



TRI  MET

# Climate Action Plan

March 2024

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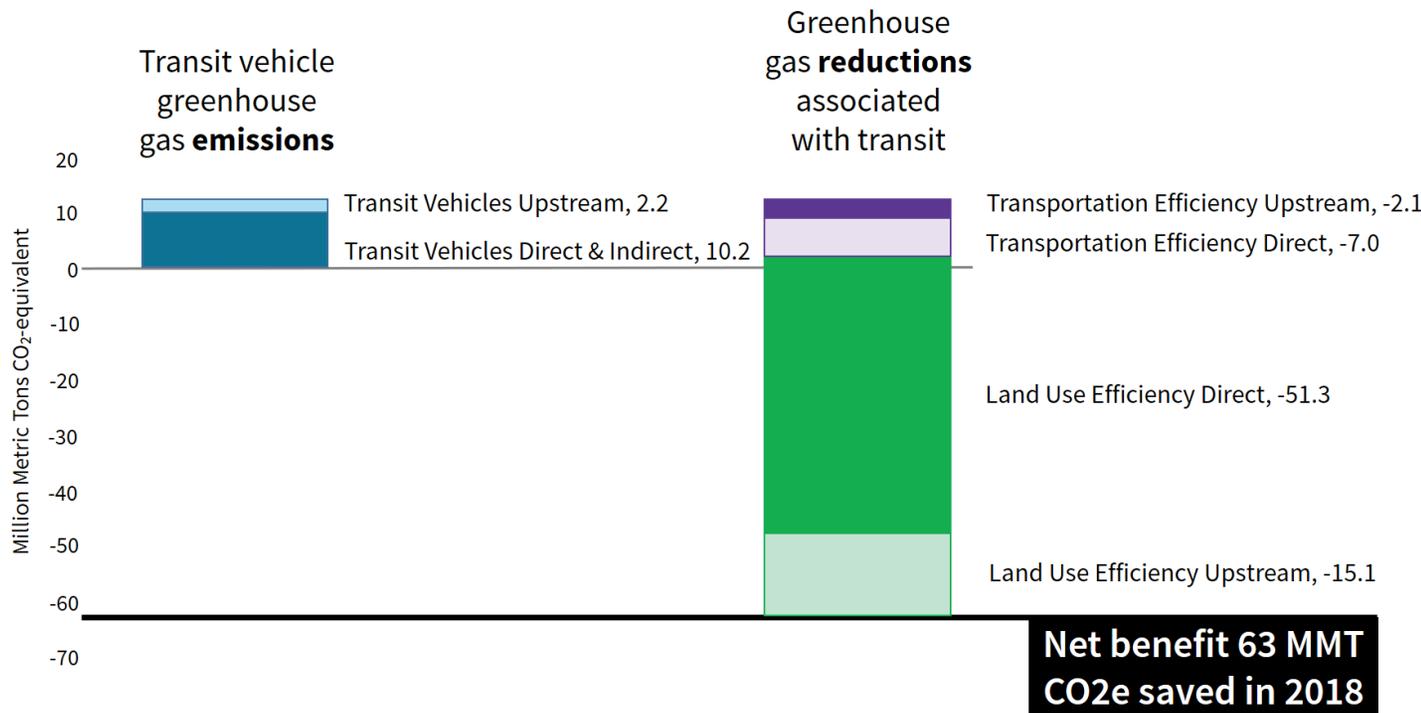
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# Summary

By its nature, public transit is a powerful tool for reducing greenhouse gas emissions. Transit offers people alternatives to driving or even to owning a car, which reduces transportation-related emissions of carbon and more local pollutants. Frequent service and/or fixed guideway transit (like TriMet’s MAX light rail system) can make an even greater impact, by supporting residential and commercial development that is transit-oriented and leads to more walkable and bikeable neighborhoods. This further reduces the need for people to drive and supports multifamily housing and multi-use commercial and office buildings, which take less energy to heat and cool than stand-alone buildings. <sup>1</sup>

## What are net zero emissions?

“Reaching net zero emissions means removing an equal amount of CO2 from the atmosphere as we release into it.”<sup>1</sup> Although carbon dioxide emissions may still be generated, an equal amount of carbon dioxide is removed from the atmosphere, resulting in zero increase in net emissions.



A 2021 report from the National Academy of Sciences<sup>2</sup> calculated the larger and long-term benefits of transit-oriented development. The report found a reduction in greenhouse gas emissions in the U.S. due to transit. By providing transit that supports walkable communities, TriMet provides a vital tool to help all communities in the region reduce greenhouse gases. This is why the first strategy in this Plan is to “Increase ridership to reduce regional traffic-related emissions.”

Figure 1: Estimated US national greenhouse gas emissions and reductions due to transit for 2018 (source: National Academies of Science, Transit Cooperative Research Program Report 226)

<sup>1</sup> Callout box text reference: [www.weforum.org/agenda/2021/11/net-zero-emissions-cop26-climate-change/](http://www.weforum.org/agenda/2021/11/net-zero-emissions-cop26-climate-change/)

<sup>2</sup> [nap.nationalacademies.org/catalog/26103/an-update-on-public-transportations-impacts-on-greenhouse-gas-emissions](http://nap.nationalacademies.org/catalog/26103/an-update-on-public-transportations-impacts-on-greenhouse-gas-emissions)

The Portland urbanized area is the 23rd largest in the US, but we have the 13th highest transit ridership. Among the 60 largest population centers, TriMet and the Portland region are 10th best in terms of transit boardings per capita<sup>3</sup>.

TriMet's Business Plan<sup>4</sup> includes Actions aimed at increasing ridership over time. The heart of the FY2025-FY2029 Plan is Vision 2030, TriMet's focused effort to increase ridership to 120 million boardings per year by the end of 2030. We never lose sight of the fact that encouraging transit use and growing ridership is our most powerful tool to combat climate change. The Plan includes TriMet's broader goals with respect to sustainability, incorporating the "three Ps": Planet, People, and Prosperity. Addressing climate change is critical and TriMet is committed to doing so in a way that considers all aspects of the natural world, social impacts and equity, and economics.

### The need for climate action now

Our climate is changing rapidly. In the 2020s, our communities have gotten stark reminders of the negative impacts we can expect to get more frequently with climate change. In September 2020, unprecedented wildfires in Oregon caused five days of "hazardous" air<sup>5</sup> (over 300 on the air quality index scale), temporarily placing Portland "No. 1 for worst air quality among the world's cities"<sup>6</sup>.

In June 2021, Portland hit all-time record high temperatures over 108, 112, and 116 degrees in three successive days<sup>7</sup>. The hottest day was a full nine degrees hotter than the previous all-time record before that year.

In January 2024, an ice storm disrupted rail service and was a stark reminder that climate change isn't just about warmer, it's about more extreme. The trend of the changing climate is clear and poses significant threats to the health and safety of this region's residents. It also threatens the reliability and consistency of transit service.<sup>8</sup>

Transportation is the largest source of greenhouse gas emissions in the state of Oregon. Increasing transit mode share and transit fleet electrification are key strategies for Portland Metro and the State of Oregon for climate action and GHG reduction.

### TriMet's baseline greenhouse gas emissions

TriMet has collected data and has identified a baseline for comparison for Greenhouse Gas Emissions (see page 10 of this report).

We have achieved our first target to be 60% below our baseline by 2022. By purchasing renewable electricity and renewable diesel in the past year, we are estimated to have exceeded this goal. We have set future benchmarks at 2030—70% below baseline, 2040—90% below baseline, and net zero by 2050. These targets are covered in Section 5.

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<sup>3</sup> [www.transit.dot.gov/ntd/data-product/2022-annual-database-uza-sums](http://www.transit.dot.gov/ntd/data-product/2022-annual-database-uza-sums)

<sup>4</sup> [trimet.org/businessplan](http://trimet.org/businessplan)

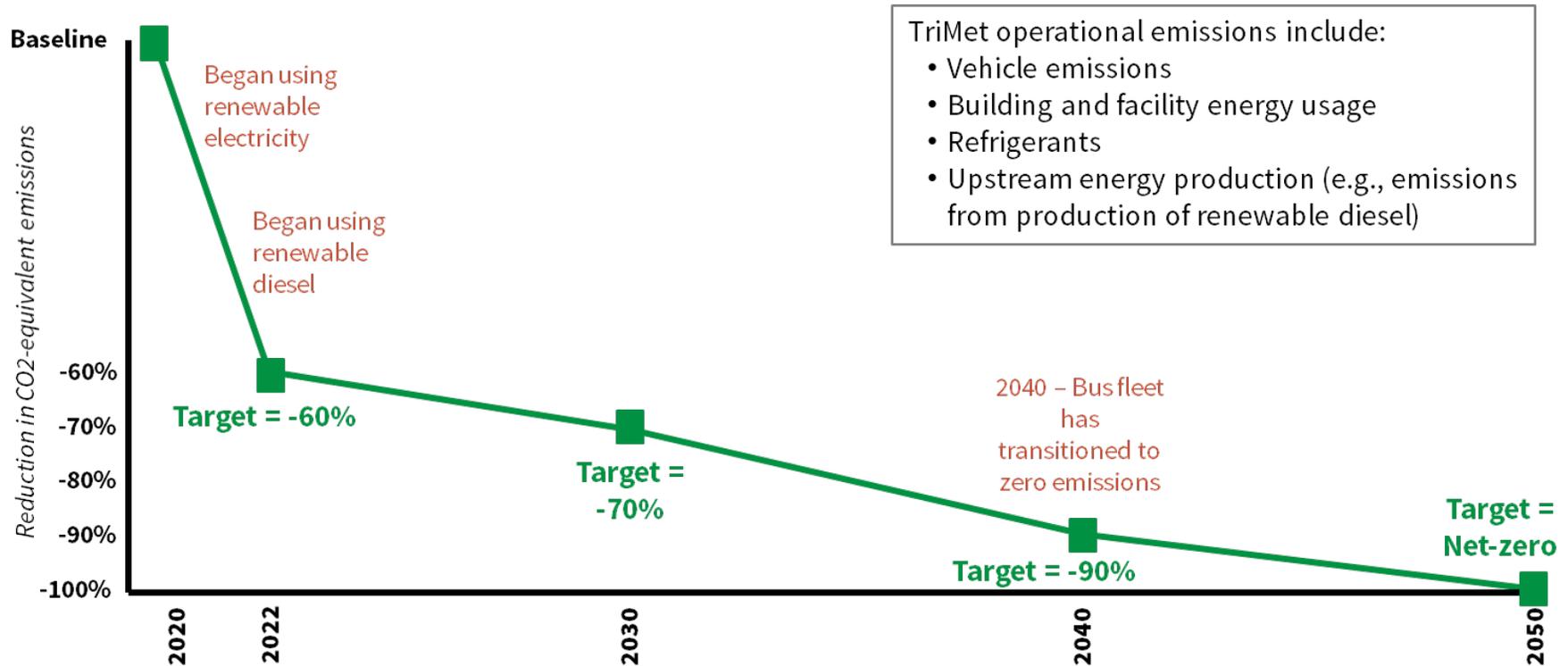
<sup>5</sup> [www.oregon.gov/deq/wildfires/Documents/WildfireSmokeTrendsReport.pdf](http://www.oregon.gov/deq/wildfires/Documents/WildfireSmokeTrendsReport.pdf)

