

Infrastructure and Utilities

Existing Conditions Overview

Updated January 2024



Introduction

This report summarizes analysis of existing wet infrastructure and dry utilities in Marina. This analysis will serve as the baseline for the General Plan Update and environmental review, providing an important snapshot of where the community is now.

Topics addressed in this report include:

- Water Supply and Demand
- Wastewater
- Stormwater
- Solid waste
- Electricity
- Natural Gas
- Telecommunications

The report concludes with key findings on the topic.

Wet Infrastructure

Planning and Regulatory Context

The following list includes planning and regulatory documents related to conservation, habitat and water quality.

- **Government Code section 65302(a) and (b)** – General Plan requirements for water, sewage treatment, storm drainage, and solid and liquid waste disposal
- **2000 City of Marina General Plan** – Includes a Community Infrastructure Element that addresses water supply, wastewater, and storm drainage
- **Marina Downtown Vitalization Specific Plan** (nearing adoption) – Addresses infrastructure improvements in the downtown area for potable water, wastewater, and stormwater drainage
- **Marina Coast Water District Water Master Plan (2020)** – Analyzes future water demands and supply requirements
- **Marina Coast Water District Recycled Water Master Plan (2020)** – Analyzes future recycled water demand and supply requirements
- **Marina Coast Water District Sewer Master Plan (2019)** – Plans for the future sanitary sewer system and evaluates the sewer system capacity
- **Marina Coast Water District Urban Water Management Plan (2020)** – Plans for urban water demand and efficient use of water
- **Monterey One Water** – Recycled water project currently under construction

Water Providers

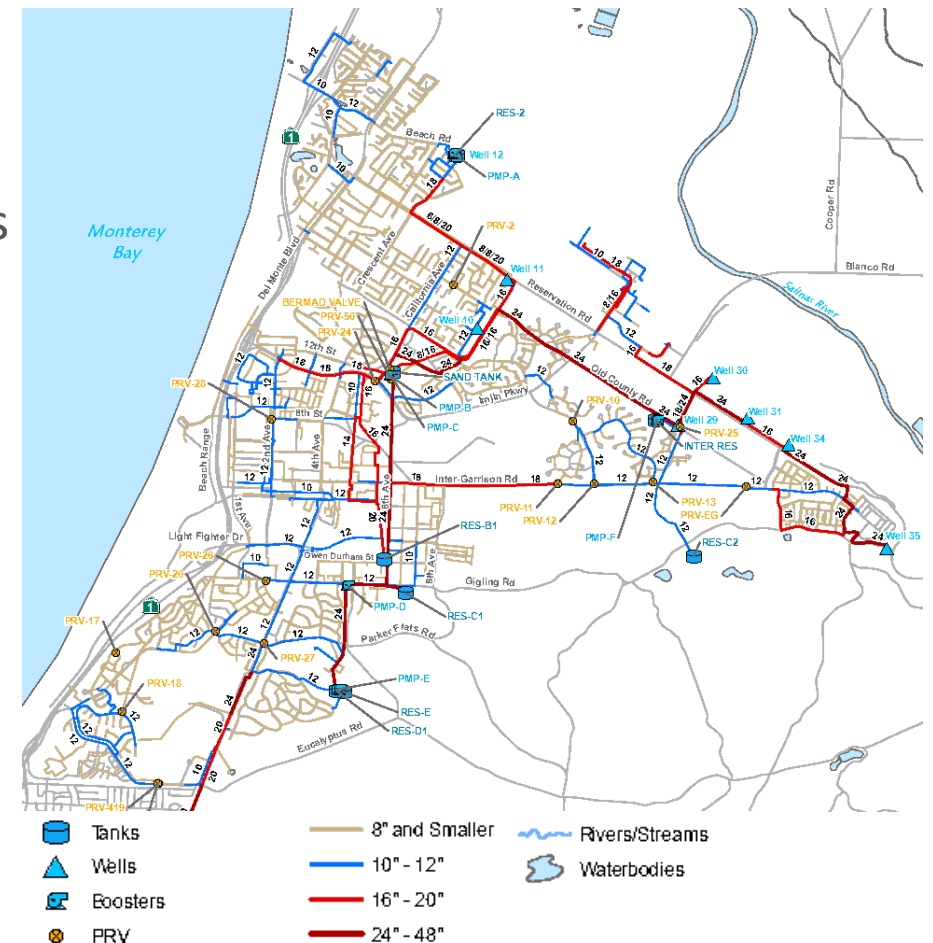
- MCWD is the water purveyor for the City of Marina¹
 - Primary water supply consists of groundwater from the Salinas Valley Groundwater Basin
 - MCWD has two service areas:
 - Central Marina Service Area, excluding the portion of the City inside the former Fort Ord
 - Fort Ord Community Area, including the former Fort Ord, some of which is within City limits (also part of Seaside)
- Monterey One Water¹
 - Contracted to provide MCWD 1,427 acre feet per year (AFY) of recycled water once fully operational through Pure Water Monterey program
- Remnant residential wells and onsite sewage disposal systems are also present in the city



