City Of Merced Wastewater Collection System Master Plan

DRAFT ENVIRONMENTAL IMPACT REPORT

CHAPTER 3.7 GREENHOUSES GASES AND ENERGY RESOURCES
September 2020

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3.7 GREENHOUSE GASES AND ENERGY RESOURCES

3.7.1 Basis for Analysis

The California Environmental Quality Act (CEQA) Guidelines' Appendix G Environmental Checklist was used during the Notice of Preparation (NOP) scoping process (included in Appendix A) to identify the Program components that have the potential to cause a significant impact. The following potential impacts were determined to warrant further evaluation within this Environmental Impact Report (EIR):

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.
- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The remainder of this section describes the regulatory and environmental setting to support the evaluation of the potential impacts and describes the potential impacts to greenhouse gases (GHGs) or energy resources that may result from implementation of the Program, identifying mitigation for significant impacts, where feasible.

3.7.2 Regulatory Framework

This section discusses the federal and state regulations and local policies and objectives related to GHGs and energy resources that are relevant to the Program.

3.7.2.1 Federal

Greenhouse Gas Endangerment

On April 2, 2007, in *Massachusetts v. USEPA*, 549 US 497, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act (CAA). The Supreme Court held that the Unites States Environmental Protection Agency (USEPA) must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, USEPA is required to follow the language of Section 202(a) of the CAA.

On April 17, 2009, the USEPA Administrator signed proposed "endangerment" and "cause or contribute" findings for GHGs under Section 202(a) of the CAA. USEPA held a 60-day public comment period, considered public comments, and issued final findings. USEPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. USEPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the greenhouse effect as air pollution that endangers public health and welfare under CAA Section 202(a).

Clean Vehicles

The Energy Policy and Conservation Act of 1975 (EPCA) mandated that the National Highway Traffic Safety Administration (NHTSA) establish and implement a regulatory program for motor vehicle fuel economy, known as the corporate average fuel economy (CAFE) program, to reduce national energy consumption. As codified in Chapter 329 of Title 49 of the U.S. Code (U.S.C.) and, as amended by the Energy Independence and Security Act of 2007 (EISA), EPCA sets forth specific requirements concerning the establishment of average fuel economy standards for passenger cars and light trucks. These are motor vehicles with a gross vehicle weight rating less than 8,500 pounds and medium-duty passenger vehicles with a gross vehicle weight rating less than 10,000 pounds. The Secretary of Transportation delegated responsibility for implementing the CAFE program to NHTSA.

EISA, enacted by Congress in December 2007, amended the EPCA CAFE program requirements by providing the Department of Transportation (DOT) additional rulemaking authority and responsibilities. Consistent with its statutory authority, in rulemaking to establish CAFE standards for model year 2017 and beyond passenger cars and light trucks, NHTSA developed two phases of standards. The first phase included final standards for model years 2017–2021. The second phase, covering model years 2022–2025, included standards that were not final, due to the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time. Rather, NHTSA wrote that those standards were augural, meaning that they represented its best estimate, based on the information available at that time, of what levels of stringency might be maximum feasible in those model years. In 2012, the agencies jointly adopted more stringent Phase 2 standards for light duty cars and trucks, which would cover model years 2017 through 2025. In August of 2016, the agencies adopted more stringent Phase 2 standards for medium- and heavy-duty vehicles, which would cover model years 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks.

On March 31, 2020, NHTSA and the USEPA released a new rule, the final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, setting CAFE and carbon dioxide (CO_2) emissions standards for model years 2021 through 2026 passenger cars and light trucks. The rule rolls back the 2012 standards for model years 2021 through 2026 for passenger cars and light trucks which required an average fleetwide fuel economy equivalent of 54.5 miles per gallon in model year 2025 with a 5 percent annual increase to an average fuel economy of about 40 miles per gallon in model year 2025 with annual increases of 1.5 percent starting in 2021. As a part of issuing the new SAFE rule, NHTSA issued a Final Environmental Impact Statement which found that the relaxed standards would result in increased petroleum consumption which in turn would result in increases to greenhouse gases and criteria pollutants known to contribute to adverse health impacts (NHTSA 2020). These estimated increases from the roll back of the 2012 standards are expected to result in more than a billion metric tons additional climate pollution through 2040 as determined by calculating the difference from the reduction of 2 billion metric tons the 2012 rule was expected to accomplish compared to the standards of the 2020 rule (NHTSA 2020).

Mandatory Reporting of Greenhouse Gases

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the United States and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and

engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to USEPA.

New Source Review

USEPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs, which defines when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities would be required to obtain Prevention of Significant Deterioration and Title V permits. USEPA estimates that facilities responsible for nearly 70 percent of the national GHG emissions from stationary sources would be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units.

As required by a settlement agreement, USEPA proposed new performance standards for emissions of CO_2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts would be required to meet an output-based standard of 1,000 pounds of CO_2 per megawatt-hour, based on the performance of widely used natural gas combined cycle technology. On March 28, 2017, Executive Order (EO) on Energy Independence (EO 13783) was ordered which calls for a review of the Clean Power Plan. On October 16, 2017, USEPA issued the proposed rule Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units an Energy Independence (USEPA 2018a).

Cap-and-Trade

"Cap-and-trade" refers to a policy tool where emissions are limited to a certain amount and can be traded or provide flexibility on how the emitter can comply. There is no current federal GHG cap-and-trade program; however, some states have joined to create initiatives to provide mechanisms for cap-and-trade.

The Regional Greenhouse Gas Initiative, which began in 2008, is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy.

The Western Climate Initiative partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15 percent below 2005 levels by 2020. The partners are California, British Columbia, Manitoba, Ontario, and Quebec. Currently only California and Quebec are participating in the cap-and-trade program (C2ES 2015).

3.7.2.2 State

Assembly Bill 32

The California State Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include CO_2, methane (CH_4), nitrogen oxides (NO_X), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. The California Air Resources Board (CARB) is the state agency charged with monitoring and regulating sources of GHGs. AB 32 states the following:

> *Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.*

CARB approved the 1990 GHG emissions level of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) on December 6, 2007 (CARB 2007). Therefore, to meet the state's target, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a business as usual (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (CARB 2008). At that rate, a 28 percent reduction was required to achieve the 427 $MMTCO_2e$ 1990 inventory. In October 2010, CARB prepared an updated 2020 forecast to account for the effects of the 2008 recession and slower forecasted growth. The 2020 inventory without the benefits of adopted regulation is now estimated at 545 $MMTCO_2e$. Therefore, under the updated forecast, a 21.7 percent reduction from BAU is required to achieve 1990 levels (CARB 2010).

