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OPINION

Kinder Baumgardner
Managing Principal at SWA Houston

**THE REDUCTION
IN PARKING NEEDS
WILL OCCUR MUCH
FASTER THAN
CITIES CAN
SUSTAINABLY
GROW.**

Will autonomous vehicles revolutionize our urban landscapes sustainably? And if so, how? Kinder Baumgardner, managing principal at SWA Houston, has been researching this topic for a while. Here is his statement.

Ever since Google released a video of its cute self-driving car prototype in 2014, the blogosphere has parsed issues concerning insurance, ticket revenues, and safety. Questions about the built environment, however, are not getting enough attention: How will this revolution shift the basic economics of land use? And what are the design implications? The urgency becomes apparent when you consider current infrastructure projects. There isn't an agreed-upon standard for how to incorporate robotic cars into traffic models, or how much parking to include in new developments. We are building freeways and cities with infrastructure that will be redundant within 15 to 20 years. With "the internet of everything", autonomous vehicles will talk to each other and "know" what the others intend to do before they do it. They will travel closer together and organize themselves without lanes. Preliminary research shows traffic efficiency could increase by as much as 300 percent while speed limits are increased, making longer commutes in less time possible and requiring fewer travel lanes. This extreme influence on suburban land use will see more sprawl combined with bubbles of walkability and a redesign of the traditional suburban home. After the marriage of autonomous vehicles and app-based car sharing, we will subscribe to, not buy, cars. We will need less space to get where we're going, and less space to store the car. Even owned autonomous vehicles will move from place to place in the most efficient manner, self-park with other self-driving vehicles, and require less infrastructure. For instance, cars that need to pick up their owners at 4pm will park together in tight clusters, reducing the need for parking spaces by as much as 75 percent. The effect on urban land use will be profound. Urbanizing populations can't turn all that

surplus parking into housing. The reduction in parking needs will occur much faster than cities can sustainably grow. Converting parking lots and unneeded freeway lanes into parks and gardens sounds great, but cities don't have the resources to build or maintain that much new open space. Thus, significant portions of our cities may take 50 years to be repurposed from parking to permanent new uses. Urban rewilding will be a very real opportunity provided by autonomous technologies. This new parking reality will result in found spaces that will change the entrepreneurial culture of cities. The biggest barrier to entry for small entrepreneurs is often the parking requirement. As fewer parking spaces are needed, planning codes will change and many businesses will not be required to provide parking. Without the high cost of offering "free" parking to patrons, we will see an explosion of restaurants, bars, coffee shops and other experiential retail that Amazon Prime Now cannot deliver to your door. The idea of transit-oriented development will lose its meaning as development is no longer shackled to train and subway routes. Autonomous vehicles paired with social media will know where your friends are, will take you directly to restaurants with open tables, and will avoid places that the algorithms know don't interest you. This ease of moving from place to place will cause new walkable districts to quickly develop while place-making becomes more customized, artful and temporary. Experimentation in the private realm will explode as the drag of parking and need to be located near transit no longer drive real estate considerations. Meanwhile, a new urban open space aesthetic will fold nature into the heart of cities and suburbs. This new urban landscape will provide designers an opportunity to change how our cities perform.

Landscape architect KINDER BAUMGARDNER has performed in all corners of the U.S., but his current work often finds him in the Middle East and Africa. His specialty: Complex systems and open spaces.