



Climate Change

January 30, 2020 Christine Shirley Climate Change Resilience Coordinator DLCD

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Today's Objectives

Overview

- Review DLCD's role with respect to climate change
- Review intent and progress on update to the Oregon Climate Change Adaptation Framework
- Highlight timeframe for comments and publication

Oregon's Planning Goals

In 2020, DLCD will undertake review of land use planning goals in relation to climate change

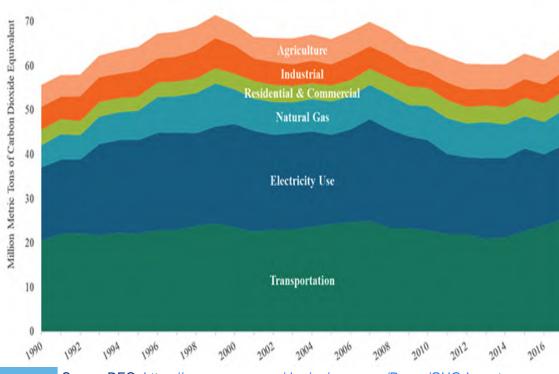
- 1. Citizen Involvement
- 2. Land Use Planning
- 3. Agricultural Lands
- 4. Forest Lands
- 5. Natural Resources, Scenic and Historic Areas, and Open Space
- 6. Air, Water and Land Resources Quality
- 7. Areas Subject to Natural Hazards
- 8. Recreational Needs
- 9. Economic Development
- 10. Housing
- 11. Public Facilities and Services
- 12. Transportation
- 13. Energy Conservation
- 14. Urbanization
- 15. Willamette River Greenway
- 16. Estuarine Resources
- 17. Coastal Shorelands
- 18. Beaches and Dunes
- 19. Ocean Resources

Greenhouse gas emissions from 1990-2017

Mitigation

reduce emissions of greenhouse gases

Even with aggressive mitigation, adaptation will be necessary



Source DEQ: https://www.oregon.gov/deq/aq/programs/Pages/GHG-Inventory.aspx

DLCD's transportation and land use planning programs contribute to mitigation planning



Capture and Sequestration

removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests or soils) through biological or physical processes

Nature

- Use nature to capture and hold atmospheric carbon
 - Plant trees
 - Avoid unnecessary land use conversion to urban*
 - Practice regenerative landscaping/agriculture
- Not always benign!
 - Ocean acidification*
 - Land use tradeoffs
 - Biodiversity & water use concerns

Geo-engineering

- Greenhouse gas removal technologies
- Reduce energy influx by deflecting sunlight (yes, this is not sequestration)

^{*} DLCD has programs in these areas

Adaptation

adjust to climate change effects to avoid harm, reduce risk and exploit beneficial opportunities

Avoid Harm & Reduce Risk

- Traditional natural hazard mitigation with future focus
- Economic adjustments
- Ecosystem management
- Human health interventions

Exploit beneficial opportunities

- Foster co-benefits through systems thinking
- Create and deploy climate change adaptation goods, services, and jobs
- Build and support resilient, wellconnected, inclusive, communities

- Coordinated by DLCD
- Identified eleven "risks" or likely consequences of climate change expected to emerge over 50 years
- Identified state capacity and needed actions to address these risks over the short-term, assuming no significant increase in implementation resources

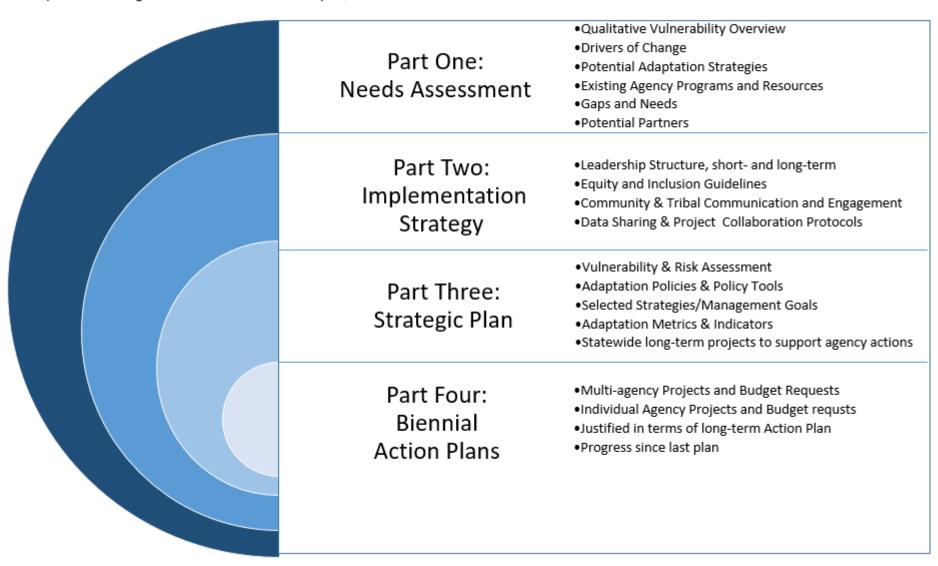
Oregon Climate Change Adaptation Framework (2010)

- By and large, risks have not changed since 2010, but they are more intense, coming faster, and have more momentum than expected
- Expands on the consequences of the identified risks
- Develops a multi-agency program of climate change adaptation to guide and monitor implementation

Oregon Climate Change Adaptation **Framework** (2020)

