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PARKING AND MIDDLE HOUSING

Analysis of Demand and Impacts – Implications for Middle Housing Rulemaking

The purpose of this document is to summarize research regarding minimum parking requirements to better understand their potential impact on the provision of middle housing and inform administrative rulemaking as to what constitutes unreasonable cost or delay in relationship to minimum parking requirements.

The data analysis and literature review outlined in this document serve to answer two primary questions:

- 1.) *What is the anticipated **demand** for off-street parking in middle housing types permitted by HB 2001? How does this demand vary between jurisdictions throughout the state by occupancy characteristics and household size?*
- 2.) *What direct and indirect **costs and impacts** do minimum parking requirements impose on middle housing development? Who pays those costs?*

Parking Demand

A key discussion point regarding minimum parking requirements is the observation that existing parking needs in local jurisdictions are often not met, necessitating a minimum parking requirement beyond one space per unit to ensure sufficient parking spaces are provided. Frequently, the basis for this argument is the observation that individuals in rural (i.e. non-Metro) and smaller cities typically have more than one vehicle per household and are more reliant on vehicles as a primary mode of transportation.

A follow-up question to this observation is whether this observation is supported by empirical data. To answer this, this analysis utilizes ACS 2013-2017 data to assess vehicles per household by tenure (Table B25044) and household size (Table B08201). Below are key findings from ACS 2013-2017 data for medium and large/Metro cities. Results of this data analysis presented in a visual format are available in Exhibits A and B of this document.

Please note that according to the U.S. Census Bureau, a “household includes all the persons who occupy a housing unit as their usual place of residence... The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.” In other words, a “household” includes unrelated persons who share an occupancy, such as roommates.

Tenure Type and Vehicle Ownership (Exhibits A.1 though A.3)

- *Owner-occupied households tend to have between one or two vehicles per household.*
The largest share of owner-occupied households have two vehicles, though many have one vehicle or three or more vehicles.
- *Renter-occupied households predominately have no or one vehicle per household.*
For most jurisdictions, more than half and up to two-thirds of renter households have zero or one vehicle.
- *Renter-occupied households often have zero vehicles.*
It varies pretty significantly by jurisdiction, but typically between one fifth and one quarter of renter households have zero vehicles.



Household Size and Vehicle Ownership (Exhibit B.1-3)

- *Household size corresponds to vehicle ownership.*
The vast majority of one-person households have zero or one vehicle, two-person households typically have one or two vehicles, and the number of vehicles available increases as household size grows.
- *Smaller households (one and two-person) comprise the vast majority of households.*
For all jurisdictions, one and two-person households comprise more than one half and up to three-quarters of households.
- *For all household sizes, households with zero or one vehicle comprise between one-third and one-half of households.*
Under a two space per unit parking minimum, these households would be forced to pay to address an issue that they do not contribute to.

Regional Variation in Vehicle Ownership (Exhibits A and B)

- *While Portland has a somewhat higher proportion of households with zero or one car, cities within the Metro typically have similar or higher rates of vehicles available than non-Metro large and medium cities.*
Households in non-Metro medium and large cities typically have fewer vehicles than Metro households, though this varies between cities.
- *In general, the communities with the greatest vehicle availability appear to be affluent, far from economic centers, and contain a relatively low proportion of smaller (one- and two-person) households.*
Sherwood, Happy Valley, and West Linn contain some of the highest rates of vehicles available per household statewide.

Conclusion

The key takeaway from these findings is there is a degree of truth behind the claim that many households have two cars, but it is really contingent on tenure and household size. Large and medium cities outside of the Metro seem to have similar or, in many cases, lower vehicle ownership rates than Metro cities, especially in comparison to affluent, exurban communities.

For all cities, the majority of smaller and rental households have zero or one car, and requirements for additional off-street parking create an additional cost that these households have to bear with no benefit either to the household or community at large. This represents what economists refer to as deadweight loss or lost economic efficiency. Unlike taxes, which can be reinvested to offset deadweight loss imposed by the tax, parking requirements do not raise revenue to reinvest, so the deadweight loss imposed by parking mandates are borne entirely by households and producers.

Of course, if these costs were minimal, then there may be justification for allowing a two-space per unit minimum, but these costs often pose substantial barriers to the production and affordability of housing, running counter to the legislative intent of HB 2001 to create more housing, especially housing that supplies smaller, often less expensive, infill development on already developed properties.

