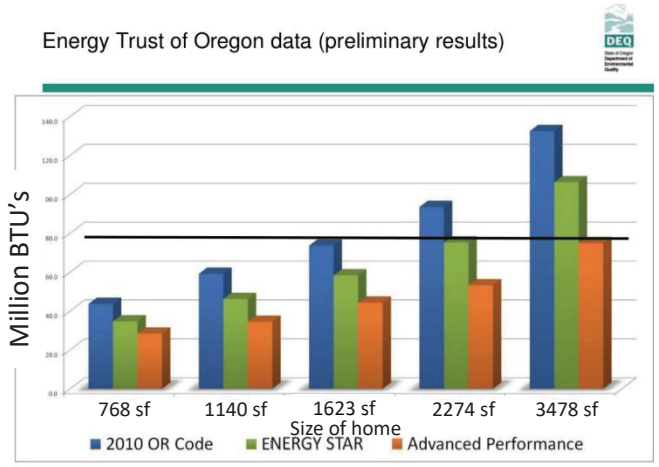
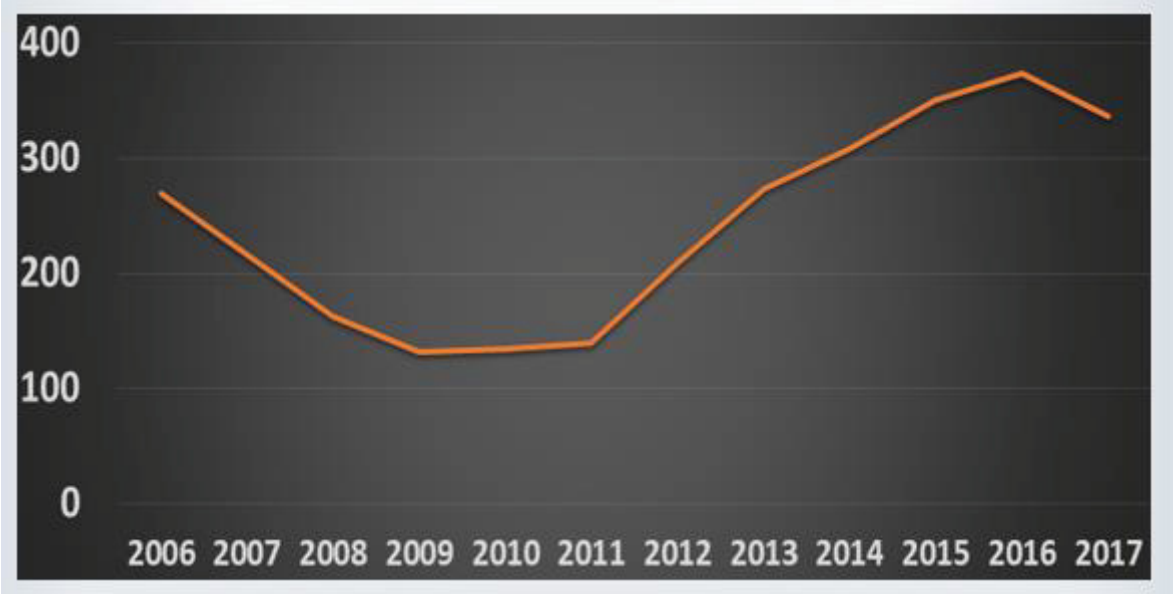
SCALE		
	FAR	
	Would measuring FAR from inside walls help better achieve our home energy goals (by not counting floor area for thicker walls) (Oswill)	Not necessarily. See summary of DEQ's findings: http://www.oregon.gov/deq/FilterDocs/2050-ResidentialGreenBuilding.pdf 1) Of the 30 different material reduction and reuse practices evaluated, ***reducing home size achieved the largest greenhouse gas reductions*** along with significant reductions in human health and ecosystem quality impacts. (emphasis added) 2) Reducing home size by 50 percent results in a projected 36 percent reduction in lifecycle greenhouse gas emissions. 3) Reducing home size can be a significant leverage point to reduce environmental impacts and can be more effective than achieving minimum levels of current "green" certification programs. 4) Reducing home size can reduce the initial cost of the home, utility bills, and cost to maintain/repair the home over time. 5) Wall framing systems that use more materials to conserve energy typically create more waste but have overall benefit due to their energy saving properties.  NOTE: At the 6/7 work session, the PSC indicated support for discounting thick walls from size limits.

	Could we allow existing unfinished attics to be finished even when that would put the house's FAR above the new requirements, effectively grandfathering them in? (Oswill)	FAR does not differentiate between finished and unfinished attic space. It counts based on the ceiling headroom. So long as the ceiling height is not being altered, the FAR is not affected. Alterations that could increase an attics floor area include: raising the entire roof, or putting in dormers or other roof modifications to increase ceiling height.
	The landmarks commission suggests the plan will increase tuck under garages and flat roofed development. Does staff share this perspective, if so what could be done to address? (Oswill)	Factors that encourage tuck under garages include how FAR is calculated. At grade garages come at the cost of more useable living space. Factors that discourage tuck under garages is the additional excavation cost, grade and drainage challenges for the driveway, and the revised height method that uses the low point (which would often be the driveway). Flat roofs are more likely the result of combining the low point for tuck under garages and FAR calculations (though portions of living space under gables would be excluded from FAR.) There are several ways to address this, depending on what the desired outcome is. For example, if flat roofs should be discouraged (or pitched roofs encouraged), then different height limit approaches could be applied. If garages should always be discouraged (tuck under or otherwise), then garages could count toward FAR. If tuck under garages are okay, but broad exposure of the street facing basement wall is the concern, then additional limitations on this exposure could be applied.
	Demolitions	
	Staff response to opponents to RIP assertion that demolitions will increase. (Houck)	The Johnson Economic report notes that with the reduction in allowable building square footage, demolitions are reduced by approximately 22%. As structures are allowed to get larger, this will affect the outputs of this modeling.

	Reducing demolition under the lens of the climate Action Plan and Neighborhood Compatibility is a consideration, but I do not feel that it is a primary goal in and of itself. I would be interested in understanding what percentage of homes have been demolished since the recession and of those how many had true or potential historical importance. (Schultz)	**Single Dwelling zoned house dmeolitions 2006-2017**  Historical Program planning staff estimate that on average, roughly 5 homes of potential historical significance are demolished each year.
	Height	
	Do the examples of height work the same on a sloped lot as flat? If not what is the difference and how much of the city would the difference impact? (Baugh)	There are specific alternative height limits and measurement methods for “steeply sloping lots”. These apply to down sloping lots that have an average grade of 20% or more. The height of the house is limited to 23’ above the average street elevation. For lots with moderate slopes where there is a difference in grade of 10 feet or more between the high and low points around the building, the proposed changes to height measurement do not significantly affect the resulting measurement. Due to the way that average slope is calculated (measured between the lot’s average uphill elevation and average downhill elevation) it is not feasible to calculate how many lots qualify as “steeply sloping”

	HOUSING CHOICE	RESPONSE
	Additional Housing Types	
	R10 and R20 lots have more land capacity to support more than one ADU. Why were they not included in the proposal? (Schultz)	It's not just about land capacity, it's about where public facilities are needed and required. It impacts capital budgets. We are required to have set standards for certain public services, which must be planned and actually provided in tandem with expected growth. This includes paved streets to accommodate projected traffic, sidewalks, transit, water lines, sewers, adequate access to fire stations, schools, parks, etc. The planned density is a careful balance of housing goals against our ability to cost-effectively provide required public services. The RF, R20, R10 zones are mapped in areas where we have determined it is too difficult and too expensive to provide all of these services. Allowing all of the lots in R10 and R20 zones to have several additional units would require a major re-evaluation of public facility plans (the CSP, TSP). Additional density in these areas would likely require identification of new capital projects to serve these areas. Or, if developers were required to pay as they go, the cost of that housing would be unaffordable. Because public facilities plans are financially-constrained lists, it also would require identifying projects that we would take off the list in order to add the new ones. It basically makes no financial sense to put a lot of growth in the hilly R10 and R20 areas. It would be a big drain on the City's finances, and any housing built there would be inherently expensive.

	My biggest priority/concern is with the testimony we heard that the project will lead to 1 to 1 replacements being a financially appealing prospect. I am interested in learning more about the Johnson financial analysis, but if I'm reading the zoning assumptions table correctly, we decreased the value per square foot of duplexes and triplexes much more than we did single family. The end result seems to be a stronger incentive for one to one replacements. Could staff provide an idea of what it would look like to shrink the envelope for SF homes, creating a smaller unit size? If my understanding is correct, this could shift the financial incentive towards creating duplexes and triplexes in place of single family homes. (Oswill)	The comparison you refer to is an *example* proforma, and not representative of all development scenarios across the city. It also utilizes assumptions for "current duplexes" that include higher FAR than what would be allowed by the proposal (.75 vs .5) and for proposed triplexes that are smaller than what would be allowed (.5 vs .65). So what you are comparing is a house that was built to 2,750 square feet now capped at 2,500 square feet with a net reduction in residual property value of ~$2/sf versus a duplex that was 3,400 square feet now capped at 2,500 square feet with a new reduction in residual property value of ~10/sf. In the latter case, the land was worth more because you could build more. In other words, the reduction in residual land values is a function of FAR reductions regardless of product (duplex, triplex, single house). Therefore, if the proposed FAR allowance for a single family structure were to decrease while maintaining the proposed FAR allowance for a duplex or triplex, then the likelihood of development for the duplex or triplex would likewise increase.

	My memory is part of the missing middle rationale was that the biggest (older) house in the neighborhood was a proxy for the scale people were comfortable with and you could put multiple housing units in that shell and not be adversely received by the neighborhood. Parking could still be an issue as more housing units may well result in more cars but we already have multiple cars per single family residential house as young adults renting may get a bedroom, share the common areas, and park in the driveway or on the street. What is the maximum number of housing units the RIP allows within an existing shell and in new construction? (Rudd)	The operating principle for these proposals was to get the scale set an a generally acceptable level, while providing some room for homes to modify and adapt over time. Once we established what was a reasonably sized structure, dividing that space into several smaller units provided more lower cost alternatives than just a single house. The zoning code defines a household as "One or more persons related by blood, marriage, domestic partnership, legal adoption or guardianship, plus not more than 5 additional persons, who live together in one dwelling unit; or one or more handicapped persons as defined in the Fair Housing Amendments Act of 1988, plus not more than 5 additional persons, who live together in one dwelling unit." This is not a great determiner of how many drivers will reside in a house or how many cars the occupant(s) in a dwelling may own. The maximum number of units proposed for a single lot is 3, with the potential for a 4th unit on corner lots when using the affordability bonus option. This is the same whether internally converting a house into a duplex and adding a detached ADU, converting to a triplex, or building new from the ground up.
	Has staff looked at the current state of homeownership opportunities in plexes? In particular are we seeing the condo formation likely necessary for duplexes on one lot to be owned by more than one household? (Oswill)	Condominiums are rare in small plexes, but that is in part due to the low number of small plexes in the city and state. There are a number of other considerations that make condos less popular, such as HOA formation and fees, warranty and liability issues for 10 years, and market preference. In Portland, about 23 percent of the rental housing stock is small multi family, where only 5.5 percent of the ownership housing is small multi family.

	Staff response to Portland For Everyone recommendations which were supported by numerous testifiers and organizations. (Houck)	Generally speaking, Portland for Everyone's testimony is that the proposal is moving in the right direction and their recommendations are to take most of staff's proposals a step further (expand the 'a' overlay further, allow triplexes on mid-block lots, rezone all historically narrow lots to R2.5, etc.) Staff still believes that our proposal strikes the right balance between all the Comprehensive Plan goals, including the policies that call for more residential units close to transit and services and for transitions in scale from higher-density zones to lower-density zones.
	Several pieces of testimony emphasized the need to create fee-simple ownership opportunities. How difficult is this to do with duplexes, ADUs, etc.? Can these be "condoized" or otherwise split to allow fee-simple ownership? (Smith)	Condo platting is already allowed through the State of Oregon. The City does not review condo plat requests. In theory, duplexes and ADUs can be converted to condos, but the practice is not widespread. The easiest and most common way to create fee simple ownership is to partition property (or confirm lots). There are two proposal that facilitate this: - Rezoning ~7000 tax lots from R5 to R2.5. - Allowing small flag lots in R2.5 (which also preserves the front house) The R2.5 rezone proposals are intended to establish clear and transparent expectations of which lots could be split into small lots (generally 2,500 s.f.). These are the areas where small fee simple lots for attached housing is intended. Allowing R5 duplexes and triplex lots to be split: 1) makes them attached houses and not duplexes or triplexes anymore 2) requires a 2 or 3 lot partition, which can be expensive and time consuming 3) is the equivalent as rezoning to R2.5 or "R1.6" (1 unit per 1666 sf of site area).
	Cottage cluster education, what are other cities doing and what is currently allowed? (Smith)	See attached Cottage Cluster Information Summary

	If a house is large enough to accommodate multiple internal units and the only reason we are not allowing that is concern about triggering commercial building code standards, should we be lobbying the state to treat, for example, fourplexes as residential? How much open space would we reasonably retain on a 5000-sf lot if we allowed fourplexes outside the context of internal conversions? (Rudd)	The City has submitted a request to the State Building Official for an exception to the commercial code to allow internal conversions of existing buildings into 4 units or less to be reviewed under the 1-2 dwelling code instead. BPS staff has heard preliminarily that the request is unlikely to be granted.
	I think Rick [Potestio] raises an interesting question about whether we're targeting the right metric. Using bedrooms as a proxy for 'people capacity', scenarios that produce more units, but don't increase the number of bedrooms are presumably just adding bathrooms and kitchens, not overall housing capacity? Do those cases actually detract from affordability? I'd be interested in staff's reaction to this and whether we have any data or modeling that could answer whether: a) there are 'surplus bedrooms' (not used for housing people) out there that would be captured by internal conversions or redevelopment b) the extent to which redevelopment adds bedrooms versus just units (Smith)	Based on PUMS data, the city has approximately 65,000 spare bedrooms (see below). This is somewhat reflective of census trends that show declining household sizes. While cohousing is one way to share housing costs (by sharing one house between multiple households), it represents a very small portion of household preference overall. **Number of spare bedrooms** **2** **3** **4** **5+** **Number of owner-occupied SFR households** 36,430 22,214 5,201 1,435 Source: Portland (PUMAs) 2014-2016, 3-year sample from IPUMS, University of Minnesota. One key objective of the Residential Infill Project is to provide housing choice. With more housing options in neighborhoods, it allows more smaller units so that households can “right size” to suit their particular situation and needs. From a plan review standpoint, stipulating number of bedrooms versus number of units would be a difficult (if not infeasible) code requirement. Another consideration is that spare bedrooms are used for a variety of purposes – guest bedrooms, playrooms, home offices, etc.

	ADUs	
	Is there a reason we should avoid 2 internal ADUs or 2 attached external ADUs? (Oswill)	**Two internal ADUs:** We don't have a policy issue with two internal ADU's, apart from the blurred line between what is a house versus a triplex. Of greater impact is that the state building code considers a house with two internal ADUs to be a triplex. Only in the rare case where the units are arranged in a row side-by-side, could they be reviewed as "townhouses" under the 1&2 dwelling building codes. Meeting commercial construction requirements adds considerable expense for both the materials used, as well as fire protection and increased water service (a separate meter is required for fire sprinklers). This seemed out of reach for most homeowners, and staff did not feel it would be utilized frequently. **Two external ADUs attached to each other:** For two attached external ADU's this creates a yet undefined residential structure type. "Attached detached accessory dwelling units" or "duplex accessory dwelling unit". There are some form considerations including the greater likelihood that this combination of units in a single structure could lead to a large structure that approaches or even surpasses the size of the primary dwelling. There is also the potential for greater privacy impacts to rear yards of adjacent properties. Note: At the 6/7 worksession, about half of the PSC expressed support for any arrangement of ADUs on a property.

	I'd like to see some analysis of economics in two different scenarios. I believe the "residual land value" approach primarily captures the scenario where a developer is going to acquire a property for redevelopment/enhancement. But it seems to me another potentially important scenario is a homeowner who wants to extract additional value from their property via one or two ADUs or an internal conversion. It seems to me the economic choices are very different if you already own the property and are perhaps considering financing via home equity? (smith)	Refer to Seattle's draft EIS: http://www.seattle.gov/Documents/Departments/Council/ADU_DEIS_2018.pdf Also, see responses to the economic questions pertaining to ADUs, below.
	Let's keep it simple, particularly for home-owner driven redevelopment. Making ADUs more complex or restricted is not a good thing. I'm also concerned that BDS has concerns about their ability to enforce the FAR-driven approach. (Smith)	The distinctions between living area and floor area were addressed in the previous staff responses. Note: At the 6/7 worksession, 8 members of the PSC expressed support to remove the proposed .15 FAR size limit restrictions on detached accessory structures, thereby retaining current size limit restrictions for detached ADUs.
	Testimony mentioned waiving SDC fees in internal ADU conversions. Is this an option? (Oswill)	City Council can determine policies for application of SDCs and wiavers. SDC's were outside the project scope.
	What is the percent of new homes built with ADUs? (Spevak)	About 10% of new single family homes built in 2017 included an ADU.

	Visitability	
	Will there be challenges building visitable units on lots with high slopes? (Oswill)	There are 4 key visitability requirements. Three of these affect interior aspects of the home (visitable living area, bathroom, hallways and doors) and are not adversely affected by lot topography. The visitable entrance requirement calls for a no step path between the street and the front door that doesn't exceed a 10% grade. There are two exceptions to this standard. Lots with an average slope of 20% or more (a consistent threshold for exempting other zoning code standards), and for units added to existing structures.
	Testimony mentioned adding 2 inches to door width for visibility. Can staff illuminate this conversation point? (Oswill)	Universal design principles call for 34 to 36 inch wide doors. Wider doorways better accommodate people in mobility devices, but also can increase room sizes for needed clearances.
	I'm concerned that "visitability" may not be enough to support our goals for aging in place, etc. I'd like to see us look at Universal Design as a standard. I'd like to understand the cost per unit to achieve visitability versus Universal Design (Alan DeLaTorre suggested he had such data). We should consider supporting the higher standard with bonus FAR. (Smith)	Visitability is a baseline standard to address some of the most expensive attributes when retrofitting a home for increased accessibility. Universal design is much more involved and addresses entrances (including covered ones), interior circulation, vertical circulation, light and color, hardware, switches and controls, home automation features, plumbing fixtures, bathrooms, kitchens, laundry, storage, windows, decks, and garages. See also attached documents – Universal Design Note: At the 6/7 worksession, the PSC expressed support to remove proposed covered entry requirements for additional units and ADUs. This is one of the many features listed for universal design.

	Affordability Bonus	
	What options exist for adding a bonus unit for affordable housing on interior lots? (Oswill)	The Commission may decide to allow a bonus unit on interior lots. Staff revised its initial proposal to remove 4 units from interior lots based on a concern about the necessary FAR to make 4 units workable, and how these units would orient to the public realm. Triplexes are only proposed for corner lots and not on interior lots. This larger single primary structure works better on corner lots since these lots effectively have two street frontages, which mitigate and work well with the larger building by providing more light and air separation on two sides as opposed to one. The greater street frontage also provides for more on-street parking in addition to enhanced opportunities for units to orient to the public street in a way that is more characteristic of older Portland neighborhoods. Triplexes on interior lots are more difficult to integrate and design successfully and are not allowed in this proposal. They frequently result in rows of units that face the neighboring property and turn sideways to the public street. See attached documents for additional rationale for capitalizing on corner lots .
	Is the requirement that each additional housing unit on a property must be rented or sold to someone earning less than 80% of MFI feasible? Will the affordability mandate undermine the goal of creating more units and diverse types of housing? (Bachrach) The affordability requirement was one of the chief concerns raised by BDS. The Bureau recommends using existing subsidy programs instead of introducing new requirements. (Bachrach)	There is no affordability ***requirement***. There is a ***bonus*** provision that allows an additional unit (+some additional FAR) if one of the units is affordable. An alternative bonus provision is the allowance for additional FAR if one of the three units is affordable. When applicants take advantage of either bonus, they will be utilizing a program similar to that established for inclusionary housing.

	Historic Incentives	
	Can homes in historic districts use the 'a' overlay? If a new historic district was formed, how would this effect use of the overlay? (Oswill)	Yes, the overlay includes additional flexibility (triplexes, 2 detached ADU's, combined site FAR) for historic properties to add units. Depending on the degree of exterior alteration proposed and type of historic resource, historic resource review may be required. Newly formed historic districts would be treated the same as existing districts.
	As pointed out by BDS, it is problematic to use the Historic Resource Inventory (HRI) as a regulatory tool because the inventory was adopted more than 20 years ago and was intended only to be informational. (Bachrach)	We agree that the HRI needs to be updated and understand wasn't created with the intention of being a regulatory tool. To the extent that the proposal can offer voluntary incentives to encourage HRI home retention, this is not problematic. An issue with the language as proposed is that the alteration limits for HRI sites are currently mandated, and not tied to when the additional incentive flexibility is being used. Staff will introduce an amendment to rectify this inconsistency.
	Displacement mitigation	
	The Meg Merrick submittal has a map of renter occupied single family housing. Is the map correct? (Rudd)	The method of using tax assessor mailing address information as a proxy for rental units has a high margin of error. A more reliable dataset is the Comprehensive Housing Affordability Strategy (CHAS) from the Census Bureau. The CHAS data was used as one of four vulnerability factors when determining displacement risk areas. The other vulnerability indicators are race, income, and education attainment, with a specific focus on the intersection of race and the other three factors.
	Does the Cully Neighborhood letter make any difference in thinking about including all of Cully in the overlay? Is staff more inclined to add in parts of Cully, knowing that programs are already in place for that neighborhood. (Larsell)	Cully was advocating for expanding the affordability bonus (4th unit) to all lots, not just corner lots, and to allow the affordable bonuses to be made available to more properties (notably those not in the proposed overlay). Cully may be better positioned than other areas of the City with the organizations that are operating there; however, BPS staff has not evaluated these organizations for how effective they can mitigate potential displacement pressure.
	NARROW LOTS	
	I'm not convinced yet that we have the balance on skinny lot zoning correct yet. I agree that rezoning to R2.5 is the correct transparent way to do this, but I'm not I'm fully convinced that the subset of lots where we've chosen to do this is correct. (Smith)	The methodology that staff applied is described in Volume 1 of the staff report, see pages 52-55. We can discuss this as part of the narrow lot work session.

	PARKING	
	Preserving the street. I took the comments about tuck-under garages and wide curb cuts/driveways with 'wings' to heart. I'd like us to put a premium on minimizing curb cuts and preserving streetscapes. (Smith)	We will be exploring this issue in conjunction with a PSC/PBOT subcommittee.
	MISCELLANEOUS	
	Short-Term Rentals	
	On short term rentals, could there be a comparable program to the SDC waivers for ADUs that incentivizes using duplexes and triplexes for long term rental instead of short term rental? (Comment ID #27333) (Oswill)	We have not evaluated SDC waivers as an incentive for production of additional units under RIP. There have been some changes in SDC structure for parks and PBOT that recognizes the distinction between smaller and larger units. SDCs for water and BES are based on fixtures which are typically fewer in smaller units. Parks SDC's differentiate for units less than 700 s.f.; 1,200 s.f., 1,700s.f. and 2,200 s.f. and larger PBOT SDC's differentiate for units less than 1,200 s.f. ADU's are exempt from BES sewer, Transportation, and parks SDC's if not used as ASTR Projects receiving waivers from the Housing Bureau are exempt from SDC's Other modifications to the SDC structure would need council and bureau concurrence.
	Why are vacation rentals not prohibited, as a strategy for affordability? (Baugh)	Full house vacation rentals are only allowed with a conditional use permit. Accessory short-term rentals (up to two bedrooms) are allowed with a simplified permit, with the condition that the primary unit remains the dwellers' primary residence. This acts to prevent homes from being fully converted to short term occupancies, while continuing to allow flexibility for owners to utilize additional space on a less regimented schedule (As opposed to a full-time roommate). In addition, a portion of the transient occupancy tax collected in conjunction with Accessory Short Term Rentals is paid to the affordable housing fund.

