

Transportation of New York

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Outline

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 - ✏️ Shared mobility
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- Traffic safety
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Introduction



New York City

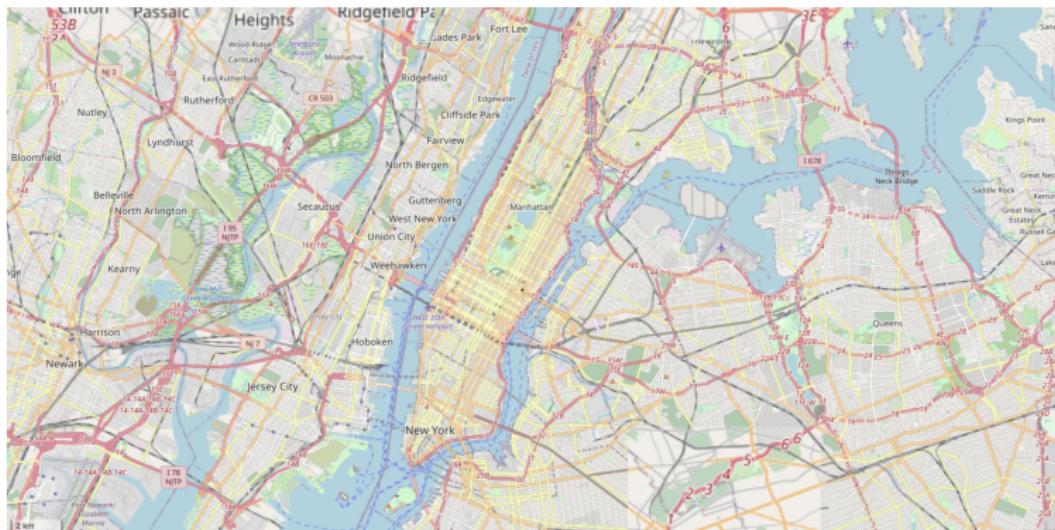
- The **most populous city** in the US
- The **most densely populated major city** in the US



Introduction

New York City

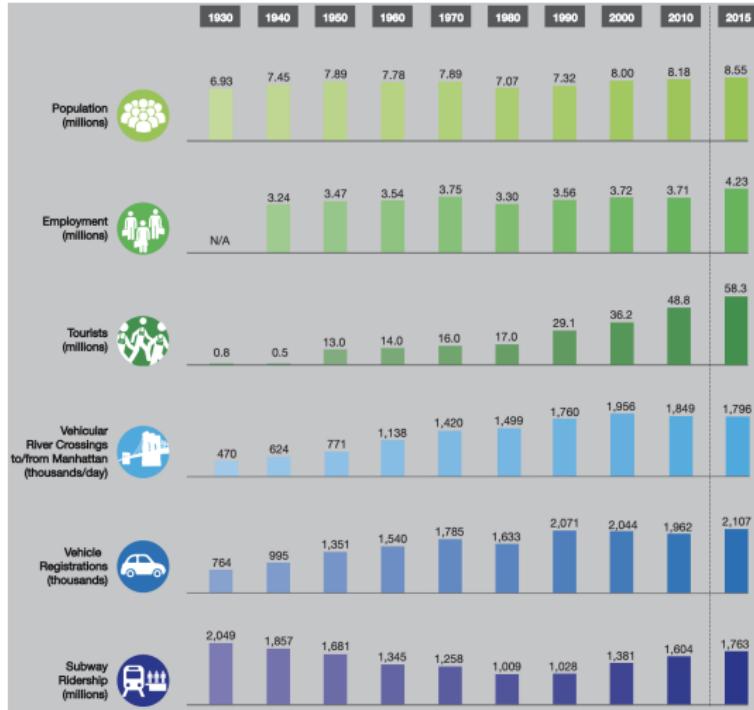
- 784 km²
- Population: 8.34 million (2019)



Montreal

- 432 km²
- Population: 4.20 (2019)

