

Ontario Climate Consortium Workshop

Climate Resilience & Interdependencies: *a Regional Issue*

May 11, 2017



Credit: [syntheticstrings](#)

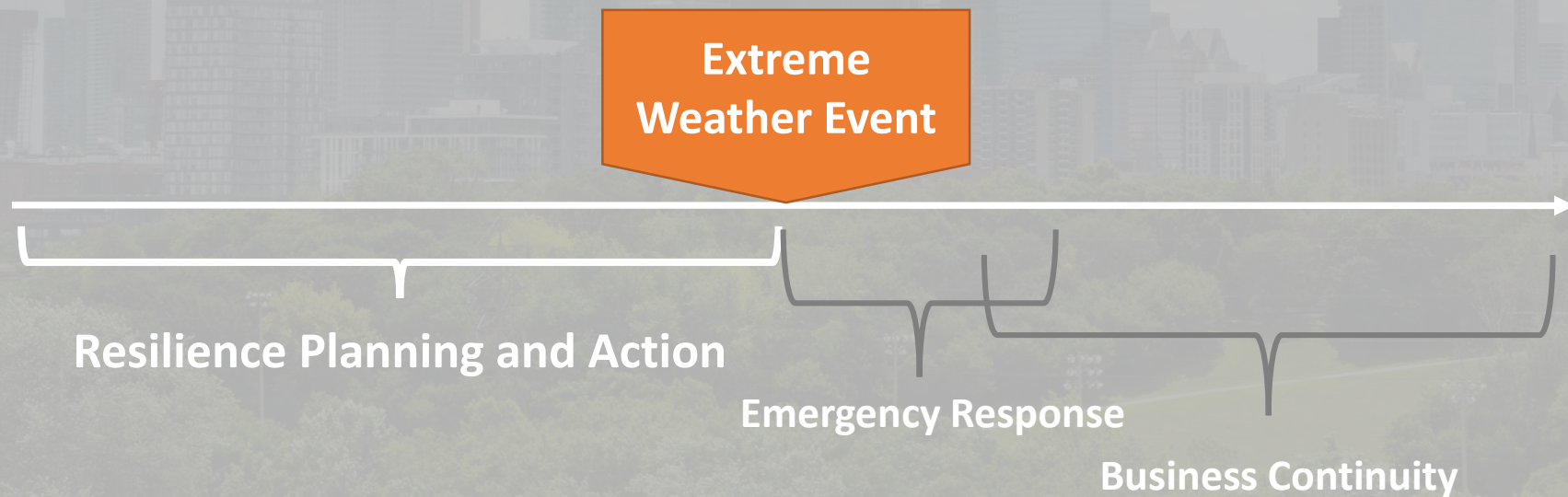
Environment & Energy Division



Credit: [syntheticstrings](#)

Overview

1. A little history
2. Cross-corporate climate resilience & adaptation approach
3. Interdependencies concept
4. Regional adaptation concept



Credit: [synestheticstrings](#)

URBAN RESILIENCE

Is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of **chronic stresses** and **acute shocks** they experience.

History

- Change is in the Air (2007)
- Ahead of the Storm (2008)
- Climate Change Risk Tool (2010)
- Climate Drivers Study (2011)
- Resilient City – Preparing for Extreme Weather (2013)
- Resilient City – Preparing for Climate Change (2014)
- Resilient City – Preparing for Climate Change, Update and Next Steps (2016)



Toronto Climate Change Risk Assessment Tool

- ISO 3100 based decision making tool prioritize actions in a consistent & robust manner across divisions:

Transportation Services

- Entire Division
- 90 classes of assets & services

Shelter, Support & Housing Administration

- High-rise apartment buildings
- Women's shelter
- Streets to Home

Licensed to

- TRCA, Calgary
- York Region
- Aurora
- Vaughn
- Mississauga

- Going web-enabled with Transportation Association of Canada

Credit: synestheticstrings

Public Infrastructure Engineering Vulnerability Committee (PIEVC) Protocol

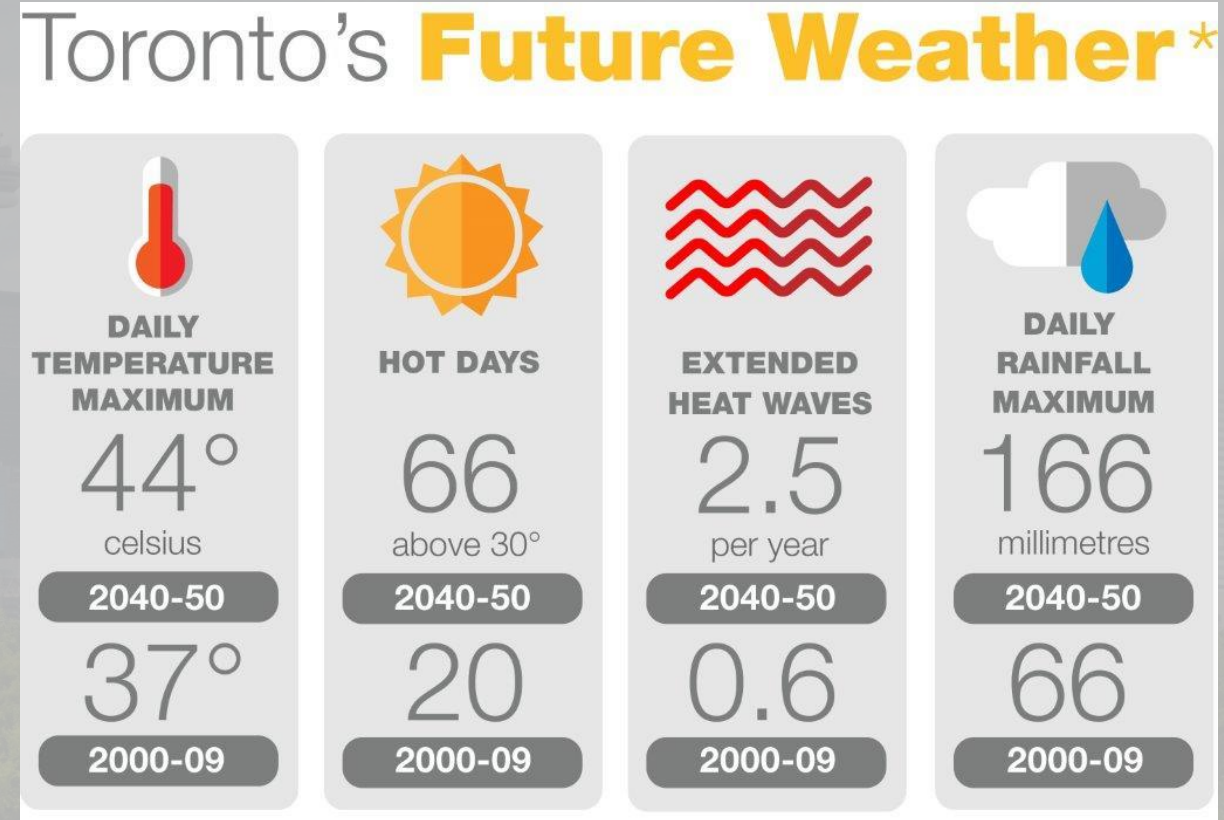
Since 2010 – 6 PIEVC Assessments have been completed in Toronto:

- Toronto Hydro (Distribution)
- City of Toronto (3 Culverts)
- TRCA (2 Dams)
- Toronto Community Housing building
- Pearson International Airport
- Metrolinx (6 assets)

Credit: [synestheticstrings](#)

Climate Change Risk Management Policy (2014)

- Established a process to systematically prioritize identification, assessment, reduction, monitoring & reporting of climate change risks.
- Defined governance structure for climate change risk management in Toronto.
- Partner with the private sector & broader public sector in the implementation of collective action that increases Toronto's resilience.