	Reducing Costs	
	Has staff discussed developing a construction cost reduction strategy? It would likely be a separate project, but it seems construction costs are becoming the largest barrier to BPS's Housing plans, what more could the City do to address this challenge? (Oswill)	Would this include costs outside the permit and impact fee realm? There are hard costs and soft costs in construction: Hard costs are related to the building's structure, the site and to the landscape. All labor and materials required for construction are included in hard costs. In terms of the building site, all utilities, life safety systems and equipment, HVAC systems, paving, grading etc. are considered hard costs. Generally, hard costs are more tangible and therefore easier to estimate. The range of hard costs varies widely. Soft costs are any costs that are not considered direct construction costs. Soft costs include everything from architectural and engineering fees, to legal fees, pre- and post-construction expenses, permits and taxes, insurance, etc. Depending on the project, soft costs can also include expenses that continue after completion such as building maintenance, insurance, security and other fees associated with the asset's upkeep.
	Economic Questions	
	I'd like to see some analysis of economics in two different scenarios. I believe the "residual land value" approach primarily captures the scenario where a developer is going to acquire a property for redevelopment/enhancement. But it seems to me another potentially important scenario is a homeowner who wants to extract additional value from their property via one or two ADUs or an internal conversion. It seems to me the economic choices are very different if you already own the property and are perhaps considering financing via home equity? (Smith)	If an ADU costs $250/sf to build and the ADU is 700 square feet, the ADU costs a total of $175,000 to build. For a homeowner with enough home equity to access a line of credit HELOC) (20-year fixed at 6.49% APR) for $175,000 would be a $1,300 monthly payment. Increased property taxes would be approximately $125/month for the new ADU. The homeowner would need to charge $1,425/month in rent to break even. Recent research from the Portland State University Institute for Sustainable Solutions (ISS(found that 48% of long term rental ADUs in Portland have been self-financed through cash savings and 23% have been financed by home equity lines of credit. Additionally, access to home equity is closely tied to how long a home owners has owned the home. The ISS research found that 49% of home owners with long term rental ADUs have lived in their neighborhood for more than 10 years. Costs for internal conversions vary widely but are on average range from $125 to $250 per square foot. The biggest cost increase for internal conversions occurs when a structure is converted to three or more units and is required to renovate to a commercial building standard.

	I would like staff to go through the economics and likely impact of the non-profit requests for more density. Also many homeowners were claiming this would move us in the entire other direction. They were claiming demolition of modest homes to put two smaller houses that are high priced. They had some examples. Does the math work at all or are these unicorns? In some neighborhoods? Which neighborhoods? (Larsell)	Non-profit affordable housing developers are able to bring more affordable units to market at lower overall costs when efficiencies can be increased by allowing more units on the same parcel. The price at which an existing structure can be purchased for redevelopment and the new replacement residential units is highly variable across neighborhoods in Portland. New construction units in high value neighborhoods will be more expensive because they demand a cost premium above lower value neighborhoods. The same development type in two different neighborhoods will results in two very different supportable acquisition prices for existing structures for redevelopment and very different supportable sales values for new units in different neighborhoods.
	How sensitive are single family neighborhoods to the economics? Does the RIP have to get it just right? or is there slop. Economic conditions will change continually. What, in the economy, would need to change to make RIP ineffective. IE, very few people use it to build anything, or Everyone uses it to demolish and build everything. (I found it really interesting that a lot of homeowners were not even charging for their ADU's -- made me wonder how much economics is a driver) (Larsell)	The four biggest variables that could change and impact utilization of the RIP proposal are achievable sales prices/achievable rents, construction costs, land costs and interest rates/lending costs. These variables can change over time and thus make utilization of the RIP allowances more attractive or less attractive depending on which variable change and how much.
	The Johnson Report details which pro and con argue will either doom RIP to failure or won't achieve what RIP purports to accomplish. (Houck)	The updated Johnson Economics Analysis from March 2018 finds that the outcome of the RIP proposal falls right in the middle of some of the comments that PSC has heard. These findings indicate that there would be a net increase of 1,713 new residential units (31% increase above current zoning allowances), less demolitions and one-for-one replacements (22% less demolitions compared to the current zoning allowances), and that when units are delivered they will be at a lower price point (35% less than current zoning allowances) due to the limitations on scale and unit size.

	It seems to me RIP most strongly responds to the Comp Plan goals associated with providing diverse housing opportunities and I support that as a main objective/goal with housing affordability as the second strongest goal of the proposal – but housing affordability within the lens of creating more housing as a piece of the puzzle that reduces the pressure on truly affordable units. I look forward to the presentation on the economics to better understand what adjustments could be made to the proposal to encourage more production. (Schultz)	Increases in FAR allowances is the biggest variable if the goal were to achieve more housing production. However, as FAR allowances increase unit sizes also increase which increases the overall price of those housing units.

	Musing on Equity Analysis I'm trying to sort out in my own mind how the benefits and burdens of these potential changes land in the community, and would appreciate feedback from my colleagues and staff about the following ideas:	
	1. Home ownership in this country has been a large engine for wealth generation and has historically been limited to certain segments of the population by a number of tools including redlining. The current status is not equitable and single-family zoning by its nature is exclusionary. In the long term adding middle housing should reduce this inequity.	1. Allowing more middle housing *could* reduce inequities and lead to more intergenerational wealth creation. The ability to purchase a home to generate wealth is still subject to lending standards. Low down payment loans and first time home ownership resources and programs are an important piece to this puzzle.
	2. Despite the concerns about impact to neighborhood character and quality of life expressed in testimony, I'm pretty confident that the net effect of middle housing zoning changes will be to increase property values in the affected zones due to increased development rights. This exacerbates inequity in the short term.	2. The impact of the RIP proposal is more nuanced than this. The proposal is actually a reduction across the board in terms entitlement and development rights. The biggest driver "value" in development rights in the impacted zones is total allowable building area, not necessarily the amount of units allowed. However, the Johnson Economics analysis indicates the middle housing allowances in the 'a' overlay and R2.5 zones does indicate a higher value than those parcels outside the 'a' overlay but still lower than the current allowances.
	3. Middle housing redevelopment opportunities also create displacement risk for the lowest income renters, further exacerbating current disparities	3. This risk is most significant in areas with higher shares of renters in single family structures in neighborhoods with markets that support new construction of this development type. The level of displacement vulnerability is still a factor of race/ethnicity, income, education attainment, as well as tenure. In other words, renters in general are at increased risk based on the fact that they are not in charge of the property owner's decisions related to property redevelopment. However, some renters have a greater ability to find other housing without being displaced.

	4. On the plus side, middle housing should create new housing opportunities, probably mostly in the 80%+ MFI range. From an affordability perspective this is more valuable than multi-family development which is adding units at the top of the market. It presumably also helps push down the price of units lower down in the market to some degree. 5. To the extent that the affordability bonus is used, we're creating units at the 80% MFI point, with similar impacts on the overall market. So net, I see: • long term policies that are more equitable • short term impacts that exacerbate inequities at the top and bottom of the income spectrum • short term impacts with favorable benefits in the middle of the income range, somewhat trickling down to lower income strata I look forward to feedback on this thinking, particularly on how to weigh these in combination. (Smith)	4. The Johnson Economics analysis finds that development of the RIP development types (1,250 square foot unit) is most likely to occur in the 100%- 120% MFI levels for a family of three, or $358,000 to $392,000 per unit. Current median home sales are approximately at the 140-150% MFI level.

	If the economics study shows the RIP will not result in substantial amounts of additional housing, why adopt the provisions for additional duplexes, triplexes etc. rather than focusing on supporting internal conversions and external ADUs? (Rudd)	The economic study did not factor in ADU or internal conversions into the model: "The code increases the allowance for Accessory Dwelling Units (ADUs). While this is both expected to marginally increase the yield on redevelopment, and encourage more residential development at a lower price point, the analysis does not factor this in. While we recognize that these units have seen market acceptance to-date, we feel that projecting the utilization rate of these allowances cannot be reliably done at this time." – Johnson Economics Report
	Floodplains	
	I'd like to know more about the regulations pertaining to floodplain construction (Schultz)	The city regulates development in the floodplain primarily through its building regulations found in Chapter 24.50 of city code. New construction and substantial improvements must be built such that the lowest floor including a basement is elevated at or above the flood protection elevation (typically the base flood elevation plus two feet of freeboard). Fully enclosed areas below the floodplain are prohibited. Areas below the floodplain must allow the free flow passage of water. Land divisions are restricted and lots must be located outside the flood hazard area or provide for building sites that are outside the flood hazard area. All new fills below the base flood elevation shall be accompanied by an equal amount of excavation on the same site so that the storage capacity of the floodway and floodway fringe is retained. In the Johnson Creek flood zone area mitigation payments are allowed. In the flood risk area, payments are not allowed and building sizes are restricted (120-300 sq ft.) See also Land Divisions in Flood Plain information

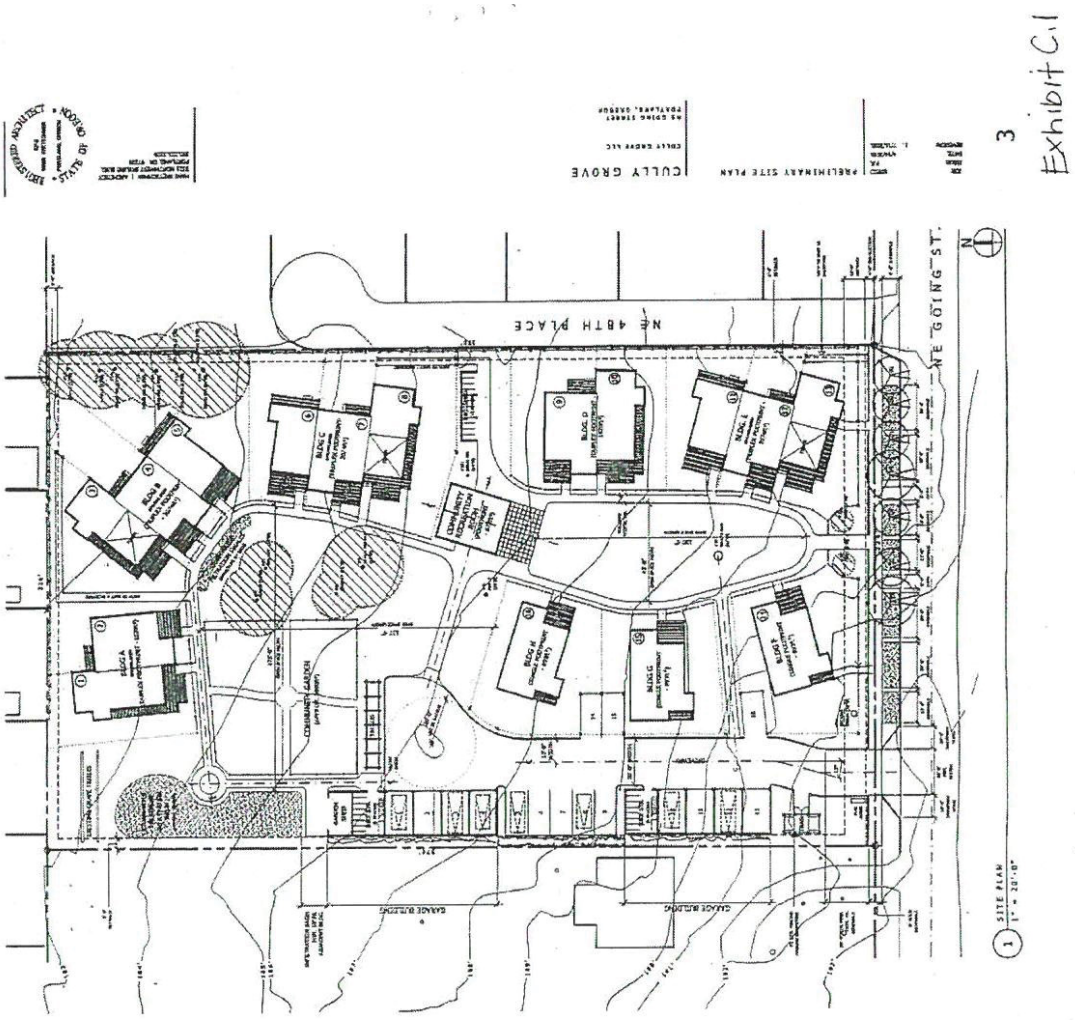
Attachments:

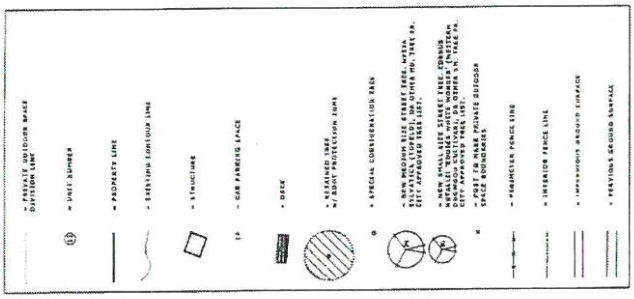
1. Cottage Cluster Information Summary
2. Universal Design and Visitability
3. The Magic of Corners
4. Land Divisions in Flood Plains

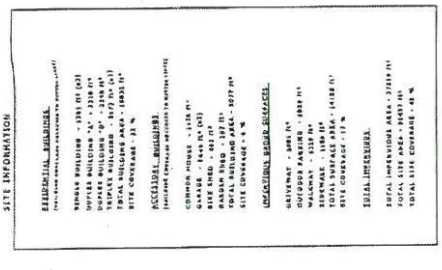
COTTAGE CLUSTER PRECEDENTS

Cully Grove 4745 NE Going St

- LU 10-148328 PD
- **16 units**: attached and detached condo
- **R5**

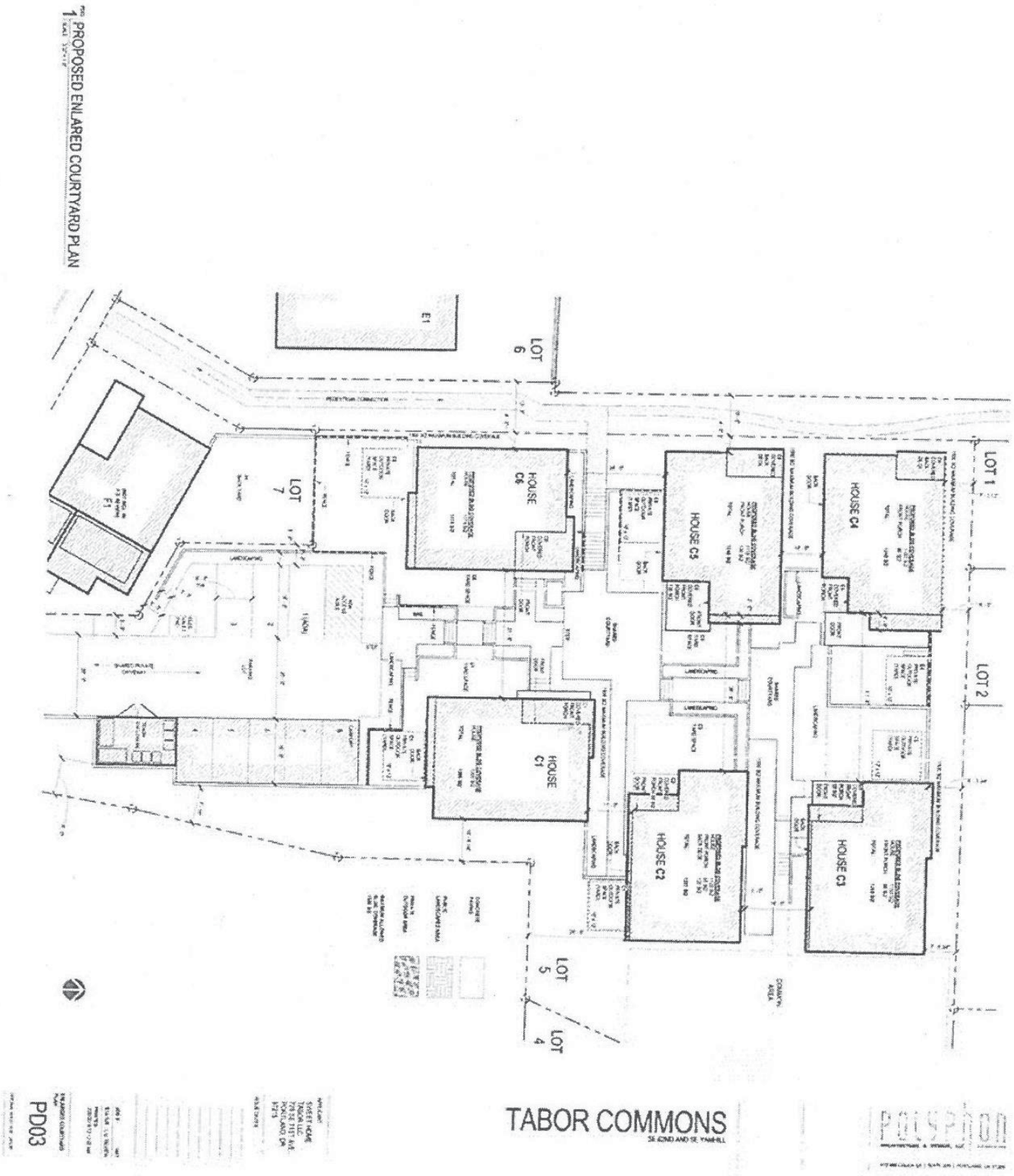






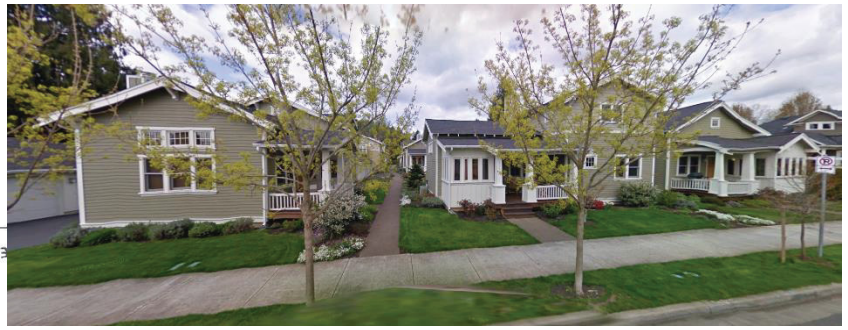
Tabor Commons 6200 SE Belmont St

- LU 15-188948 LDS PD, AD
- **6 units**: detached condo
- **R2, R5**

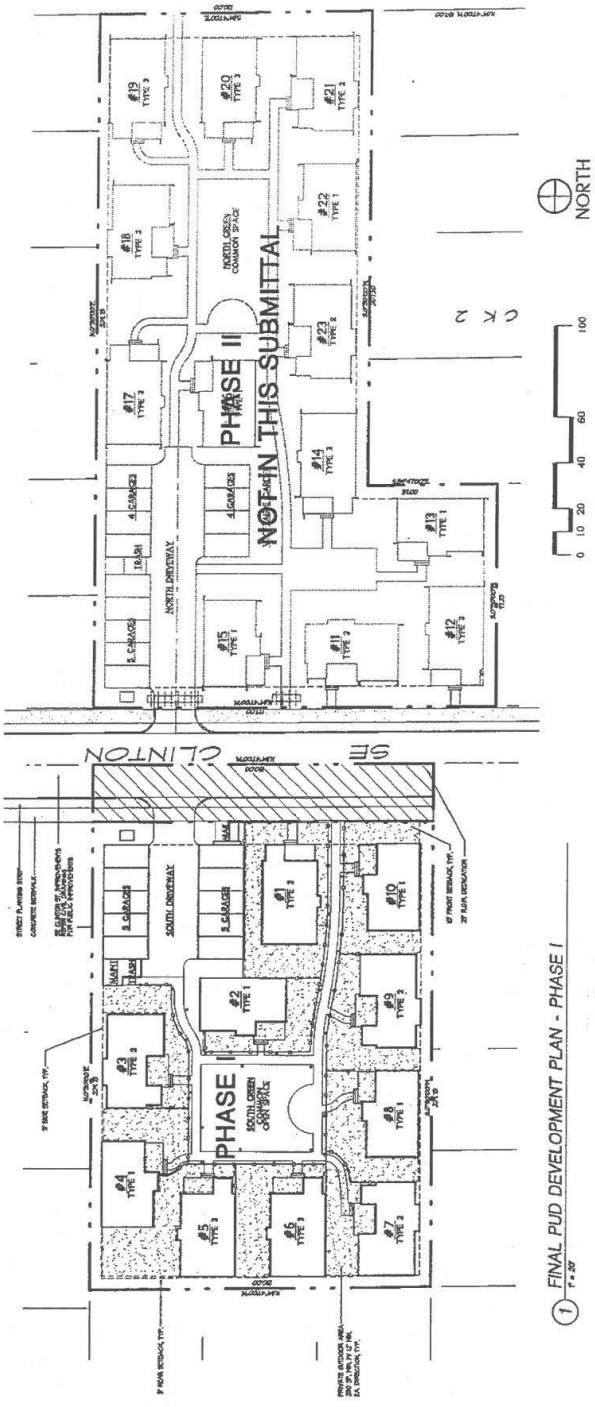


Hastings Green 7021 SE Clinton St

- Reference #: LUR 01-00393 (PU AD)
- **23 units**: detached condo
- **R5, R2.5**
- 1,000 to 1,300 square feet each and 1-1/2 story