Progress in Achieving Assembly Bill 32 Targets and Remaining Reductions Required

The state has made steady progress in implementing AB 32 and achieving targets included in EO S-3-05. The progress is evident in updated emission inventories prepared by CARB, which showed that the state inventory dropped below 1990 levels for the first time in 2016 (CARB 2018). CARB's Climate Change Scoping Plan (Scoping Plan) (subsequently amended by the 2017 update) includes projections indicating that the state would meet or exceed the 2020 target with adopted regulations (CARB 2017).

CARB 2008 Scoping Plan

The Scoping Plan contains measures designed to reduce the state's emissions to 1990 levels by the year 2020 to comply with AB 32 (CARB 2008). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include the following:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;

- Developing a California Cap-and-Trade Program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed Cap-and-Trade Program. The Scoping Plan states that the inclusion of these emissions within the Cap-and-Trade Program would help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. Uncapped strategies that will not be subject to the cap-and-trade emissions caps, and requirements are provided as a margin of safety by accounting for additional GHG emission reductions (CARB 2008).

Cap-and-Trade Program

The Cap-and-Trade Program is a key element of the Scoping Plan. It sets a statewide limit on sources responsible for 85 percent of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The program is designed to provide covered entities the flexibility to seek out and implement the lowest cost options to reduce emissions. The program conducted its first auction in November 2012. Compliance obligations began for power plants and large industrial sources in January 2013. Other significant milestones include linkage to Quebec's Cap-and-Trade system in January 2014 and starting the compliance obligation for distributors of transportation fuels, natural gas, and other fuels in January 2015.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit would not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are guaranteed only on an accumulative basis.

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program would be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program would be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California would meet its 2020 GHG emissions reduction mandate.

CARB approved the First Update to the Scoping Plan (Update) on May 22, 2014. The Update identified the next steps for California's climate change strategy. The Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report

established a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

Assembly Bill 398

The Governor signed AB 398 on July 25, 2017, to extend the Cap-and-Trade Program to 2030.The legislation includes provisions to ensure that offsets used by sources are limited to 4 percent of their compliance obligation from 2021 to 2025 and 6 percent of their compliance obligation from 2026 through 2030. AB 398 also prevents air districts from adopting or implementing emission reduction rules from stationary sources that are also subject to the Cap-and-Trade Program (CARB 2017).

Senate Bill 32

Senate Bill (SB) 32 was signed into law on September 8, 2016. SB 32 gives CARB the statutory responsibility to include the 2030 target previously contained in EO B-30-15 in the 2017 Scoping Plan Update. SB 32 states that “In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030.”

2017 Climate Change Scoping Plan Update

The 2017 Climate Change Scoping Plan Update was adopted on December 14, 2017 amending the 2008 Scoping Plan and addresses the SB 32 targets. The major elements of the framework proposed to achieve the 2030 target are as follows:

1. SB 350
    a. Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
    b. Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard
    a. Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
    a. Maintaining existing GHG standards for light- and heavy-duty vehicles.
    b. Put 4.2 million zero-emission vehicles on the roads.
    c. Increase zero-emission vehicles buses and delivery and other trucks.
4. Sustainable Freight Action Plan
    a. Improve freight system efficiency.

   b. Maximize use of near-zero emission vehicles and equipment powered by renewable energy.

   c. Deploy over 100,000 zero-emission trucks and equipment by 2030.

5. Short-Lived Climate Pollutant Reduction Strategy

   a. Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.

   b. Reduce emissions of black carbon 50 percent below 2013 levels by 2030.

6. SB 375 Sustainable Communities Strategies

   a. Increased stringency of 2035 targets.

7. Post-2020 Cap-and-Trade Program

   a. Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.

   b. CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, CARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.

8. 20 percent reduction in GHG emissions from the refinery sector.

9. Develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Many of the measures included in the 2017 Climate Change Scoping Plan Update are implemented on a statewide level and do not specifically apply to the Program. However, the short-lived climate pollutants would be applicable to the Program through the use of cleaner construction equipment.

Senate Bill 375: The Sustainable Communities and Climate Protection Act of 2008

SB 375 was signed into law on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits more than 40 percent of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

CARB has prepared the Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. The update includes an increase in the 2035 target for Merced County from 10 percent to 14 percent.

Assembly Bill 1493: Pavley Regulations and Fuel Efficiency Standards

AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations and fuel efficiency standards that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by USEPA's denial of an implementation waiver. USEPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011.

The standards were phased in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards resulted in an approximately 22 percent reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards resulted in about a 30 percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation, rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for AB 1493 was incorporated into Amendments to the Low-Emission Vehicle Program, referred to as LEV III or the Advanced Clean Cars program. The Advanced Clean Cars program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation would reduce GHGs from new cars by 34 percent from 2016 levels by 2025. The rules would reduce pollutants from gasoline and diesel-powered cars and would deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles, and hydrogen fuel cell cars. The regulations would also ensure that adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

Senate Bill 1368: Emission Performance Standards

In 2006, the State Legislature adopted SB 1368, which was subsequently signed into law by the governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant.

Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the state. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 pounds of CO_2 per megawatt-hour (MWh).

Senate Bill 1078: Renewable Electricity Standards

On September 12, 2002, Governor Gray Davis signed SB 1078, requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed EO S-14-08, which established an RPS target for California requiring

that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Governor Schwarzenegger signed EO S-21-09, which directed CARB to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010, by Resolution 10-23. In 2011, the State Legislature adopted this higher standard in SB X1-2. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The legislature approved and the governor then signed SB 350 on October 7, 2015, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations.

Senate Bill 100: California Renewables Portfolio Standard Program.

The Governor approved SB 100 on September 10, 2018. The legislation revised the RPS goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024; 52 percent by December 31, 2027; and 60 percent by December 31, 2030.

Senate Bill X7-7: The Water Conservation Act of 2009

SB X7-7 directs urban retail water suppliers to set individual 2020 per capita water use targets and to begin implementing conservation measures to achieve those goals. Meeting this statewide goal of 20 percent decrease in demand will result in a reduction of almost 2 million acre-feet of urban water use in 2020.

Executive Order S-3-05

On June 1, 2005, former California Governor Arnold Schwarzenegger announced EO S-3-05, which announced the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an EO, the goals are not legally enforceable for local governments or the private sector.

