Code Concepts Memo

DUPLEXES AND COTTAGE CLUSTERS

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INTRODUCTION

Project Overview

On August 12, 2020, the City of Portland adopted the Residential Infill Project (RIP 1) which constitutes the majority of their HB 2001 implementation effort. For the past five years, The City's Bureau of Planning and Sustainability (BPS) has been working to allow duplexes, triplexes, quadplexes and second ADUs in their R7, R5, and R2.5 single-dwelling zones, which represents 90% of the single-dwelling residential lots in the City.

This project is addressing the requirement to allow for middle housing in large-lot, lower- density R10 and R20 zones. The areas where these zones apply tend to be in the outskirts of Portland, predominantly in the West Hills and Pleasant Valley area. These areas have been identified as having significantly deficient sewer, storm water drainage and transportation infrastructure (substandard and unbuilt streets).

RIP 1 did not address the requirement to allow for cottage clusters. Portland's current provisions allow for cottage clusters through a discretionary planned development approval process, but do not have a clear and objective standards track. The City reduced the review process and costs for these types of developments, but has not developed a specific "Cottage Cluster" code.

The City incorporated alternative right-of-way standards for lots served by common greens, shared courts, and alleys as part of the land division code. Expanding upon these tools with intentional development standards that adequately respond to the challenges of multi building development in the single dwelling zones, will better facilitate micro-neighborhoods within neighborhoods, to fully achieve the vision of the house bill (HB 2001).

The City is in the early stages of preparing a code amendment package to encompass the remaining elements (middle housing in large lot zones and cottage clusters) to comply with HB 2001. Urbsworks is the DLCD-provided consultant and is working with the City to assist in development concepts for the necessary code changes to comply with the cottage cluster and duplex code requirements.

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THE CONCEPTS

Cottage Clusters

The Cottage Clusters code audit consists of an inventory and review of all provisions in HB 2001 that apply to the required housing type, both those in the OAR (Division 46), and those on the Large City Model Code (LCMC). Three other cottage cluster codes were reviewed in order to compare definitions, numerical requirements, and dimensions with those of HB 2001. These included:

- The Langley, Washington, Cottage Housing Development code (one of the first contemporary cottage cluster model codes), written in the 1990's when Washington state architects and city planners were attempting to re-legalize cottage clusters as a housing type.
- Provisions under consideration for adoption in Madras, Oregon, that includes some provisions from Bend, Oregon—referred to as the "central Oregon model code.".
- Milwaukie, Oregon, Final Report on Cottage Cluster Feasibility Analysis, written in June 2019; specifically Appendix D: Proposed Cluster Housing Code Recommendations.

The audit provides a number of points of comparison for specific standards. For example, the requirement that common courtyards be faced on at least two sides by cottages, and that 50% of cottages face the courtyard, are common across all of the audited codes. On the other hand, the amount of square footage per unit that must be dedicated to the common courtyard differs, with HB 2001 requiring 150 square feet per unit, while the three model codes require 400 square feet per unit.

Project Meetings and Issues Raised

Portland IBTER Meetings

None of the comparison codes address the issue of providing infrastructure to cottage lots very thoroughly, however, this was the focus of the Portland IBTER (Infrastructure-based Time Extension Request) committee meetings held for this project. Representatives from BDS, Water, BES, Transportation, Fire, and other bureaus attended, and meetings were held monthly between February and April 2021.

Some bureau representatives were concerned about the conceptual cottage cluster layouts that were presented. The layouts illustrated strict adherence to the HB 2001 required minimums for development and siting and did not address the provision of infrastructure. See Attachment A (Prototype Studies).

For example, there was concern about providing utility connections to dwelling units that may be set far back from a public street, easement, or tract, on a deep site, with limited frontage—especially if cottages are on individual lots. HB 2001 defines a cottage cluster as cottages on a single lot, and the Prototype Studies model this scenario. However, with the May 2021 passage of state legislation (SB 458), which requires cities to adopt an expedited land division process, cottage cluster provisions adopted in 2022 will need to allow for separate dwelling units on their own lots. SB 458 would apply to cottage clusters and other HB 2001-required middle housing types.

Anticipating an expedited land division scenario generated discussion about coordinating the dimensions of the currently allowed private street type (tract) known as "Common Greens," with the HB 2001-required *common courtyard*. If the HB 2001 *common courtyard* met current city standards for Common Greens, subsequent conversion through a land division could be more readily facilitated and ensure infrastructure service is provided and maintained. This would require that the HB 2001 requirement for Common Courtyard minimum width (15 feet) remains the same as the Portland Bureau of Development Services' Common Green minimum width standard, which is set currently at 15 feet (figure below).

At right is guidance from Portland Bureau of Development Services regarding the Common Green and Pedestian Connection Improvements (Figure 19). It is one of the examples of how private rights-of-way could be designed, and is included in the "PERMANENT RULE, Private Rights-of-Way - Streets, Alleys, Shared Courts, Common Greens and Pedestrian Connections."

The figure notes that a common green must include at least 400 square feet of grassy area, play area, or dedicated gardening space, which must be at least 15 feet wide on the narrowest dimension. In addition the figure refers to stormwater facilities:

Stormwater facilities may be located within common greens or pedestrian connections. See Section III.L for specific standards.

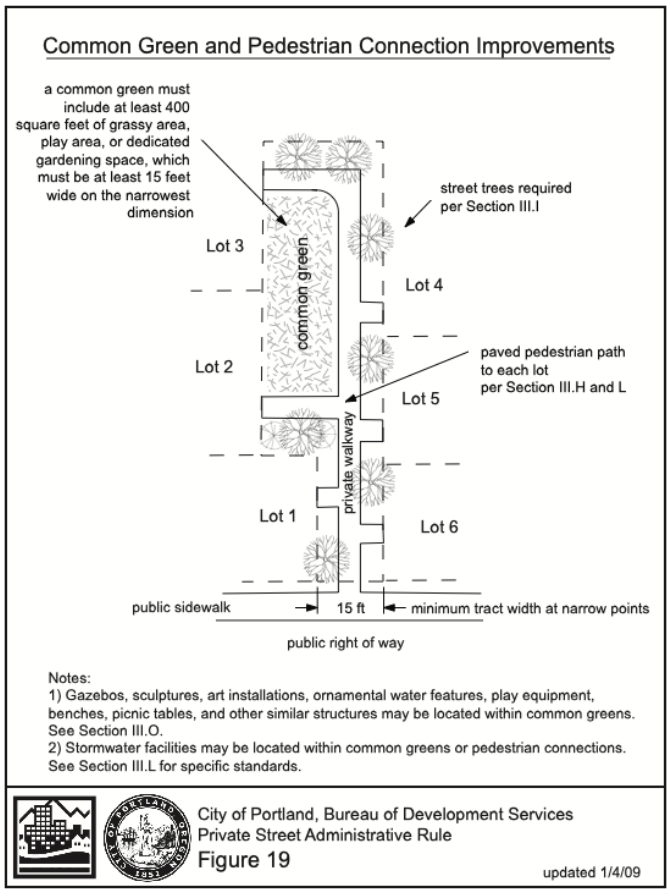


Figure 19 from City of Portland, Bureau of Development Services Private Street Administrative Rule

In one regard the Portland requirement for the Portland Common Green goes beyond what is required by HB 2001, and requires a minimum public street frontage of 15 feet. No such standard exists in HB 2001, but if Portland adopted such a standard for a cottage clusters, individual lot clusters may be easier to move through an expedited land division process.

By coordinating Portland's *Common Greens* requirements with those for HB 2001 cottage cluster , specifically those for the *common courtyard,* the city may be able to craft HB 2001-compliant amendments which anticipate both possible cottage cluster developments—co*ttages on a single lot*, and *cottages on individual lots*.

During the IBTER meetings, bureau representatives shared siting and operational demands of their respective services. One example that illustrates how the common courtyard may need to accommodate utilities was in the location and siting of drywells for stormwater (figure below).

These types of utility needs should be taken into account in the common courtyard standards, particularly if a goal is to anticipate and prepare for the most approvable infrastructure service arrangement for cottage cluster middle housing types.

At right is an excerpted page from Portland's 2020 Stormwater Management Manual, showing a simplified diagram of a typical drywell on private property (Figure SW-180- from Simplified Design Approach standards).

The manual specifies sizing and siting criteria for the location of stormwater facilities, applicable in areas of Portland where soils and slopes can accommodate infiltration.

Requirements for stormwater drywells are typical of the infrastructure service issues that would apply to common courtyards and should be taken into account, especially where separate utilities will be necessary for individual cottage lots surrounding a common courtyard.

