

growth demands and the most feasible will be selected following review of conditions as they change.

#### 8.8.3.1 Freeway Widening

The provision of one additional travel lane in each direction of I-10 from SR-30 to the I-215 interchange would increase capacity by approximately 30,000 vehicles per day. Even with the additional lanes, a LOS "E" operation, with average daily speeds of 42 miles per hour, has been forecast by the California Department of Transportation for the year 2005 (Caltrans "I-10 Route Concept Report," November 1984). In view of the obvious need for widening, Caltrans has included funds for the addition of the two travel lanes in the 5-year State Transportation Improvement Program.

The extension of SR-30 would similarly relieve east/west arterial congestion, with a 4-lane facility providing a 65,000 ADT capacity. According to Caltrans's forecast, SR-30 will carry an average daily traffic volume of 56,000 vehicles and operate at LOS "D", with average speeds of 40 miles per hour by the year 2005 (Caltrans "SR-30 Route Concept Report," June 1985).

Therefore, even with the construction of additional lanes on both I-10 and SR-30, the LOS will still be below ideal design standards and is considered an unmitigable impact.

#### 8.8.3.2 I-10 Interchanges

The construction of a grade separated, fully directional interchange with SR-30 has been proposed and is currently programmed into the State Transportation Improvement Plan (STIP). Further, it is recommended that potential modifications at the California Street and Mountain View Avenue interchanges be evaluated. Freeway on-ramp metering could also be installed to help alleviate freeway congestion.

#### 8.8.3.3 Major Highway Improvements

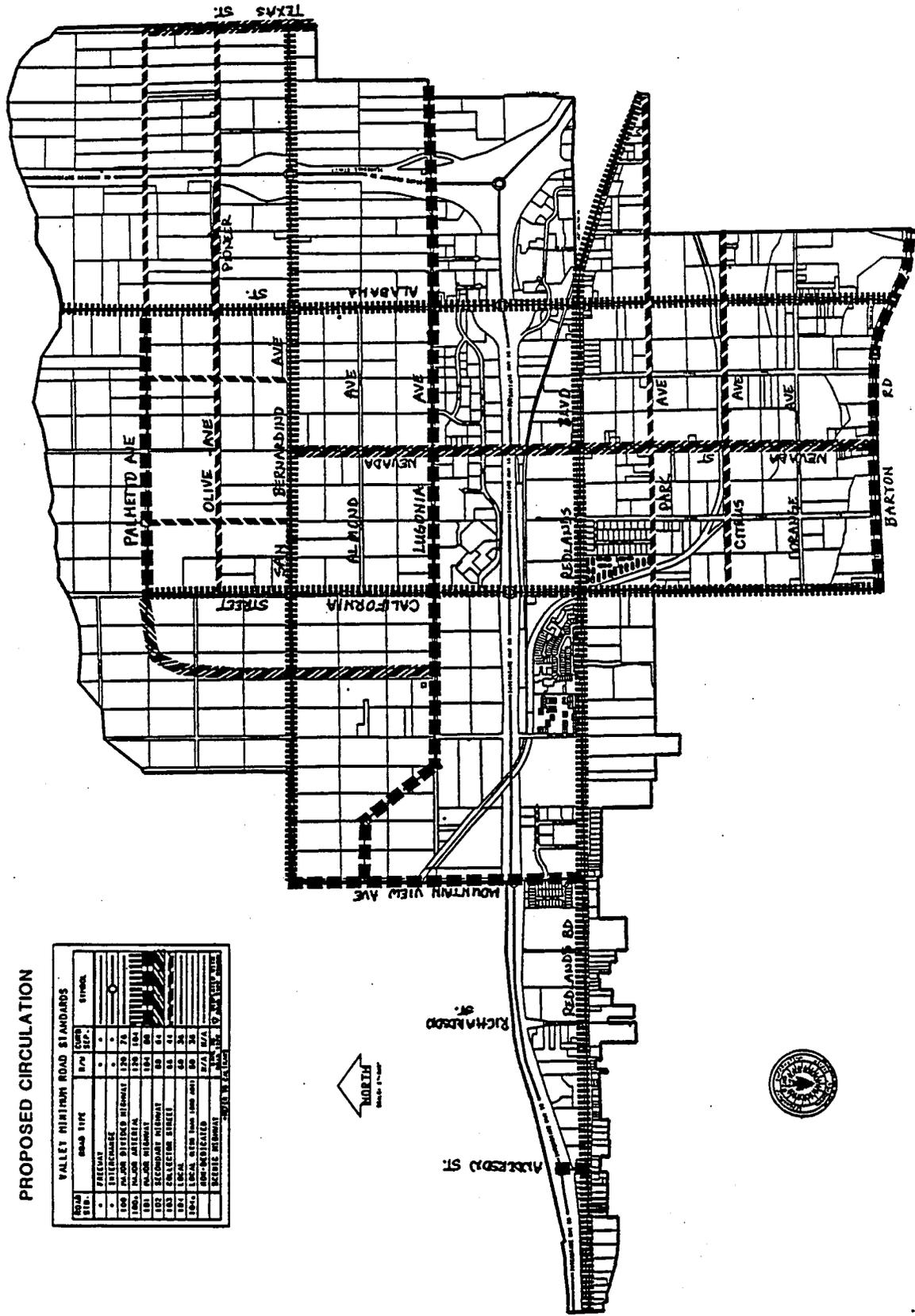
This mitigation involves a series of major capital investments in widening the existing arterial highway system. The effectiveness of the respective widening projects was analyzed and the results given in the Ludwig report.

The recommended circulation network generally consists of median division and lane additions for arterials. The planned highway classification for the study area including lane configurations is explained in the Specific Plan. Figure 8.8-1 shows the proposed circulation network and Table 8.8-1 lists the roadway classifications and lane configurations.

The intersections initially estimated to operate at levels of service "E" and "F" were the subject of additional analysis based upon the critical lane volume method of intersection capacity analysis.

# EAST VALLEY CORRIDOR SPECIFIC PLAN

FIGURE 8.8-1



## PROPOSED CIRCULATION

VALLEY MINIMUM ROAD STANDARDS			
ROAD ID.	ROAD TYPE	MIN. WID.	MIN. TURNING RADIUS
1800	FREIGHTWAY	120	100
1801	INTERCHANGE	120	100
1802	PRINCIPAL BARRIER DIVIDED	120	75
1803	PRINCIPAL BARRIER	120	75
1804	PRINCIPAL UNDIVIDED	120	75
1805	SECONDARY DIVIDED	80	50
1806	SECONDARY UNDIVIDED	80	50
1807	COLLECTOR STREET	60	40
1808	LOCAL	60	30
1809	LOCAL WITH TURN LANE	60	30
1810	NON-DESIGNATED	50	25
1811	ACCESS DRIVEWAY	30	15

Additionally, as the traffic volumes increase, the intersections become pressurized and the number of vehicles able to use the intersection is increased. The sum of the maximum lane volumes can increase to as much as 1600 vehicles per hour.

Table 8.8-1

FACILITY IMPROVEMENTS\*

<i>Facility</i>	<i>Proposed Lanes</i>
California Street	6, Major Highway <u>Arterial</u>
San Bernardino	6, Major Highway <u>Arterial</u>
Redlands Boulevard	6, Major Highway <u>Arterial</u>
Alabama Avenue	6, Major Highway <u>Arterial</u>
Lugonia Avenue	4, <u>Secondary Major</u> Highway
Nevada Street	4, Secondary Highway
Mountain View Avenue	4, <u>Secondary Major</u> Highway
Barton Road	4, <u>Secondary Major</u> Highway
Texas Street	4, Secondary Highway
Park Avenue	2, Collector Street
Citrus Avenue	2, Collector Street
<del>Tippecanoe</del> <u>Anderson</u> Avenue	4, Secondary Highway

Note: \* See Figure 8.8-1

The act of interconnecting traffic signals also adds to the efficiency of traffic operation. The minimum expected level of service change is one level and the optimum amount would be about 1.5 LOS or a change in the V/C ratio of about 0.16. It is recommended that a fully coordinated traffic signal system running in a crossing arterial mode would provide no lower than a level of service "D" for Alabama Avenue intersections at Redlands Boulevard and Lugonia Avenue under build-out traffic conditions.

Two additional intersections were reevaluated with this higher maximum lane volume. The level of service improved to LOS "C" at the intersection of California Street and Barton Road; but the intersection of Mountain View Avenue and Redlands Boulevard (LOS "D") still does not meet the County's standard LOS "C". The eleven intersections initially evaluated at LOS "D" can be expected to improve their LOS to "C" with implementation of interconnecting traffic signals. The three LOS "D" intersections discussed above are unable to attain the Specific Plan's standard of LOS "C" even with additional mitigation measures. These below standard LOS are considered significant unmitigable impacts.

When medians are constructed on any arterial street, spacing between median openings is recommended to be at least every 400 feet, with left turn storage lengths designed to provide safe and efficient left

turn movements to existing and projected future development in the immediate vicinity.

#### 8.8.3.4 Highway Transportation System Management

This alternative is comprised of a series of relatively low-cost roadway and operational improvements to make more efficient use of the existing highway system. Recommended components of this alternative include traffic signal hardware improvements and signal coordination where possible, site plan reviews to limit driveway access to arterials, strategic and phased removal of on-street parking, and bus stop additions and/or relocations.

It is recommended that new signal locations be limited to a minimum 1000-foot distance spacing (with a 1/4 mile spacing preferred) to enhance signal interconnection and coordination potential. Federal Highway Administration research indicates that signal interconnection and coordination may be expected to improve vehicle speed and travel time by up to 16 percent. Traffic signal location and signal phasing needs are recommended to be monitored by the respective agencies via detailed traffic study requirements of proposed developments. New signals should be limited to warranted locations.

Site plan reviews of proposed developments are recommended to maximize the efficiency of existing arterials via the control of driveway locations and design, limitation of the number of driveways, and the provision of "internal" connections between adjacent residential and commercial development. Reference is made to the Specific Plan for recommended site access control guidelines.

On-street parking strategic and phased removal would improve vehicular flow by increasing roadway capacity -- at a minimum by eliminating lateral obstructions and at maximum by allowing the striping of an additional travel lane along critical arterial segments. In recognition that localized parking conditions often make impractical the elimination of on-street parking, it is recommended that off-street parking be made a part of economic development programs. Off-street replacement parking is recommended as a condition of approval for new development adjacent to major arterials. The Specific Plan permits no on-street parking on roadways of 4 lanes or more. Initially, it is recommended that on-street parking be prohibited for approximately 100 to 200 feet on the approach side of major intersections. As a second phase, midblock, on-street parking may be prohibited during the a.m. peak period, when businesses generally have not yet opened and therefore are not impacted.

Bus service is recommended and bus stops should be placed at locations with the least impact to traffic. Near side locations (i.e., on the approach) are preferred where more traffic joins the street than turns off and at locations where buses will make a right turn. Far side locations are recommended where there are heavy turning movements off the street, and where buses make left turns. In addition, bus turnouts are recommended to be constructed at bus stops where a high number of transfers occur. Further, it is important to provide

adequate sidewalk connections to and amenities at bus stop locations. Bus stop amenities may include benches, shelters, and ridership/route information displays.

Additional road standards and standards for special landscaped streets are included in Sections EV4.0110 and EV4.0115 in the Specific Plan.

#### 8.8.3.5 Trails System

Section EV4.0135 of the Specific Plan describes the proposed trails system within the project area. The trail network plans to provide regional and local hiking and pedestrian trails, commuter bicycle paths, and recreational pedestrian and bicycle paths. The commuter bicycle paths, in particular, are designed to provide an energy-efficient alternative to the automobile. Please refer to the above-mentioned sections in the Specific Plan for detailed guidelines.

## 8.9

### PUBLIC SERVICES

The East Valley Corridor lies within three Spheres of Influence delineated by the San Bernardino County Local Agency Formation Commission to provide long-term planning boundaries for cities. The city limits and spheres of influence for the cities of Loma Linda and Redlands, and unincorporated lands of the County of San Bernardino overlie the project. Some of the existing public services provided in the area correspond to the local government boundaries while other services are provided on a regional basis.

The planned development of CSA-110 will impact the following public services: fire protection, law enforcement, schools, recreation facilities, hospitals, and libraries. Figure 8.9-1 shows the locations of all the existing public facilities.

#### 8.9.1 Fire Protection

##### 8.9.1.1 Existing Conditions

The study area lies within the boundaries of the County of San Bernardino and the cities of Loma Linda and Redlands. Fire protection agencies of these entities have primary areas of responsibility which correspond to city and county boundaries as shown in Figure 3.1-2. The three agencies are the Loma Linda Fire Department, the Redlands Fire Department, and the County Fire Warden Department.

The Loma Linda Fire Department is located near the corner of Barton Road and Loma Linda Drive. This station is approximately one mile south and west of the project boundary. The department is staffed 24 hours per day and consists of three engines; one truck, one water tender, and one rescue squad. A specific plan is being developed for an additional station in the hills south of Loma Linda near the Riverside County line. The station will be designed to serve a broad area within a 3- to 5-minute response time. The Loma Linda Fire Department has an automatic mutual response agreement with the City of Redlands.