Executive Order B-30-15

On April 29, 2015, Governor Edmund G. Brown Jr. issued EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris in late 2015. The

EO sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030 in order to ensure that California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The EO also requires the state's climate adaptation plan to be updated every 3 years and for the state to continue its climate change research program, among other provisions. As with EO S-3-05, this EO is not legally enforceable against local governments and the private sector. Legislation that would update AB 32 to provide post-2020 targets was signed by the Governor in 2016. SB 32 includes a 2030 mandate matching the requirements of the EO.

Executive Order S-01-07: Low Carbon Fuel Standard

The governor signed EO S 01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the EO established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to CARB for consideration as an "early action" item under AB 32. CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

The LCFS was subject to legal challenge in 2011. Ultimately, CARB was required to bring a new LCFS regulation for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. The Office of Administrative Law approved the regulation on November 16, 2015. The regulation was last amended in 2018.

Executive Order S-13-08

EO S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the EO, the 2009 California Climate Adaptation Strategy was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-55-18

EO B-55-18 issued by Governor Brown on September 10, 2018, establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and to achieve and maintain net negative emissions thereafter. The EO directs CARB to work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal.

California Energy Code

Compliance with the California Energy Code (Title 24, Part 6, of the California Code of Regulations [CCR], California's Energy Efficiency Standards) and Title 20, Public Utilities and Energy, standards must occur for all new buildings constructed in California. These efficiency standards apply to new construction of both residential and nonresidential (i.e., maintenance buildings and pump station buildings associated with the Program) buildings, and they regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit processes, and local government agencies may adopt and enforce energy standards for new buildings provided that these standards meet or exceed those provided in the Title 24 guidelines.

3.7.2.3 Local

San Joaquin Valley Air Pollution Control District

On December 17, 2009, the San Joaquin Valley Air Pollution Control District (SJVAPCD) Governing Board adopted "Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA," and the policy "District Policy—Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency." SJVAPCD concluded that the existing science is inadequate to support quantification of the impacts that project-specific GHG emissions have on global climate change. SJVAPCD found the effects of project-specific emissions to be cumulative, and without mitigation, their incremental contribution to global climate change could be considered cumulatively considerable. SJVAPCD found that this cumulative impact is best addressed by requiring all projects to reduce their GHG emissions, whether through project design elements or mitigation.

Merced Vision 2030 General Plan

The City of Merced (City) Vision 2030 General Plan (2030 General Plan), adopted January 3, 2012 (City of Merced 2012) contains several policies that directly or indirectly pertain to GHG emissions and energy resources, including the following:

Goal Area SD-3: Sustainable Development Policies

- **Policy SD-3.1.** Promote the use of Solar Energy and other Alternative Energy Resources

City of Merced Climate Action Plan

The City's Climate Action Plan (CAP) was adopted in 2012 and includes goals, strategies, and actions to reduce local community GHG emissions to 1990 levels by the year 2020. Although the CAPs planning timeframe predates the start of construction for the Program which would occur in 2022 at the earliest, certain goals and strategies would continue to be carried forward as the City contemplates next steps in its climate action planning. Specific goals and strategies that are presented in the Merced CAP that are relevant to the Program are included below (City of Merced CAP 2012):

Goal 4. Protect Air Resources (AR)

- **Strategy AR 4.2:** Clean Trips-Clean Vehicles
    - Action Strategy AR 4.2.4: Reduce Idling. Identify actions that result in win-win outcomes for the community and community members, and implement through feasible and reasonable means, which may or may not include an ordinance amendment.
    - Action Strategy AR 4.2.9: Explore methods, and implement where appropriate, actions to reduce heavy-duty diesel emissions. For example, support clean heavy-duty fleets by facilitating the conversion of heavy-duty trucks to clean fuels while also encouraging the provision of alternative fuel infrastructure and operational requirements.

Goal 6: Increase the Use of Renewable Energy Sources (RE)

- **Strategy RE 6.1:** Renewable Energy Systems
    - Action Strategy RE 6.1.3: Explore methods to encourage new commercial and industrial land uses greater than a certain size to utilize on-site renewable energy systems to offset a minimum percentage of the projected building energy use. Renewable energy systems may include energy generated by solar, wind geothermal, water, or bio-based energy capture systems.
    - Action Strategy RE 6.1.5: Install methane-powered electric generators at the City's Wastewater Treatment Reclamation Facility (WWTRF) when feasible. Take interim steps necessary to achieve this goal.

Goal 7: Building Energy Conservation (BE)

- **Strategy BE 7.1:** Green City Facilities and Infrastructure
    - Action Strategy BE 7.1.3: Consider use of renewable energy systems on City-owned facilities, providing assessment and options for City Council review and discussion.
    - Action Strategy BE 7.1.6: Improve energy efficiency when replacing equipment, renovating, or constructing.

3.7.3 Environmental Setting

GHGs and climate change are cumulative global issues. CARB and USEPA regulate GHG emissions within California and the U.S., respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. Additionally, the Program Study Area is located within the San Joaquin Valley Air Basin (SJVAB) and within the jurisdiction of the SJVAPCD.

Many chemical compounds in the earth's atmosphere act as GHGs, as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected back into the atmosphere as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the Sun to the Earth's surface should be approximately equal to the amount of

energy radiated back into space, leaving the temperature of the Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, CO_2, CH_4, and nitrous oxide [N_2O]), while others are exclusively human-made (like gases used for aerosols) (USEPA 2018b).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below:

- **Carbon Dioxide:** CO_2 enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO_2 is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane:** CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide:** N_2O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** Hydrofluorocarbons, perfluorinated chemicals, and Sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

3.7.4 Environmental Impacts

This section analyzes the Program's potential to result in significant impacts to GHGs and energy resources. When an impact was determined to be potentially significant, feasible mitigation measures (MMs) were identified to reduce or avoid that impact.

3.7.4.1 Impact Analysis

Methodology for Analysis

Under CEQA, establishing significance thresholds is at the discretion of the lead agency. Outside of adopting their own thresholds, lead agencies often look to guidance provided by expert resource agencies such as the CARB or the applicable air pollution control district (APCD) or air quality management district (AQMD) whose purpose is to provide technical guidance on the resources they oversee. Many APCDs and AQMDs provide guidance on the assessment of air quality and GHG emissions and their potential for significant impacts based on the impacts identified in Section 3.7.1, Basis for Analysis, and proscribe recommendations for mitigating impacts.

