Concept Recommendations

NARROW LOTS

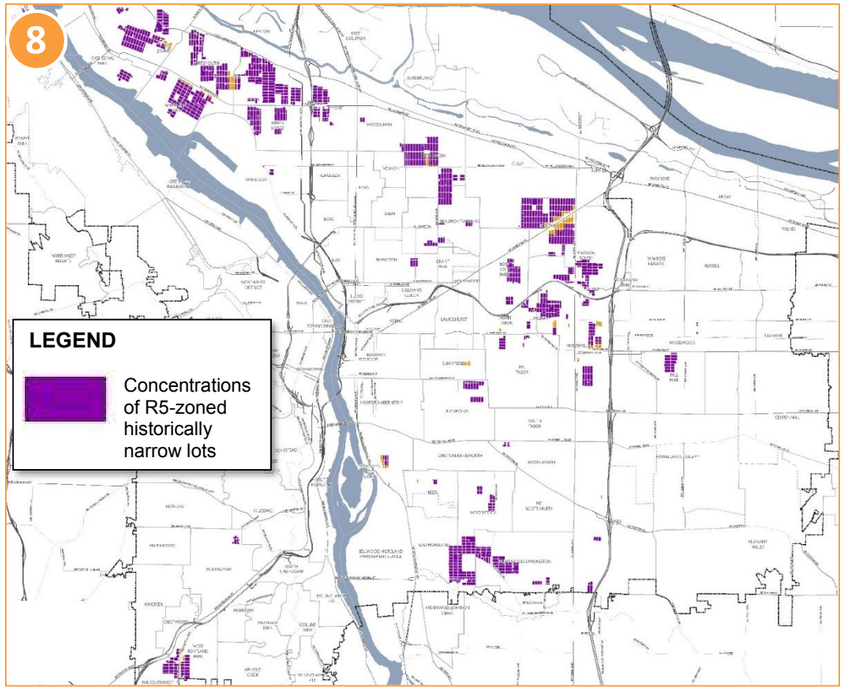
8. Do not allow historically narrow lots to be built on

9. Make citywide improvements to the R2.5 zone

a) On vacant R2.5 zoned lots at least 5,000 square feet, require at least two units when new development is proposed. Allow a duplex or a house with an accessory dwelling unit (ADU) to meet this requirement.
b) Reduce the minimum lot width from 36 feet to 25 feet for land divisions.
c) Allow a property line adjustment to form a flag lot when retaining an existing house.
d) Require attached houses when a house is demolished.
e) Allow 3-story attached homes and limit detached houses on narrow lots to 2 stories.

10. Revise parking rules for houses on narrow lots citywide

a) Allow, but don't require parking on narrow lots.
b) When a lot abuts an alley, parking access must be provided from the alley.
c) Allow front-loaded garages on attached houses on narrow lots if they are tucked under the first floor of houses and the driveways for each house are combined.



Current: *Existing house on a site comprised of three historically narrow lots (dashed lines).*

OR

Current allowance: *Existing house on a site with new detached house on vacant lot.*

OR

Current allowance: *New attached houses and detached house on vacant lots where a house was removed (five-year vacancy rule applies).*

OR

Current allowance: *New detached houses on vacant lots (five-year vacancy rule applies).*

Proposed: *Allow historically narrow lots to be built on only if they meet R5 standard dimension requirements.*

8

Summary of the Residential Infill Project

CITY COUNCIL FINAL CONCEPT REPORT

Portland is changing.

By 2035, the city will grow by approximately 123,000 households. About 20 percent of this growth is expected to be in single-dwelling residential zones. The composition and housing needs of the population are also changing. The city is becoming more diverse and older. The average household will be smaller with fewer children per household.

The goal of the Residential Infill Project is to adapt Portland's single-dwelling zoning rules to meet the needs of current and future generations.

NEXT STEPS

The acceptance of this City Council-amended Concept Report sets the stage for the next phase of the Residential Infill Project: zoning code and map amendment proposals. City Council's vote directs City staff to develop the code language and map amendments needed to implement the concepts in the report. Beginning early 2017, a discussion draft of potential changes will be completed, followed by public hearings at the Planning and Sustainability Commission and City Council before final adoption by City Council.

Scale of Houses Limit the size of houses while maintaining flexibility. Lower the roofline of houses. Improve setbacks to better match adjacent houses and promote tree retention.

Housing Choice Allow more housing types in select areas and limit their scale to the size of house allowed. Establish a Housing Opportunity Overlay Zone in select areas. Increase flexibility for cottage clusters on large lots citywide. Provide added flexibility for retaining existing houses.

Narrow Lots Do not allow historically narrow lots to be built on. Make citywide improvements to the R2.5 zone. Revise parking rules for houses on narrow lots citywide.

January 2017
www.portlandoregon.gov/bps/infill
email: residential.infill@portlandoregon.gov

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Concept Recommendations

SCALE OF HOUSES

1. Limit the size of houses while maintaining flexibility

a) Establish a limit on house size that is proportional to lot size and zone.
- Outside the Housing Opportunity Overlay Zone, apply a maximum size limit to houses in R2.5, R5, and R7 zones.
- Inside the Housing Opportunity Overlay Zone, apply a smaller maximum size for houses in R2.5, R5 and R7 zones, and allow duplexes and triplexes to be as large as houses outside the overlay.

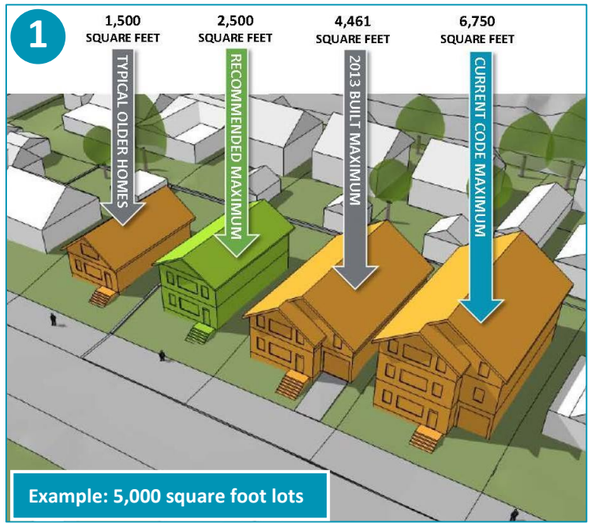
b) Exclude basements and attics with low ceiling heights from house size limits.
c) Allow bonus square footage for detached accessory structures (0.15 bonus FAR).
d) Explore options for decreasing building coverage and providing adequate private area and pervious surfaces outside of the house, such as larger side or rear yards.

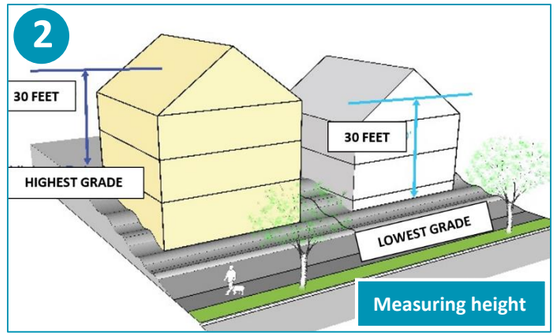
2. Lower the roofline of houses

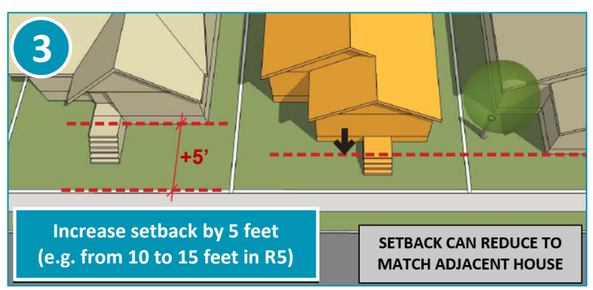
a) Restrict height to 2½ stories on standard lots.
b) Measure the basepoint from the lowest point 5 feet from a house, not from the highest point.
c) For down-sloping lots, allow use of the average street grade as a bottom basepoint alternative.
d) Ensure that dormers are a secondary roof mass.

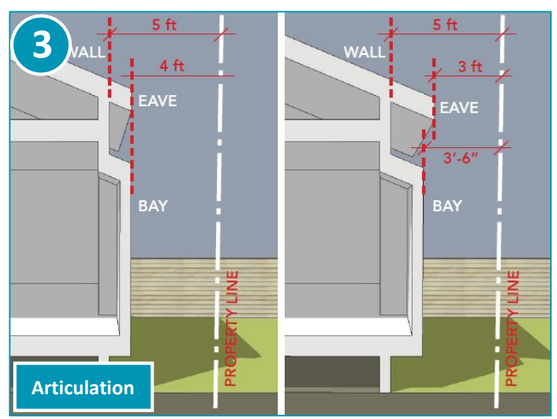
3. Improve setbacks to better match adjacent houses

a) Increase minimum front setback by 5 feet; provide an exception to reduce setback to match existing, immediately adjacent house. Allow flexibility if tree retention is a consideration.
b) Encourage building articulation by allowing eaves to project 2 feet into setbacks and bay windows to project 18 inches into setbacks.









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HOUSING CHOICE

4. Allow more housing types in select areas and limit their scale

Within the Housing Opportunity Overlay Zone in R2.5, R5 and R7 zones:
a) Also allow a:
- House with both an internal and detached accessory dwelling unit (ADU)
- Duplex
- Duplex with detached ADU
- Triplex on corner lot

b) Establish minimum qualifying lot sizes for each housing type and zone.
c) Require design controls for all proposed housing projects seeking additional units.
d) Explore requirements and bonus units for age-friendliness, affordability and tree preservation (beyond what is minimally required by Title 11, Tree Code).

5. Establish a Housing Opportunity Overlay Zone in select areas

a) Provide options for a Housing Opportunity Overlay Zone map.
b) Potentially exclude areas within the David Douglas School District until school district capacity issues have been sufficiently addressed.
c) Prior to adopting any specific zoning changes, refine the Housing Opportunity Overlay Zone to produce a more detailed boundary that considers property lines, physical barriers, natural features, topography and transportation infrastructure constraints, as well as other practical considerations.

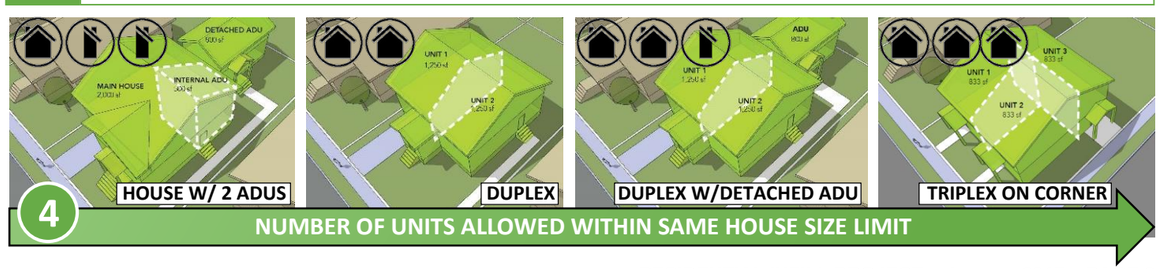
6. Increase flexibility for cottage cluster developments on large lots citywide

a) On single-dwelling zoned lots of at least 10,000 square feet in size, allow cottage clusters subject to Type IIx land use review.
b) Cap the total square footage cottage cluster sites to the same FAR limit [see Recommendation 1] and limit each new cottage to 1,100 square feet.
c) Inside the Housing Opportunity Overlay Zone [see Recommendation 5], the number of cottages allowed equals the same number of units that would otherwise be permitted.
d) Outside the Housing Opportunity Overlay Zone, allow one ADU for each cottage.
e) Develop specific cottage cluster rules to ensure that development is integrated with its surrounding neighborhood.
f) Explore opportunities for additional units when the units are affordable and/or accessible.

7. Provide flexibility for retaining existing houses

a) Scale flexibility:
- Allow modest additional floor area for remodels, additions and house conversions.
- Allow modest additional height when an existing house foundation is being replaced or basement is being converted.

b) Housing choice flexibility:
- Allow one additional unit when an older house is converted into multiple units or is retained as part of a new cottage cluster development.
- Pursue additional flexibility for house conversions, such as parking exemptions, system development charge (SDC) waivers or reductions, building code flexibility and City program resources that facilitate conversions.
- Clearly define internal conversions, including explicitly distinguishing between demolition and remodeling, and promote preservation of the exteriors when converting houses to ownership, condominium or rental units.



Residential Infill Project

CITY COUNCIL FINAL CONCEPT REPORT

Portland is changing.

By 2035, the city will grow by approximately 123,000 households. About 20 percent of this growth is expected to be in single-dwelling residential zones. The composition and housing needs of the population are also changing. The city is becoming more diverse and older. The average household will be smaller with fewer children per household.

The Residential Infill Project was initiated to address overlapping concerns related to these changes:

- The number of demolitions and the size of infill houses.
- Increasing housing costs and the loss of affordability.
- Lack of housing choices, especially in high-opportunity neighborhoods.
- The impact of narrow lot development rules on both neighborhood character and the loss of opportunities for needed infill housing.

The goal of the Residential Infill Project is to adapt Portland's single-dwelling zoning rules to meet the needs of current and future generations.

City Council held public hearings on the recommendations in November 2016.

This report includes ten amended concept recommendations for changes to the Portland Zoning Code and Zoning Map. Based on this City Council direction, specific code language and map geographies will be developed for consideration through a separate legislative process in 2017 that will include additional required public notice, review and hearings.

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Residential Infill Project
City Council Final Concept Report

INTRODUCTION

123,000 new households are projected by 2035. Where will new housing be built?

According to Portland's new Comprehensive Plan, most new residential and business growth will be in:

- Mixed-use zones along Centers (like Hollywood and Lents) and Corridors (like Interstate and Barbur).
- Inner Ring neighborhoods adjacent to downtown (like Buckman and Brooklyn).
- Central City (Downtown and the Lloyd District).

The new Comprehensive Plan directs growth in and around Centers and Corridors to best achieve community goals.

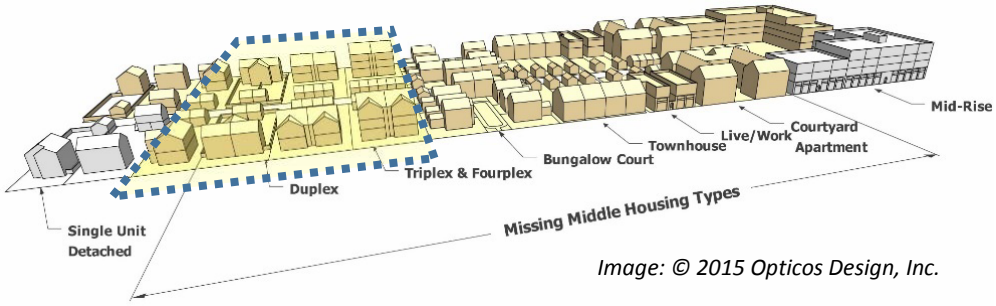
The new Comprehensive Plan finds that accommodating growth in and around Centers and Corridors is the best strategy to achieve these community goals:

- Increase access to the benefits of healthy neighborhoods while increasing equity through more housing options.
- Improve the market for local-serving businesses.
- Reduce the need to drive while increasing the use of and access to transit, protecting air and water quality and reducing carbon emissions.

The new Comprehensive Plan strategy guides growth to places where there is already good access to transit, bike facilities and walkable streets. However, more action is needed to fully reach City goals. A greater variety of housing types is needed to successfully meet the needs of households of different sizes, incomes and ages. This is especially so in areas near schools, stores, jobs and parks, which are often in and around Centers and Corridors.

A paradigm shift – middle housing

The 2035 Comprehensive Plan Growth Scenarios Report identifies that the city has adequate capacity to accommodate projected growth of 123,000 new households over the next 20 years. The projected housing mix for 2035 indicates that most of the new housing will be in larger multi-unit apartments and condominiums (about 72 percent). One reason for this mix is that the majority of surplus capacity is located in areas where these housing types are allowed (mixed-use and multi-dwelling zones), given that capacity for additional detached single-dwelling housing units will be nearly full by the end of the 20-year planning period in 2035.



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The Residential Infill Project recommends allowances for a small segment of the range of middle housing types (shown in the dashed box) that can be achieved at a scale and within a form that is compatible with the character of many of the city's single-dwelling residential neighborhoods.

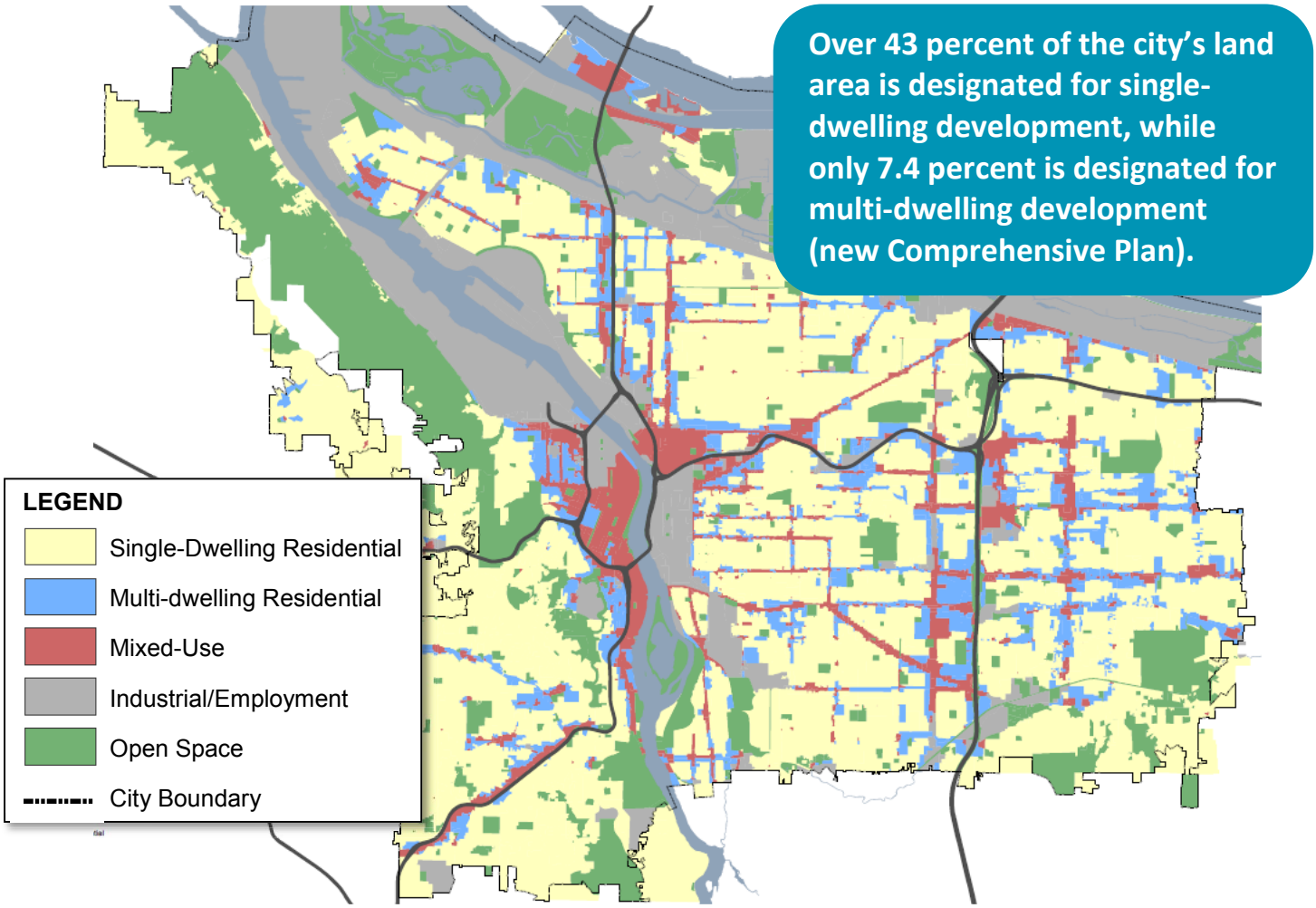
A young couple living in a one-bedroom apartment may not be able to afford the leap to buy a house. But as the family grows, it may look for additional living and yard space within a walkable neighborhood. A duplex or triplex could offer this opportunity. Or consider an "empty nester" couple who no longer wants to take care of its large house and yard but want to remain in their familiar neighborhood with a sense of community and social support structures. Cottage cluster communities and accessory dwelling units (ADUs) could provide desirable alternatives. In both scenarios, more options mean more variety in unit prices and living arrangements.

INTRODUCTION

What is zoning?

Zoning defines the way land within the city can be used and developed. **Zoning maps** specify areas where residential, industrial, recreational and commercial activities can occur. **Zoning standards** regulate the dimensional requirements for lots and buildings, and the number of allowed units.

Housing can be developed in Portland's commercial zones, as well as within two types of residential zones: single-dwelling and multi-dwelling. Single-dwelling zones (R2.5, R5, R7, R10, R20 and RF) generally allow one housing unit per lot; multi-dwelling zones (RX, RH, R3, R2 and R1) allow one or more units per lot.



Over 43 percent of the city's land area is designated for single-dwelling development, while only 7.4 percent is designated for multi-dwelling development (new Comprehensive Plan).

What is an R5 zone?

R5 is the most common single-dwelling residential zone, comprising more than 1/3 of Portland's single-dwelling residential area. The R stands for residential use and the 5 represents one residential lot allowed for every 5,000 square feet of site area. Numerous code exceptions allow for other uses, including home-based businesses, short term rentals and schools. Exceptions also include limited allowances for additional housing units, such as one ADU per house and duplexes allowed on corner lots.

SCALE OF HOUSES – BACKGROUND

Zoning standards

Portland uses clear and objective (essentially numerical) permit requirements to regulate the scale of structures in single-dwelling residential zones.

These standards are designed to meet City goals to make permit reviews predictable and efficient even during peak development periods. The City reviews approximately 400 new house permits and 5,000 applications for other types of residential work (remodels, additions, repair, etc.) in single-dwelling zones each year.

The City's current zoning standards for the scale of single-dwelling residential development are relatively unchanged since the Portland Zoning Code's last adoption in 1991.

The table below highlights the key zoning standards that currently address the scale of a house in the R5 zone.

