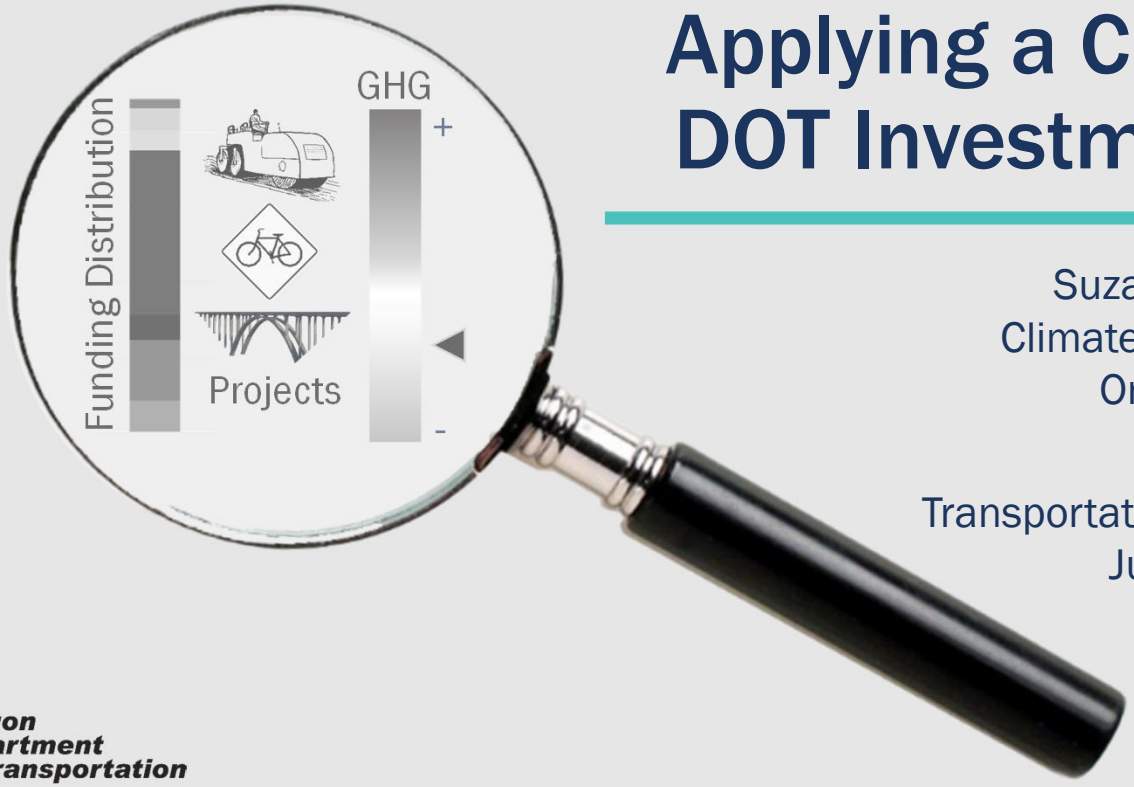


Applying a Climate Lens to DOT Investment Decisions

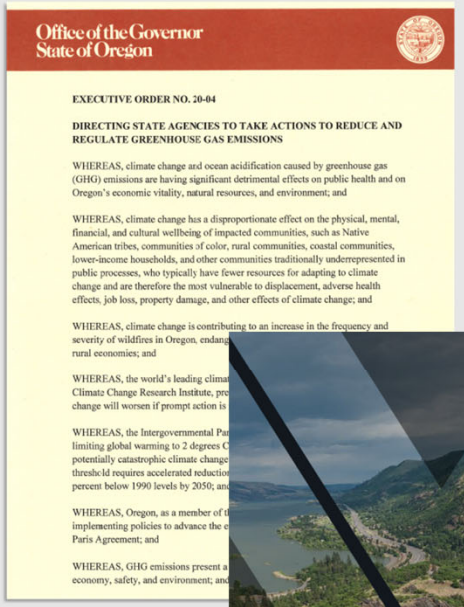
Suzanne Carlson
Climate Office Director
Oregon DOT

Transportation Research Board
June 2022

Oregon Department of Transportation

Why apply a climate lens to STIP decisions?

- Executive Order 20-04 - directs ODOT to develop and apply a process for evaluating GHG emissions for the STIP
- ODOT Climate Office – formed 2020
- ODOT Strategic Action Plan – top climate priorities

