



The compelling, autonomous case for an end to D.C.'s parking minimum requirements

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Even to a transportation nerd, the future of autonomous vehicles (AVs)—also known as “self-driving” cars—can seem shrouded in mystery and uncertainty. Predictions about the technology [vary widely](#), with some thinkers holding AVs up as [the solution](#) to car-dominated streets, while others [fear an autonomous dystopia](#) is on the horizon. The diverging visions of autonomous vehicles’ future espoused by carmakers and technology companies, and the speed with which the technology is evolving, have thrown a curveball at transportation planners charged with thinking ahead about large investments. However, with the global autonomous car industry expected to be worth [\\$42 billion](#) by 2025 and the D.C. Department of Transportation planning to invest [\\$4.5 billion](#) in capital improvements in the District by 2022, it’s clear that decisions made

today will significantly shape D.C.’s autonomous transportation future. Whether we recognize it or not, these investments will both affect and be affected by this emerging technology. Policymakers should not wait to react to AVs, but instead proactively incorporate autonomous vehicles into plans for the future now.

One smart move that local policymakers can make today in anticipation of autonomous vehicles is the removal of parking minimum requirements throughout the District. Whether autonomous vehicles are predominantly [personally owned, shared, or deployed as buses](#)—or even if they never become reality—this planning recommendation is a smart one. While [environmentalists](#) and [social justice advocates](#) have long argued for the removal of parking minimums, AV technology provides a politically-palatable economic rationale. Doing so will make D.C. a more vibrant and more sustainable city by reducing the price of building in the District, more fairly distributing the costs of parking, and better preparing the city for an autonomous driving future.

The state of parking now

Parking minimums, especially in a city like Washington, D.C. where many people already do not own a car, function as an unavoidable tax on car-owners and non-car owners alike. As of 2012, 38% of D.C. households did not own a car, and even more telling for the future, 88% of newcomers to the District between 2010 and 2012 moved here without a car. Thanks to Uber, Lyft, and the expansion of Capital Bikeshare since 2012, it’s likely that the number of carless households in D.C. has risen further in the last five years. Data on car ownership bears this out, as only 20,000 more private or commercially owned vehicles were registered in D.C. in 2015 compared to 2007, a 14 percent increase. In this same timeframe, the District’s population increased by nearly 100,000 people, a 17 percent increase.

D.C.’s population has grown at a faster rate than the number of registered cars

	Car registration	D.C. population
2007	161,267	574,404
2015	183,538	672,228
Change 2007-2015	+22,271	+97,824
Percent change	14%	17%

Source: FHA data for private & commercial auto registrations in [2007](#) and [2015](#); D.C. population data via [Google Public Data](#).

D.C. Policy Center

A study conducted nearby in Arlington, Virginia suggests that residential parking is already over-supplied in the region. The Metropolitan Area Planning Council found that Arlington's multi-family properties provide, on average, [1.4 parking spaces per unit](#), but residents currently use, on average, only 1.04 spaces per unit. These figures translate into a parking utilization rate of only 74%, which means that 26% of the money and land these housing developers spent on parking is already being wasted.

Autonomous vehicles will only expedite this trend in the future, as industry experts predict that most riders will not personally own AVs but instead access them via fleets managed by "mobility providers" similar to today's ride-hailing companies. As a result, the parking utilization rate in cities like D.C. will likely only decline further, and minimum parking requirements will be increasingly out of step with market demand.

The basis of this prediction is simple economics: According to the Department of Transportation's Bureau of Transportation Statistics, the average per-mile cost of car ownership in the U.S. in 2015 was [\\$0.57](#), and is likely greater in the District of Columbia because of higher car insurance premiums and other factors. Meanwhile, the average cost per mile of UberX today is roughly [\\$1.50](#). Because the cost per mile of using an on-demand vehicle is currently almost three times that of owning a car, personal car ownership still makes economic sense for many people. However, analysts expect the per-mile cost of an autonomous ride-hailing service to eventually be as low as [\\$0.35](#). If this comes to pass, and relying on autonomous taxi services soon becomes cheaper than car ownership, parking minimums will likewise become a quickly outdated regulation. Maintaining parking minimums therefore will become a tax on the carless majority of District residents to subsidize car ownership for a shrinking minority.

In the context of the rise of AVs, then, requiring developers to continue to hew to minimum parking requirements, especially in D.C., is essentially a burdensome tax on developers to fund soon-to-be-obsolete infrastructure. This tax is then translated into higher rents for apartments, retailers, and office-tenants, even those who do not use the available parking. For instance, a single parking spot in a structured parking garage in D.C. costs, on average, [\\$22,000](#) to build. Underground structured parking is even pricier, at [\\$29,000 per spot](#).

In 2016, the District [made progress](#) towards dismantling the parking minimums in some areas, most notably close to Metro stations, along high-capacity bus lines, and throughout downtown. In these areas, which encompass much of the city, parking requirements for residential and commercial properties were [essentially halved](#). However, elsewhere in the District, minimum parking requirements still exist for retail, apartments, and nearly all other structures. This may seem sensible with today's transportation technology, but cheap and reliable autonomous mobility in the form of [neighborhood shuttles](#) or autonomous taxi fleets will expand mobility to non-car-

owners outside major transit corridors as well. Thus, parking minimums will be obsolete not only near Metro stops, but throughout D.C. soon.