The Redlands Fire Department's Central Station is located at 525 East Citrus Avenue, about one and one-half miles east of the project boundary. This station consists of a Type 1 engine, an aerial ladder truck, and a paramedic unit, and is staffed 24 hours a day. A second station is located at 10 W. Pennsylvania Avenue and consists of a medical engine with a crew of four. Property for three additional stations has been purchased and are located as follows: (1) Barton Road near Lakeside Avenue, (2) I-10 and Cypress, and (3) within 1/2-mile of the intersection of Lugonia Avenue and Nevada Street in the East Valley Corridor. The department's general plans propose opening two new stations and eventually closing the Central Station. Sites 1 and 2 will be submitted for Council approval at the same time and if approved, they will phase out the existing station. Site 1 will be chosen if both locations are not approved. It will be approximately 2 years before the station is operating. There are currently no plans for the submittal of Site 3 (Nevada and Lugonia)

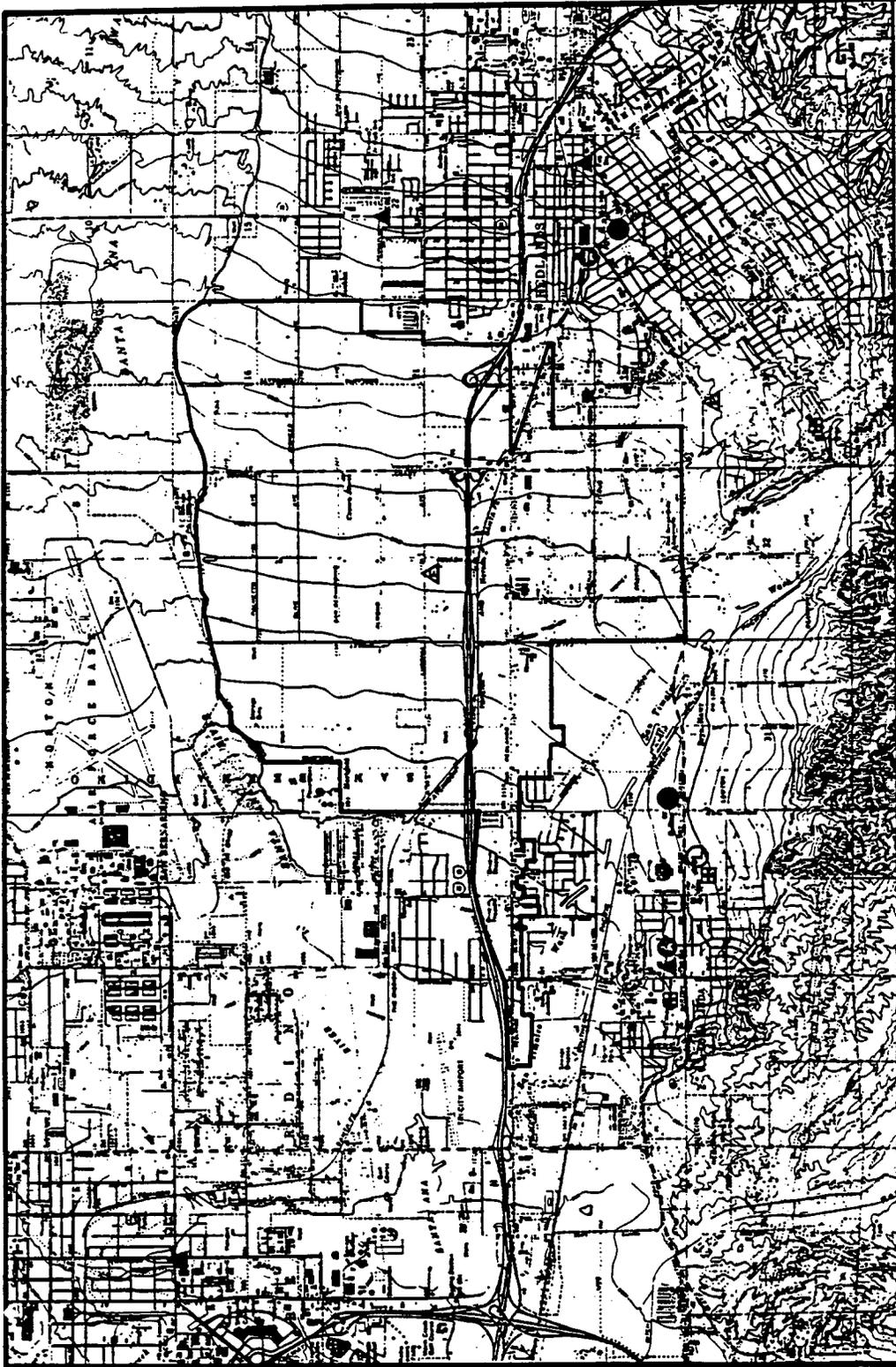


FIGURE 6.9-1 (REVISED)

- ▲ FIRE STATION
- △ PROPOSED FIRE STATION
- ⊙ POLICE STATION
- ⊕ PROPOSED LIBRARY
- ⊞ HOSPITAL
- LIBRARY

0 1/4 1/2 1 MILE  
SCALE



**URS**  
CORPORATION

and it will be another 4 to 6 years before a station is built at this location. The goal of present and future stations is to cover 75 percent of the City within a 3-minute response time, 90 percent in 4 minute or less, and the remaining 10 percent will vary.

The County of San Bernardino Fire Warden Department maintains responsibility over county lands within the project area. These county lands are gradually decreasing as annexations to the cities of Redlands and Loma Linda occur. Three stations currently service parts of the study area depending on the call's location. The Loma Linda station with one engine, is located at 24914 Barton Road east of Anderson Street. This is about 2 miles west of the study area. The Mentone station consists of two engines and is situated 4 miles east of the project at 1300 Crafton Avenue. The Highland station is comprised of two engines, one paid truck and a paid paramedic squad, and is located at 26974 East Baseline Avenue approximately 2 miles north of CSA-110. There are currently no plans for expansion of these stations.

Fire protection presently appears to be more than adequate with response times generally less than five minutes. The three agencies responsible for different sections of the project have primary response zones and also serve as backup units to the other departments. Each agency requires its respective water supply system to be able to supply minimum fire flows on a maximum summer day. Minimum fire flow requirements, including storage, have been adopted from the Guide for Determination of Required Fire Flow, Insurance Services Office, New York, 1974.

#### 8.9.1.2 Project Impacts

The proposed development of the East Valley Corridor will have a moderate impact on the Loma Linda Fire Department. Additional equipment and a substantial increase in employees will be needed. The station proposed to be built in the hills south of the City, should lower the impact.

Impacts of the Redlands Fire Department will be negligible because of the current plans for expansion. With three additional proposed stations, they do not anticipate any problems handling the future growth of the area. The proposed station planned near Lugonia and Nevada for operation within 4 to 6 years would provide adequate fire protection for development in the East Valley Corridor.

The County Fire Department will not be impacted by the projected growth within the East Valley Corridor due to the increased annexation of county lands and the County's reduced responsibility in the East Valley Corridor. Fire flow requirements will be met by all three fire jurisdictions.

### 8.9.1.3 Mitigation Measures

Mitigation measures for new development occurring as part of the East Valley Corridor Specific Plan would include adherence to all building and safety ordinances as mandated by the State and the Cities. Specific fire regulations include a needed fire flow of 4,500 gallons per minute for 4 hours, hydrant distribution every 300 feet in commercial and multi-residential areas, and fire sprinklers in buildings over 5,000 square feet.

Annual reviews and increased funding when required by the cities of Redlands and Loma Linda are recommended to provide adequate planning and protection as new development occurs. The City of Redlands recommended service level is 1.25 personnel per 1,000 population.

The planned construction of a new station at Nevada and Lugonia should be implemented as the fire protection needs of the East Valley Corridor increase.

### 8.9.2 Law Enforcement

#### 8.9.2.1 Existing Conditions

Police protection within the study area is provided by the Redlands Police Department and the San Bernardino County Sheriff's Department. The Sheriff's Department presently patrols the county areas and provides service to the city of Loma Linda. The Redlands Police Department provides law enforcement services within the Redlands city limits.

The Sheriff's Department central station at 655 E. 3rd Street in San Bernardino is staffed with 30 deputies and maintains 9 vehicles. One of the vehicles is assigned to patrol the County areas within and near the project area on a 24-hour basis. The Loma Linda Station maintains one 24-hour patrol car, two 16-hour traffic cars, one 8-hour felony vehicle, and one car which patrols for people driving under the influence of alcohol. Nine deputies are employed out of the Loma Linda station (Lieutenant David Bellomy, Bureau of Administration).

The Redlands Police Department patrols and is on call to city areas within CSA-110. The department currently has 63 sworn and 23 non-sworn officers and is operating at full capacity. The Chief of Police is currently seeking approval for a new building and an increase in staff-members.

The California Highway Patrol also patrols the I-10 and Route 30.

#### 8.9.2.2 Project Impacts

An increase in population and commercial and industrial development as a result of implementation of the East Valley Corridor Specific Plan would increase crime, particularly in the areas of burglary and

robbery. There would also be an overall increase in the number of police responses and in traffic control.

The proposed project will have a negligible impact on the San Bernardino County Sheriff's Department because of the continued annexation of County lands. Services provided by the City of Loma Linda will adequately handle the future growth within the study area.

The impact on the Redlands Police Department may be significant since a majority of the study area lies within Redlands City limits. A continuing increase in departmental staff, office space, and equipment will be required to provide adequate law enforcement for the proposed developments within the project area. At the Redlands Police Department standard of 1.2 police officer's per 1,000 people, the buildout of the project area would require an additional 17 officers over the next 40 years. Growth of the area without the Specific Plan would require 20 officers by the year 2012 which would be a greater and faster impact than the proposed project.

### 8.9.2.3 Mitigation Measures

It is recommended that the departments continue to use the population generation standard of 1.2 police officers per 1000 population increase. Additional equipment and building space should be provided as needed for protection of the proposed developments.

Further mitigation measures would involve residential and commercial security measures including adequate lighting; police-approved locks and alarms; use of trained security personnel at large construction sites and at large residential, commercial, and industrial complexes; and good communication with the Police Department.

### 8.9.3 Schools

#### 8.9.3.1 Existing Conditions

The East Valley Corridor is within the Redlands Unified School District. Three elementary, one junior high and one senior high school currently service the students living within the project area. Current and forecast enrollment figures and school capacities were provided by the District.

Mission/Heisner Elementary School is located at California Street and Redlands Boulevard (see Figure 8.9-2 for school locations). This school is the oldest facility in the District and is in need of constant repair. The District has recommended that this school should be reconstructed as soon as possible. The current enrollment of 701 students exceeds the 1987-88 projection of 633 by over 10 percent. Enrollment exceeded the recommended site capacity of this facility during the 1987-88 school year by 29 percent. Portable classrooms are in use but the site cannot adequately support the current enrollment.



Victoria Elementary School is located at 9963 Richardson Street about 1/2 mile north of I-10 and west of Mountain View Boulevard. The current enrollment of 595 students is 5 percent over the total classroom capacity but within the recommended site capacity. With the implementation of portable classrooms, the school should be able to support the enrollment projected for 1990.

Lugonia Elementary School, at 202 East Pennsylvania Avenue, is located on the north side of Redlands approximately 1-1/2 miles east of the study area. The school is operating at full capacity with a current enrollment of 810 students. The total classroom capacity is exceeded by 3 percent and the recommended site capacity is exceeded by 1 percent. This facility will not adequately support the students forecast beyond the 1987-88 school year. The 1990 enrollment forecast will exceed the recommended site capacity by 37 percent.

The project is served by Clement Junior High School which is located across the street from Lugonia School. The fall 1987 enrollment is currently 720 students and is within the total classroom capacity as well as the recommended site capacity. This facility will not adequately support the students forecast beyond the 1988-89 school year.

Redlands Senior High School, at 840 East Citrus Avenue in central Redlands, is operating at capacity level. The current enrollment stands at 2,828; 47 of these students are involved in the "Rise" program and are not at the school on a full-time basis. The recommended site capacity has been exceeded by 69 percent but the school is still within the total classroom capacity of 3,060 by an 8 percent margin. The 1990 forecast enrollment will exceed the total classroom capacity by 43 percent.

The Redlands Unified School District is in the process of applying to the State for Phase I approval for the advance site purchase and plans for a second high school. The District has two possible sites that could be developed for a second high school. The first site is 60 acres located along Redlands Boulevard west of California Street in Loma Linda and the project area. While this site was purchased as a future high school site, there are some deficiencies with it. This site lies along the San Timoteo flood plain and is just outside the two mile radius of Norton Air Force Base. Also, the potential for future commercial development along Redlands Boulevard might render the site location inappropriate for a high school.

The second site that could be developed for the second future high school is the District's ten acre site just south of San Bernardino Avenue on Judson Street. Since this is only a ten acre site and a high school requires a 40 acre site, an additional 30 acres could be acquired adjacent to that site. This site is better suited for a high school than the first site because it is geographically located in the northern portion of the population center of the District. This location would better serve a greater sector of the population than the Loma Linda site (Source: Redlands Unified School District, Master Plan).

### 8.9.3.2 Project Impacts

The expected population increases projected for the East Valley Corridor will have a major impact on the school system. However, market driven growth in the East Valley Corridor without the Specific Plan would produce more students and would increase the number of students at a much faster rate (buildout projected by 2012). All of the schools listed are either at or over their designed operating capacity. A decline in the maximum quality of the educational programs should be expected unless the enrollment is reduced or compensated for.

The Redlands-Loma Linda-San Bernardino community area is now experiencing explosive development of new housing. This is due to a variety of factors including lower interest rates, employment availability, housing costs, and other factors. Considering the number of projects now in progress this portends truly phenomenal growth within the next 3 years. New enrollment growth will occur primarily in the elementary school categories reflecting the "baby boom" now in progress.

Based on detailed actual generation rates from new housing, the District's forecast projects 8,785 new housing units within the next 3 years, generating over 4,478 new K-12 students in that same period. The new students projected for the next 3 years from new development alone will require the equivalent of 3.09 elementary schools, 1.16 junior high schools, and 0.73 of a high school.

Another way of considering this situation is, if all school buildings now owned by the District were expanded to the maximum size for each school site (based upon State Standards), the District would still need to build 1.03 new elementary schools, 1.38 new junior high schools, and 1.35 new high schools within the next 5 years if the enrollment as forecast actually occurs (Source: Redlands Unified School District, Master Plan).

Some of the new residential development presently occurring in the East Valley Corridor has been taken into account by the Redlands School District forecasts. The majority of this new housing is in Loma Linda, within the Mission Elementary School boundaries. The East Valley Corridor Specific Plan forecasts a buildout population increase of 20,080 by the year 2028. Utilizing 1986 student generation rates provided by the Redlands School District, and the housing types proposed in the Specific Plan, a total of 1,492 elementary students, 784 junior high students, and 1,103 high school students will move into the East Valley Corridor by 2028 (assuming that half of the multi-family units would be adult-oriented).

By overlaying school boundaries onto the proposed residential sites within the East Valley Corridor, it is estimated that 507 elementary students would impact Mission School, 985 students at Victoria School, the total 784 students at Clement Junior High, and all the high school students at Redlands Senior High School. The Lugonia Elementary School boundaries include much of the northeast section of the East

Valley Corridor, but this area is proposed for commercial and industrial use only.

### 8.9.3.3 Mitigation Measures

Due to the number of students forecast to be generated by residential development within the East Valley Corridor and the present near or over capacity conditions at Mission and Victoria elementary schools, it is recommended that one or two elementary and one junior high school sites be provided within or near the East Valley Corridor. New school sites and facilities required by residential development within the East Valley Corridor should be coordinated with the Redlands Unified School District.

Reassessment of school enrollment boundaries will help to alleviate overcrowding at particular schools. Portable classrooms help to temporarily relieve overcrowding until permanent facilities are made available. While the construction of new schools will relieve overcrowding in the future, the District can take immediate action to solve overcrowding at school sites by converting to year-round schools.

Many schools throughout Redlands Unified School District are eligible for modernization through the State Building Program. In order to qualify for funds, buildings must be at least 30 years old. Lugonia, Mission, and Victoria elementary schools, as well as Redlands High School are eligible for reconstruction funds.

The use of General Obligation Bonds is another means of funding that can be used in several ways. Additional revenues generated by the proposed development within the East Valley Corridor will assist in alleviating the financial constraints of the School District.

### 8.9.4 Parks and Recreation

#### 8.9.4.1 Existing Conditions

There are currently no recreational facilities located within the project area. The City of Redlands park system includes five parks to the east of the site boundary within 1-1/2 miles and one undeveloped park site within the study area. The undeveloped site, located west of Tennessee on the north side of San Bernardino Avenue, is comprised of 14 acres and was to be a community park. However, the land value of this site has become too high and the Parks Department is attempting to trade the site for land north of Palmetto Avenue, between California and Alabama streets.

