

# **Computer Says “Not Sure”: Path Dependency, Increasing Returns and Urban Climate Policy**

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**Patrick Driscoll, Research Assistant**

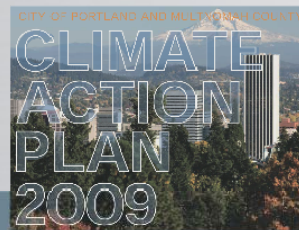
**Department of Development and Planning, Aalborg University**

**[patrick@plan.aau.dk](mailto:patrick@plan.aau.dk)**

# Based on previous research

**CLIMATE CHANGE MITIGATION,  
ADAPTATION AND SUSTAINABLE  
URBAN DEVELOPMENT**

**A Case Study of  
Copenhagen and Portland**

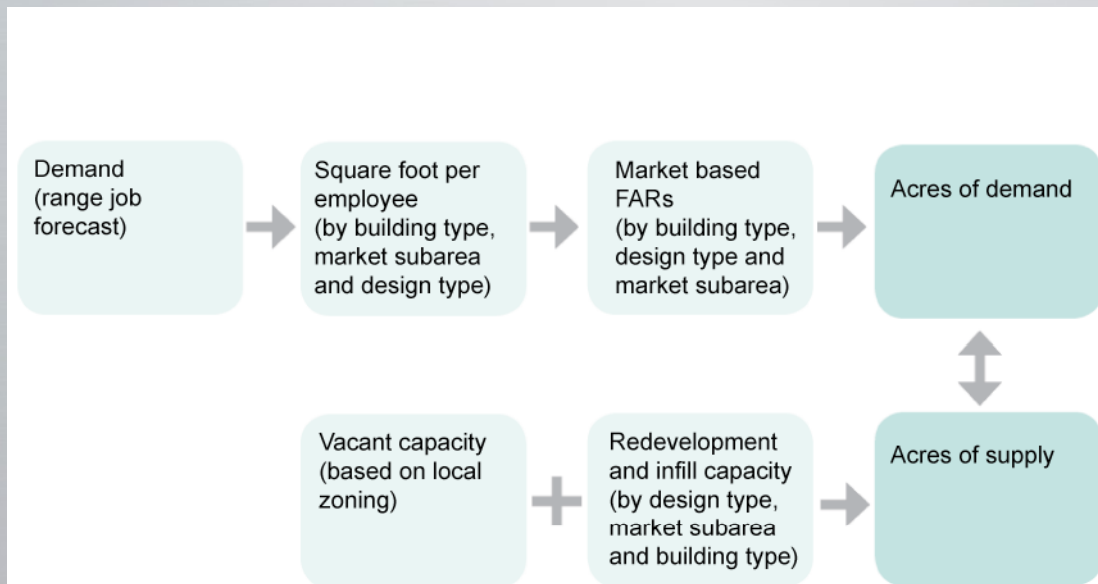


Patrick Arthur Driscoll  
Elite Study, Sustainable Planning  
Urban Planning and Management  
Aalborg University

# Path Dependency and Increasing Returns

- There are four features of the relationship between technology and society that are likely to generate increasing returns: 1) the presence of large set-up or fixed costs, 2) learning effects, 3) coordination effects and 4) adaptive expectations (Arthur, 1994).
- Examples: QWERTY keyboard, electrical generation systems, car-based mobility

