



Interreg

CENTRAL EUROPE



European Union
European Regional
Development Fund

Peripheral Access



TAKING
COOPERATION
FORWARD



CITY INDUSTRY DIALOGUE - CONFERENCE: THE FUTURE OF PUBLIC TRANSPORT NOT ONLY IN CITIES - MODERN TECHNOLOGIES IN PUBLIC TRANSPORT

Brno, 5th of June 2019



MaaS - the way from the integrated transport system to the integration of different transport modes



Hungarian Museum of Technology and Transport / Dávid Vitézy

WHO AM I?

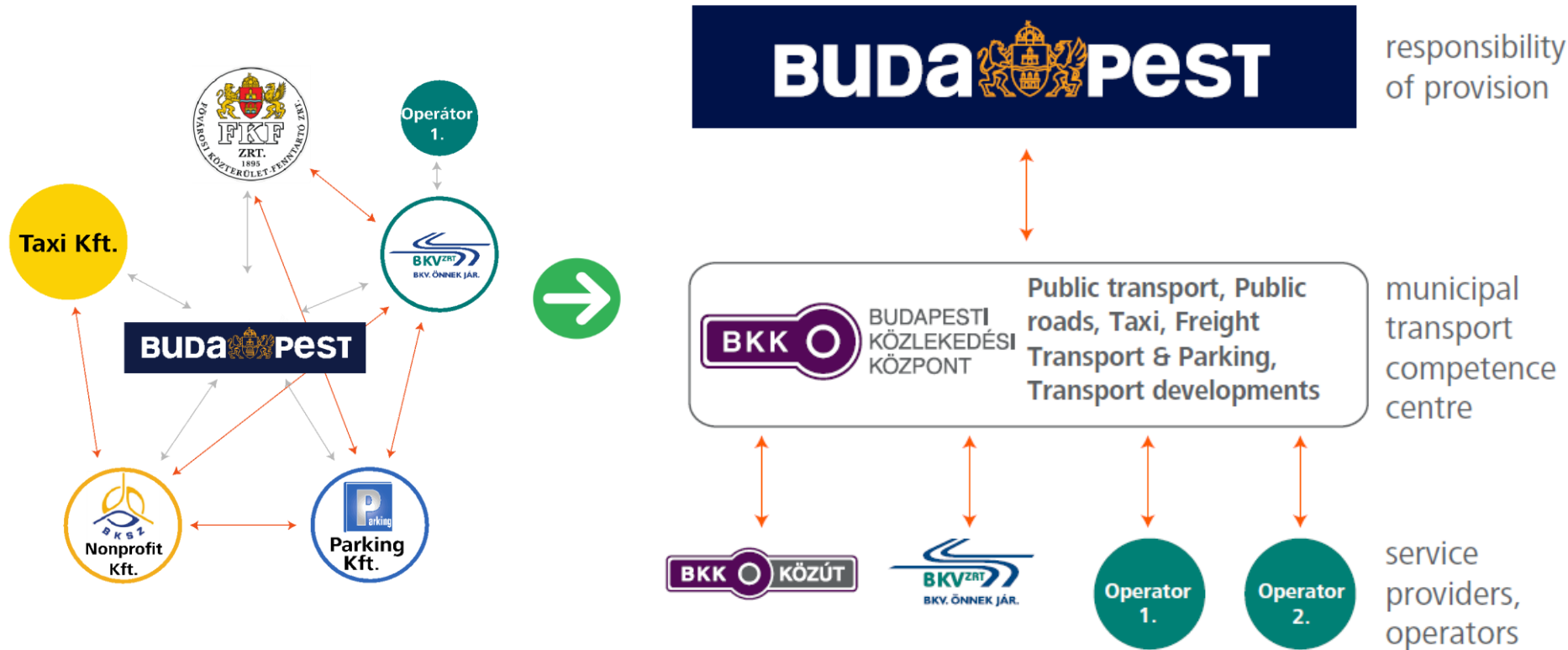
2005:



TAKING COOPERATION FORWARD

THE BKK MODEL

2010: BKK - integrated transport authority of Budapest



THE BKK MODEL: RESULTS

Integrated transport management: an example of the benefits



Grand Boulevard in Budapest:

- 3000 passengers in cars (peak hour, direction)
- 9000 passengers on trams (peak hour, direction)

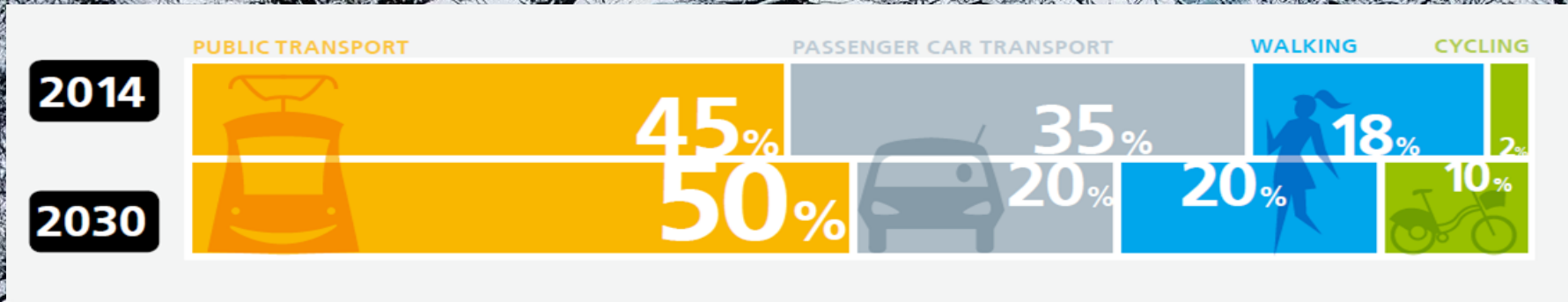
Tram priority on the traffic light coordination:

- 7% increased capacity on the trams
- 2 minutes travel time decrease

MODEL SHARE VISION OF BUDAPEST

Transportation modes in Budapest -
65% sustainable in 2014, the goal is 80%

RIZSAVI TAMAS PHOTOGRAPHY
WWW.FACEBOOK.COM/RIZSAVI.TAMAS
WWW.RIZSAVI.COM



PUBLIC SPACE RENEWAL



fotó: origo

Károly Boulevard, 2006

PUBLIC SPACE RENEWAL



foto: origo

Károly Boulevard, 2013

PUBLIC SPACE RENEWAL



Madách Square, 2011

fotó: Google

PUBLIC SPACE RENEWAL



fotó: Funzine

Madách Square, 2014

CUSTOMER-FRIENDLY SERVICES

The PT operator BKV's sales in practice around 2010



OLD PRACTICES: BKV BEFORE 2010



LACK OF CUSTOMER-FRIENDLY SERVICES



CUSTOMER-FRIENDLY SERVICES



FUTÁR - passenger information and AVL system

CUSTOMER-FRIENDLY SERVICES



320 new ticket vending machines

CUSTOMER-FRIENDLY SERVICES



New BKK customer service centres

DEVELOPMENT OF INFRASTRUCTURE

750 new low-floor buses



DEVELOPMENT OF INFRASTRUCTURE



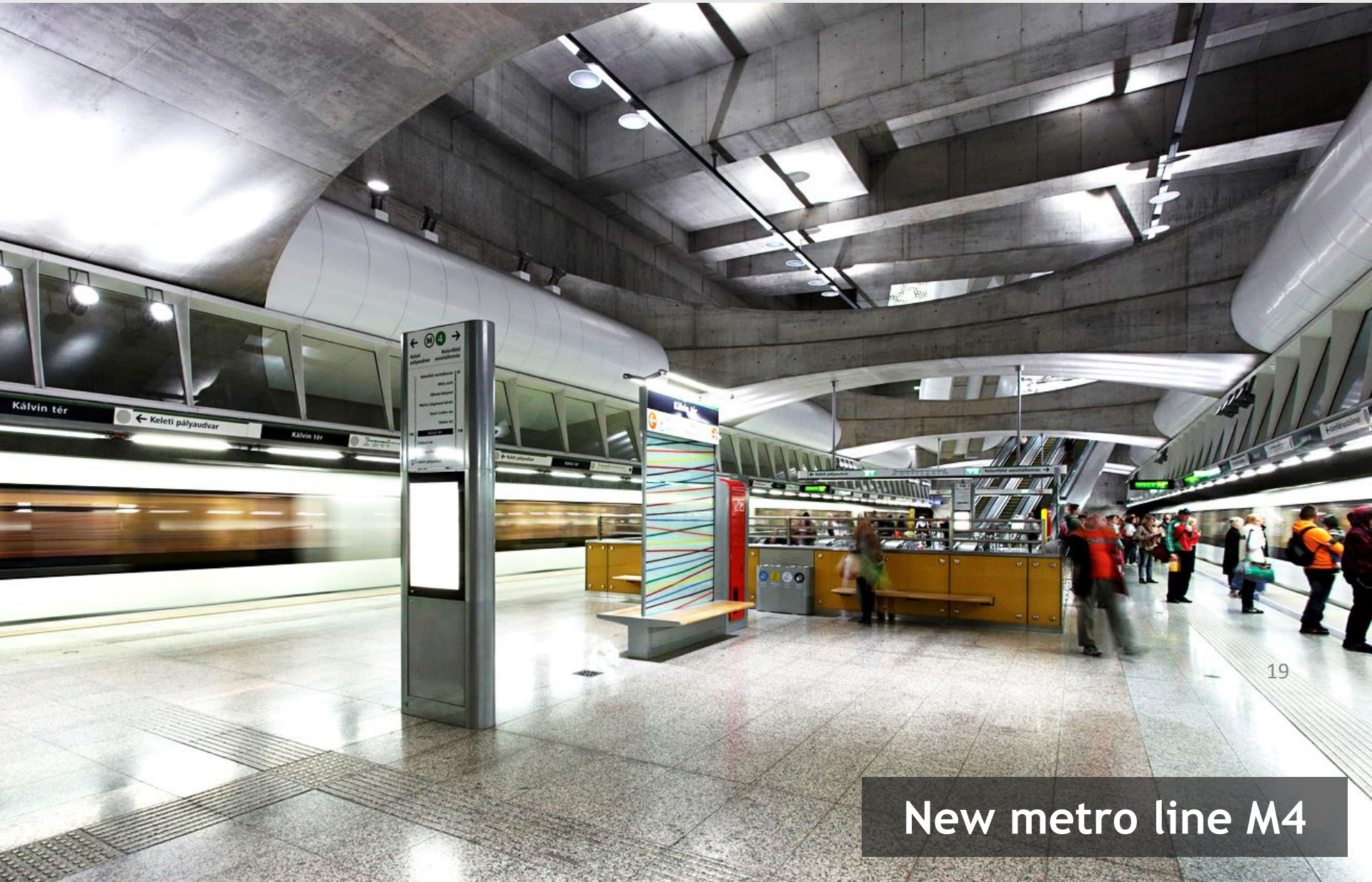
New trolleybuses

DEVELOPMENT OF INFRASTRUCTURE



New low-floor trams

DEVELOPMENT OF INFRASTRUCTURE



DEVELOPMENT OF INFRASTRUCTURE

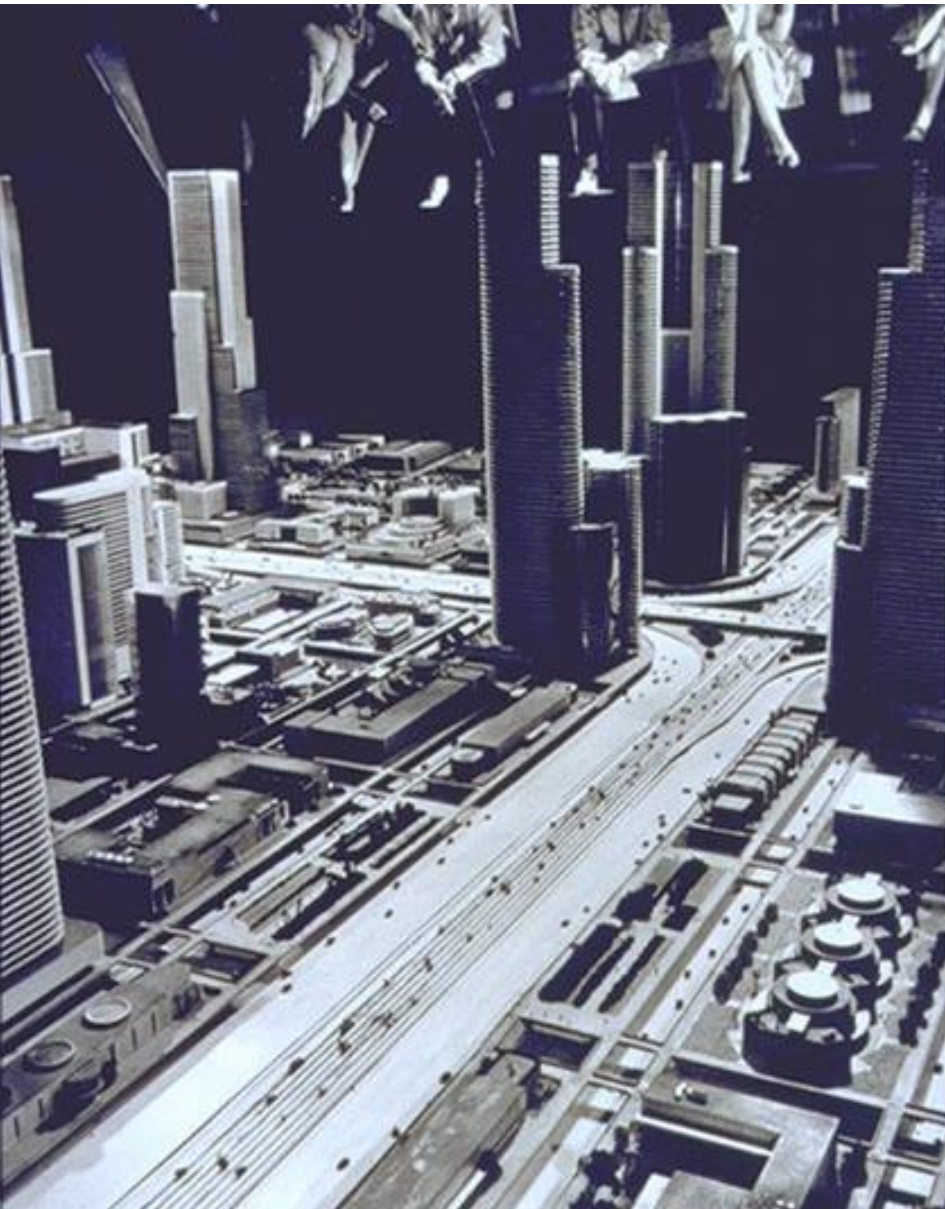


New tram connections

growth of fare revenues by 20%



FUTURAMA 1939 (NEW YORK EXPO)



LOS ANGELES 1957



A CITY BUILT AROUND CARS: WHERE THE OLD POLICIES WOULD LEAD US?



A CITY BUILT AROUND CARS



35% of LA area is covered by roads,
an additional 24% by parking lots

DUBAI: FUTURAMA IN THE 21TH CENTURY



BUDAPEST 1942



BUDAPEST 1963 - 1972



BUDAPEST 1980 - 2000



BUDAPEST 2010



.. but it could be 2018 as well

SHARED SERVICES: A REVOLUTION IN PROGRESS



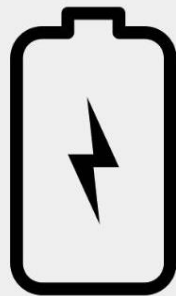
SHARED SERVICES: A REVOLUTION IN PROGRESS



ENABLED BY RAPIDLY FALLING COSTS IN...



GPS



Batteries



Motors



Networks



Smartphones

Oliver Bruce (Twitter)

