



Green Infrastructure: Opportunities and Options for the City



Feb 22, 2021

What is Green Infrastructure?

- ▶ enhanced ecological and engineered assets designed to mimic and maintain connectivity with natural systems
- ▶ aims to deviate from natural processes as little as possible.



Why Move Toward Green Infrastructure?

- ▶ Imagine Kelowna
 - ▶ Be resilient in the face of climate change
 - ▶ Create great public spaces
 - ▶ Build healthy neighbourhoods for all
 - ▶ Grow vibrant urban centres
- ▶ Council Priorities
 - ▶ Resiliency and adaptability to climate change
 - ▶ GHG emissions are decreasing
 - ▶ Infrastructure deficit is reduced
 - ▶ Site design is high quality...
- ▶ 2030 OCP
 - ▶ Obj.7.1 Apply sustainable decision-making approaches
 - ▶ Obj. 7.2 Design infrastructure to deliver maximum benefit
 - ▶ Obj. 7.23 Manage stormwater and run-off to reduce risk of flooding and erosion



More precipitation



Extreme Weather

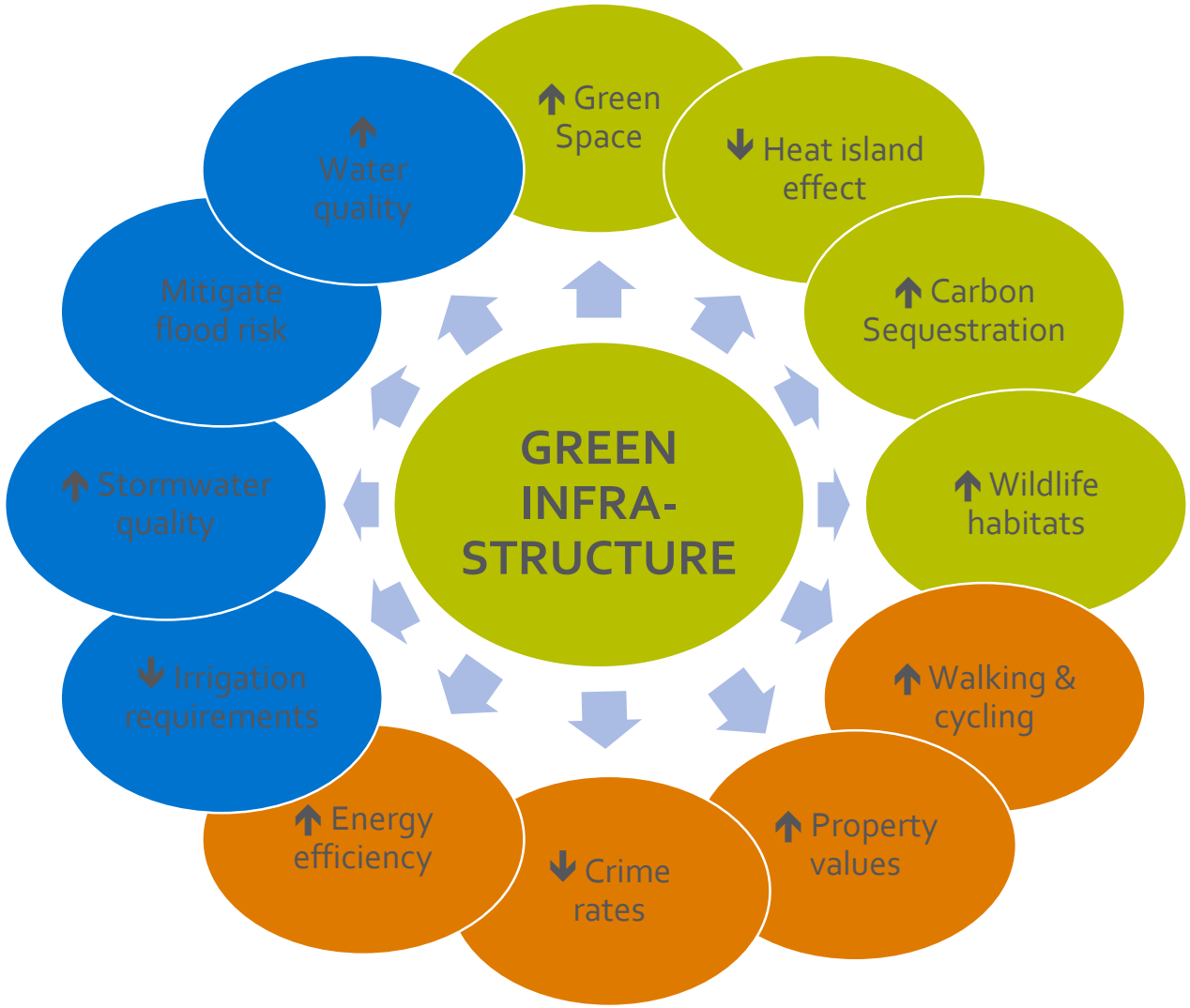


Drier summers



Warmer temperatures

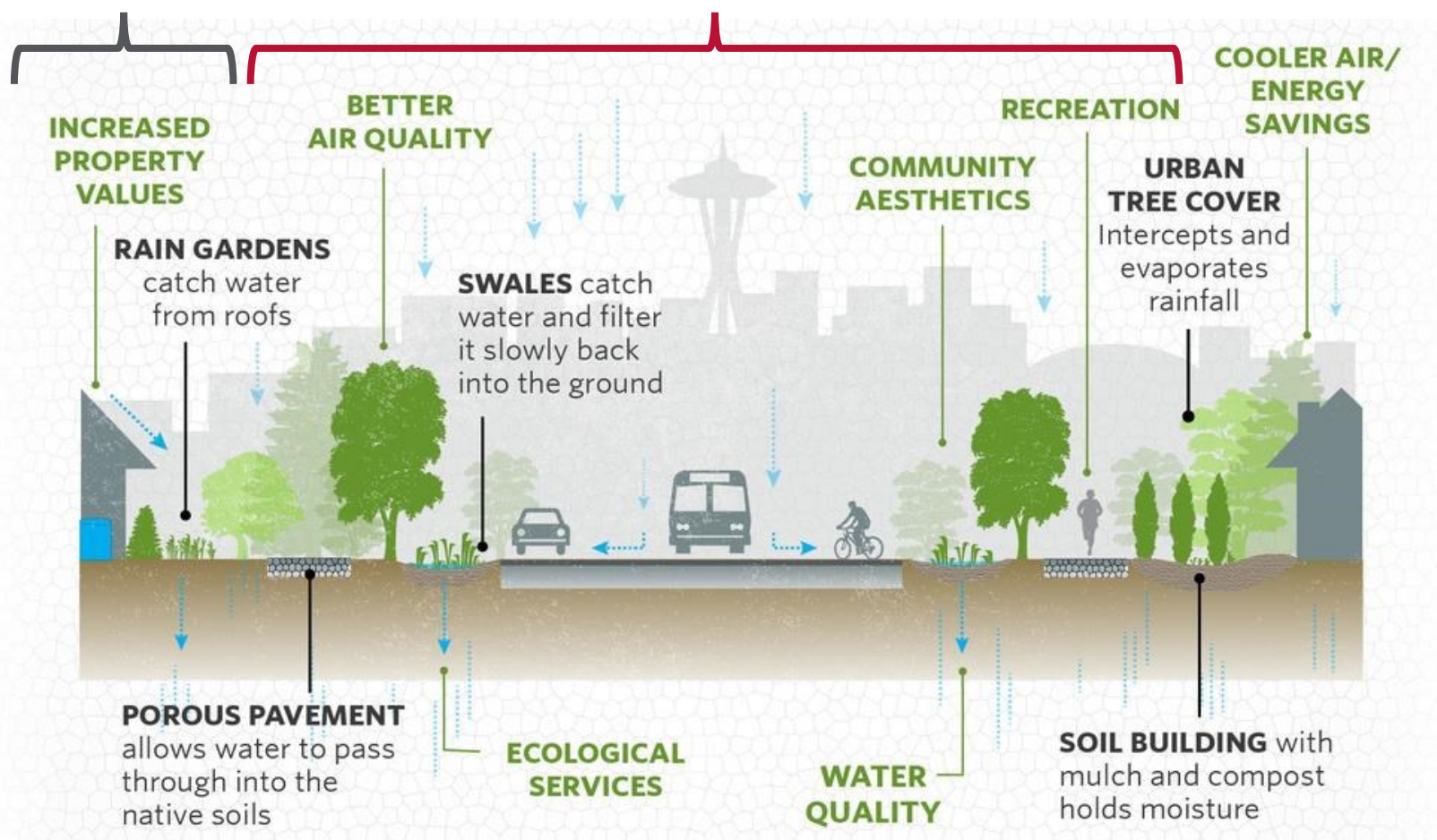
Green Infrastructure Benefits



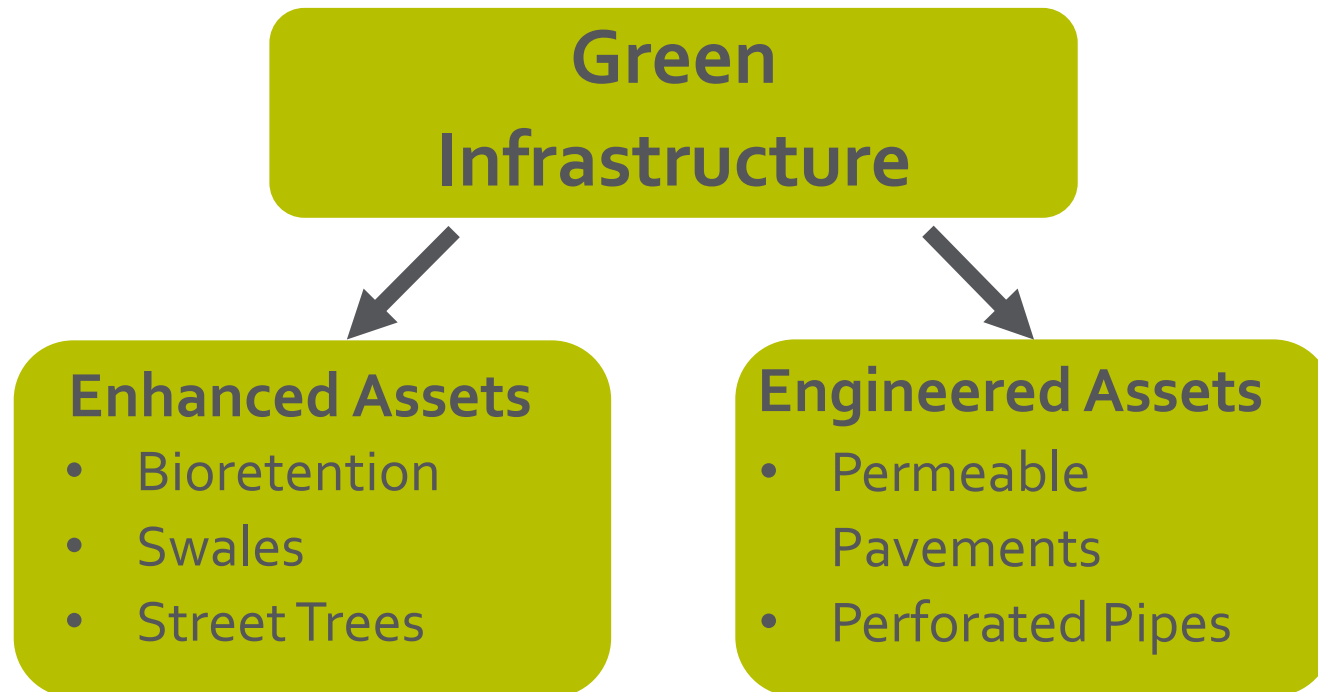
Study Focus: GI in Public ROWs

ONSITE GI

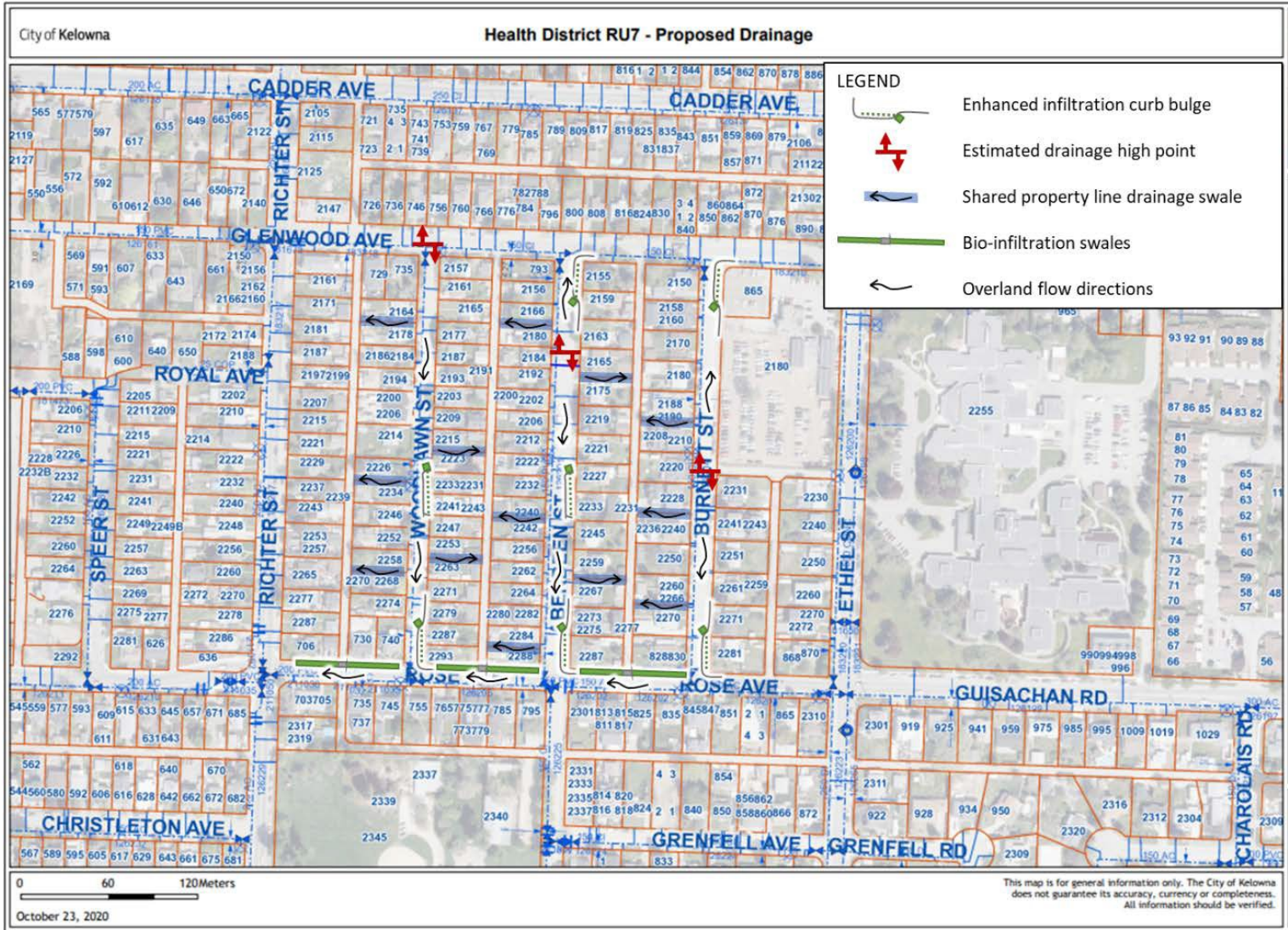
GI IN PUBLIC ROWs



Infrastructure Options



Case study: GI Potential



Bioretention



Swales



Bioretention Bumpouts and Bioswales



