

**EIR No. 10126**

**Draft Environmental Impact Report  
Copper River Ranch**

**SCH No. 2000021003**

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## SUMMARY

This Program Environmental Impact Report (EIR) is prepared by the City of Fresno for the proposed Copper River Ranch project. The Program EIR is prepared in conformance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

The applicant, Copper River Ranch LLC, of Fresno, California, submitted a General Plan Amendment/Rezoning application to Fresno County in January of 2000. These applications were approved by the Fresno County Board of Supervisors in December of 2000 and a Final Program EIR was certified by the Board. In August 2002, the Fresno County Local Agency Formation Commission (LAFCO) included the site within the Sphere of Influence boundary for the City of Fresno. In addition, the site is designated for urban development by the proposed 2025 Fresno General Plan. The purpose of the proposed Project is to transition the project from Fresno County by annexing to and developing within the City of Fresno. This process will require approval of a general plan amendment to the 1984 Fresno General Plan in the event the 2025 Fresno General Plan is not adopted before consideration of the project; rezoning of the site to applicable City of Fresno zone districts; and annexation of the site. The previous Final Program EIR as certified by the Fresno County Board of Supervisors is being updated to include new information as well as analysis of the project on City plans, policies, and urban services for use by the City of Fresno as Lead Agency.

If approved, Copper River Ranch at build-out would contain as many as 2,837 residential units, including single family and multi-family dwellings, plus nearly 60 acres of mixed-use commercial development on an approximate 706.5-acre site. Population at completion is estimated at 7,950 (at 2.8 persons per unit). The proposed development would be built in stages as market demands dictate. No firm plan for the sequence of development exists at present, although it is anticipated that build out of the entire project site may require 10-15 years. The development would surround the existing Copper River Country Club that includes a golf course, clubhouse, and tennis complex.

The overall density is approximately 4.01 units per acre. If land in the golf course, proposed commercial areas, and public facilities is subtracted (285 acres), the density of land used for residential purposes is approximately 6.73 units to the acre. Residential development is proposed to occur in villages at somewhat higher densities than currently exist in most new projects in the metropolitan area. For this reason, it is assumed for purposes of EIR analysis that 42% of the residential units will be detached single-family homes (1,192 units), and 58% will be multifamily units (1,645 units). The multifamily component represents a variety of potential housing types, including attached townhouses, condominiums, duplexes and triplexes, as well as more conventional apartments and senior housing.

Commercial mixed-use development could occur at least two locations -- Copper Avenue at Maple Avenue and Copper Avenue at Willow Avenue. Total proposed commercial and office development is estimated at 250,000 square feet.

## LAND USE , PLANNING AND AGRICULTURE

### Impact

- The proposed project is not consistent with the 1984 Fresno General Plan but is consistent with the proposed 2025 Fresno General Plan. The proposed project includes a general plan amendment to bring the proposed project into conformity with the 1984 Fresno General Plan in the event the 2025 Fresno General Plan is not adopted. This is a *less-than-significant impact*.

### Mitigation

None required.

### Impact

The project is generally consistent with the principals and policies of the *A Landscape of Choice*. This is a *less-than-significant impact*.

### Mitigation

No additional mitigation is required beyond existing mitigation in the EIR.

### Impact

The proposed project is generally consistent with the policies and standards of the Local Agency Formation Commission. This is a *less-than-significant impact*.

### Mitigation

No additional mitigation is required. When an annexation is applied for, LAFCO will determine the extent to which the particular annexation meets LAFCO requirements.

### Impact

- Approval of the project would substantially modify the current use of the land from agriculture to urban use and would result in the conversion of prime agricultural land. This is a *significant, unavoidable impact*.

### Mitigation

1. The developer shall ensure through the subsequent master use permit and associated development plan, that the project is designed in a compact nature consistent with the principles of *A Landscape of Choice* to maximize the use of land, thereby reducing the pressure on productive agricultural land to the west, southwest, east, and southeast of the Fresno/Clovis metropolitan area.

### Level of Significance After Mitigation

Although impacts to regional agriculture would be reduced, loss of agricultural land on the site itself represents a significant, unavoidable impact.

### Impact

- ✓ • Conversion of productive agricultural land would increase the potential for land use impacts at the interface of agricultural and residential uses. Potential impacts to agricultural production are considered to be *significant*.

### Mitigation

1. The City shall pursue appropriate measures, including recordation of right to farm covenants, to ensure that agricultural uses of land may continue within those areas of transition where planned urban areas interface with planned agricultural areas.



#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce the potential for conflict between agricultural uses and the residential project, to a less-than-significant level.

#### Impact

- Prior to any urban development, the Williamson Act contracts for two existing parcels would require cancellation or non-renewal. This is a *less-than-significant* impact.

#### Mitigation

None required.

#### Impact

- ✓ • The project would place urban level development along the Silaxo Road alignment resulting in land use impacts to rural residential uses north of the project. Rural residential uses remaining south of Silaxo Road but outside the project boundary will also experience land use impacts from urban development. This is a *significant* impact.

#### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future plans at the interface with adjacent residential properties:

1. All lots shall back onto the common property line on the northern boundary of the project.
2. All lots shall be fenced.
3. All lots along these common property lines shall include a backyard landscaping plan to provide for continuous screening with evergreen and deciduous trees.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce the potential for conflict between existing rural residences and the proposed project.

#### TRAFFIC AND CIRCULATION

#### Impact

- ✓ • Approval of the project will cause some street segments to operate below acceptable standards in 2025. This is a *significant, unavoidable* impact.

#### Mitigation (for both 2012 and 2025)

The developer shall ensure through the master use permit or development plan, that the following measures are incorporated in the design of future plans:

1. If the project is found to trigger a capacity improvement, which otherwise would not be required under the no-project scenario, the project will be required to fully fund (100%) the improvement. Subsequent project-specific studies will determine the need and feasibility of the improvement.

2. Since the project is defined in very general terms at the Program EIR level, developer responsibility for proposed mitigation measures is shown as fair share percentage estimates rather than project-specific fair share responsibilities. The fair share percentage estimates provide a general overview of how much the project may need to contribute to mitigate potential impacts on the future roadway system. Once the project is defined through the development plan and specific plan/development plan, a project-specific traffic analysis will determine both project-specific impacts and associated developer responsibility for mitigation. In these future project-specific traffic studies, actual project fair shares will be determined. However, unless other projects in the study area are proposed for development with a more intensive land use, those segments that are shown at 100% developer responsibility are likely to remain at 100% developer responsibility in all future project-specific traffic studies. The fair share percentage estimates do not take into account either the City of Fresno UGM fees or the City of Clovis TIF program.

The following section summarizes the currently recommended 2025 Project road widening mitigation measures with appropriate fair share estimates. Final mitigation measures, fair share estimates and timing of implementation will be determined when the future Project-specific analysis is completed.

Roadway widening mitigations required with Project build out in 2025 are:

- Friant Road from SR 41 southbound off-ramp to SR 41 northbound off-ramp B widen from 5 lanes to 8 lanes
- Friant Road from SR 41 northbound off-ramp to Fresno Street B widen from 6 to 8 lanes<sup>1</sup>
- Friant Road from Fresno Street to Audubon Drive B widen from 6 to 8 lanes
- Friant Road from Audubon Drive to Shepherd Avenue B widen from 4 to 6 lanes
- Friant Road from Shepherd Avenue to Ft. Washington Road B widen from 4 to 6 lanes
- Copper Avenue from Peach Avenue to Auberry Road B widen from 2 to 4 lanes
- Willow Avenue from Herndon Avenue to Alluvial Avenue B widen from 2 to 4 lanes
- Willow Avenue from Alluvial Avenue to Nees Avenue B widen from 2 to 4 lanes
- Willow Avenue from Nees Avenue to Teague Avenue B widen from 2 to 6 lanes
- Willow Avenue from Teague Avenue to Shepherd Avenue B widen from 2 to 8 lanes
- Willow Avenue from Shepherd Avenue to Perrin Avenue B widen from 2 to 6 lanes
- Willow Avenue from Perrin Avenue to Behymer Avenue B widen from 2 to 4 lanes
- Willow Avenue from Behymer Avenue to International Avenue B widen from 2 to 4 lanes
- Willow Avenue from International Avenue to Copper Avenue B widen from 2 to 4 lanes
- Willow Avenue from Copper Avenue to South Project Road B widen from 2 to 4 lanes
- Willow Avenue from South Project Road to North Project Road B widen from 2 to 4 lanes
- Chestnut Avenue from Nees Avenue to Shepherd Avenue B widen from 2 to 4 lanes
- Shepherd Avenue from Minnewawa Avenue to Fowler Avenue B widen from 2 to 4 lanes
- Shepherd Avenue from Fowler Avenue to Temperance Avenue B widen from 2 to 4 lanes
- Herndon Avenue from Willow Avenue to Peach Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Peach Avenue to Villa Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Villa Avenue to Clovis Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Clovis Avenue to Fowler Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Toll House Road to De Wolf Avenue B widen from 2 to 4 lanes

Alternative Transportation Mitigation Measures. As discussed in the 2012 Project Mitigated section, the project should also encourage transit usage. Potential alternative transportation mitigation measures include:

1. Establish a Transportation Demand Management Program that provides incentives for people both living and working in the project area to take some form of commute alternative such as walking, bicycling, carpool/vanpool, transit, and flex-scheduling.
2. With the assistance of the County, contract with FAX to provide transit stops internal to and bordering the project site; or create a project internal transit system that connects to the FAX system at designated points along Friant Road, Maple Avenue, or Willow Avenue.
3. Create park-and-ride lots within the project, possibly at retail/service/office uses locations.

The 2025 traffic evaluation did not include potential reductions in peak hour trips created by recommended transit mitigation measures; therefore, the resulting mitigated levels of service represent a worst case scenario.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts for most study segments to a less-than-significant level. For a limited number of study segments, however, levels of service would remain below accepted standards, resulting in significant, unavoidable impacts for those segments.

#### AIR QUALITY

##### Impact

- Construction of the project would generate fugitive dust from construction activities, hydrocarbon emissions from paints and asphalt, and exhaust emissions from construction vehicles. This would be a *significant impact*.

##### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. A Fugitive Dust Prevention and Control Plan shall be developed to specify control methods, demonstrate availability of equipment and personnel, and identify the individual authorized to implement prevention measures. The Plan shall comply with the SJVAPCD Regulation VIII -- Fugitive Dust Rules. The Plan shall include the following conditions:
  - a. All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
  - b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.



- c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing applications of water or by presoaking.
  - d. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or maintain at least six inches of freeboard space from the top of the container.
  - e. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.
  - f. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
  - g. Traffic speeds on unpaved roads shall be limited to 15 miles per hour (mph).
  - h. 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.
  - i. Excavation and grading activity shall be suspended when winds exceed 20 mph.
2. Construction contracts shall include the following provisions:
- a. All construction equipment shall be properly maintained and operated.
  - b. Alternative-fueled construction equipment shall be used if feasible.
  - c. Hours of operation of heavy-duty equipment shall be limited to 7:00 a.m. to 7:00 p.m. Monday through Saturday.

#### Level of Significance After Mitigation

The mitigation measures would reduce fugitive dust impacts to a less-than-significant level.

#### Impact

- Vehicle trips to and from the project and emissions generated from residential and commercial land uses would result in air pollutant emissions affecting the entire San Joaquin Valley air basin. This would be a *significant, unavoidable impact*.

#### Mitigation

1. The developer shall be responsible for the following measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:
  - a. Pedestrian enhancing infrastructure shall be provided and include: sidewalks and pedestrian paths; street trees to shade sidewalks; pedestrian safety designs/infrastructure; street furniture; street lighting; and pedestrian signalization and signage.
  - b. Bicycle enhancing infrastructure shall be provided and include: bikeways/paths connecting to a bikeway system; and secure bicycle parking.
  - c. The project shall either contract with Fresno Area Express (FAX) through the City to provide transit services within the project area, or provide an on-site transit service to off-site FAX transit stations/multimodal centers.
  - d. Transit-enhancing infrastructure shall be provided and include: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs
  - e. Park and ride lots and/or satellite telecommuting centers shall be provided in the project area.
  - f. Carpool/vanpool programs shall be implemented, e.g., carpool, ridematching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.
  - g. On-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. shall be provided within commercial and office areas.

- h. A Transportation Demand Management Program shall be established and include: transit, bicycle, pedestrian, traffic flow improvements, transportation system management, rideshare, telecommuting, video conferencing, and other measures to reduce peak hour vehicle trips.

2. Future construction plans for residential, commercial, office, and public uses shall include:

- a. Solar or low-emission water heaters.
- b. Central water heating systems in commercial areas.
- c. Open-hearth fireplaces shall require use of natural gas or installation of low-emission, EPA-certified fireplace inserts.

#### Level of Significance After Mitigation

Implementation of the above mitigation measures would not reduce project-related regional emission to a less-than-significant level. Project-related regional emissions would remain a significant, unavoidable impact.

#### Impact

- Project residents could be exposed to fugitive dust, trace metals, asbestos, radio nuclides and combustion-related compounds emitted by CalMat gravel extraction and batch plant operations northwest of the project site. This would be a *less-than-significant impact*.

#### Mitigation

None required.

#### Impact

- The wastewater treatment plant would be located in proximity to housing, recreation, and commercial areas resulting in the potential for odor from wastewater treatment processing. This is a *less-than-significant impact*.

#### Mitigation

None

#### GEOLOGY AND SOILS

#### Impact

- Seismic activity along any of the regional faults could result in moderate damage to structures in the proposed project. This would be a *less-than-significant impact*.

#### Mitigation

None required.

#### Impact

- The project would be developed on soils which have development constraints which could cause structural damage. This would be a *less-than-significant impact*.



#### Mitigation

None required.

#### Impact

- Development of the proposed project would require excavation, grading, and other construction operations. Slope and soil disturbance could result in soil erosion. This would be a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. A qualified geologist or consultant shall prepare and submit an erosion control plan for approval by the the City of Fresno Public Works Department demonstrating compliance with water quality standards. Elements of this plan shall address both the potential for soil erosion and non-point source pollution.

#### Level of Significance After Mitigation

Mitigation would reduce impacts to a less-than-significant level.

#### BIOTIC RESOURCES

#### Impact

- Jurisdictional wetland habitat would be filled in order to implement the proposed project. This would be a *less-than-significant impact*.

#### Mitigation

No additional mitigation is required beyond compliance with the USACE permit.

#### Impact

- Special status wildlife species could be adversely affected by project construction. This would be a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. A qualified biologist shall conduct a preconstruction survey for Burrowing Owls no more than 30 days prior to the on-set of project construction. This survey shall be conducted according to methods described in the *Draft Report on Burrowing Owl Mitigation* (CDFG 1995). If preconstruction surveys undertaken during the breeding season (February through July) locate active nest burrows within or near construction zones, the developer shall establish an appropriate construction-free setback around these nests until the conclusion of the breeding season. A qualified ornithologist in



consultation with the CDFG shall determine the distance of the setback. At the conclusion of the nesting season these owls may be relocated as discussed below.

2. If preconstruction surveys undertaken during the non-breeding season (August through January) locate resident owls, these individuals may be relocated to alternative habitat. The relocation of resident owls shall be conducted according to a relocation plan prepared by a qualified biologist in consultation with CDFG. Passive relocation as described in *Draft Report on Burrowing Owl Mitigation* shall be the preferred method of relocation. The plan shall provide for the owls relocation to nearby lands possessing available nesting habitat. Ground squirrel populations and their burrow complexes can then be eliminated to prevent the return of Burrowing Owls at a later time when construction may occur.
3. A qualified biologist shall conduct a preconstruction survey for Northern Harriers no more than 30 days prior to the on-set of project construction, if construction is to occur during the breeding season (February through July). If active nest burrows are located within or near construction zones, the developer shall establish an appropriate construction-free setback around these nests until the conclusion of the breeding season. A qualified ornithologist in consultation with the CDFG shall determine the distance of the setback. The developer may also disc the non-native grassland prior to the onset of the breeding season. Discing shall prevent the growth of dense tall grasses favorable for nesting Northern Harriers.

#### Level of Significance After Mitigation

Mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Implementation of the proposed project would convert approximately 107 acres of non-native valley grassland to urban development. This would be a *less-than-significant* impact.

#### Mitigation

None required.

#### Impact

- Special status plant species could be affected by project construction, resulting in a *less-than-significant* impact.

#### Mitigation

None required.

#### Impact

- Project development could interfere with the movement of native wildlife, resulting in a *less-than-significant* impact.

#### Mitigation

None required.

### Impact

- Project development could lead to the degradation of water quality in off-site seasonal creeks and downstream waters, resulting in a *significant impact*.

### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Prior to site grading and preparation, a storm water pollution prevention plan prepared by a qualified geologist or consultant shall be submitted to and approved by the City of Fresno Public Works Department demonstrating compliance with water quality standards. Elements of this plan shall address both the potential for soil erosion and non-point source pollution.

### Level of Significance After Mitigation

Implementation of the soil erosion control measures will reduce impacts to water quality in off-site seasonal creeks and downstream drainages to a less-than-significant level.

### DRAINAGE

### Impact

- Increased runoff generated by the proposed project will require new flood control facilities. This is a *less-than-significant impact*.

### Mitigation

None required.

### Impact

- Increased runoff could result in erosion, sedimentation, and increased levels of contaminants, including nutrients, resulting in possible water quality impacts associated with detention facilities. This is a *significant impact*.

### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. The master storm water plan developed and implemented for the project shall include all applicable best management practices identified in the Construction and Post-Construction Guidelines to ensure that pollutants are controlled to standards required by the City of Fresno and the State of California.

### Level of Significance After Mitigation

Implementation of the above mitigation measure would reduce impacts to a less-than-significant level.

## WASTEWATER TREATMENT

### Impact

There is not capacity in the Herndon sewer trunk to accommodate the proposed project. Even with mitigation measures in place to allow development of the Urban Reserve Area of the Woodward Park Community, the City of Fresno has determined that there is no collection capability with full build-out of planned land uses to serve future development north of Copper Avenue. Lack of sewer service constitutes a *significant impact*.

### Mitigation

The developer shall be responsible for the following mitigation measures:

1. The developer shall construct and/or pay for all facilities necessary to accommodate the impact of connection to the City sewer system and associated wastewater treatment.
2. The design of necessary collection system improvements is subject to approval by the City. All reasonable effort will be made by the developer and the City to design and stage facilities to maximize value and minimize cost.
3. The developer shall construct a wastewater treatment facility of a capacity and design acceptable to the City of Fresno. The wastewater treatment facility shall be completed and "on-line" in time to satisfy the conditions of accommodation of temporary flows (not to exceed seven years, or four years from the first building permits, or until completion of the on-site wastewater treatment plant).
4. Treated effluent from the proposed wastewater treatment facility (recycled water) shall be re-used by the project. Land application of recycled water shall be subject to the approval of the City of Fresno and appropriate County and State agencies.
5. Equitable impact fees and monthly user charges shall be approved by the developer and the City prior to the Maple Avenue connection at Perrin. Equitable in this context shall mean:
  - the cost of facilities and operational expenses necessary to serve the project shall be born solely by the developer
  - to the extent that such facilities and expenditures benefit other developments, the project shall be eligible for reimbursement pursuant to existing mechanisms and protocols
6. An emergency operational plan shall be prepared by the facility designer to be countersigned by the City of Fresno which specifies steps to be taken in the case of an emergency and contact persons name and telephone numbers.

### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.



### Impact

- Public health is the predominate concern associated with the reuse of reclaimed water for irrigation of a golf course. This is primarily due to the potential presence of pathogenic microorganisms in the untreated wastewater. This is a *significant impact*.

### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval for the required conditional use permit for the wastewater treatment plant:

1. Reclaimed water shall be utilized for golf course or landscape irrigation in designated open space areas. These sites shall be fully described and approved by the RWQCB as part of the preliminary discharge permit and it must be shown by soil testing by a qualified engineer that the sites are capable of handling the entire planned disposal flow.
2. The spray irrigation system shall be operated so as to minimize contact with the public. Irrigation shall be scheduled for times when the areas are not in use and all irrigation piping shall be clearly marked as not for potable use. The system shall be operated to minimize aerosols, ponding, and runoff of reclaimed water. Operation of the irrigation system by City of Fresno personnel shall be in accordance with guidelines established by DHS.
3. Separation of the reclaimed effluent distribution system and the potable water distribution system shall be assured through use of color-coded pipe. Effluent pipelines and hardware shall be appropriately labeled, and backflow prevention devices may be required where a potential cross connection may exist. Minimum separation of potable water and reclaimed water lines shall be as prescribed by City of Fresno and State of California standards.
4. The design of the treatment plant and the treated effluent quality shall meet the requirements of Title 22 CCR for the use of reclaimed wastewater. The project developer shall obtain a Waste Discharge Permit from the RWQCB. Prior to construction of the reclamation facility, an engineering report demonstrating compliance with these regulations shall be submitted to the RWQCB and the DHS. In the event that standards are exceeded, additional disinfection shall be required until standards are attained. The applicant shall develop a contingency plan as part of the Waste Discharge Permit which prevents inadequately treated wastewater from being applied to areas that allow public access.

### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less than-significant-level.

### Impact

- The proposed project would result in the need to dispose of biosolids. This is a *significant impact*.

### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval for the required conditional use permit for the wastewater treatment plant:

1. The developer shall participate in any necessary collection system enhancements subject to full and satisfactory mitigation by the developer of all potentially significant impacts identified by the City of Fresno Department of Public Utilities.
2. The developer shall be responsible for all wastewater facility and trunk fees necessary to accommodate the sludge loading.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Groundwater degradation caused by infiltration of diluted treated effluent from the irrigation lakes and irrigation of the golf course and open space may occur if appropriate management, monitoring, and sampling is not fully implemented. This is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring wells shall be provided to detect the influence of reclaimed water, if any, on groundwater quality. At a minimum, monitoring wells shall be located at points one-quarter and one-half of the distance (plus or minus 10 percent) between the lakes containing diluted effluent and the nearest domestic water supply well on-site and off-site southwest in the direction of groundwater flow. In addition, a monitoring well shall be placed immediately down gradient of the wastewater treatment plant effluent storage ponds. The number and exact location of monitoring wells shall be described in the engineering report submitted pursuant to Section 60320.07 and approved by DHS.
2. A recommended plan for use of the existing wells in conjunction with new monitoring wells shall be made in the engineering report pursuant to Section 60320.05 (d) and approved by DHS. All other wells on-site except for irrigation wells to remain in use shall be properly abandoned according to adopted standards.
3. Comply with the effluent management plan prepared by a qualified engineer and approved by the Fresno County Department of Community Health and DHS.
4. Annual nutrient summaries shall be prepared for all turf areas served with reclaimed water. The summaries shall evaluate the needs of the turf, the amount of nutrients applied, and any supplemental fertilizers applied. The amount of treated effluent applied shall be adjusted based on the turf nutrient requirements.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.



### Impact

- Groundwater quality degradation from nutrient accumulation may occur from small amounts of nitrogen that exist in treated effluent used for irrigation. The migration of some nitrogen to groundwater could occur irrespective of the use of reclaimed effluent with normal golf course irrigation. This is a *significant* impact.

### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring groundwater, including nitrogen content, has been proposed as a mitigation measure for this project (see mitigation for groundwater degradation caused by infiltration of diluted treated effluent, above). Measurements shall be taken each calendar quarter by City of Fresno personnel or a qualified consultant. Should the monitoring tests exceed nitrogen standards, a denitrification process shall be started at the wastewater treatment facility. The plant design shall incorporate a denitrification process that shall denitrify the treated effluent to the 10 mg/l total nitrogen level.

### Level of Significance After Mitigation

Implementation of the recommended mitigation measures will reduce potential impacts to a less than significant level.

### HYDROLOGY

#### Impact

- Approval of the project will require pumping from the groundwater aquifer. This is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure through the subsequent master use permit and associated development plan:

1. Establish a development fee for the project's fair share of the City's surface water treatment plant construction and expansion.
2. The project shall commit to a water conservation program which shall include low-flow water fixtures, water conserving landscaping of public spaces, and water conserving practices for golf course irrigation.
3. Technical water supply information shall be submitted which demonstrates residential and commercial uses and corresponding water requirements.
4. The developer shall commit to plan and maintain on-site recharge basins and lakes to ensure that necessary recharge can be accomplished over the life of the project.
5. The developer shall prepare a water master plan for approval by the City in accordance with City requirements.



#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Project approval could adversely affect off-site wells. This is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure through the subsequent development agreement and associated specific plan or development plan:

1. New wells shall be placed a minimum of 500 feet from the project boundaries where there is an adjoining proximate off-site well, in order to preclude drawdown in off-site wells due to pumpage of new public supply wells in the project. In addition, new public supply wells on the project site shall include a test well and monitoring of a sufficient number of adjoining proximate off-site wells as determined by the City to determine potential drawdown in the off-site wells. Should adverse effects on adjoining proximate off-site wells be determined, the public supply wells shall be relocated or otherwise mitigated to preclude such adverse impacts.
2. Locate domestic water wells in accordance with the recommendations contained in the report, *Groundwater Conditions at the Copper River Ranch*, prepared by Kenneth D. Schmidt and Associates, May, 2000.
3. If water yields from adjacent private wells are determined by the City Department of Public Utilities in consultation with the Fresno County Department of Community Health to have been adversely affected by the project, the developer shall improve the private well to standards acceptable to the City, or connect the user to the project water system.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Approval of the project could result in domestic water wells with contaminants exceeding State MCLs. This is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measures based on required water-well monitoring:

1. Should any existing community water supply well exceed the DBCP MCL as detected in regular monitoring, granular activated carbon treatment or other acceptable technology shall be required consistent with CCR Title 22 requirements.
2. Should any existing community water supply well exceed the uranium MCL as detected in regular monitoring, the contaminated well water shall be blended with other on-site groundwater supplies to reduce the contamination level below the MCL at all times. A State DHS-approved

blending program shall be implemented to meet this requirement. The effectiveness of the program shall be supported by on-going monitoring at State-specified frequencies and locations.

3. Should other contaminants be identified in the future, remediation shall be resolved in accordance with CCR Title 22 requirements.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Approval of the project may involve groundwater recharge with reclaimed water that may contain nitrogen or other contaminants. This is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring groundwater, including nitrogen content, has been proposed as a mitigation measure for this project (see mitigation for groundwater degradation caused by infiltration of diluted treated effluent, in Section 2.8). Measurements shall be taken each calendar quarter by City of Fresno personnel or a qualified consultant. Should the monitoring tests exceed nitrogen standards, a denitrification process shall be started at the wastewater treatment facility. The plant design shall incorporate a denitrification process that shall denitrify the treated effluent to the 10 mg/l total nitrogen level.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

#### Impact

- Impacts on groundwater may occur due to application of fertilizers, pesticides, and the leaching associated with normal golf course irrigation practices. This is a *less-than-significant impact*.

#### Mitigation

None required.

#### Impact

- Groundwater quality degradation from stormwater runoff associated with urban development is a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval for all conditional use permits, tentative tract maps, or site plans:



1. Grading plans shall demonstrate that all areas of irrigated turf or other open space receiving reclaimed water drain away from FMFCD basins, except in extraordinary wet years (10-year frequency storms) when on-site lakes may fill from stormwater and utilize the FMFCD basins.

#### Level of Significance After Mitigation

With implementation of the recommended mitigation measures, impacts will be reduced to a less than significant level.

#### PUBLIC FACILITIES AND SERVICES

##### Impact

- The project would result in the need for additional law enforcement services. The impact on law enforcement is a *significant impact*.

##### Mitigation

1. The developer shall ensure through the subsequent master use permit and associated development plan, that a site for a "community service center" is provided within the project acceptable to the Fresno Police Department.

The developer shall be responsible for the following mitigation measures to be included as a condition of approval for all conditional use permits, tentative tract maps, or site plans:

2. Maximize visibility and natural surveillance abilities through the placement and design of physical features including building orientation, windows, entrances and exits, parking lots, walkways, guard gates, low-maintenance landscaping (trees and shrubs), fences or walls, signage and any other physical obstructions.
3. Implement design features to clearly identify public/private spaces and to facilitate natural access control and territorial reinforcement, to include, but not limited to, the following measures:
  - a. Identify public entrances and exits through the implementation of sidewalks, pavement, lighting and landscaping to clearly guide the public.
  - b. Discourage/prevent public access to and from dark and/or un-monitored areas through the use of fences, walls or landscaping.
  - c. All residential and commercial addresses shall be clearly visible from the street and shall be illuminated.
  - d. Incorporate access control, including parking lot barriers, fenced rear and side yards, and entry telephones for gated neighborhoods.
  - e. Implement exterior nighttime lighting of display areas, parking lots, walkways, entrances and exits. These areas shall be illuminated, at a minimum, one-half hour after sunset and one-half hour before sunrise during hours of operation.
  - f. Incorporate measures that provide off-street parking to discourage auto-related crimes, graffiti-resistant paints and surfaces, and view fences.
4. The Fresno Police Department shall be consulted during site planning and subdivision design to ensure that adequate provisions acceptable to the Police Department for crime prevention are designed into the project.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- The project would result in the need for additional fire protection services. The impact of the project on fire protection is a *significant impact*.

#### Mitigation

The developer shall ensure that the following measures are incorporated in future conditional use permits, tentative tract maps, or site plans:

1. The geometric sections of all interior roads shall, at a minimum, be improved to City of Fresno standards to adequately provide for emergency vehicles. Any deviations from the standards shall be accomplished through modifications or exceptions requested at the Vesting Tentative Subdivision Map or site plan review stage.
2. A water supply and distribution system, including fire hydrants, shall be designed and constructed to meet the adopted fire protection standards of the City of Fresno.
3. All residential and commercial development shall be provided with fire control systems as required by Fresno Fire Department regulations. The tertiary wastewater treatment facility shall also be provided with a fire control system.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- There is insufficient capacity in existing schools within CUSD to accommodate estimated new students. If additional fiscal resources are not provided to CUSD for the purpose of constructing new schools, there would be a *significant impact*.

#### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in future conditional use permits, tentative tract maps, and site plans:

1. The developer shall identify the location of an elementary school site within the boundaries of Copper River Ranch acceptable to CUSD. Should CUSD select an off-site location to serve Copper River Ranch, the agreed-upon site and any necessary agreements shall be in place prior to approval of the first final subdivision map.
2. The developer shall pay current impact fees to the CUSD in effect at the time of specific project approval.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.



### Impact

- Approval of the project will generate the need for additional park space. This is a *significant impact*.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measure is incorporated in the design of future conditional use permits, tentative maps, and site plans:

1. A minimum of 24 acres of park space shall be provided within the Copper River Ranch project.

### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

### Impact

Copper River Ranch recreational opportunities will attract traffic and accommodate activities which could be considered nuisances to adjoining properties, and is a *significant impact*.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future plans:

1. The FMFCD flood control basin/community park shall be bounded on at least one side by a street. Parking facilities shall be located off of a public street.
2. Road improvements shall be made to adequately accommodate vehicle traffic that shall be generated by the parks, recreation and open space uses within the project.

### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

### Impact

- Development of the site will place substantial development in proximity to the San Joaquin River Parkway, increasing visitors to the parkway and creating access issues. This is a *significant impact*.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future conditional use permits, tentative tract maps, and site plans:

1. In cooperation with the San Joaquin River Parkway Conservancy, the developer shall design and construct safe crossing(s) of Friant road as well as suitable connections from the project to the parkway. The City of Fresno, Fresno County, and parkway representatives shall be involved in design review of the facilities early-on, including scoping sessions.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Implementation of the proposed project would result in the placement of some home sites in proximity to overhead transmission lines, which emit electromagnetic fields. This would be a *less-than-significant impact*.

#### Mitigation

None required.

#### Impact

- Removal of existing on-site fuel storage tanks and the demolition of existing buildings may expose construction workers and the general public to contaminated soil and groundwater. This would be a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Where a storage tank may be located, appropriate sampling shall be performed by a qualified technician to evaluate the potential of soil contamination. Removal of tanks and any contaminated soil shall be accomplished consistent with all applicable regulations of Fresno County.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

#### Impact

- Project development will increase electricity and natural gas use and related services from PG&E. This will be a *significant impact*.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:



1. Following consultation with the developer, PG&E shall provide verification to the City of Fresno that the project is phased in keeping with the availability of electric and gas services.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

#### CULTURAL RESOURCES

##### Impact

- Project activities could result in the loss of important cultural resources from the project site. This is a *less-than-significant impact*.

##### Mitigation

The developer shall include the following mitigation measure in all construction contracts for earthwork/excavation:

1. If material that may be human remains, animal fossils, or archaeological material is encountered during project surveying, grading, excavating, or construction, work shall stop in the immediate area.
  - a. If the material is, or includes, suspected human remains, the Fresno County Coroner shall be immediately contacted for his determination as to whether the material is prehistoric in nature. If the remains or other archaeological material is possibly Native American in origin, the Native American Heritage Commission shall be immediately contacted, and a recognized archaeologist shall be retained to conduct an archaeological assessment for the project. The site shall be formally recorded, and recommendations made to the City of Fresno as to any further site investigations or site avoidance/preservation.
  - b. If the material is human-related, but does not include human remains, and if this archaeological material is possibly Native American in origin, the Native American Heritage Commission shall be immediately contacted and the California Archaeological Inventory/Southern San Joaquin Valley Information Center shall be contacted to obtain a referral list of recognized archaeologists. An archaeological assessment shall be conducted for the project, the site shall be formally recorded, and recommendations made to the City of Fresno as to site investigation or site avoidance/preservation.
  - c. If animal fossils are uncovered, the Museum of Paleontology, U.C. Berkeley shall be contacted to obtain a referral list of recognized paleontologists. An assessment shall be conducted by a paleontologist and, if the paleontologist determines the material to be significant, it shall be preserved.

#### Level of Significance After Mitigation

Implementation of the above mitigation measures will ensure that potential impacts to cultural resources remain at a less-than-significant level.

## AESTHETICS

### Impact

- Development of Copper River Ranch would alter the character and appearance of the project area. This conversion is considered to be a *significant, unavoidable impact*.

### Mitigation

The developer shall ensure that the following measures are incorporated in the design of future conditional use permits, tentative tract maps, and site plans:

1. The developer shall incorporate landscape, wall treatment, signage, and architectural standards for the development of residential, commercial, public facility, open space, and mixed-use areas.
2. A minimum 20-foot landscaped area shall parallel the easterly side of Friant Road, the northerly side of Copper Avenue, and the westerly side of Willow Avenue. A berm and/or combination berm/sound wall shall parallel these roadways where residential lots are proposed.
3. Project entries along Copper and Willow Avenues, and along Friant Road, shall incorporate special entry features, such as extensive landscaping and low profile entry signs.

### Level of Significance After Mitigation

Despite these mitigation measures, open views to the east and north across the Copper River Ranch site will be permanently altered, resulting in significant, unavoidable impacts.

### Impact

- Development of the project would introduce new light and glare. This is a *less-than-significant impact*.

Mitigation: None required.



## PROJECT ALTERNATIVES

### Summary of Alternatives

Issue	No Development	No Project	Increased Density	Reduced Units
Land Use/Agricultural	-	o	-	-
Traffic	-	o	+	-
Air Quality	-	o	o	o
Geology, Soils	-	o	o	-
Biotic Resources	-	o	o	o
Noise	-	o	o	-
Wastewater	-	+	+	o
Hydrology	-	+	+	o
Public Facilities	-	+	+	-
Aesthetics	-	o	o	-
Cultural Resources	-	o	o	o

o = Similar impact to proposed project

+ = Greater impact than proposed project

- = Less impact than proposed project

**No Development.** In general, the no development alternative would lead to less disturbance of the site and less demand on urban resources and public services compared to the proposed project. From a pragmatic perspective, however, the alternative is not feasible given the designation for urban development on the Fresno County General Plan and the 2025 Fresno General Plan.

**No Project.** The No Project alternative would create greater impacts compared to the project. While the No Project alternative meets the primary objectives of the project which is the development of the project site with a planned residential development surrounding an existing golf course, there could be future inefficiencies in service delivery and greater impacts to water and wastewater services. The No Project alternative is not environmentally superior to the proposed project.

**Increased Density.** The Increased Density alternative is not environmentally superior to the proposed project. It would not eliminate any of the significant adverse environmental impacts associated with the proposed project and could result in greater impacts in several areas. By virtue of its more intense nature, the Increased Density alternative would create greater traffic, wastewater, water, and public facility impacts than the proposed project. More intense development could, however, reduce the amount and pace of agricultural land taken out of production elsewhere by development. The Increased Density alternative would increase the diversity in housing opportunities in the project by encouraging construction of smaller lot attached units and multi-family rental housing; large lot development would occur in other locations.

**Reduced Units.** The Reduced Unit alternative would not create impacts in any area greater than those projected for the proposed project. It would reduce impacts on agricultural land to a less-than-significant level and also reduce impacts to traffic, soils, noise, public facilities, and aesthetics. The Reduced Unit alternative, however, would not achieve the developer's project objectives. Only about 25 percent of the residential units proposed by the developer would be allowed on the project site. The

costs of infrastructure remain high even with the Reduced Density Alternative, including the wastewater treatment plant, impact fees for streets and highways, well development, and other facilities.

#### Environmentally Superior Alternative

The Reduced Units alternative reduces overall environmental impacts compared to the proposed project. By virtue of its maintenance of prime agricultural soil and reduced impacts to traffic, soils, public services, and aesthetics, the Reduced Units alternative is considered the environmentally superior alternative for the project site.

The Reduced Units alternative, however, would reduce overall densities in order to preserve on-site farmland; as a result, more land off-site will be necessary to accommodate a given population base. It can therefore be argued that the Reduced Units alternative could force growth to other areas, further impacting agricultural production. The Reduced Unit alternative, combined with the requirement to maintain some 400 acres of agriculture, could make the project infeasible given the high costs of infrastructure and the reduced number of units. To retain the property in agriculture should be considered only a short-term delay of the impacts associated with the proposed project, particularly since urban development is within one-quarter mile of the proposed project site. It would appear infeasible to maintain the site in agriculture for the long term.

## 1.0 INTRODUCTION AND PROJECT DESCRIPTION

### INTRODUCTION

This Program Environmental Impact Report (EIR) is prepared by the City of Fresno for the proposed Copper River Ranch project. The Program EIR is prepared in conformance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

The applicant, Copper River Ranch LLC, of Fresno, California, submitted a General Plan Amendment/Rezoning application to Fresno County in January of 2000. These applications were approved by the Fresno County Board of Supervisors in December of 2000 and a Final Program EIR was certified by the Board. In August 2002, the Fresno County Local Agency Formation Commission (LAFCO) included the site within the Sphere of Influence boundary for the City of Fresno. In addition, the site is designated for urban development by the proposed 2025 Fresno General Plan. The purpose of the proposed Project is to transition the project from Fresno County by annexing to and developing within the City of Fresno. This process will require approval of a general plan amendment to the 1984 Fresno General Plan in the event the 2025 Fresno General Plan is not adopted before consideration of the project; rezoning of the site to applicable City of Fresno zone districts; and annexation of the site. The previous Final Program EIR as certified by the Fresno County Board of Supervisors is being updated to include new information as well as analysis of the project on City plans, policies, and urban services for use by the City of Fresno as Lead Agency.

If approved, Copper River Ranch at build-out would contain as many as 2,837 residential units, including single family and multi-family dwellings, plus nearly 60 acres of mixed-use commercial development on an approximate 706.5-acre site. Population at completion is estimated at 7,950 (at 2.8 persons per unit). The proposed development would be built in stages as market demands dictate. No firm plan for the sequence of development exists at present, although it is anticipated that build out of the entire project site may require 10-15 years. The development would surround the existing Copper River Country Club which includes a golf course, clubhouse, and tennis complex.

The overall density is approximately 4.01 units per acre. If land in the golf course, proposed commercial areas, and public facilities is subtracted (285 acres), the density of land used for residential purposes is approximately 6.73 units to the acre. Residential development is proposed to occur in villages at somewhat higher densities than currently exist in most new projects in the metropolitan area. For this reason, it is assumed for purposes of EIR analysis that 42% of the residential units will be detached single-family homes (1,192 units), and 58% will be multifamily units (1,645 units). The multifamily component represents a variety of potential housing types, including attached townhouses, condominiums, duplexes and triplexes, as well as more conventional apartments and senior housing.

Commercial mixed-use development could occur at least two locations -- Copper Avenue at Maple Avenue and Copper Avenue at Willow Avenue. Total proposed commercial and office development is estimated at 250,000 square feet.

**Subsequent Environmental Analysis.** The 2025 Fresno General Plan update is accompanied by a Master EIR prepared in accordance with CEQA Guidelines Sec. 15175. CEQA Guidelines Secs. 15177 and 15178 provide a process for review of subsequent projects following a Master EIR. As of the date of filing the Notice of Completion for this EIR, however, the 2025 Fresno General Plan had not been adopted nor the Master EIR certified. As a result, this EIR is not a "focused EIR" as discussed in CEQA Guidelines Sec. 15178, but is considered a Program EIR in accordance with requirement of CEQA Sec. 15168.



Tiering refers to the preparation of environmental documents using a multi-level approach where the first-tier includes analysis of general matters contained in a broader EIR (e.g., analyzing the impacts of an entire plan, program, or policy) and subsequent tiers include analysis of narrower projects with later EIRs or Negative Declarations (CEQA Guidelines Sec. 15152). First-tier documents are usually Program EIRs that evaluate the broad-scale impacts of an entire plan, program, or policy. Second-tier documents are typically Project EIRs or mitigated Negative Declarations that evaluate the impacts of a single activity undertaken to implement the plan, program, or policy. Tiering does not excuse the Lead Agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier EIR or negative declaration. However, the level of detail contained in a first-tier EIR need not be greater than that of the program, plan, policy, or ordinance being analyzed (CEQA Guidelines Sec. 15152(b)).

Where a Lead Agency is using the tiering process in connection with an EIR for a large-scale planning approval, the development of detailed, site-specific information may not be feasible but can be deferred, in many instances, until such time as the Lead Agency prepares a future environmental document in connection with a project of a more limited geographical scale, as long as deferral does not prevent adequate identification of significant effects of the planning approval at hand (CEQA Guidelines Sec. 15152(c)).

The Program EIR, a type of first-tier document, is prepared for a program or series of actions that can be characterized as one large project. Typically, such a project involves actions that are closely related either geographically or by timing. Program EIRs generally analyze broader environmental effects of the program with the acknowledgment that site-specific environmental review may be required for particular aspects of portions of the program when those aspects are proposed for implementation (CEQA Guidelines Sec. 15168(a)).

Copper River Ranch is a large, mixed-use project that will be phased over time. The proposed general plan amendment would establish the overall land use and zoning for the site, but subsequent specific plans or master use permits must be submitted and approved by the City of Fresno before more specific development entitlements are approved. The level of detail concerning exact densities, variety of housing, and components of future mixed-use projects is not currently available. The Program EIR is, therefore, the most appropriate CEQA document at this stage of project review, with subsequent specific project proposals subject to additional environmental analysis.

## Setting

The Copper River Ranch site consists of approximately 706.5 acres situated between Friant Road, Copper Avenue, Willow Avenue, and Silaxo Road (alignment). The regional project location is shown in Figures 1-1 and 1-2. Figure 1-3 shows the specific site location. The land surrounds the Copper River Country Club; several parcels within the boundary outlined above, however, are not part of the project applications. The project includes the following Fresno County parcel numbers.

301-281-18, 301-290-08, 301-290-20, 301-290-55, 301-290-56, 301-290-57, 301-290-58, 301-290-59, 301-290-60, 301-290-63, 301-290-64, 301-290-65, 301-290-66 (FMFCD), 301-290-68, 301-290-69, 301-290-70, 301-290-71, 301-290-73, 301-290-75, 301-290-76, 301-290-77, 301-290-78, 301-290-79, 301-290-80, 301-290-83, 301-290-84, 301-290-85, 301-290-86, 301-290-87, and 301-360-34

The *Land Use and Planning* section describes existing land use. The project site is developed with an existing golf course and club house, as well as associated structures. There are existing large-lot residential units both within the project boundary and adjacent to the site. A portion of the site is in agricultural use with the eastern end in grassland.



**Figure 1-1: Location Within California**

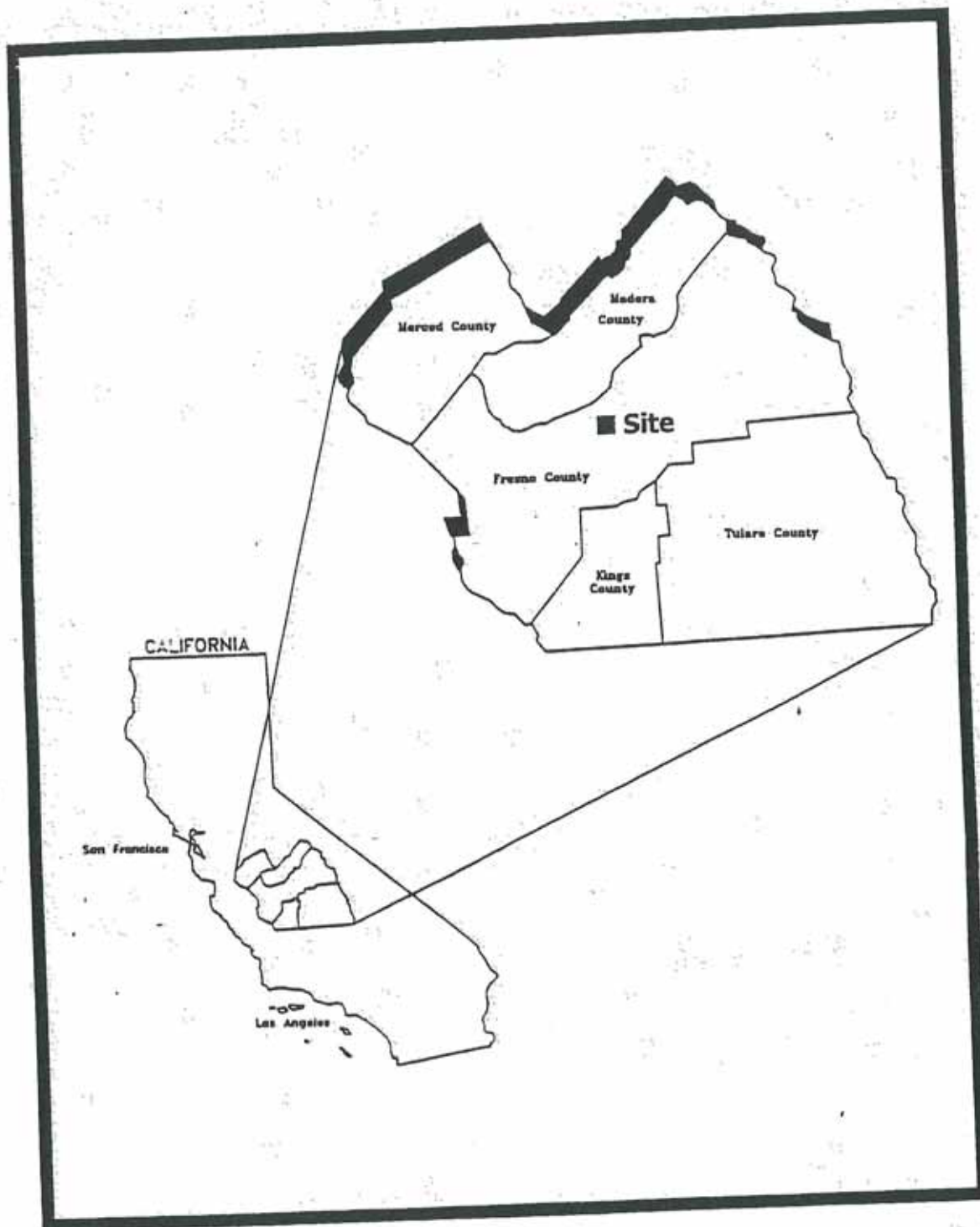


Figure 1-2: Regional Location

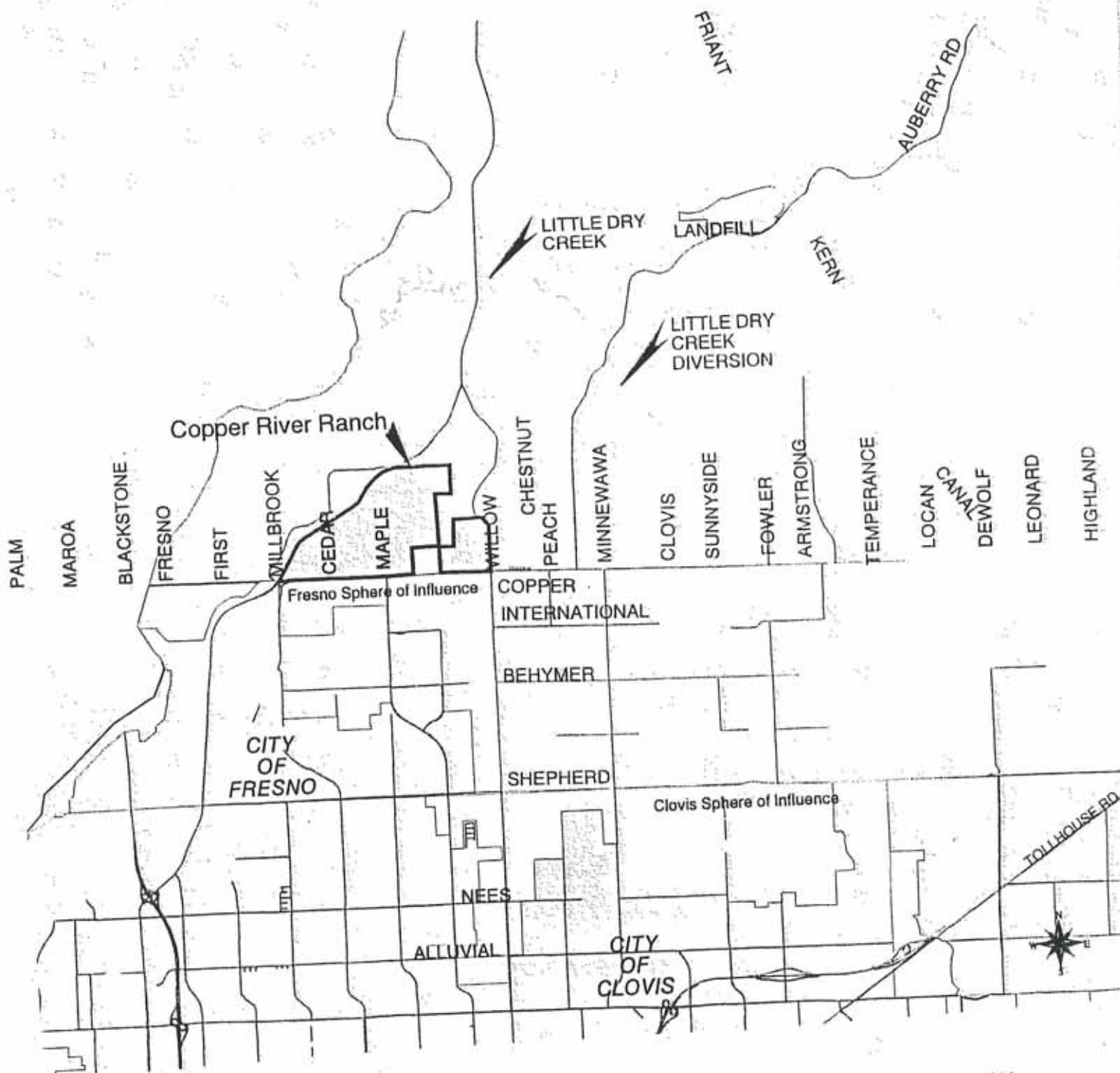
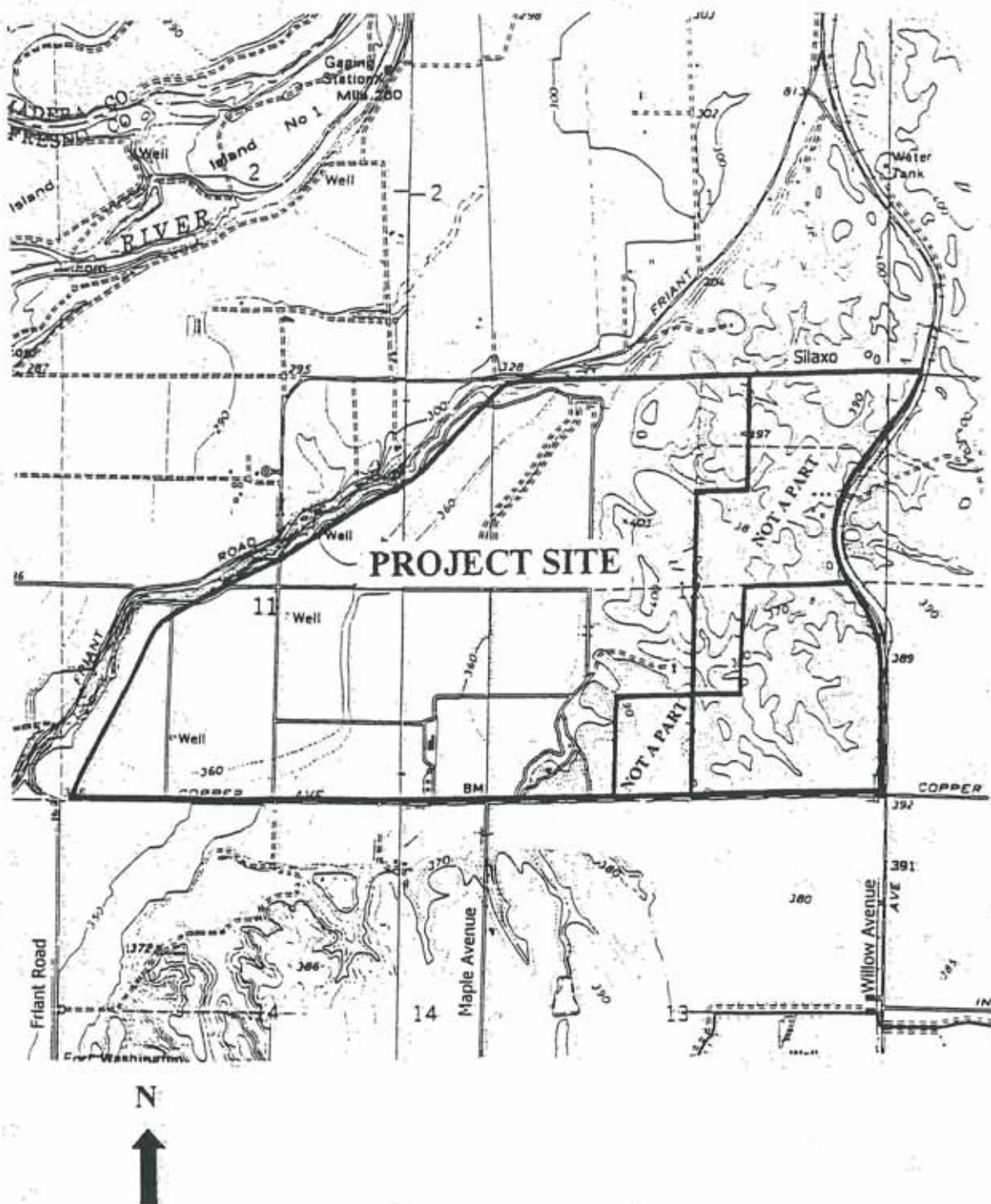


Figure 1-3: Specific Location





Topographic relief is gently rolling hills sloped generally southwesterly toward the San Joaquin River. The elevation ranges from 340 to 400 feet. A shallow north/south terrace escarpment approximately 1,800 feet in length is located near the northwest project boundary. The project site includes several low lying areas containing lakes as part of the existing Copper River Ranch golf course. Only small intermittent drainage channels are present, primarily on the eastern portion of the site.

## PROJECT DESCRIPTION

As a result of project approval by Fresno County in December, 2000, the project site is designated Planned Urban Village and zoned "P-V" Planned Village by Fresno County as shown in Figures 1-4 and 1-5. The applicant requests the following actions with respect to project approval in the City of Fresno:

1. Amend the 1984 Fresno General Plan and the Woodward Park Community Plan:
  - a. The 1984 General Plan does not include the Copper River Ranch site although the project is consistent with the 2025 Fresno General Plan update. Land use designations on the Project site would be as shown on Figure 1-6 and described below:

Table 1-1

Approximate Acres	County General Plan Designation	1984 Fresno General Plan Designation	Proposed Designation	Existing Zoning (Fresno County)	Proposed Zoning
93.1	Planned Urban Village	No Designation	Medium Density Residential	"P-V" Planned Village	R-1/UGM/cz
115.4	Planned Urban Village	No Designation	Medium High Density Residential	"P-V" Planned Village	R-2/UGM/cz
21.9	Planned Urban Village	No Designation	High Density Residential	"P-V" Planned Village	R-3/UGM/cz
32.5	Planned Urban Village	No Designation	Community Commercial	"P-V" Planned Village	C-2/UGM/cz
18.7	Planned Urban Village	No Designation	Neighborhood Commercial	"P-V" Planned Village	C-1/UGM/cz
31.5	Planned Urban Village	No Designation	Public Facility	"P-V" Planned Village	O/UGM/cz
195.5	Planned Urban Village	No Designation	Open Space (golf course)	"P-V" Planned Village	R-A/UGM/cz
191.1	Planned Urban Village	No Designation	Medium Low Density	"P-V" Planned Village	R-1/UGM/cz
6.8	Planned Urban Village	No Designation	General Commercial	"P-V" Planned Village	C-6/UGM/cz
706.5 acres					

Figure 1-4: Existing Fresno County Land Use Designation

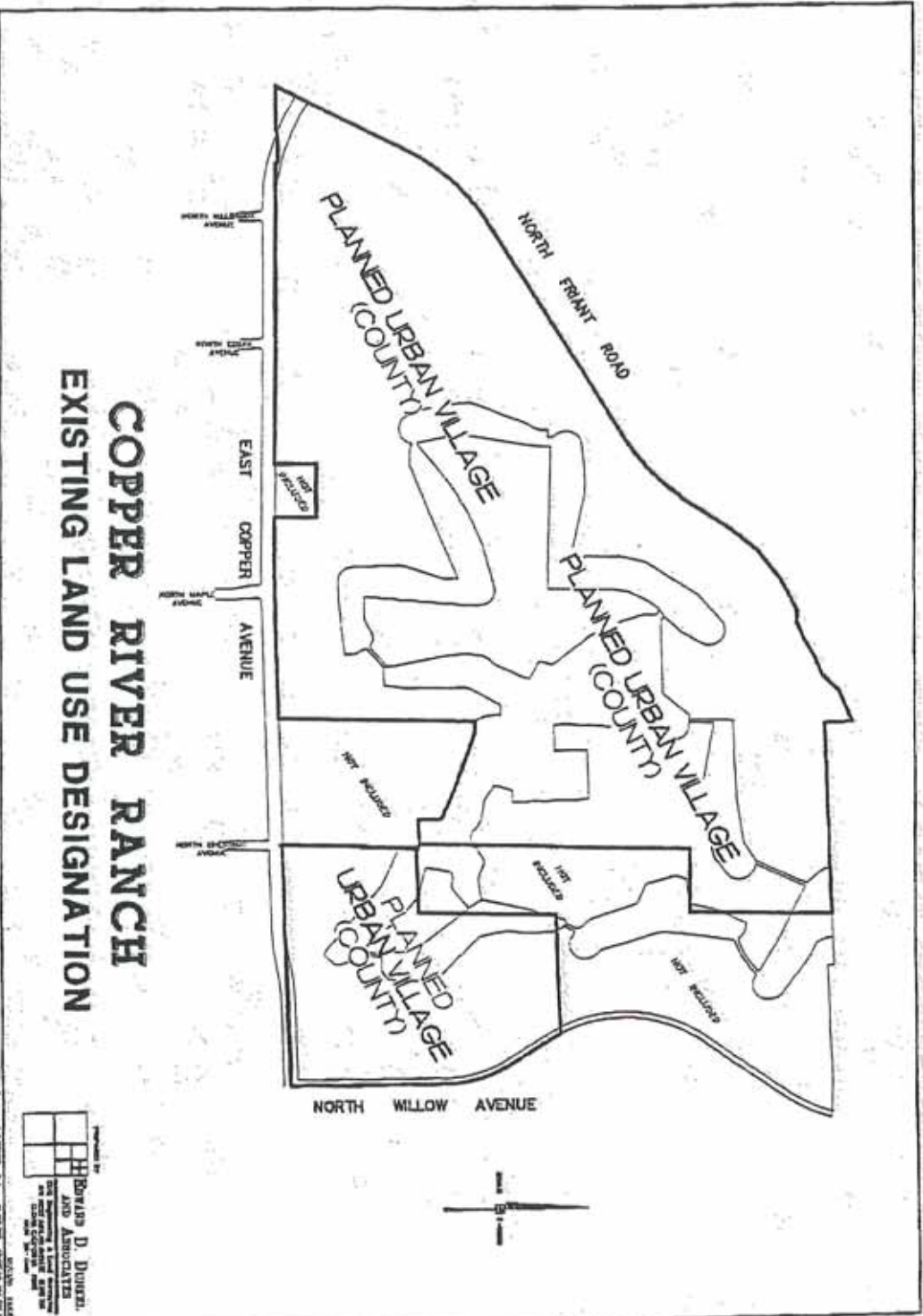
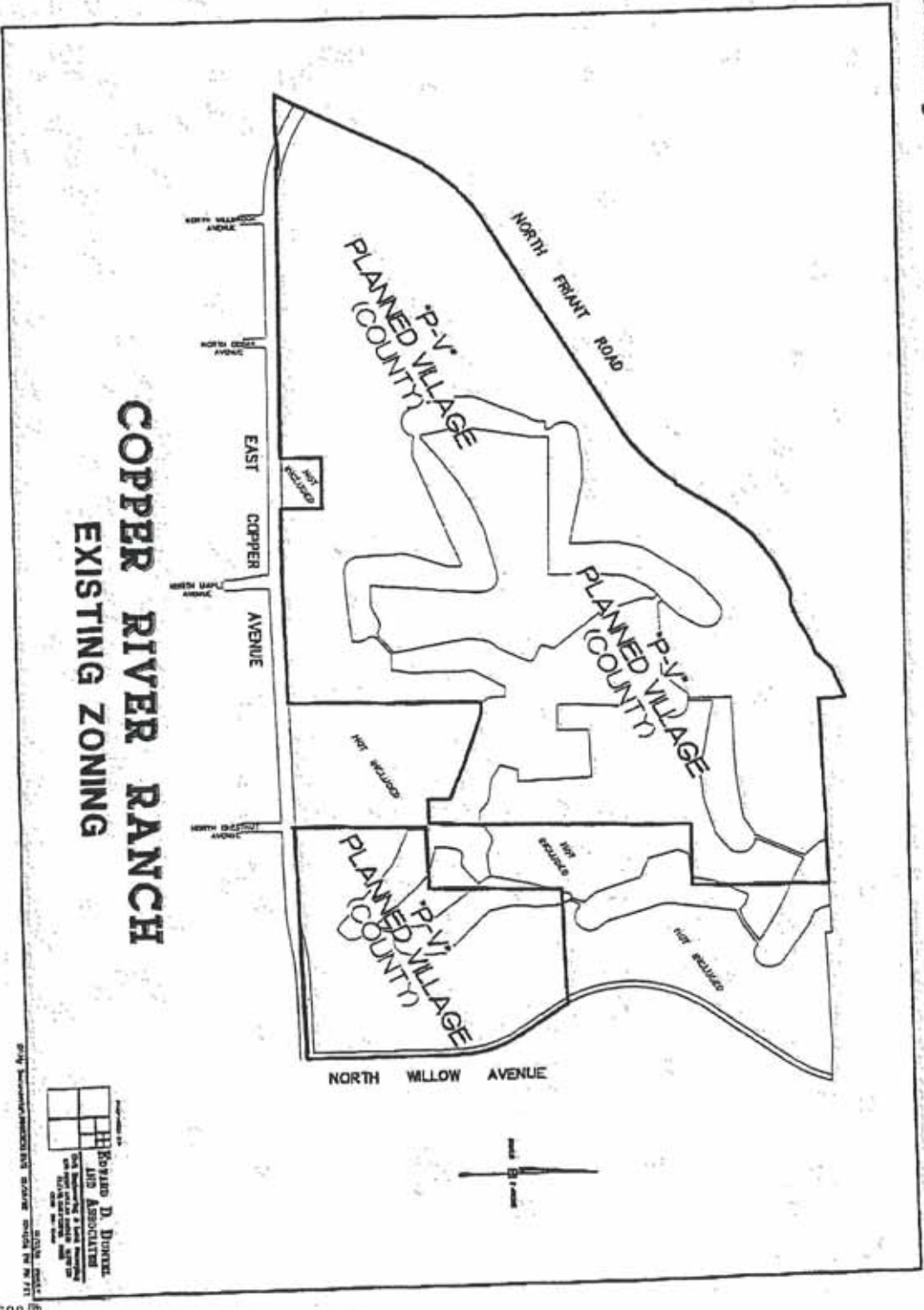
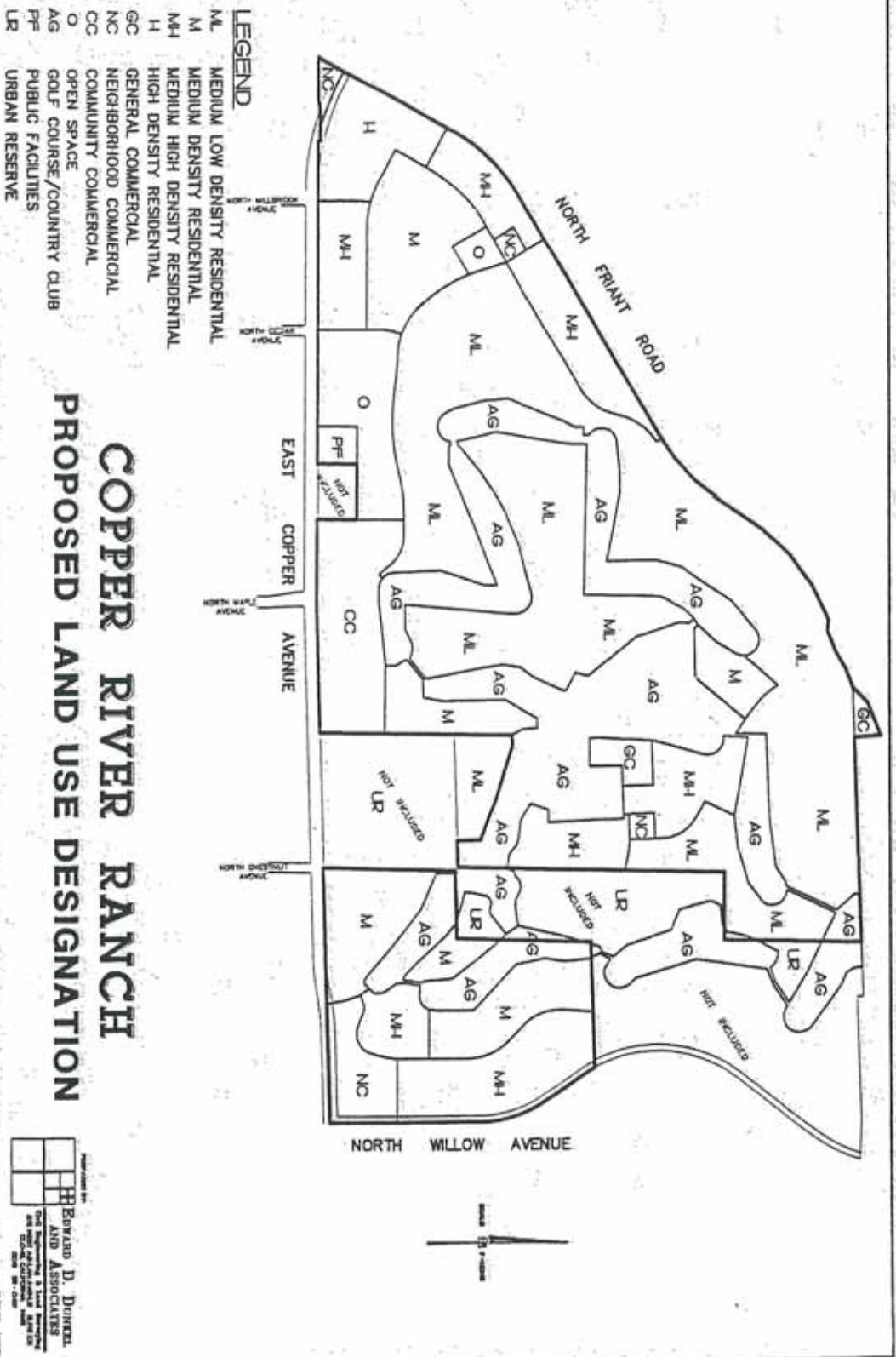


Figure 1-5: Existing Fresno County Zoning





**Figure 1-6: Proposed Land Use Designations**



- Amend the circulation element of the General Plan to designate the following streets (Figure 1-7):

<u>Roadway</u>	<u>Proposed Designation</u>	<u>Location</u>
Copper Avenue	Super Arterial	Friant to Willow
Willow Avenue	Arterial	Copper to Road "C"
Friant Road	Expressway	Copper to Old Friant Int.
Maple Avenue	Arterial	Copper to Road "A/E"
Millbrook Avenue	Local Collector	Copper to Road "F"
Cedar Avenue	Collector	Copper to Road "A"
Winery Avenue	Collector	Copper to Road "G"
Road "A"	Collector	Maple to Friant
Road "B"	Collector	Road "F" to Road "C"
Road "C"	Collector	Willow to Clubhouse
Road "D"	Local Collector	Road "B" to Friant
Road "E"	Local Collector	Maple to Clubhouse
Road "F"	Local Collector	Road "B" to Cedar
Road "G"	Local Collector	Road "C" to Winery

- Amend the Open Space and Conservation Element of the General Plan to delineate the location of open space/trail facilities within the project area (see Figure 1-8).
- Amend the Woodward Park Community Plan by adding an "Extension policy" that provides for flexibility in designing the various components of the Copper River Ranch project.

