



RESIDENTIAL

DEVELOPMENT

PATTERNS

City of Beaverton, 1900s-Present





By studying residential development patterns, city staff can develop context-sensitive solutions for how new housing types can be integrated into existing neighborhoods.

EXECUTIVE SUMMARY

Most residential neighborhoods in Beaverton limit new housing to detached single-family homes. However, this was not the case until the 1970s.

Research conducted as part of the Housing Options Project, which seeks to determine where and how other housing types will be allowed in Beaverton's residential zones, has found that Beaverton's zoning allowed duplexes, triplexes, quadplexes and apartments throughout Beaverton in the 1940s and 1950s, and to a lesser extent, in the 1960s and 1970s.

In 1960, the city created its first residential zone for detached single-family homes only. And in 1978, the city further reduced allowed housing variety by creating eight new residential zones, reserving five zones for detached single-family homes only.

These findings are important because a 2019 state law requires Beaverton to allow: (1) duplexes on all lots that allow the development of detached single-family homes, and (2) triplexes, quadplexes, townhomes and cottage clusters (small homes on small lots that share a garden or lawn) in all residential areas where detached single-family homes are allowed.

Staff is developing alternative ways that Beaverton can comply with the new law, starting with insights into the history, design and context of each neighborhood. Existing residential development patterns reveal opportunities or challenges that the city should be aware of as staff works with the community on how to allow a variety of housing types in residential neighborhoods with unique characteristics.

After calculating peaks in homebuilding construction, staff classified patterns into three areas. Within each boundary, at least three of four homes were built in that time period. The development periods include:

- Homes built before 1964 (RED text in this report)
- Homes built between 1965 and 1984 (ORANGE text)
- Homes built between 1985 and 2004 (GREEN text)

Staff analyzed each area to explore residential development patterns that change with time, including average lot size and coverage, average building footprint and height, housing mix, plex shapes, entrances, off-street parking, yard types, actual setbacks and street network patterns.

This report covers all housing types in each period, but places a greater emphasis on plexes – duplexes, triplexes and quadplexes – since few have been built since the 1970s, and this may change as a result of the state law mentioned above.

Below are the major takeaways by category:

- **Lot size.** Homes built before 1964 have the highest average lot size at 10,900 sq. ft. (Table 1) Detached single-family homes are on lots that are at least 25 percent on average larger than lots for all other plexes.

By 1965 to 1984, the average lot size for all detached single-family homes and plexes decreased to 9,100 sq. ft. In this period, detached single-family homes and duplexes are on similarly sized lots.

And by 1985 to 2004, the average lot size for detached single-family homes and all plexes decreased by 10 percent to about 8,300 sq. ft.

- **Lot coverage.** For detached single-family homes and duplexes, lot coverage is lowest for homes built before 1964 and climbs steadily with each decade, which makes sense since average lot size decreased and average building footprint usually increased over time.

Triplex and quadplex lot coverage calculations were less reliable. For triplexes, the data set is too small. And for quadplexes, the development patterns and building configurations vary widely (unlike those for detached single-family homes and duplexes which are typically one building on one lot).

- **Building footprint.** For detached single-family homes and plexes built before 1964, duplexes have the smallest building footprint (1,800-1,900 sq. ft. combined for both units) Detached single-family homes, triplexes and quadplexes are similarly sized with a 2,200-2,300 sq. ft. building footprint (except for the L-shaped quadplex at 2,700 sq. ft.)

By 1965-1984, detached single-family homes and duplexes have the largest and similarly sized building footprints at about 2,400 sq. ft. (a 10 percent increase for detached single-family homes and a 25 percent increase for duplexes). Interestingly, the average building footprint for quadplexes decreased by 30 percent during this period because quadplexes increased in height to two stories.

By 1985-2004, the building footprint for detached single-family homes decreased slightly, but homes became much taller, appearing bulkier next to homes from earlier eras.

- **Building height.** Most detached single-family homes and plexes built before 1964 are single-story, with detached single-family homes and duplexes slightly taller than triplexes and quadplexes.

By 1965-1984, most quadplexes are two stories, moderately taller than detached single-family homes, duplexes and triplexes (all roughly the same height). For

For homes built before 1964, duplexes were smaller than all other housing types.

And detached single-family homes, triplexes and quadplexes were roughly the same size.

homes built from 1985-2004, most detached single-family homes and duplexes (rarely built) were two stories.

