9. Public Utilities and Infrastructure

This element describes the impacts to the storm drainage, water and sanitary sewer systems required to support the revitalization of the Downtown Livermore Specific Plan Area. Based on these impacts, objectives and policies for improvements to the existing facilities are provided.

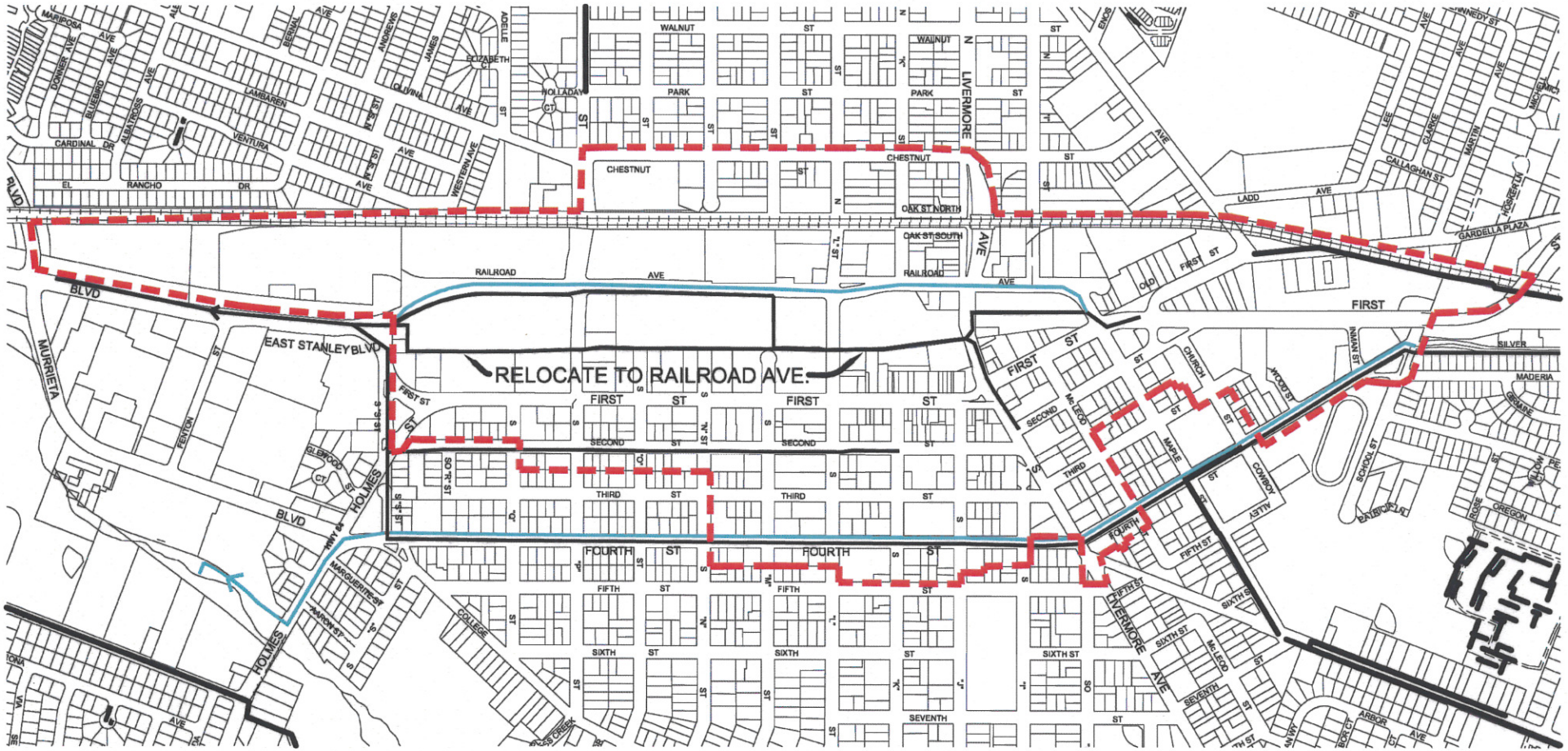
Storm Drainage

Existing Conditions and Resources

The Livermore Valley watershed has four major drainage watersheds, each drained by a major channel: Arroyo del Valle, Arroyo Mocho and Arroyo Las Positas and Altamont Creek. Arroyo Mocho flows through the southerly portion of the City and drains much of Livermore's Downtown area. Most of the storm runoff is collected to inlets, which drain to pipe systems. There are a few ditches or open channels within the existing developed areas, such as the Granada Channel which flows through a residential development and drains to Arroyo Mocho.