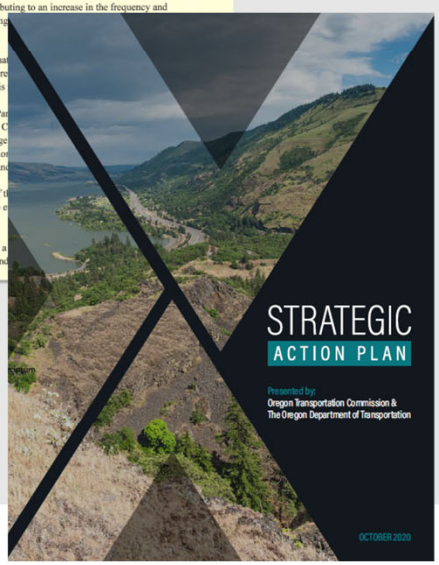

Office of the Governor
State of Oregon

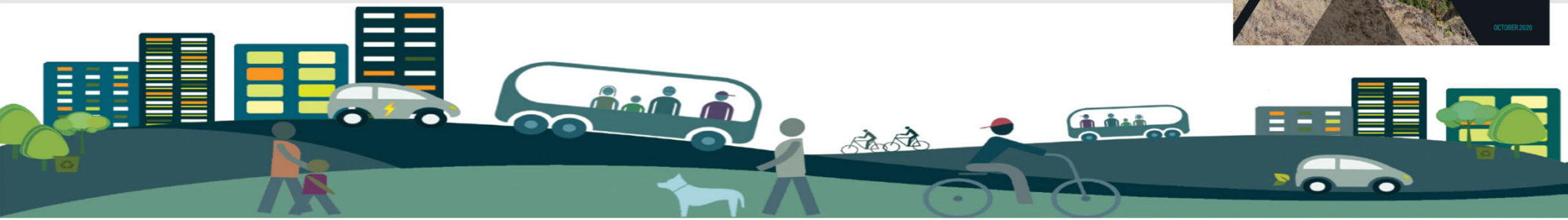
EXECUTIVE ORDER NO. 20-04

DIRECTING STATE AGENCIES TO TAKE ACTIONS TO REDUCE AND REGULATE GREENHOUSE GAS EMISSIONS

WHEREAS, climate change and ocean acidification caused by greenhouse gas (GHG) emissions are having significant detrimental effects on public health and on Oregon's economic vitality, natural resources, and environment; and

WHEREAS, climate change has a disproportionate effect on the physical, mental, financial, and cultural wellbeing of impacted communities, such as Native American tribes, communities of color, rural communities, coastal communities, lower-income households, and other communities traditionally underrepresented in public processes, who typically have fewer resources for adapting to climate change and are therefore the most vulnerable to displacement, adverse health effects, job loss, property damage, and other effects of climate change; and





Three Phases

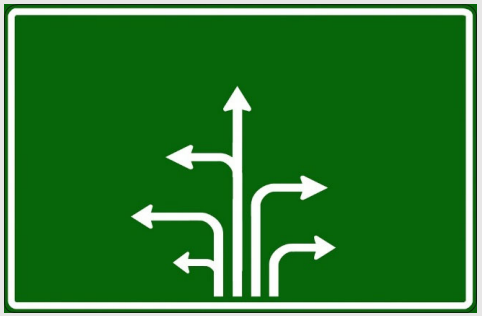
2024-27 Statewide Transportation Investment Program (STIP)

Three- year project funding & investment program

Phase 1

Amount of Money

(program allocation)



Phase 2

How Money is Directed

(DOT project selection & narrowing)

Phase 3

Project GHG Impact

(chosen projects summary)

Program Funding Evaluation Framework

Key Outcomes…

Climate-Mitigation	Reduces emissions per mile and supports VMT reduction, improves health/AQ
Climate Adaptation/ Resilience	Proactive investment that increases resilience to extreme weather events and climate change
Congestion	Ease of Roadway movement, ease congestion
Social Equity	Supports all user needs and exposure equitably, targets disadvantaged populations and frontline communities
Multi-Modal Mobility	Multi-modal access, resilient set of modal options
Safety	Prioritize the safety of system users and transportation workers
State of Good Repair	Cost-effectively preserve and maintain our assets

PHASE 1: Program Funding Decision

How much $ went each program (2021-2024)?*

What types of projects were funded?