- **Housing mix.** Housing mix looks differently in each period depending upon how it is evaluated. Plexes built before 1964 (90 buildings) are often next door to detached single-family homes in residential neighborhoods. For homes built from 1965-1984, the existing plexes (303 buildings) were often grouped with other plexes. Duplexes are next to duplexes. Quadplexes are next to quadplexes. Only 18 plexes were built from 1985-2004.



A Comparison of Duplexes in each Development Period. The duplex built before 1964 is a smaller, single-story Ranch that is placed close to the street. By 1965-1984, duplexes were larger and wider, with one or two driveways that led to a one or two car garage. Most duplexes were single-story, but two-story duplexes were becoming more common. And by 1985-2004, duplexes were significantly taller, with even larger garages becoming the dominant feature in most street-facing facades.



Built before 1964



Built between 1965 and 1984



Built between 1985 and 2004

TABLE 1. Housing Types and Development Patterns

BEFORE 1964

HOUSING TYPE				
DETACHED SINGLE-FAMILY	Lot Size	10,900 sq. ft.		
	Lot Coverage	0.23		
	Height	1.3 floors		
	Footprint	2,210 sq. ft.		
DUPLEX	All Types			
	Lot Size	8,700 sq. ft.		
	Lot Coverage	0.21		
	Height	1.2 floors		
	Subtypes (Major)	Rectangular	L-shaped	
	Footprint	1,900 sq. ft.	1,800 sq. ft.	
	Entrances	Mostly individual entrances that face the street.	Individual. Most face the street, but some are inset.	
	Parking	Combination of surface parking, attached & detached 1-2 car garages.	Surface parking (major), 1-car garage (minor).	
	Yard types	Medium to large front and rear yards common.	Multiple driveways & walkways divide front yards into small segments. Some have medium rear yards.	
	TRIPLEX	All Types		
Lot Size		8,100 sq. ft.		
Lot Coverage		0.31		
Height		1.1 floors		
Subtypes (Major)		Rectangular	L-shaped	
Footprint		2,300 sq. ft.	2,300 sq. ft.	
Entrances		Individual and shared. Most not visible from the street. Either inset or far back from the property line.		
Parking		Mostly surface parking for 4-10 cars. Garages rare.	Surface parking for 4-8 cars.	
Yard types		Mostly small side yards that are not too usable.	Small side yards, medium front yards if on corner lot.	
QUADPLEX		All Types		
	Lot Size	N/A. Lot configurations vary by development type.		
	Lot Coverage			
	Height	1 floor		
	Subtypes (Major)	Rectangular	L-shaped	
	Footprint	2,300 sq. ft.	2,700 sq. ft.	
	Entrances	Individual and shared. All inset and/or hidden.	Individual and shared. Most are street-facing.	
	Parking	Mostly surface parking for 4-8 cars. Garages rare.	Surface parking for 8-12 cars. No garages.	
	Yard types	Mostly small side yards, medium if parking reduced.	Medium front yards if building is pushed to corner.	

1965-1984

	9,150 sq. ft.	8,280 sq. ft.	
	0.29	0.31	
	1.4 floors	1.9 floors	
	2,430 sq. ft.	2,300 sq. ft.	
	9,100 sq. ft.	N/A. Many were built with access and parking on separate lots.	
	0.26		
	1.3 floors	1.8 floors	
T-shaped	U-shaped	T-shaped	U-shaped
2,500 sq. ft.	2,300 sq. ft.		
Individual and shared. Mostly street-facing.	Individual and shared. Mostly inset or hidden.		
(2) 1-car garages or (1) 2-car garage	(2) 1-car garages, (1) 2-car garage, and (2) 2-car garages	Subtype pattern weak because only (16) duplexes were built, though a majority appear to be T-shaped and U-shaped.	
Medium side yards if 2-car garage in center of house, medium front yard if 1-car garage at edge of house.	Some have medium to large rear yards, but front and side yards are rare with wide driveways.		
	10,400 sq. ft.	12,000 sq. ft.	
	0.29	0.19	
	1.3 floors	1 floor	
No subtypes. Only (3) triplexes built.		No subtypes. Only (1) triplex built.	
N/A. Some lots have multiple buildings, as well as access and parking on separate lots.		16,000 sq. ft.	
		0.28	
		1.8 floors	2 floors
Rectangular	U-shaped		
2,000 sq. ft.	1,800 sq. ft.		
Individual or shared. Some have one street-facing entry.	Individual or shared. All inset or hidden.		
Either access to a rear alley that provides surface parking and 4-car garages, or shared parking lots.	(2) 2-car attached garages or (1) detached 4-car garage, both scenarios also provide surface parking	No subtypes. Only (1) quadplex built.	
Front and side yards common. Rear yards rare.	Front and side yards in some cases. Rear yards rare.		

