3.16 UTILITIES

The Project would upgrade the Zoo’s existing outdated water, wastewater, and solid waste facilities that are necessary to adequately meet future demands and needs under the Zoo’s projected growth over the next 20 years. Additionally, the Vision Plan’s objectives work towards the City’s overarching sustainability objectives such as water self-sufficiency with the use of water-efficient plumbing and the expanded use of recycled water to reduce the Zoo’s potable water demand. Mitigation required to offset the Zoo’s anticipated increase in potable water demand and associated wastewater generation would reduce adverse impacts on water supplies and the capacity of the sewer system.

This section describes existing and planned utilities and evaluates the operation and service capacity of these utilities to serve the Los Angeles Zoo and Botanical Gardens (Zoo) under the proposed Project. Utilities addressed herein include potable and recycled water, wastewater (sewer) facilities, and solid waste disposal. The utilities analysis is organized in three subsections: (1) water infrastructure and supply; (2) wastewater collection, transmission, and treatment; and (3) solid waste management. This section identifies the existing capacity of these utilities and services provided by the City of Los Angeles (City) and utility companies and evaluates whether capacity exists to accommodate the Project demands.

Table 3.16-1 identifies the utilities and service providers currently serving the Project site. Other utilities include energy (e.g., electricity and natural gas) and stormwater management facilities, but these resources are addressed in other sections of this Environmental Impact Report (EIR). Energy services and demands are addressed in Section 3.5, Energy. Stormwater management facilities are addressed in Section 3.10, Hydrology and Water Quality.

Table 3.16-1. Utilities Serving the Project Site

<table>
<thead>
<tr>
<th>Utility</th>
<th>Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td>City of Los Angeles, Department of Water and Power (LADWP)</td>
</tr>
<tr>
<td>Wastewater Disposal</td>
<td>City of Los Angeles, Bureau of Sanitation (LASAN)</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>LASAN and Department of General Services</td>
</tr>
</tbody>
</table>

3.16.1 Environmental Setting

Regulatory Setting

State and local regulations address water supply and water infrastructure, wastewater services, and solid waste disposal. There are no applicable federal regulations that address utilities. For regulations pertaining to electricity and natural gas supplies and services, refer
to Section 3.5, *Energy*. For regulations pertaining to stormwater management and water quality, please refer to Section 3.10, *Hydrology and Water Quality*.

**State Regulations**

**Safe Drinking Water Act**

California enacted its own Safe Drinking Water Act in 1976. The California Department of Public Health (CDPH) is responsible enforcing for the Safe Water Drinking Act. Title 22 of the California Code of Regulations (CCR) establishes CDPH authority and stipulates drinking water quality and monitoring standards. These standards are equal to or more stringent than the federal standards.

**California Governors Drought Declarations**

California Governor Brown on January 17, 2014 proclaimed a State of Emergency and directed state officials to take all necessary actions to make water immediately available. On April 25, 2014, the Governor issued an executive order (EO) to speed up actions necessary to reduce harmful effects of the drought, and he called on all Californians to redouble their efforts to conserve water. On December 22, 2014 Governor Brown issued EO B-28-14 extending directives to the California Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) to take actions necessary to make water immediately available through May 31, 2016 and to extend California Environmental Quality Act (CEQA) suspensions for certain water supply projects. On April 1, 2015, the governor issued EO B-29-15. Key provisions include ordering the SWRCB to impose restrictions to achieve a 25 percent reduction in potable urban water usage through February 28, 2016. On May 9, 2016, the governor issued EO B-37-16, establishing longer-term water conservation measures through the end of January 2017, which include monthly water use reporting, strengthened urban drought contingency plans, elimination of wasteful water use practices, and mandated adjustments to emergency water conservation regulations and restrictions during extended drought conditions. These extended water conservation measures recognize differing water supply conditions for many communities and require that communities develop water efficiency measures and conservations plans specific to the conditions of their respective water supply. The Governor’s drought declaration also calls upon local urban water suppliers and municipalities to implement their local water shortage contingency plans immediately in order to avoid or forestall outright restrictions that could become necessary later in the drought season. EO B-40-17, signed on April 7, 2017 ended the drought state of emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne, where emergency drinking water projects will continue to help address diminished groundwater supplies. However, the EO maintains water reporting requirements and prohibitions on wasteful practices. Further, EO B-37-16, and the associated water use efficiency framework, remains in effect (DWR 2017a).
Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of Assembly Bill (AB) 1739 (Dickinson), Senate Bill (SB) 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). The SGMA requires local governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under the SGMA, these basins should reach sustainability within 20 years of implementing the required sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline.

SGMA empowers local agencies to form groundwater sustainability agencies (GSAs) to manage basins sustainably and requires those GSAs to adopt groundwater sustainability plans (GSPs) for crucial groundwater basins in California. According to the SGMA, GSAs have until January 21, 2022 to develop their GSPs. The Project site is partially located within the San Fernando Valley Groundwater Basin, which is designated as a Very Low Priority groundwater basin. As such, SGMA does not require preparation of a GSP for the basin.

California Water Plan: Update 2013

The California Water Plan: Update 2013 provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The plan outlines actions that together bring reliability, restoration, and resilience to California water resources, reinforcing the value of integrated water management, and examining policies that allow water managers to combine flood management, environmental stewardship, and surface water and groundwater supply.

Urban Water Management Planning Act

The Urban Water Management Planning Act (California Water Code Division 6, Part 2.6, Sections 10610 et seq.) was developed due to concerns over potential water supply shortages throughout California. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required, as part of the Act, to develop and implement Urban Water Management Plans (UWMPs) to describe water supply, service area demand, population trends and efforts to promote efficient use and management of water resources. An UWMP is intended to serve as a water supply and demand planning document that is updated every 5 years to reflect changes in the water supplier’s service area including water supply trends, and conservation and water use efficiency policies. Specifically, municipal water suppliers that serve more than 3,000 customers or provide more than 3,000 acre-feet per year (AFY) must adopt an UWMP.

Senate Bill (SB) 610 and California Water Code Sections 10910 et seq.

SB 610 was adopted in 2001 and amended the statutes of the Urban Water Management Planning Act, as well as the California Water Code (CWC) Sections 10910 et seq. SB 610
reflects the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning process.

CWC Section 10910 requires that for specified projects subject to CEQA, the urban water supplier must prepare a Water Supply Assessment (WSA) that determines whether the projected water demand associated with a proposed project is included as part of the most recently adopted UWMP. Specifically, the WSA identifies adequate available water supplies necessary to meet the demand, as well as the cumulative demand for the general region over the next 20 years, under average, single dry, and multiple dry year water conditions. Under CWC Section 10910, a WSA need only be prepared if a project exceeds the following specific thresholds of development:

a) A proposed residential development of more than 500 dwelling units.

b) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet (sf) of floor space.

c) A commercial building employing more than 1,000 persons or having more than 250,000 sf of floor space.

d) A hotel or motel with more than 500 rooms.

e) A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 sf of floor area.

f) A mixed-use project that includes one or more of these elements.

g) A project creating the equivalent water demand of 500 residential units.

The WSA must be approved by the public water system at a regular or special meeting and must be incorporated into the CEQA document. The Lead Agency must then make certain findings related to water supply based on the water supply assessment. In addition, under SB 610, an urban water supplier responsible for the preparation and periodic updating of an UWMP must describe the water supply projects and programs that may be undertaken to meet the total projected water use of the service area.

2009 Water Conservation Act (SB x7-7)

SB x7-7 was enacted in November 2009, requiring all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita urban water use by December 31, 2020 through water use targets for urban water suppliers, water management plans, and best management practices. Urban retailers can achieve the SB x7-7 goal using one of four specified methods:

a) Option 1: 80 percent of baseline use (reduction of 20 percent).
b) Option 2: Sum of specified performance standards.

c) Option 3: 95 percent of California Department of Water Resources Hydrologic Region target from draft 20x2020 plan.

d) Option 4: A flexible alternative designed to adjust to local circumstances.

Urban retail water suppliers must monitor and report compliance on an individual or regional basis. Individual urban retail water suppliers are not required to achieve a reduction in urban per capita water use greater than 20 percent. Compliance with the water reduction target is required for continued State water grants and loan eligibility. After 2021, failure of urban retail water suppliers to meet their targets establishes a violation of law for administrative or judicial proceedings.

**California Code of Regulations, Title 20**

The CCR, Title 20, Sections 1605.1(h) and 1605.1(i) establishes efficiency standards (i.e., maximum flow rates) for all new federally regulated plumbing fittings and fixtures, including showerheads, lavatory faucets, and flush toilets. Amongst these standards, the maximum flow rate is 1.2 gallons per minute (gpm) at 60 pounds per square inch (psi) for residential lavatory faucets and aerators, 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi for kitchen faucets and aerators, 0.5 gpm at 60 psi for public lavatory faucets, and 1.8 gallons per flush for flush toilets, effective January 1, 2016. Additionally, Section 1605.3(h) establishes State efficiency standards for non-federally regulated plumbing fittings, including commercial pre-rinse spray valves.

**California Code of Regulations, Title 22, Division 4, Chapter 3**

The CCR, Title 22, Division 4, Chapter 3 establishes water recycling criteria for use of recycled water for irrigation, impoundments, cooling, agriculture, and other purposes. These criteria set the standards for treating water to a disinfected tertiary level.

**California Green Building Code**

The California Green Building Code (CALGreen) builds on standards established under CCR, Title 20 and sets forth water efficiency standards (i.e., maximum flow rates) for all new federally regulated plumbing fittings and fixtures. Updates to CALGreen were published July 1, 2019 and became effective January 1, 2020. Mandatory standards for water use are shown in Table 3.16-2.
### Table 3.16-2. CALGreen Mandatory Maximum Flow Rates

<table>
<thead>
<tr>
<th>Feature</th>
<th>Maximum Flow Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Showerheads</td>
<td>1.8 gpm at 80 psi</td>
</tr>
<tr>
<td>Lavatory Faucet in Common Areas</td>
<td>0.5 gpm at 60 psi</td>
</tr>
<tr>
<td>Kitchen Faucet</td>
<td>1.8 gpm at 60 psi</td>
</tr>
<tr>
<td>Water Closets</td>
<td>1.28 gallons per flush</td>
</tr>
<tr>
<td>Urinals</td>
<td>0.125 gallons per flush (wall-mounted)</td>
</tr>
<tr>
<td></td>
<td>0.5 gallons per flush (floor-mounted)</td>
</tr>
<tr>
<td>Metering Faucets</td>
<td>0.2 gallons per cycle</td>
</tr>
<tr>
<td>Wash Fountains</td>
<td>1.8 gpm at 60 psi</td>
</tr>
</tbody>
</table>

Note: gpm = gallons per minute  
Source: California Department of General Services 2018.

**Assembly Bill (AB) 939 California Integrated Waste Management Act**

The California Integrated Waste Management Act of 1989 established an integrated waste management hierarchy to guide the California Integrated Waste Management Board and local agencies in implementation, in order of priority: 1) source reduction; 2) recycling and composting; and 3) environmentally safe transformation and land disposal. The Act required each county to establish a task force to coordinate the development of city Source Reduction and Recycling Elements (SRREs) and a countywide siting element. The Act also required each county to prepare, adopt, and submit to the Board an Integrated Waste Management Plan (IWMP).

Additionally, waste diversion mandates were set in AB 939. The law required each city or county plan to include an implementation schedule which shows: diversion of 25 percent of all solid waste from landfill or transformation facilities by January 1, 1995 through source reduction, recycling, and composting activities; and, diversion of 50 percent of all solid waste by January 1, 2000 through source reduction, recycling, and composting activities. A city or county may be deemed exempt from these goals or to reduce the requirements if the city or county demonstrates that attainment of the goals is not feasible due to the small geographic size of the jurisdiction and the small quantity of waste generated. After January 1, 1995, the Act authorized the Board to establish an alternative goal to the 50 percent requirement, if the Board finds that the local agency is effectively implementing all source reduction, recycling, and composting measures to the maximum extent feasible.

**SB 1374 Construction and Demolition Waste Materials Diversion Requirements**

Passed in 2002, the Construction and Demolition Waste Materials Diversion Requirements require jurisdictions to include a synopsis of the amount of construction and demolition (C&D) waste diverted in their annual AB 939 report. The legislation also required that the California Integrated Waste Management Board (e.g., California Department of Resources Recycling and Recovery [CalRecycle]) to adopt a model ordinance for diverting 50 to 75 percent of all C&D waste from landfills.
**SB 1016**

SB 1016 builds on AB 939 compliance requirements by implementing a simplified measure of jurisdictions’ performance. SB 1016 accomplishes this by changing the measurement of waste reduction from a diversion rate to a disposal-based indicator – the per capita disposal rate. The purpose of the per capita disposal measurement system is to make the process of goal measurement as established by AB 939 simpler, timelier, and more accurate. Beginning with reporting year 2007 jurisdiction annual reports, diversion rates will no longer be measured. With the passage of SB 1016, only per capita disposal rates are measured. For 2007 and subsequent years, CalRecycle compares reported disposal tons to population to calculate per capita disposal expressed in pounds/person/day.

**AB 1826 Mandatory Commercial Organics Recycling**

AB 1826 (Chapter 727, Statutes of 2014 [Chesbro, AB 1826]) requires businesses that generate a specified amount of organic waste per week to arrange for recycling services for that waste, and for jurisdictions to implement a recycling program to divert organic waste from businesses subject to the law, as well as report to CalRecycle on their progress in implementing an organic waste recycling program.

**Zero Waste California**

Zero Waste California is a state-launched program that promotes a new vision of waste. The concept is premised on maximizing existing recycling and reuses efforts, while ensuring that products are designed for the environment and have the potential to be repaired, reused, or recycled. The Zero Waste California program promotes the goals of market development, recycled product procurement, and research and development of new and sustainable technologies.

**AB 341**

AB 341 established a State policy goal that no less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020, and requiring CalRecycle to provide a report to the Legislature that recommends strategies to achieve the policy goal by January 1, 2014. AB 341 mandates local jurisdictions to implement commercial recycling by July 1, 2012. AB 341 requires any business (including schools and government facilities) that generates 4 cubic yards (cy) or more of waste per week, and multifamily buildings with five or more units to arrange for recycling services.

**Health and Safety Code Section 17921.3**

Health and Safety Code Section 17921.3 requires low-flush toilets and urinals in all buildings, including commercial, residential, institutional, and industrial buildings.
Regional Regulations

Metropolitan Water District Water Supply Allocation Plan

On February 12, 2008, the Board of Directors of the Metropolitan Water District (MWD) approved a Water Supply Allocation Plan. The Plan was prepared to address a balanced water allocation in the event that there is a water shortage. The plan provides reduced allocations to all of Metropolitan’s service area; encompassing all Southern California counties. The intent is to share the burden of reduced water deliveries. The plan incorporates a number of elements including past conservation efforts, local water supplies and penalty fees. The penalty fees, if collected, would be re-invested in that area for further conservation efforts and extended development of local supplies.

Under the plan, MWD’s member agencies and their retailers would be allocated supplies partly based on their dependency on the district’s imported supplies, while considering other local supply sources. Among the changes were an update to the base period to fiscal years (FY) ending 2013 and 2014, and revised credits for per capita water use reductions for agencies that have already put in place mandatory conservation ordinances and requirements. Other changes establish a separate allocation for drought-impacted groundwater basins and replace current penalty rates with an allocation surcharge based on MWD’s current turf removal program cost. This plan is not in effect now and would have to be brought to the Board for action before implementation.

Los Angeles County Integrated Waste Management Plan

The California IWMP is updated annually, and the annual reports analyze solid waste disposal and estimated future remaining capacity at County landfills. The 2017 Annual Report, which was completed by the Los Angeles County Department of Public Works in April 2019, assessed future landfill disposal needs over a 15-year planning horizon based in part on forecasted waste generation and available landfill capacity. Several factors were used in the 2017 Annual Report to determine landfill capacity, including (1) the expiration of various landfill permits (e.g., land use permits, waste discharge requirement permits, solid waste facilities permits, and air quality permits); (2) restrictions on the processing of waste generated outside given landfills’ jurisdictions and/or watershed boundaries; and (3) operational constraints.