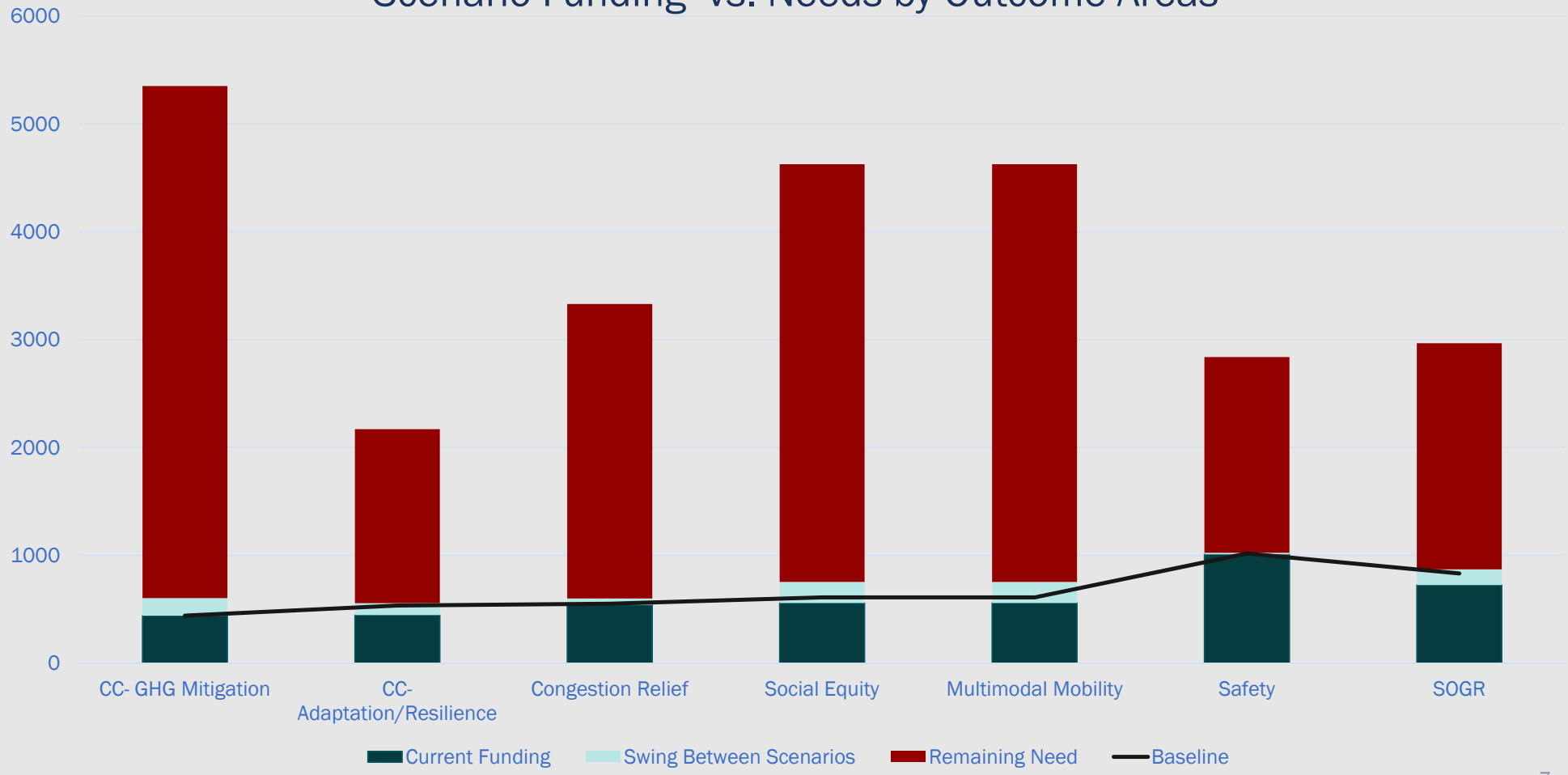
How did investments impact key outcomes?

**Established a baseline*

Collect Supplemental Project Info

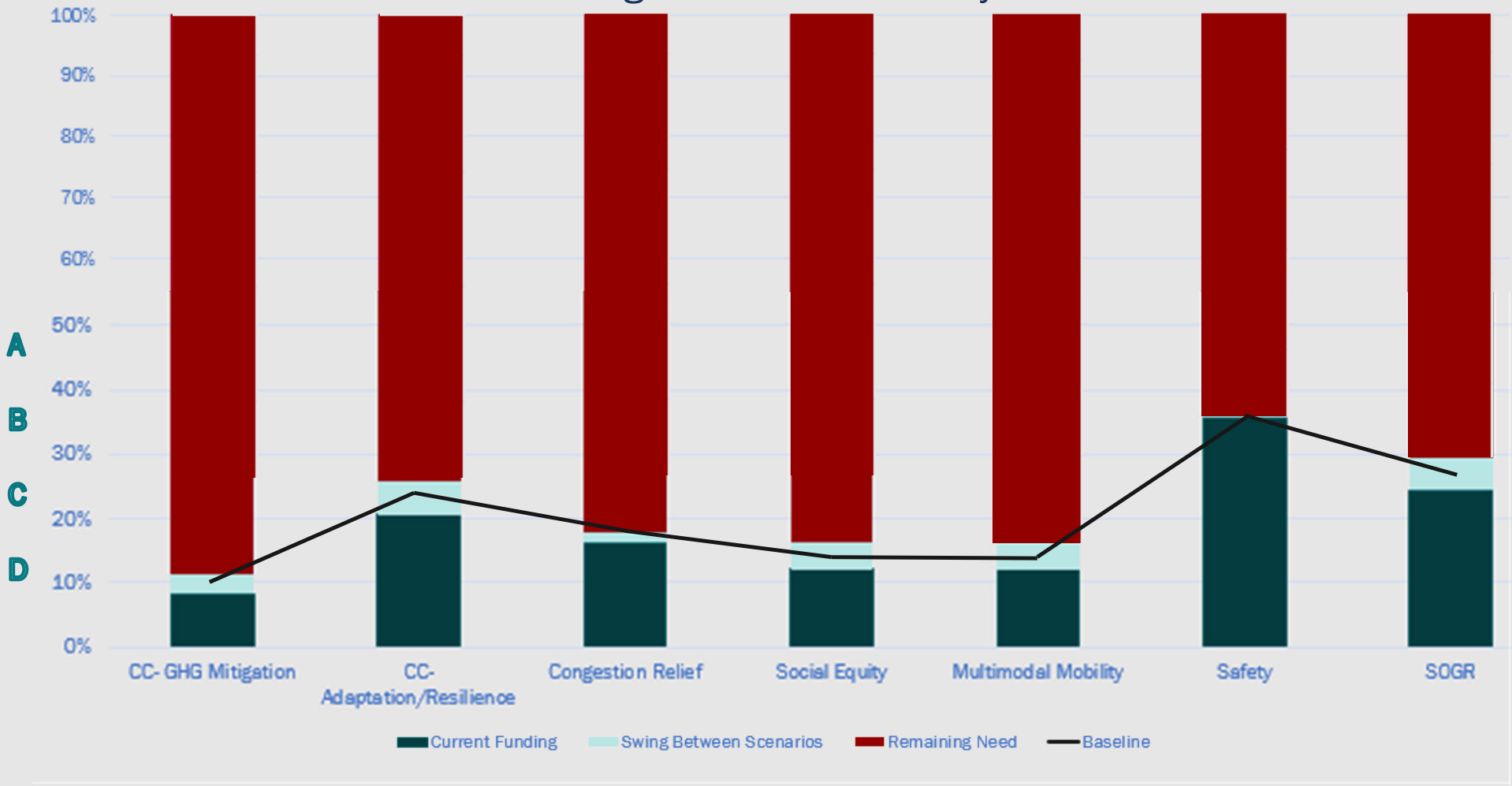
	Project Attributes (*Illustrative Examples*)						
Projects ☑ Y/N ☐ If Y, then identify proportion of project/ amount of $ (H/M/L)	**Bridge** (scour, erosion, paint, cathodic, monitor/ inspect)	**Road Expand** (capacity) new lanes, new road or bridge, new connection	**O&M** culverts, stormwater, vegetation, other basic maintenance	**Road Safety** rumble strips, guardrails, curve correction, realignment, lighting, rest areas, train warning	**Bike-Ped** ADA, new or improved b/p facility, b/p crossing, off-road path, SRTS	**ITS** variable signs, curve warnings, other TSMO	**Transit** new bus, retrofit bus, transit shelter
Project A	☑ $	☑ $	☐	☑ $	☐	☐	☑ $
Project B	☑ $	☐	☐	☐	☑ $	☐	☑ $
Project C	☐	☐	☑ $	☑ $	☐	☐	☐

