

MARINA COAST WATER DISTRICT

DRAFT

2015 URBAN WATER MANAGEMENT PLAN

APPENDICES



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Appendix A: Resolution Adopting the 2010 Urban Water Management Plan

Appendix B: References

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Appendix C: Land Use Forecast and Water Demand Projections by Jurisdiction

The following tables present the water demand projects for the Marina Coast Water District, based upon the development and redevelopment projections provided by the various jurisdictions. Water demands are estimated as a function of the size (acreage/square footage) or number of units of a development, depending on the type of land use, and a water demand unit factor that corresponds to that use. For each type of land use, Demand = Size x Unit Factor.

- Existing demands are estimated from MCWD's 2012 water usage records for each jurisdictional area. 2012 was used as the basis because it was an average water usage year.
- For developments that have approved Specific Plans, the water demand factors and total water demand estimates have been taken from the respective Water Supply Assessments (WSAs) for these Specific Plan areas.
- For in-fill development under approved General Plans or Master Plans (e.g., the City of Marina, CSUMB), MCWD's standard water demand factors have been used with the in-fill land use projections provided by the jurisdiction.
- For the Ord Community, the initial development forecast was based upon the Fort Ord Reuse Authority's latest annual growth forecast, which is developed for CIP planning. The projected developments, generally by square footage or units, are then multiplied by the appropriate unit demand factors.
- For areas not reflected in the Fort Ord Reuse Authority growth forecast (Central Marina, the Army and State Parks), the initial projections reflected those in the 2010 UWMP.

Based upon the housing projections in the water demand tables, population projections were then developed. In-fill development was assumed to have the same number of persons per dwelling unit as the existing area. For new development, if the specific plan, the water supply assessment or the associated Environmental Impact Report projected a number of persons per housing unit, that factor was used. If a persons-per-dwelling-unit estimate did not exist, the new development was assumed to have the same occupancy as the city average.

Tables:

C1: 2015 Water Demand Projections by Jurisdiction

C2: 2010 Water Demand Projections by Jurisdiction

C3: Water Demand Projection Details

C4: Population Growth Projections by Jurisdiction

C5: Population Growth Projection Details

C6: Projected Demands by Source, with Planned Recycled Water Use

Marina Coast Water District, DRAFT 2015 Urban Water Management Plan

Table C1: 2015 Draft Water Demand by Jurisdiction (AFY)

	Jurisdiction	2012*	2015	2020	2025	2030	2035	Notes	Allocation
Ord	U.S. Army	620	633	663	825	825	825		1,577
	CSUMB	404	404	442	632	755	779		1,035
	Del Rey Oaks	0	0	186	551	551	551		243
	City of Monterey	0	0	0	130	130	130		65
	County of Monterey	8	52	377	539	539	539		720
	UCMBEST	3	3	94	299	515	515		230
	City of Seaside	657	657	997	1,852	2,447	2,876	1	1,012
	State Parks and Rec.	0	0	12	18	20	25		45
	Marina Ord Comm.	264	285	901	1,572	1,702	1,704	2	1,625
	Assumed Line Loss	395	348	348	348	348	348		348
	Marina	Armstrong Ranch	0	0	0	680	680	680	
Cemex		0	0	0	0	0	500		500
Marina Central		1,823	1,823	2,184	2,491	2,606	2,725		3,020
Subtotal - Ord		2,351	2,382	4,021	6,766	7,833	8,293		6,900
Subtotal - Marina		1,823	1,823	2,184	3,171	3,286	3,905		4,440
Total		4,174	4,204	6,205	9,937	11,119	12,197		11,340

*Actual demands from calendar year 2012 used to represent a non-drought year.

1 Seaside includes Seaside Resort Golf Course (250 AFY temp use).

2. Allocation includes 1325 AFY groundwater and 300 AFY existing pilot desalination plant

Table C2: 2010 UWMP Water Demands by Jurisdiction (AFY)

	Jurisdiction	2010	2015	2020	2025	2030	Allocation
Ord	U.S. Army	752	792	838	997	997	1,577
	CSUMB	403	441	631	754	778	1,035
	Del Rey Oaks	0	326	527	527	527	243
	City of Monterey	0	0	92	92	92	65
	County of Monterey	4	627	1,087	1,087	1,087	710
	UCMBEST	2	93	276	474	474	230
	City of Seaside	792	1,130	1,351	1,664	2,093	1,012
	State Parks and Rec.	0	12	18	20	25	45
	Marina Ord Comm.	281	812	1,537	1,738	1,739	1,625
	Marina Sphere	10	10	10	10	10	10
	FORA Strategic Res.	0	0	0	0	0	-230
	Assumed Line Loss	348	348	348	348	348	578
Marina	Armstrong Ranch	0	0	550	680	680	920
	Cemex	0	0	0	0	500	500
	Marina Central	1,962	2,324	2,630	2,746	2,864	3,020
Subtotal - Ord		2,592	4,591	6,715	7,712	8,172	6,900
Subtotal - Marina		1,962	2,324	3,181	3,426	4,044	4,440
Total		4,554	6,915	9,896	11,137	12,216	11,340

3. Marina Sphere merged in Monterey County totals.

4. FORA Strategic Reserve allocated out to jurisdictions in 2007.

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Marina Ord	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
Marina Heights																							
Townhome	MAR	Dwelling Units			-	-	12	13	13	13	13	13	13	12									
Cluster Market/Bridge	MAR	Dwelling Units			4	5	47	19	19	19	19	19	19	18									
Market A	MAR	Dwelling Units			10	15	105	29	29	29	29	29	29	33									
Market B	MAR	Dwelling Units			6	10	85	34	34	34	34	34	34	33									
Estates	MAR	Dwelling Units		-	-	-	-	13	12	12	12	12	12	12	-								
Landscaping (Turf)	MAR	Acres			0.1	0.1	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3									
Landscaping (Non-Turf)	MAR	Acres					0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1									
Cypress Knolls																							
SF Home / Townhome	MAR	Dwelling Units								255	200		141										
Apartments	MAR	Dwelling Units								85			31										
Assisted Living	MAR	Dwelling Units											60										
Open Space	MAR	Acres								28.57													
Parklands	MAR	Acres								2.17													
Right of Way	MAR	Acres								27.79			5.51										
Dunes on Monterey Bay																							
Alley (small lot)	MAR	Dwelling Units		20	24	48	54	59	37														
Carriage	MAR	Dwelling Units		10	21	6	12	30	47														
Standard	MAR	Dwelling Units	23	10	12	20	44	6															
Standard (small lot)	MAR	Dwelling Units		20	15	25	48	23															
Duets	MAR	Dwelling Units			34	38	78	98	40	60	4												
Townhome (live-work)	MAR	Dwelling Units			16	52	50	21															
Townhome (mixed use)	MAR	Dwelling Units			4	8	8	4															
Apartments (completed)	MAR	Dwelling Units	108																				
Landscaping (MCP)	MAR	Acres	1	1	3.00	5.00	5.00	4.20															
Landscaping (other)	MAR	Acres		1	1.00	4.00	2.10																
Promontory																							
	MAR	Dwelling Units		176																			
TAMC TOD																							
	MAR	Dwelling Units					100	100															
Existing/Replacement Residential																							
Patton Park (complete)	MAR	Dwelling Units																					
Shelter Outreach Plus (complete)	MAR	Dwelling Units																					
Interim Housing (complete)	MAR	Dwelling Units																					
Non Residential																							
SVMHS Development	MAR	Square Feet			10,000	15,000	15,000	16,000															
TAMC TOD (office/public facilities)	MAR	Square Feet					20,000	20,000															
Airport Economic Development Area	MAR	Square Feet					30,357	30,357	30,357	60,714	60,714	66,786	66,786	66,786	66,786	66,786							
Cypress Knolls Community Center	MAR	Square Feet								16,525													
Cypress Knolls Support Services	MAR	Square Feet								6,300													
TAMC TOD (retail)	MAR	Square Feet					37,500	37,500															
Marina Airport Hotel/Golf	MAR	Rooms																					
Marina High School	MAR	Square Feet							15,000	10,000													
Imjin Office Park	MAR	Square Feet		9,000	12,000																		
Monterey Peninsula College	MAR	Square Feet																					
Institute of Canine Studies	MAR	Square Feet					24,000		4,100		5,400		4,800		9,700		11,300				12,470		
UV - Planning Area A	MAR	Square Feet			20,000	16,000																	
UV - Planning Area J	MAR	Square Feet						3,000	55,000	8,000	17,000												
UV - Planning Area B1	MAR	Square Feet		25,000					114,000	15,000	10,000	35,000	10,000										
UV - Planning Area V	MAR	Square Feet								12,000	5,000	2,000	5,500										
UV - Planning Area OP (1-5)	MAR	Square Feet		150,000							300,000	253,000	82,000	170,000	95,000								
UV - Planning Area T	MAR	Rooms		108																			
UV - Planning Area Z	MAR	Square Feet											8,500	5,000	5,000	1,500							

Armstrong Ranch	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
Marina Station																							
Single Family Homes (15,000)	MAR	Dwelling Units								23	87	37											
Single Family Homes (6,500)	MAR	Dwelling Units								100	250	220	99										
Apartments	MAR	Dwelling Units								100	250	220	78										
Irrigated parkland	MAR	Acres								6.0	6.5												
Open Space (turf)	MAR	Acres								4.3													
Non Residential																							
Marina Station																							
Mixed Use Retail	MAR	Square Feet									15,000	30,000	15,000										
Office Uses	MAR	Square Feet									40,000	60,000	43,808										
Light Industrial	MAR	Square Feet										300,000	351,624										
Landscape (15% of indoor consumption)	MAR	Square Feet																					
System Loss (5%)	MAR	Square Feet																					

CEMEX	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
Non Residential																							
CEMEX (formerly RMC Lonestar)	MAR	Square Feet																	666667	666667	666667	666667	666667

Marina Central	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
In-Fill Development MF	MAR	Dwelling Units						182					167										
In-Fill Development SF	MAR	Dwelling Units						9					24										
Downtown Specific Plan	MAR	Dwelling Units		80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Non Residential																							
Hotel / Motel	MAR	Rooms						400															
Retail and Restaurants	MAR	Square Feet						46000					46000										
Other Commercial	MAR	Square Feet						60000															
Institutional	MAR	Square Feet						5000					5000										
Schools	MAR	Square Feet						77760					110500										
Landscape (turf)	MAR	Acres						8					16						1.2				
Downtown Specific Plan - Office	MAR	Square Feet		4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200
Downtown Specific Plan - Retail / Commercial	MAR	Square Feet		8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470	8470

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Marina Station					
Single Family Homes (15,000)	SF Residential (< 5 units / acre)	147	Dwelling Units	0.5	
Single Family Homes (6,500)	SF Residential (5-8 units / acre)	669	Dwelling Units	0.33	
Apartments	Multi family (> 15 units / acre)	648	Dwelling Units	0.25	
Irrigated parkland	Landscape (turf)	12.5	Acres	2.5	
Open Space (turf)	Landscape (turf)	4.3	Acres	2.5	
Non Residential					
Marina Station					
Mixed Use Retail	Retail	60000	Square Feet	0.00021	
Office Uses	Office / R&D	143808	Square Feet	0.000135	
Light Industrial	Light Industrial	651624	Square Feet	0.00015	
Landscape (15% of indoor consumption)	Landscape (non-turf)		Square Feet	2.1	1
System Loss (5%)			Square Feet		1

Land Use Type	Land Use	Total	Units	Multiplier	Notes
Non Residential					
RMC Lonestar (added to FORA table)	Light Industrial	3333333.3	Square Feet	0.00015	

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
In-Fill Development MF	Multi family (> 15 units / acre)	349	Dwelling Units	0.25	6
In-Fill Development SF	SF Residential (5-8 units / acre)	33	Dwelling Units	0.33	6
Downtown Specific Plan	Multi family (> 15 units / acre)	1600	Dwelling Units	0.25	9
Non Residential					
Hotel / Motel	Hotel, Motel and Timeshares	400	Rooms	0.17	
Retail and Restaurants	Restaurant	92000	Square Feet	0.00145	
Other Commercial	Other Commercial	60000	Square Feet	0.0003	
Institutional	Institutional	10000	Square Feet	0.0003	
Schools	Schools (K-12)	188260	Square Feet	0.0003	
Landscape (turf)	Landscape (turf)	25.2	Acres	2.5	
Downtown Specific Plan - Office	Office / R&D	84000	Square Feet	0.000135	9
Downtown Specific Plan - Retail / Commercial	Other Commercial	169400	Square Feet	0.0003	9

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	0.00	73.50	0.00	0.00
	0.00	0.00	220.77	0.00	0.00
	0.00	0.00	162.00	0.00	0.00
	0.00	0.00	31.25	0.00	0.00
	0.00	0.00	10.75	0.00	0.00
Armstrong Ranch	0.00	0.00	498.27	0.00	0.00

Armstrong Ranch	0.00	0.00	12.60	0.00	0.00
Armstrong Ranch	0.00	0.00	19.41	0.00	0.00
Armstrong Ranch	0.00	0.00	97.74	0.00	0.00
Armstrong Ranch	0.00	0.00	19.46	0.00	0.00
Armstrong Ranch	0.00	0.00	32.37	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	0.00	73.50	73.50	73.50
	0.00	0.00	220.77	220.77	220.77
	0.00	0.00	162.00	162.00	162.00
	0.00	0.00	31.25	31.25	31.25
	0.00	0.00	10.75	10.75	10.75
Armstrong Ranch	0.00	0.00	498.27	498.27	498.27

	0.00	0.00	12.60	12.60	12.60
	0.00	0.00	19.41	19.41	19.41
	0.00	0.00	97.74	97.74	97.74
	0.00	0.00	19.46	19.46	19.46
	0.00	0.00	32.37	32.37	32.37

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
CEMEX	0.00	0.00	0.00	0.00	500.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
CEMEX	0.00	0.00	0.00	0.00	500.00

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
Marina Central	0.00	45.50	41.75	0.00	0.00
Marina Central	0.00	2.97	7.92	0.00	0.00
Marina Central	0.00	100.00	100.00	100.00	100.00

Marina Central	0.00	68.00	0.00	0.00	0.00
Marina Central	0.00	66.70	66.70	0.00	0.00
Marina Central	0.00	18.00	0.00	0.00	0.00
Marina Central	0.00	1.50	1.50	0.00	0.00
Marina Central	0.00	23.33	33.15	0.00	0.00
Marina Central	0.00	20.00	40.00	0.00	3.00
Marina Central	0.00	2.84	2.84	2.84	2.84
Marina Central	0.00	12.71	12.71	12.71	12.71

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
Marina Central	0.00	45.50	87.25	87.25	87.25
Marina Central	0.00	2.97	10.89	10.89	10.89
Marina Central	0.00	100.00	200.00	300.00	400.00

	0.00	68.00	68.00	68.00	68.00
	0.00	66.70	133.40	133.40	133.40
	0.00	18.00	18.00	18.00	18.00
	0.00	1.50	3.00	3.00	3.00
	0.00	23.33	56.48	56.48	56.48
	0.00	20.00	60.00	60.00	63.00
	0.00	2.84	5.67	8.51	11.34
	0.00	12.71	25.41	38.12	50.82

Monterey County	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
East Garrison I																							
Market Rate	MCO	Dwelling Units	104	149	160	140	120	100	100	100	77												
Affordable	MCO	Dwelling Units	66	-	-	8	43	75	100	105	23												
Monterey Horse Park (see City of Seaside)	MCO	Dwelling Units																					
Non Residential																							
Monterey County Office																							
Horse Park (see City of Seaside)	MCO	Square Feet																					
Whispering Oaks Business Park	MCO	Square Feet																					
Intergarrison Rd Office Park	MCO	Square Feet				127,200	127,200	127,200	127,200	127,000													
East Garrison I Office Development	MCO	Square Feet			14,000	-	10,000	-	11,000														
MST Bus Maint & Opns Facility	MCO	Square Feet																					
Monterey County Light Ind.																							
Horse Park (see City of Seaside)	MCO	Square Feet																					
Whispering Oaks Business Park	MCO	Square Feet																					
MST Bus Maint & Opns Facility	MCO	Square Feet																					
Monterey County Retail																							
Whispering Oaks Business Park	MCO	Square Feet																					
East Garrison I Retail	MCO	Square Feet			20,000	20,000																	
East Garrison I Arts Complex	MCO	Square Feet																					
East Garrison I Public Facilities	MCO	Square Feet																					
Ord Market (existing)	MCO	Square Feet																					
Horse Park (see City of Seaside)	MCO	Square Feet																					
Horse Park Hotel (see City of Seaside)	MCO	Rooms																					
East Garrison Landscaping	MCO	Acres				10.44	4.94																

CSUMB	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
CSUMB Housing	CSU/MAR	Dwelling Units						95	95	95	95	48	48	48	48	48	48	48	48	48			
Non Residential																							
CSUMB Academic and Administrative Buildings	CSUMB	Square Feet						101,852	101,852	101,852	101,852				88,888	88,888	88,888	88,888	88,888				
CSUMB Landscaping	CSUMB	Acres								5.00	10.00	11			7								

UCMBEST	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
UC 8th Street	UC/MCO	Dwelling Units				33	33	33	33	33	33	33	33	33	33								
UC East Campus - SF	UC/MCO	Dwelling Units							67					67	66								
UC East Campus - MF	UC/MCO	Dwelling Units																					
Non Residential																							
UC Eight Street	UC/MCO	Square Feet				19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602								
UC Central South Campus	UC/MAR	Square Feet							16,196	16,196	16,196	16,196	16,196	16,196	16,196	16,196	16,196	16,196					
UC Central South Campus	UC/MAR	Square Feet							7,799	7,799	7,799	7,799	7,799	7,799	7,799	7,799	7,799	7,799					
UC Central North & West Campuses	UC/MAR	Square Feet	-	-	40,000	61,417	61,417	61,417	61,417	67,559	67,559	67,559	67,559	67,559	67,559								
UC Central North & West Campuses	UC/MAR	Square Feet				6,346	6,346	6,346	6,346	6,981	6,981	6,981	6,981	6,981	6,981								
UC Central North & West Campuses	UC/MAR	Square Feet	-	-	20,000	20,408	20,408	20,408	20,408	22,448	22,448	22,448	22,448	22,448	22,448								
UC South Campus	UC/MAR	Square Feet																					
UC East Campus	UC/MCO	Square Feet							26,000					26,000									
UC Eight Street	UC/MCO	Square Feet				19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602	19,602								
UC East Campus	UC/MCO	Rooms																					250
UC Central North & West Campuses	UC/MAR	Rooms		-	-	-	-	-	-	-	-	-	-	150	-								

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
East Garrison					1
Market rate	SF Residential (< 5 units / acre)	1050	Dwelling Units	0.3	1
Affordable	SF Residential (5-8 units / acre)	420	Dwelling Units	0.186	1
Monterey Horse Park (see City of Seaside)	SF Residential (5-8 units / acre)		Dwelling Units	0.33	3
Non Residential					
Monterey County Office					
Horse Park (see City of Seaside)	Office / R&D		Square Feet	0.000135	3
Whispering Oaks Business Park	Office / R&D		Square Feet	0.000166	8
Intergarrison Rd Office Park	Office / R&D	635800	Square Feet	0.000135	
East Garrison I Office Development	Office / R&D	35000	Square Feet	0.000135	
MST Bus Maint & Opns Facility	Office / R&D		Square Feet	0.000124	8
Monterey County Light Ind.					
Horse Park (see City of Seaside)	Light Industrial		Square Feet	0.00015	3
Whispering Oaks Business Park	Light Industrial		Square Feet	0.000166	8
MST Bus Maint & Opns Facility	Light Industrial		Square Feet	0.000124	8
Monterey County Retail					
Whispering Oaks Business Park	Retail		Square Feet	0.000166	8
East Garrison I Retail	Retail	40000	Square Feet	0.00021	
East Garrison I Arts Complex	Retail		Square Feet	0.0001406	1
East Garrison I Public Facilities	Retail		Square Feet	0.0003	1
Ord Market (existing)	Retail		Square Feet	0.00021	
Horse Park (see City of Seaside)	Retail		Square Feet	0.00021	3
Horse Park Hotel (see City of Seaside)	Hotel, Motel and Timeshares		Rooms	0.17	
East Garrison Landscaping	Landscape (turf)	15.38	Acres	2.5	

Incremental Demand (AFY)

	2015	2020	2025	2030	2035
	31.20	200.70	83.10	0.00	0.00
	12.28	23.44	42.41	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
County of Monterey	43.48	224.14	125.51	0.00	0.00

Cumulative Demand (AFY)

	2015	2020	2025	2030	2035
	31.20	231.90	315.00	315.00	315.00
	12.28	35.71	78.12	78.12	78.12
	0.00	0.00	0.00	0.00	0.00
	43.48	267.61	393.12	393.12	393.12

County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	51.52	34.32	0.00	0.00
County of Monterey	0.00	3.24	1.49	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	8.40	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	0.00	0.00	0.00	0.00
County of Monterey	0.00	38.45	0.00	0.00	0.00

	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	51.52	85.83	85.83	85.83
	0.00	3.24	4.73	4.73	4.73
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	8.40	8.40	8.40	8.40
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	38.45	38.45	38.45	38.45

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
CSUMB Housing	Multi family (> 15 units / acre)	764	Dwelling Units	0.25	2
CSUMB Academic and Administrative Bldgs	Office / R&D	851848	Square Feet	0.000135	2
CSUMB Landscaping	Landscape (non-turf)	32.85	Acres	2.1	2

Incremental Demand (AFY)

	2015	2020	2025	2030	2035
CSUMB	0.00	23.75	95.25	60.00	12.00
CSUMB	0.00	13.75	41.25	48.00	12.00
CSUMB	0.00	0.00	53.97	15.02	0.00

