UNIVERSITY DISTRICT

Habitat Protection and Restoration in Spokane River Watershed

Spokane River Forum
April 23, 2025

Juliet Sinisterra, CEO
Spokane University District

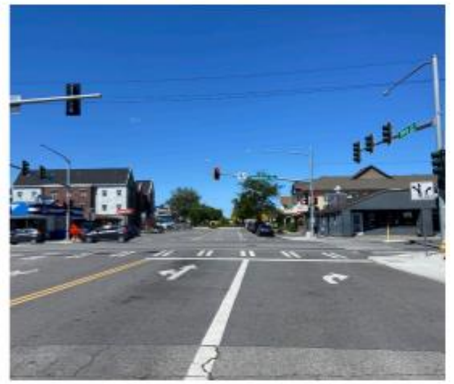
TODAY'S AGENDA

- Spokane University District
- Converging Crises
- Generosity of Nature
- Nature-Positive Urban Design
- How We Design
- Salmon Safe Certification







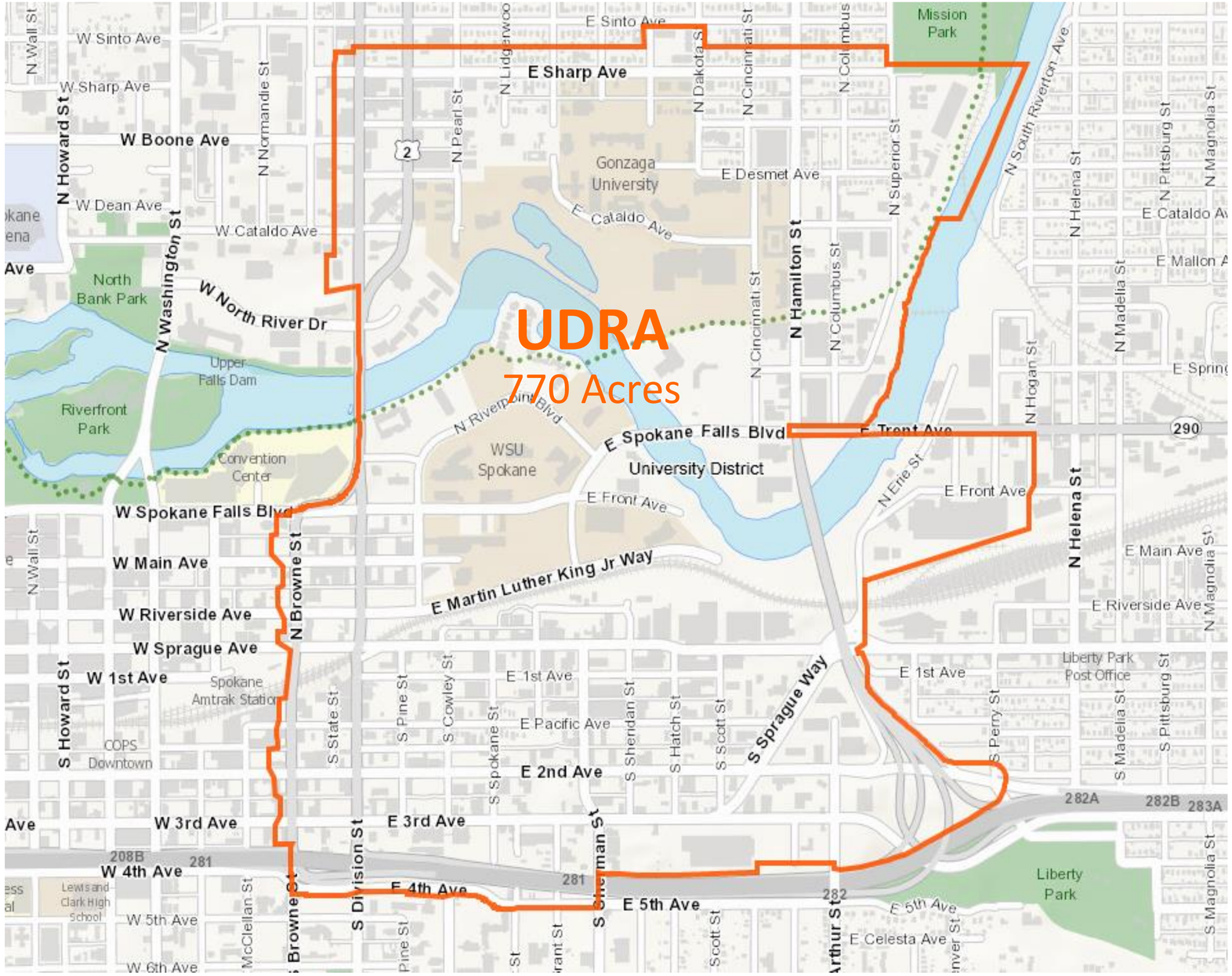


Built for Collaboration

INNOVATING TOGETHER

The University District is where business and education grow together. Community partners are connected through geographical ecosystem and strong commitment to collaboration with a focus on four key areas:

- HIGHER ED AND UPLIFT OPPORTUNITIES
- MEDICAL AND LIFE SCIENCES
- BUSINESS AND ENTREPRENEURSHIP
- ENERGY AND SUSTAINABILITY



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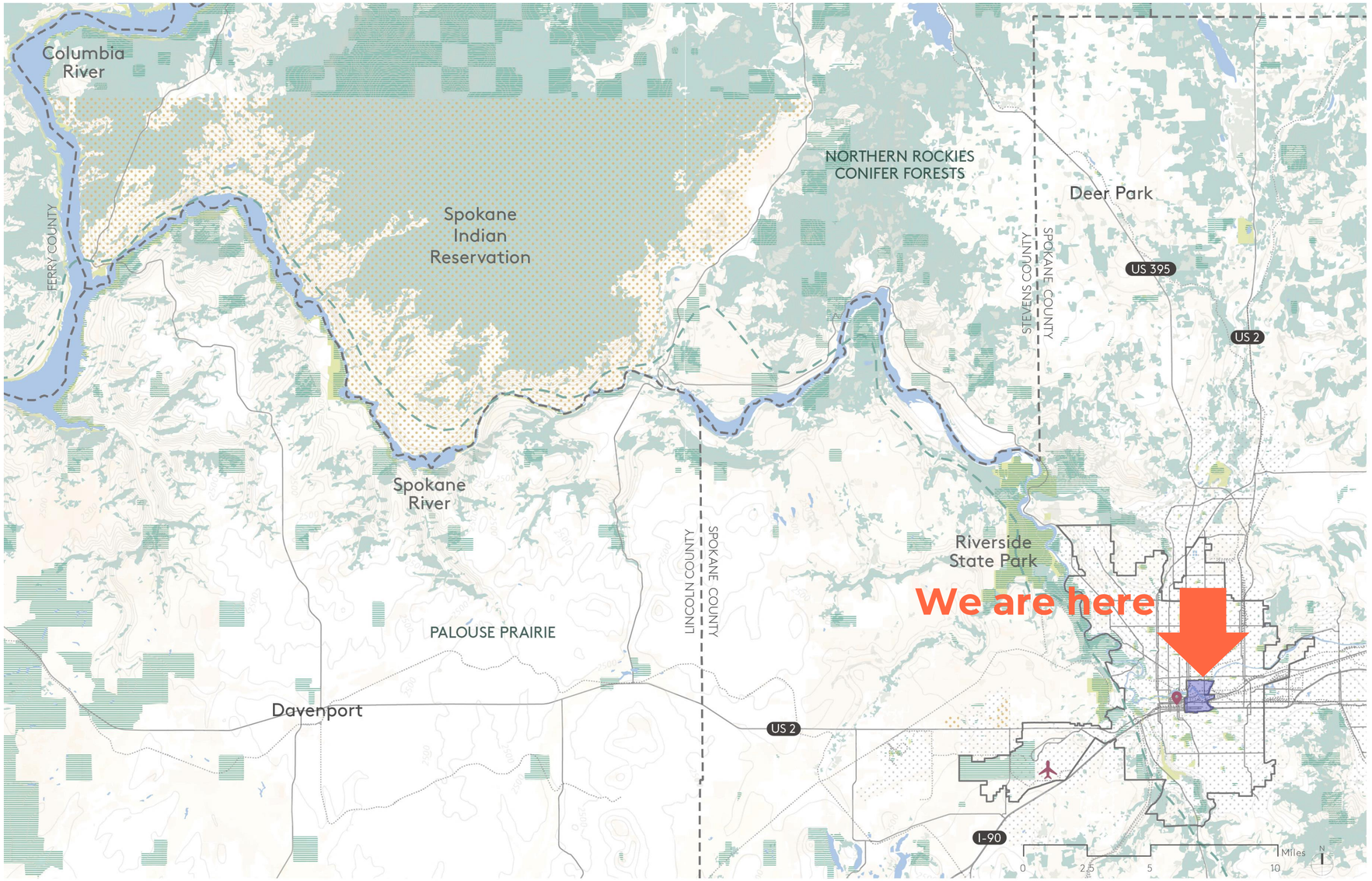
The Bioregion as Eco-Tone

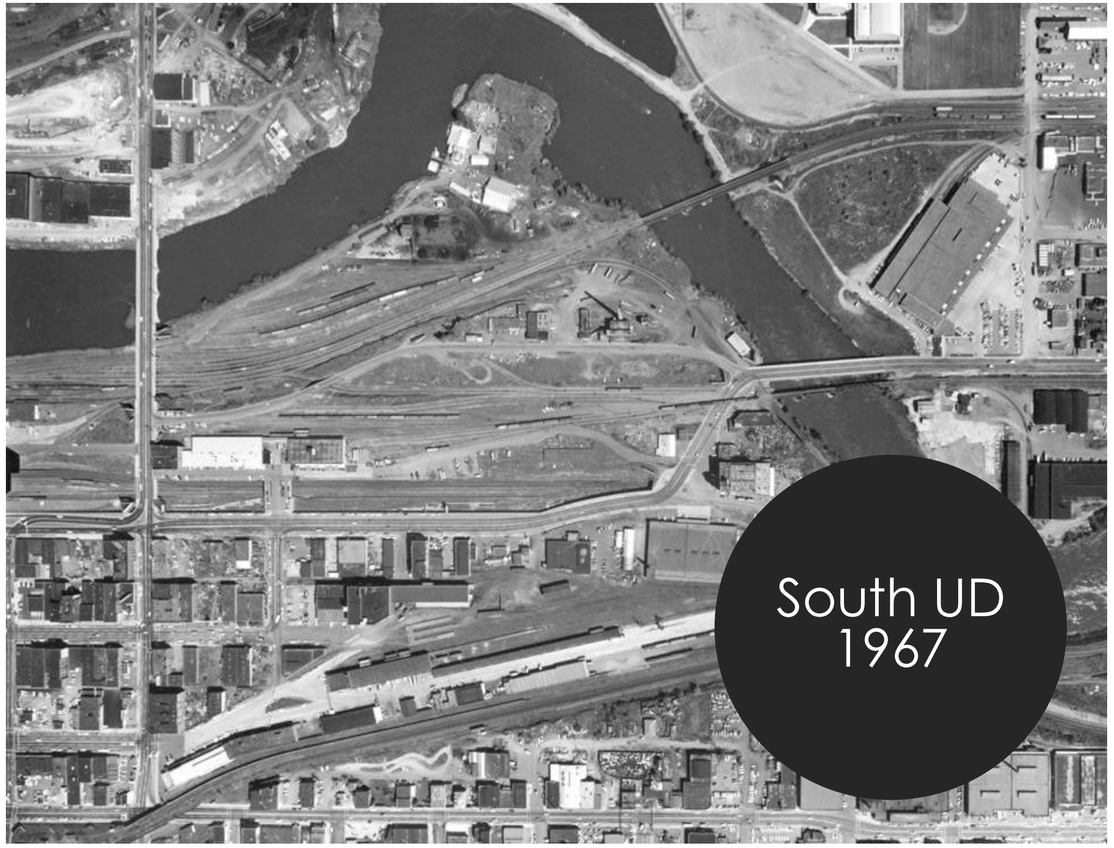


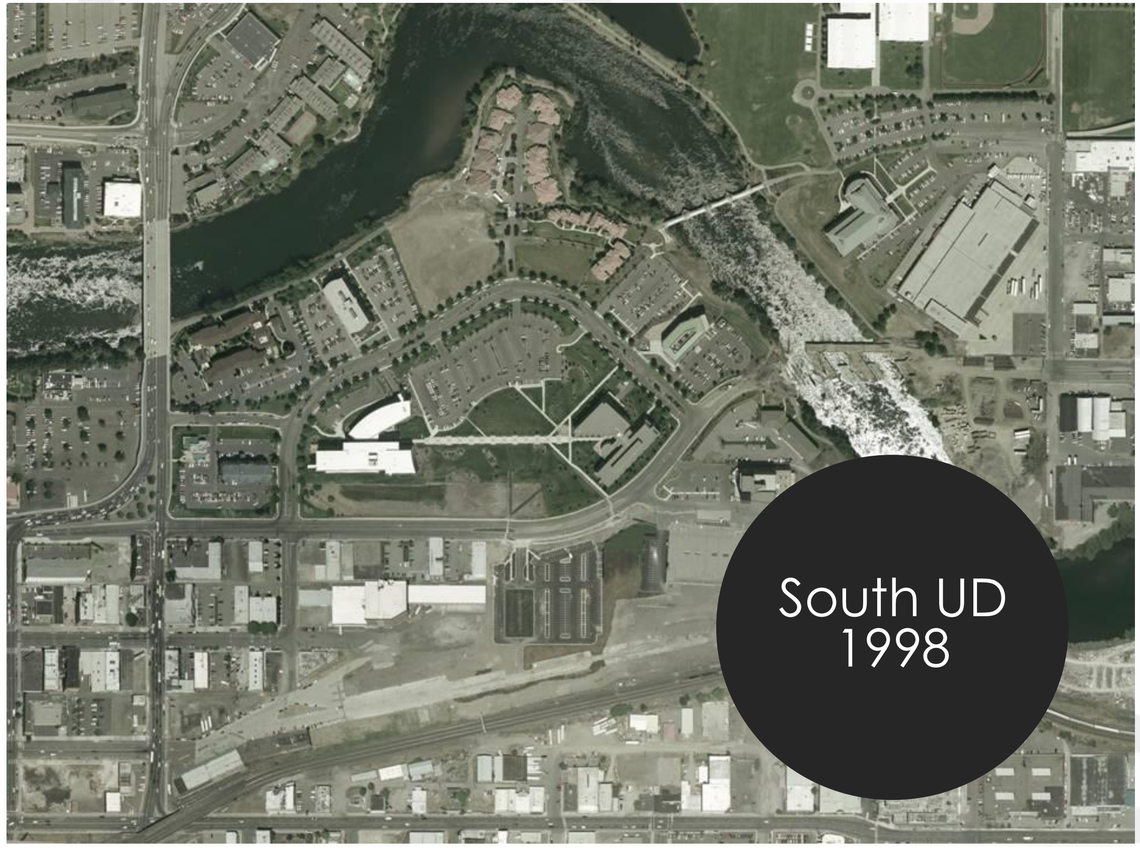
A Traditional Crossroads

- What today is the University District was intersected by important native trails linking the area to the fisheries in the east, the winter camps in the west and trails connecting north to fisheries near Kettle Falls, **an intertribal gathering place attracting as many as 10,000 natives at the height of the fishing season**
- Cayuse, Palouse and Nez Perce would have traversed through the UD on their way to Kettle Falls, trading with the Spokanes, along the banks of the River

