Climate Action Plan: Sustainable Transit for a Healthy Planet

2022

Contents

Executive Summary

The Rogue Valley Transportation District (RVTD) is implementing an Energy and Sustainability Action Plan to reduce the Agency's energy use, emissions, and to contain operating costs while supporting the region to move forward sustainably. Each year, RVTD reduces the carbon footprint of the Rogue Valley region by providing public transit to nearly one million riders. To provide this public good, RVTD consumes a substantial amount of energy. Because of the service it provides to the region and the scale of its energy consumption, RVTD has a tremendous opportunity to manage its energy use and fuel choices to operate with greater efficiency. This Energy and Sustainability Action Plan is central to transforming the way RVTD does business to realize an efficient and sustainable future. Advancing RVTD's sustainability will not only help RVTD reach environmental goals through reduced consumption but could also generate long-term cost savings.

This Action Plan seeks to baseline our emissions activities and adopt goals to further reduce emissions in the future. Historical facility electrical consumption data is baselined and tracked from 2008 forward and fleet fuel consumption is baselined from 1994 forward.

RVTD is focusing on three pillars to further reduce emissions from energy and fuel consumption: implementing strategies identified in the 2040 Transit Master Plan; using energy efficient design in facility construction; and transitioning to a zero-emission transit fleet. RVTD commits to go beyond the actions included in this initial Action Plan through ongoing employee and stakeholder engagement to garner innovation and continuous improvement.

1. Introduction

On April 22, 2021, President Biden announced an ambitious goal: for the United States to achieve a 50-52 percent reduction from 2005 levels in economy-wide net greenhouse gas (GHG) pollution by 2030. On June 15, 2021, the Federal Transit Administration (FTA) launched the Sustainable Transit for a Healthy Planet Challenge to encourage transit agencies to build on progress already made and to further reduce GHG emissions from public transportation in support of President Biden's GHG reduction goal.

Transportation is a major source of GHG emissions in the United States, accounting for 29 percent of 2019 GHG emissions (EPA's U.S. Greenhouse Gas Emissions and Sinks: 1990-2019). Public transportation plays an important role in reducing a community's transportation GHG emissions through transportation and land use efficiencies.

Transit agencies are increasingly taking actions to reduce their own carbon emissions to further the GHG emission reduction benefits associated with public transportation. FTA's Sustainable Transit for a Healthy Planet Challenge encourages transit agencies to take bold actions and investments to cut GHG emissions. The challenge calls on transit agencies to develop climate action strategies with measurable goals to achieve GHG emission targets. RVTD has signed on to this challenge and has prepared its first Climate Action Plan.

The Scope of the Plan

The transit fleet is often the largest contributor to GHG produced by a transit agency. RVTD, in collaboration with several regional entities, sought lower-emission fuel options beginning three decades ago. The bus fleet has steadily been converted to Compressed Natural Gas (CNG) from diesel. Additionally, RVTD has supported strategies and initiated projects first identified in the 2007 Long Range Plan to reduce electricity. This document describes these prior efforts and the resulting energy and GHG reduction achieved. The RVTD Board of Directors recently adopted goals to continue reducing GHG emissions caused by the bus fleet. This document will address these goals and two others to reduce energy consumption.

An analysis of the pounds of GHG mitigated by RVTD's prior efforts is provided in this document which includes the 2005 baseline year for continued monitoring.

Process for developing the plan

A Campus Master Plan is currently underway which identifies facilities and supporting infrastructure to utilize on the existing campus through 2050. This document will identify ways to mitigate detrimental environmental impacts through construction and facility design. An Alternative Fuels Plan is also being undertaken that will help RVTD begin a transition to Zero Emission Buses (ZEB) by 2025. As a participant in the Challenge, RVTD has utilized resources available from FTA, the American Public Transportation Association (APTA) and USDOT Volpe Center to develop this plan.

2. Agency Overview

The Rogue Valley Transportation District (RVTD) was created by public vote in 1975 to provide public transportation services in the urbanized areas of the Rogue Valley. It is organized as a transportation district under Oregon Revised Statutes (ORS) 267 and is governed by an elected seven-member board.

RVTD provides fixed-route, demand-response, non-emergency medical transportation, and other public transportation services in the Rogue Valley. RVTD's District covers approximately 168 square miles, including Medford, Ashland, Central Point, Talent, Phoenix, White City, Jacksonville, and adjacent portions of Jackson County. The area within ¾ mile of a fixed route is approximately 77 square miles. RVTD operates thirteen fixed-route bus services. Routes operate 6 days a week, with limited Saturday service. Generally, weekday service operates from as early as 5:00 AM to as late as 7:30 PM, while Saturday service operates from 7:00 AM to 6:00 PM.

