AVENUE 21

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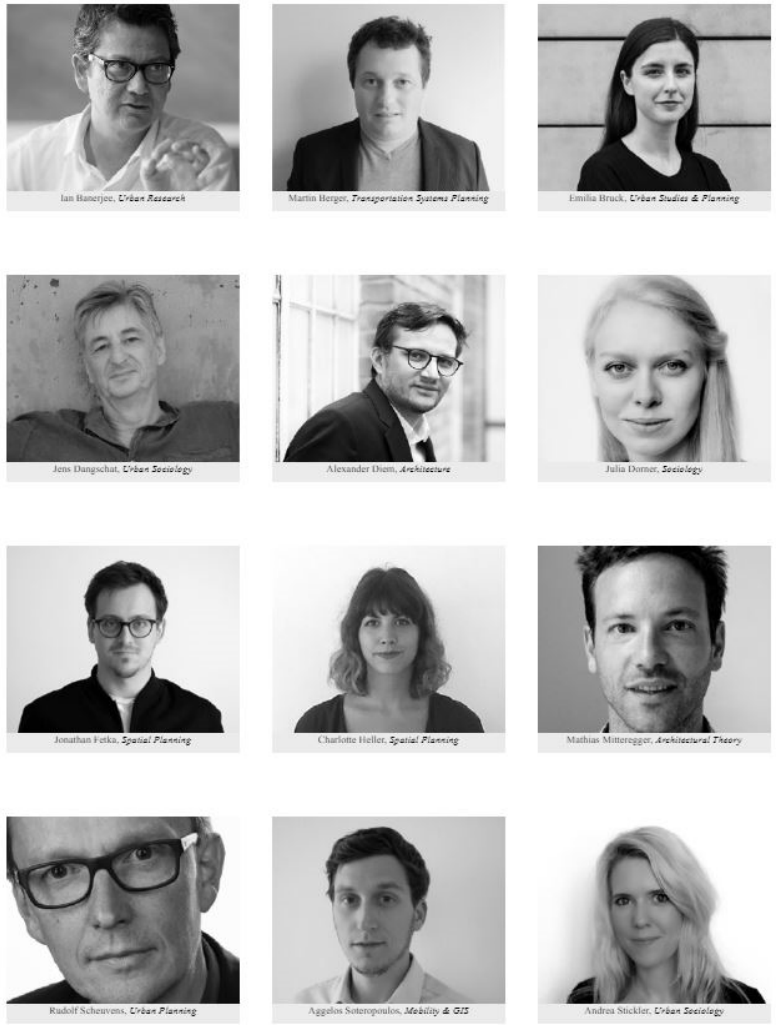
AVENUE21 - Who we are

- AVENUE21 is an interdisciplinary research project funded by the Daimler & Benz Foundation and located at TU Wien´s future.lab. Our team includes researchers from architecture, architectural theory, urban design, regional planning, sociology and mobility studies.



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Structure of the presentation

- Main question
- Best practice
- The usecases
- Possible effects on buildings (general)
- The hub

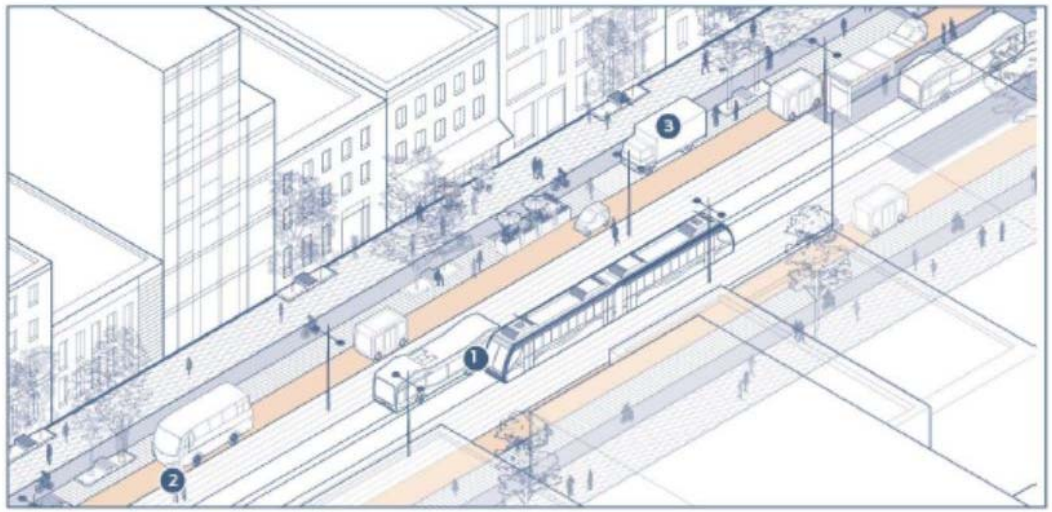
Main questions regarding CAVs, architecture & buildings:

- How to deal with existing buildings in an European city if vehicles can drive automatically?
- What are the potentials for new developments?
- What are the problems (in both cases)?

BEST PRACTICE

Take a look on previous recommendations for action, some examples:

- BLUEPRINT FOR AUTONOMOUS URBANISM **National Association of City Transportation Officials**
- BIG's proposal for the Audi Urban Future Award
- AUDI urban future initiative parking garage for Boston area
- Arrowstreet recommandation for a garage redeploiment
- FX collaborative Public Square



Dedicated Transit Lanes

Dedicated, central lanes could serve light rail, bus, and microtransit, while smaller vehicles could be permitted in narrow access lanes. System-wide reliability and capacity should be the touchstones of tomorrow's transit agencies and street operations.