## 2. Zoning Amendment Application:

- Rezone the Project site as shown in Table 1-1 and Figure 1-9.
- In addition, the Urban Growth Management (UGM) area would be expanded to include the site.

## 3. Fresno Local Agency Formation Commission Activities

- Annex the project site to the City of Fresno

## 4. Other Permits

Permits other than those granted by the City of Fresno would be required of the developer from various regulatory agencies. Those permits include, but are not limited to, final discharge permits from the Regional Water Quality Control Board, pollution discharge permits from the Fresno Metropolitan Flood Control District, air quality permits from the San Joaquin Valley Air Pollution Control District, and a Section 404 permit from the U.S. Army Corps of Engineers to fill wetlands.

Figure 1-7: Proposed Circulation System

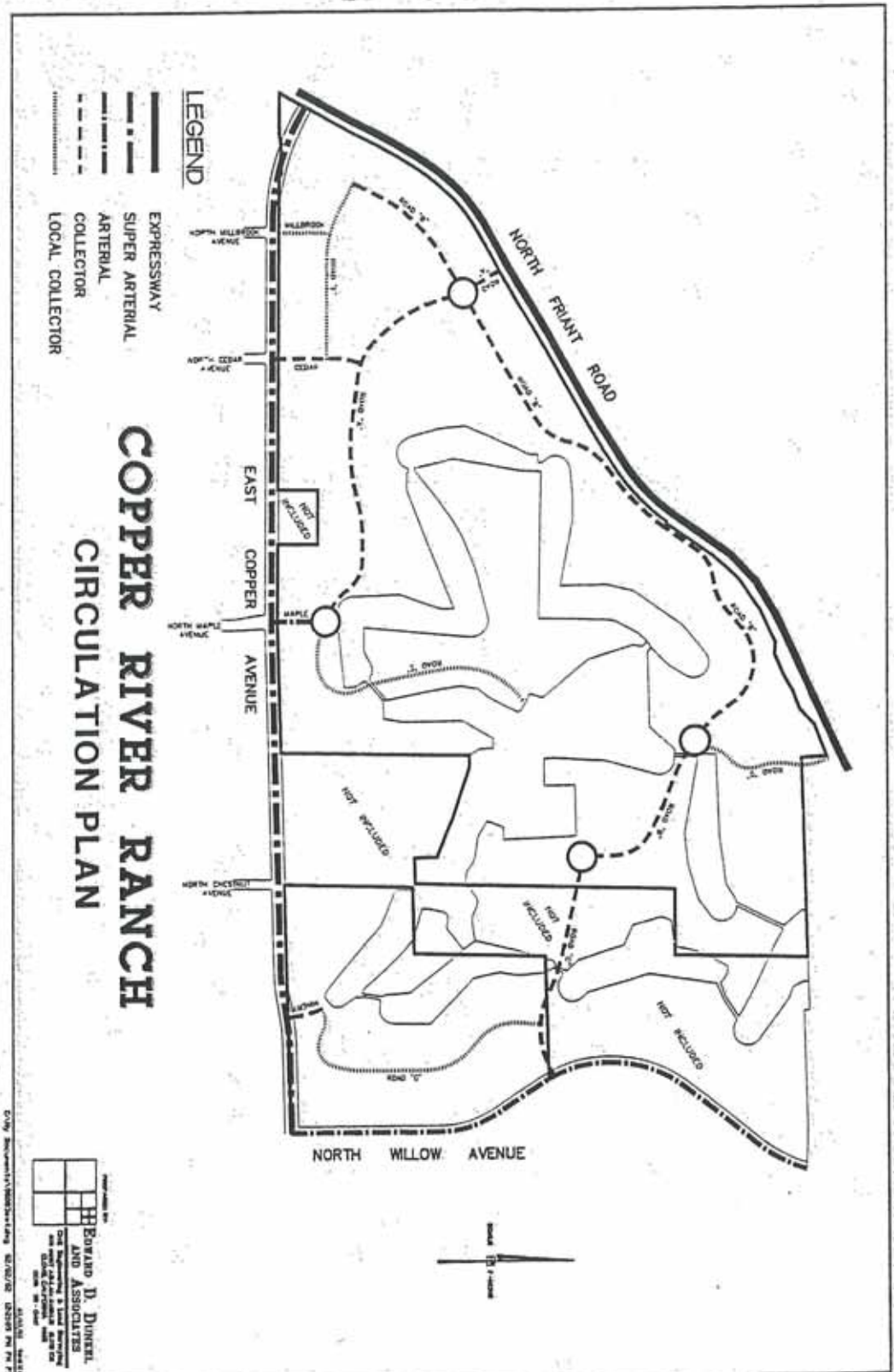
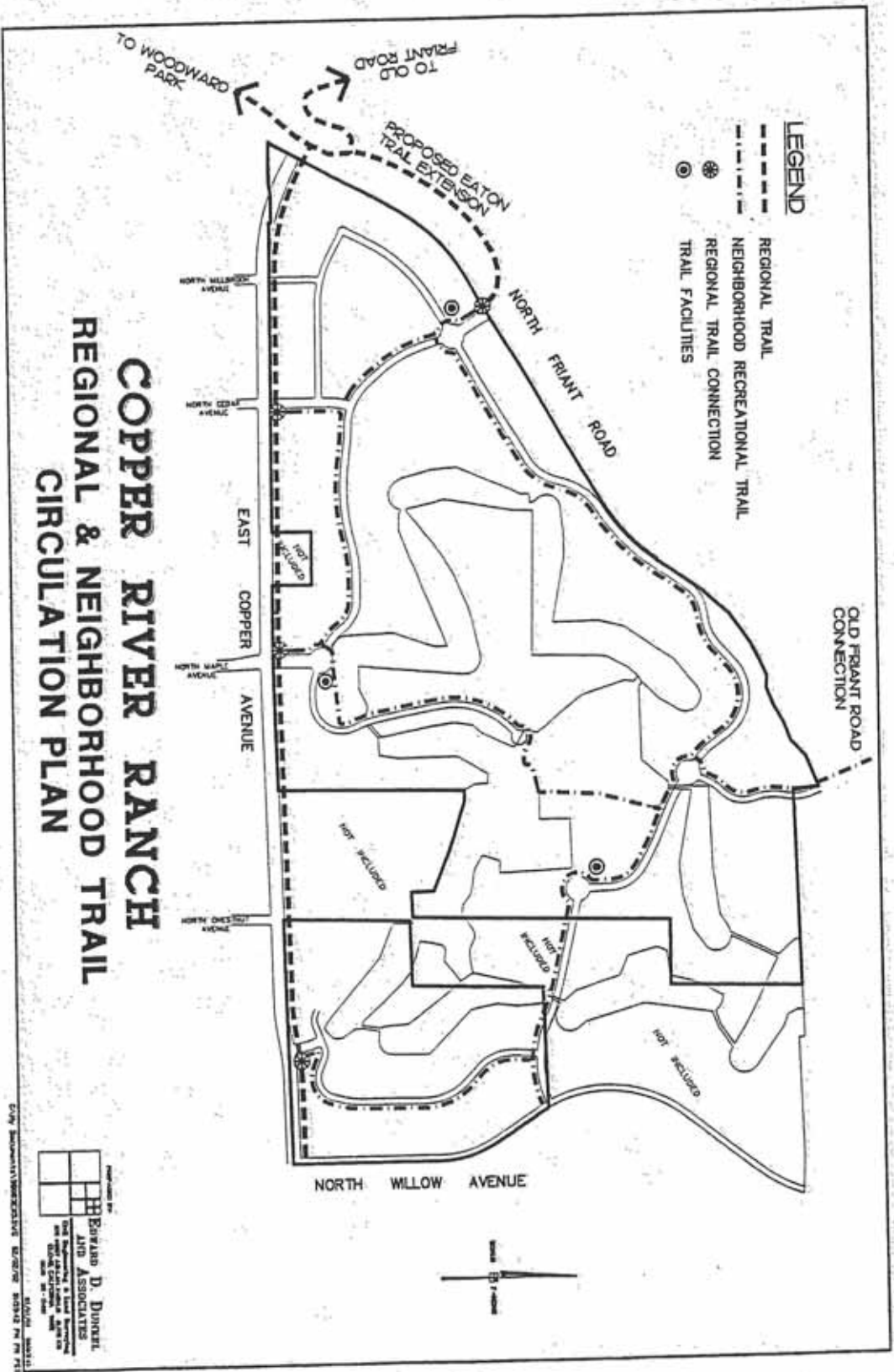


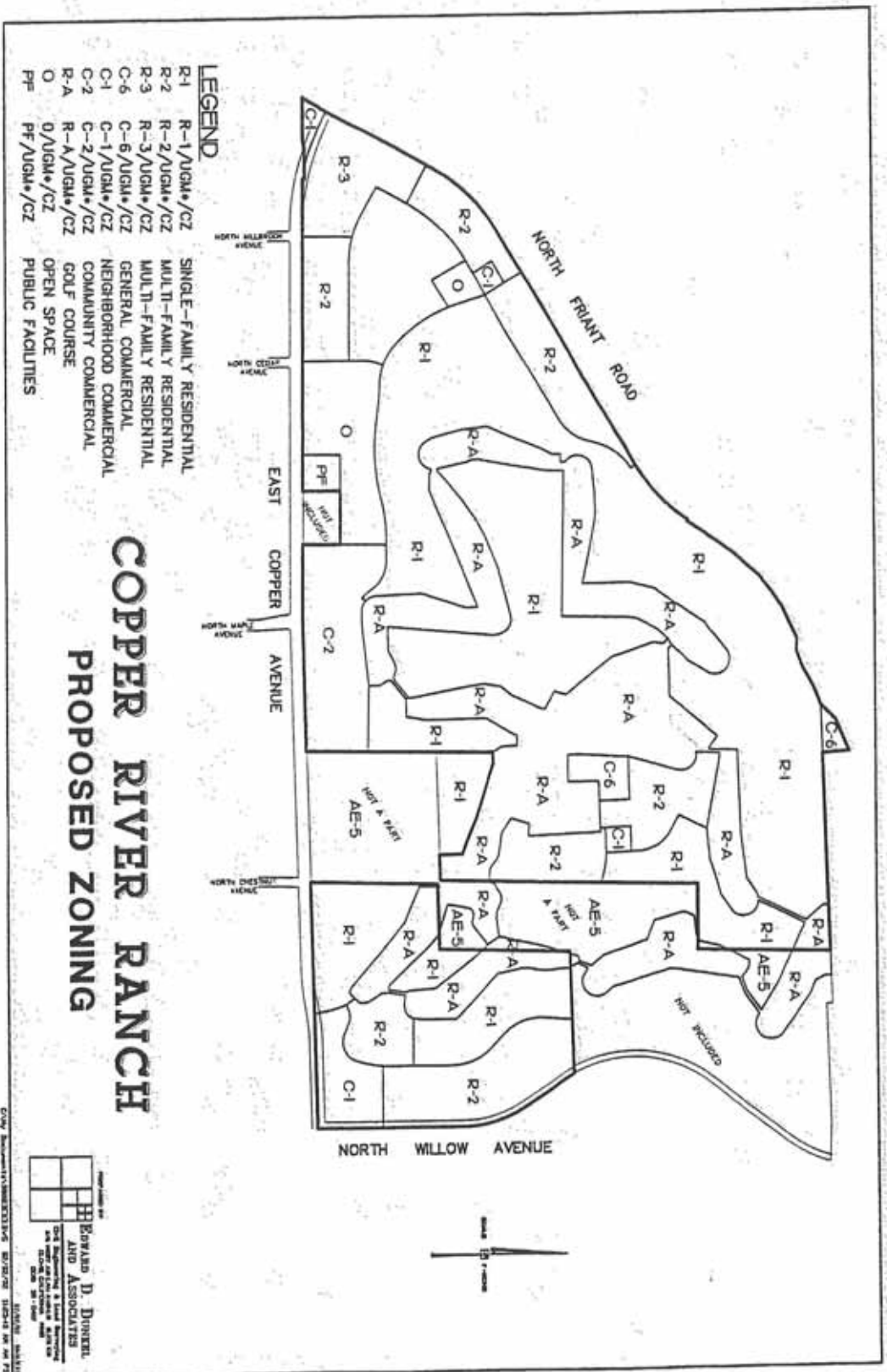


Figure 1-8: Regional and Neighborhood Trail Circulation Plan



Copper River Ranch  
Draft EIR

Figure 1-9: Proposed Zoning



## Copper River Ranch Project

Copper River Ranch is conceived as a project that will implement the concepts envisioned in *A Landscape of Choice*, a strategy report with recommendations for improving land use and urban development prepared by the Growth Alternatives Alliance. The planning principles in that document have been incorporated into the draft City of Fresno General Plan and the Fresno County General Plan adopted in October of 2000.

Copper River Ranch is proposed as a mixed-use master planned community with a variety of housing opportunities to accommodate residents at a variety of life stages. It will offer shopping, office space and services to residents of the project. Open space will be provided through the golf course, tennis courts, pedestrian and bike paths, and parks.

In addition to the circulation system, a network of community trails for walking, biking and alternative transportation methods is planned. Additionally, a flood control/drainage/recreational facility is proposed for the south edge of the project area. This facility would be owned and operated by Fresno Metropolitan Flood Control District, but developed in a public-private partnership with Copper River Ranch, L.L.C.

### Project Objectives:

The overall vision of the applicant for Copper River Ranch can be summarized by the following objectives taken from the project Operational Statement:

1. Provide a variety of housing opportunities with a complete range of densities, styles, sizes, and values which are designed to satisfy the identified increasing demand of the existing and future population base.
2. Provide for commercial and office development sufficient to accommodate the needs of the projected population of the project.
3. Provide for alternative forms of transportation within the project and connection to regional trail and mass transit systems thereby reducing dependency upon the automobile.
4. Provide for a variety of open space opportunities within the project area.
5. Encourage residents to work at home occupations. Promote home occupations through electronic and internet components within the home, home design, and related mixed-use facilities.
6. Provide the ability, through flexible zoning conditions, to develop mixed-use projects, which combine a variety of uses on one parcel.
7. Maximize view opportunities of project open space features through innovative land use planning techniques.
8. Create a strong sense of "community" with landscaping, signage, lighting and project amenities that are unique to Copper River Ranch.



The overall purpose of the project is to develop a major new residential and commercial project which incorporates current planning trends in providing a variety of mixed-use residential and commercial/office uses while integrating open space and recreational features.

#### Commercial

- Development would consist of community retail, service, and professional office uses.
- This type of development would be of a "mixed-use" type which may incorporate a residential element combined with the non-residential uses.
- The professional office space use would include opportunities for smaller firms and sole practitioners to have quality work space available near their residences.
- The "mixed-use" commercial development would most likely occur at several locations on the north side of Copper Avenue.

#### Open Space and Recreation

- Development would be linked through a series of recreational opportunities consisting of the golf course, tennis courts, a park, ponding basin, pedestrian and bicycle paths, and trails.

#### Project Services

The project site will be served by the City of Fresno to provide basic services. A homeowner's association will also be formed and may responsible for such services as long-term maintenance of roads within gated neighborhoods, open space, landscaped areas, street lights, trails/walking paths, and various neighborhood security gates within the project. Covenants, conditions, and restrictions (CC&Rs) will be enforced by the homeowner's association and the creation of the bylaws. CC&Rs and committees will be accomplished according to standards created and enforced by the California Department of Real Estate.

The Master Service Delivery Plan is in the process of being updated by the City of Fresno as part of the General Plan update. It is assumed that this documentation will be complete prior to application to annex any portion of the Copper River Ranch project site. In the event the update has not been completed by the City, the Master Service Delivery Plan will be updated by the applicant to include the Copper River Ranch project area at the time of annexation.

The following discussion addresses primary infrastructure issues:

**Water Supply.** The project will connect to the City of Fresno water distribution system and provide on-site wells as a component of that system to supplement the City's surface water treatment plant. A well is currently providing domestic water to the Copper River Ranch clubhouse. The existing Copper River development receives surface water at this time that provides for groundwater recharge and irrigation of the Copper River golf course. Surface water delivery will continue and be used by the the owner of the Copper River Country Club.

**Wastewater Treatment.** A tertiary-level wastewater treatment facility will be developed for the project. Reclaimed wastewater and surface water will be applied to the golf course and open space areas. Groundwater will also be available for irrigation purposes. A connection will be made to the City of Fresno sewer collection system for interim service for up to 500 units and disposal of bio-solids and emergency flows from the on-site plant.

**Transportation System/Circulation.** The applicant proposes to provide for required right-of-way dedication for the implementation of the Friant Expressway and the extension of Copper Avenue from Willow Avenue to the Friant Expressway. Willow Avenue right-of-way dedication is also proposed to meet applicable street standards between Copper Avenue and the northern limits of the project site.

The applicant proposes to construct or pay a fair share of improvement costs for the project facilities at such a time traffic demands from the project warrant such improvements, or pay development impact fees on a per-unit schedule.

**Fire Protection.** The Fresno Fire Department will provide fire protection and emergency services for the project. Fire protection measures, consistent with City of Fresno standards, will be incorporated into the design of the project. The City of Fresno plans to locate a new fire station on Maple Avenue at International, just south of Copper Avenue that would serve the project.

**Law Enforcement.** The Fresno Police Department will provide law enforcement services to the project. The Homeowner's Association will provide on-site security and additional security may also be provided through various gated neighborhoods.

**Future Applications.** The applicant will be required to submit and process additional applications with the City of Fresno prior to development taking place at Copper River Ranch. The next step in the development process will include preparation and submittal of a master use permit and development plan. Additional environmental analysis will be required at that time, including but not limited to, traffic, air quality, noise, and other detailed evaluations. The master use permit must be approved by the Fresno City Council before additional entitlements can be approved. Future applications will most likely include, but may not be limited to, the following:

- Development Agreements;
- Vesting Tentative Tract Maps;
- Conditional Use Permits (CUPs). These applications will provide for additional review of planned residential villages, multi-family projects, mixed-use commercial projects, the wastewater treatment facility, and water well sites. The combination of the vesting tentative tract map and conditional use permit application will provide the applicant flexibility to vary densities, modify development standards or transfer development units within a project area being mapped;
- Parcel Maps;
- Site Plan Review; and
- Variances

"Project Level" environmental review documents will be processed concurrently with the above applications.

### Intended Uses of the EIR

The City of Fresno, as Lead Agency under CEQA, will rely on the EIR to analyze the project's environmental effects, mitigation measures, and alternatives in considering the requested general plan amendment to the 1984 Fresno General Plan, rezoning of the site to applicable City of Fresno zone districts, and annexation of the site. This EIR is not sufficient for analyzing future entitlements such as conditional use permits, site plans, and tract maps.

If the project is approved, the City will submit this Program EIR to various local, state, and federal agencies for their consideration of, and in connection with, various discretionary permits and approvals necessary to implement the project:

### Federal Agencies

*U.S. Army Corps of Engineers (USACE)* -- The USACE is responsible for issuance of wetland fill authorization in accordance with Section 404 of the Clean Water Act.

*United States Fish and Wildlife Service (USFWS)* -- Responsible for conserving and protecting wildlife, birds, and endangered species and their habitat for the benefit of the public at large. This agency will act as an Interested Agency and has the authority to grant incidental take permits under the Endangered Species Act. In particular, the project site contains habitat and potential habitat for several endangered plant and animal species associated with vernal pools.

### State Agencies

*California Department of Fish and Game (CDFG)* -- Responsible for the protection, conservation, propagation, and enhancement of California's wildlife resources. This agency will provide comments to the USACE concerning any wetland fill permits. The DFG also has jurisdiction under section 2081 of the State Endangered Species Act to issue "take authorizations."

*California Regional Water Quality Control Board (RWQCB)* -- Issues waste discharge requirements for all discharges which affect water quality, including surface and groundwater. This agency will act as a Responsible Agency with authority to issue a Waste Discharge Permit for the project. The RWQCB also issues Section 401 water quality certification in relation to the USACE action under Section 404 of the Clean Water Act.

*California State Department of Health Services, Office of Drinking Water* -- Establishes standards and issues permits for the community domestic water supply system.

*San Joaquin River Conservancy* -- The Conservancy is responsible for implementing the San Joaquin River Parkway. The Parkway is located in the riverbottom of the San Joaquin River immediately west of the project site and is a unique environmental resource to the metropolitan area and surrounding region.

### Local Agencies

*Fresno Irrigation District (FID)* -- Manages and operates canals including the canal which provides recharge water for the recharge basins located on the project site.



*Fresno Metropolitan Flood Control District (FMFCD)* -- Provides regional storm water runoff, flood control and water conservation within the project and surrounding area. The district has a facility on the site and another located north of the site that will serve the project area.

*Local Agency Formation Commission (LAFCO)* -- Oversees the formation of cities and special districts. The proposed project is proposing to annex to the City. LAFCO will be a Responsible Agency in relation to this application.

*Clovis Unified School District (CSUD)* -- Provides educational facilities in the project vicinity. The project will be responsible for paying appropriate development fees and provide other services to offset project impacts.

Various other agencies with jurisdiction over specific resources or those with interests potentially affected by the project, such as Caltrans, may also consider and rely on the EIR either as a party interested in the project or in the context of their own future actions that may be necessary to implement the project.

#### Preparers of the EIR

The EIR was prepared by Land Use Associates of Fresno, California. Subcontractors, and their areas of expertise, included:

Brown-Buntin Associates, Inc.:	Noise
Hartesveldt Ecological Consulting Services:	Biology
TPG Consulting, Inc.:	Traffic and Air Quality
Provost & Pritchard, Inc.:	Wastewater
Kenneth D. Schmidt and Associates:	Groundwater
Donald Wren:	Archaeology

Subcontractor reports are included in the Technical Appendices to the EIR and are incorporated by reference. The Technical Appendices are on file with the City of Fresno Development Department.

## 2.1 LAND USE, PLANNING, AND AGRICULTURE

### Introduction

This section analyzes conformance with existing and proposed land use policy, as well as compatibility between the proposed project and neighboring existing land use. The section also reviews the project's impact on prime agricultural land and existing agriculture.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent specific plans, use permits, or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

#### Land Use

The project site consists of 30 existing parcels on approximately 706.5 acres in the unincorporated area of Fresno County. Twenty-nine of those parcels would be subdivided into the proposed residential and commercial development. The remaining FMFCD parcel would be modified by the proposal for development as a joint park/ponding basin.

The following uses are located on the site.

- Copper River Country Club Facility -- 18-hole full-length golf course; full service clubhouse of approximately 9,000 square feet with restaurant, grill and bar, pro-shop, administrative office, cart facilities, locker facilities, and fitness center; tennis courts (15), a tennis shop, and teaching facility; a 232-space parking lot; a swimming center; various roadways, cart paths, and lakes; and golf course maintenance facilities.

The country club facility encompasses approximately 195 acres and was authorized for construction by Fresno County Conditional Use Permits No. 2598 and 2648 and Variance No. 3439.

- Approximately 250 acres are developed in existing grape vines.
- Approximately 150 acres are generally level and include a small orange orchard (five acres); the balance of this area is occasionally used for seasonal crops.
- Approximately three acres are developed with three single-family homes with adjacent outbuildings, leach fields, domestic wells, and driveways.
- Approximately 175 acres consists of gentle topography which was dry farmed in the past but is currently fallow.

In 1991, the Fresno County Board of Supervisors approved a request by Consolidated Land Company to prepare a Specific Plan and associated environmental assessment for Copper River Ranch; however, no Specific Plan was prepared. In 1993, a CUP was approved by Fresno County for an 18-hole, semi-private golf course, clubhouse, and related facilities. When Fresno County approved the CUP, it also adopted a Negative Declaration pursuant to CEQA and the CEQA Guidelines. Fresno County found that the operation of the golf course was consistent with the provisions of the Williamson Act in effect on several parcels at that time. The County approved an amendment to the golf course project in 1994 that allowed expansion of the clubhouse and associated facilities. The golf course and clubhouse received County approvals for construction in 1994 and are currently in operation. In December of 2000, the County approved a general plan amendment for a Planned Urban Village to permit the construction of up to 2,837 residential units and 40± acres of commercial use. The site was also zoned to Planned Village District.

The 2025 Fresno General Plan update was released for public review and comment in February of 2002 and depicts land uses for Copper River Ranch the same as those analyzed in this EIR. In August of 2002 the Fresno County LAFCO approved a Sphere of Influence amendment that includes the Copper River Ranch project (see Figure 2.1-1). In September 2002, LAFCO approved an SOI amendment for the Krum property, squaring the SOI boundary at Silaxo Road and Willow Avenue.

Figure 2.1-2 shows existing land use. The project site is separated from the Fresno City limits (approximately 180 feet) at the southwest side near the intersection of Millbrook and Copper Avenues by a small parcel of land created when Millbrook was realigned to provide access to Copper. Copper Avenue forms the northern boundary of the City of Fresno Sphere of Influence as adopted by the Fresno LAFCO.

Along the entire southerly border, the project site is bounded by existing or planned urban residential development in the City of Fresno. East along Copper Avenue (east of Millbrook Avenue), land uses are agricultural with a mixture of rural residential development along Maple Avenue and Chestnut Avenue. An FMFCD basin has been constructed on the south side of Copper, between Cedar and Millbrook.

Agricultural uses on the project site include a small orange grove, pasture, row crops, and vineyard. Agricultural uses directly east of the project site (east of Willow Avenue) include non-native grassland and orchard. To the north and east along Willow Avenue is the approved Monte Verde development consisting of 125 single family lots (R-1-B zoning), which now has several homes completed or under construction. To the north of the project site are 32 rural residential parcels ranging from 1.5 to 20 + acres in size. Twenty-seven of the 32 parcels are developed with housing. To the west is Friant Road and the San Joaquin River bluffs. Development below the bluffs includes quarry operations, orchards, row crops, pasture, fallow fields, and scattered residential homesites close to the bluffs.

Planning for land use south of Copper Avenue is included in the City of Fresno's Woodward Park Community Plan. Lands south of Copper Avenue are designated Urban Reserve with an underlying designation of Medium-Low Density residential. A 1995 amendment to the Woodward Park Community Plan permits development of approximately 1,500 acres designated Urban Reserve to Medium-Low Density residential uses subject to individual plan amendments demonstrating the availability of sewer and water service. Development of the Urban Reserve area would fill in areas between the existing urban residential neighborhoods. Urban development is now less than one quarter mile south of Copper Avenue.



Figure 2.1-1: SOI Amendment as Approved by LAFCO

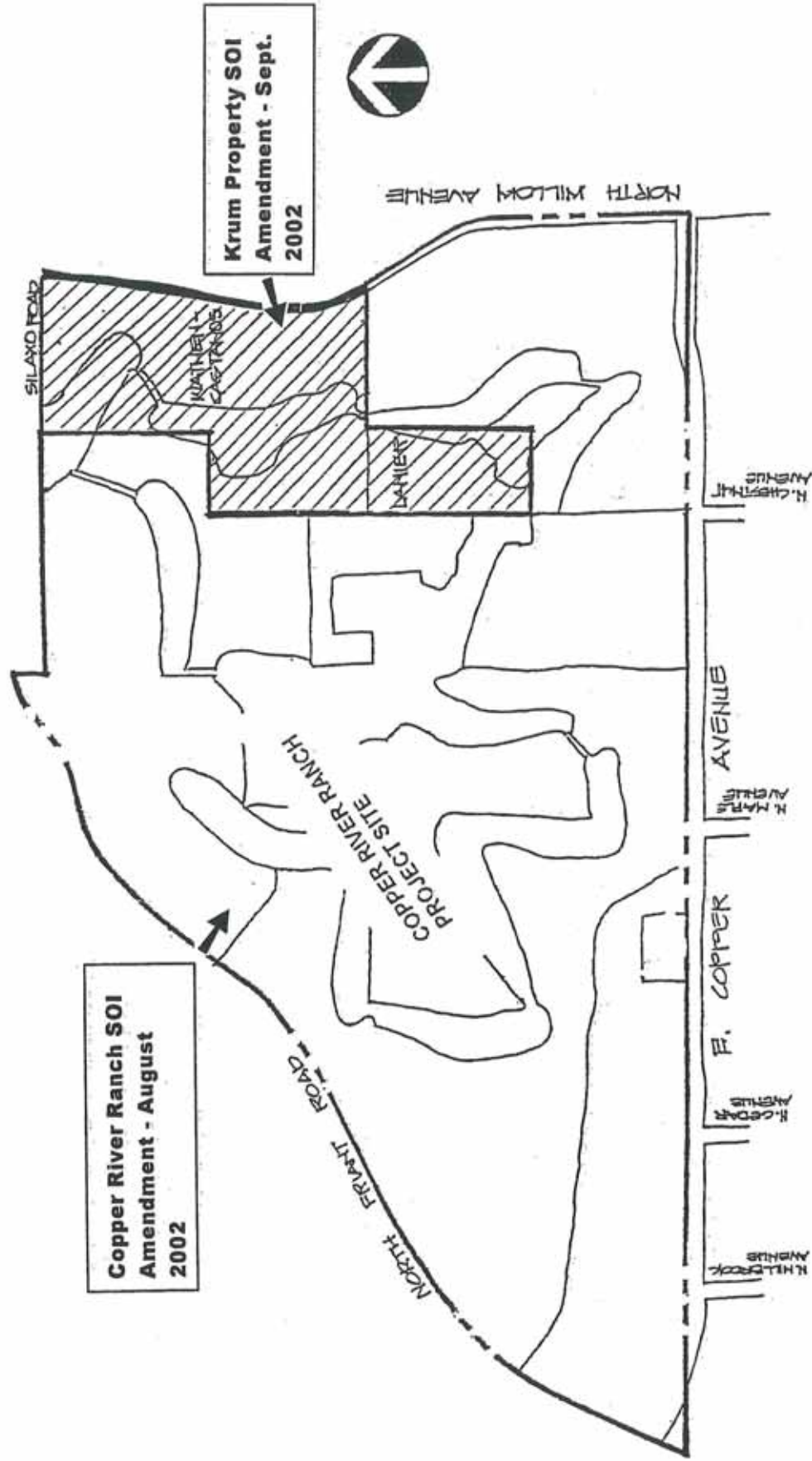
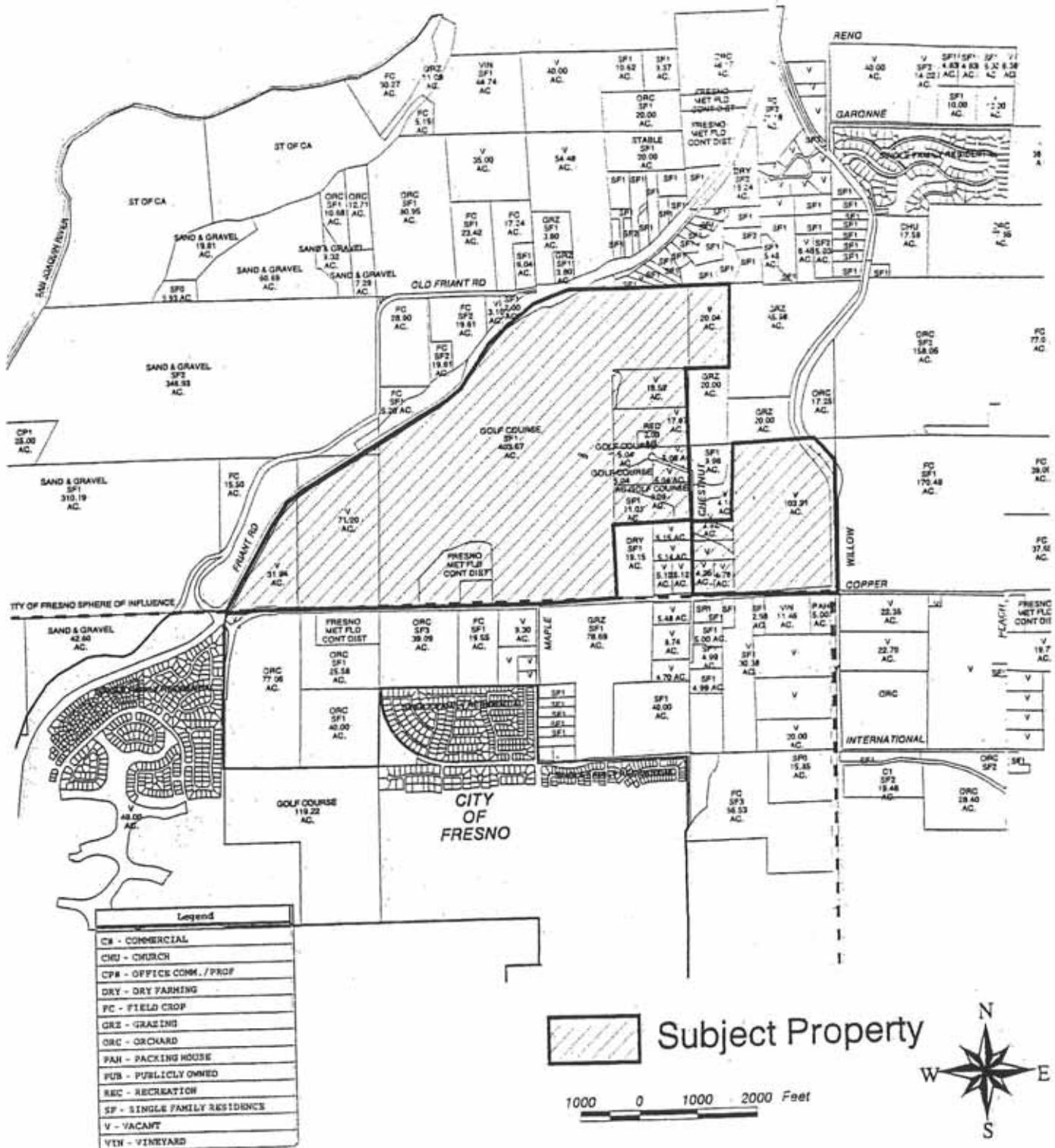


Figure 2.1-2 Existing Land Use



**Project Site History.** The first agricultural operation on the project site occurred around 1910 with the planting of 140 acres of Alicante Bouchet wine grapes and an orange grove, both still producing today. The ranch was purchased by the Papagni family in the early 1950s. Papagni leveled and terraced the site which had been previously dry farmed for grain. After each terrace was completed, they were planted with additional vineyards. The Thompson grapes were planted in 1958 and are now packed under the Copper River Ranch label. That portion of the ranch not planted in vineyard was dry-land farmed. Other properties within the Copper River Ranch project not owned by Consolidated Land Company were also dry-land farmed. A turkey ranch also existed generally at the southwest corner of Willow and Silaxo Road but was abandoned in the mid 1970s.

In 1988, PG&E purchased five acres of the ranch for the construction of an electrical substation located near the northeast corner of Copper and Maple Avenues. In 1993, the Clovis Unified School District researched the potential of acquiring property within the proposed project to build a school complex. The District did not select a site on Copper River Ranch at that time, but is now considering a site within the project boundaries should the project be approved by the City of Fresno. In 1994, FMFCD purchased 20 acres of the project site for a future flood control basin. Responding to anticipated growth in north Fresno shown in its master facilities plan, FMFCD expanded its service boundaries north of Copper Avenue to include the proposed project site. Approximately 12 of those 20 acres are planted in Alicante grapes and are leased back to Copper River Ranch until such time that the construction of those flood control facilities are necessary.

In November 1994, the property owner entered into an agreement with the City of Fresno to recharge groundwater through golf course lakes on the site using City of Fresno surface water entitlements (Bureau of Reclamation Central Valley Project surface water entitlement). The geology on the site was found to be favorable for recharge activities that would benefit the northern portion of the Woodward Park Community Plan area. The agreement between the City and the property owner may be terminated by either party by giving 30 days written notice to the other party. The agreement neither prescribes a guaranteed amount of water to be delivered nor a set time of availability and the amount of surface water delivered to the project site is at the sole discretion of the City of Fresno. This agreement is consistent with other recharge agreements reached with agricultural properties east of the City of Fresno.

#### Planning Policy

**Fresno County General Plan and Zoning.** The project site is designated Planned Urban Village on the Fresno County General Plan and zoned Planned Village District.

The Fresno County General Plan designates the Valley floor between the Friant-Kern Canal and the western boundaries of the San Luis, Pleasant Valley, and Westlands Water Districts, exclusive of areas designated on the General Plan for another use, for agriculture. Policies within the plan support the concept of referring urban development projects to the nearest city. Analysis within the County General Plan of holding capacities of the County's cities shows that most of the spheres of influence can accommodate projected growth, particularly when the concepts of *A Landscape of Choice* are carried out. The exception is the City of Fresno. It was primarily this analysis that lead to the approval of the Copper River Ranch Planned Urban Village as recognition that the Fresno urban area would require additional lands to accommodate projected growth.



**City of Fresno General Plan.** The 1984 City of Fresno General Plan provides for growth and development within an agreed upon Urban Boundary Line (Joint Resolution on Metropolitan Planning). The northern boundary of the Urban Boundary Line is Copper Avenue. The 1984 Fresno General Plan does not address planning issues for the proposed project location. The population projection for the Fresno-Clovis Metropolitan Area was 588,100 by the year 2005. The metropolitan area reached this population in 1998.

The City is currently updating its General Plan and expects to adopt the plan in November of 2002. The draft plan update includes expansion of the City's Sphere of Influence to north of Copper Avenue to include the project site (Figure 2.1-3). The 2025 Fresno General Plan anticipates growth beyond the existing Sphere of Influence and contains a land use designation proposal for the Copper River Ranch site that is the same as the proposed project analyzed in this EIR.

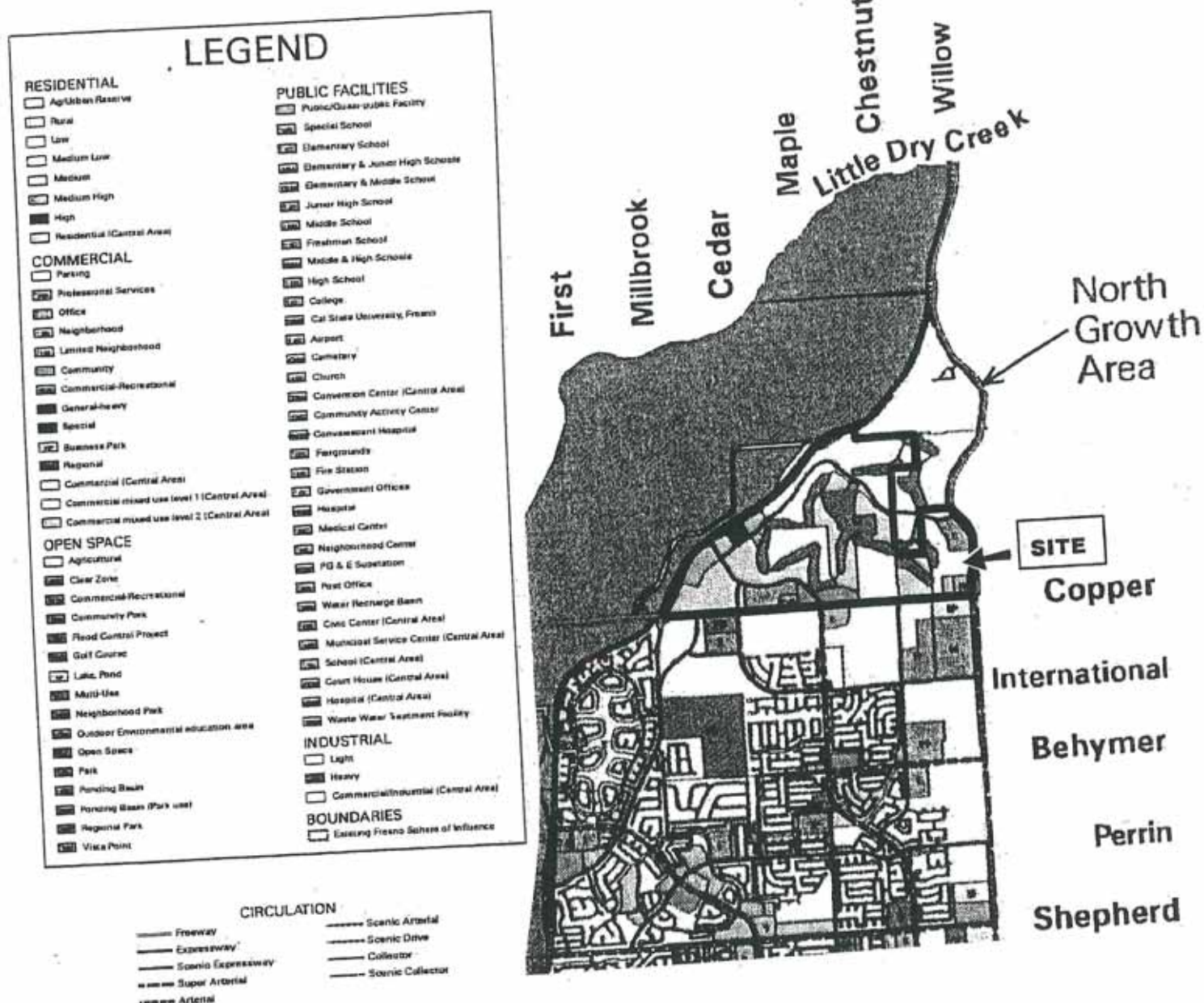
***A Landscape of Choice.*** In 1998, the Growth Alternatives Alliance prepared *A Landscape of Choice*, a policy document outlining proposals for improving patterns of community growth while accommodating expected population growth in the Central Valley. The Alliance is made up of the Fresno Business Council, the American Farmland Trust, the Fresno County Farm Bureau, the Building Industry Association, and the Fresno Chamber of Commerce. They presented a document with policies intended to use urban land as efficiently as possible, develop livable communities that emphasize pedestrian or transit-oriented design, and recognize the importance of agriculture and the need to protect productive farmland. Each city in Fresno County adopted a resolution supporting the principles in *A Landscape of Choice*, and both the City of Fresno and Fresno County have incorporated these principles into their general plan updates. The applicant states that the Copper River Ranch proposal is based on and supports the principles within *A Landscape of Choice*.

The principles within *A Landscape of Choice* are intended as a guide to development. There are as yet few local zoning codes which permit many of the provisions in the document, although the Alternatives Growth Alliance has received a grant to prepare an implementing ordinance. The guiding principles of the document are also included in Appendix B.

**Local Agency Formation Commission.** LAFCO was established by State law to review and make determinations on all changes of organization or reorganization, determinations of spheres of influence, review general plans of cities and the county and to do studies of local agencies, recommending governmental reorganizations. LAFCO has developed policies to assist in the review of proposals and plans. These policies encourage orderly formation and development of agencies, encourage orderly urban development and preservation of open space patterns, and encourage conservation of prime agricultural lands and open space areas.

Generally, proposals should meet all standards to be approved. However, when appropriate, the Commission may waive a standard where evidence of overriding circumstances presented in the application and at the hearing warrant such a waiver.

Figure 2.1-3: 2025 Fresno General Plan



## Agricultural Resources

Section 2.4, Geology and Soils, defines soil types present on the site, including the soil capability class according to the Natural Resources Conservation Service (NRCS). There are also several soil types on the project site considered prime farmland by the State Department of Conservation Farmland Mapping and Monitoring Program. Additionally, soil types on the project site are also considered productive agricultural land and potentially productive agricultural land. Within the metropolitan area, the primary areas of agricultural concentration occur in the southeast, west and limited areas in the north. Poorer agricultural soils are located generally north of Copper Avenue. This area has the least amount of fertile agricultural land compared to the southeast and west areas of the metropolitan area.

Table 2.1-1 presents an analysis of the classification of soil types on the site using both the State and Fresno County classification method. Approximately 185 acres of the project site are currently occupied by a golf course and golf course facilities. In addition, portions of the project site are in agricultural production. Table 2.1-2 presents an estimate of the value of the existing agricultural production on the proposed site based on acres in production by crop type and estimated value.

Table 2.1-1  
Agricultural Soils-- State Farmland Classification

	Prime	Statewide Importance	Local Importance	Urban
Acres in Project	315	30	175	185
Percent of Project	45%	4%	25%	26%

Source: Fresno County Important Farmland 2000 Map

Table 2.1-2  
Current Agricultural Production

Acres in Production	Type of Crop	Estimated Annual Value
70	Thompson Grapes	\$113,500
180	Wine Grapes	\$397,500
5	Oranges	\$26,300
<u>145</u>	Oats, Dry Farmland	<u>\$7,500</u>
400 acres		\$544,800

Source: Fresno County 2000 Agricultural Crop and Livestock Report

The 2000 Agricultural Crop and Livestock Report prepared by Fresno County estimates production by crop type. The total gross production value of Fresno County agriculture in 1999 was \$3.3 billion. Based on this report, Table 2.1-3 estimates the proposed project's share of the agricultural land by reporting classification in Fresno County.



Table 2.1-3  
Share of Agricultural Land in Fresno County

Acres in Production	Type of Crop	Acres in County	Percent
70	Thompson Grapes	10,580	0.66%
180	Wine Grapes	33,700	0.53%
5	Oranges	19,400	0.02%
145	Oats, Dry Farmland	850,000	0.02%

Source: Fresno County 2000 Agricultural Crop and Livestock Report

Williamson Act Contracts. Approximately 36 acres of the proposed project site are currently subject to the Williamson Act. There are two possible options to remove land from a Williamson Act Contract; a land owner can file a Notice of Non-Renewal, or apply for contract cancellation. Once a notice of non-renewal is filed, the contract is phased out over a 10-year period. Over the 10- year phasing-out period, the tax benefits granted to the Williamson Act property is gradually reduced until the property reaches its full assessed value. At the end of 10 years, the land is no longer under a Williamson Act Contract and full taxes are paid. As shown in the following table, a Notice of Non-Renewal has been filed on the existing contracts and has between six months and 2.5 years before removal from the contract.

Table 2.1-4  
Williamson Act Contracts and Non-Renewal Status

Contract Number	APN	Acres	Date Contract Will Conclude
AP 6111	301-29-87	18.0	3/1/2003
AP 6109	301-29-69	18.0	3/1/2005
		36.0 acres	

Source: Fresno County Assessor's Office

If the property owner should wish to cancel the contracts before expiration under the non-renewal process, certain findings must be made and specific criteria met. After annexation, the City Council would have the authority to cancel the Williamson Act contract. The findings that must be made are contained in Government Code Section 51282 as follows:

1. That the cancellation is consistent with the purpose of the Williamson Act subject to all of the following findings:
  - a. That the cancellation is for land on which a notice of non-renewal has been served pursuant to Section 51245 of the California Government Code.
  - b. That cancellation is not likely to result in the removal of adjacent lands for agricultural use.
  - c. That cancellation is for an alternative use which is consistent with the applicable provisions of the County General Plan.
  - d. That cancellation will not result in discontinuous patterns of urban development.

- e. That there is no proximate non-contracted lands which is both available and suitable for the use which is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land; or
2. That cancellation is in the public interest subject to all of the following findings:
  - a. That other public concerns substantially outweigh the objectives of the Williamson Act.
  - b. That there is no proximate non-contracted land which is both available and suitable for the use which is proposed the contract land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of the proximate non-contracted land.

## IMPACTS

### Standards of Significance

As defined by CEQA, a significant effect on the environment means a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project. Within this guideline, the following standards have been used in this EIR to identify a significant land use impact.

1. A significant impact is identified if the proposed project is incompatible with adjacent land uses or would cause a potentially substantial adverse change in the type or intensity of existing land use.
2. A significant impact is identified where the project is not consistent with approved land use policies, or would require a change in policies in order to achieve consistency.
3. A significant impact is identified where the project would convert prime agricultural land to non-agricultural use, or impair the agricultural productivity of prime agricultural land, or contribute to a cumulative loss of agricultural lands. According to the State Department of Conservation, cancellation of a Williamson Act contract for a parcel of 100 or more acres is deemed to be of statewide, regional, and area wide significance.

### Impact

- The proposed project is not consistent with the 1984 Fresno General Plan but is consistent with the proposed 2025 Fresno General Plan. The proposed project includes a general plan amendment to bring the proposed project into conformity with the 1984 Fresno General Plan in the event the 2025 Fresno General Plan is not adopted. This is a *less-than-significant impact*.

The requested entitlements, if approved, would remove incompatibilities and bring the project into conformance with the 1984 Fresno General Plan. In the event the 2025 General Plan is adopted prior to hearings on the proposed project, the project would be consistent with the general plan.

Copper River Ranch was first approved, in its entirety by Fresno County. Consequently, the City in developing the 2025 General Plan, has included land planning for this pre-approved project, particularly because it is within the City's Sphere of Influence as recently approved by LAFCO.

It is noted that the Copper River Ranch project area is depicted by or encompassed within 2025 Fresno General Plan Exhibits 1, 2, 4, 6, 7, 8, 9, 10, and 11. Policies within the plan clearly identify the intent of the 2025 Fresno General Plan to include the Copper River Ranch area within the City of Fresno's planned urban boundary and sphere of influence and to obtain multi-party concurrence consistent with the 1983 Joint Resolution on Metropolitan Planning.

The 2025 Fresno General Plan supports development of master planned/mixed use communities such as the Copper River Ranch project. The Plan Amendment and Rezone applications filed for the Copper River Ranch mixed use community display a range of residential and commercial uses and further refines the general plan's land use and circulation map. It is appropriate that the filing of future special permits (conditional use permits and subdivision tract maps) will further specify and refine the location and intensity of uses within the parameters of the 2025 Fresno General Plan and the project's plan amendment and rezoning applications.

The Plan Amendment application filed for the Copper River Ranch Project, if determined appropriate, will also amend the Woodward Park Community Plan to include the Copper River Ranch Project and immediately surrounding properties. This would establish community plan policies and strategies for the Copper River Ranch area.

Exhibit 6, "2025 Fresno General Plan Urban Form Components Map", depicts several potential activity centers and linear intensity corridors where a mixture of urban land uses may be appropriate in accordance with the general plan objectives and policies. These potential sites include two small areas, located at North Maple and East Copper Avenues and at North Friant Road and East Copper Avenue. The appropriateness of implementing a mixed use center at these locations will depend upon a number of subsequent actions such as completing a comprehensive update of the zoning ordinance, establishing the precise boundaries of each center's boundaries and defining the implementing parameters or controls to guide the design, character and intensity of each center.

#### Mitigation

None required.

#### Impact

The project is generally consistent with the principals and policies of the *A Landscape of Choice*. This is a *less-than-significant impact*.

*A Landscape of Choice* is a policy document outlining proposals for improving patterns of community growth and these objectives have been incorporated into the both the Fresno City and County general plan updates. The principles within *A Landscape of Choice* are intended as a guide to development. As recommended in *A Landscape of Choice*, Copper River Ranch would be a mixed-use master planned community with a variety of housing opportunities, shopping, office space, open space, and services.

The following analysis compares major principles and policies of *A Landscape of Choice* as they apply to the project.



Guiding Principles

1. *The primary goal of the land use element of a general plan should be to utilize urban land as efficiently as possible while providing an adequate supply of a broad range of housing types and densities to meet market demand. Measures to facilitate and encourage compact growth should be applied to all urban land uses including commercial, industrial, and institutional uses.*

The Copper River Ranch project proposes 2,837 residential units on 706.5 acres, or an overall density of 4.01 units to the acre. If land in the golf course, proposed commercial areas, and public facilities is subtracted (285 acres), the density of land used for residential purposes is approximately 6.73 units to the acre. Residential development is proposed to occur in villages at higher densities than currently exist in most new projects in the metropolitan area. It has been assumed for purposes of EIR analysis that 42% of the residential units will be detached single-family homes (1,192 units), and 58% will be multifamily units (1,645 units). The multifamily component represents a variety of potential housing types, including attached townhouses, condominiums, duplexes and triplexes, as well as more conventional apartments and senior housing. In order to achieve the overall unit objective, single family areas would develop at approximately 4-8 units to the acre and multifamily areas at 12-20 units to the acre.

*A Landscape of Choice* (page 10) states, "Studies have shown that average densities of 6-8 housing units per gross acre in residential development and 5-6 units per acre throughout a community can significantly reduce the impacts of urban sprawl without sacrificing the market desire for detached single family homes." The proposed project is consistent with the residential density objective but does not achieve the community density of 5-6 units overall. This is because the existing golf course, at 195 acres, reduces the gross density of the project. Nevertheless, the project proposes to provide a wide range of housing types and densities and residential areas of the project will be compact.

2. *Encourage pedestrian and transit-oriented projects at densities that make transit feasible; and create a framework for the future that is transit-based rather than automobile oriented.*

The project will include a trail circulation plan (see Figure 1-8) and the EIR contains measures to encourage transit use. These measures include a Transportation Demand Management Program for people living and/or working within the project to walk, bike, carpool, or use transit (see Technical Appendices, Volume 2); coordination with FAX to provide transit stops internal to the site and/or provide an internal transit site; and create park and ride lots within the project. Overall densities are likely not high enough to facilitate transit use throughout the project, but higher R-2 and R-3 densities are placed adjacent to Friant and Copper where transit use would be most practical.

3. *Recognize the importance of agriculture and the need to protect productive farmland in a way that achieves meaningful policy and elevates the status of planning for agriculture to the same level as residential and other uses.*

The project would remove land from productive agricultural use, including prime farm land. *A Landscape of Choice*, however, advocates protecting important farmland resources while establishing urban boundaries within which development would occur. The project site is within the urban boundaries of the 2025 Fresno General Plan and development may help protect important farmland resources elsewhere in the community.

### Residential Neighborhoods

1. *The land use element of a general plan should only identify the mix of land uses and a broad range of allowable densities for future development. When development of an area is imminent, specific plans or community plans should be prepared to specify the pattern, location, and density of land uses.*

The proposed land use amendment and rezoning would establish the mix of land uses. Subsequent master use permits and development plans would provide specific land use detail.

2. *Modify design review procedures to create a process that meets planning goals and complements the community vision rather than focusing strictly on rigid numerical standards.*

Zoning and design review procedures do not now exist in the City of Fresno to implement the proposed mixed use development. For this reason, the applicant has proposed the master use permit requirement which is, in effect, a planned unit development for the project that will establish design requirements and alternative development standards.

### New Residential Development

1. *Encourage nodes of higher density housing densities (village centers) in areas served by the full range of urban services - neighborhood commercial uses and community centers, public services, and transit stops.*

As previously discussed, the project proposes a range of densities, mixed use commercial development, and transit alternatives.

2. *Develop transit and pedestrian oriented design guidelines and incorporate guidelines into specific plans.*

The project proposes a trail system and transit alternatives. These measures will be incorporated in the subsequent master use permit process.

### Mitigation

No additional mitigation is required beyond existing mitigation in the EIR.

### Impact

The proposed project is generally consistent with the policies and standards of the Local Agency Formation Commission. This is a *less-than-significant impact*.

The proposed project is compared to LAFCO Standards for Annexation to Cities and Urban Service Districts.

- 01 *Proposal is consistent with the adopted sphere of influence and does not conflict with the goals and policies of the commission.*

The project site is within the City of Fresno Sphere of Influence. If approved, the annexation proposal would be consistent with the City's Sphere of Influence.

- 02 *Proposal is consistent with the city or county general and specific plans, including adopted goals and policies.*

Should the proposed plan amendment be approved by the City of Fresno or the 2025 General Plan be adopted, the proposed annexation would be consistent with the applicable general plan.

- 03 *Proposal shows that there is insufficient available land within the community plan area, consistent with the community plan, to accommodate the proposed development.*

The project is located just north of the Woodward Park Community Plan boundary along Copper Avenue. In 1995, the City approved amendments to the Woodward Park Community Plan Urban Reserve Area, essentially opening up 1,500 acres to urban development. The Urban Reserve area is rapidly developing and does not contain sufficient land to accommodate population projections for the Woodward Park planning area. As a result, the 2025 General Plan includes the project site as necessary to meet growth projections for the City.

- 04 *Proposal mitigates any significant adverse affect on the continuing agricultural operations on adjacent properties.*

As stipulated later in this section, mitigation measures are incorporated in the project to reduce impacts on continuing agricultural operations on adjacent properties.

- 05 *Proposal would result in planned, well ordered, efficient development patterns and service areas, and does not encourage urban sprawl.*

The project is located within the path of development in north Fresno and is adjacent to urban development on the south. The project therefore fosters well ordered, efficient development patterns.

- 06 *Proposal shows that there is existing substantial development or gives indication of future development, thereby requiring urban services. If no existing substantial development, a condition assuring that substantial development will occur upon annexation shall be made a part of the proposal.*

Annexation of the project will require approval of a development entitlement (i.e. Vesting Tentative Subdivision Map) in order to demonstrate future development potential; the project will be required to comply with other annexation standards as well.

- 07 *Proposal shows that development can be provided all urban services and improvement or facilities necessary, as shown by the service plan and application.*

All urban services can or will be provided by the project as evidenced by analysis within the EIR.

- 08 *Proposal would not create islands. Boundaries minimize creation of peninsulas and corridors, or other distortion of boundaries, and should include any developed islands or substantially surrounded areas with the proposed developing area.*



There are potential island parcels within the proposed annexation. Negotiation with LAFCO and the affected property owners will be required to eliminate island creation.

- 09 *Proposal includes mitigation of any significant adverse affect to subject or affected agencies through transition agreement or other means.*

No impacts to urban services as provided by the City of Fresno are anticipated.

The proposed project is compared to LAFCO Policies Encouraging Orderly Urban Development and Preservation of Open Space Patterns.

- 01 *The Commission encourages well planned, orderly, and compact urban development patterns for all developing areas. Also, the county, cities, and those districts providing urban services, are encouraged to develop and implement plans and policies which will provide for well-planned, orderly and compact urban development patterns, with consideration of preserving permanent open space lands within those urban patterns.*

The project provides for a orderly and compact urban development patterns by virtue of its location adjacent to existing development in the City of Fresno. As a planned development, the project also preserves permanent open space within the project, both for recreation and natural open space.

- 02 *Development of existing vacant non-open space, and non-prime agricultural land within an agency's boundaries is encouraged prior to further annexation and development.*

Although there are lands containing non-prime soils within the northeastern Woodward Park Community Plan area and in the City of Fresno west of Highway 99, none are of a size large enough to accommodate the proposed project. Although the growth expected for the proposed project could be accommodated in a piecemeal fashion on several smaller parcels, the objectives of the project to develop the site as a planned unit development in several phases over time, and the existence of a golf course as the major site amenity, could not be met by such piecemeal development.

- 03 *Annexation proposals to cities or districts providing urban services of undeveloped or agricultural parcels shall show: that urban development is imminent for all or a substantial portion of the proposal areas; that urban development will be contiguous with existing or proposed development; and that a planned, orderly, and compact urban development pattern will result. Proposals resulting in a leap frog, non-contiguous urban development pattern shall be discouraged.*

The first phase Vesting Tentative Subdivision Map required prior to annexation will provide evidence of imminent development potential for the project. The project is contiguous to existing development on the south and leap frog development will not occur.

The proposed project is compared to LAFCO Policies to Encourage Conservation of Prime Agricultural Lands and Open Space Areas:

- 01 *Proposals which would conflict with the goals of maintaining the physical and economic integrity of open space lands, agricultural lands, or agricultural preserve areas in open space uses, as indicated on the city or county general plan, shall be discouraged.*

The site is adjacent to the Fresno urban area and is a logical extension of that area. As such, development of the site would not conflict with maintaining the physical and economic integrity of open space or agricultural lands.

- 02 *Annexation and development of existing vacant non-open space lands, and non-prime agricultural land within an agency's sphere of influence should occur prior to development outside of an existing sphere of influence.*

Although there are lands containing non-prime soils within the northeastern Woodward Park Community Plan area and in the City of Fresno west of Highway 99, none are of a size large enough to accommodate the proposed project. Although growth expected for the project could be accommodated on several smaller parcels, the objectives of the project to develop the site as a planned unit development in several phases over time, around a golf course, could not be met by such development.

#### Mitigation

No additional mitigation is required. When an annexation is applied for, LAFCO will determine the extent to which the particular annexation meets LAFCO requirements.

#### Impact

- Approval of the project would substantially modify the current use of the land from agriculture to urban use and would result in the conversion of prime agricultural land. This is a *significant, unavoidable impact*.

Although the project is phased over 10 -15 years, the ultimate conversion of the land to urban use would constitute the loss of approximately 70 acres of Thompson grapes, 180 acres of wine grapes, five acres of oranges, and 150 acres of dry farmed grassland. The estimated loss to the County agricultural production is \$544,800 annually, or about 0.02% of the County's total production of agricultural commodities.

The historic direction of growth has generally been away from the southeast and east of the Fresno urban area where prime farmland is proportionately more prevalent. Development projects toward the north and northeast will undoubtedly divert pockets of prime farmland and productive and potentially productive agricultural land from production. Copper River Ranch is composed of approximately 45 percent prime farm land, but these are the last remaining prime soils outside the river bottom between Copper Avenue and the Friant community along the Friant Road corridor. Urbanization of Copper River Ranch could reduce pressure to convert productive land elsewhere which would otherwise remain in economically viable agricultural production.

The consumption of potentially productive agricultural lands has been previously acknowledged and addressed by the City of Fresno's 1984 Fresno General Plan and by the County of Fresno's recently adopted Fresno County General Plan. The Fresno County General Plan and accompanying Final Environmental Impact Report address the consumption of agricultural land necessary to accommodate Fresno County population of 1.4 million by the year 2020. The Fresno County General Plan and the County's economic development policies acknowledge that a substantial diversification of the local economy is necessary to reduce the area's chronically high rate of unemployment (typically 12 to 15 percent). The 2025 Fresno General Plan proposes the long-range protection of agricultural land and expansion of the agricultural business cluster these lands support by implementing new urban development patterns and strategies and focusing most of the population growth into the existing sphere of influence.

The California Department of Conservation has suggested that mitigation for prime ag land loss be required, such as developer purchase or easement of an equivalent amount of agricultural land to that converted with project development. The City has considered a "Farmland Mitigation Fee," and found it infeasible for a number of reasons. The preservation of productive agricultural farmland is a region-wide concern. Presumptively, the fee would be used to acquire farmland in the region which is threatened by development. If not, simply acquiring agricultural property so far removed from urban growth would have little effect on mitigating the impact of development on productive farmland in the urban area. Moreover, acquiring such property does not ensure that the acquired property will be farmed. However, if a regional or even county-wide farmland loss mitigation fee is developed, the Planning and Development Department has committed to bring it to the Fresno City Council for consideration.

The project can reduce its impact on agriculture both on-site and in the region. By increasing density, pressure to convert viable agricultural areas elsewhere is reduced. Such increased density will be implemented through future master use permits and associated development plans.

#### Mitigation

1. The developer shall ensure through the subsequent master use permit and associated development plan, that the project is designed in a compact nature consistent with the principles of *A Landscape of Choice* to maximize the use of land, thereby reducing the pressure on productive agricultural land to the west, southwest, east, and southeast of the Fresno/Clovis metropolitan area.

#### Level of Significance After Mitigation

Although impacts to regional agriculture would be reduced, loss of agricultural land on the site itself represents a significant, unavoidable impact.

#### Impact

- Conversion of productive agricultural land would increase the potential for land use impacts at the interface of agricultural and residential uses. Potential impacts to agricultural production are considered to be *significant*.

Agricultural land (grazing) exists between the project boundaries and Willow Avenue as well as east of Willow Avenue. In the short-term, agricultural uses will continue on lands immediately south of Copper Avenue generally between Cedar Avenue and Millbrook Avenue, although the City has approved several tentative tract maps in this area and development is considered eminent. Urban uses proposed on the project site would create a long-term (potentially 10+ years) agricultural/urban interface to the east of Willow Avenue, similar to that interface which already exists south of Copper Avenue. In addition, farming will likely continue within the project site until such time that development is proposed.

There are a number of potential land use conflicts that could result from soil tillage, spraying, and equipment noise. Urban uses typically increase vandalism to crops. Setbacks and buffers can minimize land use interface conflicts. The design of the project with the widening of Willow Avenue would minimize direct contact with agricultural property to the east. Willow Avenue would be partially widened by the project and residential development would back onto Willow Avenue with sound walls and landscaping along Willow Avenue that would provide additional elements to minimize interface conflicts. To the west are the San Joaquin River bluffs which separate agricultural uses and mineral extraction from the proposed project.



### Mitigation

1. The City shall pursue appropriate measures, including recordation of right to farm covenants, to ensure that agricultural uses of land may continue within those areas of transition where planned urban areas interface with planned agricultural areas.

### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce the potential for conflict between agricultural uses and the residential project, to a less-than-significant level.

### Impact

- Prior to any urban development, the Williamson Act contracts for two existing parcels would require cancellation or non-renewal. This is a *less-than-significant* impact.

Following annexation, the City Council must cancel existing contracts if development is to proceed on those parcels before the notice of non-renewal expires. Such cancellation would result in less-than-significant impacts since notices of non-renewal have been filed for the contracts and have but a few years to run. If the City Council cannot make the findings for cancellation, then the two parcels will remain designated as Agriculture until the contracts expire in 2003 and 2005. No significant impact to the contracted land will result. At this time, the developer does not intend to apply for cancellation but to allow the contracts to terminate under the non-renewal provisions.

### Mitigation

None required.

### Impact

- The project would place urban level development along the Silaxo Road alignment resulting in land use impacts to rural residential uses north of the project. Rural residential uses remaining south of Silaxo Road but outside the project boundary will also experience land use impacts from urban development. This is a *significant impact*.

There are 27 rural residential homes located on 32 lots north of the project site. Parcels range in size from 1.5 to 20 acres. The potential exists for impacts to existing residents located north of the project adjacent to the Copper River Ranch portion of the project boundary. As rural residential lots within the interior of the project are surrounded by project development, these residents will be impacted as well. These impacts include aesthetics and noise. Increased traffic will not be of concern as access to the new lots is internal to the project.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future plans at the interface with adjacent residential properties:

1. All lots shall back onto the common property line on the northern boundary of the project.
2. All lots shall be fenced.
3. All lots along these common property lines shall include a backyard landscaping plan to provide for continuous screening with evergreen and deciduous trees.

