

## **Appendix L      Water-Sewer-Demand Flows**

## Appendices

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## TECHNICAL MEMORANDUM

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### Mercury and Berry Estimated Water Demands and Sewer Flows

PREPARED FOR: City of Brea Community Development Department  
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DATE: March 4, 2019

#### Project Description

The Mercury and Berry Project ("Project") within the City of Brea ("City") covers 1.01 acres and will include 114 dwelling units (du) including studio, 1 and 2 bedroom units, and 6,387 square feet (sf) of irrigated common and private area landscaping. In the existing condition, the Project site is vacant and is currently zoned as an Industrial Commercial. Therefore, the proposed Project will result in an increase in water demands and sewer flows over existing conditions. To ensure regional water supply capacity and wastewater treatment capacity is available to handle water and sewer changes from the proposed Project, existing and proposed water and sewer calculations were performed to quantify a net change in water demands and sewer flows to compare with the regional water and wastewater system capacities. These calculations and associated analyses are provided below.

#### Water System Findings

The City provides water to its population through its Water Division. Water supplies come from three primary sources, delivered across 197 miles of pipeline and seven storage reservoirs. The first two of these sources are local groundwater wells from the La Habra Basin and Main San Gabriel Basin, provided by the California Domestic Water Company (CDWC). The third source is imported water from the Municipal Water District of Orange County (MWDOC). MWDOC obtains its water supply from the Metropolitan Water District of Southern California (Metropolitan). City of Brea booster pumps to deliver water have a total capacity of 15,000 gallons per minute (gpm), or 21.6 millions of gallons per day (MGD). Demands within the Brea system are anticipated to increase from 9,823 AFY (8.8 MGD) in 2020 to 10,452 AFY (9.3 MGD) in 2020 (an increase of 0.5 MGD).<sup>1</sup>

To determine if the Mercury and Berry Project fits within the planned water demand increases within the City of Brea projections, a comparison of existing and proposed water demands has been conducted. Although the Project Site is currently vacant, the City's zoning map and associated water planning documentation identifies the existing Project area as Industrial Commercial. Therefore, water demands were calculated on the existing zoning rather than existing land use. Water demands were estimated using City of Brea gallons per capita per day (GPCD) water usage predictions for 2020, taken from the 2015 Urban Water Management Plan

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<sup>1</sup> City of Brea Urban Water Management Plan(2015)

(UWMP) and Industrial Commercial water demand factors from the 2005 City of Brea Water Master Plan.

**Table 1 Existing and Proposed Water Demands**

Existing Water Demands				
Land Use	Land Use Unit Count	Water Demand Factor	Water Demand (gpd)	Water Demand (AFY)
C-M (Industrial Commercial)	43,996 sf (1.01 acres)	73.5 gpd / 1000 sf <sup>1</sup>	3,234	3.62
<b>Total Existing</b>			<b>3,234</b>	<b>3.62</b>
Proposed Water Demands				
Land Use	Land Use Unit Count	Water Demand Factor	Water Demand (gpd)	Water Demand (AFY)
Residential Units	145 <sup>2</sup> people	220.8 gpcd <sup>3</sup>	32,016	33.91
Landscaped Area	6,387 sf	ETWU Method <sup>4</sup>	399	0.45
<b>Total Proposed</b>			<b>32,415</b>	<b>34.36</b>
Existing versus Proposed Water Demand Summary				
<b>Total Proposed</b>			<b>32,415</b>	<b>34.36</b>
<b>Total Existing</b>			<b>3,234</b>	<b>3.62</b>
<b>Net Change</b>			<b>+29,181</b>	<b>+30.74</b>
Notes				
<sup>1</sup> Based on City of Brea 2005 Water Master Plan water demand factors				
<sup>2</sup> Based on assumption of one (1) resident per DU across 86 studios or equivalent, two (2) residents per DU across eight (24) 1-bedroom apartments, and 2.75 residents per DU across four (4) 2-bedroom apartments.				
<sup>3</sup> Based on City of Brea 2020 per capita water use goals, City of Brea 2015 Urban Water Management Plan				
<sup>4</sup> Based on Estimated Annual Water Use equation: (Eto*plant factor*landscaped area* 0.62)/irrigation efficiency. Utilizing CIMIS Reference Evapotranspiration Zones Map ET of 49.7 in/yr; conservative plant factor of 0.6; and irrigation efficiency of 0.81 for existing and proposed conditions.				