Mobility Hubs

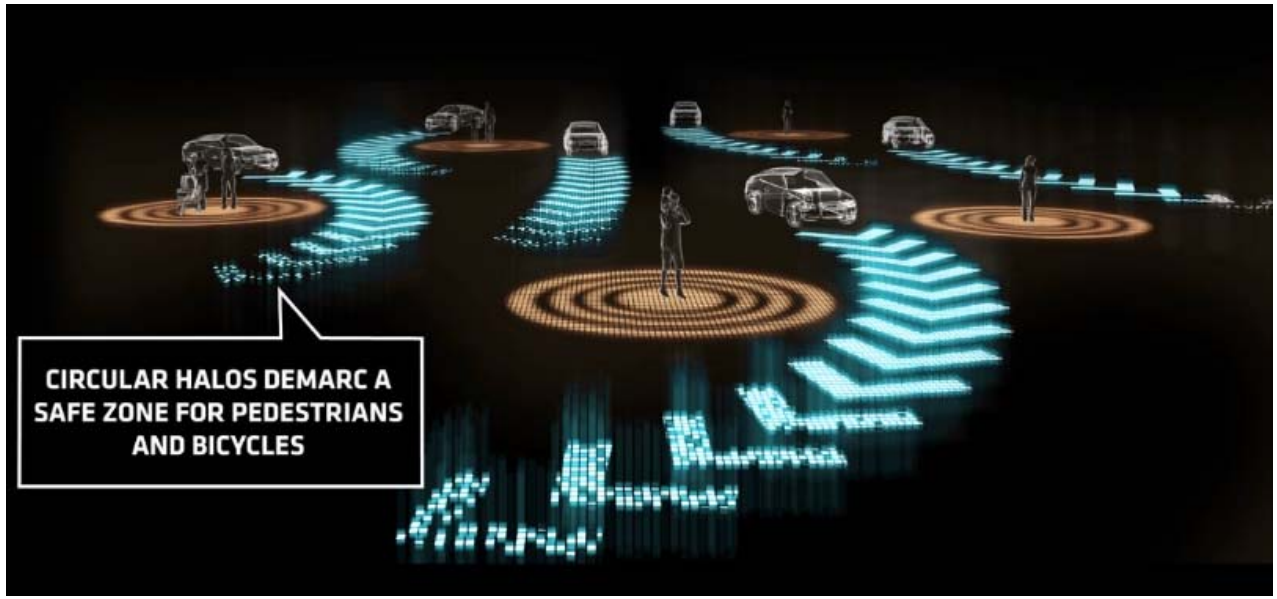
Trunkline transit could integrate seamlessly with point-to-point options. Cities' proactive policies on data sharing would allow for integrated transit options, no matter the provider.

The Flex Zone

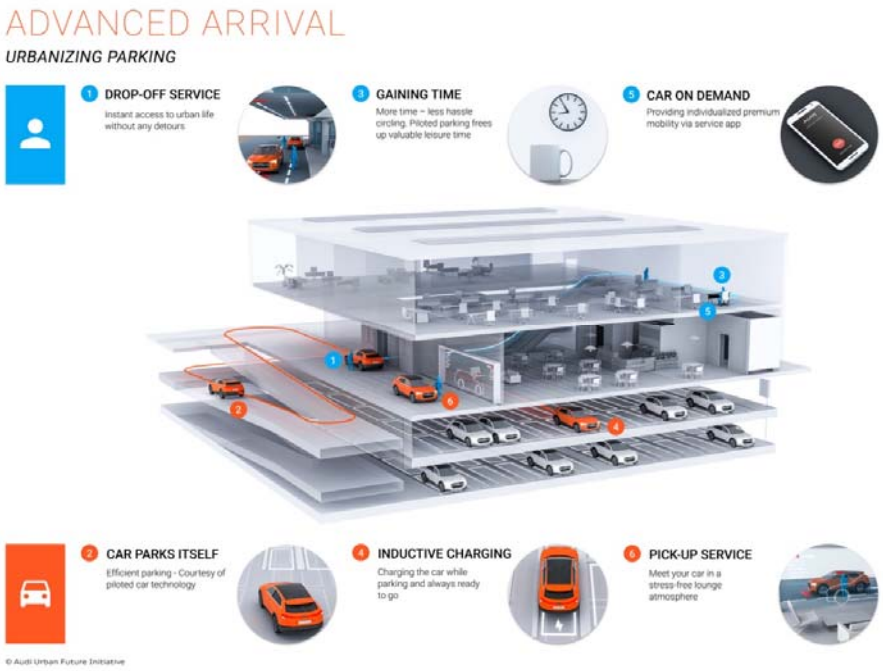
Freight and small vehicles are could be accommodated at low speeds. The former curbside could become a flex zone alternating between public spaces and loading without delaying or endangering transit users.

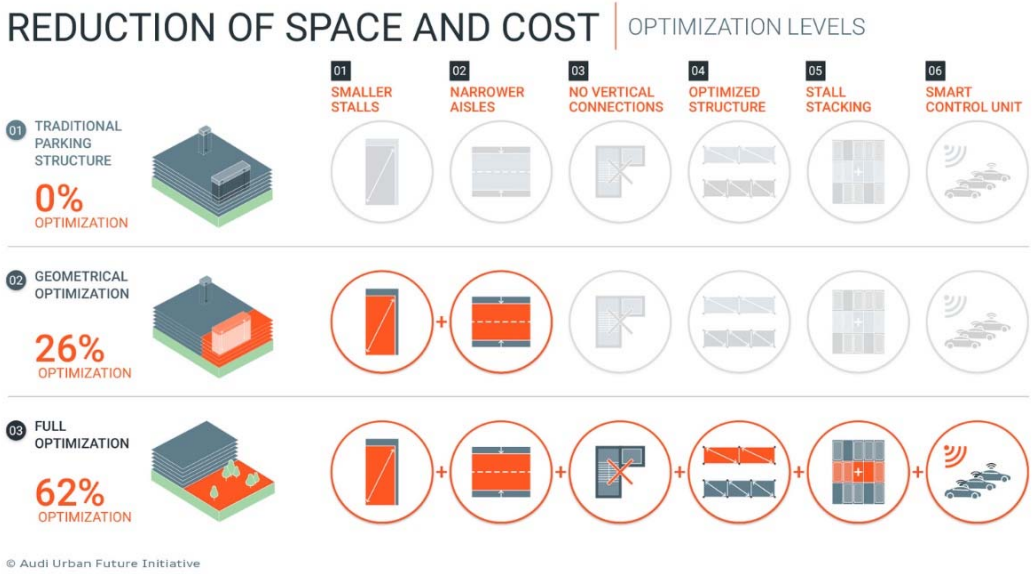
07.2 BIG's proposal for the Audi Urban Future Award