¹ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

MCWD Water System

- The MCWD water system includes:²
 - 7 active groundwater wells
 - 8 ground level storage tanks (13.2 million gallons in storage)
 - 215 miles of pipelines
 - 1,614 fire hydrants
 - 5 booster pump stations
 - Recycled water distribution network under construction
 - Inactive Wastewater Treatment Plant
- The system is shown in the map to the right.



² MCWD. 2022. Water Sources. https://www.mcwd.org/gsa_water_supply.html

Pure Water Monterey

- “Pure Water” is an innovative water recycling project utilizing an Advanced Purification Facility
 - Product water is near-distilled quality
 - Used for non-potable irrigation “Purple Pipe” (and also injected back into the Seaside Groundwater Basin for indirect potable use)
- MCWD will receive an annual recycled water allocation from Pure Water:³
 - Phase 1: 600 AFY of purified recycled water for the District’s service area by 2025
 - Phase 2: an additional 827 AFY for the District’s service area by 2030 (total 1,427 afy)
- Recycled water from the Advanced Purification Facility is for non-potable use only (parks and playgrounds, schoolyards, urban landscaping, and freeway/roadway landscaping and groundwater injection)⁴



³ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

⁴ MCWD & Groundwater Sustainability Agency. 2022. About Recycled Water.

<https://recycledwater.mcwd.org/#:~:text=Recycled%20water%20is%20wastewater%20that,drinking%20or%20non%2Dpotable%20use.&text=MCWD%20receives%20Our%20recycled%20water,One%20Water%20advanced%20purification%20facility>

Planned Desalination Facilities

- The California American Water Company (Cal-Am) Peninsula Water Supply Project⁵ is planning a 6.4 mgd seawater desalination facility near the Monterey One Water (M1W) regional plant. The well fields and some pipelines would be within City limits. This could result in coastal resource impacts.
- The facility will provide water for customers in the Cal-Am service area but will not serve Marina (which is served by MCWD).
- The facility could result in adverse impacts for Marina. The intake wells may adversely impact aquifers of the Salinas Valley Basin, with the 180-400 and Monterey SubBasins, which provides the majority of the City of Marina's water supply and may increase seawater intrusion in the basin.⁶ Additional coastal resource impacts could also occur.
- The California Public Utilities Commission and California Coastal Commission (CCC) have both approved the project.
- A lawsuit was filed by the City, Monterey Peninsula Water Management District, Marina Coast Water District Groundwater Sustainability Agency, and MCWD against the CCC on December 30, 2022
- MCWD projects restarting an (inactive) 320 acre-feet per year (AFY) desalination plant located at the west end of Reservation Road. This is estimated to take 2-5 years until water can be sourced/allocated.