STANDARD	CURRENT CODE (R5 ZONE)
Size – area within the house	The maximum amount of square feet of space allowed in a house is equal to the maximum building coverage multiplied by the maximum height allowed on the lot. Building coverage measures the two-dimensional footprint of a structure. The maximum allowed building coverage is expressed as a percent of the total size of the building's lot and varies by lot size (not by zone) and generally ranges from 22 to 50 percent. For example, on a 5,000 square foot R5-zoned lot, up to 45 percent or 2,250 square feet, may be covered by the buildings.
Height	30 feet, measured from highest grade within 5 feet of the house to the midpoint (pitched roof) or top (flat roof)
Setbacks	10 feet front yard; 18 feet garage; 5 feet side yard(s); 5 feet rear yard Eaves and bay windows may project 20 percent (1 foot into side and rear yards)
Outdoor Area	250 square feet (with a minimum 12 feet by 12 feet dimension)

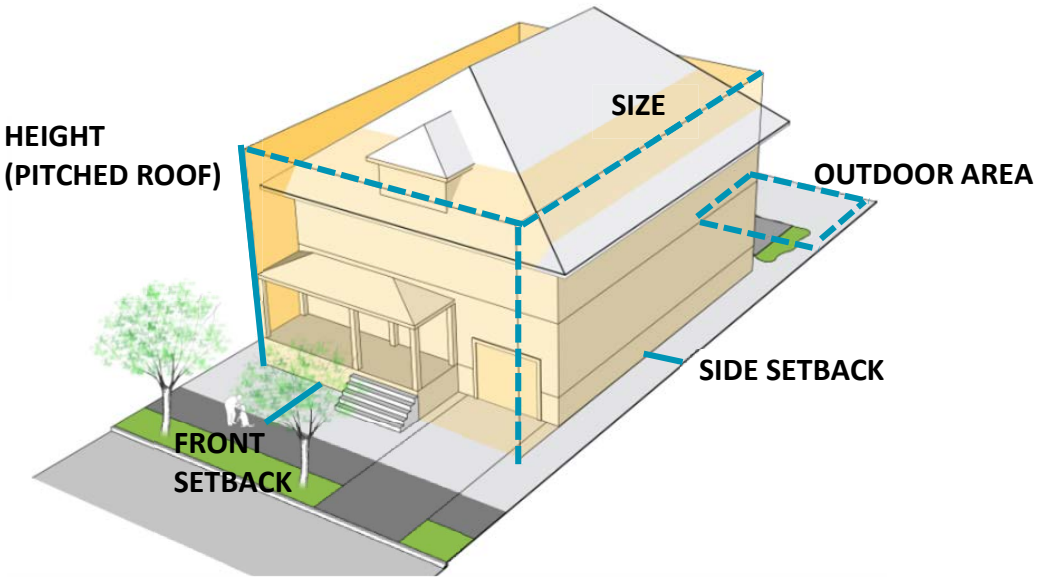
SCALE OF HOUSES – BACKGROUND

House sizes have increased over time

Over the last 40 years, the size of the average U.S. house increased by more than 1,000 square feet (61 percent). The average size was 1,660 square feet in 1973 and 2,679 square feet in 2013. The increase is largely attributed to consumer preference and increases land values. In Portland, the increases raise concerns in some neighborhoods, particularly in ones where the scale of new houses is often significantly larger than existing houses.

The Portland Zoning Code limits house size by measurable standards such as limits for height, lot coverage, setbacks and yard area. Together, these define a "building envelope" (shown as the yellow "box" below) that limits how large a house can be. They often vary based on zone.

New infill houses are generally larger than neighboring older houses. However, the maximum size that *could* be built by code is much larger than the average new infill houses being built today.



Single-dwelling zone development standards include size, height, setbacks and outdoor area. In both current code and the concept recommendations, some building features like pitched rooftops, eaves, bay windows and dormers, are allowed to project beyond the limits of the building envelope.

The maximum allowed building envelope limits the overall scale of houses. While older houses may differ widely in form, they are generally smaller than houses built today and rarely attain the maximum parameters allowed by code.

SCALE OF HOUSES – SIZE

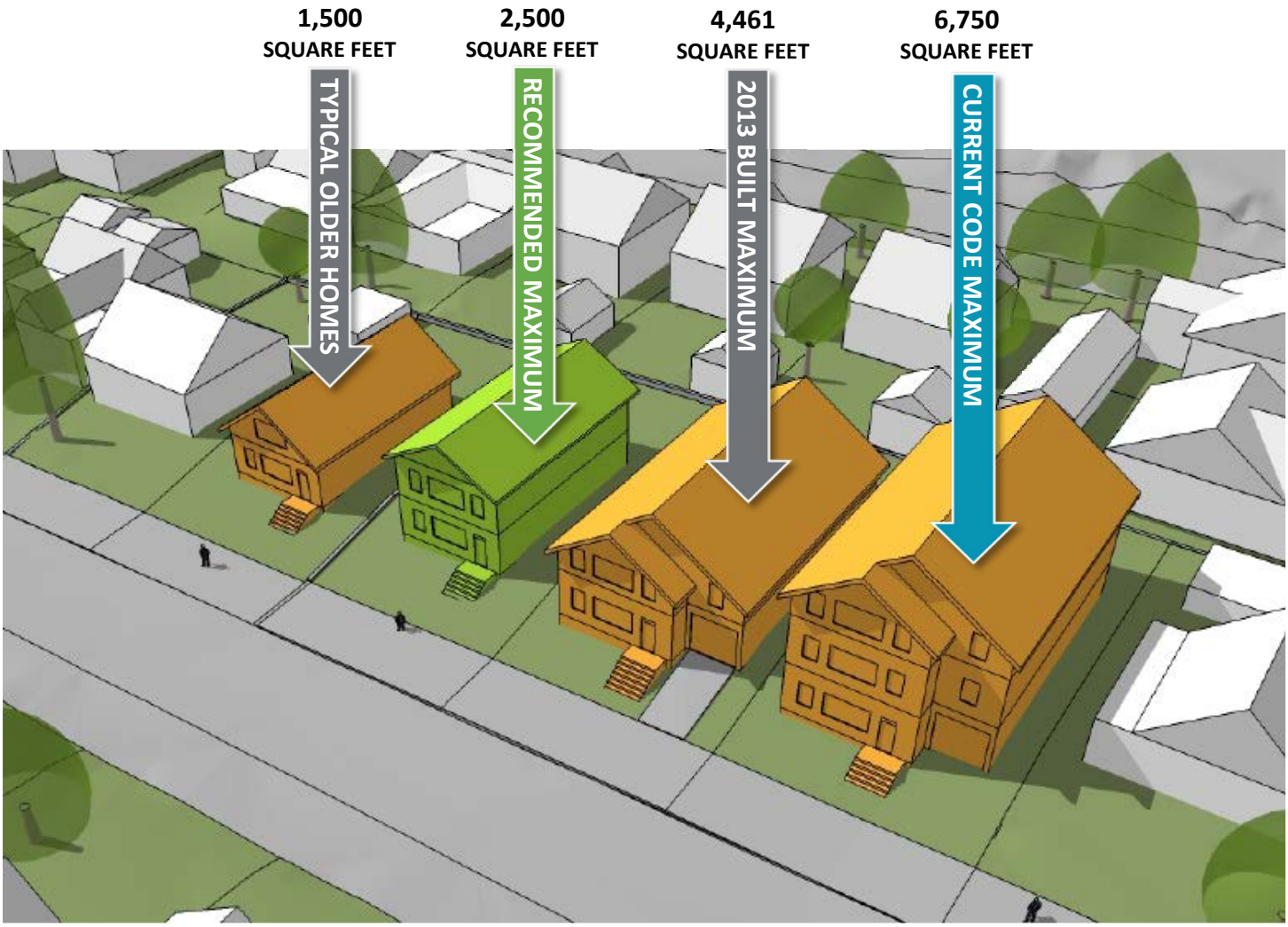
Current allowances for size of houses

The scale of a house is defined through a combination of the space in the house, the size of its building footprint, its height and where it is located on its lot.

The Portland Zoning Code limits the maximum space that can be in a house by multiplying building coverage by the maximum allowed building height on the lot. The building coverage is a percent of the total size of the building's site. Maximum building coverage varies by lot size, not zone.

For example, on a 5,000 square-foot lot, the maximum allowed building coverage is 2,250 square feet and the maximum allowed height is 30 feet (three stories). That makes the maximum size of a new or remodeled house on this size of lot 6,750 square feet (2,250 square feet times three stories).

Even though currently allowed by code, new houses typically are not being built to this maximum size. In 2013, the average house built in Portland on a 5,000 square-foot lot was 2,680 square feet, while the largest house built was 4,461 square feet.



SCALE OF HOUSES – SIZE

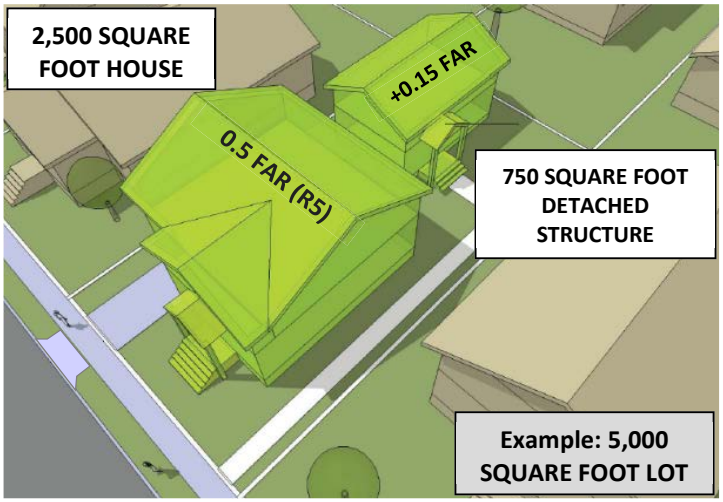
Recommendation 1: *Limit the size of houses while maintaining flexibility*

a) Establish a limit on house size that is proportional to lot size and zone.
   - Outside the Housing Opportunity Overlay Zone (see Pages 12 and 13), apply a maximum size limit to houses in R2.5, R5, and R7 zones.
   - Inside the Housing Opportunity Overlay Zone, apply a smaller maximum size for houses in R2.5, R5 and R7 zones, and allow duplexes and triplexes to be as large as houses outside the overlay.

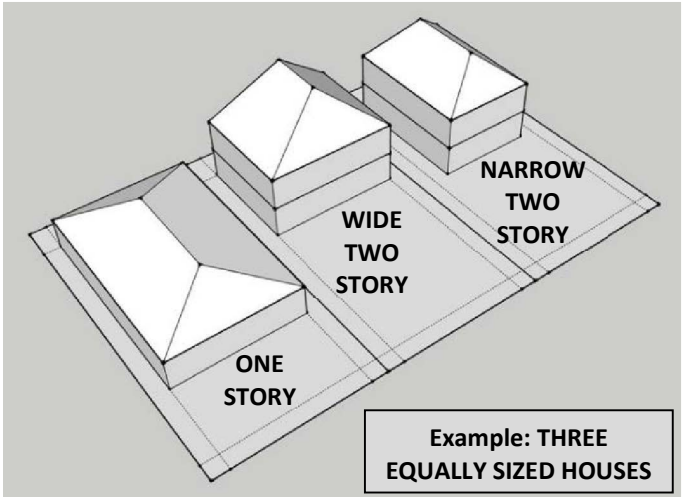
b) Exclude basements and attics with low ceiling heights from house size limits.

c) Allow bonus square footage for detached accessory structures (0.15 bonus FAR).

d) Explore options for decreasing building coverage and providing adequate private area and pervious surfaces outside of the house, such as larger side or rear yards.



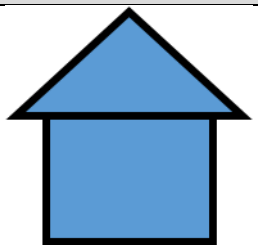
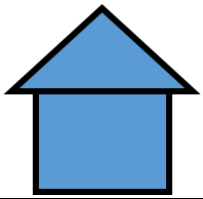
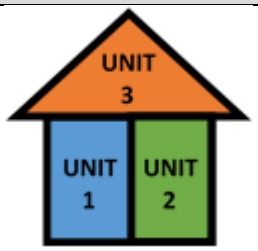
To encourage detached garages and detached accessory dwelling units (ADUs), up to 0.15 FAR extra building area would be allowed for the detached structure. This helps break up the massing of a house by distributing its size throughout the lot.



Three possible configurations of equally sized houses: single level (left), wide two-story (middle) and a narrower, deeper two-story (right).

The size limit closely links building height and building coverage. Houses could either be taller with a larger yard or shorter and more spread out, but not both.

CONCEPTUAL

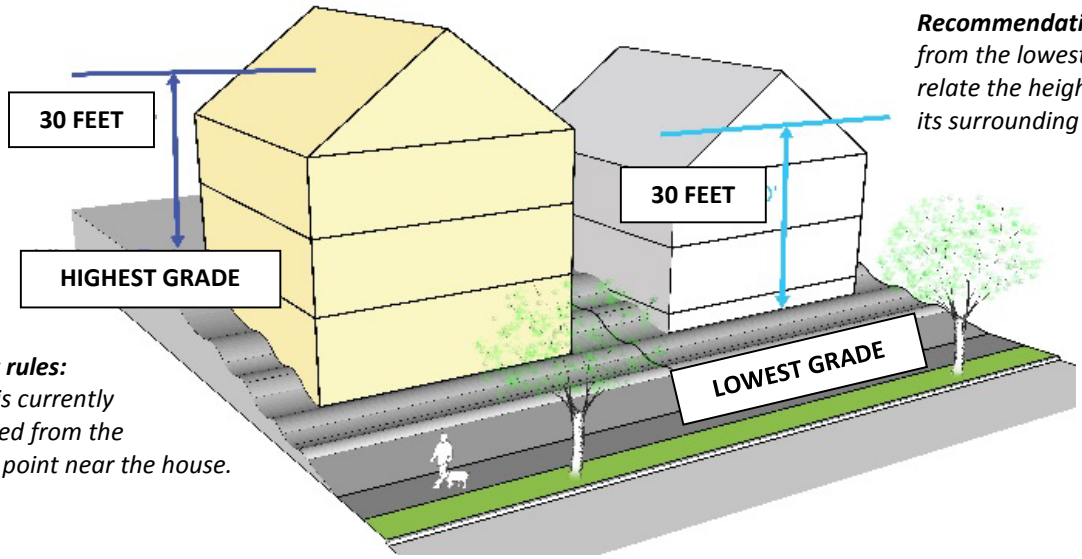
		Outside Overlay	Inside Overlay	
		House Size	House Size	Duplex or Triplex Size
Zone	Lot Size			
R2.5	2500	1750	1500	1750
R5	5000	2500	2000	2500
R7	7000	2800	2100	2800

Examples of how the size limits could apply in R2.5, R5 and R7 zones. All sizes are expressed in square feet.

SCALE OF HOUSES – HEIGHT

Current height requirements

Each single-dwelling residential zone has a maximum building height (30 feet in most zones and 35 feet for houses in R2.5). Two reference points are needed to determine a house's height: a bottom base point and a top point, which do not have to be in alignment with one another. The top point is measured at either the highest point (on a flat roof) or the midpoint (on a pitched or "gabled" roof). On most lots, the bottom base point is measured from the highest grade 5 feet away from an exterior wall. This can result in a house that is much taller than the maximum height when viewed from the downhill side.



Recommendation: *Measure from the lowest point to better relate the height of a house to its surrounding topography.*

Current rules: *Height is currently measured from the highest point near the house.*

Portland's current rules specify that height measurements be taken from the highest grade next to the house, allowing for potential manipulations of grades to increase a house's height.

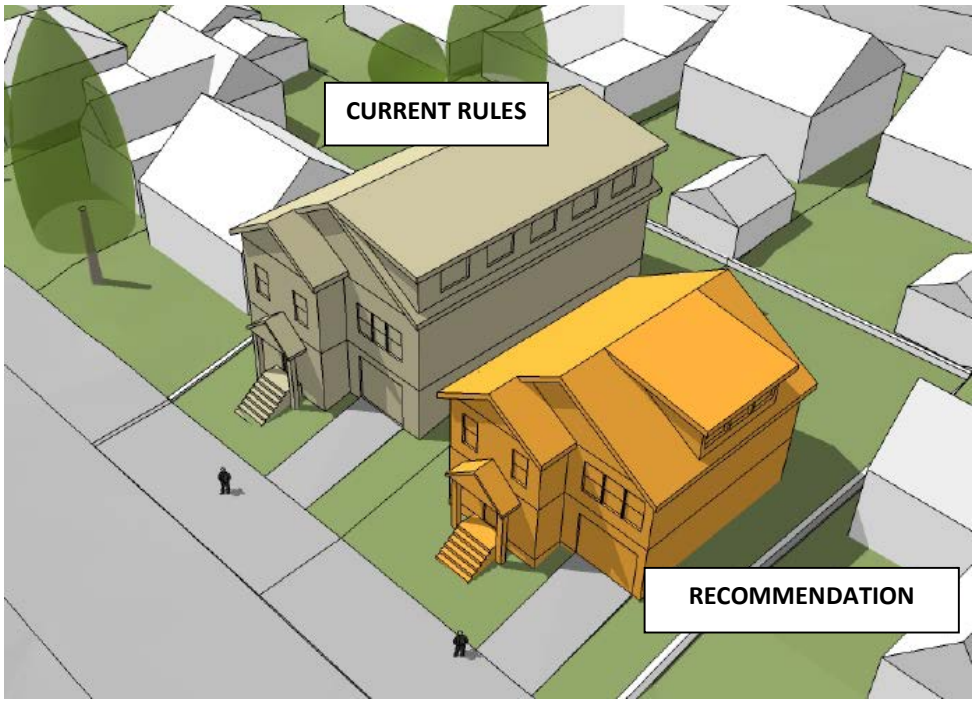
Without limits, dormers (currently not measured when determining a house's height) may begin to look and function like entire additional stories, resulting in a building height that is taller than the maximum allowed.

SCALE OF HOUSES – HEIGHT

Recommendation 2: *Lower the roofline of houses*

a) Restrict height to 2½ stories on standard lots.
b) Measure the bottom base point from the lowest point 5 feet from a house, not from the highest point.
c) For down-sloping lots, allow use of the average street grade as a bottom basepoint alternative.
d) Ensure that dormers are a secondary roof mass.

Recommendation: *Limit the height of houses on standard lots (36 feet and wider) to 2½ stories. A half story could either be a partial basement or contained within the gable of a roof.*



Recommendation: *Limit the size of dormers to ensure that they appear as secondary roof forms and do not significantly affect the overall scale of the house.*

SCALE OF HOUSES – SETBACKS

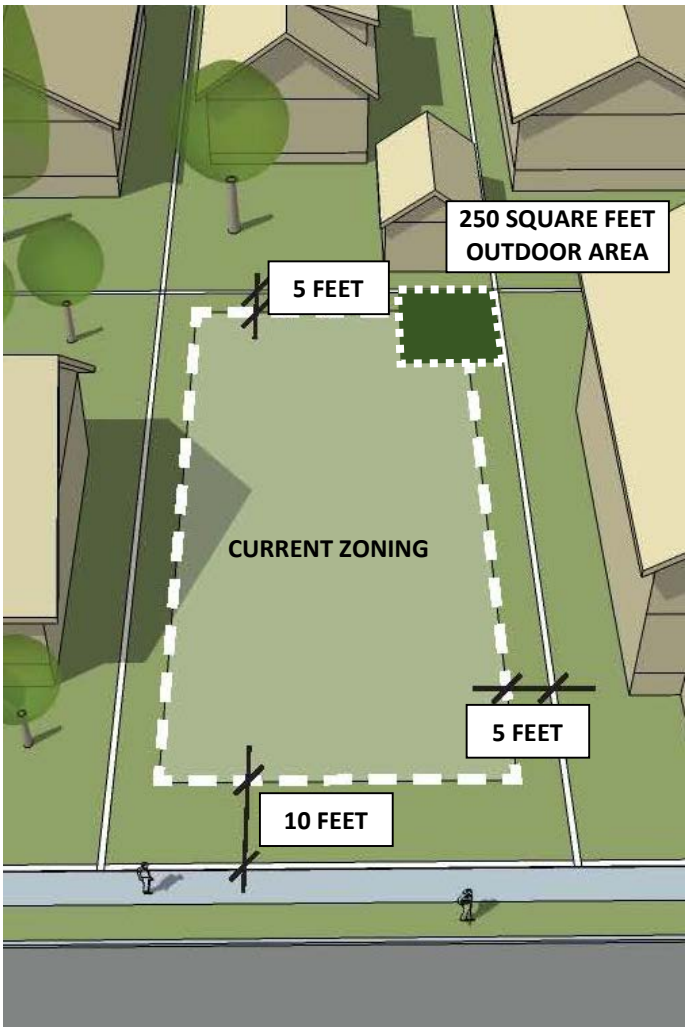
Purpose of setbacks

Setback allowances provide for flexibility when siting a house to better ensure compatibility with the lot's neighborhood character and topography. Setbacks maintain light, air, privacy and separation for fire protection, while reflecting nearby placement patterns of houses. Setback allowances complement building coverage limits and outdoor area requirements to ensure that residential lots are not completely covered by buildings and have sufficient usable outdoor space for recreation and relaxation.

In some areas, established minimum front setbacks are less than those of other existing houses on a block. When houses built to the minimum allowed front setbacks are out of alignment with houses on either side, block patterns can be disrupted. On other blocks, where no uniform front setback pattern exist, front setbacks on new or remodeled houses are less critical.

Projections into setbacks

Certain building features, such as eaves and bay windows, are allowed to project into setbacks to create articulation and accentuation that helps break up the building scale and allows for more diversity of building styles. Current code allows these features to project up to 20 percent (typically 1 foot) into side setbacks.



Current minimum building setbacks and outdoor area in R5 zones.

Narrow eaves, common in many new Portland houses, are often the result of current setback limits.

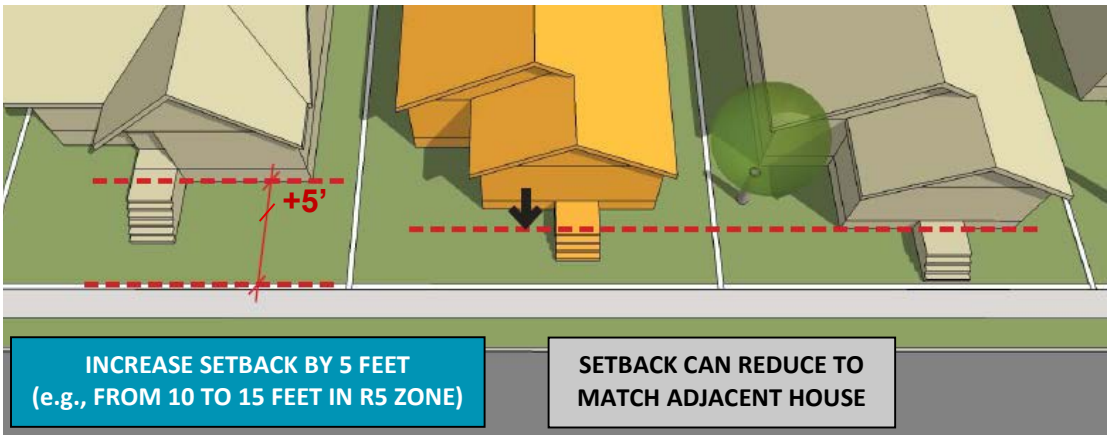
Wider eaves reduce the perceived scale of a house. Bay window projections can also help break up the massing of building walls.

