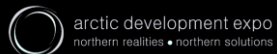




# EVALUATING AND PLANNING FOR URBAN CHANGE

2023 ARCTIC DEVELOPMENT EXPO  
GREEN TRANSITIONS IN THE NORTH: AN INTERNATIONAL VIEW

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**Cities**

**Living**

**Wellbeing**

## **Goals:**

- Link design and development projects “on the ground” to spatial planning policy to understand urban change and the differences among municipalities across the Arctic region
- Understand how design can play a role in development in the North to create more sustainable cities for the future.

## Increases of \_\_\_\_\_ lead to opportunities for \_\_\_\_\_.

Density

Coordination

Resource Availability

Investment

Incentive

### **Economic Sustainability:**

- Support/increase local business tied to larger industries with available demand to support such increases
- Incentivization for local immigration

### **Environmental Sustainability:**

- Greater efficiency, utilization, protection or modernization of urban infrastructure
- Land use management

### **Social Sustainability:**

- New housing construction with affordable, diverse, and distributed typologies
- Larger demand for local and regional transportation connections
- Greater proximity to essential services through densification

# Evaluation Process

- 1.** Measure the sustainable performance of northern cities in comparison to other Arctic cities using standardized urban planning indicators
- 2.** Evaluate the planning capacity of Arctic cities and how they formulate, measure, and implement sustainable development goals
- 3.** Develop a temporal understanding of the type, rate, and magnitude of change that a city is experiencing
- 4.** Analyze design and development projects in relation to planning policy to create more sustainable cities for the future

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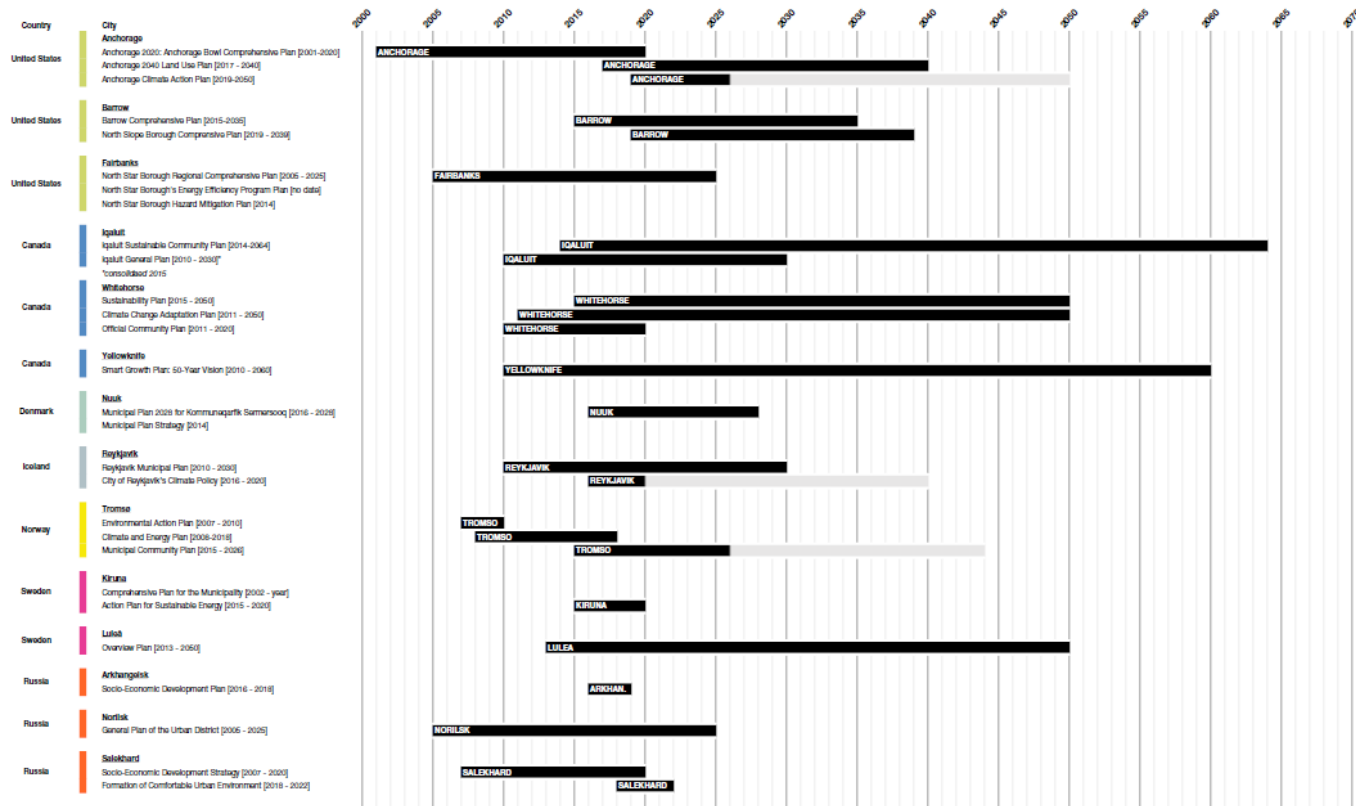
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## 2. Evaluating Capacity