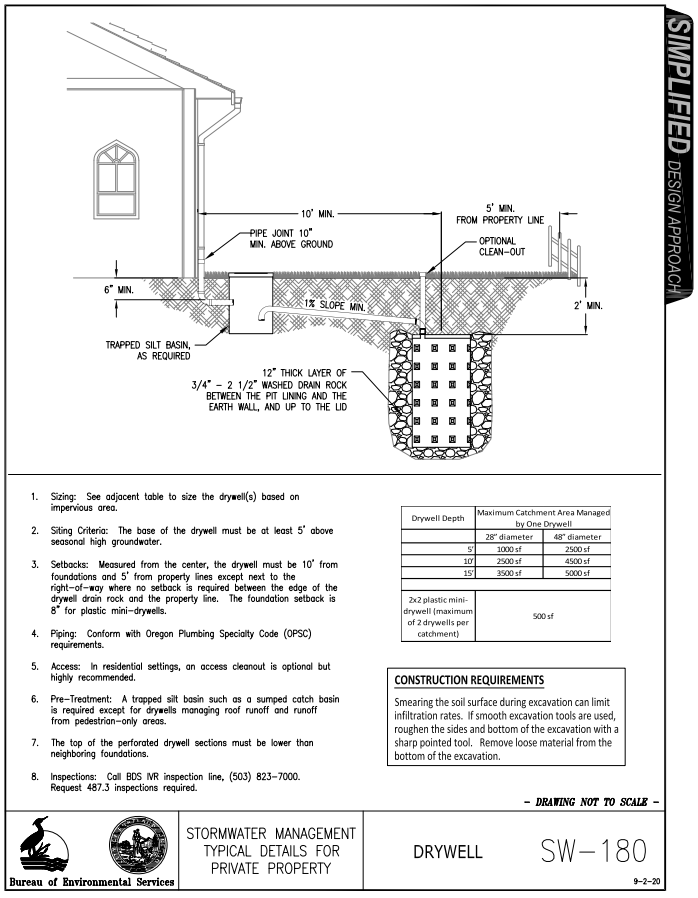


Figure SW-180 from Portland's 2020 Stormwater Management Manual Drywell

Stakeholder interviews and focus groups

People who participated in the interviews and focus group represented a wide range of interests, including homebuilders, affordable housing providers, and senior living advocates. All agreed that cottage cluster-style development was an important housing type and agreed making them easier to develop was important. They agreed that making them fee simple and being able to divide the land on which the cluster sat should be the ultimate goal of new regulations. Enabling cottages to be "owned" was seen as a superior way of providing affordable dwelling options, as opposed to cottages sharing a lot. Converting cottages to condominiums was discussed, but it was cited as complicated and costly, and was particularly difficult for affordable housing providers.

In May of 2021, the Oregon state legislature passed SB 458, which, following on from HB 2001, adds a requirement for cities to expedite land division for middle housing. This would address some of the concerns expressed by interview participants, although it may cause separate issues for public and private infrastructure providers (see Portland IBTER Meetings).

Where there was disagreement amongst interviewees was on the detail of the code provisions that the city will adopt. Some participants wanted much more flexibility (i.e., on unit sizes); others argued for more design requirements to ensure that cottages were going to function well from a physical and social perspective. The push-pull between the city's need to adopt a single, basic "by right" provision (allowing development applicants to achieve easy approval), and the complexity and nuance of the cottage cluster housing type was evident.

Some of the flexibility that was argued for—on dwelling unit size, for example—is not allowed by HB 2001. Unit sizes are fixed at maximum footprint of 900 square feet, and an averaging of unit sizes allows some flexibility in the size of each individual cottage, but the parameters are clearly set.

The HB 2001 parameters clearly establish a goal for affordability. When cottages are small and parking is clustered, the cost of each unit goes down and the number of units that become possible on a lot goes up. Listening to the discussion by focus group participants it is clear that there is a tendency to make units big, add garages, and reduce density; however, such designs would contradict the goal for affordability. Allowing such designs is possible today, through the city's Planned Development review.

HEARD AT INTERVIEWS AND FOCUS GROUP

Affordability

Balance amenities and cost: consider options for minimal amenities in favor of affordability.

Fee simple lot structure is less complex and less costly to develop.

Design

Shared open spaces should be clearly delineated so that it's apparent who "owns" the space and who is responsible for maintenance.

The size of the cluster is important to create a connected feeling among residents. Consider a top-end number of units per cluster.

Create layers of spaces from private to public.

A pattern book of design options accompanying clear and objective standards would be useful.

Flexibility

Create spaces that are good for a diverse mix of people from different backgrounds, different stages of life including families, single people, and seniors.

Consider a maximum average unit size to allow for variation in units.

Design for adaptability as needs evolve.

Cottage Cluster Concepts: Optimizing approvability, affordability, and design

Cottage clusters are an important housing type for addressing affordability and as such, were given special priority in HB 2001 rules. HB 2001 require cities to adopt cottage clusters as a specific housing type, and Division 46 and the Large City Model Code (LCMC) include prescriptive standards that cities are required to write into their zoning codes.

There are only a few areas in which a city may depart form the required standards. In looking for the right size for Portland's cottage cluster code provisions, these standards were reviewed thoroughly and discussed with the focus groups and the IBTER team (see Cottage Cluster Code Audit).

The Code Audit identifies which standards can be "flexed." The role of the Concepts was to highlight the benefits and drawbacks of each flex, or design option.

In addition, the Concepts measure the interplay between the following competing interests:

- Approvability, infrastructure serviceability, and ease of land division
- Dwelling unit yield (density) and affordability benefits
- Design for amenities, i.e., separation between units, and dimensions and area of the common courtyard

The development intensity scenarios, or Concepts, hold constant a few factors, and adjust those design or siting standards which are flexible. The results illustrate a range of possible configurations, and their effect on the competing interests of approvability, affordability, and design.

What is held constant in all Concepts:

- Parking is provided, if possible, but not required
- Common courtyard has access (frontage) on a public street
- Dwellings share a single lot

Cottage footprints are varied, as follows:

- For the 5,000 square foot lot Concepts, cottage footprints are 400 square feet.
- For the 10,000 square foot lot Concepts, cottage footprints range from 500 square feet to 700.
- For the 20,000 square foot lot Concepts, cottage footprints range from 500 square feet to 900.

Notes: 1) On any of the cottages illustrated, an upper level could provide additional dwelling square footage. 2) While the building code allows smaller sized homes, 400 square feet (roughly the size of a two car garage) is the smallest unit size that was used for these cottage cluster concept scenarios based on real examples of Accessory Dwelling Units.

HB 2001 requirements that are "flexed":

- Separation /space between dwellings
- Size of common courtyard

Finally, the tests were conducted on three different lot sizes: 5,000, 10,000, and 20,000 square feet, and "intensity" is defined as the number of dwelling units on a lot (density).

On the next page is a by-the-numbers comparison of the high-medium and low development scenarios. For the Concept scenario illustrations, see page 27.

Overview of Concepts

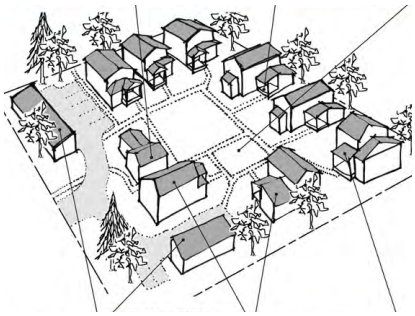
Scenario	High intensity (more cottages)	Medium intensity (medium #of cottages)	Low intensity (fewer cottages)
Factors held constant for each scenario	**15** feet, common courtyard width **6** feet between cottages	**24** feet, common courtyard width **10** feet between cottages	**24+** feet, common courtyard width **10** feet between cottages
Description	Minimal width common courtyard, less space between units	More width to common courtyard, more space between units	Generous common courtyard, more space between units
	Results from prototype tests		
5,000 square foot lot	**4** cottages no parking on site	**3** cottages no parking on site	same as medium intensity scenario
10,000 square foot lot	**8** cottages no parking on site	**6** cottages no parking on site	**5** cottages no parking on site
20,000 square foot lot	**11** cottages some parking on site	**8** cottages some parking on site	**7** cottages one parking space for each cottage on site

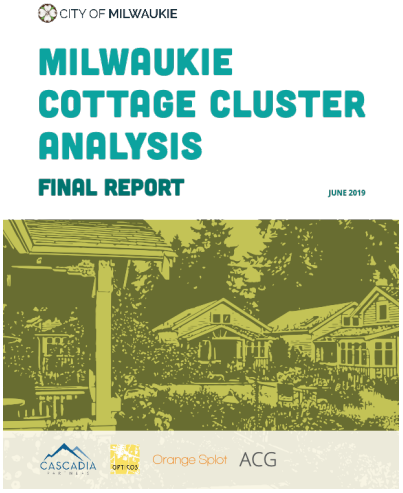
Code Audit

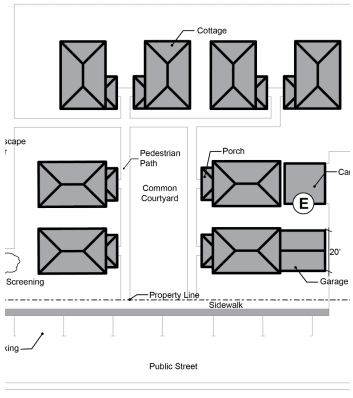
The Department of Land Conservation and Development (DLCD) provided cities with several tools to assist in the implementation of House Bill 2001. The first is the set of administrative rules that specify in detail how local governments are required to satisfy the broad intent of HB 2001. The rules were incorporated on December 9, 2020 as Division 46 of Chapter 660 of the Oregon Administrative Rules (OAR 660-046, "Middle Housing"). These rules are referred to as "OAR." The administrative rules which guide implementation establish specific and detailed standards (referred to as minimum compliance) to ensure the intent of the law is carried out in local zoning regulations. The second tool is the Large City Model Code ("LCMC"). The Model Code provides a benchmark against which local middle housing regulations can be compared to establish compliance with HB 2001. Additionally, a city can elect to adopt the Model Code in its entirety or portions of it.

How to read the code audit

The audit refers to *what is being regulated* and *how it is being regulated* by the OAR and/or the LCMC. Regulated items appear in the same order as they appear in the rules. Each subsection includes the OAR standard for a particular item (e.g., minimum number of cottages), compared with the LCMC standard. If the item is not regulated by either the LCMC or the OAR, or both, it is noted (i.e., "no requirement in the LCMC"). The OAR to LCMC comparison is followed by a summary of points on which one or more of the three cottage cluster model codes differ.







The Code Audit compares cottage cluster regulations found in five documents: The HB 2001 rules documents (OAR, or Division 46, and the Large City Model Code, or LCMC), Langley, Washington, Cottage Housing Development code (circa 1995), the 2021 Madras, Oregon, proposed cottage cluster ordinance, and the 2019 "Final Report on Cottage Cluster Feasibility Analysis," prepared for the City of Milwaukie, Oregon.

