The Role of Automated Parking Systems and Conventional Parking Garages as De-centralized Storage Depots for Autonomous Vehicles

Jordan Hart-Bishop & Karl Tracksdorf

Overview of APS

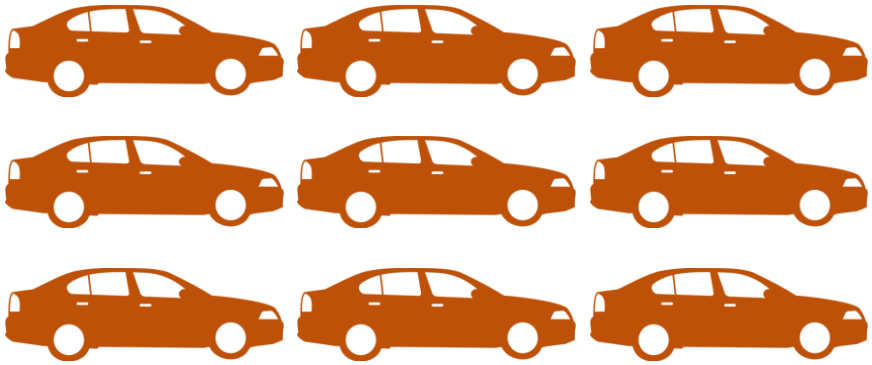
Car Stacker, New York City (Karl Tracksdorf)

Overview of APS

Volkswagen APS, Wolfsburg, Germany (Source 1)

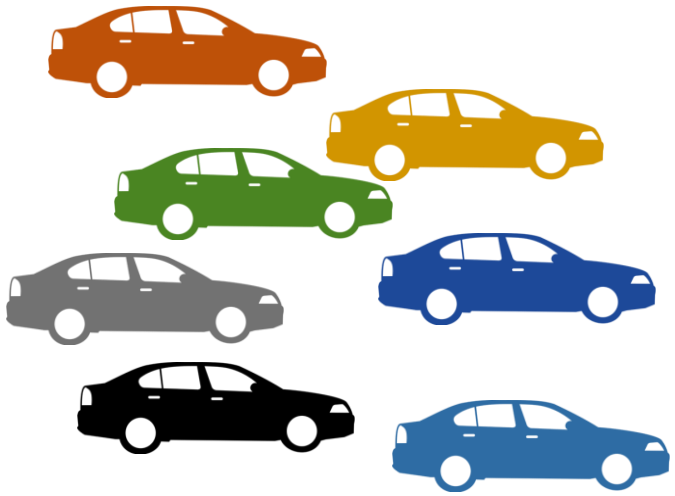
Limitation of APS

Service Time 1 – 3 Minutes



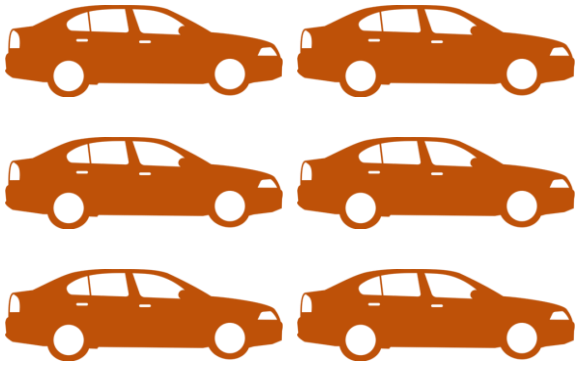
Queues will develop if there are not enough accesses

