3.8 Air Quality

This section presents the current air quality conditions in the North Bay Water Recycling Program (NBWRP) area, the applicable regulatory framework, and the potential impacts on ambient air quality from project construction and operation. The Impacts and Mitigation Measures section defines significance criteria used for the impact assessment and presents a discussion of potential project-related impacts. Determination of significance of impacts in this EIR/EIS apply only to CEQA, not to NEPA.

3.8.1 Affected Environment/Setting

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Other important factors are meteorological and topographical conditions. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The action area is located in the counties of Napa, Sonoma, and Marin and is within the boundaries of the San Francisco Bay Area Air Basin (Air Basin), which encompasses the nine-county regions including all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin and Napa counties, and the southern portions of Solano and Sonoma counties. Within the Air Basin, 11 subregions have been defined based on their unique climatology and topography. The action area spans three of these subregions: the Marin County Basin; the Napa Valley; and the Sonoma Valley (BAAQMD, 1999).

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network that measures the ambient concentrations of criteria pollutants. Existing levels of air quality in the action area can generally be inferred from ambient air quality measurements conducted by BAAQMD stations in the area. The monitoring stations record concentrations of various pollutants including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5). Ozone and particulate matter concentrations are of most concern because concentrations of these pollutants periodically exceed regulatory standards in the Air Basin.

Climate, topography, and air quality conditions characteristic of the each of the Member Agencies included in the proposed action are discussed in more detail below.

LGVSD and Novato SD

The LGVSD and Novato SD service areas are located in the Marin County Basin subregion of the Air Basin. The climate varies throughout this subregion depending on proximity to the Pacific Ocean and San Pablo and San Francisco bays (referred collectively here as the Bay). It is mainly characterized by warm dry summers and cool moist winters. San Francisco Bay and the Pacific

Ocean have a moderating influence on the climate, especially near the coast. There is a high percentage of sunshine away from the coast, particularly in summer. Movements of marine air, which in large part determine the temperature, humidity, wind, and precipitation throughout the year, depend upon the location and strength of the dominant Pacific high-pressure system and the coastal temperature gradient. Coastal temperatures are usually in the low 60's in the summer and the high 50's in the winter, while the inland areas average maximum summer temperatures in the low 80's and average minimum winter temperatures in the low 40's (BAAQMD, 1999).

Air pollution potential is highest on the eastern side of Marin County, which has semi-sheltered valleys and largest population centers. Currently, most of the development lies along the Bay, particularly in southern Marin County. In the south, the developed areas lie closer to the ocean, therefore the influence of the marine air keeps the pollution levels low. As the developed areas extend further north where the valleys are more sheltered from the sea breeze, the potential for pollution increases (BAAQMD, 1999).

The BAAQMD air quality monitoring station closest to and most representative of air quality conditions in the LGVSD and Novato SD service areas is located in the city of San Rafael, which is located between 5 and 15 miles southeast of the service areas. The San Rafael station monitors O_3 and PM10. **Table 3.8-1** provides most recent air pollutant concentrations and applicable state and federal ambient air quality standards.

TABLE 3.8-1
AIR POLLUTANT SUMMARY FOR LGVSD AND NOVATO SD SERVICE AREAS[a]

Pollutant	Standard[b]	2003	2004	2005	2006	2007
Ozone (O_3)						
Highest 1-hr average, ppm		0.09	0.09	0.08	0.09	0.07
Number of State standard exceedance	0.09	0	0	0	0	0
Highest 8-hr average, ppm		0.07	0.06	0.06	0.06	0.06
Number of State standard exceedance	0.07	0	0	0	0	0
Number of federal standard exceedance	0.075	0	0	0	0	0
Particulate Matter-10 Micron (PM10)[c]						
Highest 24-hr average, µg/m^3		41	<u>52</u>	39	<u>68</u>	<u>56</u>
Number of State standard exceedance[d]	50	0	6	0	6	6
Number of federal standard exceedance[d]	150	0	0	0	0	0
State Annual Geometric Mean, µg/m^3	20	18	18	17	18	18
Exceedance?		No	No	No	No	No

NOTE: Underlined values indicate an excess of applicable standard.
ppm – parts per million.
µg/m^3 – micrograms per cubic meter.

[a] Data are from 4th Street Monitoring Station in San Rafael, California.
[b] State standards are not to be exceeded. Federal 1-hour ozone standard revoked in June 2005.
[c] Measured every six days.
[d] Represents estimated number of days that concentrations would have been greater than the level standard if each day had been monitored.

SOURCE: CARB, 2008a.

Sensitive receptors in the vicinity of proposed facilities within the LGVSD and Novato SD include various single- and multi-family residences, Our Lady of Loretto School, Novato High School, Creekside Village School, Noah's Arc Pre-School, Hamilton School, the Novato Charter School, and Novato Community Hospital.

SVCSD

The SVCSD service area is located in the Sonoma Valley subregion of the Air Basin. In Sonoma Valley, the strongest up-valley winds occur in the afternoon during the summer and the strongest down-valley winds occur during clear, calm winter nights. Prevailing winds follow the axis of the valley, northwest/southeast, while some upslope flow during the day and down-slope flow during the night occurs near the base of the mountains. Summer average maximum temperatures measured in degrees Fahrenheit are usually in the high 80's, and summer minimums are around 50. Winter maximums are in the high 50's to the mid 60's, with minimums ranging from the mid 30s to low 40s (BAAQMD, 1999).

The BAAQMD air quality monitoring station on 5th Street in Santa Rosa, located approximately 30 miles northwest of the SVCSD WWTP is closest to and most representative of air quality conditions in the area. The station monitors O_3 and PM10. The most recent data available from this monitoring station are shown in **Table 3.8-2** provides most recent air pollutant concentrations and applicable state and federal air quality standards.

TABLE 3.8-2
AIR POLLUTANT SUMMARY FOR THE SVCSD SERVICE AREA[a]

Pollutant	Standard[b]	2003	2004	2005	2006	2007
Ozone (O_3)						
Highest 1-hr average, ppm		0.10	0.08	0.07	0.08	0.07
Number of State standard exceedance	0.09	1	0	0	0	0
Highest 8-hr average, ppm		0.08	0.06	0.05	0.06	0.06
Number of State standard exceedance	0.07	1	0	0	0	0
Number of federal standard exceedance	0.075	0	0	0	0	0
Particulate Matter-10 Micron (PM10)[c]						
Highest 24-hr average, µg/m^3		36	48	39	90	37
Number of State standard exceedance[d]	50	0	0	0	12	0
Number of federal standard exceedance	150	0	0	0	0	0
State Annual Geometric Mean, µg/m^3		17	18	16	19	17
Exceedance?	20	No	No	No	No	No

NOTE: Underlined values indicate an excess of applicable standard.
ppm – parts per million.
µg/m^3 – micrograms per cubic meter.

a Data are from 5th Street Monitoring Station in Santa Rosa, California.
b State standards are not to be exceeded. Federal 1-hour ozone standard revoked in June 2005.
c Measured every six days.
d Represents estimated number of days that concentrations would have been greater than the level standard if each day had been monitored.

SOURCE: CARB, 2008a.

Sensitive receptors in the vicinity of the SVCSD WWTP and proposed facilities include various single- and multi-family residences, Altamira Middle School, Sonoma Valley High School, Hanna Boys Center, Sonoma Seventh Day Adventist School, Prestwood Elementary School, and Sonoma Valley Hospital.

Napa SD

The Napa SD service area is located within the Napa Valley subregion of the Air Basin. Up-valley winds frequently develop during warm summer afternoons drawing from the air flowing through San Pablo Bay. Down-valley winds develop during evenings in the winter. The average maximum temperatures in summer are in the low 80's at the southern end of the valley and in the low 90's at the northern end with minimum temperatures in the low 50's. The average maximum temperatures in winter are in the high 50's with minimum temperatures in the high to mid 30's. Winter extreme low temperatures range from the high 20's to the mid 20's (BAAQMD, 1999).

The potential for air pollution in the valley is high. Summer and fall prevailing winds can transport non-local and locally generated ozone precursors northward where the valley narrows, effectively trapping and concentrating the pollutants under stable conditions. The local upslope and down-slope flows setup by the surrounding mountains may also re-circulate pollutants adding to the total burden. Also, the high frequency of light winds and associated stable conditions during the late fall and winter, contribute to the buildup of particulates and CO from automobiles, agricultural burning, and fireplace burning (BAAQMD, 1999).

The BAAQMD air quality monitoring station on Jefferson Avenue in Napa, located within two miles of the Napa SD service area is closest to and most representative of air quality conditions the area. The station monitors O_3 and PM10. **Table 3.8-3** presents the most recent data available from this monitoring station and compares the pollutants to applicable state and federal air quality standards.

Sensitive receptors in the vicinity of the Napa SD WWTP and proposed facilities include various single- and multi-family residences, the Napa County Children's Center, the Napa County Community School, the Napa County Special Education School, the Chamberlain School, the Napa Infant Preschool Program, Mount George Elementary School, and the Napa State Hospital.

3.8.2 Regulatory Framework

Air Pollutants of Concern

Criteria Air Pollutants

Regulation of air pollution is achieved through both national and State ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act, the United States Environmental Protection Agency (USEPA) has identified criteria pollutants and has established national ambient air quality standards (NAAQS) to protect public health and welfare. The NAAQS are defined as the maximum acceptable concentration

TABLE 3.8-3
AIR POLLUTANT SUMMARY FOR THE NAPA SD SERVICE AREA[a]

Pollutant	Standard[b]	2003	2004	2005	2006	2007
Ozone (O_3)						
Highest 1-hr average, ppm		0.11	0.09	0.09	0.10	0.07
Number of State standard exceedance	0.09	2	0	0	1	0
Highest 8-hr average, ppm		0.08	0.07	0.07	0.07	0.06
Number of State standard exceedance	0.07	3	3	0	2	0
Number of federal standard exceedance	0.075	0	0	0	0	0
Particulate Matter-10 Micron (PM10)[c]						
Highest 24-hr average, µg/m^3		31	*	14	*	*
Number of State standard exceedance[d]	50	*	*	*	*	*
Number of federal standard exceedance	150	*	*	*	*	*

NOTE: Underlined values indicate an excess of applicable standard.
ppm – parts per million.
µg/m^3 – micrograms per cubic meter.
* – there was insufficient (or no) data available to determine the value.

a Data are from the Jefferson Avenue Monitoring Station in Napa, California.
b State standards are not to be exceeded. Federal 1-hour ozone standard revoked in June 2005.
c Measured every six days.
d Represents estimated number of days that concentrations would have been greater than the level standard if each day had been monitored.