RVTD's Board adopted the following Vision Statement which speaks to the District's sustainability goals, "In 2040, RVTD provides quality, efficient public transportation for residents and visitors, including those who are transit-dependent, improving the quality of life and the environment in the Rogue Valley and connecting its diverse communities to jobs, opportunity, and daily needs."

Existing Funding Sources

The following funding sources are currently part of RVTD's operating budget. RVTD has a permanent levy for a property tax within the district boundary at 17.72 cents per $1,000 of assessed property value. In addition to the historic permanent levy that provides funding to RVTD, voters renewed a five-year tax levy in 2021 that increased taxes within the district by 13 cents per $1,000 of assessed property value. Keep Oregon Moving (Oregon House Bill 2017) established a new dedicated source of funding for expanding public transportation service through a new 0.1 percent employee payroll tax in Oregon. The Statewide Transportation Improvement Fund (STIF) funds may be used for public transportation purposes that support the operations, planning, and administration of public transportation programs and may also be used as the local match for state and federal funds which also provide Public Transportation Service. The Urbanized Area Formula Funding Program 5307 Operating Grant provides federal funding through the Federal Transit Administration to urbanized areas for transit capital and operating assistance. The Surface Transportation Block Grant (STBG) program provides capital based federal funding to best address preventive maintenance on vehicles and facilities. A portion of passenger fares becomes revenue for the operating budget.

3. State and Local Initiatives

Oregon is known nationally for a progressive climate action strategy. Local agencies have implemented legislative action, policies and planning to help meet Oregon's goals for reducing GHG emissions.

3.1 Oregon GHG Reduction Legislation and Planning

In March 2020, Governor Brown issued Executive Order 20-04 directing several state agencies, including Oregon Department of Transportation, to take immediate actions to address climate change. Oregon Executive Order 20-04 requires cross-agency collaboration on the Statewide Transportation Strategy (STS) to reduce GHG emissions. Accordingly, the agencies of ODOT, Department of Land Conservation and Development (DLCD), Department of Energy, and Department of Environmental Quality (DEQ) met and prioritized collaborative actions to reduce emissions.

The four agencies have developed a 2-year implementation plan, with long term commitments to continue prioritizing and implementing additional actions. The four-agency effort has been dubbed "Every Mile Counts" to encapsulate the suite of collaborative actions needed to reduce miles traveled, achieve cleaner vehicles and fuels, and integrate GHG into decision making. In 2018, the Oregon Transportation Commission adopted an amendment to incorporate the STS as part of the Oregon Transportation Plan. RVTD is directly involved in the Oregon GHG initiatives in the following ways:

- Board Chair Tonia Moro- DLCD Metropolitan GHG Reduction Targets Rulemaking Advisory Committee member (2015); Oregon Public Transportation Plan Policy Member
- General Manager Julie Brown- Oregon Transportation Commissioner (current)
- Senior Planner Paige West- Oregon Public Transportation Plan Technical Member; DLCD Climate Friendly Equitable Communities Rulemaking Advisory Committee Member (current)

3.2 RVTD Climate and Sustainability History

RVTD has a long legacy of reducing our agency's climate footprint. In the early 1990's, the RVMPO and RVTD partnered to reduce area pollutants by funding the replacement of RVTD's diesel bus fleet with new compressed natural gas (CNG) fueled buses. In 1995, RVTD began running the first CNG buses in the northwest and has since been recognized as a leader in this technology. Currently 85% of RVTD's fleet is run on CNG technology and RVTD uses Renewable Natural Gas to further offset harmful emissions.

In 2007, RVTD prepared its first Long Range Plan taking a holistic view of RVTD's operations. As part of the planning process, the RVTD Board adopted a vision statement and four policy areas. The fourth goal area is 'Environment', which includes a goal "Air Pollution/ Greenhouse Gas Reduction/ Fuel Efficiency". RVTD has made significant progress in achieving the initial goals around reducing GHG.