SCALE OF HOUSES – SETBACKS

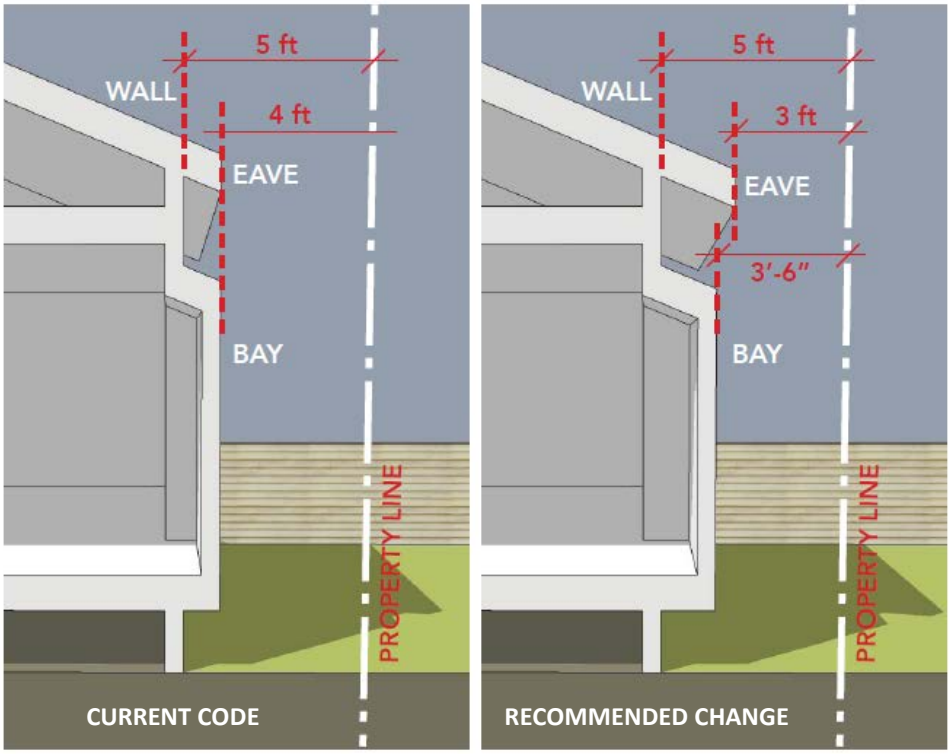
Recommendation 3: *Improve setbacks to better match adjacent houses*

a) Increase minimum front setback by 5 feet; provide an exception to reduce setback to match existing, immediately adjacent house. Allow flexibility if tree retention is a consideration.

b) Encourage building articulation by allowing eaves to project 2 feet into setbacks and bay windows to project 18 inches into setbacks.



Increasing minimum front setbacks for new or remodeled houses generally accommodates larger front yards and more landscaping. Allowing these houses to match the setbacks of existing, immediately adjacent houses also gives flexibility to better ensure compatibility with older houses on a block.



By reducing the required setback for minor building projections, greater roof and building wall articulation is possible.

3 feet from a property line is typically the minimum encroachment distance before additional building code rules apply.

The recommended projections ensure that eaves can still extend past bay window walls to provide weather and sun protection, and add visual interest.

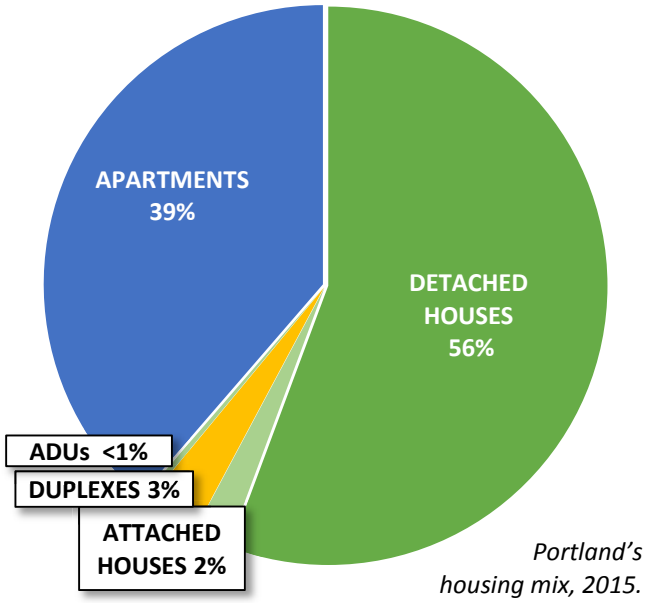
HOUSING CHOICE – BACKGROUND

Housing needs for a growing city

Portland is growing and needs an increasing supply of diverse housing options to keep up with this growth. This is key to mitigating the rapid increase of housing costs. However, increasing housing supply is only part of what is needed to meet the housing demands of a changing city. Greater housing choice in terms of the size, type, location and cost is also critical to meeting City goals. It will help a diversity of households find housing that meets their everyday needs and better accommodates their changing needs over time. This is especially important for older adults seeking to age within their communities.

Portland's zoning rules once allowed for more types of housing in the city's residential areas. Wandering through neighborhoods around Hawthorne or Irvington, one can see duplexes, bungalow courtyards and small apartments comfortably mixed among single-dwelling houses. These types of housing are part of what many call "middle housing." Coined by urban planner Daniel Parolek, the term middle housing refers to housing in between single-family houses and larger multi-family buildings. It can include accessory dwelling units (ADUs), duplexes, triplexes, "small-plexes" and cottage clusters, as well as courtyard apartments and bungalow courts.

Today, only about 5 percent of Portland's housing stock is in these smaller forms of middle housing. Most of the housing supply is in detached houses (56 percent), many in areas that no longer allow this middle housing mix.



Portland's housing mix, 2015.

Some middle housing types adaptable to some areas within Portland's single-dwelling zones include: ADUs (upper left), clustered houses (lower left), duplexes (upper right) and triplexes (lower right).

Why use an overlay zone?

Portland's Zoning Code uses overlay zones and plan districts to modify the base zone allowances and limitations for specific places with unique needs or goals. Overlay zones and plan districts are identified on official City zoning maps and are part of a property's zoning.

Overlay zones address specific subjects such as protecting environmental resources. They are applied to locations with similar attributes across the city. Plan districts address specific places, such as the Central City or Portland International Airport. Use of an overlay zone would make it clear to property owners and the public where duplexes, triplexes or additional ADUs are allowed beyond the base zone density.

HOUSING CHOICE – BACKGROUND

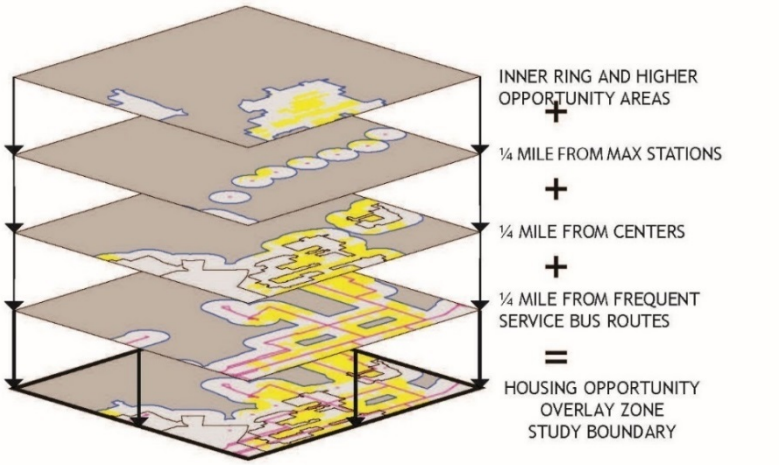
Where to apply the overlay zone?

There is increasing demand for greater housing supply and types within single-dwelling zones. Residents typically balance price, size, number of units, location, homeownership options and accessibility in their housing decisions. In addition to helping accommodate the preferences of current and future residents, a broader range and supply of housing in these zones will increase the availability of more affordable options and help advance City equity goals.

With the adoption of the new Comprehensive Plan, City Council approved a policy to encourage "relatively smaller, less expensive units… within a quarter mile of designated centers, corridors with frequent transit, high capacity transit [MAX] stations, and within the Inner Ring [neighborhoods] around the Central City." The conceptual overlay boundary is shown as a starting point for discussion; a new Housing Opportunity Overlay Zone could be based on this and other new Comprehensive Plan policies, as explained below.

Development in Centers and along Civic Corridors is the preferred growth scenario in the new Comprehensive Plan. This growth management strategy performed the best across the measures used to evaluate the new Comprehensive Plan scenarios, such as transit and active transportation, reduced carbon emissions and complete neighborhoods.

The new Comprehensive Plan also identifies different housing opportunity areas. Higher opportunity neighborhoods are areas that already have assets that support the health and success of the residents who live there, such as walkability, transit, services, quality schools and parks, and access to employment.



Combining different geographical areas linked to policy direction in the new Comprehensive Plan is one approach to developing an overlay boundary.

City Council expressed interest in evaluating the overall impacts to enrollment in the David Douglas School District resulting from the proposed Housing Opportunity Overlay Zone, once the overlay boundary is further defined.

The Housing Opportunity Overlay Zone map on Page 14 shows a conceptual boundary that encompasses the quarter-mile distance (approximately five blocks or a 5-minute walk) from designated centers, corridors with frequent bus service and MAX stations. Also included are areas with higher opportunity neighborhoods that may be slightly farther from centers and corridors but are still close to downtown, have good transit access, include a well-connected street grid and are near schools, parks and jobs.

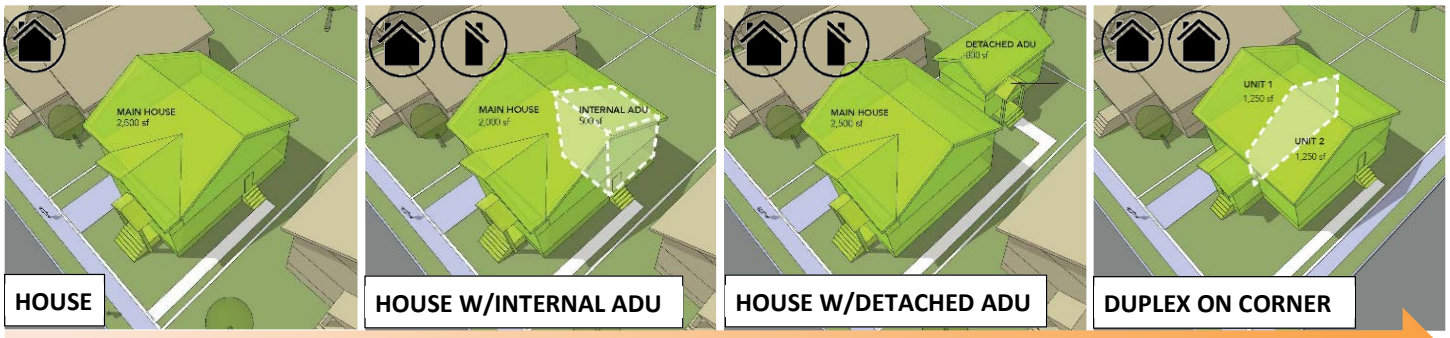
The conceptual boundary on this map represents one option for a study area. Other options may be developed by City staff based on other selection criteria. Further and more detailed evaluation will be necessary to determine a more detailed Housing Opportunity Overlay Zone. The final boundary will also need to consider significant physical barriers that limit convenient connections to Centers and transit corridors, such as poor street connectivity, steep topography and natural features, as well as other practical considerations.

HOUSING CHOICE – ADUs, DUPLEXES AND TRIPLEXES

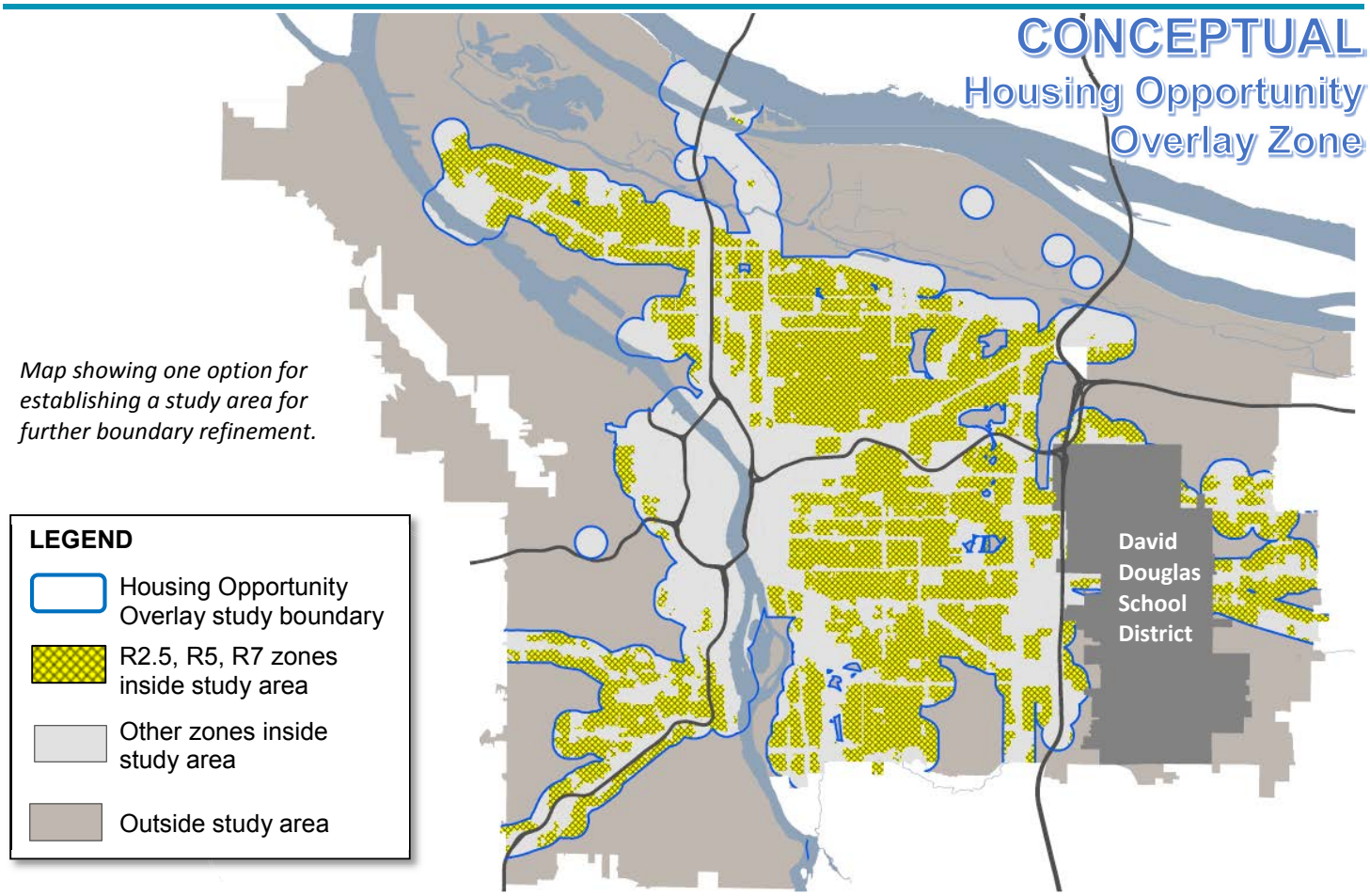
What is currently allowed in single-dwelling residential zones?

In single-dwelling residential zones, generally only one house is allowed per lot. However, there are multiple exceptions. Any house may have a single accessory dwelling unit (ADU) that is up to 75 percent of the floor area size of the primary house up to 800 square feet. ADUs can be created through a converted basement or attic, added on to an existing house or built as a separate, detached structure.

Additionally, duplexes (two units on a single lot) or attached houses (two units, each on its own lot but sharing a common wall on a property line) may be built on some single-dwelling zoned lots that would otherwise allow only one detached unit. These housing types are currently allowed on corner lots and on lots that border commercially-zoned lots. In the R2.5 zone, duplexes and attached houses are allowed on any lot that is at least 5,000 square feet in size.



These housing types and number of units are currently allowed in Portland's single-dwelling residential zones.



Map showing one option for establishing a study area for further boundary refinement.

HOUSING CHOICE – ADUs, DUPLEXES AND TRIPLEXES

Recommendation 4: *Allow more housing types in select areas and limit their scale*

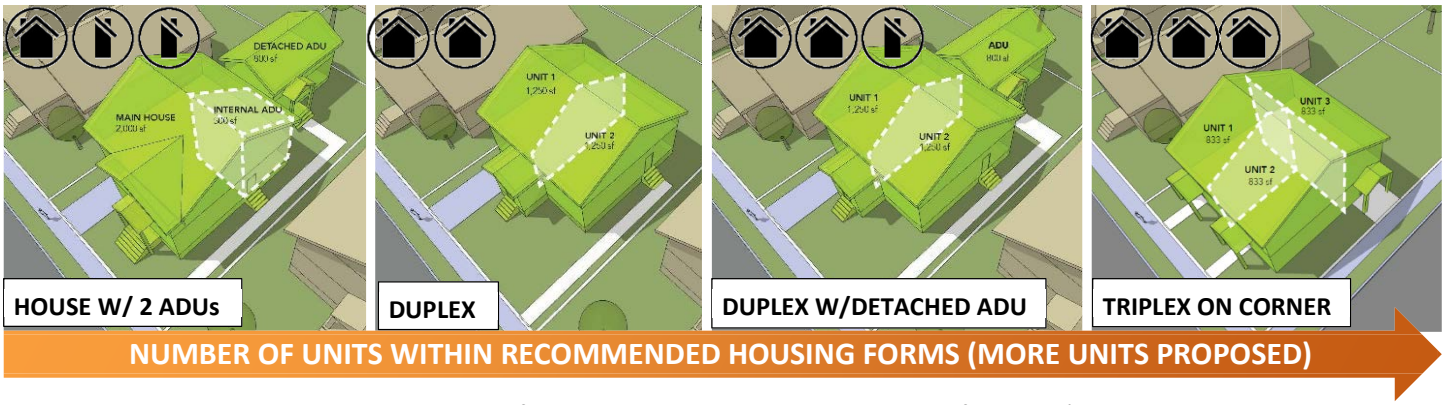
Within the Housing Opportunity Overlay Zone in R2.5, R5 and R7 zones:

a) Also allow a:
   - House with both internal and detached accessory dwelling unit (ADU)
   - Duplex
   - Duplex with detached ADU
   - Triplex on corner lot

b) Establish minimum qualifying lot sizes for each housing type and zone.

c) Require design controls for all proposed housing projects seeking additional units.

d) Explore requirements and bonus units for age-friendliness, affordability and tree preservation (beyond what is minimally required by Title 11, Tree Code).



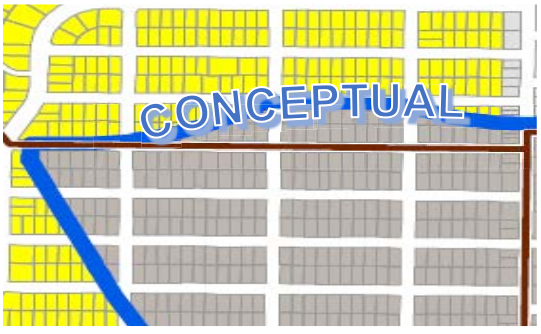
These additional housing types and number of units would be allowed in select areas of Portland's single-dwelling zones.

Recommendation 5: *Establish a Housing Opportunity Overlay Zone in select areas*

a) Provide options for a Housing Opportunity Overlay Zone map.

b) Potentially exclude areas within the David Douglas School District until school district capacity issues have been sufficiently addressed.

c) Prior to adopting any specific zoning changes, refine the Housing Opportunity Overlay Zone to produce a more detailed boundary that considers property lines, physical barriers, natural features, topography and transportation infrastructure constraints, as well as other practical considerations.



Through subsequent study and analysis, additional refinements to the conceptual Housing Opportunity Overlay Zone boundary will be made to normalize the edge of the proposed overlay zone.

HOUSING CHOICE – COTTAGE CLUSTERS

Recommendation 6: *Increase flexibility for cottage clusters on large lots citywide*

a) On single-dwelling zoned lots at least 10,000 square feet in size, allow cottage clusters subject to Type IIx land use review.
b) Cap the total square footage cottage cluster sites to the same FAR limit [see Recommendation 1] and limit each new cottage to 1,100 square feet.
c) Inside the Housing Opportunity Overlay Zone [see Recommendation 5], the number of cottages allowed equals the same number of units that would otherwise be permitted.
d) Outside the Housing Opportunity Overlay Zone, allow one ADU for each cottage.
e) Develop specific cottage cluster rules to ensure that development is integrated with its surrounding neighborhood.
f) Explore opportunities for additional units when the units are affordable and/or accessible.

Hastings Green – a cottage cluster-like development in Southeast Portland.

What is a cottage cluster?

Cottage clusters are groups of relatively small homes typically oriented around a shared common space such as a courtyard or garden, and with parking often relegated to the fringe. Planned Developments (PDs) provide opportunity for innovative development, while assuring that it is well-designed and complements neighborhood character. PDs are sometimes used in conjunction with a land division to allow lot configurations that preserve open space or create clusters of houses around common green spaces. While current PD allowances give design flexibility for cottage cluster proposals, the criteria are not tailored specifically to achieve cottage clusters. Currently, PDs cannot attain additional density and ADUs cannot currently be built where more than one house shares a lot on a PD site.

Image used with permission from The Cottage Company – Conover Commons Cottages, Redmond WA

Land use reviews

A discretionary land use review involves judgement or discretion in determining compliance with the approval requirements. Review procedures, in order from least to greatest level of intensity, include Type I, Type Ix, Type II, Type IIx, Type III and Type IV.

Under most circumstances, PDs must go through a Type III land use review process, which is decided by a Hearings Officer and, if appealed, by City Council. By comparison, a Type IIx land use review, which applies to most smaller land divisions, is less expensive and requires less time to process. Both reviews utilize the same approval criteria and provide opportunities for appeals at both the City and State level.

HOUSING CHOICE – EXISTING HOUSES

Recommendation 7: *Provide added flexibility for retaining existing houses*

a) Scale flexibility:
   - Allow modest additional floor area for remodels, additions and house conversions.
   - Allow modest additional height when an existing house foundation is being replaced or basement is being converted.

b) Housing choice flexibility:
   - Allow one additional unit when an older house is converted into multiple units or is retained as part of a new cottage cluster development.
   - Pursue additional flexibility for house conversions, such as parking exemptions, system development charge (SDC) waivers or reductions, building code flexibility and City program resources that facilitate conversions.
   - Clearly define internal conversions, including explicitly distinguishing between demolition and remodeling, and promote preservation of the exteriors when converting houses to ownership, condominium or rental units.