As discussed in the 2017 Annual Report, reliance on existing permitted in-County landfill capacity alone would be insufficient in meeting the County’s long-term disposal needs (i.e., through 2032). Similar to previous years, the 2017 Annual Report also considered six scenarios (e.g. maximization of waste reduction and recycling; expansion of existing landfills; development of alternative technologies; expansion of transfer and processing infrastructure, and the use of out-of-County disposal options) to assess the County’s ability to meet the solid waste daily disposal demand. The analyses of the scenarios demonstrated that the County would be able to meet the disposal needs of all jurisdictions through 2032. However, the
County acknowledged in the 2017 Annual Report that there will be significant challenges in developing the processing capacity needed by the 2020 deadline of meeting the 75-percent statewide recycling goal as set forth by AB 341 (see discussion above). Accordingly, they concluded that maintaining adequate reserve (excess) capacity will be essential to ensuring that the disposal needs of the County are met through 2032.

**Local Regulations**

In October 2014, City Mayor Eric Garcetti issued Executive Directive No. 5, which set goals to reduce per capita water use by 20 percent by 2017, reduce purchases of imported potable water by 50 percent, and create an integrated water strategy to increase local supplies and improve water security considering climate change and seismic vulnerability. On February 2, 2017, the Mayor announced that the City’s 20 percent water reduction target had been met.

**City of Los Angeles Department of Water and Power (LADWP) 2015 UWMP**

LADWP’s 2015 UWMP, adopted in June 2016, serves two purposes: (i) achieve full compliance with the requirements of California’s Urban Water Management Planning Act (described above) and (ii) serve as a master plan for water supply and resource management consistent with the City’s goals and objectives.

The LADWP UWMP includes estimates of past, current, and projected potable and recycled water use identifies conservation and reclamation measures currently in practice, describes alternative conservation measures, and provides an urban water shortage contingency plan. The factors forecasting the LADWP’s future water demand include population projections from the Southern California Association of Governments’ (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (2012-2035 RTP/SCS)\(^1\), LADWP water billing date from each major customer class, weather, and water conservation. The LADWP 2015 UWMP uses a service area-wide method to develop its water demand projections. This methodology does not rely on individual development demands to determine area-wide growth. Rather, the growth in water use for the entire service area was considered in developing long-term water projections for the City through the year 2040. LADWP’s 2015 UWMP incorporates the objectives of the Sustainable City pLAn (see below). Overall, LADWP’s 2015 UWMP projects a 7-percent lower water demand trend than what was projected in the previous 2010 UWMP.

**Sustainable City pLAn**

In April 2015, the City’s first Sustainable City pLAn (pLAn) was released. The pLAn includes a multi-faceted approach to developing a locally sustainable water supply to reduce reliance on imported water, reducing water use through conservation, and increasing local water supply and availability. The 2015 Sustainable City pLAn enhances ED 5’s goals and

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\(^1\) Since the adoption of the 2015 UWMP, the SCAG has prepared a 2016-2040 RTP/SCS with updated population projections for the state.
incorporates water savings goals of reduction in per capita potable water by 20 percent by 2017, by 22.5 percent by 2025, and by 25 percent by 2035, using a 2014 baseline of 131 gallons per capita per day. The pLAn also includes a reduction in imported water purchases from MWD by 50 percent of the total supply by 2025 and a 50-percent increase in water supply from local sources by 2035. Specific strategies and desired outcomes for conservation, recycled water, and stormwater capture are included in the pLAn. These include investments in state-of-the-art technology, rebates and incentives promoting water-efficient appliances, tiered water pricing, a technical assistance program for business and industry, and large landscaped irrigation and efficiency programs.

In April 2016, the Sustainable City pLAn’s First Annual Report for 2015 to 2016 was released. It was reported that the City had reduced water use by 19 percent to nearly achieve the 20 percent water reduction goal, and that rebates for water efficient appliances have contributed to conservation. As discussed above, as of February 2017, the City has met its 20 percent water reduction target, which also meets the Sustainable City pLAn’s goal. As the Sustainable City pLAn’s Second Annual Report for 2016 to 2017 was released in March 2017, the City began working toward its next goal of reducing municipal water use by 22.5 percent by 2025.

The pLAn’s Third Annual Report was released in April 2018, noting that on January 17, 2018, Mayor Garcetti broke ground on the North Hollywood West Wellhead Remediation Project (NHWWRP), a project to clean up and restore the use of groundwater for safe, high-quality drinking water in the San Fernando Valley and in the City at large. LADWP was awarded a $44.5 million Proposition 1 grant from the SWRCB in January 2018 to help fund the NHWWRP, which is slated to be complete in 2020. The NHWWRP, in combination with three other planned remediation projects in the San Fernando Valley, advances two key pLAn goals – reducing the purchase of imported water by 50 percent by 2025 and producing 50 percent of City’s water locally by 2035. By facilitating the use of additional groundwater from the San Fernando Basin, this project also furthers the goals of increasing recycled water use and stormwater capture.

In 2019, Mayor Garcetti launched Los Angeles’ Green New Deal, which serves as an ambitious update to the Sustainable City pLAn (Office of Los Angeles Mayor Eric Garcetti 2019). The Green New Deal pLAn sets aggressive goals for the city’s sustainable future. The plan’s goals for water conservation and sustainable reuse include the following:

- Source 70 percent of the City’s water locally and capture 150,000 AFY of stormwater by 2035;
- Recycle 100 percent of wastewater for beneficial reuse by 2035;
- Build at least 10 new multi-benefit stormwater capture projects by 2025; 100 by 2035; and 200 by 2050; and
- Reduce potable water use per capita by 22.5 percent by 2025; and 25 percent by 2035; and maintain or reduce 2035 per capita water use through 2050.
City of Los Angeles Integrated Resources Plan

The City’s Integrated Resources Plan (IRP) was developed by multiple departments in order to address the facility needs of the City’s wastewater program, recycled water, and urban runoff/stormwater management through the year 2020. The Final IRP 5-Year Review was released in June 2012 and included 12 projects that were separated into two categories: (1) “Go Projects” for immediate implementation, and (2) “Go-If Triggered Projects” for implementation in the future once a trigger is reached. Triggers for these projects include wastewater flow, population, regulations, or operational efficiency. Based on the Final IRP 5-Year Review, the Go Projects consisted of six capital improvement projects for which triggers were considered to have been met at the time the IRP EIR was certified. The Go-If Triggered Projects consisted of six capital improvement projects for which triggers were not considered to have been met at the time the IRP EIR was certified. Go Projects for the Los Angeles-Glendale Water Reclamation Plant (LAGWRP), which serves the Project site, include construction of wastewater storage that will allow operations to be more efficient while increasing its ability to provide consistent recycled water flows to customers and construction of recycled water storage that will allow the Plant to deliver recycled water to customers at times when wastewater flows are low (i.e., during the night).

One Water LA

One Water LA 2040 Plan provides a strategic vision and a collaborative approach for integrated water management. The City’s IRP (discussed above) was the start of a paradigm shift for the City and resulted in significant achievements in water management. Since then, the water landscape in the City has changed with increased demands, new regulations, and threats of climate change. In response to these changes and to help achieve water sustainability, the City initiated the One Water LA 2040 Plan. This plan builds upon the success of the IRP, which had a planning horizon to year 2020. The One Water LA 2040 Plan takes a holistic and collaborative approach, to consider all water resources from surface water, groundwater, potable water, wastewater, recycled water, dry-weather runoff, and stormwater as "One Water." The plan identifies multi-departmental and multi-agency integration opportunities to manage the City's watersheds, water resources, and water facilities in a more efficient, cost effective, and sustainable manner. As with the IRP, such efforts would be organized in phases. Phase I of the One Water Los Angeles 2040 Plan includes developing initial planning baselines and guiding principles for water management and citywide facilities planning in coordination with City departments, other agencies, and stakeholders. Phase II includes development of technical studies and an updated facilities plan for stormwater and wastewater. The One Water LA 2040 Plan represents the City’s continued and improved commitment to proactively manage all its water resources and implement innovative solutions, driven by the Sustainable City pLAn. The Plan will guide the City with strategic decisions for water resource related projects, programs, and policies that will make Los Angeles a resilient and sustainable City.
City of Los Angeles Solid Waste Management Policy Plan and Source Reduction and Recycling Element

In 1993, the City adopted the City of Los Angeles Solid Waste Management Policy Plan that provides long-range policy direction for solid waste management and served as an umbrella document for the City’s SRRE. The SRRE describes the Source Reduction and Recycling Program for waste collected by LASAN in conformance with the requirements of AB 939. Specifically, Volume IV of the SRRE presents strategies for targeted waste generators such as hotels, restaurants, and hospitals; targeted materials such as construction and demolition debris, green waste, and direct mail; and government departments. Pursuant to AB 939, the objective of the City Solid Waste Management Policy Plan and the SRRE is to promote source reduction or recycling to achieve a minimum diversion of 50 percent of the City’s waste by 2000 through the disposal of the remaining waste in local and possibly remote landfills. The City surpassed the state-mandated 50-percent diversion rate for the year 2000. In addition, in 1999, Mayor Richard Riordan directed City departments to develop strategies to achieve the citywide recycling goal of 70 percent by 2020. This goal has also been surpassed by the City, which achieved a diversion rate of 76.4 percent in 2013. The responsibility for documenting waste diversion efforts for the City lies with LASAN. As set forth below, more recent plans have been adopted by the City to further its waste reduction and recycling goals.

City of Los Angeles Solid Resources Infrastructure Strategy Facilities Plan

The City’s Solid Resources Infrastructure Strategy Facilities Plan (Facilities Plan) was prepared in 2000 by LASAN in efforts to address the goals of AB 939 and the policies of the General Plan Framework Element. The following objectives are included in the Facilities Plan:

- Develop a transfer facility and/or recycling center in the Central Los Angeles Area;
- Continue to research and develop the use of Material Recovery Facilities to preprocess all residual waste prior to delivery to a disposal site; and
- Develop a comprehensive and continual public education and community outreach program designed to educate and inform the public about the City’s solid resources programs and strategies.

Additionally, LASAN operates bulky item pick-ups, E-waste collection events, and curbside recycling. The Curbside Recycling Program offers recycling collection for all single-family homes in the City, but currently excludes service to multi-family buildings of four units or more.

City of Los Angeles RENEW LA Plan and Solid Waste Integrated Resources Plan

RENEW LA was adopted by the City Council in February 2006 for the purpose of facilitating a shift from solid waste disposal to resource recovery. The plan focuses on combining key elements of existing reduction and recycling programs and infrastructure with new systems and conversion technologies to achieve resource recovery (without combustion) in the form...
of traditional recyclables; soil amendments; and renewable fuels, chemicals, and energy. Furthermore, the plan calls for reductions in the quantity of and environmental impacts associated with residual materials disposed in landfills. The goal of the plan was an overall diversion level of 90 percent by 2025 and becoming a “zero waste” city by 2030.

LASAN developed the Solid Waste Integrated Resources Plan (SWIRP) also known as the “Zero Waste Plan,” in 2013. The SWIRP is a master plan to reduce solid waste, increase recycling, and manage trash in the City through the year 2030. The SWIRP is intended to provide an outline of the policies, programs, infrastructure, regulations, incentives, new green jobs, technology, and financial strategies necessary to achieve the City’s goal of becoming a “zero waste” city by the year 2030.

The term “zero waste” refers to maximizing recycling, minimizing waste, reducing consumption, and encouraging the use of products with recycle/reused materials. As noted by the City, “zero waste” is a goal and not a categorical imperative; the City is seeking to come as close to “zero waste” as possible. The SWIRP is a programmatic plan to develop a series of policies, programs, and facilities required to reach the City’s goal of 90 percent diversion by 2025 in the City. SWIRP has six components for full implementation of the project objectives. These six components will be expanded to improve solid waste management, increase landfill diversion, and accommodate growth. They include the following: (1) Expansion of Existing Residential and Commercial Programs; (2) Implementation of New Downstream Policies and Programs; (3) Implementation of Mandatory Participation Programs; (4) Adoption of Upstream Policies; (5) Development of Processing Facilities; and (6) Disposal of Remaining Residual Waste at Local or Remote Landfills.

**Green LA Plan**

Released in May 2007, the Green LA Plan is an action plan to lead the nation in addressing global warming. The overall goal of the Green LA Plan is to reduce greenhouse gas emissions to 35 percent below 1990 levels by 2030. To achieve this target, a number of goals and objectives have been established in various focus areas. One such focus area is solid waste, as landfills are a major source of methane, a greenhouse gas produced by decomposing trash. The goals of the Green LA Plan are to shift from solid waste disposal to resource recovery and to recycle 70 percent of solid waste generated within the City by 2015. In 2008, the Mayor accelerated that goal to 75 percent diversion by 2013. To meet this target by 2013, LASAN initiated several new programs, including multi-family recycling available to all buildings, construction and demolition recycling requirements, and a pilot residential food scrap program. The City’s solid waste diversion rate for the FY 2013 was 76.4 percent. As previously described, the City’s current goal is 90 percent diversion by 2025.

**Citywide Exclusive Franchise System for Municipal Solid Waste Collection and Handling**

Solid waste collection, management, and disposal in the City are handled both by LASAN crews and by various permitted private solid waste haulers. The City provides solid waste collection, recycling, and other waste management services.
collection, recycling, and green waste collection services primarily to single-family uses and multi-family uses with four units or less. Private solid waste haulers collect from most multi-family residential uses with more than four units and commercial uses based on an open permit system. Permitted waste haulers must obtain an annual permit, submit an annual report, and pay quarterly fees. However, unlike LASAN, private waste haulers are not required to provide recycling services, operate clean fuel vehicles, offer similar costs for similar services, or reduce vehicle miles traveled. Thus, the existing open permit system limits the ability of the City to address compliance with state environmental mandates and the City's waste diversion goals. Although the City has obtained a 76.4 percent solid waste diversion rate as identified in the 2013 Zero Waste Progress Report, nearly 3 million tons of solid waste from the City are still disposed in landfills annually, nearly 70 percent of which is comprised of waste collected by private waste haulers from multi-family residential and commercial customers.

In response to City Council directive, LASAN developed Zero Waste LA, a new public private partnership that establishes a new waste and recycling franchise systems for all businesses, commercial, industrial, and large multi-family customers in the City. In April 2014, the Mayor and City Council approved Ordinance 182,986 that allows the City to establish an exclusive franchise system with 11 zones. With a single-trash hauler responsible for each zone, the franchise system allows for the efficient collection and sustainable management of solid waste resources and recyclables. Among other requirements, the City mandates maximum annual disposal levels and specific diversion requirements for each franchise zone to promote solid waste diversion from landfills in an effort to meet the City's zero waste goals. This program began implementation on July 1, 2017.

City of Los Angeles General Plan Framework Element

The City's General Plan Framework Element (Framework Element), adopted in December 1996 and readopted in August 2001, guides the update of the community plans and Citywide elements, thereby providing a Citywide strategy for long-term growth. As such, the Framework Element addresses federal and state mandates to plan for the future. Chapter 9, Infrastructure and Public Services, of the City's General Plan Framework identifies goals, objectives, and policies for utilities in the City. Goal 9A of Chapter 9 provides for adequate wastewater collection and treatment capacity for the City and in basins tributary to City-owned wastewater treatment facilities.

The Framework Element also contains goals, policies, and objectives that address solid waste services. The Framework Element supports AB 939 and its goals by encouraging “an integrated solid waste management system that maximizes source reduction and materials recovery and minimizes the amount of waste requiring disposal.” The Framework Element addresses many of the programs the City has implemented to divert waste from disposal facilities such as source reduction programs and recycling programs (e.g., Curbside Recycling Program and composting). Furthermore, the Framework Element states that for these
programs to succeed, the City should site businesses at appropriate locations where recyclables can be handled, processed, and/or manufactured to allow a full circle recycling system to develop. The continuing need for solid waste transfer and disposal facilities, as well as the limited disposal capacity of the landfills in Los Angeles, is further addressed by the General Plan Framework, which indicates that more transfer facilities will be needed to dispose of waste at remote landfill facilities. Several landfill disposal facilities that may be accessed by truck are identified in addition to waste-by-rail landfill disposal facilities that can be utilized by the City to meet its disposal needs.