The Rise of the UD

- **EXPO 74: Removed railroads from downtown**, cleaned up decrepit factories, flop houses and tenements along the River
- **Momentum 87:** Paul Redmond, WWP; Bill Cowles, Cowles Publishing; Mike Murphy, Central Pre-Mix and Dave Clack, ONB
- **1992 masterplan for the Riverpoint Campus** (joint between WSU and EWU)
- **1994: SIRTI opens**
- **1996:** Phase One Building
- **2002:** Health Sciences Building
- **2004 UD Strategic Masterplan**
- University District Development Association created in **2009** (501c3)
- University District Public Development Authority in **2011**


South UD
1967


South UD
1998

Spokane University District: People

Demographic overview

Total population

City of Spokane
228,989
Source: US Census Bureau 2020

University District
≈3,548
Source: US Census Bureau Blocks 2020

Addiction State of Emergency

18% increase in overdose deaths 2023-2024

Overdose responses clustered around Division and Brown

Traffic Safety

40% increase in people hit by cars 2022-2023

Hot spots along Division, Brown, and Hamilton, arterials which carry 20,000-40,000 ADT (2018)

Housing Crisis

>2,000 people experiencing houselessness

Jan 2024 point in time count; 54% decrease in unsheltered houselessness; 10% increase in sheltered houselessness; 15% decrease in overall houselessness

SOCIAL VULNERABILITY INDEX

Susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

RELATIVELY LOW
Tract 25.03
Score 31.12
31% of U.S. Census tracts have a lower Social Vulnerability.

VERY HIGH
Tract 145
Score 94.37
94% of U.S. Census tracts have a lower Social Vulnerability.

Fig. 14 FEMA National Risk Index 2022

HEALTH SUPPORTIVE NATURE

NatureScore: Amount and quality of natural elements.

ADEQUATE
Tract 25.03
Score 42.2
Balanced mix of natural and built environmental elements. Modest effort required for immersive nature exposure opportunities.

DEFICIENT
Tract 145
Score 11.9
Low density of natural elements. Effort required for immersive nature exposure opportunities.

Fig. 15 NatureQuant LLC 2024

HEALTH DATA

ASTHMA

Estimated prevalence of current asthma among adults aged 18 and older.

14.5% tract 25.03

13.7% tract 145

Fig. 11 CDC ACS 2021

OBESITY

Estimated prevalence of obesity among adults aged 18 and older.

27.3% tract 25.03

37.8% tract 145

Fig. 12 CDC ACS 2021

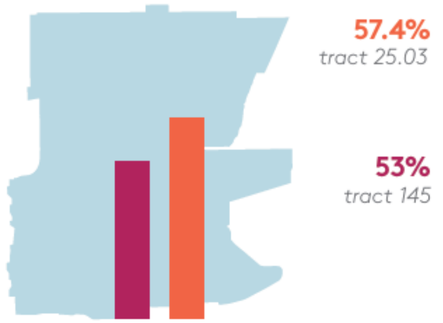
PHYSICAL INACTIVITY

No leisure-time physical activity during the past month among adults aged 18 and older.

27.9% tract 145

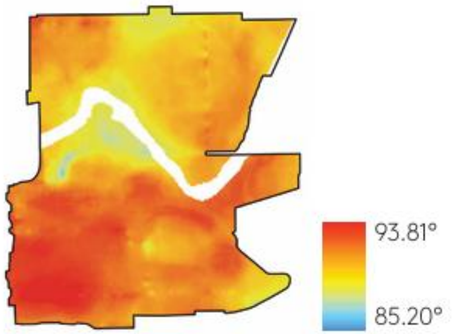
Fig. 13 CDC ACS 2016 - 2019

Spokane University District: Place



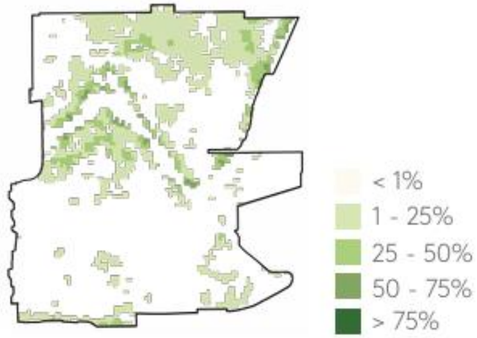
Poverty
Percentage of persons living below 150% of the poverty level.

US Census Bureau 2022: 19.1%
Source: ACS 2017 - 2021



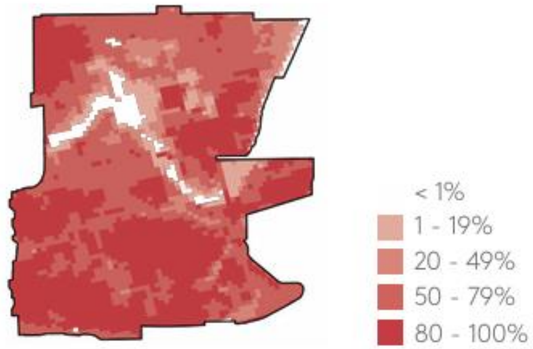
Heat
Afternoon heat temperatures comparison

Source: Gonzaga Center for Climate, Society, and the Environment, 2022



Tree canopy
Percentage of tree canopy

Source: USA NLCD Tree Canopy 2021



Impervious surfaces
Percentage of impervious surfaces

Source: USA NLCD Impervious surfaces 2021

Climate Impact and Environmental Justice

Climate change is increasing the frequency of days with wildfire smoke. **Since 2015**, **Spokane has averaged eight unhealthy smoke days per year, up from zero** between 1999 and 2011

In recent years, the number of days in Spokane over 90 degrees has increased: in **2019, 13 days; in 2020, 20 days; in 2021, 44 days; in 2022, 44 days; in 2023, 34 days**

In 2021, the Pacific Northwest experienced a **heat dome event that killed 112 people in Washington State, including 19 in Spokane**

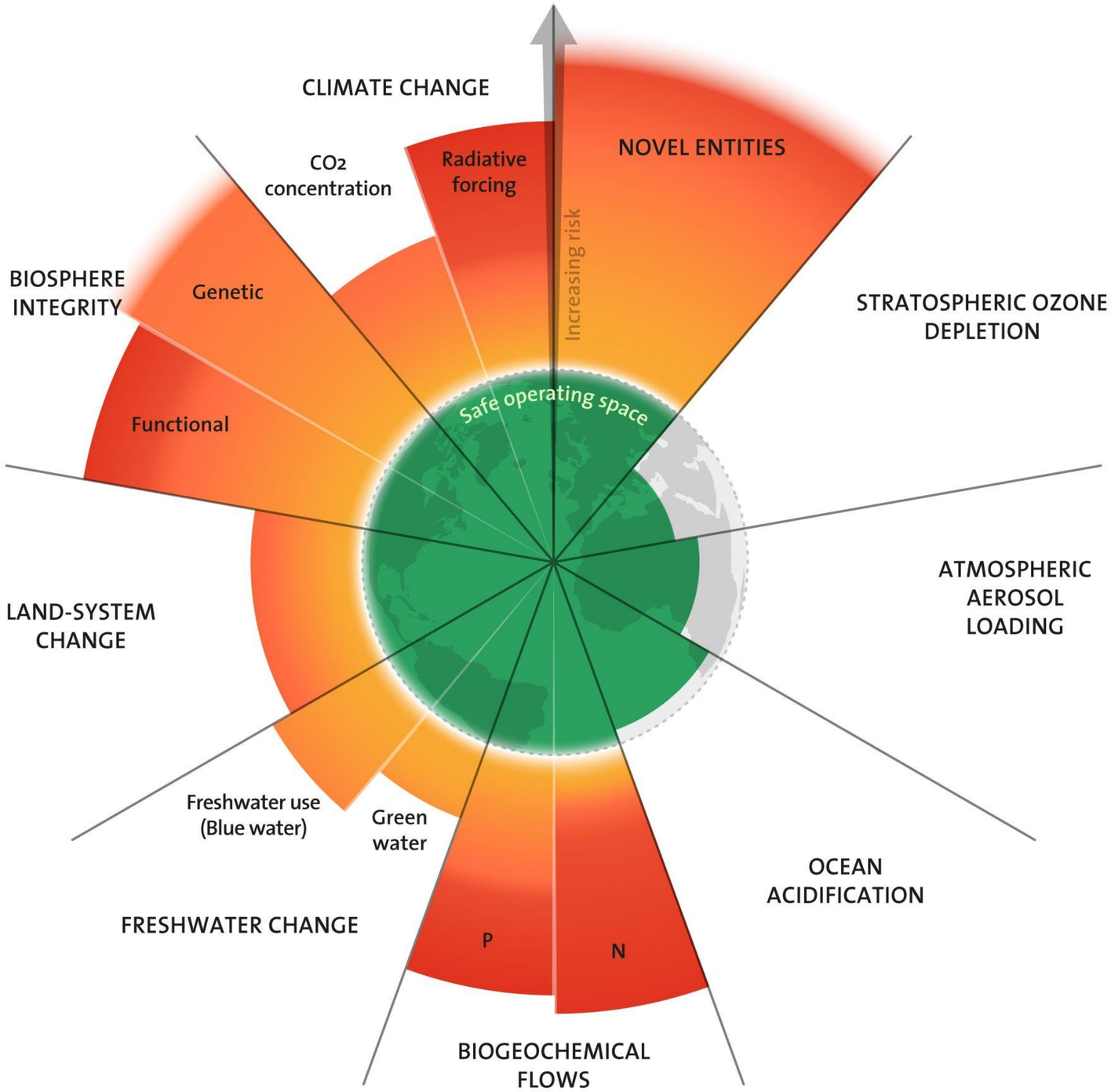
Table 1. EJSCREEN Environmental and Health Burden Data

	Census Block Group 530630145002		Census Block Group 530630145004	
EJScreen, Supplemental Index	State Percentile	National Percentile	State Percentile	National Percentile
Particulate Matter 2.5	98	99	99	99
Diesel Particulate Matter	97	97	99	99
Traffic Proximity	99	96	99	99
Nitrogen Dioxide	99	98	99	99
Lead Paint	98	95	99	99
Superfund Proximity	97	97	99	98
Hazardous Waste Proximity	99	96	99	98
Asthma	99	97	95	94
Heart Disease	90	71	99	95
Persons with Disabilities	99	99	99	99

Converging Crises

"There is no delivery of the Paris Agreement of 1.5 degrees Celsius by only phasing out fossil fuels. ***We must come back into the safe operating space by nature-based biodiversity, all of the planetary boundaries of nature.*** *The science is clear. The window is rapidly closing."*

- Johan Rockstrom, Potsdam Institute for Climate Research
TED Talk: The Tipping Points of Climate Change



Polycrisis/Metacrisis

"Climate change is a big problem but it is a subset of the larger problem of overshoot. **We have exceeded the carrying capacity of the planet**. Continued economic and material growth based on renewable energy does not begin to resolve that fundamental reality."

- Arthur Berman, Energy Geologist

"Even if emissions drop to zero in a timely fashion, easing the planet back down toward its natural average temperature will require removing greenhouse gasses from the atmosphere. **That will take huge amounts of forest and ecosystem restoration for natural storage of carbon**, but also likely technological versions not yet ready for prime time."