SOURCE: CARB, 2008a.

that may be reached, but not exceeded more than once per year. The USEPA has established the NAAQS for O_3, CO, NO_2, SO_2, particulate matter (i.e., PM10, PM2.5), and lead. These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient thresholds for all criteria pollutants. Primary thresholds are set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards are set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings.

California has adopted more stringent ambient air quality standards (i.e., California Ambient Air Quality Standards [CAAQS]) for most of the criteria air pollutants. **Table 3.8-4** presents the national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant. California has also established state ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride; however, air emissions of these pollutants are not expected to occur under NBWRP therefore are not discussed further in the section.

TABLE 3.8-4
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUATANTS

Pollutant	Averaging Time	State Standard	National Standard	Health Effects	Pollutant Characteristics and Major Sources
Ozone	1 Hour 8 Hour	0.090 ppm 0.070 ppm	– 0.075 ppm	Short term exposures to high concentrations can irritate eyes and lungs. Long-term exposure may cause permanent damage to lung tissue.	Ozone is a secondary pollutant that is formed in the atmosphere through reactions between reactive organic gases (ROGs) and nitrogen oxides (NOx) in the presence of sunlight. Major sources of ROGs and NOx include combustion processes (including motor vehicle engines) and evaporative solvents, paints and fuels.
Carbon Monoxide (CO)	1 Hour 8 Hour	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen. Exposure to high CO concentrations can cause headaches, dizziness, fatigue, unconsciousness, and even death.	CO is an odorless, colorless gas that is formed by incomplete combustion of fuels. The primarily source of CO is the internal combustion engine, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide (NO_2)	1 Hour Annual	0.18 ppm 0.030 ppm	– 0.053 ppm	Irritating to eyes and respiratory tract.	NO_2 is a reddish brown gas that is a by-product of combustion. Motor vehicles and industrial operations are the main sources of NO_2.
Sulfur Dioxide (SO_2)	1 Hour 3 Hour 24 Hour Annual	0.25 ppm – 0.04 ppm –	– 0.5 ppm 0.14 ppm 0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	SO_2 is a colorless acid gas with a strong odor. Fuel combustion, chemical plants, sulfur recovery plants, and metal processing are the main sources of this pollutant.
Respirable Particulate Matter (PM_{10})	24 Hour Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 50 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Solid or liquid particles in the atmosphere. Sources include dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter ($PM_{2.5}$)	24 Hour Annual	– 12 µg/m^3	35 µg/m^3 15.0 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Solid or liquid particles in the atmosphere. Major sources include fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. PM2.5 may also be formed from photochemical reactions of other pollutants, including NOx, SO_2, and organics.
Lead	Monthly Quarterly	1.5 µg/m^3 –	– 1.5 µg/m^3	Disturbs the nervous system, kidney function, immune system, reproductive and developmental systems and the cardio vascular system.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

ppm = parts per million
µg/m^3 = micrograms per cubic meter

SOURCE: BAAQMD, 1999; CARB, 2008b; and USEPA, 2008.

Greenhouse Gas Emissions and Climate Change

Some gases in the atmosphere affect the earth's heat balance by absorbing infrared radiation. These gases can prevent the escape of heat in much the same way as glass in a greenhouse. This is often referred to as the "greenhouse effect," and it is responsible for maintaining a habitable climate. On earth, the gases believed to be most responsible for global warming are water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Enhancement of the greenhouse effect can occur when concentrations of these gases exceed the natural concentrations in the atmosphere. Of these gases, CO_2 and methane are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane primarily results from off-gassing associated with agricultural practices and landfills. SF_6 is a greenhouse gas (GHG) commonly used in the utility industry as an insulating gas in transformers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually world-wide, is a very potent GHG with 23,900 times the global warming potential as CO_2.[1] There is widespread international scientific agreement that human-caused increases in GHGs has and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

Some of the potential resulting effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, larger forest fires, and more drought years (CARB, 2008c). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but according to a report published by the Intergovernmental Panel on Climate Change (IPCC), effects are expected to include the following (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

In addition, there are several secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be high.

[1] Global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. CO_2 is assigned a global warming potential of 1.

Federal

Clean Air Act

The federal Clean Air Act (CAA) is a comprehensive federal law that regulates air emissions from area, stationary, and mobile sources. This law authorizes the USEPA to establish NAAQS to protect public health and the environment. The CAA specifies future dates for achieving compliance with the NAAQS and mandates that states submit and implement a State Implementation Plan (SIP) for local areas that do not meet the standards. The SIPs must include pollution control measures that demonstrate how the standards would be met.

Federal Conformity Requirements

Federal projects are subject to either the Transportation Conformity Rule (40 Code of Federal Regulations [CFR], Part 51, Subpart T), which applies to federal highway and transit projects, or the General Conformity Rule (40 CFR, Part 51, Subpart W), which applies to all other federal projects. Because the proposed action is not a federal highway or transit project, it is subject to the General Conformity Rule.

The purpose of the General Conformity Rule is to ensure that federal projects conform to applicable SIPs so that they do not interfere with strategies employed to attain the NAAQS. The rule applies to federal projects in nonattainment areas for any of the criteria pollutants for which the USEPA has established these national standards and in areas designated as "maintenance" areas. The rule covers direct and indirect emissions of criteria pollutants or their precursors that result from a federal project, that are reasonably foreseeable, and that can be practicably controlled by the federal agency through its continuing program responsibility. The rule applies to all federal projects, including project approvals and funding, except:

- Projects specifically included in a transportation plan or program that is found to conform under the federal transportation conformity rule;
- Projects with associated emissions below specified "de minimis" threshold levels (i.e., levels beyond which an air quality effect is considered significant); or
- Certain other projects that are exempt or presumed to conform.

Sources that are exempt include those that require a permit under the New Source Review or Prevention of Significant Deterioration program. Projects presumed to conform are those that are presumed to result in insignificant quantities of emissions, including routine maintenance and repair, routine operations, and prescribed burning. The proposed action does not fall under the exempt categories and would be subject to the General Conformity Rule.

Class 1 Areas

The federal CAA of 1977 set a long-term goal of improving visibility by 2064 to achieve natural conditions in selected national parks and wilderness areas of the United States, known as Class 1 Areas. California has 29 mandatory Class 1 Areas managed by either the National Parks Service

or the U.S. Forest Service. The closest Class I Area is the Point Reyes Wilderness Area, located along the Marin County coast, at a distance of approximately 10 miles from the action area.

In 1999, the USEPA promulgated a regional haze regulation that calls for states to establish goals and emission reduction strategies to make initial improvements in visibility at their respective Class 1 Areas. The CARB is preparing a Regional Haze Plan for California demonstrating reasonable progress in reducing haze by 2018, the first benchmark year on the path to natural visibility by 2064.

The USEPA funded five Regional Planning Organizations throughout the country to coordinate regional haze rule-related activities between states in each region. California belongs to the Western Regional Air Partnership (WRAP), the consensus organization of western states, tribes, and federal agencies, which oversees analyses of monitoring data and preparation of technical reports regarding regional haze in the western United States.

State

The California Air Resources Board (CARB) is responsible for establishing and reviewing the State standards, compiling the California SIP and securing approval of the plan from the USEPA, conducting research and planning, and identifying toxic air contaminants. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. County or regional air quality management districts, such as the BAAQMD, are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas and for preparing the air quality plans that are required under the federal CAA and the California CAA.

Assembly Bill 32 – California Global Warming Solutions Act

In 2005, Executive Order S-3-05 was established, which set forth a series of target dates (listed below) by which statewide emissions of GHG would be progressively reduced:

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

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires CARB to design and implement emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing an approximate 30 percent reduction in emissions from "business as usual").

In June 2007, CARB directed staff to pursue 37 early actions for reducing GHG emissions under AB 32. The broad spectrum of strategies to be developed, including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local

governments to facilitate GHG reductions, and green ports, reflects that the serious threat of climate change requires action as soon as possible (CARB, 2007a).

The CARB staff evaluated all the recommendations submitted on the GHG reduction strategies and published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California* (CARB, 2007a). Based on its additional analysis, CARB staff is recommending the expansion of the early action list to a total of 44 measures. Nine of the strategies meet the AB 32 definition of discrete early action measures. Discrete early action measures are measures that will be in place and enforceable by January 1, 2010. The discrete early action items include: low carbon fuel standards for ethanol, biodiesel, hydrogen, electricity, compressed natural gas, liquefied petroleum gas and biogas; restrictions on high global warming potential refrigerants; landfill methane capture, smartway truck efficiency; (5) port electrification; reduction of perfluorocarbons from the semiconductor industry; reduction of propellants in consumer products; a tire inflation program; and SF_6 reductions from non-electricity sector. The entire list of early action strategies is shown in **Table 3.8-5**.

The 2020 target reductions are currently estimated to be 174 million metric tons of CO_2 equivalent (CO_2e). In total, the 44 recommended early actions have the potential to reduce GHG emissions by at least 42 million metric tons of CO_2e emissions by 2020, representing about 25 percent of the estimated reductions needed by 2020. CARB staff has developed 1990 and 2020 GHG emission inventories in order to refine the projected reductions needed by 2020. The 44 measures are in the sectors of fuels, transportation, forestry, agriculture, education, energy efficiency, commercial, solid waste, cement, oil and gas, electricity, and fire suppression.

State Office of Planning and Research

Senate Bill (SB) 97 "2007 Statutes, Ch. 185" acknowledges that local agencies must analyze the environmental impact of GHG under the California Environmental Quality Act (CEQA). Furthermore, the bill requires the State Office of Planning and Research (OPR) to develop CEQA guidelines for analyzing and mitigating GHG emissions. To comply with requirements set forth in SB 97, OPR published a technical advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. This advisory acknowledges the need for a threshold for GHG emissions and notes that OPR has asked CARB to recommend a method for setting thresholds to encourage consistency and uniformity in GHG analyses in CEQA documents throughout the State (OPR, 2008).

