Driverless Urban Futures: A Speculative Atlas

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When introduced in the near future, driverless cars are antici-pated to be the first independent robots widely encountered by the public. Capable of sensing and navigating their sur-roundings, they are the embodiments of a digitally-networked future urban ecology, characterized by a paradigm shift in the relationship between vehicles, users, infrastructure, material flows, and the built environment at large. Driverless Urban Futures is a drawing-based research project that maps the pos-sible spatial and social impacts of driverless technology on the city of the near-future. Amidst the race between auto-manu-facturers to produce their own driverless car, and a multitude of arguments that support or criticize the technology, rarely have the unique disciplinary tools of architecture and design (particularly, the special representational and discursive agen-cies of drawing) been called into action—a contribution the drawings included here seek to make. Envisioning the future through drawing does not come without its own aesthetic and ethical questions. From a sociological perspective, the future constitutes a discursive space and an object of contestation, which is colonized by competing visions produced in and projected from the present. As Anthony Giddens contends, late-modern society the most future-oriented there has ever been, while our visions of the future are typically dominated by advances in technology. As a projective discipline, and one that is simultaneously concerned with, and informed by, tech-nology, how can architecture contribute to a responsive and responsible engagement with the future?

Conceived as a speculative atlas, Driverless Urban Futures visu-alizes the possible spatial, and consequentially, social, impacts of driverless vehicles on the city of the near-future. Its drawings comprise three open-ended 'roadmaps:' illustrations of narra-tive scenarios, diagrams of urban-scale spatial structures and temporal patterns, and vignettes of street-scale assemblies and interactions. The work is based on the contention that the act of drawing is essential to the practice of architecture,
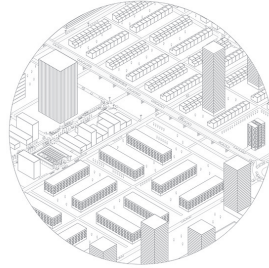
and that drawings possess agency and can serve as catalysts of imagination, facilitators of communication, and instigators of debate. Accordingly, in contrast to both the glossy renderings of car-manufacturers and the overly technical graphs of trans-portation researchers, the spatial diagrams and perspective collages seek to be simultaneously exacting and experimental. They are purposefully characterized by a graphic flatness and a display of their artificiality, drawn with a simple and slightly cartoonish hand, so as to make them legible and engaging for broad audiences. Likewise, while the specific elements of the drawings are rendered with care and precision, they are left purposefully abstract so as to suggest a possible, as opposed to a certain, future. Engendering a plurality of interpreta-tions—or even, of productive misreadings—can then become a means for drawing closer to the unpredictable consequences and unforeseen uses characteristic of new technologies. In addition, even though the drawings are predominantly spec-ulations on probable changes to the form and function of ele-ments of the built environment as a result of driverless vehicle technology, also implicit within this assembly of line-work is a 'drawing together' of many other matters of concern: from public space, infrastructure, and energy consumption to spatial practices, well-being, and social interaction. Jointly informed by the aesthetic and ethical concerns of future envisioning, the agency of the drawings is seen to reside in the spaces between contested futures and collective (mis)readings.

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Envisioning Contested Futures ////
///// The Aesth/Ethics of Drawing

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Street Scale Impacts //////////////
///////////////////// Flat Street

At the scale of the street, a series of isometric vignettes speculate on changes to road infrastructure, traffic control infrastructure, vehicle-pedestrian interaction, as well as building typology and program.
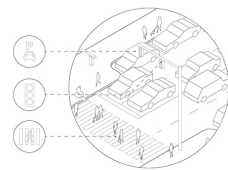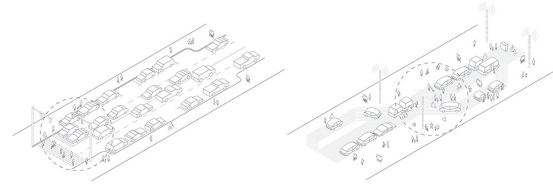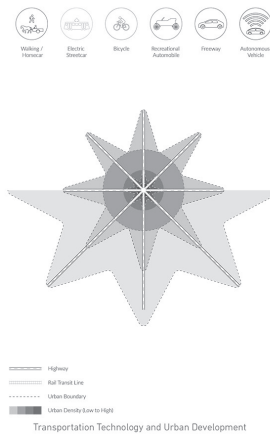

Typical Four-Lane Street with Curbside Parking
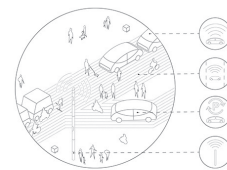
'Flat Street' with Passenger Drop-off Zones

Urban Scale Impacts //////////////
///////// Urban Growth Scenarios

At the urban scale, a series of relational and spatial diagrams explore possible changes and scenarios concerning urban growth, parking, road network, and transportation modes in relation to urban form.

Walking / Horsecar · Electric Streetcar · Bicycle · Recreational Automobile · Freeway · Autonomous Vehicle

Self-Driving Sprawltown: Urban Edge AV Frontiers

High-Speed Leap-Frog: Exurban AV Enclaves

Autonomous Compact: Shared-AV Densification

Highway
Rail Transit Line
Urban Boundary
Urban Density (Low to High)

Transportation Technology and Urban Development

Street Scale Impacts //////////////
/////////////// Residential Retool
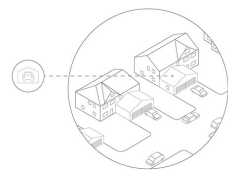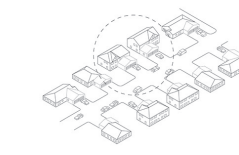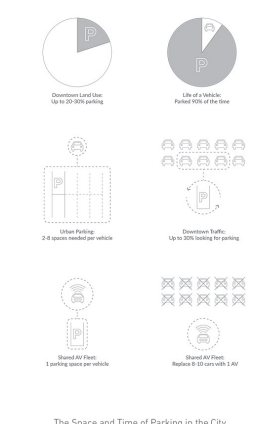

Single-family Residences with Automobile Garage
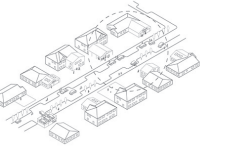
Conversion of Garage Space to Urban Programs

Urban Scale Impacts //////////////
//////////// Scenarios for Parking

Downtown Land Use:
Up to 20-30% parking

Life of a Vehicle:
Parked 95% of the time

Urban Parking:
2-8 spaces needed per vehicle

Downtown Traffic:
Up to 30% looking for parking

Shared AV Fleet:
1 parking space per vehicle

Shared AV Fleet:
Replace 8-10 cars with 1 AV

The Space and Time of Parking in the City

Parking Reshuffle: Resize and Redistribute

Parking-Free Density Islands: Driving in Circles

Parking Power: Vehicle-to-Grid Infrastructure Systems

Narrative Scenarios //////////////
////////////////// The Urbanite

A series of narrative scenarios, drawn in the form of perspective collages, explore the daily movements and activities of typical urban demographics, such as a suburban family, an urbanite, an elderly person, and a student.

Scenario 1: Work on the Go

Scenario 2: Urban Drop-off