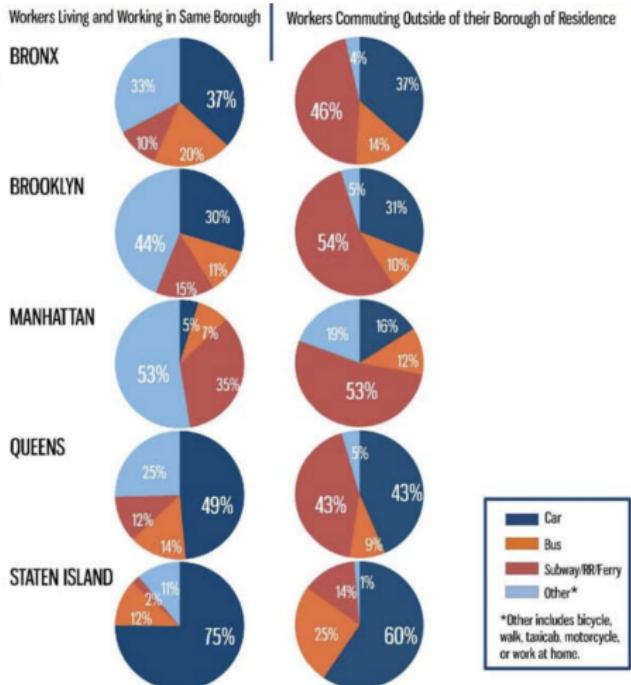
Introduction



Growth in 1980-2010:

- Population: 16%
- Employment: 12%
- Tourism: 187%
- Subway rideship: 59%

Modal share of NYC residents



Findings

- Subway/Railroad/Ferry is the largest mode among workers commuting outside of their borough of residence, except on Staten Island.
- In Queens and Staten Island, the plurality of workers use cars for commuting.

Transit system

Subway in NYC

- 6,600 subway cars
- 472 subway stations
- Daily rideship: \approx 5.5 million
- Annual rideship:
 - 1.76 billion (2015)
 - 1.70 billion (2019)

Subway in Montreal

- 68 subway stations
- Daily rideship: \approx 1.4 million (Q4 2018)
- Annual rideship: 0.35 billion (2016)



Transit system

Bus in NYC

- ☞ 5,927 vehicles in the bus fleet
- ☞ All 100% accessible to riders with disabilities
- ☞ 234 local bus routes
- ☞ 20 Select Bus Service routes
- ☞ 73 express routes
- ☞ Annual rideship:
 - ☞ 651 million (2015)
 - ☞ 557 million (2019)

Manhattan Bus Map



Bronx Bus Map



Brooklyn Bus Map



Bus in Montreal

- ☞ 1,449 vehicles in the bus fleet
- ☞ 220 bus lines
- ☞ Annual rideship:
 - ☞ 234 million (2015)
 - ☞ 223 million (2017)

Shared mobility

Key Areas of Shared Mobility

CARSHARING

- Roundtrip
- One-Way
- Personal Vehicle Sharing(PVS)
 - P2P Carsharing
 - Hybrid P2P - Traditional Carsharing Model
 - P2P Marketplace
 - Fractional Ownership

ALTERNATIVE TRANSIT SERVICES

- Shuttles
- Microtransit

COURIER NETWORK SERVICES (CNS)

- P2P Delivery Services
- Paired On-Demand Passenger Ride and Courier Services

RIDESHARING

- Carpooling
- Vanpooling

SCOOTER SHARING

BIKESHARING

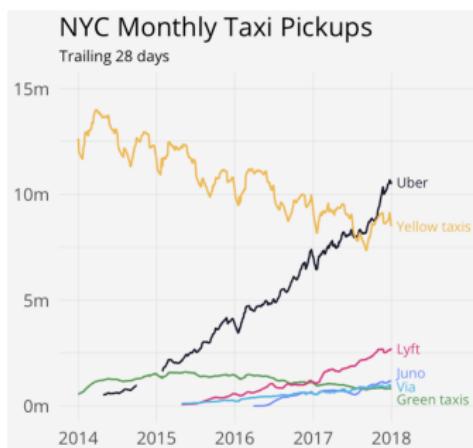
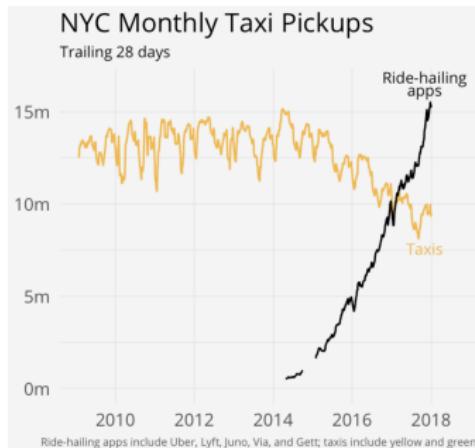
- Public Bikesharing
- Closed Campus Bikesharing
- P2P Bikesharing

