Systems Analysis of Community Resilience

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What's the Problem?

- Heavy and increasing reliance on interdependent systems
- Systems becoming more complex
- Privatization of many critical services
- Drive for efficiency has removed layers of resilience
- Incidents expose planning and capability deficiencies

Project Purpose & Objectives

Purpose:

- Evaluate utility of Architectural Frameworks (AF) and Soft Systems Methodologies (SSM) in examining community as "resiliency system"

Objectives:

- Understand hazards, resources, steps to help community mitigate/prevent, prepare for, respond to, recover from incidents
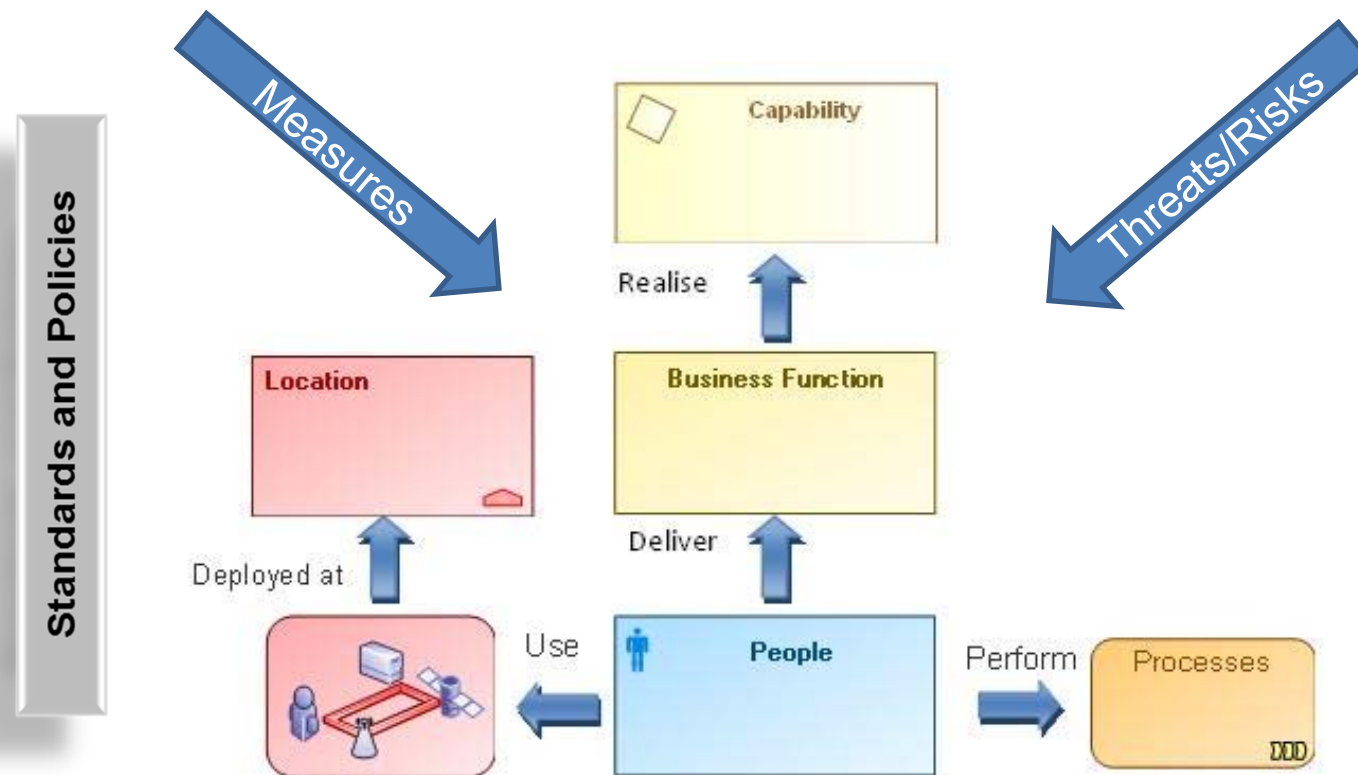- Identify specific lessons to community and general points for elsewhere

