

Appendix O

Utility Infrastructure Technical Report: Water



**2159 BAY STREET
UTILITY INFRASTRUCTURE TECHNICAL REPORT: WATER
AUGUST 29, 2022**

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Appendix:

Exhibit 1- LADWP “Service Advisory Report” (SAR) Results

Exhibit 2- LADWP “Information of Fire Flow Availability Request” (IFFAR) Results

1. INTRODUCTION

1.1. PROJECT DESCRIPTION

The Project would include the development of a three-building creative office campus that would be comprised of an eight-story commercial high-rise building and two one-story commercial buildings. The Project would include a total of approximately 217,189 square feet of creative office space and 5,000 square feet of retail and restaurant space. The Project would provide a total of 711 vehicle parking spaces within up to four levels of subterranean parking levels and one ground floor parking level.

1.2. SCOPE OF WORK

As a part of the Environmental Impact Report for the Project, the purpose of this report is to analyze the potential impact of the Project to the existing water infrastructure system.

2. REGULATORY FRAMEWORK

2.1. WATER

The City of Los Angeles Department of Water and Power (LADWP) is responsible for providing water supply to the City while complying with Local, State, and Federal regulations.

Below are the State and Regional water supply regulations:

- Metropolitan Water District (MWD) official reports and policies as outlined in its Regional Urban Water Management Plan, Water Surplus and Drought Management Plan, Water Supply Allocation Plan, and Integrated Resources Plan.
- California Code of Regulations, Title 20, Chapter 4, Article 4, Section 1605 establishes water efficiency standards for all new plumbing fixtures and Section 1608 prohibits the sale of fixtures that do not comply with the regulations.
- 2013 California Green Building Standards Code, CCR, Title 24, Part 11, adopted on January 1, 2014, requires a water use reduction of 20% above the baseline cited in the CALGreen code book. The code applies to family homes, state buildings, health facilities, and commercial buildings.
- California Urban Water Management Planning Act of 1984 requires water suppliers to adopt an Urban Water Management Plan (UWMP).

- LADWP’s 2015 Urban Water Management Plan outlines the City’s long-term water resources management strategy. The Plan was approved by the LADWP Board of Water and Power Commissioners on June 7, 2016.
- Senate Bill 610 and Senate Bill 221, approved on October 9, 2001, require land use agencies to perform a detailed analysis of available water supply when approving large developments. Historically, public water suppliers (PWS) simply provided a “will serve” letter to developers. SB 610, Public Resources Code (PRC) and Section 10910-10915 of the State Water Code requires lead agencies to request a Water Supply Assessment (WSA) from the local water purveyor prior to project approval. If the projected water demand associated with a proposed development is included in the most recent UWMP, the development is considered to have sufficient water supply per California Water Code Section 10910, and a WSA is not required. All projects that meet any of the following criteria require a WSA:
 - 1) A proposed residential development of more than 500 dwelling units.
 - 2) A proposed shopping center or business establishment of more than 500,000 square feet of floor space or employing more than 1,000 persons
 - 3) A proposed commercial office building of more than 250,000 square feet of floor space or employing more than 1,000 persons
 - 4) A proposed hotel or motel of more than 500 rooms
 - 5) A proposed industrial, manufacturing, or processing plant or industrial park of more than 40 acres of land, more than 650,000 square feet of floor area, or employing more than 1,000 persons
 - 6) A mixed use project that falls in one or more of the above-identified categories
 - 7) A project not falling in one of the above-identified categories but that would demand water equal or greater than the amount required by a 500-dwelling unit project.

As this Project is not falling in any of the categories listed above, a WSA will not be required for this Project.

