

Tualatin Climate Action Plan: Mitigation Actions

November 27, 2023



Overview

- Consultant introduction
- Emissions goal, inventory, and forecast
- Focus areas, strategies, and actions
- Q&A

Our consultants



Joshua Proudfoot
Director, Climate and ESG
Good Company, a division of Parametrix

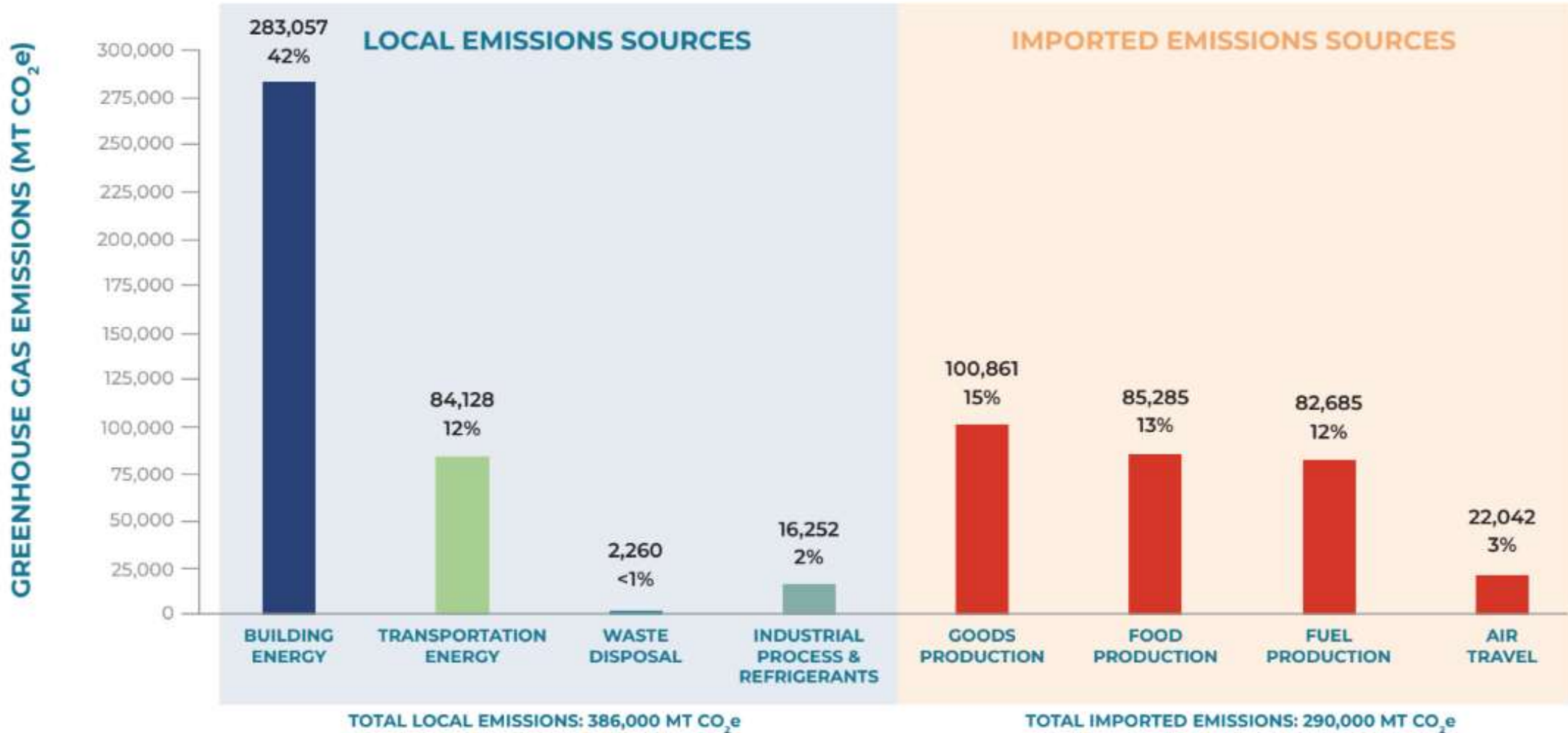


Jessica Pickul
Executive Officer + Senior Program Manager
JLA Public Involvement

