

**City of Fruita Planning Department**  
325 E. Aspen Avenue  
Fruita, CO 81521

November 29, 2023

Re: **Geode Flats**  
**Parking Analysis Study**  
**Fruita, Colorado**

**Purpose:**

This memorandum was developed to give a parking rate recommendation for the proposed Geode Flats apartment project. The Geode Flats is located at 614 Raptor Road in Fruita, Colorado. This is a 5-acre proposed workforce/affordable housing project. The specifics of the workforce/affordable housing component are still being detailed. Therefore, the parking analysis includes alternative scenarios for a workforce housing project and an affordable housing project.

The proposed project is currently proposed to include 180 dwelling units in a mix of three and four-story residential apartment buildings.

**Residential Parking Analysis:**

The parking required to accommodate the proposed Geode Flats residents and guests was taken from national rates in general urban/suburban multifamily complexes throughout the United States. Alternatives for both market rate apartments and affordable apartments are included in this analysis.

**Market Rate Analysis:**

The Institute of Transportation Engineers' *Parking Generation Manual, 5<sup>th</sup> Edition*<sup>1</sup> provides parking generation rates based upon numerous parking studies accumulated across the United States. The data provided is based upon observations for apartment complexes in a general urban/suburban setting that is not located within ½ mile of rail transit.

The Institute of Transportation Engineers' *Parking Generation Manual*<sup>1</sup> states that the average peak period parking demand for a suburban mid-rise (3+ floor/story) apartment (Land Use #221) is 1.32 parking spaces per occupied dwelling unit. The Geode Flats development is anticipated to be 100% occupied.

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<sup>1</sup> *Parking Generation Manual, 5<sup>th</sup> Edition*, Institute of Transportation Engineers, 2019

The statistic is given based upon the 95<sup>th</sup> Percent Confidence Interval for a nationwide study of 48 apartment complexes. The 95<sup>th</sup> Percent Confidence Interval indicates that there is a 95% likelihood that the parking demand will fall within 1.25 to 1.39 parking spaces per occupied dwelling unit.

**Affordable Housing Analysis:**

The Institute of Transportation Engineers' *Parking Generation Manual*<sup>1</sup> gives national parking demand data for affordable multifamily housing. This includes housing complexes where 75% or more of the units are designated as affordable and rented at below market rate. The *Parking Generation Manual*<sup>1</sup> states that the average peak period parking demand for per affordable dwelling unit (Land Use #223) is 0.78 parking spaces per occupied dwelling unit. The statistic is given based upon the 95<sup>th</sup> Percent Confidence Interval for a nationwide study of 6 apartment complexes. The Geode Flats development is anticipated to be 100% occupied.

However, the *Parking Generation Manual*<sup>1</sup> also states that the manual 'should be considered only the beginning point of information to be used in estimating parking demand. Local conditions and area type can influence parking demand... Therefore, a survey of a site in a comparable local condition should always be considered as one potential means to estimate parking demand.'<sup>1</sup>

Therefore, local data sources were reviewed. A Colorado-specific document, *Parking & Affordable Housing 2020/2021 Report*<sup>2</sup>, provided a detailed analysis of 19 affordable housing developments and determined that across the board the affordable housing facilities are overparked and requirements can be up to five times the need. A parking rate range from 0.36 to 1.10 parking spaces per unit is recommended. The average of this study is a rate of 0.73 parking spaces per affordable housing unit.

Averaging the two rates, results in a recommended parking rate of 0.75 parking spaces per occupied affordable dwelling unit.

**Table 1** summarizes the parking rate analysis per dwelling unit.

**Table 1: Parking Rate Summary**

	Per Occupied Dwelling Unit	
	Market Rate Rental <sup>1</sup>	Affordable Rental <sup>1,2</sup>
Number of Occupied Dwelling Units	180	180
Parking Rate	1.32	0.75
Required Parking Spaces	238	135



**City of Fruita’s Market Rate Analysis per Bedroom:**

The City requested additional parking analysis utilizing the parking rates per number of bedrooms as defined by the City of Fruita’s updated *Chapter 17.37 Parking Standards* of the *Land Use Code*<sup>3</sup>. The exact number of bedroom units is unknown at this time. Therefore, this analysis is a hypothetical look at an assumed unit mix. This calculation was performed for both market rate and affordable housing alternatives.

**Table 2** summarizes the parking rate analysis using an assumed unit mix of bedrooms.

**Table 2: Parking Rate Summary per Bedroom (Hypothetical Unit Mix)\***

	Per Bedroom (Hypothetical)							
	Market Rate Rental <sup>3</sup>				Affordable Rental <sup>3</sup>			
	1- Bed Unit	2- Bed Unit	3- Bed Unit	Add'l Parking Spaces	1- Bed Unit	2- Bed Unit	3- Bed Unit	Add'l Parking Spaces
Hypothetical Number of Bedrooms	54	134	40		54	134	40	
Parking Rate	1.00	1.5	2	1 space/ 6 du	0.50	0.75	1.25	N/A
Required Parking Spaces	54	201	80	30	27	101	50	-
Total Parking Spaces Required	365				178			

\*Uses an assumed unit mix of bedrooms.

**Multimodal Infrastructure:**

Connectivity from Geode Flats to the greater multimodal network will support the parking ratios in **Table 1**. Transit access, sidewalk connectivity, bicycle facilities, and adjacent transit access provide the ability for residents to have multiple options for safe and efficient travel in the Grand Valley.

Bicycle parking will be provided in accordance with *Chapter 17.37 Parking Standards* of the *Land Use Code*<sup>3</sup>.

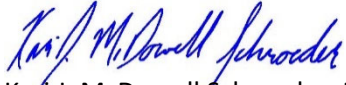
**Parking Rate Summary:**

Geode Flats' anticipated unit mix has not yet been determined. Therefore, it is necessary to apply the per unit parking rates. If the project is developed for market rate residents, the site should include 238 parking spaces. If the project is an affordable housing project, the site should include 135 parking spaces.

Additionally, parking management should be included in the individual apartment leases, specifying the parking requirements and enforcement policies.

Please call if you would like any additional information or have any questions regarding this parking analysis.

Sincerely,  
McDowell Engineering, LLC



Kari J. McDowell Schroeder, PE, PTOE  
Senior Traffic Engineer

**Enclosed:** Excerpts from *Parking & Affordable Housing 2020/2021 Report*<sup>2</sup>



# Parking & Affordable Housing

2020/2021 Report

50% of parking  
in affordable  
housing  
projects go  
unused.