– Arancha Gonzales, IPCC Commissioner

Our Global Commons.
Big biophysical systems that we all depend on for the stability of the planet

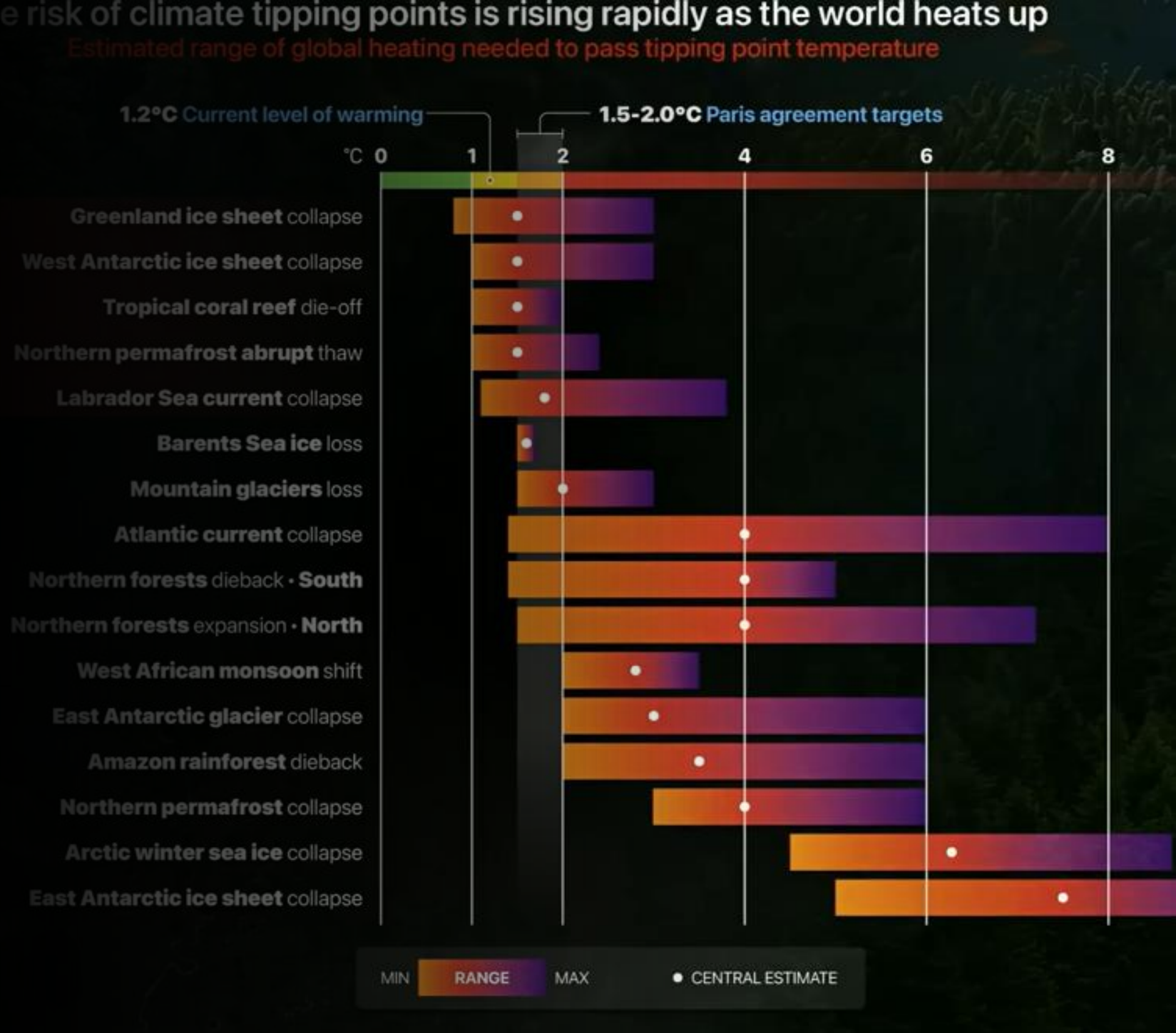


Image from Johan Rockstrom, Potsdam Institute for Climate Impact Research

Fate of anthropogenic CO_2 emissions (2013–2022)

Sources

35.3 $GtCO_2$/yr

88%

12%

4.7 $GtCO_2$/yr

= Sinks

18.9 $GtCO_2$/yr

47%

31%

12.3 $GtCO_2$/yr

26%

10.4 $GtCO_2$/yr

Budget Imbalance:

(the difference between estimated sources & sinks)

4%

-1.6 $GtCO_2$/yr

Source: Friedlingstein et al 2023; Global Carbon Project 2023

EU climate monitor warns global temperature rise breached 1.5 degrees Celsius for first time in 2024

Story by Paul Godfrey • 3w • 3 min read

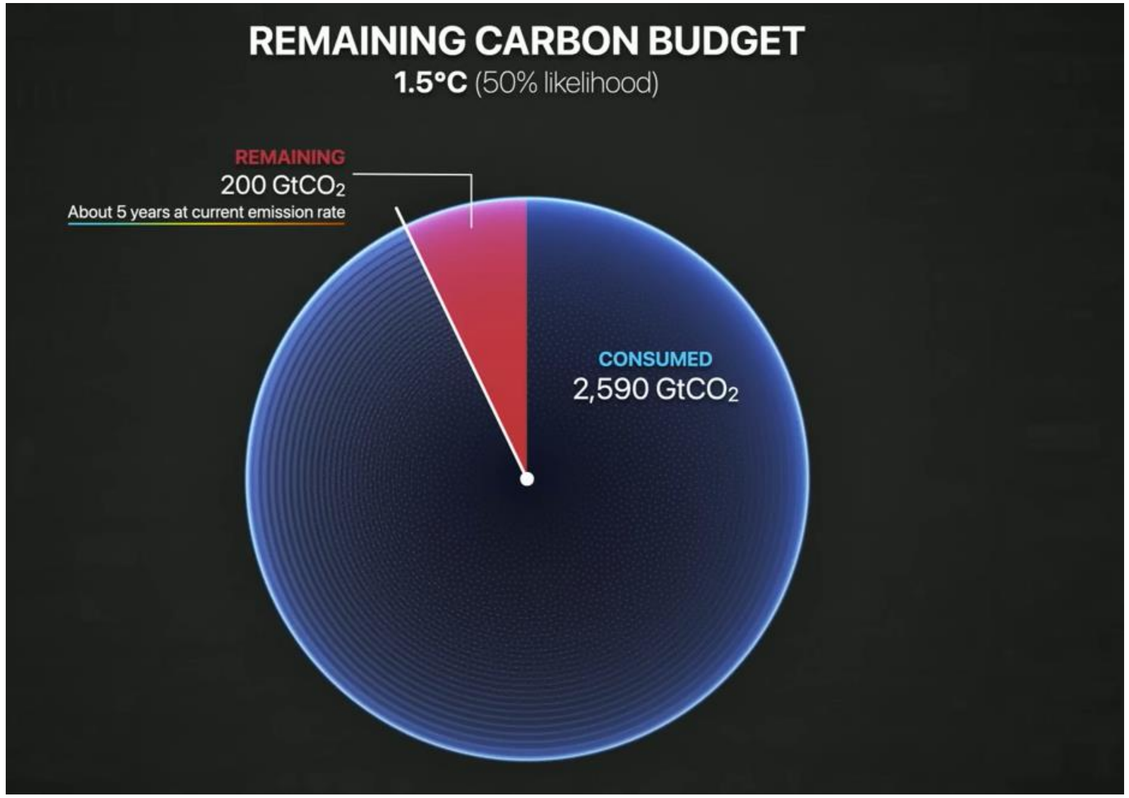
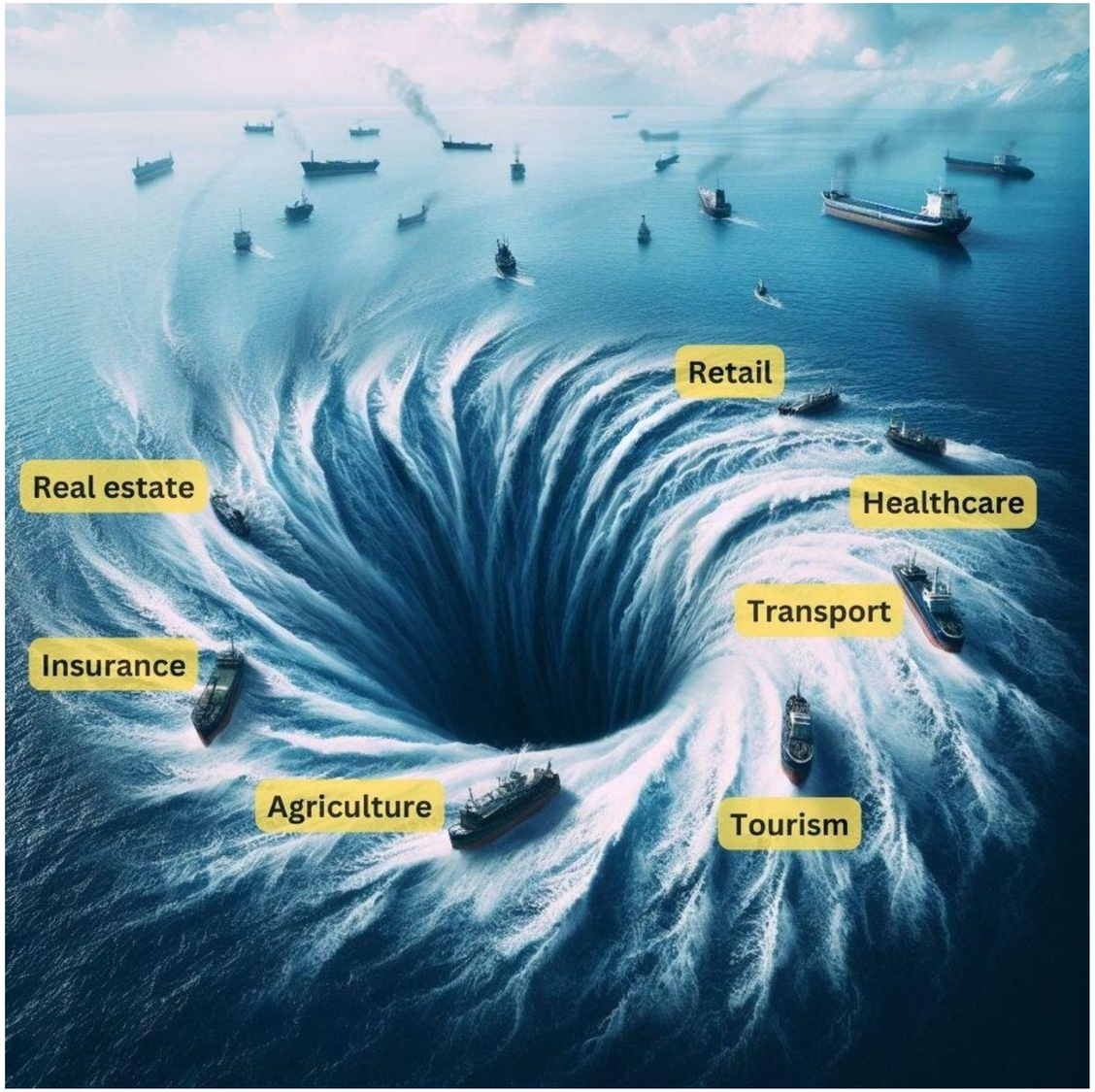


Image from Johan Rockstrom, Potsdam Institute for Climate Impact Research



The Hill + Follow 373.7K Followers

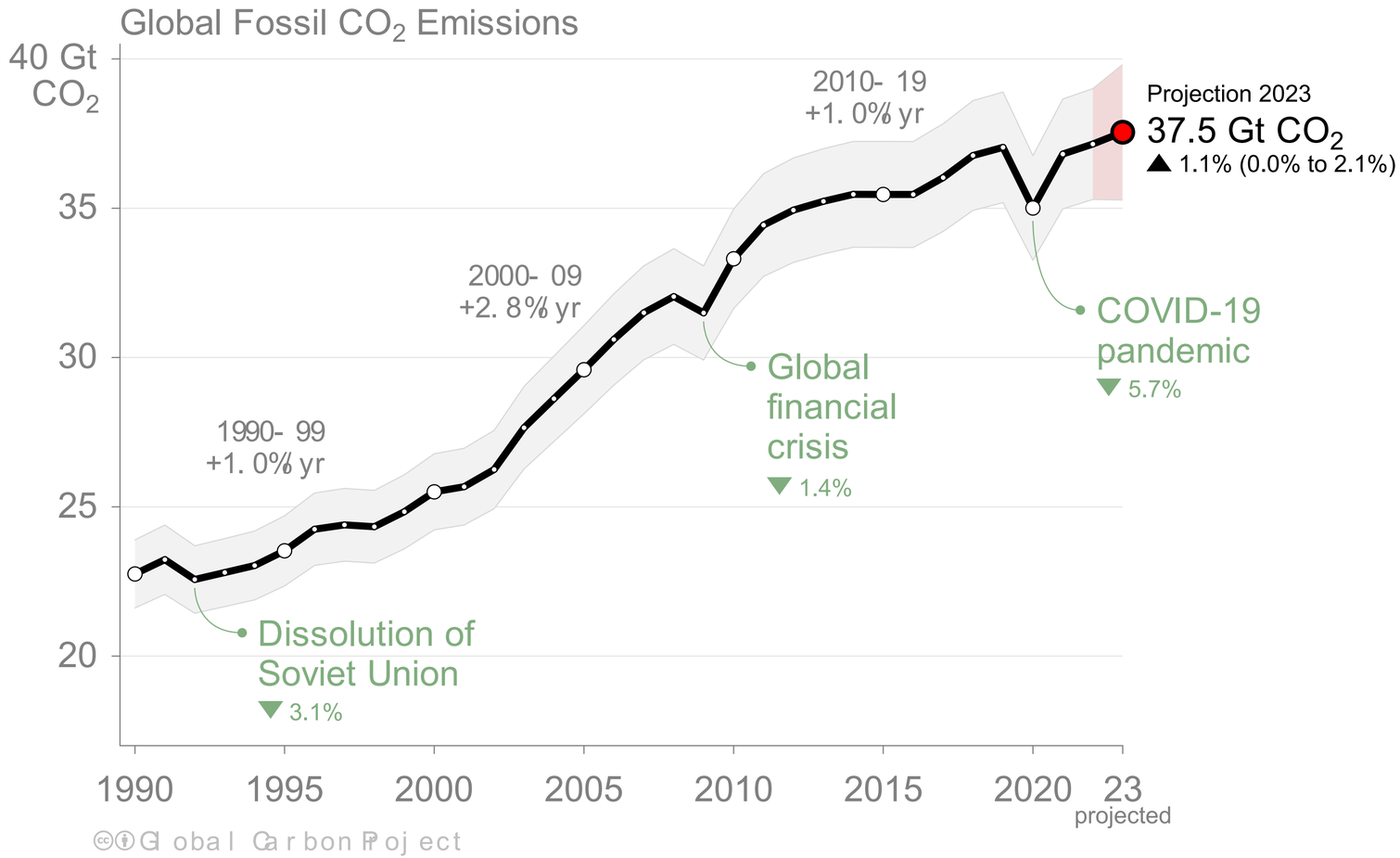
Climate change-fueled extreme weather could cost real estate market $1T-plus: Study