**City Ordinances**

The City has adopted several ordinances, codified in the Los Angeles Municipal Code (LAMC), to reduce water consumption. A summary of the City’s key regulations regarding water conservation is provided below.

Sections 64.11 and 64.12 of the LAMC require approval of a sewer permit prior to connection to the sewer system. New connections to the sewer system are assessed for a Sewerage Facilities Charge. The rate structure for the Sewerage Facilities Charge is based upon wastewater flow strength as well as volume. The determination of wastewater strength for each applicable project is based on City guidelines for the average wastewater concentrations of two parameters, biological oxygen demand and suspended solids, for each type of land use. Fees paid to the Sewerage Facilities Charge are deposited in the City’s Sewer Construction and Maintenance Fund for sewer and sewage-related purposes, including, but not limited to, industrial waste control and water reclamation purposes.

Section 64.15 of the LAMC requires that the LASAN perform a Sewer Capacity Availability Review (SCAR) when: (1) a sewer permit is required to connect to the City’s sewer collection system; (2) proposes additional discharge into an existing public sewer connection; or (3) a future sewer connection or future development that would generate 10,000 gallons or more of sewage per day. A SCAR determines if there is adequate capacity existing in the sewer collection system to safely convey the newly generated sewage from proposed development projects, construction projects, groundwater dewatering projects, and increases of sewage from existing facilities to the appropriate sewage treatment plant. The project applicant is required to pay a SCAR Fee to recover the cost, incurred by the City, in performing the review for any SCAR request that is expected to generate 10,000 gallons per day (gpd) of sewage.

The City’s Bureau of Engineering (BOE) Special Order No. SO06-0691 sets forth design criteria for sewer systems requiring hat trunk, interceptor, outfall, and relief sewers (i.e. sewers that are 18 inches or greater in diameter) be designed for a planning period of 60 to 100 years, and lateral sewers (sewers that are less than 18 inches in diameter) be designed for a planning period of 100 years. The order also requires that sewers be designed so that the peak dry weather flow depth, during their planning period, shall not exceed 50 percent of the pipe diameter.
Ordinance No. 181,519 (Citywide Construction and Demolition Debris Recycling Ordinance) requires LASAN to ensure that all mixed C&D waste generated within City limits be taken to a City certified construction and demolition waste processor. The ordinance became effective in January 2011.

Ordinance No. 171687 (Space Allocation Ordinance) requires the provision of an adequate recycling area or room for collecting and loading recyclable materials for all new construction projects, multi-family residential projects of four or more units where the addition of floor area is 25 percent or more, and other development projects where the addition of floor area is 30 percent or more, pursuant to AB 1327.

Ordinance No. 180,822 (Water Efficiency Requirements) amended Chapter XII, Article 5, of the LAMC to establish water efficiency requirements for new development and renovation of existing buildings, and mandate installation of high efficiency plumbing fixtures in residential and commercial buildings.

Ordinance No. 181,480 (Los Angeles Green Building Code (LAGBC) amended Chapter IX, Article 9, of the LAMC to require newly constructed residential and non-residential buildings to reduce indoor water use by at least 20 percent by: (1) using water saving fixtures or flow restrictions; and/or (2) demonstrating a 20-percent reduction in baseline water use.

Ordinance No. 182,849 amended Chapter IX, Article 9, of the LAMC to mandate that for new water service or for additions or alterations requiring upgraded water service for landscaped areas of at least 1,000 square feet, separate sub-meters or metering devices shall be installed for outdoor potable water use. This ordinance also required that for new non-residential construction with at least 1,000 square feet of cumulative landscaped area, weather- or soil moisture-based irrigation controllers and sensors be installed.

Ordinance No. 184,248 amended Chapter IX, Articles 4 and 9, of the LAMC to establish citywide water efficiency standards and require water-saving systems and technologies in buildings and landscapes.

Ordinance Nos. 181,899 and 183,833 amended Section 64.72 of the LAMC regarding stormwater and urban runoff to include new requirements, including Low Impact Development (LID) requirements that promote water conservation.

Ordinance Nos. 184,691 and 184,692 amended Chapter IX (Green Building Code) of the LAMC to incorporate by reference certain portions of the 2015 International Building Code and the 2016 California Building Standards Code as required by law, and to make local administrative, climatic, geologic or topographical changes to the California Building Standards Code pursuant to California Health and Safety Code Sections 17958.5 and 17958.7. Projects filed on or after January 1, 2017 must comply with the provisions of the City’s Green Building Code. Specific mandatory requirements and elective measures are provided for three categories: (1) low-rise residential buildings; (2) nonresidential and high-rise residential buildings; and (3) additions and alterations to nonresidential and high-rise residential
buildings. Article 9, Division 5 includes mandatory measures for newly constructed nonresidential and high-rise residential buildings.

Ordinance Nos. 166,080, 183,608, and 184,250 amended Chapter XII, Article 1, of the LAMC to clarify prohibited uses of water and modify certain water conservation requirements of the City’s Emergency Water Conservation Plan. The City’s Emergency Water Conservation Plan sets forth six different phases of water conservation, which shall be implemented based on water conditions. As part of these requirements, watering is limited to specific days and hours. In determining which phase of water conservation shall be implemented, LADWP monitors and evaluates the projected water supply and demand. In addition, the Emergency Water Conservation Plan includes penalties for those that violate its requirements.

Ordinance No. 184,130 (City Water Rate Ordinance) was approved in March 15, 2016 to establish tiered water rate schedules for single-dwelling unit customers; multi-dwelling unit customers; commercial, industrial, and governmental customers and temporary construction; recycled water service; private water service; publicly sponsored irrigation, recreational, agricultural, horticultural, and floricultural uses, community gardens and youth sports. The new water rate structure increases the number of tiers from two to four for single-dwelling unit customers. In addition, this ordinance intends to maintain cost-of-service principles, incremental tier pricing based on the cost of water supply and added pumping and storage costs. The goal of the ordinance is to incentivize water conservation while recovering the higher costs of providing water to high volume users and accelerating development of sustainable local water supply.

Section 64.30 of the LAMC is the Industrial Waste Control Ordinance, which states that industrial facilities and certain commercial facilities which plan to discharge industrial wastewater to the City's sewage collection and treatment system are required to first obtain an industrial wastewater permit for all clarifiers. A permit is required for each point of discharge to the City’s sewer system. The permit protects the City’s sewer collection and treatment systems and prevents regulated toxic wastewater constituents from passing through to receiving waters and recovered bio-solids.

Existing Conditions

Potable and Non-Potable Water Services

Water Infrastructure

LADWP is the retail water agency providing potable water service to over four million people in LADWP’s 473-square-mile service area through 681,000 active service connections, including the Zoo. LADWP ensures the reliability and quality of its water supply through an extensive distribution system that includes 7,337 miles of pipeline, 119 storage tanks, 96 pump stations, and reservoirs within the City, and a total storage capacity of 315,245 acre-feet (AF) (LADWP 2018a).
Recycled water is provided for landscape irrigation and commercial uses by wastewater treatment plants in the City. Locally, the LAGWRP utilizes full tertiary treatment and redistributes treated wastewater to several customers near the LAGWRP, including Griffith Park, Rio De Los Angeles State Park, Forest Lawn Memorial Park, Universal Studios, and the Zoo’s main parking lot. The LAGWRP Recycled Water Fill Station houses five pumps with a capacity of 4,500 gpm each and pumps treated effluent through the Greenbelt Recycled Water Trunkline, constructed in 1993. The Greenbelt Trunkline crosses the Los Angeles River due west from the LAGWRP and once within Griffith Park, the Greenbelt Trunkline splits into two 30-inch force mains. One force main extends north along the route of the equestrian bridle trail along the eastern border of Griffith Park from LAGWRP parallel to Interstate (I-5) and then SR-134. At the Pecan Grove Picnic Area, the route then crosses Zoo Drive and continues on the south side of Zoo Drive all the way to where Zoo Drive ends at Forest Lawn Drive. The Greenbelt Trunkline then turns south and continues on Forest Lawn Drive ending at Barham Boulevard. The other force main continues west into Griffith Park from its split south of the Wilson-Harding Golf Course. At Crystal Springs Drive, the 30-inch force main travels northwest to the Greenbelt Water Tank (Tank 7-6), located southeast of the Griffith Park Boy Camp (LADWP and Los Angeles Department of Public Works 2012; LADWP 2020b). Each line was sized to provide 4,100 gpm of recycled water to Griffith Park and other customers (LADWP 1996) (Figure 3.16-1).

**Griffith Park Water System**

Water infrastructure in Griffith Park is maintained and operated by LADWP. The Griffith Park Water System is a network of pipeline, storage tanks, and pump stations located throughout the park. The water supply system is interconnected throughout Griffith Park and water can be redirected where needed based on the demand for water within Griffith Park, or if there is construction or maintenance on any leg of the system.

At the Project site, potable water is delivered to the 1-million-gallon capacity Zoo Water Tank from LADWP’s River Supply Conduit, a 72-inch gravity line that parallels the Los Angeles River on the east side of Griffith Park and enters Griffith Park from the north. The Zoo Pump Station draws water from the River Supply Conduit and pumps water through a 12-inch force main into the Zoo Water Tank, located southwest of the Zoo in the Griffith Park hills at an elevation of 780 feet. LADWP’s Zoo Pump Station is located on Crystal Springs Drive, between the Zoo Magnet Center and the Wilson-Harding Golf Course, at the intersection of Crystal Springs Drive and the maintenance road behind the high school. Both the Zoo Pump Station and Zoo Water Tank are named for their proximity to the Zoo, but are maintained and operated by LADWP (LADWP 2020b) (Figure 3.16-1).

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2 Tertiary treatment at the LAGWRP consists of barscreen removal of large solids, primary sedimentation, activated sludge biological treatment with nitrification and denitrification, secondary sedimentation with coagulation, dual media and deep bed sand filtration, chlorination, and dechlorination.
The Zoo Water Tank can also be filled from Tank 11-2, which has a 300,000-gallon capacity and is located at an elevation of 1,110 feet. Tank 11-2 is also supplied by the River Supply Conduit via the Crystal Springs Pump House, which is located upstream of the Zoo Pump Station. The Zoo Pump Station also supplies potable water to the Autry Museum of the American West via a 4-inch line, and the Zoo Magnet Center through a 12-inch line that connect to the 12-inch force main. The Zoo Pump Station contains three identical pumps rated for 500 gpm each (LADWP 1996).

In 1982, the Toyon Tank was constructed adjacent to the Zoo Water Tank to back up the Zoo’s potable water supply system. The Toyon Tank is not currently used for this purpose but is filled and drained periodically for maintenance purposes. The Toyon Tank is located at elevation 830 feet, has a capacity of 188,000 gallons, and is connected to the Zoo Water Tank by a 6-inch diameter aboveground line. The Toyon Tank can be filled from the Zoo Pump House (bypassing the Zoo Water Tank) or directly by the Crystal Springs Pump House (LADWP 1996).

Utilities Infrastructure at the Project Site

A majority of the Zoo’s potable water demand is supplied from the LADWP’s Zoo Water Tank. Water can also be delivered to the Zoo from other water tanks located within Griffith Park, such as the Toyon Tank. The point of connection from where the Zoo receives potable water is at a 12-inch compound domestic water service, Water Meter No. 90119346 and 90119348, located approximately 96 feet east of E. Crystal Springs Drive.

Water distribution lines within the Zoo are separated into two systems, domestic and irrigation systems, although the water source is the same. Eight backflow preventer valve boxes, located on the domestic water lines within the Zoo, lead to three separate irrigation system loops. Connections to the irrigation loops at some of the animal exhibits allow the keepers to washdown the animal exhibits and fill the pools. However, the animal pools’ fill lines and hose connections are typically located directly on the potable system lines rather than the irrigation loops (LADWP 1996). The Zoo’s fire hydrant system is tied into the domestic line and includes 12 fire hydrants located throughout the Zoo campus. A water pressure regulator located in an underground vault near the Zoo’s natural gas meter regulates the water pressure of potable water from the Zoo Water Tank, providing a minimum 117 psi. The pressure is then regulated down to code requirements (i.e., less than 80 psi) at points-of-use within the Zoo (Figure 3.16-1).

The Zoo also receives non-potable (recycled) water from the LAGWRP for irrigation of landscaping within the Zoo’s main parking lot. A 12-inch recycled water line connects to the 30-inch Greenbelt force main east of the intersection of Zoo Drive and Western Heritage Way (LADWP and Los Angeles Department of Public Works 2012). The Zoo’s irrigation lines are 2-inch recycled water lines located at the west end of the Zoo parking lot.
Los Angeles Zoo
Existing Water and Wastewater System
Per the draft Vision Plan, the Zoo’s utility infrastructure is currently operating at capacity and are aging, including water lines. Several utilities were installed deep underground and covered with extensive fill between 50 and 70 years ago. This increases the difficulty of maintenance and requires relatively deep excavation for repair or replacement.

**Water Supply**

LADWP is responsible for providing water within the City limits and ensuring that the delivered water quality meets applicable California health standards for drinking water. As discussed further below, water supplies for the City are provided through a combination of the Los Angeles Aqueduct (LAA), local groundwater, Metropolitan Water District (MWD) (through both the State Water Project [SWP] and the Colorado River Aqueduct), and recycled water (LADWP 2018a). In FY 2017/2018, LADWP had an available water supply of 521,915 AF, including: 35 percent from purchased supplies from the MWD; 59 percent from the LAA; 4 percent from groundwater; and 2 from recycled water (LADWP 2018b).

**Table 3.16-3. LADWP Water Supply from FY 2014/2015 to FY 2017/2018 (AF)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan Water District</td>
<td>362,654</td>
<td>399,975</td>
<td>216,299</td>
<td>182,706</td>
</tr>
<tr>
<td>Los Angeles Aqueduct</td>
<td>57,716</td>
<td>57,853</td>
<td>224,724</td>
<td>307,671</td>
</tr>
<tr>
<td>Groundwater</td>
<td>90,438</td>
<td>79,056</td>
<td>50,439</td>
<td>21,760</td>
</tr>
<tr>
<td>Recycled Water</td>
<td>10,421</td>
<td>9,913</td>
<td>8,032</td>
<td>9,778</td>
</tr>
<tr>
<td>Total</td>
<td>521,229</td>
<td>486,797</td>
<td>499,494</td>
<td>521,915</td>
</tr>
</tbody>
</table>

Source: LADWP 2018.

**Metropolitan Water District**

Historically, the majority of the City’s water demand is supplied by purchases from MWD. MWD is the largest water wholesaler for domestic and municipal uses in California, providing nearly 19 million people with on average 1.7 billion gallons of water per day to a service area of approximately 5,200 square miles. MWD supplies water to its service area through a
conveyance and distribution system that consists of the 242-mile-long Colorado River Aqueduct, five pumping plants, approximately 830 miles of pipeline, five water treatment plants, and nine reservoirs, plus a participation right in the SWP. By FY 2039/40, LADWP’s reliance on MWD water supplies is projected to be reduced significantly from 35 percent of total demand to 11 percent under average weather conditions. The 2015 UWMP projects this reduction will be made possible through additional local supply development and conservation savings over the next 25 years (LADWP 2016).

