Future Shorelines: Planning for coastal and riverine flooding in Whatcom County

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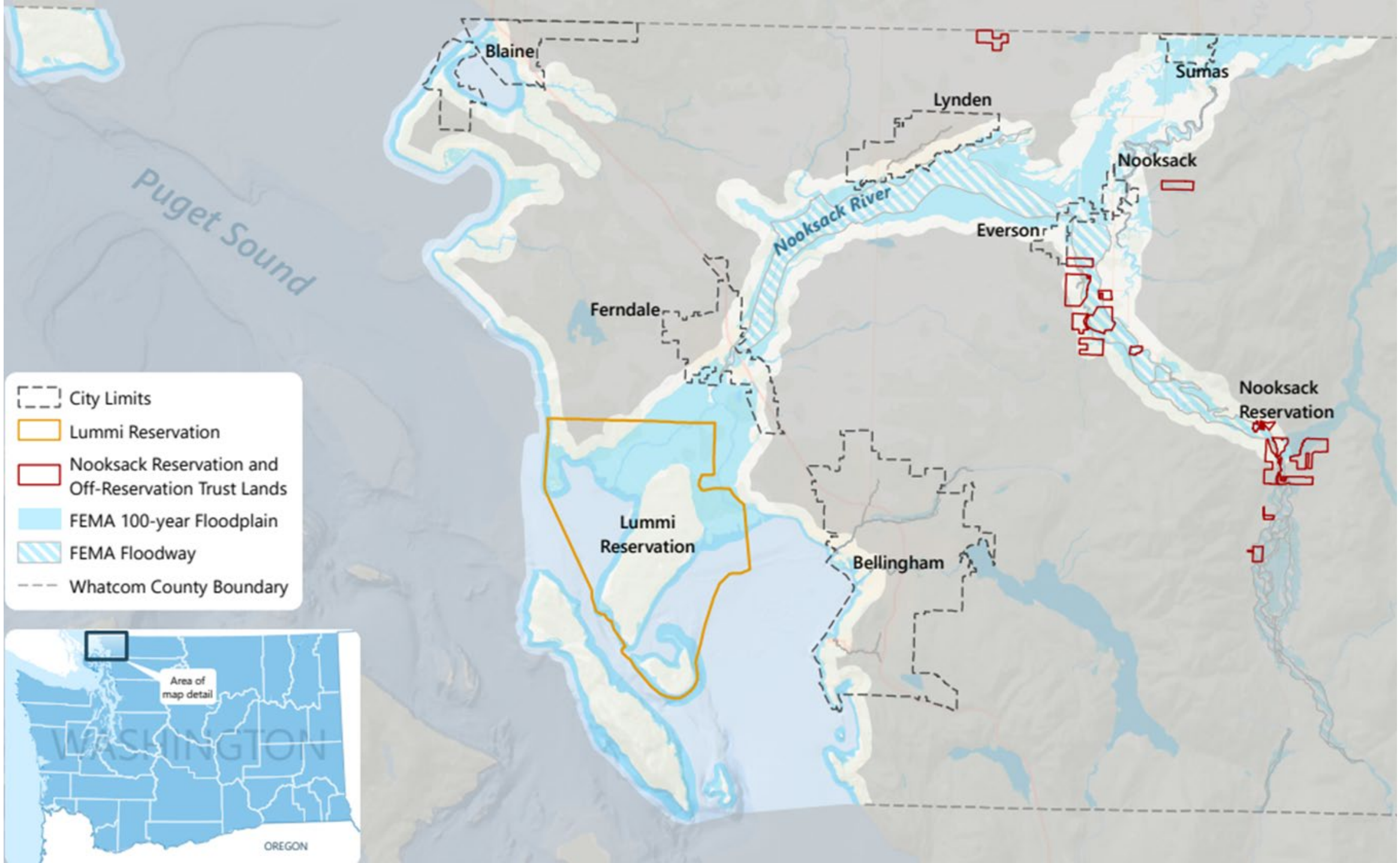
Photo credit: Bellingham Herald


