

APPENDIX K

WATER SUPPLY ASSESSMENT

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Water Supply Assessment for Northgate Town Square

Marin Municipal Water District

November 2022
EKI C20143.00

Water Supply Assessment

Northgate Town Square
Marin Municipal Water District

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1 INTRODUCTION

The Water Supply Assessment law (§10910-10915 of the California Water Code [CWC or Water Code]) requires urban water supplies to prepare a Water Supply Assessment (WSA) to the city or county that has jurisdiction to approve the environmental documentation for certain qualifying projects as defined in Water Code §10912(a). This WSA was prepared for the proposed Northgate Town Center development (Project). The proposed Project meets the definition of “project” as defined in Water Code §10912(a)(e) because it is a proposed mixed-use residential and commercial development including more than 500 residential units and approximately 225,100 square feet (sq ft) of commercial space (Merlone Geier Partners, 2022). Marin Municipal Water District (MMWD or District) will be the water service provider for the proposed Project.

The information provided in this WSA is consistent with Water Code §10910-10912 requirements and the California Department of Water Resources’ (DWR’s) *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001: To Assist Water Suppliers, Cities, and Counties in Integrating Water and Land Use Planning*, dated 8 October 2003.

The purpose of this WSA is to evaluate whether the District has sufficient water supply to meet the current and planned water demands within its service area, including the demands associated with the proposed Project, during normal and dry hydrologic years over a 20-year time horizon, as well as during an extreme drought scenario. More specifically, this WSA includes:

- A summary of the WSA requirements articulated in Water Code §10910-10912 and a description of how they apply to the proposed Project (Sections 2 and 3);
- A description and analysis of the current and projected future water demands of the proposed Project through the year 2045 (Section 4);
- A description and analysis of the historical and current water demands for the District, and projected future water demands for its service area through the year 2045 (Section 5);
- A description and analysis of the current and projected future water supplies for the District’s service area through the year 2045 (Section 6); and
- A comparison of the water supplies and demands for the District’s service area, including the projected water demands associated with the proposed Project (Section 7).

The information contained in this WSA is based primarily on the District’s 2020 Urban Water Management Plan (UWMP), except where updated with relevant water demand and supply reliability and other information provided by the District.

Based on currently available information and conservative estimates of projected demand, the District expects to be able to meet all future demands within its existing service area, inclusive of the proposed Project in normal, dry, and multiple dry hydrologic years. The shortfalls that are currently projected during an extreme drought scenario are not materially different from the shortfalls that would be experienced without the proposed Project and would be addressed

through planned implementation of the District’s Water Shortage Contingency Plan (WSCP). In addition, as described herein, the District is currently preparing a Strategic Water Supply Assessment that will identify ways in which its existing supply portfolio can be augmented to serve all users, including the proposed Project, in an extreme drought scenario.

2 GENERAL REQUIREMENTS FOR A WATER SUPPLY ASSESSMENT

The purpose of this section is to outline the types of projects that require the preparation of a WSA, who is responsible for preparation, and the necessary components of a WSA.

2.1 Applicability of California Water Code to the Project

CWC § 10910 (a)

Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

CWC § 10912

For the purposes of this part, the following terms have the following meanings:

(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

(b) If a public water system has fewer than 5,000 service connections, then "project" means any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of the public water system's existing service connections, or a mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by residential development that would represent an increase of 10 percent or more in the number of the public water system's existing service connections.

The proposed Project will consist of approximately 225,100 sq ft of commercial area, 1,422 residential units¹ (for a total of 1,593,815 sq ft in six residential buildings), six parking structures (one for each residential building, with a total of 1,009,415 sq ft), and 338,640 sq ft of irrigated landscaping. The commercial buildings will be a mix of retail and food services. Five of the residential buildings will be apartment-style and the remaining residential building will be made up of townhomes, with each residential building having its own parking garage (Merlone Geier

¹ Up to 1,422 residential units are assumed, even though the total number of units by full buildout is only 1,320 units. The higher number of units is assumed for purposes of CEQA analysis to address the possibility of future development of more units in the same residential square footage.

Partners, 2022). The proposed Project exceeds the threshold for a “project” requiring a WSA pursuant to Water Code §10910(a), 10912(a)(1), and 10912(a)(3).

2.2 Responsibility for Preparation of the Water Supply Assessment

CWC § 10910 (b)

The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined in Section 10912, that may supply water for the project. If the city or county is not able to identify any public water system that may supply water for the project, the city or county shall prepare the water assessment required by this part after consulting with any entity serving domestic water supplies whose service area includes the project site, the local agency formation commission, and any public water system adjacent to the project site.

The proposed Project is located within the District’s service area and the water for the proposed Project will be supplied by the District. Therefore, in accordance with Water Code §10910(b), the District is the entity responsible for preparation and adoption of a WSA for the proposed Project.

2.3 Purpose of a Water Supply Assessment

CWC § 10910 (c) (4)

If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

CWC § 10911

(b) The city or county shall include the water supply assessment provided pursuant to Section 10910, and any information provided pursuant to subdivision (a), in any environmental document prepared for the project pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(c) The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

Per Water Code §10910(c)(4), the primary purpose of a WSA is to evaluate whether sufficient water supply is available to meet all future demands within the water supplier’s service area, including those associated with the proposed Project, during normal and dry hydrologic years for a 20-year planning horizon.

3 PROJECT DESCRIPTION

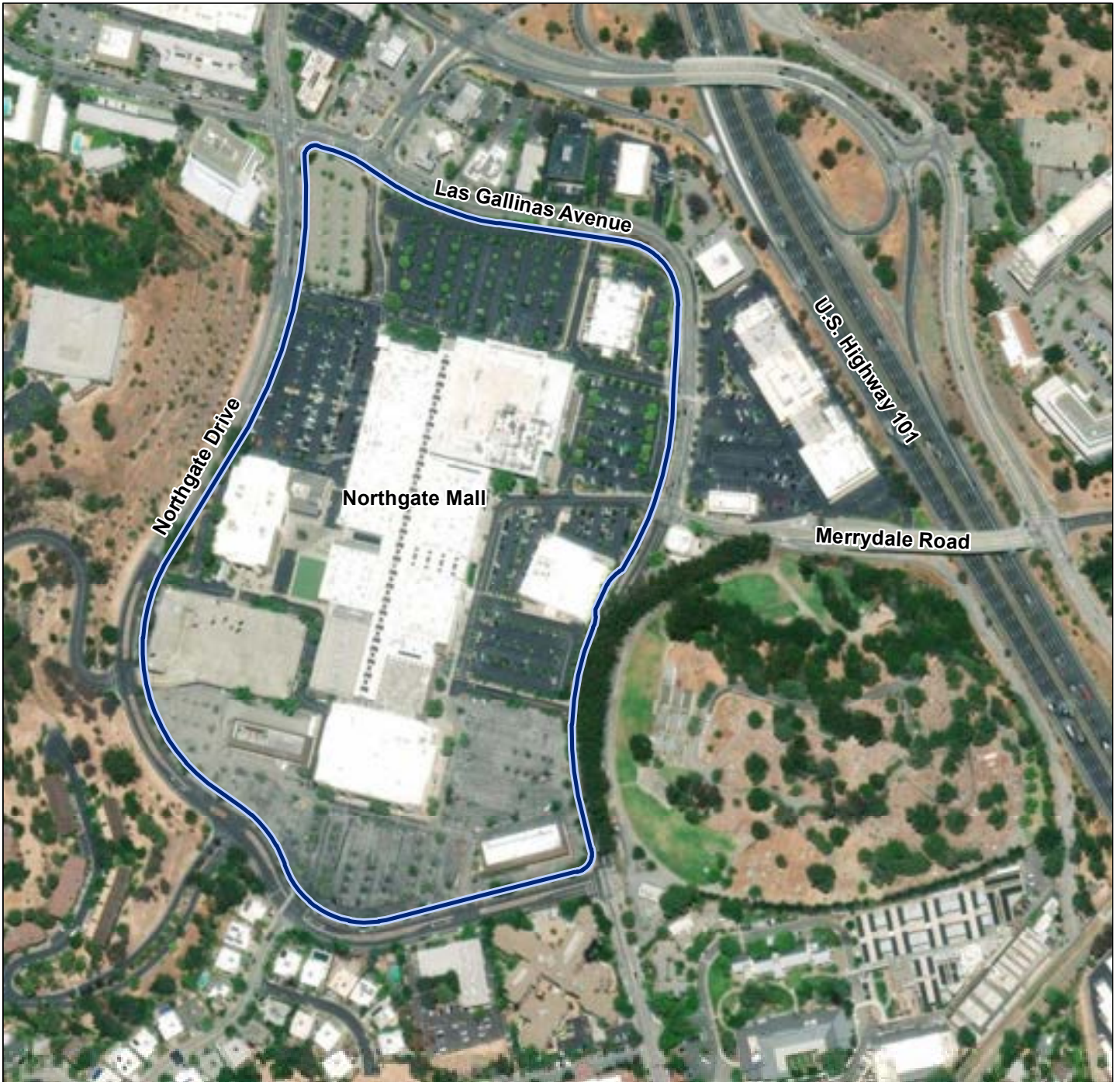
The proposed Project is located on assessor's parcel numbers (APN) 175-060-12, -40, -59, -61, 66, and -67, which are located west of U.S. Highway 101 and bordered by Northgate Drive and Las Gallinas Avenue (**Figure 1**). The approximately 44.8-acre proposed Project site is currently developed as the Northgate Mall, which is located within the San Rafael Town Center. The proposed Project will result in the redevelopment of the existing mall through demolition, renovation, and new construction.

The proposed Project will be developed in two phases, with full buildout expected to be completed in 2040. Phase 1, also referred to as the "2025 Master Plan", will include the construction of approximately 44,100 sq ft of new commercial space and 907 residential units, and is anticipated to finish in 2025. Phase 2, also known as the "2040 Vision Plan", will include the addition of 66,300 sq ft of new commercial space and 413 residential units. By full buildout, there will be approximately 225,100 sq ft of commercial space, 1,422 residential units² (for a total of 1,593,815 sq ft in six residential buildings), six parking structures (one for each residential building, with a total of 1,009,415 sq ft), and 338,640 sq ft of landscaped area (**Appendix A**; Merlone Geier Partners, 2022).