- Flexible zoning of street spaces
- Optical activation of the surface for security reasons

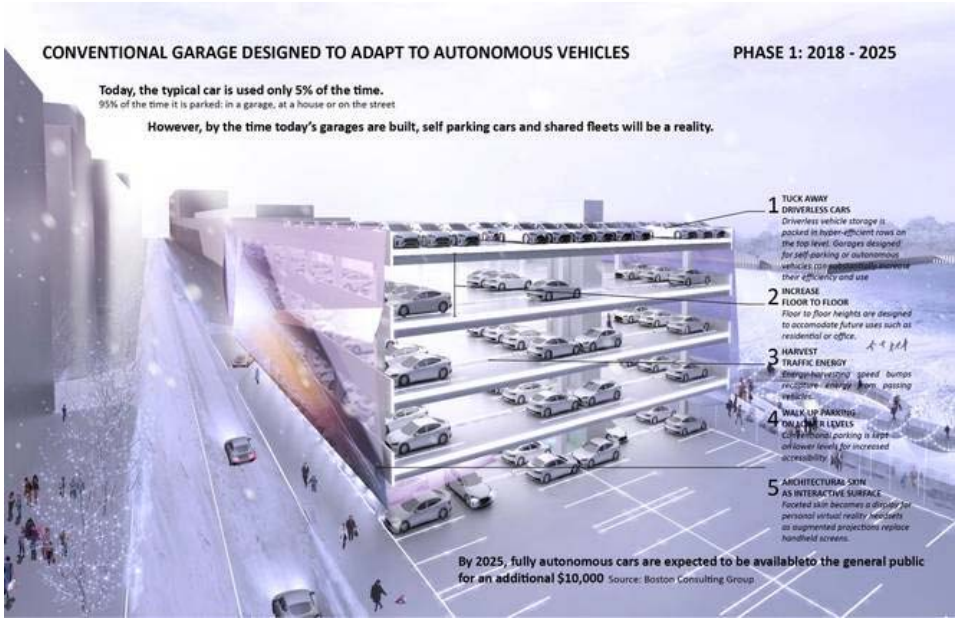


07.3 AUDI urban future initiative parking garage for Boston





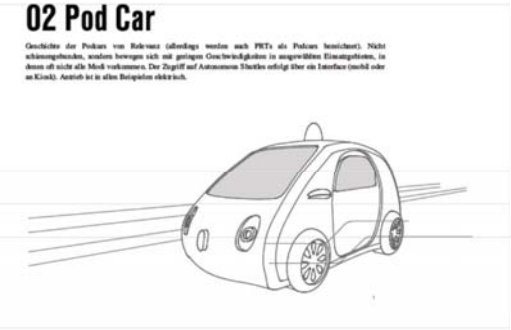
07.4 Arrowstreet recommendation for a garage with a reuse concept for transitional period



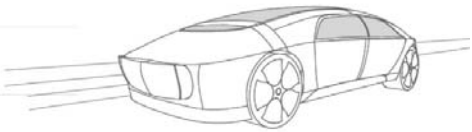
THE USECASES

What are selfdriving Cars? – The usecases

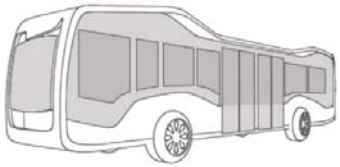
02 Pod Car

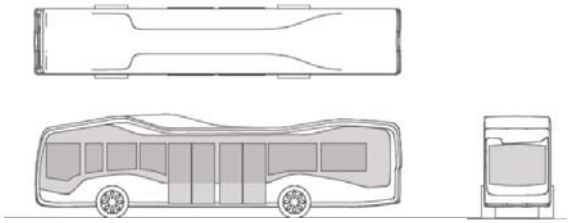


06 AV Privatauto/Vehicle on Demand

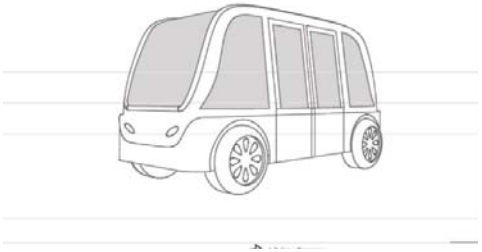


06 Autonome Busse

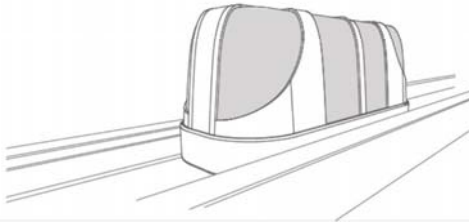




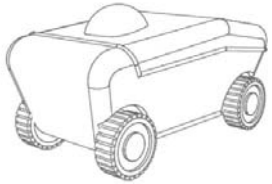
03 Autonomes Shuttle

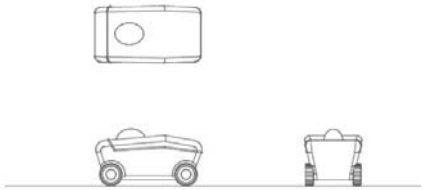


01 Personal Rapid Transit



08 Last Mile Delivery





closer distance

further distance

POSSIBLE EFFECTS ON BUILDINGS (GENERAL)

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Merge the recommended action in traffic planning on to buildings

- What are the possible mayor impacts on the building itself?