Table 1. RVTD's first Environment Goals from 2007 Long Range Plan

Policy Area	*Environment*	Achieved	In Progress
GOALS	**AIR POLLUTION / GREENHOUSE GAS REDUCTION / FUEL EFFICIENCY**		
	Performance Measure #1 Promote service improvements that will result in reduced reliance on the automobile and assist in meeting the RTP Alternative Measures. Ridership should increase at least at the rate of population increases.		X
	Performance Measure #2 All purchased vehicles will be of either natural gas, low-emission or clean burning diesel or biodiesel blend.	X	
	Performance Measure #3 Buses will not idle for longer than five minutes when not in service. Paratransit vehicles will not idle for longer than five minutes.	X	
	REDUCE SPRAWL		
	Performance Measure #1 Adopt density standards for transit service extensions and access. Exceptions would include subsidized operation funding from destination(s) or other private source.	X	
	Performance Measure #2 Prioritize service such that established areas meeting density requirements receive service prior to any new development.	X	
	Performance Measure #3 Complete an analysis of District boundaries and annexation needs by 2010. Ensure all routes will retain a .75 buffer between the service line and the District boundary.	X	
	Performance Measure #4 Participate in strategies that provide incentives for infill development, Transit Oriented Development and Multi-use development.	X	
	REDUCE WATER AND OTHER POLLUTION		
	Performance Measure #1 Continue the capture and recycling of contaminants from maintenance activities including oil, antifreeze, tires, batteries and bus washing water.	X	
	Performance Measure #2 Reduce per capita energy use from lighting and HVAC system in existing buildings by 10% by 2012 and 15% by 2015.	X	
	Performance Measure #3 Attain updated eligible recycling materials list regularly and emphasize a code of conduct for following through with recycling these materials.	X	
	Performance Measure #4 Purchase post recycled content paper of at least 30% and $\leq$50% when available and price does not exceed that of 30% content.	X	
	Performance Measure #5 Install solar powered technologies for stops, facilities and buildings when price difference does not exceed more than 25% of conventional equipment. If District does not purchase any solar equipment by 2012, Green Tags will be purchased in the amount of 5% of the electrical use.		X
	Performance Measure #6 All new buildings will be built with at least 10% recycled material and use low volatile paint, flooring and other materials if they do not exceed 25% of the price for conventional materials.	X	
	Performance Measure #7 RVTD shall comply with all mandatory standards and policies that relate to resource conservation and recovery pursuant to the Resource Conservation and Recovery Act concerning the purchase of specific products containing recycled materials identified in the guidelines developed by the State of Oregon and the Environmental Protection Agency. Current Federal guidelines are set forth in the 40 CFR.	X	

3.3 Future GHG emission reduction efforts

The 2040 Transit Master Plan, adopted in 2019, continues RVTD's efforts to reduce GHG emissions. The Vision Statement was amended by the Board to more explicitly identify that we will seek to continue, "…improving the quality of life and the environment in the Rogue Valley…".

There are five goal areas to support the adopted vision statement in the 2040 Plan: Community, Coordination, Economy, Environment, and Service Quality. Each goal area has a corresponding statement that articulates RVTD's aspirations. This is the Goal IV statement: Implement a system that lessens the environmental impact of travel.

Table 2. 2040 Transit Master Plan - Climate Related Actions

2040 Transit Master Plan - Climate Related Actions	
Administration	
34.2	Improve File Management (storage, e-file, etc)
Finance	
35.3	Adopt a procurement software
Operations - Facilities	
36.1	Complete the Front Street Station Master Plan to understand its capacity and the needed additional facilities to support staffing, bus storage, waiting areas, ticket sales, and other RVTD activities. Potentially impacted facilities include the proposed Medford Intermodal Transfer Center, the Operations and Drivers Lounge building, and Bus Barn.
36.2	Complete a RVTD Main facility Master Plan to determine development of the new property and further development of the existing campus, including amenities and needs for drivers, supervisors, and training space.
36.5	Evaluate the amount of electricity the district uses and explore possible implementation of solar and wind energy to power some systems.
Operations - Fleet Planning	
38.1	Complete an alternative fuels/battery electric bus study.
Planning and Strategic Programs	
40.4	Update bus stop amenities data
40.15	Establish service standards for existing and new service and present to public
Alternative Transportation	
43.2	Evaluate and update fare instrument to decrease overhead and provide more convenience for passengers.
43.5	Create portal software for Medicaid department with a focus on opportunities to coordinate NEMT trips with ADA.
IT	
44.14	Reduce the amount of electricity the district uses on computer equipment by investing in energy-efficient monitors, computers, and other technology equipment. Possible implementation of solar or wind energy to power some systems.

3.4 Board Resolution Number 18-07

In 2018 the RVTD Board adopted Resolution Number 18-07, establishing an initial three-point strategy for RVTD to transition from CNG fossil fuels.

1) The District shall prioritize continued implementation of the service improvements outlined in the [2040 Transit Master Plan] in order to attract motorists to the bus system which will require the immediate and short-term addition of service vehicles;
2) The District shall move aggressively to replace current CNG fossil fuel with [Renewable Natural gas] and biodiesel from any source; and
3) The District shall, within 6 months, commission a professional analysis of the energy and infrastructure needs and sources to ultimately identify the preferred fuel and capital investment needed to obtain a zero-emissions goal.

RVTD is currently pursuing a campus master plan which includes a fuel study component. The master plan will identify the infrastructure needed to support zero emission buses safely and efficiently. Phase One of the campus master plan identified the need to move and replace the Transportation building and driver parking from the primary campus activities on an adjacent lot RVTD purchased in 2018. Phase Two is underway with a contractor who will plan for the location of the zero emission technology. The Alternative Fuels Plan will also provide information on other fuel types.