#### **Level of Significance After Mitigation**

Implementation of the mitigation measure would reduce the potential for conflict between existing rural residents to the north and the project to a less-than-significant level.

## 2.2 TRAFFIC AND CIRCULATION

### Introduction

This traffic evaluation was prepared by TPG Consulting, Inc., of Visalia, California, to assess traffic impacts resulting from development of Copper River Ranch. The complete traffic report is included in the Technical Appendices on file with the City of Fresno Planning and Development Department. Figure 2.2-1 shows the location of the traffic study area bounded by Blackstone Avenue on the west, DeWolf Avenue on the east, Millerton Road on the north, and Shaw Avenue on the south. For traffic modeling purposes, the project is projected to be built-out by 2012.

In August 2000, TPG Consulting prepared the Traffic Evaluation for Copper River Ranch using the COFCG Model that forecasted 2012 and 2020 daily segment volumes in conjunction with the 1992 Florida Tables methodology adjusted to replicate San Joaquin Valley conditions to determine near-term and horizon year traffic impacts and fair share estimates. Since August 2000, the COFCG has developed and implemented an updated county-wide traffic model based on the latest planning assumptions that provides forecasts to the year 2025. The City of Fresno 2025 General Plan Update land uses and circulation system are incorporated in the current COFCG Model. Also since August 2000, two updates to the Florida Tables have been developed, 1998 and 2002, which incorporates the 1997 and 2000 Highway Capacity Manual methodology updates respectively. The 1998 Florida Tables methodology was utilized in the City of Fresno 2025 General Plan Circulation Evaluation update.

It was deemed appropriate to evaluate the Project using the forecasted 2025 Project scenario volumes in conjunction with the unadjusted 1998 Florida Tables since this most closely matches the methodology utilized in the current City of Fresno General Plan update. A traffic addendum was prepared by TPG Consulting that compares the resulting 2025 Project volume/1998 Florida Table level of service results with the 2020 Project volume/1992 Florida Table level of service results and is summarized at the conclusion of this section. The traffic report addendum prepared by TPG Consulting is also included in the Technical Appendices.

This traffic study provides a program-level analysis. The study is limited to a generalized road segment analysis that estimates potential trip generation and distribution onto the 2012 and 2020 street system network to give a broad evaluation of project impacts. Any subsequent application for discretionary entitlements will require further project-specific traffic analysis of the project in its entirety.

This future project-specific evaluation will also be more effective in assessing the relationship between future and background growth in Clovis and Fresno and the specific Copper River Ranch residential or commercial development. By completing a more detailed analysis at the second-tier stage, specific mitigation measures can be assessed to Copper River Ranch in the context of other development proposals in Clovis and Fresno.

The traffic study identifies mitigation measures anticipated to be required both with and without the project, and the expected areas of developer responsibility for street segments within the study area. Beyond these road segments identified as 100% the responsibility of the developer, however, the mitigation measures and fair share responsibilities represent estimates that will be refined in the future project-specific traffic study. This future project-specific traffic study will include revised segment analysis and associated mitigation measures in addition to intersection and interchange evaluations, and associated intersection and interchange specific mitigation, as needed. The future traffic report may also include additional segment mitigation measures not identified in this program-level analysis.



## Methodology

**Traffic Model.** To test project impacts on the road system in all future years, the COG 2012 and 2020 model<sup>1</sup> were used. The road networks assumed to be in place in both 2012 and 2020 are based on the COG Model with agency-requested modifications.

The Model was developed to analyze proposed land uses, circulation systems, and air quality. The Model is used in this study to develop both 2012 No Project and Project daily traffic volumes as well as 2020 No Project and Project daily traffic volumes. The 2012 and 2020 No Project Model scenarios include projected land use shown in the Clovis General Plan, the Fresno County General Plan, and the City of Fresno proposed General Plan Land Use Alternative 10Z. The City's Alternative 10Z designated urban land uses in the triangular area north of Copper, bounded by the San Joaquin River and the Friant Kern Canal. For purposes of this study, the model was adjusted by removing the urban trip assignments and socio-economic data within the triangular area. The urban uses were replaced with existing County General Plan land uses (rural/agricultural).

The 2012 and 2020 Project Model scenarios used the same land use data as did the No Project scenarios but included build out of the project. In addition, conceptual streets were added to the Model to replicate a potential project circulation system. In order to integrate the project socioeconomic data and street network, COG created additional traffic analysis zones to represent the project.

**Traffic Scenarios.** Forty-nine city and county roadway segments were analyzed. Table 2.2-1 describes the segments. Scenarios analyzed include:

- Existing
- 2012 No Project
- 2012 No Project Mitigated
- 2012 Project
- 2012 Project Mitigated
- 2020 No Project
- 2020 No Project Mitigated
- 2020 Project
- 2020 Project Mitigated

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<sup>1</sup> Land uses in the Model consist of the Fresno County General Plan, the Clovis General Plan, and the City of Fresno proposed General Plan Alternative 10Z adjusted for County General Plan update. Neither the Clovis or the Fresno Plans are shown developed to capacity in either 2012 or 2020. For the area bounded by the San Joaquin River, the Friant Kern Canal, and Copper Avenue, the Model used the County General Plan. This area is not developed to capacity in 2012 but is fully developed by 2020.



- The No Project Mitigated scenarios were prepared to aid in determining the project mitigation fair share responsibility percentages. For example, if a segment in the No Project scenario required widening from two to four lanes, and the Project scenario required the same two to four lane widening, then the project would share in the cost of the widening. If a segment in the No Project scenario, however, required widening from 2- to 4-lanes, and the Project scenario required the segment to be widened from 2- to 6-lanes, then the project would pay a share for the widening from 2- to 4-lanes, and 100% of the cost for the widening from 4- to 6-lanes.

**Levels of Service.** The Highway Capacity Manual defines six levels of service (LOS). They are given letter designations from A to F, with A representing the best operating conditions, and F the worst. Table 2.2-2 contains a description of each level of service category.

Segment assessments were completed using the 1992 Florida Department of Transportation Operating Level of Service Standards Manual tables. This manual provides a method for evaluating freeways, expressways, arterials, and collectors in planning studies. For each facility type under each classification are levels of service A through F with corresponding traffic volumes. These volumes are the maximum amount of traffic that a given facility with given characteristics can carry and maintain a given level of service. This maximum volume per level of service is also called the capacity of the facility. Higher level of service values may not be achieved on interrupted flow facilities even with extremely low traffic volumes. As stated in the Florida Tables manual, "these higher quality levels of service cannot be achieved primarily because the signalization characteristics simply will not allow vehicles to attain relatively high average travel speeds." Therefore, the majority of the study segments will never attain LOS A.

**Level of Service Standards.** The Cities of Fresno and Clovis have both adopted LOS D as their standard for traffic impact study purposes. Fresno County uses LOS C as a planning standard for road improvements. If a segment was located in two jurisdictions, then the highest adopted level of service was used as the evaluation standard.

## Setting

Table 2.2-3 describes the existing street system<sup>2</sup> in the study area including the general plan circulation element designations, number of lanes, median treatment, and peak hour traffic volumes. Copper is designated an arterial in the Fresno General Plan and in the Fresno County General Plan, but is proposed as a 6-lane expressway in the City of Fresno's General Plan draft update. The Clovis Circulation Element designates Copper Avenue as a 6-lane expressway from Willow Avenue to State Route 168. It is anticipated that improvements to Copper will be made along the project frontage consistent with the existing arterial standard. Copper and Millbrook Avenues will be realigned in the vicinity of Friant in order to provide standard 90-degree T-intersections. As proposed, Millbrook will terminate at Copper Avenue, and Copper Avenue will continue west to intersect with Friant Road. The existing intersection of Friant at Millbrook will be vacated and a new intersection constructed at Friant at Copper. The extensions of Cedar, Chestnut, and Maple south of Copper are only conceptual at this time. Using peak hour segment volumes and current geometrics, level of service estimates were completed for the study segments and are shown in Table 2.2-3. With current conditions, no study segments are operating below adopted levels of service.

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<sup>2</sup> The Chestnut Avenue / Maple Avenue diagonal does not currently exist. However, for consistency in the study, an approximation of lanes and count data was created for this segment.



**TABLE 2.2-1:  
STUDY SEGMENTS**

Road	Segment	Jurisdiction	General Plan Designations
Friant Rd	Nees Avenue to SR 41 SB off-ramp	Fresno	Arterial
	SR 41 SB off-ramp to SR 41 NB off-ramp	Fresno	Super Arterial
	SR 41 NB off-ramp to Fresno St	Fresno	Super Arterial
	Fresno St to Audubon Dr	Fresno	Super Arterial
	Audubon Dr to Shepherd Ave	Fresno	Expwy
	Shepherd Ave to Ft Washington Rd	Fresno	Expwy
	Ft Washington Rd to Champlain Dr	Fresno	Expwy
	Champlain Dr to Rice Rd / E Lakeview Dr	Fresno	Expwy
	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	Fresno	Expwy
	Millbrook Ave / Copper Ave to Country Club Dr	County	Expwy
	Country Club Dr to Willow Ave / Birkhead	County	Expwy
	Birkhead / Willow Ave to N Fork Rd / Millerton Rd	County	Expwy
	Copper Ave to Marina Dr	County	Arterial
	Marina Dr to Millerton Rd	County	Arterial
Auberry Rd	Friant Rd to Copper Ave	Fresno/County	Arterial
Millbrook Ave	Millbrook Ave to Cedar Ave	County	Expwy
	Cedar Ave to Maple Ave	County	Expwy
	Maple Ave to Chestnut Ave	County	Expwy
Copper Ave	Chestnut Ave to Willow Ave	County	Expwy
	Willow Ave to Peach Ave	County	Arterial
	Peach Ave to Auberry Rd	County	Arterial
Willow Ave	Auberry Rd to Minnewawa Ave	County	Arterial
	Shaw Ave to Bullard Ave	Clovis/Fresno	Super Art / Art
	Bullard Ave to Herndon Ave	Clovis/Fresno	Super Art / Art

TABLE 2.2-1:  
STUDY SEGMENTS

Road	Segment	Jurisdiction	General Plan Designations
Willow Ave	Herndon Ave to Alluvial Ave Alluvial Ave to Nees Ave Nees Ave to Teague Ave Teague Ave to Shepherd Ave Shepherd Ave to Perrin Ave Perrin Ave to Belhymmer Ave Belhymmer Ave to International Ave International Ave to Copper Ave Copper Ave to S Project Rd S Project Rd to N Project Rd N Project Rd to Friant Rd	Fresno/Clovis/County County County County County County County County County County County County	Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Super Art / Art Arterial Arterial Arterial
Chestnut Ave	Herndon Ave to Nees Ave Nees Ave to Shepherd Ave	Fresno/County Fresno/County	Arterial Arterial
Chestnut Ave / Maple Ave Diagonal Maple Ave	Shepherd Ave to Belhymmer Ave Belhymmer Ave to International Ave International Ave to Copper Ave	Fresno County County	Arterial Arterial Arterial
Shepherd Ave	Willow Ave to Minnewawa Ave Minnewawa Ave to Fowler Ave Fowler Ave to Temperance Ave	County County County	Arterial Arterial Arterial

TABLE 2.2-1:  
STUDY SEGMENTS

Road	Segment	Jurisdiction	General Plan Designations
Herndon Ave	Willow Ave to Peach Ave	Clovis	Expwy
	Peach Ave to Villa Ave	Clovis	Expwy
	Villa Ave to Clovis Ave	Clovis	Expwy
	Clovis Ave to Fowler Ave	Clovis	Expwy/Arterial
	Fowler Ave to Toll House Rd	Clovis	Expwy/Arterial
	Toll House Rd to De Wolf Ave	Clovis/County	Arterial

Notes:

SR = State Route  
SB = southbound  
NB = northbound  
Expwy = expressway  
Art = arterial



**State Route 41 At Friant Road Interchange Operations.** Although no study segments are currently operating below adopted level of service standards, the SR 41 northbound off-ramp at Friant Road intersection operates below both City of Fresno's and Caltrans' level of service standards<sup>3</sup> in the PM peak hour. This operational failure is primarily due to the northbound right-turn movement. Due to segment capacity, geometrics (tightness of turn, weaving), and driver uncertainty, this movement causes the northbound SR 41 exiting traffic (left and right turns) to queue back onto the SR 41 freeway mainline approximately 1/2 mile to 1 mile in length. The northbound right-turn movement is, however, a free right-turn that is not controlled by the signal. Also, lengthy traffic queues occur in the AM peak hour at both SR 41 southbound on-ramps at Friant Road. The SR 41 southbound loop on-ramp queues are primarily generated due to both capacity limitations (Friant Road, loop on-ramp, and the SR 41 freeway) and ramp metering. The SR 41 southbound slip on-ramp queues are also primarily generated due to capacity limitations (slip on-ramp and SR 41 freeway) and ramp metering.

The AM peak hour westbound Friant Road to southbound SR 41 traffic queue is caused by a combination of factors including capacity of westbound Friant Road, the loop ramp, and the freeway, as well as ramp metering. The SR 41 southbound loop on-ramp queue generally extends to Fresno Street or beyond. As stated previously, the SR 41 southbound slip on-ramp is also caused primarily by limited capacity on the ramp and the freeway mainline, as well as ramp metering. The southbound slip on-ramp queue generally extends beyond the Nees Avenue at Blackstone Avenue intersection. Both of these queues impact nearby segment and intersection capacity, and the resulting levels of service. The AM peak hour westbound queue on Friant Road could potentially be either eliminated or reduced with implementation of the following:

- capacity increases on Friant Road (add one additional lane westbound for a total of 4 lanes)
- capacity increases to the loop on-ramp
- capacity increases to the freeway mainline
- removal of ramp metering

Ramp metering is necessary to avoid bottlenecks on the freeway mainline and to reduce freeway mainline queuing. If ramp metering is removed from the Friant Road southbound on-ramp, queues are likely to transfer from Friant Road to the freeway mainline.

Caltrans' funding request for modifications to the SR 41 northbound off-ramp at Friant Road has been recently approved for approximately \$10 Million. Based on preliminary design and cost estimates, this allocation will only partially fund the proposed interchange improvements.

In the future, the City of Fresno proposes to restripe eastbound Friant Road from the SR 41 southbound on-ramp to the SR 41 northbound off-ramp to three lanes, and widen eastbound Friant Road from the SR 41 northbound off-ramp to Audubon Drive from the current three lanes to four lanes<sup>4</sup>. With both the funded Caltrans' improvements and proposed City of Fresno improvements, the SR 41 northbound off-ramp at Friant Road intersection should show an improvement in operations. If, however, the Caltrans' interchange improvements are completed prior to needed improvements (road widening) on eastbound Friant Road, then Friant Road will potentially operate at unacceptable levels of service.

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<sup>3</sup> Based on information taken from other traffic evaluations in the Friant Road/SR 41 interchange area.

<sup>4</sup> Information provided by personal correspondence from Bob Madewell, City of Fresno, July 19, 2000

## IMPACTS

### Standards of Significance

The following standards of significance are used in the traffic analysis:

- When the project is 100% responsible and mitigates to or above the LOS standard, a less-than-significant impact will result.
- When an impact requires a fair-share responsibility from the project for mitigation, and which can be mitigated to an acceptable level, a significant impact results.
- When the LOS in both the ☐No Project☐ and ☐Project☐ scenarios falls or remains below the LOS standard and, if the segments in both scenarios cannot be mitigated to a less-than-significant impact, a significant, unavoidable impact will result.

### Impact

- Approval of the project will cause some street segments to operate below acceptable standards in 2012. This is a *significant, unavoidable impact*.

### 2012 No Project Conditions

An assessment of future year 2012 No Project conditions evaluates planned land uses in the Fresno County General Plan, the City of Clovis General Plan, and the City of Fresno's proposed General Plan Land Use Alternative 10Z, and their projected impact on the study segments in 2012. None of these General Plan Land Uses are projected to be built to capacity by 2012. Lane configurations assume no road improvements and are the same as those shown in the Existing Conditions scenario.

Using the projected 2012 No Project traffic volumes and lane configurations, level of service estimates were completed for the study segments. Table 2.2-4 shows the level of service results. With projected 2012 No Project volumes, the following segments are projected to operate below adopted levels of service:

- Friant Road from SR 41 northbound off-ramp to Fresno Street AM and PM peak hour
- Friant Road from Fresno Street to Audubon Drive AM and PM peak hour
- Friant Road from Audubon Drive to Shepherd Avenue AM and PM peak hour
- Friant Road from Birkhead/Willow Avenue to North Fork Road/Millerton Road PM peak hour
- Auberry Road from Copper Avenue to Marina Drive AM and PM peak hour
- Willow Avenue from Herndon Avenue to Alluvial Avenue AM and PM peak hour
- Willow Avenue from Alluvial Avenue to Nees Avenue AM and PM peak hour
- Willow Avenue from Nees Avenue to Teague Avenue AM and PM peak hour
- Willow Avenue from Teague Avenue to Shepherd Avenue AM and PM peak hour
- Willow Avenue from Shepherd Avenue to Perrin Avenue AM and PM peak hour
- Willow Avenue from Perrin Avenue to Behymer Avenue AM and PM peak hour
- Chestnut Avenue from Nees Avenue to Shepherd Avenue AM peak hour
- Herndon Avenue from Willow Avenue to Peach Avenue AM and PM peak hour
- Herndon Avenue from Peach Avenue to Villa Avenue AM and PM peak hour
- Herndon Avenue from Toll House Road to De Wolf Avenue AM and PM peak hour



Table 2.2-2

TABLE 2.2-2: ARTERIAL STREETS LEVEL OF SERVICE DESCRIPTION		
Level of Service	Conditions	Description
"A"	Free Flow	Free-flow operations at average travel speeds. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delay at signalized intersections is minimal. Average speeds are approximately 90 percent of free-flow speed.
"B"	Unimpeded Operation	Reasonably unimpeded operations at average travel speeds. The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome. Average speeds are approximately 70 percent of free-flow speed.
"C"	Stable Operation	Ability to maneuver and change lanes in midblock locations may be more restricted than in LOS "B". Longer queues, adverse signal coordination, or both may contribute to lower average travel speeds. Average speeds are approximately 50 percent of free-flow speed.
"D"	Approaching Unstable	Small increases in flow may cause substantial increases in approach delay and hence decreases in arterial speed. May be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average speeds are approximately 40 percent of free-flow speed.
"E"	Unstable Operations	Characterized by significant delays. Such operations are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing. Average speeds are approximately 33 percent of free-flow speed or less.
"F"	Forced Flow	Traffic volumes exceed the capacity of the street. Stop and go traffic conditions. Intersection congestion is likely at critical signalized locations, with long delays and extensive queuing. Average speeds are less than 33 to 25 percent of free-flow speed.

Source: 1997 Highway Capacity Manual, Special Report 209, Transportation Research Board

**2012 NO Project Mitigated Conditions.** An assessment of the 2012 No Project Mitigated condition was included to assist in determining the Project's appropriate fair share responsibility percentages. As shown in the 2012 No Project section, there are 16 segments projected to operate below adopted level of service standards. Two additional lanes were added to all 16 segments to mitigate identified impacts.

Using these segment configurations and the 2012 No Project volumes, segment levels of service were again calculated. Table 2.2-5 shows a level of service comparison for the 2012 No Project and 2012 No Project Mitigated scenarios. With implementation of proposed mitigation measures, all segments are projected to operate at or above adopted level of service standards.

#### **2012 Project Conditions**

To analyze traffic impacts, residential and employment information is required as inputs to the COG Model. Based on the project description in Chapter 1 of the EIR, the site could accommodate approximately 2,837 single-family and multi-family residences. It was assumed for purposes of this study that a worst case assessment of 2,837 dwelling units would be constructed with approximately 42% single-family and 58% multi-family uses. Community retail/services/office use square footage was calculated based on a ratio of approximately 100 square feet per dwelling unit. This estimated land use was then translated into number of dwelling units and number of employees using factors developed for the COG Model. This information along with a conceptual street system was added to the COG Model in order to assess the traffic impacts.



**TABLE 2.2-3  
EXISTING CONDITIONS  
SEGMENT WEEKDAY LEVELS OF SERVICE**

Road	Segment	General Plan Designations	No. Of Lanes (2 dir)	Divided Y/N	Peak Hour Volumes (2 dir)		LOS Standard		Peak Hour LOS	
					AM	PM	AM	PM	AM	PM
Friant Rd	Nees Avenue to SR 41 SB off-ramp	Arterial	6	Y	1,949	1,773	D	D	B	B
	SR 41 SB off-ramp to SR 41 NB off-ramp	Super Arterial	5	Y	2,087	1,994	D	D	B	B
	SR 41 NB off-ramp to Fresno St	Super Arterial	6	Y	3,339	3,701	D	D	B	B
	Fresno St to Audubon Dr	Super Arterial	5	Y	2,828	3,165	D	D	B	C
	Audubon Dr to Shepherd Ave	Expy	4	Y	2,633	2,981	D	D	C	C
	Shepherd Ave to Ft Washington Rd	Expy	4	Y	1,455	1,597	D	D	B	B
	Ft Washington Rd to Champlain Dr	Expy	4	Y	1,067	1,204	D	D	B	B
	Champlain Dr to Rice Rd / E Lakeview Dr	Expy	4	Y	844	959	D	D	A	A
Auberry Rd	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	Expy	4	Y	584	727	D	D	A	A
	Millbrook Ave / Copper Ave to Country Club Dr	Expy	2	N	316	447	C	C	B	B
	Country Club Dr to Willow Ave / Birkhead Birkhead / Willow Ave to N Fork Rd / Millerton Rd	Expy	2	N	290	465	C	C	B	B
		Expy	2	N	401	636	C	C	B	C
	Copper Ave to Marina Dr	Arterial	2	N	325	369	C	C	B	B
	Marina Dr to Millerton Rd	Arterial	2	N	325	369	C	C	B	B
Millbrook Ave	Friant Rd to Copper Ave	Arterial	2	N	379	410	C	C	B	B
	Millbrook Ave to Cedar Ave	Expy	2	N	299	314	C	C	B	B
	Cedar Ave to Maple Ave	Expy	2	N	299	314	C	C	B	B
	Maple Ave to Chestnut Ave	Expy	2	N	273	287	C	C	B	B
	Chestnut Ave to Willow Ave	Expy	2	N	400	365	C	C	B	B
	Willow Ave to Peach Ave	Arterial	2	N	606	509	C	C	B	B

EXISTING CONDITIONS SEGMENT WEEKDAY LEVELS OF SERVICE										
Road	Segment	General Plan Designations	No. Of Lanes (2 dir)	Divided Y/N	Peak Hour Volumes (2 dir)		LOS Standard		Peak Hour LOS	
					AM	PM	AM	PM	AM	PM
Copper Ave	Peach Ave to Auberry Rd	Arterial	2	N	545	517	C	B	B	B
	Auberry Rd to Minnewawa Ave	Arterial	2	N	285	305	C	B	B	B
Willow Ave	Shaw Ave to Bullard Ave	Super Art / Art	4	Y	1,870	2,232	D	B	B	B
	Bullard Ave to Herndon Ave	Super Art / Art	4	Y	1,761	1,773	D	B	B	B
	Herndon Ave to Alluvial Ave	Super Art / Art	2	Y	1,072	1,046	C	B	B	B
	Alluvial Ave to Nees Ave	Super Art / Art	2	N	729	771	C	B	B	B
	Nees Ave to Teague Ave	Super Art / Art	2	N	463	570	C	B	B	B
	Teague Ave to Shepherd Ave	Super Art / Art	2	N	519	535	C	B	B	B
	Shepherd Ave to Perrin Ave	Super Art / Art	2	N	381	408	C	B	B	B
	Perrin Ave to Belhymmer Ave	Super Art / Art	2	N	381	393	C	B	B	B
	Belhymmer Ave to International Ave	Super Art / Art	2	N	364	377	C	B	B	B
	International Ave to Copper Ave	Super Art / Art	2	N	354	354	C	B	B	B
	Copper Ave to S Project Rd	Arterial	2	N	143	200	C	B	B	B
	S Project Rd to N Project Rd	Arterial	2	N	143	200	C	B	B	B
	N Project Rd to Friant Rd	Arterial	2	N	143	200	C	A	A	A
Chestnut Ave	Herndon Ave to Nees Ave	Arterial	2	Y	505	410	C	B	B	B
	Nees Ave to Shepherd Ave	Arterial	2	N	310	259	C	B	B	B
Chestnut Ave / Maple Ave Diagonal	Shepherd Ave to Belhymmer Ave	Arterial	2	Y	488	351	D	B	B	B
Maple Ave	Belhymmer Ave to International Ave	Arterial	2	Y	338	250	C	B	B	B
	International Ave to Copper Ave	Arterial	2	N	154	185	C	B	B	B
Shepherd Ave	Willow Ave to Minnewawa Ave	Arterial	2	N	397	436	C	B	B	B
	Minnewawa Ave to Fowler Ave	Arterial	2	N	432	350	C	B	B	B
	Fowler Ave to Temperance Ave	Arterial	2	N	191	135	C	B	B	B

EXISTING CONDITIONS SEGMENT WEEKDAY LEVELS OF SERVICE										
Road	Segment	General Plan Designations	No. Of Lanes (2 dir)	Divided Y/N	Peak Hour Volumes (2 dir)		LOS Standard		Peak Hour LOS	
					AM	PM	AM	PM	AM	PM
Herndon Ave	Willow Ave to Peach Ave	Expwy	4	Y	2,766	2,638			C	C
	Peach Ave to Villa Ave	Expwy	4	Y	2,703	2,466			C	C
	Villa Ave to Clovis Ave	Expwy	4	Y	2,119	2,205			B	B
	Clovis Ave to Fowler Ave	Expwy/Arterial	4	Y	1,731	1,795			B	B
	Fowler Ave to Toll House Rd	Expwy/Arterial	4	Y	1,316	1,428			B	B
	Toll House Rd to De Wolf Ave	Arterial	2	N	833	811			B	B

Notes:  
 SR = State Route  
 SB = southbound  
 NB = northbound  
 Expwy = expressway  
 Art = arterial

**TABLE 2.2- 4**  
**2012 NO PROJECT CONDITIONS**  
**SEGMENT WEEKDAY LEVELS OF SERVICE**

Road	Segment	General Plan Designations	No. Of Lanes (2 dir)	Divided Y/N	Peak Hour Volumes		LOS Standard	Peak Hour LOS	
					AM (2 dir)	PM (2 dir)		AM	PM
					(2 dir)	(2 dir)		(2 dir)	(2 dir)
Friant Rd	Nees Avenue to SR 41 SB off-ramp	Arterial	6	Y	2,595	2,361	D	B	B
	SR 41 SB off-ramp to SR 41 NB off-ramp	Super Arterial	5	Y	2,101	2,146	D	B	B
	SR 41 NB off-ramp to Fresno St	Super Arterial	6	Y	4,859	5,385	D	F	F
	Fresno St to Audubon Dr	Super Arterial	5	Y	4,139	4,630	D	F	F
	Audubon Dr to Shepherd Ave	Expy	4	Y	3,568	4,039	D	F	F
	Shepherd Ave to Ft Washington Rd	Expy	4	Y	2,250	2,543	D	B	C
	Ft Washington Rd to Champlain Dr	Expy	4	Y	1,925	2,173	D	B	B
	Champlain Dr to Rice Rd / E Lakeview Dr	Expy	4	Y	1,843	2,094	D	A	A
	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	Expy	4	Y	1,007	1,253	D	A	A
	Millbrook Ave / Copper Ave to Country Club Dr	Expy	2	N	878	1,173	C	B	C
	Country Club Dr to Willow Ave / Birkhead	Expy	2	N	480	770	C	B	C
	Birkhead / Willow Ave to N Fork Rd / Millerton Rd	Expy	2	N	668	1,101	C	C	D
Auberry Rd	Copper Ave to Marina Dr	Arterial	2	N	894	1,014	C	D	D
	Marina Dr to Millerton Rd	Arterial	2	N	667	757	C	C	C
Millbrook Ave	Friant Rd to Copper Ave	Arterial	2	N	690	753	C	B	B
Copper Ave	Millbrook Ave to Cedar Ave	Expy	2	N	859	851	C	B	B
	Cedar Ave to Maple Ave	Expy	2	N	614	609	C	B	B
	Maple Ave to Chestnut Ave	Expy	2	N	625	621	C	B	B
	Chestnut Ave to Willow Ave	Expy	2	N	462	421	C	B	B
	Willow Ave to Peach Ave	Arterial	2	N	895	766	C	B	B
	Peach Ave to Auberry Rd	Arterial	2	N	926	897	C	B	B
	Auberry Rd to Minnewawa Ave	Arterial	2	N	639	684	C	B	B



2012 NO PROJECT CONDITIONS  
SEGMENT WEEKDAY LEVELS OF SERVICE

SEGMENT WEEKDAY LEVELS OF SERVICE									
Road	Segment	General Plan Designations	No. Of Lanes (2 dir)	Divided Y/N	Peak Hour Volumes		LOS Standard	Peak Hour LOS	
					AM (2 dir)	PM (2 dir)		AM	PM
Willow Ave	Shaw Ave to Bullard Ave	Super Art / Art	4	Y	2,600	3,103	D	C	D
	Bullard Ave to Herndon Ave	Super Art / Art	4	Y	2,815	2,834	D	C	C
	Herndon Ave to Alluvial Ave	Super Art / Art	2	Y	1,870	1,824	C	F	F
	Alluvial Ave to Nees Ave	Super Art / Art	2	N	2,408	2,546	C	F	F
	Nees Ave to Teague Ave	Super Art / Art	2	N	2,155	2,650	C	F	F
	Teague Ave to Shepherd Ave	Super Art / Art	2	N	2,804	2,893	C	F	F
	Shepherd Ave to Perrin Ave	Super Art / Art	2	N	2,103	2,144	C	F	F
	Perrin Ave to Behymer Ave	Super Art / Art	2	N	1,807	1,842	C	F	F
	Behymer Ave to International Ave	Super Art / Art	2	N	1,036	1,056	C	C	D
	International Ave to Copper Ave	Super Art / Art	2	N	668	668	C	B	B
	Copper Ave to S Project Rd	Arterial	2	N	230	323	C	B	B
	S Project Rd to N Project Rd	Arterial	2	N	233	327	C	B	B
	N Project Rd to Friant Rd	Arterial	2	N	187	263	C	A	B
Chestnut Ave	Herndon Ave to Nees Ave	Arterial	2	Y	1,429	1,161	C	C	B
	Nees Ave to Shepherd Ave	Arterial	2	N	1,339	1,120	C	F	C
	Shepherd Ave to Behymer Ave	Arterial	2	Y	365	263	D	B	B
Chestnut Ave / Maple Ave Diagonal									
	Behymer Ave to International Ave	Arterial	2	Y	348	337	C	B	B
Maple Ave	International Ave to Copper Ave	Arterial	2	N	129	156	C	B	B
Shepherd Ave	Willow Ave to Minnewawa Ave	Arterial	2	N	405	445	C	B	B
	Minnewawa Ave to Fowler Ave	Arterial	2	N	786	639	C	B	B
	Fowler Ave to Temperance Ave	Arterial	2	N	228	161	C	B	B

2012 NO PROJECT CONDITIONS SEGMENT WEEKDAY LEVELS OF SERVICE										
Road	Segment	General Plan Designations	No. Of Lanes		Divided Y/N	Peak Hour Volumes		LOS Standard	Peak Hour LOS	
			(2 dir)	(2 dir)		AM (2 dir)	PM (2 dir)		AM	PM
Herndon Ave	Willow Ave to Peach Ave	Expy	4	4	Y	3,365	3,209	D	F	F
	Peach Ave to Villa Ave	Expy	4	4	Y	3,362	3,345	D	F	F
	Villa Ave to Clovis Ave	Expy	4	4	Y	2,732	2,843	D	C	C
	Clovis Ave to Fowler Ave	Expy/Arterial	4	4	Y	2,956	2,948	D	C	C
	Fowler Ave to Toll House Rd	Expy/Arterial	4	4	Y	1,746	1,742	D	B	B
	Toll House Rd to De Wolf Ave	Arterial	2	2	N	1,650	1,606	C	D	D

Notes:

SR = State Route  
SB = southbound  
NB = northbound  
Expy = expressway  
Art = arterial

**TABLE 2.2- 5  
COMPARISON OF 2012 NO PROJECT AND 2012 NO PROJECT MITIGATED CONDITIONS  
SEGMENT WEEKDAY LEVELS OF SERVICE**

Road	Segment	LOS		2012 NP Peak Hour LOS		2012 NP Mit Peak Hour LOS	
		Standard		AM	PM	AM	PM
Friant Rd	Nees Avenue to SR 41 SB off-ramp	D		B	B	B	B
	SR 41 SB off-ramp to SR 41 NB off-ramp	D		B	B	B	B
	SR 41 NB off-ramp to Fresno St	D		F	F	B	C
	Fresno St to Audubon Dr	D		F	F	B	B
	Audubon Dr to Shepherd Ave	D		F	F	B	C
	Shepherd Ave to Ft Washington Rd	D		B	C	B	C
	Ft Washington Rd to Champlain Dr	D		B	B	B	B
	Champlain Dr to Rice Rd / E Lakeview Dr	D		A	A	A	A
	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	D		A	A	A	A
	Millbrook Ave / Copper Ave to Country Club Dr	C		B	C	B	C
Auberry Rd	Country Club Dr to Willow Ave / Birkhead Birkhead / Willow Ave to N Fork Rd / Millerton Rd	C		B	C	B	C
		C		C	D	A	A
Millbrook Ave	Copper Ave to Marina Dr	C		D	D	A	A
	Marina Dr to Millerton Rd	C		C	C	C	C
Copper Ave	Friant Rd to Copper Ave	C		B	B	B	B
	Millbrook Ave to Cedar Ave	C		B	B	B	B
	Cedar Ave to Maple Ave	C		B	B	B	B
	Maple Ave to Chestnut Ave	C		B	B	B	B
	Chestnut Ave to Willow Ave	C		B	B	B	B
	Willow Ave to Peach Ave	C		B	B	B	B

COMPARISON OF 2012 NO PROJECT AND 2012 NO PROJECT MITIGATED CONDITIONS  
SEGMENT WEEKDAY LEVELS OF SERVICE

Road	Segment	LOS		2012 NP Peak Hour		2012 NP Mit Peak Hour	
		Standard	LOS	AM	PM	AM	PM
Copper Ave	Peach Ave to Auberry Rd	C		B	B	B	B
	Auberry Rd to Minnewawa Ave	C		B	B	B	B
Willow Ave	Shaw Ave to Bullard Ave	D		C	D	C	D
	Bullard Ave to Herndon Ave	D		C	C	C	C
	Herndon Ave to Alluvial Ave	C		F	F	B	B
	Alluvial Ave to Nees Ave	C		F	F	B	C
	Nees Ave to Teague Ave	C		F	F	B	C
	Teague Ave to Shepherd Ave	C		F	F	C	C
	Shepherd Ave to Perrin Ave	C		F	F	C	C
	Perrin Ave to Behymer Ave	C		F	F	B	B
	Behymer Ave to International Ave	C		C	D	C	D
	International Ave to Copper Ave	C		B	B	B	B
Chestnut Ave	Copper Ave to S Project Rd	C		B	B	B	B
	S Project Rd to N Project Rd	C		B	B	B	B
	N Project Rd to Friant Rd	C		A	B	A	B
	Herndon Ave to Nees Ave	C		C	B	C	B
Chestnut Ave / Maple Ave Diagonal	Nees Ave to Shepherd Ave	C		F	C	B	B
	Shepherd Ave to Behymer Ave	D		B	B	B	B
	Behymer Ave to International Ave	C		B	B	B	B
	International Ave to Copper Ave	C		B	B	B	B
Shepherd Ave	Willow Ave to Minnewawa Ave	C		B	B	B	B
	Minnewawa Ave to Fowler Ave	C		B	B	B	B



COMPARISON OF 2012 NO PROJECT AND 2012 NO PROJECT MITIGATED CONDITIONS  
SEGMENT WEEKDAY LEVELS OF SERVICE

Road	Segment	2012 NP		2012 NP Mit	
		Peak Hour		Peak Hour	
		LOS	Standard	AM	PM
Herdon Ave	Fowler Ave to Temperance Ave	C	C	B	B
	Willow Ave to Peach Ave	D	D	F	B
	Peach Ave to Villa Ave	D	D	F	B
	Villa Ave to Clovis Ave	D	D	C	C
	Clovis Ave to Fowler Ave	D	D	C	C
	Fowler Ave to Toll House Rd	D	D	B	B
	Toll House Rd to De Wolf Ave	C	C	D	A

Notes:  
SR = State Route  
SB = southbound  
NB = northbound

With 2012 Project volumes, the following segments will operate below adopted levels of service:

- Friant Road from SR 41 northbound off-ramp to Fresno Street AM and PM peak hour
- Friant Road from Fresno Street to Audubon Drive AM and PM peak hour
- Friant Road from Audubon Drive to Shepherd Avenue AM and PM peak hour
- Friant Road from Shepherd Avenue to Ft. Washington Road AM and PM peak hour
- Friant Road from Ft. Washington Road to Champlain Drive PM peak hour
- Friant Road from Millbrook Avenue/Copper Avenue to Country Club Drive AM and PM peak hour
- Friant Road from Birkhead/Willow Avenue to North Fork Road/Millerton Road PM peak hour
- Auberry Road from Copper Avenue to Marina Drive AM and PM peak hour
- Auberry Road from Marina Drive to Millerton Road AM and PM peak hour
- Copper Avenue from Millbrook Avenue to Cedar Avenue AM and PM peak hour
- Copper Avenue from Maple Avenue to Chestnut Avenue AM and PM peak hour
- Willow Avenue from Shaw Avenue to Bullard Avenue PM peak hour
- Willow Avenue from Herndon Avenue to Alluvial Avenue AM and PM peak hour
- Willow Avenue from Alluvial Avenue to Nees Avenue AM and PM peak hour
- Willow Avenue from Nees Avenue to Teague Avenue AM and PM peak hour
- Willow Avenue from Teague Avenue to Shepherd Avenue AM and PM peak hour
- Willow Avenue from Shepherd Avenue to Perrin Avenue AM and PM peak hour
- Willow Avenue from Perrin Avenue to Behymer Avenue AM and PM peak hour
- Willow Avenue from Behymer Avenue to International Avenue AM and PM peak hour
- Willow Avenue from International Avenue to Copper Avenue AM and PM peak hour
- Chestnut Avenue from Nees Avenue to Shepherd Avenue AM peak hour
- Herndon Avenue from Willow Avenue to Peach Avenue AM and PM peak hour
- Herndon Avenue from Peach Avenue to Villa Avenue AM and PM peak hour
- Herndon Avenue from Toll House Road to De Wolf Avenue AM and PM peak hour

Comparison of 2012 No Project and 2012 Project Conditions. Table 2.2-6 compares segment levels of service in the 2012 No Project and the 2012 Project scenarios. Levels of service are projected to worsen on nine segments with implementation of the project:

- Friant Road from Shepherd Avenue to Ft. Washington Road AM and PM peak hour
- Friant Road from Ft. Washington Road to Champlain Drive PM peak hour
- Friant Road from Millbrook Avenue/Copper Avenue to Country Club Drive AM and PM peak hour
- Auberry Road from Marina Drive to Millerton Road AM and PM peak hour
- Copper Avenue from Millbrook Avenue to Cedar Avenue AM and PM peak hour
- Copper Avenue from Maple Avenue to Chestnut Avenue AM and PM peak hour
- Willow Avenue from Shaw Avenue to Bullard Avenue PM peak hour
- Willow Avenue from Behymer Avenue to International Avenue AM and PM peak hour
- Willow Avenue from International Avenue to Copper Avenue AM and PM peak hour

Friant Road from Shepherd to Ft. Washington, Ft. Washington to Champlain, and Millbrook/Copper to Country Club Drive, is projected to operate above adopted standards prior to the project. After project completion, these segments are projected to operate at LOS F in at least one peak period. Auberry Road from Marina Drive to Millerton Road is projected to operate at LOS C in both peak hours without the project, and LOS D in both peak hours with the project. Copper Avenue from Millbrook Avenue to Cedar Avenue, and from Maple Avenue to Chestnut Avenue, is projected to operate at LOS B in both peak hours before project implementation and LOS F after project implementation.

Willow Avenue from Shaw Avenue to Bullard Avenue is projected to operate at LOS C in the AM peak hour with or without the project. In the PM peak hour, this segment is projected to operate at LOS D in the No Project scenario and LOS F with the project. Willow Avenue from Behymer Avenue to International Avenue is projected to operate at LOS C in the AM peak hour and LOS D in the PM peak hour without the project, and LOS Fin both peak hours with the project. Willow Avenue from International Avenue to Copper Avenue is projected to operate at LOS Bin both peak hours before project completion, and LOS Fin both peak hours after project completion.

Fifteen additional segments are projected to operate below adopted standards prior to the project and to maintain the same substandard levels of service after the project is implemented in at least one peak period. These 15 segments are:

- Friant Road from SR 41 NB off-ramp to Fresno Street LOS F in the AM and PM peak hours
- Friant Road from Fresno Street to Audubon Drive LOS F in the AM and PM peak hours
- Friant Road from Audubon Drive to Shepherd Avenue LOS F in the AM and PM peak hours
- Friant Road from Birkhead/Willow Avenue to North Fork Road/Millerton Road LOS D in the PM peak hour
- Auberry Road from Copper Avenue to Marina Drive LOS D in the AM and PM peak hours
- Willow Avenue from Herndon Avenue to Alluvial Avenue LOS F in the AM and PM peak hours
- Willow Avenue from Alluvial Avenue to Nees Avenue LOS Fin the AM and PM peak hours
- Willow Avenue from Nees Avenue to Teague Avenue LOS Fin the AM and PM peak hours
- Willow Avenue from Teague to Shepherd Avenue LOS Fin the AM and PM peak hours
- Willow Avenue from Shepherd Avenue to Perrin Avenue LOS Fin the AM and PM peak hours
- Willow Avenue from Perrin Avenue to Behymer Avenue LOS Fin the AM and PM peak hours
- Chestnut Avenue from Nees Avenue to Shepherd Avenue LOS F in the AM peak hour
- Herndon Avenue from Willow Avenue to Peach Avenue LOS F in the AM and PM peak hours
- Herndon Avenue from Peach Avenue to Villa Avenue LOS Fin the AM and PM peak hours
- Herndon Avenue from Toll House Road to De Wolf Avenue LOS Din the AM and PM peak hours

The numerical and percentage changes in volume on the 15 segments due to project implementation as compared to the No Project scenario are:

Road	Segment	AM Peak Hour Numerical Increase (Percentage Increase)	PM Peak Hour Numerical Increase (Percentage Increase)
Friant Road	SR 41 northbound off-ramp to Fresno Street	730 (15%)	810 (15%)
	Fresno Street to Audubon Drive	710 (17%)	800 (17%)
	Audubon Drive to Shepherd Avenue	780 (22%)	880 (22%)
	Willow Avenue to N. Fork Road	---	-220 (-20%)
Auberry Road	Copper Avenue to Marina Drive	170 (19%)	190 (19%)
Willow Avenue	Herndon Avenue to Alluvial Avenue	270 (14%)	270 (15%)
	Alluvial Avenue to	400 (17%)	420 (16%)

<u>Road</u>	<u>Segment</u>	<u>AM Peak Hour Numerical Increase (Percentage Increase)</u>	<u>PM Peak Hour Numerical Increase (Percentage Increase)</u>
	Alluvial Avenue		
	Alluvial Avenue to Nees Avenue	400 (17%)	420 (16%)
	Nees Avenue to Teague Avenue	430 (20%)	530 (20%)
	Teague Avenue to Shepherd Avenue	750 (27%)	770 (27%)
	Shepherd Avenue to Perrin Avenue	680 (32%)	690 (32%)
	Perrin Avenue to Behymer Avenue	690 (38%)	710 (39%)
Chestnut Avenue	Nees Avenue to Shepherd Avenue	120 (9%)	---
Herndon Avenue	Willow Avenue to Peach Avenue	180 (5%)	170 (5%)
	Peach Avenue to Villa Avenue	170 (5%)	170 (5%)
	Toll House Road to De Wolf Avenue	0 (0%)	0 (0%)

Segments with project volume increases show additional impacts to the road system. These impacts could be seen as increased queue lengths and peak hour spreading.

#### Mitigation

The developer shall ensure through the subsequent master use permit or development plan that the following measures are incorporated in the design of future plans:

1. If the project is found to trigger a capacity improvement, which otherwise would not be required under the no-project scenario, the project will be required to fully fund (100%) the improvement. Subsequent project-specific studies will determine the need and feasibility of the improvement.
2. Since the project is defined in very general terms at the Program EIR level, developer responsibility for proposed mitigation measures is shown as fair share percentage estimates rather than project-specific fair share responsibilities. Fair share estimates provide a general overview of how much the project may need to contribute to mitigate potential impacts on the future roadway system. Once the project is defined through the development plan and associated specific plan or development plan, a project-specific traffic analysis will determine both project-specific impacts and associated developer responsibility for mitigation. In these future project-specific traffic studies, actual project fair shares will be determined. However, unless other projects in the study area are proposed for development with a more intensive land use, those segments that are shown at 100% developer responsibility are likely to remain at 100% developer responsibility in all future project-specific traffic studies. The fair share percentage estimates do not take into account either the City of Fresno UGM fees or the City of Clovis TIF program.



With project completion, the following improvements are needed in 2012 to maintain appropriate level of service standards:

- Friant Road from SR 41 northbound off-ramp to Fresno Street widen from 6 to 8 lanes<sup>5</sup>
- Friant Road from Fresno Street to Audubon Drive widen from 6 to 8 lanes
- Friant Road from Audubon Drive to Shepherd Avenue widen from 4 to 6 lanes
- Friant Road from Shepherd Avenue to Ft. Washington Road widen from 4 to 6 lanes
- Friant Road from Ft. Washington Road to Champlain Drive widen from 4 to 6 lanes
- Friant Road from Millbrook Avenue/Copper Avenue to Country Club Drive widen from 2 to 4 lanes
- Friant Road from Birkhead/Willow Avenue to N. Fork Road/Millerton Road widen from 2 to 4 lanes
- Auberry Road from Copper Avenue to Marina Drive widen from 2 to 4 lanes
- Auberry Road from Marina Drive to Millerton Road widen from 2 to 4 lanes
- Copper Avenue from Millbrook Avenue to Cedar Avenue widen from 2 to 4 lanes
- Copper Avenue from Maple Avenue to Chestnut Avenue widen from 2 to 4 lanes
- Willow Avenue from Shaw Avenue to Bullard Avenue widen from 4 to 6 lanes
- Willow Avenue from Herndon Avenue to Alluvial Avenue widen from 2 to 4 lanes
- Willow Avenue from Alluvial Avenue to Nees Avenue widen from 2 to 4 lanes
- Willow Avenue from Nees Avenue to Teague Avenue widen from 2 to 6 lanes
- Willow Avenue from Teague Avenue to Shepherd Avenue widen from 2 to 6 lanes
- Willow Avenue from Shepherd Avenue to Perrin Avenue widen from 2 to 6 lanes
- Willow Avenue from Perrin Avenue to Behymer Avenue widen from 2 to 6 lanes
- Willow Avenue from Behymer Avenue to International Avenue widen from 2 to 4 lanes
- Willow Avenue from International Avenue to Copper Avenue widen from 2 to 4 lanes
- Chestnut Avenue from Nees Avenue to Shepherd Avenue widen from 2 to 4 lanes
- Herndon Avenue from Willow Avenue to Peach Avenue widen from 4 to 6 lanes
- Herndon Avenue from Peach Avenue to Villa Avenue widen from 4 to 6 lanes
- Herndon Avenue from Toll House Road to De Wolf Avenue widen from 2 to 4 lanes

With mitigation, all but one of the study segments are projected to operate at or above adopted level of service standards. Only Friant Road from Audubon Drive to Shepherd Avenue is projected to continue to operate at LOS F in the PM peak hour. To mitigate the Friant Road segment from Audubon Drive to Shepherd Avenue would require widening from its current 4 lane width to 8 lanes. At 8 lanes, this segment is projected to operate at a LOS B in both peak hours. This, however, exceeds the 6 lane facility currently planned by the City of Fresno and considered the maximum number of lanes feasible at this location. Table 2.2-6 compares segment levels of service in the 2012 Project and 2012 Project Mitigated scenarios.

<sup>5</sup> The mitigated lane configurations shown for the Friant Road segments between the SR 41 northbound off-ramp and Champlain Drive are the currently planned ultimate roadway widths. This information taken from personal correspondence from Bob Madewell, City of Fresno, July 19, 2000.

**TABLE 2.2- 6**  
**COMPARISON OF 2012 NO PROJECT AND 2012 PROJECT CONDITIONS**  
**SEGMENT WEEKDAY LEVELS OF SERVICE**

Road	Segment	LOS Standard	2012 NP		2012 P	
			Peak Hour		Peak Hour	
			LOS AM	LOS PM	LOS AM	LOS PM
Friant Rd	Nees Avenue to SR 41 SB off-ramp	D	B	B	B	B
	SR 41 SB off-ramp to SR 41 NB off-ramp	D	B	B	B	B
	SR 41 NB off-ramp to Fresno St	D	F	F	F	F
	Fresno St to Audubon Dr	D	F	F	F	F
	Audubon Dr to Shepherd Ave	D	F	F	F	F
	Shepherd Ave to Ft Washington Rd	D	B	C	F	F
	Ft Washington Rd to Champlain Dr	D	B	B	C	F
	Champlain Dr to Rice Rd / E Lakeview Dr	D	A	A	B	B
	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	D	A	A	A	A
	Millbrook Ave / Copper Ave to Country Club Dr	C	B	C	F	F
	Country Club Dr to Willow Ave / Birkhead	C	B	C	B	C
	Birkhead / Willow Ave to N Fork Rd / Millerton Rd	C	C	D	C	D
Auberry Rd	Copper Ave to Marina Dr	C	D	D	D	D
	Marina Dr to Millerton Rd	C	C	C	D	D
Millbrook Ave	Friant Rd to Copper Ave	C	B	B	C	C
Copper Ave	Millbrook Ave to Cedar Ave	C	B	B	F	F
	Cedar Ave to Maple Ave	C	B	B	C	C
	Maple Ave to Chestnut Ave	C	B	B	F	F
	Chestnut Ave to Willow Ave	C	B	B	B	B
	Willow Ave to Peach Ave	C	B	B	C	B
	Peach Ave to Auberry Rd	C	B	B	C	C
	Auberry Rd to Minnewawa Ave	C	B	B	B	B
Willow Ave	Shaw Ave to Bullard Ave	D	C	D	C	F
	Bullard Ave to Herndon Ave	D	C	C	C	C
	Herndon Ave to Alluvial Ave	C	F	F	F	F
	Alluvial Ave to Nees Ave	C	F	F	F	F
	Nees Ave to Teague Ave	C	F	F	F	F
	Teague Ave to Shepherd Ave	C	F	F	F	F
Willow Ave	Shepherd Ave to Perrin Ave	C	F	F	F	F
	Perrin Ave to Behymer Ave	C	F	F	F	F
	Behymer Ave to International Ave	C	C	D	F	F
	International Ave to Copper Ave	C	B	B	F	F

COMPARISON OF 2012 NO PROJECT AND 2012 PROJECT CONDITIONS SEGMENT WEEKDAY LEVELS OF SERVICE						
Road	Segment	LOS Standard	2012 NP		2012 P	
			Peak Hour		Peak Hour	
			LOS		LOS	
			AM	PM	AM	PM
	Copper Ave to S Project Rd	C	B	B	B	B
	S Project Rd to N Project Rd	C	B	B	B	B
	N Project Rd to Friant Rd	C	A	B	A	B
Chestnut Ave	Herndon Ave to Nees Ave	C	C	B	C	B
	Nees Ave to Shepherd Ave	C	F	C	F	C
Chestnut Ave / Maple Ave Diagonal	Shepherd Ave to Behymer Ave	D	B	B	B	B
Maple Ave	Behymer Ave to International Ave	C	B	B	B	B
	International Ave to Copper Ave	C	B	B	B	B
Shepherd Ave	Willow Ave to Minnewawa Ave	C	B	B	B	B
	Minnewawa Ave to Fowler Ave	C	B	B	B	B
	Fowler Ave to Temperance Ave	C	B	B	B	B
Herndon Ave	Willow Ave to Peach Ave	D	F	F	F	F
	Peach Ave to Villa Ave	D	F	F	F	F
	Villa Ave to Clovis Ave	D	C	C	C	C
	Clovis Ave to Fowler Ave	D	C	C	C	C
	Fowler Ave to Toll House Rd	D	B	B	B	B
	Toll House Rd to De Wolf Ave	C	D	D	D	D

Notes:

SR = State Route  
SB = southbound  
NB = northbound

**TABLE 2.2- 7**  
**COMPARISON OF 2012 PROJECT AND 2012 PROJECT MITIGATED CONDITIONS**  
**SEGMENT WEEKDAY LEVELS OF SERVICE**

Road	Segment	LOS Standard	2012 P		2012 P Mit	
			Peak Hour		Peak Hour	
			LOS AM	LOS PM	LOS AM	LOS PM
Friant Rd	Nees Avenue to SR 41 SB off-ramp	D	B	B	B	B
	SR 41 SB off-ramp to SR 41 NB off-ramp	D	B	B	B	B
	SR 41 NB off-ramp to Fresno St	D	F	F	C	D
	Fresno St to Audubon Dr	D	F	F	B	C
	Audubon Dr to Shepherd Ave	D	F	F	C	F
	Shepherd Ave to Ft Washington Rd	D	F	F	B	B
	Ft Washington Rd to Champlain Dr	D	C	F	B	B
	Champlain Dr to Rice Rd / E Lakeview Dr	D	B	B	B	B
	Rice Rd / E Lakeview Dr to Millbrook Ave / Copper Ave	D	A	A	A	A
	Millbrook Ave / Copper Ave to Country Club Dr	C	F	F	B	B
	Country Club Dr to Willow Ave / Birkhead	C	B	C	B	C
	Birkhead / Willow Ave to N Fork Rd / Millerton Rd	C	C	D	A	A
Auberry Rd	Copper Ave to Marina Dr	C	D	D	A	A
	Marina Dr to Millerton Rd	C	D	D	A	A
Millbrook Ave	Friant Rd to Copper Ave	C	C	C	C	C
Copper Ave	Millbrook Ave to Cedar Ave	C	F	F	B	B
	Cedar Ave to Maple Ave	C	C	C	C	C
	Maple Ave to Chestnut Ave	C	F	F	B	B
	Chestnut Ave to Willow Ave	C	B	B	B	B
	Willow Ave to Peach Ave	C	C	B	C	B
	Peach Ave to Auberry Rd	C	C	C	C	C
	Auberry Rd to Minnewawa Ave	C	B	B	B	B
Willow Ave	Shaw Ave to Bullard Ave	D	C	F	B	B
	Bullard Ave to Herndon Ave	D	C	C	C	C
	Herndon Ave to Alluvial Ave	C	F	F	B	B
	Alluvial Ave to Nees Ave	C	F	F	C	C
	Nees Ave to Teague Ave	C	F	F	B	B
	Teague Ave to Shepherd Ave	C	F	F	B	B
	Shepherd Ave to Perrin Ave	C	F	F	B	B
	Perrin Ave to Behymer Ave	C	F	F	B	B
	Behymer Ave to International Ave	C	F	F	B	B
	International Ave to Copper Ave	C	F	F	B	B
	Copper Ave to S Project Rd	C	B	B	B	B
	S Project Rd to N Project Rd	C	B	B	B	B
	N Project Rd to Friant Rd	C	A	B	A	B



COMPARISON OF 2012 PROJECT AND 2012 PROJECT MITIGATED CONDITIONS SEGMENT WEEKDAY LEVELS OF SERVICE						
			2012 P		2012 P Mit	
			Peak Hour		Peak Hour	
		LOS	LOS		LOS	
Road	Segment	Standard	AM	PM	AM	PM
Chestnut Ave	Herndon Ave to Nees Ave	C	C	B	C	B
	Nees Ave to Shepherd Ave	C	F	C	B	B
Chestnut Ave / Maple Ave Diagonal	Shepherd Ave to Behymer Ave	D	B	B	B	B
Maple Ave	Behymer Ave to International Ave	C	B	B	B	B
	International Ave to Copper Ave	C	B	B	B	B
Shepherd Ave	Willow Ave to Minnewawa Ave	C	B	B	B	B
	Minnewawa Ave to Fowler Ave	C	B	B	B	B
	Fowler Ave to Temperance Ave	C	B	B	B	B
Herndon Ave	Willow Ave to Peach Ave	D	F	F	B	B
	Peach Ave to Villa Ave	D	F	F	B	B
	Villa Ave to Clovis Ave	D	C	C	C	C
	Clovis Ave to Fowler Ave	D	C	C	C	C
	Fowler Ave to Toll House Rd	D	B	B	B	B
	Toll House Rd to De Wolf Ave	C	D	D	A	A

Notes:

SR = State Route  
SB = southbound  
NB = northbound

Fifteen of these mitigation projects are needed in the 2012 No Project scenario. They are:

- Friant Road from SR 41 northbound off-ramp to Fresno Street add 2 additional lanes for a total of 8-lanes
- Friant Road from Fresno Street to Audubon Drive add 2 additional lanes for a total of 8 lanes
- Friant Road from Audubon Drive to Shepherd Avenue add 2 additional lanes for a total of 6 lanes
- Friant Road from Birkhead/Willow Avenue to North Fork Road/Millerton Road add 2 additional lanes for a total of 4 lanes
- Auberry Road from Copper Avenue to Marina Drive add 2 additional lanes for a total of 4 lanes
- Willow Avenue from Herndon Avenue to Alluvial Avenue add 2 additional lanes for a total of 4 lanes
- Willow Avenue from Alluvial Avenue to Nees Avenue add 2 additional lanes for a total of 4 lanes
- Chestnut Avenue from Nees Avenue to Shepherd Avenue add 2 additional lanes for a total of 4-lanes
- Herndon Avenue from Willow Avenue to Peach Avenue add 2 additional lanes for a total of 6 lanes
- Herndon Avenue from Peach Avenue to Villa Avenue add 2 additional lanes for a total of 6 lanes
- Herndon Avenue from Toll House Road to De Wolf Avenue add 2 additional lanes for a total of 4 lanes
- Willow Avenue from Nees Avenue to Teague Avenue add 2 additional lanes in the No Project scenario and 2 additional lanes in the Project scenario for a total of 6 lanes
- Willow Avenue from Teague Avenue to Shepherd Avenue add 2 additional lanes in the No Project scenario and 2 additional lanes in the Project scenario for a total of 6 lanes
- Willow Avenue from Shepherd Avenue to Perrin Avenue add 2 additional lanes in the No Project scenario and 2 additional lanes in the Project scenario for a total of 6 lanes
- Willow Avenue from Perrin Avenue to Behymer Avenue add 2 additional lanes in the No Project scenario and 2 additional lanes in the Project scenario for a total of 6 lanes

Implementation of the project would not require further mitigation on these 15 segments. The majority of these 15 segment improvements needed in the 2012 No Project scenario, however, are not currently programmed.

**Recommended 2012 Fair Share Responsibilities.** Since these 12 proposed mitigation measures are needed in the 2012 No Project scenario, the project should only pay a fair share of improvement costs. The fair share responsibilities for these 12 segments were calculated based on the formula - Fair Share % = 2012 Project Only Volumes / (2012 Plus Project).

The resulting fair share responsibilities are:

- Friant Road from SR 41 northbound off-ramp to Fresno Street 19.0%
- Friant Road from Fresno Street to Audubon Drive 21.8%
- Friant Road from Audubon Drive to Shepherd Avenue 21.2%
- Friant Road from Birkhead/Willow Avenue to North Fork Road/Millerton Road 2.0%
- Auberry Road from Copper Avenue to Marina Drive 4.2%
- Willow Avenue from Herndon Avenue to Alluvial Avenue 3.3%
- Willow Avenue from Alluvial Avenue to Nees Avenue 4.3%
- Chestnut Avenue from Nees Avenue to Shepherd Avenue 38.0%
- Herndon Avenue from Willow Avenue to Peach Avenue 1.6%
- Herndon Avenue from Peach Avenue to Villa Avenue 1.5%
- Herndon Avenue from Toll House Road to De Wolf Avenue 1.8%
- Willow Avenue from Nees Avenue to Teague Avenue 4.3%
- Willow Avenue from Teague Avenue to Shepherd Avenue 9.5%
- Willow Avenue from Shepherd Avenue to Perrin Avenue 12.8%
- Willow Avenue from Perrin Avenue to Behymer Avenue 15.1%

These fair share responsibilities are preliminary estimates and will be refined in the future project-specific traffic study. For road segments under City of Fresno or City of Clovis jurisdiction, these fair shares are for information purposes only since these agencies collect road improvement fees through UGM or TIF programs. The remaining nine mitigation measures are needed in 2012 only if the project is implemented. These nine measures are:

- Friant Road from Shepherd Avenue to Ft. Washington Road add 2 additional lanes for a total of 6 lanes
- Friant Road from Ft. Washington Road to Champlain Drive add 2 additional lanes for a total of 6 lanes
- Friant Road from Millbrook Avenue/Copper Avenue to Country Club Drive add 2 additional lanes for a total of 4 lanes
- Auberry Road from Marina Drive to Millerton Road add 2 additional lanes for a total of 4 lanes
- Copper Avenue from Millbrook Avenue to Cedar Avenue add 2 additional lanes for a total of 4 lanes
- Copper Avenue from Maple Avenue to Chestnut Avenue add 2 additional lanes for a total of 4 lanes
- Willow Avenue from Shaw Avenue to Bullard Avenue add 2 additional lanes for a total of 6 lanes
- Willow Avenue from International Avenue to Copper Avenue add 2 additional lanes for a total of 4 lanes
- Willow Avenue from Behymer Avenue to International Avenue - add 2 additional lanes for a total of 4 lanes

The project's estimated fair share of these improvements is 100%.

**Alternative Transportation Mitigation Measures.** In addition to segment capacity improvements, the project should also encourage transit use. Alternative transportation mitigation measures include:

1. Establish a Transportation Demand Management Program that provides incentives for people both living and working in the project area to utilize commute peak hour alternatives such as walking, bicycling, carpool/vanpool, transit, and flex-scheduling.
2. With the assistance of the County, contract with Fresno Area Express (FAX) to provide transit stops internal to and bordering the project site; or create a project internal transit system that connects to the FAX system at some designated points along Friant Road, Maple Avenue, Chestnut Avenue, or Willow Avenue
3. Create park-and-ride lots within the project, possibly at retail/service/office use locations.

The 2012 traffic evaluation did not include reductions in peak hour trips created by alternative transportation measures; therefore, the resulting mitigated levels of service represent a worst case scenario.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts for most study segments to a less-than-significant level. For a limited number of study segments, however, levels of service would remain below accepted standards, resulting in significant, unavoidable impacts for those segments.

#### Impact

Approval of the project will cause some street segments to operate below acceptable standards in 2025. This is a *significant, unavoidable impact*.

As stipulated earlier in this section, the following thresholds of significance are used for traffic analysis:



- When the project is 100% responsible and mitigates to or above the LOS standard, a less-than-significant impact will result.
- When an impact requires a fair share from the project for mitigation, and which can be mitigated to an acceptable level, a significant impact results and will remain significant until mitigated.
- When the LOS in both the No Project and Project scenarios falls or remains below the LOS standard and if the segments in both scenarios cannot be mitigated to a less-than-significant impact, a significant, unavoidable impact will result.

#### 2025 Project Conditions

It was deemed appropriate to evaluate the Project using the forecasted 2025 Project scenario volumes in conjunction with the unadjusted 1998 Florida Tables since this most closely matches the methodology utilized in the City of Fresno General Plan update. The resulting 2025 Project volume/1998 Florida Table level of service results were then compared to the 2020 Project volume/1992 Florida Table level of service results provided in the August 2000 report. The 2025 Project volume/1998 Florida Table level of service results shown in this report reflect the proposed mitigations as defined in the August 2000 document for the 2020 Project scenario. Changes in the forecasted level of service were noted in this addendum and the previously proposed mitigation measures were re-examined to determine appropriate modifications.

The proposed roadway widening mitigation recommendations shown in this document are based on the 2025 Project volumes in comparison to the unadjusted 1998 Florida Tables and are the minimum recommended roadway widening mitigations. Final roadway widening mitigations will be determined in the future Project-specific analysis.

Fair share estimates for recommended roadway widening improvements shown in the Addendum were calculated as follows:

- For segments that are projected to operate below the appropriate level of service standard prior to completion of the Project, or were under the jurisdictional control of either the City of Fresno or City of Clovis, the Project will contribute a fair share estimate of the mitigation. The Project's fair share estimate will be calculated based on the following formula:

Fair Share Estimate = Project (Only) Trips / 2025 Project (Total) Trips

- For segments that were either partially or totally under the jurisdiction of the County of Fresno, and are projected to operate at or above the appropriate level of service standard prior to Project implementation and below the appropriate level of service standard after Project implementation, as defined in the August 2000 study, then the Project's fair share estimate is 100% of the recommended mitigation.

The fair share percentages shown for the City of Fresno or City of Clovis are informational only since these two agencies collect road improvement fees through either the City of Fresno Urban Growth Management (UGM) fees or the City of Clovis Traffic Impact Fee (TIF) program. If any of these roadway segments are provided for in either of the two fee systems, or if any more intensive land use projects than are included in the COFCG Model develop prior to Copper River Ranch, the Copper River Ranch fair share estimates for these proposed improvements may be reduced.



### Comparison of 2020 Project to 2025 Project Levels of Service

Table 2.2-8 provides a comparison of the 2020 Project to the 2025 Project scenario. Segments projected to operate below the appropriate level of service standard are shown bolded. The following information is provided:

- Study roadway
- Segment boundaries
- Jurisdictional level of service standard
- 2020 Project AM and PM peak hour levels of service
- 2025 Project AM and PM peak hour levels of service
- Change indicator

If two jurisdictions control a roadway segment, the level of service shown in the LOS standard column reflects the highest adopted level of service of the two jurisdictional agencies. The change indicator column shows whether the forecasted level of service improved (+++) or worsened (---) when comparing the 2020 levels of service to the 2025 levels of service. If the level of service was forecasted to remain the same, then no indicator was provided.