⁵ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

⁶ CCC. 2022. Application 9-20-0603 / Appeal A-3-MRA-19-0034 (California American Water Co.) Staff Report: Recommendation On Appeal De Novo Hearing and Consolidated Coastal Development Permit. <https://documents.coastal.ca.gov/reports/2022/11/W16a/W16a-11-2022-report.pdf>

MCWD Water Conservation Program

- MCWD implements an active water conservation program to minimize per capita water use
- Water conservation efforts include:⁷
 - Retrofit rebates for clothes washers, toilets and urinals, and hot water recirculation pumps
 - Incentives to replace lawns with low water use plantings and hardscaping
 - Free water-saving devices for all customers (efficient shower heads, low-flow faucet aerators, hose end shut-off nozzles, toilet leak detection tablets)
 - Consumer education

⁷ MCWD. 2022. Water Conservation in Marina. <https://www.mcwd.org/conserv.html#>



Water Usage and Demand

In 2020, MCWD’s water use was 3,291 AFY [approximately 80.2 gallons per capita per day (gpcd)]. This is anticipated to increase due to buildout of the Central Marina and Ord Community service areas. There is adequate water to supply the MCWD service area through the year 2040.⁸

MCWD Historic Annual Water Demand

Year	Total	Per Capita
2005	4,189 AFY	127 gpcd
2010	4,055 AFY	123 gpcd
2015	3,226 AFY	89 gpcd
2020	3,293 AFY	80.2 gpcd

Source: MCWD 2020 Water Master Plan; MCWD 2020 Urban Water Management Plan

MCWD Future Annual Water Demand

Year	Total	Per Capita
2020	3,367 AFY	82.0 gpcd
2025	5,991 AFY	96.0 gpcd
2030	7,792 AFY	105.02 gpcd
2035	8,869 AFY	103.4 gpcd
2040	9,574 AFY	101.3 gpcd

Sources: MCWD 2020 Urban Water Management Plan

⁸ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

Water Supply - Central Marina Service Area

- Central Marina service area (shown in green) is not projected to exceed its groundwater allocation within 20-year planning period. The growth projection includes full buildout of Downtown Vitalization Plan through 2040 (1,940 new units) and ~400 infill units for the rest of Central Marina.⁹
 - 2040 demand = 2,964 AFY
 - 2040 supply = 4,440 AFY

Table 4.5 Water Demand by Jurisdiction (afy)

	Jurisdiction	2020	2025	2030	2035	2040	Notes	Allocation
Ord	U.S. Army	409	461	471	471	471	1	1,577
	CSUMB	318	421	616	821	977		1,035
	Del Rey Oaks	0	31	224	238	238		243
	City of Monterey	0	0	130	130	130		65
	County of Monterey	227	436	436	522	522		720
	UCMBEST	1	116	335	377	408		230
	City of Seaside	339	839	1,032	1,435	1,698		1,012
	State Parks and Rec.	0	7	9	9	9		45
	Marina Ord Comm.	446	1,125	1,638	1,757	1,809		1,325
	Assumed Line Loss	190	348	348	348	348		348
Marina	Armstrong Ranch	0	550	680	680	680	2	920
	CEMEX	0	0	0	0	0		500
	Marina Central	1,438	1,656	1,874	2,081	2,284		3,020
Subtotal - Ord		1,929	3,784	5,239	6,108	6,610		6,600
Subtotal - Marina		1,438	2,207	2,553	2,761	2,964		4,440
Total		3,367	5,991	7,792	8,869	9,574		11,040

⁹ MCWD 2020 Urban Water Management Plan, 2020

Water Supply - Fort Ord Community Service Area

Through the 1996 Base Reuse Plan, FORA established an initial cap of 6,160 new dwelling units if additional (ground)water was not secured. *This cap did not account for potential future recycled water sources or water reduction measures.*¹⁰

- The BRP projected 8,700 new dwelling units and 4.9 million square feet of commercial/industrial development by 2015 for an estimated water demand of 9,000 afy
- In 1996, the Ord groundwater supply was limited to 6,600 afy: therefore $9,000 - 6,600 = 2,400$ additional afy of water needed for full former Fort Ord build out
- However, from 1998 to 2020, only 1,300 new dwelling units and 0.95 million square feet of commercial development occurred within the Ord Community (~500 additional units built in Marina portion of Ord since 2020); only ~20% built out of original projection