As shown on **Figure 1**, the proposed Project site is currently occupied by the Northgate Mall. Historical potable water use at the site ranged between 17 to 32 acre-feet per year (AFY) between 2017 and 2021, and historical recycled water use ranged between 9.7 and 17 AFY³ (MMWD, 2022). The proposed Project is located within the District's service area and potable and recycled water service will be provided by the District (**Figure 2**).

² Up to 1,422 residential units are assumed, even though the combined number of units from Phase 1 and Phase 2 is only 1,320 units. The higher number of units is assumed for purposes of CEQA analysis to address the possibility of future development of more units in the same residential square footage.

³ The recycled water plant was taken offline in 2019 and 2020 to allow for upgrades, and all recycled water demands were met by potable water during this time.



Legend

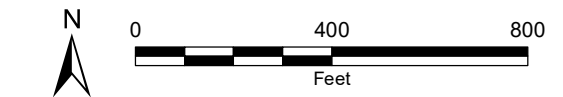
 Project Boundary

Notes

1. All locations are approximate.

Sources

1. Basemap provided by ESRI.

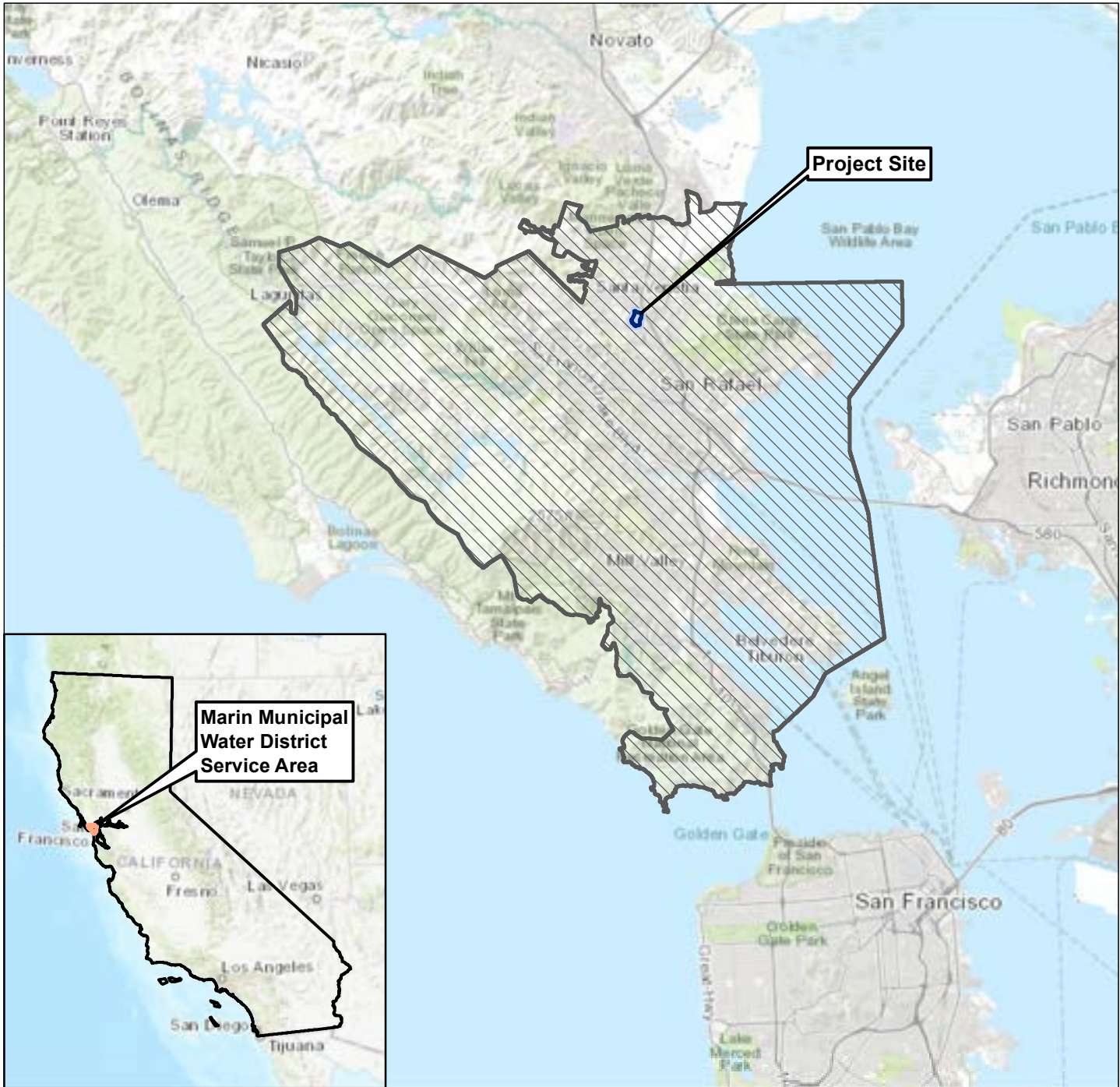


Project Location



Northgate Town Square
 San Rafael, CA
 November 2022
 EKI C20143.00



Figure 1



Legend

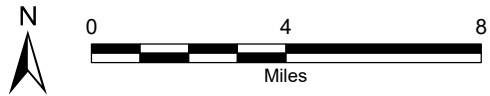
-  Project Boundary
-  Marin Municipal Water District Service Area

Notes

1. All locations are approximate.

Sources

- 1. Service area boundary provided by Marin Municipal Water District.
- 2. Basemap provided by ESRI.



Marin Municipal Water District Service Area and Project Location

Northgate Town Square
 San Rafael, CA
 November 2022
 EKI C20143.00



Figure 2

Path: X:\C20143.00\Maps\2022\11\Fig2_ServiceArea_final.mxd

4 PROJECT WATER DEMAND

The City of San Rafael has adopted green building standards and water efficient landscaping ordinances consistent with previous versions of the CalGreen building standards and the California Model Water Efficient Landscape Ordinance (MWELo) and all new developments must comply with these efficiency standards. As such, the proposed Project development is expected to include a number of water-efficient features, including, but not limited to:

- Use of low-flow lavatory faucets, kitchen faucets, toilets, and urinals in accordance with CalGreen Code; and
- Inclusion of low-water use landscaping and high-efficiency irrigation systems to minimize outdoor water use in accordance with MWELo.

As described below, average annual water demand for the proposed Project was estimated based on: (1) information provided by the Project Proponent in coordination with the District (Merlone Geier Partners, 2022); and (2) water demand factors identified in the District's 2020 UWMP, literature, and other public sources for similar land uses. Total water demands include water used by the proposed Project for residential uses, food services, gym uses, retail/commercial uses, landscaping, and parking structure cleaning.

Table 1 provides a summary of the land uses, unit water demand factors, and respective water demands associated with each land use, in five-year increments through 2045. Phase 1 of project buildout will finish in 2025, and Phase 2, which coincides with the full project buildout, will be achieved by 2040 (Merlone Geier Partners, 2022).

4.1 Residential Use

Phase 1 includes the construction of 907 residential units with 85 townhouse units⁴ classified as single-family residential (SFR) and 822 units classified as multi-family residential (MFR). Phase 2 will construct the remaining 413 units, all classified as MFR. At full buildout, there are projected be 1,320 units; however, 1,422 units are being assumed for CEQA analysis to address the possibility of future development of more units in the same residential square footage (Merlone Geier Partners, 2022).

According to the District's 2020 UWMP (MMWD, 2021), the average water use for SFR is 350 gallon per day dwelling unit (GPD/du) and the average water use for MFR is 152 (GPD/du). In accordance with CWC §13553, the residential units will be dual-plumbed, and recycled water will be used for domestic toilet flushing. Based on study data available from the District (Flume Data Labs, 2021), it is estimated that the average amount of water used by flushing of residential toilets is 26 GPD/du. Based on this amount of recycled water use, water demand factors of 324 GPD/du and 126 GPD/du (average water use minus water use associated with toilet flushing) are used to calculate the potable water demand for SFR and MFR units, respectively.

⁴ According to California Civil Code §1351, townhomes meet the definition of a condominium and thus under CWC §13553 recycled water may be used in townhomes units for urinal and toilet flushing.

By the end of Phase 1 in 2025, the potable water demand associated with the residential portion of the proposed Project is estimated to be 147 AFY and by full buildout in 2040 will be 220 AFY. The residential recycled water demand of the proposed Project will be 26 AFY by 2025 and 41 AFY by full buildout in 2040.

4.2 Amenities Use

The proposed Project would include approximately 42,206 sq ft of gym uses by Phase 1 and 71,010 sq ft of restaurant and food services by full buildout (Merlone Geier Partners, 2022). Water use factors for food services and gym uses are 0.075 GPD/sq ft and 0.21 GPD/sq ft, respectively. The water use factor for the food services is from the US Energy Information Administration Commercial Buildings Energy Consumption Survey (CBECS, 2012) while the gym water use factor is from the 2020 City of Ventura Water Demand Factor Study (City of Ventura, 2020). The resultant water demand associated with the amenities portion of the proposed Project is estimated to be 15 AFY in 2025 and 6.0 AFY by full buildout in 2040⁵.

4.3 Retail/Commercial Use

Based on information provided by the Project Proponent, retail/commercial development for the Project will include 397,725 sq ft in Phase 1 and 154,090 sq ft by full buildout⁶ (Merlone Geier Partners, 2022). The water use factor for the retail/commercial uses is 0.032 GPD/sq ft (CBECS, 2012), and the resultant total retail/commercial water use is expected to be 14 AFY by 2025 and 5.5 AFY by full buildout in 2040.

4.4 Garage Structure Use

The proposed Project includes six parking structures, one for each residential building, that totals approximately 1,009,415 sq ft (Merlone Geier Partners, 2022). Water use associated with this space is anticipated to be minimal, limited to cleaning of the facility. For purposes of this WSA, it is assumed that the garage will be cleaned 12 times per year and that 0.02 gallons per sq ft will be used per each cleaning event (City of Los Angeles Bureau of Engineering, 2012). As part of Phase 1 of the Project, 692,106 sq ft of parking structure will be built by 2025, and an estimated 0.51 AFY of potable water⁷ will be used for purposes of cleaning the structure. By the end of Phase 2 in 2040, an additional 317,309 sq ft of parking structures will be built and combined with the existing parking square footage from Phase 1, so an estimated 0.74 AFY will be used to clean the total 1,009,415 sq ft of parking structure.