Pemberton Valley
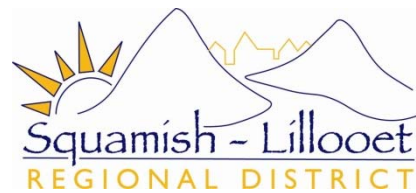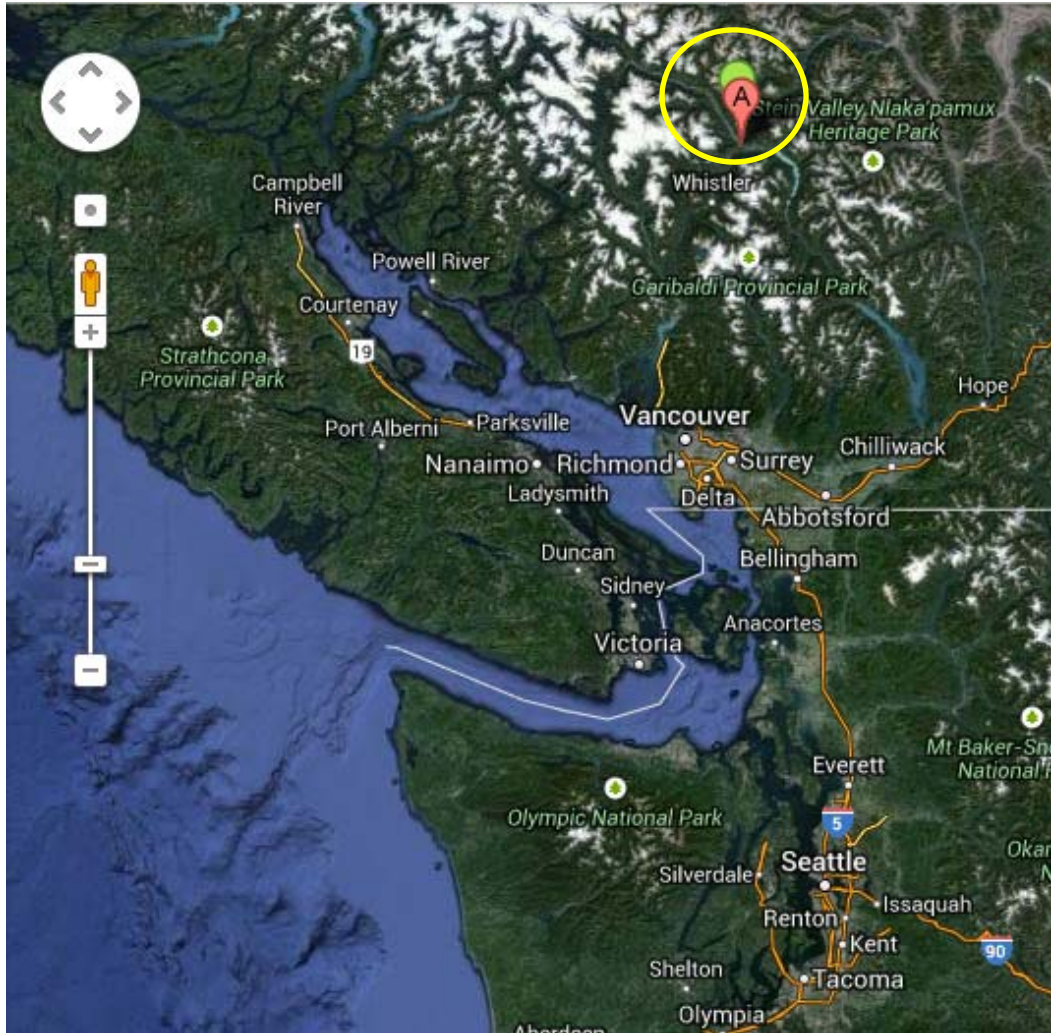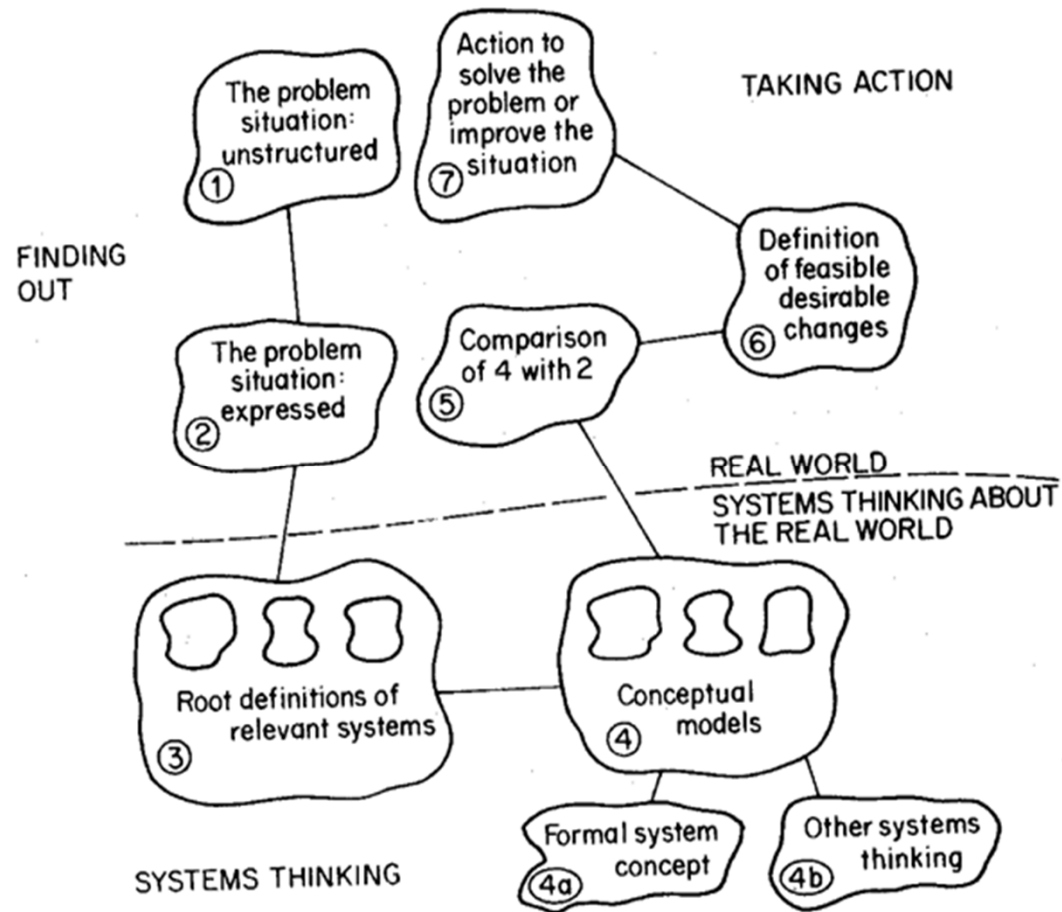
Resiliency System