More recent development projections used for the 2020 UWMP suggested an increase of 12,300 new dwelling units and 13 million square feet of non-residential development over the next 20 years = projected water demand in the Ord Community updated to 6,610 afy through 2040.¹⁰

- Overall, there is now adequate supply for Ord (6,610 afy demand > 6,600 afy supply)
- However, shortages in specific subareas mean that an **additional 1,398 afy of water** is still needed to serve a fully built-out Ord Community through 2040 (for both Marina and Seaside)

Ord Groundwater Shortage

The “Ord Community” portion of Marina has a projected groundwater shortage; originally estimated at 2,400 afy in 1996 but now at 1,398 afy in 2021 (**469 afy** for Marina Ord Portion only).¹¹

The shortfall is being addressed through Regional Urban Water Augmentation Program, implemented by the Marina Coast Water District:

1. 1,427 AFY of purified recycled water from AWRP for non-potable/landscape irrigation. This source is coming online now through the new purple pipe network.
2. Up to 3,700 AFY for future indirect potable reuse (injection of recycled water into the Seaside Groundwater Basin, similar to Pure Water Monterey; this would be an alternative to the previously proposed desalination portion of the RUWAP)

Table 5.3 Ord Community Groundwater Shortfalls

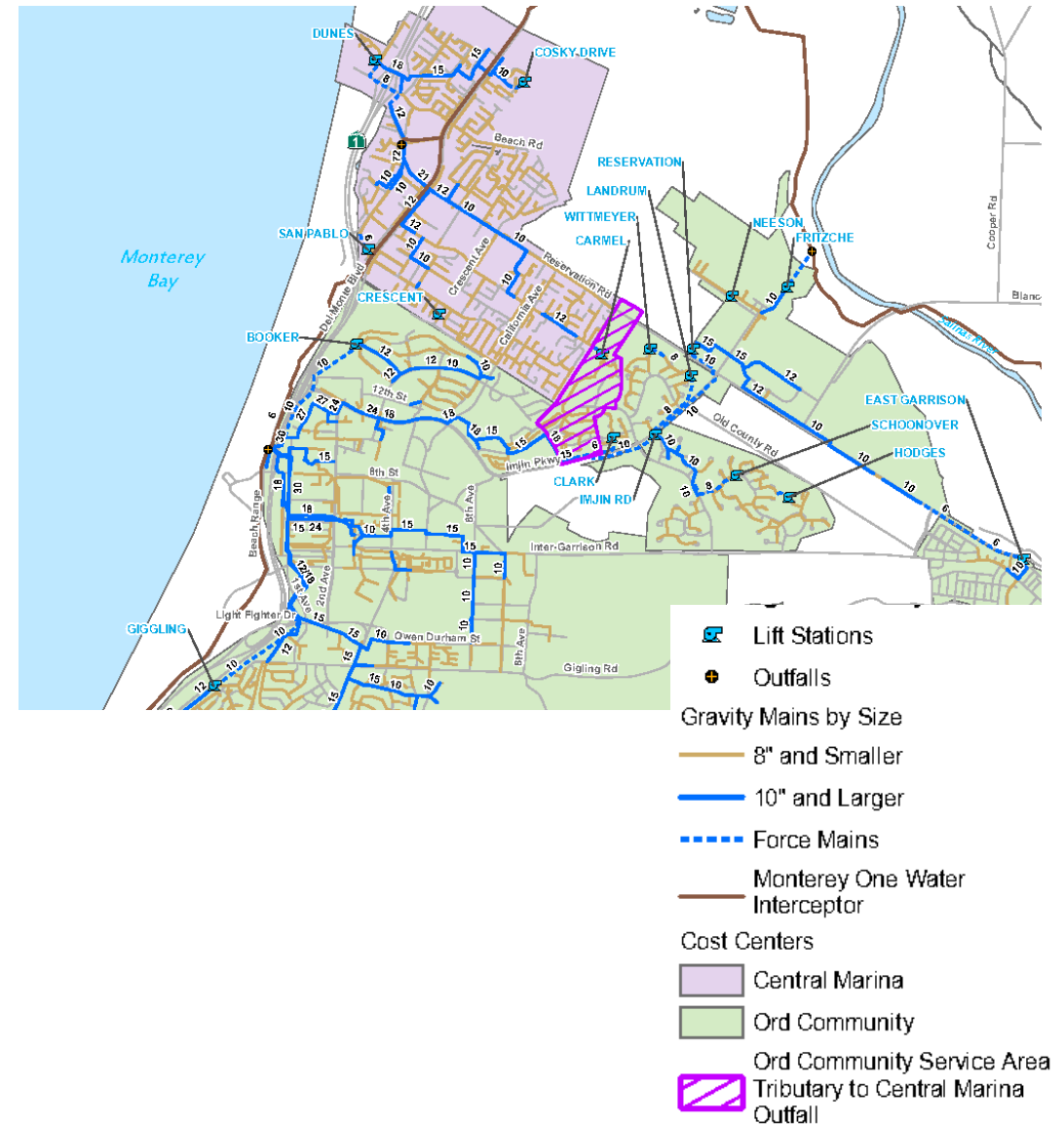
Jurisdiction	2040 Demand	Allocation	Shortage*
U.S. Army	471	1,562	0
CSUMB	977	1,035	0
Del Rey Oaks	238	243	0
City of Monterey	130	65	65
County of Monterey	522	710	0
UCMBEST	408	230	178
City of Seaside (Ord Portion)	1,698	1,012	686
State Parks and Rec.	9	45	0
City of Marina (Ord Portion)	1,809	1,340	469
Assumed Line Loss	348	348	NA
Total	6,610	6,600	1,398

