

# 7 Infrastructure Element



CITY OF  
**LIVERMORE**  
CALIFORNIA



## 7. INFRASTRUCTURE ELEMENT

*Infrastructure plays a critical role in Livermore’s quality of life, providing the fundamental systems that support daily living, public health, safety, and economic prosperity. This network of physical facilities and services allows the city to function smoothly, enabling residents to access clean water, manage wastewater and solid waste disposal responsibly, travel safely, communicate effectively, and safeguard from severe weather and climate-related impacts. Well-designed and maintained infrastructure also helps create a sustainable community by conserving resources, reducing environmental impacts, and enhancing resilience.*

The City of Livermore is committed to providing reliable, efficient, and accessible infrastructure that meets the needs of current residents while planning responsibly for future generations. This includes maintaining existing systems in good condition, upgrading facilities to incorporate new technologies, addressing climate change impacts, and ensuring equitable access to services throughout the community.

The Infrastructure Element, while not mandated by State law, provides a framework for the planning, development, and maintenance of the city’s critical systems. This element addresses the following topics:

### Asset Management

Understanding the long-term demands and costs for public infrastructure.

### Water Distribution

Supporting effective and efficient water delivery to meet current and future needs.

### Wastewater

Planning for safe and environmentally responsible wastewater collection, treatment, and disposal.

### Stormwater

Managing storm drainage to prevent flooding while protecting water quality.

### Solid Waste

Collection, disposal, and diversion programs to manage waste in a sustainable and environmentally responsible manner.

### Private Utilities

Coordinating with providers of electricity, natural gas, telecommunications, and cable services.

### Relevance to General Plan Vision and Guiding Principles

The Infrastructure Element implements the 2045 General Plan Vision and Guiding Principles by planning for services and infrastructure to support Livermore’s high quality of life and economy. This element advances the following Guiding Principles:



#### **Prosperity**

- Improving infrastructure using a fiscally sustainable approach.
- Ensuring there is sufficient capacity to serve existing and future land uses and populations.



#### **Resiliency**

- Considering climate change risks to infrastructure in the asset management and planning process.
- Upgrading infrastructure to address impacts from climate change.



#### **Sustainability**

- Expanding water conservation and the use of recycled water.
- Promoting green stormwater infrastructure.
- Reducing solid waste generation.



#### **Equity**

- Conducting outreach to all community members in advance of infrastructure improvements.
- Ensuring private utilities offer timely, fair access to everyone in the community.

## ASSET MANAGEMENT



*Ongoing maintenance of Livermore's streets, bike lanes, and sidewalks supports safe, efficient, and accessible travel for all users.*

The City of Livermore owns, operates, and maintains over \$3 billion worth of public infrastructure. This includes streets, sidewalks, traffic signals, streetlights, parks, landscaped areas, buildings, storm drains, the water system, sewer system, recycled water system, the airport, and a golf course. Asset management is the process of reducing the long-term impacts and costs associated with public infrastructure by maintaining it as efficiently as possible. Maintenance refers to ongoing operations as well as repair and ultimate replacement. To continue existing service levels and avoid future infrastructure failures, the City must consider the lifespan of facilities and replacement costs.

The City plans for infrastructure upgrades and improvements through the Capital Improvement Plan (CIP). The CIP is both a fiscal and planning tool that identifies which infrastructure projects the City plans to undertake, provides a schedule for the projects, and identifies costs and funding sources. The CIP includes projects necessary to support the implementation of the General Plan and is a tool for coordinating those projects to maximize efficiency.

Asset Management also considers the potential threats of climate change to infrastructure. The Tri-Valley Local Hazard Mitigation Plan (LHMP) addresses the effects of climate change on infrastructure by identifying how hazards like flooding, drought, extreme heat, wildfires, and landslides are expected to intensify and threaten systems such as roads, utilities, dams, and stormwater infrastructure. The LHMP promotes integrating climate resilience into the CIP and encourages the use of green infrastructure, fire-resistant design, and upgraded stormwater systems.

