

This presentation premiered at WaterSmart Innovations

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COVID-19 IMPACTS ON WATER USE

WSI Conference
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Credits

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-
- CA State Water Board Data
 - Water Agency websites

2020 was like
no other year

Public advisories affected behavior

- Stay-at-home orders
- Work-from-home mandates
- Severe limitations on social interaction
- Commercial, industrial, and institutional facilities closed

How did these changes in our lives affect our water use?

1. *Can we detect changes in water use?*
2. What are the implications for managing water?
3. *Does it matter?*

Sources of data

1. California public data: Monthly Water Conservation and Production Reports 2017 – 2021:
https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html
 - Total Production and Residential and CII water sectors
 - 5 agencies in similar climate zones: #3, #4 – San Francisco Bay Area

Note: Microclimate and economic variability impacts were not analyzed
2. 2020 Urban Water Management Plans

Transparency Disclosure:

This study was developed and funded independently by ManageWater Consulting, Inc. It has not been supported or endorsed by the water agencies whose data are reviewed. All agencies were contacted.

Water Boards – Open public data

Conservation portal

Notice! As the state transitions from the COVID-19 emergency, please contact your local Water Board to arrange necessary file reviews.

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Water Conservation and Production Reports

Current Monthly Reports

Below is the most recent dataset of monthly urban water supplier reports on potable water production and conservation activities. Note that factors unaccounted for in this dataset can affect per capita water use. The current monthly data supersedes all previously released material and archived reports.

August 17, 2021

- June 2014 - June 2021 Urban Water Supplier Monthly Reports (Raw Dataset)
- Definitions and Data Dictionary for the Urban Water Supplier Monthly Reports Dataset (applies to June 2014-September 2020 dataset onwards)
- October 2020 - June 2021 Water Shortage Drought Response Actions (Raw Dataset; only applicable to subset of suppliers, see corresponding data dictionary)
- Definitions and Data Dictionary for the Water Shortage Drought Response Actions Dataset

For questions about data, or to report a problem, please [contact us](#).

- Archived Datasets: [Monthly Report](#) and [Small Supplier Annual Conservation Reports](#)

Open Data

These data are also published on the [California Open Data Portal](#) in machine-readable form.

Factors that affect Per Capita Water Use

It is not appropriate to use Residential Gallons Per Capita Day (R-GPCD) water use data for comparisons across water suppliers, unless all relevant factors are accounted for.

[Click here to learn more about the factors](#)

Use the dashboard below to view and customize some of the key urban water use summaries.

Statewide Use and Production | Supplier Results | Drought Reporting | Conservation Actions

Average monthly residential gallons per capita daily (R-GPCD)

Select Month
June

Statewide Urban Water Production

250.08

Select Year

(All)

ManageWater Consulting, Inc.

2021 WSI Conference | ManageWaterNow@gmail.com | 10/7/21

Workflow for data review and analysis

- Selected agencies in San Francisco Bay Area
- Analyzed monthly Total Production, Residential, CII use: 2020-21 vs. 2017-19 average (baseline)
- Identified key COVID-19 state mandates and timeframes
- Developed visual tools
- Looked for patterns and trends
- Tracked water use for 18 months to identify indicators of changes

Characteristics of 5 agencies reviewed

Similarities

- All agencies in San Francisco Bay Area
- All agencies in similar climate zones
- Residential sector was dominant in all agencies (>55%)
- Similar regional economic conditions
- All agencies and customers subject to same state health mandates

Differences (2020-21)

- Agency populations ranged from 27,500 to 356,823
- Residential sectors ranged from 55% to 73%
- CII sectors ranged from 16% to 29%
- Agencies located in 3 counties
- Local responses to county health mandates may have differed
- Micro-climate and economic variability exist