3.5 Why Prepare a Climate Action Plan?

With the future in mind, and the Climate Challenge put forth by President Biden, RVTD sees this as an opportunity to baseline prior GHG reduction accomplishments and to combine several plans, policies, resolutions into cohesive goals. The remainder of this document will present historical fleet emissions and facility-related emissions and then conclude with three primary goals to further reduce RVTD's climate footprint.

4. GHG Emissions Reduction from Fleet

In this section, RVTD will provide an accounting of GHG emissions from public transit operations and facilities, including baseline data and trends. Having an accurate baseline inventory and conducting periodic updates will help RVTD focus efforts on reducing GHG emissions and track progress.

The emission sources inventory includes:

- Fleet operations, including revenue and non-revenue vehicles
- Facility operations, including administrative buildings, maintenance facilities, shops and yards.

3.1 Fleet Operations GHG Inventory

RVTD has basic fleet information dating back to 1995 in historical records. It wasn't until 2005 that the Office of Budget and Management required public agencies to track their capital assets. After 2005, RVTD's fleet records lack mileage data but are more detailed to include the type of bus, year of manufacture, disposition date and approximate value. The National Transit Database also has a repository of fleet information where much of the vehicle mileage would typically be found, although it is not as detailed prior to 2012. RVTD used the combination of all three sources to validate data and to estimate any missing data needed for this effort.

In 1995, RVTD's first mini fleet of CNG buses went into service (they were received in late 1994). Therefore, 1994 is being used as the baseline when all of RVTD's fleet was still diesel. Benchmark years were chosen for 1994, 1995, 2005 (the year of the net-zero challenge), 2015 and 2020.

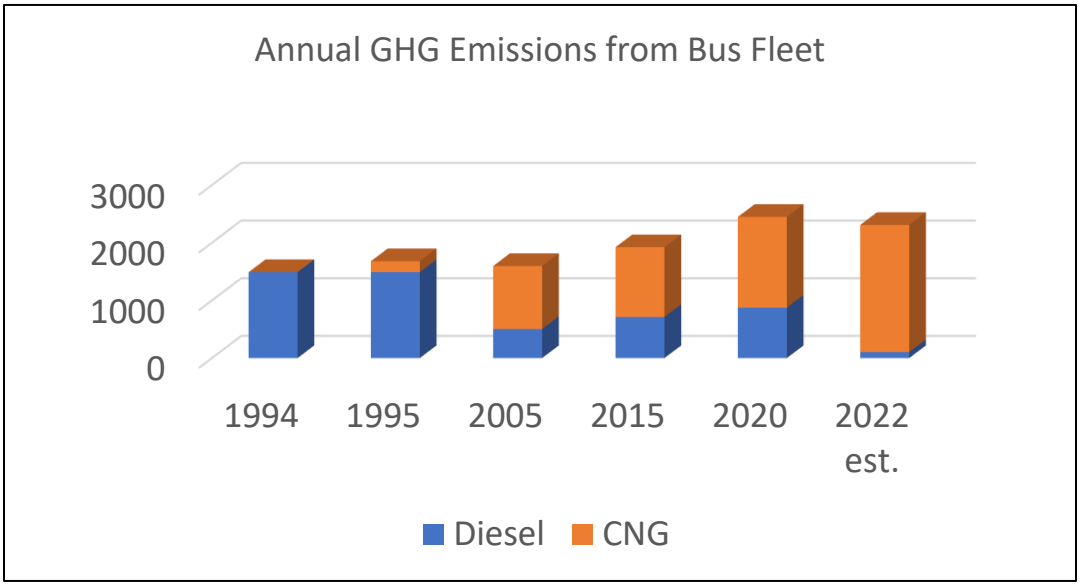
Table 3. Rogue Valley Transportation District (RVTD) Fixed Route Bus Fleet *(figures shown below include spares)*

	1994	1995	2000	2005	2015	2020	2021	2022 est.
35-foot Diesel	15	15	15	8	13	13	12	5
30-foot CNG							7	11
35-foot CNG	10	10	10	15	18	27	26	29
Diesel	25	15	15	8	13	13	12	5
% Of Fleet	100%	60%	60%	35%	42%	33%	27%	11%
CNG	0	10	10	15	18	27	33	40
% Of Fleet	0%	40%	40%	65%	58%	68%	73%	89%
TOTAL	25	25	25	23	31	40	45	45

Table 4. Annual GHG Emissions from Bus Fleet Cumulative

Cumulative Annual Emissions			Total Emissions	Change Since 1995	Change since 2005
Year	Diesel	CNG			
1994	1490.00	0.0			
1995	1489.75	268.68	1680.44	-	-
2005	503.95	1093.03	1596.98	-5%	-
2015	711.03	1211.35	1922.38	14%	20%
2020	873.44	1575.13	2448.57	46%	53%
2022 est.	104.60	2204.16	2309.00	37%	45%