Figure 9-1, the Downtown Storm Drain Plan, shown on page 9-2, shows existing storm drainage facilities with the Specific Plan area. The system consists of drainage inlets, catch basins, and pipes directing storm water flows to the Arroyo Mocho.

Intensified development or redevelopment within the Downtown area is not expected to generate significant amounts of additional storm water runoff, since most surfaces are already developed and impervious. There are, however, storm drainage improvements, which were identified in the



Legend

- DOWNTOWN STUDY LIMITS
- ADDITIONAL STORM DRAIN TRUNKLINE (>18") REQUIRED FOR ULTIMATE BUILDOUT
- EXISTING STORM DRAIN LINE (>18")

0 225' 450' 1800'

FIGURE 10-1: DOWNTOWN STORM DRAIN PLAN

City's 1995 Storm Drain Master Plan. An updated Storm Drain Master Plan Study will further refine the improvements necessary to alleviate existing deficiencies and serve the proposed development.

The City's Storm Water Permit, issued by the Regional Water Quality Control Board, will impact new and redevelopment projects in Downtown. This permit contains provisions requiring storm water discharge controls on a project specific basis; therefore it is not possible to determine the impact absent development plans. However, the City will work with developers to identify the best approach to comply with the storm water permit requirement in the Downtown.

Storm drainage improvements identified in the City's 1995 Storm Drainage Master Plan included approximately 8,000 linear feet of a major trunk line along Fourth Street and approximately 7,000 linear feet of pipe parallel to First Street and Railroad. The sizes of the required trunk line for these two streets range from 24 inches to 72 inches in diameter depending on final design and the condition of the existing pipeline. Dual pipes may be necessary to utilize existing pipes and to avoid other utility conflicts. In addition, some improvements are anticipated to three lift stations located at Murrieta Boulevard, P Street and North Livermore Avenue underpasses.

Storm Drainage Improvements

A city storm drainage system usually has seven major elements. This section is descriptive and is not a list of policies.

1. A master plan study that indicates system criteria and specifies existing deficiencies, proposed improvements and funding sources.
2. A system of street gutters, drain inlets and special drains to collect the storm runoff from individual properties and direct it to the city's trunk lines and drainage channels.
3. A system of trunk lines (pipes which are fifteen inches in diameter or greater) to convey storm runoff from the drop inlets to a natural or improved stream channel which will carry the water away from the city.

4. "Detention basins" may be required if the capacity of the trunk line and channel system are not adequate to carry away storm waters that may accumulate during a "design storm," or if the water needs to be retained and "settled" in order to avoid carrying too high a level of pollutants from streets or industrial storage areas to streams or arroyos.
5. Design measures for development projects to minimize pollutants in storm water runoff.
6. Systems for cleaning streets, pipes, culverts and channels to minimize blocked areas and environmental pollution.
7. A means of identifying potential flooding areas in particularly severe storms or where trunk lines and channels become blocked, and a means of warning residents and firms in these areas of potential or incipient danger.

The City is in the process of updating the Storm Drain Master Plan. However, the majority of storm drains improvements identified under the 1995 Storm Drain Master Plan for the downtown are expected to remain unchanged. This is due primarily to the fact that the majority of the downtown is already developed and is not expected to generate large increases in storm water runoff, and the general topography will remain the same. The high priority projects identified in the 1995 Master Plan included projects along Stanley Boulevard, First Street and Fourth Street, totaling an estimated $7,700,000 (2003 dollars). Developers may expect to be asked to participate in these improvements within the downtown. Developer contributions cannot be calculated at this time in the absence of specific project plans.

Storm Drainage Improvement Policies

Policy 1: The storm drainage system should be able to prevent uncontrolled storm water runoff in all areas of Downtown, under both existing and future conditions.

Policy 2: The City shall complete a new Storm Water Master Plan and update as needed, in order to accurately evaluate the storm drainage flows and determine appropriate facility improvements consistent with this Specific Plan and General Plan.

Policy 3: The city shall prioritize storm drain improvements recommended in the Storm Drain Master Plan and implement them through the City's Capital Improvement Program. These improvements shall be funded by the Storm Water Impact Fee.