<sup>6</sup> [www.npr.org/2020/09/14/912701172/its-a-bit-surreal-oregon-fights-smoke-from-record-wildfires-during-a-pandemic](http://www.npr.org/2020/09/14/912701172/its-a-bit-surreal-oregon-fights-smoke-from-record-wildfires-during-a-pandemic)

<sup>7</sup> [projects.oregonlive.com/weather/temps/](http://projects.oregonlive.com/weather/temps/)

<sup>8</sup> Excessive heat causes expansion of rails and overhead wires which can cause "sun kinks" (deformations in rail caused by expansion of the metal in the heat, which forces trains to slow down for safety) or sagging wires (which also force trains to slow down).

Figure 2: TriMet targets for reducing operational GHG emissions



### TriMet’s history of climate leadership

TriMet has held a long-standing commitment to implementing climate solutions, extending beyond providing environmentally friendly transit service. Our early commitment to transit-oriented development and utilizing a federal policy to redirect highway funds to transit and roadway projects ultimately helped spur more walkable and bikeable neighborhoods in our region. TriMet also pioneered the development and use of NASCAR-inspired on-board energy management technology to increase bus operating efficiency, and in 2006, TriMet became the first transit system in the nation to power buses with cleaner 5% biodiesel fuel.

We have consistently taken steps to increase efficiencies, reduce fossil fuel oil and gas consumption, and we’re now actively reducing our carbon footprint. All TriMet-owned facilities and our entire MAX light rail system are now powered by 100% renewable electricity. And, as of December 2021, our bus fleet runs on a cleaner burning, renewable diesel from plant-based materials—known as R99.

Our switch to 100% renewable electricity in June 2021 and renewable diesel for fixed-route buses in December 2021 and for diesel-engine LIFT and WES following in 2022 got us beyond our first benchmark goal, and is estimated to have cut the carbon dioxide-equivalent emissions produced by the agency by nearly 70%.<sup>9</sup>

### TriMet's path to net zero: climate strategies and actions

TriMet has identified key strategies and developed a list of associated actions to achieve our climate goals and benchmarks (see pages 23-26). Highlights include:

- Perform annual carbon inventory updates to track progress towards emissions reduction
- Use renewable diesel (R99) for all fixed-route buses, WES, and LIFT paratransit buses that have diesel engines
- Pursue renewable diesel for heavy-duty non-revenue vehicles
- Purchase electric vehicles to replace non-revenue vehicles when they meet the functional need
- Future bus purchases will aim toward a zero emissions fleet
- Explore longer-term commitments with PGE and Pacific Power for renewable electricity
- Implement TriMet's Equity Lens in major projects and service planning, which also factors in air quality improvements and carbon reduction.

### Climate Resilience

Unfortunately, the global effort against climate change is still struggling to meet goals to stay below temperature increases above historic baseline of 1.5 °C, which has been identified as a target to help avoid some of the worst consequences of further warming. In addition to fighting climate change, transit agencies bear the responsibility of identifying and implementing resiliency measures for our transit systems to be resilient in the face of climate change. The latest update to this Climate Action Plan includes background and new Actions addressing the need for climate resilience.

### Structure and funding

- This plan consolidates several initiatives and strategies including some already underway at TriMet into one coordinated plan to achieve our agency's commitment to reduce TriMet's climate impact and support the region's ongoing efforts to reduce greenhouse gas emissions. This plan will only be successful through coordination and collaboration with partners and local jurisdictions to support the agency's initiatives to reduce emissions.
- Several strategies and actions listed in this plan will require new funding to fully implement, and consideration of funding strategies for these initiatives is underway.

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<sup>9</sup> [www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle](https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle)

# 1. Introduction

TriMet provides transit service and access to mobility options in the Portland, Oregon metropolitan region. Our Business Plan<sup>10</sup> defines five primary roles or outcomes that we strive to achieve from our efforts:

- (1) Support our economy and provide equitable opportunity by getting people to work, school, etc.
- (2) Ease congestion
- (3) Provide mobility for those with few options due to economic reasons or physical or cognitive reasons
- (4) Help shape the future of our region by delivering service, mobility options, transit-oriented development, and capital projects that support sustainable communities
- (5) Reduce emissions and support environmental sustainability.

All of these reflect on sustainability, often with a mix of Planet, People, and Prosperity, connecting environmental sustainability with equity.

This Climate Action Plan is intended to define strategies and actions that will reduce emissions that impact the global climate. Transit plays a fundamental and critical role in supporting climate action. People who ride transit reduce their transportation emissions. Transit service and projects that support transit-oriented, walkable, and bikeable communities help make permanent changes in the development landscape that lead to lower transportation emissions for the long-term. Research into transportation and development around TriMet's Westside Blue Line showed that just a dozen years after the line was built it was generating more than three times as much benefit in reduced driving when including development and transportation mode changes than if just including transit boardings<sup>11</sup>.

<sup>10</sup> [www.trimet.org/businessplan](http://www.trimet.org/businessplan)

<sup>11</sup> Ewing (2014), <http://www.tandfonline.com/doi/pdf/10.1080/01944363.2014.949506>

## TriMet's Sustainability Team

- Lead: Alan Lehto, COO/ Strat & Planning
- Ali Al Sahaf, E&C
- Miles Anderson, Legal
- Sean Batty, E&C
- David Bouchard, COO/ Strat & Planning
- Miles Crumley, TS&AS
- Carey Gibbar, Maintenance
- Nathan Jones, Public Affairs
- Mike Krzeminski, Safety & Security
- Kate Lyman, COO/ Strat & Planning
- Fiona Lyon, Legal
- Kate MacKinnon Kiser, E&C
- Tara O'Brien, Public Affairs
- A J O'Connor, IT
- Jeff Rogers, Finance
- Brendon Siefert, Maintenance
- Jamie Snook, E&C
- Les Spitler, Finance
- Connor Toth, TS&AS
- Dylan Vaughn, TS&AS

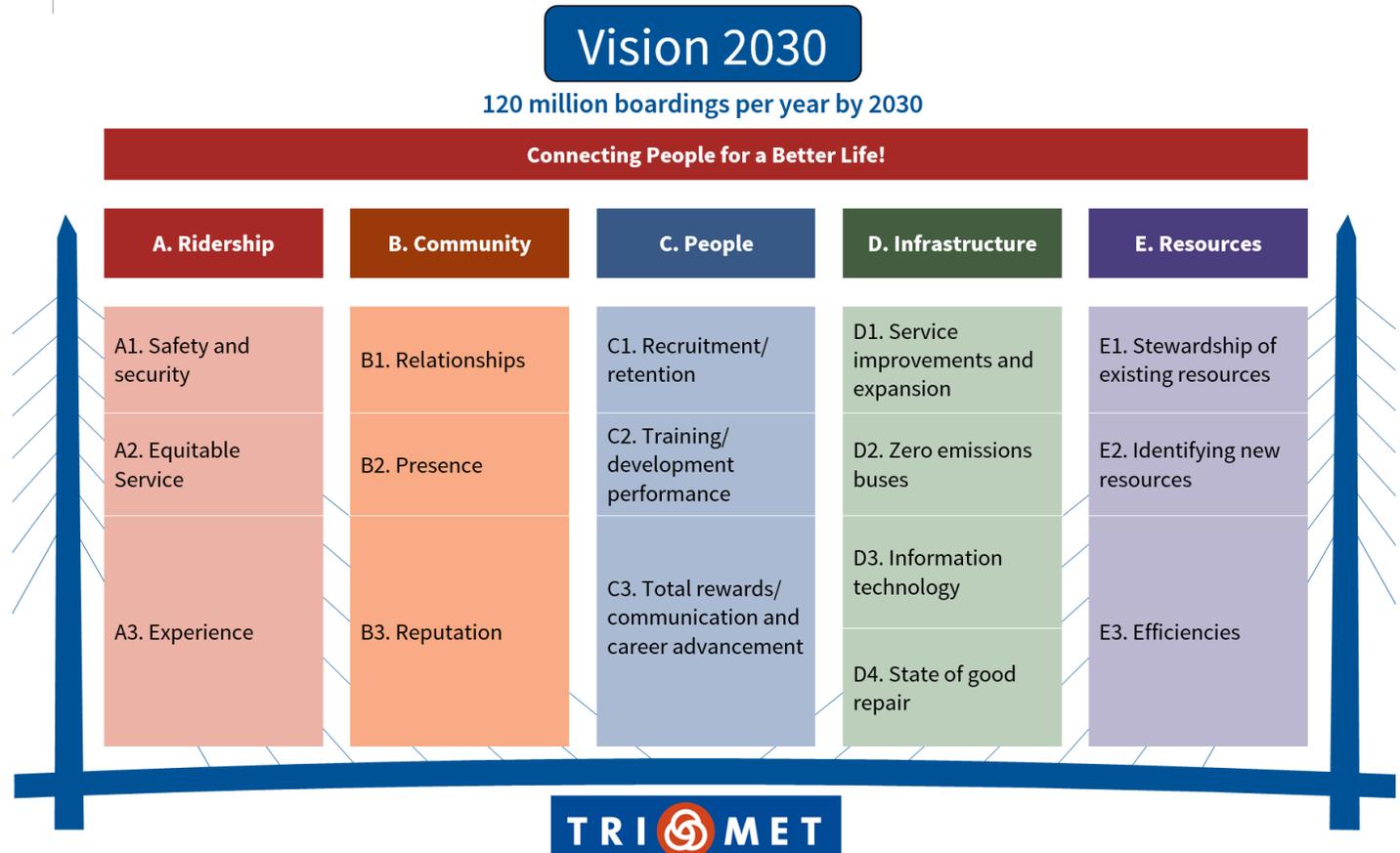
## Former members and others who contributed