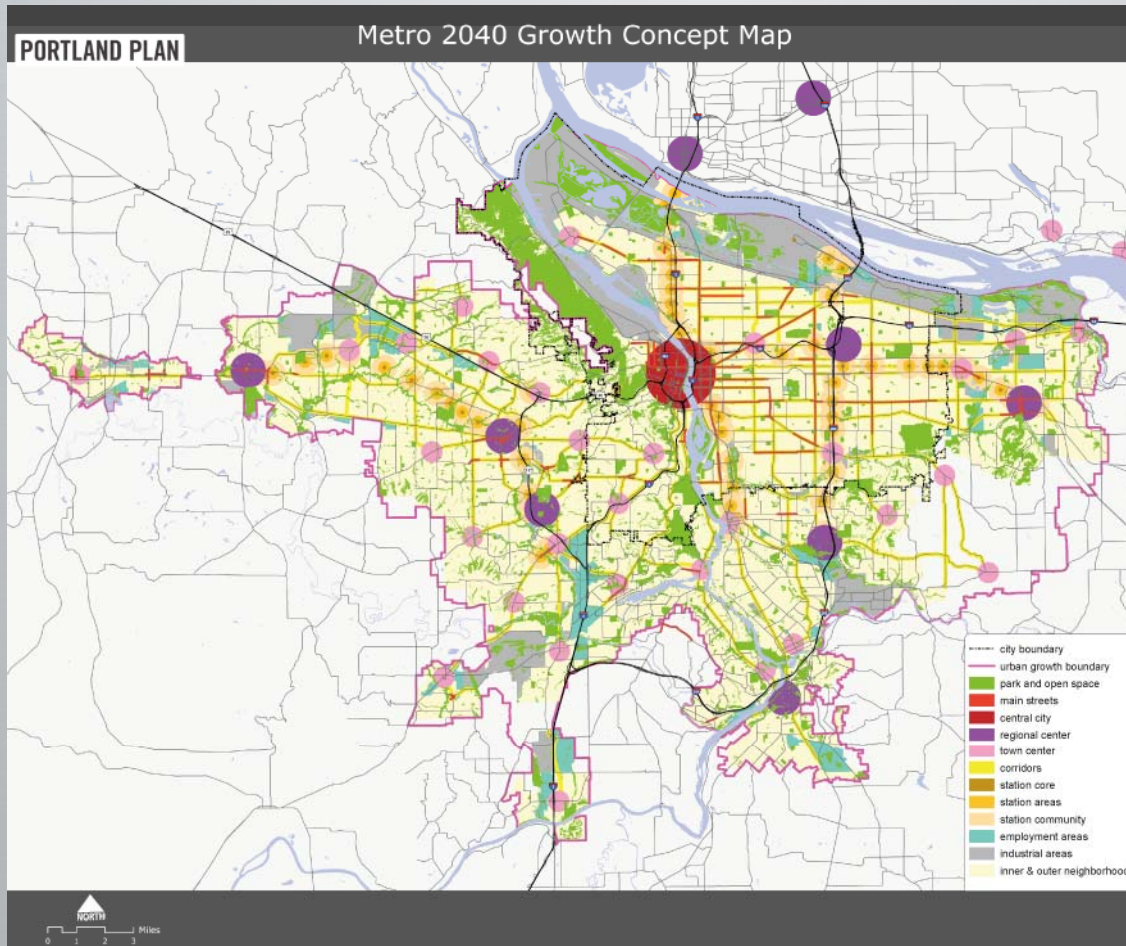
# Planning path dependency



The first step is to assign jobs to six building types, based on recent trends and professional expertise. The six building types used for purposes of the design paradigm are: office, institution, flex, general industrial, warehouse, and retail. Assumptions as to the building type in which jobs are located could change over time as the real estate market matures, land prices increase, and technology shifts.

Source: Metro (2009)