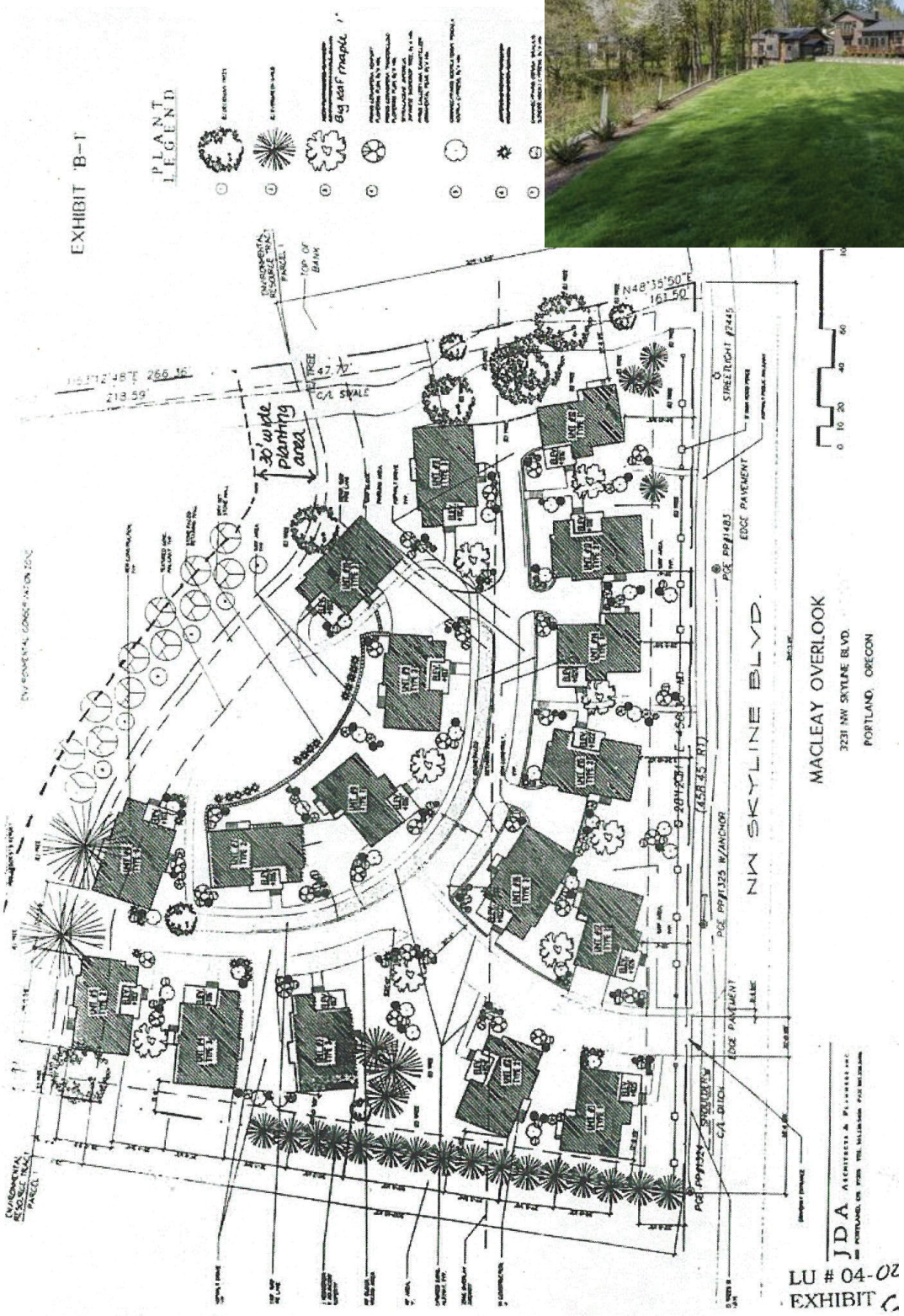
HASTINGS GREEN
PHASE I FINAL PUD DEVELOPMENT PLAN



FINAL PUD DEVELOPMENT PLAN - PHASE I

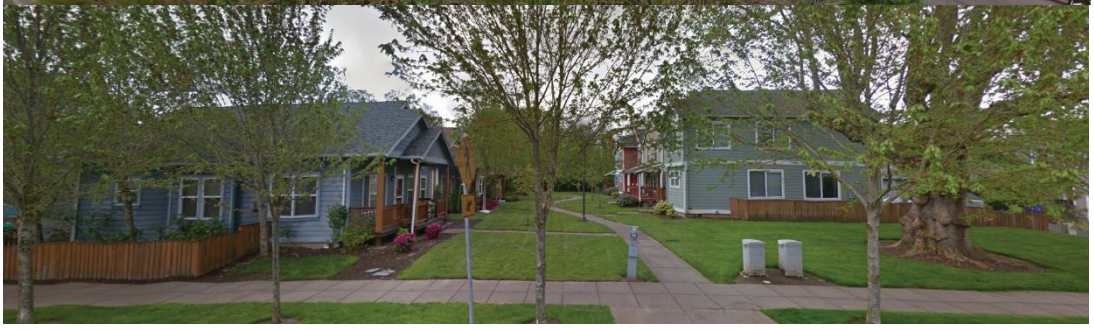
Macleay Overlook 3231 NW Skyline Blvd

- LU 04-023556 PD ZC
- **17 units**: detached
- **R10** (rezoned)



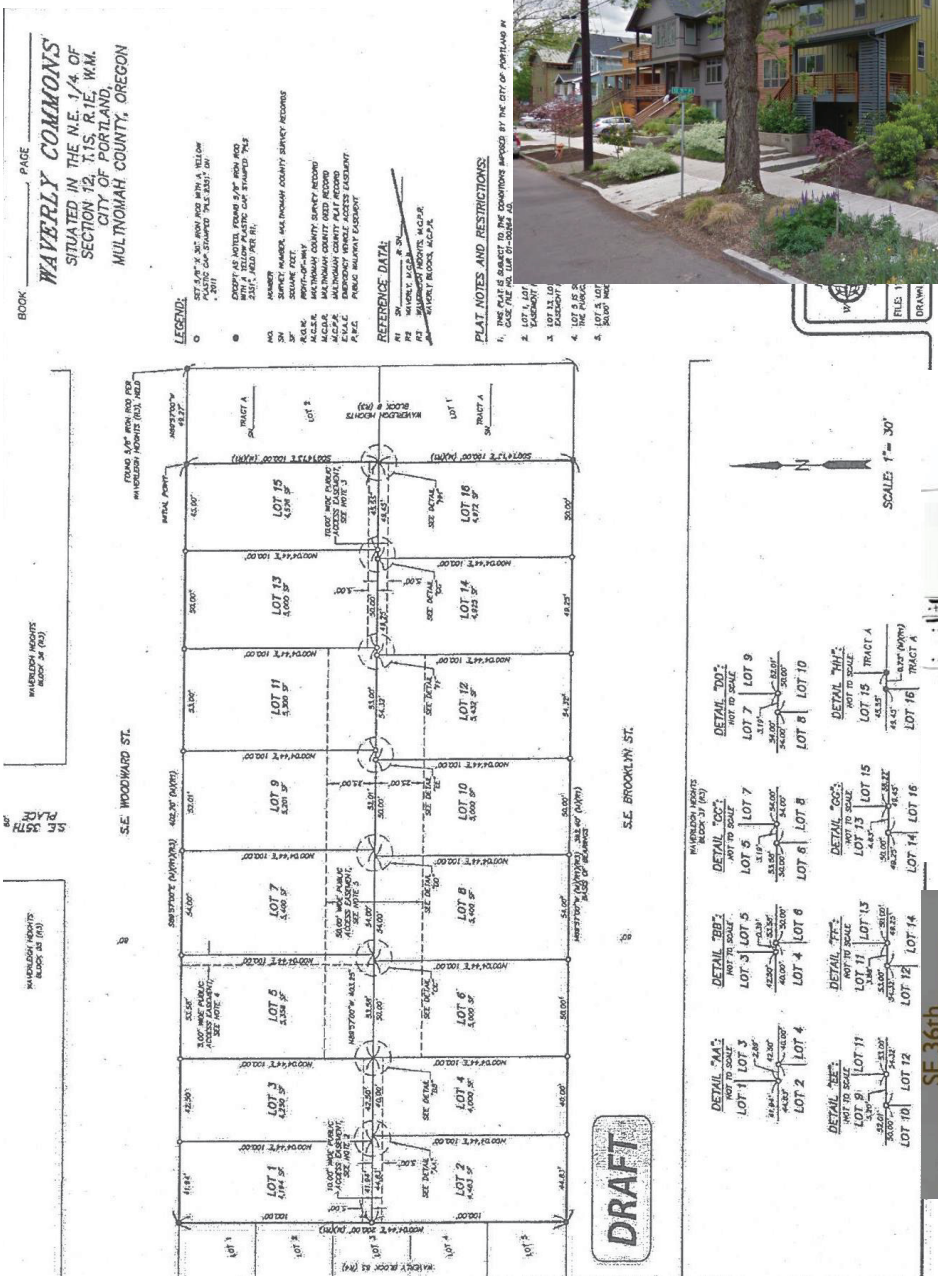
New Columbia views from 9339 N Woolsey Ave

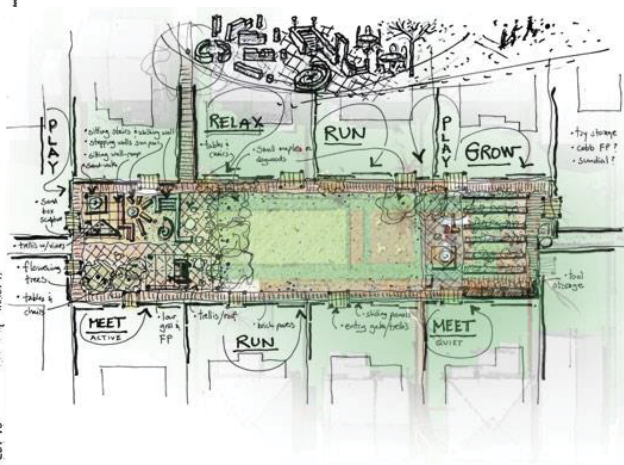
- LU 03-118615 LDS CP ZC AD / LU 04-070108 LDS (New Columbia II, 42 lots) / LU 04-070129 LDS (New Columbia V, 3 lots for multi-dwelling) / LU 04-070145 LDS (New Columbia III, 4/5 lots SF development) / others?
- **852 units**: attached and detached for rental and homeownership. 234 homeownership units including 8 developed as cohousing
- **R2 and CS** (rezoned from R2, R5, CS, and IG2)

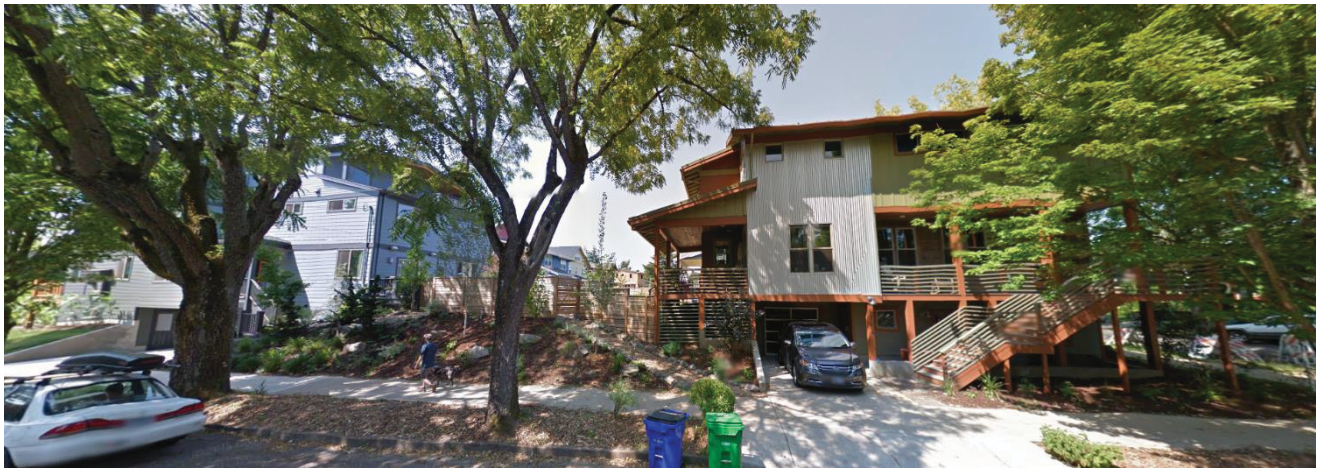


Waverly Commons 3550 SE Woodward St

- LU 11-185612 LDS
- **17 units**: detached
- **R5**

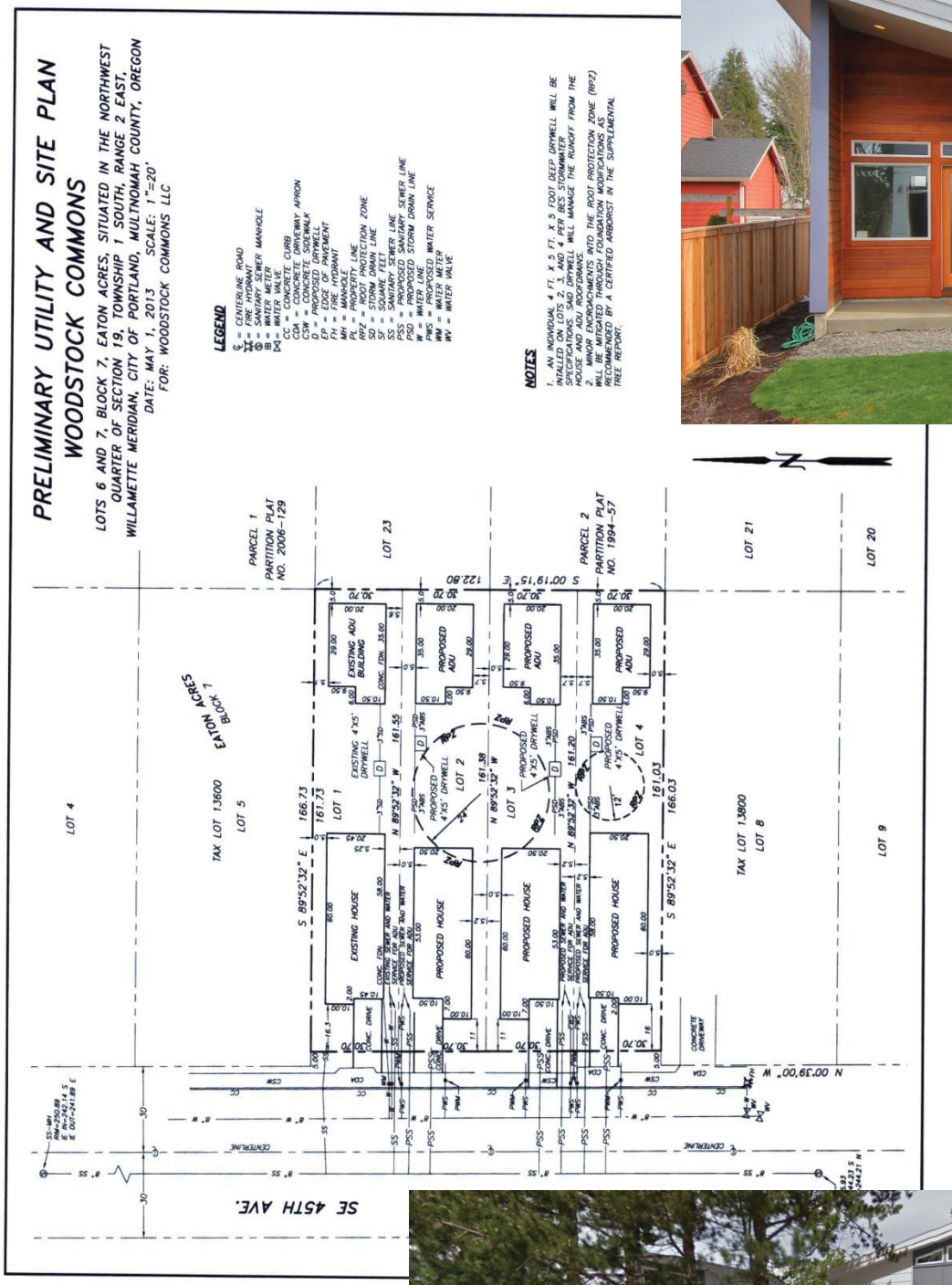


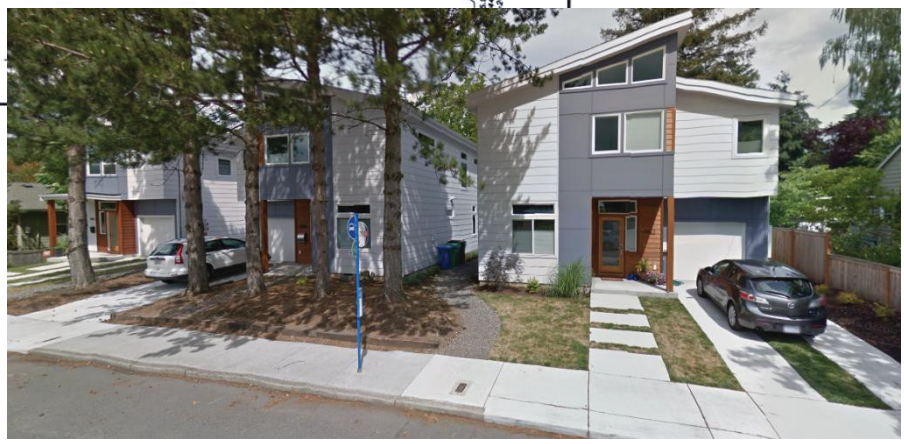




Woodstock Gardens 6810 SE 45th Ave

- LU 13-109052 LDS
- **6 units**: 3 detached, 3 ADU condos
- **R5**

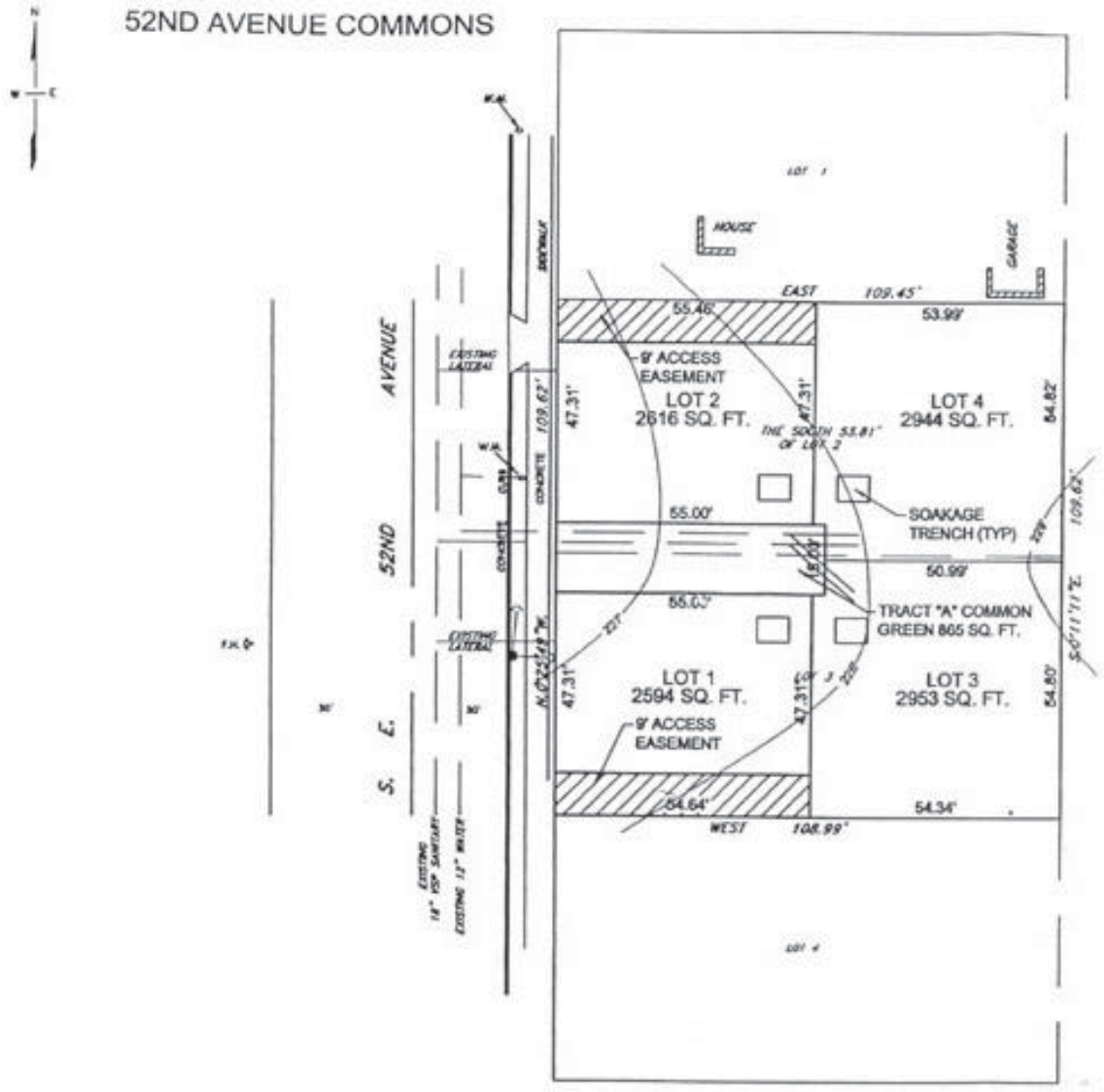




"We switched to three lots in order to avoid the lengthy and involved [planned development] review as well as maximize open space. We were responding to neighborhood concerns about density." – Kristy Lakin

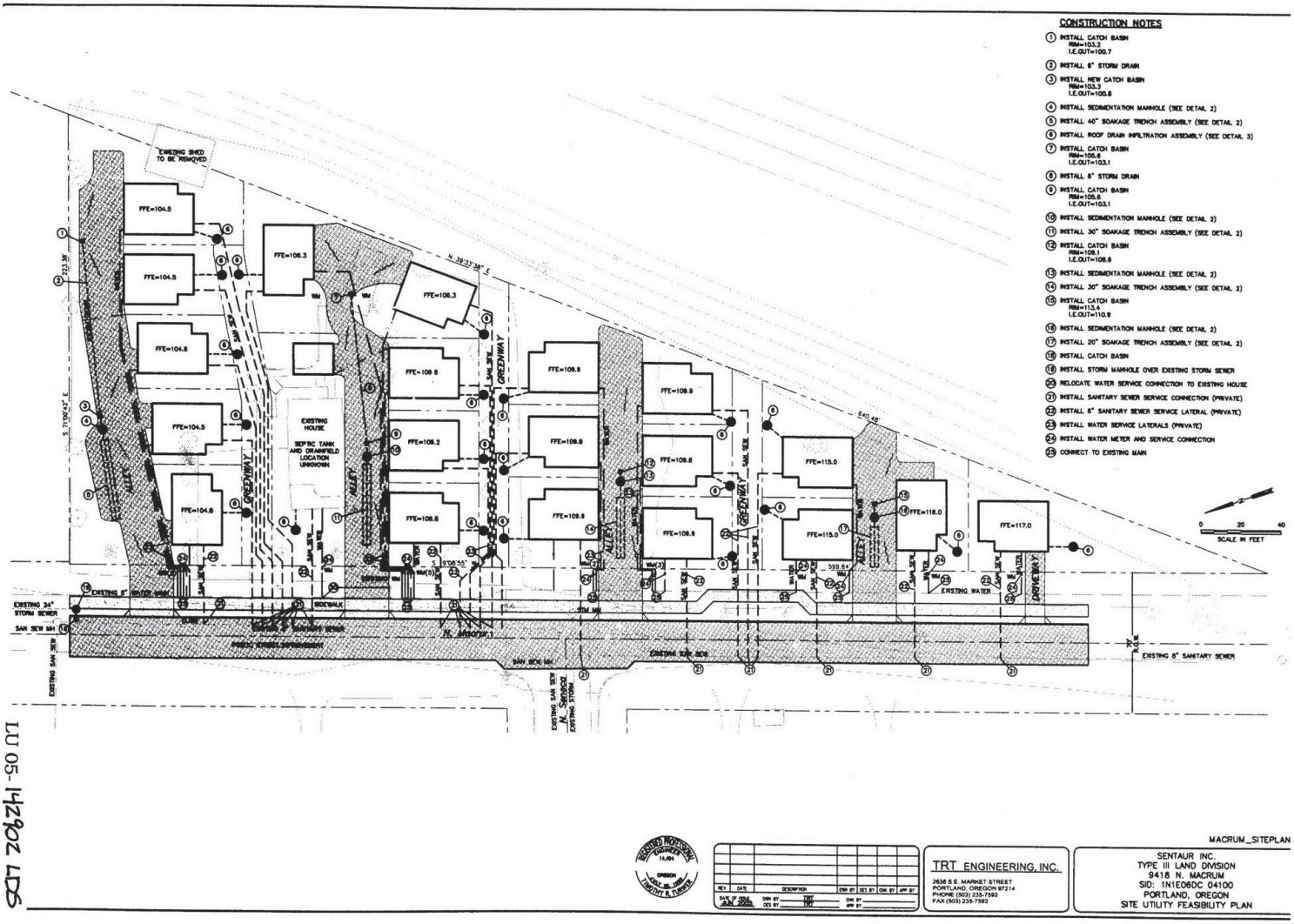
52nd Avenue Commons 4022-4034 SE 52nd Ave