- Johnny Cabrera, Maintenance
- Liz Higgins, E & C
- Dylan Vaughn, TS&AS
- Andrew Wilson, Safety & Security
- Michael Kiser, E&C
- Christina Riot, IT

Transit is critical to implementation of the region's adopted 2040 Growth Concept<sup>12</sup> (1995) and Climate Smart Strategy<sup>13</sup> (2014) both of which are also implemented through the Regional Transportation Plan (2023)<sup>14</sup>, TriMet's service plans and local land use and transportation plans. As described in the RTP, the Climate Smart Strategy “includes making investments to increase active transportation, increase transit” and other improvements.

Many of the Actions in this Plan are intended to reduce TriMet’s operational-related emissions – facilities, fleet transition to lower carbon fuels, vehicles and technologies. The Plan encompasses TriMet’s greenhouse gas emissions (GHGs), but also includes recognition of other emissions that may have health and environmental consequences and what TriMet is striving to do to grow ridership to reduce regional vehicle miles traveled. The Plan also considers not just Planet-focused efforts, but also People- and Prosperity-focused efforts related to emissions and climate change.

But it is important to recognize that the biggest impact TriMet has on greenhouse gas emissions is by providing service and projects that encourage use of transit and other non-driving modes. TriMet’s commitment to Vision 2030 and striving to increase ridership to 120 million boardings per year by 2030 is an important central strategy for the climate. The Climate Action Plan was initially developed by TriMet’s Sustainability Team, informed by feedback from partners, reviewed by the Executive Team and TriMet Board, and ultimately approved by the General Manager.



<sup>12</sup> Metro 2040 Growth Concept. [oregonmetro.gov/2040-growth-concept](https://oregonmetro.gov/2040-growth-concept)

<sup>13</sup> Metro Climate Smart Strategy. [oregonmetro.gov/climate-smart-strategy](https://oregonmetro.gov/climate-smart-strategy)

<sup>14</sup> Metro Regional Transportation Plan. <https://www.oregonmetro.gov/public-projects/2023-regional-transportation-plan>

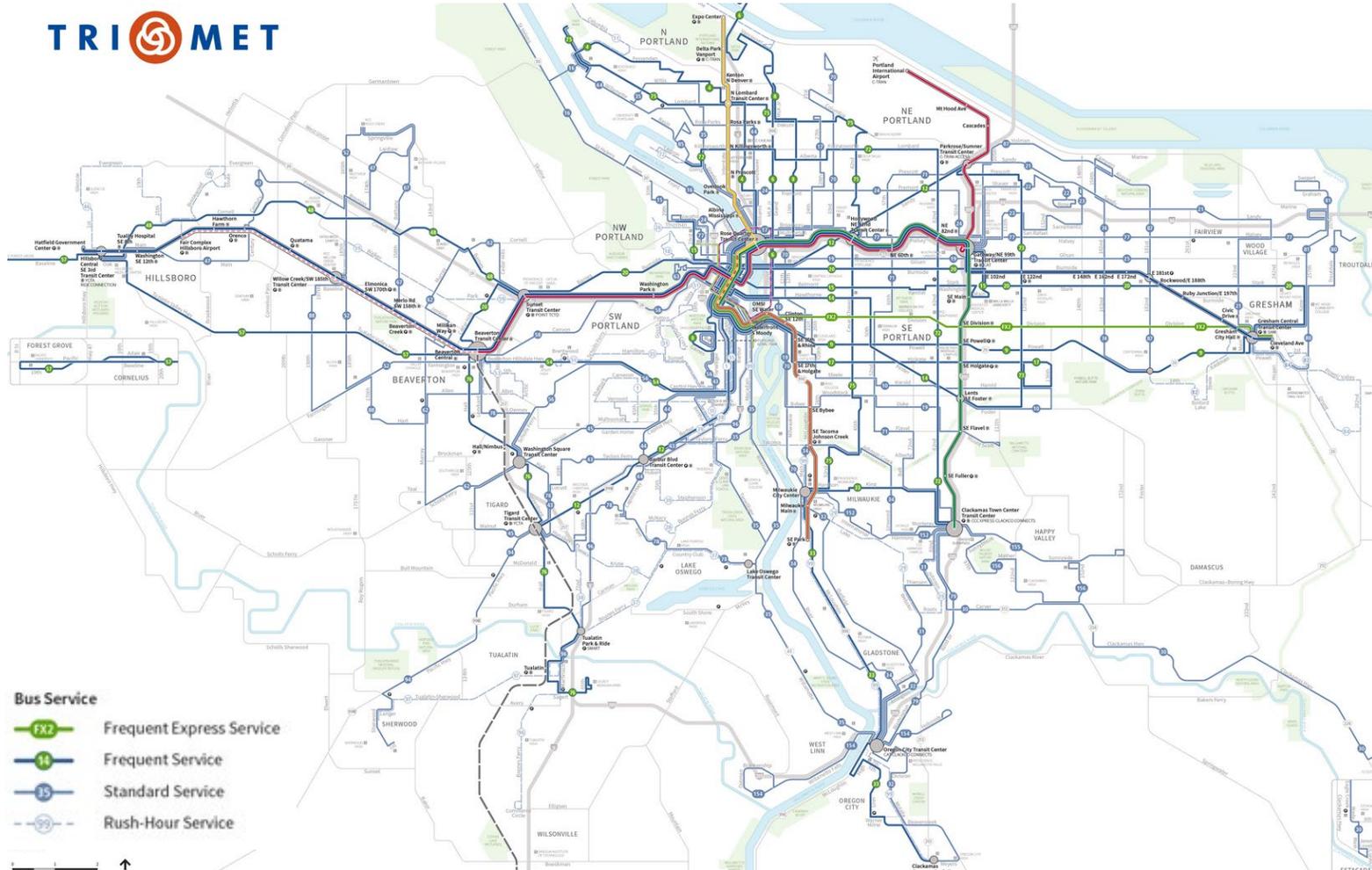
TriMet's Sustainability Team will encourage, support and champion the strategies, initiatives and actions identified in this Plan.

## Climate Resiliency

When TriMet opened its first light rail line in 1986, the light rail vehicles (LRVs) didn't have air conditioning. All the LRVs had operable windows and on warmer days, passengers could open those windows. This was expected to be sufficient in the mid-80s when the vehicles were ordered and designed. By the late 1990s, TriMet had begun installing air conditioning on the original LRVs and ordered all future LRVs with air conditioning, but it wasn't until at least several years after 2000 that all LRVs had air conditioning. This was one of the early climate adaptations and resiliency steps that TriMet has had to take. As climate change has advanced, more issues have needed addressing, including such issues as water levels on the Willamette River for the Tilikum Crossing light rail, bus, pedestrian, and bicycle bridge. The 2021 "heat dome," when all-time high temperatures of 108, 112, and 116 were recorded on three successive days, accentuated the need for resilience to heat and other climate change challenges. More impactful snow and ice storms in the Portland Metro area have also had extensive impacts on transit system operations, and TriMet has worked to develop new operations procedures and make more significant investments to prepare for and adapt to regular winter weather. The latest update to this Plan includes an update to the strategies and specific climate resiliency Actions to respond to this need.

