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**From:** Kunysz,Kathy  
**Sent:** Friday, July 10, 2015 11:36 AM  
**To:** Ti,Mike N  
**Subject:** FW: MWD IRP UPDATE: CENTRAL-WEST COAST GROUNDWATER HOMEWORK

Response from Long Beach and LADWP only.

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**From:** Kunysz,Kathy  
**Sent:** Tuesday, June 09, 2015 11:39 AM  
**To:** Peter.Dugan@ladwp.com; Simon.Hsu@LADWP.com; delon.kwan@ladwp.com; Rafael.Viramontes@ladwp.com; David Pettijohn - LADWP (david.pettijohn@ladwp.com); Penny.Falcon@ladwp.com; Heather.Yegiazaryan@LADWP.com; greg.reed@ladwp.com; Sarah.Lacombe@ladwp.com; Kevin Hunt (kevinh@centralbasin.org); carlosc@centralbasin.org; edwardc@westbasin.org; fernandop@westbasin.org; Chuck Schaich (CSchaich@TorranceCA.gov); Rob Beste (Rbeste@TorranceCA.gov); Kevin Wattier; anatole.falagan@lbwater.org; Sandy Fox (Sandy.Fox@lbwater.org); tammyh@centralbasin.org; Chad Blais (CBlais@comptoncity.org); Michael Harvey; Leighanne Kirk (leighannek@westbasin.org); rwhitaker@wrdd.org; Jason Weeks (jweeks@wrdd.org)  
**Cc:** Kunysz,Kathy; Hacker,Matthew D; Sumi,David H; Nevills,Jennifer C  
**Subject:** MWD IRP UPDATE: CENTRAL-WEST COAST GROUNDWATER HOMEWORK

Dear Member Agency and Groundwater Managers and Staff,

Attached are the excel spreadsheets for your agency and groundwater basin showing draft projections for groundwater production and projections of sources and amounts of groundwater recharge in normal and multiple-dry-year situations. This information is being used in Metropolitan's 2015 update of its Integrated Resources Plan. Also attached is a slide from the IRP Member Agency Workshop #1 for Groundwater held on May 27. The slide shows a draft projection of the total regional deficit of groundwater recharge under the multiple-dry-year scenario. As part of this IRP Update, it is our objective to finalize this deficit amount with your input, and to identify strategies and policies to address it. Metropolitan is seeking to ensure that groundwater production is sustainable—groundwater is a significant component of regional water supply reliability.

Where there are multiple member agencies overlying a groundwater basin, we have sent the spreadsheets to all overlying member agencies and to the groundwater basin manager. The intent is for a coordinated review. Please review your spreadsheet(s) carefully and **provide corrections to the production and recharge projections in RED**. Please also list the assumption/rationale for the correction in RED. When reviewing the groundwater production projections, please note that Metropolitan has assigned groundwater production within a Metropolitan member agency's service area to that member agency. Also, the data is shown by calendar year.

**Please return the modified spreadsheets to David Sumi with copy to Kathy Kunysz and Matt Hacker by Monday, June 22.** If you have questions, please call Kathy Kunysz (213-217-6272) or Matt Hacker (213-217-6756). We will report the adjusted projections at an IRP workshop later this summer.

Thank you,  
Kathy Kunysz  
Program Manager, Groundwater Issues  
Metropolitan Water District of Southern California



gw workshop rehdCentral-WestCoast  
 deficit slide... Basin.xlsx  
 Central.xlsx  
 Compton.xlsx  
 Long Beach.xlsx  
 Long Beach.xlsx  
 West Basin.xlsx