Story by Zack Budryk • 4h • 2 min read

Image from Johan Rockstrom, Potsdam Institute for Climate Impact Research

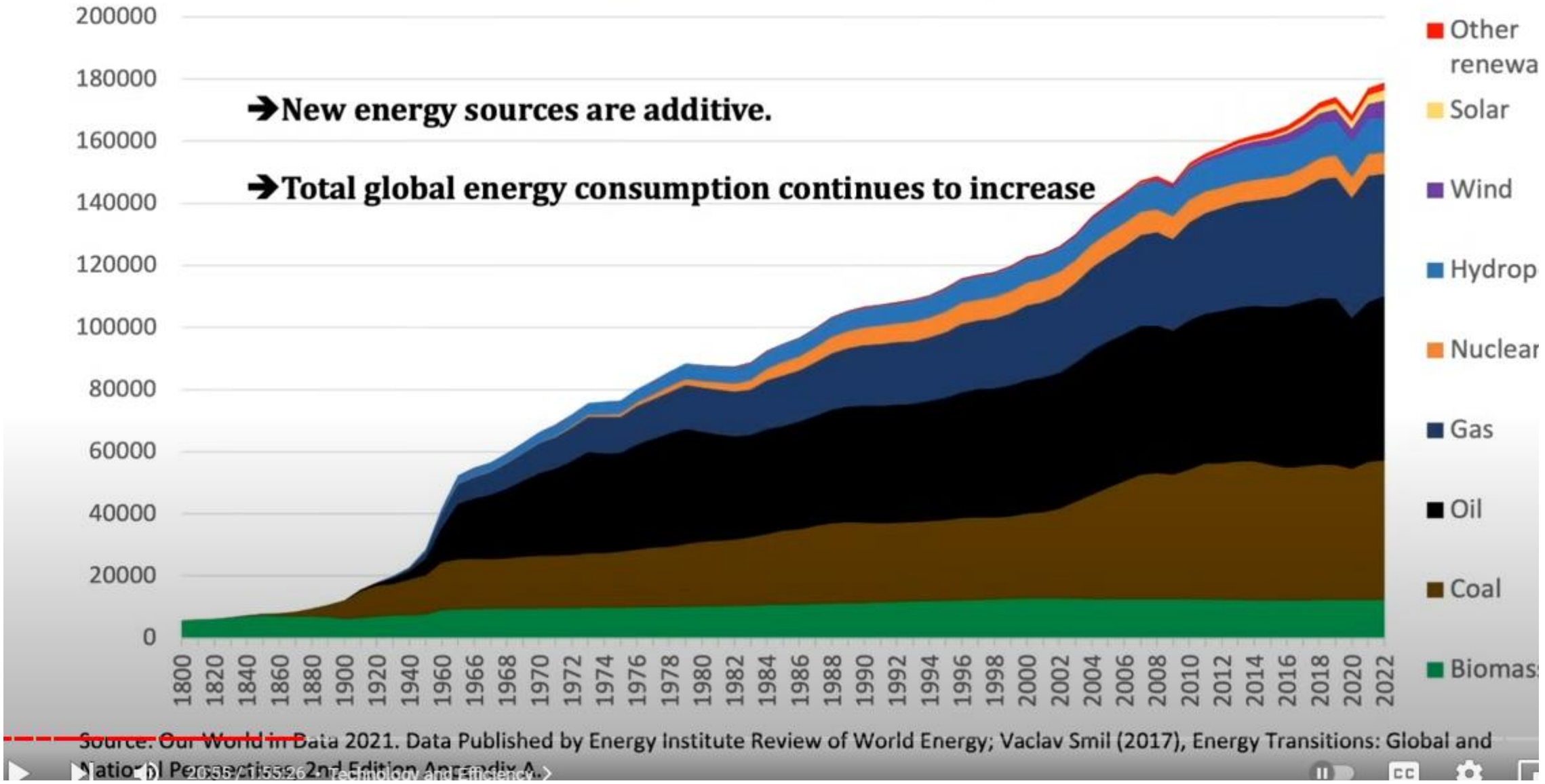
Global Fossil CO_2 Emissions

Global fossil CO_2 emissions: 37.1 ± 2 $GtCO_2$ in 2022, 63% over 1990
Projection for 2023: 37.5 ± 2 $GtCO_2$, 1.1% [0.0% to +2.1%] higher than 2022



Uncertainty is ±5% for one standard deviation (IPCC "likely" range)

When including cement carbonation, the 2022 and 2023 estimates amount to 36.4 ± 2 $GtCO_2$ and 36.8 ± 2 $GtCO_2$ respectively
The 2023 projection is based on preliminary data and modelling.
Source: Friedlingstein et al 2023; Global Carbon Project 2023


➔New energy sources are additive.
➔Total global energy consumption continues to increase
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1800
1820
1840
1860
1880
1900
1920
1940
1960
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
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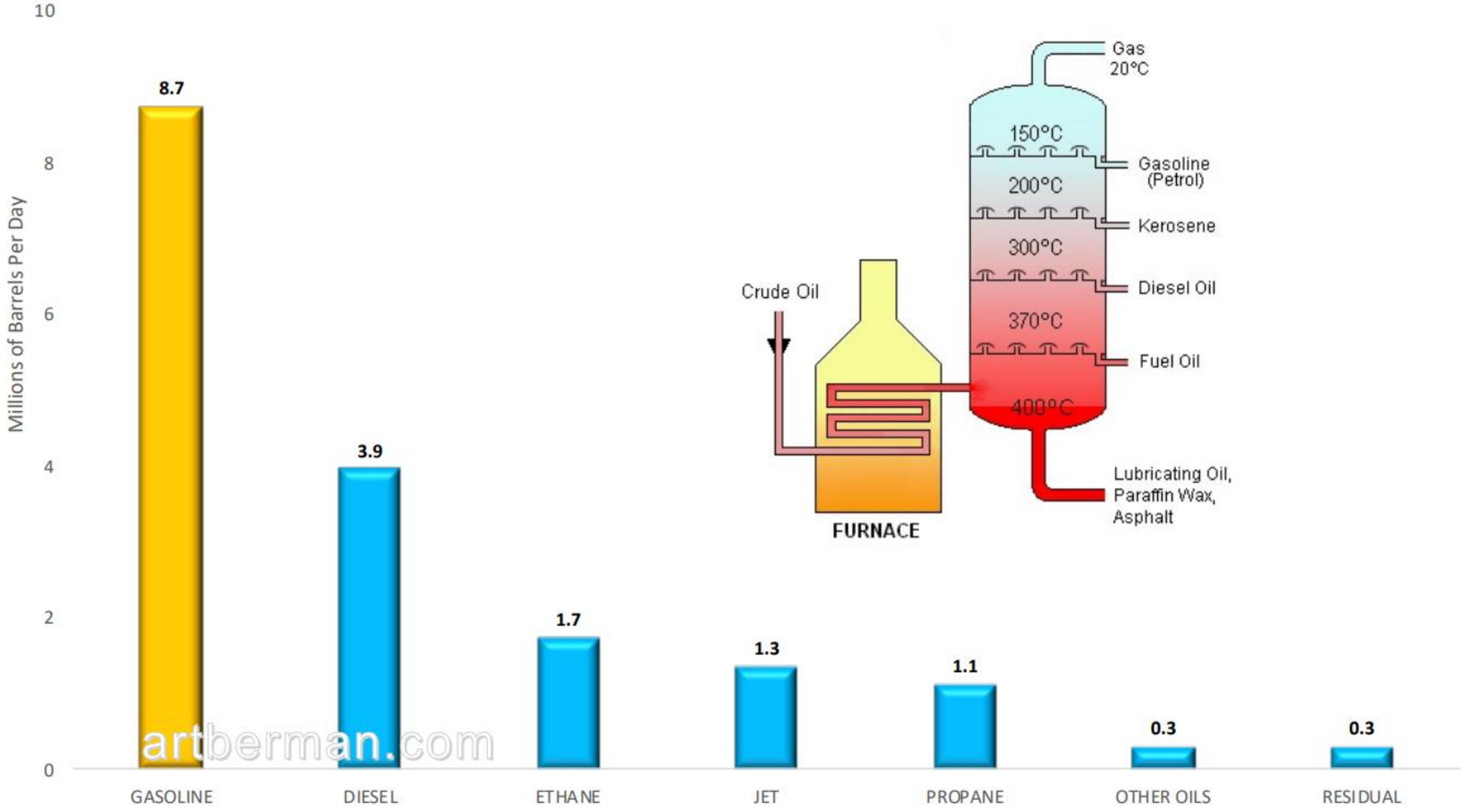
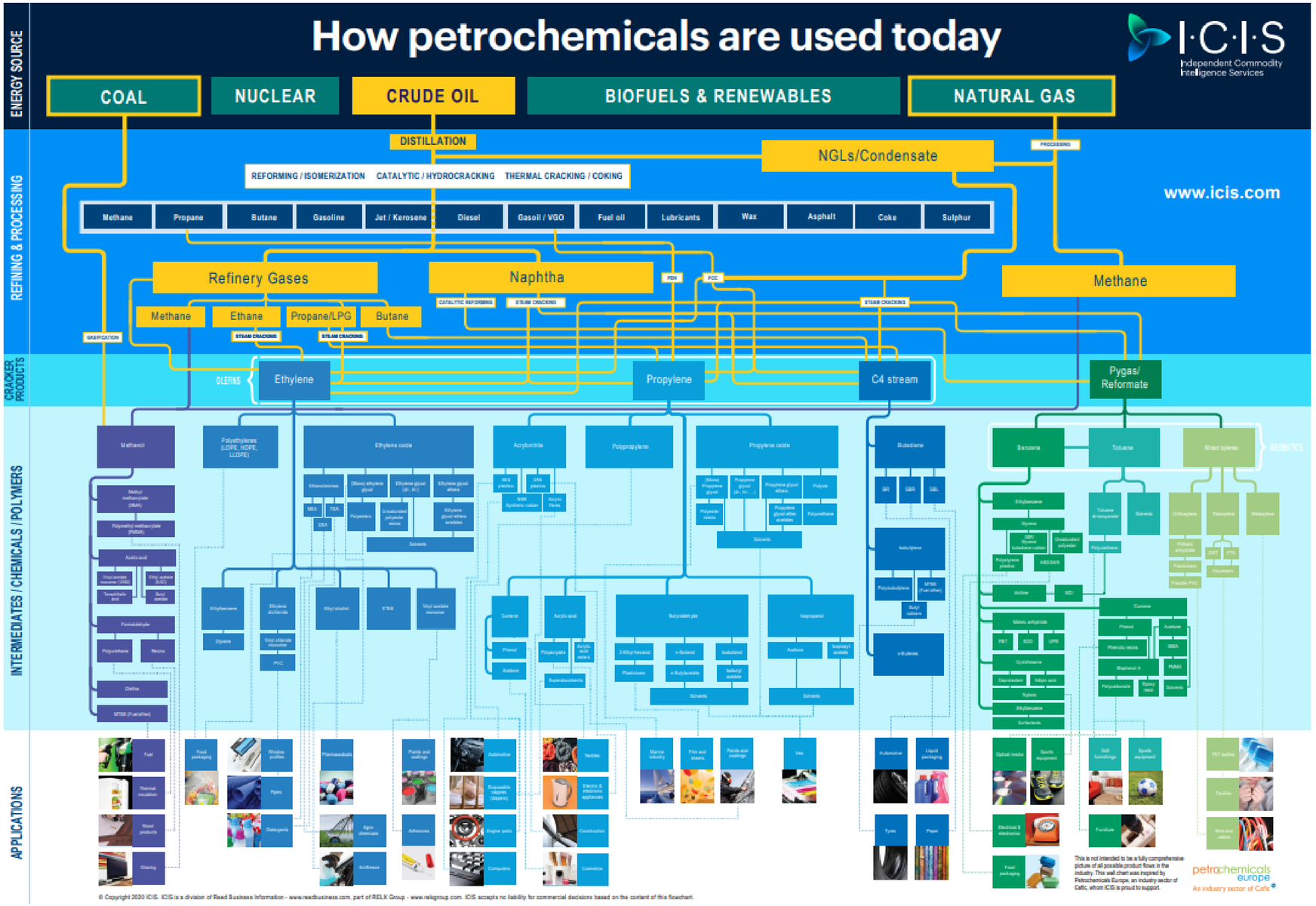
2002
2004
2006
2008
2010
2012
2014
2016
2018
2020
2022
Other renewa
Solar
Wind
Hydrop
Nuclear
Gas
Oil
Coal
Biomas
Source: Our World in Data 2021. Data Published by Energy Institute Review of World Energy; Vaclav Smil (2017), Energy Transitions: Global and

Gasoline accounts for 45% of U.S. refined products in 2021
If U.S. consumes *less* gasoline because of EVs, it will still be produced
Cannot produce diesel, jet fuel, ethane or propane *without also producing gasoline*



Source: EIA & Labyrinth Consulting Services, Inc.