Take for example multi-unit apartment complexes. Currently, apartment buildings in D.C. with more than four units must provide one parking spot per every third unit, which translates into an added [\\$733,000 to \\$967,000](#) in construction costs for a 100-unit apartment complex. These costs must be recouped either through higher rents on residents, government subsidy of the development itself, or commuters or visitors paying to access any parking left unused. Charging higher rents to residents, who are increasingly [not car owners themselves](#), adds to already-high housing prices without improving housing quality. These higher prices mean less non-subsidized affordable housing in the District, which pushes middle-class families out to the suburbs. Using limited tax dollars to subsidize housing developments – indirectly paying developers to build unnecessary parking – diverts resources from affordable housing, transit, energy efficiency, or other priorities that actually make life easier for low- and middle-income residents of D.C. In a city facing a severe affordable housing crisis, parking minimums should be high on the list of government regulations to be cut in order to make housing easier and cheaper to build.

Parking trends

The arguments that parking minimum requirements artificially raise housing prices and burden lower- and middle-income renters, while valid, are nothing new to policymakers. What is new, however, is that widespread reliance on autonomous vehicles would cause that last parking revenue source—charging commuters or visitors to park—to disappear very soon. While renting out unused parking spots to non-residents distributes parking costs fairly to those who most benefit from it, it depends on consistent demand for short-term, well-located parking. Fully autonomous vehicles, whether shared or privately owned, will be able to park themselves, thus reducing demand for parking adjacent to one’s destination.

Even if many people continue to own their own cars—[a big if](#) according to many AV technology experts—these cars will be able to be parked far more efficiently and consume [less space per vehicle](#) than non-autonomous vehicles. These personally-owned AVs could simply drop their owners off at work, return home, and wait to depart again until the workday is done. Such zero-occupancy vehicles traveling the streets would [dramatically raise vehicle-miles-traveled](#) and carbon emissions, but would still lead to far lower demand for parking overall, and urban parking specifically. Regardless of whether they’re shared or personally owned, all AV scenarios point to markedly reduced parking demand in urban settings like D.C.

The existing trend of more District residents foregoing car ownership foreshadows an autonomous future where high demand for centrally-located parking no longer exists. Large, little-used parking garages will become stranded assets for real estate investors and financial burdens on low and middle income renters. Mandating that parking be added to buildings constructed today is the modern equivalent of requiring a minimum number of horse stables in all new developments in the early 20th century. It simply does not make sense any longer and it could reduce the future real estate value of projects built today.

Importantly, removing parking minimum requirements does not by any means set a cap on parking; rather, it allows the market to determine the necessary amount and location of parking. For instance, after [London's planners replaced their city's parking minimum requirements](#) with parking maximums, they found that only 17 percent of new residential developments in the following six year span added as much parking as was previously required, a quarter provided no parking whatsoever, and only 22 percent hit the parking max. Essentially, adding parking still made sense in some instances, but demand for parking-free and parking-light housing was able to be addressed. Similarly, removing parking minimums throughout the District—not just near Metro stops—would allow D.C. developers to more accurately respond to demand now and for the future.

Mandating parking minimums is especially wasteful and costly in D.C. because it is uniquely situated to adopt autonomous vehicles in a shared manner in the near future. D.C.'s walkable streets, expanding cycling infrastructure, and ongoing investment in mass transit make it an increasingly easy and enjoyable place to live without a car. Shared AVs—essentially driverless taxis—could make car ownership optional even for those who still anticipate regular car travel. People holding on to their cars for weekend and evening trips off the main transit lines will soon be able to access on-demand autonomous transportation to anywhere for as little as \$0.35 per mile. It's thus easy to see why AVs will lead to reduced car ownership and therefore less demand for parking in the District.

Looking forward: How can we use AVs to build a better city?

Parking minimum requirements, in place in D.C. [since 1958](#), have outlived their useful life. No longer necessary to advance the car as the transportation technology of the future, parking minimums are now standing in the way of building a more equitable, sustainable, and economically vibrant D.C. It is perhaps fitting then that what may finally bring about their demise is the new transportation technology of tomorrow—autonomous vehicles.

AVs are on the horizon, and their arrival will bring many changes—not only to the physical layout of our city, but to many other aspects of life in D.C. That being said,

policymakers should keep in mind that autonomous vehicles are not something to be planned for, but rather a new tool with which to plan. In other words, we shouldn't simply anticipate the effects of AVs, but rather use the benefits of this new technology to make D.C. a stronger, better city for all its residents. With this in mind, District planners can make smart decisions today that will harness the benefits of autonomous vehicles and minimize negative impacts. Removing parking minimum requirements now will give this city the fundamental infrastructure it needs to thrive in the coming self-driving era and beyond.