Source: Toronto's Future Weather and Climate Driver Study (2011)

Resilient City Working Group

- City Planning
- Corporate Finance, Insurance and Risk Management
- Engineering & Construction Services
- Facilities Management
- Office of Emergency Management
- Parks, Forestry & Recreation
- Purchasing & Materials Management
- Shelter, Support & Housing Administration
- Social Development, Finance & Administration
- Toronto & Region Conservation Authority
- Toronto Building
- Toronto Hydro
- Toronto Public Health
- Toronto Transit Commission
- Toronto Water
- Transportation Services
- Metrolinx
- Hydro One



Credit: [syntheticstrings](#)

Adoption of the Climate Change Risk Management Policy (Agencies, Boards & Corporations)



 **TORONTO**
Public Health



Toronto
Parking
Authority



toronto
ZOO



 Toronto and Region
Conservation
for The Living City®

 **TORONTO**
HYDRO


Exhibition Place

BUILD
TORONTO

Toronto
Community
Housing



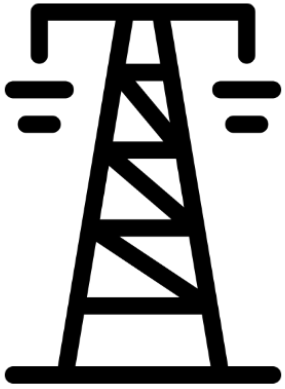
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Environment and Energy

High Level Risk Assessment

Understanding risks & interdependencies



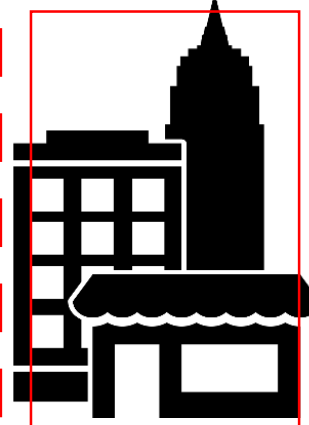
Utilities



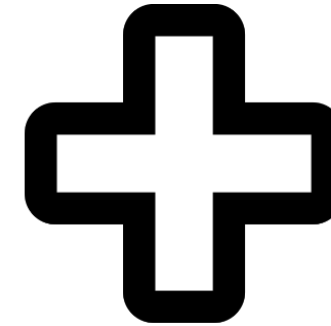
Water



Transportation



Buildings



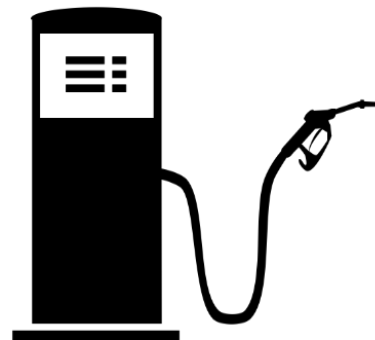
Health



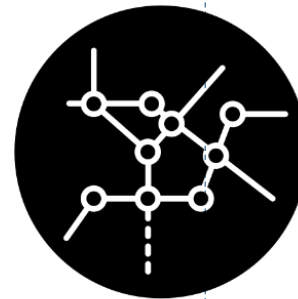
Public Safety



Economy/Finance/Insurance



Liquid Fuels



Additional Networks



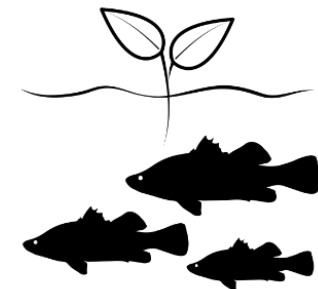
Social Services



Food



Solid Waste



Natural Environment

Icons: The Noun Project

Key Findings & Lessons Learned from HLRA Process



Partners in Powerful Communities



High Level Risk Assessment: Dependency Diagram



Credit: [syntheticstrings](#)



Environment and Energy

Interdependencies



Cities don't control all infrastructure – but we depend on it!

Systems cross municipal boundaries.