Cumulative Demand (AFY)

	2015	2020	2025	2030	2035
	0.00	23.75	119.00	179.00	191.00
	0.00	13.75	55.00	103.00	115.00
	0.00	0.00	53.97	68.99	68.99

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
UC 8th Street	Multi family (> 15 units / acre)	330	Dwelling Units	0.25	
UC East Campus - SF	SF Residential (< 5 units / acre)	200	Dwelling Units	0.5	
UC East Campus - MF	Multi family (> 15 units / acre)		Dwelling Units	0.25	
UC Eight Street	Office / R&D	196020	Square Feet	0.000135	
UC Central South Campus	Office / R&D	145764	Square Feet	0.000135	
UC Central South Campus	Other Commercial	70191	Square Feet	0.0003	
UC Central North & West Campuses	Office / R&D	691022	Square Feet	0.000135	
UC Central North & West Campuses	Retail	67270	Square Feet	0.00021	
UC Central North & West Campuses	Light Industrial	236320	Square Feet	0.00015	
UC South Campus	Retail		Square Feet	0.00021	
UC East Campus	Retail	52000	Square Feet	0.00021	
UC Eight Street	Retail	196020	Square Feet	0.00021	
UC East Campus	Hotel, Motel and Timeshares	250	Rooms	0.17	
UC Central North & West Campuses	Hotel, Motel and Timeshares	150	Rooms	0.17	

Incremental Demand (AFY)

	2015	2020	2025	2030	2035
UCMBEST	0.00	24.75	41.25	16.50	0.00
UCMBEST	0.00	0.00	33.50	66.50	0.00
UCMBEST	0.00	0.00	0.00	0.00	0.00
UCMBEST	0.00	7.94	13.23	5.29	0.00
UCMBEST	0.00	0.00	10.93	8.75	0.00
UCMBEST	0.00	0.00	11.70	9.36	0.00
UCMBEST	0.00	30.27	44.77	18.24	0.00
UCMBEST	0.00	4.00	7.20	2.93	0.00
UCMBEST	0.00	12.18	16.53	6.73	0.00
UCMBEST	0.00	0.00	0.00	0.00	0.00
UCMBEST	0.00	0.00	5.46	5.46	0.00
UCMBEST	0.00	12.35	20.58	8.23	0.00
UCMBEST	0.00	0.00	0.00	42.50	0.00
UCMBEST	0.00	0.00	0.00	25.50	0.00

Cumulative Demand (AFY)

	2015	2020	2025	2030	2035
	0.00	24.75	66.00	82.50	82.50
	0.00	0.00	33.50	100.00	100.00
	0.00	0.00	0.00	0.00	0.00
	0.00	7.94	21.17	26.46	26.46
	0.00	0.00	10.93	19.68	19.68
	0.00	0.00	11.70	21.06	21.06
	0.00	30.27	75.05	93.29	93.29
	0.00	4.00	11.19	14.13	14.13
	0.00	12.18	28.71	35.45	35.45
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	5.46	10.92	10.92
	0.00	12.35	32.93	41.16	41.16
	0.00	0.00	0.00	42.50	42.50
	0.00	0.00	0.00	25.50	25.50

Seaside	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
Residential																							
Seaside Resort Housing	SEA	Dwelling Units		2	2	2	4	6	53	53													
Seaside Housing (Eastside)	SEA	Dwelling Units																	110	110	110	110	110
Seaside Affordable Housing Obligations	SEA	Dwelling Units			36	36																	
Workforce Housing (Army to Build)	SEA	Dwelling Units							26														
Market Rate Housing (Army to Build)	SEA	Dwelling Units							150														
State Parks Housing (Workforce housing)	SEA	Dwelling Units																					
Workforce Housing (Seaside)	SEA	Dwelling Units				29		-	-														
Seaside-Fort Ord Project Area	SEA	Dwelling Units											97	100	100	100	100	100	100	100	100	100	100
Seaside Housing (Eucalyptus)	SEA	Dwelling Units														190	190	190	190	182			
Monterey Downs																							
Affordable Rentals (34 du/ac)	SEA	Dwelling Units								32	32	32	32	32	32	32	32						
Apartments (20 du/ac)	SEA	Dwelling Units								50	50	50	50	50	50	50	50						
Court Yard Homes (9 du/ac)	SEA	Dwelling Units								12	10	10	10	10	10	10	10						
Single Family Homes (9 du/ac)	SEA	Dwelling Units								100	100	100	100	100	100	100	98						
Horse Park staff	SEA	Dwelling Units										12											
Non Residential																							
Main Gate																							
Conference	SEA	Square Feet					27,000																
Spa	SEA	Square Feet						24,000															
Large Format Retail	SEA	Square Feet					87,000																
In-Line Shops	SEA	Square Feet					281,000																
Movie Theater	SEA	Square Feet					51,500																
In-Line Food Service	SEA	Square Feet					10,000																
Restaurants	SEA	Square Feet					61,000																
Landscaping	SEA	Acres						10.41															
Hotel	SEA	Rooms						250															
Seaside Resort																							
Seaside Resort Golf Buildings	SEA	Square Feet		10,000																			
Seaside Resort Golf Clubhouse	SEA	Square Feet						16,300															
Seaside Golf Course Hotel	SEA	Rooms						330															
Seaside Golf Course Timeshares	SEA	Rooms							120	50													
Monterey Downs																							
Training Track and Arena	SEA	Acres										139											
Horse Park	SEA	Acres										111											
Commercial	SEA	Square Feet								5,000	5,000	5,000	5,000	5,000	5,000								
Restaurants	SEA	Square Feet								5,000	5,000	5,000	5,000										
Retail	SEA	Square Feet								10,000	10,000	10,000	10,000	10,000	10,000	10,000	15,000						
Office	SEA	Square Feet								20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000						
Theater	SEA	Square Feet										35,000											
Hotel	SEA	Rooms										400											
Tennis and Swim Club	SEA	Square Feet										10,848	10,000										
Fire Station	SEA	Square Feet										11,000											
Landscape	SEA	Acres								8	8	8	8	8	8	8	8						
Seaside Office (Monterey Blues)	SEA	Square Feet				60,000																	
Chartwell School (existing)	SEA	Square Feet																					
Monterey College of Law (existing)	SEA	Square Feet																					
Fitch Middle School (existing)	SEA	Square Feet																					
Marshall Elementary School (existing)	SEA	Square Feet																					
International School (former Hayes Elem)(existing)	SEA	Square Feet																					
Veterans' Cemetery	SEA	Square Feet			9,000	7,500		11,200															
Monterey Peninsula Trade & Conf Cntr	SEA	Square Feet							250,000														
Seaside Corp Yard	SEA	Square Feet						25,000	27,200														
Conference Facility	SEA	Square Feet						27,000															
Luxury Auto Mall	SEA	Square Feet																					

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Seaside Resort Housing	SF Residential (< 5 units / acre)	122	Dwelling Units	0.5	
Seaside Housing (Eastside)	SF Residential (5-8 units / acre)	550	Dwelling Units	0.33	7
Seaside Affordable Housing Obligations	Residential (8-15 units / acre)	72	Dwelling Units	0.25	
Workforce Housing (Army to Build)	Residential (8-15 units / acre)	26	Dwelling Units	0.25	
Market Rate Housing (Army to Build)	SF Residential (< 5 units / acre)	150	Dwelling Units	0.5	
State Parks Housing (Workforce housing)	SF Residential (5-8 units / acre)		Dwelling Units	0.33	
Workforce Housing (Seaside)	SF Residential (5-8 units / acre)	29	Dwelling Units	0.33	
Seaside-Fort Ord Project Area	Multi family (> 15 units / acre)	1097	Dwelling Units	0.25	7
Seaside Housing (Eucalyptus)	SF Residential (5-8 units / acre)	942	Dwelling Units	0.33	7
Monterey Downs					
Affordable Rentals (34 du/ac)	Multi family (> 15 units / acre)	256	Dwelling Units	0.25	5
Apartments (20 du/ac)	Multi family (> 15 units / acre)	400	Dwelling Units	0.25	5
Court Yard Homes (9 du/ac)	Residential (8-15 units / acre)	82	Dwelling Units	0.25	5
Single Family Homes (9 du/ac)	Residential (8-15 units / acre)	798	Dwelling Units	0.25	5
Horse Park staff	Residential (8-15 units / acre)	12	Dwelling Units	0.25	5
Main Gate Conference	Office / R&D	27000	Square Feet	0.000135	
Main Gate Spa	Other Commercial	24000	Square Feet	0.0003	1
Main Gate Large Format Retail	Retail	87000	Square Feet	0.00005	1
Main Gate In-Line Shops	Retail	281000	Square Feet	0.00005	1
Main Gate Movie Theater	Other Commercial	51500	Square Feet	0.0002	1
Main Gate In-Line Food Service	Restaurant	10000	Square Feet	0.00247	1
Main Gate Restaurants	Restaurant	61000	Square Feet	0.0011	1
Main Gate Landscaping	Landscape (turf)	10.41	Acres	2.5	
Main Gate Hotel	Hotel, Motel and Timeshares	250	Rooms	0.17	
Seaside Resort Golf Buildings	Office / R&D	10000	Square Feet	0.000135	
Seaside Resort Golf Clubhouse	Restaurant	16300	Square Feet	0.00145	
Seaside Golf Course Hotel	Hotel, Motel and Timeshares	330	Rooms	0.17	
Seaside Golf Course Timeshares	Hotel, Motel and Timeshares	170	Rooms	0.17	
Monterey Downs					5
Training Track and Arena	Various	138.7	Acres	0.7859	1, 5
Horse Park	Various	110.7	Acres	1.1462	1, 5
Commercial	Other Commercial	30000	Square Feet	0.0003	5
Restaurants	Restaurant	20000	Square Feet	0.00145	5
Retail	Retail	85000	Square Feet	0.00021	5
Office	Office / R&D	160000	Square Feet	0.000135	5
Theater	Other	35000	Square Feet	0.00004	1, 5
Hotel	Hotel, Motel and Timeshares	400	Rooms	0.17	5
Tennis and Swim Club	Various	20848	Square Feet	0.000190	1, 5
Fire Station	Governmental	11000	Square Feet	0.0003	5
Landscape	Landscape (non-turf)	64	Acres	2.1	5
Seaside Office (Monterey Blues)	Office / R&D	60000	Square Feet	0.000135	
Chartwell School	Schools (K-12)		Square Feet	0.0003	
Monterey College of Law	Institutional		Square Feet	0.0003	
Fitch Middle School	Schools (K-12)		Square Feet	0.0003	
Marshall Elementary School	Schools (K-12)		Square Feet	0.0003	
International School (former Hayes Elem)	Schools (K-12)		Square Feet	0.0003	
Veterans' Cemetery	Various	27700	Square Feet	0.000141	1
Monterey Peninsula Trade & Conf Cntr	Office / R&D	250000	Square Feet	0.000135	
Seaside Corp Yard	Various	52200	Square Feet	0.00015709	1
Conference Facility	Office / R&D	27000	Square Feet	0.0002	1
Luxury Auto Mall	Retail		Square Feet	0.00021	

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
City of Seaside	0.00	8.00	53.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	181.50
City of Seaside	0.00	18.00	0.00	0.00	0.00
City of Seaside	0.00	0.00	6.50	0.00	0.00
City of Seaside	0.00	0.00	75.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	9.57	0.00	0.00	0.00
City of Seaside	0	0.00	24.25	125.00	125.00
City of Seaside	0.00	0.00	0.00	188.10	122.76
City of Seaside	0.00	0.00	32.00	32.00	0.00
City of Seaside	0.00	0.00	50.00	50.00	0.00
City of Seaside	0.00	0.00	10.50	10.00	0.00
City of Seaside	0.00	0.00	100.00	99.50	0.00
City of Seaside	0.00	0.00	3.00	0.00	0.00

City of Seaside	0.00	3.65	0.00	0.00	0.00
City of Seaside	0.00	7.20	0.00	0.00	0.00
City of Seaside	0.00	4.35	0.00	0.00	0.00
City of Seaside	0.00	14.05	0.00	0.00	0.00
City of Seaside	0.00	11.20	0.00	0.00	0.00
City of Seaside	0.00	24.70	0.00	0.00	0.00
City of Seaside	0.00	68.60	0.00	0.00	0.00
City of Seaside	0.00	26.03	0.00	0.00	0.00
City of Seaside	0.00	42.50	0.00	0.00	0.00
City of Seaside	0.00	1.35	0.00	0.00	0.00
City of Seaside	0.00	23.64	0.00	0.00	0.00
City of Seaside	0.00	56.10	0.00	0.00	0.00
City of Seaside	0.00	0.00	28.90	0.00	0.00
City of Seaside	0.00	0.00	109.00	0.00	0.00
City of Seaside	0.00	0.00	126.88	0.00	0.00
City of Seaside	0.00	0.00	6.00	3.00	0.00
City of Seaside	0.00	0.00	29.00	0.00	0.00
City of Seaside	0.00	0.00	8.40	9.45	0.00
City of Seaside	0.00	0.00	10.80	10.80	0.00
City of Seaside	0.00	0.00	1.40	0.00	0.00
City of Seaside	0.00	0.00	68.00	0.00	0.00
City of Seaside	0.00	0.00	3.95	0.00	0.00
City of Seaside	0.00	0.00	3.30	0.00	0.00
City of Seaside	0.00	0.00	67.20	67.20	0.00
City of Seaside	0.00	8.10	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00
City of Seaside	0.00	3.90	0.00	0.00	0.00
City of Seaside	0.00	0.00	33.75	0.00	0.00
City of Seaside	0.00	3.93	4.27	0.00	0.00
City of Seaside	0.00	5.40	0.00	0.00	0.00
City of Seaside	0.00	0.00	0.00	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	8.00	61.00	61.00	61.00
	0.00	0.00	0.00	0.00	181.50
	0.00	18.00	18.00	18.00	18.00
	0.00	0.00	6.50	6.50	6.50
	0.00	0.00	75.00	75.00	75.00
	0.00	0.00	0.00	0.00	0.00
	0.00	9.57	9.57	9.57	9.57
	0.00	0.00	24.25	149.25	274.25
	0.00	0.00	0.00	188.10	310.86
	0.00	0.00	32.00	64.00	64.00
	0.00	0.00	50.00	100.00	100.00
	0.00	0.00	10.50	20.50	20.50
	0.00	0.00	100.00	199.50	199.50
	0.00	0.00	3.00	3.00	3.00

	0.00	3.65	3.65	3.65	3.65
	0.00	7.20	7.20	7.20	7.20
	0.00	4.35	4.35	4.35	4.35
	0.00	14.05	14.05	14.05	14.05
	0.00	11.20	11.20	11.20	11.20
	0.00	24.70	24.70	24.70	24.70
	0.00	68.60	68.60	68.60	68.60
	0.00	26.03	26.03	26.03	26.03
	0.00	42.50	42.50	42.50	42.50
	0.00	1.35	1.35	1.35	1.35
	0.00	23.64	23.64	23.64	23.64
	0.00	56.10	56.10	56.10	56.10
	0.00	0.00	28.90	28.90	28.90
	0.00	0.00	109.00	109.00	109.00
	0.00	0.00	126.88	126.88	126.88
	0.00	0.00	6.00	9.00	9.00
	0.00	0.00	29.00	29.00	29.00
	0.00	0.00	8.40	17.85	17.85
	0.00	0.00	10.80	21.60	21.60
	0.00	0.00	1.40	1.40	1.40
	0.00	0.00	68.00	68.00	68.00
	0.00	0.00	3.95	3.95	3.95
	0.00	0.00	3.30	3.30	3.30
	0.00	0.00	67.20	134.40	134.40
	0.00	8.10	8.10	8.10	8.10
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
	0.00	3.90	3.90	3.90	3.90
	0.00	0.00	33.75	33.75	33.75
	0.00	3.93	8.20	8.20	8.20
	0.00	5.40	5.40	5.40	5.40
	0.00	0.00	0.00	0.00	0.00

Del Rey Oaks	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																							
Del Rey Oaks																							
Golf Villas	DRO	Dwelling Units						37	13														
Patio Homes	DRO	Dwelling Units						32	4														
Condos	DRO	Dwelling Units						40	160	176													
Workforce	DRO	Dwelling Units							70	68													
Townhomes/Senior Casitas	DRO	Dwelling Units						21	40	30													
RV Resort (Manager)	DRO	Dwelling Units																					
Non Residential																							
Del Rey Oaks Office	DRO	Square Feet				100,000	100,000	100,000	100,000														
Del Rey Oaks Retail	DRO	Square Feet				5,000																	
Del Rey Oaks Hotel	DRO	Rooms				104	250	100															
Del Rey Oaks Timeshare	DRO	Rooms				48	48																
Resort Golf Course	DRO	Acres									92												
RV Resort	DRO	Square Feet																					

Monterey City	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
Non Residential																							
Monterey City Office	MRY	Square Feet								721,524													
Industrial -- City Corp. Yard	MRY	Square Feet								100,000													
Industrial -- Public/Private	MRY	Square Feet								116,275													

US Army	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
Residential																							
Doe Park (Stilwell) Single Family	ARMY	Dwelling Units	20		28																		
Doe Park (Stilwell) Duplex	ARMY	Dwelling Units	20		27																		
Non Residential																							
Recreation Center	ARMY	Square Feet							8,340														
VA Medical Clinic (part of Marina - UV Area OP)	ARMY	Square Feet								24,000													
Child Development Center	ARMY	Square Feet																					
Emergency Services Center	ARMY	Square Feet				40,000																	

CA State Parks	Jurisd	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
Non Residential																							
Fort Ord Dunes State Park	SP																						
Fort Ord Dunes State Park	SP	Square feet						75,000				33,333						16667					41667
American Youth Hostel (Seaside)	SP	Units			18					12	2												

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Del Rey Oaks					
Golf Villas	SF Residential (< 5 units / acre)	50	Dwelling Units	0.5	
Patio Homes	SF Residential (< 5 units / acre)	36	Dwelling Units	0.5	
Condos	Multi family (> 15 units / acre)	376	Dwelling Units	0.25	
Workforce	Multi family (> 15 units / acre)	138	Dwelling Units	0.25	
Townhomes/Senior Casitas	SF Residential (5-8 units / acre)	91	Dwelling Units	0.33	
RV Resort (Manager)	Residential (8-15 units / acre)		Dwelling Units	0.25	
Del Rey Oaks Office	Office / R&D	400000	Square Feet	0.000135	
Del Rey Oaks Retail	Retail	5000	Square Feet	0.00021	
Del Rey Oaks Hotel	Hotel, Motel and Timeshares	454	Rooms	0.17	
Del Rey Oaks Timeshare	Hotel, Motel and Timeshares	96	Rooms	0.17	
Resort Golf Course	Landscape (turf)	92.4	Acres	2.16991342	1
RV Resort	Other Commercial		Square Feet	0.0003	1

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	18.50	6.50	0.00	0.00
	0.00	16.00	2.00	0.00	0.00
	0.00	10.00	84.00	0.00	0.00
	0.00	0.00	34.50	0.00	0.00
	0.00	6.93	23.10	0.00	0.00
	0.00	0.00	0.00	0.00	0.00
Del Rey Oaks	0.00	51.43	150.10	0.00	0.00
Del Rey Oaks	0.00	40.50	13.50	0.00	0.00
Del Rey Oaks	-	1.05	0.00	0.00	0.00
Del Rey Oaks	-	77.18	0.00	0.00	0.00
Del Rey Oaks	0.00	16.32	0.00	0.00	0.00
Del Rey Oaks	0.00	0.00	200.50	0.00	0.00
Del Rey Oaks	0.00	0.00	0.00	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	18.50	25.00	25.00	25.00
	0.00	16.00	18.00	18.00	18.00
	0.00	10.00	94.00	94.00	94.00
	0.00	0.00	34.50	34.50	34.50
	0.00	6.93	30.03	30.03	30.03
	0.00	0.00	0.00	0.00	0.00
Del Rey Oaks	0.00	51.43	201.53	201.53	201.53
	0.00	40.50	54.00	54.00	54.00
	0.00	1.05	1.05	1.05	1.05
	0.00	77.18	77.18	77.18	77.18
	0.00	16.32	16.32	16.32	16.32
	0.00	0.00	200.50	200.50	200.50
	0.00	0.00	0.00	0.00	0.00

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Monterey City Office	Office / R&D	721524	Square Feet	0.000135	
Industrial -- City Corp. Yard	Light Industrial	100000	Square Feet	0.00015	
Industrial -- Public/Private	Light Industrial	116275	Square Feet	0.00015	

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
City of Monterey	0.00	0.00	97.41	0.00	0.00
City of Monterey	0.00	0.00	15.00	0.00	0.00
City of Monterey	0.00	0.00	17.44	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	0.00	97.41	97.41	97.41
	0.00	0.00	15.00	15.00	15.00
	0.00	0.00	17.44	17.44	17.44

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Doe Park (Stilwell) Single Family	SF Residential (5-8 units / acre)	28	Dwelling Units	0.33	4
Doe Park (Stilwell) Duplex	Residential (8-15 units / acre)	27	Dwelling Units	0.33	4
Non Residential					
Recreation Center	Institutional	8340	Square Feet	0.0003	
VA Medical Clinic	Institutional		Square Feet	0.00018	1
Child Development Center	Institutional	24000	Square Feet	0.0072	1
Emergency Services Center	Governmental	40000	Square Feet	0.0003	

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
U.S. Army	6.60	9.24	-6.60	0.00	0.00
U.S. Army	6.60	8.91	-6.60	0.00	0.00
U.S. Army	0.00	0.00	2.50	0.00	0.00
U.S. Army	0.00	0.00	0.00	0.00	0.00
U.S. Army	0.00	0.00	172.80	0.00	0.00
U.S. Army	0.00	12.00	0.00	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	6.60	15.84	9.24	9.24	9.24
	6.60	15.51	8.91	8.91	8.91
	0.00	0.00	2.50	2.50	2.50
	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	172.80	172.80	172.80
	0.00	12.00	12.00	12.00	12.00

Land Use Type	Land Use	Total	Units	Multiplier	Notes
New Residential					
Fort Ord Dunes State Park	Governmental			0.0676	
Fort Ord Dunes State Park	Governmental	166667	Square Feet	0.00012	
American Youth Hostel (Seaside)	Hotel, Motel and Timeshares	32	Units	0.17	

	Incremental Demand (AFY)				
	2015	2020	2025	2030	2035
State Parks and Rec.	0.00	0.00	0.00	0.00	0.00
State Parks and Rec.	0.00	9.00	4.00	2.00	5.00
State Parks and Rec.	0.00	3.06	2.38	0.00	0.00

	Cumulative Demand (AFY)				
	2015	2020	2025	2030	2035
	0.00	0.00	0.00	0.00	0.00
	0.00	9.00	13.00	15.00	20.00
	0.00	3.06	5.44	5.44	5.44

NOTES:

- 1 Unique water demand multiplier based on the quantity of units (square feet, acres, dwelling units) and total expected water demand, from Water Supply Assessment.
- 2 Derived from Table 4-1 of the CSUMB Master Plan (December 2007)
- 3 Horse Park projections moved to Monterey Downs Specific Plan (Seaside)
- 4 OMC housing is being renovated and replaced. The entry in 2022 reflects the net removal of 40 DU over the project life.
- 5 Monterey Downs WSA adopted in 2012. Specific Plan is still pending approval.
- 6 Per Marina 2009 Certified Housing Element, Table 3-1
- 7 Projections taken from Seaside-Fort Ord Redevelopment Project Area Implementation Plan 2007-2012
- 8 Whispering Oaks Specific Plan revoked by County, 2012.
- 9 Draft Marina DVSP projects build-out by 2040. Annual values reflect 1/30th of total. 2040 totals will be 2,400 DU; 126,000 SF Office; 254,000 SF Commercial; 1.2 AC Landscape.