Parking Cost and Development Impact

While there is limited literature on middle housing specifically, there is a wealth of academic and economic literature that provides insight as to how minimum parking requirements affect housing development. Exhibit C contains a bibliography summarizing the review of relevant academic and economic literature. The key takeaways from this review are summarized below:



- *Minimum parking requirements substantially increase the costs of housing and development both directly and indirectly.*

Nationwide, the cost of garage parking to renter households is approximately \$1,700 per year, or an additional 17% of a housing unit's rent.¹ One parking space per unit increases costs by approximately 12.5%, and two parking spaces can increase costs by up to 25%. This effect is more pronounced for lower priced housing. Additionally, increased surface parking reduces the maximum potential development density (units per acre) for any given project. This effect is proportionally greatest for smaller units.²
- *These costs disproportionately impact renters and lower-income households, especially ones without vehicles.*

Lower-income and rental households have proportionally fewer cars and often are paying for parking that they do not need or want. The estimated direct deadweight loss for carless renters nationwide is an estimated \$440 million annually, and disproportionately burdens those with the least ability to pay.¹
- *When left to market conditions, developers typically provide some degree of off-street parking.*

In 2012, Seattle reduced or eliminated parking requirements in many areas. Seattle's parking reforms led to 18,000 or 40% fewer parking spaces, saving \$537 million, but about 70% of developments with no parking requirements did include some parking.³ In Portland, developers typically provide 0.7 parking spaces per unit when left to market conditions.
- *There are more efficient and equitable alternatives to minimum parking requirements to ensure adequate on-street parking and incentivize developers to construct off-street spaces.*

Off-street parking mandates do not necessarily fix on-street parking issues, because there is no mechanism for jurisdictions to require residents to use off-street parking spaces in lieu of available street parking. On-street parking management districts and programs eliminate the incentive for developers to allow parking to spill-over into the street and incentivize the construction of parking if tenants have cars.⁴
- *Minimum parking requirements incentivize developers to build less affordable and larger housing types and increase the subsidy required to finance subsidized development.*

Minimum parking requirements - by prohibiting units with little or no parking - reduce profits earned by building units for lower-income market segments, discouraging the production of small units and incentivizing developers to serve higher-income market segments.⁵
- *Bundled parking and increased provision of parking appears to be a cause of increased automobile mode share, rather than driven by it.*

Households without bundled parking, controlled for vehicle ownership and other factors, are more than twice as likely to utilize transit and 60-80% more likely to be vehicle free.⁶ There is a strong association between the provision of parking spaces and automobile mode share,

¹ Gabbe, C. J., & Pierce, G. (2017). Hidden costs and deadweight losses: Bundled parking and residential rents in the metropolitan United States. *Housing Policy Debate*, 27(2), 217-229.

² Litman, T. (2019). Parking Requirement Impacts on Housing Affordability. *Victoria Transport Policy Institute*.

³ Gabbe, C. J., Pierce, G., & Clowers, G. (2020). Parking policy: The effects of residential minimum parking requirements in Seattle. *Land Use Policy*, 91, 104053.

⁴ Shoup, D. (2013). On-street parking management v. off-street parking requirements. *The access almanac*, 42, 38-40.

⁵ Lehe, L. (2018). How minimum parking requirements make housing more expensive. *Journal of Transport and Land Use*, 11(1).

⁶ Manville, M., & Pinski, M. (2020). Parking behaviour: Bundled parking and travel behavior in American cities. *Land Use Policy*, 91, 103853.



and there is compelling evidence suggesting this relationship is causal (i.e. increased provision of parking results in increased automobile usage).⁷

Implications for Rulemaking

The perceived demand for two parking spaces per household is not supported by best available statewide data (ACS 2013-2017), especially for smaller and rental households. In all cities impacted by HB 2001, the majority of smaller and rental households have zero or one car, and requirements for additional off-street parking create an additional cost that these households have to bear with no benefit either to the household or community at large.

The cost imposed by minimum parking requirements is thousands of dollars per space for surface parking and far more for garage or covered spaces. Those who bear the brunt of costs imposed by minimum parking standards are disproportionately renter and lower-income households as well as households with fewer vehicles. Furthermore, such requirements place a steep cost on housing development and results in fewer units produced, especially for smaller and more affordable housing types. Additionally, minimum parking standards have not demonstrated efficacy at managing on-street parking issues in comparison to alternatives, such as on-street parking management districts and programs.

Furthermore, [Executive Order 20-04](#) directs the Department to “exercise any and all authority and discretion vested in them by law to help facilitate Oregon’s achievement of the GHG [greenhouse gas] emissions reduction goals set forth in paragraph 2 of this Executive Order”. There is a robust correlation with minimum parking standards and increased automobile mode share, and compelling evidence that greater minimum parking standards are a cause rather than a symptom of increased automobile mode share.

Given the best available evidence to the Department, allowing jurisdictions to impose more than a two-space minimum parking mandate for duplexes would be contrary to the Department’s statutory obligations under HB 2001 and EO 20-04.

⁷ McCahill, C. T., Garrick, N., Atkinson-Palombo, C., & Polinski, A. (2016). Effects of parking provision on automobile use in cities: inferring causality. *Transportation Research Record*, 2543(1), 159-165.