2 High Pressure Gas Mains

Broken Water Main

Broken Maintenance Hole

Bell Canada Cables

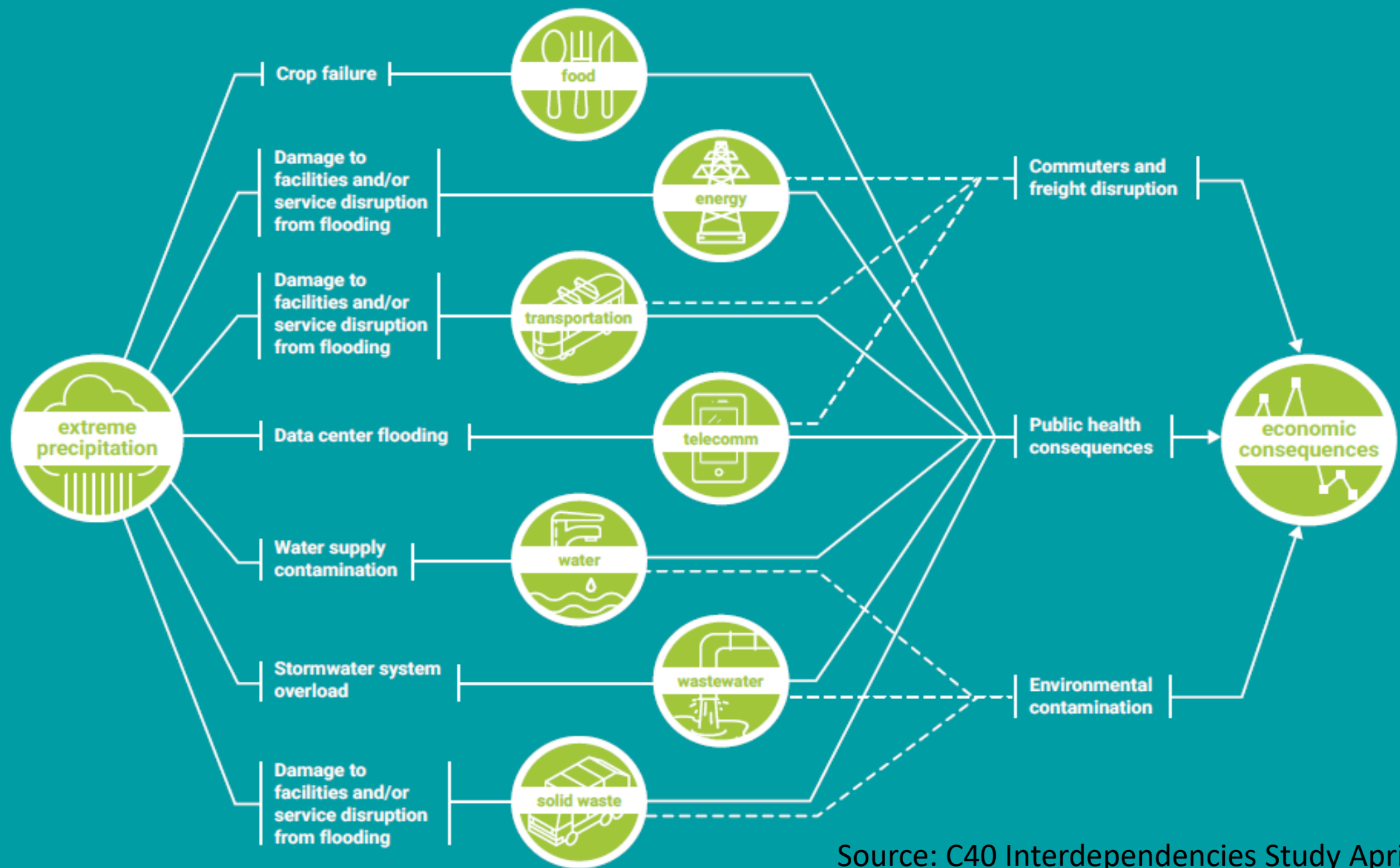
Bell Canada Cables

Toronto Hydro and Rogers Cable

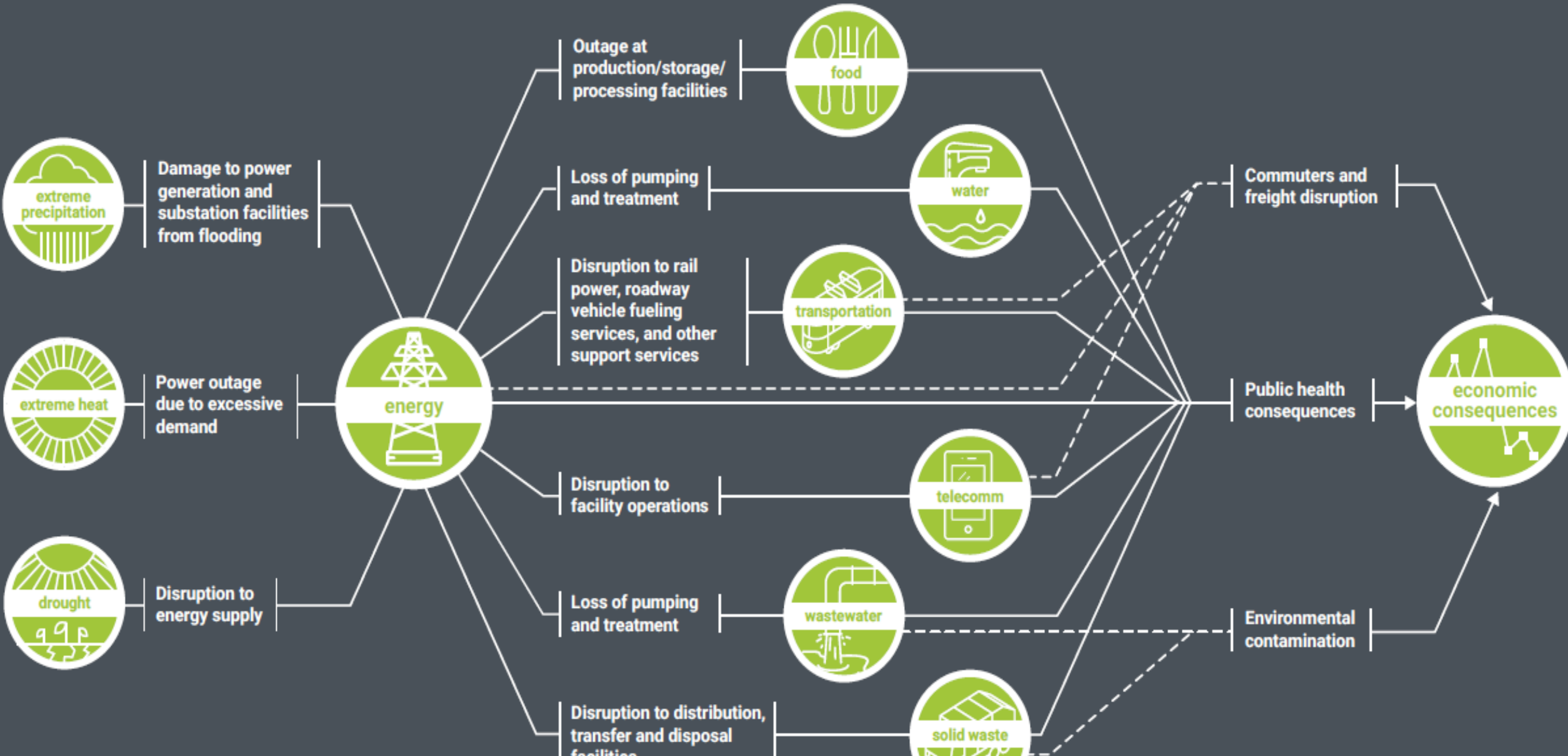