## Estimating Parking Demand

In summer/fall 2020, Fox Tuttle and Shopworks Architecture partnered to perform an audit of parking usage in affordable housing along the Front Range, with a specific focus on supportive housing to determine whether the current requirements are in line with the demand. [We found that across the board the affordable housing facilities are overparked and requirements can be up to 5 times the need, especially in lower Area Median Income \(AMI\) levels.](#) For example, for supportive housing (0-30% AMI) within the Denver metro area, the average vehicle ownership was <sup>1</sup>8.8% which equates to 1 vehicle per 12 units.

It is generally agreed that affordable housing communities, especially those serving individuals who have experienced, or are at risk of homelessness, generate significantly less parking demand than other residential uses.

Unfortunately, there is no industry standard for how to reduce typical residential parking rates for lower-income residential properties. The reduction of parking demand for affordable housing communities is due to a number of factors:

1. Their typical location is in more urban conditions with better access to transit use, and
2. The lack of funds lower-income residents have to cover the cost of vehicle ownership and insurance/maintenance.

The following pages demonstrate what we learned, and our understanding of the current demand for parking for affordable housing across the Front Range.

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<sup>1</sup> In our study 32 individuals in PSH had cars out of a total of 365 units.

## Impact of Proximity to Multi-Modal Facilities

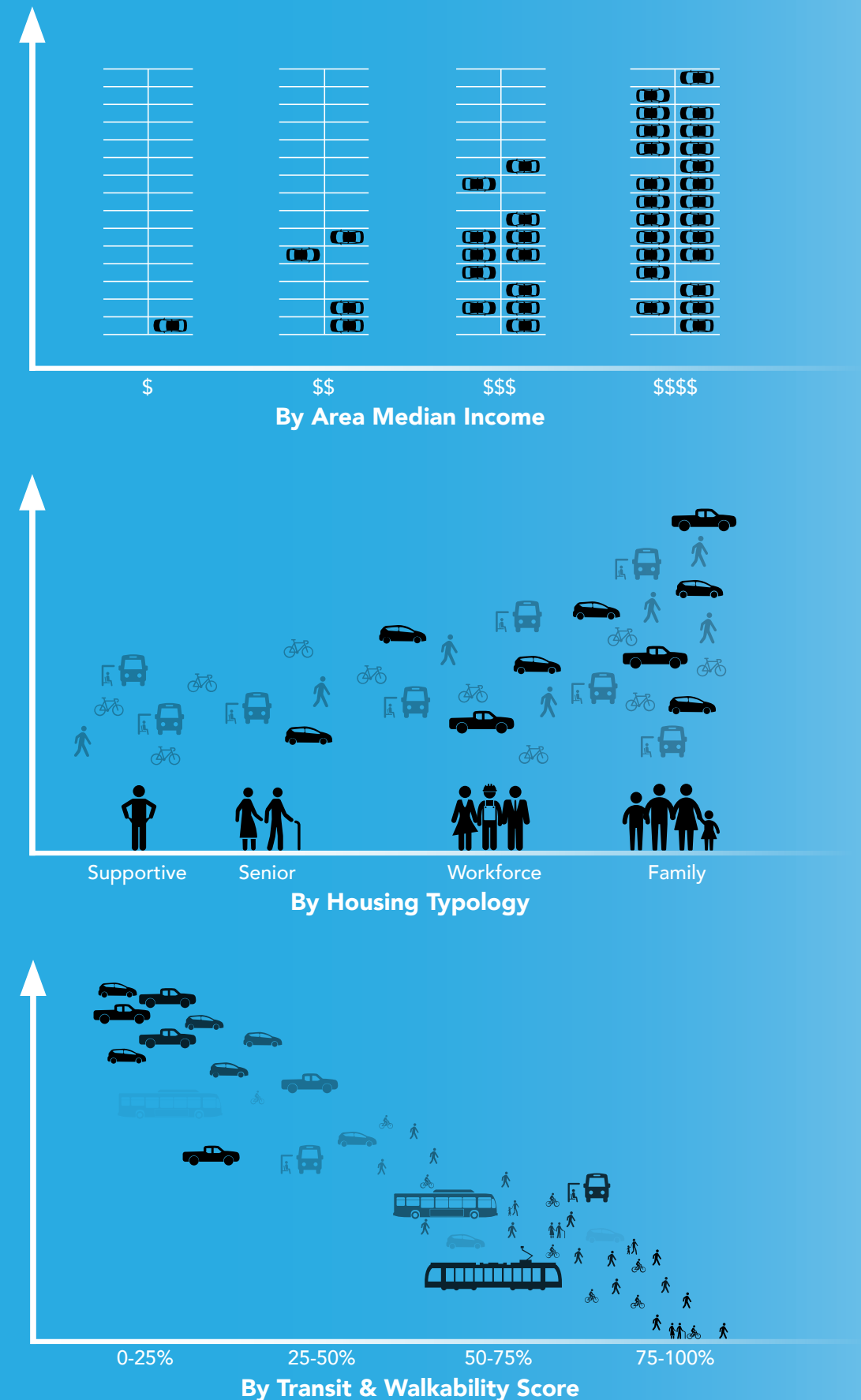
The walk, bike, and transit scores were added together to get the total non-auto score for each property. The data indicates that the property's proximity to quality walking and biking facilities and transit services deeply impacts vehicle ownership.

The need to own a vehicle is reduced when the surrounding neighborhood is walkable, bikeable, and has reliable transit that can get the residents to work, school, shopping, appointments, etc.