Results – Progress Towards Needs

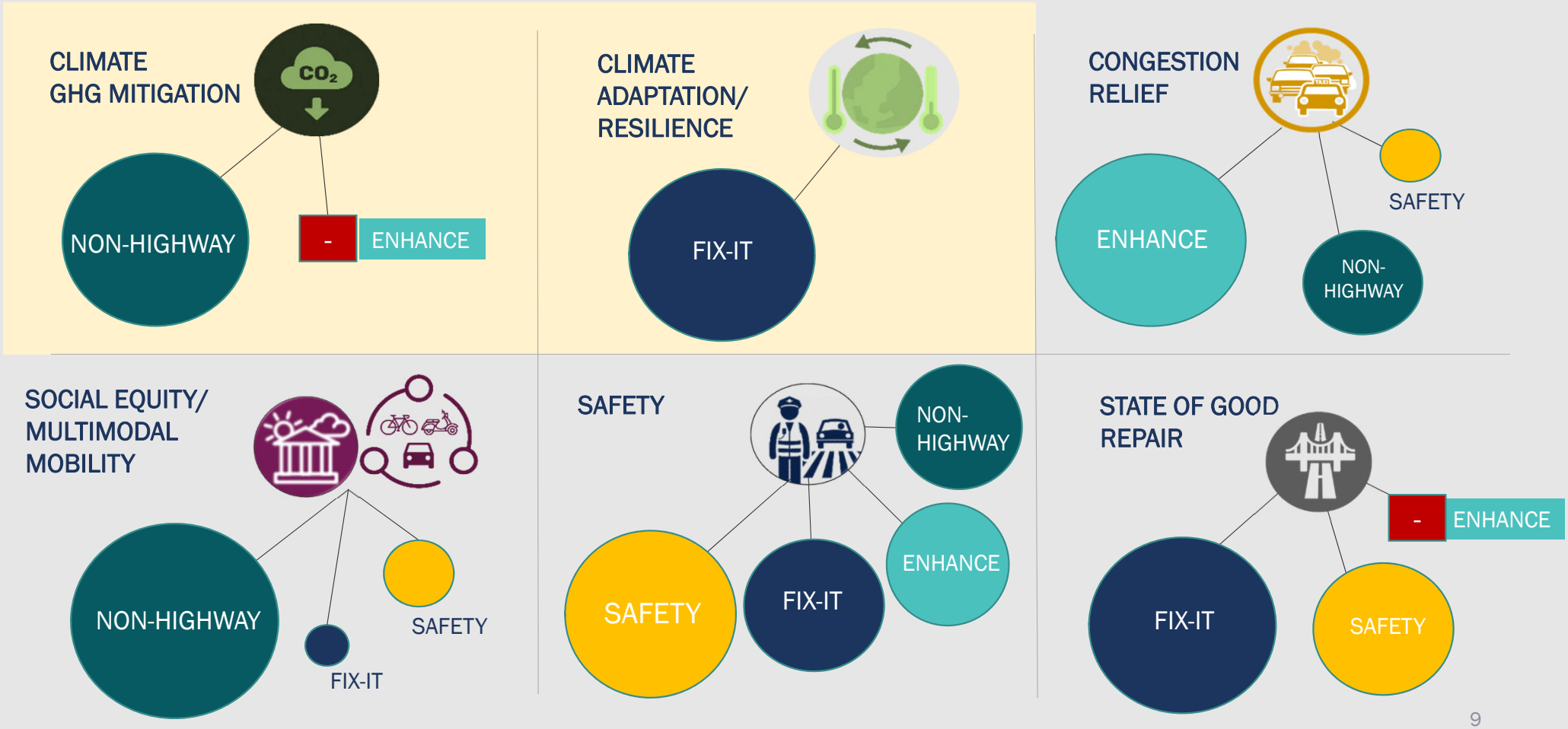


Results – Progress Towards Needs

Scenario Funding vs. 100% Needs by Outcome Areas



Which Investments Influence Outcomes (Scaled)



Phase 1 Results

Some Modest Improvements

		2021-2024 STIP*	24-27 FINAL SCENARIO
FUNDING	FIX-IT*	$850	$800
	ENHANCE	$24	$65
	NON-HIGHWAY	$158	$255
	SAFETY	$147	$147
OUTCOMES	CLIMATE CHANGE - GHG MITIGATION	D– Most trips drive alone in low MPG cars	Slight GHG reductions anticipated *(modest improvements above baseline)*
	CLIMATE CHANGE - ADAPTATION/ RESILIENCE	C– Slow progress with preservation projects	A few less adaptation projects *(marginal decline from baseline)*
	CONGESTION RELIEF	B– Select, legislative bottleneck projects in development	Bit of funding to supplement needs *(some funding to supplement larger projects)*
	SOCIAL EQUITY	C– Few low cost travel options	Small increase in access for all users *(more multimodal projects than 2A, but less than 3B)*
	MULTIMODAL MOBILITY	D Many connectivity gaps	Small increase in bikeways, walkways, TDM programs *(more multimodal projects than 2A, but less than 3B)*
	SAFETY	B Focus on fatalities and serious injuries	No change from baseline *(safety funding flat, consistent with baseline and 21-24 STIP)*
	STATE OF GOOD REPAIR	C Several assets and areas deteriorating	Small decline from baseline *(slight decline from baseline which indicates trend of deteriorating conditions over time)*

Notable improvement | Modest improvement | Similar to baseline | Modest decline

Phase 2: How Money is Directed (project selection & narrowing)
GHG Index

Contributing factors:

- Project attribute scores (E)
- Attribute funding ($\$V = \Sigma \$v$)
- Traffic weighting (VMT) (G)
  - MPO/small urban/rural

$$Project\ score = \frac{\{\Sigma(E \times \$v)\}(G)}{\$V}$$

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Projects are indexed by how they are expected to impact the goal of reducing GHG emissions. Each project falls into one of four categories:

Strongly Advances Goal	Project is likely to substantially reduce GHG emissions.
Advances Goal	Project is likely to reduce GHG emissions.
Status Quo or Challenges Goal	Project unlikely to reduce GHG emissions or may lead to an increase in emissions.
Strongly Challenges Goal	Project is likely to increase GHG emissions.

Projects are also evaluated on a spectrum to allow relative comparisons. Each gray dot is one project, dots further to the right are expected to help more with reducing emissions:

Phase 2: Project Selection Decisions

150% list

Initial Project List

100% list

Final Project List

Overall emission reductions (compared to previous STIP)

GHG Index

Share Results with Regions and Programs

Example Attributes

Strongly Advances Goals

Projects that include:

- TDM, trip reduction elements
- Bike/Pedestrian features; ADA
- Transit facilities or connections
- ITS, operational enhancements (without adding capacity)
- Projects that reduce VMT

Strongly Challenges Goals

Projects that include:

- Roadway expansion
- New lanes or adds capacity in urban areas
- Intersection widening, added turn lanes
- Projects that increase VMT

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Phase 2: Applying the Climate Lens to Project Scoping

Select Higher Scoring Projects when narrowing lists– e.g. *Project "A" over Project "B"*