3. ENVIRONMENTAL SETTING

The Project Site is currently developed with three buildings: an approximately 25,638 square-foot building located in the southern portion of the site, referred to as the Existing Building 3 (2145-2149-2159 Sacramento Street), an approximately 6,584 square-foot building located in the central portion of the site, referred to as Existing Building 2 (2148 Bay Street), and an approximately 7,106 square-foot building located in the northeast portion of the site, referred to as Existing Building 1 (2159 Bay Street). Hyperloop One currently occupies or is in the process of building out all tenant spaces at the site, and operates uses including engineering and test development operations, office operations, and fabrication and machining operations. Exterior areas in the central and eastern portions of the site are used for storage, equipment staging, and exterior operations. Other smaller structures at the site consist of shipping containers that have been converted into offices and conference rooms, tents used for welding operations and meetings, and parking stackers. Designated areas for storage of raw materials and hazardous waste are located on the south side of Existing Building 3.

3.1. WATER

LADWP is responsible for providing water supply to the City while complying with County, State, and Federal regulations.

3.1.1. REGIONAL

Primary sources of water for the LADWP service area are the Los Angeles Aqueducts (LAA), State Water Project (supplied by MWD) and local groundwater. The Los Angeles Aqueduct has been the primary source of the City's water supply. In recent years, however, the amount of water supplies from the Los Angeles Aqueduct has been limited due to environmental concerns, and the City's water supply relied heavily (average of 57% in recent years) on the purchased water from MWD delivered from the Colorado River or from the Sacramento-San Joaquin Delta. Local ground water has been a reliable water source, providing an average of 12% of the total water supply, but there have been concerns in recent years due to declining groundwater level and contamination issues. Lastly, the City's recycled water supply is limited to specific projects within the City at this time.¹

3.1.2. LOCAL

LADWP maintains water infrastructure to the Project Site. Based on available record data provided by LADWP, there is an 8- inch water main in Bay Street and an 8-inch main in

¹ LADWP, 2015 Urban Water Management Plan, October 2016.
2159 Bay Street
Environmental Impact Report
August 29, 2022

Sacramento Street. The project site has multiple active domestic water connections from Bay Street and Sacramento Street. The project new water services are anticipated to be located on Bay Street

Existing water consumption estimates have been prepared based on 100 percent of the City of LA Bureau of Sanitation (BOS) sewerage generation factors for commercial categories and are summarized in Table 1 below.

Table 1 – Estimated Existing Water Generation			
Land Use	Units	Generation Rate (gpd/unit)	Total Water Generation (gpd)
Existing			
Office (Bldg. 1)	7,106 SF	120/KGSF	853
Light Industrial (Bldg. 2 & Bldg. 3)	16,222 SF	50/KGSF	811
Creative Office (Bldg. 3)	16,000 SF	120/KGSF	1,920
<i>Subtotal Existing</i>			3,584

4. SIGNIFICANCE THRESHOLDS

4.1. WATER

Appendix G of the State of California’s California Environmental Quality Act (CEQA) Guidelines (CEQA Guidelines) provides a set of sample questions that address impacts regarding water supply. These questions are as follows:

Would the project:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.?
- (Not Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years)?

For this analysis, the Appendix G Thresholds listed above are relied upon. The analysis utilizes factors and considerations identified in the City’s 2006 L.A. CEQA Thresholds Guide, as appropriate, to assist in answering the Appendix G Threshold questions.:

- The total estimated water demand for the project;
- Whether sufficient capacity exists in the water infrastructure that would serve the project, considering the anticipated conditions at project buildout;
- The amount by which the project would cause the projected growth in population, housing or employment for the Community Plan area to be exceeded in the year of the project completion; and
- The degree to which scheduled water infrastructure improvements or project design features would reduce or offset service impacts.

5. METHODOLOGY

5.1. WATER

The analysis of water supply is based on a calculation of the Project's anticipated net water demand. Consistent with LADWP's methodology, the estimated net water demand for the Project is calculated by applying the City of Los Angeles Bureau of Sanitation's (LASAN) sewer generation factors to the Project's proposed uses. The water demand of the existing uses to be removed was then subtracted from the Project's total water demand to determine the Project's net water demand. The following has been considered as part of the determination for this Project:

Environmental Setting

- Description of major water infrastructure serving the Project site, including the type of facilities, location and sizes, and any planned improvements.
- Description of the water conditions for the Project area and known improvement plans.