COVID-19 IMPACTS ON WATER USE

1. Mid-Peninsula Water District

Climate zone: 3

Population: 27,500

Residential: 73%

CII: 16%

Supplier Name	Reporting Month	County	Hydrologic Regio	Climate Zone	Total Population Served	Water Consumption	REPORTED FINAL Tot Potable Water	REPORTED FINAL Commercial
Mid-Peninsula Water District	Jun-21	San Mateo	San Francisco	3	27,560	CCF	121,993	12,939.00
Mid-Peninsula Water District	May-21	San Mateo	San Francisco	3	27,560	CCF	121,006	12,354.00
Mid-Peninsula Water District	Apr-21	San Mateo	San Francisco	3	27,560	CCF	104,905	9,768.00
Mid-Peninsula Water District	Mar-21	San Mateo	San Francisco	3	27,560	CCF	87,475	8,388.00
Mid-Peninsula Water District	Feb-21	San Mateo	San Francisco	3	27,560	CCF	71,864	8,980.00
Mid-Peninsula Water District	Jan-21	San Mateo	San Francisco	3	27,560	CCF	75,807	8,433.00
Mid-Peninsula Water District	Dec-20	San Mateo	San Francisco	3	27,560	CCF	82,626	9,410.00
Mid-Peninsula Water District	Nov-20	San Mateo	San Francisco	3	27,560	CCF	92,047	12,027.00
Mid-Peninsula Water District	Oct-20	San Mateo	San Francisco	3	27,560	CCF	121,500	12,562.00
Mid-Peninsula Water District	Sep-20	San Mateo	San Francisco	3	27,560	CCF	121,900	12,809.00
Mid-Peninsula Water District	Aug-20	San Mateo	San Francisco	3	26,924	1 CCF	123,220	12,286.00
Mid-Peninsula Water District	Jul-20	San Mateo	San Francisco	3	26,924	1 CCF	137,560	12,585.00
Mid-Peninsula Water District	Jun-20	San Mateo	San Francisco	3	26,924	1 CCF	132,038	11,735.00
Mid-Peninsula Water District	May-20	San Mateo	San Francisco	3	26,924	1 CCF	119,565	9,274.00
Mid-Peninsula Water District	Apr-20	San Mateo	San Francisco	3	26,924	1 CCF	99,548	8,575.00
Mid-Peninsula Water District	Mar-20	San Mateo	San Francisco	3	26,924	1 CCF	122,468	12,287.00
Mid-Peninsula Water District	Feb-20	San Mateo	San Francisco	3	26,924	1 CCF	89,252	11,183.00
Mid-Peninsula Water District	Jan-20	San Mateo	San Francisco	3	26,924	1 CCF	76,445	10,550.00
Mid-Peninsula Water District	Dec-19	San Mateo	San Francisco	3	26,924	1 CCF	72,739	12,141.00
Mid-Peninsula Water District	Nov-19	San Mateo	San Francisco	3	26,924	1 CCF	103,800	15,988.00
Mid-Peninsula Water District	Oct-19	San Mateo	San Francisco	3	26,924	1 CCF	127,373	15,832.00
Mid-Peninsula Water District	Sep-19	San Mateo	San Francisco	3	26,924	1 CCF	124,500	18,730.00
Mid-Peninsula Water District	Aug-19	San Mateo	San Francisco	3	26,924	1 CCF	125,191	17,129.00
Mid-Peninsula Water District	Jul-19	San Mateo	San Francisco	3	26,924	1 CCF	133,986	15,465.00
Mid-Peninsula Water District	Jun-19	San Mateo	San Francisco	3	26,924	1 CCF	119,062	14,242.00
Mid-Peninsula Water District	May-19	San Mateo	San Francisco	3	26,924	1 CCF	111,745	14,224.00
Mid-Peninsula Water District	Apr-19	San Mateo	San Francisco	3	26,924	1 CCF	90,155	11,662.00
Mid-Peninsula Water District	Mar-19	San Mateo	San Francisco	3	26,924	1 CCF	77,800	11,882.00
Mid-Peninsula Water District	Feb-19	San Mateo	San Francisco	3	26,924	1 CCF	69,879	12,024.00
Mid-Peninsula Water District	Jan-19	San Mateo	San Francisco	3	26,924	1 CCF	78,185	10,268.00
Mid-Peninsula Water District	Dec-18	San Mateo	San Francisco	3	26,924	1 CCF	75,215	11,068.00
Mid-Peninsula Water District	Nov-18	San Mateo	San Francisco	3	26,924	1 CCF	100,419	15,184.00
Mid-Peninsula Water District	Oct-18	San Mateo	San Francisco	3	26,924	1 CCF	115,579	15,358.00
Mid-Peninsula Water District	Sep-18	San Mateo	San Francisco	3	26,924	1 CCF	118,992	24,860.00
Mid-Peninsula Water District	Aug-18	San Mateo	San Francisco	3	26,924	1 CCF	131,791	33,070.00
Mid-Peninsula Water District	Jul-18	San Mateo	San Francisco	3	26,924	1 CCF	131,751	24,396.00
Mid-Peninsula Water District	Jun-18	San Mateo	San Francisco	3	26,924	1 CCF	125,927	23,548.00
Mid-Peninsula Water District	May-18	San Mateo	San Francisco	3	26,924	1 CCF	112,094	21,240.00
Mid-Peninsula Water District	Apr-18	San Mateo	San Francisco	3	26,924	1 CCF	84,883	12,690.00
Mid-Peninsula Water District	Mar-18	San Mateo	San Francisco	3	26,924	1 CCF	77,308	14,128.00
Mid-Peninsula Water District	Feb-18	San Mateo	San Francisco	3	26,924	1 CCF	77,983	25,004.00
Mid-Peninsula Water District	Jan-18	San Mateo	San Francisco	3	26,924	1 CCF	74,736	23,590.00
Mid-Peninsula Water District	Dec-17	San Mateo	San Francisco	3	26,924	1 CCF	80,589	17,174.00
Mid-Peninsula Water District	Nov-17	San Mateo	San Francisco	3	26,924	1 CCF	85,066	23,730.00
Mid-Peninsula Water District	Oct-17	San Mateo	San Francisco	3	26,924	1 CCF	120,864	33,663.00
Mid-Peninsula Water District	Sep-17	San Mateo	San Francisco	3	26,924	1 CCF	119,512	25,708.00
Mid-Peninsula Water District	Aug-17	San Mateo	San Francisco	3	26,924	1 CCF	130,327	26,330.00
Mid-Peninsula Water District	Jul-17	San Mateo	San Francisco	3	26,924	1 CCF	132,165	22,130.00
Mid-Peninsula Water District	Jun-17	San Mateo	San Francisco	3	26,924	1 CCF	125,374	25,125.00
Mid-Peninsula Water District	May-17	San Mateo	San Francisco	3	26,924	1 CCF	117,133	21,651.00
Mid-Peninsula Water District	Apr-17	San Mateo	San Francisco	3	26,924	1 CCF	79,817	16,836.00
Mid-Peninsula Water District	Mar-17	San Mateo	San Francisco	3	26,924	1 CCF	74,845	16,485.00
Mid-Peninsula Water District	Feb-17	San Mateo	San Francisco	3	26,924	1 CCF	67,762	17,169.00
Mid-Peninsula Water District	Jan-17	San Mateo	San Francisco	3	26,924	1 CCF	73,026	16,614.00