## 2. Agency Overview

The Tri-County Metropolitan Transportation District of Oregon (TriMet) was chartered by the Oregon legislature in 1969, as a municipal corporation to provide public transportation to over 1.7 million people in a 533 square-mile district covering most of the urbanized portions of Multnomah, Washington and Clackamas counties, comprising the greater Portland, Oregon metropolitan region. TriMet’s unpaid Board of Directors is appointed by the Governor of Oregon for four-year terms. TriMet’s General Manager is appointed by the Board of Directors. TriMet provides fixed-route bus service, MAX light rail, LIFT paratransit minibuses and vans, and WES commuter rail service. TriMet operates with funding through payroll tax, federal grants and formula funds, state grants, passenger revenues, and other miscellaneous sources

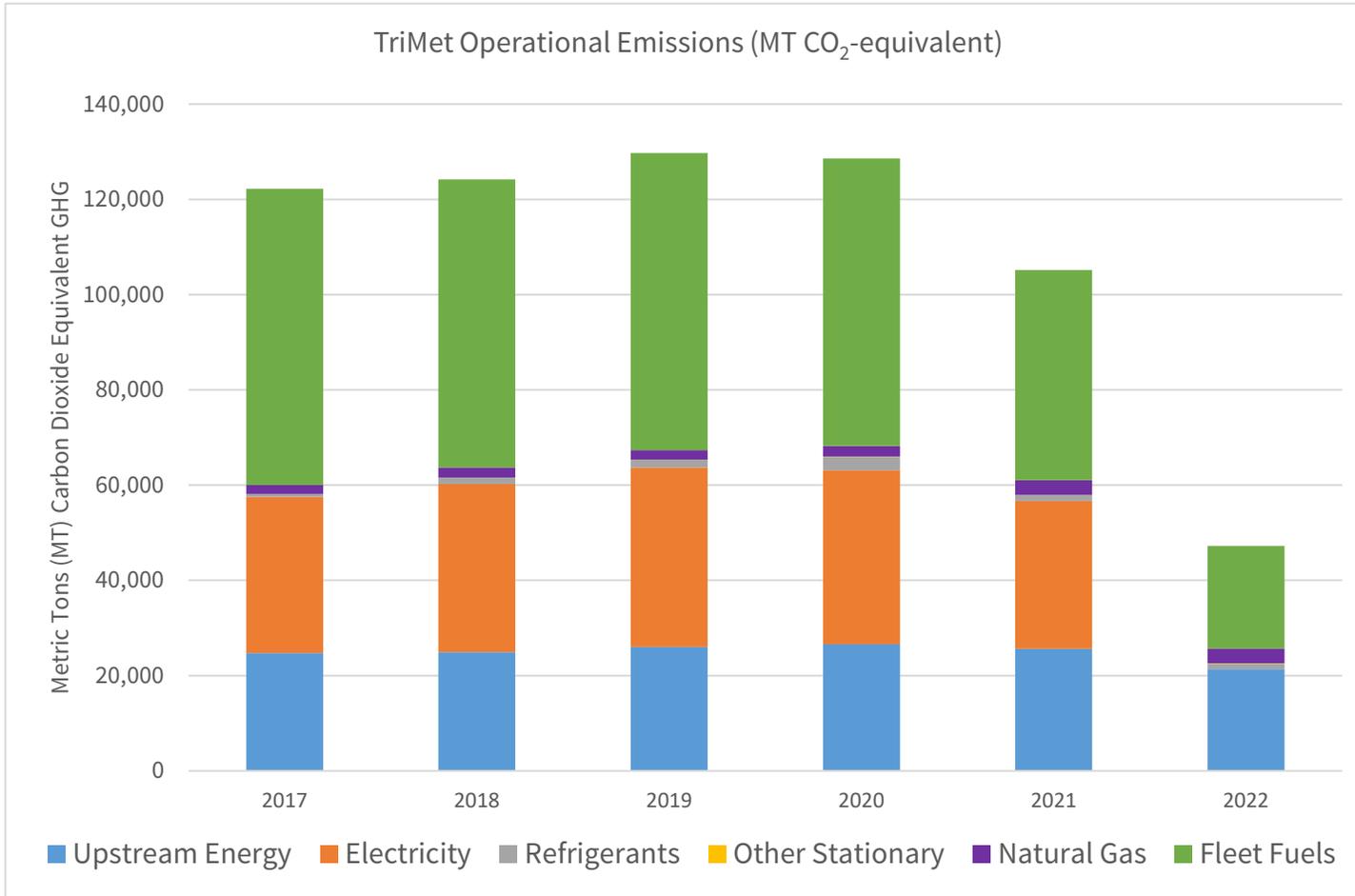


### 3. Emissions Inventory

The greenhouse gas emissions estimates below summarize past estimated emissions for use as a baseline of comparison.

#### TriMet Operational Emissions

Figure 3: Operational GHG emissions estimates



#### Baseline Data

TriMet was able to collect sufficient data to make reasonable estimates for FY2017 through FY2022. FY2023 will be the first year that includes renewable diesel and renewable electricity usage for the entire fiscal year, so the complete benefits of these changes are not yet shown. For cases where a single year comparison is necessary, we will use FY2019 unless otherwise specified.

Figure 1, on the previous page, shows TriMet’s estimated greenhouse gas emissions in CO<sub>2</sub>-equivalent metric tons for FY2017 through FY2022. The emissions calculated include:

- Scope 1 – Direct emissions from operating vehicles, machinery, equipment, and facilities. TriMet has the most control over these emissions and options to pursue reduction of Scope 1 emissions because they are directly emitted by our operations. These include:
  - Fleet – Emissions from operating vehicles such as TriMet’s fixed-route bus fleet, paratransit fleet, and commuter rail.
  - Natural gas (owned) – Emissions from using natural gas such as for heating TriMet owned and operated facilities.
  - Stationary fuels – A small category of emissions from non-mobile fuel use such as propane heaters or diesel emergency generators.
  - Refrigerants – Any use of refrigerants is counted as emissions because refrigerants can be potent greenhouse gases if emitted into the atmosphere.
- Scope 2 – Emissions from energy generated off-site but used by TriMet. TriMet has some control over these emissions in terms of amount of consumption and efficiency, but largely only has control to the extent that the energy provider offers alternatives to fossil-fueled energy generation (see Sections 4 and 7 for more on energy alternatives available that TriMet has used to substantially reduce emissions and will continue to pursue). The figure includes energy-generation emissions including:
  - Electricity – Emissions from generation of electricity used for MAX light rail, electric buses, lighting, buildings, and other uses at TriMet-owned facilities.
- Scope 3 – Emissions from other indirect sources related to operating. TriMet has much less control over these emissions:
  - Upstream energy production – Emissions from generation of any non-renewable electricity (and production of other fuel sources (e.g., renewable diesel).

It is common for organizations to focus on Scope 1 and Scope 2 for setting emissions targets. TriMet has chosen to include the upstream energy production values from Scope 3 in addition. Although this increases our reported baseline emissions, it more clearly illustrates the tradeoff between direct and upstream emissions, especially with renewable diesel. Thus, TriMet’s operational emissions reported in Figure 1 include all of Scopes 1 and 2, plus upstream energy production from Scope 3.

For the other categories in Scope 3, see “Other Sources of Scope 3 Indirect Emissions” on the next page.

### The Effort to Transition to Biogenic Emissions

Biogenic emissions are those greenhouse gas emissions that come from contemporary, natural sources. Plant-sourced fuels, for instance, result in biogenic emissions. During growth, plants remove carbon dioxide from the atmosphere and incorporate that carbon into the plant matter. When the plant-sourced fuel is burned, that carbon is released back into the atmosphere as carbon dioxide. However, over the course of a short period of months or perhaps a few years, the fuel itself can be net-zero, because the carbon emitted was only recently removed from the atmosphere in making the fuel. This process is part of the carbon cycle and can be thought of as the earth

breathing over the seasons. Because these biogenic emissions are net-neutral, they are not included in the graph above, but are reported below.

TriMet has had biogenic emissions (due to some plant-based fuel emissions replacing some fossil-fuel-based emissions) for more than a decade due to its long-term use of 5% biodiesel in fixed-route buses and LIFT paratransit buses and vans. Using 5% biodiesel reduced direct operational emissions which would have been counted as “fleet fuels” in Figure 1. That use generated biogenic emissions. Renewable diesel has overall much lower overall missions than petroleum diesel, but renewable diesel does include higher biogenic emissions. Although the biogenic emissions increased substantially during 2021 and 2022 as renewable diesel use grew, the total emissions are still much lower than with petroleum diesel and more importantly, these biogenic emissions do not add carbon to the atmosphere in the long-run.

Figure 4: Biogenic Emissions in MT CO<sub>2</sub>e

Year	2017	2018	2019	2020	2021	2022
Biogenic Emissions	2,994	2,920	3,011	2,890	10,713	30,662

### Other Sources of Scope 3 Indirect Emissions

The additional emissions in Scope 3 are indirect, though they are related to our operations and purchases for equipment and other needs. These are more complex and data-intensive to estimate. TriMet has the least ability to change these emissions because they don’t come from our direct activities. These other Scope 3 emissions include:

- Natural gas (leased) – Natural gas, generally used for heating, from leased properties. Based on standardized usage from other industries, this category is likely to be low compared to other categories.
- Supply chain – Emissions caused by the manufacture, sales, marketing, and shipping of purchased goods and services. TriMet is not able to calculate a reliable emissions estimate at this time. For context, a City of Portland supply chain sustainability review<sup>15</sup> resulted in an emissions factor of 701 tCO<sub>2</sub>e per million dollars spent for the FY14-15 period. The intensity changes each year and can vary significantly, depending on the volume and type of purchases made. If TriMet’s emissions factor is somewhere in this range, supply chain related emissions could be similar or even larger than direct fleet emissions before the switch to renewable diesel. This is an issue to track and explore opportunities to reduce through procurement practices. It also expected that this category will be significantly reduced over time as the electrical grid and the transportation industry become more renewable.
- Commute – TriMet employees commuting behaviors generate emissions. We do not currently have sufficient data to make an estimate, but if TriMet employees’ patterns are similar to the region as a whole, commute-related emissions may be somewhere around 3,000 – 5,000 MT CO<sub>2</sub>e. TriMet’s transit passes for employees and telework policy to allow eligible non-operational employees to work remotely likely contribute to reductions in this category.

