



CLIMATE ACTION PLAN



King County Climate Impacts and Action

Green/Duwamish Watershed
Advisory Group

January 21st, 2016

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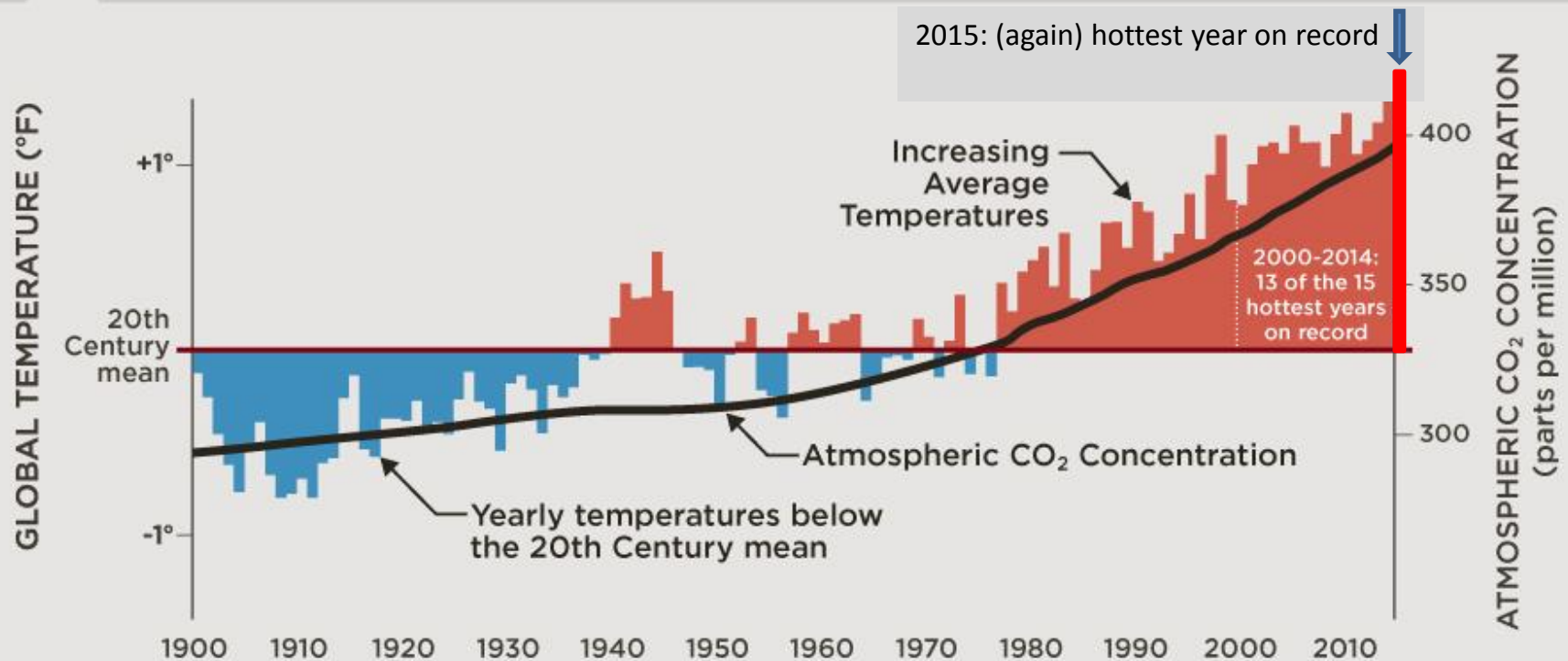
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Climate Impacts



WHAT IS HAPPENING ON A GLOBAL SCALE?

CARBON DIOXIDE (CO₂) LEVELS ARE THE HIGHEST IN THE LAST 800,000+ YEARS.



Climate Impacts

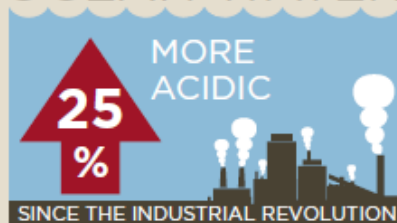


WHAT RELATED IMPACTS ARE HAPPENING IN OUR REGION?

CLIMATE CHANGE IS AFFECTING OUR ENVIRONMENT, ECONOMY AND HUMAN HEALTH.