AV Ownership Model



Individual Ownership

VS

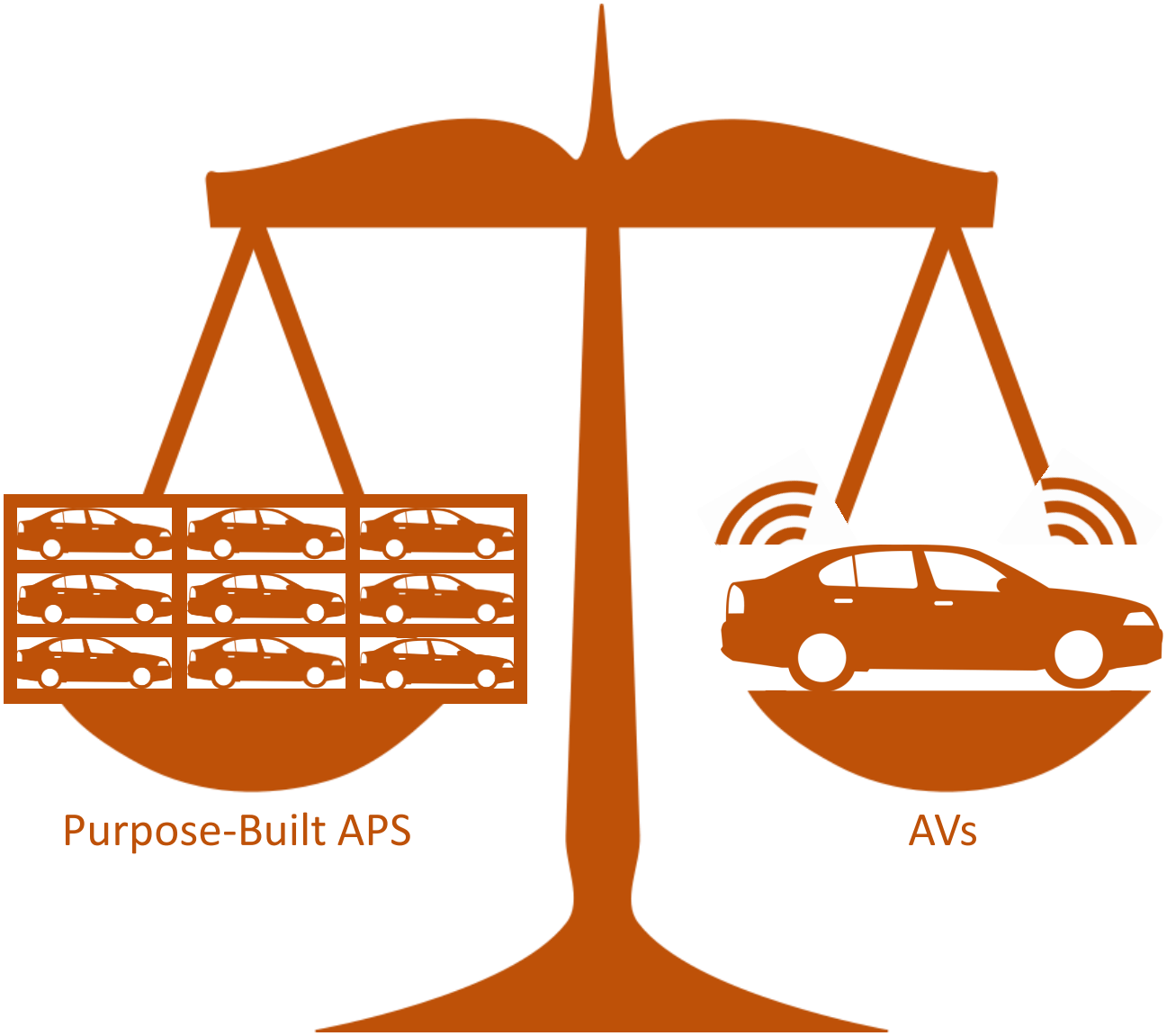


Standardized Private/Public Fleet

Necessity of AV Storage

