IV. PUBLIC IMPROVEMENTS

A. Circulation and Parking

A traffic analysis for the Downtown Specific Plan of 1984 was conducted by Greer and Company, Traffic Consultants. Circulation conditions and recommendations described in this Plan were adapted from the Greer studies, and brought up to date with the assistance of the City of Redlands Public Works Department. Recommendations are based on the potential buildout of the Specific Plan area under the Land Use Plan, described in Appendix B.

1. Existing Conditions

Major access to and through the Specific Plan area is provided by a grid street system which serves the downtown Redlands area. Principal access is from Interstate 10 via ramp systems at Eureka, Orange and Sixth Streets.

The street pattern affords good access to existing uses within the Specific Plan area. Five principal north-south streets serve the area: Texas, Eureka, Orange, Sixth and Church Streets. The primary east-west street, Redlands Boulevard, serves as a major arterial.

Several aspects of the existing circulation system should be upgraded in order to accommodate future development. Recommendations aimed at achieving this are as follows:

- Widening of streets to their proposed widths in the City Master Plan of Streets.
- Acquiring additional right-of-way along selected street segments.
- Improvements of principal intersections.
- Development of new street alignments to correct present deficiencies.
- Additional signalization for both vehicles and pedestrians.
- Potential closure of certain streets and/or railroad rights-of-way.

2. Future Traffic Conditions

The 1984 traffic generation analysis was conducted for an area bounded by Interstate 10 to the north, Citrus Avenue to the south, Texas Street to the west and Church Street to the east. The scope of the analysis was to determine potential changes in traffic volume which may be anticipated.
The 1984 traffic analysis estimated a potential of 28,900 daily trips in the downtown project area based on the land use plan projected in the 1984 Revitalization Plan. This compared with 15,100 existing average daily trips in 1984.

It was assumed that some of the existing development in the project area would remain and some would be phased out in favor of the land use plan.

The total number of vehicle trips that would be added to the street system was determined by the number of vehicle trips that could be generated by new development at maximum density under the land use plan.

Appendix C documents existing land and estimated future traffic volume as well as capacities on a street by street basis. The estimate of capacities is based on the implementation of proposed improvements documented in 1984. The conclusion of the estimate was that none of the streets in downtown Redlands are projected to be operating in excess of their designed capacity. Since there are a number of streets serving the downtown area, an excessive concentration of additional trips on any specific access street should not occur. Most streets are projected to experience a moderate increase in traffic volume.

Appendix B, Buildout Potential of the Specific Plan area, projects the anticipated buildout of development in the Specific Plan area.

The Land Use Program of this Specific Plan proposes no increase in development density over the 1984 Revitalization Plan and Specific Plan. Thus, it is assumed that the findings and recommendations of the Greer and Company analysis of 1984 remain applicable.

3. **Circulation Improvements**

Traffic generated by new development will require upgrading several streets serving the Specific Plan area. At such time as redevelopment takes place in the central downtown area, additional rights-of-way should be required for dedication to permit widening. The procedure is normally to dedicate half of the right-of-way width on each side of the street centerline. However, it is sometimes necessary to acquire all of the additional right-of-way from one side of the street due to physical constraints.

Following is a discussion of right-of-way improvements for each street.

**a. Major Arterial**

Redlands Boulevard

Redlands Boulevard carries the heaviest traffic volume in the Specific Plan area and will be able to accommodate projected traffic volume of 33,000 average daily trips within its existing right-of-way.
Redlands Boulevard will continue to serve as a major east/west arterial. Improvements within the existing right-of-way in this area should include landscaped medians, where conditions permit, and pedestrian crossing improvements at the intersections of Eureka, Third, Fifth, Sixth and Seventh Streets. These intersections should be marked with crosswalks and handicap ramps provided at each corner. Placement of lighted bollards on each corner of Eureka, Third and Fifth Streets are recommended.

On-street parking should be removed from Redlands Boulevard.

b. Secondary Arterial

Pearl Avenue

Pearl Avenue, which is currently under the jurisdiction of Caltrans, serves as a direct link from the Freeway (I-10) to and from the Eureka, Orange, and Sixth Street corridors. Pearl Avenue should be widened from Eureka to Orange Street to provide two lanes eastbound and one lane westbound.