* Jurisdictions with surpluses are shown with 0 shortage.

¹¹ MCWD 2020 Urban Water Management Plan, 2020

Wastewater System

- MCWD owns the pipeline and pump system that collects and transports wastewater in Marina. The sewer system consists of:
 - 20 sewer lift/pump stations
 - 145 miles of gravity sewer pipeline
 - 2,735 manholes
 - 8 miles of pressurized pipelines¹²



¹² MCWD. 2022. Wastewater Collection & Treatment. https://www.mcwd.org/gsa_wastewater.html

Wastewater Capacity

- Collected wastewater is treated at the M1W Regional Treatment Plant located outside the city limits, two miles north of Marina.
- The Plant treats an average of 18 mgd of wastewater, with a capacity of up to 29.6 mgd.¹³

Wastewater Treatment

	Primary/Secondary Treatment	Tertiary Treatment	Advanced Purification
Capacity	29.6 mgd	29.6 mgd	5 mgd
Source	Raw Wastewater	Secondary Effluent	Secondary Effluent
Product Water	Secondary Effluent: <ul style="list-style-type: none"> • Ocean discharge • Influent for Tertiary Treatment • Influent for Advanced Purification 	Recycled water for crop irrigation	Purified water for groundwater replenishment

Source: Monterey One Water. 2023. Regional Treatment Plant

¹³ Monterey One Water. 2023. Sewer Treatment. <https://www.montereyonewater.org/256/Treatment>

Stormwater System

- Marina's stormwater drainage system is not connected to MCWD's sewer system.¹⁴
 - The stormwater system is decentralized and terminates at numerous small percolation lots throughout Central Marina (not in the Ord Community).
 - Marina's fine to medium-grained unconsolidated soils have a high percolation rate and make the decentralized system of scattered retention basin effective
 - There are no plans for stormwater capture to reuse the rainwater for other purposes.
 - The City's Stormwater Management Program protects water resources from degradation from pollution (oil, gas, trash, pesticides, excess fertilizers, pet waste, irrigation runoff, etc.).
- New development may exceed the existing stormwater system capacity and would be required to retain all stormwater runoff onsite, with facilities designed to accommodate a 10-year frequency storm at minimum⁵ (including Dunes and Sea Haven).