Marina Coast Water District 2015 Urban Water Management Plan

Table C4: 2015 Population Growth by Jurisdiction

Jurisdiction		Existing*	2015	2020	2025	2030	2035
Ord	U.S. Army		0	285	165	165	165
	CSUMB		0	285	1,428	2,148	2,292
	Del Rey Oaks		0	340	1,487	1,487	1,487
	City of Monterey		0	0	0	0	0
	County of Monterey		741	1,979	3,015	3,015	3,015
	UCMBEST		0	257	861	1,378	1,378
	City of Seaside		0	351	3,642	8,958	13,224
	State Parks and Rec.		0	0	0	0	0
	Marina Ord Comm.		285	4,551	7,901	8,219	8,219
	Assumed Line Loss						
Marina	Armstrong Ranch		0	0	4,085	4,085	4,085
	RMC Lonestar		0	0	0	0	0
	Marina Central		582	1,649	3,298	4,414	5,530
Subtotal - Ord		13,646	14,672	21,694	32,144	39,015	43,425
Subtotal - Marina		17,121	17,703	18,770	24,504	25,620	26,736
Total		30,767	32,375	40,464	56,648	64,635	70,161

*2012 DOF hybrid population

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Marina Ord	
New Residential	
Marina Heights	
Townhome	
Cluster Market/Bridge	
Market A	
Market B	
Estates	
Cypress Knolls	
SF Home / Townhome	
Apartments	
Assisted Living	
Dunes on Monterey Bay	
Alley (small lot)	
Carriage	
Standard	
Standard (small lot)	
Duets	
Townhome (live-work)	
Townhome (mixed use)	
Apartments (completed)	
Promontory	
TAMC TOD	
Existing/Replacement Residential	
Patton Park (complete)	
Shelter Outreach Plus (complete)	
Interim Housing (complete)	
Armstrong Ranch	
New Residential	
Marina Station	
Single Family Homes (15,000)	
Single Family Homes (6,500)	
Apartments	
Marina Central	
New Residential	
In-Fill Development MF	
In-Fill Development SF	
Downtown Specific Plan	

Multiplier
Marina Heights
1.5
3.0
3.0
3.0
4.0
Cypress Knolls
1.8
2.4
1.0
Dunes (UV)
3.0
2.0
3.0
1.5
1.5
1.5
2.0
Existing
2.6
2.6
2.6
Marina Station
2.8
2.8
2.8
Marina Central
2.8
2.8
2.8

Incremental Increase (Persons)					
2015	2020	2025	2030	2035	
0	37.5	97.5	18	0	
0	225	285	54	0	
0	477	435	99	0	
0	405	510	99	0	
0	52	240	48	0	
0	1196.5	1567.5	318	0	
0	0	1072.8	0	0	
0	0	278.4	0	0	
0	0	60	0	0	
0	0	1411.2	0	0	
0	410	74	0	0	
0	237	141	0	0	
69	276	0	0	0	
0	393	0	0	0	
0	372	156	0	0	
0	208.5	0	0	0	
0	36	0	0	0	
216	0	0	0	0	
0	579	0	0	0	
0	558	0	0	0	
285	3069.5	371	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
2015	2020	2025	2030	2035	
0	0	410	0	0	
0	0	1867	0	0	
0	0	1808	0	0	
0	0	4085	0	0	
0	508	466	0	0	
0	25	67	0	0	
0	1116	1116	1116	1116	
0	1649	1649	1116	1116	

Cumulative Increase (Persons)					
2015	2020	2025	2030	2035	
0	37.5	135	153	153	
0	225	510	564	564	
0	477	912	1011	1011	
0	405	915	1014	1014	
0	52	292	340	340	
0	1196.5	2764	3082	3082	
0	0	1072.8	1072.8	1072.8	
0	0	278.4	278.4	278.4	
0	0	60	60	60	
0	0	1411.2	1411.2	1411.2	
0	410	484	484	484	
0	237	378	378	378	
69	345	345	345	345	
0	393	393	393	393	
0	372	528	528	528	
0	208.5	208.5	208.5	208.5	
0	36	36	36	36	
216	216	216	216	216	
0	579	579	579	579	
0	558	558	558	558	
285	3354.5	3725.5	3725.5	3725.5	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
2015	2020	2025	2030	2035	
0	0	410	410	410	
0	0	1867	1867	1867	
0	0	1808	1808	1808	
0	0	4085	4085	4085	
0	508	974	974	974	
0	25	92	92	92	
0	1116	2232	3348	4464	
0	1649	3298	4414	5530	

Incremental Increase (EDU)					
2015	2020	2025	2030	2035	
	25	65	12	0	
	75	95	18	0	
	159	145	33	0	
	135	170	33	0	
	13	60	12	0	
0	407	535	108	0	
	0	596	0	0	
	0	116	0	0	
	0	60	0	0	
0	0	772	0	0	
	205	37	0	0	
	79	47	0	0	
23	92	0	0	0	
	131	0	0	0	
	248	104	0	0	
	139	0	0	0	
	24	0	0	0	
108	0	0	0	0	
	176	0	0	0	
	200	0	0	0	
131	1294	188	0	0	
	0	0	0	0	
	0	0	0	0	
	0	0	0	0	
0	0	0	0	0	
2015	2020	2025	2030	2035	
	0	147	0	0	
	0	669	0	0	
	0	648	0	0	
0	0	1464	0	0	
	182	167	0	0	
	9	24	0	0	
	400	400	400	400	
0	591	591	400	400	

Marina Coast Water District 2015 Urban Water Management Plan
 Table C5: Population Growth Projection Details

Marina Ord	Jurisd	Land Use	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35
New Residential																								
Marina Heights																								
Townhome	MAR	Residential (8-15 units / acre)	Dwelling Units			0	0	12	13	13	13	13	13	13	12									
Cluster Market/Bridge	MAR	Residential (8-15 units / acre)	Dwelling Units			4	5	47	19	19	19	19	19	19	18									
Market A	MAR	SF Residential (5-8 units / acre)	Dwelling Units			10	15	105	29	29	29	29	29	29	33									
Market B	MAR	SF Residential (5-8 units / acre)	Dwelling Units			6	10	85	34	34	34	34	34	34	33									
Estates	MAR	SF Residential (< 5 units / acre)	Dwelling Units		0	0	0	0	13	12	12	12	12	12	12	0								
Cypress Knolls																								
SF Home / Townhome	MAR	SF Residential (5-8 units / acre)	Dwelling Units								255	200		141										
Apartments	MAR	Multi family (> 15 units / acre)	Dwelling Units								85			31										
Assisted Living	MAR	Multi family (> 15 units / acre)	Dwelling Units											60										
Dunes on Monterey Bay																								
Alley (small lot)	MAR	Residential (8-15 units / acre)	Dwelling Units		20	24	48	54	59	37														
Carriage	MAR	Residential (8-15 units / acre)	Dwelling Units		10	21	6	12	30	47														
Standard	MAR	SF Residential (5-8 units / acre)	Dwelling Units	23	10	12	20	44	6															
Standard (small lot)	MAR	Residential (8-15 units / acre)	Dwelling Units		20	15	25	48	23															
Duets	MAR	SF Residential (5-8 units / acre)	Dwelling Units			34	38	78	98	40	60	4												
Townhome (live-work)	MAR	Residential (8-15 units / acre)	Dwelling Units			16	52	50	21															
Townhome (mixed use)	MAR	Residential (8-15 units / acre)	Dwelling Units			4	8	8	4															
Apartments (completed)	MAR	Multi family (> 15 units / acre)	Dwelling Units	108																				
Promontory																								
TAMC TOD	MAR	Multi family (> 15 units / acre)	Dwelling Units		176																			
Existing/Replacement Residential																								
Patton Park (complete)	MAR	Residential (8-15 units / acre)	Dwelling Units																					
Shelter Outreach Plus (complete)	MAR	Residential (8-15 units / acre)	Dwelling Units																					
Interim Housing (complete)	MAR	Residential (8-15 units / acre)	Dwelling Units																					
Armstrong Ranch																								
New Residential																								
Marina Station																								
Single Family Homes (15,000)	MAR	SF Residential (< 5 units / acre)	Dwelling Units								23	87	37											
Single Family Homes (6,500)	MAR	SF Residential (5-8 units / acre)	Dwelling Units								100	250	220	99										
Apartments	MAR	Multi family (> 15 units / acre)	Dwelling Units								100	250	220	78										
Marina Central																								
New Residential																								
In-Fill Development MF	MAR	Multi family (> 15 units / acre)	Dwelling Units						182					167										
In-Fill Development SF	MAR	SF Residential (5-8 units / acre)	Dwelling Units						9					24										
Downtown Specific Plan	MAR	Multi family (> 15 units / acre)	Dwelling Units		80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80

Marina Coast Water District 2015 Urban Water Management Plan
 Table C5: Population Growth Projection Details

Monterey County	Jurisd	Land Use	Units	2012-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2031-31	2031-32	2032-33	2033-34	2034-35	
New Residential																									
East Garrison I																									
Market Rate	MCO	SF Residential (< 5 units / acre)	Dwelling Units	104	149	160	140	120	100	100	100	77													
Affordable	MCO	SF Residential (5-8 units / acre)	Dwelling Units	66	0	0	8	43	75	100	105	23													
Monterey Horse Park (see City of Seaside)	MCO	SF Residential (5-8 units / acre)	Dwelling Units																						
CSUMB																									
New Residential																									
CSUMB Housing	CSU/MAR	Multi family (> 15 units / acre)	Dwelling Units						95	95	95	95	48	48	48	48	48	48	48	48					
UCMBEST																									
New Residential																									
UC 8th Street	UC/MCO	Multi family (> 15 units / acre)	Dwelling Units				33	33	33	33	33	33	33	33	33	33									
UC East Campus - SF	UC/MCO	SF Residential (< 5 units / acre)	Dwelling Units						67						67	66									
UC East Campus - MF	UC/MCO	Multi family (> 15 units / acre)	Dwelling Units																						
Seaside																									
Residential																									
Seaside Resort Housing	SEA	SF Residential (< 5 units / acre)	Dwelling Units		2	2	2	4	6	53	53														
Seaside Housing (Eastside)	SEA	SF Residential (5-8 units / acre)	Dwelling Units																	110	110	110	110	110	
Seaside Affordable Housing Obligations	SEA	Residential (8-15 units / acre)	Dwelling Units			36	36																		
Workforce Housing (Army to Build)	SEA	Residential (8-15 units / acre)	Dwelling Units							26															
Market Rate Housing (Army to Build)	SEA	SF Residential (< 5 units / acre)	Dwelling Units							150															
State Parks Housing (Workforce housing)	SEA	SF Residential (5-8 units / acre)	Dwelling Units																						
Workforce Housing (Seaside)	SEA	SF Residential (5-8 units / acre)	Dwelling Units				29		0	0															
Seaside-Fort Ord Project Area	SEA	Multi family (> 15 units / acre)	Dwelling Units										97	100	100	100	100	100	100	100	100	100	100	100	
Seaside Housing (Eucalyptus)	SEA	SF Residential (5-8 units / acre)	Dwelling Units														190	190	190	190	182				
Monterey Downs																									
Affordable Rentals (34 du/ac)	SEA	Multi family (> 15 units / acre)	Dwelling Units								32	32	32	32	32	32	32	32							
Apartments (20 du/ac)	SEA	Multi family (> 15 units / acre)	Dwelling Units								50	50	50	50	50	50	50	50							
Court Yard Homes (9 du/ac)	SEA	Residential (8-15 units / acre)	Dwelling Units								12	10	10	10	10	10	10	10							
Single Family Homes (9 du/ac)	SEA	Residential (8-15 units / acre)	Dwelling Units								100	100	100	100	100	100	100	98							
Horse Park staff	SEA	Residential (8-15 units / acre)	Dwelling Units										12												
Del Rey Oaks																									
New Residential																									
Del Rey Oaks																									
Golf Villas	DRO	SF Residential (< 5 units / acre)	Dwelling Units						37	13															
Patio Homes	DRO	SF Residential (< 5 units / acre)	Dwelling Units						32	4															
Condos	DRO	Multi family (> 15 units / acre)	Dwelling Units						40	160	176														
Workforce	DRO	Multi family (> 15 units / acre)	Dwelling Units							70	68														
Townhomes/Senior Casitas	DRO	SF Residential (5-8 units / acre)	Dwelling Units						21	40	30														
RV Resort (Manager)	DRO	Residential (8-15 units / acre)	Dwelling Units																						
US Army																									
Residential																									
Doe Park (Stilwell) Single Family	ARMY	SF Residential (5-8 units / acre)	Dwelling Units	20		28																			
Doe Park (Stilwell) Duplex	ARMY	Residential (8-15 units / acre)	Dwelling Units	20		27																			

Marina Coast Water District 2015 Urban Water Management Plan
Table C5: Population Growth Projection Details

Monterey County	
New Residential	
East Garrison I	
Market Rate	
Affordable	
Monterey Horse Park (see City of Seaside)	

Multiplier
East Garrison
2.1
2.1
3.0

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	213	1372	568	0	0
	135	258	468	0	0
	0	0	0	0	0
	349	1631	1036	0	0

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	213	1585	2154	2154	2154
	135	394	861	861	861
	0	0	0	0	0
	349	1979	3015	3015	3015

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	104	669	277	0	0
	66	126	228	0	0
	0	0	0	0	0
	170	795	505	0	0

CSUMB	
New Residential	
CSUMB Housing	

CSUMB
3.0

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	0	285	1143	720	144
	0	285	1143	720	144

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	0	285	1428	2148	2292
	0	285	1428	2148	2292

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	0	95	381	240	48
	0	95	381	240	48

UCMBEST	
New Residential	
UC 8th Street	
UC East Campus - SF	
UC East Campus - MF	

UC MBEST
2.6
2.6
2.6

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	0	257	429	172	0
	0	0	174	346	0
	0	0	0	0	0
	0	257	603	517	0

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	0	257	686	858	858
	0	0	174	520	520
	0	0	0	0	0
	0	257	861	1378	1378

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	0	99	165	66	0
	0	0	67	133	0
	0	0	0	0	0
	0	99	232	199	0

Seaside	
Residential	
Seaside Resort Housing	
Seaside Housing (Eastside)	
Seaside Affordable Housing Obligations	
Workforce Housing (Army to Build)	
Market Rate Housing (Army to Build)	
State Parks Housing (Workforce housing)	
Workforce Housing (Seaside)	
Seaside-Fort Ord Project Area	
Seaside Housing (Eucalyptus)	
Monterey Downs	
Affordable Rentals (34 du/ac)	
Apartments (20 du/ac)	
Court Yard Homes (9 du/ac)	
Single Family Homes (9 du/ac)	
Horse Park staff	

Seaside
3.0
3.0
3.0
3.0
3.0
3.0
3.0
3.0
3.0
3.0
1.5
3.0
3.0
3.0
3.0
3.0

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	0	48	318	0	0
	0	0	0	0	1650
	0	216	0	0	0
	0	0	78	0	0
	0	0	450	0	0
	0	0	0	0	0
	0	87	0	0	0
	0	0	291	1500	1500
	0	0	0	1710	1116
	0	0	192	192	0
	0	0	600	600	0
	0	0	126	120	0
	0	0	1200	1194	0
	0	0	36	0	0
	0	351	3291	5316	4266

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	0	48	366	366	366
	0	0	0	0	1650
	0	216	216	216	216
	0	0	78	78	78
	0	0	450	450	450
	0	0	0	0	0
	0	87	87	87	87
	0	0	291	1791	3291
	0	0	0	1710	2826
	0	0	192	384	384
	0	0	600	1200	1200
	0	0	126	246	246
	0	0	1200	2394	2394
	0	0	36	36	36
	0	351	3642	8958	13224

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	0	16	106	0	0
	0	0	0	0	550
	0	72	0	0	0
	0	0	26	0	0
	0	0	150	0	0
	0	0	0	0	0
	0	29	0	0	0
	0	0	97	500	500
	0	0	0	570	372
	0	0	128	128	0
	0	0	200	200	0
	0	0	42	40	0
	0	0	400	398	0
	0	0	12	0	0
	0	117	1161	1836	1422

Del Rey Oaks	
New Residential	
Del Rey Oaks	
Golf Villas	
Patio Homes	
Condos	
Workforce	
Townhomes/Senior Casitas	
RV Resort (Manager)	

Del Rey Oaks
3.5
3.0
1.8
2.5
2.0
3.0

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	0	130	46	0	0
	0	96	12	0	0
	0	72	605	0	0
	0	0	345	0	0
	0	42	140	0	0
	0	0	0	0	0
	0	340	1147	0	0

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	0	130	175	175	175
	0	96	108	108	108
	0	72	677	677	677
	0	0	345	345	345
	0	42	182	182	182
	0	0	0	0	0
	0	340	1487	1487	1487

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	0	37	13	0	0
	0	32	4	0	0
	0	40	336	0	0
	0	0	138	0	0
	0	21	70	0	0
	0	0	0	0	0
	0	130	561	0	0

US Army	
Residential	
Doe Park (Stilwell) Single Family	
Doe Park (Stilwell) Duplex	

Army
3.0
3.0

Incremental Increase (Persons)					
	2015	2020	2025	2030	2035
	60	84	-60	0	0
	60	81	-60	0	0
	120	165	-120	0	0

Cumulative Increase (Persons)					
	2015	2020	2025	2030	2035
	60	144	84	84	84
	60	141	81	81	81
	120	285	165	165	165

Incremental Increase (EDU)					
	2015	2020	2025	2030	2035
	20	28	-20	0	0
	20	27	-20	0	0
	40	55	-40	0	0

Marina Coast Water District 2015 Urban Water Management Plan

Table C6: Projected Demands by Source, with Planned Recycled Use (AFY)

Total Demands by Jurisdiction		2015	2020	2025	2030	2035	SVGB Allocation	RW Allocation
Ord	U.S. Army	633	663	825	825	825	1,577	
	CSUMB	404	442	632	755	779	1,035	87
	Del Rey Oaks	0	186	551	551	551	243	280
	City of Monterey	0	0	130	130	130	65	
	County of Monterey	52	377	539	539	539	710	134
	UCMBEST	3	94	299	515	515	230	60
	City of Seaside	657	997	1,852	2,447	2,876	1,012	453
	State Parks and Rec.	0	12	18	20	25	45	
	Marina Ord Comm.	285	901	1,572	1,702	1,704	1,325	345
	Assumed Line Loss	348	348	348	348	348	348	68
Marina	Armstrong Ranch	0	0	680	680	680	920	
	RMC Lonestar	0	0	0	0	500	500	
	Marina Central	1,823	2,184	2,491	2,606	2,725	3,020	
	Subtotal - Ord	2,382	4,021	6,766	7,833	8,293	6,600	1,427
	Subtotal - Marina	1,823	2,184	3,171	3,286	3,905	4,440	0
Total	4,204	6,205	9,937	11,119	12,197	11,040	1,427	

Recycled Water Demand (1,2)

U.S. Army	0	0	0	0	0
CSUMB	0	0	87	87	87
Del Rey Oaks	0	0	280	280	280
City of Monterey	0	0	0	0	0
County of Monterey	0	0	134	134	134
UCMBEST	0	0	60	60	60
City of Seaside	0	400	453	453	453
State Parks and Rec.	0	0	0	0	0
Marina Ord Comm.	0	200	345	345	345
Assumed Line Loss					
Armstrong Ranch	0	0	0	0	0
RMC Lonestar	0	0	0	0	0
Marina Central	0	0	0	0	0

RW BODR Demands

Phase 1	Phase 2
	38
202	109
338	
47	614
55	
806	140
	5
435	391
52	87

Groundwater Demand (3)

U.S. Army	633	663	825	825	825
CSUMB	404	442	545	668	692
Del Rey Oaks	0	186	243	243	243
City of Monterey	0	0	65	65	65
County of Monterey	52	377	405	405	405
UCMBEST	3	94	230	230	230
City of Seaside	657	597	1,012	1,012	1,012
State Parks and Rec.	0	12	18	20	25
Marina Ord Comm.	285	701	1,227	1,325	1,325
Assumed Line Loss	348	348	348	348	348
Armstrong Ranch	0	0	680	680	680
RMC Lonestar	0	0	0	0	500
Marina Central	1,823	2,184	2,491	2,606	2,725

Remaining GW

752
343
0
0
305
0
0
20
0
0
240
0
295

1,955 total unused

Demand by Source	2015	2020	2025	2030	2035
Groundwater	4,204	5,605	8,089	8,428	9,075
Recycled Water	0	600	1,359	1,359	1,359
Desalinated Water (4)	0	0	489	1,332	1,763

Notes:

- 1 2020 value = maximum of Phase 1 allocation or BODR Phase 1 existing demand
- 2 Assumes only Recycled Phase 1 occurs
- 3 Maximum of projected potable demand or SVGB allocation
- 4 Desalinated demand is total minus groundwater and recycled

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Appendix D: Notices and Letters to Public Agencies

The following notices and mailings were prepared during the development of this Urban Water Management Plan, and are included in this appendix.

