

# **1. Maps For Navigation / 2. Sustainability**

## **GGR424 - Transportation Geography & Planning**

Jeff Allen

University of Toronto

February 28, 2022

## **Announcements**

- ▶ Transportation data analysis assignment due March 3
- ▶ Project Proposal due March 10
- ▶ Monday office hours 3:30pm to 5:00pm in SS5060 (I'll also keep my Zoom room open during this time)
- ▶ Friday office hours still only on Zoom, 2:30pm to 3:30pm

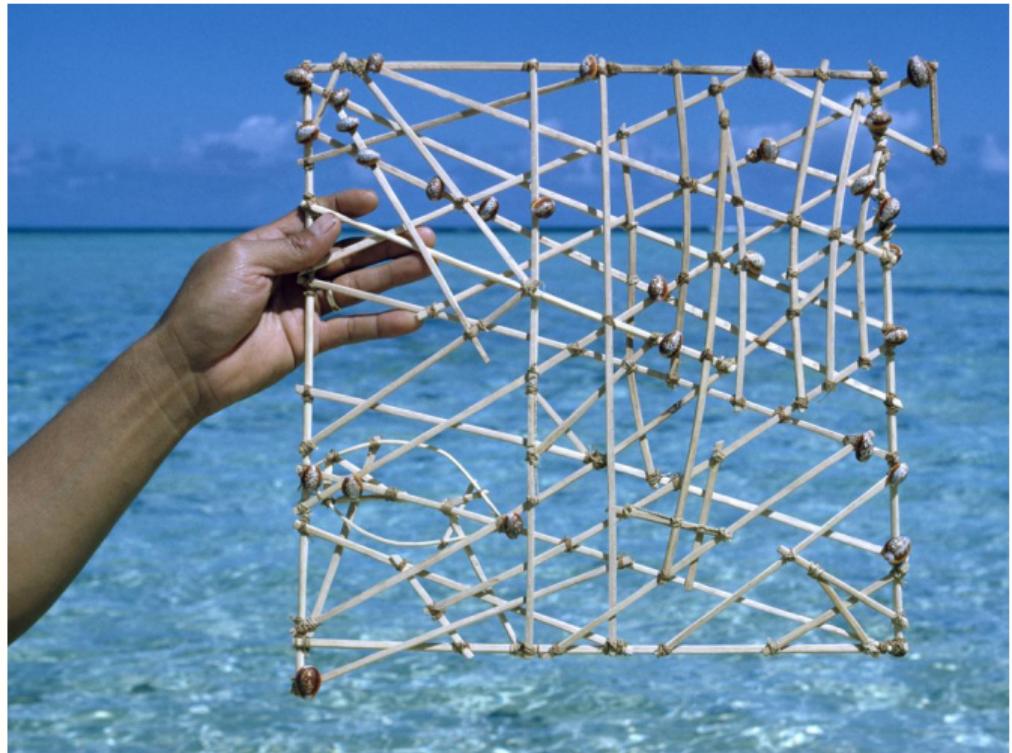
## **Today**

- ▶ Maps for navigation
- ▶ Chat about final project
- ▶ Sustainable transport

## Maps for navigation

"Stick Charts" from the Marshall Islands

- ▶ Shells represent islands
- ▶ Sticks represent ocean swells and wave-crests



More info: [http://marshall.csu.edu.au/MJHSS/Issue2005/MJHSS2005\\_103.pdf](http://marshall.csu.edu.au/MJHSS/Issue2005/MJHSS2005_103.pdf)