Options for making projects more climate-friendly

Change project scope or design to increase climate beneficial elements

Add new project elements; use leverage funding - e.g., bike/ped

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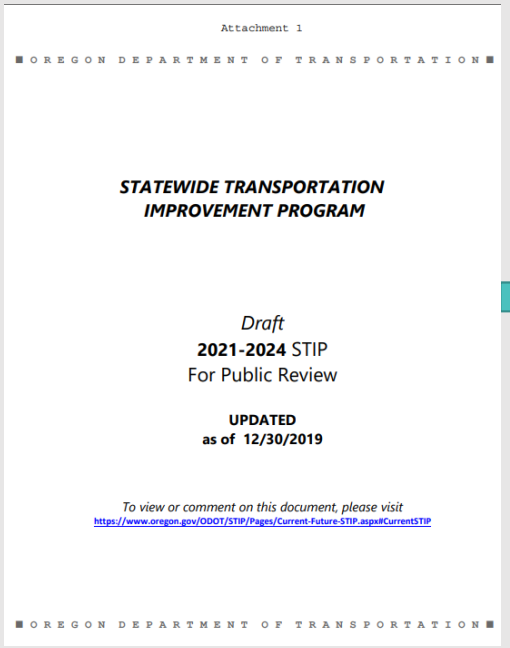
Phase 3: Project Level GHG Impacts

Establish a Baseline of entire STIP program

Calculate emissions from 2021-2024 STIP Projects


Attachment 1

OREGON DEPARTMENT OF TRANSPORTATION

STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM

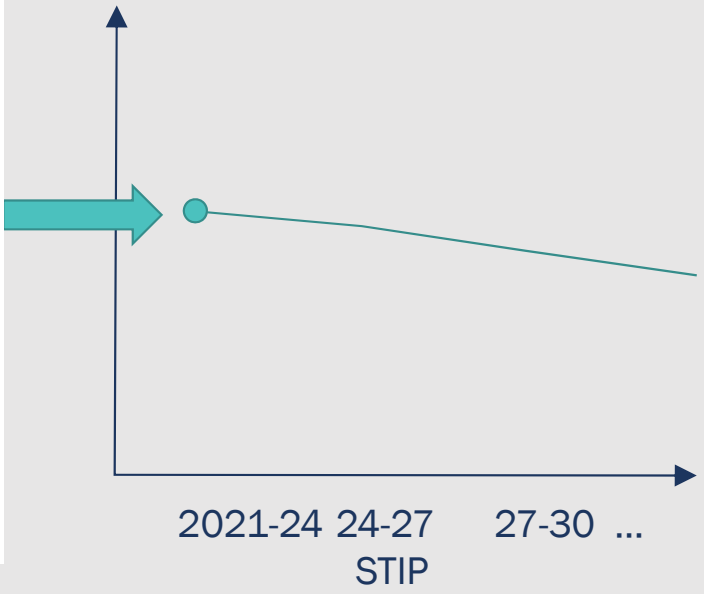
Draft
2021-2024 STIP
For Public Review

UPDATED
as of 12/30/2019

To view or comment on this document, please visit
https://www.oregon.gov/ODOT/STIP/Pages/Current-Future-STIP.aspx#CurrentSTIP

OREGON DEPARTMENT OF TRANSPORTATION

Establish a baseline
to push “savings” over time



GHG emissions Quantification
- Operational GHG
- Construction, O&M GHG

GHG Index for entire STIP
- Operational GHG

Climate Lens Timeline

PHASE II : GHG LENS IN PROJECT SELECTION			PHASE III: QUANTIFY & REPORT
Online Survey Data Collection	Programmatic GHG Index Reports	Data Verification & Post-scoping GHG Index Reports	Phase III
Initial 120-150% project lists & initial business case development	Field-scoping 120-150% list projects	Final business cases due, Final leveraging/bundling, 100% project list development	Draft 2024-2027 STIP development for OTC review Jan 2023

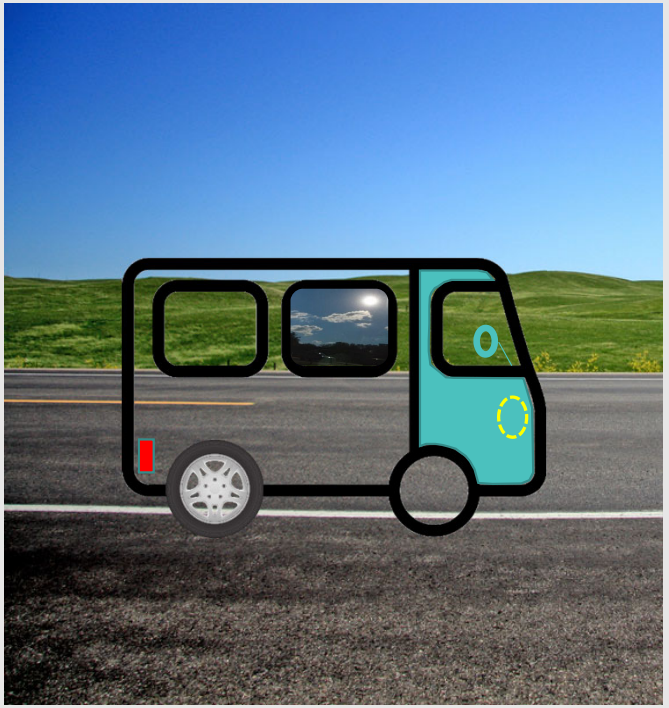
2021: APR MAY JUN JULY AUG SEP OCT NOV DEC