EIA Current/Monthly Updates/U.S. Product Supplied Master


How petrochemicals are used today
I·C·I·S
Independent Commodity Intelligence Services
ENERGY SOURCE
COAL
NUCLEAR
CRUDE OIL
BIOFUELS & RENEWABLES
NATURAL GAS
REFINING & PROCESSING
DISTILLATION
NGLs/Condensate
PROCESSING
REFORMING / ISOMERIZATION
CATALYTIC / HYDROCRACKING
THERMAL CRACKING / COKING
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Methane
Propane
Butane
Gasoline
Jet / Kerosene
Diesel
Gasoil / VGO
Fuel oil
Lubricants
Wax
Asphalt
Coke
Sulphur
Refinery Gases
Naphtha
Methane
Ethane
Propane/LPG
Butane
GASIFICATION
STEAM CRACKING
CATALYTIC REFORMING
PDH
FCC
CRACKER PRODUCTS
OLEFINS
Ethylene
Propylene
C4 stream
Pygas/ Reformate
INTERMEDIATES / CHEMICALS / POLYMERS
Methanol
Polyethylenes (LDPE, HDPE, LLDPE)
Ethylene oxide
Acrylonitrile
Polypropylene
Propylene oxide
Butadiene
Benzene
Toluene
Mixed xylenes
AROMATICS
APPLICATIONS
Fuel
Thermal insulation
Food packaging
Pipes
Detergents
Pharmaceuticals
Agro chemicals
Paints and coatings
Adhesives
Automotive
Engine parts
Computers
Textiles
Electric & electronic appliances
Construction
Cosmetics
Marine industry
Film and sheets
Ink
Tyres
Paper
Liquid packaging
Optical media
Sports equipment
Electrical & electronics
Soft furnishings
Furniture
PET bottles
Textiles
Wire and cables
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This is not intended to be a fully-comprehensive picture of all possible product flows in the industry. This wall chart was inspired by Petrochemicals Europe, an industry sector of Cefic, whom ICIS is proud to support.
petrochemicals europe
An industry sector of Cefic


Fuel


Thermal insulation


Wood products


Glazing


Food packaging


Window profiles


Pipes


Detergents


Pharmaceuticals


Agro-chemicals


Antifreeze


Paints and coatings


Adhesives


Automotive


Disposable nappies (diapers)


Engine parts


Computers


Textiles


Electric & electronic appliances


Construction


Cosmetics


Marine industry


Film and sheets


Paints and coatings


Inks


Automotive


Liquid packaging


Tyres


Paper


Optical media


Sports equipment


Electrical & electronics


Food packaging


Soft furnishings


Sports equipment


Furniture


PET bottles


Textiles

Wire and cables

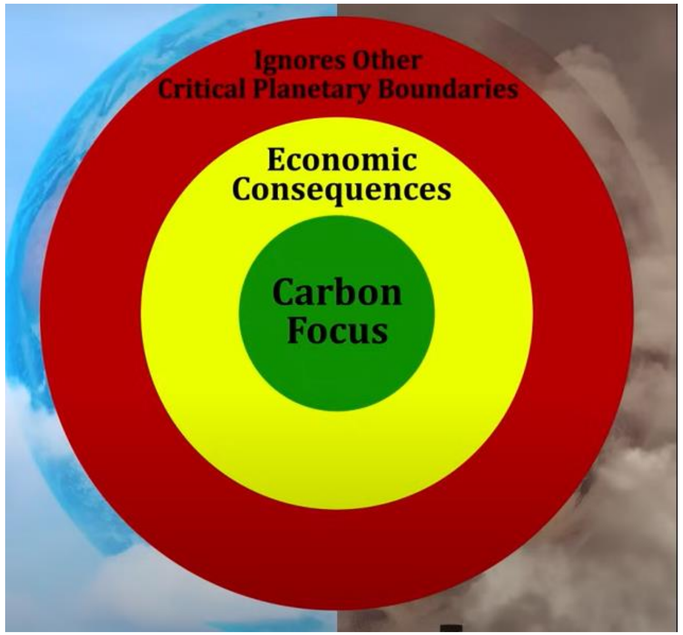
This is not intended to be a fully comprehensive picture of all possible product flows in the industry. This wall chart was inspired by Petrochemicals Europe, an industry sector of Cefic, whom ICIS is proud to support.

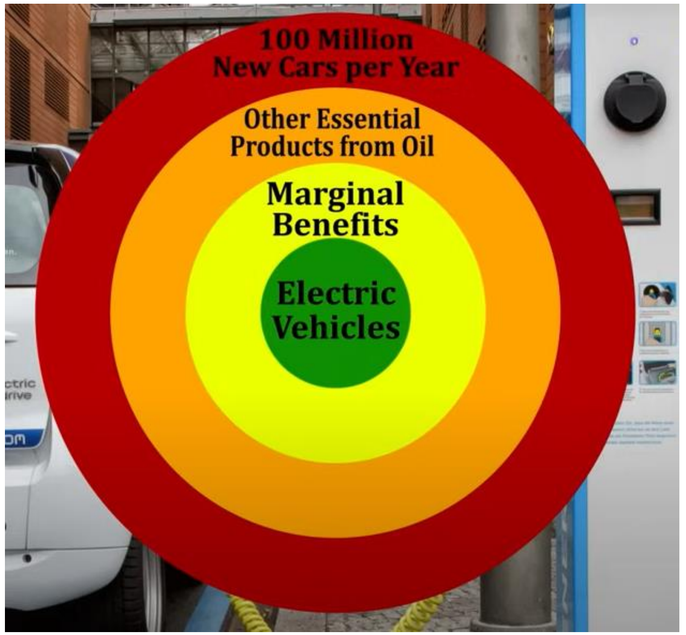
petrochemicals europe

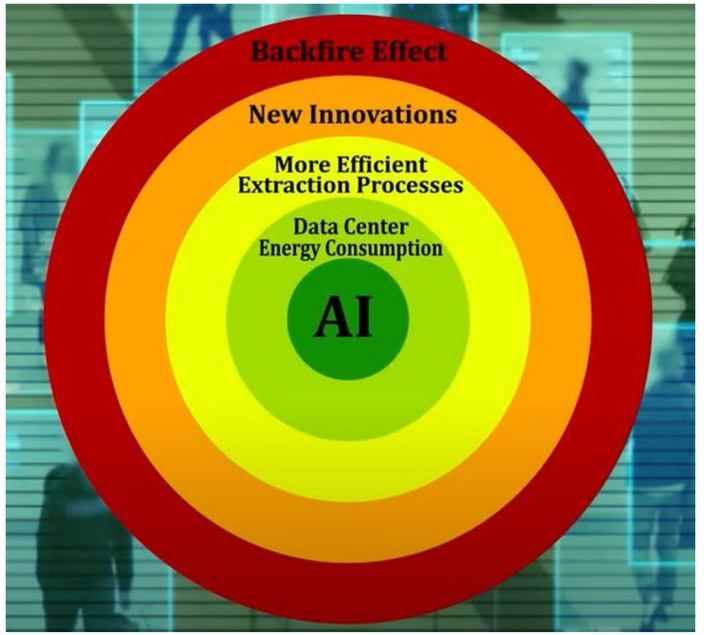
An industry sector of Cefic

Using a Wider Boundary Lens

Source: Nate Hagens, The Great Simplification







** 80 million babies born per year*

“We live in a competent universe, we are part of a brilliant planet, and we are surrounded by genius. Nature is incredibly generous, and it has learned to live gracefully on this planet for billions of years.”

– Janine Benyus,
Founder, Biomimicry Institute

How we are Destabilizing the Planetary Water Cycle

Industrial Agriculture
Impermeable Surfaces
Destructive Forestry Practices

- 56% of World's population lives in cities
- Cities account for more than 70% of global CO2 emissions
- Cities are highly vulnerable to the impacts of climate change due to Impervious Surfaces
- Impervious Surfaces in the US:
  - 43,000 square miles (14% of total land)
  - 1/3 of the above is buildings
  - 2/3 is pavement; 4 million miles of roads

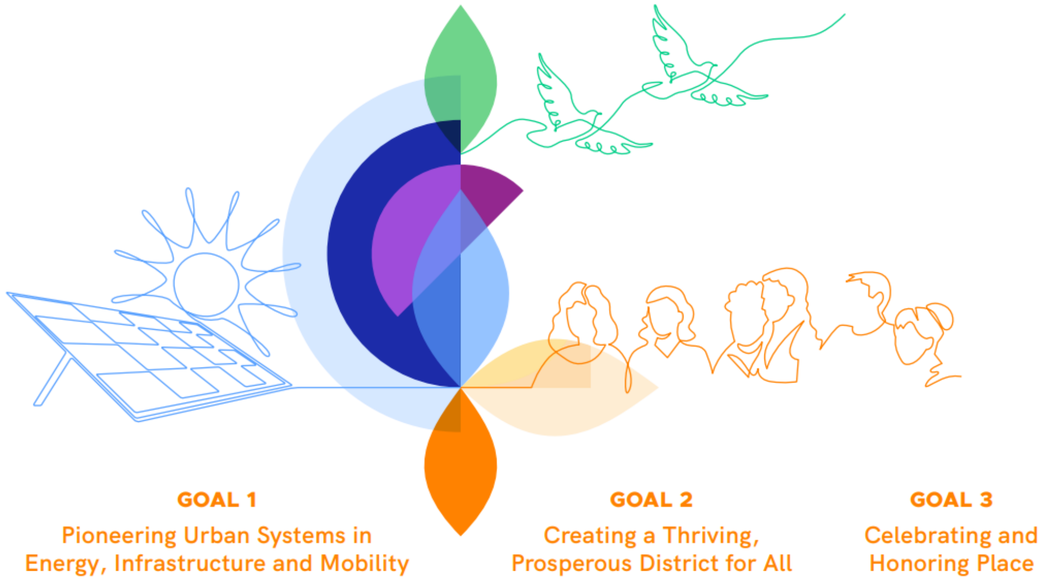
Cities Helping Nature capture Carbon

- Soils globally sequester **1.5 gigatons** of carbon
- Trees and other types of vegetation sequester **7.9 gigatons**
- Wetlands: 3% of earth's surface but contain **2x carbon as all forests**
- Estimates are that we could capture an additional **20 gigatons** via regenerative agriculture, urbanism and carbon farming.

What is Nature Positive Urban Design?

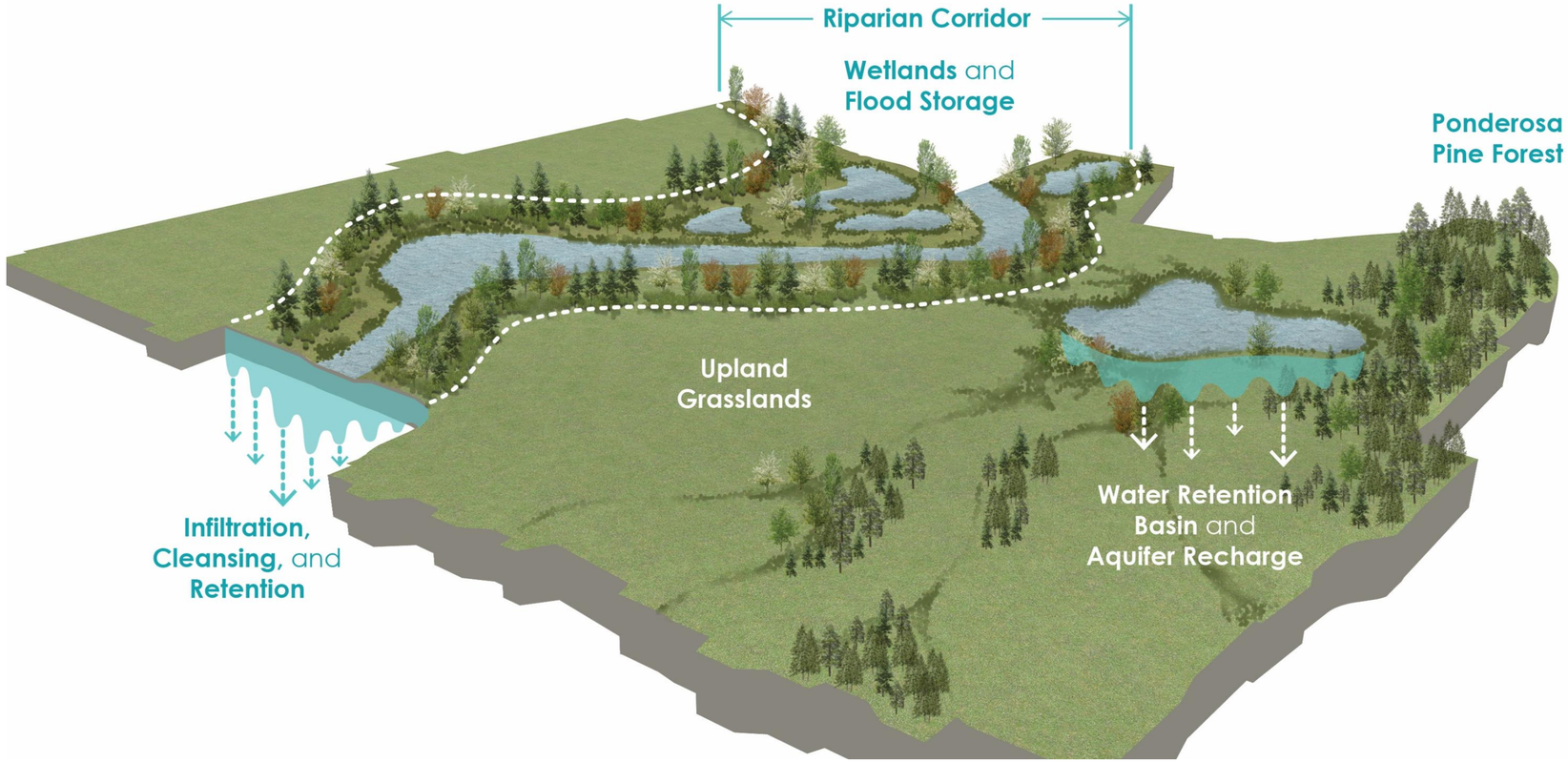
"The Sustainable Development Goals set by the United Nations stress the importance of local ecosystems and suggest that **all aspects of a city - its buildings, infrastructure, and natural surroundings - should actively contribute to environmental health**. This includes maintaining clean air and water, healthy soil, sequestered carbon, cycled nutrients, reduced erosion, reduced heat, and supporting biodiversity."