COVID-19 IMPACTS ON WATER USE

1. Mid-Peninsula Water District

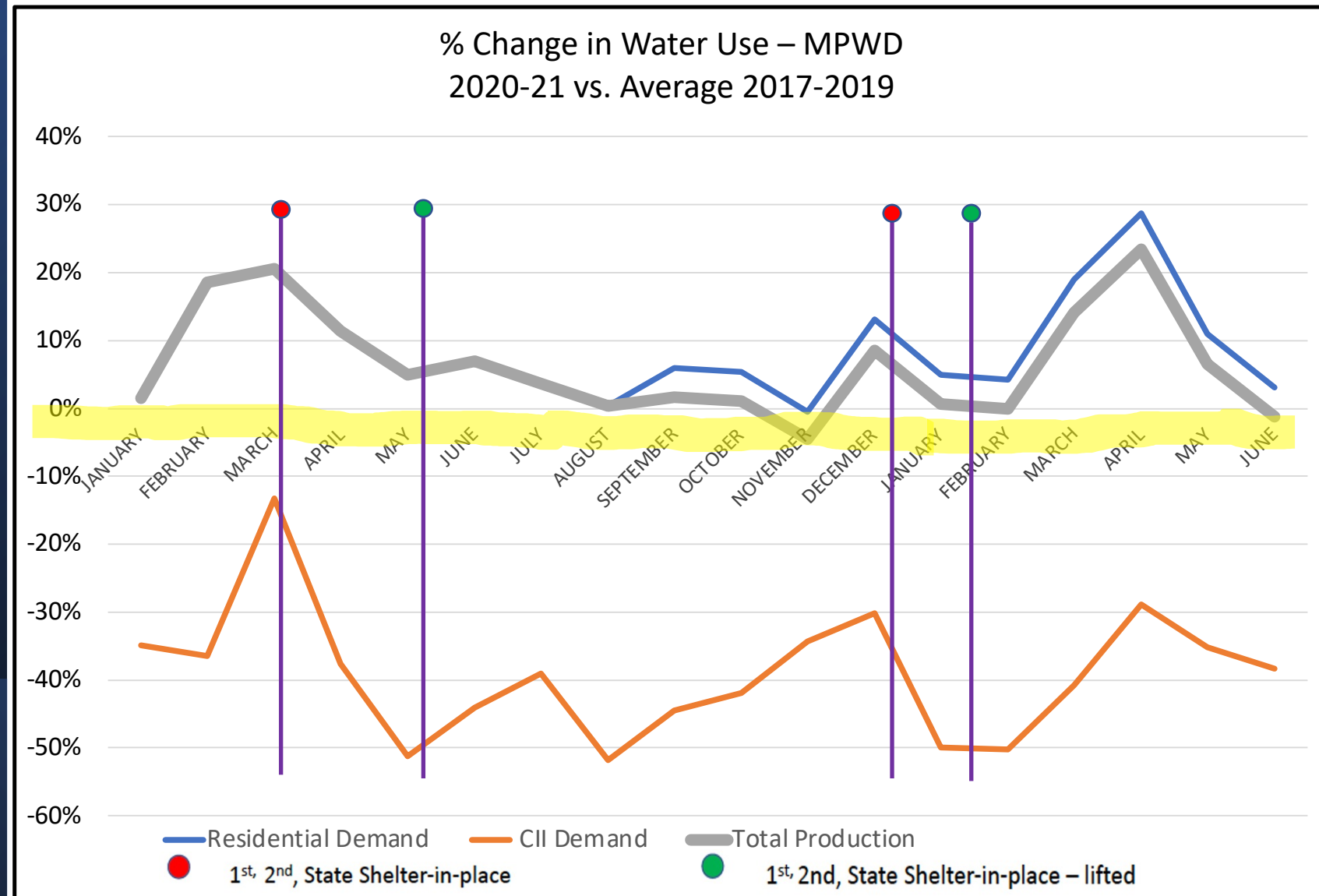
Monthly ranges, % change

Residential: 0% to +29%

CII: -52% to -13%

2020-21 vs. 2017-19, % change

Total production: +5.8%



COVID-19 IMPACTS ON WATER USE

2. City of Hayward

Climate zone: 3

Population: 160,311

Residential: 55%

CII: 29%

Supplier Name		Reporting Month	County	Hydrologic Regio	Climate Zone	Total Population	Water Use	REPORTED FINAL To Potable Water	FINAL Pe	REPORTED FINAL Commercial
Hayward City of		Jun-21	Alameda	San Francisco	3	161,040	CCF	651,016	58	222,000
Hayward City of		May-21	Alameda	San Francisco	3	161,040	CCF	580,129	59	272,343
Hayward City of		Apr-21	Alameda	San Francisco	3	161,040	CCF	567,473	76	62,161
Hayward City of		Mar-21	Alameda	San Francisco	3	161,040	CCF	471,508	62	215,150
Hayward City of		Feb-21	Alameda	San Francisco	3	161,040	CCF	429,167	77	63,889
Hayward City of		Jan-21	Alameda	San Francisco	3	161,040	CCF	448,833	65	170,897
Hayward City of		Dec-20	Alameda	San Francisco	3	161,040	CCF	550,113		182,666
Hayward City of		Nov-20	Alameda	San Francisco	3	161,040	CCF	553,421	60	243,126
Hayward City of		Oct-20	Alameda	San Francisco	3	161,040	CCF	614,161	59	235,872
Hayward City of		Sep-20	Alameda	San Francisco	3	161,040	CCF	722,523	59	264,615
Hayward City of		Aug-20	Alameda	San Francisco	3	161,040	CCF	688,786	57	266,453
Hayward City of		Jul-20	Alameda	San Francisco	3	161,040	CCF	673,953	62	235,590
Hayward City of		Jun-20	Alameda	San Francisco	3	161,040	CCF	550,000	62	203,836
Hayward City of		May-20	Alameda	San Francisco	3	161,040	CCF	524,788	64	185,486
Hayward City of		Apr-20	Alameda	San Francisco	3	161,040	CCF	544,099	64	151,644
Hayward City of		Mar-20	Alameda	San Francisco	3	161,040	CCF	500,323	58	205,296
Hayward City of		Feb-20	Alameda	San Francisco	3	161,040	CCF	445,933	63	135,459
Hayward City of		Jan-20	Alameda	San Francisco	3	161,040	CCF	520,472	61	191,816
Hayward City of		Dec-19	Alameda	San Francisco	3	161,040	CCF	490,538	58	211,505
Hayward City of		Nov-19	Alameda	San Francisco	3	161,040	CCF	512,230	61	319,415
Hayward City of		Oct-19	Alameda	San Francisco	3	161,040	CCF	513,558	40	470,835
Hayward City of		Sep-19	Alameda	San Francisco	3	161,040	CCF	639,555	54	345,910
Hayward City of		Aug-19	Alameda	San Francisco	3	161,040	CCF	684,835	54	296,751
Hayward City of		Jul-19	Alameda	San Francisco	3	161,040	CCF	716,795	55	312,729
Hayward City of		Jun-19	Alameda	San Francisco	3	161,040	CCF	582,033	57	239,547
Hayward City of		May-19	Alameda	San Francisco	3	161,040	CCF	595,525	56	253,118
Hayward City of		Apr-19	Alameda	San Francisco	3	161,040	CCF	444,243	64	142,597
Hayward City of		Mar-19	Alameda	San Francisco	3	161,040	CCF	409,549	60	172,312
Hayward City of		Feb-19	Alameda	San Francisco	3	161,040	CCF	426,098	66	125,988
Hayward City of		Jan-19	Alameda	San Francisco	3	161,040	CCF	494,707	60	182,828
Hayward City of		Dec-18	Alameda	San Francisco	3	161,040	CCF	453,231	59	188,798
Hayward City of		Nov-18	Alameda	San Francisco	3	161,040	CCF	589,222	57	243,263
Hayward City of		Oct-18	Alameda	San Francisco	3	161,040	CCF	687,683	54	267,466
Hayward City of		Sep-18	Alameda	San Francisco	3	161,040	CCF	685,326	56	288,833
Hayward City of		Aug-18	Alameda	San Francisco	3	161,040	CCF	697,990	51	312,227
Hayward City of		Jul-18	Alameda	San Francisco	3	161,040	CCF	756,241	54	359,150
Hayward City of		Jun-18	Alameda	San Francisco	3	161,040	CCF	676,994	66	141,813
Hayward City of		May-18	Alameda	San Francisco	3	161,040	CCF	615,595	57	214,340
Hayward City of		Apr-18	Alameda	San Francisco	3	161,040	CCF	461,268	69	112,094
Hayward City of		Mar-18	Alameda	San Francisco	3	161,040	CCF	468,250	67	213,797
Hayward City of		Feb-18	Alameda	San Francisco	3	161,040	CCF	452,490	76	120,719
Hayward City of		Jan-18	Alameda	San Francisco	3	161,040	CCF	560,455	59	253,148
Hayward City of		Dec-17	Alameda	San Francisco	3	161,040	CCF	476,264	63	159,124
Hayward City of		Nov-17	Alameda	San Francisco	3	161,040	CCF	580,438	52	283,875
Hayward City of		Oct-17	Alameda	San Francisco	3	161,040	CCF	668,745	48	175,301
Hayward City of		Sep-17	Alameda	San Francisco	3	161,040	CCF	808,687	51	373,788
Hayward City of		Aug-17	Alameda	San Francisco	3	161,040	CCF	680,802	53	182,813
Hayward City of		Jul-17	Alameda	San Francisco	3	161,040	CCF	651,966	55	287,807
Hayward City of		Jun-17	Alameda	San Francisco	3	158,985	CCF	706,755	41	106,715
Hayward City of		May-17	Alameda	San Francisco	3	158,985	CCF	494,812	59	213,074
Hayward City of		Apr-17	Alameda	San Francisco	3	158,985	CCF	457,295	46	40,287
Hayward City of		Mar-17	Alameda	San Francisco	3	158,985	CCF	458,644	67	209,783
Hayward City of		Feb-17	Alameda	San Francisco	3	158,985	CCF	364,247	57	39,257
Hayward City of		Jan-17	Alameda	San Francisco	3	158,985	CCF	447,176	73	215,149

