



**DLCD**



# Climate Change

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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

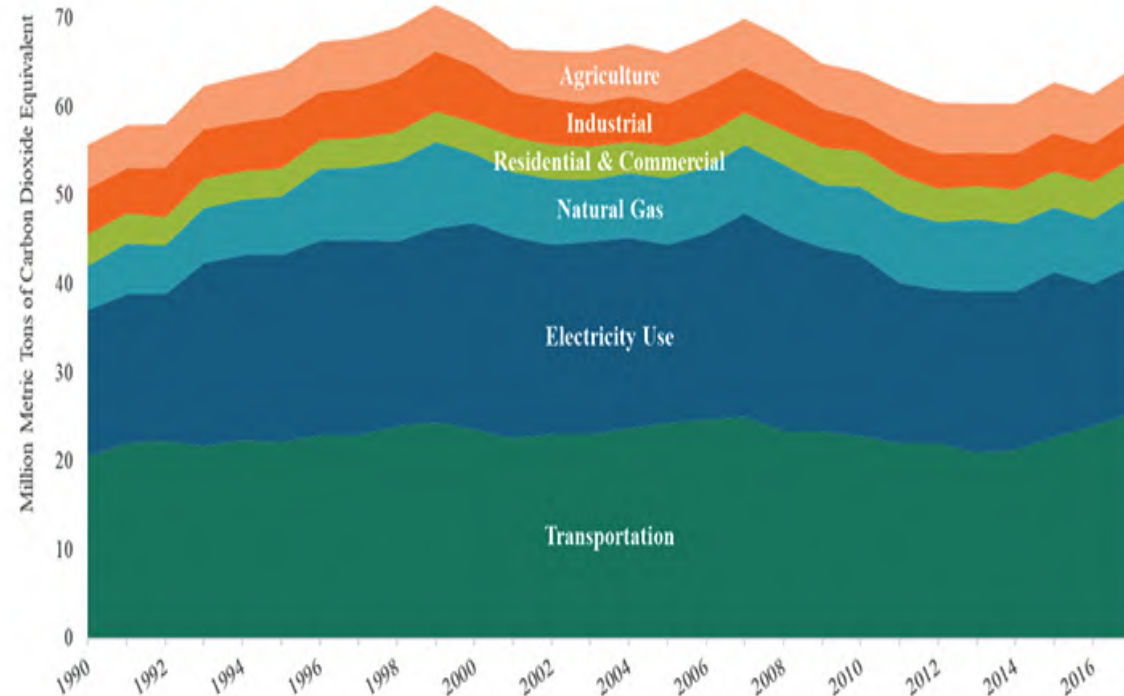
1. Citizen Involvement
2. Land Use Planning
3. Agricultural Lands
4. Forest Lands
5. Natural Resources, Scenic and Historic Areas, and Open Space
6. Air, Water and Land Resources Quality
7. Areas Subject to Natural Hazards
8. Recreational Needs
9. Economic Development
10. Housing
11. Public Facilities 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

# Mitigation

reduce emissions  
of greenhouse  
gases

*Even with aggressive  
mitigation, adaptation  
will be necessary*

## Greenhouse gas emissions from 1990-2017



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

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



Orphan  
issue



# 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, well-connected, 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



