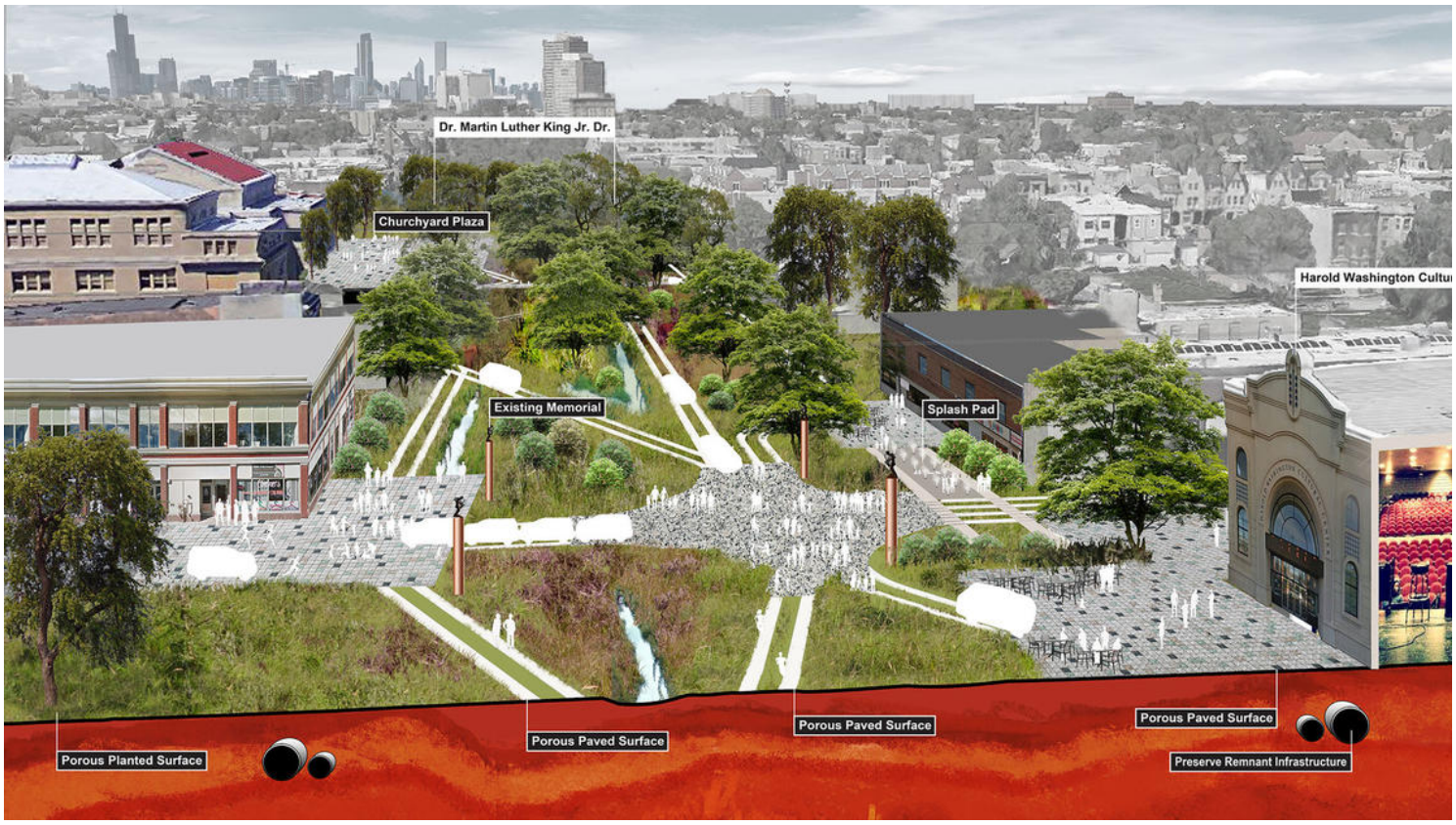
Driverless cars could change urban landscape