Orange and Sixth Streets

Recent public improvements have been completed on Orange and Sixth Streets, between the I-10 Freeway and Redlands Boulevard. Widening of Sixth Street, between the I-10 and the Santa Fe Railroad tracks should be completed.

Eureka Street

Eureka Street will become one of the primary access routes from the Interstate 10 Freeway to downtown. It is a through route to the residential neighborhoods to the south. Eureka Street also provides primary access to the Redlands Bowl and Lincoln Memorial. Widening of Eureka to a four-lane street with a median and realignment between Pearl Street and Redlands Boulevard is proposed. This is the highest priority street improvement in the Specific Plan area.

This project will require additional right-of-way. The existing right-of-way is approximately 50 feet, with proposed improvements requiring an additional 30 feet for an 80 foot ultimate right-of-way. The planned improvements would provide better freeway access and better distribute traffic in the downtown area by diverting some traffic from Orange Street.

c. Local Streets

Local streets serve primarily as access or circulation functions rather than through-traffic functions. Local streets in the Specific Plan area shall be a minimum width of 40 feet, curb-to-curb, with 48 feet curb-to-curb preferred for on-street parking. A reduction in street width may be permitted at the discretion of the Public Works Director. In this case, parking shall be permitted on one side of the street when local street widths measure between 32 feet and 40 feet. Parking is not permitted on streets less than 32 feet in width.
Stuart Avenue

Stuart Avenue will serve as a collector between Eureka Street and Orange Street and between Texas and approximately 800 feet to the west of Eureka Street, and will provide additional lateral east/west access to downtown. It is proposed to be improved to a 68 foot right-of-way with four lanes between Texas and Orange Streets, except for the segment from Eureka Street to 800 feet west of Eureka Street where it will be two lanes. Stuart Avenue, as proposed, will allow for through traffic to proceed within the left lane, while allowing the right lane to act as a stacking lane for turning movements. The final configuration of Stuart west of Eureka to Texas and east of Sixth to Church will depend on the requirements of new development in the area.

Master Plan of Streets

The City’s Master Plan of Streets classifies streets in the Redlands downtown area, indicating their future right-of-way width.

The objective of the Master Plan of Streets is to assure that these streets are ultimately developed to Master Plan standards by establishing future setback standards along each street. As redevelopment occurs, additional rights-of-way should be reserved for street widening.

<table>
<thead>
<tr>
<th>STREET</th>
<th>MASTER PLAN (MPS) OF STREETS CLASSIFICATION</th>
<th>EXISTING RIGHT-OF-WAY</th>
<th>MPS RIGHT-OF-WAY</th>
<th>RECOMMENDED RIGHT-OF-WAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redlands Blvd.</td>
<td>Major Arterial</td>
<td>92 feet (varies)</td>
<td>100 feet</td>
<td>Same</td>
</tr>
<tr>
<td>Orange Street</td>
<td>Secondary Arterial</td>
<td>84.25 feet</td>
<td>88 feet</td>
<td>Same</td>
</tr>
<tr>
<td>Texas Street</td>
<td>Secondary Arterial</td>
<td>80 feet (varies)</td>
<td>88 feet</td>
<td>Same</td>
</tr>
<tr>
<td>Church Street</td>
<td>Secondary Arterial</td>
<td>60 feet</td>
<td>88 feet</td>
<td>Same</td>
</tr>
<tr>
<td>Eureka Street</td>
<td>Special Major</td>
<td>50 feet (varies)</td>
<td>70 feet</td>
<td>80 feet³</td>
</tr>
<tr>
<td>Sixth Street</td>
<td>Special Major</td>
<td>50 feet</td>
<td>64 feet</td>
<td>80 feet³</td>
</tr>
<tr>
<td>Stuart Avenue (west of Orange Street)⁴</td>
<td>Special Collector</td>
<td>30 feet (varies)</td>
<td>54 feet</td>
<td>68 feet³</td>
</tr>
<tr>
<td>Stuart Avenue (east of Sixth Street)</td>
<td>Special Collector</td>
<td>50 feet (varies)</td>
<td>60 feet</td>
<td>60 feet</td>
</tr>
<tr>
<td>Pearl Avenue (between Eureka and Orange Streets)</td>
<td>Special Collector</td>
<td>64 feet</td>
<td>64 feet</td>
<td>64 feet</td>
</tr>
</tbody>
</table>

