



Revitalization of Brandt's Creek

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IGS 585 2023 Sustainability & Knowledge Mobilization



Land Acknowledgement

We are here today presenting to you on the Traditional, Unceded and Ancestral Territory of the Syilx Okanagan Peoples. We are grateful to be here today with you folks to share our thoughts on the revitalization of Brandt's Creek.

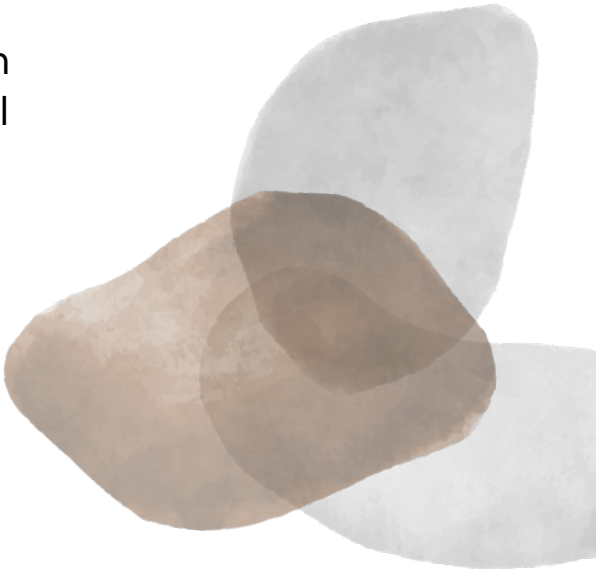
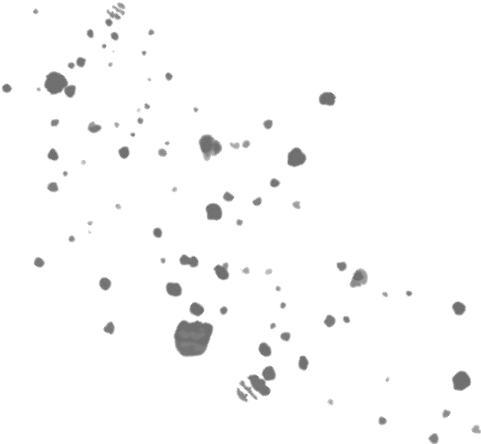


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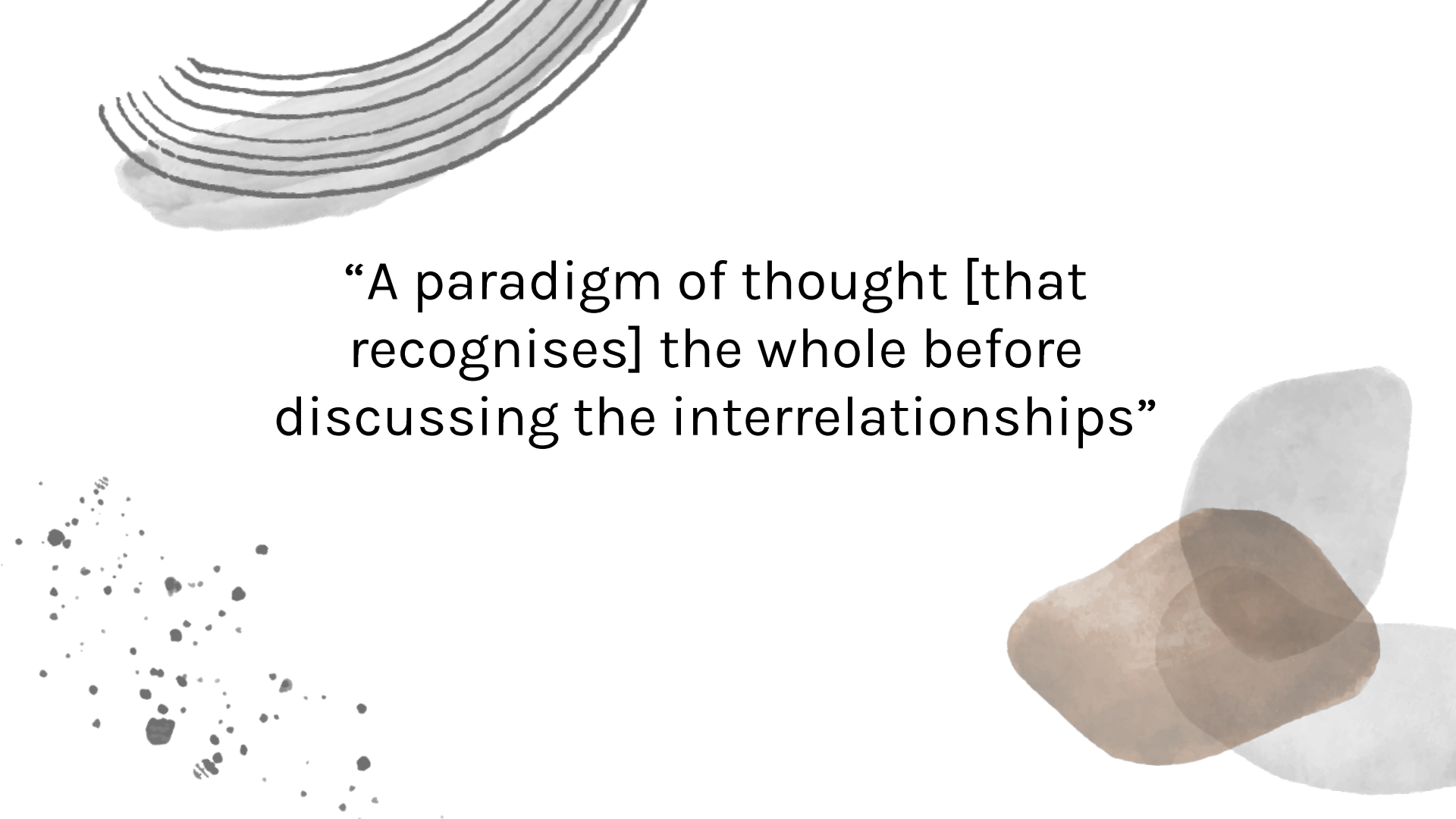
Conclusions