The Program Study Area falls within the jurisdiction of SJVAPCD. SJVAPCD guidance on determining impact significance recommends three conditions in which a project's impacts would be less than significant:

1. If the project complies with an approved GHG reduction plan:

   CAPs are typically the most applicable GHG reduction plans to the SJVAPCD criteria. Merced's CAP was adopted in 2012; however, the 2020 emission reduction targets to 1990 levels it sets forth have since been superseded by the state's 2017 Scoping Plan, which sets reduction targets for the year 2030. Since 2012, The

City has been in the process of updating the CAP with the preparation of a Programmatic CAP. A draft of the Programmatic CAP was released in 2015, but to date it has not been finalized, and similar to the 2012 CAP, the Programmatic CAP only considers 2020 emission reduction targets. Since the CAPs present targets that would occur before Program construction activities are initiated, this negates the Program's ability to meet the goals of the CAP in the first place. As such, the City's CAP is not considered to be an applicable approved GHG reduction plan.

2. If the project implements Best Performance Standards (BPS):

   The second criteria for evaluating significance, BPS, is intended for stationary sources and development projects. The SJVAPCD has established BPS for certain stationary sources and has provided draft BPS for development projects but not for construction emissions associated with those types of projects. Impacts resulting from implementation of the Program, including project components would be largely construction-related and thus, BPS standards would not apply.

3. The project reduces operational GHG emissions by at least 29 percent over BAU conditions (demonstrated quantitatively).

   The final criteria, BAU, calls for an assessment of the statewide GHG emissions reduction from the BAU emission condition. In other words, an assessment of the reduction of GHG emissions at a future date that would be based on a percentage decrease of historic GHG levels (typically levels in the year 1990). Establishing the methodology for determining what BAU conditions and what targets should be has been the subject of recent legislation and legal proceedings and is currently still unsettled. Both AB 32 (21.7 percent below 1990 GHG levels by 2020) and SB 32 goals (40 percent below 1990 GHG levels by 2020), EO S-3-05 (80 percent below 1990 GHG levels by 2050), and the legal proceedings surrounding assessments based on their standards have brought to light the validity of applying statewide efficiency-based thresholds to project-level impact evaluations.

The Newhall Ranch (*Center For Biological Diversity, et al. v. California Department of Fish and Wildlife* [The Newhall Land and Farming Company, Real Party in Interest] [2015] 62 Cal.4th 204) decision affirmed that "thresholds only define the level at which an environmental effect 'normally' is considered significant; they do not relieve the lead agency of its duty to determine the significance of an impact independently." The Court went on in the decision to suggest approaches in which the lead agency could undertake to establish significance thresholds. Of the recommended approaches, establishment of a quantitative threshold is the most applicable to assessment of the Program's impacts since they are mainly construction based.

Establishment of Quantitative Thresholds

These quantitative thresholds can be established by APCDs and AQMDs based on best available data to determine quantitative values in which emissions beyond that value would result in a significant impact within their jurisdiction. To date, SJVAPCD has not adopted quantitative thresholds, so the City looked to nearby and similarly situated air districts to identify quantitative thresholds that would best evaluate the potential significance of the Program GHG emissions. A review of air districts with established quantitative thresholds shown in Table 3.7-1 identified the Sacramento Metropolitan Air Quality Management District (SMAQMD) as having the most applicable and conservative construction and operational thresholds. The SMAQMD threshold was selected because as discussed in the SMAQMD Guide to Air Quality Assessment in Sacramento County, the thresholds would ensure that at least 90

percent of new GHG emissions would be reviewed and assessed for mitigation, which would thereby contribute to GHG emission reduction goals set by AB 32, SB 32, the CARB Scoping Plan, and EO S-3-05.

Table 3.7-1: Adopted GHG CEQA Quantitative Significance Thresholds in California

Agency	Construction Threshold ($MTCO_2e$)	Operational Threshold ($MTCO_2e$)
Bay Area Air Quality Management District	N/A	Project: 1,100 Stationary: 10,000
East Kern Air Pollution Control District	N/A	Stationary: 25,000
Monterey Bay Unified Air Pollution Control District	N/A	Stationary: 25,000
Mojave Desert Air Quality Management District	100,000	100,000
Antelope Valley Air Quality Management District	100,000	100,000
Santa Barbara County Air Pollution Control District	N/A	Stationary: 10,000
San Luis Obispo Air Pollution Control District	N/A	Project: 1,150 Stationary: 10,000
South Coast Air Quality Management District	N/A	Commercial Project: 1,400 Mixed Use Project: 3,000 Residential Project: 3,500 Stationary: 10,000
Sacramento Metropolitan Air Quality Management District	1,100[1]	Project: 1,100 Stationary: 10,000

Notes:

1. SMAQMD states in its CEQA guidance that “Lead agencies may decide to amortize the level of short-term construction emissions over the expected (long-term) operational life of a project.”

Key:

$MTCO_2e$ = million tons of carbon dioxide equivalent

N/A = not applicable

The specific methodology for assessing the impacts of the Program, including its components compared to the SMAQMD quantitative thresholds was completed in accordance with current industry guidance, including SMAQMD’s CEQA Guidance and the California Association of Environmental Professionals Climate Change Committee’s guidance for assessing GHG impacts in the post-2020 timeframe and post-Newhall Ranch, "Final White Paper Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California,” published in October 2016 (AEP 2016). The SMAQMD has also adopted a threshold of 1,100 $MTCO_2e$ for construction and operation of land use development projects, such as new residential and commercial projects. SMAQMD bright-line thresholds were developed for commercial projects, residential projects, and stationary sources. Commercial and residential bright-line thresholds are typically based on a market capture rate or a gap analysis, which is tied back to AB 32 reduction targets (1990 levels by 2020). These quantitative thresholds reflect local or regional land use conditions, particularly residential and commercial density, and access to transit.

The SMAQMD numerical threshold may be viewed as an acceptable CEQA assessment tool by SJVAPCD considering their absence of a recommended threshold. The 1,100 $MTCO_2e$ threshold is used to determine the Program's potential to generate GHG emissions that may have a significant impact on the environment or conflict with an applicable GHG plan, policy, or regulation.

Additionally, the Program's compliance with applicable measures from the City's CAPs, the AB 32 Scoping Plan, and the 2017 Scoping Plan Update (SB 32 target year) would be used to determine potential conflicts with GHG reduction plans.