⁵ The water demand decreases from 2025 to full buildout due to the lack of gym tenant in Phase 2. It is assumed that the square footage associated with the gym use in 2025 will be empty in 2040 as no tenant is projected to use the space as of writing of this WSA

⁶ The decrease in square footage from Phase 1 and full buildout is due to demolition of existing retail/commercial buildings and construction of new residential buildings and associated parking in its place.

⁷ Although there is a potential for recycled water to be used for cleaning, this analysis conservatively assumes that potable water will be used.

4.5 Landscaping Use

Per Merlone Geier Partners, the proposed Project will include 313,597 sq ft of landscaped area in Phase 1 and an additional 25,043 sq ft in Phase 2, resulting in a total of 338,640 sq ft of landscaped area by full buildout (**Appendix A**). As shown in **Table 2**, irrigated landscape water use was calculated based on the Maximum Applied Water Allowance (MAWA; DWR, 2015). The MWELo requires that the annual estimated total water use for landscape irrigation not exceed the MAWA (DWR, 2015). Water use for the proposed Project landscaping irrigation has been conservatively assumed to be equal to the MAWA, which is the upper limit of annual applied water for established landscaped areas.

For this Project, recycled water will be used to irrigate all landscaped areas on site (Merlone Geier Partners, 2022). According to the MWELo definitions, landscaped areas irrigated with recycled water are classified as “Special Landscaped Areas” for purposes of the MAWA calculations⁸. Based on this methodology, it is estimated that the total irrigated landscape recycled water use for the Proposed Project will be 21 AFY by 2025 and 23 AFY by 2040⁹.

The Proposed Project also includes several residential community pools and spas, and a water feature in the Town Square that can be considered “special landscaped areas” under the MWELo. The potable water use associated with these water features planned as part of the Proposed Project is estimated to be 0.19 AFY by 2025 and 0.37 AFY by 2040, as calculated in **Table 2**.

4.6 Distribution System Losses

Water distribution systems experience a degree of water loss over the course of transmission from the source to the customer. Although distribution system losses from the newly constructed portion of the system’s infrastructure associated with the proposed Project would initially be expected to be minimal, it is conservatively assumed that distribution system losses associated with delivering water for the proposed Project will ultimately be consistent with the proportion of non-revenue water loss per the 2021 validated water loss audit submitted to DWR for the District (i.e., 8.6%; DWR 2022). **Table 1** shows the distribution system losses for potable water for the proposed Project, estimated at a total of 17 AFY by the end of Phase 1, and 22 AFY by full buildout in 2040¹⁰.

⁸ Special landscaped areas may also include landscaping dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

⁹ MAWA demands were calculated by multiplying the Reference Evapotranspiration rate of 35.8 inches per year for San Rafael, an Evapotranspiration Adjustment Factor of 1 for special landscaped areas, a conversion factor of 0.62, and the total project square footage, for a total of 21 AFY and 23 AFY for Phase 1 and Phase 2 buildout, respectively.

¹⁰ The total Project water demand without water loss (177 AFY in 2025 and 232 AFY in 2045) and the 2021 DWR Water Audit Report non-revenue water percent loss (8.6%) were used to back-calculate the total water demand inclusive of distribution system losses (194 AFY in 2025 and 254 AFY in 2045). These values were then multiplied by 8.6% to get the distribution system water loss. Because the 2021 water loss data is the most recent available data, it was considered to be representative of future conditions.

4.7 Existing Current Water Demand on the Proposed Project Site

The proposed Project site currently consists of the retail and commercial uses located within the San Rafael Town Center (Merlone Geier Partners, 2022). Historical potable water use for the current land use at the proposed Project site over the last five years (i.e., 2017 through 2021) ranged between 17 and 32 AFY and averaged 26 AFY. Historical recycled water use over the last five years at the proposed Project site ranged between 9.7 AFY and 17 AFY³ averaging 13 AFY (MMWD, 2022). Water demand by the new development is considered incremental to this existing demand, and thus, as shown in **Table 1**, the average of the last five years of existing site demand is subtracted from the estimated demands associated with the proposed Project.

4.8 Total Project Water Demand

Based on the above methodologies and assumptions, and adjusting for the existing water use at the site, the incremental increase in potable and recycled water demands associated with the proposed Project at full buildout and occupancy is estimated to be 228 AFY and 51 AFY, respectively, as shown in **Table 1**.

³ The recycled water plant was taken offline in 2019 and 2020 to allow for upgrades, and all recycled water demands were met by potable water during this time.

Table 1
Summary of Estimated Incremental Annual Project Water Demand
Northgate Town Square, San Rafael, California

Water Use	Area (sq ft) (a)		Demand Factor (c)	Demand Factor Units	Total Water Demand (AFY)				
	Phase 1	Phase 2/ Full buildout (b)			2025	2030	2035	2040	2045
Potable Water									
Single-Family Residential	85 units	85 units	324	gpd/du	31	31	31	31	31
Multi-Family Residential	822 units	1,337 units	126	gpd/du	116	116	116	189	189
Food Services	58,730	71,010	0.075	gpd/sq ft	5.0	5.0	5.0	6.0	6.0
Gym	42,206	0	0.21	gpd/sq ft	10	10	10	0.0	0.0
Retail/Commercial (d)	397,725	154,090	0.032	gpd/sq ft	14	14	14	5.5	5.5
Parking Garage (e)	692,106	1,009,415	0.020	gal/sq ft/cleaning	0.51	0.51	0.51	0.74	0.74
Community pools, spas, water feature	--	--	--	--	0.19	0.19	0.19	0.37	0.37
Distribution System Losses (f)	--	--	--	--	17	17	17	22	22
Existing Site Demand (g)	--	--	--	--	-26	-26	-26	-26	-26
Net Annual Potable Water Demand (k)					167	167	167	228	228
Recycled Water									
Both SFR and MFR (h)	907 units	1422 units (i)	26	gpd/du	26	26	26	41	41
Irrigation (j)	313,597	338,640	--	--	21	21	21	23	23
Existing Site Demand (g)	--	--	--	--	-13	-13	-13	-13	-13
Net Annual Recycled Water Demand (k)					34	34	34	51	51

Abbreviations:

- | | |
|--|---|
| "AFY" = acre-feet per year | "MFR" = multi-family residential |
| "CEQA" = California Environmental Quality Act | "MMWD" = Marin Municipal Water District |
| "CWC" = California Water Code | "MWELO" = Model Water Efficient Landscape Ordinance |
| "du" = dwelling unit | "SFR" = single-family residential |
| "DWR" = California Department of Water Resources | "sq ft" = square feet |
| "gal" = gallon | "WSA" = Water Supply Assessment |
| "gpd/sq ft" = gallons per day per square foot | |

Notes:

- Land use square footage per Reference 1.
- Phase 1 of the buildout is expected to finish in 2025, Phase 2 will lead the project to full buildout and is expected to finish in 2040.
- Demand factors for residential uses per Table 4-5 in Reference 2 and Reference 9, food services and retail/commercial per Reference 3, and gym uses per Reference 4.
- The square footage decreases from Phase 1 to Phase 2 due to demolition and renovations of some existing buildings.
- Water use associated with this space is anticipated to be minimal, limited to cleaning of the facility. For purposes of this WSA, it is assumed that the garage will be cleaned twelve times per year and that 0.02 gal/sf will be used per each cleaning event, per Reference 5.
- Estimated distribution system water loss is calculated using the 2021 DWR Water Audit Report non-revenue water loss as a percent of volume of water supplied (i.e., 8.6% of project demands), per Reference 6 and includes both real and apparent losses.
- Existing site demands averaged over the years 2017-2021 per Reference 7. Existing demands are subtracted from total projected water demands to show the incremental increase in demands associated with the Project (i.e., the net increase in water demand).
- In accordance with CWC §13553, recycled water will be used for domestic toilet flushing.
- Up to 1,422 residential units are assumed, even though the combined number of units from Phase 1 and Phase 2 is 1,320 units. The higher number of units is assumed for CEQA analysis to address the possibility of future development of more units in the same residential square footage. The extra 102 units are assumed to be constructed in Phase 2.
- Irrigation demands are calculated using the Maximum Allowable Water Allowance, per Reference 8.
- Total may not sum due to rounding.

References:

- Merlone Geier Partners, 2022. Information provided by Merlone Geier Partners, received on 7 September 2022.
- Appendix C, 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.
- US Energy Information Administration 2012 Commercial Buildings Energy Consumption Survey: Water Consumption in Large Buildings Summary.
- City of Ventura, 2020. Final Water Demand Factor Study, City of Ventura, prepared by Wood Rodgers, dated 8 April 2020.
- City of Los Angeles Bureau of Engineering, 2012. City of Los Angeles Bureau of Engineering, City of Los Angeles Bureau of Sanitation, Sewer Generation Rates Table, dated 6 April 2012.
- MMWD 2021 Water Audit Data Report, accessed via the WUedata - Water Audit Report Data website on 1 November 2022, (https://wuedata.water.ca.gov/awwa_plans).
- MMWD, 2022a. Information provided by MMWD, received on 1 September 2022.
- California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.
- Flume Data Labs, 2021. Marin Municipal Water District Residential Water Use Study Q1 2022 Dashboard, accessed via online on 18 October 2022, (<https://public.tableau.com/app/profile/flumewater/viz/MarinQ12022Dashboard/Q122>).

