

Policy and Jurisdictional Scan

History of Parking Requirements

As cars became more prevalent throughout the twentieth century, many municipalities across North America began to incorporate minimum onsite parking requirements in their zoning bylaws. These regulations were generally designed to ensure that each property could accommodate their highest parking need, known as peak demand, and avoid any parking spillover on adjacent properties. For example, the parking supply of shopping centres was traditionally designed to accommodate the parking needs of Christmas week, meaning that many spaces would be empty for the remainder of the year.

Edmonton first introduced minimum parking requirements in 1964 as part of Zoning Bylaw No. 2135. Reports describing the rationale for these initial requirements are not available, however a study completed in 1973 provides some additional context. This study was undertaken to inform additional amendments to the parking requirements, many of which are still in place today. The 1973 study was completed at a time when Edmonton's population was 451,635 and the area of the city was roughly half its current size. As shown in Figure 1, the outer areas of Edmonton in 1973 were considered anything beyond what is now considered the central core. This study led to a Zoning Bylaw amendment in 1974. Many of the parking requirements introduced at that time remained largely unchanged in the Zoning Bylaw for decades, aside from minor changes that were typically due to the introduction of new use classes.

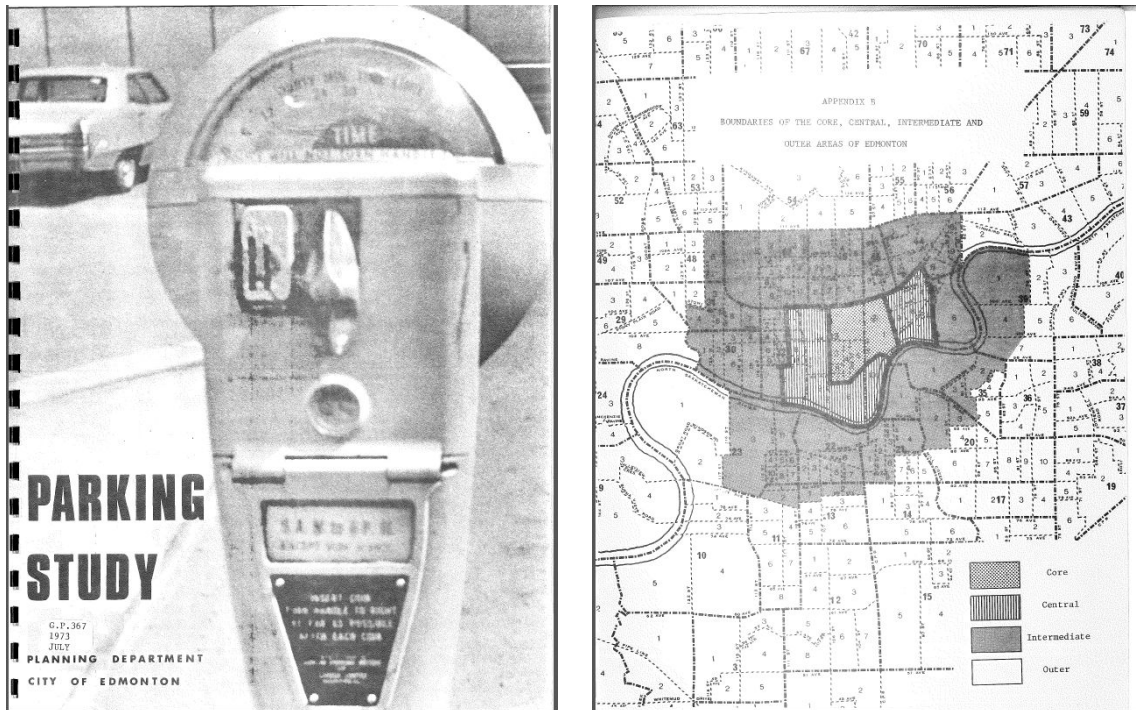


Figure 1 - 1973 Parking Study, City of Edmonton

Current state

Zoning Bylaw 12800 organizes most parking requirements into four categories: commercial, residential, institutional, and industrial.