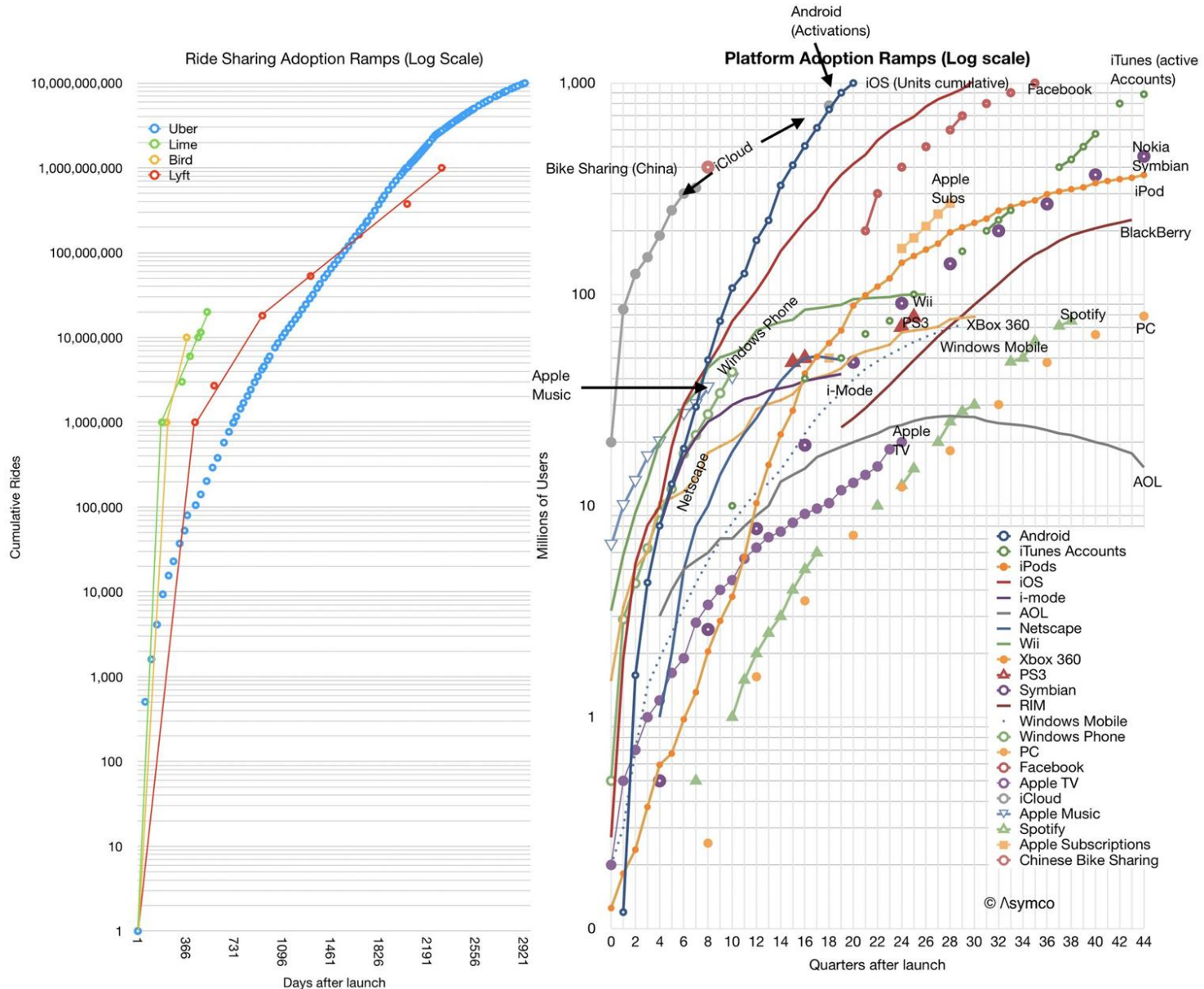


THE SCOPE OF MICROMOBILITY

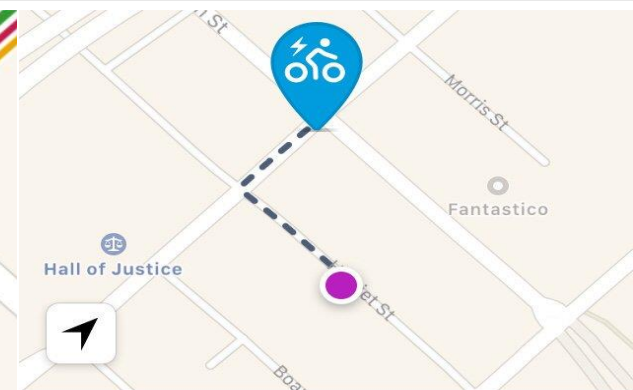
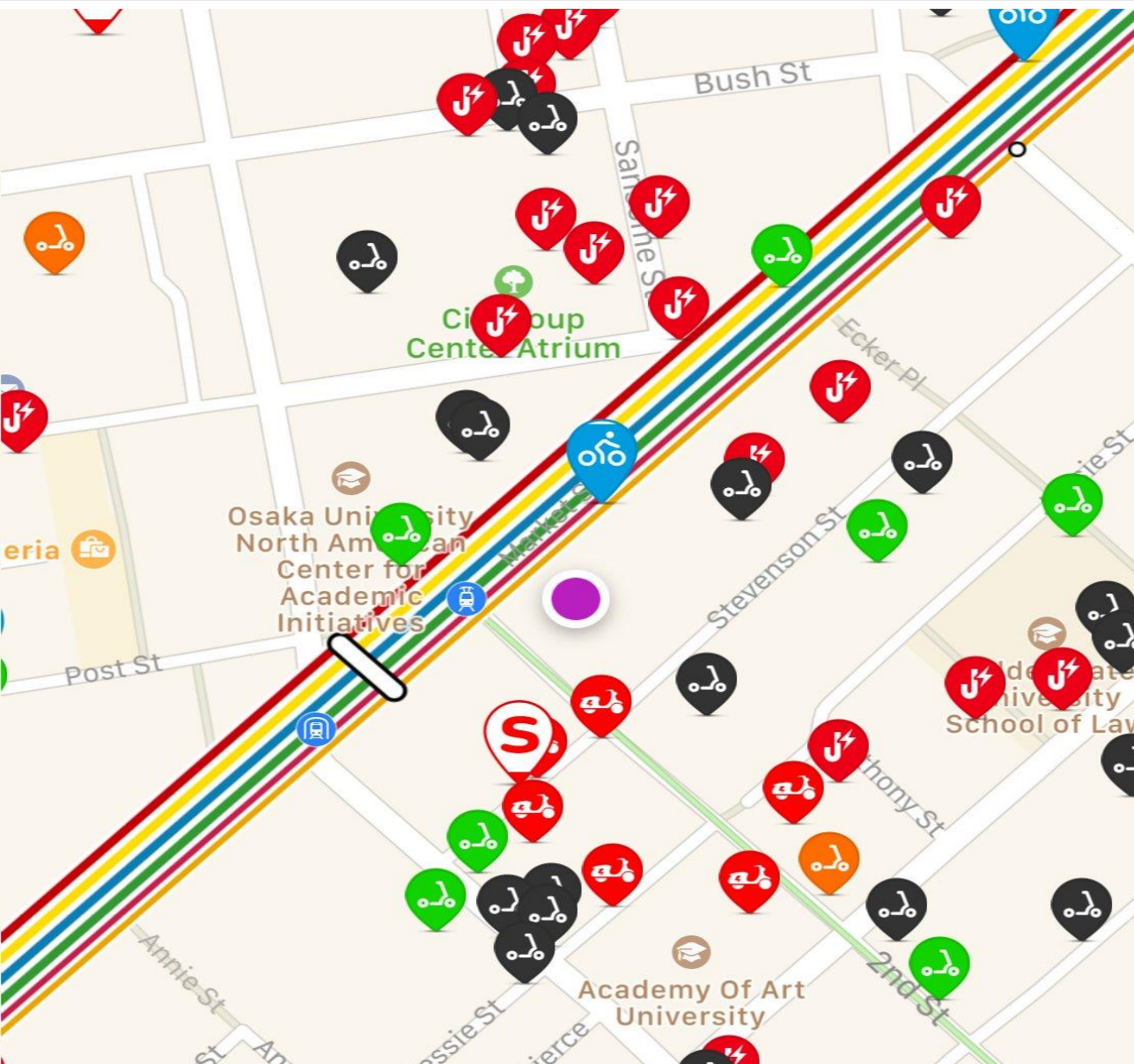


Oliver Bruce (Twitter)

A SWIFT TRANSITION



A NEW MOBILITY LANDSCAPE

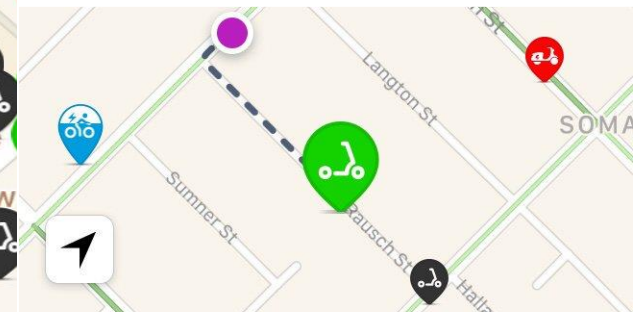


Ford GoBike

1 minute

Bryant St / 6th St

14 bikes - 3 ebikes - 0 docks



LimeBike

1 minute

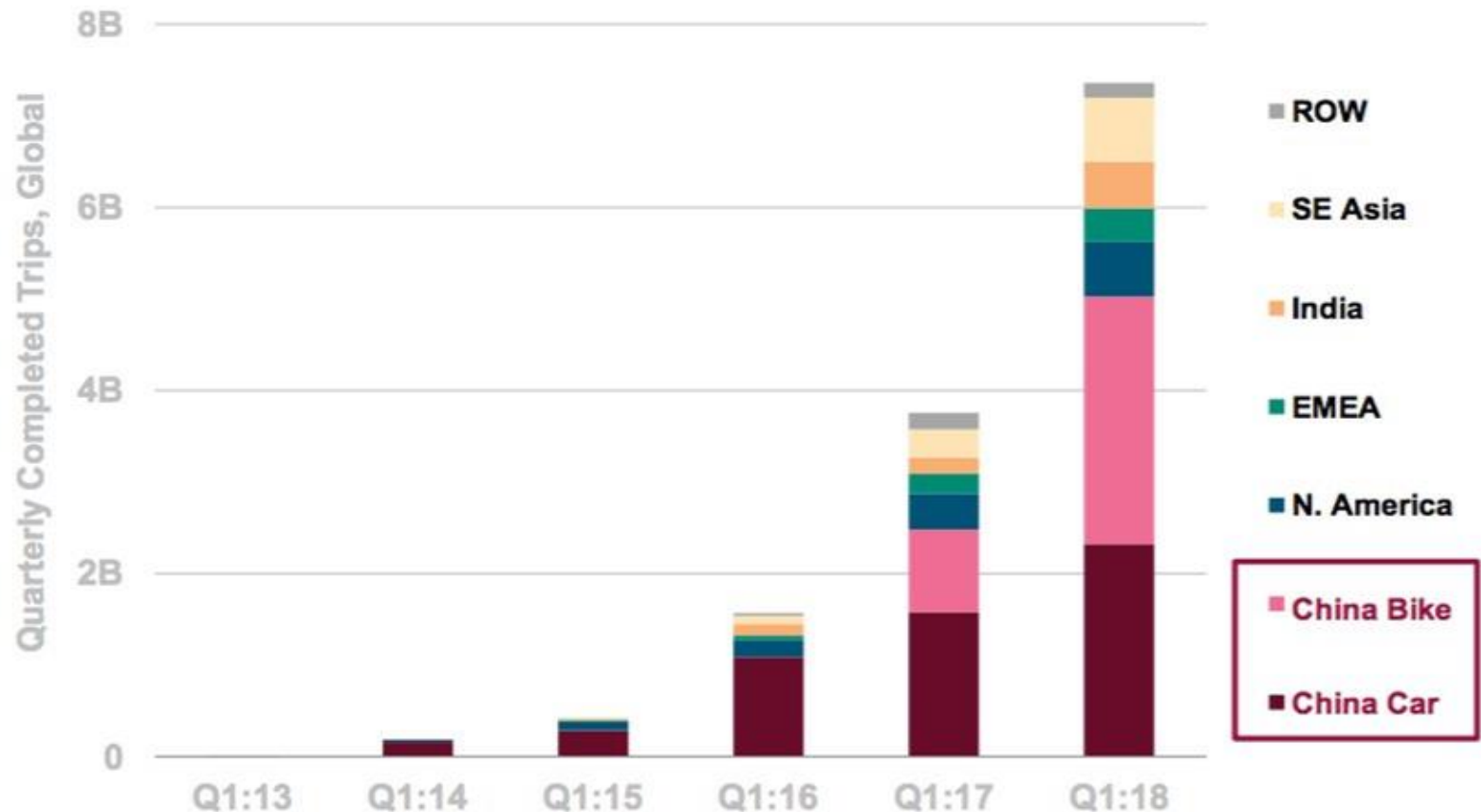
Electric Scooter

Est. Range: 19 mi

ASIA LEADS THE WAY

**China On-Demand Transportation (Cars + Bikes) = +96%...
68% Global Share & Rising**

On-Demand Transportation Trip Volume by Region



ALSO IN BUDAPEST...



BUBI public bike service with 1800+ bikes and 146 docking stations

ALSO IN BUDAPEST...



Private car-sharing companies with
1000+ electric and ICE vehicles

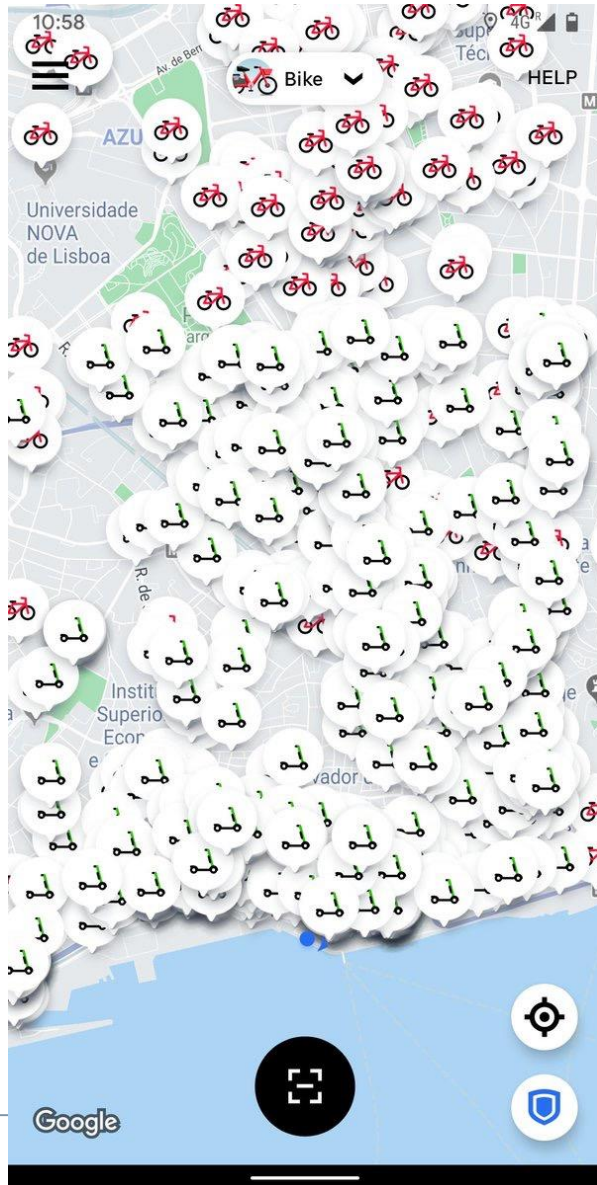
ALSO IN BUDAPEST...

Index.hu



Test period with
200 scooters

NEW MOBILITY LANDSCAPE, VANISHING BORDERS BETWEEN PRIVATE AND PUBLIC



IMPACT 1: WHO WILL BE THE INTEGRATOR? THAT'LL THE „MAAS”!

Coming soon to the Uber app: bikes, rental cars, and public transportation

Uber CEO Dara Khosrowshahi is in Washington, DC today to extend the hand of friendship to cities and make some product news

By Andrew J. Hawkins | @andyjayhawk | Apr 11, 2018, 10:30am EDT

f t SHARE



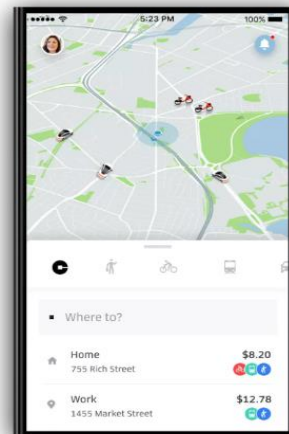
OR ?