1. Demand Projection Review to Cities, dated October 30, 2015 (sample letter and mailing list)
2. 60-day Notice to Cities and Agencies, dated February 10, 2016 (sample letter and mailing list)
3. Newspaper Notices for Public Hearing, dated May 22 and May 29, 2016
4. Transmittal of Draft to Cities and Agencies, dated May 20, 2016 (sample letter and mailing list)
5. Notice of plan availability for review, MCWD Website, www.mcwd.org
6. MCWD Board Agenda and Staff Report, June 6, 2016 meeting (Public Hearing)
7. Transmittal of Adopted Plan to Cities, Agencies, DWR and State Library



James R. Schaaf, Ph. D, PE
Kirk R. Wheeler, PE
Peder C. Jorgensen, PE
Charles D. Anderson, PE
Daniel J. Schaaf, PE

3 Quail Run Circle, Suite 101
Salinas, CA 93907
831-883-4848
FAX 831-758-6328

M. Eliza McNulty, PE
Benjamin L. Shick, PE
Leif M. Coponen, PE
Principal Emeritus
David A. Foote, PE

October 30, 2015

Ms. Theresa Symansis
City of Marina, Director of Community Development
209 Cypress Avenue
Marina, CA 93933

Subject: Marina Coast Water District Urban Water Management Plan 2015 Update

Dear Ms. Symansis

Schaaf & Wheeler is preparing the Marina Coast Water District's 2015 Urban Water Management Plan (UWMP). These plans are prepared by water suppliers every five years. Existing and projected water demands are compared to existing and planned water supplies to ensure there is sufficient supply available. A preliminary task in this effort is to coordinate with the District's customer jurisdictions to determine projected population and water demands. The 2015 UWMP will need to account for existing and forecasted water demands by five-year increments through the year 2035.

Water demands are generally a function of the size (acreage/square footage) or number of units of a development, depending on the type of land use, and a water demand unit factor that corresponds to that use. For each type of land use, Demand = Size x Unit Factor. Using this concept, Schaaf & Wheeler has prepared a preliminary estimate of water demands by land use type and by jurisdiction through 2035 as follows:

- Existing demands are estimated from the District's 2014 water usage records for each jurisdictional area. (Potential future water savings through conservation will be accounted for in the UWMP.)
- For developments that have approved Specific Plans, the water demand factors and total water demand estimates have been taken from the respective Water Supply Assessments (WSAs) for these Specific Plan areas.
- For in-fill development under approved General Plans or Master Plans (e.g., the City of Marina, CSUMB), the District's standard water demand factors have been used with the in-fill land use projections provided by the jurisdiction.
- For most future development within the District's planning area, including all planned Fort Ord development through 2022, we have acquired the Fort Ord Reuse Authority's (FORA) latest annual growth forecast, which they use for CIP planning. The projected developments, generally by square footage or units, are then multiplied by the appropriate unit demand factors.

- For areas not reflected in the Fort Ord Reuse Authority growth forecast (Central Marina, the Army and State Parks), the projected developments reflect the projection in the 2010 UWMP.

You will find attached to this letter several tables detailing the estimates of existing and projected water usage. The summary table categorizes demand estimates by jurisdiction. The 2010 demand summary is provided for reference. The more detailed tables for each jurisdiction show the projected development over the next 20-years, categorized by three types of land use: New Residential, Replacement of Existing Residential, and Non-Residential.

Please have the appropriate staff member(s) review the projected development for your jurisdiction, and report any discrepancies to us.

Note that the FORA growth forecast only looks at planned development through the year 2022, while the UWMP must project demands through 2035. If a specific plan area was not fully reflected in the FORA forecast, you will need to add the remainder of that development in the 2023-2035 columns. Please pay careful attention to the projected development in years 2025 and later since those in particular may be underestimated. For the City of Marina, please confirm the development schedule for Cypress Knolls and SVMH in the Ord Community. Also, the Central Marina projection includes the Downtown Vitalization Specific Plan, which was not formally adopted. Those infill projections may need to be reduced.

The 2015 UWMP is projected to be completed in June 2016, pending the California Department of Water Resources release of updated guidance on UWMP preparation. We would appreciate your prompt review of and feedback on the projected water use figures. Even if no discrepancies are noted, please respond within sixty (60) days so that the UWMP preparation can proceed as scheduled.

Feel free to contact either myself or Andrew Racz of our office at 831-883-4848, email asterbenz@swsv.com, for any questions regarding this matter. Thank you for your cooperation.

Sincerely,

Schaaf & Wheeler

Andrew Sterbenz, PE

Project Engineer

Attachments

Urban Water Management Plan – Jurisdictional POC's

City of Marina	<p>Theresa Symansis City of Marina, Director of Community Development 209 Cypress Avenue Marina, CA 93933 Phone: (831) 884-1289 Fax: (831) 384-0425</p> <p>Alternate POC: Layne Long, City Manager</p>
City of Seaside	<p>Diana Ingersoll, PE City of Seaside, Deputy City Manager 440 Harcourt Ave. Seaside, CA 93955 (831) 899-6736</p> <p>Alternate POC: Tim O'Halloran, PE</p>
City of Del Rey Oaks	<p>Daniel Dawson City of Del Rey Oaks, City Manager 650 Canyon Del Rey Road Del Rey Oaks, CA 93940 Phone: 831-394-8511 Fax: 831-394-6421</p> <p>Alternate POC:</p>
City of Monterey	<p>Kim Cole, Principal Planner City of Monterey, Planning Office 570 Pacific Street Monterey, CA 93940 831.646.3885 Fax: 831.646.3408 Cole@ci.monterey.ca.us Alternate POC: Elizabeth Caraker, Principal Planner</p>
County of Monterey	<p>Michael Novo County of Monterey, Resource Management Agency, Planning Services 168 West Alisal St., 3rd Floor Salinas, CA 93901 Phone (831) 755-5390 Fax (831) 755-5398 novom@co.monterey.ca.us Alternate POC: Melanie Beretti</p>
CSUMB	<p>Kathleen Ventimiglia CSUMB, Director for Campus Planning and Development 100 Campus Center, CSU Monterey Bay Seaside CA 93955-8001</p>

	<p>(831) 582-4304 (831) 582-3729 kventimiglia@csumb.edu Alternate POC: John Marker, Director of Facilities</p>
UCMBEST	<p>Graham Bice Managing Director, UC MBEST Center 3180 Imjin Road, Suite 104 Marina. CA 93933 Phone: 831.582.1020 FAX: 831.582.1021 bice@ucmbest.org</p>
US Army	<p>James Willison Presidio of Monterey, Directorate of Public Works IMWE-POM-PWO Attn: James Willison PO Box 5004 Monterey, CA 93944-5004 Phone 831.242.7916 Fax 831.242.7019</p>
State Parks	<p>Joan Carpenter California State Parks, Monterey District 2211 Garden Road Monterey, CA 93940 phone (831) 649-2836 fax (831) 647-6239 joan.carpenter@parks.ca.gov</p>



MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099

Home Page: www.mcwd.org

TEL: (831) 384-6131 FAX: (831) 883-5995

DIRECTORS

HOWARD GUSTAFSON
President

THOMAS P. MOORE
Vice President

WILLIAM Y. LEE
JAN SHRINER

February 10, 2016

Mr. Layne Long, City Manager
City of Marina
209 Cypress Avenue
Marina, CA 93933

Dear Mr. Long:

The Marina Coast Water District (MCWD) is preparing an updated Urban Water Management Plan (UWMP) for submittal to the California Department of Water Resources, pursuant to the Urban Water Management Planning Act, as codified in the California Water Code Sections 10610-10656. The last UWMP was adopted in 2011.

The updated plan is currently being drafted. Your planning staff was previously contacted for review and input on the development and water demand projections for the planning period, which runs to the year 2035. Our anticipated schedule for public review and plan adoption is:

March 21, 2016	Publish public review draft of the UWMP
April 18, 2016	Conduct public hearing at the regularly scheduled MCWD Board meeting
April 21, 2016	Comment period closes
May 16, 2018	Adopt final UWMP at the regularly scheduled MCWD Board meeting

We will provide you a copy of the public review draft plan in March. We invite your input and comments on the UWMP. Please provide input to our consultant, Schaaf & Wheeler Consulting Civil Engineers, Attn: Andy Sterbenz, 3 Quail Run Circle, Suite 101, Salinas, CA, 93907. Andy may be contacted by phone at (831) 883-4848, or by e-mail at asterbenz@swsv.com. You may contact me by direct phone at (831) 883-5925, or e-mail mwegley@mcwd.org.

Sincerely,

Michael Wegley, PE
District Engineer

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Urban Water Management Plan – POCs for Notices

City of Marina	Mr. Layne Long, City Manager City of Marina 209 Cypress Avenue Marina, CA 93933
City of Seaside	Mr. Craig Malin, City Manager City of Seaside 440 Harcourt Ave. Seaside, CA 93955
City of Del Rey Oaks	Mr. Daniel Dawson, City Manager City of Del Rey Oaks 650 Canyon Del Rey Road Del Rey Oaks, CA 93940 Phone: 831-394-8511 Fax: 831-394-6421
City of Monterey	Mr. Michael McCarthy, City Manager City of Monterey 580 Pacific Street Monterey, CA 93940
County of Monterey	Mr. Carl P. Holm, AICP County of Monterey, Director, Resource Management Agency 168 West Alisal St., 3rd Floor Salinas, CA 93901
MCWRA	Mr. David E. Chardavoine, General Manager Monterey County Water Resources Agency 893 Blanco Circle Salinas, CA 93901
MRWPCA	Mr. Paul Sciuto, General Manager Monterey Regional Water Pollution Control Agency 5 Harris Court, Bldg D Monterey, CA 93940

CSUMB	<p>Ms. Kathleen Ventimiglia CSUMB, Director for Campus Planning and Development 100 Campus Center, CSU Monterey Bay Seaside CA 93955-8001 (831) 582-4304 (831) 582-3729 kventimiglia@csumb.edu Alternate POC: John Marker, Director of Facilities</p>
UCMBEST	<p>Mr. Graham Bice Managing Director, UC MBEST Center 3180 Imjin Road, Suite 104 Marina. CA 93933 Phone: 831.582.1020 FAX: 831.582.1021 bice@ucmbest.org</p>
US Army	<p>Mr. James Willison Presidio of Monterey, Directorate of Public Works IMWE-POM-PWO Attn: James Willison PO Box 5004 Monterey, CA 93944-5004</p>
State Parks	<p>Ms. Joan Carpenter, District Services Manager California State Parks, Monterey District 2211 Garden Road Monterey, CA 93940</p>
CalAm	<p>Mr. Eric Sabolsice General Manager, Monterey District California American Water 511 Forest Lodge Road, Suite 100 Pacific Grove, CA 93950</p>
MPWMD	<p>Mr. David J Stoldt Monterey Peninsula Water Management District 5 Harris Court, Bldg G Monterey, CA 93940</p>
FORA	<p>Mr. Michael A. Houlemard, Jr. Executive Officer, Fort Ord Reuse Authority 920 Second Ave, Suite A Marina, CA 93933</p>

Appendix E: Technical Memoranda

The following technical memoranda were prepared as interim reports during the development of this Urban Water Management Plan, and are included in this appendix.

1. District Population Estimate, dated 5/25/2015
2. FORA Water Augmentation Target, dated 12/23/2015
3. Water Allocations by Jurisdiction, dated 5/17/2016
4. Groundwater Quality in the North Marina Area, Hopkins Groundwater Consultants, Inc., May 2016

**Table 1: Extract from California Department of Finance
Report E-4 Population Estimates for Cities, Counties, and State, 2011-2015 with 2010 Benchmark**

COUNTY/CITY	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
California						
Incorporated Total	30,764,188	30,973,925	31,297,312	31,636,815	31,921,717	32,237,899
Balance Of State Total	6,489,768	6,454,021	6,383,281	6,393,794	6,435,404	6,476,826
State Total	37,253,956	37,427,946	37,680,593	38,030,609	38,357,121	38,714,725
Monterey County						
Carmel-By-The-Sea	3,722	3,722	3,733	3,768	3,747	3,747
Del Rey Oaks	1,624	1,631	1,643	1,658	1,661	1,660
Gonzales	8,187	8,220	8,272	8,349	8,363	8,357
Greenfield	16,330	16,396	16,516	16,839	16,879	16,870
King City	12,874	12,942	13,033	13,158	13,179	13,417
Marina	19,718	19,759	20,005	20,199	20,222	20,872
Monterey	27,810	28,019	28,472	28,419	28,319	28,163
Pacific Grove	15,041	15,108	15,226	15,367	15,394	15,388
Salinas	150,441	150,996	152,461	154,189	154,815	154,720
Sand City	334	335	337	340	342	362
Seaside	33,025	32,808	33,174	33,523	33,456	33,672
Soledad	25,738	26,286	26,247	25,536	24,959	24,540
Balance Of County	100,213	100,746	101,680	102,719	103,438	103,645
Incorporated	314,844	316,222	319,119	321,345	321,336	321,768
County Total	415,057	416,968	420,799	424,064	424,774	425,413

The annual population change estimated by DOF for Marina is shown in Table 2:

Table 2: Estimated Cumulative Population Increases by Year

CITY	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
Marina	NA	41	287	481	504	1,154

The total MCWD population was determined for the last UWMP based on the 2010 census by summing all of the Census Tracts within the District. The population total in 2010 was 30,480 persons. Subtracting the 19,718 from within the City of Marina, the 2010 population for the remainder of the Ord Community was 10,762 persons. In the 2010 UWMP, the District reported having 7,153 residential connections (sum of single and multi-family accounts). The number of persons per account is calculated by dividing

$$\frac{30,480 \text{ persons}}{7,153 \text{ accounts}} = 4.26 \text{ persons per account}$$

Note that there are numerous multi-family units within the District which have more than one dwelling unit per meter, so the average number of persons per account is larger than the estimated persons per household.

Since 2010, five housing projects have been completed or partially completed:

- University Village Apartments (Marina), 108 units occupied in 2014
- Stilwell Kidney and Lower Stilwell (Seaside), 148 units occupied in 2010-2013
- Manzanita Place Apartments (Monterey County) , 66 units occupied in 2013
- East Garrison (Monterey County), 14 houses in 2013, 108 houses in 2014

The University Village Apartments are included within the City of Marina population projection. The Stilwell developments in Seaside are part of the Army housing upgrades in the Presidio of Monterey Annex. The Army is renovating and/or replacing existing housing units, and then emptying older units for the next phase, thus maintaining a constant number of occupied units. Therefore, the only additional residential units outside of Marina were in Monterey County. The annual increase in accounts is shown in Table 3, and the resulting population increase is shown in Table 4. The District total population is calculated in Table 5.

Table 3: New Residential Accounts Outside the City of Marina (cumulative)

Development	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
Manzanita Place	NA	0	0	0	66	66
East Garrison	NA	0	0	0	14	108
Total	NA	0	0	0	80	174

Table 4: Population Increases Outside the City of Marina (cumulative)

Development	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
Manzanita Place	NA	0	0	0	281	281
East Garrison	NA	0	0	0	60	460
Total	NA	0	0	0	341	741

Population estimated as 4.26 persons per residential account

Table 5: MCWD Estimated Population by Year

Area	4/1/2010	1/1/2011	1/1/2012	1/1/2013	1/1/2014	1/1/2015
City of Marina	19,718	19,759	20,005	20,199	20,222	20,872
Existing outside of Marina in 2010	10,762	10,762	10,762	10,762	10,762	10,762
New outside of Marina since 2010	NA	0	0	0	341	741
Total	30,480	30,521	30,767	30,961	31,325	32,375

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MEMORANDUM

TO: File DATE: 23 DEC 2015
FROM: Andrew Sterbenz JOB#: MCWD.43.12.020
SUBJECT: FORA Water Augmentation Target

The purpose of this memorandum is to document the required size of the water augmentation mitigation under the Fort Ord Reuse Authority Base Reuse Plan.

The Fort Ord Base Reuse Plan was adopted in 1997. The Fort Ord Reuse Study projected a build-out water demand of 18,262 AFY. The Base Reuse Plan EIR revised that down to 13,500 AFY at buildout, with a Phase 1 (Year 2015) projection of 8,999 AFY. The 2015 projection included 8,712 new residential dwelling units, 4,925,800 SF of new commercial and office space, and 270 acres of new primary and secondary education campuses. The demand estimate assumed a 10% overage to account for system losses. The United States had acquired 6,600 AFY of groundwater pumping rights in the Salinas Valley Groundwater Basin to serve the former Fort Ord. In the Base Reuse Plan EIR, the water augmentation mitigation was estimated to be 2,400 AFY, which is the projected 9,000 AFY demand minus the existing 6,600 AFY supply¹.

In the Base Reuse Plan, the Fort Ord Reuse Authority allocated the existing 6,600 AFY of groundwater rights among the land use jurisdictions so they could proceed with entitling redevelopment projects. The initial and current allocations are shown in the table below. The United States retained 1,577 AFY for use in the Presidio of Monterey Annex, which includes the military housing area and various offices and facilities.

The existing Bayonet/Black Horse Golf Courses on the former Fort Ord use approximately 400 AFY for landscape irrigation. This water was supplied from existing wells in the Seaside Groundwater Basin. The Base Reuse Plan assumed that supply from these wells would continue indefinitely, so this demand was not included in the 2015 demand projection, although the plan identified the need to convert these sites to recycled water once available. In 2005 the Seaside Groundwater Basin was adjudicated, which increased the urgency to convert the system to recycled water.

The Marina Coast Water District's Regional Urban Water Augmentation Project (RUWAP) was approved in 2004. That project was sized to provide 2,400 AFY of new supply to the Ord Community, as a mix of potable and recycled water. The supply target came from the Base Reuse Plan. In the demand analysis, MCWD included Bayonet and Black Horse Golf Courses as potential recycled water use locations. While this inclusion was appropriate given the status of the Seaside Groundwater Basin, the RUWAP target should have been increased by 400 AFY to be consistent with the Base Reuse Plan assumptions.

¹ Base Reuse Plan, Volume 3, Appendix B, page PIFP 2-7

The MCWD 2005 Urban Water Management Plan (UWMP) projected all jurisdictions fully using or exceeding their water allocations by the year 2020, with an overall shortfall of 5,300 AFY in the Ord Community (see attached tables). That projection did not include replacement water supply for Bayonet/Black Horse Golf Courses. The 2010 UWMP update reflected the reduced redevelopment rate following the economic downturn and the projected replacement supply for Bayonet/Black Horse, and shows two jurisdictions (the Army and CSUMB) which are projected to not fully use their allocations by 2030. The projected shortfall in the Ord Community was 1,600 AFY, but accounting for “stranded” allocations, the total becomes 2,400 AFY. The 2030 projection does not include all of the development included in the Base Reuse Plan 2015 projection, most notably the proposed golf courses in Marina and Del Rey Oaks.

FORA has a Water Augmentation item in its CIP as a mitigation for the projected redevelopment. As part of the 2015 UWMP update, a reassessment of the water augmentation target should be conducted to determine if 2,400 AFY is still valid. The FORA mitigation is funded through land sales and development fees, which are considered the developer’s mitigation for project water demands. New development which is in excess of the “mitigated level of redevelopment” will need to develop additional water supplies, or fund MCWD’s development of additional water supplies. MCWD needs to know what the “mitigated level of redevelopment” is so they can plan accordingly.

FORA Water Allocations

Jurisdiction	Original Allocation (1996) Acre-feet/year	Current Allocation (2007) Acre-feet/year
City of Seaside	710	1,012
City of Del Rey Oaks	75	243
City of Monterey	65	65
City of Marina	1,185	1,325
Monterey County	545	710
Army	1,410	1,577
CSUMB	1,055	1,035
UCMBEST	165	230
State Parks	45	45
Marina Sphere Polygon 8a	50	10
Line Loss	530	348
FORA Strategic Reserve	785	0

MEMORANDUM

TO: File DATE: May 18, 2016
FROM: Andrew Sterbenz JOB#: MCWD.43.12.020
SUBJECT: Jurisdictional Water Allocations

The purpose of this memorandum is to summarize the potable water allocations within the Ord Community, both from the Fort Ord Reuse Authority (FORA) to the respective jurisdictions and from the jurisdictions to specific projects.