## Goal INF-1

Improve infrastructure using a fiscally and environmentally sustainable approach that responds to changing conditions.



### Policies

#### Policy INF-1.1 Asset Management

Deliver and maintain high-quality infrastructure while managing individual assets to improve safety and minimize the life cycle cost associated with each asset.

#### Policy INF-1.2 Infrastructure Climate Adaptations

Incorporate climate change risks, such as the impacts of drought, increasing storm events, and groundwater changes, in the infrastructure improvements planning process.



#### Policy INF-1.3 Citywide Infrastructure

Maintain an accurate understanding of the replacement and operation costs, improvement timing, and risks of the City's assets.

#### Policy INF-1.4 Infrastructure Master Plans

Develop and update master plans to assess infrastructure and to develop a Capital Improvement Program for necessary improvements and inform operations.

#### Policy INF-1.5 Infrastructure Improvement Coordination

Coordinate water distribution system, wastewater collection, stormwater routing improvements, and/or utility undergrounding with roadway improvements to maximize implementation efficiency, reduce costs, and minimize disturbance due to construction activity.

#### Policy INF-1.6 Infrastructure Improvements Outreach

Keep the community informed of planned infrastructure improvements and future infrastructure needs. Use outreach and engagement methods that connect with a broad representation of community members.



**Policy INF-1.7 Infrastructure Development Fees**

Review and update, as necessary, ordinances, policy procedures, and/or fee programs establishing the requirements and mechanisms for collecting financial contributions from new development to improve infrastructure.

**Policy INF-1.8 Infrastructure Improvement Decision Process**

Deliver a consistent and transparent decision-making process for infrastructure improvement prioritization. Use guiding principles, such as resiliency, environmental sustainability, equity, safety, and fiscal responsibility to guide the prioritization of infrastructure improvements.



*The City of Livermore plans for infrastructure upgrades and improvements using clear schedules, cost estimates, and allocating funding in the City's financial plan.*

## WATER DISTRIBUTION



*Effective water conservation and management practices are essential to sustaining a reliable supply in California's semi-arid climate.*