Emissions
reduction goal

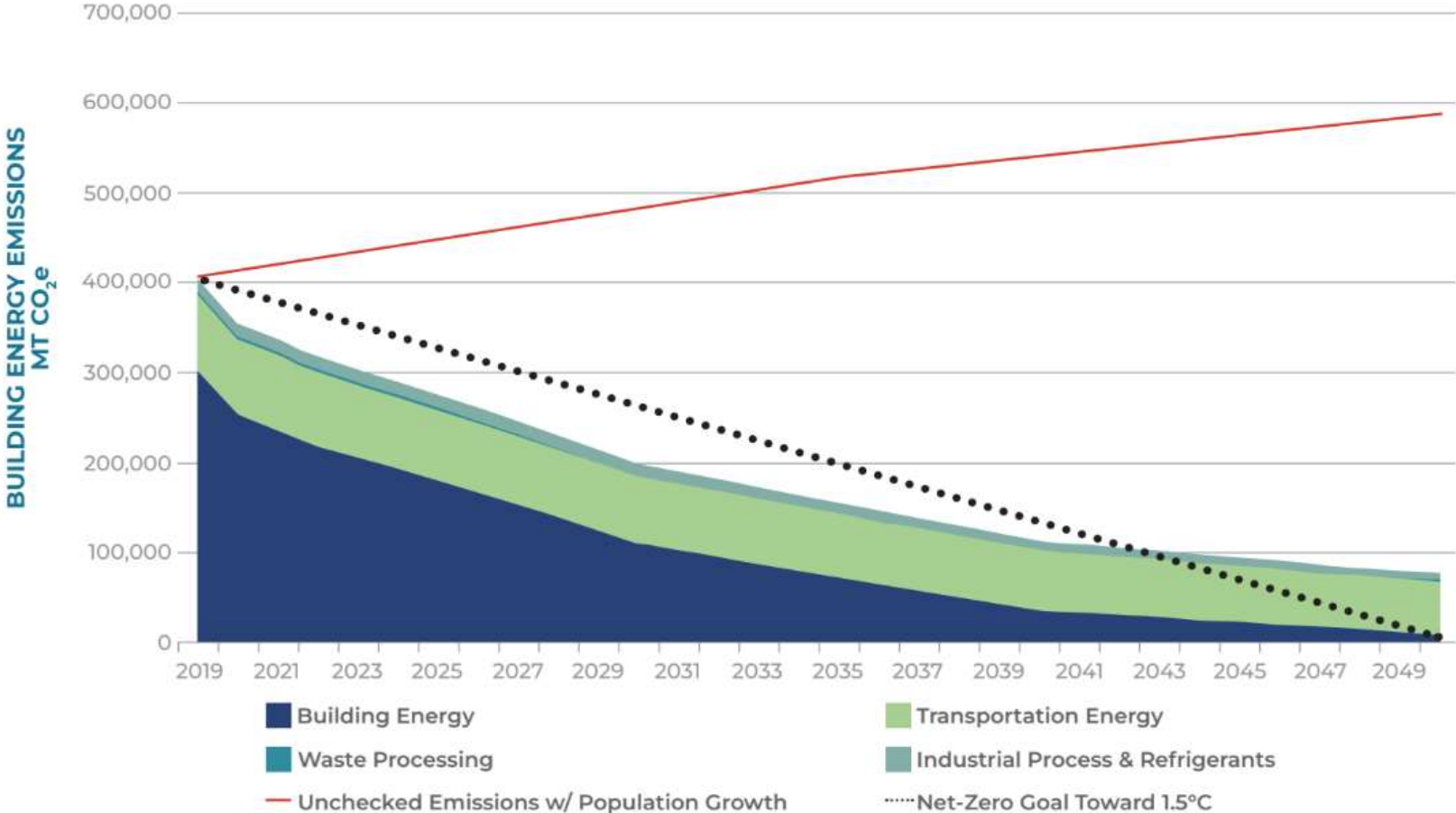
**NET
ZERO
BY
2050**

Community-wide emissions inventory

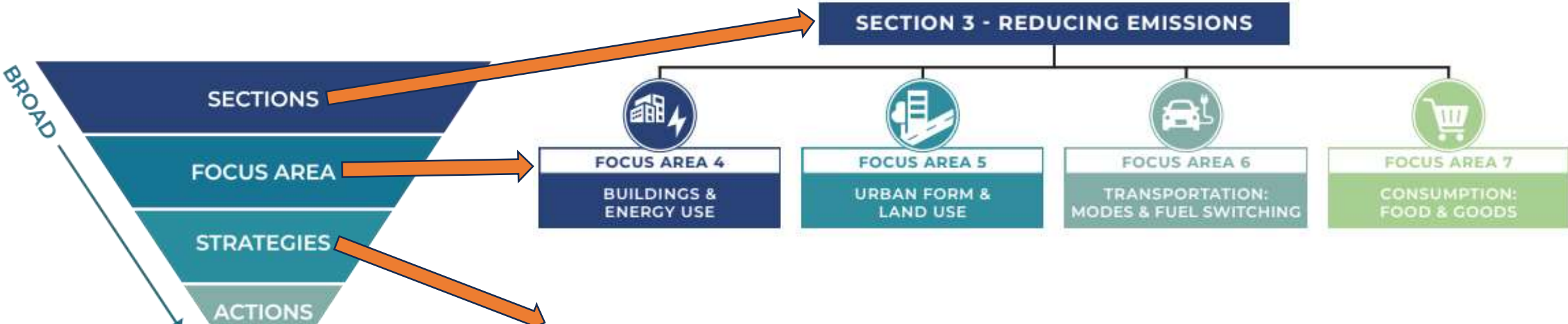


Emissions forecast

Unchecked Emissions and Existing Policy Forecast



Focus areas, strategies & actions



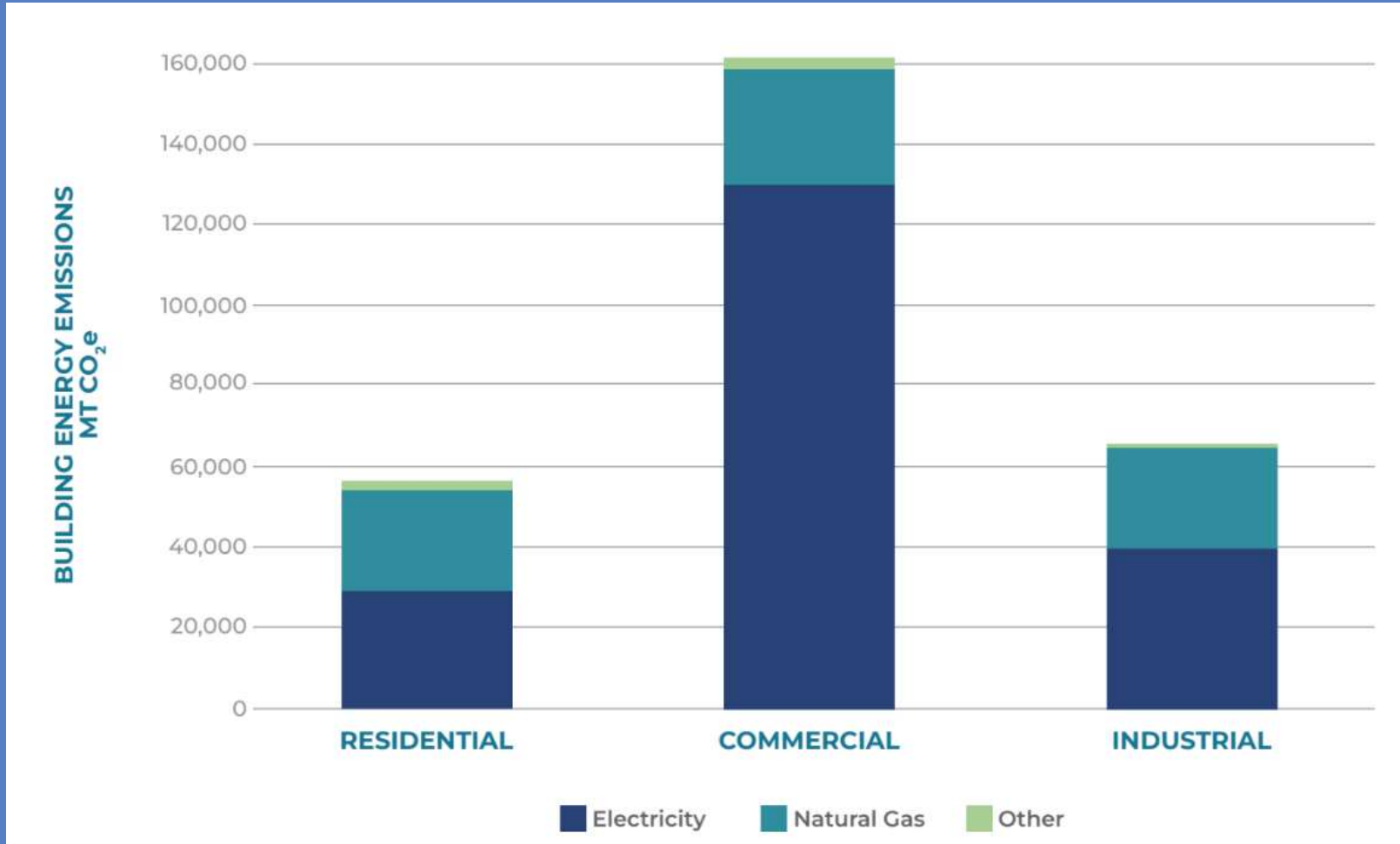
Ten strategies were analyzed to determine emissions reduction potential and cost.

