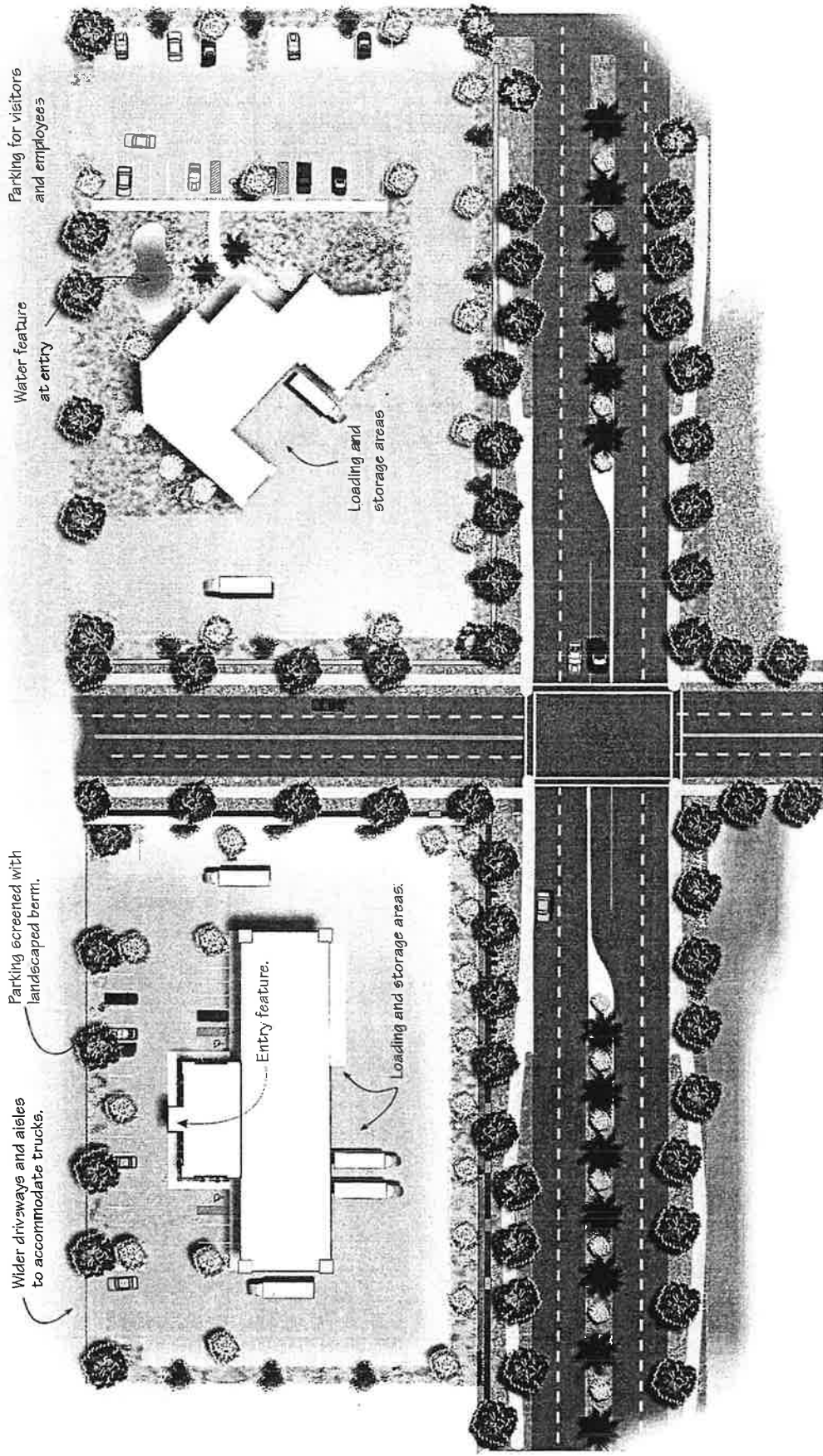


49. New industrial development along Baldwin Road shall ensure that truck access, loading areas and other potential noise sources are located on the interior of the building site where possible to minimize nuisance impacts to residential development to the east.

50. The design of new development shall incorporate elements to protect and enhance views from prominent vantage points, which include Interstate 5, Sperry Avenue, Roger Road and Baldwin Road. Such elements include those recommended by these design guidelines, in addition to the following:

- Where possible orient loading areas interior to the site and screened from view along these corridors;
- Roof design shall incorporate full screening of all roof-mounted equipment;
- Landscaping plans shall incorporate trees of sufficient number and size to provide screening of new development;

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Sperry Avenue with conceptual landscape/streetscape design and adjoining light industrial (left) and business park development (right).

IV. Infrastructure

Introduction/Background

In 1992, the City of Patterson prepared and adopted master plans for water supply and distribution, wastewater collection and treatment, and storm drainage to guide the infrastructure improvements necessary to achieve the community's vision articulated in the general plan. Since that time, development has proceeded in a manner which has at times necessitated deviating from the recommendations of the various master plans to respond to opportunities which were unforeseen at the time the plans were prepared. Although these changes have enabled the City to achieve its goals under the general plan, the Master Plans have been updated to reflect current circumstances and to reflect a more recent understanding of water supply, wastewater and drainage issues affecting the Patterson area.

Water Supply, Storage and Distribution

City of Patterson Water Supply and Production Resources

The City derives all of its water supply from the Delta-Mendota Groundwater Basin (Basin), as defined by the Department of Water Resources (DWR) in Bulletin 118-80 (DWR, Jan. 1980). The Basin encompasses 736,000 acres of land extending along the western side of the San Joaquin Valley between the San Joaquin River and the western edge of the Valley alluvium, from the Stanislaus/San Joaquin County line through Stanislaus and Merced Counties into Fresno County to the boundary of the Westlands Water District south of the City of Firebaugh. The Basin is composed of three subbasins – a Northern Subbasin, a Central Subbasin, and a Southern Subbasin, delineated in a regional Groundwater Management Plan prepared by the San Luis & Delta Mendota Water Authority (SLDMWA) (Stoddard & Assocs., April 1996). The City lies at the southern end of the Northern Subbasin.

In a 1995 study, DWR concluded that the Delta-Mendota Basin was overdrafted by 24,000 acre-feet annually (afa), 5% of the total annual withdrawals from the Basin (DWR, 1995). That overdraft, however, appears to be located well to the south of the City, west of Los Banos, Dos Palos, and Firebaugh. Surface water deliveries to that area have recently been curtailed due to environmental restrictions implemented to protect water quality and fish and wildlife in the Delta.

More specific and recent studies have confirmed that the groundwater in the City's vicinity is not overdrafted.¹ In 2002, in preparing an Urban Water Management Plan (see below), the City undertook additional study of the groundwater in the west Patterson vicinity (Schmidt & Assocs., April 2002). That study revealed a total quantity of at least 80,000 acre-feet of water in the aquifer beneath the City, 30,000 to 50,000 acre-feet of which were estimated to be of adequate water quality for municipal and industrial uses served by the City. The 80,000 acre-foot total is sustained by an estimated 9,300 acre-feet of annual recharge, not including seepage from irrigation and Salado and Del Puerto Creeks.

The City currently operates five groundwater wells east of the City limits, with nominal capacities ranging from 600 gallons per minute (gpm) in Well 6 to 1,600 gpm in Well 5 and total nominal capacity of 5,200 gpm.

Water is delivered to customers directly from the City's wells, without treatment. Two hydropneumatic tanks (13,000 gallons and 5,000 gallons) allow water to be fed to the distribution system at a constant pressure. The distribution system consists primarily of asbestos-cement and steel pipe, ranging from two to ten inches in diameter (Bookman-Edmonston Engineering, May 1992).

Present and Future Water Supply and Demand

On August 6, 2002, the Patterson City Council adopted an Urban Water Management Plan pursuant to the Urban Water Management Planning Act.² The UWMP evaluates past, present, and projected water demand and supply in five-year increments through the year 2020; the costs and reliability of the supply; and the City's conservation efforts, water shortage responses, and use of recycled water. The UWMP's evaluation incorporated the water demand projected to be created by development of the Master development Plan area and surrounding development. Based on an evaluation of the City's groundwater resources, the UWMP concluded that the City's groundwater is sufficient to serve the projected demand associated with the land uses (identified in the City's 1992 General Plan) within the City's sphere of influence as it is proposed to be amended for the West Patterson Business Park Master Development Plan. Nevertheless, the UWMP concluded that surface water would be a superior source of supply and noted that the City has begun negotiations with water providers in the region in pursuit of potential surface water transfers.

¹ The studies are discussed in the UWMP (Stoddard & Assocs., Aug. 2002a).

² Water Code sections 10610-10657, as amended by 2001 Cal. Stat. 320 (SB 672), 2001 Cal. Stat. 643 (SB 610), and 2001 Cal. Stat. 644 (AB 901).

Most of the Master Development Plan area is currently in agricultural use, principally in irrigated row crops. Because the City does not supply water for agricultural use, it does not currently deliver water to any properties within the project area. Agricultural users in the project area either (1) pump groundwater for use on-site (estimated to be a very small quantity³), or (2) contract with one of the local water districts for provision of water. Domestic uses on agricultural properties are similarly supplied. The project area is divided between the service areas of the Del Puerto Water District (DPWD) and the West Stanislaus Irrigation District (WSID). The project area presently receives an estimated 1,950 afa of CVP and San Joaquin River water per year from those water districts. Neither district supplies its customers with groundwater.

As noted above, the City's 2002 groundwater study estimated that between 30,000 acre-feet and 50,000 acre-feet of drinking-water-quality groundwater is available to the City in the confined aquifer. If existing plus approved development demand were to continue unchanged indefinitely, groundwater meeting Domestic Water Quality Standards would likely be exhausted at some point between 2009 and 2014. The 2009 date corresponds to the estimate of 30,000 acre-feet of adequate quality groundwater, while the 2014 date corresponds to the 50,000 acre-foot estimate. In sum, the City's existing water supply is not believed to be sufficient to supply existing demand much beyond the early part of the next decade.

At full buildout, the Master Development Plan area would account for an annual water demand of approximately 2,322 afa for business park and light industrial uses (Stoddard & Assocs., Aug. 2002b). Of that 2,322 acre-feet, the proposed 224-acre Keystone Pacific Business Park is anticipated to use approximately 627 afa (Stoddard & Assocs., July 2001, at Tbl. III-2).

Estimated Cumulative Water Demand

In 2020, total water demand in the City's sphere of influence including the West Patterson projects (cumulative demand) is anticipated to be approximately 7,589 afa (Stoddard & Assocs., Aug. 2002a), 3,989 afa beyond the existing plus approved development demand baseline and. Table 6 shows the estimated pace of population growth and the accompanying increase in water demand to 2020. The City's UWMP uses 2020 as a very conservative estimate of buildout of the City's amended sphere of influence. In fact, it is anticipated that, while buildout of the proposed Patterson Gardens development and perhaps other residential areas in the City's sphere of influence will occur by that

³Because data on private groundwater wells is not available to the public, precise estimates of groundwater use on properties in the project area are not possible.

date, the West Patterson Business Park Plan area is anticipated to take significantly longer to build out. The conservative 2020 buildout date was used to ensure that sufficient water supplies are available before, rather than after, they are needed (Stoddard & Assocs., Aug. 2002a).

Table 6 Total Water Demand Projections			
YEAR	POPULATION	WATER DEMAND	
		(mg/yr)	(afa)
2000	12,100	768	2,357
2005	15,600	1,102	3,381
2010	20,800	1,596	4,898
2015	25,000	1,996	6,126
2020	30,000	2,472	7,589

Source: Stoddard & Assocs., Aug. 2002a.

Initial development of the Master Development Plan area would be served, along with the City's existing demand, from untreated groundwater pumped from the City's existing wells. Three additional wells would also be needed to serve development in the west Patterson area, in addition to existing and other projected demand, by 2012.

The total quantity of groundwater available to the City, irrespective of quality, is estimated to be sufficient to sustainably supply demand associated with the Master Development Plan area in addition to existing and other development contemplated by the General Plan without causing overdraft in the aquifer. The aggregate quantity of available groundwater was estimated by the City's groundwater study to be 80,000 af, with an estimated annual recharge of 9,300 afa, not including seepage from irrigation water and water in Salado and Del Puerto Creeks. The projected annual demand of 7,600 afa by 2020 is well within the volume of annual recharge.

Nevertheless, the quantity of groundwater meeting applicable water-quality standards is considerably lower. As mentioned previously, assuming the Master Development Plan area were not developed and no further growth were approved within the City's present sphere of influence, the City would be expected to deplete the available supply of groundwater meeting Domestic Water Quality Standards beneath the City at some point between 2009 and 2014. If no growth were to occur at all beyond 2000, those dates would be 2011 and 2020, respectively. Approval of the Master Development Plan, in combination with other development in the City's sphere of influence anticipated to occur by 2020, would accelerate the depletion of good quality groundwater, from

2009 or 2011 to 2008 and from 2014 or 2020 to 2012, respectively. Although the City would need to look beyond untreated groundwater to meet its projected water demand even without the Master Development Plan, any additional development would cause the problem to arise earlier.

To serve cumulative demand, the City would continue to rely on its groundwater, with installation of treatment systems before groundwater quality deteriorates to a level that will no longer support the City's uses, likely between 2008 and 2012. Existing wells (estimated to be seven to nine in number by the time treatment would become necessary) would be maintained and two new wells installed thereafter by 2020, which would also tap the deep, confined aquifer. Wells would be located to optimize the quality of groundwater pumped and to minimize potential adverse effects of pumping.

Before water quality became unacceptable, existing wells would be retrofitted with wellhead desalination systems. New wells coming on line would similarly be equipped with the treatment systems. Using reverse osmosis, the systems would remove sufficient dissolved solids and other constituents of concern to allow the resulting water to satisfy Department of Health Services primary and mandatory secondary drinking water standards. Wellhead treatment would avoid the need to construct and operate a centralized treatment plant, and treated water could be conveyed directly to the end customer via the City's conveyance infrastructure planned for in the City's Water Master Plan.

Operation of the desalination system would create substantial volumes of concentrated brine as a byproduct, estimated to be as great as 16% of the total volume of water pumped. Accordingly, approximately 9,034 acre-feet of groundwater would need to be pumped annually to meet the City's projected 2020 water demand of 7,589 acre-feet annually, approximately 1,445 acre-feet of that 9,034 acre-feet being lost as unusable brine. Disposal of the brine would involve design and construction of a conveyance system to collect the brine from each wellhead treatment system and deliver it to a central source for disposal, either by deep well injection or evaporation.

The City's Urban Water Management Plan and the Water Supply Assessment prepared for Master development Plan area and surrounding development (incorporated by reference) identified rough estimates of the costs associated with groundwater treatment. Although the costs of treatment would be high, the UWMP and Assessment concluded that groundwater treatment remains a feasible source of supply. More precise cost estimates must await more detailed engineering evaluation and identification of the particular treatment technology and brine disposal method to be used.

Another water supply option that could be considered in the future is for the City to obtain surface water rights sufficient to meet future demand. As discussed in the Urban water management Plan, the City would need to obtain entitlements to a surplus of water, about 13,000 acre-feet per year, to ensure that average deliveries would meet the City's projected cumulative demand of 7,589 acre-feet per year.

Both options (treatment of groundwater and surface water) are described in detail in the City's Urban Water Management Plan which is incorporated by reference and available for review at the City Planning Department, 33 S. Del Puerto.

Water Quality

The State of California Department of Health Services enforces safe drinking water standards as provided in the California Code of Regulations, Title 22, Division 4, Chapter 15 "Domestic Water Quality and Monitoring". Primary standards are those established to protect public health, while secondary standards are based on consumer acceptability, as the secondary constituents may adversely affect taste, odor or appearance of drinking water.

The primary standards are not exceeded in the city's wells; however the nitrate standard of 45 milligrams per liter has been nearly exceeded in Well 4. The recommended secondary standards are currently exceeded in all the wells, especially as the standards relate to total dissolved solids (salinity) and nitrates. Thus, the availability of water supply is limited by the quality of available sources.

Test wells drilled in the City and to the west of the City have produced sufficient water to meet future demand but the quality of the water does not meet safe drinking water standards for TDS and nitrates. Additional test wells are planned to the east of the City where higher quality water has been located previously.

Water Storage and Distribution

A number of factors are considered in the design of a water supply system. These factors include requirements for adequately providing capacity to meet peak water demands, and consideration of requirements for fire protection. Typically, the average demand rate is multiplied by a 'peaking factor', then increased by a flow rate for fire protection to determine the required capacity of a water supply and distribution system. This approach was used in formulating infrastructure facilities that will provide a water supply system for development under the General Plan.

The updated Water Master Plan identifies arterial water distribution pipelines, water storage tanks, pressure control

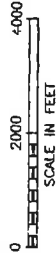
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devices and groundwater wells and pumps necessary to serve buildout of the City and the Master Development Plan area. The design criteria and recommended components of the system are summarized in the Draft Year 2001 Water Master Plan, which is incorporated by reference.

Existing and Planned Water Supply and Distribution Improvements

Planned water system improvements are shown on Figure 8 which shows tentative locations for production wells, trunk distribution lines, storage tanks, and pump stations.

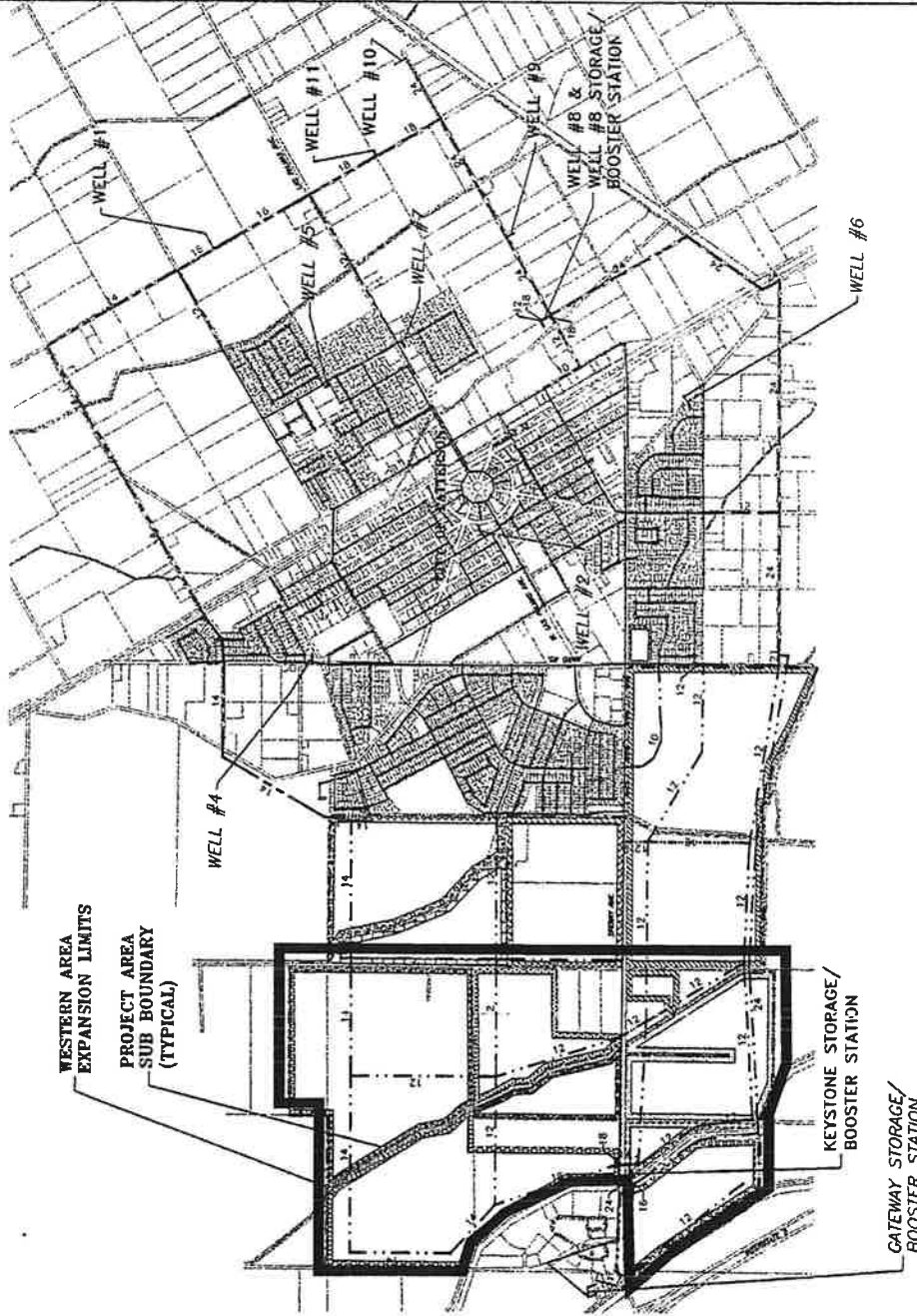
WESTERN EXPANSION AREA
PROJECT AREA
DISTRIBUTION SYSTEM
FACILITIES



LEGEND

- PHASE I TRANSMISSION AND DISTRIBUTION
- PHASE II TRANSMISSION AND DISTRIBUTION
- WELL # DISTRIBUTION
- INTERNAL DISTRIBUTION
- EXISTING DISTRIBUTION
- EXISTING FACILITIES (TYPICAL)
- PROPOSED FACILITIES (TYPICAL)
- Master Plan Boundary

CITY OF PATTERSON
YEAR 2001 WATER MASTER PLAN
PROPOSED DISTRIBUTION SYSTEM



West Patterson Business Park Master Development Plan

Figure 8
Revised Water Master Plan (Draft)

Wastewater Collection and Treatment

The City's Wastewater System

The City of Patterson provides wastewater collection, treatment and disposal service for all residents, schools, commercial and industrial establishments in the City except for Patterson Frozen Foods, which has its own onsite treatment system, and a few residences, which are served by their own onsite septic tank systems. The City's wastewater system also serves the Villa Del Lago commercial development located near the I-5/Sperry Avenue interchange. The City's wastewater system consists of three basic components: collection, treatment, and disposal.

Wastewater Collection

The City's wastewater collection system consists of gravity flow pipelines ranging in size from 6-inch to 33-inch diameters, typically located in City street rights-of-way. Older portions of the system, which generally serve the downtown core residential and commercial areas, were constructed before 1960. Newer developments have been connected to the system over time.

Wastewater Treatment and Disposal

The City's wastewater treatment plant is located on a 160-acre site situated between Walnut and Las Palmas Avenues, east of Poplar Avenue and west of the San Joaquin River. The plant's currently permitted capacity is 1.3 million gallons per day (mgd), and the average current volume of wastewater produced by the City is approximately 0.8 mgd. The remaining capacity is available to provide service for previously-approved expansion and to accommodate unanticipated high flow conditions. Wastewater is treated using two types of treatment processes, each principally an aerated biological treatment system. The older system, with a permitted capacity of 0.8 mgd, consists of an activated sludge process followed by clarification. The newer system is an advanced integrated pond system (AIPS), with a permitted capacity of 0.5 mgd.

The treatment facilities include a lift station, metering structure, headworks, comminuter, oxidation ditch, settling clarifiers, AIPS ponds, and sludge drying beds. The lift station is located at the terminus of Walnut Avenue where the influent (i.e., untreated wastewater) is received from the Walnut Avenue trunk sewer line into the plant.

In 1992, the City of Patterson prepared the *Wastewater System Master Plan* (City of Patterson, 1992) to provide guidance for future expansion of its existing wastewater collection, treatment and disposal system to accommodate expected development in the City General Plan Area. The Master Plan found:

The existing collection system is considered adequate to serve the existing service area including infill. For planning purposes, capacity is not available other than on an interim case by case basis for new development in the General Plan growth area (City of Patterson, 1992; page 2-2).

The Master Plan also included a staged implementation program to meet the City's future treatment capacity needs, but recommended periodic review to incorporate revisions that may be appropriate due to changing future conditions. Over the last several years, a substantial amount of development has occurred in western portion of the City. The sewer collection pipe sizes constructed for the new developments generally followed the recommendations set forth in the Master Plan, and some of the pipes were oversized to assist in providing sewage collection service for future development on the west side of the City.

In 2001, the City prepared the *Western Expansion Area Sanitary Sewer Collection System* report (City of Patterson, 2001) to determine the most cost effective way of providing sewage collection to the west side of the City's General Plan Area using the oversized sewer lines constructed since the 1992 Master Plan was developed. This report recommended an expansion of the sewer collection system. Under this system, the existing 15-inch and 21-inch sewer lines running through the Heartland Ranch (formerly Patterson Ranch) development would be loaded to near maximum capacity, and the 27-inch line in M Street would be loaded slightly above capacity. Therefore new collection pipeline would be required to serve the Master Development Plan area.

Wastewater Generation

The Keystone Pacific Business Park portion of the Master Development Plan area would result in development of 224 acres of business-related uses including light industrial, warehouse, and flex space. The Business Park would generate an average wastewater flow rate of approximately 136,500 gallons per day (gpd) at project buildout.

Past and present development projects contribute approximately 800,000 gpd of wastewater to the City's treatment plant. This represents the current (2002) flows generated in the City's wastewater service area. Development of the Master Development Plan area and surrounding residential development would generate approximately 806,000 gpd of wastewater. Future buildout of the portions of the Patterson General Plan area outside the Master Development Plan Area would generate approximately 2,514,000 gpd of wastewater, and the Diablo Grande project would generate approximately 733,000 gpd. If the City decides in the future to accept and treat Diablo Grande wastewater, the total

cumulative wastewater flows projected in the City by the year 2020, including existing flows, would be approximately 4.1 mgd. Future projected flows would exceed the plant's currently permitted capacity of 1.3 mgd. Future development, including that proposed in the Master Development Plan area, will be required to contribute their fair share of funding to assist in mitigating future wastewater system service and treatment deficiencies. The recommended infrastructure improvements for wastewater are described below.

Recommended Wastewater Infrastructure Improvements

The City is proposing to expand its wastewater collection, treatment, and disposal system to accommodate wastewater generated by development within the Master Development Plan area and adjoining residential development. The City is proposing a 2-phase, 1 million gallon per day (1 mgd) expansion of its wastewater treatment and disposal facilities to accommodate previously-approved residential development and buildout of the Master Development Plan area. In the near term, the City also proposes physical expansion of its collection system to serve two development proposals: the Patterson Gardens residential project, and the Keystone Pacific Business Park portion of the Master development Plan area. Additional expansion of the collection system will be required to serve future development within the Master Development Plan Area.

The City is also separately contemplating a plan to accommodate the wastewater generated by the Diablo Grande development in western Stanislaus County, and has entered into an agreement with the Western Hills Water District to provide for engineering and environmental analysis of the necessary facilities. The City has not decided to collect or treat Diablo Grande wastewater; the impact of expanding the City's wastewater treatment system to include Diablo Grande wastewater flows is proposed to be included in an environmental review document planned to be prepared on the City's Wastewater Master Plan. Environmental review has already been carried out for the Diablo Grande development project. In anticipation of potentially accepting Diablo Grande wastewater, the City is considering construction of the wastewater collection lines (i.e., sewer trunk lines) in Sperry Avenue and Ward Avenue at a slightly larger size to accommodate Diablo Grande flows as well as flows from the West Patterson projects. Slightly oversizing the sewer trunk line for the West Patterson projects would avoid re-trenching and laying a second pipeline in the future if the City decided to collect and treat Diablo Grande wastewater. The Western Hills Water District would fund the incremental cost of the larger trunk line. If the City chose not to provide Diablo Grande with wastewater treatment, these larger sewer trunk lines could theoretically accommodate additional development in the area west of Patterson; however, no such development is approved, contemplated, or under discussion by

the City or Stanislaus County, and the new collection lines could not serve additional development without new connecting pipelines. Therefore, the additional capacity would likely go unused.

Wastewater Collection

A new sewer collection pipeline would be constructed from the intersection of Sperry Avenue and American Eagle Drive, running east under Sperry Avenue and north under Ward Avenue to the existing 27-inch line in M Street. A new sewer trunk line would be constructed from the end of the existing 27-inch sewer line in M Street. As described in the *Western Expansion Area Sanitary Sewer Collection System* report, the new sewer trunk line would run along M Street, cross Highway 33 and the railroad tracks, and then continue down Walnut Avenue to the wastewater treatment plant. Because the City is proposing to construct the wastewater collection lines that would be common to both Diablo Grande and development on the west side of the City 3 inches larger in diameter to accommodate flows from Diablo Grande, development on the western section of this sewer trunk line would be sized at 30 inches and the eastern section would be 36 inches in diameter. Slightly oversizing the trunk line now would avoid re-trenching and laying a second pipeline in the future if the City approves collection and treatment of Diablo Grande wastewater. If Diablo Grande wastewater is not collected by the City, the large collection facilities could accommodate additional development in the Master Development Plan area.

To accommodate wastewater generated by the Keystone Pacific Business Park portion of the Master Development Plan area, the City is proposing to construct 12-inch and 21-inch sewer lines across the northern portion of the Creekside Meadows development to connect with the existing 21-inch line in the northwestern portion of Heartland Ranch (See Figure 9).

Once constructed, the M Street and Walnut Street trunk line that was previously approved as part of the Creekside Development would convey wastewater generated by the Master development Plan area from the existing 27-inch line in M Street to the wastewater treatment plant. This sewer trunk line will run along M Street, cross Highway 33 and the railroad tracks, and then continue down Walnut Avenue to the wastewater treatment plant.

Treatment Plant Expansion

Expansion of the City's existing wastewater treatment plant would include a two-phase expansion of the AIPS treatment system in the existing wastewater treatment plant facility (approximately 0.5 mgd per phase), and construction of approximately 120 acres of percolation ponds. The first phase expansion would be constructed to serve the previously-approved 1,348-residences in

the Creekside Development. The Creekside Development includes the Creekside Meadows, Walker Ranch, and Cascario projects located east of the Master Development Plan area. The City's plant currently serves 750 Creekside development residences. The first-phase expansion would serve the balance of the Creekside development, the Patterson Gardens residential project, and about 150 acres of the Keystone Pacific Business Park portion of the Master Development Plan area. The second-phase expansion is intended to serve the balance of the Keystone Pacific Business Park and future development in the remainder of the Master Development Plan area.

Existing and Recommended Wastewater Collection Improvements

Existing and recommended wastewater collection system improvements are illustrated by Figure 9 and described in detail in the Western Expansion Area Sanitary Sewer Collection System (Stoddard & Associates, November, 2000) which is incorporated by reference.

PROPOSED
WESTERN AREA
SANITARY SEWER
TRUNK SYSTEM



LEGEND

12" P	0.008	1450	1061
EXISTING/PROPOSED PIPE SIZE	PIPE SLOPE	PIPE CAPACITY, gpm	PEAK FLOW, gpm
12" P	0.007	1800	1650
21" P	0.007	1800	1650
27" E	0.007	3680	4103
15" P	0.0015	1120	927
12" P	0.002	200	256
6" P	0.003	290	113
15" P	0.0015	1120	528
18" P	0.002	2110	1912
12" E, 15" P	0.002	2030	1912
18" E	0.002	2110	1560
12" E	0.002	700	464
8" P	0.003	290	188
12" P	0.004	1000	751
12" P	0.008	1450	1061

● JUNCTION

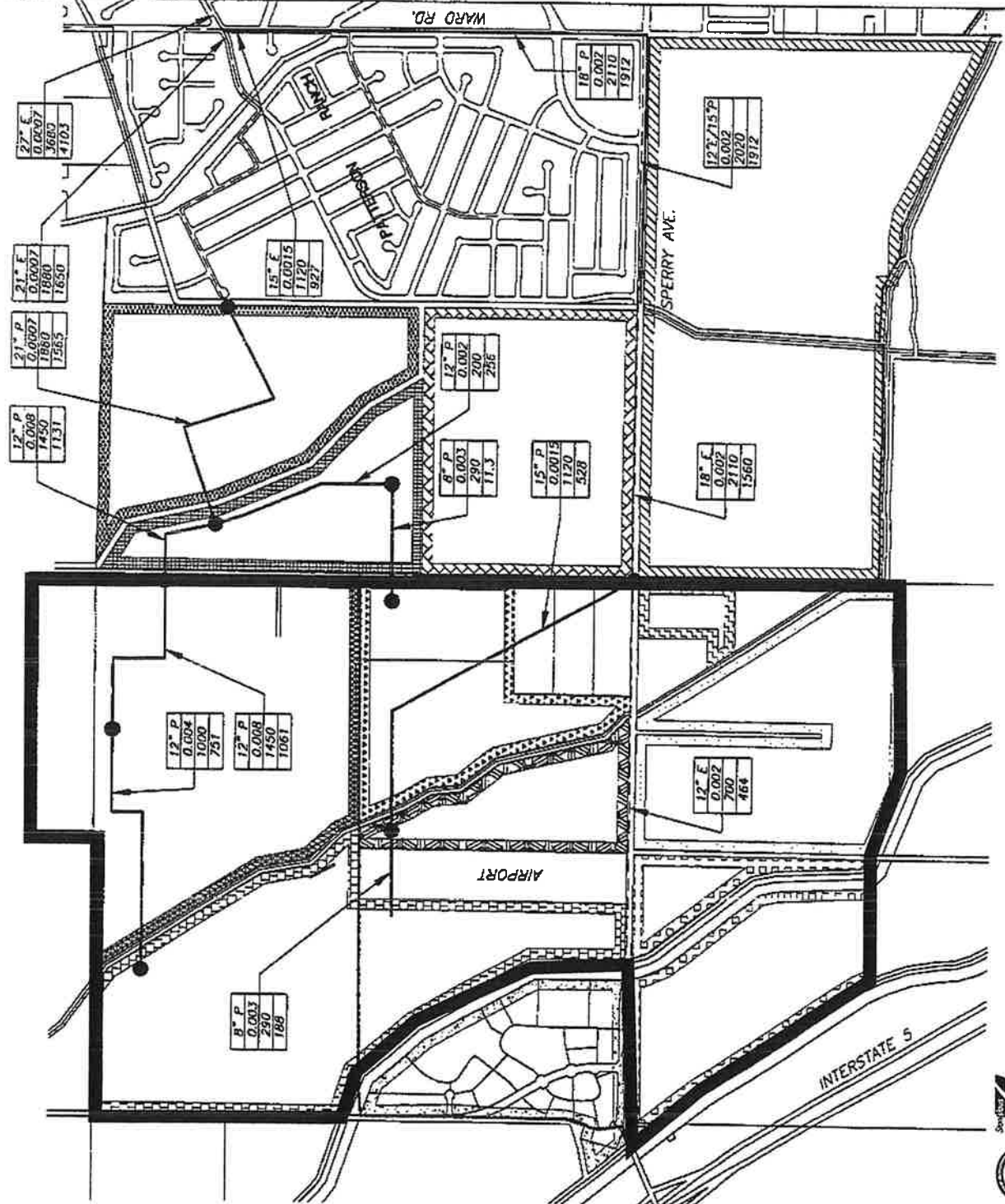
--- EXISTING PIPELINE

--- PROPOSED PIPELINE

Master Plan Boundary



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West Patterson Business Park Master Development Plan

Figure 9
Revised Wastewater Collection
Master Plan (Draft)

Drainage

Setting

Patterson is located at the intersection of three watersheds: Del Puerto Creek (about 45,500 acres), Salado Creek (about 16,000 acres) and Black Gulch (2,440 acres). Salado Creek flows through an earthen channel from the west until it reaches Highway 33 where the natural creek has been filled in and replaced with a 36-inch pipe. Both creeks originate in the mountains of the Diablo Range west of the City and generally flow easterly toward the floor of the San Joaquin Valley.

The climate in Patterson is considered semi-arid with annual rainfall of about 11 inches. The terrain within the Project Area is flat and partly developed with urban land uses. Streets, buildings and other impervious surfaces tend to increase the volume of runoff, while the level terrain tends to slow the rate at which runoff leaves the area. This combination can result in localized areas of ponding both within the Project Area and other portions of the City.

Storm water runoff originating in the Planning Area currently flows to Salado Creek and/or percolates into the ground.

Based on the Federal Emergency Management Agency's (FEMA) 1989 Flood Insurance Study for Stanislaus County (FEMA, 1989), flooding reportedly occurred in the Patterson/Newman area in 1954, 1955, 1957, 1958, 1959, 1963, 1968, 1969, 1978, 1980, 1983, and 1986. Since that report was published, flooding has occurred on Salado Creek several times in the 1990s, including 1995 and 1998 (Lambert, 2002). Based on the Flood Insurance Rate Map (FIRM), the 100-year flood zone (Zone A6)⁴ within the project area is confined within the Salado Creek channel; no other drainage or irrigation feature with the project area is associated with the 100-year floodplain (FEMA, 1989a). The rate at which water is delivered to the Salado Creek channel in the vicinity of the project area is controlled by the amount of water that passes through the overchute at the DMC. The overchute on, and the levee system upstream of, the DMC limit the peak discharge downstream of the DMC to 710 cubic feet per second (cfs) (FEMA, 1989). Salado Creek between the DMC and Sperry Avenue is capable of conveying 300 cfs (Stoddard, 2001). The disparity between the conveyance capacity of Salado Creek downstream of the DMC (300 cfs) and the conveyance capacity of the DMC overchute (710 cfs) is the reason that the FIRM shows a broad "Zone B" flood hazard area north of the DMC. Zone B is defined as "areas between limits of the 100-year and 500-year flood; or certain areas subject to 100-year flooding with an average depth less than one (1) foot or where

⁴Zone A6 is defined as "areas of 100-year-flood; based flood elevations and flood hazard factors have been determined."

the contributing drainage area is less than one square mile; or areas protected by levees from the base flood." The FIRM indicates that the creek overtops the channel banks just north of the DMC during the 100-year event, and therefore it is concluded that the Zone B designation is for "areas subject to 100-year flooding with an average depth less than one (1) foot."