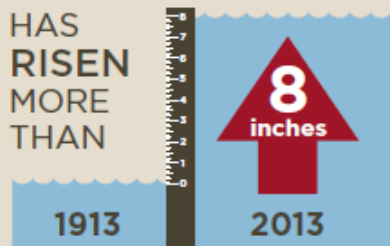
OCEANS

OCEAN WATER

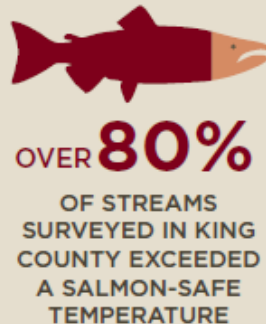
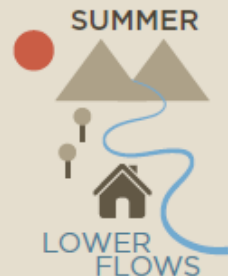


PUGET SOUND

HAS
RISEN
MORE
THAN

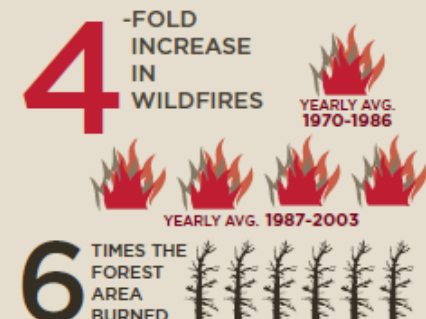
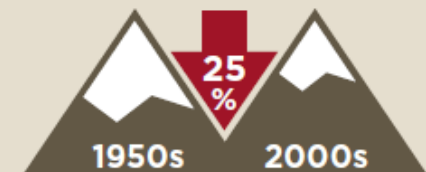


RIVERS



MOUNTAINS

AVERAGE CASCADE SNOWPACK



Climate Impacts



WHAT'S HAPPENING NOW?

2015 OFFERS A GLIMPSE INTO THE FUTURE IF NO ACTION IS TAKEN.

WINTER 2015

*WARM JANUARY STORMS BRING
TORRENTIAL RAIN AND FLOODING*



In January, the Snoqualmie and Tolt Rivers reach the highest flood levels, with significant impacts in low-lying areas.

SPRING 2015

*SNOWPACK IN CENTRAL CASCADES AT
LOWEST RECORDED LEVELS.*



Warm winter temperatures set the stage for statewide drought.

SUMMER 2015

RECORD NUMBER OF DAYS OVER 90 DEGREES



Low water supplies impact hydropower production. Heat affects the health of residents. Toxic algae blooms shut down local shellfish industries.

FALL 2015



Record low snow and heat lead to **high wildfire risk** and salmon die-offs and threaten local agriculture.

Climate Impacts



WHAT IS THE RISK FOR OUR REGION IN THE FUTURE?

IF WE DON'T ACT NOW, THE COSTS AND CONSEQUENCES WILL GROW.

OCEANS

MARINE-BASED ECONOMIES

SUFFER AS

FISH/SHELLFISH DIMINISH



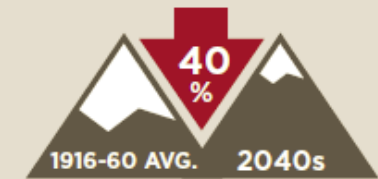
RIVERS & STORMS

INCREASE IN SEVERE STORMS



MOUNTAINS

AVERAGE WASHINGTON SNOWPACK



HEALTH IMPACTS FROM INFECTIOUS AND HEAT EXPOSURES



IMPACTS IN FORESTS FROM INSECTS & DISEASE OUTBREAKS



INCREASE IN HOUSEHOLD COSTS



IMPACTS TO RECREATION AND QUALITY OF LIFE



IMPACTS TO SALMON AND WILDLIFE

Why Take Action?



WHY ACT TO COMBAT CLIMATE CHANGE?

REDUCING CARBON POLLUTION MAKES OUR COMMUNITIES HEALTHIER FOR ALL.

Increasing transportation options moves all of us around more efficiently, promotes health, and provides clean air and water.



Conserving resources and reducing waste saves money now and in the future.



Investing in a clean energy future invites innovation and economic prosperity.



Building green makes our homes and workplaces healthier and increases their value.



Preparing for impacts of a changing climate makes us more resilient for other emergencies like earthquakes.



