

# Appendix M

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Utilities



# Summary Utility Demand Estimates

(Prepared by Rincon Consultants, Inc.)

## I. Wastewater

Land Use	Dwelling Units or Jobs in Plan Area	Daily Wastewater Generation Rate (gpd/unit)	Wastewater Generation (gpd)
<b>Existing</b>			
Single-family <sup>[1]</sup>	6,733 du	155.1	1,044,288
Multi-family <sup>[1]</sup>	26,932 du	149.1	4,015,561
Commercial	154,674 jobs	64.4	9,961,006
Industrial	29,126 jobs	132.4	3,856,282
Public Facilities	35,084 jobs	50	1,754,200
<b>Total</b>			<b>20,631,338</b>
<b>With Downtown Plan</b>			
Single-family Residential	6,733 du	144.3	972,000
Multi-family Residential	126,540 du	137.9	17,450,000
Commercial	249,279 jobs	59.8	14,907,000
Industrial	33,735 jobs	123	4,150,000
Public Facilities	21,716 jobs	46.4	1,008,000
<b>Total 2040 with Downtown Plan Wastewater Generation</b>			<b>38,485,000</b>
<b>Alternative 1</b>			
Single-family Residential	6,733 du	144.3	972,000
Multi-family Residential	89,962 du	137.9	12,406,000
Commercial	229,638 jobs	59.8	13,732,000
Industrial	33,163 jobs	123	4,079,000
Public Facilities	26,633 jobs	46.4	1,236,000
<b>Total 2040 with Alternative 1 Wastewater Generation</b>			<b>32,425,000</b>
<b>Alternative 2</b>			
Single-family Residential	6,733 du	144.3	972,000
Multi-family Residential	120,246 du	137.9	16,582,000
Commercial	237,249 jobs	59.8	14,187,000
Industrial	33,373 jobs	123	4,105,000
Public Facilities	26,464 jobs	46.4	1,228,000
<b>Total 2040 with Alternative 2 Wastewater Generation</b>			<b>37,074,000</b>
<b>Alternative 3</b>			
Single-family Residential	6,733 du	144.3	972,000
Multi-family Residential	131,949 du	137.9	18,196,000
Commercial	240,909 jobs	59.8	14,406,000
Industrial	96,383 jobs	123	11,855,000
Public Facilities	26,464 jobs	46.4	1,228
<b>Total 2040 with Alternative 3 Wastewater Generation</b>			<b>46,657,000</b>
<b>Alternative 4</b>			
Single-family Residential	6,733 du	144.3	972,000
Multi-family Residential	52,361 du	137.9	7,221,000
Commercial	169,955 jobs	59.8	10,163,000
Industrial	51,689 jobs	123	6,358,000
Public Facilities	56,795 jobs	46.4	2,635,000
<b>Total 2040 with Alternative 4 Wastewater Generation</b>			<b>27,348,513</b>

**NOTES:**

du = dwelling unit (2017 baseline numbers actually represent households, which is slightly different than dwelling units insofar as households do not include vacant units. For consistency, the unit of measurement for households is denoted as dwelling units).

gpd – gallons per day

sf – square feet

Totals may not add up due to rounding.

1. For existing scenario, single-family and multi-family units were estimated by assuming that 20 percent of total household units are single-family and 80 percent are multi-family.

**SOURCE:** Wastewater is assumed to be 100% of indoor water use. Per Exhibit 2D of the 2015 UWMP, indoor water use constitutes the following percentages of overall water use: Residential single family – 46%; Residential multi-family – 68%; Commercial – 76%; Industrial – 98%; and Government – 59%. Per the UWMP, per unit water demand is forecast to decline over time; the forecast 2040 rates are assumed to apply to new development.