- Dayna Baumeister and Nicole Miller,
- Innovation for Ecological Transformation



Design Premise: Ecological Context and Historical Indigenous Practices

- The Spokane River is **the center of life** for region
- **Four distinct ecosystems** present in the region encompassed: pine/ponderosa savanna, shrub-steppe grassland, riparian corridor, and floodplain.
- River provided food, water, a means of transportation and a meeting place for **indigenous people**
- The system is characterized by **grassy-floored open forests with ponderosa pine**, Douglas-fir, western larch, western white pine, and quaking aspen
- System provided **water retention, flow regulation, carbon sequestration, erosion control, soil warming, microbial activity and pollinator habitat**
- The dominant native trees species, Ponderosa pine supports **116 bird species, 70 mammals and 17 species of reptiles and amphibians**
- Coniferous Forests, Ponderosa Pine, historically sequestered up to **260 metric tons of carbon per acre**

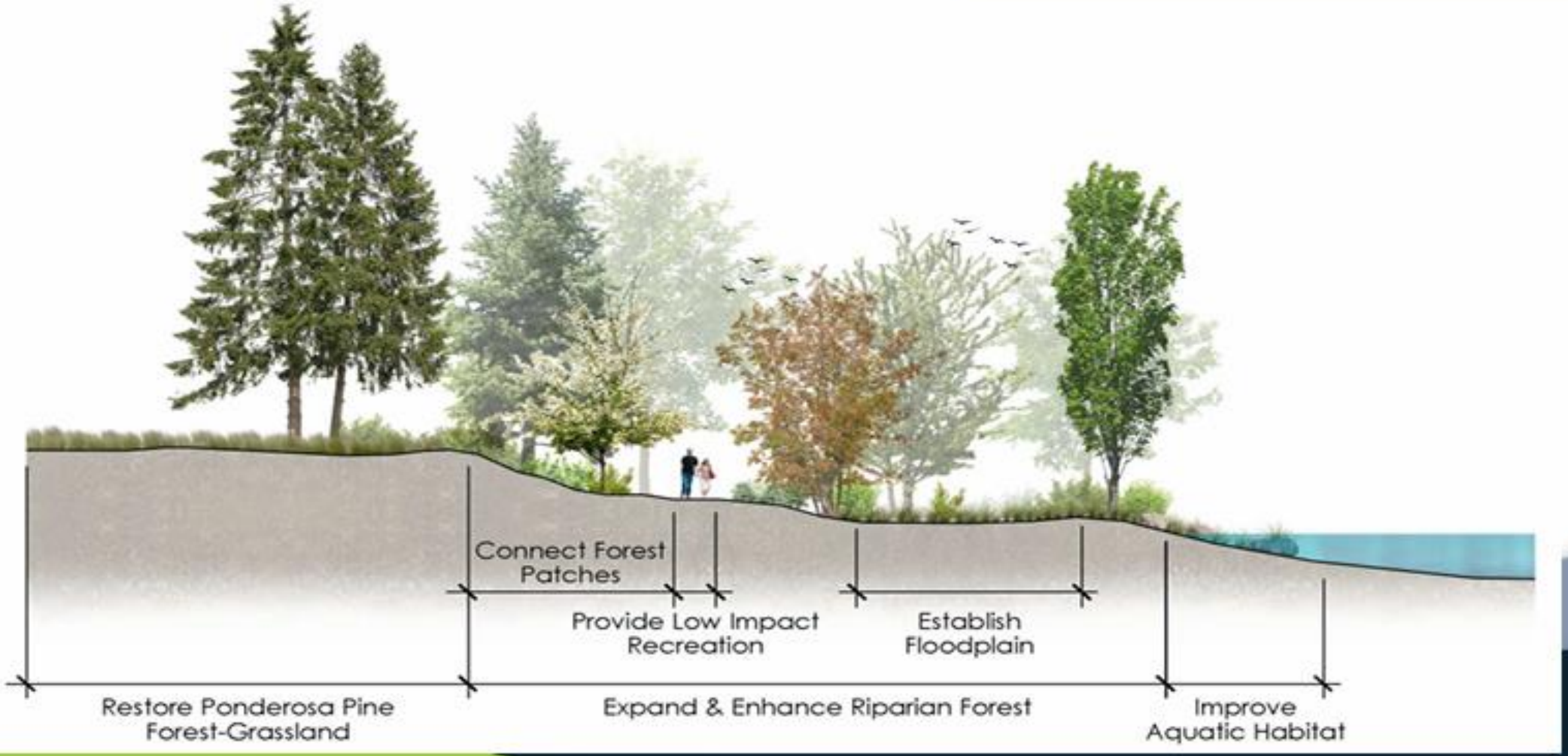


UD Core Ecosystem Services

1. Air Filtration
2. Biodiversity
3. Carbon Sequestration
4. Energy Provision
5. Fire Adaptation
6. Nutrient Cycling
7. Pollination
8. Stormwater Management
9. Temperature Regulation
10. Waste Generation and Management
11. Water Cycling
12. Human Health and Wellbeing

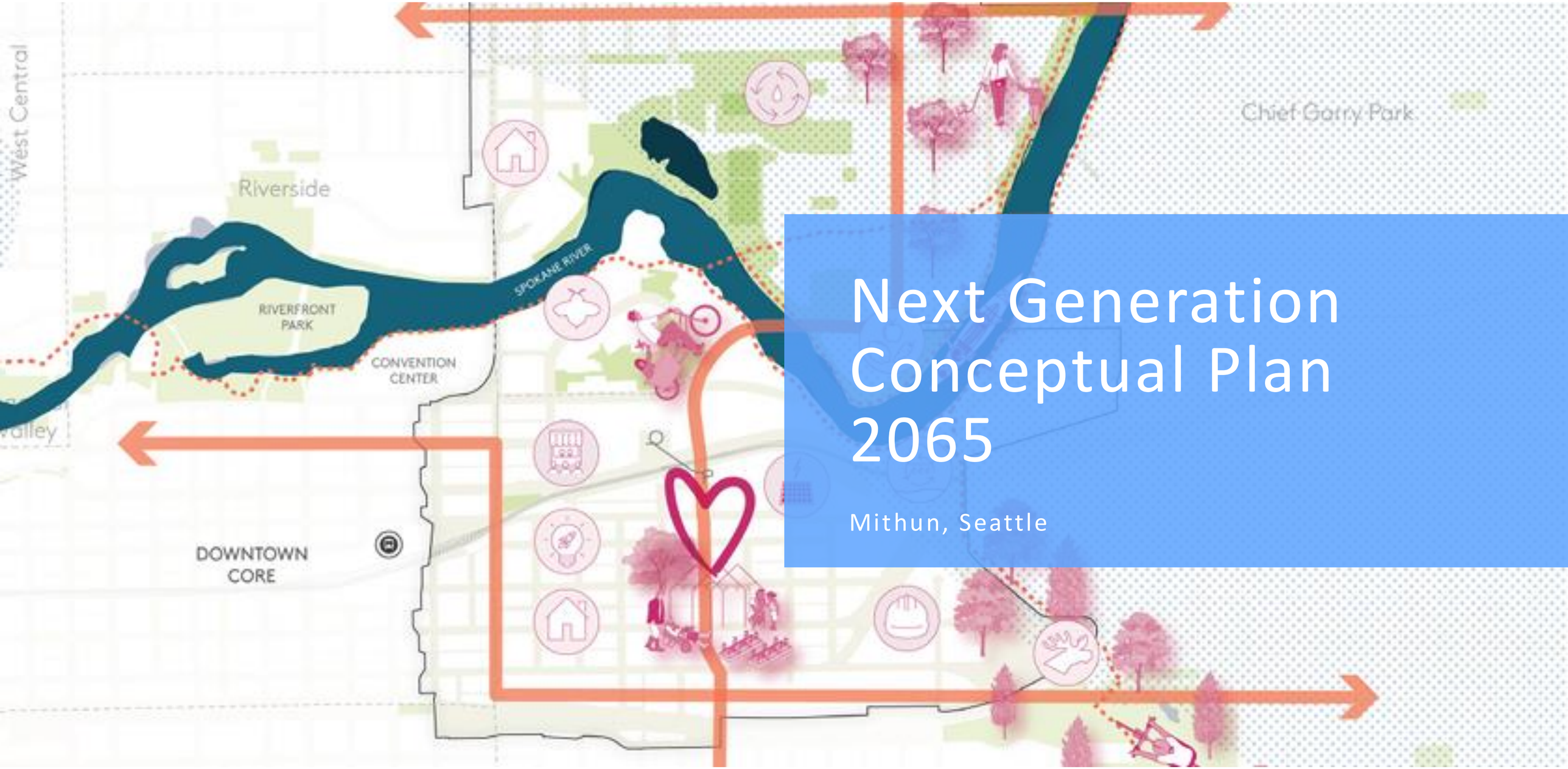
Ecosystem Service	Target
Air filtration	AQI $PM_{2.5}$ and PM_{10} in the urban core should not exceed that of native ponderosa pine savanna (in fire-free conditions).
Biodiversity	Environmental restoration activities will use species native to the ecosystem in appropriate locations in ratios similar to the original landscape.
Carbon Sequestration	CO_2 emissions from energy generated from fossil fuels and building construction should not exceed the net primary productivity (Mg C/ha/year) of the surrounding landscaping/vegetation including any engineered sequestration that may become feasible, and/or offset credits.
Energy Provision	Energy produced by rooftop solar and other distributed energy sources (geothermal and wind) should produce the equivalent net primary productivity of a mature ponderosa pine savannah.
Fire adaptation	Plant and maintain native fire-adapted vegetation that produces a fuel load similar to savanna grasses that burns quickly to reduce the incidence of and/or damage caused by catastrophic fire. Structures should have fire -retardant outer materials like the Ponderosa bark, and vegetation should emulate the quick-burning grasslands.
Nutrient Cycling	Open space areas should have the same ratio of trees to shrubs and grass as the ponderosa pine savanna ecosystem to enhance nutrient interception by roots and protect the system against nutrient losses. Artificial media in non-vegetated areas can also be used to absorb and retain nutrients.
Pollination	UD vegetation should mimic native perennial grasslands by including plant species known to host native pollinator communities represented in ponderosa pine savanna.
Stormwater Management	Zero percent impervious services or equivalent.
Temperature Regulation	The amount of shade in the developed urban ecosystem should be the same as what was provided by the ponderosa pine savanna. Shade targets could be met by both vegetation plantings and built structures. In addition, shade trees should be distributed equitably, as low-income areas tend to have fewer trees, and arguably less income to pay for air cooling.
Waste Generation & Management	The ecosystem assets and features of the pre-development UD site would have managed waste in a closed loop, meaning that all waste created would have been decomposed and recycled back into the ecosystem.
Water Cycling	Water withdrawals should be calibrated to protect the aquifer and limit water withdrawal to support historic aquifer recharge rates.
Human Health & Wellbeing	The ongoing development theme is to preserve the "winter camp" status of the area, as it was a meeting place for indigenous people where people come to share knowledge and food and culture.

Riparian Ecosystem Conceptual Cross Section



GREENE ECONOMICS

CASCARA LAND DESIGN



Next Generation Conceptual Plan 2065

Mithun, Seattle

Partnership for Southern Equity™
TOGETHER WE PROSPER

JUST COMMUNITIES

A Bold Reimagining of How Communities Grow

Just Communities is helping neighbors and practitioners worldwide co-create more just, liberatory, and green communities.

1. CENTERING RACIAL AND CLIMATE JUSTICE

The Protocol starts with an unwavering commitment to Racial Equity and Climate Resilience in every phase of organizing, planning, and implementing neighborhood-scale community development. We call these our *Just Communities Pillars* and they form the key imperatives that every community must address. The legacy and impact of structural and spatial racism and environmental injustice in land use policy and development – in the form of segregation, disinvestment, and displacement – has led to trapping millions of Black and historically disinvested communities of color in generational poverty (while others sustain wealth and privilege) and at constant risk from the growing impacts of climate change. This framework seeks to begin the important and necessary task of putting justice at the center of community development.

2. POWERFUL METRICS TO SHAPE EQUITY AND RESILIENCY OUTCOMES

The Protocol includes a set of seventeen comprehensive *Just Communities Commitments* organized into the five essential categories – Belonging, Opportunity, Wellbeing, Mobility, Environment – to help communities tackle the most entrenched and complex challenges facing communities today – poverty, blight and deteriorating infrastructure, lack of economic opportunity, environmental pollution, climate disruption, and health inequities.

3. FOUR IMPLEMENTATION PHASES TO ADVANCE THE WORK

The Protocol includes seventeen discrete and practical *Just Community Actions* organized into four implementation phases. Each action includes guidelines, engagement tips, and templates to help stakeholders move community-scale projects from vision to reality. They include: 1) Groundwork, 2) Governance, 3) Roadmap, and 4) Implementation.

