Provisional Method 4:
Revision concepts and ideas

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Urban Stakeholder Committee
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Legislative Criteria

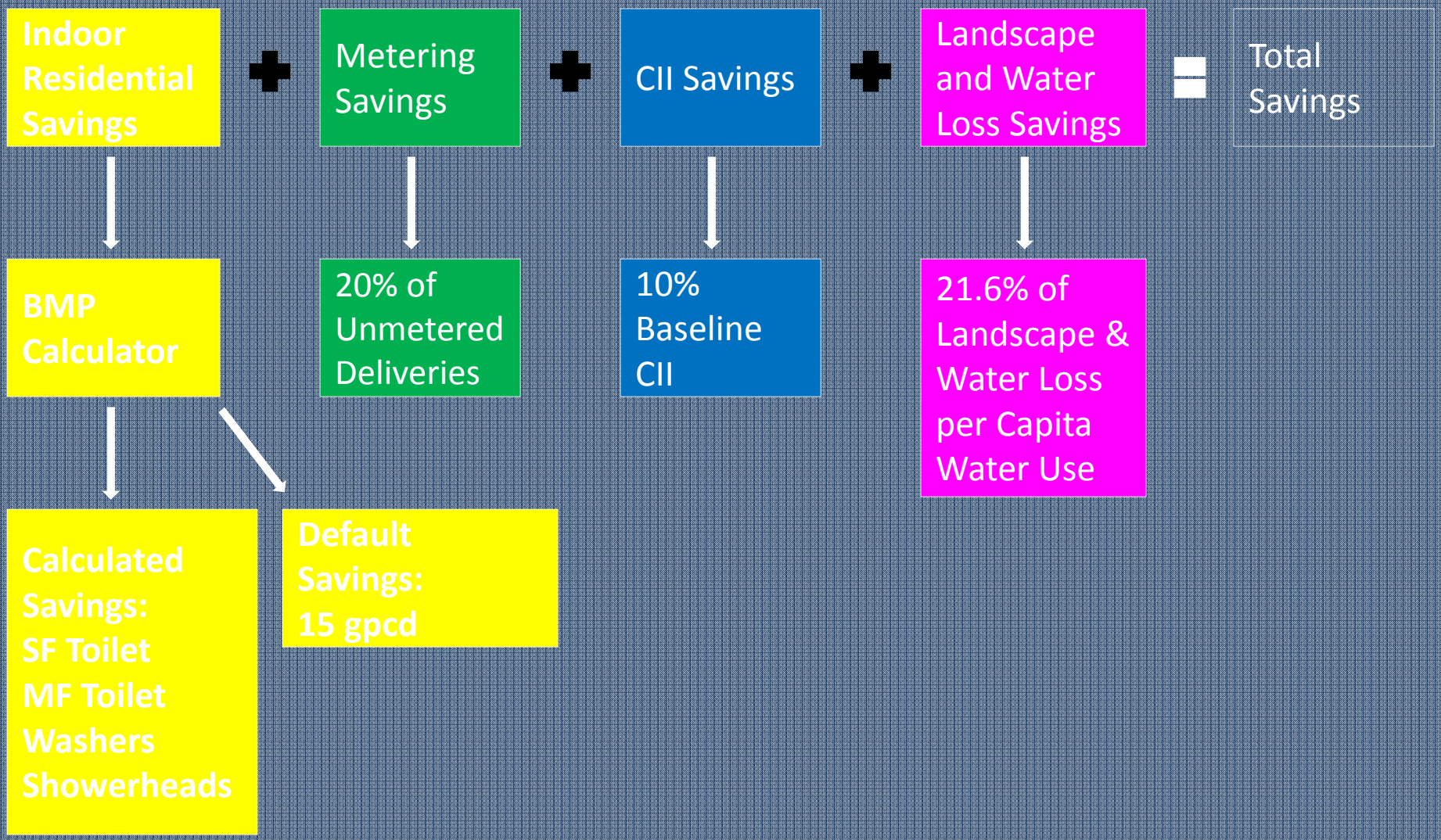
1. Average statewide savings = 20% reduction
2. Consider :
   - Climatic differences
   - Population density differences
   - Plant water requirements
   - Different levels of commercial, industrial and institutional water use
3. Avoid placing undue hardship on agencies that have implemented water conservation measures
4. Provide flexibility in meeting targets