OPEN


Blaine
Lynden
Sumas
Nooksack
Nooksack River
Everson
Ferndale
Puget Sound
Nooksack Reservation
Lummi Reservation
Bellingham
City Limits
Lummi Reservation
Nooksack Reservation and Off-Reservation Trust Lands
FEMA 100-year Floodplain
FEMA Floodway
Whatcom County Boundary
Area of map detail
WASHINGTON
OREGON


WHATCOM COUNTY
WASHINGTON


BLAINE
WASHINGTON


DEPARTMENT OF
ECOLOGY
State of Washington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city of
everson


Sea Grant
Washington


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TREATY OF 1855


CITY OF FERNDALE
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USGS
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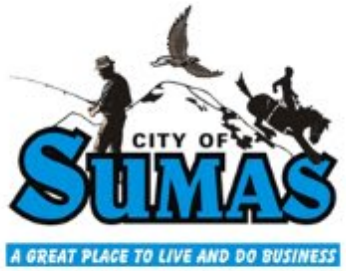
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PORT OF BELLINGHAM
Washington State

IDENTIFY **ASSETS** TO PROTECT

IDENTIFY PRIMARY **HAZARDS**

ASSESS **EXPOSURE** WHERE ASSETS AND HAZARDS OVERLAP

ASSESS THE **SENSITIVITY** OF EXPOSED ASSETS

ASSESS THE **ADAPTIVE CAPACITY** OF SENSITIVE ASSETS

DETERMINE THE **VULNERABILITY** OF ASSETS

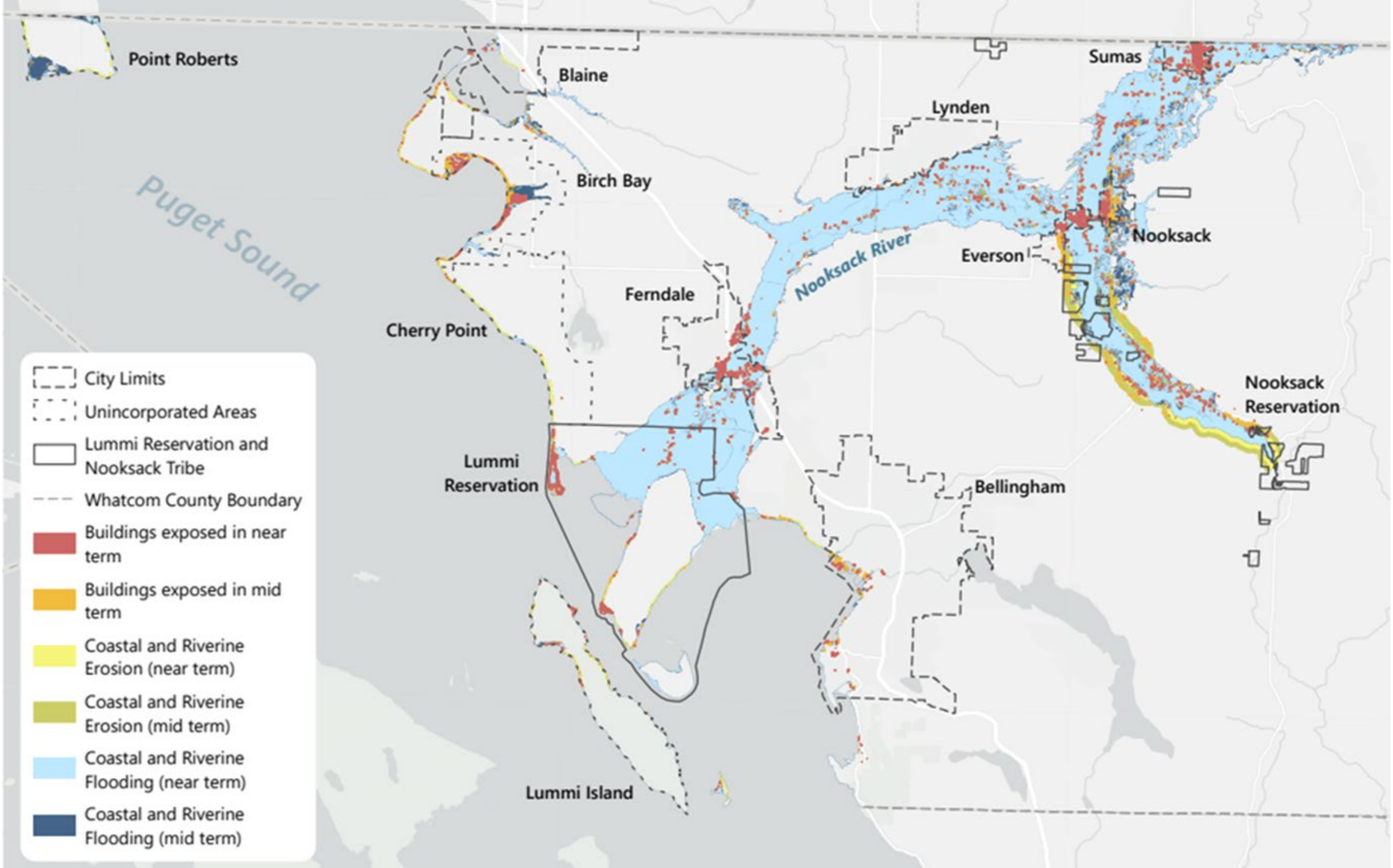

Point Roberts
Blaine
Birch Bay
Puget Sound
Lynden
Sumas
Nooksack River
Everson
Nooksack
Ferndale
Cherry Point
Nooksack Reservation
Lummi Reservation
Bellingham
Lummi Island
City Limits
Unincorporated Areas
Lummi Reservation and Nooksack Tribe
Whatcom County Boundary
Buildings exposed in near term
Buildings exposed in mid term
Coastal and Riverine Erosion (near term)
Coastal and Riverine Erosion (mid term)
Coastal and Riverine Flooding (near term)
Coastal and Riverine Flooding (mid term)

Photo credit: Christopher Ramirez

How are you considering future flood risk in your jurisdiction's plan or code?

special flood hazard corridor. Could be effective tool elsewhere?

Elevated 2 ft above BFE - specific to new construction and substantial development

Partnering with state and County to have new homes above flood level

Acquisition of homes destroyed in flood to preserve flood capacity

Implementing grant for folks who want to elevate

State money through floodplains by design and Commerce to augment other funding sources for buyout

County considering raising building code to 2 ft (current 1 ft)

What is a long term adaptation strategy you plan to pursue in your jurisdiction? Why is it compelling to you?

Channel migration easements - would give rivers space (eg upstream) where river constricts. Compensate landowners. Ease pressure of flooding for whole river in other location

Channel migration easements - could be slow process. Use until river takes it.

Financing strategies for repair. Short term loans with banks?

Move UGA outside risk area (Sumas doing in western edge, higher, out of flooding, new development)

UGA swap. One in proposed FEMA floodway and swap ag land west of town outside of floodplain, but is agricultural. State GMA prohibition, not County.

Continue buyout program - historically state primary funder with Floodplains By Design (a couple per year). Would need more state funds