Set of plans, capabilities and resources strengthening a community's ability to withstand disruptive influences and enabling it to recover from crisis events

Architecture Frameworks (AF)

"Who, what, how…?"

Soft Systems Methodology (SSM)

Project Approach

- Pre-visit research (10 CI sectors)
- Initial community visit
- Workshop sessions
- Post workshop analysis and architectural development
- Validation sessions and scenario workshop

Some Findings

- Legislation and policy tensions
- Misaligned expectations
- Private sector engagement challenges

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Community Perspectives on Resilience

- First Nations
- Rural community
- Village community

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Essential Services

- Several essential services require rapid intervention in event of loss
- Community considered "unsustainable" in less than 3 weeks with loss of certain essential services
- Exacerbated by time of year

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Planning

- Sophisticated EM response structure exists
- Provincial risk analysis tool kit stops short of providing framework for response plans
- Need for local plans that address consequences of key risk events

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Utility of Architecture Frameworks

Pros

- Sophistication of model
- Consistent reference
- Can extract reusable generic model

Cons

- Complexity and skills requirement
- Workload to build and analyse model
- Cost of tools

Utility of Soft Systems Methodology

Pros

- Allowed issues to surface
- Good fit with architecture approach

Cons

- Limitations of workshop analysis approach

Conclusions

- Community embraced project outputs; changed behaviour
- AF is a concept versus prescribed toolset
- SSM approach beneficial to capture perspectives
- Further work required