Parks Path

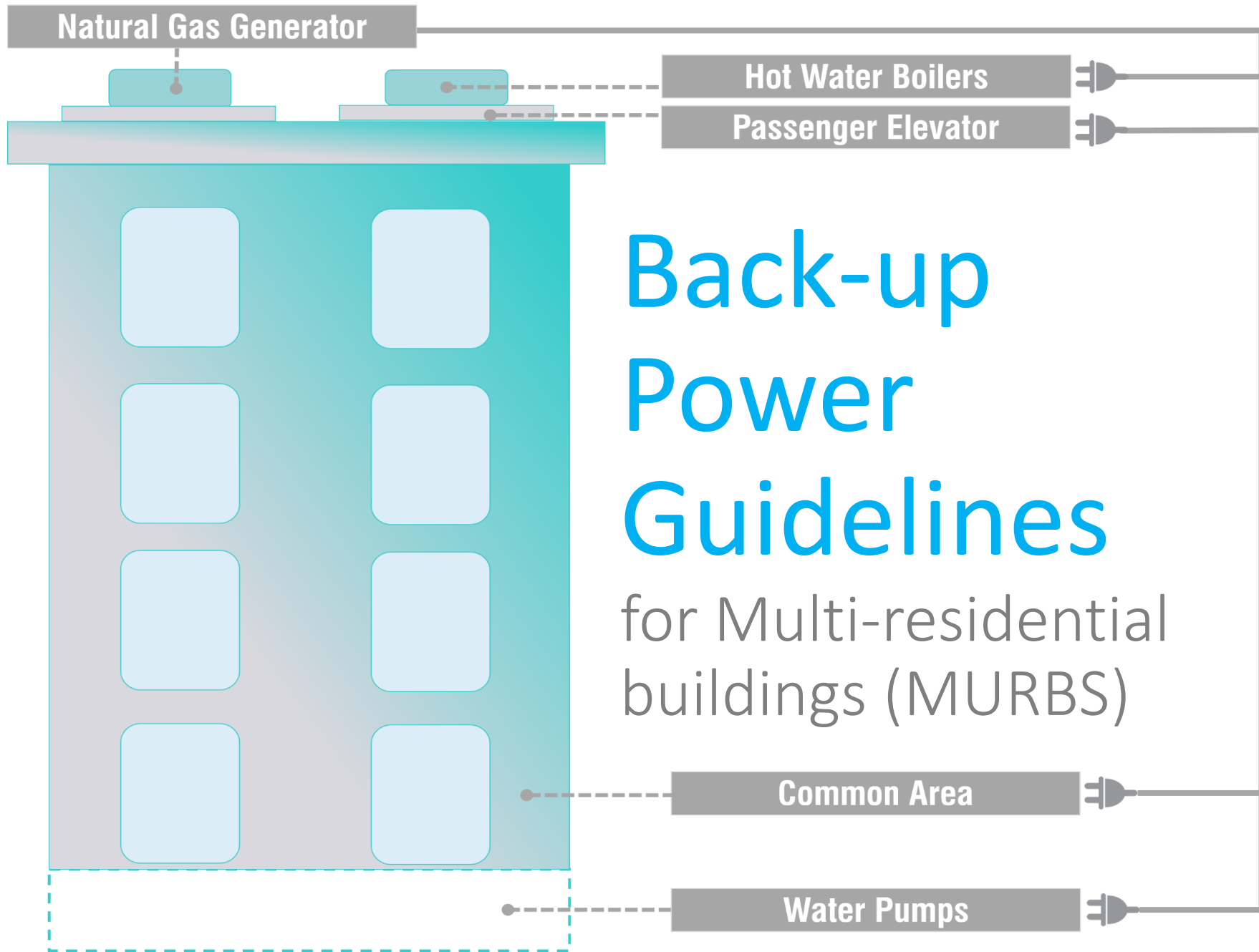
Photo: Jane-Finch.com

Example of a climate hazard that impacts multiple sectors: **Extreme precipitation**



Example of a sector that impacts multiple sectors: **Energy**





Regional Climate Resilience Collaboration

Why.....do this?

Who.....will do this?

How.....will we pay for this?

What.....will it accomplish?

Why do this?

