

LID Feasibility Worksheet
Attachment 2: Toilet-Flushing Demand Required for Rainwater Harvesting Feasibility
per Impervious Acre (IA) ^{1,2}

Table 1 - Alameda County:

Rain Gauge ³	Required Demand (gal/day/IA) ⁴	Residential		Office/Retail ⁵		Schools ⁶	
		No. of residents per IA ⁷	Dwelling Units per IA ⁸	Employees per IA ⁹	Interior Floor Area (sq.ft./IA) ¹⁰	Employees ¹¹ per IA	Interior Floor Area (sq.ft./IA) ¹²
Berkeley	5,900	690	255	860	172,000	170	51,000
Dublin	4,100	480	177	590	118,000	120	36,000
Hayward	4,800	560	207	700	140,000	140	42,000
Palo Alto	2,900	340	125	420	84,000	90	27,000
San Jose	2,400	280	103	350	70,000	70	21,000

Table 2 - Santa Clara County:

Rain Gauge ³	Required Demand (gal/day/IA) ⁴	Residential		Office/Retail ⁵		Schools ⁶	
		No. of residents per IA ⁷	Dwelling Units per IA ⁸	Employees per IA ⁹	Interior Floor Area (sq.ft./IA) ¹⁰	Employees ¹¹ per IA	Interior Floor Area (sq.ft./IA) ¹²
Morgan Hill	6,500	760	260	940	188,000	190	57,000
Palo Alto	2,900	340	116	420	84,000	90	27,000
San Jose	2,400	280	96	350	70,000	70	21,000

Table 3 - San Mateo County:

Rain Gauge ³	Required Demand (gal/day/IA) ⁴	Residential		Office/Retail ⁵		Schools ⁶	
		No. of residents per IA ⁷	Dwelling Units per IA ⁸	Employees per IA ⁹	Interior Floor Area (sq.ft./IA) ¹⁰	Employees ¹¹ per IA	Interior Floor Area (sq.ft./IA) ¹²
Palo Alto	2,900	340	124	420	84,000	90	27,000
San Francisco	4,600	530	193	670	134,000	140	42,000
SF Oceanside	4,300	500	182	620	124,000	130	39,000

Table 4 – Contra Costa County:

Rain Gauge ³	Required Demand (gal/day/IA) ⁴	Residential		Office/Retail ⁵		Schools ⁶	
		No. of residents per IA ⁷	Dwelling Units per IA ⁸	Employees per IA ⁹	Interior Floor Area (sq.ft./IA) ¹⁰	Employees ¹¹ per IA	Interior Floor Area (sq.ft./IA) ¹²
Berkeley	5,900	690	254	860	172,000	170	51,000
Brentwood	4,200	490	180	610	122,000	120	36,000
Dublin	4,100	480	176	590	118,000	120	36,000
Martinez	5,900	690	254	860	172,000	170	51,000

Table 5 – Solano County:

Rain Gauge ³	Required Demand (gal/day/IA) ⁴	Residential		Office/Retail ⁵		Schools ⁶	
		No. of residents per IA ⁷	Dwelling Units per IA ⁸	Employees per IA ⁹	Interior Floor Area (sq.ft./IA) ¹⁰	Employees ¹¹ per IA	Interior Floor Area (sq.ft./IA) ¹²
Lake Solano	9,000	1,050	362	1,300	260,000	270	81,000
Martinez	5,900	690	238	860	172,000	170	51,000

Notes:

1. Demand thresholds obtained from the "Harvest and Use, Infiltration and Evapotranspiration Feasibility/Infeasibility Criteria Report" (LID Feasibility Report) submitted to the Regional Water Board on May 1, 2011.
2. Toilet flushing demands assume use of low flow toilets per the California Green Building Code.
3. See Attachment 3 to identify the rain gauge that corresponds to the project site.
4. Required demand per acre of impervious area to achieve 80% capture of the C.3.d runoff volume with the maximum allowable drawdown time for cistern of 50,000 gallons or less, from Table 9 of the LID Feasibility Report.
5. "Office/Retail" includes the following land uses: office or public buildings, hospitals, health care facilities, retail or wholesale stores, and congregate residences.
6. "Schools" includes day care, elementary and secondary schools, colleges, universities, and adult centers.
7. Residential toilet flushing demand identified in Table 10 of the LID Feasibility Report.
8. Residential toilet flushing demand divided by the countywide average number of persons per household (US Census data reported on www.abag.org), as follows: Alameda County: 2.71 persons per household; Santa Clara County: 2.92; San Mateo County: 2.74; Contra Costa County: 2.72; Solano County: 2.90.
9. Office/retail employee toilet flushing demand identified in Table 10 of the LID Feasibility Report.
10. Interior floor area required for rainwater harvest and use feasibility per acre of impervious area is based on the number of employees in Column 5 multiplied by an occupant load factor of 200 square feet per employee (reference: 2010 California Plumbing Code, Chapter 4, Plumbing Fixtures and Fitting Fixtures, Table A, page 62.)
11. School employee toilet flushing demand identified in Table 10 of the LID Feasibility Report. Each school employee represents 1 employee and 5 "visitors" (students and others).
12. Interior floor area required for rainwater harvest and use feasibility per acre of impervious area is based on the number of employees in Column 7 multiplied by 6 to account for visitors, then multiplied by an occupant load factor of 50 square feet per employee (reference: 2010 California Plumbing Code).