
# SHARED AUTONOMOUS CARS WILL TRANSFORM CITY TRANSPORT AND TRAFFIC OPERATIONS:

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# CURRENT CPB PARTNERS

# SHARED AUTONOMOUS VEHICLES?




real city


real* trips


real* routes

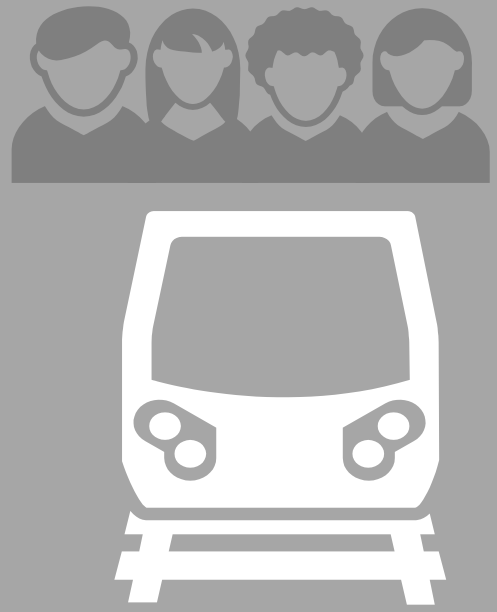
# SHARED AUTONOMOUS VEHICLES?

TaxiBot

ride-sharing

AutoVot

car-sharing



Public Transport

High-Capacity

# WHAT WE WANTED TO TEST

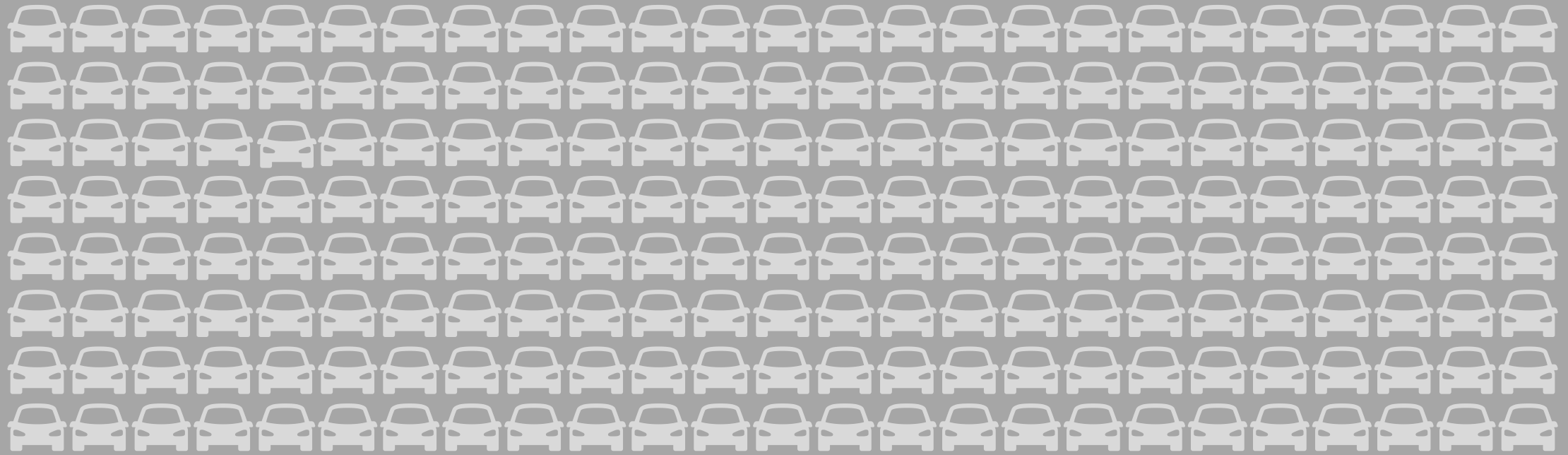


all day vs. peak hours

5 minutes

maximum delay
from base case trips

# WHAT WE WANTED TO TEST



TaxiBots
Ride - sharing

+

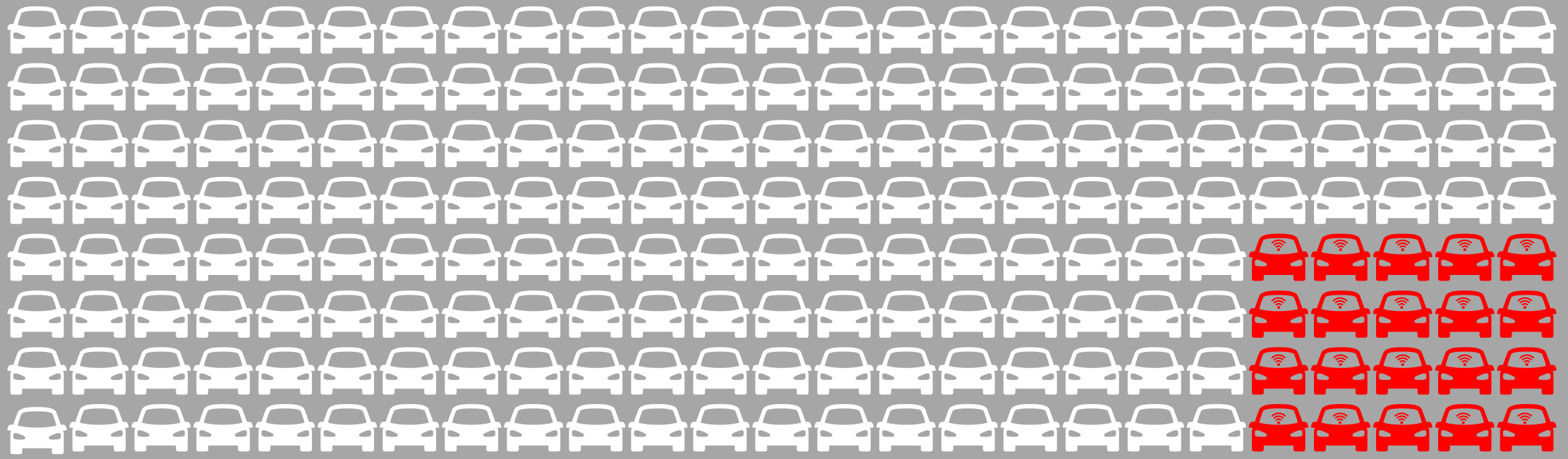
Public transport
(high capacity)

24hrs.

peak hrs.

number of vehicles required to provide the same trips as before:

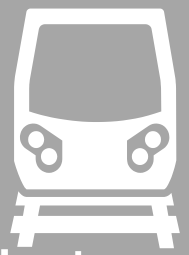
# THE IMPACT ON VEHICLE NUMBERS



Scenario: 24 hours

TaxiBots
Ride - sharing

+

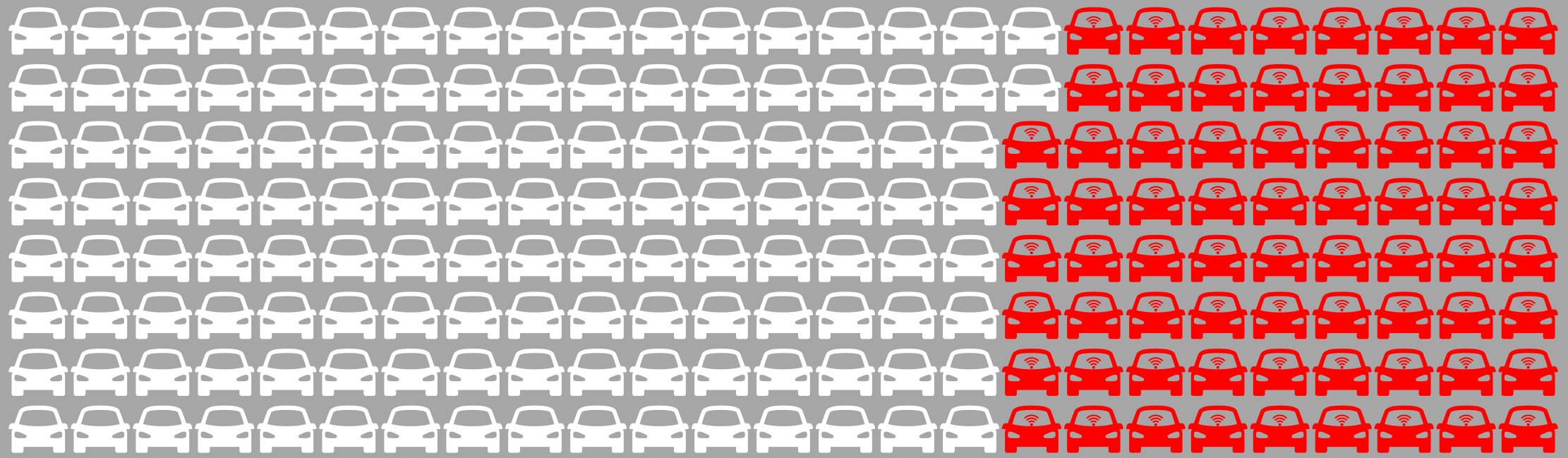


Public transport
(high capacity)


number of vehicles required to provide the same trips as before:

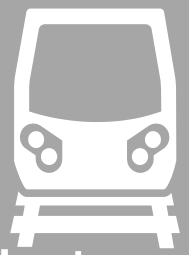
**10%**

# THE IMPACT ON VEHICLE NUMBERS



TaxiBots
Ride - sharing

+



Public transport
(high capacity)

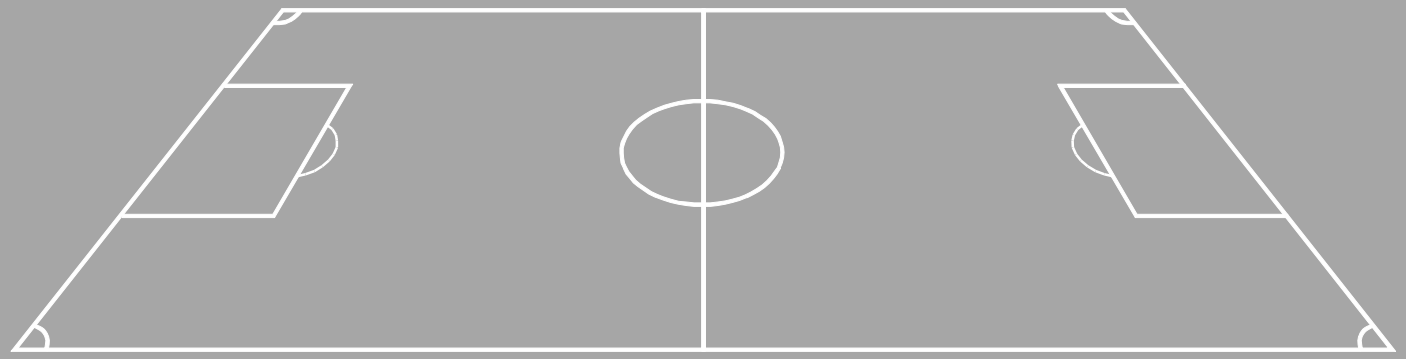

number of vehicles required to provide the same trips as before:

**35%**


32
33
34
35
36
37
38
39
40
41
42
43
44


- 80%
Off Street Parking

# WHAT IT MEANS FOR LAND USE



x **210**

In our modelled city a shared self-driving fleet would potentially remove the need for **all on-street parking** freeing an area equivalent to **210 football fields**