Uber customers in Denver can now buy train and bus tickets in the app

Criticized for poaching riders, Uber seeks to give transit equal footing in its app

By Andrew J. Hawkins | @andyjayhawk | May 2, 2019, 11:00am EDT

f t SHARE



COOPERATION FORWARD

GLOBAL TREND: PT AGENCIES FAILED IN INTEGRATION AMONG THEMSELVES

Hold St, Miskolc, 3531
Normafa, Budapest, Eötvös út 59, 1121

Leave now

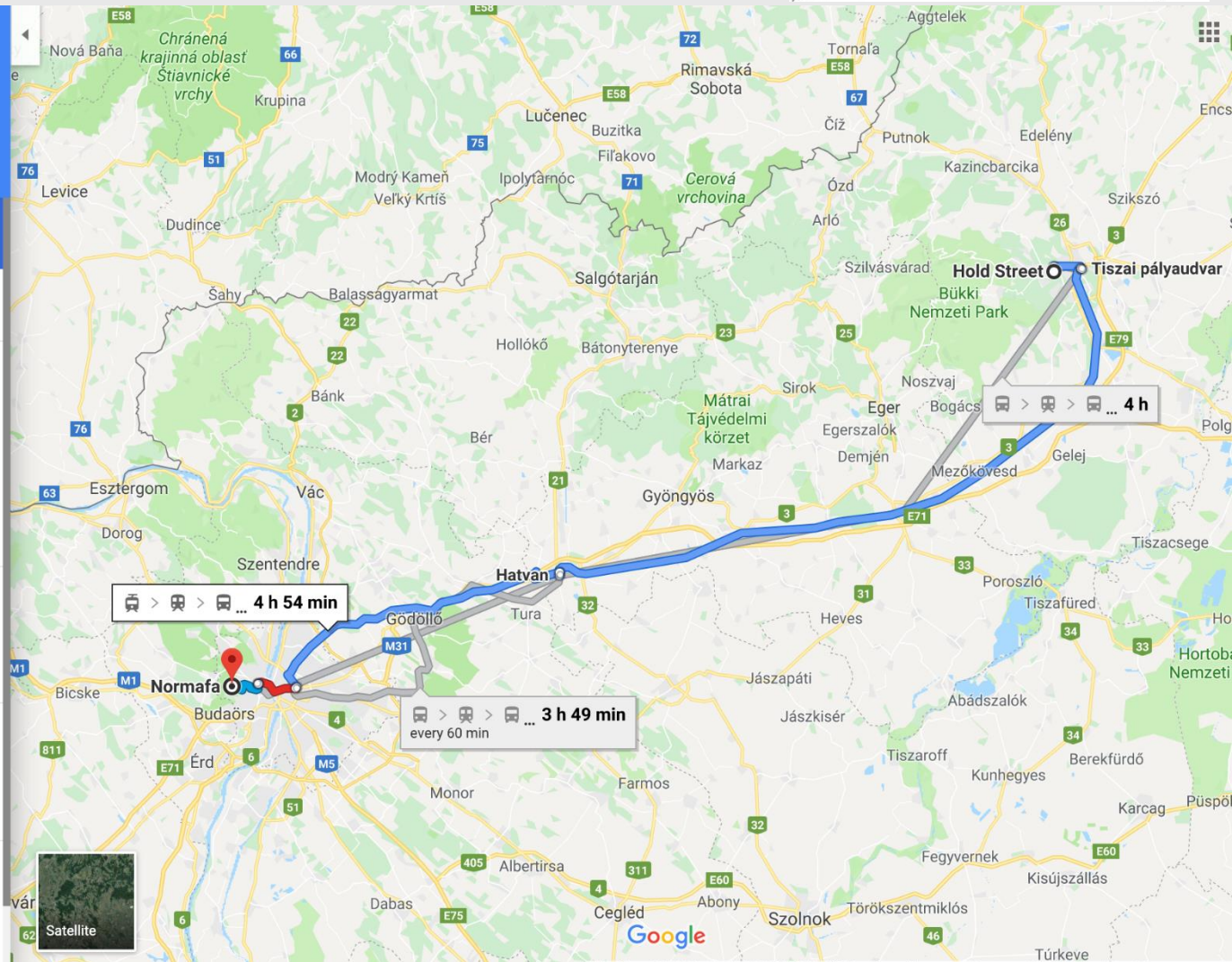
Send directions to your phone

2:21 AM—7:15 AM 4 h 54 min
1V > 5009 > 1040 > M2 > 21
2:35 AM from Balázs Győző tér
36 min
DETAILS

6:55 AM—10:55 AM 4 h
21 > Budapest-Keleti-Košice > M2 > 21A

6:55 AM—11:05 AM 4 h 10 min
21 > Budapest-Keleti-Košice > 5 > 21A

7:56 AM—11:45 AM 3 h 49 min
21 > IC 682 > ICB 682 > M2 > 21A



IMPACT 2: MICROMOBILITY CLAIMS URBAN SPACE



MICROMOBILITY CLAIMS URBAN SPACE



MICROMOBILITY CLAIMS URBAN SPACE

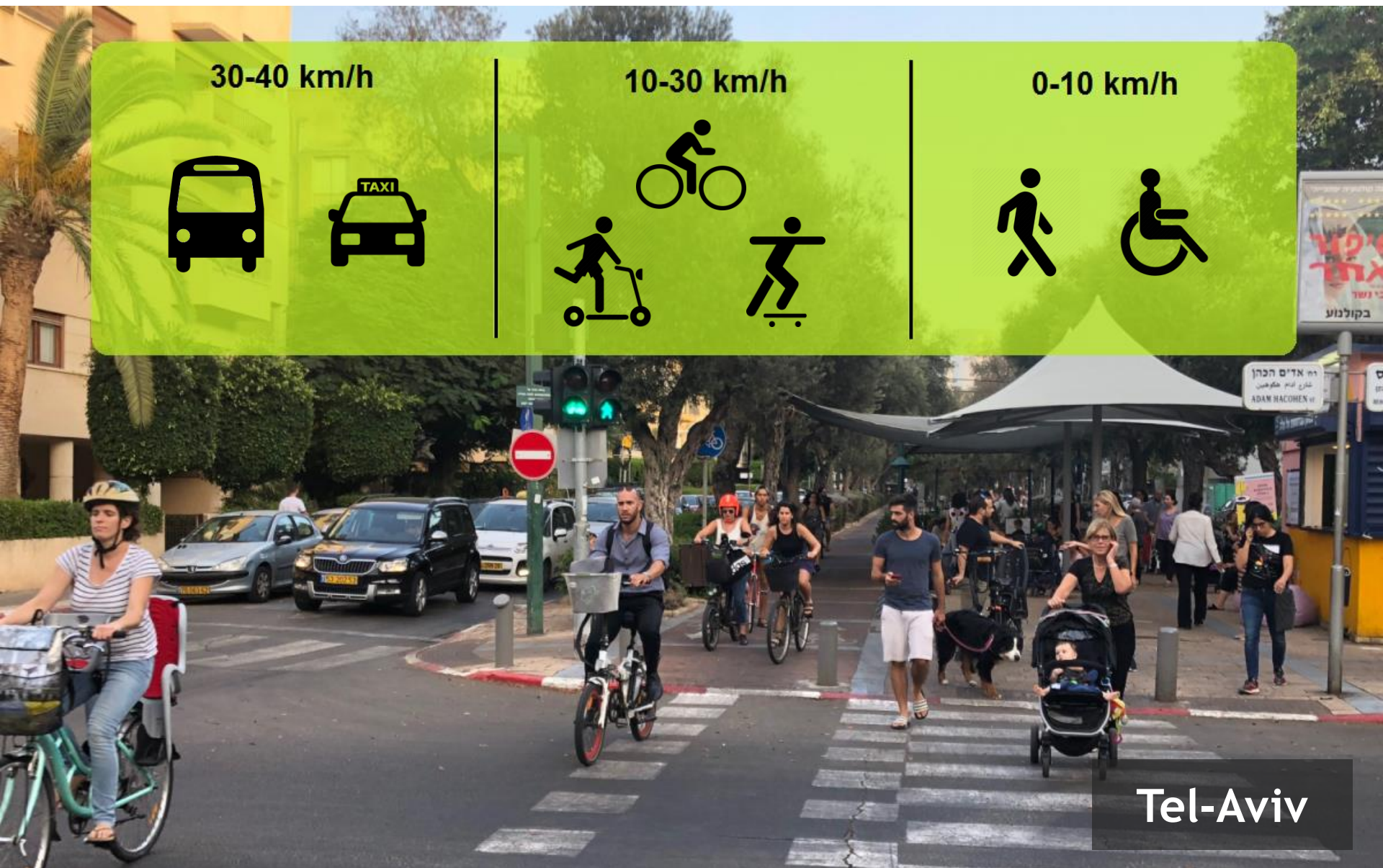
30-40 km/h



10-30 km/h



0-10 km/h



Tel-Aviv

MICROMOBILITY CLAIMS URBAN SPACE

Paris



vs.