COVID-19 IMPACTS ON WATER USE

2. City of Hayward

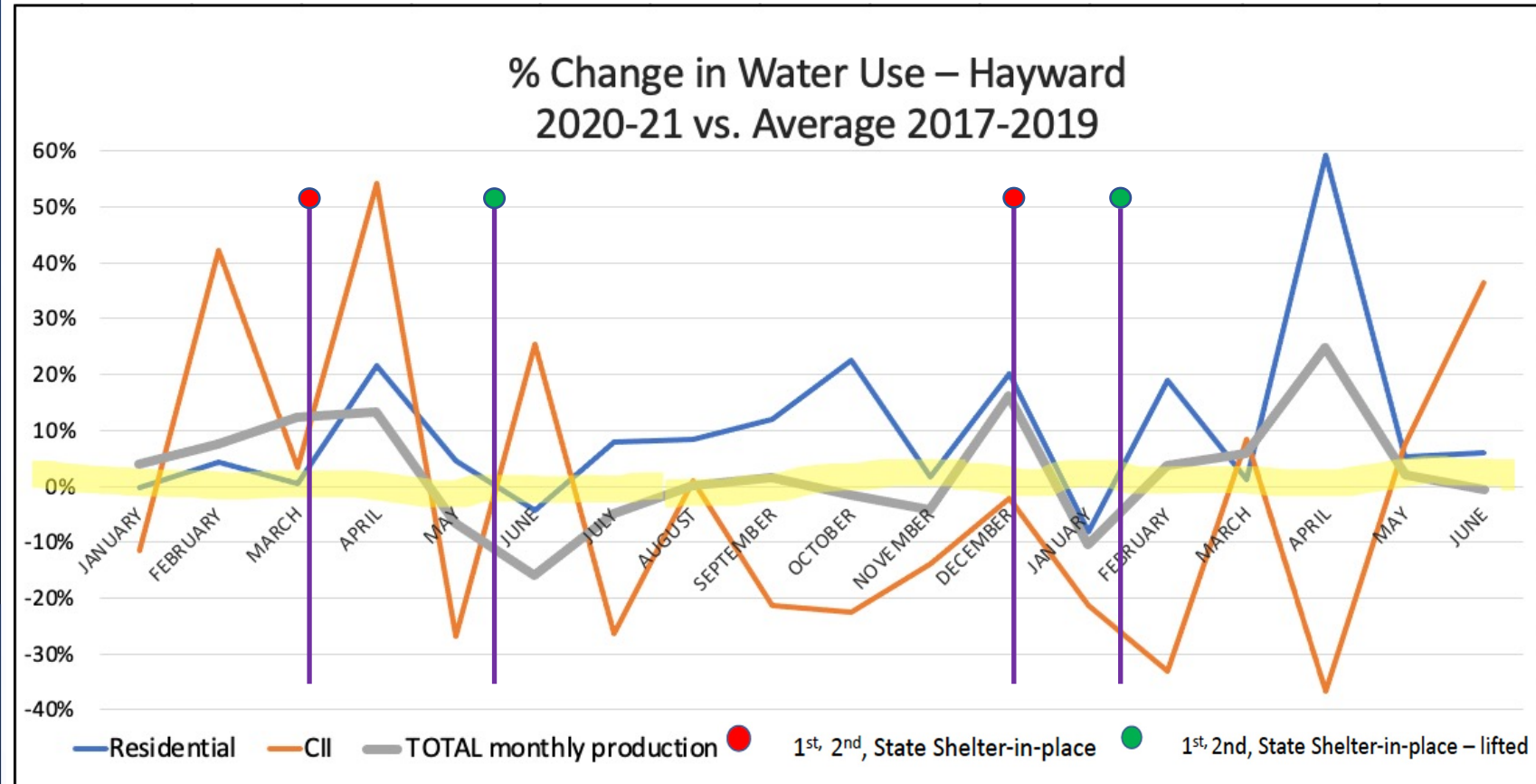
Monthly ranges, % change

Residential: -8% to +59%

CII: -37% to +54%

2020-21 vs. 2017-19, % change

Total production: +1.5%



COVID-19 IMPACTS ON WATER USE

3. Alameda County Water District

Climate zone: 3
Population: 356,823

Residential: 66%
CII: 21%

Supplier Name	Reporting Month	County	Hydrologic Region	Climate	Total Population Served	Water	REPORTED Total Potable	FINAL	REPORTED Commercial
Alameda County Water Dist	Jun-21	Alameda	San Francisco	3	356,823	MG	1,394	69	353
Alameda County Water Dist	May-21	Alameda	San Francisco	3	356,823	MG	1,338	71	329
Alameda County Water Dist	Apr-21	Alameda	San Francisco	3	356,823	MG	1,170	77	235
Alameda County Water Dist	Mar-21	Alameda	San Francisco	3	356,823	MG	1,006	78	202
Alameda County Water Dist	Feb-21	Alameda	San Francisco	3	356,823	MG	829	74	185
Alameda County Water Dist	Jan-21	Alameda	San Francisco	3	356,823	MG	911	75	264
Alameda County Water Dist	Dec-20	Alameda	San Francisco	3	357,000	MG	982	71	202
Alameda County Water Dist	Nov-20	Alameda	San Francisco	3	357,000	MG	1,094	68	445
Alameda County Water Dist	Oct-20	Alameda	San Francisco	3	357,000	MG	1,365	70	367
Alameda County Water Dist	Sep-20	Alameda	San Francisco	3	357,000	MG	1,394	70	444
Alameda County Water Dist	Aug-20	Alameda	San Francisco	3	357,000	MG	1,558	74	398
Alameda County Water Dist	Jul-20	Alameda	San Francisco	3	357,000	MG	1,546	73	380
Alameda County Water Dist	Jun-20	Alameda	San Francisco	3	357,000	MG	1,443	74	285
Alameda County Water Dist	May-20	Alameda	San Francisco	3	357,000	MG	1,185	74	244
Alameda County Water Dist	Apr-20	Alameda	San Francisco	3	357,000	MG	1,009	72	205
Alameda County Water Dist	Mar-20	Alameda	San Francisco	3	357,000	MG	1,023	71	250
Alameda County Water Dist	Feb-20	Alameda	San Francisco	3	357,000	MG	907	71	206
Alameda County Water Dist	Jan-20	Alameda	San Francisco	3	357,000	MG	1,144	71	260
Alameda County Water Dist	Dec-19	Alameda	San Francisco	3	357,000	MG	1,151	68	301
Alameda County Water Dist	Nov-19	Alameda	San Francisco	3	357,000	MG	1,129	67	386
Alameda County Water Dist	Oct-19	Alameda	San Francisco	3	357,000	MG	1,321	67	422
Alameda County Water Dist	Sep-19	Alameda	San Francisco	3	357,000	MG	1,370	67	435
Alameda County Water Dist	Aug-19	Alameda	San Francisco	3	357,000	MG	1,507	68	416
Alameda County Water Dist	Jul-19	Alameda	San Francisco	3	357,000	MG	1,651	69	374
Alameda County Water Dist	Jun-19	Alameda	San Francisco	3	357,000	MG	1,376	70	311
Alameda County Water Dist	May-19	Alameda	San Francisco	3	357,000	MG	1,176	73	252
Alameda County Water Dist	Apr-19	Alameda	San Francisco	3	357,000	MG	950	74	170
Alameda County Water Dist	Mar-19	Alameda	San Francisco	3	357,000	MG	824	72	193
Alameda County Water Dist	Feb-19	Alameda	San Francisco	3	356,000	MG	750	71	198
Alameda County Water Dist	Jan-19	Alameda	San Francisco	3	356,000	MG	848	70	229
Alameda County Water Dist	Dec-18	Alameda	San Francisco	3	356,000	MG	872	68	303
Alameda County Water Dist	Nov-18	Alameda	San Francisco	3	356,000	MG	1,090	67	372
Alameda County Water Dist	Oct-18	Alameda	San Francisco	3	356,000	MG	1,291	67	380
Alameda County Water Dist	Sep-18	Alameda	San Francisco	3	356,000	MG	1,368	66	465
Alameda County Water Dist	Aug-18	Alameda	San Francisco	3	356,000	MG	1,475	67	425
Alameda County Water Dist	Jul-18	Alameda	San Francisco	3	356,000	MG	1,495	68	422
Alameda County Water Dist	Jun-18	Alameda	San Francisco	3	356,000	MG	1,386	69	349
Alameda County Water Dist	May-18	Alameda	San Francisco	3	356,000	MG	1,244	71	257
Alameda County Water Dist	Apr-18	Alameda	San Francisco	3	356,000	MG	914	71	214
Alameda County Water Dist	Mar-18	Alameda	San Francisco	3	352,000	MG	860	72	218
Alameda County Water Dist	Feb-18	Alameda	San Francisco	3	352,000	MG	823	72	217
Alameda County Water Dist	Jan-18	Alameda	San Francisco	3	352,000	MG	856	71	246
Alameda County Water Dist	Dec-17	Alameda	San Francisco	3	351,000	MG	908	68	252
Alameda County Water Dist	Nov-17	Alameda	San Francisco	3	351,000	MG	957	67	365
Alameda County Water Dist	Oct-17	Alameda	San Francisco	3	351,000	MG	1,308	67	427
Alameda County Water Dist	Sep-17	Alameda	San Francisco	3	351,000	MG	1,353	67	445
Alameda County Water Dist	Aug-17	Alameda	San Francisco	3	351,000	MG	1,443	73	443
Alameda County Water Dist	Jul-17	Alameda	San Francisco	3	351,000	MG	1,460	74	398
Alameda County Water Dist	Jun-17	Alameda	San Francisco	3	349,000	MG	1,365	70	358
Alameda County Water Dist	May-17	Alameda	San Francisco	3	349,000	MG	1,262	72	225
Alameda County Water Dist	Apr-17	Alameda	San Francisco	3	349,000	MG	879	72	199
Alameda County Water Dist	Mar-17	Alameda	San Francisco	3	349,000	MG	837	73	199
Alameda County Water Dist	Feb-17	Alameda	San Francisco	3	349,000	MG	728	72	179
Alameda County Water Dist	Jan-17	Alameda	San Francisco	3	349,000	MG	818	71	208