King County-Cities Climate Collaboration (K4C)

PART I: INTRO



KING COUNTY-Cities
CLIMATE COLLABORATION

What is the K4C?

- Voluntary but formal (Interlocal Agreement) partnership between 13 cities and King County
- Partnering on climate change related outreach, coordination, solutions and funding/resources
- Focus areas include green building, renewable energy, climate messaging, and sustainable transportation



King County-Cities Climate Collaboration (K4C)



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K4C Joint County-City Climate Commitments

Elected Officials of King County and King County Cities



Dow Constantine
King County Executive



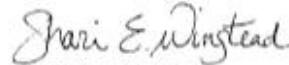
Larry Phillips
King County Council Chair



Bruce Bassett
Mayor, City of Mercer Island



Matthew Larson
Mayor, City of Snoqualmie



Shari E. Winstead
Mayor, City of Shoreline



Jim Haggerton
Mayor, City of Tukwila



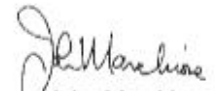
Edward B. Murray
Mayor, City of Seattle



Denis Law
Mayor, City of Renton



Amy Walen
Mayor, City of Kirkland



John Marchione
Mayor, City of Redmond



Fred Butler
Mayor, City of Issaquah



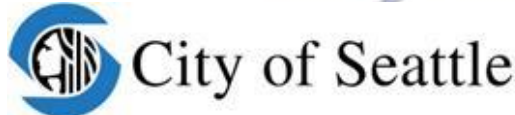
Claudia Balducci,
Mayor, City of Bellevue



Tom Vance
Mayor, City of Sammamish



CITY OF
MERCER ISLAND



CITY OF
ISSAQUAH
WASHINGTON

King County Strategic Climate Action Plan

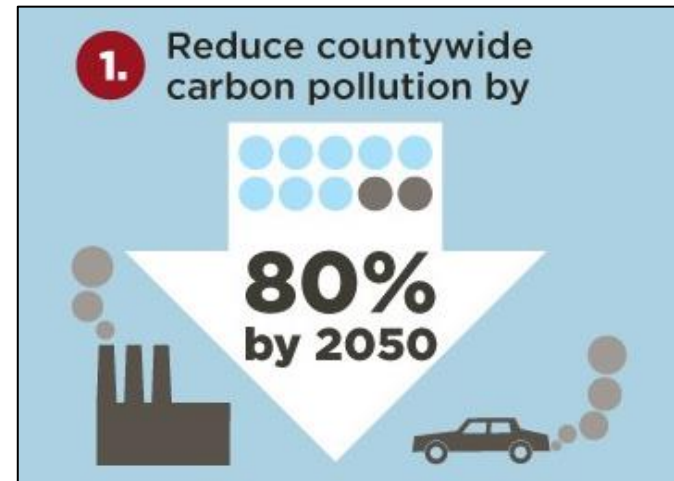


CLIMATE ACTION PLAN



King County Strategic Climate Action Plan

- November 2015: **Unanimously adopted**
- **5-year blueprint** for County climate action



King County Strategic Climate Action Plan

SECTION ONE: Reducing Greenhouse Gas Emissions



Section One: Reducing GHG Emissions

- **Goal Area 1:** Transportation & Land Use
- **Goal Area 2:** Buildings & Facilities Energy
- **Goal Area 3:** Green Building
- **Goal Area 4:** Consumption & Materials Management
- **Goal Area 5:** Forests and Agriculture

SECTION TWO: Preparing for Climate Change Impacts



Section Two: Preparing for Climate Change Impacts

- Program-specific impacts, ongoing responses, priority actions and long term direction for twelve focus areas

King County Strategic Climate Action Plan

TRANSIT

In 2014, Metro Transit provided more than 124 million passenger trips, the equivalent of taking 200,000 cars off the road each weekday, an all-time record.

UP NEXT

- Phase in cleaner vehicles and fuels and grow transit service through 2020 with no increase in climate pollution.
- Coordinate long range planning efforts with Sound Transit and others to achieve an integrated regional transit network.