Cottage Cluster Items regulated by Oregon Revised Statutes (OAR) and the Large City Model Code (LCMC)

Definitions

- For Common courtyard (LCMC, Ch 1.B.2)
- For Cottage (LCMC, Ch 1.B.4)
- For Cottage Cluster project (LCMC, Ch 1.B.6)

Applicability

Approval process

Permitted uses (LCMC CH 5.A.1)

- *Not addressed:*
  - *Dwelling types permitted (OAR and LCMC assume all dwelling types are cottages)*

Numerical standards

- Minimum number of cottages (660-046-0205)
- Number of cottages per common courtyard (660-046-0205)
- Maximum number of cottages (DLCD Open Forum #1)

Development standards (called Siting Standards in OAR) – OAR 660-046-0220 and LCMC Ch 5.B.2

- Minimum lot size
- Minimum lot width
- Density, maximum
- Density, minimum
- Setbacks: General
- Setback: Front, side, rear, perimeter
- Building separation
- Unit size, average
- Lot or parcel coverage
- FAR
- Cottages on individual lots
- Infrastructure (OAR 660-046-0220 / 4.i)
- Building height, in feet
- Off-street parking
- Conversions
- *Not addressed:*
  - *Required private open space*
  - *Maximum lot size*

Design standards – LCMC

- Cottage orientation
- Common courtyard design
- Required private open space
- Community buildings
- Pedestrian access
- Windows
- Parking design: clustered parking
- Parking location and access
- Parking location and access: Screening
- Parking location and access: Garages and carports
- Accessory structures
- Existing structures
- Conversions
- *Not addressed:*
  - *Common open space: Ownership and tracts*
  - *Common open space: Phasing*
  - *Private open space design*

DEFINITIONS

The HB 2001 legislation includes the following definitions:

- For Common courtyard (LCMC, Ch 1.B.2)
- For Cottage (LCMC, Ch 1.B.4)
- For Cottage Cluster project (LCMC, Ch 1.B.6)

Definition: Common courtyard	**Per LCMC, Ch 1.B.2** "Common courtyard" means a common area for use by residents of a cottage cluster. A common courtyard may function as a community yard. Hard and soft landscape features may be included in a common courtyard, such as pedestrian paths, lawn, groundcover, trees, shrubs, patios, benches, or gazebos.
Definition: Cottage	**Per LCMC, Ch 1.B.4** "Cottage" means an individual dwelling unit that is part of a cottage cluster.
Definition: Cottage cluster	**Per OAR** "Cottage Cluster" means a grouping of no fewer than four detached dwelling units per acre with a footprint of less than 900 square feet each that includes a common courtyard. A Medium or Large City may allow Cottage Cluster units to be located on a single Lot or Parcel, or on individual Lots or Parcels. **Per LCMC, Ch 1.B.5** "Cottage cluster" means a grouping of no fewer than four detached dwelling units per acre, each with a footprint of less than 900 square feet, located on a single lot or parcel that includes a common courtyard. Cottage cluster may also be known as "cluster housing,""cottage housing," "bungalow court," "cottage court," or "pocket neighborhood."
Definition: Cottage cluster project	**Per LCMC, Ch 1.B.6** "Cottage cluster project" means a development site with one or more cottage clusters.Each cottage cluster as part of a cottage cluster project must have its own common courtyard.

Comparison with other codes

In one of the other cities studied, "Cottage" means a detached single-family dwelling under 1,200 square feet (excluding garages, porches, and other outdoor areas) that shares common open space with other cottages.

APPLICABILITY, APPROVAL PROCESS, AND PERMITTED USES

The HB 2001 required cottages to be permitted outright (LCMC CH 5.A.1)

- It does not address dwelling types permitted; the OAR and LCMC assume all dwelling types are cottages.

Comparison with other codes

In one of the other cities studied (Milwaukie), siting and design standards apply to three development intensities or zoning contexts. Depending on the context, cottages are allowed to be attached, or a combination of attached and detached, as follows:

- *Low density neighborhoods— Cottages are required to be detached*
- *Transit-connected locations— Cottages are allowed to be detached and attached*
- *Commercial and multifamily zones— Cottages are allowed to be detached and attached*

NUMERICAL STANDARDS

The HB 2001 legislation specifies:

- Minimum number of cottages (660-046-0205)
- Number of cottages per common courtyard (660-046-0205)
- Maximum number of cottages (DLCD Open Forum #1)

Minimum number of cottages	**Per OAR 660-046-0205** No requirement to set a minimum number, density addressed below. May require a minimum of three, four, or five dwelling units in a Cottage Cluster. May allow, but may not require, greater than five units in a Cottage Cluster
Number of cottages per common courtyard	**Per OAR 660-046-0205** Must allow up to eight cottages per common courtyard May permit greater than eight dwelling units per common courtyard
Maximum number of cottages	**Per DLCD Open Forum #1** City may set a maximum

Comparison with other codes

In the Langley, Washington, Cottage Housing Development code (one of the first contemporary cottage cluster model codes), the minimum number of cottages in a cluster is 4; the maximum number is 12.

In the central Oregon example, the minimum and maximum number of cottages in a cluster is graduated by zone:

Zone —Minimum number / Maximum number:

- R-1—4 / 12
- R-2—6 / 16
- R-3—6 / 14

DEVELOPMENT AND SITING STANDARDS

In the OAR 660-046-0220 and LCMC Ch 5.B.2, HB 2001 legislation regulates the following physical characteristics of cottage clusters

- Minimum lot size
- Minimum lot width
- Density, maximum
- Density, minimum
- Setbacks: General
- Setback: Front, in feet
- Setback: Side, in feet
- Setback: Rear, in feet
- Building separation
- Unit size, average, in sq ft
- Lot or parcel coverage
- FAR
- Cottages on individual lots
- Infrastructure (OAR 660-046-0220 / 4.i)
- Building height, in feet
- Off-street parking
- Conversions
- *Not addressed:*
  - *Required private open space*

Minimum lot size	**Per 660-046-0220** Not required to apply minimum Lot or Parcel size. If a city applies standards: If the minimum Lot or Parcel size in the same zone for a detached single-family dwelling is 7,000 square feet or less, the minimum Lot or Parcel size for a Cottage Cluster may be no greater than 7,000 square feet. If the minimum Lot or Parcel size in the same zone for a detached single-family dwelling is greater than 7,000 square feet, the minimum Lot or Parcel size for a Cottage Cluster may not be greater than the minimum Lot or Parcel size for a detached single-family dwelling. **Per Ch 5.B.2** Shall meet the minimum lot size, width,and depth standards that apply to detached single family dwellings in the same zone.
Minimum lot width	Not required to apply minimum Lot or Parcel size. If a city applies standards, it may not require a minimum Lot or Parcel width that is greater than the standard for a single-family detached dwelling in the same zone.

Minimum lot size: Comparison with other codes

Regarding minimum lot size, the central Oregon model code, has a formula for new land-divided cottage lots (a new lot for a single cottage cluster) that requires the lot to be 150% of cottage footprint. It would allow a 1,000 sq ft cottage to be on a new lot of 1,500 sq. ft., which is a fairly typical pre-existing small lot size in most cities. In addition, the 150% standard allows the lot to size up or down with a smaller (or larger) cottage.

Density, maximum	**Per OAR** May not apply density maximums. **Per LCMC** Jurisdiction's pre-existing density maximums do not apply.
Density, minimum	Must meet a minimum density of at least four units per acre.

Setbacks: General	**Per LCMC** Shall meet the minimum and maximum setback standards that apply to detached single family dwellings in the same zone, except that minimum setbacks for dwellings in excess of the following are invalid: May not require perimeter setbacks to be greater than those applicable to detached single-family dwellings in the same zone Additionally, perimeter setbacks applicable to Cottage Cluster dwelling units may not be greater than ten feet.

Setback: Front, in feet	Not greater than 10 feet (OAR)	10 (LCMC)
Setback: Side, in feet	Not greater than 10 feet (OAR)	5 (LCMC)
Setback: Rear, in feet	Not greater than 10 feet (OAR)	10 (LCMC)

Setbacks: Comparison with other codes

The Milwaukie model code proposed 6 feet between eaves as the minimum separation between cottages. It also proposes a maximum front setback (20 feet).

Building separation	**Per OAR** 10 feet The minimum distance between structures may not be greater than what is required by applicable building code requirements or 10 feet. **Per LCMC** Minimum distance of six (6) feet. The minimum distance between all other structures, including accessory structures, shall be in accordance with building code requirements.

Unit size, average, in sq ft	**Per OAR** May limit the minimum or maximum size of dwelling units in a Cottage Cluster. Must apply a maximum building footprint of 900 square feet per dwelling unit. May exempt up to 200 square feet in the calculation of dwelling unit footprint for an attached garage or carport. May not include detached garages, carports, or accessory structures in the calculation of dwelling unit footprint. **Per LCMC** The maximum average floor area for a cottage cluster is 1,400 square feet per dwelling unit. Community buildings shall be included in the average floor area calculation for a cottage cluster.

Unit size: Comparison with other codes

The Langley, Washington, Cottage Housing Development is quite specific regarding unit size: the maximum first floor or main floor area for an individual principal structure in a CHD (Cottage Housing Development) shall be as follows:

- *For at least 50 percent of the units, floor area shall not exceed 650 square feet.*
- *For no more than 50 percent of the units, the floor area may be up to 800 square feet.*

The total floor area of each cottage shall not exceed either one and one-half times the area of the main level or 975 square feet, whichever is less.

The central Oregon code specifies 1,200 square feet (excluding garages, porches, and other outdoor areas).

