URBAN CHANGE?
URBAN CHANGE?

Fear of Density

Too many cars in everybody's way

No more ugly, boxy buildings!

It's so expensive to build here!

The rent is too d@#n high!

Gentrification!

Stop the war on cars!

Not enough Transit!

Streets not safe for bikes/scooters!

Not enough space for walking!

We are only building for the very rich!

Escalating Housing Cost!

Displacement!

Just Say NO To Over Development
Typical ‘5 over 2’ development
Typical residential high-rise developments
The emerging ‘modern’ Los Angeles?
What if we could build a city people would actually like?

What most people like
What gets (mostly) built in L.A.
What is a city?
What if we could build a city people would actually like?
Collegetowns - TODAY
Older US cities - TODAY
Netherlands - TODAY
Czech - TODAY
Vienna - TODAY
Amsterdam - TODAY
Copenhagen - TODAY
Copenhagen - TODAY
Vienna - TODAY
Spain Wants to Ban Cars in Dozens of Cities, and the Public’s on Board
N.Y.C. - TODAY
N.Y.C. - TODAY
Santa Monica - TODAY
Hollywood – 50s to mid 70s – Vienna
Change Velocity

The challenge: it is many things that need changing...

- Different Zoning Models
- Different Mobility Options
- Different Building Types
- Different Street Design
  - More Transit
  - More Open Spaces
- Invite more/different people to build
- Create walkable neighborhoods
- Reinvent/reregulate parking
- Recapture land from excessively wide roads
- Change urban fabric
  - Etc.

And it won’t really work well until you have done it ALL...

And we will need to help people learn how to live with a different city!
Climate Change
Around the year 2030, we will be in a position where we set off an irreversible chain reaction beyond human control, that will most likely lead to the end of our civilisation as we know it. That is unless in that time, permanent and unprecedented changes in all aspects of society have taken place, including a reduction of CO2 emissions by at least 50%.

Sometimes we just simply have to find a way. The moment we decide to fulfil something, we can do anything. And I’m sure that the moment we start behaving as if we were in an emergency, we can avoid climate and ecological catastrophe. Humans are very adaptable: we can still fix this. But the opportunity to do so will not last for long. We must start today. We have no more.

You don’t listen to the science because you are only interested in solutions that will enable you to carry on like before. Like now. And those answers don’t exist any more. Because you did not act in time.

Greta Thunberg (16) in a speech to the MPs at the Houses of Parliament in the UK
To Avoid Climate Disaster, Urban Transportation Must Change, Now

Cities have a key role to play in confronting climate change, and it starts with shared mobility—and taking back the streets from the private car.
Most scientists regarded the new streamlined peer-review process as ‘quite an improvement.’
RAPID URBAN PROTOTYPING

BEFORE

PROTOTYPE THE CHANGE YOU WANT TO SEE IN THE WORLD

AFTER
Imperatives:

• Equity
• Resilience
• Climate Protection

Works well in cities where alterations to buildings and urban typology are not a primary focus.

ECODISTRICT
3 Imperatives:
- Equity
- Resilience
- Climate Protection

Works well in cities where alterations to buildings and urban typology are not a primary focus.

Essentially an Eco-District, plus
- Experiments in Zoning
- Experiments in Planning Process
- Modifications and Inventions to Urban Form
- New Building Typologies

ECODISTRICT

IBA (Internationale Bau Ausstellung = International Building Exhibit)
IBA - 1901
Internationale Bau Ausstellung Darmstadt
To create a livable city in the face of industrialization
5000 years of urbanization

World War I and the beginning of industrialization

USA

Euclid vs. Ambler Realty - 1926

CIAM >> Towers in a park
A new way of building cities

EUROPE
One of the most important testimonies of the new way of building...
1939 World’s Fair >> Suburbia!
IBA – 1948 to 1957
Internationale Bau Ausstellung Berlin
A model for the city of tomorrow...
IBA – 1948 to 1957
Internationale Bau Ausstellung Berlin
A model for the city of tomorrow...
1960s Europe - Evidence is piling up that the post war development model is destroying older cities, leads to pollution and congestion

1964 World's Fair in NY

Jane Jacobs vs. Robert Moses late 50s to 60s

Club of Rome 1972 – ‘The limits to growth’