### Horizons for Community, General, and Sustainability Planning



## 2. Evaluating Capacity

Comparison of City Indicators/Thematic Areas with ISO 37120

ISO 37120 Themes	Anchorage	Whitehorse	Reykjavik	Barrow	Iqaluit
Economy	3	3	1	2	2
Education	2	0	0	2	3
Energy	2	2	2	2	2
Environment and climate change	3	3	3	3	3
Finance	1	1	0	0	1
Governance	3	3	1	3	3
Health	3	1	0	1	2
Housing	2	1	1	3	2
Population and social conditions	3	1	2	2	3
Recreation	2	3	1	2	3
Safety	2	1	0	2	3
Solid waste	2	2	2	2	3
Sport and culture	2	3	2	3	3
Telecommunication	0	0	0	2	2
Transportation	2	2	3	2	2
Urban/local agriculture and food	2	2	1	0	2
Urban planning	3	3	3	1	3
Wastewater	2	2	2	3	2
Water	3	2	2	2	3

## 2. Evaluating Capacity

### Thematic Coverage

ISO 37120 Themes	Avg. performance (mapped) of city frameworks	Rank	Notes
Environment and climate change	2.8	1	Arctic cities address issues of urban sustainability more holistically than ISO 37120
Governance	2.6	T-2	
Sport and culture	2.6	T-2	
Urban planning	2.6	T-2	
Water	2.4	5	ISO 37120 addresses issues of urban sustainability in the same mode as Arctic cities
Economy	2.2	T-6	
Population and social conditions	2.2	T-6	
Recreation	2.2	T-6	
Solid waste	2.2	T-6	
Transportation	2.2	T-6	
Wastewater	2.2	T-6	
Energy	2	12	
Housing	1.8	13	
Safety	1.6	14	
Education	1.4	T-15	ISO 37120 address issues of urban sustainability more holistically than Arctic cities
Health	1.4	T-15	
Urban/local agriculture and food security	1.4	T-15	
Telecommunication	0.8	18	
Finance	0.6	19	
City	Score	Rank	Notes
Iqaluit (CA)	2.47	1	Cities with avg. scores > 2 address sustainability more holistically than ISO 37120; ISO 37120 addresses sustainability more holistically for scores < 2.
Anchorage (USA)	2.21	2	
Barrow (USA)	1.95	3	
Whitehorse (CA)	1.84	4	
Reykjavik (IS)	1.37	5	