MWD imports its water supplies from Northern California through the SWP’s California Aqueduct and from the Colorado River by way of MWD’s Colorado River Aqueduct. LADWP is one of 26 member agencies that have preferential rights to purchase water from the MWD. MWD purchased water has varied from 3.2 percent of the City’s total water supply in FY 1978/79 to as much as 70.9 percent in FY 2008/09, with a five-year average of 58.46 percent between FY 2013/14 and FY 2017/18 (LADWP 2018b). LADWP has relied on MWD water supplies during dry years, and in recent years (FY 2016/2017 and FY 2017/2018), LADWP’s reliance on MWD has dropped again with increased supply from the LAA (LADWP 2018b). Although the City plans to reduce its reliance on the MWD’s water supplies through local supply development and conservation, it will continue to rely on the wholesaler to meet current and future supplemental water needs (LADWP 2016).

The Colorado River

MWD owns and operates the Colorado River Aqueduct, which has delivered water from the Colorado River to Southern California since 1941. The Colorado River currently supplies approximately 17 percent of Southern California’s water needs, and on average, makes up about 15 percent of LADWP’s purchases from MWD. MWD has a legal entitlement to receive water from the Colorado River under a permanent service contract with the Secretary of the Interior. California is apportioned the use of 4.4 million AFY of water from the Colorado River plus one-half of any surplus that may be available for use collectively in Arizona, California, and Nevada. In addition, California has historically been allowed to use Colorado River water apportioned to, but not used by, Arizona or Nevada. Since 2003, due to increased consumption, no such unused apportioned water has been available to California. Historically, MWD has been able to claim most of its legal entitlement of Colorado River water and could divert over 1.2 million AF in any year, but persistent drought conditions have contributed to a decrease in these claims. MWD’s supplies from the Colorado River have ranged from a low of nearly 633,000 AF in 2006 to a high of approximately 1,179,000 AF in 2015, and totaled over 996,000 AF in 2016 (LADWP 2018c).

State Water Project

In addition to the Colorado River Aqueduct, MWD imports water from the SWP, owned by the State of California and operated by the Department of Water Resources (DWR). The SWP is a water storage and delivery system of pump stations, reservoirs, aqueducts, tunnels, and power plants. The main purpose of the SWP is to divert and store surplus water during wet
periods and distribute it to areas throughout the state. Other purposes of the SWP include flood control, power generation, recreation, fish and wildlife protection, and water quality management in the Sacramento San Joaquin River Delta (Delta). The SWP transports Feather River water stored in and released from Oroville Dam and conveyed through the Delta, as well as unregulated flows diverted directly from the Delta south via the California Aqueduct to four delivery points near the northern and eastern boundaries of MWD’s service area (LADWP 2013).

Under the original contract, the SWP approved MWD’s initial request of 1,911,500 AF of water. However, due to varied weather conditions in FY 2017/18, MWD’s operations have shifted to ensure continued water supply reliability. The final SWP allocation for calendar year (CY) 2017 was 85 percent of the initial request, or approximately 1.62 million AF, due to record breaking rainfall in the SWP watershed (DWR 2017b). The CY 2017 allocation reached a level that had not been attained for over a decade and provided as much SWP supply as the prior three years combined, which had allocations of 5, 20, and 60 percent, respectively. However, by the end of CY 2017 and for the first two months of CY 2018, conditions in Northern California began to turn dry. The final SWP allocation for CY 2018 was 35 percent, or approximately 669,000 AF, and would have been lower if not for a wet March 2018 that was 165 percent of average (MWD 2018).

Los Angeles Aqueduct

Approximately 59 percent of LADWP’s water supplies come from the LAA (LADWP 2018a). The LAA collects and conveys snowpack runoff from the Owens River in the Eastern Sierra Nevada Mountain Range to the City. Recently, the LAA water supply has been historically low due to the recent drought and minimal snowfall in the Eastern Sierra Nevada. While the LAA water supplies are supplemented by groundwater pumping in the Eastern Sierra Nevada and upper Owens River watershed (which can fluctuate year-to-year due to varying hydrological conditions), the amount of water available to LADWP (via the LAA) is directly linked to the Eastern Sierra Nevada snowpack.

Before it is distributed throughout LADWP’s service area, water from the LAA undergoes treatment and disinfection at the Los Angeles Aqueduct Filtration Plant (LAAFP).
LAAFP’s maximum treatment capacity is 600 million gallons per day (mgd), or approximately 672,000 AFY. The LAAFP typically treats water from LAA and purchases from MWD, maintaining a current average annual flow of approximately 450 mgd during the non-summer months and 550 mgd during the summer months. Therefore, the LAAFP has the ability to treat an additional 50 to 150 mgd of water, depending on the season (City of Los Angeles Department of City Planning 2019).

As discussed in LADWP’s 2015 UWMP, water supply from the LAA can vary substantially from year to year due to hydrology. In very wet years, LAA supply can exceed 500,000 AFY. The LAA historical average is based on the 50-year average hydrology from FY 1961/62 to 2010/11. During average year weather conditions, the LAA supply is projected to increase from 275,700 AFY in 2020 to 293,400 AFY in 2025, in response to water savings from Owens Lake Dust Mitigation after the implementation of the Master Project in 2024. However, over time the overall supply source is expected to decline as a result of climate change, resulting in a reduction of more than 10,000 AFY in the next 25 years. Critical dry year (defined as a repeat of FY 2014/15 drought) supplies can be as low as 32,000 AFY (LADWP 2016).

**Local Groundwater**

LADWP has access to several sources of local groundwater, which comprise approximately 4 percent of LADWP’s water supplies in FY 2017/18 (LADWP 2018b). The Upper Los Angeles River Area (ULARA) watershed, made up of four groundwater basins, is the principal groundwater resource where the City produces local groundwater from the San Fernando Valley and Sylmar Basins. The San Fernando Valley Groundwater Basin (SFVGB) is the largest of these resources, accounting for approximately 80 percent of all local groundwater pumped by LADWP.

The City owns water rights in the San Fernando Valley, Sylmar, Eagle Rock, Central, and West Coast Basins, all of which are adjudicated by judicial decrees of the Superior Court of the State of California. The City’s combined water rights in these basins are approximately 109,809 AFY (Table 3.16-4). The City’s groundwater entitlements in these basins were established by judicial decree of the Superior Court of the State of California for the County of Los Angeles in Case No. 650079, *The City of Los Angeles, Plaintiff, vs. Cities of San Fernando, et. al., Defendants*, dated January 26, 1979 (ULARA Judgment) and the subsequent Sylmar Basin Stipulations (Sylmar Stipulation). In addition to the City’s groundwater entitlements, the ULARA Judgment allows groundwater to be stored within the basin when the City pumps less than its annual water right, and stored water credits may be pumped in future years to supplement the City’s water supply. The direct spreading of both imported surface water and recycled water by the City increases the water rights by an equal amount. The City has accumulated stored water credits in the Sylmar and Central Groundwater Basins (LADWP 2016).

However, various challenges have restricted the City’s use of these local resources, primarily industrial contamination issues. Expanded basin remediation systems are under
development to remove contamination from the local groundwater basin for the betterment of the environment and to restore the beneficial uses of this important basin. The expanded remediation facilities are anticipated to be operational by 2021, which will allow LADWP to pump its full groundwater entitlement (LADWP 2016).

Table 3.16-4. LADWP Annual Groundwater Entitlement

<table>
<thead>
<tr>
<th>Groundwater Basin</th>
<th>Annual Entitlement (AFY)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Fernando</td>
<td>87,000</td>
<td>79.23</td>
</tr>
<tr>
<td>Eagle Rock</td>
<td>500</td>
<td>0.45</td>
</tr>
<tr>
<td>Sylmar</td>
<td>3,570</td>
<td>3.25</td>
</tr>
<tr>
<td>Central</td>
<td>17,236</td>
<td>15.70</td>
</tr>
<tr>
<td>West Coast</td>
<td>1,503</td>
<td>1.37</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109,809</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: LADWP 2016.

Historically, LADWP has operated its groundwater resources conjunctively with surface water supplies by reducing pumping during wet periods when more surface water can be used for municipal supply and increasing pumping during dry periods to compensate for reduced availability of surface water supplies. Taking into account all weather conditions, remediation activities in the SFVGB, and groundwater credits in the Sylmar and Central Basins, LADWP’s projected groundwater supply is expected to increase from a total of 112,670 AFY in FY 2019/2020, and 114,070 AFY in FY 2039/2040 (LADWP 2016).

**Water Conservation and Recycling**

LADWP’s 2015 UWMP details the City’s efforts to promote the efficient use and management of its water resources and provides the basic policy principles that guide LADWP’s decision-making process to secure a sustainable water supply for the City by 2040. To meet multiple water conservation goals established in ED 5, the Sustainable City pLAn, and the Water Conservation Act of 2009, LADWP’s 2015 UWMP aims to reduce per capita potable water use by 22.5 percent by 2025, and by 25 percent by 2035, based on FY 2013/2014 levels. LADWP operates four wastewater treatment plants with a combined capacity to produce up to 649,600 AF of recycled water per year.

The use of recycled water reduces the demand for potable water in the area. LADWP presently uses recycled water for industrial and irrigation purposes. LADWP restores wastewater to a level of quality specified by the California Department of Health Services and distributes it for landscaping and industrial uses. The sustainability of the City’s water supplies is
dependent on the City’s ability to maximize water conservation and increase recycled water use. LADWP’s Action Plan states that the City will develop significant additional water conservation and water recycling, as well as other water resources, to ensure a reliable water supply. In FY2014/2015, LADWP treated 335,400 AF of wastewater for non-potable reuse and distributed approximately 35,000 AF to customers within the City. LADWP is also currently engaged in an aggressive planning and outreach program to expand recycled water supplies and implement the use of recycled water for groundwater recharge. The City’s Green New Deal pLAn sets the goal to recycle 100 percent of wastewater by 2035 (Office of Los Angeles Mayor Eric Garcetti 2019).

**Water Demand**

**City Water Demand**

Average water demand within urban areas can fluctuate based on weather, drought, available supply, growth and development, the economy, and effectiveness of conservation programs. While the extent of these effects may vary based on local conditions, there is a general increase in demands with increased economic activity and hotter, drier weather conditions. The demand for potable water in the City has fluctuated over time. As presented in Chart 3.16-1, the City’s demand decreased from 649,962 AF in FY 2007/2008 to 531,392 AF in FY 2010/2011, and then gradually increased to 592,472 AF in FY 2013/2014 but did not return to the FY 2007/2008 demand level. Water demand dropped approximately 18 percent from 2014 to 486,797 AF in FY 2015/2016 due in large part to water conservation measures and mandatory drought restrictions. From FY 2015/2016 to FY 2017/2018, water demand slightly increased from 486,797 to 521,915 AF but has not returned to the FY 2013/2014 demand level (City of Los Angeles 2018; see Chart 3.16-1). This decline is generally attributable to ongoing and growing water conservation programs, such as the UWMP, Sustainable City pLAn, and One Water L.A., as part of the City’s strategy to achieve water self-sufficiency. In FY 2017/2018, the demand for potable water throughout LADWP’s service area was 521,915 AF.
LADWP projects the City’s water demand from 2020 to 2040 for average year, single dry year, and multi dry year hydrological conditions based on demographics, socioeconomics, conservation practices, and weather conditions. As presented in Table 3.16-5, water demand over the next 20 years is expected to range from 611,800 to 709,500 AFY depending on hydrological conditions. Demographic and population projections used for water demand projections in the 2015 UWMP were based on SCAG’s 2012-2035 RTP/SCS. According to the 2012 RTP/SCS, the City’s population is expected to continue to grow to approximately 4,320,000 in 2035. The more recent 2016-2040 RTP/SCS projects a City population of approximately 4,609,400 residents in 2040. Both the 2012-2035 and 2016-2040 RTP/SCS show projected future population growth in the region with very high growth in the Downtown Los Angeles area, in the vicinity of the Project site.

Table 3.16-5. LADWP Water Demand Projections from 2020 to 2040 (thousand AFY)

<table>
<thead>
<tr>
<th>Hydrological Conditions</th>
<th>Existing (2018)</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Year</td>
<td>521.9</td>
<td>611.8</td>
<td>644.7</td>
<td>652.9</td>
<td>661.8</td>
<td>675.7</td>
</tr>
<tr>
<td>Single Dry Year</td>
<td>--</td>
<td>642.4</td>
<td>676.9</td>
<td>685.5</td>
<td>694.9</td>
<td>709.5</td>
</tr>
<tr>
<td>Multi-Dry Year</td>
<td>--</td>
<td>642.4</td>
<td>676.9</td>
<td>685.5</td>
<td>694.9</td>
<td>709.5</td>
</tr>
</tbody>
</table>

Note: 1 LADPW defines three hydrological conditions: 1) average year (50-year average hydrology from FY 1961/62 through FY 2010/11); 2) single dry year, such as a repeat of the FY 2014/15 drought; and 3) multi-dry year, such as a repeat of FY 2012/13 through FY 2014/15.
Source: LADWP 2018; 2016.
The LAGWRP provides recycled water to Griffith Park, the city of Glendale, Universal City, Forest Lawn Mortuary, Lakeside Country Club, and Mt. Sinai Cemetery. The recycled water provided to Griffith Park is used for irrigating the Wilson-Harding Gold Course, picnic areas, decorative landscaping, and native plant growth. In addition, recycled water provides fire protection for the park (LADWP 1996).

In general, the quantity of water necessary for fire protection varies with the type of development, life hazard, type and level of occupancy, general and specific access, and degree of fire hazard (based on such factors as building age or type of construction). Fire flow is normally measured in gallons per minute, as well as the duration of the fire flow. Fire flow requirements can range from 2,000 gallons per minute in low-density residential areas to 12,000 gallons per minute in high density commercial or industrial areas. A minimum residual water pressure of 20 pounds per square inch is required to remain in the water system while the required gallons per minute is flowing, to be considered adequate by the City Fire Code standards (2017 Los Angeles Fire Code Section 507.3.1).

Zoo Water Demand

At the Project site, potable water demand for the Zoo in 2017 was 107,508 million gallons (329.9 AF). This demand for potable water supplies at the Project is generated by animal exhibits and pools, washdown of animal holding areas, power washing, ancillary uses (e.g., restaurants/kitchens, drinking fountains), administration, restrooms, and irrigation of the interior portions of the Zoo (see Table 3.16-6). There are currently 12 exhibits that include a water feature as part of the exhibit (e.g., moat, pool, aesthetic purposes, etc.). The total water demand for these exhibits is approximately 13,354 million gallons
per year (40.9 AFY). Additionally, there are currently 15 exhibits at the Zoo using Life Support Systems (i.e., recirculating water treatment systems). The frequency to which the pond is drained and filled is dependent on the animal needs and how they might interact with the pond water, such as the hippos’ tendency to defecate in the pond. All Life Support Systems use potable water from LADWP. The ponds range in capacity from 1,300 gallons (i.e., zebra pond) to 140,000 gallons (i.e., elephant pond). The total water demand for pool draining is approximately 11.818 million gallons per year (36.2 AFY) (Los Angeles Zoo Department 2018b).

Table 3.16-6. Annual Potable Water Consumption for Existing Uses at the Project Site

<table>
<thead>
<tr>
<th>Existing Use</th>
<th>Estimated Annual Volume (million gal/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibits (treatment systems, ponds, aesthetics, etc.), Zoo Administration, and Ancillary Uses (e.g., kitchens, drinking fountains)</td>
<td>44.670</td>
</tr>
<tr>
<td>Pool Draining</td>
<td>11.818</td>
</tr>
<tr>
<td>Washdown of Animal Holding Areas</td>
<td>4.777</td>
</tr>
<tr>
<td>Powerwashing (Walkways)</td>
<td>1.349</td>
</tr>
<tr>
<td>Irrigation</td>
<td>36.968</td>
</tr>
<tr>
<td>Zoo</td>
<td>36.089</td>
</tr>
<tr>
<td>Event Center</td>
<td>0.879</td>
</tr>
<tr>
<td>Restrooms</td>
<td>7.926</td>
</tr>
<tr>
<td>Zoo</td>
<td>2.362</td>
</tr>
<tr>
<td>Event Center</td>
<td>5.564</td>
</tr>
<tr>
<td>Total</td>
<td>107.508</td>
</tr>
</tbody>
</table>

Source: Los Angeles Zoo Department 2016; 2018; 2019.