A rendering shows how driverless cars could lead to a transformation of city streets, in this case, a stretch of Chicago's Martin Luther King Drive. The road's wide stretches of asphalt would be replaced by thin strands of porous paved surface (shown here in white) that would accommodate driverless vehicles. New plazas and greenery would break down the traditional barrier between the sidewalk and the street. At lower right is the Harold Washington Cultural Center, 4701 S. Martin Luther King Drive. (The Driverless City Project/Illinois Institute of Technology)

By **Blair Kamin**
Chicago Tribune

FEBRUARY 18, 2017, 6:00 AM

The scenes are straight out of a Jules Verne novel or the 1960s cult cartoon "The Jetsons."

Driverless cars streak down the Stevenson Expressway, traveling in platoons for reduced wind resistance, while old-fashioned cars (the kind with people at the wheel) are consigned to a 65 mph slow lane.

Glassy passenger pods float above a Manhattan street, which has been transformed from an anonymous stretch of asphalt into a welcoming swath of trees, grasses and walking paths.

Idle speculation? No.

Even if these visions don't wind up forecasting the future with pinpoint accuracy, they give us a glimpse of something important: Architects and urban designers, including those in Chicago, have started shaping bold new city planning ideas to prepare for the coming era of the self-driving car.

These designers view driverless cars not simply as a new transportation technology, but as a kind of liberating agent that would free vast stretches of cities from the one-dimensional role forced on them in the auto age.

The possibilities are dazzling. If self-driving cars lead to a significant drop in the number of vehicles on the road, parking garages could be turned into apartments or stores. Curbside parking could be converted into rainwater-collecting bio swales that help prevent sewers from backing up. Roads would narrow. Sidewalks would widen.

More people would use trains because driverless cars would pick them up and finish the "last mile" of their journey. The remaining parking garages will be able to accommodate up to three times as many vehicles because driverless cars would be able to maneuver far more reliably than cars controlled by humans.

That, at least, is the utopian scenario, which also foresees self-driving cars giving the elderly, the disabled and maybe even children new opportunities to get around.

There is also a dystopian alternative offered by futurists who paint a picture of technology run amok: If autonomous vehicles dramatically lower driving costs and give people a new incentive to take to the road, streets could be overwhelmed. Suburban sprawl would increase rapidly as high-speed driverless cars cut commute times and make it profitable for builders to construct new subdivisions in distant exurbs.

Such disparate possibilities have galvanized planners, who are haunted by the technology-first mindset of the mid-20th century, when tight-knit ethnic neighborhoods were bulldozed to make way for expressways and roads sliced up sylvan parks.

"We must anticipate and harness the potential for positive change, instead of simply asking what changes driverless cars will force upon us," Marshall Brown, an associate architecture professor at the Illinois Institute of Technology, writes in "The Driverless City," an in-depth peek into the future that IIT published last year.

Underscoring that officials take such thinking seriously, officials at the Chicago Metropolitan Agency for Planning, who are preparing a 2050 regional plan for the area, have organized a June 22 forum on technology smart mobility in partnership with Brown.

To be sure, the era of autonomous vehicles, which relies on a combination of sensors and GPS, won't begin tomorrow. Numerous unknowns remain involving cost, safety, regulations. For the foreseeable future, car makers will continue to roll out flashy new sports cars and SUVs at the Chicago Auto Show, which ends its 2017 edition Monday.

Nevertheless, recent trends are combining to bring driverless cars closer to reality:

•The Itasca-based National Safety Council reported Wednesday that motor vehicle deaths shot up by 6 percent nationally last year, to 40,200. That's the rough equivalent of 96 fully loaded 747-400s crashing and killing everyone on board. That underscores the value of driverless cars, which are expected to dramatically reduce traffic fatalities.