<sup>15</sup> [www.portlandoregon.gov/brfs/article/627973](http://www.portlandoregon.gov/brfs/article/627973)

- Solid waste – Disposing of solid waste in a landfill can generate methane, which is a potent greenhouse gas, estimated from rough approximations of volume of solid waste. TriMet does not currently have data sufficient to make an accurate estimate. Using very rough solid waste generation rates from other industries, the emissions may be somewhere around 2,000 - 4,000 MT CO<sub>2</sub>e.
- Business travel – Driving to meetings, conferences, or regional coordination as well as any other travel (such as flying to the factory to inspect new buses before they are shipped) can all result in emissions. TriMet does not have complete data to estimate these emissions at this time, but using very rough ranges, the results may be around 100 – 1,000 MT CO<sub>2</sub>e.

In time, as the electrical grid and transportation sectors reduce emissions, these indirect emissions will be reduced. Although TriMet has much less control over these emissions, there are actions we can take to try to reduce emissions in the Scope 3 category as well.

## 4. Policies and Initiatives

### International Agreements

The 2015 Paris Agreement<sup>16</sup> requires all countries to set emissions-reductions pledges with the goal of preventing global average temperatures rising 2 °C (3.6 °F) above preindustrial temperatures and pursuing actions to stay below 1.5 °C (2.7 °F). In the long run it calls for global greenhouse gas emissions to reach global net-zero. As part of the ongoing implementation of this Agreement, more-developed countries such as the US are being asked to be net-zero by 2050. The majority of countries have made net-zero pledges, with varying implementation dates.<sup>17</sup>

### Federal Policy

US federal policy<sup>18</sup> has defined the following emissions goals:

- Achieve net-zero emissions by 2050
- Achieve a 50-52% reduction in GHG emissions from 2005 levels by 2030

### State, Regional, and Local Policies – Summary

#### State Level Policies

Transportation is the largest source of greenhouse gas emissions in the state of Oregon (40% of emissions in 2018). Increased transit mode share and transit fleet electrification are key strategies within the State of Oregon’s *Statewide Transportation Strategy, Oregon Public Transportation Plan* goals for climate action and GHG reduction.

The Oregon Climate Agenda<sup>19</sup>, published November 28, 2018, summarized Oregon’s goals and status, at the time:

*“In 2007, HB 3543 established the Oregon Climate Change Research Institute (OCCRI) to advance regional understanding of climate change science, impacts, adaptation, and mitigation. HB 3543 also set specific, science-based climate emissions reduction goals for Oregon:*

- *Arrest the growth of emissions by 2010 (achieved)*
- *Achieve climate emissions levels that are 10% below 1990 levels by 2020 (not on track)*
- *Achieve climate emissions levels that are at least 75% below 1990 levels by 2050 (not on track)”*

<sup>16</sup> [sustainabledevelopment.un.org/frameworks/parisagreement](https://sustainabledevelopment.un.org/frameworks/parisagreement)

<sup>17</sup> [www.un.org/en/climatechange/net-zero-coalition](https://www.un.org/en/climatechange/net-zero-coalition)

<sup>18</sup> [www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/](https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/)

<sup>19</sup> [www.oregon.gov/gov/policy/Documents/Governor%20Kate%20Brown%20Climate%20Agenda.pdf](https://www.oregon.gov/gov/policy/Documents/Governor%20Kate%20Brown%20Climate%20Agenda.pdf)

Starting in March 2020, Executive Order 20-04, directed State of Oregon agencies to take action to reduce and regulate greenhouse gas emissions toward meeting reduction goals of at least 45% below 1990 emissions levels by 2035 and at least 80% below 1990 levels by 2050.<sup>20</sup>

Oregon House Bill (HB) 2021 was signed into law September 25, 2021. It:

*“Requires retail electricity providers to reduce greenhouse gas emissions associated with electricity sold to Oregon consumers to 80 percent below baseline emissions levels by 2030, 90 percent below baseline emissions levels by 2035 and 100 percent below baseline emissions levels by 2040.”<sup>21</sup>*

These targets are aggressive, representing “a nearer deadline than nearly every other state that has adopted a clean power plan, including Washington and California.”<sup>22</sup> TriMet, as a municipal corporation created by the State of Oregon and with a Board of Directors appointed by the Governor, and as the largest transit agency in the state of Oregon, bears a responsibility to do what we can to support reaching the state goals. In addition, HB2021 indicates electrification should be a robust strategy to dramatically reduce emissions because a rapidly growing share of electricity supply will be renewable. Oregon’s Climate Protection Program<sup>23</sup> and Clean Fuels Program<sup>24</sup> also point toward greater sustainability and lower carbon emissions.

### Regional Level Policies

The elected regional government, Metro, has many responsibilities including serving as the region’s federally mandated Metropolitan Planning Organization (MPO) for federal transportation planning and funding purposes.

#### *Metro Sustainability Program – Internal Operations Goals*

Metro set internal operations goals regarding greenhouse gas emissions on October 7, 2010 as follows “*reduce direct and indirect greenhouse gas emissions to 80% below 2008 levels by 2050.*”<sup>25</sup> Metro’s Sustainability Program conducts periodic inventories of GHG emissions associated with internal operations to track progress over time toward the agency’s climate goals and to understand trends and manage emissions from specific sources and activities.

#### *Metro Climate Smart Strategy and Regional Transportation Plan*

In addition to goals to reduce emissions from the agency’s internal operations, Metro has adopted regional goals and related policies for reducing greenhouse gas emissions from land use and transportation to advance state and regional climate goals. Metro’s Climate Smart

<sup>20</sup> [www.oregon.gov/energy/energy-oregon/Pages/Greenhouse-Gases.aspx](http://www.oregon.gov/energy/energy-oregon/Pages/Greenhouse-Gases.aspx)

<sup>21</sup> [olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB2021](http://olis.oregonlegislature.gov/liz/2021R1/Measures/Overview/HB2021)

<sup>22</sup> [www.opb.org/article/2021/05/26/big-oregon-climate-bill-of-2021-generates-little-friction/](http://www.opb.org/article/2021/05/26/big-oregon-climate-bill-of-2021-generates-little-friction/)

<sup>23</sup> [www.oregon.gov/deq/ghgp/Pages/Climate-Protection.aspx](http://www.oregon.gov/deq/ghgp/Pages/Climate-Protection.aspx)

<sup>24</sup> [www.oregon.gov/deq/ghgp/cfp/Pages/default.aspx](http://www.oregon.gov/deq/ghgp/cfp/Pages/default.aspx)

<sup>25</sup> [www.oregonmetro.gov/how-metro-works/green-metro](http://www.oregonmetro.gov/how-metro-works/green-metro)

Strategy fulfills a state legislative mandate requiring Metro to develop and implement a strategy to reduce per capita emissions from cars and light trucks from 2005 emissions levels<sup>26</sup> by at least 20% by 2035, 25% by 2040, 30% by 2045 and 35% by 2050. The Climate Smart Strategy and state-mandated greenhouse gas emissions reduction targets were incorporated in the Regional Transportation Plan. Increasing the number of alternative-fuel vehicles in public sector fleets, and specifically transit vehicles, and expanding transit service to reduce regional emissions are key strategies supported by both state and regional policies.

### Local Policies

TriMet operates in three counties, spanning over 20 local governments. The following is an overview of several local greenhouse gas targets or policies of some of the largest jurisdictions where TriMet operates:

- In 2017, both the City of Portland and Multnomah County adopted a 100% renewable energy resolution that calls for collaboration between Portland, Multnomah County, Metro and TriMet to expand service, reduce fares for those with a low income and complete a rapid transition to an electric fleet. The City of Portland’s Electric Vehicle (EV) Strategy, also adopted 2017, prioritizes bus electrification as well as the integration of shared EV mobility options with transit as key strategies to reduce the need for personal vehicle ownership.
- City of Portland: The Climate Emergency Declaration<sup>27</sup>, adopted June 30, 2020, includes the following targets:
  - At least 50% reduction in carbon emissions by 2030 and net-zero carbon emissions before 2050
  - Expectation that the two electric utilities, PGE and PacifiCorp, deliver 100% renewable electricity to all Portland residents and businesses by 2030, and calls on NW Natural to fully decarbonize its gas pipeline by 2050
  - 100% renewable transportation sector by 2050 (100% Renewable Energy Resolution.)
- City of Beaverton: The Beaverton 2019 Climate Action Plan<sup>28</sup> includes the following targets:
  - “100% reduction of greenhouse gas emissions by 2050 (from 2013 baseline year)”
  - “50% fossil fuel reduction from 2009 baseline, and carbon neutral by 2030”
- City of Milwaukie: In 2020, the City of Milwaukie declared a climate emergency<sup>29</sup>, including the following targets:
  - “By 2030, Milwaukie will have no net carbon emissions from its electricity use;
  - by 2035, Milwaukie's buildings will have no net carbon emissions, and
  - by 2045, Milwaukie will be a fully carbon-neutral city”

<sup>26</sup> 2005 was specified by state agencies as a reference year for the region’s greenhouse gas reduction targets because more detailed data on emissions and light vehicle travel in metropolitan areas is available for this date than for 1990, the base year set by statute, and because it corresponds better with adopted land use and transportation plans. While the targets are specified as reductions from 2005 emissions levels, the targets are set at a level that corresponds to the required reduction from 1990 levels to be achieved by 2035 and subsequent years.

<sup>27</sup> [www.portland.gov/bps/climate-action/climate-emergency/news/2020/7/1/city-council-adopts-climate-emergency](http://www.portland.gov/bps/climate-action/climate-emergency/news/2020/7/1/city-council-adopts-climate-emergency)

<sup>28</sup> [www.beavertonoregon.gov/DocumentCenter/View/27980/Beaverton-Climate-Action-Plan---2019](http://www.beavertonoregon.gov/DocumentCenter/View/27980/Beaverton-Climate-Action-Plan---2019)

<sup>29</sup> [www.milwaukieoregon.gov/sites/default/files/fileattachments/sustainability/page/111121/r7-2020.pdf](http://www.milwaukieoregon.gov/sites/default/files/fileattachments/sustainability/page/111121/r7-2020.pdf)

- Multnomah County: 2015 Climate Action Plan<sup>30</sup> includes the following targets:
  - 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050
- Clackamas County: The County is currently in the process of developing a Climate Action Plan with recommendations to reach the goal of being carbon neutral by 2050.