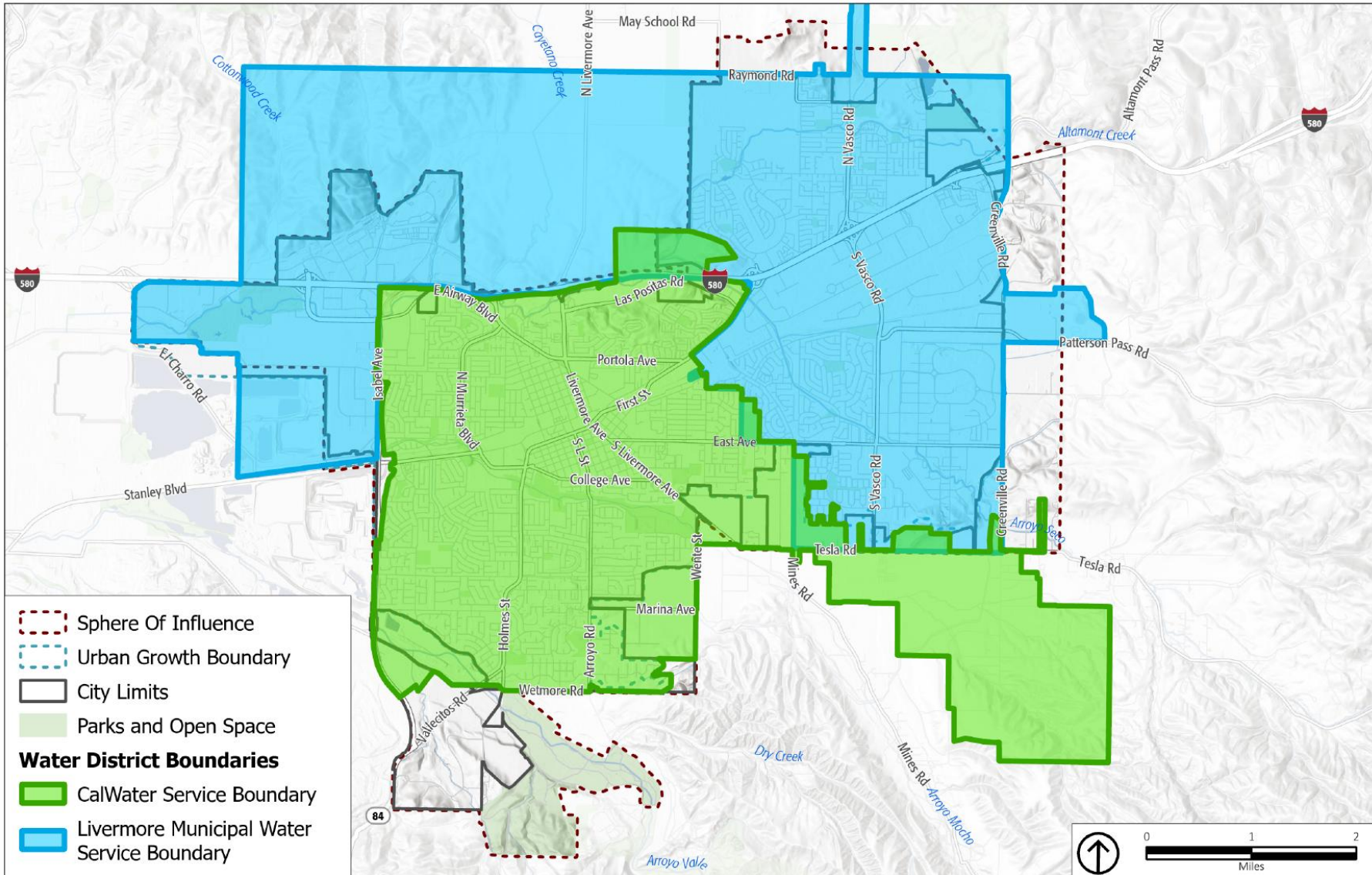
### Historical Water Conservation in the Bay Area

Water use in the Bay Area hit its highest point in the early 1980s. Since then, the state has faced several droughts, prompting updates to laws, building standards, and public awareness around conserving water. People have responded by using less water: adopting more efficient appliances, fixing leaks, cutting back on outdoor irrigation, and replacing lawns with drought-tolerant landscaping. As a result, water demand has gone down, even as the region's population and economy have grown. Looking ahead to 2045, both the Bay Area and the state will need to continue improving water conservation and efficiency to support future prosperity.

Livermore residents and businesses receive potable water through a multiagency system that brings water from regional sources to local taps. Zone 7 Water Agency serves as the wholesale water supplier for the entire Tri-Valley area, managing the Livermore Valley Groundwater Basin and importing water from the State Water Project. This water is then distributed to customers by two primary retail water providers: California Water Service (Cal Water), which serves the downtown area and central and southern regions of the city, and Livermore Municipal Water, which provides service to the northwest, northeast, and east portions of Livermore. **Figure INF-1** shows the service boundaries of Cal Water and Livermore Municipal Water. Additional water service is provided to the Lawrence Livermore and Sandia National Laboratories through the San Francisco Public Utilities Commission's Hetch Hetchy system.

Water is a finite resource in California's semi-arid climate, and ensuring a reliable supply to meet Livermore's needs requires careful planning and management. The City works closely with Zone 7 and other water providers to forecast future demands, identify potential supply constraints, and develop strategies to address them. These collaborative efforts include exploring supplemental water sources, expanding recycled water infrastructure, and enhancing storage capacity and distribution systems. Climate change and recurring drought conditions have increased the importance of diversifying water sources and improving system resilience to ensure water security for future generations.

Figure INF-1 Water Service Provider District Boundaries



Source: City of Livermore, 2021; Esri, 2025; PlaceWorks, 2025

Note: This map is included for informational purposes and is not adopted as part of this General Plan.