In response to OPR's request, CARB has recommended that industrial projects that meet interim CARB performance standards for construction and transportation emissions, and emit no more than 7,000 metric tons of CO_2e per year from non-transportation related GHG sources, should be presumed to have a less than significant impact related to climate change. Non-transportation sources include combustion related components/equipment, process losses, purchased electricity, and water usage and wastewater discharge (CARB, 2008f).

TABLE 3.8-5
RECOMMENDED AB32 GREENHOUSE GAS MEASURES
TO BE INITIATED BY CARB BETWEEN 2007 AND 2012

ID #	Sector	Strategy Name	ID #	Sector	Strategy Name
1	Fuels	Above Ground Storage Tanks	23	Commercial	SF_6 reductions from the non-electric sector
2	Transportation	Diesel – Off-road equipment (non-agricultural)	24	Transportation	Tire inflation program
3	Forestry	Forestry protocol endorsement	25	Transportation	Cool automobile paints
4	Transportation	Diesel – Port trucks	26	Cement	Cement (A): Blended cements
5	Transportation	Diesel – Vessel main engine fuel specifications	27	Cement	Cement (B): Energy efficiency of California cement facilities
6	Transportation	Diesel – Commercial harbor craft	28	Transportation	Ban on HFC release from Motor Vehicle AC service / dismantling
7	Transportation	Green ports	29	Transportation	Diesel – off-road equipment (agricultural)
8	Agriculture	Manure management (methane digester protocol)	30	Transportation	Add AC leak tightness test and repair to Smog Check
9	Education	Local gov. Greenhouse Gas (GHG) reduction guidance / protocols	31	Agriculture	Research on GHG reductions from nitrogen land applications
10	Education	Business GHG reduction guidance / protocols	32	Commercial	Specifications for commercial refrigeration
11	Energy Efficiency	Cool communities program	33	Oil and Gas	Reduction in venting / leaks from oil and gas systems
12	Commercial	Reduce high Global Warming Potential (GWP) GHGs in products	34	Transportation	Requirement of low-GWP GHGs for new Motor Vehicle ACs
13	Commercial	Reduction of perfluorocarbons (PFCs) from semiconductor industry	35	Transportation	Hybridization of medium and heavy-duty diesel vehicles
14	Transportation	SmartWay truck efficiency	36	Electricity	Reduction of SF_6 in electricity generation
15	Transportation	Low Carbon Fuel Standard (LCFS)	37	Commercial	High GWP refrigerant tracking, reporting and recovery program
16	Transportation	Reduction of HFC-134a from DIY Motor Vehicle AC servicing	38	Commercial	Foam recovery / destruction program
17	Waste	Improved landfill gas capture	39	Fire Suppression	Alternative suppressants in fire protection systems
18	Fuels	Gasoline disperser hose replacement	40	Transportation	Strengthen light-duty vehicle standards
19	Fuels	Portable outboard marine tanks	41	Transportation	Truck stop electrification with incentives for truckers
20	Transportation	Standards for off-cycle driving conditions	42	Transportation	Diesel – Vessel speed reductions
21	Transportation	Diesel – Privately owned on-road trucks	43	Transportation	Transportation refrigeration – electric standby
22	Transportation	Anti-idling enforcement	44	Agriculture	Electrification of stationary agricultural engines

SOURCE: CARB, 2007a.

Local

Bay Area Air Quality Management District (BAAQMD)

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Air Basin. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

The BAAQMD is responsible for bringing and/or maintaining air quality in the Air Basin within federal and State air quality standards. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Basin and to develop and implement strategies to attain the applicable federal and State standards.

In December 1999, the BAAQMD adopted its *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans*, as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The *BAAQMD CEQA Guidelines* is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that the BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. The document recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The BAAQMD is classified as non-attainment for State PM10 and PM2.5 standards as well as State 1- and 8-hour ozone standards. With respect to federal standards, the BAAQMD is classified as marginal non-attainment for the 8-hour ozone standard. For all other federal and State criteria air pollutant standards, the BAAQMD is classified as either unclassified or as attainment. As discussed previously, the federal CAA and the California CAA require SIPs to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM10 standard). The BAAQMD is currently preparing the *2009 Bay Area Clean Air Plan*, which will replace the existing *Bay Area 2005 Ozone Strategy*. This plan will include ozone control measures and will also consider the impacts of these control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan (BAAQMD, 2008). Until the new plan is published, the *Bay Area 2005 Ozone Strategy* is the applicable air quality plan for the action area.

The *2005 Bay Area Ozone Strategy* explains how the Air Basin will achieve compliance with the State one-hour air quality standard for ozone as expeditiously as practicable and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The Strategy also discusses related air quality issues of interest including the public involvement process, climate change, fine particulate matter, the BAAQMD's Community Air Risk Evaluation program, local

benefits of ozone control measures, the environmental review process, national ozone standards, and photochemical modeling (BAAQMD, 2006).

Local General Plans

The policies and regulations associated with impacts to air quality within the affected jurisdictions are presented in **Appendix 3.8** of this EIR/EIS.

3.8.3 Environmental Consequences/ Impacts

Significance Criteria under CEQA

Appendix G of the *CEQA Guidelines* indicates that a project would have a significant effect on the environment with respect to air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under a federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Conflict with the State strategies for reducing greenhouse gas emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.

Short-term Construction

Criteria Pollutant Emissions Thresholds

For analyzing short-term construction emissions, the BAAQMD emphasizes implementation of effective and comprehensive control measures rather than requiring a detailed quantification of construction emissions. The BAAQMD has identified a set of feasible PM10 control measures including measures recommended at all construction sites as well as enhanced measures that are recommended for larger construction sites. According to the BAAQMD CEQA guidelines, significance with respect to construction emissions should be determined based on a consideration of the control measures to be implemented (BAAQMD, 1999).

GHG Emissions Thresholds

According to the CARB's interim significance thresholds for GHGs, the project should meet interim CARB performance standards for construction-related emissions for impacts to be considered less than significant (CARB, 2008f).

Long-term Operations

Criteria Pollutant Emission Thresholds

To determine impacts from NBWRP operations, BAAQMD suggests that total emissions during operations be compared to thresholds set forth in **Table 3.8-6**. Thresholds have been established for reactive organic gas (ROG) and nitrogen oxide (NO_x), which are the precursors of ozone, as well as particulate matter (PM10), which contributes to health problems and smog. Any project that generates air pollution emissions in excess of the annual or daily thresholds set forth in Table 3.8-6 would be considered to have a significant air quality impact. Generally, the BAAQMD does not recommend a detailed quantification of operation emissions if a project generates less than 2,000 vehicle trips per day (BAAQMD, 1999).

TABLE 3.8-6
BAAQMD THRESHOLDS OF SIGNIFICANCE FOR PROJECT OPERATIONS

Pollutant	Tons per year	Pounds per day
ROG	15	80
NO_x	15	80
PM10	15	80

ROG = reactive organic gases
NO_x = nitorgen oxide
PM10 = particulate matter$\leq$ 10 microns

SOURCE: BAAQMD, 1999.

GHG Emissions Thresholds

There are no adopted regulatory, statutory or other thresholds for assessing the significance of GHG emissions in CEQA analyses. For the purposes of this EIR/EIS, the CARB interim thresholds shall be used to determine the significance of GHG emissions impacts. According to the CARB's interim significance thresholds for GHGs, a project should not emit more than 7,000 metric tons of CO_2e ($MTCO_2e$ or metric tons CO_2 equivalent) per year from non-transportation related GHG sources which addresses approximately 90 percent of all industrial section emissions. Non-transportation related sources include the following: combustion-related components/equipment; process losses (fugitive, working, evaporative, etc.); purchased electricity; and water usage and wastewater discharge (CARB, 2008f).

Toxic Air Contaminants

Any project that would have the potential to expose sensitive receptors to substantial levels of toxic air contaminants that would result in an incremental cancer risk of 10 in one million or greater or a hazard index of 1 or greater would be considered to have a significant impact to sensitive receptors (BAAQMD, 1999).

Odors

For odors, BAAQMD recommends that potential impacts be evaluated if a potential source of objectionable odors is proposed at a location near existing sensitive receptors or if sensitive receptors are proposed to be located near an existing source of objectionable odors. It is recommended that wastewater treatment plants not be sited within one mile of sensitive receptors (BAAQMD, 1999). The proposed action involves existing WWTPs, and does not propose locating a new source of odors within close proximity to sensitive receptors. Therefore, the proposed action would not create objectionable odors that would affect a substantial number of sensitive receptors. No impact would occur; therefore, this issue is not discussed further in this document.

Approach to Analysis under NEPA

For the purposes of the NEPA review, the lead agency must establish the project's applicability to the General Conformity Rule, to determine if the project would be in compliance with all NAAQS and the SIP. According to 40 CFR 93.153, conformity determinations are required only for federal actions that occur in nonattainment or maintenance areas and result in generation of emissions that exceed established de minimis levels that are based on the specific classification of non-attainment status. **Table 3.8-7** summarizes the federal de minimis emissions thresholds applicable to this project.

TABLE 3.8-7
FEDERAL GENERAL CONFORMITY CRITERIA
AIR POLLUTANT EMISSION THRESHOLDS

Pollutant	Federal Threshold (tons/year)
NO_x	100
ROG	50
CO	100

SOURCE: USEPA, 2006.

A federal project that does not exceed the de minimis threshold rates may still be subject to a general conformity determination if the sum of direct and indirect emissions would exceed 10 percent of the emissions of the nonattainment or maintenance area. If emissions would exceed 10 percent, the federal project is considered "regionally significant," and thus general conformity rules would apply. If the emissions would not exceed the de minimis levels and are not regionally significant, then the project is assumed to conform, and no further analysis or determination is required. Other air quality concerns unique to NEPA are related to whether the project would be subject to New Source Review and if the project would affect an area designated as Class I under the federal CAA.

Impact 3.8.1: Temporary Construction Emissions of Criteria Pollutants. Project construction activities could result in substantial short-term criteria pollutant emissions. (Less than Significant with Mitigation)

Construction would cause fugitive dust emissions during earth moving activities and emissions of criteria pollutants from equipment and vehicle exhaust. Impacts would occur during installation of the proposed recycled water pipelines, and construction of storage facilities and pump stations.