80 Years: \$1,783,600

Construction cost: \$217,500

Annual Maintenance Cost: \$15,000

Average Annual Renewal Cost: \$5,000

Direct benefits:

- ✓ Modular design
- ✓ Water quality
- ✓ Volume reduction
- ✓ Groundwater recharge
- ✓ Flood Control

Indirect benefits:

- ✓ Increase property and area values
- ✓ Added aesthetics
- ✓ Climate change mitigation and adaptation
- ✗ City and developers accustomed to assets

Lower 80-year cost,
greater benefits

Conventional Curb and Gutter



80 Years: \$2,439,200

Construction cost: \$876,400

Annual Maintenance Cost: \$5,500

Average Annual Renewal Cost: \$14,000

Direct benefits:

- ✗ Modular design
- ✗ Water quality
- ✗ Volume reduction
- ✗ Groundwater recharge
- ✓ Flood Control

Indirect benefits:

- ✓ Increase property and area values
- ✓ Added aesthetics
- ✗ Climate change mitigation and adaptation
- ✓ City and developers accustomed to assets

Higher 80-year cost,
fewer benefits

Approach Options: Phase 1



Regulations

Bylaw 7900: Subdivision,
Development &
Servicing Bylaw

Bylaw 10515: Kelowna's DCC
Bylaw



Education / Awareness

Flagship projects

Cost and performance analysis

Signage and materials

Approach Options: Phase 2



Regulations

Bylaw 8000: Zoning Bylaw



Incentives

Examples:

Tax exemptions

Density bonuses

Rebates

Special thanks to



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Questions?