Water from washing animal areas is minimized through sweeping, raking, and removing bedding, feces, and debris prior to hosing an area. The Zoo also reduces potable water use by using recycled water for irrigation of the main parking lot landscape. The Zoo receives recycled water from the Recycled Water Fill Station at the LAGWRP. The Zoo’s recycled water demand was approximately 16.8 million gallons in 2017 (51.5 AF), approximately 12.9 million gallons in 2018 (39.5 AF), and approximately 11.5 million gallons in 2019 (35.3 AF) (from January to November). The average monthly consumption of recycled water from 2017 to

Irrigation within the Zoo account for over a third of the Zoo's overall potable water demand to sustain lush landscaping. Recycled water is available only in the main parking lot.
2019 was 1.18 million gallons (3.6 AF) per month (see Table 3.16-7). Recycled water is not available within the Zoo as recycled water lines (i.e., purple pipe) currently extend only to the parking lot areas from the Greenbelt (Figure 3.16-1).

Table 3.16-7. Estimated Annual Recycled Water Consumption

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Consumption (million gal/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>16.8</td>
</tr>
<tr>
<td>2018</td>
<td>12.9</td>
</tr>
<tr>
<td>2019*</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>41.2</td>
</tr>
<tr>
<td>Average Monthly Demand</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Note: * The Zoo's recycled water demand for the year 2019 was available for January through November only. Source: David Clary 2020.

Water pressure within the vicinity of the Zoo ranges from a low pressure of 48 psi to a high pressure of 85 psi (LADWP 2020a). Due to the size and density of the Zoo during peak visitor days, the Zoo is considered a “High Density Industrial and Commercial” land use for the purposes of determining the Zoo's fire flow requirements. Therefore, the minimum fire flow requirement for the Zoo is 12,000 gpm available to any block (where local conditions indicate that consideration must be given to simultaneous fires, and additional 2,000 to 8,000 gpm will be required). The Zoo’s water demand for fire protection is served by the 1-million-gallon water tank located southwest of the Zoo. The Zoo Pump Station pumps potable water from the Zoo Water Tank to the 12 fire hydrants located throughout the Zoo. Water pressure within the Zoo is fluctuates depending on the location. Water pressure at the regulator station is set between 117 psi and 120 psi and is then regulated to code requirements (i.e., 80 psi) at points-of-use, which is adequate for both domestic and firefighting use.

**Wastewater Services**

**Wastewater Infrastructure**

LASAN is responsible for all facilities that support the collection and conveyance of wastewater and stormwater runoff necessary to protect the community from system overflows, reduce local flooding, and promote overall water quality of the Los Angeles River and marine environments. The City’s wastewater collection system consists of more than 6,700 miles of public sewers that convey about 400 mgd of flow from residences and businesses to the four wastewater treatment and water reclamation plants: the Hyperion Water Reclamation Plan; the Donald C. Tillman Water Reclamation Plant; the Terminal Island Water Reclamation Plant; and the LAGWRP. LASAN divides the wastewater treatment system into two major service areas: 1) the Hyperion Service area, which is served by the Hyperion Water Reclamation Plan, the Donald C. Tillman Water Reclamation Plant, and the LAGWRP, and; 2) the Terminal Island Service Area. The Project site is in the Hyperion Service Area but is directly served by the LAGWRP.
LASAN manages existing sewer infrastructure in accordance with the Sewer System Management Plan, last updated in January 2019. This plan identifies specific deficiencies in the existing sewer system – primarily associated with aging infrastructure – and lays out a plan and budget for repairing or upgrading deficient areas over a period of 10 years, to ensure reliable conveyance of wastewater throughout the City (LASAN 2019b).

The existing wastewater treatment design capacity of the LAGWRP is approximately 20 mgd (LASAN 2019a). In 2019, the LAGWRP treated an average of 17.2 mgd, with the ability to treat an additional 2.8 mgd (see Table 3.16-8). Treated water from the plant is chlorinated and distributed into the recycled water distribution system for irrigation, plumbing, and industrial uses. The remaining treated water that is not sold is discharged to the Los Angeles River. The solids generating processes at the LAGWRP are primarily grit collection, primary sedimentation, secondary sedimentation, and filtration. The LAGWRP does not have a solids handling facility, nor is solids processing currently planned. All solids generated from the various unit processes are discharged to the North Outfall Sewer and conveyed to the Hyperion Water Reclamation Plant for final treatment and reuse (LASAN and LADWP 2006).

Table 3.16-8. 2019 Average Daily Flow at the LAGWRP

<table>
<thead>
<tr>
<th>Month</th>
<th>Average Flow (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>17.4</td>
</tr>
<tr>
<td>February</td>
<td>17.6</td>
</tr>
<tr>
<td>March</td>
<td>16.2</td>
</tr>
<tr>
<td>April</td>
<td>16.8</td>
</tr>
<tr>
<td>May</td>
<td>17.3</td>
</tr>
<tr>
<td>June</td>
<td>17.6</td>
</tr>
<tr>
<td>July</td>
<td>17.2</td>
</tr>
<tr>
<td>August</td>
<td>17.6</td>
</tr>
<tr>
<td>September</td>
<td>17.3</td>
</tr>
<tr>
<td>October</td>
<td>16.9</td>
</tr>
<tr>
<td>November</td>
<td>17.3</td>
</tr>
<tr>
<td>December</td>
<td>17.2</td>
</tr>
</tbody>
</table>

Source: David Clary 2020.
Wastewater Management at the Zoo

The Zoo currently generates wastewater in association with the restrooms, food and beverage facilities, animal exhibits, and animal night quarters. The Zoo’s wastewater and runoff are collected and conveyed by three drainage systems – the sanitary sewer, pool drain, and storm drain systems – into the City’s sewer system. The sanitary sewer system collects and conveys wastewater generated by the Zoo to the City’s North Outfall Sewer directly northeast of the Zoo’s parking lot. In the vicinity of the Project site, the North Outfall Sewer flows west and then south along the general alignment of I-5 south until it reaches the LAGWRP, located approximately 0.6 miles southeast of the Zoo. The existing sewer lines that currently serve the Project site are 6-inch lines that travel east beneath the Zoo’s entrance and northeast beneath the Zoo’s parking lot and I-5 to the North Outfall Sewer.

A pool drain system conveys wastewater generated by 12 existing animal pools at the Zoo through a 21-inch vitrified clay pool drain line east, beneath the main parking lot, directly to the Zoo Wastewater Facility located at 4700 ½ Western Heritage Way, immediately southeast of the Autry Museum and west of I-5. The Zoo Wastewater Facility was constructed in 1994 to eliminate water pollution and maintain water quality in the Los Angeles River by pretreating surface runoff and pumping the Zoo’s animal wastewater to the North Outfall Sewer and LAGWRP for treatment prior to discharge. The facility was designed to meet federal water quality standards and comply with the Los Angeles RWQCB National Pollutant Discharge Elimination System (NPDES) permits, and to provide relief of localized sewers in the surrounding area. The Zoo Wastewater Facility, maintained and operated by LASAN, temporarily stores pool drainage from the Zoo’s animal ponds and washdown of animal yard areas. The facility also stores storm water runoff captured from the Zoo’s storm drain system and conveyed east towards the wastewater facility via a 72-inch reinforced concrete pipe beneath the Zoo’s main parking lot (refer also to Section 3.10, Hydrology and Water Resources). The Wastewater Facility then removes large debris and grit from storm drainage and retains the water until midnight. The stored water is then pumped northbound via an 18-inch iron pipe force main into the 48-inch North Outfall Sewer for treatment at the LAGWRP and eventual release to the Los Angeles River. With the exception of the Sea Life Cliffs pool, which drains directly into the...
North Outfall Sewer, all animal pool wastewater is conveyed to the Zoo Wastewater Facility (LASAN 2017).

As shown in Table 3.16-9, the existing uses on the Project site generates approximately 25.55 million gallons per year approximately 70,000 gallons per day (gpd) of wastewater from restrooms, which are conveyed directly to the LAGWRP. In addition, approximately 32.85 million gallons per year (90,000 gpd) of water circulate through the Animal Pond Drain System (10.95 million gallons per year; 30,000 gpd) and the Storm Drain System (21.90 million gallons per year; 60,000 gpd), flow to the Zoo’s Wastewater Facility, and are subsequently released to the City’s North Outfall Sewer, which is then conveyed to the Hyperion Water Reclamation Plant. Overall, the Zoo generates approximately 58.4 million gallons per year (approximately 160,000 gpd) of wastewater.

### Table 3.16-9. Estimated Annual Wastewater Generation for Existing Uses at the Project Site

<table>
<thead>
<tr>
<th>Existing Use</th>
<th>Estimated Annual Volume (million gal/year)</th>
<th>Estimated Daily Volume (gpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Sewer System (i.e., Restrooms)</td>
<td>25.55</td>
<td>70,000</td>
</tr>
<tr>
<td>Animal Pond Drain System</td>
<td>10.95</td>
<td>30,000</td>
</tr>
<tr>
<td>Storm Drain System</td>
<td>21.90</td>
<td>60,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58.40</strong></td>
<td><strong>160,000</strong></td>
</tr>
</tbody>
</table>

Source: Los Angeles Zoo Department 2018a.

### Solid Waste Disposal

#### Regional Solid Waste Management

Solid waste management in the City involves both public and private refuse collection services and public and private operation of solid waste transfer, resources recovery, and disposal facilities. LASAN is responsible for the collection and removal of all solid materials and waste in the City, as well as developing plans and strategies to manage and coordinate the City’s solid waste system and to address the City’s disposal needs. LASAN primarily collections solid waste generated by single-family and small multi-family residential developments and public facilities such as the Zoo. Private hauling companies primarily collect solid waste generated large multi-family residential developments, commercial, institutional, and industrial properties. Historically, the City owned and operated five landfill facilities; however, all of these facilities have been permanently closed and are no longer operational or have been transitioned to alternative uses. Instead, the majority of solid waste generate within the City and collected by LASAN is disposed of at Los Angeles County landfills.

Los Angeles County continually evaluates demand for landfill capacity through the preparation of the County Integrated Waste Management Plan Annual Reports. According to the County of Los Angeles Countywide Integrated Waste Management Plan 2018 Annual
3.16 Utilities

Report, of the 10 Class III landfills that serve Los Angeles County, five landfills serve the City. The Class III landfills that currently serve the City include the Antelope Valley, Calabasas, Chiquita Canyon, Lancaster, and Sunshine Canyon landfills. have a combined remaining intake capacity of approximately 160,103,935 tons (see Table 3.16-10; County of Los Angeles Department of Public Works 2019). Sunshine Canyon Landfill serves the City’s waste disposal needs more than any other facility in Los Angeles County and has the largest remaining disposal capacity of approximately 59,752,250 tons.

Table 3.16-10. 2018 City Disposal and Estimated Remaining Disposal Capacity (tons)

<table>
<thead>
<tr>
<th>Landfill</th>
<th>2018 City Disposal</th>
<th>Permitted Daily Capacity (Tons Per Day)</th>
<th>Additional Remaining Capacity (tons)</th>
<th>Remaining Life Expectancy (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tons Per Day</td>
<td>Tons Per Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antelope Valley Landfill</td>
<td>867</td>
<td>270,528</td>
<td>1,636</td>
<td>10,231,322</td>
</tr>
<tr>
<td>Calabasas Landfill</td>
<td>502</td>
<td>156,798</td>
<td>985</td>
<td>4,580,480</td>
</tr>
<tr>
<td>Chiquita Canyon Landfill</td>
<td>2,599</td>
<td>810,888</td>
<td>4,560</td>
<td>12,001,395</td>
</tr>
<tr>
<td>Lancaster Landfill</td>
<td>55</td>
<td>17,157</td>
<td>367</td>
<td>4,908,186</td>
</tr>
<tr>
<td>Sunshine Canyon Landfill</td>
<td>3,788</td>
<td>1,182,057</td>
<td>6,765</td>
<td>59,752,250</td>
</tr>
<tr>
<td>Commerce Refuse-to-Energy Facility</td>
<td>25</td>
<td>7,768</td>
<td>124</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,836</strong></td>
<td><strong>2,445,196</strong></td>
<td><strong>14,437</strong></td>
<td><strong>91,473,633</strong></td>
</tr>
</tbody>
</table>

Notes:
1 The Commerce Refuse-to-Energy Facility was permanently closed in June of 2018 due to insufficient operating costs.

Source: County of Los Angeles Department of Public Works 2019.

The Antelope Valley Landfill and Lancaster Landfill that serve the City are also recycling centers. The Antelope Valley Recycling and Disposal Facility has a permitted daily capacity of 3,600 tons or approximately 1,123,200 tons per year and a remaining permitted capacity of 12,001,395 tons. The Lancaster Landfill and Recycling Center has a permitted daily capacity of 3,000 tons or approximately 936,200 tons per year and a remaining permitted capacity of 10,231,322 tons.

The Griffith Park Composting Facility, which opened in 1996, composes organic matter produced in the park by blending animal waste and biosolids with chipped park greenery. Maintenance crews collect dropped leaves, lawn clippings, and trimmings from acres of landscaping. Zoo doo (collected from herbivores such as elephants and zebras) and biosolids are blended with chipped park greenery and composted. The facility currently processes around 7,000 cy of green waste per year. The final compost product (TOPGRO™) is donated

3 Class III landfills are landfills that are permitted to accept non-hazardous municipal solid wastes.
to non-profit organizations and schools in the Los Angeles Unified School District. TOPGRO™ is also used in the Zoo’s botanical gardens and in park landscaping projects in Griffith Park and throughout the City. It is also available for free to the City’s residents for their own urban landscaping projects (LASAN 2019).

In accordance with the Construction and Demolition (C&D) Waste Recycling Ordinance, all mixed C&D waste generated within City limits is required to be delivered to City certified C&D waste processors (see Table 3.16-11). LASAN is responsible for the C&D waste recycling policy as well as the collection and removal of all solid materials and waste in the City. While Class III landfills are permitted to accept non-hazardous waste, unclassified landfills are permitted to accept C&D waste, certain green (landscaping) waste, and concrete, asphalt, and similar materials that are chemically and biologically inactive. As of 2017, Azusa Land Reclamation is the only permitted inert waste (e.g., sand, concrete) landfill in the County that has a full solid waste facility permit. The remaining capacity of this landfill is estimated at 55.71 million tons. Other inert debris facilities that process inert waste and other C&D waste (excluding Azusa Land Reclamation Co. Landfill) collectively handled nearly 2.6 million tons of material in the County in 2018 (County of Los Angeles Department of Public Works 2019).

**Table 3.16-11. List of City Certified Processors for CY 2020**

<table>
<thead>
<tr>
<th>Processor</th>
<th>Mixed C&amp;D Waste Recycling Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Industrial Services, Inc.</td>
<td>76.80</td>
</tr>
<tr>
<td>American Reclamation</td>
<td>--</td>
</tr>
<tr>
<td>California Waste Services</td>
<td>76.90</td>
</tr>
<tr>
<td>City Terrace Recycling</td>
<td>78.73</td>
</tr>
<tr>
<td>Construction &amp; Demolition Recycling</td>
<td>78.74</td>
</tr>
<tr>
<td>Cordova Construction Services¹</td>
<td>70.00</td>
</tr>
<tr>
<td>Crown Recycling Services, LLC.</td>
<td>89.49</td>
</tr>
<tr>
<td>Direct Disposal</td>
<td>75.38</td>
</tr>
<tr>
<td>Downtown Diversion</td>
<td>82.82</td>
</tr>
<tr>
<td>East Valley Diversion</td>
<td>80.30</td>
</tr>
<tr>
<td>Simi Valley Landfill and Recycling Center</td>
<td>80.06</td>
</tr>
</tbody>
</table>

Notes:
¹Provisional certification.