# Growth dependency Portland metro



# One type of energy path dependency



# Another type of energy path dependency



# Mobility path dependency





# ...which drives planning changes

Infrastructure of the Capital Region

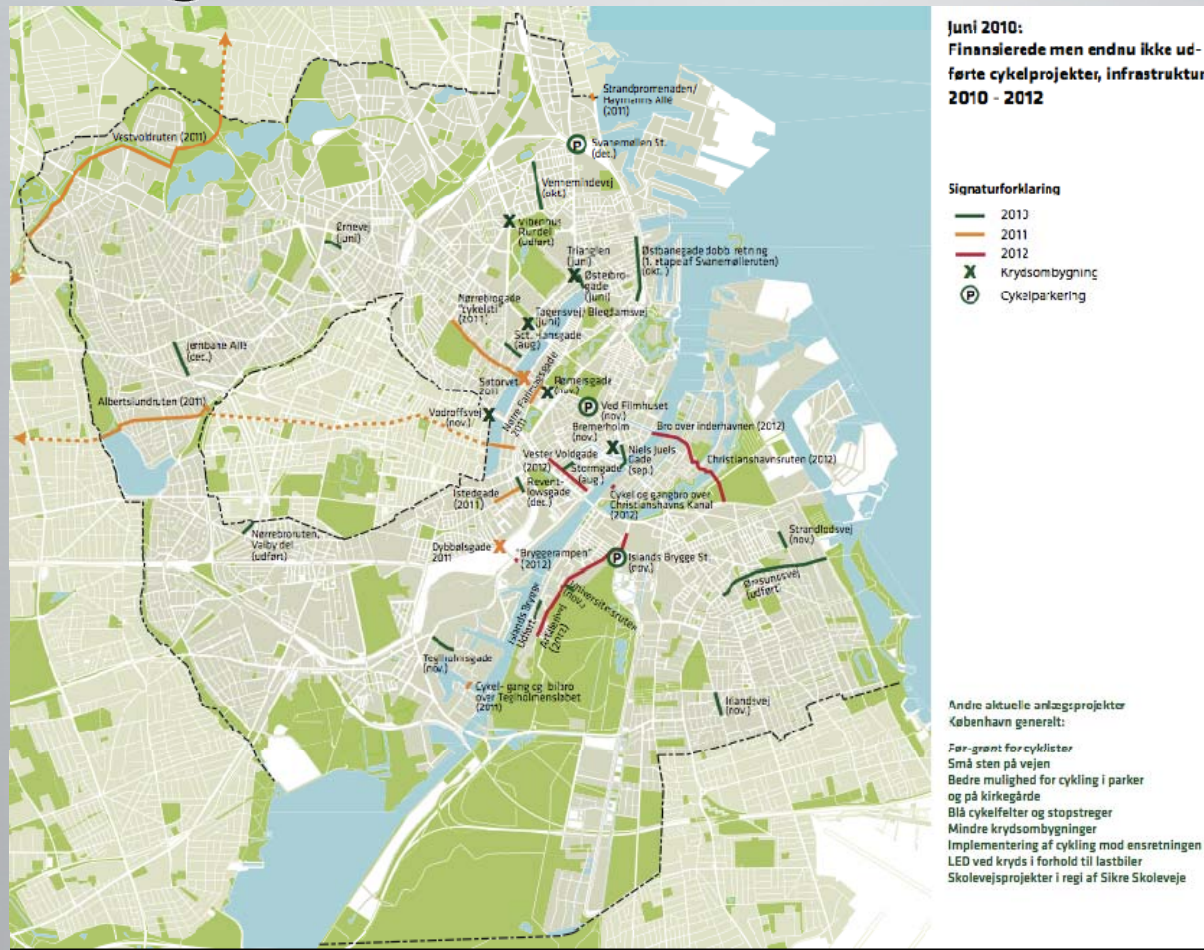


Source: Regional Development Plan (2008)