The recycled water pipelines would be installed by trenching, jack and bore tunneling, directional drilling, and/or pipeline suspension. All methods would involve some earth disturbance thereby generating fugitive emissions, however fugitive dust emissions would be greatest during open trenching activities. Exhaust emissions would result from the use of equipment such as boring machines, jackhammers, backhoes/loaders, excavators, and other heavy-duty construction equipment.

Construction of storage reservoirs and pump stations would include site preparation, clearing, excavation, line placement, embankment construction, and hydro-seeding. Excavation and export of material would result in fugitive dust emissions. Exhaust emission would result from the use of heavy-duty construction equipment such as earthmovers, bulldozers and excavators.

Treatment upgrades within the existing WWTPs would involve transportation of treatment units or filters via trucks to the existing WWTPs and installation within the existing WWTP buildings. Construction-related emissions, therefore would be minimal and would be associated with exhaust emissions from the equipment hauling and employee trucks.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

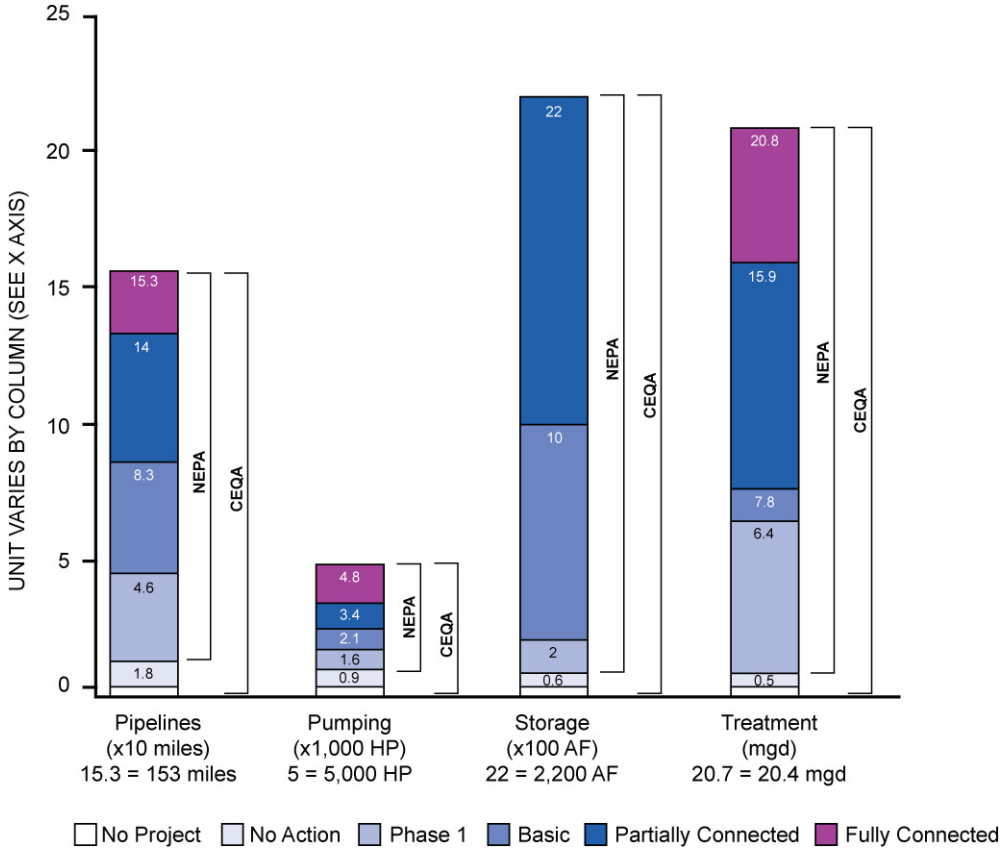
No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see **Chart 3.8-1, No Action**).

Future baseline conditions (2020) for air quality are anticipated to improve over time due to the implementation of the *Bay Area 2005 Ozone Strategy* (BAAQMD, 2006). The BAAQMD has conducted a detailed emissions inventory for ozone precursors (ROG and NO_x) within the Bay Area. The inventory includes projections for ROG and NOx on a typical summer day in the Bay

CHART 3.8-1
COMPARISON OF CEQA AND NEPA BASELINE FOR PROPOSED FACILITIES, BY ALTERNATIVE



SOURCE: CDM, 2009

Area out to year 2020. Based on the BAAQMD's analysis, total emissions of ROG and NO_x in the Bay Area are expected to decrease by approximately 25% and 40%, respectively, between the years 2005 and 2020 (BAAQMD, 2006).

Emissions associated with construction of the No Action Alternative were analyzed for each Member Agency. A discussion of individual Member Agencies is provided below.

To present the worst-case annual emissions, it was assumed that individual projects within each Member Agency would be constructed concurrently within the same calendar year. Assumptions used to estimate emissions are discussed in detail in above in the Regulatory Framework. **Table 3.8-8** presents estimated worst-case annual construction emissions of criteria pollutants expressed in tons per year. As indicated in the table, maximum combined annual emissions for construction of the No Action Alternative would not exceed applicable federal de minimus thresholds.

TABLE 3.8-8
NO ACTION CONSTRUCTION EMISSIONS BY AGENCY (WORST CASE)

Agency	Construction Emissions (Tons per Year)			
	ROG	CO	NO_x	PM10[a]
LGVSD	0	0	0	0
Novato SD	1	4	6	4
SVCSD	2	8	15	12
Napa SD	0	0	0	0
Total Annual Emissions (All Agencies)	3	12	21	16
General Conformity Thresholds	50	100	100	NA
Exceed Conformity Threshold (Yes or No?)	**No**	**No**	**No**	**NA**
2006 Regional Emissions in the Basin	134,685	704,085	179,580	NA
Project Percentage of Regional Emissions	0.002%	0.002%	0.012%	NA
More than 10% of Regional Emissions?	**No**	**No**	**No**	**NA**

[a] Includes fugitive dust emissions from grading and removal of pavement. These estimates do not include reductions for dust control measures required by BAAQMD.

'NA = Not Applicable

SOURCE: URBEMIS 2008 and CARB, 2007c.

Although emissions from construction of the No Action Alternative would not exceed the de minimus thresholds, the project must also be analyzed with respect to regional emission levels. According to emissions estimates published by CARB, the average regional emissions of ROG, CO, and NO_x in the Air Basin in 2006 approximately 369 tons per day, 1,929 tons per day, and 492 tons per day, respectively (CARB, 2007c). When considered on an annual basis, these amounts would be equivalent to 134,685 tons of ROG; 704,085 tons of CO; and 179,580 tons of NO_x. Therefore, based on emissions estimates presented in Table 3.8-8, construction emissions associated with the No Action Alternative would represent approximately 0.002 percent of total ROG emissions, 0.002 percent of total emissions of CO, and 0.012 percent of total emissions of NO_x in the Air Basin. Since emissions associated with construction of the No Action Alternative would be well below 10 percent of the total emissions of ROG, CO, or NO_x, construction of the project would not trigger the need for a detailed conformity analysis and short term NEPA construction impacts are considered to be less than significant. Consequently, the No Action Alternative would be in compliance with the NAAQS and the SIP.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46.4 miles of new pipeline, 1,873 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28.8 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The air quality impacts associated with the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

The additional facilities proposed under Phase 1 for each service area would increase the average annual emissions anticipated from construction activities. However, as shown in Table 3.8-8, emissions from the construction of the No Action Alternative would be well below the general conformity de minimus thresholds. Therefore, even if average annual emissions were to double under construction of Phase 1, impacts would remain less than significant. Emissions associated with construction of Phase 1 projects were analyzed for each Member Agency. To present the worst-case annual emissions, it was assumed that individual projects within each Member Agency would be constructed concurrently within the same calendar year. Assumptions used to estimate emissions are discussed in detail in **Appendix 3.10**. **Table 3.8-9** presents estimated worst-case annual construction emissions of criteria pollutants expressed in tons per year. As indicated in the table, maximum combined annual emissions for construction of Phase 1 projects would not exceed applicable federal de minimus thresholds.

TABLE 3.8-9
PHASE 1 CONSTRUCTION EMISSIONS BY AGENCY (WORST CASE)

	Construction Emissions (Tons per Year)			
Agency	**ROG**	**CO**	**NO_x**	**PM10[a]**
LGVSD	1	5	8	5
Novato SD	2	8	13	7
SVCSD	3	15	25	21
Napa SD	2	10	16	10
Total Annual Emissions (All Agencies)	8	38	62	43
General Conformity Thresholds	50	100	100	NA
Exceed Conformity Threshold (Yes or No?)	**No**	**No**	**No**	**NA**
2006 Regional Emissions in the Basin	134,685	704,085	179,580	NA
Project Percentage of Regional Emissions	0.006%	0.005%	0.03%	NA
More than 10% of Regional Emissions?	**No**	**No**	**No**	**NA**

[a] Includes fugitive dust emissions from grading and removal of pavement. These estimates do not include reductions for dust control measures required by BAAQMD.

'NA = Not Applicable

SOURCE: ESA, 2009

Although the Phase 1 projects would not exceed the de minimus thresholds, the project must also be analyzed with respect to regional emission levels. According to emissions estimates published by CARB, the average regional emissions of ROG, CO, and NO_x in the Air Basin in 2006 approximately 369 tons per day, 1,929 tons per day, and 492 tons per day, respectively (CARB, 2007c). When considered on an annual basis, these amounts would be equivalent to 134,685 tons of ROG; 704,085 tons of CO; and 179,580 tons of NO_x. Therefore, based on emissions estimates presented in Table 3.8-8, construction emissions associated with Phase 1 would represent approximately 0.006 percent of total ROG emissions, 0.005 percent of total emissions of CO, and 0.03 percent of total emissions of NO_x in the Air Basin. Since emissions associated with construction of Phase 1 would be well below 10 percent of the total emissions of ROG, CO, or NO_x, construction of the project would not trigger the need for a detailed conformity analysis and short-term construction impacts are considered to be less than significant when evaluated according to NEPA criteria. Consequently, the NBWRP would be in compliance with the NAAQS and the SIP.

With regard to CEQA, Phase 1 construction activities would need to comply with BAAQMD's CEQA requirements for control of fugitive dust emissions. **Mitigation Measure 3.8-1a** includes all applicable fugitive dust control measures that would need to be implemented for Phase 1 construction activities to be deemed less than significant under CEQA review. Additionally, while BAAQMD does not have a set threshold of significance for construction exhaust emissions, it does recommend that construction exhaust emissions are mitigated to the maximum extent feasible.