Policy 4: Developments will need to provide for the design and construction of storm drainage improvements in a manner acceptable to the City Engineer based on adopted Master Plans, Development Plan Check and Procedures Manual, City Standards, Specifications and Details. These improvements involve connecting on-site drainage to City storm drain systems.

Water Service

Existing Conditions and Resources

Water is supplied to Downtown Livermore via the California Water Service Company (Cal Water) water system. Roughly 60 percent of the water supplied by Cal Water comes from the Zone 7 Water District, the remaining 40 percent comes from wells they own and operate. Cal Water's system is divided into 5 pressure zones and in 2002; the average water supply to their service area was 12 million gallons per day (MGD).

Fire flow availability and system design are based on consumer demand and Fire Department requirements at the original date of construction. Since many areas within the Downtown were built some time ago, they do not meet current fire flow requirements. Intensified development in the Downtown will likely necessitate upgrades to Cal Water's existing water system in order to meet the current standards for system design as required by Livermore-Pleasanton Fire District.

Zone 7, the water supplier for Cal Water, projects that it can supply sufficient water supplies to meet the City's future treated water needs, assuming that it continues to receive its contractual allocation from its supply sources.

Cal Water has prepared a preliminary analysis of proposed improvements which would be needed

to support the anticipated build out of the Downtown area as outlined under this Specific Plan. Cal Water estimates they would need to replace many of their older mains with new larger water mains, new fire hydrants, increase their storage capacity and install new pump stations. The preliminary cost prepared by Cal Water is estimated at $12,500,000 (2003 dollars). Due to the large scale of improvements anticipated by Cal Water, phasing of these improvements into smaller scale projects would have to be developed as Downtown development occurs. The City of Livermore will work with Cal Water in effort to phase these smaller water improvements with capital improvements planned for the Downtown, in order to maximize some cost savings. Proposed improvements to Cal Water's system would meet the anticipated future needs of the Downtown area and would deliver sufficient water, fire flow and storage requirements.

Water System Improvements

A water service system usually has seven major elements. These elements are descriptive and are not policies.

1. A Master Plan Study that indicated system criteria and specific existing deficiencies, proposed improvements and funding sources.
2. A source or sources of supply from lakes, wells or surface (river) sources. Storage tanks are used to provide adequate pressure and to insure an adequate supply for emergencies or when maintenance on a well or aqueduct is required.
3. A means of testing the purity and treating it as necessary to assure water potability.
4. Water mains to interconnect the sources of supply and the storage tank and pumps to connect them with the local distribution networks to draw from alternative sources when necessary.
5. Local lines to distribute the water to individual customers and meters to measure the amount of water used by them. These lines must be sufficiently large to provide for fire flows. It is important that these local lines provide "loop" circulation to provide continuous flow, system reliability and to maintain water quality.
6. A system of hydrants to be used by the Livermore-Pleasanton Fire District.
7. A management, operating and maintenance group.

Cal Water will coordinate improvements to their system at such time the City of Livermore implements their capital projects in the Downtown area. Individual projects for Cal Water cannot be identified at this time in the absence of specific City project plans.

Costs for fire suppression and potable water demand will be determined as the project area develops and individual developers submit development plans for approval. These are normal development costs applied to each project.

Developers should consult with the Livermore-Pleasanton Fire District to determine necessary improvements. New buildings within the City are required to have fire sprinklers. In existing buildings where new additions result in a total building area of 3,000 square feet or greater, or where a higher fire occupancy rating results from a change of use, fire sprinklers will be required.

Water Service Standards

Residential uses typically consume between 90 and 125 gallons per capita per day in non-drought conditions or approximately 135 to 270 gallons per dwelling, per day. Commercial and industrial uses typically consume between 800 and 1,950 gallons per acre, per day; these will vary based on specific uses. The City will be updating the Water Master Plan and the water consumption rates may be revised based on new housing occupancy figures. The high cost of housing may increase the number of occupants per dwelling unit.

Recycled Water

The use of recycled water is not anticipated in the Downtown, since there are no recycled water mains within 2.5 miles of the Downtown. In addition, there are few identified recycled use sites with the Downtown area. Further, the City is the only producer of recycled water and would have to supply Cal Water with recycled water for distribution.