Project Impacts

- Evaluate the Project's water demand, taking into account design or operational features that would reduce or offset water demand.
- Determine what improvements would be needed, if any, to adequately serve the Project.
- Describe the degree to which presently scheduled off-site improvements offset impacts.

This report analyzes the potential impacts of the Project on the existing public water infrastructure by comparing the estimated Project demand with the calculated available capacity of the existing facilities.

LADWP performed a hydraulic analysis of their water system to determine if adequate fire flow is available to the fire hydrants surrounding the Project Site. LADWP's approach consists of analyzing their water system model near the Project Site. Based on the results, LADWP determines whether they can meet the project fire hydrant flow needs based on existing infrastructure. See Exhibit 2 for the results of the Information of Fire Flow Availability Request (IFFAR).

In addition, LADWP performed a flow test to determine if available water conveyance exists for future development. LADWP's approach consists of data ranging from available static pressure (meaning how much pressure is available at the source before applying the project's demand), to the available pressure at the maximum demand needed for the project. Based on the results, LADWP determines whether they can meet the project needs based on existing infrastructure. See Exhibit 1 for the results of the Service Advisory Request (SAR).

6. PROJECT IMPACTS

6.1. CONSTRUCTION

6.1.1. WATER

Water demand for construction of the Project would be required for dust control, cleaning of equipment, excavation/export, removal and re-compaction, etc. Based on the review of construction projects of similar size and duration, a conservative estimate of construction water use ranges from 1,000 to 2,000 gallons per day (gpd). The temporary construction water use would be lower than the existing water consumption at the Project Site (estimated to be approximately 3,584 gpd). Impacts on the water infrastructure due to construction activity would therefore be less than significant.

The Project will require new connections to the public water lines to serve new buildings. Construction impacts associated with the installation of water distribution lines would primarily involve trenching in order to place the lines below surface. Installation of new water infrastructure will be limited to minor off-site work associated with connections to the public main. No upgrades to public water mains are anticipated. A Construction Management Plan would be implemented to reduce any temporary pedestrian and traffic impacts. The contractor would implement the Construction Management Plan, which would ensure safe pedestrian access and vehicle travel in general, and emergency vehicle access, in particular, throughout the construction period. Prior to ground disturbance, Project contractors would coordinate with LADWP to identify the locations and depth of all lines. Further, LADWP would be notified in advance of proposed ground disturbance

activities to avoid water lines and disruption of water service. Overall, when considering impacts resulting from the installation of any required water infrastructure, all impacts are of a relatively short-term duration (i.e., months) and would cease to occur once the installation is complete. Therefore, Project impacts on water associated with construction activities would be less than significant.

6.2. OPERATION

6.2.1. WATER

6.2.1.1. INFRASTRUCTURE CAPACITY

When analyzing the Project for infrastructure capacity, the projected demands for both fire suppression and domestic water are considered. Although domestic water demand is the Project's main contributor to water consumption, fire flow demands have a much greater instantaneous impact on infrastructure, and therefore are the primary means for analyzing infrastructure capacity. Conservative analysis for fire suppression has been completed by LADWP for the Project. See Exhibit 2 for the results of the IFFAR which demonstrates that adequate water infrastructure capacity exists.

6.2.1.2. FIRE WATER DEMAND

Based on fire flow standards set forth in Section 57.507.3 of the LAMC and input from LAFD, the Project falls within the Industrial and Commercial category, which has a required fire flow of 6,000 to 9,000 gallons per minute (gpm) from four to six hydrants flowing simultaneously with a residual pressure of 20 pounds per square inch. This translates to a required flow of 1,500 gpm for each hydrant. An IFFAR was submitted to LADWP regarding available fire hydrant flow to demonstrate compliance. The completed IFFAR, attached as Exhibit 2, shows 6 nearby hydrants flowing simultaneously for a combined 9,000 gpm. As shown by the IFFAR, the Project Site has adequate fire flow available to demonstrate compliance with Section 57.507.3 of the LAMC.