Key

Low (0-399,999 MTCO ₂ e)	Medium (400,000-1,799,999 MTCO ₂ e)	High (1,800,000-8,000,000 MTCO ₂ e)
\$\$\$ significant savings (>\$100/MT)	\$\$ savings (\$10-100/MT)	\$ cost neutral (-\$10 to \$10/MT)
		\$\$ cost (\$10-100/MT)
		\$\$\$ significant cost (>\$100/MT)



Focus area 4: Buildings & energy use



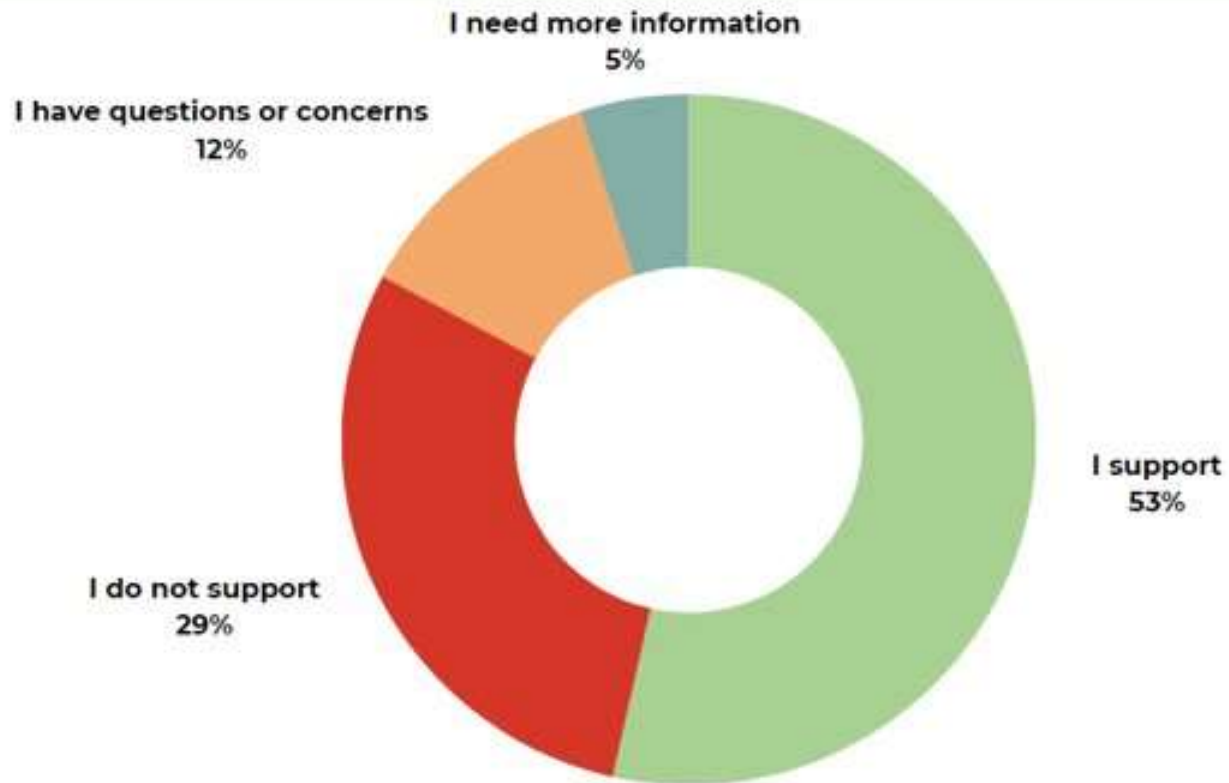
Building energy by type and emissions source



Community feedback

What is your level of support for the strategies focusing on buildings and energy?

Key themes:





Strategy 4.1: Energy efficiency and conservation

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
4.1	 LOW MED HIGH	\$ cost neutral (-\$10 to \$10/MT)





Strategy 4.1: Energy efficiency and conservation

4.1.2 - Incentivize builders, consumers, and contractors to build to the Oregon Building Codes Division's "Built Energy Smart" residential and commercial reach codes. State Executive Order 20-04 directs state agencies to reduce emissions by at least 45 percent below 1990 emissions levels by 2035 and at least 80 percent below 1990 levels by 2050. As a result, the Oregon Building Codes Division updated the residential and commercial reach codes to provide guidelines on improving energy efficiency, upgrading building envelopes, and supporting electrification.



4.1.3 - Replace high-pressure sodium (HPS) lightbulbs with light-emitting diode (LED) bulbs. LED bulbs last longer and are significantly more energy efficient than HPS bulbs.



4.1.5 - Require home energy scores to be completed at point of sale for homes.





Strategy 4.2: Transition to 100% carbon-free electricity supply

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
4.2	 LOW MED HIGH	\$\$ cost (\$10-100/MT)





Strategy 4.2: Transition to 100% carbon-free electricity supply

4.2.1 - Participate in the SolSmart program. SolSmart is a free program that provides technical assistance to local governments to reduce barriers to installing solar in their communities. The City can earn bronze, silver, or gold designation by meeting a set of criteria.



4.2.2 - Enroll in PGE's Green Future Choice or Green Future Enterprise Renewable Power program(s) to match 100% of electricity use with renewable energy and help build more renewable energy projects in Oregon.



4.2.3 - Install rooftop solar. Solar panels typically provide cost savings over time, reduce emissions, and increase grid resiliency. Rebate programs exist to help property owners offset the upfront costs of installing rooftop solar. Request a free quote through Energy Trust of Oregon's Solar Program.

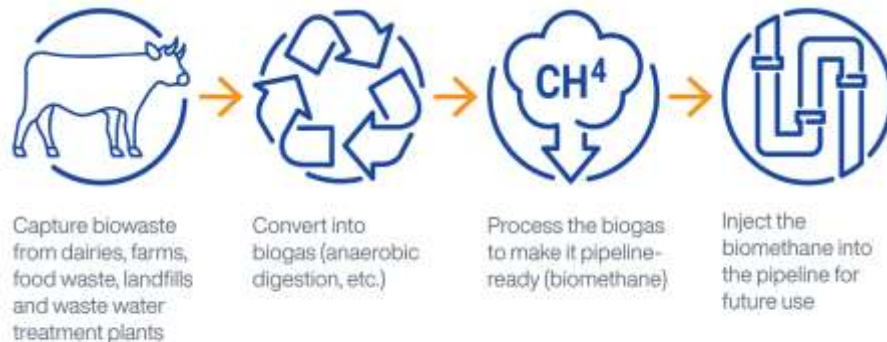




Strategy 4.3: Transition to 100% renewable natural gas (RNG) and clean hydrogen supply

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
4.3	<p>LOW MED HIGH</p>	<p>\$\$ cost (\$10-100/MT)</p>

The basics of Renewable Natural Gas



*SMR = steam methane reformation



Strategy 4.3: Transition to 100% renewable natural gas (RNG) and clean hydrogen supply

4.3.1 - Purchase renewable natural gas (RNG) directly from Northwest Natural if available.

Senate Bill 98 (SB 98) passed the Oregon legislature in 2019. SB 98 allows for RNG to be distributed system-wide. As of spring 2023, 2-3% of Northwest Natural's natural gas supply comes from RNG sources and SB 98 allows Northwest Natural to increase their purchase of RNG sources by 5% every 5 years. Northwest Natural filed with the Public Utility Commission, and is awaiting a docket date for a RNG tariff that would allow customers to opt-in to purchase additional RNG to cover all or a portion of their usage.



IMPLEMENT



SUPPORT/ADVOCATE

4.3.2 - Advocate for state and federal level financial and political support to increase the number of on-site hydrogen electrolyzers or thermal mass-based resistance boiler retrofits at sites that have large, industrial heat loads.

Electrolysis of hydrogen is a promising option for carbon-free hydrogen production from renewable and nuclear resources. Electrolysis is the process of using electricity to split water into hydrogen and oxygen.



SUPPORT/ADVOCATE

4.3.3 - Advocate for increased production of renewable natural gas (RNG).

Existing supplies of RNG are limited. Advocating for increased supply of RNG will help Tualatin offset its emissions from natural gas use.



SUPPORT/ADVOCATE



Strategy 4.4: Electrification of space and water heating for *new* buildings

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
4.4	 <p>LOW MED HIGH</p>	\$\$ savings (\$10-100/MT)





Strategy 4.4: Electrification of space and water heating for *new* buildings

4.4.1 - Require electric water heaters and electric heat pumps in new buildings.