## Maps for navigation

### Peutinger Table

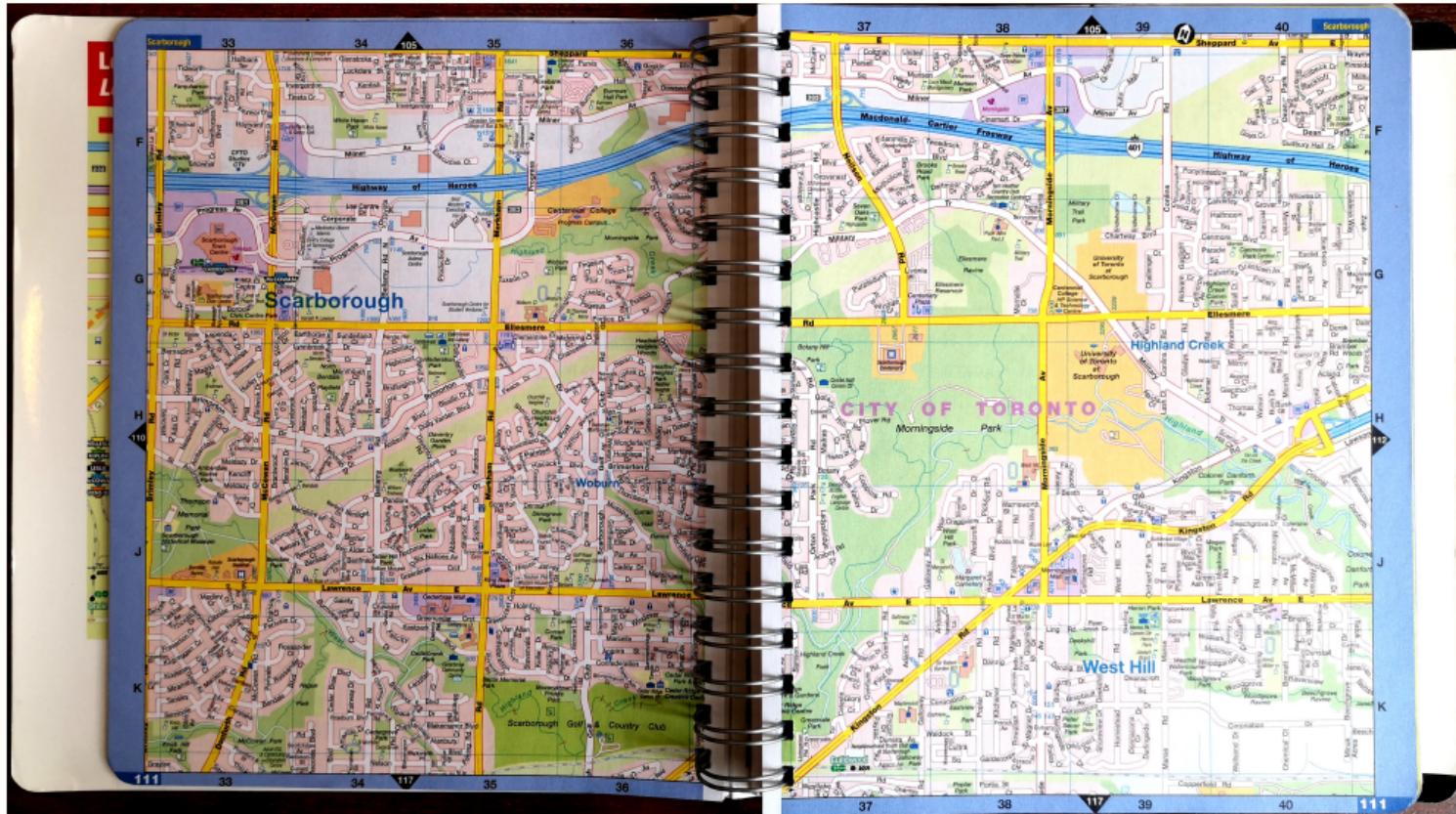
- ▶ a road map of the Roman Empire
- ▶ (this is a 13th century copy of an unknown original)



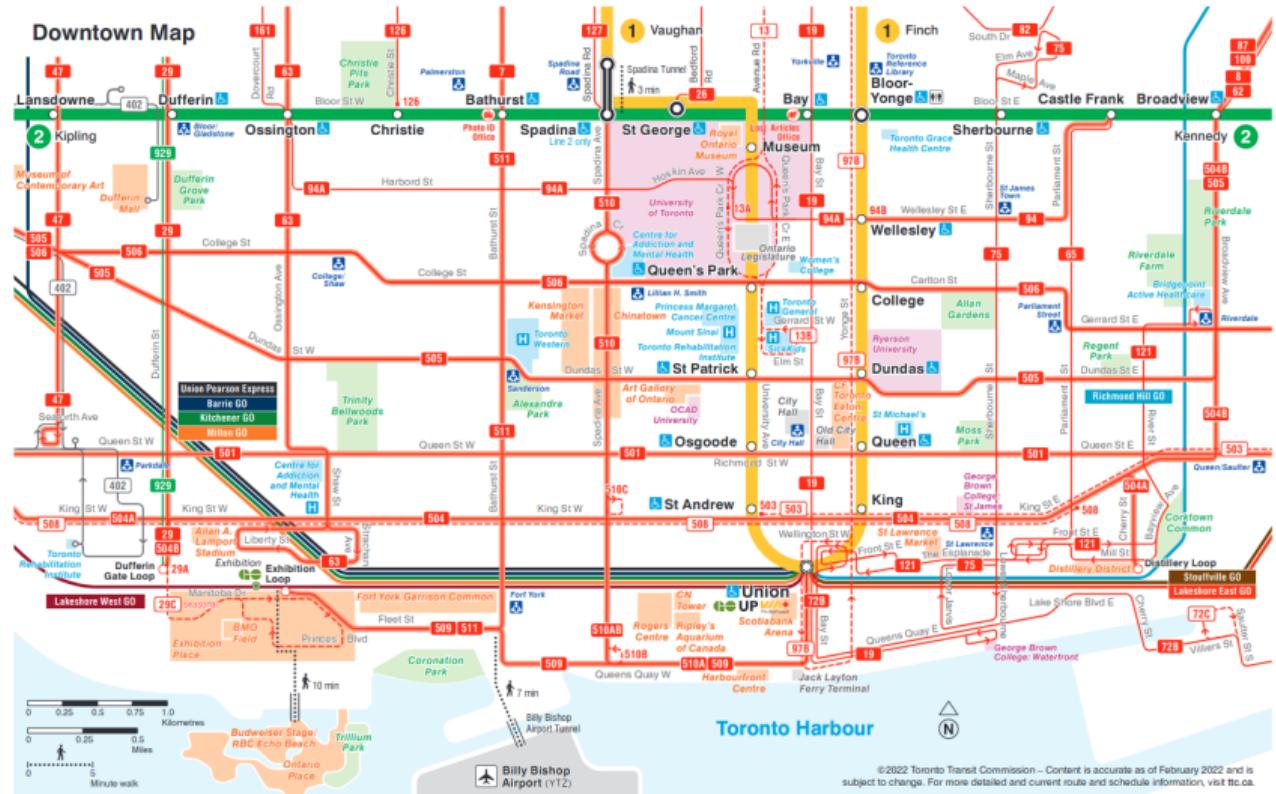
Source:

<https://commons.wikimedia.org/wiki/File:TabulaPeutingeriana.jpg>

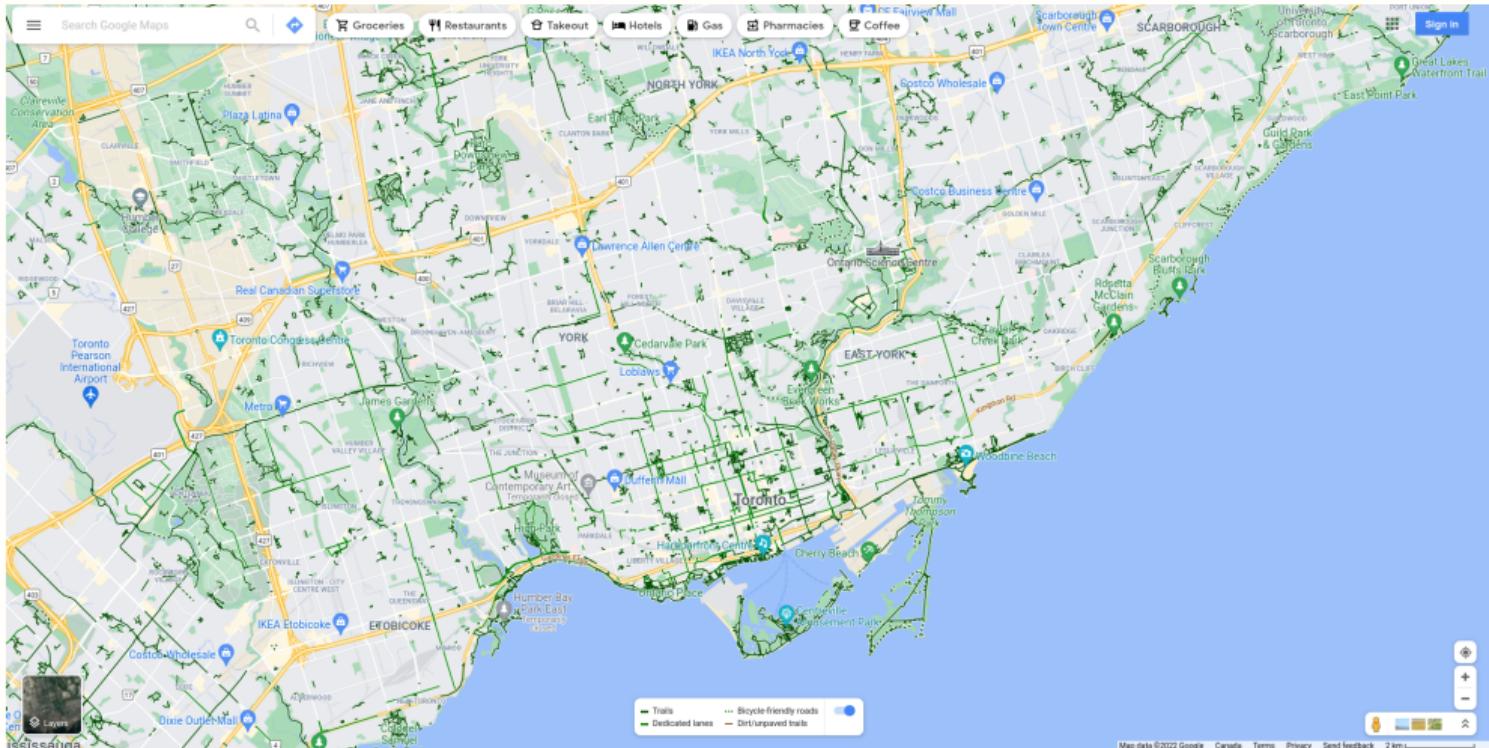
# Maps for navigation - e.g. 20th and early 21st century road maps



# Maps for navigation - e.g. TTC System Map



# Maps for navigation - e.g. Google Maps



<https://www.google.ca/maps/@43.6574817,-79.4021975,13.25z>

What are the design elements that make a good navigational map?