+20%
Kerb to Kerb space

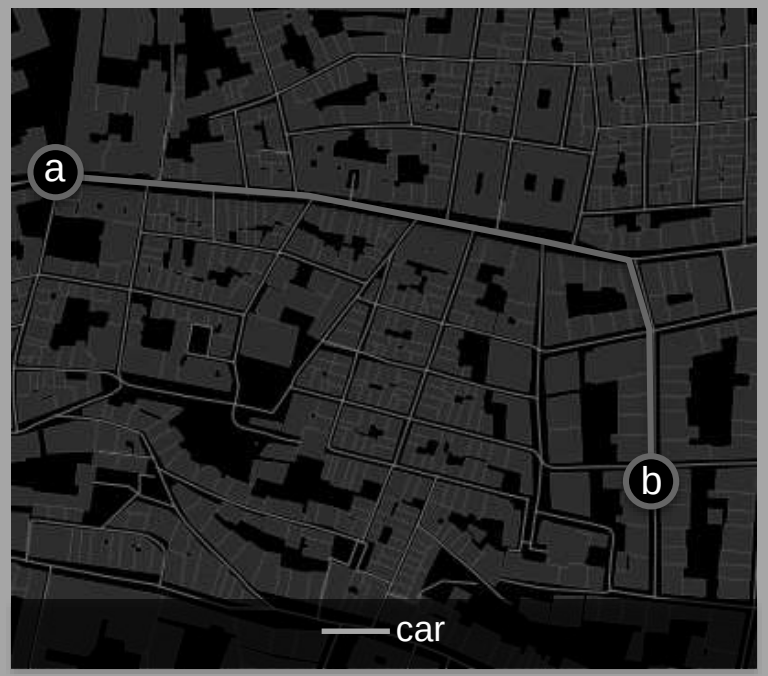

PUBLIC
PARKLET
A space for the community to enjoy
PLACITA para todos

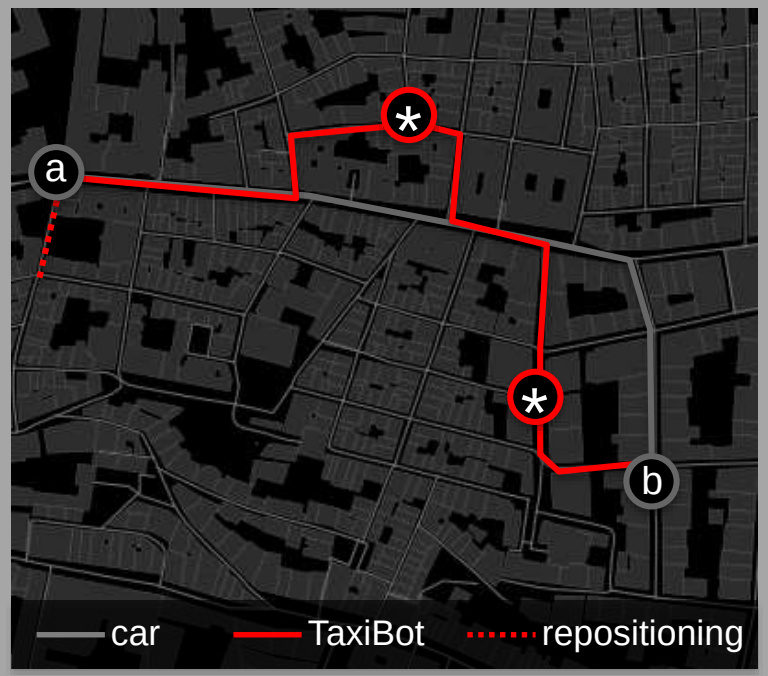
# NOT ALL IS GOOD NEWS

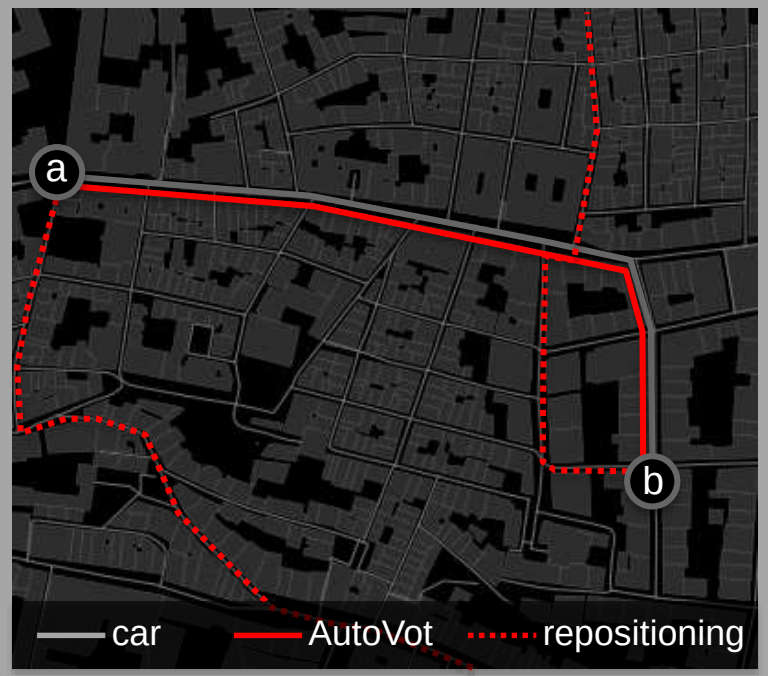
**+30%** to **+90%**

kilometres travelled

# IMPACT ON KM TRAVELED




**TaxiBots and AutoVots will travel more than today's cars**

6%- 25 %

more kilometres travelled due to bus replacement, pick-ups, drop-offs and re-positioning

44% -103%

more kilometres travelled due to replacement, re-positioning

# CAN WE DO BETTER ?– SHARED ON DEMAND BUS

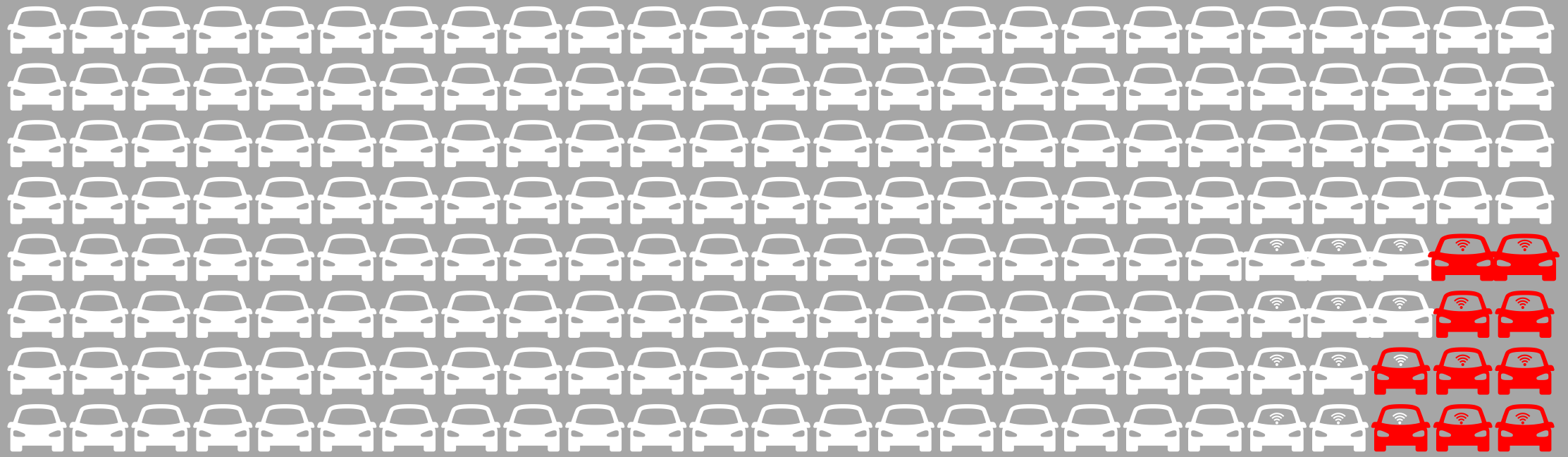
**On Demand**

**8-16** Person Capacity

**30 min** advance Booking

**< 300 m** to “pop-up” stop

**10 min** tolerance for boarding time



Scenario: 24 hours

TaxiBots
Ride - sharing

+

TaxiBus
Ride - sharing

+

Public transport
(high capacity )

24hrs

number of vehicles required to provide the same trips as before:

**5%**

# BETTER USE OF CAPACITY

**+ 230%**

8-16 person bus capacity vs 80 person bus capacity

# WHAT WE COULD ACHIEVE

**-22%** kilometres travelled **&** **-27%** $CO_2$ emissions

TaxiBots
Ride - sharing



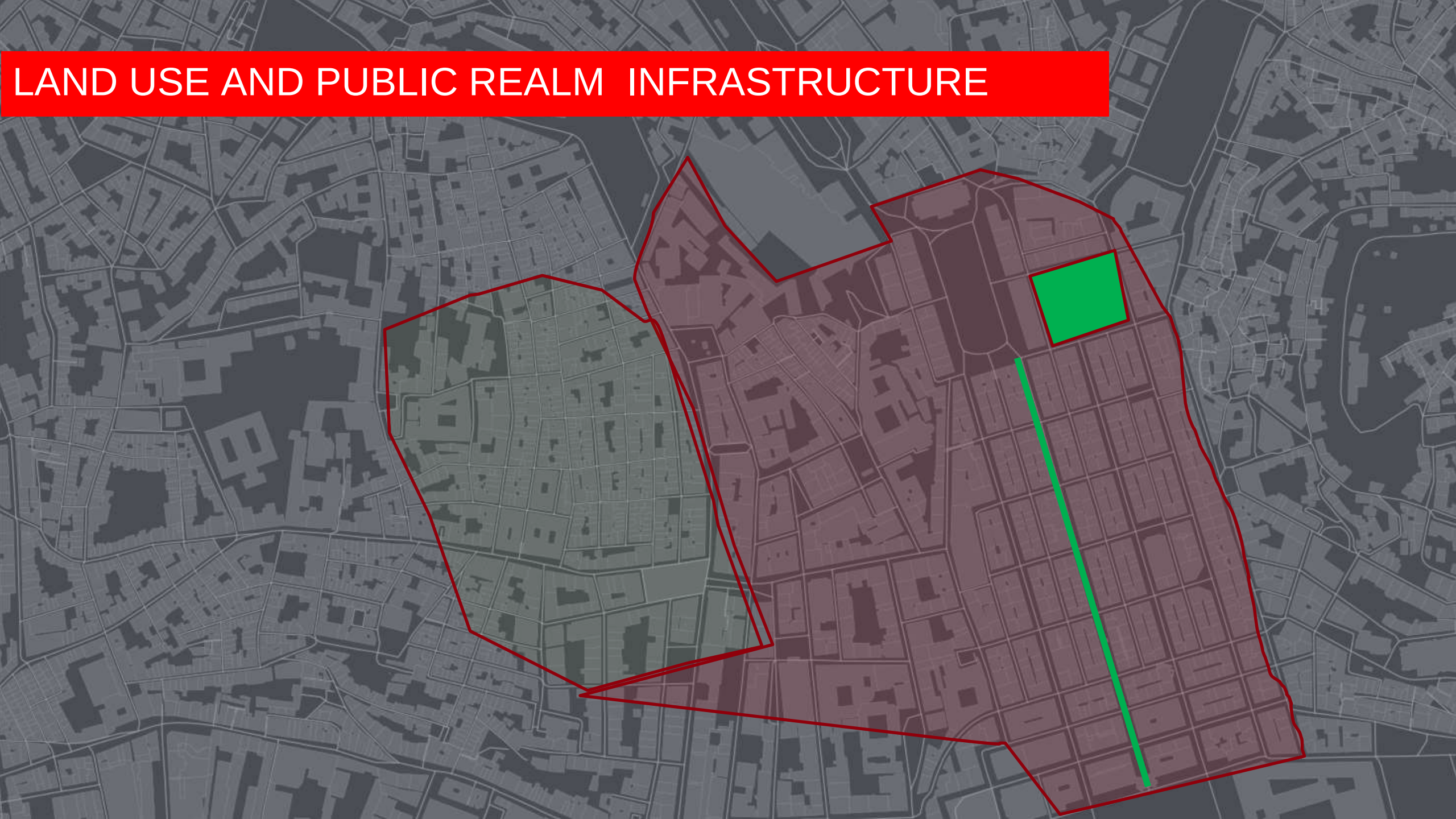
TaxiBus
Ride - sharing

Public transport
(high capacity )