Table 2
Estimated Landscaping Water Use
 Northgate Town Square, San Rafael, California

Landscaping Land Use	[A] Area of Land use (ac) (a)			[B] Annual Reference Evapotranspiration Rate (in) (b)	[C] Evapotranspiration Adjustment Factor (ETAF) (c)	[D] Maximum Applied Water Allowance (MAWA) (AF) D = A * B * C (d)			Estimated Water Use (AFY)				
	Phase 1	Phase 2	Full buildout			Phase 1	Phase 2	Full buildout	2025	2030	2035	2040	2045
	Potable Water Use												
Community Pools, Spas, and Water Feature	0.063	0.063	0.13	35.8	1	0.19	0.19	0.37	0.19	0.19	0.19	0.37	0.37
Recycled Water Use													
Special Landscaped Area	7.2	0.57	7.8	35.8	1	21	1.7	23	21	21	21	23	23

Abbreviations:

- | | |
|---|--|
| "ac" = acre | "in" = inches |
| "AF" = acre-feet | "MAWA" = Maximum Applied Water Allowance |
| "AFY" = acre-feet per year | "PF" = Plant factor |
| "District" = Marin Municipal Water District | "IE" = Irrigation efficiency |
| "ETAF" = Evapotranspiration Adjustment Factor | |

Notes:

- (a) Total landscaped, pool, spa, and water feature land use area for the Project per Reference 1.
- (b) Annual reference evapotranspiration rate for San Rafael region per Reference 2.
- (c) The ETAF for is 1 for Special Landscaped Areas. The ETAF for communal pools, spas, and water feature is calculated based on a PF of 1 and IE of 1 as all recreational pools and spas in the District shall have covers to reduce evaporation per Reference 4.
- (d) The MAWA calculations are described in Reference 3.

References:

1. Merlone Geier Partners, 2022. Information provided by Merlone Geier Partners, received on 7 September 2022.
2. California Department of Water Resources, 2012. California Irrigation Management Information System Reference Evapotranspiration Zones, January 2012.
3. California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, 29 September 2020.
4. Marin Municipal Water District's Water Rules, accessed via online on 1 November 2022, (<https://www.marinwater.org/waterrules>).

5 MARIN MUNICIPAL WATER DISTRICT WATER DEMAND

CWC § 10910 (c)

(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).

(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f), and (g).

(3) If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

Consistent with the UWMP Act (Water Code §10610-10656), the 2020 UWMP for the District presents estimates of projected future water demand for the District's service area in five-year increments, between the years 2020 and 2045 (MMWD, 2021).

5.1 Review of Project's Inclusion in 2020 UWMP Growth Projections

While the 2020 UWMP water demand projections account for growth within the District, the proposed Project is not explicitly included in these projections, and the projected demand for water use associated with the proposed Project is higher than the projected demand growth anticipated by the 2020 UWMP. Therefore, for the purposes of this WSA, it is conservatively assumed that no portion of the water demand associated with the proposed Project is included in the projected District water demands.

As of March 2021, the Regional Housing Needs Allocation (RHNA) has been updated. At the time of writing this WSA, the current General Plan does not include these updated projections, and therefore the demands for the District are based off the 2020 UWMP.

5.2 Current and Historical Water Demand Within the District's Service Area

Historical water demand within the District's service area from calendar years 2015 through 2021 is summarized in **Table 3**. Total District water demand has decreased by approximately 16% between 2015 and 2021 and averaged 35,830 AFY over the past five years, i.e., from 2017 through 2021. Water use declined from 2015 to 2016, likely influenced by drought conditions, mandatory state-wide restrictions in urban water use imposed by the State Water Resources Control Board (SWRCB), and local drought response. Total water use has remained lower than pre-drought conditions, with an increase beginning in 2017, indicating a degree of rebound following the drought. The potable water demand is lower in 2021 compared to other years due

to historic drought conditions and restrictions implemented in that year (MMWD, 2022). As seen in **Table 3**, and as further discussed in Section 6.1.4, there was no recycled water demand in 2019 and 2020 due to the Las Gallinas Valley Sanitary District (LGVSD) recycled water plant being taken offline for upgrades. All demands by the recycled water system during this period were met by potable water, and with the plant upgrades completed in April 2021, potable water is not anticipated to be needed to supplement the recycled water system going forward.

The largest proportion of water demand within the District service area is from the SFR sector, which represented 39% of the demand in the 2017-2021 period. The remainder of the demand is split between environmental releases from the Kent Lake and Soulajule Reservoir (29% of overall demand), MFR sector (8.7% of overall demand), losses (7.2% of the overall demand), commercial (7.0% of overall demand), industrial/governmental (3.8% of overall demand), dedicated landscape (3.7% of overall demand), other potable (1.0% of overall demand), and non-potable demand (0.6% of overall demand) (MMWD, 2021).

5.3 The District's Water Demand Projections

Projected water demands for the District are presented in **Table 4** in five-year increments and are based on the District's 2020 UWMP (MMWD, 2021). Taking into account historical water use, expected population increase and other growth, climatic variability, and other assumptions, the potable and raw water demand¹¹ within the District is projected to increase to 37,458 AFY by 2045 and the recycled water demand to increase to 750 AFY according to the District's 2020 UWMP. The 2045 projected potable and raw water demand is a 5.5% increase over the 2017-2021 average, and the 2045 recycled water demand is a 37% increase over the 2017-2021 average¹².

5.4 Total Projected District Water Demand (Inclusive of Proposed Project)

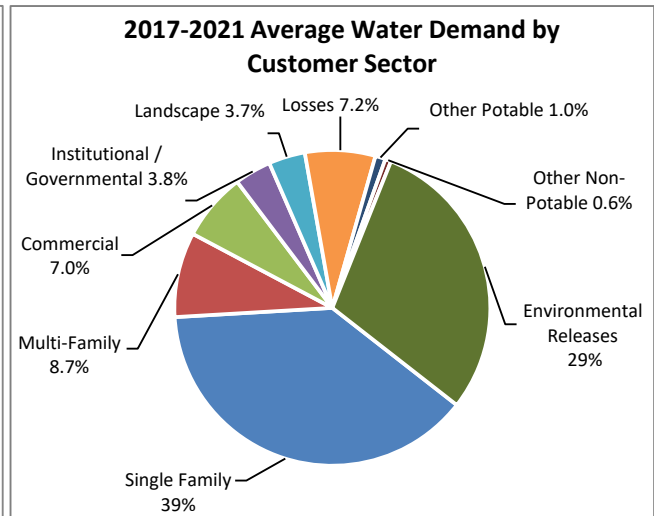
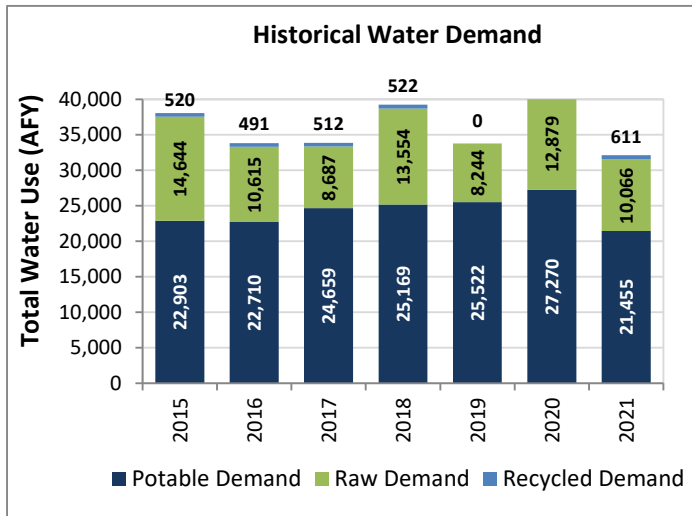
Table 4 also shows the projected water demands for the District inclusive of the estimated proposed Project water demands. By 2045, the total potable and raw demands inclusive of the proposed Project demand will be 37,686 AFY and the recycled water demand will be 801 AFY.

¹¹ Potable and raw water demands are grouped together because the local surface water supply data in the District's 2020 UWMP is a source for both potable and raw water demands. As described in the District's 2020 UWMP, raw water is used for environmental releases from Kent Lake and Soulajule Reservoir and is sold to the Meadow Club for irrigation purposes.

¹² The years 2019 and 2020 were excluded from the 2017-2021 average calculation since there were no recycled water demands in those years as described in more detail in Section 6.1.4.

Table 3
Historical Water Demand for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Category	District Annual Water Demand (AFY)						
	2015	2016	2017	2018	2019 (d)	2020	2021 (e)
Potable Water Demand (a)	22,903	22,710	24,659	25,169	25,522	27,270	21,455
Raw Water Demand (b)	14,644	10,615	8,687	13,554	8,244	12,879	10,066
Recycled Water Demand (c)	520	491	512	522	0	0	611
Total Water Demand	38,067	33,816	33,858	39,245	33,766	40,149	32,132



Abbreviations:

- "AFY" = acre-feet per year
- "District" = Marin Municipal Water District
- "MMWD" = Marin Municipal Water District

Notes:

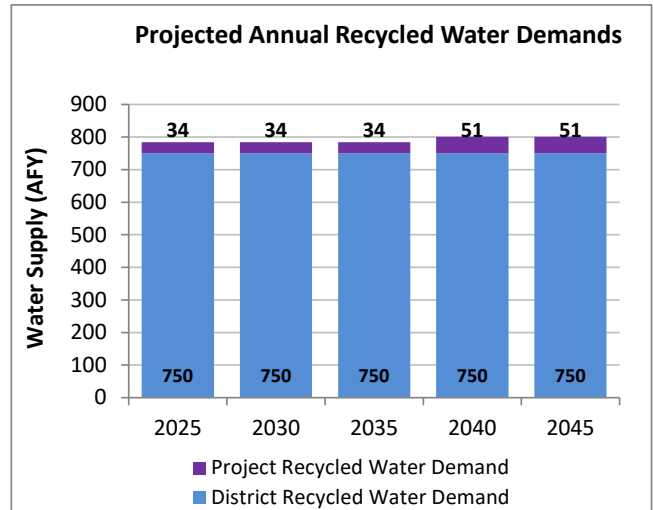
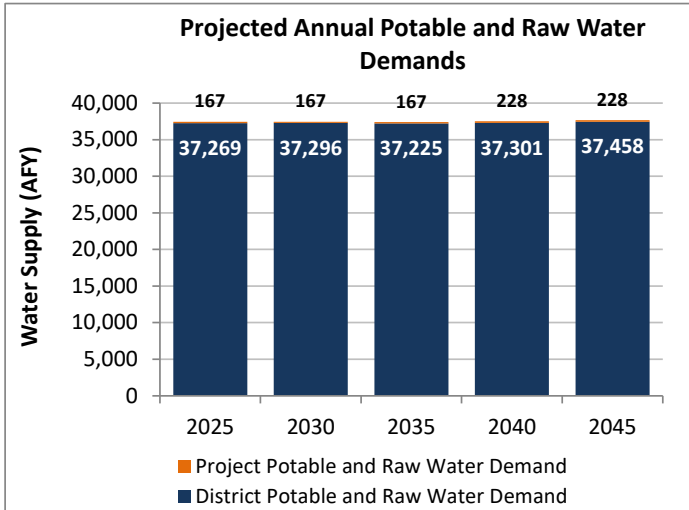
- (a) Historical potable water demands from 2015 per Reference 1, 2016-2020 per Table 4-1 in Reference 2, and 2021 historical demands per Reference 5.
- (b) Raw water demands include water sold to the Meadow Club and environmental releases from the Kent Lake and Souljule Reservoir. Historical 2015-2020 demands per Reference 4 and 2021 demands per Reference 6.
- (c) Historical recycled water demands for 2015-2020 per Reference 3 and 2021 per Reference 5.
- (d) The recycled water plant was taken offline in 2019 and 2020 to allow for upgrades, and all recycled water demands were met by potable water during this time.
- (e) Due to drought restrictions implemented in 2021, the potable water demand is lower compared to previous years.