MICROMOBILITY CLAIMS URBAN SPACE

copenhagen **wasn't always** copenhagen



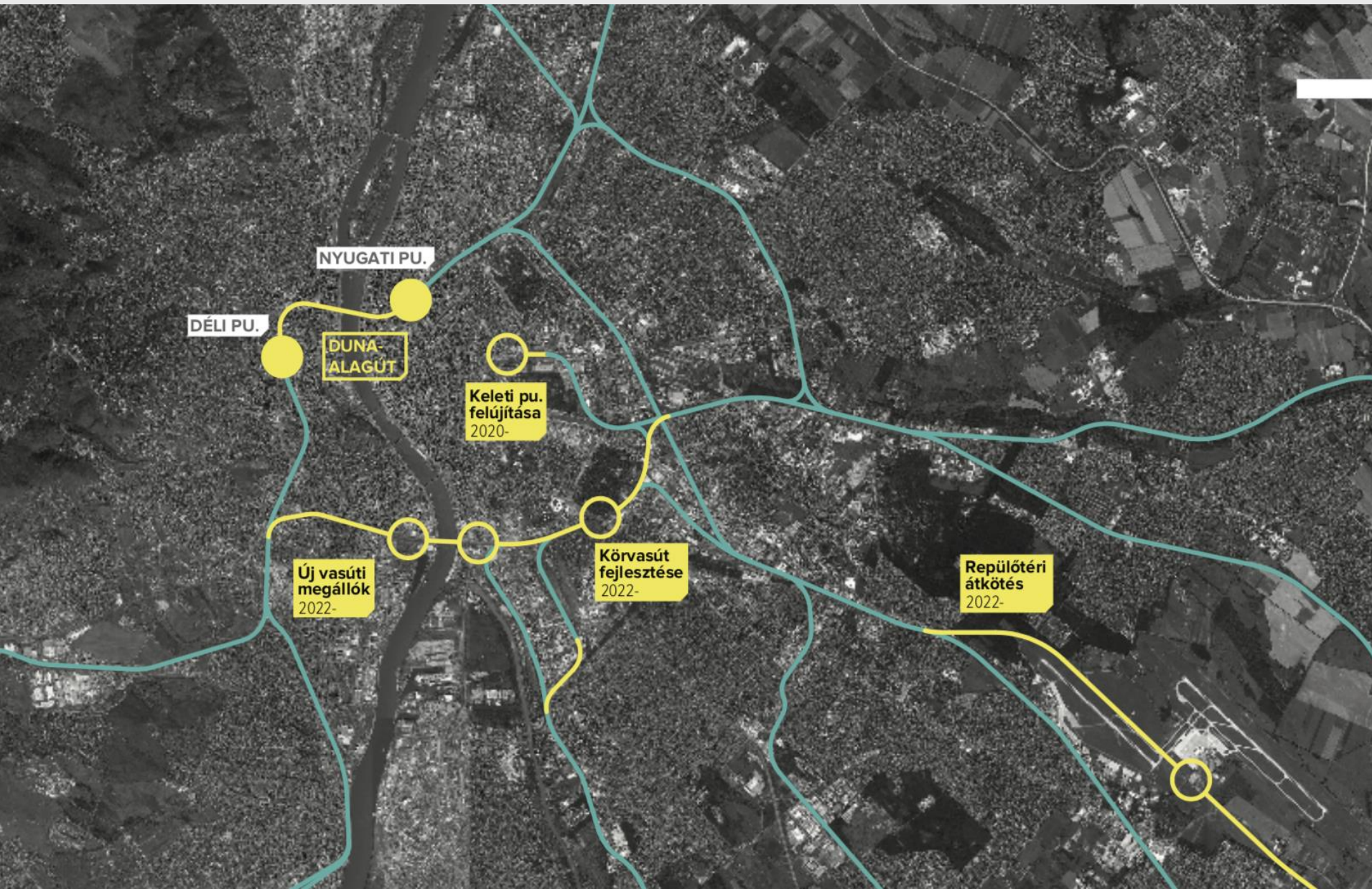
Forrás: Colville Andersen's twitter



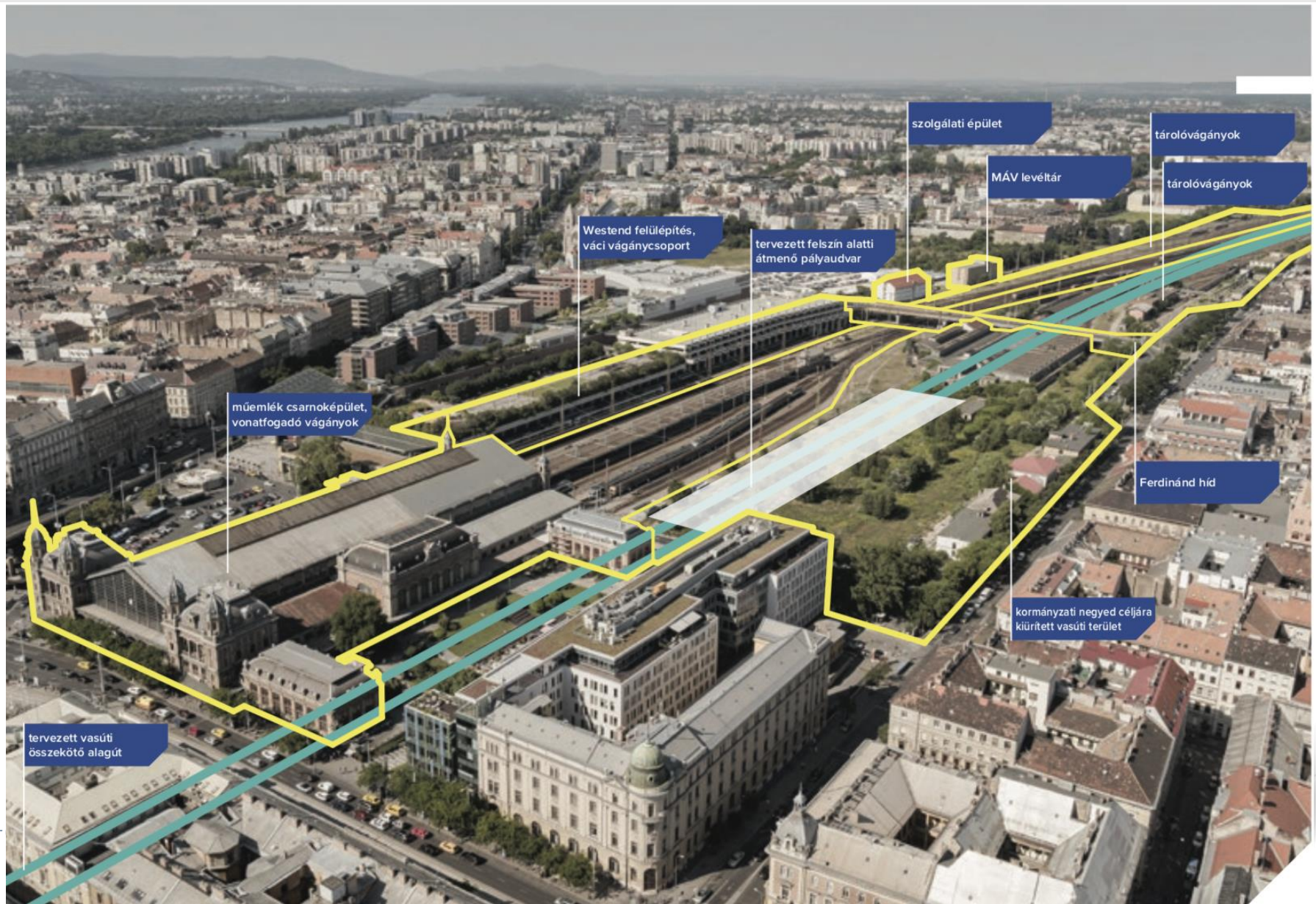
BUDAPEST STILL PREFERS PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



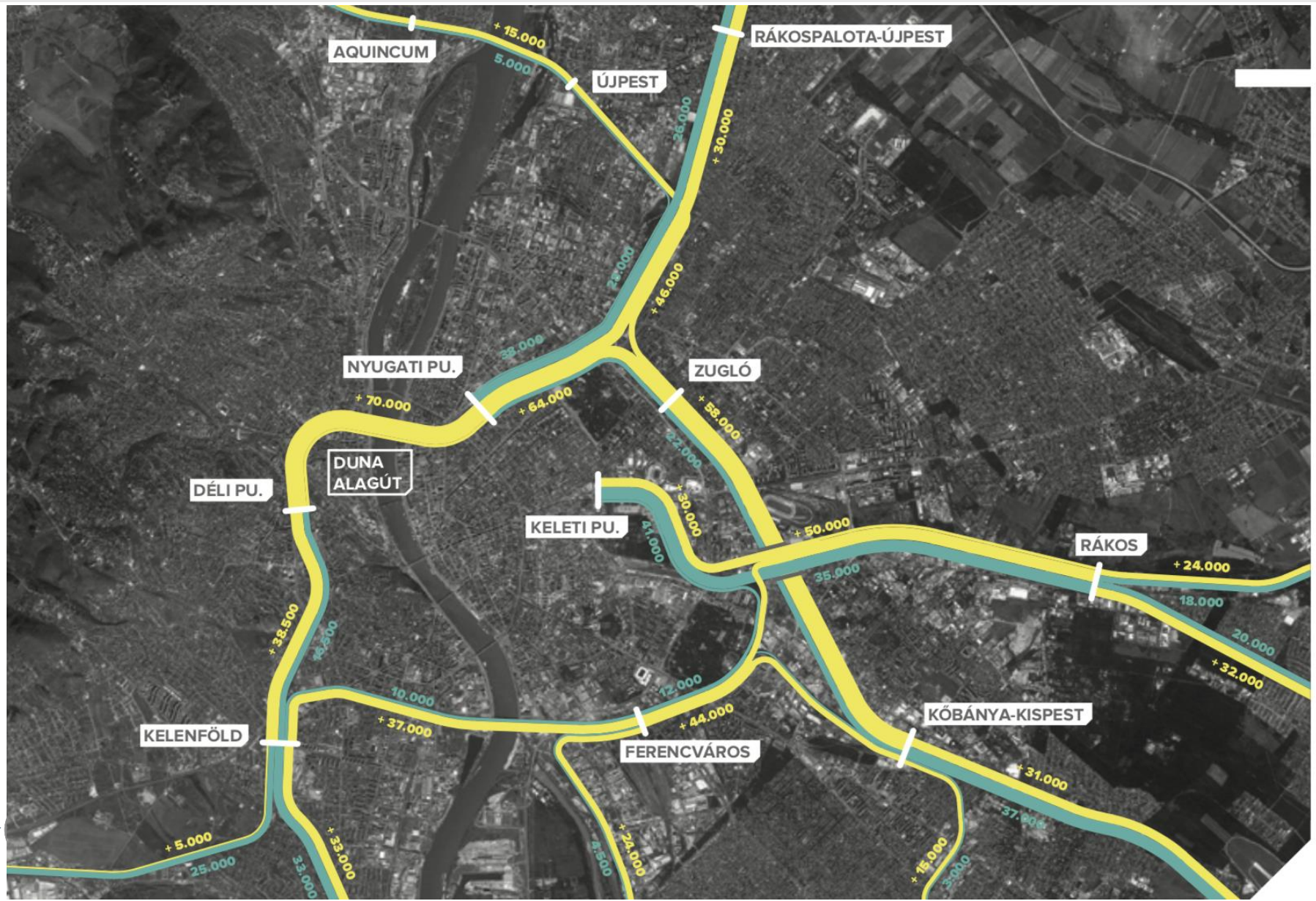
BUDAPEST STILL PREFERS PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