Shared by Megan Belisle

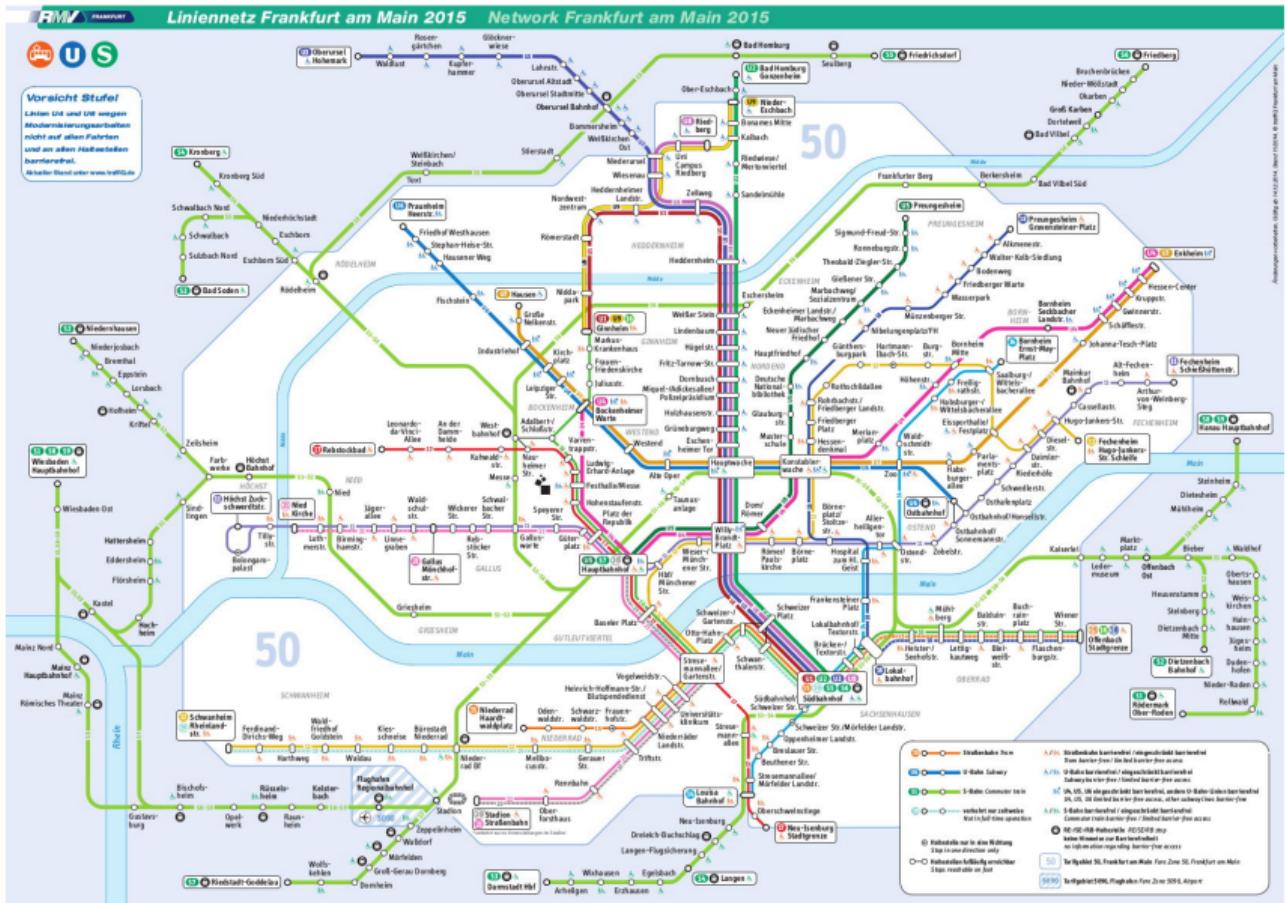
<https://transitmap.net/paris-metro-1913/>