Impact GHG-1	**Generate greenhouse gas emissions, either directly, or indirectly, that may have a significant impact on the environment.**

Impact GHG-1 Analysis

Combined Program/Proposed Project Impacts

The City's 2030 General Plan and 2030 General Plan Draft EIR assessed GHG emissions associated with reasonable build-out of the SUDP/SOI for construction and operational activities associated with that reasonable build-out, finding that potential GHG emissions would result in significant, cumulatively considerable, and unavoidable impact. The 2030 General Plan Draft EIR concluded, "Until the SJVAPCD modifies regulations to address the emission of greenhouse gases, specific mitigations that would address climate change locally are speculative. As the SJVAPCD modifies its plans and policies to address global warming considerations, CEQA documents will have to consider those plans and policies when assessing projects. The air quality impact analysis in [the General Plan EIR] include[s] mitigation measures at the local level to reduce atmospheric greenhouse gas emissions in accordance with existing plans and policies to address global climate change. However, development under the… [2030] General Plan in combination with growth and development at the regional level, would result in a significant, cumulatively considerable and unavoidable impact." As described further in the following subheadings, the Program and proposed Project were considered as a part of the 2030 General Plan build-out and are consistent with the plans and policies of the 2030 General Plan. Additionally, as described in Section 3.2, Air Quality, many plans, policies, and regulations related to Air Quality and Greenhouse Gas emissions have subsequently taken into account GHG emissions and established reduction targets more clearly outlining assessment of significant impacts. This means that while the 2030 General Plan Draft EIR found GHG emissions as a result of plan implementation to be significant, cumulatively considerable, and unavoidable, impacts under the Program require an individual assessment based on considerations of most recent plans, policies, and regulations.

Construction

Direct GHG emission impacts were assessed for both construction and operation activities associated with the Program and the proposed Projects by looking at the CO_2 equivalent. The primary sources of Program-related GHG emissions would occur temporarily from combustion of fossil fuels from the operation of internal combustion engines (portable equipment, off road equipment, and vehicles) during construction activities. Table 3.7-2 shows the estimated construction emissions associated with the proposed Projects for 2022, 2023, and 2024 and total estimated emissions. Further construction equipment and durations associated with the Program activities were conservatively estimated to represent 10 percent of the total construction emissions associated with the three

proposed Projects modeled in Table 3.7-2 since projects implemented subsequent to the proposed Projects would have smaller footprints, be shorter in duration, and require less equipment.

Table 3.7-2: Estimated Program and Proposed Project Construction GHG Emissions

Year	$MTCO_2e$			
	Northern Trunk Sewer	**Southern Trunk Sewer**	**WWTRF Expansion**	**Total**
2022	523	291	312	1,126
2023	550	169	196	915
2024	107	0	0	107
Total Proposed Project Emissions	**1,180**	**460**	**508**	**2,148**
Total Program Emissions	**N/A**	**N/A**	**N/A**	**214.8**
Project Emissions Amortized[1]	39	15	17	72
Program Emissions Amortized[1]				7
Total Amortized Construction Emissions[1]				**79**

Notes:
[1]Amortized over 30-year Program planning horizon
Key:
$MTCO_2e$ = million tons of carbon dioxide equivalent
N/A = not applicable
WWTRF = Wastewater Treatment and Reclamation Facility

As shown in Table 3.7-2, the Northern Trunk Sewer, Southern Trunk Sewer, and WWTRF projects would have 1,180, 460, and 508 $MMTCO_2e$ emissions, respectively, and subsequent Program activities are estimated to have 214.8 $MMTCO_2e$ emissions total. Because construction impacts from any one component of the Program or proposed Projects would be relatively short in duration (anticipated to be 5 years and realistically 2 years or less), they would contribute a relatively small portion (less than a quarter) of the overall lifetime GHG emissions of the Program. Further, GHG emission reduction measures for construction equipment are relatively limited, meaning that there are few measures that would help reduce GHG emissions from construction. While, individually these estimates are below or slightly above the 1,100 $MMTCO_2e$ threshold of the SMAQMD, following the standard practice of amortization, which factors GHG impacts over the anticipated lifetime of a program or project to consider the GHG reduction measures and strategies that would decrease GHG emissions to the levels envisioned by the plans and regulations identified in Section 3.7.2, Regulatory Setting, the GHG emissions associated with construction of the Program and the proposed Projects are substantially below the SMAQMD construction threshold when considered over a 30 year period. Additionally, the mitigation measure in Section 3.3, Air Quality, MM AIR-3 would implement the SMAQMD best management practices for construction which would reduce emission of criteria pollutants, including CO_2. Based on the estimated results modeling for estimated CO_2 equivalent emissions construction over the life of the Program would not result in emissions of significant greenhouse gases that would have a significant environmental impact. Therefore, the impact for construction of the Program and proposed Projects would be less than significant.

Operation

CO_2 equivalent emissions during operation of the Program and proposed Projects are expected to be similar to existing operations, largely consisting of mobile source related emissions (i.e., worker commute trips and periodic facility maintenance visits). Indirect source emissions associated with the operation of the new or upgraded Program facilities would be generated from electrical consumption to power pump stations and additional equipment from the upgrades to the WWTRF; however, the energy consumption would be minimal and as such is not included in the emissions estimate. The operation of the facilities such as pump stations and the WWTRF would require backup generator(s) for unexpected power failures that could result in operational GHG-related emissions; however, the generator(s) would only be run during power outages and for intermittent routine maintenance. As a SJVAPCD-permitted low-use engine, the hours of the generator(s) would be limited to a maximum of 100 hours for the year and thus would not result in substantial generation of GHG emissions. Table 3.7-3 presents the summary of the estimated total GHG emissions associated with the Program including the proposed Projects.

Table 3.7-3: Estimated Annual Program Greenhouse Gas Emissions

Program	$MTCO_2e$ per year
Construction	79
Operational – Mobile	110
Operational - Stationary	23
Total	**212**
Threshold	1,100
Exceed Threshold?	No
Significant?	No

Key:
$MTCO_2e$ = million tons carbon dioxide equivalent
WWTRF = Wastewater Treatment and Reclamation Facility

As shown in Table 3.7-3, the Program's long-term emissions would be 212 $MTCO_2e$ and would be substantially less than the 1,100 MTCO2e SMAQMD threshold. These operational GHG emissions result from operation of the wastewater collection system and the WWTRF expanded under the Program to reasonable build-out conditions. This includes operational mobile estimates of approximately 22 $MTCO_2e$ per year for each 4 to 5 Mgal/day incremental increase of capacity at the WWTRF (up to 35 Mgal/day build-out for a total of 110 $MTCO_2e$ per year) as well as operation of stationary equipment such as back-up generators, construction emissions. Additionally, since the Program would not be completely built-out for more than a decade, it is likely that better technologies would be available in the future, which would further reduce GHG emissions from daily operations (including stationary and operational equipment). As such, GHG emissions associated with the Program and proposed Projects would be less than significant.