BUDAPEST STILL PREFERS PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



BUDAPEST STILL PREFERS PT: NEW REGIONAL RAIL SYSTEM IS PLANNED



CONTACT DETAILS

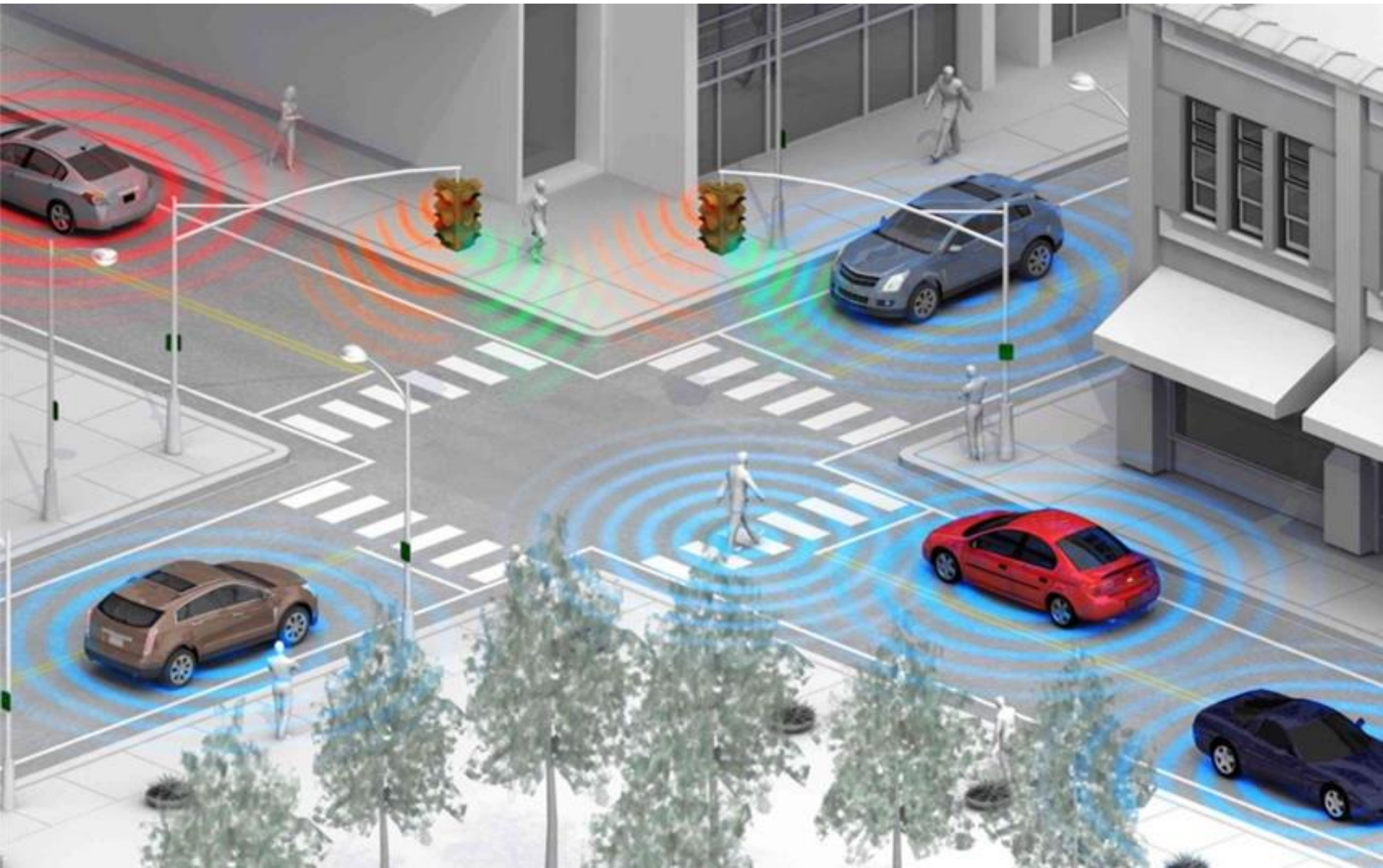
THANK YOU
FOR YOUR
ATTENTION!

DÁVID VITÉZY

DAVID@VITEZY.HU
TWITTER: @VITDAVID



AUTONOMOUS VEHICLES: NEXT STEP OR FAILED PROMISE?



AUTONOMOUS VEHICLES: NEXT STEP OR FAILED PROMISE?

A vision from 1960:
smart infrastructure,
dumb vehicle



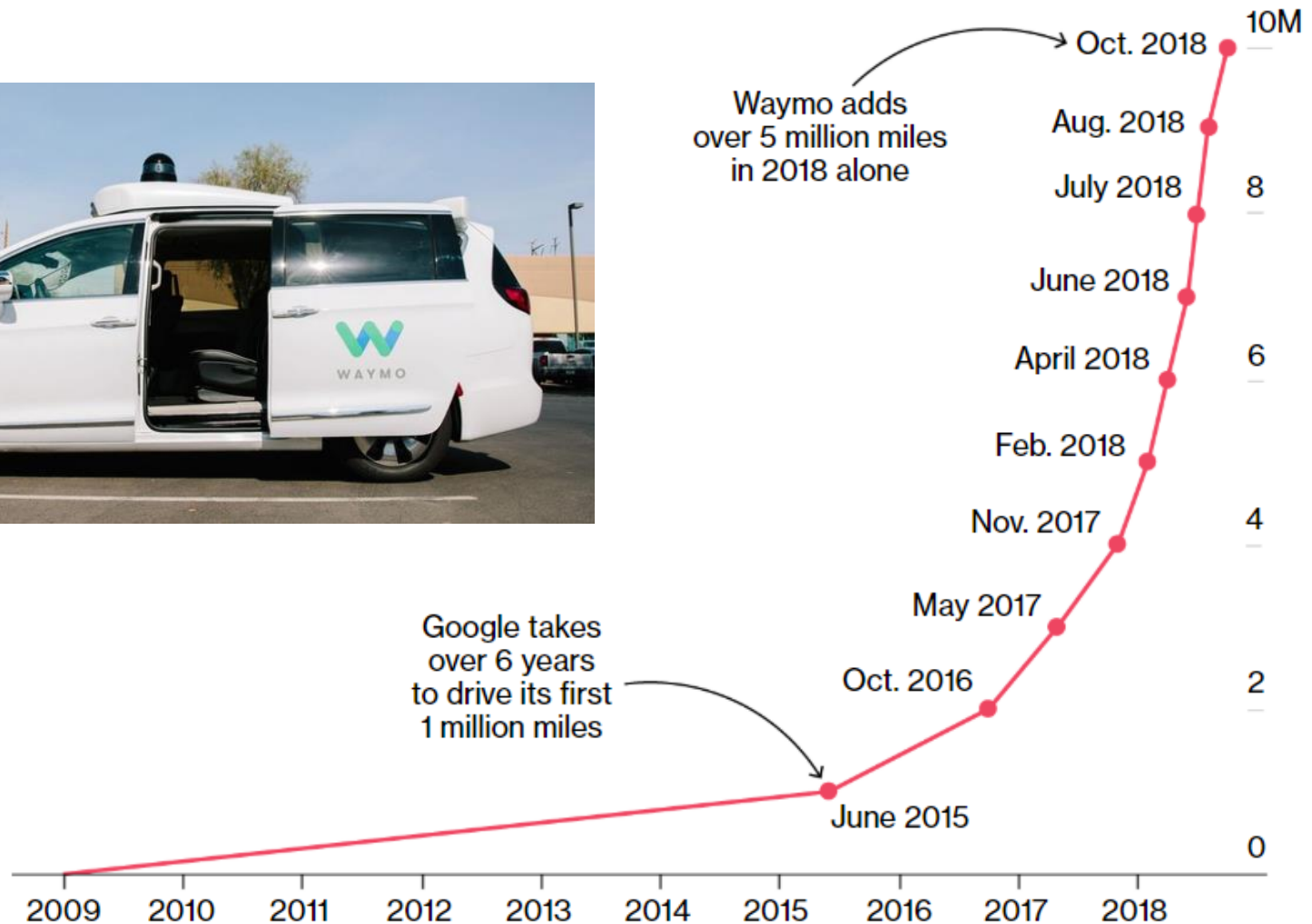
ELECTRICITY MAY BE THE DRIVER. One day your car may speed along an electric super-highway, its speed and steering automatically controlled by electronic devices embedded in the road. Travel will be more enjoyable. Highways will be made safe—by electricity! No traffic jams . . . no collisions . . . no driver fatigue.

POWER COMPANIES BUILD FOR YOUR NEW ELECTRIC LIVING



Driverless Cars Prepare to Launch

Waymo racks up autonomous miles by the millions



RACE: WHO WILL OWN THE APP?



WAYMO AND JAGUAR WILL BUILD UP TO 20,000 SELF-DRIVING ELECTRIC SUVs

Image: Waymo

Jaguar I-Pace will be the second official vehicle in Waymo's robot taxi fleet

By [Andrew J. Hawkins](#) | [@andyjayhawk](#) | Mar 27, 2018, 10:09am EDT

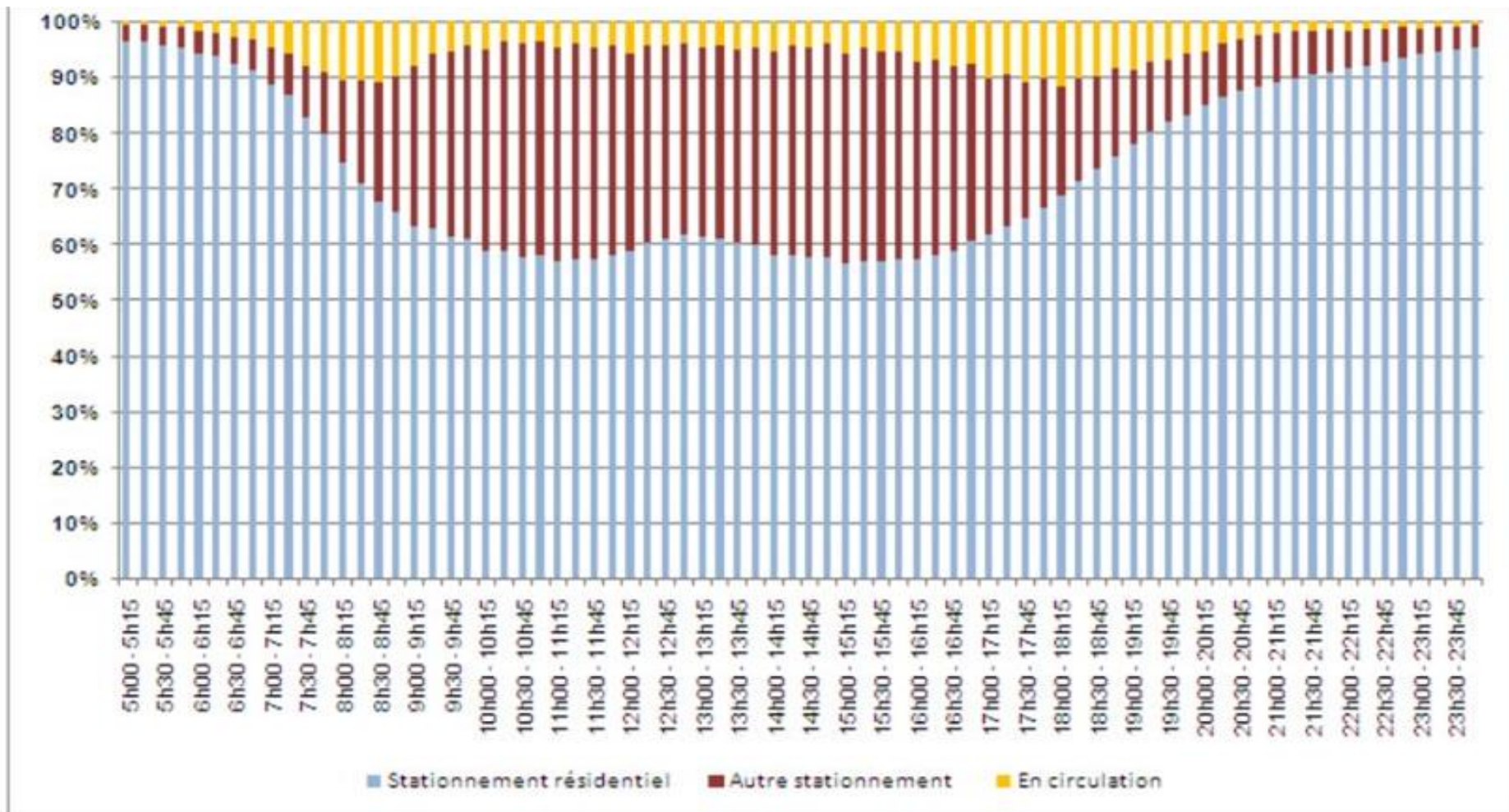
EFFECTS ON URBAN LIFE

Traffic simulation with self-driving taxis (Lisbon 2015): number of vehicles is reduced by 87-90%