Table 2.2-8 COMPARISON OF 2020 PROJECT TO 2025 PROJECT WEEKDAY PEAK HOUR LEVELS OF SERVICE									
Road	Segment	LOS Standard	2020 Project		2025 Project		Change		
			AM	PM	AM	PM	AM	PM	
Friant Rd	Nees Avenue to SR 41 SB off-ramp	D	D	C	C	C	+++		
	SR 41 SB off-ramp to SR 41 NB off-ramp	D	C	C	F	F	---	---	
	SR 41 NB off-ramp to Fresno St	D	F	F	F	F			
	Fresno St to Audubon Dr	D	F	F	F	F			
	Audubon Dr to Shepherd Ave	D	F	F	F	F			
	Shepherd Ave to Ft Washington Rd	D	F	F	F	F			
	Ft Washington Rd to Champlain Dr	D	F	F	C	C	+++	+++	
	Champlain Dr to Rice Rd/E Lakeview Dr	D	B	C	B	B			
	Rice Rd/E Lakeview Dr to Millbrook Ave/Copper Ave	D	A	B	A	A			+++
	Millbrook Ave/Copper Ave to Millerton Rd	D	C	F	E	F	---	---	
	Country Club Dr	D	B	C	B	C			
	Country Club Dr to Willow Ave/Birkhead	D	D	E	D	E			
Auberry Rd	Birkhead/Willow Ave to Little Dry Creek	C	D	E	D	E			
	Little Dry Creek to N Fork Rd/Millerton Rd	C							
	Copper Ave to Marina Dr	C	D	E	C	C	+++	+++	
	Marina Dr to Millerton Rd	C	E	E	B	B	+++	+++	
Millbrook Ave	Friant Rd to Copper Ave	D	F	F	B	C	+++	+++	
	Millbrook Ave to Cedar Ave	D	F	F	C	C	+++	+++	
Copper Ave	Cedar Ave to Maple Ave	D	F	F	B	B	+++	+++	
	Maple Ave to Chestnut Ave	D	F	F	C	C	+++	+++	
	Chestnut Ave to Willow Ave	D	D	C	C	B	+++	+++	
	Willow Ave to Peach Ave	C	F	F	C	C	+++	+++	
	Peach Ave to Auberry Rd	C	F	F	F	F			

	Auberry Rd to Minnewawa Ave	C	F	F	B	B	+++	+++
Willow Ave	Shaw Ave to Bullard Ave	D	F	F	C	C	+++	+++
	Bullard Ave to Herndon Ave	D	F	F	C	C	+++	+++
	Herndon Ave to Alluvial Ave	D	F	F	F	F		
	Alluvial Ave to Nees Ave	D	F	F	F	F		
	Nees Ave to Teague Ave	D	F	F	F	F		
	Teague Ave to Shepherd Ave	D	F	F	F	F		
	Shepherd Ave to Perrin Ave	C	F	F	F	F		
	Perrin Ave to Behymmer Ave	C	F	F	F	F		
	Behymmer Ave to International Ave	C	F	F	F	F		
	International Ave to Copper Ave	C	C	C	F	F	---	---
Chestnut Ave	Copper Ave to S Project Rd	C	C	C	F	D	---	---
	S Project Rd to N Project Rd	C	B	C	C	D	---	---
	N Project Rd to Friant Rd	C	C	C	C	C		
	Herndon Ave to Nees Ave	D	F	F	C	C	+++	+++
	Nees Ave to Shepherd Ave	D	F	F	F	D		+++
	Shepherd Ave to Behymmer Ave	D	B	B	B	B		
	Behymmer Ave to International Ave	D	C	C	C	B	+++	+++
	International Ave to Copper Ave	D	B	B	C	B		+++
	Willow Ave to Minnewawa Ave	C	D	F	B	B	+++	+++
	Minnewawa Ave to Fowler Ave	C	F	F	F	F		
Shepherd Ave	Fowler Ave to Temperance Ave	C	B	B	F	C	---	---
	Willow Ave to Peach Ave	D	F	F	F	F		
	Peach Ave to Villa Ave	D	F	F	F	F		
	Villa Ave to Clovis Ave	D	F	F	F	F		
	Clovis Ave to Fowler Ave	D	F	F	F	F		
	Fowler Ave to Toll House Rd	D	B	B	B	B		
	Tollhouse Rd to De Wolf Ave	C	D	D	E	E	---	---
Herndon Ave	Willow Ave to Peach Ave	D	F	F	F	F		
	Peach Ave to Villa Ave	D	F	F	F	F		
	Villa Ave to Clovis Ave	D	F	F	F	F		
	Clovis Ave to Fowler Ave	D	F	F	F	F		
	Fowler Ave to Toll House Rd	D	B	B	B	B		
	Tollhouse Rd to De Wolf Ave	C	D	D	E	E	---	---

Notes:

- 2020 Project data was analyzed using the San Joaquin Valley adjusted 1992 Florida Tables
- 2025 Project data was analyzed using the unadjusted 1998 Florida Tables

As shown in Table 2.2-8, the following locations showed an improvement in projected level of service when comparing the 2020 Project to the 2025 Project:

- Friant Road
  - o Nees Avenue to SR 41 SB off-ramp B AM
  - o Ft. Washington Road to Champlain Drive B AM/PM
  - o Champlain Drive to Rice Road/E. Lakeview Drive B PM
  - o Rice Road/E. Lakeview Drive to Millbrook Avenue/Copper Avenue B PM
- Auberry Road
  - o Copper Avenue to Marina Drive B AM/PM
  - o Marina Drive to Millerton Road B AM/PM
- Millbrook Avenue
  - o Friant Road to Copper Avenue B AM/PM
- Copper Avenue
  - o Millbrook Avenue to Cedar Avenue B AM/PM
  - o Cedar Avenue to Maple Avenue B AM/PM
  - o Maple Avenue to Chestnut Avenue B AM/PM
  - o Chestnut Avenue to Willow Avenue B AM/PM
  - o Willow Avenue to Peach Avenue B AM/PM
  - o Auberry Road to Minnewawa Avenue B AM/PM
- Willow Avenue
  - o Shaw Avenue to Bullard Avenue B AM/PM
  - o Bullard Avenue to Herndon Avenue B AM/PM
- Chestnut Avenue
  - o Herndon Avenue to Nees Avenue B AM
  - o Nees Avenue to Shepherd Avenue BPM
- Maple Avenue
  - o Behymer Avenue to International Avenue B AM/PM
  - o International Avenue to Copper Avenue B PM
- Shepherd Avenue
  - o Willow Avenue to Minnewawa Avenue B AM/PM

Of those segments showing an improvement, the majority are changing from an unacceptable level of service to an acceptable level of service. Only six segments are projected to change from an acceptable operating condition to another acceptable operating condition. These six segments by time period are:

- Friant Road
  - o Nees Avenue to SR 41 SB off-ramp B AM
  - o Champlain Drive to Rice Road/E. Lakeview Drive B PM
  - o Rice Road/E. Lakeview Drive to Millbrook Avenue/Copper Avenue B PM
- Copper Avenue
  - o Chestnut Avenue to Willow Avenue B AM/PM



- Maple Avenue
  - o Behymer Avenue to International Avenue B AM/PM
  - o International Avenue to Copper Avenue B PM

Road segments that showed no change in projected level of service when comparing the 2020 Project to the 2025 Project scenario were:

- Friant Road
  - o Nees Avenue to SR 41 SB off-ramp B PM
  - o SR 41 NB off-ramp to Fresno Street B AM/PM
  - o Fresno Street to Audubon Drive B AM/PM
  - o Audubon Drive to Shepherd Avenue B AM/PM
  - o Shepherd Avenue to Ft. Washington Road B AM/PM
  - o Champlain Drive to Rice Road/E. Lakeview Drive B AM
  - o Rice Road/E. Lakeview Drive to Millbrook Avenue/Copper Avenue B AM
  - o Millbrook Avenue/Copper Avenue to Country Club Drive B PM
  - o Country Club Drive to Willow Avenue/Birkhead B AM/PM
  - o Willow Avenue/Birkhead to Little Dry Creek B AM/PM
  - o Little Dry Creek to N. Fork Road/Millerton Road B AM/PM
- Copper Avenue
  - o Peach Avenue to Auberry Road B AM/PM
- Willow Avenue
  - o Herndon Avenue to Alluvial Avenue B AM/PM
  - o Alluvial Avenue to Nees Avenue B AM/PM
  - o Nees Avenue to Teague Avenue B AM/PM
  - o Teague Avenue to Shepherd Avenue B AM/PM
  - o Shepherd Avenue to Perrin Avenue B AM/PM
  - o Perrin Avenue to Behymer Avenue B AM/PM
  - o Behymer Avenue to International Avenue B AM/PM
  - o Copper Avenue to South Project Road B PM
  - o North Project Road to Friant Road B AM/PM
- Chestnut Avenue
  - o Herndon Avenue to Nees Avenue B PM
  - o Nees Avenue to Shepherd Avenue B AM
- Chestnut Avenue/Maple Avenue Diagonal
  - o Shepherd Avenue to Behymer Avenue B AM/PM
- Maple Avenue
  - o International Avenue to Copper Avenue B AM
- Shepherd Avenue
  - o Minnewawa Avenue to Fowler Avenue B AM/PM
- Herndon Avenue
  - o Willow Avenue to Peach Avenue B AM/PM
  - o Peach Avenue to Villa Avenue B AM/PM
  - o Villa Avenue to Clovis Avenue B AM/PM

- o Clovis Avenue to Fowler Avenue B AM/PM
- o Fowler Avenue to Toll House Road B AM/PM

Road segments that showed a decrease in projected level of service when comparing the 2020 Project to the 2025 Project scenario were:

- Friant Road
  - o SR 41 SB off-ramp to SR 41 NB off-ramp B AM/PM
  - o Millbrook Avenue/Copper Avenue to Country Club Drive B AM
- Willow Avenue
  - o International Avenue to Copper Avenue B AM/PM
  - o Copper Avenue to South Project Road B AM
  - o South Project Road to North Project Road B AM/PM
- Shepherd Avenue
  - o Fowler Avenue to Temperance Avenue B AM/PM
- Herndon Avenue
  - o Toll House Road to De Wolf Avenue B AM/PM

Of those road segments projected to show a decrease in level of service, the majority are changing from an acceptable level of service to either a LOS E or F. Only one segment, Shepherd from Fowler to Temperance is projected to change from an acceptable operating condition of LOS B to an acceptable operating condition of LOS C in the PM peak hour. Two County segments are projected to decrease from an acceptable LOS of either B or C to an unacceptable LOS of D. These two segments are projected to occur on Willow Avenue from Copper Avenue to the South Project Road and from the South Project Road to the North Project Road.

#### Mitigation (for both 2012 and 2025)

The developer shall ensure through the master use permit or development plan, that the following measures are incorporated in the design of future plans:

1. If the project is found to trigger a capacity improvement, which otherwise would not be required under the no-project scenario, the project will be required to fully fund (100%) the improvement. Subsequent project-specific studies will determine the need and feasibility of the improvement.
2. Since the project is defined in very general terms at the Program EIR level, developer responsibility for proposed mitigation measures is shown as fair share percentage estimates rather than project-specific fair share responsibilities. The fair share percentage estimates provide a general overview of how much the project may need to contribute to mitigate potential impacts on the future roadway system. Once the project is defined through the development plan and specific plan/development plan, a project-specific traffic analysis will determine both project-specific impacts and associated developer responsibility for mitigation. In these future project-specific traffic studies, actual project fair shares will be determined. However, unless other projects in the study area are proposed for development with a more intensive land use, those segments that are shown at 100% developer responsibility are likely to remain at 100% developer responsibility in all future project-specific traffic studies. The fair share percentage estimates do not take into account either the City of Fresno UGM fees or the City of Clovis TIF program.

The following section summarizes the currently recommended 2025 Project road widening mitigation

measures with appropriate fair share estimates. Final mitigation measures, fair share estimates and timing of implementation will be determined when the future Project-specific analysis is completed.

Roadway widening mitigations required with Project build out in 2025 are:

- Friant Road from SR 41 southbound off-ramp to SR 41 northbound off-ramp B widen from 5 lanes to 8 lanes
- Friant Road from SR 41 northbound off-ramp to Fresno Street B widen from 6 to 8 lanes<sup>6</sup>
- Friant Road from Fresno Street to Audubon Drive B widen from 6 to 8 lanes
- Friant Road from Audubon Drive to Shepherd Avenue B widen from 4 to 6 lanes
- Friant Road from Shepherd Avenue to Ft. Washington Road B widen from 4 to 6 lanes
- Copper Avenue from Peach Avenue to Auberry Road B widen from 2 to 4 lanes
- Willow Avenue from Herndon Avenue to Alluvial Avenue B widen from 2 to 4 lanes
- Willow Avenue from Alluvial Avenue to Nees Avenue B widen from 2 to 4 lanes
- Willow Avenue from Nees Avenue to Teague Avenue B widen from 2 to 6 lanes
- Willow Avenue from Teague Avenue to Shepherd Avenue B widen from 2 to 8 lanes
- Willow Avenue from Shepherd Avenue to Perrin Avenue B widen from 2 to 6 lanes
- Willow Avenue from Perrin Avenue to Behymer Avenue B widen from 2 to 4 lanes
- Willow Avenue from Behymer Avenue to International Avenue B widen from 2 to 4 lanes
- Willow Avenue from International Avenue to Copper Avenue B widen from 2 to 4 lanes
- Willow Avenue from Copper Avenue to South Project Road B widen from 2 to 4 lanes
- Willow Avenue from South Project Road to North Project Road B widen from 2 to 4 lanes
- Chestnut Avenue from Nees Avenue to Shepherd Avenue B widen from 2 to 4 lanes
- Shepherd Avenue from Minnewawa Avenue to Fowler Avenue B widen from 2 to 4 lanes
- Shepherd Avenue from Fowler Avenue to Temperance Avenue B widen from 2 to 4 lanes
- Herndon Avenue from Willow Avenue to Peach Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Peach Avenue to Villa Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Villa Avenue to Clovis Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Clovis Avenue to Fowler Avenue B widen from 4 to 6 lanes
- Herndon Avenue from Toll House Road to De Wolf Avenue B widen from 2 to 4 lanes

After Project completion and proposed roadway widening mitigation implementation, the following segments by time period are projected to continue to operate below the appropriate adopted level of service standard in 2025:

- Friant Road from SR 41 northbound off-ramp to Fresno Street B LOS F in both peak hours
- Friant Road from Fresno Street to Audubon Drive B LOS F in both peak hours
- Friant Road from Audubon Drive to Shepherd Avenue B LOS F in both peak hours

All remaining segments are projected to operate at or above the appropriate level of service standard with the proposed roadway widening mitigations in the 2025 Project scenario. To mitigate the three Friant Road segments, the following two-directional widths would be required:

- SR 41 northbound off-ramp to Fresno Street B > 12 lanes
- Fresno Street to Audubon Drive B 12 lanes
- Audubon Drive to Shepherd Avenue B 10 lanes

These widths exceed the 6 and 8 lane facilities currently planned for by the City of Fresno.

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<sup>6</sup> The mitigated lane configurations shown for the Friant Road segments between the SR 41 northbound off-ramp and Champlain Drive are the currently planned ultimate roadway widths. This information taken from personal correspondence from Bob Madewell, City of Fresno, July 19, 2000

**Alternative Transportation Mitigation Measures.** As discussed in the 2012 Project Mitigated section, the project should also encourage transit usage. Potential alternative transportation mitigation measures include:

1. Establish a Transportation Demand Management Program that provides incentives for people both living and working in the project area to take some form of commute alternative such as walking, bicycling, carpool/vanpool, transit, and flex-scheduling.
2. With the assistance of the County, contract with FAX to provide transit stops internal to and bordering the project site; or create a project internal transit system that connects to the FAX system at designated points along Friant Road, Maple Avenue, or Willow Avenue.
3. Create park-and-ride lots within the project, possibly at retail/service/office uses locations.

The 2025 traffic evaluation did not include potential reductions in peak hour trips created by recommended transit mitigation measures; therefore, the resulting mitigated levels of service represent a worst case scenario.

#### **Level of Significance After Mitigation**

Implementation of the mitigation measures would reduce impacts for most study segments to a less-than-significant level. For a limited number of study segments, however, levels of service would remain below accepted standards, resulting in significant, unavoidable impacts for those segments.



Table 2.2-9 summarizes the proposed roadway widening improvements and preliminary fair share estimates.

Table 2.2-9

PROPOSED 2025 PROJECT ROADWAY WIDENING MITIGATION MEASURES AND FAIR SHARE ESTIMATES			
Road	Segment	Mitigation Measure	Fair Share Estimates (%)
Friant Rd	SR 41 SB off-ramp to SR 41 NB off-ramp	Add 3 additional lanes – for a total of 8 lanes	9.3
	SR 41 NB off-ramp to Fresno St	Add 2 additional lanes – for a total of 3 lanes	16.0
	Fresno St to Audubon Dr	Add 2 additional lanes – for a total of 3 lanes	20.1
	Audubon Dr to Shepherd Ave	Add 2 additional lanes – for a total of 6 lanes	20.9
	Shepherd Ave to Ft. Washington Rd	Add 2 additional lanes – for a total of 6 lanes	34.4
Copper Ave	Peach Ave to Auberry Rd	Add 2 additional lanes – for a total of 4 lanes	27.2
Willow Ave	Herndon Ave to Alluvial Ave	Add 2 additional lanes – for a total of 4 lanes	3.3
	Alluvial Ave to Nees Ave	Add 2 additional lanes – for a total of 4 lanes	3.9
	Nees Ave to Teague Ave	Add 4 additional lanes – for a total of 6 lanes	3.4
	Teague Ave to Shepherd Ave	Add 6 additional lanes – for a total of 3 lanes	4.3
	Shepherd Ave to Perrin Ave	Add 4 additional lanes – for a total of 6 lanes	7.5
	Perrin Ave to Behvmer Ave	Add 2 additional lanes – for a total of 4 lanes	16.5
	Behvmer Ave to International Ave	Add 2 additional lanes – for a total of 4 lanes	13.4
	International Ave to Copper Ave	Add 2 additional lanes – for a total of 4 lanes	100.0
	Copper Ave to South Project Rd	Add 2 additional lanes – for a total of 4 lanes	100.0
	South Project Rd to North Project Rd	Add 2 additional lanes – for a total of 4 lanes	100.0
Chestnut Ave	Nees Ave to Shepherd Ave	Add 2 additional lanes – for a total of 4 lanes	52.5
Shepherd Ave	Minnewawa Ave to Fowler Ave	Add 2 additional lanes – for a total of 4 lanes	9.3
	Fowler Ave to Temperance Ave	Add 2 additional lanes – for a total of 4 lanes	2.3
Herndon Ave	Willow Ave to Peach Ave	Add 2 additional lanes – for a total of 6 lanes	1.4
	Peach Ave to Villa Ave	Add 2 additional lanes – for a total of 6 lanes	1.5
	Villa Ave to Clovis Ave	Add 2 additional lanes – for a total of 6 lanes	1.4
	Clovis Ave to Fowler Ave	Add 2 additional lanes – for a total of 6 lanes	1.3
	Toll House Rd to De Wolf Ave	Add 2 additional lanes – for a total of 4 lanes	1.7

## 2.3 AIR QUALITY

### Introduction

This section was prepared by TPG Consulting, Inc., of Visalia, California. The complete report and an air quality addendum is contained in the Technical Appendices on file with the City of Fresno Planning and Development Department.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

This study focuses on a generalized assessment of air quality impacts due to construction and operation of the project. Since it is a program-level assessment, project components are conceptual only. Likewise, operational-related mitigation measures cannot be definitively identified. As specific components of the project are defined, more detailed air quality analyses will need to be performed.

### Setting

Fresno County is located in the San Joaquin Valley Air Basin (SJVAB), which is the second largest air basin in California. Air basins are geographic areas sharing a common air shed. The air basin is surrounded by the Sierra Nevada Mountains on the east, the Coastal Range on the west, the Tehachapi Mountains on the south, and open to the Sacramento Valley Air Basin to the north. The San Joaquin Valley Air Pollution Control District (SJVAPCD) monitors and regulates air quality in the San Joaquin Valley.

### Climate and Topography

Fresno County is characterized by an inland Mediterranean type climate with moist, cool winters, and dry, warm summers. Approximately 94 percent of the precipitation occurs between October and April. In the study area, the yearly average temperature is approximately 62 degrees. The summer maximum average is approximately 97 degrees with a summer minimum of approximately 58 degrees. The winter maximum average is approximately 57 degrees with a winter minimum of approximately 37 degrees. Rainfall averages approximately 10.77 inches per year.

Wind patterns are created by marine air flowing in from the San Joaquin River Delta to the north of the Valley. These winds are generally prevented from leaving the Valley by the mountain ranges on the east, west, and south. The mountain ranges, 4,500 to 14,492 feet in elevation, are also generally higher than the normal height of summer inversion layers, which occur between 1,500 to 3,000 feet. These topographic features result in weak air flow that becomes restricted vertically by high barometric pressure over the Valley. This weak air flow makes the Valley highly susceptible to pollutant accumulation over time.

Wind speed and direction change throughout the day. During the day, northerly winds prevail, while in the late evening through early morning, wind flow reverses direction. This is due to cooler drainage wind from the surrounding mountains. This adds to the complexity of regional wind flow and pollutant transport within the Valley.

During winter, wind occasionally originates from the south end of the Valley and flows in a northerly direction. Generally, winds occurring during the winter months are light and variable with speeds of less than 10 mph. Low wind speeds, combined with low inversion layers, create a climate conducive to high pollutant concentrations during the winter months. Fresno also experiences foggy conditions during the winter. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog, is more likely to occur inland. These fogs are more severe and persist longer in the lower elevations of the Valley.

### Air Quality Standards

**Federal Regulations.** The Clean Air Act of 1970 was the first major piece of federal air quality regulation. Amended in 1977 and 1990, the Clean Air Act required the U.S. Environmental Protection Agency (EPA) to establish primary and secondary national ambient air quality standards (NAAQS) for several pollutants. The primary standards are by law set at a level that protects public health and welfare, with an adequate margin of safety. Secondary standards are set to protect the public welfare from non-health-related adverse effects such as visibility reduction. Primary NAAQS are set for the following air pollutants:

- Carbon monoxide (CO)
- Ozone (O<sub>3</sub>)
- Respirable particulate matter 10 microns or less (PM-10)
- Fine particulate matter 2.5 microns or less (PM-2.5)
- Nitrogen dioxide (NO<sub>2</sub>)
- Sulfur dioxide (SO<sub>2</sub>)
- Lead

Areas exceeding the federal standards for any one of these pollutants more than two times per year are designated nonattainment areas under the Federal Clean Air Act, and as such, are subject to more stringent planning and pollution control requirements. Table 2.3-1 lists both the NAAQS and the California Ambient Air Quality Standards (CAAQS). For environmental purposes, the applicable standard is the more stringent of either the federal or state standards.

Under the 1990 amendment to the Clean Air Act, nonattainment areas are divided into five categories depending on future dates identified for meeting the standards. Marginal or moderate violators only slightly exceed the NAAQS, whereas serious, severe, or extreme violators exceed the standards by a much higher margin. Marginal areas are required to do little beyond what they are already doing to attain clean air, but areas designated moderate through extreme must adopt gradually tighter regulations. Table 2.3-2 lists both the federal and state designations and classifications for the San Joaquin Valley Air Basin.

TABLE 2.3-1:

NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS					
		CAAQS <sup>(a),(b)</sup>		NAAQS <sup>(a),(c)</sup>	
Air Pollutant	Averaging Time	Units	Standards	Primary Standards	Secondary Standards
Ozone	8 hour <sup>c</sup>	ppm	□	0.08	(j)
	1-hour <sup>d</sup>	ppm	0.09	0.12	(j)
Carbon Monoxide	8 hour	ppm	9.0	9	(j)
	1 hour	ppm	20	35	(j)
Nitrogen Dioxide	Annual Average	ppm	□	0.053	(j)
	1 hour	ppm	0.25	□	□
Sulfur Dioxide	Annual Average	ppm	□	0.03	□
		ppm	0.04	0.14	□
	24 hours	ppm	0.25	□	□
	1 hour				
PM-2.5 (Fine)	Annual Average <sup>e</sup>	□g/m <sup>3</sup>	□	15	(j)
	24 hours <sup>f</sup>	□g/m <sup>3</sup>	□	65	(j)
PM-10	Annual <sup>g</sup>	□g/m <sup>3</sup>	30	50	(j)
	24 hours <sup>h</sup>	□g/m <sup>3</sup>	50	150	(j)
Lead	30 Day Average	□g/m <sup>3</sup>	1.5	□	□
	Calendar Quarter	□g/m <sup>3</sup>	□	1.5	(j)
Sulfates	24 hour	□g/m <sup>3</sup>	25	□	□
Visibility Reducing Particulates	8 hour	□	(I)	□	□
Vinyl Chloride (chloroethane)	24 hour	ppm	0.010	□	□
Hydrogen Sulfide (H <sub>2</sub> S)	1 hour	ppm	0.03	□	□

Sources: California Air Resources Board, Facts About Air Quality and 62 FR 38421 (Presidential Executive Order, dated July 16, 1997)



Table 2.3-2:  
San Joaquin Valley Air Basin Designations And Classifications

CRITERIA POLLUTANT	DESIGNATION/CLASSIFICATION	
	FEDERAL	STATE
Ozone (O <sub>3</sub> ) □ one hour	Nonattainment/Serious	Nonattainment/Severe
Ozone (O <sub>3</sub> ) □ eight hour	Designation to be determined	No State Standard
Carbon Monoxide (CO)		
Fresno Urbanized Area	Attainment <sup>1</sup>	Nonattainment <sup>2</sup> /Moderate
Remainder of Fresno County	Unclassified/Attainment	Attainment
Merced, Madera, and Kings Counties	Unclassified/Attainment <sup>1</sup>	Unclassified
Kern (SJVAB portion), Tulare, Stanislaus and San Joaquin	Unclassified/Attainment <sup>1</sup>	Attainment
Particulate Matter (PM-10)	Nonattainment/Serious	Nonattainment
Particulate Matter (PM-2.5)	Designation to be determined	No State Standard
Nitrogen Dioxide (NO <sub>2</sub> )	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO <sub>2</sub> )		
Kern County	Attainment	Attainment
all other Counties	Unclassified	Attainment
Sulfates(SO <sub>4</sub> )	No Federal Standard	Attainment
Lead-Particulate	No Designation	Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	No Federal Standard	Unclassified
Visibility Reducing Particles	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment

Source: Guide for Assessing and Mitigating Air Quality Impacts □ Technical Document, San Joaquin Valley Unified Air Pollution Control District, June 1, 1999.

<sup>1</sup> 40 CFR Parts 52 and 81 Fresno Urbanized Area, Bakersfield Metropolitan Area, Stockton Urbanized Area, and Modesto Urbanized Area redesignated attainment on March 31, 1998, effective June 1, 1998.

<sup>2</sup> Area has reached attainment status. The request for redesignation was approved by the ARB Board on September 24, 1998; awaiting Office of Administrative Law action for final redesignation.

The Federal Clean Air Act requires development of an air quality control plan referred to as the State Implementation Plan (SIP). The SIP contains the strategies and control measures California will use to attain the NAAQS. States with areas in violation of the NAAQS are required to routinely update their SIPs to incorporate additional control measures to reduce air pollution. As such, the SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the various Air Basins. The Federal EPA reviews SIPs to determine if they conform with FCAA mandates and will achieve air quality goals when implemented. If the EPA determines a SIP is inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures.

**State Regulations.** In 1988, the California Clean Air Act (CCAA -- AB 2595) was passed. The CAAQS contained in the CCAA are more stringent than are the NAAQS. The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA. The CCAA classifies nonattainment areas as moderate, serious, severe, or extreme depending on the severity of the state ambient air quality standard violation.

#### San Joaquin Valley Air Pollution Control District

The SJVAPCD was organized in 1991 by a Joint Powers Agreement of eight Valley counties and has jurisdiction over air quality matters in the SJVAB. It is the local lead agency for formulating Federal and State Air Quality plans, promulgating rules that affect a variety of air pollution sources, and reviewing local governments land use plans and development proposals in order to estimate projected air quality impacts. The SJVAPCD can also make recommendations on methods to reduce the projected air quality impacts. Its headquarters are located in Fresno with regional offices located in Bakersfield and Modesto.

As shown in Table 2.3-2, the Valley is classified federally as a serious nonattainment area for both ozone and PM-10, and either an attainment or an unclassified/attainment area for carbon monoxide (CO). The state classifies the Valley as severe nonattainment for ozone, nonattainment for PM-10, and either nonattainment, attainment or unclassified for CO. The SJVAPCD has adopted four federal air quality plans in response to the nonattainment designations. The current applicable plans and their purpose are shown in Table 2.3-3.

TABLE 2.3-3:  
SJVAPCD AIR QUALITY PLANS

1991 Air Quality Attainment Plan for the San Joaquin Valley (AQAP)	Establishes the regulatory groundwork in order to bring the SJVAB into compliance with the CAAQS for ozone and CO.
1992 Federal Attainment Plan for Carbon Monoxide	Establishes the regulatory groundwork in order to bring the SJVAB into compliance with the NAAQS for CO.
The Ozone Attainment Demonstration Plan	Establishes the regulatory groundwork in order to bring the SJVAB into compliance with the NAAQS for ozone. This plan also satisfies the required triennial review for the CAAQS.
PM-10 Attainment Demonstration Plan	Establishes the regulatory groundwork in order to bring the SJVAB into compliance with the NAAQS for PM-10.

*Source: Guide for Assessing Air Quality Impacts Technical Document, San Joaquin Valley Unified Air Pollution Control District, June 1, 1999.*

Because of its serious designation under the FCAAA, the Valley was required to attain the one-hour ozone standard by 1999. The Valley failed to attain the standard on schedule and is now in the process of being redesignated to the next higher level -- severe nonattainment. The proposal to redesignate the Valley to severe was published in the Federal Register on June 19, 2000. The SJVAPCD will have 18 months to prepare a new attainment plan that demonstrates attainment by 2006.

The Valley's new ozone plan will require substantial reductions to bring ambient levels down to within standards. Failure to submit an adequate plan to EPA or to implement control measures within the plan can result in sanctions applied to stationary emission sources (two to one offsets) and loss of federal highway funding. Development projects that increase emissions in the region will make it even more difficult to achieve the new deadline. The Valley must attain the new federal PM<sub>10</sub> standard by 2006.

#### Air Quality Monitoring Data

The California Air Resources Board and local Air Districts operate regional air quality monitoring networks that provide information on average concentrations of pollutants for which state or federal agencies have established ambient air quality standards. Air quality in the project area is best represented by air monitoring data collected by SJVUAPCD at the Clovis and Sierra Sky Park monitoring stations. Table 2.3-4 lists the pollutants that have exceeded either the NAAQS or the CAAQS in 1999 through 2001 at the two monitoring stations, and the number of days that the standards were exceeded.

TABLE 2.3-4:  
AIR QUALITY MONITORING DATA FOR OZONE, PM-10, AND CARBON MONOXIDE (CO)

MONITORING STATION	YEAR	OZONE (1-hour)				DAYS EXCEEDED STANDARD		CO	
		NAAQS	CAAQS	NAAQS	CAAQS	PM-10 <sup>1</sup>	NAAQS	CAAQS	CAAQS
Clovis Villa Avenue	2001	10	69	6	95	0	0	0	0
	2000	8	49	0	60	0	0	0	0
	1999	5	56	0	114	0	0	0	0
Fresno Sierra Sky Park	2001	10	84	---	---	0	0	0	0
	2000	8	69	---	---	0	0	0	0
	1999	1	36	---	---	0	0	0	0

Source: <http://www.arb.ca.gov/adam/cgi-bin/db2www.exe/adamquery.mac/Branch>.

Notes:

<sup>1</sup> PM-10 is monitored once every six days rather than continuously. The data shown indicates the number of calculated days exceeding the standard. Calculated days are the estimated number of days that a measurement would have been greater than the standard had measurements been collected every day.

--- Pollutant not monitored at this station

Ozone is exceeding the 1-hour national and state standards at both the Clovis and Fresno monitoring stations. National 1-hour ozone exceedances at both stations appear to be increasing from 1999 to 2001. State 1-hour ozone exceedances at the Clovis monitoring station appear to be increasing in 2001 after a decrease in 2000, while the state 1-hour ozone exceedances at the Fresno monitoring station appears to be steadily increasing. At the Clovis monitoring station, the national 1-hour ozone standard was exceeded five (5) times in 1999, eight (8) times in 2000, and 10 times in 2001. The state 1-hour ozone standard was exceeded 56 times in 1999, 49 times in 2000, and 69 times in 2001.

State ozone exceedances at the Fresno monitoring station appear to be steadily increasing from 1999 to 2001. The number of national 1-hour ozone exceedances was one (1) in 1999, eight (8) in 2000, and 10 in 2001. The number of state 1-hour ozone exceedances was 36 in 1999, 69 in 2000, and 84 in 2001.

For the SJVAB to reach attainment for the 1-hour ozone standards, the national 1-hour ozone standard (0.12 parts per million by volume [ppm]) can not be exceeded more than 3 times in any 3-year period. The state 1-hour ozone standard (0.09 ppm) cannot be equaled or exceeded in any 1-year period for three (3) years.

PM-10 is monitored every six days. Each monitored (measured) exceedance is treated as being equivalent to six exceedance days (calculated). Since the District monitors every six days rather than continuously, there can be no exceedances during the year when showing attainment of the standard.<sup>1</sup> The Fresno monitoring station does not measure PM-10. At the Clovis monitoring station, the number of measured national 24-hour PM-10 standard exceedances was one (1) for 2001 and zero (0) for 1999 and 2000. Calculated national 24-hour exceedances were zero (0) in 1999 and 2000, and six (6) in 2001. Measured state 24-hour PM-10 exceedances were 19 in 1999, 10 in 2000, and 16 in 2001. Calculated state 24-hour exceedances were 114 in 1999, 60 in 2000, and 95 in 2001. For the SJVAB to reach attainment for the 24-hour PM-10 standards, neither the national (150 micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]) nor the state (50  $\mu\text{g}/\text{m}^3$ ) standard can be exceeded for three successive years.

Table 2.3-5 shows the peak readings for both ozone and PM-10 in comparison to the state and national standards for 1999 through 2001 at the two monitoring stations.

TABLE 2.3-5: MAXIMUM READINGS FOR OZONE AND PM-10					
Year	Peak Reading Clovis (Fresno)	NAAQS	Difference Clovis (Fresno)	CAAQS	Difference Clovis (Fresno)
Ozone (ppm)					
2001	0.149(0.142)	0.12	0.029(0.022)	0.09	0.059(0.052)
2000	0.153(0.139)		0.033(0.019)		0.063(0.049)
1999	0.142(0.136)		0.022(0.016)		0.052(0.046)
PM-10 ( $\mu\text{g}/\text{m}^3$ )					
2001	155.0(---)	150	5(---)	50	105(---)
2000	114.0(---)		-36(---)		64(---)
1999	151.0(---)		1(---)		101(---)

The maximum 1-hour ozone readings at the Clovis monitoring station showed an increase between 1999 and 2000, and a decrease between 2000 and 2001. The maximum 1-hour ozone reading exceeded the national standard by 0.022 ppm in 1999, 0.033 ppm in 2000, and 0.029 ppm in 2001 at the Clovis monitoring station. The maximum 1-hour ozone readings at the Fresno monitoring station showed an increase in all years from 1999 to 2001. The maximum 1-hour ozone reading exceeded the national standard by 0.016 ppm in

<sup>1</sup> Information and text provided by personal correspondence from Dave Mitchell, San Joaquin Valley Air Pollution Control District, June 29, 2000.



1999, 0.019 ppm in 2000, and 0.022 ppm in 2001 at the Fresno monitoring station. The state 1-hour ozone standard was exceeded by 0.052 ppm in 1999, 0.063 ppm in 2000, and 0.059 ppm in 2001 at the Clovis station and 0.046 ppm in 1999, 0.049 ppm in 2000, and 0.052 ppm in 2001 at the Fresno station.

Maximum daily PM-10 readings showed a large decrease between 1999 and 2000 and a similar large increase between 2000 and 2001. The maximum 24-hour readings for PM-10 exceeded the national standard by 1 ug/m<sup>3</sup> in 1999 and by 5 ug/m<sup>3</sup> in 2001. The maximum daily 24-hour PM-10 reading was actually less than the national standard in 2000 by 36 ug/m<sup>3</sup> in. The state 24-hour PM-10 standard was exceeded by 101 ug/m<sup>3</sup> in 1999, 64 ug/m<sup>3</sup> in 2000, and 105 ug/m<sup>3</sup> in 2001.

### CalMat Operations

Based on a 1989 inventory of toxic air contaminant sources, the SJVAPCD identified the CalMat of Central California (CalMat) Aggregate Processing Plant No. 1 (River Rock), Aggregate Processing Plant No. 2 (Friant), and Concrete Batch Plant No. 2 (Friant) as high priority sources and required the preparation of health risk assessments. The CalMat facilities, located west of the project site, were placed on the high priority list due to emissions of crystalline silica, a primary constituent of sand and gravel. Due to controversy and uncertainty in the scientific and regulatory community regarding the health risk factors for crystalline silica, the California Air Pollution Control Officers Association recommended that local air districts defer health risk assessment requirements where crystalline silica is the primary toxic material. The SJVAPCD is currently following these recommendations.

Surface mining operations also have the potential to release trace metals, asbestos, radio nuclides, and combustion-related compounds.

### IMPACTS

This generalized air quality analysis was prepared to assess the changes due to the construction, area source, and operation of the proposed conceptual Project at build out in 2012. The Project's three primary pollutant sources are construction emissions (short term), area source emissions (landscape, heating, water heaters, and consumer products), and operation emissions (vehicle trips). In the August 2000 report, area source and operation emissions were assessed using a program called URBEMIS7G, which is the currently adopted software containing the currently adopted emissions values. URBEMIS7G is a program developed for the SJVUAPCD that estimates the vehicle travel, fuel use and area source emissions resulting from various land use development projects. It also estimates construction emissions for major long-term construction projects. The URBEMIS7G program is primarily used for California Environmental Quality Act (CEQA) review. For short-term<sup>2</sup> construction projects such as this one, the SJVUAPCD requires implementation of effective and comprehensive control measures as detailed in Regulation VIII instead of using URBEMIS7G.

Since August 2000, the URBEMIS program and associated emissions values has been updated to URBEMIS 2001. URBEMIS 2001 and its associated emissions information has not been adopted for use in the Central Valley but is expected to be adopted for use in early 2003. URBEMIS 2001 is potentially more accurate for operational sources since the updated program more accurately reflects the existing fleet mix including Sports Utility Vehicles (SUV) and other forms of higher polluting vehicles. Since this Program level EIR will be processing at the time of the proposed URBEMIS 2001 adoption, it was decided to show both the URBEMIS

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<sup>2</sup> The Copper River Ranch Project as a whole is projected to build out over a 10-year period. However individual phases are considered to have short-term construction impacts.

7G and URBEMIS 2001 data in order to avoid having to reevaluate the potential air quality impacts with the newly adopted URBEMIS 2001.

Project build out is projected to occur by 2012. The initial build out year will be a worst-case assessment since vehicular emissions are projected to decrease in future years due to technological advances in emission reduction and retirement of old, higher polluting equipment and vehicles. However, URBEMIS7G and URBEMIS 2001 does not provide for a 2012 analysis year. The closest worst-case analysis year provided in URBEMIS7G and URBEMIS 2001 is 2010. Therefore, all URBEMIS7G and URBEMIS 2001 analysis will be based on pollutant rates for 2010.

### Thresholds of Significance

Four pollutants are currently assessed in the Valley. They are:

*Reactive Organic Gases (ROG) & ozone precursor*  
*Nitrogen Oxides (NO<sub>x</sub>) & ozone precursor*  
*Suspended Particulate Matter, 10 Microns or smaller (PM-10)*  
*Carbon Monoxide (CO)*

The thresholds of significance established by the SJVUAPCD for three of these pollutants are:

ROG 10 tons per year  
NOX 10 tons per year  
CO 9 parts per million (ppm) averaged over 8 hours and 20 ppm for 1 hour

The CO threshold is based on ppm averaged over 8 hours and ppm for 1 hour. However, the URBEMIS7G and URBEMIS 2001 programs provide CO information in tons per year. This requires CO to be further analyzed using the CO Protocol Analysis to determine any possible threshold exceedances. Since CO analysis is generally associated with intersections, further CO analysis will occur simultaneously with the more focused Project specific traffic analysis.

The SJVUAPCD has chosen to not establish a threshold of significance for PM-10 and therefore PM-10 quantities provided in Table 3 are for informational purposes only. As stated previously, the SJVUAPCD instead requires the implementation of Regulation VIII controls in the construction and operation of the Project to deal with potential PM-10 pollution.

Table 2.3-6 shows the quantity, in tons per year, of ROG, NOX, CO, and PM-10 for the various vehicle emissions projected to occur in 2010 with unmitigated Project implementation using both URBEMIS7G and URBEMIS 2001. Table 3 also shows the differences between the results of the URBEMIS7G and URBEMIS 2001 evaluations. The actual URBEMIS7G and URBEMIS 2001 printouts are provided in Appendix A.

TABLE 2.3-6:  
COMPARISON OF URBEMIS 7G AND URBEMIS 2001  
2010 PROJECT AREA SOURCE AND VEHICLE EMISSIONS COMBINED TOTALS

Source	ROG	NOX	Pollutants (Tons/Yr.) CO	PM-10
URBEMIS 7G				
Area	26.05	9.31	4.87	0.02
Operational	52.31	109.14	465.05	3.89
Total	78.36	118.45	469.92	3.91
URBEMIS 2001				
Area	25.78	5.81	3.38	0.01
Operational	73.2	68.88	772.22	3.76
Total	98.98	74.69	775.60	3.77
Difference (URBEMIS 2001 B URBEMIS 7G)				
Area	-0.27	-3.5	-1.49	-0.01
Operational	20.89	-40.26	307.17	-0.13
Total	20.62	-43.76	305.68	-0.14

Both URBEMIS7G and URBEMIS 2001 project that ROG and NOX will exceed the thresholds of significance in 2010 with build out of the Project as conceptually analyzed. The URBEMIS 2001 software and associated emission rates indicate that Project related area source emissions would not be as great as those originally projected utilizing URBEMIS7G. Likewise the amount of operational NOX and PM-10 estimated using URBEMIS 2001 is projected to be less than the original amounts estimated using URBEMIS7G. However URBEMIS 2001 is projecting higher levels of operational ROG and CO. These pollutant quantities may decrease once the Project is better defined and Project specific air quality mitigation measures established. It should also be noted that beginning in 2010, the EPA will be enforcing policies that will reduce emissions from Suva and other higher polluting vehicles. Again, both the CO and PM-10 numbers are informational only since CO should focus on intersection analysis and PM-10 focuses on long-term construction emissions.

#### Impact

- Construction of the project would generate fugitive dust from construction activities, hydrocarbon emissions from paints and asphalt, and exhaust emissions from construction vehicles. This would be a *significant impact*.

Significant long-term PM<sub>10</sub> reductions (and to a lesser degree, reductions in other pollutants) will occur as a result of the curtailment of agricultural operations.



Temporary emissions of PM<sub>10</sub> and ozone precursors (ROG and Ox) would occur during construction. PM<sub>10</sub> emissions are associated with the movement of heavy equipment on dirt surfaces, earth disturbance (grading, excavation), and construction vehicle exhaust. Ozone precursor emissions would be associated with construction vehicle exhaust and roadway paving. If left unmitigated, PM<sub>10</sub> emissions would likely contribute to exceedances of the PM<sub>10</sub> standards in the vicinity of the project site and the ozone precursor emission contribute to ozone exceedances in the region.

Project adherence to SJVAPCD's Regulation VIII -- Fugitive Dust Rules in effect at the issuance of construction permit would mitigate dust emissions generated by construction activities. SJVAPCD's Regulation VIII fugitive dust abatement requirements include watering or application of chemical suppressants and removing any visible accumulation of mud or dirt from public paved roads adjacent to the project. Adherence to Regulation VIII is considered adequate mitigation by the SJVAPCD for construction-related air quality impacts.

### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. A Fugitive Dust Prevention and Control Plan shall be developed to specify control methods, demonstrate availability of equipment and personnel, and identify the individual authorized to implement prevention measures. The Plan shall comply with the SJVAPCD Regulation VIII -- Fugitive Dust Rules. The Plan shall include the following conditions:
  - a. All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
  - b. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
  - c. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut and fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing applications of water or by presoaking.
  - d. When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or maintain at least six inches of freeboard space from the top of the container.
  - e. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.
  - f. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
  - g. Traffic speeds on unpaved roads shall be limited to 15 miles per hour (mph).
  - h. 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.
  - i. Excavation and grading activity shall be suspended when winds exceed 20 mph.
2. Construction contracts shall include the following provisions:
  - a. All construction equipment shall be properly maintained and operated.
  - b. Alternative-fueled construction equipment shall be used if feasible.



- c. Hours of operation of heavy-duty equipment shall be limited to 7:00 a.m. to 7:00 p.m. Monday through Saturday.

#### Level of Significance After Mitigation

The mitigation measures would reduce fugitive dust impacts to a less-than-significant level.

#### Impact

- Vehicle trips to and from the project and emissions generated from residential and commercial land uses would result in air pollutant emissions affecting the entire San Joaquin Valley air basin. This would be a *significant, unavoidable impact*.

Emissions projected to occur from the project account for only a small amount of the pollutants over the SJVAB. Regardless, the project would contribute emissions into an air basin designated nonattainment for ozone and PM<sub>10</sub> at rates above the threshold levels identified by the air district. As a result, the project will significantly contribute to pollutant levels in the air basin. Stationary source emissions would result from natural gas in space heating and water heating, fireplaces and other stationary appliances and equipment.

As a mixed-use community, the project should contain many design characteristics to reduce overall air emissions. Mixed uses within or near the site include residential, commercial, parks, golf course, and an elementary school. These uses will reduce the number of external trips made outside the project area, shorten trips that are made, and offer the potential for combined, or multi-purpose trips.

A system of bike and pedestrian paths should link most of the project area with these mixed uses, increasing the likelihood of using alternative transportation modes. The project is also near employment, commercial, recreation, and social/cultural sites in the Woodward Park Community which could reduce external trip lengths for these purposes. In addition, the applicant proposes to accommodate neighborhood electric vehicles (NEVs) through a system of community NEV/bike routes and priority parking at neighborhood and mixed use commercial areas.

#### Mitigation

1. The developer shall be responsible for the following measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:
  - a. Pedestrian enhancing infrastructure shall be provided and include: sidewalks and pedestrian paths; street trees to shade sidewalks; pedestrian safety designs/infrastructure; street furniture; street lighting; and pedestrian signalization and signage.
  - b. Bicycle enhancing infrastructure shall be provided and include: bikeways/paths connecting to a bikeway system; and secure bicycle parking.
  - c. The project shall either contract with Fresno Area Express (FAX) through the City to provide transit services within the project area, or provide an on-site transit service to off-site FAX transit stations/multimodal centers.
  - d. Transit-enhancing infrastructure shall be provided and include: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs
  - e. Park and ride lots and/or satellite telecommuting centers shall be provided in the project area.
  - f. Carpool/vanpool programs shall be implemented, e.g., carpool, ridematching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.
  - g. On-site shops and services for employees, such as cafeteria, bank/ATM, dry cleaners, convenience market, etc. shall be provided within commercial and office areas.

- h. A Transportation Demand Management Program shall be established and include: transit, bicycle, pedestrian, traffic flow improvements, transportation system management, rideshare, telecommuting, video conferencing, and other measures to reduce peak hour vehicle trips.
2. Future construction plans for residential, commercial, office, and public uses shall include:
    - a. Solar or low-emission water heaters.
    - b. Central water heating systems in commercial areas.
    - c. Open-hearth fireplaces shall require use of natural gas or installation of low-emission, EPA-certified fireplace inserts.

#### Level of Significance After Mitigation

Implementation of the above mitigation measures would not reduce project-related regional emission to a less-than-significant level. Project-related regional emissions would remain a significant, unavoidable impact.

#### Impact

- Project residents could be exposed to fugitive dust, trace metals, asbestos, radio nuclides and combustion-related compounds emitted by CalMat gravel extraction and batch plant operations northwest of the project site. This would be a *less-than-significant impact*.

Northwest and often upwind of the project site is the CalMat gravel extraction and batch plant operation. The CalMat gravel extraction and batch plant operations contains many sources of air pollutants. Emissions from the aggregate, concrete, and asphalt plants affect the air quality in the project area. Current activities generate emissions through combustion of fuels, vehicle and equipment exhaust, and fugitive dust emissions. Haul truck traffic on unpaved roads creates fugitive dust emissions and is also a source of exhaust emissions both on and off the CalMat extraction and batch plant facilities.

PM<sub>10</sub> and related dust emissions have evoked complaints to the SJVAPCD from residences near the CalMat facilities. Complaints are most frequent in the late summer and result from early morning inversions that restrict air movement within the San Joaquin River bottom.

Project approval could have an impact on CalMat excavation and batch plant operations. It is possible that residents of the project could lodge complaints, under the general public nuisance statute, against the plant thereby forcing CalMat to make improvements to minimize off-site emissions. This could happen if as few as three residents complained to the SJVAPCD or to the Fresno County Community Health Department. If, upon investigation, it were to be found that there was a nuisance or nuisances affecting the project site, then CalMat could be put on a compliance schedule to abate the nuisance or nuisances.

The completion of excavation phases of CalMat combined with the construction phasing of Copper River Ranch will reduce these potential impacts to a less-than-significant level. CalMat expects to finish the phases closest to Friant Road by the end of the year 2002. If approved, Copper River Ranch will not begin construction of homes until 2003. The CalMat operations will, therefore, have less-than-significant impacts on the proposed project.

#### Mitigation

None required.

### Impact

- The wastewater treatment plant would be located in proximity to housing, recreation, and commercial areas resulting in the potential for odor from wastewater treatment processing. This is a *less-than-significant impact*.

Odor control is included as an integral feature in state-of-the-art reclamation facilities. Such control is a necessity, both for public relations purposes and because the reclamation plants are often placed in proximity to residential units, schools, and open space. Plant design requires all wastewater process air to be confined and processed within the plant by use of high capacity blowers which create a negative pressure within the building enclosure. Process air is then discharged to a below-ground soil biofilter. Reclaimed wastewater contains very low amounts of organic material. Presence of high concentrations of organic material is the source of odors in wastewater. The effluent storage areas will be provided with supplemental aeration to ensure that aerobic conditions are maintained at all times.

### Mitigation

None required.

## 2.4 GEOLOGY AND SOILS

### Introduction

This chapter describes existing soil conditions and geotechnical conditions in the project area and identifies impacts and mitigation associated with implementation of the proposed project. Information on geology and soils was compiled using information from the NRCS, the U.S. Geological Survey, California Department of Conservation, and other geotechnical and soils information prepared for the project site.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

The Central Valley constitutes a structural downwarp overlain by a nearly level alluvial plain extending from Redding on the north to the Tehachapi Mountains on the south. The original basin underlying the Central Valley gradually filled with waterborne sediments, largely derived from erosion of the Sierra Nevada. The San Joaquin River is the principal river in the area. Alluvial fans, formed by this river, are the largest geomorphic features in the Fresno area. The formation of the fans resulted in rather flat regional topography except for some areas adjacent to the river where geologic forces, including river erosion, have caused relatively significant elevation variations.

Topographic relief of the project site is composed of gently to moderately rolling hills and is sloped generally in a southwesterly plain toward the San Joaquin River. The elevation ranges from 340 to 400 feet. A shallow north/south terrace escarpment is located near the northwest project boundary. This escarpment is approximately 1,800 feet in length. The project site includes several low lying areas which contain lakes as part of the existing Copper River Ranch golf course. No natural water channels are present.

### Soils

The NRCS has mapped 11 soil units on the project site. The following generalized soil descriptions are based on NRCS data and field observations.

Pollasky-Montpellier complex, 9 to 15 percent slopes (PoC) is the dominant soil unit. This soil unit, occurring on approximately 30 percent of the project site, covers virtually all of the gently rolling areas adjacent to Willow Avenue. The characteristics of this soil unit include moderately rapid permeability and a low shrink-swell potential. Runoff is medium in nature and the hazard of water erosion is moderate. The soil has a Storie index rating of 52 (capability IV) and is not considered prime agricultural soil.

Pollasky-Montpellier complex, 15 to 30 percent slopes (PoD) is representative of the steeper rolling areas of the project site. This soil unit, mapped adjacent to the northern property boundary, covers approximately five percent of the project site. The characteristics of this soil complex are similar to that of the Pollasky-Montpellier complex, 9 to 15 percent slopes, which includes moderately rapid permeability and a low shrink-swell potential. However, due to the soil's slope, runoff is medium to rapid, and the hazard of erosion is moderate to high. The soil has a Storie index rating of 47 (capability IV) and is not considered prime agricultural soil.



Ramona sandy loam, 0 to 2 percent slopes (Ra) is representative of the nearly level topography found in the extreme southeasterly portion of the project site. This soil unit, mapped adjacent to Willow and Copper Avenues, covers approximately three percent of the project site. The characteristics of this soil type unit include well drained with a moderately slow permeability subsoil and a low shrink-swell potential. Runoff is slow and the hazard of erosion is low. The soil has a Storie index rating of 77 (capability I) and is considered a prime agricultural soil.

Greenfield coarse sandy loam, 0 to 3 percent slopes (GsA) is representative of less than one percent of the project site soils. This soil unit is found north of Copper Avenue east of Maple Avenue. The characteristics of this soil unit include moderately permeable subsoil and a low shrink-swell potential. Runoff is slow and the hazard of water erosion hazard is moderate to high. This soil unit has a Storie index rating of 81 (capability II) and is considered prime agricultural soil.

Hanford fine sandy loam, 0 to 2 percent slopes (Hm) is representative of large nearly level area in the southwestern portion of the project site adjacent to Friant Road and Copper Avenue. Overall, this soil unit is mapped on approximately 15 percent of the project site. The characteristics of this soil unit include moderately rapid permeability and low shrink-swell potential. Runoff is slow and the hazard of erosion is slight to none. The soil has a Storie index rating of 100 (capability I) and is considered prime agricultural soil.

Hanford coarse sandy loam, 0 to 2 percent slopes (Ha) is mapped on approximately five percent of the project site and is long and winding, indicating an aggregated channel of a former flood tributary. The characteristics of this soil are similar to Hanford fine sandy loam, except that it is coarse throughout. The soil has a Storie index rating of 80 (capability II) and is considered prime agricultural soil.

Hanford sandy loam, 0 to 2 percent slopes (Hc) is mapped on approximately 17 percent of the project site. The characteristics of this soil unit is sandy loam throughout, but otherwise it is similar to Hanford fine sandy loam. The soil has been assigned a Storie index rating of 95 (capability II) and is considered prime agricultural soil.

Hanford fine sandy loam, silty substratum, 1 to 2 percent slopes (Ho) is mapped on approximately 19 percent of the project site. The characteristics of this soil unit are similar to Hanford fine sandy loam. The soil has a Storie index rating of 95 (capability II) and is considered prime agricultural soil.

Montpellier coarse sandy loam, 15 to 30 percent slopes (MpD) is representative of the hilly areas found north of Copper Avenue, between Maple and Chestnut Avenues and covers approximately five percent of the project site. The characteristics of this soil unit include slow permeability and a low-to-moderate shrink-swell potential. Runoff is medium and the hazard of water erosion is moderate to high. The soil has a Storie index rating of 46 (capability VI) and is not considered prime agricultural soil.

Pollasky fine sandy loam, 2 to 9 percent slopes (PnB) is representative of gently sloping to moderately sloping terrace breaks formed in the western portion of the project site. This soil unit covers approximately two percent of the project site. The characteristics of this soil unit include compacted fine sand, very fine sand, and silt. The shrink-swell potential is low and the hazard of erosion is slight. The soil has a Storie index rating of 63 (capability III) and is not considered prime agricultural soil.

San Joaquin sandy loam, shallow, 0 to 3 percent slopes (SdA) is present in various nearly level areas and is mapped on approximately five percent of the project site. The characteristics of this soil unit include very slow permeability, and a low-to-moderate shrink-swell potential. Runoff is slow and the hazard of erosion is low to slight. The soil has a Storie index rating of 23 (capability III) and is not considered prime agricultural soil.

#### Seismicity

No active or potentially active faults are known to cross the project site, nor is the project located in a designated "Special Studies Zone" under the Alquist-Priolo Special Studies Zone Act of 1972. The project site is, however, located within a region that is seismically active. The primary seismic hazard is groundshaking produced by a number of active and potentially active faults in the Coast Range and the Sierra Nevada. Major faults west of the project site include the San Andreas, Ortigalita, Calaveras, Hayward, Coalinga, and Rinconada Faults. The San Andreas Fault is possibly the best known fault and is located 70 miles west of the project site. Major faults east of the project site include the Owens Valley Fault, Kern Front Fault Groups, White Wolf Fault, and Kern Canyon Fault. The Owens Fault Group is approximately 60 miles east of the project site.

The Fresno area is rated a "moderate" zone for earthquake intensity. A rating of "moderate" on the intensity scale is defined by the United States Geological Survey as an earthquake measuring 6.0 to 6.9 magnitude on the Richter Scale. A magnitude of 6.0 to 6.9 represents an earthquake felt by everyone, causing furniture to move, waves on ponds and moderate damage to reinforced and unreinforced masonry structures. An earthquake of magnitude 8.5 is considered the maximum credible quake and would most likely result from activity on the San Andreas Fault.

#### Liquefaction

Liquefaction involves a sudden loss in strength of a saturated soil caused by an earthquake, resulting in the temporary transformation of the soil into a fluid mass. If the liquefying layer is near the surface, the effects are such like that of quicksand on any structure located on it. If the layer is in the subsurface, it may provide a sliding surface for the material above it. Liquefaction typically occurs in areas where groundwater is less than 30 feet below the surface, and where the soils are composed predominantly of poorly consolidated fine sand. No indication of liquefaction has been detected on the site by the project engineer.

#### Slope Stability/Landslides

Slope stability and landslides are not known to be a problem in the project area due to the relatively flat topography. There are, however, slopes of up to 30 percent located in the eastern portion of the project site.

#### Subsidence

Subsidence is the gradual lowering of the ground surface and results from settlement as the consequences of compaction or loss of subsurface materials such as groundwater. The Fresno area is not known to have experienced significant subsidence or subsequent constraints to development due to subsidence.

## IMPACTS

Section 2.1 of this EIR, *Land Use, Planning, and Agriculture*, discusses potential project impacts on agricultural productivity, prime soils, and the conversion of agricultural land. This chapter discusses potential project impacts on other geologic and soil characteristics.

The analysis is based on review of published information and reports regarding geology, seismicity and soils, site visits to observe topography and soil characteristics, and consultation with County staff. In that the applicant has not submitted development plans nor subdivision maps, preliminary grading plans are not yet available. Therefore, the discussion of impacts is necessarily general for several subtopics.

### Standards of Significance

An impact would be considered significant if: 1) substantial erosion of existing surface materials would occur and potentially impact either the site or adjacent properties; and 2) the proposed structures, facilities, utilities, and streets would be subject to major seismic hazards that could result in property damage or personal injury.

### Impact

- Seismic activity along any of the regional faults could result in moderate damage to structures in the proposed project. This would be a *less-than-significant impact*.

Project development would locate residents, structures, and facilities at risk of moderate groundshaking in the event of a moderate-to-major earthquake on local or regional faults. Although the level of seismic risk is not unusual for the region, property damage and injuries could result. Impacts are likely to be limited to ground motion, not surface rupture. Soil properties and post-development conditions on the project site may vary the susceptibility of ground motion and secondary hazards including liquefaction and differential settlement.

Structures in the City of Fresno are required to be constructed to withstand an earthquake intensity of VIII or better, which is consistent with the maximum expected earthquake. Adherence to specifications of the Uniform Building Code would minimize structural damage resulting from seismic activity. Project site grading and cut and fill activity would be subject to conditions of a grading permit. Prior to issuance of a grading permit, the developer would be required to demonstrate slope stability for artificial slopes created. Existing building codes and standards of the City of Fresno will reduce potential seismic impacts to a less-than-significant level.

### Mitigation

None required.

### Impact

- The project would be developed on soils which have development constraints which could cause structural damage. This would be a *less-than-significant impact*.



Site soils consist of silty sands, sandy loams, with some fine clayey layers which have low-to-moderate expansive characteristics. Expansive soils may cause damage to building foundations, patios, garages, and roadways. The use of special construction techniques and design (soil mixed with imported earth) can effectively control these problems. Low-strength soils may experience compaction, producing non-seismic and seismic-differential settlement and potential damage to structures, concrete, and roadways. Buildings and roads must be designed to offset the ability of the soil to support loads, especially under saturated conditions. The City of Fresno will require that structures and infrastructure subject to expansive soils or other soil constraints shall be constructed with properly designed foundations and footings in accordance with the Uniform Building Code.

Existing building codes and standards of the City of Fresno will reduce potential structural impacts, as a result of soil conditions, to a less-than-significant level.

#### Mitigation

None required.

#### Impact

- Development of the proposed project would require excavation, grading, and other construction operations. Slope and soil disturbance could result in soil erosion. This would be a *significant impact*.

Although the project development would include revegetation and landscaping that would eventually decrease erosion of soils over the life of the project, disruption of surface soils through excavation, cut and fill, and grading associated with project construction would result in erosion and sedimentation impacts. Significant grading, and cut and fill activity would be necessary to implement the proposed project.

The City of Fresno will require preparation of a grading plan which incorporates temporary stabilization measures to protect exposed areas during construction activities, watering to control dust, and soil erosion, and sedimentation control measures.

The developer will be responsible for measures to mitigate impacts to water quality in local creeks from erosion, and must also meet water quality standards for the State of California. To be in compliance, the applicant will be required to obtain a grading permit from the City of Fresno and a General Construction permit, or National Pollution Discharge Elimination System (NPDES) permit, available from the California Regional Water Quality Control Board. The General Construction permit is required when grading directly disturbs five or more acres of the property. The project must also be in compliance with any standards established by RWQCB for non-point sources of pollution.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:



1. A qualified geologist or consultant shall prepare and submit an erosion control plan for approval by the the City of Fresno Public Works Department demonstrating compliance with water quality standards. Elements of this plan shall address both the potential for soil erosion and non-point source pollution.

**Level of Significance After Mitigation**

Mitigation would reduce impacts to a less-than-significant level.

## 2.5 BIOTIC RESOURCES

### Introduction

This section was prepared by Live Oak Associates, Inc., of Oakhurst, California. The complete report is found in the Technical Appendices on file with the City of Fresno Planning and Development Department. This section describes the biotic resources of the proposed Copper River Ranch development, evaluates site impacts to those resources, and proposes mitigation measures.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

The development of open space parcels such as the proposed Copper River Ranch can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the CEQA, or covered by policies of the existing or proposed City of Fresno General Plan.

Sources of information used in this analysis included: (1) *California Natural Diversity Data Base* (CDFG 1996); (2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 1994); (3) a list of the federally listed special status species of Fresno County prepared by the U.S. Fish and Wildlife Service; (4) technical reports regarding wetlands and biotic resources of the site prepared by Carps (1996), the U.S. Army Corps of Engineers (1996), and Stebbins and Halstead (1992); and (5) manuals and references related to plants and animals of the San Joaquin Valley. This section also includes information gathered by the biological consultant during reconnaissance-level field visits of the study area. Several visits were made to the site by the project biologist in 1999 to verify and delineate wetlands. A site visit in March of 2000 validated the data referenced in the above resource documents.

### Setting

The study area is located in the San Joaquin Valley on agricultural, urban and vacant lands north of the City of Fresno. The elevation of the study area varies between 340 and 400 feet above sea level. Annual precipitation is approximately 8 to 15 inches, almost 95 percent of which falls between the months of October and March. Storm water runoff or summer irrigation collects in various drainage swales, depressions, and ponds and leaves the site via infiltration, evaporation, or sheet flow.

Soils identified were Hanford sandy loam, 0-2 percent slopes, Pollasky fine sandy loam, 2-9 percent slopes, Pollasky-Montpellier complex, 9-15 percent slope, and San Joaquin sandy loam, 0-3 percent slopes. The Hanford soils lack a subsoil but are some of the best soils for farming. The Pollasky series occupy low, rounded knolls and gently sloping to moderately sloping terrace breaks. The natural vegetation consists of annual grasses and forbs and is mainly used for grazing and dry farmed grain. The San Joaquin soils have a thin clay layer in the subsoil and are moderately deep to a strongly cemented hardpan. They are nearly level to gently rolling and have many rounded swales. A variety of unusual plants normally cluster around the ephemeral pools that form in some intermound swales during the spring.

### Biotic Habitats

Five biotic habitats occur within the study area: 1) agricultural (vineyard, citrus and row crops); 2) non-native grassland; 3) urban/ruderal (golf course, country club complex, residential and roadways); 4) fresh emergent wetland/aquatic (ponds); and 5) seasonal wetland swale/northern hardpan vernal pool (Table 2.5-1). These biotic habitats are mapped on Figure 2.5-1. A list of vascular plants observed in the study area as well as a list of terrestrial vertebrates using, or potentially using, the site has been provided in the Technical Appendices.

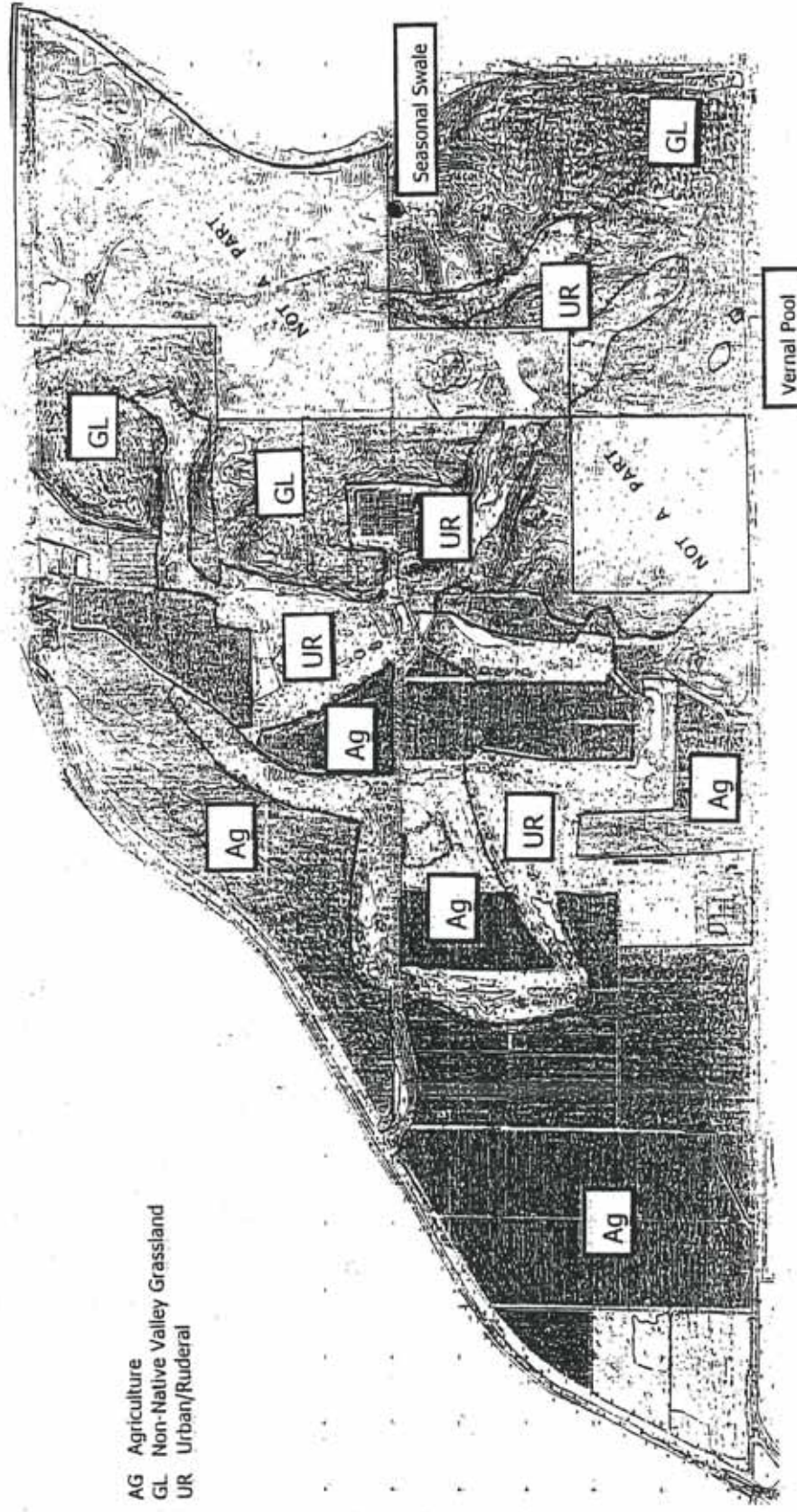
TABLE 2.5-1  
APPROXIMATE AREA OF BIOTIC HABITATS (IN ACRES) OF THE  
COPPER RIVER RANCH STUDY AREA.