Driver-less and Passenger-less Vehicles

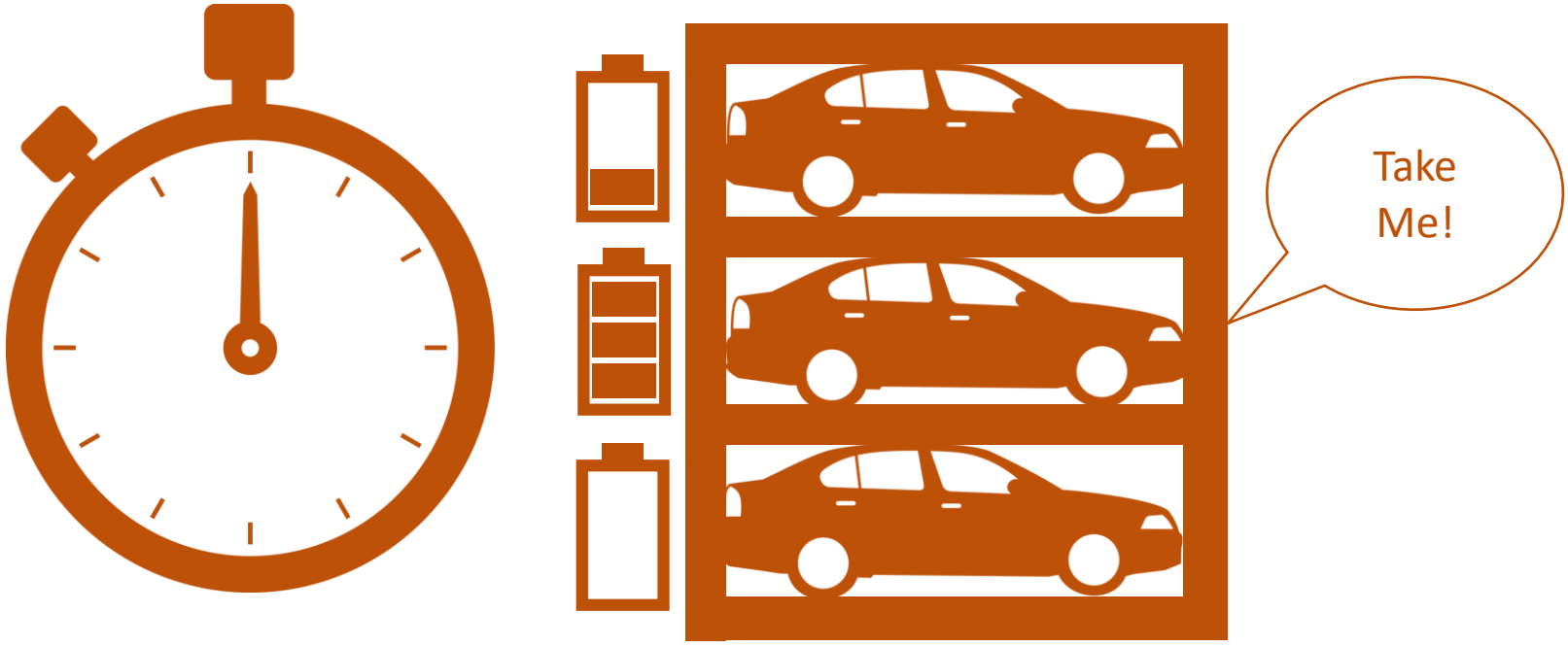
Connecting the Technologies



Primary Advantages

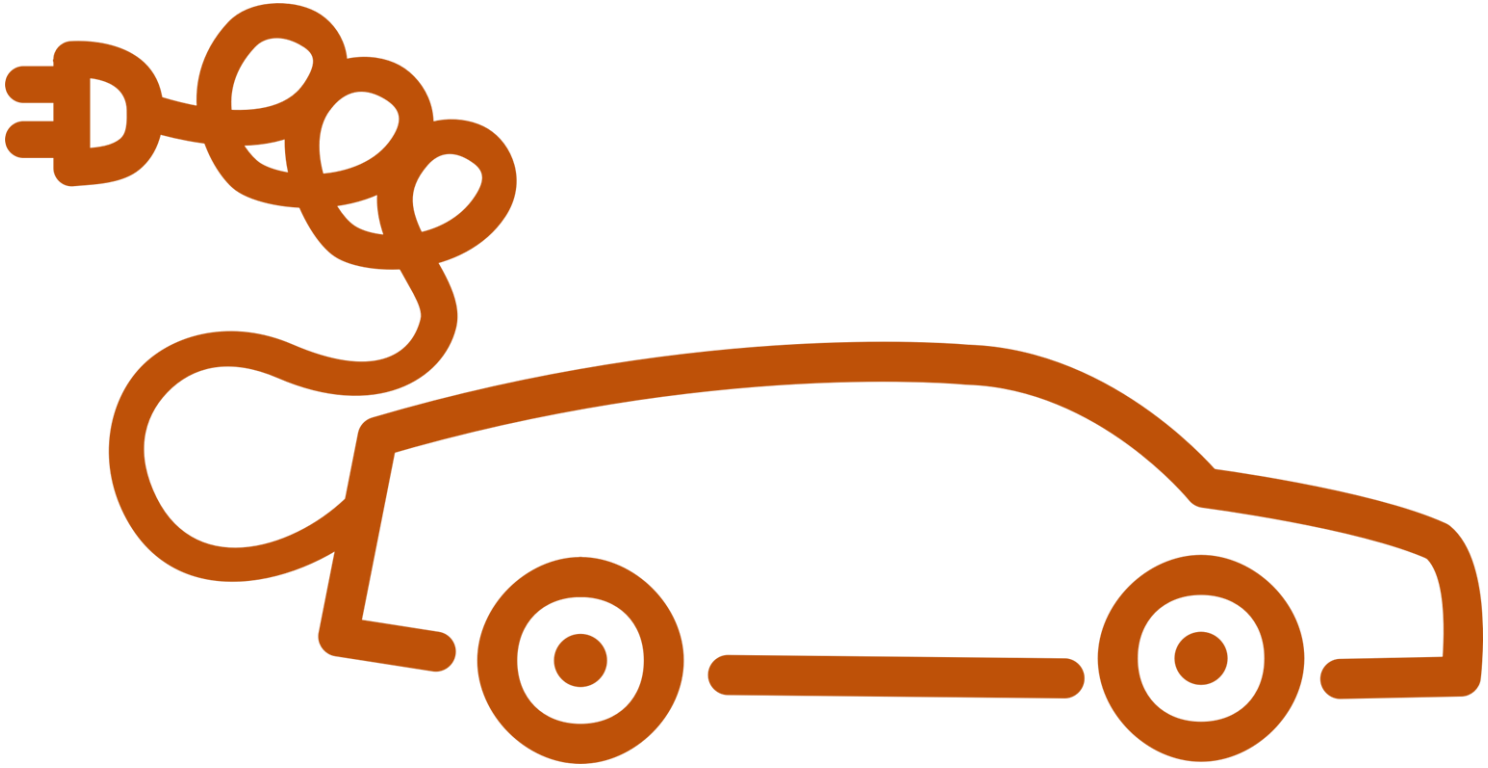