Implementation of **Mitigation Measure 3.8.1b** would mitigate construction exhaust emissions by enforcing idling restrictions, requiring the use of higher tier engines, and requiring use of other control technologies such as diesel particulate filters. By using Tier 2 engines in place of older, uncontrolled engines, NO_x emissions can be reduced by as much as 65 percent, ROG emissions by as much as 85 percent, and PM emissions by as much as 73 percent (SCAQMD, 2008). Diesel particulate filters can reduce PM emissions by as much as 85 percent (CARB, 2008d). Implementation of **Mitigation Measures 3.8.1a** and **3.8.1b** would ensure that CEQA impacts associated with construction activities would be less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,345 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65.7 miles of new pipeline, 1,433 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The air quality impacts associated with proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

The additional facilities and improvements proposed under the Basic System in all of the service areas would be constructed over a longer time span. Therefore annual average construction emissions would be similar to those anticipated from Phase 1 construction and it would be unlikely that emissions from construction of the Basic System would trigger the need for a General Conformity determination; therefore, NEPA impacts would be less than significant. Furthermore, implementation of **Mitigation Measures 3.8-1a** and **3.8-1b** would reduce fugitive and exhaust emissions to less-than-significant levels with respect to the CEQA review.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 140 miles of new pipeline, 3,656 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122.5 miles of new pipeline, 2, 744 HP of pumping capacity, treatment facilities providing 15.0 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts associated with proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

Assuming that construction of proposed facilities in all service areas would be phased over a longer time period due to the greater number of facilities to be constructed, annual emissions would not increase substantially beyond those anticipated from construction of the Basic System, and therefore the project would be exempt from a federal General Conformity analysis and impacts evaluated according to NEPA criteria would be less than significant. However, construction associated with the Partially Connected System would result in a greater amount of emissions over the life of the project compared to that under the Basic System. Implementation of **Mitigation Measures 3.8-1a** and **3.8-1b** would ensure that CEQA impacts would be less than significant.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135.8 miles of new pipeline, 4,109 HP of pumping capacity, treatment facilities providing 19.9 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

LGVSD/ NMWD, Novato SD/ NMWD, SVCSD, Napa SD

While the Fully Connected System would include additional construction activities and earth moving than what would be associated with construction of the Partially Connected System, it is assumed that these activities would be spread over a longer time period. Thus, annual emissions would not be substantially higher than those anticipated from construction of the Partially Connected System. Therefore, a federal General Conformity determination would not be required and NEPA impacts would be less than significant. Furthermore, implementation of **Mitigation Measures 3.8.1a** and **3.8.1b** would ensure that impacts from fugitive dust and exhaust emissions would be less than significant when evaluated according to CEQA criteria.

Mitigation Measures (Applicable to all Member Agencies)

Mitigation Measure 3.8.1a: Construction Fugitive Dust Control Plan. The appropriate Member Agency shall require its contractor(s) to implement a dust control plan that shall include the following dust control procedures during construction as required by the BAAQMD:

- Water all active construction areas at least twice daily, taking into consideration temperature and wind conditions.
- Cover all trucks hauling soil, sand, and other loose materials *or* require trucks to maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways, consistent with **Mitigation Measure 3.1.2**, Erosion Control.
- Replant vegetation in disturbed areas as quickly as possible.

Mitigation Measure 3.8.1b: Construction Exhaust Emissions Control Plan. The appropriate Member Agency shall require its contractor(s) to implement an exhaust emissions control plan that shall include the following controls and practices:

- On road vehicles with a gross vehicular weight rating of 10,000 pounds or greater shall not idle for longer than five minutes at any location as required by Section 2485 of Title 13, Division 3, Chapter 10, Article 1 of the California Code of Regulations.

This restriction does not apply when vehicles remain motionless during traffic or when vehicles are queuing.

- Off road equipment engines shall not idle for longer than five minutes per Section 2449(d)(3) of Title 13, Division 3, Chapter 9, Article 4.8 of the California Code of Regulations. All vehicle operators shall receive a written idling policy to inform them of idling restrictions. The policy shall list exceptions to this rule that include the following: idling when queuing; idling to verify that the vehicle is in safe operating condition; idling for testing, servicing, repairing or diagnostic purposes; idling necessary to accomplish work for which the vehicle was designed (such as operating a crane); idling required to bring the machine to operating temperature as specified by the manufacturer; and idling necessary to ensure safe operation of the vehicle.

- Off road engines greater than 50 horsepower shall, at a minimum, meet Tier 2 emissions standards. When available, higher Tier engines shall be utilized. Additionally, contractor(s) shall comply with current CARB and BAAQMD regulations for off-road engines greater than 50 horsepower.

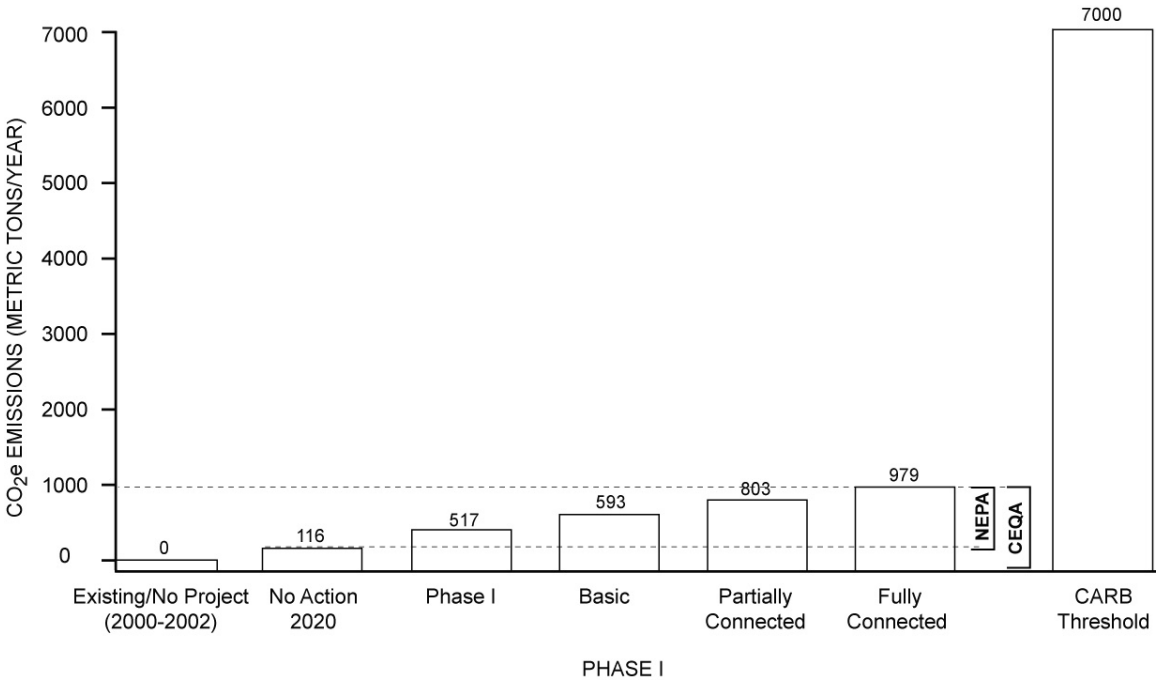
Impact 3.8.2: Long-term emissions of criteria pollutants. Project operations could result in criteria pollutant emissions from powering pumps and from maintenance/repair trips. (Less than Significant)

Operations of the proposed action would not include the use of new power generators. New booster pump stations would be powered by the existing electrical grid.

Chart 3.8-2 summarizes the amount of pumping horsepower provided by each alternative. Electricity obtained from the grid would be generated at one or more offsite power plants. Since these emissions would not occur within the project vicinity they would not impact local air quality in the proposed action area. In regards to regional emissions, there is no way to determine if electricity would even come from power plants located within the Basin, therefore it is impossible to determine if such emissions would exceed the BAAQMD significance thresholds. However, since power plant emissions are subject to the rules and regulations of the air district in which they are located and are subject to their own CEQA review it can be assumed that these emissions would already be accounted for in regional planning. Therefore, impacts associated with criteria pollutant levels from increased electricity usage are considered to be less than significant. Please refer to Impact 3.8.4 for a discussion of potential impacts relating to greenhouse gas (GHG) emissions.

Proposed action components, once in-place, would not result in an increase in the labor-force at the existing WWTPs. New pipelines and storage reservoirs not located at the existing WWTPs would require routine inspection and maintenance. These activities would generate a small number of vehicle trips, but would occur infrequently and would therefore not result in a substantial increase in vehicle miles traveled. The additional trips would not exceed the BAAQMD screening threshold of 2,000 trips per day.

CHART 3.8-2
COMPARISON OF CEQA AND NEPA BASELINE -
PUMPING CAPACITY (HORSEPOWER), BY ALTERNATIVE



SOURCE: ESA, 2008.

Under NEPA, operational emissions associated with the proposed action would be lower than those presented in Table 3.8-8 for construction activities. Therefore, the project would be in compliance with the NAAQS and the SIP. In addition, the proposed action would not affect any area designated as Class I under the Clean Air Act because long-term emissions associated with the project would be less than significant and the nearest Class I area is the Point Reyes Wilderness Area, located approximately 10 miles west of the proposed site. Further, annual operational phase emissions associated with the proposed action would be negligible for each criteria pollutant. Therefore, the proposed action would not be subject to New Source performance standards and would not be subject to any emissions limitations. All NEPA related operational impacts would be less than significant.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

Future baseline conditions (2020) for air quality are anticipated to improve over time due to the implementation of the Bay Area 2005 Ozone Strategy (BAAQMD, 2006). The BAAQMD has conducted a detailed emissions inventory for ozone precursors (ROG and NO_x) within the Bay Area. The inventory includes projections for ROG and NOx on a typical summer day in the Bay Area out to year 2020. Based on the BAAQMD's analysis, total emissions of ROG and NO_x in the Bay Area are expected to decrease by approximately 25% and 40%, respectively, between the years 2005 and 2020 (BAAQMD, 2006).

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.8-2). A discussion of impacts by Member Agency is provided below.