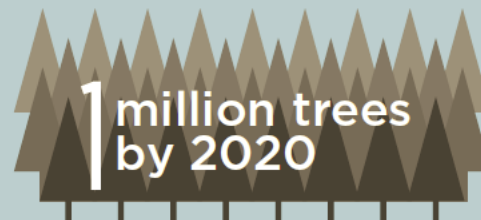


SMART GROWTH, FORESTS, FARMS

- Since 2011, 97+% of new growth occurred in cities and urban areas.
- King County, together with the Muckleshoot Tribe, has permanently protected more than 200,000 acres of forestland since 2004.

UP NEXT

- Permanently conserve remaining high-priority farm, forest, and other open spaces throughout King County within 30 years.
- Plant at least one million trees in King County in cooperation with public, private and community partners.



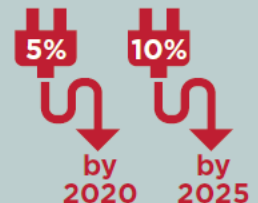
ENERGY EFFICIENCY AND GREEN BUILDING

- Reduced energy costs by \$3 million annually, compared to 2010, by investing in energy and green building improvements in County facilities.
- Developed a handbook for county residents to encourage the use of green building techniques.



UP NEXT

- Reduce energy use in County facilities by an additional 5% by 2020 and 10% by 2025.
- Incorporate green building standards into development codes for unincorporated King County by the end of 2017.



King County Strategic Climate Action Plan

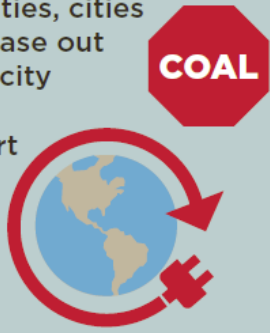
CLEAN ENERGY FUTURE

Thirteen cities, representing 1.5 million residents, are implementing shared commitments for climate and clean energy action.



UP NEXT

Partner with utilities, cities and others to phase out coal-fired electricity countywide by 2025 and support expansion of renewable energy.



WASTE PREVENTION AND RECYCLING

More than half of all materials disposed of in King County are now recycled.



UP NEXT

Achieve a 70% countywide recycling rate by 2020, especially by reducing wasted food and increasing recycling of organic materials.



PREPARING FOR CLIMATE IMPACTS

Recognized nationally by the Federal Emergency Management Agency as one of the top two counties for reducing flood hazards.



UP NEXT

Plan for and coordinate regionally on climate impacts to wastewater, stormwater, emergency management, public health, flood risk reduction, and salmon recovery.



Preparing for Climate Change Impacts

Projected Hazard Change Direction	Hazard	Frequency	Severity
	Heat Waves	↑	↑
	Droughts	↑	↑
	Forest and Brush Fires	↑	↑
	Air Pollution	↑	↑
	Wind Storms	?	?
	Large Rain Events	↑	↑
	River Flooding	↑	↑
	Urban Flooding	↑	↑
	Power Outages	?	?
	Snow and Ice	↓	↓
	Landslides	↑	?
	Coastal Flooding	↑	↑

2015 SCAP: Preparing for Climate Change Impacts

Key Takeaways:



- **Assess impacts of climate change** on local rainfall patterns and flooding
- **Plan for climate change impacts** on wastewater, stormwater, emergency management, public health, roads, flood risk reduction, and salmon recovery
- **Improve regional coordination**

Executive Constantine and regional leaders and emergency managers gather as part of the Resilient King County Initiative.



2015 SCAP: Preparing for Climate Change Impacts

Some Completed and Ongoing Actions that Reduce Climate Risks



- Raise freeboard on levees from 1 to 3 feet
- Plant trees along streams
- “Taking Winter by Storm” outreach
- Implement “Firewise”
- Improve drainage at Boeing Field
- Elevate shoreline wastewater facilities
- Flap gates on wastewater outfalls
- Buy flood-prone properties
- Update landslide hazard maps along river corridors
- Expand recycled water program