Water conservation plays a vital role in Livermore’s approach to water resource management. The City promotes water efficiency and conservation through various programs, incentives, and regulations that align with State-mandated conservation goals. These efforts include water-efficient landscaping requirements, plumbing efficiency standards, public education campaigns, and the expansion of recycled water use for appropriate applications such as irrigation. By encouraging responsible water use and developing alternative supplies, such as recycled water, Livermore works to balance the needs of current and future residents while protecting this essential natural resource.

## Goal INF-2

Provide sufficient water supplies and facilities that meet current and future needs in an efficient and sustainable manner.



### Policies

- Policy INF-2.1 Potable Water**  
 Ensure the availability of potable water for the city’s residents and businesses.
- Policy INF-2.2 Water Efficiency**  
 Increase water efficiency in all new development and existing building stock.
- Policy INF-2.3 Water Supply Conservation Improvements**  
 Participate in regional programs and projects that target the improvement and conservation of the region’s groundwater and surface water supply.
- Policy INF-2.4 Recycled Water**  
 Use and expand the use of recycled water for appropriate uses, where and when available.
- Policy INF-2.5 On-Site Water Reuse**  
 Allow on-site stormwater capture and greywater reuse in commercial and residential settings.



**Policy INF-2.6 Water Service Connection**

Require structures with plumbing in city limits to connect to the water system, unless distance from the public water system or other factors indicate a need for an exemption.

**Policy INF-2.7 Water Service Area**

Approve extensions of water service, storage, and the distribution system within or adjacent to the City-approved service area consistent with the Urban Growth Boundary and Out of Area Service Agreement Policies.

**Policy INF-2.8 Water Availability Development Condition**

Condition the approval of new development on the availability of sufficient water supply, storage, and pressure requirements from the City or other water purveyors.

**Policy INF-2.9 Water Infrastructure Development Requirements**

Require new development projects be responsible for constructing an adequate potable water distribution system and paying water connection fees to construct additional necessary storage, pumping, and distribution facilities.