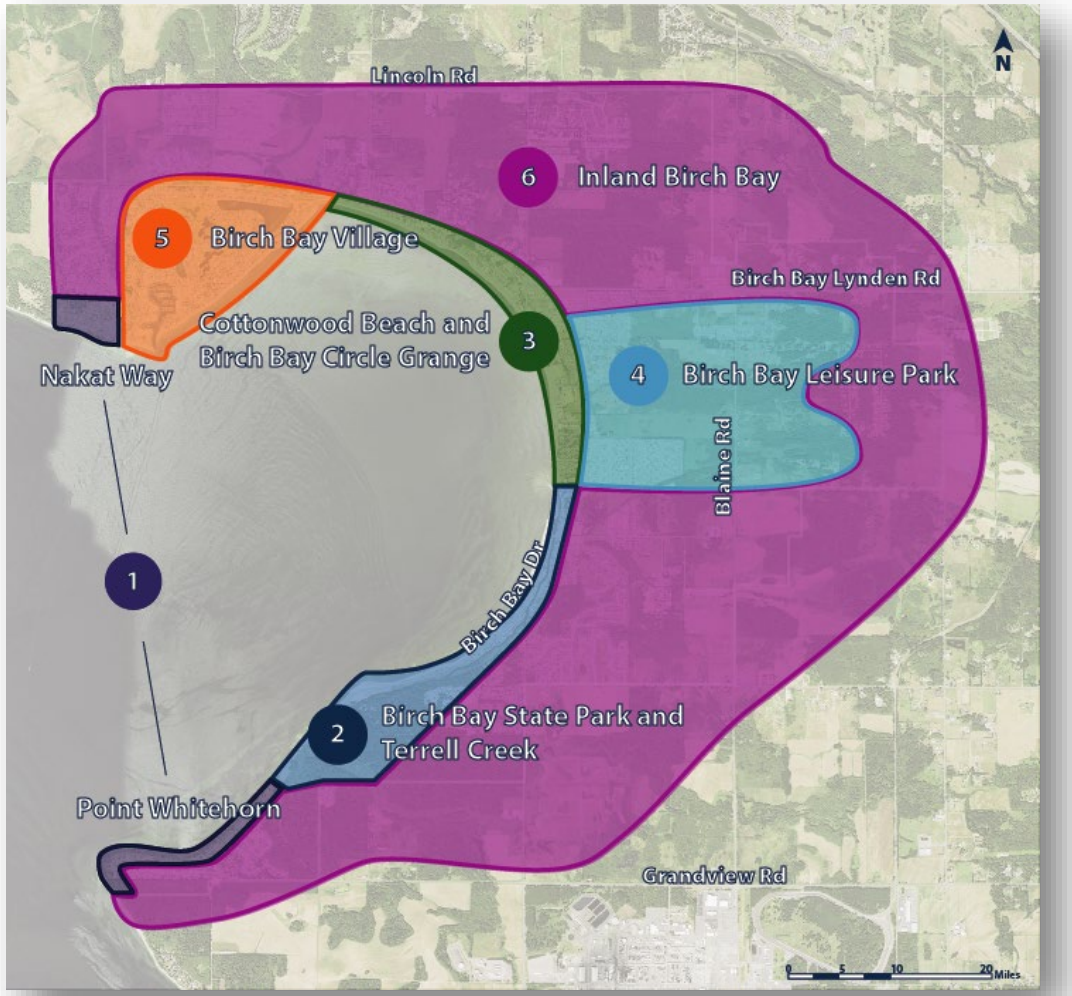
Adaptation strategy library

Library of Flooding and Erosion Adaptation Strategies

The full library and database of adaptation options.

ID	Adaptation Category	Adaptation Strategy	ID - Adaptation Option	Description
1	Accommodate	Elevate public assets	1 - Elevate public assets	Elevate public asse buildings, utilities, t architectural featur foundations, elevat
2	Accommodate	Floodproof utility assets	2 - Floodproof utility assets	Waterproof assets t power, sewer, wate damage or risk of fa
3	Accommodate	Elevate private assets	3 - Elevate private assets	Elevate private asse using variety of tact pile-on foundations above flood level, o
5	Avoid	Surface drainage management	5 - Surface drainage management	swales, gutters, div downspouts to redu erosion.
6	Avoid	Subsurface groundwater management	6 - Subsurface groundwater management	groundwater levels reducing the risk of slumping.
7	Protect	Beach nourishment	7 - Beach nourishment	Beach nourishment artificial placement shore to maintain th
8	Multiple	Coastal habitat restoration	8 - Coastal habitat restoration	Restore coastal hab beds, kelp forests, v
9	Protect	Large wood selective placement	9 - Large wood selective placement	Large woody debris and logs - can reduc
10	Protect	Seawalls or rock revetments	10 - Seawalls or rock revetments	stone to protect lan surges, and coastal