Potential Street Closures

With the exception of existing streets that are essential to the overall circulation pattern or for access to existing uses, closure of non-essential streets and incorporation of the land into new development may be considered. The possible closure or abandonment of existing streets would in certain locations permit the development of larger parcels

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² Source: City of Redlands - value given is narrowest right-of-way. Existing rights-of-way vary.
³ Recommendations beyond the MPS right-of-way based on proposed additional study at the time public improvements for these streets is proposed.
⁴ The segment of Stuart Avenue 800 feet west of Eureka Street is a local street with a right-of-way of 54 feet.
and include property on the tax rolls currently held in public ownership. The relocation or protection of existing utilities in these rights-of-way must be considered.

Street sections with the potential for closure may include:

- Central Avenue between Redlands Boulevard and Ninth Street (adjacent to Specific Plan area).
- Lawton Street, from Stuart Avenue to the I-10 Freeway, if a large parcel north of Stuart Street and between Texas and Eureka Streets is developed.
- Ruiz Street, south of Pearl Avenue. *
- High Avenue, between Second and Third Streets. *
- Third Street, between Stuart Avenue and the Santa Fe tracks.
- Eleventh Street, between Stuart Avenue and I-10.
- Special consideration should be given to these streets with regard to disruption to existing residences, businesses, and parking and pedestrian movement.

* Only if the existing residential properties are assembled into a larger development site.

4. **Pedestrian Network**

Improvement of the downtown pedestrian environment is an essential objective of the Specific Plan. The City and the Redevelopment Agency have implemented several important pedestrian improvement projects:

- New, high-quality streetscape improvements on Orange, Sixth and State Streets.
- Development of the "Santa Fe Trail," a shopper's lane pedestrian loop linking State Street, the Redlands Santa Fe Depot Historic District and Redlands Mall.

Improved streetscape standards (sidewalks, street trees, lighting) with pedestrian emphasis should continue throughout the Specific Plan area. Highest priority streetscape improvement projects are:

- New widened sidewalks and street tree planting on Eureka Street, between I-10 and Redlands Boulevard.
- Completion of the Santa Fe Trail loop - segments between Fifth and Orange Streets, and between Oriental Avenue and Redlands Boulevard.
- Projects shall be evaluated for potential north-south pedestrian links across the Santa Fe Railroad tracks between Eureka and Sixth Streets.

5. **Parking**

a. **Off-Street Parking**

Off-street parking shall be provided as required by the Zoning Ordinance of the City of Redlands.

- Joint use parking facilities are encouraged in order to balance peak period parking demands among adjacent properties. Such arrangements, whether public or private, reduce the number of parking spaces required, economizing in the use of valuable downtown land. Parking districts created by joint action of the City and private property owners are encouraged, and should be accompanied by an effective management structure to assure maintenance and financial viability.

- Joint use parking facilities, as provided for by the Zoning Ordinance, are permitted if the joint use participating property is located within three hundred (300) feet of the parking facility. An in-lieu fee for new construction or existing development may be paid to the City, Redevelopment Agency or City-sponsored Parking District if the parking location meets all requirements of this Specific Plan and the City of Redlands Zoning Ordinance. The amount and schedule for payment shall be determined by the City.

- Given the escalating value of land in the downtown area, all new projects are encouraged to provide structured parking. When surface parking lots are developed, the project site plan should provide the potential for future conversion to structured parking. If this option is exercised, then additional building floor area is required. The City's objective is to create a compact, pedestrian-oriented Town Center, reducing the number of surface parking lots.

b. **On-Street Parking**

A Downtown Parking Survey was completed by the City of Redlands Public Works Department in 1988. The survey was directed at two user groups - merchants and customers.

- One of the survey's conclusions was that more short term parking spaces for quick turn-over use are needed throughout the downtown area. Within the Specific Plan area, on-street parking adjacent to the major non-residential uses should be a combination of 1 and 2 hour spaces, with 24-minute spaces in certain locations.
c. Joint Use Parking Structures

Two locations within the Specific Plan area are recommended for joint use parking structures, accompanied by formation of one or more Parking Districts:

- In the Santa Fe Trail Historic District, north of Oriental Avenue, between Third and Eureka Streets. Schematic plans for this structure were prepared by the Redevelopment Agency in 1990.