It is important to note that two infrastructure projects have been completed since the FIRM was published that would be expected to reduce flood hazards at the Patterson Gardens site: 1) the Salado Creek diversion structures at the DMC, and 2) the improvement of Salado Creek conveyance capacity from Sperry Avenue to the San Joaquin River.

Salado Creek Diversion at the Delta Mendota Canal

In 1998, three 60-inch diameter concrete culverts were installed through the levee that separates Salado Creek from the DMC. The culverts allow storm water to flow from Salado Creek into the DMC during moderate to large storm events. This diversion reduces the maximum peak flow through the DMC overchute and in Salado Creek north of the DMC. Prior to the installation of the diversion structures, the overchute had a calculated conveyance capacity of 710 cfs (during the 100-year event). The anticipated conveyance through the overchute during the 100-year event with the diversion structure in-place has not been calculated, but would be expected to be substantially less than 710 cfs.

Salado Creek Flood Mitigation Project

As described in the City of Patterson, Western Expansion Area Master Storm Drainage Plan (Stoddard, 2001):

In 1998, a cooperative project between the County of Stanislaus, the City of Patterson, and Kaufmann & Broad was carried out to increase the carrying capacity of Salado Creek from Sperry Road all the way to the San Joaquin River. The improvements consisted of both channel enlargement and embankment construction with the majority of the work being construction of a 96-inch cast-in-place pipeline from a point just east of the Union Pacific Railroad all the way to the San Joaquin River. The design capacity of the facility between Sperry Road and the San Joaquin River is 500 cfs.

This downstream conveyance improvement would be expected to substantially reduce backwater flooding at the site.

In summary, portions of the Master Development Plan area are susceptible to storm-related flooding, but not dam failure inundation or coastal flooding. Based on the FIRM, the 100-year flood hazard zone (Zone A) for Salado Creek through the Patterson

Gardens site is contained within the channel banks. A substantial portion of the site is subject to flooding (with inundation depths less than one foot) during the 100-year storm events (Zone B). It is likely that since storm drainage infrastructure improvements have been completed since the FIRM was published that the FIRM overstates the flood hazard at the project area.

The final development plan for the Patterson Gardens residential project includes improvements to the Salado Creek channel through that site. The plan, if implemented, would reshape the channel form to increase the conveyance capacity from an estimated 300 cubic feet per second (cfs) to 500 cfs. It would not be beneficial to the region-wide drainage conditions to increase the channel capacity beyond 500 cfs since the downstream components are not designed to convey more than 500 cfs (Stoddard, 2001). In addition, the plan includes bank reshaping measures and the establishment of a 20-foot setback (including a 7.5-foot oak savanna buffer). However, even with the proposed channel conveyance improvements, it has not been demonstrated that all 100-year flows would be contained within the channel banks, and therefore flooding of residential development proposed in the vicinity of Salado Creek could occur during moderate to severe flood events.

To address potential flooding problems, all new construction and substantial improvement of any structure in Zone B (no construction is proposed in Zone A) shall have the lowest floor elevation, including basement, elevated above the highest adjacent grade at least two feet (as measured from the flow line of the gutter). This is consistent with General Plan policy VII.B.2 which states that all new residential development shall be constructed so that the lowest floor elevation is at least 12 inches above the 100-year flood, since the maximum inundation depth within Zone B at the site is one foot.

The 2001 *Master Storm Drainage Plan, City of Patterson, Western Expansion Area* (Master Drainage Plan) was prepared to guide storm drain infrastructure improvements required to adequately serve the anticipated growth in the vicinity of the project area. The Master Drainage Plan specified *Detention and Discharge to Salado Creek* as the preferred alternative to address the drainage challenges of the West Patterson area. Specifically, the Master Drainage Plan states that (page 15):

Storm water would be collected through a series of pipelines and discharged into one of many detention basins so that the flow could be attenuated and discharged to the creek. The discharge would be interrupted when insufficient capacity was available in the creek for conveyance some time later to avoid contributing to creek flooding downstream. Detention basins would be evacuated by gravity discharge with the

basins connected in series to a pipeline which discharges to Salado Creek, with the exception of the basins near the creek which would be evacuated by use of pumping stations. Flow into the pipeline would both be 'metered' through an orifice, and regulated by a control gate. The rate of metering would be such that the entire contents of the basin could be evacuated within 48 hours. The basins would be designed to contain runoff from the 100-year 24-hour storm event. Detention basins would be configured to serve also as parks in a dual purpose function.

Existing and Planned Drainage Improvements

In 1992, the City prepared a Storm Water Master Development Plan that identifies the drainage improvements necessary to accommodate buildout of the City in accordance with the Patterson General Plan. The Master Plan recommends a combination of open channels and underground drainage pipes to mitigate the drainage impacts associated with buildout of the City.

The Storm Water Master Plan was modified with the approval of the Creekside Annexation and subsequent development agreement between the City and the developer of Patterson Ranch, the largest sub-area of the Creekside. The developer has agreed to pay \$2.5 million in up-front costs for storm drainage improvements that will serve their project and provide additional capacity to serve other areas of the City. This initial investment will be repaid over time by new development through the collection of impact fees. The money will be used to help alleviate the existing flooding problem east of Highway 33 through the installation of an expanded culvert and pipe between Ward Avenue and First Street, and through the construction of an open drainage channel between First Street and the San Joaquin River. The improvements described in the Storm Water Master Plan, as modified by the Patterson Ranch development agreement, are intended to mitigate potential drainage impacts associated with buildout of the City in accordance with the General Plan.

More recently, the Storm Water Master Plan was amended to identify drainage infrastructure necessary to accommodate buildout of the West Patterson area as envisioned by this Master Development Plan. The recommended improvements are illustrated by Figure 11. The revised Storm Water Master Plan is incorporated by reference into this Master Development Plan.

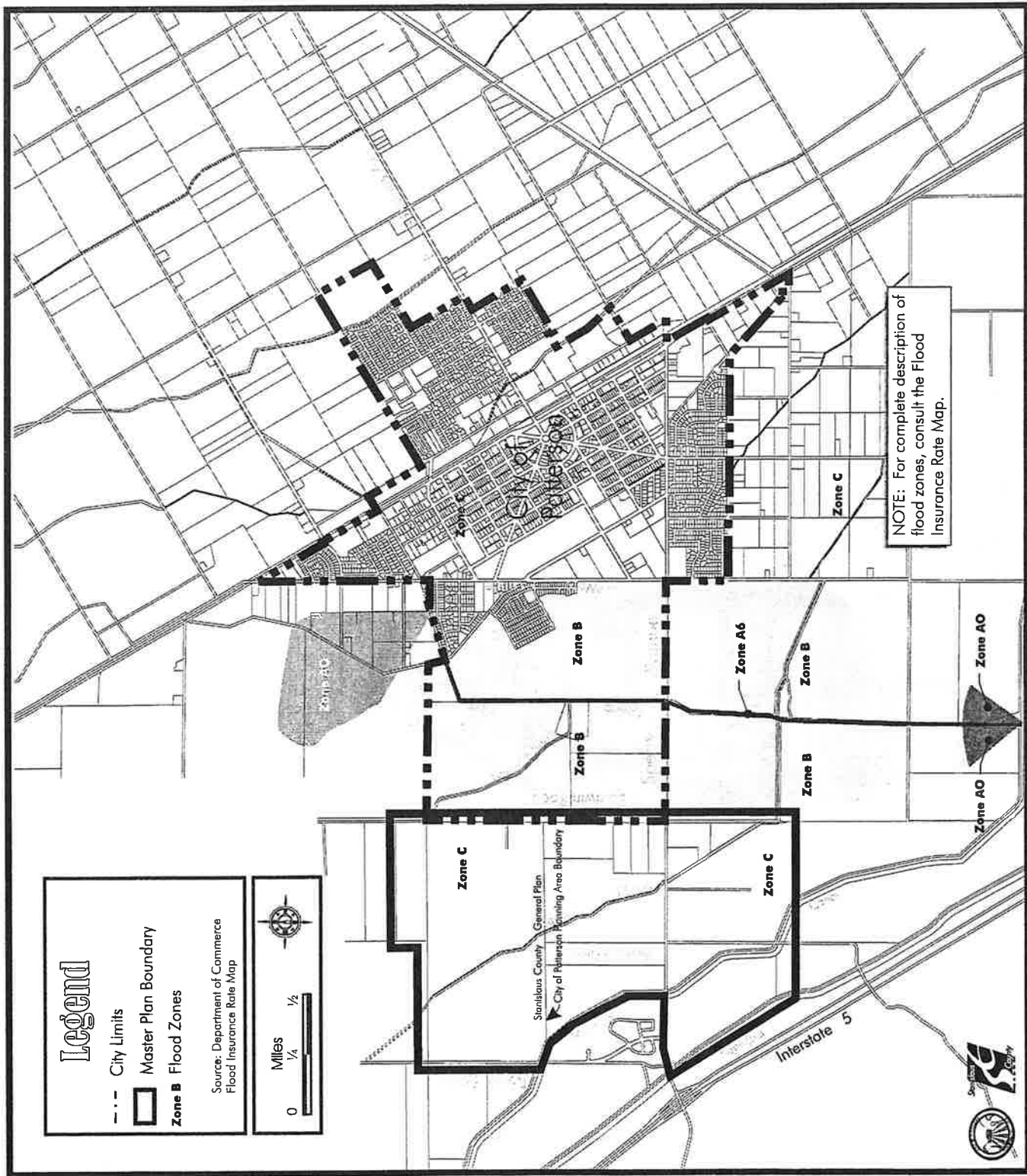
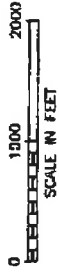


Figure 10
Areas Prone to Flooding

West Patterson Business Park Master Development Plan

WESTERN EXPANSION AREA

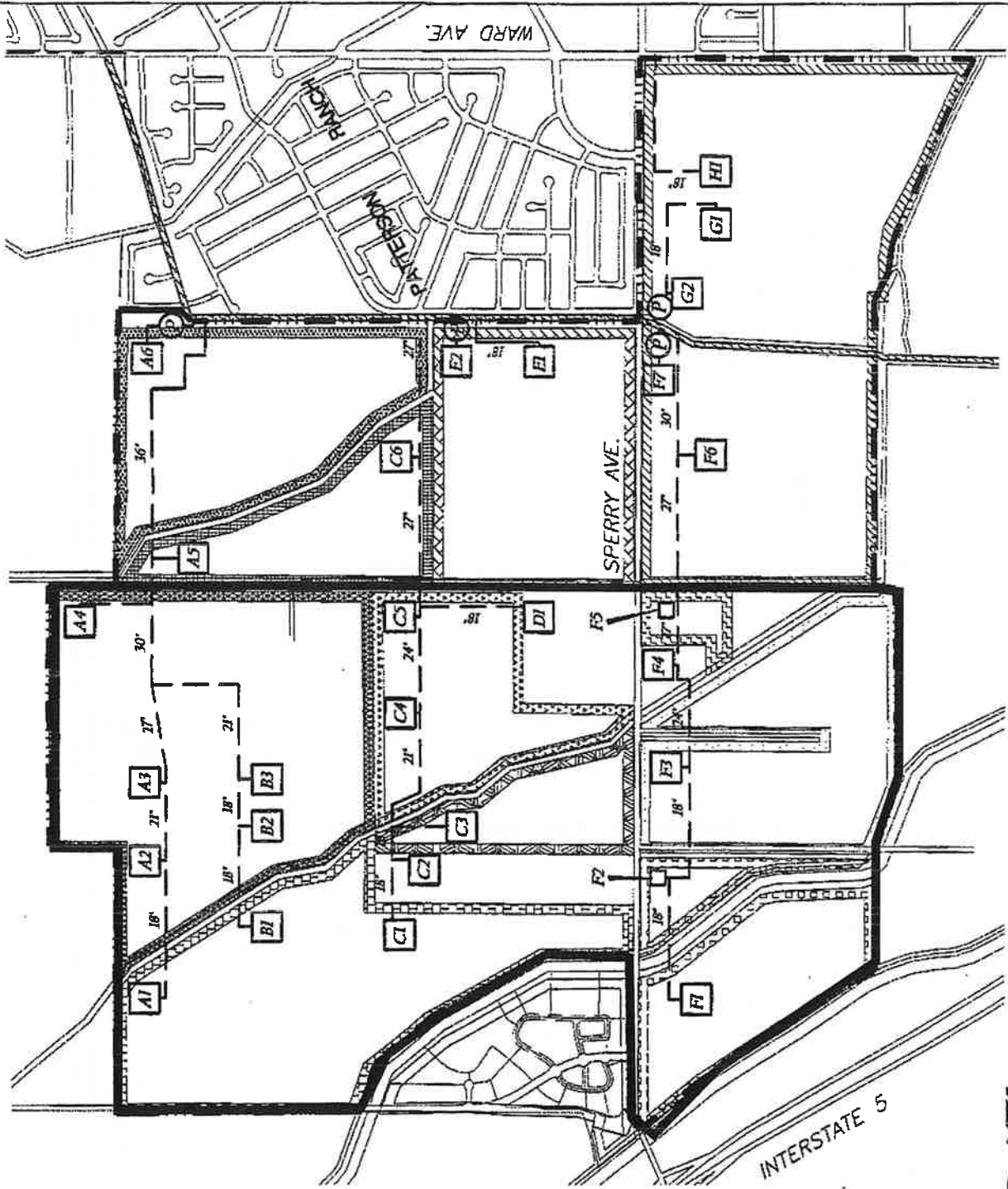
**PROJECT AREA
PROPOSED
DRAINAGE WATER
DISPOSAL SYSTEM**



LEGEND

- E2 DETENTION BASIN GENERAL LOCATION
- DISPOSAL PIPELINE
- ||||| SALADO CREEK
- P PUMP STATION
- Master Plan Boundary

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West Patterson Business Park Master Development Plan

Figure 11
Revised Storm Water Collection
Master Plan (Draft)

Circulation

Setting

Existing Circulation System

Figure 12 shows the existing circulation system serving the Planning Area. The following street classifications apply to the streets and roadways serving the Planning Area:

Arterials. Arterials are moderate-speed through streets with an Average Daily Traffic (ADT) of about 10,000 vehicles per day. Arterials usually have four to six travel lanes and left turn pockets or lanes. Examples of arterials within the City include Las Palmas Avenue, Second Street (State Route 33) and Sperry Avenue.

Collector. Collectors are intended to transfer traffic from collector and local streets to an arterial. Average daily traffic on a collector is usually less than 10,000 trips per day. Baldwin Road, Ward Avenue and Rogers Road are examples of collector streets serving the Planning Area.

Local Streets. Local streets serve individual residences. Average daily traffic is usually less than 1,000 vehicles per day. Local streets are typically two-lanes with a right-of-way of between 46 to 60 feet. The Planning Area is largely undeveloped and absent of local streets as defined by the Circulation Element.

For regional travel, the City of Patterson relies primarily on Interstate Highway 5 (I-5), a major north-south freeway to west of the current city limits. I-5 connects to I-580 approximately 15 miles to the north. Together, I-5 and I-580 provide access to regional employment centers in Pleasanton, San Ramon and the rest of the San Francisco Bay Area.

Interstate 5 is a four-lane freeway near Patterson. Traffic from Patterson is expected to use the interchange at Sperry Avenue. As published in the 2000 Caltrans Volume report, the ADT on I-5 was 24,400 vehicles per day (vpd) to the north of Sperry Avenue, an increase of approximately 10 percent compared to the 1990 volume of approximately 23,500 vpd. South of Sperry Avenue, the reported ADT on I-5 was approximately 25,500 vpd, compared to 22,500 vpd in 1990, an increase of approximately 13 percent, or approximately one percent per year.

The I-5/Sperry Avenue interchange is configured as a tight diamond with a narrow local road underpass and a steep drop in grade next to the northbound on-ramp. The ramps are one lane in each direction.

State Route 33 (SR 33), approximately three miles east of I-5, is a north-south, two-lane state highway that provides access to Westley to the north and Crows Landing to the south. Four lanes are provided on SR 33 in the vicinity of Las Palmas Avenue near downtown Patterson. The ADT on SR 33 in the vicinity of Patterson is approximately 3,000 to 4,700 vpd.

In the Master Development Plan area, Sperry Avenue serves east-west traffic while Baldwin Road serves north-south traffic.

Sperry Avenue is a two-lane major arterial that provides the main access between downtown Patterson, the Master Development Plan area, and I-5. In the vicinity of I-5 east of Rogers Road, the existing ADT on Sperry Avenue is approximately 5,880 vpd. Traffic volumes have more than doubled since 1990, when the ADT was approximately 2,800 vpd, with an average growth rate of nearly 10 percent per year over the last 10 years.

Baldwin Road is a two-lane north-south collector street between Sperry Avenue and SR 33. It is the eastern boundary of the proposed West Patterson Business Park Master Development Plan site.

Ward Avenue is a two-lane north-south collector street east of and paralleling Baldwin Road. It connects to SR 33 on the north and to I-5 near Fink Road south of the City of Patterson. Ward Avenue forms the eastern boundary of the Patterson Gardens site. A Class I bicycle path parallels Ward Avenue on the west side between Sperry Avenue and the Sports Complex to the south.

Las Palmas Avenue, east of the West Patterson project area, is a wide, two-lane major east-west arterial lined with mature palm trees. East of Sycamore Avenue it has center two-way left-turn lanes; west of Sycamore it narrows to a two-lane road. West of SR 33 and the railroad tracks, in downtown Patterson, a roundabout is formed on Las Palmas Avenue by its intersection with three other major streets: Third Street, Salado Avenue, and Del Puerto Avenue. Traffic destined for Modesto currently uses either Las Palmas Avenue or I-5 and State Route 132. East Las Palmas Avenue (which begins east of SR 33) currently carries approximately 11,700 vpd on the segment east of downtown Patterson.

Rogers Road is a two-lane north-south road on the western boundary of the West Patterson project area. The road connects Sperry Avenue to SR 33 several miles north of the project area. A count taken in 2001 showed an ADT of approximately 260 vpd.

Table 7 provides a summary of existing traffic volumes and Level of Service (where LOS "A" denotes free flow conditions and LOS "F" refers to jammed conditions with intolerable traffic delays) at selected intersections where traffic counts were taken in 2002.

Table 7
Level of Service of Selected Intersections
Source: TJKM, 2002

Intersection	Existing Intersection Control	AM		PM	
		Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	Unsignalized	10.0	A	13.5	B
2. Sperry Ave/I-5 NB On-Ramps	Unsignalized	8.8	A	11.4	B
3. Sperry Ave/Rogers Road	Signalized	6.0	A	8.4	A
4. Sperry Ave/Baldwin Rd	Unsignalized	10.1	B	11.4	B
5. Sperry Ave/American Eagle Dr	Signalized	4.5	A	3.6	A
6. Sperry Ave/Las Palmas Ave	Unsignalized	9.1	A	9.2	A
7. Sperry Ave/Ward Ave	Signalized	5.0	A	5.1	A
8. Sperry Ave/S Del Puerto Ave	Signalized	4.4	A	5.4	A
9. Sperry Ave/SR-33	Unsignalized	8.7	A	10.6	B
10 First St/Orange Ave	Unsignalized	8.9	A	9.5	A
11. SR-33/Las Palmas Ave	Signalized	10.5	B	18.4	B
12. Ward Ave/ Salado Ave	Unsignalized	13.9	B	12.1	B
13. Ward Ave/SR-33	Unsignalized	11.4	B	0.8	A
14. Zacharias Rd/SR-33	Unsignalized	10.0	A	11.1	B
15. Baldwin Rd/SR-33	Unsignalized	10.4	B	0.3	A
16. Rogers Rd/SR-33	Unsignalized	11.0	B	12.3	B
17. Sycamore Ave/Orange Ave	Unsignalized	9.6	A	9.9	A
18. Sycamore Ave/E. Las Palmas	Unsignalized	17.2	C	15.4	C
19. E.Las Palmas/ Poplar Ave	Unsignalized	12.4	B	13.8	B
20. West Main/Carpenter Rd	Unsignalized	9.5	A	18.3	C
21. West Main/Crows Landing Rd	Unsignalized	11.6	B	14.8	B

Notes:

LOS = Level of Service

Delay =Average stopped delay at signalized intersections and average delay for all movements at STOP-controlled intersections, in seconds per vehicle

Bicycle Circulation

Policies of the General Plan encourage the development of a system of bike paths as an alternate form of transportation to the automobile. Class II bike paths (a striped bike lane within the street right-of-way) have been provided along arterials such as Sperry Avenue. There is a Class II (signed and striped) bicycle route on Sperry Avenue between SR 33 and 9th Avenue on the north (westbound) side; on the south (eastbound) side the bicycle route operates as a Class III route because it is not striped and is poorly signed.

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Transit Service

Public transit service in Patterson is provided by Westside Dial-A-Ride. No fixed route service currently serves the project area or is expected in the foreseeable future. However, Westside Dial-A-Ride will offer service to the area on a call-in basis.

Future Levels of Service

A comprehensive traffic study prepared in 2002 by TJKM Traffic Consultants analyzed potential long-term traffic impacts from development of the Master Development Plan area together with additional residential, commercial and public/quasi-public land uses in the project vicinity. The traffic study is incorporated in its entirety and is available for review at the City Planning Department, 33 S. Del Puerto. Figure 12 illustrates average daily traffic volumes on City streets as summarized by the TJKM traffic study for 2002; Figure 13 shows future traffic conditions at buildout of the Master Development Plan area and cumulative traffic generated by continued development in accordance with the City's General Plan and distributed on a recommended backbone circulation system. The study concludes that all of the streets and intersections will operate at Level of Service "C" or better so long as the roadway and intersection improvements recommended by the traffic study and General Plan are implemented concurrently or in advance of new development. The recommended improvements are listed in Appendix B.

It should be noted that the study also concludes that the southbound PM peak hour traffic on Interstate 5 would operate at LOS "F" in 2025 at buildout of the Master Development Plan area and the cumulative growth in traffic from other development. The cumulative long-term impacts to I-5 are considered unmitigable.

The I-5/Sperry Avenue Interchange

Another important constraint to development of the planning area is the capacity of the Sperry Avenue/I-5 interchange. Interstate 5 is one of the four main north-south highways in California and accommodates regional commuter traffic within Stanislaus County and beyond. For the planning area to become a viable industrial and business center, it is essential that the I-5 interchange be capable of accommodating the volume and size of vehicles associated with such development.

In 2002 Caltrans is completing a Project Study Report of the interchange to determine the level of improvements necessary to accommodate future development in the Patterson area. The Draft Project Study Report examined three potential solutions to the interchange that would accommodate the expected future traffic. Two of the alternatives, described below, have been determined to warrant future study.

Alternative 1: Roundabout Intersection At Ramp Termini

This alternative proposes to construct a 2-lane roundabout at the ramp intersections. The proposed roundabout at the southbound ramp intersection would be designed to provide a 65 meter inscribed circle diameter with two travel lanes. The southbound ramp would be widened from 1 lane to 2 lanes with standard shoulders. This alternative would also widen the Sperry Avenue undercrossing from 2 lanes to 3 lanes and Sperry Avenue east of the interchange from 2 to 4 lanes. This alternative would not require the replacement of the existing undercrossing structures on I-5 because there is adequate width to accommodate the required additional lanes.

A preliminary cost estimate of this alternative is \$7.4 million (in 2002 dollars).

Alternative 3: Double Left Turn

Under this alternative double left run lanes would be constructed at the southbound offramp, along with two additional travel lanes for the Sperry Avenue undercrossing. This alternative would require construction of a retaining wall to cut back the embankment behind the bridge columns to accommodate a sidewalk. This alternative would require the acquisition of additional right of way to accommodate the widening of Sperry Avenue, the ramps and Del Puerto Canyon Road which leads to the west to the Diablo Grande project.

A preliminary cost of this alternative is \$6.1 million.

Planned Roadway Improvements

The Circulation Element of the General Plan recommends a number improvements to maintain the desired level of service on the City's road segments and intersections through buildout of the General Plan. These improvements are intended to be funded through the collection of traffic impact fees from new development and from other sources and include the following:

Table 8
Roadway Improvements Recommended
By the General Plan

Source: Patterson General Plan, 1992

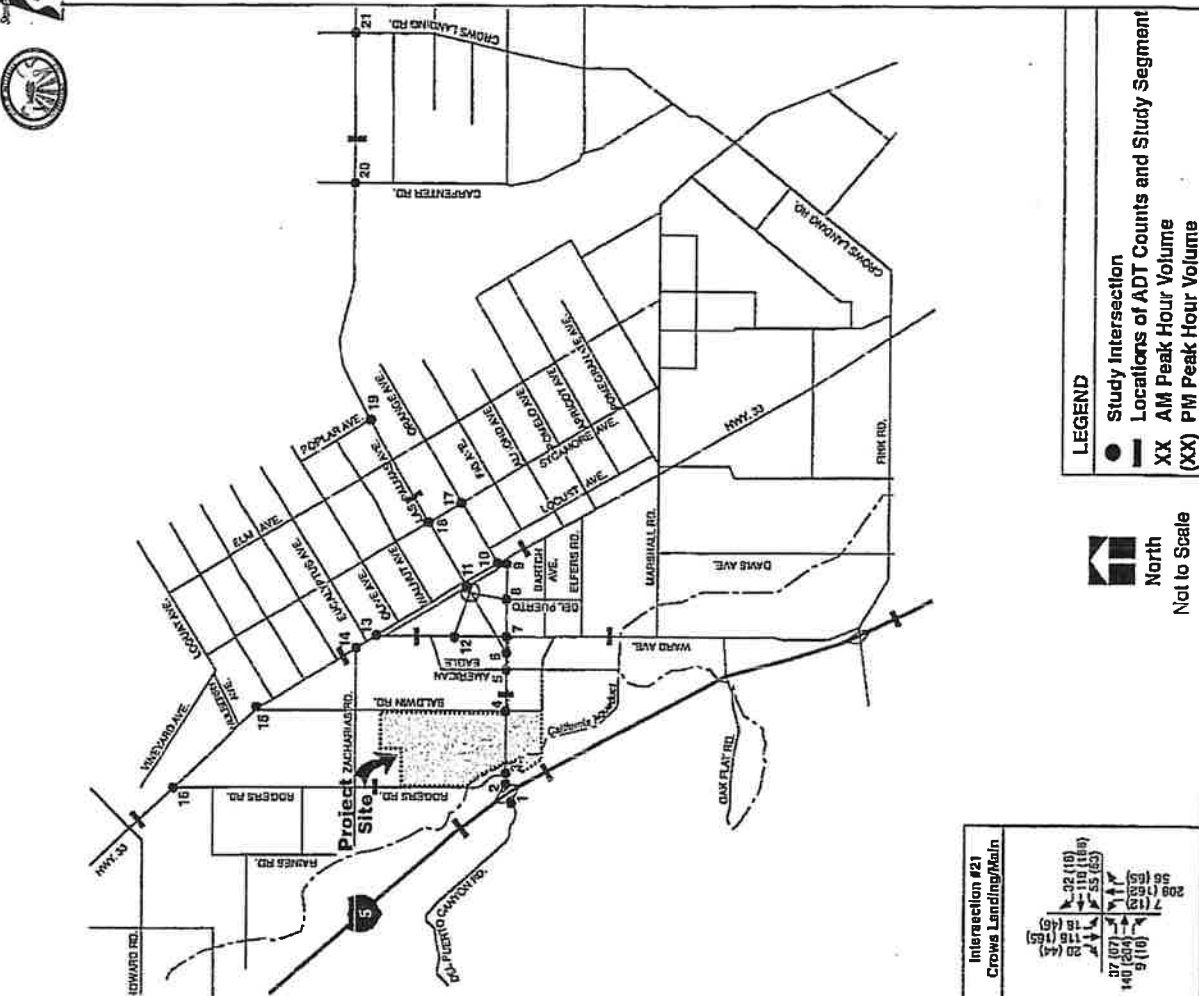
Roadway	Segment	Improvements
East Las Palmas	HWY 33 to Southern Bypass Road	Widen to four lanes.
East Las Palmas	East of Southern Bypass	Widen to six lanes.
M Street	First Street to Ward Avenue	Widen to four lanes.
Rogers Road	North of Sperry Avenue	Widen to four lanes.
Second Street (HWY 33)	M Street to Southern Bypass	Widen to four lanes.
Sperry Avenue	Second Street to Southern Bypass, Second Street to Locust Avenue	Widen to four lanes.
Sperry Avenue	Southern Bypass to I-5	Widen to six lanes.
Ward Avenue	Ivy Avenue to 9 th Street, Sperry Avenue to West Las Palmas	Widen to four lanes.
Ward Avenue	M Street to Sperry Avenue	Widen to four lanes with center turn lane.

It should be noted that the Circulation Element recommended a "southern bypass" connecting the Sperry Avenue/I-5 interchange with Highway 33 and east to Las Palmas Road. This roadway connection is no longer being pursued by the City and County.

Table 9
Signalization Improvements
Recommended
By the General Plan
Source: Patterson General Plan, 1992

Intersection
East Las Palmas/Second Street
East Las Palmas/First Street
East Las Palmas/Hartley Street
Sperry Avenue/Second Street
Sperry Avenue/Del Puerto Avenue
Sperry Avenue/Ward Avenue
Sperry Avenue/W. Las Palmas Avenue
Sperry Avenue/Southern Bypass
Sperry Avenue/Baldwin Road
Sperry Avenue/Roger Road
Sperry Avenue/I-5 interchange
W. Las Palmas Avenue/Ward Avenue
Ward Avenue/9th Street
Ward Avenue/M Street

In addition to the improvements recommended by the General Plan, the traffic study prepared by TJKM recommends a number of roadway and intersection improvements to mitigate traffic impacts associated with development of the Master Development Plan area along with continued development of the City in accordance with the General Plan. The recommended improvements are listed in their entirety in Appendix B.



Intersection #1 Sperry/H-5 SB Off-Ramps	Intersection #2 Sperry/H-5 NB On-Ramps	Intersection #3 Sperry/Rogers	Intersection #4 Sperry/Baldwin
Intersection #5 Sperry/American Eagle	Intersection #6 Sperry/Las Palmas	Intersection #7 Sperry/Ward	Intersection #8 Sperry/S. Del Puerto
Intersection #9 Sperry/SR 33	Intersection #10 Frisco/Orange	Intersection #11 SR 33/Las Palmas	Intersection #12 Ward/Salado
Intersection #13 Ward/SR 33	Intersection #14 Zachary/SR 33	Intersection #15 Baldwin/SR 33	Intersection #16 Rogers/SR 33
Intersection #17 Sycamore/Orange	Intersection #18 Sycamore/E. Las Palmas	Intersection #19 E. Las Palmas/West Main/ Poplar	Intersection #20 West Main/Carpenter

- LEGEND**
- Study Intersection
 - Locations of ADT Counts and Study Segment
 - XX AM Peak Hour Volume
 - (XX) PM Peak Hour Volume

North
Not to Scale

West Patterson Business Park Water Development Plan

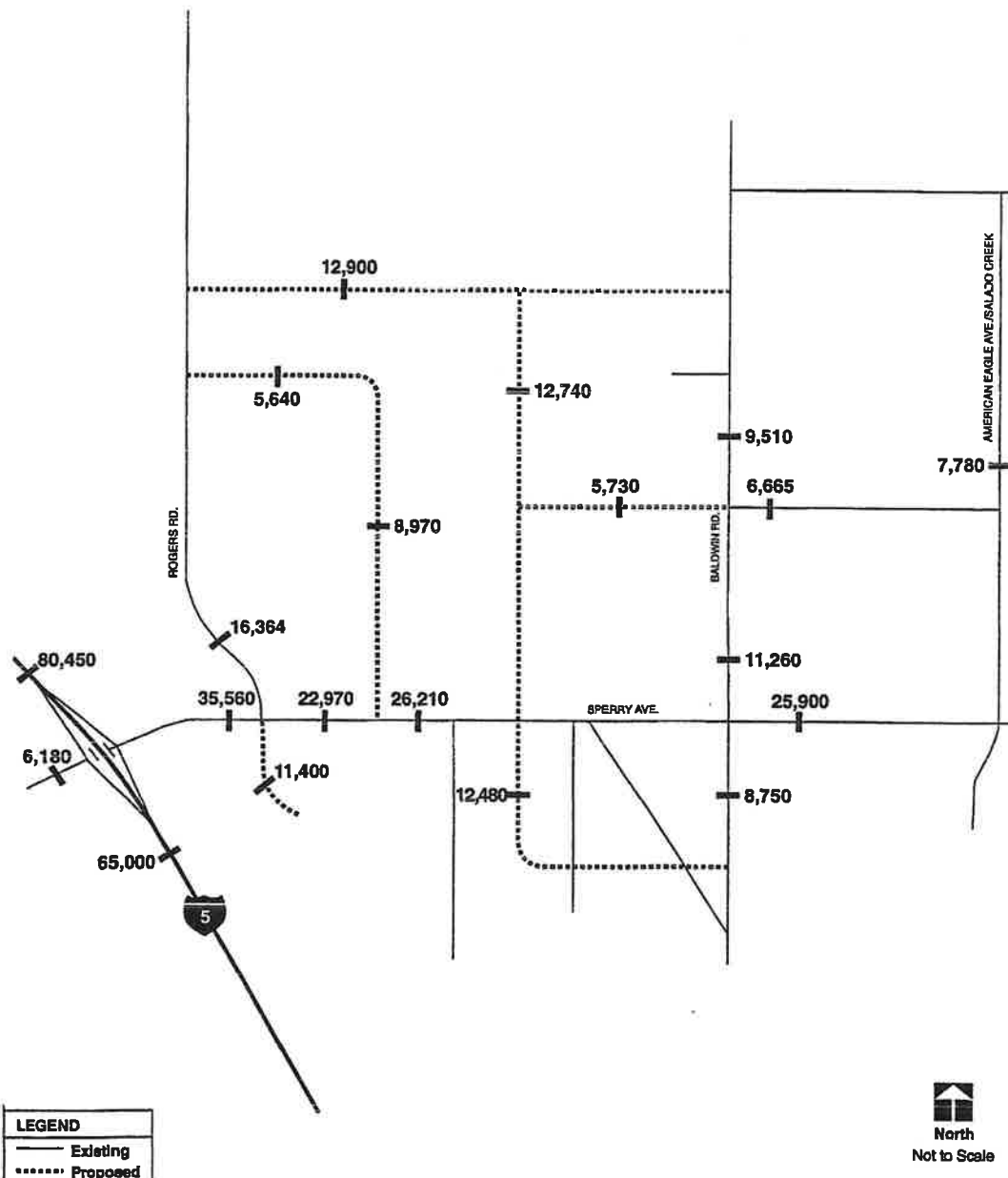
Figure 12
Roads Serving the Project Site
& Existing (2002) ADT

Recommended Circulation Plan

The recommended circulation system for the planning area is illustrated in Figure 13. Future intersection operations and mitigated lane geometries are described in detail in the circulation analysis prepared by TJKM incorporated by reference.

Infrastructure Phasing

Implementation of the improvements recommended by the master plans for water, wastewater, and storm drainage will occur over time concurrently or in advance of the demand anticipated from new development. Table 10 provides a tentative schedule for design and construction based on the amount and type of development anticipated in the West Patterson Business Park Master Development Plan area and surrounding areas within the City.



West Patterson Master Development Plan

Figure 13
Year 2025 ADT
With Proposed Road System

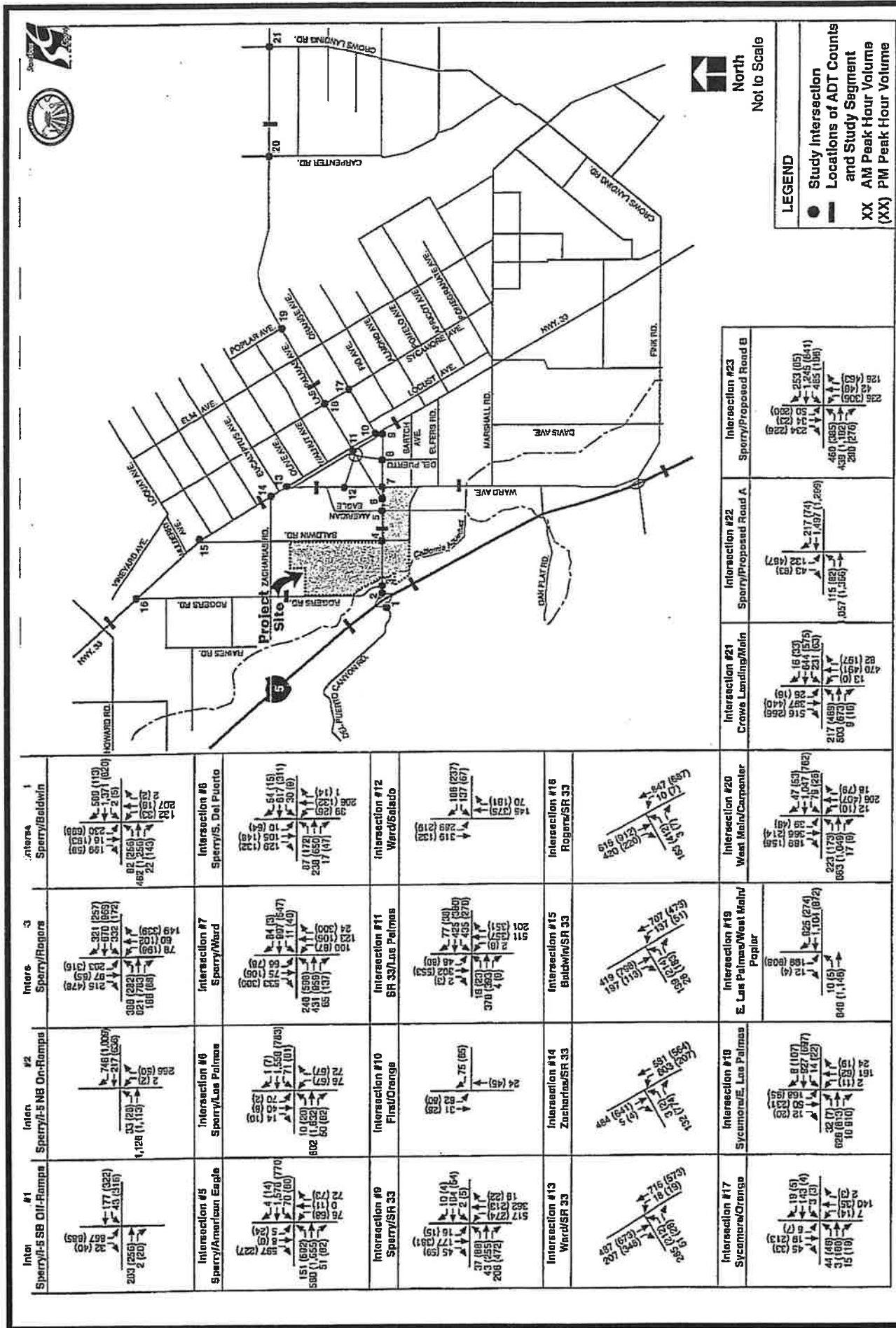


Figure 14
Future (2025) Traffic Volumes
At Selected Intersections

V. Implementation

Introduction

The Master Development Plan is intended to govern land use and development within the West Patterson area under the jurisdiction of both the City of Patterson and Stanislaus County. For the foreseeable future, the planning area is expected to develop within the unincorporated county and served by City water, sewer, drainage and other public facilities and services. However, the development review process outlined below describes the roles of both jurisdictions in exercising discretionary approval over new development.