Electric water heaters and heat pumps are more efficient than gas-powered water heaters and furnaces and can be powered by renewable energy sources instead of fossil fuels.



SUPPORT/ADVOCATE



IMPLEMENT



YES, POLICY
DECISION

4.4.2 - Ban natural gas hookups in new single family and commercial buildings.

This action only impacts new buildings. Potential benefits of this action include reducing carbon emissions, increasing the energy efficiency of buildings, promoting clean energy sources, and reducing the indoor air quality hazards associated with natural gas stoves. Potential drawbacks of this action include concerns about electrical grid capacity, short-term energy affordability, and reducing energy choice.



IMPLEMENT



YES, POLICY
DECISION



Strategy 4.5: Electrification of space and water heating for *existing* buildings

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
4.5	 <p>LOW MED HIGH</p>	\$\$ cost (\$10-100/MT)





Strategy 4.5: Electrification of space and water heating for *existing* buildings

4.5.1 - Replace existing gas furnaces with heat pumps to heat and cool homes and buildings.

Financial incentives may be available through the Oregon Department of Energy's Community Heat Pump Deployment Program and Oregon Rental Home Heat Pump Program, and through the IRS's Energy Efficient Home Improvement Credit and Residential Clean Energy Property Credit.



SUPPORT/ADVOCATE

4.5.2 - Replace existing gas water heaters with electric water heaters. Water heating accounts for 20% of the average home's energy use. An energy efficient water heater can save hundreds of dollars per year in energy costs.

4.5.3 - Require replacing gas furnaces with heat pumps when they fail. Heat pumps provide both heating and cooling capabilities, are highly energy-efficient, and are more environmentally-friendly option compared to fossil fuel-based furnaces.



IMPLEMENT

4.5.4 - Require replacing gas water heaters with electric water heaters when they fail. Heat pump water heaters are highly energy-efficient, can deliver significant energy savings, offer both heating and cooling capabilities, and result in less carbon emissions compared to gas water heaters as the electricity grid continues to decarbonize.

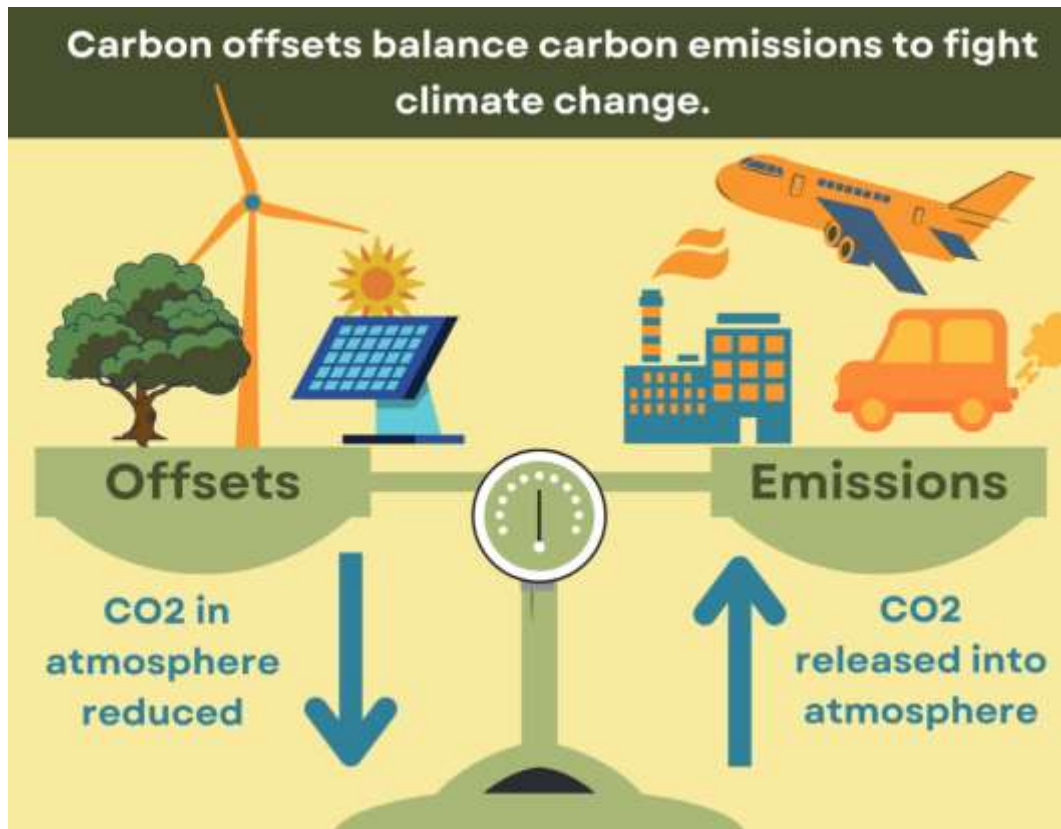


YES, POLICY
DECISION



Strategy 4.6: Voluntary purchase of verified carbon offsets

This strategy was not analyzed in terms of emissions reduction potential and cost.





Strategy 4.6: Voluntary purchase of verified carbon offsets

4.6.1 - Enroll in Northwest Natural's Smart Energy program to offset emissions from natural gas use in homes and commercial and industrial buildings that use natural gas.

Carbon offsets are financial instruments that represent the reduction, avoidance, or removal of greenhouse gas emissions from one source to compensate for emissions occurring elsewhere.



4.6.2 - Educate the community about high-quality, reliable carbon offsets. It is important to identify and promote high-quality and reliable offset options because carbon offsets can be difficult to accurately measure and verify, run the risk of being double-counted, and may have negative social and environmental impacts.