edizione: febbraio 2014

Shared by Steven Kakaletris

<https://romemap360.com/rome-train-map>

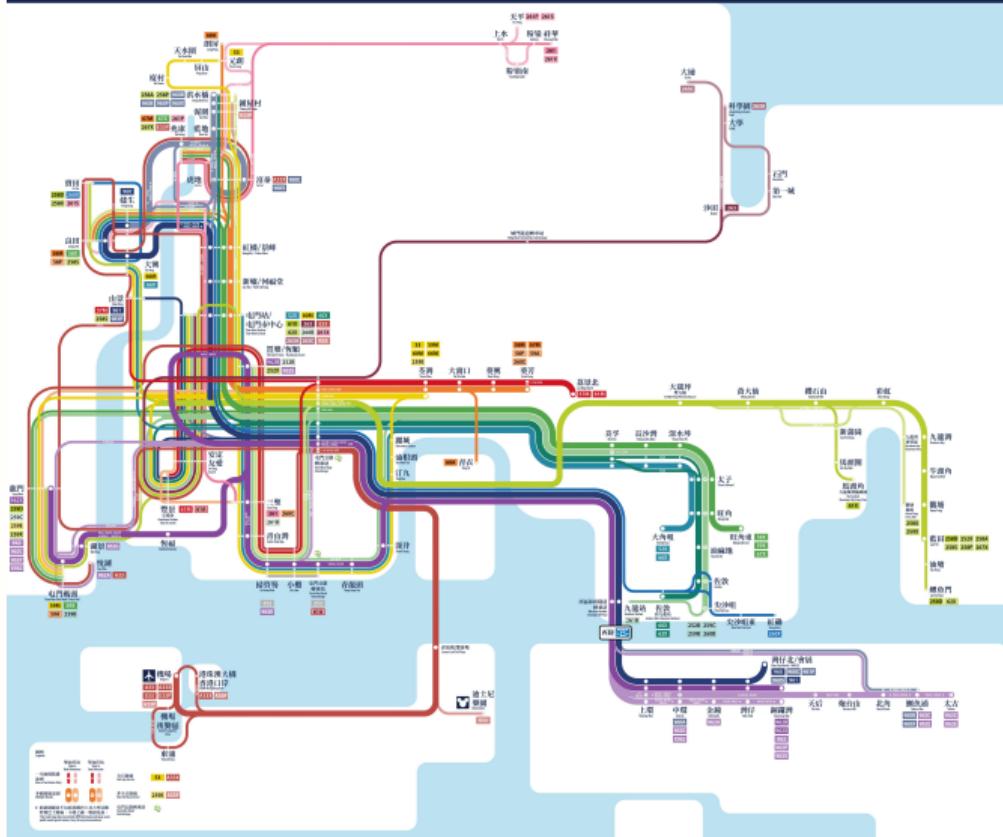


Shared by Code Hale

<https://mapa-metro.com/en/germany/frankfurt/frankfurt-u-bahn-map.htm>

# 屯門區巴士路線圖 Tuen Mun District Bus Route Map

Ver 1.00 By Haydon Chan



Shared by Tung Ki Yeung

<https://www.behance.net/gallery/96041633/Tuen-Mun-District-Bus-Route-Map-Design>

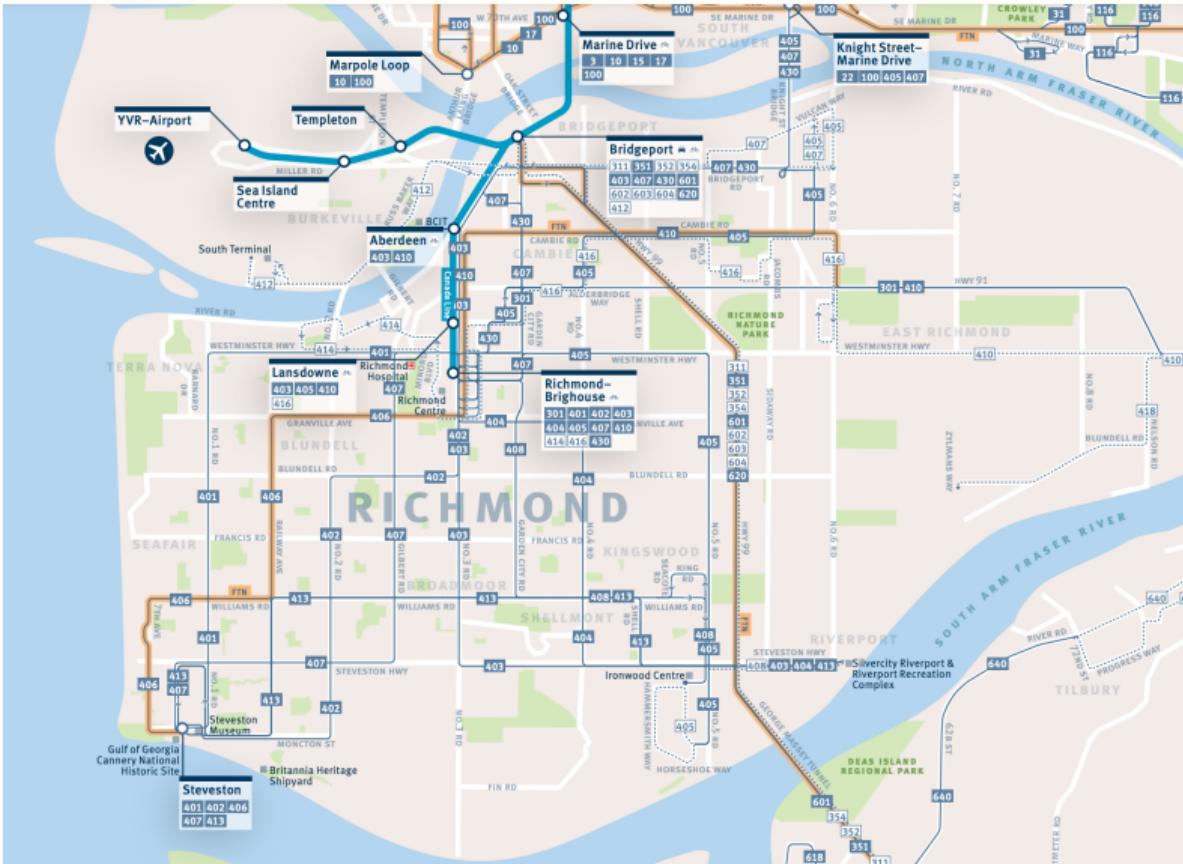
Navigational maps have to balance between detail and legibility