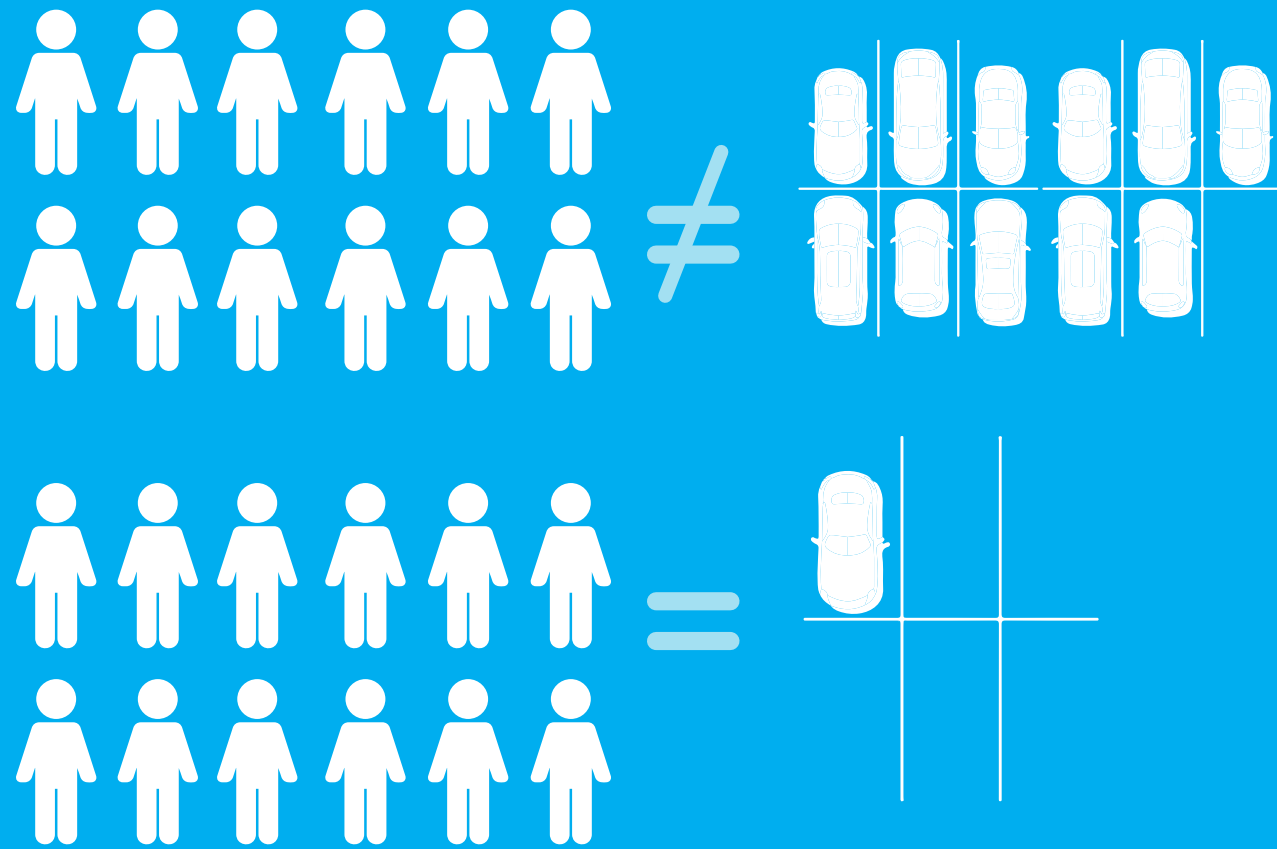
The majority of the surveyed properties were purposefully located within communities and neighborhoods that are walkable, bikeable, and near transit.

This is to serve people that do not typically own a vehicle due to the affordability, credit, maintenance, and insurance, as well as to meet the rental cost of their unit.

# Parking Needs



# Parking Supply



## vs. Demand

## Parking Supply Verses Parking Demand

Combining the parking supply of all the surveyed properties, there are 883 parking spaces for 1,353 affordable housing units with an approximate demand of 461 spaces. To understand the impact of over parking for affordable housing projects, the unused parking spaces were valued at \$22,000 per space. This equates to an estimated cost of \$9,460,000 on parking that is in excess of the demand. If parking requirements for affordable projects were lowered closer to the parking demand, then the funds could be reallocated for support services or providing transportation options. The physical space could be repurposed for additional affordable housing units or amenity space for residents.

**883** parking spaces

**1,353** units

**461** spaces

**422** unused

**\$22,000** cost per space

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**\$9,284,000\*** funds spent on unnecessary parking

\*Figure is over 6 years and 19 projects

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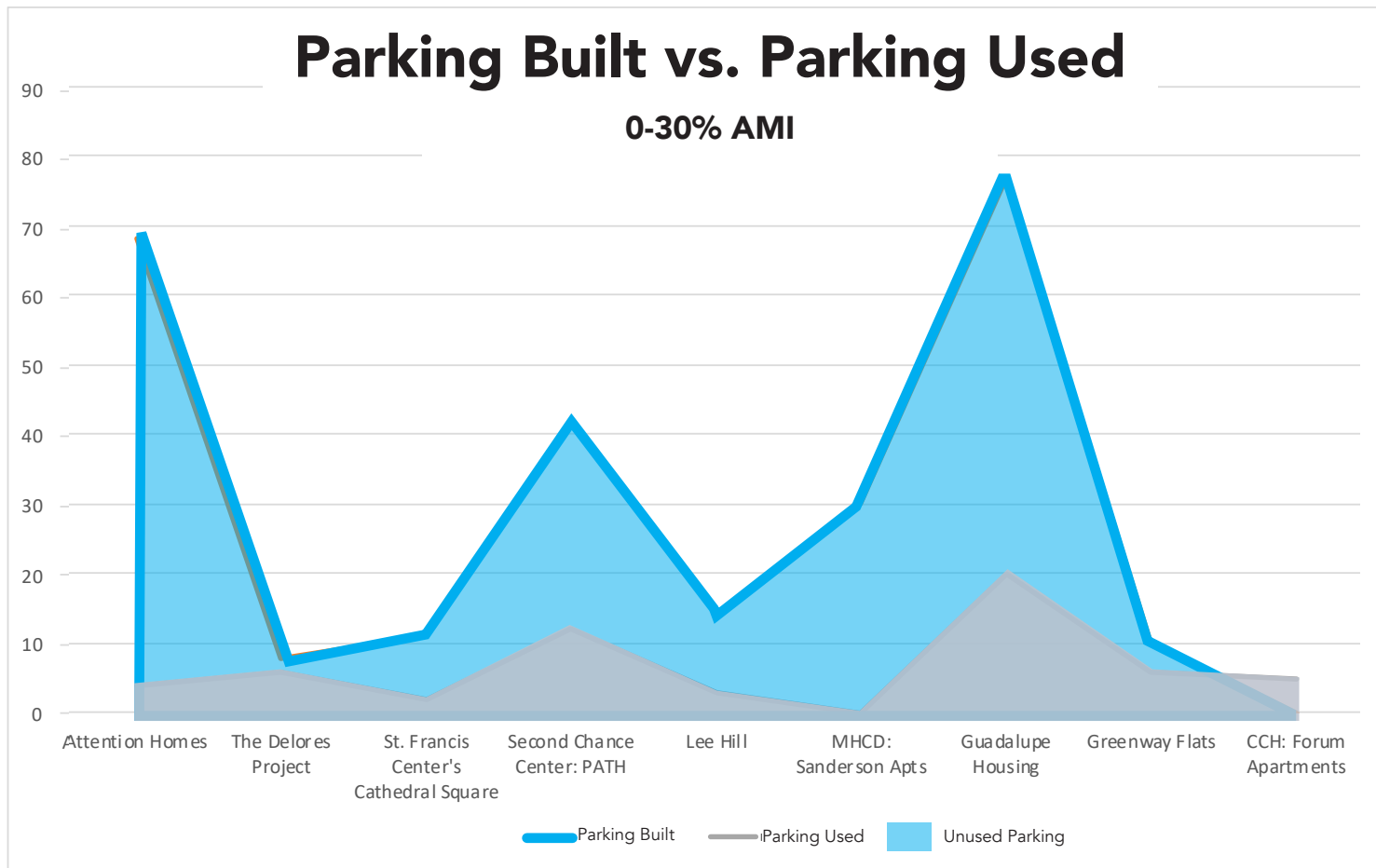


