

Diversifying Housing Options with Smaller Lots and Smaller Homes



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NAHB[®]
National Association
of Home Builders

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OPTICOS DESIGN

Opticos Design, a team of urban designers, architects, and strategists, was founded in 2000 on the belief that walkable places are critical for healthy, resilient, and equitable communities. Through that expertise, Opticos coined the concept of Missing Middle Housing, a transformative idea that highlights the need for diverse, affordable housing options in walkable urban places. In addition, Opticos is a leader in the development of Form-Based Coding.

Opticos is a founding B Corporation, which means it has pledged to meet the highest standards of social and environmental responsibility. This commitment informs all decisions, from the projects it takes on to the pencils used to do the work.

Research Team

Alex Vondeling is an architect and urban designer with more than 25 years of professional experience designing resilient buildings and neighborhoods, with an emphasis on urban infill projects and diverse, walkable communities. At Opticos, she focuses on Missing Middle infill development and neighborhood-level, people-centric communities for private, public, and nonprofit clients. Ms. Vondeling led the team at Opticos that researched and compiled this report for NAHB.

Tony Perez has thirty years of experience in public sector planning and Form-Based Codes consulting and is fluent in both urban design and architecture. Mr. Perez works with communities to establish and translate policy direction into clear and implementable development standards that deliver the expected vision. A leader in advancing the practice of Form-Based Coding, Mr. Perez was on the 2016 Driehaus Award Jury and is a board member of the Form-Based Codes Institute (FBCI). He serves as an FBCI instructor, where he engages with public sector planners from across the U.S.; he is also a professor of Form-Based Planning and Zoning at Cal Poly Pomona University. Mr. Perez contributed extensively to this report, sharing and articulating his first-hand experiences and conducting interviews.

Xenia Alygizou is an urban designer passionate about the intersection of urbanism and sociology. For the past five years, she has researched utopian urbanism theories, applied participatory design processes to her work, and examined incremental design approaches at the neighborhood level. Since joining Opticos Design, Xenia has researched and developed innovative design plans, concepts, and approaches. For the *Memphis 3.0 Comprehensive Plan*, Xenia contributed to the land use plan and promoted community participation throughout the plan's development. For the *Downtown Davis Specific Plan and Form-Based Code*, she analyzed and helped to prepare the Administrative Draft Specific Plan. Ms. Alygizou's research and organizational skills contributed extensively to this report.

Executive Summary

Housing affordability has once again become an increasing concern, as demand has bounced back after the Great Recession in both urban and suburban areas. A February 2016, Washington Post article by Emily Badger, along with other recent reports about why there is not enough decent affordable housing, concludes that it is due to a lack of overall housing supply. They note that by increasing the sheer amount of housing, competition for housing will fall, bringing down prices and rents to benefit everyone.

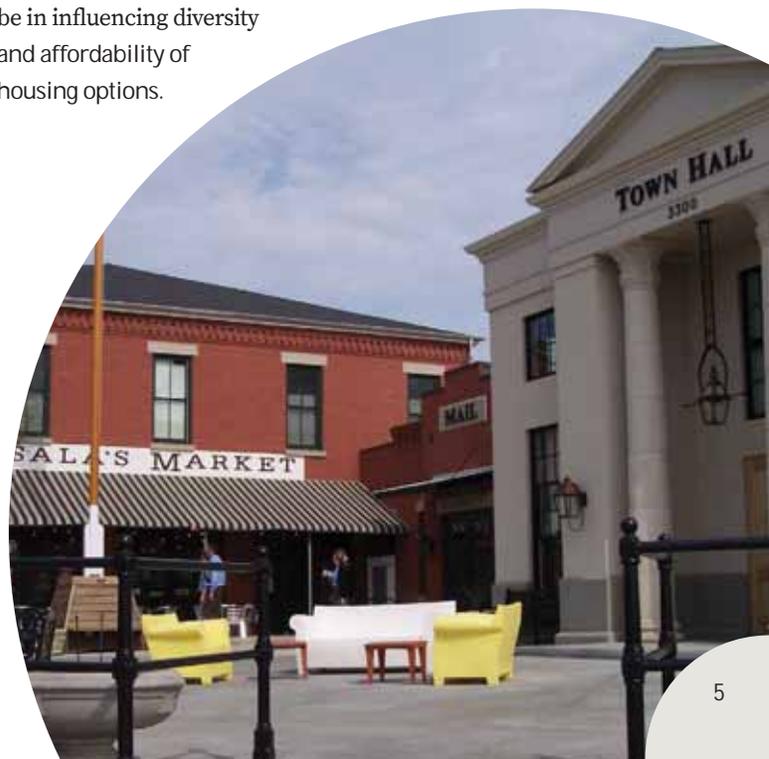
A dichotomy exists between what has essentially become two types of living choices: single-family detached and attached homes, and apartments and condominiums. This is how people see their choices in physical terms, especially in the context of affordability. This dichotomy also shows up in the reactions of existing residents, who quickly become concerned that adding housing or increasing density will negatively impact their neighborhood. These concerns combined with outdated zoning and regulatory approaches that limit the range of housing options make it very difficult to create good, affordable housing that fits the neighborhood. As a result, the default is to build single-family housing resulting in fewer sites for sensitive infill housing development.

Meanwhile, the demand for walkable neighborhoods is strong. Many Baby Boomers and retirees do not want to stay in their empty nester single-family homes or move to traditional retirement communities. Millennials seek to blend their urban wants with suburban needs as they age. Millennials and Boomers both want to live in communities where they can live, work, and play. Further, millennials are willing to have less space in favor of more flexible working situations. Retirees are looking for greater accessibility, and multigenerational households are also on the rise.

Thus, a greater mix of housing types, not just more housing, is needed to meet these differing income and generational needs, including options that would allow seniors to age in place within their existing community. But, the housing types that contribute to a greater mix often involve densities that are higher than what local zoning rules allow. More information is needed about the palette of housing types available to communities to address the growing needs. Housing market projections suggest that construction in the near future will accelerate only moderately for single-family housing but will greatly increase for multifamily housing or Missing Middle Housing and its wide variety of sizes, housing levels, and accessibility.

To that end, the objective of this report is to explore the issues involved in building a greater mix of housing types that bring discreet density to neighborhoods using a palette that ranges from smaller homes, to accessory dwelling units, to Missing Middle Housing types. In addition, this report aims to provide an understanding about the regulatory and design options as well as the barriers that currently limit or prevent these housing types. Finally, the analysis focuses on examples of codes and built results that were developed at the market rate without the expectation of subsidies so that we could understand how successful a code can be in influencing diversity and affordability of housing options.

*New Town
St. Charles*



Selected Ordinances and Codes for Analysis

Accessory Dwelling Unit (ADU) Ordinances

- Portland, Ore.
- New Hampshire
- Austin, Texas
- Los Angeles, Calif.

Small Lot Ordinances and Density Adjustments

- Denver, Colo.
- Los Angeles, Calif.
- Asheville, N.C.
- Kirkland, Wash.

Cottage Court Ordinances

- Ashland, Ore.
- Raleigh, N.C.

Form-Based Codes

- Novato, Calif.
- Miami, Fla.
- New Town St. Charles, Mo.
- Daybreak, South Jordan, Utah
- Kentlands, Gaithersburg, Md.
- Cincinnati, Ohio
- Mesa, Ariz.
- Peninsula, Iowa City, Iowa

Selected Built Case Studies

Accessory Dwelling Unit (ADU) Ordinances

- Garage Conversion ADU in Portland, Ore.
- The Farmhouse, Attached ADU in Portland, Ore.
- Duval, Detached ADU in Austin, Texas

Small Lot Ordinances and Density Adjustments

- GASPAR Townhomes in Los Angeles, Calif.
- Danielson Grove in Kirkland, Wash.

Cottage Court Ordinances

- Conover Commons in Redmond, Wash.
- Boiceville Cottages in Brooktondale, N.Y.

Form-Based Codes

- Meridian Court, Courtyard Apartment in Pasadena, Calif.
- Mansion Apartment, New Town St. Charles in St. Louis, Mo.
- Kentlands Cottages (Tower Houses), Kentlands in Gaithersburg, Md.
- Mews Townhouse Units, Daybreak in South Jordan, Utah

Key Research Findings and Influencing Factors

- Awareness is increasing that 'multifamily' development can be done effectively through discreet density, Missing Middle Housing, or other sensitive infill housing approaches.
 - As standards become more objective and quantifiable or prescriptive and clear, the review process tends to be simpler and enables 'by right' approval. An alternative is for less prescriptive standards but high responsibility on the developer or the city to communicate with and engage the neighborhood about each project.
 - Previous long-held resistance to smaller lot sizes is being reconsidered.
 - Density limits are not the most effective way to regulate residential neighborhood infill development or to ensure that a new building fits well into a neighborhood.
 - Building size/footprint is a key factor being used by more communities and is starting to make communities reconsider their Floor Area Ratio regulations.
 - Expectations are high for clarity in the standards and predictability about what the standards will produce.
 - Lot width is as or more important than lot area.
 - Being within walking distance of amenities (retail, services, food uses, transit) is more important than unit size.
 - Education and advocacy are most effective when customized to the local realities and needs.
 - Increasingly, codes are being revised to encourage smaller home building as one solution for addressing a national housing crisis. Since this research started, more jurisdictions have adopted codes that encourage the construction of smaller house and unit types. For example, Minneapolis, Minnesota is allowing triplexes by-right across all zones, Portland, Oregon is in the later stages of revising its residential zones to more easily allow duplexes through 4-plexes, and Medford, Oregon is in the process of revising its residential zones to allow a range of Missing Middle Housing by increasing the maximum density limits in walkable areas.
- 
- The market responds favorably to well-designed, smaller-unit buildings that fit within a single-family neighborhood. Design should not need to be regulated by codes, but property owners and developers will need to invest in that aspect to realize a successful outcome.
 - When regulations are perceived to present multiple barriers, result in a long time to process, or seem overly complicated, owners resort to building illegal units, particularly as related to ADUs.
 - The projects that receive the most positive recognition and community support of code changes are those where the team has shown a commitment to aspects other than just financial, such as interest in good design, communicating intent, and investing in the surrounding community.
 - Having a code that allows small units is a good step, but there are many other factors influencing how many units are actually built and at what cost, such as availability of financing, cost of construction, length of time for approvals, impact fees, and parking requirements.
 - When simplifying or eliminating review phases, either due to limited resources or to streamline the process, it is critical that the code is very clearly delineated for users and reviewers, without need for discretionary interpretation.

- Clear educational materials for the general public and professionals are needed for the review process, to show what the new code allows and how to use the new code.
- Regulatory processes that establish a clear intent and framework for a project provide necessary flexibility, allowing for property owners to respond to market demand and build at attainable price points.
- Integrated communications between city departments and the project team that start early and continue throughout the course the project have a direct correlation with the success of the project.
- It will take longer to demonstrate built results from a new code. In situations where patience is limited, it may be better to modify an existing code that both the building professionals and planning staff already use and understand.
- The level of public support for code changes directly affects the extent of barriers to be addressed and the complexity to be included in the code. The expectation should be that no code is going to be without its flaws on the first iteration. Codes need to be tested and refined through an ongoing process that removes barriers and simplifies the process and standards as they are tested and gain acceptance.

Challenges

- Construction costs and fees affect smaller units much more than conventional, larger units because of the smaller amount of square feet across which costs can be amortized. Many of the fixed costs, such as infrastructure and systems, are the same or nearly the same.
- An individual building infill project has fewer cost efficiencies than a project of several buildings and so limits the pool of developers and builders.
- While California is a leader that constantly innovates with many other states benefiting or following their lead, this innovation has not translated into speedier or more predictable processing and review of projects, which is a large hurdle for delivering a project at an attainable price point.
- Inflexible and overly conservative utility requirements that necessitate planning for the extreme case often negatively affect yield and good site planning.
- Although a code may require smaller units, the enormous popularity of short-term rentals, such as AirBnB and VRBO, often results in the new smaller homes not offering long-term residences. This is one of the biggest challenges many communities are trying to address by regulating short term rentals.

Benefits/Successes

- When considering approaches to increase housing diversity, pilot projects work well as a controlled experiment to test community approval and acceptance while informing new standards and/or procedures.
- Cities such as Portland, Oregon and Los Angeles, California that have addressed common barriers, such as parking requirements, and provided incentives, such as waived fees, have seen a significant increase in the number of ADUs permitted in the last several years.
- Looking back at the historical development of the city and working to align the current zoning codes with the patterns of the historic, smaller homes works very well as a way to create development that fits the context, as well as eliminating the non-conformities generated by a new code, as seen in Denver, Colorado.



CHAPTER 1:
Database Of Land
Use And Zoning
Strategies



CHAPTER 1: Database Of Land Use And Zoning Strategies

CHAPTER SUMMARY

The first step in preparing this report was to identify ordinances, regulations and approaches ('codes') that enable the construction of a greater mix of housing types and smaller, more affordable homes. The team reviewed codes across the United States in a variety of regions and communities; researched zoning ordinances, code amendments, entire new codes, comprehensive plans, social media outreach, and internet searches; and spoke with developers, architects, and planning colleagues.

The approaches researched were compiled into an extensive database of 118 individual ordinances and codes. The team reviewed the database for the codes that are replicable and represent neighborhoods across the United States, from small towns to medium and large cities. The codes were organized into four types by their focus and approach for generating housing choices: accessory dwelling unit (ADU) ordinances, small lot ordinances, cottage court ordinances, and form-based codes (infill and greenfield). The team has tried to balance the examples presented in this report to provide a wide variety of code approaches to consider.

DATABASE OF ORDINANCES AND CODES

The 118 ordinances and codes are compiled into a database (see Appendix: Code Database) that is organized by state, identifies the preparer(s), includes a link to the ordinance, regulation, or code, if applicable, and provides information on the following:

1. What is the code's extent? (site specific, areas, citywide, countywide, statewide)
2. How is the regulation adopted, and how is it implemented?
3. Is the context urban, small town, or rural?
4. Does the code use conventional or form-based zoning?
5. Does the code use supplemental standards?
6. What housing strategies are addressed? (accessory dwellings, small lot development, Missing Middle Housing)
7. How was the code initiated? (community, private owners)
8. What is the level of difficulty to draft and adopt this type of code?

In order to determine which codes merited a more in-depth analysis to be included in this report, an evaluation matrix was developed. The parameters included the eight topics listed above plus consideration of geographic location, population, and code type in order to provide a diverse representation. This analysis resulted in 18 codes being selected for the report in the following four ordinance approaches, described below:

- **Accessory dwelling unit (ADU) ordinances** are aimed at generating a dwelling that is secondary to the main house on the lot. An ADU can be attached to the house, be part of a detached garage or basement, or can be an individual building on the lot. This approach is typically applied as an ordinance that applies to all single-family zones.

- **Small lot ordinances and density adjustments** are aimed at generating low- to moderate-intensity housing in a variety of neighborhood contexts. Some of these tools are for realistic development of small lots or irregularly shaped lots that remain undeveloped when the current development standards do not allow enough development to make investment feasible. Some of these tools encourage the reduction of lot size standards to enable more units than previously possible. This approach is typically applied as an ordinance that applies to certain sized lots in certain zones or as an overlay.
- **Cottage court ordinances** are aimed at generating small, detached cottages facing a shared court on a single lot. A cottage court offers more residential intensity within a single-family detached physical character. This approach can be applied as an infill ordinance, overlay, or specifically as a cottage court ordinance.
- **Form-based codes** are aimed at generating a broad spectrum of housing types and intensities and typically have more standards about physical form than other zoning standards or ordinances. The form-based codes highlighted here focus on low- to moderate-intensity neighborhoods. This approach can be applied as an infill ordinance, overlay, or replacement zoning.



RANKING REGULATION APPROACHES

Each regulation approach has been evaluated for two key factors so that the reader can make an informed decision on which approach best meets their scenario and needs:

- What is the ordinance or code's effectiveness?
- What is generally needed, in terms of level of effort, internal staff capacity and political support?

The four types of ordinances and codes are listed in order of effectiveness on the table below.

Ranking Code Approaches	Effectiveness	What is needed?	
		Level of Effort	Community Outreach
1. ADU Ordinance	Significant.	Minimal to Moderate. With this type of ordinance ready to use, applicants request it and have it applied as part of their project. If not ready to use by applicants, city needs to take time and prepare an ordinance.	Moderate. Communication is needed on what state law allows. In states without state law for ADU's, outreach is needed to communicate on the issues, needs and possible solutions.
2. Small Lot Ordinances	Moderate. Best when a more thorough analysis and rezoning are not feasible or desired and there are remnant or scattered parcels in a moderate intensity context that are not served by the existing zoning. Addresses Missing Middle Housing and can address ADU's.	Moderate to Significant. With this type of ordinance ready to use, applicants request it and have it applied as part of their project. If not ready to use by applicants, city needs to take time and prepare an ordinance. Preparing this type of ordinance is more work than the previous approaches because these ordinances are often applied to several areas with very different needs. This results in a need for less detailed standards that provide flexibility through design guidelines.	Moderate. Outreach is needed to communicate on concerns related to compatibility with existing single-family housing.
3. Cottage Court Ordinance	Moderate. Best for low intensity neighborhood that has pressure to intensify but highly values single-family detached character. Addresses one of the many types of Missing Middle Housing.	Minimal to Moderate. With this type of ordinance ready to use, applicants request it and have it applied as part of their project. If not ready to use by applicants, city needs to take time and prepare an ordinance.	Minimal to Moderate. Depending on the outreach done when the ordinance was prepared, outreach may not be necessary. Likely that some outreach on the first few projects will be needed.
4. Form-Based Codes	Significant. Addresses as broad a range of Missing Middle housing types as desired by the community, including ADU's.	Moderate to Significant. A new zone(s) and regulations need to be prepared and integrated into the zoning code along with a map of the parcels where the zone(s) will be mapped. The regulations are dependent upon careful documentation of the existing and desired conditions.	Moderate to Significant. Outreach is needed with the owners, local developers and real estate groups to explain this approach and get feedback on issues and needs.

Internal Staff Capacity	Political Support	Cost Range
<p>Minimal to Moderate. In states with state law allowing ADU's, staff only needs to familiarize with the standards and revise processing procedures accordingly. Also, needs to communicate these things to the community and city council. In states without such laws, staff needs to document the issues with the current standards and what the new ordinance needs to address. Typically, staff will also want to see what other communities have done and will review their ordinances for tips. In addition, meetings with the community are needed to explain the issues and hear about concerns regarding rear yard privacy, etc.</p>	<p>Minimal to Moderate. If in a state with state law allowing ADU's, very little is required. If in a state that does not have such laws, support is needed to understand how ADU's will fit in with existing and how to address parking and rear yard privacy concerns of existing residents.</p>	<p>\$ to \$\$</p>
<p>Moderate. Staff needs to document the issues with the current standards and what the new ordinance needs to address and/or override. Typically, staff will also want to see what other communities have done and will review their ordinances for tips.</p>	<p>Moderate. Support is needed to understand how new development will fit in with existing and how to address traffic and parking concerns of existing residents. In addition, in lower intensity neighborhoods, the implications of smaller lot size standards on existing development need to be understood: 2 lots where there is now 1 and what that does to the physical character of the neighborhood.</p>	<p>\$ to \$\$</p>
<p>Minimal to Moderate. Staff needs to either do the research to prepare an ordinance from scratch (moderate work) or can use other ordinances as models to modify for their own version (minimal work).</p>	<p>Moderate. In low intensity single-family neighborhoods, support is needed to understand how these projects will not change the physical character. In moderate intensity neighborhoods, the support is needed but to a lesser degree.</p>	<p>\$ to \$\$</p>
<p>Moderate to Significant. If a consultant prepares the zone and regulations, staff's responsibilities are moderate: needing to be involved through the documentation of existing conditions, identification of new standards, and working with internal staff and departments on adjustments to the procedures. If staff prepares the zone and regulations, staff's responsibilities are significant.</p>	<p>Significant. Need to work with the city council and planning commission to explain this approach and why more upfront work is needed than with other approaches, and to get direction on issues and needs.</p>	<p>\$\$ to \$\$\$</p>

APPROACHES

Accessory Dwelling Unit (ADU) Ordinances

ADU ordinances are used when there is a need for more diverse affordable housing opportunities within a lower intensity, primarily single-family detached context. The standards can be in addition to the base zoning or as an independent set of standards. Typically, the ADU ordinances allow either the conversion of existing structures such as garages into secondary dwelling units or new accessory structures to be built within a parcel by utilizing existing available space, usually in the backyard.

This approach can be applied as an Overlay or Optional Overlay.

Benefits

- ADUs are an affordable type of home to construct because they do not require paying for land and major new infrastructure.
- ADUs are cost-effective, one- or two-story, wood-frame construction.
- They bring flexibility to infill development and diverse housing options.
- ADUs are more affordable and can provide additional income to homeowners through rent.
- In many cases, ADU ordinances are encouraged by local governments since they provide development incentives, such as no additional required parking or added utility connection fees.
- They retain the scale and character of the neighborhood.
- They serve different populations, ranging from students and young professionals to young families, people with disabilities, and senior citizens.
- Usually, the approval process is fast.

Challenges

- The development of ADUs is mostly associated with single-family homes.
- Their approval can come with design, access, lot coverage, and height limitations and maximum living space area or number of bedrooms.
- In the case where a garage is converted into an ADU, extra on-street or off-street parking space could be requested.
- In some cases, municipalities require owner occupancy of properties containing ADUs and determine methods and standards for verification and enforcement. They may also enforce a maximum number of short-term rental days or a minimum lease period in order to prioritize permanent housing over vacation rentals.

Small Lot Ordinances and Density Adjustments

Small lot ordinances are used in two general options: a) to allow for new, smaller lots in residential zones that typically have very large minimum lot sizes (5,000 square feet and larger), which can be for either attached or detached single-family homes and do not typically require a homeowners association; or b) to develop existing lots that cannot achieve what the existing zoning allows and so remained vacant or underutilized.

Scenario A: A 6,000-square foot lot could be subdivided into two lots, with two single-family homes and possibly an ADU on each lot, depending on the local ADU allowances.

Scenario B: A 75-foot wide lot in a single-family or multifamily zone could physically accommodate 3 to 4 townhouse-style dwellings with a single driveway to the street. However, the resulting lot size for each townhouse will be substantially smaller than what the city allows. Without a small lot ordinance, the substandard lot size would stop the project. Through the small lot ordinance, the lot standards and any others are revised to make the development feasible.

Scenario C: In a multifamily zone on a lot of 75 feet or less, it is not physically possible to achieve the currently allowed dwelling units (e.g. lot size x allowed density per acre). Typically, it is the onsite open space and/or off-street parking standards that limit the number of dwellings. This results in the parcel remaining vacant or underutilized and raises the need for relief from those standards. However, it is often very difficult to change the zoning standards. A less problematic approach is to introduce a small lot ordinance, because it is voluntary and does not change existing zoning until the owner chooses to do so.

Scenario D: In a single-family zone, lots are only allowed to have single-family houses but could easily accommodate house-scale buildings with three to four units. By adjusting the minimum required lot size to only require an additional amount of lot area (e.g., 1,000 square feet) for each additional unit, these lots are now able to accommodate a variety of low-intensity multifamily.

This approach can be applied as an amendment to existing standards, an Overlay, Optional Overlay, or Form-Based Zoning Codes.

Benefits

- Unlocks development potential in existing zoning standards.
- Can be targeted to an area or can address several zoning districts.
- Can be used to accommodate pre-existing buildings that are otherwise fine models for new housing but do not meet current zoning standards (e.g. cottage court, courtyard building, mansion apartment building).
- Does not change the existing zone standards for lots not using the ordinance.

Challenges

- Can present size and scale issues to existing single-family neighbors, so a close analysis of existing patterns is needed to understand what is to be allowed and/or changed and how that affects existing neighbors.
- Can result in dwellings that only have a view of a narrow side yard and/or driveway without a view to or from the street (Colorado 'slot house' or Los Angeles 'dingbat').
- Can result in overly generalized standards that present issues.

Cottage Court Ordinances

Cottage court ordinances are used when communities want a single-family type of development that provides multifamily intensity but does not change the physical character of a low-intensity, single-family neighborhood. This type is also referred to as "Co-Housing" or "Pocket Neighborhoods".

Often, the maximum allowed density in a single-family neighborhood (e.g. 7 dwelling units per acre) prevents a cottage court, because mathematically it can range from 18 to 35 dwelling units per acre. The typical houses in a cottage court are intentionally small and sometimes limited to single-story to maintain visual compatibility with neighboring single-family houses. Despite this high degree of compatibility, the typical maximum density is often a roadblock. When cities want a cottage court, they often need to approve a site-specific planned unit development. However, it is becoming more common to see this type included as either part of a form-based code or allowed in a single-family zone with an administrative conditional use permit.

This approach can be applied as an Overlay, Optional Overlay, or Form-Based Zoning.

Benefits

- Can be used to make sensitive scale transitions to single-family zones.
- Visually maintains the single-family detached physical character of a low intensity neighborhood.
- Provides housing choices for those wanting a smaller house.
- Typically includes shared open space and/or built space, thereby providing opportunities for those wanting built-in community benefits.
- Can be targeted to an area or address several zoning districts.
- Can be integrated easily into a comprehensive zoning update.
- Good financial alternative for developers in single-family zones if the process for entitlement is not so restrictive as to make typical single-family construction a better option.

Challenges

- Can raise concerns from neighborhood because of the smaller house size and what they think that might do to their property value.
- Conventionally sized single-family houses will overwhelm the shared court and appear more intense and out of character with neighboring single-family houses. Thus, it is recommended that maximum house size be regulated.
- Requires different standards that are not based on a single-family lot; each cottage is detached, orients to the shared court, and does not have a rear yard.
- Needs a homeowner's association to maintain the shared court.
- May require numerical adjustments to the Comprehensive Plan and/or zoning.
- In multifamily zones the high price of land may make it infeasible.

Form-Based Codes (FBCs)

FBCs are used when physical form and character as well as a walkable neighborhood are top priorities. FBCs enable a variety of housing types in very close proximity to retail and services within the building, the block, and the neighborhood, as desired by the community.

FBCs do not limit the physical form through density per acre or floor area ratio. They provide tailored standards based on the existing physical character that is to be carried forward in new development or in new physical character that has been identified through a public process. This approach provides for as much or as little regulation on physical detail as desired. For example, in one area the zoning standards could be more restrictive, and, in another area, the same code's zoning standards could be less restrictive.

This approach can be applied to part of a block all the way up to several neighborhoods, corridors, or an entire community. Typically, on corridors, one form-based zone is applied to key nodes or 'centers,' and at least one more form-based zone is applied to the areas between the nodes. This approach tends to have a primary objective of generating significant amounts of new housing. Another example is a neighborhood that was originally occupied by single-family houses but over time has realized several of those houses needing to be used as multifamily. In these cases, the form-based zone can be applied to address the need for more housing while tailoring the standards to have a house-scale physical character of a particular neighborhood.

This approach is typically applied as Form-Based Zoning and can be applied as an Overlay or Optional Overlay.

Benefits

- Makes a variety of house-scale compatible buildings possible while relieving designs of arbitrary density and floor area ratio limits.
- Integrates non-residential uses, as desired by the community.

- Can be applied to as small as a half block, several areas, a community, or a county.
- Replaces existing zoning and guidelines; if support for rezoning is not ready, can be applied as an overlay.
- Can vary amount of regulation from one area to another in response to different expectations and policy direction.
- High degree of clarity about what is required to receive project approval.
- Enables approval authority to be delegated for easier processing.

Challenges

- Needs time and budget to document existing conditions and clearly understand key physical characteristics to be brought forward into new standards.
- Needs time and budget to orient approval authority staff and development community with new topics for regulations and to troubleshoot the new regulations.

APPLICATION OPTIONS

It is important to also understand the variety of options for applying the above code approaches. The following options are listed in order from simplest to most complex.

Substantial (Alternative) Compliance

This is a good option if acceptable projects in a zoning district routinely need relief from the standards. Often this occurs when a zoning district is applied to broad areas with very different needs and realities, and the generalized standards are trying to address too many variables.

This approach allows compliance with the standards to be met through alternative means of achieving the desired results. For example, if a proposed three-unit building complies with all standards except the amount of required off-street parking (three proposed, six required), the city could find that the project has substantially complied with the intent of the regulation if not the literal requirement. The rationale is that staff would consider the location and context of the site in relation to the requirement for six off-street spaces. If it is within short walking distance of nearby retail and services, staff could find that the requirement for six spaces is more relevant to a three-unit building far from retail and services where walking to those destinations is not viable and approve the project using the substantial compliance provisions in their zoning.

This approach includes guidelines to determine compliance and sometimes include a design review process to review these requests.

Benefits

- Avoids need to create new standards.
- Allows creativity by property owners in seeking alternative means of meeting the standard(s).

Challenges

- Requires discretionary review that needs periodic oversight on decisions and results.
- Requires guiding language and/or photos of acceptable results to help guide decisions.
- Can result in unacceptable proposals taking up staff time.

Targeted Adjustments or Revisions

This is a good option if the base zoning has standards that can generate the expected results but, for example, the onsite open space or required off-street parking standards are making projects infeasible. The focus can either be to update those two outdated standards, or to apply the small-lot ordinance or cottage court ordinance as a supplement to the existing standards. This is akin to a software update on your phone: a few things need to be adjusted, but there is no need to revise or replace the system.

Benefits

- Avoids the need for rezoning.
- Allows for confirmation of existing development and/or small adjustments in new development.
- Focuses attention on understanding why the outdated standards need to be revised.

Challenges

- Revisions that do not have support can bog down the process and delay near-term adoption of the updated standards.
- Showing other city departments that these revisions/adjustments do not present issues to them in other areas/zones.