- **The design of the street (shaped by the dominant mode of transport) is intrinsically connected to the circulation within buildings**

Effects on Buildings

Valet Parking Gateway

accessible organic buildings (driving situations humans would avoid and robots don‘t)

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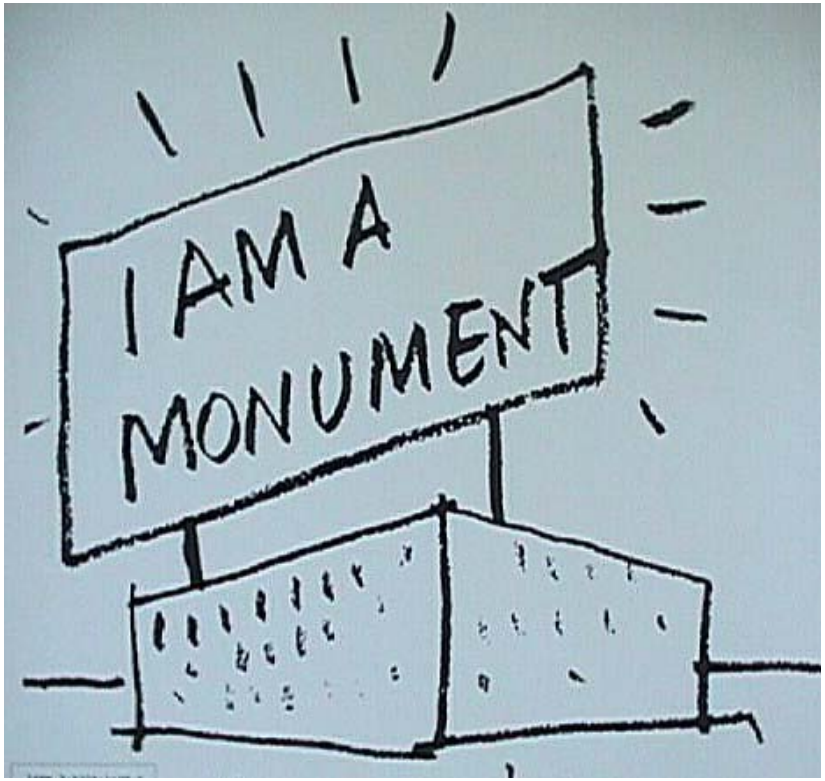
Effects on Buildings

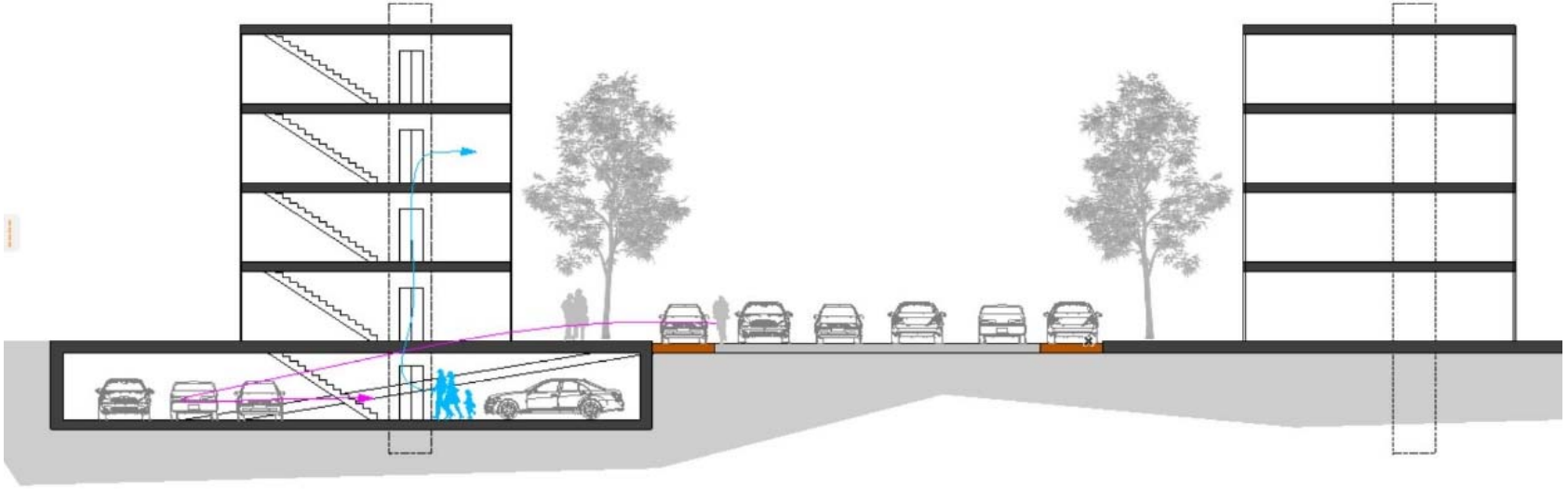
Signaling effect of buildings (Landmark)