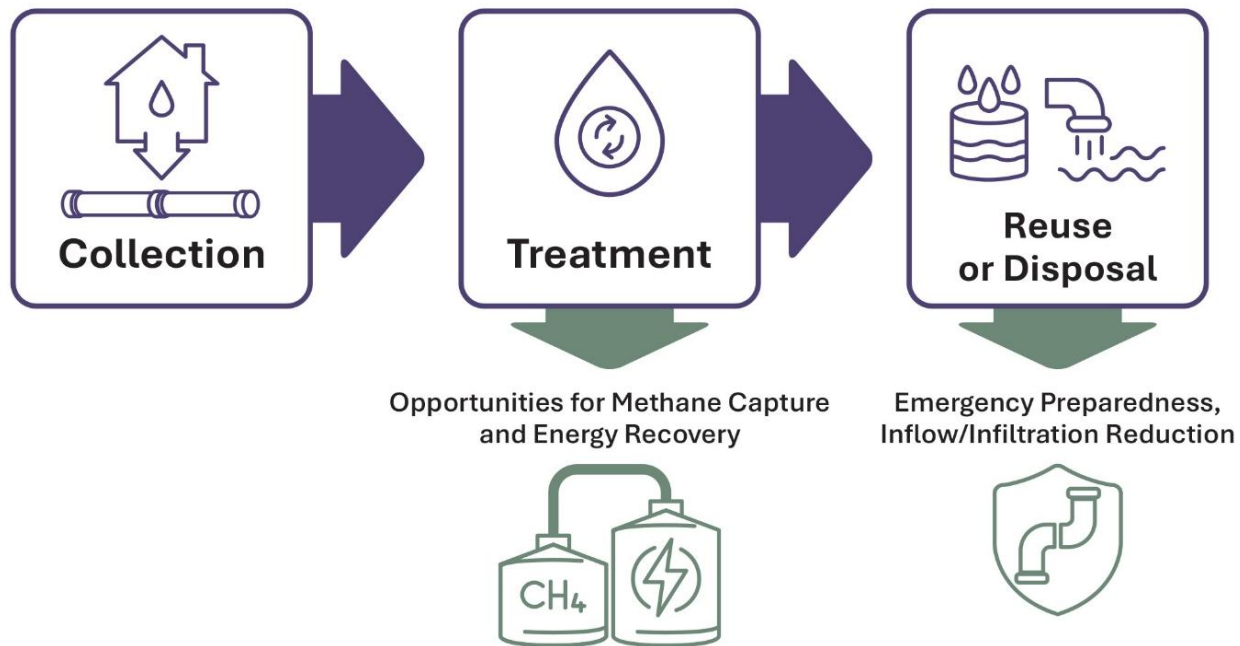
## WASTEWATER



*The Livermore Water Reclamation Plant treats wastewater to produce recycled water for irrigation and fire protection, while the remaining treated water is safely discharged to the San Francisco Bay.*

The City of Livermore collects, treats, and disposes of wastewater through an extensive system of pipes, mains, cleanouts, and access points that protect public health and the environment. Wastewater flows through this network to the Livermore Water Reclamation Plant, where it undergoes treatment before being either reused as recycled water or transported through the Livermore Amador Valley Water Management Agency pipeline for disposal in San Francisco Bay. The City's Water Resources Division operates and maintains this critical infrastructure to ensure reliable service while meeting regulatory requirements for environmental protection.

## Wastewater System



Planning for wastewater infrastructure requires careful consideration of current and future needs, environmental regulations, and climate resilience. The City regularly assesses the condition and capacity of its collection and treatment system to identify necessary improvements and maintenance needs. This includes monitoring for potential inflow and infiltration issues, which can strain system capacity during wet-weather events. Future wastewater infrastructure planning must address not only population and job growth but also potential impacts from climate change, such as increased storm intensity and prolonged droughts that may affect system operations and recycled water availability.

The wastewater system provides opportunities to recover resources and support sustainability goals. The City continues to explore ways to expand recycled water production and use, reducing the use of potable water for irrigation and industrial purposes. Additionally, wastewater treatment processes can generate renewable energy through methane capture, turning a waste product into a valuable resource. By viewing wastewater as part of an integrated water resource management approach, Livermore maximizes environmental benefits while providing essential services to protect public health.

## Goal INF-3

Plan, manage, and develop wastewater collection, treatment, and disposal systems in ways that are safe, sanitary, resilient to climate change, and financially sound.



### Policies

#### Policy INF-3.1 Wastewater System Connections

Require structures with plumbing within the city limits to connect to the public wastewater collection system area consistent with the Urban Growth Boundary.

#### Policy INF-3.2 Wastewater System Capacity

Approve new development on the condition of availability of adequate long-term capacity of wastewater treatment, conveyance, and disposal sufficient to serve the proposed development area.

#### Policy INF-3.3 Septic Tanks

Allow septic tanks only in agricultural zones if approved by Zone 7 and the Alameda County Health Department.

#### Policy INF-3.4 South Livermore Sewer Extension

Coordinate with Alameda County and Zone 7 on the extension of sewer service to the South Livermore Valley to protect groundwater quality and enable long-term land use goals, consistent with the Urban Growth Boundary and climate-resilient infrastructure planning.

#### Policy INF-3.5 Sewer Main Location

Locate sewer mains to minimize the impacts to the environment and nearby infrastructure.

#### Policy INF-3.6 Equitable Access to Services

Ensure that all neighborhoods, including underserved and rural areas, have equitable access to reliable and safe wastewater services, consistent with the City's Urban Growth Boundary and environmental justice goals.



**Policy INF-3.7 Inflow and Infiltration Reduction**

Implement programs to identify and reduce inflow and infiltration in the wastewater collection system to maintain system capacity, reduce treatment costs, and protect water quality.

**Policy INF-3.8 Emergency Preparedness and Resilience**

Ensure that wastewater infrastructure is designed and maintained to withstand natural disasters, including flooding and seismic events, and develop contingency plans for emergency operations.