Overlay Zone

This is a good option when a supplemental fix like the small-lot ordinance or cottage court ordinance is not enough, but new standards are needed, and there is not the support for revising the underlying existing zoning. For example, if the R2 zone does not currently allow any Missing Middle Housing types due to maximum allowed density or required off-street parking, an overlay zone could be prepared to essentially override all or parts of the existing R2 zone and provide the necessary standards. In addition, the overlay can be set to only apply in certain areas of the R2 zone and not every lot in that zone. Any or all of the four approaches (ADU, small-lot, cottage court, or FBC) can be applied as an overlay.

Optional Overlay Zone: This version of the overlay zone is used when there is not support for or the legal ability to make the standards mandatory. In the optional overlay scenario, the owner chooses to apply the overlay to his or her parcel as part of a project application. Typically, the optional overlay provides an incentive through additional density compared to the existing zoning. Any or all of the four approaches (ADU, small-lot, cottage court, or FBC) can be applied as an overlay.

Benefits

- Avoids raising issues with the existing zoning.
- Provides for optional path to applying the standards.
- Minimizes integration work between existing zoning and overlay.

Challenges

- Can raise confusion between existing zoning and the overlay and which standards apply in particular situations.
- Because of the relative ease of applying an overlay, can result in several overlays being applied to the same lots as new issues are raised.

Replace the Existing Zoning

This is a good option if the base zoning is not generating the expected results, there are issues with other standards (e.g. onsite open space and required off-street parking), clarity is a top priority, and there is political support to rethink the existing zoning. In these cases, it is efficient to first evaluate your other zoning districts to see which one(s) may, with some adjustments, generate the expected types of housing. If none are good templates for modification, a new zone is recommended.

When replacing the zoning, all topics from lot coverage, setbacks, building size, and height to uses, parking, and landscaping are on the table. Of the four approaches (ADU, small-lot, cottage court, FBC), the cottage court ordinance and form-based code can be applied as new zoning districts. Alternatively, a zoning district can also be prepared using conventional zoning standards. Which to apply depends on the intended physical context (walkable or auto-dependent) and the degree to which physical character is a priority.

Benefits

- Coordination of requirements with the types of expected housing.
- Addresses recurring issues and limitations on new housing.
- Can result in higher degree of clarity about what is required to get project approval.

Challenges

- Addressing property owner concerns about rezoning vs. 'easier' options.
- Time and cost depending on the size of the area(s).

HOW THE SELECTION WAS DETERMINED

Importance was placed on obtaining a national representation of communities of varying sizes. Additionally, priority was given to selecting regulations from a variety of authors as well as regulations with built examples. In addition, each regulation was evaluated for the following:

- **Extent**—Is the regulation specific to a site or is it larger covering one or more areas? Is it an optional regulation that is self-imposed? Does the regulation cover the entire city ('citywide')?
- **Status**—Is the regulation adopted? Is it in the drafting or approval process?
- **Context**—What is the prevalent context? Is it urban, medium-sized, small town, or rural?
- **Zoning**—What type of zoning does the regulation use? Conventional zones, form-based zones, or both?
- **Supplemental Standards**—Does the regulation use building types or other standards supplemental to the lot coverage standards, building setbacks, and height?
- **Housing Strategies**—What is the regulation's primary aim? Urban center regeneration? Missing Middle Housing? Small-lot development? Accessory dwelling units?
- **History**—What was the process like to develop and adopt the regulation? Simple and easy? Moderately challenging? Very difficult?



SELECTED REGULATIONS

The following 18 regulations were selected for a more in-depth analysis in Chapter 2.

Accessory Dwelling Unit (ADU) Ordinances

1. **Portland, Ore.:** A well-studied ADU ordinance that provides financial incentives for homeowners.
2. **New Hampshire:** Several states have instituted statewide ADU ordinances. New Hampshire's is one with an in-depth explanatory process of how it can be applied to its different municipalities.
3. **Austin, Texas:** A recent code amendment to the existing ADU codes which has resulted in a notable increase in ADU development.
4. **Los Angeles, Calif.:** An example of a large city that is defaulting to the statewide ordinance for regulating ADU development without any local amendments.

Small Lot Ordinances and Density Adjustments

5. **Denver, Colo.:** An amendment to minimum lot size in single-family zones to allow small lot development.
6. **Los Angeles, Calif.:** A small lot ordinance that covers a wide variety of neighborhoods.
7. **Asheville, N.C.:** An ordinance that amended the minimum lot size in residential zones to allow small lot development.
8. **Kirkland, Wash.:** An ordinance that is aimed at addressing the changing composition of households and the need for smaller, more diverse, more affordable housing choices while ensuring compatibility with surrounding single-family residential development.

Cottage Court Ordinances

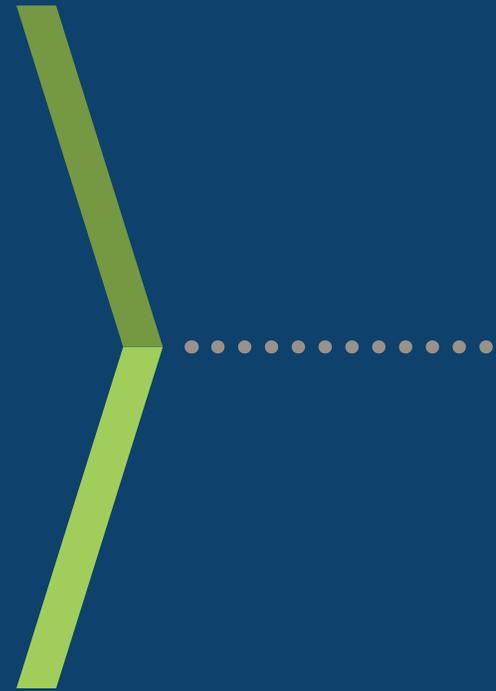
9. **Ashland, Ore.:** A recently adopted cottage court ordinance that applies in single-family zones and increases the allowable density from 12 to 17 but also limits the size and number of units to be in scale with single-family neighborhoods.
10. **Raleigh, N.C.:** A Unified Development Ordinance which is written as a form-based code and includes cottage court building types.

Form-Based Codes (FBCs)

11. **Novato, Calif.:** A neighborhood zone ready to be adopted in 2019 in a community where developing new housing has been very difficult. The community became more at ease about new housing and slight intensification because they saw how the code prevents physically incompatible buildings and can help maintain their small-town character. The new zoning standards replace multifamily zoning for a low to moderate intensity neighborhood. No built examples yet.
12. **Miami, Fla.:** A citywide zoning code was adopted in 2009 under strong leadership by the mayor. The code addresses the full range of building types appropriate for low-intensity, low-to-moderate-intensity, and high-intensity neighborhoods. This code featured a complete revision to the processing and approval procedures to help expedite new housing. Built examples are across the intensity spectrum.
13. **New Town St. Charles, Mo.:** A 726-acre agricultural site planned in 2002 as a new community for the purpose of offering a range of affordable housing choices in six walkable urban neighborhoods. The plan is about 30 percent built out with a variety of housing types that are serving as a positive example for house-scale multifamily building types. The development uses a code that simplifies implementation.
14. **Daybreak, Utah:** A 4,150-acre agricultural site planned for several villages, walkable neighborhoods, neighborhood and community-level main street environments, and employment areas. In 2002, a master plan was prepared for the entire site, along with a pattern book of detailed standards and guidelines. Implementation is clear and simple and the plan is about 20 percent built out with a variety of housing types.
15. **Kentlands, Md.:** A 350-acre site with a farm and a few historic buildings adjacent to a suburban shopping center. The site was planned, and a code was adopted in 1988 with an update in 1995. The plan is built out, with neighborhoods offering a variety of housing choices. The former shopping center was transformed into a main street environment that serves these and adjacent neighborhoods.
16. **Cincinnati, Ohio:** A citywide code was adopted in 2013 under strong leadership by the mayor. The code addresses the full range of housing types appropriate for low-to-moderate-intensity and moderate-intensity neighborhoods. The zoning standards apply to 42 neighborhoods that have chosen to self-impose the new zoning on their parcels. Built examples are on the upper end of this intensity spectrum.
17. **Mesa, Ariz.:** A citywide code was adopted in a state where it is very challenging to develop new, alternative regulations. The code addresses the full range of housing types appropriate for low- to moderate-intensity neighborhoods. The code has been in effect since 2008, and by law is not mandatory. Over time, property owners are choosing the new code over the existing zoning. Built examples are on the upper end of this intensity spectrum.
18. **Peninsula, Iowa:** A 70-acre infill site in Iowa City for a new neighborhood. The code identifies a range of ten building types appropriate for low- to moderate-intensity neighborhoods. The site was purchased by the City in 1995 who assembled a team to plan and build the development. The code was adopted in 2001 and updated in 2012. The plan is built out with a variety of housing types and neighborhood-serving retail and services.

City/State	Extent	Author	Status of Code	Ordinance Type	Context	Website/Metadata
Portland, Ore.	City-wide	City of Portland	Adopted	ADU ordinance	Urban	http://bit.ly/2LIB6ww
New Hampshire	State-wide	State Legislature	Adopted	ADU ordinance	Medium/ Small Town	http://bit.ly/2IXVnW0
Austin, Texas	Area-specific	City of Austin	Adopted	ADU ordinance	Urban	http://bit.ly/2VapP5Y
Los Angeles, Calif.	State-wide	State Legislature	Adopted	ADU ordinance	Urban	http://bit.ly/2VCJllx
Denver, Colo.	City-wide	City of Denver, Code Studio, Ferrell Madden Associates	Adopted	New Multi Family Zone, Form-Based Code	Urban	http://bit.ly/2LqBpph
Los Angeles, Calif.	City-wide	City of Los Angeles	Adopted	Optional "Infill" Zone	Urban	http://bit.ly/2Vv1jMj
Asheville, N.C.	City-wide	City of Asheville	Adopted	ADU ordinance	Urban	http://bit.ly/2DA9wV1
Kirkland, Wash.	City-wide	The Cottage Company	Adopted	Optional "Infill" Zone	Urban	http://bit.ly/2VBm5dc
Ashland, Ore.	City-wide	City of Ashland	Adopted	Modification of Lot Size standard	Medium/ Small Town	http://bit.ly/2VdZQuu
Raleigh, N.C.	City-wide	Code Studio	Adopted	Optional "Infill" Zone	Medium/ Small Town	http://bit.ly/2DPtLyv
Novato, Calif.	Site-specific	Opticos Design	In Adoption Process	Form-Based Code	Medium/ Small Town	
Miami, Fla.	City-wide	Duany Plater-Zyberk & Company	Adopted	Form-Based Code	Urban	http://bit.ly/2DFkZ5N
St. Louis (New Town St. Charles), Mo.	Site-specific	Duany Plater-Zyberk & Company	Adopted	Form-Based Code	Medium/ Small Town	
South Jordan (Daybreak), Utah	Site-specific	Daybreak Communities	Adopted	PUD	Medium/ Small Town	http://bit.ly/2VcGxS5
Gaithersburg (Kentlands), Md.	Site-specific	Duany Plater-Zyberk & Company	Adopted	Form-Based Code	Medium/ Small Town	http://bit.ly/2LbL036
Cincinnati, Ohio	City-wide	Opticos Design	Adopted	Form-Based Code	Urban	http://bit.ly/2VCJN8P
Mesa, Ariz.	City-wide	Opticos Design	Adopted	Form-Based Code	Urban	http://bit.ly/2LcGkKh
Iowa City (Peninsula), Iowa	Site-specific	Ferrell Madden Associates	Adopted	Form-Based Code	Medium/ Small Town	http://bit.ly/2Vx4C5p

CHAPTER 2: Code Analysis and Best Practices



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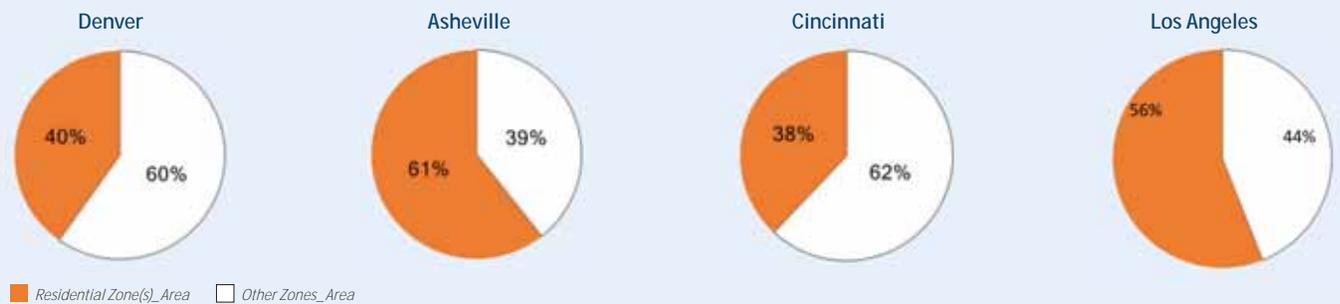
CHAPTER SUMMARY

The 18 examples were adopted to address a housing need created primarily by many of the prior ordinances and regulations that prevented smaller houses and compact infill development. These examples also typically legalize and adapt existing built patterns for 21st century needs.

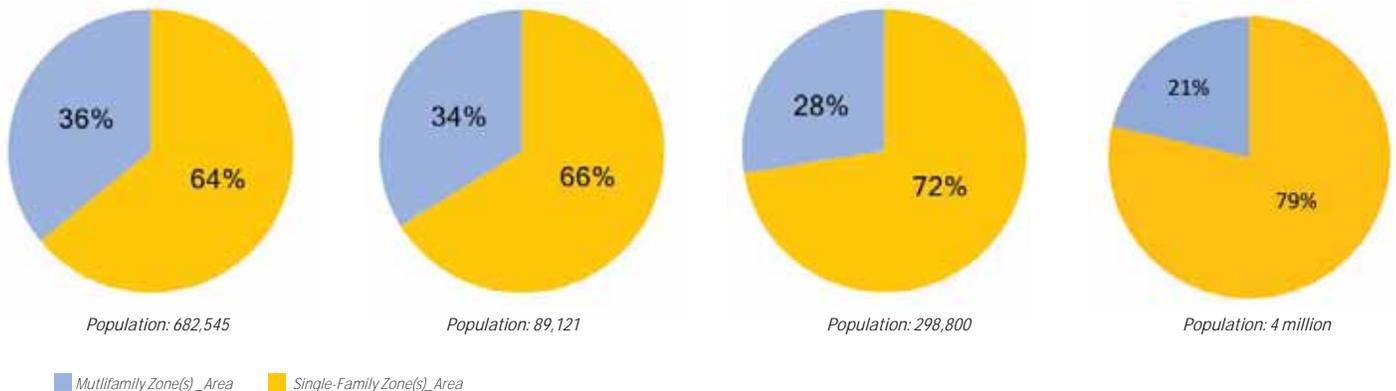
Having an updated set of standards or a new code helps provide clear direction and streamlines the development review and approval process, thus reducing costs to projects while providing neighbors with more clarity about what types of development are allowed. Attention is needed to keep the approval process from becoming overly burdensome and lengthy, particularly if the review is discretionary.

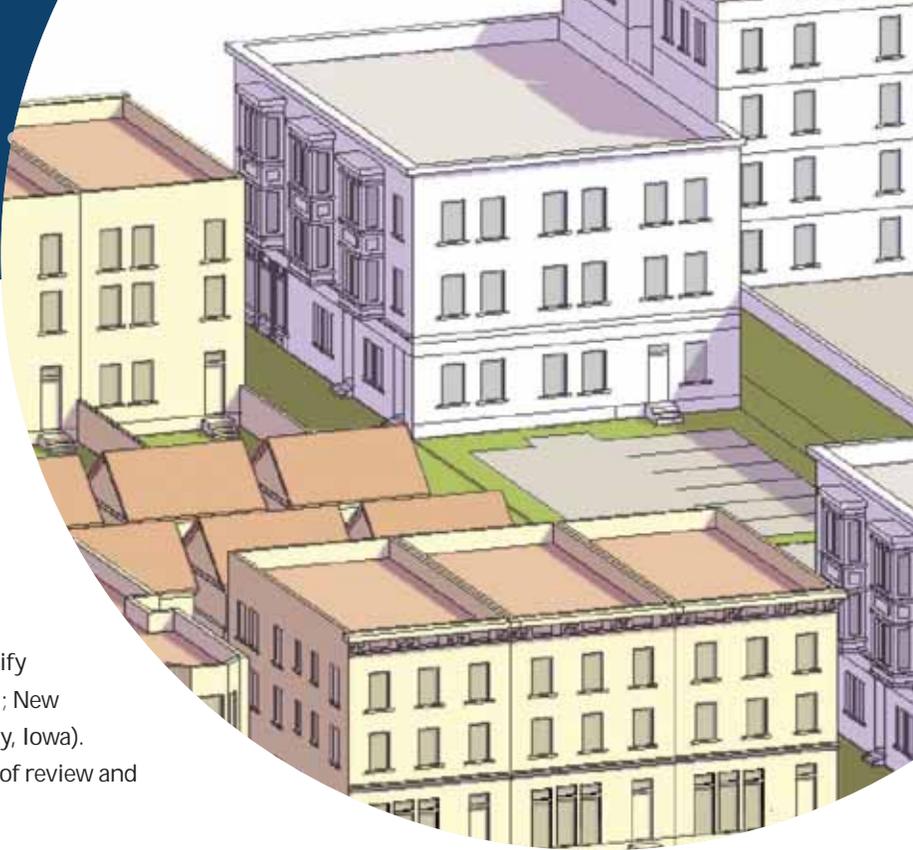
Residential Total

A variety of cities were analyzed for their amount of single-family neighborhoods in comparison to the amount of multi-family neighborhoods to understand the potential for some adjustments to lower intensity neighborhoods to include small multi-family housing-Missing Middle.



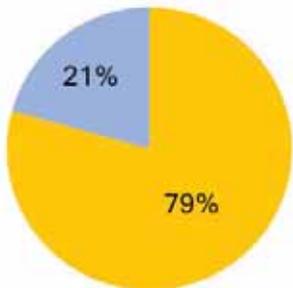
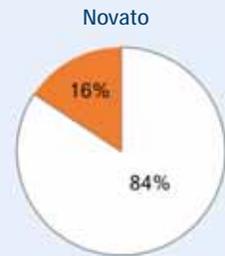
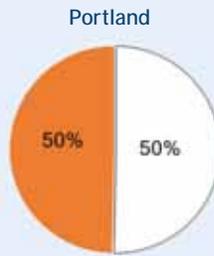
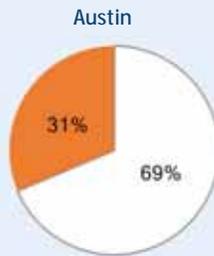
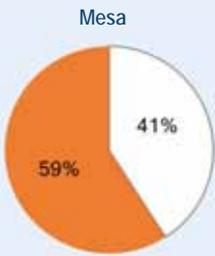
Single Family – Multifamily



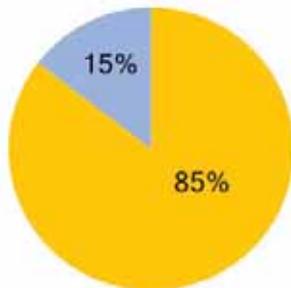


The codes selected for this analysis represent a range of approval processes, from 'by right' in Portland, Ore., and Daybreak in South Jordan, Utah, to those that have mostly administrative approvals, to those that balance both by-right and administrative approval with some discretionary review, to those that use a town architect to greatly simplify the design and review process (Kentlands, Md.; New Town St. Charles, Mo.; and Peninsula, Iowa City, Iowa). A trend with these codes is that as the amount of review and

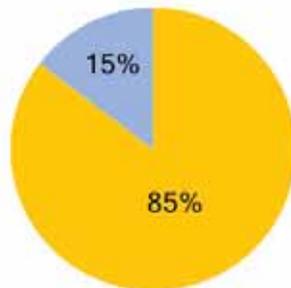
The data were taken from the official online databases of the cities' Planning Departments. The population count resulted from a google.com search.



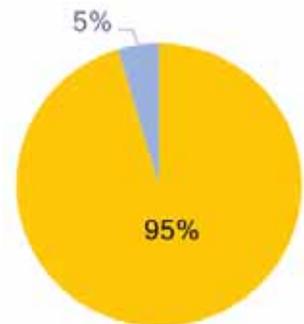
Population: 484,587



Population: 947,800



Population: 639,863



Population: 56,004

processing decreases, communities recognize that they need to be far clearer about standards and expectations. This is helpful to both the applicant and to the community's staff who processes and reviews development applications. In addition, understanding who is using the code helps determine how much educational information is needed to improve and make the process clear. The information that needs to be prepared for developers and design professionals is different from what needs to be prepared for a homeowner interested in building an ADU. But it's important to communicate clearly to both groups and other stakeholders. It's also important to understand the needs of builders and developers as well as the realities of buildings, lot sizes and different neighborhood contexts. In many communities, this approach is replacing a more general 'one-size-fits-all' type of approach that many communities did not realize existed.

When considering where the greatest opportunities are for small houses and compact infill in the typical community, it's typically the single-family zones that have the most land area. However, most single-family zones are not zoned to allow the types of housing highlighted in this analysis. The pie charts show the amount of single-family zoning relative to the multifamily zoning in some of the cities analyzed in this report. In an emerging trend, various cities such as Portland and Minneapolis have been adjusting their single-family zoning regulations to allow for more than just a single-family house.

There is a growing understanding that what we now refer to as 'multifamily' development was once a much more nuanced type of development than what we have come to know over the past 50 years. For example, pre-1940s neighborhoods typically have a variety of housing types. These neighborhoods consist mainly of single-family houses but also contain multifamily buildings. But the multifamily buildings are the size of houses ranging from duplexes to triplexes and fourplexes, and mansion apartment houses with 5 to 10 units. These types are now referred to as Missing Middle Housing because they represent the palette of housing choices in the middle, between single-family houses and large apartment buildings. After the 1940s, this house-scale, multifamily housing was seen as inefficient and instead, larger multifamily buildings became the prevalent approach. With the rediscovery of great examples from pre-World War Two neighborhoods and more people wanting to live in neighborhoods with a more personal scale and identity, Missing Middle Housing has provided a simple way for communities and developers to communicate about choices between a single-family house and large apartment buildings.



ANALYSIS BY BUILDING TYPE

Opticos Design evaluated a wide range of building types (site plan and building configurations) across a variety of infill situations and greenfield developments. This resulted in identifying seven typical building types that can be easily customized to a variety of sites and neighborhoods. We acknowledge that there are regional variations of each building type including what they are called. With that in mind, the following are descriptions of the typical characteristics and design considerations for each of the seven typical building types that are recommended for expanding your housing choices.

Accessory Dwelling Unit (ADU)

- **Building type:** A dwelling unit that is secondary to the primary building.
- **Height:** One to two stories.
- **Resultant density range:** About 15 dwelling units per acre for the average 5,000-square foot lot, including the primary structure. This will vary largely based on the size of the single-family lot. The density information is provided but typically, an ADU is not counted toward the density maximum.

Variations

- **Detached ADU:** A structure completely separate from the primary building, including detached garage conversions or additions.
- **Attached ADU:** An addition to the primary building outside of the original building's footprint.
- **Internal ADU:** Conversion of a part of the primary building to an ADU (e.g., over an attached garage, in an attic, or in a small portion of the primary building's ground floor).



Design Considerations and Best Practices

- The ADU is usually smaller than the primary building. Consider not limiting by a percentage of the existing building because it is not effective for sites with small existing homes. Consider lot coverage as an alternative tool.
- Ideally there are no additional parking requirements for an ADU. If parking is required, consider reduction based on proximity to transit and/or retail/services. Also, consider tandem parking between the primary building and ADU, as parking can quickly become a limiting factor.
- Allow building height to be the same or nearly the same as the primary building. When the ADU is on the upper story, consider privacy issues with neighbors by limiting window placement to face the interior of lot or by requiring high windows that prevent overlooking.
- Setbacks for detached ADUs should be the same as for accessory structures, allowing for more internal open space on the lot.
- Consider providing some private outdoor space for the ADU.
- If the goal is to provide maximum options for long term housing in a community, consider not requiring owner occupancy of either the ADU or primary residence on the lot.

Implementation Options

These are options for incorporating the type into local codes and allowing it in situations where the type is not currently allowed.

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot Code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
✓	✓	N/A	N/A	N/A	N/A	N/A	N/A

Small House on a Small Lot

- **Building type:** A detached building with one dwelling on a lot that is smaller than the typical single-family lot. The house is also smaller than the typical single-family houses and has a dooryard or small front yard, often with a stoop or porch providing entry to the unit from the street or a shared garden. The building has a small rear yard with uncovered parking, or an attached or detached garage accessed by a side drive or an alley.
- **Lot size range (feet):** About 35 wide x 80 deep up to about 50 wide x 90 deep.
- **Height:** 1.5 to 2.5 stories.
- **Resultant density range:** About 10 to 15 dwelling units per acre (variations are higher).



Variations

- **Very Small Lot:** The lot can be about 60-feet deep with alley access. Without an alley, the lot should be 45-feet wide to accommodate a garage accessed via a side drive from the street. This yields a detached house of at least 750 square feet (front access, single-story), or about 1,000 square feet (alley access, single-story) with a resultant density of about 16 dwelling units per acre.
- **Tiny Lot:** The lot can be as small as 25 feet by 35 feet if parking is not required. This yields a detached or attached house of at least 400 square feet (single-story, no parking), with a resultant density of 50 dwelling units per acre. This is recommended only for highly walkable contexts where a personal vehicle is not needed.

Design Considerations and Best Practices

- Building setbacks and parking requirements should decrease as the lot size decreases, especially when in a walkable context.
- If attaching these houses, the resulting building should not be larger than large single-family houses in the area.

Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADU's	Adopt Small Lot Code	Modify Current Maximum Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	✓	✓	N/A	✓	✓	✓

Cottage Court

- **Building type:** One lot with a group of 3 to about 10 detached buildings, each with one single-story dwelling. Each cottage fronts the shared court and has a dooryard, stoop, or porch providing entry to the unit. Cottages share side yards and usually do not have a rear yard. Each cottage has open or covered parking in an attached or detached garage accessed by a side drive or an alley.
- **Lot size range (feet):** About 100 wide x 120 deep up to about 200 wide x 250 deep.
- **Shared court:** The court is usually a garden and typically about 20-feet clear in any direction to give the garden an open feeling.
- **Height:** 1.5 stories*.
- **Resultant density range:** About 15 to 35 dwelling units per acre (variations are higher).



Variations

- **Mixed-use:** One or more of the cottages have office, service, retail, or food uses. This variation is effective near and adjacent to neighborhood Main Streets.
- **Mixed-types:** A few of the cottages are expanded to duplexes or triplexes, keeping the small building footprint and scale while increasing the total units on the lot.
- **Pocket neighborhood:** The lot is the size of most of a block or up to an entire block (typically about 3 acres), and the shared court is much larger, or there are several shared courts. The individual cottages are expanded to include a mix of duplexes, four- to sixplexes, and courtyard buildings.

Design Considerations and Best Practices

- The basic type is mainly defined by the combination of small cottages within a large lot facing a shared court, thus the name 'cottage court'. It is tempting to allow larger houses, but this can result in the court being overshadowed and greatly reducing the separation between buildings. For this reason, the footprint of each cottage should be small, about 30 feet by 30 feet. In addition, the height should be under two stories (i.e. 1.5 stories). If a second story is necessary, it should be set back enough to keep the 1.5-story scale as viewed from within the shared court.
- Each facade facing the shared court should have a dooryard or porch for enjoying the shared court.
- Side separation between cottages should be about 10 feet to emphasize their individual footprints. Consider not including fences/walls between cottages so that visual separation between cottages is more obvious.
- A setback between the rear of each cottage and the side or rear property line of the large lot is helpful for utilities and trash location. It is recommended to not require a rear yard for any of the cottages.
- Dooryards, stoops, and porches are effective when they are up to the edge of the shared court to provide identity and private space for each cottage, while keeping the shared court feeling visually open and inviting.
- *When the rear lot line is adjacent to an alley or with a medium to large rear setback, consider allowing the rear-most cottage to be two stories to give visual emphasis to the shared court and to provide variety.
- The driveway from the street can be small and does not need to be two-way for this low intensity, especially when the driveway loops around the back and sides of the lot.
- Attached garages should be integrated into the design of each cottage to maintain the small scale and appearance.
- Allow but do not require that each cottage be on its own legal lot. The new standards can provide for a minimum lot size for each cottage, if desired by the applicant.

Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot Code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	✓	✓	✓	✓	✓	✓

Duplex to Sixplex (4-6 units, 'multiplex small', 'mansion apartment')

- **Building type:** A detached building containing 2 to 6 dwellings that appears as one house. The building has a small- to medium-sized front yard, often with a porch, providing entry from the street or shared space to all or some units with other units accessed through a side yard. The building has a small- to medium-sized rear yard with an attached or detached set of garages that are accessed by a side drive or an alley.
- **Lot size range (feet):** About 40 wide x 100 deep (up to 3 units) up to about 80 wide x 150 deep.
- **Height:** 2 to 3.5 stories.
- **Resultant density range:** About 20 to 70 dwelling units per acre (about 58 if no alley access).



Duplex up to about 22; fourplex up to about 35; sixplex up to about 70.

Variations

- **Flats:** The building is divided horizontally, for up to 3 flats on each story.
- **Townhouses:** The building is divided vertically for 2.5- or 3.5-story units. The 2.5-story size easily maintains physical compatibility with adjacent or nearby single-family houses.

Design Considerations and Best Practices

- The building's footprint should be comparable to the largest single-family house in the area (typically up to about 60 feet to 80 feet in any direction).
- The building should be designed to have the massing of a large single-family house and not an apartment building.
- Consider only allowing 3- and 3.5-story versions at corners, or in locations where the building can serve as a transition to neighborhood Main Streets or moderate- to higher- intensity neighborhoods.
- In order to maintain a single-family house appearance, the garages are most effective down the side of the building or in the rear of the lot.
- The driveway from the street can be small and does not need to be two-way for this low intensity building.
- Attached or tuck-under garages should be integrated into the design of the building and the number of spaces should reflect the building's proximity to transit, services, retail, and food uses.

Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot Code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	N/A	✓	N/A	✓	✓	✓

Multiplex Large

- **Building type:** A detached building with more than 6 up to about 20 dwellings that appears as one large house. The building has a medium-sized front yard, often with a porch, providing a common entry from the street for most or all of the units. The building has a small rear yard with an attached or detached set of garages accessed by a side drive or an alley.
- **Lot size range (feet):** About 50 wide x 100 deep up to about 150 wide x 150 deep.
- **Height:** 2 to 3.5 stories.
- **Resultant density range:** About 45 to 100 dwelling units per acre.

Variations

- **Multiple ground-floor entries:** In addition to the main entry, this variation provides ground-floor dwellings with direct entry from the sidewalk. Typically, this variation has up to 4 ground-floor entries facing the street, with other ground-floor entries along the side or rear.
- **Shared side yard space:** This variation uses each side yard as a shared garden/court that provides direct access to the adjacent ground-floor dwellings.

Design Considerations and Best Practices

- In or adjacent to low-intensity neighborhoods, it is beneficial to include no more than 10 dwellings and to limit the height to 2.5 stories. This ensures that the building will be about 80-feet in width or similar in size and height to a large single-family house, which makes it more compatible in physical scale with adjacent or nearby single-family houses.
- The building should be designed with massing similar to the largest single-family house in the area (typically about 80-feet maximum). For example, two or more individual masses could be organized on a site as an 'L' or 'C' site plan while maintaining the house-scale footprint of up to about 80-feet overall.
- Consider only allowing 3- and 3.5-story versions at corners or in locations where the building can serve as a transition to neighborhood Main Streets or moderate- to higher-intensity neighborhoods.
- The building should be designed to have the massing of a large single-family house and not an apartment building.
- The driveway from the street can be small and does not need to be two-way for this low-intensity development, especially on corner lots where two access points are available.
- Attached or tuck-under garages should be integrated into the design of the building and the number of spaces should reflect the building's proximity to transit, services, retail, and food uses.



Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	N/A	✓	N/A	✓	✓	✓

Rowhouse ('Townhouse')

- **Building type:** An attached dwelling within an array of up to 10 total dwellings that appear as one building. Each dwelling is a walk-up unit with no other unit above, built without side setbacks, with a small dooryard at the sidewalk and a small rear yard with an attached or detached garage.
- **Lot size range (feet):** For each dwelling, about 18 wide x 80 deep up to about 30 wide x 120 deep.
- **Height:** 2 to 3.5 stories.
- **Resultant density range:** About 15 to 30 dwelling units per acre (variations are higher).



Variations

- **Tuck-under:** The rowhouse lot is shortened while keeping the dooryard along the sidewalk and removing the rear yard. The garage is located under most of the ground floor. The ground-floor entry is to a small home office or other secondary space with the primary rooms on the second and third stories. The unit depth can be as shallow as 35-feet. A variation on this is the Kentlands Cottage, which has alley access, tends to be at corners, and comes attached to a small green. It has the most compact footprint of the tuck-under variations and fits into a variety of block sizes making this a very adaptable building type. See section 3.3 for a case study on this variation.
- **Mews:** The rowhouse lot is turned sideways to be parallel to a pedestrian-passage and the unit is entered from the passage. The rear yard is optional.
- **Rowhouse flats:** Each rowhouse is divided vertically to create at least two flats. For example, a 3-story rowhouse could have 3 single-story units. A variation on this is for the ground floor to be a flat, while the upper unit could be a 2.5-story unit, for a total of 3.5 stories. Both of these variations are recommended for highly walkable contexts where parking needs are very low.
- **No rear yard:** Some versions of this type distinguish between townhouse (no rear yard) and rowhouse (small to medium rear yard) and put multiple rows of these units on one lot. While efficient, this can create awkward adjacencies between the backs (utility, trash, and parking areas) of one row of rowhouses and the fronts of another row of rowhouses.

Design Considerations and Best Practices

- A simple and effective way to communicate how this type can adapt to different neighborhoods is to identify two versions: a house-scale version that includes no more than 4 rowhouses, and a block-scale version that can be as long as a block.
- In low- to moderate-intensity neighborhoods, it is effective to include only the house-scale version and to limit the height to 2.5 stories. This ensures that the building will be about 80-feet in width or similar in size and height to a large single-family house. This provides for physical scale compatibility with adjacent or nearby single-family houses.
- The house-scale version should be designed to have the massing of a large single-family house and not an apartment building.
- The mews variation needs close attention to how the facade and main entry along the pedestrian passage are designed to contribute to the appeal of the passage while providing privacy to the mews residents.

- The tuck-under variation should be designed to make a pattern of short blocks served by alleys with the main entry to each unit along the streetscape.
- The lot for the tuck-under variation should be at least 45-feet deep to allow for a dooryard, porch, or other frontage and to provide a reasonable ground floor space along the front, so that the ground floor along the streetscape is active.
- The driveway from the street is most effective when it serves multiple units from the rear.
- Attached or tuck-under garages should be integrated into the design of the building and the number of spaces should reflect the building's proximity to transit, retail, service, and food uses.

Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot Code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	✓	✓	N/A	✓	✓	✓

Courtyard

- **Building type:** One lot with a detached building that is 'U'- or 'C'-shaped to form at least one shared court. Entry to each unit is from the street for street-facing units and from the courtyard for interior units. Parking is in a surface parking area at the rear of the lot. This type, sometimes referred to as 'neighborhood courtyard', is the walk-up type of courtyard building that fits in Missing Middle Housing contexts.
- **Lot size range (feet):** About 75 wide x 100 deep up to about 200 wide x 200 deep
- **Shared Courtyard:** about 30-feet clear in any direction.
- **Height:** 2.5 stories (part of the building sometimes up to 3.5 stories in moderate- to higher-intensity neighborhoods).
- **Resultant density range:** About 25 to 55 dwelling units per acre.

Variations

- **L-shape:** One L-shaped building or a few buildings form an 'L' to shape the courtyard. In low- to moderate-intensity neighborhoods, the building that is parallel to the street is along the rear and towards the middle. In higher-intensity neighborhoods, the building is along the front to provide more privacy for the courtyard and interior units.
- **O-shape:** One 'O'-shaped building, or a few attached or slightly detached buildings, form an 'O' to shape a courtyard.
- **Urban courtyard:** This variation is more urban than the previous variations and typically is about 4 to 6 stories. This building has elevators, some or all double-loaded corridor units, and podium or underground parking.
- **Combination building:** This variation is for sites along busy corridors that back up to low-intensity neighborhoods. The 'O'-shaped building is divided into two halves. The front half is an urban courtyard building facing the street, while the rear



half is a neighborhood courtyard building adjacent to the side or rear of neighboring single-family houses. This variation is also referred to as a 'hybrid courtyard' because it blends the two very different halves to address the different physical conditions of these sites.

Design Considerations and Best Practices

- The courtyard reduces the buildable area and yield compared to other building types. However, the environment created by the courtyard is a feature that other building types do not include. But in order to make this type appealing to developers, density should not be regulated. Otherwise, when developers compare the same density of this type with a type that does not require a courtyard, it's likely that the courtyard type will not be selected. If density needs to be regulated, resultant density should be calculated after the courtyard is provided and a feasible number of dwelling units identified that can reasonably fit in the building.
- The building should be designed to make sure that the courtyard is not in shade all the time. It's also beneficial to the neighborhood to allow flexibility for different heights around the courtyard to avoid the rigid 'crew cut massing' scenario.
- In areas with high property values, podium and subterranean parking may be options. In those cases, the courtyard surface should be designed to feel like a landscaped garden and not the roof of a parking garage. Coordination with the department reviewing for drainage is recommended so that the podium surface can address drainage while providing an inviting ambience.
- The courtyard is most effective when it's seen as a very inviting and comfortable space. A key to such a space is lining the courtyard with dwelling entries and public rooms (living room, porch). If private rooms (bedroom, bathroom) are along the courtyard edge, residents tend to want extra privacy and keep the curtains closed off from view of the courtyard. In addition, if a playground is to be included, it's most effective in an adjacent park or plaza rather than in the courtyard where it can raise issues with ground-floor units.
- In addition to surface parking at the rear of the lot, tuck-under parking is compatible if the ground floor facing the courtyard is deep enough to accommodate a useable room.
- Attached or tuck-under garages should be integrated into the design of the building and the amount of spaces should reflect the building's proximity to transit, retail, services, and food uses.

Implementation Options

Adopt ADU Code	Modify Current Zoning to Allow ADUs	Adopt Small Lot Code	Modify Current Max. Zoning Density	Adopt Cottage Court Code	Modify Current Zone District Standard(s)	Adopt Overlay Zone(s) or Standard(s)	Replace Zone(s) with Form-Based Code
N/A	N/A	N/A	✓	N/A	✓	✓	✓

ORDINANCE AND CODE ANALYSIS BY JURISDICTION

This analysis evaluates a wide variety of ordinances and codes for their focus on accessory dwelling units, small lot development, cottage court development, and form-based codes for small to large infill as well as greenfield development.

Accessory Dwelling Unit (ADU) Ordinances

The consideration of ADUs has become a national trend in the last two decades as people moving back into cities have created more pressure on the demand for housing. Cities that never allowed ADUs are now looking to allow them, while other cities are updating their codes to be less restrictive. Some states, such as California, New Hampshire, and Oregon have introduced statutes allowing ADUs statewide by-right. ADUs tend to be the most politically palatable of the four code approaches studied in this section as they typically have the broadest public acceptance. This is understandable given that ADUs represent the least amount of change when compared to individual buildings.

Portland, Ore.—Accessory Dwelling Units (Chapter 33.205)

last Amendment on the existing zoning code about ADU regulations No. 187471, effective 01/01/2016

Code Preparer: City of Portland

Contact: Phil Nameny, City Planner, City of Portland

Background and the reason the amendment was prepared

Portland's code has allowed ADUs in certain areas since the early 1900s. In an effort to spur development of more housing variety and affordability by efficiently capitalizing on existing infrastructure as housing demand became greater in the late 1900s, key amendments were passed in 1998, 2010 and 2016. In 1998, the amendment dropped owner occupancy and parking requirements and allowed ADUs to be developed citywide by-right. The size was capped at the lesser of 800 square feet or one-third of the main house size, along with limited design compatibility requirements. The 2010 amendment increased the allowable size relative to three-quarters of the primary residence and temporarily waived the system development charges (impact fees). The change in 2016 merged the development standards for accessory structures with the standards for detached ADUs. As a result, the accessory structure height was reduced and the ADU height increased. In 2018, the temporary waiver of system development charges was made permanent, if the property owner agreed to a recorded covenant that stated the unit would not be used as a short-term rental.

In 2017, the state of Oregon passed a statute requiring jurisdictions to allow ADUs wherever a house is allowed. There was no impact to Portland's existing code.

What does the amendment allow?

- By-right, an accessory dwelling unit may be added to a house, attached house, or manufactured home in an R (Residential), C (Commercial), or EX (Central Employment) zone, but may not be added to attached houses or duplexes in the R20 through R5 (low-density to medium-density residential) zones that use a provision to gain an extra unit on a corner lot.



- The maximum size is limited to the lesser of 800 square feet or three-quarters of the living area of the main house size.
- Building height is the same as for accessory structures, which was modified in 2016 to allow only up to 20 feet as measured to the midpoint of the gable when located outside of the required setbacks. Prior to the most recent amendment, accessory structures had the same height limit, 30 to 35-feet (depending on the zone), as the primary structure. The height limit was reduced in order to balance the character of infill development with existing neighborhoods. By aligning the standards for accessory structures and accessory dwelling units, this reduced privacy concerns and the incentive to illegally construct ADUs within accessory structures.
- Setbacks for detached ADUs are 40 feet from the front. The remaining setbacks match those of the primary structure; however, one can build within the setback within additional height limitations to keep the building no higher than one story.
- Parking is not required for the ADU. If the construction of the ADU removes a required parking space for the primary building, then that space must be replaced onsite. However, the houses in areas of the city that are within 500 feet of frequent bus service (every 20 minutes during commute times) are not required to provide any parking.
- Owner occupancy is not required.
- Short-term rentals are allowed with the payment of development fees (these fees are waived for long-term rentals).
- The ADU code is administered by-right with no discretionary review, except that some design compatibility with the main house is required for two-story ADUs. The building must match the main house or comply with general design guidelines. There are no design requirements for a single-story ADU.
- Floor Area Ratio requirements were removed in 2002. Since then the building intensity is now regulated through lot coverage standards (45 percent total lot coverage, and the detached ADU cannot exceed the 15 percent of the lot).

How was the code amendment adopted?

The City initiated the code amendment in 1998 with several updates since then, the latest being in August 2016. In 1998 there was neighborhood opposition to the changes. Over time, the amount of resistance has reduced with each subsequent change and more built results. Most of the continued concern has been around short-term rentals and privacy.

Built results

Following the amendment in 1998, there was some uptick in development of ADUs, but they were still very limited citywide, at an increase of 10 - 15 units per year. The greater impact on development numbers occurred since the 2010 amendment, when the city decided to waive the impact fees in order to respond to the development viability during the economic downturn, increase the allowable size relative to the primary structure, and adjust the design guidelines to address recurring concerns about privacy.

In speaking with city staff, based upon a review of the testimony received when the ADU regulations were expanded in 1998, there may have been some challenges in originally expanding the allowances. However, since these regulations did not result in a large influx, and the subsequent amendments have occurred over time, this incremental series of changes appears to have allowed property owners, builders, and neighbors to adapt and get used to the idea of ADUs. There are some continued complaints about the proximity of ADUs to property lines, the potential for noise, and concern over short-term rentals. The code structure and communication with the public were vital for the success of the ADUs in Portland; as developer and builder, Eli Spevak mentioned, "With a good code structure and education, people started accepting ADUs. The educational components include regular tours of ADUs done by ADU advocates, a dedicated website on the process, general word of mouth, and seeing neighbors' homes in progress. All of these elements and the recent amendments have really spurred development, such that the number of permit approvals increased to around 500 a year in 2016 and 2017, up from just 80 plus in 2010.

The people developing ADUs are primarily the homeowner and small-scale developers. According to Spevak, due to the high cost of building, ADU construction is mostly happening in the higher value parts of the city, concentrated in specific areas. It is more profitable than building in low value areas where rental rates are lower. In the lower land value areas, the choice to build an ADU is typically a lifestyle choice (needing room for family or caregiver) rather than an economic one. Over time, though, the ADU typically increases the value of the property.

Incentives for building ADUs

- Portland has made it easier for homeowners to build with good guidance from the planning and development departments about the process. Website pages and walking tours help to inform and educate people about the process and importance of ADUs.
- Prior to the City's 2010 removal of the requirement for System Development Charges on all ADUs, a payment of about \$10,000 - \$12,000 was required for each ADU. After the removal of the fees in 2010, the city saw around a 10-fold increase in the number of ADU permits. However, now that this fee waiver is accompanied by a covenant restricting use as a short-term rental for 10 years, there is a question about whether that will affect ADU development. Initial evidence for the first few months indicates an ADU permit slowdown, but it also correlates with a general recent slowing of permits.
- Several creative financing options have opened up that provide opportunities to pay for ADUs. Some programs propose a trade-off, such as in Multnomah County, where the county would pay for the ADU, but the property owner allows the county to host a homeless family in the unit for five years. Another private program (dweller.com) offers to obtain permits and build the ADU on the property in exchange for a portion of the rents over a period of time. At this time, these programs have resulted in only a handful ADUs out of the hundreds being built.
- Upcoming changes being considered include allowing two ADUs on a lot or 2 - 3 units per lot and modifying the allowed FAR in residential zones when adding an ADU. This is envisioned to be citywide.
- ADU allowance creates land efficiencies in single-family zones through the sharing of common space on the lot, such as driveways and yards.
- The detached smaller buildings provide flexibility to site buildings to fit the topography of sites.

Challenges in building ADUs

- As with most areas, construction costs have increased significantly in the last two decades, making it a challenge to balance rental income with construction cost.
- Conventional financing can be a challenge without comparable or existing rental income to support the loan application. Most are financed through home equity lines and cash. Over time as more ADUs are constructed, more comparables will be available.
- Building code challenges may be an issue when converting existing spaces into ADUs that need to meet current codes.
- On smaller lots, lot coverage limits may constrain the capacity to build a unit.
- Although Oregon has a property tax freeze measure, property taxes were being reassessed after development of an ADU because the county was seeing this change as a rezone, which therefore triggered a reappraisal of the entire property. In some cases this resulted in a 3- and 4-fold increase in property taxes. This was averted through a state determination that building an ADU does not constitute a rezone.
- Portland's code ensures that accessory dwelling units are compatible with the desired character and livability of residential zones, which may help public support but is also creatively limiting, particularly for contemporary styles. Some professionals question why this is needed for structures that are relegated to the rear of the property.
- Setbacks for corner lot/side street conditions are not stated and left to interpretation. If interpreted as needing 40 feet on both street faces, little to no developable area can be found for the ADU unless it is attached to the primary structure.

New Hampshire—New Hampshire Accessory Dwelling Units statute (RSA 674:71-73)

effective 06/01/2017

Statute Sponsor: Initial draft by New Hampshire Home Builders Association sponsored in the state senate by David Boutin, rewritten by Ben Frost

Contact: Ben Frost, Director, Legal and Public Affairs, New Hampshire Housing Finance Authority

Background and the reason the statute was prepared

New Hampshire's state legislature recognized that there is a growing need for more diverse and affordable housing opportunities to accommodate independent living and family caregiving at home. The goal was to increase the supply of housing without having to further expand land development beyond existing infrastructure. When the bill was introduced in 2015, the supporting coalition included real estate professionals, AARP, disability rights advocates, young professionals, and housing advocates. They saw that ADUs offered greater flexibility and affordability in housing options. Beyond the allowance of accessory dwelling units in single-family zones, the law largely establishes what local jurisdictions may or may not regulate as related to ADUs.

What does the statute allow?

- Accessory dwelling units must be attached or within the single-family dwelling. A municipality may permit detached accessory dwelling units, but it's not required.
- ADUs are allowed by-right, by conditional use, or by special exception in all zoning districts that permit single-family dwellings without additional requirements for lot size, frontage, space limitations, or other controls beyond what would be required for a single-family dwelling without an ADU.
- Any regulations applicable to single-family dwellings also apply to the accessory dwelling unit, including lot coverage standards and standards for maximum occupancy per bedroom.
- A municipality may regulate parking requirements to accommodate the ADU.
- Establishing design standards for the purpose of aesthetic compatibility with the principal dwelling unit as a single-family dwelling is allowable.
- Establishing minimum and maximum sizes for an ADU is allowed but it may not be restricted to less than 750 square feet and it cannot be limited to only one bedroom.
- Municipalities are allowed to require owner occupancy of one of the dwelling units, but it shall not specify which unit the owner must occupy. Familial relationships between the units may not be required.

How was the statute adopted?

The statute was introduced in 2015, passed in 2016 and went in effect 2017. Most towns held their town meetings with sufficient time to review in advance of final approval. Each municipality had the option to amend the law for their jurisdiction. Some made refinements based on what the statute was allowing to be regulated, and others accepted the statute as is without further refinements for their municipality. Generally speaking it was a tough public process to get it adopted, as the House has over 400 members with varying interests. Eventually through ongoing dialog the statute passed with a 2-to-1 margin.



There were some minor amendments made in 2017 to the statute. One of them allowed municipalities to prohibit accessory dwelling units associated with multiple single-family dwellings attached to each other, such as townhouses, and also to prohibit ADUs in association with manufactured housing. Another modification stated that ADUs may not be sold as condominiums unless the municipality explicitly allows it; such sales may be allowed either through zoning or subdivision regulations.

Built results

Across the state, ADU development has been slow but incremental. In communities such as Portsmouth and Merrimack, about one ADU a month is being permitted. One of the biggest challenges is the need to communicate the issues and solutions to local decision makers as well as communicating to homeowners that this is available to them (homeowner's guide to the website).

Incentives for building ADUs

- One allowance that helps minimize construction costs is that water and sanitary disposal systems for the ADU may be shared by those of the principal dwelling unit.
- A new septic system does not need to be built unless the existing system is unlicensed or has failed. The applicant for a permit to construct an accessory dwelling unit shall make adequate provisions for water supply and sewage disposal for the accessory dwelling unit, but separate systems shall not be required for the principal and accessory dwelling units.
- If an ADU meets the rental price standards of the Workforce Housing Law, then the municipality may count the unit as part of its "fair share" calculation.
- Annual ADU tours offer community members an opportunity to view built examples first hand, inspiring some to build their own structures and allowing others to see how they are compatible with the surrounding neighborhood.

Challenges in building ADUs

- The state allows local municipalities to adopt discretionary review for design standards and permit process in the form of conditional use permits and special exceptions. Even if limited to prescriptive requirements rather than discretionary ones, having another layer of review extends the approval process timeline and, as a result, the overall project cost as compared to a by-right process.
- The majority of municipalities typically require owner occupancy. While this practice typically garners the most local public support, it also limits the amount of development of this building type. Owner-occupied properties tend to be more likely to be used as a short-term rental or guest house rather than long-term rentals that alleviate overall housing demand.
- The requirement for an interior door between the principal dwelling unit and the accessory dwelling unit can add complication and cost for building this fire wall, especially when dealing with existing conditions.
- While permitting an ADU with an existing dwelling cannot require the construction of a new water system, the modification of the existing one may be necessary.
- If a municipality requires impact fees, whether they will apply will depend on how the local municipality charges their fees (by unit or by bedroom).
- Education of and communication with local decision makers and the broader public needs to be carefully thought through to ensure a successful rate of development.
- Primary public concerns are related to short-term rentals, which the ADU law does not refer to or limit their use for this purpose. Some New Hampshire municipalities (e.g. Portsmouth) are moving ahead with regulations limiting short-term rentals, but this does not mean that an owner cannot create an ADU. There are various initiatives in the legislature to study or regulate short-term rentals, but the state of these efforts is in flux.

Austin, Texas—Accessory Dwelling Units Ordinance, No. 20151119-080

approved 11/19/2015

Code Preparer: The City of Austin

Contact: Greg Dutton, Principal Planner, City of Austin Planning and Zoning Department

Background and the reason the ordinance was prepared

Although ADUs were permitted in various forms prior to 2015, the 2015 ordinance expanded and relaxed regulations. In 2015, the minimum lot size requirement was reduced, and the development standards were amended. For example, previously a driveway was needed to go up to the ADU itself, but with the amendments, parking is allowed in the primary driveway. Also, in 2015 a reduction in the number of required parking spaces passed for areas close to transit corridors. The question of whether the short-term rentals should be allowed slowed down the public process; however, the final suggestion for the 30 days maximum of short-rental passed.

What does the ordinance allow?

- For a two-family residential lot, the secondary unit must: 1) be contained in a structure other than the principal structure (i.e. only detached structures); 2) be located (a) at least 10 feet to the rear or side of the principal structure or (b) above a detached garage; (3) may be connected to the principal structure by a covered walkway.
- One onsite parking spot is required for the ADU unless the property is within a quarter mile of an Imagine Austin corridor served by transit. ADU parking requirements are less stringent than single-family use, which requires two onsite parking spots per dwelling unit.
- Building height may not exceed 30 feet and is limited to two stories.
- An ADU may not exceed 1,100 total square feet or a floor-to-area ratio of 0.15, whichever is smaller, with 550 square feet maximum on the second story.
- An ADU may not be used as a short-term rental for more than 30 days in a calendar year if the secondary apartment was constructed after October 1, 2015. For short-term rentals, a permit is required.
- Impervious cover for the site may not exceed 45 percent.
- Building cover for the site may not exceed 40 percent.

How was the ordinance adopted?

Council initiated the amendment process and asked staff to reduce regulatory barriers to building ADUs. Two public meetings were conducted and staff generated recommendations that were taken to Planning Commission and Council. Most of the discussion at Planning Commission and Council that had public input involved whether ADUs should be allowed in SF-2 zoning, which only allows a single dwelling (ultimately Council decided to not allow ADUs in SF-2 zones). Also, a limitation on short-term rentals was sought by the public and included in the final ordinance. In general the site-development changes got general support, but where ADUs could be built and how they could be used were the points of contention.

Built results

The number of ADUs constructed increased after the ordinance was passed but remains a small number compared to Austin's overall housing needs. The ordinance has not necessarily yielded smaller and more affordable units, as ADUs are typically built to the maximum size the constraints allow. However, this will still yield a home at a lower price point than the typical primary single-family home that is newly built.

Incentives for building ADUs

- Onsite parking is reduced for proximity to transit lines.
- ADUs garnered political support from the public due to the lack of affordable housing options.
- The code is administered by right, making for an efficient and quick approval timeline.
- Owner-occupancy is not required.
- The property may be turned in two condos, which provides an affordable home ownership option.

Challenges in building ADUs

- Financing is an issue for the same reasons discussed under the Portland section.
- Construction costs (including design, permitting and materials) can be prohibitive for individual homeowner at middle-income levels.
- Applicants may need to upgrade water/wastewater lines to accommodate ADU bathroom(s), which can add significant cost to construction and ultimately might work as a barrier to their development.
- ADUs are allowed in two-family residential lots (in SF-3, SF-5 and SF-6 but not in SF-1 and SF-2 zones). SF-3 is the most applicable single-family zone, but it only allows two units max (house and ADU or a duplex but not both). In that case, the owner or builder is more likely to default to a duplex as a more profitable investment, as the final cost is probably lower than an ADU.
- Applicants with smaller sites/lots may have trouble fitting onsite parking and/or building a unit large enough to be easily marketable (unit size is limited to 0.15 FAR).
- Limit of 550 square feet on the second level is a potentially a limiting factor.
- Minimum lot size requirement of 5,750 square feet also prohibits lots smaller than that from having an ADU.
- If the unit is above a garage, the unit is basically limited to one level because of the height restriction.
- Adding a unit will inevitably increase the appraised value and property tax. The property tax re-evaluation happens every year.



Los Angeles, Calif.—Accessory Dwelling Units SB 1069 and AB 2939

Code Preparer: SB 1069: State Senator Bob Wieckowski; AB 2939: Assembly member Phil Ting

Contact: Matthew Glesne, Planning Department, City of Los Angeles

Background

The 1985 citywide ordinance allowed ADUs with a discretionary conditional use permit (CUP). Upon passage of AB 1866 (2002), the discretionary component of the law was no longer enforceable. Later, in 2010, the City halted enforcing the 1985 ordinance altogether and relied solely on the standards in state law, combined with applicable existing local, objective zoning standards. A court decision in 2016 ruled the 2010 zoning interpretation invalid and put a halt on the permitting of any ADUs that relied upon the interpretations.

Since 2017, upon adoption of SB 1069 and AB 2299, Los Angeles is operating under state laws that allow ADUs by right, provided they meet objective criteria. A local ADU ordinance has been proposed to take the place of state law and is currently pending before City Council.

What does the ordinance allow?

- **Parking:** The state law allows local agencies to reduce or eliminate parking requirements for any accessory dwelling units located within its jurisdiction and states that parking requirements for accessory dwelling units shall not exceed one parking space per unit or per bedroom, whichever is less. These spaces may be provided as tandem parking on a driveway. Los Angeles requires one spot for ADUs unless the location meets one of the city's four criteria, including proximity to public transit, then no space is required. Replacement parking is required if an existing garage is converted to an ADU; however, the parking may be located in the front-yard setback in an existing driveway.
- **Height limits:** The regulations default to the same requirements as for accessory buildings, which allows for two stories with no specified numeric maximum.
- **Setbacks:** Same as for an accessory structure, which includes an additional 5 feet from setback for second story.
- **Size:** Up to 1,200 square feet is allowed for a detached unit. Attached units are limited to no larger than 50 percent of the main unit. A minimum of 150 square feet is required for an efficiency unit. Houses on wheels will count as an ADU in proposed ordinance.
- **FAR:** Both units combined are limited to 0.45.

How was the ordinance adopted?

The City is currently operating under state law. In January of 2017, a California state law, SB 1069, took effect that allows homeowners to build an accessory dwelling by right. No local California ADU code can be more restrictive than state law on 10 specific items. Many local existing codes have not yet caught up with state regulation.

Built results

Since state law was adopted in 2017, approximately 6,500 permits have been issued for ADUs, with a current rate of about 350 per month. The number of ADU applications continues to increase, with about 5,400 applications submitted in 2018 alone. Approximately, 800 are in a holding pattern or have been effectively denied due to easement requirement conflicts with power lines. About 45 percent of all ADU permits since 2017 have been conversions within the existing space, either inside the primary structure or the garage. About 35 percent are attached additions and the remainder are detached new construction.

Incentives for building ADUs

- Sprinklers are not required unless the main home required them when it was built.
- Fees overall are lower compared to the average municipality. The largest segment of the fees are LAUSD school development fees. However, school fees are waived if the conversion is less than 500 square feet or is a conversion of already habitable space. Therefore, total fees range from less than \$850 for smaller conversions up to a maximum of about \$6,400 for new construction. Fees also depend on project valuations, which keeps conversions and additions less expensive. For sewer, an extension line is typically needed, but there are no capacity connection charges if it is a conversion.
- Additional electric or water meters are not required.
- Owner occupancy is not required for either structure.
- If you are in a transit corridor, you do not have to provide a parking space, but you have to replace any being removed. The replacement spots are not required to be covered and can be tandem or located on any part of the property.
- There is a housing shortage. Homeowners are seeing the benefits to building ADUs. The reduction in the regulatory barriers, partnered with clear process guidelines, educational materials, and nearby built examples have a significant influence on the number of ADUs that are constructed.
- Efficient permitting system.
- Los Angeles has found success by having their staff be well versed on the state law as well as be strong advocates and facilitators who help applicants through the process, and by encouraging all departments to talk to each other.
- A guidebook developed in partnership with UCLA Citylab is provided to facilitate public education.