Consistency With Applicable Plans and Policies

California law requires that area plans, such as the West Patterson Business Park Master Development Plan, be consistent with the applicable general plan for the area. The goals and land uses described in the Master Development Plan were formulated to implement the goals, policies and programs of the City of Patterson general plan and the general plan of Stanislaus County. The Master Development Plan is intended to supplement the goals and policies of each general plan by providing more specific land use and development standards applicable to the West Patterson area. Once adopted, a notation should be placed on the Land Use Element maps for both the City and the County alerting property owners and designers of the requirements of the Master Development Plan.

Implementation Process

The process of implementing or carrying out the goals and recommendations of the Master Development Plan will require completion of a series of steps. The implementation process will begin with the formal adoption of the Plan by the City and the County. Following adoption, the Plan will be carried out through the review and approval of subdivisions and development projects in accordance with the standards and land uses contained in the Plan, and the establishment of new public services, facilities and infrastructure as recommended by the updated infrastructure Master Plans.

Implementation will also require certain amendments to the City of Patterson and Stanislaus County zoning ordinances to incorporate the standards described in Appendix A.

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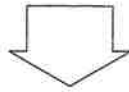
Lastly, the Master Development Plan and updated infrastructure master plans are considered a “project” as defined by the California Environmental Quality Act (CEQA). For this reason, the Plan will require environmental review to determine the extent of potential adverse environmental impacts may occur through its adoption and implementation.

The overall steps leading to adoption are summarized on the following flow chart.

Master Development Plan Implementation Flow Chart

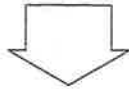
City of Patterson certifies final environmental impact report and adopts Master Development Plan, updated infrastructure master plans for water, wastewater, drainage and circulation, adopts general plan amendment, zoning text amendment and sphere of influence amendment.

Zoning text amendment to add West Patterson Industrial Zones; GPA to change Medical Office/Professional and Highway Service Commercial to Light Industrial. Concurrently, City establishes Mello-Roos district under joint powers agreement with Stanislaus County.

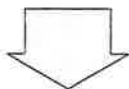


Local Agency Formation Commission considers amendment of City sphere of influence to include Keystone and Cozzens properties.

Zoning text and map amendments to add West Patterson Industrial Zones and apply zones to planning area; GPA to change Cozzens and Keystone properties from Agriculture to Light Industrial.



Stanislaus County adopts Master Development Plan, general plan amendment, zoning text and map amendments.



Development plan and subdivision approvals processed through Stanislaus County (see Development Review Process). Infrastructure improvements financed in part by Mello-Roos district participants.



Development Review Process

The development review process envisioned for the planning area closely matches the process currently in place for Vista del Lago, which is an area within the City's planning area being developed in the unincorporated County. Under this scheme, development review is provided by the City but the actual issuance of building permits is provided by the County. The City also acts as lead agency for CEQA purposes. Once City advisory approvals are obtained, the materials (conditions, etc.) are passed along to the County who provides notice of the impending approval and provides an opportunity for an appeal to the County Planning Commission. If no appeal is filed, the County issues a building permit. The goal of the two-tiered review process (City and County) is to provide opportunities for public participation under both jurisdictions while minimizing the necessary steps.

Amendments to the Plan

An amendment to the Master Development Plan will be treated the same as a general plan amendment, except that the Master Development Plan can be amended more than four times per calendar year. An application for an amendment would be submitted to the City Planning Department and processed through the City and then the County in a fashion similar to the original plan adoption. The request would also be subject to review in accordance with the California Environmental Quality Act and would be considered at public hearings before the City and the County.

Funding

The City and County intend to help fund the infrastructure improvements necessary to serve the Master Development Plan area by establishing a Mello-Roos facilities district in accordance with the *Mello-Roos Community Facilities Act* of 1982. The Act permits the formation of community facilities districts (CFD) for the funding of public infrastructure improvements such as sewers, storm drains, water systems, roads and similar improvements, as well as to finance other improvements of general benefit such as corporation yards, civic buildings, parks, and public safety facilities. A CFD is a geographically designated area within which a special tax is levied to pay for the facilities authorized to be funded in the CFD formation process, either by paying the costs of the facilities directly or by paying debt service on bonds issued to finance the facilities.

A CFD is formed by the governing board of the public agencies with jurisdiction over the land to be included within the boundaries of the proposed CFD (in this case the City and County). As shown on Figure 4, the proposed CFD boundaries include land within the

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City and as well as land within the unincorporated County. In this case a joint exercise of power authority between the two agencies (JPA) is being pursued. Under state law, a JPA is a separate legal entity from the public agencies involved, but both agree to contribute funds or staffing or both.

The specific details of how the CFD will be implemented is described in the financing plan which is incorporated herein by reference.

Once formed, individual developers will be responsible for implementing their fair share of improvements necessary to serve their project through participation in the CFD and through direct construction or direct payment for infrastructure improvements. Development impact fees applied by the County and the City would continue to be collected by the respective agency to defray the cost of other public facilities, such as police and fire protection facilities, school facilities and parks, that are not covered by the CFD.

Mitigation for the Loss of Foraging Habitat for Endangered Species

The planning area has the potential to provide foraging and denning habitat for at least one federally endangered species, the San Joaquin kit fox. Since the kit fox is a federally endangered species, activities that have the potential to degrade or otherwise limit its habitat base are subject to the provisions of Section 10 of the Endangered Species Act.

The US Fish and Wildlife Service have prepared a draft recovery plan for the kit fox which identifies two levels of recovery strategies for the kit fox in the San Joaquin Valley. The Level A strategy is aimed at establishing a viable complex of kit fox populations on private and public lands throughout its geographic range, while concentrating on the three largest extant populations currently residing in the Carrizo Plain Natural Area of San Luis Obispo County, the natural lands of western Kern County and the Ciervo-Pinoche Natural Area of western Fresno and San Benito Counties. The main strategy is to connect larger blocks of isolated natural land to these core populations through land acquisitions and habitat restoration. Level B strategies involve expansion of the ongoing efforts to gain a better understanding of the distribution and status of its current and historical range, and the nature and extent of the use of agricultural lands by kit foxes.

Accordingly, the Draft Recovery Plan provides two lists of recovery actions to be undertaken concurrently. One relates to habitat protection and population interchange, and the other to population ecology and management. Within these two broad categories are a number of recommend actions and/or study tasks to be undertaken aimed at protecting larger tracts of kit fox habitat, and at gaining a better understanding of kit fox biology and behavior.

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One strategy that has been undertaken in western Stanislaus County when kit fox habitat is lost through urbanization is the permanent protection of an equal or greater amount of habitat through the acquisition of conservation easements on suitable habitat elsewhere. The precise ratio of habitat preserved to habitat lost is based on a number of factors such as the quality of the habitat lost and its importance in the overall strategy for maintaining a viable breeding population of the species in question.

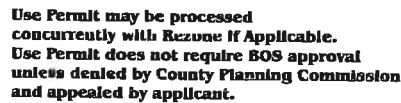
Field surveys conducted in the fall of 2001 and spring of 2002 found no specific evidence of kit fox within the Master Development Plan area and adjoining properties. The *Recovery Plan for Upland Species of the San Joaquin Valley* (US Fish and Wildlife Service, 1998) recommends protecting linkages between higher quality habitats north and south of the Patterson area. In the Patterson area these higher quality habitat linkages lie in the foothills west of Interstate 5. Nonetheless, future development within the Master Development Plan area would result in the permanent loss of potential habitat for this federally protected species. As a result, all new development will be required to compensate for this loss through one of the following actions:

- Fee title purchase of a permanent conservation easement for higher quality kit fox habitat west of Interstate 5 at a ratio of 2 acres preserved for each acre developed;
- Payment of an in-lieu fee of \$2,000.00 per developed acre for the purpose of purchasing suitable habitat elsewhere; or

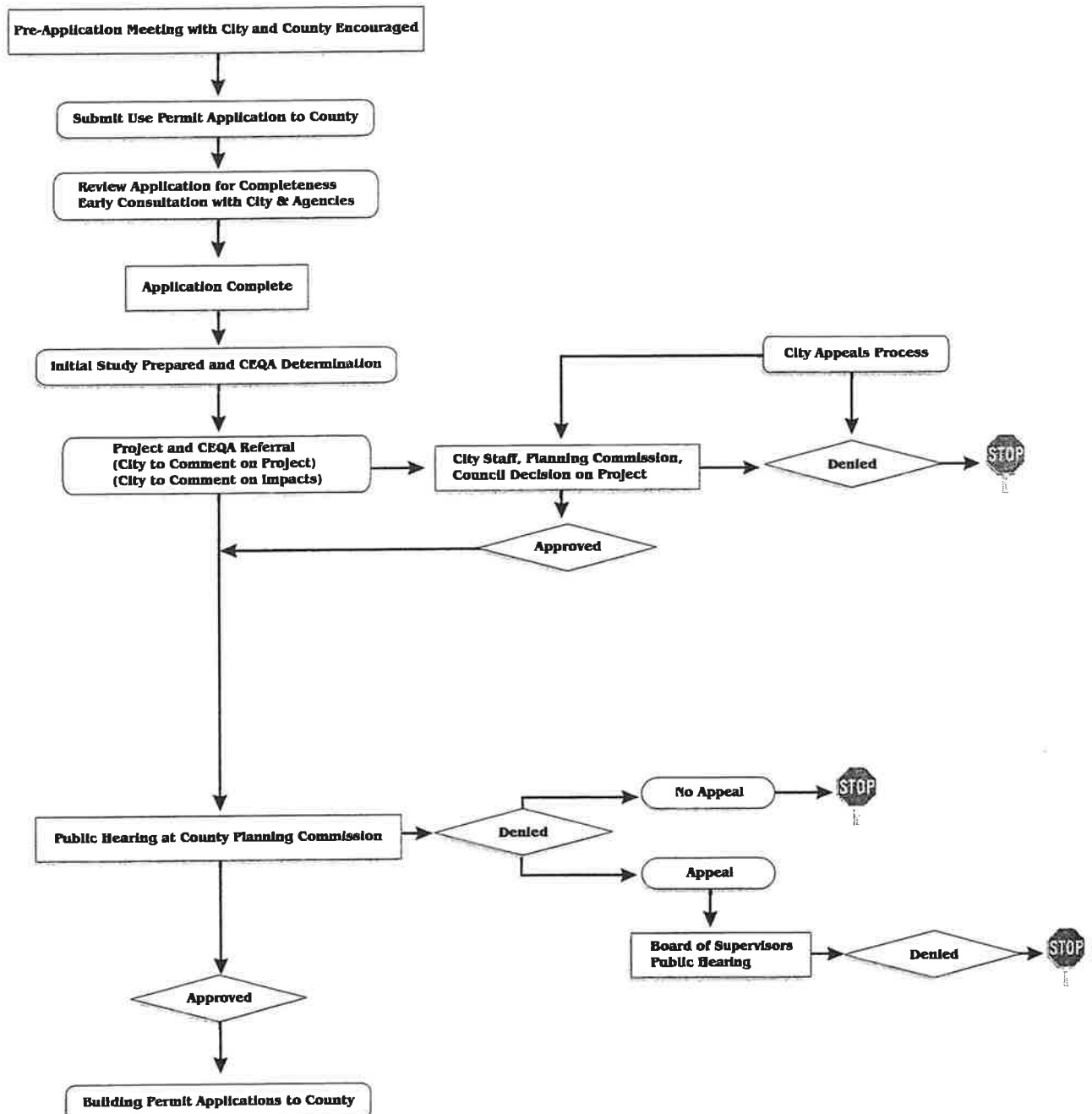
In either case, the lands selected for conservation must be approved by the US Fish and Wildlife Service.

A similar mitigation program will be required for the potential permanent loss of foraging habitat for Swainson's hawks, in addition to the conduct of pre-construction surveys to determine presence of special status species.

Rezoning



Development Review Process Use Permits



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Plan Preparation

Crawford Multari & Clark Associates

David Moran, principle author and project manager

TJKM Traffic Consultants

Chris Kinzel, PE, President

Christopher Thnay, PE, AICP

Stoddard & Associates

Infrastructure Master Plans

Urban Water Management Plan

Susan Goodwin Consulting Group

Infrastructure Financing Plan

References

City of Patterson General Plan, 1992
City of Patterson Zoning Ordinance (Title 18 of the Municipal Code)
City of Patterson General Plan Background Report, 1992
City of Patterson General Plan Final EIR, 1992
Creekside Draft and Final EIR
Stanislaus County General Plan
Stanislaus County Zoning Ordinance (Title 21 of the County Code)
Stanislaus County Local Agency Formation Commission Rules and Procedures
West Patterson Projects, Draft Environmental Impact Report, October, 2002 Turnstone Consulting

Documents Incorporated By Reference

The following documents are available for review at the City Planning Department, 3 S. Del Puerto, Patterson, California:

Water Master Plan and 2001 Revisions, Stoddard & Associates
Urban Water Management Plan, 2002 Stoddard & Associates
Wastewater Collection Master Plan and 2001 Revisions, Stoddard & Associates
Drainage Master Plan and 2001 Revisions, Stoddard & Associates
Circulation Master Plan, 2002, TJKM Transportation Engineers
Financing Plan, 2001, Susan Goodwin Consulting Group

Appendix

Appendix A: Recommended Industrial Zoning Districts

CHAPTER 21.62 - WEST PATTERSON INDUSTRIAL BUSINESS PARK ZONING DISTRICT

Sections:

21.62.010 - Purpose of Chapter	
21.62.020 - Land Uses and Permit Requirements	
21.62.030 - Development Standards	

21.62.010 - Purpose of Chapter

This Chapter lists the land uses that may be allowed within the Industrial Business Park zoning district established by the West Patterson Business Park Master Development Plan, determines the type of land use permit/approval required for each use, and provides basic standards for site layout and building size. The purposes of the Industrial Business Park zoning district and the manner in which it is applied is as follows.

- A. IBP (Industrial/Business Park) District.** The IBP zoning district is applied to areas appropriate for light industrial and business park land uses, including low-intensity manufacturing and assembly processes, research and development, and corporate headquarters offices. The land uses allowed and development standards required within the IBP district are intended to protect adjacent areas from impacts while allowing indoor, clean, and quiet industry. Land uses in the IBP zoning district are often organized as a business park, with tenants that may include some commercial activities. The IBP zoning district is consistent with the Light Industrial land use designation of the City of Patterson General Plan.

21.62.020 - Permitted Uses

- A. General requirements.** Table ____ identifies the uses of land allowed by this Zoning Ordinance in the Industrial Business Park zoning district, and the land use permit required to establish each use, in compliance with Section ____ of the Stanislaus County and City of Patterson Zoning Ordinances (Allowable Land Uses and Permit Requirements).

Note: the far right column in the tables ("Specific Use Regulations") will show a section number for regulations that apply to the particular use listed, in addition to the other general standards of this Zoning Ordinance.

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- B. The following uses are permitted subject to the development standards (21.62.040): Crop farming and horticulture, assembly of products, call centers, communication systems research and development, computer systems research and development, electronic repair and assembly, manufacturing and technology support industries, packaging, printing and publishing companies, book binding, software development, wholesale distribution and catalog sales, parcel delivery service.
- C. Government offices and facilities (police and fire) and infrastructure when used to support uses in this district, may be permitted.

Uses permitted subject to first securing a use permit in each case:

- A. Corporate offices, conference center, furniture manufacturing, interior design and office equipment sales, pharmaceutical manufacturing, research and development laboratories, sheet metal fabrication, sign fabrication, broadcast studios, offices, regional offices and facilities of the County and state government, regional, state or national offices of the federal government.
- B. Offices for building contractors, engineering and architectural firms may be permitted in buildings with multiple tenants subject to the issuance of a conditional use permit and subject to the following limitations:
 - 1. The combined floor area of all such offices within a single building or group of buildings developed as a single development shall not exceed 25% of the total floor area.
 - 2. No outdoor storage is allowed.
- C. Support services including, but not limited to, banks, convenience stores, day care centers, gymnasias and exercise businesses, copying and reprographics service, restaurants and food take out businesses may be allowed in a building housing multiple tenants subject to the issuance of a conditional use permit and subject to the following findings and limitations:
 - 1. Required findings for a conditional use permit for support businesses:
 - a. The use will be consistent with the purpose and intent of the West Patterson Business Park Master Development Plan.
 - b. The use will be compatible with existing and allowed uses in the Master Development Plan area.
 - c. The use does not preclude the establishment of industrial/business park uses favored for the Master Development Plan area, as described in the West Patterson Business Park Master Development Plan.
 - 2. Limitations for the establishment of support services.
 - a. The combined floor area of all such offices within a single building or group of buildings developed as a single development shall not exceed 25% of the total gross floor area.
 - b. All such businesses must be integrated with the design of the building or group of buildings developed as a single project and shall be found to be incidental to, and supportive of, the primary industrial business or businesses.

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- c. All such businesses shall comply with the design guidelines established by the West Patterson Business Park Master Development Plan.
 - d. No outdoor storage shall be allowed.
 - e. All signage shall comply with the provisions of this chapter and the design guidelines established by the West Patterson Business Park Master Development Plan.
- D. Permit requirement for expansion.** Any expansion of an existing use within an industrial zoning district comprising less than 25 percent of the existing building floor area shall be subject to administrative approval by the Director or his/her staff. An expansion involving greater than 25 percent of existing floor area may be allowed subject to the issuance of a conditional use permit.

Table ____ Allowed Uses and Permit Requirements for Industrial Business Park Zoning District, West Patterson Master Development Plan Area	P CUP –	Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required	Specific Use Regulations
	IBP	
AGRICULTURE AND OPEN SPACE USES		
Crop production and horticulture	P	
INDUSTRY, MANUFACTURING & PROCESSING USES		
Assembly of products	P	
Bakery wholesale and distribution	–	
Bottling plant	–	
Call centers	P	
Communication systems research and development	P	
Computer systems research and development	P	
Conference center	CUP	
Corporate offices	P	
Furniture manufacturing	CUP	
Electronic repair and assembly	P	21.62.030
Food packaging	–	
Interior design and office equipment sales	CUP	
Manufacturing and technology support industries	P	21.62.030
Packaging	P	
Pharmaceutical manufacturing	CUP	
Printing and publishing companies, book binding	P	
Research and development, laboratories	CUP	
Seed processing and packaging	–	
Sheet metal fabrication ¹	CUP	
Sign fabrication companies ¹	CUP	
Software development	P	
Warehouses as a principle use	–	
Wholesale distribution and catalog sales	P	

Table ____ Allowed Uses and Permit Requirements for Industrial Business Park Zoning District, West Patterson Master Development Plan Area		P CUP Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required	Specific Use Regulations
	IBP	
RETAIL AND SERVICES USES		
Banks	CUP	21.62.030
Broadcast studios	CUP	21.62.030
Convenience store	CUP	21.62.030
Day care center	CUP	21.62.030
Gymnasium/exercise business	CUP	21.62.030
Offices	CUP	21.62.030
Parcel delivery service	P	
Public buildings	P	
Copying and reprographics service	CUP	21.62.030
Restaurants, food take-out	CUP	21.62.030

Notes

1. So long as the use is conducted entirely within an enclosed building and complies with the performance standards established by Section 21.62.xx. Outdoor storage is prohibited.
2. Computer and peripheral equipment manufacturing and assembly incorporating activities defined by the *North American Industry Classification System, United States Office of Management and Budget*, Sub-Sectors 334 and 335, including but not limited to mainframe computers, personal computers, workstations, laptops and computer servers; peripheral equipment such as storage devices, printers, monitors, input/output devices, and terminals, and similar activities. Also included in this category is the manufacture and assembly of other parts, casings, cable sets, switches, and similar peripheral equipment in support of computer and technology industries.

21.62.040 - Development Standards

Subdivisions, new land uses and structures, and alterations to existing land uses and structures, shall be designed, constructed, and established in compliance with the requirements in Table ____, in addition to any other applicable requirements of the Stanislaus County and City of Patterson Zoning Ordinances.

TABLE ____
INDUSTRIAL BUSINESS PARK ZONING DISTRICT
DEVELOPMENT STANDARDS

IDP	
Minimum lot size	Minimum area and dimensions for parcels proposed in new subdivisions.
Minimum lot area	5 acres
Minimum dimensions	100 ft.
Minimum Building Size	50,000 sq.ft.
Setbacks(3)	Minimum setbacks required. See Chapter 21.08.060 for setback measurements, exceptions, and allowed projections into setbacks.
Front	15 ft.
Sides (each)	10 ft.
Rear	15 ft.
Site coverage	50% maximum
Height limit (1)	45 ft. (2)
Landscaping	As required by Chapter 21.62.xx (Landscaping)
Lighting	As required by Section xx.xx.xx
Parking and loading	As required by Chapter 21.76 (Parking and Loading)
Signs	As required by City of Patterson Sign regulations

Notes:

- (1) Maximum allowed height of structures. Exceptions may be allowed by Chapter 21.050 (exceptions).
- (2) Except as may be required by the Airport Land Use Plan for the Patterson Airport.

- (3) The minimum setback for parking, buildings and other structures along Rogers Road, Baldwin Road, Sperry Avenue shall be twenty (20) feet measured from the property line or the adopted right-of-way plan line, whichever is greater.

21.62.050 - Exceptions

Exceptions to Sections 21.62.030 and 21.62.040 (specific use requirements and development standards) may be granted by the Director (in the case of a permitted use) or by the Planning Commission upon review of a conditionally allowable use, upon making all of the following required findings:

1. The exception will not constitute a grant of special privilege inconsistent with the purpose and intent of the West Patterson Business Park Master Development Plan or the City of Patterson or Stanislaus County Zoning Ordinances.
2. The exception will not adversely affect the health, safety or general welfare of persons working or residing in the vicinity.

21.62.060 - Prohibited Uses

The following uses are prohibited:

Bakery-wholesale and distribution, bottling plant, food packaging including packing shed, seed processing and packaging, and warehouses as a principle use.

Chapter 21.66 - West Patterson Light Industrial Zoning District

Sections:

21.66.010 - Purpose of Chapter
21.66.020 - Purposes of Light Industrial Zoning District
21.66.030 - Land Uses and Permit Requirements
21.66.040 - Development Standards

21.66.010 - Purpose of Chapter

This Chapter lists the land uses that may be allowed within the Light Industrial zoning district established by the West Patterson Business Park Master Development Plan, determines the type of land use permit/approval required for each use, and provides basic standards for site layout and building size. The purpose of the Light Industrial zoning district and the manner in which it is applied is as follows.

- A. **LI (Light Industrial) District.** The IL zoning district is applied to areas appropriate for light industrial and manufacturing, warehousing, offices and assembly uses. Land uses allowed in the IL zoning district will not create objectionable noise, smoke, odor, dust, noxious gases, glare, heat, vibration, or industrial wastes. The IL zoning district is consistent with the Light Industrial land use designation of the General Plan.

21.66.020 - Light Industrial Zoning District Land Uses and Permit Requirements

- A. **General requirements.** Table ____ identifies the uses of land allowed by this Zoning Ordinance in the Light Industrial zoning district, and the land use permit required to establish each use, in compliance with Section ____ of the City of Patterson Zoning Ordinance (Allowable Land Uses and Permit Requirements) and Section ____ of the Stanislaus County Zoning Ordinance.

Note: the far right column in the tables ("Specific Use Regulations") will show a section number for regulations that apply to the particular use listed, in addition to the other general standards of this Zoning Ordinance.

- B. The following uses are permitted subject to the development standards described in Chapter 21.66.040: Crop farming and horticulture, assembly of products, bakery-warehouse and distribution, bottling plant, call centers, communication systems research and development, computer systems research and development, furniture manufacturing, food packaging, packaging, printing and publishing companies—book binding, software development, warehouses as a principle use, wholesale distribution and catalog sales, parcel delivery service, public safety (police and fire stations), public infrastructure, electronic repair and assembly, manufacturing and technology support industries.
- C. **Permit requirement for expansion.** Any expansion of an existing use within an industrial zoning district comprising less than 25 percent of the existing building floor area shall be subject to administrative approval by the Director or his/her staff. An expansion involving greater than 25 percent of existing floor area may be allowed subject to the issuance of a conditional use permit.

21.66.030 - Uses Requiring Use Permit

Uses permitted, subject to first securing a use permit in each case:

- A. Pharmaceutical manufacturing, research and development laboratories, seed processing and packaging, sheet metal fabrication, sign fabrication, broadcast studios.
- B. Corporate offices, regional offices and facilities of the County and state government, regional, state or national offices of the federal government may be permitted subject to the establishment of the following findings by the Planning Commission:
 - 1. The use will be consistent with the purpose and intent of the West Patterson Business Park Master Development Plan.

Table 10
Tentative Infrastructure Implementation Schedule for Water, Wastewater and Storm Drainage
Source: Stoddard & Associates, June, 2001

Description	Duration (months)	2001					2002					2003						
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	M	J	J
Production well No. 8																		
Design	3																	
Construction	3																	
Well No. 8, Pump, Booster Station & Tank																		
Design	7																	
Construction	12																	
Well No. 8 Distribution																		
Design	6																	
Construction	6																	
Zone 2 Tank & Booster Station																		
Design	10																	
Construction	14																	
Phase 1 trans. & distribution, 18" high pressure line																		
Design	10																	
Construction	14																	
15" Sperry Avenue sanitary sewer																		
Design	8																	
Construction	12																	
18" Ward Avenue sanitary sewer																		
Design	8																	
Construction	12																	
Walnut Avenue sewer line																		
Design	8																	
Construction	12																	
Northeast area storm drain																		
Design	8																	
Construction	12																	

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2. The use will be compatible with existing and allowed uses in the Master Development Plan area.
 3. The use does not preclude the establishment of of industrial/business park uses favored for the Master Development Plan area, as described in the West Patterson Business Park Master Development Plan.
- B. Offices for building contractors, engineering and architectural firms may be permitted in buildings with multiple tenants subject to the issuance of a conditional use permit and subject to the following limitations:
1. The combined floor area of all such offices within a single building or group of buildings developed as a single development shall not exceed 25% of the total floor area.
 2. No outdoor storage is allowed.
- C. Support services including, but not limited to, banks, convenience stores, day care centers, gymnasias and exercise businesses, copying and reprographics service, restaurants and food take out businesses may be allowed in a building housing multiple tenants subject to the issuance of a conditional use permit and subject to the following findings and limitations:
1. Required findings for a conditional use permit for support businesses:
 - a. The use will be consistent with the purpose and intent of the West Patterson Business Park Master Development Plan.
 - b. The use will be compatible with existing and allowed uses in the Master Development Plan area.
 - c. The use does not preclude the establishment of of industrial/business park uses favored for the Master Development Plan area, as described in the West Patterson Business Park Master Development Plan.

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2. Limitations for the establishment of support services.
 - a. The combined floor area of all such offices within a single building or group of buildings developed as a single development shall not exceed 25% of the total gross floor area.
 - b. All such businesses must be integrated with the design of the building or group of buildings developed as a single project and shall be found to be incidental to, and supportive of, the primary industrial business or businesses.
 - c. All such businesses shall comply with the design guidelines established by the West Patterson Business Park Master Development Plan.
 - d. No outdoor storage shall be allowed.
 - e. All signage shall comply with the provisions of this chapter and the design guidelines established by the West Patterson Business Park Master Development Plan.

Table ____ Allowed Uses and Permit Requirements for Light Industrial Zoning District, West Patterson Master Development Plan Area		P CUP Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required	Specific Use Regulations
	IL	
AGRICULTURE AND OPEN SPACE USES		
Crop production and horticulture	P	
INDUSTRY, MANUFACTURING & PROCESSING USES		
Assembly of products	P	
Bakery wholesale and distribution	P	
Bottling plant	P	
Call centers	P	
Communication systems research and development	P	
Computer systems research and development	P	
Conference center	—	
Furniture manufacturing	P	
Electronic repair and assembly	P	21.66.030
Food packaging	P	
Interior design and office equipment sales	—	
Manufacturing and technology support industries	P	21.66.030
Packaging	P	
Pharmaceutical manufacturing	CUP	
Printing and publishing companies, book binding	P	
Research and development, laboratories	CUP	
Seed processing and packaging	CUP	
Sheet metal fabrication ¹	CUP	
Sign fabrication companies ¹	CUP	
Software development	P	
Warehouses as a principle use	P	
Wholesale distribution and catalog sales	P	

Table ____ Allowed Uses and Permit Requirements for Light Industrial Zoning District, West Patterson Master Development Plan Area		P CUP Permitted Use Conditional Use Permit required Use not allowed
Land Use	Permit Required	Specific Use Regulations
	IL	
RETAIL AND SERVICES USES		
Banks	CUP	21.66.030
Broadcast studios	CUP	21.66.030
Convenience store	CUP	21.66.030
Day care center	CUP	21.66.030
Gymnasium/exercise business	CUP	21.66.030
Offices	CUP	21.66.030
Parcel delivery service	P	
Government buildings and facilities	P	21.66.030
Copying and reprographics service	CUP	21.66.030
Restaurants, food take-out	CUP	21.66.030

Notes

1. So long as the use is conducted entirely within an enclosed building and complies with the performance standards established by Section 21.66.xx. Outdoor storage is prohibited.
2. Manufacturing and technology support industries. Computer and peripheral equipment manufacturing and assembly incorporating activities defined by the *North American Industry Classification System, United States Office of Management and Budget*, Sub-Sectors 334 and 335, including but not limited to mainframe computers, personal computers, workstations, laptops and computer servers; peripheral equipment such as storage devices, printers, monitors, input/output devices, and terminals, and similar activities. Also included in this category is the manufacture and assembly of other parts, casings, cable sets, switches, and similar peripheral equipment in support of computer and technology industries.

21.66.040 - Development Standards

Subdivisions, new land uses and structures, and alterations to existing land uses and structures, shall be designed, constructed, and established in compliance with the requirements in Table 4, in addition to any other applicable requirements of the Stanislaus County and City of Patterson Zoning Ordinances.

**TABLE 4
LIGHT INDUSTRIAL ZONING DISTRICT
DEVELOPMENT STANDARDS**

IL	
Minimum lot size	Minimum area dimensions for parcels proposed in new subdivisions
Minimum lot area	2 acres
Minimum dimensions	100 ft.
Minimum Building Size	25,000 sq.ft.
Setbacks(3)	Minimum setback required. See Chapter xxx.xx.xx for setback measurements, and allowed projections into setbacks.
Front	15 ft.
Sides (each)	10 ft.
Rear	15 ft.
Site coverage	50% maximum
Height limit (1)	45 ft. (2)
Landscaping	As required by Section 21.xx.xx
Lighting	As required by Section xx.xx.xx
Parking and loading	As required by Section 21.76
Signs	As required by City of Patterson Sign Regulations

Notes:

- (1) Maximum allowed height of structures. Exceptions may be allowed by Chapter 21.66.050 (Exceptions).
- (2) Except as may be required by the Airport Land Use Plan for the Patterson Airport.

- (3) The minimum setback for parking, buildings and other structures along Rogers Road, Baldwin Road, Sperry Avenue shall be twenty (20) feet measured from the property line or the adopted right-of-way plan line, whichever is greater.

21.66.050 - Exceptions

Exceptions to Sections 21.66.030 and 21.66.040 (specific use requirements and development standards) may be granted by the Director (in the case of a permitted use) or by the Planning Commission upon review of a conditionally allowable use, upon making all of the following required findings:

1. The exception will not constitute a grant of special privilege inconsistent with the purpose and intent of the West Patterson Business Park Master Development Plan or the City of Patterson or Stanislaus County Zoning Ordinances.
2. The exception will not adversely affect the health, safety or general welfare of persons working or residing in the vicinity.

21.66.060 – Prohibited Uses

The following uses are prohibited:

Medical offices and clinics, branch offices for attorneys, real estate and financial institutions.

Chapter 21.xx - West Patterson Industrial Zoning Districts

Landscaping and Irrigation Requirements

21.xx.010 - Landscape and Irrigation Plan Approval Required

- A. **Preliminary Landscape and Irrigation Plan.** A Preliminary Landscape Plan shall be submitted as part of an application for a land use entitlement, for new development, and the significant expansion or redevelopment of an existing use as determined by the Director.
- B. **Final Landscape and Irrigation Plan.** Following approval of the land use entitlement, a Final Landscape Plan shall be submitted as part of the application for a Building Permit. Final plans shall be approved by the Director prior to the start of on-site construction or soil disturbance and prior to the issuance of a Building Permit.
- C. **Content.** Preliminary Landscape and Irrigation Plans and Final Landscape and Irrigation Plans shall contain information as specified in the instructions for preparing landscape plans provided by the Department.
- D. **Review and approval.** After initial application, the Director shall review each Preliminary Landscape and Irrigation Plan and Final Landscape and Irrigation Plan to verify its compliance with the provisions of this Chapter. The Director may approve the submittal in compliance with this Chapter, or may disapprove or require changes to a submittal that is not in compliance.
- E. **Statement of surety.** When required by the Director, a statement of surety in the form of cash, performance bond, letter of credit, or certificate of deposit, in an amount equal to 150 percent of the total value of all plant materials, irrigation, installation, and maintenance shall be posted with the City for a two-year period. The Director may require statements of surety for phased development projects, a legitimate delay in landscape installation due to seasonal requirements (including adverse weather conditions) and similar circumstances where it may not be advisable or desirable to install all of a project's landscaping before occupancy of the site.

- F. **Minor changes to approved plans.** Landscape and Irrigation plan approval may include the Director authorizing minor changes from the requirements of this Chapter.
- G. **Water efficiency.** All landscape and irrigation plans shall be prepared in compliance with City of Patterson Ordinance No. 485: Water Efficient Landscape Ordinance for New Construction and Development.

21.xx.020 - Landscape Area Requirements

Landscaping shall be provided in the locations specified below except for single-family uses.

- A. **Setbacks.** All setback and open space areas required by this Ordinance, and easements for utilities, and drainage courses shall be landscaped, except where a required setback is screened from public view or it is determined by the Director that landscaping is not necessary to fulfill the purposes of this Chapter.
- B. **Unused areas.** All areas of a project site not intended for a specific use, including pad sites held for future development, shall be landscaped unless it is determined by the Director that landscaping is not necessary to fulfill the purposes of this Chapter.
- C. **Parking areas.** Parking areas shall be landscaped in compliance with the following requirements.
 - 1. **Landscape materials.** Landscaping materials shall be provided throughout the parking lot area using a combination of trees, shrubs, and ground cover.
 - 2. **Curbing.** Areas containing plant materials shall be bordered by a concrete curb at least six inches high and six inches wide. Alternative barrier design to protect landscaped areas from damage by vehicles may be approved by the Director.

3. **Location of landscaping.** Parking lot landscaping shall be located so that pedestrians are not required to cross landscaped areas to reach building entrances from parked cars. This should be achieved through proper orientation of the landscaped fingers and islands.
4. **Bumper overhang areas.** To increase the parking lot landscaped area, a maximum of two feet of the parking stall depth may be landscaped with low-growth, hearty materials in lieu of paving, allowing a two-foot bumper overhang while maintaining the required parking dimensions.
5. **Perimeter parking lot landscaping.**
 - a. **Adjacent to streets.** Parking areas adjoining a public street shall be designed to provide a landscaped planting strip between the street right-of-way and parking area equal in depth to the setback required by the zoning district or 15 feet, whichever is more.

The landscaping shall be designed and maintained to screen cars from view from the street to a height of between 30 inches and 42 inches. Screening materials may include a combination of plant materials, earth berms, solid masonry walls, raised planters, or other screening devices which meet the intent of this requirement. Shade trees shall be provided at a minimum rate of one for every 30 linear feet of landscaped area. Plant materials, signs, or structures within a traffic safety sight area of a driveway.

- b. **Adjacent to side or rear property lines.** Parking areas for nonresidential uses shall provide a perimeter landscaped strip at least five feet wide (inside dimension) where the facility adjoins a side or rear property line. The perimeter landscaped strip may include a required yard or buffer area. Trees shall be provided at the rate of one for each 30 linear feet of landscaped area.