Exhibit A.1 Vehicle Ownership by Tenure - Metro Cities

American Community Survey 2013-2017

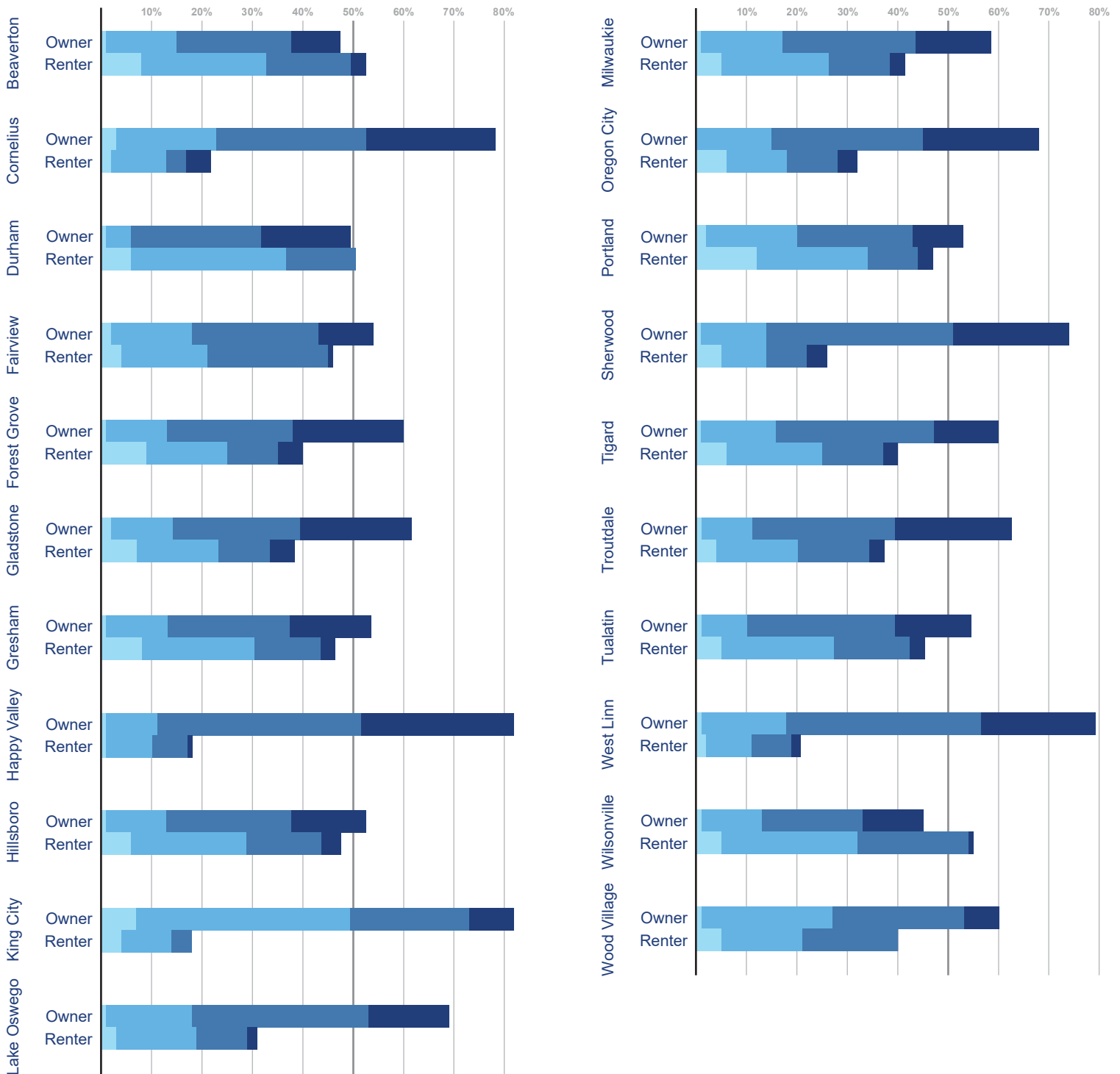
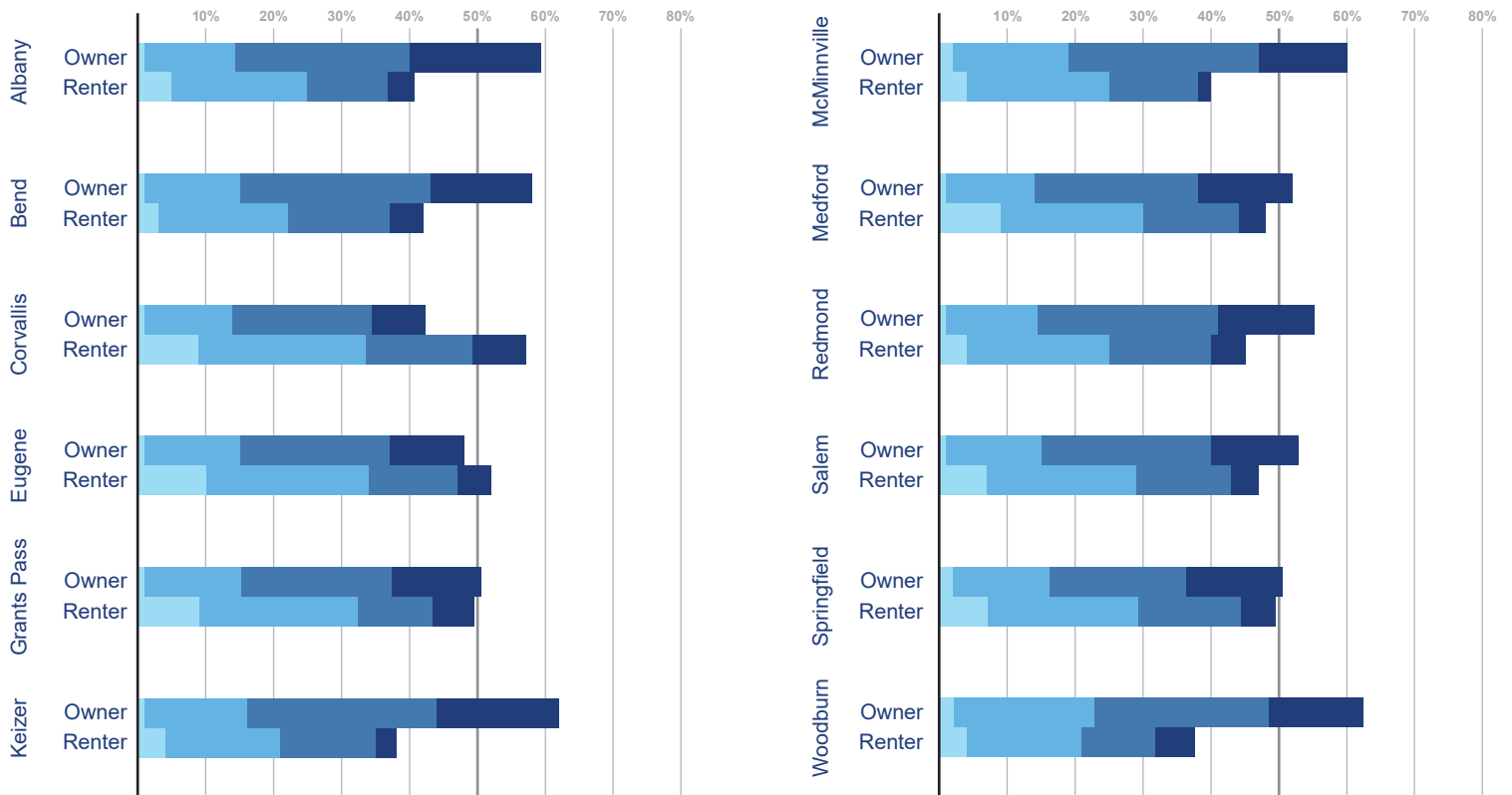