Habitat Type	Area (in acres)	Percent of Total
Agriculture	400.00	56.61
Non-native Grassland	107.50	15.21
Ruderal	195.00	27.60
Fresh Emergent Wetland/Aquatic	3.40	0.48
Northern Hardpan Vernal Pool	0.58	0.08
Seasonal Wetland Swale	0.06	0.01
Total	706 ±	100±

**Agriculture.** Approximately 400 acres is agricultural habitat dominated by vineyards (grape and berry vines), row crops, and citrus trees. The vineyard has been routinely disced to keep weedy annuals from becoming established. Weedy plant species typical of vineyards include Bermuda grass (*Cynodon dactylon*), annual bluegrass (*Poa annua*), wild oats (*Avena fatua*), common chickweed (*Stellaria media*), and white-stem filaree (*Erodium moschatum*).

Vineyards, row crops, and citrus provide relatively low habitat value for wildlife due to the lack of understory vegetation. Annual management practices eliminate breeding and foraging habitat for many small birds and mammals native to the region. A number of terrestrial vertebrates would nonetheless occur in the vineyard some or much of the year. Birds observed during the site visit included Mourning Doves (*Zenaidura macroura*), American Crows (*Corvus brachyrhynchos*), and House Sparrows (*Passer domesticus*). Vertebrate species often occurring in vineyards, but not observed during the site visit, include western fence lizards (*Sceloporus occidentalis*), desert cottontails (*Sylvilagus audubonii*), and coyotes (*Canis latrans*). There was little evidence of gopher or ground squirrel activity in the vineyard. Domestic dogs and cats from nearby residential areas probably occur regularly on the site, further diminishing value for native wildlife.

Figure 2.5-1 - Biotic Habitat Map





**Non-native Grassland.** Approximately 107 acres are non-native grassland dominated by herbaceous annual species commonly found in previously disturbed areas. Because of the aggressive nature of these introduced plants, they are naturalized as the dominant species and exclude native perennial grassland species. Portions of the non-native grassland were previously dry-farmed with cultivated wheat (*Triticum aestivum*) and remnants remained throughout the annual grassland. Common plant species of the non-native valley grassland included ripgut (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), red-stemmed filaree (*Erodium cicutarium*), and black mustard (*Brassica nigra*). Some of the more recently disturbed areas supported stands of common bindweed (*Convolvulus arvensis*) and common groundsel (*Senecio vulgaris*). Native spring-flowering forbs observed in bloom included red-maids (*Calandrinia ciliata*) and Eastwoods fiddleneck (*Amsinckia eastwoodiae*).

The non-native grassland habitat provides for both residents and migrating amphibians, reptiles, birds, and mammals. Many of the same vertebrate species occurring in the vineyard would also potentially occur in the non-native valley grassland. Common reptile species would include Western fence lizards and Western whiptails (*Cnemidophorus tigris*).

Birds observed in or near the grassland included Meadow Larks (*Sturnella neglecta*) and raptors such as an American Kestrel (*Falco sparverius*), a Northern Harrier (*Circus cyaneus*), and a Red-tailed Hawk (*Buteo jamaicensis*). Although California voles, house mice, and deer mice (*Peromyscus maniculatus*) would all be expected, only California ground squirrels (*Spermophilus beecheyi*) and desert cottontails were observed. These small mammals attract a diversity of predators, including gopher snakes, the previously mentioned raptors, other raptors such as Red-shouldered Hawks (*Buteo lineatus*), White-tailed Kites (*Elanus caeruleus*), Burrowing Owls (*Athene cunicularia*), Golden Eagles (*Aquila chrysaetos*), and coyotes.

**Ruderal.** Approximately 195 acres are urban/ruderal habitat, including an 18-hole golf course, country club complex, maintenance yard and two single-family residences. These highly modified habitats have been planted with ornamental trees and shrubs. Ruderal habitats comprise those frequently disturbed areas that often only support weedy annuals adapted to such disturbance.

These man-made habitats can support a large diversity of avian species during spring and fall migration, but the density of individuals may be considerably less than typical in native habitats. Avian species that were observed in or near the urban habitats included White Crowned Sparrows (*Zonotrichia leucophrys*), Yellow-rumped Warblers (*Dendroica coronata*), Purple Finch (*Carpodacus purpureus*), and Western Scrub Jays. California Quail (*Callipepla californica*) and House Finches would also be expected to visit the urban areas. Small mammals associated with urban areas would include house mice and black rats, Bottas pocket gophers and broad-footed moles (*Scapanus latimanus*). Common mammals are raccoons, Virginia opossum (*Didelphis virginiana*), striped skunks (*Memphitis mephitis*) and black-tailed jackrabbits (*Lepus californicus*). Gopher snakes and fence lizards would also occur in these habitats.

**Fresh Emergent Wetland/Aquatic.** Approximately 3.4 acres is fresh emergent wetland/aquatic habitat consisting of two golf course ponds located near the center of the site. Fresh emergent wetland was observed around the two ponds. Plants common to these wetlands included broad-leaved cattail (*Typha latifolia*), creeping spikerush (*Eleocharis macrostachya*), and baltic rush (*Juncus balticus*). Fresh emergent wetland and aquatic habitats provide food, cover, and water for a variety of amphibians, reptiles, birds, and mammals. The observed abundance of non-native bullfrogs (*Rana catesbeiana*) near the ponds would limit or exclude populations of some native amphibians and reptiles. Western pond turtles (*Clemmys marmorata*) could also occur in golf course ponds, although their presence would be discouraged by the bullfrogs and large mouth bass stocked in the ponds in 1993. Aquatic habitats also provide a permanent source of drinking water for many vertebrate species, which occur in surrounding habitats.

**Hardpan Vernal Pool/Seasonal Wetland Swale.** Approximately .06 of an acre is identified as seasonal wetland swales. The presence of hydrophytic plants and surface cracking in dried mud indicate that these areas were inundated or the soils were saturated during the previous winter. These drainages have been repeatedly truncated or otherwise disturbed by farming and, more recently, by golf course development. The only species common to such areas are toad rush (*Juncus bufonius*), Italian ryegrass (*Lolium multiflorum*), and Bermuda grass. A number of non-native forbs are also common.

Two northern hardpan vernal pools with a combined area of approximately .58 of an acre have been identified in the study area (RMI 1996 and USACE 1996). Northern hardpan vernal pools are seasonal wetlands that form in shallow depressions underlain by hardpan that restricts water percolation. These depressions perch accumulated rainwater and may remain inundated until spring or early summer. Frequent disking associated with dry farming and fire abatement has degraded the two pools on the project site. These pools, nonetheless, supported a number of native vernal pool plant species including toad rush, Vaseys coyote thistle (*Eryngium vaseyi*), slender popcorn flower (*Plagiobothrys stipitatus*), and Mediterranean barley (*Hordeum marinum ssp. gussoneanum*).

According to Stebbins and Halstead (1992), other species once present included foxtail (*Alopecurus saccatus*), and slender woollyheads (*Psilocarphus tenellus*). Special status plant species endemic to northern hardpan vernal pools were not identified within the study area during reconnaissance level surveys (Stebbins 1992). RMI (1996) and the USACE (1996) did not report special status plant species in the vernal pools at the time of their site surveys. Such species are presumed to be absent from the study area.

Northern hardpan vernal pools of the study area provide suitable habitat for a number of aquatic invertebrates and terrestrial vertebrates including, several of which are considered sensitive. Several of these species, including the vernal pool fairy shrimp (*Branchinecta lynchi*) and the western spadefoot toad (*Scaphiopus hammondi*) are endemic to pools of the region. The vernal pool fairy shrimp is listed as federally threatened under provisions of the federal Endangered Species Act. The western spadefoot toad is listed as a California species of special concern. Stebbins found both in vernal pools north of the study area in 1992. Neither of these species, nor the California tiger salamander (*Ambystoma californiense*), was found in other pools in the study area. Various types of crustaceans and aquatic insects would attract several species of waterbirds to site. The value of on-site wetlands has been greatly diminished by on-going farming operations.

#### Special Status Plants and Animals

A number of special status plants and animals occur in the vicinity of the study area. These species, and their potential to occur in the study area, are listed in Table 2.5-2 on the following pages. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et al. 1988), *California Natural Diversity Data Base* (CDFG 1996), *Endangered and Threatened Wildlife and Plants* (USFWS 1994), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFG 1995), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 1994).

TABLE 2.5.2 - SPECIAL STATUS SPECIES THAT OCCUR OR HAVE THE  
POTENTIAL TO OCCUR IN THE PROJECT VICINITY.

ANIMALS (adapted from CNDDDB 1996)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
Conservancy Fairy Shrimp ( <i>Branchinecta conservatio</i> )	FE	Found in deep vernal pools of California.	<u>Unlikely</u> . The site provides unsuitable habitat for this species.
Vernal Pool Fairy Shrimp ( <i>Branchinecta lynchi</i> )	FT	Found in vernal pools, but may use other seasonal wetlands.	<u>Possible</u> . The site provides suitable wetlands habitat for this species.
Vernal Pool Tadpole Shrimp ( <i>Lepidurus packardii</i> )	FE	Found in deep vernal pools of California.	<u>Unlikely</u> . The site provides unsuitable habitat for this species.
Valley Elderberry Longhorn Beetle ( <i>Desmocerus californicus dimorphus</i> )	FT	Lives in mature elderberry shrubs of California=s Central Valley and Sierra Foothills.	<u>Absent</u> . Elderberry plants have not been observed on the site.
Blunt-nosed Leopard Lizard ( <i>Gambelia silus</i> )	FE, CE	Frequents sparsely vegetated alkali and desert scrub habitats.	<u>Unlikely</u> . The site provides unsuitable habitat for this species.
Swainson=s Hawk ( <i>Buteo swainsoni</i> )	CT	Uncommon resident and migrant in the Central Valley. Forages in grasslands and fields close to riparian areas.	<u>Unlikely</u> . The site provides marginal foraging habitat for this species, which has not been seen often in the project vicinity.
Western Yellow-billed Cuckoo ( <i>Coccyzus americanus occidentalis</i> )	CE	Frequents valley foothill and desert riparian habitats in scattered locations in California	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species, which has been extirpated from the project vicinity.
Fresno Kangaroo Rat ( <i>Dipodomys nigratoides exilis</i> )	FE, CE	Frequents alkali scrub and herbaceous habitats with scattered shrubs in the southwestern San Joaquin Valley.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.
San Joaquin Kit Fox ( <i>Vulpes macrotis mutica</i> )	FE, CT	Frequents desert alkali scrub, annual grasslands and may forage in adjacent agricultural habitats.	<u>Absent</u> . Although the site provides suitable breeding and foraging habitat for this species, kit fox have not been observed in the project vicinity for several decades.

State and Federal Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
California Tiger Salamander ( <i>Ambystoma californiense</i> )	FPE, CSC	Frequents annual grasslands; requires vernal pools for breeding and rodent burrows for refuge.	<u>Possible</u> . The site provides marginal breeding habitat, but suitable aestivation habitat for populations that breed offsite.
Western Spadefoot Toad ( <i>Scaphiopus hammondi</i> )	CSC	Frequents annual grasslands and foothill hardwood woodlands; requires vernal pools or other temporary wetlands for breeding.	<u>Possible</u> . The site provides marginal breeding habitat, but suitable aestivation habitat for populations that breed offsite. Found in vernal pools north of the study area by J. Stebbins in a 1992 site visit.
Western Pond Turtle ( <i>Clemmys marmorata</i> )	CSC	Frequents suitable aquatic habitats throughout California.	<u>Unlikely</u> . Turtles have not been seen in the golf course ponds. These ponds provide marginal habitat. Bullfrogs and fish in the ponds would limit survival of young turtles.

**TABLE 2.5.2 - LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY.**

**ANIMALS (adapted from CNDDDB 1996)**

**State and Federal Species of Special Concern (cont.)**

Species	Status	Habitat	*Occurrence in the Study Area
California Horned Lizard ( <i>Phrynosoma coronatum</i> )	CSC	Frequents sandy washes with scattered shrubs, grasslands, scrublands, and oak woodlands of Central California.	<u>Absent</u> . The site provides marginal to unsuitable breeding and foraging habitat for this species.
Golden Eagle ( <i>Aquila chrysaetos</i> )	CSC	Frequents rolling foothills, mountain areas, sage-juniper flats and desert habitats; requires cliffs or large trees for nesting.	<u>Possible</u> . The site provides marginal to suitable foraging habitat for this species.
Burrowing Owl ( <i>Athene cunicularia</i> )	CSC	Frequents open, dry grasslands, deserts and ruderal areas; requires ground burrows for nesting and roosting cover.	<u>Likely</u> . The site provides suitable rodent burrows for nesting and roosting cover for this species. Owl pellets were located at two separate ground burrow entrances in the site.
White-tailed Kite ( <i>Elanus caeruleus</i> )	CSC	Frequents open grasslands and agricultural areas throughout Central California; requires groves of dense broad-leaved deciduous trees for nesting.	<u>Possible</u> . The site provides suitable foraging habitat for this species.
Northern Harrier ( <i>Circus cyaneus</i> )	CSC	Frequents, grasslands, open rangelands, freshwater and emergent wetlands.	<u>Likely</u> . The site provides suitable breeding and foraging habitat for this species.
Ferruginous Hawk ( <i>Buteo regalis</i> )	FSC, CSC	Breeds in the Pacific Northwest and Canada, but winters in a variety of California habitats, including grasslands, savannahs and wetlands.	<u>Possible</u> . The site provides suitable winter transient foraging habitat for this species.
Sharp-shinned Hawk ( <i>Accipiter striatus</i> )	CSC	Breeds in the mixed conifer forests of the northern Sierra Nevada, but winters in a variety of California habitats.	<u>Possible</u> . The site provides suitable winter transient foraging habitat for this species.
Cooper's Hawk ( <i>Accipiter cooperii</i> )	CSC	Breeds in oak woodlands, riparian forests and mixed conifer forests of the Sierra Nevada, but winters in a variety of California lowland woodland habitats.	<u>Unlikely</u> . There is little tree cover on the site. Therefore, it provides marginal to unsuitable foraging habitat for this species.
Merlin ( <i>Falco columbarius</i> )	CSC	Breeds in Canada, but winters in a variety of California habitats, including grasslands, savannahs and wetlands.	<u>Possible</u> . The site provides suitable winter transient foraging habitat for this species.
Prairie Falcon ( <i>Falco mexicanus</i> )	CSC	Frequents annual grasslands to alpine meadows; requires cliffs or rock outcroppings for nesting.	<u>Possible</u> . The site provides suitable foraging habitat for this species.
Long-eared Owl ( <i>Asio otus</i> )	CSC	Frequents riparian woodlands and forests of California.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.



**TABLE 2.5-2 - LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY.**

**ANIMALS (adapted from CNDDB 1996) State and Federal Species of Special Concern (cont.)**

Species	Status	Habitat	*Occurrence in the Study Area
Short-eared Owl ( <i>Asio flammeus</i> )	CSC	Frequents marshes, grasslands, irrigated lands, dunes and other treeless habitats of the Central Valley and western Sierra Nevada foothills.	<u>Possible</u> . The site provides suitable winter transient foraging habitat for this species.
California Horned Lark ( <i>Eremophila alpestris actia</i> )	CSC	Frequents a variety of open habitats where trees and shrubs are absent; requires grasslands and fallow fields for nesting.	<u>Possible</u> . The site provides suitable breeding and foraging habitat for this species.
Yellow Warbler ( <i>Dendroica petechia sewster</i> )	CSC	Frequents riparian deciduous habitats of alder, willow and cottonwoods; requires forests with heavy brush under story for nesting.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.
Tri-colored Blackbird ( <i>Agelaius tricolor</i> )	CSC	Frequents grassland and cropland habitats; requires proximity to fresh water and emergent wetland vegetation with dense cattails and thickets of willow for nesting.	<u>Possible</u> . The site provides suitable foraging habitat for this species.
Yuma Myotis ( <i>Myotis yumanensis</i> )	FSC, CSC	Frequents ponds, streams, stock tanks; requires buildings, mines, caves or spaces under bridges for roosting and nesting.	<u>Possible</u> . The site provides suitable foraging habitat for this species, which ranges throughout California.
Long-eared Myotis ( <i>Myotis evotis</i> )	FSC, CSC	Frequents brush woodland, and forest habitats; requires buildings, crevices, snags for roosting and nesting	<u>Absent</u> . The site provides marginal to unsuitable breeding and foraging habitat for this species.
Fringed Myotis ( <i>Myotis thysanodes</i> )	FSC, CSC	Frequents pinyon-juniper, valley foothill hardwood, and coniferous forests; requires buildings mines, caves or crevices for roosting and nesting.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.
Long-legged Myotis ( <i>Myotis volans</i> )	FSC, CSC	Frequents woodland, forest and shrub habitats; requires buildings, mines, rock crevices, or snags for roosting and nesting.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.
Spotted Bat ( <i>Euderma maculatum</i> )	FSC, CSC	Frequents deserts, grasslands and forests habitats; requires rock crevices for roosting and nesting.	<u>Unlikely</u> . The site provides marginal to unsuitable breeding and foraging habitat for this species.
Pacific Western Big-eared Bat ( <i>Plecotus townsendii townsendii</i> )	FSC, CSC	Frequents all but subalpine and alpine habitats; requires buildings, mines, caves or tunnels for roosting and nesting.	<u>Unlikely</u> . The site provides suitable foraging habitat for this species, but is considered uncommon in California.

**TABLE 2.5-2 - LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY.**

**ANIMALS (adapted from CNDDB 1996) State and Federal Species of Special Concern (cont.)**

Species	Status	Habitat	*Occurrence in the Study Area
Pallid Bat ( <i>Antrozous pallidus</i> )	CSC	Frequents grasslands, shrublands, woodlands and forests habitats; requires mines, caves or crevices for roosting and nesting.	<u>Unlikely</u> . The site provides marginal to unsuitable breeding and foraging habitat for this species.
California Mastiff Bat ( <i>Eumops perotis</i> )	FSC, CSC	Frequents grasslands to woodland habitats along the central and southern coast and the Central Valley; requires high buildings, cliff faces, trees or tunnels for roosting and nesting.	<u>Unlikely</u> . The site provides marginal to unsuitable breeding and foraging habitat is available on the site.
San Joaquin Pocket Mouse ( <i>Perognathus inornatus</i> )	FSC, CSC	Frequents dry grassland or scrubland habitats of the Central and Salinas Valleys.	<u>Absent</u> . The site provides unsuitable breeding and foraging habitat for this species.
American Badger ( <i>Taxidea taxus</i> )	CSC	Frequents herbaceous, shrub and drier open stages of most habitats; requires ground burrows for denning	<u>Unlikely</u> . The site provides suitable denning and foraging habitat for this species, but is considered uncommon in California.

**PLANTS**

**Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act**

Species	Status	Habitat	*Occurrence in the Study Area
Hairy Orcutt Grass ( <i>Orcuttia pilosa</i> )	FE, CE CNPS 1B	Found in vernal pools of California=s Central Valley; requires deep pools with prolonged periods of inundation.	<u>Unlikely</u> . Suitable habitat was once available for this species, but it was not observed in any pools during the 1991-92 site visits.
San Joaquin Orcutt Grass ( <i>Orcuttia inaequalis</i> )	FE, CE CNPS 1B	Found in vernal pools of California=s Central Valley; requires deep pools with prolonged periods of inundation.	<u>Unlikely</u> . Suitable habitat was once available for this species, but it was not observed in any pools during the 1991-92 site visits.
Hartweg=s Golden Sunburst ( <i>Pseudobahia bairdii</i> )	FPE, CE, CNPS 1B	Occurs on clay soils in valley and foothill grassland habitat. Often found on north slopes of knolls or shady areas.	<u>Absent</u> . Suitable soils are absent from the site.
San Joaquin Adobe Sunburst ( <i>Pseudobahia peirsonii</i> )	FPE, CE	Occurs on clay soils in valley and foothill grassland habitat.	<u>Absent</u> . Suitable soils are absent from the site.
Succulent Owl=s Clover ( <i>Castilleja campestris succulenta</i> )	FT, CE CNPS 1B	Found in vernal pools and moist places at the base of the Sierra foothills.	<u>Unlikely</u> . Suitable habitat was once available for this species, but it was not observed in any pools during the 1991-92 site visits.

TABLE 2.5-2 - LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR HAVE THE POTENTIAL TO OCCUR IN THE PROJECT VICINITY.

# PLANTS

## Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
Bogg=s Lake Hedge-Hyssop ( <i>Gratiola heterosepala</i> )	CE CNPS 1B	Found in hallow water and margins of vernal pools.	<u>Unlikely</u> . Suitable habitat may once have been available for this species, but it has never been documented in the project vicinity.
Greene=s Tuctoria ( <i>Tuctoria greenei</i> )	FT, CR CNPS 1B	Found in vernal pools of California=s Central Valley, requires deep pools with prolonged periods of inundation.	<u>Unlikely</u> . Suitable habitat was once available for this species, but it was not observed in any pools during the 1991-92 site visits.

## Other special status plants listed by CNPS

Spiny-sepaled Button Celery ( <i>Eryngium spinosepalum</i> )	CNPS 1B	Found in vernal pools of Fresno and Tulare Counties.	<u>Unlikely</u> . Suitable habitat was present for this species, but it has never been documented in the project vicinity.
Sanford=s Arrowhead ( <i>Sagittaria sanfordii</i> )	CNPS 1B	Found in freshwater marshes, pond margins, sloughs, etc. of California=s Central Valley and low Sierra Foothills.	<u>Absent</u> . Suitable habitat was not present in the site for this species prior to golf course construction.
Orange Lupine ( <i>Lupinus citrinus</i> ssp. <i>citrinus</i> )	FC CNPS 1B	Found in decomposed granite of the Sierra foothills.	<u>Absent</u> . Suitable habitat was not present in the site for this species.

\*Present: Species observed on the site at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the site, but it could occur there from time to time.

Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient

Absent: Species not observed on the site, and precluded from occurring there because habitat requirements not met.

## STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CSC	California Species of Special Concern
FSC	Federal Species of Concern	CNPS	California Native Plant Society Listing
FSS	U.S. Forest Service Sensitive Species		

## IMPACTS

### Standards of Significance

Specific project impacts to biological resources may be considered significant if they will:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; and/or
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

### Relevant Goals, Policies, and Laws

**Threatened and Endangered Species.** State and federal endangered species legislation has provided the CDFG and the USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as a species of special status. Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the take of a listed species. A take is defined by the state of California as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (California Fish and Game Code, Section 86). A take is more broadly defined by the federal Endangered Species Act to include harm (16 USC, Section 1532(19), 50 CFR, Section 17.3).

**Migratory Birds.** State and federal law also protect most birds. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

**Birds of Prey.** Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5 (1992), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a taking by the CDFG.



**Wetlands and Other Jurisdictional Waters.** Natural drainage channels and wetlands are considered Waters of the United States or, "jurisdictional waters." The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by ordinary high water marks on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 USACE Wetlands Delineation Manual (USACE 1987).

All activities that involve discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The RWQCB is also responsible for enforcing NPDES permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

CDFG has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1603 of the California Fish and Game Code. Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect habitat values of the drainage in question.

#### Impact

- Jurisdictional wetland habitat would be filled in order to implement the proposed project. This would be a *less-than-significant impact*.

Seasonal wetland swales and northern hardpan vernal pools in the study area meet the technical criteria of jurisdictional wetlands. The USACE asserts jurisdiction over these habitats, as well as over additional seasonal wetland and vernal pool habitats that were present prior to development of the existing golf course. These wetlands were filled at the time of golf course construction, but the golf course developer did not first secure a Clean Water Act Permit.

The applicant has received a permit from the USACE aggregating the wetlands resources of the completed golf course and the proposed project that provides mitigation for all of the impacts described above. The permit includes mitigation for all wetland resources impacted by the proposed project and by the existing golf course/country club, or a total of 4.04 acres of jurisdictional wetlands. Although the golf course has already been constructed, and impacts of the golf course are not a part of this project, the USACE permit includes mitigation for the golf course as well as the proposed project.

The permit requires the Copper River Ranch developer to mitigate the loss of 4.04 acres of waters of the United States by purchasing a total of 12.06 acres of credits for vernal pool wetlands at locations acceptable to the USACE. The time limit for completing the work authorized ends on September 30, 2007.

## Mitigation

No additional mitigation is required beyond compliance with the USACE permit.

## Impact

- Special status wildlife species could be adversely affected by project construction. This would be a *significant impact*.

Thirty-six special status animals occur regionally (see Table 2.5-2). Of these 36 species, 22 would not occur in the study area, or would be unlikely to occur there, due to the absence of suitable habitat. The proposed development is not expected to have any effect on regional populations of these 22 species.

Twelve species including the White-tailed Kite, Sharp-shinned Hawk, Merlin, Prairie Falcon, California Horned Lark, and Tri-colored Blackbird occur regionally and typically use habitats similar to those found in the study area. These 12 species would be expected to pass over the site, or venture on to it while foraging. Most of the site, however, provides marginal habitat for these species, at best. Although the small area of non-native grassland provides suitable foraging habitat for some of these species, it does not provide uniquely important habitat for them. The presence of large areas of similar habitat in the project vicinity ensures that the development will have little or no effect on regional populations of these 12 species.

The vernal pool fairy shrimp and vernal pool tadpole shrimp, federally threatened species, may occur in the two vernal pools of the study area. Proposed site development would result in the loss of these two pools and any vernal pool shrimp that may be present in them. The loss of habitat potentially occupied by this species would be considered a significant environmental impact. This potential impact has been mitigated to a less-than-significant level by purchase of vernal pool credits in accordance with the USACE permit discussed above with respect to wetland impacts. In formal consultation with the US Fish and Wildlife Service as part of the permit process, the Service determined that with permit compliance, effects will be minimized by preserving high quality vernal pool habitat elsewhere.

The California tiger salamander could also occur in the two vernal pools, although none have been found on the project site. With removal of the pools, breeding habitat for the species would not be present and impacts would be less-than-significant.

The proposed development will eliminate approximately 107 acres of non-native grassland potentially used by Burrowing Owls, a California species of special concern. Ground squirrel burrows provide cover and potential nesting habitat for this species. Although Burrowing Owls were not observed during the March, 2000 site visit, owl pellets were observed at two ground burrows. Therefore, construction activities will potentially result in mortality to Burrowing Owls that may become trapped in their nest burrows. Mortality of Burrowing Owls would constitute a significant adverse impact and a violation of both state and federal law.

The non-native grassland also provides potential breeding habitat for Northern Harriers; another ground-nesting raptor listed as a California species of special concern. This species favors dense tall grasses for nesting. This species was not breeding on the site at the time of the March 2000 site visit. Construction activities during the breeding season could result in mortality to the young of this species, should it be nesting on site at the time. Mortality of Northern Harriers would constitute a significant adverse environmental impact and a violation of both state and federal law.

## Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. A qualified biologist shall conduct a preconstruction survey for Burrowing Owls no more than 30 days prior to the on-set of project construction. This survey shall be conducted according to methods described in the *Draft Report on Burrowing Owl Mitigation* (CDFG 1995). If preconstruction surveys undertaken during the breeding season (February through July) locate active nest burrows within or near construction zones, the developer shall establish an appropriate construction-free setback around these nests until the conclusion of the breeding season. A qualified ornithologist in consultation with the CDFG shall determine the distance of the setback. At the conclusion of the nesting season these owls may be relocated as discussed below.
2. If preconstruction surveys undertaken during the non-breeding season (August through January) locate resident owls, these individuals may be relocated to alternative habitat. The relocation of resident owls shall be conducted according to a relocation plan prepared by a qualified biologist in consultation with CDFG. Passive relocation as described in *Draft Report on Burrowing Owl Mitigation* shall be the preferred method of relocation. The plan shall provide for the owls relocation to nearby lands possessing available nesting habitat. Ground squirrel populations and their burrow complexes can then be eliminated to prevent the return of Burrowing Owls at a later time when construction may occur.
3. A qualified biologist shall conduct a preconstruction survey for Northern Harriers no more than 30 days prior to the on-set of project construction, if construction is to occur during the breeding season (February through July). If active nest burrows are located within or near construction zones, the developer shall establish an appropriate construction-free setback around these nests until the conclusion of the breeding season. A qualified ornithologist in consultation with the CDFG shall determine the distance of the setback. The developer may also disc the non-native grassland prior to the onset of the breeding season. Discing shall prevent the growth of dense tall grasses favorable for nesting Northern Harriers.

## Level of Significance After Mitigation

Mitigation measures would reduce impacts to a less-than-significant level.

## Impact

- Implementation of the proposed project would convert approximately 107 acres of non-native valley grassland to urban development. This would be a *less-than-significant* impact.

Non-native valley grassland habitat commonly provides foraging habitat for a variety of wildlife species including raptors such as red-tailed hawk, black-shouldered kite, American kestrel, and northern harrier. In addition, many terrestrial wildlife species commonly use grassland habitat for breeding and foraging, particularly if the habitat is located adjacent to a riparian corridor or watercourse. The 107 acres of grassland habitat on the Copper River Ranch site represents approximately 15 percent of the total vegetative habitat within the project boundary. The grassland habitat is located on the eastern and northern edges of the project site in areas that have historically been grazed or in agricultural production.



Currently, the grassland habitat is periodically disturbed by mowing for fire protection and agricultural plowing. As a result, the value of this grassland habitat to wildlife is considered low by the project biologist. A substantial amount of higher value grassland habitat is found in surrounding areas outside the project site and individual species that use the project site would be displaced to other similar nearby habitat, with implementation of the project. The loss of this grassland habitat, because of its low value to wildlife as compared to other grassland habitat in the area, is not considered to be a significant impact.

#### Mitigation

None required.

#### Impact

- Special status plant species could be affected by project construction, resulting in a *less-than-significant impact*.

The study area provides marginal to entirely unsuitable habitat for special status vascular plant species known to occur regionally (see Table 2.5-2). Furthermore, special status plant species have never been documented in the study area, even though the study area was surveyed for vascular plants by Stebbins in 1992 and Carps in 1996 as part of a wetland delineation survey. Therefore, construction of the proposed project would have no effect on regional populations of special status plants.

#### Mitigation

None required.

#### Impact

- Project development could interfere with the movement of native wildlife, resulting in a less-than-significant impact.

The study area is not situated within an apparent movement corridor for native wildlife, although some species move within and through it. Project site development will have a small effect on home range and dispersal movements of native wildlife now occurring within the vineyard, non-native grassland and residential areas. Much of the site is, however, already disturbed annually by mowing for fire protection and agricultural plowing. Home range and dispersal movements are already subject to regular disturbance. The proposed development will replace one type of disturbed habitat for another. Therefore, the development will result in a less-than-significant effect on the movements of native wildlife.

#### Mitigation

None required.

#### Impact

- Project development could lead to the degradation of water quality in off-site seasonal creeks and downstream waters, resulting in a *significant impact*.



Extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil can be carried as sediment in seasonal creeks to be deposited in creek beds and adjacent wetlands. The study area is nearly level with moderately rolling hills. The granitic soils of the study area are considered erodible, but it is difficult to predict the magnitude of erosion resulting from future site development. Since there is the potential for significant erosion to occur, resulting in sediment loads in off-site seasonal creeks, this constitutes a significant adverse impact on downstream water quality and the aquatic organisms common to seasonal creeks and wetlands.

#### **Mitigation**

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Prior to site grading and preparation, a storm water pollution prevention plan prepared by a qualified geologist or consultant shall be submitted to and approved by the City of Fresno Public Works Department demonstrating compliance with water quality standards. Elements of this plan shall address both the potential for soil erosion and non-point source pollution.

#### **Level of Significance After Mitigation**

Implementation of the soil erosion control measures will reduce impacts to water quality in off-site seasonal creeks and downstream drainages to a less-than-significant level.

## 2.6 NOISE

### Introduction

This section was prepared by Brown-Buntin & Associates, Inc., acoustical consultants from Visalia, California. The complete report is contained in the Technical Appendices on file with the City of Fresno Planning and Development Department. The purpose of this analysis is to determine noise impacts due to traffic, CalMat's sand and gravel operations, and proposed on-site commercial uses. Mitigation measures are identified which may be used to minimize the noise impacts of the project. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning and annexation of Copper River Ranch. Subsequent specific plans, use permits, or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

The project site is used for agriculture, grassland, golf course, and scattered residential purposes. Nearby sources of noise are traffic on public roads, CalMat operations, agricultural equipment, and occasional aircraft overflights.

### Background Noise Level Measurements

Continuous background noise level measurements were conducted within the site for a 24-hour period on May 8-9, 2000 at a location southwest of the clubhouse. Also, a second 24-hour noise level measurement was conducted in the backyard of 8763 Eureka within the Woodward Lake project. This location is representative of residences bordering Friant Road. Noise monitoring equipment consisted of a Larson Davis Laboratories Model 820 integrating sound level meters equipped with a Bruel & Kjaer (B&K) Type 4176 1/2" microphone. The instrumentation complies with applicable requirements of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters and was calibrated prior to use with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements.

Figure 2.6-1 shows the range of noise levels on an hourly basis at the measurement site within the project. The highest noise levels occurred from about 6 a.m. through 8 p.m. After 8 p.m., noise levels dropped substantially. Based on observations, traffic noise from Friant Road and Copper Avenue are the principal noise sources affecting the project site. The average day/night sound level ( $L_{dn}$ ) for the 24-hour measurement period was 67.7 dBA.

Figure 2.6-2 represents existing noise levels at residential property (8763 Eureka) adjacent to Friant Road. Note that noise levels are relatively steady, dipping only moderately from about 11 p.m. to 5 a.m. The dominate noise source was traffic on Friant Road. The  $L_{dn}$  for the 24-hour measurement period was 70.8 dB.

FIGURE 2.6-1

Background Noise Levels Within Project Site  
May 8-9, 2000

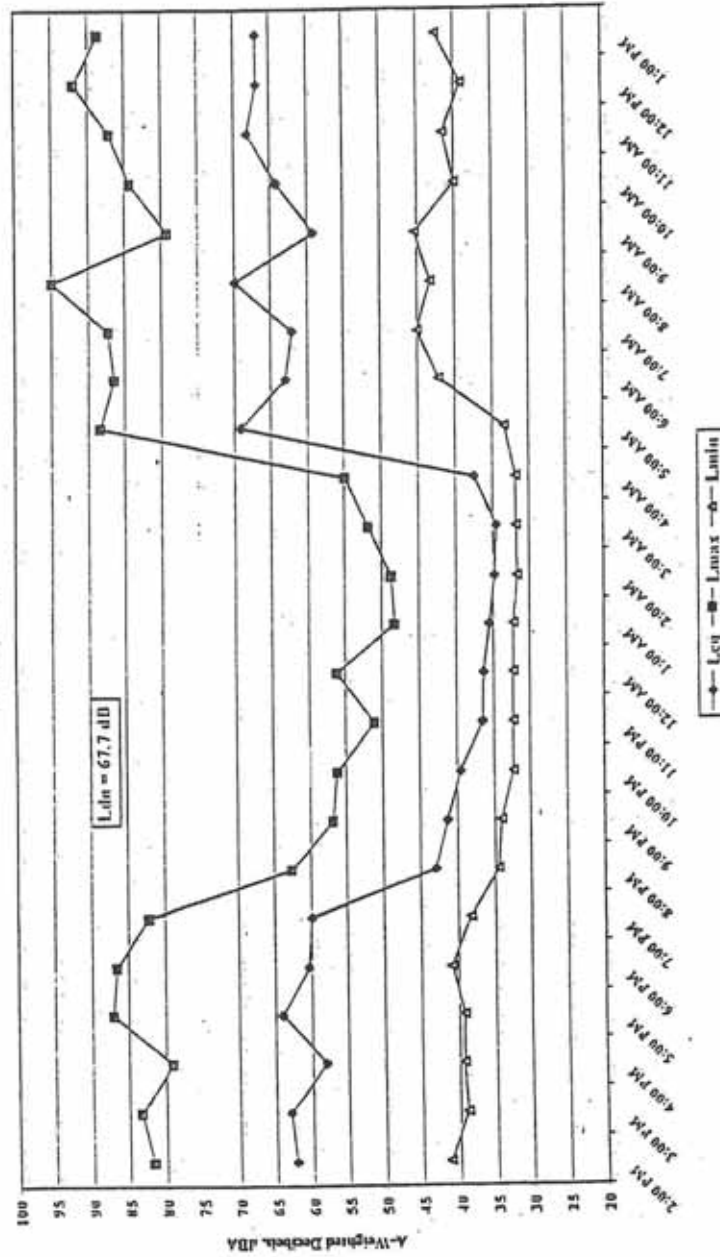
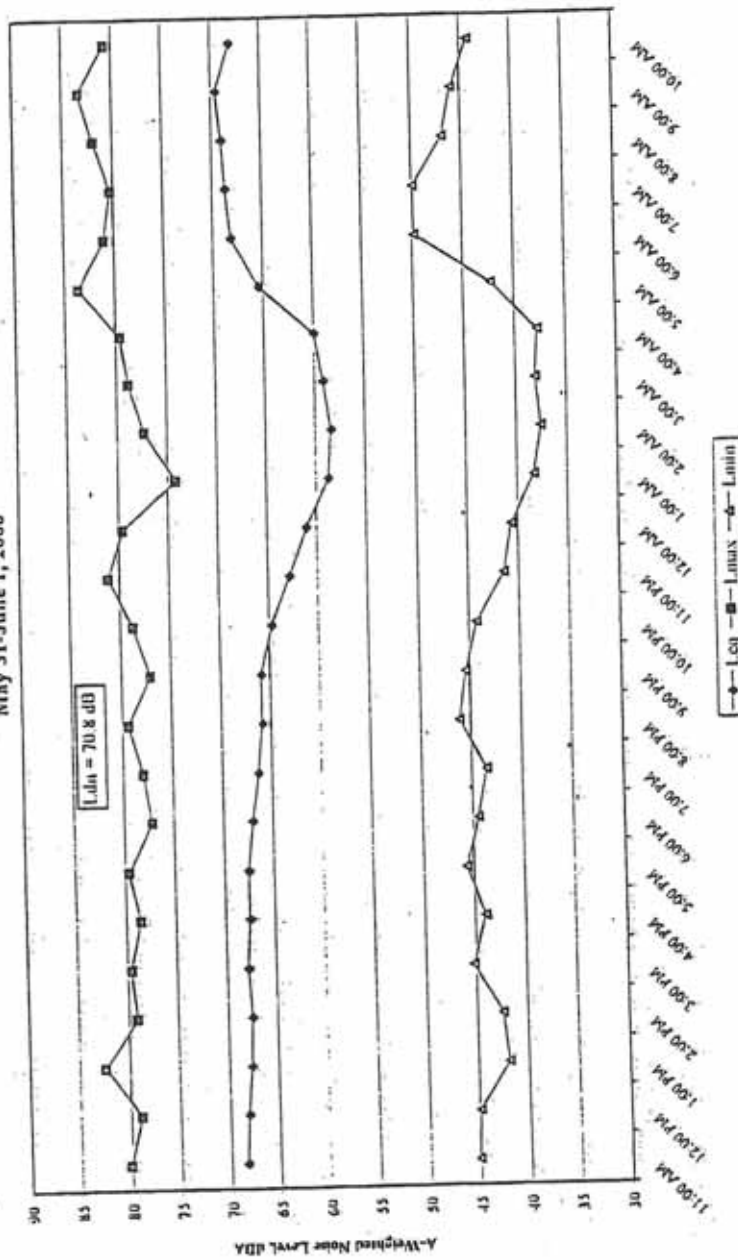


FIGURE 2.6-2

Background Noise Levels at 8763 Eureka  
May 31-June 1, 2000





### Existing Traffic Noise Levels

Existing traffic noise levels were calculated using the FHWA Highway Traffic Noise Prediction Model. The FHWA Model is the standard methodology recommended by the FHWA and Caltrans for traffic noise prediction. The noise reduction provided by existing block walls and wood fences along Friant Road and other roadways were estimated in the calculations. Traffic data used in the FHWA Model were obtained from the traffic impact study for the project. Table 2.6-1 is a summary of existing traffic noise conditions along roads bordering the project site and in the project vicinity.

TABLE 2.6-1 SUMMARY OF EXISTING TRAFFIC NOISE LEVELS	
Roadways	$L_{dn}$ at Nearest Residences
<b>Friant Road</b>	
Audubon-Copper River	66-70
Copper River-N. Fork	64-66
<b>Willow Avenue</b>	
Shaw-Shepherd	61-70
Shepherd-Friant	59-61
<b>Shepherd Avenue</b>	
Willow-Minnewawa	59-62
<b>Herndon Avenue</b>	
Willow-Tollhouse	66-69
<b>Copper Avenue</b>	
Millbrook-Willow	61-63

Source: Brown-Buntin Associates, Inc.

The table shows that existing traffic noise levels at residences nearest the roadway generally exceed 60 dB  $L_{dn}$  which is the City of Fresno's compatibility standard for residential land uses.

### Miscellaneous Noise Sources

Noise exposure on the project site and in the project vicinity from aircraft overflights and agricultural equipment is minor. CalMat noise exposure is addressed in the Impacts section.

## IMPACTS

Traffic noise impacts were determined using the FHWA Highway Traffic Noise Prediction Model. The FHWA Model is the standard methodology recommended by the FHWA and Caltrans for traffic noise prediction. Traffic data used in the FHWA Model were obtained from the EIR traffic consultant from the most recent projections prepared for the project.

Noise exposure information for CalMat operations was obtained from the *Supplemental Environmental Noise Analysis*, prepared by Brown-Buntin Associates, Inc., October 25, 1995.

### Standards of Significance

Significant noise impacts occur when the project exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project.

#### Overall Noise Level Standards

The standards in the City of Fresno Noise Element and Noise Ordinance determine the acceptable noise environment for proposed residential uses. No federal or state noise standards are applicable to this project. For urban residential uses, the City of Fresno Noise Element sets a maximum Day/Night Average Level ( $L_{dn}$ ) of 60 dB. The Noise Element also establishes maximum hourly  $L_{50}$  values of 50 dBA in the daytime (7:00 a.m.-10:00 p.m.) and 45 dBA at night (10:00 p.m.-7:00 a.m.).

The City of Fresno Noise Ordinance sets hourly noise level standards at the exterior of residential uses. The Noise Ordinance standards apply only to noise sources that are subject to local control, as opposed to noise sources such as aircraft and automobiles that are regulated by state and federal authority. Table 2.6-2 summarizes the Noise Ordinance standards. Note that the  $L_{50}$  standards of the Noise Ordinance are identical to the  $L_{50}$  standards of the Noise Element.

#### Increases in Ambient Noise Levels

**Transportation-related Noise.** CEQA does not define the word "substantial" as used in the Guidelines; nor do the adopted City of Fresno noise standards. In 1992, the Federal Interagency Committee on Noise (FICON) provided guidance in the assessment of changes in ambient noise levels resulting from aircraft operations. Their recommendations are based upon studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of the  $L_{dn}$  or CNEL. Annoyance is a summary measure of the general adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment.

Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis for all transportation noise sources that are described in terms of cumulative noise exposure metrics such as the  $L_{dn}$  or CNEL. These metrics define noise exposure in terms of average noise exposure during a 24-hour period with penalties added to noise that occurs during the nighttime or evening. Table 2.6-3 summarizes the FICON recommendations.

**TABLE 2.6-2  
CITY OF FRESNO NOISE ORDINANCE STANDARDS**

Category ( $L_n$ *)	Daytime Standards, dBA (7 a.m.-10 p.m.)	Nighttime Standards, dBA (10 p.m.-7 a.m.)
1 ( $L_{50}$ )	50	45
2 ( $L_{25}$ )	55	50
3 ( $L_{10}$ )	60	55
4 ( $L_{5}$ )	65	60
5 ( $L_{1}$ )	70	65

Notes:

\* $L_n$  means the percentage of time during an hour that a noise level may not be exceeded. For example, the  $L_{50}$  standard in the daytime column means that 50 dBA may not be exceeded for more than 50% of the time during an hour, the  $L_{25}$  standard in the daytime column means that 55 dBA may not be exceeded for more than 25% of the time during an hour, etc.

**TABLE 2.6-3  
SUBSTANTIAL INCREASES FOR TRANSPORTATION NOISE EXPOSURE**

Ambient Noise Level Without Project ( $L_{dn}$ or CNEL)	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Sources: FICON as applied by Brown-Buntin Associates, Inc.

Traffic noise levels were calculated for four traffic scenarios: a) Year 2012 No Project; b) Year 2012 With Project; c) Year 2020 No Project; d) Year 2020 With Project.

Traffic noise levels were calculated using the FHWA Model and traffic information provided by the traffic impact study prepared for this project. The critical location for calculating noise impacts is at the nearest residences to the roadways, which vary from about 60 to 100 feet from road centers. Wood or concrete block fences are located along many roads, notably Friant Road.

The noise reduction provided by these structures could vary from about three dB to eight dB depending on many factors. It was assumed for the traffic noise level calculations that where such structures were present, they would reduce traffic noise by five dB.

Table 2.6-4 shows traffic noise levels within the project site. Since the concern within the project site is the absolute noise level, not the change in noise levels, the worst-case traffic scenario (2020 with project) was used for analysis and for determining mitigation measures.

TABLE 2.6-4 TRAFFIC NOISE LEVELS AT NEAREST RESIDENTIAL LOCATIONS WITHIN THE PROJECT SITE			
Roadway Name	Roadway Description	$L_{dn}$ , dB 2020 w/Project	Significant Noise Impact
<b>Friant Road</b>	Copper - Country Club	72	Y
	Country Club - Willow	68	Y
<b>Copper Ave.</b>	Millbrook - Cedar	68	Y
	Cedar - Maple	68	Y
	Maple - Chestnut	68	Y
	Chestnut - Willow	66	Y
<b>Willow Ave.</b>	Copper - S Proj. Rd.	65	Y
	S. Proj. Rd. - N. Proj. Rd.	63	Y
	N. Proj. Rd. - Friant Rd.	61	Y

The table shows that worst-case traffic noise levels (year 2020 with project) are predicted to exceed the City of Fresno's 60 dB  $L_{dn}$  standard at proposed residential locations within the project site. This is a significant noise impact which will require mitigation. Figure 2.6-3 shows the approximate location of the 60 dB  $L_{dn}$  contour within the project site.

Tables 2.6-5 and 2.6-6 show traffic noise levels for year 2012 and 2020 traffic conditions at existing residential locations *outside* the project site. The no-project condition is compared to the with-project condition to show the change in traffic noise levels attributable to the project.



TABLE 2.6-5: YEAR 2012 TRAFFIC NOISE LEVELS AT EXISTING OFF-SITE RESIDENCES

Roadway Name	Roadway Description	L <sub>day</sub> , dB		Change, dB	Signif. Noise Impact	Reason	Comments
		No Project	With Project				
<b>Friant Rd</b>	Audubon Dr to Shepherd Ave	72	73	1	N	Not Substantial Noise Increase	Adjacent Residences
	Shepherd Ave to Ft Washington Rd	70	71	1	N	Not Substantial Noise Increase	Adjacent Residences
	Ft Washington Rd to Champlain Dr	69	71	2	Y	Substantial Noise Increase	Adjacent Residences
	Champlain Dr to Rice Rd	69	71	2	Y	Substantial Noise Increase	Adjacent Residences
	Rice Rd to Copper Ave	69	71	2	Y	Substantial Noise Increase	Adjacent Residences
<b>Auberry Rd</b>	Willow Ave to N Fork	67	67	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Copper Ave to Marina Dr	66	67	1	N	Not Substantial Noise Increase	Few Rural Residences
	Friant Rd to Copper Ave	64	65	1	N	Not Substantial Noise Increase	Adjacent Residences
	Willow Ave to Peach Ave	66	67	1	N	Not Substantial Noise Increase	Few Rural Residences
	Peach Ave to Auberry Rd	68	69	1	N	Not Substantial Noise Increase	Few Rural Residences
<b>Willow Ave</b>	Auberry Rd to Minnewawa Ave	66	66	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Shaw Ave to Bullard Ave	71	71	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Bullard Ave to Herndon Ave	66	66	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Herndon Ave to Alluvial Ave	71	72	1	N	Not Substantial Noise Increase	Adjacent Residences
	Alluvial Ave to Nees Ave	70	70	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Shepherd Ave to Perrin Ave	68	69	1	N	Not Substantial Noise Increase	Few Rural Residences
	Perrin Ave to Behlmer Ave	67	68	1	N	Not Substantial Noise Increase	Few Rural Residences

TABLE 2.6-5 (continued): YEAR 2012 TRAFFIC NOISE LEVELS AT EXISTING OFF-SITE RESIDENCES

Roadway Name	Roadway Description	L <sub>dn</sub> , dB		Change, dB	Signif. Noise Impact	Reason	Comments
		No Project	With Project				
Willow Ave (concluded)	Behymer Ave to International Ave	64	67	3	Y	Substantial Noise Increase	Few Rural Residences
	International Ave to Copper Ave	64	66	2	N	Substantial Noise Increase	Few Rural Residences
Chestnut Ave	Herndon Ave to Nees Ave	62	62	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Nees Ave to Shepherd Ave	64	65	1	N	Not Substantial Noise Increase	Adjacent Residences
Chestnut / Maple	Shepherd Ave to Behymer Ave	61	64	3	Y	Substantial Noise Increase	Adjacent Residences
Maple Ave	Behymer Ave to International Ave	54	58	4	N	Not Substantial Noise Increase	Adjacent Residences
	International Ave to Copper Ave	49	56	7	Y	Substantial Noise Increase	Adjacent Residences
Shepherd Ave	Willow Ave to Minnewawa Ave	62	63	1	N	Not Substantial Noise Increase	Few Rural Residences
	Minnewawa Ave to Fowler Ave	63	64	1	N	Not Substantial Noise Increase	Few Rural Residences
	Fowler Ave to Temperance Ave	60	60	-0-	N	Not Substantial Noise Increase	Adjacent Residences
Herndon Ave	Clovis Ave to Fowler Ave	68	68	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Fowler Ave to Tollhouse Rd	66	66	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Tollhouse Rd to De Wolf Ave	66	66	-0-	N	Not Substantial Noise Increase	Few Rural Residences

Source: Brown-Buntin Associates, Inc.



TABLE 2.6-6: YEAR 2020 TRAFFIC NOISE LEVELS AT EXISTING OFF-SITE RESIDENCES

Roadway Name	Roadway Description	L <sub>day</sub> , dB		Change, dB	Signif. Noise Impact	Reason	Comments
		No Project	With Project				
Friant Rd	Audubon Dr to Shepherd Ave	73	74	1	N	Not Substantial Noise Increase	Adjacent Residences
	Shepherd Ave to Ft Washington Rd	71	72	1	N	Not Substantial Noise Increase	Adjacent Residences
	Ft Washington Rd to Champlain Dr	70	72	2	Y	Substantial Noise Increase	Adjacent Residences
	Champlain Dr to Rice Rd	70	72	2	Y	Substantial Noise Increase	Adjacent Residences
	Rice Rd to Copper Ave	70	71	1	N	Not Substantial Noise Increase	Adjacent Residences
Auberry Rd	Willow Ave to N Fork	70	70	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Copper Ave to Marina Dr	68	68	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Friant Rd to Copper Ave	66	68	2	Y	Substantial Noise Increase	Adjacent Residences
	Willow Ave to Peach Ave	67	68	1	N	Not Substantial Noise Increase	Few Rural Residences
	Peach Ave to Auberry Rd	69	70	1	N	Not Substantial Noise Increase	Few Rural Residences
Willow Ave	Auberry Rd to Minnewawa Ave	69	70	1	N	Not Substantial Noise Increase	Few Rural Residences
	Shaw Ave to Bullard Ave	72	72	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Bullard Ave to Herndon Ave	67	67	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Herndon Ave to Alluvial Ave	72	72	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Alluvial Ave to Nees Ave	69	70	1	N	Not Substantial Noise Increase	Adjacent Residences
	Shepherd Ave to Perrin Ave	67	68	1	N	Not Substantial Noise Increase	Few Rural Residences
	Perrin Ave to Behymer Ave	66	67	1	N	Not Substantial Noise Increase	Few Rural Residences

TABLE 2.6-6 (continued): YEAR 2020 TRAFFIC NOISE LEVELS AT EXISTING OFF-SITE RESIDENCES

Roadway Name	Roadway Description	L <sub>day</sub> , dB		Change, dB	Signif. Noise Impact	Reason	Comments
		No Project	With Project				
Willow Ave (concluded)	Behymer Ave to International Ave	64	65	1	N	Not Substantial Noise Increase	Few Rural Residences
	International Ave to Copper Ave	63	65	2	N	Not Substantial Noise Increase	Few Rural Residences
Chestnut Ave	Herndon Ave to Nees Ave	63	63	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Nees Ave to Shepherd Ave	66	66	-0-	N	Not Substantial Noise Increase	Adjacent Residences
Chestnut / Maple	Shepherd Ave to Behymer Ave	65	67	2	N	Not Substantial Noise Increase	Adjacent Residences
Maple Ave	Behymer Ave to International Ave	57	60	3	N	Not Substantial Noise Increase	Adjacent Residences
	International Ave to Copper Ave	52	58	6	Y	Substantial Noise Increase	Adjacent Residences
Shepherd Ave	Willow Ave to Minnewawa Ave	67	67	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Minnewawa Ave to Fowler Ave	67	67	-0-	N	Not Substantial Noise Increase	Few Rural Residences
	Fowler Ave to Temperance Ave	64	64	-0-	N	Not Substantial Noise Increase	Adjacent Residences
Herndon Ave	Clovis Ave to Fowler Ave	69	69	-0-	N	Not Substantial Noise Increase	Adjacent Residences
	Fowler Ave to Tollhouse Rd	67	66	-1	N	Not Substantial Noise Increase	Few Rural Residences
	Tollhouse Rd to De Wolf Ave	65	65	-0-	N	Not Substantial Noise Increase	Few Rural Residences

Source: Brown-Buntin Associates, Inc.



**Non-transportation Noises.** For non-transportation (stationary) noise sources, it is common to assume that a minimum three dB increase in noise levels represents the threshold for significant noise impacts. This is based on laboratory tests that indicate a three dB increase is the minimum change perceptible to most people.

#### Impact

- The proposed project would cause temporary increases in construction noise levels on and around the site over the entire period of construction. This would be a short-term *significant impact*.

During construction of the project, noise from construction activities would potentially impact noise-sensitive land uses in the immediate area. Activities involved in construction would generate noise levels at 50 feet as indicated by Table 2.6-7. Construction activities would be temporary in nature and would most likely occur only during daytime hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

TABLE 2.6-7 TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS	
Type of Equipment	Maximum Level, dB (50 Ft.)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Cunniff, 1977

#### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. The contractor shall limit noise generating construction to a time schedule of 7:00 a.m. to 7:00 p.m. Monday through Saturday.
2. Properly muffled construction equipment shall be used.

#### Level of Significance After Mitigation

The mitigation measure would reduce construction noise impacts to a less-than-significant level.

### Impact

- Project residents would be affected by traffic noise on adjacent roadways. This would be a *significant impact*.

The analysis of traffic noise impacts from Tables 2.6-4 and 2.6-5 can be divided into noise impacts *within* the project site due to traffic noise along portions of Friant Road, Copper Avenue and Willow Avenue; and traffic noise impacts at existing residential areas *outside* the project site. Within the project site, year 2012 and 2020 traffic noise levels will exceed the City's 60 dB  $L_{dn}$  compatibility standard along Friant Road, Copper Avenue and Willow Avenue, and therefore are significant. Noise barriers in the range of 6 to 10 feet in height would be necessary depending on site design and grading requirements. Setbacks from the roads matching the 60 dB  $L_{dn}$  contours also would mitigate traffic noise impacts. The minimum setbacks from Friant Road, Copper Avenue and Willow Avenue would be approximately 460, 270 and 250 feet, respectively, in order to meet noise standards without placement of barriers.

### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Site-specific acoustical analyses, conducted by a qualified acoustical consultant, shall be required when actual lot design is proposed and a grading plan is approved, so that noise attenuation measures can be applied based on specific design, including setbacks, sound walls, and location of non-noise sensitive land uses.

### Level of Significance After Mitigation

The mitigation measure would reduce traffic noise impacts to a less-than-significant level.

### Impact

- Traffic-related noise attributable to the project would impact existing off-site residential locations. This would be a *significant, unavoidable impact*.

Tables 2.6-5 and 2.6-6 show that, outside the project site, the project will cause substantial noise increases at existing residences along Friant Road, Willow Avenue, and Maple Avenue. Residential locations that would be significantly impacted due to project-related traffic noise are Friant Road from Ft. Washington to Copper; Willow Avenue from Behymer to International; Chestnut/Maple diagonal from Shepherd Avenue to Behymer Avenue; and Maple Avenue from International Avenue to Copper Avenue.

The tables also show that some segments determined to have substantial impacts in 2012 do not have a substantial project contribution to traffic noise impacts in 2020. This applies to Friant Road between Rice Road and Copper Avenue; Willow Avenue between Behymer Avenue and International Avenue; and Chestnut/Maple diagonal between Shepherd Avenue and Behymer Avenue. The traffic model used for the analysis assigns traffic to new street segments as they are improved and can show a slight decrease in traffic on certain segments over time. Alternatives for mitigating traffic noise at existing off-site residential locations are construction of sound walls, relocation or demolition of adversely affected residences, and soundproofing of adversely affected residences. Usually, construction of sound walls is the most practical and cost-effective way to reduce traffic noise levels.

Sound walls would be an effective mitigation measure at the adversely affected residential locations along Friant Road, the Chestnut/Maple diagonal and Maple Avenue. Residences at these locations either back onto the road or there is a frontage road between the homes and the road.

A sound wall would not be effective or desirable along Willow Avenue from Behymer Avenue to International Avenue because residences obtain access from Willow Avenue in this area. Access openings in the sound wall would compromise its effectiveness. Also, gaps in the sound wall may reduce sight distances for vehicles entering the road from private driveways. The only mitigation available for adversely affected residences along Willow Avenue are relocation or soundproofing. These measures have not been customarily used in the City of Fresno to mitigate traffic noise impacts. In addition, noise impacts along Willow Avenue attributable to the project are reduced to a less-than-substantial level in 2020.

At the remaining locations for 2020 traffic levels, a sound wall would serve as an effective noise mitigation measure. Along Friant Road, it is noted that existing wood fences are being replaced by masonry sound walls between Champlain and Copper Avenue that will provide an effective barrier against projected noise increases as a result of the project. There are no residential land uses adjacent to Friant Road between Champlain and Ft. Washington. As a result, no additional mitigation is required by the project on Friant Road between Copper and Ft. Washington Road.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. The developer shall pay a proportionate share, based on contribution to traffic in 2020 as determined in the project-specific traffic study prepared for projects within Copper River Ranch, of the costs of constructing appropriate noise mitigation on Maple Avenue between International Avenue and Copper Avenue. Noise improvements shall be installed, as necessary, to reduce outdoor levels to 60 dB  $L_{dn}$  or lower.

#### Level of Significance After Mitigation

The mitigation measure would reduce impacts to a less-than-significant level in 2020 along these roadway segments. For those segments projected to have substantial impacts between the years 2012 and 2020, impacts will be significant and unavoidable.

#### Impact

- Project residents adjacent to planned infrastructure improvements and proposed commercial/office areas would be exposed to increased noise levels. This would be a *significant impact*.

Residents adjacent to water well pumps and commercial areas and near the wastewater treatment facility could be exposed to various levels of noise. Well water pumps produce a low level hum which would be barely audible at 50 feet from the pump when a solid perimeter fence is constructed around the well site. The wastewater treatment facility would have a low-level pump, other electrical equipment, and truck delivery noise. Because the wastewater treatment plant would be separated from the residential area by a six-foot wall, noise produced by the wastewater treatment plant would be attenuated to less than 60  $L_{dn}$ .



Specific commercial uses for the project are not proposed at this time. Noise sources commonly associated with commercial property include air conditioning units, trash compactors, fans, compressors, and truck deliveries. Whether a commercial use will cause significant noise impacts depends on the specific sources associated with the use, and proximity to noise-sensitive uses. Mitigation measures available for commercial uses are sound walls, enclosures, use of "quiet" technology equipment, and site design. Specific commercial uses should be reviewed for their potential to produce significant noise impacts, and, as required, specific noise studies should be conducted to determine the most effective and practical mitigation measures.

#### **Mitigation**

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Site-specific acoustical analyses, conducted by a qualified acoustical consultant, shall be required when actual design is proposed and a grading plan is approved, so that abatement measures can be applied based on specific design, including setbacks, sound walls, and location of non-noise sensitive land uses.

#### **Level of Significance After Mitigation**

The mitigation measure would reduce commercial noise impacts to a less-than-significant level.



## 2.7 DRAINAGE

### Introduction

This section analyzes drainage methods to be used on-site and includes a discussion of existing drainage facilities.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

No creek channel or other surface waters, including ditches, exist on the project site. There are several manmade lakes associated with the existing golf course which total approximately 14 surface acres. As detailed in the Section 2.8, Wastewater, surface water is delivered to the site from the City of Fresno and FID for recharge in these lakes.

The project site is out of the San Joaquin River floodway and is not located in any flood zone according to the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA), Community Panel Number 0650290590 B, effective date December 1, 1982, and to updated maps currently on file but not adopted. Topographical maps for the project area show that the natural drainage pattern flows toward the southwestern boundary of the site. The site has established drainage patterns associated with the golf course, vineyards, orchards, and field crops.

### Drainage

The project site is within the service area of FMFCD and lies within FMFCD's Drainage Areas "DE" and "DN." The proposed land uses, with exception of potential mixed-use commercial areas and any future medium-high density residential uses within the project interior, are consistent with the District's planned uses. The entire site is currently planned for medium density residential uses on the District's plan. Storm drainage facilities to serve any mixed-use and medium-high density areas have not been constructed. Future FMFCD Master Plan storm drains would have to be up-sized at the developer's expense to accommodate these higher intensity uses.

Storm drainage service will be provided through construction of FMFCD Master Plan facilities or in cases where permanent facilities can not be made available at the time of development, that temporary facilities will be constructed until permanent FMFCD facilities are available.

FMFCD has secured storm drainage and surface drainage easements from the developer for the areas constructed within the golf course. These easements are in place to accommodate future development adjacent to the golf course.

The property owner and FMFCD have worked together to design a backbone drainage collection system to serve the golf course and to transmit drainage water to the recharge lakes and FMFCD basins. The FMFCD Drainage Master Plan has undergone independent environmental review for the construction of these facilities including the watershed area. Future drainage engineering will be required to integrate the existing drainage collection and transmission system with the residential and commercial development proposed for the project site.

### Water Quality

**EPA Stormwater Discharge Permitting Regulations.** The 1972 amendments to the Clean Water Act prohibit the discharge of pollutants to navigable waters from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The EPA, using the results of Nationwide Urban Runoff Program (NURP) studies of commercial and residential stormwater characteristics, has developed the permitting strategy described in the municipal stormwater permitting regulations. It is within the existing authority of the RWQCB to issue an NPDES permit for any stormwater out fall to the waters of the United States. The City of Fresno Public Works Department is responsible for issuing and monitoring NPDES permits as necessary with site grading permits.

Effective October 1, 1992, general stormwater discharge permits are required for stormwater discharges associated with construction activity on parcels of five acres or more. Construction on sites less than five acres requires a permit if it is part of a larger development or land sale. Landowners are responsible for obtaining and complying with the permits, thereby reducing liability for developers and contractors who do not hold title to the parcels.

Permit applicants are required to prepare, and retain at the construction site, a stormwater pollution prevention plan which describes the site, erosion and sediment controls, means of waste disposal, implementation of approved local plans, control of post-construction sediment, and erosion control and non-stormwater management. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity.

**Urban Runoff Quality.** EPA administers the NURP to characterize urban runoff quality. Heavy metals were observed to be the most prevalent priority pollutant constituents, and concentrations in urban runoff were found to exceed EPA ambient water quality criteria and drinking water standards in many cases. Organic priority pollutants were also identified, but at a lower frequency and at lower concentrations than the heavy metals. Constituents found in urban runoff vary. During seasonal dry periods, pollutants contributed by vehicle exhaust, vehicle and tire wear, crankcase dripping, and atmospheric fallout accumulate within the watershed. Precipitation during the early portion of the wet season displaces these pollutants into the stormwater runoff resulting in high pollutant concentrations in the initial wet weather runoff. This initial runoff with peak pollutant levels can be referred to as the "first flush" of a storm event or events.

### Storm Drainage Master Plan

A storm drainage master plan will be required for the project. The purpose of the plan is to provide a storm drainage collection and disposal system for the proposed project. The storm drainage system and detention basin facility will be designed in accordance with FMFCD requirements, which will be responsible for its operation and maintenance.

The recurrence intervals used for this project are those of FMFCD; a 100-year, ten-day event storm for detention basin capacity and a two-year, 24-hour storm event for the storm drain collection system. The residual capacity in the 14 acres of on-site lakes and FMFCD basin "DE", plus a portion of basin "DN" when constructed, are of sufficient capacity to accommodate storm run-off from the proposed project. Some capacity of drainage area "BZ" may be required in extreme run-off conditions (see Section 2.8, Wastewater).

## IMPACTS

The evaluation of hydrological impacts was primarily based on information provided by FMFCD. Hydrologic effects of the proposed project were evaluated for potential impacts to the drainage of stormwater in the vicinity compared to the existing and proposed conditions for the project area to determine impacts to drainage facilities and water quality.

### Standards of Significance

For the purposes of this EIR, an impact was considered to be significant if the proposed project would cause substantial flooding (including the need for new flood control facilities), erosion or siltation; or substantial degradation of water quality.

### Impact

- Increased runoff generated by the proposed project will require new flood control facilities. This is a *less-than-significant impact*.

Although portions of the storm drainage facilities have been constructed, permanent service is currently not available. Basin "DE" located on the north side of Copper Avenue and west of the Maple Avenue alignment has been acquired by FMFCD. The basin site has not been fenced or excavated and its current use is a vineyard.

Basin "DE" will serve the westerly portion of the project. Basin "DE" will be constructed by FMFCD as revenues from development assessments become available. If Basin "DE" has not been developed prior to project construction, the developer will be required to provide interim flood protection facilities in accordance with FMFCD policy.

Basin "DN" located north of the project site near the intersection of Willow Avenue and Friant Road has been acquired. Basin "DN" will serve the easterly portion of the area.

The developer has indicated that he will excavate Basin "DE" to modify the basin plan for recreation use; plans are currently being prepared to make the appropriate modifications in design. Basin "DE" is located adjacent to Copper Avenue and may be affected by the widening of Copper to four or six lanes. Any additional right-of-way for Copper Avenue needed across the frontage of the basin not already obtained must be paid to FMFCD to reimburse land acquisition costs.

The District has entered into a master development agreement with the developer. The District's private lakes policy is a part of this agreement and makes the developer responsible for maintaining, monitoring, and cleaning private project lakes.

Transmission of stormwater will be through a combination of pipelines and surface facilities contained in the drainage master plan to be approved by FMFCD. The drainage master plan, including conveyance pipes, shall be designed and constructed in accordance with FMFCD criteria to detain stormwater runoff generated by the project on-site for a 100-year 10-day storm event. The drainage master plan for the site, combined with ponding basins to be constructed by FMFCD, will reduce potential storm drainage impacts to a less-than-significant level.

#### Mitigation

None required.

#### Impact

- Increased runoff could result in erosion, sedimentation, and increased levels of contaminants, including nutrients, resulting in possible water quality impacts associated with detention facilities. This is a *significant impact*.

The amount of runoff generated by the project would be greater than that under existing conditions due to an increase in impervious surfaces. There would be a corresponding increase in roadway contaminants such as heavy metals, oil and grease, as well as an increase in nutrients such as fertilizers and other chemicals from landscaped areas. These constituents could result in water quality impacts to detention facilities. No project generated runoff will leave the proposed project site unless directed toward an FMFCD facility.