- In the area bounded by the Santa Fe tracks, Orange Street (east of the rear alley), Redlands Boulevard, and Seventh Streets. This location would help stimulate development of the vacant and under used, properties in the area. Although the number of sites in the area are limited, future study should be given to the location and feasibility of a facility that would serve the area with a common structure.

d. Santa Fe Depot Historic District Parking Structure

The proposal to locate a parking structure on Oriental Avenue was advanced in the Master Action Plan of the Redlands Redevelopment Agency, adopted by the Agency and City Council in March, 1989.

The purpose of the structure is to serve four adjacent private developments which, together, will revitalize the Santa Fe Depot area of downtown Redlands. The Redevelopment Agency Master Action Plan proposes a mixed-use district of restaurants, retail, entertainment and offices with an historic design emphasis. The location of the area adjacent to State Street, Orange Street and Redlands Mall makes it an important part of Redlands' downtown revitalization program.

A parking structure will help the district achieve the "critical mass" necessary to create a lively entertainment area with a pedestrian emphasis. Without a structure, approximately two-thirds of the area's land would be consumed by surface parking lots, reducing the development potential of adjacent properties.

6. Railroad

The Santa Fe Railroad operates a local train from San Bernardino to Mentone. Proposals have been discussed to use the railroad right-of-way for light-rail commuter service to San Bernardino. However, if the railroad discontinues service in the Specific Plan area, action should be taken to acquire the railroad right-of-way for a hiking-biking path, as recommended in the City's Park and Open Space Plan.
B. Streetscape Guidelines

1. Streetscape Priorities

The highest priority streetscape improvements in the Specific Plan area are:

A. Eureka Street, between Pearl Avenue and Redlands Boulevard.
B. Pearl Avenue, between Eureka Street and Sixth Street.
C. Oriental Avenue, between Third and Eureka Streets.
D. Third Street, between Oriental Avenue and Redlands Boulevard. This is an important segment of the Santa Fe Trail that will link the Redlands Santa Fe Depot District with Redlands Mall.
E. Pedestrian Alley, between Orange and Fifth Streets, north of Redlands Boulevard.

Each of the above improvements require special design considerations above the City standard. Before designing detailed standards for any street, the City should evaluate the historical features of the street, such as cobblestones under the pavement, cutstone or rubble rock curbs, and bollards, that can be retained to give uniqueness and added historical flavor to the street. All other streetscape improvements may follow City standards for sidewalks, curbs and gutters.

- Throughout the Specific Plan area, new development should install regularly spaced street trees at an average spacing of 30 feet on center on all public street
frontages. Trees should be minimum 15 gallon size. Shade trees improve pedestrian atmosphere and should be emphasized.
2. Design Guidelines

Eureka Street between Pearl Avenue and Redlands Boulevard

- Tree well with brick trim and cobblestone fill.
- Street Trees - 30 ft. on center.
  Platanus acerifolia (London Plane Tree)
- Exposed aggregate concrete with brick trim.

Oriental Avenue between Third and Eureka Streets

- Tree well with brick trim and cobblestone fill.
- Street Trees - 30 feet on center.
  Platanus acerifolia
- Exposed aggregate concrete sidewalk with brick trim.
Downtown Specific Plan
Specific Plan No. 45
City of Redlands
As amended through December 19, 2017

Third Street, between Oriental Avenue and Redlands Boulevard

- Tree well with iron grate.
- Street Trees - 30 feet on center. Platanus acerifolia (London Plane Tree)
- Double lamp historical street lamp fixture
- Brick inlay sidewalk
C. **Open Space**

1. Santa Fe Trail (Shoppers Lane) Completion.
2. Pedestrian Alley Improvements Rear, 300 Block Orange Street
3. Mission Zanja Park
4. Pedestrian Plaza, Santa Fe Depot District
5. Santa Fe Pedestrian Trail/Bike Path
The following open space improvements are recommended in the Specific Plan Area:

1. **Santa Fe Trail (Shoppers Lane)**

The Santa Fe Trail (Shoppers Lane) was initiated by the Downtown Revitalization Program and Specific Plan of 1984. The Santa Fe Trail is a pedestrian loop linking the State Street business district, Redlands Santa Fe Depot District and Redlands Mall. Pedestrian improvements along the loop include brick sidewalk paving, historical street lamps, graphic signage and new pedestrian crosswalks with lighted bollards at street corners. Two remaining links are needed to complete the Santa Fe Trail:

- Fifth Street to Orange Street, through the Mitten Letter property and old Palace Livery Stable building.
- Third Street, from the Santa Fe Depot to the Redlands Mall. This should include improved crosswalks with lighted bollards at the Redlands Boulevard-Third Street intersection.
2. Pedestrian Alley Improvements

In the rear of the 300 block of Orange Street, east side.
3. **Mission Zanja Park**

A linear park along the Mission Zanja channel, from Ninth Street east to Church Street, should be built as part of future improvements to the channel. This project would contribute to the City’s Park and Open Space objectives by developing a future walking-biking trail from downtown to Sylvan Park and the University of Redlands.

**MISSION ZANJA PARK**

A. Stream channel and open space linkage to Sylvan Park.

B. Flood Control District lot at northwest corner of Ninth and Central (incorporate into park).

C. Close Central Avenue between Ninth and Redlands Boulevard.

4. **Pedestrian Plaza, Santa Fe Depot District**

A small landscaped plaza is recommended on Oriental Avenue, in the Santa Fe Depot District. The plaza could accommodate art and historical exhibits, and provide limited outdoor space for vendors, in addition to a shaded seating area.

5. **Santa Fe Pedestrian Trail / Bike Path**

The City’s Open Space Plan of 1987 recommended a walking trail and bike path on the existing Santa Fe right-of-way, if rail service is discontinued in the future. Joint use of the right-of-way for the trail/bike path and railway should be studied for feasibility if rail service is continued.
D. Infrastructure

An overview and assessment of the existing sewer and utility system was conducted by Hicks & Hartwick, consulting engineers. The assessment was based on a review of available information and field studies. Implementation will require further detailed engineering studies as specific projects are proposed.

The preliminary engineering assessment shows that, with the exception of aging water and sewer lines and the need for flood control improvements to the Zanja Creek, the existing infrastructure is generally adequate to serve development proposed in the Specific Plan area.

The area covered by this assessment is bounded on the west by Texas Street; on the east by Church Street; on the north by I-10; and on the south by Redlands Boulevard.

1. Water Distribution

The present water system is generally adequate to serve existing development. The existing system consists of a wide variety of construction materials. Water mains within the project area are constructed of asbestos cement pipe, cement mortar lined and coated steel pipe, riveted steel pipe, cement lined riveted steel pipe, standard steel pipe, P.V.C. pipe, steel pipe, O.D. pipe, cast iron pipe and welded steel pipe.

Generally, only the asbestos cement pipe, cement mortar lined and coated steel pipe and cast iron pipe are acceptable and can remain in place.

Fire flow minimums will be established by the City for each building and water distribution system. Each installation must meet fire flow requirements.


a. Master Plan recommendations for water mains outside the Specific Plan area which will affect the area are:

   • The 8" A.C.P. & C.I. main in Colton Avenue from Texas Street to Orange Street should be replaced with 12" A.C.P. main - 2,040 L.F.

b. Recommended water line replacement or installation within the area:

   • The 8" A.C.P. main in Eureka Street between Colton Avenue and Oriental Street should be replaced with a 12" steel cement-lined and mortar coated main. Main shall be connected to existing 12" A.C. main that extends north from Redlands Boulevard - 1,800 L.F.
• The 2" Steel and 2" PVC mains in Redlands Boulevard between Orange Street and Sixth Street should be replaced with a 12" steel cement-lined and mortar-coated main - 660 L.F.

• The 8" A.C.P. main in Church Street between Colton Avenue and the alley between State and Citrus Avenue should be replaced with a 12" steel cement-lined and mortar-coated main - 2,500 L.F.

• The 8" cast iron, 4" steel and 2" steel mains in Stuart Avenue should be replaced with a 12" steel cement-lined and mortar-coated main 2,640 L.F.

• The 4" steel main in Lawton Street north of Stuart Avenue should be replaced with an 8" steel cement-lined and mortar-coated main - 600 L.F.