Challenges in building ADUs

- Meeting California energy codes can be particularly challenging for conversion projects that have existing structures. The associated fees are high, as they are not proportionate to size and cost.
- Existing garages that fall within power line easements present hurdles for owners wanting to convert those garages into ADUs. Non-habitable spaces, such as a garages, are allowed within the easement, but habitable structures, such as an ADU, are not.
- There are conditions on short-term rentals specified in the city's short-term rental ordinance. ADUs are not mean for short term; it needs to be a permanent residence.
- Financing is the biggest challenge. Most people have to take out home equity lines in order to cover the cost of construction. Banks have been unwilling to grant loans based on potential projected income, which is likely to change as more ADUs are constructed and rented to provide comps.



Small Lot Ordinances and Density Incentives

Small lot codes and density incentives to existing zoning are typically used in one of three types of situations: to enable lots smaller than the current zoning allows, to make development feasible on a lot with an irregular shape or size that cannot achieve what the zoning allows, or to allow more units on a lot than are currently allowed, but within the same overall size of buildings in the neighborhood. While these tools can be part of a comprehensive zoning code, they are most often created and applied to focused areas through individual ordinances or amendments to existing codes. This is usually in an effort to accommodate change within established neighborhoods while not changing the existing zoning. A key consideration in using this approach is to work with the neighborhood to clearly understand and establish what the long-term intended physical character is for the area. This is critical to focusing change and making it fit the neighborhood's expectations.

Denver, Colo.—Denver Zoning Code, Amendment to Minimum Lot Size in Single-Family Zones

Code Preparer: City of Denver, Code Studio, Ferrell Madden Associates

Contact: Peter Park, former Director of Planning, City of Denver

Background and the reason the amendment was prepared

The amendment was part of an overall code update that was prepared primarily in response to the significant changes in physical character that many 1920s single-family neighborhoods were experiencing. Houses were being demolished to meet the 1955 zoning that required 6,000 square feet for a new house or duplex. The zoning was not coordinated with the prevalent pattern of the neighborhoods that consist primarily of 25-foot wide lots with alley access. The 1955 zoning immediately made the houses and their lot patterns nonconforming, presenting major issues to owners and potential owners for refinancing, insurance, etc. Further, the new housing was not affordable.

As these issues gained support to be addressed, smaller homes were considered on the existing narrow lots. But the process was lengthy and cumbersome and proved to be ineffective. This led to the need for using a Planned Unit Development (PUD) process for these types of projects, a planning tool intended for sites and projects larger than one house.

What does the amendment allow?

- In 2010 the city thoroughly revised its zoning code and rezoned most of its urban areas to reflect the prevalent lot patterns and the physical scale and character of the house-scale buildings.
- The 2010 code update reduced the minimum lot size of some residential areas to 3,000 square feet if single-family or 4,500 square feet if multifamily.
- A PUD is no longer necessary for these types of lots.
- Small houses are once again allowed on small lots and with a streamlined process.
- ADUs are allowed in all residential zones, and their size is regulated by the size of the lot.
- One off-street parking space is required for ADUs. Interestingly, Denver has a history of not requiring off-street parking for single-family houses and duplexes, but builders typically provide it anyway.

How was the amendment adopted?

The amendments to single-family zoning were part of a larger, comprehensive code update and consistent rezoning process. The new standards use an approach similar to building types but at a broader level of detail that focuses on the overall envelope rather than the specifics of individual building types. This was in response to strong concerns from the development community and designers about focusing the standards on overall form and not letting the standards dictate design. Staff met with neighborhoods to explain how density and form are related, as well as the importance of other guidelines such as lot coverage and height.

Built results

The 2010 code has resulted in a range of buildings from ADUs, small houses and duplexes to small and large multifamily buildings.

Incentives for building small homes

- The reduction in the required minimum lot size is a major incentive because the lot size directly reflects the size(s) of possible houses.
- The continuation of not requiring off-street parking for single-family houses provides an owner or builder with the option of reducing house size and construction cost.

Challenges in building small homes

- Several single-family neighborhoods have experienced the situation of new multifamily buildings that comply with the new standards but do not fit in with the established neighborhood character and pattern of houses. This is most evident through the larger massing of the new buildings and the lack of pedestrian entries facing the street. The new multifamily buildings are referred to as ‘Slot Houses’. Inadvertently, the 2010 code update did not prevent certain multifamily buildings from being built in single-family neighborhoods. As of the writing of this report, the issues of incompatible size and massing are being addressed. However, because of their higher yield and relatively simple process, Slot Houses are still appealing for builders. Until small houses are provided with a simpler process than multifamily buildings, there is not a significant incentive to build small houses, and the effort is perceived as nearly the same amount of effort as for a ‘Slot House’.



Los Angeles, Calif.—Small Lot Ordinance

Ordinance Preparer: City of Los Angeles

Contact: Jenna Monterrosa, City Planner and Council Liaison for Los Angeles Department of City Planning

Background and the reason the ordinance was prepared

The ordinance was prepared in 2005 to allow for the subdivision of underutilized land into fee-simple homes in multifamily and commercial areas. Intended for infill development and a smart-growth alternative to traditional, suburban style, single-family subdivisions, this ordinance allows small lot homes to have smaller lot areas with compact building footprints and reduced building setbacks, passageways between buildings, and open space. Key to this ordinance is the objective to realize more housing that can be sold in the same way as a single-family house and not be dependent upon a condominium approach.

In 2014, the ordinance was supported by Small Lot Design Guidelines to help guide interpretations and clarify solutions dealing with adjacent houses, uses, and topography.

In 2018, a comprehensive update made the following changes to the ordinance:

- Amended code regulations that reduce previous exceptions to the zoning code;
- Established a review process for compliance with the Small Lot Design Standards through an administrative clearance process;
- Established a process to easily subdivide existing apartment homes constructed more than 45 years ago into Small Lot Homes; and
- Established map standards that regulate the design of a small lot's subdivision map.

What does the ordinance allow?

- Small lot home density calculations are based on the zoning code's multifamily dwelling unit requirement, rather than how single-family homes are typically calculated.
- Each small lot home must be structurally independent, without shared foundations or common walls. The amount of separation between buildings is the minimum required by the Building Code.
- Duplexes and triplexes are allowed, but typically, each lot is a single-family lot.
- Each lot may be as small as 18-feet wide and 600 square feet.
- Small lot development is not allowed in areas that are solely single-family houses or duplexes.

How was the ordinance adopted?

The ordinance was adopted into the City's zoning code (LAMC Section 12.22-C27) in 2005 and later supported with design guidelines that are advisory policy direction for implementing the standards.

Built results

The results are typically not individual small homes but individual homes that are technically independent and/or detached that visually appear as one large building. The separation can be as little as 4 to 6 inches that is covered by a sheet metal cap at the top of the building. Although the ordinance was intended to provide for a variety of housing types and ownership, the results tend to maximize each site and are not necessarily affordable.

Recent amendments to the ordinance are likely to result in slightly reduced-sized homes. These amendments slightly reduce lot coverage, increase minimum lot width, and increase setbacks. These changes, as well as the addition of an administrative clearance process to require adherence to design standards, are intended to improve the compatibility of small lot subdivision projects in existing neighborhoods.

Incentives for building small homes

- These projects go through a streamlined administrative process that is nearly a check-list type approach.
- The process allows the staff to provide administrative relief from the standards based on the situation.
- The ability to provide fee-simple ownership in multifamily zoned areas.
- Compared to condominium projects, small lot projects do not require an HOA and require less parking and common open space while allowing higher lot coverage (75 percent).
- The process has been improved to allow construction prior to full recordation of the subdivision. However, the units are not allowed to be occupied until full recordation of the subdivision.

Challenges in building small homes

- The original setback requirements were interpreted as only applying to the perimeter and not between individual units as intended. This has been revised to require the front setback to match what the zone requires. The rear and sides have been revised to require a larger setback as the building height increases.
- Sometimes a small lot subdivision is proposed in an area that is zoned for multifamily but developed with single-family houses or duplexes. In these situations, a neighbor's perception is that the zoning is changing, so they oppose the project.
- This ordinance was prepared to not result in removal of the numerous cottage courts that already provide small homes.
- The requirement to have a street-facing entry has been clarified and improved.
- Condominiums require more parking and more common open space than single-family buildings. This ordinance has been used by developers to avoid the condominium requirements while producing a building that appears to the neighbors as a condominium building, even though it consists of individual single-family units.
- Many buildings result in what appears to be one large building. The design guidelines have been clarified to require a variation in the roof line when the building contains 3 or more units.
- Small lot homes can face challenges that relate to access (vehicle turnaround/back-up space, fire, sanitation). This is unique to small lot subdivisions because regulations are based on the traditional single-family residential or apartment building type. For example, if a fire lane is required because a fire hose is unable to reach a small lot home that is more than 200-feet from the street, driveway access must be widened, which can reduce the building size or potentially eliminate units.



Asheville, N.C.—Amendments to Residential Zoning Districts (Ordinances 4068 and 4621)

Ordinance Preparer: City of Asheville

Contact: Vaidila Satvika, Urban Planner II, Department of Planning and Urban Design

Background and the reason the ordinance was prepared

The ordinances were prepared in response to multiple factors that ultimately made the City reconsider its standards for residential zoning districts to help meet housing needs: a very low vacancy rate of 3 percent, residential districts that were not meeting the permitted zoning potential, no additional annexations allowed by the State, and a realization that older zoning codes provided greater flexibility that current regulations had dropped. For example, the 1948 zoning code allowed multifamily units in all residential zones but was later changed to not allow these units in most residential zones, primarily through the establishment of single-family zoning districts. Supporting the direction for change there was strong public feedback showing clear support for reducing lot sizes, incentivizing duplexes and multifamily buildings while establishing ‘neighborhood-scale multifamily design standards’, and seeking better design regulations for multifamily buildings to protect neighborhood character.

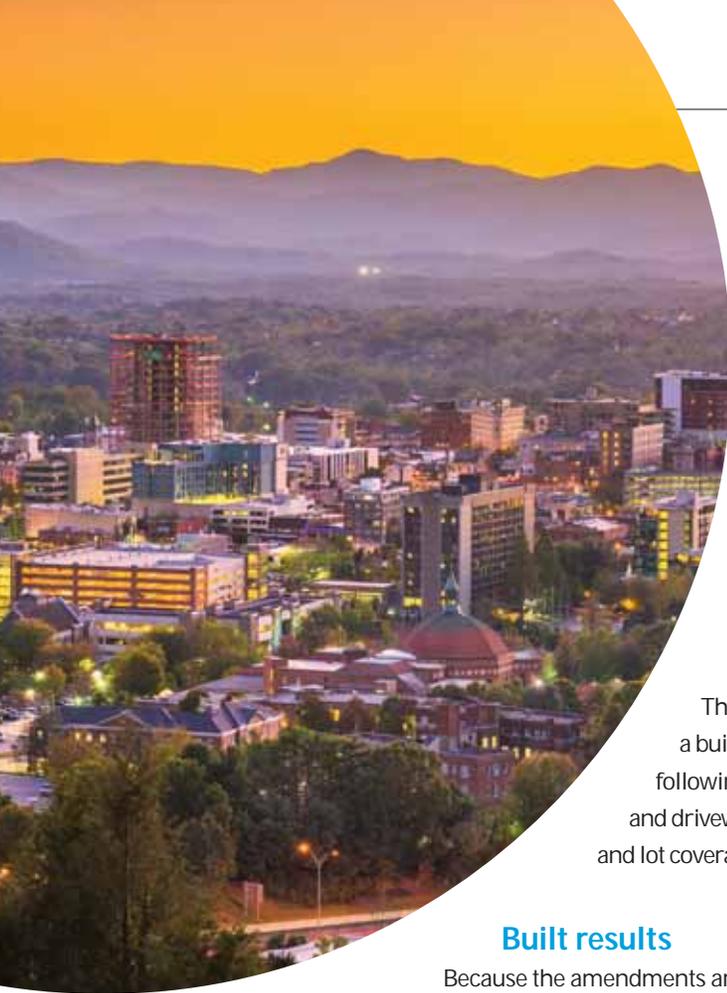
What do the ordinances allow?

- The new standards allow a greater variety of housing options and more incentives for multifamily buildings through a twenty percent reduction in required lot size and reduced land requirements in multifamily districts. These changes enable duplexes to fiveplexes on lots that previously only allowed single-family houses. This is significant in providing more housing, especially because approximately two-thirds of the city’s residential areas are zoned exclusively for single-family houses. With the new standards, these single-family districts can more easily carve up larger properties and maintain the house form, physical scale, and character of these lower-intensity neighborhoods.
- The amount of off-street parking was not changed but the location requirements were adjusted to allow uncovered parking in the front and sides of a lot. In addition, the driveway width standard for small multifamily buildings was reduced from 12-feet to 9-feet, which gives more flexibility to designers where site constraints demand smaller house sizes and tighter accommodations for vehicles.

How were the ordinances adopted?

The ordinances revised existing zoning standards and embedded language from earlier Asheville zoning codes. The amendments were adopted in late 2017 after significant community outreach that provided a dialogue between staff and the public to work through the issues.





The standards included changes to definitions, lot frontage, lot area, density, building footprint, parking, access, and design standards for small-scale multifamily buildings. The community outreach program that was used to understand community concerns and to explain options and details of proposed standards was very well prepared. By comparing the 1948 standards with the current zoning standards that replaced them, staff was able to demonstrate that Asheville had lost regulations that helped to establish some of its best neighborhoods. By showing images of charming buildings that were previously permitted, the public was able to understand in a clear and simple format and to understand and appreciate the reasons and need for the proposed changes.

The new regulations for multifamily projects includes requirements that a building's design is compatible with the neighborhood on at least the following characteristics: number and location of entries, roof style, parking and driveways, planting and street trees, orientation of building, building mass and lot coverage, setbacks, height, and front porch.

Built results

Because the amendments are relatively new, built results are just starting to be realized.

Incentives

- The reduction of minimum lot size standards provide more flexibility for property owners to use their land more efficiently.
- Multifamily-zoned properties can much more easily add units because of the relatively low amount of additional lot area (1,000 square feet) needed for each additional unit.
- Through the multifamily design standards, neighborhoods are assured that multifamily buildings will be relatively consistent with the context of houses in the area.
- Additional housing units are being added incrementally throughout the city to disperse the negative side effects of development.

Challenges

- Because built results are just beginning to be realized, concern is still relatively high about the actual results that the amendments will allow.

Kirkland, Wash.—Cottage, Carriage and Two/Three-Unit Homes, Kirkland Zoning Code, Chapter 113, Ord. 4152 § 1, 2008; Ord. 4120 § 1, 2007

Code Preparer: City of Kirkland

Contact: Adam Weinstein, AICP, Deputy Planning Director

Background and the reason the code was prepared

The code was prepared in response to the State of Washington Growth Management Act of 1989 that requires cities to increase density and affordable housing to stop sprawl. The ordinance is aimed at addressing the changing composition of households and the need for smaller, more diverse, more affordable housing choices, while ensuring compatibility with surrounding single-family residential development. However, the ordinance was prepared after a demonstration project was allowed so that the idea could be tested and public feedback received before allowing more projects. Although some small and compact housing projects had been built in the region, the city was reluctant to adopt a new code to allow such projects.

What does the code allow?

- Three types of buildings:
- Cottage: A detached, single-family dwelling unit containing up to 1,500 square feet of gross floor area.
- Carriage Unit: A single-family dwelling unit up to 800 square feet in gross floor area, located above a garage structure in a cottage housing development.
- Two/Three-Unit Home: A structure containing up to 3 dwelling units designed to look like a detached single-family home.
- The code allows these housing types only in the following low density zones: RS 7.2, RSX 7.2, RS 8.5, RSX 8.5, RS 12.5, and RSX 12.5.
- Projects with 10 or more housing units are required to provide 10 percent of the units as affordable to median income households.
- The allowed density is twice the maximum number of detached dwelling units allowed in the underlying zone, and the allowed FAR is up to 0.35.
- The number of allowed cottages ranges from 4 - 24, with up to 12 per cluster.
- Two- to three-unit homes are limited to either one two-unit or one three-unit home, or as part of a cottage development, unless approved through a discretionary process.
- Parking is required at one space per unit less than 700 square feet, 1.5 spaces between 700 - 1,000 square feet, and two spaces for units over 1,000 square feet.
- Lot coverage is allowed up to 50 percent, and there is no minimum lot size.
- Community buildings and community space are encouraged.
- Administrative approval process includes review and feedback from city about the design, open space, and parking.
- Each cottage can be subdivided into an individual lot to provide for rental and ownership opportunities.

How was the code adopted?

The code was adopted in 2007 and is an optional infill zone that developers can apply to their site. The process for adopting the ordinance was relatively easy.

Built results

Several projects have been built, and most are considered very successful. One of the limiting factors is that there is very little amount of land left to be developed, so there is not a lot of opportunity for larger projects similar to the demonstration project at Danielson Grove. For those that have been built, while individual unit prices are high, they are somewhat more affordable than standard new single-family units.

Incentives

- The administrative process expedites the review and approval of these units.
- Only allowed in single-family zones, which greatly clarifies where these units can be considered.
- City is promoting these units as alternatives models of housing closer to transit corridors.

Challenges

- Limitations on proximity to other similar projects.
- Very high land prices to build a small cottage end up being compared with the effort and expense needed to build a large single-family house.
- Most development firms do not have much experience with this housing typology.
- Some developers want to build this type as attached units, while the intent is to build detached units, causing delays in the review and approval process.
- ADUs are not allowed in cottage courts.
- When garages are attached to the unit, the resulting size of the cottage looks more like a single-family house instead of a small cottage. This is especially concerning as the distance between units decreases.



Cottage Court Ordinances

While cottage courts have existed in some iteration for over 100 years, only recently have there been ordinances written specifically to create cottage courts. In the early 1990s, Langley, Washington was the first community to have a contemporary cottage housing ordinance. Langley's ordinance provided incentives to create infill housing and small homes in any residential zone if limited to 1,000 square feet in size and if oriented around a green with height limitations and parking screened from the street. Following adoption of this ordinance, a developer could double the density in any zone. Since then, a handful of communities have adopted specific cottage court ordinances or amendments to their existing code that regulate cottage court standards.

In addition to being enabled through a stand-alone ordinance, it is increasingly common to find cottage courts as an allowed building type in a broader code, as seen with Kirkland in the section above, as with Raleigh described in the section below, or in several of the form-based codes in Section D. Alternatively, cottage courts can be developed as a Planned Unit Development (PUD). But that can be an expensive and time-intensive process depending on the community. Most cottage court developments are condominium-oriented, but some are fee-simple with actual lot lines. The latter configuration presents challenges, in that every lot needs to be serviced on a public right of way for the parking configuration but fee-simple ownership is preferred from a bank financing perspective.

Despite these codes and modifications to the zoning standards, there has not been a notable amount of this building type built to date. There is much speculation as to the reasons why this is the case. Some interviewed for this report point to the key reason being very high land and construction costs making these smaller homes financially infeasible for a middle market price point. The communities where cottage courts have been successfully built, places such as Kirkland, Redmond, and Palo Alto, have a high upper end on housing prices. Other reasons cited are cumbersome review processes and high impact fees. In Milwaukie, Oregon the current cottage court ordinance only allows cottage courts in multifamily zones, defeating the density incentives when compared to other allowed building types. The planning staff in Milwaukie recognizes this limitation and are now in the process of amending their code to allow cottage courts in single-family zones. In addition to the above obstacles, there is the general public's perception that small units will reduce the value of adjacent properties.

Cottage courts do require a certain buy-in to a community-oriented living style, and developers may be reticent to attempt a new model. However, demand and interest has been growing for community-oriented developments, especially among seniors. It's important to point out that when cottage courts first were developed in the early 20th century, this type of housing was in response to the need for a unit that a single worker could afford and that did not use up lot area for parking. That is why these units tend to be very small and typically near transit and employment areas. Over 100 years have passed since the invention of the cottage court, but the need is still the same or even broader as older people are also now interested. Better refinement of the codes and more built projects will help generate public buy-in and support. The examples highlighted in this section are shown largely for their lessons learned. Both municipalities have recognized certain shortcomings of their existing codes and are in the process of making amendments to their standards to address what they have learned.

Ashland, Ore.—18.2.3.090 Cottage Housing Code

Code Preparer: City of Ashland

Contact: Bill Molnar, Community Development Director, City of Ashland, OR; Mark Knox, KDA Homes, LLC

Background and the reason the code was prepared

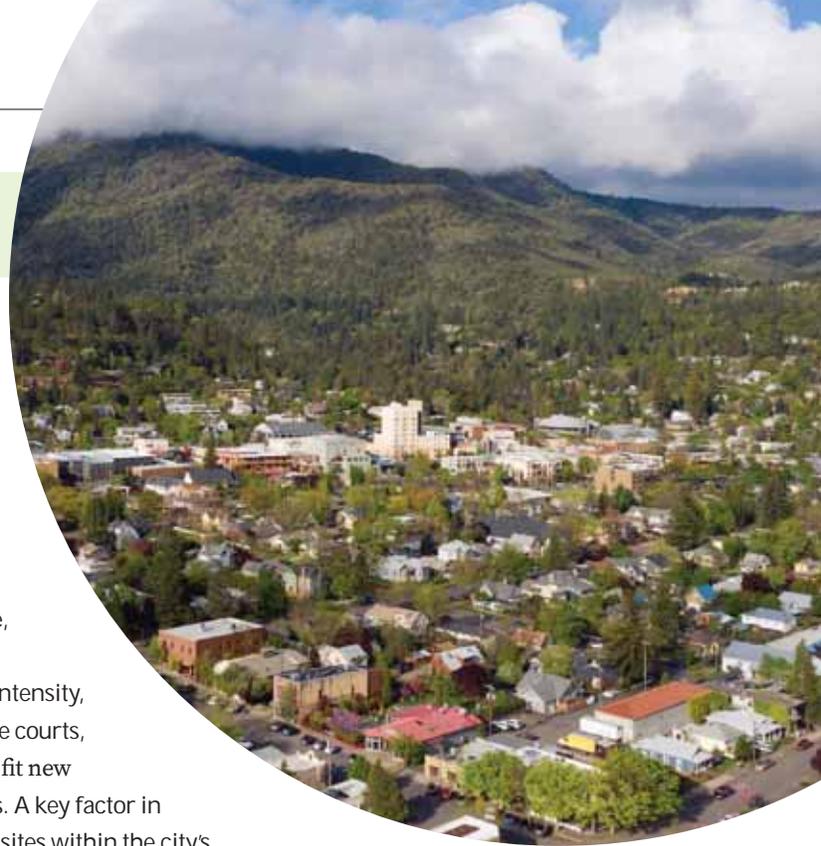
The cottage housing code was initiated by the city to address high housing costs and demand for market-rate, non-deed-restricted housing. In its review of potential housing types to consider, the city focused on lower-intensity, shared format housing types such as co-housing, cottage courts, and pocket neighborhoods. This approach was taken to fit new housing into the established pattern of detached houses. A key factor in preparing the code was to make effective use of limited sites within the city's urban growth boundary, while recognizing that most available sites are within single-family neighborhoods. In addition, the state of Oregon requires that cities have clear and objective standards for housing development.

The code's initial focus was on how to allow more housing—three to five units—on larger single-family lots, while keeping the additional units small, in physical balance with the neighborhoods. As the code continued to be developed, the possibility of larger sites within neighborhoods raised the need to be clearer about the total number of units to keep good physical balance with adjacent houses. This led to the requirement that the units be small and be organized around a large, shared open space.

The time to prepare, consider and adopt the code took 18 months, with the ordinance adopted in 2017.

What does the code allow?

- **Units:** Minimum 3, maximum 12 (up to half the units may be attached).
- **Density:** 11.6 to 17.4 dwelling units per acre.
- **FAR:** Maximum 0.35.
- **Unit size:** Maximum 1,000 square feet. In projects of only three units, two must be less than 800 square feet; in projects of four or more units, 75 percent must be less than 800 square feet.
- **Height:** Maximum 18 feet to the eave, with the ridge of a pitched roof allowed up to 26 feet.
- **Lot coverage:** Maximum 50 percent in zone (house, porch, driveways, sidewalks, 'not natural'); this code increases it to 55 percent if there is porous concrete, grass-crete, etc., but still it is not enough.
- **Building separation:** Minimum 6 feet (typically 12).
- **Fences:** Allowed between units but not taller than 4 feet.
- **Public street(s):** May be waived if project meets block length standards by providing public access for pedestrians and bicyclists through an alley, shared street, or multi-use path.
- **Parking:** One space per unit (two required in zone); parking spaces are required to be consolidated to minimize the number of parking areas. Guest parking is not required.
- **Open space:** Minimum 20 percent of total site area, with a minimum dimension of 20 feet, and required to consist of a central open space or series of interconnected open spaces. Parking areas, driveways, wetlands, and steep slopes do not count toward this requirement.



- **Requirement to abut open space:** Minimum 50 percent of units required to abut the site's open space.
- **Private outdoor area:** Minimum 200 square feet per unit (e.g., patio, porch, garden) with a minimum dimension of 8 feet.
- **Common buildings:** Maximum 25 percent of the required open space but not more than 1,500 square feet may be utilized for a community building.
- **ADUs:** New ADUs are not allowed. If one exists on the site, it can continue.

How was the code adopted?

The ordinance was adopted as a cottage court code that only applies in single-family zones. Using this tool does not require a zone change. When this tool is applied, it is as a separate set of standards that specifically change certain standards while relying on the rest of the existing ordinances and standards.

Oregon state law requires clear and objective standards and enables by-right approval. However, because of these sites being subdivided into individual cottage lots, that becomes a discretionary action and requires Planning Commission approval. There is interest in someday delegating these approvals to the Community Development Director, but this will depend on the built results being acceptable and not resulting in the need for more review to address issues.

Built results

The first project to be built under the new ordinance is in the review and approval process and scheduled for a mid-February approval. The project is on a 0.75-acre site in an established single-family neighborhood and consists of 12 cottages. The project and surrounding neighborhood are about a half-mile (10-minute walk) from downtown Ashland and transit. There is an elementary school within a block of the site.

The project features a shared garden that is shaped by the 12 cottages. The cottages are all single-story and have porch frontages on the adjacent street or to the shared garden. The project's marketing is aiming at buyers interested in small lot development cottage courts and Missing Middle Housing.

This first project was submitted and approved for construction within a 4.5 month time frame, with construction expected to start in April and sales ready by November.

Incentives for building cottage courts

- Off-street parking was reduced from 1.75 to 1 per unit. This was made possible by much staff research and by looking at the actual neighborhoods to understand actual parking habits and needs.
- Minimum separation between units was reduced to 6 feet from 12 feet.
- Duplexes are allowed (during code preparation, up to three attached units were considered).
- Additional density up to 17 beyond the existing 11.6 dwelling units per acre.
- Clear and objective standards have limited frivolous appeals.

Challenges in building cottage courts

- Developers have identified that impervious surface limits are too restrictive and lot coverage is too low. Staff acknowledges these issues but wants to review built results before considering changes to the standards.
- The community is very concerned about landscaping and wants as much as possible. The required shared courtyard helps to address this issue.
- Market acceptance is slow because new projects like this do not exist.
- Until the built results convince people otherwise, there is still neighborhood opposition to any increase in density.
- There is strong concern about the ability for residents in the neighborhood to easily evacuate in a fire emergency.

Raleigh, N.C.—Unified Development Ordinance (UDO) which includes Cottage Court Building Types

Code Preparer: Code Studio

Contact: Kenneth Bowers, AICP, Planning Director, City of Raleigh

Background and the reason the ordinance was prepared

The cottage court provision was added to the code as part of a ground-up rewrite of the entire development code that became effective in 2013. For the residential portion, the ordinance is written as a form-based code that allows a cottage court building type. This type contributed to some of the overall objectives of the UDO, such as providing neighborhoods with a variety of housing types to serve the needs of diverse population, removing barriers and providing incentives for walkable projects, and encouraging compact development.

What does the ordinance allow?

Within the UDO the regulations related to the cottage court building type allow for the following by administrative approval:

- **Total units:** 5 cottages maximum at the minimum site size, with additional cottages permitted with additional site area.
- **Building footprints:** 1,000 - 1,400 square feet, with a detached accessory maximum of 450 square feet.
- **Building height:** 25 feet maximum building height.
- **Parking:** Two spaces per unit which is not required to be covered and no guest parking needed. Since there are no alleys, driveways are needed.
- **Setbacks:** Setbacks are the same as in single-family and there is no requirement for the cottages to face the green.
- **Short-term rentals:** not currently allowed

How was the ordinance adopted?

The UDO was a city-initiated process that was adopted through a public process involving City Council approval. While it was a fairly intensive process with plenty of controversies surrounding the rewrite, the cottage court provision did not attract a lot of attention at the time and went through smoothly.

Built results

In terms of the success of the ordinance, there has been little market response to this new option. To date, only one cottage court has been built. The belief is because the cottage court option does not allow additional density, therefore a conventional subdivision will generally produce a better economic return because the houses will be bigger. If the city wants to see more cottage courts, they recognize they probably need to allow additional density above conventional single-family. A text change to increase the permitted density of cottage courts has been authorized by City Council and is pending review in Planning Commission. Potential reductions in required parking for residential uses are being discussed in a City Council committee.



Incentives for building cottage courts

- Required lot sizes got a little bit smaller with the new code.
- While there are no density bonuses, size limitations of cottages allow for more units over the same area.
- If you were able to get more units per prescriber area the unit prices would be more attainable.
- The choice to live in a cottage court about a lifestyle incentive. The cottage courts create more a neighborhood setting with less maintenance burdens than a single-family residence.