LGVSD/NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato/NMWD SD and SVCSD

Under the No Action Alternative, vehicle trips associated with maintenance of these pipelines would still occur, although fewer trips would be required than those anticipated under operation of the proposed action. Therefore, the worker trips generated by the No Action Alternative would be expected to be substantially below the BAAQMD screening threshold of 2,000 trips per day. Therefore, impacts would be less than significant.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46.4 miles of new pipeline, 1,873 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28.8 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The air quality impacts associated with the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the

facilities constructed under this alternative (see Chart 3.8-2, Phase 1). A discussion by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, and Napa SD

As mentioned previously, maintenance of WWTP upgrades would not require additional staff. Inspection and maintenance of new pipelines and offsite storage ponds would generate vehicle trips that would result in air pollutant emissions. However, trips would occur infrequently and would not exceed the BAAQMD screening threshold of 2,000 trips per day. Therefore, impacts from Phase 1 operations would be less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,345 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65.7 miles of new pipeline, 1,433 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The air quality impacts associated with the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative.

LGVSD, Novato SD, SVCSD, and Napa SD

The Basic System would result in additional vehicle trips for the additional pipelines not included in Phase 1. It is anticipated that the additional trips associated with maintenance of this additional length of pipeline would be minimal and would not exceed the BAAQMD screening threshold of 2,000 trips per day. The impact would therefore be less than significant.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 140 miles of new pipeline, 3,656 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122.5 miles of new pipeline, 2, 744 HP of pumping capacity, treatment facilities providing 15.0 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts associated with the proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, and Napa SD

Implementation of the Partially Connected System would result in additional vehicle trips associated with the maintenance of the additional project components. However, truck/vehicle trip rates would not exceed 2,000 trips per day; therefore, impacts from vehicle trips would be less than significant.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135.8 miles of new pipeline, 4,109 HP of pumping capacity, treatment facilities providing 19.9 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, and Napa SD

The Fully Connected System would result in additional vehicle trips associated with maintenance of the additional project components, however, the trips would be significantly higher than those under the Partially Connected System and would not exceed the BAAQMD screening threshold of 2,000 trips per day. The impact would be less than significant.

Impact 3.8.3: Long term increase in toxic air contaminant (TAC) levels. Project operation could result in emissions of TACs that would have the potential to harm sensitive receptors located in the project vicinity. (Less than Significant)

Wastewater treatment can result in emissions of TACs such as benzene and chloroform,. The proposed action would involve an increase in existing tertiary treatment capacity. Tertiary treatment activities would not result in a substantial increase in TACs. Additionally, current air permits would be reviewed by BAAQMD to ensure TACs resulting from operations would not expose sensitive receptors to harmful pollutant concentrations. Emissions of TACs would be regulated by BAAQMD through its permitting and compliance process, therefore impacts would be less than significant.

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no change impact would occur. For a discussion of the No Project under future conditions, see No Action Alternative below.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding. Future baseline conditions (2020) for air quality are anticipated to improve over time due to the implementation of the Bay Area 2005 Ozone Strategy (BAAQMD, 2006). The BAAQMD has conducted a detailed emissions inventory for ozone precursors (ROG and NO_x) within the Bay Area. The

inventory includes projections for ROG and NO_x on a typical summer day in the Bay Area out to year 2020. Based on the BAAQMD's analysis, total emissions of ROG and NO_x in the Bay Area are expected to decrease by approximately 25% and 40%, respectively, between the years 2005 and 2020 (BAAQMD, 2006).

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.8-1, No Action). A discussion of air quality impacts by Member Agency is provided below.

LGVSD/NMWD and Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/NMWD and SVCSD

Under the No Action Alternative, tertiary treatment capacity would increase by approximately 0.5 million gallons per day (mgd). The Member Agencies would ensure the use of best management practices at the WWTPs. Impacts would be less than significant through review of the air permits issued by BAAQMD and regulation of TAC emissions from the WWTPs.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46.4 miles of new pipeline, 1,873 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and 65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28.8 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The air quality impact under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities under this alternative (see Chart 3.8-1, Phase 1). A discussion of air quality impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

As discussed previously, all increases in treatment capacity would need to meet BAAQMD permit requirements which would ensure that sensitive receptors are not exposed to harmful concentrations of TACs. Impacts would be less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,345 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65.7 miles of new pipeline, 1,433 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

The air quality impacts under the Basic System would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative (see Chart 3.8-1, Basic System). A discussion of air quality impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

As discussed previously, all increases in treatment capacity would need to meet BAAQMD permit requirements which would ensure that sensitive receptors are not exposed to harmful concentrations of TACs. Impacts would be less than significant.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 140 miles of new pipeline, 3,656 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122.5 miles of new pipeline, 2, 744 HP of pumping capacity, treatment facilities providing 15.0 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts to proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative (see Chart 3.8-1, Partially Connected). A discussion of air quality impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

The Partially Connected System would require an additional 8.3 mgd of tertiary treatment capacity, which represents a total increase of 15.3 mgd over existing conditions. As discussed previously, all increases in treatment capacities would need to meet BAAQMD permit conditions in order to operate. These permit conditions would ensure that sensitive receptors are not exposed to harmful levels of TACs; impacts would be less than significant.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135.8 miles of new pipeline, 4,109 HP of pumping capacity, treatment facilities providing 19.9 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative (see Chart 3.8-1, Fully Connected). A discussion of air quality impacts by Member Agency is provided below.

LGVSD/NMWD, Novato SD/NMWD, SVCSD, Napa SD

As discussed previously, all increases in treatment capacities would need to be covered under existing BAAQMD air permits or existing permits would need to be revised to cover increased treatment capacity. Permit conditions would require use of best management practices and would ensure that sensitive receptors are not exposed to harmful levels of TACs. Impacts would be less than significant.

Impact 3.8.4: Long term Increase in GHG Emissions. Project construction and operation would increase GHG emissions potentially interfering with the State's GHG reduction goals. (Less than Significant)

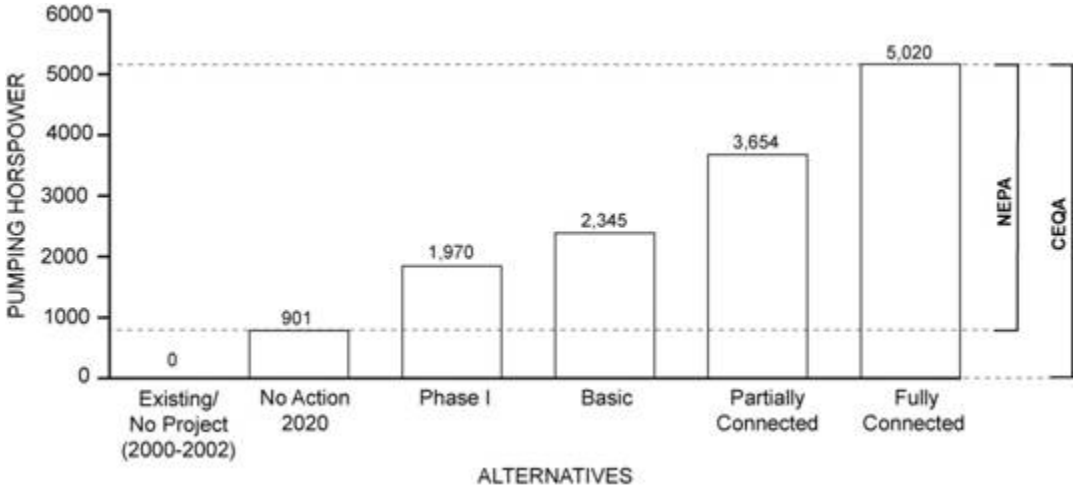
As with other individual small projects (e.g., projects that are not cement plants, oil refineries, electric generating facilities/providers, co-generation facilities, or hydrogen plants or other stationary combustion sources that emit more than 25,000 MTCO2e per year), the emissions increases that would result under the Action Alternatives would not be expected to individually have a significant impact on global climate change (CAPCOA, 2008) and the primary concerns would be whether implementation of the project would conflict with the State goals for reducing greenhouse gas emissions and whether the NBWRP would have a cumulatively considerable impact on global climate change. According to the CARB's interim significance thresholds for GHGs, the project should meet interim CARB performance standards for construction-related emissions (previously discussed under Impact 3.8.1). In regards to operations, a project would be considered significant if it would emit more than 7,000 metric tons of CO_2e per year from non-transportation related emissions (CARB, 2007f).

Currently, alternative sources of energy are being utilized at LGVSD, Novato SD, SVCSD, and Napa SD WWTPs. The solar power plant at the LGVSD WWTP produces approximately 850,000 kilowatt-hour per year. The solar plant at the SVCSD WWTP provides at least one third of the energy needed to power the current operations at the WWTP. The Novato SD and Napa SD utilize co-generation technology, which utilizes electricity and heat produced by the cogeneration system, to reduce purchased electricity and natural gas. As discussed under **Impact 3.8.2**, operation of the proposed action is not expected to generate a significant increase in vehicle trips. However, to provide worst case emission estimates for GHGs generated by inspection and maintenance activities, it was assumed that the entire length of the proposed pipeline would be inspected once a week throughout the entire year. Therefore, to determine total annual vehicle miles traveled a worst case scenario was developed that assumed weekly inspection and maintenance activities involving roundtrips through the length of the proposed pipelines. Vehicle emission rates for CO_2 and CH_4were determined using the emissions inventory program EMFAC2007. Based on this program, CO_2 emissions rates would be approximately 2.6 pounds per mile and CH_4 emission rates would be approximately 0.0002 pounds per mile. EMFAC2007 does not provide N_2O emission rates; therefore the emission rate of 0.004 pounds per mile from the California Climate Action Registry was used (CCAR, 2008). Assuming that CH_4 has a global warming potential of 23 and N_2O has a global warming potential of 296, emission rates of CO_2

from vehicle trips would be 2.7 pounds per mile. This emission rate is used below to evaluate GHG emissions from project operations.

Increased electricity usage would increase the amount of indirect GHG emissions generated as part of the project. The following emission rates were used to calculate GHG emissions: 524 pounds per megawatt-hour (lbs/MWh) of CO_2, 0.0037 lbs/MWh of CH_4, and 0.0067 lbs/MWh of N_2O (PG&E, 2008 and CCAR, 2008). Energy usage was determined based on the assumption that pumping would occur 120 days per year for 6 hours per day. Impacts from each of the alternatives relative to the CARB recommended threshold of 7,000 metric tons per year is summarized in **Chart 3.8-3**, and discussed by Member Agency below. **Table 3.8-10** shows the equivalent number of annual vehicles for each alternative, based on PG&E's carbon calculator (PG&E, 2009). This assumes annual mileage of 12,000 miles in a vehicle that averages 21 miles per gallon.