## Cartographic Selection

- ▶ deciding what layers to include on a map, and what not to include

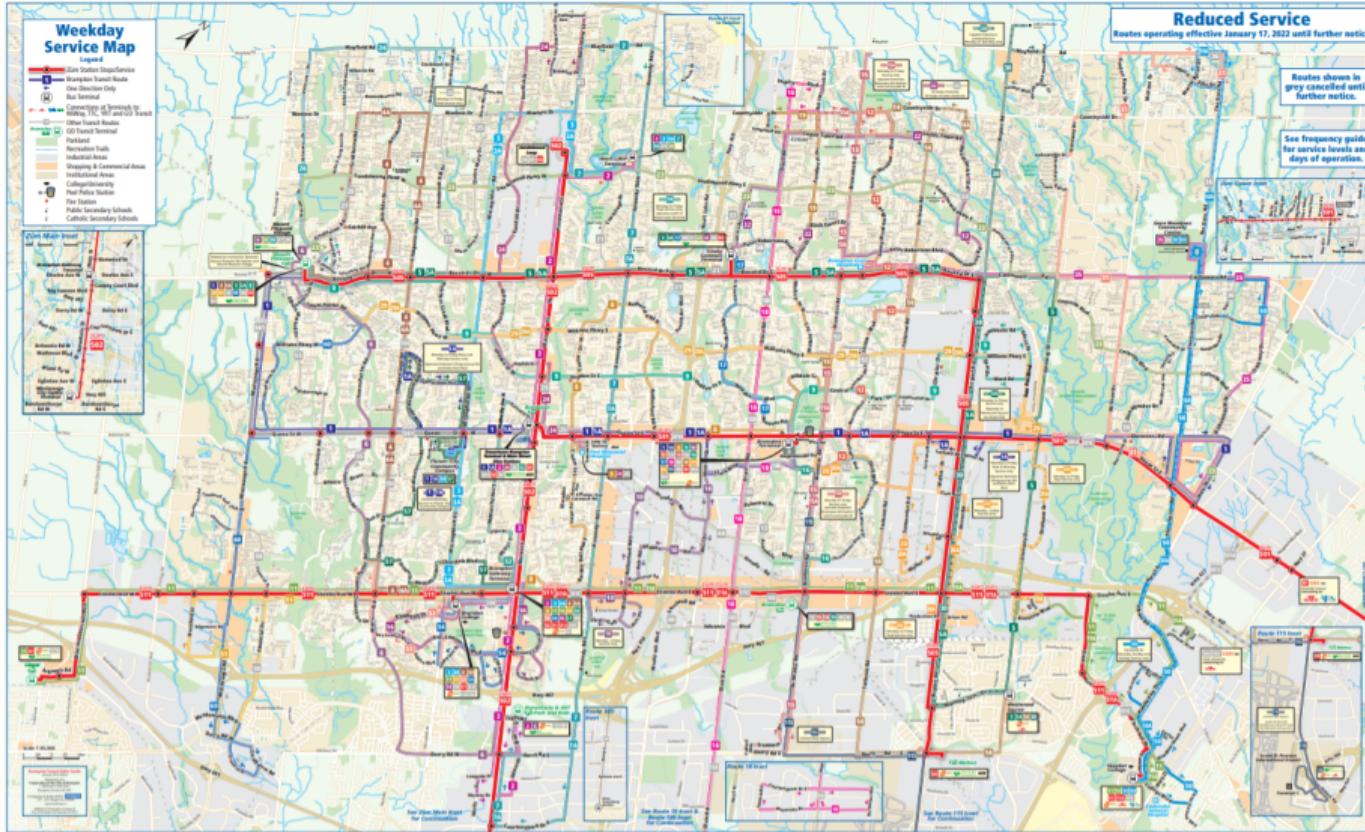
## Cartographic Generalization

- ▶ simplifying the precision and detail of features to only show what's essential
  - ▶ e.g. smoothing a line
  - ▶ e.g. merging areas, aggregating points
  - ▶ e.g. reclassifying data
  - ▶ e.g. exaggerating features