Increase Synergies:

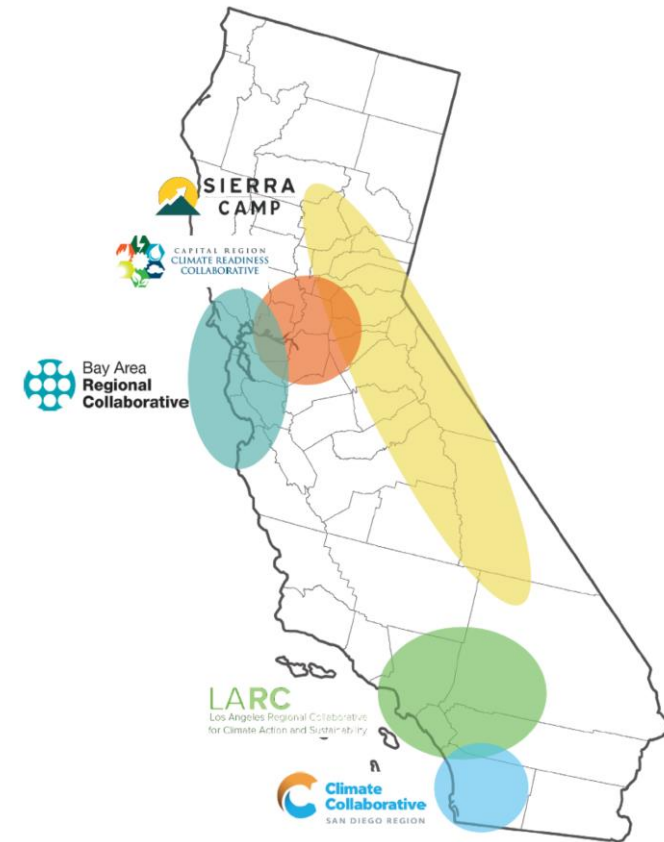
- Collaborative work amongst existing small staff
- More efficient work with interdependent infra groups
- More effective requests for Federal & provincial guidance / regulation

Reduce Duplication:

- Common data / common approach
- Climate impacts & adaptation strategies similar across the GTHA
 - Interdependent infrastructure systems cross municipal boundaries
 - Weather, waterways & natural systems cross boundaries

Who is doing this?

- Concept well developed & studied in US*
- 9+ regional adaptation collaboratives operational in US
 - *Southeast Florida Regional Climate Change Compact*
 - *San Diego Regional Climate Collaborative*
 - *Los Angeles Regional Collaborative*
 - *Western Adaptation Alliance*
 - *Capital Region Climate Readiness Collaborative*
 - *Sierra Nevada Climate Adaptation and Mitigation Partnership*
 - *Bay Area Regional Collaborative (multiple groups)*
 - *Coastal New Hampshire*
 - *Counties Eastern Shore Maryland*
- > 60 Cities represented
- Governance models differ, with a “neutral” convenor



* See <http://www.georgetownclimate.org/reports/lessons-in-regional-resilience.html> and <http://www.iscvt.org/program/resilient-regions-initiative/>