An abstract watercolor illustration on the left side of the page. It features a greyish stream flowing from the top left towards the center. Below the stream are two large, rounded rocks, one in a brownish-tan color and one in a light grey color. To the right of the rocks are several thin, black, curved lines representing trees or branches. The background is white with scattered black dots of varying sizes, suggesting a misty or textured atmosphere.

Conceptual Framework

We will be using a systems analysis approach. Brandt's Creek is inextricably linked to the landscape of downtown Kelowna and so we will consider the different layers of systems that influence its health as a waterway.

Landscapes as human-environment systems.



“A paradigm of thought [that recognises] the whole before discussing the interrelationships”



History of the Landscape

Syilx elders remember the pre-colonisation Okanagan grasslands as “wide-open expanses where people, elk, horses, and sharp-tailed grouse freely roamed.”

Brandts Creek was once part of a marshy riparian ecosystem in what is now downtown Kelowna.

Kelowna was founded in 1905.





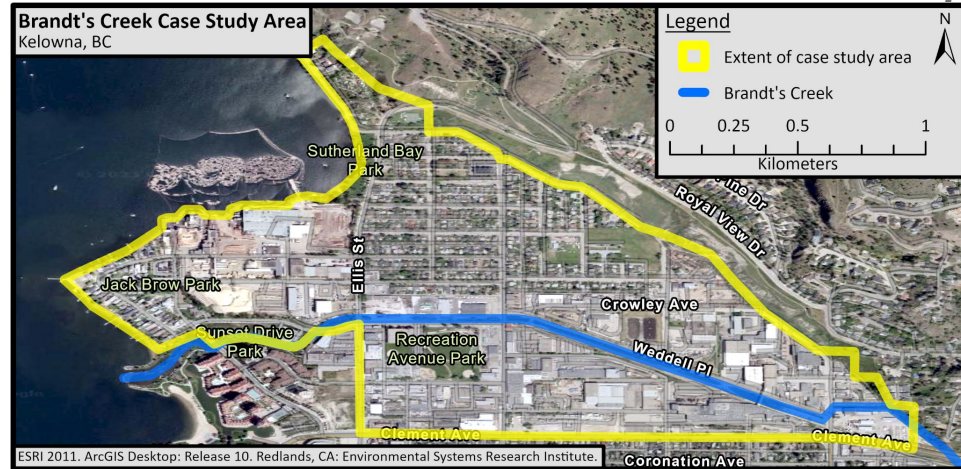
The background features several light gray watercolor washes and splatters of varying sizes and shapes. A prominent brownish-orange wash is on the left, partially overlapping the '01' text. In the upper right, there are several thin, parallel black lines. The overall aesthetic is clean and artistic.

01

Development

An overview of development of the creek and the surrounding infrastructure.

Channelization





Modification of the Creek



Meandering

Why is it important?

Support fish life cycle

Nutrient availability

Algae growth

Development at Brandt's creek

Urban development increasing vulnerability

Floodplain development

Reduce impervious surfaces

Solutions

What are the potentials for retrofitting?

Green Infrastructure

Increasing natural flora and fauna

Potential for Swales



What can we learn from Mission Creek's MCRI

Figure 3: Phase I Restoration Area With Conceptual Re-meandering



- “The mission creek restoration initiative is a multi-disciplinary, multi-stakeholder undertaking with a goal of restoring the lower section of mission creek to a more natural condition.” (MCRI, 2011)
- Benefits of restoration:
 - ◆ Enhance riparian habitat
 - ◆ Stormwater capacity
 - ◆ Reduced flood risk
 - ◆ Spawning areas for kokanee and trout
 - ◆ Carbon Sequestration
- Improved community care

Channelization



Figure 5: OrthoPhoto (1938) Illustrating Natural Stream Alignment and Undeveloped Floodplain