Real drive in

Existing situation

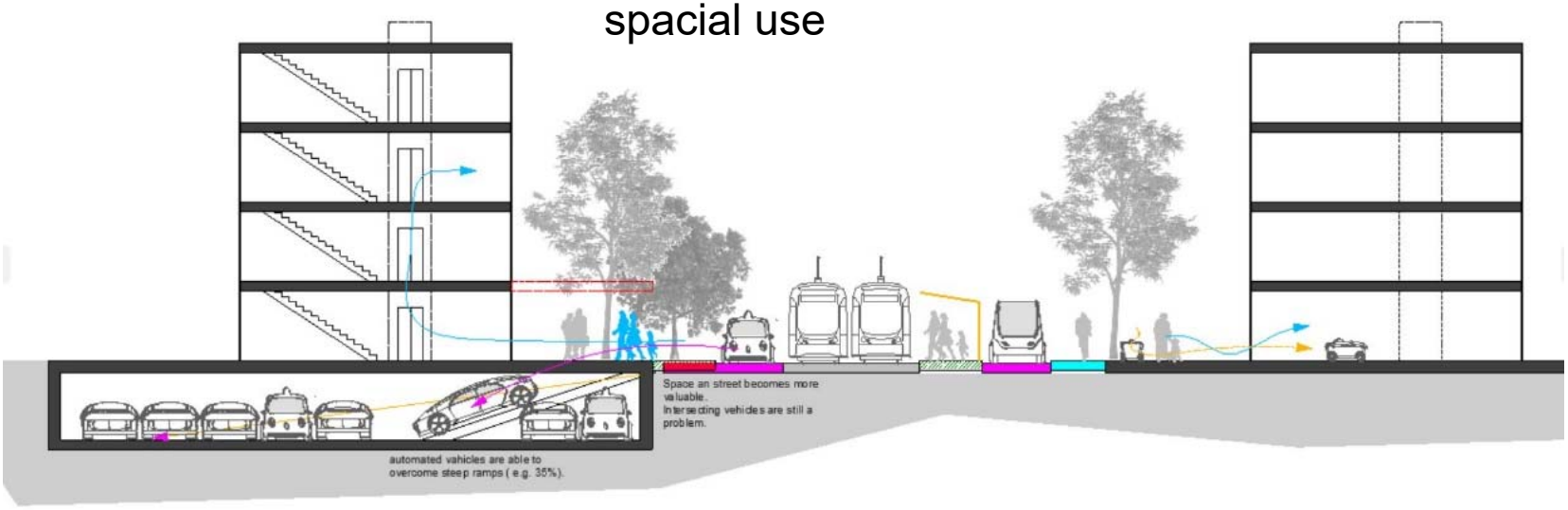
- Traffic takes up most of the street space
- Little space für pedestrians and cyclists
- People enter the building through the garage (not attractive) or via vast parking lot.



Future situation

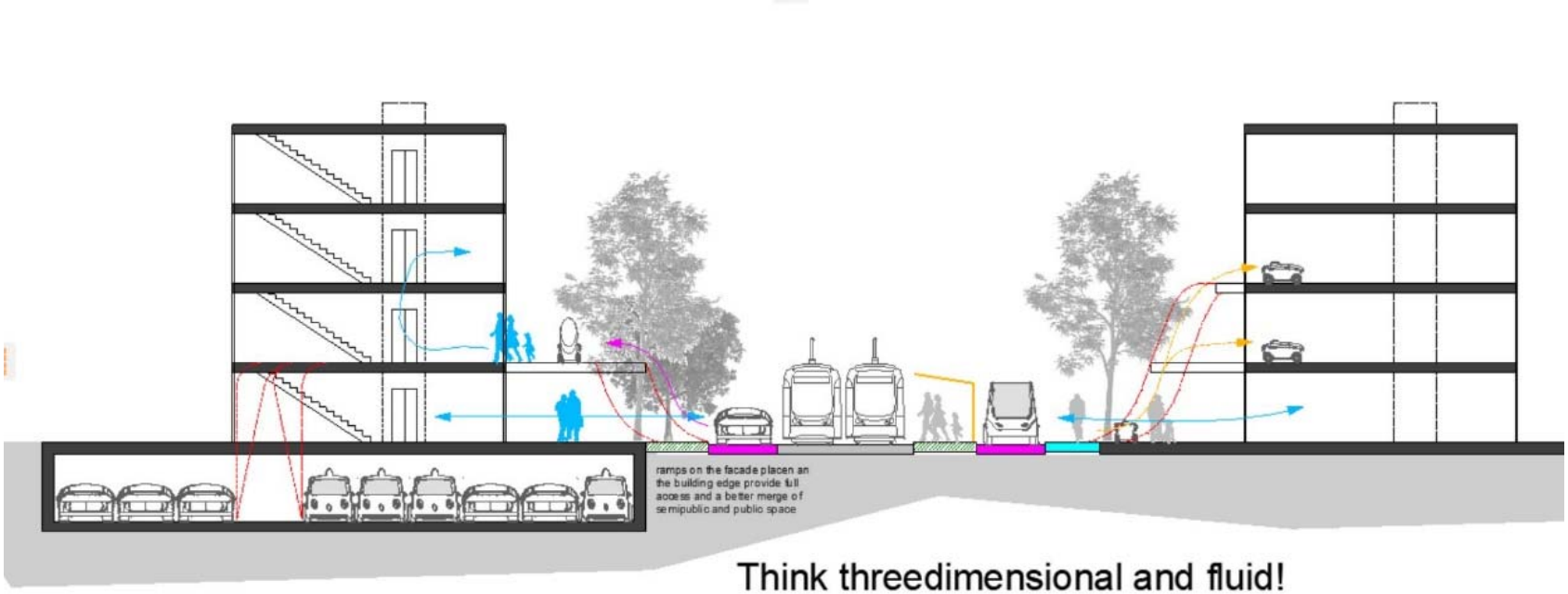
- The road will be split into dedicated transit lanes with mobility hubs, and „flex zones“
- The will be more space privided for „active traffic“ (pedestrians ect.)

- **Potential 1 – reimagining the entrance:** valetparking technology – cars can store themself in existing garages with far higher density
- **Potential 2 – spacial efficency:** More steep ramps for more efficiancy spacial use



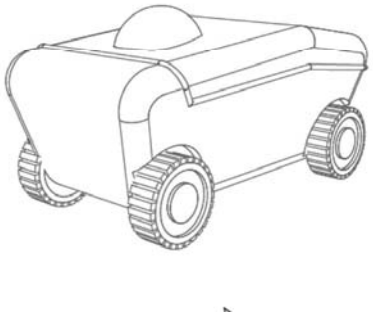
Extrapolation of the future situation

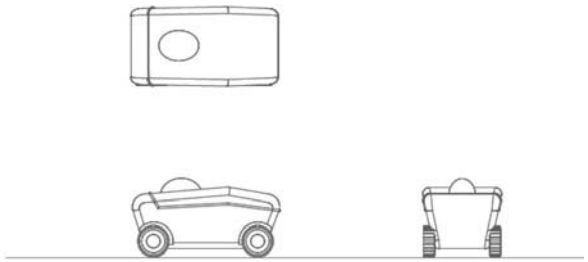
- ramps on the facade placed on the building edges provide full access and a better merge of semipublic and public space



Can´t we use existing infrastructure?