**\*Equates to one 40 unit affordable housing building.**

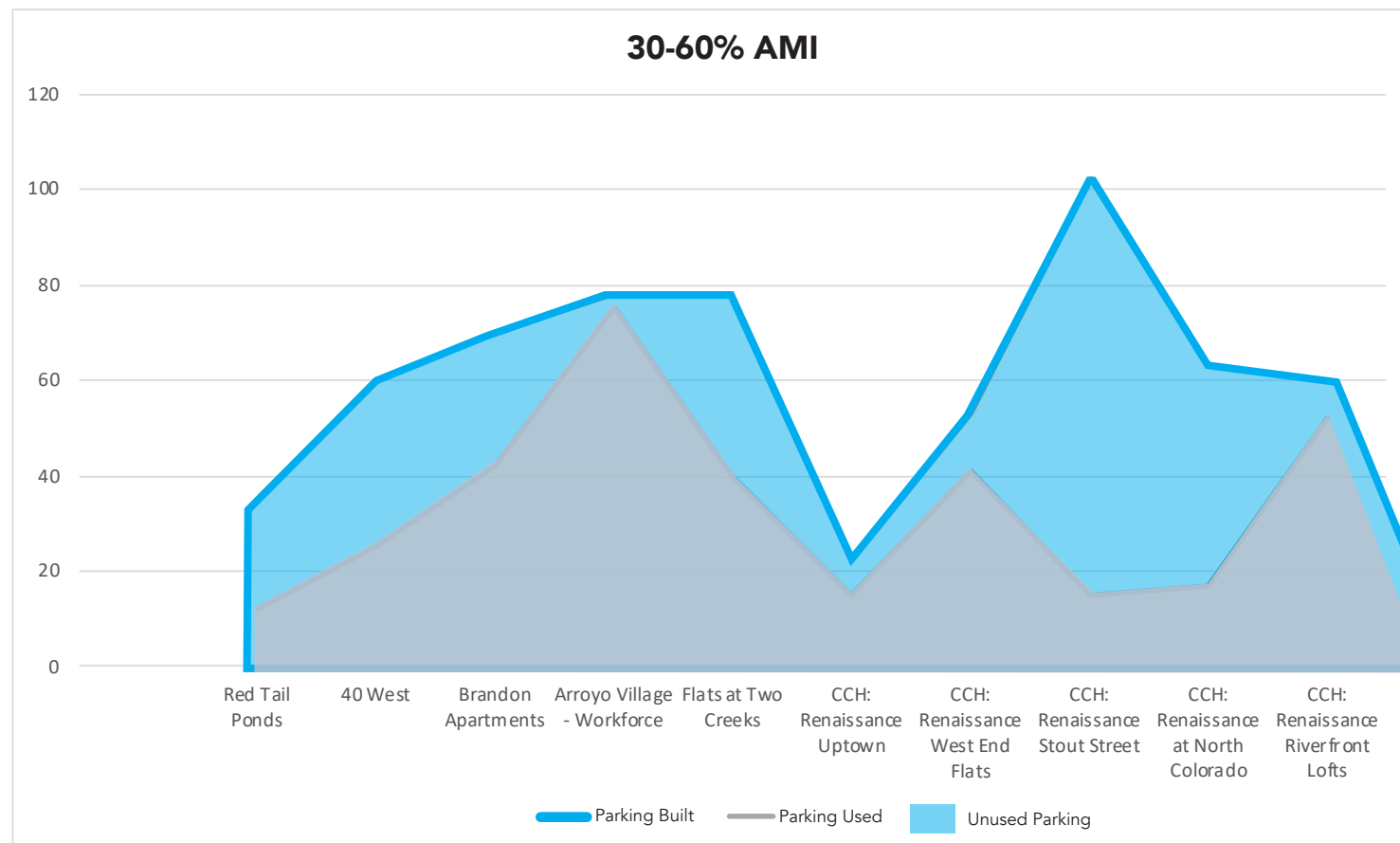


# Parking Built vs. Parking Used

0-30% AMI



30-60% AMI



## Vehicle Ownership

The Area Median Income (AMI) was compared to resident's vehicle ownership and it can be seen that residents with lower income levels own fewer vehicles and as the income increases the vehicle ownership increases.

The survey data provided by the twenty properties indicated the following trends:

- 29.0% of current residents own a vehicle (equates to 1 vehicle per 4 units) across all affordable housing studied.
- 8.8% of Permanent Supportive Housing Residents own a vehicle (equates to 1 vehicle per 12 units)
- On average 0.9 parking spaces per unit are provided to meet the municipal requirements.

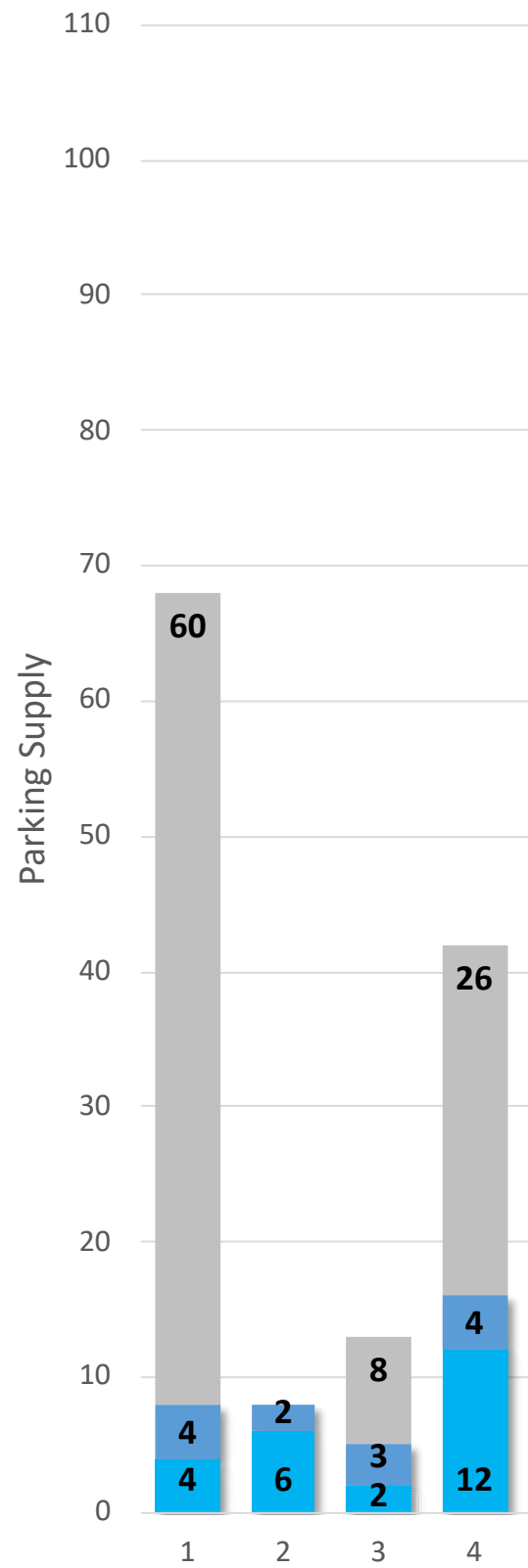
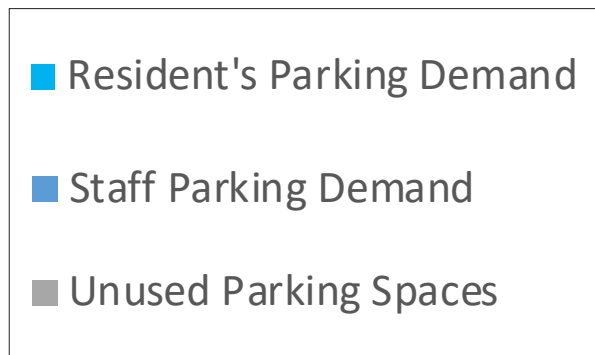
The vehicle ownership equates to the parking demand needed at each property to serve the residents and should help inform the parking supply needed.

