The Role of Streets in Creating Resilient Cities

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MODELS PREDICT:
More intense rain storms
MODELS PREDICT: More extreme heat

**WARMER SPRINGS**
- 15% longer growing season
- 72% decrease in frost days
- Snow melts earlier

**HOTTER SUMMERS**
- More frequent heat waves
- Hottest days even hotter
- 43% twice as many days above 25°C
- Increased health risks to vulnerable people
- 20% less rain
- Increased water restrictions

Which means 20% increase in April showers
LANDUSE CHANGE
Increasing impervious

- Densification - ~10% increase in population in next 10 years
- Resistance from urban designers to the bioretention planter look
- Resistance from operations to GI maintenance
- Soil volumes for trees - 10-30 m$^3$ depending on tree size
- Urban forestry goals - increase urban forest canopy by 22% by 2050
- Sidewalk buckling from roots
WATER SENSITIVE CITY TRANSITION

Health + Safety

Water supply access & security
- Public health protection
- Flood protection
- Social amenity, environmental protection
- Limits on natural resources
- Intergenerational equity, resilience to climate change

Moving toward a water sensitive city (30 yrs)

Large scale centralized infrastructure. Priority: controlling environmental variation through technical engineering

Integrated, distributed and flexible infrastructure. Priority: maintaining resilience through adaptability and reflexivity

Water self-sufficiency & reduced environmental impact
Rain City Strategy

Vision

Vancouver’s rainwater is embraced as a valued resource for our communities and natural ecosystems.
Rain City Strategy - Goals

- Improve and protect Vancouver’s water quality
- Increase Vancouver’s resilience through sustainable water management
- Enhance Vancouver’s livability by improving natural and urban ecosystems
MULTI-FUNCTIONAL INFRASTRUCTURE
Bioretention Corner Bulges
MAKING ALLIES THROUGH WIN-WINS

Stormwater Tree Trenches
WORK FORCE DEVELOPMENT AND COMMUNITY STEWARDSHIP
Report: Exploring Alternative Models for Green Infrastructure Maintenance
CULTURE CHANGE IN TRANSPORTATION DESIGN
More skills, more modes, more goals

1990s
- transportation engineers
- designers
- cars
- trucks

2000s
- engineers
- transportation designers
- landscape designers
- pedestrians
- cyclists
- transit
- goods movement
- cars

2010s
- Engineers
- Planners
- Landscape architects
- Arborists
- Design techs
- Pedestrians
- Bikes
- Transit
- Goods movement
- Cars
- green infrastructure
- accessibility
- place making
- urban forest
IF YOU WANT TO GO FAR, GO TOGETHER

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