COVID-19 IMPACTS ON WATER USE

3. Alameda County Water District

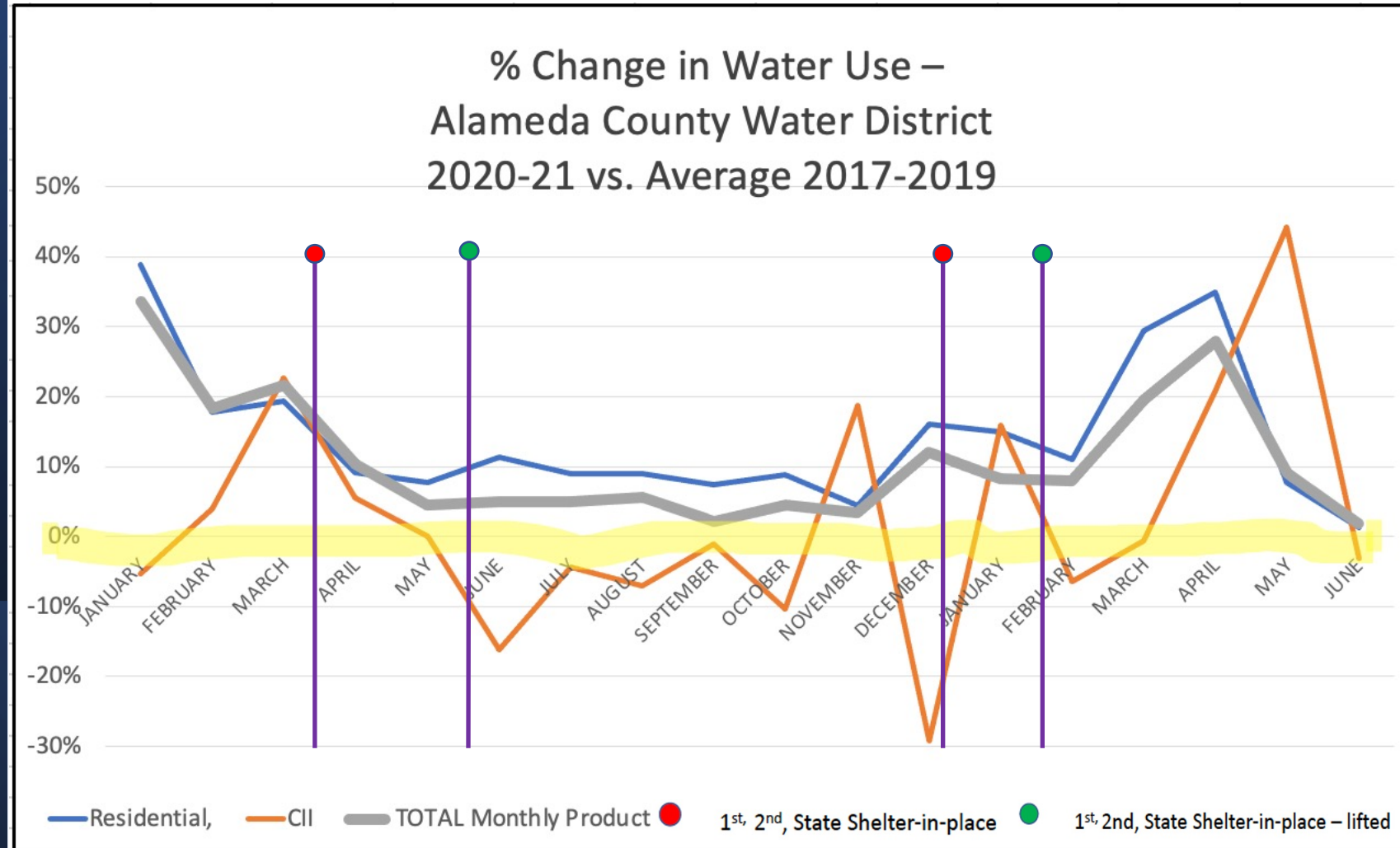
Monthly ranges, % change

Residential: +1% to +39%

CII: -29% to +44%

2020-21 vs. 2017-19, % change

Total production: +9.8%



COVID-19 IMPACTS ON WATER USE

4. City of Sunnyvale

Climate zone: 4
Population: 156,503

Residential: 62%
CII: 19%

Supplier Name	Reporting Month	County	Hydrologic Region	Climate Zone	Total Population	Water Use	REPORTED FINAL Total Potable Water	REPORTED FINAL Commercial
Sunnyvale City of	Jun-21	Santa Clara	San Francisco	4	153,827	AF	1,880	883
Sunnyvale City of	May-21	Santa Clara	San Francisco	4	153,827	AF	1,863	625
Sunnyvale City of	Apr-21	Santa Clara	San Francisco	4	156,503	AF	1,760	433
Sunnyvale City of	Mar-21	Santa Clara	San Francisco	4	156,503	AF	1,457	423
Sunnyvale City of	Feb-21	Santa Clara	San Francisco	4	156,503	AF	1,165	334
Sunnyvale City of	Jan-21	Santa Clara	San Francisco	4	156,503	AF	1,233	447
Sunnyvale City of	Dec-20	Santa Clara	San Francisco	4	156,503	AF	1,393	539
Sunnyvale City of	Nov-20	Santa Clara	San Francisco	4	156,503	AF	1,489	549
Sunnyvale City of	Oct-20	Santa Clara	San Francisco	4	156,503	AF	1,905	739
Sunnyvale City of	Sep-20	Santa Clara	San Francisco	4	156,503	AF	1,873	797
Sunnyvale City of	Aug-20	Santa Clara	San Francisco	4	156,503	AF	2,025	873
Sunnyvale City of	Jul-20	Santa Clara	San Francisco	4	156,503	AF	2,100	709
Sunnyvale City of	Jun-20	Santa Clara	San Francisco	4	156,503	AF	1,918	524
Sunnyvale City of	May-20	Santa Clara	San Francisco	4	156,503	AF	1,802	328
Sunnyvale City of	Apr-20	Santa Clara	San Francisco	4	156,503	AF	1,395	436
Sunnyvale City of	Mar-20	Santa Clara	San Francisco	4	155,567	AF	1,344	465
Sunnyvale City of	Feb-20	Santa Clara	San Francisco	4	155,567	AF	1,305	308
Sunnyvale City of	Jan-20	Santa Clara	San Francisco	4	155,567	AF	1,172	442
Sunnyvale City of	Dec-19	Santa Clara	San Francisco	4	155,567	AF	1,096	485
Sunnyvale City of	Nov-19	Santa Clara	San Francisco	4	155,567	AF	1,527	562
Sunnyvale City of	Oct-19	Santa Clara	San Francisco	4	155,567	AF	1,871	663
Sunnyvale City of	Sep-19	Santa Clara	San Francisco	4	155,567	AF	1,795	600
Sunnyvale City of	Aug-19	Santa Clara	San Francisco	4	155,567	AF	2,000	912
Sunnyvale City of	Jul-19	Santa Clara	San Francisco	4	155,567	AF	2,088	1,422
Sunnyvale City of	Jun-19	Santa Clara	San Francisco	4	155,567	AF	1,937	997
Sunnyvale City of	May-19	Santa Clara	San Francisco	4	155,567	AF	1,761	574
Sunnyvale City of	Apr-19	Santa Clara	San Francisco	4	155,567	AF	1,415	380
Sunnyvale City of	Mar-19	Santa Clara	San Francisco	4	153,389	AF	1,114	225
Sunnyvale City of	Feb-19	Santa Clara	San Francisco	4	153,389	AF	995	433
Sunnyvale City of	Jan-19	Santa Clara	San Francisco	4	153,389	AF	1,115	333
Sunnyvale City of	Dec-18	Santa Clara	San Francisco	4	153,389	AF	1,112	515
Sunnyvale City of	Nov-18	Santa Clara	San Francisco	4	153,389	AF	1,510	619
Sunnyvale City of	Oct-18	Santa Clara	San Francisco	4	153,389	AF	1,735	533
Sunnyvale City of	Sep-18	Santa Clara	San Francisco	4	153,389	AF	1,703	631
Sunnyvale City of	Aug-18	Santa Clara	San Francisco	4	153,389	AF	2,013	877
Sunnyvale City of	Jul-18	Santa Clara	San Francisco	4	153,389	AF	1,939	923
Sunnyvale City of	Jun-18	Santa Clara	San Francisco	4	153,389	AF	1,885	576
Sunnyvale City of	May-18	Santa Clara	San Francisco	4	153,389	AF	1,772	548
Sunnyvale City of	Apr-18	Santa Clara	San Francisco	4	149,831	AF	1,359	522
Sunnyvale City of	Mar-18	Santa Clara	San Francisco	4	149,831	AF	1,235	369
Sunnyvale City of	Feb-18	Santa Clara	San Francisco	4	149,831	AF	1,198	428
Sunnyvale City of	Jan-18	Santa Clara	San Francisco	4	149,831	AF	1,112	302
Sunnyvale City of	Dec-17	Santa Clara	San Francisco	4	149,831	AF	1,241	417
Sunnyvale City of	Nov-17	Santa Clara	San Francisco	4	149,831	AF	1,309	799
Sunnyvale City of	Oct-17	Santa Clara	San Francisco	4	149,831	AF	1,775	799
Sunnyvale City of	Sep-17	Santa Clara	San Francisco	4	149,831	AF	1,917	747
Sunnyvale City of	Aug-17	Santa Clara	San Francisco	4	149,831	AF	2,030	1,111
Sunnyvale City of	Jul-17	Santa Clara	San Francisco	4	149,831	AF	2,021	668
Sunnyvale City of	Jun-17	Santa Clara	San Francisco	4	149,831	AF	2,027	730
Sunnyvale City of	May-17	Santa Clara	San Francisco	4	149,831	AF	1,876	-
Sunnyvale City of	Apr-17	Santa Clara	San Francisco	4	148,372	AF	1,252	336
Sunnyvale City of	Mar-17	Santa Clara	San Francisco	4	148,370	AF	1,193	312
Sunnyvale City of	Feb-17	Santa Clara	San Francisco	4	147,055	AF	943	376
Sunnyvale City of	Jan-17	Santa Clara	San Francisco	4	148,372	AF	1,055	258