**Policy INF-3.9 Monitoring and Compliance**

Maintain a robust monitoring and reporting program to ensure compliance with all State and federal wastewater discharge regulations, including those set by the Regional Water Quality Control Board.

**Policy INF-3.10 Public Education and Outreach Support**

Implement public education initiatives to reduce improper disposal of fats, oils, grease (FOG), pharmaceuticals, and hazardous materials into the wastewater system.

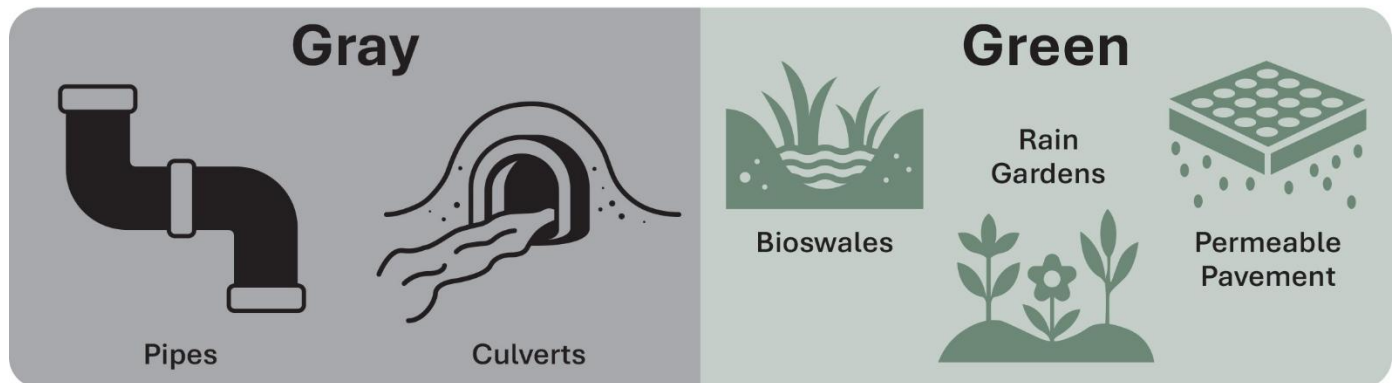
## STORMWATER

Livermore’s stormwater management system collects, conveys, and controls rainwater runoff to prevent flooding and protect water quality in local waterways. The system encompasses over 200 miles of storm drain pipelines, channels, culverts, and three pump stations that direct stormwater through the city’s four major watersheds, including Arroyo del Valle, Arroyo Mocho, Arroyo Las Positas, and Altamont Creek. The City’s Water Resources Division manages the municipal storm drain infrastructure and shares responsibility of regional flood protection with Zone 7 Water Agency, overseeing regional flood-protection facilities along the major creek channels in the Livermore Valley.

### Green Infrastructure

Green infrastructure uses natural systems and processes to manage stormwater runoff, providing an alternative to traditional “gray” infrastructure, like concrete channels and pipes. These approaches can reduce flooding, improve water quality by filtering pollutants, recharge groundwater, provide habitat for wildlife, and create aesthetic amenities for communities.

## Infrastructure



Effective stormwater management balances flood protection with environmental stewardship. The City designs and maintains its drainage system to safely handle stormwater flows while also incorporating features that improve water quality and enhance natural habitat. This approach includes preserving natural drainage patterns when possible, implementing green infrastructure solutions that filter pollutants and promote groundwater recharge, and avoiding concrete channelization of creeks and arroyos to maintain their ecological functions. Livermore’s Municipal Regional Permit (MRP) is an important tool for stormwater pollution prevention. The MRP, which is administered by the San Francisco Bay Regional Water Quality Control Board, requires projects in Livermore to limit pollutants and manage how rainwater from existing and new development flows off streets and buildings. As development occurs, the City requires new projects to incorporate measures that minimize runoff and prevent increases in downstream flooding through detention basins, permeable surfaces, and other stormwater controls.