The City of Edmonton's onsite parking requirements provide rates for over distinct uses or activities across these four broad categories. Some rates are applied to general categories, for example all industrial uses, and based on gross floor area. Others rates are very specific, for example specifying the number of parking stalls based on the number of sheets of ice in a curling rink.

Existing requirements in Zoning Bylaw 12800 reflect all three approaches to regulating parking. Minimum parking requirements apply to most homes and businesses in Edmonton, however some downtown area and specific business types have open option parking, and maximum parking requirements currently apply to residential development in proximity to transit and for commercial and residential development in the downtown.

Starting in 2010, City Council approved successive reductions and removals of parking minimums across Edmonton. Figure 2 below provides a simplified timeline of these changes. Please note, 100 percent reduction indicates the removal of minimum parking requirements.

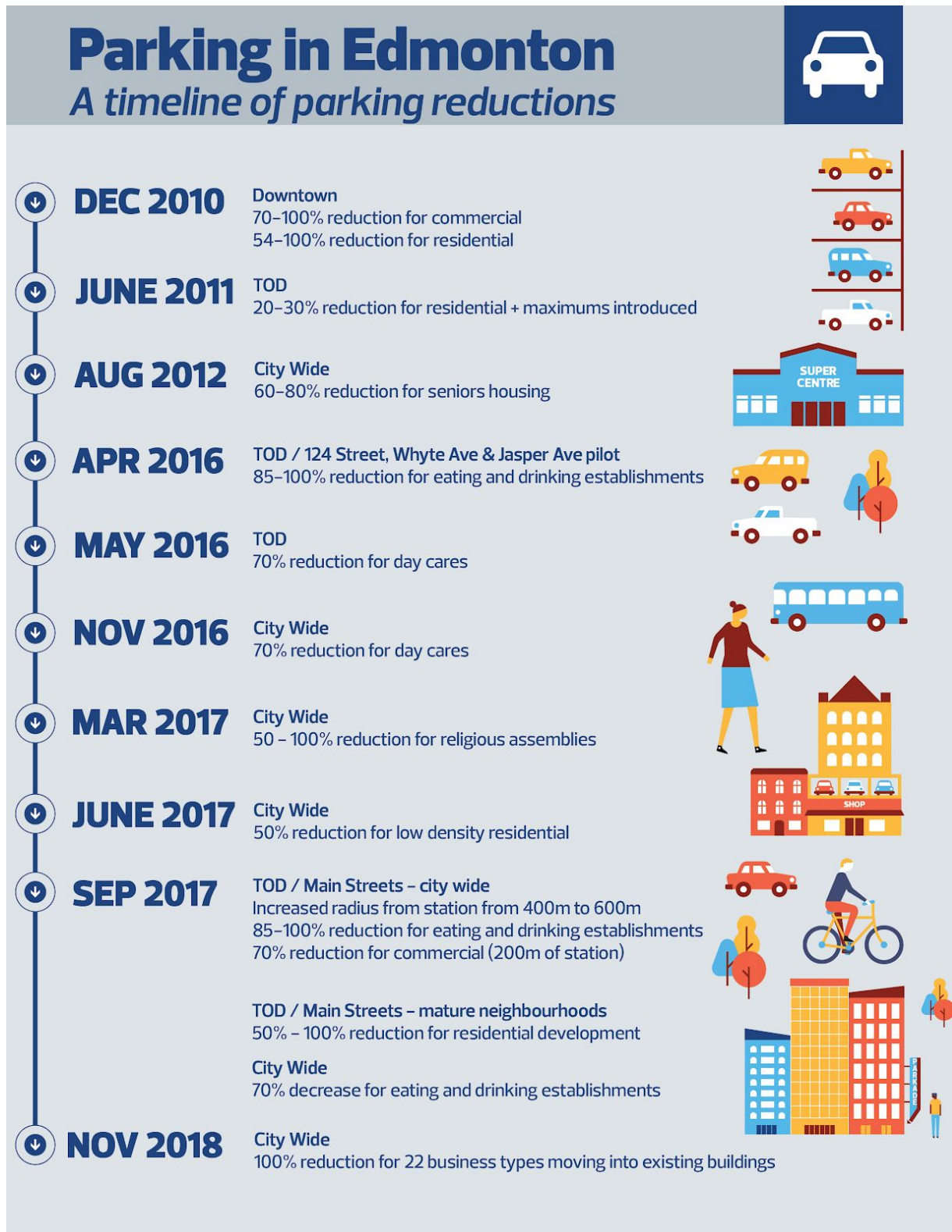


Figure 2 - Timeline of parking changes in Edmonton

In addition to these specific amendments, Administration has presented a number of other recent reports related to parking. The July 4, 2017, Urban Form and Corporate Strategic Development report CR_4190 *Alternative Downtown Tower Uses* identified reduced parking rates for mixed use and residential conversion buildings as an important component of encouraging downtown investment. The January 16, 2018, Urban Form and Corporate Strategic Development report CR_5186 *Parking Requirements in New or Expanded Developments* also spoke to the need to balance the risk of under and over supply of onsite parking. It highlighted that an oversupply of onsite parking can lead to increased costs, less efficient use of land, and lost investment opportunities, whereas on-street parking can provide a flexible resource that can be adapted to evolving conditions, be effectively managed through a variety of parking management tools, and make efficient use of existing infrastructure. Research related to an upcoming report, CR_6103 *Zoning of Affordable and Supportive Housing* anticipated for the June 11, 2019, Urban Planning Committee, will also share findings from conversations with affordable housing providers that found that minimum parking requirements create a barrier to delivering affordable housing in Edmonton.