Oil Crisis 1973

IBA Berlin 1974- 1987
into three units, residential, commercial and industrial. Nine miles out from the city is a vast airport.
outmoded business sections and undesirable slum areas.
1960s Europe - Evidence is piling up that the post war development model is destroying older cities, leads to pollution and congestion

1964 World’s Fair in NY

Jane Jacobs vs. Robert Moses late 50s to 60s

Club of Rome 1972 – ‘The limits to growth’

Oil Crisis 1973

IBA Berlin 1974- 1987
iba – 1979 to 1987

internationale bau ausstellung berlin

the rediscovery and recovery of the traditional city...

• specifically created to correct post war urban planning. designers realized that replacing small-scale city fabric with forests of apartment towers was killing europe’s cities.
• the most significant urban design and architecture event in the last century
  • 120 plus projects...
Open Building Urban Typology
Rural Areas
Buildings surrounded by space
Usually individual project, regardless how big
‘Suburban Space’

Closed Building Urban Typology
Towns and Villages
Space surrounded by buildings
Executed over multiple projects/properties
‘Urban Space’

VS.
NYC
~10,000 people / km²

Paris
~21,500 people / km²
THE WORLD’S POPULATION, CONCENTRATED

If the world’s 6.9 billion people lived in one city, how large would that city be if it were as dense as...

PARIS
127,950 square miles
333,836 square kilometers

SAN FRANCISCO
307,075 square miles
790,731 square kilometers

NEW YORK
203,494 square miles
526,544 square kilometers

LONDON
855,749 square miles
2,220,193 square kilometers

SINGAPORE
237.5 square miles
619.7 square kilometers

HOUSTON
1,306,585 square miles
3,399,840 square kilometers
OVERALL DENSITY OF OUR BUILT ENVIRONMENT

SUITED FOR AUTOMOBILES

GAP!

SUITED FOR TRANSIT
IBA – 1979 to 1987
Internationale Bau Ausstellung Berlin
The rediscovery and recovery of the traditional city...
IBA – 1979 to 1987
Internationale Bau Ausstellung Berlin
The rediscovery and recovery of the traditional city...
The rediscovery and recovery of the traditional city…
IBA– 1989 to 1999
Internationale Bau Ausstellung Emscher Park
IBA—1989 to 1999
Internationale Bau Ausstellung Emscher Park
...fundamentally change the conceptual structure of the central Ruhrgebiet region, in response to its industrial decline. 17 cities, numerous initiatives and project partners jointly implemented 117 projects with the objective of future-proofing a traditional industrial region.
IBA – 2000 to 2010
Internationale Bau Ausstellung Fürst-Pückler-Land
Re-interprete and renew the landscape in a rural East German mining region...
IBA – 2002 to 2010
Internationale Bau Ausstellung Urban Change
Entire state of Saxony – 19 cities; model projects for urban development through demographic change, social cohesion and economic transformation.
IBA – 2006 to 2013
Internationale Bau Ausstellung Hamburg
How to combine growth and sustainability? What does a climate-friendly future for metropolises look like?...
France Plans an Extreme Makeover for Struggling Small Cities

FEARGUS O’SULLIYAN  MAY 2, 2018

*Action Coeur de Ville* aims to undo the damage of urban sprawl in more than 200 city centers across the country.
IBA – 2010 to 2020
Internationale Bau Ausstellung Basel
Growing together across borders...
IBA – 2013 to 2020
Internationale Bau Ausstellung Parkstad
...eight municipalities with a shared history and identity based on their mining past. To bolster urban renewal, tap new business sectors – e.g. in the healthcare industry, nursing and logistics – and promote the energy transition.
IBA – 2012 to 2022
Internationale BauAusstellung Heidelberg
How does the European city have to change to meet the requirements of tomorrow’s knowledge society?
IBA – 2016 to 2022
Internationale Bau Ausstellung Vienna
...to find new ways to offer affordable and high quality living space in a liveable city.
• New social neighbourhoods
• New social qualities
• New social responsibility
IBA – 2016 to 2022
Internationale Bau Ausstellung Vienna
...to find new ways to offer affordable and high quality living space in a liveable city.
IBA – 2016 to 2022
Internationale Bau Ausstellung Vienna
...to find new ways to offer affordable and high quality living space in a liveable city.
IBA – 2016 to 2022
Internationale Bau Ausstellung Vienna
...to find new ways to offer affordable and high quality living space in a liveable city.
IBA – 2012 to 2023