Exhibit A.2 Vehicle Ownership by Tenure - Large, Non-Metro Cities American Community Survey 2013-2017



A.3 Vehicle Ownership by Tenure - Medium Cities

American Community Survey 2013-2017

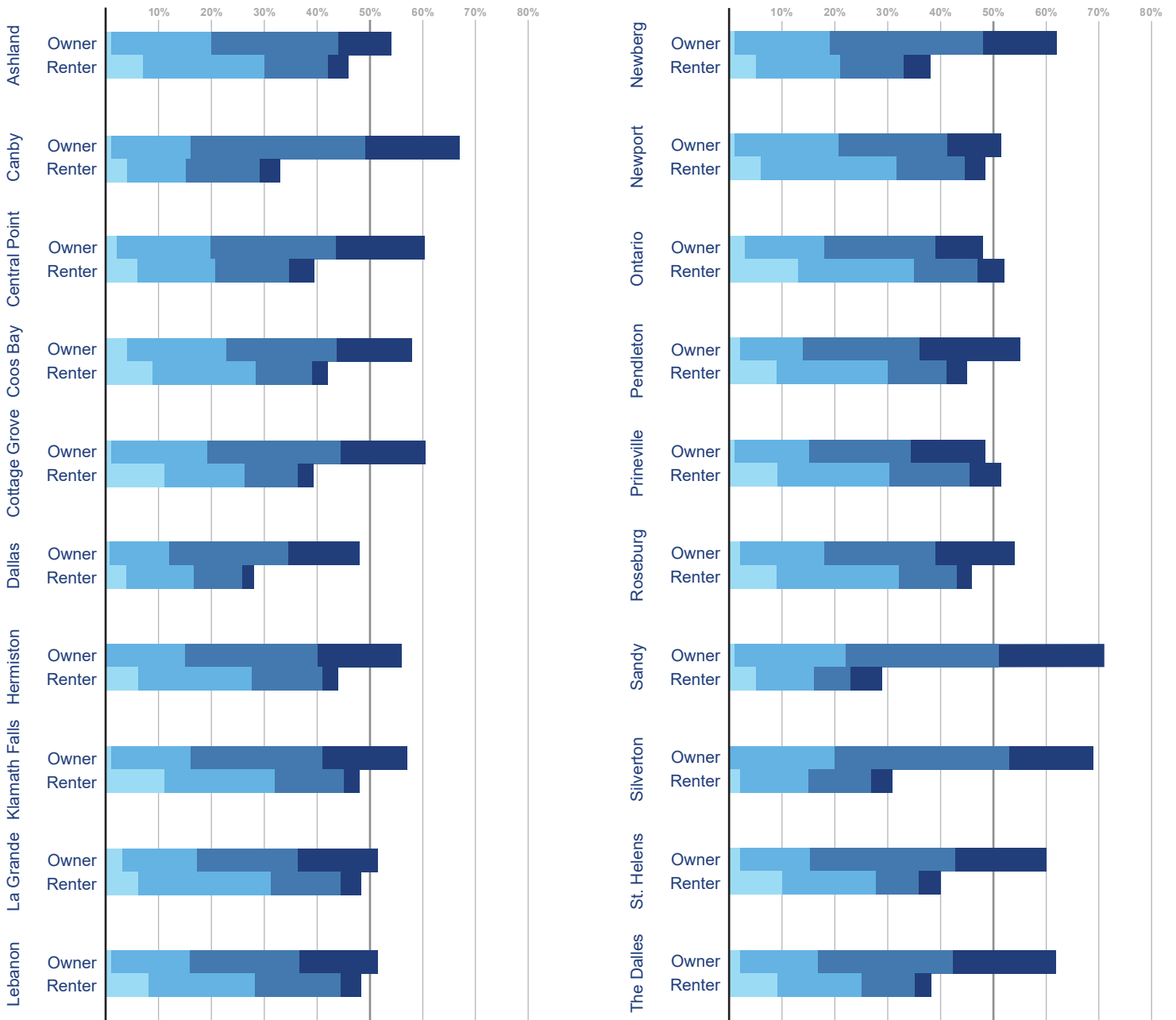


Exhibit B.1 Vehicle Ownership by Household Size - Metro Cities

American Community Survey 2013-2017

Households on the left side of the graph would be forced to pay for additional parking they do not utilize under a two-space minimum parking mandate.