Method 4

The basic equation

Base Daily per Capita Use − Total Savings = Urban Water Use Target

Calculation of Total Savings



Urban Supplier	Baseline GPCD (Sorted)	Indoor Residential Savings						Metering Savings BMP 1.3	CII Savings BMP 4	Landscape + Water Losses Estimated GPCD	Landscape + Water Loss Savings K * 0.264	Total Savings GPCD	Total Savings Percent
		Option 1 - Use BMP Calculator					Option 2 - Use Default						
		Single Family Toilets	Multi Family Toilets	Residential Washers	Residential Showers	Total IR Savings C + D + E + F	Average IR Savings			B - 70 - |J| * 10|		(G or H) + I + J + L	M / B * 100
Anaheim PUD	231	-4.28	-1.18	-3.57	-1.03	-14.08		0.00	-8.44	66.56	-17.59		0.00
Arroyo Grande	251	-6.56	-2.24	-4.00	-2.17	-15.96		0.00	-1.95	101.70	-26.46		0.00
Azusa	206	-9.80	-2.50	-5.80	-0.98	-14.88		0.00	-2.05	114.40	-30.22		0.00
Calaveras County WD	126	-7.26	-0.31	-6.45	-1.04	-15.09		0.00	-3.23	23.73	-6.27		0.00
Camarillo	160	-5.60	-0.23	-5.70	-0.03	-12.12		0.00	-3.00	79.96	-21.13		0.00
Camrosa WD	251	-6.20	-1.00	-5.88	-1.13	-14.19		-12.79	-2.40	196.55	-51.95		0.00
Carpinteria Valley WD	321	-4.28	-1.47	-5.42	-1.20	-14.77		-13.54	-6.62	35.03	-9.26		0.00
Chino Hills	207	-7.50	-0.79	-5.50	-1.15	-15.00		-0.40	-1.80	129.60	-34.26		0.00
Cloverdale	214	-4.31	-1.39	-5.60	-0.70	-12.19		-29.66	-5.47	67.29	-17.79		0.00
Corcoran	249	-3.10	-0.83	-7.81	-1.21	-7.94		0.00	-5.64	122.06	-32.27		0.00
Crescent City	162	-4.55	-1.20	-3.51	-1.21	-9.46		0.00	-0.50	37.10	-9.81		0.00
CVSC - Chico Hamilton	279	-3.08	-1.90	-5.62	-0.96	-11.61		0.00	-4.32	163.39	-43.18		0.00
CVSC - Coronado	365	-5.13	-3.51	-5.97	-0.83	-14.15		-6.31	-3.52	37.79	-15.27		0.00
CVSC - Livermore	168	-6.40	-0.50	-5.75	-1.10	-13.76		-14.90	-12.46	25.00	-6.61		0.00
CVSC - Selma	283	-4.87	-1.11	-5.55	-0.03	-12.13		0.00	-8.90	114.00	-30.11		0.00
El Monte	162	-6.36	-2.46	-5.33	-1.19	-14.19		-0.84	-6.57	16.32	-6.98		0.00
Escondido	278	-4.60	-2.60	-5.58	-1.00	-13.58		0.00	-4.32	64.81	-17.11		0.00
Fair Oaks WD	325	-7.49	-1.29	-5.97	-1.28	-15.13		-46.42	-5.92	222.89	-58.89		0.00
Folsom	310	-4.17	-0.98	-5.16	-0.69	-11.01		-44.11	-1.46	229.45	-59.06		0.00
GSWC - Barstow	385	-5.60	-1.70	-5.87	-1.10	-14.27		0.00	-14.60	179.93	-47.51		0.00
GSWC-Simi Valley	286	-5.70	-1.00	-5.71	-1.30	-14.71		0.00	-1.45	101.51	-26.81		0.00
Helix WD	155	-4.20	-1.50	-5.80	-1.30	-14.80		0.00	-1.92	65.77	-17.36		0.00
Huntington Beach	161	-4.49	-1.10	-6.03	-1.10	-14.72		0.00	-5.36	57.38	-15.17		0.00