## Goal INF-4

Collect and convey stormwater in ways that are safe, sanitary, environmentally acceptable, and financially sustainable.



### Policies

#### Policy INF-4.1 Storm Drainage Design

Design public storm drainage improvements to carry appropriate design-year flows to accommodate large storm events, including those exacerbated by climate change, and plan for future buildout.



#### Policy INF-4.2 Storm Drainage Studies

Require new development and major redevelopment projects to evaluate how stormwater runoff will affect local and regional drainage and flood systems. Projects must include plans for detention and drainage facilities to prevent increased flood risk.

#### Policy INF-4.3 Impervious Surfaces

Minimize impervious surfaces in new development and integrate green infrastructure to assist in stormwater management.

#### Policy INF-4.4 Green Stormwater Infrastructure on City Property

Install green infrastructure and other natural stormwater management infrastructure on City property and at City facilities, as appropriate.

#### Policy INF-4.5 Stream Modifications

Allow stream modifications when necessary to contain flood flows. Modifications shall enhance and/or restore creek natural habitat while providing stormwater management.

#### Policy INF-4.6 Regional Flood Protection and Stormwater Maintenance Coordination

Collaborate with Zone 7 and other responsible agencies to maintain and improve the regional flood protection system, including the upkeep of creeks, arroyos, and other stormwater infrastructure under their jurisdiction.

## SOLID WASTE



*Solid waste management efforts, such as waste reduction and diversion programs, promote public health, reduce greenhouse gas emissions, and alleviate pollution.*

### Reducing Our Trash

As landfill space becomes increasingly limited and the environmental impacts of waste disposal more apparent, there is a growing emphasis on waste reduction and diversion programs that minimize the amount of material sent to landfills. Decomposing organic materials in landfills releases methane, so reducing and managing solid waste also contributes to greenhouse gas reductions. California law establishes ambitious waste-reduction targets and requires municipalities to implement programs for recycling, composting, and other diversion methods. California state and Alameda County laws establish ambitious waste-reduction targets and requires municipalities to implement programs for recycling, composting, and other diversion methods. These regulations require a comprehensive source reduction and recycling program that further guides local efforts to eliminate, reduce, or divert waste.

Effective solid waste management is essential for maintaining a clean, healthy environment in Livermore. Properly managing waste protects public health, conserves natural resources, and reduces environmental impacts such as air and water pollution. By diverting materials from landfills through recycling, composting, and other waste reduction methods, the City can extend the lifespan of disposal facilities while recovering valuable resources from materials that would otherwise be discarded.

Solid waste services in Livermore include collection, transportation, processing, and disposal of residential and commercial waste. These services are provided through arrangements with private waste management companies that handle various waste streams, including garbage, recyclables, and organic materials. The City plays an important role in reducing waste through public education, requiring adequate waste storage facilities in new developments, encouraging businesses to expand waste reduction and diversion efforts, and implementing environmentally responsible purchasing practices for City operations.

By reducing waste generation and increasing diversion through recycling and composting programs, Livermore can help reduce these emissions while working toward compliance with State and County waste diversion requirements.

## Goal INF-5

Reduce the generation of solid waste, increase the diversion of materials from landfills, and support efficient, environmentally responsible solid waste collection, recycling, composting, and disposal systems.



### Policies

**Policy INF-5.1 Waste Management**

Implement an integrated approach to solid waste management that prioritizes waste reduction, reuse, recycling, composting, and environmentally responsible disposal that minimizes landfill use, conserves resources, and protects public health.

**Policy INF-5.2 State and County Diversion and Recycling Requirements**

Meet or exceed State and County waste diversion and recycling requirements and implement efforts that will aid in minimizing waste.



**Policy INF-5.3 Methane Reduction**

Work with public and private waste disposal entities to reduce methane emissions released from waste disposal and increase methane recovery for energy production from other sources.



**Policy INF-5.4 Organics Diversion**

Divert organic waste from landfills, including food scraps and yard trimmings, through composting and anaerobic digestion.