The Fresno-Clovis Storm Water Quality Management Program has developed a Model Construction Activities Storm Water Pollution Prevention Plan and has adopted Construction and Post-Construction Site Storm Water Quality Management Guidelines. These resource documents were developed to assist the construction and development community in complying with State and Federal storm water regulations.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

- The master storm water plan developed and implemented for the project shall include all applicable best management practices identified in the Construction and Post-Construction Guidelines to ensure that pollutants are controlled to standards required by the City of Fresno and the State of California.

#### Level of Significance After Mitigation

Implementation of the above mitigation measure would reduce impacts to a less-than-significant level.



## 2.8 WASTEWATER TREATMENT

### Introduction

This section was prepared by Provost & Pritchard Engineering Group of Fresno, California. The complete report is included in the Technical Appendices on file with the City of Fresno Planning and Development Department. This section discusses various alternatives proposed to treat and manage wastewater, and discusses several potential impacts of the management methods proposed.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

At build out, Copper River Ranch will contain as many as 2,837 houses, plus nearly 60 acres of mixed-use commercial development. The proposed development will be built in stages as market demands dictate. No firm plan for the sequence of development exists at present, although it is anticipated that build out of the entire project site may require 10-15 years.

The development surrounds the existing Copper River Country Club which includes a golf course, clubhouse, and tennis complex. This facility is presently served with potable water from a private well, and uses septic tanks and leach fields for wastewater treatment and management. Should further development be approved at Copper River Ranch, the clubhouse infrastructure will be transferred to receive water and wastewater service from new facilities. The present golf course is irrigated from two sources: private wells and Fresno Irrigation District (FID) water delivered through the Enterprise Canal and the Phillips Ditch. Two sources of FID water are available to the golf course operation- an agricultural supply also used for vineyard, irrigation, and a second source owned by the City of Fresno. In addition to vineyard and golf course irrigation, surplus water is applied to the golf course lakes for percolation. This percolation provides intentional groundwater recharge, benefiting City of Fresno wells in the vicinity.

The Fresno regional wastewater treatment plant is located approximately 16 miles southwest of the proposed project near the intersection of Jensen Avenue and Cornelia Avenue. The current permitted treatment and disposal capacity of the Fresno/Clovis regional facility is 88 million gallons per day (mgd). The City of Fresno has completed plans to expand the treatment plant to 100 mgd, a level sufficient to accommodate projected growth for the next 10 years.

According to the City of Fresno Department of Public Utilities, there will be an estimated 15 percent overload of the Herndon Trunk Sewer with full development of the Urban Reserve Area within the Woodward Park Community Plan. While mitigation measures were adopted to serve the entire Urban Reserve Area, there will be no remaining capacity for additional growth north of Copper Avenue.

In response to lack of permanent capacity in the Herndon sewer trunk, an on-site wastewater treatment and reclamation facility has been planned by the developer to serve the project. The proposed facility is consistent with wastewater treatment and reclamation facilities approved for other projects in Fresno County and elsewhere in the State for residential projects. The objective of the community reclamation facility is to provide wastewater services to the development and use reclaimed wastewater to supplement the irrigation supply needed for the Copper River Ranch golf course. The mechanical facilities of this system are proposed to be contained within a single 8,000 square foot building located near the lowest elevation on the proposed site approximately one mile east of Friant Road near the existing PG&E substation.

Wastewater treated in the proposed reclamation facility will be collected in conventional gravity sewer lines from all development located within the project. Because of the reclamation facility location near the lowest elevation, it is anticipated that only one major lift station will be required to lift the wastewater from a below-grade elevation to the above-grade treatment plant.

#### **Previous Project Studies**

In the middle 1990s, the Copper River Ranch owner began to study further development around the existing golf course. At that time, a different pattern of development and a slightly different mix of land uses were considered. Several reports were generated for the previously proposed development. Those studies evaluated water and wastewater issues for approximately 1,800 residential units.

Although the present project contains several substantive changes from the development previously proposed, the previous studies present a comprehensive discussion of water and wastewater issues, and are used herein to provide a technical basis for this study. These studies include:

- Copper River Ranch Effluent Management Plan; Ripley, July, 1995 (Ripley 1995)
- Copper River Ranch Effluent Management Plan, Revised Concept Report; Ripley, June, 1996 (Ripley 1996)

These two studies developed "per unit" and overall annual average wastewater flows; selected a type of wastewater treatment facility; and described arrangements for treated effluent management. Disposal requirements dictated the need for tertiary levels of wastewater treatment, as defined by the California Department of Health Services (DHS). Tertiary level of treatment remains the same for the proposed project.

#### **Changes From Previous Studies**

Since publication of the two Ripley studies, several important changes have occurred to the development, wastewater treatment method, and proposed methods of treated effluent management. Currently anticipated changes from the previously proposed development are discussed below.

- An "equivalent dwelling unit" (EDU) represents a wastewater flow equal to the average generation from a single family home. The number of EDUs to be served within the development has been increased to approximately 3,162 (2,837 units + 58 acres of mixed use commercial @ 5.6 EDUs/acre); wastewater generation has increased proportionally.
- Mixed-use property (retail and office space) remains essentially unchanged.

- A hotel of 60-100 rooms will be included.
- Irrigated acreage of the existing golf course has increased due to widening of the fairways from approximately 160 acres to 172 acres.
- Existing golf course lakes have been measured for percolation performance. Those lakes that could receive treated effluent are found to have very high percolation rates; this circumstance greatly affects the possible strategies for treated effluent management.
- Approximately 12 acres of green space will be located in a utility corridor north of Copper Avenue. An additional 13 acres of irrigated green space will exist along Friant Road and Willow Avenue in project setbacks. Some portions of both spaces may be constructed to allow short-term storage of effluent during severe wet weather events that restrict irrigation.
- Landscaped areas along the 3.5 miles of interior collector roads will provide an additional 8 acres of space for irrigation with treated effluent.
- A public park/ponding basin of approximately 26.5 acres will be provided along Copper Avenue immediately west of the treatment facility. This site could also be used for occasional effluent irrigation.

Previous studies identified a tertiary treatment process housed in a single-story structure. This section addresses more conventional type of treatment processes, capable of equal treated effluent quality but using more traditional treatment units. A more complete description of treatment alternatives is found later in this section. The above changes to the project affect the overall management of wastewater, as discussed below.

#### Wastewater Generation

The proposed development will generate wastewater from single family homes, multi-family units, and commercial uses. Projections of wastewater flow are based on the following daily wastewater contributions from individual land uses as shown in Table 2.8-1.

It should be noted that the unit wastewater generation factors presented in Table 2.8-1 incorporate the benefits of low-flow plumbing fixtures now required by the Uniform Plumbing Code.

Table 2.8-1  
Wastewater Generation Factors

Category	Average wastewater generation
Single family homes	210 gpd (1)
Multi-family homes	210 gpd (1)
Hotel	100 g/rm/d
Commercial retail space /1000 sf	200 gpd (2)
Commercial office space /1000 sf	200 gpd (2)
Existing clubhouse (fixture unit)	32 gpd (3)

- (1) Represents values taken from studies performed by Ripley, 1995 and 1996, assuming a per capita generation of 75 gpd, and 2.8 capita per dwelling unit.
- (2) Extrapolated from Ripley, 1995, Table 2.
- (3) Taken from fixture calculations by Ripley, based on plumbing fixtures in accordance with the Uniform Plumbing Code.

Table 2.8-2 applies the wastewater flow generation factors listed in Table 2.8-1, applies them to the proposed development, and calculates the average daily wastewater flow to be used for design of wastewater treatment and management facilities. Table 2.8-2 shows that the development will generate approximately 0.69 million gallons per day (mgd) of wastewater at build out, equal to an annual treated effluent production of 768 acre-feet. This flow represents an overall annual average flow from the development, appropriate for use in calculating land space required for treated effluent management.

Also shown in Table 2.8-2 is an estimate of the peak day wastewater generation for the peak day of the year. This projection is based on a "peak day to average day ratio" of 1.2 to 2.0, depending on land use. Note that peak daily flows are not greatly different for commercial office space, but clubhouse activities are expected to generate large changes from daily averages. Peak daily flow for the treatment plant is estimated to 0.89 mgd. This equates to a per-unit flow rate of approximately 282 gallons per EDU per day for treatment plant design purposes.

#### Effluent Irrigation and Export

This section considers a combined approach for management of all effluent; the water balance calculations describe the preferred management method, and include various combinations of turf irrigation, pond storage, and differing climatic conditions. The spreadsheet model is based on the following physical descriptions of proposed facilities and methods, including irrigation and storage facilities proposed for the development.

Management of wastewater generated will usually occur through irrigation of public green spaces, primarily turf. It is recognized that disposal by irrigation may not be sufficient during winter months, especially when unusually wet weather conditions occur. During these intervals, management of excess treated effluent will use any of several different methods depending on the severity of the precipitation. Locations that will be dedicated to receive treated effluent include those shown in Table 2.8-3, shown in order of priority.



Table 2.8-2  
Copper River Ranch Wastewater Treatment and Disposal Requirements

Given:	Number	Unit Flow	Units	Ann. Avg. Daily Flow	Daily Peaking Factor	Daily Peak Flow	Instantaneous Peak Factor	Instantaneous Peak Flow
Equivalent Units Served								
multi family	1,645	210	gpd/unit	345,450	1.25	431,812	3	1,036,350
single family	1,192	210	gpd/unit	250,320	1.25	312,900	3	750,960
hotel	100	100	gpd/rm	10,000	1.25	12,500	3	30,000
Mixed-use commercial, ac	58	1,600	gpd/ac	92,800	1.20	116,000	3	278,400
Existing clubhouse	273	32	fixture units	8,736	2.00	17,472	3	26,208
Totals	Average daily flow, gpd			698,440	Peak daily	890,684		2,121,918

Notes:

1. Select WWTP with a nominal capacity of 0.85 mgd to create daily peak flow
2. Design water balances for annual average daily flows of 0.67 mgd  
(\* Includes laundry, but no convention center or restaurant)

TABLE 2.8-3  
Available Effluent Management Methods and Priority

Method	Location	Approximate Acres
1	Treatment facility holding pond	1.5
2	Copper River Golf Course/driving range	172
3	Golf Course Lakes A, B, C, and D	3.7
4	Copper, Maple, Friant Open Space	25
5	Other open space, collectors, trails	8

The following discussion includes comments and notes regarding the treated effluent management methods described in Table 2.8-3.

1. Percolation from treatment plant holding pond. A storage pond will be provided adjacent to the treatment plant, and will serve as equalizing storage for normal irrigation operations. Storage and percolation in this pond will occur continuously. Overall storage volume in the pond will be approximately six acre-feet, roughly equal to three days production of treated effluent.
2. Transfer to golf course pumping station for turf irrigation. Contents of the plant storage pond will be pumped to the golf course irrigation pumping station. During late spring, summer, and early fall, the entire treated effluent volume will be applied to the golf course. Supplemental surface water will also be applied, as needed to the turf. Golf course irrigation will be performed during night hours. Effluent quantity slightly in excess of turf requirements will be applied to reduce the buildup of salts in the soils underlying the golf course.
3. Pump to golf course lakes, with percolation. During wet weather conditions, piping, and valves would allow the plant production to be diverted to golf course lakes A, B, and C, in that sequence. This diversion will allow percolation from the lakes to dispose of water when more effluent is available than needed for golf course irrigation.
4. Transfer to on-site public green space for ponding and percolation. When golf course irrigation and lake percolation is insufficient for percolation of excess treated effluent, the green space along Copper Avenue, Friant Road, and Willow Avenue will be used for ponding percolation of treated effluent. Soils are favorable for such percolation; NRCS soil maps for the area show a percolation rate ranging from 2.5 to 10.0 inches per hour. To allow for conservative design, a percolation rate of no more than two inches per day has been used in sizing the management facilities.
5. Transfer to green space adjacent to collector roadways and trails. Open space corridors adjacent to collector roadways and trails will be primarily irrigated with fresh water. When required for efficient disposal, however, these corridors could be used for irrigation with treated effluent.

A study is underway by the Cities of Fresno and Clovis to study how to provide additional wastewater treatment capacity in the northern urban area. The study area includes Copper River Ranch. Recommendations from this study are not yet available. Accordingly, the EIR examines only alternatives under the direct control of the developer. If a regional solution should be proposed by the cities, wastewater service to the development should be reconsidered at that time.

### Effluent Management

A tertiary wastewater treatment and reclamation facility would serve the development. Reclaimed water would be used for open space irrigation and percolation, using Methods described in Table 2.8-3. The tertiary plant will be located north of Copper Avenue west of Maple.

The Copper River Ranch developer has worked with the City Department of Public Utilities to determine the feasibility of discharging certain wastewater flows to the City's sewer system. In a letter dated November 14, 2001, the Department of Public Utilities issued a letter stipulating that connection to the City's sewer system is acceptable subject to on-going negotiations and conditions (Appendix B). Several conditions have been included in the EIR as mitigation measures. The conceptual elements of the connection are:

- Physical connection to the system will take place at a point to be determined but is currently anticipated to be in N. Maple Avenue near Perrin Avenue.
- The City can accommodate temporary wastewater flows from up to 500 Living Unit Equivalents for a period not to exceed seven years from the date of the letter, or four years from the first building permits, or until the completion of the wastewater treatment facilities, whichever occurs first.
- The City will accommodate permanent sludge flows from the planned treatment facility provided the developer agrees to participate in any necessary collection system enhancements.
- The City will accept emergency flows in the event of wastewater treatment plant failure to the extent such flows can be accommodated without the City's violation of other service commitments or applicable permits and violations.

### C. Effluent Storage

California law requires that the wastewater treatment facility be capable of properly retaining and managing treated effluent generated during severe climatic conditions when treated effluent irrigation is not possible. To do so, the facilities will be provided with sufficient storage to contain all effluent, without release, during the 100-year maximum precipitation event. The following locations within the development will be dedicated for storage of treated effluent.

1. The treatment facility will be located adjacent to a pond for short-term and equalizing storage of treated effluent. The pond will contain about 1.5 surface acres, and will contain an overall volume of about six acre-feet.
2. Existing ponds A, B, C, and D on the Copper River golf course have a combined surface area of 3.7 acres and an effective storage volume of about 14.8 acre-feet, as shown in the following table. Operation of the golf course and lakes will be optimized to make best use of the existing lakes. It should be noted that existing lakes E, F, G, H, and I will receive stormwater during precipitation events. To eliminate potential for wet weather releases, treated effluent will not be added to these lakes.



TABLE 2.8-4  
Golf Course Lakes Storage Volume

Lake Designation	Area, Acre	Storage Volume Acre-feet
A	0.7	2.8
B	1.3	5.2
C	0.9	3.6
D	0.8	3.2
Total	3.7	14.8

Temporary ponding on public green space will also be used for short-term percolation during severe winter months. The development will contain a utility corridor along Copper Avenue from Friant Road to Willow Avenue, a total of two miles in length; a portion of this length will be dedicated to public use. The corridor will vary in width to accommodate landscaping, but will average 30-50 feet. The developer plans to retain this strip of land as a wet weather management site for treated effluent. The overall acreage of the strip will be about 12 acres. Water will be ponded to a depth of no more than 12 inches, producing a total ponded volume of about 15 acre-feet (roughly equal to seven days effluent generation at build out). In addition, approximately 13 acres of green space will be available along Friant Road and Willow Avenue in project setbacks and an additional 8 acres of landscaped corridor adjacent to internal collectors and trails will also be available for irrigation. This is a total of 33 acres potentially available for treated effluent irrigation.

Water balance calculations for normal years (see Technical Appendices) indicate that application of treated effluent will amount to about 21 acre-feet during January and February, roughly equivalent to applying less than one-half inch of water each night. Stormwater will be routed to FMFCD basins. Percolation rates for this area are shown on NRCS soil maps and range from 2.5 to 5.0 inches per hour, far greater than the projected incident rainfall plus effluent amounts for the period.

#### Water Balances

A series of water balance calculations were performed for the lake/irrigation system. The balance studies are summarized in Table 2.8-5. The model used for the water balance calculations allows input of a number of variables including turf space, evapotranspiration rates, percolation rates, the number and area of golf course lakes to be used, and incident precipitation. An iterative approach is used to determine the performance of a defined combination of irrigated acres, ponds, and green space for a given climatic condition.

The water balances are based on a number of reasonable assumptions, as follows:

- Turf areas will be Bermuda or hybrid Bermuda-type grass; the turf will be over seeded in winter with annual grass, providing a continuously green course, and allowing irrigation to continue during winter months.
- Effluent irrigation will be actively managed by the City and golf course operations staff to maximize treated effluent use for irrigation and minimize the percolation volume.
- The amount of nitrogen applied to turf in any year does not exceed the amount required by the turf (agronomic balance).



- Measured percolation rates are used for the golf course lakes.
- The number of golf course lakes used each month for treated effluent percolation is manually adjusted to accommodate the surplus of treated effluent over the amount needed for irrigation.
- Lake levels are actively controlled by the golf course operations staff to maintain them nearly full. This allows the lakes to better serve their aesthetic purpose for the golf course and the surrounding homes.

#### Water Balance Findings

An iterative analysis using water balance calculations indicates that a variable portion of the treated effluent will be irrigated and percolated, depending on time of year, precipitation patterns, and similar events. The following table represents a summary of projected effluent destinations for normal years and for severe precipitation scenarios with four percent and one percent likelihood (25-year and 100-year return intervals).

TABLE 2.8-5  
Summary of Water Balance Calculations for  
Various Precipitation Probabilities

Scenario	Normal year	25 year	100 year
Effluent Irrigated, acre-feet	672	620	535
Effluent Percolated acre-feet	91	143	228
Effluent Evaporated acre-feet	5	5	5
Effluent Exported acre-feet	0	0	0
Total Effluent	768 AF	768 AF	768 AF

The table shows that effluent is disposed of without export outside the development. This indicates the treated effluent management methods within the development have adequate percolation and irrigation capacity to dispose of all treated effluent generated during the 100-year precipitation event, without the need for export.

The golf course lakes are used both for recharge of fresh surface water and for treated effluent management as described above. Although treated effluent will be only a portion of the total water percolating from the lakes, it is important to recognize that this percolation has potential to affect the water quality of the underground aquifer and nearby water wells. Table 2.8-6 summarizes the overall percolation conditions within the development, from both fresh water and treated effluent at build out conditions. The table assumes that sufficient surface water will be provided to the lakes to maintain their level continuously throughout the year.

TABLE 2.8-6  
Copper River Ranch Development - Normal Year Percolation Conditions

<u>Location</u>	<u>Total Perc. AF/yr</u>	<u>Effluent Perc. AF/yr</u>
A	37	12
B	277	92
C	116	31
D	97	26
E	268	0
F&G	319	0
H	280	0
I	18	0
Golf Course	172	133
Copper/Open Areas	25	19
WWTP Storage	<u>91</u>	<u>91</u>
Total	1,528	404

#### Wastewater Treatment Requirements

The following table presents a summary of anticipated influent and treated effluent characteristics:

Table 2.8-7  
Raw and Treated Wastewater Characteristics

Unit	Influent Value		
Flow	0.69 mgd		
Ave Dry Weather	0.89 mgd		
Peak Day	2.10 mgd		
Peak Hour	220 mg/l		
Oxygen Demand (BOD)	220 mg/l		
Total Suspended Solids (TSS)	400-500 mg/l		
Total Dissolved Solids (TDS)			
TREATED EFFLUENT			
	Monthly Ave	7 Day Mean	Daily Maximum
BOD	10 mg/l		20 mg/l
TSS	10 mg/l		20 mg/l
Chlorine Residual	5.0 mg/l		
Total Coliform, MPN/100ml		less than 2.2	23
Turbidity units, NTU	2		5
pH	6.0 to 9.0		6.0 to 9.0
Total Nitrogen, mg/l	10		10

Treatment Facilities. Any of three methods of wastewater treatment will be included in the development; the determination of treatment method will be made during final design of the facilities. The following description presents a preliminary design of each type of treatment process.

- Treatment Alternative No. 1 includes construction of a "Sequencing Batch Reactor" treatment process. Relevant design parameters for this process are summarized in Table 2.8-8.

Table 2.8-8  
Treatment Alternative No. 1  
Sequencing Batch Reactor Process  
Design parameters

FACILITY	UNIT / DESIGN CRITERIA	NUMBER	VALUE
HEADWORKS	Hydraulic and pumping capacity		3.00 mgd
	Mechanical Screen	1	
	Manual Bypass Screen	1	
	Influent Flowmeter	1	
	Grit Removal System	1	
SBR TANKS	Concrete rectangular tank	2	
	Microprocessor controller		
EQUALIZATION TANK	Conc. rectangular tank, volume	1	100,000 gal
FILTER	Effluent filter	1	Each
	Filter supply pumps	2	
	Filter Media loading rate		2 gpm/SF
	Rapid Mix Tank	1	Each
	Rapid Mixer	1	Each
DISINFECTION			
	Chlorine Contact Tank	1	
	(no chlorine gas to be used) Detention time, minimum at peak flow		90 minutes
	Residual chlorine residual		5 mg/l
AEROBIC DIGESTERS	Conc. rectangular tanks	2	
	Aeration System Diffusers	4	
	Aeration Diffusers		
	Blowers	1	

- Treatment alternative No. 2 includes construction of a "Conventional Activated Sludge" treatment plant. Relevant design parameters for this process are summarized in Table 2.8-9.

Table 2.8-9  
Treatment Alternative No. 2  
Activated Sludge Treatment Process  
Design Parameters

FACILITY	UNIT / DESIGN CRITERIA	NUMBER	VALUE
HEADWORKS	Hydraulic and pumping capacity		3.00 mgd
	Influent Pumps	3	
	Mechanical Screen	1	
	Manual Bypass Screen	1	
	Influent Flowmeter	1	
	Grit Removal System	1	
PRIMARY CLARIFIER	28 ft dia. x 12 ft SWD, conc. tank	1	600 gpd/SF
AERATION TANKS	Rectangular conc. tank,	3	
	Aeration Blowers	4 each	
	Diffusers	Per Mfr	
SECONDARY CLARIFIER	30 ft dia x 12.5 ft SWD, con tank	2	
FILTER	Effluent filter	1 each	
	Filter Cells	26	
	Filter Media		
	Rapid Mix Tank	1	
	Rapid Mixer	1	
DISINFECTION			
Chlorine Contact Tank	Concrete tank, baffles,	1	7020 CF
(no chlorine gas to be used)	Detention time, minimum at peak flow		90 minutes
	Chlorine residual		5 mg/l
AEROBIC DIGESTERS			
Digester tanks	Conc. rectangular tanks, volume	2	
	Aeration Diffusers	Per mfr.	
	Blowers	(1)	



- Treatment Alternative No. 3 includes construction of "Zenon" biological process treatment plant. This type of process is new technology, and uses a series of filter membranes submerged in the aeration basin. The filter membranes serve the function of final clarifier, and also allow the aeration basin to treat a much higher concentration. The result is a smaller treatment plant, with consistent, assured effluent quality. Relevant design parameters for this process are summarized in Table 2.8-10.

Table 2.8-10  
Treatment Alternative No. 3  
Zenon Treatment Process  
Design Parameters

FACILITY	UNIT / DESIGN CRITERIA	NUMBER	VALUE
HEADWORKS	Hydraulic and pumping capacity		3.00 mgd
	Influent Pumps	3	
	Mechanical Screen	1	
	Manual Bypass Screen	1	
	Influent Flowmeter	1	
	Grit Removal System	1	
IMMERSED MEMBRANE BIOREACTOR			
	Bioreactor Tank and modules	2	
WASTE SLUDGE HANDLING			
Waste Sludge Storage Tank	Concrete tank, storage volume	1	
	Sludge Transfer Pump	1	50 gpm
DISINFECTION			
Chlorine Contact Tank	Concrete tank, baffles, 3 pass channels	1	
	Detention time, minimum at peak flow		90 minutes
	Chlorine residual		5 mg/l

**Treatment Facility Amenities.** In addition to process units listed above, all of which are needed to treat the wastewater, the following additional elements will be provided at the treatment facility to make the plant more efficient and more reliable:

- Standby electrical power generating station, sufficient to serve the needs of the entire facility.
- Complete covers over the headworks (and primary clarifiers, where provided), with forced ventilation and odor scrubbers available for use whenever odors are detected.
- Landscaping and visual screening of the facility.
- A complete monitoring and alarm system to signal the need for attention in case of equipment or power failure.

- Complete redundancy of equipment central to the treatment process, so that continued operation within permitted requirements can continue without interruption.
- An operations building housing a test laboratory for daily monitoring of treatment performance.

**Disposal of Residual Solids.** As mentioned earlier, the City of Fresno may accommodate permanent sludge flows from the treatment facility provided the developer agrees to participate in any necessary collection system enhancements. The amount of waste biosolids generated by each of the above types of treatment process is shown in the Table 2.8-11.

Table 2.8-11  
Waste Biosolids Generation  
At Build out Conditions

Type of process	Biosolids generation, Gallons daily
SBR	6300
Conventional Activated Sludge	7800
Zenon	9500

## IMPACTS

### Standards of Significance

A project impact would be considered significant if disposal of wastewater on-site posed a hazard to the health of residents or users of the golf course. A project impact would be considered significant if it would violate standards contained within Title 22 of the California Code of Regulations (CCR).

### Impact

There is not capacity in the Herndon sewer trunk to accommodate the proposed project. Even with mitigation measures in place to allow development of the Urban Reserve Area of the Woodward Park Community, the City of Fresno has determined that there is no collection capability with full build-out of planned land uses to serve future development north of Copper Avenue. Lack of sewer service constitutes a *significant impact*.

The City Department of Public Utilities has determined that the City has interim sewer capacity at the regional plant, city trunk lines and local collection lines to serve 500 Living Unit Equivalents in the Copper River Ranch project not to exceed seven years, or four years from the first building permits, or until completion of the on-site wastewater treatment plant (see Appendix B). That capacity is available because planned urbanization has not consumed all of the regional treatment facility capacity allocated for the existing and Urban Reserve Areas planned for urbanization. Approximately 105,000 gpd of capacity would be required to serve 500 equivalent units (210 gpd x 500).

Use of interim capacity in the City collection and regional treatment system would not reduce the capacity available to properties within existing or planned service areas. The agreement would require that interim service to Copper River Ranch cease generally after seven years or when the on-site plant is available.

Use of interim wastewater treatment capacity available in the City of Fresno until such time as permanent service is available or the requirement for construction of an on-site tertiary wastewater treatment and reclamation plant on the project site reduces potential wastewater treatment capacity impacts to a less than significant level.

#### Mitigation

The developer shall be responsible for the following mitigation measures:

1. The developer shall construct and/or pay for all facilities necessary to accommodate the impact of connection to the City sewer system and associated wastewater treatment.
2. The design of necessary collection system improvements is subject to approval by the City. All reasonable effort will be made by the developer and the City to design and stage facilities to maximize value and minimize cost.
3. The developer shall construct a wastewater treatment facility of a capacity and design acceptable to the City of Fresno. The wastewater treatment facility shall be completed and "on-line" in time to satisfy the conditions of accommodation of temporary flows (not to exceed seven years, or four years from the first building permits, or until completion of the on-site wastewater treatment plant).
4. Treated effluent from the proposed wastewater treatment facility (recycled water) shall be re-used by the project. Land application of recycled water shall be subject to the approval of the City of Fresno and appropriate County and State agencies.
5. Equitable impact fees and monthly user charges shall be approved by the developer and the City prior to the Maple Avenue connection at Perrin. Equitable in this context shall mean:
  - the cost of facilities and operational expenses necessary to serve the project shall be born solely by the developer
  - to the extent that such facilities and expenditures benefit other developments, the project shall be eligible for reimbursement pursuant to existing mechanisms and protocols
6. An emergency operational plan shall be prepared by the facility designer to be countersigned by the City of Fresno which specifies steps to be taken in the case of an emergency and contact persons name and telephone numbers.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

### Impact

- Public health is the predominate concern associated with the reuse of reclaimed water for irrigation of a golf course. This is primarily due to the potential presence of pathogenic microorganisms in the untreated wastewater. This is a *significant impact*.

The treated effluent quality for irrigation uses is mandated by DHS according to the CCR, Title 22, beginning with Section 60313. These critical effluent parameters will be monitored daily by personnel from the City of Fresno. During seasonal periods when treated effluent is discharged to on-site lakes, additional monitoring may be required by DHS pursuant to draft Title 22 Sections 60320.03 and 60320.04. The monitoring compliance point is anticipated to be the point where treated effluent is discharged to the golf course lakes to account for dilution impacts with imported surface water prior to subsurface infiltration. As a more precise monitoring protocol, RWQCB and DHS may recommend effluent monitoring at the plant and the accounting for surface dilution mathematically to report parameter concentrations at a theoretical compliance point.

### Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval for the required conditional use permit for the wastewater treatment plant:

1. Reclaimed water shall be utilized for golf course or landscape irrigation in designated open space areas. These sites shall be fully described and approved by the RWQCB as part of the preliminary discharge permit and it must be shown by soil testing by a qualified engineer that the sites are capable of handling the entire planned disposal flow.
2. The spray irrigation system shall be operated so as to minimize contact with the public. Irrigation shall be scheduled for times when the areas are not in use and all irrigation piping shall be clearly marked as not for potable use. The system shall be operated to minimize aerosols, ponding, and runoff of reclaimed water. Operation of the irrigation system by City of Fresno personnel shall be in accordance with guidelines established by DHS.
3. Separation of the reclaimed effluent distribution system and the potable water distribution system shall be assured through use of color-coded pipe. Effluent pipelines and hardware shall be appropriately labeled, and backflow prevention devices may be required where a potential cross connection may exist. Minimum separation of potable water and reclaimed water lines shall be as prescribed by City of Fresno and State of California standards.
4. The design of the treatment plant and the treated effluent quality shall meet the requirements of Title 22 CCR for the use of reclaimed wastewater. The project developer shall obtain a Waste Discharge Permit from the RWQCB. Prior to construction of the reclamation facility, an engineering report demonstrating compliance with these regulations shall be submitted to the RWQCB and the DHS. In the event that standards are exceeded, additional disinfection shall be required until standards are attained. The applicant shall develop a contingency plan as part of the Waste Discharge Permit which prevents inadequately treated wastewater from being applied to areas that allow public access.



#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less than-significant-level.

#### Impact

- The proposed project would result in the need to dispose of biosolids. This is a *significant impact*.

The wastewater treatment process will result in biosolids which must be properly disposed of, and the treatment facility would not be approved by DHS without an operational plan for biosolids disposal. The City will accommodate permanent sludge flows provided the developer complies with the mitigation measures listed below. In the event the City will not accommodate sludge disposal, the project will dispose of sludge by truck in conformance with all local and state regulations.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval for the required conditional use permit for the wastewater treatment plant:

1. The developer shall participate in any necessary collection system enhancements subject to full and satisfactory mitigation by the developer of all potentially significant impacts identified by the City of Fresno Department of Public Utilities.
2. The developer shall be responsible for all wastewater facility and trunk fees necessary to accommodate the sludge loading.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Groundwater degradation caused by infiltration of diluted treated effluent from the irrigation lakes and irrigation of the golf course and open space may occur if appropriate management, monitoring, and sampling is not fully implemented. This is a *significant impact*.

A potential impact from the use of reclaimed water for golf course irrigation is that the water contains nutrients that enhance plant growth. These include nitrogen, phosphorus, and a number of micro-nutrients. The predominant nutrient of interest is nitrogen which is an integral part of healthy turf growth. Phosphorus is also present in the reclaimed effluent at approximately one third of the nitrogen concentration. The phosphorus application is anticipated to be in the range of 55 pounds per-acre per-year. Both application rates will be less than rates applied generally with inorganic fertilizers.

## Mitigation

The developer shall be responsible for the following mitigation measures to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring wells shall be provided to detect the influence of reclaimed water, if any, on groundwater quality. At a minimum, monitoring wells shall be located at points one-quarter and one-half of the distance (plus or minus 10 percent) between the lakes containing diluted effluent and the nearest domestic water supply well on-site and off-site southwest in the direction of groundwater flow. In addition, a monitoring well shall be placed immediately down gradient of the wastewater treatment plant effluent storage ponds. The number and exact location of monitoring wells shall be described in the engineering report submitted pursuant to Section 60320.07 and approved by DHS.
2. A recommended plan for use of the existing wells in conjunction with new monitoring wells shall be made in the engineering report pursuant to Section 60320.05 (d) and approved by DHS. All other wells on-site except for irrigation wells to remain in use shall be properly abandoned according to adopted standards.
3. Comply with the effluent management plan prepared by a qualified engineer and approved by the Fresno County Department of Community Health and DHS.
4. Annual nutrient summaries shall be prepared for all turf areas served with reclaimed water. The summaries shall evaluate the needs of the turf, the amount of nutrients applied, and any supplemental fertilizers applied. The amount of treated effluent applied shall be adjusted based on the turf nutrient requirements.

## Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

## Impact

- Groundwater quality degradation from nutrient accumulation may occur from small amounts of nitrogen that exist in treated effluent used for irrigation. The migration of some nitrogen to groundwater could occur irrespective of the use of reclaimed effluent with normal golf course irrigation. This is a *significant* impact.

The wastewater treatment facility will discharge approximately 750-acre feet of reclaimed water each year for primary use as irrigation water for the golf course. The total nitrogen concentration in the treated effluent is expected to be in the range of 10 mg/l to 25 mg/l. As a result, total nitrogen generation from the facility is expected to be 20,000 pounds per year. This compares to the nitrogen demand for the golf course and public spaces of approximately 50,000 pounds per year. Due to the nitrogen demands of the turf (more than the maximum available nitrogen in the treated effluent), the potential for percolation of excess nitrogen to the groundwater is limited.

The operational plan for the wastewater treatment facility recognizes nitrogen contributions from reclaimed effluent irrigation as well as from applied inorganic fertilizer. For each pound of nitrogen applied by the treated effluent, a corresponding reduction in inorganic nitrogen fertilizer will be made.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring groundwater, including nitrogen content, has been proposed as a mitigation measure for this project (see mitigation for groundwater degradation caused by infiltration of diluted treated effluent, above). Measurements shall be taken each calendar quarter by City of Fresno personnel or a qualified consultant. Should the monitoring tests exceed nitrogen standards, a denitrification process shall be started at the wastewater treatment facility. The plant design shall incorporate a denitrification process that shall denitrify the treated effluent to the 10 mg/l total nitrogen level.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

## 2.9 HYDROLOGY

### Introduction

This section was prepared by Kenneth D. Schmidt and Associates, groundwater quality consultants of Fresno, California. The complete report is found in the Technical Appendices on file with the City of Fresno Planning and Development Department.

The purpose of this report is to describe the groundwater conditions and potential impacts on groundwater due to development of the project. In addition, a groundwater supply evaluation was conducted for the project, and these results are incorporated. Hydrogeologic studies have been undertaken specifically for the Copper River Ranch project, extending back to 1993, and related data are also incorporated in this section.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, Sphere of Influence amendment, and annexation of Copper River Ranch. Subsequent specific plans, use permits, or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

Copper River Ranch is located on a terrace above the San Joaquin River, and land surface elevations range from about 340 to 400 feet above mean sea level. Prior to development of the golf course, approximately the western half of the ranch was developed into vineyards and a small amount to other crops, whereas the easterly part was undeveloped rangeland.

### Subsurface Geologic Conditions

Alluvial deposits of the ancestral San Joaquin River comprise the major water-producing strata at the site. Subsurface geology indicates that water-producing strata extend to a depth of at least 750 feet near Copper Avenue and Friant Road. The deepest well at the ranch for which a drillers log is available was drilled to a depth of 380 feet. Wells at the ranch tap groundwater in the coarse-grained alluvium, classified as the Quaternary older alluvium.

### Types and Locations of Wells

Figure 2.9-1 shows the locations of supply wells on and in the vicinity of the project site. There are six irrigation wells, several domestic wells and unused wells, and one clubhouse well at Copper River Ranch. The domestic wells serve existing residences and a trailer house on properties that will be incorporated into the project. One existing irrigation well was destroyed after the golf course was built. Table 2.9-1 contains construction information available for these "ranch" wells.



Figure 2.9-1 Location of Existing Wells

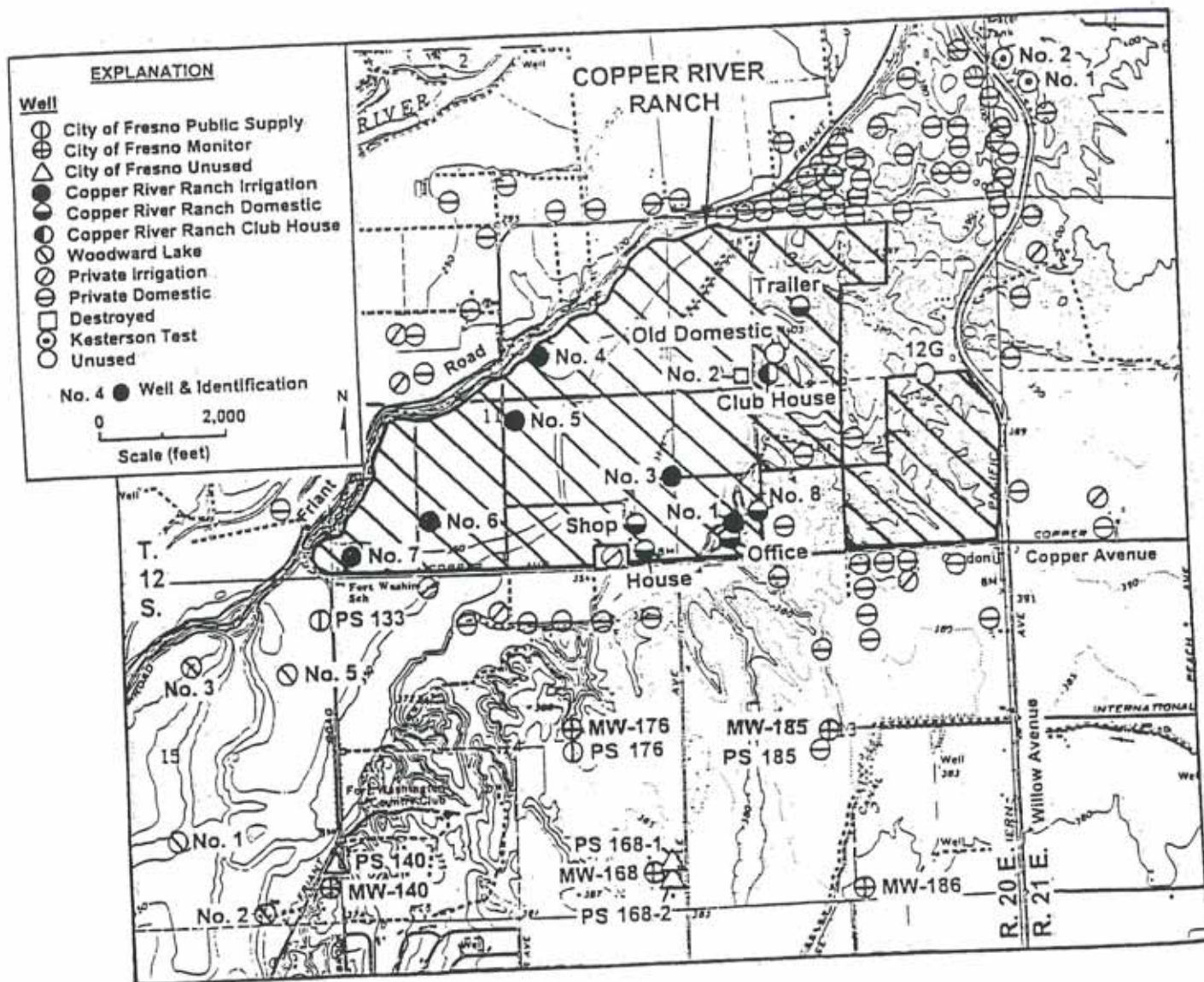


TABLE 2.9-1  
CONSTRUCTION DATA FOR COPPER RIVER RANCH WELLS

No.	Date Drilled	Total Depth (feet)	Cased Depth (feet)	Perf. Interval (feet)
1	1/59	326	308	108-305
2	-	-	-	-
3	8/61	252	224	128-222
4	1/68	358	348	120-345
5	6/59	247	236	120-227
6	4/59	300	284	90-282
7	-	-	-	-
8	7/58	180	172	156-170
House Well	7/59	180	180	162-180
Club House Well	6/94	380	280	220-270
12G	(9/96)	284	160-270	

Notes:

Information from water well drillers reports. Well No. 2 was destroyed after the golf course was built. Unused Well 12G was deepened in September 1996 for aquifer testing; the original date of drilling is unknown.

There are three City of Fresno wells (PS 133, PS 176, and PS 185) south of and within about one-half mile of the project site. There are three additional City of Fresno wells farther south and within a mile of the site (PS 140, PS 168-1, and PS 168-2); these wells are presently not used.

There are four lake wells at Woodward Lake, and depths of these range from 255 to 375 feet. There are also a number of private domestic wells and nine irrigation wells in the vicinity, and the approximate locations of those within about one-quarter mile of the site are shown in Figure 2.9-1. Most of the private domestic wells range from about 160 to 260 feet in depth. The City of Fresno has monitor wells at five sites in the area south and within one mile of the ranch. Most of these are clustered monitor wells, with several isolated perforated casings at each site.

### **Water Levels**

Static water levels in seven ranch wells were measured in late October 1993. Except for one well, depth to water ranged from 110 to 129. Water-level elevations ranged from 232 feet above mean sea level near the southwest corner of the ranch to 257 feet near the central part of the site. Measurements were also obtained for several City of Fresno and other wells in the vicinity for September-October, 1993. Figure 2.9-2 shows water-level elevations in September-October, 1993. The direction of groundwater flow at the time was to the west-southwest. This was consistent with regional water-level elevation contour maps available for that period. A pumping depression was apparent near Well PS 133, a major City well that was in service at the time.

Static water levels were measured in nine ranch wells on February 24, 2000. Depth to water ranged from 112 to 145 feet. Water-level elevations ranged from about 260 feet above mean sea level to the east to 240 feet farther west. Four of the wells measured on February 24, 2000, were also measured on October 26, 1993. Comparison of these measurements indicates shallower water levels for the most recent measurements than for the earlier ones. The February 24, 2000 levels were about 15 to 20 feet shallower than on October 26, 1993. Part of this is associated with the seasonal water-level fluctuation, as the water levels are normally the shallowest during January-March and the deepest during late summer and early fall. However, some of this water-level rise is due to recharge associated with the importation of significant amounts of surface water to the site since December 1994.

Water-level measurements for City of Fresno wells in the study area were obtained for January 15-29, 2000. These and the ranch well measurements were used to prepare a more recent water-level elevation map. The water-level elevation contours for January-February, 2000 (Figure 2.9-3) indicate a significant recharge ridge beneath the vicinity of the golf course, where imported canal water has been used and recharged. Comparing these contours with those for September-October, 1993 demonstrates the effectiveness of the use and recharge of canal water at the project site on water levels beneath the site.



**Figure 2.9-2 Water-Level Elevations in September-October, 1993**

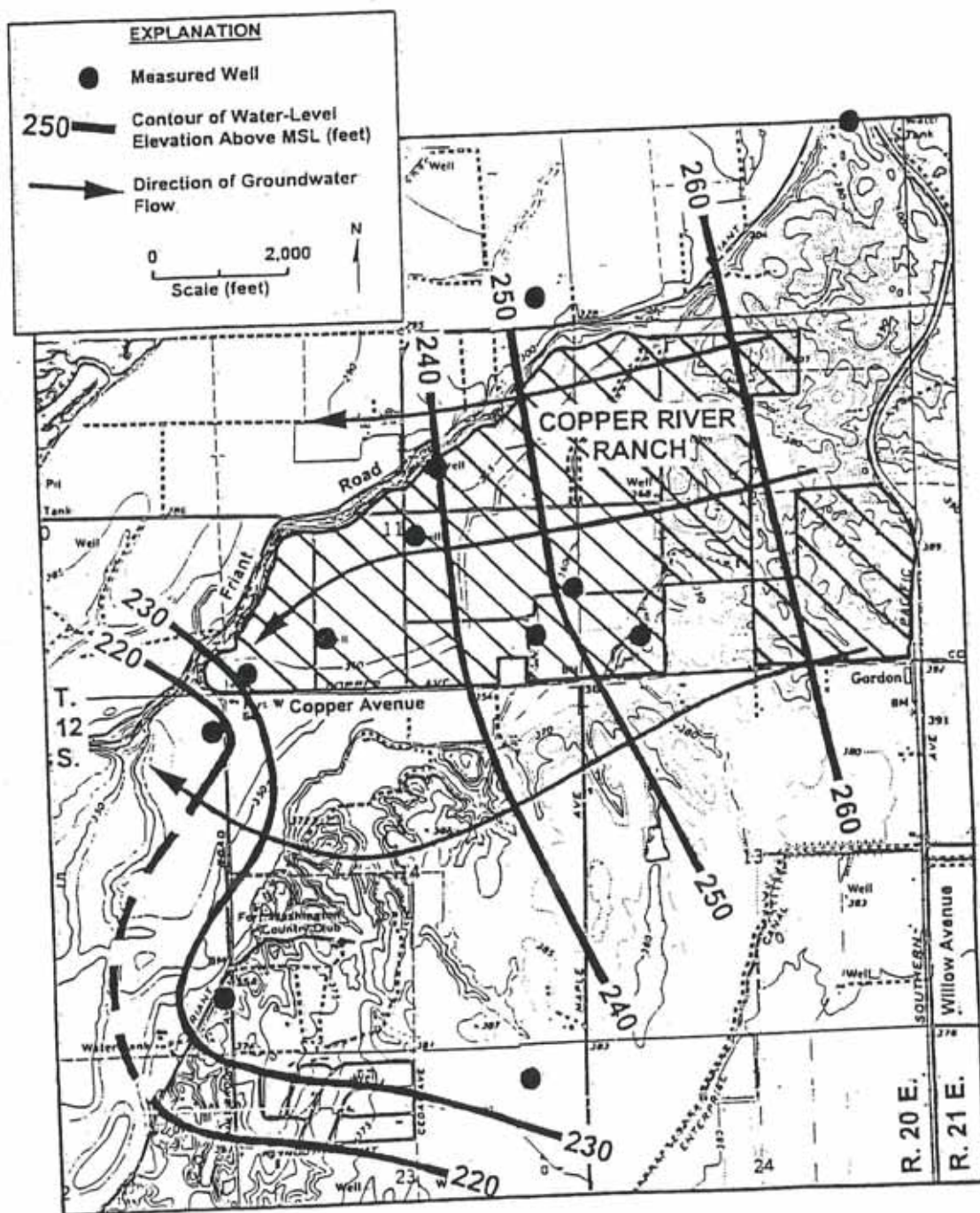
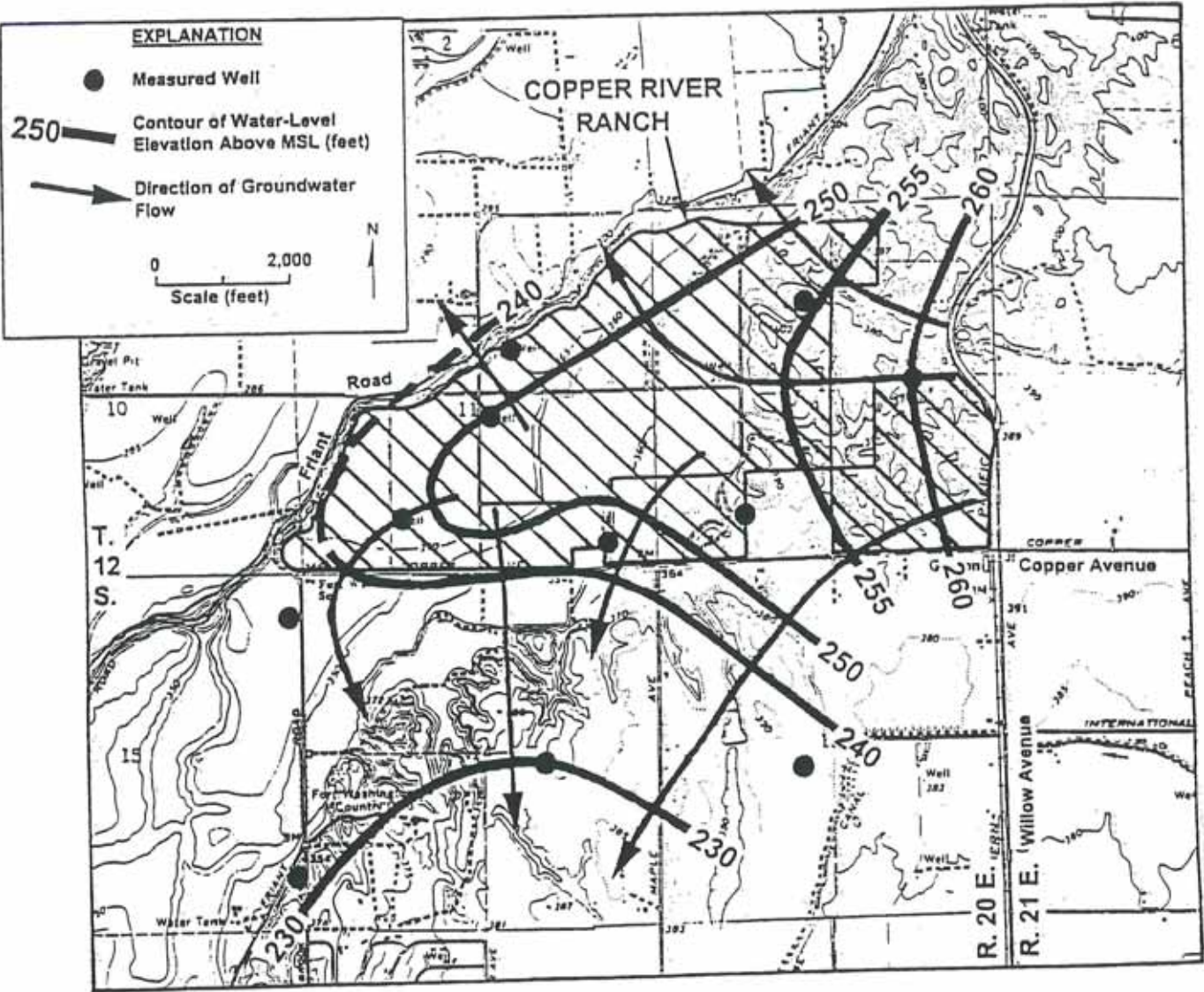




Figure 2.9-3 Water-Level Elevations in January-February, 2000



Long-term water-level records for wells in the area were obtained from the California Department of Water Resources in Fresno, California. Water-level records for Well T12S/R20E-1H1 are considered representative of those for shallow wells along the floodplain of the San Joaquin River. This well is located near Friant Road and Willow Avenue, below the terrace. Depth to water in this well ranged from about 30 to 50 feet from 1961 to 1998. The water level has risen during wet periods (i.e., 1985-87) and fallen during droughts (1989-94). Evaluation of long-term water-level records for this well indicates no groundwater overdraft.

Farther south in the City of Fresno, water-level records are available for City Well PS 86 since 1977. This well is located near Clovis West High School, about two and a half miles south of the ranch. From 1977 to 1986, the water level in this well fell only about five feet. However, from Spring 1986 through 1995, the water level had fallen 22 feet. Water levels in the Fresno urban area have generally declined after newly developed lands are urbanized. This is because new pumpage has been undertaken, and use of canal water has usually been stopped. Development of intentional recharge facilities, such as those conducted by FMFCD, has usually lagged behind the development of new wells. However, in parts of the Fresno urban area where intentional recharge has been successfully practiced, water levels have stabilized (Kenneth D. Schmidt and Associates, 1992).

#### Aquifer Characteristics

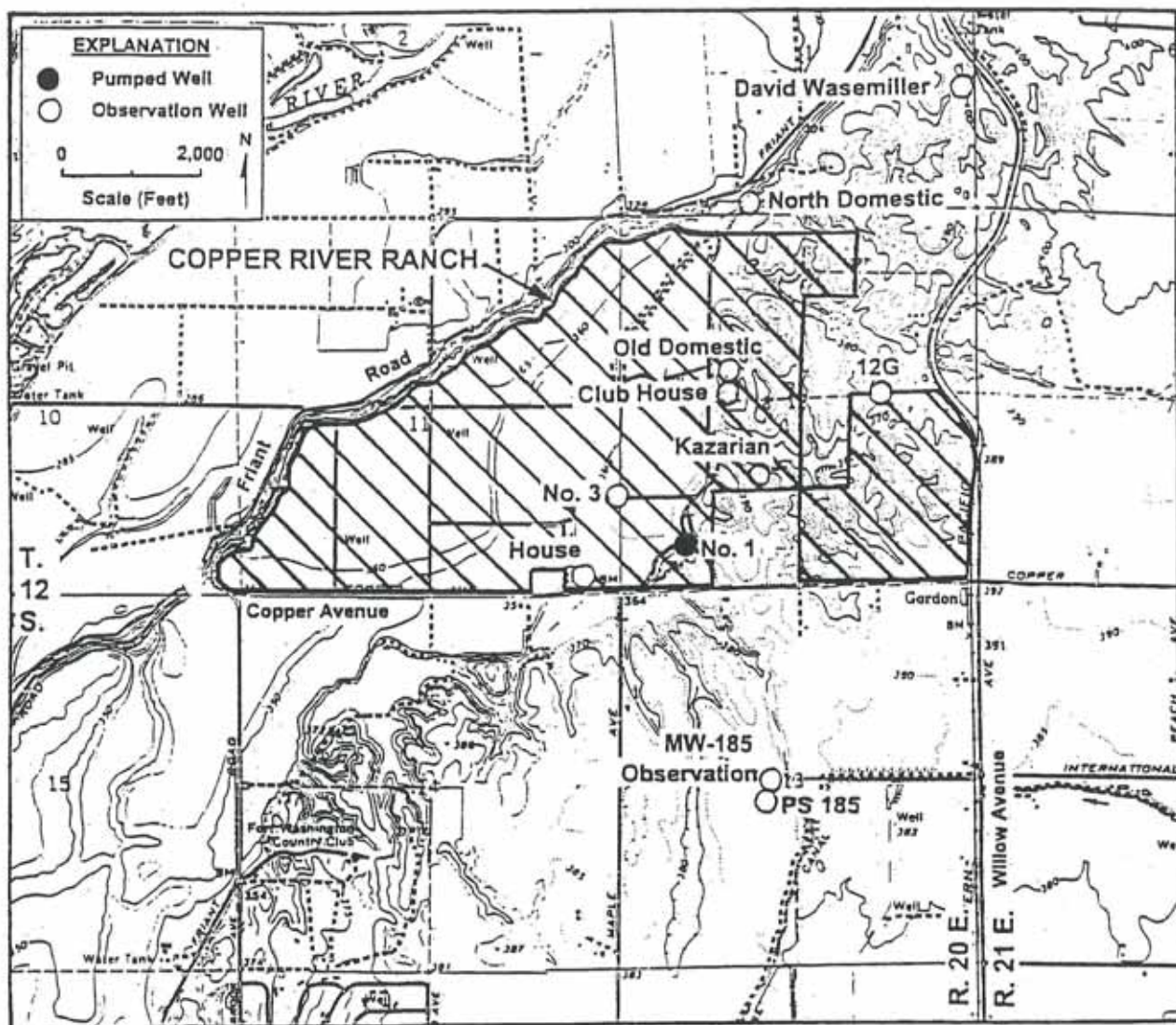
**Ranch Wells.** Historically, yields ranging from 500 to 700 gpm could be obtained from wells drilled to depths ranging from about 250 to 350 feet at the project site. Copper River Ranch yields of large-capacity wells, ranging in depth from about 250 to 380 feet, ranged from about 400 to 740 gpm. Specific capacities of these wells ranged from 12 to 67 gpm per foot, and for most wells ranged from about 20 to 50 gpm per foot.

**City Wells.** City of Fresno wells in the vicinity show pumping rates from about 500 to 2,450 gpm, and specific capacities ranging from 6 to 57 gpm per foot. The highest specific capacities (exceeding 40 gpm per foot) were obtained from two of the Flo-path wells (PS 133 and 185). Transmissivity values are available for these wells, and ranged from 10,000 to 216,000 gpd per foot. The lowest value was for PS 168-1, where fine-grained deposits were predominant in the interval from which the well pumps water.

**Ten-Day Aquifer Tests.** A minimum 10-day pump test (continuous pumping) was undertaken and groundwater supply impacts due to groundwater development were determined. A ten-day aquifer test was conducted on Copper River Ranch Well No. 1 during October 6-16, 1995. After the results of this test were available, and it had been determined that new public supply wells would be drilled in the eastern part of the ranch, the County indicated that a 10-day test on a well in the eastern part of the project would also be necessary. An existing well (12G) was deepened, developed, and pump tested during September 23-October 3, 1996. Figure 2.9-4 shows the locations of the pumped wells and observation wells for the ten-day tests.

**Well No. 1.** The well drillers report indicates that Well No. 1 is perforated from 108 to 305 feet in depth. Two ranch wells (No. 3 and the House Well) were used as observation wells for the test. Well No. 3 is 1,300 feet from Well No. 1 and the House Well is 1,600 feet from Well No. 1. The closest City of Fresno well (PS 185) and the associated adjacent cluster observation well were also used as observation wells. PS 185 is located near the intersection of N. Chestnut and International Avenues located 3,700 feet from the pumped well.

Figure 2.9-4 Location of Wells Used for Ten-Day Aquifer Tests





A total of 9,067,500 gallons of water was pumped from Well No. 1 during the ten-day test, and the average pumping rate was 630 gpm. The static water level in Well No. 1 prior to pumping was 118.6 feet below the measuring point. At the end of the pumping period, the pumping level in Well No. 1 was 130.7 feet. The drawdown was 12.1 feet.

There was little drawdown in Well No. 3 or PS 185 during the test. There was a water-level rise in the House Well, and there was no influence due to pumping Well No. 1. The greatest apparent drawdown (2.3 feet) in the observation wells was in the deep completion zone of the PS 185 observation well. This indicates that the deep strata tapped by this observation well (from 354 to 364 feet in depth) were hydraulically connected to the strata tapped by Well No. 1, even though the lowermost perforations in Well No. 1 are somewhat shallower than this depth interval.

Water-level recovery in Well No. 1 was measured for six hours after pumping stopped, and a very rapid recovery was indicated. After six hours of recovery, depth to water was 119.4 feet, or only 0.8 foot below the static level prior to pumping. This represents an excellent recovery rate. After about six hours of recovery, depth to water in Well No. 3 was 105.3 feet, or equal to the static level prior to pumping.

Thus, the apparent drawdown of 0.2 foot in the well appears to have been due to pumping of Well No. 1. After about six hours of recovery, depth to water in the House Well was 118.4 feet, indicating little change from the end of pumping. This confirms that there was no influence in this well due to pumping of Well No. 1. The results of test pumping indicate no significant drawdowns in observation wells tapping strata above a depth of about 220 feet.

After almost one day of recovery, depth to water in PS 185 was 147.9 feet, indicating no change since pumping stopped. These measurements indicate that the small apparent drawdowns in this well was not due to pumping of Well No. 1. After almost one day of recovery, depth to water in the deep completion observation well was 157.1 feet, or about 1.1 feet below the static level prior to pumping. This well was clearly influenced by pumping of Well No. 1.

Well 12G. Five existing wells were used as observation wells during the test (Figure 2.9-4). Two of those wells were at the ranch and in service (Club House and Kazarian). The remaining three wells were unused. The Club House Well is 2,280 feet from Well 12G, and is perforated from 220 to 270 feet in depth. The Kazarian Well is 2,400 feet from Well 12G, and is perforated from 178 to 218 feet and 274 to 318 feet in depth. The David Wasemiller well is 4,800 feet north of Well 12G and is an open-bottomed well that is 335 feet deep. This well taps strata below a thick clay layer that has been delineated north of the project site. The Old Domestic Well is 2,200 feet west of Well 12G and several hundred feet north of the Club House Well. A driller's log is not available for this well, but the depth was sounded at 184 feet. The North Domestic Well is 3,200 feet from Well 12G, near the north boundary of the ranch. Although a driller's log is not available for this well, the depth was sounded at 121 feet.

A total of 7,050,600 gallons of water was pumped during the entire pumping period and the average pumping rate was 490 gpm. The static water level in Well 12G prior to pumping was 132.3 feet. At the end of the pumping period, the pumping level in Well 12G was 168.2 feet. The drawdown was 35.9 feet.



There was no drawdown in the North Domestic Well during the test. The greatest apparent drawdown was in the David Wasemiller Well, but recovery measurements show that this drawdown was not due to the pumping of Well 12G. Recovery measurements indicate that the apparent drawdowns in the other wells were primarily due to the pumping of Well 12G. These drawdowns ranged from 0.4 to 1.9 feet.

Water-level recovery in Well 12G was measured frequently for about seven hours after pumping stopped, and also about one day after pumping stopped. After about seven hours of recovery, depth to water was 133.1 feet, or about 0.8 foot below the static level prior to pumping. After one day of recovery, the static level was 132.3 feet, essentially at the level before pumping began. After about six hours of recovery, depth to water in the Kazarian Well was 151.8 feet, or 0.3 foot below the static level prior to pumping. After about one day of recovery, depth to water in this well was 150.7 feet, or shallower than the level prior to pumping of Well 12G.

In the Old Domestic Well, depth to water was 143.9 feet after about six and a half hours of recovery, indicating full recovery. For the Club House Well, depth to water after one day of recovery was 138.0 feet, above the static level prior to the commencement of pumping of Well 12G. Water levels in the North Domestic Well did not substantially change during the recovery period, similar to what happened during the drawdown period. Depth to water in the David Wasemiller Well was 159.1 feet after one day of recovery, indicating that other factors than pumping of Well 12G caused the apparent drawdown in this well.

**Pumpage.** Monthly pumpage records were obtained for the large-capacity wells at the site. In 1992, prior to removing some crops for development of the golf course, the estimated annual pumpage for irrigation at the ranch was 2,200 acre-feet. An average of 230 acre-feet per year of surface water from FID was also used for site irrigation. The consumptive use of crops grown at the ranch was determined, based on consumptive use estimates for crops used in the County of Fresno Water Management Plan (Schmidt, 1978). Prior to 1993, there were 418 acres of vineyards, eight acres of citrus, 18 acres of row crops, and 32 acres of vegetables. Consumptive use values for these crops are 2.0, 1.8, 2.0, and 2.0 acre-feet per acre per year, respectively. As of 1992, the average annual consumptive use of applied water for crop irrigation was estimated to be about 1,000 acre-feet. The pumpage, surface water, and consumptive use estimates compare well, assuming an irrigation efficiency of about 40 percent. This is consistent with the sandy soils and documented irrigation experience at the site.

**Inorganic Chemical Constituents.** Water from five site wells was sampled for nitrate analyses in January 1990. Nitrate concentrations were determined by BSK & Associates, and ranged from 20 to 31 mg/l, below the MCL of 45 mg/l for drinking water. Table 2.9-2 contains the results of comprehensive inorganic chemical analyses of water from three of the wells at Copper River Ranch. These wells are the Club House Well and the two wells pumped for the 10-day pump tests. The water was of the calcium-sodium bicarbonate type with total dissolved solids (TDS) concentrations ranging from about 160 to 360 mg/l. The sample from Well No. 1 collected on October 16, 1995, was collected after 10 days of continuous pumping of the well, and is considered more representative than the earlier sample. The Club House well is not sampled routinely for all of these constituents, but is sampled every three years for trace inorganics and nitrate. A sample was collected on May 28, 1998. The nitrate concentration was 16 mg/l and concentration of trace inorganics were well below the respective MCLs.

Table 2.9-3 contains the results of inorganic chemical analyses of water from seven City of Fresno wells south of the ranch. Most of the waters were of the calcium-sodium bicarbonate type. TDS concentrations ranged from 150 to 240 mg/l and nitrate concentrations from 3 to 44 mg/l, below the MCL of 45 mg/l. Except for PS 140, nitrate concentrations were less than 30 mg/l. PS 140 has been taken out of service because nitrate concentrations have periodically exceeded the MCL. The only other inorganic chemical constituent in water from these wells that has exceeded an MCL is manganese in water from Well PS 168-1, which taps only the deeper strata, primarily below the older alluvium. A wellhead manganese treatment plant was installed before this well was temporarily put in service.

#### **DBCP and EDB**

The pesticides DBCP and EDB were also detected in water samples collected from five of the ranch wells in January 1990. DBCP concentrations ranged from less than 0.01 ppb to 1.7 ppb, and concentrations in water from two of the wells (No. 4 and 6) exceeded the MCL of 0.20 ppb. J.H. Kleinfelder & Associates sampled water from five of the ranch wells in May 1991, as part of a larger sampling program for the City of Fresno. DBCP concentrations ranged from 0.06 to 2.3 ppb. DBCP concentrations in water from the House Well, Shop Well, and Wells No. 5 and 6 exceeded the MCL of 0.2 ppb. Wells with DBCP concentrations exceeding the MCL were in the west part of the ranch where the large vineyard was formerly present. More recent analyses are available for the wells pumped for the 10-day aquifer tests and for the Club House Well. The lowest DBCP concentrations were in water from wells east of the northerly extension of Maple Avenue. Water from Wells No. 1, 2, and 3, the Club House Well, and Well 12G had DBCP concentrations well below the MCL. EDB was not detected in any of the water samples collected from the wells at the ranch in January 1990, and was not detected in the Club House Well, Well No. 1, or Well 12G in more recent sampling, performed in December 1994, October 1995, and October 1996, respectively.

DBCP and EDB concentrations have been determined in water from all City of Fresno supply wells in the vicinity. DBCP concentrations in water from active City of Fresno supply wells in the vicinity ranged from less than 0.01 ppb to 0.15 ppb in 1994-95. Water from three of these wells had DBCP concentrations ranging from 0.09 to 0.15 ppb. The DBCP concentration in water from MW-186 was 0.64 ppb in February 1995, exceeding the MCL of 0.2 ppb. No supply well was completed at this location. Granular activated carbon (GAC) treatment has been provided for water from PS 168-2. Frequent DBCP analyses of water from PS 133 since 1997 indicate that concentrations usually range from 0.10 to 0.15 ppb. Frequent DBCP analyses of water from PS 176 between 1994 and 1998 indicate concentrations usually ranging from less than 0.01 to 0.02 ppb. Frequent DBCP analyses of water from PS 185 during 1997-98 indicated concentrations usually ranging from about 0.02 to 0.21 ppb. Frequent DBCP analyses of water from PS 186 indicate DBCP concentrations usually ranging from less than 0.01 to 0.10 ppb.