The City of Redlands has 34 acres of developed pocket and neighborhood parks and 25 acres of playground space adjacent to 8 elementary schools. There is a total of 113 acres of developed community and citywide parks which includes 30 acres at 4 junior high schools and the senior high school. The undeveloped park lands include Church Street lands, airport lands, Palmetto Citrus lands, and the rubbish

disposal site; all of which comprise 160 acres (see Figure 8.9-2). The developed and undeveloped parklands total 332 acres, adequate for a population of 66,400. However, currently the 172 acres of developed parks does not meet the minimum 5 acres per 1,000 population standard and several of the larger undeveloped sites will not be available for over 10 years. On a regional scale, the City and County of San Bernardino maintain numerous park facilities and the San Bernardino National Forest also provides outdoor recreation.

The San Bernardino County Museum is located on Orange Tree Lane near the junction of California Street and within the study area.

#### 8.9.4.2 Project Impacts

The projected population increase in the study area will have a moderate impact on the Redlands parks system. An additional 84 acres of parkland would be needed to accommodate a population increase of 16,745 in Redlands by the year 2028. This figure is based on the minimum 5 acres per 1,000 population standard. The Specific Plan shows 56.5 acres of open space that could be potential parks within the project area which would serve about 11,000 residents. The Parks Department is proposing development of a large park north of Palmetto Avenue in the area designated open space. Expansion of this open space area is being discussed. To the northeast of the project area is additional potential parkland associated with a citrus preserve, golf course and the Church Street landfill. This potential parkland may be developed into a recreation area prior to buildout in 2028.

#### 8.9.4.3 Mitigation Measures

It is recommended that the Specific Plan propose setting aside 10 to 15 acres within the south half of the East Valley Corridor for a future neighborhood park as the need increases with population. The 5 to 6 acres per 1,000 population standard should be used to meet the recreation needs of the increasing population.

Future development of a regional park and citrus preserve south of the landfill site and an additional neighborhood park south of I-10 are recommended. It is also likely that some of the residential developments within the Planned Development areas of the East Valley Corridor would provide some private recreational facilities which would alleviate some of the public recreational requirements.

The Specific Plan should also work with the Redlands Parks Department regarding potential trail development along the Mission Zanja and Santa Ana River, acquisition of groves in the proposed citrus park north of Palmetto Avenue, potential parks associated with new schools, and further development of the County Museum complex.

## 8.9.5 Hospitals and Emergency Services

### 8.9.5.1 Existing Conditions

There are three hospitals located within 1-1/2 miles of the project site (see Figure 8.9-1). Redlands Community Hospital at 350 Terracina Boulevard is licensed to accommodate 195 beds and has 24-hour emergency service. An average of 55 to 60 percent of the bed space is occupied on a given day. Plans for expansion are primarily in long-term care and selected other hospital services. The ratio used to determine the number of staff members and beds needed for a population increase is approximately 4 beds per 1,000 population and 5 full-time employees per bed.

The Community Hospital of Loma Linda is located at 25333 Barton Road. This facility consists of 105 beds, of which 60 to 70 percent are usually filled, and 24-hour emergency service is provided.

Loma Linda University Medical Center is located at the intersection of Barton Road and Anderson Street. There are beds for 546 patients which on average are about 80 percent occupied. Currently there are no plans for expansion of the number of beds. The hospital provides 24-hour emergency service (personal communication, Jayne McGill).

The Veterans Administration Hospital is located on Barton Road in Loma Linda, approximately 1 mile west of the project area.

Ambulance service is provided by Howard's Ambulance Company Inc. at 837 Orange Street in Redlands, which owns and operates five ambulances. The company's proximity to the study area and access via major roads should provide adequate service to the project.

### 8.9.5.2 Project Impacts

The current capacities of Redlands and Loma Linda Community Hospitals and Loma Linda University Medical Center are expected to provide adequate health services to all existing and projected residents in the study area. The hospitals are prepared to expand to meet the future needs of the community.

### 8.9.5.3 Mitigation Measures

No mitigation measures are recommended.

## 8.9.6 Libraries

### 8.9.6.1 Existing Conditions

The County maintains libraries in Loma Linda and Mentone, both within 1 to 4 miles of the project area. Redlands also has a city library in the civic center, located 1 mile from the project. Figure 8.9-1 shows the locations of the libraries.

The County library in Loma Linda will be relocated to the City's civic center and Barton Road. The new facility due to be completed in July 1988 will be 6,000 square feet which is 2,400 square feet larger than the existing facility. This expansion is expected to adequately serve the projected population. The County does not have plans for expansion of the Mentone Library facility.

The A.K. Smiley Public Library in Redlands is located approximately 1 mile southeast of the project boundary. The facility is currently operating at full capacity. Funding for a 2-wing expansion has been approved and construction is expected to begin in 1988. The wings will have two levels (a ground level and a full basement). This is the first expansion of the library since the 1930's and it is expected to accommodate future population increases.

#### 8.9.6.2 Project Impacts

The public libraries will not be significantly impacted by the project. Expansions which are currently taking place are expected to accommodate the population at buildout. The library systems are prepared to expand if necessary.

#### 8.9.6.3 Mitigation Measures

No mitigation measures are required as no significant impacts are anticipated.

## 8.10 PUBLIC UTILITIES

### 8.10.1 Electricity

#### 8.10.1.1 Existing Conditions

Electrical service and supply is provided throughout the proposed East Valley Corridor study area by Southern California Edison Company (SCE). SCE has a diverse network of power-generating sources and grid distribution system that serves all of southern California. The electric loads of the project are within the parameters of the overall projected load growth which SCE is planning to meet in this area.

#### 8.10.1.2 Project Impacts

Unless the demand for electrical generating capacity exceeds SCE's estimates and provided that there are no unexpected outages to major sources of electrical supply, SCE expects to meet electrical requirements for the next several years. SCE does not perceive demand and consumption increases as significant impacts to their service.

#### 8.10.1.3 Mitigation Measures

Although no specific mitigations are suggested, new buildings are currently required to meet design standards for optimum energy efficiency in accordance with residential and nonresidential Energy Conservation Standards. These include energy-saving designs for roofs, walls, and floors and specifications for lighting, heating, air conditioning, and hot water supply.

Specific energy-saving measures include adequate insulation in walls and ceilings, use of dampers and thermostats to avoid unnecessary heating or cooling, orientation of sunlight to make favorable use of light and heating, landscaping, proper lighting of parking lots, discouragement of electrical space heating, and promotion of solar energy use.

### 8.10.2 Natural Gas

#### 8.10.2.1 Existing Conditions

The Southern California Gas Company currently has facilities and provides services to the study area. Gas service for future development in the project would be provided from the nearest existing gas mains in accordance with the Company's policies and extension rules on file with the California Public Utilities Commission. The availability of natural gas service is based upon present conditions of gas supply and regulatory policies (correspondence, SCGC).

### 8.10.2.2 Impacts

The increased natural gas use within the study area is considered to be of negligible impact on gas supply and service capabilities.

### 8.10.2.3 Mitigation Measures

The increase in natural gas use associated with the East Valley Corridor Specific Plan would not significantly impact gas service or sources. No mitigation measures are recommended.

With the additional consumption of a nonrenewable energy resource, conservation measures should be implemented. SCGC has energy conservation programs that provide information on various energy saving techniques such as efficient gas heating units, stoves, and hot water heaters. Other standard conservation measures include landscape shading, use of solar energy, and thermostatically controlled heating and cooling.

### 8.10.3 Water Supply and Distribution

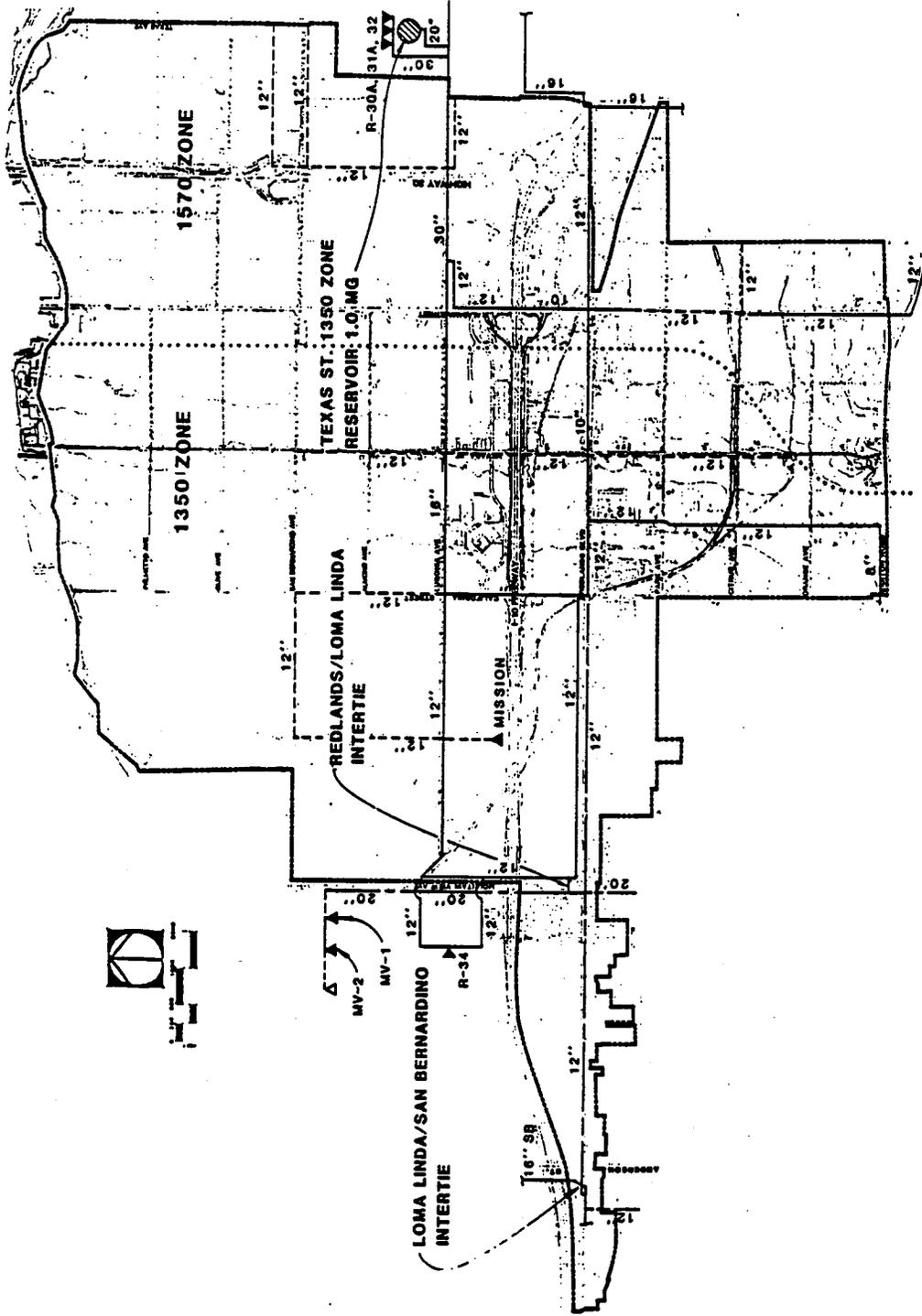
The existing water supply and distribution, projected water demands, and proposed water supply sources and distribution system are based on information in the draft East Valley Corridor Specific Plan (December 1987) and the Draft Engineers Report prepared by Metcalf & Eddy, Inc. (January 1988).

#### 8.10.3.1 Existing Conditions

Water Supply. The project area is currently served by the City of Loma Linda and the City of Redlands (see Figure 8.10-1). The area of the project north of Lugonia Avenue has no major water supply facilities due to its limited development. Both cities plan on serving the entire area within their city limits or spheres of influence as development occurs. The area is still approximately 70 percent agriculture with numerous private and small mutual water company's non-potable water wells (over 50 in East Valley Corridor) and distribution systems. Additional agricultural water is obtained from the upper Santa Ana River and Big Bear Lake releases.

The project area is also under the jurisdiction of the San Bernardino Valley Municipal Water District (SBVMWD) formed in 1954 as a State Project Water contractor and a regional water supply planning agency. Under the Santa Ana River - Mill Creek Cooperative Water Project Agreement, water from the Santa Ana River, Mill Creek or State Water Project will be transported to the City of Redlands water treatment plants which in turn can supply the study area.

The primary water supply regulatory agency for domestic water supply facilities is the State Department of Health Services (SDOHS). This agency has enforcement power to ensure that all potable water supplies meet State and Federal drinking water quality standards.



**LEGEND**

- 12" — REDLANDS EXISTING WATERMAIN W/SIZE \*
- 12" — LOMA LINDA EXISTING WATERMAIN W/SIZE \*
- 12" — PROPOSED WATERMAIN \*
- ▲ EXISTING WELL
- △ PROPOSED WELL
- ..... PRESSURE ZONE BOUNDARY

\* NOTE: ONLY MAJOR WATERMAINS GENERALLY 12" AND LARGER SHOWN.

FIGURE 8.10-1

**EXISTING AND CURRENTLY PROPOSED WATER SUPPLY AND DISTRIBUTION FACILITIES**

**EAST VALLEY CORRIDOR**  
CSA 110, COUNTY OF SAN BERNARDINO

DATE: 11/1/88

City of Redlands. The City of Redlands will eventually serve about 86 percent of the project area. The City currently has two water supply sources. Approximately half of the City's demand is supplied from the Tate Water Treatment Plant which treats water from Mill Creek, and 26 groundwater wells located throughout the City supply the other half. Groundwater contaminants, including nitrates, volatile organic compounds (TCE, DBCP, etc.), and fluoride, have reduced the total production capacity from 52 65 million gallons per day (mgd) to 16 27.5 mgd. ~~in 1985, --- This has resulted in a shortage of 10 mgd on a maximum summer day.~~

To meet the current and future demands, the City of Redlands ~~is~~ has constructed the new 12 mgd Horace P. Hinkley Plant which is designed to treat Santa Ana River water as well as State Project water delivered through the SBVMWD facilities. The plant is located in Mentone about 3 miles east of the project area.

The Tate Water Treatment plant has been treating water from Mill Creek since 1967. The plant is located in Mentone about 7 miles east of the project area, at an elevation of about 2,300 feet. The plant has a nominal treatment capacity of 20 mgd, but the finished water transmission pipeline has a capacity of only 12 mgd which limits plant production. Plant production is also limited by the flows in Mill Creek. Summer flows generally average about 11 or 12 mgd, but can be as low as 4 to 8 mgd in a dry season. When the SBVMWD Exchange facilities are completed, ~~both Santa Ana River water and~~ State Project water can be diverted to the plant for treatment.

There are several key wells located in or near the project area operated by the City of Redlands (See Figure 8.10-1). These include:

- o Well No. 34 - excellent water quality with a capacity of 1,500 gallons per minute (gpm).
- o Well No. 31A - must be blended due to TCE and DBCP, ~~and nitrate~~ contamination; the largest producing well in Redlands system, with a capacity of 4,200 gpm; rarely used currently.
- o Well Nos. 30A and 32 - nitrate contamination; not used currently.
- o The Mission well - formerly an agricultural well with a capacity of 1,800 gpm; has been in service since 1986.
- o The Orange Street well - ~~Owned by the Bear Valley Mutual Water Company,~~ recently purchased by the City of Redlands; tested and now in operation with a capacity of over 2,000 gpm (off map).