References:

1. Appendix C, 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.
2. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.
3. MMWD, 2020. Information provided by MMWD, received on 23 September 2020.
4. MMWD, 2021b. Information provided by MMWD, received on 23 February 2021.
5. MMWD, 2022a. Information provided by MMWD, received on 1 September 2022.
6. MMWD, 2022c. Information provided by MMWD, received on 29 September 2022.

Table 4
Projected Normal Year Water Demand for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Water Demand	Projected Annual Water Demand (AFY)				
	2025	2030	2035	2040	2045
Potable and Raw Water					
District Demand (a)	37,269	37,296	37,225	37,301	37,458
Proposed Project Demand	167	167	167	228	228
Total Potable and Raw Demand Inclusive of Proposed Project	37,436	37,463	37,392	37,529	37,686
Recycled Water					
District Demand (b)	750	750	750	750	750
Proposed Project Demand	34	34	34	51	51
Total Recycled Demand Inclusive of Proposed Project	784	784	784	801	801



Abbreviations:

- "AFY" = acre-feet per year
- "District" = Marin Municipal Water District
- "MMWD" = Marin Municipal Water District
- "Proposed Project" = Northgate Town Square

Notes:

- (a) Projected potable and raw water demand for the District per Table 4-4 in Reference 1.
- (b) Projected recycled water demand for the District per Table 6-5 in Reference 1.

References:

1. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.

6 MARIN MUNICIPAL WATER DISTRICT'S WATER SUPPLY

This section identifies the District's water supply and discusses the vulnerability of the District's supply to drought and other factors affecting water supply reliability.

6.1 Identification of Water Supply Rights

CWC § 10910 (d)(1)

The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights, or water service contracts.

Pursuant to Water Code §10910(d)(1), a WSA is required to include identification of all water supply entitlements, water rights, and water service contracts relevant to the identified water supply for the proposed Project. In accordance with these requirements, this WSA includes a summary of the District's supply sources and the agreements between the District and its supplemental surface water supplier, the Sonoma County Water Agency (SCWA), and other water contractors.

6.1.1 Local Surface Water Supply

The District's primary water supply is local surface water. Until 1976, all of the District's water supply was obtained solely from rainfall collected from a watershed of approximately 28 square miles of District owned lands, and 36 square miles not owned by the District. Six reservoirs in the watershed had a storage capacity of 53,100 acre-feet (AF). Through a bond issue authorized during the drought of the 1970s, a seventh reservoir was completed in 1980, the Soulajule Reservoir, which added 10,400 AF to the total storage. The District's Kent Lake facility was expanded in 1982 by raising Peters Dam 45 feet, increasing the storage capacity from 16,600 AF to 32,500 AF. Presently, the total reservoir storage operated by the District is 79,566 AF (Permits 05633, 09390, 18546, 12800, and 16892).

On average, the District has an average annual runoff of 83,000 AF (10-year average). The range of annual runoff received into the reservoirs ranges widely from a low of 4,000 AF in 1977 to over 212,000 AF in 2017. From the reservoirs, the water is conveyed to either the Bon Tempe Treatment Plant (BTTP) near Ross or the San Geronimo Treatment Plant (SGTP) in Woodacre.

The District made an agreement with the California Department of Fish and Game in 1976, with an amendment in 1985, to release a volume of water from Soulajule Reservoir that maintains a constant streamflow in Walker Creek of 20 cfs during the winter and spring months. The amount of water released is decreased in the summer and fall months and when the reservoir level is low.

The District also releases water from Kent Lake in accordance with the 1995 SWRCB Order 95-17 to maintain the streamflow in Lagunitas Creek of 20 to 25 cfs during winter months in wet years, with decreased flows during the summer and during dry years. Increased upstream migration flows are released from Kent Lake for four three-day periods between November and February to provide for the upstream migration of anadromous fish.

6.1.2 Sonoma County Water Agency

6.1.2.1 SCWA Supply Sources and Allocation

As shown in **Table 5**, there are three main sources of water for the District, with one of them being purchased water from SCWA's Russian River Project. The Russian River flows are augmented by Pacific Gas and Electric's (PG&E's) Potter Valley Project, which diverts a portion of the Eel River flows to the East Fork of the Russian River. Water is diverted and extracted from the Russian River and percolates through sand and gravel and only needs the addition of chlorine to meet drinking water standards. Although the extracted water percolates through the ground, due to the connection to the surface water source, this diversion is considered and is permitted as a surface water supply under existing water rights to the Russian River and Dry Creek water. This water enters the District's system at the Ignacio Water Quality and Pumping Station, where water quality is monitored continuously and adjusted as needed.

The current contract between the District and SCWA is based on two documents: the 1975 Off-Peak Water Supply Agreement (Off-Peak Agreement) and its amendments, and the 1991 Agreement for the Sale of Water. In 1996, these two contracts were combined into a single new agreement called the Supplemental Water Supply Agreement (Agreement).

The Agreement states that the District can take deliveries of up to 14,300 AFY from SCWA. All of these deliveries are classified as "firm" water, meaning that the District's water deliveries would be as reliable as that provided to SCWA's other contractors. In addition to the annual delivery limit, the Agreement also places seasonal limitations on water delivery rates to the District, with deliveries limited to 23.1 million gallons per day (MGD) from December to March, 12.8 MGD from May to September, 20.1 MGD in April and November, and 17.1 MGD in October.

The Agreement expired on 30 June 2014, but a Temporary Extension extended the Off-Peak Agreement and Water Sale Agreement until 30 June 2015. A formal Agreement renewal was subsequently approved and became effective on 1 July 2015.

In 2021, the Kastania Pump Station was transferred from Sonoma Water to the District, with operational control of the Kastania Pump Station remaining with North Marin Water District (NMWD). To reflect the ownership changes, an Amended and Restated Interconnection Agreement was prepared and approved. This Amended and Restated Interconnection Agreement, dated January 2022, also extended the term of the agreement through 30 June 2040.

In addition to contractual delivery limits, Russian River water deliveries to the District are subject to available pipeline capacity in facilities owned by SCWA and North Marin Water District

(NMWD). The Amended and Restated Interconnection Agreement describes the District's rights to use the excess capacity in NMWD's facilities. The Amended and Restated Interconnection Agreement runs contiguous with the SCWA Restructured Agreement for Water Supply, which will expire on 30 June 2040 and has renewal options.

6.1.2.2 SCWA Surface Water Rights

Currently, four water rights permits (Permits 12947A, 12949, 12950, and 16596) issued by the SWRCB authorize SCWA to store up to 122,500 AFY of water in Lake Mendocino and up to 245,000 AFY of water in Lake Sonoma, and to divert or redivert up to 180 cubic feet per second (cfs) of water from the Russian River with a limit of 75,000 AFY (SCWA, 2021). The permits also establish minimum instream flow requirements for fish and wildlife protection and recreation. These minimum instream flow requirements vary based on the hydrologic classifications of normal, dry, and critical water supply conditions as defined by SCWA's water rights permits and SWRCB decision 1610, adopted in 1986.

SCWA meets the various instream flow requirements by making releases from Coyote Valley Dam and Warm Springs Dam (SCWA, 2021). The Russian River Biological Opinion requires modification of minimum instream flow requirements on the Russian River and Dry Creek to maintain the Incidental Take Statement provided by the Biological Opinion. SCWA's evaluation of future Russian River supply availability is based upon the assumption that that proposed changes to the minimum instream flow requirements under Decision 1610 set forth in the Biological Opinion are implemented.

6.1.2.3 SCWA Groundwater Supply

SCWA pumps a portion of its supply from the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (DWR Basin 1-55.01). Groundwater is used primarily as a drought period supply, or when Russian River supplies are otherwise constrained (SCWA, 2021). In 2020, no groundwater was pumped to make up SCWA's supplies; through 2045, groundwater is projected to make up 3% or less of SCWA's supplies in normal year conditions (SCWA, 2021). It cannot be discerned what specific amount of SCWA supply provided to the District consists of groundwater; however, it is assumed to be proportionate to the overall percentage of groundwater used within SCWA's system.

6.1.3 Groundwater Supply

CWC § 10910 (f)

If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment:

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2)(A) A description of any groundwater basin or basins from which the proposed project will be supplied.

(B) For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree.

(C) For a basin that has not been adjudicated that is a basin designated as high- or medium-priority pursuant to Section 10722.4, information regarding the following:

(i) Whether the department has identified the basin as being subject to critical conditions of overdraft pursuant to Section 12924.

(ii) If a groundwater sustainability agency has adopted a groundwater sustainability plan or has an approved alternative, a copy of that alternative or plan.

(D) For a basin that has not been adjudicated that is a basin designated as low- or very low priority pursuant to Section 10722.4, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water supply assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

The District does not pump groundwater and does not plan to use groundwater as a supply source in the future.