Water Service Improvement Policies

Policy 1: Water service to all properties shall provide for sufficient water quality, pressure, storage and reliability in order to meet all needs including fire protection flow standards.

Policy 2: The water system will require additional water lines, looping, upsizing or rerouting of some of the distribution facilities, storage and pump stations, as well as augmentation of water supply from Zone 7. More intense development demands more service and may require an individual area to upsize facilities.

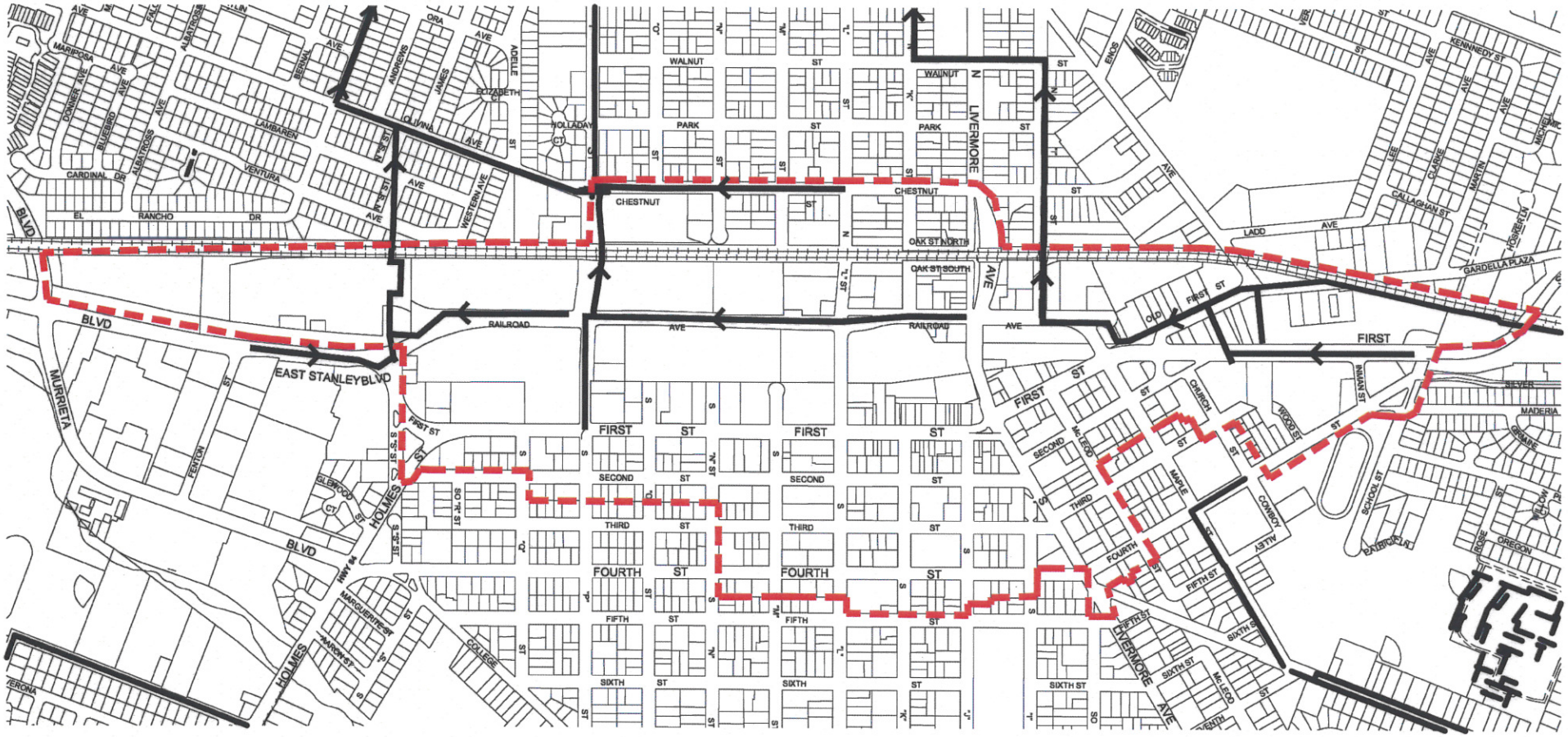
Policy 3: Developers will need to provide a "fair share" cost associated with the design and construction of water improvements in a manner acceptable to the City and Cal Water, based on Cal Water's Water Management Plan recommendations as amended from time to time, and/or other water studies.