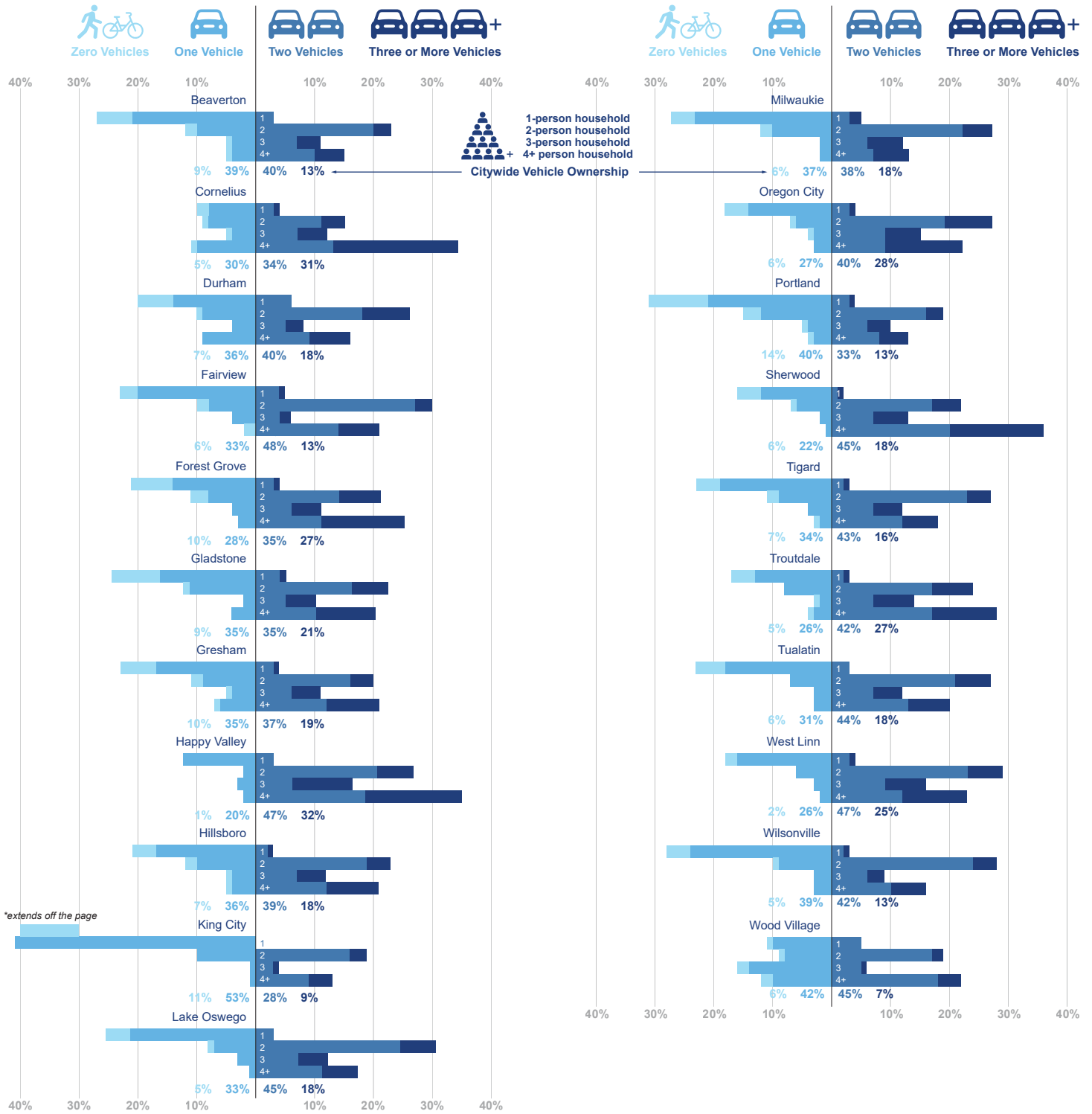


Exhibit B.2 Vehicle Ownership by Household Size - Large, Non-Metro Cities American Community Survey 2013-2017

Households on the left side of the graph would be forced to pay for additional parking they do not utilize under a two-space minimum parking mandate.