City of Loma Linda. The City of Loma Linda relies totally on groundwater for its water supply. The City in the past has operated several wells between Anderson Street and Mountain View Avenue and south of Redlands Boulevard, which have experienced nitrate contamination. Currently, the City operates three major good quality wells on

Cooley Street off Mountain View Avenue just to the west of the project area and a fourth well in San Timoteo Canyon. The combined capacity of these wells is about 10.5 mgd.

In addition to the wells, the City can receive up to 2.0 mgd of water through an intertie with the City of San Bernardino system at Anderson Street and Redlands Boulevard as emergency supply.

The San Bernardino City Water system also relies completely on groundwater and has a much larger capacity. Recently, several of the San Bernardino City wells had TCE or PCE above the action levels and were shut down. San Bernardino City is currently evaluating this reduction in supply capacity and could elect not to provide water outside their current service area until more capacity is developed. In any event, the current Loma Linda total usable well capacity of 7.5 mgd is adequate to meet its own peak-day demand of 5.7 mgd. Loma Linda does not have a current Master Plan for water supply. The existing and planned well capacity plus the San Bernardino City intertie appear to provide more than adequate capacity to meet near-term growth in demand.

The groundwater resources available for the East Valley Corridor are abundant in terms of quantity, but water quality problems have limited indiscriminate use. The groundwater level in the project area are impacted by the overall level in the Bunker Hill Basin. About one-third of the project area overlies the Basin's pressure zone. This zone represents an area that has historically and currently experienced high groundwater which may increase liquefaction potential, affect existing structural foundations, and increase new construction costs. Based on limited existing data, the groundwater levels in the project area are at a minimum of 30 feet below the surface in the northwest section with an average groundwater depth of over 50 feet from the ground surface.

The East Valley Corridor currently requires less than 6 percent of Redlands maximum day and peak hour demands. On an average day basis, the East Valley Corridor utilizes approximately 5.8 percent of the City's total consumption. The project area's actual 1984 consumption (Redland's service area only) totalled 0.92 mgd on an average day, 1.97 mgd on a minimum day, and 3.17 mgd during a peak hour.

#### Distribution Systems.

City of Redlands. The City's existing water facilities in the project area belong to the 1350 and 1570 pressure zones. These facilities are also shown in Figure 8.10-1. The major primary distribution main for the 1350 pressure zone runs east-west along Lugonia Avenue from Well No. 34 to the Texas Street water complex. Two north-south interties convey water from this main under the I-10 freeway to the southern portion of the 1350 zone. A second east-west main extends along Redlands Boulevard from the east end of the project area to Mountain View Avenue. The reach between California Street and Mountain View Avenue, however, no longer serves local demand since this service area has been transferred to Loma Linda.

Backbone pipelines for the 1570 pressure zone currently are minimal in the project area, but the 1570 zone water does enter the East Valley Corridor at two locations via 12-inch pipelines, namely on Nevada Street and Colton Avenue. These pipelines and others will be extended to form a backbone system for the 1570 pressure zone within the East Valley Corridor.

The 12-inch diameter mains are adequate to carry maximum day demands with fire flows of 3,000 gpm. They also form a strong network which can be systematically expanded to serve development in the project area.

Local storage for the 1350 zone consists of the 1.0 million gallon (mg) Texas Street reservoir. Using City criteria, this storage is just adequate for existing conditions; so a new reservoir will be required in this zone in the future. Storage in the 1570 zone totals 23.7 mg located in three major reservoirs. This is the largest amount of storage in any zone in the City of Redlands. Again, the storage in the 1570 zone is more than adequate to serve existing and the projected year 2000 requirements. Water from the upper zones can be transferred to the lower zones through pressure reducing stations located within the distribution system. There are two pressure reducing stations which can transmit water from the 1570 to the 1350 zone with a normal capacity of 12 mgd and a peak (intermittent) capacity of 26 mgd.

City of Loma Linda. Distribution facilities which serve the portion of the project area in Loma Linda are shown on Figure 8.10-1. The major facilities include a 12-inch distribution main, located in Redlands Boulevard, which serves Pressure Zone 1, the lowest zone of the City and the project area. The City's two wells pump water into a 20-inch diameter transmission main located in Mountain View Avenue. The City has two intertie facilities; one active connection with the City of San Bernardino system on Anderson Street and Redlands Boulevard, and another emergency connection with the Redlands system on Mountain View. These intertie facilities significantly increase the system's reliability.

The low zone in the City is currently served by 4.2 6.9 mg of reservoir storage facilities located in the upper zones, with another 2.0 mg planned in the near future. Pressure reducing valves transfer water between zones.

Loma Linda has recently extended its City limits below the Mission Zanja to halfway between New Jersey and Nevada Streets, and facilities in this area will eventually be transferred to its jurisdiction.

### 8.10.3.2 Project Impacts

The basic water distribution system in the project area is currently adequate to serve the existing agricultural development within the East Valley Corridor.

Development allowed and planned for by the East Valley Corridor Specific Plan, however, will impact water demand, distribution lines, pressure reducing stations, and storage facilities.

Water Demand. The water demands required for the ultimate buildout of the East Valley Corridor are projected in the Engineers Report using proposed land use acreage, fire flow requirements, and historical water use factors for the three pressure zones.

Peaking factors for maximum day demand and peak hourly demand are 2.0 and 3.2, respectively. These figures conform to factors used by nearby cities and the City of Redlands. These peaking factors occur during the summer when increased water consumption is prevalent. Table 8.10-1 presents the ultimate water demand by pressure zone.

Table 8.10-1

ULTIMATE WATER DEMAND BY PRESSURE ZONE (gpm)

<i>Land Use Type</i>	<i>Loma Linda Zone 1</i>	<i>Redlands 1570' Zone</i>	<i>Redlands 1350' Zone</i>	<i>Total EVC</i>
General Commercial	348	552	502	1,402
Commer. Industrial	138	273	402	813
Regional Commercial	0	198	0	198
Local Commercial	32	7	0	39
Regional Industrial	0	630	24	875
Admin. Professional	18	117	0	135
Public Institutional	122	2	82	206
MFR, 20 du/acre max.	162	264	63	489
MFR, 10 du/acre max.	195	128	27	350
SFR, 6 du/acre max.	153	0	0	153
Planned Development	0	50	2,241	2,741
Open Space	0	0	0	0
<b>TOTAL Average Demand:</b>	<b>1,168</b>	<b>2,671</b>	<b>3,562</b>	<b>7,401</b>
<b>Maximum Day Demand</b>	<b>2,336</b>	<b>5,342</b>	<b>7,124</b>	<b>14,802</b>
<b>Peak Hour Demand</b>	<b>3,738</b>	<b>8,547</b>	<b>11,398</b>	<b>23,683</b>

Source: Draft Engineers Report, Metcalf & Eddy, Inc., January 1987

The buildout water for the East Valley Corridor, based on the average demand estimates plus 11 percent for unaccounted for water, is 8,215 gpm or 11.83 mgd for the year 2028. Redlands share amounts to an increase of approximately 55 percent of the 1984 Redlands water supply demand. The sources of water must be able to supply the water at rates as high as the maximum day demand (plus 11 percent). This

maximum day supply requirement for the East Valley Corridor is approximately 16,400 gpm or 23.62 mgd.

The project's water supply demand will require additional sources of water for the City of Redlands. Currently, the City relies on groundwater and the Mill Creek water, but groundwater contamination and the variable flow of Mill Creek make these two sources questionable in the long-term. Therefore, the City has constructed the Hinckley Treatment Plant and the SBVMVD is building the Tate Pump Station, which will make it possible to receive, treat, and distribute Santa Ana River and State Project water. In any case, the project's demand on the City of Redlands water supply in combination with ~~the City's--current--deficient--water--supply--and~~ projected growth, is considered a moderate to high impact.

The City of Loma Linda will be required to provide the City's portion of the East Valley Corridor with an estimated 2,590 gpm or 3.73 mgd. This amounts to an increase of 65 percent of the current maximum day demand of 5.7 mgd. The City's existing oversupply, the intertie with the City of San Bernardino, and the plan to utilize another well to produce 3 mgd appear to provide the City with adequate water to service its portion of the East Valley Corridor at ultimate buildout. The impact on Loma Linda's water supply is considered low.

Distribution Systems. Water distribution and storage facilities are currently inadequate for the projected growth in the East Valley Corridor. The recommended facilities to distribute water at a minimum of 40 psi include an expanded transmission grid, increased water storage, and a pressure reducing station. Most of these facilities will be within the Redlands service area. The City of Redlands would need to provide over 100,000 feet of pipelines, 16.3 mg of storage, and a pressure reducing station (East Valley Corridor Specific Plan, August 1987). These recommended new facilities constitute a moderate to high impact on the City of Redlands water service.

The City of Loma Linda would need to build 6,600 feet of pipelines and 1.7 mg of storage. These facilities are considered a low impact.

A more detailed discussion on recommended new water facilities is included in the mitigation section.

#### 8.10.3.3 Mitigation Measures

Water Supply. In order to provide the required water supply for its service area as well as for the East Valley Corridor, the City of Redlands has constructed the Hinckley Water Treatment Plant to treat Santa Ana River and State Project water. The SBVMWD is also building the Tate Pump Station to lift Santa Ana River water to the Tate Treatment Plant for city-wide distribution.

Mill Creek and Santa Ana River water are the least costly waters available to Redlands. These sources, however, are limited by stream flow and legal agreements, making it necessary for groundwater and the State Project water to provide peaking demands. ~~and-eventually-basis~~

supply. It is proposed that Mill Creek and Santa Ana River waters be used to provide base supply to the East Valley Corridor with Well No. 34 and Mission Well utilized for peak demands.

Additional alternative supplies include rehabilitating the contaminated 4,200-gpm Well No. 31-A (which may be more costly than State Project water) and constructing additional wells or reconditioning existing agricultural wells within the East Valley Corridor.

The City of Loma Linda depends entirely on groundwater and an intertie with the City of San Bernardino for its water supply. The City is presently digging one well and rehabilitating another well to augment its already adequate water supply.

The California Regional Water Quality Control Board, Santa Ana Region, is concerned about the uncertainty of future imported water from the State Water project and the Colorado River. Therefore, they recommend that in the future if adequate water to supply project developments is unavailable, then the scope of the Specific Plan should be reduced.

Distribution Systems. The recommended major water facilities for the East Valley Corridor were sized to meet the needs at ultimate development. Various layouts were evaluated for selection of the most cost effective system. The system was developed based on computer simulation and is consistent with the Redlands and Loma Linda design standards. The water system can be constructed in phases with the existing facilities supplying initial development.

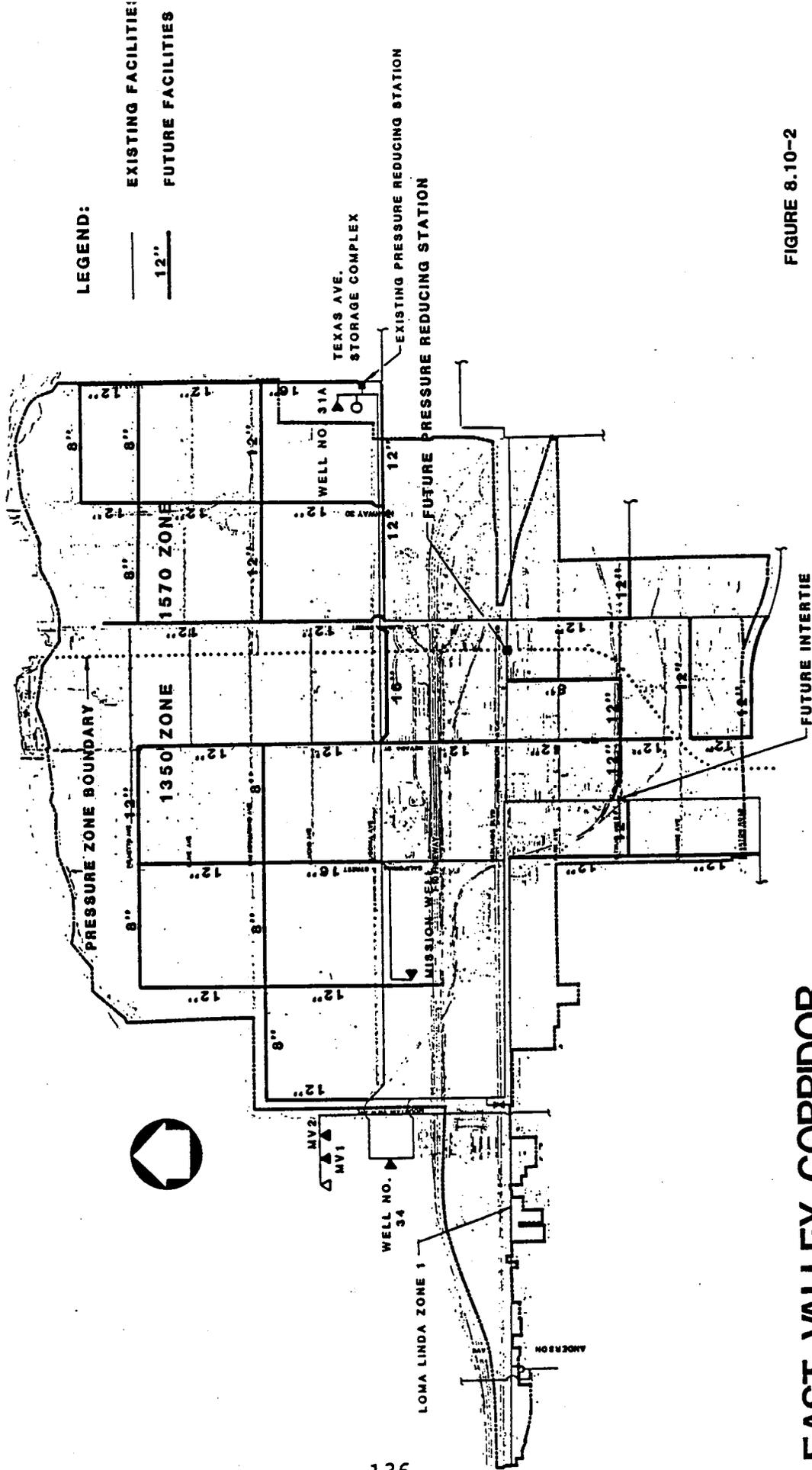
The proposed new water facilities are shown in Figure 8.10-2 and listed in Table 8.10-2. The transmission grid will distribute water to the entire project at a minimum pressure of 40 psi on a maximum day for peak hours. Total storage requirements for the proposed development amounts to 22.92 mg of which 18.0 mg of new storage will need to be built. All storage facilities must be located outside the project area since the East Valley Corridor lies below the nominal elevation of the three pressure zones servicing the area.

For a complete analysis and description of the recommended water supply and distribution systems, refer to the Engineers Report prepared by Metcalf and Eddy, Inc. on file with the County of San Bernardino, CSA 110.

The following conservation measures are recommended for all land uses within the East Valley Corridor by the California Department of Water Resources and should be implemented where applicable. In addition to these measures, public awareness programs and water conservation information should be made available.