The Milwaukie model code proposes the following footprint standards, and explains that these dimensions are needed to maintain the affordability benefits of cottage housing:

	Low density neighborhoods	*Transit-connected locations*	*Commercial and multifamily zones*
Max footprint per home, sq. ft.	*1,000*	*1,200*	*1,200*
Max total footprint per building sq. ft.	*1,650*	*No requirement*	*No requirement*
Max floor area per home sq. ft.	*1,600*		
Max average floor area per home sq. ft.	*1,000*		

Lot or parcel coverage	**Per OAR** May not apply Lot or Parcel coverage **Per LCMC** No requirement in LCMC
FAR	**Per OAR** May not apply floor area ratio standards **Per LCMC** No requirement in LCMC

Lot coverage and FAR: Comparison with other codes

HB 2001 does not allow cities to apply floor area ratio or lot coverage standards to cottage clusters, however, as we evaluate conceptual site plans it may be helpful to look at how other cities have done so.

The Langley, Washington, Cottage Housing Development applies a restriction as follows: "maximum lot coverage for principal and accessory structures shall not exceed 40 percent."

The central Oregon code applies lot coverage, graduated by zone as follows:

	R-1	*R-2*	*R-3*
For shared cottage lot (all cottages on a single lot)	*50%*	*60%*	*50%*
For cottage lot (one cottage on an individual lot)	*90%*	*90%*	*90%*

The Milwaukie model code applies different site coverages as follows:

	Low density neighborhoods	*Transit-connected locations*	*Commercial and multifamily zones*
Lot coverage maximum, in square feet	*50%*	*65%*	*70%*
Impervious area maximum, in square feet	*60%*	*30%*	*25%*
Vegetated site area, minimum, in square feet	*35%*	*30%*	*25%*
Tree cover, minimum at maturity	*40%*		

Cottages on individual lots	Nothing precludes allowing Cottage Cluster dwelling units on individual Lots or Parcels within the Cottage Cluster development.
Infrastructure	**Per OAR660-046-0220 / 4.i** City shall work with an applicant for development to determine whether Sufficient Infrastructure will be provided, or can be provided, upon submittal of a Cottage Cluster development application. **Per LCMC** No requirement in LCMC

Infrastructure issues: Comparison with other codes

None of the comparison codes address the issue of providing infrastructure to cottage lots very thoroughly, however, this was the focus of the Portland IBTER (Infrastructure-based Time Extension Request) committee meetings held for this project, see page 5.

Building height, in feet	**Per OAR** No standard **Per LCMC** The maximum building height for all structures is 25 feet or two (2) stories, whichever is greater.

Building height: Comparison with other codes

The Milwaukie model code applies different site coverages as follows:

	Low density neighborhoods	Transit-connected locations	Commercial and multifamily zones
Max # of stories	2	2.5	3
Max structure height between 5 and 10 of rear lot line	15		
Max height to eaves facing common green	1.618 times the narrowest average width between two closest buildings		

Off-street parking	**Per OAR** May not require more than one off-street parking space per dwelling unit May allow but may not require off-street parking to be provided as a garage or carport. Nothing precludes city from allowing on-street parking credits to satisfy off-street parking requirements. **Per LCMC** Zero (0) spaces per unit with a floor area less than 1,000 square feet One (1) space per unit with a floor area of 1,000 square feet or more Spaces may be provided for individual cottages or in shared parking clusters. A credit for on-street parking shall be granted for some or all of the required off-street parking as provided in subsection (b).

Off-street parking: Comparison with other codes

The Milwaukie model code is quite specific regarding bicycle parking

Spaces per unit, minimum: 1 / .5 / .25

Dry, secure bike parking per unit, minimum: 1.5

Guest bicycle parking spaces per unit, minimum: .5

DESIGN STANDARDS – LCMC

- Cottage orientation
- Common courtyard design
- Required private open space
- Community buildings
- Pedestrian access
- Windows
- Parking design: clustered parking
- Parking location and access
- Parking location and access: Screening
- Parking location and access: Garages and carports
- Accessory structures
- Existing structures
- Conversions
- Not addressed:
  - Common open space: Ownership and tracts
  - Common open space: Phasing
  - Private open space design

Cottage orientation	**Per LCMC** Cottages must be clustered around a common courtyard, meaning they abut the associated common courtyard or are directly connected to it by a pedestrian path, and must meet the following standards:
	Each cottage within a cluster must either abut the common courtyard or must be directly connected to it by a pedestrian path.
	A minimum of 50 percent of cottages within a cluster must be oriented to the common courtyard and must: Have a main entrance facing the common courtyard; Be within 10 feet from the common courtyard, measured from the façade of the cottage to the nearest edge of the common courtyard; and Be connected to the common courtyard by a pedestrian path.
	Cottages within 20 feet of a street property line may have their entrances facing the street.
	Cottages not facing the common courtyard or the street must have their main entrances facing a pedestrian path that is directly connected to the common courtyard.

Cottage orientation: Comparison with other codes

The Langley, Washington, Cottage Housing Development requires at least 50 percent of the cottage unit shall abut the common open space, and all of the cottage units shall be within 60 feet walking distance of the common open space.

The central Oregon code requires at least 50 percent of the cottages to abut a common open space, and for each cottage to be connected to a common open space by a pedestrian pathway.

Common courtyard design	**Per LCMC** Each cottage cluster must share a common courtyard in order to provide a sense of openness and community of residents. Common courtyards must meet the following standards (see Figure 26):
	· The common courtyard must be a single, contiguous piece.
	· Cottages must abut the common courtyard on **at least two sides** of the courtyard.
	· The common courtyard must contain a minimum of **150 square feet per cottage** within the associated cluster (as defined in subsection (1) of this section (C)).
	· The common courtyard must be a minimum of **15 feet wide a**t its narrowest dimension.
	· The common courtyard shall be developed with a mix of landscaping, lawn area, pedestrian paths, and/or paved courtyard area, and may also include recreational amenities. Impervious elements of the common courtyard shall not exceed 75 percent of the total common courtyard area.
	· Pedestrian paths must be included in a common courtyard. Paths that are contiguous to a courtyard shall count toward the courtyard's minimum dimension and area. Parking areas, required setbacks, and driveways do not qualify as part of a common courtyard.

Common courtyard design: Comparison with other codes

The Langley, Washington, Cottage Housing Development and the central Oregon code require that a common open space have cottages abutting at least two sides, and that the square foot-per-cottage allotment be a minimum of 400 square feet per unit.

The central Oregon code requires the common court width to be a minimum average width of 20 feet, and also specifies:

- *Design: Areas such as utility vaults, perimeter setbacks and common parking areas and driveways are not counted in a common open space requirements.*
- *Common open space may contain drainage swales and utilities, provided the area is otherwise usable for open space purposes. Open space areas may not contain roadways or parking areas.*

Ownership	Ownership is not addressed in OAR nor LCMC

Common courtyard ownership: Comparison with other codes

- *Ownership: Common open space area must be either located within common tracts or subject to a recorded instrument acceptable to the City to ensure the common open space will perpetually benefit all residents of the cottage cluster development.*

Phasing	Phasing is not addressed in in OAR nor LCMC

Common courtyard phasing: Comparison with other codes

- *Phasing: Common open space areas must be constructed and landscaped prior to filing a final plat or, in the case of a site plan, construction and landscaping will be tied to final occupancy of the first cottage.*

Frontage	Frontage on a street is not addressed in in OAR nor LCMC

Common courtyard frontage: Comparison with other codes

- *None of the codes examined specified required street frontage for the common open space area.*

Required private open space	Private open space is not addressed in OAR nor LCMC

Required private open space: Comparison with other codes

Most of the other codes require an allocation of private open space in addition to the common open space requirement. In addition, the Langley, Washington, Cottage Housing Development code, while it does not set standards for the design of private open space, requires design review. [1]

The central Oregon code specifies that each cottage cluster development must provide 400 square feet of private open space per cottage for the exclusive use by the occupants of the applicable cottage. Private open space must be either part of the cottage lot or abut the applicable cottage for a single lot cottage cluster development. Required private open space for each cottage must be shown on submitted plans. Covered entries and uncovered patios and

[1] The high quality of common and private open space in the Langley examples may be the result of extensive design guidance, presumably administered through design review. "Patterns" and design guidelines developed by Ross Chapin cover private open space dedication, "layers" of privacy, transition from public open space to private open space, the important of porches, etc. See http://www.pocket-neighborhoods.net/blog/codes-for-courtyards/ Ross Chapin was one of the stakeholders interviewed for the Portland Cottage Cluster project.

decks in excess of the required 80 square feet in MDC 18.30.210(8)(b) may be included in the private open space calculation.

Community buildings	**Per LCMC** Cottage cluster projects may include community buildings for the shared use of residents that provide space for accessory uses such as community meeting rooms, guest housing, exercise rooms, day care, or community eating areas. Community buildings must meet the following standards: Each cottage cluster is permitted one community building, which shall count towards the maximum average floor area. A community building that meets the development code's definition of a dwelling unit must meet the maximum 900 square foot footprint limitation that applies to cottages, unless a covenant is recorded against the property stating that the structure is not a legal dwelling unit and will not be used as a primary dwelling.

Community building: Comparison with other codes

The Milwaukie model code sets a maximum footprint for the common building, that ranges from 1,500 to 3,000 square feet, depending on the context zone.

Pedestrian access	**Per LCMC** An accessible pedestrian path must be provided that connects the main entrance of each cottage to the following: The common courtyard; Shared parking areas; Community buildings; and Sidewalks in public rights-of-way abutting the site or rights-of-way if there are no sidewalks. The pedestrian path must be hard-surfaced and a minimum of four (4) feet wide.
Windows	Cottages within 20 feet of a street property line must meet any window coverage requirement that applies to detached single family dwellings in the same zone
Parking: clustered parking design	Off-street parking may be arranged in clusters, subject to the following standards: Cottage cluster projects with fewer than 16 cottages are permitted parking clusters of not more than five (5) contiguous spaces. Cottage cluster projects with 16 cottages or more are permitted parking clusters of not more than eight (8) contiguous spaces. Parking clusters must be separated from other spaces by at least four (4) feet of landscaping. Clustered parking areas may be covered.