There are three groundwater basins identified in the California Department of Water Resources' (DWR)'s Bulletin 118 that are at least partially within the District's service area (**Figure 3**). These

three basins include Ross Valley Groundwater Basin (DWR Basin 2-18), San Rafael Valley Groundwater Basin (DWR Basin 2-29), and part of the Novato Basin (DWR Basin 2-30). All three basins are categorized as low or very low priority basins (DWR, 2019). Studies that have been conducted by the District over the last 40 years have determined that groundwater within the boundaries of the District's service area is very limited as it is either found in fractures in the Franciscan Formation (bedrock) or in shallow alluvial deposits in valleys. Therefore, groundwater is not currently or planned to be used as a water supply source by the District.

Although the District does not pump groundwater directly, a small portion of the SCWA water supply (i.e., less than 3%) is comprised of groundwater from the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (DWR Basin 1-55.01). Given this, characteristics and groundwater management of the Santa Rosa Plain Subbasin are provided below.

6.1.3.1 Basin Description and Status

The Santa Rosa Subbasin is not adjudicated, and in its recent evaluation of California groundwater basins, DWR determined that the Basin is not in a condition of critical overdraft (DWR, 2019). The Santa Rosa Plain subbasin is currently categorized by DWR as a medium priority basin (DWR, 2019).

Under DWR's prioritization process, basins are ranked on eight components, and if a basin is assigned more than 14 total points, but less than 21 total points, it is defined as "medium priority." The main factors driving the Santa Rosa Plain subbasin's designation include population density (3 out of 5 possible ranking points), population growth (3 out of 5 possible points), public supply well density (5 out of 5 possible points), total production well density (5 out of 5 possible points), groundwater reliance (5 out of 5 possible points), and groundwater reliance (3 out of 5 possible points) (DWR, 2019).

Geologically, the Santa Rosa Plain subbasin has one main water-bearing unit, the Merced Formation, and several units with lower water-bearing capacities, including the Glen Ellen Formation and the Alluvium. The shallow Alluvium consists of poorly sorted coarse sand and gravel and moderately-sorted fine sand, silt, and clay. The alluvial deposits are not perennially saturated, have low permeability, and are generally unconfined or slightly confined (DWR, 2006). The Glen Ellen Formation underlies the Alluvium and consists of partially cemented beds of poorly sorted gravel, sand, and silt, and clay that vary widely in thickness and extent, with thicknesses varying from 3,000 feet to less than 1,500 feet on the west side of the valley (DWR, 2006). Underlying the Glen Ellen Formation is the Merced Formation, which is a marine deposit of fine sand and sandstone with thin interbeds of clay and silty-clay and some lenses of gravel and localized fossils. The Merced Formation is Pliocene in age and its thickness is estimated to range from 300 feet to greater than 1,500 feet. Aquifer continuity and water quality in the Merced Formation are generally very good, with well yields from 100 to 1,500 gallons per minute (gpm; DWR, 2006).

As mentioned above, DWR has designated the Santa Rosa Plain subbasin as a medium priority basin and thus subject to the requirements of the Sustainable Groundwater Management Act

(SGMA), including the requirement to be covered by one or more Groundwater Sustainability Agencies (GSAs) and to prepare and submit to DWR one or more Groundwater Sustainability Plans (GSPs) by 31 January 2022. Actions related to management of the Santa Rosa Plain subbasin both currently and under SGMA are described in the next section.

6.1.3.2 SGMA Groundwater Management

In 2014, the California State Legislature enacted the SGMA, with subsequent amendments in 2015. The SGMA requires the formation of GSAs and the development and implementation of GSPs for groundwater basins that are designated by DWR as medium or high priority. Because the Santa Rosa Plain subbasin is designated by DWR as a medium basin (DWR, 2019), the Santa Rosa Plain subbasin is subject to the requirements of SGMA, which include the formation of a one or more GSAs and the development and implementation of one or more GSPs.

The Santa Rosa Plain GSA was formed in June 2017 through a Joint Powers Agreement entered into by the SCWA, City of Cotati, City of Rohnert Park, City of Santa Rosa, City of Sebastopol, Town of Windsor, County of Sonoma, Gold Ridge Resource Conservation District, Sonoma Resource Conservation District, Branger Mutual Water Company, California American Water, Willowside Mutual Water Company, and Penngrove Water Company, and covers the entire subbasin. The Santa Rosa Plain GSA is governed by a nine-member Board of Directors, which includes a position held by SCWA. The Board of Directors is advised by an Advisory Committee that includes eighteen members appointed by the Board of Directors, representing various stakeholders. The GSP for the Santa Rosa Plain subbasin was submitted to DWR in January 2022. At the time of writing this WSA, the GSP is under review. The final draft of the GSP can be found on the Santa Rosa Plain GSA website: <https://santarosaplaingroundwater.org/>.

6.1.3.3 Coordination with Groundwater Supply Agencies

Because the District does not directly pump groundwater, it does not coordinate with any GSAs. However, as noted above, the SCWA is a member of Santa Rosa Plain GSA and MMWD has coordinated with SCWA on its demand projections through 2045.

6.1.3.4 Historical Pumping and Supply Sufficiency

As mentioned above, the District does not pump any groundwater. SCWA's 2020 UWMP provides historical pumping and supply sufficiency information related to their use of groundwater and has factored this into the supply reliability information provided to the District and other Water Contractors.



Legend

- Santa Rosa Plain Subbasin
- Groundwater Basins in MMWD Service Area
- Project Boundary
- MMWD Service Area

Abbreviations

DWR = California Department of Water Resources
 MMWD = Marin Municipal Water District

Notes

1. All locations are approximate.

Sources

1. Basemap provided by ESRI.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118-2016 Update.



Regional Setting and Groundwater Basins

Northgate Town Square
 San Rafael, CA
 November 2022
 EKI C20143.00



Figure 3

Path: X:\C20143.00\Maps\2022\11\Fig3_GroundwaterBasins_final.mxd

6.1.4 Recycled Water Supply

The majority of recycled water used within the District's service area is distributed by the District. The Sewage Agency of Southern Marin (SASM) produces approximately 30 AFY of tertiary-treated recycled water that is used to irrigate playing fields situated adjacent to the SASM treatment plant. Recycled water production occurs at the Las Gallinas Valley Sanitary District (LGVSD) Recycled Water Treatment Facility (RWTF). The collected wastewater is treated to secondary levels at LGVSD's wastewater treatment plant and then receives further treatment at the RWTF before being distributed to customers.

In 2014 the LGVSD began supplying approximately 150 AFY of tertiary-treated recycled water produced at the newly constructed Las Gallinas Valley RWTF. In 2019, LGVSD began construction on a major expansion and upgrade to the RWTF, which expanded the facility's capacity from 1.4 MGD to over 5.0 MGD (equivalent to approximately 1,600 to 5,600 AFY). During the construction period, the plant was taken offline and all recycled water demands were met with potable water. The RWTF has been producing water since April 2021 and potable water is not anticipated to be needed to supplement the recycled water system going forward.

The District has a close working relationship with the LGVSD and prior to each irrigation season (April through October), the District provides a written estimate of the quantity of recycled water that will be needed for the season. The LGVSD attempts to provide the District with enough recycled water to meet its projected demand, and if the LGVSD is not able to meet the entire demand of the recycled water system, the system is supplemented by potable water.

Within the District's service area, there are 16 wastewater collection entities. Of the 16 wastewater collection entities, three are treatment entities that utilize secondary effluent for landscape irrigation at their wastewater treatment plant. SASM has a small tertiary treatment facility and irrigates an adjacent park; however, saltwater intrusion limits this operation to low tide cycles only. Development of more treatment facilities within Marin County is limited due to space constraints; therefore, wastewater projections are estimated to remain steady over the planning horizon.

6.2 Total Water Supply in Normal, Single Dry, and Multiple Dry Years

The projected water supply sources to the District, as described above, are the surface water purchased from the SCWA, the local surface water supply (inclusive of the environmental releases from the Kent Lake and Soulajule Reservoir), and recycled water.

Several factors pose potential constraints on the District's water supply, including limits on the amount available, water quality, climatic conditions, or a combination of these. Due to these uncertainties a worst-case "extreme" drought scenario was evaluated in the District's 2020 UWMP along with the normal, single dry, and multiple dry year conditions. Under this extreme scenario, a severe drought event was assessed where total water supplies would drop to below 14,000 AFY. Under this "extreme" scenario, the UWMP anticipated supply shortfalls that would be met by WSCP water use reduction actions.

6.2.1 Normal, Single Dry, and Multiple Dry Conditions

Table 6 shows the District’s projected demand, with the inclusion of the proposed Project, and the total available normal year supply through 2045. As shown in **Table 6**, the planned future potable and raw water supply of 83,926 AFY within the District for normal hydrologic years is expected to meet all projected demands, inclusive of the proposed Project, which are estimated to be 37,686 AFY by 2045.

As shown in **Table 7**, during single dry years, the annual potable and raw water supply within the District’s service area under this scenario will be reduced to 51,223 AFY by 2045. Despite this reduction, the District’s potable and raw demand inclusive of the proposed Project will be met by the single dry year supply.

Table 8 shows that during multiple dry years, the District’s 2020 UWMP estimates that an annual potable and raw supply within the District’s service area will be reduced to 78,635 AFY in 2025 during the first year of a drought, and down to 68,402 AFY in 2045 during the fifth year of drought. Notwithstanding these supply reductions and considering the proposed Project demands, no supply shortfalls are projected for the District in the multiple dry year scenario. It should be noted that the dry year and multiple dry year scenario are based on historical water supply patterns, which may or may not be representative of future conditions due to climate change. To account for potential future conditions, an additional “worst case” scenario was evaluated in the UWMP and is considered in Section 6.2.2 below.

The District’s projected recycled water demand inclusive of the Project is approximately 801 AFY by 2045. Because there is excess capacity in the recycled water system, for the normal, single dry, and multiple dry year hydrologic conditions, the currently projected recycled water supply of 750 AFY will be able to increase by 51 AFY to meet the District’s demands, and therefore no recycled water supply shortfall is anticipated.