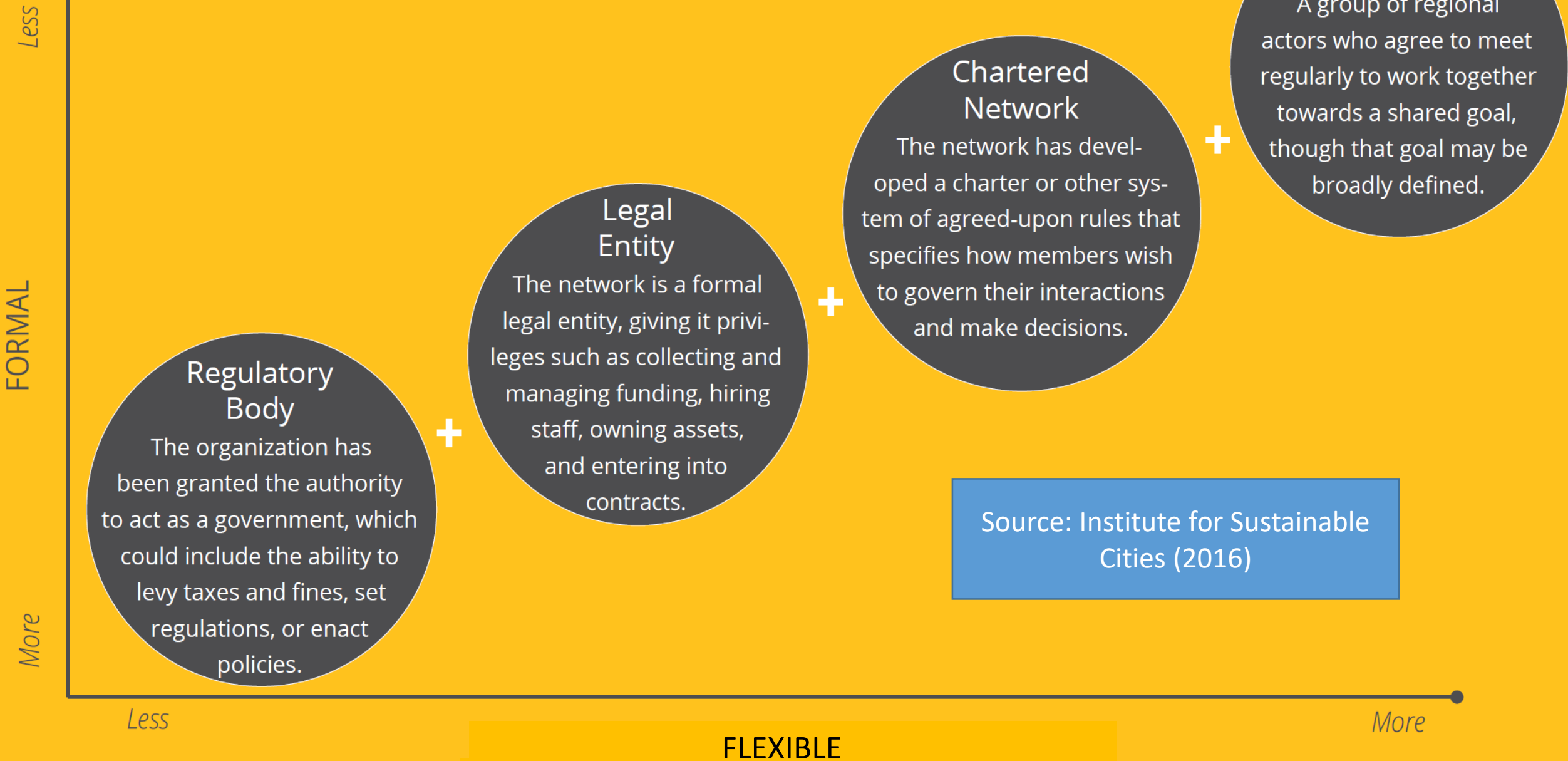
Bay Area Resilience Collaboratives

Core partnerships include

- Bay Area Regional Collaborative
- San Francisco Bay Region Coastal Hazards Adaptation Resiliency Group (CHARG)
- Bay Area Transportation Climate Resilience
- Association of Bay Area Governments Resilience Program
- Bay Area Resiliency by Design Challenge



Regional Governance Options



How could we do this / pay for this?

- Establish momentum today
- Input to Provincial Climate Adaptation Strategy Update
 - Province could endorse regional resilience collaboratives
- Contributions from municipalities, province & private sector stakeholders
- Establish a 'neutral' convenor, building on existing groups
 - e.g. GTHA Clean Air Council, Ontario Climate Consortium, Evergreen

Who might be involved?

- Start smaller:
 - Neutral convenors
 - Toronto + Regional Municipalities
 - Key infrastructure groups (e.g. Electrical, Telecom, Natural Gas)
 - Key provincial ministries
 - Insurance Bureau of Canada
 - Municipal association (e.g. FCM, AMO)

What could it accomplish?

- Organized sharing of risk assessment results
- Identification of resilience strategies across interdependent sectors
 - E.g. Roads, Telecom, Natural Gas, Electrical, etc.
- Unified approach with province, feds & private sector stakeholders
- More consistent messaging for residents & businesses promoting resilience actions

Toronto selected to join
100 Resilient Cities – Pioneered by
the Rockefeller Foundation



TORONTO

100 Resilient Cities Framework

City resilience
has 4 key
dimensions



Thank you

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