La Habra	255	-6.20	-1.59	-5.79	-1.25	-14.83		0.00	-1.62	68.80	-18.18		0.00
Livingston	272	-5.36	-1.04	-5.34	-1.18	-14.53		-11.40	-5.44	67.60	-17.87		0.00
Lodi	264	-6.65	-1.95	-5.68	-1.14	-16.43		-41.73	-5.20	141.56	-37.42		0.00
Madera	255	-4.57	-1.71	-5.72	-0.95	-12.95		-36.40	-5.28	127.05	-33.62		0.00
Mammoth Community WD	372	-4.63	-1.38	-5.97	-1.01	-12.99		0.00	-2.73	274.69	-72.60		0.00
Manteca	229	-6.35	-1.50	-5.47	-0.45	-13.78		0.00	-2.62	129.80	-34.31		0.00
Mesa Consolidated WD	177	-5.60	-4.60	-5.36	-1.00	-13.86		0.00	-2.40	53.00	-13.94		0.00
Mission Basin	217	-5.54	-5.28	-6.23	-1.21	-16.25		0.00	-1.50	111.99	-14.89		0.00
Oroville CWS	300	-5.84	-2.27	-5.76	-1.42	-15.29		-6.12	-13.68	93.21	-24.64		0.00
Padre Dam Municipal WD	255	-6.10	-1.20	-5.70	-0.60	-13.70		0.00	-1.60	69.00	-18.24		0.00
Palmdale WD	254	-5.55	-1.16	-5.59	-0.69	-13.16		0.00	-2.75	136.48	-36.09		0.00
Pittsburg	370	-5.60	-1.50	-5.89	-0.09	-13.48		0.00	-3.38	91.97	-16.34		0.00
Rainbow MWD	222	-6.67	-0.69	-5.72	-1.09	-13.57		0.00	-0.02	140.06	-38.90		0.00
Redding	268	-4.81	-2.27	-5.99	-1.04	-14.11		0.00	-8.26	105.22	-27.81		0.00
Rincon Del Diablo MWD	249	-5.74	-2.83	-5.78	-0.50	-14.13		0.00	-3.81	194.92	-51.48		0.00
Sacramento Suburban WD	228	-7.59	-1.58	-5.97	-1.32	-16.48		-6.26	-6.87	87.29	-23.40		0.00
San Bernardino	230	-6.41	-1.55	-5.70	-1.30	-15.05		0.00	-2.31	135.94	-35.93		0.00
San Fernando	133	-5.29	-1.90	-5.40	-0.40	-13.00		0.00	-3.28	10.18	-7.98		0.00
San Francisco PUC	102	-2.47	-5.20	-5.96	-0.20	-13.83		0.00	-3.62	5.20	-1.37		0.00
San Luis Obispo	124	-1.50	-2.97	-5.65	0.00	-10.02		0.00	-5.71	16.67	-4.46		0.00
Santa Cruz	115	-5.90	-2.20	-5.62	-0.20	-13.92		0.00	-3.60	8.96	-2.37		0.00
Santa Margarita	268	-5.46	-1.62	-5.91	-0.99	-13.98		0.00	-0.94	186.61	-49.85		0.00
Santa Monica	235	-2.50	-3.10	-6.40	-0.70	-12.70		0.00	-3.38	27.38	-7.24		0.00
Santa Paula	264	-5.44	-2.53	-5.49	-1.08	-14.52		0.00	-6.31	85.95	-22.71		0.00
Seal Beach	346	-4.29	-4.80	-6.49	-1.23	-16.81		0.00	-2.97	89.32	-23.94		0.00
Torrance	189	-5.29	-3.25	-6.05	-1.28	-15.88		0.00	-5.34	64.65	-17.09		0.00
Valencia	187	-4.08	-0.64	-5.58	0.00	-10.29		0.00	-3.85	78.53	-20.76		0.00
Ventura Water Works	215	-6.34	-1.43	-5.75	-1.06	-14.59		0.00	-1.92	126.34	-33.94		0.00
Western MWD	319	-6.22	-0.96	-5.69	-0.86	-13.43		0.00	-3.06	218.38	-57.72		0.00
Average	210	-5	-2	-6	-1	-14		-5	-4	98	-26	#DIV/0!	-9
Weighted Average GPCD	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	