Required by Law:

1. Low-flush toilets
2. Low-flow showers and faucets
3. Insulation of hot water lines in water recirculating systems.



**LEGEND:**

- EXISTING FACILITIES
- 12" FUTURE FACILITIES

**FIGURE 8.10-2**  
**RECOMMENDED WATER**  
**FACILITIES**



**EAST VALLEY CORRIDOR**  
 CSA 110, COUNTY OF SAN BERNARDINO

Table 8.10-2

## RECOMMENDED MAJOR NEW WATER FACILITIES

Location	Pipeline (length in feet) Diameter			Storage (mg)	PR Stations (gpm)
	8"	12"	16"		
<u>Zone 1570</u>				7.7	
Victor	2,400				
Palmetto	5,280				
S. Bernardino	5,200	5,280			
Lugonia		4,400			
Citrus		1,320			
Barton		2,680			
Alabama		8,260			
Tennessee		6,600			
Texas		3,900	2,100		
Orange		2,640			
Nevada		1,320			
Subtotal:	7,920	36,460	2,100	7.7	
<u>Zone 1350</u>				8.6	1,800
Palmetto	2,640	2,640			
S. Bernardino	7,920				
Citrus		2,680			
Iowa	2,600				
Lugonia			2,640		
Nevada		11,680			
California		2,640	2,640		
Bryn Mawr		6,280			
Mt. View		2,300			
Subtotal:	13,260	28,220	5,280	8.6	1,800
<u>L.L. Zone 1</u>				1.7	
California		5,280			
Citrus		1,320			
Subtotal:		6,600		1.7	
EVC TOTAL:	21,120	71,280	7,920	18.0	1,800

Source: Draft Engineers Report, Metcalf &amp; Eddy, January 1988

Recommendations to be implemented where applicable:

Interior:

1. Supply line pressure: recommend water pressure greater than 50 pounds per square inch (psi) be reduced to 50 psi or less by means of a pressure-reducing valve.
2. Flush valve operated water closets: recommend 3 gallons per flush.
3. Drinking fountains: recommend self-closing valves be equipped with each unit.
4. Pipe insulation: recommend all hot water lines in dwelling units be insulated to provide hot water faster with less water waste and to keep hot pipes from heating cold water pipes.
5. Hotel rooms: recommend posting conservation reminders in rooms and rest rooms. Recommend thermostatically-controlled mixing valve for bath/shower.
6. Laundry facilities: recommend use of water-conserving models for washers.
7. Restaurants: recommend use of water-conserving models for dishwashers or retrofitting spray emitters. Recommend serving drinking water upon request only.

Exterior:

1. Landscape with low water-consuming plants wherever feasible.
2. Minimize use of lawn by limiting it to lawn-dependent uses, such as playing fields.
3. Use mulch extensively in all landscaped areas. Mulch applied on top of soil will improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
4. Preserve and protect existing trees and shrubs. Established plants are often adapted to low water conditions and their use saves water needed to establish replacement vegetation.
5. Install efficient irrigation systems with timers which minimize runoff and evaporation and maximize the water which will reach the plant roots. Drip irrigation soil moisture sensors and automatic irrigation systems are a few methods of increasing irrigation efficiency.
6. Grading of slopes should minimize surface water runoff.

7. Investigate the feasibility of utilizing reclaimed waste water for irrigation.
8. Encourage cluster development which can reduce the amount of land being converted to urban use. This will reduce the amount of impervious pavement created and thereby aid in ground water recharge.
9. Preserve existing natural drainage areas and encourage the incorporation of natural drainage systems in new development. This would aid in ground water recharge.
10. Flood plains and aquifer recharge areas which are the best sites for ground water recharge should be preserved as open space.

#### 8.10.4 Wastewater Collection, Treatment, and Disposal

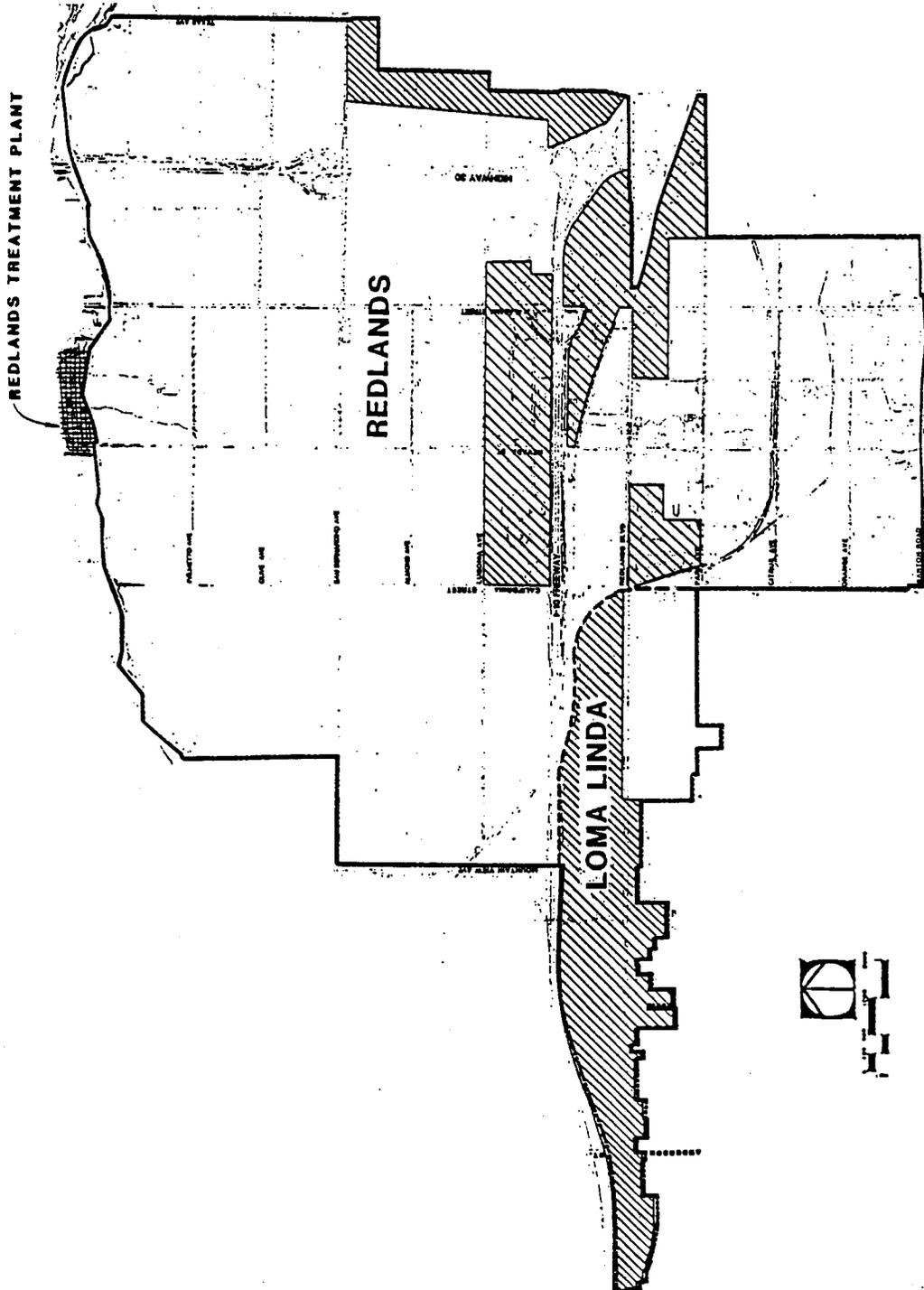
The existing facilities and the recommended sewage facilities required for project buildout were described in the Draft East Valley Corridor Specific Plan, December 1987 and in the Draft Engineers Report by Metcalf & Eddy, January 1988.

##### 8.10.4.1 Existing Conditions

Wastewater collection systems are operated by both the City of Redlands Municipal Utilities Department and the City of Loma Linda Community Services Department. Due to the limited development in the area only about 10 to 15 percent of the project area is actually sewered to these collection systems (See Figure 8.10-3). Both cities have existing master plans to extend sewer service within existing city limits and/or spheres of influence.

Sewage treatment agencies serving the study area currently include the City of Redlands and the City of San Bernardino. The City of Redlands owns a sewage treatment plant which is located along the north boundary of the project area and is operated by the City Municipal Utilities Department. The City of San Bernardino provides collection and treatment of all flows collected within the City of Loma Linda and minor flows from the City of Redlands' sewered areas west of Nevada Street. The San Bernardino wastewater treatment facility (WWTF) is located approximately two miles west of the project area. A Joint Powers Agreement between San Bernardino and Loma Linda, signed in 1965, provides the terms and conditions under which San Bernardino accepts flow from Loma Linda. No agreement exists between San Bernardino and Redlands.

While the above agencies are the basic providers of existing sewage collection and treatment services, two other agencies, the Santa Ana Watershed Planning Authority (SAWPA), and the San Bernardino Valley Municipal Water District (SBVMWD), have on-going planning responsibilities which could potentially affect the project area. Formed in 1972, SAWPA is a regional agency composed of five member municipal



**LEGEND**

 **EXISTING SEWERED AREAS**

 **BOUNDARY LINE**

FIGURE 8.10-3

**SEWER SERVICE BOUNDARIES AND EXISTING SEWERED AREAS**

**EAST VALLEY CORRIDOR**  
CSA 110, COUNTY OF SAN BERNARDINO

water districts overlying the Santa Ana River watershed. SAWPA's primary objective is to implement projects which help meet water quality objectives for the watershed. A major project is the Santa Ana Regional Interceptor (SARI) which provides a means of intercepting and transporting high-salt water and non-reclaimable wastewater from the upper basins to the Pacific Ocean. The SARI line currently extends from the treatment and ocean disposal facilities of Orange County Sanitation Districts to Corona and Chino. The final reaches are proposed to extend as far as the San Bernardino treatment plant. A second major project of both SAWPA and SBVMWD, is the plan for a regional tertiary treatment plant to treat secondary effluent from both the San Bernardino and Colton wastewater facilities.

The primary agency with regulatory authority over sewage treatment and discharge and other water quality issues is the California Regional Water Quality Control Board, Santa Ana Region. In addition to issuing and enforcing discharge permits for the sewage treatment plants, the Regional Board has planning and regulatory authority for any activities directly affecting surface or groundwater quality. These include water quality impacts from unsewered areas, industrial and toxic waste handling, and construction activities. Regional Board actions are consistent with and subject to Federal water pollution control laws and regulations as administered by the U.S. EPA, and California laws and regulations as developed by the State Water Resources Control Board and the State Department of Health Services.

Presently, all the wastewater from the project area flows by gravity to the two treatment facilities previously mentioned. Based on existing wastewater flow patterns, the project area is divided into two sections. Wastewater collected from the area east of Nevada Street flows via the Nevada Street trunk line to the City of Redlands wastewater treatment and disposal facility (Redlands east). Wastewater discharged from the area west of Nevada Street flows via the main Loma Linda outfall line at the western end of the study area, and the Mountain View and Lugonia trunk lines to be treated at the City of San Bernardino wastewater facility (Redlands west and Loma Linda).

City of Redlands Wastewater Treatment and Disposal Facility. The City of Redlands wastewater facility is located at the north end of Nevada Street, north of the project area along the Santa Ana River bank (see Figure 8.10-3). The facility presently serves the majority of the City of Redlands and has a potential future service area that includes the unincorporated community of Mentone on the northeast and San Timoteo Canyon on the south.

The current average wastewater flow to the plant is in the range of 5.4 million gallons per day (mgd). On a system-wide basis, the average wastewater flows to the plant are projected to increase to 9.0 mgd in the year 2005, with the ultimate potential as high as 24 mgd at full annexation and buildout. These projections assume that a proposed pumping station will be built near the intersection of Mountain View and San Bernardino avenue. All flows from the area west of Nevada Street within the Redlands city limits and/or sphere of influence will be pumped to the Nevada Street trunk line to be treated

at the Redlands Wastewater Treatment Facility. These mostly undeveloped and unsewered areas are presently served by the San Bernardino WWTF, but the City of San Bernardino has indicated that they will not continue to treat wastewater from this area in the future since no agreement exists to accept the flow.

The Redlands WWTF was built in 1962 to handle a dry-weather flow of 2.4 mgd. In 1972, the facility was expanded to its current average flow rating of 6 mgd, and was equipped with advanced wastewater treatment for the total flow. The plant appears to be maintained in excellent operating condition. Effluent quality meets all secondary and ammonia discharge requirements for direct discharge to the Santa Ana River. Effluents can be either chlorinated, filtered, and discharged to the Santa Ana River, or pumped to percolation ponds where the water infiltrates to the Bunker Hill II groundwater basin. Percolation ponds have been the normal method of disposal. There are currently no facilities for the beneficial use of the reclaimed water.

In September, 1983, the City completed a capacity analysis and detailed study for expanding the plant to 8.0 mgd. Design work for this expansion is currently under contract.

City of San Bernardino Wastewater Treatment Facility. The City of San Bernardino WWTF is approximately 1/2 mile southeast of the intersection of Orange Show Road and South "E" Street in the City of San Bernardino. The facility provides treatment of combined domestic and industrial wastewater collected from the City of San Bernardino, City of Loma Linda, East Valley Water District, Highland, a small portion of the City of Redlands included in the East Valley Corridor, and the domestic wastewater from Norton Air Force Base.

The present influent flow to the San Bernardino facility averages approximately 21 mgd of which less than two percent is contributed by industrial discharges. The plant was designed to treat an average daily flow of 28.0 mgd. The flow reaches the plant by gravity sewers coming in from the east of Waterman Avenue. Due to a number of process and/or equipment constraints, the effective capacity of the plant has been downgraded to 24.5 mgd. The plant is undergoing a major upgrade/expansion project to restore the capacity to the full 28 mgd and is expected to be completed by mid-1988. In the interim, new connections to any of the collections systems served by the plant are limited basically to property owners/developers who purchased "capacity rights" in 1984. Within Loma Linda, rights for 2,122 equivalent dwelling units were purchased by property owners or developers although it is not known how many of those are held for property within the East Valley Corridor area. An additional 900 were purchased by the City. This gives a total interim capacity right of an additional 0.85 mgd in the plant.

Most of the existing sewer system in the City of Loma Linda collects and transports wastewater to the San Bernardino WWTF via the Loma Linda outfall line. This line was constructed in accordance with the previously referenced Joint Powers Agreement which provided Loma Linda with the right to convey wastewater to San Bernardino via the outfall line. One exception to the above flow pattern is a portion of the

study area, within Loma Linda's boundaries, east of Mountain View and south of I-10, which is served by the City of Redlands Mountain View trunk line conveying wastewater to the San Bernardino plant. Current estimated average and peak flows from Loma Linda are estimated to be 1.5-2 mgd and 3-3.5 mgd, respectively.

Should the proposed Redlands pumping station be built to pump flows from Mountain View line to Nevada Street trunk line, Loma Linda would have to divert its flow to the San Bernardino plant, either via the outfall line or a diversion structure on the Mountain View trunk; or develop an agreement with Redlands for treatment at the Redlands plant.

Santa Ana Regional Interceptor. The SARI line, if extended to the San Bernardino area, would provide a means of conveying water out of the study area for treatment at Orange County Sanitation District's facilities and discharge to the ocean. The fundamental purpose of this line is to transport high salt water and wastewater out of the Santa Ana River and groundwater basins. Certain industrial and brine flows would be discharged to the pipeline. A portion of the SARI's capacity could also be designated for general sewage discharged on an interim basis. A financing study for the uncompleted reaches of the SARI line is currently being completed.