Current Policy

The Way We Grow

Edmonton's Municipal Development Plan, *The Way We Grow*, sets out a vision for Edmonton's evolution into a "compact, transit-oriented, livable, healthy and sustainable urban form." Parking requirements in the Zoning Bylaw have a direct role in meeting these objectives, including promoting compact development, encouraging alternative forms of transportation, and the cost and diversity of housing. In addition to the high level vision of *The Way We Grow*, there are a number of policies that speak directly to parking that highlight the need to minimize the impact of parking and to consider it strategically to support other objectives.

- 5.3.1.1 Develop guidelines to establish land use and urban design expectations at existing and planned LRT stations, and at transit centres and selected transit avenues. Design components of the guidelines will:
 - Focus on design elements that support transit use, manage parking and transportation demand...
 - Minimize adverse effects of redevelopment on surrounding neighbourhoods by... managing traffic and parking impacts.
- 5.5.1.3 Ensure new large scale commercial centres (including big box development and retail power centres) are designed to:...
 - Reduce the visual and environmental impact of large hard surface parking lots.
- 5.6.1.2 Encourage new development to locate and organize vehicle parking, vehicle access, service areas and utilities to minimize their impact

- on the property and surrounding properties and to improve the safety and attractiveness of adjacent streets and other public spaces.
- 5.7.1.3 Undertake streetscape improvements to create high quality public spaces through tree planting and landscaping, pedestrian scale lighting, good quality street furnishings and decorative paving and through design approaches that reduce impacts of parking and public utilities on the quality of the pedestrian environment.
 - Definitions: Transit Oriented Development (TOD): ...TOD features include:...
 - parking provided behind or underground buildings, with some on-street parking.