**Policy INF-5.5 Source Reduction and Recycling Programs**

Implement source reduction and recycling programs to minimize waste at the point of manufacture or use.



**Policy INF-5.6 Equitable Access to Waste Services**

Ensure all residents and businesses, including those in underserved areas, have equitable access to reliable and affordable solid waste, recycling, and organics collection services.

**Policy INF-5.7 City Use of Recycled Materials**

Increase City operations that purchase equipment and supplies that can be recycled rather than sent to landfills.

**Policy INF-5.8 Public Facility Waste Management**

Implement best practices for waste reduction, recycling, and composting at City-owned facilities to serve as models for sustainable waste management.

**Policy INF-5.9 Waste Bin Storage**

Require new multifamily, commercial, and office development to have a dedicated storage room for landfill waste, recycling, and organic waste bins. The storage room must be sufficient for enough bins to meet the needs of all residential units and nonresidential spaces in the development.

**Policy INF-5.10 Business Recycling**

Work to expand recycling and reduce waste generated by Livermore businesses.

## PRIVATE UTILITIES

Livermore residents and businesses rely on several privately operated utility systems that provide essential services for daily life and economic activity. The Pacific Gas and Electric Company (PG&E) is the primary provider of electricity in Livermore, with Ava Community Energy (formerly known as East Bay Community Energy) serving as the community choice aggregator that purchases clean electricity that is distributed through PG&E's existing grid infrastructure. PG&E also serves as the sole provider of natural gas to the city. These energy utilities maintain the infrastructure necessary to safely deliver power and heating to homes, businesses, and public facilities throughout Livermore, while working toward State-mandated goals for renewable energy adoption and carbon reduction.

Telecommunications services play an increasingly important role in community connectivity, economic development, and quality of life. Multiple service providers offer wireless internet, cell phone and wireline telephone, cable television, and satellite television options to Livermore customers. The backbone of these networks consists of fiberoptic cables complemented by cellular towers and small cell facilities mounted on utility poles or streetlights. As technology evolves, the demand for faster and more reliable telecommunications infrastructure continues to grow, making these services essential for both residential and business users.

While the City doesn't directly provide these private utility services, it plays an important role in facilitating their delivery through permitting, land use planning, land and right-of-way leasing, and coordination during City infrastructure improvement projects. The City works with utility providers to

ensure that services are available for projected population growth, are aesthetically acceptable to the community, and minimize environmental impacts. This includes efforts to encourage undergrounding of utility lines where feasible to improve safety, reliability, and visual quality. By coordinating with different utility providers and incorporating utility needs into its planning processes, the City helps ensure that residents and businesses have access to the reliable services they need while protecting community character and the environment.



*Energy utilities maintain the infrastructure needed to safely deliver power and heating to homes, businesses, and public facilities.*

# Goal INF-6

Ensure the provision of utilities in ways that are safe, environmentally acceptable, and benefit all members of the community.



## Policies

**Policy INF-6.1 Utility Provision**

Ensure that utilities, such as electricity, natural gas, telecommunications, and cable, are available or can be provided for new projects in a way that is safe, equitable, environmentally responsible, and visually appropriate for the community.



**Policy INF-6.2 Utility Expansions**

Process permits and approvals for utility expansions in a fair and timely manner in accordance with the expansion of new development.

**Policy INF-6.3 PG&E Grid Resilience**

Support Pacific Gas and Electric Company’s efforts to improve grid resilience and capacity to meet increased electrical demand.

**Policy INF-6.4 Expand Electricity Infrastructure to Support Economic Growth**

Facilitate economic development by ensuring reliable, scalable, and sustainable electricity infrastructure that meets the needs of existing businesses and attracts new investment.

**Policy INF-6.5 Wireless Communication Facility Location**

Locate personal wireless communication facilities in a manner that minimizes the impacts on adjacent land uses to the extent permitted by State and federal laws, and meets the evolving needs of the community and local businesses to ensure equitable access to telecommunication facilities.



**Policy INF-6.6 Utility Improvements**

Facilitate needed improvements to private utility services in the city.

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