Collection Facilities. Both Loma Linda and Redlands have existing sewers within the project area. Sewer service is provided to most of the Loma Linda portion of the project area, but to very limited sections of the Redlands portion (See Figure 8.10-4).

A sewer master plan, developed to provide a basic plan of overall wastewater collection systems for the City of Loma Linda, was completed in November, 1982. A wastewater collection system master plan was completed for the City of Redlands in 1985. This plan sets forth an ultimate projection and identifies collection system improvements that will be required in the next twenty year planning period.

Since the East Valley Corridor Land Use Plan developed by the County for the project area differs markedly from the land use plan presented in the Redlands Master Plan, it can be expected that sewerage improvement recommended in the East Valley Corridor Specific Plan may differ from those of the earlier plan.

The existing collection system and treatment facilities are adequate to serve the sewered areas of limited development in the East Valley Corridor. The existing Master Plans have taken into account some level of development within the Corridor and therefore a basic collection system has been established. The two wastewater treatment plants have a short-term capacity available to serve the area, although connections are limited to the San Bernardino plant until completion of its upgrade project. Therefore, only limited growth within the project area can be accommodated with existing facilities.



#### 8.10.4.2 Project Impacts

The East Valley Corridor's projected sewage flows were determined based on proposed land use and on historic average unit flow factors in adjacent communities. Peak wet and dry weather flows were calculated for the purpose of sizing collection systems, pumping stations, and ultimate treatment facilities capacity for the project area.

The East Valley Corridor sewerage system is divided into three separate collection zones. Sewage collected in the Redlands East Zone (east of Nevada Street) can flow by gravity to the Redlands WWTF. Sewage collected in the Redlands West Zone (west of Nevada Street) is below the elevation of the treatment plant and must either be pumped up to the plant or directed to other sites for treatment and disposal. The Loma Linda Zone contains all sewage generated within the Loma Linda portion of the Corridor and its sphere of influence.

The Engineers Report compiled the land uses by sewage zones as well as the average sewage flow factors. These data were then used to estimate the ultimate sewage flows to be generated by the East Valley Corridor at buildout in the year 2028 (See Table 8.10-3). The total sewage flow of the East Valley Corridor, based on the Specific Plan, is estimated to be 8.79 mgd.

Table 8.10-3

#### ULTIMATE SEWAGE FLOWS (million gallons per day)

<i>Land Use Type</i>	<i>Loma Linda</i>	<i>Redlands East</i>	<i>Redlands West</i>	<i>Total EVC</i>
General Commercial	.398	.952	.403	1.753
Commercial Industrial	.207	.594	.284	1.085
Regional Commercial	.000	.264	.000	0.264
Local Commercial	.033	.005	.000	0.038
Regional Industrial	.000	.996	.170	1.166
Admin. Professional	.019	.109	.025	0.153
Public Institutional	.101	.002	.070	0.173
MFR, 20 du/acre max.	.174	.246	.022	0.442
MFR, 10 du/acre max.	.148	.074	.045	0.267
SFR, 6 du/acre max.	.101	.000	.000	0.101
Planned Development	.000	1.280	2.069	3.349
Open Space	.000	.000	.000	0.000
<b>TOTAL Average Flows:</b>	<b>1.181</b>	<b>4.522</b>	<b>3.008</b>	<b>8.791</b>

Source: Draft Engineers Report, Metcalf & Eddy, Inc., January 1988

The projected ultimate average sewage for Loma Linda is 1.18 mgd, which is about 67 percent of the current flow for the City of Loma Linda. Sewage generated in the Redlands portion of the East Valley Corridor may total 7.6 mgd. This amount is over 175 percent of the current flow into the Redlands WWTF and 95 84 percent of the facility's soon-to-be 8 9-mgd capacity.

These projected sewage flows will require major expansion of the Redlands WWTF. An agreement between Loma Linda and the San Bernardino WWTF will also be required to treat the additional sewage generated in Loma Linda's section of the East Valley Corridor. This added flow into the San Bernardino WWTF, along with the continued fast growth of the area, would cumulatively require the facility to expand its capacity. The impacts of the proposed development on sewage treatment capacity is considered high, particularly for the Redlands WWTF.

Since only 10 to 15 percent of the project area is currently sewered, a major sewer collection system of over 62,000 feet will need to be built. New and some parallel pipelines in existing rights-of-ways, as well as a 7.8 mgd pumping station, are recommended to meet the East Valley Corridor Specific Plan needs. This expanded collection system is considered a high impact on the existing systems and on the public utilities involved.

#### 8.10.4.3 Mitigation Measures

The primary objective in planning sewage facilities for the East Valley Corridor is to develop sewage collection facilities and treatment plant capacity to serve ultimate development of the area in a cost effective manner. Existing facilities were used as the starting point to develop, over time, a complete collection and transport system.

The proposed collection system layout conveys all sewage flow to final collection points in each of the three sewage zones (Loma Linda, Redlands West, and Redlands East). It is based on existing trunk sewers and drainage paths, and on both existing and proposed road alignments. The design maximizes the number of units served by gravity to minimize collection system costs. All pipes in the collection system were sized for peak flow rates for their respective tributary area, which were computed by applying peaking factors to the average flow rates. Figure 8.10-5 shows the major facilities recommended for ultimate buildout within the East Valley Corridor.

The Redlands East Zone collection system can convey flows by gravity directly to the Redlands treatment plant. Pipelines transporting City of Redlands flows to the treatment plant pass through the East Zone and form an existing grid of major sewer trunk lines in the area. To these existing trunk lines is added the flow generated within the East Valley Corridor along and east of Nevada Street. Some existing lines, however, cannot carry both projected flows for the entire City and projected ultimate flows generated in the East Zone. New and, in some



cases, parallel pipelines are therefore recommended to provide adequate capacity for future flows.

The collection system in the Redlands West Zone conveys flows to a single collection point near the intersection of San Bernardino Avenue and Mountain View Street. It is recommended that a pumping station be located at a site near this intersection and that collected flows be pumped via a force main up to the Nevada Street trunk line in which it can flow by gravity to the Redlands treatment plant. The pumping station and force main are part of the recommended major facilities for the East Zone collection and transport system.

The ultimate pumping station capacity is sized for a peak wet weather flow at ultimate development of 7.8 mgd, to be installed in phases. The ultimate force main would consist of two parallel 14-inch pipelines, also to be installed in phases. Installation of the pumping system would eliminate the current practice of transferring West Zone sewage to the City of San Bernardino's collection system.

Loma Linda sewage flows originating in the East Valley Corridor are collected and conveyed by gravity along the Redlands Avenue trunk sewer to the San Bernardino Treatment Plant via the Loma Linda Outfall. Loma Linda sewage, which currently flows down Mountain Avenue and enters the City of San Bernardino collection system at San Bernardino Avenue, would be diverted by a connection between manholes at Mountain View and the I-10 Freeway and directed to the Loma Linda Outfall. This will eliminate the current practice of mixing flows of the two cities before treatment.

Table 8.10-4 presents a summary of recommended facilities as listed in the draft East Valley Corridor Specific Plan prepared by Metcalf and Eddy, Inc.

Additional capacity will be required of the Redlands and San Bernardino WWTF. Both of these facilities, though lacking the necessary capacity to accommodate the East Valley Corridor development with current facilities, are expected to expand their capabilities to meet the growth in the area. East Valley Corridor development will need to coordinate its sewage requirements with the two WWTFs to ensure that capacity or service is or will be available.

### 8.10.5 Solid Waste

#### 8.10.5.1 Existing Conditions

Solid waste disposal is provided by the City of Redlands (within its sphere of influence) and by the Loma Linda Disposal Company, a private contractor, servicing Loma Linda and the surrounding county areas.

The City of Redlands owns and operates a 65 acre landfill on city property, located just north of the project boundary and south of the Santa Ana River between Nevada California and Alabama streets. This sanitary landfill is used exclusively by Redlands and at its present size has a life expectancy of 8-10 6-8 years. The city has recently

Table 8.10-4

SUMMARY OF ULTIMATE SEWERAGE FACILITIES

Location	Gravity Sewer Pipeline (length in feet)						Force Main (Feet) 14"	Pumping Station (mgd)
	12"	15"	18"	21"	24"	30"		
<u>East Zone</u>								
Olive								
S. Bernardino		2,000		1,300	4,500	3,500		
Lugonia							5,300	
Nevada						3,900		
Alabama					1,000			
Kansas				1,300	5,500	7,400		
Subtotal:		2,000		1,300	5,500	7,400		
<u>West Zone</u>								
Bryn Mawr		2,600						
California		2,600						
New Jersey		1,300						
S. Bernardino		5,200						7.79
Subtotal:		11,700						7.79
Loma Linda								
Redlands B.								
Anderson			1,000					
Mt. View		100						
California		4,000						
Subtotal:		4,200	1,000					
TOTAL:	4,200	24,100	1,000	1,300	5,500	7,400	16,000	7.79

Source: Draft East Valley Corridor Specific Plan, August 1987

purchased 100 acres of property located south of and adjacent to the existing landfill. ~~Expansion of the site increased its life expectancy to approximately 22 years.~~ Proposed expansion of the landfill on this site would increase its life expectancy to approximately 24 years.

The City Sanitation Department estimates that the average solid waste generation rate is 4-6 pounds/person/day for residential areas. According to the Government Refusal Collection Disposal Association (GRCDA), there is no national average used to determine the amount of solid waste produced by commercial/industrial areas. The County of San Bernardino Solid Waste Management Master Plan has established a generation rate for commercial/industrial solid waste. The generation rate is 10 pounds/person/week for commercial areas and 4 pounds/person/week for industrial areas. Quarterly weighings at the Redlands landfill show the incoming waste averaging 265 tons/day or 68,900 tons/year. With a compaction rate of 1500 pounds/cubic yard, this totals 92,000 cubic yards of solid waste annually.

The Loma Linda Disposal Company is located at 10412 Richardson Street in Loma Linda which is in the western panhandle of the study area, one-half mile east of Anderson Road. This privately owned firm has eight trucks and adds equipment as needed to meet growth. They utilize the County-owned San Timoteo Canyon landfill that has a life expectancy to the year 1995.

The San Timoteo site is 384 acres; not all of this land is considered usable. The State has permitted 100 acres for use but the Master Plan shows the site at 320 acres. Some of the land which is not usable for landfill purposes will serve as a visual border and will be landscaped.

The City of Loma Linda's average solid waste generation rate is 2.8 lbs/person/day which amounts to 17.6 tons/day or approximately 6,400 tons/year. The compaction rate at this landfill is 1200 lbs/cubic yard and therefore Loma Linda's annual solid waste disposal totals over 10,600 cubic yards. There are currently 10.5 million cubic yards remaining at the 100-acre site.

#### 8.10.5.2 Impacts

The proposed project should produce a population increase of 16,745 in Redlands by 2028. Using a 5 lb/person/day generation rate, it is calculated that 41.9 tons/day or 15,280 tons/year of solid waste will be generated at residential buildout. The development of the East Valley Corridor is expected to create an additional 80,725 jobs (52,300 commercial and 28,425 industrial) in the Redlands area. Using the County's solid waste generation rate for commercial and industrial areas (Redland's Sanitation Department did not have one), it is estimated that commercial areas will produce 37.4 tons/day and industrial areas 8.1 tons/day of solid waste. At a compaction rate of 1,500 lbs/cubic yards, an additional 42,535 cu.yds/year would be required at the Redlands landfill by the year 2028. This additional amount of solid waste is approximately 46 percent of the current

annual solid waste disposal. Therefore, it appears that the project could reduce the 22 year life expectancy of the Redlands landfill by over six years. The Redlands Sanitation Department foresees no major problems in servicing future growth within the study area. Only the normal additions of trucks and personnel would be required and the increase in business would offset these costs.

The project forecasts a buildout population increase of 3,335 for Loma Linda. Utilizing an average generation rate of 2.8 lbs/person/day, an additional 4.7 tons of residential solid waste will be generated per day totaling 1,700 tons per year. Another 7,700 commercial workers and 1,575 industrial workers are expected in the Loma Linda portion of the project area. The commercial areas are calculated to produce approximately 5.5 tons/day of solid waste, while industrial areas will produce 0.5 tons/day. With a compaction rate of 1200 lbs/cubic yard, it is calculated that an additional volume of 6,510 cubic yards would be required annually at the San Timoteo landfill.

The San Timoteo Canyon landfill will be severely impacted by the closing of the Colton landfill in July 1988, the Fontana landfill at the end of 1988, and the Milliken landfill sometime in 1989. After all sites are closed, San Timoteo landfill will be the only landfill available in the valley, taking in an additional 5,000 tons/day of solid waste. Originally, this landfill was expected to serve the East Valley region through 2000, but with the above closures and no additional sites opening, the site will reach capacity by 1995.

The proposed project will incrementally increase solid waste disposal at the San Timoteo landfill adding to the decreasing life span of the site. After 1995, it is uncertain at this time where or how solid waste will be disposed of in the San Bernardino Valley.

#### 8.10.5.3 Mitigation Measures

The expansion of the Redlands landfill should accommodate the projected growth to the year 2010. Site expansions and the addition of personnel and equipment are recommended as the need arises.

Solid waste disposal within the San Bernardino Valley may reach a crisis level by the mid-1990s without new facilities. Expansion of the San Timoteo Canyon site to its full potential to increase the life expectancy of the landfill is a possible mitigation measure.

Plans for a waste-to-energy plant to be built at the Milliken landfill in Ontario were recently denied by the County Board of Supervisors.

Additional mitigation measures include the opening of a new landfill site within the Valley area, expansion of the north Fontana landfill, reopening the Cajon or Yucaipa landfills, and intensive recycling to reduce the amount of waste.

It is anticipated that the County will plan and implement a solution to increasing its long-term disposal site capacity within the next two years.

## 8.10.6 Telephone Service

### 8.10.6.1 Existing Conditions

General Telephone Company currently provides service to the East Valley Corridor study area. A new development occurs, efforts will be made to place new lines underground.

### 8.10.6.2 Project Impacts

The increase in commercial, industrial, and residential developments would require additional lines, equipment, installations, and maintenance. New connector lines will be required in the open lands and costs may be borne by the developer. The fees associated with telephone use would offset any additional costs required to provide adequate service to new customers. No significant impacts on telephone service are expected due to the proposed East Valley Corridor Specific Plan.

### 8.10.6.3 Mitigation Measures

No mitigation measures are recommended.

## 8.11 CULTURAL RESOURCES

A records search and preliminary literature review were conducted in May 1985 and supplemented in October 1987 to obtain information regarding known paleontological, archaeological, and historical resource locations within the East Valley Corridor Specific Plan area and to gather data to assess the potential for the presence of additional, currently unrecorded resource locations. The records search and literature review included the following sources:

- o The National Register of Historic Places to determine if any National Register eligible/listed properties exist within the East Valley Corridor Specific Plan area
- o California Inventory of Historic Resources (Department of Parks and Recreation 1976) and Historical Landmarks of San Bernardino County (San Bernardino County Museum 1980), to determine if any properties are recorded that have significance at the state or county level
- o The files at the Archaeological Research Unit, University of California, Riverside and the Archaeological Information Center, San Bernardino County Museum to determine the extent of previous cultural resource investigations and to determine if any previously recorded resources exist within the East Valley Corridor Specific Plan area.