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- c. **Adjacent to structures.** When parking areas are located adjacent to structures, a minimum five-foot wide landscape strip shall be provided adjacent to the structure.
- 6. **Interior parking lot landscaping.**
 - a. **Amount of landscaping.**
 - (1) Industrial/manufacturing uses shall provide landscaping within the parking area at a minimum ratio of six percent of the gross area of the parking lot. One tree shall be provided for every 10 parking spaces.
 - b. **Location of landscaping.** Landscaping shall be evenly dispersed throughout the parking area. Use of an orchard-style planting scheme (placement of trees in uniformly-spaced rows) is encouraged for larger parking areas. Parking lots with more than 100 spaces should provide a concentration of landscape elements at primary entrances, including specimen trees, flowering plants, enhanced paving, and project identification.
- 7. **Drainage Areas, Retention/Detention Basins.** All surface drainage facilities and retention/detention basins shall be landscaped and integrated as an amenity into the site and landscaping plan for a project. Plant materials shall be chosen that are water tolerant and that provide visual relief to the appearance of the retention/detention basin during periods when no water is present.
- 8. **Wet Ponds.** Wet ponds may be incorporated into the site and landscaping plan as an amenity which may also provide storm water retention/detention. All such ponds shall be integrated as an amenity into the site and landscaping plan for a project.

21.xx.030 - Maintenance of Landscape Areas

- A. Maintenance required.** All landscaped areas shall be maintained in a healthful and sound condition at all times. Irrigation systems and their components shall be maintained in a fully functional manner consistent with the originally approved design and the provisions of this Chapter. Regular maintenance shall include checking, adjusting, and repairing irrigation equipment; resetting automatic controllers; aerating and dethatching turf areas; adding/replenishing mulch, fertilizer, and soil amendments; pruning; and weeding all landscaped areas.
- B. Water waste prohibited.** Water waste in existing developments resulting from inefficient landscape irrigation leading to excessive runoff, low head drainage, overspray, and other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, or structures is prohibited.

21.xx.040 - Public Education

Developers shall provide information to prospective tenants regarding water-efficient landscaping techniques. A sample of the information to be provided shall be submitted to the Director for approval prior to issuance of a Building Permit.

CHAPTER 21.XX - WEST PATTERSON INDUSTRIAL ZONING DISTRICTS PERFORMANCE STANDARDS

21.xx.010 – Performance Standards

- A. All land uses proposed in the IBP and IL zoning districts shall be operated and maintained so as to not be injurious to public health, safety or welfare, and shall comply with the following standards.
1. Air emissions. No approved land use shall generate or cause any visible dust, gasses, or smoke to be emitted into the atmosphere, except as necessary for the heating or cooling of structures, and the operation of motor vehicles on the site.
 2. Glare and heat. No direct or sky-reflected glare or heat, whether from floodlights or from high temperature processes (including combustion or welding or otherwise) shall be visible or felt at the property line.
 3. Ground vibration. No approved land use shall generate ground vibration perceptible without instruments at any point along or outside of the property line of the use, except for motor vehicle operations.
 4. Odor. No approved land use shall generate or emit any odor or fumes perceptible at the property line.

Appendix B: Recommended Traffic Improvements and Mitigation Measures

West Patterson Business Park Master Development Plan

Measure E.6.a: Intersection 1. Sperry Ave/I-5 SB Off-Ramp. Signalize; widen southbound left-turn to two lanes, add a westbound left-turn lane; and add a westbound through lane, consistent with the Caltrans PSR.

Phasing

At 20 percent of project development: signalize intersection.

At 60 percent to 70 percent of project development: implement remaining measures.

Measure E.6.b: Intersection 2. Sperry Ave/I-5 NB On-Ramps. Signalize; widen underpass to accommodate two eastbound through lanes and a left-turn lane, and a through lane and left and right turn lanes in the westbound direction.

Phasing

At 50 percent of project development: signalize intersection.

At 60 percent to 70 percent of project development: implement remaining measures.

Mitigation E.6.c: Intersection 3. Sperry Ave/Rogers Road. In the eastbound direction, add one left-turn lane and a shared through and right-turn lane; in the westbound direction, add two left-turn lanes and a through lane; in the southbound direction, add a through lane; in the northbound direction add a left, through and right turn lane.

Phasing :

At 50 percent of project development: implement mitigation.

Mitigation E.6.d: Intersection 4. Sperry Ave/Baldwin Road. Signalize. In the eastbound direction, add one left-turn lane and a shared through and right-turn lane. In the westbound direction, add one left-turn lane, a through and right turn lane. In the southbound, add two left-turn lanes. In the northbound, add a left-turn lane.

Phasing:

At 20 percent of project development: signalize intersection.

At 50 percent of project development: implement remainder of mitigation.

Mitigation E.6.e: Intersection 5. Sperry Ave/American Eagle Drive. In the eastbound direction, add one left-turn lane, a through and right-turn lane. In the westbound direction, add one left-turn lane and a through lane. In the southbound, add a right-turn lane. In the northbound, add a left-turn, a through and right-turn lanes.

Phasing:

At 70 to 80 percent of project development: implement mitigation.

Mitigation E.6.f: Intersection 6. Sperry Ave/Las Palmas Avenue. Signalize. In the eastbound direction, add a through and right-turn lane. In the westbound direction, add a left-turn lane. In the northbound, add a left-turn, and a shared through and right-turn lane. No change for the southbound approach.

Phasing:

At 20 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining measures.

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Mitigation E.6.g: Intersection 7. Sperry Ave/Ward Ave. In the eastbound direction, add one left-turn lane, and a through lane. In the westbound direction, add a through lane. In the southbound, add a left-turn lane. In the northbound, add a left-turn and a right-turn lane.

Phasing:

At 70 to 80 percent of project development: implement mitigation.

Mitigation E.6.h: Intersection 8. Sperry Ave/S Del Puerto Ave. In the eastbound direction, add one left-turn lane, and a shared through and right-turn lane. In the westbound direction, add a left and a shared through and right turn-lane.

Phasing:

At 70 to 80 percent of project development: implement mitigation.

Mitigation E.6.i: Intersection 9. Sperry Ave/SR-33. Signalize. In the eastbound direction, add one left-turn lane, and a right-turn lane. In the northbound direction, add a left turn-lane.

Phasing

At 20 percent of project development: signalize intersection.

At 70 percent to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.j: Intersection 11. SR-33/Las Palmas Ave. In the northbound direction, add one right-turn lane.

Phasing:

At 70 percent to 80 percent of project development: implement mitigation.

Mitigation E.6.k: Intersection 12. Ward Ave/Salado Ave Signalize. In the southbound direction, add one left-turn lane. In the westbound direction, add a left-turn lane.

Phasing:

At 70 to 80 percent of project development: implement mitigation.

Mitigation E.6.l: Intersection 13. Ward Ave/SR-33. Signalize. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane and a through lane.

Phasing:

At 10 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.m: Intersection 14. Zacharias Rd/SR-33. Signalize. In the eastbound direction, add a left and right-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left and through lane.

Phasing:

At 20 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.n: Intersection 15. Baldwin Rd/SR-33. Signalize. In the eastbound direction, add a left-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane.

Phasing:

At 25 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

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Mitigation E.6.o: Intersection 16. Rogers Rd/SR-33. Signalize. In the southbound direction, add one through and right-turn lane. In the northbound direction, add a left and right-turn lane.

Phasing:

At 40 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.p: Intersection 18. Sycamore Ave/E. Las Palmas Ave Signalize. In the eastbound direction, add a left-turn and a through lane. In the westbound direction, add a left and a through lane. In the southbound direction, add a left-turn lane.

Phasing:

At 20 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.q: Intersection 19. E.Las Palmas/ Poplar. Signalize. In the eastbound direction, add a through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane.

Phasing:

At 20 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.r: Intersection 20. West Main/Carpenter Rd Signalize. In the eastbound direction, add a left and through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left-turn lane.

Phasing:

At 20 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Mitigation E.6.s: Intersection 21. West Main/Crows Landing Rd: Signalize. In the eastbound direction, add a left-turn lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left and right-turn lane.

Phasing:

At 40 to 50 percent of project development: signalize intersection.

At 70 to 80 percent of project development: implement remaining mitigation.

Keystone Pacific Business Park

To be required and installed consistent with the phasing described above for the overall West Patterson Business Park Master Development Plan.

Measure E.8.a: Intersection 6. Sperry Ave/Las Palmas Avenue. Signalize intersection.

Measure E.8.b: Intersection 9. Sperry Ave/SR 33. Add a right-turn lane on the eastbound approach on Sperry Avenue, and add a left-turn lane on the northbound approach on State Route 33.

Measure E.8.c: Intersection 12. Ward Ave/Salado Ave. Signalize intersection and add a right-turn lane on the westbound approach on Salado Avenue.

Measure E.8.d: Intersection 14. Zacharias Rd/SR 33. Signalize intersection.

Measure E.8.e: Intersection 15. Baldwin Rd/SR 33. Add a through/turn lane in the southbound approach on Baldwin Road.

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Measure E.8.f: Intersection 16. Rogers Rd/SR 33. Add a right-turn lane in the southbound approach on Rogers Road, in addition to contributing to a new signal that would be needed as a result of 2025 Base conditions.

Measure E.8.g: Intersection 20. West Main/Carpenter Rd. Add a through lane on both eastbound and westbound approaches, on West Main, in addition to contributing to a new signal and left-turn lanes on both eastbound and westbound approaches on West Main that would be needed as a result of 2025 Base conditions.

Measure E.8.h: Intersections 1, Sperry Ave/I-5 SB Off-Ramps; 18, Sycamore Ave/E. Las Palmas Ave; and 19, E. Las Palmas Ave/Poplar Ave. Contribute to signalization of the intersections that would need signalization as a result of 2025 Base conditions and that would receive a significant contribution to traffic delays from Keystone Pacific Business Park traffic.

**APPENDIX B: KEYSTONE PACIFIC BUSINESS PARK:
LIST OF PERMITTED USES / ANTICIPATED
TENANT TYPES, AND LIST OF USES NOT
PERMITTED**

**KEYSTONE PACIFIC BUSINESS PARK:
LIST OF PERMITTED USES / ANTICIPATED TENANT TYPES,
AND LIST OF USES NOT PERMITTED**

PERMITTED USES / ANTICIPATED TENANT TYPES

1. Accessory buildings
2. Artists galleries
3. Artists studios
4. Auditoriums
5. Automobiles sales and service
6. Bank and financial institutions with or without drive-up windows
7. Bottling plants
8. Business incubator centers
9. Business services
10. Catering services
11. Ceramic products
12. Churches
13. Colleges and universities
14. Commercial bakery
15. Commercial laundries
16. Computer sales and repair
17. Conference centers and retreat centers
18. Contractor offices, including contractors in specialized trades
19. Convenience stores
20. Counseling services
21. Electrical motor sales and repair
22. Electronic instrument, repair and assembly
23. Exhibition building
24. Exterminators
25. Fire station
26. Flex space
27. Foundries, fabrication plants, forging and metal casting
28. Freight terminals
29. Furniture refinishing and repair enterprises
30. Furniture showrooms where in excess of 75% of the gross square footage is devoted to sales made from sample stocks and deliveries are made to the buyer from the location off site.
31. Glass studio
32. Government facilities, not to include correctional facilities and jails
33. Health clubs and athletic facilities
34. Health clubs and athletic facilities as a subordinate activity, for use of employees of a principal use
35. Heavy equipment sales, rentals, lease and service
36. Hospitals
37. Hotels and motels
38. HVAC equipment sales and repair
39. Ice or water dealers

40. Janitorial services, including carpet cleaning
41. Laboratories with or without outdoor storage or operations
42. Laundry and dry cleaning
43. Light industry
44. Light manufacturing and assembly
45. Linen supply and service
46. Mailing services
47. Manufacture and storage of chemicals
48. Medical facilities
49. Movie theaters, not to include drive-in theaters
50. Moving and storage services
51. Museums operated by non-profit groups
52. Night clubs
53. Offices
54. Parcel delivery
55. Personal service establishments
56. Photographic studios and photographic processing for retail
57. Plumbing shops
58. Police stations
59. Printing shops
60. Private schools
61. Public parks and playgrounds
62. Public schools
63. Publishing and printing establishments
64. Radio and television broadcasting studios (with towers less than 200 feet in height)
65. Recreation facilities for employees
66. Recycling centers
67. Research and development with or without outdoor storage or operations
68. Restaurants and catering services
69. Retail fabrication businesses
70. Retail shops and personal service establishments not listed elsewhere in this Section if:
 - The use is located in a building principally devoted to one of the other uses listed in this Section
 - The use does not exceed 25% of the floor area of the building.
71. Retail stores and shops
72. Retail stores and shops that are accessory uses, designed to serve employees or patrons of the primary use, and located on the same site
73. Schools B technical, trade, vocational and business
74. Showroom offices, not including exterior vehicle sales
75. Temporary outside events
76. Theaters
77. Trade schools
78. Veterinary
79. Warehousing
80. Wholesale business uses

USES NOT PERMITTED

1. Adult establishments
2. Airports/Heliports
3. Bed and breakfast inns
4. Boarding houses
5. Boat sales
6. Building material sales with outside storage
7. Car washes, automatic and self-service
8. Cemeteries, mausoleums, columbaria and memorial gardens
9. Coal and wood lots
10. Commercial dorms
11. Concrete plants
12. Convenience stores with gasoline sales
13. Correctional facilities and jails
14. Crematoriums
15. Detached single family dwellings
16. Drive-in theaters
17. Duplexes, triplexes and multifamily dwellings
18. Fairgrounds
19. Farmers markets
20. Feed and grain storage
21. Funeral homes
22. Garden centers
23. Hazardous and nuclear material disposal and storage areas unless indicated
24. Incinerators
25. Junk yards and wrecking yards as defined by NCGS 136-143
26. Kennels
27. Landfills
28. Manufacture and storage of chemicals, when not an accessory use
29. Manufacture and storage of explosives
30. Manufactured home sales
31. Mini-storage
32. Parking as an independent use
33. Passenger transportation terminals
34. Public treatment plants, water and sewer
35. Public utility facilities with or without outdoor storage
36. Quarries
37. Recreational vehicle sales
38. Rendering plants for poultry or animals
39. Repair shops with outdoor storage or operations (separate listing for vehicle repairs)
40. Retirement centers and life care communities
41. Salvage and scrap yards
42. Service stations
43. Shopping centers
44. Slaughtering plants
45. Stadiums and arenas
46. Storage yards including the bulk storage of flammables

- 47. Storage yards, not including bulk fuel storage
- 48. Towers for transmitting and receiving electronic signals which are more than 75 feet but less than 200 feet in height
- 49. Towers for transmitting and receiving electronic signals which are 200 feet or more in height
- 50. Transfer stations
- 51. Travel trailer sales
- 52. Vehicle sales, lease and rentals
- 53. Veterinary clinics

**APPENDIX C: SPECIAL-STATUS PLANT SPECIES
CONSIDERED BUT REJECTED FOR
OCCURRENCE IN THE WEST PATTERSON
PROJECT AREA**

Special-Status Plant Species Considered but Rejected for Occurrence in the West Patterson Project Area.								
SCIENTIFIC NAME	COMMON NAME	Lack of Serpentine Soils	Lack of Strongly Alkaline Soils	Other Edaphic Requirements	Outside the Elevation Range	Lack of Associate Species	Believed to Be Extirpated or	Highly Degraded Site Conditions
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch		X					
<i>Atriplex cordulata</i>	heartscale		X					
<i>Atriplex coronata</i> var. <i>coronata</i>	crownscale		X					
<i>Atriplex depressa</i>	brittlescale		X					
<i>Blepharizonia plumosa</i> ssp. <i>plumosa</i>	big tarplant						X	X
<i>Calochortus umbellatus</i>	Oakland star-tulip	X						
<i>Calycadenia hooveri</i>	Hoover's calycadenia			X				
<i>Caulanthus coulteri</i> var. <i>lemmonii</i>	Lemmon's jewelflower				X			
<i>Cirsium fontinale</i> var. <i>campylon</i>	Mount Hamilton thistle	X						
<i>Clarkia rostrata</i>	beaked clarkia				X			
<i>Convolvulus simulans</i>	small-flowered morning-glory	X						
<i>Cryptantha hooveri</i>	Hoover's cryptantha			X				
<i>Delphinium gypsophilum</i> ssp. <i>gypsophilum</i>	gypsum-loving larkspur				X			
<i>Downingia pusilla</i>	dwarf downingia							X
<i>Erodium macrophyllum</i>	round-leaved filaree							X
<i>Eryngium spinosepalum</i>	spiny-sepaled button-celery				X			
<i>Eschscholzia rhombipetala</i>	diamond-petaled California poppy			X			X	
<i>Fritillaria agrestis</i>	stinkbells							X
<i>Hesperis matronalis</i>	hogwallow starfish							X
<i>Linanthus ambiguus</i>	serpentine linanthus	X						
<i>Lotus rubriflorus</i>	red-flowered lotus				X			
<i>Microseris sylvatica</i>	sylvan microseris	X						
<i>Monardella leucocephala</i>	Merced monardella			X				
<i>Myosurus minimus</i> ssp. <i>apus</i>	little mousetail		X					
<i>Ophioglossum californicum</i>	California adder's-tongue							X
<i>Pseudobahia bahiifolia</i>	Hartweg's golden sunburst			X				X

**APPENDIX D: STATUS AND POTENTIAL OCCURRENCE
OF SPECIAL-STATUS PLANT AND ANIMAL
SPECIES IN THE WEST PATTERSON
PROJECT AREA**

Status and Potential Occurrence of Special-Status Plant and Animal Species in the West Patterson Project Area.			
NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Federal or State Endangered Species			
American Peregrine Falcon <i>Falco peregrinus anatum</i> (nesting)	SE	Forages in many habitats; requires cliffs for nesting.	Potential occasional forager throughout the project area.
San Joaquin Kit Fox <i>Vulpes macrotis mutica</i>	FE, ST	Open habitats in deserts, and grasslands.	Poor foraging and denning habitat in the West Patterson project area. Canals and linear features potentially used during dispersal events. Unlikely occurrence expected. Protocol-level surveys conducted during May and June 2002 resulted in no evidence of kit foxes on or near the project area.
Federal or State Threatened Species			
Giant Garter Snake <i>Thamnophis gigas</i>	FT, ST	Freshwater marshes and low gradient streams with emergent vegetation; adapted to drainage canals and irrigation ditches with mud substrate.	No suitable habitat; presumed absent.
California Red-legged Frog <i>Rana aurora draytonii</i>	FT, SP, CSSC	Streams, freshwater pools and ponds with overhanging vegetation.	No suitable habitat; presumed absent.
Greater Sandhill Crane <i>Grus canadensis tabida</i> (nesting and wintering)	ST	Wetlands required for breeding; forage in nearby pastures, fields, and meadows.	Occasional transient/winter migrant throughout the project area.
Swainson's Hawk <i>Buteo swainsoni</i>	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas, and oak savannah; forages in adjacent livestock pasture, grassland or grain fields.	Known to forage on site and nest near the San Joaquin River; potential breeding and foraging habitat in West Patterson project area.

Status and Potential Occurrence of Special-Status Plant and Animal Species in the West Patterson Project Area.			
NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Federal or State Candidate Species			
California Tiger Salamander <i>Ambystoma californiense</i>	FC, CSSC	Vernal or temporary pools in annual grasslands, or open stages of woodlands.	No suitable habitat, presumed absent.
Mountain plover <i>Charadrius montanus</i> (wintering)	FC, CSSC	Short grasslands and plowed fields below 1000 m.	Potential transient/winter migrant throughout the project area.
California Species of Special Concern			
Western Spadefoot <i>Scaphiopus hammondi</i>	CSSC	Grasslands and occasionally valley-foothill hardwood woodlands; vernal pools or similar ephemeral pools required for breeding.	No suitable habitat, presumed absent.
Foothill Yellow-legged Frog <i>Rana boylei</i>	CSSC	Rocky streams in a variety of habitats. Found in coast ranges.	No suitable habitat; presumed absent.
Western Pond Turtle <i>Clemmys marmorata</i>	CSSC	Permanent or nearly permanent water in a variety of habitats.	No suitable habitat in Business Park Plan Area and Patterson Gardens site; observed in pond at wastewater treatment plant site but unlikely to breed in area.
California Horned Lizard <i>Phrynosoma coronatum frontale</i>	CSSC	Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes.	No suitable habitat; presumed absent.
San Joaquin Whipsnake <i>Masticophis flagellum ruddocki</i>	CSSC	Valley grasslands and saltbush scrub habitats; open, dry areas with few or no trees.	May occasionally occur in project area as a transient from hills west of site; habitat on site unsuitable to sustain a viable population.
Double-crested cormorant <i>Phalacrocorax auritus</i> (rookery site)	CSSC	Inland lakes; fresh, salt and estuarine waters.	Observed in Business Park Plan area (outside Keystone Pacific Business Park); Delta Mendota Canal provides foraging habitat; no breeding habitat on site.

Status and Potential Occurrence of Special-Status Plant and Animal Species in the West Patterson Project Area.			
NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
White-faced ibis <i>Plegadis chihi</i> (rookery site)	CSSC	Nest in dense marsh vegetation near foraging areas in shallow water or muddy fields.	No breeding habitat; potential forager in project area.
Long-billed curlew <i>Numenius americanus</i> (nesting)	CSSC	Upland shortgrass prairies and wet meadows are used for nesting; coastal estuaries, open grasslands, and croplands are used in winter.	Potential forager throughout project area during winter.
California Gull <i>Larus californicus</i> (nesting colony)	CSSC	Undisturbed, isolated islands for nesting; food sources must be close to nesting areas.	No breeding habitat; potential forager throughout project area.
Black Tern <i>Chlidonias niger</i> (nesting colony)	CSSC	Fresh, emergent wetlands, lakes, ponds, moist grasslands, and agricultural fields.	No breeding habitat; potential forager throughout project area.
Prairie Falcon <i>Falco mexicanus</i> (nesting)	CSSC	Occurs in open habitats such as grasslands, desert scrub, rangelands, and croplands.	Suitable foraging habitat throughout project area.
Northern Harrier <i>Circus cyaneus</i> (nesting)	CSSC	Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields.	Observed foraging in Business Park Plan area (including Keystone Pacific Business Park); marginal breeding habitat in Business Park Plan area.
Ferruginous Hawk <i>Buteo regalis</i> (wintering)	CSSC	Forages in grasslands and occasionally in other open habitats during migration and winter.	Occasional forager throughout project area during migration/winter.
Merlin <i>Falco columbarius</i>	CSSC	Uses many habitats in winter and migration.	Occasional visitor during migration and winter.

Status and Potential Occurrence of Special-Status Plant and Animal Species in the West Patterson Project Area.			
NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Sharp-shinned Hawk (<i>Accipiter striatus</i>)	CSSC	Nests in woodlands, forages in many habitats in winter and migration.	Potential transient/winter migrant.
Cooper's Hawk (<i>Accipiter cooperii</i>)	CSSC	Nests in woodlands, forages in many habitats in winter and migration.	Potential transient/winter migrant.
Golden Eagle (<i>Aquila chrysaetos</i>)	CSSC	Breeds on cliffs or in large trees or electrical towers, forages in open areas.	Potential rare forager throughout project area during winter; outside breeding range.
Burrowing Owl (<i>Athene cunicularia</i>)	CSSC	Open grasslands and ruderal habitats.	Suitable habitat throughout project area however no owls or secondary evidence of their presence was observed in the project area.
Short-eared Owl <i>Asio flammeus</i>	CSSC	Breeds in dense vegetation in open grassland and marshes.	Potential transient/winter migrant.
Loggerhead Shrike <i>Lanius ludovicianus</i>	CSSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	Suitable foraging and nesting habitat in Business Park Master Plan Area (outside Keystone Pacific Business Park) and Patterson Gardens; observed in several locations on site.
California Horned Lark <i>Eremophila alpestris actia</i>	CSSC	Short-grass prairie, annual grasslands, coastal plains, opens fields.	Suitable breeding and foraging habitat within Business Park Plan area (including Keystone Pacific Business Park) and Patterson Gardens; observed in disked field near airport.
Tricolored Blackbird <i>Agelaius tricolor</i> (nesting colony)	CSSC	Breeds near fresh water in dense emergent vegetation.	Suitable foraging habitat throughout project area.
Yellow warbler <i>Dendroica petechia brewsteri</i> (nesting)	CSSC	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	Potential forager throughout project area during winter.

Status and Potential Occurrence of Special-Status Plant and Animal Species in the West Patterson Project Area.			
NAME	*STATUS	HABITAT	POTENTIAL FOR OCCURRENCE ON SITE
Pallid Bat <i>Antrozous pallidus</i>	CSSC	Forages over many habitats; roosts in buildings, rocky outcrops and rocky crevices in mines and caves.	Suitable foraging habitat throughout project area; no roosting habitat.
Western Mastiff Bat (<i>Eumops perotis</i>)	CSSC	Forages over many habitats; requires tall cliffs or buildings for roosting sites.	No roosting habitat; potential forager throughout project area.
State Protected Species or CNPS Species			
Round-leaved filaree (<i>Erodium macrophyllum</i>)	CNPS 2	Cismontane woodland, valley and foothill grassland.	Extremely marginal habitat exists on site and CNDDDB occurrence is historical. Plant is presumed absent and no further surveys are warranted.
Diamond-petaled California poppy (<i>Eschscholzia rhombipetala</i>)	CNPS 1B	Alkaline, clay soils within valley and foothill grassland and fallow fields.	No suitable habitat for this species occurs on the project site. No surveys are warranted.
White-tailed kite <i>Elanus leucurus</i> (nesting)	FP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	Suitable breeding and foraging habitat throughout site; observed in almond orchard in Business Park Plan area and foraging over Keystone Business Park.

***SPECIAL STATUS SPECIES CODE DESIGNATIONS**

FE =	Federally listed Endangered
FT =	Federally listed Threatened
SE =	State-listed Endangered
ST =	State-listed Threatened
FC =	Federal Candidate. Sufficient biological information to support a proposal to list the species as Endangered or Threatened
CSSC =	California Species of Special Concern
SP =	State Protected Species
FP =	Fully Protected Species under state of California legislation
CNPS 1B =	Plants considered by CNPS to be rare, threatened, or endangered in California, and elsewhere
CNPS 2 =	Plant considered by CNPS to be rare, threatened, or endangered in California but more common elsewhere

APPENDIX E: TRAFFIC STUDY



FINAL

**West Patterson Business Park
Master Plan EIR
Traffic Study**

In the City of Patterson

September 20, 2002

FINAL

**West Patterson Master Plan EIR
Traffic Study**

In the City of Patterson

September 20, 2002

**Prepared by:
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EXECUTIVE SUMMARY

The purpose of this report is to document the traffic impacts of the proposed West Patterson Business Park Master Plan, including development of the Keystone-Pacific Business Park, and the proposed Patterson Gardens residential and mixed-use commercial project (collectively called "West Patterson Projects"). The West Patterson Projects include land on the west side of the City of Patterson between Rogers Road and I-5 on the west and Baldwin Road on the east on both sides of Sperry Road, and between Baldwin Road and Ward Avenue south of Sperry Road.

The Stanislaus Council of Government (STANCOG) countywide gravity based average daily traffic (ADT) model was used as the basis for the development of a peak hour model. To reflect the latest travel patterns, the model was calibrated to the latest 2002 peak hour turning movements at 21 study intersections and 11 link segments. After calibration, all study intersections and roadway links in the model reflect accuracy within five percent of the traffic counts.

Existing plus Project

Of the 21 study intersections, five are currently signalized. All the intersections operate at LOS B or better. In the Existing plus Project scenario, 14 intersections would deteriorate to LOS E or LOS F conditions. Sperry Avenue should be widened to four lanes and mitigation measures would be necessary at many intersections to operate at acceptable levels of service. Compared to the existing condition, 14 more intersections (19 total plus two at project driveways) should be signalized in the project condition.

Future 2025 Base Year Condition

Nine of the 21 study intersections would operate at LOS E or F conditions in 2025. Many of the intersections along Sperry Avenue would require turn lanes to accommodate the future 2025 base condition traffic. In addition, nine more intersections should be signalized (15 total). The existing interchange at Sperry Avenue and I-5 would be adequate to accommodate the projected traffic (the southbound off-ramps should be signalized).

Future 2025 Base Year plus Project Condition

In this scenario, some sections of Sperry Avenue are projected to carry approximately 2,700 vehicles during the peak hours. Compared to the existing traffic, the growth is four fold.

All Sperry Avenue intersections should be signalized and would require double left-turn lanes to channelize traffic. Compared to the Future 2025 Base Year scenario, an additional six intersections would need signalizations.

Based on the projected peak hour traffic at the I-5 Interchange with Sperry Avenue, it is estimated that a four-lane underpass road, a signalized and improved northbound on-ramp and a signalized two-lane southbound off-ramp would be adequate to accommodate projected traffic.

Specific mitigation measures and phasing of such mitigations are described in the mitigation section of the report.

In order to accommodate the City's 1992 General Plan Buildout of the General Plan land use, the Transportation and Circulation Element called for a new four-lane southern bypass expressway type facility. The recommended route would extend from E. Las Palmas Avenue in the east, semi-circling

to the southern portion of the City (to the north of Elfers Road) and connecting to Sperry Avenue, just to the west of Baldwin Road

The results of the peak hour model projections showed that the Southern Bypass is not needed at this time to accommodate projected traffic from the Future 2025 Base Condition plus Project scenario.

This report recommends narrower lane widths for local access roads, generally reflecting current research that shows narrower roads provide traffic calming and are more pedestrian friendly. In addition, the report supports the General Plan policy that advocates bike lanes and walkable roadway design.

THE EXISTING CONDITIONS

The City of Patterson is located approximately 35 miles south of the junction of I-205 and I-5. Like most cities in the Central Valley, it was originally built to support the agricultural economic development of the surrounding area. However, the population growth in the last 20 years can be attributed primarily to workers who live in Patterson and work in the San Francisco-San Jose-Tri-Valley areas.

The most substantial growth occurred between 1980 and 1990, with a growth rate of approximately 120 percent to a population of approximately 8,870 in 1990. The population growth slowed somewhat after 1990, to a population of approximately 9,920 in 1998.

The overall population growth has also produced an overall increase in traffic volumes on roadway networks in the area. As part of the traffic circulation study, in March 2001 TJKM conducted average daily traffic (ADT) volumes counts of major roadways in the area. These are shown in Figure 1.

Freeway and Highway System Serving Patterson

For regional travel, the City of Patterson relies primarily on Interstate Highway 5 (I-5), a major north-south freeway to the west of the city limits. I-5 connects to I-580, approximately 15 miles to the north of Patterson. I-5 and I-580 provide access to regional employment centers in Pleasanton, San Ramon and the rest of the San Francisco Bay Area. All freeway-bound future project traffic from the West Patterson Projects site is expected to use I-5 via Sperry Avenue.

Interstate 5 is a four-lane freeway near Patterson. Traffic from Patterson is expected to use the interchange at Sperry Avenue. As published in the 2000 Caltrans Volume report, the ADT on I-5 was 24,400 vehicles per day (vpd) to the north of Sperry Avenue. Compared to the 1990 volume of approximately 23,500 vpd, the traffic volume increased by approximately four percent.

To the south of Sperry Avenue, the reported ADT was approximately 25,500 vpd as compared to 22,500 vpd in 1990. That is an increase of approximately 12 percent, or approximately one percent per year.

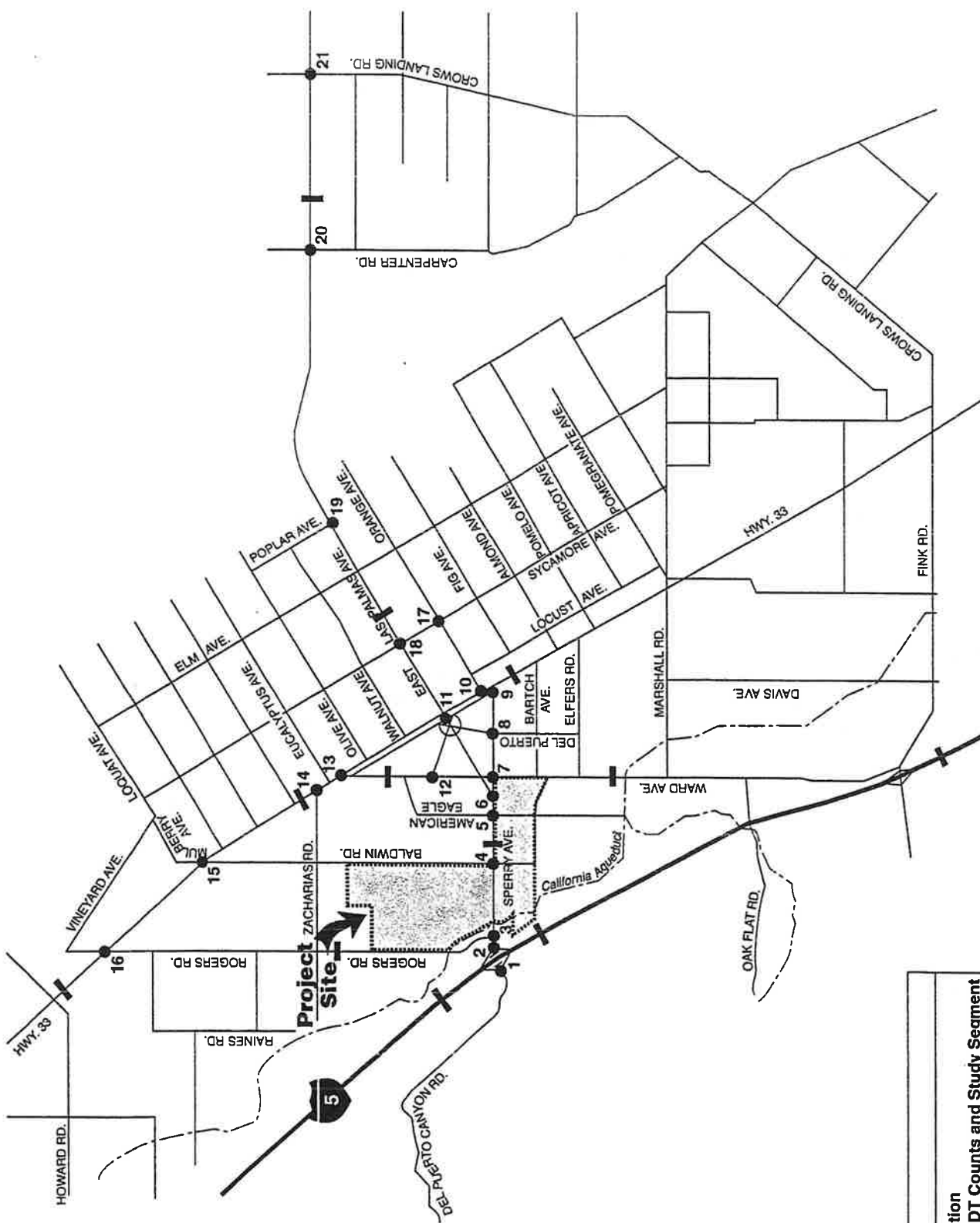
The interchange of I-5/Sperry Avenue is configured as a tight diamond with a narrow local road underpass and a steep drop in grade next to the northbound on-ramp. The ramps are one lane in each direction.

State Route 33 (SR 33), approximately three miles to the east of I-5, provides north-south access to Westley to the north and Crows Landing to the south. Its ADT is approximately 3,000 to 4,700 vpd.

Existing Local Street Circulation System

Figure 1 shows the existing local street circulation in the project area. Sperry Avenue serves east-west traffic while Baldwin Road serves north-south traffic in the project vicinity.

Sperry Avenue in the project vicinity is a two-lane major arterial that provides the main access between Patterson and the proposed project and I-5. In the vicinity of I-5, east of Rogers Road, the existing ADT is approximately 5,880 vpd. Compared to the ADT of approximately 2,800 vpd in



North
Not to Scale



Figure
1

City of Patterson West Patterson Projects Traffic Study Vicinity Map and Study Locations

LEGEND
● Study Intersection
— Locations of ADT Counts and Study Segment

1990, that is more than doubling of traffic, with an average growth rate of nearly 10 percent per year in the last 10 years.

Baldwin Road is a two-lane north-south collector street between Sperry Avenue and SR 33. It will also act as the eastern boundary of the proposed non-residential West Patterson Projects site.

Ward Avenue is a two-lane north-south collector that parallels Baldwin Road and connects to SR 33 on the north and to I-5 near Fink Road south of the City of Patterson.

Las Palmas Avenue to the east of the project is a two-lane major east west arterial with a center two-way left-turn lane until Sycamore Avenue where it narrows to a two-lane road. To the west of SR 33 is a roundabout on Las Palmas Avenue that is formed by four major streets. Traffic destined for Modesto currently uses either Las Palmas Avenue or I-5.

East Las Palmas Avenue (which begins to the east of SR 33) currently carries approximately 11,700 vpd to the east of downtown Patterson. East Las Palmas Avenue is generally a wide two-lane road with palm trees on each side of the road. The palm tree streetscape continues to the west of SR 33 at the roundabout.

Rogers Road is currently a two-lane north-south road that runs on the western boundary of the project area. The road connects Sperry Avenue to SR 33. A count taken in 2001 showed an ADT of approximately 260 vpd.

General Plan Standards of Significance

In the City's 1992 General Plan, Policy III.A.2 states that "The City shall endeavor to maintain a Level of Service (LOS) "C", as defined by the 1985 Highway Capacity Manual (HCM) or subsequent revisions, on all streets and intersections within the City." For planning level LOS analysis, the City of Patterson General Plan recommends the LOS analysis be based on ADT. The City's LOS C criterion denotes a stable traffic flow with average delays.

Since the 1985 HCM, many subsequent revisions have been made. The 2000 Highway Capacity Manual is the latest version of the highway capacity manual published by the Federal Highway Administration (FHWA).