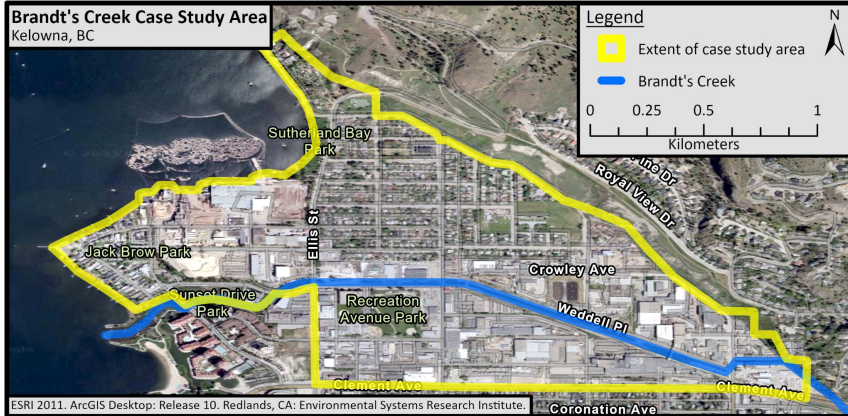
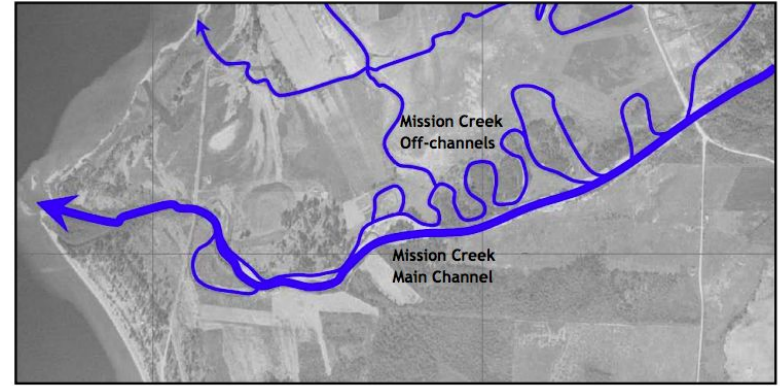


Figure 6: OrthoPhoto (2009) Illustrating Contemporary Stream Alignments and Developed Floodplain

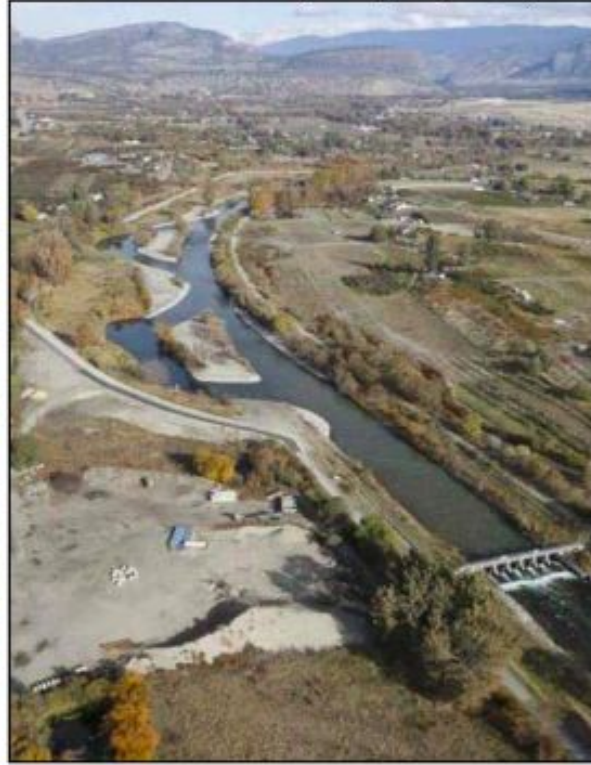


Okanagan River Restoration Initiative

Figure 1: Phase I Okanagan River - Illustrating Pre-restoration Conditions



Figure 2: Phase I Okanagan River - Illustrating Construction Conditions (nearing completion)



The background features several watercolor-style splashes in shades of grey and brown. A prominent brown splash is on the left, partially overlapping the '02' text. Other grey splashes are scattered across the top and right. Numerous small, dark ink-like dots are scattered throughout the white background, creating a textured, artistic feel.

02

Housing

An overview of the housing market in Kelowna and our proposal



Introduction

Develop affordable and luxury housing options

Goals for our proposal:

- Housing without gentrifying

- Social cohesion

- Sanctuary for the homeless population.

Obstacles to meeting our goals:

- Class monopoly rent

- Free-market principles prioritization

- Individualism over community-building.



Literature Review

Neoliberalism: free markets, individualism, and minimal government intervention

Housing outcomes are a product of economic and political motivations

Implications of Canadian cities catering to neoliberal market forces

Commodification, speculation, and wealth concentration in real estate



Policy/Development Recommendations



Community land trusts



Inclusionary zoning



Housing continuum



Care continuum



Conclusion

Provide affordable and diverse housing options, facilitate social cohesion, and provide sanctuary for the homeless population.

Addresses the challenges posed by neoliberalism

The plan incorporates CLTs and other methods to ensure affordability and avoid gentrification.



03

Community

Who are the folks that live near Brandt's
Creek?



60 – 100 People

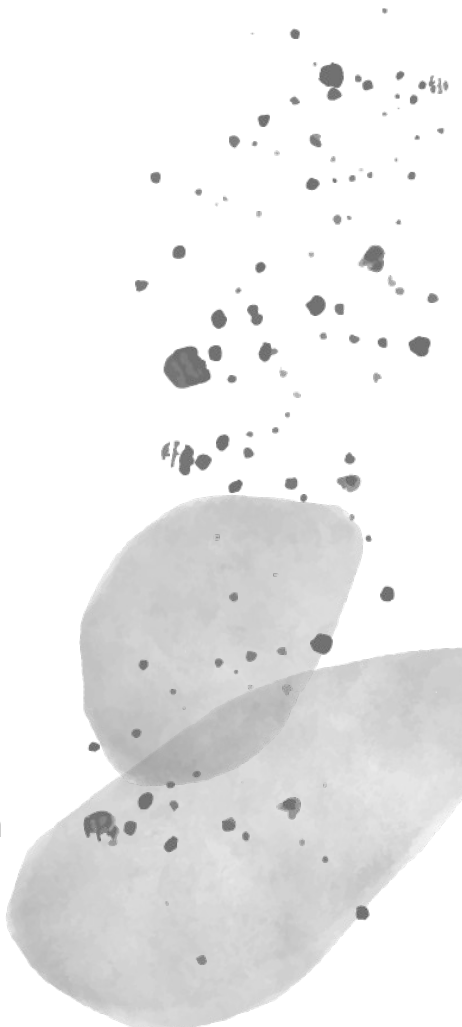
Currently living in what is known as Tent City
(Munro, March 24th, 2023)