TriMet's commitments and strategies outlined within this plan will help to improve air quality and reduce greenhouse gas emissions throughout the region, also helping local jurisdictions across our service area meet their own per capita emission reduction goals.

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<sup>30</sup> [multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com/s3fs-public/CAP2015\\_june2015\\_web.pdf](https://multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com/s3fs-public/CAP2015_june2015_web.pdf)

Summary of State, Regional, and Local Targets

Jurisdiction	2030	2035	2040	2045	2050
Paris Agreement and further implementations for more-developed countries					Net-zero
United States Federal	50% below 2005 baseline emissions				Net-zero emissions
State of Oregon - overall		45% below 1990 emissions			80% below 1990 climate emissions
State of Oregon - retail electricity only	80% below baseline emissions	90% below baseline emissions	100% below baseline emissions		
Metro (MPO Boundary)		Reduce per capita emissions from cars and light trucks 20% below 1990 emissions	Reduce per capita emissions from cars and light trucks 25% below 2005 emissions	Reduce per capita emissions from cars and light trucks 30% below 2005 emissions	Reduce per capita emissions from cars and light trucks 30% below 2005 emissions  80% below 2008 emissions (direct and indirect) – internal Metro operations
City of Portland	At least 50% below 1990 baseline emissions				Net-zero emissions
City of Portland - retail electricity and natural gas only	Electricity 100% emission free				100% decarbonized gas pipeline
City of Beaverton	50% fossil fuel reduction from 2009 baseline and carbon neutral				100% below 2013 baseline emissions
City of Milwaukie	Net-zero from electricity use	Net-zero for buildings		"Fully carbon neutral city"	
Multnomah County	40% below 1990 baseline emissions				80% below 1990 baseline emissions

## TriMet's Current Related Policies

- TriMet's FY2025-FY2029 Business Plan<sup>31</sup> (in Draft status at the time this Climate Action Plan was finalized) includes the Purpose, "Reduce emissions and support environmental sustainability."
- In September 2018, the TriMet Board approved Resolution 18-09-68 adopting the 2018 TriMet Non-Diesel Bus Plan<sup>32</sup>.
- TriMet has signed on to the Federal Transit Administrations Sustainable Transit for a Healthy Planet Challenge<sup>33</sup>.
- TriMet's internal Sustainability Team meets regularly to identify, support, and advance sustainability efforts across the agency, to evaluate progress toward sustainability metrics, and to report to Executive Leadership.

## A Summary of Recent Environmental Sustainability Efforts at TriMet

Transit ridership is always the first environmental sustainability benefit provided by larger transit agencies. TriMet has a history of providing service that attracts more ridership than many other urban areas. Growth in ridership has come from system expansion, addition of MAX light rail lines, and increase in the Frequent Service bus network, and now FX service. Using 2022 data from FTA<sup>34</sup> the most recent nation-wide data available for population centers and transit performance, transit in this region performs above what would be expected based on our population. The Portland urbanized area is the 23<sup>rd</sup> largest in the US, but we have the 13<sup>th</sup> highest transit ridership. Among the 60 largest population centers, TriMet and the Portland region are 10<sup>th</sup> best in terms of transit boardings per capita.

### Renewable electricity

Since June 2021, TriMet now uses renewable energy for all light rail operations and at all TriMet-owned and -operated facilities. This change reduced TriMet's CO<sub>2</sub>-equivalent greenhouse gas emissions from direct operations and energy use by approximately one-quarter<sup>35</sup>.

Additionally, The Portland Streetcar system (operated in partnership with TriMet) runs on 100% renewable energy. This includes the purchase of solar energy to advance City and regional climate goals and complement the purchase of RECs to maintain 100% renewable status. Portland Streetcar also catalyzes mixed-use development that reduces reliance on single occupancy vehicle travel; 76% of all housing under construction in Portland today is within ¼ mile of a streetcar line.

<sup>31</sup> [www.trimet.org/businessplan](http://www.trimet.org/businessplan)

<sup>32</sup> [trimet.org/electricbuses/pdf/TriMet-Non-Diesel-Bus-Plan-September-2018.pdf](http://trimet.org/electricbuses/pdf/TriMet-Non-Diesel-Bus-Plan-September-2018.pdf)

<sup>33</sup> [www.transit.dot.gov/regulations-and-programs/environmental-programs/challenge-participants](http://www.transit.dot.gov/regulations-and-programs/environmental-programs/challenge-participants)

<sup>34</sup> [www.transit.dot.gov/ntd/data-product/2022-annual-database-uza-sums](http://www.transit.dot.gov/ntd/data-product/2022-annual-database-uza-sums)

<sup>35</sup> [news.trimet.org/2021/06/trimet-reduces-carbon-emissions-by-more-than-25-with-move-to-all-renewable-electricity/](http://news.trimet.org/2021/06/trimet-reduces-carbon-emissions-by-more-than-25-with-move-to-all-renewable-electricity/)

## Renewable diesel

Since December 2021, TriMet has been using renewable diesel (R99, which is a blend of 99% renewable and 1% petroleum diesel due to engine and logistics requirements) in our fixed-route buses. This change significantly reduced TriMet’s CO<sub>2</sub>-equivalent greenhouse gas emissions from direct operations and energy use. The change in fuels reduces the carbon dioxide equivalent emissions coming from an individual bus by nearly 99%, but increased biogenic emissions.

### Buses

- Biodiesel: TriMet operates well over 400 buses during peak hours on weekdays. In 2021, prior to the switch to renewable diesel, the diesel buses used a B5 biodiesel blend to reduce emissions. TriMet began using B5 biodiesel in 2006, the first transit agency in the US to do so.
- Renewable diesel: In December 2021, TriMet began using renewable diesel for all fixed-route buses. See “renewable diesel” section above for more details.
- Zero emission buses: TriMet has committed to a zero-emissions fleet by 2040<sup>36</sup>. At the time this was written, TriMet owned ten 100% battery-electric buses with 24 more on order or under production and expected to be delivered, commissioned, and in service before end of calendar year 2024. Larger purchases are planned in future years when more of our existing diesel fleet will reach retirement age. In addition to the all-battery electric buses, TriMet operates eight hybrid electric buses.
- NASCAR-inspired cooling system in current diesel buses: TriMet was the first transit agency in the nation to use NASCAR technology to electronically cool bus engines and increase fuel efficiency. TriMet received a Clean Air Excellence Award from the U.S. Environmental Protection Agency<sup>37</sup>. The innovative electronic cooling system reduces engine drag, maximizes horsepower and improves fuel economy by up to 10%. Now a standard in new buses, this technology was developed in partnership with TriMet and first tested on TriMet buses.
- The development of the Columbia Bus Garage, purchased in 2018, will also lead to a more efficient distribution and deployment of vehicles that will reduce the vehicle miles travelled by the TriMet fleet.

## Green Infrastructure

During construction of the most recent light rail project, the MAX Orange Line, a number of sustainable elements were incorporated into the project<sup>38</sup>. The project included the Tilikum Crossing, *Bridge of the People*, a bridge built for light rail, streetcar, buses, bicycles, and pedestrians, but no private vehicles. Structures on the bridge capture rain and channels it to bioswales instead of going straight into the river as all the auto bridges across the Willamette River do. The Orange Line also incorporated urban creek restoration and multiple bicycle and pedestrian improvements to make mobility without a car easier. TriMet also installed solar panels on Orange Line shelters and

<sup>36</sup> [trimet.org/electricbuses/pdf/TriMet-Non-Diesel-Bus-Plan-September-2018.pdf](https://www.trimet.org/electricbuses/pdf/TriMet-Non-Diesel-Bus-Plan-September-2018.pdf)

<sup>37</sup> [www.epa.gov/sites/default/files/2015-06/documents/clean\\_air\\_excellence\\_award\\_recipients\\_year\\_2008.pdf](https://www.epa.gov/sites/default/files/2015-06/documents/clean_air_excellence_award_recipients_year_2008.pdf)

<sup>38</sup> [trimet.org/bettertransit/pdf/sustainability-report.pdf](https://www.trimet.org/bettertransit/pdf/sustainability-report.pdf)

systems buildings, leading to carbon reduction. Earlier, in 2012, a solar panel array TriMet built near Portland State University went into operations. It was the largest in Downtown Portland when it was constructed and was estimated to generate 64,000 kilowatt hours of electricity annually, saving tons of CO<sub>2</sub> every year. As one of the final elements of the MAX Orange Line, TriMet installed six vertical axis wind turbines (VAWTs) at each end of the bridge<sup>39</sup>. The turbines are designed to generate power even in low wind conditions, as little as two miles per hour. The project is a partnership with Portland State University's Mechanical Engineering School, which is tracking the performance of turbines.

#### Other electricity saving efforts<sup>40</sup>

- LED lighting modernizations – During the past few years, TriMet has been modernizing lighting systems in maintenance facilities, a light rail tunnel, and a structured park and ride to improve visibility and safety while substantially reducing electricity use.
- Solar powered bus shelters: TriMet has close to 500 bus shelters with lighting that is powered by solar panels, leading to energy efficiency, cost savings and carbon reduction.
- Regenerative braking: Our hybrid buses, select MAX trains and new electric buses have regenerative braking. When the vehicle slows, kinetic energy is captured and can be used immediately or stored in the battery for later use. The MAX Orange Line brought with it the first supercapacitor in the U.S. that harnesses regenerative energy from light rail trains and feeds it back to other trains for acceleration or uphill climbs. This reduces energy use.