Challenges in building cottage courts

- While multiple units are allowed on a single lot the cottage court developments are still required to meet the density of the zone. The city staff have been asked to look for a revision on the cottage court related to the density. Currently the size limitation of the units and the court do not allow for more density.
- The parking requirements are the same as the single-family units which is challenging to do with a two car parking minimum for multiple units on a single lot.
- No reduction in impact fees as they are per unit as in any other development.
- The cottage court is typically handled as condos with an HOA which adds a complication as compared to a single-family residence.

Form-Based Codes (FBCs)

Form-based codes (FBCs) have existed since 1987, with the first adopted in Seaside, FL. The Seaside FBC was largely in response to the developer proposing a project based on historic, highly appealing real estate in the area that the zoning and regulations no longer allowed. This disconnect revealed a major problem in many communities; the zoning does not reflect community needs and does not acknowledge appealing patterns and building types that existed before the zoning. In the interest of time and expense, the developer focused on the issues to be resolved for that project and understandably avoided the more systemic issues that could have delayed the project for years. The easiest path was to adopt a Planned Development specific to that site that would essentially replace the zoning and allow the project. In these cases, the applicant negotiates with the city/county on the standards in exchange for ‘better site design’ or enhanced results that would otherwise not be achieved through the regular zoning. The applicant and their town planner (DPZ) prepared the FBC that became the content for the Planned Development. As this pattern of broken and unresponsive zoning repeats itself across the U.S., FBCs are being applied to broader and broader areas, having been applied across many areas in large cities.

Novato, Calif.—Northwest Quadrant Zoning District; 19.14.060 Novato Zoning Code

Code Preparer: Opticos Design, Inc.

Contact at City: Bob Brown, former Community Development Director; Vicki Parker, current Community Development Director

Background and the reason the code was prepared

This is a code for one neighborhood in this small city. The city itself is mostly suburban except for this neighborhood and the adjacent Main Street. The neighborhood is low- to moderate- intensity with about 50 percent single-family houses and duplexes, and about 50 percent out-of-scale apartment buildings. These out-of-scale apartment buildings are why the community has been very tough against new multifamily zoning and buildings and why this code was prepared.

The current zoning limits development to 10 dwelling units per acre, but the General Plan allows up to 20 dwelling units per acre. In response to the negative reaction and strong opposition to the large apartment buildings built under the County zoning before Novato's incorporation, which allowed 20 dwelling units per acre, the zoning was reduced so that the full amount of density allowed by the Comprehensive Plan was not allowed. In addition, in 1977, a policy was adopted preventing new apartment development when a “... sound single-family home exists on the property”. This led to approximately 28 years of disinvestment. As a result, the community asked for options. After working through a variety of choices, the community focused on applying standards to the neighborhood that would allow the General Plan maximum of 20 dwelling units per acre. Much education was needed to show that 20 dwelling units per acre could be achieved with smaller house-scale buildings that are more compatible with the scale of older homes than the previous apartment buildings that the neighborhood wants to avoid. The education effort was a combination of public outreach in community workshops and city staff working with local stakeholders throughout the process.

How was the code adopted?

The code is mandatory and replaces the existing zoning with one form-based zone. The standards apply to new buildings and additions.



What does the code allow?

The code applies the development standards through six building types ranging from carriage houses and ADUs, detached houses to duplexes, triplexes to sixplexes (multiplex small), and cottage court up to courtyard buildings. The code also identifies standards for frontage types to shape the public realm along the front and side streets of each lot. The idea of connecting the public realm to individual development of buildings was well received and confirmed that this was not just about fitting in new buildings but also about improving the public realm. The code relies on existing parking, landscaping, site plan, land use requirements, and review procedures.

- **Height:** All buildings are limited to 20 feet to the highest top plate (eave) and 35 feet overall. The code allows buildings to expand, but through secondary wings. Wings are required to have a smaller scale and height for better compatibility with neighbors.
- **Lot coverage:** Maximum of 40 percent.
- **Density:** The code was carefully prepared and tested to comply with the City's limitation on residential density of 20 dwelling units per acre, while fitting new buildings in with the prevailing low-intensity physical character. The allowed building types and their standards were prepared and tested to comply with this limitation. Because of this, the code does not need to mention or use density as a regulation. This is important, because the community realized that regulating by density was not serving them well and that they needed to reconsider focusing first on the desired and more predictable physical form.
- **Building types:** A total of six house-scale building types are allowed, each with its own lot size, coverage, and building size requirements, to generate buildings that reflect the scale desired by the community.
- **Frontage:** A total of four types ranging from projecting porch, engaged porch, to stoop and dooryard provide the options for how the street-facing facades connect to and shape the public realm.
- **Parking:** The intent and the standards have been crafted to generate house-scale multifamily buildings that are physically compatible with single-family houses. However, the community chose to not modify the requirements for off-street parking because of the existing shortage of on-street parking and significant concerns about reducing what are already considered inadequate parking standards. Over time, this may be possible to adjust, especially given the immediately adjacent neighborhood Main Street and access to transit.

Integral relief from standards

The code describes the situations where an exception may be granted administratively through design review. The community chose to allow this type of flexibility only on requests to reduce required setbacks. Given that the context is a mature neighborhood setting, the reality of existing conditions (site features, trees, etc.) makes it necessary to build in this type of flexibility, but with clarity about when and how much of a reduction to allow. Typically, additional topics are included for this type of relief, but this community chose to address topics other than setbacks through the Planning Commission.

Built results

The code awaits adoption along with the new General Plan in early 2019. The community and City staff are optimistic and excited about implementing the code.

Challenges

- The first new buildings will test the community's reliance on the code to generate physically compatible and appealing multifamily buildings. This means that the design review process will likely be intensified, but because of the code's comprehensiveness and clarity, it is expected that the need for new discussions or topics at design review will be minimal.

Miami, Fla.—Miami 21 Code

Code Preparer: Duany Plater-Zyberk

Contact at City: Joseph Eisenberg, CNU-A, EcoDistricts AP, Planner II – UDRB and WDRC Liaison, City of Miami, FL

Background and the reason the code was prepared

This code addresses the entire city of Miami (37 square miles of land area) and was a complete rewrite of the previous zoning code. The focus of the following analysis is on the low- to moderate-intensity neighborhoods, which represent about 60 percent of the total city (T3 and T4 zones). The new code was in response to years of complaints about the previous code's unresponsiveness to existing conditions and the need to better accommodate reinvestment. The previous code allowed up to 75 dwelling units per acre but lacked the information with which to adequately address the lower end and middle of the range. This resulted in physically incompatible, out-of-scale development next to and within low- to moderate-intensity neighborhoods. This occurred mostly along corridors that backed up to neighborhoods. A need for better transitions between those two very different types of environments became a key reason for taking a comprehensive look at the existing zoning code and review procedures.



How was the code adopted?

The code was adopted in 2009 and is mandatory, replacing the previous zoning and review processes and procedures. During the code's public review process and leading up to the adoption hearings, the code preparers and city staff held over 200 public meetings to communicate about the code's details and to identify refinements. This high level of interaction led to a relatively smooth adoption process and immediate development proposals.

What does the code allow?

The code allows development across a variety of walkable urban neighborhoods. The code does not regulate building types but the standards allow equivalent types, ranging from as small as 'carriage house' accessory apartments, to townhouses, duplexes, small to medium multifamily buildings, and 3-story Main Street buildings with housing. The code allows development in a range from 9 to 36 dwelling units per acre. In lower-intensity neighborhoods (T3 zone), the code requires a mix of building types to provide housing choices other than single-family houses. In moderate-intensity neighborhoods (T4 zone) where more multifamily buildings are allowed, the code limits building width to avoid buildings with too large of a footprint. The code applies a variety of height setbacks on adjacent zones to make sure that the scale and physical character of these low- to moderate-intensity neighborhoods is maintained.

The code was carefully prepared to fit the wide range of physical conditions and intended physical character in low- to moderate-intensity neighborhoods across the entire city. This was done through an extensive analysis of existing and intended physical patterns in each type of neighborhood. This process identified the prevalent patterns of building setbacks, building height, and lot coverage to develop the standards. In addition, the standards were further tailored to each neighborhood through a three-level system: Restricted, Limited, and Open. Each level either reduces or increases the allowable maximum based on its location in the neighborhood (e.g. corridor sites typically are Open, while the interior of neighborhoods may be Restricted). This is an effective way to recognize different needs in a zone without creating more zones for a narrow purpose.

- **Height:** The code measures height to the highest eave. The T3 zone allows up to two stories (25-feet) and the T4 zone allows up to 3 stories (40 feet).
- **Lot coverage:** The T3 zone allows 50 percent lot coverage, with the second floor restricted to 30 percent in certain areas. The T4 zone allows 60 percent.
- **Density:** The T3 zone allows from 9 to 18 dwelling units per acre, and the T4 zone allows up to 36 dwelling units per acre.
- **Building types:** This code does not specify or regulate building types.
- **Frontage:** A total of six types, including common lawn, porch, terrace, forecourt, stoop, and shopfront, provide the options for how the street-facing facades connect to and shape the public realm. The shopfront is an option in certain locations and can be added to an otherwise residential building, providing flexibility for the owner while complying with the zoning.
- **Parking:** Parking was approached on the basis of proximity to high-quality transit. For example, the base requirement per unit is 1.5 spaces, but that can be reduced by 10 to 30 percent depending on the proximity to high-quality transit (within a quarter or half-mile). In addition, visitor parking is 1 per 10 spaces, which is low, but it is required off-street and uses up valuable site area. Projects of four units or less are not required to provide off-street parking. However, the market has not adapted to this and still expects some off-street parking.

Integral relief from standards

The code provides many opportunities for administrative reductions in the standards through a ‘waiver’ process. The waiver process identifies the topics and situations that qualify for a waiver, along with the amount of reduction available, enabling timely review and approval. The code provides additional forms of relief from the standards, but they require Planning Commission review.

Built results

The code has enabled much reinvestment due to the clarity of the process and how the code’s standards were made relevant to a wide variety of stakeholders. Built results range from carriage houses, detached houses, duplexes, rowhouses, small- and medium-size multifamily buildings, and small Main Street buildings that include housing. So far, the most popular building type is the duplex. According to city staff and the code preparers, not as much medium-size multifamily housing is being built because off-street parking requirements are still too high, yet the market still expects some off-street parking.

Challenges

- The market’s ongoing expectation for plentiful off-street parking and developer’s goal to have lower parking requirements.
- Very high property values in low- to moderate-intensity zones resulting in pressure to develop more than allowed by new zoning.

New Town St. Charles, Mo.—The New Town Code

Code Preparer: Duany Plater-Zyberk

Contact: Tim Busse, Town Architect, The New Town at St. Charles

Background and the reason the code was prepared

This code is for an entirely new development on a 726-acre agricultural site. This project was planned in 2002 as a new community, for the purpose of offering a range of affordable housing choices in six walkable urban neighborhoods.

How was the code adopted?

The code was adopted in 2003 through the Planned Mixed-Use Development process and covers the entire 726-acre site. The code replaces existing land use requirements and existing review procedures and is applied to each lot as it is developed.

What does the code allow?

The code identifies four zones, two of which are the focus of this analysis: T3 and T4. The T3 zone allows medium-to-large detached houses up to two stories, along with a carriage house in an accessory building. The T4 zone allows up to three stories through small-to-large detached houses, rowhouses (townhouses), live-work buildings, and apartment buildings (mansion buildings with 4 to 6 units).

The code was carefully prepared to fit the range of intended physical character of each neighborhood through extensive analysis of historic patterns in the region. This information and the developer's ideas were transformed into a master plan through a multi-day design charrette in 2003 with construction starting in 2005. The master plan identified the new network of blocks and a variety of streets along with direction for the standards: building types, setbacks, building height, and lot coverage.

- **Height:** The code only specifies height in stories. The T3 zone allows up to 2 stories, and the T4 zone allows up to 3 stories.
- **Lot coverage:** The T3 zone allows 40 percent and the T4 zone allows 60 percent.
- **Density:** The code does not regulate the density of individual buildings but the overall number of units is identified and agreed to during schematic planning ('sketch plan') for each site.
- **Building types:** A total of seven building types are allowed in the zones: two types in T3 and six types in T4. The code includes plan diagrams showing the standards for each allowed building type in each zone. Applicants preparing their own plans require review and approval by the Town Architect prior to submittal to the City for final approval. Applicants who use the Town Architect to prepare their plans do not require City approval.
- **Frontage:** A total of seven frontage types shape the public realm; common lawn, porch and fence, terrace, forecourt, stoop, shopfront, and gallery are allowed depending on the location.
- **Parking:** Parking was approached from the basis of needing less off-street parking because walking and biking are integrated into the site design of the overall development and for each block. On-street parking is allowed and counted toward the required amount.



Integral relief from standards

The code does not provide options for administrative reductions in the standards. However, the project was established with a town architect representing the developer and the community. The town architect reviews all proposed plans and makes a recommendation to the Architectural Review Board, and informs the City if the plans are consistent with the code and ready for approval. Because the master plan and vision are clear about the physical expectations for the site, the town architect can work with developers and individual owners to adjust their plans through a simple process. If the town architect recommends that a variance is necessary, the town architect submits the variance to the City for review and approval in the same way as it reviews proposed plans.

Built results

This development is over 50 percent built-out. The built results range from carriage houses, detached houses, and rowhouses to mews units along a pedestrian passage, small- and medium-sized multifamily buildings, and Main Street buildings that include housing.

Challenges

- Cost of installing required fire sprinklers in mixed-use buildings. While an understandable requirement for mixed-use buildings, this has made it difficult to build an individual live-work unit.
- Health Department requirements result in making small restaurants difficult and expensive.
- Building Department staff who were initially unfamiliar with the zoning and standards for the project needed specialized training to become familiar with the community's principles and different approach to neighborhood development.
- Local utility companies, City Public Works and Fire Department officials continually push for more conventional (larger), easements.
- Local utility companies, City Public Works and Fire Department officials continually push for more conventional (larger), easements, streets and alleys. This affects development costs as well as unintended consequences of overly wide alleys then being considered streets and additional requirements.
- The status quo is acceptable for the majority of builders in the area, and despite this project's success, local builders view this project differently and not an example to follow.

Daybreak, South Jordan, Utah

Code Preparer: Daybreak Communities

Contact: Cameron Jackson, Daybreak Communities

Background and the reason the code was prepared

The code was necessary to build an entirely new development on a 4,150-acre site of agricultural land. The developer, Daybreak Communities, worked with the community of South Jordan to plan the site for several villages of walkable neighborhoods, neighborhood and community-level Main Street environments, and employment areas. The previous zoning did not allow the proposed development and did not anticipate the extent of this master plan. In 2002, a master plan was prepared for the entire site along with a new zoning district supported by design guidelines. The guidelines for houses are more detailed than those for buildings of attached units. This is because of the very wide range of physical contexts that the guidelines would have to address and the team's intent to keep things simple.



How was the code adopted?

The developer worked with the community through a master planning process to establish the needs in this area and the types of development that would best address those needs. In addition to providing a wide range of housing choices, it was established that new circulation techniques would be part of the new community including light rail transit. These types of solutions were integrated from the outset to demonstrate that this development was addressing and improving upon existing issues and not simply adding houses.

As part of the master planning process, the zoning was changed to PC (Planned Community) with a broad entitlement across the 4,150-acre site for 20,000 units and 9 million square feet of non-residential space. The master plan and new zoning were prepared to be clear enough about the intent of what is and is not allowed so that all approvals are 'by-right', not requiring any discretionary review. In addition, the master plan and standards include flexibility for the developer to respond to changing market needs without needing to revise the plan or standards.

Each new project is reviewed and presented to the City for final approval after Daybreak Communities has reviewed and confirmed that it meets the standards and intent of the master plan. As part of its review, Daybreak's design team works with the individual developer's design team to plan each block in the project and to distribute the building types to different blocks instead of the typical practice of concentrating them on the site that each developer controls.

Each application is approved 'by-right' because of the clarity and flexibility of the master plan, the zone, and the on-going education/community engagement by the developer each time far before the application is submitted to the City.

It is important to note that this project was given a high amount of flexibility along with zoning and standards that are not overly detailed because of four key actions by the developer: a demonstrated commitment to solving housing, circulation and environmental issues through innovative development patterns and techniques, not 'business as usual'; an integral design team that functions in a role similar to the town architect's role in other large developments; a demonstrated commitment to high quality design; and ongoing community engagement for each project. This type of commitment by the developer explains the city's high comfort level with how the project is implemented even though the plan and standards are less detailed than most large projects.

What does the code allow?

The zoning allows up to 20,000 units and 9 million square feet of employment, retail and service. The zoning and guidelines allow a palette of building types that continues to grow as the project continues: small to large houses, duplexes, fourplexes, townhouses arranged in groupings of 3 to 9 with the typical grouping at 4 to 6 units, mews, 3-story apartments and 4-story units near the light rail station. The code replaced the previous land use requirements and existing review procedures.

The code was carefully prepared to fit the range of physical conditions and intended physical character in each village through an extensive analysis of historic patterns in the area, while integrating flexibility. This information was transformed into a master plan for the entire site in 2002 with construction starting in 2004. The master plan identified the new network of blocks and a variety of streets along with direction for building setbacks, building height, and lot coverage with which to make the standards.

- **Height:** The code allows the building types relevant to this analysis up to 4 stories.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.
- **Density:** The code does not regulate the density of individual buildings but regulates the overall number of units agreed to within the 4,150-acre site.
- **Building types:** The code does not regulate building types, but as mentioned above, the palette of building types being developed is used as a reference point for new projects.
- **Parking:** Off-street parking is required at one space per unit, but the market is still largely suburban and is asking for more parking and is being built at two spaces per unit.

Integral relief from standards

The development is implemented through a design team that works for the master developer, Daybreak Communities. The design team reviews all proposed plans and only presents the proposed project to the City when it meets the requirements. As part of that collaboration, Daybreak's design team works with each developer to adjust their plans and/or propose a solution that is within the intent of the master plan and zoning without the need for specific procedures.

Built results

This development is far from built-out, having started construction in 2004 and approximately 25 percent complete (5,200 of 20,000 units). The built results range from a variety of detached houses, duplexes, townhouses, and mews units to small- and medium-size multifamily buildings, and Main Street buildings that include housing.

It's important to note that even though this project provides 'by-right' approval and no community engagement is required, this master developer understands the need to engage the community on each proposed project to maintain communication and a positive relationship. *"You need to communicate about how it works, why it works, and why it makes a difference."* – Cameron Jackson

Kentlands, Gaithersburg, Md.—MXD Zone, Mixed Use Development, Division 19, Sec. 24-160D

Code Preparer: Duany Plater-Zyberk

Contact at City: Trudy Schwarz, Planning Division Chief, City of Gaithersburg, Maryland

Background and the reason the code was prepared

This code was necessary to build an entirely new development on a 352-acre site formerly occupied by a farm and a few houses. The goal of the developer from the outset of this project in 1987 has been to develop walkable urban neighborhoods, including a small downtown. This development pattern remains very different from the sprawling suburbs surrounding the project. The code implements a master plan and vision for the site that were prepared in a public design charrette. The code was adopted in 1988 through the MXD (Mixed Use Development) zone and replaces the existing zoning as each area or lot is developed.

The previous zoning did not allow the proposed development. In addition, the previous zoning reflected a development pattern and building types that did not promote nor were able to implement the walkable environment proposed by the developer. The adopted language in the MXD zone states “...it is intended that this zone provide a more flexible approach to the comprehensive design and development of multi-use projects than the procedures and regulations applicable under the various conventional zoning categories.” In addition, the code states as one of its purposes “...locating employment and retail uses convenient to residential areas; reducing reliance upon automobile use and encouraging pedestrian and other non-vehicular circulation...”

How was the code adopted?

The code was adopted as a mandatory zoning district that is applied as each site within the 352 acres is developed.

What does the code allow?

The code uses one zone but articulates the intended physical character through a palette of eight building types: carriage houses, small to large houses, duplexes, townhouses, garage townhouses, live-work buildings, apartments and Main Street buildings. In addition, the code allows each lot for single-family house (attached or detached) to also contain an urban cottage, a smaller, secondary unit. The urban cottage can be up to 1,200 square feet. The code replaces existing land use requirements and existing review procedures.

The code was carefully prepared to fit the range of physical conditions and intended physical character in each neighborhood through an extensive analysis of historic patterns in the area. This information was transformed into a master plan for the 352-acre site through a multi-day design charrette in 1988 with construction starting in 1991. The master plan identified the new network of blocks and a variety of streets along with direction for the standards: building types, setbacks, building height, and lot coverage.

- **Height:** The code allows the building types relevant to this analysis up to 4 stories. Interestingly, there is no height limit for structures or portions of structures with a footprint of less than 215 square feet.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.



- **Density:** The code does not regulate the density of individual buildings but regulates the overall number of units within the 352-acre overall site. The code regulates non-residential space through floor area ratios that vary depending on the use (e.g. retail up to 0.60, office up to 0.65, and other commercial up to 0.15).
- **Building types:** The code identifies eight building types, ranging from small detached houses to rowhouses to apartment buildings and Main Street buildings.
- **Frontage:** The code does not specify frontage types but requires, as most FBCs do, that a minimum amount of the building's facade be placed along the front setback. This is intended to shape the public realm and is typically done in other FBCs through frontage types.
- **Parking:** The parking requirements are more suburban at two spaces per unit and reflect the larger suburban context surrounding the development.

Integral relief from standards

The code does not provide options for administrative reductions in the standards. However, the project was established with a town architect representing the developer and the community. The town architect reviews all proposed plans and makes a recommendation to the city, who has final review authority. Because the master plan and vision are clear about the physical expectations for the site, the town architect can work with developers to adjust their plans without the need for specific procedures.

Built results

This development is nearly built-out, having been under construction since 1991. The built results range from carriage houses, detached houses, duplexes and rowhouses to small- and medium-size multifamily buildings and Main Street buildings that include a variety of housing choices.

Cincinnati, Ohio—Chapter 1703 Form-Based Code

Code Preparer: Opticos Design, Inc.

Contact at City: Alex Peppers, AICP, Supervising City Planner, Department of City Planning

Background and the reason the code was prepared

This code is a form-based set of nine zones and standards for 42 neighborhood centers and the adjacent neighborhoods. Six of the zones are relevant to the focus of this analysis. The areas to be zoned with form-based zones were identified by the community as currently walkable or as areas that they desired to be walkable. This was part of a larger effort to apply a form-based approach to Cincinnati's Comprehensive Plan, *'Plan Cincinnati'*. The neighborhoods range from low-intensity single-family neighborhoods with thriving neighborhood Main Streets to higher intensity neighborhoods with and without neighborhood Main Streets.

How was the code adopted?

Once applied, the code is mandatory and replaces the existing zoning with form-based zones. Then, the standards apply to new buildings and additions. The first part of the process was to generate the palette of form-based zones through a public design charrette process. Once the communities could see why each zone was created, they could then identify which zone(s) are to be applied to their neighborhood. This process was established with a pilot group of four neighborhoods that tested this process, paving the way for future neighborhoods to do the same when ready. This technique offers clarity about the process, while leaving the timing and refinements up to the individual neighborhoods.

What does the code allow?

The code allows a range of building types, including carriage houses, duplexes, sixplexes, multiplex buildings, live-work buildings, courtyard buildings, and Main Street buildings with housing. The buildings range from 2 to 4 stories depending on the zone. The code replaces existing land use requirements and some procedures, while relying on most existing review procedures.

The code was carefully prepared to fit the range of existing lots in each neighborhood through an extensive microscale documentation and analysis. This identified the prevalent patterns of building types, setbacks, building footprint, building height, ground floor height, and lot coverage.

- **Height:** The code specifies height in stories and feet. The T3E, T3N, T4N.MF and T4.SF zones allow up to 2.5 stories. The T5MS and T5.LS zones allow up to 4 stories.
- **Lot coverage:** The T3 zones are limited to 35 percent, while the other zones are limited by the setbacks and open space requirements.
- **Density:** The code does not mention or use density as a regulation. This is possible because of the extensive analysis and testing of the existing and range of allowed building types and how they fit on the existing lots in each of the different neighborhoods. With this understanding about the actual performance, size and scale of each building type, the need to regulate by density no longer existed.



- **Building types:** Nine allowed building types, including carriage house, detached house, duplex, sixplex, cottage court, rowhouse, live-work, multiplex (up to 20 units) and Main Street building, provide the options for development across these neighborhoods. This wide palette of types is necessary to address the intended physical character of the 42 neighborhoods, as many of the desired types already exist but were not acknowledged by the existing zoning.
- **Frontage:** Eight frontage types are identified for shaping the public realm along the front and side streets of each lot. Each frontage type connects the public realm to individual development of buildings while improving the public realm.
- **Parking:** The approach to parking acknowledges the existing and intended neighborhood main streets with the range of services, retail and restaurants within short walking distance of most dwellings in these neighborhoods. The T3 zones require at least one space per unit. The T4 zones require from 0.5 to 1 space per unit and the T5 zones require one space per 1,500 square feet.

Integral relief from standards

The code describes a set of situations where a variation from the standards may be granted administratively. The allowable situations for granting a variation include reductions in setbacks, reducing the amount of facade along a build-to line, reducing lot dimensions, and reducing off-street parking requirements. Each neighborhood has existed for over 100 years, which presents many situations and unique factors in existing conditions (site features, trees, etc.). This makes it necessary to integrate this type of flexibility, but with clarity about when and how much of a reduction to allow.

Built results

The built results are primarily in the upper end of the intensity range with low- to moderate-intensity buildings expected in the next group of development applications.

Mesa, Ariz.—Central Main Area Code— Chapters 56 through 64

Code Preparer: Opticos Design, Inc.

Contact at City: Jeff McVay, Manager of Downtown Transformation, City of Mesa, AZ

Background and the reason the code was prepared

This code is a set of form-based zones for the central area of Mesa, including the downtown. The code was prepared to realize better walkable urban development while improving the review and processing time for development applications.

How was the code adopted?

The code was adopted as an optional form-based code in 2012. The optional aspect was in response to the then-proposed Proposition 207, which was later adopted and requires cities to reimburse property owners for real loss in property value attributed to a zoning action. To avoid the exposure to significant claims anticipated with a large-scale city-initiated rezoning, Mesa decided to provide the form-based code as an option to the existing zoning. As a result, if an applicant/owner wants to use this code, this code requires that they choose to opt into the form-based code as part of the application process. The process is simple and quick, but the owner must opt into the form-based code or stay with the existing zoning.

Once the applicant opts into the form-based code, the code is mandatory and replaces the existing zoning. Then, the standards apply to new buildings and additions. The new zones were identified and applied through a public design charrette process that tested the emerging standards against the community's expectations before making the draft standards.

What does the code allow?

The code includes six zones ranging from low-intensity single-family neighborhoods (T3) up to intense downtown Main Street environments (T5 and T6). The low- to moderate-intensity neighborhoods are the focus of this analysis (T3N, T4N, T4NF, and T4MS).

The code was carefully prepared to fit the range of intended physical character of each neighborhood through extensive analysis of historic patterns in the region. This information was transformed into possible outcomes and corresponding standards through a multi-day design charrette in 2010. Those results were integrated into the City's master plan for the area and then into form-based zones.

- **Height:** For the T3N, T4N, T4NF, and T4MS zones, the code only specifies height in stories. The T3N zone allows up to two stories, the T4N and T4F zones allow up to 3 stories, and the T4MS zone allows up to 4 stories when including certain affordability/senior components.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.
- **Density:** The density of individual buildings is determined by the building types allowed in each transect.



- **Building types:** A total of nine building types are allowed in the zones including carriage house, single-unit house, bungalow court, duplex, townhouse, mansion apartment, apartment house, courtyard building, Main Street building and Mid-rise building: 6 types in T3N, 9 types in T4N, 9 types in T4NF, and 2 types in T4MS. The code includes plan diagrams and descriptions showing the standards for each allowed building type in each zone.
- **Frontage:** A total of ten frontage types are identified for shaping the public realm including common yard, porch and fence, stoop, forecourt, dooryard, shopfront, terrace, and gallery, and arcade depending on the location.
- **Parking:** The approach to parking is progressive and based on the proximity to walkable services and the light rail transit along the Main Street corridor, which spans most of the code area. Developers have responded to the reduced parking requirements, but lender parking requirements have resulted amounts in excess of the allowed minimums. However, recent projects have effectively worked with lenders to fund projects with urban parking ratios.

Integral relief from standards

This code does not include provisions for adjustments or modifications because it relies on existing variance procedures and an informal process during zoning clearance review.

Built results

The majority of the built results were developed with the mid-rise building type and a small number were built with the single-unit house. To date, the vast majority of units are all for rent. Although the City believes there is much demand for ownership units, the for-sale end of the spectrum has not been realized because of developers' concerns about recent history of unfounded litigation against condominium projects.

Challenges

- Lawsuits against condominium ownership.
- The existing base zoning can occur next door to a parcel that opts into the form-based code, affecting the form-based code's predictability of what can be expected on any block.
- Lack of integrated relief from standards for design excellence.

Peninsula Neighborhood, Iowa City, Iowa—Peninsula Code

Code Preparer: Ferrell Madden Associates

Contact at City: Anne Russert, AICP Senior Planner, City of Iowa City

Background and the reason the code was prepared

This code is for an entirely new development on a 70-acre site within Iowa City. The neighborhood is the result of the city purchasing the site in 1995 to protect its water supply while providing affordable housing and demonstrate excellence in neighborhood design through this prominent site. The city commissioned a public participation charrette led by Dover Kohl Partners to determine a community vision for the site that resulted in a master plan and design guidelines. The city then hired a development team to write a form-based code for the project and move forward with its implementation.