¹⁴ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

¹⁵ MCWD. 2020. Sewer Master Plan. https://www.mcwd.org/docs/engr_files/edfp/master_plans/MCWD_SewerMasterPlan_Final_052920.pdf

Solid Waste Services

- The City of Marina is contracted with GreenWaste Recovery to collect and deliver solid waste.
- Solid waste is delivered to the Monterey Regional Waste Management District (ReGen Monterey), located north of Marina outside the city limits, for processing and disposal¹⁶
 - Monterey Peninsula Landfill accepts 600,000 tons of solid waste each year
 - The landfill has adequate capacity for the next 100 years



¹⁶ ReGen Monterey. 2018. Disposal. <https://regenmonterey.org/disposal/#1488961033450-0782f568-b186>

Solid Waste Services

The following are the ReGen Monterey Facilities¹⁷

- Monterey Peninsula Landfill (461-acre site)
- Materials Recovery Facility (MRF)
 - Processes recyclables collected from residential and commercial entities, construction and demolition debris, and commercial mixed waste
 - Receives green and wood waste, mattresses, tires, and appliances
 - 130,000 tons of yard and food waste processed into compost each year
 - New MRF opened in 2018
- Last Chance Mercantile
 - Sells donated reusable goods
- Landfill Gas-to Electricity Facility
 - Captures 920 million cubic feet of methane and carbon dioxide per year to provide clean power
- Keith Day compost facility processes organic material used primarily for agriculture fertilizer

¹⁷ ReGen Monterey. 2018. Facilities. <https://regenmonterey.org/facilities/>

ReGen Gas to Energy

- ReGen Monterey launched a completed a 6-year pilot project in 2020 in partnership with Zero Waste Energy, LLC to operate a dry fermentation anaerobic digester.^{18,19}
 - The facility processes approximately 5,000 tons of food and green waste per year which generates approximately 100 kW of electricity per day
- ReGen Monterey's landfill gas-to-electric energy plant captures methane and carbon dioxide gases from refuse to provide clean power to ReGen Monterey facilities²⁰
 - This facility collects more than 2.6 million cubic feet of gas per day and generates 5 megawatts of power used to power ReGen's facilities and approximately 3,000 homes. Excess power is sold back to the PG&E for general use.
- SB 1383 requires jurisdictions to recycle 75% of organic waste by 2025; diversion of organic waste will help jurisdictions, including Marina, meet this goal.

¹⁸ ReGen Monterey. Zero Waste Energy, LLC and Monterey Regional Waste Management District Announce the Completion of the SmartFerm Anaerobic Digestion Facility Pilot Test Program. <https://regenmonterey.org/archives/2019%20Board%20Packets/September/Gm%20Comments.pdf>

¹⁹ ZeroWaste. 2013. Marina, California: Pilot Anaerobic Digester For SSO. <https://zerowasteenergy.com/marina-california-pilot-anaerobic-digester-for-ss/>