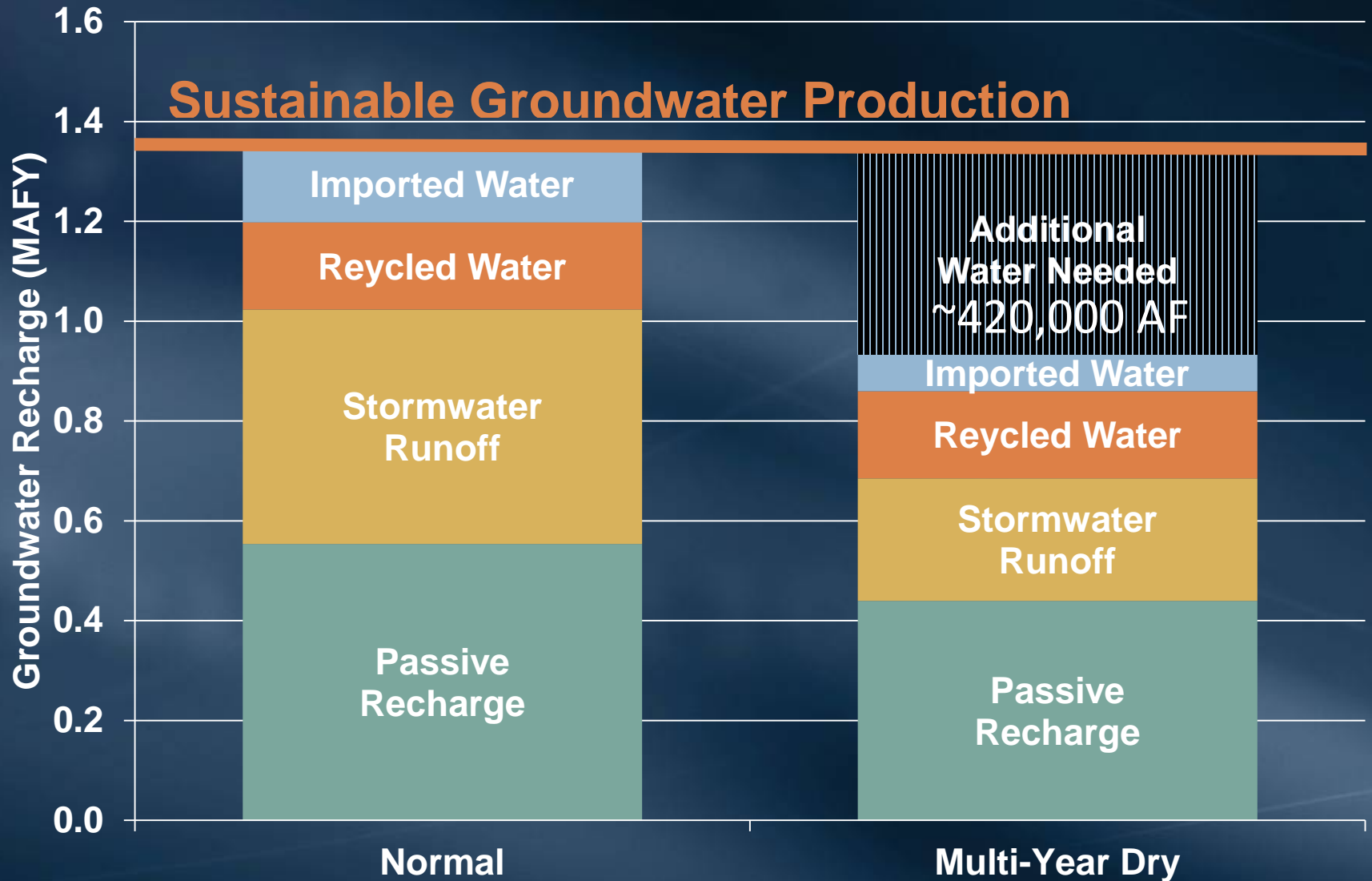


Los Angeles.xlsx

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# How to Address Multiple-Year Dry Cycle





CentralBasin Municipal Water District

Groundwater				Average																																														
Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050					
Central Basin	GW	IMP	Main San Gabriel B	31,061	27,107	29,164	36,838	32,491	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332	31,332			
Central Basin	GW	OWN	Central Basin	142,200	141,815	124,480	177,194	169,967	151,031	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011	151,011		
Central Basin	GWR	OWN	Central Basin	3,302	3,709	3,372	3,172	3,091	3,330	3,423	3,537	3,652	3,766	3,880	3,995	4,109	4,224	4,338	4,453	4,567	4,681	4,796	4,910	5,025	5,139	5,254	5,368	5,483	5,597	5,711	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	5,807	
Total Groundwater				185,673	182,344	185,797	185,881	186,156	186,244	186,339	186,431	186,568	186,682	186,797	186,911	187,025	187,140	187,254	187,369	187,483	187,598	187,712	187,827	187,941	188,055	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	188,151	
Projection	GW																																																	
Projection	GWR																																																	

Recharge																																																		
Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050					
Central Basin	IMPORT	OWN	Central Basin	Assumed to be 21,000 AFY.																																														
Central Basin	STORM	OWN	Central Basin	Average 1986-2005.																																														
Central Basin	REC	OWN	Central Basin	Assumed that full 50,000 AFY can be spread.																																														
Central Basin	IMPORT	OWN	Central Basin	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000				
Central Basin	STORM	OWN	Central Basin	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598	60,598		
Central Basin	REC	OWN	Central Basin	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000		
Central Basin	IMPORT	OWN	Central Basin	Assume 0																																														
Central Basin	STORM	OWN	Central Basin	Actual 2012-2014																																														
Central Basin	REC	OWN	Central Basin	Assumed that full 50,000 AFY can be spread.																																														
Central Basin	IMPORT	OWN	Central Basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Central Basin	STORM	OWN	Central Basin	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	32,432	
Central Basin	REC	OWN	Central Basin	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000

**City of Compton**

Groundwater				Average																																												
Agency	Type	IMP/Exp	Basin/Res	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Compton	GW	DWN	Central Ba	6,499	6,019	6,291	6,338	6,572	6,424	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400		
Projection									6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400	6,400

Adjudicated Basin  
Pumping right of 5,723AF.  
6/24/20.  
Projection assumes pumping full adjudication plus some leased rights. It's slightly above the 2004-2008 average.