Reduction in active involvement

Primary Advantages



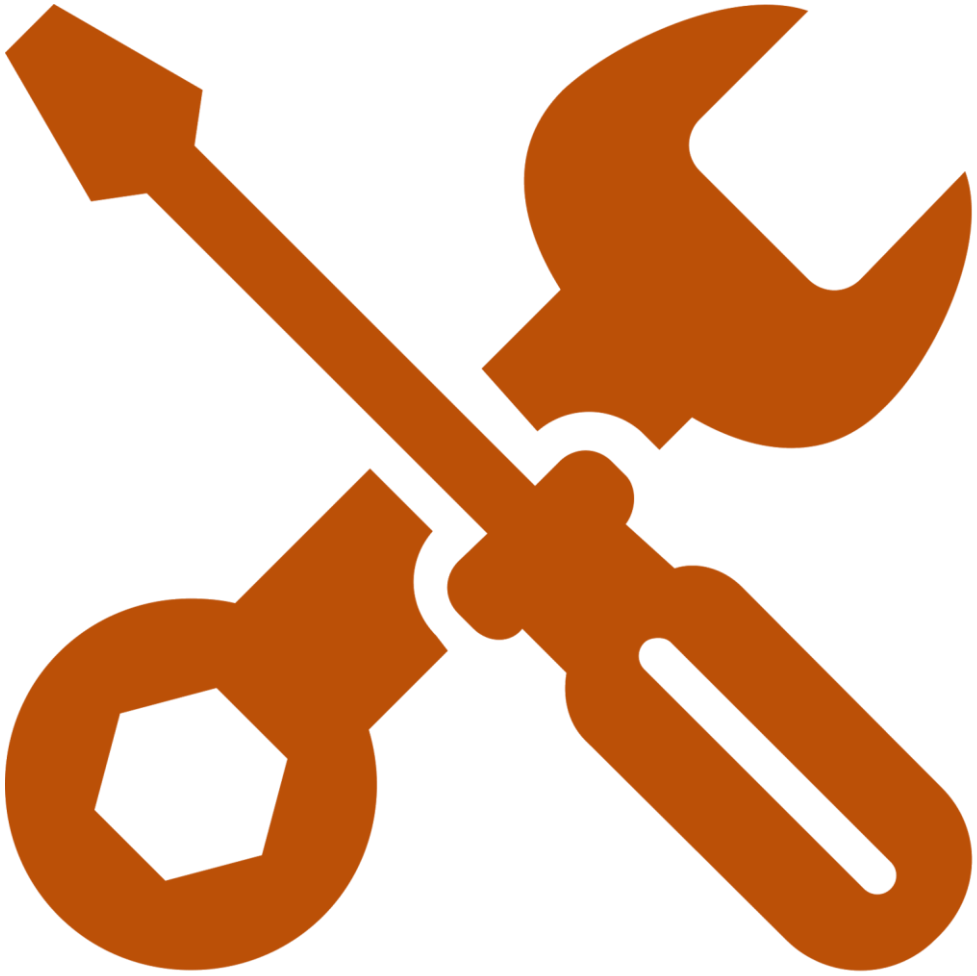
Reduction in service time (When not waiting for *your* car)