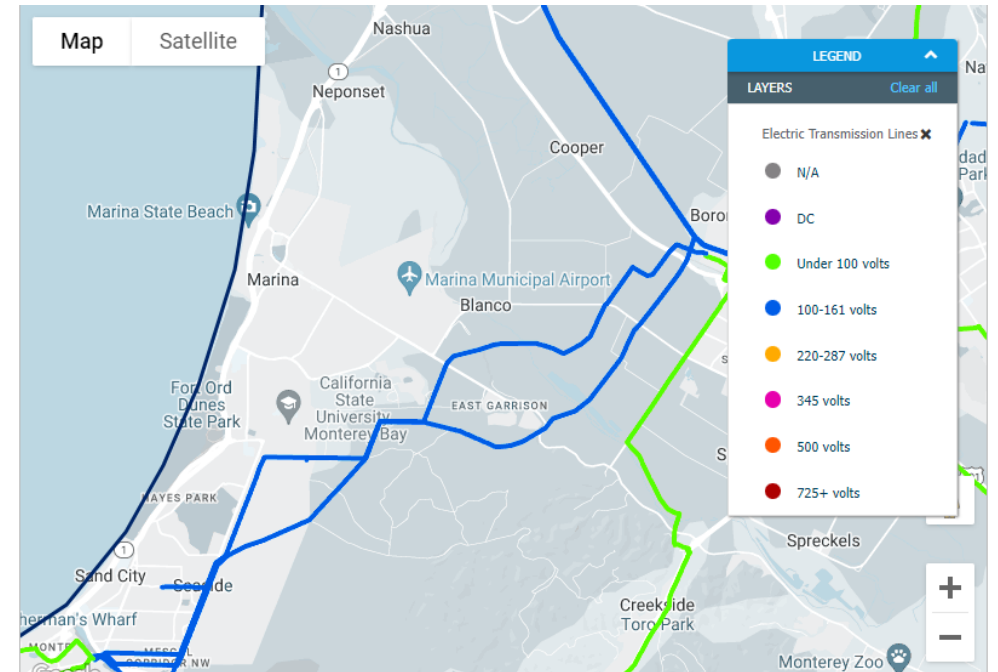
²⁰ ReGen Monterey. 2023. Landfill Gas to Energy Facility. <https://regenmonterey.org/landfill-gas-to-energy-facility/>

Dry Utilities

Electricity

- PG&E and Central Coast Community Energy (3CE) are the electricity providers for Marina.²¹
 - PG&E owns the electrical grid and delivers electricity to all PG&E and 3CE customers
- 3CE (community owned electricity provider) serves 95% of the population in Monterey County²¹
 - 3Cprime option provides customers with 100% renewable energy from wind and solar
 - 3Cchoice option provides customers with electricity generated from 31% renewable sources

PG&E Electric Transmission Lines²²



²¹ Central Coast community Energy. 2023. <https://3cenergy.org/>

²² PG&E. 2023. Economic Development Site Tool. https://www.pge.com/en_US/large-business/services/economic-development/opportunities/sitetool.page

Electricity

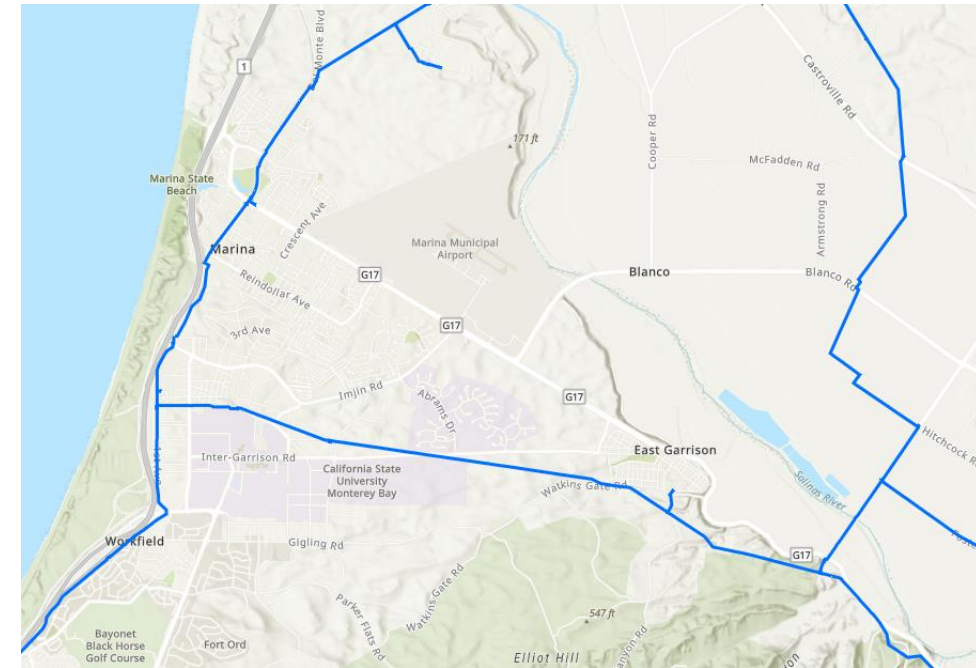
- 3CE's goal is to achieve 60% renewable energy by 2025 and 100% renewable energy by 2030
- 3CE programs to accelerate electrification include the following:²³
 - **Agricultural Electrification:** rebates for switching to electric equipment
 - **Electrify Your Ride:** rebates for electric vehicles and chargers, and assistance to support electric vehicle charger installation
 - **Electrify Your Home:** rebates for switching to electric water heaters and HVAC systems
 - **School Bus Electrification:** rebates to school districts for switching out diesel-burning school buses through purchases and leases of electric buses
 - **New Construction Electrification:** rebates for housing developers and homeowners to build all-electric housing