The Way We Move

Edmonton's Transportation Master Plan, *The Way We Move*, speaks to an integrated approach between the transportation system and land uses to support the creation of "an efficient, sustainable, compact, and vibrant city that maximizes the effectiveness of its investment in transportation infrastructure." It also calls for a "walkable, cycle-friendly city [to support] the creation of a healthy, barrier-free, age-friendly and safe city where active modes are a preferred transportation choice." Parking requirements play an important role in ensuring these objectives can be achieved by promoting mode choice, and creating more compact and walkable communities. A number of policies speak specifically to parking regulations:

- Strategic Objective 7.4: The City will develop a parking management strategy through a combination of Bylaws and Policies to ensure the livability and economic vitality of the city and to promote appropriate land use and public transit initiatives.
 - Strategic Actions:
 - a) Managing on-street and on-site parking to strategically anticipate and respond to projected parking supply constraints or surpluses, provide convenient business access and influence sustainable travel choices.
 - b) Developing land use and parking policies that manage the supply of parking provided for a development with a focus on providing only essential parking and supporting Transportation Demand Management.
- Section 4.1 that speaks to transportation and land use planning specifically calls for:
 - Moderating the supply of parking at selected, higher density trip destinations to encourage the use of transit and other alternative modes.
 - Avoiding or minimizing land uses near transit nodes that are auto-oriented or that require significant amounts of parking.

- Section 5.5: “Transit faces several disadvantages related to the price of travel, although recent environmental issues and energy prices may reduce these disadvantages. Free parking is the most significant (especially at workplaces), since it often reduces the perceived costs for most automobile trips to below the cost of a transit fare.”

Energy Transition Strategy

Edmonton’s Energy Transition: Building a Climate Resilient Edmonton sets out a plan to address and mitigate climate change, including the reduction of greenhouse gas emissions. The importance of focusing development around transit and the role of parking in shifting transportation mode is highlighted in a number of policies.

Opportunity Area: Land Use, Transportation and Development

- 4.4.2 Transit Oriented Development: Capitalize on the opportunity for Transit Oriented Development (TOD) to accommodate growth in Edmonton’s existing neighbourhoods
- 4.4.10: Assess and implement parking strategies in commercial corridors and transit oriented development areas. Consider:
 - (a) removing minimum and reducing maximum parking requirements for new developments and
 - (b) unbundling parking spaces from apartment and condominium developments so residents recognize the cost of vehicle storage

The City Plan

While still an emerging policy document, The City Plan’s Big City Moves point to a number of outcomes influenced by parking requirements, including how residents move around the city, land can be used most efficiently, and regulatory processes can be streamlined.

- A Community of Communities: “...local community hubs and social gathering spaces are linked by a range of efficient mobility options and walkable features.”
 - Edmontonians should not feel constrained to use a single mode of transportation - true freedom of mobility means having the ability to choose whichever mode makes the most sense for a given journey and, ideally, to limit the need to travel long distances to access daily needs at all.
- A Rebuildable City: “...continuously adapting and re-imagining our built environment to meet the needs of the future.”
 - Designing new and existing neighbourhoods, sites, street networks, infrastructure and the public realm for increased efficiency and improved adaptability.
 - Repurposing underutilized sites (e.g., power centres, vacant lots) to enable new development opportunities with a mixture of uses.

- Catalyze and Converge: "...our city can collectively perform as an entrepreneurial hub that supports the assembly of investment, innovation, and technology."
 - Reduce administrative and regulatory barriers to make it increasingly easier to 'make things' here.

Evolving Infill - Infill Roadmap 2018

Throughout the Evolving Infill process, parking was highlighted as a barrier to delivering infill in Edmonton. In particular, it was flagged that parking requirements add to the cost of infill as the cost of land is at a premium and structure parking can add considerable expense to projects. This feedback led to the inclusion of Action 20 in *Infill Roadmap 2018*:

- "Reduce barriers to infill caused by parking requirements as part of the Comprehensive Parking Review."

Missing Middle

Discussions with stakeholders as part of the medium density zone review have highlighted parking as a key barrier to delivering missing middle housing forms due to cost and site constraints. The current approach to parking requirements also creates a particular disincentive for larger family-oriented dwellings in missing middle housing forms, as units with more bedrooms require more parking spaces. The *Market Housing and Affordability Study* undertaken as part of Evolving Infill also noted the potential for more flexible parking requirements to enable low and mid-rise apartment buildings. In particular, it flagged project specific parking calculations that could take into account proximity to transit, shared parking, the walkability of neighbourhoods, and lifestyle choices as an approach to encourage this type of development.