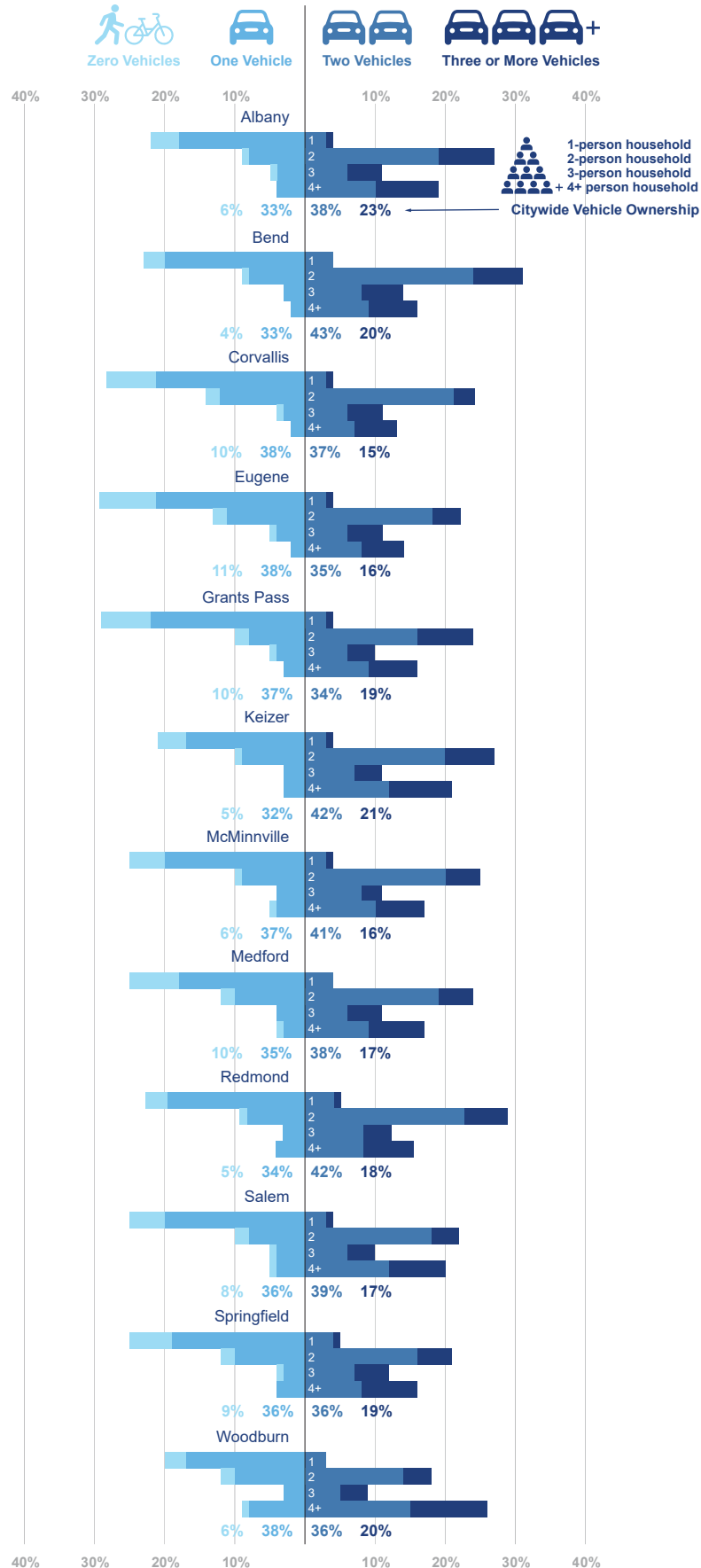


Exhibit B.3 Vehicle Ownership by Household Size - Medium Cities American Community Survey 2013-2017

Households on the left side of the graph would be forced to pay for additional parking they do not utilize under a two-space minimum parking mandate.