Figure 1. Annual GHG Emissions from Bus Fleet Cumulative

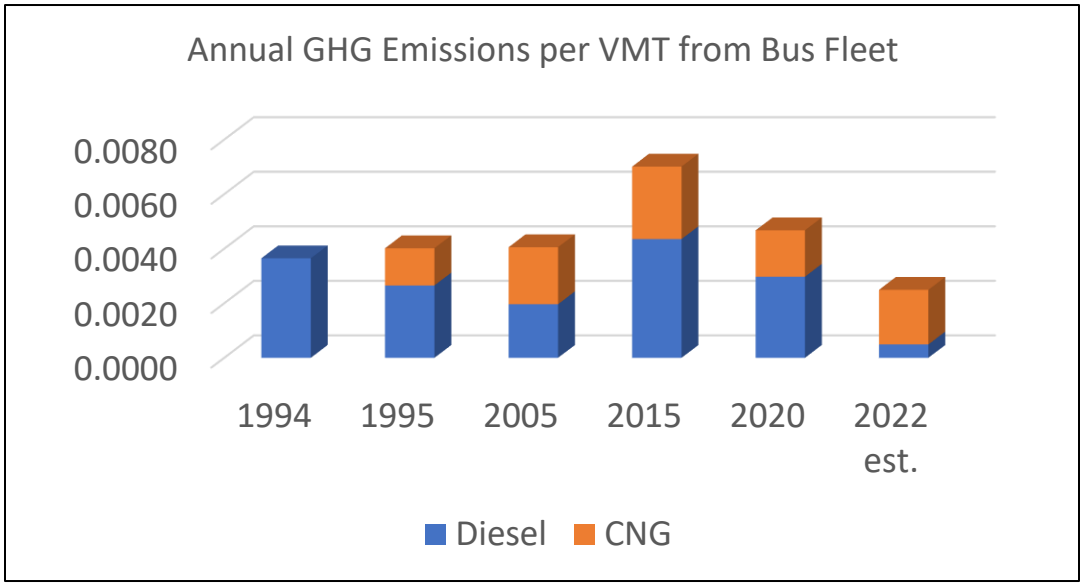


The cumulative examination of GHG emissions does not consider the service changes RVTD has experienced over the horizon years. For example, in 2005-2007 RVTD decreased service by approximately 30% and in 2018 it increased service by nearly 40%. Perhaps a better way to look at emissions is to include the vehicle miles for each year. Below is a table that divides the total emissions by the number of vehicle miles for each service year.

Table 5. Annual GHG Emissions from Bus Fleet per Vehicle Mile Traveled

Per Mile			Total Emissions	Change Since 1995	Change since 2005
Year	Diesel	CNG			
1994	0.0036		-	-	-
1995	0.0027	0.0014	0.0040	-	-
2005	0.0020	0.0021	0.0041	1%	-
2015	0.0044	0.0027	0.0070	75%	73%
2020	0.0030	0.0017	0.0047	16%	15%
2022 est.	0.0005	0.0020	0.0025	-38%	-38%

Figure 2. Annual GHG Emissions from Bus Fleet per Vehicle Mile Traveled



RVTD estimates that in 1994 the operations had a total annual miles of 700,000 (the closest year on record in 1996 had 701,442 miles) compared to 1,220,409 vehicle miles in 2020. With a 74% increase in vehicle miles between 1994-2020, RVTD had a 37% increase in cumulative emissions and a 16% increase in emissions per mile traveled.

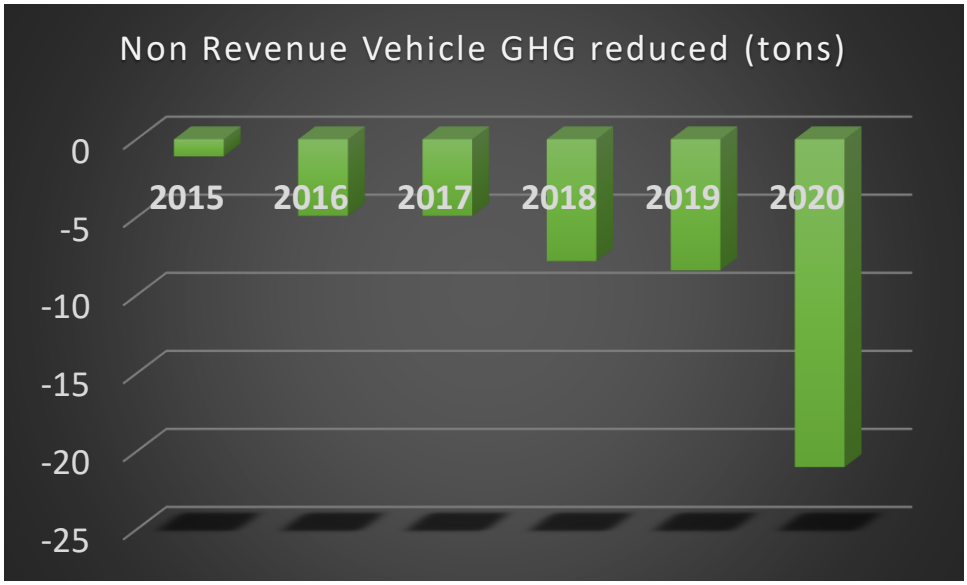
RVTD purchased eight 35-foot diesel buses from Athens, GA in 2017 to prepare for a service increase in 2018. These buses are retiring in 2022 after RVTD was successful with being awarded two grants (State and Federal 5339(b)) that purchased 13 CNG vehicles. The first of the replacement CNG vehicles went into service in December 2021. An estimate for 2022 is provided to reflect the retiring of diesel buses.