Groundwater Supply

Potable water supply for the former Fort Ord (MCWD Ord Community service area) comes from the Salinas Valley Groundwater Basin (SVGB), which is managed by the Monterey County Water Resources Agency (MCWRA). MCWRA operates two reservoirs which capture winter runoff and maintain year-round flow in the Salinas River, which recharges the groundwater basin. MCWRA established Zones 2 and 2A as benefit assessment zones to finance the construction and operation of Lakes Nacimiento and San Antonio, respectively. Under the “Agreement between the United States of America and the Monterey County Water Resources Agency concerning Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency, Agreement No. A-06404”, dated September 21, 1993, the U.S. Army may withdraw up to 6,600 acre-feet per year from the Salinas Valley Groundwater Basin for use on the former Fort Ord, including those portions of the former Fort Ord that overly the Seaside Groundwater Basin. The MCWD Central Marina service area was similarly annexed into Zones 2/2A in 1996.

On October 24, 2001, the United States quitclaimed the water and sewer infrastructure on the former Fort Ord, including the SVGB groundwater allocation, through FORA to the Marina Coast Water District. The U.S. retained 1,729 AFY for use in the Presidio of Monterey Annex (military housing and facilities within the Ord Community) and the Bureau of Land Management. Under agreements between the U.S. Army and FORA (2000), and between MCWD and FORA (1998), the FORA Board allocated the remaining water supply among the land use jurisdictions in the Ord Community. MCWD owns and operates the water system and the underlying groundwater extraction rights, except for the rights reserved to the U.S. Army. MCWD provides water and sewer service to the Presidio of Monterey Annex under direct contract with the U.S. Army.

Allocations to Land Use Jurisdictions

The original and current allocation of potable water supply among the Ord Community Land Use Jurisdictions is shown in Table 1, below. FORA initially allocated supply among the jurisdictions on April 12, 1996, under the Development and Reuse Management Plan, adopted as part of the Base Reuse

Plan. At that time, FORA held out a strategic reserve of 785 AFY. On August 14, 1998, the allocations were adjusted and the strategic reserve reduced to 755 AFY. In 2001, the U.S. Army allocated 38 AFY to Brostram Park in Seaside, reducing the retained total to 1,691 AFY. In 2005, the U.S. Army allocated 114 AFY to Seaside as part of a real estate exchange between the Army and the City, reducing the retained total to 1,577 AFY. As the jurisdictions developed specific plans for the redevelopment of Ord Community, FORA made several “loans” from the strategic reserve to jurisdictions. On January 12, 2007, FORA made these loans permanent.

Table 1. Salinas Valley Groundwater Allocations

Jurisdiction	Original Allocation (1996) Acre-feet/year	Current Allocation (2007) Acre-feet/year
U.S. Army (retained) ₁	1,410	1,577
City of Seaside	710	1,012
City of Del Rey Oaks	75	242.5
City of Monterey	65	65
City of Marina	1,185	1,325
Monterey County	545	710
CSUMB	1,055	1,035
UCMBEST	165	230
State Parks	45	45
County/Marina Sphere (Polygon 8a)	50	10
Line Loss	530	348.5
FORA Strategic Reserve ₂	785	0

Notes:

1. The U.S. Army retained 1,729 AFY of groundwater rights for the POM Annex, but it is accounted for in the original allocation table as 1,410 AFY for POM Annex use, 160 AFY as a portion of the strategic reserve, and 159 AFY (10%) as a portion of the line loss allowance.
2. The original strategic reserve included 160 AFY for the POM Annex, 125 AFY for CSUMB, 230 AFY for Seaside and 270 AFY of unencumbered supply.

The County/Marina Sphere of influence area (included in the table above) is defined as County Planning Area 8a in the Base Reuse Plan. This area is bounded by Imjin Parkway on the north, Inter-Garrison Road on the south, the Marina City Limit on the west (7th Avenue alignment) and the CSUMB property on the east (includes a short portion of Abrams Drive). This is generally the landfill parcel, but it includes the Ord Market (former shoppette) at the corner of Imjin Parkway and Abrams Drive.

The existing Bayonet/Black Horse Golf Courses on the former Fort Ord use approximately 400 AFY for landscape irrigation. This water was supplied from existing wells in the Seaside Groundwater Basin. The Base Reuse Plan assumed that supply from these wells would continue indefinitely, or until it could be replaced with recycled water. In 2005 the Seaside Groundwater Basin was adjudicated, which increased the urgency to convert the system to recycled water.

The assumed line loss of 348.5 AFY represents 5.3% of the total water allocation, which is an ambitious target. Water loss rates around 10% are more typical within municipal water systems.

Sub-Allocations by Land Use Jurisdictions

MCWD maintains a listing of water sub-allocations made by land use jurisdictions to specific projects. When publishing a water supply assessment report, the list is updated for the affected jurisdiction(s) and included in the report. The current sub-allocation table is attached.

Some of the water uses within the Ord Community were on-going at the time of the Base Closure (such as the public schools) or transitioned to new uses without formal allocations (such as the conversion of Preston Park military housing to affordable public housing). The values for existing uses that do not have formal allocations reflect the peak demand years.

Two jurisdictions, the City of Del Rey Oaks and the City of Monterey, have not yet formally approved development in the Ord Community, and therefore have not made any sub-allocations. Several other jurisdictions (CSUMB, UCMBEST, U.S. Army and State Parks) retain all of their property under single ownership, and have not needed to sub-allocate water supply to internal projects. In 2007, State Parks allocated 5.5 AFY for the American Youth Hostel project in Seaside. In 2014, the U.S. Army allocated 5 AFY to the California Central Coast Veterans Cemetery Project in Seaside, with an additional 10 afy for the first two years for landscape establishment. These project allocations are reflected in the summary table.

In the City of Marina, sub-allocations have been made for three specific plan areas: Marina Heights, University Villages (now called Dunes on Monterey Bay) and Cypress Knolls. Project-specific allocations have also been made for the Monterey Peninsula College 12th Street Campus, the Rock Rose Gardens housing project, and the Promontory apartments. The table also includes several projects which are subsets of Specific Plan allocations.

In the City of Seaside, sub-allocations have been made to two specific plan areas: Seaside Highlands and Seaside Main Gate. Project-specific allocations have also been made for the Monterey College of Law, Monterey Peninsula College, Chartwell School and the American Youth Hostel. The water allocations for Sun Bay Apartments and Bay View Mobile Home Park were established through the MOA between the USA and FORA, as amended in 2001. The Water Supply Assessment for the Seaside Main Gate Project identified a demand range from 207 to 213 AFY, but the City allocation was only for the retail portion of that project. A Water Supply Assessment has been prepared for the Monterey Downs Specific Plan area, which includes portions of Seaside and unincorporated Monterey County. That specific plan has not yet been adopted by the City.

Also within Seaside, the Bayonet/Blackhorse Golf Courses were originally irrigated from a well in the Seaside Groundwater Basin. In 2010, MCWD and Seaside entered into a land purchase agreement. Under that agreement, MCWD is providing 2,500 acre-feet of SVGB supply to irrigate the golf course, which allows Seaside to reduce their groundwater use from the Seaside Groundwater Basin. This is a term agreement and not a permanent allocation, so it is listed in summary table without an allocation value.

In Monterey County, sub-allocation was made for the East Garrison Specific Plan area, and project-specific allocations were made for Monterey Peninsula College and for the Ord Market. The Ord Market is within the Marina Sphere sub-area.

Attachments

Table 2, Sub-Allocations by Jurisdiction

Table 3.11-2, Allocation of Existing Potable Water Supply by Jurisdiction, from the FORA Development and Resource Management Plan

References

Agreement between the United States of America and the Monterey County Water Resources Agency concerning Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency, Agreement No. A-06404, September 21, 1993.

Fort Ord Reuse Authority, Development and Resource Management Plan portion of the Fort Ord Base Reuse Plan, 1997

Fort Ord Reuse Authority, Board Agenda Packet for January 12, 2007, item 8b: Resolution of the Authority Board changing the 150 AFY loans granted to Del Rey Oaks, Seaside, Marina, and Monterey County in October 1998 to permanent additions to their water allocations

Memorandum of Agreement Between the United States of America, Acting By and Through the Secretary of The Army, United States Department of the Army and the Fort Ord Reuse Authority for the Sale of Portions of the Former Fort Ord, Located in Monterey County, California, June 20, 2000

Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands, 1996

Assignment of Easements on Former Fort Ord and Ord Military Community, County of Monterey, and Quitclaim Deed for Water and Wastewater Systems, between Fort Ord reuse Authority (Grantor) and Marina Coast Water District (Grantee), October 24, 2001

Table 2. Water Sub-Allocations by Jurisdiction

Ord Community Land Use Jurisdiction	SVGB Allocation (AFY)	Suballocations To	Suballocation Amount (AFY)	Resolution No.	Date	Notes:
U.S. Army	1,577					
		Existing POM Annex	686			maximum annual use, DPW has not allocated by facility
		Veterans Cemetery	5	USA	2014	15 AFY for 2 years, 5 AFY permanent
CSUMB	1,035	None				Campus has not allocated by facility.
Del Rey Oaks	242.5	None				
City of Monterey	65	None				
County of Monterey	710		522.5			
		East Garrison 1	470	05-268	10/4/2005	
		MPC	52.5	02-XX	12/10/2002	
		Whispering Oaks	0			Allocated 93 AFY, later revoked with the specific plan.
County/Marina Sphere	10		5			Reuse Plan polygon 8a (landfill parcel, shoppette)
		Ord Market	5		3/27/2008	
UCMBEST	230					
		None				
City of Seaside	1,012		786.6			
		Sunbay Apts (Thorson)	120.0	USA	10/23/2001	Amendment 1 to Agreement dated 6/20/2000 between USA and FORA
		Bay View Park (Brostram)	84.8	USA	10/23/2001	Amendment 1 to Agreement dated 6/20/2000 between USA and FORA
		Seaside Highlands	168.5	02-07	2002	43.1 AFY to be replaced with RW when available
		Seaside Resort	161.4	05-44	2005	
		Monterey College of Law	2.8	04-20	3/18/2004	
		Monterey Peninsula College	9.7	09-36	7/16/2009	
		MPUSD	81.0	USA		existing at time of base closure
		Chartwell School	6.4	05-26	5/19/2005	
		Other	3.0			existing at time of base closure
		Main Gate	149	08-XX	5/15/2008	WSA totalled 207 AFY. City allocated retail portion only.
		State Parks transfer for AYH	-5.5	07-XX	11/15/2007	Agreement to transfer supply for this project
		Amer. Youth Hostile	5.5	07-XX	11/15/2007	Agreement to supply AYH with transferred supply
		Bayonet/Blackhorse Golf (temp)		temp		Agreed on 4/1/10: 2500 AF in exchange for 17 ac parcel, max 500 AF/Yr
		Monterey Downs				Not yet approved, WSA estimated 852.5 AFY
State Parks and Rec.	45					
		Seaside for Amer. Youth Hostel	5.5		11/15/2007	AYH parcel goes to Seaside along with 5.5 AFY supply
City of Marina	1,325		1319.8			
		Existing use	233.1			Preston Park, Abrams Park, Airport, Veterans Housing, etc.
		Marina Heights	292.4	2004-41	3/3/2004	
		University Villages	593.0	2005-129	5/31/2005	renamed Dunes on Monterey Bay
		Cypress Knolls	156.1	2006-289	11/8/2006	
		MPC - 12th St Campus	7.0	2007-xx	2/6/2007	
		Imjin Office Park	0.0			IS-MND projected 11.76 AFY. No formal allocation made
		CHOMP Wellness Center	0.0			21 AFY, Subset of University Villages
		Rock Rose Gardens	4.9	PC2011-07	6/9/2011	Planning commission, existing demand formalized as allocation
		Promontory Apartments	33.3	2013-86	7/2/2013	
Assumed Line Loss	348.5					
Total GW:	6,600					

SVGB = Salinas Valley Groundwater Basin
 AFY = acre-feet/year
 XX = Resolution # not included in meeting minutes
 RW = Recycled Water

TABLE 3.11-2
Allocation of Existing Potable Water Supply
By Jurisdiction
(Based on FORA's April 12, 1996 Resolution)

JURISDICTION	TOTAL WATER ALLOCATION (AFY)	NOTES
City of Seaside	710	
County/City of Del Rey Oaks	75	Plus reclaimed water for golf course
County/City of Monterey	65	
City of Marina	1,185	
Monterey County	545	
ARMY	1,410	
CSUMB	1,055	Plus reclaimed water for irrigation
UCMBEST	165	Plus reclaimed water for irrigation
County/State Parks and Recreation	45	
County/Marina Sphere Polygon 8a	50	
<hr/>		
SUBTOTAL	5,295 AFY	
Line Loss (10%)	530	
FORA Strategic Receive	785	Encumbered Reserve: Army – 160 AFY1 CSUMB – 125 AFY1 Seaside – 230 AFY2 Unencumbered – 270 AFY
<hr/>		
TOTAL	6,600 AFY	

ENCUMBRANCES TO FORA'S STRATEGIC RESERVE

1. 160 AFY at the POM Annex and 125 AFY at CSUMB polygon 10 are available upon metering of existing dwelling units.
2. 230 AFY loaned to Seaside is available to Seaside for golf course irrigation until reclaimed replacement water is provided.

The Technical Memorandum from Hopkins Groundwater Consultants is undergoing final revision and will be added in a supplemental draft.

Appendix F: Water Shortage Contingency Plan with Resolution of Adoption

The following documents are included in this appendix:

1. Resolution 2015-33, dated July 6, 2015, Adopting an Updated Water Shortage Contingency Plan
2. MCWD Water Shortage Contingency Plan, dated July 6, 2015
3. Resolution 2014-34, dated November 3, 2014, Declaring Water Conservation Stage 3 (included as an example of an implementing resolution)

July 6, 2015

Resolution No. 2015-33
Resolution of the Board of Directors
Marina Coast Water District
Adopting an Updated Water Shortage Contingency Plan

RESOLVED by the Board of Directors (“Directors”) of the Marina Coast Water District (“MCWD”), at a regular meeting duly called and held on July 6, 2015, at 211 Hillcrest Avenue, Marina, California as follows:

WHEREAS, Section 10632 of the California Water Code requires the Marina Coast Water District to maintain a Water Shortage Contingency Plan within its Urban Water Management Plan; and,

WHEREAS, the District maintains a Water Shortage Contingency Plan and desires to update said plan in accordance with the Water Code and provide a guidance document for management of water shortages within the District; and,

WHEREAS, due to ongoing historic drought conditions, the District desires to incorporate current mandatory water conservation measures into an updated Water Shortage Contingency Plan.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Marina Coast Water District does hereby:

1. Approve and adopt the attached Water Shortage Contingency Plan, and,
2. Authorize the Interim General Manager to file the Water Shortage Contingency Plan with the California Department of Water Resources.

PASSED AND ADOPTED on July 6, 2015 by the Board of Directors of the Marina Coast Water District by the following roll call vote:

Ayes: Directors Shriner, Moore, Lee, Le

Noes: Directors None

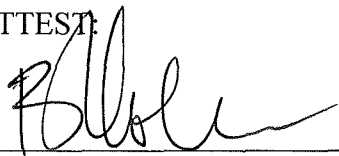
Absent: Directors Gustafson

Abstained: Directors None



Peter Le, Vice President

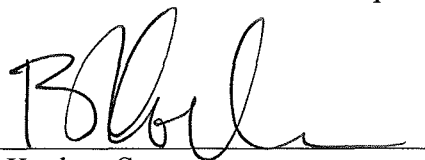
ATTEST:



Bill Kocher, Secretary

CERTIFICATE OF SECRETARY

The undersigned Secretary of the Board of the Marina Coast Water District hereby certifies that the foregoing is a full, true and correct copy of Resolution No. 2015-33 adopted July 6, 2015.



Bill Kocher, Secretary

MARINA COAST WATER DISTRICT WATER SHORTAGE CONTINGENCY PLAN

1.0 INTRODUCTION AND BACKGROUND

This Water Shortage Contingency Plan is developed in compliance with California Water Code Section 10632. Requirements of subsections (a)(1)-(a)(9) and (b) are identified below and are accompanied by the required elements and information.

The Marina Coast Water District (MCWD) obtains its water supply from the Salinas Valley Groundwater Basin (SVGB). The SVGB is not adjudicated and provides water for growers, municipalities and other municipal and industrial uses in the Salinas Valley. Due to cumulative basin pumping, coastal aquifers are experiencing seawater intrusion. MCWD continues to work with Monterey County Water Resources Agency (MCWRA) in developing plans to coordinate and encourage preservation of the SVGB aquifers by all municipal and agricultural users.

In 2005, MCWD interconnected its two service areas, Central Marina and the Ord Community. The interconnection has improved system-wide reliability, making maximum use of available water storage tanks in the Ord Community and allowing both areas to be served by any of the eight District wells. In 2007, the District consolidated the two systems under a single Public Water System Permit.

The District continues its participation as a member of the Water Awareness Committee of Monterey County (WAC). Through the WAC, representatives from several agencies throughout Monterey County work together coordinating conservation and other water awareness efforts including education programs, information booths for special events and public understanding of Monterey County water challenges and opportunities.

California Water Code Section 10632(a)(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies, including but not limited to, a regional power outage, an earthquake or other disaster.

The MCWD developed and adopted an Emergency Response Plan¹ for emergency and disaster occurrences with guidelines and agreements for cooperative efforts with other State and local agencies, as required by the State Water Resources Control Board, Division of Drinking Water (DDW). This Plan contains actions MCWD would initiate in the event of a catastrophic reduction in its water supply.

2.0 STAGES OF ACTION

California Water Code Section 10632(a)(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

¹ Ordinance 44, adopted in 2007

The MCWD has developed a five-stage Water Conservation Plan that includes two voluntary and three mandatory stages. Table 1 generally describes the various stages. Specific water supply conditions applicable to each stage, referred to as “triggering mechanisms” herein, are discussed in the next section.

Table 1: Water Conservation Stages and Demand Reduction Goals

<u>Stage</u>	<u>Water Shortage Level</u>	<u>Demand Reduction Goal</u>	<u>Type Program</u>
Stage 1	0 – 10%	10% reduction	Voluntary Compliance
Stage 2	>10 - 25%	20% reduction	Voluntary Compliance
Stage 3	>25 - 35%	30% reduction	Mandatory Compliance
Stage 4	>35 – 50%	40% reduction	Mandatory Compliance
Stage 5	>50%	50%+ reduction	Mandatory Compliance
<p>Priorities for use of available water, based on California Water Code Chapter 3 are:</p> <ol style="list-style-type: none"> 1. Health and Safety - interior residential and fire fighting 2. Commercial, Industrial, and Governmental - maintain jobs & economic base 3. Existing Landscaping - especially trees and shrubs 4. New Demand - projects without permits when shortage declared 			

California Water Code Section 10632(a)(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency’s water supply.

This requirement is oriented toward water supply systems that are primarily supplied with surface water and are therefore directly affected by short-term fluctuations in hydrology (i.e., drought conditions). MCWD’s current water supply is produced through groundwater pumping from the large SVGB. MCWD supply availability from this basin has not historically varied due to short-term hydrologic conditions. MCWD’s wells are located in the Pressure Sub-Area of the SVGB. Within the Pressure Sub-Area, the historic difference between water levels under average and drought conditions is only 10- to 20-feet. The minimum water supply available during the driest three-year sequence is expected to match demands as discussed in the Urban Water Management Plan.

3.0 TRIGGERING MECHANISMS

The SVGB is currently the most important source of water for MCWD. In 2004, the MCWD's groundwater withdrawals of about 4,600 acre-feet accounted for less than one percent (1%) of the estimated basin-wide annual extractions of roughly 550,000 acre-feet. Given this relatively small percentage, MCWD conservation and contingency management activities can play only a small part within the SVGB. The foremost concern in developing appropriate triggers is achieving the maximum practical protection of an adequate long-term water supply of acceptable quality for MCWD customers. To that end, triggering mechanisms should be tied to factors that, directly or indirectly, have the greatest potential effect on the quality and quantity of available groundwater. Two general types of threats could cause MCWD to experience water shortages:

1. Unanticipated catastrophic system failure due to an earthquake, terrorist attack or sudden contamination of water supply, or
2. Chronic system shortage due to seawater intrusion reaching water supply wells in

concentrations such that those wells would have to be removed from service.

In the case of a catastrophic failure, the MCWD would assess the nature and extent of the failure, and the General Manager would identify the appropriate Conservation Stage in accordance with the expected level of water supply shortage. Should shortages be anticipated in amounts beyond fifty percent of normal demands, emergency actions will be taken in accordance with the MCWD's Emergency Response Plan, including enacting emergency ordinances as may be required by MCWD Board of Directors.

The chronic system threat to MCWD's present water supplies is seawater intrusion, which has occurred along the coastal margin of the Salinas Valley in response to historic over-drafting of the basin. Contamination from volatile organic compounds (VOCs) has also affected MCWD wells and could pose additional problems. Although seawater intrusion has not yet affected the deep zone (900-Foot Aquifer) of the SVGB (which is the source of supply for District Wells No.10, 11, 12 and 34), it is possible that continued extractions in the 900-Foot Aquifer could ultimately lead to contamination of these water supplies by seawater. MCWD monitors the rate of seawater intrusion and plans to develop alternative water resources that would be insulated from intrusion. However, it is possible for intrusion to appear in a relatively short time span and reduce overall supplies available. Consequently, the MCWD has structured this Water Shortage Contingency Plan with the primary goal of reducing water demands to allow time for alternative water supply measures, including the drilling of alternate wells in areas unaffected by intrusion and/or contamination. A specific triggering mechanism for various levels of conservation is tied to concentrations of chlorides in MCWD wells and possible concentrations of VOCs, such as trichloroethylene (TCE) which was previously observed at low levels in Well No. 9 (no longer in service) in Central Marina and is occasionally detected at Wells No. 29, 30 and 31 in the Ord Community. Chloride concentration is directly related to the seawater intrusion problem, and both parameters (chloride and VOCs) are related to the overall basin viability as a secure source of water supply.