CHART 3.8-3
ESTIMATED CO2E EMISSIONS (METRIC/TONS ANNUALLY)
VERSUS CALIFORNIA AIR RESOURCE BOARD INTERIM THRESHOLD



SOURCE: ESA, 2008.

TABLE 3.8-10
CARBON DIOXIDE EMISSIONS AND VEHICLE EQUIVALENCY

Alternative	CO2 Generated by Alternative Operations	Equivalent in Vehicles per Year
No Action Alternative	116.9	23.2
Phase 1 (Project level)	517.5	102.9
Alternative 1: Basic System (Program level)	593.3	118.0
Alternative 2: Partially Connected System (Program level)	803.3	159.8
Alternative 3: Fully Connected System (Program level)	979.7	194.8

SOURCE: ESA, 2008

No Project Alternative

The NBWRP would not be implemented under the No Project Alternative, therefore no change impact would occur.

No Action Alternative

Under the No Action Alternative, which includes consideration of future conditions, it is likely that a subset of water recycling projects would be implemented by the Member Agencies on an individual basis, without the benefit of regional coordination or federal funding.

Future baseline conditions (2020) for air quality are anticipated to improve over time due to the implementation of the Bay Area 2005 Ozone Strategy (BAAQMD, 2006). The BAAQMD has conducted a detailed emissions inventory for ozone precursors (ROG and NOx) within the Bay Area. The inventory includes projections for ROG and NO_x on a typical summer day in the Bay Area out to year 2020. Based on the BAAQMD's analysis, total emissions of ROG and NO_x in the Bay Area are expected to decrease by approximately 25% and 40%, respectively, between the years 2005 and 2020 (BAAQMD, 2006).

For comparison to the Action Alternatives, it is estimated that approximately 17.5 miles of new pipeline, 912 HP of pumping capacity, treatment facilities providing 0.5 mgd of tertiary capacity, and approximately 65 AF of storage would be constructed by Member Agencies on an individual basis (see Chart 3.8-1, No Action). A discussion of individual Member Agencies is provided below.

LGVSD/ NMWD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Novato SD/ NMWD and SVCSD

Under the No Action Alternative, projects may be implemented in the Novato SD and SVCSD service areas. Vehicle trips associated with maintenance would still occur, although fewer trips would be required and trips would be shorter in distance than those anticipated under operation of the proposed action. Also, near term pumping requirements would be less therefore indirect GHG emissions from electricity usage would be less. **Table 3.8-11** shows an estimate of GHG emissions from operation of the No Action Alternative.

Napa SD

There would be no project facilities constructed under the No Action Alternative, therefore no impact would occur.

Phase 1 (Project level)

Compared to the CEQA Baseline, Phase 1 projects would provide 46.4 miles of new pipeline, 1,873 HP of pumping capacity, treatment facilities providing 6.4 mgd of tertiary capacity, and

TABLE 3.8-11
GHG EMISSION RATES FROM PROJECT OPERATION – NO ACTION ALTERNATIVE

Emission Source	CO_2e Emissions (metric tons per year)				
	LGVSD	Novato SD	SVCSD	Napa SD	All Districts
Indirect (Electricity Usage)	0.0	31.9	76.7	0.0	108.7
Direct (Vehicle Exhaust)	0.0	0.6	0.8	0.0	1.4
Total Emissions	0.0	32.5	77.5	0.0	**110.0**

NOTE: Totals may appear to not add up due to rounding.

See Appendix AQ for detailed calculation sheets.

65 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Phase 1 projects would provide 28.8 miles of new pipeline, 961 HP of pumping capacity, treatment facilities providing 5.9 mgd of tertiary capacity, and no additional storage.

The air quality impacts associated with the proposed facilities under Phase 1 would be equivalent to and greater than the impacts discussed for the No Action Alternative, in proportion to the facilities constructed under this alternative. Construction activities would meet interim performance standards set by CARB; therefore impacts from construction would be less than significant. A discussion of impacts by Member Agency is provided below. With regard to operations, impacts from GHG emissions would occur from inspection and maintenance of new pipelines as well as from increased electricity consumption. **Table 3.8-12** shows an estimate of GHG emissions that would result from implementation of Phase 1. Vehicle emissions were estimated based on the assumption that the entire length of pipeline proposed in each service area would be inspected and maintained once per week, a conservative assumption.

TABLE 3.8-12
GHG EMISSION RATES FROM PROJECT OPERATION – PHASE 1

Emission Source	CO_2e Emissions (metric tons/year)				
	LGVSD	Novato SD	SVCSD	Napa SD	All Districts
Indirect (Electricity Usage)	9.3	33.1	112.5	356.7	511.5
Direct (Vehicle Exhaust)	0.8	1.3	1.7	2.2	5.9
Total Emissions	10.0	34.4	114.1	358.9	**517.5**

NOTE: Totals may appear to not add up due to rounding.

See Appendix AQ for detailed calculation sheets.

The average energy that would be consumed within the LGVSD, Novato SD, and SVCSD service areas is estimated at 1,120 kilowatt-hour per acre-feet per year (kWh/AFY) of potable water served (CDM, 2009). The average energy consumption under Phase 1 would be approximately

402 kWh/AFY of recycled water served[2] (CDM, 2009). The resulting potential energy savings of approximately 718 kWh/AFY would have a corresponding reduction in greenhouse gas emissions associated with energy use. Further, as shown, GHG emissions from implementation of Phase 1 would be well below CARB's interim GHG threshold of 7,000 metric tons of CO_2e per year (see Chart 3.8-3, Phase 1). Therefore, impacts would be less than significant.

LGVSD/NMWD

As shown in Table 3.8-12 indirect and direct CO_2e emissions generated by operations for LGVSD would total approximately 10.0 metric tons per year. This estimate is based on the assumption that all 5.9 miles of new pipeline are inspected once per week. These emissions would be below the interim GHG threshold and impacts would be less than significant.

Novato SD/ NMWD

As shown in Table 3.8-12, operation of Phase 1 projects in the Novato SD area would cause a total increase in GHG emissions of approximately 34.4 metric tons per year. This value is based on the assumption that 9.9 miles of new pipeline would be constructed. This value is well below the interim GHG threshold; therefore impacts would be less than significant.

SVCSD

Phase 1 would involve an additional 13.2 miles of pipeline in the SVCSD area. As demonstrated in Table 3.8-12, this would result in a total of 114.1 metric tons of indirect and direct CO_2e emissions per year. These emissions are well below the interim GHG significance threshold of 7,000 metric tons of CO_2e per year. Therefore, impacts would be less than significant

Napa SD

Phase 1 implementation would involve construction of 17.5 miles of new pipeline to move water from the Napa SD WWTP. As shown in Table 3.8-12, direct and indirect emissions associated with improvements under Phase 1 implementation would total approximately 358.9 metric tons of CO_2e per year. This value is below the interim GHG threshold. Therefore, the impacts would be less than significant.

Alternative 1: Basic System (Program level)

Compared to the CEQA Baseline, the Basic System projects would provide 83 miles of new pipeline, 2,345 HP of pumping capacity, treatment facilities providing 7.8 mgd of tertiary capacity, and 1,020 AF of storage. Compared to the No Action Alternative (NEPA Baseline), Basic System would provide 65.7 miles of new pipeline, 1,433 HP of pumping capacity, treatment facilities providing 7.3 mgd of tertiary capacity, and 955 AF of storage.

[2] Energy consumption under current conditions does not include Napa. The data assumes that all of the Sonoma Valley water demand in Phase 1 is currently served with potable water. Energy use for groundwater pumping in Sonoma Valley are not available.

The air quality impacts associated with the proposed facilities under the Basic System would be equivalent to and greater than the impacts discussed for Phase 1, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Under the Basic System construction of additional facilities would result in greater GHG emissions from use of construction equipment, haul trucks and worker vehicles. However, construction activities would comply with CARB's interim performance standards and impacts would be less than significant.

The impacts associated with operation of the Basic System would be equivalent to the impacts discussed for Phase 1 above in addition to the following impacts. Electricity usage associated with pumping would increase at the SVCSD and Napa SD WWTPs. The number of vehicle miles traveled to inspect new pipeline would increase as a result an additional 24 miles of pipeline. **Table 3.8-13** provides estimated GHG emissions from project operations under the Basic System.

TABLE 3.8-13
GHG EMISSION RATES FROM PROJECT OPERATION – BASIC SYSTEM

	CO_2e Emissions (metric tons/year)				
Emission Source	**LGVSD**	**Novato SD**	**SVCSD**	**Napa SD**	**All Districts**
Indirect (Electricity Usage)	9.3	33.1	169.9	370.5	582.8
Direct (Vehicle Exhaust)	0.8	1.6	4.3	4.0	10.6
Total Emissions	10.0	34.7	174.2	374.4	**593.3**

NOTE: Totals may appear to not add up due to rounding.

See Appendix AQ for detailed calculation sheets.

The average energy that would be consumed within the LGVSD, Novato SD, and SVCSD service areas is estimated at 1,212 kWh/AFY of potable water served (CDM, 2009). The average energy consumption under the Basic System would be approximately 257 kWh/AFY of recycled water served[3] (CDM, 2009). The resulting potential energy savings of approximately 955 kWh/AFY would have a corresponding reduction in greenhouse gas emissions associated with energy use. Further, as shown in Table 3.8-13, indirect and direct CO_2e emissions from the Basic System operations would total approximately 593.3 metric tons of CO_2e per year. Operation of the NBWRP would not result in GHG emissions above the interim GHG threshold (see Chart 3.8-3, Basic System). Therefore, impacts would be less than significant.

LGVSD/NMWD

Impacts from operation of upgrades associated with the LGVSD WWTP would be equivalent to those associated with operation of Phase 1. Impacts would be less than significant.

[3] Energy consumption under current conditions does not include Napa. The data assumes that all of the Sonoma Valley water demand in Phase 1 is currently served with potable water. Energy use for groundwater pumping in Sonoma Valley are not available.