### Priorities:

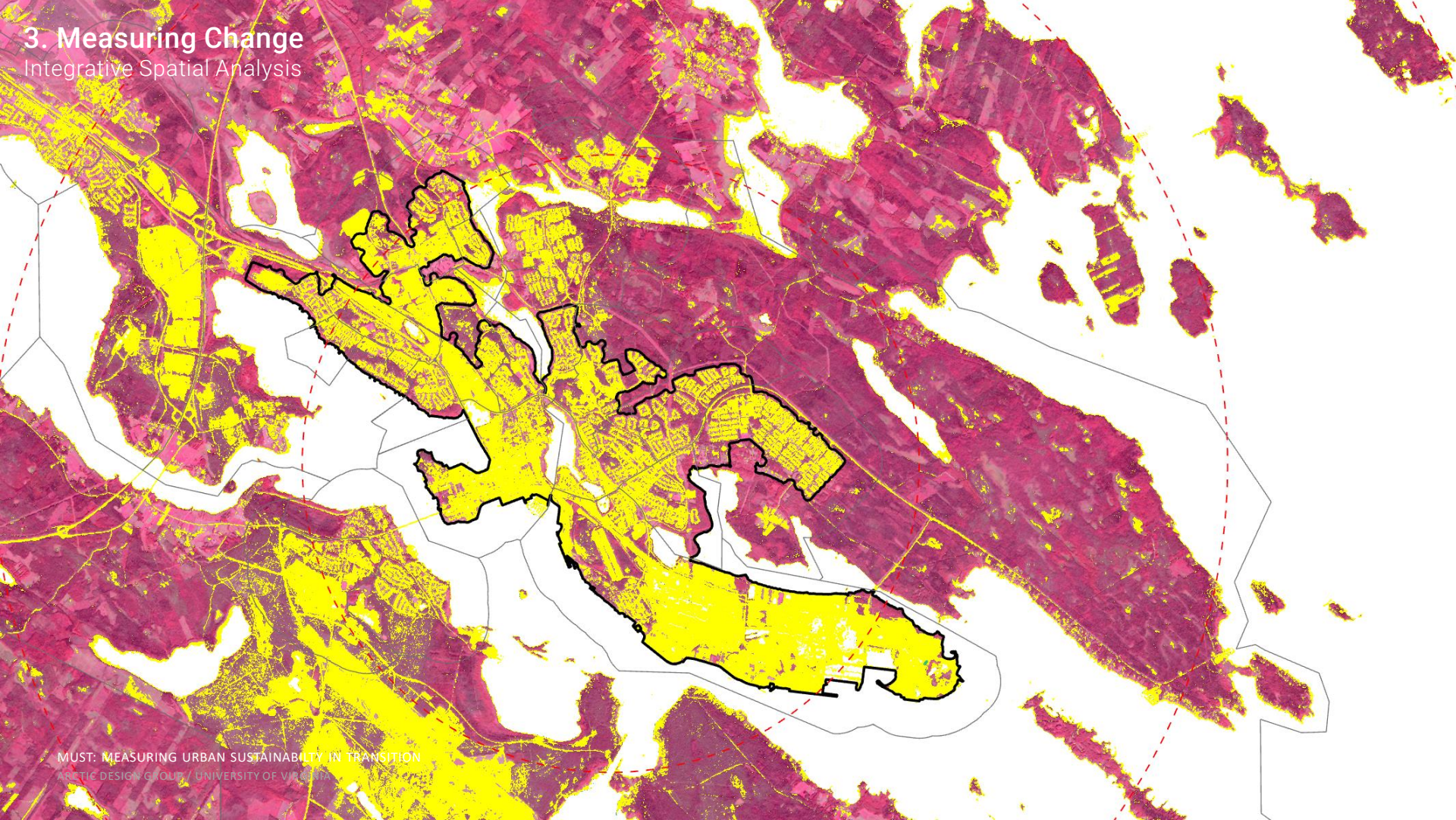
- **Protection & development of community infrastructure**
- **Hazard mitigation**
- **Public participation in design/planning process**
- **Historic preservation**
- **Targeted density**
- **Mixed-uses and residential diversity**
- **Open competition**
- **Urban character and identity**