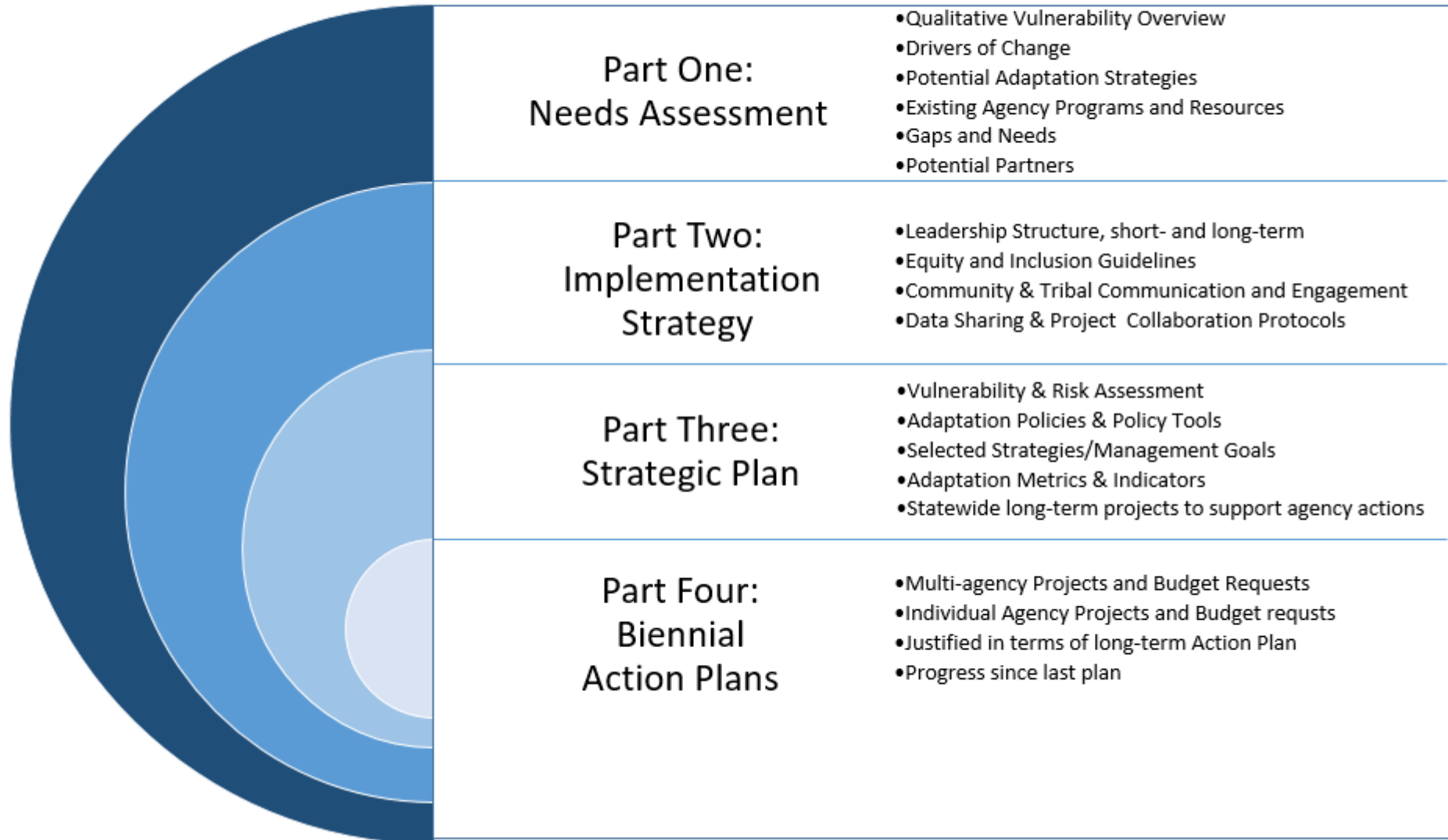
# Oregon Climate Change Adaptation Framework (2020)