Comparing the vehicle ownership to the parking spaces supplied indicated that affordable housing projects are overparked.

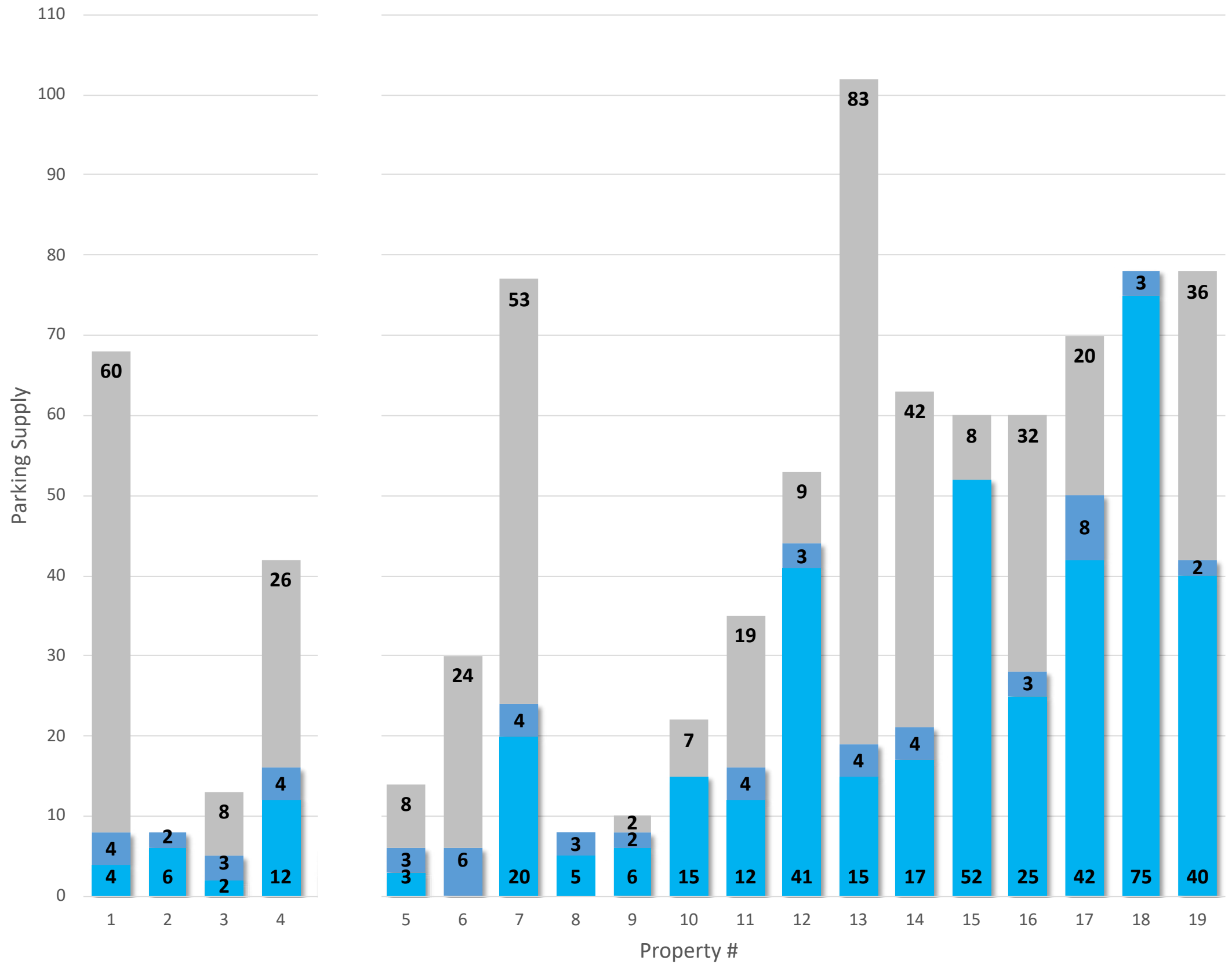
# Parking Utilization

## Property Key

#	Property	City	Denver Metro PSH	Outside Denver Metro PSH
1	Attention Homes	Boulder	X	
2	The Delores Apartments at Arroyo Village	Denver	X	
3	St. Francis Center's Cathedral Square	Denver	X	
4	Second Chance Center: PATH	Aurora	X	
5	Lee Hill	Boulder	X	
6	Mental Health Center of Denver: Sanderson Apts	Denver	X	
7	Guadalupe Apartments	Greeley		X
8	CCH: Forum Apartments	Denver	X	
9	Greenway Flats	Colo. Springs		X
10	CCH: Renaissance Uptown Lofts	Denver		
11	Red Tail Ponds	Fort Collins		
12	CCH: Renaissance West End Flats	Denver		
13	CCH: Renaissance Stout Street Lofts	Denver		
14	CCH: Renaissance at North Colorado Station	Denver		
15	CCH: Renaissance Riverfront Lofts	Denver		
16	40 West	Lakewood		
17	Brandon Apartments	Denver		
18	Arroyo Village - Workforce	Denver		
19	Flats at Two Creeks	Lakewood		



Overall Parking Demand





## RTD's 2020 Transit-Oriented Development Parking Study

In late 2019 and early 2020, Regional Transportation District (RTD) performed a parking survey of 86 properties located within a 10-minute walk to a train or bus rapid transit station. The survey included discussions with property managers, counting parking supply and utilization, and analyzing the data. Results were based on resident income; policy for including a parking space in a tenant's lease; neighborhood transit quality; property age; policy for including a transit pass in a tenant's lease; distance between the property and the station; location in the City and County of Denver or other municipality; and location in related to TOD typology.