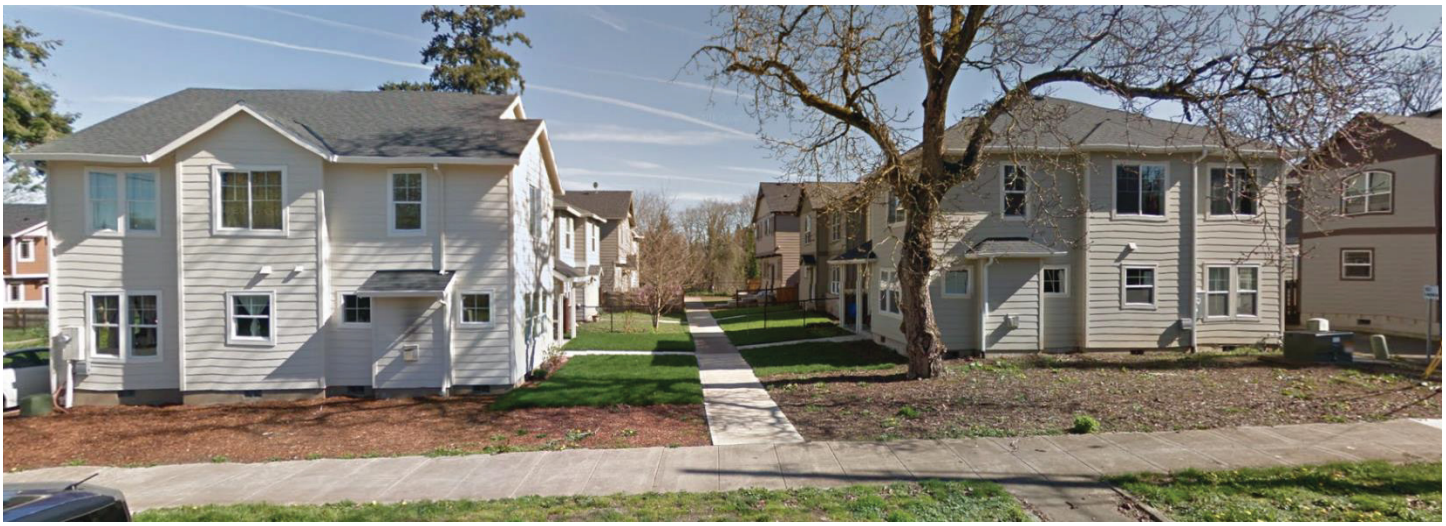
- LU 04-040012 LDS AD
- **4 units**: detached. 15'x55' common green; houses oriented inward; vehicle access from behind on both sides
- **R2**



9418 N Macrum Ave

- LU 05-142902 LDS
- **21 units**: detached. Common green consists of sidewalk through front yards oriented inwards
- **R2.5**





Fall 2009

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COMMUNITY INVESTMENT TOOLKIT VOLUME 2

CASE STUDY

Cottage housing in the City of Wood Village

Cottage housing is a new model of clustered single family housing that provides a transition between single family housing neighborhoods and higher density areas, creating a development pattern that maximizes land values, reduces infrastructure costs and provides housing next to services. As the region implements the 2040 Growth Concept, the long range growth plan, Metro is working to help communities address the stark differences in scale, density and use that often appear between established neighborhoods and newer, higher density commercial or residential development in town centers and corridors. These transitions underutilize land and create a disjointed development pattern, often undermining the capacity of the region and the character of our communities.

Metro highlighted cottage housing in the **Community Investment Toolkit: Innovative Design and Development Codes**. After learning of cottage housing in the toolkit, the City of Wood Village researched the concept further in partnership with Metro and adopted minor adjustments to their development code to facilitate cottage housing developments in their community. The City's experience illustrates how local governments in the region can use innovative strategies to build vibrant, sustainable communities. This case study summarizes this research for use by other communities who may wish to consider cottage housing.

Cottage housing

Cottage housing is used as a creative infill development between higher density mixed-use areas and established neighborhoods of lower density single family housing. The coordinated design plan and smaller units of cottage housing developments allow densities that are somewhat higher than typical single-family neighborhoods, similar to the density of attached row houses, but minimize impacts on adjacent residential areas because of their smaller overall bulk and scale. While a cottage housing development focuses internally to the central outdoor space, the project maintains visual and pedestrian connections with the existing neighborhood in form and scale and with windows, doors and porches on the exterior façade oriented to human activity on the street.

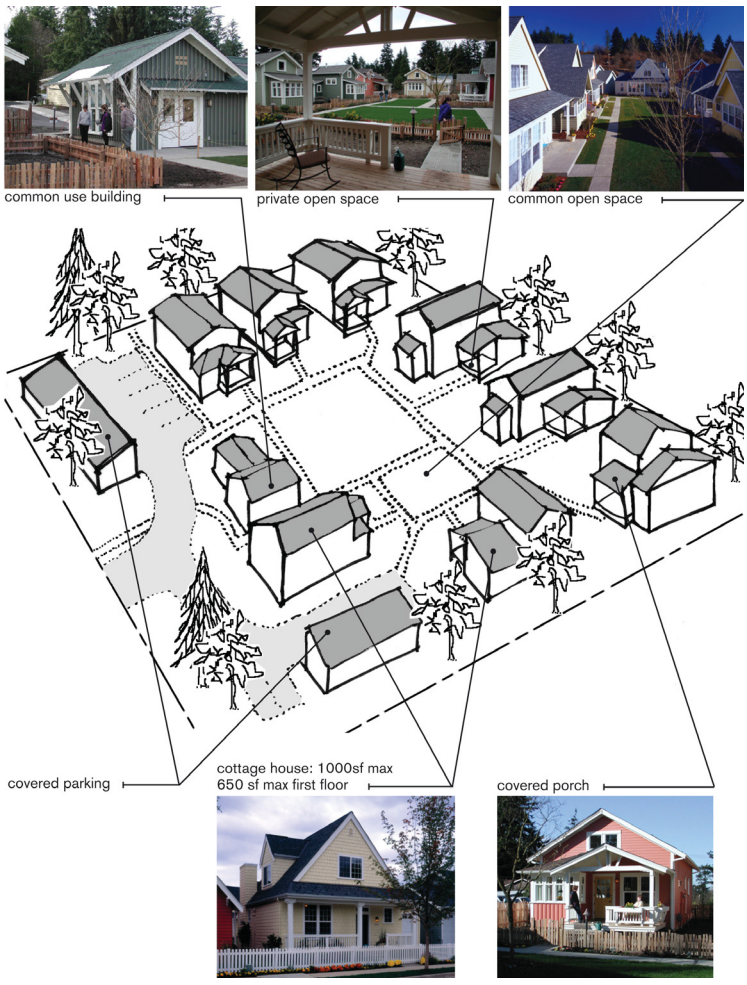
Metro

Photos above – from left, Salish Pond Cottages, Greenwood Avenue Cottages and Conover Commons. The projects were designed by Ross Chapin Architects. Greenwood Avenue Cottages and Conover Commons were developed by The Cottage Company.

"The City of Wood Village is leading the way in applying an innovative tool that promotes efficient land use and supports their community vision. Metro looks forward to more partnerships like this with other communities around the region."

– Rod Park,
Metro Councilor

From a homeowner's perspective, cottage housing offers an alternative housing opportunity that is responsive to changing household demographics, lifestyles and housing needs. Although average household size is decreasing, single-family housing still remains the preferred housing type. Cottage housing maintains a single-family housing environment by providing a small private yard space and detached units, but combines it with the affordable cost and reduced maintenance attributes of attached housing. The site design also encourages neighborhood interaction and safety by orienting homes around a functional community space. Community spaces are designed to be usable and can be easily tailored to the needs of the residents (e.g. past developments have used the space as an art studio, a workshop equipped with shared facilities, or a community garden). Cottage housing is therefore ideal for retirees wanting to downsize but remain in a single family neighborhood, as well as for small families and single parent households desiring homeownership.



Cottage housing layout

Cottage housing is generally defined as a development of small, detached single-family dwelling units clustered around a central outdoor common space within a coordinated site plan. The cottage units are smaller than single-family houses and are often oriented toward the common space. While houses share amenities such as open space, gardens, a workshop, or a community building, each cottage house also has its own yard and the privacy of a roofed porch.

Nuts and bolts

Because cottage housing demands more compact development, existing code often must be modified to allow for reduced minimum lot size and setback requirements. The table on page 4 outlines the model cottage housing standards based on successful developments in the state of Washington. Key elements of the model development standards include:

Salish Pond Cottages designed by Ross Chapin Architects

Higher densities than traditional single family housing. Cottage housing densities typically require a low lot coverage maximum of 40 to 60 percent; moderate density limits such as .35 Floor Area Ratio (FAR); two times the zone density allowance; or one unit per 2,000 to 5,000 square feet of land area. Given these densities, cottage housing is marketable and most successful as a transition tool in single family or moderate density multi-family zones where the cottage densities exceed the capacity of the underlying zone. Cottage housing codes can avoid overly dense developments by setting a maximum allowed number of units as well as requiring at least 1,000 feet between developments.

A maximum housing size of 1,000 square feet. When the style was in its infancy, units were between 500 to 600 square feet, but the market has driven up housing size – in some developments to more than 1,500 square feet. In order to maintain the intent of cottage housing, it is recommended that maximum unit size average not exceed 1,000 square feet, with a maximum building height of 18 feet for houses without pitched roofs and 25 feet for houses with pitched roofs.

Usable open space. Development standards encourage the creation of functional community open space not typically required or always available in single family housing developments. For instance, a steep natural ravine on a site may not qualify as usable open space in a cottage housing project because it would be impossible to build a community facility or a community garden with such topographic constraints. In a comparable planned development, a housing developer often requests that such spaces qualify for required open space. To maintain a single family environment, functional private open space is also required for each cottage housing unit.

Quality aesthetics and parking standards. Quality design and aesthetic controls are often required in order to create an efficient use of space and ease transitions between existing developments. Controls for garage and/or parking areas include setbacks of 20 to 40 feet from the street and an average maximum parking requirement of 1.5 parking spaces per unit. Cottage housing codes and projects have also required an average of one space per unit. Allowing reduced parking standards has been successful given the target demographics of cottage housing, goals for increased densities, and the desire for a more flexible, high-quality design. Quality design standards can include required covered front porches and northwest architectural design and materials.

Ownership. Ownership is an important element of the cottage housing style. Usually cottage housing developments are sited on one commonly owned parcel and each cottage is sold as a condominium. However, cottage housing units can also be owned fee-simple by subdividing the land into individual parcels with shared amenities owned in common by the cluster

Washington state

Cottage housing is a relatively new concept to the Portland metro area, but has been a popular form of infill development in cities across the state of Washington since the early 1990s. Early success in cities such as Seattle, Kirkland, and Richmond prompted the Seattle Housing Partnership to develop a model code for cottage housing in 2001. The Washington state model code has provided a foundation for cottage housing standards across the state of Washington and was assessed by Metro in the creation of the Regional Model for Cottage Housing Standards included in this case study.

residents. This model offers a unique home ownership opportunity not commonly available. Ownership models vary and are typically determined by the developer based on the local market, unless the city only allows one of these options in the zoning code.

Development review. Cottage housing provisions are placed within the municipal code. Specific development plans can be reviewed and permitted through various avenues, a decision unique to each jurisdiction. Examples include administrative review, the subdivision process, a design review board, or a public hearing with a design review board or planning commission. When reviewing cottage housing development designs, priority is given to plans with functional, usable open space and a design that meets the intent and definition of cottage housing.

Model cottage housing code

Zones	Vary by city; single family or moderate density multi-family
Lot cover	40 to 60 percent
Density	.35 floor area ratio, twice the existing allowed density; 7-14 units per acre
Unit size	1,000 square feet maximum
Number of units	4 minimum /12 maximum
Height/ridge pitch	18 to 25′ with 6:12 minimum slope
Yards front/side/rear	15′/5′/5′
Minimum open space-private/ common	300 square feet per unit, minimum dimension of 10′/400 square feet per unit, minimum dimension of 20′ with cottage units facing at least two sides
Garage or parking standards	1-1.5 spaces; bundled parking; screened from view. 20′ setback
Usable porches	Usable covered porches, minimum 80 square feet with a minimum dimension of 5′
Privacy standards	Minimum 10′ distance between structures
Separation of developments	Minimum 1,000 feet
Review procedure	Varies by city
Ownership	Fee-simple subdivided land ownership with shared common space; commonly owned parcel with each cottage sold as a condominium
Other provisions	Quality design and construction provisions. Maximum 3′ fences within a development

City of Shoreline, Washington

The City of Shoreline, Washington, implemented cottage housing and learned that scaling and density standards are integral to the effectiveness of a cottage housing development. City officials did not include such requirements in their standards, and as a result developers utilized density bonuses and built cottage housing developments with double the density intended by the code. This was compounded by the lack of separation between cottage developments. Due to the resulting appearance of overcrowded units, Shoreline decided to repeal the cottage housing provisions four years after adopting standards into their code.

Keep in mind

Applicability. Cottage housing is an infill development opportunity to bridge transition gaps and create more affordable housing opportunities near amenities. Successful cottage housing standards clearly outline the intent of cottage housing and are allowed by right. They are also placed in their own section of code instead of being buried throughout other code sections, thereby limiting confusion and easing the ability of developers to implement projects.

Danielson Grove Cottages designed by Ross Chapin Architects and developed by The Cottage Company

Flexibility. Overly rigid regulations may hinder the ability of developers to implement projects. Therefore successful cottage housing standards are flexible, outlining a broad set of rules within which the developer can refine the project to fit the specific marketplace and the homeowner. For instance, flexible height restrictions can give developers the creativity to allow for better transitions between zones and may lead to more financially feasible projects. This flexibility is important because full two-story framing is often less expensive than story-and-a-half framing.

Dwelling size. Cottage housing is designed to create cottages as an alternative style of housing to larger single-family homes. Developers desiring to build larger homes may do so under existing development regulations for single family dwelling units. Thus, cottage housing development codes usually limit building mass to 1,000 square feet or less in order to maintain the original intent of cottage housing. Limiting dwelling size also ensures that cottage housing developments can serve as an effective tool to bridge transitions.

Scaling. Creating a compact, aesthetically pleasing development pattern through scaling requirements is also a key element of cottage housing. A minimum of four units per cluster is needed in order to create a coordinated site design, while a maximum of 12 units will prevent an over abundance of housing. In cities like Shoreline, Wash., having no maximum resulted in abuse of density bonuses and massive developments that undermined the effectiveness of cottage housing as a tool for bridging transitions.

Parking. In cottage housing standards, parking requirements are generally limited and preferably clustered off to the side or in an adjoining alley. Direct individual driveway access to the street is not necessary. Limiting parking helps achieve the goals of cottage housing in increasing density and creating a more pedestrian-friendly atmosphere. It also increases flexibility, allowing developers to be more creative with site design to increase a project's overall quality and its financial feasibility.

Affordability. Providing high-quality housing units at an affordable price is one of the primary goals of cottage housing developments. Due to its small scale, cottage housing is often a more affordable alternative to traditional single family housing. In the areas surveyed, cottage housing units were typically 20 to 30 percent below traditional market housing. Incentives can be placed to ensure affordability, including relaxing standards for architectural or building material regulations. This is particularly useful in areas with higher housing costs where the market often demands quality construction anyway.

"I think it's a significant trend, better rather than bigger, quality over quantity. It's something people have been waiting for. It takes more work, details and supervision but – like the old pre-1940s craftsman homes with mantels and casings – they are homes that get a premium price."

– Jim Soules, Cottage Company, LLC

Putting it together

"To address the realities of a limited land supply and changing demographics, the City of Wood Village has worked with Metro to identify a number of innovative solutions. Cottage housing allows the City to use our land more efficiently, while providing greatly needed housing next to services."

– Sheila Ritz, City of Wood Village Administrator

After attending a presentation by Metro on the Community Investment Toolkit, staff from the City of Wood Village became interested in cottage housing as a good fit for redevelopment of underutilized residential land, particularly in transition areas between high density residential or commercial uses and single family residential areas. Given the limited land supply, the City felt it was important to offer a variety of more thoughtful housing options than the traditional single family subdivisions, duplex rentals or leased manufactured home lots. By pursuing cottage housing, the City was looking to promote quality craftsmanship and desirable growth in their existing neighborhoods.

Creating cottage housing standards for Wood Village

City staff contacted Metro for technical assistance to research successful cottage housing developments in other cities and to help create cottage-style housing provisions for the City of Wood Village. Metro staff and city planners researched the cottage housing model code from the state of Washington, as well as cottage housing zoning requirements in the following cities in the state of Washington: Federal Way, Kirkland, Langley, Port Townsend, Redmond, Seattle and Shoreline. Metro and City staff also reviewed similar development projects within the Portland metropolitan region, including Salidge Ponds in Fairview and the "Common Green" housing developments in Portland.

Metro worked with City staff to synthesize the findings of the research and to address how cottage housing could be adapted to the City of Wood Village, both geographically in terms of where cottage housing would work within the city and in terms of how to incorporate cottage housing standards into City code.

After reviewing areas where cottage housing would be most beneficial, the City decided to include this type of housing as an approved use in the Multi Residential MR2 and MR4 zones. They selected these zones because they represent the transition areas adjoining the town center, the Halsey Street corridor and the neighborhood commercial zone to single-family neighborhoods. These areas also include larger parcels of land that have re-development potential and are generally flat for usable open space. The adjacent town center and neighborhood commercial zones offer cottage housing developments easy access to services and frequent transit routes. Cottage housing developments in these areas will be subject to the standards adopted into the City of Wood Village's zoning code as well as subdivision and/or design review approval by the planning commission.

In the preliminary development of the special cottage housing development standards, the City considered no limitation to the square footage of each unit and also considered more off-street parking than other jurisdictions because of the narrow streets and the number and size of vehicles per household. Staff and the planning commission eventually recommended to the City Council that a dwelling unit size limitation of 1,200 square feet was important to preserve the overall cottage housing character of single family mass and scale and to assure compact development. They also recommended a reduction in the minimum number of off-street parking spaces required from 1.5 to 1 space per dwelling, to be consistent with the existing single-family dwelling minimum parking standard. The planning commission recommended including individual garages with design standards, set back and to the side or

rear of each unit to respond to the characteristics and suspected demand of their community. They also recommended limited parking structures or parking lots to be closer to streets in certain circumstances in order to maximize internal common spaces, given the successful results of these standards implemented in other jurisdictions. Staff and the planning commission also outlined and recommended inclusion of architectural elements and material standards in order to ensure quality cottage craftsmanship.

In order to better respond to the market and changing demographics, the Wood Village Planning Commission decided to offer either fee-simple ownership through the subdivision of land or condominium ownership of each detached dwelling. The choice will be up to the developer, although land ownership is encouraged. The commission also recommended an increase in the maximum height of a pitched roof to 30 feet (versus 25 feet in the model) for more flexible design options. The Wood Village City Council agreed with these recommendations and unanimously adopted the cottage housing standards as recommended by the planning commission.

The City adopted these special cottage housing standards within the multi-family housing section of the City's zoning code. Thus, this type of housing is a use allowed by right if a developer meets the outlined standards. In doing so, the City chose not to embed the cottage housing standards within more complicated sections of its code that require more rigorous review processes, such as the Planned Use Development requirements, in order to ease implementation for developers. By making these decisions and choosing to maintain the other elements of cottage housing, the resulting cottage housing standards for the City of Wood Village adhere to the original intent of cottage housing and are consistent with the lessons learned in the cities in the state of Washington.

Tips for implementation

- Focus on the intent of cottage housing and how it fits into the context of transition zones within your community.
- Isolate areas where you think cottage housing would work and talk to the community to get feedback.
- Hold a public hearing to fully explain the intent of cottage housing and the benefits of its use as a housing option and transition tool.
- Invite housing developers and gather feedback from them, as well as local citizens, in order to guide the local cottage housing development standards.
- Make standards easy to understand. Include images for clarification.
- Make standards easy to implement by creating a special section for cottage housing within the city's zoning code.

Hastings Green developed by Northwest Pacific Development Group through Portland's "Common Green" provisions

City of Portland

While the City of Portland does not have cottage housing, it offers a similar style called "Common Green" housing provisions. Hastings Green in the South Tabor neighborhood at Southeast Clinton between 70th and 71st completed phase one development in 2003 and includes 13 single-family dwellings. The well-designed, high-quality units sold as condominiums, each with about 1,100 square feet and one to two bedrooms. A common space in the center of the units is used by residents as a community garden and clustered parking is provided. The first 10 units sold in six weeks. Phase two, constructed across the street, sold out prior to completion. The project has a density of 14 dwelling units per acre.

Metro
People places. Open spaces.

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

Fall 2009

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Resources

For more information on the Regional Model for Cottage Housing Standards, contact:
Metro
600 NE Grand Ave.
Portland, OR 97232
503-797-1839
www.oregonmetro.gov/communityinvestment

For more information on the City of Wood Village Cottage Housing Standards, contact:
City of Wood Village
2055 NE 238th Drive
Wood Village, OR 97060
503-667-6211
Staff contact: Carole Connell, AICP
www.ci.wood-village.or.us/

For more information on the Washington Model Code for Cottage Housing, contact:
Michael Luis and Associates
P.O. Box 15
Medina, WA 98039
425-453-5123
www.luisassociates@comcast.net

For more information on Portland's Common Green Provisions, contact:
City of Portland
Bureau of Planning and Sustainability
1900 SW 4th Avenue
7th Floor, Suite 7100
Portland, OR 97201
503-823-7700
www.portlandonline.com/bps
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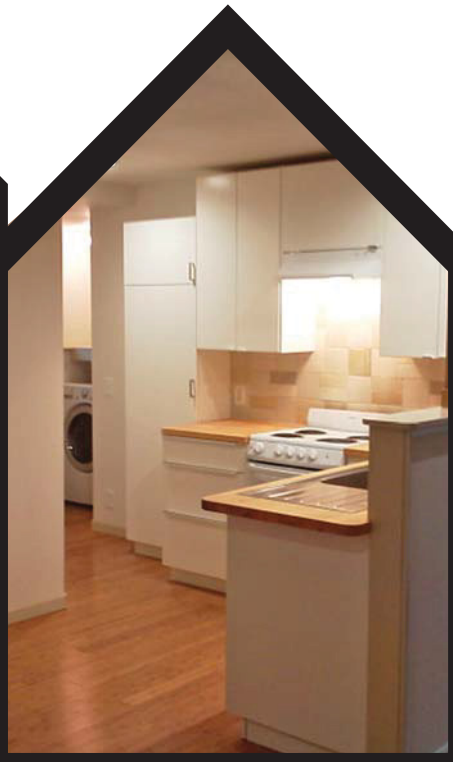
Character-Compatible, Space-Efficient Housing Options for Single-Dwelling Neighborhoods

May 2016



ODOT TGM DLCD
TRANSPORTATION AND GROWTH MANAGEMENT

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Department of Environmental Quality

Oregon Department of Transportation

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1. Executive Summary

The housing types described in this report support higher population densities in single-family neighborhoods in ways that maintain neighborhood character and increase housing options. The housing types studied include:

- Cottage clusters
- Internal division of larger homes
- Corner duplexes
- Accessory dwelling units

In Oregon, urban populations are growing, household sizes are shrinking, and housing prices are rising.[1] Pressures to expand urban growth boundaries in some areas are balanced by efforts to reduce carbon impacts from the housing and transportation sectors. Single-family zoning is still a dominant land use in most Oregon cities. In fact, within the Portland Metro urban growth boundary, single-dwelling residential zones make up 48% of all land area and 77% of all land area currently zoned for housing.[2] As Oregon cities grow, it is anticipated that smaller housing options, such as those outlined in this report, will grow in importance for single-dwelling residential zones.