- At least for transport of goods



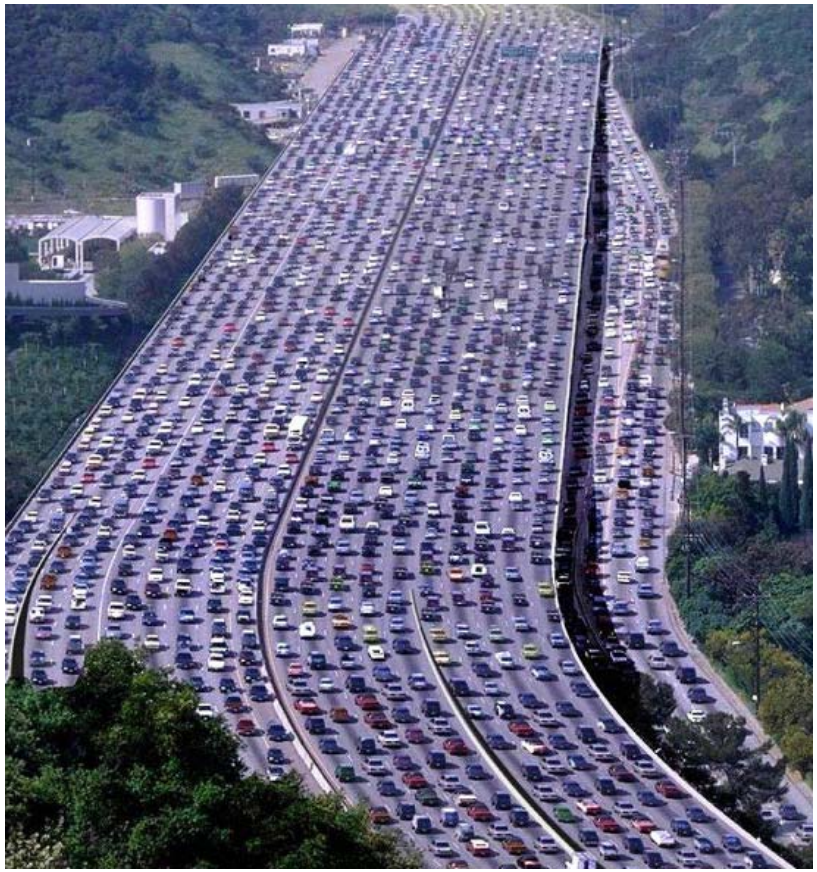


THE HUB

Focus on Hub – Why we also Transfer in the future?

- European cities are historically not dedicated to masses of private vehicels
- Urban policy in europe aims to public transport
- Congestion
- Cost savings (purchase, fuel, car hire costs)
- Carbon Footprint

=> Transfer points (hub) will continue to play an important role in the future!



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Planning the future: make coherent designs!

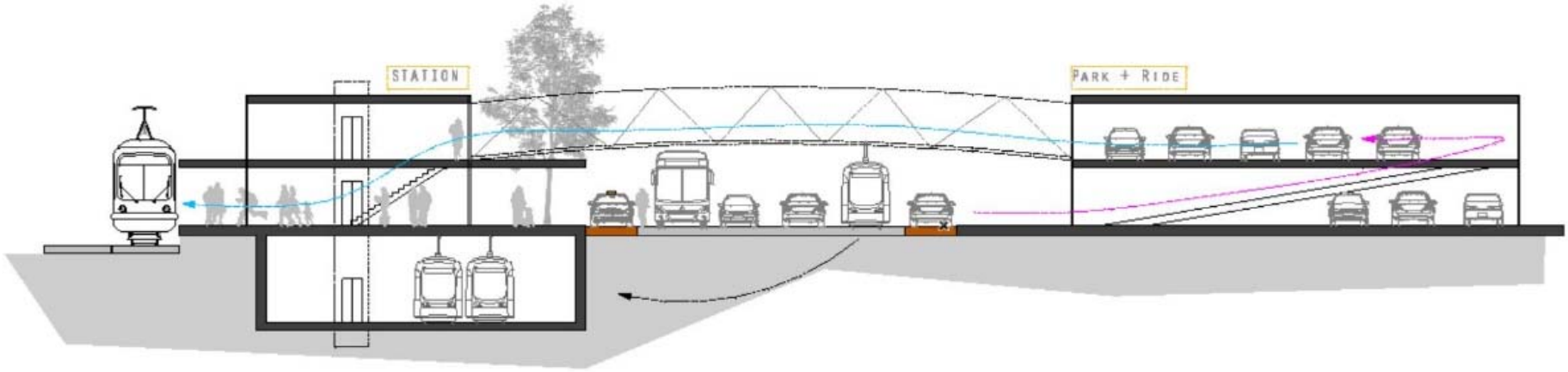
- Dissonance of capacities of different transportation types
- Shared Space and Streamline -> hierarchy in rush hour
- More comfort with autom. Luggage transport-> more traffic caused by additional vehicles
- Recovering space by eliminating parking -> Traffic increase by arrival and departure