Chloride concentration is a key indicator of water quality degradation due to seawater intrusion. Tests for statistically significant changes in chloride concentrations assist in the detection of the earliest stages of intrusion and are appropriate indicators of a water supply emergency. In addition, MCWD currently monitors its Ord Community wells for the presence of TCE and other organic compounds, and works with the U.S. Army regarding the Army's groundwater cleanup actions in the Ord Community.

Climate conditions are monitored by the State of California and by Monterey County. Monterey County specifically monitors water levels in the Salinas Valley Groundwater Basin. During prolonged or extended periods of drought, the State of California, acting through the Legislature, the State Water Resources Control Board (SWRCB) and/or the Department of Water Resources may enact rules or legislation directing urban water suppliers to implement demand reduction measures. Similarly, the County of Monterey, acting through the Board of Supervisors and/or the Monterey County Water Resources Agency may enact rules or ordinances directing urban water suppliers to implement demand reduction measures. Such legislation, rules or ordinances shall be considered as triggering mechanisms under this Plan.

TRIGGERING MECHANISMS FOR CONSERVATION STAGES

These Triggering mechanisms shall be interpreted as guidelines and are summarized in Table 2. The General Manager and/or Board of Directors may impose any of the following conservation stages based upon facts and circumstances which may not have been otherwise anticipated in this plan.

Table 2 Conservation Level Triggering Mechanisms

Conservation Stage and Water Shortage Level	Triggering Mechanism
Stage One 0-10% Water Shortage Voluntary Compliance	<ol style="list-style-type: none"> 1) system malfunction resulting in up to 10% shortage 2) increase in chlorides which do not threaten to exceed drinking water quality standard 3) increase in VOC concentrations which do not threaten to exceed standards with blending 4) directive by the State of California or the County of Monterey to implement demand reduction measures in response to drought conditions
Stage Two >10-25% Water Shortage Voluntary Compliance	<ol style="list-style-type: none"> 1) system malfunction resulting in greater than 10% shortage 2) increase in chlorides which may threaten to exceed drinking water quality standard 3) increase in VOC concentrations which do not threaten to exceed standards with blending 4) directive by the State of California or the County of Monterey to implement demand reduction measures in response to drought conditions
Stage Three >25-35% Water Shortage Mandatory Compliance	<ol style="list-style-type: none"> 1) system malfunction resulting in greater than 25% shortage 2) increase in chlorides which are expected to exceed drinking water quality standard 3) increase in VOC concentrations which do not threaten to exceed standards with blending or when remaining capacity is reduced by up to 25% 4) directive by the State of California or the County of Monterey to implement demand reduction measures in response to drought conditions
Stage Four >35-50% Water Shortage Mandatory Compliance	<ol style="list-style-type: none"> 1) system malfunction resulting in greater than 35% shortage 2) increase in chlorides which are expected to exceed drinking water quality standard 3) increase in VOC concentrations which do not threaten to exceed standards with blending or when remaining capacity is reduced more than 35% 4) directive by the State of California or the County of Monterey to implement demand reduction measures in response to drought conditions
Stage Five >50% Water Shortage Mandatory Compliance	<ol style="list-style-type: none"> 1) system malfunction resulting in greater than 50% shortage 2) increase in chlorides which are expected to exceed drinking water quality standard

	<p>3) increase in VOC concentrations which do not threaten to exceed standards with blending or when remaining capacity is reduced more than 50%</p> <p>4) directive by the State of California or the County of Monterey to implement demand reduction measures in response to drought conditions</p>
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STAGE 1 Triggers: Up to 10% Water Supply Shortage

Stage 1 conservation measures may be called for as a result of malfunction of all or portions of the water system that reduces supplies by up to 10% on a daily, peak seasonal or annual basis. It also may be called due to prolonged drought conditions that result in legislation, rules or ordinances enacted by the State of California and/or the County of Monterey, and/or the determination that there is a need to focus public attention on water conservation.

Further triggering could also be based on:

- 1) detection of a statistically significant increase in chloride concentrations but where such concentrations do not threaten to exceed the DDW “Upper Level” secondary (aesthetics) drinking water standard currently set at 500 mg/l at the well(s) in question, or
- 2) detection of a statistically significant increase in VOC concentrations but where such concentrations do not threaten to exceed the primary drinking water maximum contaminant level (MCL) for each VOC at the well(s) in question and/or blending of this supply with other well supplies cannot maintain a distribution system concentration(s) below these standards.

STAGE 2 Triggers: >10% to 25% Water Supply Shortage

Stage 2 conservation measures may be called for due to malfunction or failure of all or portions of the water system that reduces supplies by greater than 10% on a daily, peak seasonal or annual basis. It also may be called due to prolonged drought conditions that result in legislation, rules or ordinances enacted by the State of California and/or the County of Monterey, and/or the determination that there is a need to focus public attention on water conservation.

Further triggering could also be based on:

- 1) detection of a statistically significant increase in chloride concentrations where such concentrations may threaten to exceed the DDW “Upper Level” secondary (aesthetics) drinking water standard currently set at 500 mg/l at the well(s) in question, or
- 2) detection of a statistically significant increase in VOC concentrations, but where such concentrations do not threaten to exceed the primary drinking water MCL for each VOC at the well(s) in question and/or blending of this supply with other well supplies cannot maintain a distribution system concentration(s) below these standards.

STAGE 3 Triggers: >25% to 35% Water Supply Shortage

Stage 3 conservation measures may be called for due to malfunction or failure of all or portions of the water system that reduces supplies by greater than 25% on a daily, peak seasonal or annual basis. It also may be called due to prolonged drought conditions that result in legislation, rules or ordinances enacted by the State of California and/or the County of Monterey.

Further triggering could also be based on:

- 1) detection of an increase in chloride concentrations where such concentrations are expected to exceed the DDW “Upper Level” secondary (aesthetics) drinking water standard currently set at 500 mg/l at the well(s) in question, or
- 2) detection of VOC concentrations, but where such concentrations do not threaten to exceed the primary drinking water MCL for each VOC, and/or blending of this supply with other well supplies cannot maintain a distribution system concentration(s) below these standards, and/or when gross reduced well production of up to 25% is necessary to maintain adequate water quality.

STAGE 4 Triggers: >35% to 50% Water Supply Shortage

Stage 4 conservation measures may be called for due to malfunction or failure of all or portions of the water system that reduces supplies by greater than 35% on a daily, peak seasonal or annual basis. It also may be called due to prolonged drought conditions that result in legislation, rules or ordinances enacted by the State of California and/or the County of Monterey.

Further triggering could also be based on:

- 1) detection of an increase in chloride concentrations where such concentrations are expected to exceed the DDW “Upper Level” secondary (aesthetics) drinking water standard currently set at 500 mg/l at the well(s) in question, or
- 2) detection of VOC concentrations, but where such concentrations do not threaten to exceed the primary drinking water MCL for each VOC, and/or blending of this supply with other well supplies cannot maintain a distribution system concentration(s) below these standards, and/or gross reduced well production of up to 35% is necessary to maintain adequate water quality.

STAGE 5 Triggers: >50% Water Supply Shortage

Stage 5 conservation measures may be called for due to in malfunction or failure of all or portions of the water system that reduces supplies by 50 % or more on a daily, peak seasonal or annual basis. It also may be called due to prolonged drought conditions that result in legislation, rules or ordinances enacted by the State of California and/or the County of Monterey.

Further triggering could also be based on:

- 1) detection of an increase in chloride concentrations where such concentrations are expected to exceed the short term primary drinking water standard of 600 mg/l at

the well(s) in question, or

- 2) detection of VOC concentrations but where such concentrations do not threaten to exceed the primary drinking water MCL for each VOC, and /or blending of this supply with other well supplies cannot maintain a distribution system concentration(s) below these standards, and/or gross reduced well production of over 50% is necessary to maintain adequate water quality.

4.0 CONSERVATION REQUIREMENTS AND APPEAL PROCEDURES

The following are MCWD's conservation requirements by customer type and stage and the appeal procedures. These requirements and procedures are adopted as part of MCWD's Water Shortage Contingency Plan.

STAGE 1 Actions: Voluntary – Minimal Conservation Requirement, 10% Demand Reduction Goal

MCWD shall:

- notify all customers of the water shortage
- mail information to every customer and reasonably available potential water user explaining the importance of significant water use reductions
- provide technical information to customers on ways to improve water use efficiency
- conduct media campaign to remind consumers of the need to save water
- publicize the showerhead, toilet rebate and other efficiency programs
- enforce mandatory restrictions on water waste as provided in MCWD Code, Chapter 3

Stage 1 actions shall apply under any triggering event.

STAGE 2 Actions: Voluntary – Moderate Conservation Requirement, 20% Demand Reduction Goal

In addition to the actions listed in Stage 1, MCWD shall call for voluntary reductions of up to 25% for each connection based on the average use during a base period proposed by the Water Conservation Commission and adopted by MCWD's Board of Directors. Stage 2 actions shall apply under any triggering event.

STAGE 3 Actions: Mandatory – Severe Conservation Requirement, 30% Demand Reduction Goal

In addition to the actions listed in Stage 1 and 2, MCWD shall establish mandatory annual allotments for each connection based on the average use of all connections within that category during a base period proposed by the Water Conservation Commission and adopted by MCWD's Board of Directors. When Stage 3 use reductions become necessary, administration and enforcement of the District's mandatory restrictions on water waste become the major focus of MCWD. If necessary, additional temporary personnel may be hired and special meetings of the Water Conservation Commission and /or Board of Directors may be scheduled.

Stage 3 actions shall be applied based upon triggering event, as noted below.

1. Each water service connection shall receive an allotted quantity of water, typically specified in hundred cubic feet (hcf) units per billing cycle. The Board of Directors may elect not to impose this action in response to a drought if the supply reduction trigger is not met.
2. The Board of Directors may pass an emergency ordinance increasing the usage rate for potable water consumed over a connections allocation, and/or in order to ensure stable revenues for operation and maintenance of MCWD. The Board of Directors may elect not to impose this action if water service allocations are not imposed.
3. As individual customers are notified of allotments, it is expected that many requests for special consideration will be received. These petitions must be processed rapidly, efficiently and fairly. Every application for waiver must be heard, evaluated and acted upon by the Water Conservation Commission as rapidly as possible. Every action by the Water Conservation Commission shall be referred to MCWD's Board of Directors for consideration. The procedures for appeal are defined, below. Appeals shall be considered under any Stage in which mandatory restrictions or allocations are imposed.
4. No building permits will be issued or meters installed for new accounts that had not received building permits before the "Severe Shortage" was declared. The Board of Directors may elect not to impose this action in response to a drought if the supply reduction trigger is not met.
5. The following water use restrictions shall be imposed.

Stage	Type Use	Restriction	Applies
3	Existing, Irrigated Landscapes Commercial Complexes, Residential Units, Public Parks, and Athletic Fields	<p>Landscape watering with recycled water or other non-potable water sources may continue without restriction.</p> <p>Landscape watering with potable water shall be subject to the following limits:</p> <ul style="list-style-type: none"> (1) Landscape watering using sprinklers or automated irrigation systems is permitted only two days per week, Wednesdays and Saturdays, before 10:00 a.m. or after 5:00 p.m. The Board of Directors may choose to assign different watering days to specific areas if daily system-wide usage limits are required. (2) With on-site supervision, including supervision by a professional gardener/landscaper, landscapes may be manually watered with drip irrigation, a soaker hose, a handheld hose with a positive action shut-off nozzle, or a watering can/bucket at any time, on any day, not more than 2 days per week. (3) Irrigation of ornamental turf in roadway medians and parkway strips is prohibited. Plantings of trees, shrubs, ornamental grasses, and ground covers with low water demand, watered by drip irrigation, are encouraged. 	During both Water Shortage and Drought Conditions
3	New, Irrigated Landscapes Commercial Complexes, Residential units, Public Parks, and Athletic Fields	<p>Landscape watering with recycled water or other non-potable water sources may continue without restriction.</p> <p>Landscape watering with potable water shall be subject to the following limits:</p> <ul style="list-style-type: none"> (1) Landscape watering is permitted three (3) days a week to maintain adequate growth on newly installed landscapes, for a period generally up to five (5) weeks. Watering days for new landscapes are Monday, Wednesday, and Saturday. Property owners must notify the District of the address where new landscape is installed and the date of installation. (2) Following the initial establishment period, landscape watering using sprinklers or automated irrigation systems is permitted only on the days associated with the current conservation stage in effect. 	During both Water Shortage and Drought Conditions

Stage	Type Use	Restriction	Applies
3	Golf Courses	<p>Landscape watering with recycled water or other non-potable water sources may continue without restriction.</p> <p>Landscape watering with potable water shall be subject to the following limits:</p> <ul style="list-style-type: none"> (1) All landscape out-of-play areas such as may be found around a clubhouse or entryway shall follow the general landscape irrigation restrictions. (2) All in-play areas may be irrigated during the standard watering hours (before 10:00 a.m. or after 5:00 p.m.). (3) Course operators shall implement a plan to achieve a twenty (20) percent reduction in monthly irrigation water use. 	During both Water Shortage and Drought Conditions
3	Hotels, motels and bed and breakfasts	Hotels, motels and B&B's must offer and clearly notify guests of a "limited linen/towel exchange" program.	During both Water Shortage and Drought Conditions
3	Swimming pools, hot tubs	Initially filling new and existing swimming pools is prohibited. Draining and refilling existing swimming pools is permitted only if repairing a pool leak or repairing, maintaining or replacing a pool component that has become hazardous. All pools and tubs shall be covered when not in use to reduce evaporation.	During both Water Shortage and Drought Conditions
3	Decorative fountains, ponds and waterfalls over 20 gallons in size	Initially filling new and existing decorative fountains, ponds and waterfalls is prohibited. Adding water to make up for evaporative loss is allowed only for ponds and fountains that serve as aquarium tanks for fish or aquatic animals.	During both Water Shortage and Drought Conditions
3	Industrial and Commercial	Reduction of water use by any means is encouraged. Compliance with mandatory demand reduction measures is required for outdoor water uses including landscape irrigation, swimming pools, and vehicle washing.	During both Water Shortage and Drought Conditions
3	Vehicle and Equipment Washing	<p>Washing of vehicles and mobile equipment (e.g., washing vehicle at a residence) is permitted on any day, any time of the day, with the use of a positive action shut-off nozzle.</p> <p>All customers are encouraged to only wash those vehicles as is necessary for health and safety utilizing commercial car wash facilities.</p>	During both Water Shortage and Drought Conditions

Stage	Type Use	Restriction	Applies
3	Heavy Construction	The use of potable water for dust control shall be reduced to the greatest extent possible.	During both Water Shortage and Drought Conditions

STAGE 4 Actions: Mandatory – Critical Conservation Requirement, 40% Demand Reduction Goal

In addition to the actions listed in the previous stages, MCWD shall establish allotments based upon a 35% -50% curtailment of water use. All new and previous appeals for waiver shall be evaluated by field audit and shall be reheard by the Water Conservation Commission, if necessary, upon recommendation of MCWD staff. Water rates may be increased by the Board of Directors.

The following water use restrictions shall be imposed.

Stage	Type Use	Restriction	Applies
4	Existing, Irrigated Landscapes Commercial Complexes, Residential units, Public Parks, and Athletic Fields	Landscape watering with recycled water or other non-potable water sources may continue without restriction. Landscape watering with potable water shall be subject to the following limits: (1) Landscape watering using sprinklers or automated irrigation systems is permitted only one day per week, on Wednesdays before 10:00 a.m. or after 5:00 p.m. The Board of Directors may choose to assign different watering days to specific areas if daily system-wide usage limits are required. (2) With on-site supervision, including supervision by a professional gardener/landscaper, landscapes may be manually watered with drip irrigation, a soaker hose, a handheld hose with a positive action shut-off nozzle, or a watering can/bucket at any time, on any day, not more than 1 day per week. (3) Irrigation of ornamental turf in roadway medians and parkway strips is prohibited. Plantings of trees, shrubs, ornamental grasses, and ground covers with low water demand, watered by drip irrigation, are encouraged.	During both Water Shortage and Drought Conditions
4	New, Irrigated Landscapes	Landscape watering with recycled or other non-potable water sources water may continue without restriction.	During both Water

Stage	Type Use	Restriction	Applies
	Commercial Complexes, Residential units, Public Parks, and Athletic Fields	<p>The installation of new landscapes irrigated with potable water is discouraged.</p> <p>Landscape watering with potable water shall be subject to the following limits:</p> <ul style="list-style-type: none"> (1) Landscape watering is permitted three (3) days a week to maintain adequate growth on newly installed landscapes, for a period generally up to five (5) weeks. Watering days for new landscapes are Monday, Wednesday, and Saturday. Property owners must notify the District of the address where new landscape is installed and the date of installation. (2) Following the initial establishment period, landscape watering using sprinklers or automated irrigation systems is permitted only on the days associated with the current conservation stage in effect. 	Shortage and Drought Conditions
4	Golf Courses	<p>Landscape watering with recycled water or other non-potable water sources may continue without restriction.</p> <p>Landscape watering with potable water shall be subject to the following limits:</p> <ul style="list-style-type: none"> (1) All landscape out-of-play areas such as may be found around a clubhouse or entryway shall follow the general landscape irrigation restrictions. (2) All in-play areas may be irrigated during the standard watering hours (before 10:00 a.m. or after 5:00 p.m.). <p>Course operators shall implement a plan to achieve a thirty (30) percent reduction in monthly irrigation water use.</p>	During both Water Shortage and Drought Conditions
4	Hotels, motels and bed and breakfasts	Hotels, motels and B&B's must limit linen/towel changes to once every two (2) nights or for the entire stay, whichever is shorter, except for health and safety.	During both Water Shortage and Drought Conditions
4	Swimming pools, hot tubs	Initially filling new and existing swimming pools is prohibited. Draining and refilling existing swimming pools is permitted only if repairing a pool leak or repairing, maintaining or replacing a pool component that has become hazardous. All pools and tubs shall be covered when not in use to reduce evaporation.	During both Water Shortage and Drought Conditions

Stage	Type Use	Restriction	Applies
4	Decorative fountains, ponds and waterfalls over 20 gallons in size	Filling or refilling new and existing decorative fountains, ponds and waterfalls is prohibited. Adding water to make up for evaporative loss is allowed only for ponds and fountains that serve as aquarium tanks for fish or aquatic animals. Owners are encouraged to move fish and aquatic animals to indoor tanks less subject to evaporation.	During both Water Shortage and Drought Conditions
4	Vehicle and Equipment Washing	Washing of vehicles and mobile equipment (e.g., washing vehicle at a residence) is permitted on any day, any time of the day, with the use of a positive action shut-off nozzle. All customers are encouraged to only wash those vehicles as is necessary for health and safety utilizing commercial car wash facilities.	During both Water Shortage and Drought Conditions
4	Industrial and commercial	Reduction of water use by any means is encouraged. The Board of Directors may establish mandatory use reduction targets, if needed. Compliance with mandatory demand reduction measures is required for outdoor water uses including landscape irrigation, swimming pools, and vehicle washing.	During both Water Shortage and Drought Conditions
4	Heavy Construction	The use of potable water for dust control shall be reduced to the greatest extent possible.	During both Water Shortage and Drought Conditions

STAGE 5 Actions: Mandatory – Emergency Conservation Requirement, 50% Demand Reduction Goal

Appropriate 50% water shortage allotments shall be calculated and noticed to customers. Appropriate administration and enforcement of this stringent program shall be the highest priority of MCWD activity. All resources of MCWD will be directed toward improvement and increase of water supply to the system. Water rates may be further increased by the Board of Directors.

The following water use restrictions shall be imposed:

Stage	Type Use	Restriction	Applies
5	Existing, Irrigated Landscapes Commercial Complexes, Residential units, Public Parks, and Athletic Fields	Landscape watering with recycled water or other non-potable water sources may continue without restriction. Landscape watering with potable water is prohibited.	During both Water Shortage and Drought Conditions
5	New, Irrigated Landscapes Commercial Complexes, Residential units, Public Parks, and Athletic Fields	Landscape watering with recycled water or other non-potable water sources may continue without restriction. The installation of new landscapes irrigated with potable water is prohibited during Conservation Stage 5. New landscapes installed prior to declaration of Conservation Stage 5 may water two (2) days a week to maintain adequate growth on newly installed landscapes, for the remainder of the initial five (5) week establishment period. Watering days for new landscapes are Wednesday and Saturday. Property owners must notify the District of the address where new landscape is installed and the date of installation	During both Water Shortage and Drought Conditions
5	Golf Courses	Landscape watering with recycled water or other non-potable water sources may continue without restriction. Landscape watering with potable water shall be subject to the following limits: (3) All landscape out-of-play areas such as may be found around a clubhouse or entryway shall follow the general landscape irrigation restrictions. (4) All in-play areas may be irrigated during the standard watering hours (before 10:00 a.m. or after 5:00 p.m.). Course operators shall implement a plan to achieve a forty (40) percent reduction in monthly irrigation water use.	During both Water Shortage and Drought Conditions
5	Hotels, motels and bed and breakfasts	Hotels, motels and B&B's must limit linen/towel changes to once every three (3) nights or for the entire stay, whichever is shorter, except for health and safety.	During both Water Shortage and Drought Conditions

Stage	Type Use	Restriction	Applies
5	Swimming pools, hot tubs	Filling new swimming pools and/or draining and refilling existing swimming pools is prohibited. All pools and tubs shall be covered when not in use to reduce evaporation. Contact District conservation staff if an existing swimming pool must be repaired and refilled during Conservation Stage 5.	During both Water Shortage and Drought Conditions
5	Decorative fountains, ponds and waterfalls over 20 gallons in size	Filling or refilling new and existing decorative fountains, ponds and waterfalls is prohibited. Adding water to make up for evaporative loss is allowed only for ponds and fountains that serve as aquarium tanks for fish or aquatic animals. Owners are encouraged to move fish and aquatic animals to indoor tanks less subject to evaporation.	During both Water Shortage and Drought Conditions
5	Vehicle and Equipment Washing	Washing of vehicles and mobile equipment is prohibited. Only commercial facilities with water recycling systems may be used.	During both Water Shortage and Drought
5	Industrial and commercial	Reduction of water use by any means is encouraged. The Board of Directors may establish mandatory use reduction targets, if needed. Compliance with mandatory demand reduction measures is required for outdoor water uses including landscape irrigation, swimming pools, and vehicle washing.	During both Water Shortage and Drought Conditions
5	Heavy Construction	The use of potable water for dust control shall be reduced to the greatest extent possible. The District may establish mandatory construction water budgets, if needed.	During both Water Shortage and Drought Conditions

Appeals Procedure

1. Any person who wishes to appeal a customer classification or allotment shall do so in writing by using the forms provided by MCWD.
2. Appeals will be reviewed by the District staff. Site visits may be scheduled if required.
3. A condition of granting an appeal shall be that all plumbing fixtures or irrigation systems be replaced or modified for maximum water conservation.
4. Examples of appeals that may be considered are as follows:
 - a. Substantial medical requirements.