As shown above, total Project water demands are estimated to be approximately 30,267 gpd or 33.9 AFY. This represents an increase of 29,181gpd or 0.03 MGD as compared to existing conditions. This increase in demand represents 3.7% of the projected increase of 0.8 MGD of total demands through 2040 within the City of Brea service area as noted in the Brea 2015 UWMP. The increase is also well within the active design capacity of 21.6 MGD for City booster pumps. Therefore, impacts related to water supply availability and capacity to serve the Project are not significant.

### Sewer System Findings

The City of Brea provides wastewater collection service to the majority of parcels within the 12 square mile City limits through approximately 119 miles of gravity sanitary sewer pipelines and three pump stations. The City's wastewater collection system conveys untreated wastewater to Orange County Sanitation District's (OCSD) trunk sewer system through 10 separate drainage sheds.<sup>2</sup> Sewer flows ultimately reach the OCSD Wastewater Treatment Plant #1 (WWTP1) in

<sup>2</sup> Sewer System Management Plan for the City of Brea. Prepared by Willdan Engineering, November 2016.

Fountain Valley.<sup>3</sup> WWTP1 has a secondary treatment capacity of 182 MGD for average daily flows and 273 MGD for peak wet weather flows. OCSD provides approximately 120-130 MGD of secondary effluent from WWTP1 to the Groundwater Replenishment System for recharge of regional groundwater supplies. Current influent wastewater flows to WWTP1 are approximately 106 MGD. This yields an available capacity of 76 MGD.<sup>4</sup>

To determine if the Mercury and Berry Project fits within the existing OCSD wastewater system and treatment capacity, a comparison of existing zoning (per City of Brea zoning map) and proposed land use and the associated wastewater flows has been conducted. Sewer generation factors from the November 2016 Sewer Management Plan for the City of Brea were utilized to estimate existing and proposed sewer flows for the Project area.

**Table 2 Existing and Proposed Sewer Flows**

Existing Sewer Flows			
Land Use	Land Use Unit Count	Sewer Generation Factor <sup>1</sup>	Sewer Flow (gpd)
C-M (Industrial Commercial)	43,996 sf (1.01 acres)	73.5 gpd/1000 sf	3,234
<i>Total Existing</i>			<b>3,234</b>
Proposed Sewer Flows			
Land Use	Land Use Unit Count	Sewer Generation Factor <sup>1</sup>	Sewer Flow (gpd)
Multi-Family Residences	114 du	210 gpd/du	23,940
<b>Total Proposed</b>			<b>23,940</b>
Existing Versus Proposed Sewer Flows Summary			
<b>Total Proposed</b>			<b>23,940</b>
<b>Total Existing</b>			<b>3,234</b>
<b>Net Change</b>			<b>+20,706</b>
Notes			
<sup>1</sup> Based on City of Brea 2016 Sanitary Sewer Master Plan sewer demand factors			

As shown above, total sewer flows associated with the proposed Project are 25,200 gpd. This represents an increase of 20,706 gpd or 0.02 MGD as compared to the existing condition estimated sewer flows. As mentioned above, the available wastewater treatment capacity of the WWTP1 is 76 MGD. The proposed increase in sewer flows from the Project is less than 0.05% of the available capacity. Therefore, impacts related to regional wastewater treatment capacity are less than significant.

### Conclusion

The above findings demonstrate that the proposed increase in water demand and sewer flows from redeveloping the Project area will not have a significant impact on regional water supply capacity or wastewater treatment capacity. There is sufficient water supply capacity as shown

<sup>3</sup> Orange County Sanitation District Facilities Master Plan 2009.

<sup>4</sup> GWRS Final Expansion FINAL Implementation Plan Volume 1 of 3 - OCSD and OCWD. Prepared by CDM Smith in partnership with Brown and Caldwell, October 2016.

above and as stated in the City of Brea 2015 UWMP to handle proposed increases in water demands from the Project. There is also sufficient wastewater treatment capacity of the OCSD WWTP1 to handle the proposed increases in sewer flows from the Project. Therefore, no significant regional water or sewer impacts are anticipated.