- **High level of interdisciplinarity is unavoidable**

Kapazitätsdissonanz on the Platform

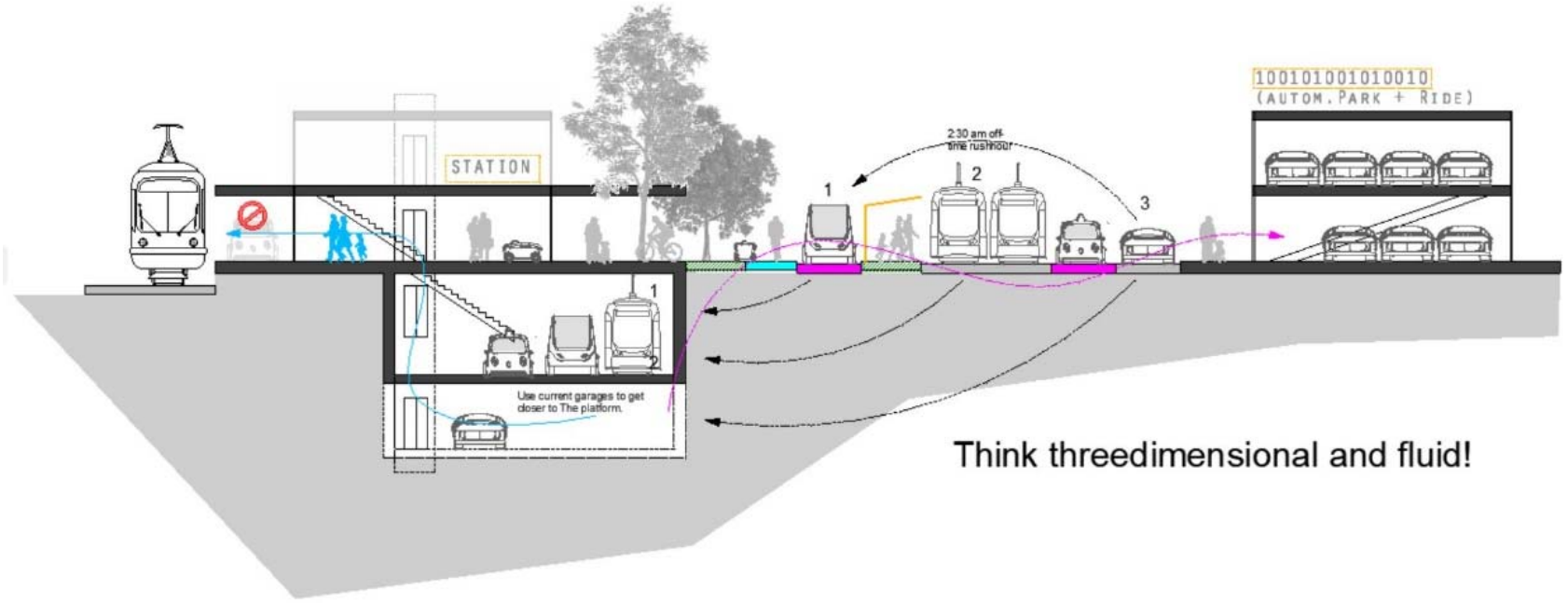
Existing situation on the Hub

- Strong seperation effect and long ways for park and ride users.
- Existing strategies transferred public transport into the underground to shorten the distances



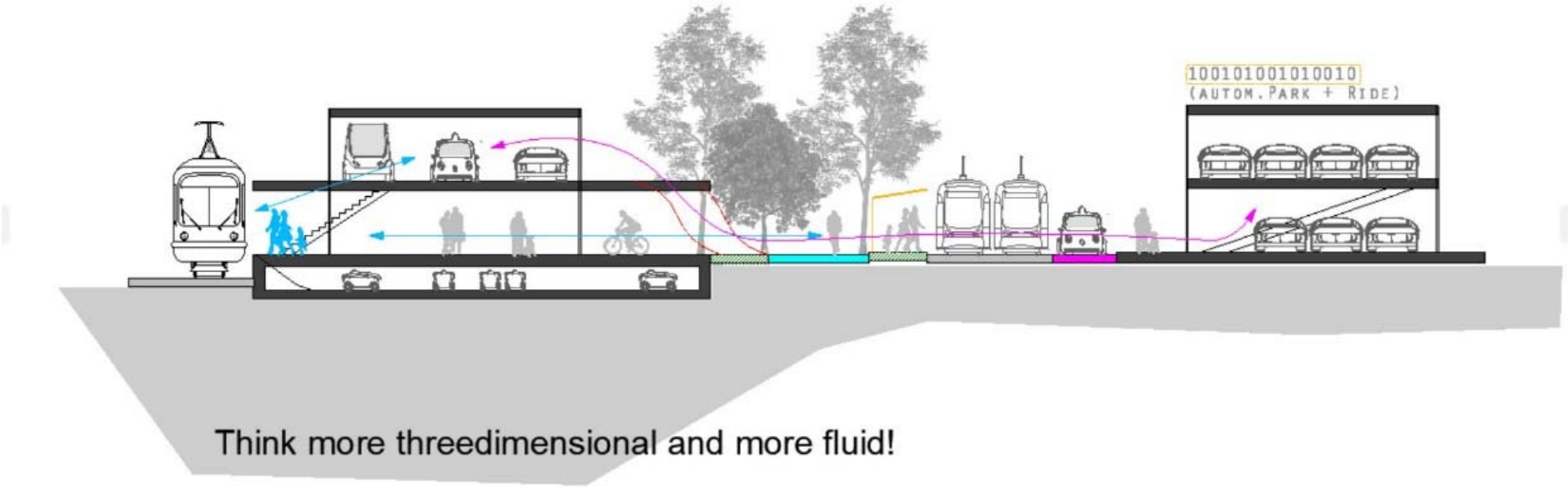
Future situation on the Hub

- Potential 1: Pod Cars and Shuttles could also use existing underground lanes to get closer to platform
- Potential 2: valetparking technology – cars can store themself in existing garages, the P+R user can be closer to the station.