The 2000 HCM provides several methodologies to evaluate levels of service on roadway segments, signalized or unsignalized intersections, expressways and freeways. For suburban and urbanized roadway segments, the LOS methodology is based on travel speed. These are generally utilized in the operational analysis. Such analyses are based on peak hour volumes and not on ADT. These criterion generally utilize travel speeds, delay and volume-to-capacity ratios to better reflect actual field conditions. As a City becomes more urbanized, intersection-based peak hour LOS criterion is better suited to monitor and categorize the traffic conditions of the roadway system. The City of Patterson should consider adopting intersection-based LOS criterion. ADT-based LOS is useful for roadway planning purposes at the link or roadway segment level. Intersection LOS operational analysis is based on peak hour turning movement volumes. Many jurisdictions adopt a lower LOS threshold (for example San Joaquin County adopted LOS D and Santa Clara County adopted LOS E) for peak hour analysis. This is more reasonable since traffic are much more congested during one hour of the day compared to daily traffic (ADT) which spreads out throughout the day.

Levels of service are defined by a range from LOS A to LOS F. Briefly, LOS A represents the best condition, denoting free-flow conditions with little or no restrictions to driver behavior. LOS F denotes jammed traffic flow conditions with intolerable delays and back-ups during the peak hour.

In this report, the level-of-service analysis will be conducted based on peak hour intersection LOS as defined in the 2000 HCM. The analysis will use LOS C as the impact threshold, in which impact below the threshold will be considered unacceptable. A description of the levels-of-service analysis methodology is contained in Appendix A.

Of the 21 study intersections, 16 are unsignalized. The method of unsignalized intersection capacity analysis used in this study is from Chapter 10, "Unsignalized Intersections" of the *Highway Capacity Manual, Special report No. 209*, Transportation Research Board, updated October 2000.

This method applies to two-way STOP sign or YIELD sign controlled intersections (or one-way STOP sign or YIELD sign controlled intersections at three-way intersections). At such intersections, drivers on the minor street are forced to use judgment when selecting gaps in the major flow through which to execute crossings or turning maneuvers. Thus, the capacity of the controlled legs of an intersection is based on three factors:

1. The distribution of gaps in the major street traffic stream.
2. Driver judgment in selecting gaps through which to execute their desired maneuvers.
3. Follow-up time required to move into the front-of-queue position.

The level of service criterion for Two-Way STOP controlled intersections is somewhat different from the criterion used in Chapter 9 for signalized intersections. The primary reason for this is the difference that drivers expect a signalized intersection to carry higher traffic volumes than unsignalized intersections. Additionally, several driver behavior conditions combine to make delays at signalized intersections less onerous than at unsignalized intersections.

The LOS is reported for both the minor approach as well as for the whole intersection. Depending on the availability of gaps, the minor approach might be operating at LOS D, E or F while the intersection LOS operates at LOS C or better. A minor approach that operates at LOS D, E or F does not automatically translate into a need for a traffic signal. A signal warrant would still need to be met. There are many instances where only a few vehicles are experiencing LOS D, E or F on the minor approach while the whole intersection operates at an acceptable LOS. A signal is usually not warranted under such conditions.

Existing Traffic Condition

Based on consultations with the City, County and Stanislaus County Council of Government staff (STANCOG), 21 intersections and 11 roadway segments have been selected for analysis. AM and PM peak hour turning movement counts were obtained during February 2002. The turning movement counts are shown in Figure 2 while the existing lane geometry are shown in Figure 3. The intersection level of service analysis results are shown in Table I.

TABLE I: EXISTING LEVELS OF SERVICE

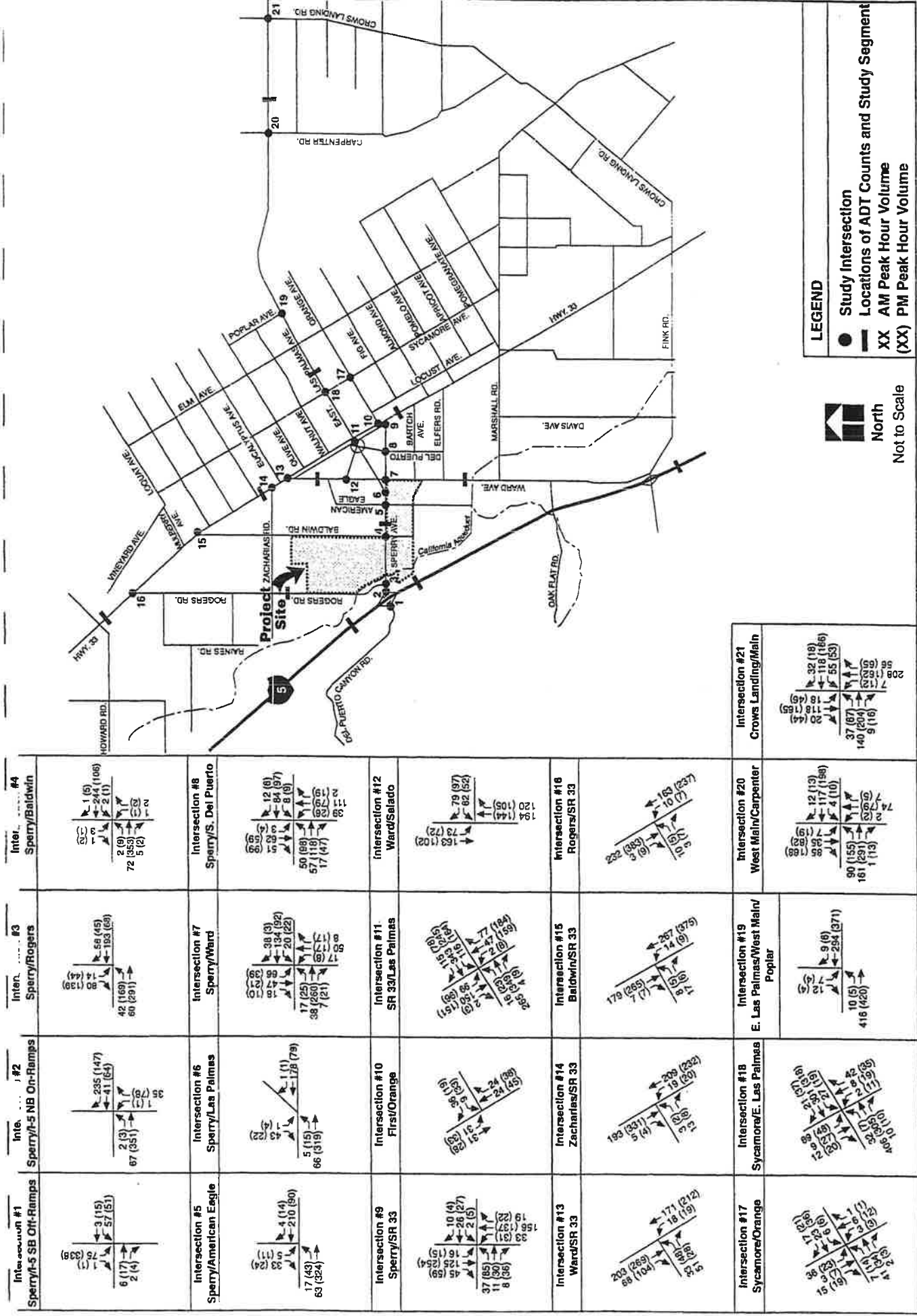
	Existing Intersection Control	AM		PM	
		Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	Unsignalized	10.0	A	13.5	B
2. Sperry Ave/I-5 NB On-Ramps	Unsignalized	8.8	A	11.4	B
3. Sperry Ave/Rogers Road	Signalized	6.0	A	8.4	A
4. Sperry Ave/Baldwin Rd	Unsignalized	10.1	B	11.4	B
5. Sperry Ave/American Eagle Dr	Signalized	4.5	A	3.6	A
6. Sperry Ave/Las Palmas Ave	Unsignalized	9.1	A	9.2	A
7. Sperry Ave/Ward Ave	Signalized	5.0	A	5.1	A
8. Sperry Ave/S Del Puerto Ave	Signalized	4.4	A	5.4	A
9. Sperry Ave/SR-33	Unsignalized	8.7	A	10.6	B
10 First St/Orange Ave	Unsignalized	8.9	A	9.5	A
11. SR-33/Las Palmas Ave	Signalized	10.5	B	18.4	B
12. Ward Ave/ Salado Ave	Unsignalized	13.9	B	12.1	B
13. Ward Ave/SR-33	Unsignalized	11.4	B	0.8	A
14. Zacharias Rd/SR-33	Unsignalized	10.0	A	11.1	B
15. Baldwin Rd/SR-33	Unsignalized	10.4	B	0.3	A
16. Rogers Rd/SR-33	Unsignalized	11.0	B	12.3	B
17. Sycamore Ave/Orange Ave	Unsignalized	9.6	A	9.9	A
18. Sycamore Ave/E. Las Palmas Ave	Unsignalized	17.2	C	15.4	C
19. E.Las Palmas/ Poplar Ave	Unsignalized	12.4	B	13.8	B
20. West Main/Carpenter Rd	Unsignalized	9.5	A	18.3	C
21. West Main/Crows Landing Rd	Unsignalized	11.6	B	14.8	B
Note: LOS = Level of Service X = Intersection level of service X.X = Overall intersection delay in seconds per vehicle (X) = Level of service for the minor approach Delay =Average stopped delay at signalized intersections and average delay for all movements at STOP-controlled intersections.					

Travel Demand Analysis For the West Patterson Projects

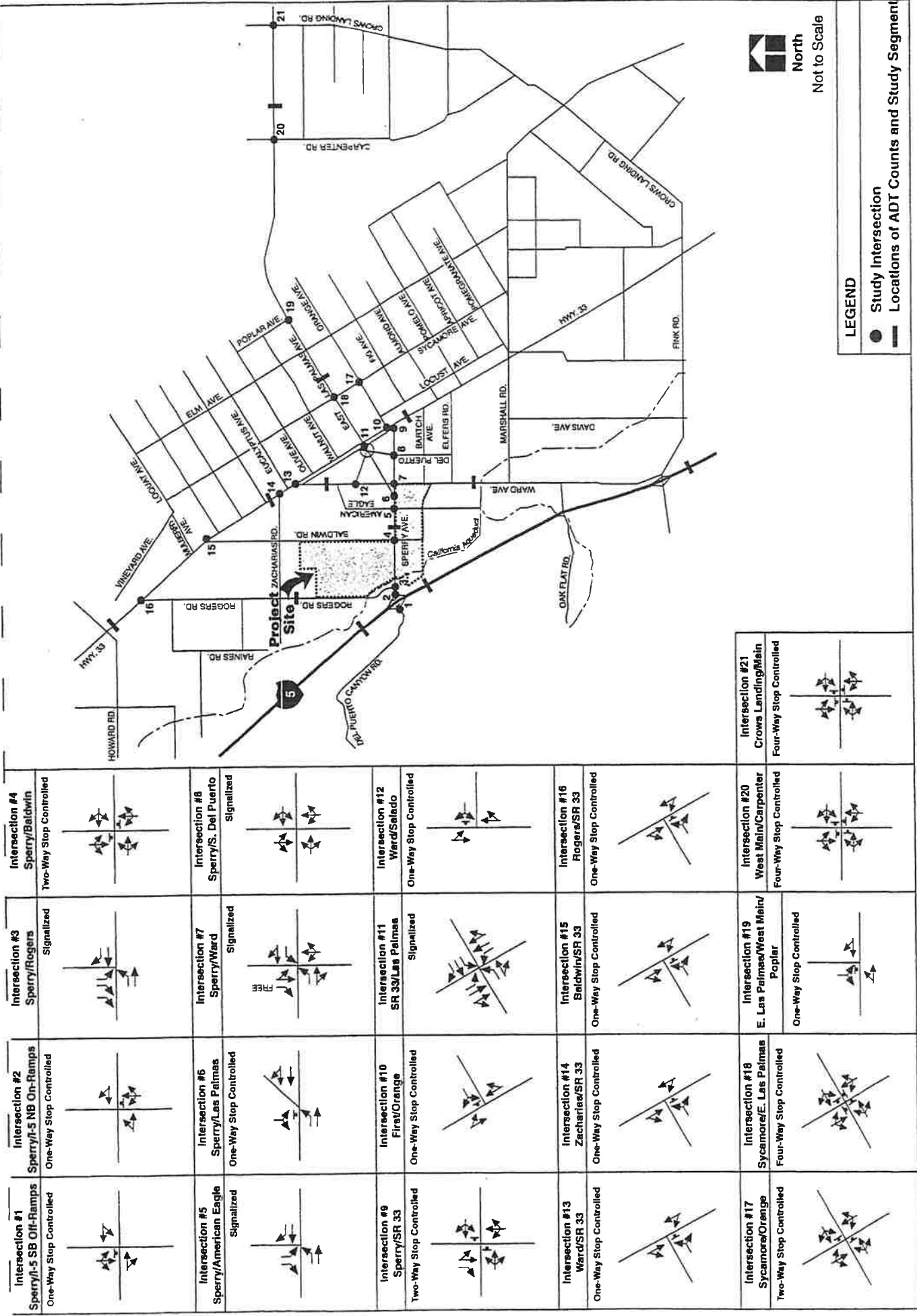
A long-range traffic forecasting model was used to assess the impact of the proposed West Patterson Business Park Master Plan project. The (STANCOG) countywide gravity based model was used in the study.

The current STANCOG model is a daily model. The model estimates the daily trips using a trip generation equation for each land use type. After trip generation, the model distributes all the trips between their origins and destinations onto the roadway network in the model and assigns trips to individual streets.

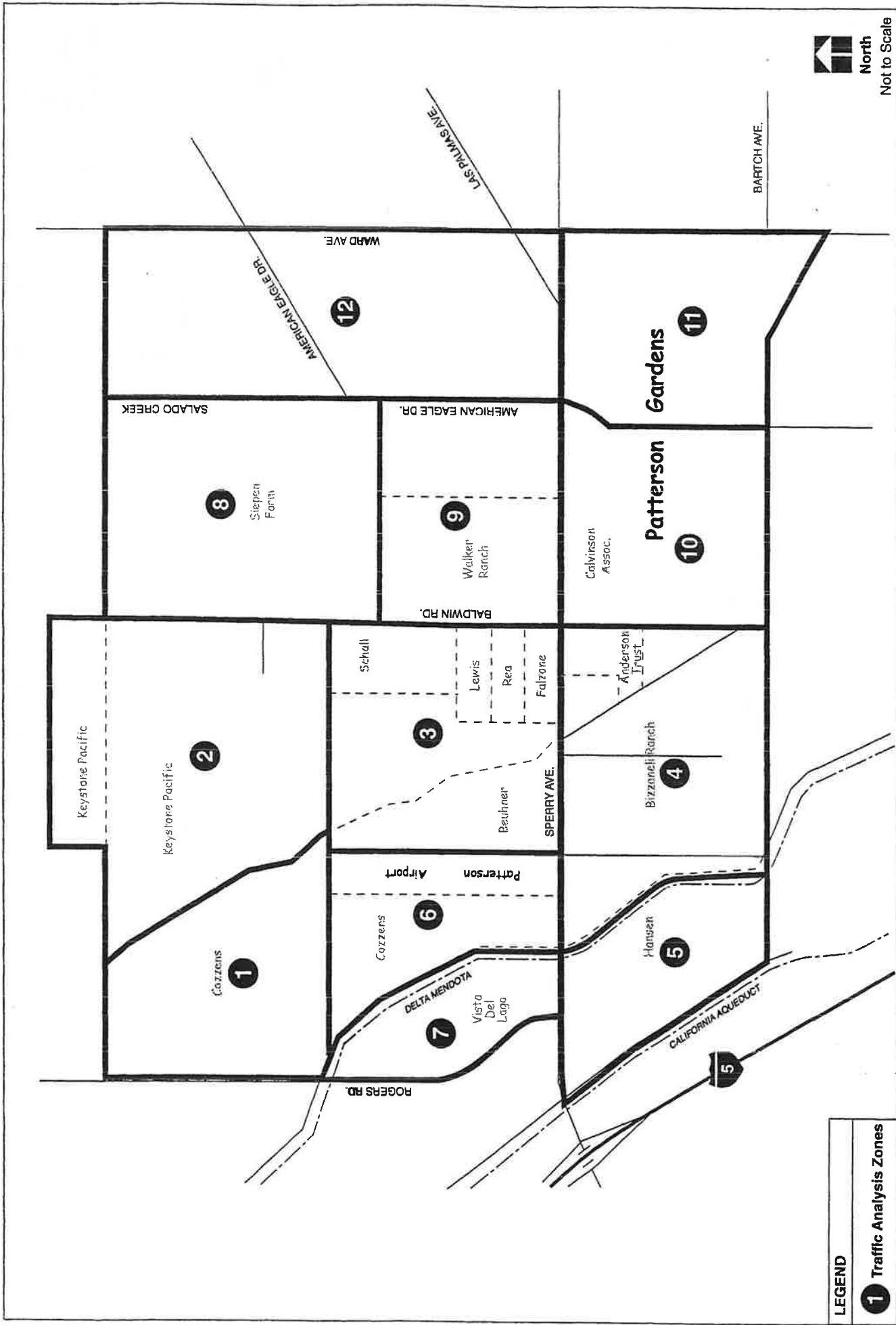
As part of this project, an AM and PM peak hour model was developed from the STANCOG model. A detailed model calibration was made based on the counts collected at the 21 study intersections and 11 roadway segments. The Traffic Analysis Zones (TAZs) for the project and its vicinity are shown in Figure 4. TAZs are used to represent geographical locations in the model. Trips are generated at the TAZ level and distributed onto the roadway network. The land use assumptions for the project area are shown in Figure 5.



City of Patterson
West Patterson Projects Traffic Study
Existing Peak Hour Turning Movement Volumes



City of Patterson
West Patterson Projects Traffic Study
Existing Lane Geometry



City of Patterson
 West Patterson Projects Traffic Study
 Traffic Analysis Zones (TAZs) in the Project Vicinity

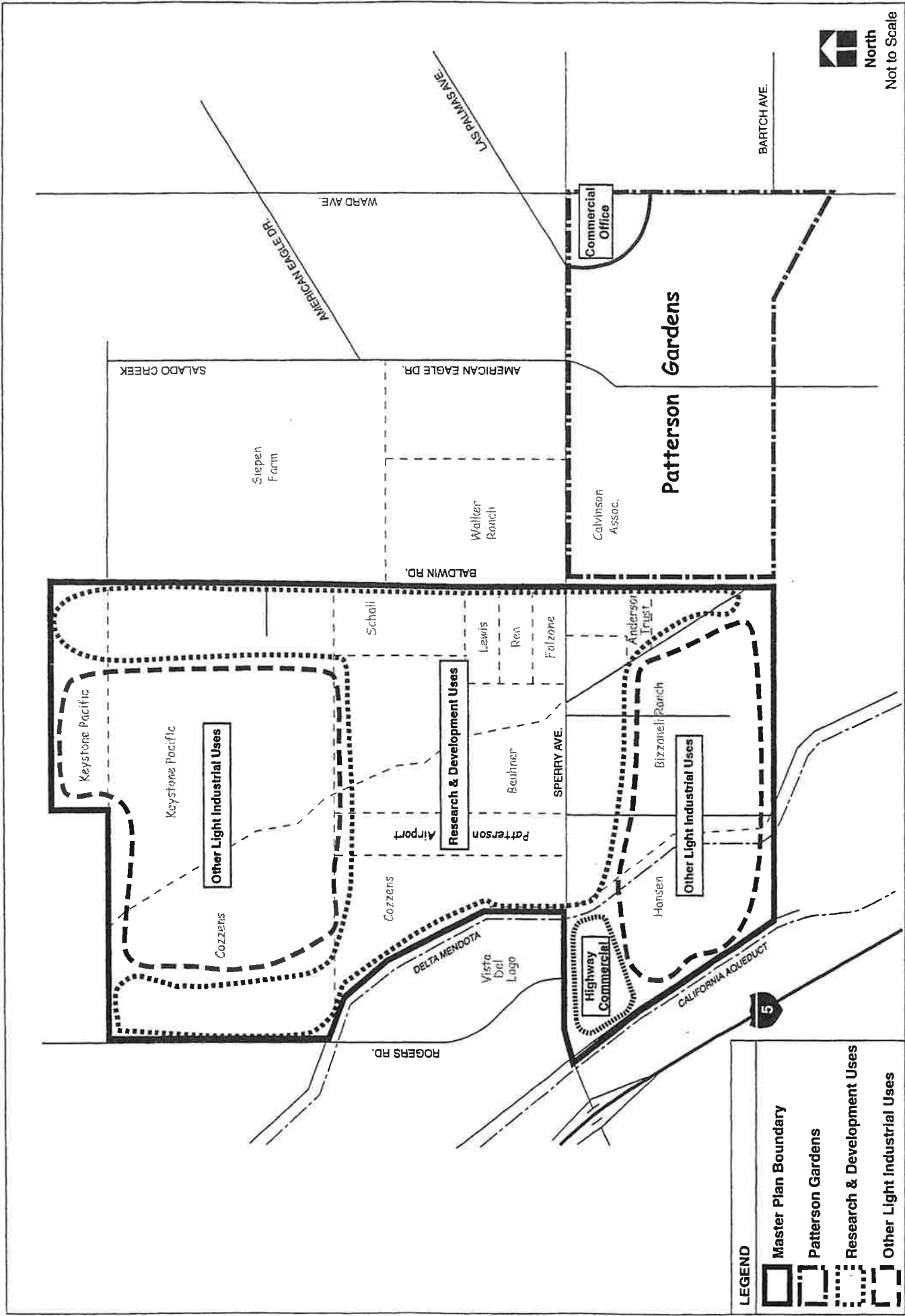


TABLE II: TRIP GENERATION FOR THE WEST PATTERSON PROJECTS

TAZs	Land Use	Name	Size	Units	Emp.	A.M. Peak Hour			P.M. Peak Hour		
						In	Out	Total	In	Out	Total
1	R & D	Cozzens north	439,005	SF	2,435	700	256	1,016	313	791	1,104
	Lt. Industrial		1,006,236	SF							
2	R & D	Keystone Pacific	627,264	SF	4,555	1,389	461	1,850	562	1,443	2,004
	Lt. Industrial		2,130,084	SF							
3	R & D	Schali, Beuhner, Lewis, Rea, Falzone	1,599,523	SF	3,178	1,098	420	1,519	513	1,160	1,672
4	R & D	Bizzanelli Ranch, Hansen east	1,704,067	SF	3,385	1,174	478	1,651	546	1,239	1,786
5	Hwy. Comm.	Hansen west	473,933	SF	1,481	641	313	954	351	664	1,015
	Lt. Industrial		392,040	SF							
6	R & D	Cozzens south,	606,355	SF	1,205	421	160	581	196	444	640
10	Residential	Patterson Gardens (Calvinson west)	440	du		48	170	218	187	71	258
11	Residential	Patterson Gardens (Calvinson east) and Middle School	547	du	746	410	383	793	427	453	880
	Comm./Office	GPA	302,481	SF							
Total Trips						5,941	2,641	8,582	3,095	6,265	9,360
Note: SF = square feet Du = dwelling units											

Roadway mitigation measures would be necessary at these intersections to operate at acceptable levels of service. The necessary mitigation measures are shown in Figure 7 and the results of the mitigated conditions are shown in Table III. Compared to the existing condition, 14 more intersections (plus two more at the project driveways) should be signalized in the project condition. These are shown in bold under the "Existing plus Project Intersection Control" column. The detailed results of the LOS analysis are contained in Appendix C.

Intersections where mitigation measures are needed are describe below:

1. Sperry Ave/I-5 SB Off-Ramps

Signalize intersection and add southbound and westbound left-turn lanes.

2. Sperry Ave/I-5 NB On-Ramps

Signalize intersection and add eastbound left-turn and through lanes, add westbound through lane and northbound right-turn lane.

3. Sperry Ave/Rogers Road

In the eastbound add a through and right-turn lane; in the westbound, add two left-turn lanes, and a through lane; in the northbound, add a left, through and right turn lanes; and a through lane in the southbound approach.

4. Sperry Ave/Baldwin Rd

Signalize the intersection and in the eastbound add a left-turn lane and a right-turn lane; in the westbound, add a left-turn lane, a through lane and a right-turn lane; in the northbound, add a left-turn lane; and in the southbound add two left-turn lanes.

5. Sperry Ave/American Eagle Dr

In the eastbound, add a through lane; in the northbound, add a left-turn lane and a shared through and right-turn lane.

6. Sperry Ave/Las Palmas Ave

Signalized intersection and in the eastbound, add a through lane; in the westbound, add a left-turn lane; in the northbound, add a left-turn lane and a shared through and right-turn lane; in the southbound add a shared through and right-turn lane.

7. Sperry Ave/Ward Ave

Add a through lane in the eastbound approach.

9. Sperry Avenue/SR-33

Signalized intersection.

12. Ward Avenue/Salado Creek

Signalized intersection.

13. Ward Avenue/SR 33

Signalized intersection.

14. Zacharias Rd/SR-33

Signalize the intersection and in the eastbound approach on Zacharias Road, add a right-turn lane. In the northbound approach on SR-33, add a left-turn lane.

15. Baldwin Avenue/SR 33

Signalized intersection.

16. Rogers Road/SR 33

Signalized intersection.

18. Sycamore Avenue/E. Las Palmas Avenue

Signalized intersection.

19. E.Las Palmas/ Poplar Ave

Signalized intersection and on the southbound approach, add a left-turn lane; in the westbound, add a right-turn lane.

20. West Main/Carpenter Rd

Signalized intersection and add a left-turn lane on the eastbound and westbound approach.

21. West Main/Crows Landing Rd

Signalize the intersection and add a left-turn lane in the eastbound and westbound; and add a right-turn lane in the southbound and in the northbound.

TABLE III: EXISTING PLUS PROJECT LEVELS OF SERVICE

	Existing Traffic Control	Existing plus Project Intersection Control (Mitigated)	Existing Condition				Existing plus Project Condition							
			AM		PM		AM		AM -Mitigated		PM		PM - Mitigated	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	Unsignalized	Signalized	10.0	A	13.5	B	>120	F	8.3	A	>120	F	24.1	C
2. Sperry Ave/I-5 NB On-Ramps	Unsignalized	Signalized	8.8	A	11.4	B	>120	F	6.9	A	42.5	E	5.3	A
3. Sperry Ave/Rogers Road	Signalized	Signalized	6.0	A	8.4	A	116.0	F	19.0	B	>120	F	23.0	C
4. Sperry Ave/Baldwin Rd	Unsignalized	Signalized	10.1	B	11.4	B	>120	F	20.0	B	>120	F	23.6	C
5. Sperry Ave/American Eagle Dr	Signalized	Signalized	4.5	A	3.6	A	98.6	F	15.1	B	32.2	C	7.0	A
6. Sperry Ave/Las Palmas Ave	Unsignalized	Signalized	9.1	A	9.2	A	>120	F	11.5	B	>120	F	22.7	C
7. Sperry Ave/Ward Ave	Signalized	Signalized	5.0	A	5.1	A	56.7	E	25.1	C	12.3	B	13.8	B
8. Sperry Ave/S Del Puerto Ave	Signalized	Signalized	4.4	A	5.4	A	8.4	A	--	--	23.2	C	--	--
9. Sperry Ave/SR-33	Unsignalized	Signalized	8.7	A	10.6	B	88.6	F	7.6	A	>120	F	29.7	C
10 First St/Orange Ave	Unsignalized	Unsignalized	8.9	A	9.5	A	10.0	A	--	--	10.4	B	--	--
11. SR-33/Las Palmas Ave	Signalized	Signalized	10.5	B	18.4	B	29.0	C	--	--	22.6	C	--	--
12. Ward Ave/ Salado Ave	Unsignalized	Signalized	13.5	B	12.1	B	77.4	F	10.0	B	15.1	C	3.8	A
13. Ward Ave/SR-33	Unsignalized	Signalized	11.4	B	-0.8	A	42.3	E	7.1	A	69.7	F	17.3	B
14. Zacharias Rd/SR-33	Unsignalized	Signalized	10.0	A	11.1	B	19.9	C	12.9	B	>120	F	20.8	C
15. Baldwin Rd/SR-33	Unsignalized	Signalized	10.4	B	0.3	A	25.6	B (D)	5.9	A	>120	F	12.8	B
16. Rogers Rd/SR-33	Unsignalized	Signalized	11.0	B	12.3	B	44.4	E	6.3	A	>120	F	17.5	B
17. Sycamore Ave/Orange Ave	Unsignalized	Unsignalized	9.6	A	9.9	A	10.0	B	--	--	10.2	B	--	--
18. Sycamore Ave/E. Las Palmas Ave	Unsignalized	Signalized	17.2	C	15.4	C	>120	F	12.5	B	>120	F	13.0	B
19. E.Las Palmas/ Poplar Ave	Unsignalized	Signalized	12.4	B	13.8	B	54.6	F	3.5	A	>120	F	19.4	B
20. West Main/Carpenter Rd	Unsignalized	Signalized	9.5	A	18.3	C	>120	F	27.5	C	>120	F	20.6	C
21. West Main/Crows Landing Rd	Unsignalized	Signalized	11.6	B	14.8	B	>120	F	15.7	B	>120	F	8.9	A
22. Sperry Ave/Proposed Road A	Assumed Signalized	Signalized	--	--	--	--	--	--	11.9	B	--	--	28.7	C
23. Sperry Ave/Proposed Road B	Assumed Signalized	Signalized	--	--	--	--	--	--	29.1	C	--	--	23.0	C

Note: LOS = Level of Service

X = Intersection level of service

X.X = Overall intersection delay in seconds per vehicle

(X) = Level of service for the minor approach at an unsignalized intersection

Delay =Average stopped delay at signalized intersections and average delay for all movements at STOP-controlled intersections.

Mitigated lane configurations are shown in Figure 7. Same mitigation measures assumed for both AM and PM peak hours as appropriate.

Future 2025 Base Year plus Project Condition

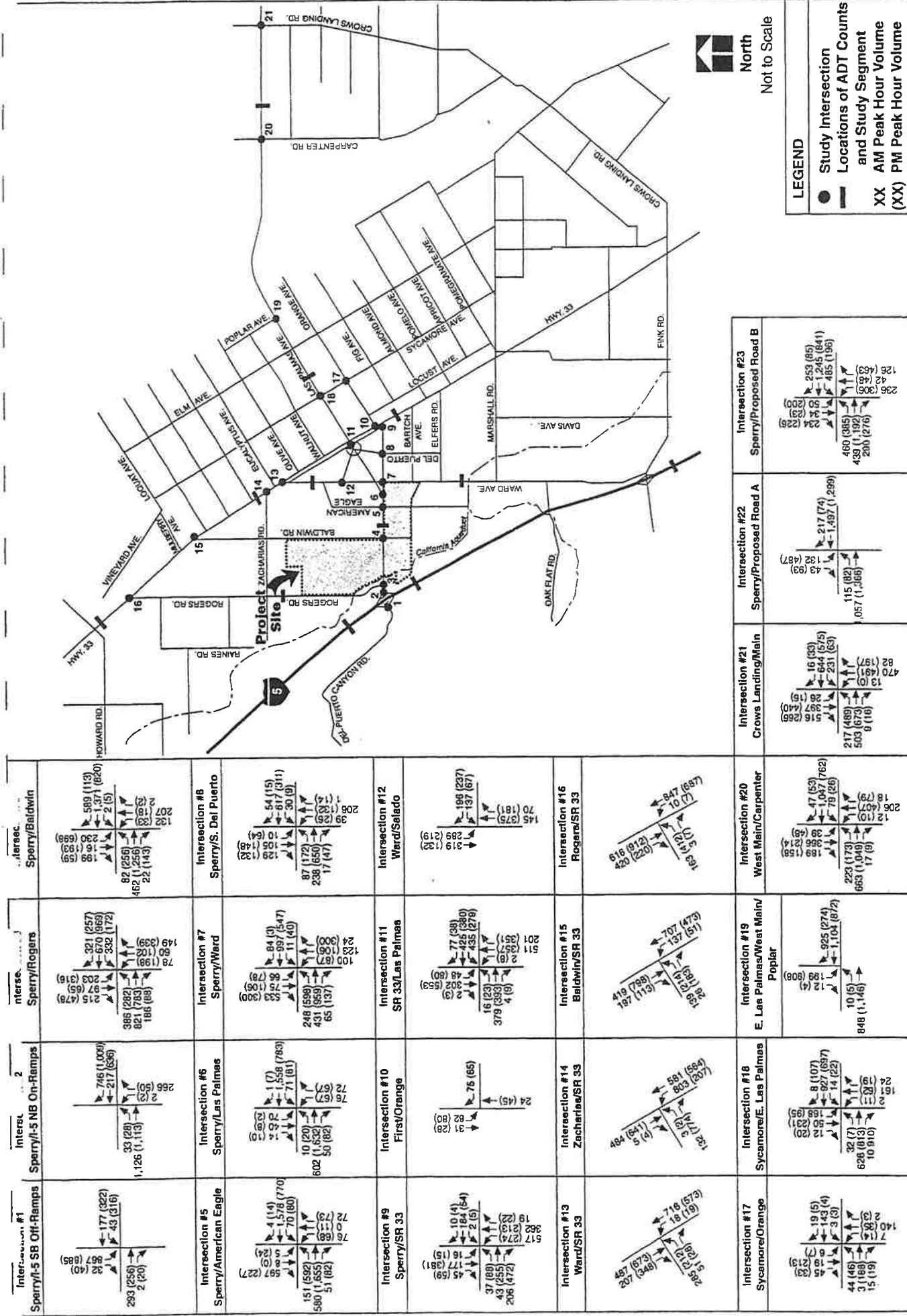
The estimated project trips were generated and loaded onto the 2025 network. The Future 2025 Base Year plus Project Condition peak hour turning movements are shown in Figure 10. This figure shows the total proposed project trips and the base 2025 traffic volumes.

In essence, the figure shows the projected buildout of the future 2025 traffic for the cumulative land use of the City of Patterson and the proposed project. The levels of service due to the impact of the proposed project are shown in Table VI. Nineteen of the 21 study intersections would operate at LOS D, E or LOS F. Compared to the Future 2025 Base Year scenario and including the two project access on Sperry Avenue, six additional intersections would require signalization. These are Sperry Avenue at the I-5 Northbound Off-Ramp, Sperry Avenue at Las Palmas Avenue, Sperry Avenue at SR 33, Ward Avenue/Salado Avenue and the two new project locations on Sperry Avenue.

TABLE VI: FUTURE 2025 BASE CONDITION PLUS PROJECT LEVELS OF SERVICE

Study Intersections	Existing Intersection Control	Future 2025 Base plus Project (Mitigated)	Future 2025 Base Conditions plus Project							
			AM		AM - Mitigated		PM		PM - Mitigated	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Sperry Ave/I-5 SB Off-Ramps	Unsignalized	Signalized	>120	F	22.5	C	>120	F	25.2	C
2. Sperry Ave/I-5 NB On-Ramps	Unsignalized	Signalized	>120	F	7.2	A	48.2	E	5.2	A
3. Sperry Ave/Rogers Road	Signalized	Signalized	29.6	C	22.6	C	46.7	D	34.4	C
4. Sperry Ave/Baldwin Rd	Unsignalized	Signalized	82.9	F	21.1	C	61.3	E	22.4	C
5. Sperry Ave/American Eagle Dr	Signalized	Signalized	>120	F	11.2	B	>120	F	9.0	A
6. Sperry Ave/Las Palmas Ave	Unsignalized	Signalized	>120	F	16.2	B	>120	F	16.2	B
7. Sperry Ave/Ward Ave	Signalized	Signalized	85.7	F	22.7	C	>120	F	14.1	B
8. Sperry Ave/S Del Puerto Ave	Signalized	Signalized	26.7	C	20.7	C	88.5	F	16.7	B
9. Sperry Ave/SR-33	Unsignalized	Signalized	>120	F	17.4	B	>120	F	15.1	B
10. First St/Orange Ave	Unsignalized	Unsignalized	12.1	B	—	—	11.5	B	—	—
11. SR-33/Las Palmas Ave	Signalized	Signalized	44.4	D	30.2	C	26.4	C	24.0	C
12. Ward Ave/ Salado Ave	Unsignalized	Signalized	>120	F	8.3	A	64.7	F	7.6	A
13. Ward Ave/SR-33	Unsignalized	Signalized	>120	F	12.7	B	>120	F	14.6	B
14. Zacharias Rd/SR-33	Unsignalized	Signalized	>120	F	13.9	B	>120	F	8.3	A
15. Baldwin Rd/SR-33	Unsignalized	Signalized	>120	F	11.5	B	>120	F	18.9	B
16. Rogers Rd/SR-33	Unsignalized	Signalized	>120	F	6.4	A	>120	F	12.5	B
17. Sycamore Ave/Orange Ave	Unsignalized	Unsignalized	12.5	B	—	—	16.4	C	—	—
18. Sycamore Ave/E. Las Palmas Ave	Unsignalized	Signalized	>120	F	14.6	B	>120	F	9.8	A
19. E.Las Palmas/ Poplar Ave	Unsignalized	Signalized	>120	F	4.9	A	>120	F	15.3	B
20. West Main/Carpenter Rd	Unsignalized	Signalized	>120	F	22.3	C	>120	F	28.3	C
21. West Main/Crows Landing Rd	Unsignalized	Signalized	>120	F	21.6	C	>120	F	13.8	B
22. Sperry Ave/Proposed Road A	-	Assumed Signalized	—	—	4.9	A	—	—	13.8	B
23. Sperry Ave/Proposed Road B	-	Assumed Signalized	—	—	30.6	C	—	—	21.0	C

Note: LOS = Level of Service
X = Intersection level of service
X.X = Overall intersection delay in seconds per vehicle
(X) = Level of service for the minor approach
Delay =Average stopped delay at signalized intersections and average delay for all movements at STOP-controlled intersections.
Mitigated lane configurations are shown in Figure 11. Same mitigation measures assumed for both AM and PM peak hours as appropriate.