Sanitary Sewers

Existing Conditions and Resources

The City's sanitary sewer system collects effluent into trunk lines and directs the flow to the City's Water Reclamation Plant (WRP) at the intersection of Kitty Hawk Road and Jack London Boulevard, located 3.0 miles northwest of the Plan area. All areas of Downtown are served by sewer main lines. The figure on page 9-9, Downtown Sewer Plan, shows the sewer main system in Downtown.

As described in the 1995 Sanitary Sewer Master Plan, some of Downtown has relied upon six-inch sewer lines, which will be inadequate when additional development increases the sewage flow. As new developments occur, smaller sewer lines should be upgraded or replaced to eight to fifteen inch lines as needed. Larger sewer mains (18 inches or greater) identified for replacement in the Sewer Master Plan may need to be increased in size to accommodate additional flows generated by



Legend

- DOWNTOWN STUDY LIMITS
- SANITARY SEWER TRUNKLINE (>10") REQUIRED FOR ULTIMATE BUILDOUT

0 225' 450' 1800'

FIGURE 10-2: DOWNTOWN SEWER PLAN

Livermore Downtown Specific Plan

intensification of the Downtown. Preliminary cost estimates have been developed which include replacement of the identified sewer mains as well as replacement of undersized pipes in the Downtown area and they range in the order of $10,000,000. The City is updating the Sewer Master Plan, which will identify required sewer main alignment, pipe sizes, priorities and cost estimates associated with intensified development proposed in the downtown. The City will also prepare a new Sanitary Sewer Connection Fee Study to determine an appropriate fee in order to construct the necessary sewer improvements.

The City's Water Reclamation Plant has a dry weather capacity of 8.5 million gallons per day. In 2003, the average daily dry weather flow at the Reclamation Plant was 6.5 MGD and a wet weather flow of 8.0 MGD. The allowable wet weather flow into the Livermore Amador Valley Water Management Agency (LAVWMA) facility cannot exceed 8.7 MGD by agreement. As a result, the Water Reclamation Plant can only accommodate another 0.5 MGD, approximately. It is estimated that projects already approved (as of April 2003), but not yet built or occupied would generate approximately 0.6 MGD. The City will need to secure an additional disposal alternative to augment the current disposal capacity available through LAVWMA.

Sanitary Sewer Improvements

A city sanitary sewer system usually has six major elements. These elements are descriptive and are not policies.

1. A master plan study that indicates system criteria specifies existing deficiencies, planned improvements and funding sources.
2. A system of local collection lines to transmit the effluent from houses, stores, offices, industries and community facilities to the trunk lines and/or a treatment plant.
3. A system of trunk lines (both gravity and pressure) and pumping plants to transmit the aggregate effluent from the different sections of the city to a treatment facility.
4. A treatment plant to process the effluent so that the treated liquid portions may be returned to the environment. The solid wastes must also be disposed of either as a commercial product or to a "dump site."

5. A means of testing the treatment plant's products to ensure that they comply with environmental regulations.
6. A management, operating and maintenance group.

Improvements to the existing system will be needed with developer participation as development occurs in the Downtown. Developer contributions cannot be calculated at this time in the absence of specific project plans.

Sanitary Sewer Standards

Sewer lines for residential uses should be able to receive 70 gallons per capita per day, which is approximately 105 gallons per day for each multi-family unit and 210 gallons per day for each single-family dwelling. Commercial and industrial uses should not generate more than approximately 1,000 gallons per day per acre for most uses.

Sanitary Sewer Policies

Policy 1: All properties will be served by sewer lines and sewer mains, which are of adequate size and design to move sewage to the City Water Reclamation Plant in a sanitary and reliable manner.

Policy 2: The City shall include priority projects identified in the Sewer Master Plan in the Capital Improvement Program, for implementation. Priority projects shall conform to Policy 1 above. The City shall update its Sanitary Sewer Connection Fee Study to determine new Sanitary Sewer Connection Fees, in order to fund improvements.

Policy 3: For new developments, hydraulic calculations should be submitted as a part of the building permit plan check process to determine if the existing sewer mains serving the proposed development have available capacity for its additional demands. If capacity is not available, sewer mains of adequate size should be designed and constructed consistent with the City's adopted Sewer Master Plan, standards, specifications and details.