How was the code adopted?

The code is mandatory and was adopted in 2001 through the Planned Unit Development process. The site was rezoned to OPDH-5.

What does the code allow?

The code implements the vision for a low- to moderate-intensity neighborhood of up to 340 units. The code identifies ten building types ranging from small-to-large houses, duplexes, up to small and large apartment buildings and live-work/Main Street buildings. ADUs are allowed by-right but require that the owner of the primary house occupy one of the units.

- **Height:** The code specifies maximum height in stories and feet. The maximum allowed height ranges from two stories and 35-feet for the four types of houses, to 3 stories and 35-feet for rowhouse buildings, to 3 stories and 48-feet for small apartment buildings, to 4 stories and 40-feet for live-work/Main Street buildings, and 4 stories and 48-feet for multi-unit buildings. The multi-unit building type is further limited to 200-feet in length. This along with a maximum height standard is an effective technique to reduce the visual size and scale of a building in this type of neighborhood.
- **Lot coverage:** The code does not regulate lot coverage, relying on building setbacks and required open space.
- **Density:** The code does not regulate the density of individual buildings.
- **Building types:** A total of ten building types are allowed ranging from estate house, peninsula house, bungalow, cottage, and cottage flats (duplex), to townhouse (two stories), rowhouse (3 stories), live-work (Main Street building), small apartment, and multi-unit building. The code includes plan diagrams and descriptions showing the standards for each allowed building type.
- **Frontage:** The code requires that a minimum amount of the facade be placed at the minimum setback line and requires porches in certain locations.
- **Parking:** The approach to residential parking is not aggressive and counts on-street parking as visitor parking. The non-residential requirements are reduced to apply only above 1,500 square feet to encourage small businesses.



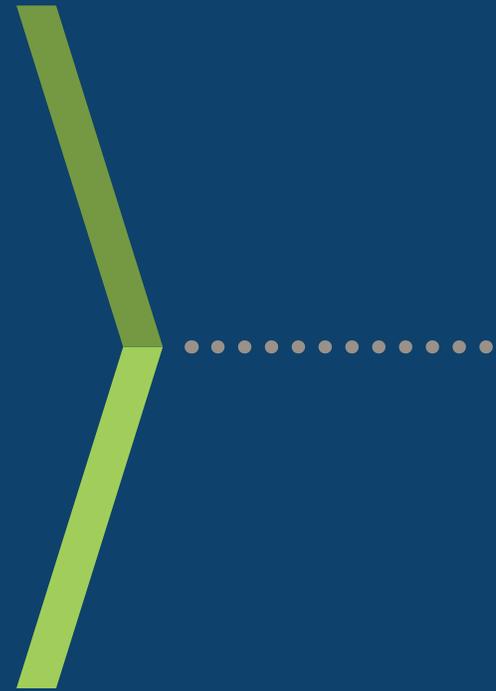
Integral relief from standards

This code does not have provisions for adjustments or modifications because it relies on the City's existing variance procedures.

Built results

The neighborhood is built-out with all of the allowed types and has attracted some of the expected neighborhood services and retail, making this a complete walkable environment.

CHAPTER 3: Case Studies



CHAPTER SUMMARY

The intent of this chapter is to highlight built examples that were developed under the code types analyzed in the previous chapter. The majority are from the selected code examples described in Chapter 2. Finding examples that are affordable for their region, are used as a permanent residence, and that are built under a code that meets the eight criteria in Chapter 1 proved challenging, as many of the qualifying codes were adopted fairly recently.

- Innovative projects are frequently developed as planned unit developments or pilot projects as a relatively inexpensive way to test potential ideas for a comprehensive set of amendments or new code.
- The case studies all reflect a high level of design as individual buildings and an equally high level of design to best fit into their context.
- Two examples are highlighted for their unconventional approach or situation. Boiceville Cottages was built in phases as a pocket neighborhood in a rural community without zoning, while Alley Flats is a nonprofit operating as a developer to help lower income individuals build ADUs on their property.
- Often, requests for a change in standards are perceived as negative but, in some situations, good design may require a change to the standards, as was the case with Meridian Court.
- By enabling smaller units, the neighborhood and its amenities are attainable to more individuals; benefits include proximity to nature or other large open space, proximity to retail, services, food uses and transit, and/or the opportunity for community interaction, as is the case for these selected examples.



ACCESSORY DWELLING UNIT (ADU) CASE STUDIES



Garage Conversion ADU

Portland, Ore.

- **Code type example:** Accessory Dwelling Units
- **Contact:** Kol Peterson, Owner/Builder

Client/Team

- **Client:** Kol Peterson (homeowner)
- **Designer:** Das Chapin
- **Developer:** Kol Peterson
- **Builder:** Adrian Hutapea

Size and scale

One ADU attached to a primary residence on a 50-foot x 100-foot lot in a single-family residential zone.

Unit size range

- **Primary Unit:** 900 square feet
- **ADU:** 800 square feet

Density

18 dwelling units per acre

Project timeline

The project started in 2018 and took approximately one month to design, one day to permit, and five months to build. The owner worked closely with a designer who has extensive construction experience. The owner did the permitting himself, served as the general contractor for this project, and did about 30 percent of the actual construction as well.

Project costs

- **Soft Costs:** \$1,000
- **Construction Costs:** \$100,000 (\$75,000 out of pocket, \$25,000 sweat equity)
- **Sale Price:** Kol bought the house for \$435,000. After renovating the upstairs and building the basement ADU (totaling \$175,000), the property is worth approximately \$600,000.



Project description

The owner built this ADU on a 5,000-square foot lot (50 feet x 100 feet) located near his primary residence by converting the attached garage on the split-level 1973 house into an ADU. It is an 800-square foot, two-bedroom unit with one bedroom that is fully accessible and a comfortable fit for two people. The primary dwelling unit is the upper level of the same structure and contains 900 square feet, with three bedrooms and one bathroom. Both are long-term residential rental units. One off-street parking spot was required for the primary unit. The spot is located in the front yard setback, which required a variance.

Zoning and neighborhood description

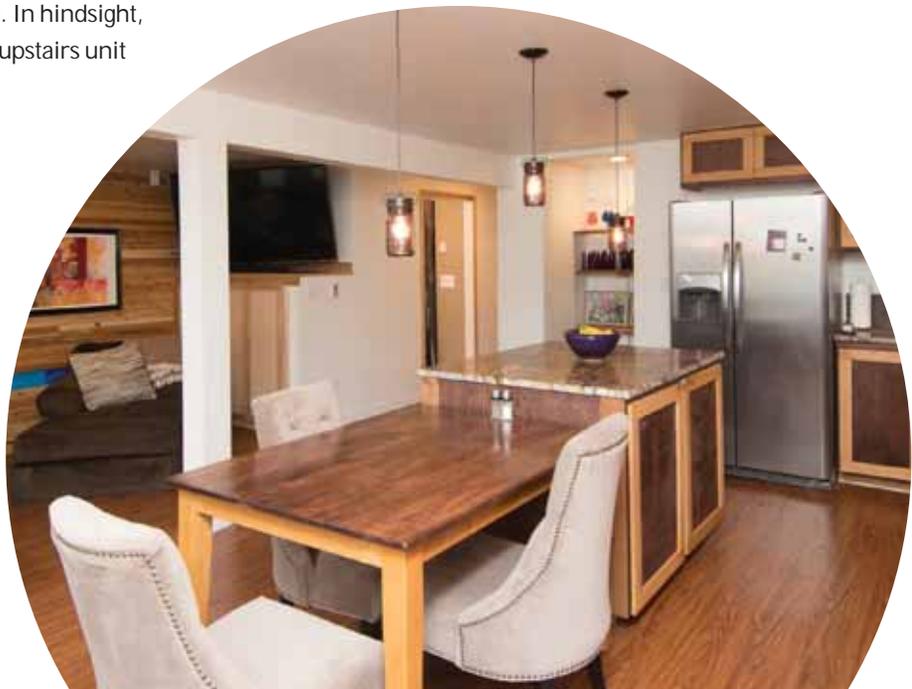
The property is located in a highly desirable neighborhood called the Alberta Arts District in inner northeast Portland, has a Walkscore ranking of 84, and is zoned R5, which is the standard, typical residential lot size and zoning type in Portland. The property is within walking distance of where the owner lives, so it was convenient to develop the property as well as manage it. The site is within one-quarter of a mile of a commercial corridor.

Successes

- The extreme efficiency of the overall timeline, particularly for the permitting.
- Building a nice-looking unit for \$100,000.
- Energy efficient and accessible.
- A good return on investment through the rental. Each unit rents for \$1,850 per month. Collectively, they produce \$1,000 more per month than the 30-year PITI payments.

Challenges/Lessons learned

- The upper unit was vacant during most of the construction of the lower unit. On one hand this was beneficial, as the work was quite noisy all the way through the finish stages of construction, but it also meant loss of income for that unit.
- Despite using all of the best practices for mitigating noise between the two units, step noise was not eliminated. In hindsight, one solution would have been to carpet the upstairs unit instead of installing vinyl flooring.



The Farmhouse, Attached ADU

Portland, Ore.

- **Code type example:** Accessory Dwelling Units
- **Contact:** Lucas Gray, Propel Studio

Client/Team

- **Designers:** Propel Studio
- **Photos:** Propel Studio Architecture

Size and scale

50-foot wide per 100-foot deep lot, two dwelling units total

Unit size range

- **ADU:** 800 square feet over two levels
- **Primary unit:** approximately 1,500 square feet

Density

18 dwelling units per acre

Project timeline

- **Design:** 3 months
- **Permitting:** 3 months
- **Construction:** 6 months
- **Completed:** 2017

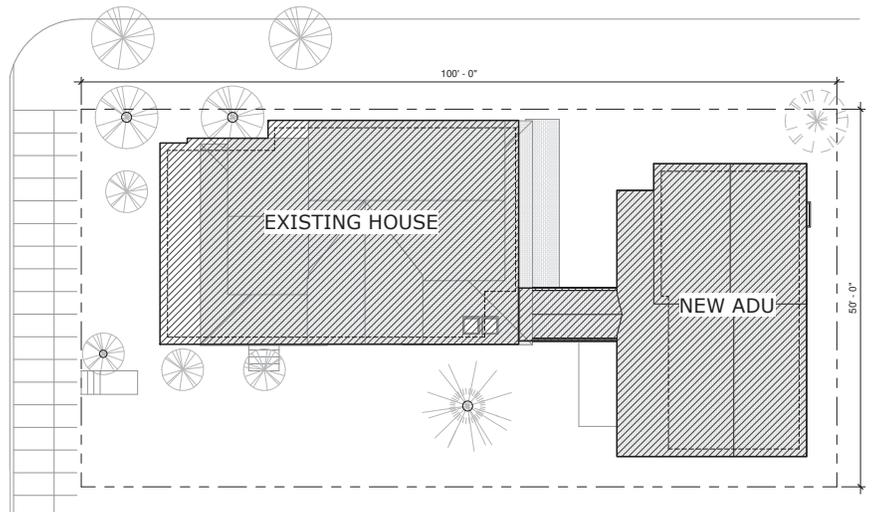
Project costs

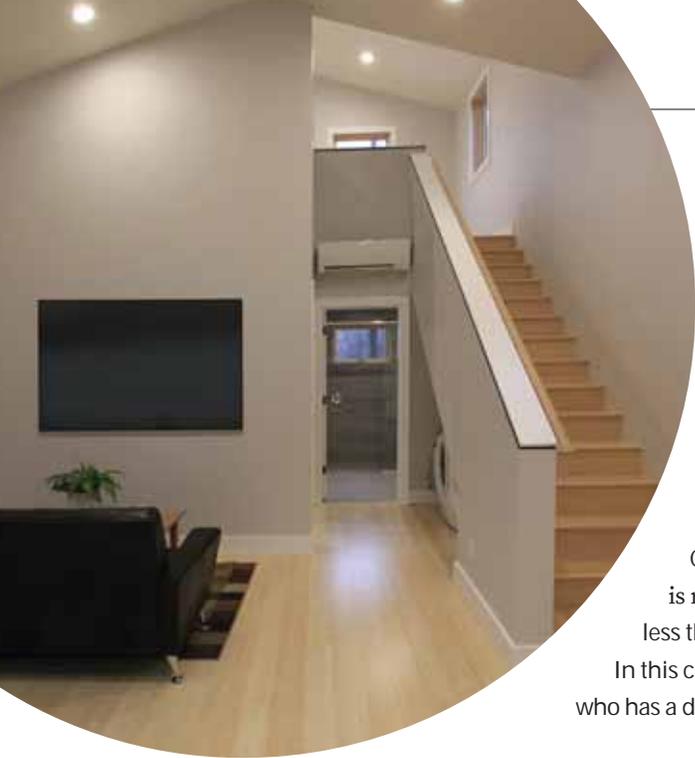
- **Soft Costs:**
 - Architecture: \$15,000
 - Engineering: \$2,500
 - Permitting Fees: \$7,500
- **Construction Costs:** \$200,000
- **Sale Price:** not applicable

Project description

This new construction, two-bedroom accessory dwelling unit is located in southeast Portland Woodstock Neighborhood. The ADU is attached to an existing traditional farmhouse via a covered breezeway. The design represents the traditional, regional farm vernacular, including cedar siding, shingle roofing, and gable roof forms.

Passive solar design principles are incorporated to obtain maximum winter heat gain and summer cooling. A deep soffit overhangs the facade, shading the windows and French doors from high-angled summer sun, reducing heat gain in the summer months. Operable windows allow for cross ventilation.





The ADU also has a high-efficiency building envelope, FSC-certified wood products, an energy-efficient, mini-split mechanical system, high-efficiency LED lighting, occupancy-controlled ventilation, and low or zero VOC/Formaldehyde products selected throughout. The open Living/Dining/Kitchen “great room” faces west, with a window wall and full-glass French doors overlooking the patio and garden. The slab-on-grade construction offers barrier-free ADA accessibility throughout the unit.

Considering the rapidly rising housing costs in Oregon, this project is relatively affordable. It is extremely rare to find a detached home for less than \$350,000, even in farther out, or less desirable neighborhoods. In this case, the owners got to build a new unit close to house their mother, who has a disability, for a lot less than buying a new home.

Zoning and neighborhood description

The project is located in an older, established city neighborhood with a commercial corridor nearby and Missing Middle Housing throughout. The project was developed under the current code which waives the system development fees, saving about \$13,000. Parking is not required for either the primary residence or the ADU due to the proximity to public transportation.

Successes

- Designed for aging-in-place with a barrier-free ground floor and accessible bathroom.
- Upstairs offers a “bonus-room” or a potential bedroom for a future live-in caretaker.
- Built with sustainable building materials.
- Open living area that is spacious for a small dwelling.
- Strong connection to the interior and exterior.
- Designed to fit in with the farmhouse aesthetic of the main house.

Challenges/Lessons learned

- Restrictive/unclear setback requirements made the site location challenging. The code indicates a 40-foot setback from the front but does not clarify how to address corner lots. For this particular site, the only way to locate the structure in a way that was code compliant was to attach the ADU to the main house with a breezeway.
- In certain conditions, the code requires design standards that are quite traditional, which is very limiting to design creativity. It is not clear why this is required for a structure that is behind a primary residence.
- Cost of cedar is rapidly increasing due to current tariffs.
- Site conditions often make it difficult to have easy accessibility all the way from the sidewalk and/or driveway to the ADU unit, even if the unit itself is fully accessible.



Duval, Detached ADU

Austin, Texas

- **Code type example:** Accessory Dwelling Units
- **Contact:** Nicole Joslin, AIA, LEED AP, Executive Director, Austin Community Design and Development Center

Client/Team

- **Designer:** ACDDC
- **Interiors Designer:** Annette Patterson
- **Constructed:** Z Works Design Build

Size and scale

0.24-acre site, two dwelling units total

Unit size range

- **ADU:** two-bedroom, 2.5 bath, two stories, 849 square feet. The unit size range for the Alley Flat Initiative in general is 400 to 1,100 square feet.

Density

8.5 dwelling units per acre

Project timeline

- Design began in July 2014
- Construction began in September 2015
- Completed May 2016

Project costs

- **Soft Costs:**
 - Architecture: \$2,000 (Alley Flat Initiative offers reduced fees through grants for an affordable housing commitment by the owner)
 - Engineering: \$4,000 (includes both structural and civil engineering)
 - Permitting Fees: \$4,100 (only paid water tap fee, all other permit fees are waived through SMART Housing)
- **Construction Costs:** \$163,000
- **Sale Price:** not applicable

The Duval project was developed through the Alley Flat Initiative, which began informally in 2003 with the idea that infill housing in Austin's Boggy Creek watershed could concurrently resolve ecological and social equity problems as a form of "civic environmentalism". That idea expanded in 2005, when a partnership formed between the UT Center for Sustainable Development, the Guadalupe Neighborhood Development Corporation, and the Austin Community Design and Development Center (ACDDC). In 2014, the City of Austin Office of Sustainability joined the





partnership to pursue the Green Alley Demonstration Project, which envisions affordable housing, alleys and small streets as ecological infrastructure. The collaboration continues to grow to tackle more barriers to affordable infill development.

Alley Flats are distinct from other ADUs because they achieve at least a 3-star Austin Energy Green Building rating and participate in the City of Austin's S.M.A.R.T. Housing program for the first five years after they are constructed. Per the program, tenants are limited to households with income at or below 80 percent MFI (Median Family Income,) and rent may not be more than 30 percent of a tenant's household monthly income. The ACDDC functions as a developer, offering services to the homeowner who is building the ADU from design through construction, plus additional educational materials and expertise.

Project description

This Alley Flat is occupied by a single father who is related to the property owner and whose extended family lives in the neighborhood. This two-bedroom ADU nestles neatly into a site that is constrained by setbacks and an existing heritage tree. The family-friendly floor plan was devised in partnership with the future residents in order to maximize privacy and functionality within the small footprint. Generous windows in the double-height living areas allow for filtered daylight through the Live Oak tree to fill the interior spaces. Both the ADU and primary residence are occupied as long-term rentals.

Zoning and neighborhood description

The project is located in the Hyde Park neighborhood, which is located just north of the University of Texas campus. It is mostly comprised of single-family homes, and a section of the neighborhood has been designated as a Local Historic District. This designation adds specific regulations for design standards and other development requirements that might make it harder to develop a variety of housing options.

Successes

- This unit is in the first year of its affordability period. The tenants have a household income below 80 percent MFI and their rent is no more than 28 percent of their income. Like many single parents, if it were not for the affordable rental amount, he would not otherwise be able to live near his family and the social networks he relies on.
- 3-star Austin Energy Green Building rating

Challenges/Lessons learned

- Built a socially, economically, and environmentally sustainable development model that preserves the diversity of our neighborhoods, provides new economic opportunity, and fosters social equity in rapidly changing neighborhoods.

SMALL LOT ORDINANCES AND DENSITY ADJUSTMENTS CASE STUDIES

GASPAR Townhomes

Los Angeles, Calif.

- **Code type example:** Small Lot Ordinance
- **Contact:** Alan Scales, AIA, Principal, KTG Architects

Client/Team

- **Architect/Designer/Land Planner:** KTG Group, Inc.
- **Developer/Builder:** Planet Home Living
- **Interior Designer:** Madison Modern Home
- **Photographer:** Chang Kyun Kim

Size and scale

0.34-acre site for entire project; 1,500-square foot lot per home, 10 dwelling units total

Unit size range

1,893 square feet; 3-bedroom units side-by-side

Density

29.4 dwelling units per acre

Project timeline

- **Project Design Started** early 2012
- **Completion** 2014

Project costs

- **Soft Costs:** not available
- **Construction Costs:** not available
- **Sale Price:** Starting from the mid \$700,000s

Project description

The target client group was young professionals and empty nesters. The 3-story living with three bedrooms and dual-master floor plans make these homes the ideal fit for this group. Nestled in the hills of Echo Park, the infill design corresponds to the underlying zoning, with 10 side-by-side townhomes constructed six inches apart from each other, and with no shared walls between homes. Upper-level living spaces and roof decks take advantage of sweeping views of the downtown Los Angeles skyline. The driveway is designed as a pedestrian street with enhanced paving and landscape, activated by both garage and entry doors. Cars are allowed, but it is designed to feel more pedestrian friendly. Most of the houses have small, private rear yards.





Zoning and neighborhood description

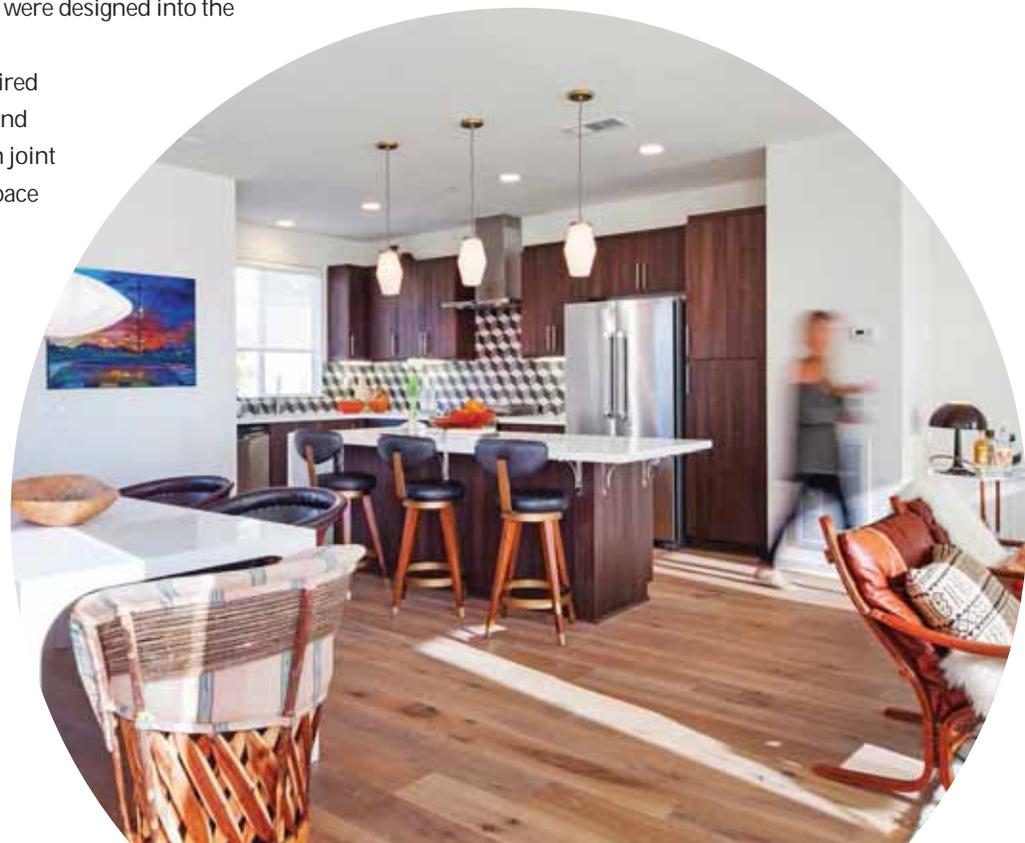
This 0.34-acre urban infill site maximizes the allowances in the city's Small Lot Ordinance. The aim was to design contemporary, urban context, detached housing within an established historic, eclectic neighborhood on a challenging hillside lot. With the wide variety of shopping and entertainment off Sunset Boulevard just one block away, residents can easily walk to restaurants and local shops as well as enjoy the adjacent Elysian Park, ideal for dog owners and active lifestyles.

Successes

- Sold out in one month of opening.
- Fee-simple ownership attracted a larger buyer pool than condos would and reduced the construction liability.
- The fee-simple ownership also eliminated the need for HOA fees.
- Innovative open floor plans respond to the natural grades of the site, creating upper level living that is adjacent to rooftop deck and result in sweeping views of the downtown skyline.

Challenges/Lessons learned

- The zoning analysis was beyond challenging on this one and is vastly important to get right; between the underlying RD1.5 zoning and height district, consideration was required to overlay the small lot ordinance and hillside ordinance.
- Gaining city approval starts with review and a motion of approval/denial by local Neighborhood Council (NC). At the time, small lot housing was relatively new and unfamiliar to those reviewing it and made some neighbors uneasy about a change to their neighborhood. Several meetings were required to gain NC support prior to getting the formal city approvals.
- Hillside design and construction posed a challenge when building these small lot homes, so careful attention was required to minimize the impact of retaining walls on the surrounding neighborhood. In order to allow the homes to integrate and fit within the natural grades of the site, retaining walls were designed into the building's foundation.
- Technical coordination was required for utilities, stormwater control and implementation of the expansion joint cover that is installed at the air space between homes.



Danielson Grove

Kirkland, Wash.

- **Code type example:** Density Incentives for Smaller Homes
- **Contacts:** Ross Chapin, Ross Chapin Architects; Jim Soules, Soules Company; Linda Pruitt, Cottage Company

Client/Team

- **Architect:** Ross Chapin Architects (Ross Chapin FAIA, Karen DeLucas)
- **Developer:** The Cottage Company (Jim Soules, Linda Pruitt)
- **Civil Engineer & Landscape Architect:** Triad Associates

Size and scale

2.08-acre site, 16 dwelling units total

Unit size range

Single-family, market-rate homes ranging in size from 700 to 1,500 square feet

Density

7.7 dwelling units per acre gross. The site contained many large fir trees that were required to be retained. The net buildable density is closer to 10.7 dwelling units per acre.

Project timeline

- **Design:** Initiated in 2003
- **Construction:** 2004 through 2005
- **Sales:** Last homes sold in 2006

Project costs

- **Soft Costs (permits, consultants, interest, sales, admin):** \$112,000 per home
- **Construction Costs (labor, materials, subcontractors, supervision):** \$154 per square feet
- **Land:** \$29,000 per home
- **Sales Prices:** not available

Project description

Danielson Grove is a community of sixteen detached homes ranging from 700 to 1,500 square feet. It is a demonstration project of an innovative code program that achieved market acceptance of smaller, community-oriented homes as an infill development within a single-family neighborhood. The most obvious feature of the site plan is that the houses are clustered around a landscaped common courtyard. Parking is intentionally located away from the houses so that people walk through the commons on the way to the front door, encouraging neighbors to greet and chat with one another. Well-defined layers from public to private reinforce personal boundaries that include private yards and covered porches. Within the house, the more active spaces look onto the commons and the private spaces that are secluded to the back or on the second floor. The placement of windows has been considered





so that each house has an open side to its own yard and a closed side to its neighbor; in this way the houses can nestle closely together while ensuring privacy between them.

Zoning and neighborhood description

Danielson Grove was developed in response to a city RFP for innovative single-family home developments, which provided increased density for homes under 1,500 square feet, site development flexibility, and an accelerated land use timeline. As a result of this project and others, Kirkland's zoning code was updated to include density adjustments for smaller home types. The code allows up to a 100 percent increase in the number of homes depending on size (1,500 square feet maximum) and a floor area of up to 35 percent of the net buildable site.

The project is located on a previously vacant site within a RS-7200 single-family zoned neighborhood in Kirkland, WA. The neighborhood was developed in 1950s as single-family residential on large lots, as there was no public sewer in the area. At some point sewers were extended and smaller (7,200 square foot) lots were developed some adjacent. But there were still odd large parcels that the city encouraged infill development on as part of Growth Management mandate. This lot was one of the remnants.

The 2.08-acre site is in a single-family neighborhood within 5 miles of major employment centers. The site plan encourages a walkable neighborhood, not only for the residents of Danielson Grove, but also for people living in the surrounding area.

Successes

- The project succeeded in encouraging the city to adopt a more innovative code—*Chapter 113 - Cottage, Carriage and Two/Three - Unit Homes*.
- The homes sold well and gained national attention for the pocket neighborhood concept and for higher-quality, well-designed homes.
- The development was built under the highest 3-Star standard of the “Built Green” program of the Master Builders Association in partnership with King and Snohomish counties.
- The project demonstrated the market demand for smaller housing choices in a community-oriented setting and the compatibility of a pocket neighborhood infill project within an existing neighborhood setting.
- The site is zoned for 7,200 square foot lots, which would typically result in ten 3,000-square foot, single-family detached houses. The demonstration code allowed sixteen homes each less than 1,500 square feet, achieving a density of 7.7 dwelling units per acre instead of the previous maximum of 4.8 dwelling units per acre.

Challenges/Lessons learned

- While the homes sold without difficulty due to building and land costs, the sales prices were still fairly high relative to AMI and even higher at today's current sales prices. Homes were purchased by individual buyers who valued the housing quality, detail, design and community amenities over a low price point. The community has a European scale and quality that appealed to the sophisticated buyers.
- The project had several challenging site constraints. Significant conifer trees had to be preserved, including two large-diameter fir trees near the street where a stormwater retention swale would be conventionally located. Additionally, the entire site was within an endangered salmon stream watershed. In response, the layout worked around groves of trees, and stormwater was directed into dispersed rain gardens throughout the site, with overflow routed to a 30,000-gallon retention tank below the Commons Building and terrace. Walkways within the tree drip lines were built with pervious concrete or fine stone. The trees were protected throughout construction.
- A perceived market challenge—offering homes without attached garages—did not prove to be a limiting sales issue. In fact, buyers preferred the garden setting with a walk through the commons to their homes.



COTTAGE COURT CASE STUDIES

Conover Commons

Redmond, Wash.

- **Code type example:** Demonstration Code that allowed a pocket neighborhood/cottage housing approach
- **Contacts:** Ross Chapin, Ross Chapin Architects; Jim Soules, Soules Company; Linda Pruitt, Cottage Company

Client/Team

- **Architect:** Ross Chapin Architects (Ross Chapin FAIA, Karen DeLucas)
- **Developer:** The Cottage Company (Jim Soules, Linda Pruitt)
- **Civil Engineer & Landscape Architect:** Triad Associates
- **Geotech Engineer, Wetlands Consultant:** Terra Associates
- **Arborist:** Favero Greenforest

Size and scale

9.5-acre site including 4.6 acres steep slope and wetlands, 24 dwelling units total

Unit size range

Two-bedroom, 1,000 square feet; 3 - 4 bedroom, 1,700 to 2,700 square feet

Density

5 dwelling units per acre

Without the siting flexibility of the innovative code, under the normal 7,200 single-family lot code, the site would have only accommodated 6 - 7 single-family residences. Under required stormwater requirements, that would have made the project financially unfeasible.