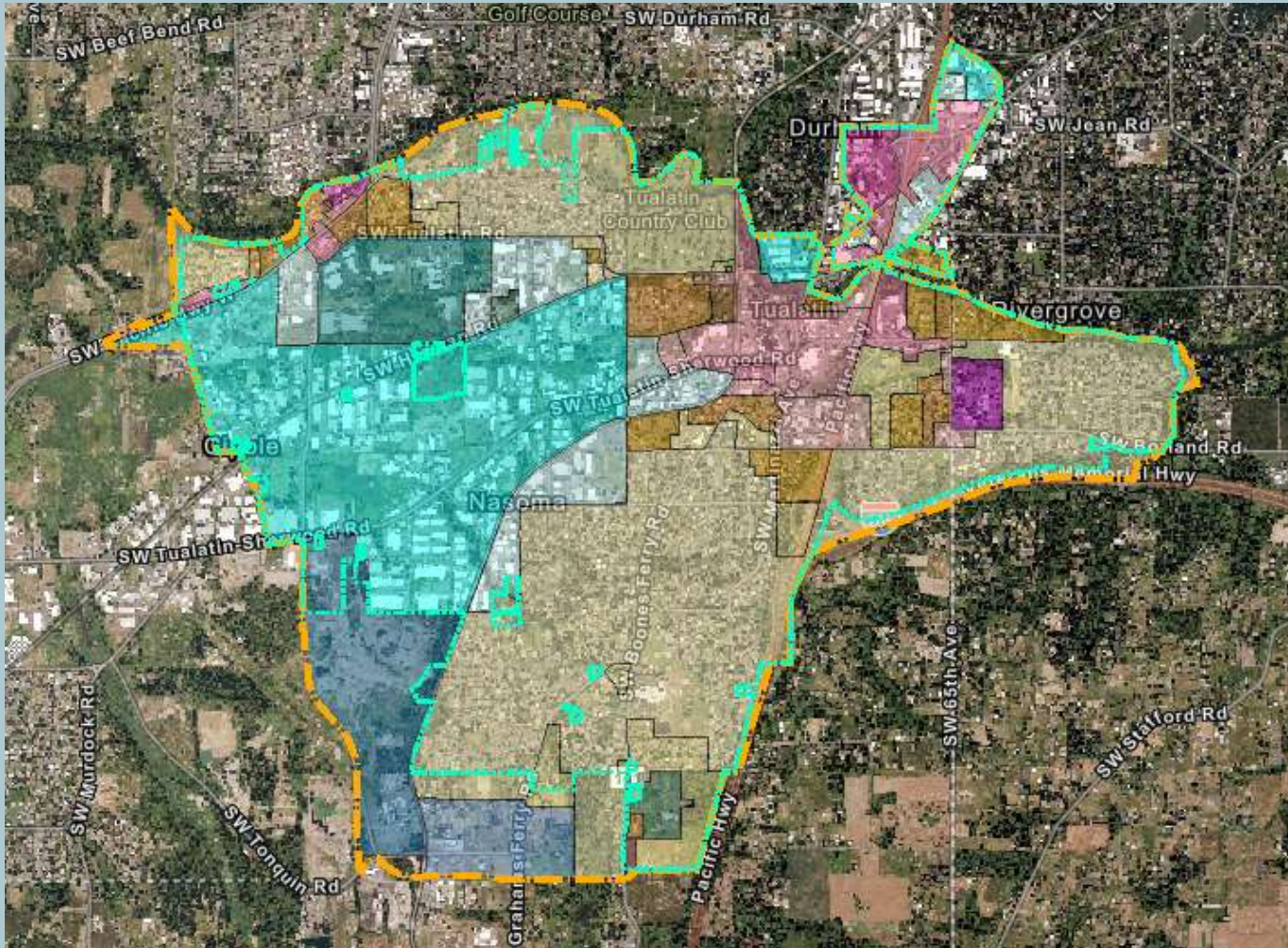


4.6.3 - Purchase verified carbon offsets for unavoidable emissions, such as air travel and industrial processes. Carbon offsets can help to balance out unavoidable emissions by removing carbon dioxide from the atmosphere.





Focus area 5: Urban form & land use

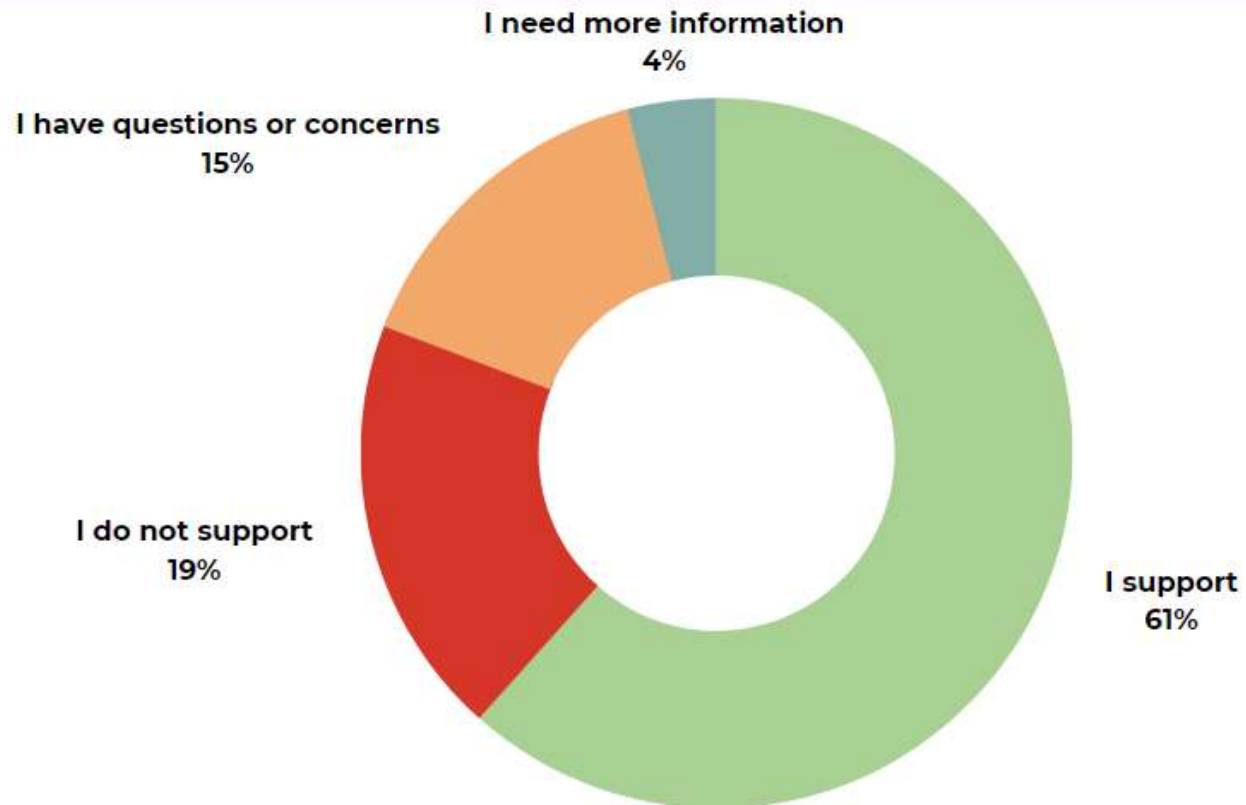




Community feedback

What is your level of support for the strategies focusing on urban form and land use?

Key themes:





Strategy 5.1: Dense future development resulting in reduced future vehicle miles traveled

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
5.1	 <p>LOW MED HIGH</p>	\$\$ savings (\$10-100/MT)





Strategy 5.1: Dense future development resulting in reduced future vehicle miles traveled

5.1.3 - Build walkable neighborhoods where residents can meet most of their daily needs without the use of a car. This includes identifying opportunity areas to apply flexible zoning practices to enable nonconforming land uses, improving transportation infrastructure to promote active transit, pursuing transit-orientated development, increasing access to parks and open space, and providing incentives for mixed-use development.



5.1.4 - Identify opportunities for increased density. Identify areas in town that would support higher density, including community support and political will to densify, barriers to densification, and geographic opportunities that could support density.



5.1.6 - Develop a decision matrix to consider alternatives to roadway widening to ease traffic congestion. Road widening is not always the best solution to reducing traffic congestion. Reducing traffic congestion will require a multi-pronged approach including things like investing in bicycle and pedestrian infrastructure and public transit or supporting more complimentary land use types that result in shorter travel distances.





Strategy 5.2: Urban/community forestry & carbon sequestration

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
5.2		\$\$ cost (\$10-100/MT)





Strategy 5.2: Urban/community forestry & carbon sequestration

5.2.3 - Continue to partner with Friends of Trees to plant trees in Tualatin. The City of Tualatin has partnered with Friends of Trees for 25 years and currently offers three tree planting events per year. These events focus on stream shading. The City could explore options to partner with Friends of Trees to plant street trees and/or trees in stormwater treatment facilities.