Internationale Bau Ausstellung Thüringen

...broaden the focus to the interdependencies of urban and rural areas.
Exactly 100 years after avant-garde architects from throughout Europe presented their radical “exemplary residential program for modern metropolitan man” at Stuttgart’s Weissenhofsiedlung, the IBA 2027 will aim to find new answers to the questions of how we live, work and house in today’s digital, globalised world.
**PROCESS** (lasts typically 8-12 years)

**Phase 1** – **Initiation**; identifies the core issues addressed during the IBA. Establish IBA legal structure. Appoint board of trustees.

**Phase 2** – **Framework**; create the aspirational outlines of intellectual / design pursuit for IBA projects.

**Phase 3** – **Property Identification**; catalogue individual properties that will participate in the IBA projects.

**Phase 4** – **New Urban Design**; through international competitions for ideas, obtain urban design proposals for individual urban zones identified to be subject of the IBAs. That winner will then be paired with local planning expertise to create a new specific plan, only for the duration and purpose of the IBA.

**Phase 5** – **Individual Property Assignments**; public properties are made available for development at conditions “too good to refuse”; under the conditions that the developer will build the winning competition projects.

**Phase 6** – **Design Competitions and Construction**; hold open international architectural design competitions, and chose a winner. That winner will then be paired with a local architect of record, and the project is being built by the private development community.

**Phase 7** – **The Final Year**; a series of events analyze and celebrate the accomplishments of the IBA; what worked, what failed, what lessons can be learned and what general rules can be extrapolated.
DESIGN THINKING: A NON-LINEAR PROCESS

Empathise → Define → Ideate → Prototype → Test

Learn about users through testing

Tests create new ideas for the project

Empathise to help define the problem

Learn from prototypes to spark new ideas

Tests reveal insights that redefine the problem

INTERACTION DESIGN FOUNDATION
INTERACTION-DESIGN.ORG
Design solutions, inspired by successful examples, from as many different places as possible.

Inspire citizens to celebrate change, towards a better future, for all.
This Equation Can Help You Solve Your Parking Problem

There's Plenty of Street Space for All the People -- But Not for All the Vehicles

When we think of the traffic problem as one of moving people, not vehicles, it's easy to see the importance of public transit in solving a city's parking and traffic problems. One trolley-coach line can carry as many people as six typical streets filled with private autos— one street-car line as many as nine streets.
The LA County Parking Crater:
18.6 Million Parking Spots Use 200 Square Miles of Space

Culver City – 5.14 mi²
200 mi² = Culver City x 40

16 miles in diameter
2.3 million residents
900,000 homes
1 million workers
URBAN PARKING VIDEO
HIGH CAPACITY MECHANICAL CAR STORAGE
• Since 1980s
• ‘Dependent Access’ - Cars are parked by attendants.
• In general, users do not interact with the equipment.
• Stored cars are in each others way. Operators have to individually remove obstructing vehicles in order to retrieve your automobile.
• Heavy equipment, with no logistic intelligence.
• No user driven app interaction.

STACKERS – N.Y.C.
1st Generation Technology

STACKERS – GERMANY
2nd Generation Equipment
2nd Generation Equipment

• Since 2000s
• ‘Independent Access’ - Users, in general, interact with the equipment.
  • Puzzle lifts for residential applications.
  • High Bay storage facilities (single elevator, or rack and rail) for commercial applications.
• Vehicles can be independently removed, without needing to move other cars out of the way.
• Equipment heavy. Difficult to dismantle or expand.
• System can have logistic intelligence.
• Limited user interaction with apps.
2nd Generation Technology

INDEPENDENT ACCESS (PUZZLE)
INDEPENDENT ACCESS (PUZZLE)
INDEPENDENT ACCESS (PUZZLE)
2nd Generation Technology