- b. Commercial/Industrial/Institutional accounts where any additional water supply reductions will result in unemployment or inappropriate hardship, after confirmation by the MCWD staff that the account has instituted all applicable water efficiency improvements.
5. In the event an appeal is requested for irrigation of trees or vegetation, MCWD staff may use the services of a qualified consultant in determining the validity of the request. Costs for such consulting services shall be paid by the party or parties making the request.
 6. District staff shall refer all appeals to the Water Conservation Commission. The Water Conservation Commission may refer appeals to MCWD's Board of Directors.
 7. If the Water Conservation Commission and the applicant are unable to reach accord, then the appeal shall be heard by the MCWD Board of Directors, who will make the final determination.
 8. All appeals shall be reported monthly to the Board as a part of the Water Supply Report.

5.0 MANDATORY PROHIBITIONS ON WATER USE

California Water Code Section 10632(a)(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning. Section 10632(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code. Section 10632(a)(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

The MCWD adopted a "Water Waste/Water Conservation" Ordinance (Ordinance No. 20) in April of 1990, which prohibits water waste and promotes water conservation. Since the initial adoption, revisions were adopted by the Board of Directors on April 14, 1992 and October 4, 1993. The ordinance has most recently been revised on and now appears as Chapter 3.36 of MCWD Code. Section 3.36.030, Mandatory Restrictions on Water Waste, details the applicable prohibitions of use. These prohibitions are in force at all times. Additional water use reduction methods available to water users or MCWD to adopt in order to comply with use reductions during the more restrictive stages of water shortages (Stages 4 and 5) include, but are not limited to, the following:

- a) elimination of turf irrigation with potable supplies;
- b) restriction of landscape watering to shrubs and trees by hand or drip irrigation only;
- c) elimination of vehicle washing except in car washes that have water recirculation

systems;

- d) prohibition on filling or topping off of swimming pools where damage to pumping equipment will not result;
- e) elimination of the issuance of construction meters;
- f) shut-off of dedicated landscape irrigation meters; and
- g) moratorium on provision of new supply meters.

If water use reductions called for in Stages 3-5 are not achieved, the MCWD may amend this Water Shortage Contingency Plan to make any of the above available conservation tactics mandatory.

6.0 PENALTIES OR CHARGES FOR EXCESSIVE USE

California Water Code Section 10632(a)(6) Penalties or charges for excessive use.

Section 3.36.050 of MCWD Code provides for a system of violations and notices. Violation of provisions of this Water Shortage Contingency Plan shall be enforced under Section 3.36.050 of MCWD Code.

7.0 REVENUE AND EXPENDITURE IMPACTS

California Water Code Section 10632(a)(7) – An analysis of the impacts of each of the actions and conditions described in subdivisions (a)(1) to (a)(6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

Enforcement of the Water Shortage Contingency Plan is assumed to be covered by enhanced revenues from application of excess use charges and penalties. MCWD reserves may be used temporarily should revenues remain below expectations. MCWD's rate structure is based upon adopted rate ranges and allows for modification of rates on short notice within those ranges. MCWD retains the ability to modify rates to meet all legitimate MCWD needs. Revenue impacts from water sales losses are estimated as follows, based upon Tier 2 rates of \$2.79/hcf in Central Marina and \$3.27/hcf in the Ord Community, and recognizing approximately 10% of MCWD's customers are not metered as of 2013.

Table 3: Potential Revenue Impacts of Implementation of WSCP

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Assumed Reduction	10 percent	20 percent	30 percent	40 percent	50 percent
Water Sales Loss	\$579,804	\$1,159,607	\$1,739,411	\$2,319,215	\$2,899,018
Revenue Source: Pumping savings at \$135/af	\$57,807	\$115,614	\$173,421	\$231,228	\$289,035
Net Revenue Reduction	\$521,997	\$1,043,993	\$1,565,990	\$2,087,987	\$2,609,983

Percent of Total Annual Water System Revenue	6%	12%	18%	24%	30%
--	----	-----	-----	-----	-----

* Table based on FY2012-13 water sales, \$8,839,268 for 4,282 acre-feet

8.0 WATER SHORTAGE CONTINGENCY PLAN IMPLEMENTATION

California Water Code Section 10632 (a)(8) A draft water shortage contingency resolution or ordinance.

MCWD Board of Directors adopted the Water Shortage Contingency Plan in Resolution No. 2014-___, which enables implementation of the Plan upon advice of staff based in part on the triggering mechanisms discussed herein. The resolution is attached as Appendix A to this Plan.

Chapter 3.36.035 of the MCWD Code of Ordinances² provides for enforcement of the current Water Shortage Contingency Plan. Chapter 2.09 of the Code of Ordinances³ contains a sample ordinance which may be adopted in the event of a local emergency, including a water shortage.

9.0 WATER USE MONITORING PROCEDURES

California Water Code Section 10632 (a)(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency plan.

Normal Monitoring Procedure:

In normal water supply conditions, production figures are recorded daily by MCWD O&M personnel. Totals are reported monthly to the O&M Superintendent. Production figures are reported in the Annual Report to the Drinking Water Program, which is submitted to the SWRCB Division of Drinking Water each year.

Stage 1 and 2 Water Shortages

During a Stage 1 or 2 water shortage, daily production figures will be reported to the O&M Superintendent. The O&M Superintendent compares the weekly production to the target weekly production to verify that the reduction goal is being met. Monthly reports are forwarded to the District Engineer and the General Manager, the Water Conservation Commission and the MCWD Board of Directors. If reduction goals are not met, the General Manager may notify the Board of Directors so that corrective action can be taken.

Stage 3 and 4 Water Shortages

During a Stage 3 or 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the General Manager and weekly reports to the Water Conservation Commission and Board of Directors. Special meetings may be called for administration of the

² Ordinance 41, adopted in 2005

³ Ordinance 44, adopted in 2007

Water Shortage Contingency Plan.

Stage 5 Water Shortage

During a Stage 5 shortage, production figures will be reported to the O&M Superintendent hourly, and to the General Manager daily. Reports will also be provided to MCWD's Board of Directors, the Monterey County Office of Emergency Services, and land use jurisdictions located within MCWD's service territory.

November 3, 2014

Resolution No. 2014-34
Resolution of the Board of Directors
Marina Coast Water District

Declaring Water Conservation Stage 3 as Required by the State Water Resource Control Board's
Emergency Mandatory Water Conservation Regulations

RESOLVED by the Board of Directors ("Directors") of the Marina Coast Water District ("MCWD"), at a regular meeting duly called and held on November 3, 2014, at 211 Hillcrest Avenue, Marina, California as follows:

WHEREAS, the State Water Resources Control Board (SWRCB) adopted Mandatory Water Conservation Regulations (Emergency Regulations), which went into effect on July 29, 2014; and,

WHEREAS, the District supplies more than 3,000 acre-feet of water annually and, therefore, the District is classified as an "urban water supplier" pursuant to Water Code Section 10617; and,

WHEREAS, the Emergency Regulations specifically require the following:

To promote water conservation, each urban water supplier shall implement all requirements and actions of the stage of its water shortage contingency plan that imposes mandatory restrictions on outdoor irrigation of ornamental landscapes or turf with potable water.

WHEREAS, on November 3, 2014, the District adopted a Water Shortage Contingency Plan (District Plan) pursuant to Water Code Section 10632; and,

WHEREAS, under the District Plan, mandatory restrictions on outdoor irrigation of ornamental landscapes or turf with potable water are not required until Stage 3; and,

WHEREAS, the District' water supply is not actually experiencing a severe water shortage; and,

WHEREAS, the Emergency Regulations require the Board of Directors to declare a Water Conservation Stage 3 even though the District is not actually experiencing a severe water shortage.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Marina Coast Water District does hereby do the following:

1. Declare a Water Conservation Stage 3 under the District Plan as mandated by the SWRCB.

2. Find that since the District's water supply is not actually experiencing a severe water shortage, the following Stage 3 requirements shall **not** be implemented at this time, but shall be subject to periodic review by the Board of Directors:

a. "Each water service connection shall receive an allotted quantity of water, typically specified in hundred cubic feet (hcf) units per billing cycle."

b. "No building permits will be issued or meters installed for new accounts that had not received building permits before the 'Severe Shortage' was declared."

3. The Stage 3 mandatory water use restrictions set forth in the District Plan's restrictions table for Stage 3 shall be implemented effective with the adoption of this Resolution.

4. Direct staff to notify all customers in writing of this decision within 10 days of the date of adoption.


PASSED AND ADOPTED on November 3, 2014 by the Board of Directors of the Marina Coast Water District by the following roll call vote:

Ayes: Directors Le, Shriner, Moore


Noes: Directors None

Absent: Directors Gustafson, Lee

Abstained: Directors None


Thomas P. Moore, President

ATTEST:


Brian C. Lee, Deputy Secretary

CERTIFICATE OF SECRETARY

The undersigned Secretary of the Board of the Marina Coast Water District hereby certifies that the foregoing is a full, true and correct copy of Resolution No. 2014-34 adopted November 3, 2014.


Brian C. Lee, Deputy Secretary

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Appendix G: DWR Urban Water Management Plan Checklist

Checklist arranged by Water Code Section

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	3.4
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App E	3.4
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	3.4
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	3.4
10608.24(d) (2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	N/A
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	1.2
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	3.4 App H
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	1.4 App A

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	1.3
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	4.2 4.4
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	1.3 App D
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	1.4
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	2.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	2.2
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	2.3
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	2.3
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	2.4
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	4.1 4.2 4.4
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	4.1 4.2

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	4.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	4.2
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	4.2
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	4.2
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	4.2
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	4.2
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	5.1 5.2
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	5.1
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	4.2.4
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	4.3
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	3.1 3.2 3.3

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	6. __
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	6.2
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	6. __
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	4.4
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	4.6
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	N/A 6. __
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	N/A
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	3.3.1

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	5.5 App F
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	5.7
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	5.5.1 App F
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	5.5 App F
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	5.5 App F
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	5.5.3 App F
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	5.5.4 App F
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	App F
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	App F
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	4.6
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	4.6

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	4.6
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	N/A
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	4.6
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	4.6 4.4
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	4.6
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	4.6
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	4.2.4 4.2.5 5.2
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	5.1
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	App F

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	App D
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	App D
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	App D
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	App A
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	App D
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	App D
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Transmittal Letter
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Transmittal Letter

Appendix H: Standardized Data Tables and SB X7-7 Verification Form

The following tables are provided, as required by the Department of Water Resources 2015 UWMP Guidebook for Urban Water Suppliers. Only the tables applicable to MCWD are included, as listed below.

DWR Reporting Tables: 2-1, 2-2, 2-3, 2-4, 3-1, 4-1, 4-2, 4-3, 4-4, 4-5, 5-1, 5-2, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 7-1, 7-2, 7-3, 7-4, 8-1, 8-2, 8-3, 8-4, 10-1

SB X7-7 Verification Tables: 0, 1, 2, 3, 4, 4-A, 5, 6, 7, 7-E, 7-F, 8, 9

Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA2710017	Marina Coast Water District	7,500	3228.04
TOTAL		7500	3,228
NOTES:			

Table 2-2: Plan Identification (Select One)

<input checked="" type="checkbox"/>	Individual UWMP
<input type="checkbox"/>	Regional UWMP (RUWMP) <i>(checking this triggers the next line to appear)</i>
Select One:	
<input type="checkbox"/>	RUWMP includes a Regional Alliance
<input type="checkbox"/>	RUWMP does not include a Regional Alliance

NOTES:

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
<i>dd/mm</i>	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
--

The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.

Wholesale Water Supplier Name <i>(Add additional rows as needed)</i>
--

Not Applicable

NOTES:

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040(<i>opt</i>)
	32,375	40,464	56,648	64,635	70,161	

NOTES:

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<u><i>Use Drop down list</i></u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family	metered	Drinking Water	968
Multi-Family	flat rate	Drinking Water	206
Multi-Family	metered	Drinking Water	905
Commercial	metered	Drinking Water	327
Industrial	metered	Drinking Water	0
Institutional/Governmental	metered	Drinking Water	156
Landscape	metered	Drinking Water	632
Losses		Drinking Water	34
TOTAL			3,228
NOTES:			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<u>Use Drop down list</u> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040-opt
Single Family		1,717	2,728	3,128	3,432	
Multi-Family		1,658	2,351	2,734	2,971	
Commercial		1,220	2,339	2,616	2,645	
Industrial		24	214	250	750	
Institutional/Governmental		276	501	503	508	
Landscape	Municipal/Domestic	275	257	61	64	
Losses		435	467	467	467	
TOTAL		5604.844	8856.874	9759.495	10837.98	0
NOTES:						

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
Potable and Raw Water <i>From</i> <i>Tables 4-1 and 4-2</i>	3,228	5,605	8,857	9,759	10,838	0
Recycled Water Demand <i>From</i> <i>Table 6-4</i>	0	600	1,080	1,359	1,359	0
TOTAL WATER DEMAND	3,228	6,205	9,936	11,118	12,197	0

NOTES:

Table 4-4 Retail: 12 Month Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
07/2014	86.1

NOTES: Report based on FY14/15

Table 4-5 Retail Only: Inclusion in Water Use Projections

<p>Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i></p>	<p>No</p>
<p>If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.</p>	
<p>Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i></p>	<p>Yes</p>
<p>NOTES: Projections for new developments reflect water-conserving fixtures, but no reduction are made for</p>	

Table 5-1 Baselines and Targets Summary*Retail Agency or Regional Alliance Only*

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1999	2008	135.25	126.13	117
5 Year	2004	2008	130.64		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance

*Retail Agency or Regional Alliance Only**

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments to 2015 GPCD "0" for adjustments not used <i>Methodology 8</i>					Enter From	2015 GPCD (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normalization	TOTAL Adjustments	Adjusted 2015 GPCD			
89.01	126.13	0	0	0	0	89.01	89.01	Yes	
*All values are in Gallons per Capita per Day (GPCD)									
NOTES:									

Update with population check.

Table 6-1 Retail: Groundwater Volume Pumped						
□	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
<i>Add additional rows as needed</i>						
Alluvial Basin	Salinas Valley Groundwater Basin, Pressure SubArea	4046.6	4173.6	4413.3	4025.9	3228.04
TOTAL		4,047	4,174	4,413	4,026	3,228
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

<input type="checkbox"/>	There is no wastewater collection system. The supplier will not complete the table below.					
100	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
100	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i> <i>Drop Down List</i>
<i>Add additional rows as needed</i>						
MCWD - Marina PS	Metered	1,226	MRWPCA	MRWPCA RTP	No	No
MCWD - Ord Flume	Metered	887	MRWPCA	MRWPCA RTP	No	No
MCWD - Marina Airport	Estimated	2.2	MRWPCA	MRWPCA RTP	No	No
Total Wastewater Collected from Service Area in 2015:		2,115				

NOTES: The Monterey Regional Water Pollution Control Agency (MRWPCA) provides regional wastewater treatment.

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

<input type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
MRWPCA	Ocean Outfall	Monterey Bay	Permit CA00485	Ocean outfall	Yes	Secondary, Disinfected - 2.2	19,712	5,462	0	14,250
Total							19,712	5,462	0	14,250

NOTES: WW from MCWD is treated at the MRWPCA Regional treatment Plant. The majority is recycled and delivered to the Castroville Seawater Intrusion project for

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

<input type="checkbox"/> Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.									
Name of Agency Producing (Treating) the Recycled Water:		Monterey Regional Water Pollution Control Agency							
Name of Agency Operating the Recycled Water Distribution System:									
Supplemental Water Added in 2015									
Source of 2015 Supplemental Water									
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)	
<i>These are the only Use Types that will be recognized by the DWR online submittal tool</i> <i>Drop down list</i>									
Agricultural irrigation									
Landscape irrigation (excludes golf courses)	Planned for future	Tertiary	0	200	480	759	759		
Golf course irrigation	Planned for future	Tertiary	0	400	600	600	600		
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)									
Surface water augmentation (IPR)									
Direct potable reuse									
Other	Type of Use								
Total:			0	600	1,080	1,359	1,359	0	
<i>IPR - Indirect Potable Reuse</i>									
NOTES:									

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

□	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	2010 Projection for 2015	2015 actual use
Agricultural irrigation	0	0
Landscape irrigation (excludes golf courses)	319	0
Golf course irrigation	461	0
Commercial use	0	0
Industrial use	0	0
Geothermal and other energy production	0	0
Seawater intrusion barrier	0	0
Recreational impoundment	0	0
Wetlands or wildlife habitat	0	0
Groundwater recharge (IPR)	0	0
Surface water augmentation (IPR)	0	0
Direct potable reuse	0	0
Other	Required for this use	
Total	780	0

NOTES: Construction of recycled water delivery system delayed due to economic downturn.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use

□	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
RUWAP (Recycled)	Build distribution system	2018	600
Total			600
NOTES:			

Table 6-7 Retail: Expected Future Water Supply Projects or Programs

No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.

Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type <i>Drop Down List</i> <i>User may select more than one.</i>	Expected Increase in Water Supply to Agency <i>This may be a range</i>
	<i>Drop Down List (y/n)</i>	<i>If Yes, Agency Name</i>				

Add additional rows as needed

RUWAP (Potable)	No		Seawater Desal	2025	Average Year	500 to 1800

NOTES: planned seawater desalination facility will be needed by 2025.