2022: JAN FEB MAR APR MAY JUN JULY AUG SEP

Review Funding from Federal Infrastructure Bill

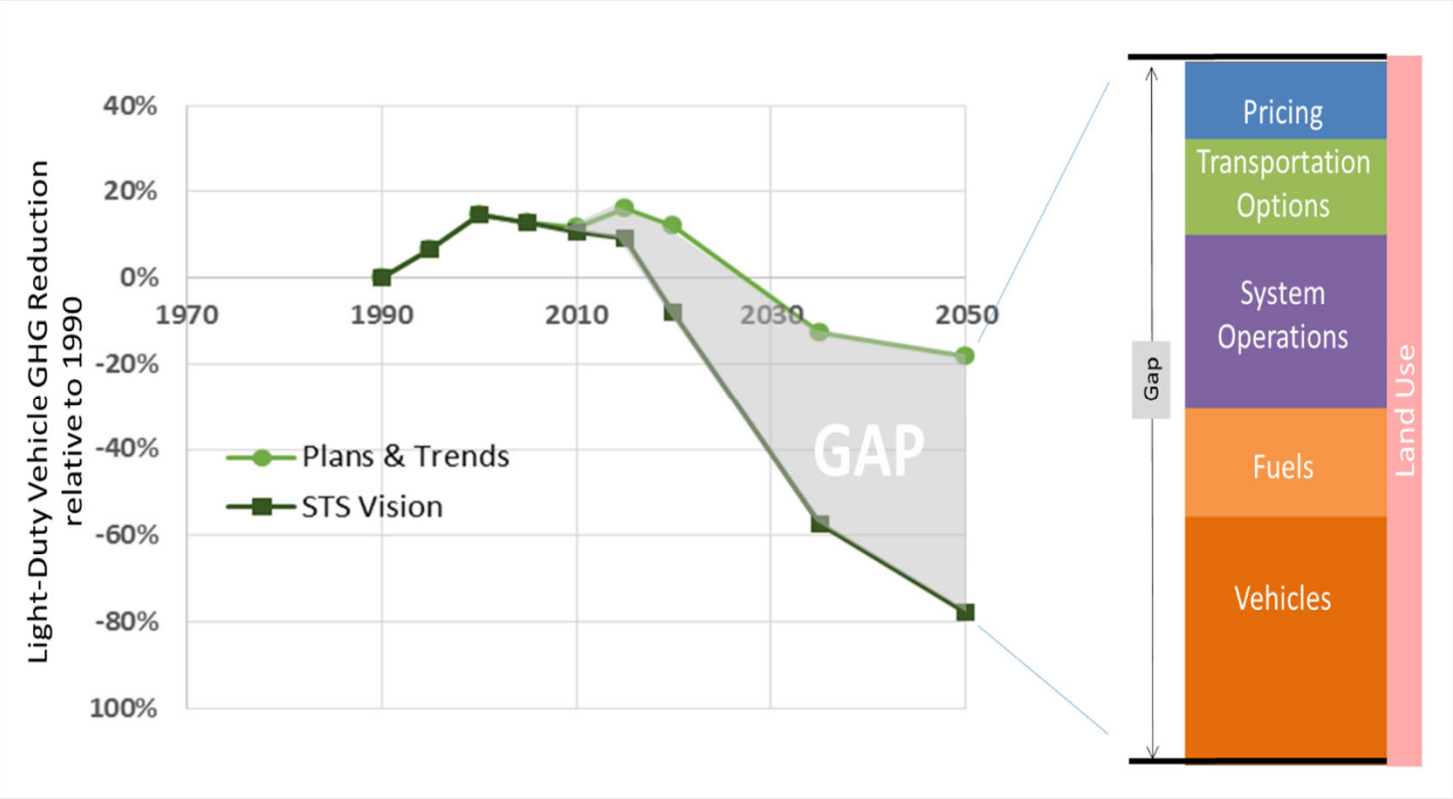
Up Next

- Applied to Infrastructure Investment and Jobs Act
- Complete the STIP GHG Pilot
  - Phase 2: Inform initial project lists
  - Phase 3: Report on Draft and Final STIP
- Ongoing **monitoring** of STIP amendments
- Start on 2027-30 – GHG earlier in project development



Building the bus as we drive it

Statewide Transportation Strategy (2013)
STS Monitoring Report (2018)



www.oregon.gov/odot/Planning/Pages/STS.aspx

visioneval
exploring tomorrow today
Visioneval.org

Suzanne Carlson
Director, Climate Office
Suzanne.carlson@odot.oregon.gov

Thank You!