RVTD estimates that in 2022, the annual cumulative emissions from the fixed route fleet will be 2,309 metric tons and the per mile emissions will be .0025 metric tons making 2022 the lowest year on record for per mile emissions.

3.2 Non Revenue Vehicle GHG Emissions Reduction

Harmful emissions are not only produced by RVTD's fixed route fleet but also the non-revenue vehicles (NRV) such as maintenance service trucks and driver shuttles to reach routes already in service. Electric vehicle technology was more prevalent in passenger cars in 2015, allowing RVTD to add 1 fully electric and 1 Hybrid electric NRV that offset 125 gas gallon equivalents (GGE) and 1.1 GHG tons; in 2016, 3 more hybrid electric vehicles were added to offset 951 GGE and 4.9 tons; in 2017 this fleet offset 951 GGE and 4.9 tons; in 2018 this fleet offset 1,488 GGE and 7.8 tons GHG. In 2019, RVTD added 2 CNG fueled service trucks offsetting 1,704 GGE and 2.1 tons and added 3 electric NRV for a total of 8 fleet cars for relief trips providing 1,204 GGE and 6.3 tons. In 2020, the trucks offset 1,801 GGE and 3.0 tons and the relief fleet reduced 2,572 GGE and 18.0 GHG tons.

Figure 3. Annual GHG Emissions from NRV Fleet



5. Facility GHG Inventory

In 2007, RVTD partnered with Energy Trust of Oregon to conduct a facility audit and prepare a list of conservation strategies. At the time, the District was facing a shortfall of funds and a service reduction. Although not a significant expenditure, RVTD was paying approximately $17,000 annually for facility related energy use. *Please note the analysis in this document does not include the CNG Fueling Compressors.*

Figure 4. 2007 Energy Trust of Oregon Energy Audit

All Locations

1. Replace all 4' florescent bulbs with T-8 bulbs. Currently all 4' bulbs identified in the audit are T-12 bulbs which are less efficient than the T-8 bulbs. A recommendation made by RHT Energy Solutions: if a location (room) needs more than 25% of the bulbs replaced all bulbs should be replaced with newer, more efficient bulbs.
2. Modify workstation screen savers. All workstations should be set with "no screen saver" verses the current "Windows Logo" screen saver.
3. Shut computers off at night. At night, all computers (less network servers) should be shut down and the surge protectors turned off. This prevents "phantom" power consumption.
4. Occupancy sensors in offices and bathrooms. Occupancy detectors ensure that when an area has not been occupied for a specific amount of time, the lights will automatically turn off. Suggested areas: bathrooms, offices, storage areas.
5. Weatherize doors, windows, and attics. All external doors and windows should be checked for missing and/or damaged weather stripping.
6. Address all faucet leaks. Several leaky faucets were identified in RVTD buildings. These leaks (drips) can amount to hundreds of gallons wasted every month. Check seals and gaskets for damage. This also includes all water spickets, hoses, etc.

Administration Office

1. Wrap or replace water heater(s). Replace with "on demand" or "in line" water heater(s), reducing the water heater size, or wrapping the current water heater with insulation.
2. Exhaust fan in printer room. Install exhaust fan in the ceiling between the two copiers that generate heat from large print jobs.
3. Exhaust fan in attic. Install solar attic fans on roof to expel heat.
4. Solar tubes for lighting in TDM / Marketing offices. Install solar tubes for natural lighting.
5. Bushes on south side of building. Plant bushes on south side of the building to reduce heat (mainly accounting offices).
6. Install energy efficient mini blinds in south facing offices.
7. Florescent lighting in board room. Replace current flood lights with high efficiency bulbs.

Maintenance Buildings

1. Install additional bus wash lighting. Install 4' florescent light fixtures in areas where current high wattage light fixtures are unnecessary. Install lower wattage florescent fixtures throughout bus wash while maintaining adequate lighting for employee safety and day to day operations.
2. Clean lighting cover in pressure washer room. To increase light from 4' florescent lighting, clean outer plastic cover.
3. Occupancy sensor in parts room. Install ceiling mounted occupancy sensor over entrance of parts room.
4. Bus block heaters on timer. Install timers on power cords or circuits to bus block heaters.