Tomorow’s city

# ACCESSIBILITY

# LAND USE AND PUBLIC REALM  INFRASTRUCTURE



# PUBLIC REALM  INFRASTRUCTURE

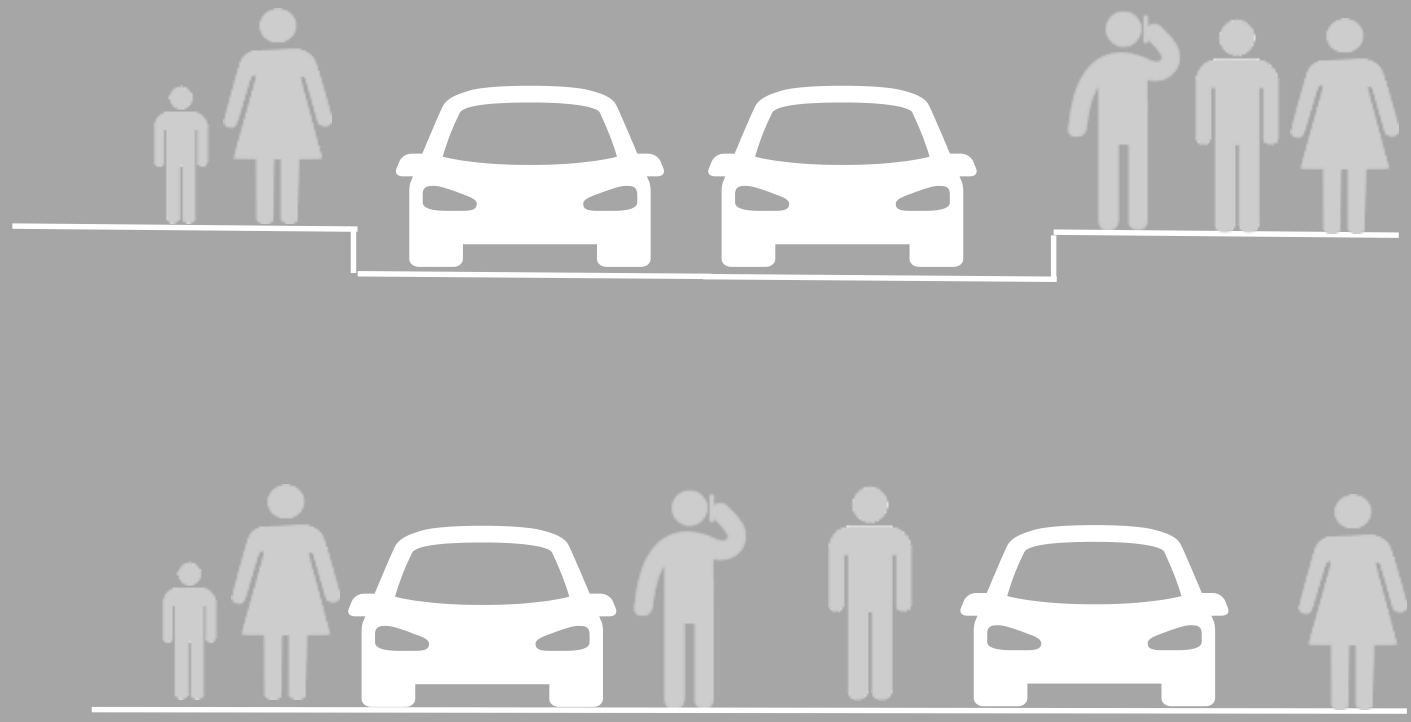




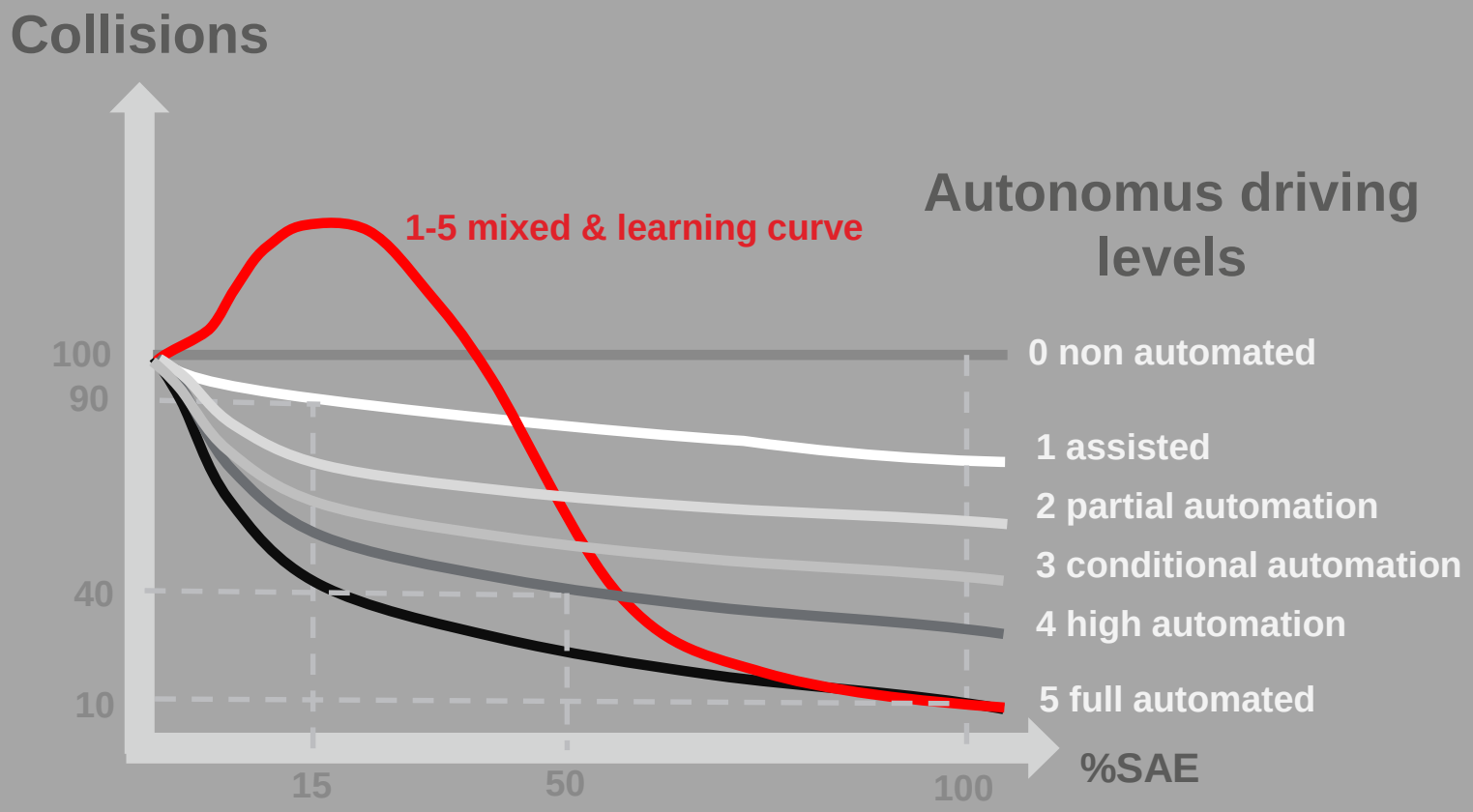



# VEHICLES AN EXTENSION OF THE CITY?

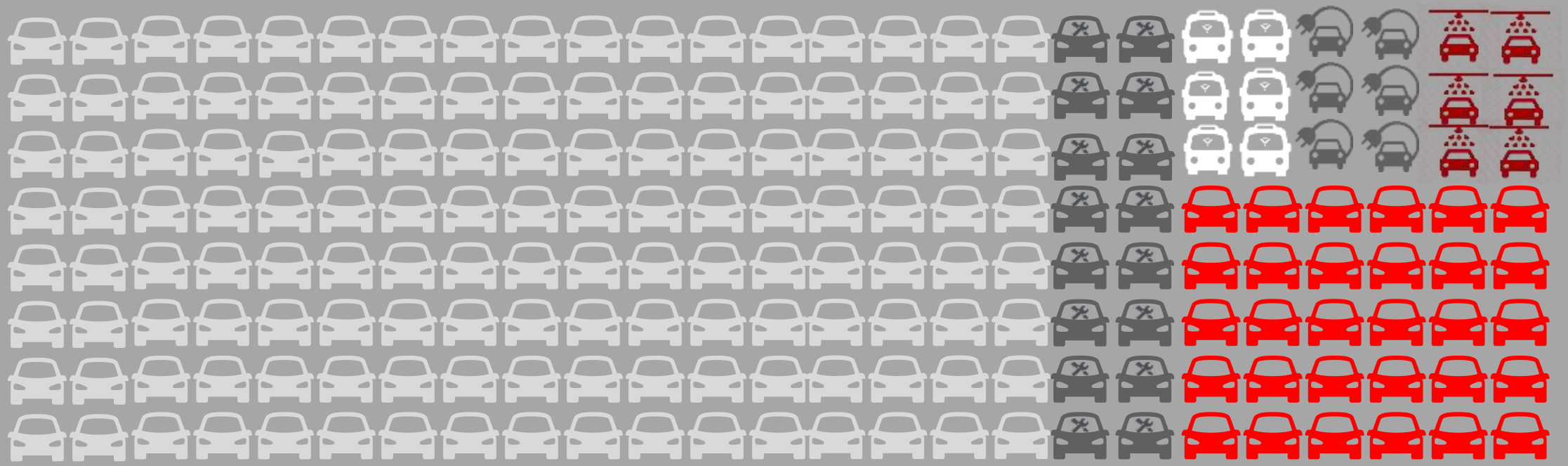
# THE ROAD OF TOMMOROW?