The RTD study stated **"the most significant finding from the combined survey-count analysis ties a strong correlation between the over-supply of expensive parking and the under-utilization of parking at income-restricted properties.** Metro Denver TODs analyzed here provide approximately 40 percent more parking than residents use at peak demand." RTD intends to use their research to initiate and guide discussions amongst Metro Denver professionals and development partners about more appropriate parking provision appropriate for properties in transit-rich neighborhoods.

**"Excess parking is particularly inappropriate in transit-rich neighborhoods. Not only does it effectively prohibit affordable housing, but it unnecessarily increases development costs, reduces project savings, and obstructs access to transit, and by extension, to economic opportunity for a growing number of low-income households."**



## RTD's 2020 Transit-Oriented Development Parking Study

### RTD Parking Study Findings

Resident Income	# Of Properties	# Of Units	# Of Parking Spaces	Spaces Available Per Unit	Spaces Utilized Per Unit	Parking Utilization
All Properties	86	22,422	26,442	1.18	0.70	59%
Market-Rate	65	19,850	24,462	1.23	0.74	60%
Mixed-Income	5	985	845	0.86	0.49	57%
Income-Restricted	16	1,587	1,135	0.72	0.36	50%

The table above summarizes the data gathered and evaluated as part of the RTD study. It can be seen that the income restricted properties are over-parked, which supports the findings in the Shopworks and Fox Tuttle study.

You can find RTD's full report [here](https://www.rtd-denver.com/sites/default/files/files/2020-12/RTD-Residential-TOD-Parking-Study_Final-R_0.pdf): [https://www.rtd-denver.com/sites/default/files/files/2020-12/RTD-Residential-TOD-Parking-Study\\_Final-R\\_0.pdf](https://www.rtd-denver.com/sites/default/files/files/2020-12/RTD-Residential-TOD-Parking-Study_Final-R_0.pdf)

# RTD Report: Summary

1.



The most significant finding from the combined survey and analysis was the strong correlation between the oversupply of expensive parking and the significantly low utilization of parking at income-restricted properties.

2.



Market-rate properties provide approximately 40% more parking than residents use, and income-restricted properties provide approximately 50% more parking than residents use.

3.



Income-restricted properties (0-99% AMI) provide 0.72 parking spaces per unit, but residents use only 0.36 parking spaces per unit.

4.



Of the properties located less than 0.3 miles from a station, residents utilized 0.10 per unit compared to those properties located between 0.3 to 0.5 miles from a station. In other words, for every 30 units, a property within a five-minute walk of a station provides five fewer parking spaces and its residents use three fewer parking spaces than a comparable station-area property farther away.

## Parking Needs For Staff

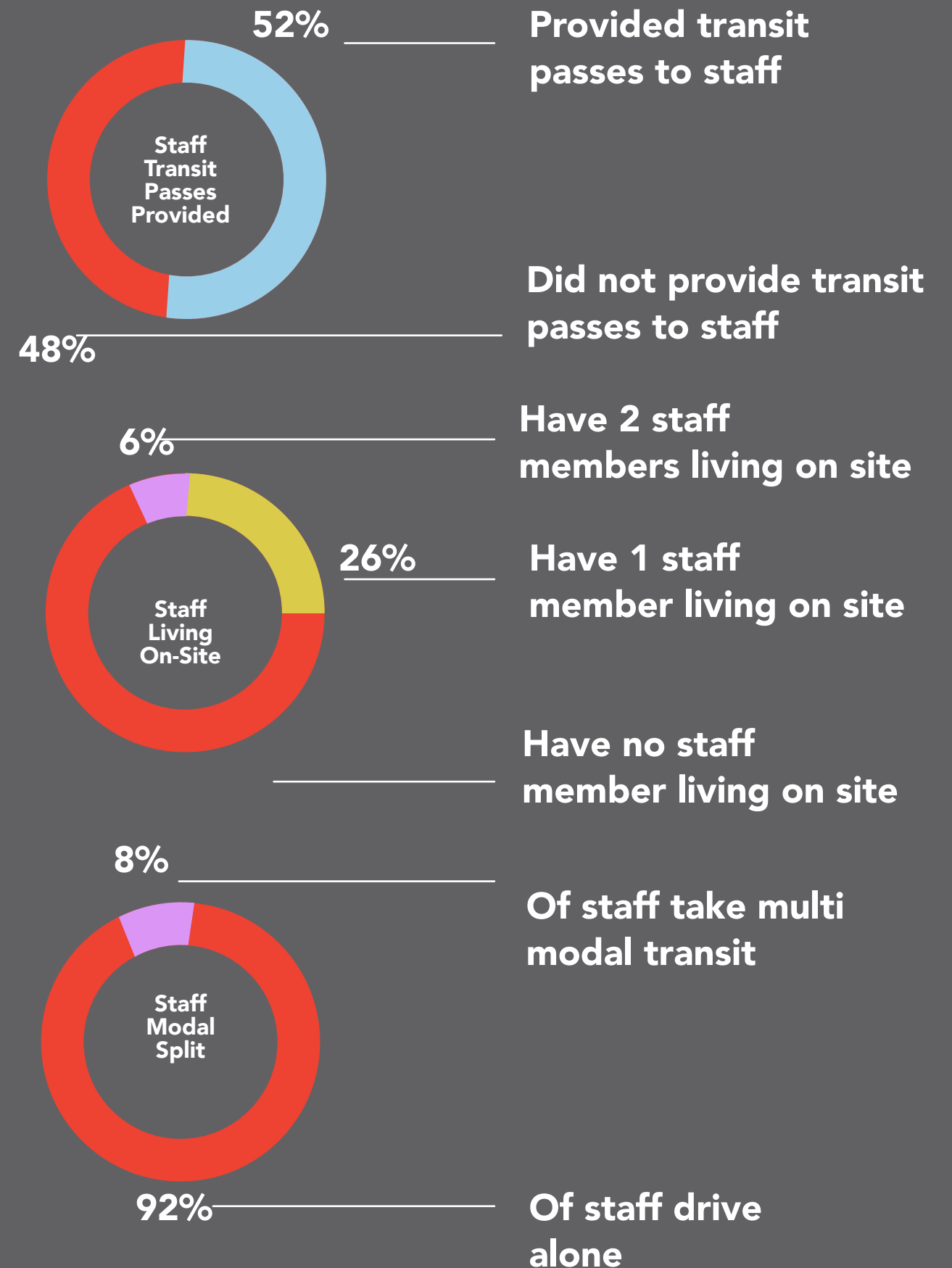
The same affordable housing properties that were surveyed by Fox Tuttle/Shopworks for resident vehicle ownership were asked about staffing to understand the parking demand needed by staff. On average, the majority of the affordable home properties have 5 full time staff members (1 per 17 units) and 4 part-time staff members (1 per 45 units).