Table 6. Historical kWh Consumption from RVTD Facilities

kWh Annual Consumption Comparison				
	2008	2014	2017	2019
Jan	41,545	22,990	18,482	18,600
Feb	39,088	22,283	21,943	15,473
March	28,634	21,685	18,937	13,044
April	28,332	18,070	16,068	7,613
May	29,712	17,649	16,789	3,968
June	29,250	20,124	18,015	4,692
July	30,262	23,867	18,315	5,384
Aug	31,026	19,069	26,479	10,750
Sept	35,287	22,592	22,876	7,657
Oct	36,590	19,793	21,263	6,069
Nov	35,002	17,485	19,628	7,409
Dec	37,490	21,979	23,019	13,647
Annual Total	404,226	249,600	243,831	116,325
Reduction Between Periods		38%	2%	52%
Reduction Between 2008 to 2019		-	-	71%

RVTD implemented nearly all of the energy conservation recommendations from Energy Trust of Oregon. Lighting, occupancy sensors, more modern desktop computers and other basic efficiency solutions were installed between 2008-2010 resulting in a remarkable 38% decrease in consumption. The installation of a large solar panel array on the Maintenance Facility in 2018 contributed to an additional 52% decrease from 2017 to 2019. Overall, between 2008 and 2019, RVTD reduced electrical consumption at the main campus by 71%.

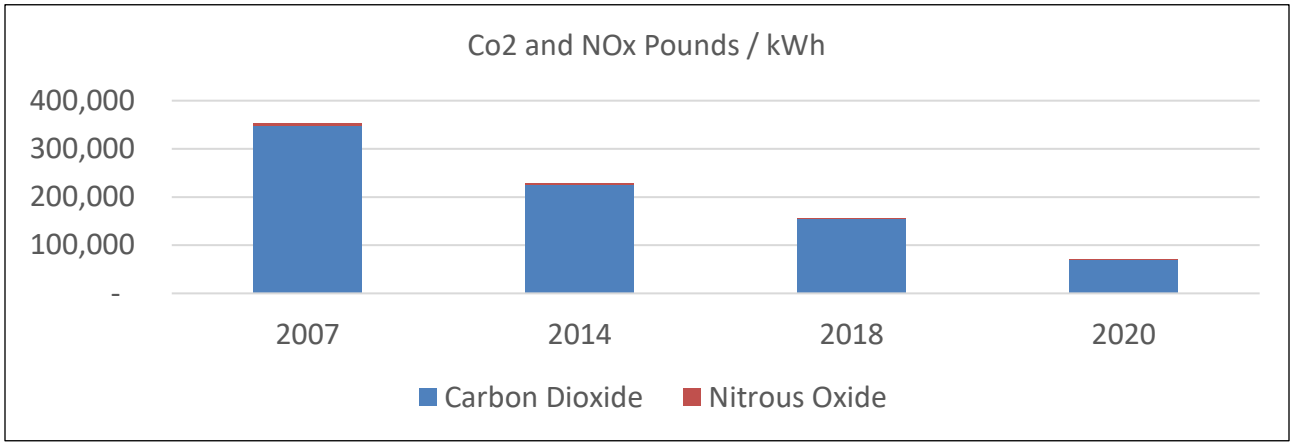
Table 7. Historical GHG Emissions Reduction from RVTD Facilities

	eGRID[1] Annual Emission Rates per kWh		RVTD GHG per kWh		Change since 2007 CO2	Change since 2007 Nox
	Carbon Dioxide	Nitrous Oxide	Carbon Dioxide	Nitrous Oxide		
2007	0.859	0.0140	347,230	5,659	-	-
2014	0.907	0.0140	226,387	3,494	-35%	-38%
2018	0.639	0.0006	155,808	146	-55%	-97%
2020	0.600	0.0005	69,795	58	-80%	-99%

From 2007 to 2020, RVTD has reduced 99% of the Nitrous Oxide and 80% of the Carbon Dioxide tons. This large decrease is in part due to the Northwest Resource mix for generating electricity changing over time, especially with coal becoming less dominant in the portfolio.

- In 2007, the Northwest energy portfolio included 32% coal, 48% hydroelectric, 3% nuclear, 13% natural gas and 2% wind.
- In 2020 the coal use dropped down to 18%, hydroelectric dropped slightly to 46%, nuclear stayed at 3%, natural gas increased to 18%, and wind jumped to 10%.

Figure 5. RVTD GHG per kWh emissions between 2007 to 2020.



[1] https://www.epa.gov/egrid/download-data

6. Energy and Sustainability Goals and Targets

This Climate Action Plan: Energy and Sustainability furthers RVTD's commitment to reducing GHG emissions. Three goals are outlined below that support RVTD's ongoing planning and policy work to create cohesive objectives.