According to the City’s Zero Waste Progress Report (2013), the City has achieved a recycling rate of 76.4 percent, exceeding AB 939’s State requirement of a 50 percent diversion rate by 2000 and AB 341’s State policy goal of a 75 percent diversion rate by 2020. As previously described, the City’s current goal is 90 percent diversion by 2025.

**Solid Waste Management at the Zoo**

The Zoo currently generates solid waste consisting of animal bedding and waste, green waste (e.g., landscaping trimmings, organic waste), and regular refuse from visitors and employees.
Animal waste and green waste is typically collected by Zoo personnel and disposed of in designated bins throughout the Zoo in back-of-house areas. For instance, the bins for animal bedding and waste from the Zoo’s resident herbivore species (e.g., hoofed stock, elephants, and zebras) are short, 4-foot by 6-foot “low-boys” that are made for easily dumping wheelbarrows into them. Green waste from fallen leaves, lawn clippings, landscape trimmings, and shredded paper are also deposited in these bins. The waste disposed of in these “low-boys” can be safely composted as organic material. Since primate and carnivore bedding and waste can contain zoonotic organisms, this waste cannot be used as compost and must be disposed of in a landfill along with typical commercial wastes generated by Zoo operations, including non-organic or non-compostable wastes generated by food and beverage facilities, and trash disposed of by Zoo guests.

Solid waste is collected and disposed of by a crew of Zoo custodians consisting of two truck operators and one fork-lift operator. Recyclable materials are collected by Zoo custodians and disposed of by the City’s Department of General Services. Solid waste collection generally occurs outside of the Zoo’s hours of operation (before the Zoo opens to the public) at around 3:30 a.m. A fork-lift operator transports the waste bins to the Zoo’s Perimeter Road, where the truck will collect the trash. The fork-lift operator then returns the bins to their respective locations within back-of-house areas. Trash is transported to Sunshine Canyon Landfill, located approximately 17.15 miles northwest of the Project site. Approximately 1,310 tons of trash were transported from the Zoo to Sunshine Canyon Landfill in the 2019 fiscal year (approximately 3.6 tons per day) (Darryl Pon, Los Angeles Zoo Planning and Development Director, personal communication, March 2, 2020), which accepts an average of 8,300 tons of disposal per day. Thus, solid waste generated at the Zoo makes up far less than one percent of the daily intake capacity at the Sunshine Canyon Landfill.

Herbivore animal waste, bedding, and green waste are collected from the low-boy bins and are taken to the Griffith Park Composting Facility, located approximately 0.3 miles west of the Zoo. At the Griffith Park Composting Facility, the organic waste is mixed with mulch to create composted material as a part of the “Zoo Doo” project. This is generally done every day; however, Zoo staff may wait one to two days until the bins are full before disposing of the material. According to the City’s 2013 SWIRP (the most recent data available), a total of 17,213 tons of “Zoo Doo” and biosolids were disposed of at the Griffith Park Compost Facility in...
Griffith Park Composting Facility’s total permitted capacity is 156 tons per day (City of Los Angeles 2013).

To reduce the amount of non-recyclable solid waste generated at the Zoo, the Zoo is currently in the process of eliminating the use of plastic straws and replacing plastic utensils and bottles with recyclable cans and compostable materials, in accordance with the City’s “Zero Waste” goal. Separate trash and recycling bins are provided at each of the Zoo’s food and beverage facilities and throughout the Zoo campus.

LASAN does not currently report specific diversion amounts for the Zoo’s solid waste. Based on the calculation methodology adopted by the State, LASAN has achieved a landfill diversion rate of 76.4 percent. LASAN collects the Zoo’s recycling and transports the waste to one or both of the recycling centers within the County that serve the City. The trash transportation process may be taken over by LASAN in the future to develop a “greener” process and increase waste diversion. LASAN collects the Zoo’s recyclable materials from Perimeter Road and transports the material to one of several recycling centers within the City twice per week.

The Zoo also implements a program that helps the City achieve their waste diversion goal by feeding the Zoo’s animals with expired produce donations from the World Harvest Food Bank. Between January 2019 and January 2020, the Zoo used approximately 4 tons and 6.4 tons of donated produce to feed the Zoo’s resident animals. This use equated to between 59 percent and 85 percent of the food donated to the World Harvest Food Bank (Los Angeles Zoo Department 2020).

Hazardous materials and wastes (e.g., old paint, cleaner bottles) are kept in barrels in a covered wooden shed at the Hazardous Materials Waste Storage Area within the visitor-restricted Construction Shop and Support area of the Zoo. Refer to Section 3.9, Hazardous Materials and Wastes, for further information on the collection and disposal of hazardous materials at the Zoo.

### 3.16.2 Impact Assessment Methodology

#### Significance Thresholds

According to Appendix G of the CEQA Guidelines, a project would have a significant impact related to utilities if it would:

**Water Infrastructure and Supply**

- Require or result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or

- Have insufficient water supplies available to serve the project from existing entitlements and resources, requiring new or expanded entitlements.
3.16 Utilities

Wastewater Services

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;

b. Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; or

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments.

Solid Waste Disposal

a. Be served by a landfill with insufficient permitted capacity to accommodate the project’s solid waste disposal needs; or

b. Fail to comply with federal, state, and local statutes and regulations related to solid waste.

Methodology

This analysis evaluates the adequacy of existing and planned utility infrastructure to serve the proposed Project. Existing and forecasted capacities of utility service providers were obtained from the MWD Annual Report for the Fiscal Year July 1, 2017 to June 30, 2018 (2018), 2015 UWMP (2016), One Water L.A. Technical Memorandum No. 3.2 (2017), City of Los Angeles Integrated Resources Plan (2006), Sewer System Management Plan Update (2019), and Countywide Integrated Waste Management Plan 2017 Annual Report.

The environmental impacts of the Project with respect to water are determined based on the proposed increase in water demand and the capacity of existing and proposed infrastructure. Based on existing water consumption data and Project growth and development, this analysis projects future water demand and potential offsets from Project features such as the proposed stormwater management system with underground cisterns. Water demand generated by the Project was calculated by scaling the existing Zoo water demands to the growth and changes in land use that would occur under the Vision Plan. To develop the scaling increase in water demand, assumptions regarding the source and nature of the categories for water demand identified in Table 3.16-12 and the most appropriate land use served by those water demands were developed. Estimate water demands for the proposed Project site were then compared to water available for allocation within the City to determine availability of water supply to serve the demands of the Project.

The environmental impacts of the Project with respect to wastewater are determined based on the proposed increase in wastewater generation and the capacity of existing and proposed wastewater infrastructure. The existing sewer capacity and wastewater generation is compared to the Project’s wastewater generation and future sewer capacity, including utility
upgrades associated with the Project. Changes in wastewater generation under the Project were compared to available capacity at the LAGWRP and supporting infrastructure such as sewer mains and lift stations to determine the available capacity of the wastewater system to serve the Project.

The environmental impacts of the Project with respect to solid waste are determined based on the proposed increase in solid waste generation and the capacity of existing and proposed solid waste infrastructure. The existing landfill capacities and solid waste generation is compared to the Project’s solid waste generation and future landfill capacities. Based on this analysis, a determination is made as to whether the existing solid waste facilities could accommodate the Project’s solid waste disposal needs.

Energy providers and demand estimations for natural gas and electricity are discussed fully in Section 3.5, Energy; therefore, energy utilities are not addressed further in this section. Impacts related to stormwater management infrastructure, site hydrology, and drainage/storage capacity are fully addressed in Section 3.10, Hydrology and Water Resources based on the Project-specific Hydrology and Water Quality Technical Memorandum prepared by Watearth (Appendix L); however, focused analysis potential environmental impacts from proposed stormwater infrastructure upgrades are analyzed herein.

As described in Section 3.0, Introduction to the Environmental Impact Analysis, the Vision Plan represents a programmatic plan for redevelopment of the Zoo over the next 20 years. Though more detail is provided for near-term improvements, such as those anticipated to occur in the near-term Phases 1 through 3, sufficient detail necessary to perform a detailed assessment of utility demands does not exist. Given the lack of detail regarding specific improvements and their associated utility service demands, the following analysis of Project impacts on utility services and supplies reflects a programmatic approach based on growth projections and new development areas.

### 3.16.3 Environmental Impact Analysis

**UT-1:** Would the project result in the construction of new water facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

**Construction**

As described in Section 2.4.2, Construction Activities and Section 3.10, Hydrology and Water Quality (refer to Impact HYD-1) construction of the proposed Project would require water for dust control, equipment cleaning, soil excavation and export, and re-compaction and grading activities. Water use is conservatively estimated at 2,000 gpd during construction, depending
on the phase (e.g., demolition, excavation, building construction, etc.). Temporary construction-related water use would be substantially less than existing water consumption at the Project site, which is estimated to be approximately 107,508,000 gallons per year (refer to Table 3.16-5) and could be accommodated by the existing water infrastructure onsite. Further, during construction, designated areas would be closed and would see a substantial reduction in potable water demand. Therefore, temporary construction-related impacts associated with water demand and water infrastructure would be less than significant.

As described in Section 2.3.7, Proposed Utility Infrastructure, the Project would require installation of new water lines to replace existing lines and expand to undeveloped areas of the Zoo in the California and Africa planning areas. Water would continue to be supplied by the LADWP from existing City water mains, including the LADWP 72-inch River Supply Conduit that parallels the Los Angeles River on the east side of Griffith Park and enters Griffith Park from the north. The proposed Project would connect to the City’s water supply system with new laterals installed within the Project site. The existing outdated water mains within the Project site would remain protected, capped, and abandoned in place during construction.

Construction impacts associated with the installation of laterals, and installation of a new recycled water connection would primarily involve minor trenching onsite. Prior to ground disturbance, all proposed work associated with the water laterals shall be subject to review and approval by the City Department of Public Works. All appropriate permits (e.g., public right-of-way permits) would be obtained, as necessary. The construction contractor would be required to notify the City Public Works Department in advance of ground disturbance activities to existing avoid water lines and/or disruption of water service to offsite properties. Therefore, impacts on water infrastructure from construction activities would be less than significant.

**Operation**

**Potable Water Demand**

Project implementation over the 20-year planning horizon would result in increased water demand at the Zoo associated with visitation growth, expansion of visitor-serving facilities (e.g., food and beverage stalls, drinking fountains, restrooms), additional animal residents and exhibits, new pathways and structures, and expanded landscaped areas. Based on the anticipated amount of growth to occur under the Vision Plan, primarily as a result of expansion of visitor-serving and animal exhibit areas into existing undeveloped areas and increases in annual visitation, implementation of the Project is expected to increase annual demand for potable water to 144,967,997 gallons per year (444.9 AFY), a 35 percent increase. Currently, 34 percent of the Zoo’s water demand is for irrigation, amounting to approximately 36 million gallons per year.
To substantially offset the increased water demand and virtually eliminate the Zoo’s irrigation water demand, the Project includes a stormwater management system to capture surface runoff for onsite reuse as landscaping water. As described in Section 3.10, *Hydrology and Water Quality*, the Project would include installation of five stormwater cisterns throughout the Zoo in the near-term phases of Project implementation to capture and retain stormwater runoff generated within the existing drainage area. As proposed, the system would be designed to retain 100 percent of flows generated under a 2-year, 24-hour storm event (equivalent to 2.44 inches of rainfall) or approximately 6.8 million gallons (20.9 AF). Based on historic precipitation data for the Los Angeles area, in a year when rainfall totals are normal (approximately 10.12 inches per year), the proposed stormwater system once completed in Phase 3 of Vision Plan implementation would be capable of capturing and retaining 35,000,000 gallons per year (107 AFY). As proposed in Section 2.3.7, *Proposed Utility Infrastructure*, this captured stormwater would be utilized by the Zoo for irrigation of landscaping and exhibit areas. With this offset in annual irrigation water demands afforded by the Project’s proposed stormwater capture system, the Project is anticipated to increase annual potable water demand by 2,459,997 gallons per year (7.5 AFY), a 2.2 percent increase over existing water demands.

As described in Section 3.16.1, *Environmental Setting* (refer to Table 3.16-4), the City expects to meet all water demand in 2040, which is expected to range from 675,700 to 709,500 AFY depending on hydrological conditions. These water demand projections in the UWMP account for development and associated population growth. Following the completion of Project construction in 2040, the operational water demand associated with the proposed Project (144,967,997 gallons per year or 444.9 AFY) would constitute less than 1 percent of the City’s total water supply. Therefore, the City would be able to serve the proposed Project without additional unplanned new or expanded entitlements. Further, implementation of the proposed Project would not adversely affect the ability of the City to meet its goal to source 70 percent of water locally by 2035 under the Green New Deal pLAn.
### Table 3.16-12. Existing and Projected Annual Potable Water Consumption at the Project Site

<table>
<thead>
<tr>
<th>Source and Use</th>
<th>Existing Annual Demand (gal/year)</th>
<th>Existing Water User</th>
<th>Unit</th>
<th>Demand per Unit</th>
<th>Demand Factor</th>
<th>Future Water Use Area</th>
<th>Future Annual Demand (gal/year)</th>
<th>Change in Annual Demand (gal/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitor-serving/animal environments (treatment systems, ponds, aesthetics, etc.), Zoo BOH, Condors&lt;sup&gt;1&lt;/sup&gt;</td>
<td>44,670,000</td>
<td>73 acres</td>
<td>611,918</td>
<td>gal/year/acre</td>
<td>99</td>
<td>60,579,863</td>
<td>15,909,863</td>
<td></td>
</tr>
<tr>
<td>Pool Draining&lt;sup&gt;2&lt;/sup&gt;</td>
<td>11,818,000</td>
<td>12 pools</td>
<td>984,833</td>
<td>gal/year/pool</td>
<td>12</td>
<td>11,818,000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Washdown of Animal Holding Areas&lt;sup&gt;3&lt;/sup&gt;</td>
<td>4,777,000</td>
<td>55 acres</td>
<td>86,855</td>
<td>gal/year/acre</td>
<td>79</td>
<td>6,861,509</td>
<td>2,084,509</td>
<td></td>
</tr>
<tr>
<td>Powerwashing (Walkways)&lt;sup&gt;3&lt;/sup&gt;</td>
<td>1,349,000</td>
<td>55 acres</td>
<td>24,527</td>
<td>gal/year/acre</td>
<td>79</td>
<td>1,937,655</td>
<td>588,655</td>
<td></td>
</tr>
<tr>
<td>Irrigation&lt;sup&gt;4&lt;/sup&gt;</td>
<td>36,968,000</td>
<td>73 acres</td>
<td>506,411</td>
<td>gal/year/acre</td>
<td>99</td>
<td>50,534,685</td>
<td>13,166,685</td>
<td></td>
</tr>
<tr>
<td>Restrooms&lt;sup&gt;5&lt;/sup&gt;</td>
<td>7,926,000</td>
<td>1,744,370 persons</td>
<td>5</td>
<td>gal/year/visitor</td>
<td>3,001,101</td>
<td>13,636,285</td>
<td>5,710,285</td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Potable Water Demand</strong></td>
<td>107,508,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>144,967,997</strong></td>
<td><strong>37,459,997</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Demand Reduction from Proposed Stormwater Reuse

| Proposed Onsite Stormwater Capture/Treatment System<sup>6</sup> | -35,000,000 | -35,000,000 |
| **Total Project Potable Water Demand with Onsite Stormwater Reuse** | **109,967,997** | **2,459,997** |

Note: 1. Estimated by scaling proportionally to the proposed increase in land area for visitor-serving/animal environments, administration, service & storage, Condor conservation program (refer to Figure 2-2).
2. The Vision Plan proposes no increase in the number of “pump and dump” pools. If additional pools are included in individual projects, they would be installed with life support systems.
3. Estimated by scaling proportionally to the proposed increase in land area for visitor-serving areas and exhibits (refer to Figure 2-2).
4. Estimated by scaling proportionally to the proposed increase in land area for visitor-serving/animal environments, administration, service & storage, and Condor conservation program; assumes parking areas are irrigated by City reclaimed water (refer to Figure 2-2).
5. Estimated by scaling proportional to the proposed increase in annual visitation and employment (refer to Table 2-21).
6. Projected annual water reuse onsite from the proposed stormwater collection/treatment system is estimated to be 35,000,000 gallons per year.