# SAFETY

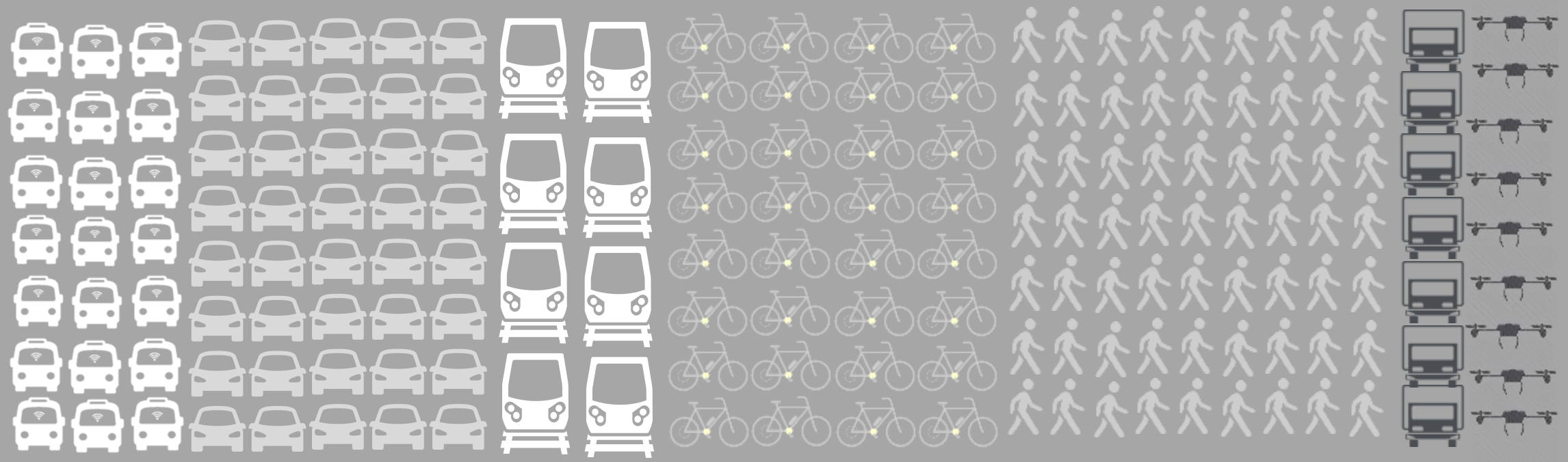

Collisions
1-5 mixed & learning curve
Autonomus driving levels
0 non automated
1 assisted
2 partial automation
3 conditional automation
4 high automation
5 full automated
100
90
40
10
15
50
100
%SAE