Therefore, the potential for the Program including the proposed Projects to generate substantial amounts of GHG emissions that would result in a significant effect on the environment would be less than significant.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Required: None required.

Level of Significance After Mitigation: Less than Significant

Impact GHG-1 Findings

Impact GHG-1 Overall Level of Significance Prior to Mitigation: Less than Significant

Impact GHG-1 Mitigation Required: None required

Impact GHG-1 Overall Level of Significance After Mitigation: Less than Significant

Impact GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases.

Impact GHG-2 Analysis

Program Impacts

Construction and Operation

Implementation of the Program would have a significant impact if it conflicted with the emission reduction goals set forth by AB 32 and SB 32. As discussed above, the GHG reductions in the City's CAP only address 2020 GHG emission levels for the City and are not applicable to the Program given the post-2020 start date for construction and operation. The Program's consistency with applicable goals and strategies is discussed in further detail below.

CARB has outlined a number of potential strategies for achieving the 2030 reduction target of 40 percent below 1990 levels. As previously described in Section 3.7.2, Regulatory Framework, these potential strategies include renewable resources for half of the state's electricity by 2030, reducing petroleum use in cars and trucks, and reducing the carbon content of transportation fuels. Implementation of the Program, including its components would comply with these future regulations, as promulgated by the USEPA, CARB, or other agencies and would not generate substantial amounts of GHG emissions that would hinder the state's ability to achieve the goals under SB 32, as evidenced by the less than significant amount of GHG emissions for the Program. Consistency with the SB 32 Scoping Plan measures is provided in Table 3.7-4.

Table 3.7-4: Consistency with Senate Bill 32 2017 Scoping Plan Update

Scoping Plan Measure	Project Consistency
SB 350 50 Percent Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33 percent in 2020 to 50 percent in 2030.	**Consistent:** The City would purchase electricity necessary to construct and operate the Program components from a utility subject to the SB 350 Renewable Mandate.
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels	**Consistent.** This measure applies to existing buildings. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency. Structures proposed include new pump stations WWTRF structures, which would be required to comply with the Title 24 standards.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Consistent**. Vehicles accessing the specific sites associated with Program components would use fuel

Scoping Plan Measure	Project Consistency
	containing lower carbon content as the fuel standard is implemented.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent.** The City would continue to "green" its fleet through implementation of its CAP. Potential on-road construction vehicles and operational haul trucks would be subject to the regulation. The vehicle fleet would continue to be cleaner as the regulation is implemented.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero-emission operation and maximize near-zero-emission freight vehicles and equipment powered by renewable energy by 2030.	**Not Applicable.** The measure applies to owners and operators of trucks and freight operations. The vehicles associated with construction and operation would not be subject to this rule.
SLCP Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Consistent.** Vehicles and equipment used to construct and operate Program components would minimize idling and encourage the use of cleaner construction equipment generating fewer SLCPs. The Program would be consistent with regulatory measures associated with SLCP strategies. The state is currently investigating strategies to reduce SLCPs by encouraging resource recovering wastewater treatment projects to help achieve the goal of reducing fugitive methane by 40 percent by 2030, to include the following: • Determining opportunities to support co-digestion of food-related waste streams at wastewater treatment plants. • Incentivizing methane capture systems at wastewater treatment plants to produce renewable electricity, transportation fuel, or pipeline biomethane
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled.	**Not Applicable.** The Program would not involve residential development.

Scoping Plan Measure	Project Consistency
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.
Natural and Working Lands Action Plan. CARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's EO B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The Program is a wastewater system and would not be considered natural or working lands.

Source: CARB 2017 Scoping Plan Update.

Key:

CAP = Climate Action Plan

CARB = California Air Resources Board

CEQA = California Environmental Quality Act

EO = Executive Order

GHG = greenhouse gas

LEV III = Low-Emission Vehicle Program

SB = Senate Bill

SLCP = Short-Lived Climate Pollutant

ZEV = zero-emission vehicle

The Program's consistency with applicable City CAP measures is provided in Table 3.7-5.

Table 3.7-5: Consistency with City of Merced Climate Action Plan

Goal/Strategies	Consistency Determination
Goal 4. Protect Air Resources (AR) • Strategy AR 4.2: Clean Trips-Clean Vehicles ○ Action Strategy AR 4.2.4: Reduce Idling. Identify actions that result in win-win outcomes for the community and community members, and implement through feasible and reasonable means, which may or may not include an ordinance amendment. ○ Action Strategy AR 4.2.9: Explore methods, and implement where appropriate, actions to reduce heavy-duty diesel emissions. For example, support clean heavy-duty fleets by facilitating the conversion of heavy-duty trucks to clean fuels while also encouraging the provision of alternative fuel infrastructure and operational requirements.	**Consistent**. MM AIR-3 would reduce vehicle idling associated with construction. Vehicles associated with bio-solids hauling would be subject to existing regulations prohibiting idling. The Program would not conflict with the City's ability to change out its fleet of vehicles for alternative-fueled vehicles or new model vehicles resulting in fewer emissions associated with diesel particulate matter.
Goal 6: Increase the Use of Renewable Energy Sources (RE) • Strategy RE 6.1: Renewable Energy Systems ○ Action Strategy RE 6.1.3: Explore methods to encourage new commercial and industrial land uses greater than a certain size to utilize on-site renewable energy systems to offset a minimum percentage of the projected building energy use. Renewable energy systems may include energy generated by solar, wind geothermal, water, or bio-based energy capture systems. ○ Action Strategy RE 6.1.5: Install methane-powered electric generators at the City's WWTP when feasible. Take interim steps necessary to achieve this goal.	**Not Applicable**. Action Strategy 6.1.3 is not applicable as the Program, including its components are not a new commercial or industrial land use. The Program would not conflict with the City's ability to implement Action Strategy RE 6.1.5. The use of methane-powered electric generators is currently being considered as part of the WWTRF upgrade design and if feasible would be incorporated into the overall WWTRF facilities operation. Green infrastructure, including low wattage lighting and solar and wind energy are currently being implemented where possible throughout City-facilities, including the wastewater collection system facilities.
Goal 7: Building Energy Conservation (BE) • Strategy BE 7.1: Green City Facilities and Infrastructure ○ Action Strategy BE 7.1.3: Consider use of renewable energy systems on City-owned facilities, providing assessment and options for City Council review and discussion. ○ Action Strategy BE 7.1.6: Improve energy efficiency when replacing equipment, renovating, or constructing.	**Consistent.** The Program would not preclude the City's ability to implement renewable energy infrastructure using the methane generated at the City's Wastewater Treatment Plant facility. Equipment installed under the Program would be more energy efficient than current equipment.