**Recharge**  
Recharge included in Central Basin projection.

City of Long Beach

Groundwater

Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	Average	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Long Beach	GW	OWN	Central Basin	31,616	35,426	17,349	30,959	28,117	28,693	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	

Groundwater Projection		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050									
Projection	Normal	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	
Projection	Dry	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684	32,684
Projection	Wet	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425	29,425

Long Beach's pumping rights is 32,684af.  
 Normal/wet year production is 10% below adjudicated rights -

\*\*We do not use these projections

Recharge		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050									
Normal Year																																															
Long Beach	IMPORT	2,841	2,647	2,480	2,330	2,191	2,061	1,938	1,820	1,705	1,595	1,487	1,382	1,279	1,177	1,078	980	883	787	692	598	505	413	395	378	363	348	333	319	305	292	280	267	255	243	232	221										
Long Beach	STORM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Long Beach	REC	3,159	3,353	3,520	3,670	3,809	3,939	4,062	4,180	4,295	4,405	4,513	4,618	4,721	4,823	4,922	5,020	5,117	5,213	5,308	5,402	5,495	5,587	5,605	5,622	5,637	5,652	5,667	5,681	5,695	5,708	5,720	5,733	5,745	5,757	5,768	5,779										
Multiple Dry Year (actual 2012-2014)																																															
Long Beach	IMPORT	2,841	2,647	2,480	2,330	2,191	2,061	1,938	1,820	1,705	1,595	1,487	1,382	1,279	1,177	1,078	980	883	787	692	598	505	413	395	378	363	348	333	319	305	292	280	267	255	243	232	221										
Long Beach	STORM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Long Beach	REC	3,159	3,353	3,520	3,670	3,809	3,939	4,062	4,180	4,295	4,405	4,513	4,618	4,721	4,823	4,922	5,020	5,117	5,213	5,308	5,402	5,495	5,587	5,605	5,622	5,637	5,652	5,667	5,681	5,695	5,708	5,720	5,733	5,745	5,757	5,768	5,779										

City of Torrance

Groundwater

Agency	Type	IMP/EXP	Basin/Res	2009	2010	2011	2012	2013	2009-2013 Average	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050				
Torrance	GW	OWN	West Coast	2,683	1,883	2,072	3,537	3,352	2,705	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700				
Torrance	GWR	OWN	West Coast	1,094	977	1,226	1,464	1,427	1,238	1,528	1,571	1,613	1,655	1,697	1,739	1,781	1,824	1,866	1,908	1,950	1,992	2,034	2,076	2,119	2,161	2,203	2,245	2,287	2,329	2,372	2,414	2,456	2,498	2,540	2,582	2,625	2,667	2,709	2,751	2,793	2,835	2,878	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880
Total Groundwater				3,777	2,860	3,298	5,001	4,779	3,943	4,228	4,271	4,313	4,355	4,397	4,439	4,481	4,524	4,566	4,608	4,650	4,692	4,734	4,776	4,819	4,861	4,903	4,945	4,987	5,029	5,072	5,114	5,156	5,198	5,240	5,282	5,325	5,367	5,409	5,451	5,493	5,535	5,578	5,580	5,580	5,580	5,580	5,580	5,580	5,580	5,580

Groundwater Projection	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050										
Projection	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700

Recharge  
No recharge data for Torrance.



West Basin Municipal Water District

Groundwater		Average																																												
Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
West Basin	GW	IMP	Central Basin	5,184	5,256	5,051	4,654	5,369	5,103	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	
West Basin	GW	OWN	West Coast Basin	32,080	30,064	29,871	28,414	26,826	29,451	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500	29,500
West Basin	GWR	OWN	West Coast Basin	160	787	503	1,003	736	638	1,190	1,277	1,344	1,399	1,446	1,486	1,522	1,554	1,582	1,609	1,633	1,655	1,676	1,695	1,714	1,731	1,747	1,763	1,778	1,792	1,805	1,818	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829	1,829
<b>Total Groundwater</b>				<b>37,423</b>	<b>36,107</b>	<b>35,425</b>	<b>34,071</b>	<b>32,930</b>	<b>35,191</b>	<b>35,790</b>	<b>35,877</b>	<b>35,944</b>	<b>35,999</b>	<b>36,046</b>	<b>36,086</b>	<b>36,122</b>	<b>36,154</b>	<b>36,182</b>	<b>36,209</b>	<b>36,233</b>	<b>36,255</b>	<b>36,276</b>	<b>36,295</b>	<b>36,314</b>	<b>36,331</b>	<b>36,347</b>	<b>36,363</b>	<b>36,378</b>	<b>36,392</b>	<b>36,405</b>	<b>36,418</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	<b>36,429</b>	
Groundwater Projection				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050						
Projection				34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	