100 More People

Could be unhoused by the winter in Kelowna
(White, March 13th 2023)

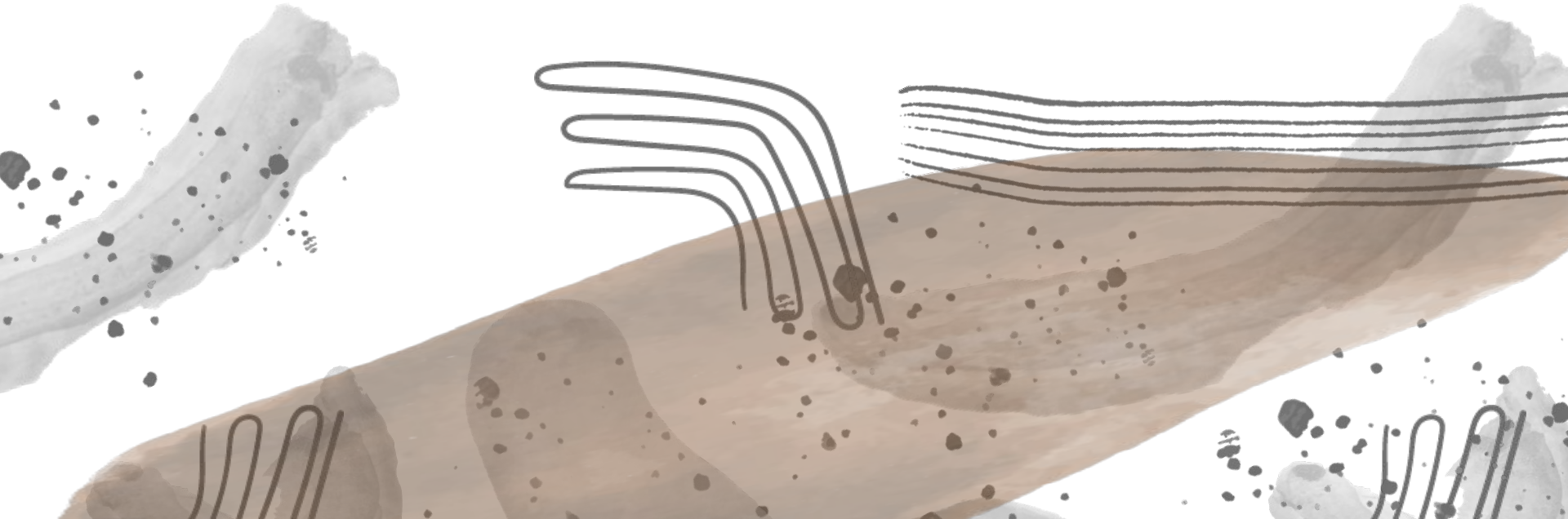
1000 People

Are currently unhoused in the Central Okanagan
(Seymour, March 16th, 2022)



8000 Households

Are spending between 30 - 50% of household income on rent
(Munro, May 6th, 2022).






What has Kelowna been doing to help?

Kelowna Gospel Mission

Has been around for more than 40 years being an advocate for the unhoused folks of Kelowna.

27 Insulated Shelters

Were distributed in January 2023 as a pilot project (Peters, February 1st, 2023).





What is happening at other layers of the system?

Provincial

According to the provincial government, folks are only considered unhoused if they have been on the streets for more than 30 days (BC Government, 2009).

Federal

Opportunity For All - Canada's first poverty reduction policy (August 2018).




COVID-19 Impact

200 Beds

Pre-COVID Number (Wheeler, 2020).

2024

Is the year the city of Kelowna aims to eliminate chronic homelessness (Wheeler, 2021).

The background features several abstract watercolor-style shapes. On the left, there is a large, light grey shape partially overlapping a brownish-tan shape. A series of thin, dark lines radiate from the top left towards the center. On the right side, there is a vertical, light grey shape. In the bottom right corner, there is a smaller, light grey shape with a more textured, layered appearance.