Furthermore, LAMC Section 57.513, Supplemental Fire Protection, states that:

Where the Chief determines that any or all of the supplemental fire protection equipment or systems described in this section may be substituted in lieu of the requirements of this chapter with respect to any facility, structure, group of structures or premises, the person owning or having control thereof shall either conform to the requirements of this chapter or shall install such supplemental equipment or systems. Where the Chief determines that any or all of such equipment or systems is necessary in addition to the requirements of this chapter as to any facility, structure, group of structures or premises, the owner thereof shall install such required equipment or systems.

The Project will incorporate a fire sprinkler suppression system to reduce or eliminate the public hydrant demands, which will be subject to Fire Department review and acceptance during the design and permitting of the Project.

Based on Section 94.2020.0 of the LAMC that adopts by reference NFPA 14-2013 including Section 7.10.1.1.5, the maximum allowable fire sprinkler demand for a fully or partially sprinklered building would be 1,250 gpm. As noted, an SAR was submitted to LADWP in order to determine if the existing public water infrastructure could meet the demands of the Project. The approved SAR is attached as Exhibit 1. The SAR for the 8-inch main in Bay Street shows a static pressure of 53 pounds per square inch and that a flow of up to 1,400 gpm can be delivered to the Project Site with a residual pressure of 37 pounds per square inch, which exceeds the 20 pounds per square inch requirement for the surrounding public hydrants. As shown by the SAR, and through compliance with LAFD and LADWP requirements, the Project's fire flow impacts to water infrastructure would be less than significant.

6.2.1.3. DOMESTIC WATER DEMAND

Water consumption estimates have been prepared based on 100 percent of the City of LA Bureau of Sanitation sewerage generation factors for commercial categories and are summarized in Table 2 below.

Table 2 – Estimated Proposed Water Demand			
Land Use	Units	Consumption Rate (gpd/unit)	Total Water Consumption (gpd)
Creative Office	217,189 SF	120/KGSF	26,063
Retail/Restaurant (5,000 SF)	333 Seats ^(a)	30/Seat	10,000
Parking	266,688 SF	0.020 GPD/SF	5,334
Landscaping	9,518 SF	-	189 ^(b)
Wet Deck	2,214 gal	100% daily replacement	2,214 gpd
<i>Subtotal Proposed</i>			43,800
<i>Existing</i>			3,584
<i>Net Increase</i>			40,216
(a) Assumed 15 SF per person to estimate existing seat count.			
(b) The Project's landscaping water demand is estimated by Shimoda Design Group			

The approved SAR provided as Exhibit 1 confirms that sufficient capacity is available for the Project. The Project will connect to the existing water mains in Bay Street with laterals that will be adequately sized to accommodate both fire and domestic demand. In addition, the services will include backflows and be metered separately per City requirements. Therefore, impacts on water supply would be less than significant.

6.3. CUMULATIVE IMPACTS

6.3.1 WATER

The geographic context for the cumulative impact analysis on water infrastructure is the vicinity of the Project Site (i.e., the water infrastructure that would serve both the Project and related projects). Development of the Project and future new development in the vicinity of the Project Site would cumulatively increase demands on the existing water infrastructure system. However, as with the Project, other new development projects would be subject to LADWP review to ensure that the existing public infrastructure would be adequate to meet the domestic and fire water demands of each project, and individual projects would be subject to LADWP and City requirements regarding infrastructure improvements needed to meet respective water demands, flow and pressure requirements, etc.

In addition, LADWP, the Los Angeles Department of Public Works, and the LAFD would conduct on-going evaluations of its infrastructure to ensure facilities are adequate. Furthermore, to ensure its infrastructure is sufficient to meet ongoing demand, LADWP will continue to implement its \$6.3 billion five-year water system capital improvement plan, which includes replacement of distribution mainlines, trunk lines, large valves, and water meters, as well as ongoing maintenance and rehabilitation of facilities such as pump stations, pressure regulators, and in-city reservoirs and tanks.