STIP Climate Lens Overview:
www.oregon.gov/odot/Programs/Documents/ODOT%20STIP%20GHG%20Evaluation%20Process-June%202021.pdf
STIP Phase 1 Report:
www.oregon.gov/odot/Programs/Documents/2024-2027%20STIP%20Scenario%20Analysis%20Report.pdf

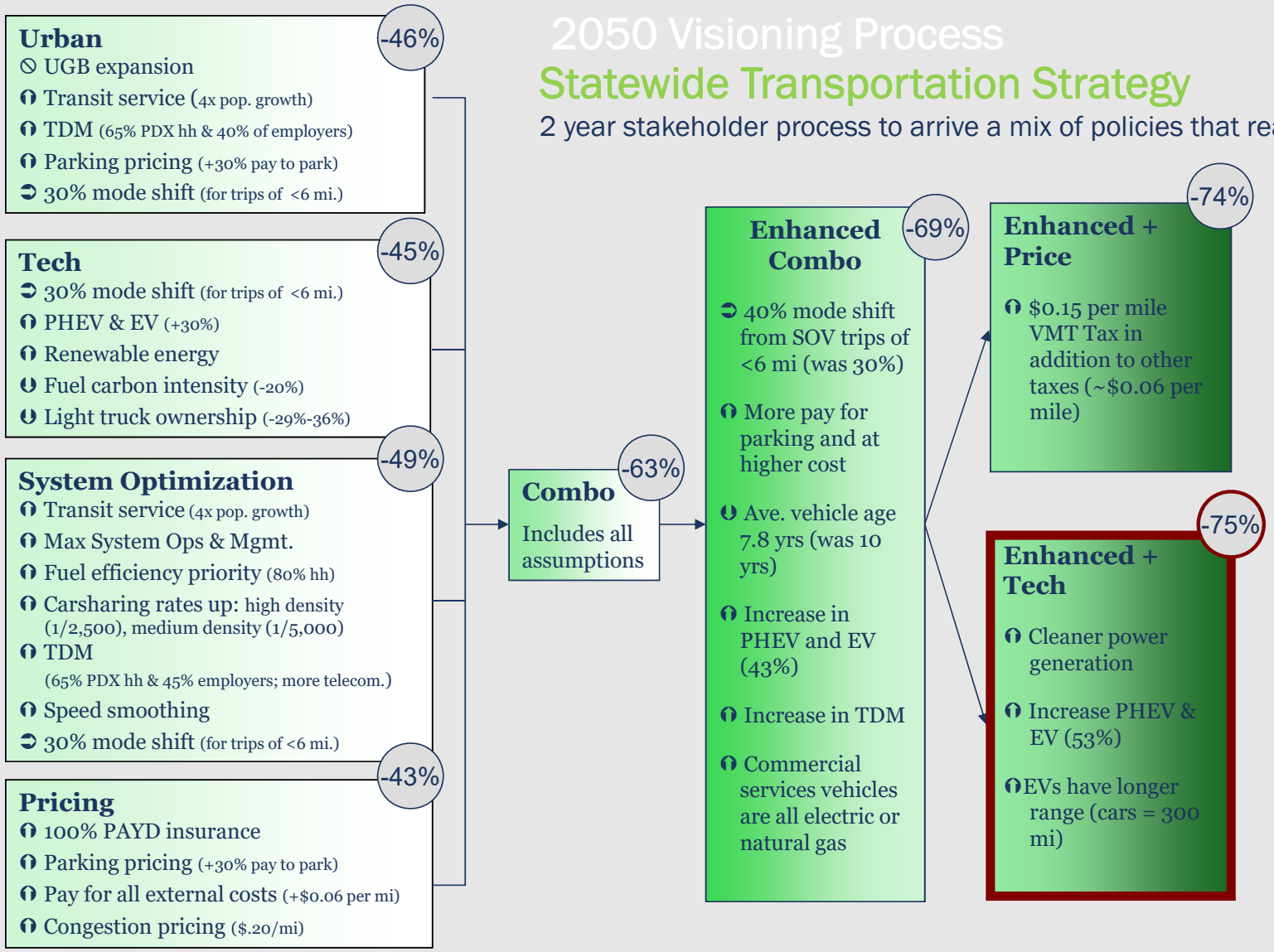
ODOT Climate Office Website: www.oregon.gov/odot/climate/pages/default.aspx

Oregon Department of Transportation

2050 Visioning Process

Statewide Transportation Strategy

2 year stakeholder process to arrive a mix of policies that reach GHG target



PHASE 1: IIJA	ODOT'S EXISTING FUNDING TOWARD MEETING GOALS *	S1 LEANING FIX-IT	S2-A LEANING PUBLIC & ACTIVE TRANSPORTATION	S3 LEANING MODERNIZATION/ ENHANCE	S4 BALANCED INVESTMENTS	HYBRID
CLIMATE CHANGE - GHG MITIGATION	D– Most trips drive alone in low MPG cars		↑↑			↑↑ D
CLIMATE CHANGE - ADAPTATION/ RESILIENCE	C– Slow progress with preservation projects	↑↑			↑	↑ C+
CONGESTION RELIEF	B– Select, legislative bottleneck projects in development			↑↑	↑	B-
SOCIAL EQUITY	C– Few low cost travel options		↑↑			↑ C
MULTIMODAL MOBILITY	D Many connectivity gaps		↑↑			↑ C-
SAFETY	B Focus on fatalities and serious injuries		↑	↑↑	↑	B+
STATE OF GOOD REPAIR	C Several assets and areas deteriorating	↑↑			↑	↑ B-

↑↑ Highest score for improvement in this priority outcome area ↑ Second highest improvement in this priority outcome area

** Letter grades shown ODOT's funding progress toward meeting important goals before and after this new funding*