#### Recent Climate Resilience Efforts at TriMet

TriMet has undertaken many efforts over time to be more resilient to climate change and the extreme weather it can increase. Some recent efforts at TriMet include:

- Design Criteria recently updated to required active heating, ventilation, and air conditioning for all traction power supply system installations for light rail, where passive ventilation had previously been allowed but is no longer sufficient with high temperature peaks in the summer
- Water quality and management swales and other treatments to manage water quality but also handle heavy precipitation included in capital projects at many locations
- As part of the A Better Red Line project, new track lengths built as part of the project include spring tensioners for the overhead catenary system (OCS) instead of weight-based tensioners as used in older parts of the system which can allow wire sag during high heat events, slowing service
- Applying for grant funding to initiate a Weather Responsive Transit Management Framework Project. A single storm can produce wildly different road conditions throughout the city, depending on timing, weather patterns and geography. Climate change has increased the number of ice and snow events in TriMet's service area. The Project would integrate data from various sources including on-board sensors to create an algorithm for bus chaining, improving TriMet's readiness for adverse weather.

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<sup>39</sup> [news.trimet.org/2019/03/new-sustainability-feature-coming-to-trimets-tilikum-crossing/](https://news.trimet.org/2019/03/new-sustainability-feature-coming-to-trimets-tilikum-crossing/)

<sup>40</sup> Also see [trimet.org/bettertransit/pdf/sustainability-report.pdf](https://trimet.org/bettertransit/pdf/sustainability-report.pdf)

## 5. Emission Reduction Goals and Targets

The Paris Agreement<sup>41</sup> set a goal in terms of temperature change rather than emissions. And, in our region, we recently learned first-hand how even relatively small average changes in temperature can lead to devastating changes when a “heat dome” hit the region in June 2021. The high temperature hit all-time records on three successive days, ending with a high of 116 ° F, nine degrees higher than the previous all-time record. The International Panel on Climate Change (IPCC), in a 2018 report<sup>42</sup> identified that, in order to limit warming to 1.5 ° C, “Global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) would need to fall by about 45 percent from 2010 levels by 2030, reaching ‘net zero’ around 2050.”

In the first Climate Action Plan, TriMet set the following targets for carbon and other climate emissions:

- 70% reduction in TriMet operational emissions by 2030
- Net-zero by 2050

The detailed targets are as follows:

Jurisdiction	2022	2030	2040	2050
TriMet	60% below 2019 baseline for operational emissions*	70% below 2019 baseline for operational emissions*	90% below 2019 baseline for in operational emissions*	Net-zero in operational emissions*

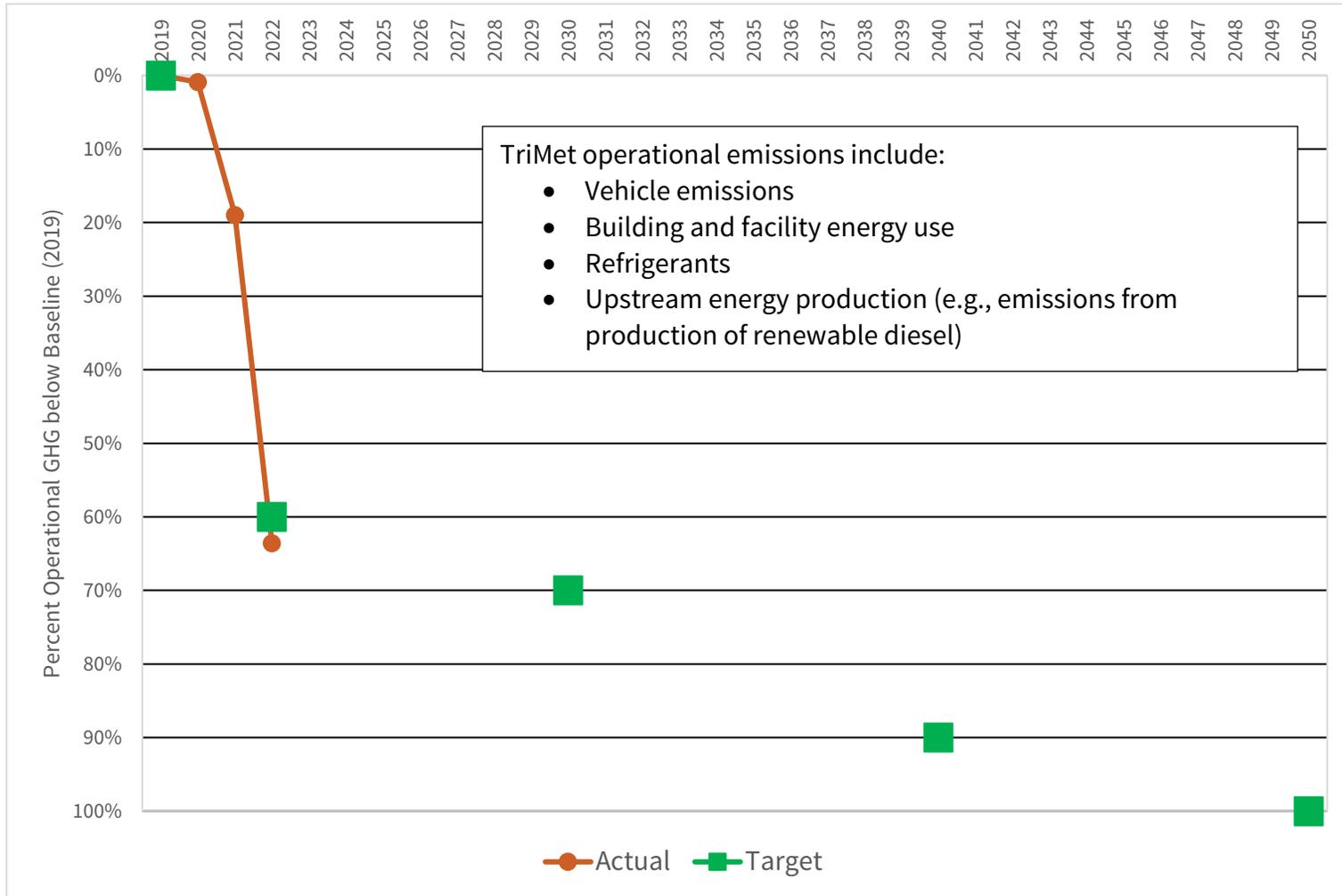
These targets meet the federal targets, as well as the targets for the largest communities that we serve. By 2030, given technologies expected to be available, and sufficient resources, TriMet expects to be able to achieve a 70% or greater reductions in emissions. By 2040, with additional efforts and resources, including a fleet of buses that are expected to be entirely zero-emission, TriMet aims for 90% reduction or better. The 2050 target is to be net-zero. It is still uncertain whether the technologies will be available for all TriMet operational emissions to be zero emission by then, so this may require some portion of the remaining 10% of emissions by 2050 to be offset by other projects or investments.

<sup>41</sup> [unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement](https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement)

<sup>42</sup> [www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/](https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/)

\* TriMet operational emissions calculated include Scope 1, Scope 2, and upstream energy production emissions (see Section 3 for details)

Figure 5: TriMet Targets for reducing operational GHG emissions



### Accomplishments in the last few years

TriMet took major steps in 2021 to reduce greenhouse gas emissions. We began by purchasing renewable electricity for MAX light rail and all TriMet-owned and operated facilities (June 2021) and began using renewable diesel in all fixed-route buses (December 2021). Following soon after, LIFT paratransit vehicles with diesel engines began using renewable diesel, as did WES commuter rail. These combined actions combined are estimated to have reduced CO<sub>2</sub>-equivalent operational emissions by almost 70%. The closer we get to zero operational emissions, the harder and more expensive the solutions become. . This is why the speed of reduction slows in later years and why offsets may be explored as potential tools to meet the target of being net-zero by 2050.

### Cutting Emissions

TriMet dramatically reduced operational greenhouse gas emissions in the past few years:

- ✓ Now using renewable electricity for MAX light rail, battery electric bus charging, and all TriMet-owned and operated facilities
- ✓ Now operating all fixed-route buses on renewable diesel
- ✓ Now operating all diesel-engine LIFT vehicles and WES on renewable diesel

Together, these changes reduced TriMet operational GHG emissions by almost **70** percent.



## 6. Related Sustainability Goals and Targets

TriMet considers the three aspects of sustainability (the “three Ps”) to support a complete picture of sustainability. The three Ps - Planet, People, and Prosperity - encompass a triple bottom line lens that considers the natural world, social impacts and equity, and economics. As part of TriMet’s Title VI Program the agency developed an Equity Lens Framework that reinforces the three P’s while articulating a set of actions that support this Climate Action Plan. Goal 2 of the Equity Lens Framework is to Reduce Air Pollution and GHG reduction is considered as one of the metrics in the Equity Lens. Although the focus of this Plan is climate action, there are related elements of sustainability that TriMet is addressing in parallel. Some of the efforts underway in the People and Prosperity categories to address triple bottom line sustainability are summarized below.

- Developed an Equity Lens tool that is working to support increased access to mobility, support our efforts to reduce air pollution, and ensure that our investments enhance economic opportunity. Implementation of the Equity Lens framework considers TriMet’s 10-factor Equity Analysis in all service planning and project decisions. This not only reinforces the need to reduce GHG emissions connected to equity but reinforces the importance of a variety of equity needs in service and budget decision making.
- Analyzing the current state of accessibility for bus stops, identify key investments on a tiered cost/benefit approach, and lay the groundwork for jurisdictional partnerships focused on bus stop/ MAX station accessibility.
- Continuing to promote and grow TriMet’s fare subsidy initiatives and grant programs. Our reduced fare program alone has enrolled over 60,000 riders based on age and income-level and helps riders save up to 72% off the cost of fares. This program was expanded to begin offering reduced fares to Veterans in 2023. This effort and others encourages ridership and support equity, and community needs.
- Continuing efforts to expand opportunities for DBE contractors for TriMet projects and services and implement the contracting Economic Equity Framework. TriMet is a national leader in minority contracting, having created a national model for DBE involvement, and greatly expanding apprentice-ship opportunities and workforce diversity.