5.2.5 - Increase enforcement of street tree regulations (TDC Ch. 33) on private property to encourage tree preservation during redevelopment and landscaping on private property. This action supports Strategy 1.1.



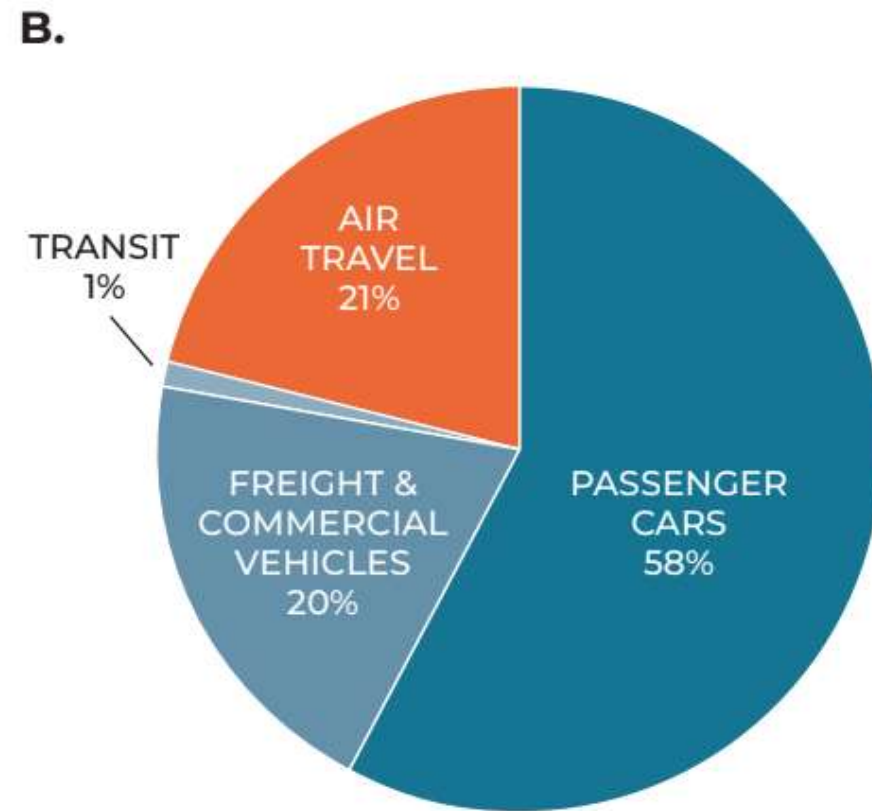
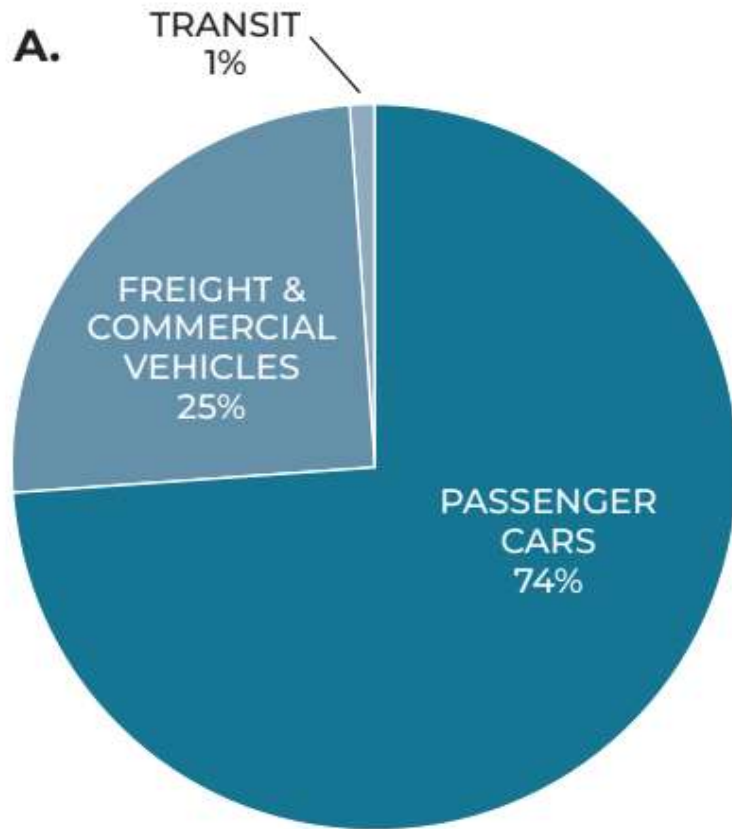
5.2.7 - Encourage tree preservation during development. Evaluate establishment and enforcement of replanting requirements. Provide guidance to ensure that the right trees are planted in the right places.





Focus area 6:

Transportation – modes & fuel switching

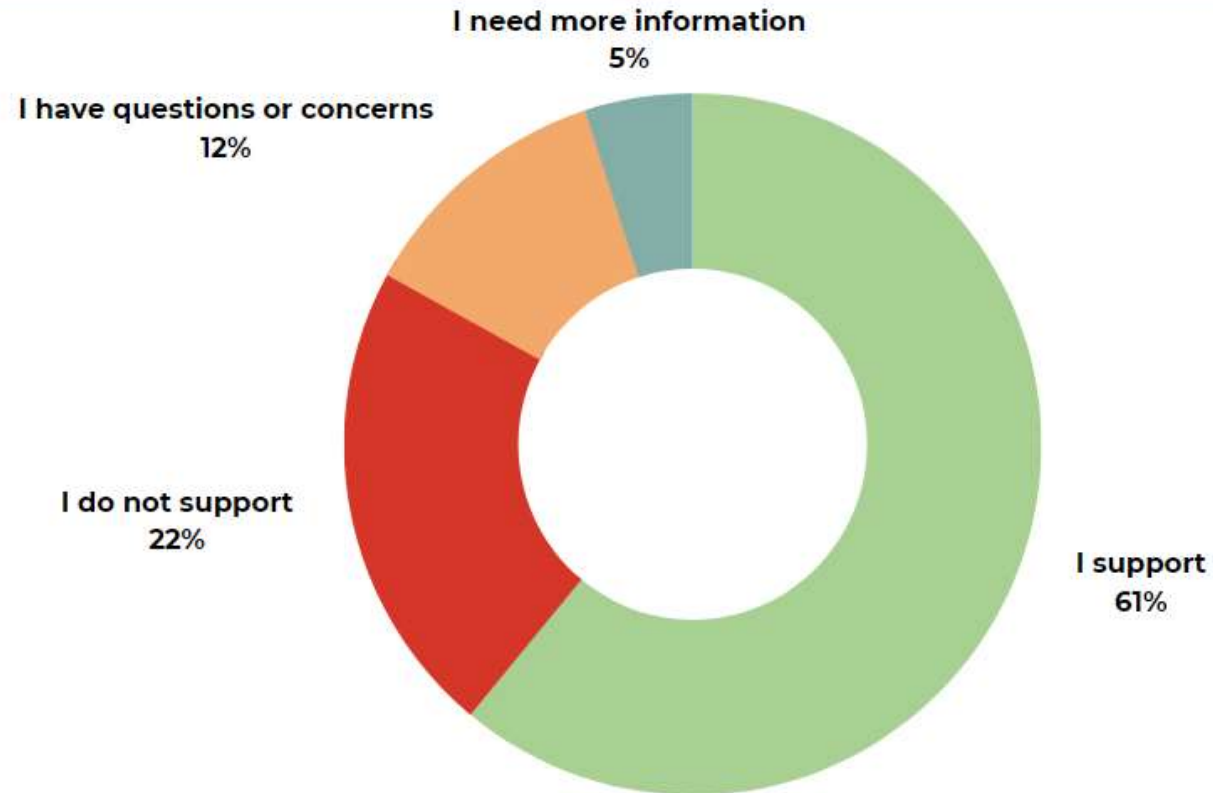




Community feedback

What is your level of support for the strategies focusing on transportation?