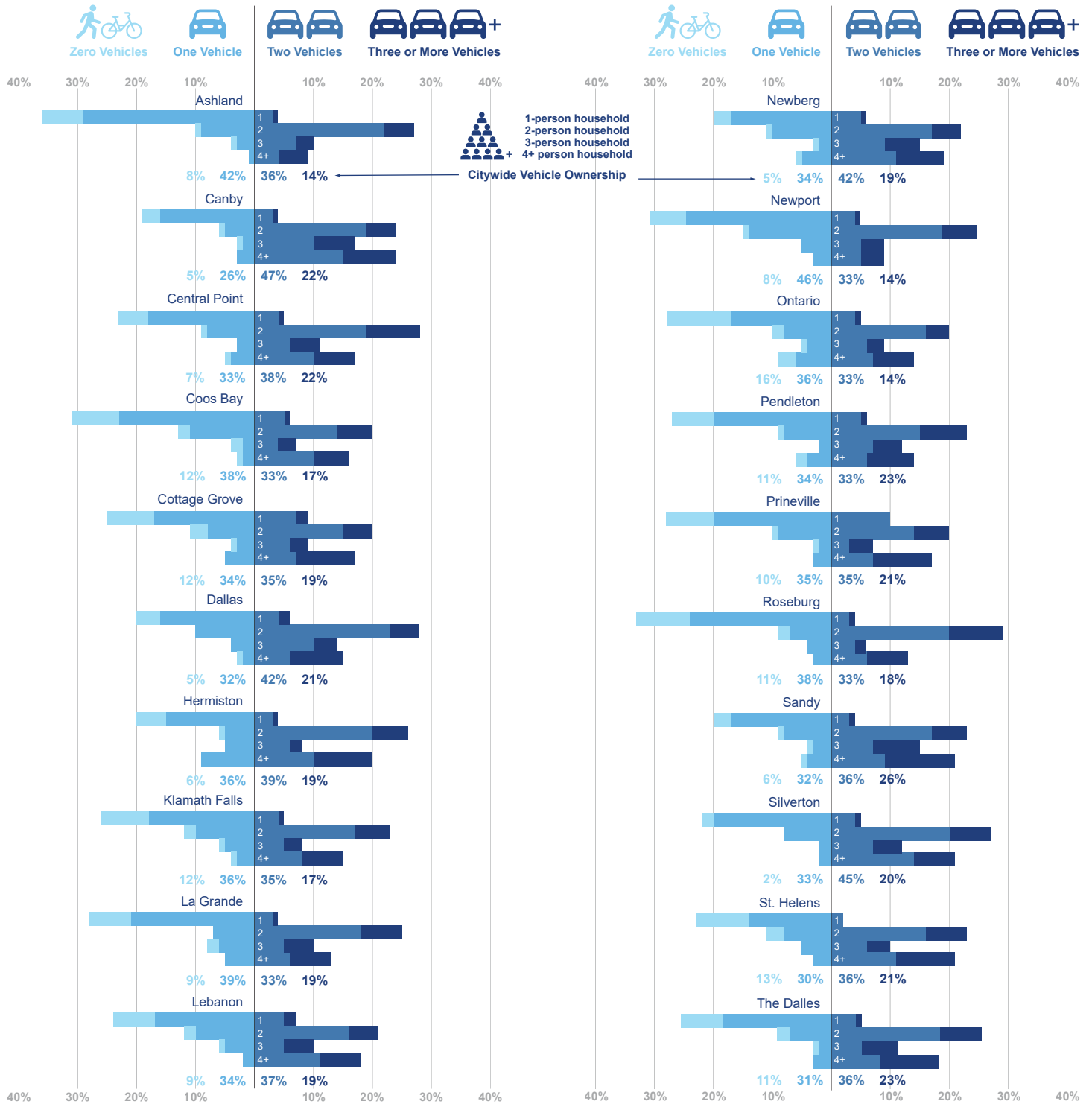


Exhibit C. Literature Review

Off-Street Parking and Housing Cost

1. Gabbe, C. J., & Pierce, G. (2017). Hidden costs and deadweight losses: Bundled parking and residential rents in the metropolitan United States. *Housing Policy Debate*, 27(2), 217-229.
Nationwide, the cost of garage parking to renter households is approximately \$1,700 per year, or an additional 17% of a housing unit's rent. This cost imposes the steepest cost on carless renters – commonly the lowest income households – who may be paying for parking that they do not need or want. There are about 708,000 households without a car who have a garage parking space, due primarily to municipal regulations. The estimated direct deadweight loss for carless renters nationwide is an estimated \$440 million annually. Many of the households involuntarily paying for garage parking are the ones that can least afford to do so.
2. Gabbe, C. J., Pierce, G., & Clowers, G. (2020). Parking policy: The effects of residential minimum parking requirements in Seattle. *Land Use Policy*, 91, 104053.
In 2012, Seattle reduced or eliminated parking requirements in many areas. Seattle's parking reforms led to 18,000 or 40% fewer parking spaces, saving \$537 million.