6.2.2 Extreme Drought Scenario

If the “worst-case” supply scenario is realized, in which total available supply (purchases from SCWA, local surface water, and recycled water) is reduced to below 14,000 AFY by 2025, shortfalls of up to 65% are projected (see **Table 9**). As shown in the multiple dry year extreme drought scenario in **Table 9**, there are no supply shortfalls anticipated in 2025 for the first and second year of extreme drought. However, by the third year of extreme drought a 7.5% shortfall is expected, by the fourth year of extreme drought a 36% shortfall is expected, and by the fifth year of extreme drought a 65% shortfall is expected. However, as shown in **Table 9**, these shortfalls are not materially different from the shortfalls that would be experienced without the Project according to the adopted and District-approved UWMP, which were within half a percentage point of the shortfalls listed above.

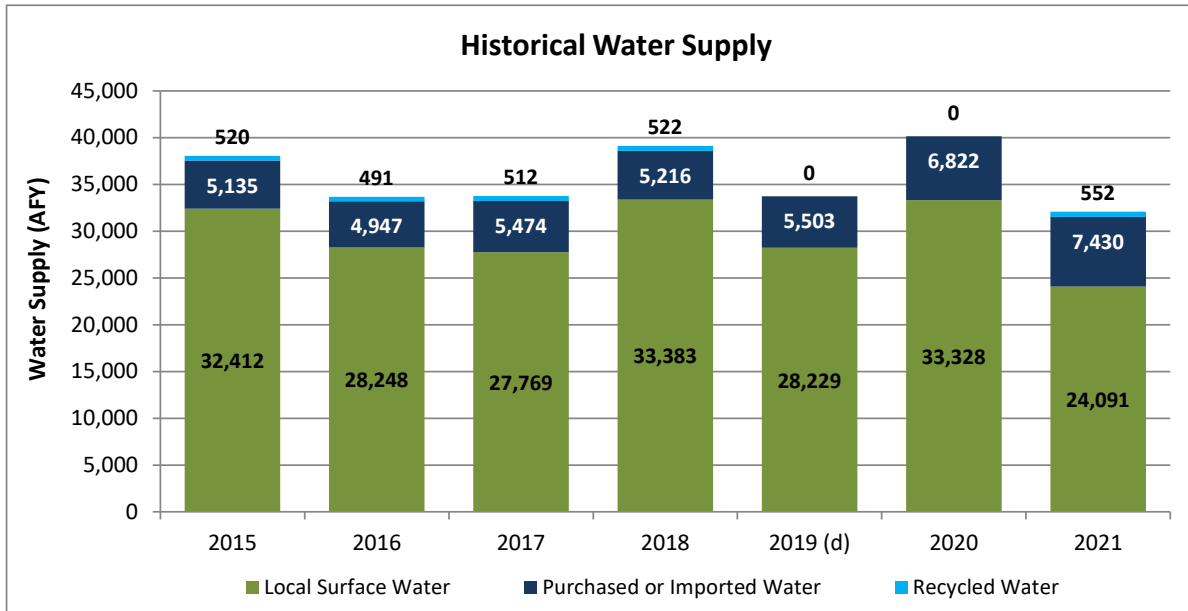
To address these shortfalls in an extreme drought scenario, the District plans to enact its WSCP, which includes Mandatory Staged Restrictions of Water Use. The WSCP systematically identifies ways in which the District can reduce water demands during dry years. The overall reduction

goals in the WSCP are established for six drought stages and address water demand reductions over 50%. The District's WSCP is currently in the process of being revised taking into consideration lessons learned from the 2021 historic drought and includes detailed information about how drought risks are evaluated by the District on an annual basis to determine the potential need for reductions. The District is also currently preparing a Strategic Water Supply Assessment, which will identify ways in which its water supply portfolio can be augmented to serve all users in such an extreme drought scenario.

As seen in **Table 9**, and similar to the other hydrologic year conditions mentioned in Section 6.2.1, the projected recycled water supply is currently estimated to be 750 AFY in the extreme drought scenario by 2045, and the projected District demand inclusive of the Project is estimated to be 801 AFY. As there is excess capacity in the recycled water system, the recycled water supply will be able to increase by 51 AFY, and therefore no recycled water supply shortfall is anticipated as the recycled water supply.

Table 5
Historical Water Supply for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Water Supply Source	Historical Water Supply (AFY)						
	2015	2016	2017	2018	2019 (d)	2020	2021
Purchased or Imported Water (a)	5,135	4,947	5,474	5,216	5,503	6,822	7,430
Local Surface Water (not desalinated) (b)	32,412	28,248	27,769	33,383	28,229	33,328	24,091
Recycled Water (c)	520	491	512	522	0	0	552
Total Water Supply	70,478	61,935	61,523	72,503	61,960	73,478	56,164



Abbreviations:

- "AFY" = acre-feet per year
- "MMWD" = Marin Municipal Water District
- "SCWA" = Sonoma County Water Agency

Notes:

- (a) Purchased water supply from SCWA. Historical supplies from 2015-2020 per Reference 2 and 2021 per Reference 4.
- (b) Historical local surface water supply from 2015-2020 per Reference 3 and 2021 per Reference 5.
- (c) Historical recycled water supply from 2015-2020 per Reference 1 and 2021 per Reference 4.
- (d) The recycled water plant was taken offline in 2019 and 2020 to allow for upgrades, and all recycled water demands were met by potable water during this time.

References:

1. MMWD, 2020. Information provided by MMWD, received on 23 September 2020.
2. MMWD, 2021a. Information provided by MMWD, received on 4 February 2021.
3. MMWD, 2021b. Information provided by MMWD, received on 23 February 2021.
4. MMWD, 2022b. Information provided by MMWD, received on 22 September 2022.
5. MMWD, 2022c. Information provided by MMWD, received on 29 September 2022.

Table 6
Projected Normal Year Water Supply and Demand for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Water Supply and Demand	Projected Normal Year Supply and Demand (AFY)				
	2025	2030	2035	2040	2045
Potable and Raw Water					
Normal Year Supply (a)	83,840	84,093	83,825	83,858	83,926
District Demand	37,269	37,296	37,225	37,301	37,458
Proposed Project Demand	167	167	167	228	228
Total Potable and Raw Demand Inclusive of Proposed Project	37,436	37,463	37,392	37,529	37,686
<i>Normal Year Supply Shortfall (% demand)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>
Recycled Water					
Normal Year Supply (b)	750	750	750	750	750
District Demand	750	750	750	750	750
Proposed Project Demand	34	34	34	51	51
Total Recycled Demand Inclusive of Proposed Project	784	784	784	801	801
<i>Normal Year Supply Shortfall (% demand) (c)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>

Abbreviations:

- "AFY" = acre-feet per year
- "District" = Marin Municipal Water District
- "Proposed Project" = Northgate Town Square
- "SCWA" = Sonoma County Water Agency

Notes:

- (a) Normal year supply includes both purchased water from SCWA and local surface water that includes environmental releases per Table 6-10 in Reference 1.
- (b) Normal year recycled water supply per Table 7-5 in Reference 1.
- (c) Because there is excess capacity in the recycled water system, the currently projected recycled water supply of 750 AFY will be able to increase by 51 AFY to meet the District's demands, and therefore no recycled water supply shortfall is anticipated.

References:

1. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.

Table 7
Projected Single Dry Year Water Supply and Demand for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Water Supply and Demand	Projected Single Dry Year Supply and Demand (AFY)				
	2025	2030	2035	2040	2045
Potable and Raw Water					
Single Dry Year Supply (a)	51,211	51,213	51,209	51,213	51,223
District Demand	37,269	37,296	37,225	37,301	37,458
Proposed Project Demand	167	167	167	228	228
Total Potable Water Demand Inclusive of Proposed Project	37,436	37,463	37,392	37,529	37,686
<i>Normal Year Supply Shortfall (% demand)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>
Recycled Water					
Single Year Supply (b)	750	750	750	750	750
District Demand	750	750	750	750	750
Proposed Project Demand	34	34	34	51	51
Total Recycled Water Demand Inclusive of Proposed Project	784	784	784	801	801
<i>Normal Year Supply Shortfall (% demand) (c)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>

Abbreviations:

- "AFY" = acre-feet per year
- "District" = Marin Municipal Water District
- "Proposed Project" = Northgate Town Square
- "SCWA" = Sonoma County Water Agency

Notes:

- (a) Projected supply includes both purchased water from SCWA and local surface water including environmental releases per Table 7-3 and Table 7-4 in Reference 1, respectively.
- (b) Projected recycled supply per Table 7-5 in Reference 1.
- (c) Because there is excess capacity in the recycled water system, the currently projected recycled water supply of 750 AFY will be able to increase by 51 AFY to meet the District's demands, and therefore no recycled water supply shortfall is anticipated.

References:

1. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.

Table 8
Projected Multiple Dry Year Water Supply and Demand for Marin Municipal Water District
 Northgate Town Square, San Rafael, California

Water Supply and Demand	Projected Water Supply and Demand During Multiple Dry Years (AFY) (a)																								
	2025					2030					2035					2040					2045				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Potable and Raw Water																									
Multiple Dry Year Supply (b)	78,635	83,400	85,509	71,779	68,520	78,636	83,389	85,524	71,771	68,508	78,634	83,416	85,493	71,802	68,545	78,636	83,388	85,527	71,770	68,506	78,641	83,336	85,604	71,701	68,402
District Demand	37,269	37,269	37,269	37,269	37,269	37,296	37,296	37,296	37,296	37,296	37,225	37,225	37,225	37,225	37,225	37,301	37,301	37,301	37,301	37,301	37,458	37,458	37,458	37,458	37,458
Proposed Project Demand	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	228	228	228	228	228	228	228	228	228	228
Total Potable Water Demand Inclusive of Proposed Project	37,436	37,436	37,436	37,436	37,436	37,463	37,463	37,463	37,463	37,463	37,392	37,392	37,392	37,392	37,392	37,529	37,529	37,529	37,529	37,529	37,686	37,686	37,686	37,686	37,686
<i>Multiple Dry Year Supply Shortfall (% demand)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>
Recycled Water																									
Multiple Dry Year Supply (c)	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
District Demand	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Proposed Project Demand	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	51	51	51	51	51	51	51	51	51	51
Total Recycled Water Demand Inclusive of Proposed Project	784	784	784	784	784	784	784	784	784	784	784	784	784	784	784	801	801	801	801	801	801	801	801	801	801
<i>Multiple Dry Year Supply Shortfall (% demand) (d)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>

Abbreviations:

"AFY" = acre-feet per year
 "District" = Marin Municipal Water District
 "Proposed Project" = Northgate Town Square
 "SCWA" = Sonoma County Water Agency

"UWMP" = Urban Water Management Plan
 "WSA" = Water Supply Assessment

Notes:

- (a) While WSA regulations only require an analysis of a three-year drought scenario, UWMP regulations were updated in 2018 to include a five-year drought scenario (California Water Code §10635), Therefore, a five-year drought scenario is presented here.
- (b) Projected supply includes both purchased water from SCWA and local surface water including environmental releases per Table 7-3 and Table 7-4 in Reference 1, respectively.
- (c) Projected recycled supply per Table 7-5 per Reference 1.
- (d) Because there is excess capacity in the recycled water system, the currently projected recycled water supply of 750 AFY will be able to increase by 51 AFY to meet the District's demands, and therefore no recycled water supply shortfall is anticipated.