Key themes:





Strategy 6.1: Fuel switching – Electric vehicles (EVs), renewable diesel, biodiesel, ethanol, and other low-emissions fuels

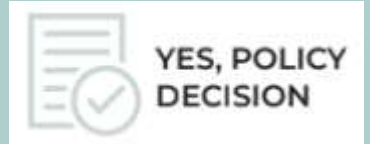
STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
6.1	<p>LOW MED HIGH</p>	\$\$ savings (\$10-100/MT)





Strategy 6.1: Fuel switching – Electric vehicles (EVs), renewable diesel, biodiesel, ethanol, and other low-emissions fuels

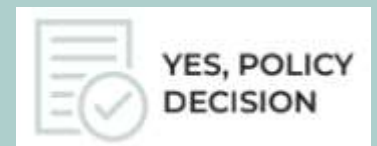
6.1.1 - Establish parking and infrastructure requirements for electric vehicles (EVs) at new developments. Oregon Senate Bill 1044 sets zero emission vehicle (ZEV) targets for the state of Oregon. Under SB 1044, at least 90% of new vehicles sold annually will be EVs. Establishing EV parking and infrastructure requirements for new developments will make EV charging more available now while paving the way for the near future when EVs become more common.



6.1.2 - Promote programs to help fund installation of EV chargers at new and existing affordable housing and multifamily complexes. Prioritize multifamily housing and workplaces.



6.1.10 - Require gas stations within City limits to transition to R99 diesel. See Chapter 16.60 of the City of Portland's code for a local example of a similar policy.





Strategy 6.2: Active transportation to reduce car miles and gasoline use

This strategy was not analyzed in terms of emissions reduction potential and cost.





Strategy 6.2: Active transportation to reduce car miles and fossil fuel (gasoline) use

6.2.1 - Update the Transportation System Plan (TSP) to increase the use of active transportation options, including any human-powered transportation such as walking, cycling, or using non-motorized modes of transportation. Embed active transportation modes throughout the entire plan and focus on making walking or rolling an easy and accessible option to move throughout the City.



IMPLEMENT

6.2.2 - Update the Transportation System Plan (TSP) to increase the use of electric micromobility options such as e-bikes, e-scooters, and electric skateboards. Electric micromobility modes should be embedded throughout the entire plan and focus on making these options a viable option to move throughout the City. While electric micromobility modes offer many of the same benefits as active transportation but are worthy of independent consideration given charging needs, potential safety concerns and conflicts with non-motorized active transit users.



YES, POLICY
DECISION

6.2.6 - Develop Complete Streets Policy. This policy informs future public improvements on streets and shared paths. Complete Streets are an approach to planning, designing, building, operating, and maintaining streets that are designed to be safe and feel safe for everyone. They are designed for speeds that reduce the chance of death or serious injury and give priority to the needs of those who are most vulnerable, including pedestrians, bicyclists, and transit riders, making it easier and safer for people to move along and across the street. This policy can guide future Transportation System Plan (TSP) updates and future transportation projects.



IMPLEMENT



YES, POLICY
DECISION

6.2.10 - Increase Safe Routes to School programming for Tualatin schools by partnering with TTSD's Safe Routes to School coordinator. Prioritize schools in higher equity need and/or high traffic areas in Tualatin.



SUPPORT/ADVOCATE



Strategy 6.3: Transit transportation to reduce car miles and gasoline use

This strategy was not analyzed in terms of emissions reduction potential and cost.





Strategy 6.3: Transit transportation to reduce car miles and gasoline use

6.3.1 - Advocate for increased transit service coverage and frequency. Robust and reliable transit service can increase the appeal of taking transit over driving and create greater mobility for the entire community.



6.3.3 - Convene large businesses in Tualatin to lobby TriMet to expand transit service to destinations with large employee populations.



6.3.4 - Increase micromobility access through programs like the e-scooter program in Tualatin. Micromobility options like e-scooters and e-bikes help to support low-carbon transportation, particularly for first and last-mile travel.





Strategy 6.4: Remote work options to reduce car miles and gasoline use

This strategy was not analyzed in terms of emissions reduction potential and cost.



9/80 Work Schedule

Mon	Tues	Wed	Thurs	Fri
31	1	2	3	4
7	8	9	10	11
14	15	16	17	18

■ 9 Hours ■ 8 Hours ■ Day off! (Repeat every two weeks) →



Strategy 6.4: Remote and flexible work options to reduce car miles and gasoline use

6.4.1 - When possible and appropriate, provide remote work options to employees. Reducing commuter trips results in fewer emissions and contributes to improved air quality.



6.4.2 - Provide virtual meeting options. Reducing travel for meetings results in fewer emissions and contributes to improved air quality. Providing virtual meeting options also increases access for people who are unable to join meetings in person.