Source: Los Angeles Zoo Department 2016; 2018.
The proposed Project would be required to comply with the City’s Water Efficiency Requirements and Green Building Code, which requires the use of highly efficient plumbing fixtures, irrigation, and landscaping for new construction (LAMC Chapter XII, Article 5 and Chapter IX, Article 9). Under implementation of **MM UT-1**, recycled water lines would be extended within the Zoo would be used to further reduce overall water demand associated with operational landscaping irrigation, washdown of the animal holding areas, powerwashing walkways, flushing toilets, and some habitat pools, depending on the species. These options would be explored as plans are further developed to maximize water conservation. Further, implementation of **MM HYD-7** would require the City to install efficient irrigation systems for all existing and proposed new landscaped areas within the Zoo (refer to Section 3.10, *Hydrology and Water Quality*). Efficient irrigation systems would further reduce the water demand for irrigation at the Zoo. The proposed water conservation and sustainable reuse of stormwater captured onsite is consistent with the water conservation goals of the City’s Green New Deal pLAn and One Water L.A. plan. Therefore, with implementation of this mitigation, Project impacts on the City’s potable water supplies would be *less than significant with mitigation*.

While not required to further reduce impacts from the Zoo’s water demand, it is recommended that Vision Plan implementation include all recommended civil engineering and water efficiency measures recommended in the Appendix (*New Infrastructure: Plumbing*) of the Vision Plan. Therefore, **MM UT-2** is recommended to further reduce impacts on the Zoo’s potable water demand.

**Recycled or Reclaimed Water Demand**

The One Water L.A. Plan analyzes the potential for and identifies the necessary steps to implement municipal recycled water use within the Zoo (for areas outside of the parking lot irrigation use) in an effort to reduce the City’s potable water demand, as established in the 2017 Technical Memorandum (LASAN 2017). As previously mentioned, the Zoo received approximately 11,500,000 gallons (35.3 AF) of non-potable (recycled) water from the LAGWRP in 2019; however, recycled water use is currently limited to irrigation of landscaping in the Zoo’s main parking lot.

Under the Project, the Zoo would redesign the northern parking lot and southern parking lot (parking lot adjacent to the Zoo Magnet Center) to accommodate additional parking spaces and would install landscaping and stormwater LID features. In addition, the Project proposes the development of an approximately 2-acre public park. These new landscaped areas and public park would require irrigation and the Zoo would utilize recycled water for irrigation of these areas with direct connections to existing recycled water lines connecting to the Greenbelt immediately east of the Project site. Installation of new recycled water lines would occur within the proposed area of disturbance and would not extend offsite or exacerbate construction impacts discussed above.
As presented in Table 3.16-13, based on the existing demand for recycled water supplies for irrigation of the Zoo’s main parking lot, the proposed increase in landscaped parking area under the Project, and water demand factors for public parks, implementation of the Project would increase demand for recycled water supplies by 14,362,057 gallons per year (44.08 AFY). The non-potable water demand associated with the proposed Project would be less than 1 percent of the City’s current recycled water production capacity of 649,600 AFY. Therefore, the City would be able to serve the proposed Project without additional unplanned new or expanded wastewater treatment facilities. Further, implementation of the proposed Project would not affect the ability of the City to meet its goal to recycle 100 percent of wastewater by 2035 under the Green New Deal pLAn.

Though the City’s recycled water system has adequate capacity to serve the increase in Zoo recycled water use for irrigation of the parking lot areas and proposed public park, in accordance with the One Water L.A. Plan, MM UT-1 would require the Zoo to extend recycled water lines throughout the interior areas of the Zoo to provide recycled water for washdown of the animal holding areas, irrigation, and power washers, in the Zoo’s exhibits (e.g., treatment systems, ponds, aesthetics/water features, etc.) where feasible, as well as for fire suppression where feasible. Based on the City’s current recycled water production capacity of 649,600 AFY and objectives for expanding opportunities for use of recycled water supplies, the City recycled water system has available capacity to adequately serve the recycled water demands of the Project. Additionally, the Los Angeles Zoo Recycled Water Feasibility Study (1996) analyzed the existing recycled water storage and distribution system and determined the existing system would be adequate to meet a conservative recycled water demand of 1 mgd.

A network of municipal recycled water mains provide access to non-potable water for irrigation use within Griffith Park. As previously described, the LAGWRP Recycled Water Fill Station pumps recycled water through two 30-inch force mains, one of which terminates at Tank 7-6 located south of the Zoo beneath the Wilson-Harding Golf Course in Griffith Park. An existing 8-inch recycled water main located at the west end of the Zoo parking lot pumps water from Tank 7-6 to the Zoo for irrigation of the Zoo’s parking lot. Expansion of the Zoo’s non-potable water use as required by MM UT-1 would require an additional connection to the City’s water recycling system at the existing 8-inch recycled water main at the west end of the Zoo parking lot. Therefore, implementation of the proposed Project and MM UT-1 would not require expansion of the City’s recycled water system or major construction activities. The expanded use of recycled water for Zoo operations that do not require potable water quality would further reduce the Zoo’s dependence on potable water supplies and implement the Green New Deal pLAn and One Water L.A. Plan. Impacts on the City’s non-potable (recycled or reclaimed) water supplies would be reduced to less than significant with mitigation.
Table 3.16-13. Existing and Projected Annual Recycled Water Consumption at the Project Site

<table>
<thead>
<tr>
<th>Source and Use</th>
<th>Existing Annual Demand (gal/year)</th>
<th>Existing Water User</th>
<th>Unit</th>
<th>Demand per Unit</th>
<th>Demand Factor</th>
<th>Future Water Use Area</th>
<th>Future Annual Demand (gal/year)</th>
<th>Change in Annual Demand (gal/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Potable Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoo Main Parking Lot Irrigation</td>
<td>11,500,000¹</td>
<td>11.5 acres</td>
<td></td>
<td>1,000,000</td>
<td>24.5²</td>
<td>24,500,000</td>
<td>13,000,000</td>
<td></td>
</tr>
<tr>
<td>Public Park</td>
<td>0</td>
<td>0 acres</td>
<td></td>
<td>681,028.5³</td>
<td>2</td>
<td>1,362,057</td>
<td>1,362,057</td>
<td></td>
</tr>
<tr>
<td><strong>Total Non-Potable Water Demand</strong></td>
<td><strong>11,500,000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>25,862,057</strong></td>
<td><strong>14,362,057</strong></td>
</tr>
</tbody>
</table>

Notes:

¹The Zoo’s recycled water demand for the year 2019 was available for January through November only.
²Future area for non-potable water irrigation use based on conceptual Zoo landscaped parking area.
³According to the U.S. Geological Survey, national average application rate for 2015 was 681,028.5 gallons (2.09 AFY) per acre (U.S. Geological Survey 2018).
Source: David Clary 2020.
3.16 Utilities

UT-2: Would the project result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

The Vision Plan proposes the construction and operation of a new stormwater collection system to capture, treat, retain, and reuse stormwater runoff at the Zoo. Under the proposed Project, five new subsurface cisterns (i.e., underground reservoirs) would be constructed within five different drainage areas encompassing the Project site and surrounding hillsides, while the Zoo’s existing stormwater collection and conveyance system would be closed and either abandoned in place or removed through redevelopment of each Project phase. Stormwater water collection lines would branch from each underground cistern to collect stormwater from drains throughout each watershed (refer to Section 3.10, Hydrology and Water Resources). The proposed underground stormwater infrastructure would result in environmental impacts associated with excavation and trenching of underlying soils, emissions from construction equipment and fugitive dust, construction vehicle traffic, construction stormwater runoff, potential disturbance of archaeological and paleontological resources, and construction related noise. Detailed analysis of the potential impacts associated with installation of the Project’s proposed stormwater system are analyzed in each of the respective resources sections of Section 3, Environmental Impact Analysis and Mitigation in this EIR. As discussed therein, Project implementation, along with installation of the stormwater collection system would also result in or contribute to construction-related impacts to those resources. Mitigation measures necessary to reduce Project impacts associated with installation of the new stormwater collection system are also identified therein and would be capable of reducing impacts to less than significant with mitigation. With regard to impacts from hydrology and water quality, the stormwater collection system would result in beneficial drainage impacts associated with stormwater reuse. Refer to Section 3.10, Hydrology and Water Resources, for a complete discussion of stormwater management and infrastructure under the proposed Project.

UT-3: Would the project require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments? Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
Due to the dilapidated nature of the existing 50-year old sanitary sewer system within the Project site, the Vision Plan proposes the installation of new sewer utility lines within the Project site, as necessary. Under Vision Plan implementation, sewer water from the Zoo and the Gene Autry Museum would be conveyed via the proposed sanitary sewer lines to the North Outfall Sewer via the existing 6-inch sewer force main that runs across the Zoo’s north parking lot to the point of connection with the North Outfall Sewer located northeast of the parking lot. From the City’s North Outfall Sewer, wastewater would be directed to the LAGWRP, treated, and discharged to the Los Angeles River similar to existing conditions for all sewer water within the Zoo.

Animal pools at the Zoo would continue to be drained by the animal pond water system, which conveys pond water to the Zoo’s Wastewater Facility for desilting and grit removal. Similar to existing conditions, pool water from the Zoo’s Wastewater Facility would be discharged to the North Outfall Sewer and conveyed to the LAGWRP for treatment. There is no proposed increase in the total number of pools requiring periodic draining and refilling, requiring water demand and treatment at the Zoo Wastewater Facility.

As previously described, the proposed stormwater collection system would capture, convey, and store rainfall from the Zoo and the 79.7-acre hillside area adjacent to the Zoo for reuse onsite as irrigation water. This system would be designed to capture a total capacity of 6.8 million gallons, which is equivalent to the 2-year, 24-hour storm event (refer to Section 3.10, Hydrology and Water Quality). Flows greater than a 2-year, 24-hour storm event would be directed to the Zoo Wastewater Facility via an overflow line that would run beneath the Zoo’s parking lot. Following desilting and grit removal at the Zoo Wastewater Facility, stormwater would be discharged to the North Outfall Sewer, which would direct water to the LAGWRP for treatment, similar to existing conditions for all stormwater within the Zoo.

Project impacts associated with generation of wastewater, animal pond water, and stormwater, and the demand on existing wastewater facilities, such as the Zoo Wastewater Facility, North Outfall Sewer, and LAGWRP, are discussed in detail below.
Table 3.16-14. Existing and Projected Annual Wastewater Generation at the Project Site

<table>
<thead>
<tr>
<th>Source and Use</th>
<th>Existing Daily Generation (gpd)</th>
<th>Existing Use Factor</th>
<th>Unit</th>
<th>Demand per unit</th>
<th>Future Use Area</th>
<th>Future Wastewater Generation</th>
<th>Change in Wastewater Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Sewer System</td>
<td>70,000</td>
<td>10,427(^1)</td>
<td>persons</td>
<td>6.7</td>
<td>14,986</td>
<td>100,606</td>
<td>30,606</td>
</tr>
<tr>
<td>Animal Pond Drain System</td>
<td>30,000</td>
<td>55 acres</td>
<td>545.45</td>
<td>79</td>
<td>43,091</td>
<td>43,697</td>
<td>13,091</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100,000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>182,493</strong></td>
<td><strong>43,697</strong></td>
</tr>
</tbody>
</table>

Notes:

\(^1\) Existing Use Factor for the sanitary sewer system is based upon peak daily attendance. Water use for irrigation and powerwashing generate stormwater. All stormwater would flow through the stormwater collection system for stormwater reuse (refer to Section 3.10, *Hydrology and Water Quality*) rather than to the Zoo Wastewater Facility and North Outfall Sewer.
**Zoo Wastewater Facility**

Vision Plan implementation would generate increased stormwater within the Zoo property due to the addition of impervious (i.e., paved) surfaces (refer to Section 3.10, *Hydrology and Water Quality*). However, implementation of the proposed stormwater collection system would substantially reduce flow to the Zoo Wastewater Facility by capturing and storing rainfall from the Zoo and adjacent hillside area for reuse onsite as irrigation water. Since the Zoo Wastewater Facility would receive only overflow stormwater from flows greater than the 2-year, 24-hour storm event, the volume of water directed to the Zoo Wastewater Facility would be reduced by up to 35 million gallons per year and up to 6.8 million gallons in one day.

Implementation of **MM HYD-6** would require the installation of pre-treatment and filtering devices within the stormwater collection system to ensure that captured water reused for irrigation does not unnecessarily contribute pollutants back into the Zoo’s drainage system. Therefore, additional stormwater within the Zoo would not exceed the capacity of the Zoo’s Wastewater Facility and the proposed stormwater collection system would adequately treat and filter stormwater onsite.

Following completion of the proposed stormwater collection system, the majority of flows to the Zoo Wastewater Facility would be comprised of animal pond water from the Zoo’s exhibits. Any additional animal pools and other water features that would be constructed under the Vision Plan would be installed with Life Support Systems. Life Support Systems are recirculating water treatment systems, which require a much lower frequency of draining and filling. Therefore, Vision Plan implementation would result in an incremental increase in wastewater generation and associated impact on wastewater facilities related to animal pool water. Due to the substantial reduction in stormwater flows that would be conveyed to the Zoo Wastewater Facility, an incremental increase in generation of animal pond water would not exceed the 1.8-million-gallon maximum capacity of the Zoo Wastewater Facility.

**North Outfall Sewer and Advanced System**

Vision Plan implementation would generate increased sewage flows within the Zoo’s sewer system and the City’s North Outfall Sewer due to the addition of a new employees and an annual increase of approximately 1.2 million new visitors. The largest increases in wastewater generation would occur post-completion of the proposed new California, Africa, and Treetops Visitor Centers in Phases 1, 2, and 3 (2020 through 2030), when the greatest increase in Zoo attendance is anticipated to occur. As shown in Table 3.16-14, Zoo attendance growth anticipated to occur under the proposed Vision Plan would increase wastewater flow within the Zoo’s system and North Outfall Sewer by approximately 30,606 gpd, for a total of 100,606 gpd (Table 3.16-14). Additionally, proposed expansion of the animal exhibits would increase generation of animal pond water within the North Outfall Sewer by approximately 13,091 gpd, for a total of 43,091 gpd.
The Vision Plan also proposes a new plumbing system within the Zoo to replace the existing outdated sewer pipes and connect to new restrooms. The proposed new plumbing systems at the Zoo would be installed in accordance with the current California Building Code and Plumbing Code (CCR Title 24), as well as Green Building Code (CCR Title 24, Part 11). All new fixtures would comply with State Water Conservation Guidelines and Green Building Standards.

LASAN is not currently aware of any capacity issues in the 6-inch sewer force main that conveys wastewater from the Zoo and Autry Museum of the American West to the North Outfall Sewer. However, the projected increase in wastewater could trigger the need for expansion or replacement of individual sewer line segments within the North Outfall Sewer. According to the City’s 2019 Sewer System Management Plan, the City conducts ongoing maintenance and replacement of North Outfall Sewer segments to address condition and capacity issues (LASAN 2019b). The Sewer System Management Plan identifies future projects to maintain and enhance the capacity of the North Outfall Sewer and budgets approximately $50 million per year in the Wastewater Capital Improvement Program (WCIP) to address condition and capacity issues for the North Outfall Sewer (LASAN 2019b).