Immediate focus is on Parts One and Two

# Statewide Climate Change Adaptation Framework

A Comprehensive Program – Discussion Draft January 10, 2020



# 23 Agencies



**Oregon**  
Department  
of Agriculture



**Oregon State University**  
Extension Service

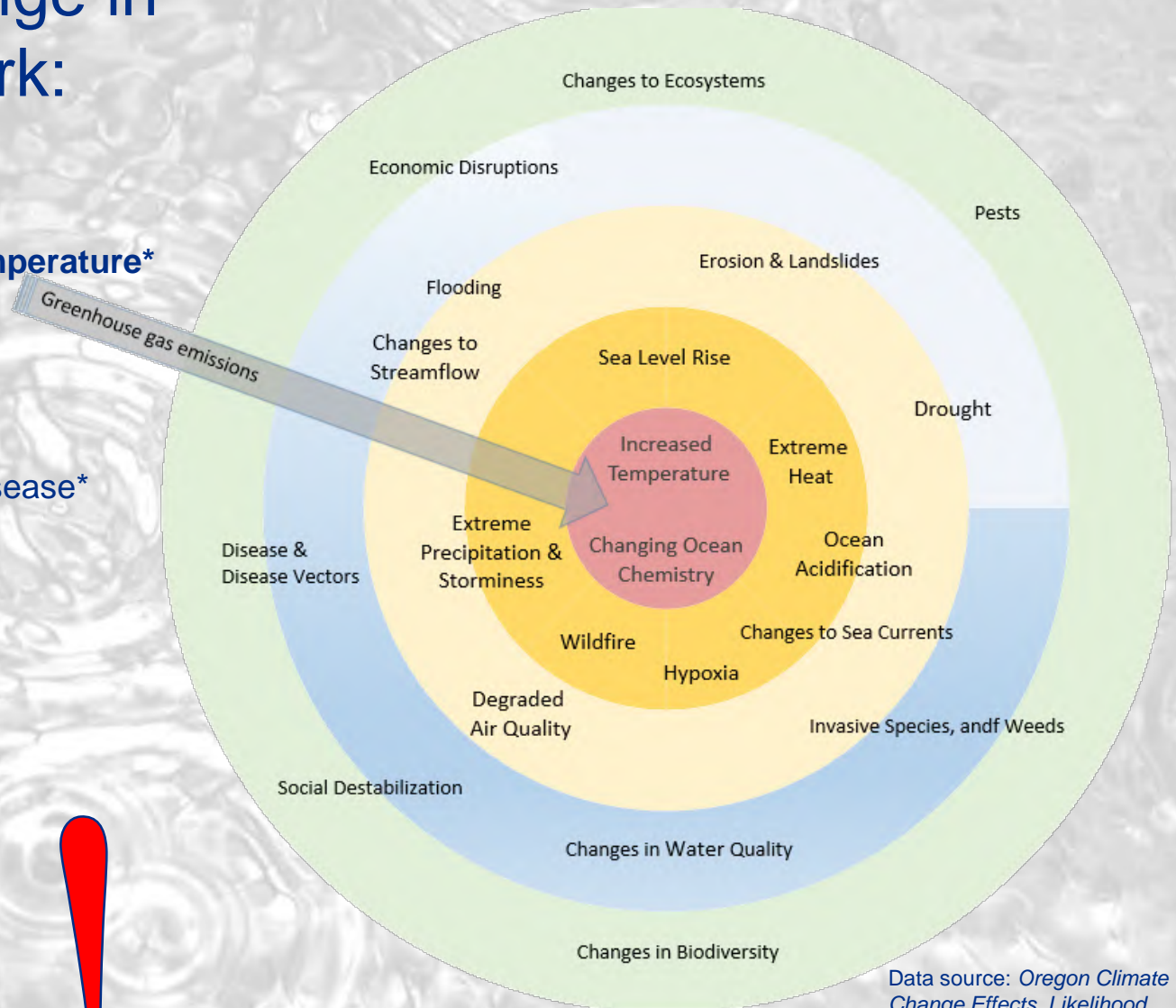




# Drivers of Change in 2020 Framework:

1. Air temperature\*
2. Ocean Chemistry and Temperature\*
3. Extreme Heat\*
4. Changed Hydrologic Cycle\*
5. Storminess\*
6. Drought\*
7. 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



Data source: *Oregon Climate Change Effects, Likelihood, and Consequences Workshop*. A workshop summary report prepared by The Oregon Climate Change Research Institute, Corvallis, OR, 71 pp.