EFFECTS ON URBAN LIFE

Moving and parking vehicles in the Paris region

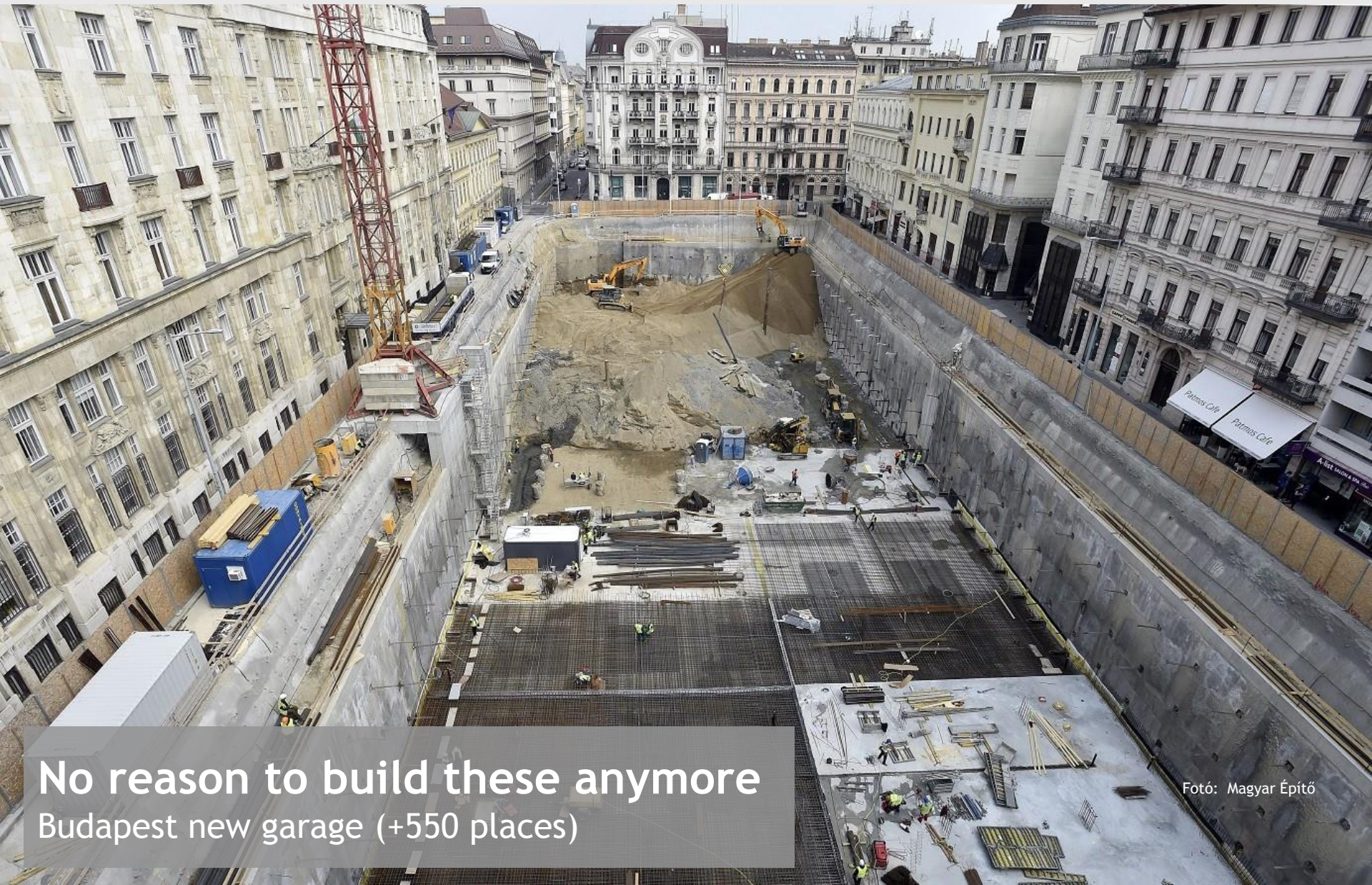


EFFECTS ON URBAN LIFE

Lisbon: -94% demand for parking



.EFFECTS ON URBAN LIFE



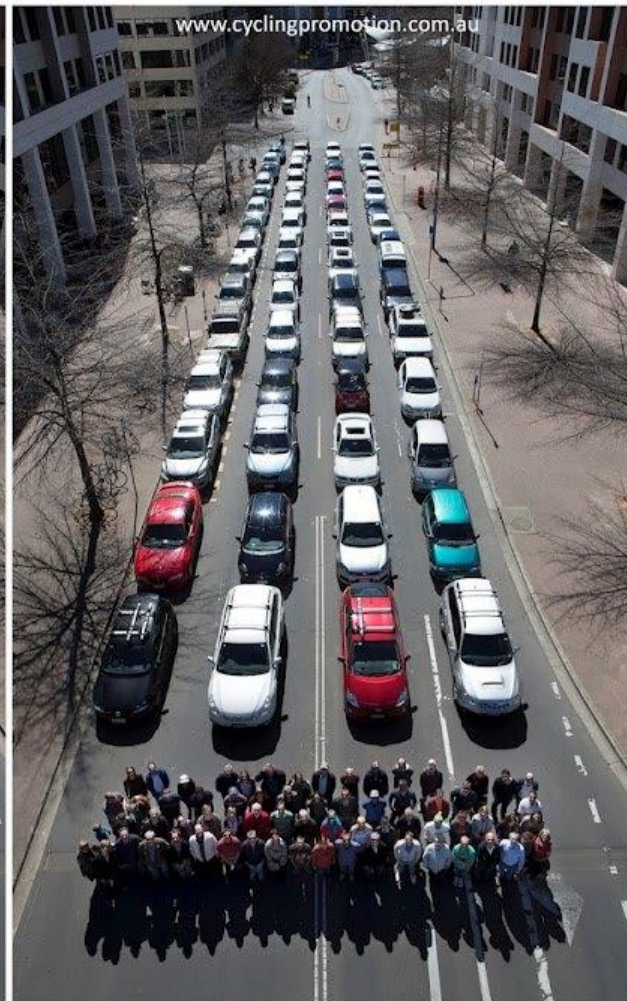
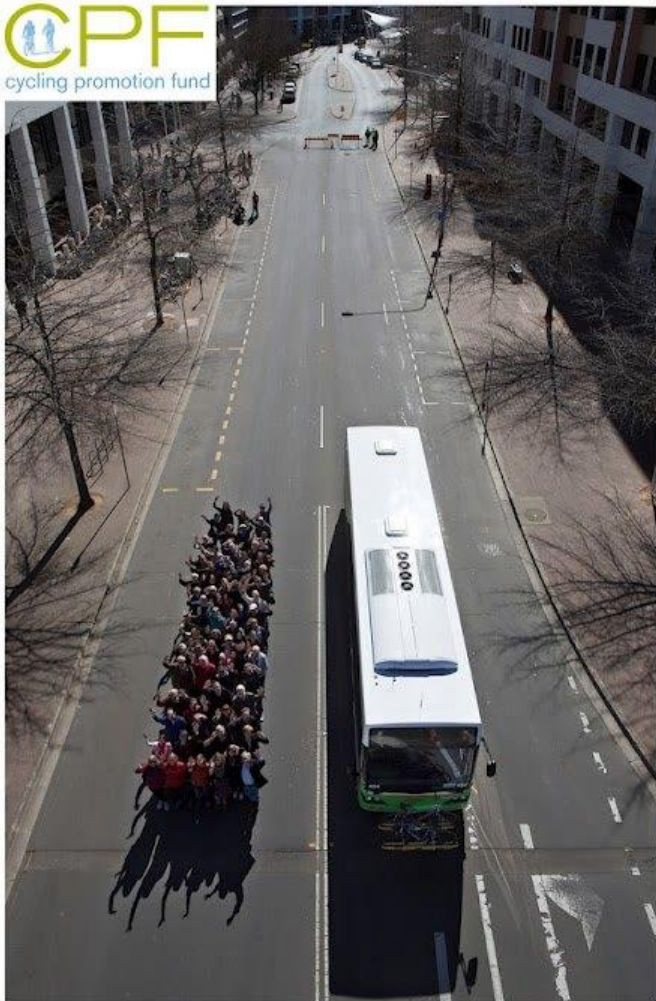
No reason to build these anymore
Budapest new garage (+550 places)

Fotó: Magyar Építő

EFFECTS ON URBAN LIFE

Lisbon: +9% road traffic

CPF
cycling promotion fund



EFFECTS ON URBAN LIFE



- further suburbanization
- growing, induced demand
- isolation from the external world
- well spent commuting time
- declining urban quality of life



A NEW COMPETITION FOR PUBLIC TRANSPORT



WELCOME TO UBERVILLE

Uber wants to take over public transit, one small town at a time

By Spencer Woodman | Illustration by Jude Buffum

M

y first morning in Altamonte Springs, Florida, I was faced with a dilemma: how to travel the two miles from my hotel to city hall without a car. Walking would take nearly an hour in the sweltering June heat. Taking a bus would entail waiting up to a half hour at a stop with little shelter from the

A NEW COMPETITION FOR PUBLIC TRANSPORT

How unlimited POOL works

1

Buy

Choose from 2 options:

- **2-week pass (\$49)**
Rides start on Monday, November 28, and go through Friday, December 9
- **4-week pass (\$79)**
Rides start on Monday, November 28, and go through Friday, December 23