Key:
City = City of Merced
WTRF = Wastewater Treatment and Reclamation Facility
Source: City of Merced CAP 2012

As demonstrated above, the Program including the proposed Projects would be consistent with applicable GHG reduction measures from the state's Scoping Plan and measures from the City's CAP. The emissions associated with the Program and proposed Projects would be less than 1,100 $MTCO_2e$ and would result in a less than significant impact and thus would not have the potential to result in a conflict with the Scoping Plan or the City's CAP. Therefore, the Program and the proposed Projects would not conflict with an applicable plan, policy, or regulation with the purpose of reducing GHG emissions, and it would result in a less than significant impact.

Level of Significance Prior to Mitigation: Less than Significant Impact

Mitigation Required: None Required

Level of Significance After Mitigation: Less than Significant Impact

Impact GHG-2 Findings

Impact GHG-2 Overall Level of Significance Prior to Mitigation: Less Than Significant Impact

Impact GHG-2 Mitigation Required: None Required

Impact GHG-2 Overall Level of Significance After Mitigation: Less Than Significant Impact

Impact GHG-3	**Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.**

Impact GHG-3 Analysis

Program and Proposed Project Impacts

Implementation of the Program and the proposed Projects includes reasonable build-out of the area subject to the City's 2030 General Plan, which would result in increased capacity for wastewater generated within the Program Study Area. The new and upgraded wastewater collection system as well as the improvements to the existing WWTRF would require minimal energy consumption beyond what currently exists due to the use of a gravity fed system, to the extent feasible. Energy efficiencies would be incorporated into Program construction and operations, as specified by the federal, state, and local policies, and regulations pertaining to energy standards (See Section 3.7.2, Regulatory Framework). This would ensure that natural resources are conserved to the maximum extent possible (i.e., Energy Independence and Security Act of 2007, Title 10 Code of Federal Regulations, Part 431, Energy Efficiency Program for Certain Commercial, and Industrial Equipment, including Subpart B, Paragraph 431.25 for Electric Motors; and Subpart K, Paragraph 431.196 for Distribution Transformers and other regulations listed in Section 3.7.2, Regulatory Framework would be followed). However, specific components of the Program, such as pump stations, trunk sewers, and WWTRF expansions, would likely require an increase in energy consumption beyond what currently exists. Additional short-term construction-related energy consumption would also likely be required intermittently over the time that reasonable build-out is expected to occur. These additional construction and operational energy consumption impacts are discussed in further detail below.

Construction

Construction activities would consume energy through the operation of heavy off-road equipment, trucks, and worker traffic. Additional energy usage would occur as power for tools and equipment used onsite; including but not limited to gas generators, air compressors, and other typical direct construction energy uses.

Construction activities associated with the Program components would also use electricity and gas as a short-term consequence of construction of the Program and proposed Project components. Diesel and gasoline are the primary fuel types expected to be used to power construction equipment. Merced Irrigation District (MID) and Pacific Gas and Electric (PG&E) are the commercial electricity providers within the Program Study Area. Additionally, PG&E provides natural gas to customers as well. Table 3.7-6 provides a summary of the anticipated construction energy use associated with implementation of the Program.

Table 3.7-6: Program Construction Fuel Consumption

Source	Diesel Fuel Consumption (gallons)	Gasoline Fuel Consumption (gallons)
Off-road Equipment	112,198	0
Heavy Duty Trucks	7,616	0
Vendor Truck Trips	36,532	0
Worker Vehicles	0	69,855
Project Total	**156,347**	**69,855**
2018 Diesel Fuel Data for Merced County	132,000,000	39,000,000
Percentage of County	**0.12%**	**0.18%**

Source of Fuel Data: CEC 2020

Construction activities associated with the Program components would be similar to other construction activities occurring throughout the City's SUDP/SOI in that it would use typical construction equipment described Chapter 2.0, Project Description. Based on system capacity and review, the power and energy system within the Program Study Area is considered adequate to handle the limited and sporadic demand throughout construction of the Program including the proposed Projects, which would be similar to existing conditions from surrounding operations throughout the Program Study Area. As shown in Table 3.7-6, the amount of gasoline and diesel fuel that would be consumed if the Program is implemented would not represent a substantial fraction of the available gasoline and diesel fuel supply in Merced County. Furthermore, the Program would comply with the state's anti-idling and emissions regulations, which would result in a more efficient use of diesel fuel consumption, as well as the California Energy Code (Title 24, Part 6), California Building Code, and the United States Department of Energy specifications. These codes include specifications for type and efficiency requirements for motors used, lighting control requirements, and voltage drop requirements. Based on this, the Program would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Operation

Any operational traffic increases associated with the Program including the proposed Projects would be nominal since the WWTRF is an existing facility, and pipelines and other infrastructure would require limited operation and maintenance trips (estimated 10 additional trips per year for the new trunk sewers and 2 additional trips a day for the WWTRF expansion for biosolid hauling) that would likely covered by existing City staff within the scope of their current operations and maintenances efforts associated with the City's existing system. Operation of the wastewater collection system would maintain similar if not improved energy efficiency with implementation of energy reduction technology such as high efficiency lightbulbs. Operation of pipelines would be gravity fed wherever feasible, requiring minimal amount of energy use associated with wastewater conveyance. Where forcemains and thereby pump stations are required because gravity systems would not be feasible, there would be a slight increase in energy demand. This increase is not anticipated to constitute a significant impact to energy consumption since energy-conserving operational equipment for the operation of the pump station and the WWTRF upgrades would be incorporated to meet Title 24 standards, and therefore would not result in a significant impact or wasteful, inefficient, or unnecessary consumption of energy. The impact would be less than significant.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Required: None Required

Level of Significance After Mitigation: Less than Significant

New Trunk Sewer Infrastructure Project Impacts

Similar to the discussion for the Program above, the new trunk sewer infrastructure would require the consumption of energy during both construction and operations.