Encouraging house retention

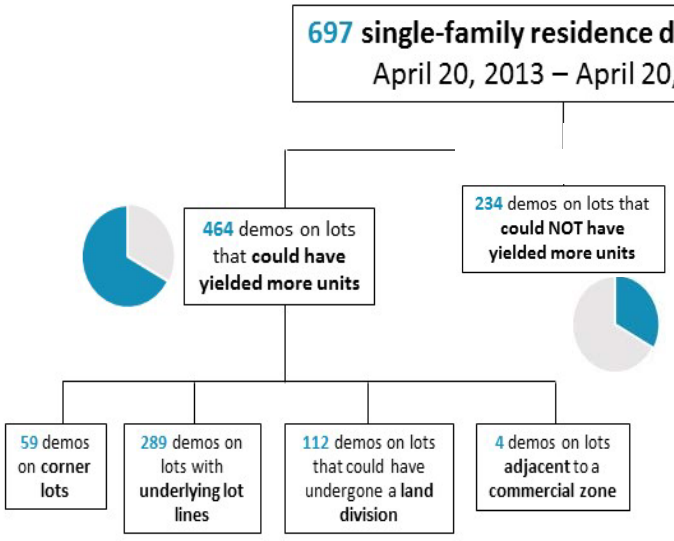
Houses are demolished for many reasons.

Smaller houses may not suit the needs of property owners as families grow or their preferences change. Others may not have been well maintained over time, have been severely damaged by fire or water, or have reached the end of their lifespan, and the cost to repair may be more than the cost to demolish and rebuild. Houses are also sometimes demolished when they cannot compete with new construction for a return on investment.

But options that allow owners to add value by improving existing houses, extending the lifespan of houses and making them more economically competitive in comparison to new construction create incentives to preserve and reuse current housing. Portland's Zoning Code could allow opportunities for greater density and flexibility for reuse of retained and renovated existing houses.

Even so, the Oregon State Building Code can add significant cost and complexity when converting existing houses (see Appendix B). Non-Zoning Code incentives, like those identified in Appendix B, may be especially useful in further encouraging adaptive reuse of existing housing.

To facilitate future additions and provide incentives to continue investment in Portland's current housing stock, the recommendations above allow and encourage homeowners to create additional value in their houses, prolonging their lifespan and making them more competitive against new construction.



How many houses are being demolished?
Of the approximately 145,000 houses in Portland, 697 homes in single-dwelling zones were demolished over a 3-year period. Two-thirds of demolitions took place on lots that allowed for more units to be built, while one-third occurred on lots that did not allow for more units to be built.

NARROW LOTS – BACKGROUND

Origin of historically narrow lots

Like most cities, Portland requires lots to be a minimum size to be developed. Standard residential lots in older parts of Portland are typically 50 feet wide by 100 feet deep. Lots less than 36 feet wide are considered "narrow" lots. But in some neighborhoods, lots were historically created in 25-foot-wide increments. These are referred to as "historically narrow" lots. The land for these lots was originally subdivided long ago into twice as many lots as is currently allowed in the R5 zone and does not meet current minimum lot size or width standards. However, Oregon law requires cities to recognize these lots as "discrete" parcels.

Between 1991 and 2002, the City required no minimum lot size for building on historically narrow lots. In 2003, it established a minimum lot size of 3,000 square feet and a minimum width of 36 feet for existing lots in the R5 zone to be developed. However, an exception was made for lots smaller or narrower than these dimensions, which allows them to be built on when there has not been a dwelling unit on the lot for at least five years. This is sometimes referred to as the 5-year vacancy rule.

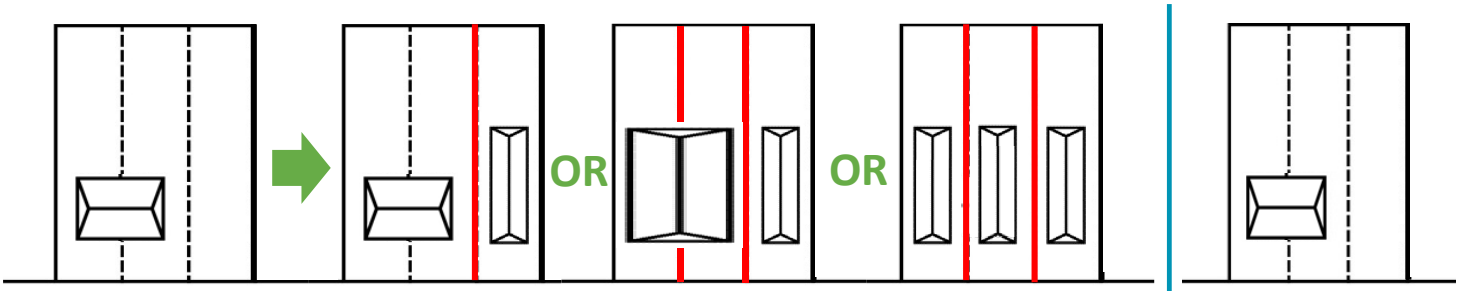
CURRENT LOT CONFIRMATION PROCESS (R5 zoned lots, including adjusted lots)

- *Minimum **3000 square feet** and **36 feet wide** if the lot has had a dwelling unit on it in the last five years.*
- *Minimum **2400 square feet** and **25 feet wide** If the lot has **not** had a dwelling unit on it in the last five years.*

OPPORTUNITIES	CHALLENGES
• Current five-year vacancy requirement discourages demolitions on side-by-side skinny lots. • On multiple side-by-side skinny lots, property lines can be adjusted to establish conforming lot size and widths. • 5-year vacancy rule allows for lots to be developed over time. • Lot size exception allows for increases to the city's overall supply of housing units. • Increases opportunities for "fee-simple" homeownership. • Promotes smaller, more energy-efficient houses. • Smaller new homes on smaller lots are generally less expensive than larger new homes on larger lots.	• On sites where a house is demolished (causing disruption), half of the site is left vacant for five years before construction occurs (causing disruption again). • On sites comprised of more than two side-by-side skinny lots, demolitions can give the appearance of "skirting the rules," since newly configured lots can be built on immediately (no five-year delay). • The City of Portland is still required to acknowledge the existence of substandard lots as saleable parcels, even if they are not immediately developable. • Lack of specific lot confirmation regulations leads to lack of certainty related to application of development standards, including parking, setbacks, building coverage, utilities and/or street improvements. • Future development potential is not clearly and intuitively defined through zoning map designations. • Exceptions that allow development on substandard lots are not intuitive (e.g., "Why is there a new house being built on a 2,500-square foot lot in the R5 zone?"). • Historically narrow lots are not evenly distributed throughout the city. • Narrow houses are often not reflective of the neighborhood character of wider homes.

NARROW LOTS – BACKGROUND

Recommendation 8: *Do not allow historically narrow lots to be built on*



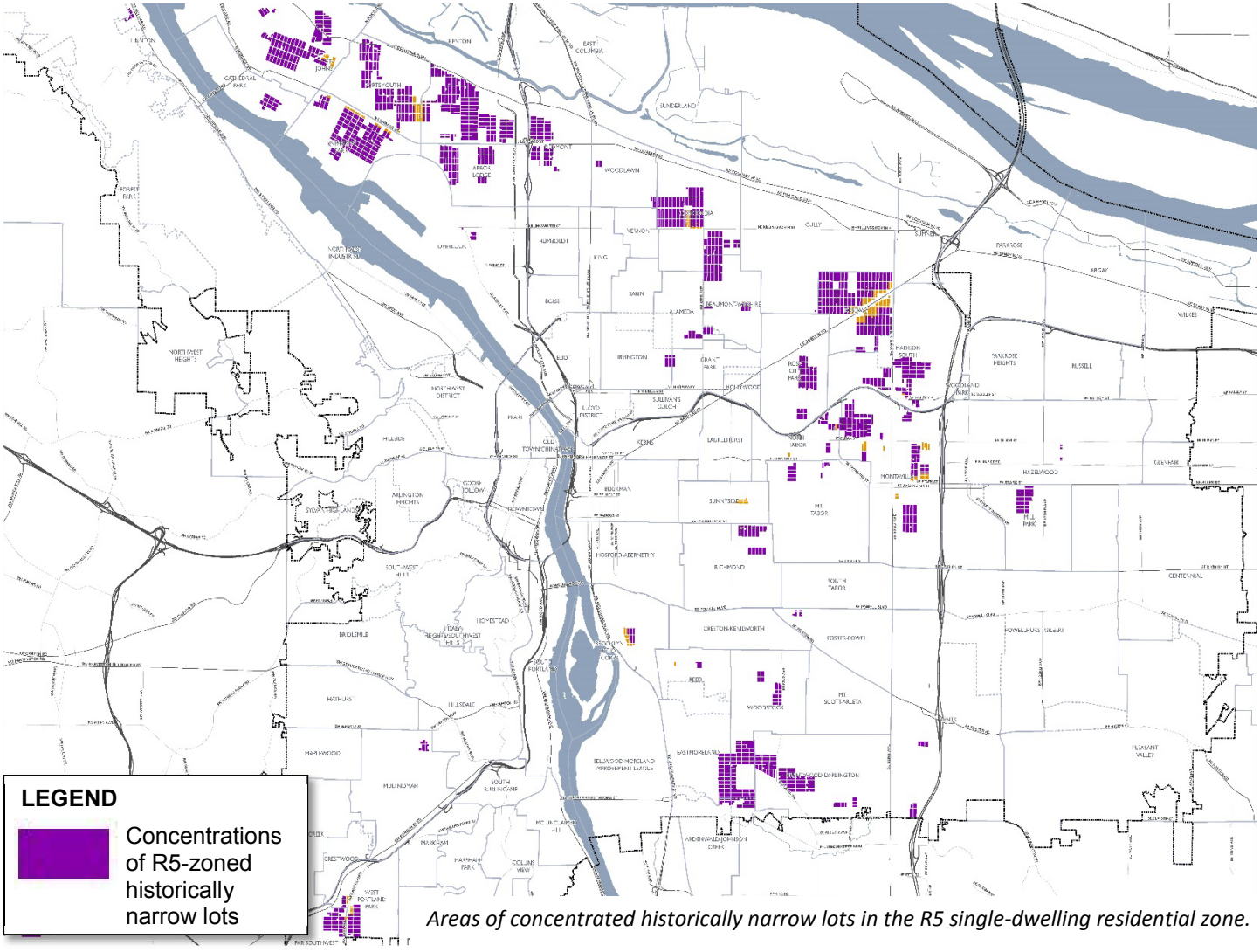
Current: *Existing house on a site comprised of three historically narrow lots (dashed lines).*

Current allowance: *Existing house on a site with new detached house on vacant lot.*

Current allowance: *New attached houses and detached house on vacant lots where a house was removed (five-year vacancy rule applies).*

Current allowance: *New detached houses on vacant lots (five-year vacancy rule applies).*

Proposed: *Allow historically narrow lots to be built on only if they meet R5 standard dimension requirements.*



Areas of concentrated historically narrow lots in the R5 single-dwelling residential zone.

NARROW LOTS – BACKGROUND

Recommendation 9: *Make citywide improvements to the R2.5 zone*

a) On vacant R2.5 lots at least 5,000 square feet, require at least two units when new development is proposed. Allow a duplex or a house with an accessory dwelling unit (ADU) to meet this requirement.
b) Reduce the minimum lot width from 36 feet to 25 feet for land divisions.
c) Allow a property line adjustment to form a flag lot when retaining an existing house.
d) Require attached houses when a house is demolished.
e) Allow 3-story attached homes and limit detached houses on narrow lots to 2 stories.

More efficient use of land zoned R2.5

While the R2.5 zone has the most flexibility of Portland's single-dwelling residential zones in terms of allowed housing types, there are not many areas of the city (less than 4 percent) that are currently zoned R2.5.

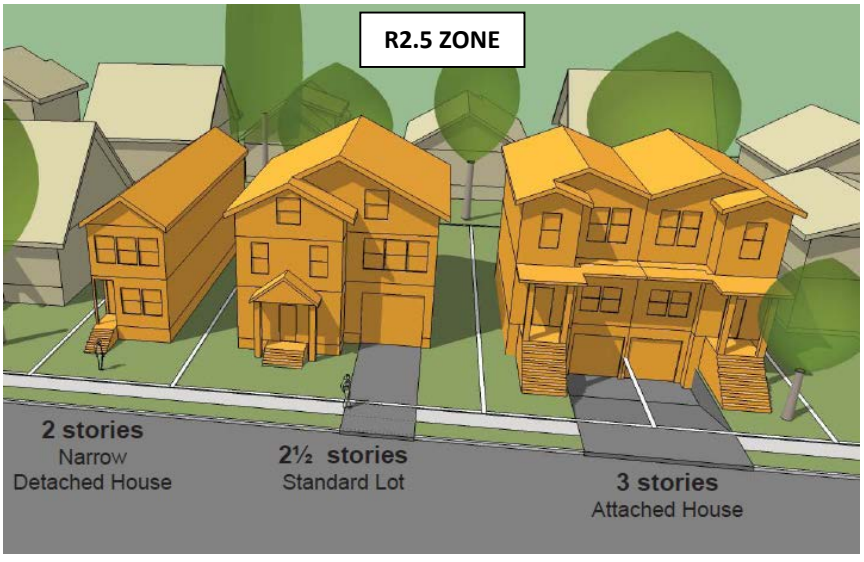
The R2.5 zone allows one housing unit for each 2,500 square feet of lot area. However, when a single, R2.5-zoned house is demolished on a 5,000 square foot lot (large enough for two housing units), current rules allow it to be replaced with a single house. This is a lost opportunity for adding smaller housing units in high-amenity areas.

While current rules allow attached houses in the R2.5 zone, lots must be at least 36 feet wide unless an exception can be justified. This can be especially cumbersome for prospective developers of lots that are 50 feet wide and tends to favor the creation of flag lots. However, where there is already a house that straddles two historically narrow lots, the current property line adjustment rules do not allow properties to be configured as flag lots, even if retaining an existing house.

Improved height transitions

The R2.5 zone often functions as a transition between higher intensity zones (commercial or multi-dwelling residential) and lower intensity, single-dwelling residential zones. That is why the current height allowances in R2.5 zones are taller than other single-dwelling zones. However, when detached houses are built on narrow lots, their width to height relationship makes the detached house appear even taller.

Reducing the allowed height for detached houses on narrow lots, as proposed, maintains a better height to width relationship. Maintaining taller height limits for attached houses provides a better transition between higher and lower intensity zones.



Recommended building heights in the R2.5 zone.

NARROW LOTS – PARKING

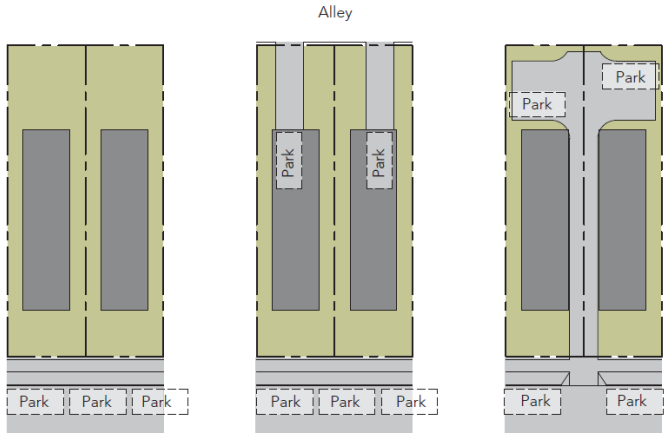
Recommendation 10: *Revise parking rules for houses on narrow lots citywide*

a) Allow, but don't require parking on narrow lots.
b) When a lot abuts an alley, parking access must be provided from the alley.
c) Allow front-loaded garages on attached houses on narrow lots if they are tucked under the first floor of houses and the driveways for each house are combined.

Garages and parking for houses on narrow lots

On 15-foot wide houses, 12-foot wide garages dominate front façades, reducing ground level living space and street facing widows on ground floors. The additional area needed for garages also increases the overall size and depth of narrow houses. Driveway curb cuts also remove space available for on-street parking and increase potential hazards for people walking on sidewalks.

Attached houses can be better suited for garages given their wider building forms. They also present opportunities for shared curb cuts to help retain more on-street parking. However, garages on attached houses on narrow lots may dominate first floors, potentially resulting in long stairways to access main entrances on second floors.



Instead of a series of narrow lot curb cuts that eliminate on street parking, the recommendations encourage other parking arrangements.

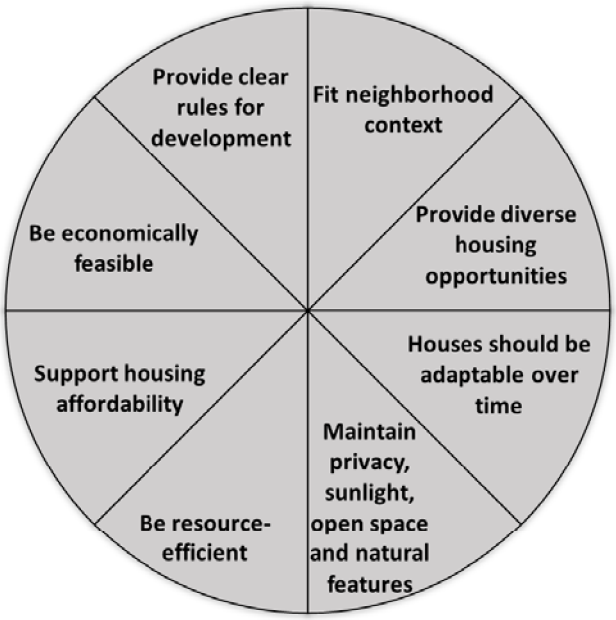
Garages and driveways often dominate the front of narrow houses (current code).

Use of on-street or alley-accessed parking improves street facing façades and leaves more room in the front of houses for pervious surfaces, street trees and landscaping.

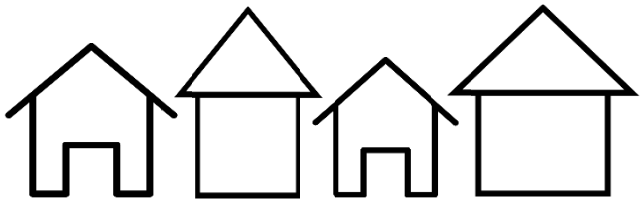
BALANCING MULTIPLE OBJECTIVES

Seeking to optimize performance against eight key measures

Portland's new Comprehensive Plan helps define objectives towards achieving the goal of the Residential Infill Project (see accompanying diagram to the right). Each objective includes questions to help assess and optimize project performance.



These objectives show the range of public interests and highlight sometimes inevitable trade-offs. Some objectives work together, such as providing diverse housing opportunities and supporting housing affordability. Other objectives conflict with one another. The Residential Infill Project seeks to define potential impacts of each objective, balancing positive and negative impacts on the whole.



Fit neighborhood context

Would the proposed approach to development standards for infill houses better produce buildings that fit with the form - scale, massing, street frontage, and transitions to adjacent houses – of blocks on which they are located?

This Concept Report aims to significantly limit the potential of new houses from overwhelming neighboring properties. While new residential construction may be larger or taller than nearby, older homes, these proposed size limits offer greater certainty that the scale of new homes and additions will better complement their neighborhood context.

The size limits proposed are also flexible to allow for a variety of home styles and not be impediments to neighborhoods investment. In situations where most houses on a block are larger, current rules provide an adjustment process that can allow house sizes greater than the prescribed limit on a case-by-case basis.

Proposed increases to front setbacks will help situate new houses to better match neighborhood patterns. New front setbacks may also be reduced to match neighboring houses to ensure that the front facades of new houses are not out of the line with existing houses. Flexibility for additional tree retention and preservation will also be allowed.

The proposed changes to height are tailored to have more consistency to the look of a block from the street. In general, the Concept Report allows standard houses up to 2½ stories. Narrow houses are limited to 2 stories. In R2.5 zones, additional height allowances proposed will encourage attached home development, building forms more compatible with intended character of the R2.5 zone.

This Concept Report also recognizes the inherent value of older, existing houses. Related provisions allow their current or increased use as an alternative housing types to further preserve neighborhood context.

BALANCING MULTIPLE OBJECTIVES

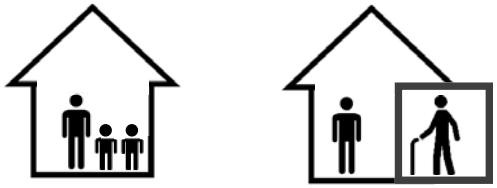
Provide diverse housing opportunities

Would the proposed approach help to produce housing types that accommodate diverse needs and preferences of future and current residents?

Portland's demographics are changing. Yet, the city's housing supply is not necessarily well suited for this change. Its diversity of housing supply is also not sufficient towards successfully responding to Portland's changing housing needs.

Approximately 56 percent of Portland's housing supply is detached single-dwelling buildings. Another 39 percent is multi-dwellings buildings. Middle housing types – multiple units in building forms compatible with existing houses – are in short supply in Portland. Further diversifying the city's housing supply better positions the City to more effectively respond to these changes.

More types of housing in more neighborhoods supports greater household diversity. It gives residents options to stay in their neighborhood as their housing needs change, especially allowing older adults to age amongst familiar resources within their current communities.



Houses should be adaptable over time

Would the approach yield additional housing that can be adapted over time to accommodate changing household needs, abilities and economic conditions, and help older adults "age in place"?

Allowing more accessory dwelling units (ADUs) could benefit homeowners seeking to leverage their home's equity and gain supplemental rental income, make space for other family members or friends or create opportunity to downsize into an ADU while retaining the primary house to rent to a larger household.

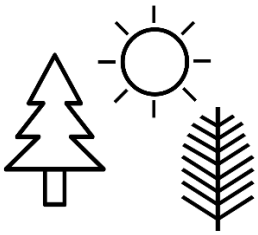
Similarly, allowing opportunities for internal conversions within existing houses to create multiple units could add additional value and longevity to older larger houses while giving greater flexibility towards meeting changing household needs.

Would it provide flexibility within the building envelope for future additions?

Portland residents have repeatedly expressed concerns that restrictions on future additions could result in disinvestment and lead to more demolition of older houses. In response, the proposed rules include some allowance for the expansion of existing houses beyond the proposed limits on house scale. They allow additional floor area for home additions and flexibility when foundations or basements are upgraded or replaced.

The proposed rules balance concerns about house scale and siting with more flexibility for future additions and remodels. They do not prescribe particular house styles (modern, traditional, etc.) or mandate any design uniformity, as such regulation can unnecessarily increase complexity and costs to projects.

BALANCING MULTIPLE OBJECTIVES



Maintain privacy, sunlight, open space and natural features

Would the standards result in development that responds to positive qualities of the natural setting and site conditions? Would they accommodate sustainable stormwater solutions and help meet tree canopy goals?