HIGH BAY CAR STORAGE - SINGLE ELEVATOR
2nd Generation Technology

HIGH BAY CAR STORAGE - SINGLE ELEVATOR
HIGH BAY CAR STORAGE - SINGLE ELEVATOR
HIGH BAY CAR STORAGE - SINGLE ELEVATOR
HIGH BAY CAR STORAGE – RACK & RAIL

2nd Generation Technology
HIGH BAY CAR STORAGE – RACK & RAIL
2nd Generation Technology

COMPARE CONVENTIONAL vs. ROBOTIC
## Automatic Parking - Pricing

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of spaces (rounded)</td>
<td>1,100</td>
<td>1,100</td>
<td>1,100</td>
<td>1,100</td>
</tr>
<tr>
<td>Structure square footage</td>
<td>244,412</td>
<td>260,154</td>
<td>310,762</td>
<td>533,662</td>
</tr>
<tr>
<td>Core &amp; Shell Price per Square Foot</td>
<td>$146.88</td>
<td>$123.00</td>
<td>$124.85</td>
<td>$111.58</td>
</tr>
<tr>
<td>Core &amp; Shell, incl. landscape allowance</td>
<td>TOTAL $35,900,000</td>
<td>$32,500,000</td>
<td>$38,800,000</td>
<td>$59,600,000</td>
</tr>
<tr>
<td>PER SPACE</td>
<td>$32,636</td>
<td>$29,545</td>
<td>$35,272</td>
<td>$54,182</td>
</tr>
<tr>
<td>Parking Equipment Hard/Software</td>
<td>TOTAL $16,500,000</td>
<td>$16,500,000</td>
<td>$12,650,500</td>
<td></td>
</tr>
<tr>
<td>PER SPACE</td>
<td>$15,000</td>
<td>$15,000</td>
<td>$11,500</td>
<td></td>
</tr>
<tr>
<td>Core &amp; Shell + Parking Equipment</td>
<td>TOTAL $52,400,000</td>
<td>$49,000,000</td>
<td>$51,450,000</td>
<td>$59,600,000</td>
</tr>
<tr>
<td>PER SPACE</td>
<td>$47,636</td>
<td>$44,545</td>
<td>$46,773</td>
<td>$54,182</td>
</tr>
<tr>
<td>COST DELTA TO CONVENTIONAL</td>
<td>-$7,200,000</td>
<td>-$10,600,000</td>
<td>-$8,150,000</td>
<td>$0</td>
</tr>
</tbody>
</table>

### Notes:
- Core and shell price per stall allows for:
  - excavation, shoring and dewatering,
  - park landscaping
  - café pavilion, bike storage
  - access ramp
- Parking Equipment Hard/Software price per stall allows for:
  - High throughput, up to 400 cars per hour
  - Average storage & retrieval time of 2-3 minutes per car
  - High tech parking control system - I phone apps, etc.

### Finance Options:
- Traditional Construction/Project Finance will be on balance sheet
- 30 Year leaseback with zero cash requirement to UCSB (off balance sheet)
- Design-build services offered by autoPark & team
- Full finance services offered by autoPark & team

---

**COMPARE CONVENTIONAL vs. ROBOTIC**
CAR STORAGE IN R.O.W. – MUNICH
CAR STORAGE IN R.O.W. – MUNICH
CAR STORAGE IN R.O.W. – MUNICH
München
Anwohnergarage Donnersbergerstraße
**WÖHR** Multiparker 740
284 Stellplätze
CAR STORAGE IN R.O.W. – COPENHAGEN
CAR STORAGE IN R.O.W. – COPENHAGEN
3rd Generation Technology

AUTONOMOUS PARKING ROBOT
3rd Generation Technology

- Since early 21st century
- Independent, flexible access
- Users, in general, do not interact with the equipment, but with an automatic valet.
- Equipment light; automatic guided vehicles move cars around obstacles and each other.
- System can easily be expanded or dismantled.
- System can have logistic intelligence.
- User interaction with apps.