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**

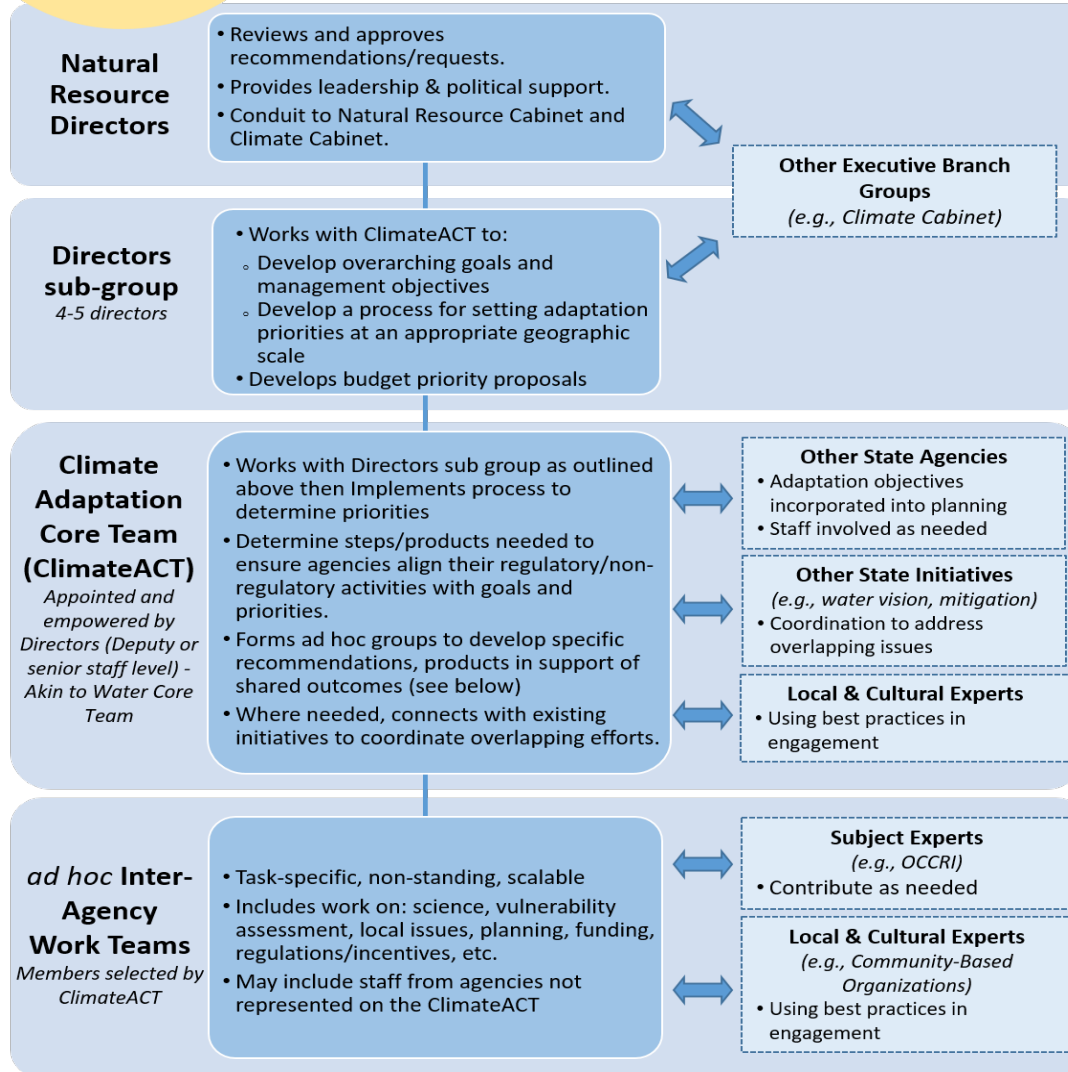
\*DLCD POP under development

## Leadership Function

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

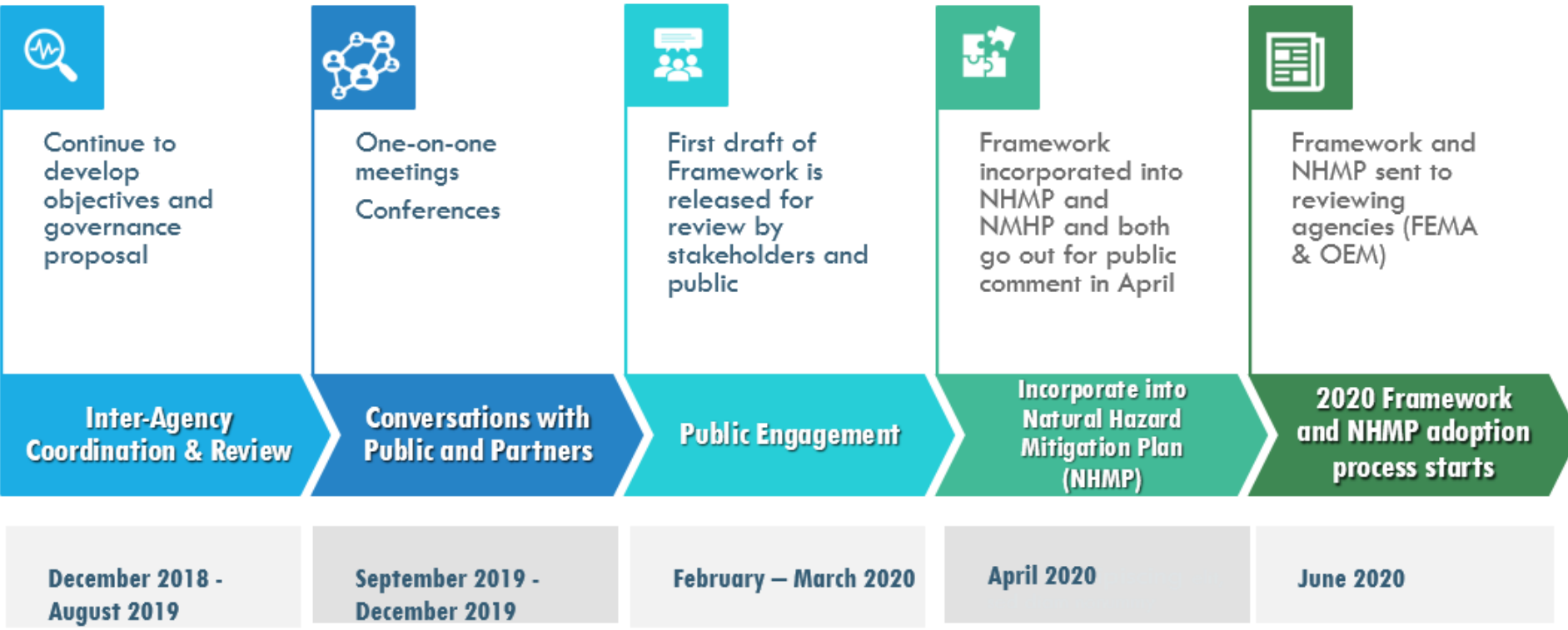
# Climate Adaptation Leadership Structure

## Proposal





# OREGON CLIMATE ADAPTATION FRAMEWORK PROJECT TIMELINE



We are here



**DLCD**  
Department of  
Land Conservation  
& Development

**January 30, 2020**

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**Thank  
you!**