Tree canopy and stormwater retention can be advanced through the proposed increases to front setbacks and decreases to house footprints. Additional flexibility is also proposed to encourage additional tree retention. Proposed floor area limits and options for increasing yard area and reducing building coverage could result in two-story houses covering less yard area than is currently allowed.

The proposed rules also that govern new cottage cluster development have the added flexibility afforded by smaller footprint houses. The proposed flexibility through discretionary review will better ensure architectural compatibility and site configurations that provide more privacy, sunlight, open space and preservation of a site's natural features.

Would the approach preserve the comfort and privacy of living areas, and provide adequate and usable yard area for gardening and enjoyment of the outdoors?

The proposed rules aim to balance privacy and solar access with retention of open space and natural features. However, retaining open space and trees on a lot often equates to taller and more upright houses, while increasing shade and privacy is best achieved with single-story houses more spread out on a lot. The proposed rules for limiting house size offer builders the flexibility to create either (more upright or spread out) to maximize either privacy or usable outdoor space, but not both concurrently (as is presently allowed).

Be resource-efficient

Would the approach encourage the development and preservation of compact, resource- and energy-efficient homes?

Would it support the use of technologies, techniques, and materials that result in less environmental impact over the life cycle of the structure?

The Concept Report supports resource efficiency in two main ways.

First, it includes provisions that encourage retention and reuse of existing homes, thereby reducing waste going to landfills.

Second, it includes allowances for multiple smaller, less energy- and material-intensive dwelling units to be built in spaces normally occupied by only single houses.

Would it better utilize surplus capacity in existing public infrastructure?

In areas where infrastructure is available and surplus capacity exists, the proposed rules make better use of available capacity by allowing additional dwelling units within building envelopes of most single-dwelling houses.

In areas where surplus capacity does not exist, the proposed approach will allow additional units only in areas where infrastructure is insufficient to handle additional development.

BALANCING MULTIPLE OBJECTIVES

Support housing affordability

Would the standards help to reduce the cost of housing for homeowners and renters by increasing the availability of housing citywide that is affordable to a wide spectrum of household types and sizes?

The proposed rules promote additional housing availability in areas that are highly desirable to many residents due to proximity and good access to services and amenities.

Allowing additional and smaller dwelling units in these areas could increase housing supply and choice citywide, thereby helping reduce long-term pressure from Portland's current imbalance between supply and demand.

Would the approach promote equity and environmental justice by reducing disparities, minimizing burdens, affirmatively furthering fair housing, proactively fighting displacement and improving socio-economic opportunities for under-served and under-represented populations?

Overall, the potential increased supply in housing units of various sizes, types and locations promotes more opportunities for residents to relocate and age within communities that they or their families may have lived in for years or generations.

While there are some areas that may fall outside the Housing Opportunity Overlay Zone and would not be able to utilize this added flexibility, these areas are not typically well served by transit, support services or retailers. While rents and housing prices may be comparatively lower in these areas, the savings would be at least partially offset by increased transportation costs to access needed goods and services.

Be economically feasible

Would the approach allow for a reasonable return on investment for homeowners and developers, allowing the market to produce needed new housing to sufficiently accommodate the city's growing population?

A feasibility analysis on the recommendations on the Concept Report was performed by a project economic consultant (see Appendix A). It confirms that the recommendations on size of houses and additional housing types will still allow for a reasonable return on investment for homeowners and developers and would not stifle the market from producing this needed new housing. The analysis found that existing, single-dwelling-zoned houses will maintain their value as a result of the recommendations. Longer term value increases for existing, larger single-dwelling-zoned houses might occur as the entire market for new single-dwelling zone construction will be subject to the proposed smaller size limits for new houses.

The economic analysis also concludes that the proposed housing choice recommendations will advance the project goal of increasing the supply of diverse housing types. A development feasibility analysis conducted for the alternative housing prototypes indicates that these development types would be more attractive than large lot, new single-dwelling construction. The analysis indicates that these housing types could be delivered to home owners at lower costs than the large single-dwelling prototype.

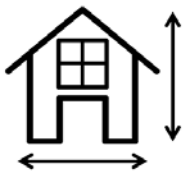
Would it catalyze desired development while minimizing undesired development and demolition of existing sound housing?

A common theme that emerged from public feedback was a concern about potentially increasing demolitions of existing housing. While demolitions will continue to occur (regardless of the project recommendations) in response to ongoing market pressures or as the

BALANCING MULTIPLE OBJECTIVES

consequence of deferred maintenance, the recommendations add more allowances and incentives to encourage home reinvestment and retention, such as additional unit bonuses for converting existing houses, and added flexibility to remodel and expand older houses.

The economic analysis indicates a general reduction in redevelopment activity in a one-for-one single-dwelling redevelopment scenario as the result of the proposed house size limitations. However, the alternative housing type proposal increases housing production opportunity over the long term at a price point lower than is currently being delivered with larger single-dwelling new construction. Additionally, the depth of the market for the lower price point alternative housing types exceeds the amount of buyers that can afford larger single-family houses that are currently being delivered in the market.



Provide clear rules for development

Would the proposed standards be easy to use and understand, and be consistently applied?

Clear and consistent rules are imperative to help facilitate plan preparation and reduce delays in permit reviews. The recommendations make strategic changes to existing, already well-understood clear and objective development requirements relating to building heights and setbacks. While the introduction of a proposed floor area ratio (FAR) standard to limit house sizes is a new standard for Portland's single-dwelling zones, it has for many years been in Portland's Zoning Code in other areas, such as the Central City and commercial zones.

The varied house styles, architectural variations and odd spaces that are more common in single-dwelling zone development introduce a need to be more explicit about how floor area is counted and calculated (see Appendix C). This will be addressed more explicitly during code drafting and refinement.

Additionally, the allowances for additions to and conversions of existing homes as well as incentives for ADUs will add some degree of complexity, which will also need to be further evaluated during the subsequent code drafting phase of the project.

Would the zoning districts be clearly reflective of the neighborhood character they would produce?

"A one size does not fit all" theme emerged during the public outreach phase of the Residential Infill Project, suggesting that the proposed rules do not go far enough in recognizing the unique character attributes of Portland's neighborhoods, blocks or pattern areas.

Yet, zoning and development standards are only one of many ingredients for defining neighborhood character. Street layout, topography, existing vegetation and the mix of zoning (residential, commercial, open space, etc.) also have a strong influence in establishing neighborhood character. In addition, a neighborhood's "historical narrative," such as influences from major infrastructure or institutional investments or changing socio-economic economic compositions also, over time, add significant definition to attributes inherent in different neighborhoods. Thus, the variety and uniqueness within the city that many observe as desirable characteristics was actually developed over time not through fastidious zoning rules, but rather broad parameters that allow for individual innovation and cultural expression.

In recognition of the role that zoning and development standards do play, the proposed rules were revised to differentiate house size limits based on a combination of both lot size and zoning district, and not tied strictly to lot size – which could have resulted in a greater blending of zoning districts than desired. In addition, proposed height limits in the R2.5 zone were retained for attached house and/or rowhouse development, forms more consistent with this zone and serving as a transition between single-dwelling and higher intensity zones. Lastly, certain pattern area characteristics may be reflected in new development through introduction of new design controls - measures that will promote the preservation and future integration of key, iconic architectural features that help define neighborhoods and make these areas special.

PUBLIC INVOLVEMENT

DEVELOPING DRAFT PROPOSALS (DECEMBER 2015 – JUNE 2016)

- **Online questionnaire.** More than 7,200 people participated in an online questionnaire that provided opportunity for Portlanders to share their thoughts about residential infill issues. The questionnaire was not a scientifically-representative survey, but offered an additional way for residents to provide input. Project staff used the results along with information gathered from public meetings, to help identify key community values and focus additional outreach to people not well represented from the questionnaire results. An analysis of the results and a summary of the nearly 8,600 individual comments received is available in the Summary Report on the project website.
- **Public open house after Stakeholder Advisory Committee (SAC) charrette.** After a day-long SAC charrette, the public was invited to view the graphics and flipcharts created, learn more about the project and provide feedback.
- **Ongoing communication**. Regular communications about the Residential Infill Project were made available through the project website, monthly e-mail updates to the project mailing list, Bureau of Planning and Sustainability newsletters, social media sites (Facebook, NextDoor and Twitter) and media releases.

PUBLIC REVIEW OF DRAFT PROPOSALS (JUNE 2016 – AUGUST 2016)

- **Open houses and questionnaire.** Nearly 550 people attended six open houses held in various locations across the city. Additionally, an online version of the open house materials was viewed by over 8,600 people. A questionnaire, which sought feedback on the specific draft proposals, was available for on line and written responses with over 2,375 people responding. An analysis and summary of the results from over 1,500 individual comments received from questionnaires, comment forms, flipchart notes, emails and letters is available in a summary report on the project website.
- **Meetings and hosted forums.** In addition to the open houses, staff met with groups and organizations to gather feedback and help them get the word out about the draft proposals to their networks. Roughly 200 people attended meetings and hosted forums with district neighborhood coalitions, Oregon Opportunity Network, Elders in Action, Anti-displacement PDX, and several city commissions among others.

STAKEHOLDER ADVISORY COMMITTEE (SAC)

A Stakeholder Advisory Committee (SAC) was established from September 2015 through October 2016 to advise project staff on issues related to the project and participate in the development of these draft proposals. Twenty-six SAC members were appointed or approved by Mayor Charlie Hales to represent those who live in the neighborhoods, those involved in construction or selling of houses and those representing interests such as housing equity, historic preservation, seniors and sustainability. SAC members were chosen to ensure the committee provided a balance of age, gender and geographic distribution.

SAC members shared their advice, insight and expertise and provided project updates to their diverse group of networks and organizations. In addition to 16 meetings, SAC members also participated in neighborhood walks (October and November 2015) and an all-day charrette (January 2016). They also exchanged ideas, photos and key articles on a Facebook group page, visible to the public.

The culmination of the SAC's work and discussions is included in detailed meeting minutes and summarized in the SAC Final Report (see project website). All SAC meetings were open to the public and included time for public comment.

STAY INFORMED

Project Timeline:

Summary of City Council Hearing and Vote

The Portland City Council held a public hearing on the Residential Infill Project Concept Report over two days (November 9 and 16, 2016) to consider a resolution supporting recommendations. City Council heard verbal testimony from nearly 120 people and received nearly 550 written testimonies via letters and emails through November 23, 2016.

On December 7, 2016, City Council voted unanimously to approve a resolution that accepted the Residential Infill Project Concept Report, with several amendments to the report recommendations. Council amendments were based on testimony they received during the public hearings. Videos of City Council sessions can be viewed at: http://www.portlandoregon.gov/28258

Next Steps

The acceptance of this City Council-amended Concept Report sets the stage for the next phase of the Residential Infill Project: zoning code and map amendment proposals. City Council's vote directs City staff to develop the code language and map amendments needed to implement the concepts in the report. Beginning early 2017, a discussion draft of potential changes will be completed, followed by public hearings at the Planning and Sustainability Commission and City Council before final adoption by City Council.

Regular communications about the Residential Infill Project are available through the project website (see below), monthly e-mail updates to the project mailing list, Bureau of Planning and Sustainability newsletters, social media sites (Facebook, NextDoor and Twitter) and media releases.

Visit www.portlandoregon.gov/bps/infill to:

- Learn more about the project and view maps, reports and documents.
- Review Stakeholder Advisory Committee discussions, including the SAC Summary Report.
- Read about the public feedback received from the earlier draft proposals.
- Sign up to receive future updates and notices of upcoming public hearings.

Contact Bureau of Planning and Sustainability staff:

Morgan Tracy, Project Manager - 503-823-6879
Julia Gisler, Public Involvement - 503-823-7624
Email questions to project staff at: residential.infill@portlandoregon.gov

JOHNSON ECONOMICS

MEMORANDUM

DATE: October 17, 2016

TO: Tyler Bump
BUREAU OF PLANNING AND SUSTAINABILITY

FROM: Jerry Johnson
JOHNSON ECONOMICS LLC

SUBJECT: Economic Analysis of Proposed Changes to the Single Dwelling Zone Development Standard

The City of Portland Bureau of Planning and Sustainability is undertaking the Residential Infill Project. As part of that effort, the City is evaluating proposed changes in the single family dwelling zone development standards. The changes will impact maximum height limits, building square footage, and minimum setbacks and yard areas. The marginal changes are expected to have a substantive impact on the economics of potential development forms.

I. ECONOMIC FEASIBILITY MODELING

Johnson Economics was asked to model the economic feasibility of four prototypes, with the intent to determine the economic viability of the prototypes. The work is based on market variables for inner eastside neighborhood markets, and does not address the marginal impact of affordable housing provisions or incentives.

Marginal Value of Changes

The proposed changes impact the viability of new development in two primary ways. The first of these is a marginal decrease in the allowable building square footage, reflected by a shift in the net Floor Area Ratio (FAR). This provides for less development yield on the site, expressed in square footage of saleable or leasable area.

The second impact is associated with the shift in product type and associated price point. By allowing for multiple residential structures on the site, a developer is able to produce housing at a lower overall price point. This broadens the potential market for the housing, reducing both expected marketing time as well as market risk. As an example, the following table provides a generalized summary of the development of a 5,000 square foot site, as single family or duplex units, and under an ownership or rental scenario.

Concept Report
Appendix A

	Ownership		Rental		Net Impact by Tenure	
	Single Family	Duplex	Single Family	Duplex	Owner	Rental
Physical Characteristics						
Site Size/SF	5,000	5,000	5,000	5,000	0.00	-5,000.00
Saleable Area (SF)	2,500	2,500	2,500	2,500	0.00	-2,500.00
FAR	0.50	0.50	0.50	0.50	0.000	0.000
Market Pricing / SF	$300.0	$345.0	$2.00	$2.30	$45.00	$0.30
Pricing						
Number of Units	1	2	1	2	1	1
Avg. Unit Size (SF)	2,500	1,250	2,500	1,250	-1,250	-1,250
Efficiency Ratio	100%	100%	100%	100%		
Stabilized Occupancy Rate			95%	95%		
Threshold Yield Rate	15.00%	15.00%	6.60%	6.60%		
Per Unit Pricing						
Sales Price	$750,000	$431,250			-$318,750	
Monthly Base Rent			$5,000	$2,875		-$2,125
Operating Costs as % of Gross			32.0%	32.0%		
Estimated Project Cost						
Construction Cost/SF	$204	$227	$184	$204	$23	$20
Total Construction Cost	$510,750	$567,500	$459,675	$510,750	$56,750	$51,075
Project Impact on Value						
Indicated Residual Land Value	$126,750	$165,625	$127,598	$164,614	$38,875	$37,016
Residual Land Value/Unit	$126,750	$82,813	$127,598	$82,307	-$43,938	-$45,291

While the specifics of any development site will vary, there are some generalized outcomes that should be expected. The proposed change in entitlements will allow for residential development to support positive residual land values, while also producing housing at a lower average price point. In the preceding analysis, the value of the 5,000 square foot site increases by approximately $38,000 if the same building area is assumed, while the residential offerings are priced at a lower rate in absolute magnitude.

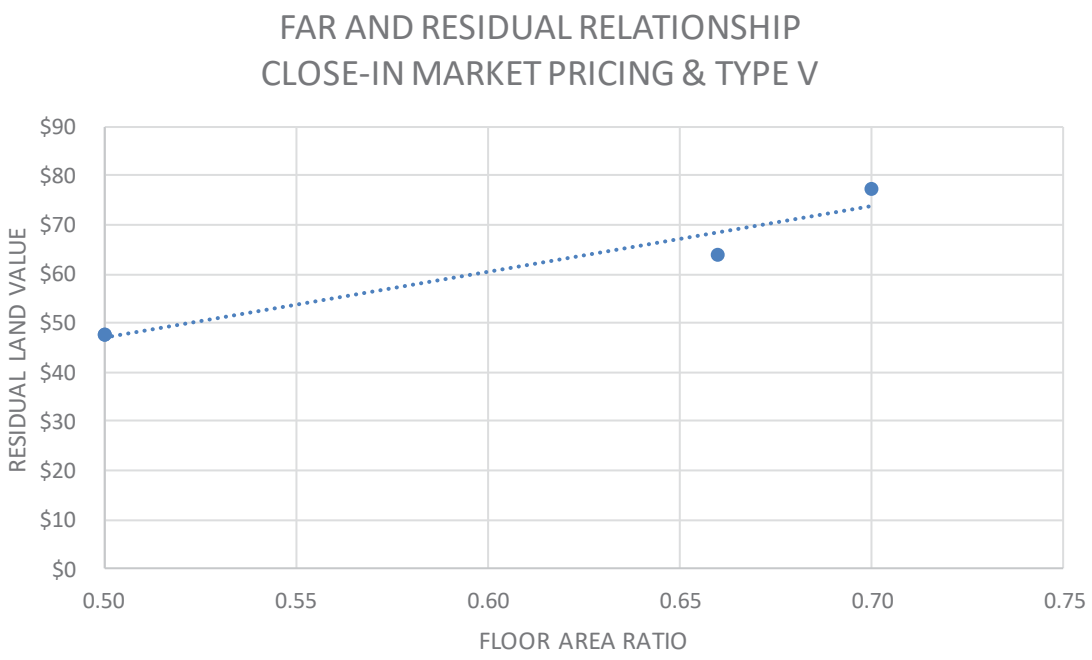
As part of our assessment, we specifically evaluated a total of four housing prototypes, which were developed by DECA architecture. The prototypes were as follows:

- A mid-block duplex at .5 FAR
- A corner tri-plex at .5 FAR
- A corner tri-plex at .7 FAR
- A .7 FAR on historic platted 2,500 SF lots

These were evaluated as rental housing product, but the dynamics would be similar if they were evaluated under an ownership scenario. The summary pro formas are included as an appendix to this memorandum, with the results summarized in the following figure:

SUMMARY OF DEVELOPMENT SCENARIOS, SELECTED PROTOTYPES

Option	Land (SF)	Building (SF)	Indicated Residual Land Value Total	PSF
MID-BLOCK DUPLEX AT 0.5 FAR	5,000	2,500	$237,888	$48
CORNER TRI-PLEX AT 0.5 FAR	5,000	2,500	$237,888	$48
CORNER LOT TRI-PLEX AT 0.66 FAR	5,000	3,300	$319,612	$64
SKINNY HOUSES ON 2,500 SF LOTS	5,000	3,500	$387,490	$77



1/ Reflects capitalized value at first stabllized year. Not intended as a legal representation of value.

The limited scenarios evaluated reflect what would be intuitively expected. As allowable FAR is increased, residual land values also increase. In addition, the average pricing of a unit decreases, reflecting a significant decrease in the average unit size.

The marginal shift in residual land value would also be expected to impact the rate of infill and/or redevelopment, as the incentive to develop is increased on the margin. When residual land values are higher, there is a higher likelihood that redevelopment will occur.

II. Predictive Development Modeling

Overview of Proposed Changes

The proposed change in allowed development being evaluated are as follows:

TYPE	LOT SIZE	Current Size Allowed	Proposal
Single Family Home	5,000	R2.5 = 6,750 sf R5 = 6,750 sf R7 = 6,750 sf	R2.5 (0.7 FAR) = 3,500 sf R5 (0.5 FAR) = 2,500 sf R7 (0.4 FAR) = 2,000 sf
Skinny Home	2,500	R2.5 = 3,750 sf R5 = 2,500 sf R7 – not applicable	R2.5 = 1,750 sf R5 = 1,250 sf R7 – not applicable
Duplex	5,000	R2.5 = 6,750 sf R5 = 6,750 sf R7 = 6,750 sf	R2.5 = 3,500 sf R5 = 2,500 sf R7 = 2,000 sf
Triplex	5,000	R2.5 = 6,750 sf R5 – not applicable R7 – not applicable	R2.5 = 3,500 sf R5 = 2,500 sf R7 = 2,000 sf

The proposed changes would limit the allowed size of residential development within the single dwelling zones, while modestly expanding the ability of the market to provide some housing types. The current allowed size of structure for the three residential codes is likely well above what would be expected in the market, as homes in these size ranges represent a minute percentage of housing stock. While the current maximum home size is 6,750 square feet, the average size of homes was 2,670 in 2013, and no home was built that was over 4,460 square feet.

The revised allowable home sizes will likely restrict final home sizes below what the market may demand. The only area in which the proposed zone changes increase allowable intensity of the development is the allowance of triplex units in the R5 and R7 zones, and duplexes on interior lots in these two codes. The overall size of structures will be quite limited for either of these zones, limiting the marginal value of the change in entitlement.

In summary, the proposed changes to the code largely reflect an increase in allowable density in terms of units and a reduction in the amount of allowable building area within the codes. This would be reflected in generally lower residual land values associate with redevelopment options. The anticipated impact would be a lower rate of redevelopment, and at lower values. For lots currently zoned R5 but pre-platted skinny lots, the proposal would change these to R2.5, which will likely increase the value of these lots (approximately 13,000 in total).

Description of Model

Johnson Economics has developed a predictive development model, which is designed to estimate the marginal impact of changes in the development environment on the expected magnitude and character of development.

The Model's general structure includes the development of projections of predicted investment under two scenarios, a baseline scenario as well as a scenario assuming the proposed changes in entitlement. The differential between the two scenarios is attributed to the entitlement changes. A key component of our approach to this assignment is the utilization of a "production" model, which mimics a developer's decision tree and solves for the highest and best use development form. We use a pro forma based predictive model to generate predominant development profiles for the study area. This model evaluates highest and best use development forms under a range of assumptions, based on the implied residual property value[1] under each use. This allows us to calculate the likely predominant development form within the study area and subareas, based on market dynamics and entitlements. It also establishes a residual property value for the area, which allows us to evaluate the extent to which existing properties can be expected to redevelop.

Key inputs in the "production" model are those that impact revenues, costs, return parameters and site entitlements. The production component of the model can be broken up into three primary categories that are determinative of final development form: achievable pricing, cost to develop, and threshold returns. The marginal impacts associated with proposed change in entitlements are incorporated into a broader modeling framework designed to translate shifts in these inputs into associated patterns of investment.

The development/redevelopment module is intended simulate the development decision tree, factoring in key inputs and their impact on decisions with respect to development activity. The module initially solves for a development solution that represents the highest and best use of the property under the assumptions used, as well as outputting an associated residual property value. The highest and best use of the site is defined as the allowable land use program that yields the greatest return to the existing property, and the residual property value reflects the maximum acquisition value supported by that program under the assumptions used.

The highest and best use determination is based on the allowable use that has the highest indicated residual property value between a range of land use types and development forms. An entitlement screen is necessary, as use types identified as having the greatest residual values may not be allowable under existing zoning. Changes in this screen were the primary modifications tested in this analysis.