These traditional housing types have been selected specifically for their small size and ability to nestle discreetly and compatibly within existing neighborhoods of detached, single-unit homes.

Many Oregon communities have already experimented with legalizing one or more of these housing types, or re-legalizing where once allowed. This report provides case studies, analyzes codes, and recommends best practices.

General recommendations across all four housing types

- Allow by-right or through a simple land use process;
- Allow in all single-dwelling zones;
- Minimize off-street parking requirements;
- Customize use restrictions and design compatibility requirements (if any) based on local priorities and concerns;
- Balance regulatory restrictions against desired housing production levels; and
- Periodically review and update regulations based on actual production levels and community feedback (positive and negative) from completed projects.

Cottage Clusters

- Couple density bonuses (up to 2x) with home size caps;
- Avoid minimum lot size requirements for the entire cluster and for individual lots within it;

[1] Risa Proehl, "Who's Home? – A Look at Households and Housing in Oregon" (Population Research Center, Portland State University, September 2011).

[2] Metro Data Resource Center, Regional Land Information System (RLIS), *http://www.oregonmetro.gov/rlis-live* (accessed December 2015).

- Support community-oriented site plans (e.g., homes fronting on shared central courtyard; vehicle access and parking at periphery) with flexible subdivision regulations or by allowing multiple homes on a single lot through a discretionary review (e.g., planned development) process; and
- Balance strictness of layout and design requirements with the demands of neighborhood compatibility and the flexibility required by the market to see cottage cluster provisions get used in practice.

Internal Division of Larger Homes

- Expand application of provisions currently applied to historically-designated homes to any older home exhibiting key characteristics (quality materials, neighborhood character); and
- Expand or drop zoning code definitions of "household."

Corner Duplexes

- Allow attached housing and increased density (up to 2x) on corner lots;
- Consider individual or combined size limits on new corner duplex homes so their collective massing is similar to that of a single large house; and
- Provide the option of subdividing corner lots with duplexes into two fee-simple lots.

Accessory Dwelling Units (ADUs)

- Avoid owner-occupancy and special use requirements (e.g., restrictions on home-based businesses, affordable housing deed restrictions, short term housing*);
- Ensure that resulting property tax increases, if any, are not so large as to serve as a deterrent to building;
- Consider allowing both a detached and an attached ADU on the same lot; and
- Provide more flexibility in size, allowing for both very small and larger ADU types.

  * A 2013 study by sponsored by Oregon Department of Environmental Quality found that just 5% of ADUs were used as short-term rentals.[3] Both the short-term rental market and ADU market have evolved since then, however, and more recent data are not yet available. Such data could be helpful for cities to determine the appropriateness of regulating this use.

[3] Martin Brown, "Accessory Dwelling Units in Portland, OR: Evaluation and interpretation of a survey of ADU owners" (Oregon Department of Environmental Quality, June 2014).

2. INTRODUCTION AND PURPOSE

Intended or not, many zoning codes in Oregon tend to encourage the development of large, detached homes in residential neighborhoods to the exclusion of anything else. Research by the Oregon Department of Environmental Quality (DEQ) found that building smaller homes was among the best practices to reduce the lifetime carbon and energy impacts of single-dwelling housing.[4] When combined with an appropriate mix of uses, denser housing configurations also support more walkable and less auto-oriented communities.[5] Demographers expect the trend towards smaller households to continue, and many parts of Oregon are experiencing a critical lack of affordable housing. Collectively, these observations motivate research into space-efficient housing models, and methods of supporting their production.

This report showcases local development codes that expand housing choices in single-dwelling neighborhoods. Specifically, it examines zoning codes that support these four housing types:

- Cottage clusters
- Internal division of larger houses
- Corner duplexes
- Accessory dwelling units (also known as secondary dwelling units)

There can be cross-over in how zoning codes define and regulate these housing types. For instance, corner duplexes can be created through internal divisions of older homes or by adding ADUs to existing homes at corner locations. Rules requiring corner duplex units to visually match and to have front doors facing different streets are also commonly found in ADU regulations. And similar trade-offs between density bonus and home size cap can be found both in cottage cluster and corner duplex regulations.

Although historic examples of each of these housing types can be found in communities throughout Oregon, they are sometimes challenging or illegal to build under current municipal zoning codes. This report interweaves case studies from across Oregon, examples of supportive or limiting code language, feedback from developers and residents, and best practice recommendations.

Transportation and Land Use Planning

The State of Oregon's Transportation and Growth Management Program (TGM), a partnership between the Department of Land Conservation and Development (DLCD) and the Oregon Department of Transportation (ODOT), supports communities across the state in their planning efforts to expand transportation options for people and promote efficient use of urban land in order to create vibrant urban areas and protect Oregon's farm and forest lands.
TGM assists communities by publishing the Model Development Code for Small Cities and providing technical assistance to local jurisdictions. The Model Development Code is primarily used by cities of fewer than 25,000 people, but also serves as a menu of options for larger ones. This report bridges DEQ research with case studies and municipal code examples to support TGM's future Model Development Code updates and thereby expand the pallet of housing options available in residential zones.

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[4] Jordan Palmeri, "A Life Cycle Approach to Prioritizing Methods of Preventing Waste from the Residential Construction Sector in the State of Oregon" (Oregon Department of Environmental Quality, September 2010).

[5] *Smart Development Code Handbook* (Transportation and Growth Management Program, Oregon Department of Land Conservation & Development and Oregon Department of Transportation), August 1997.

Single-Dwelling vs. Multi-Dwelling Zones

Each of the four housing types featured in this report can be built today by-right in most multi-dwelling zones. In fact, many of them were common practice before single-dwelling zoning was widely introduced to Oregon municipalities and counties in the late 1950s or, in some communities, before zoning codes were first adopted.[6] However, multi-dwelling zones make up a much smaller portion of zoned acres in most Oregon cities. For example, for the 25 cities in the Portland Metro Urban Growth Boundary, single-dwelling residential zones occupy 48% of all land area and 77% of all land area currently zoned for housing.[7] Therefore, Oregon municipalities have two primary strategies available for supporting the development of smaller, less expensive homes. They can:

1. Designate more land area for multi-dwelling development, and/or
2. Create additional flexibility within single-dwelling zones.

Both approaches are important. This report focuses on the second strategy, in recognition of the enduring popularity of single-dwelling zoning and the associated political challenge of the first approach. The other reason for focusing on options for single-dwelling zones is that it takes particularly careful and creative code writing, as well as regard for neighborhood concerns, to successfully (re)introduce these housing types into existing neighborhoods while maintaining neighborhood character. If cities want to boost density within neighborhoods, it is wise to study and learn from past efforts. This report attempts this for these four housing types.

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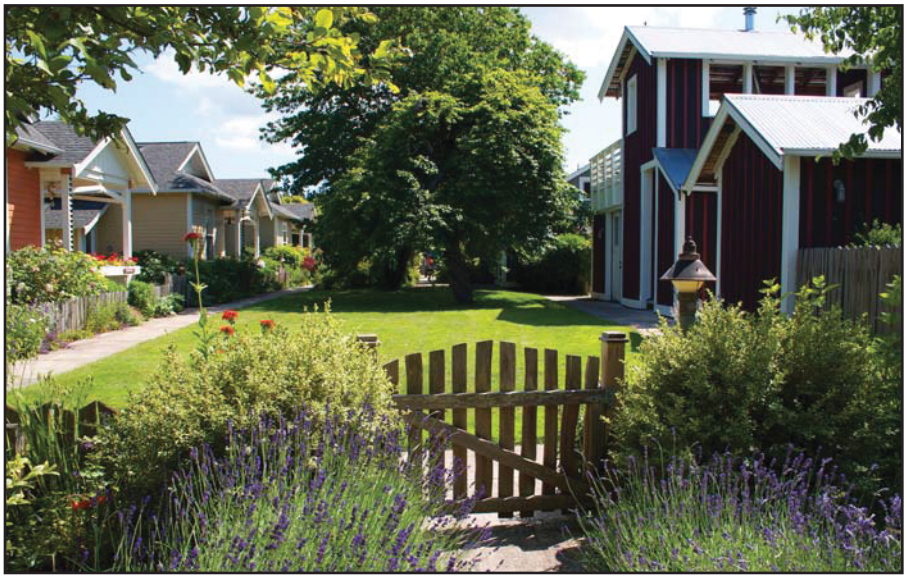
[6] Interview with Steve Dotterer, November 12, 2015; and Lloyd T. Keefe, "History of Zoning in Portland, 1918 to 1959" (City of Portland, Bureau of Planning, 1975).

[7] Metro Data Resource Center, Regional Land Information System (RLIS).

3. COTTAGE CLUSTERS

Cottage clusters are groups of relatively small homes, typically oriented around a shared common space, such as a courtyard, garden, quiet street, or alleyway. They can be found in urban, suburban, or rural areas, and range in site area and number of dwellings. As architect Ross Chapin, architect and developer of many clustered residential developments, puts it, cottage clusters are designed around peoples' natural "scale of sociability."

As home sizes decrease, the importance of site and building design arguably increase. To support community interactions, provide essential buffer areas between private and public spaces, and ensure they fit in well with the surrounding neighborhood, successful cottage cluster developments rely on design and density strategies that are quite different from patterns found in typical single-dwelling developments.



Third Street Cottages in Langley, WA, is a community of eight detached cottages located on four standard single-dwelling lots, oriented around a shared commons building and tool shed.
(Photo courtesy of Third Street Cottages and Ross Chapin Architects.)

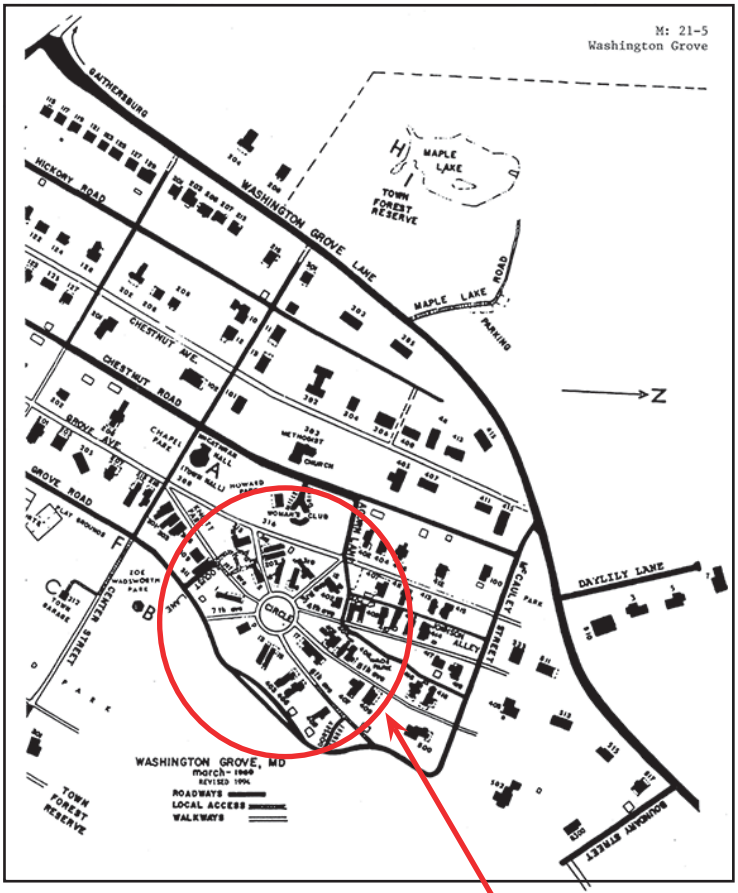
Cottage Cluster Characteristics

Cottage Clusters – Typical Characteristics	
Form	
	• 4-14 detached homes situated around shared open space
	• Home sizes under 1,000-1,200 square feet
	• Recently built cottage clusters often feature deep porches, kitchens facing courtyards, and bedrooms tucked in the back or upstairs. Older examples of the form may have some or none of these design elements.
	• Similar configurations with attached homes may be also called courtyard apartments
	• Parking is either not required on-site or located along the site perimeter
Ownership	
	• Fee simple lots (Case Study: Wyers End)
	• Single-lot Planned Development with condominium ownership (Case Study: Cully Grove)
Density	
	• Varies; up to 225% of single-dwelling densities

History & Regulatory Context

Precedents for small homes clustered around common spaces go back as long as people have been building homes. Early examples of recognizable cottage clusters in the United States find roots in Methodist and other camp meetings from the early 1800s that grew over time into permanent housing developments. One such community that still exists is Washington Grove in Montgomery County, MD, a mostly car-free neighborhood of small, ornate homes, anchored by a cluster of "Cottages in a Circle" around a common green.

A more recent form of cottage cluster housing is the Bungalow Court, which was introduced in Pasadena, CA, in 1909 as a collection of small, inexpensive, detached single family homes around a central garden courtyard.[8] These are quite similar to the courtyard clusters found in Salem (see the Catterlin Cottages case study) and other Oregon cities, mostly built before single-dwelling zoning was widely introduced in the 1950s. Minimum lot sizes and one-house-per-lot requirements, which figured prominently into this new approach to residential zoning, were (and still are) largely incompatible with cottage cluster housing. Couple in the growth of average home sizes and increase in home ownership rates[9] following World War II, and it's easy to see why construction of new cottage clusters ceased - even as pre-existing examples of this housing form continued to provide small, affordable housing options amidst larger and more expensive homes built in the latter half of the century.



Washington Grove, Montgomery County, MD.
(Images courtesy of the Maryland Historical Trust.)

Common Green

[8] James Curtis and Larry Ford, "Bungalow Courts in San Diego: Monitoring a Sense of Place," *Journal of San Diego History*, Spring 1988.

[9] James Pollock, "Long-term home ownership trends: The US, England, and Canada," *Housing Finance International*, March 2014.

Cottage clusters on Cottage Street NE, Salem, OR.
(Photos courtesy of TGM.)

More recently, cottage housing codes crafted in the 1990s and 2000s were introduced to support housing diversity and affordability on infill sites in single-dwelling zones, primarily aimed at one- and two-person households. In 1995, the City of Langley, WA, working to meet the State of Washington Growth Management Act's urban growth and housing goals, adopted the Cottage Housing Development code provision, the first of its kind to be implemented in the Pacific Northwest. Architect Ross Chapin, who was instrumental in creating this Langley code, has since designed and/or developed a number of cottage cluster communities across the country. He often works with local jurisdictions to adopt supportive zoning code regulations as a necessary precedent to constructing cottage cluster developments (See Wyers End case study in White Salmon, WA).

Code Elements

Cottage cluster codes depart in multiple ways from typical single-dwelling zone standards, as summarized below:

Attribute	Typical Single-Dwelling Zones	Cottage Clusters
Density	3,100 – 10,000 square-foot lot / unit	Can double densities found in single-dwelling zones
Home size	Median size of new U.S. home in 2014 was 2,506 sf[10]	Up to 1,200 sf (and ≤1,000 more typical)
Height	Typically 1-3 stories	Typically 1-1.5 stories
Development size	Varies widely	Typically 4-12 homes; larger communities may have more homes around two or more courtyards on the same or contiguous plots of land
Orientation	Facing a public street or road	Dwellings are oriented toward a common green, courtyard, or other central feature
Common buildings	Rare	May include shared common buildings for meals, guest accommodations, and/or social gatherings
Parking	Street-facing garage or carport houses one to two vehicles	Parking is located on the edge of the property, or no parking is provided/required

[10] *http://www.census.gov/construction/chars/highlights.html*

Attribute	Typical Single-Dwelling Zones	Cottage Clusters
Location	Allowed in any residentially zoned area, regardless of lot size	Sometimes limited to specific overlay zones and/or properties over a minimum size

For the purpose of this study, the key elements of cottage cluster codes are:

1. Home size caps in exchange for density bonuses
2. Relaxed off-street parking requirements

In addition, design requirements are often included to ensure a threshold level of community-oriented design (e.g., covered front porches, homes fronting on shared central courtyard, vehicle access and parking at periphery) and compatibility with neighborhood context. Sometimes codifying design expectations makes adoption of new codes more politically feasible, even if developers might have incorporated them into their projects regardless.

Yet, the cottage cluster regulations uncovered while researching this report were often used just once, when used at all. Since projects built using these codes were quite well received by residents and the surrounding community, it raises the question of whether standard cottage cluster codes might be stricter than they need to be. With so few new built examples, particularly of cottage cluster communities that weren't well received, there are insufficient data to get definitive answers. But it is possible to itemize key features of cottage cluster codes and suggest how they might be adjusted to try and increase production rates of this housing type while still fitting in nicely to existing neighborhoods.

Jurisdictions wanting to see broader use of this model could experiment by:

- Increasing the density bonus and/or the home size cap; and
- Relaxing or removing code requirements (e.g., minimum front porch sizes, requirements that homes be oriented towards central courtyards, parking location standards) geared towards community-oriented design that are helpful for neighborhood compatibility, but not essential to respond to the demand for smaller, more affordable, and environmentally-friendly housing choices.

Summarized below are some common code provisions, and how they may influence the likelihood that cottage clusters will be developed in a particular jurisdiction:

Provision Type	Supportive Codes	Limiting Codes
Density	• Provide density bonus in exchange for unit size caps	• Offer no increase in density
Ownership	• Allow property to be divided into fee-simple lots or have multiple homes on a single lot (that could be rented out or sold as condominiums)	• Require whole cluster to be on a single tax lot, or • Require the creation of multiple lots through a subdivision
Eligible Properties	• Establish overall site size minimums (~6,000 sf) that allow for small, infill clusters • Allow outright in all residential zones	• Establish large lot size minimums (e.g., 21,000 sf) for cottage clusters that rule out many possible development sites • Allow only in a special overlay district or in particular residential zones
Site Features	• Allow building coverage to exceed single-unit dwelling requirement	• Expand side/rear setbacks and building separation requirements • Require inclusion of a "Common house" and other common amenities (e.g., fire pit, etc.)

Provision Type	Supportive Codes	Limiting Codes
Homes	• Allow a range of sizes (e.g., 600 sf – Wyers End; 1,200 sf - Commons at NW Crossing) • Allow both attached and detached homes	• Establish specific building and design requirements, such as porches, height limits, trim, eaves, and other features • Require design review*
Off-Street Parking	• Minimize or waive off-street parking requirements for clusters near frequent transit • Allow on-site parking to be clustered along the edge of property	• Require one or more off-street parking spaces per home
Standard Provisions	• Common open space requirement • Require design review, conditional use, or other discretionary review (true for all cottage cluster codes examined for this report). However, codes could be written to allow clustered housing by right.	

* Note the discussion in Recommendations, below, regarding design requirements.

Recommendations

(1) Couple Density Bonuses with Home Size Caps

It is critical to the success of cottage cluster codes that density bonuses and home size caps go hand-in-hand. Without a density bonus, developers have no financial incentive to opt in to home size limits. With a suitable density bonus, builders can spread the fixed cost of land across more units, allowing them to build smaller homes *and* compete successfully with land buyers who would construct larger homes.

(2) Avoid Minimum Individual Lot Size Requirements

Some jurisdictions set minimum sizes for individual cottage cluster home lots as high as 2,100 square feet. Such a standard could hinder the development of compact home clusters, especially in inner, higher-density residential and mixed-use neighborhoods. Cities could consider leaving out lot size minimums all together, relying instead on compliance with all other appropriate standards to ensure good design and neighborhood compatibility.

(3) Support Community-Oriented Site Plans with Flexible Subdivision or Planned Development Rules

Cottage cluster codes support community-oriented site layouts, particularly for deep lots large enough to accommodate multiple homes. By defining courtyards or common greens as streets (Portland, OR), or by allowing multiple homes on a single lot through a planned development process, cities can legalize a path for developers to orient homes to a central garden, lawn, or other active space rather than a paved central parking area or public street. Although such code provisions support nice site plan designs, they do not encourage the cottage development to be any denser than other residential development allowed in the zone. Without an accompanying density bonus, there's no reason to expect homes in these developments will be smaller than average.

(4) Strike a Balance with Design Requirements

Those cottage cluster codes adopted thus far have tended to have fairly strict design and site layout requirements. Such requirements may have been written for a particular project or to

respond to concerns expressed by neighbors. They may turn out to be insufficiently flexible to accommodate cottage developments on properties elsewhere in the jurisdiction, each with its own unique characteristics. In some cases (e.g., Sisters and Wood Village), cottage cluster codes have been adopted, but remain unused. It is also important to note that while design and other review processes can be highly involved and lengthen project timelines, they can also be critical to a project's success, particularly with housing types that are proposed in a jurisdiction for the first time. City councils may be less likely to consider passing an ordinance without design requirements, or taking any other measure that might allow a project unless they are confident that the ultimate development will be aesthetically pleasing, well-designed, and that existing neighborhood character will be maintained.

(5) Experiment with Geographically-Specific, Limited Adoption
It can be difficult to measure the extent to which design requirements, or any requirement, may constrain the application of cottage cluster codes. Cities may benefit from experimenting with an initial cluster code limited to a very small geography, with the intent to revisit the code in a few years. Since only a small proportion of Oregon communities have cottage cluster ordinances to date, odds are high that a developer wanting to build this type of community would need to pass an ordinance first, as happened in White Salmon, WA; Bend, OR; and Manzanita, OR. This adds some cost and risk to the development process, limiting usage of this housing model to developers who are especially driven to give it a try.

Benefits and Limitations of the Cottage Cluster Housing Type

Benefits	Limitations
More Efficient Use of Land It is not unusual for cottage cluster developments to double the underlying zoning's density. If cottages are clustered densely enough, the cost per unit can be lower than nearby larger single-unit homes (though the cost per square foot is generally higher). *Flexible Ownership Models* Cottage clusters can be rental (Catterlin Cottages in Salem, OR), owned as fee simple lots in a subdivision (Wyers End in White Salmon, WA and Northwest Crossing in Bend, OR), or owned as condominiums (Cully Grove in Portland, OR). *Flexible Scale of Development* Over the past two decades, the Pacific Northwest has witnessed increased demand for cottage clusters across a wide range of city sizes and neighborhood densities. Partly because they can be designed successfully at a wide range of scales, cottage clusters can be found in cities of all sizes, including Portland and Salem, or towns like White Salmon, WA, and tiny Manzanita, OR.	*Availability of Suitable Lots* Unlike other development models in this report that can be implemented at the scale of one single-dwelling residential lot, cottage clusters require relatively large parcels of land, which can be hard to find or assemble in desirable, pedestrian-friendly locations. *Lack of Familiarity with Sharing Space* Many buyers are increasingly gravitating toward housing options that allow them to down-size, economize, and share resources. However, the culture of individual ownership of private homes with fully private yards is deep-rooted, limiting the breadth of demand for cottage cluster housing.