**So...Why is this relevant
to the revitalization of
Brandt's Creek?**

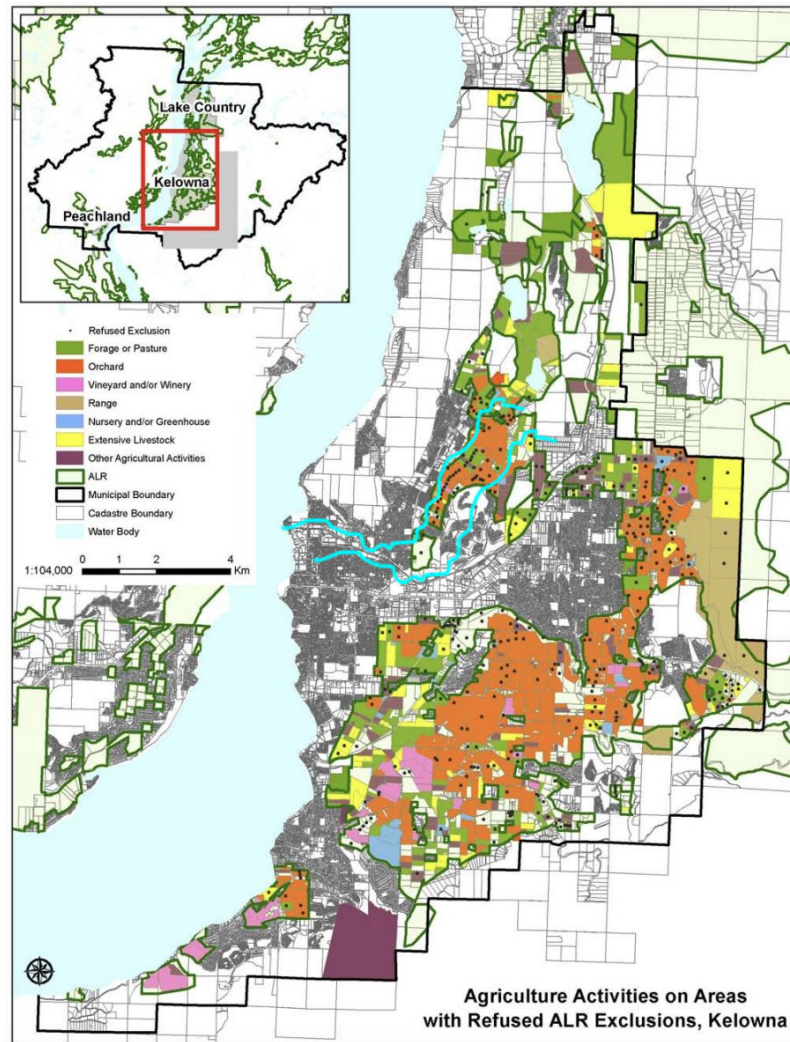


04
Water Pollution

Urban Runoff



Okanagan Lake - Kelowna, 2017 flood



Ministry of Agriculture and Lands and
Agricultural Land Commission, 2008

Agricultural Runoff

Reducing chemical use
Implementing BMP's / 4R's



Orchard agriculture - Kelowna

Industrial pollution: a century of stigma



City of Kelowna.

Figure: earliest available aerial image of the North End

Industrial Pollution

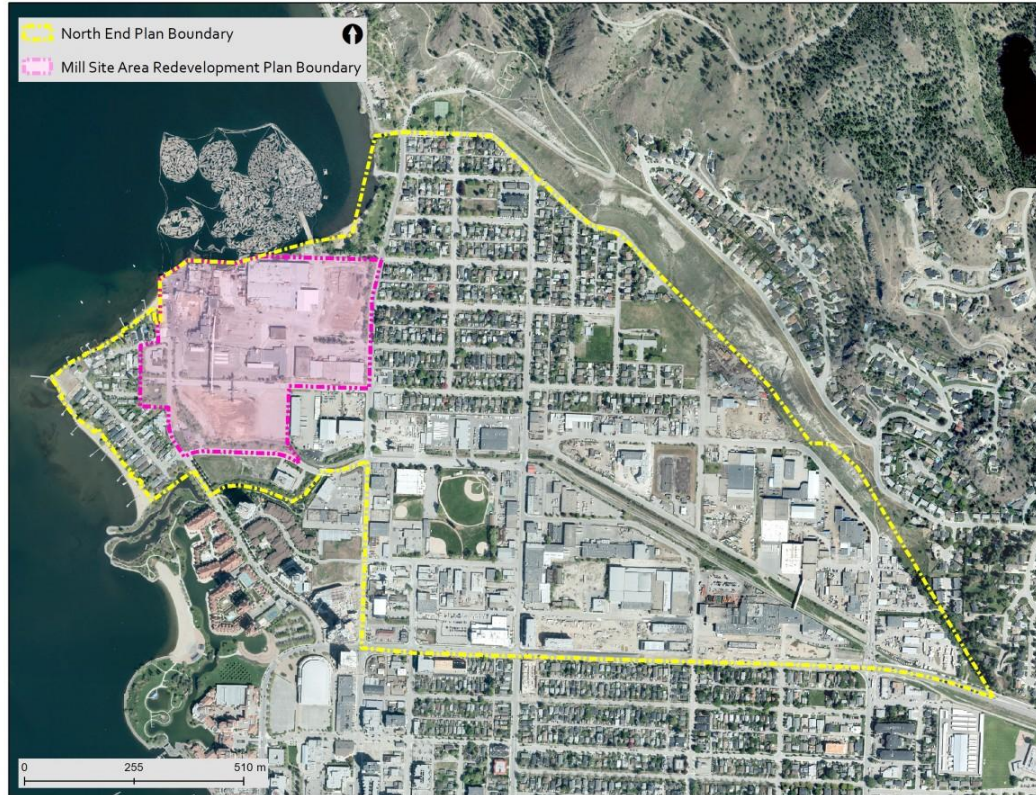
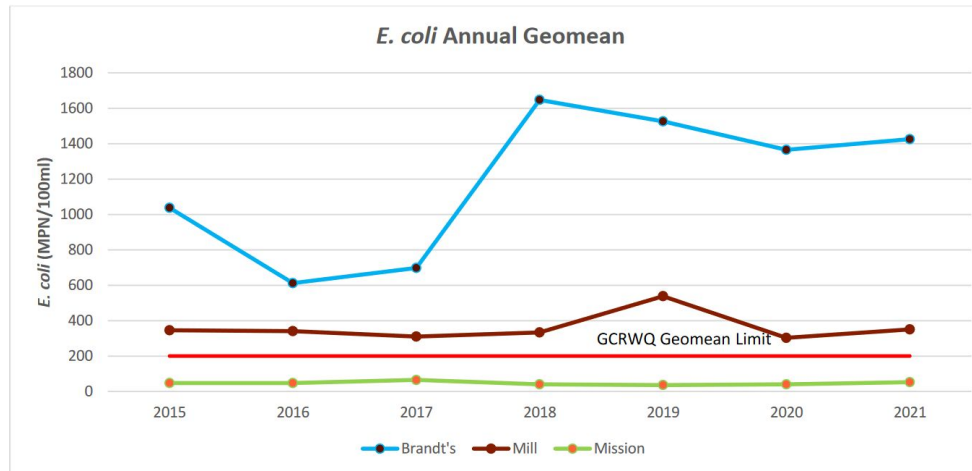