# OPERATIONAL ISSUES

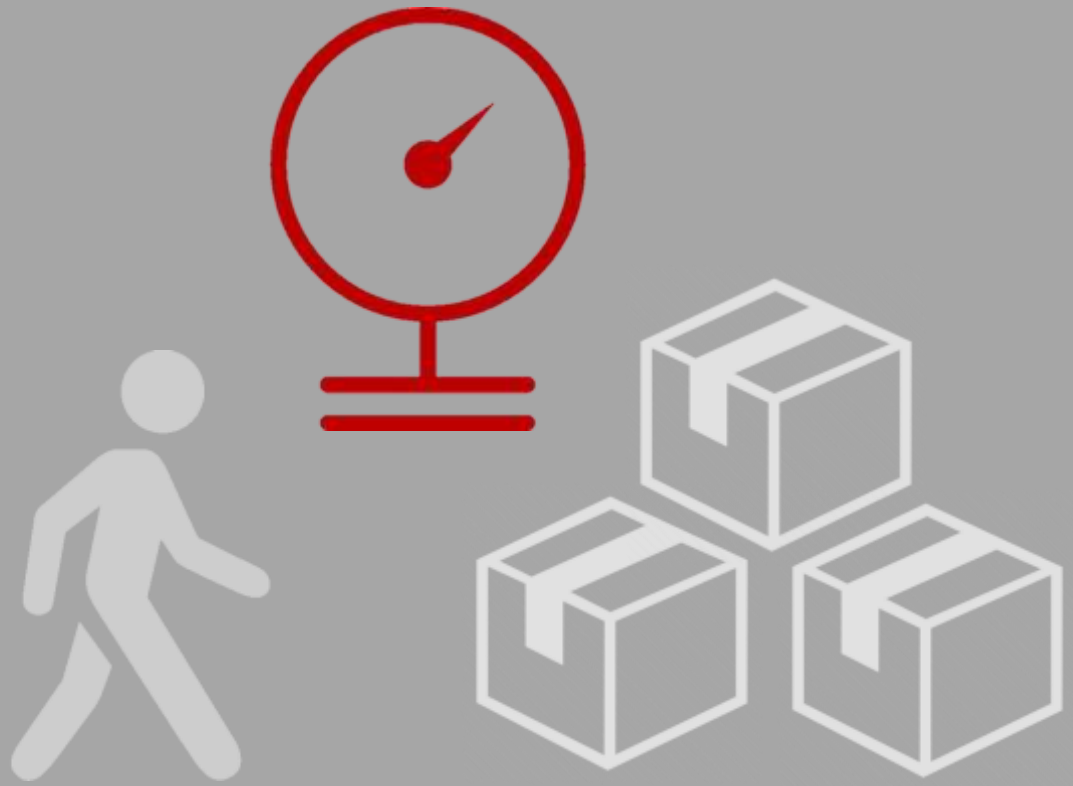


# MODE INTERCHANGE

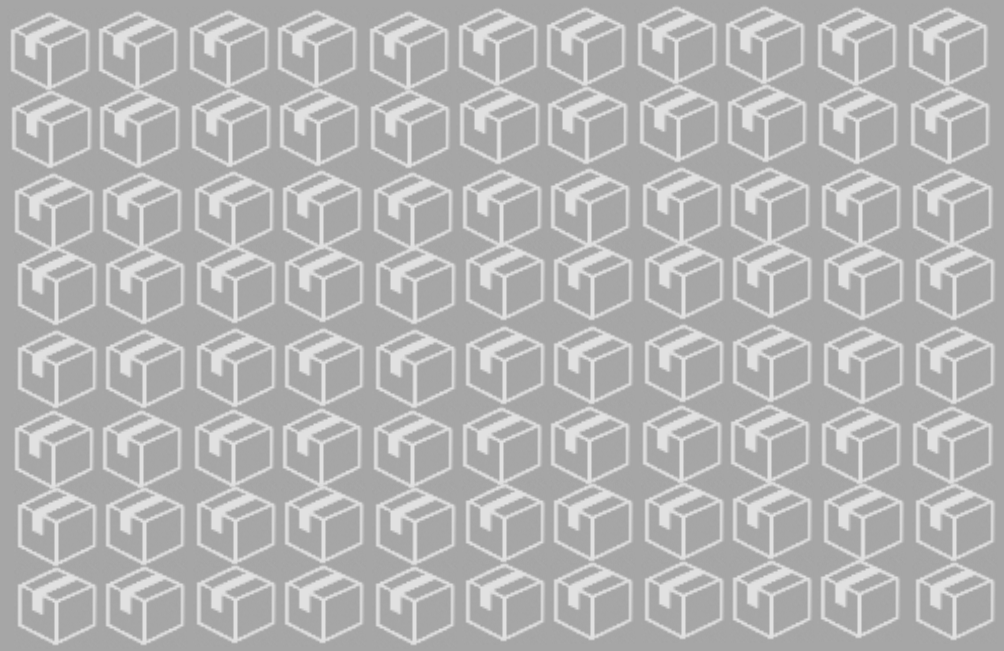

# FUTURE MODE SPLIT



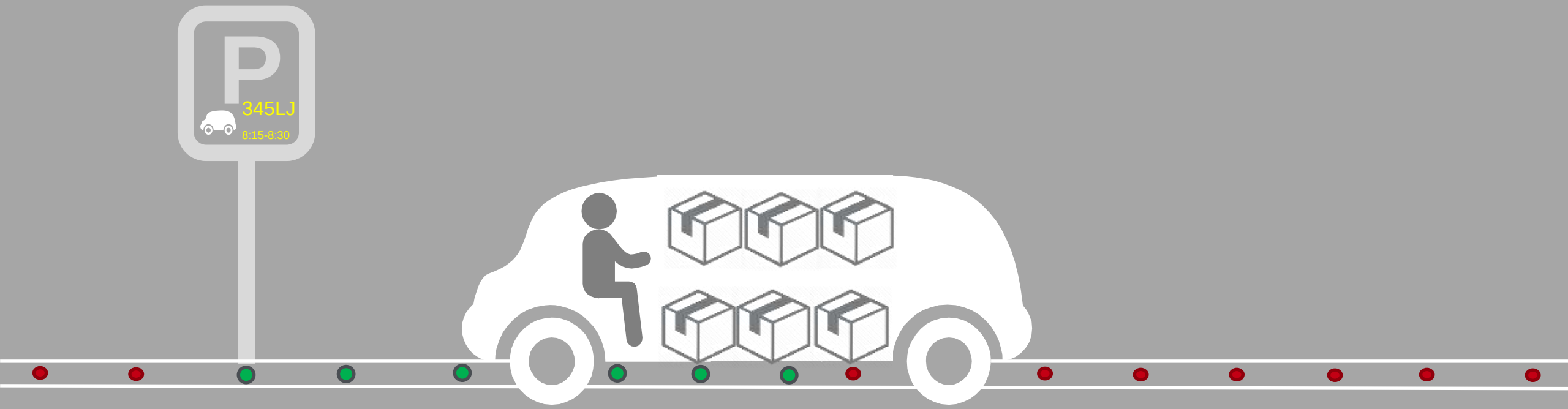
# URBAN LOGISTICS

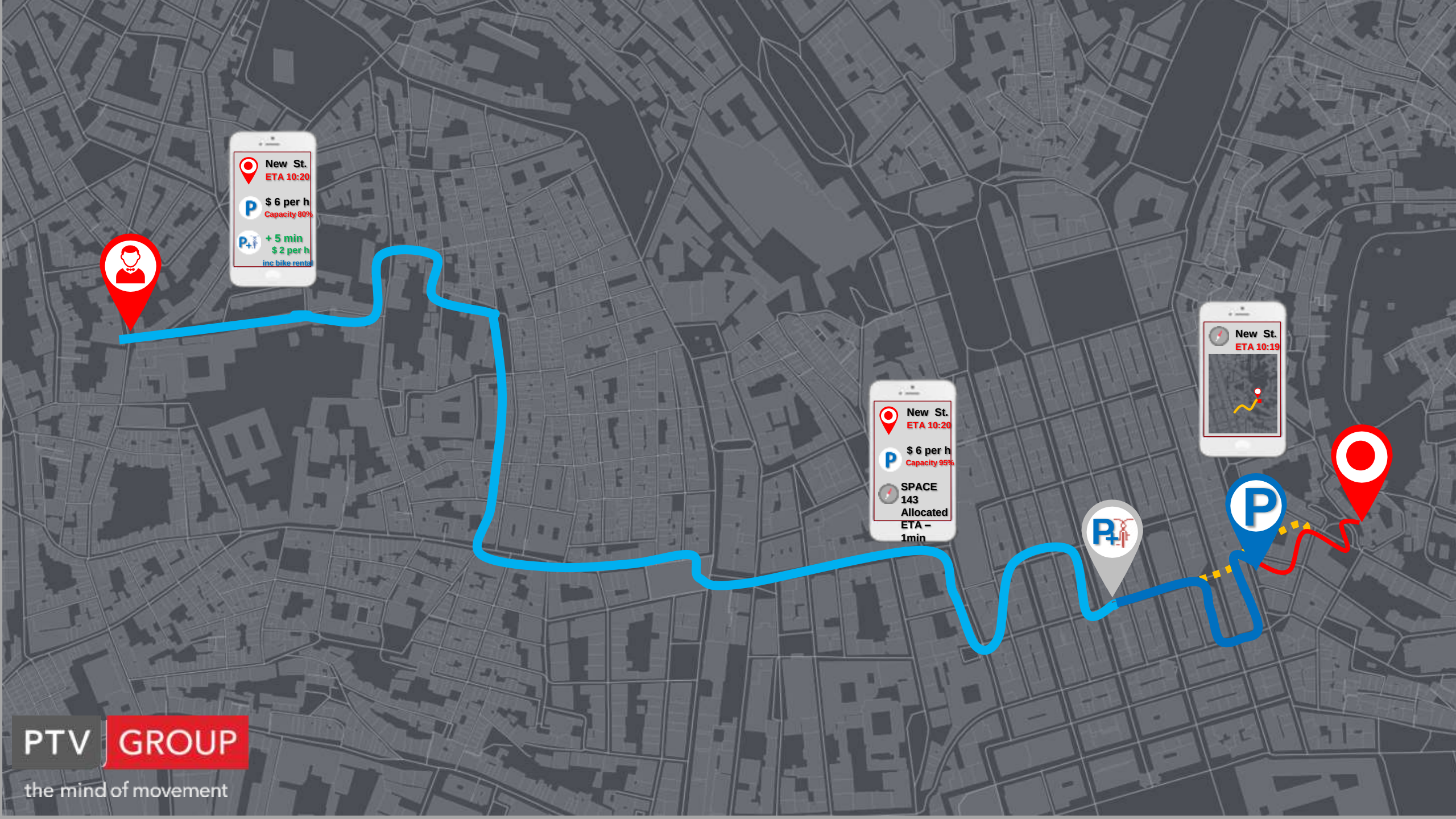


# HOW DO WE DELIVER THE CARGO

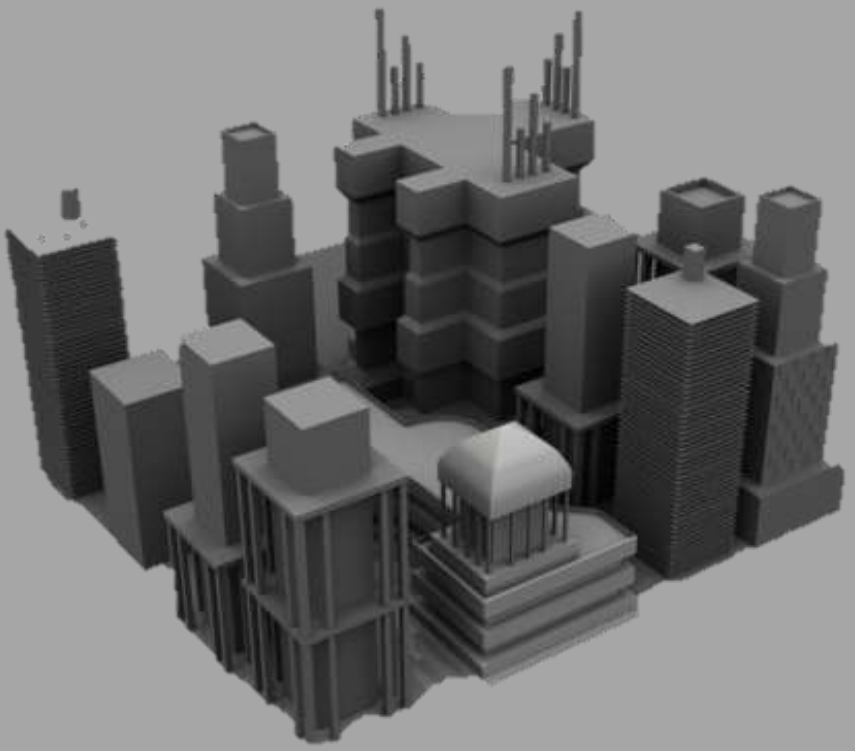


# OPERATIONAL SOLUTIONS




New St.
ETA 10:20
$ 6 per h
Capacity 80%
+ 5 min