Additional Advantages



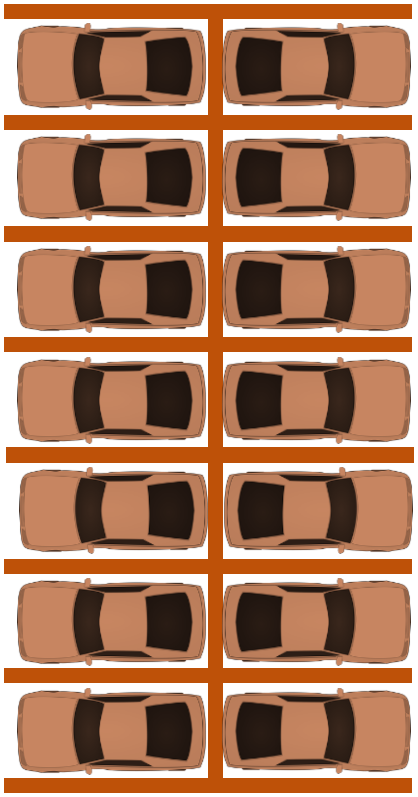
Integrated Charging Opportunity

Additional Advantages

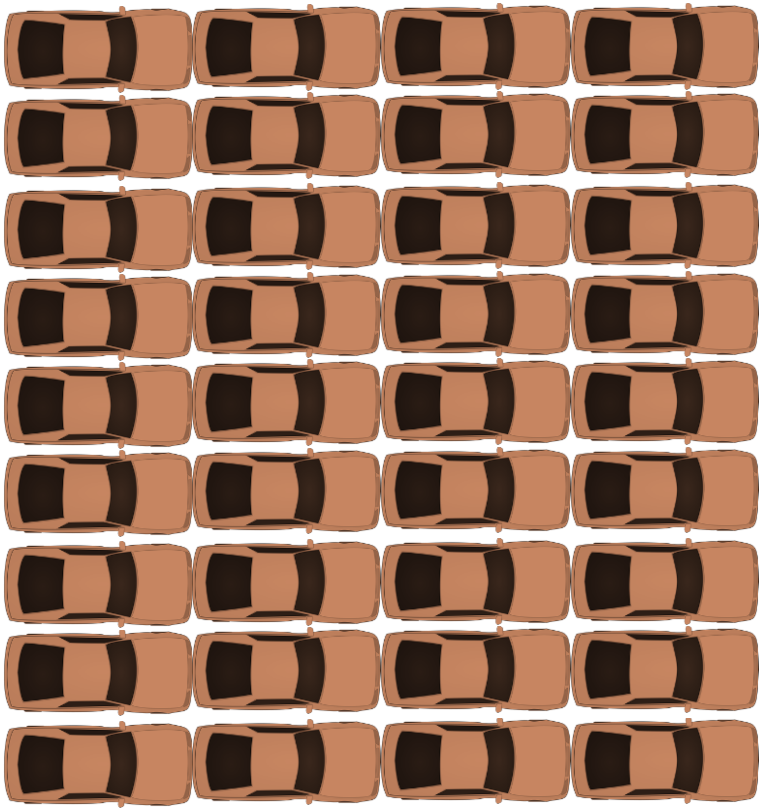


Hold Vehicles for Maintenance

Role of Conventional Parking in AV Storage

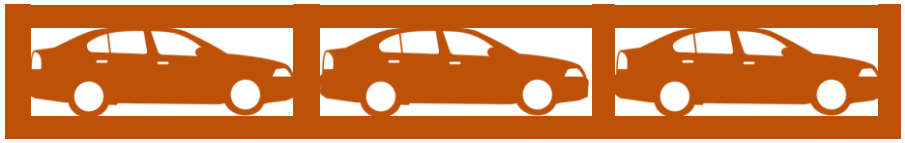