ON-DEMAND RIDE SERVICES

- Ridesourcing/TNCs
- Ridesplitting
- E-Hail

Shared mobility

Ride-hailing

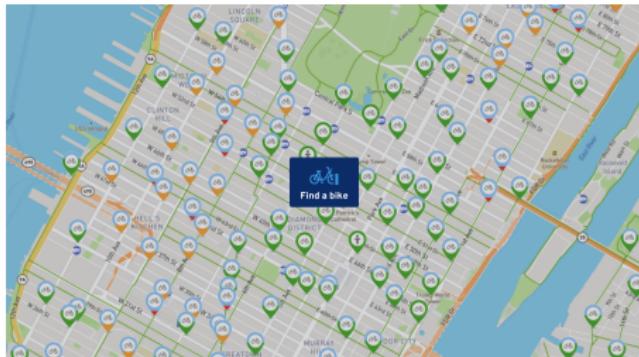


Over the past 4 years,

- ride-hailing apps have grown from 0 to 15 million trips per month
- taxi usage has only declined by around 5 million trips per month

Shared mobility

Citi Bike



- The nation's largest bike share program.
- 15,000 bikes
- 1,000+ stations

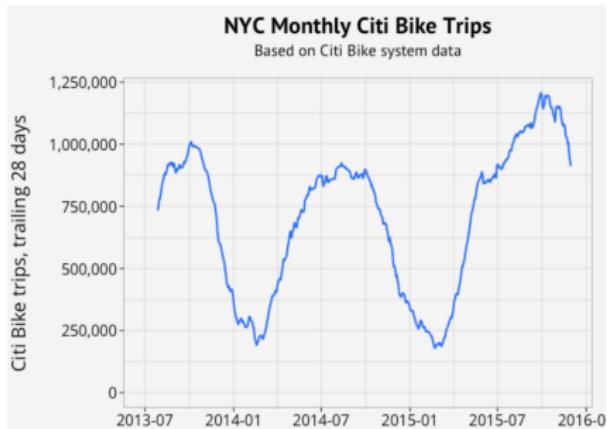


Bikes in Montreal

- 540+ stations

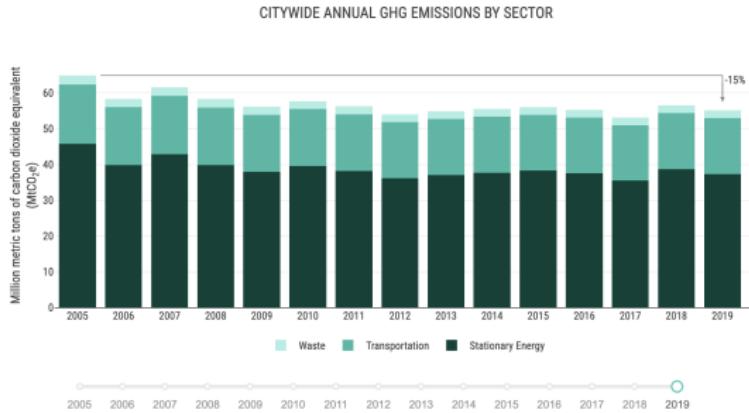
Shared mobility

Citi Bike



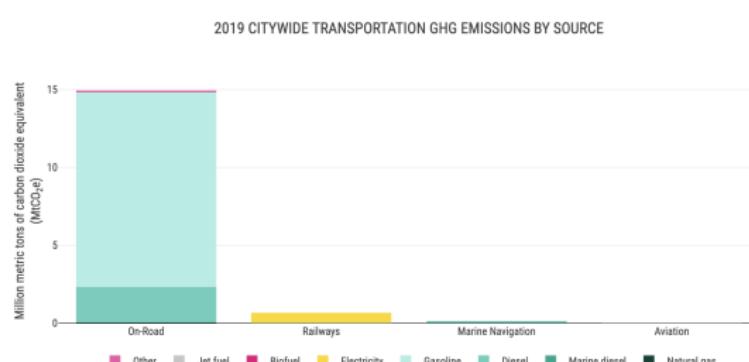
- dramatically fewer rides during the cold winter months
- 1,000,000+ rides in some months