Conclusions

Cottage cluster zoning is a critical infill development tool, providing a larger number of relatively small homes compared to more standard infill at the single home, lot by lot level. On the one hand, this creates the opportunity for efficiencies of scale by building multiple small homes all at once, close to one another. On the other, it can be a more difficult housing type

to site because of the amount of land required per cottage cluster development. So, although clusters are well-suited for under-developed and/or awkwardly shaped pieces of property, these kinds of parcels are more frequently found in more suburban or even rural locations than in built-out neighborhoods.

Although there are many examples of older clustered developments (including cottages and courtyard apartments), this type of housing is only now starting to re-emerge. Part of the reason for this is its appeal to a range of households, including empty nesters and families with children, who tend to prioritize community over large homes. Building cottage clusters around shared spaces doesn't guarantee that a cohesive community will form, but it does stack the odds in favor of residents getting to know one another more than they might in a more conventional neighborhood subdivision setting.

COTTAGE CLUSTER CASE STUDIES

Commons at NorthWest Crossing – Bend, OR

Irregular lot development in an experimental/opportunity district

Location: Skyliners Rd & NW Lemhi Pass Drive, Bend, OR (population 81,236)

Owner/Developer: West Bend Property Company

Architect: Jason Offutt, The Shelter Studio, Inc.

Builder: Tyee Development

Type: 14 single-family cottages on 1.91 acres, Subdivision, owned as fee simple lots with homeowner association

Square Footage: 793–999 sf

Year Built: 2013–2015

The Commons at NorthWest Crossing is a cluster of traditional-style cottages oriented around a common courtyard, with a large gardening and recreation area along the southeastern edge. The Commons offers efficient, relatively affordable homes that are designed to work well for singles, couples, and empty nesters looking to downsize. The project is close to Galveston Avenue restaurants, breweries, Rimrock Park, and adjacent to pedestrian, biking, and hiking paths.

Homes in the Commons range from 793-square-foot one-bedroom units to 999-square-foot two-bedroom units. Unlike typical cottage cluster developments where parking is clustered on the edge of the property, each cottage also has an attached one- or two-car garage. An additional five spaces are located near the Commons entrance.

1,200 square foot cottage, Commons at NW Crossing, Bend, OR. (Photo courtesy of Tyee Development.)

The NorthWest Crossing Residential Cluster Housing Overlay District, based on Langley, Washington's cottage cluster code, was adopted into the NorthWest Crossing Overlay Zone in order for this development to proceed. This Cluster Housing Overlay District sets standards for cottage cluster developments, including maximum cottage floor areas of 1,000 square feet (1,200 with an attached garage), site layout specifications, and open space requirements. The NorthWest Crossing Overlay Zone, within which the Cluster Housing Overlay District is located, allows for a density of up to 12 units per acre, significantly higher than the underlying zone (Bend's Standard Residential/Urban Standard Density zone - RS) allowance of up to 7.3 units per acre.

Commons at NW Crossing site plan, Bend, OR.
(Image courtesy of Tyee Development.)

The Commons, however, has 14 units on 1.91 acres, at a density of 7.33 units/acre, barely over the minimum density allowed in the Standard Density Residential District. Developers indicated that the parking arrangement and relatively low density are responses to local buyer preferences for parking and storage space, as well as challenging site topography. That said, the small increase in allowed density does little to meet the potential that cottage cluster codes have for supporting land-efficient development patterns.

The City of Bend views the NorthWest Crossing Zone area as a laboratory for new housing ideas. Hence, the Commons essentially became a plan district, and was allowed to employ a new set of codes specifically for cottage clusters. Following project execution, Bend is considering extending the cottage cluster provision to additional parts of the city.

Bend now also has a Cottage Housing Development code, which may be applied in the Standard Density Residential (RS), Medium Density Residential (RM), and Medium-10 Residential (RM-10) zones outside of the NorthWest Crossing area. However, increased density is not available in exchange for smaller homes. The Cottage Housing Development code, rather, stipulates that

maximum densities shall not exceed those of the base zone.[11] Further, in addition to an on-site parking minimum (one space per one-bedroom and 1.5 spaces per for two-bedroom cottages), the requirement for an attached garage increases allowable floor area from 1,100 to 1,200 square feet, perhaps making cottage developments less suitable to compact, inner areas.

Supportive Code Provisions

The NorthWest Crossing Cluster Housing Overlay District provides flexibility for commons-oriented design elements such as street frontage and lot coverage. The NorthWest Crossing Overlay Zone allows for up to 12 units per acre, however this density bonus was barely used at this site.

Limiting Code Provisions

Currently, increased density for smaller homes is not offered outside of the NorthWest Crossing Overlay District. Cottage housing developments that are permitted in other single-dwelling zones via the Cottage Housing Development code offer no density beyond the base zone.

Lessons Learned

Even though this project minimally utilized the density bonus provision available to small cottage developments, it demonstrates how cottage cluster zoning can facilitate development of irregular lots with topographic challenges, and meet market demand for significantly smaller units within walking distance of nearby amenities. It is also a successful example of experimental adoption of the cottage cluster housing type in anticipation of expanded applicability to single- and multi-dwelling zones throughout the city.

Current Status

Cottages are being completed and sold in batches, with three homes available at a time. Of the five pre-sold cottages at the time of this report, all buyers are empty nesters and/or second-home buyers.

Project website: *http://thegarnergroup.harcourtsusa.com/Home/Neighborhoods/The-Commons-at-NorthWest-Crossing/5456*

[11] The aforementioned Cottage Housing Development code (Section 4.5.600,"Cottage Housing Development") is not included in the appendix to this report. To find this provision, please visit the City of Bend at *www.codepublishing.com/OR/Bend*.

Wyers End – White Salmon, WA

Site-specific code adoption and subsequent expansion

Location: Fifth Street and Jewett Boulevard, White Salmon, WA (population 2,305)

Owner/Developer: Smart Development Corporation

Architect: Ross Chapin

Builder: Skyward Construction

Type: 11 residential bungalows, 7 cottages, and 10 homes with flexible live/work space within a mixed-use planned unit development on 2.4 acres, owned as fee simple lots with home owner's association

Square Footage: 600–1,500 sf

Year Built: 2006–2008

Wyers End is composed of 28 homes: 11 residential bungalows, 7 cottages, and a yet-to-be-built second phase of 10 homes with flexible live/work space on a 2.4-acre, wedge-shaped infill site three blocks from the center of White Salmon, WA. Wyers End replaced Timms Trailer Court, while preserving the mature oak trees that now shade many front yards and footpaths. Its density is similar to that of the former trailer park: 28 homes replaced 29 single-wide trailers. Home sizes range from 600-square-foot, one-story cottages to 1,500-square-foot, two-story houses.

Designed as a "pocket neighborhood,"[12] Wyers End homes are oriented toward courtyards, small park-like areas, and landscaped walkways. There is also a small common building used mostly as a community meeting space. Parking is provided in attached garages for some units, detached parking for others, and a parking strip along Lower Wyers St. for the smaller cottages.

Live-work homes, Wyers End, White Salmon, WA.
(Photo courtesy of Ross Chapin Architects.)

Wyers End could not have been developed under existing zoning codes, so the developer and architect presented the idea of cottage cluster zoning at a town hall meeting. Sixteen months later, the City adopted Ordinance 2006-08-783, based on Langley, Washington's cottage housing development code (Langley Municipal Code 18.22.180).[13] The amendment added Chapter 17.74 to the Zoning Ordinance for the City of White Salmon, providing for a Mixed Use Planned Unit Development (MU-PUD) overlay zone, with standards for cottage dwellings.

[12] A term coined by Ross Chapin and described in his 2011 book, *Pocket Neighborhoods: Creating Small-Scale Community in a Large-Scale World*, Taunton Press.

[13] Excerpts from Langley's code are included in the Code Appendix to this report.

Chapter 17.74 increased the single-dwelling density permitted in the underlying R-2 (Two-Family Residential) and R-3 (Multi-Family Residential) zones by 200% and 225%, respectively, where the MU-PUD overlay is applied, so long as the developer caps the square footage and height of new homes, organizes them into four-to-ten-home clusters, provides shared common spaces, and meets special design, parking, screening, and setback requirements.[14] Both base zones require 5,000-square-foot minimums for single-family lots, whereas the MU-PUD overlay zone allows densities of one home per 3,500 and 3,000 square feet, respectively. Rather than establishing minimum lot sizes, it states that: "The minimum lot sizes will be the product of compliance with all other standards and criteria applicable to the cottage development as a special use within a PUD."[15] The MU-PUD was intentionally crafted so it could only be used at two or three locations in town, one of which was the site of Wyers End. This allowed White Salmon to explore this development type on a limited basis before deciding whether to make it more broadly available. While no other cottage clusters have been proposed for White Salmon, a City planner indicated that there would likely be enthusiastic support for more.

Cottages, Wyers End, White Salmon, WA.
(Photo courtesy of Ross Chapin Architects.)

Site plan for Wyers End, White Salmon, WA.
(Image courtesy of Ross Chapin Architects.)

[14] Section 17.73.010, "Cottage Infill Projects," White Salmon Zoning Ordinance.
[15] White Salmon Ordinance 2006-08-783, Section 17.74.080.B.6.

Supportive Code Provisions

The MU-PUD provision, adopted specifically to allow this development, offers a substantial density bonus in exchange for more compact homes, shared open space, and other attributes. In addition to the MU-PUD provision, under which Wyers End was permitted, White Salmon's zoning ordinance now offers a Cottage Infill Project overlay (Chapter 17.73) in two residential zones (R2 and R3). Both offer density bonuses for smaller home sizes, but the land use processes differ. Cottage infill projects are treated as conditional uses subject to a special site plan review process, whereas PUDs (as used for Wyers End) are classified as special uses that must meet additional, prescriptive development standards.

Limiting Code Provisions

The MU-PUD Provision, which allowed Wyers End to move forward, has not to date been applied to additional sites or areas. In addition, the Cottage Infill Projects overlay is narrowly applied: the overlay is not allowed in the R-1 (Single-Family Residential District) or the RL (Single-Family Large Lot District) zones, and the minimum site areas for cottage-style developments start at 21,000 or 14,000 square feet. Collectively, these severely limit the number of properties eligible for cottage-cluster-style developments. Furthermore, the Cottage Infill Projects overlay contains a number of requirements, above and beyond capping home sizes, to earn a density bonus. Finally, the allowed bonus (from 5,000-square-foot minimum lot sizes to 3,000 or 3,500 square feet) still yields a fairly low density – and may be insufficient to incentivize cottage cluster development.

Lessons Learned

Meeting the requirements of the MU-PUD provision was already contemplated for the Wyers End development, for which it was written. Adopting a site-specific ordinance allowed White Salmon to experiment with this housing type with minimal worry about possible unintended consequences should early projects be poorly received. Happily, Wyers End was received quite well.

Current Status

Initial buyers were mostly retired couples looking to downsize into a supportive community environment; others were looking to purchase a second, vacation, or investment rental property. Over time, Wyers End owners have opted to make White Salmon their primary residence, including single working adults and a young couple.

Cully Grove – Portland, OR

Community-oriented site layout achieved through Planned Development

Location: Cully Neighborhood, Portland, OR (609,456)

Owner/Developer: Eli Spevak and Zach Parrish, Cully Grove LLC

Architect: Hans Kretschmer, Green Gables Design & Restoration; Mark Lakeman, Communitecture

Builder: Orange Splot LLC

Type: 16 for-sale homes with shared common buildings on two acres, owned as condominiums with HOA

Square Footage: Thirteen 1,450–1,530 sf, three-bedroom homes; three 1,780 sf, four-bedroom homes; one 1,100 sf common house

Year Built: 2012–2013

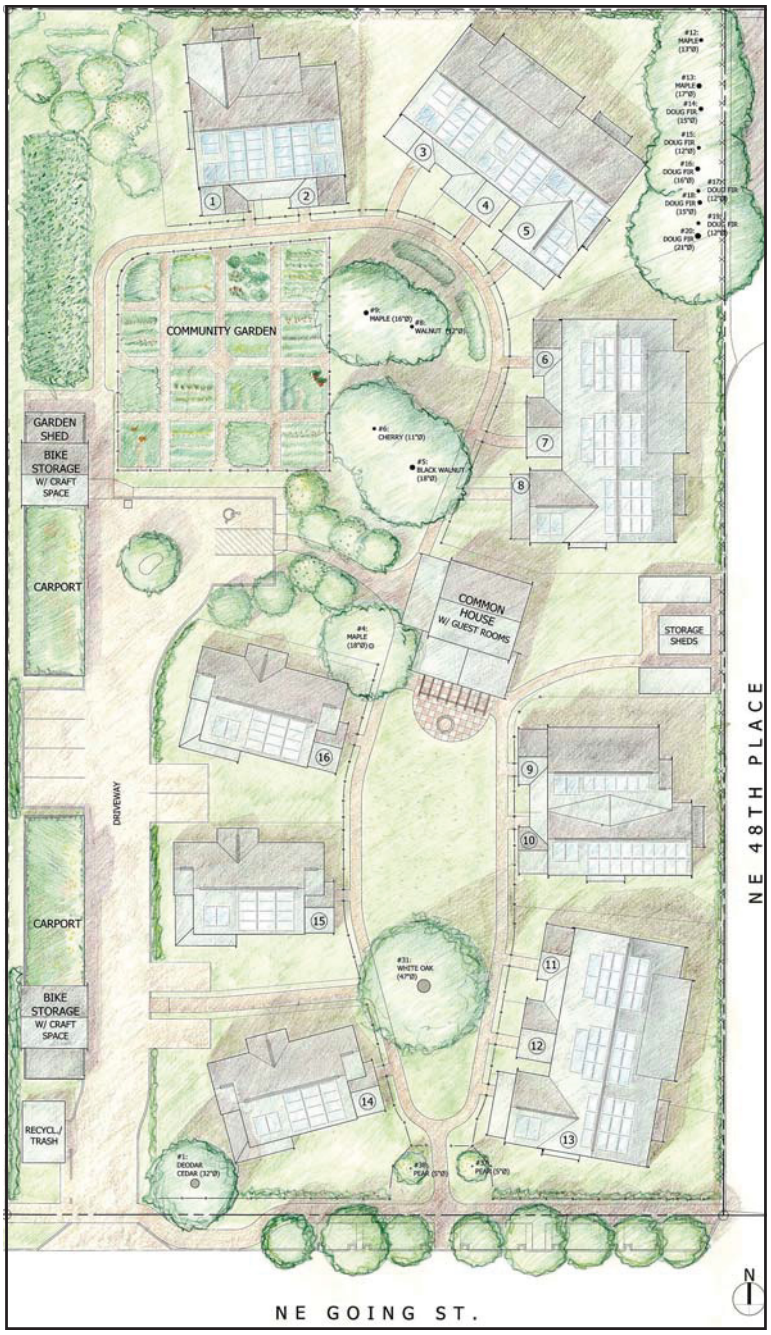
Cully Grove is a 16-home garden community tucked within a Portland neighborhood with relatively large lots, predominantly unimproved streets, and a focus on urban agriculture. Thirteen homes are attached three-bedroom townhomes in two- and three-unit buildings; the remaining three are single dwelling detached four-bedroom homes. The property was never divided into fee simple lots. Instead, the homes (and parking spaces) were sold and financed as condominiums.

Courtyard, Cully Grove, Portland OR.
(Photo courtesy of Communitecture.)

The site is laid out around two internal courtyards, anchored by large trees and a community garden. A shared common house between these courtyards serves as an extension of residents' individual homes. The first floor contains a community gathering space, small kitchen, and half bath. Upstairs, there are two bedrooms and a full bath for community members' out-of-town guests. Shared outdoor spaces at Cully Grove host picnic tables, vegetable and flower gardens, fruit trees, chickens, ducks, children's play areas, a campfire circle, and quieter lawn areas.

Twenty-two on-site parking spaces are located on the edge of the property: two for guests and the rest separately deeded and sold to residents. Shared bike storage and garden tool and wood shop rooms are built into the carport structures, along with two small craft space units for on-site office or art space.

Rather than subdivide the property into multiple single-dwelling lots, as allowed by code, the developers used Portland's Planned Development process to distribute allowed units across the site, free from the constraints of subdivision standards. Design flexibility was instrumental in preserving existing trees, orienting homes around courtyards, using attached townhomes as the primary building type (where the base zone requires detached housing) and sequestering parking and driveway access to the periphery of the site. This discretionary Type III land use process gives staff and a hearings officer, informed by neighbor input, the opportunity to determine whether the proposed alternative layout would be appropriate for this single-dwelling zone.



Site plan, Cully Grove, Portland OR.
(Image courtesy of Orange Splot, LLC.)

Supportive Code Provisions

The Planned Development process allowed site layout flexibility crucial to meeting project design and community goals.

Limiting Code Provisions

Portland's lack of zoning options to increase density in exchange for smaller home sizes was a barrier for this project. The developers would have liked to include smaller homes in this community. But without a density bonus, the fixed per-unit costs associated with land acquisition, site work, and (required) half street improvements made it financially prohibitive to do so. Also, the Planned Development process that was required in order to locate more than one home on a lot in the single-dwelling R5 zone added complexity and costs to the process.

Lessons Learned

Planned Development processes can provide a density-neutral way to support community-oriented site layouts and preserve existing trees and/or homes. However, if a jurisdiction wants to see substantially smaller homes built in single-dwelling zones, they may need to increase allowed densities, decrease minimum lot sizes, and offer density bonuses for smaller homes. Homes in Cully Grove were also pre-sold, as required by the construction lender, which led to more buyer customization and complexity than the developer/builders had expected.

Current Status

All homes are owner-occupied, and there has been no turnover thus far. Approximately half the owners are singles or couples with young children; the others are empty nesters.

Project website: *www.cullygrove.org*

Catterlin Cottages – Salem, OR

World War II-era cottage clusters become market-based affordable rentals

Location: Northeast Neighborhood, Salem, OR (population 160,614)

Owner: Jeff Zeeb

Architect, Builder: Unknown

Type: Six detached cottages on .31 acres; long-term rentals

Square Footage: Each home is single story, approximately 910 sf

Year Built: ~1940

The Catterlin Cottages consist of six detached one-story homes, each approximately 38' x 24' fronting onto a central courtyard. Six angled off-street parking spaces are available off a back alley near the site perimeter.

The Catterlin Cottages' mid-century appeal is starting to come back into favor, and the project has become exemplary of historic, Word War II housing options preserved and updated to maintain appealing, space-efficient housing. Residents have decorated several of the home entry patios with flowers and other custom landscaping. One resident volunteered that he loves living there because of the lack of shared walls between homes. According to the owner, these homes are relatively low-cost, low-amenity rentals. Most renters turn over after two or three years.

The Multiple Family Residential (RM-II) zoning applicable to this parcel supports multi-dwelling housing at a density of between 12 and 28 dwelling units per acre. At 19 dwellings per acre, Catterlin Cottages would be legal to build at this location today. The owner noted,

The Catterlin Cottages in Salem, OR, are six detached one-story homes, each approximately 38'x24', fronting onto a central courtyard.
(Photo by Eli Spevak.)

however, that they wouldn't likely be built as rentals, due to high construction costs relative to potential rental income. Some other cottage clusters in Salem, however, are located in zones with designations that *would not* allow them to be built today.

Supportive Code Provisions

Salem's Multi-Family Residential (RM-II) zone.

Limiting Code Provisions

This housing type, although fairly common in Salem, would not be allowed today in single-dwelling zones.

Lessons Learned

Certain housing types may not be financially feasible, regardless of zoning, if local rents or sales prices are too low to cover current construction costs. Hence, cities that have existing legal, non-conforming ("grandfathered") housing built to older codes may find that preserving these homes provides a valuable source of housing at smaller sizes and lower prices than could be built today.

Insight on the Issues

Expanding Implementation of Universal Design and Visitability Features in the Housing Stock

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As adults age and their physical and cognitive abilities change, they may face impediments in their homes that make living independently a challenge. Universal design and visitability features can improve residential safety and usability for older adults and people with disabilities.

SUMMARY

By 2030, one in five Americans will be age 50 and older.[1] It is critical that communities address their range of needs now. Homes must be designed without barriers so residents can navigate safely from room to room as they age. Many homes across the country do not currently meet that goal. Adopting policies that encourage the integration of universal design and visitability features into existing and new homes can meet the needs of a variety of families across all life stages.

UNIVERSAL DESIGN AND VISITABILITY DEFINED

Universal design and visitability are strategies aimed at improving the safety and utility of housing for all people, including older adults and people with disabilities. Although closely related, universal design and visitability differ in their origins and scope.

Universal design

Universal design is an approach to designing products and environments to be appropriate for all people, including those with physical, cognitive, or sensory impairments. As characterized by the Center for Universal Design, the intent of this concept, which emerged in the mid-1980s, is to "simplify life for everyone by making products, communications, and the built environment more usable by as many people as possible at little or no extra cost . . . benefit[ing] people of all ages and abilities."[2] Within a residential setting, examples of universal design features include a no-step entrance, multiple countertop heights, wide doorways, lever faucets, and a curbless shower with handheld adjustable shower head.[3] Rather than being geared solely to older adults and people with disabilities, universal design features are intended to have general utility and market appeal.

AARP's support and participation in the Redefining Home: Home Today, Home Tomorrow design competition furthers its efforts to help create a new vision for housing through the Future of Housing initiative. The design competition shows how innovative design and the collaboration of diverse partners can successfully address affordability and accessibility challenges. To learn more, visit **http://www.aarp.org/futureofhousing**.

AARP Real Possibilities
Public Policy Institute

Visitability

Visitability, a concept formalized in 1987 by the advocacy group Concrete Change, is based on the principle that all new homes should include a few basic features that make them accessible to people regardless of their physical abilities (the building accessibility requirements of the Americans with Disabilities Act does not extend to housing).[4] Unlike universal design, which can be applied to a variety of products and environments, the notion of visitability is focused exclusively on housing.

Photo credit: Benjamin Rednour

AARP and partners renovated a home in Memphis, TN to incorporate universal design features to accommodate the needs of residents as they age.

A visitable home has a main level that is easy to enter and exit. The three key features are at least one no-step entrance, wide interior doors, and at least a half bathroom on the main level. Advocates for visitability have limited their focus to these three features because of concerns that a more extensive list may not be as readily adopted by builders and purchasers of new homes, or that such additional features would not be feasible for legislative and code requirements.[5] But because of this limited focus, a visitable home may not be as accommodating as one that incorporates more comprehensive universal design elements.

WHY ARE UNIVERSAL DESIGN AND VISITABILITY IMPORTANT?