²³ Central Coast Community Energy. 2022. 2022 Annual Report. https://3cenergy.org/wp-content/uploads/2023/02/3CE_AnnualReport_2022_final-v3-spreads.pdf

Natural Gas

- PG&E is the natural gas provider for the City of Marina and owns the natural gas transmission and distribution pipeline system.²⁴
- While Marina has not adopted an electrification mandate, many jurisdictions have begun to shift away from natural gas.
- Effective January 1, 2023, the California Energy Commission adopted the 2022 Building Energy Efficiency Standards encouraging all-electric heat pumps for space and water heating and requiring single-family homes to be “all-electric ready.” Newly constructed buildings, and alterations and additions to existing buildings, are required to be compliant with these standards statewide.

PG&E Natural Gas Transmission Lines²⁵



²⁴ City of Marina. 2000. Final Environmental Impact Report on the Draft Marina General Plan. <https://www.cityofmarina.org/DocumentCenter/View/1158/final-eir-pdf?bidId=>

²⁵ PG&E. 2023. Gas Transmission Pipeline. https://www.pge.com/en_US/safety/how-the-system-works/natural-gas-system-overview/gas-transmission-pipeline/gas-transmission-pipelines.page

Telecommunications

- Comcast and AT&T are the major telecom providers in Marina.
- Comcast does not offer fiber optic services;²⁶ AT&T provides limited access to their fiber optic network
- Expanding broadband access was a priority for the City Council in the 2022/23 fiscal year, including pursuing a feasibility study for enhanced access to high-speed internet services in the city.²⁷
- The County of Monterey is currently working to expand broadband access throughout the county, including establishing fiber optic infrastructure.²⁸



AT&T



COMCAST
xfinity

²⁶ City of Marina. 2021. Resolution No. 2021-43. <https://www.cityofmarina.org/ArchiveCenter/ViewFile/Item/10688>

²⁷ City of Marina. 2021. 2021-2022 2022-2023 Adopted Budget. <https://www.cityofmarina.org/DocumentCenter/View/12368/City-of-Marina-Final-Budget-Fiscal-Year-21-22-and-22-23--Website>

²⁸ County of Monterey. 2023. County of Monterey Broadband for All. <https://www.co.monterey.ca.us/residents/needs/broadband/community-input-on-broadband-service>

Key Findings

Key Findings

- There is adequate water supply to supply the Marina Coast Water District (MCWD) service area through the year 2040.²⁹
- MCWD will purchase recycled water from Monterey One Water's Advanced Water Purification Plant and distribute it for urban landscape irrigation uses as available.²⁹
- The Wastewater Treatment Facility has excess capacity to accommodate new regional development.
- Marina's existing stormwater drainage system is decentralized and considered adequate to manage stormwater flows.²⁹
- Marina has limited broadband access and lacks opportunities to establish fiber optic internet access.³⁰

²⁹ MCWD. 2020. 2020 Urban Water Management Plan. https://www.mcwd.org/docs/2021_uwmp/DRAFT_MCWD_2020_UWMP_v20210520.pdf

³⁰ City of Marina. 2021. Resolution No. 2021-43. <https://www.cityofmarina.org/ArchiveCenter/ViewFile/Item/10688>