Figure: Boundary of the North End plan.

Industrial Pollution

Brandt's creek has been reported* to

- carry the highest concentration of E. Coli each year since 2015.
- rank worst in all 10 water quality parameters measured amongst the creeks.



*2021 City of Kelowna Annual Water and Filtration Deferral Report

Industrial pollution: attempts at remediation



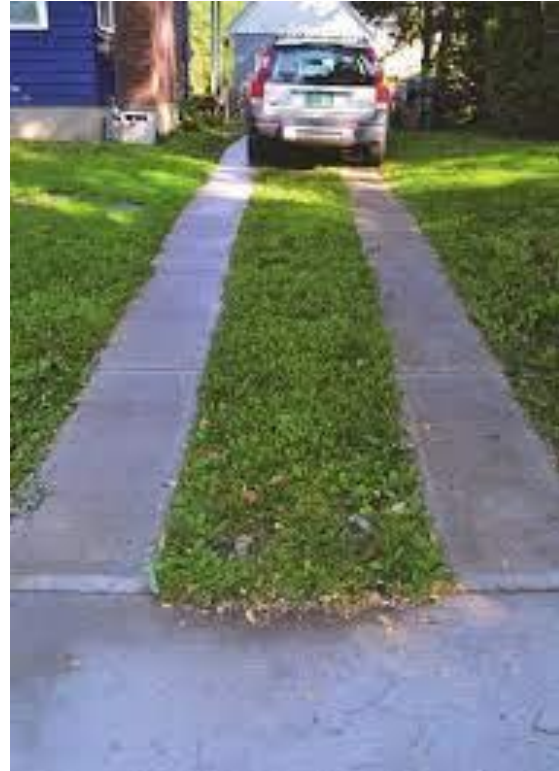
Figure: Brandt's Creek Trade Waste Treatment Plant.

The background features several abstract watercolor-style shapes. On the left, there is a large brown shape with several thin black lines extending from its top-left corner. Above it is a grey shape. On the right side, there is a large grey shape at the top and a smaller, more textured grey shape at the bottom right. The text is centered in the middle of the page.

**So...why is Brandt's
creek still the most
polluted?**

Recommendations

- Minimizing first flush and stormwater discharge through green infrastructure development.
- Minimizing bureaucratic red tape and streamlining the dredging process to improve the creek's flow.
- Addressing fugitive sources of pollution around the creek.





05

Biodiversity

The biodiversity of
Brandt's Creek

Biodiversity Concerns

Invasive species

Non-native species including Siberian Elm and watercress, thistle, knapweed.

Channelization

Artificial straightening and undergrounding of the creek.

Pollution

Industrial outflows, road runoff, garbage, warm water discharge.

Lack of Cover

2007 survey found over 63% of the creek to be devoid of riparian shrub and tree cover.

Biodiversity Opportunities

Rotary Marsh

Restoration project in the early 1990s created a significant bird habitat.

History

Brandts creek was once part of a marshy wetland ecosystem.

Existing Biodiversity

Deer, muskrat, fish, birds, turtles.

Connections

Potential as a wildlife corridor.







Biodiversity Recommendations



De-channelization

The creek needs to be able to meander.

Tree planting


Increased tree cover will provide multiple benefits.

Daylighting

Significant portions of the creek run underground.