Parking requirements are the largest predictors of actual parking production with many developments meeting only the minimum required parking, but about 70% of developments with no parking requirements did include some parking.
3. Jia, W., & Wachs, M. (1999). Parking requirements and housing affordability: Case study of San Francisco. *Transportation Research Record*, 1685(1), 156-160.
Found that the provision of one off-street parking space increased the cost of a house by 11.8% and condominium by 13%. Based on the distribution of income of residents, an estimated 16,600 additional households could qualify for home mortgages for units without off-street parking spaces if they could legally be provided.
4. Lehe, L. (2018). How minimum parking requirements make housing more expensive. *Journal of Transport and Land Use*, 11(1).
Minimum parking requirements discourage the production of small units by making it less profitable to build units for lower-income households. Developers' most common response to the high incremental costs of increased parking is to build less affordable/higher priced urban housing.

Rationale: Housing consumers, can be grouped into various market segments, which are each most profitably served by units with certain attributes. Specifically, the most profitable type of unit to build for a lower-income market segment will have less parking. A minimum parking requirement —by prohibiting units with little or no parking—reduces the profits earned by building units for such households, making them more likely to serve other market segments. Since it is also true that lower-income markets are most profitably served by relatively small units, a binding MPR may wind up discouraging small units. Importantly, this logic can operate at the level of a small neighborhood or an individual parcel.
5. Litman, T. (2006). *Parking Management Best Practices*. American Planning Association.
Requirements for off-street parking significantly impacts the development cost of housing, but that impact varies based on the price of the housing and price of land. For higher-priced housing in suburban areas with lower land costs, supplying two parking spaces per unit adds 10% to the total development costs; lower-priced residential buildings in urban areas with higher land costs, providing two parking spaces increases costs more than 20 percent.

Parking requirements shift the cost of parking from direct (e.g. paid parking spaces) to indirect (higher development/housing costs), which fails to reward consumers who reduce the parking costs they impose. If parking is bundled with housing, residents must pay regardless of whether they use a space or not, and therefore, do not receive a benefit by reducing vehicle ownership.

While individual impacts seem modest, market distortions have significant cumulative effects. The combination of lower-density development and underpriced parking increases parking demand and vehicle travel 15 to 25 over what would occur if parking requirements were more accurate, motorists paid directly for parking, and land development were more compact.

6. Litman, T. (2019). *Parking Requirement Impacts on Housing Affordability*. Victoria Transport Policy Institute. One parking space per unit increases costs by approximately 12.5%, and two parking spaces can increase costs by up to 25%. This effect is more pronounced for lower priced housing, and places a disproportionate cost on lower income and rental households, who own fewer vehicles yet receive no benefit from minimizing their parking impact.

Increased surface parking reduces the maximum potential development density (units per acre). This can result in a density decline between 13% and 37%. This impact is proportionally greatest for smaller units.

Off-street parking requires curb cuts, which reduces capacity for on-street parking and increases potential for conflict between pedestrians

Parking imposes additional costs for non-profit developments. For example, to build an \$80,000 per unit affordable at \$700/month for a family earning \$30,000 annually, a subsidy of \$4,000 is required for no parking, \$12,792 for one parking space/unit, \$26,251 for two parking spaces/unit, and \$51,376 for three.

7. Manville, M., & Pinski, M. (2020). Parking behaviour: Bundled parking and travel behavior in American cities. *Land Use Policy*, 91, 103853.
People without bundled parking own fewer cars and drive less as a result, even after vehicle ownership is controlled for. Households without bundled parking, controlled for vehicle ownership and other factors, are more than twice as likely to transit and 60-80% more likely to be vehicle free. There is also evidence that households with bundled parking drive more.
8. McCahill, C. T., Garrick, N., Atkinson-Palombo, C., & Polinski, A. (2016). Effects of parking provision on automobile use in cities: inferring causality. *Transportation Research Record*, 2543(1), 159-165.
An increase in parking provision from 0.1 to 0.5 parking spaces per person is associated with an increase in automobile mode share of roughly 30 percentage points. The study also finds compelling evidence that parking provision is a *cause* of citywide automobile use, rather than driven by it.
9. Shoup, D. (2013). On-street parking management v. off-street parking requirements. *The access almanac*, 42, 38-40.
On-street parking management districts and programs eliminate the incentive for developers to allow parking to spill-over into the street and incentivize the construction of parking if tenants have cars.
10. Weinberger, R. (2012). Death by a thousand curb-cuts: Evidence on the effect of minimum parking requirements on the choice to drive. *Transport policy*, 20, 93-102.
There is a clear relationship between guaranteed parking at home and a greater propensity to use the automobile for journey to work trips, even when origin and destination are well served by transit.