- **Plex shapes.** Most plexes built before 1964 are rectangular or L-shaped. By 1965-1984, the desire for 1-2 car attached garages marks a shift from simple to compound forms – T-shaped and U-shaped duplexes and quadplexes, which support multi-car garages, emerged as the predominant building form.
- **Entrances.** Rectangular, L-shaped and T-shaped duplexes were more likely to have at least one street-facing entrance. U-shaped duplexes typically have inset or hidden entrances. Rectangular and L-shaped quadplexes often had at least one street-facing entry. As with duplexes, U-shaped quadplexes were also more likely to have inset or hidden entrances.
- **Off-street parking.** Homes built before 1964 might have a driveway only or an attached or detached 1-2 car garage. Rectangular duplexes were more likely have a garage than an L-shaped duplex. Triplexes and quadplexes typically had surface parking with lots that held 4-12 cars.
By 1965-1984, T-shaped duplexes offered additional on-site parking through (2) 1-car garages or (1) 2-car garage. U-shaped duplexes displayed the same range, and in addition, (2) 2-car garages.
Off-street parking options were more complex with quadplexes. Many rectangular quadplexes were on blocks with mid-block alleys that provided additional surface parking or led to a 4-car garage tucked behind the quadplex. Other rectangular quadplexes utilized a shared parking lot with another quadplex. U-shaped quadplexes relied on (2) 2-car garages or (1) detached 4-car garage.
- **Yard types.** Lots with simple forms (such as rectangular duplexes or quadplexes) with one driveway allowed for medium to large yards. Compound forms (such as T-shaped or U-shaped homes) with multiple driveways divided the site into smaller segments that made it difficult to have a usable yard in the front or the back.
- **Setbacks.** Actual setbacks were calculated for all plexes in all periods. However, they are not reported here because the results varied significantly for all types and development eras.
- **Street patterns.** Rectilinear and curvilinear street grids are the predominant network pattern in neighborhoods with homes built before 1964. Neighborhoods closer to Downtown were more likely to have rectilinear grids, providing more opportunities for corner lots with plexes that have entrances on both streets.

By 1965-1984, some neighborhoods were still built with curvilinear grids, but these would eventually give way to curvilinear neighborhoods with cul-de-sacs that

By 1965-1984, the desire for attached garages marks a shift from simple, rectangular forms to compound forms, such as T-shaped and U-shaped plexes.

Every housing type has its benefits. But they differ in their ability to support diverse living arrangements, provide smaller or larger home sizes, connect with the street, protect green space or supply parking.

reduced walkability and connectivity. Neighborhoods with cul-de-sacs continued to be the predominant form through the 1980s-2000s.

Studying these patterns provides proof that development rules, homebuilding trends and technological changes collectively influence the look and feel of neighborhoods over time. And comparing them allows the reader to reflect on the benefits and tradeoffs of different housing types and forms. For example:

- Which housing options are more or less suitable for residents with mobility issues? Young families looking for a starter home? Or multigenerational families that all want to live under one roof?
- Is it important for each housing type to have at least one street-facing entry? If so, what housing types and configuration encourage one-street facing entry? What housing types have entrances that are difficult to see from the street?
- How do off-street parking requirements (driveways, garages and parking lots) affect street presence and the potential for different types of yards?
- What site variations allow a greater opportunity for yards, gardens and trees? And what qualities are most important for a high-quality green space?
- What housing shapes might be the best candidates for internal conversions (for example, converting a detached single-family home into a duplex)?
- Could properties with low lot coverage support the addition of one or two accessory dwelling units (a small, self-contained home, attached or detached, on the same property as a principal home)? Or on larger lots, even a new detached single-family home or duplex?

Every housing type has its benefits. But they differ in their ability to support diverse living arrangements, provide smaller or larger home sizes, connect with the street, protect green space or supply parking. As the city considers how to bring back housing variety into residential neighborhoods, learning from the past can help everyone make more informed choices about the future of residential neighborhoods in Beaverton.

Soon, the city will host events where the public can share insights about what works well and what could be improved. Staff will use this feedback to develop potential housing strategies that will be reviewed by City Council and the public at every stage in the process.