2

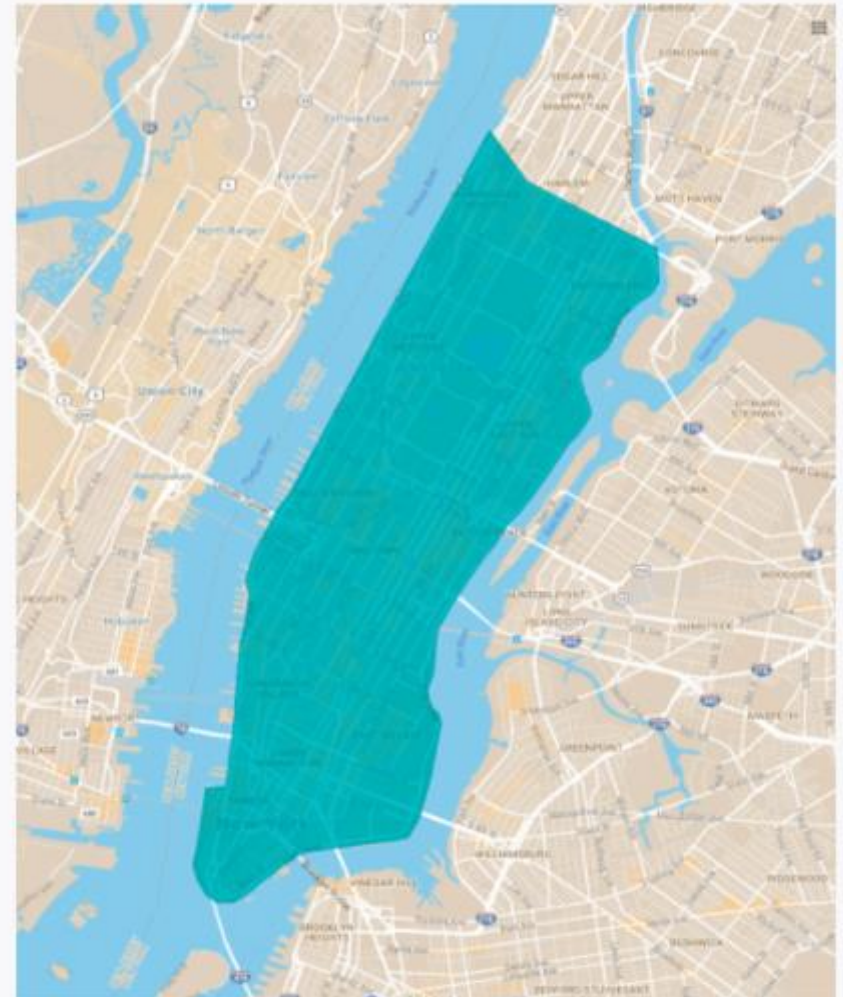
Ride

Ride uberPOOL anywhere within Manhattan below 125th Street, Monday through Friday. Hit the road as early as 6am, and catch a ride home from the office or happy hour until 8pm.

3

Relax

No matter where you go, it's a crazy-good deal.

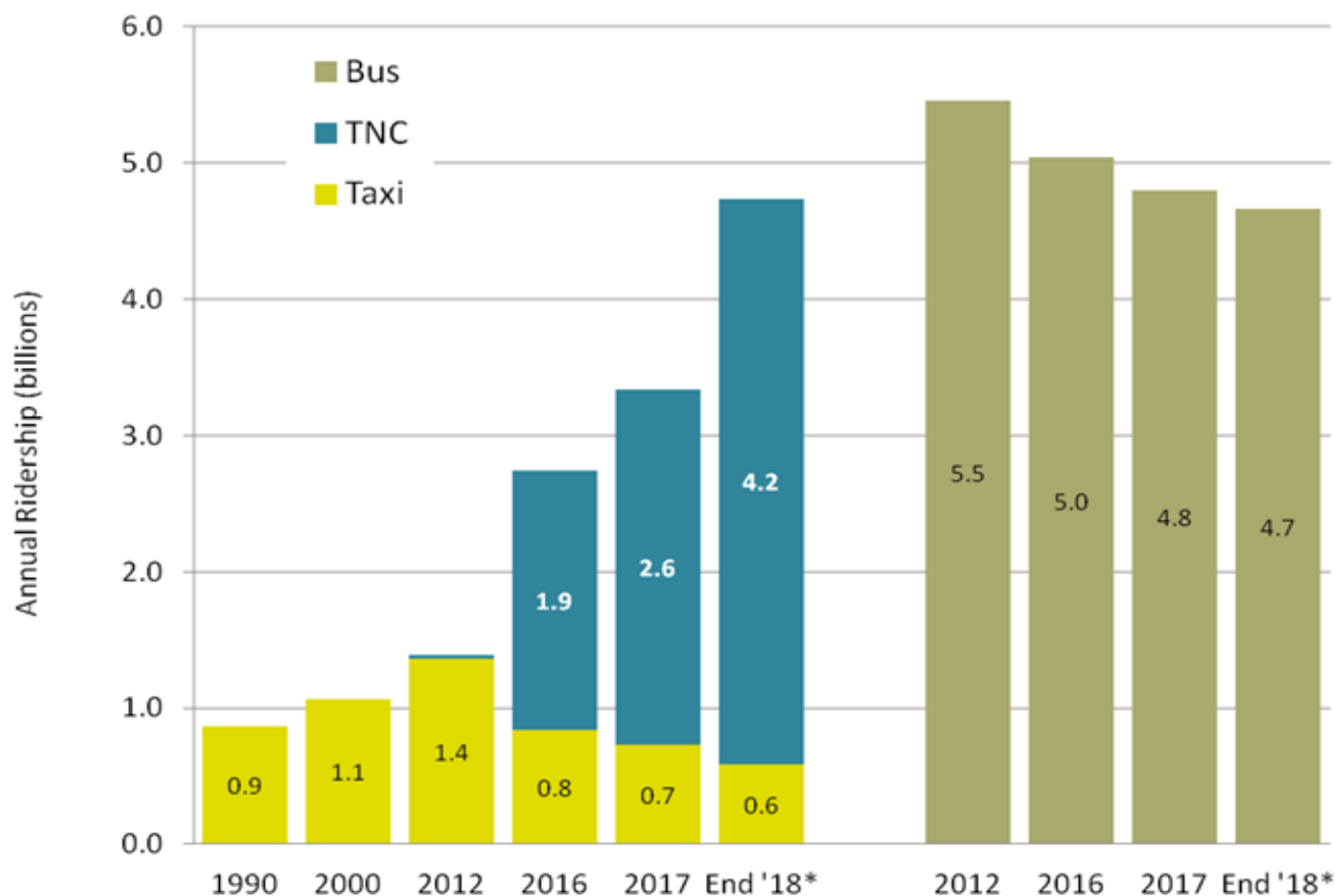


Trips eligible within designated zone. [See map for detailed information.](#)

A NEW COMPETITION FOR PUBLIC TRANSPORT

**2013-2016: +7% road mileage in Manhattan
due to ride-sharing services**

(Schaller: Unsustainable, 2017)



A NEW COMPETITION FOR PUBLIC TRANSPORT

the village
VOICE



Instead of Building De Blasio's Streetcar, What If We Had Self-Driving Uber Vans?

BY STEPHEN MILLER

TUESDAY, JANUARY 24, 2017 AT 4:12 PM.



TECHNOLOGY

The New York City Subway Is Beyond Repair

Forget trains. It's time for something radically different.

PETER WAYNER JUN 9, 2018



Commuters ride an L train in New York City (LUCAS JACKSON / REUTERS)

Ad clo
Sto
W

MORE STORIES

Why New York
Lines Are Mis-
countdown C
JAMES SOMERS

The New York City subway is a miracle, especially at 3 a.m. on a Friday night. But the system is also falling apart, and it's going to cost billions to keep the old trains running: \$19 billion, at least according to one estimate from city planners. The time has come to give up on the 19th-century idea of public transportation, and leap for the autonomous future.

Right now, fully autonomous cars are rolling around Pittsburgh, the San Francisco Bay area, and parts of Michigan, shuttling people from here to there with minimal manual intervention. Instead of fixing the old trains, let's rip out the tracks and fill the tunnels with fleets of autonomous vehicles running on pavement. The result would be radical improvements in throughput while saving money and increasing the ability of the system to survive a fire, flood, or terrorist attack.



PLAY 1:

Ensure new mobility delivers a fair and just transportation system for all



IF WE LEAVE IT TO CHANCE...

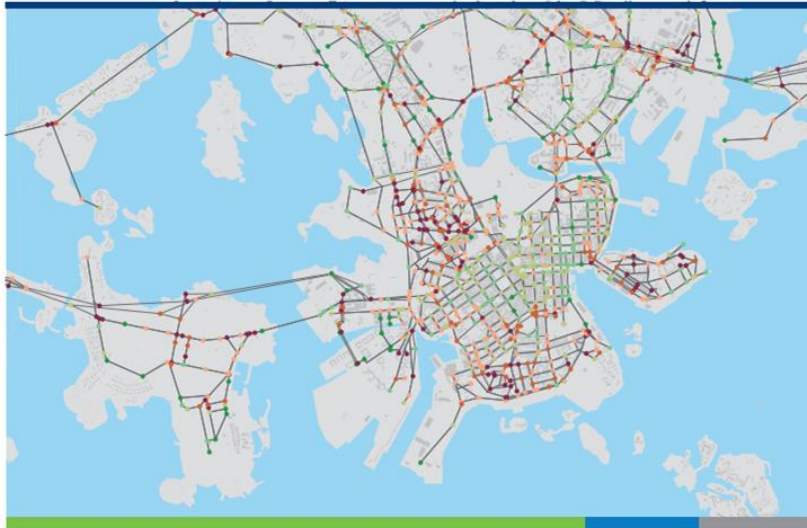
There are more transportation choices, but only for those who can afford it. New mobility innovations cannibalize resources and erode support for public transportation. Workers are vulnerable to disruptions. The city becomes disconnected.

IF WE SHAPE IT...

More affordable and better integrated transportation choices make the city and the region more accessible to people with disabilities and the disadvantaged. Public transit flourishes. The transportation workforce earns a living wage and is resilient to disruptions.



CITIES ON CROSSROADS



Shared Mobility Simulations for Helsinki



Case-Specific Policy Analysis

OECD ITF, Helsinki, 2017:

- Driverless shuttles are feeding public transportation
- All road trips need only 4% of the current vehicle fleet
- Road traffic can be reduced by 40%
- Number of public transport passengers could grow by 15-23% if co-operate with self-driving taxis
- Parking spaces would be mostly unnecessary

The concept of high capacity public transport won't turn obsolete in the light of changing technology!

PUBLIC TRANSPORT - STILL MORE EFFICIENT

Shared on-demand service as public transport



PUBLIC TRANSPORT: IT WILL STILL BE MORE EFFICIENT

This can be self-driving as well - and it will be more efficient to operate



PUBLIC TRANSPORT: IT WILL STILL BE MORE EFFICIENT

Bloomberg

Singapore Is About to Trial Full-Size Driverless Buses

By [Kyunghee Park](#)

March 5, 2019, 3:00 AM GMT+1



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