Recharge		Normal Year										Multiple Dry Year (actual 2012-2014)																																		
Agency	Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
West Basin	IMPORT	OWN	West Coast Basin	7,108	6,576	6,043	5,510	4,978	4,445	3,913	3,380	2,847	2,315	2,009	1,826	1,644	1,462	1,279	1,097	914	732	550	367	185	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
West Basin	STORM	OWN	West Coast Basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
West Basin	REC	OWN	West Coast Basin	11,392	11,924	12,457	12,990	13,522	14,055	14,587	15,120	15,653	16,185	16,491	16,674	16,856	17,038	17,221	17,403	17,586	17,768	17,950	18,133	18,315	18,498	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500
Multiple Dry Year (actual 2012-2014)				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050						
West Basin	IMPORT	OWN	West Coast Basin	7,108	6,576	6,043	5,510	4,978	4,445	3,913	3,380	2,847	2,315	2,009	1,826	1,644	1,462	1,279	1,097	914	732	550	367	185	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
West Basin	STORM	OWN	West Coast Basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
West Basin	REC	OWN	West Coast Basin	11,392	11,924	12,457	12,990	13,522	14,055	14,587	15,120	15,653	16,185	16,491	16,674	16,856	17,038	17,221	17,403	17,586	17,768	17,950	18,133	18,315	18,498	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	18,500	

City of Los Angeles

Agency		Type	IMP/EXP	Basin/Reservoir	2009	2010	2011	2012	2013	Average 2009-2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050			
Los Angeles	GW	OWN		Central Basin	11,573	9,018	5,637	7,422	8,633	8,457	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500				
Los Angeles	GW	OWN		Eagle Rock Basin	162	170	189	164	188	175	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200		
Los Angeles	GW	OWN		San Fernando Valley Basin	54,651	59,054	48,268	50,479	57,523	53,195	51,119	52,243	52,195	51,844	51,448	51,619	52,311	52,239	52,170	52,263	52,580	52,411	52,346	51,813	52,189	52,045	51,993	51,663	51,805	52,512	52,272	52,217	53,018	53,045	52,811	52,305	52,283	52,525	52,060	52,289	52,273	52,068	52,616	52,941	52,767	53,087				
Los Angeles	GW	OWN		Sylmar Basin	1,744	1,667	1,282	1,264	1,299	1,451	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400			
Los Angeles	GW	OWN		West Coast Basin	5,283	4,147	4,572	4,614	3,993	4,522	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500	4,500			
											65,719	67,143	66,785	66,444	66,048	66,219	66,911	66,839	66,770	66,663	67,180	67,011	66,946	66,413	66,789	66,645	66,553	66,263	66,505	67,112	66,872	67,317	67,518	67,645	67,411	66,909	66,983	67,125	66,660	67,389	66,873	66,668	67,216	67,441	67,367	67,687				

Groundwater Projection		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Projection		67,800	65,719	67,143	66,785	66,444	66,048	66,219	66,911	66,839	66,770	66,663	67,180	67,011	66,946	66,413	66,789	66,645	66,553	66,263	66,505	67,112	66,872	67,317	67,518	67,645	67,411	66,909	66,983	67,125	66,660	67,389	66,873	66,668	67,216	67,441	67,367	67,687

Recharge

Normal Year		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050							
Los Angeles	IMPORT	OWN	San Fernando Valley Basin	No imported water in San Fernando.																																									
Los Angeles	STORM	OWN	San Fernando Valley Basin	Average 1996-2005																																									
Los Angeles	REC	OWN	West Coast Basin	Assume 100% recycled water at barrier.																																									
		2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000						
Multiple Dry Year (actual 2012-2014)																																													
Los Angeles	IMPORT	OWN	San Fernando Valley Basin	No imported water in San Fernando.																																									
Los Angeles	STORM	OWN	San Fernando Valley Basin	Average 2012-2014																																									
Los Angeles	REC	OWN	West Coast Basin	Assume 100% recycled water at barrier.																																									
		12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	12,188	