$ 2 per h
inc bike rental
New St.
ETA 10:20
$ 6 per h
Capacity 95%
SPACE 143 Allocated
ETA – 1min
New St.
ETA 10:19
PTV GROUP
the mind of movement

# A BASE FOR STRATEGIC ASSEMENT



PTV CITYSIM

PTV VISUM

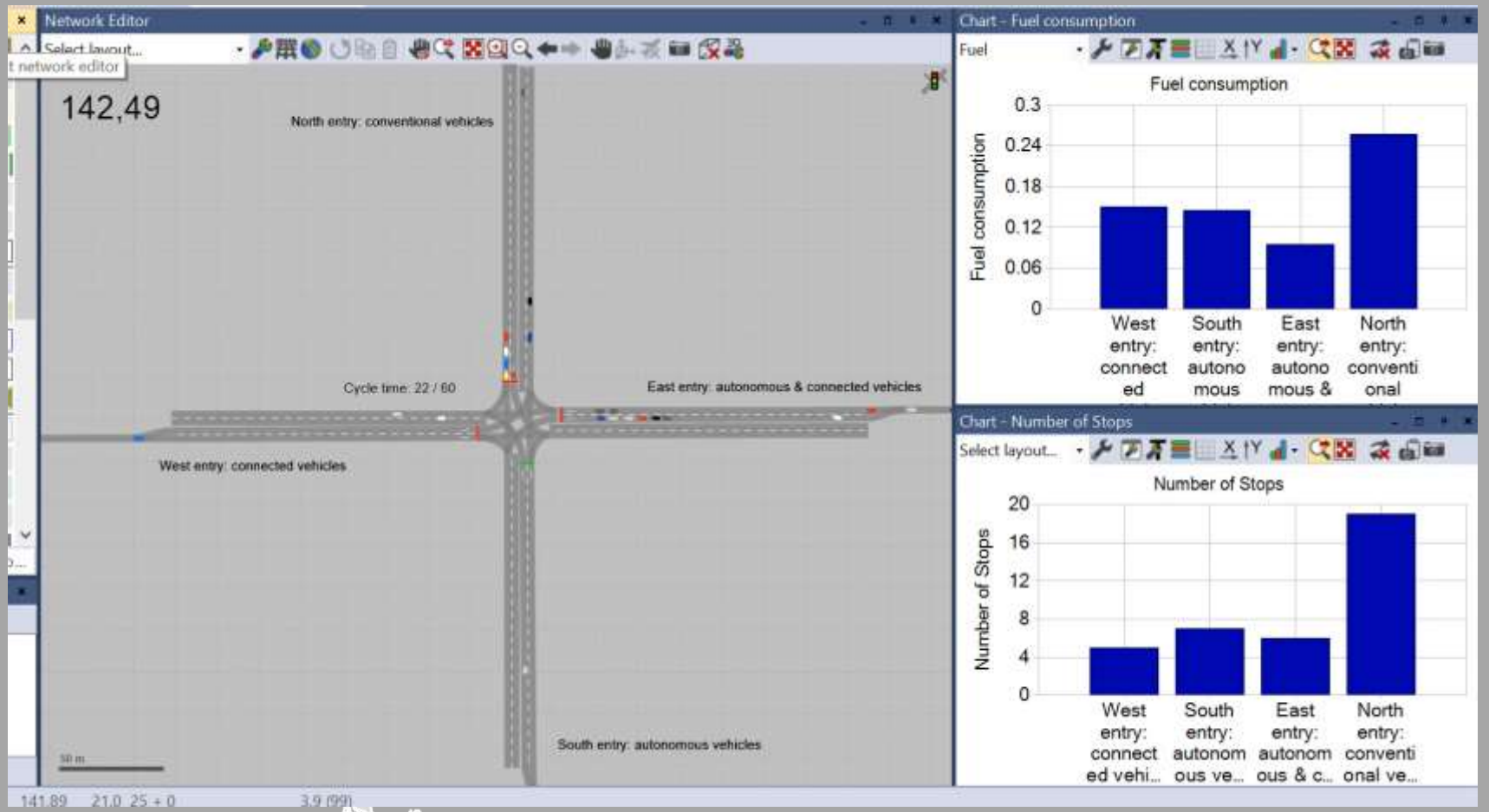
PTV VISSIM

**Strategic What if**

**Planning**

**Simulation**

# EXAMPLE: C2X OPTIMUM SIGNALS



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