Adaptation pilot plan



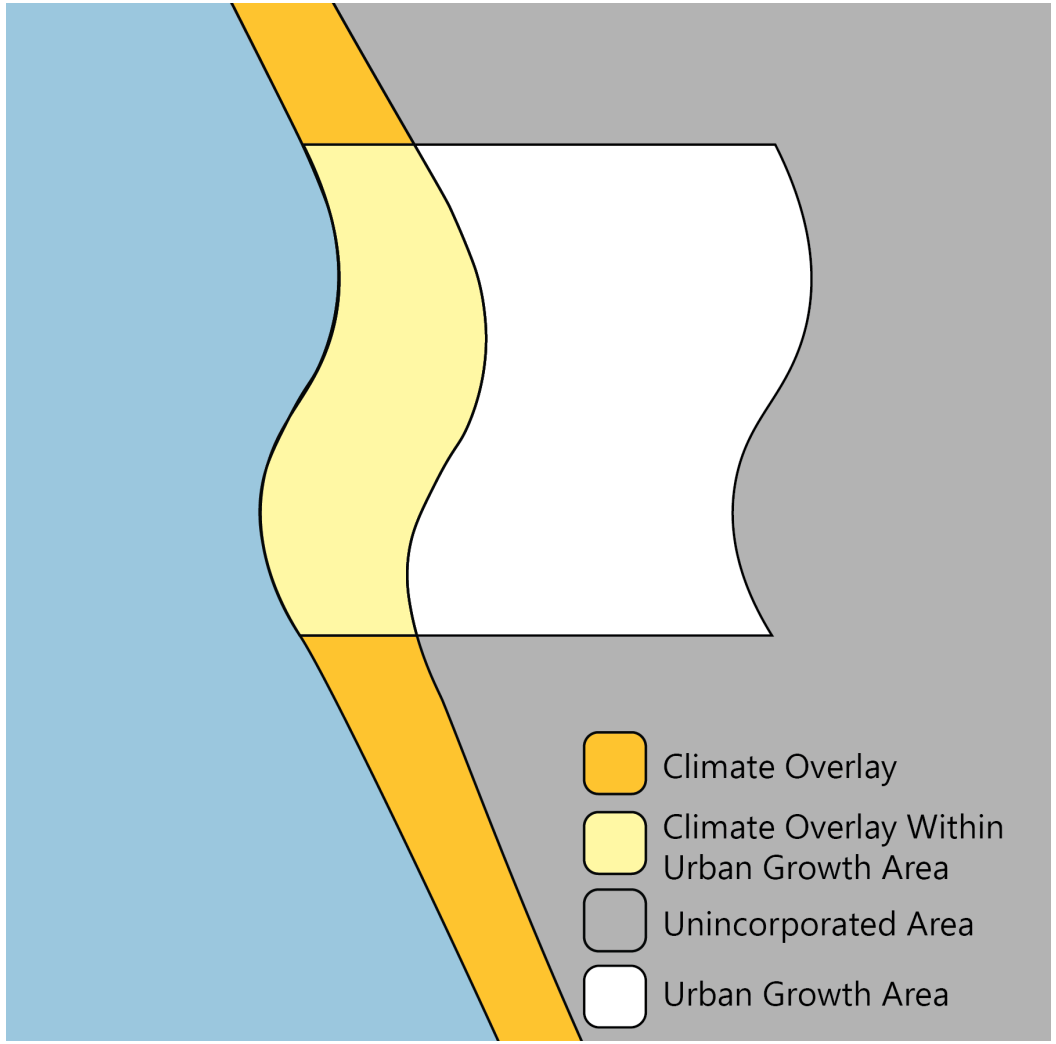
Near-Term Action	Mid-Term Action	Long-Term Action
	COMMUNITY: **Restrict new development near bluff crest.**	COMMUNITY: **Restore natural habitats along the bluff** to mitigate future erosion risks and provide natural buffers.
NEIGHBORHOOD: **Improve stormwater and vegetation management on coastal roads** to reduce erosion risks from stormwater runoff and increase stability of soils near coastal roads.		NEIGHBORHOOD: **Move transportation and utility assets, such as Holeman Avenue and sewer and water lines, away from bluff crest** and outside future erosion hazard zones.
	PARCEL: **Support residents with best management practices and nature-based solutions** – such as vegetation management, stormwater improvements shoreline armor removal, and restoration.	PARCEL: **Move buildings away from bluff crest** and outside future erosion hazard zones.