City of Patterson
West Patterson Projects Traffic Study

Future 2025 Base Condition + Project Peak Hour Turning Movement Volumes

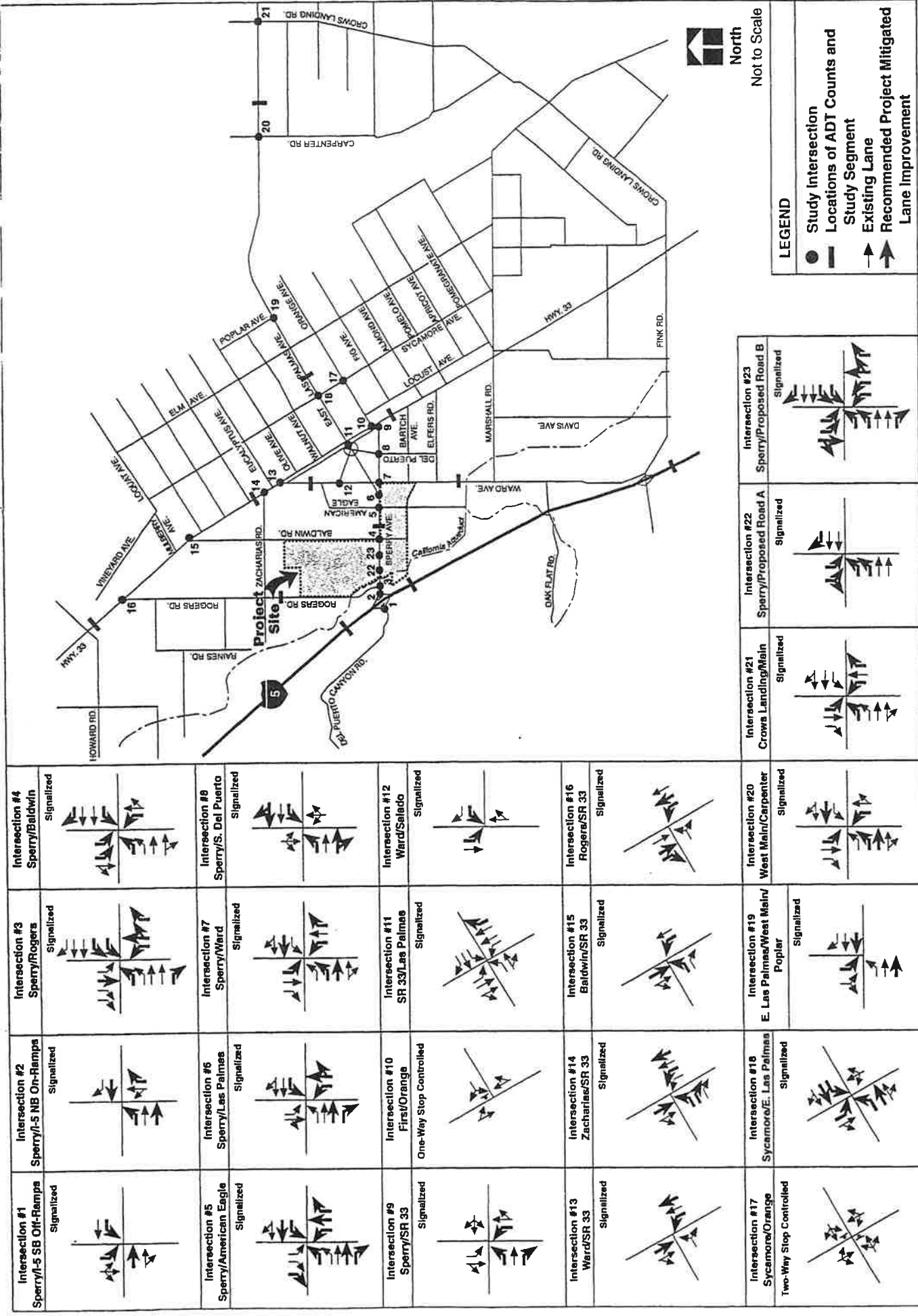
The projected traffic could be accommodated assuming widening of Sperry Avenue to four-lanes and the mitigated intersection lane geometry as shown in Figure 11. The detailed mitigation measures necessary for each intersection is described in the mitigation measures section. The assumed four-lane Sperry Avenue with turn lanes and transitions (between Rogers Road and Baldwin Road) are schematically shown in Figure 12. The interchange at Sperry Avenue and I-5 also needs to be improved. The southbound ramp needs to be improved to include two left-turn lanes and the underpass widened to four-lanes. The detailed results of the LOS analysis are contained in Appendix E

The peak hour roadway link level traffic volumes and impacts are shown in Table VII. Based on the existing roadway lane configuration, and assuming that Sperry Avenue would be widened to a four-lane road the projected traffic volumes for the Future 2025 Base Condition and 2025 Base plus Project Conditions on all study roadways in the City will operate at LOS C or better.

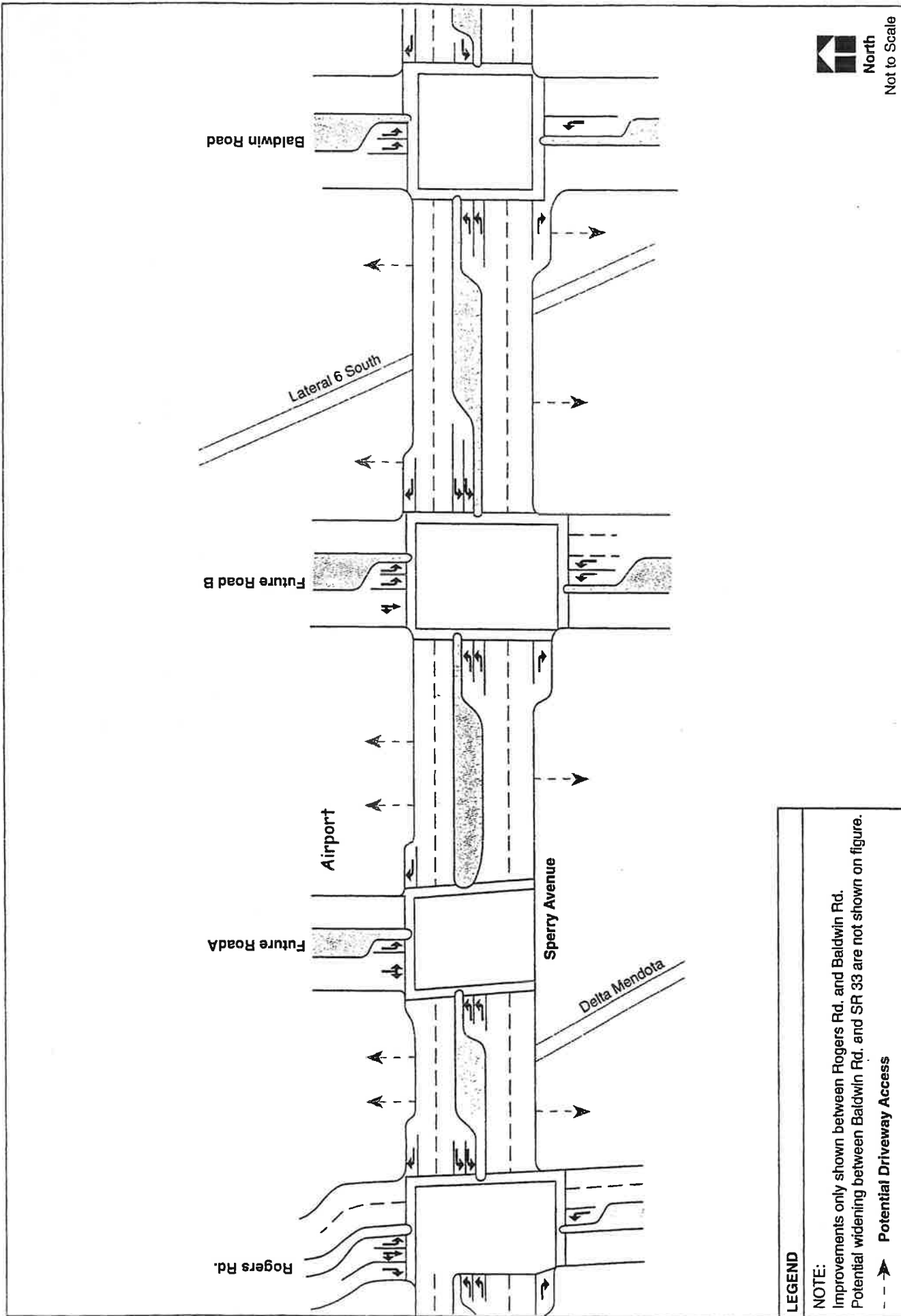
However, under the Future 2025 Base Conditions, it is estimated that the projected southbound PM peak hour traffic on I-5 (to the north of Sperry Avenue) will operate at LOS E. For the Future 2025 plus Project Conditions, the same section on I-5 will operate at LOS F in the southbound direction during the PM peak hour and LOS F in the northbound during the AM peak hour. The draft PSR developed by Caltrans for I-5/Sperry Avenue Interchange indicated that I-5 would fail by 2021 north of Sperry Avenue, and by 2029 south of Sperry Avenue.

TABLE VII: FUTURE 2025 ROADWAY SEGMENTS LEVELS OF SERVICE

Study Segments	Peak Direction	Future 2025 Base Conditions				Future 2025 plus Project Conditions			
		AM		PM		AM		PM	
		Volumes	LOS	Volumes	LOS	Volumes	LOS	Volumes	LOS
1. I-5, n/o Sperry Ave. ¹	NB	3,433	D	2,714	C	3,944	F	3,507	E
	SB	2,687	C	3,518	E	3,396	D	4,067	F
2. I-5, s/o Sperry Ave. ¹	NB	3,185	D	2,501	C	3,434	D	2,522	C
	SB	2,523	C	3,154	D	2,542	C	3,477	D
3. I-5, s/o Fink Rd. ¹	NB	3,226	D	2,545	C	3,312	D	2,564	C
	SB	2,564	C	3,218	D	2,582	C	3,323	D
4. Sperry Ave. ^{2,3}	EB	587	A	756	A	2,250	C	1,045	C
	WB	450	A	544	A	781	C	2,329	C
5. SR-33, n/o Rogers Rd. ²	NB	879	B	732	B	1,009	B	1,098	B
	SB	641	A	992	B	1,038	B	1,132	B
6. SR-33, n/o Zacharias Rd. ²	NB	744	B	524	A	581	A	564	A
	SB	456	A	794	B	484	A	641	A
7. SR-33, s/o Sperry Ave. ²	NB	433	A	424	A	878	B	487	A
	SB	353	A	541	A	383	A	853	B
8. Ward Ave., n/o American Eagle ²	NB	344	A	195	A	285	A	235	A
	SB	142	A	374	A	213	A	348	A
9. Ward Ave., n/o Marshall Rd. ²	NB	107	A	136	A	521	A	109	A
	SB	116	A	137	A	78	A	604	A
10. E. Las Palmas Ave., e/o Sycamore Ave. ²	EB	848	B	824	B	819	B	927	B
	WB	819	B	826	B	949	B	825	B
11. Main St., e/o Carpenter Rd. ²	EB	853	B	1,011	B	720	B	1,175	B
	WB	879	B	929	B	1,173	B	841	B
Notes: ¹ Highway Capacity Manual 2000 – Basic Freeway Segments Analysis ² Highway Capacity Manual 2000 –Urban Streets Analysis. ³ Sperry Avenue assumed to be four lanes. All other roadway based on existing lane configurations.									



**City of Patterson
West Patterson Projects Traffic Study
Future 2025 Base Condition + Project-Mitigated Lane Geometry**



City of Patterson
West Patterson Projects Traffic Study
Assumed Future Sperry Avenue Four Lane Schematics

PROJECT AREA CIRCULATION AND ROADWAY SECTIONS

The project area to the west of Baldwin Road is proposed to be primarily Light Industrial, Research and Development (R&D) and Highway Commercial uses.

Between Baldwin Road to the east and I-5 to the west, all the streets in the study area would be serving primarily industrial, R&D and commercial or retail traffic.

Well Designed Healthy Streets

Nationally, there is a general movement towards narrower street design. Research has shown that streets have been designed to be too wide in the past for several reasons: i) most streets have been designed only to move autos as quickly as possible, without any considerations to other uses or modes of travel, ii) most agencies have adopted standards from other agencies without due considerations for local conditions and iii) most agencies are reluctant to use street standards narrower than those published by ASSHTO for fear of lawsuits. However, it should be recognized that ASSHTO was adopted primarily for design of highways, not city streets.

The latest research has generally concluded that a narrower street width is considered to be better design in that it will ensure slower travel speeds and promote pedestrian safety and generally more walkable communities. The research and findings supporting these generally narrower street width designs are documented in the recently published (January 1999) "*Street Design Guidelines for Healthy Neighborhoods*" authored by Dan Burden and published by the Local Government Commission, Center for Livable Communities.

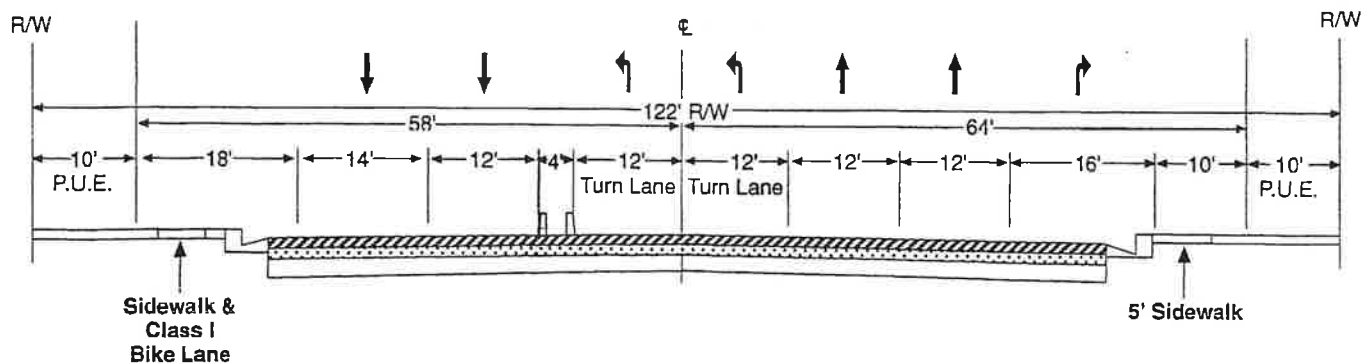
Pedestrian and Bicycle Use

The intention of the City's General Plan is to encourage pedestrian and bicycle travel. New development will be required to pay its fair share of the costs for development of a pathway system expected to connect residential areas with recreation, shopping, and employment areas within the City, and where practical, as part of a region-wide bikeway system. The General Plan specifies that while some bicycle lanes shall be included within public streets, the emphasis shall be on paths separated from vehicle traffic to the maximum extent possible.

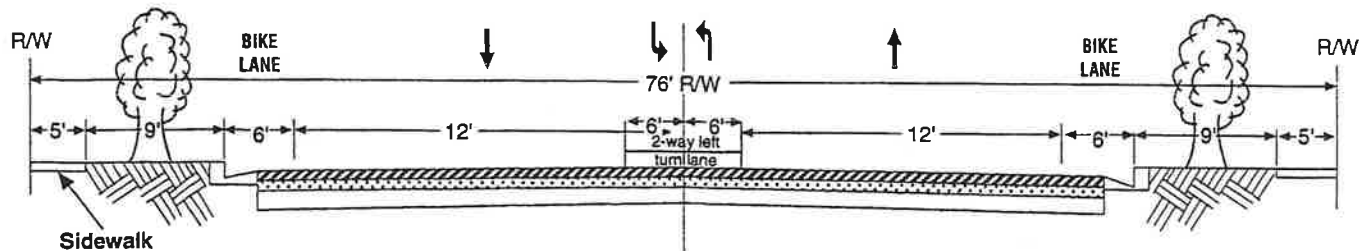
With the above trend of narrower roadway width and to facilitate the General Plan goal to accommodate non-auto modes of travel, TJKM recommends the street sections as shown in Figure 13.

Sperry Avenue should be a four-lane road with a raised landscaped median, turn lanes and six-foot on-street bike lane. The right-of-way will be approximately 100 feet, except near intersections where extra turn lanes are required.

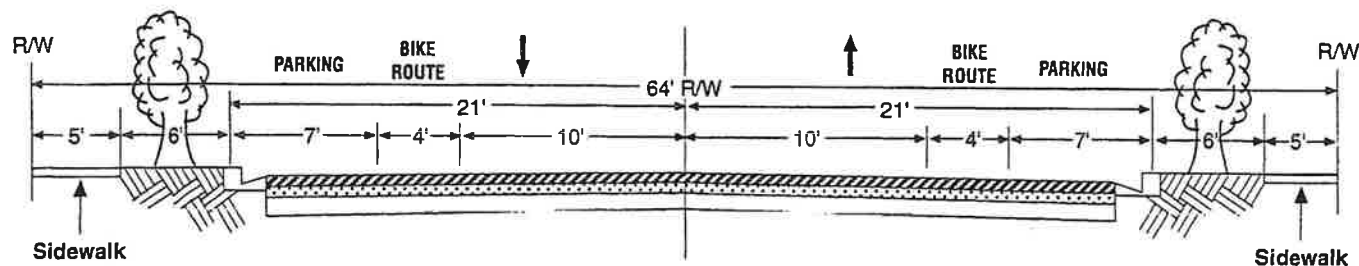
Typical Three Lane Road with A Two-Way Center Left-Turn Lane Section is recommended on all streets within the industrial section of the project study area. Twelve-foot lanes, six-foot bike lanes and two-way left-turn lanes are recommended. Bike lanes in the industrial area would promote and facilitate the use of bikes instead of driving to work. Since the intent of the City's General Plan is to promote biking, this design will help fulfill that policy. The total right-of-way is 76 feet.



**Typical Section at Intersection
Sperry Avenue (4-Lane)**



Typical 3 lanes with 2-Way Median Left-turn Lane Section



Collector Streets



North
Not to Scale

Roundabouts

Nationally, another traffic solution that many jurisdictions have adopted is the use of roundabouts in place of traffic signals or stop-controlled intersections. Roundabouts have been used for a long time in countries such as Great Britain, France, Australia, the Netherlands and others. The merits of roundabouts are well known and documented.

The most comprehensive survey of roundabout safety in the U.S. was carried out in 1997 by the Transportation Research Board (TRB), and found that at intersections which were converted to roundabouts, overall crashes were reduced by 37 percent and injury accidents by 51 percent.

Generally, roundabouts offer approximately 30 percent higher traffic-moving capacity than traffic signals, which in many circumstances leads to significantly reduced delays. The TRB survey of intersections converted to roundabouts in the U.S., for example, found that peak hour delays had been reduced by an average of 77 percent.

The TRB in a 1997 survey of 44 state departments of transportation in the United States studied 31 roundabout cases, representing a total of 38 individual roundabouts. In it, one of the most interesting results compare public attitudes before and after construction of roundabouts. The results are shown in Table VIII:

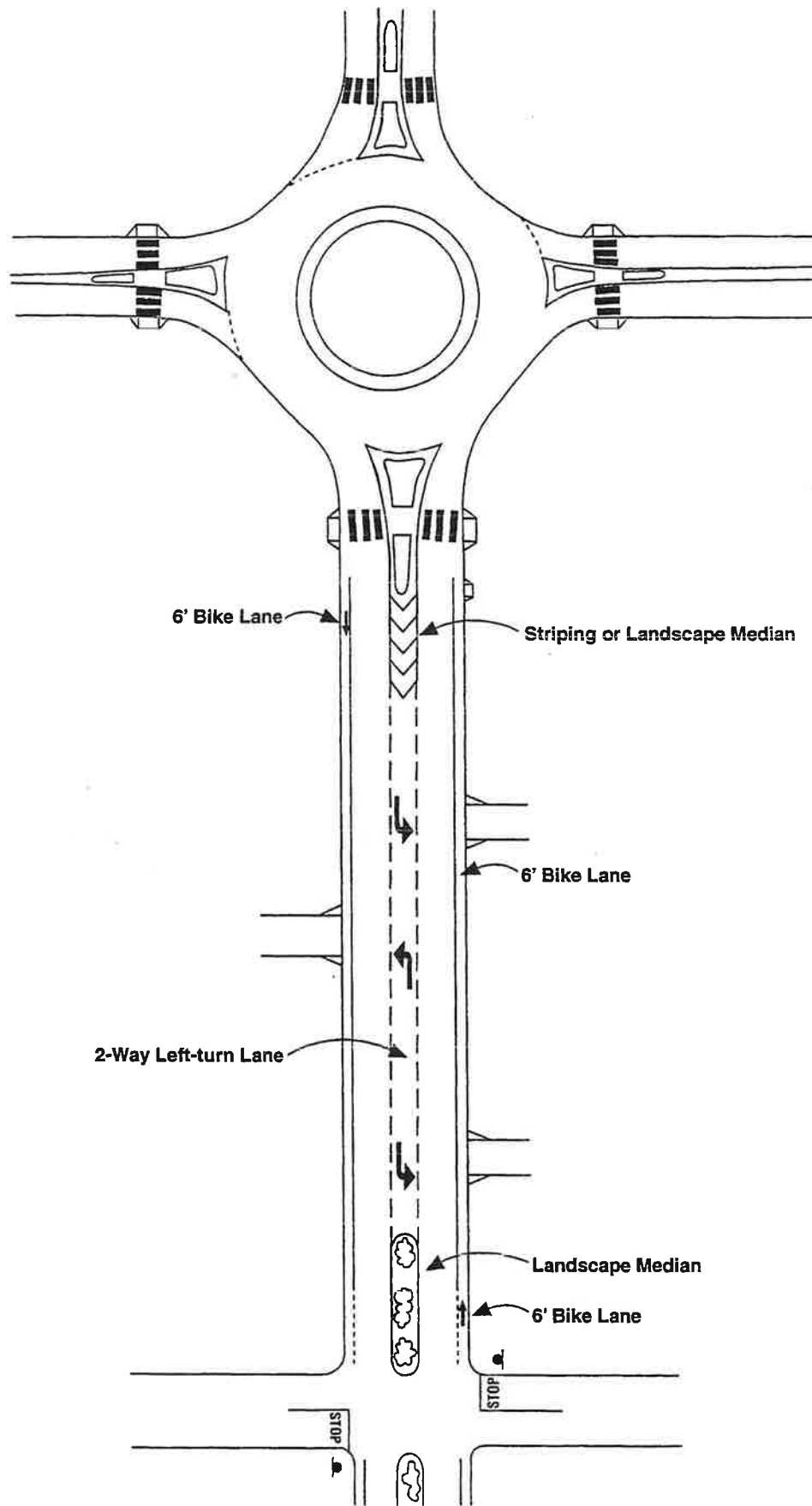
TABLE VIII: ROUNDABOUT SURVEY

Roundabout Survey		
<i>Attitude</i>	Percent Before Construction	Percent After Construction
Very Negative	23	0
Negative	45	0
Neutral	18	27
Positive	14	41
Very Positive	0	32

Since the use of roundabouts is relatively new in this country, it could be expected that there might be some initial resistance to their use. However, TJKM believes that most people would come to the same conclusion as shown in the above survey once they have used well-designed roundabouts. Since the City of Patterson already has roundabouts in the city, local residents would already be familiar with them.

The use of well-designed modern roundabouts will be a positive addition to the West Patterson Business Park Master Plan and Patterson Gardens. In the industrial area, the roundabout should be designed with truck aprons to accommodate trucks.

Typical street sections to accommodate two-way left-turn lanes and roundabouts are shown on Figure 14.



City of Patterson
West Patterson Projects Traffic Study

Typical 2-Way Left-turn Lane & Roundabout Section & Transition 14

Figure

North
Not to Scale



MITIGATION MEASURES

Based on the projected Future 2025 Base plus Project Condition, the following are major infrastructure roadway needs to accommodate the projected traffic:

- *Sperry Avenue:* Sperry Avenue is projected to carry approximately 2,700 vehicles during the peak hour. Compared to the existing traffic, the growth is four fold. It will likely be the busiest travel roadway in the study area.

It is anticipated that a four-lane road would be required to operate within the City's LOS C guidelines. All the major intersections would require double left-turn lanes to channelize the traffic. Signal coordination will be required. The lane configuration on Sperry Avenue to accommodate the projected traffic is shown on Figure 12.

- *I-5/Sperry Avenue Interchange:* Currently, the interchange ramps at I-5/Sperry Avenue are only one-lane in width. The interchange is configured as a tight diamond with a narrow underpass for Sperry Avenue and a steep drop in grade next to the northbound on-ramp. Caltrans is currently preparing a Project Study Report (PSR) that evaluates the feasibility of major improvements to the interchange based on the projected traffic from the proposed West Patterson projects and the 2025 Network and land use assumptions in Stanislaus County. Based on the projected peak hour traffic, it is estimated that a four-lane underpass road, an improved northbound on-ramp and a two-lane southbound off-ramp would be adequate to accommodate projected traffic.
- *New Signals:* Compared to the Future 2025 Base Year Condition scenario, six additional intersections would require signalization. These are Sperry Avenue at the I-5 Southbound Off-Ramp, Sperry Avenue at Las Palmas Avenue, Sperry Avenue at SR 33, Ward Avenue/Salado Avenue and the two proposed project intersections on Sperry Avenue.

The proposed project traffic as a percentage contribution to the total traffic at the other nine intersections that need signals under the Future 2025 Base are as follows: Sperry Avenue/I-5 SB Off-Ramps (56 percent), Ward Avenue/SR 33 (10 percent), Zacharias Road/SR 33 (19 percent), Baldwin Avenue/SR 33 (24 percent), Rogers Road/SR 33 (23 percent), Sycamore Avenue/E. Las Palmas Avenue (13 percent), E. Las Palmas Avenue/West Main/Poplar Avenue (18 percent), West Main/Carpenter Road (14 percent), and West Main/Crows Landing Road (5 percent).

- *All new roads in the project area (non-residential):* Based on the projected traffic in the Future 2025 Base with Project Condition a three-lane roadway section with 2-way center left-turn lane design as shown in Figure 13 could accommodate the projected volumes.

As discussed in the earlier section on roundabouts, TJKM recommends the use of roundabouts at intersections of the three-lane roadway design. The recommended transition design between a roundabout and a three-lane roadway design is shown in Figure 14. Preliminary roadway design in the project area that incorporates roundabout is contained in Appendix F.

- *All new roads in the project area (residential):* As appropriate, roundabouts should also be incorporated into the Patterson Gardens access roads. All residential street should be designed with the basic concept of being walkable and avoid being circuitous. Recent research

development indicates that smaller street blocks and grid system promote walkable and traffic calm communities.

The Southern Bypass Issue

In order to accommodate the City's 1992 General Plan Buildout of the General Plan land use, the Transportation and Circulation Element calls for a new four-lane southern bypass expressway type facility. The recommended route would extend from E. Las Palmas Avenue in the east, semi-circling to the southern portion of the City (to the north of Elfers Road) and connecting to Sperry Avenue, just to the west of Baldwin Road. The approximate alignment of the proposed southern bypass and the estimated travel lanes needed to maintain LOS C at buildout is shown in Appendix G.

Also shown in Appendix G is Figure IV-1, that depicts the Daily Traffic Volumes at Buildout from the 1992 City of Patterson General Plan. Based on the estimated jobs and housing land use mix of the General Plan at that time, the projected ADT on Sperry Avenue between I-5 and Rogers Road was approximately 41,000 vpd. A total of 37,000 vpd was projected between Rogers Road and the proposed new Southern Bypass.

Compared to the 1992 General Plan land use, the current peak hour model used in the proposed West Patterson Development project with the current Future 2025 Base Year Condition showed P.M. peak hour volumes of approximately 2,700 vehicles per hour (approximately 30,000 vpd) on Sperry Avenue between I-5 and Rogers Road, and 2,800 vehicles per hour (approximately 31,000 vpd) between Rogers Road and the approximate location of the Southern Bypass.

Perhaps due to the more balanced land use, the projected traffic on Sperry Avenue could be accommodated within a four-lane Sperry Avenue roadway with proper turn lanes and signal coordination at all key intersections. The traffic will be very dense in this short section to the east of the interchange. However, traffic operations on Sperry Avenue would operate satisfactorily by providing adequate left-turn channelizations and optimized signal progression.

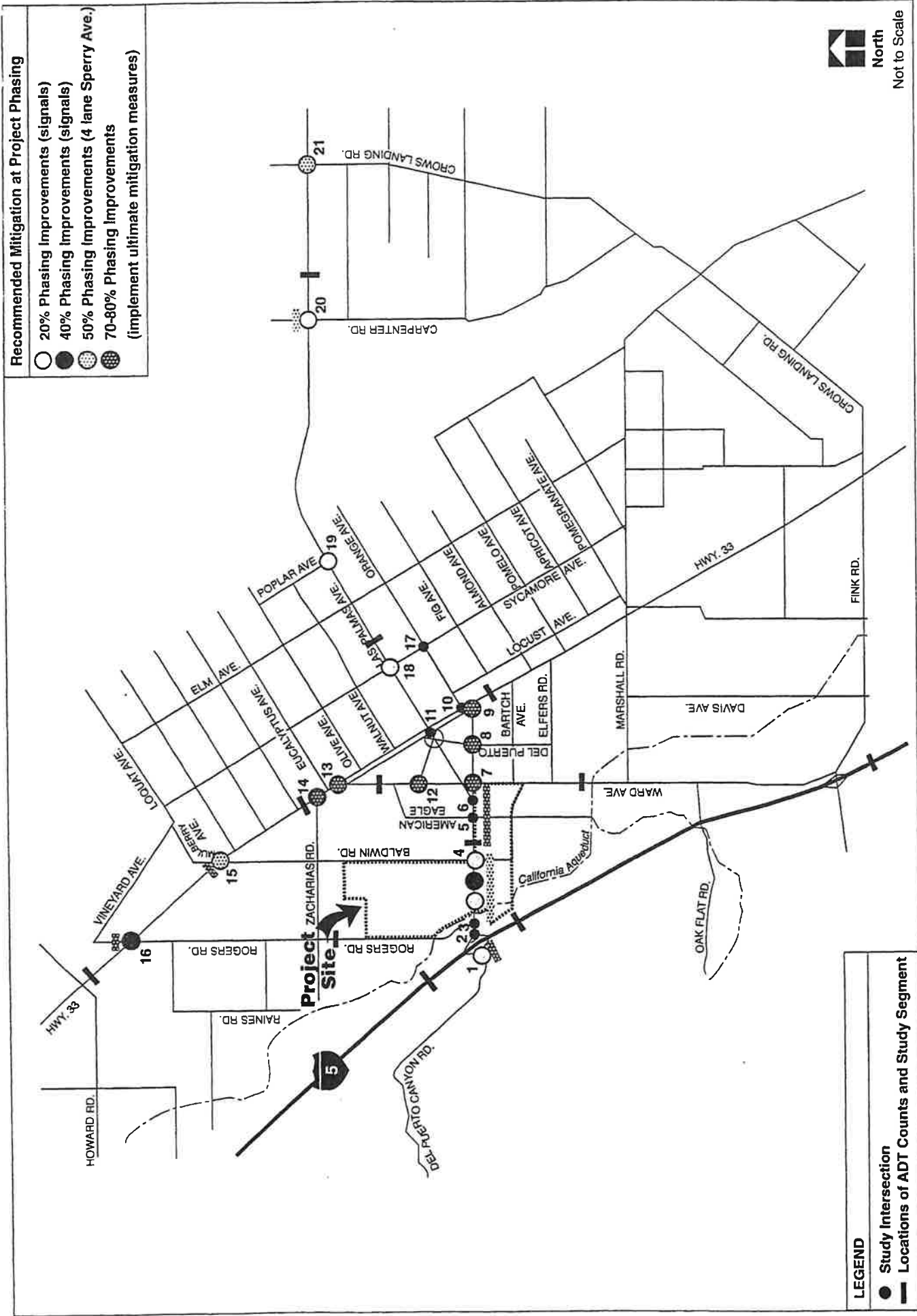
Based on the peak hour model results, the Southern Bypass is not necessary to accommodate projected traffic from the Future 2025 Base Condition with Project scenario.

Specific Mitigation and Monitoring Measures

This section of the report lists recommended mitigation measures at study intersections and roadways. The recommended mitigation measures are specific to each intersection while the phasing of mitigation measures is more general. The phasing of mitigation measures is necessarily more general since the specific location of future development is unknown at the moment. Consequently, site a specific traffic study should be conducted at future developments when the location is known. Such study should address site specific operational, design and safety requirements.

This report also recommends mitigation phasing at specific percentage development of the project. It is also recommended that mitigation monitoring should be conducted at 25 percent, 50 percent and 75 percent of the development to determine if the LOS standards for any of the study intersections have exceeded the City's LOS performance criterion (LOS C for signalized intersections). If the monitoring showed certain intersection to be operating at near or exceeded the City's acceptable threshold, then the City might request that the recommended mitigations be expedited. The proposed mitigation phasing are shown in Figure 15.

Specific intersections and roadway mitigation measures include:



City of Patterson
West Patterson Projects Traffic Study
Phasing of Mitigation Measures

1. Sperry Ave/I-5 SB Off-Ramps

Ultimate Project Mitigation: Signalization, widen southbound left-turn to two lanes, add a westbound left-turn lane and in the eastbound add a through lane.

Phasing of Improvements:

At 20 percent of project development: Signalize intersection

At 60 percent to 70 percent of project development: Improve to ultimate project mitigation

2. Sperry Ave/I-5 NB On-Ramps

Ultimate Project Mitigation: Signalization, widen the underpass to accommodate two eastbound lanes, left-turn lane, one westbound lane and a left and right turn lane at the northbound on-ramp.

Phasing of Improvements:

At 50 percent of project development: Signalize intersection

At 60 percent to 70 percent of project development: Improve to ultimate project mitigation

3. Sperry Ave/Rogers Road

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane and a shared through and right-turn lane. In the westbound direction, add two left-turn lanes and a through lane. In the southbound, add a through lane. In the northbound, add a left, through and right turn lane.

Phasing of Improvements:

At 50 percent of project development: The intersection is currently signalized. The existing signalized intersection and roadway configuration will start to fail at approximately 50 percent of the proposed project development. Improve to ultimate project mitigation.

4. Sperry Ave/Baldwin Rd

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane and a shared through and right-turn lane. In the westbound direction, add one left-turn lane, a through and right turn lane. In the southbound, add two left-turn lanes. In the northbound, add a left-turn lane.

Phasing of Improvements:

At 20 percent of project development: Signalize intersection

At 50 percent of project development: The signalized intersection and roadway configuration will start to fail at approximately 50 percent of the proposed project development. Improve to ultimate project mitigation.

5. Sperry Ave/American Eagle Dr

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane, a through and right-turn lane. In the westbound direction, add one left-turn lane and a through lane. In the southbound, add a right-turn lane. In the northbound, add a left-turn, a through and right-turn lanes.

Phasing of Improvements: The existing intersection is currently signalized. The signalized intersection and roadway configuration will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

6. Sperry Ave/Las Palmas Ave

Ultimate Project Mitigation: In the eastbound direction, add a through and right-turn lane. In the westbound direction, add a left-turn lane. In the northbound, add a left-turn, and a shared through and right-turn lane. No change for the southbound approach.

Phasing of Improvements: The existing intersection is unsignalized. The existing roadway configuration will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

7. Sperry Ave/Ward Ave

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane, and a through lane. In the westbound direction, add a through lane. In the southbound, add a left-turn lane. In the northbound, add a left-turn and a right-turn lane.

Phasing of Improvements: The existing intersection is currently signalized. The signalized intersection and roadway configuration will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

8. Sperry Ave/S Del Puerto Ave

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane, and a shared through and right-turn lane. In the westbound direction, add a left and a shared through and right turn-lane. Mitigation measures are not needed on both the north and southbound approaches.

Phasing of Improvements: The existing intersection is currently signalized. The signalized intersection and roadway configuration will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

9. Sperry Ave/SR-33

Ultimate Project Mitigation: In the eastbound direction, add one left-turn lane, and a right-turn lane. In the northbound direction, add a left turn-lane.

Phasing of Improvements: The existing intersection is unsignalized. The existing roadway configuration will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

10. First St/Orange Ave - Mitigation not necessary.

11. SR-33/Las Palmas Ave

Ultimate Project Mitigation: In the northbound direction, add one right-turn lane. Mitigation measures are not needed in other approaches.

Phasing of Improvements: The existing intersection is currently signalized. The intersection will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

12. Ward Ave/Salado Ave

Ultimate Project Mitigation: This is a T-intersection. In the southbound direction, add one left-turn lane. In the westbound direction, add a left-turn lane. Mitigation measures are not needed in the northbound approach.

Phasing of Improvements: The existing intersection is currently unsignalized. The intersection will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

13. Ward Ave/SR-33

Ultimate Project Mitigation: This is also a T-intersection. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane and a through lane. Mitigation measures are not needed in the eastbound approach.

Phasing of Improvements: The existing intersection is currently unsignalized. The intersection will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

14. Zacharias Rd/SR-33

Ultimate Project Mitigation: In the eastbound direction, add a left and right-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left and through lane.

Phasing of Improvements: The existing intersection is currently unsignalized. The intersection will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

15. Baldwin Rd/SR-33

Ultimate Project Mitigation: In the eastbound direction, add a left-turn lane. In the southbound direction, add one through lane. In the northbound direction, add a left-turn lane.

Phasing of Improvements: The existing intersection is currently unsignalized. The intersection will start to fail at approximately 70 percent to 80 percent of the proposed project development. Improve to ultimate project mitigation.

16. Rogers Rd/SR-33

Ultimate Project Mitigation: In the southbound direction, add one through and right-turn lane. In the northbound direction, add a left and right-turn lane.

Phasing of Improvements:

At 40 percent of project development: Signalize intersection

At 70 percent -80 percent of project development: Improve to ultimate project mitigation.

17. Sycamore Ave/Orange Ave - Mitigation not necessary.

18. Sycamore Ave/E. Las Palmas Ave

Ultimate Project Mitigation: In the eastbound direction, add a left-turn and a through lane. In the westbound direction, add a left and a through lane. In the southbound direction, add a left-turn lane. Mitigation measures are not needed on the northbound approach.