Additionally, under the provisions of Senate Bill 610, LADWP is required to prepare a comprehensive water supply assessment for every new development "project" (as defined by Section 10912 of the Water Code) within its service area that reaches certain thresholds. The types of projects that are subject to the requirements of Senate Bill 610 tend to be larger projects that may or may not have been included within the growth projections of the 2015 UWMP. The water supply assessment for projects would evaluate the quality and reliability of existing and projected water supplies, as well as alternative sources of water supply and measures to secure alternative sources if needed.

Furthermore, through LADWP's 2015 UWMP process and the City's Securing L.A.'s Water Supply, the City will meet all new demand for water due to projected population growth to the year of 2040, through a combination of water conservation and water recycling. These plans outline the creation of sustainable sources of water for the City of Los Angeles to reduce dependence on imported supplies. LADWP is planning to achieve these goals by expanding its water conservation program. To increase recycled water use, LADWP is expanding the recycled water distribution system to provide water for irrigation, industrial use, and groundwater recharge.

Compliance of the Project and future development projects with regulatory requirements that promote water conservation such as the Los Angeles Municipal Code, including the City's Green Building Code, as well as AB 32, would also assist in assuring that adequate water supply is available on a cumulative basis.

Based on the above, it is anticipated that LADWP would be able to supply the water demands of the Project as well as future growth. Therefore, cumulative impacts on water supply would be less than significant.

7. LEVEL OF SIGNIFICANCE

Based on the analysis contained in this report, the Project's impacts for water infrastructure have been identified as less than significant.

EXHIBITS



SAR NUMBER 81766

Fire Service Pressure Flow Report

SERVICE NUMBER **625555**

For: 2159 BAY ST Approved Date: **11-18-2019**

Proposed Service 6 INCH off of the

8 inch main in BAY ST on the NORTH side approximately

490 feet EAST of EAST of SANTA FE AVE The System maximum pressure is

62 psi based on street curb elevation of 243 feet above sea level at this location.

The distance from the DWP street main to the property line is **44** feet

System maximum pressure should be used only for determining class of piping and fittings.

Residual Flow/Pressure Table for water system street main at this location

Flow (gpm)	Press. (psi)	Flow (gpm)	Press. (psi)	Flow (gpm)	Press. (psi)
0	53				
315	52				
455	51				
565	50				
660	49				
745	48				
825	47				
895	46				
965	45				
1025	44				
1085	43				
1145	42				
1200	41				
1250	40				
1305	39				
1350	38				
1400	37				

Meter Assembly Capacities

Domestic Meters

- 1 inch = 56 gpm
- 1-1/2 inch = 96 gpm
- 2 inch = 160 gpm
- 3 inch = 220 gpm
- 4 inch = 400 gpm
- 6 inch = 700 gpm
- 8 inch = 1500 gpm
- 10 inch = 2500 gpm

Fire Service

- 2 inch = 250 gpm
- 4 inch = 600 gpm
- 6 inch = 1400 gpm
- 8 inch = 2500 gpm
- 10 inch = 5000 gpm

FM Services

- 8 inch = 2500 gpm
- 10 inch = 5000 gpm

These values are subject to change due to changes in system facilities or demands.

Notes: Ok to sell combo.

This information will be sent to the Department of Building and Safety for plan checking.

This SAR is valid for one year from 11-18-19. Once the SAR expires, the applicant needs to re-apply and pay applicable processing fee.