WHAT WE HEARD

60+ Stakeholders

2 Open Houses

1 Focus Group

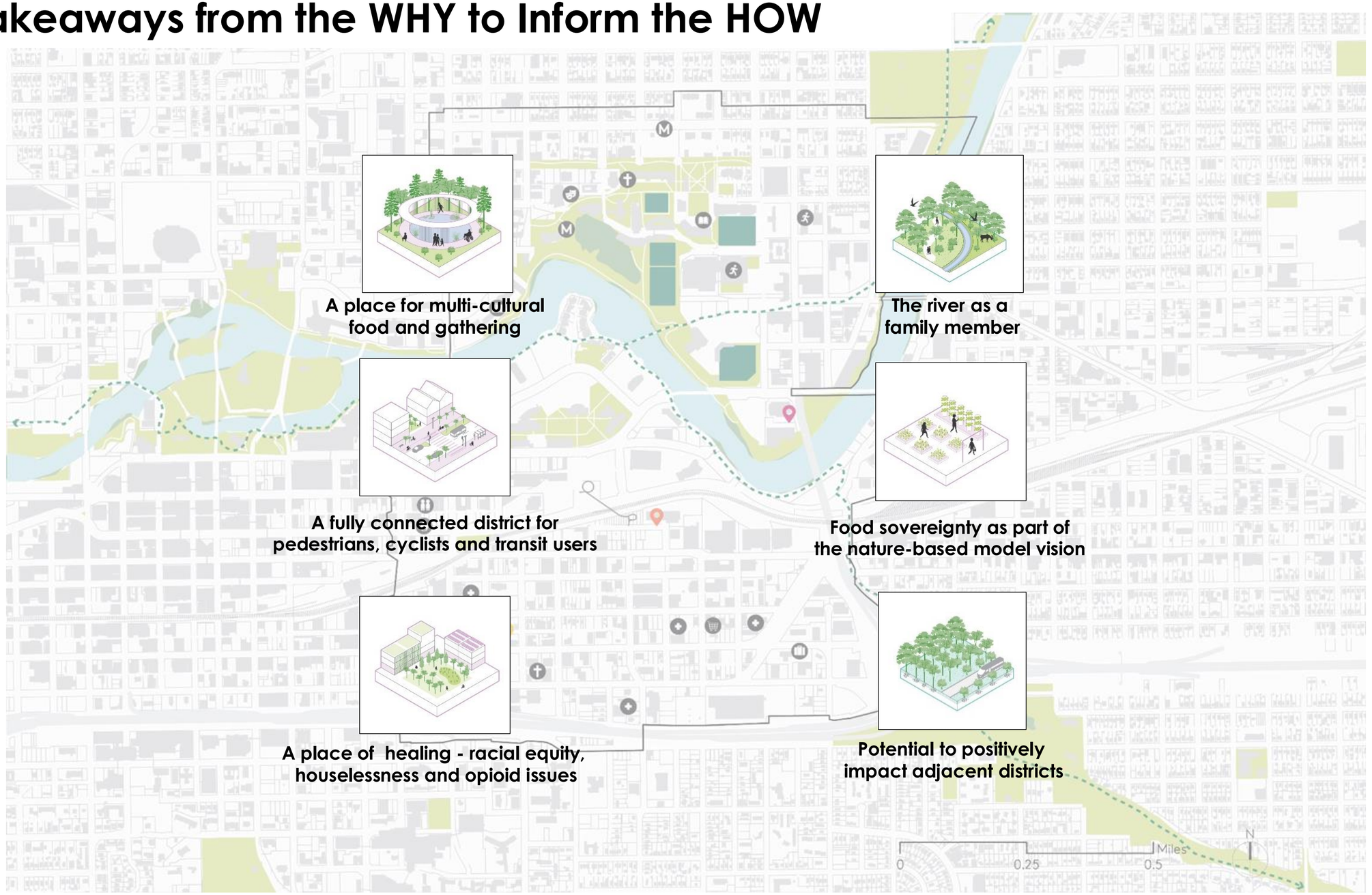
5+ Interviews

Key Themes

- Create a District Heart
- Connect to the River
- River as a family member
- Restore Liberty Park
- Multicultural Center
- Food Markets
- Integrate Art
- Improve water quality and restore river health
- Food Sovereignty and Community Gardens
- Connect to Downtown
- Support and grow local businesses
- More cover and shelter
- More water throughout the UD
- More Trees
- Limit Displacement
- The houseless do not feel welcomed in UD
- Increase infrastructure such as benches, lights and trash cans

ENGAGEMENT

Main Takeaways from the WHY to Inform the HOW



NATURE-BASED STRATEGIES PALETTE

Coulee (Blue-Brown) Water
Urban coulee streets for water conveyance, xeriscaping, and basalt gardens, with potential for deep-infiltration wells

Blue-Green
Infiltration and stormwater infrastructure including greenways /curbless streets/ rain gardens and permeable pavement

Energy Independent Buildings
Electrification and battery islanding which can be combined with resilience hub elements

Urban Forests
Areas for planting Ponderosa Pine groves, or micro forests such as Miyawaki Tiny Forests

Clean Water Parks
Accesible stormwater parks that slow the stormwater and reduce combined sewer overflows

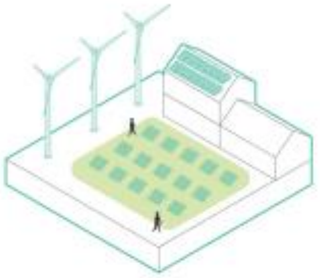
Rainwater Harvesting
Water efficiency programs at buildings/sites

Multi-modal Mobility
Ride shares, shuttles, and accessible transit programs

Microgrids
Renewable energy including community solar

District Parking
Coordinate parking and transportation demand management

Shared Energy Systems
Geothermal and ground coupling of water pipes to facilitate heat and cold transfer and reduce waste



District Renewable Energy Production
District renewable energy and micro-grids, solar on land or buildings

Clean Soil Parks and Trails
Bioremediaton of brownfield areas highlight phytoremediation of soils with artist program and research innovation

Biodiversity Corridors
Connect people, pollinators, animal habitat, and flyways for birds to and from the river and to parks

Pixelation Across the District
Green factor code infrastructure for planting both on land and buildings

Street Tree Canopy
Using silva cells or planters on basalt

Water Storage
Aquifer recharge ponds

Recreation
Active park improvements. Play areas, Kayak launch, basketball courts, pickle ball and active sports

Mobility Hubs
Micromobility stations, EV charging stations

EQUITY, INCLUSION AND BELONGING STRATEGIES PALETTE

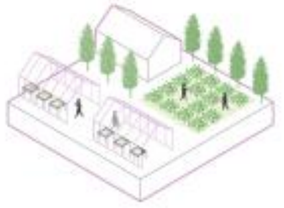
Inclusive Childcare
Early education and childcare choices including home based, care centers and education for all

Inclusive Housing Choices
More housing choices including rental, ownership, multi-generational, affordable, and middle housing

Multi-Cultural Gathering
Inclusive gathering spaces with arts and culture, public realm improvements both indoors and outdoors, with shade structures for people of all ages, abilities, and cultures to meet

Multi-Cultural Market
Multi-vendor marketplace, or pop-up markets for place-making and community connection. Could be day or night

Rehabilitation and Infill
Existing building retrofits and vacant lot infill to support and complement existing businesses and community orgs including energy, sustainability, public art upgrades



Food Production and Distribution
Multi-cultural food production and distribution opportunities for small businesses, job training, and workforce development

Community Resilience Hub
A network of community-serving facilities to support residents, distribute resources, coordinate communication, and reduce carbon pollution for both on-going social connection and emergency support services

Inclusive Wayfinding + Storytelling
Placekeeping in the public realm with public art, signage, furnishings, new plazas and viewpoints. May include multi-cultural and indigenous representation or interpretive storytelling.

Food Growing and Access
Individual and community gardens, urban agriculture, and access including fresh food markets, CSO pick ups serving multi-cultural needs

Community Engagement and Research Center
Community-serving facility to support civil participation and community based research advancing district goals

Placekeeping
Focus on enabling social connections with ample wayfinding, arts and culture elements, street furniture, wider sidewalks for outdoor uses, and universal design / complete streets

Inclusive Services and Shelter for All
Healthcare, childcare, early childhood education, shelter for people who are houseless, and other services and programs

Anti-displacement Programs
For businesses, community organizations, and residents

Inclusive arts and culture Festivals and Events
Arts, culture, education and community organization events

Inclusive District Business
Arts, culture, education, and business directory and marketing programs with a focus on enabling networking opportunities for small and startup businesses

Inclusive Workforce Development
Job training programs prioritizing historically marginalized populations

Inclusive Educational Opportunities
Programs, schools, and lifelong education

Holistic Health and Wellness Festival
As part of the U Vision 2044

Equitable Business Incubator
Life sciences and institutional partnerships supporting marginalized business enterprises

Inclusive Public Realm

Public spaces that encourage social mixing advance economic opportunities and community resilience

Blue-Green Infrastructure

City of Vancouver, Canada
Photo credit: City of Vancouver

Coulee Green Infrastructure

21st Street Redesign, Paso Robles, California
Photo credit: MIG/SVR

Clean Soil Parks and Trails

Hunters Point Park, Brooklyn, New York
Photo credit: Hunters Point Park Conservancy

Clean Water Parks

San Francisco, California
Photo credit: Nazanin Mehrin

Alberta Street, Vancouver, Canada
Photo credit: City of Vancouver

21st Street Redesign, Paso Robles, California
Photo credit: MIG/SVR

Sunset Park, Vancouver, Canada
Photo credit: City of Vancouver

REWILD AND RECHARGE THE RIVER

GREEN BLUE INFRASTRUCTURE, HABITAT, AND PUBLIC REALM

Purpose: Heal the Spokane River and improve the health of Spokane. Create more space for stormwater cleaning and infiltration to recharge the aquifer and create more people, flora, and fauna habitat and access to the river.

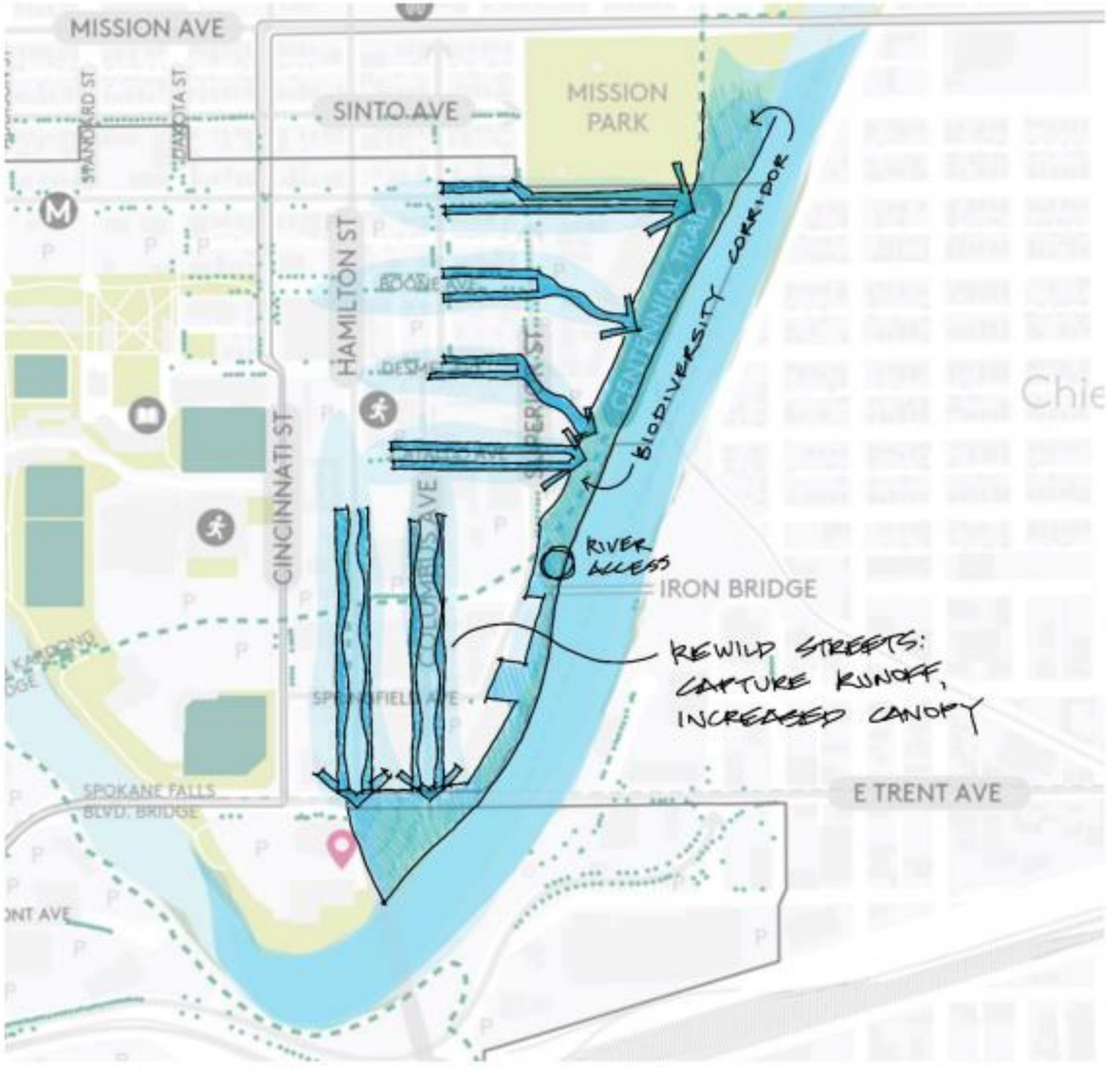
Blue-Green Streets

Biodiverse Corridors

Building Integrated Green Infrastructure

Clean Soil Parks and Trails

Urban Forests



REVIVE WITH COULEE SYSTEM

URBAN SPILLWAYS AND WATER CONVEYANCE INFRASTRUCTURE

Purpose: Create a new system to transform the South UD scablands into a more productive place for people and planet to thrive with physical, social, and economic networks and connections.