Pollution control

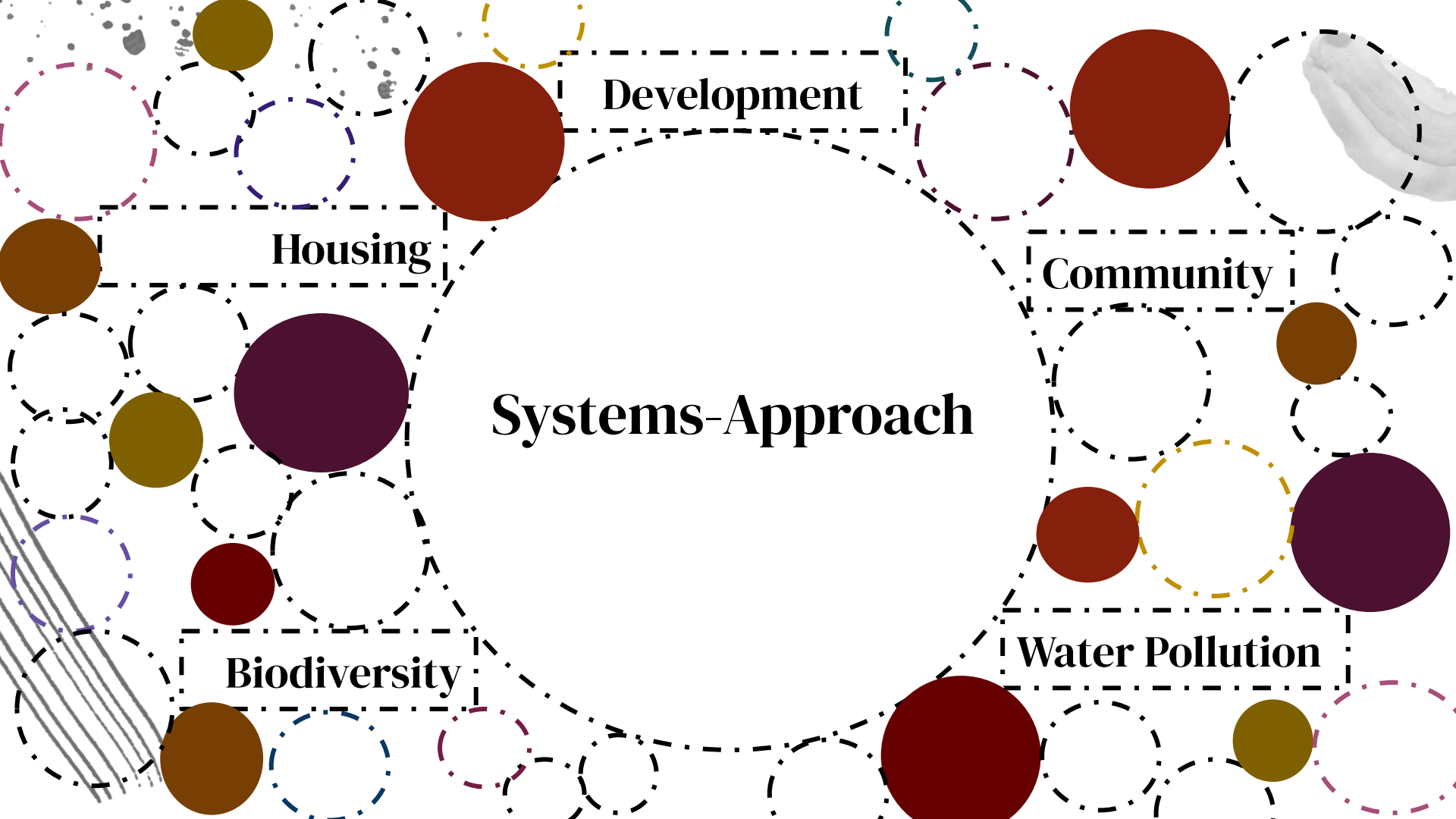
The multiple sources of pollution need to be tackled.