References:

- 1. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.

Table 9
Projected Extreme Drought Multiple Dry Year Water Supply and Demand for Marin Municipal Water District
 Northgate Town Center, San Rafael, California

Water Supply and Demand (b)	Projected Water Supply and Demand During Multiple Dry Years (AFY) (a)																								
	2025					2030					2035					2040					2045				
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Potable and Raw Water																									
Multiple Dry Year Supply (c)	62,778	46,161	34,614	23,956	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060	13,060
District Demand	37,269	37,269	37,269	37,269	37,269	37,296	37,296	37,296	37,296	37,296	37,225	37,225	37,225	37,225	37,225	37,301	37,301	37,301	37,301	37,301	37,458	37,458	37,458	37,458	37,458
Proposed Project Demand	167	167	167	167	167	167	167	167	167	167	167	167	167	167	167	228	228	228	228	228	228	228	228	228	228
Total Potable Water Demand Inclusive of Proposed Project	37,436	37,436	37,436	37,436	37,436	37,463	37,463	37,463	37,463	37,463	37,392	37,392	37,392	37,392	37,392	37,529	37,529	37,529	37,529	37,529	37,686	37,686	37,686	37,686	37,686
<i>Supply Shortfall without Project (% demand)</i>	<i>None</i>	<i>None</i>	<i>7.1%</i>	<i>35.7%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>64.9%</i>	<i>64.9%</i>	<i>64.9%</i>	<i>64.9%</i>	<i>64.9%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.0%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>
<i>Supply Shortfall Inclusive of Project (% demand)</i>	<i>None</i>	<i>None</i>	<i>7.5%</i>	<i>36.0%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.1%</i>	<i>65.2%</i>	<i>65.2%</i>	<i>65.2%</i>	<i>65.2%</i>	<i>65.2%</i>	<i>65.3%</i>	<i>65.3%</i>	<i>65.3%</i>	<i>65.3%</i>	<i>65.3%</i>
Recycled Water																									
Multiple Dry Year Supply	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
District Demand	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750
Proposed Project Demand	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	51	51	51	51	51	51	51	51	51	51
Total Recycled Water Demand Inclusive of Proposed Project	784	784	784	784	784	784	784	784	784	784	784	784	784	784	784	801	801	801	801	801	801	801	801	801	801
<i>Supply Shortfall (% demand) (d)</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>

Abbreviations:

"AFY" = acre-feet per year
 "District" = Marin Municipal Water District
 "Proposed Project" = Northgate Town Center
 "SCWA" = Sonoma County Water Agency
 "UWMP" = Urban Water Management Plan
 "WSA" = Water Supply Assessment

Notes:

- (a) While WSA regulations only require an analysis of a three-year drought scenario, UWMP regulations were updated in 2018 to include a five-year drought scenario (California Water Code §10635), Therefore, a five-year drought scenario is presented here.
- (b) The Extreme Drought scenario for potable, raw, and recycled supply is per Table 7-12 in Reference 1.
- (c) Projected supply includes both purchased water from SCWA and local surface water including environmental releases.
- (d) Because there is excess capacity in the recycled water system, the currently projected recycled water supply of 750 AFY will be able to increase by 51 AFY to meet the District's demands, and therefore no recycled water supply shortfall is anticipated.

References:

- 1. 2020 Urban Water Management Plan, Marin Municipal Water District, prepared by EKI Environment & Water, Inc., dated June 2021.

7 COMPARISON OF SUPPLY AND DEMAND

CWC § 10910 (c)(3)

If the projected water demand associated with the proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses.

CWC § 10911 (a)

If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the considerations set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to be able to acquire additional water supplies.

CWC § 10911 (c)

The city or county may include in any environmental document an evaluation of any information included in that environmental document provided pursuant to subdivision (b). The city or county shall determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands of the project, in addition to existing and planned future uses. If the city or county determines that water supplies will not be sufficient, the city or county shall include that determination in its findings for the project.

Pursuant to CWC §10910c(3), this WSA must include an estimate of the projected water supplies available to the District under normal, single dry, and multiple dry years, and a discussion of whether those supplies will meet the projected demand associated with the proposed Project, in addition to the water system's existing and planned future uses. This assessment is parallel to the multiple-dry year supply reliability analysis required for UWMPs under CWC §10635. In 2018, CWC §10635 was revised to require UWMPs to extend this analysis to consider "a drought lasting five consecutive water years." Although CWC §10910c(3) has not yet been updated to require this for WSAs, a five-year drought scenario and an extreme drought scenario are also evaluated herein based on the projections in the 2020 UWMP.

Tables 6 through 9 provide a comparison of the District's demands and supplies in normal year, single-dry year, and multiple-dry year hydrologic conditions, along with an extreme drought scenario.

It is projected that available potable and raw water supplies will be sufficient to meet the demands under normal year, single dry year, and multiple dry year hydrologic conditions through 2045, inclusive of the proposed Project.

Under the extreme drought scenario, shortfalls of up to 65% are possible in drought periods representing, as discussed above, the “worst-case” in which the total water supplies (purchases from SCWA, local surface water, and recycled water) are below 14,000 AFY by 2025. As discussed in Section 2, the District is working on a Strategic Water Supply Assessment that will introduce new measures to augment supply to meet its customers’ water needs.

As described in Section 6, in response to anticipated future dry-year shortfalls, the District has developed a WSCP that systematically identifies ways in which the District can reduce water demands during dry years. The overall reduction goals in the WSCP are established for six drought stages ranging from 10% to greater than 50% shortfalls.

8 CONCLUSIONS

As listed in Water Code §109101(4), the primary purpose of this WSA is to evaluate whether sufficient water supply is available to meet all future water demands within the water supplier's service area, including those associated with the proposed Project, during normal and dry hydrologic years for a 20-year time horizon.

Based on currently available information and conservative estimates of projected demand, the District expects to be able to meet all future demands within its existing service area, inclusive of the proposed Project in normal, dry, and multiple dry hydrologic years. The shortfalls that are currently projected during an extreme drought scenario are not materially different from the shortfalls that would be experienced without the proposed Project and would be addressed through planned implementation of the District's Water Shortage Contingency Plan. In addition, as described herein, the District is currently preparing a Strategic Water Supply Assessment that will identify ways in which its water supply portfolio can be augmented to serve all users, including the proposed Project, in such an extreme drought scenario.

9 REFERENCES

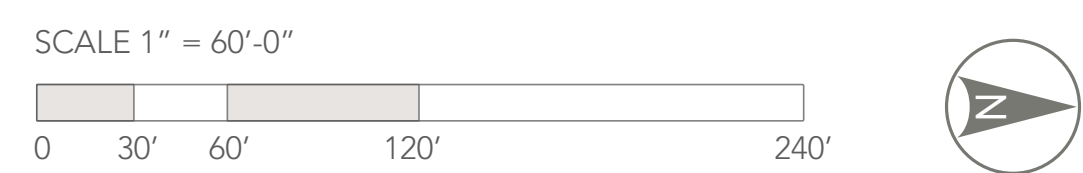
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Appendix A

Landscape Coverage Plans



NORTHGATE LANDSCAPE AREA CALCULATIONS - PHASE 1 2025						
LOT SIZE	VEHICULAR AREA	BUILDING COVERAGE	OPEN SPACE	USABLE OPEN SPACE (pedestrian paving)	LANDSCAPE (planting area)	LANDSCAPE %
1,949,409 SF	638,924 SF	721,747 SF	588,738 SF	275,141 SF	313,597 SF	16.1%



OPEN SPACE DIAGRAM - 2025 VISION PLAN

NORTHGATE TOWN SQUARE

MARCH 09, 2022

MerloneGeier
Partners

CSW | ST2

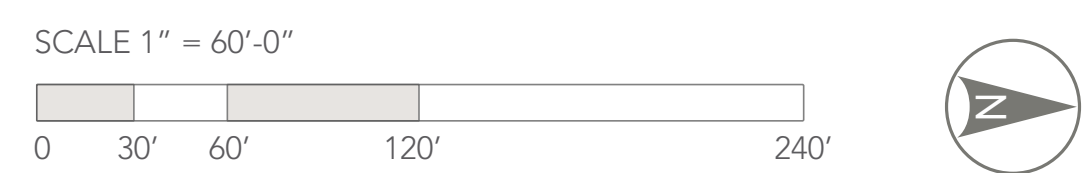
URBAN
ARENA

STUDIO
TSQUARE

FIELD
PAOLI



NORTHGATE LANDSCAPE AREA CALCULATIONS - PHASE 2 2040						
LOT SIZE	VEHICULAR AREA	BUILDING COVERAGE	OPEN SPACE	USABLE OPEN SPACE (pedestrian paving)	LANDSCAPE (planting area)	LANDSCAPE %
1,949,409 SF	550,467 SF	775,317 SF	623,625 SF	284,985 SF	338,640 SF	17.4%



OPEN SPACE DIAGRAM - 2040 VISION PLAN

NORTHGATE TOWN SQUARE

MARCH 09, 2022

MerloneGeier
Partners

CSW | ST2

URBAN
ARENA

STUDIO
TSQUARE

FIELD
PAOLI

L-24