Shared by Angel Yang

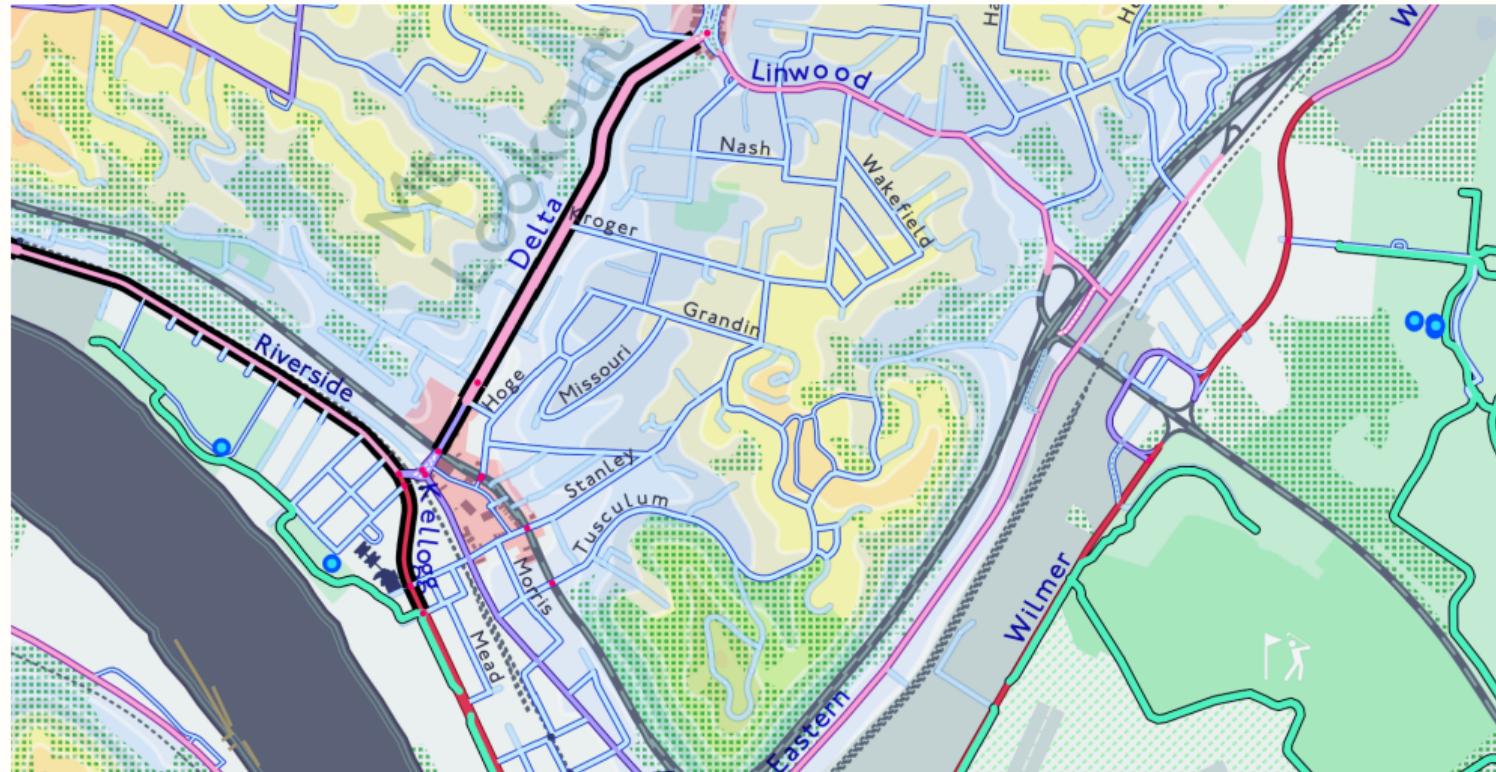
[https://www.translink.ca/-/media/translink/documents/schedules-and-maps/transit-system-maps/regional-maps/january-2022/rdt\\_2022-01-03.pdf](https://www.translink.ca/-/media/translink/documents/schedules-and-maps/transit-system-maps/regional-maps/january-2022/rdt_2022-01-03.pdf)