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### 3. Measuring Change

Integrative Spatial Analysis

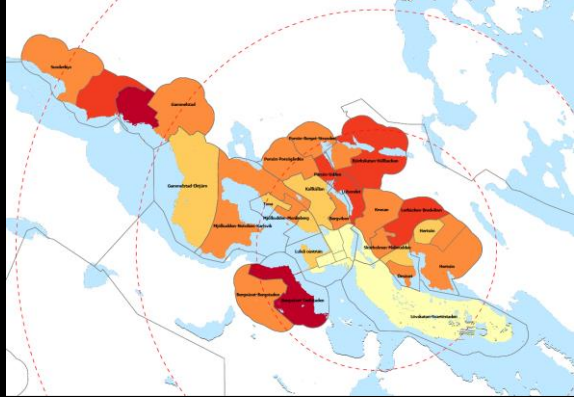




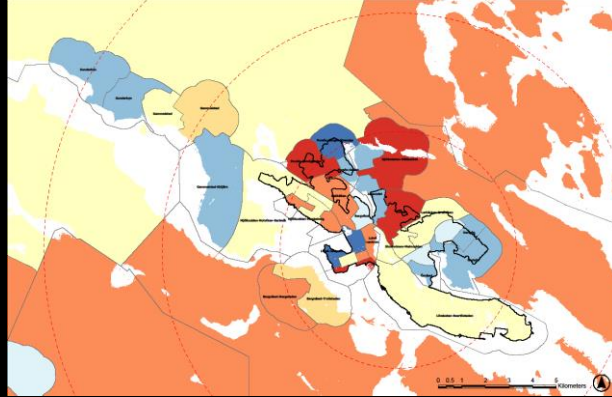
### 3. Measuring Change

#### Integrative Spatial Analysis

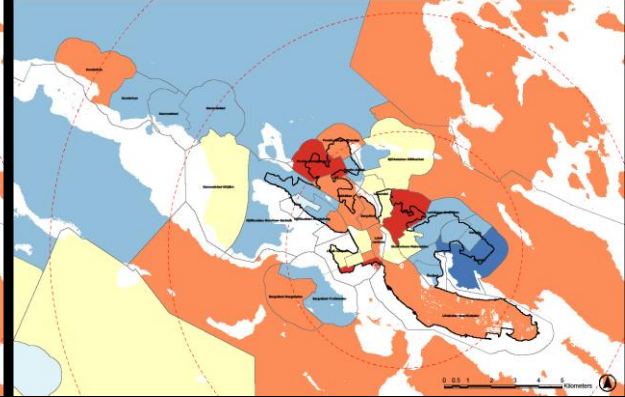
5-year Growth Intensity 2016-2021



Built-Up Density



Population Density



Dwellings (Single and Multifamily)

#### Analysis Methods:

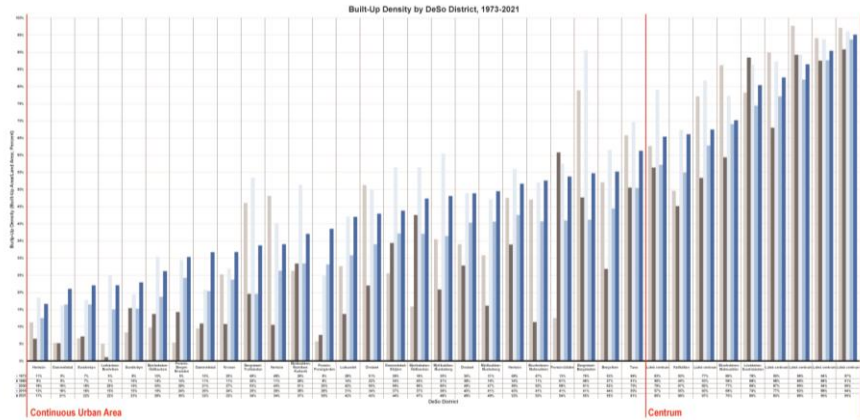
Historical aerial imagery

Remote sensing analysis of changes in built-up urban area

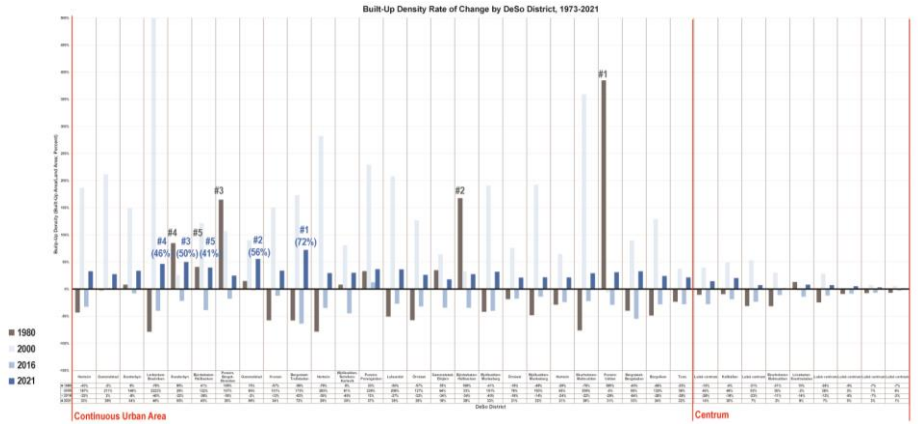
Geospatial analysis of key urban changes (housing, population, density)

# 3. Measuring Change

## Historical Development, by District



Total Built-Up Area, 1975-2021



Change in Built-Up Area, 1975-2021

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# 4. Analyzing Projects

## Project Implementation



Current or In-Progress Detailed Plans, 2022

## 4. Analyzing Projects

Building Stock



Skurholmen (1970/80s multi-family)



Kronan (2020s multi-family)

**How does** the sustainable performance of northern cities stand in comparison to other Arctic cities using standardized urban planning indicators?

**What is** the planning capacity of Arctic cities and how do they formulate, measure, and implement sustainable development goals?

**What are** the types and rates of change that Arctic cities are experiencing?

**How can** the design and development of projects in relation to planning policy create more sustainable cities?

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