GHG emissions



Findings

- GHG emissions have reduced 15%
- On-road transport is the most remarkable factor for GHG emission in transportation

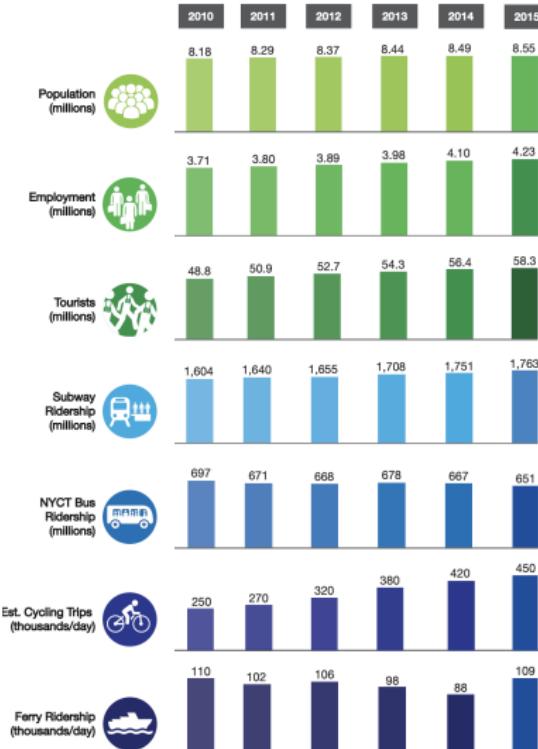


Traffic safety

Crash summary (severity)

| | New York State | | New York City | |
|-----------------|----------------|---------|---------------|---------|
| | 2015 | 2019 | 2015 | 2019 |
| Total | 251,142 | 418,687 | 41,632 | 121,091 |
| Fatal | 1,045 | 881 | 232 | 205 |
| Serious | 9,097 | 10,043 | 2,213 | 3,147 |
| Moderate | 15,229 | 16,219 | 4,108 | 5,899 |
| Minor | 75,084 | 85,527 | 24,184 | 35,982 |
| Unk severity | 3,576 | 2,854 | 2,326 | 1,655 |
| Property damage | 147,111 | 303,163 | 8,569 | 74,203 |

Travel behavior trend



Trend

- **Subway ridership** has grown an average of 2% since 2010.
- **Bus ridership** dropped 46 million passengers between 2010 and 2015.
- **Cycling** increased by 80% between 2010 and 2015 as bike infrastructure continued to expand on city streets.
- **Ferry ridership** has fluctuated in recent years.

Uniqueness of transport



New tool to help city **eliminate traffic related deaths** and **reduce crash related injuries and damage to both the vehicles and infrastructure**.

Reference

Data and images are taken from:

- ✍ https://www1.nyc.gov/assets/planning/download/pdf/plans/transportation/peripheral_travel_02e.pdf
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- ✍ NYMTC: <https://www.nymtc.org/ABOUT-US/annual-reports>
- ✍ Citi Bike website: <https://www.citibikenyc.com/>
- ✍ Todd W. Schneider (2016). A tale of twenty-two million Citi Bike rides: Analyzing the NYC bike share system. [Blog post]
- ✍ NYC Connected Vehicle Project: <https://www.cvp.nyc/>
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- ✍ NYC Taxi & Limousine Commission (TLC) website:
<https://www1.nyc.gov/site/tlc/index.page>
- ✍ Todd W. Schneider (2015). Analyzing 1.1 billion NYC taxi and Uber trips with a vengeance. [Blog post]
- ✍ GHG emissions: <https://nyc-ghg-inventory.cusp.nyu.edu/>
- ✍ <http://tram.mcgill.ca/Teaching/srp/documents/NickC.pdf>

Thanks for your attention!