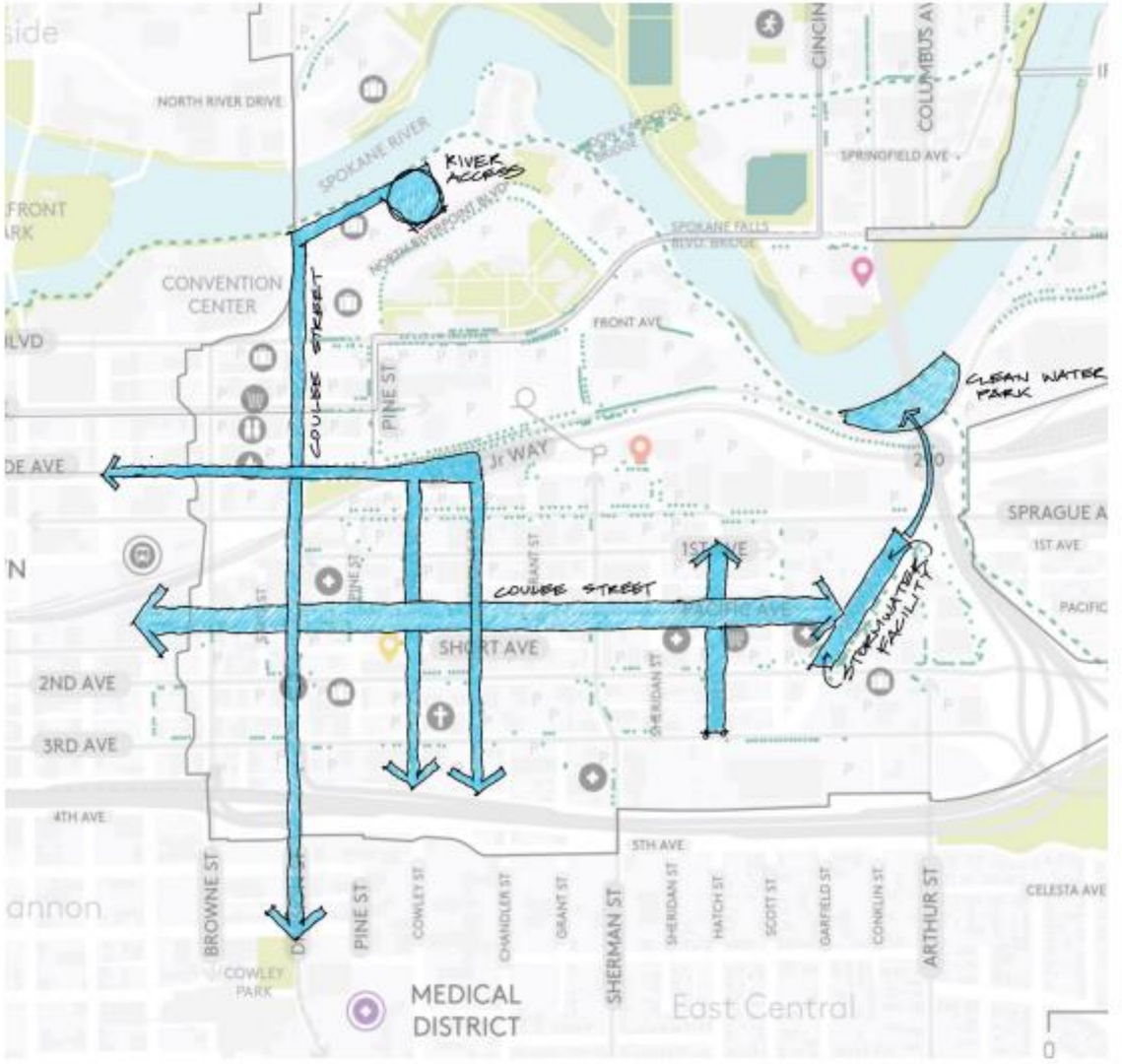
Blue-Green Streets

Biodiverse Corridors

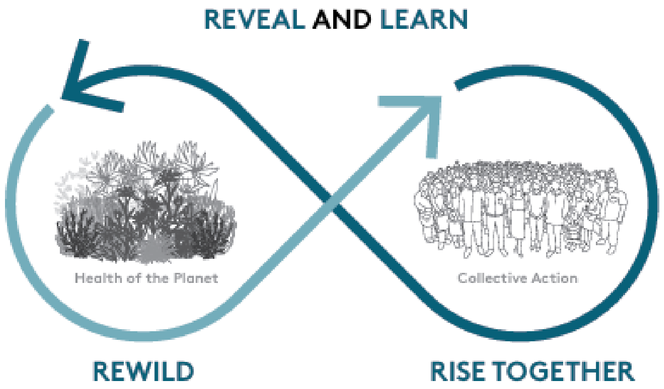
Building Integrated Green Infrastructure

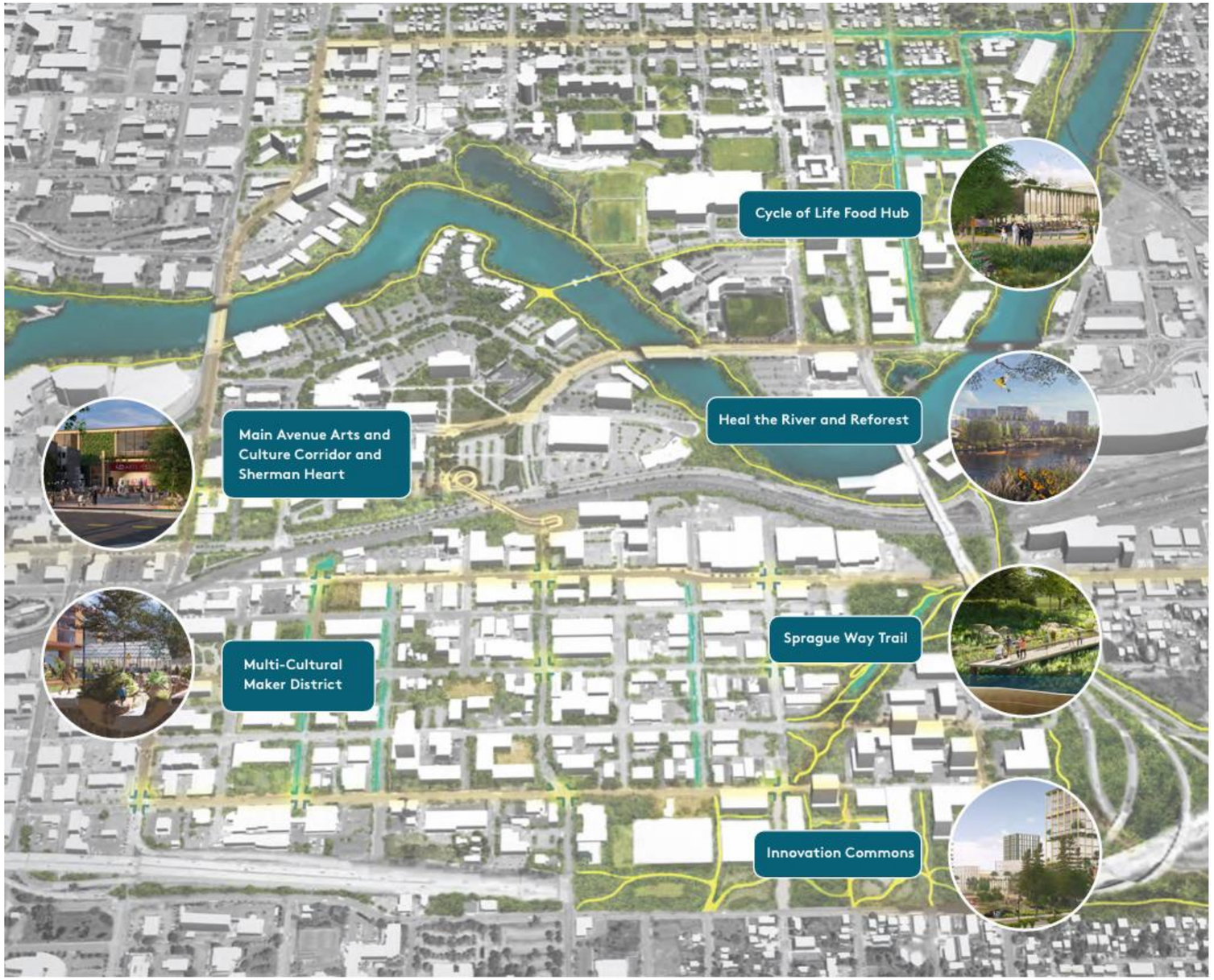
Coulee (Blue-Brown)

Placekeeping



Six Key Nodes






N SUPERIOR STREE
FOOD R+D INNOVATION HUB
FOOD PRODUCTION AND DISTRIBUTION
VIBRANT PLAZA
TRAILS AND GARDENS
CENTENNIAL TRAIL
BLUE-GREEN STORMWATER INFRASTRUCTURE

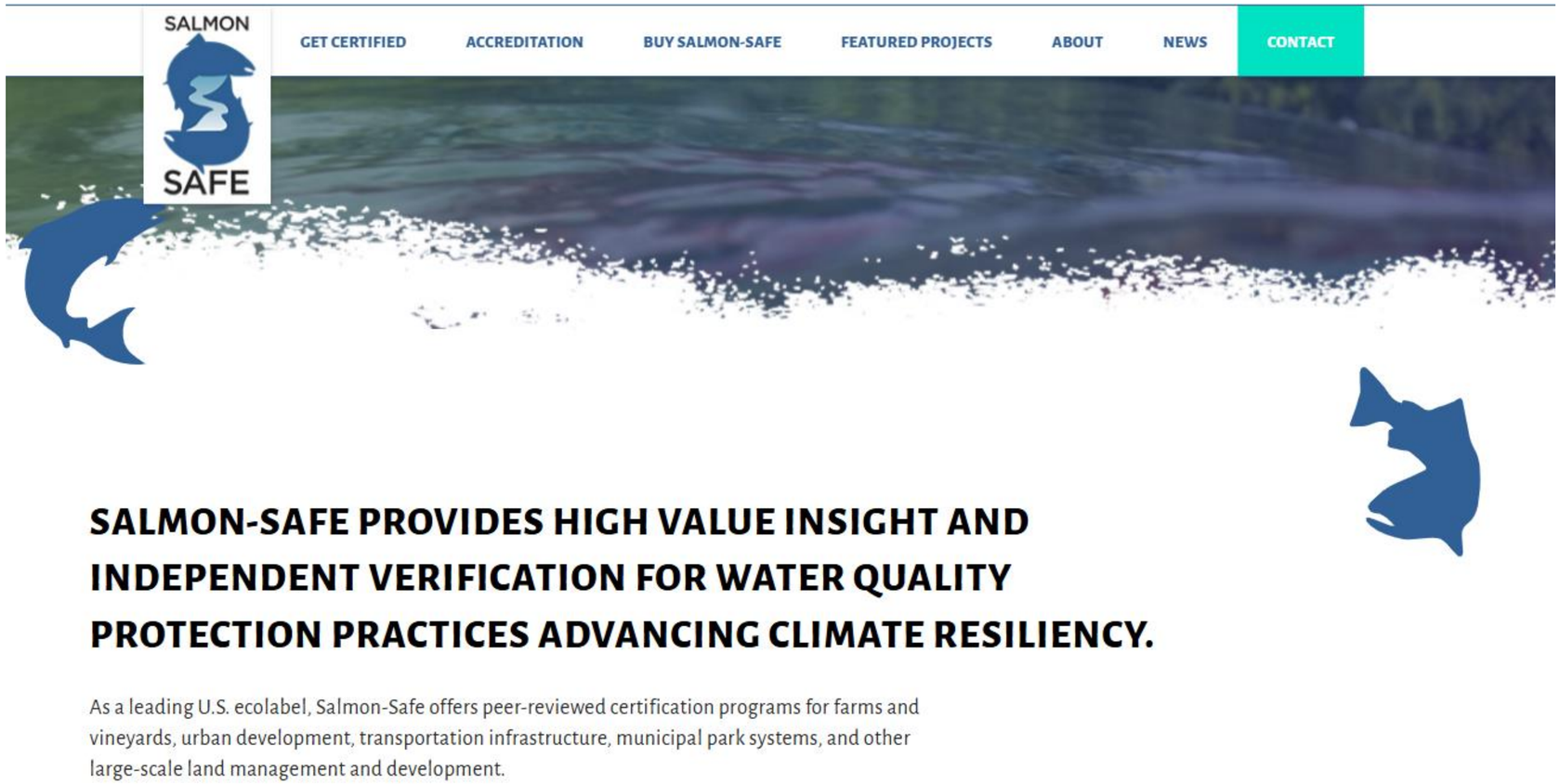

SPRAGUE WAY
PEDESTRIAN TRAIL AND PROMENADE
COULEE INFRASTRUCTURE
MULTI-USE PATH AND PACIFIC AVE CONNECTION
OVERLOOK
FILTER MEDIA
MULTI-USE PATH
TRAIL
FORMER N SPRAGUE WAY
BASALT SLOPE
FORMER S SPRAGUE WAY


COMMUNITY GARDENS
POLLINATORS
GREEN JOBS AND TRAINING
MAXIMUM WATER LEVEL
EFFECTIVE DEPTH
WALK
COULEE GREEN INFRASTRUCTURE
ROADWAY
PLANTING / XERISCAPING AT CURB EXTENSIONS
GROWING MEDIUM
FILTER MEDIA
BASALT BOULDERS


ARTHUR STREET OVER I90 LID
LIFE SCIENCE RESEARCH CAMPUS
MIXED USE AND RESIDENTIAL
PONDEROSA PINE GROVES
OFFICES AND LABORATORIES
MIYAWAKI FOREST
LEGACY LOOP
ARTHUR ST

Certification:

Urban Development
Corporate and University Campuses
Golf Courses
Infrastructure
Parks and Natural Areas
Vineyards
Farms



Salmon Safe Review: UD Next Generation Plan

Support for existing plan	Additional Recommendations
Bioretention ponds; **returning the land to hydrologic functions and proposed Stormwater Park** along Trent and Hwy 290. Supports riparian and habitat restoration	Water conservation: • Additional vegetation recommended to be **drought tolerant** • **Reutilize all stormwater** and wastewater (grey and black)
Restoring Sprague Way into a **reforested Trail; eliminating vehicular traffic from existing roads and waterways**	Riparian Corridors: Look to **expand buffers** where possible
"Rewilding" – **remove unnecessary impervious surfaces and proposes nature-based infrastructure**	**Avoid materials that contaminate run-off**: uncoated copper, zink, galvanized steel and pressure-treated wood
Green open space doubles from 127.5 acres to 231 acres (NIC university open space)	Ensure all contractors commit to adhering to **Salmon Safe's zero sediment runoff goal**
	Operations and Management: Review, amend and adopt **integrated pest management and pesticide free practices**

Thank you!

Juliet Sinisterra, CEO

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