TABLE 2.9-3  
INORGANIC CHEMICAL ANALYSES  
OF WATER FROM COPPER RIVER RANCH WELLS

Constituents (mg/l)	No. 1	Club House	12G
Calcium	71	46	19
Magnesium	30	20	7
Sodium	84	37	23
Carbonate	<1	<3	3
Bicarbonate	380	250	120
Sulfate	86	42	7
Chloride	42	18	3
Nitrate	17	20	14
Fluoride	0.16	0.11	0.1
pH	7.4	7.2	7.7
Electrical Conductivity (micromhos/cm @ 25°C)	1,000	555	260
Total Dissolved Solids	530	355	160
Iron	<0.05	<0.05	0.24
Manganese	<0.005	<0.01	<0.01
Arsenic	<0.005	0.008	0.004
Barium	0.33	0.22	0.056
Cadmium	<0.001	<0.005	<0.001
Chromium	<0.005	<0.01	<0.005
Lead	<0.005	<0.005	<0.005
Mercury	<0.001	<0.0002	<0.0004
Selenium	<0.005	<0.002	<0.002
Silver	<0.010	<0.01	<0.01
Perforated Interval (feet)	108-305	160-270	10/31/96
Date	220-270	10/16/95	BC Labs
Laboratory	4/24/89	BSK	12/1/94
			BSK

TABLE 2.9-4  
INORGANIC CHEMICAL ANALYSES  
OF WATER FROM CITY OF FRESNO WELLS

Constituents (mg/l)	PS 133	PS 140	PS 168-1	PS 168-2
Calcium	35	47	20	25
Magnesium	14	22	7	10
Sodium	29	33	21	19
Potassium	5	4		
Carbonate	<1	<1	<1	<1
Bicarbonate	130	140	130	140
Sulfate	15	12	1	6
Chloride	22	52	9	7
Nitrate	26	44	3	4
Fluoride	NC	0.1	0.2	0.2
pH	8.0	7.4	7.8	8.0
Electrical Conductivity (micromhos/cm @ 25°C)	400	440	250	290
Total Dissolved Solids	300	330	160	200
Iron	<0.05	<0.19	<0.05	<0.05
Manganese	<0.01	<0.05	0.43	<0.01
Arsenic	<0.003	<0.013	0.008	0.004
Barium	<0.1	0.17	0.2	0.08
Cadmium	<0.001	<0.001	<0.001	<0.001
Chromium	<0.005	<0.005	<0.005	<0.005
Lead	<0.005	<0.005	<0.005	<0.005
Mercury	<0.0004	<0.0004	<0.0004	<0.0004
Selenium	<0.002	<0.006	<0.002	<0.002
Silver	<0.01	<0.01	<0.01	<0.01
Date	6/19/97	9/19/96	2/9/94	2/9/94
Laboratory	BSK	BSK	BSK	BSK
Perforated Interval (feet)	140-575	145-300	283-388	170-225

Continued:



TABLE 2.9-4  
INORGANIC CHEMICAL ANALYSES  
OF WATER FROM CITY OF FRESNO WELLS (cont.)

Constituents (mg/l)	PS 176	PS 185	PS 186
Calcium	21	24	26
Magnesium	8	10	10
Sodium	19	18	20
Potassium	3	4	4
Carbonate	<1	<1	<100
Bicarbonate	110	87	100
Sulfate	10	11	10
Chloride	8	9	7
Nitrate	15	29	14
Fluoride	0.2	0.1	0.1
pH	7.6	8.1	8.3
Electrical Conductivity (micromhos/cm @ 25°C)			
Total Dissolved Solids	240	270	300
Iron	150	220	220
Manganese	<0.05	<0.05	<0.05
Arsenic	<0.01	<0.01	0.01
Barium	<0.004	<0.003	0.007
Cadmium	0.62	<0.1	<0.1
Chromium	<0.001	<0.001	<0.001
Lead	<0.005	<0.005	<0.005
Mercury	<0.005	<0.005	<0.005
Selenium	<0.0004	<0.0004	<0.0004
Silver	<0.002	<0.002	<0.002
	<0.01	<0.01	<0.01
Date	6/8/93	6/16/97	5/30/97
Laboratory	BSK	BSK	BSK
Perforated Interval (feet)	255-280	250-270	300-400

Water from a number of private domestic wells south of Copper Avenue and east of the Fort Washington Country Club has been sampled for DBCP analyses during several sampling rounds for the City of Fresno (Kenneth D. Schmidt and Associates, 1991). Combined with the results of sampling of newer City of Fresno wells in the area and analyses for the ranch wells, the distribution of DBCP in the groundwater has been mapped in detail (Figure 2.9-5). The locations of private wells shown on this figure are only approximate, for confidentiality purposes. DBCP has been found above 0.1 ppb in the area north of International Avenue, west of Willow Avenue, and east of Cedar Avenue. Concentrations exceeding 1.0 ppb have been found in two parts of this area. One is primarily in Section 13, T12S/R20E, and the other is beneath the part of the Copper River Ranch west of the northerly extension of Maple Avenue. DBCP is present in groundwater largely beneath and downgradient of present or former vineyards and deciduous orchards. The results for Wells PS 168-1 (deep) and 2 (shallow) indicate that the DBCP tends to be in groundwater in the shallow, coarse-grained deposits (the older alluvium), and not in the deeper alluvium.

#### Other Trace Organic Constituents

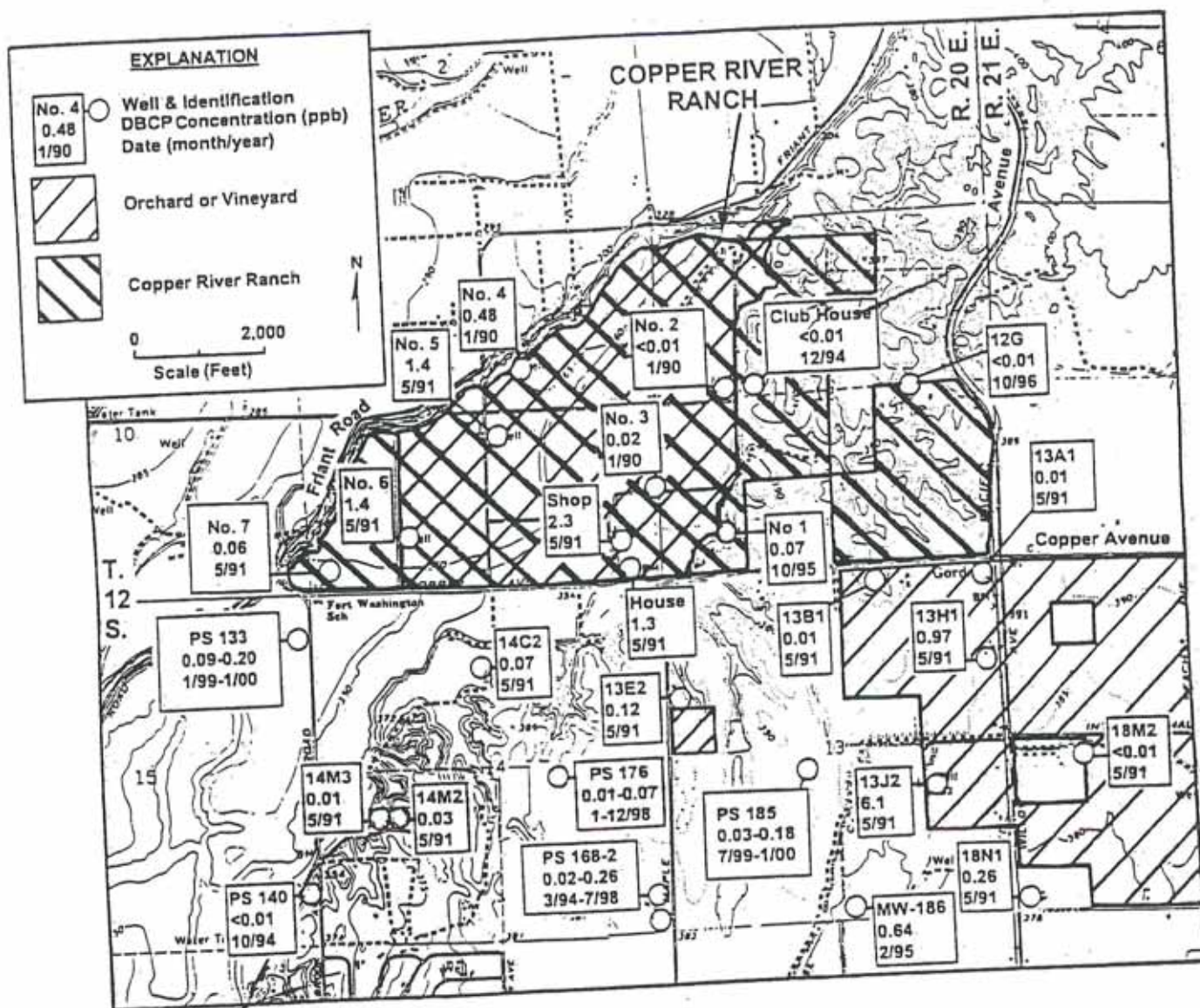
Water from Ranch Well No. 1, the Club House Well, and Well 12G has been analyzed for numerous other chemical constituents, including volatile halocarbons, and concentrations have been below the respective MCLs. Water from the City of Fresno wells has also been analyzed for numerous other drinking water constituents.

**Radiological Constituents.** A sample collected from Well No. 1 near the end of the pump test on October 16, 1995 was analyzed for gross alpha and uranium activity. A gross alpha activity of 26 picocuries per liter and a uranium activity of 22 picocuries per liter were reported. The uranium activity slightly exceeded the MCL of 20 picocuries per liter. This result appeared to be atypical for the area. Thus on November 17, 1995, another water sample was collected from Well No. 1, after the pump had been running for an adequate time to obtain a representative water sample. The alpha activity was reported to be 10 picocuries per liter and the uranium activity 28 picocuries per liter, also exceeding the MCL.

Based on these results, three other wells at the ranch (Club House, No. 3, and Kazarian Well) were sampled on January 2, 1996 for determination of gross alpha activity. The alpha activities in water from the Club House Well and the Kazarian well were very low. Water from Well No.3, located about one quarter mile northwest of Well No. 1, had an alpha activity of 20 picocuries per liter, in the range of the values for Well No. 1.

On July 15, 1997, the City of Fresno Water Division collected water samples from four of the ranch wells for analyses of alpha activity and uranium. Alpha activities in water from Wells No. 1, 3, 4, and the Club House well ranged from less than 2 to about 10 picocuries per liter. Uranium activities ranged from less than 1 to about 13 picocuries per liter. For Well No. 1, the alpha activity was 8.8 picocuries per liter and the uranium activity was 6.5 picocuries per liter. The values for Wells No. 1 and 3 were thus much lower than the earlier samples. The later results are considered more representative, because they were collected during a heavy pumping period.

Figure 2.9-5 DBCP Concentrations in Water From Wells



Water from the Club House Well, the Kazarian Well (12G), and Well 12G had alpha activities of 1 picocurie per liter or less in 1995-96. Water from Well No. 4 had an alpha activity of 7 picocuries per liter in July 1997. Because of their location, the results for these wells are considered representative of the groundwater to be tapped by new public-supply wells at the ranch. Results for them are also consistent with results obtained from sampling of other wells northeast of the ranch, and City of Fresno and other wells south of the project site.

### Water Supply Evaluation

At full project buildout, there would be an 18-hole golf course, club house, commercial area, up to 2,837 housing units, and about 190 acres of open space. Community water supply wells would be used to supply all potable water for the project and for fire protection. Surface water from FID would be used for lake replenishment, and water in the lakes would be used for the golf course irrigation and groundwater recharge. Additional recharge may be undertaken at the FMFCD flood control basin at the ranch. Effluent from the project would be reclaimed for irrigation of the golf course and common area landscaping. Some additional groundwater may be pumped occasionally to supplement surface water and reclaimed water for lake replenishment.

The average groundwater flow beneath the ranch prior to development can be determined from the aquifer transmissivity and water-level slope. Previous documentation indicates an average water-level slope of about 20 feet per mile in Fall 1993, prior to development of the golf course. Using the average transmissivity from the two 10-day aquifer tests of 104,000 gpd per foot, and a width of flow of one mile, the groundwater flow at that time can be calculated by Darcy's Law:

$$Q = TIL,$$

where Q = inflow (gpd)  
T = transmissivity (gpd per foot)  
I = water-level slope (feet per mile)  
L = width of flow (miles).

This calculation indicates that there were about 2,300 acre-feet per year of groundwater flow beneath the site, prior to implementation of intentional recharge in late 1994. With development of the Kesterson project northeast of Copper River Ranch, this flow would be reduced by an estimated 100 acre-feet per year.

In February 2000, the water-level slope averaged about 12 feet per mile beneath the site. This was less than in Fall 1993, and this is attributed primarily to intentional recharge at the ranch, which has raised water levels beneath the ranch. Using the same transmissivity as for the previous estimate, the groundwater inflow was 1,400 acre-feet per year in February 2000.

The average amount of groundwater pumpage for irrigation prior to development of the golf course was about 2,200 acre-feet per year. The pumpage under full buildout of the project is estimated to be 1,600 acre-feet per year for the residential potable supply, 150 acre-feet per year for the club house, hotel and commercial area, and about 50 acre-feet per year for the lake filling (Provost and Pritchard, 2000). The total pumpage would, therefore, be about 1,800 acre-feet per year. Reclaimed treated effluent (about 750 acre-feet per year) would be used for irrigation of the golf course and common area landscaping.



A well capacity of about 4,900 gpm would be needed to meet the estimated peak daily demand for the potable water and fireflow. This could be provided by development of seven on-site public-supply wells. Several of these wells (in the western part of the ranch) would probably need to be treated for DBCP removal. Figure 2.9-6 shows the proposed location for community wells on the project site.

In order to determine the adequacy of groundwater resources for the proposed project, both the consumptive use and the amount of surface water supplies should be evaluated. The consumptive use for irrigation prior to development of the golf course is estimated to have been 1,000 acre-feet per year. The consumptive use at full build-out is estimated at 1,250 acre-feet per year, or about 25 percent more than the consumptive use prior to development of the golf course. The amount of reclaimed water that would be available at full project buildout is estimated to be about 750 acre-feet per year. Use of this water for irrigation of common area landscaping and the golf course would be consistent with the Fresno-Clovis Metropolitan Water Plan (CH<sub>2</sub>M-Hill, 1994) and State guidelines which promote the reuse of such water.

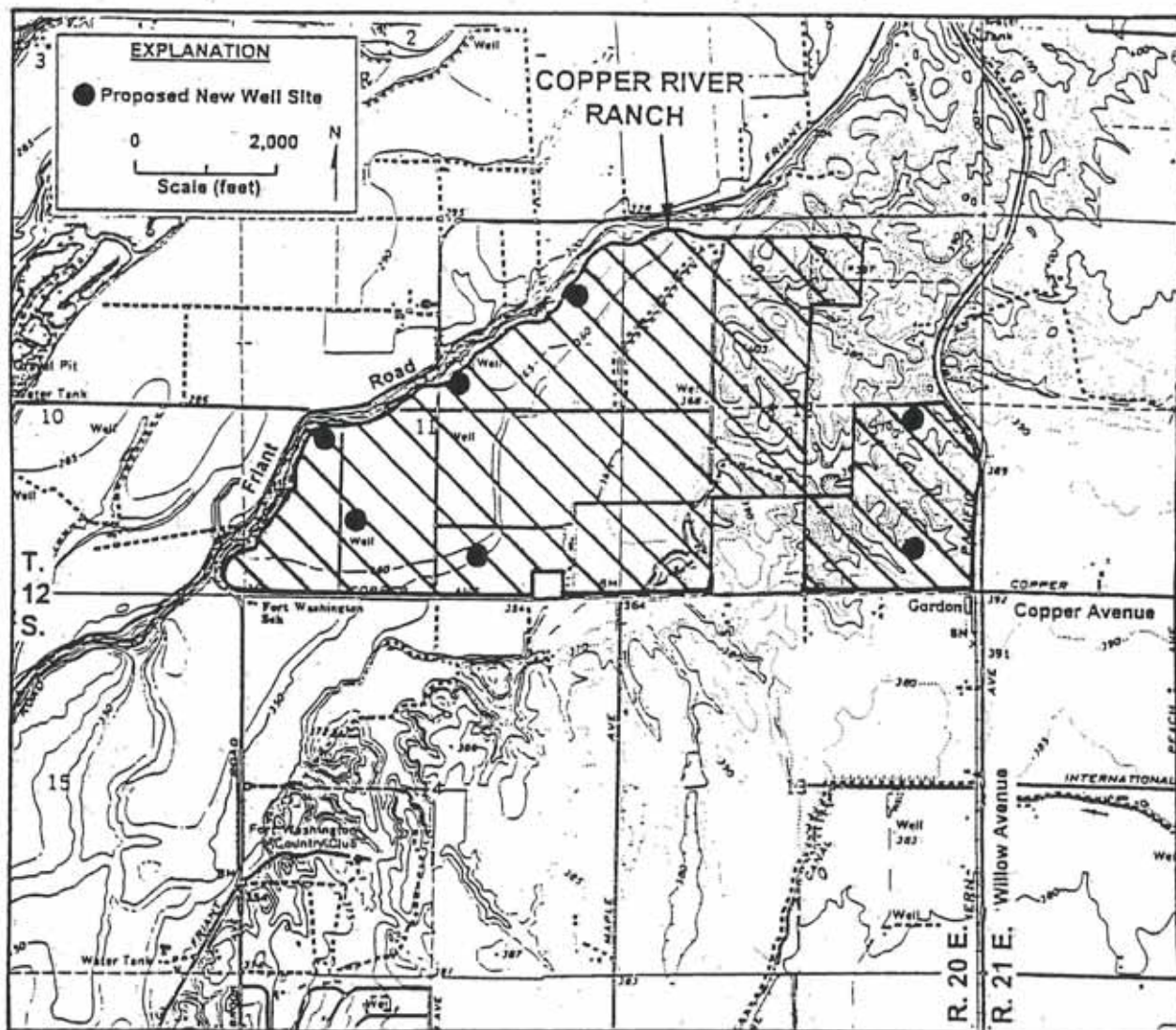
Groundwater recharge is occurring in 14 acres of lakes on the project site. Consolidated Land Co. has entered into an agreement with the City of Fresno for delivery of part of the City's surface water entitlement to the site lakes for groundwater recharge. Storm runoff from the project would drain to the 19-acre FMFCD basin on-site or to the on-site lakes, and contribute some additional recharge. According to FMFCD, the average area of the flood control basin that would be available for recharge would be about four and a half acres. The FMFCD projects that the average infiltration rate would be about 0.4 foot per day. For recharge during 10 months of the year, a total of about 550 acre-feet per year of canal water could be recharged in the flood control basin.

FID has delivered canal water to the project site, including prior to development. FID has indicated that this delivery will continue as long as the user fees are paid. Since December 1994, increased deliveries from the FID Enterprise Canal have been made to the on-site lakes. FID records indicate the following deliveries to the ranch during the past four years.

<u>Year</u>	<u>Delivery (acre feet)</u>
1996	2,040
1997	1,680
1998	1,430
1999	980

Thus, the average diversion of canal water to the ranch during 1996-99 was about 1,530 acre-feet per year. The surface water is a beneficial addition to the local water budget that would otherwise not be available. The groundwater outflow could be kept the same as for the post-golf course situation, if 1,300 acre-feet of canal water are imported and used or recharged. This amount of water could be handled at the ranch by irrigation and recharge at the ranch (including the FMFCD basin). The consumptive use for the project is about the same as the groundwater inflow into the site. About 600 acre-feet per year of deep percolation from the ranch is expected, even without intentional recharge.

Figure 2.9-6 Proposed Sites for Public Supply Wells



## IMPACTS

The evaluation of impacts to groundwater resources are primarily based on the information contained in the following reports: *Groundwater Conditions at the Copper River Ranch*, May, 2000, by Kenneth D. Schmidt and Associates, revised July 2002; *Water Agreement of December 1994*, Fresno City Council Meeting, Mar 6, 1995; *Fresno -Clovis Metropolitan Water Resources Management Plan*, Phase I Report, Volume 1 & 2, Jan 1992, CH2M-Hill. These reports are available for review at the City of Fresno Development Department.

### Standards of Significance

An impact was considered significant if the proposed project would cause depletion of the available groundwater, or substantial degradation or depletion of groundwater recharge. A potentially significant impact was identified if available technical data was not conclusive in terms of the significance of an impact.

### Impact

- Approval of the project will require pumping from the groundwater aquifer. This is a *significant impact*.

Connection to the City of Fresno water system will occur, allowing water from the balance of the system to serve the project. The City is constructing a new 20 mgd surface water treatment plant on a 38-acre site located at the northeast corner of E. Behymer and N. Chestnut. The surface water treatment plant will be completed and on-line by the Spring of 2004. The purposes of the surface water treatment plant are to supply domestic water for the City of Fresno and to provide in-lieu groundwater recharge by reducing dependence on water wells for municipal supply. In-lieu recharge, which is the use of treated surface water for direct municipal supply, will reduce withdrawals from water wells and put a much greater volume of surface water to beneficial use than could otherwise be accommodated by direct recharge via percolation at the ponding basins in the area.

According to the City of Fresno Department of Public Utilities Water Division, the surface water treatment plant will have capacity to serve the Copper River Ranch project. The project would use approximately 8.5 percent of the capacity of the water treatment plant at full development. It is estimated that the project would require two domestic wells under this scenario to provide emergency backup to the water treatment plant.

Figure 2.9-6 shows proposed locations for public supply wells for the project. Total pumping from the groundwater aquifer would be significantly less than prior to development, especially if reclaimed water and canal waters are available to supply most of the golf course need and to recharge the groundwater. Prior to development of the golf course, an average of 230 acre-feet of surface water annually was imported to the project site by FID. The average diversion of canal water to the ranch during 1996-99 was about 1,530 acre-feet per year. Thus, there would be no significant increased pumping that would lower water levels. The proposed setbacks from the property boundaries for the new wells would mitigate undesirable drawdowns in off-site wells.



The sub-surface geologic conditions are favorable for intentional recharge at the project site and the site is considered especially valuable for this purpose. The City of Fresno and FID both presently deliver water in addition to that described above specifically for groundwater recharge purposes at the existing golf course lakes. A conveyance system, ponds, and water deliveries are already present.

In addition to these deliveries from the City and FID, the on-site wastewater treatment plant, if developed, is expected to contribute approximately 750 acre feet annually for irrigation and recharge. FID has committed, at a minimum, to the continued provision of "historic" water deliveries. This ensures a permanent source of water is available from FID to continue recharge on the project site.

As a result, groundwater levels are not expected to decline, given the assumptions used in the EIR. Groundwater will be pumped primarily for backup potable uses, and other sources of water would be used for most of the irrigation of the golf course and common landscaped areas. Production wells would be located away from the ranch perimeter, so as to minimize drawdown in off-project wells. Connection to the City's water delivery system, the continued delivery of surface water and recharge programs on the project site combined with proper well location would reduce impacts to a less-than-significant level.

SB 610 requires any city or county to consider a water supply assessment prepared for that development to determine whether projected water supplies available to the proposed project are sufficient to meet the project's anticipated demand. The threshold requiring analysis is 500 equivalent residential units. In compliance with this new law, the City has prepared a water supply assessment for this Project. A copy of this water supply assessment is attached to this EIR as Appendix C. Additionally, effective January 1, 2002, SB 221 prohibits a city or county from approving development agreements, parcel maps, or tentative tract maps for any subdivision with more than 500 units unless a sufficient water supply is, or will be, available for the subdivision prior to its completion. Based on data prepared for the Copper River Ranch project, and considering available groundwater resources, historical surface water deliveries intended for recharge, and connection to the City's water supply system, there are adequate water supplies available for the project. When tentative tract maps are submitted for review, additional analysis under SB 221 may be required.

Water demand, however, is based on an undefined mix of residential and commercial land uses with residential demand calculated on interior use figures of 75 gallons per capita per day and 2.8 people per residence. If the ratio of single family to multi-family residences increases (greater number of single family homes), average water use per household and resultant overall water demand is likely to increase. In addition, recent experience at Quail Lake, where the same figures were used, indicates that water use figures are too low. Further, a water demand for the proposed commercial area is used without specifying the types of uses to be developed. While the water demand analysis contained herein is consistent with Program EIR requirements, additional demand analysis will be required with preparation and review of future specific plans and development plans.

### **Mitigation**

The developer shall be responsible for the following mitigation measure through the subsequent master use permit and associated development plan:

1. Establish a development fee for the project's fair share of the City's surface water treatment plant construction and expansion.



2. The project shall commit to a water conservation program which shall include low-flow water fixtures, water conserving landscaping of public spaces, and water conserving practices for golf course irrigation.
3. Technical water supply information shall be submitted which demonstrates residential and commercial uses and corresponding water requirements.
4. The developer shall commit to plan and maintain on-site recharge basins and lakes to ensure that necessary recharge can be accomplished over the life of the project.
5. The developer shall prepare a water master plan for approval by the City in accordance with City requirements.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Project approval could adversely affect off-site wells. This is a *significant impact*.

Based on the 10-day pumping tests performed on the project site, there would be very little interference with off-site wells. Drawdowns in observation wells were very small. Drawdown in Well No. 3 was 0.20 feet and the House Well had -1.6 feet of drawdown. City of Fresno Well PS 185 was also used as an observation well. The drawdown results for Well PS 185 were not caused by the pumping of Well No. 1.

Production wells for Copper River Ranch will be located away from the perimeter, so as to minimize drawdown in off project wells. The recharge system envisioned for the project and the positive water balance should recharge groundwater in excess of groundwater used with wells located as recommended and canal water continues to be diverted to the project site.

#### Mitigation

The developer shall be responsible for the following mitigation measure through the subsequent development agreement and associated specific plan or development plan:

1. New wells shall be placed a minimum of 500 feet from the project boundaries where there is an adjoining proximate off-site well, in order to preclude drawdown in off-site wells due to pumpage of new public supply wells in the project. In addition, new public supply wells on the project site shall include a test well and monitoring of a sufficient number of adjoining proximate off-site wells as determined by the City to determine potential drawdown in the off-site wells. Should adverse effects on adjoining proximate off-site wells be determined, the public supply wells shall be relocated or otherwise mitigated to preclude such adverse impacts.
2. Locate domestic water wells in accordance with the recommendations contained in the report, *Groundwater Conditions at the Copper River Ranch*, prepared by Kenneth D. Schmidt and Associates, May, 2000.

3. If water yields from adjacent private wells are determined by the City Department of Public Utilities in consultation with the Fresno County Department of Community Health to have been adversely affected by the project, the developer shall improve the private well to standards acceptable to the City, or connect the user to the project water system.

#### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

#### Impact

- Approval of the project could result in domestic water wells with contaminants exceeding State MCLs. This is a *significant impact*.

DBCP and EDB have been found in the groundwater in both City of Fresno wells and the wells in the western portion of Copper River Ranch. The State Department of Health Services mandates that DBCP MCLs be less than 0.20 parts per billion (ppb) and that EDB MCLs levels be less than 0.05 ppb. Although EDB was not detected in the water samples from the wells at the proposed project site, DBCP at levels higher than the MCL was detected in several of the ranch wells on the western portion of the site.

The Uranium MCL of 20 picocuries per liter was exceeded in two separate tests in Well No. 1, but wells in the central portion of the site (Clubhouse well and a nearby domestic well) revealed levels of less than one picocuries per liter and are considered more representative of the groundwater to be tapped by new public supply wells at the project site.

It is noted that if wells proposed to serve a public system are initially identified as exceeding MCL standards, they are not allowed to be included in the system. Treatment and/or blending would not be permitted as a means of allowing the well to be placed into service. Alternatively, if a previously approved well which meets all applicable standards is already online, and routine sampling reveals an MCL has been exceeded, then treatment and/or blending plans can be submitted for review and approval by DHS.

#### Mitigation

The developer shall be responsible for the following mitigation measures based on required water-well monitoring:

1. Should any existing community water supply well exceed the DBCP MCL as detected in regular monitoring, granular activated carbon treatment or other acceptable technology shall be required consistent with CCR Title 22 requirements.
2. Should any existing community water supply well exceed the uranium MCL as detected in regular monitoring, the contaminated well water shall be blended with other on-site groundwater supplies to reduce the contamination level below the MCL at all times. A State DHS-approved blending program shall be implemented to meet this requirement. The effectiveness of the program shall be supported by on-going monitoring at State-specified frequencies and locations.
3. Should other contaminants be identified in the future, remediation shall be resolved in accordance with CCR Title 22 requirements.

### Level of Significance After Mitigation

Implementation of mitigation measures would reduce impacts to a less-than-significant level.

### Impact

- Approval of the project may involve groundwater recharge with reclaimed water that may contain nitrogen or other contaminants. This is a *significant impact*.

The major potential groundwater contaminant in effluent is considered to be nitrogen. The average domestic sewage effluent treated to the secondary level contains about 25 to 30 mg/l of total nitrogen. For the proposed tertiary treatment plant at the project site, about 80 to 95 percent of the nitrogen would be in the nitrate form. With careful management (i.e., intentional use of this nitrogen for fertilizer), a considerable part of this nitrogen could be utilized by plants on the golf course and in the common area landscaping.

When reclaimed water is used for the golf course and common area landscaping, an estimated 250 acre-feet per year of this water would percolate to the groundwater. This would comprise less than 20 percent of the amount of groundwater inflow beneath the site. The combination of the use of some nitrogen by plants and mixing with groundwater inflow and intentionally recharged water should result in nitrate concentrations in the downgradient groundwater well below the MCL. There are no other known significant contaminants in reclaimed water that would pose a threat to the groundwater quality, if Title 22 requirements are met as proposed.

A waste discharge permit would be necessary from the RWQCB, Central Valley Region, for the proposed treatment plant and effluent storage and reuse areas. This permit would contain a number of operational requirements and mitigating measures for the sewage treatment plant and effluent holding and irrigation facilities in order to protect groundwater quality. Among other conditions, California Department of Health Services Title 22 standards for reclaimed water would be mandated. Mitigating measures to protect groundwater quality include:

Monitoring of the shallow groundwater beneath and downgradient of the reuse areas would provide information on the chemical quality of the shallow groundwater, and provide the opportunity for a timely response to degradation of groundwater quality, in the unlikely event that it occurred. Several existing on-site domestic wells could be part of the monitoring program. Also, several shallow monitor wells could be drilled to a depth of about 150 feet, to tap only the upper 20 to 30 feet of saturated alluvial deposits. Submersible pumps could be used for routine sampling. This monitoring program for the shallow groundwater could also be used to verify that fertilizers and pesticides used for the golf course are not leaching to the groundwater.

### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval of the conditional use permit for the wastewater treatment plant:

1. Monitoring groundwater, including nitrogen content, has been proposed as a mitigation measure for this project (see mitigation for groundwater degradation caused by infiltration of diluted treated effluent, in Section 2.8). Measurements shall be taken each calendar quarter by City of Fresno personnel or a qualified consultant. Should the monitoring tests exceed nitrogen standards, a denitrification process shall be started at the wastewater treatment facility. The plant design shall incorporate a denitrification process that shall denitrify the treated effluent to the 10 mg/l total nitrogen level.



### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

### Impact

- Impacts on groundwater may occur due to application of fertilizers, pesticides, and the leaching associated with normal golf course irrigation practices. This is a *less-than-significant impact*.

Impacts on groundwater may occur due to applications of fertilizers and pesticides on the golf course, and the leaching that is associated with normal irrigation practices. Nitrogen fertilizer applications (including reclaimed water contributions) to the golf course could adversely impact groundwater quality. However, regular pesticide applications are normally made only to the greens and tees, which comprise less than five percent of the total golf course. Fairways are usually treated on a seasonal basis. The thatch layer associated with turf grass cover can accelerate the biodegradation of some pesticides, and thus help protect groundwater quality. Due to short half-lives, most of the newer types of pesticides (i.e., carbamates and organophosphates) in use pose little threat to groundwater quality. That is, they would tend to degrade before percolating water could reach the groundwater or nearby drinking water wells. Golf course management practices implemented by the applicant which have proven to satisfactorily protect the quality of the groundwater in similar projects will preclude adverse impacts on groundwater quality.

Common practices for chemicals applied to the proposed golf course include limiting water and chemical applications as much as possible, and groundwater monitoring. Water conservation measures should be used for golf course irrigation. The nitrogen in the irrigation water, including sewage effluent, in addition to that in applied fertilizers, should be managed to minimize the percolation of nitrate to the groundwater. Pesticides used at the golf course should be limited to those with a short half-life (i.e., less than one month). As discussed previously, several shallow monitor wells should be installed, to allow routine monitoring of the shallow groundwater for nitrate and selected pesticides (those actually used on the golf course).

### Mitigation

None required.

### Impact

- Groundwater quality degradation from stormwater runoff associated with urban development is a *significant impact*.

FMFCD is responsible for control of storm runoff in the Fresno urban area. In most of the urban area, storm runoff is collected and transported to percolation basins, where it is recharged to the groundwater, as a groundwater management practice. An FMFCD flood control basin is being constructed between Millbrook and Maple Avenues, just south of Copper Avenue, and another is planned on the site on the north side of Copper Avenue, west of the PG&E substation. FMFCD has purchased the land for the facility on the site.

The average annual rainfall in Fresno is slightly more than 10 inches. A study of storm runoff was conducted in the Fresno urban area in the early 1980s, as one of 28 NURP projects. The major objective of the Fresno NURP project was to determine the impact of basin recharge of urban storm runoff. As part of the program, the U.S. Geological Survey characterized the quality of urban storm runoff from areas with different land uses. Samples of runoff were collected from drainage areas representative of four different types of land



use, including commercial and single-family residential. Samples of runoff were collected during thirteen storm events in the winter of 1982-83. Most samples were analyzed for the major inorganic chemical constituents, nutrients, trace metals and organic chemical constituents. Brown and Caldwell (1984) indicated that in general, runoff from the single-family residential site had the lowest contents of trace inorganic chemical constituents. Higher lead contents, however, were found in runoff from the residential sites.

Of the trace inorganic chemical constituents in the storm runoff, lead appears to be the major concern. However, lead is not mobile in most soil-aquifer systems, and has not been found at significant levels in shallow groundwater in the Fresno area despite decades of storm runoff percolation. Also, no trace organics have been found at significant levels in shallow Fresno area groundwater that are associated with percolation of storm runoff from residential areas or commercial areas.

Most contaminants in urban storm runoff would be expected to be associated with the suspended fraction, and this would eventually settle to the bottom of the storm runoff pond. It may be necessary to occasionally remove some solid materials from the bottom of the pond to avoid a buildup of contaminants such as lead. These activities would be performed by the FMFCD who will operate the storm water recharge facilities.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval for all conditional use permits, tentative tract maps, or site plans:

1. Grading plans shall demonstrate that all areas of irrigated turf or other open space receiving reclaimed water drain away from FMFCD basins, except in extraordinary wet years (10-year frequency storms) when on-site lakes may fill from stormwater and utilize the FMFCD basins.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

## 2.10 PUBLIC FACILITIES AND SERVICES

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### LAW ENFORCEMENT

#### Setting

The project location is in an unincorporated area and served by the Fresno County Sheriff's Department. The proposed Copper River Ranch project site is located in Service Area 2 which is comprised of approximately 1,900 square miles and is bounded to the south by American Avenue, to the west by Blackstone Avenue and Friant Road, to the east by the Friant-Kern Canal and McCall Avenue, and generally to the north by the unincorporated community of Friant. Area 2 currently serves a residential population of approximately 110,000 in the unincorporated areas and is staffed by 37 deputy sheriff patrol positions, plus seven sergeants and seven detectives. An Instant Aide Agreement exists between the Sheriff's Department, the California Highway Patrol, and the Police Departments within the Cities of Fresno and Clovis.

The Fresno City Police Department provides law enforcement services to the Woodward Park Community area as annexation and development occurs. The entire Woodward Park Community is located within the Northeast Policing District. There are approximately 45 police officers and two community service officers assigned to cover the Northeast District. The closest station to the project site will be the sub-station located at Cedar and Teague. The applicant has discussed the location of space for a dressing station in the proposed mixed use commercial area at Copper and Willow.

### IMPACTS

#### Standards of Significance

Impacts of the project on law enforcement services would be considered significant if existing public safety resources were not available to adequately serve the proposed project.

#### Impact

- The project would result in the need for additional law enforcement services. The impact on law enforcement is a *significant impact*.

The Fresno Police Department would provide service following annexation. Based on a preliminary review conducted by the Police Department, it has been determined that the proposed project would be absorbed into the current Northeast Policing District and that there would be no additional resources required for initial phases of the project. For full build-out, additional personnel and equipment would be required. The Police Department supports the location of a dressing station at Copper and Willow.

The project would result in a population increase of approximately 7,950 persons (2.8 persons per unit x 2,837 residential units) resulting in a need for eight additional law enforcement officers at one officer per 1,000 residents. New personnel and equipment are financed through state and federal funds and the general fund which increases through property tax, sales taxes, and in-lieu taxes as new areas develop and population increases.

The Public Facilities Element of the 2025 Fresno General Plan includes a specific issue addressing police services (Objective E-24, Policies E-24-a through E-24-f) including the consideration of potential funding sources, such as assessment districts. The Implementation Element also provides for an annual evaluation of implementation progress with recommended refinements to plan objectives and policies if needed.

Cumulative development within the Friant/Copper corridor will ultimately affect law enforcement services. As projects are built out, the need for additional services would occur. The proposed project, in conjunction with other past, present and reasonably foreseeable future projects, has the potential to result in a significant adverse cumulative impact related to law enforcement. Additional law enforcement personnel will be needed to handle the cumulative impact of population growth.

Proposed land uses would not typically present unusual police protection issues. Project development would likely result in corresponding increases in burglaries, car thefts, and vandalism in residential areas; and burglaries, shoplifting, and increased traffic collisions in commercial areas. Copper River Ranch will participate in Neighborhood Watch and other crime prevention programs.

#### Mitigation

1. The developer shall ensure through the subsequent master use permit and associated development plan, that a site for a "community service center" is provided within the project acceptable to the Fresno Police Department.

The developer shall be responsible for the following mitigation measures to be included as a condition of approval for all conditional use permits, tentative tract maps, or site plans:

2. Maximize visibility and natural surveillance abilities through the placement and design of physical features including building orientation, windows, entrances and exits, parking lots, walkways, guard gates, low-maintenance landscaping (trees and shrubs), fences or walls, signage and any other physical obstructions.
3. Implement design features to clearly identify public/private spaces and to facilitate natural access control and territorial reinforcement, to include, but not limited to, the following measures:
  - a. Identify public entrances and exits through the implementation of sidewalks, pavement, lighting and landscaping to clearly guide the public.
  - b. Discourage/prevent public access to and from dark and/or un-monitored areas through the use of fences, walls or landscaping.
  - c. All residential and commercial addresses shall be clearly visible from the street and shall be illuminated.

- d. Incorporate access control, including parking lot barriers, fenced rear and side yards, and entry telephones for gated neighborhoods.
  - e. Implement exterior nighttime lighting of display areas, parking lots, walkways, entrances and exits. These areas shall be illuminated, at a minimum, one-half hour after sunset and one-half hour before sunrise during hours of operation.
  - f. Incorporate measures that provide off-street parking to discourage auto-related crimes, graffiti-resistant paints and surfaces, and view fences.
4. The Fresno Police Department shall be consulted during site planning and subdivision design to ensure that adequate provisions acceptable to the Police Department for crime prevention are designed into the project.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### FIRE PROTECTION

##### Setting

The proposed project is located within the jurisdiction of the Fresno County Fire Protection District. Fire protection is provided from Fresno County Fire Protection District Station 85 located at 4955 E. Nees Avenue at Sunnyside Avenue. The CDF station at Friant can also provide emergency services to the site.

It is noted that as a result of recent annexation proposals presented to LAFCO, the City Fire Department has renewed discussions to formulate a new transition agreement with fire protection districts in the city's sphere of influence. Although the City Fire Chief contends that the existing transition agreements with the fire districts are valid, in the spirit of cooperation, the City has initiated talks to promulgate new agreements.

The City of Fresno Fire Department provides services to incorporated areas south of Copper Avenue. The permanent fire station location to serve the project would be Maple and International, about 1/2 mile from the southern project boundary.

#### IMPACTS

##### Standards for Significance

A potentially significant impact would occur if response time exceeded five to six minutes from a Fresno Fire Department station and there were no provisions to provide for fire services from a location that was within the desired response time.

##### Impact

- The project would result in the need for additional fire protection services. The impact of the project on fire protection is a *significant impact*.



Response time from the Fresno Fire Department station at Maple and International would be two to five minutes depending upon where the service call is generated on-site. With an estimated population of 7,950, the proposed project would result in demand for eight firefighters. Based on experience at other urban station locations, with 2,837 residential units and 60 acres of commercial uses, the project would generate approximately 335 calls for service annually (275 calls in residential areas and 60 calls in commercial areas).

The Fresno Fire Department anticipates that the station at Maple and International south of the project would be sufficient to serve the project at full development. Should the project be approved, the Fresno Fire Department will coordinate automatic/mutual aid issues with the Fresno County Fire Protection District and the City of Clovis. This project, in conjunction with the development of other projects in the future, would result in a need for additional resources or reallocation of existing resources.

#### Mitigation

The developer shall ensure that the following measures are incorporated in future conditional use permits, tentative tract maps, or site plans:

1. The geometric sections of all interior roads shall, at a minimum, be improved to City of Fresno standards to adequately provide for emergency vehicles. Any deviations from the standards shall be accomplished through modifications or exceptions requested at the Vesting Tentative Subdivision Map or site plan review stage.
2. A water supply and distribution system, including fire hydrants, shall be designed and constructed to meet the adopted fire protection standards of the City of Fresno.
3. All residential and commercial development shall be provided with fire control systems as required by Fresno Fire Department regulations. The tertiary wastewater treatment facility shall also be provided with a fire control system.

#### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### SCHOOLS

##### Setting

The project site is within the Clovis Unified School District (CUSD). The EIR contains estimates of the approximate ratio of single family to multiple family units: 42 percent single family (1,192 units) and 58 percent multiple family (1,645 units). Based on this breakdown, the project would generate the following number of students:

Table 2.10-1  
Copper River Ranch  
Potential Student Generation

	K-6	7-8	9-12	Total
<u>Single Family Residences</u>				
Number of Units	1,192	1,192	1,192	1,192
Student Generation Rate	.449	.095	.214	.758
Number of Students	535	113	255	903
<u>Multi-Family Residences</u>				
Number of Units	1,645	1,645	1,645	1,645
Student Generation Rate	.134	.015	.027	.176
Number of Students	<u>220</u>	<u>25</u>	<u>44</u>	<u>289</u>
Totals	755	138	299	1,192

#### IMPACTS

Analysis of impacts on schools is based on a review of published information and reports regarding the CUSD's existing and planned facilities in the area and consultation with District representatives.

#### Standards for Significance

The project will normally have a significant impact on schools if it will: 1) result in short-term student capacity deficiencies prior to the completion of planned school facilities, and 2) result in the need for new school facilities as a result of full build-out of the project.

#### Impact

- There is insufficient capacity in existing schools within CUSD to accommodate estimated new students. If additional fiscal resources are not provided to CUSD for the purpose of constructing new schools, there would be a *significant impact*.

The large number of students potentially generated by the project will significantly impact the District. The 755 grades K-6 students potentially generated by the project would result in the need to construct a new elementary school. (The typical capacity of a new District elementary school is 700 students.)

The 138 grades 7-8 students generated by the project would consume approximately 10 percent of the capacity of a new intermediate school. The 299 grades 9-12 students generated by the project would consume approximately 15 percent of the capacity of a new high school.

The project is proposed as an integrated development in which a diversity of housing types, employment opportunities, services and amenities are provided. CUSD believes that schools should be added to the list in cases where potential student generation warrants the construction of a school. No planned community of the size proposed can be truly complete without the inclusion of an elementary school site.

Preliminary discussions have centered on a potential elementary school site west of Willow Avenue, either north or south of the proposed project entrance. A site north of the roadway would be located on the Krum property while the southernly site would be on the Copper River Ranch site. The District will continue to negotiate with land owners in the area until a suitable site is purchased in advance of development.

With respect to intermediate and high school students generated by the project, the District is proposing to construct its fifth high school and fifth intermediate school on the northwest corner of Willow and International Avenues. These facilities could be constructed in approximately five to seven years, depending on enrollment growth and funding availability.

Any new development on the project site will be subject to the CUSD development fees in place at the time fee certificates are obtained.

#### **Mitigation**

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in future conditional use permits, tentative tract maps, and site plans:

1. The developer shall identify the location of an elementary school site within the boundaries of Copper River Ranch acceptable to CUSD. Should CUSD select an off-site location to serve Copper River Ranch, the agreed-upon site and any necessary agreements shall be in place prior to approval of the first final subdivision map.
2. The developer shall pay current impact fees to the CUSD in effect at the time of specific project approval.

#### **Level of Significance After Mitigation**

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

#### **PARKS & RECREATION**

##### **Setting**

The only City of Fresno park near the project site is Woodward Park, located west of Friant Road. Woodward Park is also a regional facility designed primarily for passive recreational activities including picnicking, nature study, bike riding, and hiking.

The nearest Fresno County park to the project site is the 300± acre Lost Lake Park located north of the unincorporated community of Friant adjacent to the San Joaquin River. The park is approximately five miles from the project site. It is a regional facility designed for passive recreational activities.

The San Joaquin River Parkway is also under construction along the river in the vicinity of the Copper River Ranch site. The river parkway is a trail system designed for passive recreation allowing people to walk along the river bottom and enjoy its scenic resources. The City of Fresno also plans a public trail to be aligned generally along Old Friant Road from Woodward Park northerly towards Friant.

## IMPACTS

### Standards of Significance

An impact due to project development is considered potentially significant if there is a substantial increase in the demand for public parks and recreation that would potentially impact existing or proposed properties/projects in the vicinity of the site.

### Impact

- Approval of the project will generate the need for additional park space. This is a *significant impact*.

The City of Fresno park standard is three acres per 1,000 persons, or 24 acres for the Copper River Ranch project, not including the existing golf course. The project has the potential to provide recreational opportunities to meet the recreational/open space needs of residents. Potential resources include open space and trails located along the Copper Avenue frontage; a community park located within the FMFCD basin along Copper Avenue; and mini-parks, bike, and walking paths throughout the project. In addition to this open space, an 18-hole championship golf course, 15-court tennis facility and swim facility are located on the site and available for membership by project residents. Planned bikepaths and the trail along Copper Avenue could also provide linkages to the San Joaquin River Parkway.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measure is incorporated in the design of future conditional use permits, tentative maps, and site plans:

1. A minimum of 24 acres of park space shall be provided within the Copper River Ranch project.

### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

### Impact

Copper River Ranch recreational opportunities will attract traffic and accommodate activities which could be considered nuisances to adjoining properties, and is a *significant impact*.

The inclusion of a golf course and country club within a planned residential development may generate increased traffic in areas which are in route to the golf course and country club facilities. The community park will likely have hard court amenities and softball fields which may attract attendance from outside the project. These facilities have the potential to become a nuisance to adjoining properties and could lead to complaints to the Fresno Police Department.



### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future plans:

1. The FMFCD flood control basin/community park shall be bounded on at least one side by a street. Parking facilities shall be located off of a public street.
2. Road improvements shall be made to adequately accommodate vehicle traffic that shall be generated by the parks, recreation and open space uses within the project.

### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

### Impact

- Development of the site will place substantial development in proximity to the San Joaquin River Parkway, increasing visitors to the parkway and creating access issues. This is a *significant impact*.

The development of Copper River Ranch will place several thousand new residents in proximity to the San Joaquin River Parkway. The project will also have a system of internal trails connecting to the parkway which will encourage access and use. The project does not affect overall growth projections in the metropolitan area and the parkway will see increased use as population growth occurs. Increased use, education, and stewardship are among the overall goals of the parkway and increased use as a result of Copper River Ranch will result in less-than-significant impacts to the parkway.

The San Joaquin River Parkway Master Plan shows a multi-purpose trail connection at Copper Avenue to serve pedestrians, bicyclists, and equestrians. County and City of Fresno trail plans should merge seamlessly at this junction. Friant Road is an expressway located between the project site and the pedestrian/equestrian trail leading to the parkway. Direct access to Friant Road for a parking area and a proposed crossing of Friant Road could conflict with the development standards for an expressway.

### Mitigation

The developer shall ensure through the subsequent master use permit and associated development plan, that the following measures are incorporated in the design of future conditional use permits, tentative tract maps, and site plans:

1. In cooperation with the San Joaquin River Parkway Conservancy, the developer shall design and construct safe crossing(s) of Friant road as well as suitable connections from the project to the parkway. The City of Fresno, Fresno County, and parkway representatives shall be involved in design review of the facilities early-on, including scoping sessions.

### Level of Significance After Mitigation

Implementation of the mitigation measures would reduce impacts to a less-than-significant level.

### HAZARDS

#### Setting

#### Electromagnetic Fields

Twenty-six power poles for distribution lines are spaced approximately every 300 feet apart on the north side of existing Copper Avenue. The lines carry a range of 22 Kv, 70 Kv and 115 Kv. Each pole has a measured magnetic field (as measured on milligauss, Mg) of <1-2 Mg up to 100 feet away. In recent years, electromagnetic fields (EMFs) from this use have come under scientific scrutiny regarding their possible effects on human health. Given the uncertainty of the EMF issue, the scientific community has been unable to determine if EMF causes adverse health effects or to establish any standard or level of exposure known to be either safe or harmful. No long-term exposure health-based national, international or state EMF standards or regulations have been developed. Both the California DHS and the EPA have clearly stated that standards are not recommended at this time.

#### Potentially Hazardous Materials

Krazan & Associates completed a Level I Environmental Site Assessment for a 930-acre area which contains the proposed project site. A Level I Environmental Assessment analyzes the potential for a site to contain contaminated soils principally from past activities on and around the site. The Krazan & Associates report included a review of literature, review of historical aerial photographs and a site reconnaissance including an abandoned railroad bed that exists generally along the eastern property line along Willow Avenue.

Among other issues, the report reviewed the proximity of gas wells, landfills, and hazardous waste sites near the subject site. The assessment and investigations suggested that there were several inactive wells on the site which should be abandoned according to local regulations. The report also identifies several underground and above ground storage tanks associated with agricultural operations and provides recommendations to ensure the proper removal of the tanks and remedial actions to clean noted soil discoloration. The report also noted a disturbed soil area associated with a former poultry operation near Willow Avenue. This area was excavated in January 1996 and no buried hazardous materials were identified.

A review of the California Department of Conservation, Division of Oil and Gas Regional Wildcat Map W5-3 indicates that there is one "plugged and abandoned dry hole" about 3,000 feet from the project site. Personnel at the Division of Oil and Gas indicated that the well has not been properly abandoned and was converted to a water well. This well is hydraulically down-gradient from the project site and is not anticipated to impact the site. There were two "listed" landfills located within one mile of the project site. The Gentz Construction Company landfill received construction waste until it was closed in 1987. This site is within 1,500 feet of the proposed project site and located along Willow Avenue. There is no known evidence of on-site or off-site contamination. The closed Rice Road Dump is located about 4,500 feet southwest of the project. According to the Krazan report, neither of the landfills will impact the site due to the distance or hydraulic-side gradient.

## Anthrax

A neighbor to the existing golf course reports that dead animals have been buried on the site and may have the potential to spread the anthrax virus. Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Anthrax is most common in agricultural regions where it occurs in animals including South and Central America, Southern and Eastern Europe, Asia, Africa, and the Middle East. When anthrax affects humans, it is usually due to an occupational exposure to infected animals or their by-products. Workers who are exposed to dead animals may become infected with *B. anthracis*. According to Arnot Ogden Medical Center, anthrax in animals rarely occurs in the United States; most reports of animal infection are received from Texas, Louisiana, Mississippi, Oklahoma, and South Dakota. The Fresno County Environmental Health Department has reported no cases of animal anthrax in the County in the past decade.

## IMPACTS

The discussion of EMFs is based on information contained in DHS and EPA reports which focused analysis on biological effects of exposure to magnetic field levels. Potential public health issues associated with hazardous materials was based on findings and recommendations from the Krazan report.

### Standards of Significance

An impact is considered significant if the proposed project would expose the proposed project's occupants to health hazards found on, and in the vicinity, of the proposed site.

### Impact

- Implementation of the proposed project would result in the placement of some home sites in proximity to overhead transmission lines, which emit electromagnetic fields. This would be a *less-than-significant impact*.

To date, no long-term exposure health-based national, international or State EMF standards or regulations have been developed or adopted. According to PG&E, it is not desirable to underground high voltage power lines such as those along Copper Avenue due to the extraordinary costs of undergrounding and the need for maintenance of high voltage lines. In recognition of these factors, and the significant expenditures PG&E made to place the towers in the present location, PG&E supports the proposal to include the electric transmission towers within a broad open space corridor on the north side of Copper Avenue that will be used for a regional trail.

### Mitigation

None required.

### Impact

- Removal of existing on-site fuel storage tanks and the demolition of existing buildings may expose construction workers and the general public to contaminated soil and groundwater. This would be a *significant impact*.

A Level I Hazardous Site Assessment revealed that several fuel storage tanks (above ground and below ground) may have contaminated small amounts of surface soil. There is no evidence that groundwater underlying the proposed site has been contaminated. The Fresno County Department of Community Health, Environmental Health System is the supervising agency for the removal of fuel tanks, and has established a procedure for such activities consistent with the RWQCB requirements. There is no evidence that potentially hazardous sites listed in the vicinity have contaminated groundwater on the site, due to 1) their distance, and/or 2) their location down-gradient from the proposed site.

Should any underground storage tanks be found on the premises, the applicant shall apply for and secure an Underground Storage Tank Removal Permit from the Fresno County Department of Community Health, Environmental Health System.

#### Mitigation

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Where a storage tank may be located, appropriate sampling shall be performed by a qualified technician to evaluate the potential of soil contamination. Removal of tanks and any contaminated soil shall be accomplished consistent with all applicable regulations of Fresno County.

#### Level of Significance After Mitigation

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

#### ELECTRICITY AND NATURAL GAS

##### Setting

Pacific Gas and Electric Company (PG&E) provides electric and natural gas utilities to the project area. An electrical substation is located north of Copper Avenue within the project area. PG&E also maintains a 70/115kV power line along the north side of Copper Avenue in the vicinity of the project.

#### IMPACTS

Impacts on utilities was based on information from PG&E.

#### Standards of Significance

A significant impact would occur if existing public utility services were not available to serve the proposed project.

#### Impact

- Project development will increase electricity and natural gas use and related services from PG&E. This will be *a significant impact*.



Additional gas and electric utilities will be needed to serve the growing load in the Fresno area. PG&E has contacted Fresno County, the Cities of Fresno and Clovis, and LAFCO concerning PG&E's need to establish several new electrical substations in the Fresno area. Two of these new substations are proposed within a four-mile radius of the proposed Copper River Ranch project. Although the project can be served by the local distribution system, this proposed development and other developments together are likely to create significant impacts to the existing electric and gas transmission systems.

A related issue is the possible need to widen Copper Avenue on the north side of Copper Avenue in the vicinity of the 70/115kV power line. Future widening of this roadway may require the relocation of this line. PG&E has met with property representatives and the County to discuss this issue in the past. Widening may also affect the existing substation. The cost of moving these utilities will be paid for by the developer or by County and City road improvement funds.

#### **Mitigation**

The developer shall be responsible for the following mitigation measure to be included as a condition of approval on each conditional use permit, tentative tract map, or site plan:

1. Following consultation with the developer, PG&E shall provide verification to the City of Fresno that the project is phased in keeping with the availability of electric and gas services.

#### **Level of Significance After Mitigation**

Implementation of the mitigation measure would reduce impacts to a less-than-significant level.

## 2.11 AESTHETICS

### Introduction

This chapter evaluates the potential impacts of the proposed project on aesthetic resources. Information on the existing visual character of the area was collected through site visits. Potential impacts were evaluated based on a visual assessment analysis and proposed development standards of the project.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

The project site is located at the base of the rolling foothills of the Sierra Nevada. The predominate visual characteristics include views of the Sierra Nevada to the east; orchards, row crops, and grape vineyards to the south and northwest; and rural residential development surrounding the site. The San Joaquin River and river bottom to the north/northwest and the views of the Sierra Nevada to the east are the predominant natural scenic features in the area. A sand and gravel excavation operation is present within the San Joaquin River bottom.

Within the project vicinity are pockets of rural development. Connected to the southwest corner of the site, between Shepherd and Copper Avenues, is approximately 2,325 acres of urban development, including Woodward Lake which has single-family homes, condominiums, commercial development, and a man-made lake.

The project site contains a developed golf course and clubhouse, trees, orchards, vineyards, and grassland. There are three existing single family homes on the project site.

Friant Road from the Fresno City limits at Copper Avenue to Lost Lake Road is designated by Fresno County as a Scenic Highway. Friant Road south of Millbrook Avenue is a landscaped boulevard with street shoulders on the east side, adjacent to residential subdivisions, planted with ground cover and trees.

### IMPACTS

#### Standards of Significance

Aesthetic/environmental impacts would be considered significant if one or more of the following would result from development of the proposed project: 1) the obstruction of any scenic vista or view open to the public; 2) the creation of an aesthetically offensive site open to the public view; and/or 3) the aesthetic impact is a substantial, demonstrable negative impact.

## Impact

- Development of Copper River Ranch would alter the character and appearance of the project area. This conversion is considered to be a *significant, unavoidable impact*.

Analysis of visual impacts can be difficult because visual impacts are subject to personal preferences and sensitivities. Public views of the project site are from segments of Friant Road, Copper, and Willow Avenues, and from a few rural access roads leading to the major streets surrounding the project site. The proposed project would notably transform public foreground and middle-ground views from Friant Road, Copper, and Willow Avenues. These views, currently of a golf course and agricultural expanse, would transition over time to that of a mixed-use urban community encompassing the existing golf course and county club. Drainage swales would be modified throughout the project area, and their role as a major visual asset would be minimized.

Based on the mixed-use nature of the proposed project, residential uses would be highly visible from Friant Road. Views from Copper Avenue and Willow Avenue would also be altered, in particular proposed commercial/office mixed use areas which may occur at major intersections. New views will be typical of the urban setting found to the south within the Woodward Park Community Plan area, but will be altered significantly from existing rural, open, and agricultural viewsheds.

No direct access will be allowed to residential property from adjacent roadways, including Friant Road, Copper Avenue, Willow Avenue, and Silaxo Road. This implies that residential development will back up to major roadways and the property line on the north. The project, pursuant to the Copper River Ranch operational statement, would provide for development guidelines and standards as a requirement of subsequent development agreements and associated specific plans or development plans. Development guidelines, which include setback and landscaping requirements and standards for wall and berm treatments, can reduce potential aesthetic impacts in an urban setting. These development guidelines should also include entry treatments for major project roadways as well as architectural standards for commercial/office development.

The proposed project would provide significant improvements to reduce aesthetic impacts. Short-term impacts would remain until landscaped vegetation reaches maturity.

## Mitigation

The developer shall ensure that the following measures are incorporated in the design of future conditional use permits, tentative tract maps, and site plans:

1. The developer shall incorporate landscape, wall treatment, signage, and architectural standards for the development of residential, commercial, public facility, open space, and mixed-use areas.
2. A minimum 20-foot landscaped area shall parallel the easterly side of Friant Road, the northerly side of Copper Avenue, and the westerly side of Willow Avenue. A berm and/or combination berm/sound wall shall parallel these roadways where residential lots are proposed.
3. Project entries along Copper and Willow Avenues, and along Friant Road, shall incorporate special entry features, such as extensive landscaping and low profile entry signs.

#### Level of Significance After Mitigation

Despite these mitigation measures, open views to the east and north across the Copper River Ranch site will be permanently altered, resulting in significant, unavoidable impacts.

#### Impact

- Development of the project would introduce new light and glare. This is a *less-than-significant impact*.

Urban development brings with it the potential for new light sources from residential neighborhoods, commercial areas, street lights, and parking-lot lighting. Light and glare from the project would be typical of new development in the metropolitan area and would be controlled by the site plan review process for new commercial, multifamily, institutional buildings, and parking lots. Lighting associated with urban development does not generally create hazards or nuisance effects, but provides accent, direction, and security. No significant effects are expected from new light and glare.

#### Mitigation

None required.



## 2.12 CULTURAL RESOURCES

### Introduction

This chapter describes the prehistoric and ethnographic setting in which the proposed project is located. Information on the cultural setting of the region was obtained from available literature. For the project site, information was obtained from a records search from the California Historical Resources Information System and a site survey conducted by a qualified archaeologist.

This Program EIR analyzes broader issues involved with the proposed general plan amendment, rezoning, and annexation of Copper River Ranch. Subsequent master use permits or development plans would be required to implement the project and provide more specific design. At such time as more detailed planning for the site becomes available, subsequent environmental evaluation will be undertaken in keeping with CEQA requirements.

### Setting

The San Joaquin River corridor was an important Native American habitation and resource-gathering area, both prehistorically and historically. Several tribes fished for salmon, gathered acorns and other food and fiber resources, held ceremonies, and collected basketry materials along this stretch of the San Joaquin River.

In prehistoric time, the Pitachi(e), Gashowu, Wakichi, and Kechayi of the Yokuts occupied an area northeast of Fresno on the floodplains of Big Dry Creek and Little Dry Creek and south of the San Joaquin River. Salmon spearing, acorn gathering, and other hunting and gathering activities were conducted throughout the area by various tribes.

The Spanish missions established in the coastal areas in the 1700s were an early influence on the Valley Indians. In 1833 an epidemic, possibly Malaria, infected the local Indian population and Indian life was further influenced by miners arriving in 1848. In 1851, soldiers arrived as part of the Mariposa Indian war and built a military post on the south bank of the San Joaquin River two miles above Friant. Indians in the area were involved as laborers in various railroad projects from 1891 through the early 1930s.

A records search at the California Archaeological Information Center in Bakersfield revealed that one previous archaeological investigation had taken place within the project site. This investigation covered approximately 15 acres north of Copper Avenue, between Cedar and Maple Avenues. The records also indicate that investigations had been conducted on the property immediately adjacent to the project site and properties within one mile of the project site. These investigations identified a number of cultural and historical resources. No listed historical or cultural resources were identified within the boundaries of the project site.

### IMPACTS

An on-site survey was conducted by Donald Wren, Consulting Archeologist, over 20 to 40 meter transects of the entire surface of the project site not covered by structures. The surface of the land was examined for any evidence of aboriginal use or habitation. The survey is included in the Technical Appendices on file with the City of Fresno Planning and Development Department. No cultural resources were discovered.

## Standards of Significance

Pursuant to Section 15065(a) of the CEQA Guidelines, elimination of important examples of major periods of California history or prehistory would be a significant impact. A significant environmental impact could occur if a project would result in adverse physical or aesthetic effects to a prehistoric or historic or historic building, structure, or object; or have the potential to impact religious or sacred uses.

## Impact

- Project activities could result in the loss of important cultural resources from the project site. This is a *less-than-significant impact*.

The proposed project underwent a systematic and intensive cultural resource investigation which did not reveal any presence of cultural or historical resources on the project site. It is possible, however, that buried or concealed cultural remains could potentially be exposed during the course of construction or other project-related activities.

## Mitigation

The developer shall include the following mitigation measure in all construction contracts for earthwork/excavation:

1. If material that may be human remains, animal fossils, or archaeological material is encountered during project surveying, grading, excavating, or construction, work shall stop in the immediate area.
  - a. If the material is, or includes, suspected human remains, the Fresno County Coroner shall be immediately contacted for his determination as to whether the material is prehistoric in nature. If the remains or other archaeological material is possibly Native American in origin, the Native American Heritage Commission shall be immediately contacted, and a recognized archaeologist shall be retained to conduct an archaeological assessment for the project. The site shall be formally recorded, and recommendations made to the City of Fresno as to any further site investigations or site avoidance/preservation.
  - b. If the material is human-related, but does not include human remains, and if this archaeological material is possibly Native American in origin, the Native American Heritage Commission shall be immediately contacted and the California Archaeological Inventory/Southern San Joaquin Valley Information Center shall be contacted to obtain a referral list of recognized archaeologists. An archaeological assessment shall be conducted for the project, the site shall be formally recorded, and recommendations made to the City of Fresno as to any further site investigation or site avoidance/preservation.
  - c. If animal fossils are uncovered, the Museum of Paleontology, U.C. Berkeley shall be contacted to obtain a referral list of recognized paleontologists. An assessment shall be conducted by a paleontologist and, if the paleontologist determines the material to be significant, it shall be preserved.

## Level of Significance After Mitigation

Implementation of the above mitigation measures will ensure that potential impacts to cultural resources remain at a less-than-significant level.

### 3.0 ENVIRONMENTAL ANALYSIS

#### 3.1 ALTERNATIVES TO THE PROPOSED PROJECT

##### Introduction

In accordance with Section 15126.6 of the CEQA Guidelines, the EIR must analyze a range of reasonable alternatives to the proposed project that could feasibly attain the objectives of the project. The CEQA Guidelines provide the following direction for the analysis of alternatives:

- Describe a range of reasonable alternatives to the project, or to the location of the project, that would feasibly attain most of the basic objectives of the project but avoid or substantially lessen significant effects.
- Evaluate the comparative merits of the alternatives.
- The EIR must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible.
- The specific alternative of "no project" shall be evaluated along with its impact.
- If the environmentally superior alternative is the "no project" alternative, identify an environmentally superior alternative among the other alternatives.

The overall vision of the applicant for Copper River Ranch can be summarized by the following objectives:

1. Provide a variety of housing opportunities with a complete range of densities, styles, sizes and values designed to satisfy the identified increasing demand of the existing and future population base.
2. Provide for commercial and office development sufficient to accommodate the needs of the projected population of the project.
3. Provide for alternative forms of transportation within the project and connection to regional trail and mass transit systems thereby reducing dependency upon the automobile.
4. Provide for a variety of open space opportunities within the project.
5. Encourage residents to work at home occupations. Promote home occupations through the electronic and internet components within the home, home design, and related mixed-use facilities.
6. Provide the ability, through flexible zoning conditions, to develop mixed-use projects, which combine a variety of uses on one parcel.
7. Maximize view opportunities of project open space through innovative land use planning techniques.
8. Create a strong sense of "community" with landscaping, signage, lighting and project amenities that are unique to Copper River Ranch.

This section identifies several alternatives to the proposed project including No Development, No Project, Increased Density, and Reduced Units. The impacts of each alternative are compared to impacts identified for the proposed project and quantified where possible. The alternatives were selected based on their ability to reduce one or more significant impacts of the proposed project.



### 3.1.1 No Development Alternative

With no development, the project site would remain in agriculture, golf course, and scattered large lot residential development. Growth expected to occur north of the Copper Avenue area would be redistributed elsewhere in the metropolitan area, including southeast and west Fresno, Clovis, smaller cities on the southern fringe of the urban area, southern Madera County, and infill development in older areas of the City of Fresno. The environmental effects of this redistributed growth are uncertain but there would likely be impacts to agricultural uses, air quality, and public services in new growth areas such as southern Madera County and the smaller communities south of the metropolitan area.

The project site area, however, impacts to agriculture, roadways, air quality, noise, and public services would be significantly reduced in relation to the proposed project.

The no development alternative is considered an interim condition given the site's designation for urban development on both the Fresno County and 2025 Fresno General Plan and the recent inclusion of the site in Fresno's Sphere of Influence.

### 3.1.2 No Project Alternative

Under the No Project alternative, no annexation, general plan amendment, or rezoning within the City of Fresno would take place. Development of the site would proceed in accordance with the approved "Planned Urban Village" in unincorporated Fresno County. The project parameters would be essentially identical, with the exception that urban services would not be provided by the City of Fresno. In this regard, the project as approved by Fresno County would not reduce any significant impacts identified for the proposed project,

#### Impacts

Under the No Project alternative, impacts to the environment would be similar to the proposed project with the following exceptions.

*Wastewater treatment.* While a tertiary wastewater treatment plant would be constructed on site, connection to the City's sewer system for disposal of bio-solids or for emergency disposal may not occur. The ability to use reclaimed wastewater on the golf course will remain; connection to the City's water system would also not occur, and continued reliance on groundwater and surface water for irrigation of the golf course will be increased.

*Hydrology.* There would be a greater demand on groundwater without connection to the City's water system, including service from the City's surface water treatment facility. Recharge on the site from City and FID sources must continue, as a water balance would have to be achieved on the site itself.

*Public Services and Utilities.* Demand for public services would be shifted from the City of Fresno to County Services and special districts. Police, fire, parks, solid waste disposal, and other services would be provided by a several entities, resulting in reduced efficiency. Clovis Unified School District and FMFCD would continue to provide school and storm drain services to the site following annexation.



### Increased Impacts as a Result of the No Project Alternative

Compared to the proposed project, the No Project alternative would have the following areas of impact:

- There would be potentially greater impacts to groundwater quality if land disposal of bio-solids was utilized. Without connection to the City sewer system, there is a greater potential for surface and groundwater contamination from emergency discharges from the on-site plant.
- Impacts on groundwater and potential effects on adjacent wells are potentially greater without connection to the City's water system. The City's surface water treatment plant can reduce groundwater pumping at the site and increase the beneficial effects of recharge.
- Urban service delivery would be based on several individual entities, rather than a single service provider. The County has long agreed that development should be directed to cities for more efficient urban service delivery.