VS



Fewer drive aisles required increasing space efficiency

Design Question: Size of Structures



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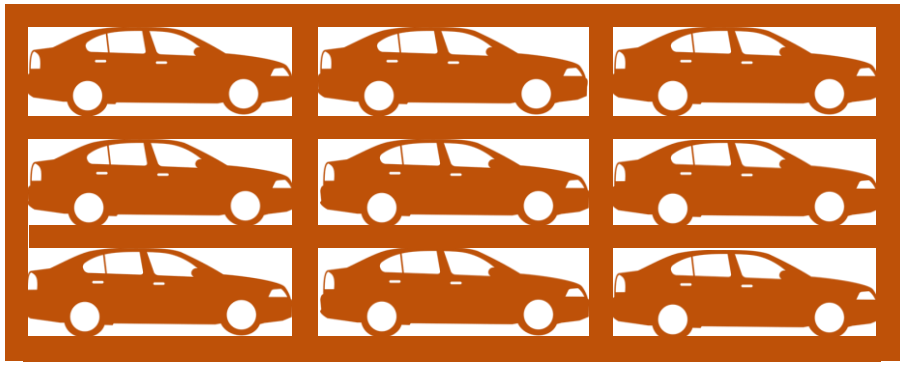
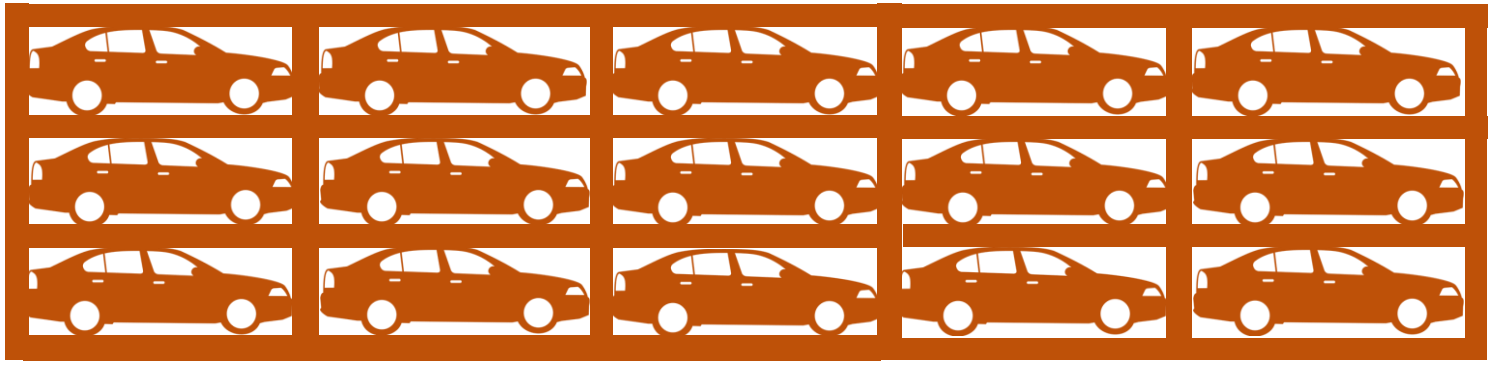
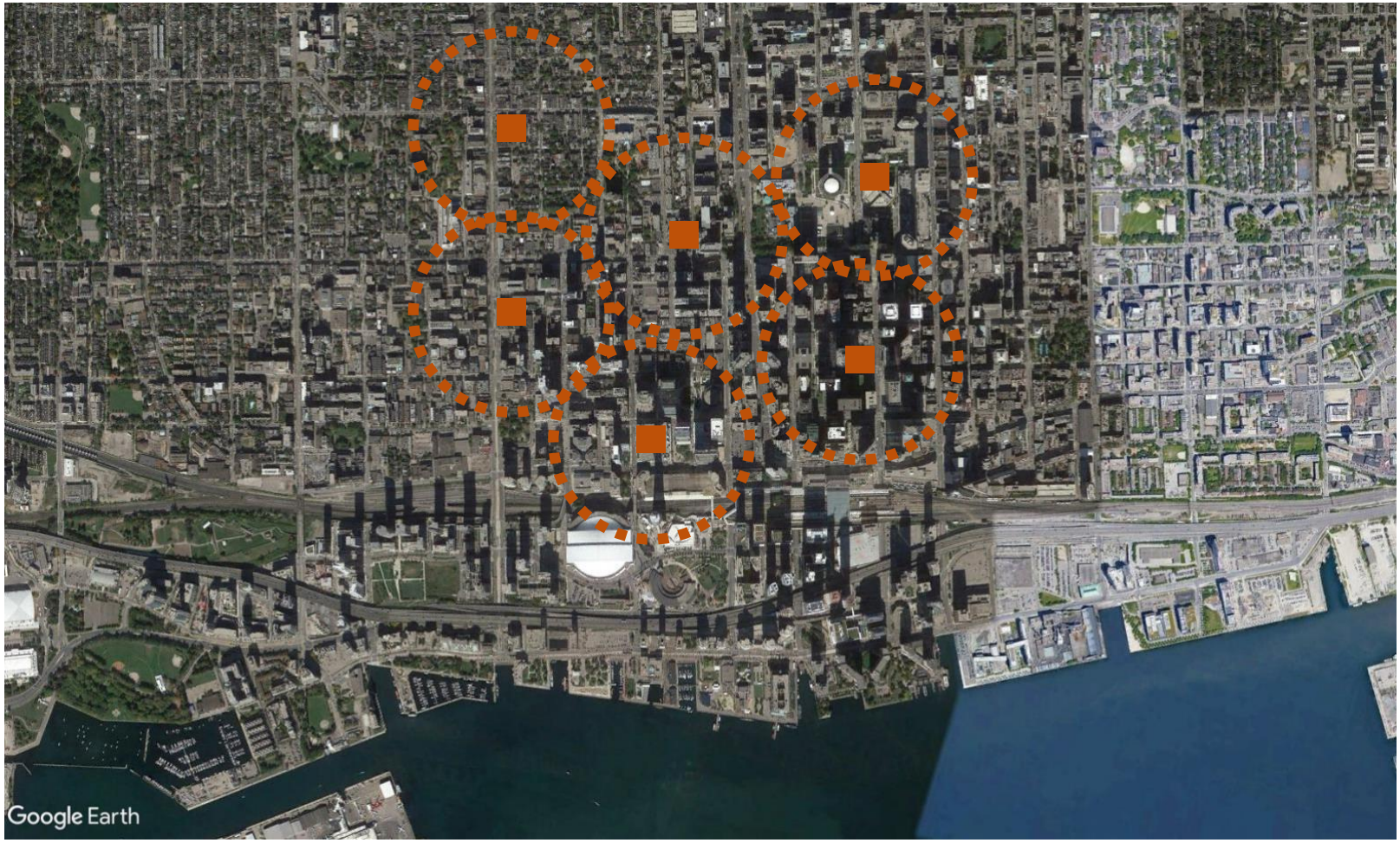