Phasing of Improvements:

At 20 percent of project development: Signalize intersection

At 70 percent -80 percent of project development: Improve to ultimate project mitigation.

19. E.Las Palmas/ West Main Road River Crossing

Ultimate Project Mitigation: In the eastbound direction, add a through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane.

Phasing of Improvements:

At 20 percent of project development: Signalize intersection

At 70 percent -80 percent of project development: Improve to ultimate project mitigation.

20. West Main/Carpenter Rd

Ultimate Project Mitigation: In the eastbound direction, add a left and through lane. In the westbound direction, add a through lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left-turn lane.

Phasing of Improvements:

At 20 percent of project development: Signalize intersection

At 70 percent -80 percent of project development: Improve to ultimate project mitigation.

21. West Main/Crows Landing Rd

Ultimate Project Mitigation: In the eastbound direction, add a left-turn lane. In the southbound direction, add a left-turn lane. In the northbound direction, add a left and right-turn lane.

Phasing of Improvements:

At 40 percent to 50 percent of project development: Signalize intersection

At 70 percent -80 percent of project development: Improve to ultimate project mitigation.

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APPENDIX F: WATER SUPPLY ASSESSMENT

CITY OF PATTERSON
WATER SUPPLY ASSESSMENT

**PREPARED FOR THE
WEST PATTERSON BUSINESS PARK
MASTER DEVELOPMENT PLAN AND PATTERSON
GARDENS RESIDENTIAL DEVELOPMENT**

AUGUST 2002

CITY OF PATTERSON
WATER SUPPLY ASSESSMENT

**PREPARED FOR THE
WEST PATTERSON BUSINESS PARK
MASTER DEVELOPMENT PLAN AND PATTERSON
GARDENS RESIDENTIAL DEVELOPMENT**

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AUGUST 2002

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Groundwater Supply Evaluation, Kenneth D. Schmidt and Associates, 2002

APPENDIX B

City of Patterson Long Range Capital Outlay Program for Water Supply

CITY OF PATTERSON

WATER SUPPLY ASSESSMENT

PREPARED FOR THE WEST PATTERSON BUSINESS PARK MASTER DEVELOPMENT PLAN AND PATTERSON GARDENS RESIDENTIAL DEVELOPMENT

I. INTRODUCTION

Located in the western portion of Stanislaus County, the City of Patterson (City) was incorporated in 1919. Known as the “Apricot Capital of the World,” the City’s economy has traditionally been predominately agricultural. In recent years, however, the City has increasingly become a bedroom community for people commuting to other urban areas of the Central Valley, the Livermore Valley, and even the San Francisco Bay Area. Responding to this trend, the City’s plans for future growth anticipate development of commercial and industrial economic opportunities surrounding the City itself. In recognition of the City’s efforts to improve jobs-housing balance in the area, the City was recently designated as a “jobs-housing opportunity zone” by the Inter-Regional Partnership State Pilot Project to Improve the Balance of Jobs and Housing. Figure 1 depicts the location of the City within Stanislaus County.

Land use within the City’s sphere of influence is governed by the City’s General Plan, adopted June 11, 1992, with land use designations as indicated in Figure 2, adapted from the General Plan’s Land Use Diagram. The City provides water for residential, commercial, and industrial customers within its service area. As indicated in Figure 2, the City’s service area is defined for planning purposes to include, in addition to its current sphere of influence, 342 acres to the northwest proposed to be added to the City’s sphere. According to the City’s Planning Department, in 2000, the City had 12,100 residents, an increase of 40% from its population of 8,626 in 1990. At full buildout, the General Plan estimates the population of the City’s service

area to be approximately 30,000 persons, housed primarily in low-density residential development. The City has projected, for purposes of the Urban Water Management Plan (UWMP), that the General Plan area will build out by 2020, as indicated in Table I-1.¹

Table I-1
CITY OF PATTERSON
CURRENT AND PROJECTED POPULATION

YEAR	POPULATION
2000	12,100
2005	15,600
2010	20,800
2015	25,000
2020	30,000

To plan for that population growth, the UWMP accounts for a variety of proposed and approved-but-not-yet-built development within the City's service area. The City has approved the following applications for new residential development: Patterson Ranch – 1028 units (800 of which have been built), Walker Ranch I – 500 units, Walker Ranch II – 312 units, Creekside Meadows – 512 units, and Casciaro – 25 units. The City also has received and is reviewing the following applications for residential development: Patterson Gardens – 987 units (with 20 acres of neighborhood commercial), and the Bright Development – 120 units. The City is currently preparing a West Patterson Business Park Master Development Plan (Business Park Plan) to govern development of the approximately 817 acres between the western edge of the City and Interstate Highway 5 (I-5) as a business park, including the 342 acres of land currently lying outside the northwest edge of the City's sphere of influence. To facilitate orderly development of that property, the City intends to seek from the Local Agency Formation Commission (LAFCO) an amendment to its sphere of influence to add the property to its existing sphere. Finally, the General Plan identified a further 250 acres of land designated for industrial uses and 1,150 acres designated for residential uses, for which no applications have yet been received.

¹ This is a conservative estimate, however, adopted solely for the purposes of the UWMP and based on the 20-year planning horizon established by the UWMPA. In fact, buildout of areas designated for residential land uses in the General Plan is more likely to occur in 2025 at the earliest, while buildout of industrial properties may not occur until 2030 or 2040.

The Patterson Gardens residential development and the Business Park Plan (collectively, the West Patterson projects) are the subject of this Water Supply Assessment (Assessment), prepared by the City pursuant to sections 10910 to 10915 of the Water Code. Those sections require that a public water system prepare, for certain large development projects subject to the California Environmental Quality Act (CEQA), a “water supply assessment” evaluating whether a sufficient water supply exists to serve a proposed development project in the context of the water system’s existing and other proposed water uses. If a sufficient water supply is not available, the water supply assessment informs project proponents and the public of that fact and provides a mechanism for the water system, local government agencies, and the project proponent to plan for the acquisition of such a sufficient water supply.

The City supplies water for municipal and industrial (M&I) uses throughout the City’s sphere of influence. Because it supplies water for human consumption to more than 3,000 customers, it qualifies as a “public water system” for purposes of the assessment requirement. The West Patterson projects are subject to the assessment requirement because they are subject to CEQA and meet the project-size criteria established by section 10912(a) of the Water Code.

As detailed below, this Assessment concludes that a sufficient water supply is available to serve the water demand expected to be associated with West Patterson projects in addition to existing and planned future water demand in the City’s service area. [The primary source of information for this Assessment is the City’s UWMP, adopted on August 6, 2002, which sets forth the plan for development of the necessary water supply. The UWMP accounted for the West Patterson projects’ anticipated water demand].

Draft copies of the Assessment were provided to LAFCO and the irrigation and water districts that overlap or are adjacent to the West Patterson project area, including the Patterson Irrigation District (PID), the West Stanislaus Irrigation District (WSID), the Del Puerto Water District (DPWD), and the Oak Flat Water District (OFWD). At the August 6, 2002 regular meeting of the City of Patterson City Council, a public hearing was held to review the Assessment and solicit comments, and the Assessment was thereafter adopted by resolution.

Pursuant to CEQA, the City is preparing an environmental impact report (EIR) for the West Patterson projects (West Patterson Projects EIR). This Assessment was adopted by the City before the West Patterson Projects EIR was available to the public. Information from this document is analyzed in the Water Supply section of the EIR, and this document is incorporated by reference there. The West Patterson Projects EIR includes extensive analysis of the potential environmental impacts of the water supply options discussed in this document.

II. THE WEST PATTERSON PROJECTS

The West Patterson projects are two related residential and business park development projects designed to improve jobs-housing balance in Stanislaus County.

A. WEST PATTERSON BUSINESS PARK MASTER DEVELOPMENT PLAN

For the cities in western Stanislaus County, economic development has lagged behind the pace of their growth as bedroom communities for commuters to the Livermore Valley and San Francisco Bay Area. With an eye to increasing commercial and industrial development in the west County, Stanislaus County in 1999 commissioned a study to investigate the feasibility of locating light industrial and business park uses at one of five locations along the I-5 corridor in the western portion of the County (EDAW, 1999). The feasibility study envisioned a cooperative effort among the County, local jurisdictions, and private property owners to attract and retain industrial and business park development as part of an ongoing strategy for economic development and to improve the balance between jobs and housing in the west County.

The feasibility study evaluated land use policy and planning, water supply, wastewater treatment and disposal, freeway interchange accessibility, San Joaquin Kit Fox mitigation, and economic feasibility. The study concluded that the industrial land between the Sperry Avenue/I-5 Interchange and the City offered the best opportunity for this light industrial and business park development and represented a logical area for urban growth. The City has recently approved development of several residential

neighborhoods west of the downtown area, such as Walker Ranch, Creekside Meadows, and Heartland. The Business Park Plan would continue this westward expansion and would locate light industrial, business park and commercial uses adjacent to, and with direct access to, I-5. The West Patterson area was also chosen as the preferred location in part because of the interest expressed by the Keystone Corporation of Raleigh, North Carolina. The Keystone Corporation has a demonstrated record of developing industrial business parks and attracting the types of businesses envisioned by the County and the City for the project area. The proposed Keystone Pacific Business Park (included in the Business Park Plan) will be the first occupant of the project area.

Following the recommendation of the feasibility study, the proposed Business Park Plan was prepared in partnership by the City, the County, and property owners in the west Patterson area to establish an infrastructure and regulatory framework for the development of employment-generating land uses in western Stanislaus County. The proposed Business Park Plan includes land use designations and design guidelines for the project site.

The Business Park Plan is anticipated to ultimately accommodate approximately 8,979,000 square feet of industrial, business park and commercial development on 817 acres and to employ a total of about 16,240 employees. Business park/research and development uses would be concentrated along the Sperry Avenue and Baldwin Road corridors, while the interior areas would be reserved for industrial uses such as warehousing and distribution centers. The northeastern portion of the Business Park Plan site is proposed for development of approximately 2.5 million square feet of flex, light industrial, and distribution/warehouse uses.

B. PATTERSON GARDENS

The Patterson Gardens component of the West Patterson projects consists of a 305-acre master planned community with single-family and senior residential dwellings, commercial and office uses, recreational areas, and a potential school site. The project

would be developed in phases to facilitate provision of infrastructure and project financing and to meet marketing needs.

The Patterson Gardens Final Development Plan establishes, among other requirements, the land uses and standards that would govern development of the Patterson Gardens site. The Patterson Gardens Final Development Plan includes the following components:

- Construct 940 single-family detached dwelling units on approximately 230 gross acres (not including parks and open spaces).
- Construct 47 single-family detached dwelling units designated for seniors on 10.0 gross acres (not including parks and open spaces).
- Reserve 12.4 gross acres for a school site. In the event that the Patterson Unified School District chooses not to acquire the site, 60 single-family dwelling units would be constructed.
- Develop a 21.4 gross acre site with approximately 302,500 square feet of commercial and office uses. Uses are expected to include a convenience store/gasoline station, an office complex, and retail uses.
- Reserve and dedicate 4.0 acres for expansion of the City of Patterson Sports Complex.
- Widen and improve Salado Creek for purposes of flood control and stream restoration.
- Develop 9.8 acres of neighborhood parks, and 2.0 acres of parkland within the new Salado Creek right-of-way for a landscaped pathway.

- Widen Sperry Avenue, Ward Avenue, Baldwin Road, and Las Palmas Avenue and the construction of internal collector streets.

III. WATER DEMAND

The City is the principal supplier of water for residential, commercial, industrial, and institutional uses in the West Patterson project area. Historically, the City has relied solely on groundwater, installing production wells as necessary to meet water demand. The City anticipates population within its sphere of influence (as proposed to be expanded) to grow from 12,100 in the year 2000 to 30,000 in the year 2020. Water demand is expected to be linear with population growth, increasing from 2,360 acre-feet in the year 2000 to 7,600 acre-feet by the year 2020. Past, present, and projected population for the City's sphere of influence (as proposed to be expanded) through the year 2020 is presented in Table III-1, with shaded cells representing projections.

Table III-1

**PAST, PRESENT, AND PROJECTED POPULATION
AND WATER DEMAND**

YEAR	POPULATION	WATER DEMAND
1980	3,908	872
1985	4,804	899
1990	8,626	1,660
1995	9,475	1,973
2000	12,100	2,360
2005	15,600	3,380
2010	20,800	4,900
2015	25,000	6,130
2020	30,000	7,600

Source: UWMP

The City has prepared a Water Master Plan that defines the water supply and distribution improvements needed to serve the West Patterson projects (Stoddard & Associates, July 2001). In that document, the anticipated water demand for the proposed West Patterson Business Park was estimated at 2.07 million gallons per day (mgd), or 2,322 acre-feet annually (afa). Of that 2.07 mgd and 2,322 afa, the proposed 224-acre Keystone Pacific Business Park component was

In 1995, however, DWR reevaluated the hydrologic balance of the Basin as a whole and concluded that it was in overdraft by 24,000 acre-feet annually (DWR, 1995). This overdraft was caused by an estimated annual extraction from the Basin of 511,000 acre-feet, an overdraft of less than 5% of the total annual extraction. It is expected that this deficit occurred primarily on the western side of the southern portion of the groundwater basin, west of Los Banos, Dos Palos and Firebaugh. Surface water imports to this portion of the Basin are limited to federal Central Valley Project (CVP) supplies; which recently have been curtailed due to constraints on diversions from the Sacramento-San Joaquin Delta. As a result, water demand in that area has exceeded the imported water supply. In the vicinity of the City, increased pumping from the San Joaquin River was used to offset the reduction in CVP supply.

The DWR reports and the studies performed by the SLDMWA indicate that the Basin is not in overdraft in the vicinity of the City and additional pumping can be sustained without causing overdraft. With additional pumping, basin equilibrium would adjust to lower water levels and reduced hydraulic gradient and thereby reduce the amount of subsurface outflow from the Basin. Nevertheless, in light of the finding of Basin-wide overdraft in DWR's most recent study, the City concluded that further evaluation focusing on the groundwater conditions in the City's vicinity was necessary to assess whether the proposed pumping of up to 7,600 acre-feet annually, projected to occur at buildout of the City's sphere of influence, could be sustained without causing local overdraft.

2. The City's Groundwater Investigation

The City has been assessing groundwater conditions in the area for several years. The Water Master Plan indicated that additional water production wells would be needed to meet the water demand associated with what have been termed here the West Patterson projects. Groundwater exploration test wells were constructed and water samples from various aquifer zones collected and analyzed at the locations proposed for production wells 8, 9, 10, and 11. The analysis of the samples drawn from confined aquifer zones indicate that water meeting DHS's Domestic Water Quality Standards was available at all four sites. The exploration test wells were cased and converted into groundwater monitoring wells so that the water table elevations and water quality could be monitored until such time as the production wells are installed.

In late 2001, the City commissioned a study to better define the availability of groundwater meeting Domestic Water Quality Standards and evaluate whether community water demand could be served entirely from groundwater without causing overdraft. The full study has been incorporated here as Appendix A. Based on existing quantities of water in the confined and unconfined aquifers beneath the City and anticipated recharge to those aquifers, the study concluded, "the amount of good quality groundwater available to the City over the next 10 years is estimated to be 30,000 to 50,000 acre-feet." (Kenneth D. Schmidt and Associates, 2002, at 21). To the west and east of the zone of good quality water in the confined aquifer are large areas of water that do not meet the Domestic Water Quality Standards. Little information is available on the confined aquifer to the north and south. The City's withdrawals from the aquifer are anticipated to cause groundwater from these surrounding areas to enter the City's wells with resulting deterioration of the pumped groundwater quality. The 30,000 and 50,000 acre-foot quantities are based on the study's best estimate of the existing good quality water as affected by the anticipated pattern of water migration from surrounding areas.

The City's study also concluded that, "[t]he total amount of groundwater available to the City (excluding water quality considerations) is projected to be at least 80,000 acre-feet" (Kenneth D. Schmidt and Associates, 2002, at 21). It found that the annual inflow of groundwater into the aquifer beneath the City, notwithstanding supplemental inflow from percolation of irrigation water and seepage from Salado Creek, Del Puerto Creek, and unlined canals totals 9,300 acre-feet per year.

The study also made several recommendations for further groundwater monitoring:

- install monitoring wells in the area west of Highway 33, to better map the water-level elevation and direction of flow in the confined aquifer;
- conduct tests using the City's existing production wells to ascertain transmissivity and storage coefficients for the confined aquifer;
- conduct semi-annual tests to monitor changes in water quality in the City's production wells; and
- monitor subsidence in the City's well field.

The City plans to implement each of the recommended monitoring measures.

The study allowed the City to evaluate the potential effects of its projected groundwater withdrawals on other groundwater users in the area. Surrounding groundwater users — for agricultural and domestic purposes — make withdrawals almost exclusively from the upper, unconfined aquifer that is largely hydrologically isolated from the deeper, confined aquifer that supplies the City's groundwater. Accordingly, the City's pumping is not anticipated to adversely

affect either the required pump lifts of those agricultural users or the quality of water available to them. In addition, the cone of depression formed by pumping in the City well field will be localized and affect only those wells pumping in the confined aquifer within a mile or so of the well field. The City's future wells will be located to minimize the cone of depression to the extent feasible.

B. WATER SUPPLY OPTIONS

The City's study, along with prior studies, suggests that the City has access to a sufficient quantity of groundwater to serve its existing and planned water demands projected through 2020. The estimated annual recharge of the City's aquifer indicates that the City could meet its entire water demand from that groundwater without causing overdraft in the aquifer. However, based on the 30,000 and 50,000 acre-foot estimates of adequate *quality* groundwater, the City estimates that it will exhaust groundwater meeting Domestic Water Quality Standards sometime between 2008 and 2012. Accordingly, after that point, the City must either begin to treat its groundwater or find an alternative water source.

1. Surface Water

The City has been in contact with several water purveyors to discuss the possibility of purchasing sufficient surface-water entitlements to meet the City's anticipated water demands after 2008 or 2012. The City is seeking to obtain 13,000 acre-feet of surface water, with conveyance and delivery via the California Aqueduct (Aqueduct), a facility of the State Water Project (SWP), or the Delta-Mendota Canal (DMC), a facility of the federal Central Valley Project (CVP). Although the City's needs in 2020 are anticipated to be only approximately 7,600 acre-feet annually, actual water deliveries in the Aqueduct and DMC rarely meet entitlements, making purchase of surplus entitlements necessary.

The City is currently contemplating several possible surface-water sources:

1. ***Patterson Irrigation District.*** The City has been engaged in ongoing negotiations with the nearby Patterson Water District to purchase the City's water requirements from PID's CVP entitlement to 16,500 afa. In recent years, PID has been transferring much of its CVP entitlement to agricultural water contractors south of the Delta on a year-to-year basis. PID has expressed interest in contracting with the City for either the full or partial assignment of PID's CVP contract or a long term water-supply contract for some or all of that quantity.
2. ***Quinto Farms.*** Quinto Farms, located in western Merced County, is attempting to sell their CVP water supply. They hold entitlements to 4,136 afa under a Del Puerto Water District (DPWD) water service contract and 2,500 acre-feet under a Centinella Water District (CWD) water service contract. The DPWD water would probably require a CVP Improvement Act transfer rather than a contract assignment based on DPWD's policy regarding water transfers.
3. ***Broadview Water District.*** The Broadview Water District (BWD), located in western Fresno County, holds a CVP contract for 27,000 afa for use on 9,500 acres of land. BWD is interested in selling the water together with the land, and the vast majority of the land has been listed with a single broker for the purpose of the sale. Negotiations are currently underway between BWD and another agricultural water purveyor; however, this water user does not require the full 27,000 afa and some partnership between the City of Patterson and the agricultural water purveyor could be mutually

beneficial. If the City were to purchase the water and land, the water could then be separated from the land and transferred to the City, with the land sold or leased for farming (dry or irrigated by groundwater) or for land retirement.

4. ***Layne Water Development & Storage.*** Layne Water Development & Storage, a private entity engaged in water resources business activities, has a 25-year contract for use of the Semitropic Groundwater Bank located in Kern County. The new storage unit has a capacity of 650,000 acre-feet, recharge capability of 50,000 acre-feet per year and a recovery potential of 200,000 acre-feet per year. The company offers a broad range of services to meet water supply needs, including identification, permitting and procurement of supply; providing backup supplies for drought reliability; and financing, designing, installing and operating water supply and treatment systems. The company can either retain ownership and sell the water on a merchant basis, construct facilities for ownership and operation by the City, or provide operation and maintenance of City-owned facilities.

For any of these sources, approval for use of CVP or SWP facilities for conveyance would need to be made with the DWR, which operates the SWP, or the United States Bureau of Reclamation, which operates the CVP, or both agencies depending upon the nature of the water being conveyed and the conveyance facilities being utilized. The following agreements and permits may need to be secured before the surface water could be transferred, conveyed, treated, and distributed to users:

1. Contract or agreement for purchase or exchange of water supply with water supplier;

2. Warren Act contract (for conveyance of non-CVP water) or other approval for conveyance of supply in the DMC or Aqueduct;
3. License or permit to construct a new turn-out on the canal selected; and
4. Modification of the City's DHS public water system permit.

A water treatment plant would be designed and constructed to meet the maximum-day water demand, and surface-mounted steel water storage tanks would provide operational storage. Before switching to surface water, the City would continue to install new water supply wells as required to meet the community water demand. Based upon the projected rate of growth, a total of seven to nine deep wells are projected to be in operation at the time the surface water supply facilities would need to come online. The seven to nine deep wells would continue to be maintained and additional deep wells would follow to provide drought protection during a severe drought when surface water deliveries may drop to zero.

Surface water and groundwater would be used conjunctively. In abundant water supply years when surface water deliveries exceed the City's water demand, the excess surface water would be treated and stored in the aquifer through an aquifer storage and recovery system (ASR system) using the water supply wells to inject the treated surface water into the underlying aquifer. The injection would create a zone of good-quality water at each water-supply well that would be available for use when surface-water deliveries fall below water demand. Sufficient water would be placed in storage such that groundwater of acceptable quality is available when surface water supplies are limited. The quantity of water needed in groundwater storage will depend on (1) contractual provisions governing surface-water deliveries from the SWP or CVP, (2) the recovery potential of the ASR system and (3) availability of water by short-term purchases.

If the City elects to adopt the surface-water-supply option, more study of the proposed design and implementation of an appropriate ASR system would be necessary. The ASR system may also need to be supplemented by water from other sources during severe drought conditions as described in the UWMP.

2. Groundwater Treatment

If the City does not elect to obtain surface water to support development post-2008 or 2012, the City will begin to treat its groundwater. The City's hydrologic investigation and review of regional groundwater resources has demonstrated that the total quantity of groundwater is sufficient to meet the City's water demand on a sustainable basis for at least the next 20 years. Water supply wells would continue to be installed without treatment until groundwater of acceptable quality is no longer available, at which time, seven to nine water supply wells are likely to be in place. Once water quality dropped below acceptable levels, each of the existing water supply wells would be retrofitted with reverse osmosis desalination systems. Several new wells would subsequently need to be installed, and each would be equipped with similar wellhead treatment.

Historically, the City's groundwater supply has been very reliable. The groundwater supply has never failed to meet the City's demand, even in severe drought years. Given the estimated 9,300 acre-feet annually of recharge to the City's aquifer, it appears likely that the quantity of groundwater available for treatment and use would be sustainable and reliable even in drought years. The region surrounding the City is entirely developed to agricultural uses. Current surface water supply sources have the capability of meeting the agricultural water supply needs except on rare occasions. Without any significant shift in land use in the region, from agriculture to M&I and if CVP supplies to the region are not further reduced, groundwater use other than that projected for the City will not

significantly increase. Future land use changes outside the City or reductions in imported supplies could cumulatively result in groundwater overdraft.

The desalination units, however, will be subject to occasional failure. In response, the capacity of the City's wells and desalination units would be designed to meet total demand in the City with the City's highest-capacity well out of service for repairs.

The desalination treatment units will produce a considerable volume of concentrated brine, estimated to be 16% of the volume of water pumped, as a byproduct of treatment. As a result, a disposal system would need to be developed to dispose of the brine from each of the desalination treatment units. Several options for brine disposal were discussed in the UWMP: disposal to the City's wastewater treatment plant, disposal using evaporation ponds, and disposal by injecting the brine very deep underground below and isolated from any useable groundwater. Due to salinity-based water quality limitations, disposal to the San Joaquin River is not considered viable. Likewise, disposal via the wastewater treatment plant is not considered to be viable since final disposal of the wastewater is by percolation to groundwater. Percolating the brine would have a significant adverse effect on groundwater quality in the shallow aquifer. The salinity of the wastewater treatment plant's effluent is currently a concern of the Regional Water Quality Control Board due to the impact on the groundwater regime.

Evaporation ponds and deep well injection are potentially feasible alternatives. If the City elects to pursue groundwater treatment, both methods will be comprehensively evaluated before one is chosen for implementation. Deep well injection is tentatively considered to be preferable because it provides for ultimate disposal of the brine in a single step. Use of evaporation ponds, on the other hand, requires that salt remaining after evaporation be periodically removed

and transported to a waste disposal site. A pipeline system would be utilized to collect the brine at each well location and convey it to the point of disposal.

C. COSTS AND FINANCING OF WATER SYSTEM IMPROVEMENTS

The UWMP describes the costs for acquisition of the new water supply. A capital outlay/financing program for the water supply is included in this Water Supply Assessment as Appendix B.

V. SUMMARY OF CONCLUSIONS

A. SUFFICIENCY OF GROUNDWATER

The City currently has available a quantity of groundwater sufficient to meet water demand associated with the West Patterson projects, in addition to existing and other planned water demand in the City's sphere of influence. That quantity is estimated to be sufficient to support the City's demand without overdraft. However, if groundwater is to remain the City's sole supply after its quality declines, as is anticipated to occur between 2008 and 2012, that water will need to be desalinated prior to use.

B. PREFERENCE FOR SURFACE-WATER SUPPLY

Although the City's groundwater is sufficient to serve anticipated demand through 2020, the City recognizes the environmental and economic benefits of procuring a surface-water supply. As a result, groundwater treatment will be implemented only if a surface-water supply cannot be obtained (1) before such a supply is necessary and (2) at a lower cost.

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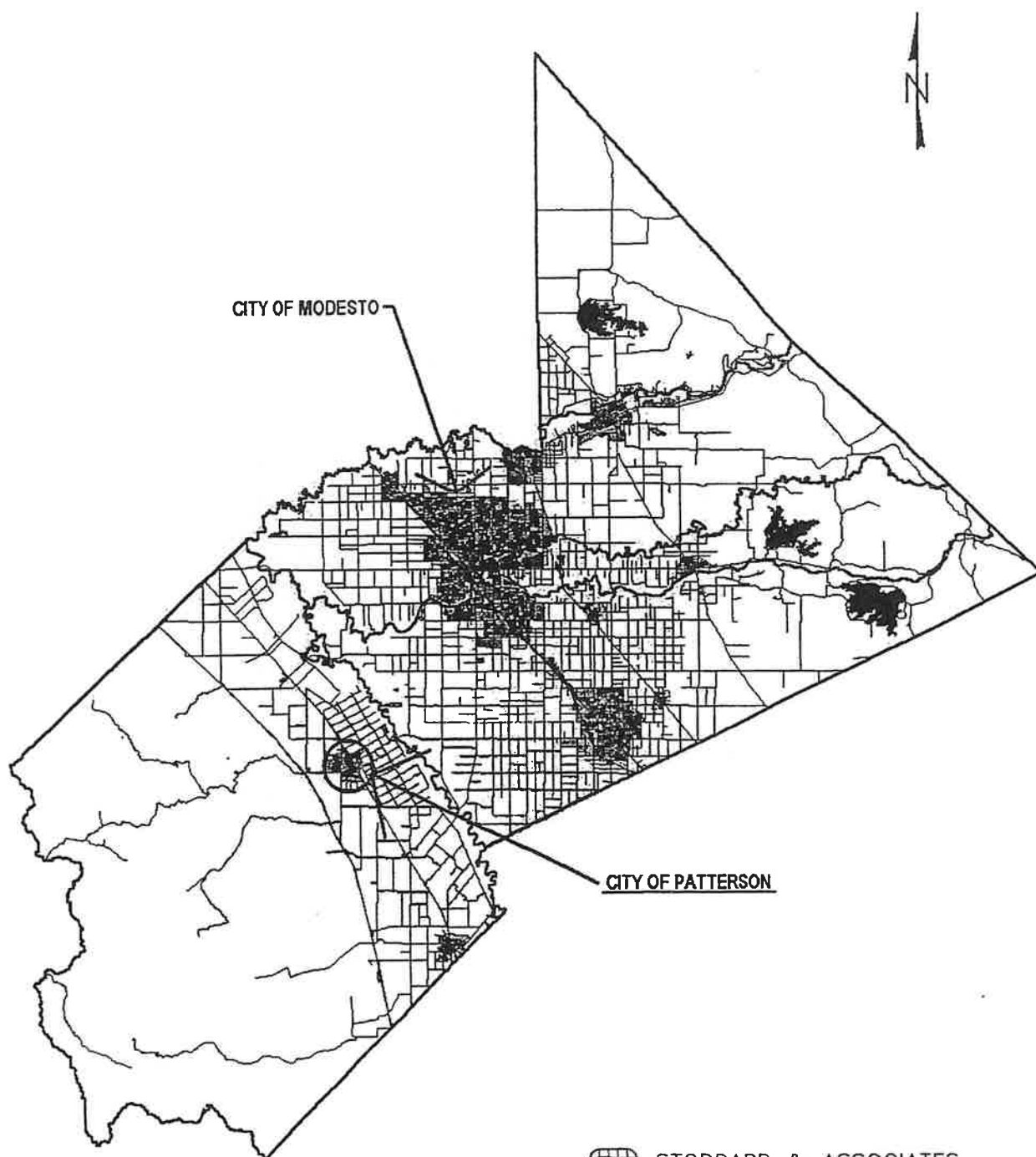
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FIGURES

FIGURE 1

LOCATION MAP

CITY OF PATTERSON WITHIN STANISLAUS COUNTY



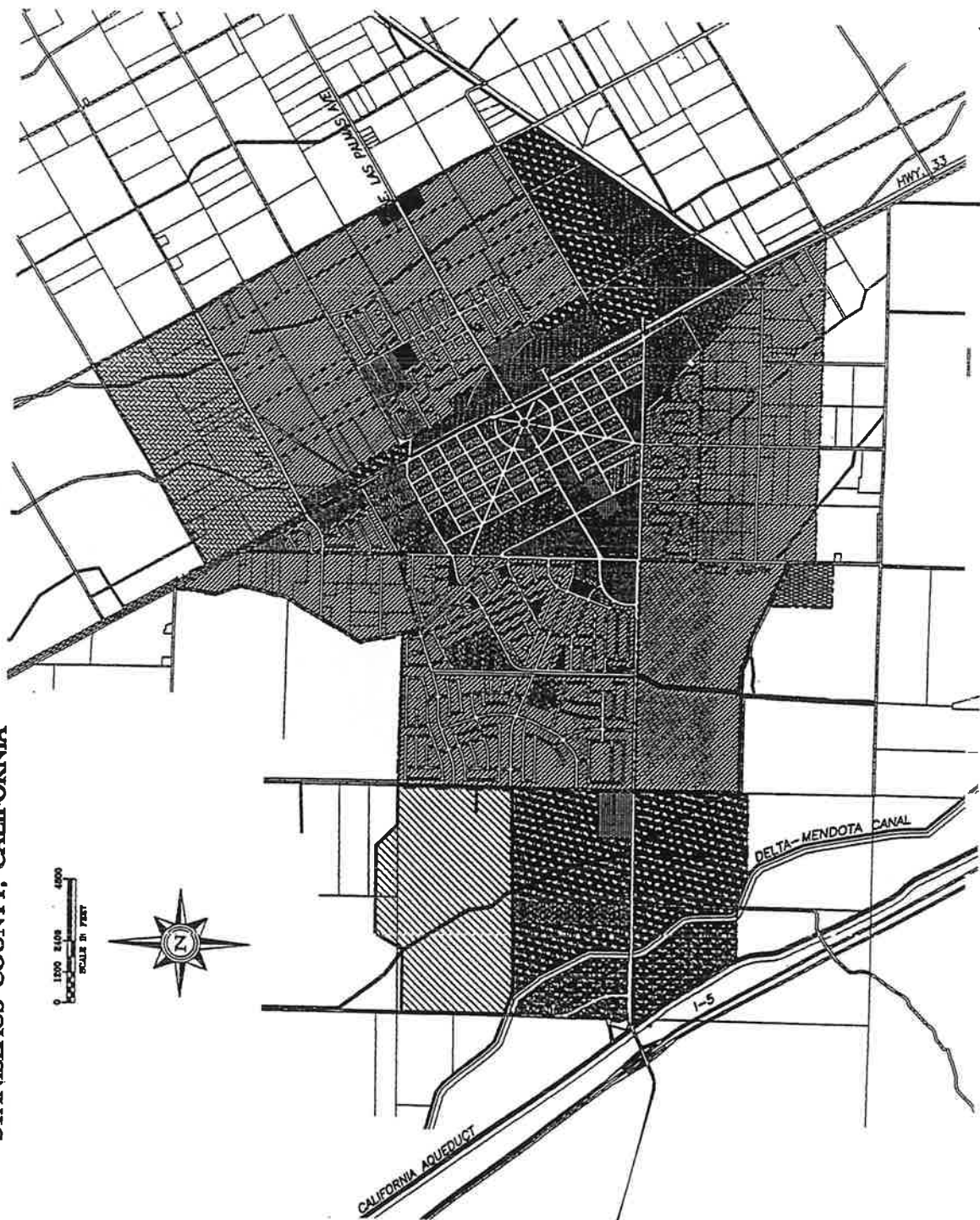
STODDARD & ASSOCIATES

CONSULTING CIVIL ENGINEERS
AND LAND SURVEYORS



**GENERAL PLAN
LAND USE DIAGRAM
WITH PROPOSED
WEST PATTERSON BUSINESS PARK**

LEGEND

[illegible]

**CITY OF
PATTERSON
STANISLAUS COUNTY, CALIFORNIA**



STODDARD & ASSOCIATES
CONSULTING CIVIL ENGINEERS
J. SURVI
AT
WEST 1 ST. N.
TELEPHONE
844 8330
• 125 W.
3134 • FAX
• 527

APPENDIX A

KENNETH D. SCHMIDT AND ASSOCIATES

GROUNDWATER QUALITY CONSULTANTS

600 WEST SHAW, SUITE 250

FRESNO, CALIFORNIA 93704

TELEPHONE (559) 224-4412

April 11, 2002

**Mr. Robert M. Stoddard
Stoddard & Associates
1120 West "I" Street, Suite C
Los Banos, CA 93635**

Re: City of Patterson Groundwater

Dear Bob:

**Submitted herewith is the Groundwater Supply Evaluation
report for the City of Patterson.**

Sincerely yours,

A handwritten signature in dark ink, appearing to read 'Ken Schmidt', written in a cursive style.

Kenneth D. Schmidt

KDS/cap

**GROUNDWATER SUPPLY EVALUATION
FOR CITY OF PATTERSON**

**Prepared For:
Stoddard & Associates
Los Banos, California**

**Prepared By:
Kenneth D. Schmidt and Associates
Groundwater Quality Consultants
Fresno, California**

April 11, 2002

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GROUNDWATER SUPPLY EVALUATION FOR CITY OF PATTERSON

INTRODUCTION

In evaluating the adequacy of the groundwater supply, both 1) groundwater of potable quality, and 2) all groundwater in storage below the water level are considered. In this report, the aquifer system is divided into 1) above the Corcoran Clay and 2), below the Corcoran Clay. The total groundwater in storage is first discussed for each aquifer. Then sources of recharge to the upper aquifer are addressed. Groundwater inflow to the City in the upper and lower aquifers is next determined. The potential cone of depression in the lower aquifer is also considered, in terms of drawing groundwater into the City from adjoining areas.