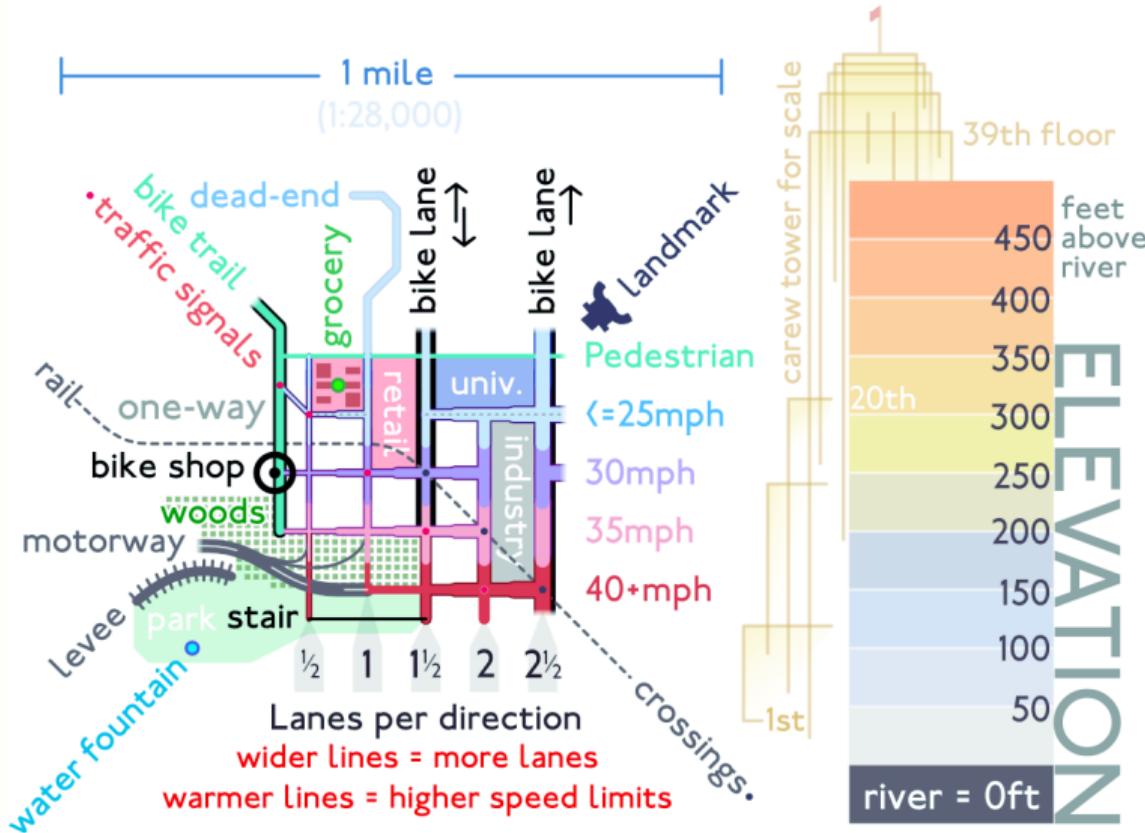
Shared by Erika Lindsay

[https://www.brampton.ca/EN/residents/transit/plan-your-trip/Documents/Brampton\\_System\\_M-F\\_Jan2022.pdf](https://www.brampton.ca/EN/residents/transit/plan-your-trip/Documents/Brampton_System_M-F_Jan2022.pdf)

e.g. Bike Map in Cincinnati



## e.g. Bike Map in Cincinnati





# Mind the map! The impact of transit maps on path choice in public transit

Zhan Guo \*

*Robert F. Wagner Graduate School of Public Service, Rudin Center for Transportation Policy and Management, New York University, 295 Lafayette St., Room 3038, New York, NY 10012, USA*

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Path choice

Tube map

London Underground

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## ABSTRACT

This paper investigates the impact of schematic transit maps on passengers' travel decisions. It does two things: First, it proposes an analysis framework that defines four types of information delivered from a transit map: distortion, restoration, codification, and cognition. It then considers the potential impact of this information on three types of travel decisions: location, mode, and path choices.<sup>1</sup> Second, it conducts an empirical analysis to explore the impact of the famous London tube map on passengers' path choice in the London Underground (LUL). Using data collected by LUL from 1998 to 2005, the paper develops a path choice model and compares the influence between the distorted tube map (map distance) and reality (travel time) on passengers' path choice behavior. Results show that the elasticity of the map distance is twice that of the travel time, which suggests that passengers often trust the tube map more than their own travel experience on deciding the "best" travel path. This is true even for the most experienced passengers using the system. The codification of transfer connections on the tube map, either as a simple dot or as an extended link, could affect passengers' transfer decisions. The implications to transit operation and planning, such as trip assignments, overcrowding mitigation, and the deployment of Advanced Transit Information System (ATIS), are also discussed.

## **Transportation improvement plan**

For the final project in this class, you will propose an intervention, solution, or improvement to a transportation problem

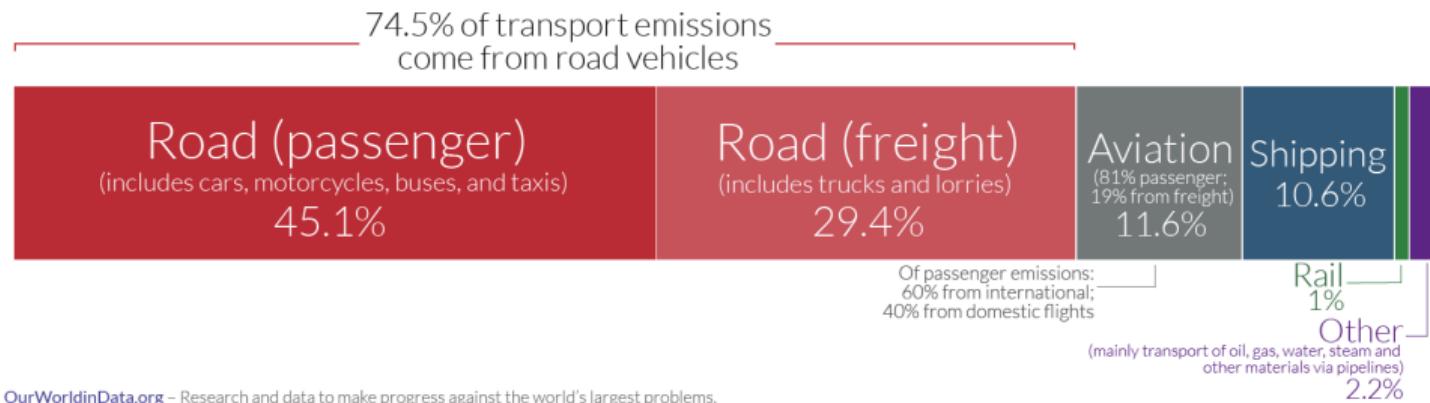
- ▶ (5%) Project Proposal due March 10
- ▶ (5%) Presentations March 28 and April 4
- ▶ (25%) Final Report due April 8

## Transport and the Environment:

# Global CO<sub>2</sub> emissions from transport

This is based on global transport emissions in 2018, which totalled 8 billion tonnes CO<sub>2</sub>.

Transport accounts for 24% of CO<sub>2</sub> emissions from energy.



[OurWorldInData.org](https://OurWorldInData.org) – Research and data to make progress against the world's largest problems.

Data Source: Our World in Data based on International Energy Agency (IEA) and the International Council on Clean Transportation (ICCT).

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