Project timeline

- **First Phase:** 12 single-family market-rate cottages limited to 1,000 square feet. Constructed between 2003 - 2005
- **Second Phase:** 12 single-family, market-rate homes from 1,700 to 2,700 square feet, plus one affordable for-sale unit (qualified at 50 percent median income). Constructed between 2006 - 2007
- **Sales:** The last sale was in early 2008

The master plan for both phases was processed together. Specific plans were then developed and approved for each phase. The site improvements and utilities for both phases were installed all at one time. Generally, it took a year from full plan submittal to building permits and then about 12 months to build. However, the second phase was hit with a very wet winter that stopped construction for 4 months. Since there was no neighborhood opposition and complete plans were submitted, the timeline was average.



Project costs

- **Soft Costs (permits, consultants, interest, sales, admin):** \$104,000 per unit
- **Construction Costs (labor, materials, subcontractors, supervision):** \$177 per square feet
- **Land:** \$24,000 per unit
- **Sales Prices:** \$334,500 to \$425,000 for two-bedroom/two-bath, 1,000-square foot Cottage; completed and sold in 2004 and \$729,900 to \$889,900 for 3 - 4 bedroom/3-bath 1,700- to 2,700-square foot home.

Project description

The project is a pocket neighborhood that consists of two connected clusters of single-family cottages and houses built over two phases. One cluster includes twelve 1,000 square foot cottages gathered around a shared courtyard. The second cluster includes thirteen homes sized from 1,200 to 2,400 square feet (including one income-qualified affordable home) arranged along a garden walkway. Each home has its own private yard. The 9.5-acre site includes 4.6 acres of preserved native protection areas containing a steep woodland ravine. The site and each home were designed to balance an inviting sense of community with the need for privacy. The residents walk from the garage door to the front door, passing through a shared courtyard, private garden gate, and room-sized front porch, increasing the chance interactions among neighbors that are the seeds for community. One of the features of the pocket neighborhood concept used in this project is the flexibility to site homes on odd parcels, with no requirement to bring a vehicle to each house as well as the ability to locate vehicles off alley like streets.

Zoning and neighborhood description

Developed in joint venture with the Cottage Company, Conover Commons was the first project built under the City of Redmond's Innovative Housing Demonstration Project code, which allowed developers to submit proposals for density up to twice of the allowed density and obtain accelerated processing. However, they were still subject to strict design review and interaction with the community through neighborhood meetings. The interim demonstration code was a response to the State of Washington's comprehensive Growth Management Act enacted in 1989, which required cities to increase density and affordable housing to stop sprawl. Redmond's current codes allows for cottage housing developments in select single-family zones.

The surrounding neighborhood was developed in the 1960s-70s with rambler-style homes on large lots served by septic systems. Two developers previously owned the property and could not figure out how to build their standard cul-de-sac housing tracts because of the steep hillsides and wetlands encumbering the property. By developing smaller homes at double the density under the demonstration code, the project was financially viable. Additionally, the site was isolated from existing residences and thus had no impact on adjacent homes, which made approvals easier. The buyers include a mix of professional couples, empty nesters, single women and single-parent families.



Successes

- The pocket neighborhood with detached parking and building in clusters proved to be more flexible and adaptable to this unique site than conventional subdivision design.
- The project demonstrated market demand and community acceptance for smaller housing choices in a community-oriented setting.
- The homes had a unique character missing in the typical spec homes in the area.
- The project is a compelling example of suburban infill residential development, demonstrating that compact homes are compatible within existing larger-home neighborhoods.
- The development is an example of a collaborative effort on every level: a state government taking action to control sprawl, a proactive city planning department, a forward-thinking developer, an innovative architect, an enlightened banker, a supportive community, craftsman-builders taking pride in their work, and buyers willing to live their values.
- The project met the 4-Star rating of the Master Builders Association BUILTGREEN program, including high-efficiency appliances, heaters and light fixtures; high-level insulation and weather sealing; materials selected for resource efficiency, low-toxicity and durability; and jobsite recycling.
- The cottage housing demonstrated how an interim innovative code can successfully encourage other housing types with community acceptance.

Challenges/Lessons learned

- The undevelopable ravine and the wetlands were challenging site constraints.
- While the homes did not have difficulty selling, the sales prices were still fairly high relative to AMI due to building and land costs. Homes were purchased by individuals wanting a different housing/community type rather than for a low price point.



Boiceville Cottages

Brooktondale, N.Y.

- **Code type example:** Not applicable. The project is designed as a cottage housing development but there was no zoning on the project site.
- **Contact:** Bruno Schickel, Founder & Owner, Schickel Construction

Client/Team

- **Developer/Designer/Builder:** Bruno Schickel, Schickel Construction Co.

Size and scale

40-acre site, 140 units

Unit size range

- 550 to 1,150 square feet
- Studios; one-bedroom unit with loft; two-bedroom unit with loft; 3-bedroom townhouses

Density

3.5 dwelling units per acre

Project timeline

Development started in 1996 with three cottages and continued with three additional cottages built annually. By 2003, 18 cottages were built. After 2008, construction moved more quickly with 18 to 21 cottages built annually. Construction on all 140 units was completed in 2016.

Project costs

- **Soft Costs:** not available
- **Construction Costs:** \$45,000 per unit for first three cottages; \$116,000 per unit for most recent cottages.
- **Land:** \$2,000 per unit.
- **Current Rent:** \$1,225 month for a studio to \$1,895 month for a 3-bedroom townhouse.

Project description

With a nod to the gingerbread-style cottages in the children's book "Miss Rumphius," Bruno Schickel, the owner, designer, and builder, developed a 140-unit pocket neighborhood complete with brightly painted exteriors and whimsical architectural details. The pocket neighborhood was built on 40 acres and incrementally financed over 20 years. In 1996, construction began with three prototype cottages. Each subsequent year, Schickel built more cottages and improved from previous iterations based on tenant feedback and market demand. All units are market rate rental and vary in size from 550 to 1,150 square feet. Rental types include: studios, one-bedroom cottages, two-bedroom cottages, and 3-bedroom townhouses. The most popular unit is the 650-square foot, one-bedroom cottage known as the "tiny house".



The layout of the site is an important factor in the project's success of community building. Small clusters of three cottages are repeated throughout the neighborhood and encourage daily interaction with neighbors while enhancing the sense of community. Additionally, the community center acts as a "third" place where tenants host gatherings, exercise in the gym, and work using free Wi-Fi. The extensive green spaces, including mowed lawns, nature paths, and personal garden beds allocated to each tenant, foster a greater sense of community by physically interconnecting the various places and individual cottages. Also, a flexible pet policy and two dog parks are main draws for renters. Surface parking is distributed throughout the site. The developer is responsible for all ongoing maintenance, instead of the municipality.



Zoning and neighborhood description

The pocket neighborhood is built in a town where zoning still does not exist, and thus did not require master planning nor development standards approval. However, after the project began, the town adopted a site plan review as a requirement. The lack of zoning provided the developer freedom to design the cottages without the constraints of density requirements. Instead, the septic system capacity was the limiting factor for the total number of units.

The pocket neighborhood is located in Brooktondale, New York, a rural town in Tompkins County (population: 100,000 people). The project is located seven miles from Ithaca, a university town. While public transportation is frequently used and accessible from the property, most tenants commute by car.

Widespread enthusiasm for the project draws diverse demographics interested in "living small" within a larger community. With two universities nearby, graduate students account for approximately 20 percent of tenants. Working professionals, small families, and seniors are significantly represented in the community. The desire to "live small" is just part of it, Schickel states: *"The bright colors and the playful architectural details often elicit emotional reactions from both prospective and current residents."* Good design and planning is what sells the project.

Successes

- The lack of zoning offered flexibility to the site plan and allowed the developer to design creatively. The site was not constrained by subdivision requirements, which lowered infrastructure costs.
- Without the need for a locally-approved masterplan, the developer was able to respond rapidly to market demand by adapting the phasing of construction and types of units built.
- Without any regulatory requirements needing local and community review, the developer was able to invest more money in good design for the built environment.
- The absence of design guidelines gave the developer freedom to creatively design the cottages and the infrastructure.
- The development does not include any public roads or driveways; nothing was required of the municipality in terms of construction and maintenance.

- The county viewed the development as a single entity with one owner, which eliminated the need for land subdivision to meet septic regulations.
- The dog park was in such high demand that a second park was later added. The flexible pet policy and lack of monthly pet fees is unique for the area and proved an important factor for growth of the community.
- The project was so unique and well executed that it has become a tourist attraction for the area.

Challenges/Lessons learned

- Studios, one-bedroom cottages, and the smaller “tiny house” units are easier to rent compared with the 3-bedroom townhouses.
- From a financing perspective, phasing proved to be important, as the locale was not known for high growth. After a small amount of financing supported the initial construction, documentation of the rent structure demonstrated the viability of the current project as well as future phases. Clear documentation of the rent structure also made the appraisal process more straightforward. At the start of each phase, the developer opened a line of credit with an interest-only rate for 30 months to 3 years. At the end of each phase, the line of credit was converted to a conventional mortgage.



FORM-BASED CODES (FBCs) CASE STUDIES

Meridian Court, Courtyard Apartment Pasadena, Calif.

- **Code type example:** Form-based code for infill development
- **Contact:** Juan Gomez-Novy, Architect, Moules & Polyzoides Architects & Urbanists

Client/Team

- **Developer:** Meridian Properties, LLC.
- **Builder:** Del Pesco, Inc

Size and scale

0.38-acre site; 3 unit types (1 to 3 bedroom), 10 dwelling units total

Unit size range

1,300 to 1,800 square feet

Density

26 dwelling units per acre

Project timeline

The project was reviewed and approved by the city within 6 months of submitting the plans and was built in 1999.

Project costs

- **Soft Costs:** Not available
- **Construction Costs:** Not available
- **Sale Price:** Not available

Project description

The project is a house-scale condominium building comprised of 10 fee-simple townhouse units built around a shared courtyard. Two single-family lots were combined to make a 120-foot wide by 140-foot deep site with an area of 16,800 square feet (0.38-acres). The building is primarily two stories tall, with a small three-story portion at the rear. It contains 13,650 square feet of habitable space and has a density of 26 dwelling units per acre. Unit sizes range from one- to three-bedrooms and from 1,300 to 1,800 square feet in area. All units are accessed directly from the sidewalk or from the courtyard. The building is built over a subterranean garage that accommodates 30 parking spaces, ten of which are dedicated to the offices of the architects who designed Meridian Court. The office building is listed on the local historic register.





Zoning and Neighborhood Description

Located in Pasadena, California at the corner of Marengo Avenue and California Boulevard, the project is designed per the City of Pasadena's "City of Gardens" Ordinance (adopted in 1989). The site is situated at the edge of a well-established residential neighborhood comprised of a mix of detached houses and small multifamily buildings that abuts a commercial district containing one- and two-story commercial buildings. The Metro Gold Line light rail train stops within a half-mile of this site, and bus service is available along Marengo Avenue and California Boulevard.

Successes

- The courtyard, designed as a garden reminiscent of historic courtyard buildings in the area, provides shared open space for residents, and in the spirit of the guiding City of Gardens ordinance, ensures that green space in the neighborhood is preserved.
- Each unit's private patio space is unique based on the location of the unit on the site. Two units contain completely internalized patios.
- Consistent with the provisions of the City of Gardens ordinance, the three-story portion of the building is located in the rear corner, away from the adjacent streets to preserve the two-story character of the existing neighborhood. The three-story portion adds visual interest to the courtyard and enables larger three-story units to have views of the city and the nearby mountains.
- The developer provided medium to large units in response to an oversupply of small units within the area at the time.
- The garage is completely subterranean, and the driveway entry is located to the side of the facade. The high cost of land in the area supports the construction of subterranean parking. The concealed garage ensures that the building fits in with the single-family houses and small-scale multifamily buildings of the neighborhood and with the adjacent historic office building.
- The front facade was designed with the scale and massing of large estate houses in the area, disguising the fact that the building has 10 units.
- The side façade was designed as a series of townhouses accessed by stoop entries. These units are also accessed from the main courtyard.

Challenges/Lessons learned

- The project required a variance to reduce the side street setback from 15 feet to 5 feet. The 5-foot setback was consistent with the neighboring historically designated office building and other nearby commercial buildings that were built close to the sidewalk. Without the variance, the increased setback would have made it impossible for the project to comply with the required courtyard size. City staff recognized that designing the project to conform with the character of the adjacent commercial district made for a better project.
- The City did not permit the garage to be accessed from the side street and at the site's low point, since the side street was a major crosstown corridor. Consequently, the garage entrance had to be accessed at the high point of the site from the front street.
- The project team wanted to design the building in the same style as the historic building west of the project, but the historic preservation advocates required that this building be totally different in style and materials.

Mansion Apartment, New Town St. Charles St. Louis, Mo.

- **Code type example:** Form-based code for greenfield development
- **Contact:** Tim Busse, Town Architect, The New Town at St Charles

Client/Team

- **Developer:** Whittaker Homes
- **Builder:** Whittaker Homes
- **Photographer:** Larry Duffy

Size and scale

0.17-acre site (6 units); 0.10-acre site (3 units)

Unit size range

840 to 1,300 square feet; two dwelling unit types (one to two-bedroom)

Density

36 dwelling units per acre (6 units) to 31 dwelling units per acre (3 units)

Project timeline

The mansion apartment building was reviewed and approved by the city in one month and built in 2004 for a total timeline of 6 months. This community features a town architect who designs each building for the builder or reviews and provides a recommendation to the city for submitted designs. The project is regulated by a form-based code that covers the entire 726-acre community.

Project costs

- **Soft Costs:** \$5,000
- **Construction Costs:** \$448,000 (6 units), \$248,000 (3 units)
- **Sale Price:** \$120,000 per unit

Project description

The project in this analysis is a house-scale mansion apartment building. The mansion type is intended to appear as a large single-family house but contains 6 units. The building is on a 70-foot wide by 105-foot deep lot of 7,350 square feet with alley access (0.17-acre site). The building is two stories, contains 5,600 square feet of habitable space distributed to make 6 units (36 dwelling units per acre). A variation of this type is made by reducing the number of units to 3 (3,100 square feet). This variation fits on a 40-foot wide by 105-foot deep lot of 4,200 square feet (0.10-acre site; 31 dwelling units per acre). The units are a mix of one- to two-bedrooms and range from 840 - 1,300 square feet. An entire building is for sale as rental apartment building or units may be purchased separately by individuals. All units feature walk-up access and can be organized as townhouses or stacked flats. Parking is at the rear of the lot with 6 spaces (one off-street per unit and one on-street per unit).



Zoning and neighborhood description

The mansion apartment building is one of several building types within the 726-acre New Town St Charles development that is reviewed in Chapter 2, which is planned for six new neighborhoods based on the historic patterns and buildings of the St. Louis region. The mansion building type has been built along New Town Avenue, a major east-west street, and along side streets.

Successes

- The rental occupancy rate is 95 percent and very good given the region's negative perception toward rental and especially toward multifamily housing.
- The mansion buildings gave people a level of comfort, because multifamily has a negative track-record in St. Louis. People who were looking to build a single-family house in the neighborhood actually said "*...I want to build my house to look just like that...*" before they knew that the mansion was a 6-unit building.
- The mansion buildings include a two-story porch to provide upper story units with outdoor space along the street. Over time, the two-story porch has been requested by at least half of the homeowners who want a two-story house.
- Small-increment owners could now buy small-apartments as income property and are increasingly doing this. Until this, the only option for income property was large apartment projects.
- There was an 18- to 24-month backlog for buying, constructing and moving into single-family houses in the community. Many of these owners rented an apartment in a mansion building while waiting for their single-family house to be completed and confirmed that they wanted to live in this community; doing so changed their perception of multifamily housing and density.

Challenges/Lessons learned

- The mansion building turned out to be more expensive to build than expected because the detailing was more than the local trades were accustomed to doing. In addition, new elements such as porches had not been built by locals in a long time, and it took time to develop efficiencies.
- People who hear about the 'high' density in this community react negatively at first but when they see and walk through the Mansion, their attitude changes positively. This takes some time because of the region's strong resentment toward apartments.
- Some people are choosing to rent because until this project, they did not feel they had that option since apartments in the region are not typically desirable.

Kentlands Cottages (Tower Houses), Kentlands Gaithersburg, Md.

- **Code type example:** Form-based code for greenfield development
- **Contact:** Planning Division, Planning & Code Administration, City of Gaithersburg

Client/Team

- **Architect:** CHK Architects & Planners, Inc
- **Developer:** Great Seneca Development Corporation
- **Builder:** Mitchell & Best Homes

Size and scale

0.02-acre site, 10 dwelling units total

Unit size range

1,288 to 1,544 square feet; 2 - 3 bedroom

Density

40.33 dwelling units per acre

Project timeline

The project site plan was reviewed and approved by the city Planning Commission in January 1988 and the final architecture in September 1998. Building permits were submitted in October and approved in early December. Construction was completed for 10 Kentlands Cottage units between May and November of 1999 for a total timeline of 17 months. The overall Kentlands development features City-approved design guidelines and a Community Architect who provides a recommendation to the city for submitted designs for conformance to the guidelines. The project is regulated by the MXD zone that was specifically prepared to implement the master plan for the entire 352-acre community and is now used in many other areas of the City.

Project costs

- **Soft Costs:** not available
- **Construction Costs:** \$215,000
- **Sale Price:** \$279,000 initially in 1998; \$599,000 in 2018¹



¹ The 2016 5-year ACS reports the median value of owner-occupied housing in the City of Gaithersburg at \$369,900.

Project description

The project in this analysis is a house-scale, detached single-family Kentlands Cottage. The house has a compact footprint of 24-feet by 30-feet and is on a very compact lot that faces a small public green. The lot is typically 30-feet wide by 36-feet deep, with 1,080 square feet and alley access (0.02-acre site). The building is 3.5 stories and contains 1,288 to 1,544 square feet of habitable space (40.33 dwelling units per acre). The units are for sale and have two to three bedrooms. All units feature walk-up access and are detached, arranged side by side, fronting the small public green. Parking for each unit is in a tuck-under garage with two spaces that is accessed from the rear of the lot.

Zoning and neighborhood description

The Kentlands Cottage is within the 352-acre Kentlands development of nine neighborhoods, including a small downtown, all based on the historic patterns and buildings of the region. The Kentlands code was reviewed in Chapter 2. The Kentlands Cottage building type has been built on lots where the block shape is not typical, providing the opportunity to place a grouping of these buildings facing a small green at street corners.

Successes

- The Kentlands Cottage provides a very small footprint house that can fit in many places, providing variety within a neighborhood and overall in the development.
- The Kentlands Cottage is similar to the 'tuck-under' type in other parts of the U.S., with its compact footprint and ground floor mainly being a garage. The Kentlands Cottage is more effective though, because it seamlessly fits into the street network without adding driveways or changing the size and shape of blocks. This is because the type always fronts on a public green that is part of the block and because it shares the alley at the back of the lot.

Challenges/Lessons learned

- Working with the Community Architect and three reviews by the Planning Commission (April, June & September) were required for final approval of the architecture.
- Only 10 buildings of this type exist in Kentlands because it was not introduced here until the last phase. It may have been used more often if introduced earlier.



Mews Townhouse Units, Daybreak South Jordan, Utah

- **Code type example:** Form-based code for a greenfield development
- **Contact:** Jason Nageli, Vice President of Sales and Marketing

Client/Team

- **Architect:** Opticos Design, Inc.
- **Developer:** Holmes Homes
- **Builder:** Holmes Homes

Size and scale

3.2-acre site; 64 mews units total

Unit size range

958 to 1,416 square feet; 5 mews unit plans; 2- and 3-bedroom units

Density

- 20 dwelling units per acre overall density
- 20 to 30 dwelling units per acre unit density

Project timeline

The project started design in 2014 and is being constructed in phases. About half the development was completed construction and sold in 2017/2018.

Project costs

- **Construction Costs:** \$113 to \$136 per square foot
- **Total Costs:** \$211,000 to \$242,000 per unit
- **Sales Prices:** \$237,000 to \$278,000

Project description

The project in this analysis is a house-scale townhouse. The townhouses are attached and have compact footprints ranging from 26 feet by 26 feet to 26 feet by 52 feet. Each unit is oriented with the longer side facing a pedestrian passage, which is atypical for conventional townhomes. This allowed the units to fit on the narrower lot sizes that were left over after the conventional townhouses were laid out on the predetermined block sizes. Each building contains two units, with some containing three units. All units front on dedicated pedestrian passages that have been designed as courts. All units have a private,



fenced patio area, with tuck-under parking accessed from an alley off the rear. The developer's objective was to provide a market-rate, entry-level purchase price point for townhomes. The for-sale two- and three-story units range from 958 to 1,416 square feet of habitable space.

Zoning and neighborhood description

The project is within the 4,000-acre master-planned Daybreak community, which was designed using a traditional neighborhood development model so that all homes are within a five minute walk or bike ride of a major commercial or civic amenity. The Mews development walk shed includes a light rail station and a large park. Many of the home designs were inspired by Salt Lake City's historical neighborhoods and include large front porches and alley-loaded garages and were built by multiple developers. The community is currently divided into several neighborhoods, which are designated as villages that were created using the form-based development standards. See Chapter 2 for the detailed review of Daybreak. There is a diversity of housing types within the community that includes for sale (attached and detached) and multifamily rental units.

Successes

- The developer was able to deliver an entry-level price at the highest square foot sales price of any of their product.
- The Mews were the first townhomes to sell in the Holmes developed project area.
- The design turned a constraint (awkward lot configuration) into a successful, small scale project through an unconventional approach.
- The unit orientation provides more opportunities for light and air than a conventional townhouse orientation.
- Having a design that allows for private outdoor living areas specific for each owner.
- Interiors with two-story volumes had a strong market appeal as did extended garage sizes for additional storage.

Challenges/Lessons learned

- Awkward lot configuration that was challenging for the efficiency of a typical block layout.
- Primary challenges were accommodating the grading at the front entrances without having too many stairs protruding into the pedestrian court. When building on smaller lots, it is critical to plan for additional design time to consider each unit independently.
- There were issues with the HVAC units, both in terms of installation and having enough space. When working with small unit plans, every appliance and piece of equipment needs to be thoughtfully accommodated during the design phase, as there is not a lot of extra space to adjust during construction. As the units are built slab on grade, the heating had to be provided from above, which can be challenging for double height spaces. Some plan changes were made during construction to resolve the HVAC issues.



Appendix: Code Database

The 118 ordinances and codes reviewed for this report are compiled into the following database which includes information on the location, preparers, context, etc. The database also includes a link to the ordinance, regulation, or code if applicable.

Code Name	City	County	State	Extent	Country	Author
California	All in State		California	State-wide	USA	
Santa Cruz	Santa Cruz	Santa Cruz County	California	City-wide	USA	
Denver	Denver	Denver County	Colorado	City-wide	USA	City of Denver
District of Columbia	All in State		District of Columbia	State-wide	USA	
Baltimore County	All in County	Baltimore County	Maryland	Area Specific	USA	
Ann Arbor	Ann Arbor	Washtenaw	Michigan	City-wide	USA	
Minneapolis	Minneapolis	Hennepin County	Minnesota	City-wide	USA	
New Hampshire	All in State		New Hampshire	State-wide	USA	
Portsmouth	Portsmouth	Rockingham County	New Hampshire	City-wide	USA	
Asheville	Asheville	Buncombe County	North Carolina	City-wide	USA	
Portland	Portland	Multnomah County	Oregon	City-wide	USA	
Vancouver	Vancouver	Clark	Washington	City-wide	USA	“City of Vancouver, WA”
Seattle	Seattle	King County	Washington	City-wide	USA	
Rhode Island	All in State		Rhode Island	State-wide	USA	
Austin—ADU	Austin	Austin County	Texas		USA	
Atlanta	Atlanta	Atlanta County	Georgia	City-wide	USA	Kronberg Wall
Massachussets	All in State		Massachussets	State-wide	USA	
Kent Cottage Housing	Kent	King County	Washington	City-wide	USA	The Cottage Company
Juneau	Juneau	Juneau County	Alaska		USA	
Lehigh Valley	Lehigh	Lehigh County	Pennsylvania		USA	
Marysville	Marysville	Snohomish County	Washington		USA	

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
Adopted	ADU ordinance		ADU	State-Initiated	http://bit.ly/2VCJllx
Adopted	ADU ordinance	Medium/Small Town	ADU	City-Initiated, State-Initiated, Easy Public Process	http://bit.ly/2VDf6Ac
Adopted	ADU ordinance	Urban	ADU		http://bit.ly/2IW9D1L
Adopted	ADU ordinance	Urban	ADU	City-Initiated	http://bit.ly/2LIB5Yu
Adopted	ADU ordinance	Urban	ADU		http://bit.ly/2DA9JaL
Adopted	ADU ordinance	Urban	ADU	City-Initiated	http://bit.ly/2Lba6Pk
Adopted	ADU ordinance	Urban	ADU	City-Initiated	http://bit.ly/2IViGjj
Adopted	ADU ordinance	Medium/Small Town	ADU	State-Initiated	http://bit.ly/2IXVnW0
Adopted	ADU ordinance	Medium/Small Town	ADU	State-Initiated	http://bit.ly/2Lba75Q
Adopted	ADU ordinance	Urban	ADU		http://bit.ly/2DA9wW1
Adopted	ADU ordinance	Urban	ADU	City-Initiated, Received a lot of changes, Tough Public Process	http://bit.ly/2LIB6vw
Adopted	ADU ordinance	Urban	ADU	City-Initiated	http://bit.ly/2DA9xZ5
Adopted	ADU ordinance	Urban	ADU		http://bit.ly/2LIB6f0
Adopted	ADU ordinance	Medium/Small Town	ADU		
Adopted	ADU ordinance	Urban	ADU		
In-Progress Drafting	ADU ordinance	Urban	ADU	City-Initiated	http://bit.ly/2VDf6Ql
In-Progress Drafting	ADU ordinance	Medium/Small Town	ADU	State-Initiated	http://bit.ly/2DA9xbx
Adopted	Cottage Court ordinance	Urban	Missing Middle, Cottage Court	City-Initiated, Easy Public Process	http://bit.ly/2Lba6yO
Adopted	Cottage Court ordinance	Medium/Small Town	Missing Middle, Cottage Court		
Adopted	Cottage Court ordinance	Medium/Small Town	Missing Middle, Cottage Court		
Adopted	Cottage Court ordinance	Medium/Small Town	Cottage Court, Missing Middle		

Code Name	City	County	State	Extent	Country	Author
Mukilteo	Mukilteo	Snohomish County	Washington		USA	
Nags Head	Nags Head	Dare County	North Carolina		USA	
Wilmington	Wilmington	New Hanover County	North Carolina		USA	
Spokane	Spokane	Spokane County	Washington		USA	
Milwaukie	Milwaukie	Clackamas County	Oregon		USA	
Roswell	Roswell	Fulton County	Georgia		USA	
Flagstaff Hybrid Code	Flagstaff	Coconino County	Arizona	City-wide	USA	Opticos Design
Mesa	Mesa	Maricopa County	Arizona	City-wide	USA	Opticos Design
Livermore Hybrid Code	Livermore	Alameda County	California	Area Specific	USA	Opticos Design
Richmond Livable Corridors	Richmond	Contra Costa County	California	Area Specific	USA	Opticos Design
Petaluma	Petaluma	Sonoma County	California	Area Specific	USA	Opticos Design
Moraga	Moraga	Contra Costa County	California	Site-specific	USA	Opticos Design
Downtown Cotati	Cotati	Sonoma County	California	Area Specific	USA	Moule & Polyzoides Architects
Uptown Whittier	Whittier	Los Angeles	California	Area Specific	USA	Moule & Polyzoides Architects and Urbanists
Uptown Paso Robles	Paso Robles	San Luis Obispo	California	Area Specific	USA	Moule & Polyzoides Architects and Urbanists
Downtown Soledad	Soledad	Monterey County	California	Area Specific	USA	Tony Perez and Sargent Town Planning
Tehachapi Hybrid Code	Tehachapi	Kern	California		USA	Opticos Design, LWC
Transit Zoning Code	Santa Ana	Orange	California	Area Specific	USA	Moule & Polyzoides Architects and Urbanists
City Center Zoning Code	Fremont	Alameda	California	Area Specific	USA	Tony Perez and Sargent Town Planning