Development/redevelopment activity is predicted by the model when the residual property value exceeds the property value under the existing use. If the residual value is greater to or equal to the market value of the property, it is assumed to represent a rational development or redevelopment opportunity. While development and/or redevelopment is considered viable in these instances, it does not necessarily mean that it will be developed with the study time frame. There are a number of additional factors that impact redevelopment, and we assume that only a portion of opportunities identified as viable will be realized within the study horizon.

[1] Residual Property Value reflects the maximum supportable acquisition value of the property under an assumed development program.

Model Output

Our predictive development model was run for two scenarios, reflecting current and proposed development standards. The impacted area was broken into two major pricing schemes, one for the inner neighborhoods and one for neighborhoods with generally lower price points east and south of the close-in eastside neighborhoods.

The model evaluated marginal shifts in entitlement that allowed for the development of triplexes on R5 and R7 sites, as well as duplexes on interior lots. In addition, it adjusted the assumed square footage of structures associated with the proposed FAR restrictions.

The results showed an expected aggregate reduction in the level of construction investment and residential units for both study areas. In this case, the reduced allowable building area had a larger negative impact on residual land values than the offsetting increase in allowable units. The reduction in residual land value reduced the level of expected redevelopment and investment. The output reflects a lower aggregate level of redevelopment, but a greater unit density and lower price point per unit on properties that do redevelop.

The model indicated an expected reduction of 3,928 residential units in the inner neighborhoods, reflecting a 6.7% reduction in predicted development activity.

SUMMARY OF PREDICTED DEVELOPMENT ACTIVITY OVER STUDY PERIOD WITH PROPOSED MODIFICATIONS IN ZONING CODES

20 Year Study Period Inner Neighborhoods, No Pricing Changes

	Predicted Development Yield		
LINE	Construction Investment	Residential Units	Commercial Space
INNER EASTSIDE - PARCELS ZONED R2.5, R5, AND R7			
BASELINE			
New Construction	$17,642,868,037	58,830	0
Rehab/Renovation	$7,569,285,629		
Overall Total	$25,212,153,666		
Inner Neighborhoods			
New Construction	$16,698,887,210	54,902	0
Rehab/Renovation	$7,796,370,262		
Overall Total	$24,495,257,472		
NET IMPACT			
Magnitude	**($716,896,194)**	**-3,928**	**0**
Percent	**-2.8%**	**-6.7%**	**0.0%**

SOURCE: Johnson Economics LLC

For the less urban neighborhoods, the predicted impact was an 8.7% reduction in units (1,927 less), with overall construction investment dropping 5.7%.

SUMMARY OF PREDICTED DEVELOPMENT ACTIVITY OVER STUDY PERIOD WITH PROPOSED MODIFICATIONS IN ZONING CODES

20 Year Study Period Outer Neighborhooods, No Pricing Changes

LINE	Predicted Development Yield: Construction Investment	Residential Units	Commercial Space
OUTER EASTSIDE - PARCELS ZONED R2.5, R5, AND R7			
BASELINE			
New Construction	$6,356,819,095	22,210	0
Rehab/Renovation	$2,406,239,695		
Overall Total	$8,763,058,790		
Outer Neighborhooods			
New Construction	$5,805,288,592	20,283	0
Rehab/Renovation	$2,455,760,849		
Overall Total	$8,261,049,440		
NET IMPACT			
Magnitude	**($502,009,349)**	**-1,927**	**0**
Percent	**-5.7%**	**-8.7%**	**0.0%**

SOURCE: Johnson Economics LLC

The overall predicted impact as a percentage is significant in both areas, although representing less than 10% of marginal activity. Predicted marginal development continues to be concentrated in the higher value inner eastside parcels, with a lower rate of development anticipated in the neighborhoods with lower levels of assumed achievable pricing.

III. SUMMARY

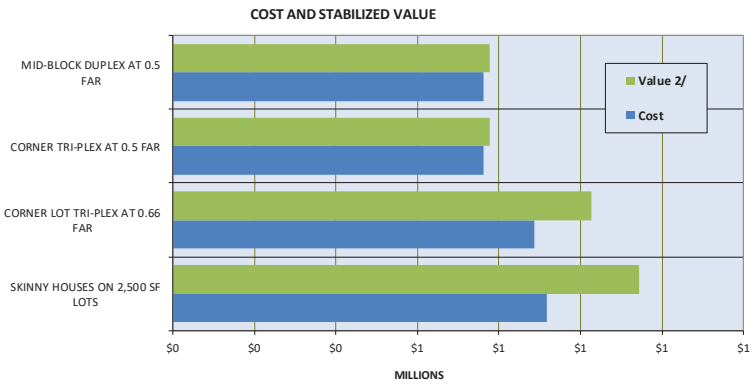
Our analysis indicates that the proposed changes in entitlements would likely result in a lower rate of development and redevelopment in the study area, yielding less in terms of units and construction investment. While the marginal impact would be low in percentage terms, a similar impact is expected in both the close-in as well as less urban areas. The modest increase in allowable units is more than offset by the lower allowed square footage of new development, which generally reduces the supportable land value for new development. The lower supportable land value decreases the likelihood or redevelopment on a significant number of parcels.

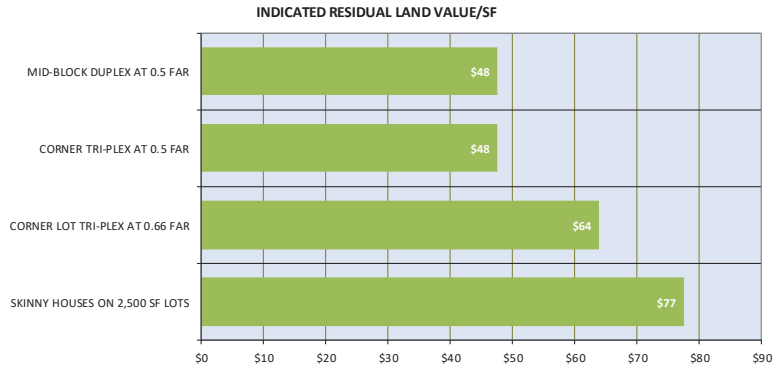
Sites that do redevelop under the proposed modifications would be expected to deliver units at a generally lower price point and higher unit density.

APPENDIX A: SUMMARY RESULTS OF FEASIBILITY ASSESSMENTS

SUMMARY OF DEVELOPMENT SCENARIOS
SELECTED RESIDENTIAL PROTOTYPES

Option	Program			Costs			Stabilized	Return	Indicated	Value/	Calculated Viability Gap		Indicated Residual Land Value	
	Res S.F.	Retail S.F.	Parking Spaces	Property Acquisition	Hard & Soft	Total Cost	NOI	on Cost	Value 1/	Cost	Total 2/	% of Cost	Total	PSF
MID-BLOCK DUPLEX AT 0.5 FAR	2,500	0	2	$350,000	$411,013	$761,013	$42,827	5.63%	$778,680	102%	$112,113	14.7%	$237,888	$48
CORNER TRI-PLEX AT 0.5 FAR	2,500	0	7	$350,000	$411,013	$761,013	$42,827	5.63%	$778,680	102%	$112,113	14.7%	$237,888	$48
CORNER LOT TRI-PLEX AT 0.66 FAR	3,300	0	7	$350,000	$536,937	$886,937	$56,532	6.37%	$1,027,858	116%	$30,389	3.4%	$319,612	$64
SKINNY HOUSES ON 2,500 SF LOTS	3,500	0	7	$350,000	$566,394	$916,394	$62,956	6.87%	$1,144,660	125%	($37,490)	-4.1%	$387,490	$77





1/ Reflects capitalized value at first stablized year. Not intended as a legal representation of value.

37252

MID-BLOCK DUPLEX AT 0.5 FAR
STANDARD CLOSE-IN EASTSIDE MARKET PARAMETERS

October 17, 2016

AREA SUMMARY:	
Site Size (SF):	5,000
Building Size (SF):	2,500
FAR (Exluding Parking):	0.50
Building Efficiency:	100%
Saleable and Leasable Area (SF):	2,500

INCOME SUMMARY:

	Total SF/Units	Average Rent/SF	Income
Retail Space	0	$22.00	$0
Live / Work	0	$26.40	$0
Market Rate Apartments	2,500	$26.40	$66,000
Affordable Apartments	0	$12.77	$0
Parking - Surface	0	$3.09	$0
Operating Expenses		32.0%	($21,120)
Vacancy/Collection		5.0%	($3,300)
TOTAL	2,500	$16.63	**$41,580**

COST SUMMARY:

	Per SF		Total
Property Acquisition	$70		$350,000
Direct Construction Cost	$121		$301,875
Soft Costs	$31		$76,544
Contingencies	$13		$32,594
Sale of Tax Credits	$0	3.22%	$0
TOTAL / NET	$304		**$761,013**

EQUITY ASSUMPTIONS:		
Total Development Cost		**$761,013**
(-) Permanent Loan		($563,498)
Tax Credit Percentage		**3.22%**
Tax Credit Discount Factor		**80.00%**
(-) Net Value of Tax Credits		**$0**
Net Permanent Loan Equity Required	**26.0%**	**$197,515**

PERMANENT FINANCING ASSUMPTIONS:

	DCR	LTV	LTC
Interest Rate	4.50%	4.50%	4.50%
Term (Years)	30	30	30
Debt-Coverage Ratio	**1.25**		
Loan-to-Value		**75%**	**80%**
Stabilized NOI (Year 2)	$42,827	$42,827	
CAP Rate		5.50%	
Supportable Mortgage	**$563,498**	**$584,010**	**$608,810**
Annual Debt Service	**$34,262**	**$35,509**	**$37,017**

MEASURES OF RETURN:	
Indicated Value @ Stablization	$778,680
Value/Cost	102%
Return on Cost (ROC)	5.63%
ESTIMATION OF VIABILITY GAP	
Targeted Return on Cost (ROC)	6.60%
Calculated Gap-Income Components	$112,113
Overall Gap as % of Development Cost	14.73%
Indicated Residual Value Per Square Foot	**$48**

37252

CORNER TRI-PLEX AT 0.5 FAR
STANDARD CLOSE-IN EASTSIDE MARKET PARAMETERS

October 17, 2016

AREA SUMMARY:	
Site Size (SF):	5,000
Building Size (SF):	2,500
FAR (Exluding Parking):	0.50
Building Efficiency:	100%
Saleable and Leasable Area (SF):	2,500

INCOME SUMMARY:

	Total SF/Units	Average Rent/SF	Income
Retail Space	0	$22.00	$0
Live / Work	0	$26.40	$0
Market Rate Apartments	2,500	$26.40	$66,000
Affordable Apartments	0	$12.77	$0
Parking - Structured	0	$4.80	$0
Operating Expenses		32.0%	($21,120)
Vacancy/Collection		5.0%	($3,300)
TOTAL	2,500	$16.63	**$41,580**

COST SUMMARY:

	Per SF		Total
Property Acquisition	$70		$350,000
Direct Construction Cost	$121		$301,875
Soft Costs	$31		$76,544
Contingencies	$13		$32,594
Sale of Tax Credits	$0	3.22%	$0
TOTAL / NET	$304		**$761,013**

EQUITY ASSUMPTIONS:		
Total Development Cost		**$761,013**
(-) Permanent Loan		($563,498)
Tax Credit Percentage		**3.22%**
Tax Credit Discount Factor		**80.00%**
(-) Net Value of Tax Credits		**$0**
Net Permanent Loan Equity Required	**26.0%**	**$197,515**

PERMANENT FINANCING ASSUMPTIONS:

	DCR	LTV	LTC
Interest Rate	4.50%	4.50%	4.50%
Term (Years)	30	25	30
Debt-Coverage Ratio	**1.25**		
Loan-to-Value		**75%**	**80%**
Stabilized NOI (Year 2)	$42,827	$42,827	
CAP Rate		5.50%	
Supportable Mortgage	**$563,498**	**$584,010**	**$608,810**
Annual Debt Service	**$34,262**	**$38,953**	**$37,017**

MEASURES OF RETURN:	
Indicated Value @ Stablization	$778,680
Value/Cost	102%
Return on Cost (ROC)	5.63%
ESTIMATION OF VIABILITY GAP	
Targeted Return on Cost (ROC)	6.60%
Calculated Gap-Income Components	$112,113
Overall Gap as % of Development Cost	14.73%
Indicated Residual Value Per Square Foot	**$48**

37252

CORNER LOT TRI-PLEX AT 0.66 FAR
STANDARD MARKET PARAMETERS

October 17, 2016

AREA SUMMARY:	
Site Size (SF):	5,000
Building Size (SF):	3,300
FAR (Exluding Parking):	0.66
Building Efficiency:	100%
Saleable and Leasable Area (SF):	3,300

INCOME SUMMARY:

	Total SF/Units	Average Rent/SF	Income
Retail Space	0	$18.00	$0
Live / Work	0	$26.40	$0
Market Rate Apartments	3,300	$26.40	$87,120
Affordable Apartments	0	$12.77	$0
Parking - Surface	0	$1.71	$0
Operating Expenses		32.0%	($27,878)
Vacancy/Collection		5.0%	($4,356)
TOTAL	3,300	$16.63	**$54,886**

COST SUMMARY:

	Per SF		Total
Property Acquisition	$70		$350,000
Direct Construction Cost	$121		$398,475
Soft Costs	$31		$101,038
Contingencies	$11		$37,424
Sale of Tax Credits	$0	3.22%	$ -
TOTAL / NET	$269		**$886,937**

EQUITY ASSUMPTIONS:		
Total Development Cost		**$886,937**
(-) Permanent Loan		($709,549)
Tax Credit Percentage		**3.22%**
Tax Credit Discount Factor		**80.00%**
(-) Net Value of Tax Credits		**$0**
Net Permanent Loan Equity Required	**20.0%**	**$177,387**

PERMANENT FINANCING ASSUMPTIONS:

	DCR	LTV	LTC
Interest Rate	4.50%	4.50%	**4.5%**
Term (Years)	30	25	**30**
Debt-Coverage Ratio	**1.25**		
Loan-to-Value		**75%**	**80%**
Stabilized NOI (Year 2)	$56,532	$56,532	
CAP Rate		5.50%	
Supportable Mortgage	**$743,817**	**$770,893**	**$709,549**
Annual Debt Service	**$45,226**	**$51,418**	**$43,142**

MEASURES OF RETURN:	
Indicated Value @ Stablization	$1,027,858
Value/Cost	116%
Return on Cost (ROC)	6.37%
ESTIMATION OF VIABILITY GAP	
Targeted Return on Cost (ROC)	6.6%
Calculated Gap-Income Components	$30,389
Overall Gap as % of Development Cost	3.4%
Indicated Residual Value Per Square Foot	**$64**

37252

SKINNY HOUSES ON 2,500 SF LOTS
STANDARD MARKET PARAMETERS

October 17, 2016

AREA SUMMARY:	
Site Size (SF):	5,000
Building Size (SF):	3,500
FAR (Exluding Parking):	0.70
Building Efficiency:	100%
Saleable and Leasable Area (SF):	3,500

INCOME SUMMARY:	Total SF/Units	Average Rent/SF	Income
Retail Space	0	$22.00	$0
Live / Work	0	$26.40	$0
Market Rate Apartments	3,500	$27.72	$97,020
Affordable Apartments	0	$12.77	$0
Parking - Podium	0	$3.09	$0
Operating Expenses		32.0%	($31,046)
Vacancy/Collection		5.0%	($4,851)
TOTAL	3,500	$17.46	**$61,123**

COST SUMMARY:	Per SF		Total
Property Acquisition	$70		$350,000
Direct Construction Cost	$121		$422,625
Soft Costs	$30		$105,137
Contingencies	$11		$38,631
Sale of Tax Credits	$0	3.22%	$0
TOTAL / NET	$262		**$916,394**

EQUITY ASSUMPTIONS:		
Total Development Cost		**$916,394**
(-) Permanent Loan		($733,115)
Tax Credit Percentage		**3.22%**
Tax Credit Discount Factor		**80.00%**
(-) Net Value of Tax Credits		**$0**
Net Permanent Loan Equity Required	**20.0%**	**$183,279**

PERMANENT FINANCING ASSUMPTIONS:	DCR	LTV	LTC
Interest Rate	4.50%	4.50%	4.5%
Term (Years)	30	25	30
Debt-Coverage Ratio	**1.25**		
Loan-to-Value		**75%**	**80%**
Stabilized NOI (Year 2)	$62,956	$62,956	
CAP Rate		5.50%	
Supportable Mortgage	**$828,342**	**$858,495**	**$733,115**
Annual Debt Service	**$50,365**	**$57,262**	**$44,575**

MEASURES OF RETURN:	
Indicated Value @ Stablization	$1,144,660
Value/Cost	125%
Return on Cost (ROC)	6.87%
ESTIMATION OF VIABILITY GAP	
Targeted Return on Cost (ROC)	6.60%
Calculated Gap-Income Components	($37,490)
Overall Gap as % of Development Cost	-4.09%
Indicated Residual Value Per Square Foot	**$77**

37252

RESIDENTIAL INFILL PROJECT

INTERNAL CONVERSION REPORT

October 17, 2016

deca ARCHITECTURE INC

PREFACE

This study was commissioned for the Bureau of Planning and Sustainability (BPS) Residential Infill Project, with the goal of studying internal conversions of existing single family dwellings to accommodate two or more dwelling units in a single structure. Many existing homes are currently being demolished to make way for newer and much larger housing stock, and there is little financial incentive to retain existing older homes which are smaller and may have deferred maintenance issues. Internal conversions may offer a viable path to providing financial incentive for preserving existing buildings by converting them to multiple dwelling units.

Current zoning restricts the number of dwelling units in single family zones to one or two dwellings per site. However, the goal of this study was not to evaluate the zoning code issues associated with internal conversions, but rather to focus on the technical, building code, and constructability issues associated with this project type.

INTERNAL CONVERSION SUMMARY

For the purposes of this report, the term "internal conversion" refers to the conversion of an existing single family home into two or more dwelling units. This type of project entails many challenges, but also presents opportunities to save and re-use existing older homes, increase housing availability, and create more diverse housing types without significantly affecting neighborhood character.

Since conversion of a single family home into a duplex (two dwellings) can often be achieved quite readily and without complex or costly upgrades, this report looked primarily at internal conversions resulting in three or more dwelling units. Conversion of a single family house into three or more units often involves navigating complex and/or challenging issues such as:

-Transition from the residential to the commercial building code
-Changes in occupancy from single family to apartments
-Upgrading walls and floors/ceilings to achieve fire ratings
-Upgrading walls and floors/ceilings to achieve sound ratings
-Reducing exterior wall openings to meet commercial code
-Adding fire sprinkler systems
-Addressing ADA and accessibility issues
-Seismic upgrade standards
-Energy efficiency requirements
-Modifications to HVAC systems
-Hazardous materials present in older buildings (asbestos, lead, etc.)
-Upgrading utility infrastructure (water, sewer, electrical)
-Systems Development Charges for new dwelling units

The quantity and complexity of issues with this project type can require more sophisticated architecture and engineering services than typically required for new construction, discouraging many small developers and builders from pursuing internal conversions. Some of these issues involve state or federal level regulations that are beyond the control of the local Authority Having Jurisdiction (AHJ).

Additionally, some of the issues involve degrees of life safety and/or fire protection that should not be reduced. Examples include:

-Wall and floor/ceiling fire ratings (life safety)
-Fire sprinkler systems (life safety)
-Exterior wall openings (life safety, fire spread between buildings)
-ADA and accessibility (federal civil rights legislation)

OPPORTUNITIES

Despite the challenges facing this project type, several of the issues mentioned above are within the powers of the AHJ to affect. Some regulations could be modified, or understanding of them facilitated by a code guide or other document published by the AHJ.

To facilitate more internal conversions, opportunities are discussed in detail below:

Sound Ratings Although required by commercial code, sound ratings between dwelling units are not a life safety concern, but rather a measure of convenience. Expensive third-party testing is typically required to certify the acoustics of particular wall or floor assemblies, as ratings do not exist for many common and historic assembly types. A code guide published by the AHJ describing acceptable methods for achieving required STC (Sound Transmission Class) and IIC (Impact Insulation Class) ratings with existing construction could make this issue much easier to address.

STC is a measure of sound that is transmitted through the air, and is primarily used to quantify the sound resistance of wall construction. This type of rating is more easy to achieve than IIC. IIC measures the transmission of structure-borne sound and vibration, and is typically used to quantify sound resistance of floor/ceiling construction. Appropriate IIC levels can be very difficult to achieve in existing building retrofits, especially those with hard flooring materials. New apartment construction typically utilizes a layer of poured "gyp-crete" topping over the sub-floor to achieve required levels, but this method presents many challenges for existing buildings.

Seismic Upgrades The City of Portland has adopted a local seismic code that, in most situations, is far more stringent than the state's adopted commercial building code. Although older light wood framed structures typically perform well in seismic events, the code requires expensive full building seismic upgrades for internal conversions that trigger commercial code requirements. Since this code is created and administered by the City's Bureau of Development Services, modifications to it are within the City's powers.

Energy Efficient Requirements Although required by the state energy code, insulation and fenestration requirements for efficiency are not a life safety issue. The question of whether the base energy code requirements would apply to an internal conversion appears to be within the powers of the local building code official to interpret. Because internal conversions retain existing materials (embodied energy), there may be opportunities locally to balance environmental objectives.

Systems Development Charges (SDC) For new dwelling units created within the City of Portland, significant SDC fees are charged on a per-dwelling unit basis. Reducing or eliminating these charges for retaining an existing house could provide a significant ($10-50,000+ value) incentive for internal conversions.

Building Code Flexibility A primary obstacle to converting houses into 3+ units is the transition from residential to commercial building code. Although appeals are regularly considered to allow for alternative paths to code compliance, advocating for a statewide change in the building code thresholds for internal conversions could more readily enable conversions and minimize the level of exterior change required for 3+ unit conversions. Additionally, a code guide prepared by the Bureau of Development Services specific to internal conversions could provide applicants with best practice advice for conversions proposed within both sets of codes.

Zoning Code Although this report does not focus on zoning code issues, the Residential Infill Project can encourage internal conversions through changes such as responsive floor area ratio allowances, flexible parking minimums, variances to setback requirements, and definitions that place appropriate parameters around permissible levels of exterior change when new dwelling units are created. It's important to note that some of the examples in this report exceed the parameter of what has been proposed in the Residential Infill Project's recommended concept draft.

It should also be noted that this report looks at dwelling units within the context of a single building and not the entire site. Opportunities for placing three or more dwelling units on the site of an existing house utilizing detached structures could be achieved under the residential code, thus avoiding commercial code upgrades.

CONCLUSIONS

Although internal conversions, especially those creating more than two units, can be challenging to complete, they represent a powerful tool for retaining existing building stock and encouraging diverse and less expensive housing options. Changing a building from the residential to commercial code is a significant barrier, but duplex and townhouse conversions are readily achievable and, if coupled with a detached structure, could provide a way to gently increase density while still preserving existing structures. Through strategic assistance and clarification of the complex issues associated with internal conversions, the City may be able to encourage and incentivize this type of development throughout Portland.