OR

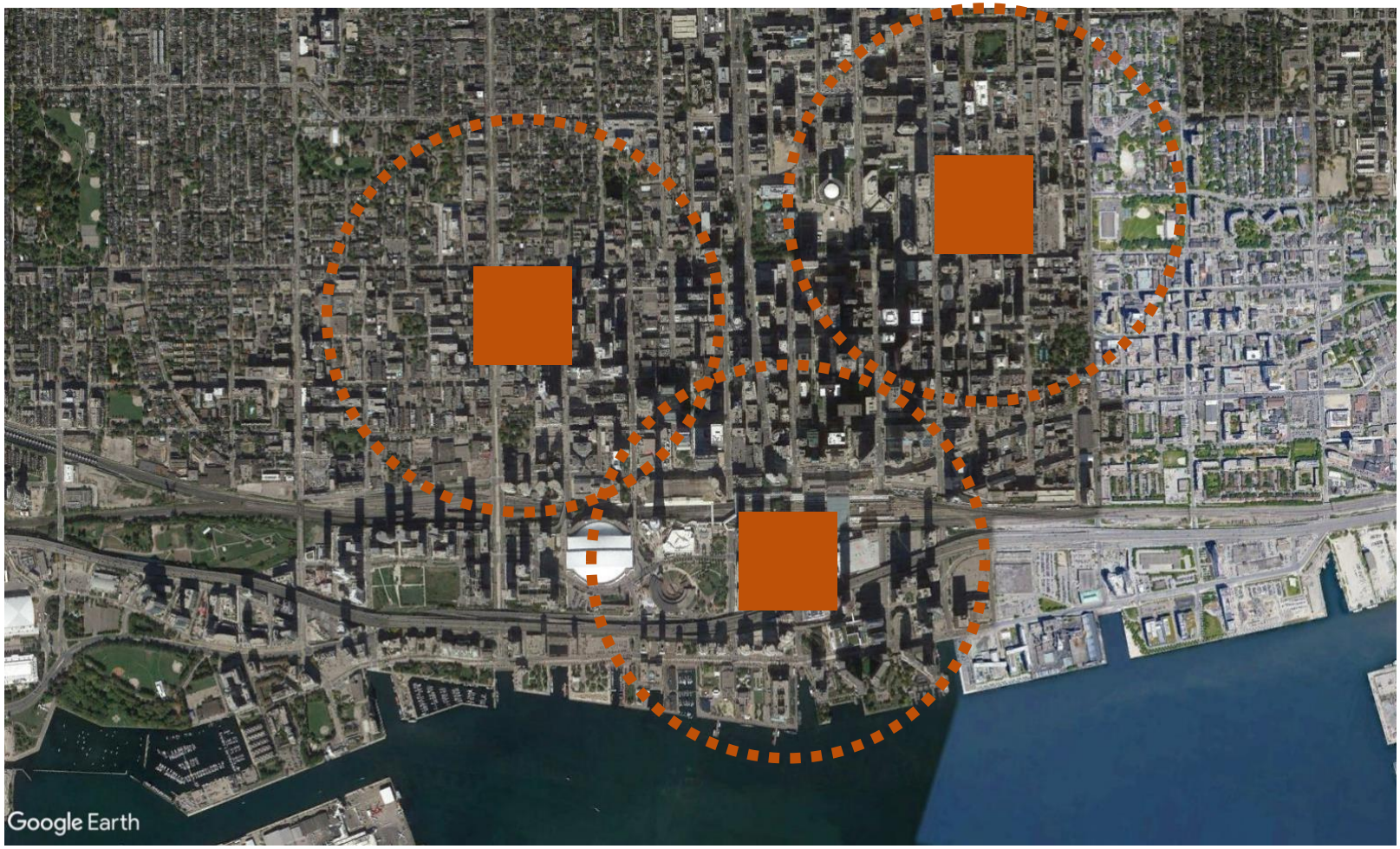


Design Question: Location of Structures



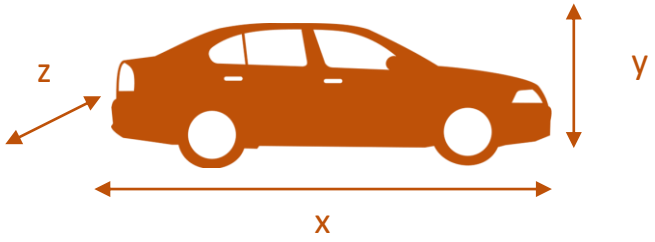
Several Small-to Medium Sized Lots?

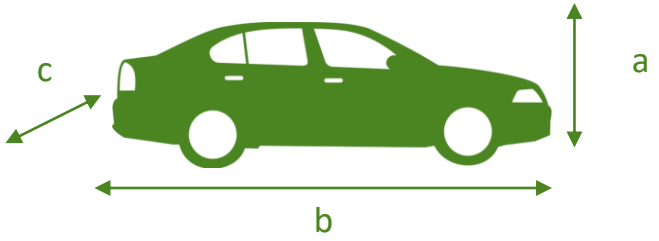
Design Question: Location of Structures

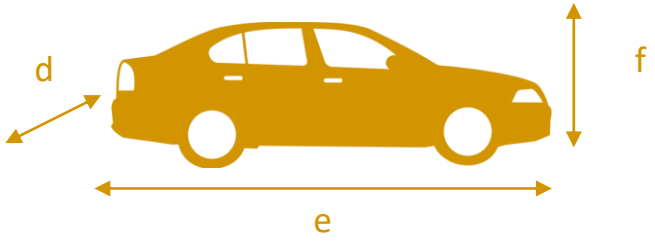


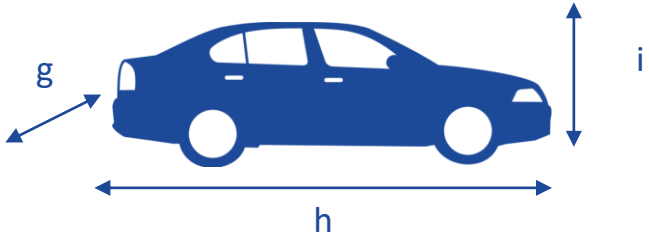
Limited Large Scale Lots?