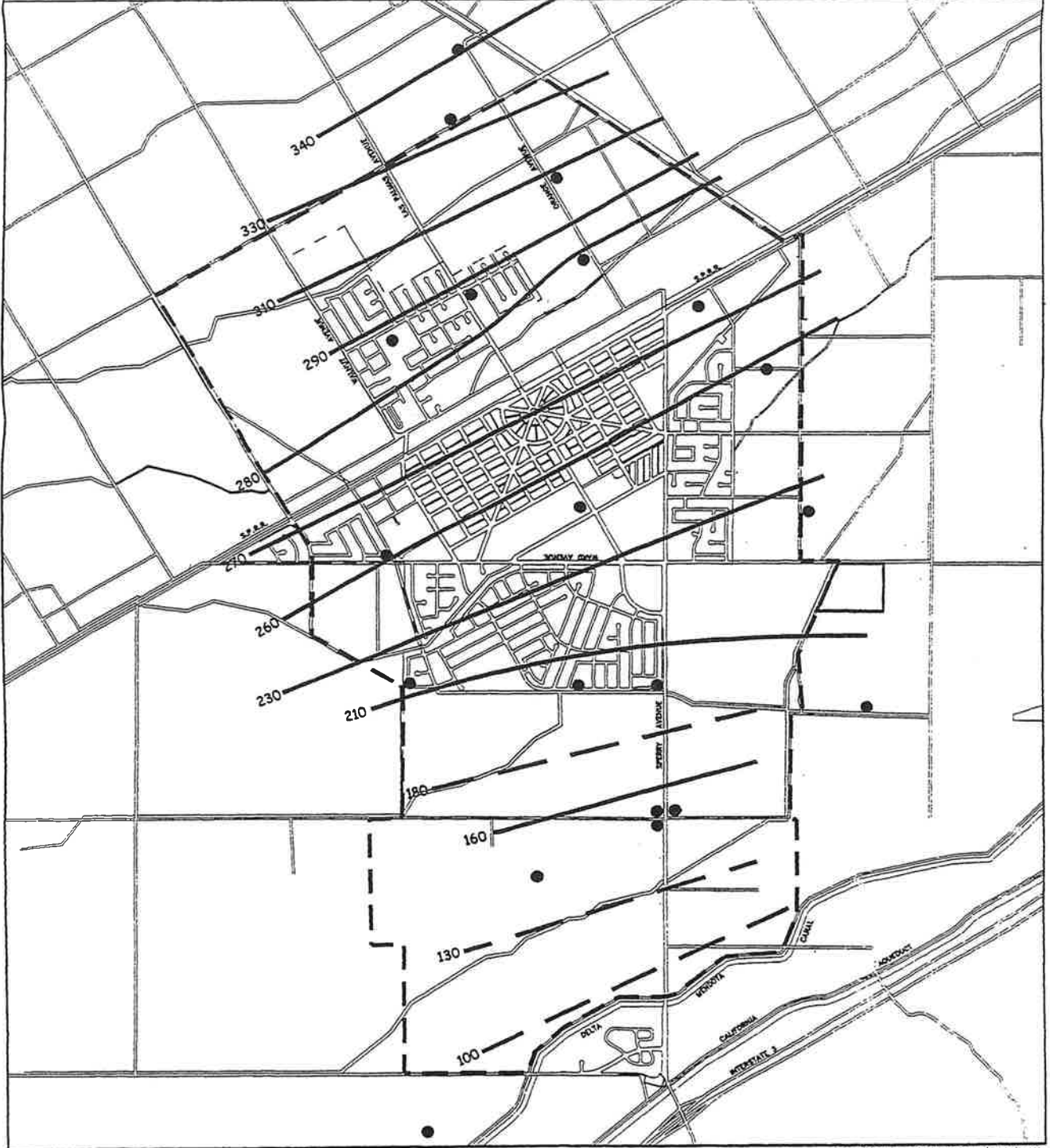
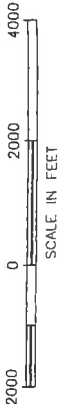
SUBSURFACE GEOLOGIC CONDITIONS

The top and base of the Corcoran Clay were determined in and near the City, based primarily an electric log interpretation. Drillers reports were used for some wells, partially in the area west of the Patterson Ranch project, where no electric logs are available. Figure 1 shows contours of depth to the top of the Corcoran Clay. The Corcoran Clay is not well defined west of the Patterson Ranch, due to a lack of electric logs and drillers reports that show the color of the deposits in that area. Hotchkiss and Balding (1971) indicated that the west edge of the Corcoran Clay is near the California Aqueduct. East of Baldwin

FIGURE 1
CITY OF PATTERSON
WATER SUPPLY
EVALUATION
DEPTH TO TOP OF
CORCORAN CLAY

LEGEND

- STUDY AREA
- CONTOUR OF DEPTH TO TOP OF CORCORAN CLAY (FEET) (DASHED WHERE APPROXIMATE)
- WELL WITH GEOLOGICAL INFORMATION



Road, depth to the top of the Corcoran Clay ranges from 160 to 340 feet, and increases to the northeast. Figure 2 shows depth to the base of the Corcoran Clay. Depth to the base of the Corcoran Clay ranges from about 200 feet near Baldwin Road to about 350 feet near City observation wells No. 9 and 10. Depth to the base of the Corcoran Clay thus increases to the east beneath Patterson and the surrounding area.

The deepest test holes in or near the City are generally about 600 feet deep. Hotchkiss and Balding (1971) indicated that the base of the Tulare Formation, which is considered to be the base of the usable groundwater in the Patterson area, is about 700 feet deep. The deepest City test hole (No. 8), which was 673 feet deep, indicated that the base of permeable deposits was about 600 feet deep at that location.

AMOUNT OF GROUNDWATER IN STORAGE

A number of electric logs and drillers reports were reviewed and interpreted. Deposits in the Patterson area are generally either coarse-grained (gravel or sand) or are clay. Specific yield values were assigned as follows:

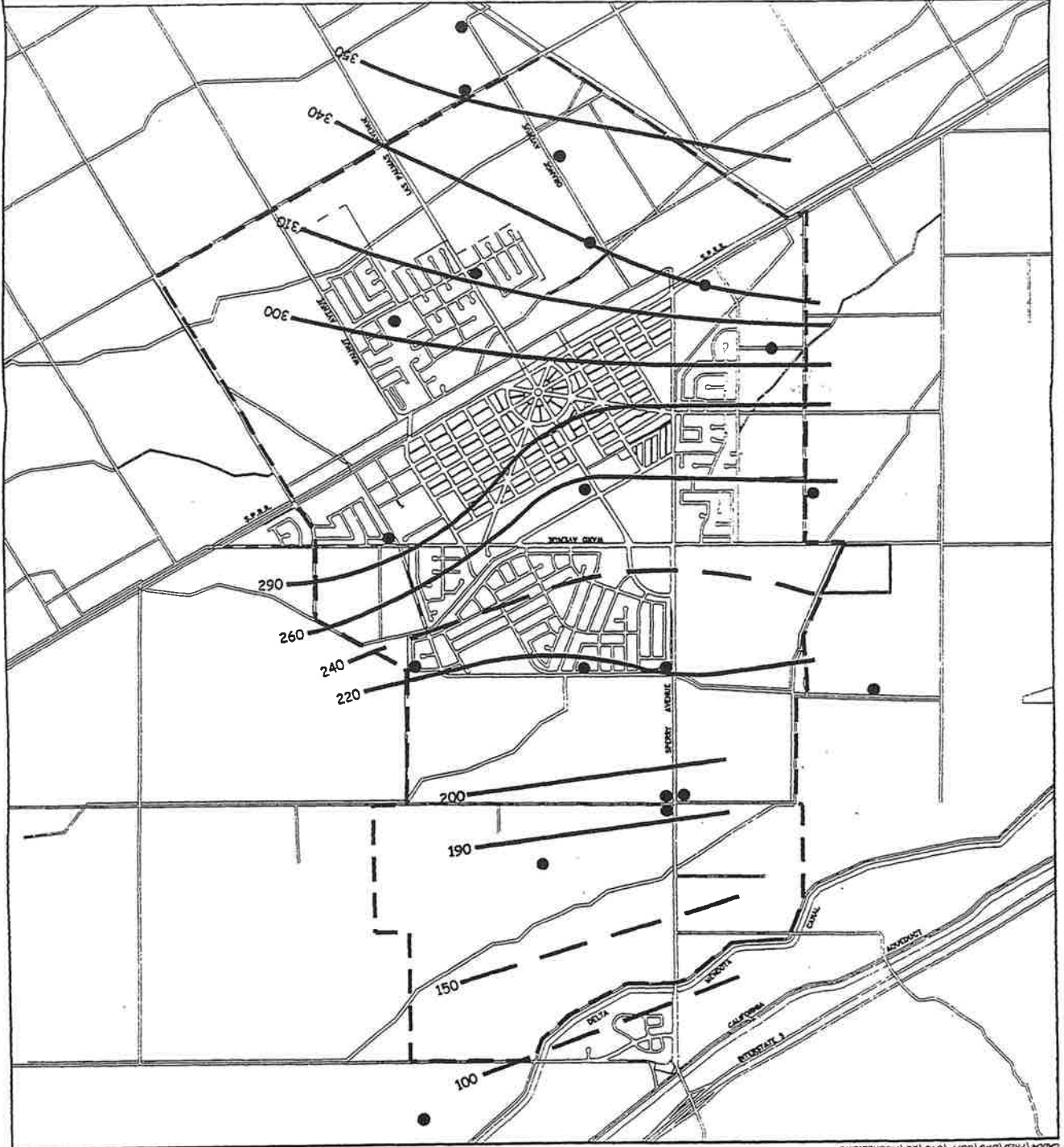
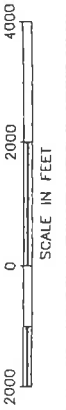
Gravel	20 percent
Sand	15 percent
Clay	3 percent

These values are consistent with values used by the U.S. Geological Survey in the San Joaquin Valley and with experience with

FIGURE 2
CITY OF PATTERSON
WATER SUPPLY
EVALUATION
DEPTH TO BOTTOM
OF CORCORAN CLAY

LEGEND

- STUDY AREA
- 290 — CONTOUR OF DEPTH TO BOTTOM OF CORCORAN CLAY (FEET) (DASHED WHERE APPROXIMATE)
- WELL WITH GEOLOGICAL INFORMATION



alluvial groundwater conditions along the west side of the valley.

Upper Aquifer

For each log, the thickness of sand, gravel, and clay above the Corcoran Clay were determined. The appropriate specific yields were then multiplied by the thicknesses to determine the feet of water present. Greater thicknesses of coarse-strained strata are present above the Corcoran Clay in the eastern part of the area, compared to the western part.

For wells and test holes east of Ward Avenue, the total amount of water in storage above the Corcoran Clay at specific wells or holes usually ranged from about 16 to 20 feet, and averaged 18 feet. For wells and test holes between Baldwin and Ward Avenues, the total amount of water in storage usually ranged from about 10 to 15 feet, and averaged 12 feet. The part of the area west of Baldwin Avenue was considered to have only about 6 feet of water above the Corcoran Clay. Considering the acreages involved, there are an estimated 36,000 acre-feet of water in storage above the Corcoran Clay east of Ward Avenue. There are an estimated 14,000 acre-feet of water in storage above the Corcoran Clay west of Ward Avenue. The total amount of water in storage above the Corcoran Clay in the study area is about 50,000 acre-feet.

Lower Aquifer

The base of the lower aquifer was assumed to be at a depth of about 600 feet for this evaluation. For wells and test holes tapping strata below the Corcoran Clay, only ones at least about 500 feet deep were considered. All such wells and holes are east of Ward Avenue. The total amount of water below the Corcoran Clay at these wells or holes ranged from 14 to 31 feet and averaged 22 feet. Since the base of the usable aquifer is shallow to the southwest, less water is present below the Corcoran Clay in the area west of Ward Avenue. For purposes of this evaluation, the amount of water below the Corcoran Clay in this area west of Ward Avenue is estimated to average about 12 feet. Considering the averages involved, there are an estimated 44,000 acre-feet of water in storage below the Corcoran Clay in the area east of Ward Avenue, and 19,000 acre-feet in the area west of Ward Avenue, or a total of 63,000 acre-feet.

GROUNDWATER FLOWS

Upper Aquifer

Historical water-level elevation contour maps for the upper aquifer beneath Patterson generally indicate a northerly direction of groundwater flow. Amounts of lateral groundwater flow can be determined by the Darcy's Law. The water-level slope and width of flow are determined from the water-level maps and study area boundary. Aquifer transmissivity is ideally determined from

aquifer tests, but these have not been done in the vicinity. In the absence of aquifer tests, specific capacity values can be used to estimate transmissivity. Specific capacity values are available for two City wells that tap both the upper and lower aquifers. Well No. 2 had a specific capacity of 55 gpm per foot when tested in May 1979. Applying a commonly used conversion factor for semi-confined aquifers in the San Joaquin Valley of 1,700, the estimated transmissivity would be 94,000 gpd per foot. The drillers report indicates that Well No. 2 is perforated opposite 31 feet of coarse-grained deposits above the Corcoran Clay and 11 feet of these deposits below this clay. Pro-rating the footages of coarse-grained deposits above and below the Corcoran Clay, the estimated transmissivity of the upper aquifer at City Well No. 2 is about 69,000 gpd per foot.

A PG&E pump test is available for City Well No. 4 for April 1983. The static water level wasn't measured, but is estimated to have been about 30 feet deep at the time. The estimated specific capacity was 36 gpm per foot. The drillers report for this well indicates that perforations were placed opposite 48 feet of coarse-grained deposits above the Corcoran Clay and 64 feet of these deposits below the clay. Pro-rating the footages of coarse-grained deposits, the transmissivity of deposits above the Corcoran Clay at Well No. 4 is 26,000 gpd per foot.

Because City wells don't tap all of the coarse-grained deposits above the Corcoran Clay, better estimates of lateral groundwater flows can be made by considering hydraulic conductivities and the saturated thicknesses of all of the coarse-grained deposits. The hydraulic conductivity for the coarse-grained deposits is determined by dividing the transmissivity by the thickness. At City Well No. 2, the average hydraulic conductivity of these deposits is 2,200 gpd per square foot. This value agrees well with the texture, that is primarily gravel. At City Well No. 4, the average hydraulic conductivity of the coarse-grained deposits is 540 gpd per square foot. This value also agrees with values for Coast Range sands on the west side of the valley. The average hydraulic conductivity of this coarse-grained deposits in the upper aquifer beneath Patterson is estimated to be about 1,400 gpd per square foot.

West of Ward Avenue there is an estimated average of 70 feet of saturated coarse-grained deposits above the Corcoran Clay. East of Ward Avenue there is an estimated 100 feet of such deposits.

Water-level maps (Figures 3 and 4) indicate that the average water-level slope beneath Patterson in the upper aquifer has been about 8 feet per mile. The average width of ground water inflow has been three and a half miles. Using Darcy's Law, the amount of groundwater inflow into the City has averaged about 3,500 acre-feet

FIGURE 3

CITY OF PATTERSON
WATER SUPPLY
EVALUATION

WATER LEVEL ELEVATIONS
AND DIRECTION OF
GROUNDWATER FLOW IN
UPPER AQUIFER
(SPRING 1986)

LEGEND

--- STUDY AREA

— 60
CONTOUR OF WATER LEVEL
ELEVATION ABOVE MEAN SEA
LEVEL (FEET)

→ DIRECTION OF GROUNDWATER
FLOW

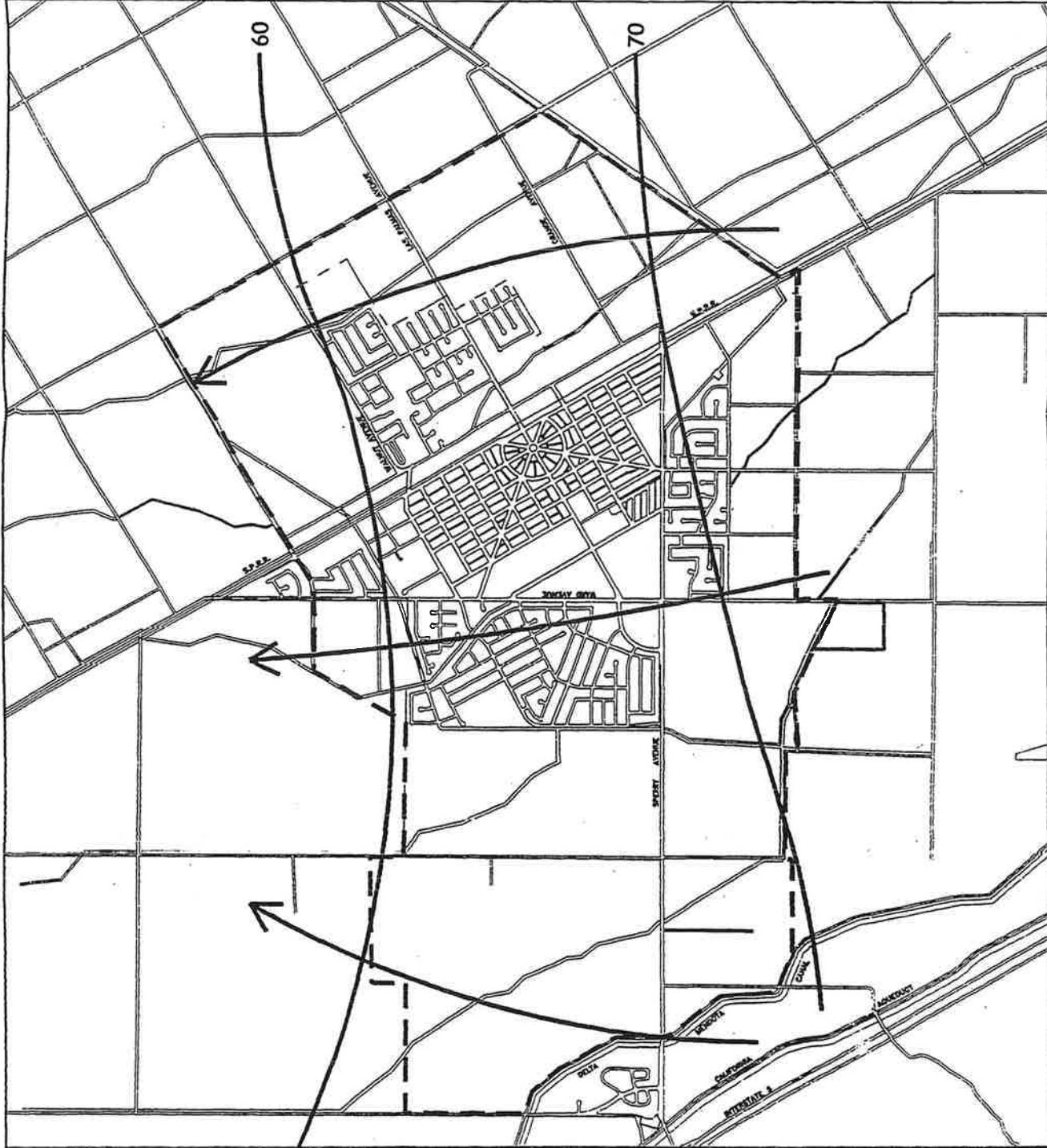
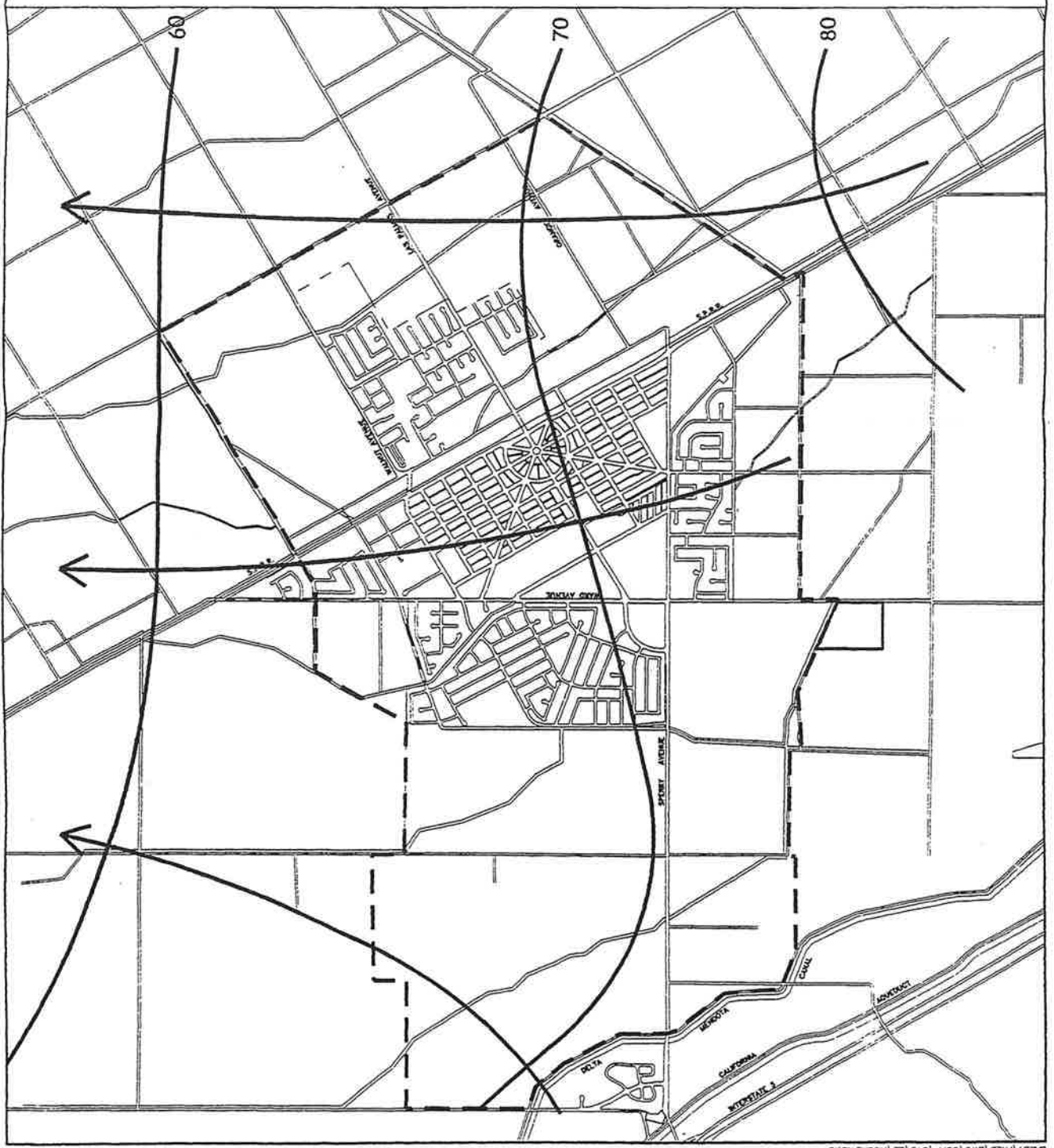


FIGURE 4
CITY OF PATTERSON
WATER SUPPLY
EVALUATION
WATER LEVEL ELEVATIONS
AND DIRECTION OF
GROUNDWATER FLOW IN
UPPER AQUIFER
(SPRING 1989)

LEGEND

- STUDY AREA
- 60 CONTOUR OF WATER LEVEL ELEVATION ABOVE MEAN SEA LEVEL (FEET)
- DIRECTION OF GROUNDWATER FLOW



per year in the upper aquifer. Additional recharge to the upper aquifer comes from canal seepage, deep percolation of excess applied irrigation water, and streamflow seepage.

Lower Aquifer

Recent water-level maps aren't available for the lower aquifer in the Patterson area. Hotchkiss and Balding (1971) presented a water-level map for the lower aquifer for the late 1960's. Water-level elevations in the lower aquifer ranged from 50 to 70 feet above sea level southwest of Patterson (Figure 5). These elevations were primarily based on wells southwest of Highway 33. A northeasterly direction of groundwater flow is indicated. These elevations were slightly below those in the upper aquifer. Regional water-level elevations for the lower aquifer indicate groundwater flow toward the San Joaquin River from both the westerly and easterly directions. Near the river, groundwater generally flows upward for the lower aquifer to the upper aquifer.

The installation of the deep City monitor wells provides additional information on the direction of groundwater flow. On February 26, 2002, the water-level elevation was 41.4 feet above sea level at MW-9 and 44.0 feet at MW-10, consistent with a northeasterly direction of groundwater flow. An apparent water-level slope of about four feet per mile was indicated.

FIGURE 5

CITY OF PATTERSON WATER SUPPLY EVALUATION

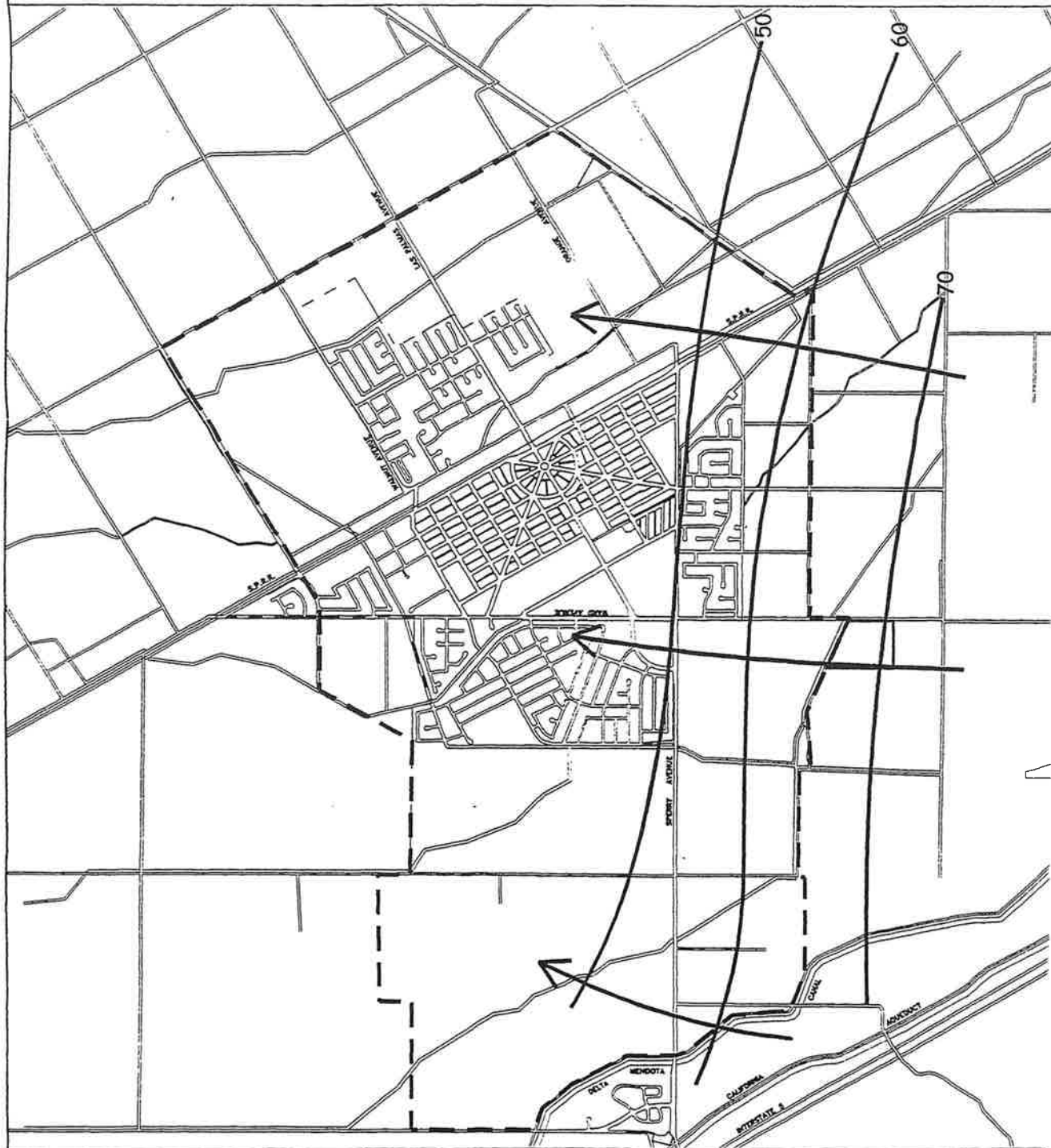
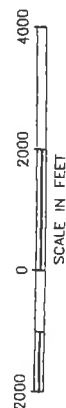
WATER LEVEL ELEVATIONS
AND DIRECTION OF
GROUNDWATER FLOW IN
LOWER AQUIFER
(LATE 1960's)

LEGEND

STUDY AREA

CONTOUR OF WATER LEVEL
ELEVATION ABOVE MEAN SEA
LEVEL (FEET)

DIRECTION OF GROUNDWATER
FLOW



Drawdown Calculations

It was assumed that the future City of Patterson well field would rely primarily on pumpage from wells tapping the lower aquifer. The well field would be located primarily in or near the following area:

Southwest of Sycamore Avenue

Northeast of Highway 33

Southeast of Walnut Avenue

Northwest of Orange Avenue.

Drawdown in wells is the amount of lowered water level due to pumping, compared to without pumping. Drawdown calculations were made for six wells in this area pumping a total of 4,800 acre-feet per year, and for nine wells in this area pumping a total of 8,000 acre-feet per year. Because the wells would only tap good quality groundwater in the lower aquifer, an aquifer transmissivity of 50,000 gpd per foot was deemed appropriate. A storage coefficient of 0.001, typical of confined groundwater in such a setting as at Patterson, was used.

A maximum drawdown of about 150 feet was estimated in the centroid of the well field for the 4,800 acre-feet pumping alternative. A maximum drawdown of about 250 feet was estimated for the 8,000 acre-feet pumping alternative. The average well spacing for these alternatives ranged from about 2,000 to 2,500

feet. Less drawdowns could obviously be obtained if the wells were spaced farther apart. The estimated drawdown about one mile from the perimeter of the well field would be about 35 feet for the 4,800 acre-feet per year pumpage, and 60 feet for the 8,000 acre-feet per year pumpage. The estimated drawdown about two miles from the well field perimeter would be about 25 feet for the 4,800 acre-feet per year pumpage, and 45 feet for the 8,000 acre-feet per year pumpage.

Land Surface Subsidence

Subsidence studies associated with groundwater pumping in the valley were primarily focused on areas south of Los Banos. Thus there has been little monitoring of subsidence in or near the Patterson area. In other parts of the San Joaquin Valley, water-level declines of about 60 to 70 feet in confined aquifers have caused up to a foot of subsidence. However, the clay thickness in these areas is generally considerably thicker than beneath Patterson. Although available data are limited, the potential subsidence beneath Patterson is estimated to be from about half a foot to a foot in the well field, and less than half a foot beyond about one half mile from the well field.

Boundary Conditions

There are two important boundary conditions. First, the south-west edge of the lower aquifer is located about three miles south-west of the well field. Second, the San Joaquin River is about two miles northeast of the well field. Groundwater in the lower aquifer east of the river is indicated to be of relatively high salinity. The quality of groundwater in the lower aquifer southwest of Highway 33 is marginal for public supply. The area of good quality groundwater in the lower aquifer has not been precisely defined. However, available information indicates that this area is approximately bounded by Highway 33 on the southwest and the San Joaquin River on the northeast.

Besides the good quality groundwater in the lower aquifer beneath the City, additional good quality groundwater is likely present in the lower aquifer in the area northwest of Well No. 5 and southeast of Test Hole No. 8 and MW-9. Because of this it would appear advisable to extend the well field as much as possible to the northwest and southeast, staying primarily in the area east of Highway 33.

RECOMMENDATIONS

There are two important data gaps in terms of groundwater

conditions for this evaluation. The first is a lack of recent water-level maps for the lower aquifer. Several additional monitor wells are needed, particularly in the area west of Highway 33. This would allow a water-level elevation and direction of groundwater flow map to be prepared for the lower aquifer. Several monthly water-level measurement rounds should be made for these wells in the winter during minimal pumping conditions. Several other monthly measurement rounds should be made for these wells in the summer during maximum pumping conditions. This would enable estimates to be made on groundwater inflow into the City in the lower aquifer. In addition, the extent of the cone of depression due to existing City pumping could be better determined.

Aquifer tests to determine transmissivity and storage coefficient for the lower aquifer are not available in the Patterson area. It is recommended that City Well No. 5 or 7 be used as the pumped well for such a test. The other of these wells and MW-9, MW-10, and MW-11 could be used as observation wells for the test. The test duration would be for at least 24 hours, and possibly as long as 72 hours. The best value for transmissivity would be from recovery measurements in the pumped well. The storage coefficient would primarily be based on drawdown measurements for the observation wells. A distance-drawdown plot for the end of pumping may also be helpful. Determination of the transmissivity and

storage coefficient for the lower aquifer would provide much more reliable estimates of groundwater inflow and drawdown due to future City pumpage.

DOHS regulations generally call for only triennial (once every three years) sampling for most inorganic chemical constituents. Because of the long-term concern about TDS, sulfate, and other constituents, it is recommended that a semi-annual (twice a year) sampling program be developed for City wells and observation wells. Each City well would be sampled often at least several hours of pumping in the spring (March) and late summer (September). Each monitor well would be sampled by pumping at least 10 well volumes prior to water sample collection. The well volume calculation would include water standing inside the casing and in the gravel pack. The water samples would be analyzed for the major cations and anions (including nitrate), pH, electrical conductivity, total dissolved solids, and manganese.

A subsidence monitoring program should also be implemented in the City. A benchmark should be established on the concrete pump pad for each City supply and observation well. The elevation of these should be determined annually, preferably in the fall, following the summer pumping.

Also, subsidence sleeves should be installed in future deep City wells, to minimize the potential for casing collapse due to

land subsidence. An accompanying program to measure static water levels at least semi-annually (February and October) in all City supply and observation wells should also be undertaken. If land surface subsidence is observed, then a comparison of subsidence to water-level declines should be made.

CONCLUSIONS

There are an estimated 50,000 acre-feet of groundwater in storage in the upper aquifer beneath the City of Patterson. Most of this groundwater is indicated to not meet the public supply well standards, based on numerous test holes and well sampling results. There are an estimated 63,000 acre-feet of groundwater in storage in the lower aquifer beneath the City. Thus there is a total of about 113,000 acre-feet of groundwater in storage beneath the City. The groundwater in the lower aquifer generally meets standards for public water supply wells only in the area east of Highway 33. The amount of good quality groundwater beneath the City is estimated to be about 16,000 acre-feet.

Groundwater inflow into the City comes primarily from the south. Based on estimated aquifer transmissivity and water-level slopes, there is an estimated 3,500 acre-feet per year of groundwater inflow into the upper aquifer and 5,800 acre-feet per year into the lower aquifer. Additional recharge to the upper aquifer

CITY OF PATTERSON
LONG RANGE CAPITAL OUTLAY PROGRAM FOR WATER SUPPLY

Table I-5

**CAPITAL COST COMPARISON FOR
WATER SUPPLY OPTIONS**

YEAR	WATER DEMAND af/yr	SURFACE WATER				TREATED GROUNDWATER			
		YEAR 2008		YEAR 2012		YEAR 2008		YEAR 2012	
		FACILITY NEEDS	CAPITAL COST	FACILITY NEEDS	CAPITAL COST	FACILITY NEEDS	CAPITAL COST	FACILITY NEEDS	CAPITAL COST
2000	2357								
2001	2562	Well 8	\$1,600,000	Well 8	\$1,600,000	Well 8	\$1,600,000	Well 8	\$1,600,000
2002	2767								
2003	2971								
2004	3176					Well 9	\$700,000		
2005	3381	Well 9	\$700,000	Well 9	\$700,000			Well 9	\$700,000
2006	3684								
2007	3988					DS	\$41,400,000	.	
2008	4291	SWS	\$43,530,000	Well 10	\$700,000	Well 10 w/DS	\$4,800,000	Well 10	\$700,000
2009	4594	Well 10	\$700,000						
2010	4898								
2011	5144			Well 11	\$700,000	.		Well 11	\$700,000
2012	5389	Well 11	\$700,000	SWS	\$43,590,000	Well 11 w/DS	\$4,800,000	DS	\$49,800,000
2013	5635								
2014	5881								
2015	6126								
2016	6419	Well 12	\$700,000	Well 12	\$700,000	Well 12 w/DS	\$4,800,000	Well 12 w/DS	\$4,800,000
2017	5712								
2018	7004								
2019	7297								
2020	7589	Well 13	\$700,000	Well 13	\$700,000	Well 13 w/DS	\$4,800,000	Well 13 w/DS	\$4,800,000
TOTALS			\$ 48,630,000		\$ 48,690,000		\$ 62,900,000		\$ 63,100,000

SWS = Surface Water System
DS = Desalination System

II. POTENTIAL SOURCES OF FUNDING

Several potential funding sources currently exist to finance water system supply and improvements. The City has not yet ascertained how these sources would be used to finance a future water supply; such a decision will be made when the City determines which water supply option it will implement. These sources may be generally grouped according to the following:

- **Grants** – Grants do not have to be repaid. They directly reduce the funding that is required from local sources.
- **State Revolving Loans** - The various state revolving loan funds are the next most attractive funding source after grants due to the low interest rates offered by such programs (currently 2.5 to 5.25 percent). The repayment term for such loans is usually generous (20 years or more).
- **Conventional Loans** – Conventional loans will carry higher interest rates and feature shorter repayment terms than both state revolving loans and tax exempt bonds.
- **Tax Exempt Bonds** – Bonds allow municipalities to borrow at tax-exempt rates, and offer repayment terms of up to 30 years. Some bonds, such as revenue bonds, would be repaid by water system user charges and connection fees.
- **Development Impact Fees** – Development impact fees could be used to finance those components of the water system from which new development specifically benefits.

The following sections identify potential sources of funding according to the financing sources listed above.

A. Grants

1. *Groundwater Storage Construction Grant*
2. *Infrastructure Rehabilitation Construction Grant*
3. *(State Department of Water Resources – Proposition 13 Funds)*

The two grant programs referenced above were created with the passage of Proposition 13, the Safe Drinking Water Bond Act approved in March 2000. Between the three programs, approximately \$160 million statewide was available in Fiscal Year 2001-2002.

Though Proposition 13 was not specifically intended to be a source of funding for the financing of new water supply and any facilities associated with a new supply, certain components of the project may be able to be financed through the grant and loan programs referenced above. For example, in the case of the desalination option, the retrofitting of existing wells may be eligible for funding from the Infrastructure Rehabilitation Construction Grant program.

CITY OF PATTERSON
LONG RANGE CAPITAL OUTLAY PROGRAM FOR WATER SUPPLY

repayment, the cost of capital projects can be allocated to their users in accordance with water use and demand. Other system revenues, such as connection fees, may be used to secure repayment. In many situations they are the most appropriate form of financing for system improvements.

A disadvantage of revenue bonds is that issuance requirements, such as establishment of a reserve fund, make the size of a revenue bond issue greater than that of a GO bond. Interest rates are also slightly higher for a revenue bond compared to a GO bond.

3. *Mello Roos Community Facilities District Bonds*

Mello Roos bonds could be used to finance water system improvements directly benefiting new development. A citywide Mello Roos bond could also be issued to finance system improvements benefiting all users.

A Mello Roos district has already been formed for the West Patterson area, to fund infrastructure improvements in the area, including some water supply infrastructure.

E. *Development Impact Fees*

Development impact fees could be charged to new development to finance water facilities specifically benefiting new residents. Development impact fees could be used to pay for the costs of drilling new wells that would exclusively supply water to new housing. Because of this funding nexus to new development, impact fees would have to be combined with other financing sources in order to finance the total cost of the water supply and facilities.