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Photo credits
Cover: Montgomery House, 7-unit apartment converted in 2013
Photo courtesy of Addam Goard

P. 2: House converted to duplex
Photo courtesy of DECA Architecture

P. 3: Moulton House, 6-unit condominium converted in 1999
Photo courtesy of Keller Williams Realty

P. 5: Duplex in SE Portland
Photo courtesy of Michael Molinaro

There are a number of opportunities to increase the viability of internal conversions. Among them are:

1) Zoning code changes as part of the Residential Infill Project.

2) Revisions to local sound, seismic, and energy efficiency requirements and publication of a best practices code guide.

3) Financial incentives, including reduction in systems development charges.

4) Advocating for changes to state building code thresholds.

GOVERNING CODE

Single family homes are typically regulated and constructed under the 2014 Oregon Residential Specialty Code (ORSC) or "residential" code. This code allows for construction and renovation of one and two-family dwelling, as well as townhouse-style layouts where single dwelling units are located side-by-side, separated by fire rated walls, and considered separate yet adjoining buildings.

Structures containing more than two dwelling units and not utilizing ORSC townhouse provisions are regulated under the 2014 Oregon Structural Specialty Code (OSSC) or "commercial" code.

ORSC RELEVANT REQUIREMENTS

R302.2 Townhouses Townhouses shall be considered separate buildings and shall be separated by 2-hour rated wall assemblies. Buildings shall adjoin or have access to a yard, street, alley or public way on at least one side. Townhouses may or may not be separated by real property lines. Restrictions on utility routing may apply.

R302.3 Two-Family Dwellings Dwelling units in two-family dwellings must be separated from each other by 1-hour fire rated walls and floors. Construction supporting these walls and floors must also be fire rated.

The ORSC does not include sound transmission or impact isolation requirements.

OSSC RELEVANT REQUIREMENTS

310 Residential Group R Apartments are typically classified as R-2 whereas single family homes are typically R-3. These designations are critical to understanding the code regulations that apply to a building, but are perhaps most important in that they relate to dramatically different hazard levels addressed by seismic upgrade requirements.

420 Special Requirements for Dwelling Units Walls and floors separating dwelling units from each other and from common spaces must be 1-hour fire rated.

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b, c]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[j]	Not Permitted
	Protected (P)	Not Permitted
3 to less than 5[d, e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[j]	15%
	Protected (P)	15%
5 to less than 10[e, f, j]	Unprotected, Nonsprinklered (UP, NS)	10%[h]
	Unprotected, Sprinklered (UP, S)[j]	25%
	Protected (P)	25%
10 to less than 15[e, f, g]	Unprotected, Nonsprinklered (UP, NS)	15%[h]
	Unprotected, Sprinklered (UP, S)[j]	45%
	Protected (P)	45%
15 to less than 20[f, g]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S)[j]	75%
	Protected (P)	75%
20 to less than 25[f, g]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S)[j]	No Limit
	Protected (P)	No Limit
25 to less than 30[f, g]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S)[j]	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[j]	Not Required
	Protected (P)	Not Required

602 Construction Classification / 705 Exterior Walls Exterior walls within 10 feet of a property line must be 1-hour rated construction. Exterior walls within 30 feet of an adjoining lot line are also subject to maximum opening area requirements as outlined in table 705.8. Walls must meet the opening requirements on a "per-floor" basis. For the purposes of this table, a building equipped with a Type 13R sprinkler system is considered "nonsprinklered".

Exterior walls facing streets, alleys, or other public open spaces have no limitations on openings. Protected openings are windows with fire rated glazing or shutters.

Wall, floor, and roof assembly fire ratings are tested and certified for most modern materials and methods. However, fire ratings may be more difficult to achieve with older materials.

903.2.8 Automatic Sprinkler Systems - Group R Sprinklers must be installed in group R (residential type) occupancies. In most cases a Type 13R sprinkler system will suffice, which is less expensive than a typical commercial Type 13 sprinkler system.

Type 13 sprinkler systems are commonly used for commercial buildings, provide greater coverage for concealed spaces (attics, etc.) and are intended to protect both building occupants and the building structure. Type 13R sprinkler systems offer a lesser degree of protection in that they are intended to protect only the occupants, not the building. They do not provide sprinkler coverage for concealed and unoccupied spaces.

1207 Sound Transmission Walls and floors separating dwelling units from each other and from common areas must have a Sound Transmission Class (STC) of at least 50. Floors must have an Impact Isolation Class (IIC) of at least 45.

Ch. 11 Accessibility & Ch. 34 Existing Building and Structures Typically, new apartment buildings with four or more dwelling units must be provided with ADA accessible units, classified as either Type A or B. Both units types provide adaptability and clearances to enhance access, should a disabled individual move into the unit. Type A units offer a higher level of accessibility than Type B units due to increased clearances and other features.

In new non-elevator buildings, only those units on stories that are required to have a wheelchair accessible route must be Type A or B. Typically, this is only the ground level, and the vast majority of these units are Type B, with only a few Type A's.

Depending on the type of alteration proposed, ADA upgrades may or may not be needed. In an internal conversion of a single family residence to multiple dwelling units with no other uses, no ADA dwelling units are required, per OSSC 3411.1, provided the building was constructed before 1991. If the building was constructed after 1991, the ground floor units may need to be made accessible. If the conversion involves an addition, the addition likely needs to be made accessible. If an internal conversion involves other public uses, such as commercial space or community spaces, those spaces likely need to be made accessible.

ADA requirements for alterations vary based on a number of factors, but in a typical house without an elevator, only the units on the ground level may need to comply with Type A or B unit requirements. State building code officials have provided some guidance in making this interpretation, but have stressed that local building code officials have the final say.

CITY OF PORTLAND REQUIREMENTS

Title 24.85 Seismic Improvement Standards Regulations for existing buildings require seismic upgrades to existing buildings when changes of occupancy or significant renovations occur. OSSC occupancies are assigned relative hazard classifications, and when more than a third of the building area is changed to an occupancy of a higher hazard class, seismic upgrades are required by the City of Portland, as per the following tables:

TABLE 24.85-A		
Relative Hazard Classification	**OSSC Occupancy Classification**	**Seismic Improvement Standard**
5 (Highest)	A, E, I-2, I-3, H-1, H-2, H-3, H-4, H-5	OSSC or ASCE 41-BPON
4	R-1,R-2, SR, I-1, I-4	
3	B, M	41-BPOE
2	F-1, F-2, S-1, S-2	
1 (Lowest)	R-3, U	

TABLE 24.85-B				
Percentage of Building Net Floor Area Changed		**Occupant Load Increase**	**Required Improvement Standard**	**Relative Hazard Classification**
1/3 of area or less	and	Less than 150	None	1 through 5
More than 1/3 of area	or	150 and above	ASCE 41-BPOE	1, 2, and 3
More than 1/3 of area	or	150 and above	OSSC or ASCE 41-BPON	4 and 5

Converting an existing house to apartments under the OSSC would require a change of occupancy from R-3 to R-2, raising the hazard classification from 1 to 4 and triggering a seismic upgrade to current commercial code.

Additionally, if the building contains unreinforced masonry (URM) components anywhere in the building, and the cost of renovation exceeds $57/sf in a single story building or $43/sf in a two plus story building, a seismic upgrade is required to the level of current commercial code.

There is also an additional requirement for performing an ASCE 41 evaluation report when the construction cost of any project exceeds $252,000. This report can cost $2-5,000 for a structural engineer to produce.

ENERGY EFFICIENCY REQUIREMENTS

Buildings regulated under the ORSC are subject to the energy provisions of that code, whereas buildings regulated under the OSSC must abide by provisions of the 2014 Oregon Energy Efficiency Specialty Code (OEESC). These two codes present different requirements.

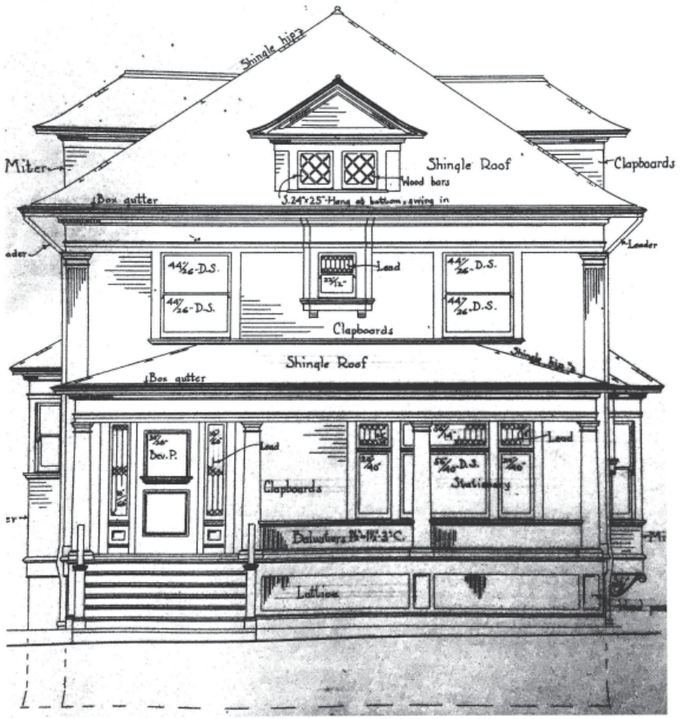
ORSC Ch. 11 considers any unconditioned spaces (such as garages) changed to living area as a "change of use". The converted space must be insulated, but to slightly less stringent standards than for new construction. If the change exceeds 30% of a building's area or more than 400 sf, an additional energy saving measure must be employed from a list of options including increased insulation, blower door testing, duct sealing, efficient water heaters among other measures. Building additions also trigger energy saving measures that may be selected from a list of options.

Projects falling under the 2014 OEESC are only required to make piecemeal energy improvements to the parts being altered, provided the overall energy use is not increased. For example, vacant stud bays that are exposed during construction must be insulated. However, unconditioned spaces that are converted to heated spaces must meet the full envelope requirements of the OEESC.

Despite these two different regulation methods, a building moving from the residential code to the commercial code may be required to comply with all aspects of the commercial code, which includes, by reference, the 2014 OEESC. Complying with the base energy code could pose significant challenges for existing older houses with energy inefficient features, such as single-pane glazing.

Case Study Models

On the pages that follow are conceptual models for internally converting four different house types commonly found in the city of Portland. Each conceptual model identifies a building configuration that would accommodate 3+ units and provides a summary of the challenges and opportunities of the approach. Example buildings were provided by Bureau of Planning and Sustainability staff. Although the models may not be achievable within Portland's current zoning code, they illustrate many of the zoning standards being considered within the Residential Infill Project.



FRONT ELEVATION

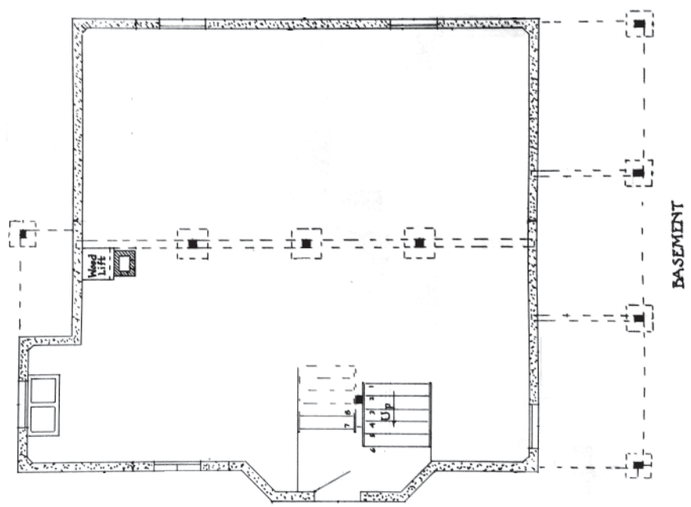
EXISTING BUILDING SUMMARY

The existing building is a two-story 1910s Portland foursquare on a tight site with an attic and basement. For the purposes of this study the attic and basement are assumed to have adequate head height without beams, collar ties or other items that might prevent conversion to living space.

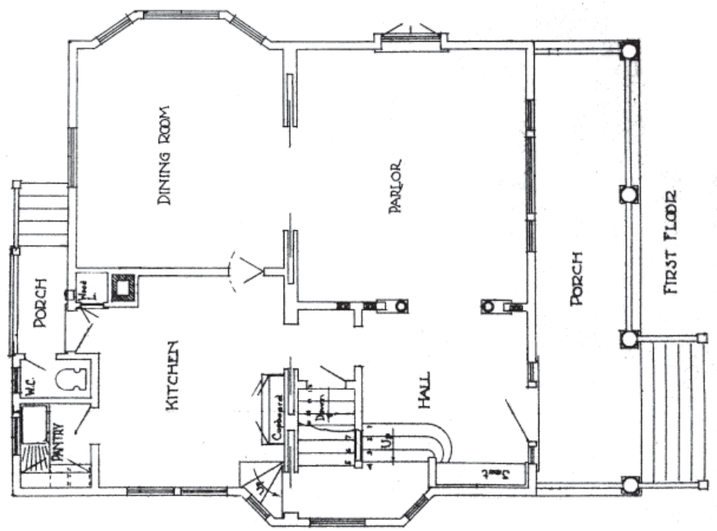
Building Area:	3,550 gsf
Building Height:	32 ft
Site Area:	2,500 sf
FAR:	1.03:1 (without basement)
Construction Type:	V-B (Unprotected Wood Frame)
Sprinklering:	No
Existing Occupancies:	R-3

Scale: 1"=10'

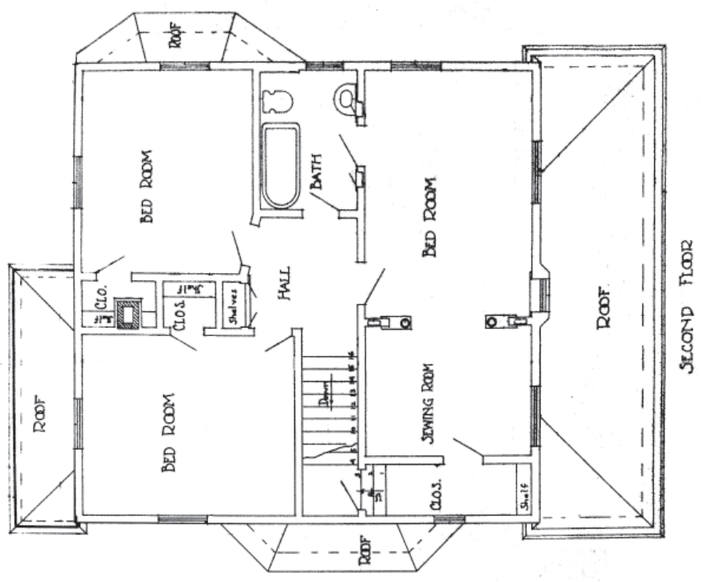
0 2' 5' 10'



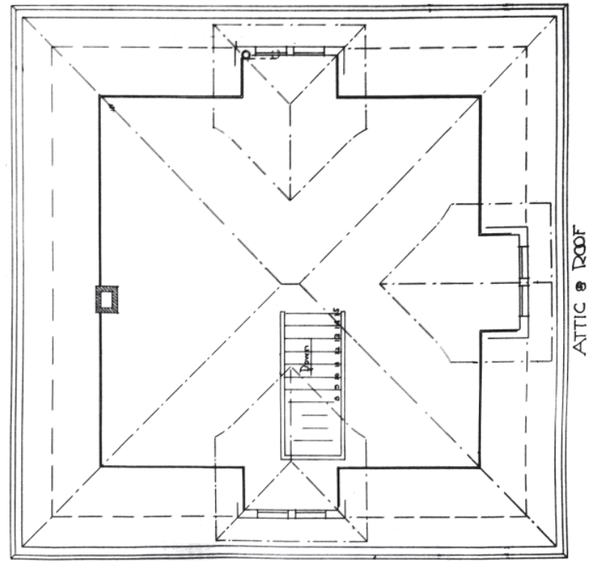
PLAN Basement 975 sf



PLAN 1st Level 1,000 sf

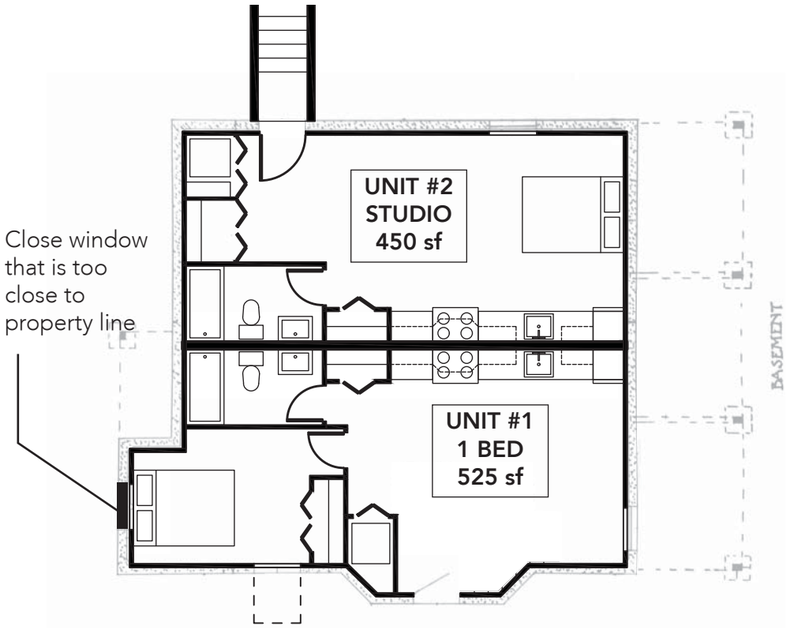


PLAN 2nd Level 925 sf

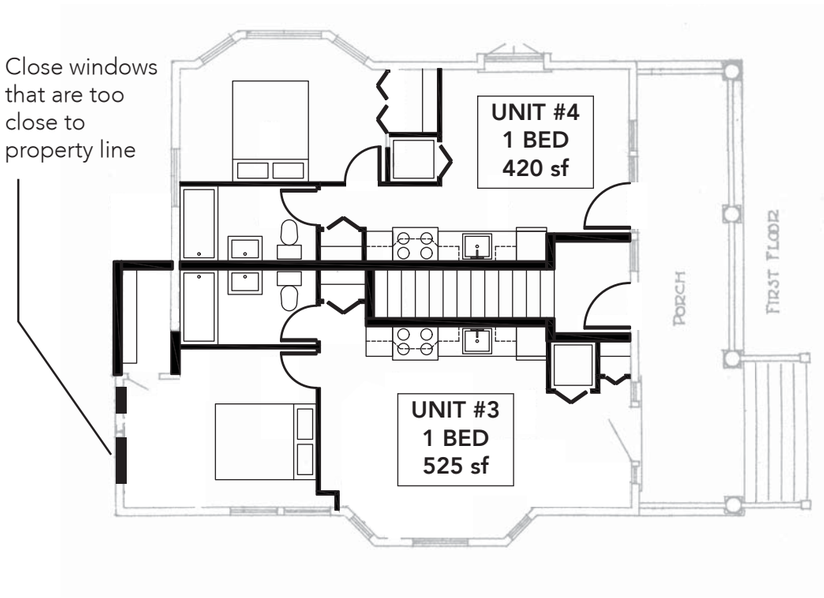


PLAN Attic 650 sf

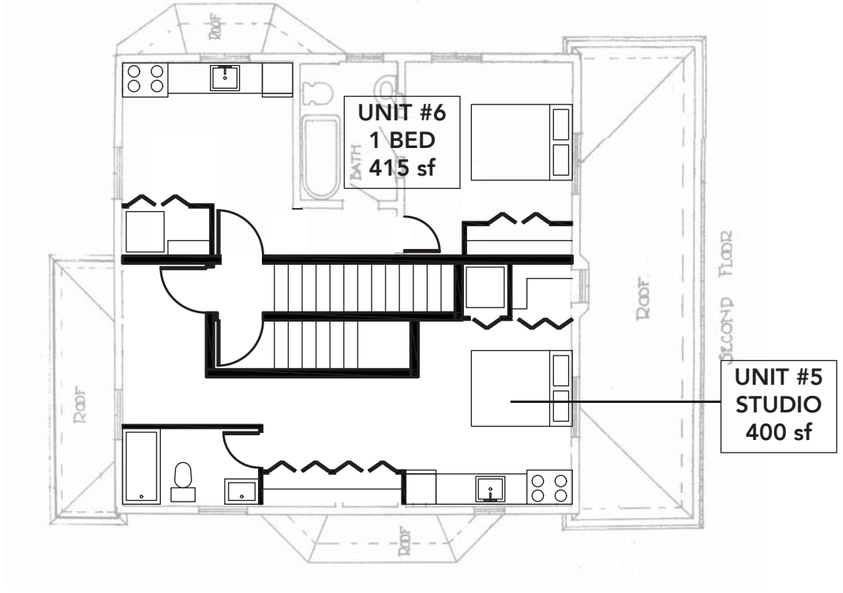
1900s FOURSQUARE EXISTING BUILDING



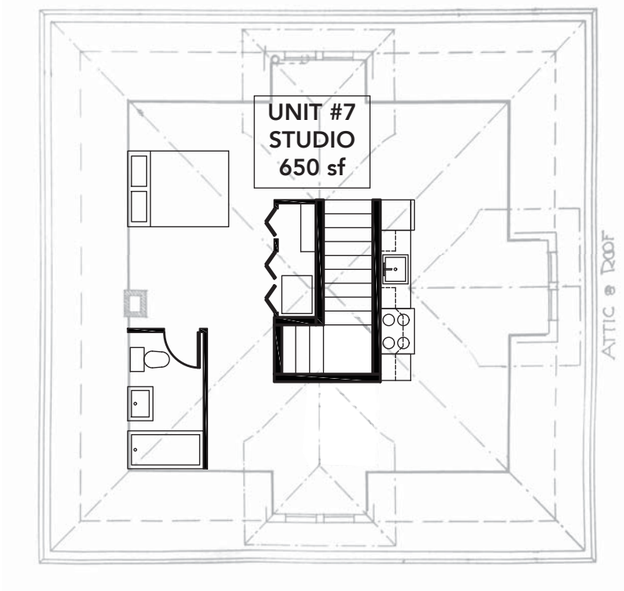
PLAN Basement 975 sf



PLAN 1st Level 1,000 sf



PLAN 2nd Level 925 sf



PLAN Attic 650 sf

Scale: 1″=10′

0 2′ 5′ 10′

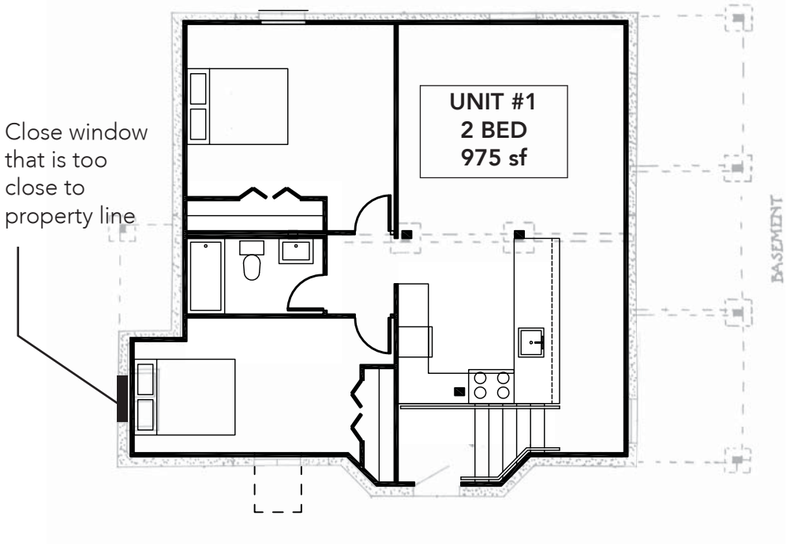
LEGEND

Existing construction (grey)