AUTONOMOUS PARKING ROBOT
AUTONOMOUS PARKING ROBOT
The user experience is simple and direct: PARK and WALKAWAY
The user experience is simple and direct: Order your car with an APP and DRIVE AWAY
The logistic sophistication happens BEHIND THE SCENES
The garage can be easily converted to residential and office use, either in part or in totality.
ADAPTABLE GARAGE – in 2020
100% PARKING TYPICAL PARKING LEVEL PLAN
ADAPTABLE GARAGE - in 2035

PARKING LEVEL PLAN CONVERSION

PARKING REQUIREMENTS ARE REDUCED, EXCESS PARKING AREAS CAN BE CONVERTED TO OTHER USES.
WHAT DOES THIS MEAN IN MULTIMODAL CITIES?

- Build flexible parking capacity
- Disassociate parking from the individual buildings
- Partially utilize common areas and R.O.W. for smart automated solutions
- Also park private bicycles and ‘little vehicles’
Cleared away space for cars could create room for more bike parking, which is at a premium in central Amsterdam // René Coombs/Reuters

A Modest Proposal to Eliminate 11,000 Urban Parking Spots

FARAGUS O’SULLIVAN MAR 26, 2019

Amsterdam plans to systematically strip its center of parking spaces in the coming years, making way for bike lanes, sidewalks, and more trees.
<table>
<thead>
<tr>
<th>Ownership Model</th>
<th>On-Demand Services</th>
<th>Shared On-Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>All modes operate independently. Congestion, pollution, collisions, waste, noise. Public space dominated for parking and roads. Lack of funding to maintain system. Lack of supply means long wait times and high prices for on-demand. Lack of social equity.</td>
<td>Supply greatly increased for on-demand services but still out of reach for most. Sharing becomes viable. Car/bike and pool services emerge reducing costs. Shared Delivery services emerge reducing costs for suppliers and receivers.</td>
<td>Most vehicles are now shared vehicles, modes are integrated, trip costs are low enough for most users to participate. Supply is closer to being satisfied with shared services and parking demand peaks. TeeS is preferred way of navigating city.</td>
</tr>
</tbody>
</table>

**Shared & Connected**
Connected technology optimizes shared services. Collision avoidance technology and speed reduction reaching Vision Zero. Parking and street use demand is reduced enough to re-purpose some space to temporary uses. More equitable transport. Built out bike network.

**SECAV Model**
SECAV services are fully optimized. Fatalities eliminated Vision Zero goal met. Pollution, noise, costs, impacts minimized. Social equity and access significantly improved. Parking structures repurposed for affordable housing, streets become shared spaces for all.

The city will explore different types of partnerships at each phase to guide outcomes and help drive costs down so that all users can participate.

Figure 3. Phases of Conversion to SECAV Model

**Concept: Shifting from Owner to Experience Plan**
7 ‘INTERCEPT’ GARAGES ON THE OUTSKIRTS >> 750 CARS EACH

1 LARGE PARK AND RIDE STRUCTURE NEAR TRANSIT

APPROX. 10,000 CARS TOTAL

50,000 APARTMENTS FOR 6 STORY BUILDINGS

100,000 PEOPLE (WHO DON’T NEED TO DRIVE)

AND A LARGE PARK

P A R K I N G   D I S T R I C T
THERE IS A LARGE PARK NEAR THE CENTER
THE BLOCKS COULD LOOK LIKE THIS (AMSTERDAM)
THE BLOCKS COULD LOOK LIKE THIS (BROOKLYN)
THE BUILDINGS COULD LOOK LIKE THIS (COPENHAGEN)
...OR LIKE THIS (MALMOE)
...OR LIKE THIS (OSLO)
...OR LIKE THIS (LONDON)
MULTIFAMILY HOUSING WITHOUT PARKING (MALMÖ)
U.S. VERSION... (BROOKLYN)
U.S. VERSION... (QUEENS - NYC)
U.S. VERSION... (MID-CITY L.A.)
LOCAL URBAN PEDESTRIAN SCALE (LOS ANGELES)
LOCAL URBAN PEDESTRIAN SCALE (LOS ANGELES)
WE COULD BUILD A REAL DOWNTOWN AGAIN (GROVE)
LOCAL ‘BLOCK’ GARAGES

‘Intercept’ above ground perimeter garages (typ.)

‘Internal’ under R.O.W. residential garages (typ.)

Walkable traffic calmed neighborhoods

PARK