COVID-19 IMPACTS ON WATER USE

4. Sunnyvale

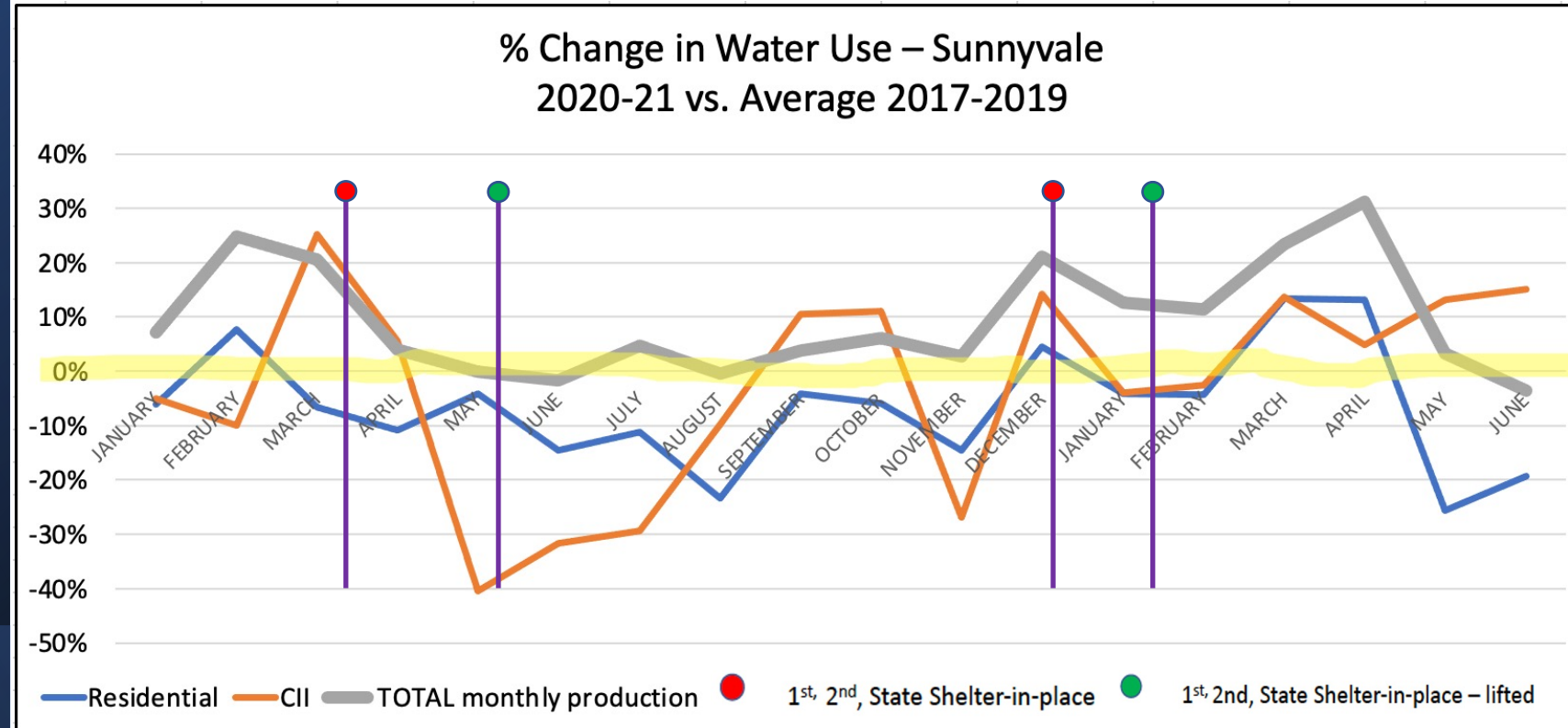
Monthly ranges, % change

Residential: -26% to +13%

CII: -40% to +25%

2020-21 vs. 2017-19, % change

Total production: +7.7%



COVID-19 IMPACTS ON WATER USE

5. Redwood City

Climate zone: 3
Population: 89,037

Residential: 62%
CII: 17%

Supplier Name	Reporting Month	County	Hydrologic Regio	Climate Zone	Total Population	Water Service	REPORTED FINAL To Potable Water	FINAL	REPORTED FINAL
Redwood City City of	Jun-21	San Mateo	San Francisco I	3	90,518	CCF	394,843	63	57,751
Redwood City City of	May-21	San Mateo	San Francisco I	3	90,518	CCF	390,117	63	53,251
Redwood City City of	Apr-21	San Mateo	San Francisco I	3	90,518	CCF	355,427	64	49,834
Redwood City City of	Mar-21	San Mateo	San Francisco I	3	90,518	CCF	331,595	74	39,324
Redwood City City of	Feb-21	San Mateo	San Francisco I	3	90,518	CCF	252,119	80	37,481
Redwood City City of	Jan-21	San Mateo	San Francisco I	3	90,518	CCF	250,588	79	42,545
Redwood City City of	Dec-20	San Mateo	San Francisco I	3	90,518	CCF	267,351	80	38,546
Redwood City City of	Nov-20	San Mateo	San Francisco I	3	90,518	CCF	278,032	73	49,729
Redwood City City of	Oct-20	San Mateo	San Francisco I	3	90,518	CCF	363,576	71	57,848
Redwood City City of	Sep-20	San Mateo	San Francisco I	3	90,518	CCF	391,214	72	58,938
Redwood City City of	Aug-20	San Mateo	San Francisco I	3	90,518	CCF	446,270	68	59,579
Redwood City City of	Jul-20	San Mateo	San Francisco I	3	90,518	CCF	420,422	65	57,282
Redwood City City of	Jun-20	San Mateo	San Francisco I	3	90,518	CCF	37,871	65	52,312
Redwood City City of	May-20	San Mateo	San Francisco I	3	90,518	CCF	45,588	67	41,740
Redwood City City of	Apr-20	San Mateo	San Francisco I	3	90,518	CCF	361,908	73	40,106
Redwood City City of	Mar-20	San Mateo	San Francisco I	3	90,518	CCF	278,469	77	53,564
Redwood City City of	Feb-20	San Mateo	San Francisco I	3	90,518	CCF	319,150	66	56,594
Redwood City City of	Jan-20	San Mateo	San Francisco I	3	90,518	CCF	233,611	62	66,052
Redwood City City of	Dec-19	San Mateo	San Francisco I	3	87,023	CCF	39,699	79	41,752
Redwood City City of	Nov-19	San Mateo	San Francisco I	3	87,023	CCF	205,454	66	41,173
Redwood City City of	Oct-19	San Mateo	San Francisco I	3	87,023	CCF	382,270	65	73,61
Redwood City City of	Sep-19	San Mateo	San Francisco I	3	87,023	CCF	397,241	72	80,011
Redwood City City of	Aug-19	San Mateo	San Francisco I	3	87,023	CCF	454,312	68	81,399
Redwood City City of	Jul-19	San Mateo	San Francisco I	3	87,023	CCF	446,100	61	68,085