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
Adopted	Cottage Court ordinance	Medium/Small Town	Missing Middle, Cottage Court		
Adopted	Cottage Court ordinance	Medium/Small Town	Cottage Court		
Adopted	Cottage Court ordinance	Urban	Cottage Court		
Adopted	Cottage Court ordinance	Urban	Small Lot, Cottage Court		
	Cottage Court ordinance	Medium/Small Town	Cottage Court		
Adopted	Cottage Court ordinance, New Multi Family Zone	Medium/Small Town	Missing Middle, Cottage Court		
Adopted	Form-Based Code	Urban			http://bit.ly/2LbFWvu
Adopted	Form-Based Code	Urban	Small Lot, ADU, Missing Middle	City-Initiated, Tough Public Process	http://bit.ly/2LcGkKh
Adopted	Form-Based Code	Urban	Small Lot, ADU, Missing Middle	City-Initiated, Easy Public Process	http://bit.ly/2VEgjau
Adopted	Form-Based Code	Urban	Small Lot, ADU, Missing Middle, Urban Center regeneration	City-Initiated, Easy Public Process	http://bit.ly/2DHsGbL
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration	City-Initiated, Easy Public Process	http://bit.ly/2IU6kih
Adopted	Form-Based Code	Medium/Small Town	Small Lot, ADU, Missing Middle	City-Initiated, Tough Public Process	http://bit.ly/2LdcQMp
Adopted	Form-Based Code	Medium/Small Town	Small Lot, Missing Middle, Urban Center regeneration	City-Initiated, Tough Public Process	http://bit.ly/2Ldxd9
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle, ADU, Small Lot	City-Initiated, Easy Public Process	http://bit.ly/2VxVr4S
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Missing Middle, Small Lot, ADU	City-Initiated, Easy Public Process	http://bit.ly/2VxLynD
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Small Lot, Missing Middle	City-Initiated, Easy Public Process	http://bit.ly/2DDYzCb
Adopted	Form-Based Code	Medium/Small Town		City-Initiated, Easy Public Process	http://bit.ly/2LaLF4B
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle	City-Initiated, Tough Public Process	http://bit.ly/2DENLUp
Adopted	Form-Based Code	Urban	Urban Center regeneration	City-Initiated, Easy Public Process	http://bit.ly/2L9r00t

Code Name	City	County	State	Extent	Country	Author
Historic Town Center Code	San Juan Capistrano	Orange County	California	Area Specific	USA	Tony Perez and Sargent Town Planning
North Montclair Code	Montclair	Los Angeles	California		USA	Moule & Polyzoides Architects and Urbanists
Victoria Avenue Corridor	Ventura	Ventura	California	Area Specific	USA	Freedman Tung and Sasaki
Midtown Corridors Code	Ventura	Ventura	California	Area Specific	USA	Rangwala Associates
Saticoy and Wells	Ventura	Ventura	California		USA	Moule & Polyzoides Architects
Downtown Newhall	Newhall	Los Angeles	California	Area Specific	USA	Moule & Polyzoides Architects
Third Street East LA	East Los Angeles	Los Angeles	California	Area Specific	USA	Moule & Polyzoides Architects
Downtown Ventura	Ventura	Ventura	California	Area Specific	USA	Moule & Polyzoides Architects
Miami 21	Miami	Miami County	Florida	City-wide	USA	Duany Plater-Zyberk & Company
Kauai: South	Kauai	Kauai County	Hawaii	Area Specific	USA	Opticos Design
Columbia Code	Columbia	Boone	Missouri	Area Specific	USA	"Ferrell Madden (M-DT District), Clarion (rest of code)"
Central West End St.Louis	St. Louis	St. Louis County	Missouri	Area Specific	USA	H3 Studio
Cincinnati	Cincinnati	Hamilton County	Ohio	City-wide	USA	Opticos Design
Beaufort County	All in County	Beaufort County	South Carolina	County-wide	USA	Opticos Design, Beaufort County Staff
Port Royal	Port Royal	Beaufort County	South Carolina	City-wide	USA	Opticos Design
Virginia Beach	Virginia Beach	Princess Anne County	Virginia	Area Specific	USA	Code Studio, Urban Design Associates
Mount Pleasant Ion	Mount Pleasant	Charleston County	South Carolina	Area Specific	USA	Dover Kohl & Partners

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration	City-Initiated, Received a lot of changes, Tough Public Process	http://bit.ly/2L9BKwc
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Missing Middle	City-Initiated, Easy Public Process	http://bit.ly/2LqBqtl
Adopted	Form-Based Code	Urban	Urban Center regeneration	City-Initiated, Tough Public Process	http://bit.ly/2DENJvL
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle	City-Initiated, Tough Public Process	http://bit.ly/2VCJLOf
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle	City-Initiated, Tough Public Process	http://bit.ly/2DENL6R
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Missing Middle, Small Lot, ADU	City-Initiated, Easy Public Process	http://bit.ly/2DENJff
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle, Small Lot	City-Initiated, Easy Public Process, Received a lot of changes	http://bit.ly/2Le2ufd
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle	City-Initiated, Tough Public Process, Received a lot of changes	http://bit.ly/2VrnEuf
Adopted	Form-Based Code	Urban	Urban Center regeneration, Small Lot, ADU, Missing Middle	Public-Initiated, Easy Public Process, Received a lot of changes	http://bit.ly/2DFkZ5N
Adopted	Form-Based Code	Medium/Small Town	Small Lot, ADU, Missing Middle, Urban Center regeneration	City-Initiated, Easy Public Process	http://bit.ly/2VCJM4L
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Small Lot	City-Initiated	http://bit.ly/2L8Aidn
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle, Small Lot	Easy Public Process, Developer-Initiated	http://bit.ly/2LaNI8T
Adopted	Form-Based Code	Urban	Urban Center regeneration, ADU, Small Lot, Missing Middle	City-Initiated, Easy Public Process	http://bit.ly/2VCJN8P
Adopted	Form-Based Code	Medium/Small Town		Public-Initiated, Tough Public Process	http://bit.ly/2DENIrH
Adopted	Form-Based Code	Medium/Small Town		City-Initiated, Tough Public Process	http://bit.ly/2DCNxNe
Adopted	Form-Based Code	Urban	Missing Middle, Urban Center regeneration, Small Lot	City-Initiated	http://bit.ly/2Lc1tUE
Adopted	Form-Based Code	Medium/Small Town		Developer-Initiated, Tough Public Process	http://bit.ly/2LbxXP5

Code Name	City	County	State	Extent	Country	Author
Denver Zoning Code	Denver	Denver County	Colorado	City-wide	USA	City of Denver, Code Studio, Ferrell Madden (M-DT District), Clarion (rest of code)"
India Street Code	Portland	Cumberland County	Maine	Area Specific	USA	
River Crossings	Iowa City	Johnson County	Iowa	Area Specific	USA	HDR
Columbia Pike	Arlington	Arlington County	Virginia	Area Specific	USA	"Ferrell Madden (M-DT District), Clarion (rest of code)"
Nashville Code/ Downtown Nashville	Nashville	Nashville-Davidson County	Tennessee	Area Specific, County-wide	USA	County staff (peer review by Opticos Design)
Albuquerque FBZ	Albuquerque	Bernalillo	New Mexico	Area Specific	USA	
Kentlands	Gaithersburg	Gaithersburg	Maryland	Site-specific	USA	Duany Plater-Zyberk & Company
El Paso Smart Code	El Paso	El Paso	Texas		USA	Placemakers
New Town St Charles	St. Louis	St. Louis County	Missouri		USA	H3 Studio
Rosemary Beach	Rosemary Beach	Walton County	Florida		USA	Duany Plater Zyberk or Placemakers -- need to confirm
Cupertino	Cupertino	Santa Clara County	California	Site-specific	USA	Opticos Design
City of Gardens	Pasadena	Los Angeles County	California		USA	
Peninsula	Iowa City	Johnson	Iowa	Site-specific	USA	Ferrell Madden
Dana Point	Dana Point	Orange County	California	Area Specific	USA	Opticos Design
Martinez Specific Plan	Martinez	Contra Costa County	California	Site-specific	USA	Opticos Design
Novato	Novato	Marin County	California	Site-specific	USA	Opticos Design
Traverse City	Traverse City	Grand Traverse County	Michigan	Area Specific	USA	"Mark F. Miller AIA AICP, Nederveld, Inc. Lynée Wells AICP, Williams & Works"
Rohnert Park	Rohnert Park	Sonoma County	California	Site-specific	USA	Opticos Design
Davis	Davis	Yolo County	California	Site-specific	USA	Opticos Design
Austin Draft 3	Austin	Austin County	Texas	City-wide	USA	Opticos Design

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
Adopted	Form-Based Code	Urban	Small Lot, ADU, Missing Middle, Urban Center regeneration	City-Initiated, Tough Public Process	http://bit.ly/2LqBpph
Adopted	Form-Based Code	Medium/Small Town	Missing Middle, Urban Center regeneration	City-Initiated	http://bit.ly/2DFTlpg
Adopted	Form-Based Code	Medium/Small Town	Urban Center regeneration, Missing Middle	City-Initiated	http://bit.ly/2LlryRA
Adopted	Form-Based Code	Urban	Urban Center regeneration	City-Initiated	http://bit.ly/2Vwbsbz
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle	City-Initiated	http://bit.ly/2DEctUR
Adopted	Form-Based Code	Urban	Missing Middle, Urban Center regeneration	City-Initiated	http://bit.ly/2LbL17a
Adopted	Form-Based Code	Medium/Small Town	Missing Middle	Developer-Initiated, Tough Public Process	http://bit.ly/2LbL036
Adopted	Form-Based Code	Urban	Urban Center regeneration, Missing Middle		http://bit.ly/2DENKQI
Adopted	Form-Based Code	Medium/Small Town			
Adopted	Form-Based Code	Medium/Small Town			
Adopted	Form-Based Code	Urban			
Adopted	Form-Based Code	Urban			
Adopted	Form-Based Code	Medium/Small Town	Missing Middle	Public-Initiated	http://bit.ly/2Vx4C5p
In Adoption Process	Form-Based Code	Medium/Small Town	Small Lot, Missing Middle, Urban Center regeneration	City-Initiated, Tough Public Process	http://bit.ly/2VCJmIh
In Adoption Process	Form-Based Code	Medium/Small Town			
In Adoption Process	Form-Based Code	Medium/Small Town	Small Lot, ADU, Missing Middle	City-Initiated, Tough Public Process	
In Adoption Process	Form-Based Code	Medium/Small Town	Urban Center regeneration, Small Lot	City-Initiated	http://bit.ly/2VCJLxJ
In Adoption Process	Form-Based Code	Medium/Small Town			
In Adoption Process	Form-Based Code	Urban			
In Adoption Process	Form-Based Code	Urban			

Code Name	City	County	State	Extent	Country	Author
Downtown Muskegon	Muskegon	Muskegon County	Michigan	Area Specific	USA	"Mark F. Miller AIA AICP, Nederveld, Inc. Lynée Wells AICP, Williams & Works"
Isla Vista	Isla Vista	Santa Barbara County	California	Area Specific	USA	Opticos Design
Kingsburg	Kingsburg	Fresno County	California	City-wide	USA	Opticos Design
Loma Rica Specific Plan	Loma Rica	Yuba County	California	Site-specific	USA	Opticos Design
Vallejo Code	Vallejo	Solano County	California	City-wide	USA	Opticos Design
Westside Code	Ventura	Ventura	California		USA	City of Ventura
Benicia: Arsenal	Benicia	Solano County	California	Site-specific	USA	Opticos Design
Grass Valley	Grass Valley	Nevada County	California	Area Specific	USA	Opticos Design
Benicia: Downtown	Benicia	Solano County	California	Site-specific	USA	Opticos Design
Richmond Bay Specific Plan	Richmond	Contra Costa County	California	Site-specific	USA	Opticos Design
Kauai: Lihue	Kauai	Kauai County	Hawaii	Area Specific	USA	Opticos Design
Austin	Austin	Austin County	Texas	City-wide	USA	Opticos Design
Form-Based Zones	Albuquerque	Albuquerque and Bernalillo	New Mexico	City-wide	USA	
Heart of Peoria	Peoria	Peoria	Illinois	Area Specific	USA	"Ferrell Madden (M-DT District), Clarion (rest of code)"
Medford	Medford	Jackson County	Oregon		USA	Opticos Design
Gabon	Libreville			State-wide	Africa	Opticos Design
Hayward	Hayward	Alameda County	California	Site-specific	USA	Opticos Design, LWC
Forest Acres	Forest Acres	Richland	South Carolina	Site-specific	USA	Opticos Design
Hercules	Hercules	Contra Costa County	California	Site-specific	USA	Opticos Design
Ashland	Ashland	Jackson County	Oregon		USA	
Nevada City	Nevada City	Nevada County	California	City-wide	USA	
Chicago	Chicago	Cook, DuPage	Illinois	City-wide	USA	
Santa Rosa	Santa Rosa	Sonoma County	California	City-wide	USA	

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
In-Progress Drafting	Form-Based Code	Medium/Small Town	Urban Center regeneration, Missing Middle	City-Initiated	http://bit.ly/2Lcr9AO
Not Adopted	Form-Based Code	Urban			
Not Adopted	Form-Based Code	Medium/Small Town			
Not Adopted	Form-Based Code	Medium/Small Town			
Not Adopted	Form-Based Code	Urban		City-Initiated, Easy Public Process	
Not Adopted	Form-Based Code	Medium/Small Town		City-Initiated	
Unknown	Form-Based Code	Medium/Small Town			
Unknown	Form-Based Code	Medium/Small Town			
Unknown	Form-Based Code	Medium/Small Town			
Unknown	Form-Based Code	Urban			
Unknown	Form-Based Code	Medium/Small Town			
Unknown	Form-Based Code	Urban			
Unknown	Form-Based Code	Urban	Missing Middle, Urban Center regeneration	City-Initiated	http://bit.ly/2VDfwXi
Unknown	Form-Based Code	Medium/Small Town	Small Lot, ADU, Urban Center regeneration, Missing Middle	City-Initiated, Easy Public Process	http://bit.ly/2LIB86C
	Form-Based Code	Medium/Small Town			
	Form-Based Code	Urban			
	Form-Based Code	Urban			
	Form-Based Code	Medium/Small Town			
	Form-Based Code	Medium/Small Town			
Adopted	Modification of Lot Size standard	Medium/Small Town	Cottage Court		
Adopted	New Multi Family Zone	Rural	Missing Middle		http://bit.ly/2VBW39z
Adopted	New Multi Family Zone	Urban	Small Lot	City-Initiated	
Adopted	New Multi Family Zone	Urban	Small Lot		

Code Name	City	County	State	Extent	Country	Author
Decatur	Decatur	DeKalb County	Georgia		USA	
Denver—Slot homes	Denver	Denver County	Colorado		USA	
Los Angeles	Los Angeles	Los Angeles County	California	City-wide	USA	
Raleigh	Raleigh	Wake County	North Carolina	City-wide	USA	
Snohomish	Snohomish	Snohomish County	Washington	City-wide	USA	
Cottage Housing Ordinance Guide	Seattle	King County	Washington	City-wide	USA	Seattle Housing Partnership
Kirkland	Kirkland	King County	Washington	City-wide	USA	The Cottage Company
Lake Stevens	Lake Stevens	Snohomish County	Washington	City-wide	USA	The Cottage Company
University Place	University Place	Pierce County	Washington	City-wide	USA	The Cottage Company
Redmond	Redmond	King County	Washington	City-wide	USA	The Cottage Company
Shoreline	Shoreline	King County	Washington	City-wide	USA	The Cottage Company
Langley	Langley	Whidbey Island	Washington	City-wide	USA	The Cottage Company
Federal Way	Federal Way	King County	Washington	City-wide	USA	The Cottage Company
Floating Overlay District Smart Code	All in County	Jefferson County	Alabama	County-wide	USA	Duany Plater Zyberk or Placemakers -- need to confirm
Envision Utah FBC	All in State	All in State	Utah	State-wide	USA	
Daybreak	City of Reno	Washoe County	Nevada	Site-specific	USA	Wood Rodgers
Buena Vista	Buena Vista	Chaffee County	Colorado	City-wide	USA	

Status of Code	Ordinance Adoption Process	Context	Strategy	History of Ordinance	Website/Metadata
Adopted	New Multi Family Zone	Medium/Small Town	Cottage Court		
Adopted	New Multi Family Zone, Form-Based Code	Urban			
Adopted	Optional "Infill" Zone	Urban	Small Lot	City-Initiated	http://bit.ly/2Wv1JMj
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2DPTLyv
Adopted	Optional "Infill" Zone	Rural	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2DENK2N
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	Public-Initiated	http://bit.ly/2DHFmQ2
Adopted	Optional "Infill" Zone	Urban	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2VBm5dc
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2DFJfep
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2DCHUPi
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2LbaOfs
Adopted	Optional "Infill" Zone	Medium/Small Town	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2LIB8Ua
Adopted	Optional "Infill" Zone	Rural	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2VyXmpJ
Adopted	Optional "Infill" Zone, New Multi Family Zone	Urban	Missing Middle, Cottage Court	City-Initiated	http://bit.ly/2Llry42
Adopted	Optional Form-Based Overlay	Urban	Small Lot, ADU, Missing Middle, Urban Center regeneration	Public-Initiated, City-Initiated	http://bit.ly/2VDfwXi
Unknown	Optional Form-Based Overlay	Medium/Small Town	Small Lot, Missing Middle, Urban Center regeneration	Developer-Initiated, Public-Initiated	http://bit.ly/2VCJOtp
Adopted	PUD	Medium/Small Town	Missing Middle	Developer-Initiated	http://bit.ly/2Lcma30
Adopted	PUD, Optional "Infill" Zone	Rural	Missing Middle	City-Initiated	http://bit.ly/2VCJLhd

Explanation of Relevant Terms

The following terms are from our experience in working with communities across the United States on a variety of regulations and zoning standards.

ADU (Accessory Dwelling Unit)—A room or set of rooms in, attached to, or detached from a single-family house in a single-family zone that has been legally designed or configured to be used as a separate dwelling unit. Typically, an ADU is located toward the rear of the parcel.

ADU ordinance—A regulation or set of regulations that allows an accessory dwelling unit. Typically, an ADU ordinance is in addition to the base zoning regulations and in many cases overrides some of the base zoning regulations (e.g. minimum off-street parking).

Amendment, Zone Text—A change to the text and/or numerical standards of a zoning district. In certain situations, positive results can be achieved by very focused changes to existing zoning regulations. This depends upon the clarity of the existing zoning district and on how close the regulations are to delivering the results expected from the changes. For example, in a zoning district that has unreasonable off-street parking requirements that would otherwise allow Missing Middle Housing, a simple change to the parking requirements can result in this housing type being built.

Basement—That portion of a building between floor and ceiling, which is partly below and partly above grade (see *Grade*), but so located that the vertical distance from grade to the floor below is less than the vertical distance from grade to ceiling.

Base Zoning—The zoning district (conventional or form-based) that is applied to a parcel independent of overlays or additional regulations (e.g. R-1, R-2, RM, RPD, T4 Neighborhood, C-1, C-2, CPD, T4 Mainstreet).

By-Right—The term for an approval process that is streamlined so that projects that comply with the zoning standards receive approval without discretionary review. This type of approval process generally relies on the desired outcomes being well understood by the community and developers so that the standards can be more prescriptive and their results more predictable.

Codes—The general term used in this report for a wide variety of regulatory tools ranging from zoning districts, zoning district amendments, zone text amendments, overlays, overlay zoning districts, ordinances, ordinance amendments, and form-based codes.

Conventional Zoning (Use-Based Zoning, Euclidean Zoning)—This system focuses on the separation of uses and relies on density per acre and/or floor area ratio as key determinants for new buildings. Zoning regulations that prioritize land use and auto-dependent development patterns over physical form and character can be ineffective in addressing the needs of small- to medium-sized parcels in low- to moderate-intensity neighborhoods and contexts.

Cottage Court (Bungalow Court)—One lot with a group of three to 10 detached buildings, each with one dwelling. Typically, the buildings are mostly single-story with one building at two stories. Each building fronts the shared court and has a dooryard, stoop, or porch providing entry to the unit. Buildings have shared side yards but no rear yard. Each building has open or covered parking in an attached or detached garage accessed by a side drive or an alley.

Courtyard Building—One lot with a detached building or set of up to three slightly detached buildings configured in a U- or C-shape to form at least one shared court. Parking is in a surface parking area at the rear of the lot. This type, sometimes referred to as 'Neighborhood Courtyard', is the walk-up type of courtyard building that fits in Missing Middle Housing contexts.

Density per Acre (DUA)—A metric for calculating how many dwellings units per acre are allowed on a parcel. This metric has gradually become a regulation in nearly every community and does not provide predictable results but instead often stymies good design. An alternative is to not use DUA and instead use physical form and character standards that are consistent with the maximum allowed by the comprehensive plan. In addition, in form-based zoning, DUA can be expressed as a result of the desired physical form and character.

Density, Resultant—See ‘Resultant Density’

Duplex to Sixplex—A detached building containing two to six dwellings that appears as one house. The building has a small- to medium-sized front yard, often with a porch providing entry from the street or shared space to all or some units, with other units accessed through a side yard. The building has a small- to medium-sized rear yard with an attached or detached set of garages that are accessed by a side drive or an alley.

Floor Area Ratio (FAR)—A metric for calculating how much square footage is allowed on a parcel (e.g. 1.0). As with DUA, this metric has gradually become a regulation in many communities and is even less effective than DUA in providing predictable results. For example, a 1.0 FAR means a one-story building over the entire parcel (after applying building setbacks). That same amount can be stacked in numerous ways to result in wider, narrower, or taller buildings without necessarily considering the neighboring buildings/uses. An alternative is to not use FAR and instead use physical form and character standards that are consistent with the maximum allowed by the comprehensive plan. In addition, in form-based zoning, FAR can be expressed as a resultant of the desired physical form and character.

Footprint, Building—The outline of the area of ground covered by a building. This characteristic has a direct effect on the perceived size of a building and is as important as building height especially in low- to moderate-intensity neighborhoods.

Form-Based Zoning (Form-Based Code)—Zoning regulations that prioritize the intended physical form and character of an area(s) and include destinations for daily needs within walking distance along streets that are balanced for pedestrians and cyclists (‘walkable environment’). This type of zoning is not driven by DUA or FAR and results in a simplified review process because of the clarity of the regulations.

FBCI definition—Form-based codes foster predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code. These codes are adopted into city or county law as regulations, not mere guidelines. Form-based codes are an alternative to conventional zoning.

Half-Story—A partial story under a gable, hip, or gambrel roof, the wall plates of which on at least two opposite exterior walls are not more than four feet above the floor of such story. This is identified by “.5” added to the maximum allowed stories (e.g. 2.5). This example is for a two-story building to the highest eave that has an occupied attic in the volume of the roof.

House-Scale Building (House-Scale Compatible)—A detached building, set apart from other buildings with setbacks, that is as small as a cottage or as large as the largest house in the community. House-scale buildings are compatible in scale with single-family houses and are occupied with multiple dwellings and/or non-residential uses as allowed by the zoning.

JADU (Junior Accessory Dwelling Unit)—A unit up to 500 square feet in size that is contained entirely within a single-family house and may include its own bathroom or share a bathroom with the single-family house.

Main Street Building—A type of mixed-use building that is sometimes only one to three stories but can be up to five to eight stories with ground floor commercial or office and office and/or housing on upper stories. This type is usually the prevalent type in downtowns and neighborhood main streets. The main street building is distinct from more intense and larger footprint mixed-use buildings such as ‘mid-rise’ (which typically begins at about 7 stories).

Micro-scale Documentation—A type of analysis that documents and measures the variety of elements of existing buildings and their site plans to help determine the new standards for a form-based zone.

Multiplex Large—A detached building with six to 20 dwellings that appears as one large house. The building has a medium-sized front yard, often with a porch providing a common entry from the street for most or all of the units. The building has a small rear yard with an attached or detached set of garages accessed by a side driveway or an alley.

Multiplex Small (Mansion Apartment)—A detached building with up to 10 dwellings that appears as one large house. The building has a medium-sized front yard, often with a porch providing a common entry from the street for most or all of the units. The building has a medium-to-large rear yard with an attached or detached set of garages accessed by a side driveway or an alley.

Multifamily Zoning—Conventional zoning that regulates non-single-family development by dwelling units per acre (e.g. 24 dwelling units per acre), generates an auto-dependent development pattern, and tends to favor large site and building development. This type of zoning is in nearly every community and is unresponsive to the needs of medium- to small-sized parcels in moderate-intensity neighborhoods and other contexts.

Missing Middle (Missing Middle Housing)—A range of multi-unit or clustered housing types compatible in scale with single-family homes. These types provide diverse housing options along a spectrum of affordability, including duplexes, fourplexes, and bungalow courts, to support walkable communities, locally-serving retail, and public transportation options. Missing Middle Housing provides a solution to the mismatch between the available United States housing stock and shifting demographics combined with the growing demand for walkability.

Ordinance Adoption—The method of applying regulations and/or new zoning: ADU ordinance, small-lot ordinance, overlay zoning, optional infill zoning, form-based zoning.

Optional Infill Zone—A set of regulations attached to a zone that is applied to a parcel at the request of the owner. This approach typically offers additional development potential beyond the base zoning as well as a simplified review process in exchange for applying the zone.

Overlay—Zoning and/or urban design regulations that are applied in addition to the base zoning and its regulations. An overlay is not an additional zone and supplements the base zone regulations. This technique is clear and effective and is recommended instead of the overlay zoning district technique.

Overlay Zoning District (Overlay Zone)—An additional zoning district and regulations that are applied to the base zoning and its regulations. An overlay zone's regulations may supplement or override certain base zone regulations. Best practice is to identify and resolve any conflicts between the base and overlay zone regulations before applying the overlay zone. This report does not recommend the technique of overlay zoning districts.

Planned Unit Development (PUD)—Zoning regulations that are negotiated in exchange for certain enhancements in a project. This type of zoning is also referred to as 'negotiated' or 'contract' zoning because of the agreement that is essentially made between the city or county and the developer. This type of zoning is on the increase across the United States because existing zoning does not have enough standards or clarity about what is allowed and expected.

This type of zoning works very well for the developer but is not a model approach from the perspective of city or county staff having to administer each unique PUD instead of simply referring to the applicable zoning district and standards. In addition, the agreement reached in the PUD often needs to be revised or changed entirely if a subsequent developer finds that the standards and enhancements are irrelevant to their proposed project. This requires more work to negotiate a new/revised PUD. Last, this type of zoning is challenging because of the high amount of work needed by the community to keep up with the numerous PUDs in their community. This is in contrast to only needing to keep up with the changes to a zoning district that is applied to several areas.

Pocket Neighborhood—A site as large as a block or most of a block with detached and attached house-scale buildings arranged around a shared court or multiple courts. The buildings range from houses, duplexes, and fourplexes, to mansion apartments and courtyard buildings. Typically, the buildings are between 1 and 2.5 stories. Each building fronts the shared court and has a dooryard, stoop, or porch providing entry to the unit. Buildings have shared side yards but no rear yard. Each building has open or covered parking in an attached or detached garage accessed by a side drive or an alley.

Resultant Density—The numerical density associated with a building. Resultant density is often used to illustrate the types of compatible buildings that are not allowed by zoning because their density is higher than the regulations allow. Resultant density differs from conventional density by not being a regulation and by not being used to drive or limit the design of a building.

Rowhouse (Townhouse)—An attached dwelling within an array of up to 10 total dwellings that appear as one building. Each dwelling is a walk-up unit with no other unit above, built without side setbacks, with a small dooryard at the sidewalk and a small rear yard, with an attached or detached garage. Some versions of this type distinguish between Townhouse (no rear yard) and Rowhouse (small to medium rear yard).

Single-Family Zoning—Conventional zoning that regulates single-family development by dwelling units per acre and minimum lot size, generates an auto-dependent development pattern, and typically excludes other house-scale compatible types such as duplexes and fourplexes. This type of zoning is in nearly every community and does not address the needs of Missing Middle Housing.

Size, Building—The physical extents of a building, horizontally and vertically. This important characteristic that has more to do with physical compatibility than other characteristics is not typically addressed in conventional zoning. Conventional zoning typically measures height and density per acre, leaving out the size of a building. Form-based zoning measures the footprint and height of a building, making it easy to understand if physical incompatibilities are likely so they can be addressed.

Small House on a Small Lot—A detached building with one dwelling. The building has a dooryard or small front yard, often with a stoop or porch providing entry to the unit from the street or a shared garden. The building has a small rear yard with uncovered parking, or an attached or detached garage accessed by a side drive or an alley.

Small Lot Ordinance—A set of regulations focused on the needs of relatively small parcels that have been rezoned with regulations more suited to large-lot development or that are zoned for low-intensity single-family development in an area that is transitioning away from that pattern.

Third Place—The social surroundings separate from the two usual social environments of home (“first place”) and the workplace (“second place”). Examples of third places would be environments such as churches, cafes, clubs, public libraries, or parks.

Urban Center Regeneration—Planning and zoning for the resurgence of a downtown, small to large, that includes walkable urban neighborhoods in addition to one or more main streets of retail, restaurants, and services.

Walkable Environment (Walkable Urban)—An area that is pedestrian-oriented in nature, where bicycling and walking are viable daily options because services, retail, or restaurants are within a short walking distance of most residences.

Zoning District (Zone)—A set of development and use standards applied to specific parcels (e.g. R1, R2, C1, C2, T4 Neighborhood, T4 Mainstreet).

Smaller Homes and Accessory Dwelling

Reports and Articles

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Units (ADUs) Resource References

Websites

- Accessory Dwellings: <https://accessorydwellings.org>
- Boiceville Cottages: <https://boicevillecottages.com>
- Building an ADU: <http://www.buildinganadu.com>
- Co-housing solutions: <https://cohousing-solutions.com>
- Daybreak: <https://www.daybreakutah.com>
- HUD User: <https://www.huduser.gov>
- KTG Architecture and Planning: <http://ktgy.com>
- Missing Middle Housing: <http://missingmiddlehousing.com>
- Moule and Polyzoides, Architects and Urbanists: <https://mparchitects.com/>
- Opticos Design, Inc.: <https://opticosdesign.com>
- Pocket Neighborhoods: <http://pocket-neighborhoods.net>
- Propel Studio: <https://www.propelstudio.com>
- Ross Chapin Architects: <https://rosschapin.com>
- Soules Company: <http://www.soulescompany.com>
- The Alley Flats Initiative: <http://thealleyflatinitiative.org>
- The Cottage Company: <http://www.cottagecompany.com>

For more information and to contact NAHB staff on state and local housing affordability strategies, please visit [nahb.org/lu101](https://www.nahb.org/lu101) and [nahb.org/housingforall](https://www.nahb.org/housingforall).