# Mobility path dependency



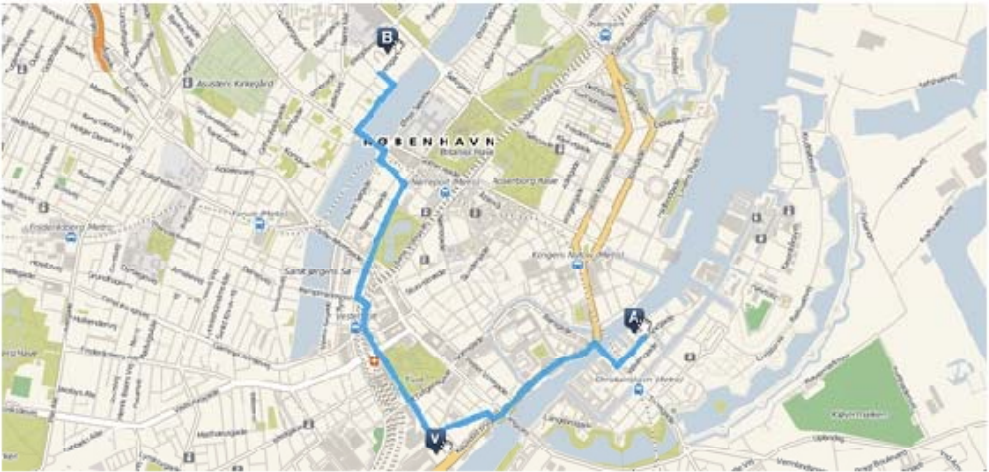
# Which drives planning changes



And technology changes



# And new ways of moving






Copenhagen X skal fra Dansk Arkitektur Center (A) til vores webbureau B14 (B) med et mellemstop ved den nye SEB bygning (V). Farveme er vores rute at efter om den skal være kort, optimeret, sikker, grøn eller stille.

## FIND DIN EGEN CYKELRUTE

Skal din cykeltur være hurtig, grøn, sikker eller stille? Nyt website lader dig planlægge og vælge den mest optimale rute.

Sitet hedder [Cyclo Copenhagen](#) og er udvidet af Brian Haunstrup som et speciale-projekt på Institut for Geografi & Geologi, Københavns Universitet.

Brian Haunstrup skriver om ruteplanlæggeren, at den bygger på idéen om, at cyklister har forskellige præferencer for deres færdsel. Ruteplanlæggeren giver dig mulighed for at tilrettelægge ruter, som i

-  Korteste rute
-  Optimeret rute
-  Sikker rute

# And cultural changes

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"TOP 10 HOTTEST FASHION WEBSITES" - MARKETING MAGAZINE

26 OCTOBER 2010

## Orco Cicli's Hand-painted Frames



Our friends at Italian Orco Cicli weren't content with the art of making bicycles. They took their craft one step