Redwood City City of	Jun-19	San Mateo	San Francisco I	3	87,023	CCF	339,508	60	76,173
Redwood City City of	May-19	San Mateo	San Francisco I	3	87,023	CCF	376,050	61	60,084
Redwood City City of	Apr-19	San Mateo	San Francisco I	3	87,023	CCF	359,919	66	57,326
Redwood City City of	Mar-19	San Mateo	San Francisco I	3	87,023	CCF	274,867	73	52,539
Redwood City City of	Feb-19	San Mateo	San Francisco I	3	87,023	CCF	228,971	71	58,941
Redwood City City of	Jan-19	San Mateo	San Francisco I	3	87,023	CCF	249,691	76	50,504
Redwood City City of	Dec-18	San Mateo	San Francisco I	3	87,023	CCF	246,452	77	52,607
Redwood City City of	Nov-18	San Mateo	San Francisco I	3	87,023	CCF	274,052	67	71,979
Redwood City City of	Oct-18	San Mateo	San Francisco I	3	87,023	CCF	370,697	68	63,357
Redwood City City of	Sep-18	San Mateo	San Francisco I	3	87,023	CCF	346,665	64	73,540
Redwood City City of	Aug-18	San Mateo	San Francisco I	3	87,023	CCF	417,367	62	81,370
Redwood City City of	Jul-18	San Mateo	San Francisco I	3	87,023	CCF	436,738	61	72,199
Redwood City City of	Jun-18	San Mateo	San Francisco I	3	87,023	CCF	430,259	59	72,646
Redwood City City of	May-18	San Mateo	San Francisco I	3	87,023	CCF	385,996	60	66,279
Redwood City City of	Apr-18	San Mateo	San Francisco I	3	87,023	CCF	361,405	66	58,223
Redwood City City of	Mar-18	San Mateo	San Francisco I	3	87,023	CCF	266,928	70	58,866
Redwood City City of	Feb-18	San Mateo	San Francisco I	3	87,023	CCF	270,384	70	55,106
Redwood City City of	Jan-18	San Mateo	San Francisco I	3	87,023	CCF	252,125	73	60,160
Redwood City City of	Dec-17	San Mateo	San Francisco I	3	87,023	CCF	247,117	76	50,836
Redwood City City of	Nov-17	San Mateo	San Francisco I	3	87,023	CCF	297,102	71	63,966
Redwood City City of	Oct-17	San Mateo	San Francisco I	3	87,023	CCF	320,183	66	75,590
Redwood City City of	Sep-17	San Mateo	San Francisco I	3	87,023	CCF	406,679	64	78,481
Redwood City City of	Aug-17	San Mateo	San Francisco I	3	87,023	CCF	453,957	63	78,765
Redwood City City of	Jul-17	San Mateo	San Francisco I	3	87,696	CCF	435,470	63	67,421
Redwood City City of	Jun-17	San Mateo	San Francisco I	3	87,023	CCF	426,296	66	69,520
Redwood City City of	May-17	San Mateo	San Francisco I	3	87,023	CCF	401,756	65	71,397
Redwood City City of	Apr-17	San Mateo	San Francisco I	3	87,023	CCF	337,152	70	57,459
Redwood City City of	Mar-17	San Mateo	San Francisco I	3	87,023	CCF	250,086	73	52,285
Redwood City City of	Feb-17	San Mateo	San Francisco I	3	87,023	CCF	231,647	74	52,899
Redwood City City of	Jan-17	San Mateo	San Francisco I	3	87,023	CCF	259,081	72	65,335