Design Question: Dimensions of Spaces





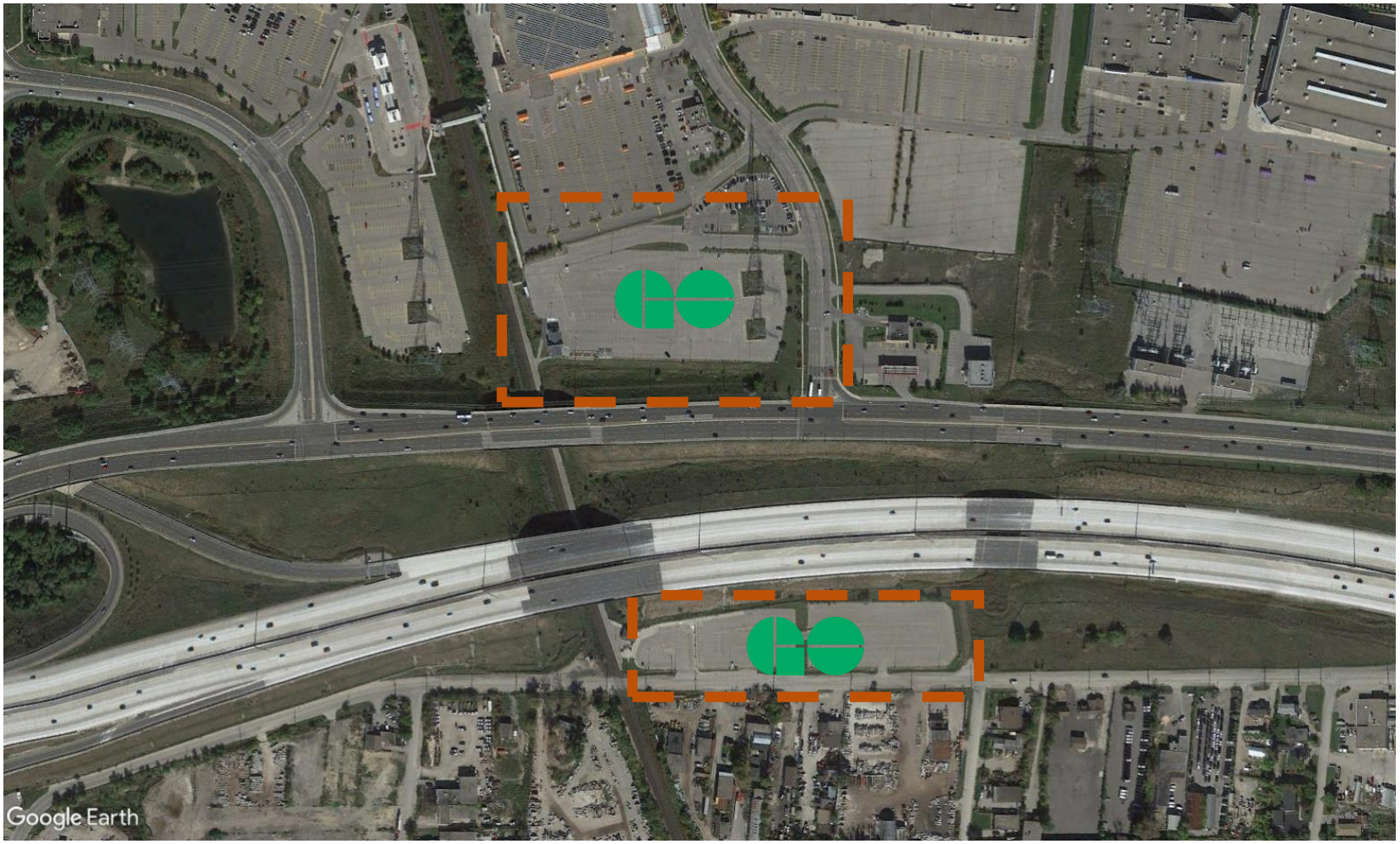




Additional Application: Long Range Trips

Allow for exchange of vehicles if required

Additional Application: Regional Transit



Significant trip activity for parts of day, limited otherwise

Opportunity to Plan Innovation

Parking Garage, Puebla, Mexico (Karl Tracksdorf)

Thank you for your attention!

Sources

1. DooMMeeR (https://commons.wikimedia.org/wiki/File:Autoturm_von_Innen.jpg), „Autoturm von Innen“, https://creativecommons.org/licenses/by/3.0/legalcode