Jurisdictional Scan

Similar to Edmonton, the vast majority of North American cities currently have minimum parking requirements, generally introduced in the 1960s and 1970s. Recent years have been witness to a growing number of municipalities revisiting and removing minimum parking requirements and allowing for open option parking. As highlighted in Table 1, at least 103 North American cities have removed minimum parking requirements in at least a portion of their municipality. This could include downtown or central neighbourhoods, near transit, or in historic districts of the city.

In addition to the municipalities that have reduced parking requirements, there are also at least eight that have removed minimum parking requirements across the entire municipality. As highlighted in Table 2, removing minimums has been implemented in a range for city sizes and urban contexts.

Table 1 - Summary of North American Cities with open option parking

Total Cities	City Wide Open Option	Geographic Open Option*	Use-specific Open Option	Maximum Parking
104	8	129	35	15

*Values add to more than 104 because some cities have eliminated minimums in more than one type, such as in downtown and in special character areas.

Table 2 - North America that have fully implemented open option parking

City	State/Province	Country	Population #
Mexico City	Mexico City	Mexico	8,918,653
San Fransisco	California	USA	884,363
Buffalo	New York	USA	258,612
Hartford	Connecticut	USA	123,400
Mount Pleasant	Michigan	USA	26,016
High River	Alberta	Canada	13,584
Branson	Missouri	USA	10,520
Ashland	Wisconsin	USA	8,216

Research

The movement to reduce or remove minimum parking requirements has been driven by increased research into the impacts of parking in urban environments, including such texts as *The High Cost of Free Parking* by Donald Shoup, and movements such as Strong Towns, an international non-profit movement focused on making communities across North American financially stronger and resilient. A number of academic papers and research initiatives have also been undertaken that provide further data on the implications of minimum parking requirements including affordability and transit ridership. The following section outlines the findings of a number of representative studies.

A study of five Transit Oriented Developments found that areas around stations with diverse land use and pedestrian friendly designs led to parking demand that was less than half of the standard parking demand guidelines. Trip generation was also half of what was predicted with standard models, with more trips being done through transit or other active modes.¹ A study from Vancouver, BC, also found that there was fifteen percent lower parking utilization for homes located close to transit, and in the City of Seattle, there was a fifty percent decrease in

¹ Ewing, R., Tian, G., Lyons, T., & Terzano, K. (2017). "Trip and parking generation at transit-oriented developments." *Landscape and Urban Planning*, 160, 69-78.

parking utilization for homes located near transit. Two studies from Toronto² and Washington³ similarly found that the city context has an impact on parking usage, with multi-unit homes located within central areas of the city tending to have half the parking requirements as other areas.

In another study, a parking demand survey was done to count overnight parking utilization in residential parking lots. These surveys consistently found a third of spaces empty, even in Transit Oriented Development areas that had reduced parking requirements. They estimated the total additional construction cost of unused parking spaces in a 100 unit apartment building to be US\$825,000 and note how this cost detracted from other neighbourhood investments, such as additional or affordable units and other community amenities. The study also specifically highlighted the challenges that minimum parking requirements create in delivering “missing middle” housing forms, and discourages affordable housing near transit where the cost of land is at a premium.⁴

One study from Edmonton looked at the effect of parking requirements on condominium prices in the Downtown and Oliver neighbourhoods. The study found that minimum parking requirements led to a surplus of provided parking, the cost of which was passed onto consumers through higher purchase prices.⁵ Another study looking at the impact of parking requirements on housing affordability found that a requirement of one parking space per unit can increase the cost of the dwelling by 12.5 percent, increasing to 25 percent when two spaces are required.⁶