COVID-19 IMPACTS ON WATER USE

5. Redwood City

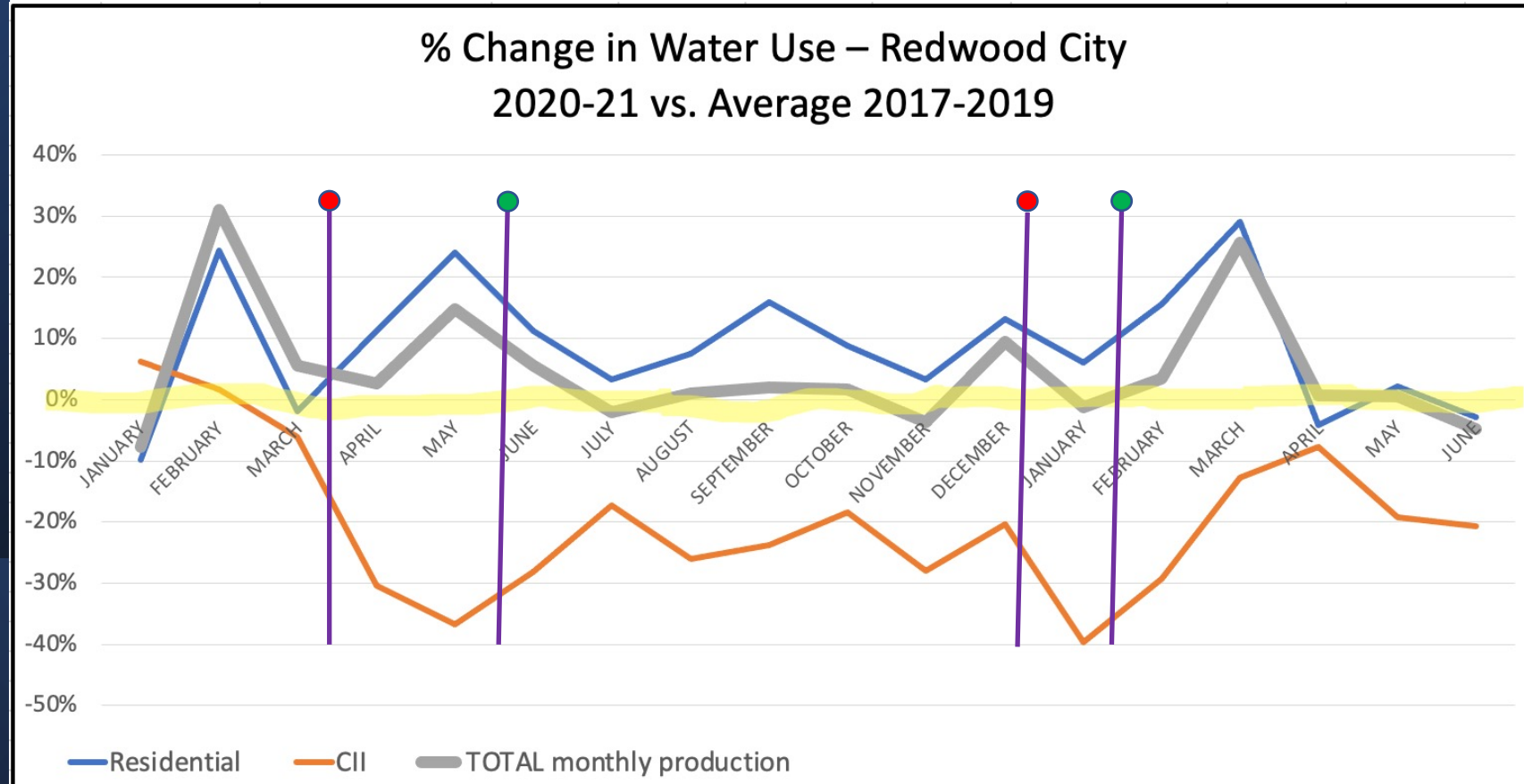
Monthly ranges, % change

Residential: -10% to +29%

CII: -40% to +6%

2020-21 vs. 2017-19, % change

Total production: +4.0%



COVID-19 IMPACTS ON WATER USE

Summary

1. COVID-19 provides a unique opportunity to learn about impacts on water use
2. Characteristics of the service area – water use sectors, climate, economy – impact water use
3. Examples use monthly production and sector data to illustrate impact of state mandates on water use

Similarities:

- All agencies reduced CII water use during shelter-in-place mandates.
- All agencies increased their total production between 2020-21 compared with 2017-19 baseline period
- Suppliers with higher Residential % sectors correlate with higher Production increase

Differences:

- Impacts on water use depend on Residential and CII sector % as part of total production.
- Changes are variable, likely due to effects of other local factors: climate, economy, possibly county health mandates.

4. Tracking % change in production and water sectors are tools to identify temporal changes and patterns in water use

COVID-19 IMPACTS ON WATER USE

WSI Conference
October 7, 2021

Marty Laporte

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Conclusion

Water use during the COVID-19 pandemic informs about strategies for managing water in extended emergencies for:

- Communication with customers
- Water quality, other operational impacts
- Demand/supply
- Budgets

Questions/Discussion