	Average	Weighted Average
Baseline		
20% Per capita Savings		
BMP Savings		
Additional Savings required to make 20% statewide CII CUE		
Landscape Water Use & Water Loss		
Landscape and Water Loss Saving Factor		

- Method 4 selected by 19 water suppliers in 2010 UWMPs
- Average % reduction = 18%

2014 Revision of Method 4

- 10608.20 (d) directs DWR to revise Method 4 in 2014

  (d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014.

- titled 2011 Method "Provisional"

2010 Concerns with Method 4

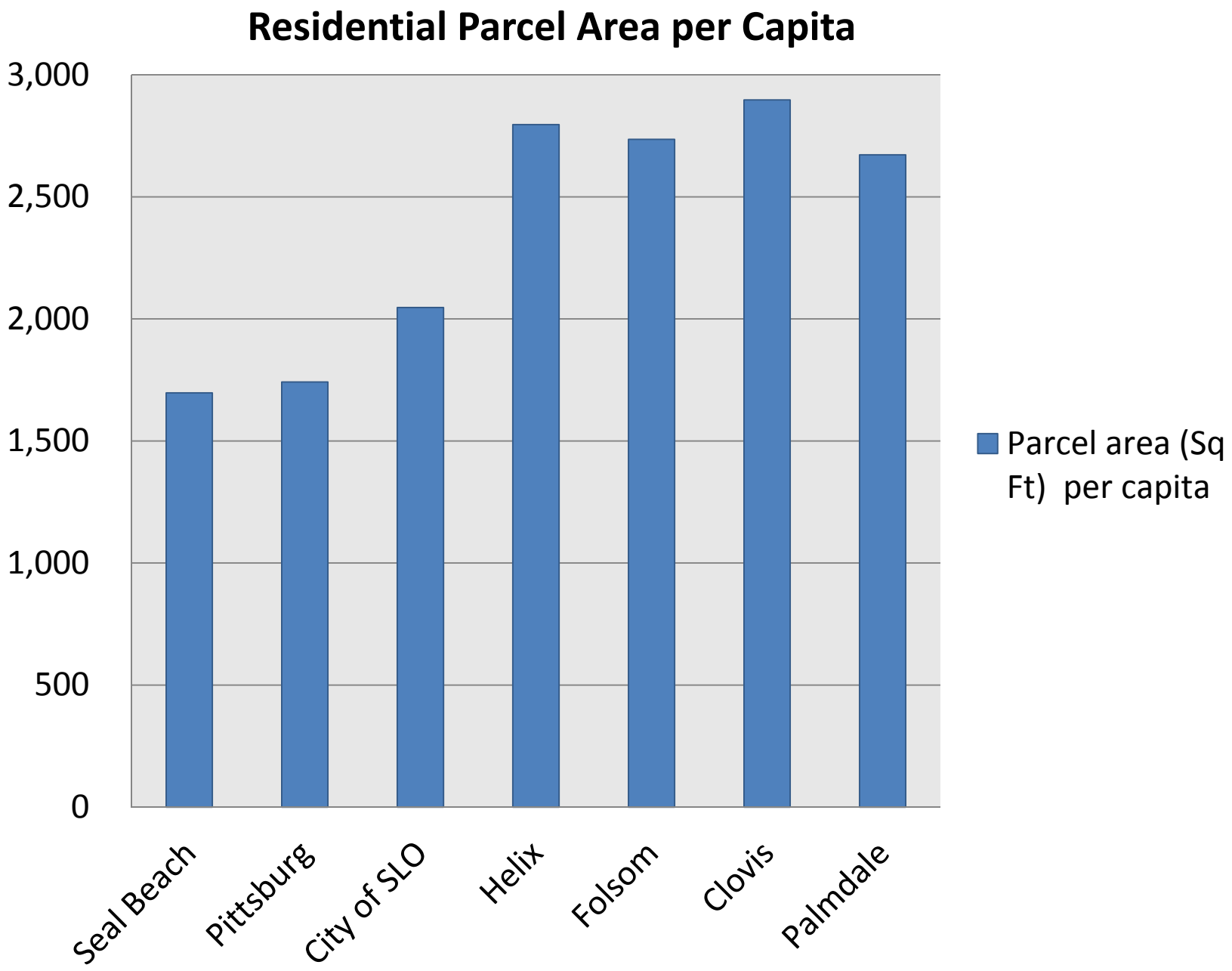
1. Landscape and water loss target calculations based on water use and does not account for efficiency of use
2. 20% meter savings overestimated
3. Arbitrary division of water use into sectors
4. Method should account more for pre-baseline conservation