6.1 RVTD's Climate Action Goals

Goal 1: By the year 2040, RVTD will have 50% of the bus fleet powered by zero emission sources.

Goal 2: By the year 2030, RVTD's main campus facilities will be powered with 75% renewable energy.

Goal 3: By 2030, decrease total facility energy use by an additional 10% from 2020 levels.

6.2 The Biden-Harris Administration Climate Action Goals

Signed into law on January 27, 2021, the Tackling the Climate Crisis at Home and Abroad Executive Order set ambitious goals that will... "ensure America and the world can meet the urgent demands of the climate crisis, while empowering American workers and businesses to lead a clean energy revolution that achieves a carbon pollution-free power sector by 2035 and puts the United States on an irreversible path to a net-zero economy by 2050."

The order establishes the National Climate Task Force, assembling leaders from across 21 federal agencies and departments to enable a whole-of-government approach to combatting the climate crisis.

On June 15, 2021, FTA launched the Sustainable Transit for a Healthy Planet Challenge to encourage transit agencies to build on progress already made and to further reduce GHG emissions from public transportation to support President Biden's GHG reduction goals listed below.

1. Achieve net zero emissions by 2050 – RVTD will continually monitor this goal with the assistance of FTA and USDOT Volpe but is not at this time adopting the goal without further information.

2. Achieve a 50-52 percent reduction in GHG emissions from 2005 levels by 2030 – RVTD is well on our way to meeting this goal using the metric of per mile emissions. Between 2005 and 2022, RVTD has reduced 38% of GHG emissions per mile of service. Additionally, the electrical consumption of RVTD's facilities emits 71% less than in 2008. RVTD will also continually monitor this goal with the assistance of FTA and USDOT Volpe but is not at this time adopting the goal without further information.

7. Strategies and Actions

Goal #1: By the year 2040, RVTD will have 50% of the bus fleet powered by zero emission sources.

Strategy	Actions	Metric to track progress	Timeframe	Responsible Office
ZEB	Develop bus ZEB plan	Y/N plan developed	December 2022	Planning
	Upgrade maintenance facility to support ZEB buses	Y/N facility updated	September 2026	Operations
	Upgrade Campus to support ZEB buses	Y/N facility updated	December 2026	Operations
	Purchase 10 ZEB buses	25% of active fleet is ZEB	December 2027	Procurement
	Purchase 7 ZEB buses	43% of active fleet is ZEB	December 2032	Procurement
	Purchase 3 ZEB buses	50% of active fleet is ZEB	December 2038	Procurement

Goal #2: By 2030, use 75% renewable electricity for primary facility operations *(does not include electricity for charging battery electric buses or CNG Compressors).*

Strategy	Actions	Metric to track progress	Timeframe	Responsible Office
Convert to 75% renewable energy by 2030	Continue maintenance of existing solar installation	Tracking kWh performance	Ongoing	Maintenance
	Install solar photovoltaic on new Transportation Building and driver parking structure	20% of Transportation primary campus offset	December 2024	Operations
	Install rest of solar photovoltaic on Maintenance Facility	10% of primary campus offset	December 2028	Operations
	Complete study and cost for offsetting ZEB with renewable energy	Y/N completed	September 2030	Planning

Goal #3: By 2030, decrease total facility energy use by an additional 10% from 2020 levels.

Strategy	Actions	Metric to track progress	Timeframe	Responsible Office
Decrease facility energy use by 10% from 2020 levels	Energy efficiency and supply strategies	Tracking performance using kWh	Ongoing	Administration and Procurement
	Invest in energy-efficient computer equipment	Include efficiency information in procurement files	Ongoing	IT
	Conservation campaign to employees	Y/N completed	Each Spring	Planning
	New Transportation building will incorporate energy efficiency strategies	Materials used and equipment compared to conventional options.	September 2030	Operations and Procurement

8. Implementing the Plan

RVTD's sustainability initiatives span every section of the organization and all employees are responsible for helping RVTD achieve the goals outlined in this plan. Implementation of the plan will focus on three key strategies:

1. Annual Work Plans – Each RVTD department is encouraged to develop an annual work plan to show how existing or planned activities will be accomplished. The work plans will align with the goals of this Energy and Sustainability Plan.
2. Employee Engagement – RVTD will encourage employee activism around sustainability goals and initiatives with an employee education and outreach campaign. Sustainability programs yield the best results when embraced by employees at all levels, so this effort will focus on department specific messaging and outreach plans.
3. Monitoring and reporting – RVTD will produce an update on the progress toward the activities in each goal. Updates will be provided to the Board of Directors and posted online every five years.

RVTD is known for its broad range of innovative transit services, green practices, and visionary approach to meeting the transportation needs of the region. This plan reinforces that reputation by clearly defining the agency's energy and sustainability goals. This is the first version of a Climate Action Plan and it will need to respond to changing policies, goals and conditions in the future. It will be re-evaluated for relevancy and updated as needed.