## 7. Strategies and Actions

The specific strategies and actions for TriMet’s Climate Action Plan are as follows:

Strategy	Actions	Metric to track progress	Timeframe	Responsible Division or Dept.
1. Increase ridership and support non-driving travel options	1a. Pursue Vision 2030 target with Actions as defined in TriMet’s Business Plan each year	Boardings	Continuous	General Manager (GM), Chief Operating Officer (COO), Strategy & Planning; Transportation, Maintenance, Public Affairs
	1b. Develop regional trip planning capability to support more seamless transfers with other transit providers	Functionality of regional trip planning involving more than one transit provider	2024-2025	Public Affairs, Information Technology (IT)
	1c. Complete project development and construction of HollywoodHUB <sup>43</sup> project including TriMet infrastructure changes necessary for project and affordable housing	Completion milestones	2024-2027	Legal, Public Affairs
	1d. Support the delivery of the strategic vision for re-development of the Gresham City Hall Park & Ride	Project milestones	2024-2028	Legal, Public Affairs
	1e. Develop and deliver enhanced transit priority projects with regional and local partners	Bus travel time and Boardings	2024-2027	E&C, Public Affairs; IT
2. Include equity considerations in projects and climate actions	2a. Implement equity lens and ensure TriMet’s 10 factor Equity Analysis is part of all major projects and service planning decisions	Number of projects or decisions for which Equity Lens was applied	Continuous	IDEA, E&C

<sup>43</sup> hollywoodhubpdx.com

Strategy	Actions	Metric to track progress	Timeframe	Responsible Division or Dept.
	2b. Deploy zero-emission buses informed by air quality and equity index measures	Bus assignments	2024-2040	COO; Strategy & Planning; Transportation
3. Reduce operational emissions with lower-cost and higher-impact actions in the near-term	3a. Increase percentage of heavy duty NRVs fueled with renewable diesel	Percentage of NRVs fueled with renewable diesel	2024-2030	Operations/ Non-Revenue Vehicles (NRV)
	3b. Determine whether carbon offsets may be a feasible component of net emissions reduction	Progress toward decision on whether to pursue carbon offsets	2025-2040	Finance & Administrative Services
4. Make direct operational emissions reductions more permanent and stable	4a. Analyze and determine whether to enter long-term contract for renewable electricity generated within Oregon with multi-year certainty for pricing with PGE	Completion of analysis; execution of agreement if appropriate	2025-2030	Finance & Administrative Services
	4b. Analyze and determine whether to enter long-term contract for renewable electricity generated within Oregon with multi-year certainty for pricing with Pacific Power	Completion of analysis; execution of agreement if appropriate	2025-2030	Finance & Administrative Services
	4c. Continue to examine performance and opportunities for hydrogen fuel-celled electric buses including designing Columbia garage to potentially support hydrogen fueling	Status of decision regarding future zero-emissions fleet mix	Decision on which fuels to purchase needs to be defined by 2025	Maintenance, Strategy & Planning; TS&AS; E&C, Transportation
5. Reduce electricity use where feasible	5c. Pursue additional Energy Trust of Oregon grants for more modernization of lighting and other electrical usage	Number and value of grants secured	2024-2030	Facilities Management
6. Reduce emissions in revenue and non-revenue fleet and other equipment use	6a. Deliver on Non-Diesel Bus Plan to operate 100% fixed-route fleet of non-diesel, zero-emission vehicles by 2040	Percentage of buses that are zero-emission	2024 - 2040	Maintenance; Strategy & Planning; TS&AS with support from Finance and E&C

Strategy	Actions	Metric to track progress	Timeframe	Responsible Division or Dept.
	6b. Update Zero-Emissions Transition Plan	Progress of Plan development	2024-2025	TS&AS; COO; Strategy & Planning; Maintenance
	6c. Purchase battery electric vehicles (EV) and chargers for NRV fleet	Percentage of NRV fleet that is battery electric; total miles driven with EVs	2024-2040	Non-revenue vehicle group
	6d. Develop strategy and then build and retrofit infrastructure to support zero emissions bus fleet at Merlo, Powell, and Center garages and at future Columbia garage	Number of buses supported by garage infrastructure	2024-2040	Maintenance with support from EC&P; Strategy & Planning
	6e. Use 60'-long articulated buses to provide additional capacity and potentially reduce total bus trips	Number of 60'-long buses in service	2024 and beyond	COO, Strategy & Planning; Maintenance
	6f. Explore opportunities for emissions reduction in small equipment (e.g., leaf blowers) and implement where feasible	Number of small equipment units purchased and in use using lower-emission technologies	2024-2035	Maintenance, Operations (for WES and LIFT)
7. Work toward reductions in other Scope 3 greenhouse gas emission sources	7a. Explore options to reduce use and/or switch to lower-emitting sources of: <ul style="list-style-type: none"> <li>• Refrigerants</li> <li>• Natural gas</li> <li>• Stationary fuels</li> </ul>	Annual GHG emissions from these sources	2024-2040	Maintenance with support from Sustainability Team
8. Continually reinvest in energy efficiency and reduction of emissions	8a. Consider dedicating funds to reinvestment in efficiency and emission reduction initiatives	Progress toward decision on whether to create new fund or mechanism for reinvestment	FY2025 and beyond	Budget and Grants
	8b. Implement additional efficiency and emissions reductions at TriMet facilities	Reductions in energy usage	Continuous	Facilities Management

Strategy	Actions	Metric to track progress	Timeframe	Responsible Division or Dept.
9. Broader sustainability governance	9c. Participate in regional and state policy coordination efforts on strategies to reduce greenhouse gas emissions	TriMet actions accounted for in state and regional plans	Continuous	Public Affairs, Strategy & Planning; E&C
10. Reduce emissions by contractors	10a. Actively participate in Clean Air Construction Partnership <sup>44</sup>	Reductions in GHG identified through Clean Air Construction Partnership actions	Continuous	Finance/ Procurement
	10b. Explore inclusion of emissions reduction strategies and incentives in contracts, especially those for ongoing operating and maintenance	Status of inclusion of any strategies or incentives	Continuous	Finance/ Procurement
11. Enhance climate resilience	11a. Incorporate climate resilience planning, design and implementation into new projects, state of good repair, operations and maintenance.	Inclusion of climate and disaster resilience features in TriMet plans and projects	Continuous	E&C, Safety and Security, Facilities Mgt, Operations
	11b. Include ice-cutters and cameras to monitor overhead wire sag or icing with new Type 6 LRVs and plan to include ice-cutters with all new LRV purchases	Percent of LRVs purchased with ice-cutters and pantograph cameras	Continuous	Maintenance, E&C
	11c. Install spring tensioners for overhead catenary system (OCS) wire where appropriate for better performance in extreme heat	Result of monitoring for performance changes due to new tensioning system on select sections of OCS	Continuous	Maintenance
	11d. If grant funding is received, implement Weather Responsive Transit Management Framework Project	Implementation of Project	2024-2027	IT, Maintenance

<sup>44</sup> [www.portland.gov/omf/brfs/procurement/clean-air-construction](http://www.portland.gov/omf/brfs/procurement/clean-air-construction)

Strategy	Actions	Metric to track progress	Timeframe	Responsible Division or Dept.
12. Support equitable People and Prosperity aspects of Sustainability efforts	12a. Plan for improved accessibility for TriMet stations and stops	Status of accessibility plan and improvements	Continuous	Strategy & Planning
	12b. Partner with local jurisdictions to pursue grants, and other sources of funding for accessibility improvements to TriMet stations and stops	Successful projects or amount of funding leveraged	2024-2030	Finance, E&C; Strategy & Planning
	12c. Continue to promote fare initiatives for low income riders, older adults, youth, veterans, and individuals living with disabilities to encourage ridership and support equity, individual educational and economic opportunities, and support community needs	Number of boardings paid for via Low Income Fare program	Ongoing	Public Affairs
	12d. Continue to grow opportunities for DBE contractors to provide for TriMet projects and services	Number or value of contracts awarded	Ongoing	Inclusion, Diversity, Equity, and Accessibility; Finance/ Procurement, E&C, Maint, Operations

## 8. Implementation and Monitoring

This plan consolidates initiatives and strategies at TriMet into one coordinated plan to achieve our agency's commitment to greenhouse gas reduction. Though the strategies and actions outlined above are those that TriMet is responsible for implementing, this plan will only be successful through coordination and collaboration with partners and local jurisdictions to support the agency's initiatives to reduce emissions. We understand that many jurisdictions rely on TriMet's ability to reduce emissions to help support their own climate goals. Several strategies and actions listed above will require new funding to fully implement, and consideration of funding strategies for these initiatives is underway. Implementation and monitoring responsibilities for this plan are described below.

### Implementation

- Responsible divisions and/or departments are identified for each action in the Strategies and Actions matrix in Section 7. To support accountability and clear roles, an individual responsible employee or group will be identified for each action to take action and periodically report on progress.
- TriMet's Sustainability Team is responsible for tracking the implementation, including updates on actions in annual reporting, and assisting in implementation as necessary and as resources are available.

### Monitoring

- Update progress on current actions periodically
- Collect annual emissions estimates and progress on action for a consolidated update at least once a year
- Regular reviews of progress on strategies and metrics at Sustainability Team
- Periodic reports to GM, Executive Team, and annual reports on progress to Board



TRI  MET