According to an AARP survey, almost 80 percent of adults ages 45 and older prefer to stay in their homes as long as possible as they age.[6] While the homes of many older adults have some accessibility features, a great number lack features that make a home universally designed or even visitable. Only about 1 percent of homes in the United States have five important accessibility features—no-step entry, all living space on one floor, switches and outlets at easily reachable heights, wide hallways and doors, and lever door handles and faucets—that would make a home accessible to individuals with mobility impairments.[7]

Homes that lack important ease-of-use and convenience features may make it difficult for older residents to use stairs, enter and exit, bathe, or meet other daily needs. Such barriers may precipitate an unwanted or premature move to an institutionalized setting, which can limit independence and be emotionally taxing and financially burdensome. Through home modifications (i.e., custom remodeling for a specific resident's needs) or the adoption of improved standards in new home construction, universal design and visitability features can enhance functionality, independence, and safety for everyone. These features thus enable older adults to age in their homes and communities and allow people with disabilities to remain involved in family and community life.

Several federal laws require that certain residential settings meet a set of accessibility requirements. The Architectural Barriers Act of 1968 mandates that any facility (including some single-family homes) designed, built, altered, or leased with federal funds, including federally subsidized housing, meet accessibility criteria outlined in what are now the Uniform Federal Accessibility Standards (UFAS).[8] The UFAS contain numerous accessibility requirements, including specifications for doorway dimensions, hardware used for handles, style of thresholds, width of hallways, and the ability to navigate through a unit and building in a wheelchair.[9] Federally subsidized housing must also

meet the accessibility requirements of section 504 of the Rehabilitation Act of 1973. Additionally, the Fair Housing Act requires that any residential building with four or more units constructed after 1991 meets accessibility design and construction criteria for

- entrances and routes through the building;
- public and common space;
- doorways;
- routes through the housing unit;
- locations of switches, outlets, and thermostats;
- construction of walls to support grab bars; and
- kitchens and bathrooms.[10]

Federally subsidized housing with four or more units built after 1991 must comply with both the requirements of section 504 of the Rehabilitation Act and the Fair Housing Act.

As important as they are, these laws do not generally require single-family homes (which make up more than 70 percent of the nation's housing stock), duplexes, triplexes, or multistory townhouse buildings without an elevator to meet any accessibility standards.[11],[12] Policies that encourage the adoption of universal design features and visitability criteria can ensure that homes not covered by existing federal law are accessible to people of all physical abilities. It is especially important to incorporate these features into new residential developments because modifying existing homes is typically more expensive.[13] Development of these policies to incentivize or require accessible features in new home construction had taken place mostly at the local level in the 1990s and early 2000s before efforts trailed off in the mid-2000s.

STRATEGIES TO PROMOTE UNIVERSAL DESIGN FEATURES AND VISITABILITY CRITERIA

Beyond the federal laws described above, few state or local residential building codes and ordinances address accessibility issues. Several different mandatory and voluntary approaches to promoting the inclusion of universal design and visitability features in new and existing homes are discussed below. Although there is a lack of research on the relative effectiveness of these programs, some housing practitioners and advocates favor mandatory requirements as a way to increase the adoption of universal design and visitability features in homes.

MANDATORY UNIVERSAL DESIGN OR VISITABILITY REQUIREMENTS

At the federal level, there is the potential to implement policies that require universal design or

Photo credit: Benjamin Rednour

After interior renovations, this home features an open space plan with wide hallways to allow for walking aids such as wheelchairs and a room with movable walls to create an office or caregiver's bedroom. A new bathroom features a curbless shower with bench and countertop with different heights that could be used by small children or older adults in the family.

visitability criteria in new homes. For example, the Eleanor Smith Inclusive Home Design Act proposes to increase the number of homes usable by people with disabilities by requiring that all newly built single-family homes and townhouses receiving federal funds meet primary visitability standards.[14]

Several states and localities already require that homes not covered by the Fair Housing Act meet a set of universal design or visitability criteria. As with the proposed federal legislation, most mandatory requirements are limited to residential projects built with government assistance. For example, the cities of Atlanta, Georgia, and Birmingham, Alabama, adopted visitability ordinances for newly built single-family homes and duplexes that receive tax credits, city loans, land grants, or impact fee waivers.[15]

A few localities mandate that universal design or visitability features be included even in newly built homes that do not benefit from government assistance. Pima County and the city of Tucson in Arizona, as well as Austin, Texas, and Bolingbrook, Illinois (see profile below), require that all new single-family homes meet basic visitability criteria. As a result, these cities have produced thousands of visitable units since enacting their respective laws.[16] Some cities, like Chicago, Illinois, require that a

PROFILE OF VISITABILITY IN BOLINGBROOK, ILLINOIS*

In 1999, a Bolingbrook resident with disabilities began educating town leaders about the unmet need for accessible housing in the community for people with disabilities and older adults. He suggested the town require new homes to include accessibility features to help limit the need for homeowners to make costly home modifications. This resident's efforts led the mayor, village board, and building inspector to support the creation of a mandatory visitability ordinance for all new single-family homes. These town leaders began informing the community about the need for, and benefits of, incorporating visitability design into all new homes.

Initially, the local home builders' association objected to a mandatory visitability ordinance over concerns that it would increase development costs and make homes less desirable to homebuyers. To address these concerns and ease the transition to a mandatory ordinance, the town set a period of voluntary compliance between 1999 and 2003 to allow developers time to change their home designs and test the process of building visitable houses before the village board would vote on adopting a mandatory ordinance.

The visitability features of the ordinance included

- no-step entrance,
- bathroom on the ground level,
- wide hallways and doors, and
- adjusted height for outlets and switches.

By the time the village board voted on the mandatory ordinance in 2003, local developers had analyzed the impact of the ordinance and found that it would have minimal financial repercussions on their projects. Some developers voluntarily built several developments in accordance with the visitability ordinance at a very small additional cost and found that the homes sold well. The limited cost of visitability features (an average of $2,911 per house) and their popularity among homebuyers led the home builders' association and local developers to support the adoption of the mandatory visitability ordinance and led to the approval of the mandatory ordinance by the village board in 2003. Since the ordinance passed, 1,916 visitable homes have been built in Bolingbrook in addition to the 1,288 visitable homes built voluntarily before the ordinance went into effect. Bolingbrook maintains a map of its subdivision with visitable homes.**

** Fuller, Katherine. "Assuring Accessible Housing: The Visitability Code of the Village of Bolingbrook." SPNA Review Vol. 4, No. 1 (2008).*

**See the Bollingbrook Visibility Map at http://www.bolingbrook.com/maps*

portion of all new single-family homes and duplexes be visitable or easily adapted.[17]

States and localities can also mandate that builders offer universal design features as options in new homes. As part of California's Health and Safety Code, builders must provide a checklist of universal design "add-on options" to potential homebuyers, enabling them to choose accessibility features for their home. Although this policy is not thought to have had a particularly significant impact in California, requiring builders to offer universal design features to buyers and monitoring compliance does allow consumers to directly influence the accessibility of their new home as it is being built.

VOLUNTARY AND INCENTIVE-BASED PROGRAMS

Some states and localities have developed voluntary programs to encourage developers or homeowners to adopt universal design features and visitability criteria in homes. These programs often offer financial incentives, building certification, streamlined permitting, or fee waivers to those who participate. Yet some housing advocates express concern that incentive-based programs are not readily adopted by consumers or developers and thus do not significantly increase the stock of homes that are safe and convenient for all people.

Recognizing that accessibility improvements can be expensive, some states designate tax credits or grants, or create deferred loan programs to assist with home modifications for existing homes. In Georgia, for example, disabled low-income homeowners are eligible for state grants of up to $15,000 to complete home modifications to improve the accessibility of their home by widening doorways, building ramps, and lowering shelves.[18]

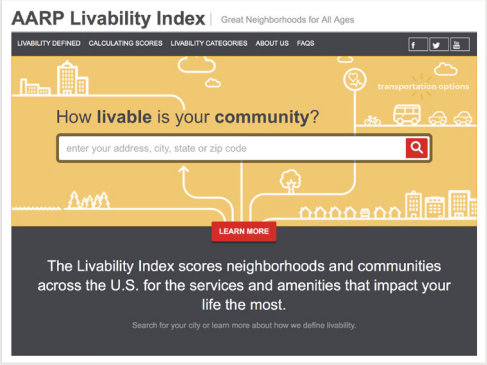
At the local level, jurisdictions can waive construction permit fees or streamline the permitting process for homes with accessibility features, helping to reduce overall building costs. For example, in 1999, officials in Freehold Borough, New Jersey, passed an ordinance to waive building permit fees for ramps and other universal design features in residential units.[19] In Austin, Texas, the S.M.A.R.T. Housing Initiative uses expedited review and fee waivers to incentivize the production of single-family and multifamily affordable homes. To participate in the S.M.A.R.T program, builders and developers must build homes that meet visitability criteria put in place by an Austin ordinance enacted in 1998.[20] Approximately 12,000 housing units were built between 2000 and 2015 through the S.M.A.R.T. program.[21]

Voluntary certificate programs are another incentive-based approach that "brands" homes meeting accessibility standards under a recognizable label, creating a tool for marketing them to prospective homebuyers or tenants. For example, Johnson County, Iowa, operates Homes for Life, a two-tiered certification program that rates homes as either "Level I - Visit-ability" or "Level II - Live-ability," depending on which accessibility features are incorporated into home construction.[22] Such certificate programs could benefit from coordinated outreach and education efforts to increase awareness of the advantages associated with accessibility features in homes.

When developing these policies, jurisdictions can refer to building codes, such as ANSI/ICC 117.1 (2009), the Standard for Accessible and Usable Buildings and Facilities, for guidance on integrating visitable and accessible features into homes.[23]

THE LIVABILITY INDEX

AARP's Livability Index: Great Neighborhoods for All Ages is an online resource that measures communities across several categories, including housing, on how well they are meeting the needs of people as they age. The tool scores any location in the United States against a set of indicators that, when combined, reflect AARP's livable communities principles. The index includes several indicators that highlight a number of housing issues and policy solutions discussed in this *Insight on the Issues* such as the prevalence of homes with accessible features within the community and the existence of state or local policies that support home accessibility. To score your community, visit http://www.aarp.org/livabilityindex.



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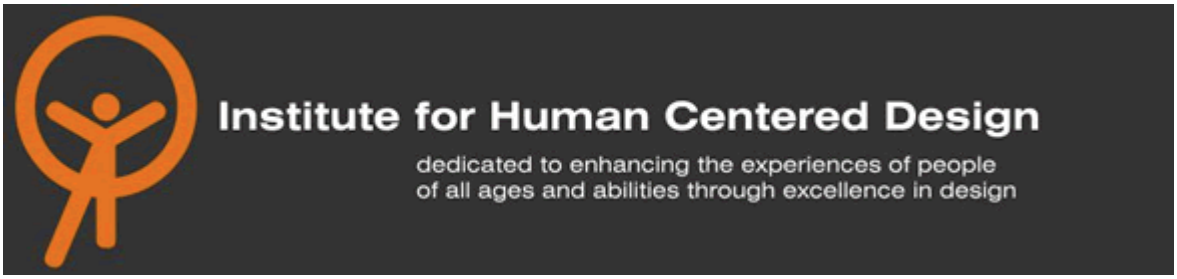

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Universal Design in Housing

by Ronald L. Mace, FAIA

Universal design in housing is a growing and beneficial concept. It is subtle in its differences from barrier-free, accessible, and industry standard housing. Accessibility standards and codes have not mandated universal design and do not apply to most housing. Universal design exceeds their minimum specifications for accessible design and results in homes that are usable by and marketable to almost everyone. Universal homes avoid use of special assistive technology devices and, instead, incorporate consumer products and design features that are easily usable and commonly available.

The market for universal design in housing includes everyone at some point in their lives, and the movement toward universal design in housing and consumer products is becoming more viable as our population ages. In view of this, The Center for Universal Design has followed its development of the seven Principles of Universal Design (Center for Universal Design, 1997) with a draft list of characteristic features of universal design in housing. This list is intended to serve as a guide for designers, builders, and buyers today and in the future as universal design in the housing industry evolves.

Background

Why universal design in housing? What is universal design in housing? How does it differ from accessible or barrier-free housing? These are all good questions with subtle answers that make universal design somewhat difficult to understand in this application.

Universal design in housing is both accessible and barrier-free, but it carries these goals to a greater and more marketable extent than has been common practice for either of the other two design types. Universal design goes far beyond the minimum specifications and limitations of legislated mandates for accessible and barrier-free facilities.

Accessibility Standards

Accessible and barrier-free design for building types other than private housing has been mandated by building codes or laws and defined by minimum standards. By law, codes and standards stipulate the minimum regulatory action necessary to accomplish the stated goals, such as life safety or, in this case, accessibility.

Early standards and codes required few, if any, building features to be accessible. In 1961, the American National Standards Institute published the first national accessibility standard, titled

"A117.1-Making Buildings and Facilities Accessible to and Usable by People with Disabilities." It stated that, for a building to comply and be usable, it had to have "a reasonable number but always at least one" of the features it described, i.e., one accessible door, one accessible toilet room, etc. Thus, most of the regulations and codes that adopted the standard have never mandated truly accessible or barrier-free buildings and facilities, but rather only parts and pieces of buildings were required to be accessible.

Also, only certain building types were required to comply. Early codes and standards included no provisions for private housing. The attitudes were that homes are private places not for public use and could not, or should not, be required to be accessible. Subsequent standards included some minimum specifications for accessible features in houses such as kitchen sinks, bathtubs, toilets, etc. However, these specifications were adopted and mandated in most localities only for applications in multifamily housing programs, such as publicly owned or managed apartments.

For many years, the accessible apartment requirements in many state building codes have generally remained applicable to only 5% of new units. Under the access requirements for housing programs receiving federal financial assistance covered by section 504 of the Rehabilitation Act of 1973, only 5% of new apartments must be wheelchair accessible. An additional 2% must be equipped for visually impaired and blind residents and another 2% for hard-of-hearing and deaf tenants. These requirements, therefore, predominantly affect only selected features in a small number of rental apartments in publicly assisted housing projects.

The Fair Housing Act Amendments THAA) of 1988 established a special and different accessibility standard for rental multifamily housing. The Act mandates a lower level of accessibility but covers a greater number of apartments, including all units on ground floors and all units on floors served by elevators. The minimum level of access provided is an improvement over many conventional and inaccessible apartments, but it is not sufficient for many people with disabilities and is far from being barrier-free or accessible.

The Americans with Disabilities Act of 1990 (ADA) does not cover or address accessible housing except for facilities such as motels, hotels, and dormitories. In these, the ADA standards for accessible design require, again, a limited number of units to meet minimal specifications that are special, not truly barrier-free, nor usable by many of the people with disabilities they are intended to accommodate.

Private Housing

There are no requirements that single-family or other forms of private housing be accessible or barrier-free and no incentives for the housing industry to change. Most accessible housing is built by and for persons with disabilities on an individual basis. Very little accessible housing is available on the open market and housing opportunities for people with disabilities continue to be extremely limited. Realtors, citing stigma, largely discount accessible houses as not marketable to others and devalue them in the marketplace. Designers and builders are not taught how to build accessible housing and usually either defer to early institutional standards and codes or seek advice from rehabilitation specialists. This process too frequently results in unnecessary use of expensive assistive technology devices, durable medical equipment such as stainless steel and chrome grab bars, and awkward features such as ramps that give houses a clinical, "special" look. Thus, many such accessible homes give the genre a negative image and, indeed, are devalued in the marketplace.

Universal Design in Housing

Universal design in housing far exceeds the minimum specifications of legislated barrier-free and accessible mandates. Universal design in housing applies the principles of universal design to all

spaces, features, and aspects of houses and creates homes that are usable by and marketable to people of all ages and abilities. Some features of universally designed homes are adjustable to meet particular needs or needs that change as family members age yet allow the home to remain marketable on the open real estate market. Universal design has the unique quality that, when done well, it is invisible.

Universal design in housing:

- is not mandated and probably cannot be mandated;
- includes accessible and barrier-free design;
- is not assistive technology;
- avoids clinical images, use of durable medical equipment, and special features;
- includes some adaptable or adjustable features;
- seeks and uses consumer products that are universally usable and commonly available;
- makes houses easier and safer for everyone to use throughout the lifespan;
- anticipates future needs;
- supports the independent living, home health care, and aging-in-place movements;
- responds to common market trends and human needs; and
- creates a market for more universally usable products.

The idea for universal design in housing grew out of recognition that, because most of the features needed by people with disabilities were useful to others, there was justification to make their inclusion common practice. For example, raising electrical receptacles to 15 or 18 in. above the floor eliminates the need to bend over as far and makes them easier to use for everyone or more universal. Some universal features make common activities easier for all. For example, moving is much easier in houses with stepless entrances and wider doors and hallways. Some universal design features create experiences many people have not had before. For example, when well designed, bathrooms with extra floor space to accommodate users of mobility aids are perceived as luxurious and people revel in their new-found ability to have furniture in the bathroom. A chair, bookcase, towel rack, or etagere can give bathrooms a marketable elegance and utility, and they can be removed if the space is ever needed to accommodate a family member or friend.

Universal design in housing is not a new science, a style, or unique in any way. It requires only an awareness of need and market and a commonsense approach to making everything we design and produce usable by everyone to the greatest extent possible. In many instances, it requires only slight changes in simple things, such as the shape of an element, its placement or size, the force necessary to operate it, or the way in which the user must interact with the item.

Hierarchies of Usability

The term universal is not ideal because nothing can be truly universal; there will always be people who cannot use an item no matter how thoughtfully it is designed. However, we can almost always improve on the things we design to make them more universally usable. In fact, "more universal" or "more nearly universal" are expressions frequently used to recognize that there are hierarchies within universal design of building elements. Doors, e.g., can be arranged in a hierarchy that ranges from those that are most universal, i.e., require the least human action to use, to those that are least universal, i.e., require the most human action to use. The door hierarchy starts with a cased opening or an air door, which has no door and therefore requires no human action, then moves up to power doors with automatic sensors or mat switches, which require some action, and moves through a series of increasingly difficult manual doors to one equipped with a heavy automatic closer, a round knob, and a key-operated full-time lock.

In the product arena, hierarchies also exist. A product may meet the needs of most people but omit a feature for one category of user. Is a product universal if essential information cannot be perceived by blind users? The answer is no; it is neither truly universal nor as universal as possible. It could be more universal if its information were communicated by voice module or tactile method.

Assistive Technology

Universal design in housing is not assistive technology. Assistive technology devices are special aids for use by individuals with a particular disability. In housing, they may include such items as wheelchairs, walkers, mechanical ventilators, special adjustable-height toilet seats, offset door hinges, bathtub lifts, and environmental control devices. Universally designed homes can eliminate the need for some assistive technology devices and make installation and use of others more convenient should the special type of assistance they provide become needed. For example, installing showers and tubs that have built-in folding or fixed seats that can be used by everyone eliminates the need for special seats. Including extra blocking in ceilings and walls at critical locations allows grab bars and track lifts to be installed if, when, and where needed without structural changes. Installing wide doors during initial home construction eliminates the need to install offset hinges later, and additional electrical service in bedrooms and baths accommodates add-on assistive technology as it is needed.

Thus, universal design in housing accommodates but is not based on assistive technology. Universal design in housing is usually possible only in new construction, but home modifications can improve the accessibility of existing homes. Many assistive technology devices are aids for functioning in existing inaccessible environments and are, therefore, often needed to help avoid or minimize the need for expensive and disruptive home modifications. Universal design is based in the mainstream consumer market and creates houses that at least do not hinder people from living as actively as their abilities will allow.

One large difference between assistive technology and universal design in housing is in their aesthetics and associated marketing approaches. Assistive technology devices are generally not the kind of products homeowners are eager to buy and use in their homes. Their design and development are generally concerned with function (as perceived by professional caregivers) and determined by competitive costs, not user preferences or experiences. Little or no attention is paid to the aesthetics of assistive technology and rarely is competitive marketing an issue. Users, considered to be patients, are expected to use the devices selected by their professional caregivers and be grateful for the improved function or support they receive despite any stigma, embarrassment, or negative image the devices may generate. Universal design, on the other hand, appeals to and is marketable to people of all ages and abilities.

Consumer Products

Universal design in housing seeks and uses features and products that provide the same support as assistive technology devices but that are attractive and mass marketable to anyone. Some products cross over from assistive technology to consumer markets and vice versa. One such crossover product was an imported listening system for hard-of-hearing people who needed higher volume to watch their televisions but didn't want to disturb others. It consisted of wireless headphones with a built-in receiver, a discreet volume control, and an infrared or FM transmitter that could be attached to any television. The system became available as an assistive device in the early 1980s and cost approximately $600. Today, it is a consumer product marketed to audiophiles for home stereos, televisions, and other sound systems. It is sold through retail outlets, electronic stores, and catalogs for $69. Similarly, the inexpensive X-10 wireless residential remote control widely marketed as a convenience and home security system for more than 20 years is an excellent non-life-supporting environmental control device that can bring home automation, lighting, and small appliance control

to people with disabilities. These consumer devices provide advantages similar to assistive technology equipment but are attractive and available at lower costs because they are designed and mass marketed as consumer products.

Some common home products such as the power garage-door operator are essentially assistive technology. They assist people who cannot open or have difficulty opening overhead garage doors. They are also a convenience item because, when equipped with remote controls, one need not get out of the car to open or close the door. Because they are mass marketed in a positive way as consumer products, they are widely available for about $150 and are never perceived to be special or assistive devices. Residential power door operators for people who have difficulty opening and using entrance doors, on the other hand, are not widely available. Although no more complex or sophisticated, they cost four to six times as much as a garage opener and, as a result, are not seen as a consumer or convenience product. As their use increases, costs are coming down. Positive marketing could change the perception of this item and make it a common amenity, with great benefit to anyone bringing in groceries or doing similar daily tasks.

The Population of People with Disabilities

The number of people who could benefit from widespread adoption of universal design principles in housing is large. It includes virtually everyone, by some measures. The frequently quoted government-generated number of 54 million people with disabilities (McNeil, 1997) was determined from limited census data and includes recipients of disability benefits programs. It excludes millions of people who have limitations but are outside the categories counted. The Arthritis Foundation estimates that 40 million Americans have arthritis alone (Arthritis Foundation, 1997). Other associations list similarly large numbers. Most non-government sources count people who do not identify themselves as disabled or receive any form of disability benefits or services and are not included in the 54 million figure. Added to these people are others who have no discernible cause of limitation other than the reduced stamina, agility, eyesight, hearing, etc. that accompany the normal process of aging.

All told, no one goes through life without experiencing some disabling conditions. Thus, the shift in approach in the design of housing and consumer products toward more universal usability has long-term value as our aging population grows.

Examples of Universal Design in Housing

There are good examples that demonstrate that universal design in housing is progressing. Excel Homes in Pennsylvania asked The Center for Universal Design to modify 24 of their best-selling modular home plans. The houses are now available with optional kitchen and bathroom plans to fit almost any need. The Home Store in Wheatly, MA, markets Excel and similar houses in the northeast region and has had several additional universal units designed for their particular market. Amherst Homes in Cincinnati now makes all of its new homes as universal as possible. Miles Homes in Minnesota offers universal home design and marketing services. Planning is underway for the first commercially available book of universal house plans and related information. It is expected to be available in 1999.

Characteristics of Universal Design in Housing

The Center for Universal Design has developed a draft list of the characteristic features of universal houses. It is a work in progress that is expected to evolve into a guide for designers, builders, and consumers. The list is based on experience with accessible, adaptable, and universal design in housing and product development for over 30 years. This list is intended to serve as a guide. The

features described are those we might look for in a universal house, but not all are expected to be included in any given home.

The following list of characteristics includes elements, features, ideas, and concepts that contribute to or can be components of a universal house. Some are finite recommendations. Some are options. Some are scope statements about how many of a feature must or should be included. Obviously, the more universal design characteristics or features included, the more usable the house. The Center welcomes readers' comments and advice on these characteristics.