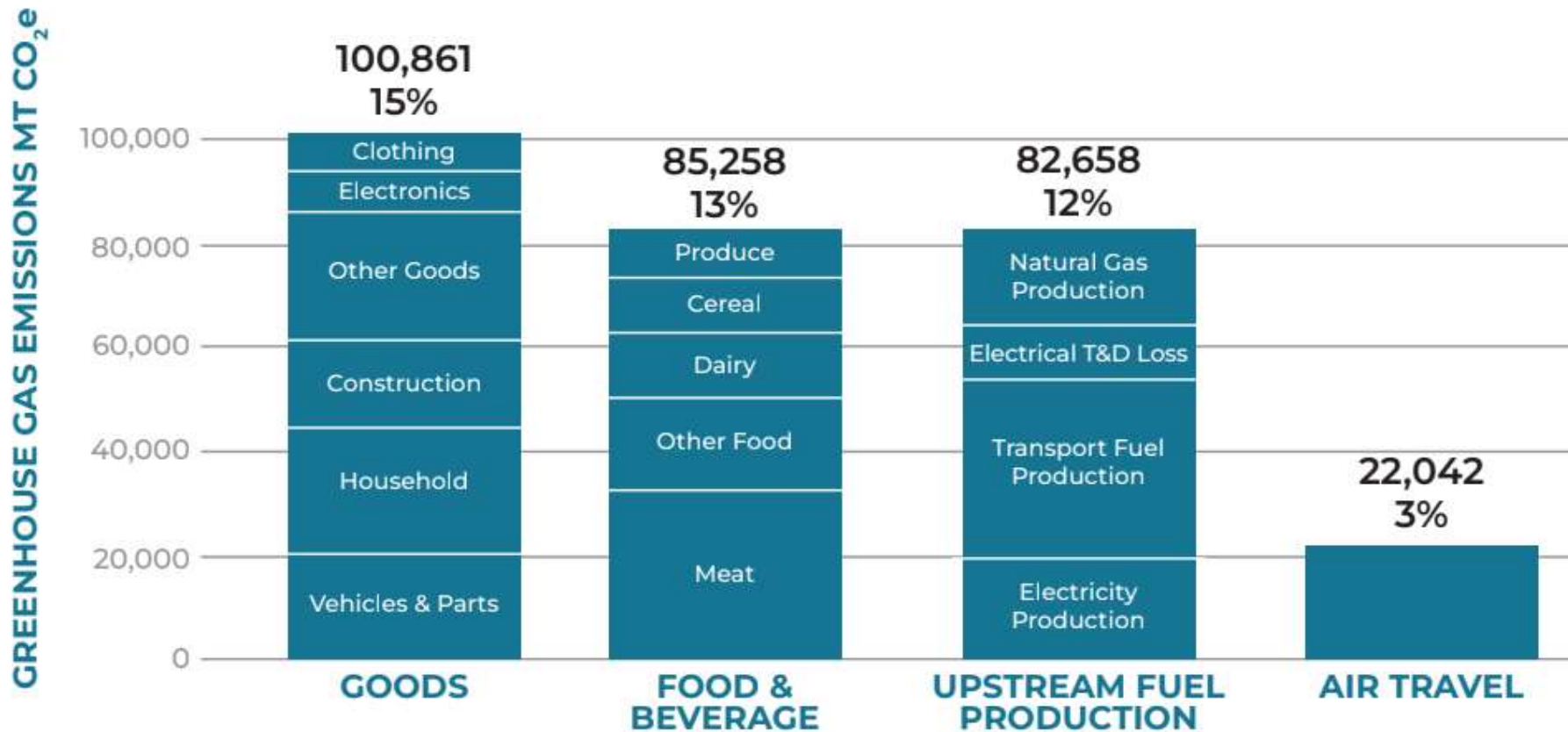


6.4.3 - When possible and appropriate, provide flexible work schedules to employees. This could include moving from a fixed 5/8/40 work schedule (five 8-hour workdays/week) to a 9/8/80 or 4/10/40 work schedule to reduce the number of days employees must commute to work. It could also include allowing employees to alter their stop and start times to align with transit schedules.





Focus area 7: Consumption – food & goods



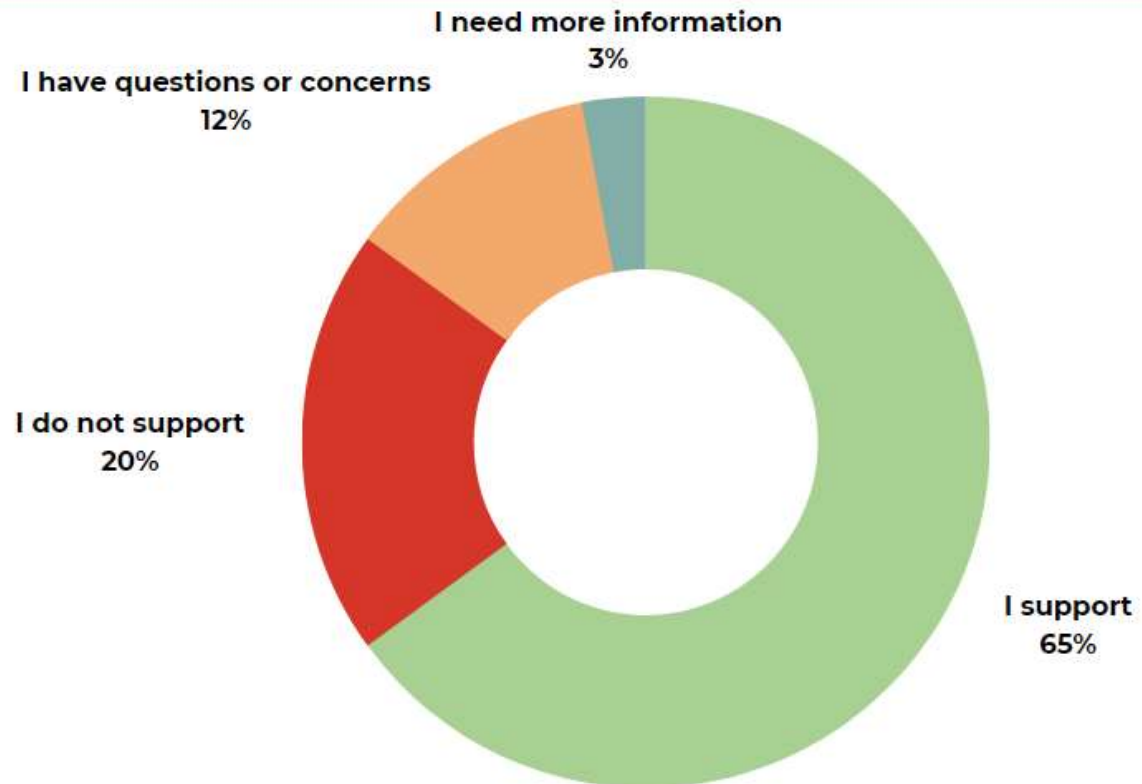
Tualatin's consumption-based emissions by type



Community feedback

**These strategies need to be community led.
Are you willing to implement the actions in
the food and goods section in your own life?**

Key themes:





Before you buy or use it

These strategies were not analyzed in terms of emissions reduction potential and cost.

7.2 - Reduce emissions from food

- Community-driven, opportunities for City to educate



7.3 - Road materials management

- **7.3.1 - Update Public Works construction code to require low emission concrete and asphalt materials.** These could include warm mix asphalt (WMA), supplementary cementitious materials (SCMs) for portland cement, etc.



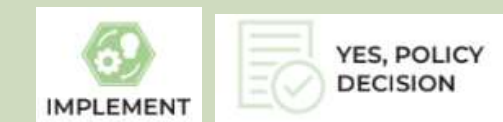
7.4 - Reduce consumption of new materials

- Community-driven, opportunities for City to educate



7.6 - Reduce emissions from landscaping

- **7.6.1 - Ban small-motor, gasoline-powered landscaping equipment, like leaf blowers, lawn mowers, etc.** According to the Environmental Protection Agency, gasoline-powered lawn and garden equipment accounts for a major portion of nonroad gasoline emissions. They also emit pollutants that are harmful to human health.



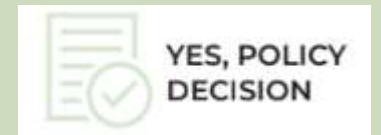


After you buy or use it

7.1 - Landfill diversion of organic materials (composting)

STRATEGY	GHG BENEFIT (MT CO ₂ e AVOIDED)	COST PER MT CO ₂ e REDUCED
7.1		\$ cost neutral (-\$10 to \$10/MT)

- **7.1.1 - Require curbside composting at multifamily housing sites.** The City of Tualatin is conducting a residential organics (curbside composting) pilot program with Republic Services from July to December 2023. Tualatin residents who live in in single-family, duplex, triplex, or fourplex homes will be able to include food scraps in their green yard debris curbside carts.
- **7.1.4 - Work with Republic Services to incentivize reduced food waste.** Look to Eugene's "Love Food Not Waste" program as a model.
- Opportunities for City to educate



7.5 - Responsible waste management

- Community-driven, opportunities for City to educate
- **7.5.4 - Increase recycling options at multifamily housing.** State and regional agencies are reviewing refuse service standards to better serve multifamily housing communities in all areas of solid waste, recycling, and organics disposal. The City may need to consider code updates to increase the size of containment areas.



Next steps

- Finalize plan based on feedback
- Council adoption of final plan
- Implementation begins

Questions?