## II. Water

Land Use	Dwelling Units or Jobs in Plan Area	Daily Water Use Rate (gpd/unit)	Daily Water Demand (gpd)	Annual Water Demand (afy)
<b>Existing</b>				
Single-family <sup>[1]</sup>	6,733 du	337.2	2,270,368	2,543
Multi-family <sup>[2]</sup>	26,932 du	219.3	5,906,188	6,616
Commercial	154,674 jobs	84.7	13,100,888	14,675
Industrial	29,126 jobs	135.1	3,934,923	4,408
Public Facilities	35,084 jobs	84.7	2,971,615	3,329
<b>Total</b>			<b>28,183,980</b>	<b>31,570</b>
<b>With Downtown Plan</b>				
Single-family Residential	6,733 du	313.8	2,113,000	2,000
Multi-family Residential	126,540 du	202.8	25,662,000	29,000
Commercial	249,279 jobs	78.7	19,618,000	22,000
Industrial	33,735 jobs	125.5	4,234,000	5,000
Public Facilities	21,716 jobs	78.7	1,709,000	2,000
<b>Total 2040 with Downtown Plan Water Demand</b>			<b>53,336,000</b>	<b>60,000</b>
<b>Alternative 1</b>				
Single-family Residential	6,733 du	313.8	2,113,000	2,367
Multi-family Residential	89,962 du	202.8	18,244,000	20,436
Commercial	229,638 jobs	78.7	18,072,000	20,244
Industrial	33,163 jobs	125.5	4,162,000	4,662
Public Facilities	26,633 jobs	78.7	2,096,000	2,348
<b>Total 2040 with Alternative 1 Demand</b>			<b>44,688,000</b>	<b>50,057</b>
<b>Alternative 2</b>				
Single-family Residential	6,733	313.8	2,113,000	2,367
Multi-family Residential	120,246 du	202.8	24,386,000	27,316
Commercial	237,249 jobs	78.7	18,671,000	20,915
Industrial	33,373 jobs	125.5	4,188,000	4,691
Public Facilities	26,464 jobs	78.7	2,083,000	2,333
<b>Total 2040 with Alternative 2 Demand</b>			<b>51,441,000</b>	<b>57,622</b>
<b>Alternative 3</b>				
Single-family Residential	6,733 du	313.8	2,113,000	2,367
Multi-family Residential	131,949 du	202.8	26,759,000	29,974
Commercial	240,909 jobs	78.7	18,960,000	21,237
Industrial	96,383 jobs	125.5	12,096,000	13,549
Public Facilities	26,464 jobs	78.7	2,083,000	2,333
<b>Total 2040 with Alternative 3 Demand</b>			<b>62,010,000</b>	<b>64,461</b>
<b>Alternative 4</b>				
Single-family Residential	6,733 du	313.8	2,113,000	2,367
Multi-family Residential	52,361 du	202.8	10,619,000	11,895
Commercial	169,955 jobs	78.7	13,375,000	14,982
Industrial	51,689 jobs	125.5	6,487,000	7,266

Public Facilities	56,795 jobs	78.7	4,470,000	5,007
<b>Total 2040 with Alternative 4 Demand</b>			<b>37,064,000</b>	<b>41,517</b>

**NOTES:**

du - dwelling units

gpd – gallons per day

afy – acre feet per year (1 af = 325,850 gallons)

Totals may not add up due to rounding.

1. Single-family and multi-family units were estimated by assuming that 20 percent of total household units are single-family and 80 percent are multi-family.
2. Rates for multi-family residential include 0.3 gal/unit for landscaping, per Exhibits 2H and 2K of the 2015 UWMP

**SOURCE:** Water demand rates for existing uses were obtained from the LADWP's 2015 Urban Water Management Plan (UWMP), Exhibit 2H (LADWP 2016a). Water demand rates for all other scenarios were obtained from the LADWP's 2015 Urban Water Management Plan (UWMP), Exhibit 2K (LADWP 2016a). Per the UWMP, per unit water demand is forecast to decline over time; the forecast 2040 rates are assumed to apply to new development.