Parking: location and access	Off-street parking spaces and vehicle maneuvering areas shall not be located: Within of 20 feet from any street property line, except alley property lines; Between a street property line and the front façade of cottages located closest to the street property line. This standard does not apply to alleys. Off-street parking spaces shall not be located within 10 feet of any other property line, except alley property lines. Driveways and drive aisles are permitted within 10 feet of other property lines.
Parking: Screening	Landscaping, fencing, or walls at least three feet tall shall separate clustered parking areas and parking structures from common courtyards and public streets.
Parking: Garages and carports	Garages and carports (whether shared or individual) must not abut common courtyards. Individual attached garages up to 200 square feet shall be exempted from the calculation of maximum building footprint for cottages. Individual detached garages must not exceed 400 square feet in floor area. Garage doors for attached and detached individual garages must not exceed 20 feet in width.

Parking: Comparison with other codes

The central Oregon code specifically requires a garage, as follows:

There must be a fully enclosed garage for each cottage with a garage door, attached or detached from the cottage, that is sufficient to store an average-size car (minimum 150 square feet) and constructed of similar materials, colors, and designs as the cottage. An individual garage shall not exceed 400 square feet in size and a shared garage must not exceed 1,200 square feet in size. Garages may not take direct access from a street other than an internal private street, alley, or driveway.

In addition to the required garages, cottage cluster developments must provide one communal off-street parking space per five cottages in the cottage cluster development.

Accessory structures	Accessory structures must not exceed 400 square feet in floor area.
Existing structures	**Per OAR 660-046-0205** A Large City must allow for the development of Cottage Clusters, including those created through additions to or conversions of existing detached single-family dwellings **Per LCMC** On a lot or parcel to be used for a cottage cluster project, an existing detached single family dwelling on the same lot at the time of proposed development of the cottage cluster may remain within the cottage cluster project area under the following conditions: · The existing dwelling may be nonconforming with respect to the requirements of this code. · The existing dwelling may be expanded up to the maximum height in subsection (B)(4) or the maximum building footprint in Chapter 1, subsection (B)(1); however, existing

	dwellings that exceed the maximum height and/or footprint of this code may not be expanded. · The floor area of the existing dwelling shall not count towards the maximum average floor area of a cottage cluster. · The existing dwelling shall be excluded from the calculation of orientation toward the common courtyard, per subsection (1)(a) of this section (C).
Conversions	**Per OAR 660-046-0230** A preexisting detached single-family dwelling may remain on a Lot or Parcel with a Cottage Cluster as described below: · The preexisting single-family dwelling may be nonconforming with respect to the requirements of the applicable code; · The preexisting single-family dwelling may be expanded up to the maximum height, footprint, or unit size required by the applicable code; however, a preexisting single-family dwelling that exceeds the maximum height, footprint, or unit size of the applicable code may not be expanded; · The preexisting single-family dwelling shall count as a unit in the Cottage Cluster; · The floor area of the preexisting single-family dwelling shall not count towards any Cottage Cluster average or Cottage Cluster project average or total unit size limits; or A Large City may apply a time limit on the conversion of a single-family dwelling to a Cottage Cluster not to exceed five years.

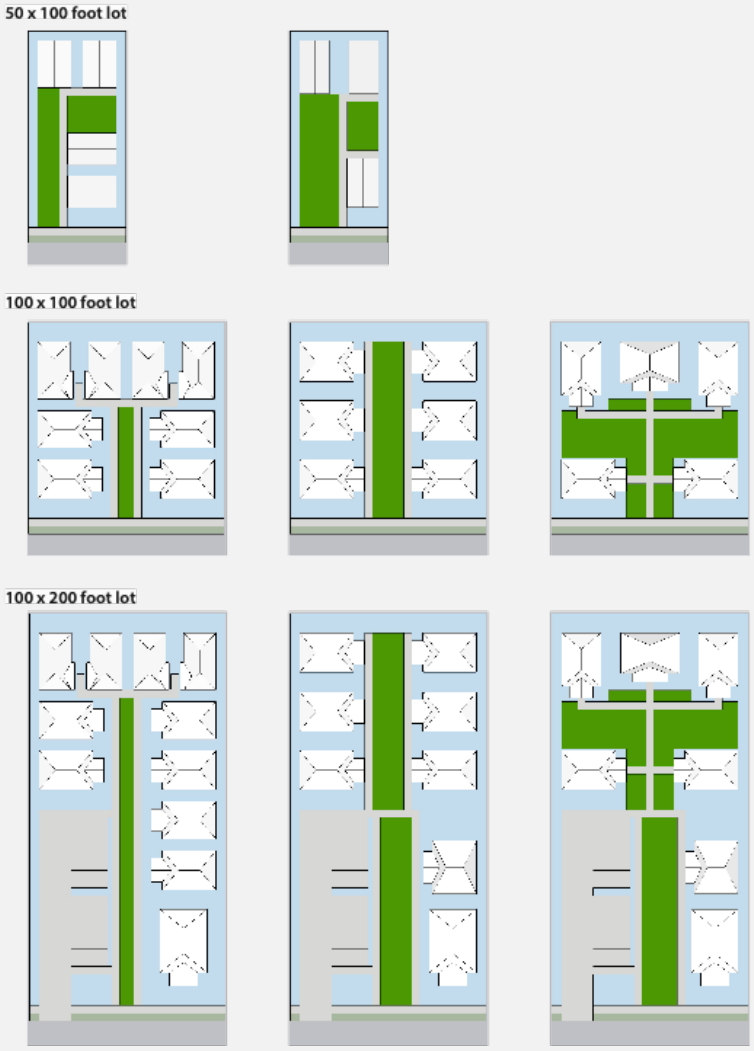
COTTAGE CLUSTER CONCEPTS

The code audit helped to clarify what standards from the OAR and/or the Large City Model Code could be flexible and which standards were required to be applied. As noted in the code audit, the OAR has certain standards that could not be adjusted such as maximum building footprint, minimum setbacks, and maximum parking requirements. Other standards have a degree of flexibility because they are either not regulated in the OAR, such as required street frontage for the common courtyard, or a maximum is set in the OAR and there are opportunities to go with a different numerical standard, provided it isn't more restrictive than the OAR.

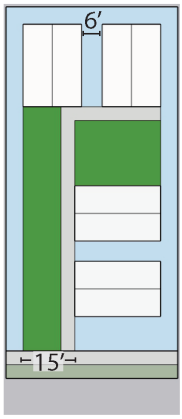
Standards that allow a degree of flexibility include:

- Building separation (within a range of 6 – 10 feet)
- Common open space required square footage per unit (within a range of 150 – 400)
- Minimum common courtyard width (within a range of 15 – 24 feet)

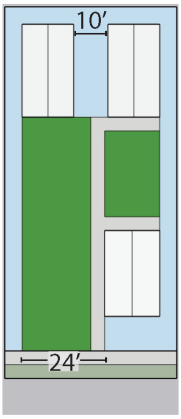
These standards were modeled and tested to see how each variable performed on typical lot sizes ranging from 5,000 square feet to 20,000 square feet.



50 x 100 foot lot



High

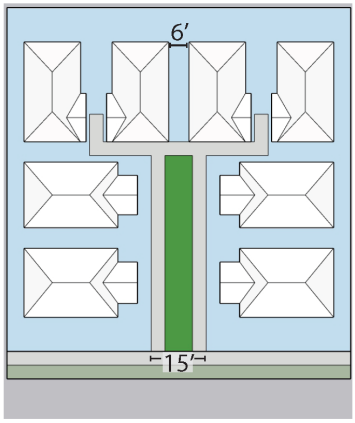


Medium/Low

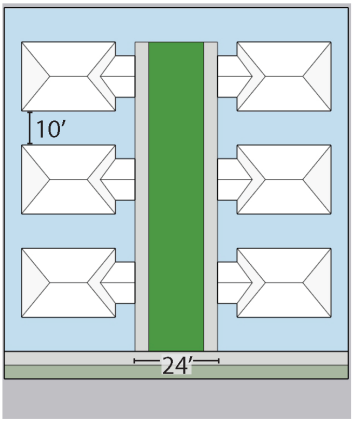
High intensity: using a courtyard width of 15 feet and building separation of 6 feet, **4 units** were achieved. Note, each unit has a footprint of 400 square feet. While the building code allows smaller sized homes, 400 square feet (roughly the size of a two-car garage) is the smallest unit size that was used for these concept scenarios based on real examples of Accessory Dwelling Units.

Medium/Low intensity: using a courtyard width of 24 feet and building separation of 10 feet, **3 units** were achieved.