Entrances

- No steps at entrances
  - Making all home entrances stepless is best.
  - More than one stepless entrance is preferred.
  - At least one stepless entrance is essential; if only one, not through a garage or from a patio or deck.
- Site design methods for integrated stepless entrances
  - Level bridges to uphill point.
  - Garage elevated to floor level so vehicles do the climbing.
  - Earth berm and bridge and sloping walk details.
  - Site grading and earth work (with foundation waterproofing) and sloping walks at 1-in-20 maximum slope.
  - Ramps avoided; if used, ramps must be integrated into the design.
- Maximum rise of 1/2 in. at thresholds.
- View of visitors for all people, including children and seated users
  - Sidelights,
  - Wide-angle viewers,
  - TV monitors, and/or
  - Windows in doors or nearby.
- A place to put packages while opening doors: built-in shelf, bench, or table with knee space below located on the outside next to the door.
- Weather protection shelter while unlocking and opening doors
  - Porch,
  - Stoop with roof,
  - Long roof overhang,
  - Awning, and/or
  - Carport.
- A way for visitors to communicate with residents
  - Lighted doorbell,
  - Intercom with portable telephone link, and/or
  - Hardwired intercom.
- Space at entry doors: minimum 5 ft X 5 ft level clear space on both inside and outside of entry door for maneuvering while opening or closing door (can be smaller if automatic power door is provided).
- Light for operating at entry doors
  - Focused light on lockset,
  - General illumination for seeing visitors at night, and/or
  - Motion detector controls that turn on lights when someone approaches the door, help eliminate the problem of dark approaches to home, and add to sense of security.

  Address house number: large, high contrast and located in a prominent place to be easy for friends and emergency personal to locate.

Interior Circulation

- At least one bedroom and accessible bathroom should be located on an accessible ground floor entry level (on the same level as the kitchen, living room, etc.).
- Minimum of 32 in. clear door opening width (34-36 in. wide doors) for all doorways.
- Minimum of 18 in. clear floor space beside door on pull side at latch jamb: provides space to move out of the way of the door swing when pulling it open.
- Accessible route (42 in. minimum width): provides maneuvering room in hallways and archways.
- Turning space of 5-ft diameter in all rooms.

Vertical Circulation

- All stairs to have appropriate width and space at the bottom for later installation of a platform lift, if needed.
- At least one set of stacked closets, pantries, or storage spaces with knock-out floor for later use as an elevator shaft; or
- A residential elevator with minimum 3 ft X 4 ft clear floor installed at the time of initial construction.
- Stair handrails to extend horizontally beyond the top and bottom risers.

Light and Color

- Contrast between floor surfaces and trim: color or contrast difference that facilitates recognition of the junction of floor surfaces and walls.
- Avoid glossy surfaces.
- Color contrast difference between treads and risers on stairs.
- Ambient and focused lighting: lots of light, lighting that is thoughtful and variable, emphasizing lighting at entrances, stairs, and task lighting.
- Contrast between counter tops and front edges or cabinet faces.

Hardware

- Easy to use, requiring little or no strength and flexibility
  - Lever door handles,
  - Push plates,
  - Loop handle pulls on drawers and cabinet doors - no knobs,
  - Touch latches,
  - Magnetic latches in lieu of mechanical, and
  - Keyless locks.

Switches and Controls

- Light switches at 36-44 in. above floor maximum and thermostats at 48 in. maximum height.
- Easy-touch rocker or hands-free switches (see Home Automation, below).
- Additional electrical outlets at bed locations and desk for equipment: fourplex boxes on each side for computer and electronic equipment as well as personal use equipment.
- Electrical outlets at 18 in. minimum height allows easy reach from a sitting position as well as for those who have trouble bending over.
- Electrical panel with top no more than 54 in. above floor located with a minimum 30 in. X 40 in. clear floor space in front.

Home Automation

- Motion detector light switches in garages, utility spaces, entrances, and basements.
- Remote controls for selected lights.
- Remote controls for heating and cooling.
- Doorbell intercoms that connect to portable telephones.
- Audible and visual alarms for doorbell, baby monitor, smoke detector, etc.

Plumbing Fixture Controls

- Single-lever water controls at all plumbing fixtures and faucets.
- Pressure balanced antiscald valves at tubs and showers.
- Hand-held showerheads at all tubs and showers in addition to fixed heads, if provided.

  Single-lever diverter valves, if needed.

- Adjustable-height hand-held showerhead on 60 in. flexible hose: allows easy use by people of all heights.
- Mixer valve with pressure balancing and hot water limiter: prevents scalds by people who cannot move out of the way if the water temperature or pressure changes suddenly.

Bathrooms

When more than one bathroom is provided, all are to meet the following criteria, including bathrooms on second floors.

At least one bathroom must have one of the following accessible bathing fixtures:

- Minimum 5 ft long X 3 ft (4 ft preferred) deep curbless shower (see wet area shower details below).
- Tub with integral seat, waterproof floor, and a floor drain.

Other bathrooms in the same house may have a tub with an integral seat or a 3 ft X 3 ft transfer shower with an L-shaped folding seat and 1/2 in. maximum lip (curb) in lieu of the fixtures described above. When more than one bathroom has the same type of bathing fixture (a tub, shower, or wet area shower), at least one shower should be arranged for left-handed use and one for right-handed use.

- Adequate maneuvering space: 60 in. diameter turning space in the room and 30 in. X 48 in. clear floor spaces at each fixture. Spaces may overlap.
- Clear space of 3 ft in front and to one side of toilet: allows for easy maneuvering to and around toilet.
- Toilet centered 18 in. from any side wall, cabinet, or tub.
- Broad blocking between studs in walls around toilet, tub, and shower: allows for future placement and relocation of grab bars while assuring adequate load-bearing capacity (eliminates the need to open up wall to add blocking later).
- Minimum lavatory counter height of 32 in.
- Clear knee space 29 in. high under lavatory: allows someone to use the lavatory from a seated position. May provide open knee space or removable vanity or fold-back or self-storing doors. Pipe protection panels must be provided to prevent contact with hot or sharp surfaces.
- Countertop lavatories are preferred with the bowl mounted as close to the front edge of the counter as possible.
- Wall hung lavatories are acceptable with appropriate pipe protection.
- Pedestal lavatories are not acceptable.

- Long mirrors should be placed with bottom no more than 36 in. above the finished floor and top at least 72 in. high. Full-length mirrors are good choices.
- Offset controls in tub/shower with adjacent clear floor space: allows for easy access from outside the tub with no inconveniences when inside.
- Integral transfer seat in tub and in 3 ft X 3 ft shower stall: allows people to sit in tub/shower without needing additional equipment.
- Grab bars: if installed, should not be stainless steel or chrome. Use colors to match decor.

Kitchens

- Space between face of cabinets and cabinets and walls should be 48 in. minimum.
- Clear knee space under sink 29 in. high minimum: allows someone to use the sink from a seated position. May provide open knee space or removable base cabinets or fold-back, bifold, or self-storing doors. Pipe protection panels must be provided to prevent contact with hot or sharp surfaces.
- Adjustable-height (28-42 in.) work surfaces: electrically powered continuously adjustable counter segments, some with cook tops, others with sink and disposal units; or
- Mechanically adjustable counter segments, some with cook tops, others with sinks and disposal units, adjustable from 28 in. to 42 in.: allows in-kitchen work for people of all heights, those with back trouble, people who are seated, and children.
- Contrasting color border treatment on counter tops: color or contrast difference that facilitates recognition of the edges of counters and the different heights to prevent accidental spills.
- Stretches of continuous counter tops for easy sliding of heavy items, particularly between refrigerator, sink, and stovetop for easy one-level flood flow.
- Full-extension pull-out drawers, shelves, and racks in base cabinets for easy reach to all storage space.
- Adjustable-height shelves in wall cabinets.
- Pantry storage with easy access pull-out and/or adjustable-height shelves for easy reach to all items stored (e.g., Stor-Ease pantry storage system).
- Front-mounted controls on appliances to facilitate reach.
- Cook top with knee space below: allows someone to use the appliance from a seated position. May provide open knee space or removable base cabinets or fold-back or self-storing doors. Pipe protection panels must be provided to prevent contact with hot or abrasive surfaces.
- Cook top or range with staggered burners and front- or side-mounted controls to eliminate dangerous reaching over hot burners.
- Glare-free task lighting to illuminate work areas without too much reflectivity. Side-by-side refrigerator: allows easy reach to all items, particularly if pull-out shelving is provided; or
- Use under-counter or drawer-type refrigerators and install them on raised platforms for optimum access to storage space at 18 in. to 48 in. above finished floor.
- Built-in oven with knee space beside. Locate so one pull-out oven rack is at same height as adjacent counter top with pull-out shelf.
- Drop-in range with knee space beside. Locate top surface at 34 in. above finished floor.
- Dishwasher raised on a platform or drawer unit so top rack is level with adjacent counter top. This also puts bottom racks within easy reach, requiring less bending.

Laundry Areas

- Front-loading washers and dryers with front controls. Washers and dryers raised on platforms to reduce need to bend, stoop, or lean over.
- Laundry sink and counter top surface no more than 34 in. above finished floor with knee space below.
- Clear space 36 in. wide across full width in front of washer and dryer and extending at least 18 in. beyond right and left sides (extended space can be part of knee space under counter tops,

sink, etc.).

Storage

- Fifty percent of storage to be no more than 54 in. high.
- Adjustable-height closet rods and shelves: allows for flexibility of storage options.
- Provide lower storage options for children, short, and seated people.
- Motorized cabinets that raise and lower.
- Power operated clothing carousels.

Windows

- Windows for viewing to have 36 in. maximum sill height.
- Casements, awnings, hoppers, and jalousies are good choices but are not essential.
- Crank-operated windows.
- Power operators whenever possible.

Sliding Doors

- Bypassing closet doors: each panel should create an opening at least 32 in. clear.
- Interior pocket doors: when fully open, door should extend 2 in. minimum beyond doorjamb and be equipped with an open-loop handle for easy gripping.
- Exterior sliding doors: drop frame and threshold into subfloor to reduce upstanding threshold track or ramp finished flooring to match top of track on both sides.

Decks

- Build deck at same level as house floor.
- Keep deck clear of house and use slatted decking for positive drainage, e.g., a wood trench drain.

Garages and Carports

- Power-operated overhead doors.
- Door height and headroom clearances 8 ft

Availability Information:

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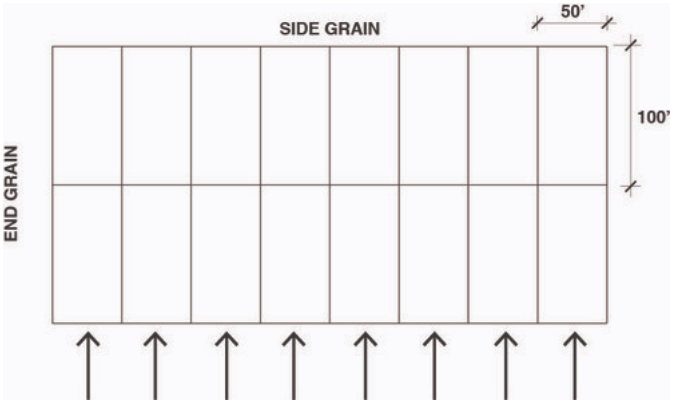
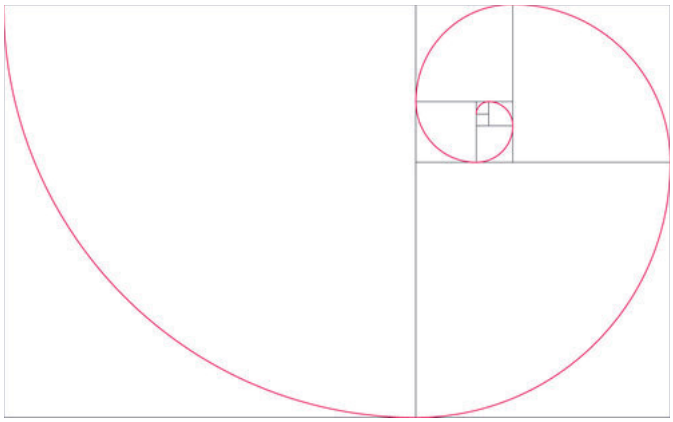
The Magic of Corners (/buildingportland/2018/2/18/the-magic-of-corners)

Jonathan Konkol (/buildingportland/?author=5a7bd7d75ce3505d268652a7)

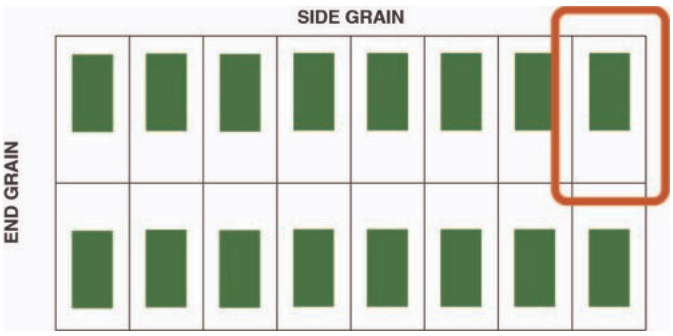


In our last post (https://www.plandesignxplore.com/straight-from-the-heart/2018/2/18/building-blocks-1) we dived in to the patterns of land division that characterize most prewar North American cities, particularly those on the west coast. Now it's time to explore (or... XPLORE) how these forms can be used create great places, and how we can use these lessons to build good buildings communities moving forward.

As we showed previously, blocks have an end grain, consisting of the long sides of rectangular lots, and a side grain, which comprises the short ends of that series of rectangles, facing the street mid-block.

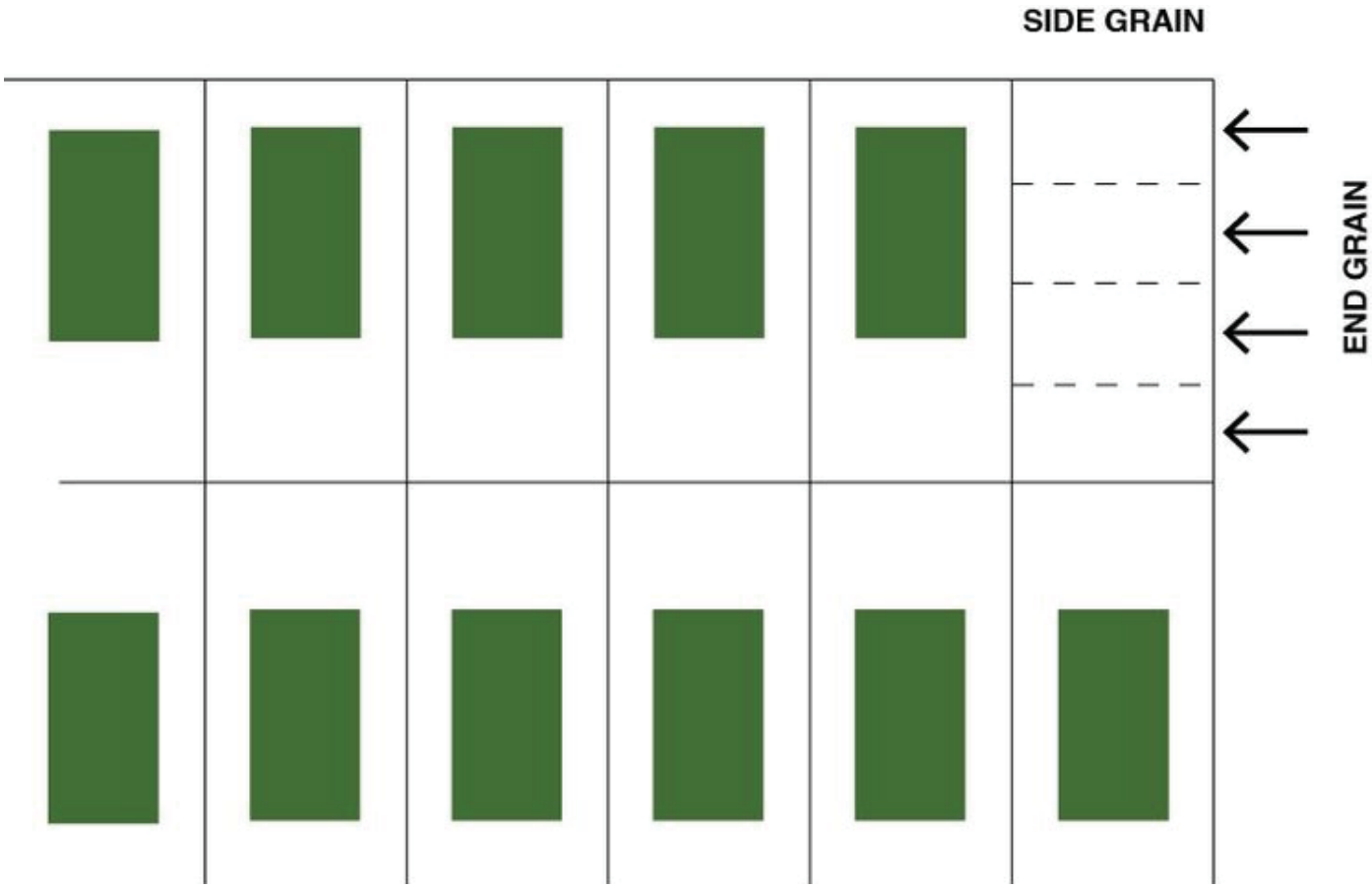


The block is typically rectangular, and it has a nested hierarchy of lots of similar dimensional ratios nested within it. This fractal relationship tells us something valuable about how to orient buildings on lots.



Corners are unique because they allow us to take that fractal relationship a little further by dividing again into a smaller module. Of course, there are other ways to divide land, and we'll examine these, and their attendant problems in

subsequent posts. For now, we'd like to explore the unique properties of corners to understand why and how we can use them to their full advantage when looking for opportunities to add context-sensitive density to our urban neighborhoods.

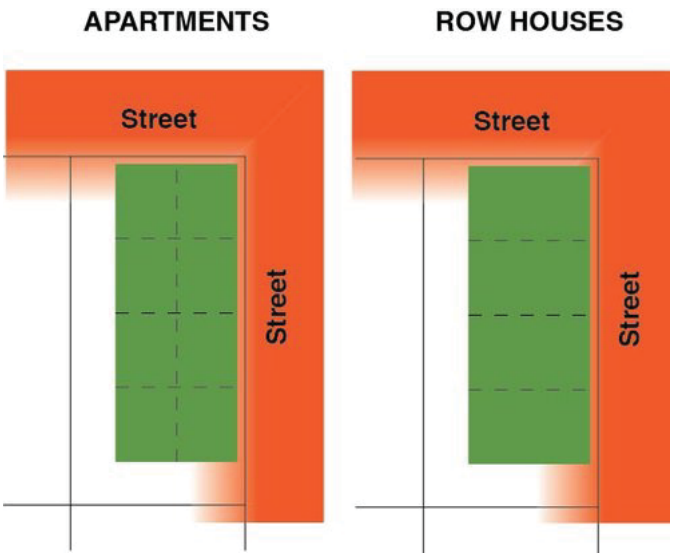


So what's so special about corners? It all comes down to access to the public room, the street. Let's examine what that looks like.

Would you rather live on the street facing end, or on the side? There's no accounting for preferences, and a few people will have their reasons for choosing to live facing a glorified light-well, but for the most part, people tend to prefer light and air. In fact studies (https://depts.washington.edu/hhwb/Thm_Mental.html)have found that views of nature have quantifiable social and mental health benefits.

Therefore, when siting new multifamily structures, we can take advantage of the fractal nature of block and lot division to site corner buildings to maximize the access to light, air and views.

Orienting a building so that the long side of the lot faces the street allows us to treat that lot line like a mini version of a full-scale block face.



Trying to insert these same building typologies mid block creates a less desirable condition, since the majority of the space inside these buildings has considerably less direct access to air and daylight.

Again, this is not to say it can't be done, if Portland wants to be judicious and surgical about how it inserts density into its existing urban fabric, corners seem like a no-brainer. Clearly people can and do build this way, but if we're talking about up-zoning portions of already built-out neighborhoods, why not do so in a way that is minimally invasive and follows a logical pattern that is legible with in the existing neighborhood's spatial hierarchy?

The additional linear curb frontage also mitigates the parking problems associated with dense infill; corner lots typically have room for up to six vehicles to park along the curb. Our case studies have found many great examples of this.

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Building Blocks
(/buildingportland/2018/2/18/building-blocks-1)

LAND DIVISION INFORMATIONAL GUIDE

Flood Hazard Areas, Ch. 33.631

What is a flood hazard area?

A flood hazard area is land that is in the 100-year flood plain, as currently defined by the Federal Emergency Management Agency (FEMA). The 100-year flood plain is land that is subject to one percent or greater chance of flooding in any given year.

What is a floodway?

A Floodway is the portion of the flood hazard area that is actively flowing during a flood. The floodway is usually associated with a stream channel or river.

How do I know if my property is in a flood hazard area?

If your property is within a 100-year flood plain, your site is in a flood hazard area. The 100-year flood plain is determined by FEMA. A copy of the FEMA flood plain maps are available for your review in the Development Services Center (DSC). The 100-year flood plain is also mapped digitally on the City of Portland GIS system. You may ask Planning and Zoning Staff in the DSC to view this information. You may also view digital GIS information, including the 100-year flood plain, at *www.portlandmaps.com*.

How do these regulations affect proposed land divisions?

Single dwelling zones - In single dwelling zones all lots must be outside the flood hazard area. Or, if it's not possible to have all lots outside of the flood hazard area, all proposed building areas must be outside the flood hazard area.

All other zones - In multi-dwelling residential and commercial, employment, and industrial zones where possible, each lot must have adequate area outside the flood hazard area to accommodate allowed or proposed uses (this criterion does not apply to river-dependant uses).

Where it is not possible to create lots that have adequate area outside the flood hazard area to accommodate allowed or proposed uses then the following criteria must be met:

- Lots must be configured so that development on them will reduce the impact of flooding and provide the greatest protection for development from flooding;
- Lots must be configured so that allowed or proposed uses that are not river-dependent will be able to locate on the highest ground and near the highest point of access, so that development on the lots can be configured in a manner that will minimize obstruction of floodwaters; and
- Where the proposed uses and development are river-dependant, lots must be configured so that development on them will minimize obstruction of floodwaters.

All zones - Services proposed in the flood hazard area must be located and built to minimize or eliminate flood damage to the services; and the floodway must be entirely within a flood hazard tract unless river-dependent land uses and development are proposed on the site.

Submittal requirements – Zoning Code Section 33.730.060.D

When a land division application is submitted to the City, it must include the following information regarding flood hazard areas:

- The Vicinity Map must show the location of flood hazard areas for the site and the area extending at least 800 feet in each direction from the land division site.
- The Existing Conditions Map must include the location of flood hazard areas, including elevations of 100-year floodplains and FEMA Floodway boundaries. Sites that contain a water body not shown on the FEMA maps must identify the location of flood hazard areas.
- If the proposed lots are within a flood hazard area, the Proposed Improvements Map must show the proposed building locations.

For more information visit or call the Planning and Zoning staff at the Development Services Center at 1900 SW 4th Avenue, Suite 1500, 503-823-7526

Information is subject to change, for current Portland Zoning Code visit www.planning.ci.portland.or.us/cd_over.html

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