### III. Solid Waste

Land Use	Dwelling Units (du) or Jobs in Plan Area	Annual Waste Generation Rate	Annual Waste Generation (tons)	Daily Waste Generation (tons)
<b>Existing</b>				
Single-family Residential	6,733 du	1.17 ton/du <sup>1</sup>	7,878	22
Multi-family Residential	26,932 du	0.46 ton/du	12,389	34
Commercial	105,376,578 sf	3.01 ton/1,000 sf	317,183	869
Industrial	40,101,581 sf	1.24 ton/1,000 sf	49,726	136
Public Facilities	3,865,922 sf	0.93/1,000 sf	3,595	10
<b>Total</b>			<b>390,771</b>	<b>1,071</b>
<b>With Downtown Plan</b>				
Single-family Residential	6,733 du	1.17 ton/du <sup>1</sup>	7,878	22
Multi-family Residential	126,540 du	0.46 ton/du	58,208	159
Commercial	199,504,737 sf	3.01 ton/1,000 sf	600,509	1,645
Industrial	76,758,424 sf	1.24 ton/1,000 sf	95,180	261
Public Facilities	45,730,208 sf	0.93 ton/1,000 sf	42,529	117
<b>Total 2040 Downtown Plan Area Solid Waste Generation</b>			<b>804,305</b>	<b>2,204</b>
<b>Alternative 1</b>				
Single-family Residential	6,733 du	1.17 ton/du	7,878	22
Multi-family Residential	26,932 du	0.46 ton/du	41,383	113
Commercial	105,376,578 sf	3.01 ton/1,000 sf	595,515	1,632
Industrial	40,101,581 sf	1.24 ton/1,000 sf	95,198	261
Public Facilities	3,865,922 sf	0.93/1,000 sf	42,529	117
<b>Total 2040 Alternative 1 Solid Waste Generation</b>			<b>782,502</b>	<b>2,144</b>
<b>Alternative 2</b>				
Single-family Residential	6,733 du	1.17 ton/du	7,878	22
Multi-family Residential	120,246 du	0.46 ton/du	55,313	152
Commercial	202,938,587 sf	3.01 ton/1,000 sf	610,845	1,674
Industrial	72,516,161 sf	1.24 ton/1,000 sf	89,920	246
Public Facilities	45,730,208 sf	0.93/1,000 sf	42,529	117
<b>Total 2040 Alternative 2 Solid Waste Generation</b>			<b>806,485</b>	<b>2,210</b>
<b>Alternative 3</b>				
Single-family Residential	6,733 du	1.17 ton/du <sup>1</sup>	7,878	22
Multi-family Residential	131,949 du	0.46 ton/du	60,697	166
Commercial	203,261,906 sf	3.01 ton/1,000 sf	611,818	1,676
Industrial	110,876,964 sf	1.24 ton/1,000 sf	137,487	377
Public Facilities	45,730,208 sf	0.93/1,000 sf	42,529	117
<b>Total 2040 Alternative 3 Solid Waste Generation</b>			<b>806,409</b>	<b>2,357</b>
<b>Alternative 4</b>				
Single-family Residential	6,733 du	1.17 ton/du <sup>1</sup>	7,878	22
Multi-family Residential	52,361 du	0.46 ton/du	24,086	66
Commercial	107,372,768 sf	3.01 ton/1,000 sf	323,192	885
Industrial	125,352,077 sf	1.24 ton/1,000 sf	155,437	426
Public Facilities	36,561,904 sf	0.93/1,000 sf	34,003	93
<b>Total 2040 Alternative 4 Solid Waste Generation</b>			<b>544,595</b>	<b>1,492</b>

NOTES:

du - dwelling units

sf - square feet

lbs - pounds

Totals may not add up due to rounding.

<sup>1</sup> Converted from CalEEMod default data of 0.41 tons/resident, assuming a persons per unit rate of 2.86 for City of Los Angeles (California Department of Finance (DOF), 2018. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2018 with 2010 Census Benchmark. <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/> (accessed April 2019))

**SOURCE:** CalEEMod Land Use SubType