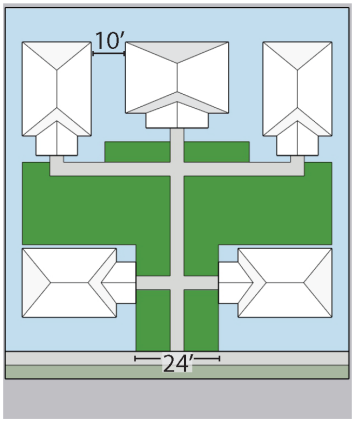
100 x 100 foot lot



High



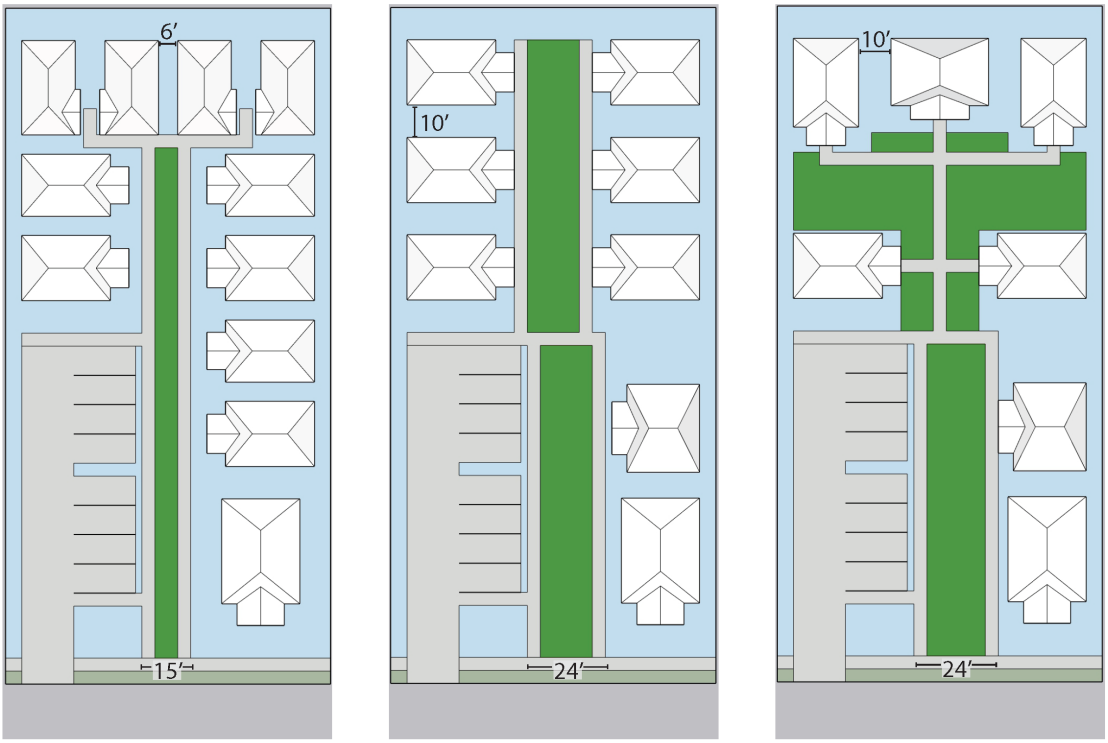
Medium



Low

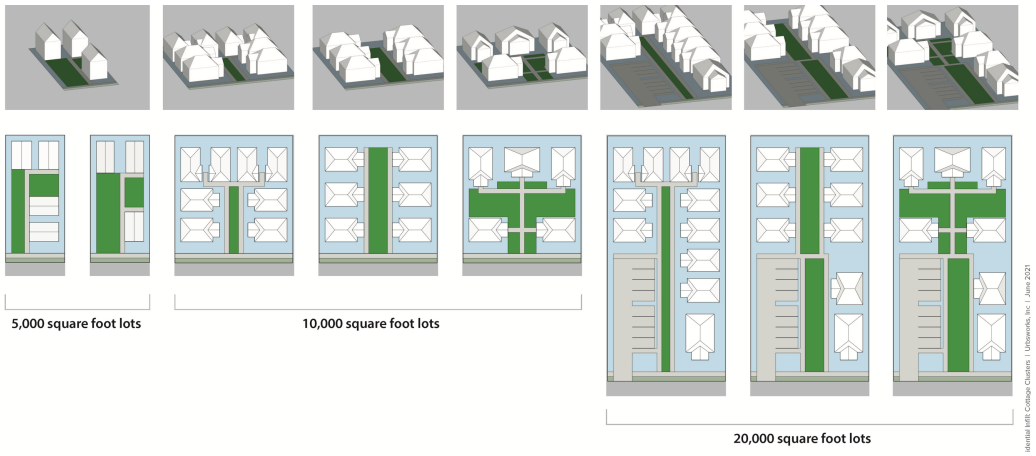
100 x 100 foot lots (10,000 square feet)	**High intensity:** using a courtyard width of 15 feet and a building separation of 6 feet**, 8 units** were achieved. **Medium intensity**: using a courtyard width of 24 feet and building separation of 10 feet, **6 units** were achieved. **Low intensity:** using a courtyard width of 24 feet and building separation of 10 feet, **5 units** were achieved.

100 x 200 foot lot



High | Medium | Low

100 x 200 foot lots (20,000 square feet)	**High intensity:** using a courtyard width of 15 feet and a building separation of 10 feet, **11 units** were achieved. **Medium intensity:** using a courtyard width of 24 feet and building separation of 10 feet, **8 units** were achieved. **Low intensity:** using a courtyard width of 24 feet and building separation of 10 feet, **7 units** were achieved.



Cottage cluster prototypes (Attachment A)

Recommendations for cottage cluster siting and design standards

Standards in the table were tested on different lot sizes and in different cottage configurations. See Attachment A for further detail.

Development Prototype Standards	High intensity	Medium intensity	Low intensity
Setbacks, in feet: Front / side /rear	0 - 10 / 5 / 5 -10	10 / 5 / 5 - 10	10 / 5 / 10
Building separation, in feet	6	10	10
Common open space, required square feet per unit	150	300	400
Common courtyard, minimum width, in feet	15	24	24
Common courtyard frontage on a street	required	required	not required
Footprint per unit, maximum, in square feet	900	900	900
Floor area per unit, average, maximum (square feet)	1,400[1]	1,400[2]	1,400[2]
Maximum height, in feet	25	25	25
Units, minimum	4	4	4
Units, maximum	18	16	8

[1] Per LCMC, The maximum average floor area for a cottage cluster is 1,400 square feet per dwelling unit. Community buildings shall be included in the average floor area calculation for a cottage cluster.

02

DUPLEXES

Introduction to duplexes

An existing conditions report was conducted for low density zones R10 and R20 as an earlier part of this project. Findings from this effort help to inform the proposed duplex concepts for low, medium, and high intensity development. Both the key findings and proposed concepts are described on the following pages.

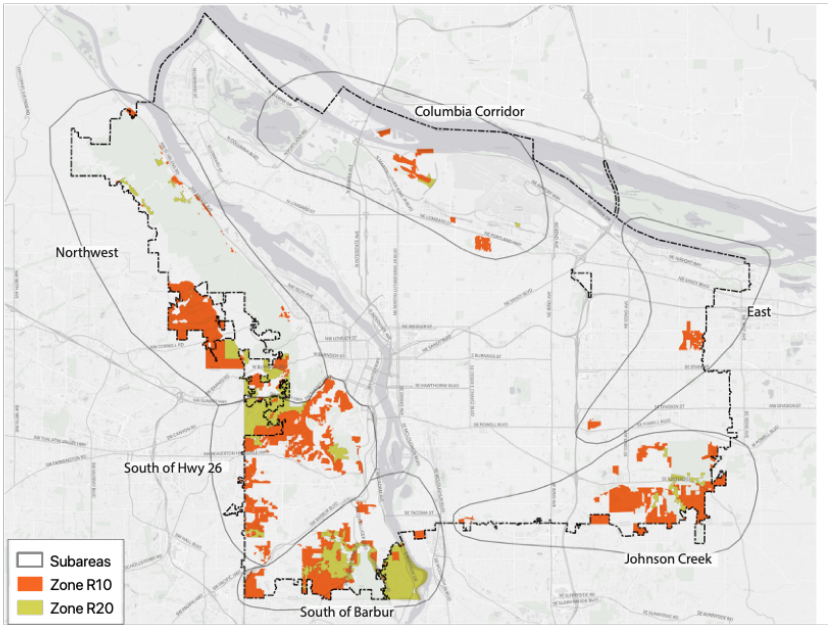
R10 AND R20 LOTS

EXISTING CONDITIONS IMPLICATIONS FOR DUPLEXES

Urbsworks, with support from City of Portland BPS staff, explored existing conditions, opportunities and challenges in R10 and R20 zoned areas. The report addressed demographic characteristics, land use, urban form, housing characteristics, mobility, infrastructure and the environment to better understand the unique issues in lower density zones. See Attachments D (Existing conditions summary) and E (Existing conditions maps and data).

Subareas that were mapped

Six subareas were defined in advance of this project and key findings are organized by these subareas.



6 subareas include:

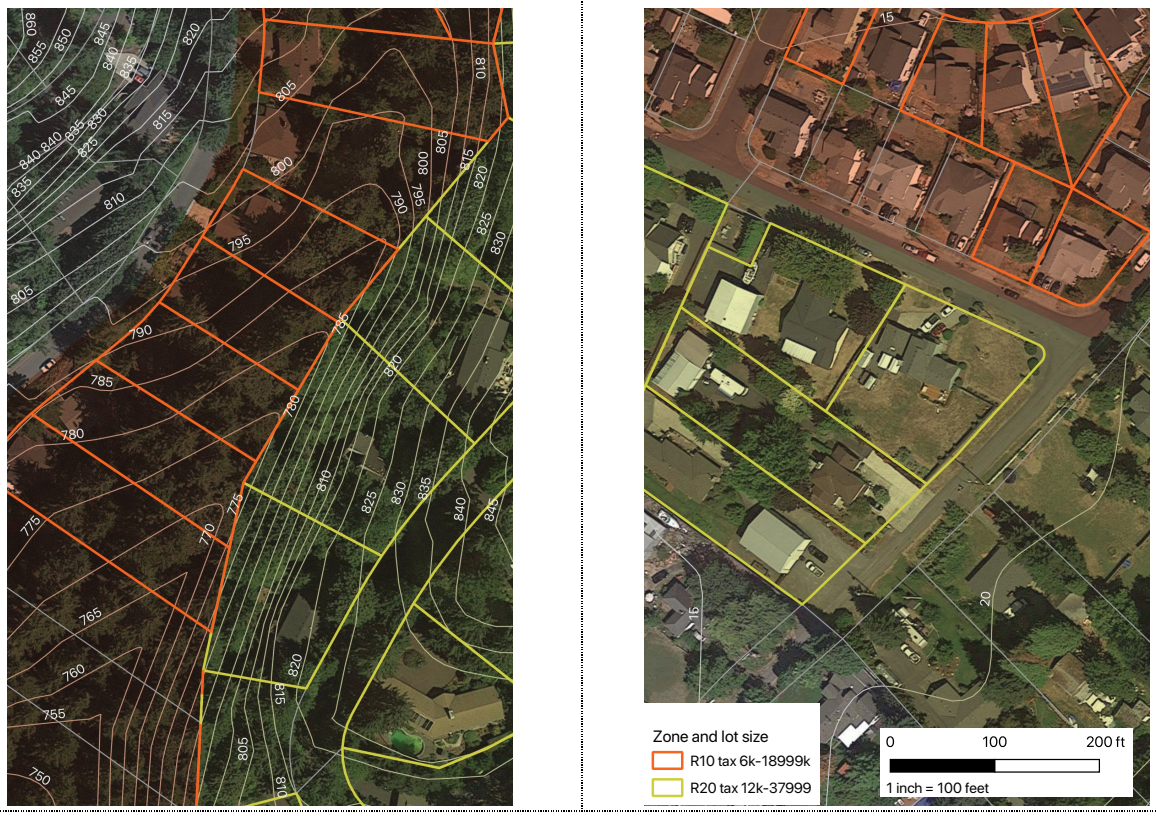
- **Northwest Portland**: from the NW city boundary to Hwy 26
- **South of Hwy 26**: between Hwy 26 and SW Barbur Blvd.
- **South of Barbur**: Southwestern city boundary to Barbur Blvd.
- **Columbia Corridor**: North and northeast near Columbia Boulevard
- **Kelly Butte/Wilkes**: North of NE Glisan Street, along eastern city boundary and areas adjacent to Kelly Butte Natural Area
- **Johnson Creek**: Southeast edge of the city in areas adjacent to Powell Butte and along Johnson Creek

Key findings from the existing conditions report:

- East and west subareas are dramatically different from one another in terms of demographics[1], infrastructure constraints, and topography.
- Generally, east subareas are more racially diverse, have lower income-earners, and lower levels of educational attainment. These areas have a lower rate of home ownership as compared with west subareas, though still higher than the citywide average.
- Generally, west subareas are have more white people, higher incomes, and more people with advanced degrees.

[1] All subarea data is from 2019 American Communities Survey 5-year estimates. Data was collected related to population, race and ethnicity, Income, age, education, housing tenure, and commute mode

- The Opportunity Map from the 2035 Comprehensive Plan categorizes Portland neighborhoods into varying levels of opportunity, scored low to high, based on a number of factors including childhood education, employment, transportation, access to family wage jobs, and healthy eating and active living. All subareas get a low rating on the opportunity scale, likely because these areas are towards the edges of the city and are less likely to be a part of a walkable urban environment.
- There is a significant difference in the economic vulnerability level for the east and west subareas. Using the existing Economic Vulnerability Assessment map–which takes into account four factors of vulnerability including renter households, low-income households, people of color, and lacking four-year degrees–shows west subareas are primarily in the least vulnerable categories, while those in the east are in the two highest levels of vulnerability.
- Infrastructure constraints are more concentrated on the west than the east, though they exist throughout all R10 and R20 areas to some degree.
- Other constraints such as fire access, wildfire risk, and landslide risk are more prominent on the west, since these sites are often steeply sloped, with heavily forested areas.



The image on the left shows R10 and R20 lots in Northwest portland with heavy tree canopy and steep grades.Image on the right shows side-by-side R10 and R20 lots in northeast Portland with relatively flat lots and minimal tree canopy.

DUPLEX CONCEPTS

Summary of duplex concepts

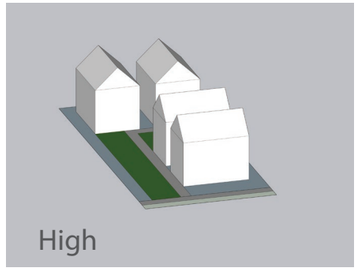
In the following high, medium, and low intensity Concepts for duplexes on large lots, density is defined as the number of dwelling units. These scenarios build from the city's "preferred approach for RIP 2," (City presentation 06/08/21), which among other things, proposes to limit all middle housing types except duplexes in the R10 and R20 zones, and considers some additional standards such as:

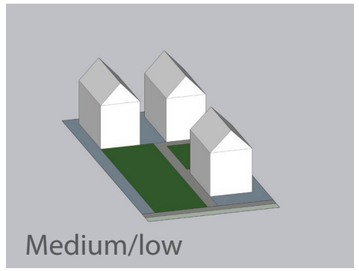
- Maximum building size cap (i.e., FAR, but not to exceed a set amount of square feet).
- Maximum Impervious area
- Maximum parking standards

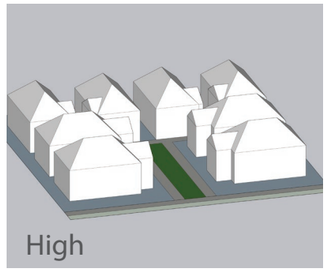
High (following RIP 1 scaled FAR precedent)	**Medium**	**Low** (one FAR regardless of structure type)
Impose an FAR limit which reduces the maximum size of a building, similar to that which will apply to R7, R5, and R2.5 zones. For a duplex the maximum FAR is increased. Consider applying the bonus FAR for affordable units, similar to the way it is granted for the smaller lot zones. In this scenario the FAR is proportional to the other zones. Of the three scenarios, this one potentially results in the highest intensity development, defined as dwelling unit density.	Impose no FAR limitations but impose development standards such as maximum impervious area, or maximum parking standard.	Impose a single FAR limit which reduces the maximum size of a building. No increase in the FAR would be possible, regardless of the number of dwellings. This scenario reduces the maximum building size that is possible, in accordance with Comprehensive Plan policy: "Areas within the designation generally have multiple significant development constraints that may pose health and safety risks if the land were more densely developed." This approach does not incentivize an additional unit.