• The 4" steel main in the Second Street cul-de-sac south of Pearl Avenue should be replaced with an 8" steel cement-lined and mortar-coated main - 480 L.F.

• The 4" steel main in Third Street between Stuart Avenue and Pearl Avenue should be replaced with an 8" steel cement-lined and mortar-coated main - 610 L.F.

• The 8" steel main in Oriental Avenue between Eureka Street and Third Street should be replaced with an 8" steel cement-lined and mortar-coated main - 600 L.F.

• The 2" steel main and 8" steel main in Seventh Street between State Street and High Avenue should be replaced with an 8" steel cement-lined and mortar-coated main - 1,200 L.F.

• The existing 8" A.C. main in Ninth Street should be extended north to High Avenue to replace the existing 4" steel main north of Stuart Avenue with an 8" steel cement-lined and mortar-coated main - 400 L.F.

• The existing 8" A.C. main in Ninth Street should be extended south to replace the 8" welded steel main from north of the S.P.R.R. right of way to State Street with 8" steel cement-lined and mortar-coated main - 430 L.F.

• The 4" and 2" steel main in Eleventh Street north of Stuart Avenue should be replaced with 8: ductile steel cement and mortar-coated main - 300 L.F.

• The 4" steel main in High Avenue between Sixth Street and Ninth Street should be replaced with 8" ductile steel cement and mortar-coated main - 900 L.F.
2. Sanitary Sewer

The existing sanitary sewer system which serves the specific plan is currently out of date. There are very few sections that do not have maintenance problems due to age. The only recent construction of sewer mains occurred when the first and second phases of the downtown Redevelopment project were constructed on State Street and Orange Street. Even though present mains within the study area are of sufficient capacity, problems of blockage, overflow, maintenance, infiltration and age dictate a detailed look at the replacement of many of the existing mains within the study area.

The City’s Master Plan for the sewer collection system (Wastewater Collection System Master Plan by Camp, Dresser, McKee, Inc., 1986) recommendations for the downtown area sewer construction during the 1985-2000 year period are as follows:

- 12" main in Texas Street from State Street to Stuart Avenue, and in Stuart Avenue to New York Street, will be replaced with a 21" main. (In design stage.)

- 15" main in Redlands Boulevard from Texas Street to the existing 20" main in Redlands Boulevard will be replaced with a 24" main. (In design stage.) Other general recommendations, subject to revision, are as follows:

  - Update the 1986 Wastewater System Master Plan.

  - Prior to any street construction within the project area, verify the need for replacement sewer mains to meet ultimate capacity to replace for age or condition.

  - Determine the condition of all trunk sewer within the Specific Plan area. (8" or above.)

  - Obtain field data on invert elevations and plot on 40 scale plan to enable rapid determination of capacity of all lines within the area.

  - Additional master plan recommendations for replacement sewer on the out fall line from Texas Street to the treatment plant outside the Master Action Plan area are as follows: (1985-2000):

    - A replacement for 18" main in Stuart from Texas Street to the I-10 Freeway and New York Street. Part complete, part in design.

    - 27" replacement for 18" and 20" main in Palmetto from Alabama Street to 1350 feet west.

    - 36" to replace 27" main in the treatment plant road from Nevada Street to the treatment plant - 800 L.F.
- 8" PVC sewer main in Oriental Avenue should be extended east of Eureka Street to Third Street - 560 L.F.

- An 8" sewer main should be constructed in Seventh Street between Redlands Boulevard and Stuart Avenue - 850 L.F.

- An 8" sewer main should be constructed in Third Street from Redlands Boulevard to Shopper's Lane - 450 L.F.

- An 8" sewer main should be constructed along the north side of the Zanja Storm Drain Project from Seventh Street east to Ninth Street to serve area north of Zanja Project - 660 L.F.

3. **Storm Drains**

Data on the existing storm drain system within the Specific Plan area is limited. Before preliminary recommendations can be made, more field data and topography of the area should be collected to augment available record data.

The major drains within the Specific Plan area or affecting the area are:

- The Mill Creek Zanja - The major drainage facility for the area is presently inadequate. The following are tributary to this drain.

- The Oriental Storm Drain is inadequate.