Cultural resource survey reports for the East Valley Corridor Specific Plan area were reviewed and a limited number of published sources about local history also were consulted. In addition, staff of the San Bernardino County Museum, the A.K. Smiley Library in Redlands, and the Redlands Historical Society were interviewed to obtain information on possible locations of significant cultural resources within the East Valley Corridor Specific Plan. A list of individuals consulted is included in Section 11 of this EIR.

The following sections discuss the results of the records search, preliminary literature review, and interviews and provide a preliminary assessment of the potential for impacts to paleontological, archaeological, and historical resources as a result of implementation of the project.

### 8.11.1 Existing Conditions

#### 8.11.1.1 Overview

The earliest evidence of human occupation in the San Bernardino Valley dates from about 4,500 years ago during a period that has been termed the Milling Stone Horizon. Archaeological evidence for this period is the presence of particular types and densities of artifacts such as manos and metates in large numbers, crude flaked tools, and cogstones and discoids. Very few projectile points are found, suggesting that populations relied primarily on plant foods for subsistence. Over time, a gradual shift in subsistence took place so that by about 2,000

years ago a change in emphasis from seed-grinding to acorn processing is indicated by the presence of larger numbers of mortars and pestles. This Late Prehistoric period represents the presence of populations in the San Bernardino Valley that were ancestral to the Shoshonean-speaking groups encountered by early explorers and missionaries. During this period, local cultures developed complex social organization and divided into groups with defined tribal territories. All of these groups had similar settlement and subsistence patterns that represented a generalized hunting-gathering way of life and an economy that included local and regional trade. Artifact types characteristic of the Late Prehistoric period are brownware pottery and smaller-sized projectile points. Other artifacts include bone awls for basket-making, drill used for leatherwork, and various types of charmstones (San Bernardino County Museum Assoc. 1981).

It is not clear which groups occupied the San Bernardino Valley in early historic times. Many accounts place the Valley within Serrano territory, while others believe it to be the easternmost tract of land held by the Gabrielinos. According to Benedict (1924) the group that occupied the Redlands area was the wa'atcavitum Serrano who belonged to the wildcat moiety (Benedict 1924 in Hammond and Webb 1977). When Franciscan Father Dumetz came from Mission San Gabriel to the San Bernardino Valley in 1810 to establish a mission outpost, he found the area inhabited by Indians he referred to as Guachamas. This group has been identified in subsequent ethnographic studies as both Serrano and Gabrielino.

Both the Serrano and Gabrielino occupied villages year round that were located at or immediately adjacent to reliable water sources. Temporary camps and special use sites (e.g. seed processing stations) were located in areas which took maximum advantage of locally available resources. During various seasons, small family groups gathered plant seeds, tubers, and greens from areas surrounding the village. Although deer, bighorn sheep and other large animals were hunted, small animals supplied most of the meat in the diet. In the fall, many groups congregated in the mountain oak groves and pinyon woodlands for ceremonial activities (Hammond and Webb 1977; San Bernardino County Museum Assoc. 1981). Along the Santa Ana River, semi-permanent occupation would have been limited to high terraces or flank of hills or mountains, with smaller resource procurement and processing sites more common near the river (San Bernardino County Museum Assoc. 1981).

In 1810, when Franciscans from Mission San Gabriel came to San Bernardino Valley, evidence suggests that the local inhabitants were living in small villages that served as the core for a settlement system that included outlier procurement and processing sites, trails, hunting areas, quarries, and ceremonial areas. Spanish influence on Serrano lifeways was negligible until about 1819 when Guachama Mission Station was constructed (Bean and Smith 1978) just to the southwest of the East Valley Corridor Specific Plan area on the north side of what is not Mission Road. The site of the Guachama Indian village was on the south side of this road. Those native inhabitants of Guachama, as well as an additional village near present day Riverside, served the mission and outlying ranchos as laborers for stock raising and agriculture. Between the establishment of the Mission Station and

Mexican secularization in 1834, most of the western Serrano were removed to the missions and from that point on never were able to reestablish their native lifeways.

Lack of water for agriculture in the area, necessitated the building of an irrigation ditch, or zanja (Hinckley 1951). The digging of the Zanja was done by Serrano and Gabrielano Indians and was completed in 1820. It irrigated the first crops planted in San Bernardino Valley. The Zanja ran from Guachama through the East Valley Corridor Specific Plan area and on to Mill Creek Canyon, 12 miles to the east (San Bernardino County Museum Assoc. 1981). Because it was used for a domestic water supply as well as for irrigation, cottonwood trees were planted along it by Indians to keep the water cool (San Bernardino County Museum Assoc. 1981). Among the many zanjias built in California during the Spanish and Mexican periods, this was the only one built and maintained by Indians for their own use (Haenszel and Reynolds 1975; Department of Parks and Recreation 1982).

Early historic activity in the area was focused along the banks of the Zanja. In 1830, construction of a branch of the San Gabriel Mission was started adjacent to the Zanja within the East Valley Corridor Specific Plan area. Construction of this Asistencia, however, was left unfinished when Mexican secularization ended all mission activity in California. In 1842 the Lugo Brothers received their San Bernardino Ranch Land Grant and Jose del Carmen Lugo came to live in the Asistencia buildings (Hoover, Rensch and Rensch 1966). Rancho San Bernardino was worked by local Indians (Hammond and Webb 1977) and the Lugos hired a band of Mountain Cahuilla Indians to move onto the Rancho to protect the stock from raids by desert Paiutes (San Bernardino County Museum Assoc. 1981). The cities of San Bernardino, Redlands, and Colton now stand on the Rancho San Bernardino of the Lugos.

During the 1850s, Mormons came into the area and founded the city of San Bernardino. The area around the Asistencia became known as Old San Bernardino and several families began farming there. The Mormons purchased the Lugo Ranch in 1851 and Bishop Nathan Tenney occupied the Asistencia and used the Zanja as a water source for agricultural operations (Moore 1983). Subsequently the Cram Brothers occupied the Asistencia for two years where they manufactured furniture on a lathe driven by the water power generated from the Zanja (Hinckley 1951).

In 1857, the Asistencia was purchased by Dr. Ben Barton. He had a brick house built adjacent to it and planted vineyards and established a winery on approximately 1,000 acres of land. In 1866, after moving into his house on present day Nevada Street within the East Valley Corridor Specific Plan area, he used the Asistencia as a stable for his farm animals (Hinckley 1951). Eventually, it was neglected and fell to ruin. In 1924 the Asistencia was sold to San Bernardino County and was restored in 1936-37 and opened to the public (Moore 1983; Department of Parks and Recreation 1982).

Cottonwood trees planted along the Zanja gave Mission Road its historic name of Cottonwood Row. Most of the families that came to Old San Bernardino settled along 'Cottonwood Row' prior to 1861.

Among these settlers were the Van Leuven brothers, who arrived in 1852. In 1857 Anson Van Leuven planted the first orange trees on his ranch along present day Mission Road and Mountain View Avenue. This was the first cultivation of orange trees in the county and represented the beginning of the citrus industry in San Bernardino Valley (Hinckley 1951; Haenszel and Reynolds 1975).

During this time, citrus was one of a number of crops grown in the area. Agriculture included grapes, peaches, apricot orchards and a number of fruit-drying operations. The future Redlands townsite was purchased by Chicago Colony investors, E.G. Judson and Frank E. Brown in 1881. Backers of early Redlands were actively promoting citrus cultivation in the area. Planters were encouraged to border their groves with Mexican Fan Palm trees to make them more attractive to prospective citrus investors from the east. By the end of the 1880s people were uprooting their other fruit orchards in favor of oranges. The navel orange soon became Redlands main economic source (Moore 1983).

The completion of Big Bear Dam in 1884 provided additional water for irrigation in the San Bernardino Valley, and by the late 1880s the citrus industry was well established in the East Valley Corridor Specific Plan area. Several packing houses were in operation. The railway known as Redlands Motor Road ran between San Bernardino and Redlands. There was a station at the corner of Mountain View Avenue and Redlands Blvd. and a junction with the Southern Pacific line at California street (San Bernardino County Museum Assoc. 1981) within the East Valley Corridor Specific Plan area. In 1889, 41 carloads of oranges were shipped from Redlands; by 1900-01, 3,000 were sent, and ultimately, 5,000 per year. According to Moore (1983:35), "The wealth generated by citrus influenced institutional and cultural characteristics of the town."

Evidence of historic development within the East Valley Corridor Specific Plan exists in the form of the San Bernardino Asistencia and such residences as the Barton House and columns of original plantings of the Mexican Fan Palm. Agriculture continues to be the predominant land use within the East Valley Corridor Specific Plan area to the present, with citrus the major crop (East Valley Corridor Specific Plan 1987). Although the Zanja is still in use through much of its route, the original ditch has been abandoned from Redlands westward, including the East Valley Corridor Specific Plan area. The name Mission Zanja is now applied to a modern ditch which runs approximately 1/2 mile north of the original ditch (San Bernardino County Museum Assoc. 1981).

#### 8.11.1.2 Known Resources

Less than three percent of the East Valley Corridor Specific Plan area has been systematically surveyed for cultural resources. One survey was conducted for construction of a portion of the Route 30 Freeway by the California Department of Transportation (Hammond and Webb 1977) and another was associated with annexation of 315 acres by Loma Linda (San Bernardino County Museum Association 1981). In addition, the

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Army Corps of Engineers is currently conducting investigations in the northern portion of the East Valley Corridor Specific Plan area along the Santa Ana River (G. Lauter, personal communication 1987). A result of those surveys and additional inventories conducted by the San Bernardino County Museum and California Department of Parks and Recreation, resources have been documented within the East Valley Corridor Specific Plan area that relate to the historic period and represent Native American use of the area, the Spanish period, early settlement within Bryn Mawr and Redlands, and early citrus development in the San Bernardino Valley.

These resources include the Zanja, which is listed in the National Register of Historic Places, the San Bernardino Asistencia, which is a listed California Historical Landmark (San Bernardino County Museum 1980), and the Barton House and San Bernardino County Museum which are listed as San Bernardino Points of Historic Interest (Department of Parks and Recreation 1976; San Bernardino County Museum 1980). These are described below. There are no documented prehistoric archaeological sites or paleontological locations within the East Valley Corridor Specific Plan area.

The Zanja (California Historical Landmark #43, Historic Civil Engineering Landmark No. 21, a portion is listed on the National Register of Historic Places). Spanish missionaries introduced irrigation in San Bernardino Valley, thus opening the way for settlement. Franciscan fathers engineered, and Indians from the nearby Guachama Rancheria dug, this first ditch, or Zanja, in 1819-20 to bring Mill Creek water 12 miles to the valley's agricultural fields. It supported the San Bernardino Asistencia, the Rancho San Bernardino, the pioneer ranches and orchards, and served as Redlands' domestic water supply. The name Mission Zanja is now applied to a more recent ditch that runs to the north of the original ditch. Segments of the original alignment, however, are visible within the East Valley Corridor Specific Plan area, particularly at its point of intersection with California Street. Only the portion east of the East Valley Corridor Specific Plan area from Sylvan Blvd in Redlands east to Mill Creek Road is listed on the National Register.

San Bernardino Asistencia (California Historical Landmark #42, Site Number SBr-2307). This branch of San Gabriel Mission was constructed about 1830 on the San Bernardino Rancho. During the 1840s its buildings were used by Jose del Carmen Lugo as part of his rancho grant. After its sale to the Mormons, it was occupied by Bishop Tenney in the 1850s and by Dr. Benjamin Barton in the 1860s. Eventually the buildings fell to ruin, and in 1925 the property was sold to San Bernardino County Historical Society. It is currently part of the County Museum system and is open to the public.

The Barton House, 11245 Nevada Street (Point of Historical Interest). This well-known building was constructed in 1867 for Dr. Benjamin Barton. Dr. Barton purchased about 1000 acres of land from two Mormon elders who were at that time occupying the Asistencia. In 1866-67 he built this large brick house with mansard roof. Later a cupola was added. It was the family home and ranch headquarters for 20 years. It is currently a private residence (Moore 1983:3).

### 8.11.1.3 Potential Resources

A map was prepared recently by the San Bernardino County Museum, Archaeological Information Center for the Army Corps of Engineers' investigations along the Santa Ana River that encompassed the northern one-third of the East Valley Corridor Specific Plan area. A survey of pre-1900 maps of structures older than 100 years of age may exist. Eleven separate locations of potential historic archaeological and standing historic structures are mapped that require field verification. Areas to the south of these locations also will contain potential historic site locations, but this information has not been mapped to date (Ross 1987).

As a result of the literature review and interviews with local residents, a number of uninventoried historic structures and historic land use areas that may be historically significant in the development of regional prehistory have been identified within the East Valley Corridor Specific Plan area. These are described below.

The Yount House, 10941 Nevada Street. This residence was built by John Yount in about 1950. It is an example of the use of adobe for construction in the Redlands area.

The Mission School. This building was constructed about 1950 and represents one in a series of Missions Schools built in the area.

Calvary Chapel, 9700 Alabama Street. This building, designated as Crown Jewel on some maps, currently serves as a chapel and private school but was originally a Sunkist packaging house that was in operation by the 1920s and continued as such into the 1970s. It is one of the few surviving examples of early packing houses associated with the Redlands citrus industry.

Marigold Farm. This farm encompasses the northwestern portion of the East Valley Corridor Specific Plan area between the Santa Ana Wash and I-10 Freeway and has been in existence since the 1890s. It began as a dairy and a feedlot for cattle and is now planted in alfalfa. It represents a period of ranching and agricultural use within the area.

Edwards Mansion. This building was constructed by J.S. Edwards in about 1890 in an area to the southeast of San Bernardino and was later moved to its current location along Orange Tree Lane where it functions as a restaurant. Although it has lost its historic context, its architectural style is unique to the area.

Other less precise locations include:

- o A possible early Southern California Edison substation situated in the northeast quadrant of the East Valley Corridor Specific Plan area
- o The chapel at the corner of San Bernardino Avenue and Tennessee Street

- o An old Sunkist packing house in the north end of the East Valley Corridor Specific Plan area
- o Early orange grove plantings.

In summary, the types of cultural resources that are known or expected to occur within the East Valley Corridor Specific Plan area are:

- o Surface and subsurface prehistoric and ethnohistoric archaeological sites, particularly along the original route of the Zanja and along the Santa Ana River. Historic accounts indicate that between the time it was built and the late 1850s when Americans began developing the area for citrus, Indians camped all along the Zanja, particularly that stretch in the vicinity of former Mission buildings Barton Hill and the Guachama area (San Bernardino County Museum Assoc. 1981).
- o Standing older single family residences associated with the development of the citrus industry that are historically and/or architecturally significant.
- o Commercial buildings associated with the citrus industry, such as packing houses, or other early developments in the area.
- o Foundations of historic structures and associated historic debris.
- o Historic debris that may have once been discarded along trails, wagon roads, and railroad alignments in areas currently planted in orange groves.
- o Rock work associated with water conveyance systems for irrigation and drainage of early orange groves.