There are a few exceptions to this data - The Attention Homes, Delores Project/Arroyo Village, and CCH: Renaissance at Civic Center Apartments. These buildings are staffed significantly more than the rest of the properties and reported having between 14 and 22 full-time staff members. However, upon further research it was determined that these organizations host all of their administrative staff for the entire organization in these buildings.

Half of the properties are staffed 24 hours a day, 7 days a week; while the other half have staff on-site only during typical daytime work hours. On average, there are 4 staff members on-site during any given shift. Typically, the evening and weekend shifts have a maximum of 1-2 staff members (front desk staff/security). The majority of the supportive housing properties have 3 staff shifts during weekdays and some have staff shifts on weekends. Approximately 1/3 of the properties have up to 2 staff members that live on-site.

Based on the provided data, 92% of staff members drive to work and need a parking space on or near the property.

The staff parking demand is additional to the residents' parking demand. However, the shift work that is typical of these types of properties, especially permanent supportive housing, lowers the need for parking since the entire staff are not on-site at the same time.



Takes the bus

Owens a car

One unit out of every 12 utilize parking.

Takes the bus

Walks

Rides bike

Rides bike

Takes the bus

Takes the bus

Light Rail

Takes the bus

Walks

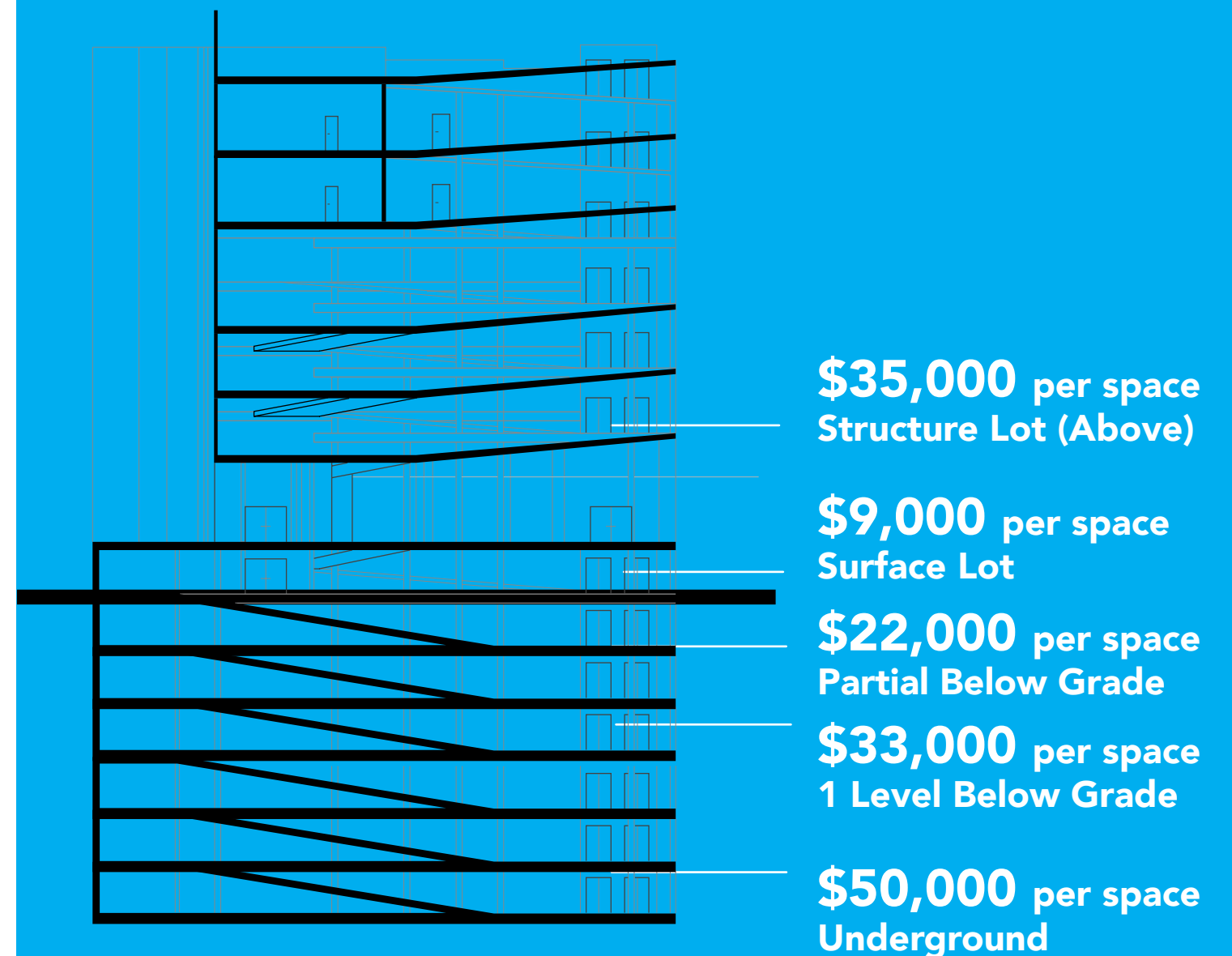
Rides bike

# Parking facilities are costly to build.

## Cost of Parking

Regardless of housing type, parking spaces are expensive to construct and maintain. The cost of parking impacts affordable housing projects more significantly than market-rate apartments since they cannot typically recoup the cost within rental fees. Parking also takes up valuable space that could be utilized for additional housing units or amenities for the people living on the property. As the data in this study indicates, parking demand is significantly less than the actual parking supply.

Existing and future sites would greatly benefit from reduced parking requirements to be able to repurpose the cost of parking and gain development area. Listed to the right are typical construction costs of one parking space in different parking facility types within the Front Range. This does not include the cost of the land or maintenance.





Across affordable housing, there are 0.29 vehicles per unit, equating to less than one vehicle per 6 units.



In Denver PSH there are .088 vehicles owned per unit, equating to less than one vehicle per 12 units.



Current Denver zoning requires on average 0.48 per unit across housing buildings. Thus the zoning requires 5.5 times more than the parking demand.

## In Conclusion

We are building parking when we could be building more housing. The Department of Housing Stability in Denver, HOST, estimates that after LIHTC financing there is a funding gap equal to \$37,000 per unit in the City of Denver; a gap that City and State funds have to cover to ensure these apartments get built. We are taking tax payer dollars and spending it on unnecessary parking, when we could be creating more units or beautiful parks that help people heal. Our report shows that we spent \$9.3 million over the last 6 years on parking that is not used in affordable housing. With those funds we could have built an entire new PSH project with 40 units. We built parking when we could have housed people.