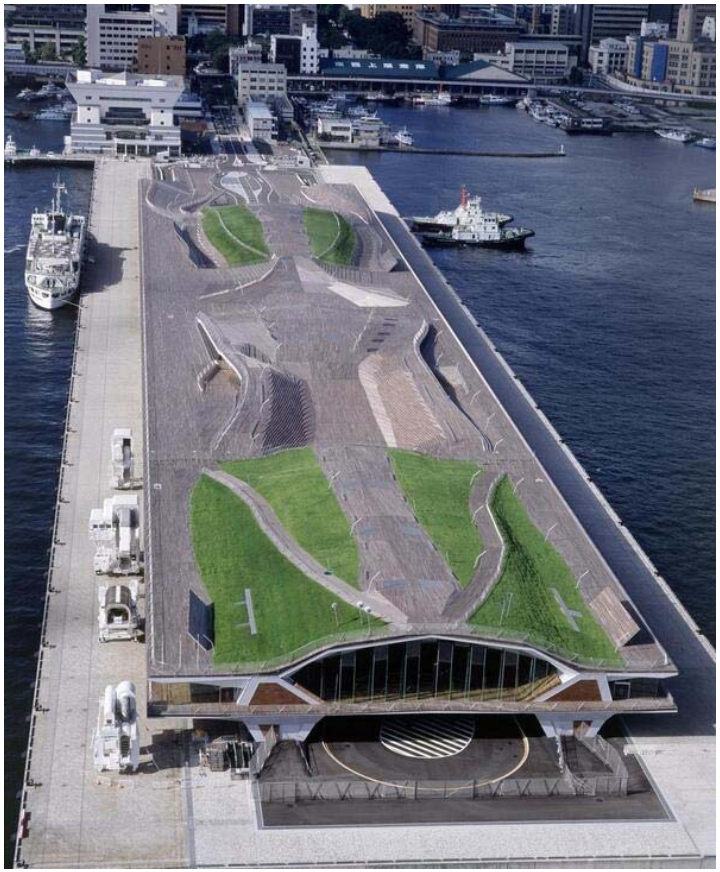
Extrapolation of the future situation on the Hub

- Ramps can introduce a second layer above the station to minimize the distance to Platform
- The (expensive) undergound infrastructure is only dedicated to the transport of goods



Visionary Building as transportation Hub

- Yokohama Port Terminal by Foreigen Office Architects, built in the end of the 1990ties



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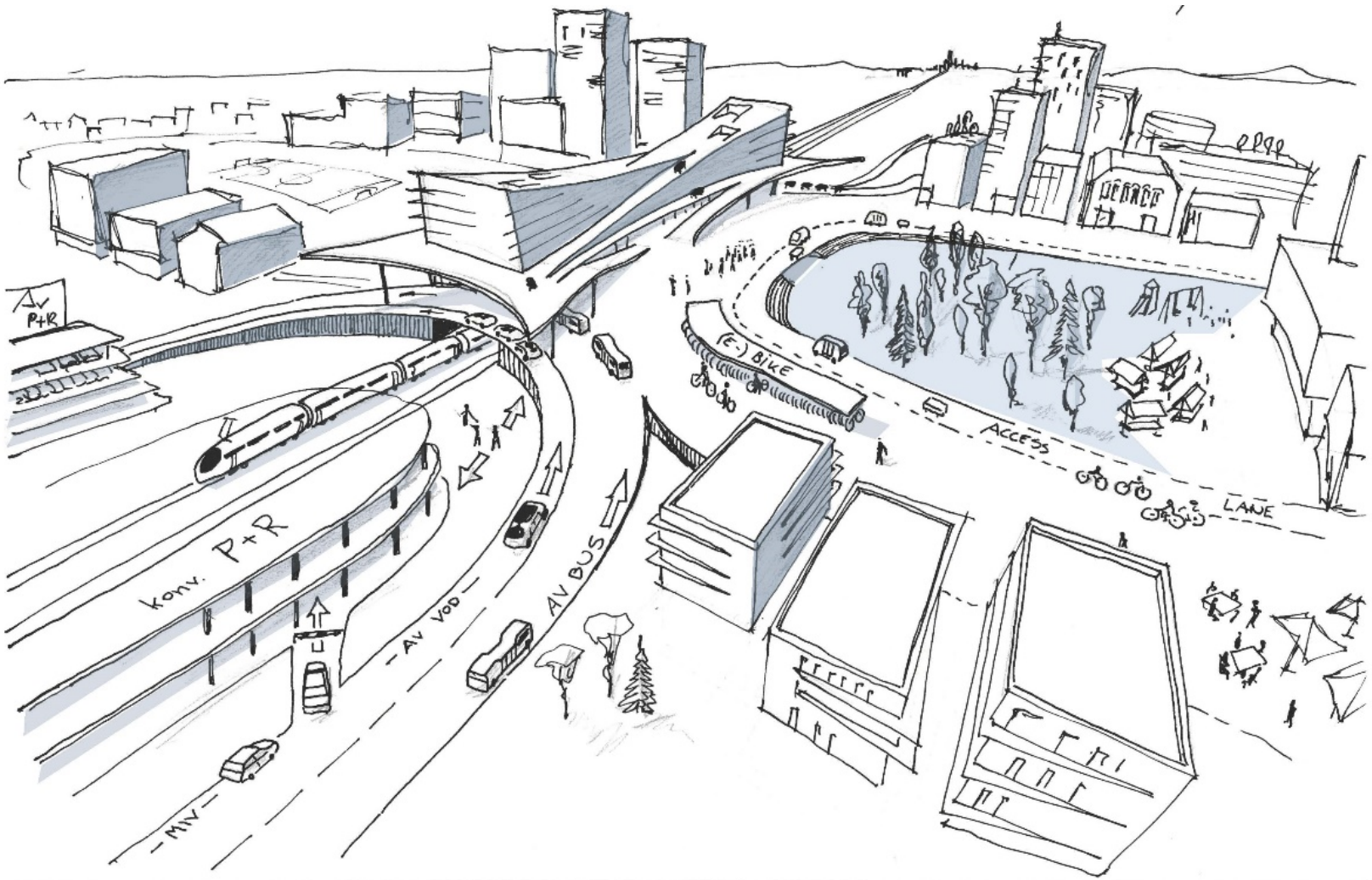
Perspective of a hub on two levels



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Thank you!

- For further information please contact me:

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