**0,568,319**

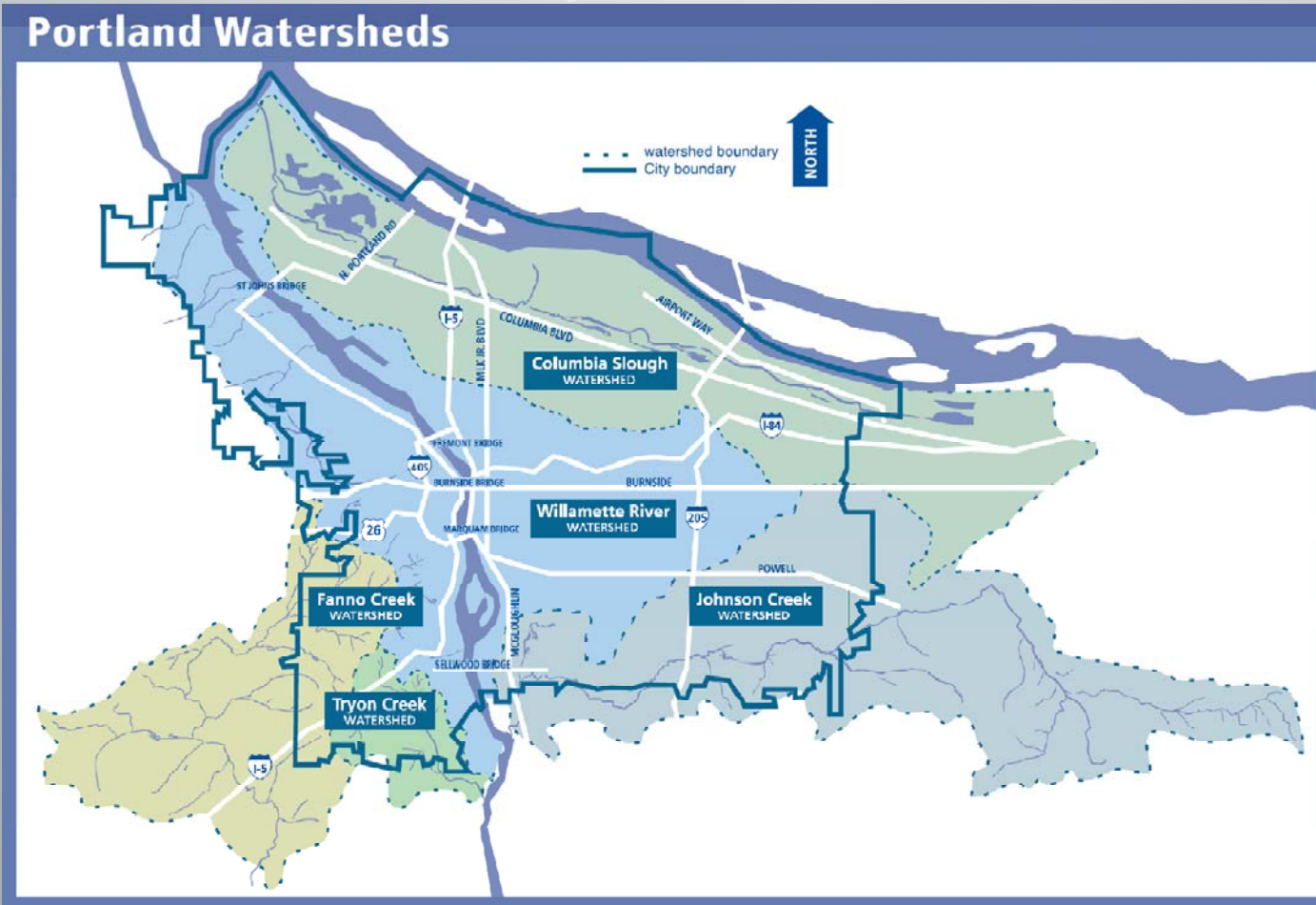
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# Environmental path dependency



# From one socio-technical pathway





# To another

## **Sustainable Stormwater Management**

Buildings, roads, parking lots and other hard surfaces prevent rain from soaking into the ground. If stormwater that washes over these impervious surfaces isn't properly managed, it can carry pollutants into rivers and streams. Stormwater runoff can also cause flooding and erosion, destroy habitat and contribute to combined sewer overflows (CSOs). The City of Portland promotes projects that mimic natural systems and integrate stormwater into building and site development to reduce damage from urban stormwater runoff.

The natural system approach also helps replenish groundwater and restore healthy watershed function. The city often works with private property owners, school districts and non profit groups on projects that keep stormwater out of the sewer system. These partnerships let the community share in solutions that enhance the urban environment by viewing stormwater as a resource rather than a waste.

[Click here](#) to learn more about Portland's Sustainable Stormwater Management Program.

[Click here](#) for more information about the Downspout Disconnection Program.

### **Green Streets**

Portland is building sustainable street projects around the City to better manage stormwater runoff and enhance neighborhoods. Green Streets include stormwater curb extensions landscaped with plants that filter pollutants from stormwater runoff, swales that



**Green Street at SE 21st and Tibbetts**



**Multnomah County Building ecoroof**

# Connecting watershed health to stormwater management



# And water to the urban form



*Example of a green wall, one potential stop for storm water on its path through a living building. Courtesy [inhabitat.com](http://inhabitat.com).*

# What can IA do

- Identify and nurture niches within the existing system that allow for immature or emergent forms of culture, behavior, social relationships or technological artifacts to emerge
- Be open and responsive to systemic shifts
- Be opportunistic
- Work to recognize and exploit tipping points within the system that will enable transitions to occur

Thank you for your  
attention