The City requires that, as part of the normal construction/building permit process, the Applicant or its successor confirms with the City that the capacity of the local and trunk lines are sufficient to accommodate a project’s sewer flows during the construction and operation phases. Furthermore, a project shall implement any upgrades to the sewer system serving the project that could be needed to accommodate the project’s wastewater generation. In accordance with Section 64.15 of the LAMC, the Zoo would be required to submit a SCAR request to the BOE and pay a SCAR Fee prior to building plan approval to evaluate the capacity of the existing North Outfall Sewer to convey the projected wastewater generation from the Zoo through 2040. If deemed necessary, replacement of several sewer mains in the North Outfall Sewer could also create secondary short-term periodic construction impacts. Construction of new sewer mains would require excavation, removal of older mains, removal of existing manholes, and installation of the new manholes and lines located within existing paved roads and public rights of way. This would involve typical short-term construction impacts, such as air emissions, noise, and disruption of traffic flows. However, with assurance of adequate planning-level surveys of the existing North Outfall Sewer per existing City regulations, impacts to the North Outfall Sewer associated with sanitary sewer water would be reduced to less than significant.
3.16 Utilities

Table 3.16-15. Volume of Stormwater Discharge to the North Outfall Sewer

<table>
<thead>
<tr>
<th>SWMM Results</th>
<th>Existing</th>
<th>Near-Term</th>
<th>Long-Term</th>
<th>Long-Term Net Change</th>
<th>Long-Term Net Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Year</td>
<td>235,515</td>
<td>23,099</td>
<td>367,776</td>
<td>132,261</td>
<td>56</td>
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<tr>
<td>100-Year</td>
<td>507,058</td>
<td>50,706</td>
<td>223,106</td>
<td>-283,952</td>
<td>-56</td>
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<tr>
<td>Annual</td>
<td>36,260,282</td>
<td>3,556,301</td>
<td>15,897,134</td>
<td>-20,363,148</td>
<td>-56</td>
</tr>
</tbody>
</table>

Source: Watearth 2020. See Appendix L.

Implementation of the proposed stormwater collection system would reduce the volume of discharge from the Zoo Wastewater Facility to the City’s North Outfall Sewer by 56 percent during and following storm events (Table 3.16-15). Additionally, the Zoo Wastewater Facility would continue to hold animal pond water and overflow stormwater from the Zoo until periods of low flow (i.e., nighttime) in order to avoid overloading the North Outfall Sewer. Therefore, implementation of the stormwater collection system would result in beneficial and less than significant impacts to the North Outfall Sewer.

Los Angeles – Glendale Water Reclamation Plant

The Zoo’s wastewater would continue to be treated at the LAGWRP, which has a capacity of approximately 20 mgd processed through full tertiary treatment. Currently this facility receives and treats an average of 17.2 mgd of wastewater, approximately 160.00 gpd (0.93 percent) of which is wastewater and pond water generated from the Zoo. The proposed Vision Plan would increase wastewater generation at the Project site by up to 43,697 gpd (Table 3.16-14). This increase in wastewater generation would be less than 1 percent of the LAGWRP’s approximately 2.8 mgd of additional full tertiary treatment capacity. Given that the increased wastewater flow from implementation of the proposed Vision Plan would be a de minimus incremental increase, the LAGWRP would have sufficient capacity to serve the Vision Plan’s projected demand in addition to the provider’s existing commitments and no new or expanded water or wastewater treatment facilities would be required to serve the proposed Project. Therefore, Project impacts to the LAGWRP would be less than significant.

Treated wastewater from the LAGWRP would continue to be discharged to the Los Angeles River. The LAGWRP operates under a RWQCB permit, and meets the CCR Title 22, Division 4, Chapter 3 reclamation criteria for “irrigation of parks, playground, schoolyards, and other areas where the public has similar access or exposure” as well as “non-restricted recreational impoundments.” The RWQCB, in connection with the implementation of the NPDES program, has imposed requirements on the treatment of wastewater and its discharge into local water bodies, including the Los Angeles River. Wastewater produced by the Zoo would meet these requirements through treatment at the LAGWRP. This treatment plant utilizes full tertiary treatment and sends wastewater solids to the Hyperion Water Reclamation Plant. Industrial Wastewater Permits must be obtained from the LASAN Industrial Waste Management Division, in accordance with the Los Angeles Industrial Waste Control Ordinance (Section 64.30 of the LAMC) for all clarifiers. In addition, the implementation of
3.16 Utilities

Section 64.15 of the LAMC and BOE Special Order No. SO06-0691 would also help meet wastewater quality treatment standards. Therefore, RWQCB wastewater treatment requirements would not be exceeded, and potential impacts related to the proposed Vision Plan would be less than significant.

**UT-4: Would the project be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs? Would the project comply with federal, state, and local statutes and regulations related to solid waste?**

Construction of the proposed Project would generate C&D waste during demolition, excavation, and trenching activities occurring during each phase of Vision Plan implementation. In accordance with the City’s C&D Waste Recycling Ordinance, all mixed C&D waste generated during Project construction and not reused onsite (e.g., recycled concrete aggregate) would be hauled to one of the City-certified C&D waste processors listed in Table 3.16-11. Therefore, solid waste impacts from C&D waste would be less than significant.

Expansion of the Zoo’s animal exhibits under Vision Plan implementation would increase operational solid waste generation at the Zoo associated with animal bedding and waste. The most recent data available shows that the Zoo disposed a total of 17,213 tons of “Zoo Doo” and biosolids at the Griffith Park Compost Facility in 2006, which equates to approximately 47.16 tons per day. Based on the proposed increase in Zoo Animal Space, Vision Plan implementation would increase disposal of animal bedding and waste at the Griffith Park Compost Facility by up to 81.39 tons per day (Table 3.16-16). Therefore, future solid waste generation would remain below the Griffith Park Compost Facility’s total permitted capacity of 156 tons per day.

Vision Plan implementation would also increase operational solid waste generation at the Zoo, including trash and recycling, due to projected growth in visitor attendance, employment, and additional animal residents. The resulting increased demand for waste disposal has the potential to result in the need for additional landfill capacity to meet solid waste disposal needs. To determine if there is sufficient landfill capacity to accommodate waste generated under the proposed Vision Plan, the projected waste generated by the Vision Plan was estimated based on the Zoo’s existing solid waste generation and projected visitor growth. Based on the projected annual visitation growth, the estimated increased solid waste generation under the Vision Plan is 6.19 tons per day (approximately 2,260 tons per year) (refer to Table 3.16-16). Assuming the existing diversion rate of 76.4 percent, this would result in up to 1.46 tons per day (approximately 533 tons per year).

As previously described, Sunshine Canyon Landfill currently serves the Zoo’s solid waste disposal needs. The remaining capacity of Sunshine Canyon Landfill is 59,752,250 tons and the landfill has an estimated remaining life of 19 years. The average solid waste accepted daily throughput of Sunshine Canyon Landfill is 8,300 tons of solid waste per day. The additional 1.46 tons of solid waste per day that is anticipated to be generated by Vision Plan implementation in 2040 would comprise less than 1 percent of the total daily permitted
capacity of Sunshine Canyon Landfill. Therefore, this additional waste would have a less than significant impact on landfill capacity.

A total of five solid waste disposal facilities currently serve the City, including one composting facility. The combined remaining capacity of these facilities is 91,473,633 tons. The combined average daily amount of solid waste disposed in 2018 at the six solid waste facilities is 14,437 tons of solid waste per day. The available combined remaining capacity at the five County landfills that currently have a remaining life over 20 years is nearly 31.5 million tons (County of Los Angeles Department of Public Works 2019). Therefore, this additional waste would have a negligible impact on landfill capacity.

In addition, the City has achieved significant waste reduction targets and continues to strive for additional reductions in solid waste. The City met and exceeded its goals for waste diversion, as defined in the City’s Solid Resources Infrastructure Strategy Facilities Plan, RENEW LA Plan, SWIRP, and Green LA Plan, and attained a diversion rate of 76.4 percent by 2013. The City is also currently implementing the Citywide Exclusive Franchise System for Municipal Solid Waste Collection and Handling that will enable the City to reach its zero-waste goal of 90 percent diversion by 2025. The Zoo’s operations help the City achieve these waste diversions and zero waste goals with its programs, such as the “Zoo Do” project and use of the World Harvest Food Bank donations. These efforts will further reduce per capita waste generation, thereby reducing existing waste generation in the City and expected waste generation from the Project. Given the existing sufficient capacity of solid waste facilities combined with the City’s efforts to reduce waste generation, this impact would be less than significant.

State law requires a 50 percent diversion of solid waste from landfills. The City has achieved a diversion rate of 76.4 percent in 2013 through the City’s Solid Resources Infrastructure Strategy Facilities Plan, RENEW LA Plan, SWIRP, Green LA Plan and Citywide Exclusive Franchise System for Municipal Solid Waste Collection and Handling and the use of refuse-to-energy facilities. The City remains committed to continuing its existing waste reduction programs and minimization efforts, with a current goal of 90 percent diversion by 2025. Additionally, Vision Plan implementation would be required to comply with all applicable solid waste regulations in effect at the time of construction and operation, including the City’s Space Allocation Ordinance, which requires the provision of an adequate recycling area or room for collecting and loading recyclable materials for all new development projects, pursuant to AB 1327.

The Vision Plan includes provisions for new enclosures for trash, recycling, and food waste materials to serve visitor and employee uses. The Zoo would manage trash and recycling generated by animal care, dining facilities, restrooms, and other visitor-serving facilities within the Zoo campus in accordance with all applicable state and local requirements. Therefore, the Zoo is in compliance with state and local solid waste law and implementation of the proposed Vision Plan would not conflict with federal, state, or local statues and regulations related to solid waste disposal. Therefore, no impact would occur.
### Table 3.16-16. Existing and Projected Annual Solid Waste Disposal at the Project Site

<table>
<thead>
<tr>
<th>Source</th>
<th>Existing Daily Generation (tons per day)</th>
<th>Existing Use Factor</th>
<th>Unit</th>
<th>Demand per unit</th>
<th>Future Use Area</th>
<th>Future Solid Waste Generation</th>
<th>Change in Solid Waste Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Bedding and Waste</td>
<td>47.16</td>
<td>21.5</td>
<td>acres</td>
<td>2.19</td>
<td>58.7</td>
<td>128.55</td>
<td>81.39</td>
</tr>
<tr>
<td>Trash</td>
<td>3.6</td>
<td>1,744,370</td>
<td>persons</td>
<td>2.06 x 10^-6</td>
<td>3,001,101</td>
<td>6.19</td>
<td>2.59</td>
</tr>
</tbody>
</table>

Notes:
Source: City of Los Angeles 2013; Darryl Pon, Los Angeles Zoo Planning and Development Director, personal communication, March 2, 2020.
3.16.4 Mitigation Measures

MM HYD-6 and MM HYD-7 shall apply.

**MM UT-1 Recycled Water Use**

In accordance with the Green New Deal pLAn and One Water L.A. Plan, the Zoo shall work with LADPW and LASAN to expand recycled water lines (purple pipe) to interior portions of the Zoo. Recycled water shall be used to the maximum extent available for washdown of the animal holding areas, powerwashing walkways and plazas, and flushing toilets, and in the Zoo’s exhibits (e.g., treatment systems, ponds, aesthetics, water features, etc.) if the recycled water is dechlorinated before use, and for fire suppression where feasible. Additionally, all irrigation water demand not covered by stormwater captured in the proposed stormwater collection system (i.e., during dry years), shall be covered by recycled water. The point of connection to the City’s water recycling system would be at the existing 8-inch recycled water main at the west end of the Zoo parking lot in Griffith Park, subject to review and approval of LADPW, LASAN, and BOE. LASAN staff shall ensure the recycled water main connections are incorporated into the final building plans prior grading. City staff shall ensure measures are on all Project plans to ensure that these requirements are implemented.

**Recommended Mitigation Measures**

As previously described, the Vision Plan Appendix (New Infrastructure: Plumbing) includes recommendations not specifically outlined in the Vision Plan. Implementation of recommended **MM UT-2** would further reduce impacts on the Zoo’s potable water demand and would align with the goals and measures of the Green New Deal pLAn and One Water L.A. Plan.

**MM UT-2 Vision Plan Recommendations**

Project components designed and engineered to implement the Vision Plan shall follow all recommendations and guidelines for water, wastewater, and stormwater utilities provided in the Appendix of the Vision Plan. As recommended in the Vision Plan Appendix (New Infrastructure: Plumbing), the Project must provide the following features to reduce maintenance and conserve water:

- Restrooms
  - Shut-off valve for all fixtures in each restroom, located above the upper terminal water closet and behind a locked access panel.
  - Water-saving battery-operated infrared-sensored flush valves, with manual override on all water closets.
  - Push-button, ADA-metered, self-closing faucets on lavatories.
  - Hose-bibbb with vacuum breaker in recessed box with locking cover.
  - Floor drains with trap primers with floors sloped to drain.
3.16 Utilities

- Clean-outs above all urinals, lavatories, and water closets.

Public Restrooms
- Shut-off valve for all fixtures located above the upper terminal water closet and behind a locked access panel.
- Floor drains with trap primers sloped to drain.
- Clean-outs above all urinals, lavatories, and water closets.
- ADA compliant floor-mounted water closet and countertop lavatory.

Sewer Lines
- Cast iron soil pipe at all following locations:
  - Within the building and 5 feet outside the building line.
  - Running parallel to and within 2 feet of any building or structure.
  - 6-inch sewer lateral to fire station.
- Provide clean-outs above all urinals, lavatories, upper terminal water closets, and sinks.
- Provide uniform slope of 0.25-inch fall per foot whenever possible, but never less than 0.125-inch per foot.
- Indicate invert elevations of new sewer lines at buildings, changes in direction, locations where sewer lines join and at property lines.
- Review existing sewer pipe’s capacities, conditions, and materials.

Floor Drains, Area Drains and Floor Sinks
- Where drains or sinks are required, slope floor to drain at 0.125 inch per foot.
- Floor drains with trap primers are required at restrooms. One floor drain shall be provided front and center for two or more urinals. One floor drain is required for water closets in all restrooms with an additional floor drain when a total of four or more water closets are provided. One floor drain shall be provided for a combination of one water closet and one urinal.

Utility/Service Sink Room
- Provide wall-mounted stainless-steel mop sink, with floor drain.
- Floor sinks with trap primers are required at:
  - Utility/Service sink room.
  - Kitchens, and where preparation sinks have an indirect waste drain rather than a direct connection.
  - Trench drain.
  - Wherever required by the California Plumbing Code or the City Plumbing Code.
3.16 Utilities

- **Water Systems**
  - Use Type L hard copper pipe inside buildings.
  - Do not run water lines under slab if at all possible.
  - Provide a shut-off valve to isolate all fixtures in each restroom, kitchens, and any other room with multiple fixtures.
  - Slope pipes up in direction of water flow to air-elimination devices, or up to a nearby expansion tank, to provide for air elimination from water lines.
  - Water hammer arrestors are required for lavatories, sinks, fountains, water closets, urinal headers, and other fixtures.

- **Water Valves and Other Devices**
  - **Uninterrupted Service:**
    - All domestic water supply mains shall be designed in an above-ground valve station with a minimum of two parallel branch lines – a primary and secondary – to provide for uninterrupted service to the site during maintenance of a backflow preventer or a pressure regulating valve. Each branch shall include a backflow preventer with strainer and when the street pressure exceeds 80 psi, a pressure regulator with strainer.
    - A separate service shall be provided for landscape irrigation, with an above-ground valve station that includes a backflow preventer and a pressure regulator with strainer when the street pressure exceeds manufacturer’s or design suggested range.
  - **Shut-off Valves:**
    - All shut-off valves shall be accessible from the room in which fixtures are installed, and shall be located at approximately 3 feet, but not more than 7 feet, from the floor. These valves shall control only fixtures in the room in which they are installed.
    - Provide shut-off valves for:
      - Each group of fixtures.
      - Each restroom.

The City is required to include the above standard recommended measures from the Vision Plan’s Appendix in the final building plans prior to approval. City staff shall ensure measures are on all Project plans to ensure that these requirements are implemented.

### 3.16.5 Impacts Summary

Implementation of the mitigation measures identified above would reduce all potentially significant impacts on potable water demand and wastewater generation to less than
significant with mitigation. Recommended mitigation measure MM UT-2 would further reduce the Project’s impacts on potable water demand. Therefore, no unavoidable adverse utilities impacts would occur from Project implementation and impacts would be less than significant.