Novato SD/NMWD

The Basic System would include construction of additional pipelines beyond those under Phase 1, thereby increasing direct GHG emissions from inspection and maintenance activities. No additional electricity would be required, thus impacts from indirect emissions would be the same as those expected from implementation of Phase 1. As shown in Table 3.8-13, these emissions would still be well below the interim threshold for GHG emissions. Impacts would be less than significant.

SVCSD

Under the Basic System, operation of upgrades associated with the SVCSD WWTP would increase indirect GHG emissions from increased electricity usage and direct GHG emissions through additional vehicle trips required to inspect and maintain additional pipelines. However, as demonstrated in Table 3.8-13, these emissions would be well below the interim GHG threshold. Impacts would be less than significant.

Napa SD

As shown in Table 3.8-13, both direct and indirect GHG emissions from project operation under the Basic System would increase above those expected under Phase 1 implementation. This increase would occur due to increased electricity usage and increased vehicle trips required to maintain new pipelines. These increases in GHG emissions would be well below the interim GHG threshold. Impacts would be less than significant.

Alternative 2: Partially Connected System (Program level)

Compared to the CEQA Baseline, the Partially Connected System would provide 140 miles of new pipeline, 3,656 HP of pumping capacity, treatment facilities providing 15.9 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Partially Connected System would provide 122.5 miles of new pipeline, 2, 744 HP of pumping capacity, treatment facilities providing 15.0 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts associated with proposed facilities under the Partially Connected System would be equivalent to and greater than the impacts discussed for the Basic System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Construction of additional facilities under the Partially Connected System would result in greater emissions of GHGs over those under the Basic System from use of construction equipment, haul trucks and worker vehicles. However, as discussed previously, these Partially Connected System and Basic System activities would be conducted in compliance with CARB's interim construction performance standards. Therefore, impacts would be less than significant.

With respect to operations, the additional 57 miles of pipeline under the Partially Connected System would increase the amount of vehicle miles traveled, thus increasing total GHG emissions. Furthermore, increased pumping requirements would result in an increase of indirect

GHG emissions generated at power plants. **Table 3.8-14** shows total indirect and direct emissions associated with operation of the Partially Connected System.

TABLE 3.8-14
GHG EMISSION RATES FROM PROJECT OPERATION – PARTIALLY CONNECTED SYSTEM

Emission Source	CO_2e Emissions (metric tons/year)				
	LGVSD	Novato SD	SVCSD	Napa SD	All Districts
Indirect (Electricity Usage)	43.1	74.6	260.6	407.2	785.5
Direct (Vehicle Exhaust)	2.3	4.6	5.3	5.6	17.8
Total Emissions	45.4	79.2	266.0	412.8	**803.3**

NOTE: Totals may appear to not add up due to rounding

See Appendix AQ for detailed calculation sheets.

The average energy that would be consumed within the LGVSD, Novato SD, and SVCSD service areas is estimated at 686 kWh/AFY of potable water served (CDM, 2009). The average energy consumption under the Partially Connected System would be approximately 231 kWh/AFY of recycled water served[4] (CDM, 2009). The resulting potential energy savings of approximately 455 kWh/AFY would have a corresponding reduction in greenhouse gas emissions associated with energy use. Further, as shown in Table 3.8-14, the emissions would be well below the interim GHG significance threshold (see Chart 3.8-3, Partially Connected). Therefore, impacts would be less than significant.

LGVSD/NMWD

As shown in Table 3.8-14, impacts from both indirect and direct emissions sources under the Partially Connected System would be substantially higher than those anticipated under operation of the Basic System. However, as demonstrated in the table, total emissions would be substantially lower than the interim GHG significance threshold. Therefore, impacts would be less than significant.

Novato SD/NMWD

As shown in Table 3.8-14, the Partially Connected System would increase indirect GHG emissions associated with electricity usage and pipeline inspection and maintenance. Total emissions would be well below the interim GHG significance threshold. Impacts would be less than significant.

[4] Energy consumption under current conditions does not include Napa. The data assumes that all of the Sonoma Valley water demand in Phase 1 is currently served with potable water. Energy use for groundwater pumping in Sonoma Valley are not available.

SVCSD

As demonstrated in Table 3.8-14, the Partially Connected System would increase both indirect and direct emissions above those anticipated under operation of Alterative 1. Nevertheless, these increases would be well below the interim GHG significance threshold; therefore, impacts would be less than significant.

Napa SD

As shown in Table 3.8-14, indirect emissions associated with increased electricity usage at the Napa SD WWTP and direct emissions from pipeline inspection and maintenance would increase the emissions above those anticipated from implementation of the Basic System. Despite these increases, implementation of the Partially Connected System would not be expected to exceed the interim GHG significance threshold; impacts would be less than significant.

Alternative 3: Fully Connected System (Program level)

Compared to the CEQA Baseline, the Fully Connected System would provide 153 miles of new pipeline, 5,021 HP of pumping capacity, treatment facilities providing 20.8 mgd of tertiary capacity, and 2,220 AF of storage. Compared to the No Action Alternative (NEPA Baseline), the Fully Connected System would provide 135.8 miles of new pipeline, 4,109 HP of pumping capacity, treatment facilities providing 19.9 mgd of tertiary capacity, and 2,155 AF of storage.

The air quality impacts under the Fully Connected System would be equivalent to and greater than the impacts discussed for the Partially Connected System, in proportion to the facilities constructed under this alternative. A discussion of impacts by Member Agency is provided below.

Construction of additional facilities would result in greater emissions of GHGs from construction equipment, haul trucks and worker vehicles. However, as discussed previously, the Fully Connected System the Basic System the Partially Connected System activities would be conducted in compliance with CARB's interim construction performance standards. Therefore, impacts would be less than significant. The additional 15 miles of pipelines included as part of the Fully Connected System would be inspected and maintained and additional electricity would be needed to increase pumping capacity throughout the system. **Table 3.8-15** shows indirect and direct GHG emissions anticipated from implementation of the Fully Connected System.

The average energy that would be consumed within the LGVSD, Novato SD, and SVCSD service areas is estimated at 561 kWh/AFY of potable water served (CDM, 2009). The average energy consumption under the Fully Connected System would be approximately 277 kWh/AFY of recycled water served[5] (CDM, 2009). The resulting potential energy savings of approximately 284 kWh/AFY would have a corresponding reduction in greenhouse gas emissions associated with energy use. Further, as shown in Table 3.8-15, total annual CO_2e emissions would be approximately 979.7 metric tons per year. This is well below the interim GHG threshold of 7,000 metric tons of CO_2e per year (see Chart 3.8-3). Therefore, impacts would be less than significant.

[5] Energy consumption under current conditions does not include Napa. The data assumes that all of the Sonoma Valley water demand in Phase 1 is currently served with potable water. Energy use for groundwater pumping in Sonoma Valley are not available.

TABLE 3.8-15
GHG EMISSION RATES FROM PROJECT OPERATION – THE FULLY CONNECTED SYSTEM

Emission Source	CO_2e Emissions (metric tons/year)				
	LGVSD	Novato SD	SVCSD	Napa SD	All Districts
Indirect (Electricity Usage)	57.4	123.4	372.1	407.2	960.1
Direct (Vehicle Exhaust)	2.3	6.0	5.6	5.6	19.5
Total Emissions	59.7	129.4	377.8	412.8	**979.7**

-- Data not available to determine value.

See Appendix 3.8 for detailed calculation sheets.

LGVSD/NMWD

As shown in Table 3.8-15, indirect emissions would increase from increased pumping requirements associated with implementation of the Fully Connected System. Direct emissions from vehicle trips would be the same as those anticipated under the Partially Connected System.

Despite increases in indirect GHG emissions, implementation of the Fully Connected System would not be expected to exceed the interim GHG significance threshold. Impacts would be less than significant.

Novato SD/NMWD

As shown in Table 3.8-15, implementation of the Fully Connected System would result in increased indirect GHG emissions from increased electricity requirements at the Novato SD WWTP. Also, new pipelines connecting the Novato SD with the SVCSD would need to be maintained and inspected thereby increasing direct GHG emissions. The emissions are not expected to exceed the interim GHG significance threshold; therefore, impacts would be less than significant.

SVCSD

As shown in Table 3.8-15, implementation of the Fully Connected System would result in increased indirect and direct GHG emissions. However, these emissions would not exceed the interim GHG significance threshold and impacts would be less than significant.

Napa SD

As shown in Table 3.8-15, direct and indirect GHG emissions from operation of the Napa SD WWTP would be equivalent to those expected under implementation of the Partially Connected System. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure 3.8.1b: Construction Exhaust Emissions Control Plan, discussed under Impact 3.8.1.

3.8.4 Impact Summary by Service Area

Table 3.8-16 provides a summary of potential air quality impacts associated with implementation of the proposed action.

TABLE 3.8-16
POTENTIAL IMPACTS AND SIGNIFICANCE – AIR QUALITY

Proposed Action	Impact by Member Agency Service Areas			
	LGVSD/ NMWD	**Novato SD/ NMWD**	**SVCSD**	**Napa SD/ Napa County**
Impact 3.8.1: Temporary Construction Emissions of Criteria Pollutants.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LSM	LSM	LSM	LSM
Phase 1	LSM	LSM	LSM	LSM
Basic System	LSM	LSM	LSM	LSM
Partially Connected System	LSM	LSM	LSM	LSM
Fully Connected System	LSM	LSM	LSM	LSM
Impact 3.8.2: Long-term Emissions of Criteria Pollutants.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Basic System	LTS	LTS	LTS	LTS
Partially Connected System	LTS	LTS	LTS	LTS
Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.8.3: Long-term Increase in Toxic Air Contaminant Levels.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Basic System	LTS	LTS	LTS	LTS
Partially Connected System	LTS	LTS	LTS	LTS
Fully Connected System	LTS	LTS	LTS	LTS
Impact 3.8.4: Long-term Increase in GHG Emissions.				
No Project Alternative	NI	NI	NI	NI
No Action Alternative	LTS	LTS	LTS	LTS
Phase 1	LTS	LTS	LTS	LTS
Basic System	LTS	LTS	LTS	LTS
Partially Connected System	LTS	LTS	LTS	LTS
Fully Connected System	LTS	LTS	LTS	LTS

NI = No Impact
LTS = Less than Significant impact, no mitigation required
LSM = Less than Significant with Mitigation

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