Climate overlay

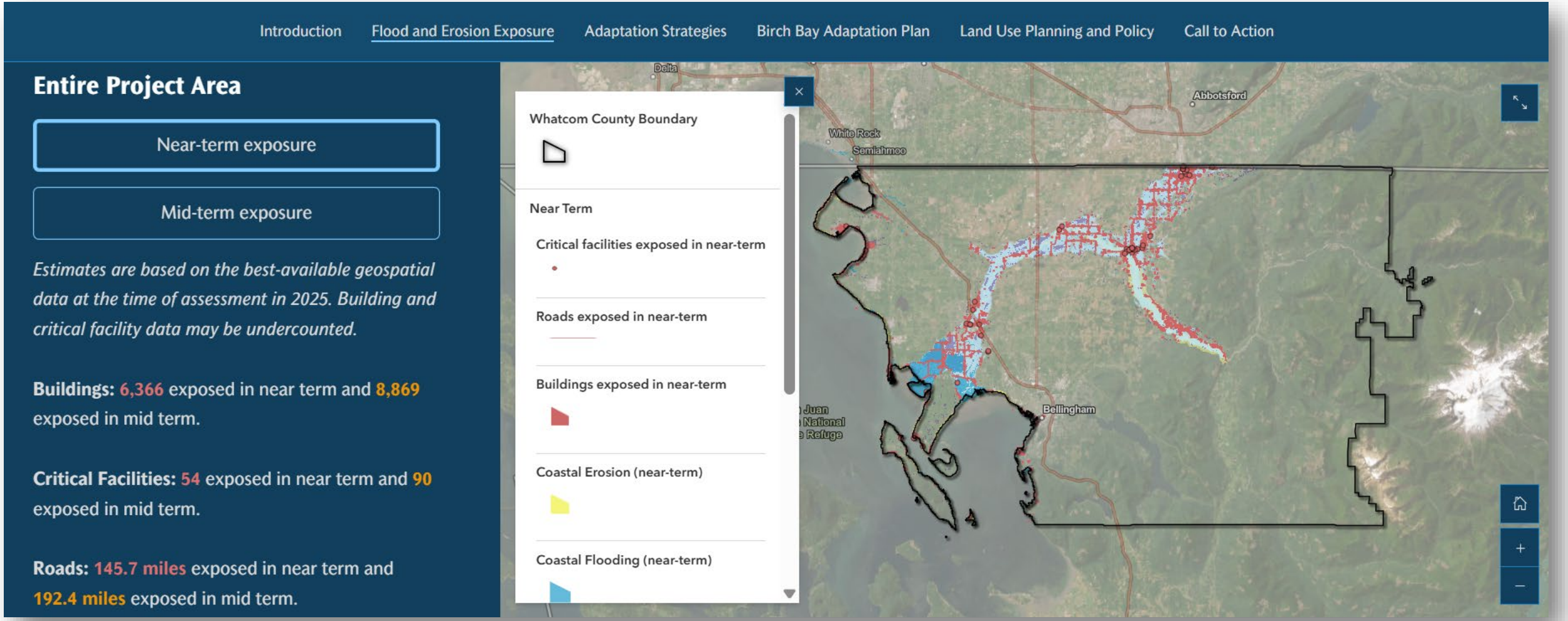
1. Restrict new development within the climate overlay.