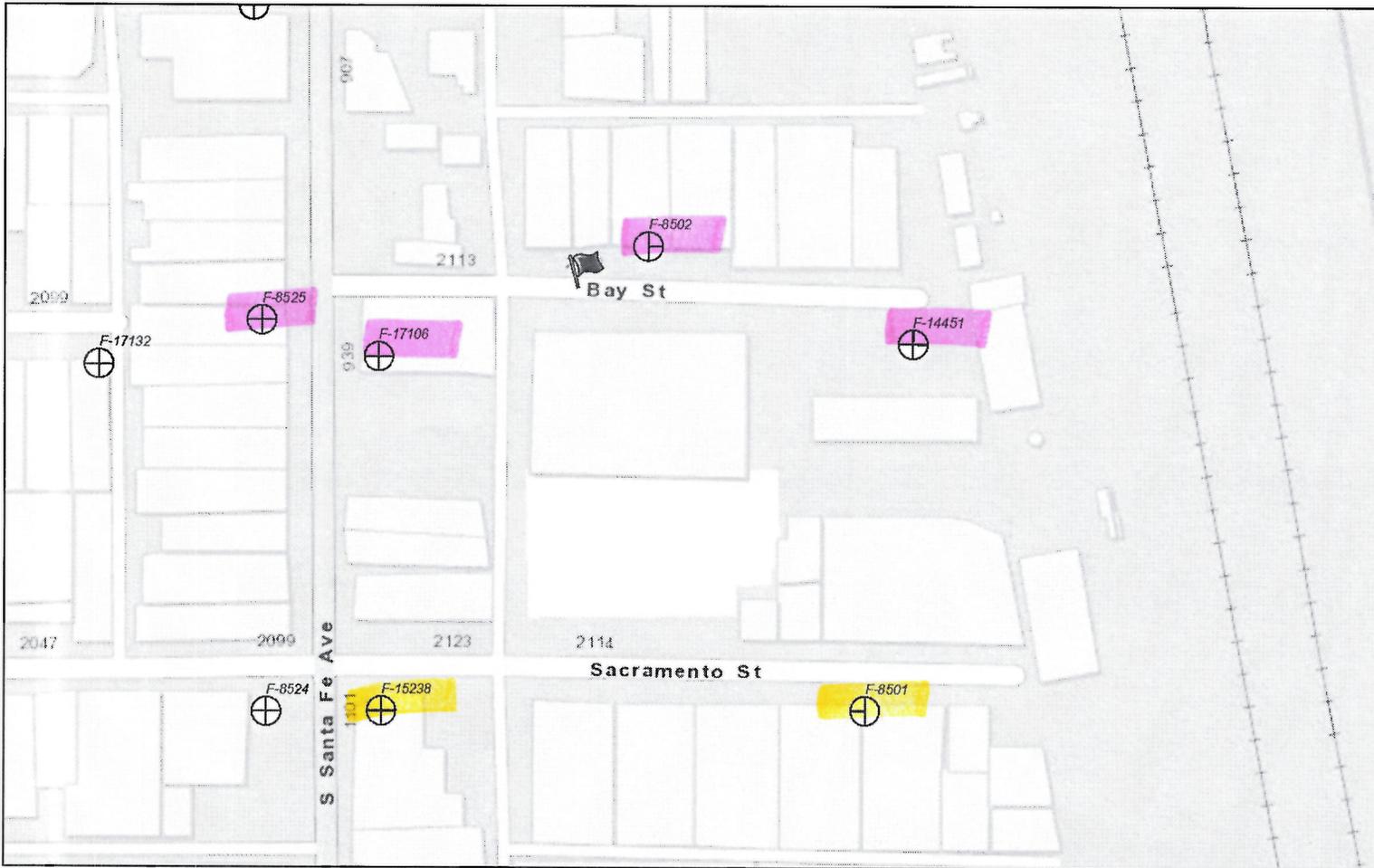
For additional information contact the Water Distribution Services Section **CENTRAL (213) 367-1216**

DAJANI STRACHAN
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Approved by

122-216
Water Service Map

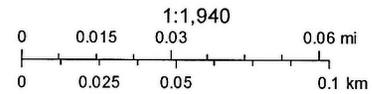
Viewer Map



March 27, 2019

4 scenarios

- 1) 4 hydrants @ 6000 gpm OK
- 2) 4 hydrants @ 9000 gpm NO
- 3) 6 hydrants @ 6000 gpm OK
- 4) 6 hydrants @ 9000 gpm OK



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

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