Table 6-8 Retail: Water Supplies — Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>	Total Right or Safe Yield <i>(optional)</i>
<i>Add additional rows as needed</i>				
Groundwater	Marina Wells	1,420	Drinking Water	3,020
Groundwater	Ord Wells	1,808	Drinking Water	6,600
Total		3,228		9,620
NOTES:				

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUdata online submittal tool</i>		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
<i>Add additional rows as needed</i>											
Groundwater	Marina Wells	3,020	3,020	3,020	3,020	3,020	3,020	3,020	3,020	3,020	3,020
Groundwater	Ord Wells	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600
Groundwater	Armstrong Ranch			680	920	680	920	680	920	680	920
Groundwater	Cemex							500	500	500	500
Recycled Water		600		1,080		1,359		1,359		1,359	
Desalinated Water				491		1,335		1,766		1,800	
	Total	10,220	9,620	11,871	10,540	12,994	10,540	13,925	11,040	13,959	11,040

NOTES: Groundwater from the Salinas Valley Groundwater Basin, 180/400 ft Subarea

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available	% of Average Supply
Average Year	2035	13,959	100%
Single-Dry Year	2035	13,959	100%
Multiple-Dry Years 1st Year	2035	13,959	100%
Multiple-Dry Years 2nd Year	2035	13,959	100%
Multiple-Dry Years 3rd Year	2035	13,959	100%
Multiple-Dry Years 4th Year <i>Optional</i>			
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			

Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

NOTES:

Table 7-2 Retail: Normal Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 <i>(Opt)</i>
Supply totals <i>(autofill from Table 6-9)</i>	10,220	11,871	12,994	13,925	13,959
Demand totals <i>(autofill from Table 4-3)</i>	6,205	9,936	11,118	12,197	0
Difference	4,015	1,935	1,876	1,728	13,959
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040 (Opt)
Supply totals	10,220	11,871	12,994	13,925	
Demand totals	6,267	10,036	11,230	12,319	
Difference	3,953	1,835	1,764	1,606	0
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	10,220	11,871	12,994	13,925	13,959
	Demand totals	6,267	10,036	11,230	12,319	
	Difference	3,953	1,835	1,764	1,606	13,959
Second year	Supply totals	10,220	11,871	12,994	13,925	13,959
	Demand totals	5,460	8,744	9,784	10,733	
	Difference	4,760	3,127	3,210	3,192	13,959
Third year	Supply totals	10,220	11,871	12,994	13,925	13,959
	Demand totals	4,654	7,452	8,339	9,148	
	Difference	5,566	4,419	4,655	4,777	13,959
Fourth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES:						

**Table 8-1 Retail
Stages of Water Shortage Contingency Plan**

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1	10%	Mechanical loss of 10% capacity, or
1	10%	Chlorides increase but WQ standard met, or
1	10%	VOC increase but WQ standards met, or
1	10%	Drought declared by State or County
2	25%	Mechanical loss of 10-25% capacity, or
2	25%	Chlorides increase but WQ standard met, or
2	25%	VOC increase but WQ STD can be met, or
2	25%	Drought declared by State or County
3	35%	Mechanical loss of 25-35% capacity, or
3	35%	Chlorides increase above WQ standard, or
3	35%	VOC increase but WQ STD can be met, or
3	35%	Drought declared by State or County
4	50%	Mechanical loss of 35-50% capacity, or
4	50%	Chlorides increase above WQ standard, or
4	50%	VOC increase but WQ STD can be met, or
4	50%	Drought declared by State or County
5	51%	Mechanical loss of over 50% capacity, or
5	51%	Chlorides increase above WQ standard, or
5	51%	VOC increase but WQ STD can be met, or
5	51%	Drought declared by State or County
¹ <i>One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.</i>		
NOTES: See the full WSCP for detailed descriptions		

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
<i>Add additional rows as needed</i>			
0-5	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
0-5	Landscape - Limit landscape irrigation to specific times		Yes
0-5	Landscape - Prohibit certain types of landscape irrigation		Yes
0-5	CII - Restaurants may only serve water upon request		Yes
0-5	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
0-5	Other water feature or swimming pool restriction	Drain and refill for repair only	Yes
0-5	Water Features - Restrict water use for decorative water features, such as fountains	Must be recirculating	Yes
0-5	Other - Prohibit use of potable water for washing hard surfaces		Yes
3-5	Pools and Spas - Require covers for pools and spas		Yes
3-5	Landscape - Limit landscape irrigation to specific days		Yes
3-5	CII - Lodging establishment must offer opt out of linen service		Yes
3-5	Other - Prohibit use of potable water for construction and dust control	Use recycled/non-potable when available	Yes
5	Landscape - Prohibit all landscape irrigation	Only recycled water	Yes
5	Other - Prohibit use of potable water for construction and dust control	Only recycled water	Yes
5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes
NOTES: Stage 0 (no shortage) reflects District Code Section 3.36.030, Prohibitions on Water Waste			

**Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
<i>Add additional rows as needed</i>		
1-5	Expand Public Information Campaign	
0-5	Offer Water Use Surveys	
0-5	Provide Rebates on Plumbing Fixtures and Devices	
0-5	Provide Rebates for Landscape Irrigation Efficiency	
0-5	Provide Rebates for Turf Replacement	
2-5	Decrease Line Flushing	
3-5	Implement or Modify Drought Rate Structure or Surcharge	
NOTES: See the full WSCP for full descriptions		

Table 8-4 Retail: Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply	9,620	9,620	9,620

NOTES:

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
City of Marina	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Seaside	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
City of Del Rey Oaks	X	X
City of Monterey	X	X
CSU Monterey Bay	X	X
UC MBEST	X	X
CA State Parks	X	X
U.S. Army Presidio of Monterey	X	X
Fort Ord Reuse Authority	X	X
MCWRA	X	X
MPWMD	X	X
Cal-Am	X	X
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
<i>Add additional rows as needed</i>		
Monterey County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>
NOTES:		

SB X7-7 Table 0: Units of Measure Used in UWMP*

(select one from the drop down list)

Acre Feet

**The unit of measure must be consistent with Table 2-3*

NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	4,102	Acre Feet
	2008 total volume of delivered recycled water	0	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period ¹	10	Years
	Year beginning baseline period range	1999	
	Year ending baseline period range ²	2008	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2004	
	Year ending baseline period range ³	2008	
<p>¹ If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.</p>			
<p>² The ending year must be between December 31, 2004 and December 31, 2010.</p>			
<p>³ The ending year must be between December 31, 2007 and December 31, 2010.</p>			
<p>NOTES:</p>			

SB X7-7 Table 2: Method for Population Estimates

Method Used to Determine Population (may check more than one)	
<input checked="" type="checkbox"/>	1. Department of Finance (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
<input checked="" type="checkbox"/>	2. Persons-per-Connection Method
<input type="checkbox"/>	3. DWR Population Tool
<input type="checkbox"/>	4. Other DWR recommends pre-review

NOTES: Service area crosses multiple jurisdictions. All of the City of

SB X7-7 Table 3: Service Area Population

Year	Population	
10 to 15 Year Baseline Population		
Year 1	1999	28,657
Year 2	2000	29,137
Year 3	2001	29,416
Year 4	2002	29,648
Year 5	2003	29,613
Year 6	2004	29,633
Year 7	2005	29,477
Year 8	2006	29,154
Year 9	2007	29,065
Year 10	2008	29,533
<i>Year 11</i>		
<i>Year 12</i>		
<i>Year 13</i>		
<i>Year 14</i>		
<i>Year 15</i>		
5 Year Baseline Population		
Year 1	2004	29,633
Year 2	2005	29,477
Year 3	2006	29,154
Year 4	2007	29,065
Year 5	2008	29,533
2015 Compliance Year Population		
2015		32,375
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

	Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Into Distribution System <i>Fm SB X7-7 Table(s) 4-A</i>	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water <i>Fm SB X7-7 Table 4-B</i>	Water Delivered for Agricultural Use	Process Water <i>Fm SB X7-7 Table(s) 4-D</i>	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1999	4637	0	0	0	0	0	4,637
Year 2	2000	4671.2	0	0	0	0	0	4,671
Year 3	2001	4513	0	0	0	0	0	4,513
Year 4	2002	4442.8	0	0	0	0	0	4,443
Year 5	2003	4329.7	0	0	0	0	0	4,330
Year 6	2004	4684.6	0	0	0	0	0	4,685
Year 7	2005	4188.1	0	0	0	0	0	4,188
Year 8	2006	4295.3	0	0	0	0	0	4,295
Year 9	2007	4563	0	0	0	0	0	4,563
Year 10	2008	4102.2	0	0	0	0	0	4,102
<i>Year 11</i>	0	0			0		0	0
<i>Year 12</i>	0	0			0		0	0
<i>Year 13</i>	0	0			0		0	0
<i>Year 14</i>	0	0			0		0	0
<i>Year 15</i>	0	0			0		0	0
10 - 15 year baseline average gross water use								2,962
5 Year Baseline - Gross Water Use								
Year 1	2004	4,685	0	0	0	0	0	4,685
Year 2	2005	4,188	0	0	0	0	0	4,188
Year 3	2006	4,295	0	0	0	0	0	4,295
Year 4	2007	4,563	0	0	0	0	0	4,563
Year 5	2008	4,102	0	0	0	0	0	4,102
5 year baseline average gross water use								4,367
2015 Compliance Year - Gross Water Use								
2015		3,228	0	0	0	0	0	3,228

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES: All water supply from District-owned wells.

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source Salinas Valley Groundwater Basin

This water source is:

- The supplier's own water source
 A purchased or imported source

Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System
--	-------------------------------------	--	---

10 to 15 Year Baseline - Water into Distribution System

Year 1	1999	4637		4,637
Year 2	2000	4671.2		4,671
Year 3	2001	4513		4,513
Year 4	2002	4442.8		4,443
Year 5	2003	4329.7		4,330
Year 6	2004	4684.6		4,685
Year 7	2005	4188.1		4,188
Year 8	2006	4295.3		4,295
Year 9	2007	4563		4,563
Year 10	2008	4102.2		4,102
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0

5 Year Baseline - Water into Distribution System

Year 1	2004	4684.6		4,685
Year 2	2005	4188.1		4,188
Year 3	2006	4295.3		4,295
Year 4	2007	4563		4,563
Year 5	2008	4102.2		4,102

2015 Compliance Year - Water into Distribution System

2015	3228.04		3,228
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** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1999	28,657	4,637	144
Year 2	2000	29,137	4,671	143
Year 3	2001	29,416	4,513	137
Year 4	2002	29,648	4,443	134
Year 5	2003	29,613	4,330	131
Year 6	2004	29,633	4,685	141
Year 7	2005	29,477	4,188	127
Year 8	2006	29,154	4,295	132
Year 9	2007	29,065	4,563	140
Year 10	2008	29,533	4,102	124
<i>Year 11</i>	0	0	0	
<i>Year 12</i>	0	0	0	
<i>Year 13</i>	0	0	0	
<i>Year 14</i>	0	0	0	
<i>Year 15</i>	0	0	0	
10-15 Year Average Baseline GPCD				135
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2004	29,633	4,685	141
Year 2	2005	29,477	4,188	127
Year 3	2006	29,154	4,295	132
Year 4	2007	29,065	4,563	140
Year 5	2008	29,533	4,102	124
5 Year Average Baseline GPCD				133
2015 Compliance Year GPCD				
2015		32,375	3,228	89
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day
Summary From Table SB X7-7 Table 5

10-15 Year Baseline GPCD	135
5 Year Baseline GPCD	133
2015 Compliance Year GPCD	89
NOTES:	

SB X7-7 Table 7: 2020 Target Method*Select Only One*

Target Method		Supporting Documentation
<input type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input checked="" type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-E: Target Method 3

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input type="checkbox"/>		San Francisco Bay	131	124
<input type="checkbox"/>		San Joaquin River	174	165
<input checked="" type="checkbox"/>	100%	Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
<p align="center">Target <i>(If more than one region is selected, this value is calculated.)</i></p>				<p align="center">117</p>
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target

5 Year Baseline GPCD <i>From SB X7-7 Table 5</i>	Maximum 2020 Target*	Calculated 2020 Target <i>Fm Appropriate Target Table</i>	Confirmed 2020 Target
133	126	117	117

* Maximum 2020 Target is 95% of the 5 Year Baseline GPCD

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD

Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	2015 Interim Target GPCD
117	135	126

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					Adjusted 2015 GPCD	2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015?
		Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments				
89	126	NA	NA	NA	0	89.01338654	89.01338654	YES	

NOTES:

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Appendix I: Voluntary Reporting of Energy Intensity

The MCWD water distribution system has five pressure zones, with eight water storage tanks and six booster pump stations. The District produces all of its water supply from groundwater wells. Treatment consists of chlorination to meet distribution system requirements. Some water is provided directly to customers in the lowest pressure zone, and the rest is boosted into the upper zones for storage and customer use. Power consumption for 2015 is tabulated below. Total water production for the year was 3,228 acre-feet. The portion of that supply boosted into the upper pressure zones was not metered or estimated.

2015 Water System Power Use

Component	kWh
Wells	1,451,161
Booster Pump Stations	1,024,865
SCADA (Controls)	1,397
Desalination	0
Total	2,477,423

MCWD provides wastewater collection within its service area, but not treatment. Wastewater treatment is provided by the Monterey Regional Water Pollution Control Agency at the regional treatment plant. The MCWD wastewater collection system includes 20 pump stations. Power consumption for 2015 is tabulated below. Total wastewater conveyed for the year was 2,115 acre-feet.

2015 Wastewater System Power Use

Component	kWh
Lift Stations	278,600
SCADA	413
Total	279,013

DWR Standard Tables O-1A and O-2 are provided on the following pages.

Urban Water Supplier:

Marina Coast Water District

Water Delivery Product (If delivering more than one type of product use Table O-1C)

Retail Potable Deliveries

Table O-1A: Voluntary Energy Intensity - Water Supply Process Approach								
Enter Start Date for Reporting Period 1/1/2015 End Date 12/31/2015	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (AF)	3228	0	0	0	2905.2	2905.2	0	2905.2
Energy Consumed (kWh)	1451161	0	0	0	1026262	2477423		2477423
Energy Intensity (kWh/AF)	449.6	0.0	0.0	0.0	353.3	852.8	0.0	852.8

Quantity of Self-Generated Renewable Energy

None kWh

Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)

Combination of Estimates and Metered Data

Data Quality Narrative:

Power use is from PG&E Meters. Well Production from Well Meters. Distribution volume is estimated at 90% of well production.

Narrative:

All water originates as groundwater at District wells. The Extract and Divert power use includes chlorination for distribution.

Urban Water Supplier:

Marina Coast Water District

Table O-2: Voluntary Energy Intensity - Wastewater & Recycled Water				
Enter Start Date for Reporting Period 1/1/2015 End Date 12/31/2015	Urban Water Supplier Operational Control			
	Water Management Process			
	Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Wastewater Entering Process (AF)	2115	0	0	0
Wastewater Energy Consumed (kWh)	279013	0	0	279013
Wastewater Energy Intensity (kWh/AF)	131.9	0.0	0.0	0.0
Volume of Recycled Water Entering Process (AF)	0	0	0	0
Recycled Water Energy Consumed (kWh)	0	0	0	0
Recycled Water Energy Intensity (kWh/AF)	0.0	0.0	0.0	0.0

Quantity of Self-Generated Renewable Energy related to recycled water and wastewater operations

None kWh

Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)

Combination of Estimates and Metered Data

Data Quality Narrative:

Power is sum of PG&E meters for lift stations and sewer SCADA. Flow is sum of two metered stations plus Marina Airport estimate.

Narrative:

Wastewater is collected from throughout the system and conveyed to the MRWPCA Regional Interceptor.

Appendix J: Water Loss Audit Tables

A system water audit was prepared using the AWWA Free Water Audit Software v5.0. Because the report audit requires financial data as well as water production and deliveries, this report was prepared for FY 2014-15 (July 1, 2014 – June 30, 2015). Financial data came from the District's Certified Annual Financial Report of FY 2014/15.

Water production during that period totaled 3,642 acre-feet, with 86 acre-feet of water loss (approximately 2%). The low loss rate is due to the District's tracking of unmetered water uses, such as water main flushing, hydrant testing and fire department training.

The Audit output tables are provided on the following pages.

AWWA Free Water Audit Software v5.0

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This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:

Email Address:

Telephone | Ext.:

Name of City / Utility:

City/Town/Municipality:

State / Province:

Country:

Year: Financial Year

Start Date: Enter MM/YYYY numeric format

End Date: Enter MM/YYYY numeric format

Audit Preparation Date:

Volume Reporting Units:

PWSID / Other ID:

The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

<p><u>Instructions</u></p> <p>The current sheet. Enter contact information and basic audit details (year, units etc)</p>	<p><u>Reporting Worksheet</u></p> <p>Enter the required data on this worksheet to calculate the water balance and data grading</p>	<p><u>Comments</u></p> <p>Enter comments to explain how values were calculated or to document data sources</p>	<p><u>Performance Indicators</u></p> <p>Review the performance indicators to evaluate the results of the audit</p>	<p><u>Water Balance</u></p> <p>The values entered in the Reporting Worksheet are used to populate the Water Balance</p>	<p><u>Dashboard</u></p> <p>A graphical summary of the water balance and Non-Revenue Water components</p>
<p><u>Grading Matrix</u></p> <p>Presents the possible grading options for each input component of the audit</p>	<p><u>Service Connection Diagram</u></p> <p>Diagrams depicting possible customer service connection line configurations</p>	<p><u>Definitions</u></p> <p>Use this sheet to understand the terms used in the audit process</p>	<p><u>Loss Control Planning</u></p> <p>Use this sheet to interpret the results of the audit validity score and performance indicators</p>	<p><u>Example Audits</u></p> <p>Reporting Worksheet and Performance Indicators examples are shown for two validated audits</p>	<p><u>Acknowledgements</u></p> <p>Acknowledgements for the AWWA Free Water Audit Software v5.0</p>

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association.
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Click to access definition
 Click to add a comment

Water Audit Report for: Marina Coast Water District (CA2710017)
Reporting Year: 2015 / 7/2014 - 6/2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

----- Enter grading in column 'E' and 'J' ----->

WATER SUPPLIED

Volume from own sources:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="8"/>	<input type="text" value="3,641.510"/>	acre-ft/yr
Water imported:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr
Water exported:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr

Master Meter and Supply Error Adjustments

	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="5"/>	<input type="text" value=""/>	acre-ft/yr
	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input type="text" value=""/>	acre-ft/yr
	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input type="text" value=""/>	acre-ft/yr

WATER SUPPLIED: 3,641.510 acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="6"/>	<input type="text" value="3,334.800"/>	acre-ft/yr
Billed unmetered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="6"/>	<input type="text" value="206.360"/>	acre-ft/yr
Unbilled metered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="8"/>	<input type="text" value="10.427"/>	acre-ft/yr
Unbilled unmetered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="6"/>	<input type="text" value="3.776"/>	acre-ft/yr

AUTHORIZED CONSUMPTION: 3,555.363 acre-ft/yr

Click here: for help using option buttons below

Pcnt: Value: acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt: Value:

WATER LOSSES (Water Supplied - Authorized Consumption)

86.147 acre-ft/yr

Apparent Losses

Unauthorized consumption: acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="7"/>	<input type="text" value="16.810"/>	acre-ft/yr
Systematic data handling errors:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input type="text" value="8.337"/>	acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 34.251 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 51.896 acre-ft/yr

WATER LOSSES: 86.147 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 100.350 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="6"/>	<input type="text" value="147.0"/>	miles
Number of active AND inactive service connections:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="7"/>	<input type="text" value="8,534"/>	
Service connection density:	<input type="button" value="?"/>	<input type="text" value=""/>	<input type="text" value="58"/>	conn./mile main	

Are customer meters typically located at the curbside or property line?

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: psi

COST DATA

Total annual cost of operating water system:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="10"/>	<input type="text" value="\$8,700,333"/>	\$/Year
Customer retail unit cost (applied to Apparent Losses):	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="8"/>	<input type="text" value="\$6.15"/>	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="5"/>	<input type="text" value="\$1,300.00"/>	\$/acre-ft <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 72 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Billed metered
- 3: Variable production cost (applied to Real Losses)



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0

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Water Audit Report for: Marina Coast Water District (CA2710017)
 Reporting Year: 2015 7/2014 - 6/2015

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 72 out of 100 ***

System Attributes:

	Apparent Losses:	34.251	acre-ft/yr
	+		
	Real Losses:	51.896	acre-ft/yr
	=		
	Water Losses:	86.147	acre-ft/yr

? Unavoidable Annual Real Losses (UARL): 139.48 acre-ft/yr

Annual cost of Apparent Losses: \$91,756

Annual cost of Real Losses: \$67,464

Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied:	2.8%	
		Non-revenue water as percent by cost of operating system:	2.0%	Real Losses valued at Variable Production Cost

Operational Efficiency:	{	Apparent Losses per service connection per day:	3.58	gallons/connection/day
		Real Losses per service connection per day:	5.43	gallons/connection/day
		Real Losses per length of main per day*:	N/A	
		Real Losses per service connection per day per psi pressure:	0.09	gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 51.90 acre-feet/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 0.37

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: User Comments

WAS v5.0

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Use this worksheet to add comments or notes to explain how an input value was calculated, or to document the sources of the information used.

General Comment:	
Audit Item	Comment
Volume from own sources:	All wells are metered. Readings are taken monthly.
Vol. from own sources: Master meter error adjustment:	
Water imported:	No water imported.
Water imported: master meter error adjustment:	
Water exported:	No water exported during this period.
Water exported: master meter error adjustment:	
Billed metered:	Total water sales of 3,578 AF during FY 14-15 (CAFR Schedule 7). Value is 3578 minus estimate of flat rate account use.
Billed unmetered:	District has 737 unmetered residential accounts in the Ord Community out of 3414 total accounts in the Ord Community. Use assumes 0.33 AF/DU. All Central Marina accounts are metered.
Unbilled metered:	The District meters internal water use at the wastewater lift stations (wash down water) and at the corporation yard (office and truck filling station).

Audit Item	Comment
Unbilled unmetered:	The District records hydrant run times for line flushing, fire pressure testing and fire training. Run times are converted to water use estimates and recorded in the work order database. The total estimate for 2015 was entered in this field.
Unauthorized consumption:	Default value used.
Customer metering inaccuracies:	Meters were upgrades to AMR in 2004-2005. Accuracy assumed to still be +/- 0.5%
Systematic data handling errors:	Default value used.
Length of mains:	Data from CAFR Schedule 13
Number of active AND inactive service connections:	Value is active account total from 2015 CAFR, Schedule 6. Does not include inactive service connections.
Average length of customer service line:	NA
Average operating pressure:	Estimated using the average within the B-Zone (middle of the elevation range)
Total annual cost of operating water system:	Data from 4Q15 financials. Marina Water Ops + Marina Water CIP + Ord Water Ops + Ord Water CIP. \$2,237,560 + \$111,928 + \$4,888,56 + \$1,461,992 = \$8,700,333
Customer retail unit cost (applied to Apparent Losses):	Total water sales revenue / total water sales. \$9,581,388 / 3578 AF = \$2,677.86/AF = \$6.15/hcf
Variable production cost (applied to Real Losses):	Using the average commodity rates, estimated at \$2.99/hcf. Need to update with data from O&M.



AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	Marina Coast Water District (CA2710017)	
Reporting Year:	2015	7/2014 - 6/2015
Data Validity Score:	72	

		Water Exported <i>0.000</i>	Billed Water Exported				Revenue Water 0.000
Own Sources (Adjusted for known errors) 3,641.510	System Input 3,641.510	Water Supplied 3,641.510	Authorized Consumption 3,555.363	Billed Authorized Consumption 3,541.160	Billed Metered Consumption (water exported is removed) 3,334.800	Revenue Water 3,541.160	
				Unbilled Authorized Consumption 14.203	Billed Unmetered Consumption 206.360	Non-Revenue Water (NRW) 100.350	
Water Losses 86.147	Apparent Losses 34.251	Unbilled Metered Consumption 10.427					
	Real Losses 51.896	Unbilled Unmetered Consumption 3.776					
		Unauthorized Consumption 9.104					
Water Imported 0.000			Customer Metering Inaccuracies 16.810	Systematic Data Handling Errors 8.337			
				Leakage on Transmission and/or Distribution Mains <i>Not broken down</i>			
				Leakage and Overflows at Utility's Storage Tanks <i>Not broken down</i>			
				Leakage on Service Connections <i>Not broken down</i>			

Appendix K: Comments Received on the Draft Plan

___ verbal comments were submitted at the Public Hearing for the UWMP.

___ comment letters were received:

Responses follow each letter.