#### 8.11.2 Project Impacts

Industrial, commercial, and residential development within the East Valley Corridor Specific Plan area, including improvements to the infrastructure, has the potential to impact significant cultural resources. Because the locations of all significant culture resources within the East Valley Corridor Specific Plan area are not known and because specific land uses have not been defined, the following list of potential project impacts is necessarily general. These include:

- o Physical destruction or disturbance of prehistoric and historic archaeological properties by removing or disturbing all or a portion of the resource through such activities as excavation for foundations, clearing and grading, and road and drain improvements. These impacts could result in loss of integrity of the resource and loss of valuable scientific data.

- o Demolition or removal of important historic buildings.
- o Alterations or modifications to historic architectural properties that diminish the overall character of the property by changing, obscuring, or destroying character-defining spaces, materials, features, or finishes. For example, if a building is significant primarily for its architectural design and its exterior elements are altered while it is being modified for a new use, its value as an historic resource could be lessened.
- o Visual impacts that alter relevant features or character of a property's surrounding environment or that alter its setting, feeling or association. For example, construction of a transmission line adjacent to a historic building could introduce a visual element that is out of character with the property and that alters its setting and surrounding environment.

### 8.11.3 Mitigation Measures

Future development within the East Valley Corridor Specific Plan area will take place in an orderly and aesthetic manner using design guidelines and standards. To this end, the East Valley Corridor Specific Plan was developed and adopted by local governments to provide a guide for growth and development of the East Valley Corridor that reflects the interests and concerns of the community (San Bernardino County 1987). As part of the East Valley Corridor Specific Plan, Overlay Districts were created that contain development requirements which serve to preserve desirable natural resources. The East Valley Corridor Specific Plan includes a Preservation-Historical/Archaeological Overlay District which is described below.

#### 8.11.3.1 Preservation-Historical/Archaeological Overlay District

The Overlay District is intended to assist in the identification and preservation of significant archaeological resources. The East Valley Corridor Specific Plan states that preservation of such cultural resources provides a greater knowledge of community history, thus promoting community identity and conserving historic and scientific amenities for the benefit of future generations. The District encompasses those areas where archaeological and historic sites which warrant preservation have been specifically identified or are believed likely to be present. Specific identification of cultural resources is indicated by listing in one or more of the following inventories:

- o National Register of Historic Places
- o California Archaeological Inventory
- o California Historic Resources Inventory

- o California Historical Landmarks
- o San Bernardino County Points of Historic Interest.

In the East Valley Corridor Specific Plan, this overlay is applied to an area approximately 600 feet on either side of the original course of the Mission Zanja irrigation channel. This area was the site of early historic settlement and is considered to be an area of high cultural resource sensitivity.

When a land use ~~is proposed~~ application or permit is submitted within the Preservation-Historical/Archaeological Overlay District, the following criteria shall be used to evaluate the project's compliance with the intent of the overlay.

- o The presence (or absence) of archaeological and historical resources within a given project area must be determined through an appropriate investigation by qualified personnel.
- o Data recovery or protection measures should be developed and implemented for identified cultural resources determined to be significant by a qualified archaeologist or historian. Such measures may include, but are not limited to:
  - Site recordation;
  - Mapping and surface collection of artifacts, with appropriate analysis and curation;
  - Excavation of subsurface deposits when present, along with appropriate analysis and artifact curation;
  - Preservation in an open space easement and/or dedication to an appropriate institution with provision for any necessary maintenance and protection.
- o Archaeological and historical resources which are determined by qualified professionals to be extremely significant should be preserved as open space or dedicated to a public institution when possible.

#### 8.11.3.2 Additional Mitigation Measures

Approximately 3 percent of the East Valley Corridor Specific Plan area has been systematically surveyed for the presence of cultural resources. Therefore, the locations, types, and significance of all cultural resources within the East Valley Corridor Specific Plan are not currently known. Because there also is potential for significant archaeological, historical and architectural resources outside the Overlay District that could be affected by activities associated with the East Valley Corridor Specific Plan, the following mitigation measures also will be undertaken:

- (a) When a specific land use is proposed, a cultural resource review may be performed by the staff of the California Archaeological Inventory (San Bernardino County Museum). The purpose of this review will be to determine the likelihood for the presence of significant cultural resources and will consist of an archival review to determine the extent and adequacy of any previous cultural resource investigations in the area as well as any currently recorded cultural properties and the types and locations of potential additional resources.
- (b) If the cultural resource review determines that the area contains or has the potential to contain important resources that could be affected by the undertaking, a field survey of the project site will be performed. The purpose of the intensive examination will be to locate any existing resources and provide professional assessments of each resource's significance. This may require test excavations or other specialized studies for the purpose of evaluating a resource's significance.
- (c) In those cases where a property is determined to be significant and would be adversely affected by the project, measures will be followed as described in Section 8.11.3.1 above.

## 9.0 ENERGY CONSERVATION

The California Environmental Quality Act (CEQA) requires that an EIR address the potential energy impacts of proposed projects with an emphasis on reducing inefficient energy consumption.

### 9.1 EXISTING CONDITIONS

Southern California Edison (SCE) provides electrical power to the project area. SCE serves about 50,000 square miles of southern California from a wide variety of energy sources including oil and gas-fired generator plants, out of state coal-fired plants, nuclear, purchases, and alternate energy sources. SCE has a commitment to reduce nonrenewable energy sources and increase alternate energy resources such as hydroelectric, wind, cogeneration, solid waste, geothermal, and solar. Despite a 1.8 percent annual growth rate, SCE has eliminated the need for a large-scale power plant for the next decade.

Natural gas is supplied by Southern California Gas Company (SCGC). It is projected that SCGC will have adequate gas supplies to serve its customers through the year 2000.

The project area is over 78 percent undeveloped or in agricultural use with about 800 acres currently developed in residential, office, retail, and industrial uses. The amount of electric energy and natural gas consumed in the project area is estimated in Tables 9-1 and 9-2 based on existing land uses.

### 9.2 PROJECT IMPACTS

Equipment utilized during the approximate 40-year phased construction period will consume substantial diesel fuel and gasoline which should not impact local fuel supplies.

The estimated annual electric energy and natural gas consumptions at project buildout are listed in Tables 9-3 and 9-4. These estimates are calculated from the proposed land uses and maximum floor area ratios as provided in the Specific Plan and with consumption rates listed in the SCAQMD's "Air Quality Handbook for EIRs."

The estimated electricity usage at buildout is approximately 520 percent more than the existing conditions and the ultimate natural gas usage is about 610 percent over existing consumption. Without the Specific Plan, the East Valley Corridor is expected to buildout under market-driven conditions by 2012. Energy requirements for this alternative are  $65.1 \times 10^7$  kWh and  $22.1 \times 10^8$  cubic feet of gas per year. Electrical consumption is about 1 percent higher than the proposed Specific Plan, while natural gas usage is 8 percent lower. However, this total amount of energy would be required by 2012, 16 years prior to buildout under the Specific Plan.

Table 9-1

ESTIMATED CURRENT ELECTRIC  
ENERGY CONSUMPTION

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<u>Land Use</u>	<u>Number of Units</u>	<u>Consumption Rate (kWh/year/unit)</u>	<u>Electric Consumption (kWh/year)</u>
Residential	2,160	16,081	$3.5 \times 10^7$
	<u>Square Feet</u>	<u>kWh/SF/year</u>	
Office	$1.3 \times 10^6$	8.8	$1.1 \times 10^7$
Retail	$3.3 \times 10^6$	11.8	$3.9 \times 10^7$
Industrial	$2.6 \times 10^6$	6.1	$1.6 \times 10^7$
Public	$3.7 \times 10^5$	8.9	$3.3 \times 10^6$
TOTAL:			$10.4 \times 10^7$

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Sources: East Valley Corridor Specific Plan Draft, 1987  
Air Quality Handbook for EIRs, SCAQMD, 1987

Table 9-2

## ESTIMATED CURRENT NATURAL GAS CONSUMPTION

<u>Land Use</u>	<u>Number of Units</u>	<u>Consumption Rate (cu ft/month)</u>	<u>Natural Gas Consumption (cu ft/year)</u>
Single-family	440	6,665	$3.5 \times 10^7$
Multi-family	1,720	3,918	$8.1 \times 10^7$
	<u>Square Feet</u>	<u>cu ft/month/SF</u>	
Office	$1.3 \times 10^6$	2.0	$3.1 \times 10^7$
Retail	$3.3 \times 10^6$	2.9	$11.4 \times 10^7$
Industrial	$2.6 \times 10^6$	2.5	$7.8 \times 10^7$
<b>TOTAL:</b>			$33.9 \times 10^7$

Sources: East Valley Corridor Specific Plan Draft, 1987  
Air Quality Handbook for EIRs, SCAQMD, 1987

Table 9-3

## PROJECTED ELECTRIC ENERGY CONSUMPTION

<u>Land Uses</u>	<u>Gross Acreage</u>	<u>Number of Units</u>	<u>Consumption Rate (kWh/year/unit)</u>	<u>Electric Consumption (kWh/year)</u>
Residential	613	9,890	16,081	15.9 x 10 <sup>7</sup>
	<u>Gross Acreage</u>	<u>Maximum Square Feet</u>	<u>Consumption Rate (kWh/SF/year)</u>	<u>Electric Consumption (kWh/year)</u>
<u>Office</u>				
Planned Development	681	5.9 x 10 <sup>6</sup>	8.8	5.2 x 10 <sup>7</sup>
Office General	62	1.6 x 10 <sup>6</sup>	8.8	1.4 x 10 <sup>7</sup>
<u>Retail</u>				
Retail General	904	9.8 x 10 <sup>6</sup>	11.8	11.6 x 10 <sup>7</sup>
Regional Retail	132	2.3 x 10 <sup>6</sup>	11.8	2.7 x 10 <sup>7</sup>
<u>Industrial/R&amp;D</u>	1,264	4.4 x 10 <sup>7</sup>	6.1	26.9 x 10 <sup>7</sup>
<u>Public/Institutional</u>	132	1.2 x 10 <sup>6</sup>	8.9	1.0 x 10 <sup>7</sup>
<b>TOTAL:</b>				64.7 x 10 <sup>7</sup>

Notes: Industrial/R&D consumption rate is an average of office and warehouse rates. Public/Institutional consumption rate is an average of elementary school and university rates.

Sources: Gross acreage and square footage ratios - East Valley Corridor Specific Plan Draft, August 1987

Consumption rates - Air Quality Handbook for Preparing EIRs, SCAQMD, April 1987

Table 9-4

## PROJECTED NATURAL GAS CONSUMPTION

<u>Land Use</u>	<u>Number of Units</u>	<u>Consumption Rate (cu ft/month)</u>	<u>Natural Gas Consumption (cu ft/year)</u>
Residential (units)			
Single-family	378	6,665	$0.3 \times 10^8$
Multi-family	9,512	3,918	$4.5 \times 10^8$
	<u>Square Feet</u>	<u>cu ft/month/SF</u>	<u>cu ft/year</u>
Office	$7.5 \times 10^6$	2.0	$1.8 \times 10^8$
Retail	$12.1 \times 10^6$	2.9	$4.2 \times 10^8$
Industrial/R&D	$44.0 \times 10^6$	2.5	$13.2 \times 10^8$
TOTAL Gas Consumption (cubic feet/year)			$24.0 \times 10^8$

Sources: East Valley Corridor Specific Plan Draft, 1987  
Air Quality Handbook for EIRs, SCAQMD, 1987

The impact to electric and natural gas supplies while appearing significant when compared to existing usages, is actually insignificant when compared to the market-driven scenario. Both SCE and SCGC were contacted regarding providing service to new developments within the project area. The two utilities stated that electric and natural gas services and supplies are available in accordance with policies and rules on file with the California Public Utilities Commission. Also, both utilities plan for predicted growth in the area by securing adequate energy supplies in advance.

Based on the estimated annual vehicle miles driven, approximately 70 million gallons of gasoline will be consumed per year at buildout. This gradual increase in gasoline consumption over the next 40 years should be adequately supplied by oil companies and should not impact local supplies. The estimated fuel consumption may be lower due to fewer miles driven commuting to distant employment centers.

### 9.3 MITIGATION MEASURES

The goal of conserving energy is the wise and efficient use of energy resources. To achieve this goal, per capita energy consumption should be reduced, reliance on natural gas and oil should decrease, development of renewable energy resources should be encouraged, and vehicle miles traveled should be decreased.

Two of the main goals of the East Valley Corridor Specific Plan are to design a comprehensive, functional, and efficient circulation system of sufficient capacity to accommodate projected traffic demands and to adopt energy-efficient transportation strategies to implement State and County goals for reduced energy consumption and improved air quality. These strategies pertain to balanced land use, maximizing employment opportunities, and utilization of alternate travel modes. A complete listing of these mitigation measures are listed in more detail in Section 8.2.3 under Air Quality.

All new developments within the project area must be designed for optimum energy efficiency in accordance with residential and nonresidential energy conservation standards. These regulations include energy-saving designs for buildings and homes and specifications for lighting, heating, cooling, hot water supply, insulation, and landscaping. Specific measures include increased insulation, weather stripping, water heater blankets, thermostats, discouragement of electrical space heating, and promotion of solar energy use.

## 10.0 COORDINATION WITH OTHERS

### 10.1 COUNTY SERVICE AREA 110

The East Valley Corridor Specific Plan is a cooperative study undertaken by the County of San Bernardino, the City of Loma Linda, the City of Redlands, and the area's property owners. The concept for development of the East Valley Corridor was initiated in 1980 but was limited to public entities. In 1982 and 1983, key property owners within the project area joined the planning process and methods of funding the study were discussed. A County Service Area (CSA-110) was established in May 1984 to facilitate property assessments and to assure coordinated planning and development of the Specific Plan.

A 12-member CSA-110 District Advisory Commission was appointed with 4 members from each the County, Redlands, and Loma Linda, including 3 public agency members and 1 private property owner. A 15-member Property Owners Advisory Subcommittee was also established to provide input to CSA-110 staff during the planning process. Additional technical assistance was provided by representatives from affected agencies, including the water districts, Caltrans, Norton AFB, and engineering staff from the County and cities.

Citizen participation was considered to be critical throughout development of the Specific Plan. Participation by property owners was obtained through direct consultations, meetings of the Property Owners Advisory Subcommittee, public input at advertised CSA-110 District Advisory Commission meetings, and in public hearings held throughout the adoption process. Additional public hearings were held before the Local Agency Formation Commission, the Airport Land Use Commission, the County Environmental Review Committee, Planning Commission and Board of Supervisors; Redlands Planning Commission and City Council; and Loma Linda Planning Commission and City Council. These meetings, which were advertised in local newspapers as well as through written notification to property owners, afforded repeated opportunities for residents and property owners to provide input into development of the Specific Plan.

The Specific Plan authorizes formation of a Joint Powers Agency (JPA), representing the three jurisdictions involved, to implement the infrastructure, financing, and marketing components of the Plan. With representation by the two Cities and the County, the JPA will continue the interagency coordination which has been established to develop the Specific Plan.