2015 SCAP: Preparing for Climate Change Impacts

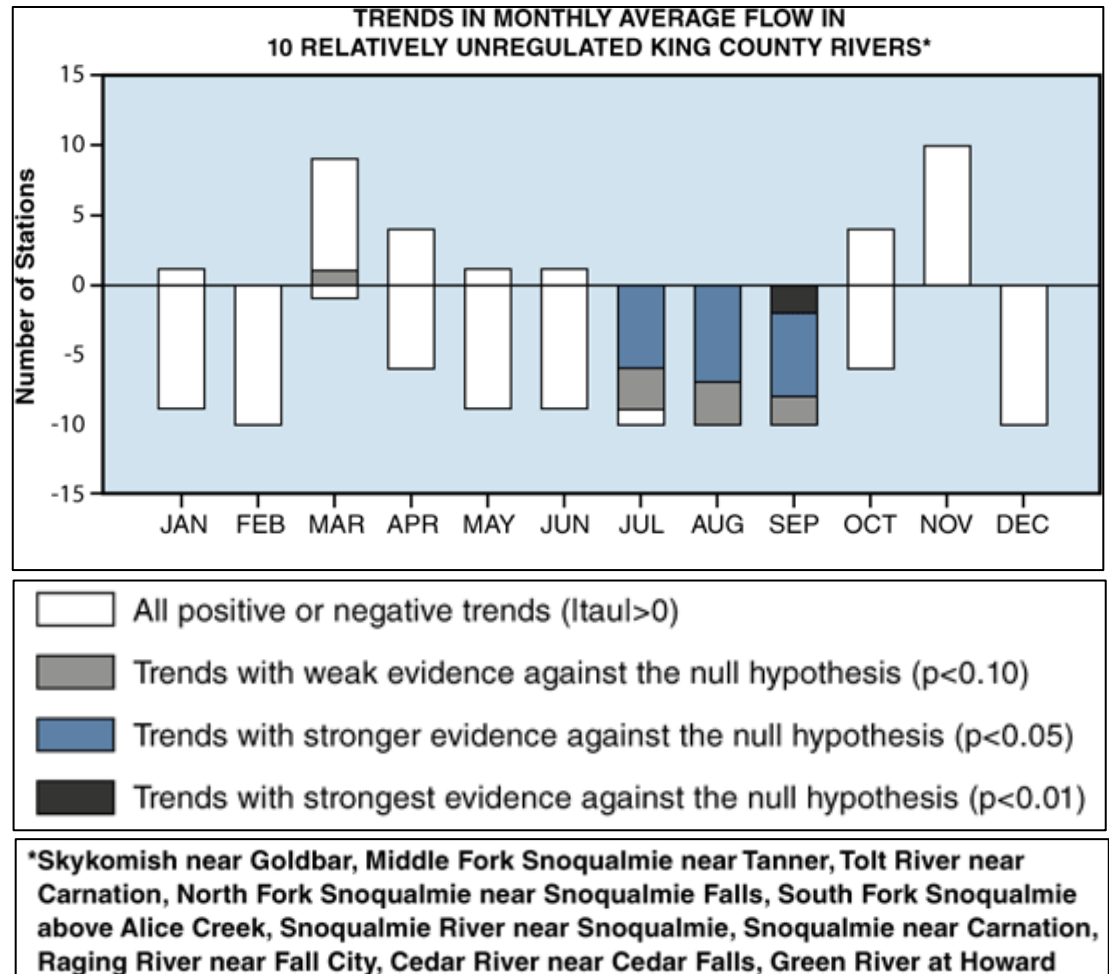
SCAP Preparedness Priority Actions

- Develop county-wide sea level rise strategy
- Assess climate change impacts on salmon recovery plans
- Assess climate change impacts on population growth rates
- Update landslide hazard maps for whole county
- Provide emergency preparedness climate education
- Evaluate emergency preparedness mitigation strategies
- Survey and engage stakeholders on health and climate change
- Conduct heat wave emergency response drill

Preparing for Climate Change Impacts

Observations from King County Rivers

- Strong evidence for declining trends in summer flow (July – September).
- Some evidence that severe storms and floods were occurring more frequently during late fall months (1962-2008).



Preparing for Climate Change Impacts

Modeling Changes to Rainfall Patterns



Bioswales



**Combined Sewer
Overflows**

- Research with University of Washington
- Funding from Wastewater Treatment and Water and Land Resources Divisions, and Department of Ecology
- Study how rainfall patterns, especially large storms, might change in frequency and intensity over next century
- Results due in 2016 and 2017
- Will inform stormwater and wastewater management

Preparing for Climate Change Impacts

Modeling Changes to River Flooding

- Research with University of Washington
- Funding included in budget recommended for approval by Flood Control District Executive Committee
- Study how changing rainfall patterns would change river flood frequencies and sizes in King County rivers
- Inform flood risk reduction and related efforts



*Snoqualmie River
Flooding, January
2015*



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