2. Direct growth outside the climate overlay.

3. Support relocation and risk reduction programs.



StoryMap (External)



Decision-support tool (Internal)

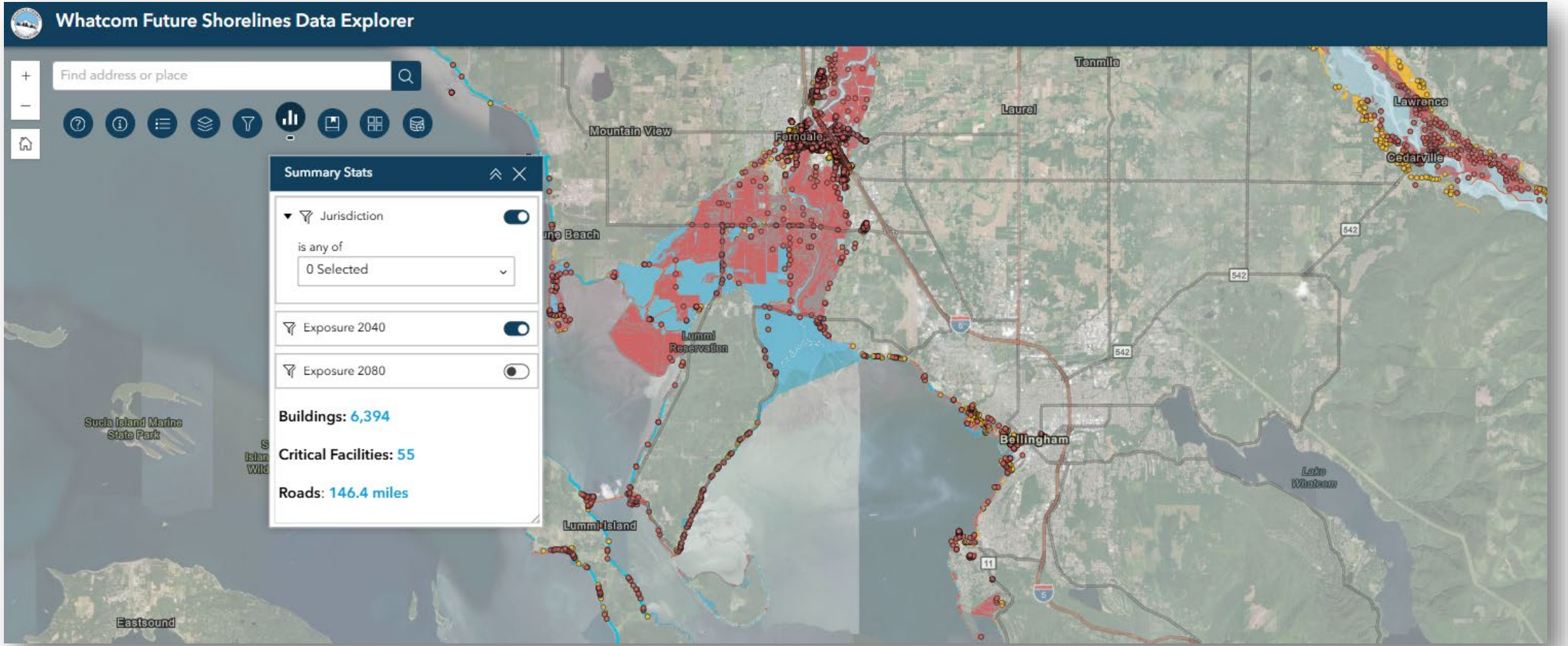



Photo credit: Department of Ecology

Thank you

Whatcom County Future Shorelines Project

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