A study by the American Public Transportation System modelled out the impact of surface parking lots versus residential development in proximity to transit. It was found that a surface parking lot will typically yield 110 to 120 boardings per day per acre, whereas residential development at 100 units per hectare would yield 120 to 130, while also providing higher tax revenue for the municipality.⁷ Other studies have highlighted that excessive parking in Transit Oriented

² City of Toronto. (2007). Parking Standards Review – Phase Two Apartment Building/Multi-Unit Block Developments Component, New Zoning By-law Project. Available online at: https://www1.toronto.ca/city_of_toronto/city_planning/zoning__environment/files/pdf/cansult_final_apart_stds.pdf

³ Rowe, D., McCourt, R.S., Morse, S., & P. Haas. (2013). Do Land Use, Transit, and Walk Access Affect Residential Parking Demand. *The ITE Journal*, pp 24-28.

⁴ Centre for Neighbourhood Technology, *Stalled Out How Empty Parking Spaces Diminish Neighborhood Affordability*. Chicago, March 2016.

⁵ Jung, Owen. *Who Is Really Paying For Your Parking Space? Estimating the Marginal Implicit Value of Off-Street Parking Spaces for Condominiums in Central Edmonton, Canada*. Presented at the Transportation Research Board 90th Annual Meeting, 2011

⁶ Victoria Transport Policy Institute. (2016). *Parking Requirement Impacts on Housing Affordability*, pg. 14. Available online at: <http://www.vtpi.org/park-hou.pdf>

⁷ American Public Transportation Standards Development Program Recommended Practise Transit Parking 101 | APTA SUDS-UD-RP-008-15. American Public Transportation Association. Washington DC, December 2015.

Development areas can reduce community benefits and even lead to failure of the initiatives.⁸

One study in Los Angeles found that minimum parking requirements were preventing the reuse of existing apartment buildings. Relaxing those amounts allowed for reinvestment and community revitalization in those areas.⁹ A study from eight locations in California looked at the outcomes of companies paying staff cash in lieu of subsidized parking. It was found that drive-alone rates fell 17 percent, carpooling increased by 64 percent, the number of transit riders increased by 50 percent, and the number who walked or biked to work increased by 39 percent.¹⁰

In addition to behavioural shifts leading to a change in transportation modes, a number of studies have also highlighted the potential for emerging technologies to lower parking needs in the future. One study from the University of Toronto showed that parking lots designed for autonomous vehicles could accommodate 62 to 87 percent more vehicles than traditional cars.¹¹ Another study predicted that the space required to accommodate parking demand could decrease by up to 90 percent on sites that adopt a shared autonomous vehicle system.¹² Studies have also highlighted how conventional car sharing programs have the potential to impact parking demand in the future. One research paper looking at residential developments in San Francisco found that carshare members have significantly lower rates of car ownership, leading to less parking demand.¹³

⁸ Zhang, Ming, et al. *Getting Parking Right for Transit-Oriented Development*. Centre for Transportation Research, Austin. March 2012.

⁹ Manville, Michael & Shoup, Donald. *Parking Requirements as a barrier to housing development: regulation and reform in Los Angeles*. University of California Transportation Center, March 2010

¹⁰ Shoup, Donald. *Evaluating the effects of cashing out employer-paid parking: Eight Case Studies*. Transport Policy, Volume 4, Issue 4, October 1997. Pages 201-216

¹¹ Mehdi Nourinejad, Sina Bahrami, Matthew J. Roorda. *Designing parking facilities for autonomous vehicles*. Transportation Research Part B: Methodological, 2018; 109: 110

¹² Zhang, Wenwen, *Exploring the impact of shared autonomous vehicles on urban parking demand: An agent-based simulation approach*. Sustainable Cities and Society, Volume 19, December 2015, Pages 34-45

¹³ Jessica ter Schure, et al. *Cumulative Impacts of Carsharing and Unbundled Parking on Vehicle Ownership and Mode Choice*. Journal of Transportation Research Board, Volume: 2319, Issue: 1, January 1, 2012, page(s): 96-104