## Thank You

We would like to extend our deepest appreciation for all the participants in this research who answered question after question as we refined our study. This report would not have been possible without each and every one of you, and we are so grateful for your assistance!



# Appendix A.

	Overview of Building				Parking Requirement	
	How many units and unit type	How many residents: adults, kids	AMI for building	Median AMI	Zoning Required Parking Ratio (per DU)	Reductions (if available)
Attention Homes, Boulder	40 units: 23 studios, 16 1-bed, 1 2-bed	41	All 0-30%	30%	1.00	0.25
Arroyo Village - Delores PSH	35 units: all 1-bed	40	All 0-30%	30%	1.00	0.40
Arroyo Village - Workforce	95 units: 25 1-bed, 58 2-bed, 12 3-bed	267	All 0-50%	50%	1.00	0.32
St. Francis Center's Cathedral Square	50 units, all 1-bed	55	All 0-30%	30%	0.25	0.00
Second Chance Center: PATH	50 units, 40 1-bed, 10 2-bed	49	All 0-30%	30%	1.50-2.00	0.54
Lee Hill	31 units, all 1-bed	31	All 0-30%	30%	1.00	0.25
Red Tail Ponds	60 units, 54 one-bedroom and 6 two-bedrooms	60	40@0-30%, 20 @0-60%	40%	0.75-1.00	0.50
Mental Health Center of Denver: Sanderson Apts	60 units	60	All 0-30%	30%	1.25	0.60
40 West	60 units: 54 1-bed, 6 2-bed	67	9@0-30%, 10@0-40%, 34@0-50%, 6@0-60%	46%	0.75	0.00
Flats at Two Creeks	78 units: 70 1-bed, 8 2-bed	106	16@0-30%, 21@0-50%, 40@0-60%	43%	0.75	0.00
Greenway Flats	65 one-bedroom units	68	62@0-30% 3@0-40%	30%	1.50	0.00
Guadalupe Apartments Archdiocesan Housing	47 units: 18 studios, 19 one-bed, 10 two-bed	68	All 0-30%	30%	1.25-1.75	0.00
Brandon Apartments	103 – 47 one-bedroom, 45 two-bedroom, 11 three-bedroom	86	20@0-30%, 39@0-40%, 44@0-60, 1 staff unit	47%	1.00	0.25
CCH: Renaissance West End Flats	101 units, 75 one-bedroom, 26 two-bedroom	115	35@0-30%, 31@0-40%, 26@0-50%, 8@0-60%	40%	0.75	0.25

Parking Requirement		Parking Analysis			Alternative Modes			
Minimum Required Parking	Parking Provided	Parking Ratio (Provided per DU)	Residents With Cars	Parking Lot Utilization	Walk/Transit/ Bike Score	Number of bike parking spaces	Do you provide transit passes or bus tickets to residents	Shared Bikes / Cars?
30.00	68	1.70	4	5.88%	95/62/95	40	Yes	No
21.00	8	0.23	6	75.00%	73/63/65	100	Yes	Yes
64.60	78	0.82	75	96.15%	73/63/65	100	No	Yes
12.50	13	0.26	2	15.38%	94/82/91	30+	Yes	No (but have access to shared van)
92.00	42	0.84	12	28.57%	59/58/70	50	Yes	Yes
23.25	14	0.45	3	21.43%	56/40/88	20	Yes	No
23.25	35	0.58	12	34.29%	38/36/66	66	Yes	Yes
75.00	30	0.50	0	0.00%	79/48/68	15	No	No
45.00	60	1.00	25	41.67%	67/55/73	15	No	No
58.50	78	1.00	40	51.28%	61/55/69	At least 20	No	No
8.00	10	0.15	6	60.00%	48/33/71	6 rentals, 48 bike parking spots	Yes	Yes
76.00	77	1.64	20	25.97%	1/0/27	20 spaces	No	No
66.00	70	0.68	42	60.00%	74/54/94	92	Yes	No
49.00	53	0.52	41	77.36%	77/55/90	N/A	No	

# Appendix A.

	Overview of Building				Parking Requirement	
	How many units and unit type	How many residents: adults, kids	AMI for building	Median AMI	Zoning Required Parking Ratio (per DU)	Reductions (if available)
<b>CCH: Renaissance at North Colorado Station</b>	103 Units: 19 studio, 54 one-, 24 two-, and 6 three-bedroom apartments	<b>112</b>	38@0-30%, 19@0-40%, 27@0-50%, 18@0-60%	<b>42%</b>	0.75	0.20
<b>CCH: Forum Apartments</b>	100 studio apartments	<b>98</b>	All 0-30%	<b>30%</b>	0.75	0.00
<b>CCH: Renaissance at Civic Center Apartments</b>	216 units: 200 studio, 16 one-bed	<b>188</b>	68@0-30%, 26@0-40%, 46@0-50%, 76@0-60%	<b>46%</b>	0.00	0.00
<b>CCH: Renaissance Riverfront Lofts</b>	100 Units: 88 one-bedroom apartments, 12 two-bedroom apartments	<b>Did not receive</b>	30@0-30%, 22@0-40%, 24@0-50%, 23@0-60%	<b>44%</b>	1.00-1.50	0.25+0.25
<b>CCH: Renaissance Uptown Lofts</b>	98 Units: 4 studios, 90 one-bedroom apartments, 4 two-bedroom apartments	<b>Did not receive</b>	41@0-30%, 31@0-40%, 17@0-50%, 8@0-60%	<b>39%</b>	0.75	0.25
<b>CCH: Renaissance Stout Street Lofts</b>	78 Units: 59 one-bedroom apartments, 19 two-bedroom apartments	<b>63</b>	26@0-30%, 23@0-40%, 22@0-50%, 6@0-60%	<b>41%</b>	0.75	0.20

Parking Requirement		Parking Analysis			Alternative Modes			
Minimum Required Parking	Parking Provided	Parking Ratio (Provided per DU)	Residents With Cars	Parking Lot Utilization	Walk/Transit/ Bike Score	Number of bike parking spaces	Do you provide transit passes or bus tickets to residents	Shared Bikes / Cars?
54.00	63	0.61	17	26.98%	61/53/66	None	No	
75.00	0	0.00	5	N/A	96/89/95	3	Yes	
0.00	0	0.00	Unknown	N/A	99/91/88	0	Yes	
60.00	60	0.60	52	86.67%	62/66/84	0	No	
25.00	22	0.22	15	68.18%	94/86/98	2	Yes	
59.00	102	1.31	15	14.71%	93/90/99	0	Yes	