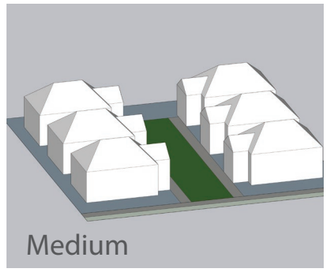
ATTACHMENT A

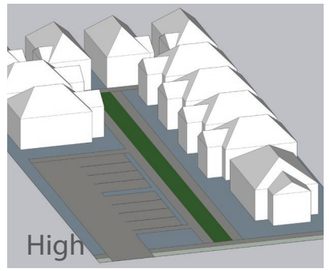
Cottage Cluster Prototypes

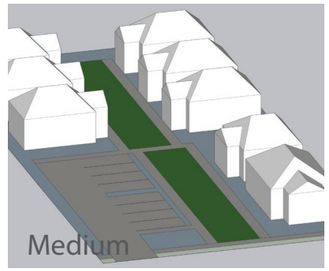


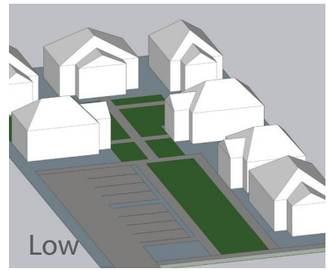


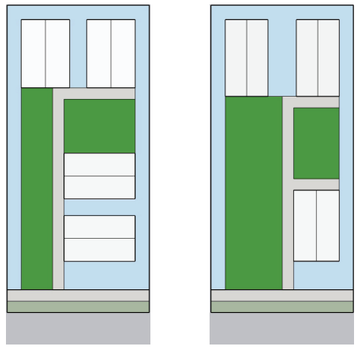


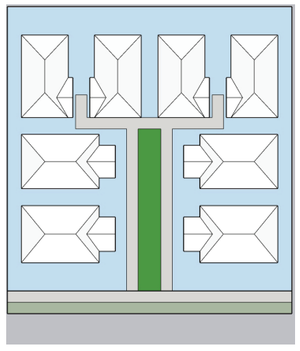


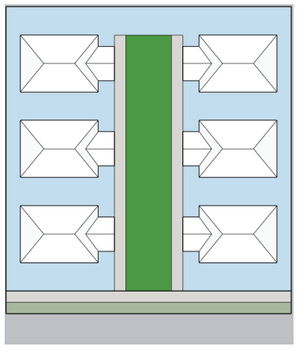


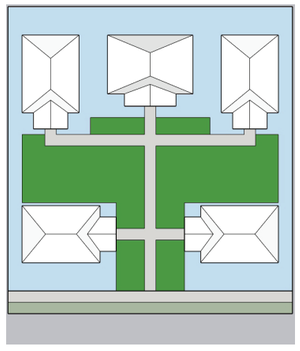






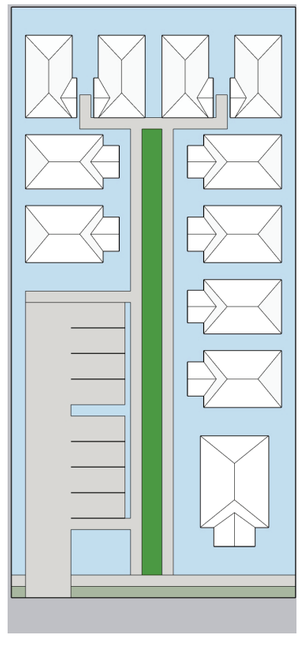


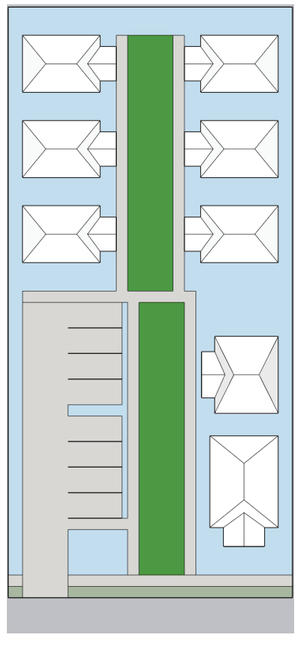


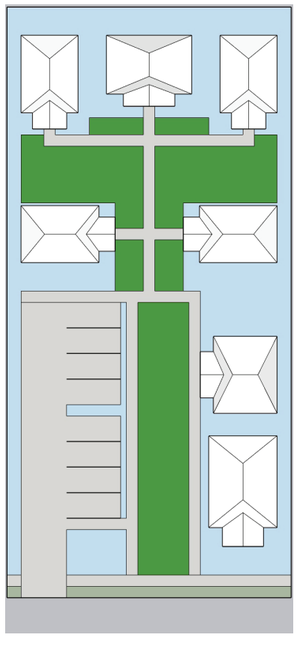


5,000 square foot lots

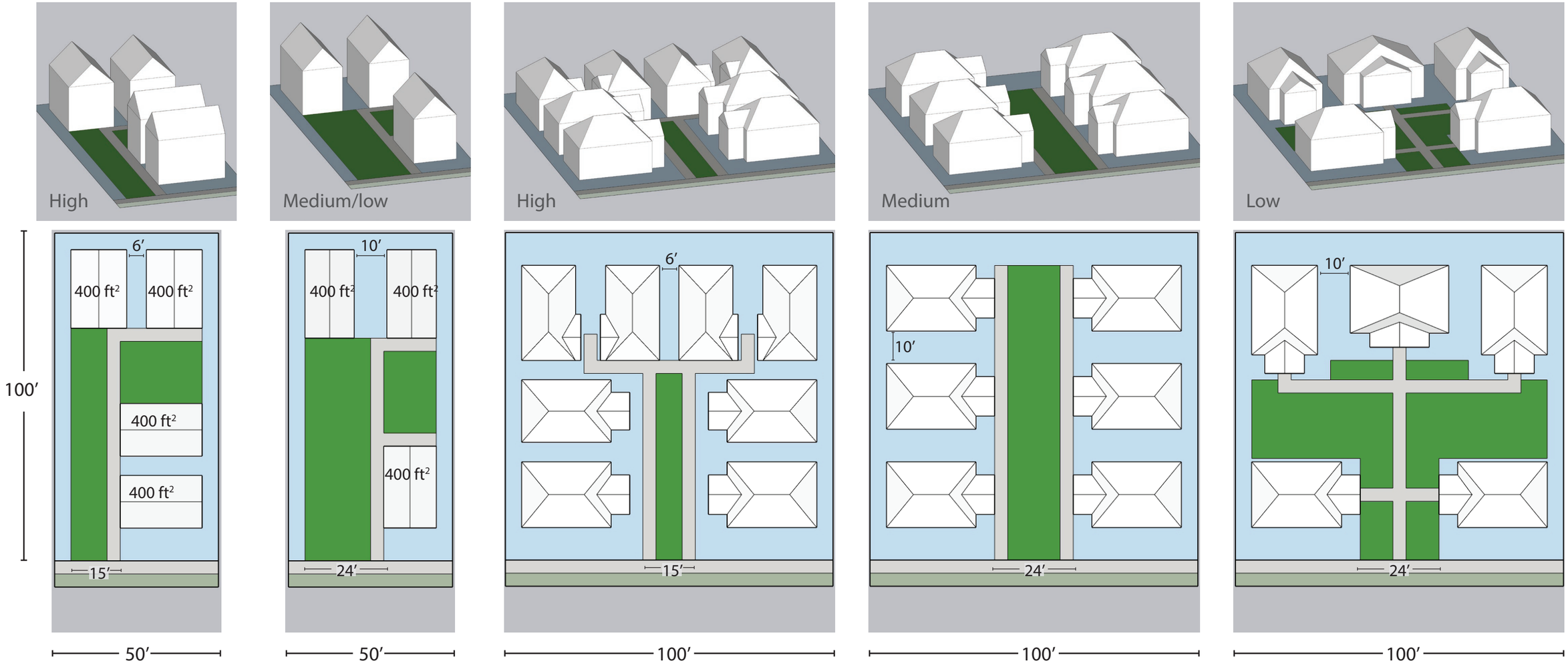
10,000 square foot lots







20,000 square foot lots



5,000 square foot lots

Prototypes show classic 1.5-story contemporary cottages (e.g., small footprint with a loft); both examples use a minimum building footprint of 400 square feet.

High intensity

Using the minimum dimensions, four units were achieved. The courtyard area provides over 400 square feet of courtyard space per unit.

Medium/low intensity

With the expanded dimensions, only three units were achieved and the overall courtyard area provides over 700 square feet of courtyard space per unit.

10,000 square foot lots

High intensity

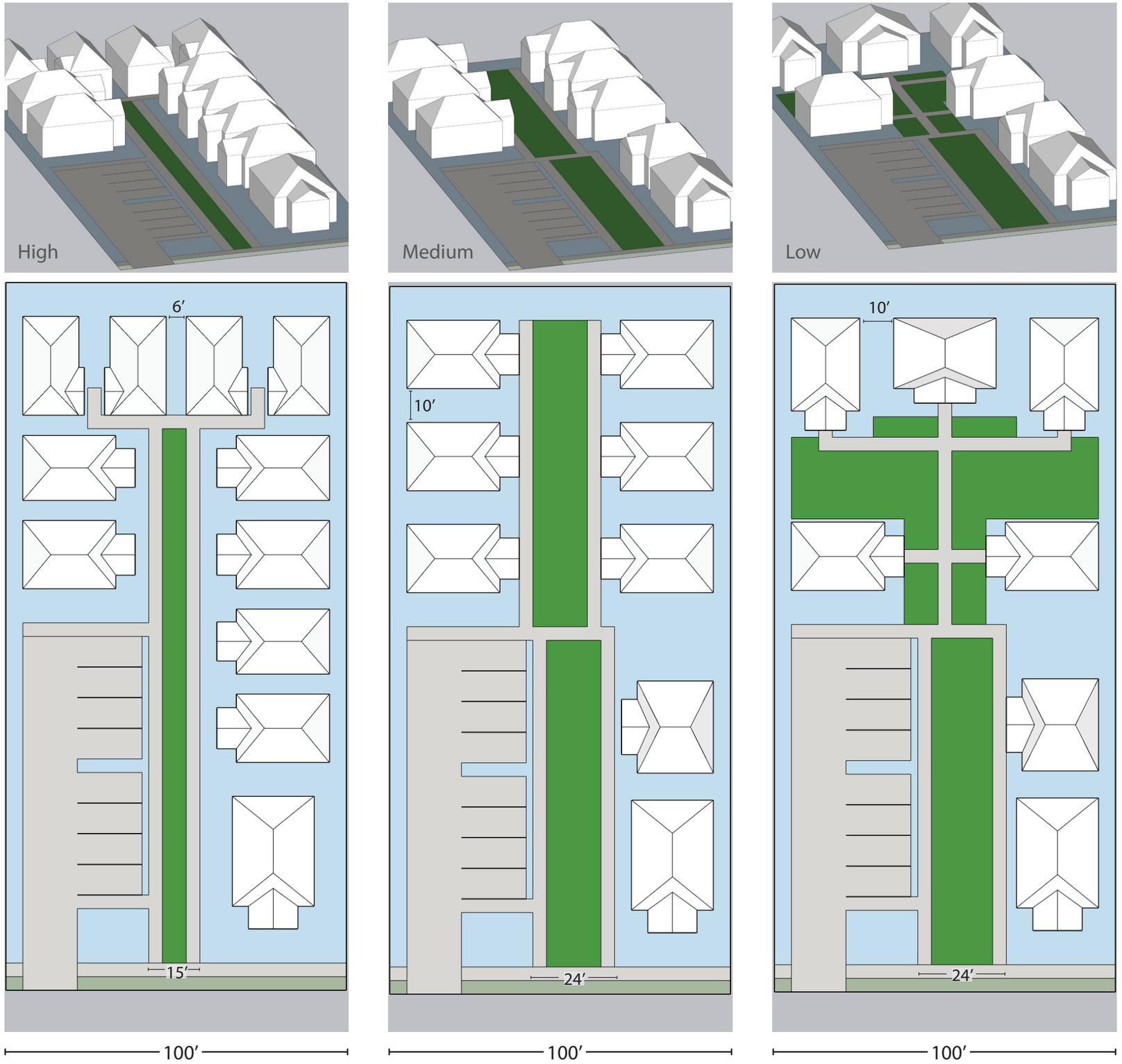
Using a courtyard width of 15 feet and building separation of six feet, eight units were achieved. The courtyard area provides less than 150 square feet of courtyard space per unit (the amount required by the Large City Model Code but not required by the OAR).

Medium intensity

A medium intensity development prototype for cottage clusters, illustrating six detached cottages on a single lot. The courtyard area provides 360 square feet of courtyard space per unit using the expanded dimensions for building separation and courtyard width.

Low intensity

A low intensity development prototype for cottage clusters, illustrating five detached cottages on a single lot using the expanded dimensions for building separation and courtyard width. The courtyard area provides over 625 square feet of courtyard space per unit.



20,000 square foot lots

High intensity
Using a courtyard width of 15 feet and building separation of six feet, 11 units were achieved along with eight parking spaces on site (.7 spaces per unit). The courtyard area provides over 200 square feet of courtyard space per unit.

Medium intensity
Using expanded dimensions for building separation and courtyard width, eight units were achieved. On-site parking is one space per unit. The courtyard area provides over 550 square feet of courtyard space per unit.

Low intensity
A low intensity development prototype for cottage clusters, illustrating seven detached cottages on a single lot. Over one parking space per unit is provided. The expanded dimensions provide a generous courtyard space with over 825 square feet of courtyard space per unit.