- The Carrot Storm Drain - insufficient existing data to determine its condition or adequacy. The Public Works Department has indicated that its size is adequate. This major storm drain which drains a large area bounded by Church Street on the west, Brockton on the north, and the freeway on the east appears to be a diversion from its natural flow pattern.

- Texas Storm Drain - apparently recently updated. Preliminary review does not indicate any problems.

- Post Office Storm Drain which currently flows beneath Safety Hall.

Several smaller drains have been constructed within the project area. During a preliminary field review several catch basins were observed for which no backup record data was available.

The City's Master Plan for Storm Drains is the Comprehensive Storm Drain Plan No. 4, prepared by Omer H. Brodie and Associates (1975). Recommendations contained in this plan which would contribute to the alleviation of downtown flooding are as follows:

- Construct necessary portions of the Garden Street - Reservoir Canyon Drain per Comprehensive Storm Drain Plan No. 4-22. Completed.
• Provide extensions and improvements to the Oriental Storm Drain per Comprehensive Storm Drain Plan No. 4-24.

• Provide extension to the Texas Storm Drain per Comprehensive Storm Drain Plan No. 4-20, to join the existing Stuart Storm Drain.

An additional Master Plan for storm drains is the Flood Insurance Study and was prepared by the U.S. Department of Housing and Urban Development Federal Insurance Administration. This report along with its Flood Insurance Rate Maps (FIRM) give floodway and flood plain data which will allow construction within the City’s central business district if the finish floors of the proposed structures are raised to or above the 100-year flood elevation.

This report and the FIRM indicate a 100-year flood boundary within the downtown area from Texas Street to Ninth Street, and bounded on the south by State Street and I-10 on the north. Based upon the 100-year flood profiles, any structure within the 100-year flood boundary would have to raise its finish floor approximately 1.5 feet above the corresponding Redlands Boulevard street profile.

The following are recommendations for the resolution of existing flood problems within the project area and for the provision of future development within the area:

• Expand capacity of Zanja by adding a new structure along an alternate alignment (Southern Pacific right-of-way). Resolution of storm drainage problems is established as an essential and priority part of the implementation of the revitalization program.

• Complete new Zanja Drain using the abandoned Southern Pacific railroad alignment.

• Complete necessary alterations and repair existing Zanja including covering and/or replacement of open area (east of Eighth and west of Eureka Streets). The existing Zanja could be used as a main feeder to the new Zanja or it could continue to carry a portion of the flows from the east.

• Provide necessary extensions and improvements to the Oriental Storm Drain per Comprehensive Storm Drain Plan No. 4-24.

• Provide the extension to the Texas Storm Drain per Comprehensive Storm Drain Plan No. 4-20.

• Replace existing drain to existing junction of new construction in Phase II of the Downtown Redlands project west of north/south alley, west of Orange Street.

• Construct storm drain in High Avenue from Sixth Street to East of Ninth Street to pick up flows under I-10.
• Extend 24" RCP in Stuart Avenue from Sixth Street to Ninth Street to pick up local street drainage and connect 24" RCP in Sixth Street to new Zanja drain.

• If the Zanja reconstruction is not complete prior to construction of new development, all new structures between State Street on the south, Southern Pacific Railroad on the north, Texas Street on the west and Ninth Street on the east should be raise approximately 1.5 feet above the corresponding Redlands Boulevard street profile.

General recommendations relative to storm drains within the project area are:

• Compile accurate field data on all storm drains within the present area including invert elevations, pipe sizes, box sizes, condition of facilities and more detailed research of record data. This should be completed prior to analysis of utilization of existing minor facilities.

• Plot all information on new 40 scale topography mapping to facilitate more detailed planning and solutions as specific projects are proposed.

4. Gas

The Southern California Gas Company reports that its projected distribution service for the project area will be adequate for increased needs resulting from anticipated future development.

5. Telephone

GTE serves the project area with above ground facilities and has indicated that anticipated development as a result of the implementation of the Master Action Plan can be served by existing facilities. It is recommended that telephone lines be placed underground concurrent with new development of the study area.

6. Electrical

Southern California Edison reports that electrical distribution in this area is currently adequate to serve the anticipated needs resulting from future development. The undergrounding of utilities is also recommended concurrent with new development.