### 3.1.3 Increased Density Alternative

Under the Increased Density alternative, the number of residential units would be increased by converting residential lots to smaller parcels at an overall density of nine units per acre of land designated for residential use. Such density could be achieved by smaller single family residential lots interspersed with low-density multi-family projects.

Table 3-1  
Increased Density Alternative

Alternative	Number of Units	Population	Commercial sq. ft.
Increased Density	3,825	10,710	250,000
Proposed Project	2,837	7,950	250,000

### Impacts

*Land Use, Planning, and Agriculture.* Under the Increased Density alternative, land use compatibility issues would be similar to the proposed project. The change of land use from agriculture and golf course to an urban golf course, planned residential project would be similar. The elimination of larger lots would make the project more compact and dense. The open space provided by the golf course would tend to minimize the dense urban feeling. The increased density alternative also may act to preserve prime agricultural soils elsewhere in the metropolitan area by leading to a more efficient land use pattern on the project site.

The Increased Density alternative would generate more people than the proposed project (10,710 compared to 7,950, and 3,825 dwellings compared to 2,837). The diversity of housing types would be greater in the higher density alternative, even though larger lots would essentially be eliminated. Different housing types could be provided, including multifamily and rental units providing housing to a wider range of income groups.

*Transportation and Circulation.* Implementation of the Higher Density alternative would significantly increase traffic impacts on surrounding roadways. Assuming a trip generation consistent with the traffic study prepared for the project, the Increased Density alternative has the potential to generate 45,100 trips compared to the 33,500 trips generated by the proposed project. Higher densities would increase the potential for transit and offset a portion of the greater traffic impacts attributable to this alternative.

Improvements to Friant Road, Copper Avenue, and Willow Avenue would be required in a similar manner as the proposed project. However, the increase in traffic volume may require additional improvements beyond those forecast for the proposed project plus cumulative build-out, particularly at the Friant/Highway 41 interchange.

*Air Quality.* Air quality degradation from the Increased Density alternative would be proportionately greater because of the higher traffic volumes in and surrounding the project site. However, with the greater density, the possibility of developing a cost-effective public transit system and the use of alternative transportation modes is enhanced. Greater transit use resulting from higher density could act to reduce vehicle emissions. There would be no appreciable change to the air quality impacts from a cumulative perspective, however.

*Geology and Soils.* Impacts on soils would be similar to the proposed project as the same areas would be graded for development.

*Biotic Resources.* The identified biotic resources would be impacted in a similar fashion compared to the proposed project as the entire site would be developed.

*Noise.* The Increased Density alternative would have approximately the same noise impacts as the proposed project and require the installation of noise walls, setbacks, and landscaping as the proposed project. Increased vehicle trips, however, could expose more people to unwanted noise along transportation corridors.

*Wastewater Treatment.* Wastewater production is expected to increase by 30 percent. While it is possible that the golf course could use the entire amount of reclaimed water during summer months, greater amounts of storage and spray field/open space would be required to accommodate reclaimed water on a year-around basis. As population would be increased by this alternative, more internal open space would also be required to serve the population; this increased open space could be a location for use of reclaimed water. It is possible that off-site storage and disposal areas would have to be found to accommodate the increased amount of reclaimed water.

*Hydrology.* Surface hydrology would be more impacted compared to the proposed project with development of 988 more residential dwelling units. The amount of impermeable surface would be increased substantially. FMFCD would have to consider additional storm water drainage facilities to accommodate the density of the site.

There would be a substantial increase in the demand on groundwater from the additional residential and commercial uses. It is estimated that the demand would increase by 30 percent over the proposed project. This density could exceed the water balance capabilities of the surface supplies now delivered to the golf course lakes.

*Public Services and Utilities.* Demands for public services would be substantially increased since the population increases to 10,710 compared to approximately 7,950 in the proposed project. Additional police and fire protection may be required. A larger public park system would be necessary to meet park-to-population standards. The Increased Density alternative would require a second elementary school and have proportionately higher impacts on middle schools and high schools.

*Aesthetics.* The Increased Density alternative would impact site aesthetics in a fashion similar to the proposed project because both are urban density projects. The proposed project would have smaller lots around the perimeter of the project and views to the traveling public would be similar with either alternative.

This alternative, similar to the proposed project, would dedicate and develop recreational trails along Copper Avenue to tie into the City/County/San Joaquin River Parkway plans.

*Cultural Resources.* The potential for disturbance of cultural resources during construction would be essentially the same with the Increased Density alternative.

#### Increased Impacts as a Result of the Increased Density Alternative

Compared to the proposed project, the Increased Density alternative would increase impacts in several areas.

- Traffic levels would increase by more than 20 percent, leading to decreased levels of service on several project area road segments.
- Air emissions would also proportionately increase. While the potential for transit use is increased with somewhat higher density, regional air quality is not expected to change.
- The amount of wastewater generated would increase by 30 percent. Inadequate storage and disposal opportunities now exist on the project site for disposal of this amount of effluent and additional storage areas for treated effluent would have to be developed.
- There would be a substantial increase in water demand.
- The Increased Density alternative would require an additional elementary school and proportionately increase impacts to middle schools and high schools.

#### 3.1.4 Reduced Units Alternative

The Reduced Units alternative would set aside the prime farmland on the project site (approximately 400 acres) not already developed to the golf course; this area would remain in permanent agriculture. The balance of the project site would be developed with residential and commercial uses at densities similar to the proposed project. The majority of development would occur at the eastern end of the project. Under the Reduced Units alternative, the number of residential units would be decreased as would overall commercial use. The following table summarizes the Reduced Units alternative.



Table 3-2  
Reduced Units Alternative

Alternative	Number of Units	Population	Commercial sq. ft.
Reduced Units	795	2,226	62,500
Proposed Project	2,837	7,950	250,000

### Impacts

*Land Use, Planning, and Agriculture.* Under the Reduced Units alternative, land use compatibility issues would be reduced compared to the proposed project with one exception. The change of land use from grassland and golf course to an urban planned residential project would take only slightly less than one-third of the site. Agricultural land would be preserved on the site but would be surrounded by residential development. This could lead to greater impacts to urban and agricultural uses at the interface of agricultural operations on the project site. Impacts to urban uses include noise, dust, and over spray of chemicals. Impacts to agriculture include trespass/vandalism and potential limits on operations resulting from complaints from adjoining urban uses.

The Reduced Units alternative would generate fewer people than the proposed project (2,226 compared to 7,950) and 795 residential units compared to 2,837 for the proposed project. The diversity and choice in the housing market would be reduced by eliminating 2,042 units from the housing inventory. Employment opportunities in the commercial area would also be reduced compared to the proposed project.

*Transportation and Circulation.* Implementation of the Reduced Units alternative would significantly reduce traffic impacts accruing to the project site on surrounding roadways and intersections. Assuming a trip generation consistent with the traffic study prepared for the project, the Reduced Units alternative has the potential to generate 8,750 trips compared to the 33,500 trips generated by the proposed project.

Improvements to Friant Road, Copper Avenue, and Willow Avenue would be postponed, including six travel lanes on Copper Avenue. The additional right-of-way necessary for the extension of the recreational trail along Copper Avenue would be included in the cost of acquisition and construction by the Reduced Units project alternative.

*Air Quality.* Air quality degradation from the Reduced Units alternative would be proportionately less because of the lower traffic volumes in the project site and surrounding area. However, with the Reduced Units alternative, the possibility of developing a cost-effective public transit system and the use of alternative transportation modes is also reduced. There would be no appreciable change to air quality impacts from a cumulative perspective.

*Geology and Soils.* Similar to the proposed project, this alternative would have no impacts on geology and soils.

*Biotic Resources.* The identified biotic resources would be impacted in a similar fashion compared to the proposed project as the area which has been farmed is substantially disturbed with little habitat value.



*Noise.* The Reduced Units alternative would result in fewer noise impacts compared to the proposed project. With reduced emphasis on Friant Road as a project entrance and the maintenance of agriculture adjacent to the roadway, installation of noise walls, setbacks, and landscaping would not be required. Noise attenuation would still be required adjacent to Copper and Willow Avenues in the southeastern and eastern portions of the project site.

*Wastewater Treatment.* Wastewater production would be reduced by 75 percent. Compared to the proposed project, there would be less reclaimed water available for golf course irrigation. While the golf course would use the entire amount of reclaimed water during summer months, there would not be sufficient reclaimed water to meet the entire irrigation demand. As a result, canal water and groundwater would continue to be used for irrigation.

*Hydrology.* Surface hydrology would be less impacted compared to the proposed project with development of 2,042 fewer residential units. The amount of impermeable surface would be reduced substantially. FMFCD may want to re-consider storm water drainage facilities in the northern growth area in light of reduced densities on the site.

It is estimated that water demand would decrease to approximately 625 acre-feet per year compared to 2,500 acre-feet in the proposed project. The amount of groundwater pumped could increase for golf course irrigation as the total amount of reclaimed water would be less. At the same time, an estimated 400 acres of agriculture would remain in production, creating an on-going demand for surface supplies and groundwater estimated at 1,250 acre feet of water annually. For the Reduced Units alternative, water use would be roughly equivalent to the proposed project.

*Public Services and Utilities.* Demands for public services would be substantially reduced for a population of 2,295 compared to approximately 7,950 in the proposed project. Reduced impacts include those to police protection, fire protection, parks and recreation, and schools.

*Aesthetics.* The Reduced Units alternative would reduce impacts to site aesthetics by leaving the entire Friant Road frontage in agriculture. The proposed project would have smaller lots around the perimeter on the balance of the project and, accordingly, views to the traveling public would be similar with either alternative. This alternative, similar to the proposed project, would dedicate and develop recreational trails along Copper Avenue to tie into the City/County/San Joaquin River Parkway plans.

*Cultural Resources.* The potential for disturbance of cultural resources during construction would be less with the Reduced Units alternative as only about one-third of the site would be disturbed.

#### Increased Impacts as a Result of the Reduced Units Alternative

Compared to the proposed project, the Reduced Units alternative would result in a less efficient use of land. Provision of services to the project under this alternative may become less efficient and/or more costly because the basic service and utility infrastructure is still required; the population base over which to spread the cost, however, is substantially lower.

## Summary of Alternatives

**Table 3-3: Summary of Alternatives**

Issue	No Development	No Project	Increased Density	Reduced Units
Land Use/Agricultural	-	o	-	-
Traffic	-	o	+	-
Air Quality	-	o	o	o
Geology, Soils	-	o	o	-
Biotic Resources	-	o	o	o
Noise	-	o	o	-
Wastewater	-	+	+	o
Hydrology	-	+	+	o
Public Facilities	-	+	+	-
Aesthetics	-	o	o	-
Cultural Resources	-	o	o	o

o = Similar impact to proposed project

+ = Greater impact than proposed project

- = Less impact than proposed project

**No Development.** In general, the no development alternative would lead to less disturbance of the site and less demand on urban resources and public services compared to the proposed project. From a pragmatic perspective, however, the alternative is not feasible given the designation for urban development on the Fresno County General Plan and the 2025 Fresno General Plan.

**No Project.** The No Project alternative would create greater impacts compared to the project. While the No Project alternative meets the primary objectives of the project which is the development of the project site with a planned residential development surrounding an existing golf course, there could be future inefficiencies in service delivery and greater impacts to water and wastewater services. The No Project alternative is not environmentally superior to the proposed project.

**Increased Density.** The Increased Density alternative is not environmentally superior to the proposed project. It would not eliminate any of the significant adverse environmental impacts associated with the proposed project and could result in greater impacts in several areas. By virtue of its more intense nature, the Increased Density alternative would create greater traffic, wastewater, water, and public facility impacts than the proposed project. More intense development could, however, reduce the amount and pace of agricultural land taken out of production elsewhere by development. The Increased Density alternative would increase the diversity in housing opportunities in the project by encouraging construction of smaller lot attached units and multi-family rental housing; large lot development would occur in other locations.

**Reduced Units.** The Reduced Unit alternative would not create impacts in any area greater than those projected for the proposed project. It would reduce impacts on agricultural land to a less-than-significant level and also reduce impacts to traffic, soils, noise, public facilities, and aesthetics. The Reduced Unit alternative, however, would not achieve the developer's project objectives. Only about 25 percent of the residential units proposed by the developer would be allowed on the project site. The costs of infrastructure remain high even with the Reduced Density Alternative, including the wastewater treatment plant, impact fees for streets and highways, well development, and other facilities.

#### Environmentally Superior Alternative

The Reduced Units alternative reduces overall environmental impacts compared to the proposed project. By virtue of its maintenance of prime agricultural soil and reduced impacts to traffic, soils, public services, and aesthetics, the Reduced Units alternative is considered the environmentally superior alternative for the project site.

The Reduced Units alternative, however, would reduce overall densities in order to preserve on-site farmland; as a result, more land off-site will be necessary to accommodate a given population base. It can therefore be argued that the Reduced Units alternative could force growth to other areas, further impacting agricultural production. In the long term, any growth alternative that directs growth to the south or west of the urban area would ultimately have a greater impact on prime and productive agricultural lands due to the existence of more of such lands in the south and west at the edge of the metropolitan area.

The Reduced Unit alternative, combined with the requirement to maintain some 415 acres of agriculture, could make the project infeasible given the high costs of infrastructure and the reduced number of units. To retain the property in agriculture should be considered only a short-term delay of the impacts associated with the proposed project, particularly since urban development is within one-quarter mile of the proposed project site. It would appear infeasible to maintain the site in agriculture for the long term.

### 3.2 GROWTH-INDUCING IMPACTS

In order to comply with CEQA, an EIR must discuss the ways in which the proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment (CEQA Guidelines Section 15126.2(d)). A given project may induce growth beyond its own boundaries by removing obstacles to population growth, for example by providing water service to an area where none exists, or by creating an amenity that attracts new population or economic activity. In accordance with Section 15126.2(d), this discussion of growth-inducing impacts does not assume that growth is necessarily beneficial, detrimental, or of little significance to the environment. Induced growth is considered a significant impact only if it affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth is some other way significantly affects the environment.

The Copper River Ranch project is growth inducing on several levels. Among these inducements to growth are:

- With the project, growth at urban densities within the City would occur for the first time north of Copper Avenue. The project site, however, is designated for residential and supportive development on the 2025 Fresno General Plan update and LAFCO has approved an expansion of the City's SOI to include the project site.

- The project in combination with other approved projects in the Friant-Copper corridor (Kesterson, Thomason, Harris, Millerton New Town/Brighton Crest, Friant), as well as approved projects across the San Joaquin River in Madera County (Rio Mesa, Gunner/Valley Childrens) reinforces growth north towards Millerton Lake and will contribute to the inducement of additional growth in this area.

Infrastructure, including water and sewer systems and the proposed on-site wastewater treatment and reclamation plant, would be sized to serve only Copper River Ranch and, therefore, would not contribute to growth off-site. Similarly, the mitigation measures that Copper River Ranch would be required to provide -- for example, for traffic -- would account only for Copper River Ranch's contributions to significant impacts and would not, therefore, enable further growth beyond its borders.

Although the project further supports continued northerly growth in the Fresno\Clovis urban area, several project aspects act to limit the potential for strong growth inducement.

- Services on the site as proposed are largely self contained, including water and sewer systems.

(See EIR Sections 2.7, *Drainage*; 2.8, *Wastewater Treatment*; 2.9, *Hydrology*; and 2.10, *Public Facilities and Services*, and associated mitigation measures)

- The proposed on-site wastewater treatment and reclamation plant is sized only for the Copper River Ranch project and would have no capacity to serve adjacent properties.

(See EIR Section 2.8, *Wastewater Treatment*, and associated mitigation measures)

- The project will pay for its contribution to impacts to roads, schools and other facilities.

(See EIR Sections 2.2, *Traffic and Circulation*; and 2.10, *Public Facilities and Services*, and associated mitigation measures)

The effects of induced growth on the subject property are discussed in various sections of the EIR. The identified measures in this EIR ensure that the project effects are mitigated to the greatest extent feasible.

### 3.3 SIGNIFICANT IRREVERSIBLE IMPACTS

Non-renewable resources that may be affected by development of the project include prime agricultural land and open space. Project development would also necessitate irreversible commitments to soil coverage, increased runoff, public utility/service demands, traffic generation, air resources, and visual changes. The EIR discusses each of these areas and includes mitigation measures as appropriate to lessen identified impacts.

In several impact areas, particularly agricultural land conversion, traffic, and air resources, this commitment of resources results in significant, irreversible impacts.

### 3.4 CUMULATIVE IMPACTS

Section 15130 of the CEQA Guidelines requires that cumulative impacts be discussed when they are significant. Cumulative impacts occur when two or more individual effects together create a considerable environmental impact or compound or increase other impacts (Section 15355). The discussion of cumulative effects is not required to be as detailed as the impact analysis for the project; the severity of cumulative effects and the likelihood of their occurrence, however, must be examined. The applicable standards for adequacy of this examination are "practicality and reasonableness."



A "full build-out" condition was assumed which relied on a combination of projections and specific project assumptions to define full build-out of the following:

1. Fresno County General Plan
2. 2025 Fresno General Plan
3. 1993 Clovis General Plan
4. Rio Mesa Area Plan
5. Millerton New Town Specific Plan
6. Gunner Ranch West Project

In addition, the cumulative analysis considered potential development in the Copper Avenue corridor shown on Figure 3-1. These projects include recent annexations, approved tentative maps, the proposed CUSD high school/middle school campus and the proposed location of a junior college campus at International and Willow.

The Cumulative Impacts analysis is also required to examine reasonable options for mitigating or avoiding significant cumulative effects of a proposed project. The Guidelines point out, that with some projects, the only feasible mitigation for cumulative impacts may be the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis. Ordinance or policy mitigation is more suitable for plan-level rather than development-level projects.

#### **Cumulative Land Use, Planning, and Agricultural Impacts**

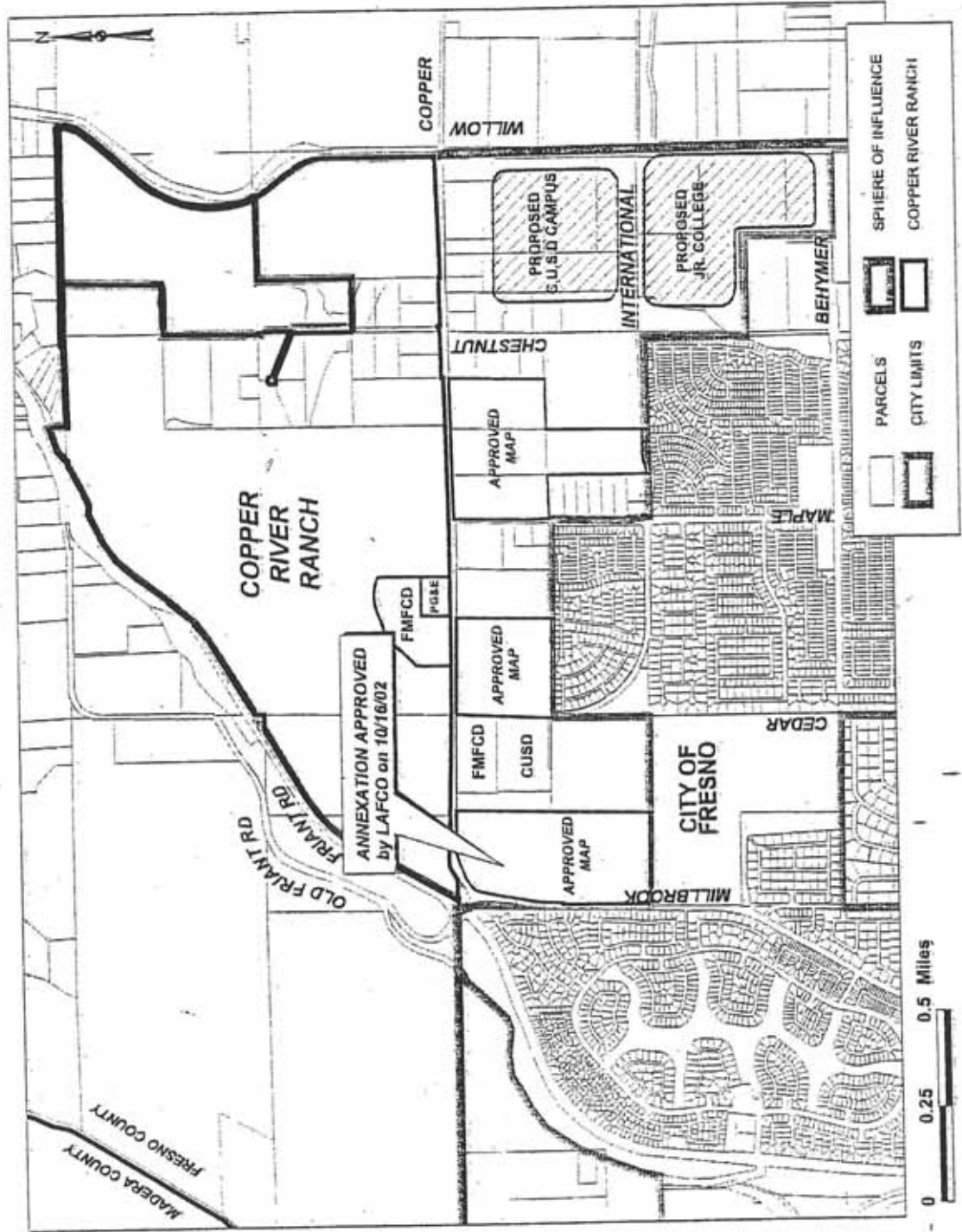
Direct project impacts in this area, as described in Section 2.1 of this EIR, include General Plan consistency, consistency with LAFCO policies and standards, conversion of prime agricultural land, potential for incompatibility between agricultural and residential uses, and impacts to rural residential uses.

The conversion of agricultural land to other uses due to growth in and around Fresno was determined to be a significant and unavoidable cumulative impact of the Fresno County General Plan update. Copper River Ranch would result in the conversion of 415 acres of prime farmland. The current general plan assumes no urban uses on the proposed site. Loss of prime farmland under any scenario is a significant and unavoidable cumulative impact, to which the proposed project would incrementally contribute.

Potential for incompatibility between agricultural and residential uses may or may not be a cumulative impact. Conceivably, as the urban boundaries expand, the areas where such conflict could occur would increase. Alternatively, however, more in-fill also occurs over time, and parcels within urban boundaries where agricultural pursuits may have been continuing, have been converted to urban uses. Therefore, fewer agricultural-residential interfaces would occur. Land use compatibility concerns can often be addressed by careful site design, including the use of buffers, landscaping, fencing, and berming where appropriate.

To the extent that there is a cumulative impact in this area, it can be mitigated on a project-by-project basis by examining individual circumstances and applying these design criteria through the existing subdivision review process.

Figure 3-1: Development Proposals in the Copper River Ranch Area



## **Mitigation**

At the project level, there are few feasible measures available for mitigating regional loss of agriculture. Additionally, the City of Fresno is already well into its General Plan update that includes consideration of various increases in density and/or intensity of development combined with differing levels of change in the urban boundaries. As a part of the CEQA analysis for this effort, comparative impacts to agriculture will be examined.

There are no known additional feasible mitigation measures for mitigating this cumulative land use impacts. Impacts to farmland remain significant and unavoidable, because conversion of substantial acreage of agricultural land will still likely occur in order to accommodate the region's increasing population and industrial base.

## **Cumulative Traffic Impacts**

Direct project impacts in this area, as described in Section 2.2 of this EIR, include roadway segments operating below acceptable standards. Cumulative impacts can occur when less-than-significant impacts from project-level traffic combine with existing or planned future projects to cause a roadway segment to operate at unacceptable levels of service.

## **Mitigation**

Mitigation Measures identified in Section 2.2 require the project to fund a combination of project-triggered improvements and fair share funding of various regional improvements and studies. Included in the list of regional improvements is the ultimate widening of Friant Road. Fresno County now has the funds for widening Friant Road from Copper north to the Friant community and expects to begin the project in 2003. Other major improvements are not programmed or funded at this time and therefore timing of mitigation can not be identified. Even with approved mitigation in place, some roadway segments and intersections are expected to operated below acceptable levels, and cumulative traffic impacts remain significant and unavoidable.

## **Cumulative Air Quality Impacts**

Direct project impacts in this area, as described in Section 2.3 of this EIR, include emissions during construction, increase in local concentrations of carbon monoxide, impacts to regional air quality, and exposure to emissions from the CalMat aggregate extraction operations.

The project would contribute to impacts to regional air quality. The region is presently considered "non-attainment" for ozone precursors and PM 10. Cumulative development will exceed the significance thresholds identified by the air district for these emissions and this is considered a significant and unavoidable cumulative impact. Cumulative increases for other pollutants are not considered significant because neither project-level nor regional (cumulative) thresholds are exceeded.

## **Mitigation**

The mitigation identified in Section 2.3 identifies several design criteria that would be required of the project to partially mitigate cumulative air quality impacts. At the project level, there are no other feasible measures known.

### **Cumulative Geology and Soils Impacts**

Impacts to geology and soils are fully avoidable and not considered to have cumulative implications.

#### **Mitigation**

None required.

### **Cumulative Biological Impacts**

Direct project impacts in this area, as described in Section 2.5 of the EIR, include conversion of grassland, fill of wetland habitat, and impacts to special status plants and animals. Federal, state, and local wetland regulations preclude cumulative impacts from occurring. Therefore, further discussion of this impact area outside of Chapter 2 is not required. Cumulative impacts to general wildlife species and habitats from population growth is another area of potential impact, to which the project would incrementally contribute.

#### **Mitigation**

The EIR has recommended reasonable, feasible options to mitigate or avoid the project's contribution of cumulative biological impacts.

### **Cumulative Noise Impacts**

Direct project impacts in this area, as described in Section 2.6 of this EIR, include increases in noise during construction, increase in ambient noise from increased traffic, noise impacts to residents along a segment of Friant Road, exposure to noise from the CalMat aggregate extraction operation, and exposure of future project residents to noise from other land uses.

#### **Mitigation**

At the project-level, there are few feasible measures available for mitigating regional noise increases. Project-specific mitigation measures already require noise walls at appropriate locations. A number of program-level measures have been identified earlier in this section for mitigation of cumulative traffic impacts. The City of Fresno should consider those same mechanisms for the dual purpose of improving ambient noise levels by decreased traffic noise in the region. As part of the CEQA analysis for specific project development, comparative impacts to ambient sound levels should be examined.

### **Cumulative Drainage Impacts**

FMFCD has planned facilities for serving growth in the area. To the extent that new growth areas are identified and that currently unplanned land uses occur, amendment of the District master Plan and upgrading of facilities will ensure full mitigation for potential cumulative impacts. Where permanent facilities can not be made available at the time of development, temporary facilities may be constructed pursuant to District requirements, thus ensuring proper collection and disposal of storm water runoff. Implementation of these measures would reduce potential cumulative impact in these areas to less than significant levels.



With regard to water quality, general storm water discharge permits are required for construction activity on parcels of five acres or more. While this threshold allows for cumulative impacts to occur, the project would be required to secure such a permit, and therefore would not contribute to cumulative effects.

#### Mitigation

None required.

#### Cumulative Wastewater Treatment Impacts

Direct project impacts, as described in Section 2.8 of this EIR, include lack of sewer service, use of reclaimed water, disposal of biosolids, degradation of groundwater from infiltration of diluted effluent, and degradation of groundwater quality from nutrient accumulation.

The remaining project impacts identified above related to the proposed use of reclaimed water. These are direct project-specific impacts associated with a component of the proposed infrastructure. They would occur in limited instances and levels of significance for direct impacts would be tempered by project circumstances and location. Though fully mitigated at the project level, these impacts could be cumulative regionally if numbers of individual on-site systems increase. However, individual on-site wastewater treatment facilities, including those proposed as a part of the project, are required to secure wastewater discharge permits from the RWQCB, which allow for controls and conditions to be applied to each system. This allows the responsible regional/state agency to address each identified area of concern and apply best available technological requirement. For this reason, this potentially cumulative impact is considered to be less than significant because it is fully mitigated by available regulatory measures.

#### Mitigation

None required.

#### Cumulative Hydrologic Impacts

Direct project impacts in this area, as described in Section 2.9 of this EIR, include groundwater pumping and recharge, impacts to off-site wells, contamination of domestic water wells, groundwater recharge with reclaimed water, impacts to groundwater from golf course irrigation, increased urban storm runoff, and degradation of groundwater quality from urban runoff.

Cumulative development may result in a substantial continued decline in groundwater elevations without aggressive recharge programs, water conservation, and alternative water sources. Increased use of surface water may be required to both recharge the groundwater, and/or as a direct source of domestic supply. If the project secures surface water for the net increase in water demand that has been calculated to result, then there would be no project-level contribution to this cumulative impact. However, if surface water is not secured to supply the new increment of the water documented as needed to serve the project, then the project would result in a significant, unavoidable cumulative impact.

Groundwater recharge with reclaimed water and impacts to groundwater from golf course irrigation are both direct project impacts specific to the project circumstances and location. Both are a result of the proposed project infrastructure, acceptably controlled at the project-level. Though fully mitigated at the project level, these impacts could be cumulative regionally because of their ability to compound over time.

Proposed individual on-site wastewater treatment facilities including those proposed as apart of the project, are required to secure wastewater discharge permits from the RWQCB that allow for conditions to be applied to each system. For this reason, this potential cumulative impact is considered to be fully mitigable by available regulatory measures, and no further mitigation is required. Increased urban storm runoff and degradation of groundwater quality from urban runoff associated with the project may contribute to a cumulative impact regionally because the impact could worsen over time. The FMFCD performs maintenance activities on storm water recharge basins in conformance with their environmental clearance and permits from EPA and the RWQCB. These permits require a description of the discharge, storm water conveyance systems, and the system's flows and discharges during dry weather and wet weather.

Applicants must also describe their efforts and facilities for controlling storm water quality, and to supplement their present capabilities by obtaining adequate regulatory authority and implementing appropriate "best management practices" to the maximum extent practicable.

Because, federal and state regulatory agencies are already empowered through their regulatory authority to fully mitigate this potential cumulative impact no further mitigation is required.

#### **Mitigation**

None required.

#### **Cumulative Impacts to Public Facilities and Services**

Direct project impacts in this issue area, as described in Section 2.10 of this EIR, include need for additional law enforcement services, additional fire protection services, schools to serve new students, additional park space, the placement of home sites in proximity to overhead transmission lines, and exposure to contaminated soil and groundwater.

Need for additional law enforcement services is identified in the Section 2.10 text as being affected more by population growth than by project-specific land uses. As growth occurs, however, this impact is mitigated by increased tax revenue which pays for basic personnel and equipment as growth occurs over time. The project will provide additional project mitigation by providing a dressing station site which would mitigate project impacts plus serve surrounding properties. Project contribution to potential cumulative impacts in this areas is considered fully mitigated.

Need for additional fire protection services is identified as fully mitigated at both the project level and cumulatively, in the text in Section 2.10. The project would pay a fair-share equivalent of the costs towards the permanent station. Additional mitigation for cumulative impact is not required.

New school facilities is also identified as being fully mitigated at both the project-level and cumulatively, based on the payment of school development fees to CUSD. Additional mitigation for cumulative impact is not required.

#### **Mitigation**

None required.

### Cumulative Aesthetic Impacts

Direct project impacts in this issue area, as described in Section 2.11 of this EIR, include alteration of the character and appearance of the project area and alteration of the viewshed along Friant Road. These impacts are direct project impacts specific to the project circumstances and location. Because of this, these impacts would not compound over time, or persist and worsen. Further analysis, outside of Chapter 2, is not required. Gradual change in the character and appearance of the region as urban growth continues over time, is another area of potential cumulative impact, to which the project would incrementally contribute.

#### Mitigation

None required.

### Cumulative Cultural Resource Impacts

Section 2.12 of this EIR identifies potential loss of important cultural resources as a direct impact of the project. The results of a site investigation failed to reveal any on-site cultural resource sensitivity. Unintended impacts to unknown cultural resources could be a cumulative impact resulting from general growth in the area. The EIR includes mitigation measures that require any such finds to be fully investigated and properly protected/mitigated pursuant to applicable state regulations.

#### Mitigation

None required.

### 3.5 EFFECTS NOT FOUND TO BE SIGNIFICANT

Based on project analysis by City staff and responses to the Notice of Preparation, the potential impacts of the project on the following impact areas were considered not to be significant as a result of project implementation:

- Displace existing housing, especially affordable housing. The project is to be located on land currently in agricultural production or in open space. Three housing units will be displaced associated with the current agricultural operation.
- Inadequate emergency access. Roads surrounding the project site will be improved to provide for adequate emergency access.
- Rail, waterborne, or air traffic impacts. There are no rail, waterborne, or airport facilities in the project vicinity, nor is the project located within the airport clearance area of the Fresno-Yosemite International Airport.
- Energy and mineral resources. There are no energy or mineral resources located on the project site.
- Possible interference with an emergency response plan or emergency evacuation plan. There are no known emergency response or evacuation plans in the site vicinity which the project would affect.
- Communication systems. Communication systems will be extended to the site as development occurs. No adverse impacts are expected.

#### 4.0 Organizations and Persons Consulted During Preparation of the EIR

City of Fresno, *1984 Fresno General Plan and Final EIR*

City of Fresno, *Draft 2025 Fresno General Plan Update*, February 2002

City of Fresno, *Master Draft EIR, Draft 2025 General Plan Update*, May 2002.

City of Fresno, *Response to Comments on the Master Draft EIR, Draft 2025 General Plan Update*, October 2002

City of Fresno, *Fresno Zoning Ordinance*

City of Fresno, *Woodward Park Community Plan*, 1989

City of Fresno, *Woodward Park Community Plan, Compendium of Background Reports*, 1989

City of Fresno, *Mitigated Negative Declaration and Final Initial Study, Revisions to the City of Fresno Surface Water Treatment Plant*, August 2001

City of Fresno, *Draft and Final EIR, Amendments to the Woodward Park Community Plan*, EIR No. 10117, April 1994

Alternatives Growth Alliance, *A Landscape of Choice*, 1998

Dangermond & Associates, *San Joaquin River Parkway Plan*, Final Draft

Consultive Planners, *Draft and Final EIR, Woodward Lakes Project*, EIR No. 10084

CH<sub>2</sub>M Hill, *Fresno Metropolitan Water Resources Management Plan*, 1995

CH<sub>2</sub>M Hill, *Final EIR, Fresno Metropolitan Water Resources Management Plan*, 1995

Nick Yovino, Director, City of Fresno Planning & Development Department

Gil Haro, Planning Manager, City of Fresno Planning & Development Department

David Braun, Planner II, City of Fresno Planning & Development Department

Martin McIntyre, Director, City of Fresno Public Utilities Department

Neil Montgomery, City of Fresno Public Utilities Department

Jim Bier, City of Fresno Public Utilities Department



Stephanie Kahl, Fresno County Environmental Health Division

Sheri Clark, Fresno County Environmental Health Division

Dave Mitchell, San Joaquin Valley Air Pollution Control Division



## **Appendix A**

### *A Landscape of Choice Principles*

# GROWTH ALTERNATIVES ALLIANCE

## "Landscape of Choice - Principles and Strategies"

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### GUIDING PRINCIPLES

1. The primary goal of the land use element of a general plan should be to utilize urban land as efficiently as possible while providing an adequate supply of a broad range of housing types and densities to meet market demand. Measures to facilitate and encourage compact growth should be applied to all urban land uses including commercial, industrial and institutional uses.
2. Encourage pedestrian or transit-oriented projects at densities that make transit feasible; and create a framework for the future that is transit-based rather than automobile oriented.
3. Recognize the importance of agriculture and the need to protect productive farmland in a way that achieves meaningful policy and elevates the status of planning for agriculture to the same level as residential and other urban uses.

### POLICY RECOMMENDATIONS FOR COMPACT GROWTH - STRATEGIES FOR ACHIEVING COMPACT GROWTH

#### Residential Neighborhoods

1. The land use element of a general plan should only identify the mix of land uses and a broad range of allowable densities for future development. When development of an area is imminent, specific plans or community plans should be prepared to specify the pattern, location, and density of land uses.\*
2. Modify design review procedures to create a process that meets planning goals and complements the community vision rather than focusing strictly on rigid numerical standards. \*\*
3. Thoroughly review and revise zoning ordinances to facilitate moderate increases in density and to allow a diversity of housing types within the same zone district or neighborhood.
4. Provide incentives and support projects that are designed to encourage compact growth and higher densities while providing amenities such as bike paths, neighborhood parks, etc., as densities increase.

#### Commercial, Industrial and Institutional Uses

1. Develop policies and standards that facilitate an increase in floor/area ratios for commercial and industrial development by encouraging construction of multi-story office buildings.
  2. Create a task force to evaluate standards for parking requirements and recommend measures to reduce the amount of land devoted to parking.
  3. Encourage shared use of parking facilities and promote planning for uses that can utilize the same parking area at different times.
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## CREATING LIVABLE NEIGHBORHOODS AND ACHIEVING URBAN INFILL

### New Residential Development

1. Encourage nodes of higher housing densities (village centers) in areas served by the full range of urban services - neighborhood commercial uses and community centers, public services, and transit stops.
2. Develop transit- and pedestrian-oriented design guidelines and incorporate these design guidelines into specific plans.
3. Adopt a Traditional Neighborhood Development Ordinance that can serve as an alternative to the standard zoning ordinance and overlay this district over all single-family, multiple-family and neighborhood commercial zone districts. \*\*
4. Revise local street development standards to reduce the overall width of the street right-of-way to a maximum width of 50 feet and reduce the corresponding turnaround width of cul-de-sacs. \*\*\*

### Existing Neighborhoods

1. Retrofit existing neighborhoods to create activity centers or nodes that give the neighborhood an identity. \*\*\*\*
2. Preserve and enhance existing pedestrian- and transit-oriented neighborhoods by pursuing redevelopment that retains pedestrian orientation and promotes transit use.
3. Prepare neighborhood revitalization plans for areas suited for infill development and insist on public participation throughout the planning process. Further streamline the permitting process and encourage public/private ventures to carry out these plans.
4. Redesignate vacant land for higher density uses or mixed use and provide incentives for assemblage of smaller parcels to create feasible infill projects that meet community goals and objectives. \*\*\*\*

### Downtown Redevelopment and Commercial Centers

1. Create a mixed-use zone district that encourages the combination of residential, commercial, and office uses on the same site.
  2. Promote the downtown or village centers as the primary commercial and financial centers and provide social, institutional, and financial incentives to builders and businesses who are willing to locate in these centers.
  3. Improve transportation and public transit access to the downtown from all areas of the city.
  4. Maintain Fresno's downtown as the government center for the region by encouraging all local, state, and federal governmental offices to locate there.
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### **Institutional Uses**

1. Work with school districts to incorporate school sites into larger neighborhood activity centers that serve multiple purposes.
2. Incorporate institutional and public land uses into downtown redevelopment and neighborhood revitalization plans.

### **STRATEGIES FOR PROTECTING AND DIRECTING GROWTH AWAY FROM IMPORTANT AGRICULTURAL LANDS**

1. All of the Cities in Fresno County should adopt an agricultural element in their general plan.
  2. Do not rezone any more land for rural residential development until the current inventory of designated land is exhausted.
  3. Within city spheres of influence, encourage an orderly outward expansion of new urban development while providing for new towns and community planning that creates new patterns of compact growth. \*
  4. Undertake a process that leads to the adoption of a reasonable urban limit line/urban growth boundary that provides an adequate supply of land to meet projected demand and is administratively expandable. \*
  5. Create a forum in which multi-jurisdictional land use planning between Fresno County and its cities can be achieved.
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## **Appendix B**

1. Department of Public Utilities Letter
2. Caltrans Letter



November 14, 2001

Mr. Gary McDonald  
Managing Partner  
Copper River Ranch, L.L.C.  
7120 North Whitney Avenue  
Fresno, California 93720

**Subject: Connection of the 'Copper River Ranch' (CRR) Project  
to the City of Fresno Sewage Collection System**

Dear Mr. McDonald:

Your staff and consultants have been working with the Utilities Department to determine the feasibility of discharging certain CRR wastewater flows to the City's sewer system. This letter will outline the conceptual elements for such a connection. Specific details remain to be negotiated and memorialized consistent with the concepts summarized herein. We have determined that such a connection is feasible subject to the following assumptions and conditions:

1. The developer will construct and/or pay for all facilities necessary to accommodate the impact of connection to the City sewer system and associated wastewater treatment.
2. All necessary development entitlement instruments are secured and conditions are met by the developer.
3. The design of necessary collection system improvements is subject to approval by the City. All reasonable effort will be made by each party to design and stage facilities to maximize value and minimize cost. Physical connection to the system will take place at point to be determined but is currently anticipated to be in N. Maple Avenue, near Perrin Avenue.
4. The City can accommodate temporary wastewater flows from up to 500 Living Unit Equivalents for a period not to exceed seven years from the date of this letter, or four years from the first building permits, or until the completion of CRR wastewater treatment facilities, whichever occurs first.
5. The City will accommodate permanent sludge flows from the planned CRR treatment facility provided CRR agrees to participate in any necessary collection system enhancements and subject to:

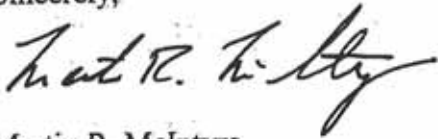


- ▶ City's endorsement of findings from the sludge impact evaluation currently under way by Blair Church and Flynn.
  - ▶ Full and satisfactory mitigation by CRR of all potentially significant impacts identified in the Blair Church and Flynn report.
  - ▶ CRR is responsible for all wastewater facility and trunk fees necessary to accommodate the sludge loading.
6. The City will accept emergency flows in the event of CRR wastewater treatment plant failure to the extent they can be accommodated without the City's violation of other service commitments or applicable permits and regulations.
7. The project approved by Fresno County includes 2837 dwelling units and 40+ acres of commercial/office uses. It is also my understanding that current and anticipated future entitlement applications with the City of Fresno will have the same overall density/intensity limitations.
8. CRR will construct a wastewater treatment facility of a capacity and design acceptable to the City of Fresno. The wastewater treatment facility shall be completed and 'on-line' in time to satisfy the conditions summarized in item 4.
9. Treated effluent from the proposed wastewater treatment facility (recycled water) shall be re-used by CRR. Land application of recycled water shall be subject to the approval of the City of Fresno and appropriate County and State agencies.
10. Equitable impact fees and monthly users charges shall be approved by both parties prior to the Maple Avenue connection. Equitable in this context shall mean:
- ▶ The cost of facilities and operational expenses necessary to serve CRR shall be born solely by CRR.
  - ▶ To the extent that such facilities and expenditures benefit other developments, CRR shall be eligible for reimbursement pursuant to existing mechanisms and protocols.

Copper River Ranch  
November 14, 2001  
Page 3

It is my intent that this letter provides a plain meaning summary of assumptions, conditions and commitments upon which we can develop the necessary agreements for the sewer connection and wastewater management functions described herein. Please feel free to contact me if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Martin R. McIntyre". The signature is fluid and cursive, with the first name "Martin" and last name "McIntyre" clearly distinguishable.

Martin R. McIntyre  
Interim Director of Public Utilities

c: Daniel G. Hobbs, City Manager  
Andrew T. Souza, Assistant City Manager  
Nick Yovino, Development Director

DEPARTMENT OF TRANSPORTATION

1352 West Olive Avenue  
Post Office Box 12616  
Fresno, California 93778  
TDD (559) 488-4066  
OFFICE (559) 445-6666  
FAX (559) 488-4101



October 19, 2001

2131-IGR/CEQA  
6-FRE-41-31.6+/-  
COPPER RIVER  
NOP/DEIR  
SCH 2000021003

Mr. Darrell Unruh  
City of Fresno  
Development Department  
2600 Fresno Street,  
Fresno, CA 93721

Dear Mr. Unruh:

We have reviewed the Notice of Preparation to prepare a Draft Environmental Impact Report (DEIR) for the Copper River Ranch project located north of Copper Avenue between Friant Road and Willow Avenue. Caltrans offers the following comments:

Our previous letter dated 3/2/00 (copy enclosed) to Fresno County is still valid. This correspondence contains various comments and recommendations pertaining to the parameters for the study, and needs to be incorporated into the City of Fresno DEIR.

In consideration of mitigation, Caltrans acknowledges the voluntary fair share contribution of \$700,000.00 for the Friant corridor as agreed to in the 6/29/01 letter (copy enclosed) from the project proponent and deems it to be appropriate.

Should you have any questions, please call me at (559) 445-6666.

Sincerely,

A handwritten signature in cursive script that reads "Moses Stites".

MOSES STITES  
Office of Transportation Planning  
District 6

Enclosures

C: State Clearinghouse



June 29, 2001

Mr. Nick Yovino  
Development Department Director  
City of Fresno  
2600 Fresno Street  
Fresno, California 93721


Dear Mr. Yovino:

Thank you for arranging the meeting in your office on June 14, 2001. As you will recall, the attendees included yourself, Mr. Gil Haro, Mr. Darrell Unruh of the Development Department, City of Fresno, Mr. Marc Birnbaum, Mr. Moses Stites of CALTRANS, Farid Asseml and myself of Copper River Ranch, L.L.C. During the meeting, the following items were discussed and agreed upon:

- 1) The \$700,000.00 voluntary contribution fee that will be paid by Copper River Ranch, L.L.C. for the Copper River Ranch Project will be collected at time of issuance of building permits.
- 2) The \$700,000.00 voluntary contribution will be credited toward the Friant corridor as applicable to mitigate any traffic impacts the Copper River Ranch Project may have.
- 3) Copper River Ranch, L.L.C. and the Development Department, City of Fresno will discuss and agree how to collect this fee with the understanding that \$200,000.00 will be applied to all commercial zoning and the balance will be applied to (single and multi-family) residential.
- 4) Copper River Ranch, L.L.C. and CALTRANS will memorialize their understanding in the form of a letter prepared jointly and a copy will be forwarded to your attention.

Again, thank you for your cooperation regarding this matter and please feel free to contact me should I be of further assistance.

Sincerely,

  
Gary McDonald  
Copper River Ranch, L.L.C.

cc: Mr. Marc Birnbaum / CALTRANS  
Mr. Moses Stites / CALTRANS



## Appendix C

### *SB 610 Water Assessment for Copper River Ranch*

AGENDA ITEM NO. 11:00am

COUNCIL MEETING 10/1/02

APPROVED BY

DEPARTMENT DIRECTOR

CITY MANAGER

October 1, 2002

FROM: MARTIN R. MCINTYRE, Public Utilities Director

SUBJECT: APPROVE A RESOLUTION ADOPTING A WATER SUPPLY ASSESSMENT FOR THE  
PROPOSED COPPER RIVER PROJECT**EXECUTIVE SUMMARY**

On January 1, 2002, a new statute (SB 610) took effect. The statute, codified in the California Water Code, requires preparation of a Water Supply Assessment (WSA) for development projects exceeding a certain size. It has been determined that a WSA is required for the proposed Copper River Ranch project. This Water Supply Assessment (attached) concludes that there is adequate water supply to serve the Copper River Ranch Project (Project) as proposed.

The Water Code requires that the governing body adopt the WSA. This does not constitute a development entitlement. Development of this property is already entitled by County action but was recently included in the City's Sphere of Influence (SOI). The developer has submitted to the City a new project application and associated Environmental Impact Report. Public notification and opportunity to comment will be exercised at several points in the development process, including the Draft EIR, Conditional Use Permit and subsequent development phases.

**BACKGROUND**

A new statute, Senate Bill 610 recently became law. The statute, codified in section 10910 of the California Water Code, which became effective January 1, 2002, requires preparation of a Water Supply Assessment (WSA) for development projects exceeding a certain size. It has been determined that a WSA is required for the proposed Copper River Ranch project.

Development of the property was previously entitled by the County of Fresno. The Copper River Ranch project area was recently added to the City of Fresno Sphere of Influence. The developers have submitted a Project application with the City. A draft Environmental Impact Report (DEIR) has been prepared for the Project. It is anticipated that the DEIR will be publicly noticed and available for review in October 2002. The WSA will be included as an appendix to the DEIR.

The primary requirement established by Water Code Section 10910 is the preparation of a WSA to determine if there is an adequate water supply to satisfy the project demands over a 20-year planning horizon considering dry and multiple dry year events. Adoption of the WSA does not constitute development entitlement of the Project nor does it establish mitigation measures or subsequent requirements which may be applied to the Project as a condition of entitlement. Public notification and opportunity to comment will be exercised at several points in the development process, including the Draft EIR, Conditional Use Permit and subsequent development phases.

## **REPORT TO THE CITY COUNCIL**

Adopt a WSA for the Proposed CRR Project

October 1, 2002

Page 2

### **WATER SUPPLY ASSESSMENT FOR THE PROJECT**

Pursuant to Water Code Section 10910, the WSA concludes that there is an adequate water supply to meet the Project demands. The WSA relied on the following sources of information:

1. Groundwater Conditions at the Copper River Ranch, Kenneth Schmidt and Associates.
2. CH<sup>2</sup>M Hill.
3. Interviews with staff of Fresno Irrigation District, City of Fresno, Fresno office, Bureau of Reclamation, Provost and Prichard and Kenneth Schmidt and Associates.
4. Attorneys at the offices of Best, Best and Krieger and Hatch and Parent.

The Groundwater Conditions at the Copper River Ranch and the Fresno Metropolitan Water Resources Management Plan are large documents available from the City Clerk's Office.

### **CONCLUSIONS AND RECOMMENDATIONS**

It is recommended that the Council adopt the attached WSA for the proposed Copper River Ranch Project.

### **FISCAL IMPACT OF RECOMMENDATIONS**

None.

#### **Attachments:**

Resolution

Water Supply Assessment

RESOLUTION NO. \_\_\_\_\_

A RESOLUTION OF THE COUNCIL OF THE CITY OF  
FRESNO, CALIFORNIA, ADOPTING A WATER SUPPLY  
ASSESSMENT FOR THE COPPER RIVER RANCH  
PROJECT

WHEREAS, Senate Bill 610 established a requirement that a Water Supply Assessment be prepared for development projects meeting certain criteria; and

WHEREAS, Senate Bill 610 became effective January 1, 2002, and is codified in section 10910 of the California Water Code; and

WHEREAS, the Proposed Copper River Ranch Project exceeds one or more of the thresholds triggering the requirement for a Water Supply Assessment; and

WHEREAS, the Water Code requires that the Water Supply Assessment be adopted by the governing body of the project's water purveyor; and

WHEREAS, the Water Supply Assessment demonstrates that the Copper River Ranch Project has available a water supply adequate to meet the Project water demands for a minimum of 20 years.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Fresno as follows:

The attached Water Supply Assessment, dated September 25, 2002, is hereby adopted pursuant to Water Code Section 10910.

\* \* \* \* \*



CLERK'S CERTIFICATION

STATE OF CALIFORNIA )  
COUNTY OF FRESNO ) ss  
CITY OF FRESNO )

I, REBECCA E. KLISCH, City Clerk of the City of Fresno, hereby certify that the foregoing Resolution was adopted by the Council of the City of Fresno, California at a regular meeting held on the \_\_\_\_ day of \_\_\_\_\_, 2002.

AYES :  
NOES :  
ABSTAIN :  
ABSENT :

Mayor Approval: \_\_\_\_\_, 2002

Mayor Approval/No Return: \_\_\_\_\_, 2002

Mayor Veto: \_\_\_\_\_, 2002

Council Override Vote: \_\_\_\_\_, 2002

REBECCA E. KLISCH  
City Clerk

BY: \_\_\_\_\_  
Deputy

APPROVED AS TO FORM:  
CITY ATTORNEY'S OFFICE

BY: \_\_\_\_\_

Deputy

Water Supply Assessment  
for the  
Copper River Ranch,  
City of Fresno  
September 25, 2002

Introduction and Description of the Project:

Pursuant to Water Code section 10910, et seq. (SB 610), this document presents the water supply assessment (WSA) for the proposed Copper River Ranch development (Project). SB 610 requires the preparation of a WSA in conjunction with the environmental review of certain large development projects. As the lead agency for the Project, the City has determined the Project requires the preparation of a WSA. The proposed Copper River Ranch development includes 2,873 residential dwelling units, and 53 acres of commercial development (the "Project"). In compliance with the California Environmental Quality Act ("CEQA"), an environmental impact report ("EIR") has been prepared for the Project. This WSA will be included as an appendix to the Draft EIR and the conclusions reached in this document will be considered in analyzing the Project's potential impacts on water supply.

The City provides municipal water service to 114,000 commercial and residential customers within its jurisdiction. The City is the planned municipal water purveyor for the Project. In lieu of an Urban Water Management Plan, the City has prepared and adopted the Fresno Metropolitan Water Resource Management Plan (Water Plan). The Water Plan evaluates the anticipated growth of the City and the associated water demands through 2050. Growth and land use assumptions associated with this Project are contained within the Water Plan. The Water Plan provides an in-depth discussion of the City's current and anticipated future water supplies, including an extensive assessment of the hydrologic circumstances that might impact the City's surface and groundwater supplies. The Water Plan also includes an in-depth analysis of the local groundwater basin, the "Fresno Groundwater Unit".

The Water Plan and this WSA conclude that the City has, and will have, sufficient water supplies to meet the City's current and anticipated needs through 2025 (the planning horizon of the City's Draft General Plan), including those associated with this Project, during all reasonable normal, dry and multiple dry-year hydrologic conditions. The Water Plan is incorporated in full into this WSA for the Project.

Additional information regarding the water supplies available to the Project is contained in the "Groundwater Conditions at Copper River Ranch" report (Schmidt Report) produced by Kenneth D. Schmidt and Associates (as updated July 2002). The Schmidt Report is incorporated in full in this WSA.

## Summary of City's Water Supplies

As provided in detail in the Water Plan, the City has, or will have available, a large portfolio of water supplies (rights/entitlements) to serve the City's needs, including the Project. These water supplies include:

- (1) Groundwater. The City operates a network of groundwater wells to provide to its customers water pumped from the local groundwater basin. The local groundwater basin is referred to as either the Kings River groundwater basin or the Fresno Hydrologic Unit, depending upon the nature of the reference. The Kings River groundwater basin is the reference adopted by the State Department of Water Resources. According to Draft Bulletin No. 118 of the Department of Water Resources, the boundaries of the Kings River groundwater basin are as follows: on the north, the San Joaquin River to the boundary of the Farmers Water District; on the west, the eastern boundaries of the Delta-Mendota Basin and the Westlands Water District; on the south, the northern boundary of the Empire Westside Irrigation District, the southern fork of the Kings River, the southern boundary of Laguna Irrigation District, the northern boundary of the Kings County Water District, and the southern boundaries of Consolidated Irrigation District. The Bulletin fails to identify verbally the eastern boundaries of the Kings River Basin. However, the Department of Water Resource's San Joaquin office website does include a map that depicts the Basin's boundaries. Bulletin No. 118 was most recently updated in 1995 and is the most recent DWR bulletin describing this basin. A copy of the basin map is attached to this WSA. Both the map and Bulletin 118 are incorporated in full by this reference.

From a hydrologic perspective, the regional aquifer is more accurately described as the Fresno Hydrologic Unit. The "Kings River groundwater basin" is not a true groundwater basin in the hydrological sense because it does not represent a hydrologically or geologically separated unit. Rather, the groundwater underlying the Fresno area is hydrologically and geologically linked, and has previously been described by the State Water Resources Control Board as the "Fresno Ground Water Unit." (Decision No. 935, pp. 20-21.) This Unit covers a 258,560-acre area bounded on the east by the low-lying foothills of the Sierras, on the north by the San Joaquin River, on the south by the Kings River and the Consolidated Irrigation District boundary, and on the west generally parallel to and several miles east of the Fresno Slough. (Decision No. 935, pp. 20-21.) Hydrologically and geologically, the Unit comprises a single groundwater basin. (Decision No. 935, p. 21.) The Fresno Hydrologic Unit entirely underlies the City of Fresno and Fresno Irrigation District service areas.

The Fresno Groundwater Unit is a very productive aquifer characterized by highly permeable alluvial geology with significant deposition of porous, coarse-grained materials, providing a high water storage coefficient. Draft Bulletin No. 118 characterizes the native safe yield of the Kings River Basin as being overdrafted. However, as noted in the Water Plan and the Schmidt Report, several water supply agencies, including the City, have implemented, and have plans for further water



management programs within the Fresno Groundwater Unit to augment the native yield of the basin. These projects include the use of developed water sources obtained from Friant and Pine Flat dams, along with recycled water and storm water recharge. These supplemental water sources are used "conjunctively" with local groundwater to meet the area's agricultural and urban water demands.

The Water Plan and the Schmidt Report describe in more detail the hydrologic conditions of the Fresno Unit. In summary, the Fresno Unit is in near equilibrium. Overdraft is conservatively estimated at less than 20,000 acre feet (as reflected in net annual reduction in stored groundwater) out of an annual water budget of almost 1,000,000 acre feet. Conservative estimates of useable groundwater in storage well exceed 10,000,000 acre feet. Although this minimal overdraft has only nominal impact on the areas long term water supply viability, the City and other water management agencies have planned enhancement and expansion of conjunctive use programs. With full implementation of current and planned programs, the Fresno Groundwater Unit will remain in long-term equilibrium beyond 2025, even with anticipated urban growth.

It should also be noted that the Kings River Basin is not adjudicated, nor are there any legal limitations on the use of groundwater. Therefore, there are no court orders or judgments specifying the amount of groundwater to which the City or the Project applicant is entitled.

- (2) Long-term Central Valley Project Water Supply Contract (Friant Unit). The City of Fresno has a contractual right to obtain 60,000 acre-feet of water per year from the Friant Unit of the Central Valley Project. Water delivered from the Friant Unit is classified as either Class 1 water or Class 2 water. Contracts to serve Class 1 water take priority and all Class 1 water is allocated before any Class 2 water supplies are allocated. The total amount of water subject to Class 1 contracts is 800,000 acre-feet. In comparison, the average annual flow of the San Joaquin River, which is the source of inflow for water delivered by the Friant Unit, is 1,670,000 acre-feet. (Decision No. 935 of the State Water Resources Control Board, p. 24.) Thus, in Decision No. 935, the State Water Resources Control Board described the Friant Unit's Class 1 contractual supplies as very reliable:

"Class 1" water is that supply which can be considered dependable in practically every year with deficiencies only in occasional very dry years. Under a study performed by the United States based upon a recurrence of hydrological conditions during the 58-year period 1897 through 1954, deficiencies in the Class 1 supply would have occurred only in years such as 1924, 1929, 1930, 1931, and 1934. Deficiencies in those years would have been 36, 4, 8, 45 and 11 per cent, respectively.

(Decision No. 935, p. 7, fn. 1.) Four of the five years that the Class 1 supply would have been subject to reduction occurred during the 1928-34 drought, which was the worst recorded drought in California's history. (Some recent historical reconstruction research based on tree ring analysis indicates that the 1928-34



period represents California's worst drought since 1560.) Even through an extended, severe drought, deficiencies in the Friant Class 1 supply occur only in occasional very dry years. On average over the last 10 years, the Friant Unit has been able to supply 98% of the Class 1 contractual allocations. The water allocated to Class 1 contractors is reduced on a pro rata basis during those infrequent years where Class 1 supplies are limited. Over the past 46 years of Friant Unit operations, Class 1 water users have received 94.9% of their contractual allocations.

The City's Central Valley Project water supply contract provides the City a guaranteed right to receive available supplies from Friant Dam for a 40-year term. Under federal law and as provided in the City's CVP contract, the City enjoys a mandatory right to renew the contract. The only contingency that might limit the City's renewal right is the Bureau of Reclamation's (the federal agency responsible for operating the Central Valley Project) contention that the City must agree to implement a plan to meter each City water service connection during the term of the renewed contract. The City Charter currently prohibits billing single family residents a metered rate. While the City fully intends to renew its CVP contract, if this conflict ultimately precludes renewal, the City anticipates trading its Central Valley Project contract entitlement to another party in exchange for surface water supplies which are not encumbered with the water meter requirement.

- (3) Entitlement Through the Fresno Irrigation District. The City has a permanent right to receive a portion of the water supplies available to the Fresno Irrigation District (FID). The FID holds high priority vested rights to receive approximately 470,000 acre-feet per year of water from the Kings River, as well as a Class 2 Central Valley Project water supply contract, with an average annual yield of about 30,000 acre feet. Within the FID, water entitlements "run with the land". When lands are converted from agricultural to urban uses, the FID water entitlements are transferred to the new land use. Currently, the City represents approximately 19% of the area within the FID and enjoys a proportionate allocation of the FID water entitlements – roughly 95,000 acre-feet per year. As more property within FID urbanizes and receives potable water supply from the City, the City's pro rata share of FID's entitlement increases. Given the current land use patterns and associated water demands, the consumptive use of the average urban development is slightly lower than the consumptive use of associated agricultural lands. Thus, the urbanization of agricultural land within FID results in a net increase in availability (reliability) of water.

The City accesses its portion of the FID entitlement through a set of water sharing agreements with FID<sup>1</sup>. These agreements create an institutional framework through which the City and FID conjunctively use various surface water, groundwater and recycled water supplies available to each entity. This arrangement ensures that the full portfolio of water supplies available to each entity is used directly, or recharged

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<sup>1</sup> Primary agreements: Cooperative Agreement Between Fresno Irrigation District and the City of Fresno for Water Utilization and Conveyance (1976). Agreement Between City of Fresno and the Fresno Irrigation District for the Exchange of Recycled Water (1974).

into the local groundwater basin so that the long-term regional water supply/demand equilibrium is maintained.

(4) Additional Local Surface Water Supplies. The City of Fresno, the City of Clovis, FID and the Fresno Metropolitan Flood Control District are collaborating on a new water supply project that will capture intermittent regional stream flows to enhance recharge of the local groundwater basin. The four entities have submitted a water rights application to the State Water Resources Control Board to establish their priority right to capture these surface water flows. The application has not been contested. The State Water Resources Control Board is expected to grant the application within the next 3 years. During this time, the four entities will finalize the design and construction of the physical infrastructure needed to implement this water supply project. The average annual yield from this water supply is estimated between 40,00-50,000 acre-feet. The cities of Fresno and Clovis will have priority rights to use the water developed from this project.

(5) Reclaimed wastewater. The City reclaims the municipal wastewater generated through the City's consumptive water use. Currently, approximately 70,000 acre ft. per year of treated wastewater is used directly for agricultural irrigation or banked in the groundwater basin, generally augmenting the availability of groundwater to the City. For example, about 30,000 acre feet per year is provided to the FID is made available by the City in exchange for additional surface water supplies beyond that which the City is otherwise entitled from FID. The City intends to take delivery of this exchange water once it has completed the development of additional facilities. Additional recycled water exchange capacity is conservatively estimated at 30,000 acre ft over the life of the 2025 General Plan.

(6) Additional water available to FID and the City. During wet years, significant amounts of unallocated surface water is available for capture for groundwater recharge. More efficient use of these –"floodwaters" from the Kings and San Joaquin rivers could be made with the development of additional groundwater recharge and banking facilities. These facilities are commonplace in other groundwater basins in the state. FID has plans to add additional dedicated spreading basins to increase the ability to capture and bank floodwaters from the Kings and San Joaquin Rivers for later use. The City and FID plan to further develop these water resources.

#### Additional Water Supply Associated with the Project

The Project has an additional surface water supply entitlement to augment those supplies discussed above. The Project lands receive approximately 230 acre-feet annual surface water deliveries from FID in to the City's traditional FID entitlement. Project lands have continuously received this water for over 70 years. FID has provided notice to the Project proponents and the City, that the Projects lands will continue to receive this supply on the same basis as has occurred historically and indicated a willingness to sell additional water when available<sup>2</sup>.

<sup>2</sup> 10/17/96 FID letter to William Tathern Sr., signed by Robert Mount, General Manager and 12/12/1997 FID letter to Mr. Dirk Poeschel, signed by Robert Mount, General Manager



The project was originally entitled in Fresno County. It should be noted that the County of Fresno has adopted an ordinance that requires a water supply evaluation of certain subdivision projects. Pursuant to Section II-H of the County's subdivision ordinance, project applicants must conduct a minimum 10-day pump test (with continuous pumping) for public supply wells, and the data thereby gleaned must be used to determine the adequacy of the groundwater supply and impacts due to the proposed development. The Project has complied with the County's subdivision ordinance, and extensive well pump tests have been performed on the Project site. (More details regarding these tests are contained in the Schmidt Report.)

Conversion of Project Lands from Agricultural to Urban Use Will Result in a Net Reduction in Groundwater Use.

At full build-out, the City will manage the Project water demand so that the Project water use will result in a net reduction in groundwater use compared to historical and current practices. In addition, the Project will make use of recycled water and will be conditioned so that it results in no net increase in overall consumptive water use in comparison to current uses. Thus, the Project will essentially be water neutral to the City.

As is discussed in the Project Draft EIR, much of the Project site was used for commercial agriculture (vineyards) for over 70 years. Historically, the Project property was irrigated with groundwater and the extraordinary FID surface water entitlement discussed above. Groundwater was pumped from the easternmost portion of the Kings River groundwater basin. Historical records indicate that approximately 2,200 acre-feet of groundwater, plus 230 acre-feet of FID surface water was used on the Project property for irrigation.

In 1992, a portion of the Project property was converted to a golf course. With the addition of the golf course, irrigation practices have been adjusted so that a larger volume of surface water is obtained from FID, with a resultant decrease in groundwater use. The existing water demand for the total Project area, including the golf course, is 1,740 acre-feet per year for irrigated crops, 1,070 acre-feet per year for the golf course and its associated lakes, and 100 acre-feet per year for the clubhouse, totaling 2,910 acre-feet per year. Of that, approximately 1170 acre feet is supplied from surface water, and the balance, 1740 acre feet is groundwater.

The development of the Project will convert the remaining agricultural land to the post-development uses (residential and commercial uses). Thus, as development proceeds, the land currently in agricultural production will be retired and water formerly used for irrigation will then be used to offset water demand created by the Project.

At the completion of the Project (full build-out of Phases 1, 2, and 3), the total projected gross water demand will be 2,960 acre-feet per year. The Project proposes to use reclaimed water (reclaimed from the treated wastewater stream generated by the Project itself) to provide irrigation for the golf course and to supply its water features. At full Project build-out, 750 acre-feet of recycled water per year will be available to serve

these purposes, so that most of the golf course's water needs (other than the water used to serve the clubhouse) will be satisfied using reclaimed water. To supply the remaining Project features, 2,210 acre-feet of water per year will be needed. Of this 2,210 acre-feet per year, 230 acre-feet will be supplied from the extraordinary FID surface water entitlement. Thus, the amount of groundwater that will be pumped to supply the Project will not exceed 1,980 acre-feet annually, which is 220 acre-feet less than the Project historically pumped. Net consumptive demand is projected at 1,250 acre feet per year.

When these Project uses are compared to historical and current water uses, it is anticipated that the Project will result in reduced overall reliance on groundwater and only a nominal increase (50 acre feet) in overall net consumptive use.

To avoid any negative impact on the overall groundwater balance (as compared to historical conditions), it is anticipated that implementation of the final phase of the Project will be conditioned on dedication to the City of an additional 250 acre-feet per year of surface water entitlement. This additional supplemental water supply may be provided through suitable arrangements for additional groundwater recharge/banking, additional recycled water use, City's renewal of its CVP supply contract, banked floodwaters or water purchases.

#### Physical Infrastructure Needed to Serve the Project

The additional infrastructure needed to supply water to the Project area will be constructed as part of the Project, including community water supply wells, well head treatment and distribution systems. The Project may also be a recipient of water from the City's planned surface water treatment plant. The City is constructing a 30,000,000 gallon per day surface water treatment facility two miles from the Project site. It is anticipated that water from this facility will be delivered to the Project. The City serves water pursuant to a drinking water system permit obtained from the State Department of Health Services.