•Silicon Valley companies such as Google are racing automakers such as Tesla and General Motors to bring fully autonomous cars to market. In a Chicago Tribune interview on the eve of this year's Chicago Auto Show, GM President Dan Ammann said driverless cars would be available "sooner than people think" and referred journalists to a video of a self-driving GM car zipping through the unruly streets of San Francisco.

•Unlike baby boomers who associate cars with freedom and see the vehicles as extensions of their personal identity, city-dwelling millennials are widely thought to view cars as an economic ball and chain: Cars mostly sit unused, depreciating in value, burdening their owners with monthly payments. Such changing values helped spur the unexpected growth of Chicago's I-GO car-sharing network, which the parent company of Enterprise Rent-A-Car bought for an undisclosed sum in 2013.

"When we started car-sharing in Chicago, people literally said 'there's no way that can work,'" said Sharon Feigon, the company's former CEO.

In response to this trend, Ammann said, GM is shifting away from its traditional business model of selling cars to repeat customers and is investing in ride-sharing, a move exemplified by its partnership with Lyft to build an autonomous vehicle fleet. Such fleets, Lyft President John Zimmer predicted last year, will account for the majority of Lyft rides by 2021. In cities, Ammann said, "We want car-based mobility, but we want to consume it in a different way."

With 4,600 miles of streets and a tradition of visionary urban planning that reaches back to Daniel Burnham, Chicago presents an ideal testing ground for designers exploring how driverless cars might upend the car-centric conventions of the 20th century.

At IIT, such efforts crystallized in the "The Driverless City," a 168-page book by Brown and fellow faculty members Lili Du, Laura Forlano, Ron Henderson and Jack Guthman, an adjunct professor and well-known Chicago zoning lawyer. The book serves up visions of the future that read like an update of Verne's Victorian-era novels, which foresaw the advent of inventions such as submarines. Take this description of future commuting patterns, which is rendered in the past tense:

"On heavily trafficked arterial roads in Chicago and cities throughout the country, human driving faded away as driverless cars become more affordable and widely available. ... Collisions and fender benders became rare events. ... The clutter of omnipresent traffic lights gave way to smaller furnishings with embedded infrastructure that helped control the flow of vehicles."

The book also offers a vision of how driverless cars might break down traditional barriers between street and sidewalk, nature and technology. Focusing on a proposed transformation of the South Side's King Drive, the

authors see parking spaces disappearing and vegetation sprouting in their place:

"Ground cover plants and water-tolerant plants now comprise the majority of the boulevard, while parallel paved rails serve high vehicle traffic zones and permeable pavers designate territories for pickup and drop off. ... Technological advances have made it possible for crosswalks to be eliminated."

In an extension of such thinking, done in an IIT design studio on the driverless city, graduate student Jamie Sun composed a rendering that suggests replacing the asphalt and cars of Manhattan's East 86th Street with levitating passenger pods, trees and grasses. Her plan — think of it as the Jetsons meets Frederick Law Olmsted — would extend the greenery of Olmsted's Central Park to the adjoining street.

Transportation experts caution that it will take a long time — and a dramatic shift in mindset — before Americans "no longer decide to *drive*, but to be *driven*," as Joseph Schofer, professor of civil engineering and transportation at Northwestern University, put it in an email. He is also skeptical about the perceived anti-car views of millennials.

"Will they eventually move to the suburbs and 'car up' when they have children and need good schools?" he asked.

Intermediate phases that combine driverless cars and driver-controlled "legacy vehicles" are likely, as are a wide range of disruptions caused by autonomous vehicles. BMW markets its cars as "The Joy of Driving," but how, IIT's Henderson wondered, does that slogan work with a driverless car?

The point is to plan now rather than be caught by surprise later — and to chart new visions that will guide decision-makers and the public as they come to grips with the impact of vehicles that allow letting go of the wheel. As Schofer observed: "It is not a matter of lying back and letting technology decide how we live, but deciding how we want to live and applying both policy and technology to achieve that."

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