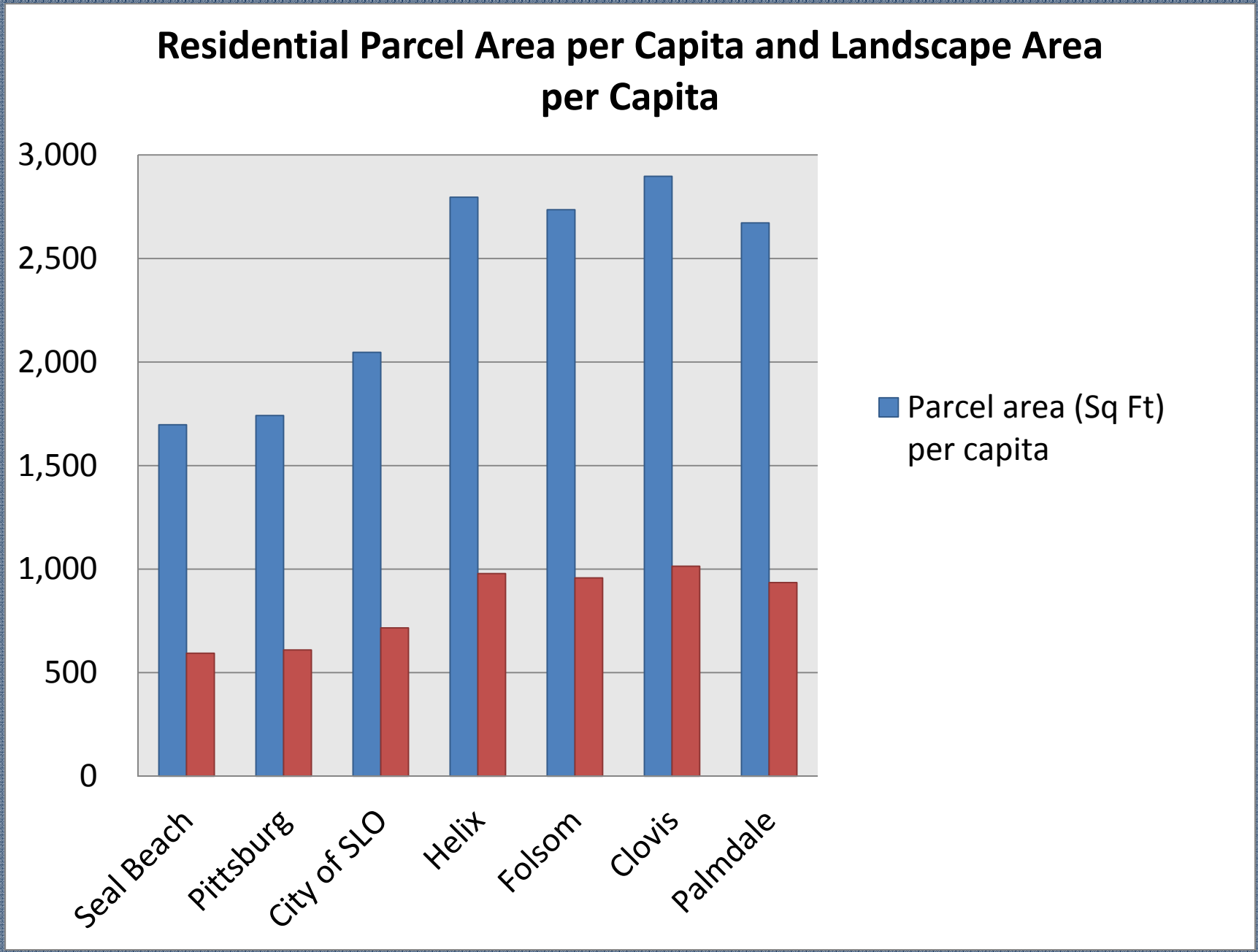
Landscape Area per Capita

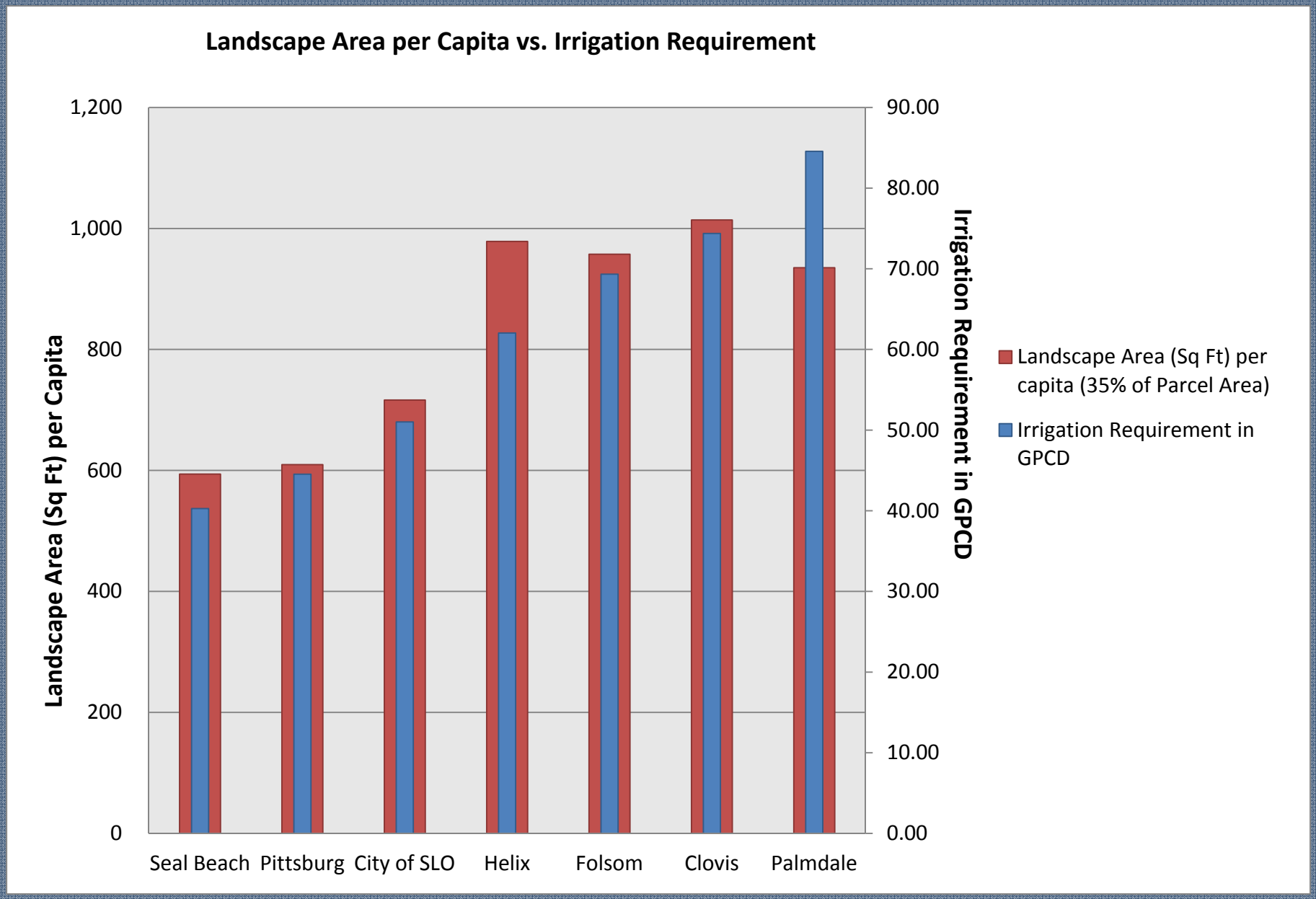
- Lack of data on service area landscape area limited development of Method 4 in 2010
- Might be possible to develop landscape per capita by sampling parcel area

Differences in per Capita Density and Irrigation Demand

- DWR obtain GIS parcel data set for all of California
- Obtained GIS service area maps for 7 water suppliers
- Using parcel data and GIS service area maps, selected residential parcels for 7 suppliers
- Calculated residential parcel area
- Converted to a per capita basis using UWMP population estimates


Residential Parcel Area per Capita
3,000
2,500
2,000
1,500
1,000
500
0
Seal Beach
Pittsburg
City of SLO
Helix
Folsom
Clovis
Palmdale
Parcel area (Sq Ft) per capita


Residential Parcel Area per Capita and Landscape Area per Capita
3,000
2,500
2,000
1,500
1,000
500
0
Seal Beach
Pittsburg
City of SLO
Helix
Folsom
Clovis
Palmdale
Parcel area (Sq Ft) per capita


Landscape Area per Capita vs. Irrigation Requirement
Landscape Area (Sq Ft) per Capita
Irrigation Requirement in GPCD
1,200
1,000
800
600
400
200
0
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Seal Beach
Pittsburg
City of SLO
Helix
Folsom
Clovis
Palmdale
Landscape Area (Sq Ft) per capita (35% of Parcel Area)
Irrigation Requirement in GPCD

Landscape and Water Loss Savings

Landscape and Water Loss Savings

↓

21.6% of Landscape & Water Loss per Capita Water Use

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Landscape water Use

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Irrigation Requirement

=

Landscape savings

Landscape Area Data Development

- 52 sample agencies
- Water suppliers able to use method
- Affordable
- As accurate as water measurement and population estimates