06

Conclusions



Development

Housing

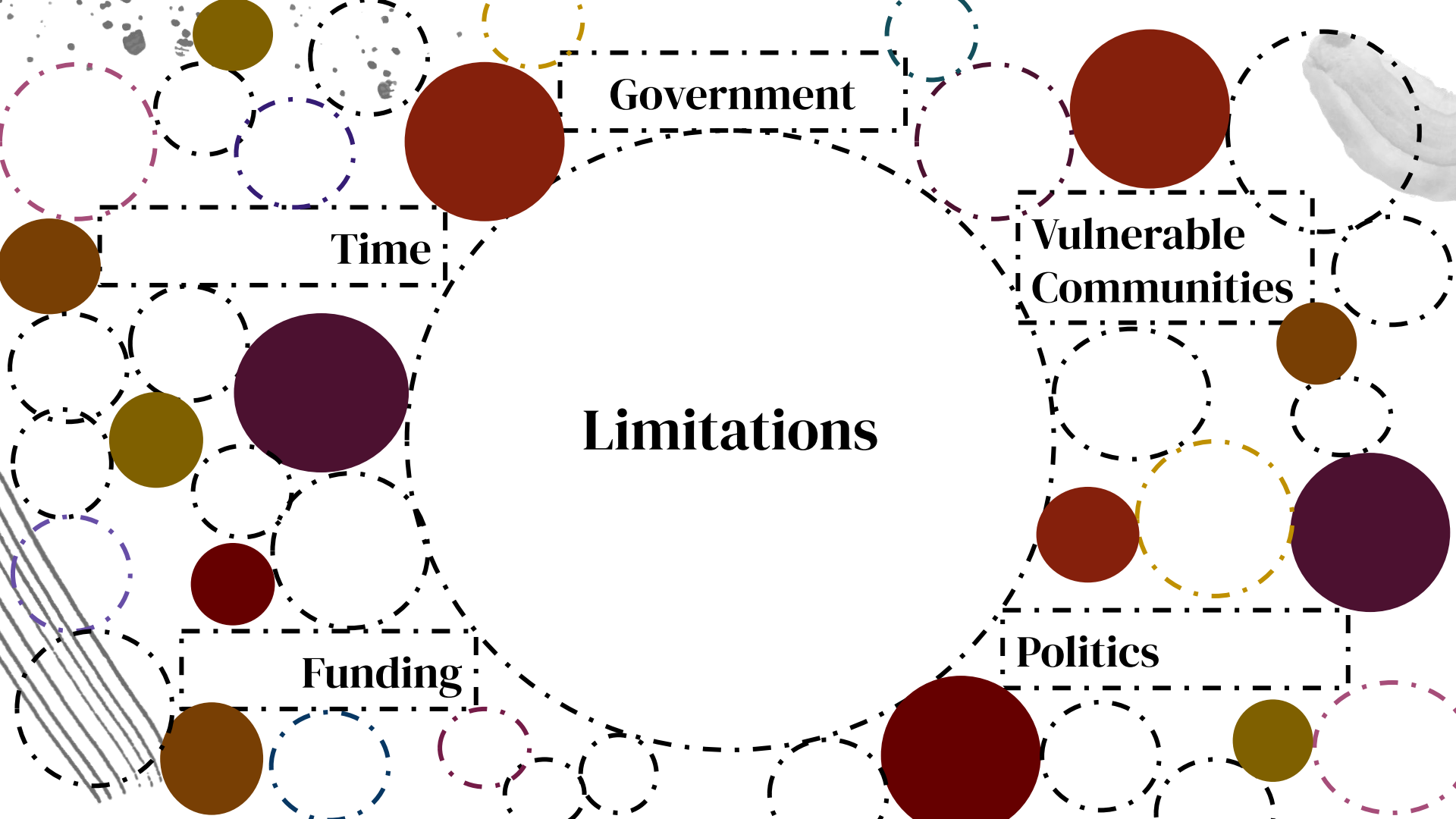
Community

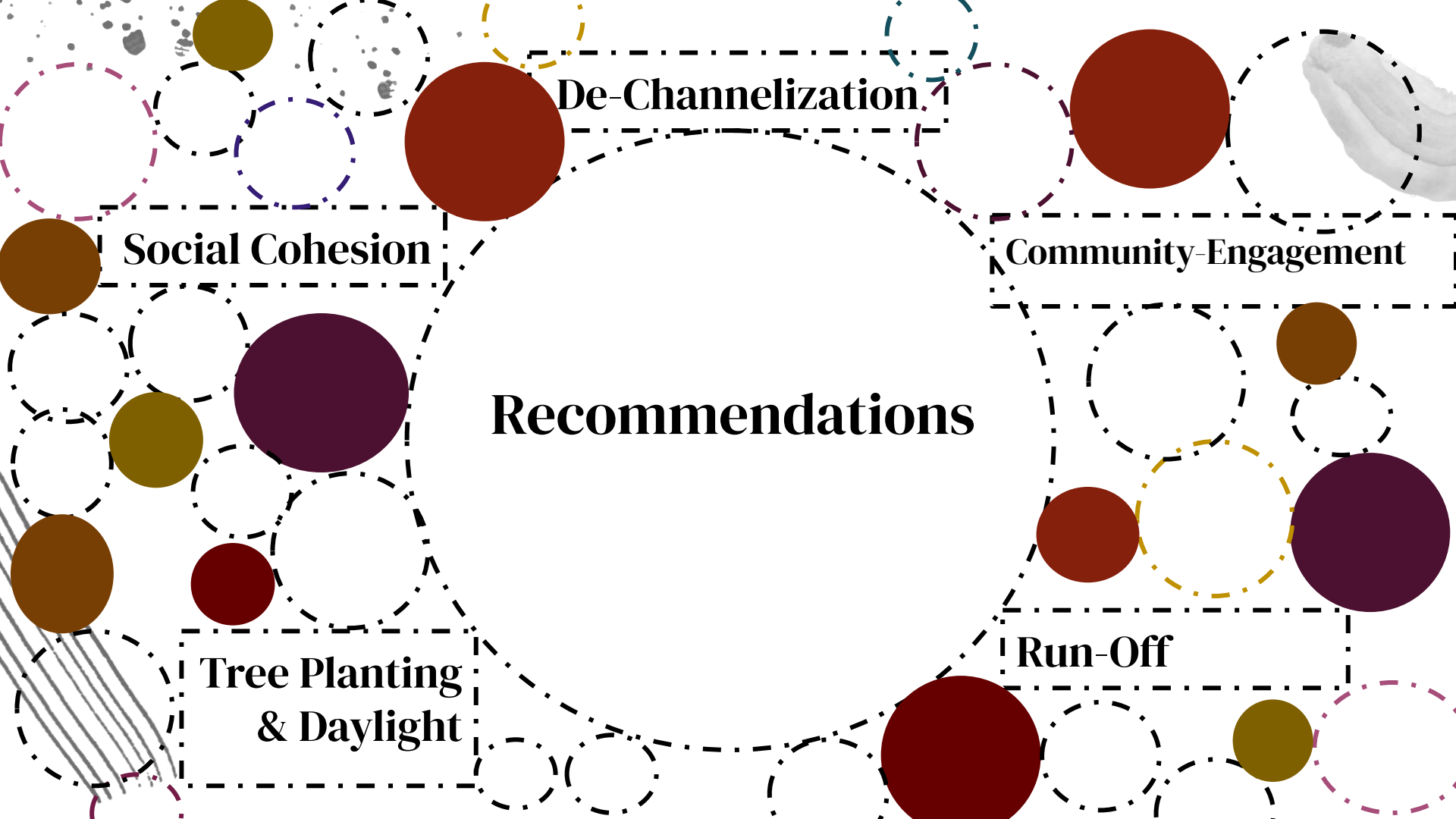
Systems-Approach

Biodiversity

Water Pollution







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Thank You!

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