Construction

Construction of the new trunk sewer infrastructure would require the use of heavy off-road equipment, trucks, and worker traffic, which would consume energy. However, the construction of the new trunk sewer infrastructure would not result in wasteful, inefficient, or unnecessary consumption of energy due to current regulations governing construction equipment and the high cost of fuel, which would limit the contractors' use of such equipment to minimize on costs. Further, federal, state, and local standards require limitations on unnecessary use of equipment, such as idling of equipment and vehicles that would further reduce the potential for wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, construction impacts from the new trunk sewer would be less than significant.

Operation

Operation of the new trunk sewer would require minimal energy consumption due to the use of the gravity fed system, which relies heavily on the use of gravity rather than energy to pump wastewater through the system. However, because the entire system cannot rely on gravity due to the topography of the region, a pump station would be required for the Northern Trunk Sewer project to maintain adequate flows throughout the system. This pump station would be operated intermittently based on demand fluctuations throughout the day. This pump station (and any Program pump stations), as well as any associated appurtenances, would be equipped with standard Title 24

energy-conserving features, and would be in compliance with all federal, state, and local standards concerning energy efficiency of structures. Therefore, operation of the new trunk sewer infrastructure would not result in wasteful, inefficient, or unnecessary consumption of energy resources. The impact would be less than significant.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Required: None Required

Level of Significance After Mitigation: Less than Significant

WWTRF Expansion Project Impacts

Construction and operation of the WWTRF up to the eventual build-out capacity of 35 Mgal/d would require additional energy usage during both construction and operation to run and operate the WWTRF.

Construction

Similar to the impact discussion for the Program and new sewer trunk infrastructure above, construction of the WWTRF expansions would consume energy, specifically fuel, during active construction periods. Each expansion of the WWTRF would increase energy demands over time as construction efforts occur and additional facilities are constructed to accommodate the reasonable build-out growth projections identified in the City's 2030 General Plan. Therefore, there would be periods of heavy construction and periods with no construction until reasonable build-out is achieved. All construction activities and equipment would be in compliance with federal, state, and local standards governing energy consumption (see Section 3.7.2, Regulatory Framework), including limits on idling times and incorporation of energy efficient vehicles where possible to reduce energy consumption throughout construction. Therefore, the expansion of the WWTRF would result in a less than significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources.

Operation

Operations associated with additional structures, treatment processes, and equipment, among other design features required for the expansions of the WWTRF from current capacity to reasonable build-out of 35 Mgal/d, would require the consumption of additional energy beyond current demands. Currently, the WWTRF's electrical system supplies power to run 3,238 horsepower (HP) at peak running loads to operate pumps and treatment processes. With the planned expansions to 35 Mgal/d, build-out peak running load energy usage is anticipated to be 9,444 HP. Energy usage at the WWTRF would vary daily depending on flows into the system, and as the WWTRF expansions are constructed periodically, various energy conservation features and efficiencies are anticipated as part of the WWTRF expansions, which would reduce the total overall energy demands from those estimated. Further, all new structures would include Title 24 standards and would comply with all federal, state, and local standards governing energy usage. Therefore, operations of the WWTRF expansion would result in a less than significant impact to wasteful, inefficient, or unnecessary consumption of energy resources.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Required: None Required

Level of Significance After Mitigation: Less than Significant

Impact GHG-3 Findings

Impact GHG-3 Overall Level of Significance Prior to Mitigation: Less than Significant

Impact GHG-3 Mitigation Required: None Required

Impact GHG-3 Overall Level of Significance After Mitigation: Less than Significant

Impact GHG-4 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Impact GHG-4 Analysis

Combined Program/Project Impacts

Implementation of the Program and proposed Projects are not subject to any adopted energy conservation plans, so it would not conflict with energy conservation plans. Any new electrical equipment installed for implementation of the Program would be required to comply with established federal, state, and local energy standards pertaining to energy reduction. Specifically, the City's CAP includes goals and strategies related to the protection of air resources and incentives for the use of renewable energy sources and green energy building standards. These goals and strategies have been taken into consideration, in conjunction with federal and state regulations (i.e., CCR Title 24, Part 6, California Energy Efficiency Standards), during the design of project-specific components of the Program and would be incorporated into design of future Program components. Therefore, the Program would have a less than significant impact related to conflicting with state or local plans for renewable energy or energy efficiency.

Level of Significance Prior to Mitigation: Less than Significant

Mitigation Required: None Required

Level of Significance After Mitigation: Less than Significant

Impact GHG-4 Findings

Impact GHG-4 Overall Level of Significance Prior to Mitigation: Less than Significant

Impact GHG-4 Mitigation Required: None Required

Impact GHG-4 Overall Level of Significance After Mitigation: Less than Significant

3.7.5 Greenhouse Gases and Energy Resources Mitigation

None required.

3.7.6 Abbreviations

AB	Assembly Bill
APCD	Air Pollution Control District
AQMD	Air Quality Management District
BAU	Business-As-Usual
BPS	Best Performance Standards
CAA	Clean Air Act
CAFÉ	Corporate Average Fuel Economy
CAP	Climate Action Plan
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH4	Methane
City	City of Merced
CO2	Carbon Dioxide
EIR	Environmental Impact Report
GHGs	Greenhouse Gases
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HP	Horsepower
LCFS	Low Carbon Fuel Standard
Mgal/d	Million Gallons Per Day
MMs	Mitigation Measures
MTCO2e	Metric Tons of Carbon Dioxide Equivalent
MMTCO2e	Million Metric Tons of Carbon Dioxide Equivalent
MWh	Megawatt-Hour
NHTSA	National Highway Traffic Safety Administration
NOP	Notice of Preparation
PFCs	Perfluorinated Chemicals
RPS	Renewables Portfolio Standard
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SJVAPCD	San Joaquin Valley Air Pollution Control District
SJVAB	San Joaquin Valley Air Basin
SLCP	Short-Lived Climate Pollutant
SMAQMD	Sacramento Metropolitan Air Quality Management District
USEPA	Unites States Environmental Protection Agency

WWTRF	Wastewater Treatment and Reclamation Facility
2030 General Plan	Merced Vision 2030 General Plan

3.7.7 References

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