Infrastructure is Destiny
10 day jam, Beijing 2010
PERSONAL INFRASTRUCTURE
(human nature)

We strongly favor convenience (EASY & CHEAP) economics
We have underpriced:

- Air pollution
- Congestion
- Curb access (in conditions of scarcity)
- User fees for transportation infrastructure investment (in some countries)

With market pricing misaligned with reality, we are overconsuming car travel.
Our planetary infrastructure
Scientists predict +5-6°C by 2100 under BAU

Globally: is this year hotter or colder than 20th C average?
- 4.5°C
WHERE WE ARE TODAY
+4.5°C

20,000 YEARS AGO
MY NEIGHBORHOOD:
HALF A MILE OF ICE

AVERAGE DURING MODERN TIMES
MY NEIGHBORHOOD:

IN 86 YEARS
MY NEIGHBORHOOD:
?

THICKNESS OF THE ICE SHEETS
AT VARIOUS LOCATIONS
21,000 YEARS AGO
COMPARING WITH MODERN SKYLINE

TORONTO
CHICAGO
BOSTON
MONTREAL

Credit: Randall Monroe
Underpriced, Private vehicles as a solution have found their limits, clogging streets, arteries and the atmosphere

Source: TomTom Traffic Index (2016)

World’s Most Congested Cities

Source: Authors using data from US Census Bureau (2016)

Source: Authors using data from IEA (2015)

Global CO₂ Emissions from Fuel Combustion by Sector
TECHNOLOGY
Technology has made sharing easy

Car Sharing

Transit Apps

E-Hailing and Ride-Sharing
What would you do if e-hailing/ridesharing did not exist?

24% of people chose not to walk or bike 😞
It has also made on-demand consumption and delivery easy and convenient with consequences for city retail, and street and curb use.
Enter self-driving cars...

Driverless Car Market Projections:

By 2020...
- Honda (highway)
- Hyundai (highway)
- Toyota (highway)
- Renault-Nissan (in cities)

By 2021...
- Audi (fully)
- BMW (fully)
- Ford (fully)
- Volvo (highway)

(Source: techemergence.com, autonew.com)
If we understand that people naturally choose easy & cheap, 
& INFRASTRUCTURE IS DESTINY 
& AVS ARE IMMINENT (AT LEAST IN CITIES)

Over next 5 years
We need to specifically & pro-actively rework our 
ECONOMIC, PHYSICAL & DATA INFRASTRUCTURE

active & shared transport

EASY & CHEAP
Today’s personal car trips:
75% of trips SPACE INEFFICIENT (single occupancy)
45% of trips BIKEABLE < 4 miles (6.5 kms)
15% of trips WALKABLE < 1.5 miles (2.5 kms)

BY FOCUSING ON & PRIORITIZING:

active & shared transport
EASY & CHEAP

• Healthier
• Greener
• Cheaper (Equitable)
• More accessible
• Space Efficient
• More livable
The endorsers of the SMPs include:
Shared Mobility Principles for Livable Cities
Multimodal, integrated.
Vehicles are right-size, shared, zero emission.

1. Plan cities and mobility together
2. Focus on moving people, not cars
3. Encourage efficient use of space and assets
4. Engage stakeholders in decision making
5. Design for equitable access
6. Transition towards zero emissions
7. Seek fair user fees across all modes
8. Deliver public benefits via open data
9. Promote integration and seamless connectivity
10. Automated vehicles must be shared

SharedMobilityPrinciples.org
The endorsers of the SMPs include:
#2 Move people, not cars
#3 Encourage efficient use of space & assets
AV benefits are differentiated by population density. AVs
Personal & Electric
Exurban
FAVES
Fleets of AVs that are Electric & Shared
Urban.

Safety benefits felt here. Transformed land use (shared) & better air quality (electric) key benefits here.

**space required to transport 60 people**

**car**

**bus**

**bicycle**
space required to transport 60 people

car
Here are 200 people in 177 cars
#2 Move people, not cars
#3 Encourage efficient use of space & assets

60 people/lane/block  40 people/lane/block  12 people/lane/block
#7 Fair user fees across all modes

TODAY: Cities express ambivalence
#8 Public benefits via open data

Interoperability between modes

Competition within modes

SharedStreets.io
Today we have a unique and irreplaceable window of opportunity

- provides a concrete and visible time horizon for action, with
- a built-in refreshment of our vehicle stock
- a host of focusing problems for all stakeholders

A chance to **DO-OVER** Cities
INFRASTRUCTURE IS DESTINY

We have to get this transition right.
A new *collaborative* initiative to channel tech-driven disruptions in mobility to (re)build cities that are sustainable, just and livable