Statewide Climate Change Adaptation Framework

A Comprehensive Program - Discussion Draft January 10, 2020



23 Agencies







Department of Agriculture





























DEQ







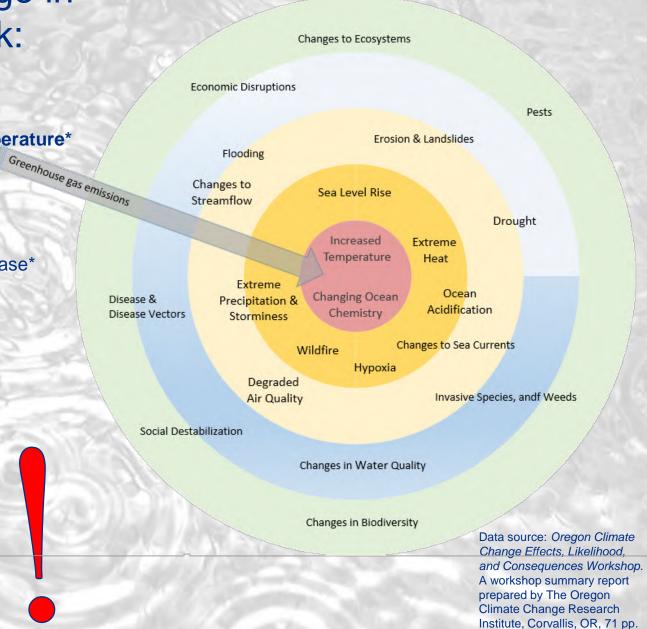




Drivers of Change in 2020 Framework:

- 1. Air temperature*
- 2. Ocean Chemistry and Temperature*
- Extreme Heat*
- Changed Hydrologic Cycle*
- Storminess*
- 6. Drought*
- Invasive species, Pests, Disease*
- 8. Wildfire*
- 9. Air Quality
- 10. Water Quality
- 11. Human Disease Vectors
- 12. Sea Level Rise*
- 13. Wetland Loss*
- 14. Ecosystem Change*
- * Addressed in 2010 Framework

We should expect surprises in the future





Climate Change Adaptation

+Vulnerabilities +Opportunities +Existing Resources +Needs

Economy

- Agriculture
- Fisheries
- Forestry
- Business
- Economic Opportunities
- Employment

Built Environment

- Buildings & Facilities
- Transportation
- Energy
- Water Supply
- Wastewater & Stormwater
- Dams & Levees
- Telecommunications/Internet

Nature

- Water & Associated Ecosystems
 - Rivers and Lakes
 - Floodplains
 - Riparian Zones
 - Wetlands
- Wildlife and their Habitats
 - Forests & Woodlands
 - Rangelands
 - Willamette Valley
 - And other ecoregions...
- Ocean & Coast
 - Estuaries
 - Coastline
 - Open Ocean

Climate Change Adaptation

+Vulnerabilities +Opportunities +Existing Resources +Needs

Public Health

- Air Quality
- Water Quality
- Toxic Chemicals, Pathogens
- Public Health System
- Food Systems

Cultural Heritage

- Tribal
- Historic
- Parks
- Recreation

Social Systems

- Equity & Inclusion
- Community Resilience
- Capacity Building
- Land Use Planning
- Emergency Preparedness

Draft Recommendations Focus on Climate Change Adaptation Program Implementation

Establish a leadership structure

Complete a statewide, quantitative, vulnerability assessment*

Enable collaboration across agencies

Prioritize and involve communities and people with greatest need

Integrate climate change adaptation into agency program planning and biennial budget requests

Leadership Function

Set adaptation priorities & determine overarching adaptation goal/objectives by location. Ensure agency alignment in meeting goal/objectives.

Climate Adaptation Leadership Structure

Proposal

Natural Resource Directors

- Reviews and approves recommendations/requests.
- Provides leadership & political support.
- Conduit to Natural Resource Cabinet and Climate Cabinet.

Directors sub-group

- Works with ClimateACT to:
- Develop overarching goals and management objectives
- Develop a process for setting adaptation priorities at an appropriate geographic scale
- Develops budget priority proposals

Other Executive Branch Groups

(e.g., Climate Cabinet)

Climate Adaptation Core Team (ClimateACT)

Appointed and empowered by Directors (Deputy or senior staff level) -Akin to Water Core Team

- Works with Directors sub group as outlined above then Implements process to determine priorities
- Determine steps/products needed to ensure agencies align their regulatory/nonregulatory activities with goals and priorities.
- Forms ad hoc groups to develop specific recommendations, products in support of shared outcomes (see below)
- Where needed, connects with existing initiatives to coordinate overlapping efforts.

Other State Agencies

- Adaptation objectives incorporated into planning
- Staff involved as needed

Other State Initiatives

(e.g., water vision, mitigation)

 Coordination to address overlapping issues

Local & Cultural Experts

 Using best practices in engagement

ad hoc Inter-Agency Work Teams

Members selected by ClimateACT

- Task-specific, non-standing, scalable
- Includes work on: science, vulnerability assessment, local issues, planning, funding, regulations/incentives, etc.
- May include staff from agencies not represented on the ClimateACT

Subject Experts

(e.g., OCCRI)

· Contribute as needed

Local & Cultural Experts

(e.g., Community-Based Organizations)

 Using best practices in engagement

OREGON CLIMATE ADAPTATION FRAMEWORK

PROJECT TIMELINE



Continue to develop objectives and governance proposal



One-on-one meetings
Conferences



First draft of Framework is released for review by stakeholders and public



Framework incorporated into NHMP and NMHP and both go out for public comment in April



Framework and NHMP sent to reviewing agencies (FEMA & OEM)

Inter-Agency Coordination & Review Conversations with Public and Partners

Public Engagement

Incorporate into Natural Hazard Mitigation Plan (NHMP)

2020 Framework and NHMP adoption process starts

December 2018 -August 2019 September 2019 -December 2019 February — March 2020

April 2020

June 2020



We are here











DLCD

Department of Land Conservation & Development

January 30, 2020

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Thank you!