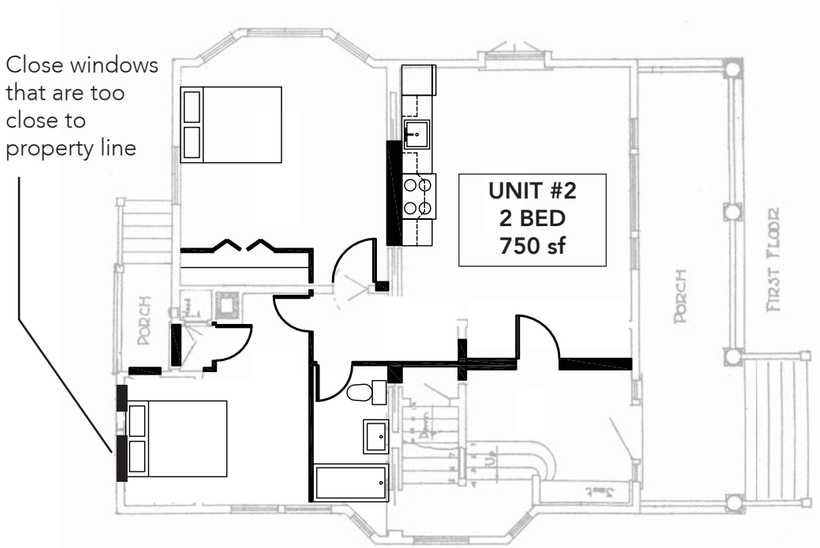
New construction (black)

1900s FOURSQUARE PROPOSED CONVERSION **OPT A - 7 UNITS**

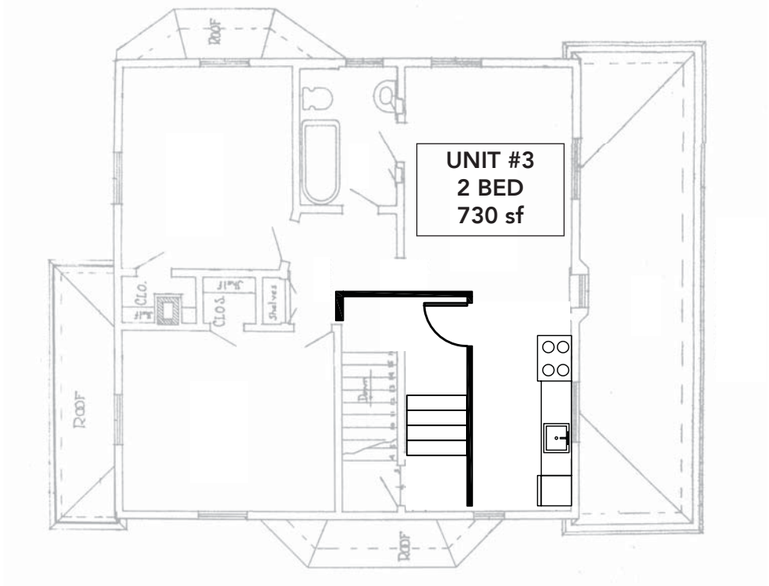
deca ARCHITECTURE INC



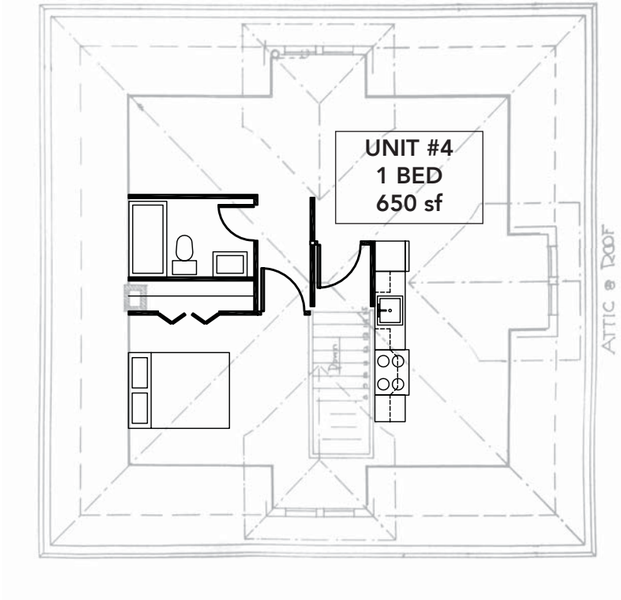
PLAN Basement 975 sf



PLAN 1st Level 1,000 sf



PLAN 2nd Level 925 sf



PLAN Attic 650 sf

Scale: 1″=10′

0 2′ 5′ 10′

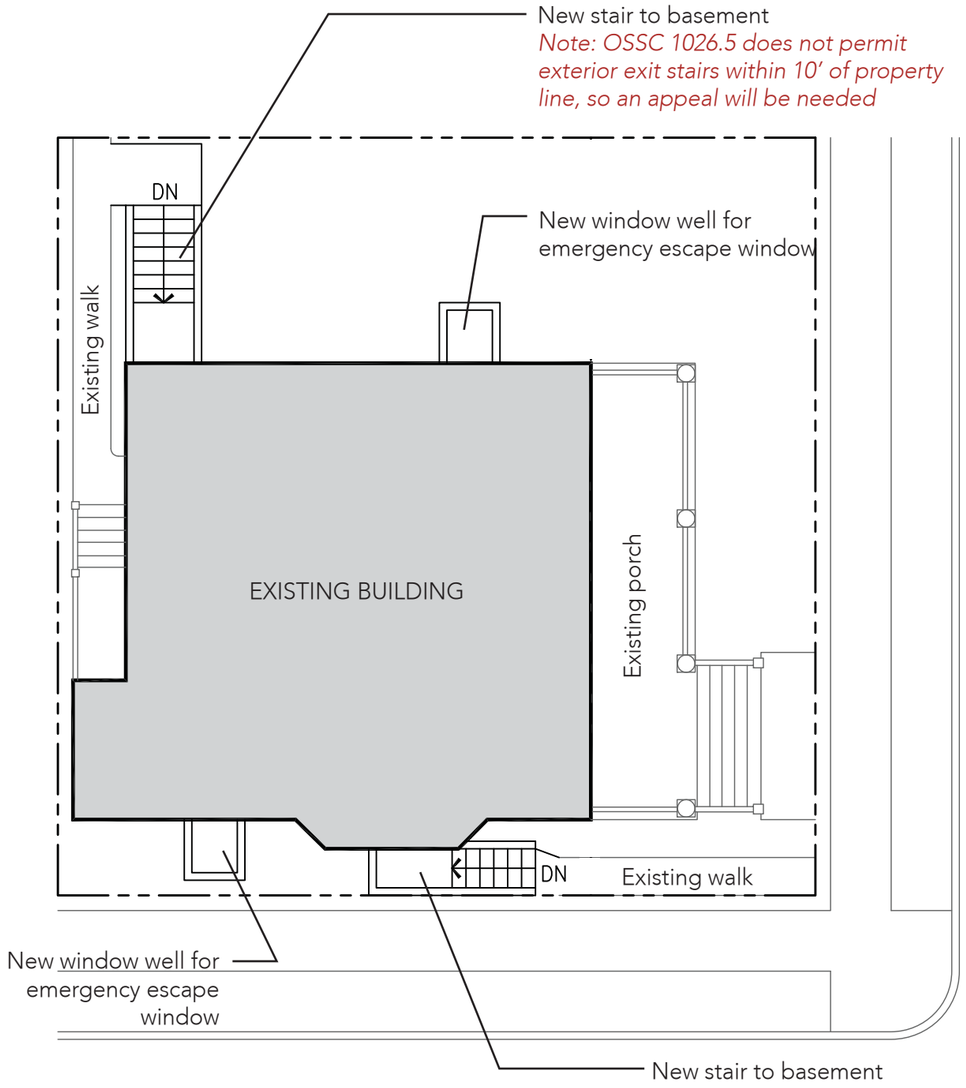
LEGEND

Existing construction (grey)

New construction (black)

1900s FOURSQUARE PROPOSED CONVERSION **OPT B - 4 UNITS**

deca ARCHITECTURE INC



SITE PLAN

Scale: 1"=10'

0 2' 5' 10'

LEGEND

Existing construction (grey)

New construction (black)

PROPOSED SITE IMPROVEMENTS

- Adding dwelling units to the basement requires access stairs to unit entry doors
- Basement bedroom windows must also be provided with window wells to allow for emergency escape
- Due to the tight site, new parking is not proposed

PROPOSED CONVERSION SUMMARY

Option A proposes to subdivide each floor into two smaller apartments, with a single apartment in the attic to maximize the number of dwelling units. A total of (7) apartments are proposed in this layout. Option B, with four units is also shown. The existing interior stair has been reconfigured to provide efficient access to all units. Under either option, the conversion requires compliance with commercial code (2014 OSSC) requirements, due to the number of units and since dwelling units are stacked atop each other.

Fire and sound separation is required vertically and horizontally between units. Changing the existing R-3 (single dwelling) occupancy to R-2 (apartments) will require a Type 13R sprinkler system be installed throughout the building. The change in occupancy from R-3 to R-2 will also require a seismic upgrade per city code 24.85.040.

Building Area: 3,550 sf

Conversion Requirements

- Construct horizontal and vertical fire/sound separation between units
- Seismic upgrade to current commercial code
- Install automatic fire sprinkler system (Type 13R)
- Install walls and doors as shown on plan to create new units
- New kitchens and bathrooms as shown
- Ensure that units have independent heating control
- Provide access and emergency escape to basement units
- Envelope upgrades at existing unheated spaces

Pros

- (7) units in 3,550 sf maximizes density, although fewer/larger unit options are possible
- No ADA units required for internal conversion only

Cons

- Units are small and awkward due to size of existing floor plates, especially in Option A
- In Option A, lots of additional kitchens and bathrooms are required
- Small site does not allow for parking

EXISTING BUILDING SUMMARY

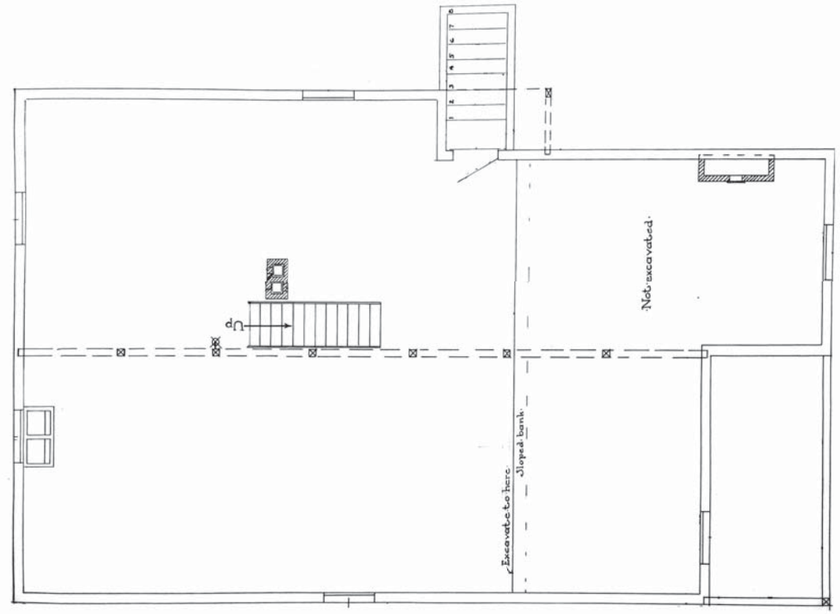
The existing building is a typical one-story single family bungalow house with a full height basement and habitable attic space. Existing dormers at the roof allow for light and additional space in the attic. An interior stair connects the basement, 1st level, and attic. An exterior stair also provides direct access to the basement. The construction of the house is wood framing on concrete basement/foundation walls.

Building Area:	3,640 sf
Building Height:	20′
Site Area:	5,000 sf
FAR:	0.51:1 (without basement)
Construction Type:	V-B (Unprotected Wood Frame)
Sprinklering:	No
Existing Occupancies:	R-3

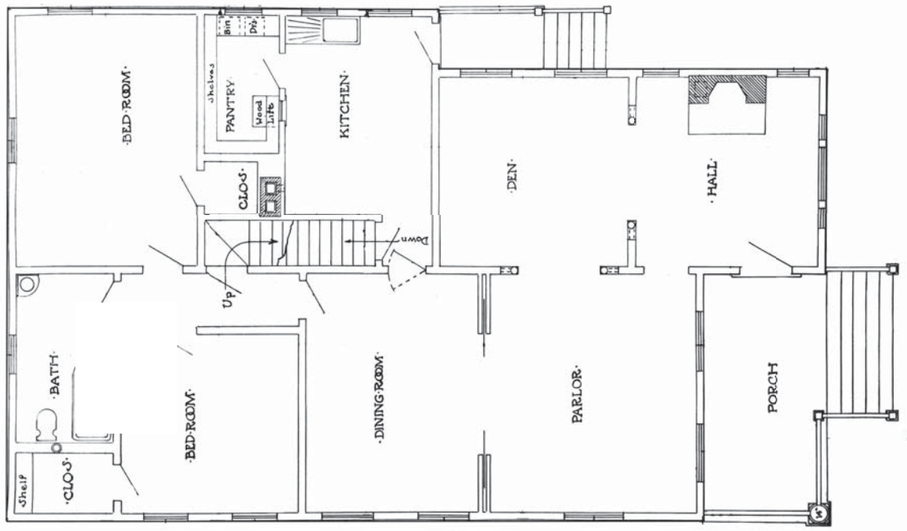
Scale: 1″=10′

0 2′ 5′ 10′

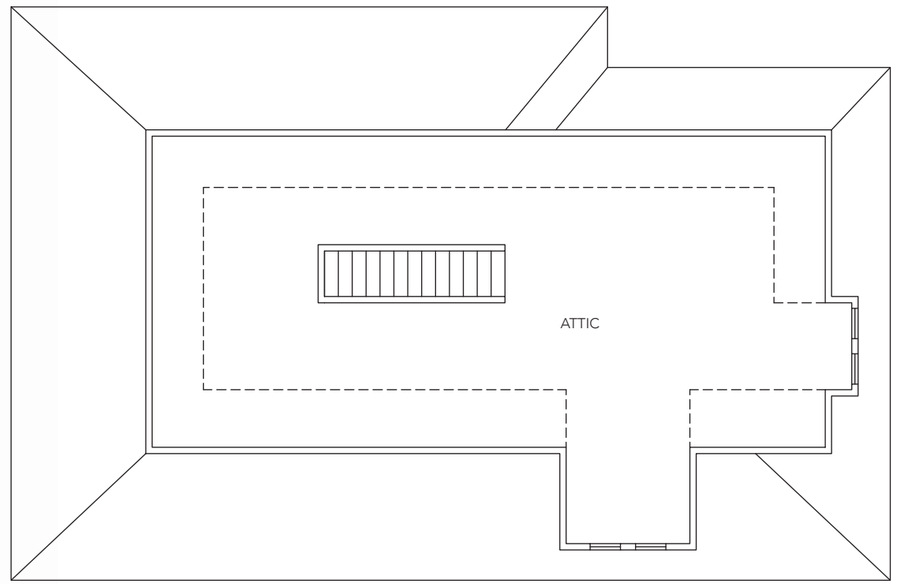
FRONT ELEVATION



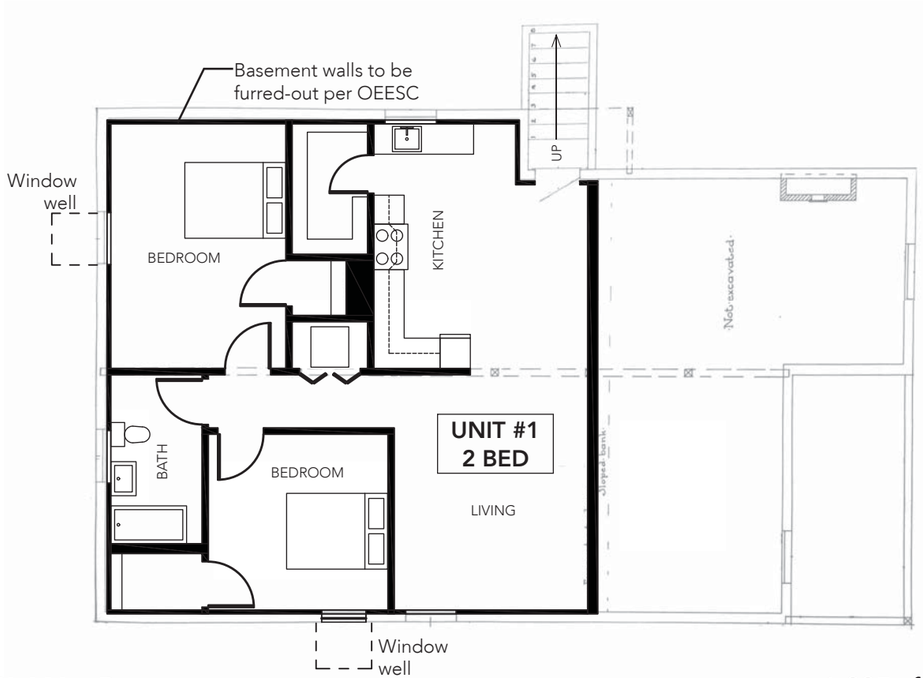
PLAN Basement 1,095 sf



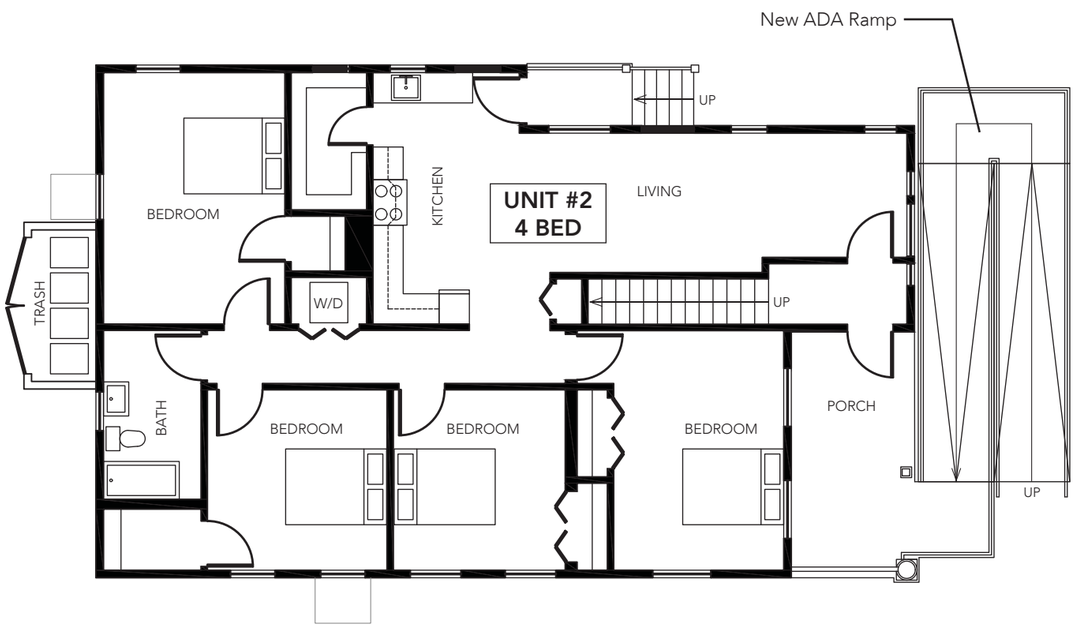
PLAN 1st Level 1,595 sf



PLAN Attic 950 sf



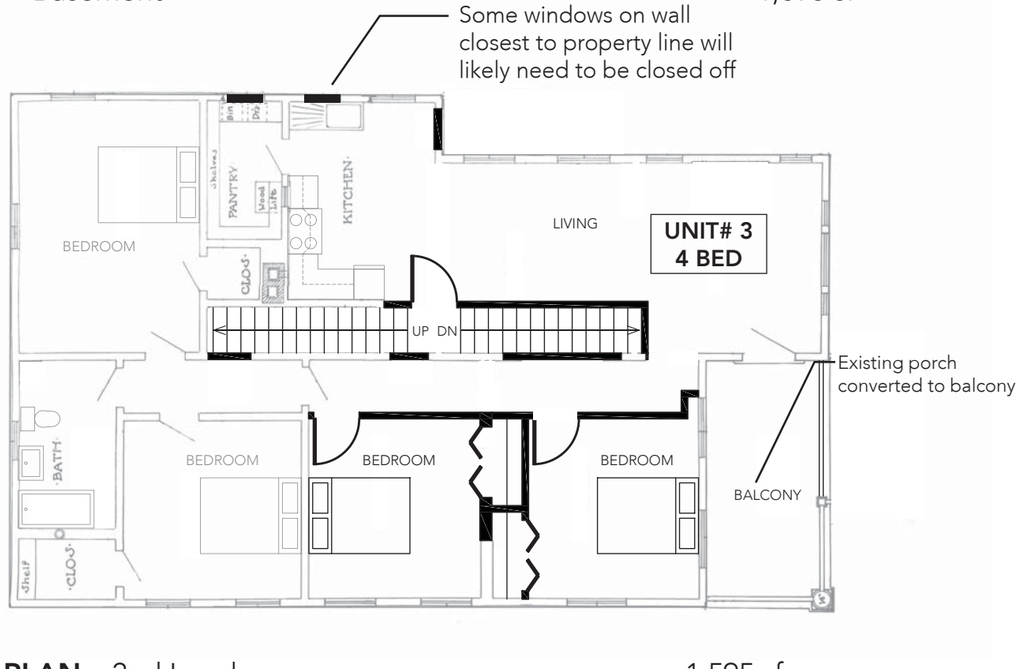
PLAN Basement 1,095 sf



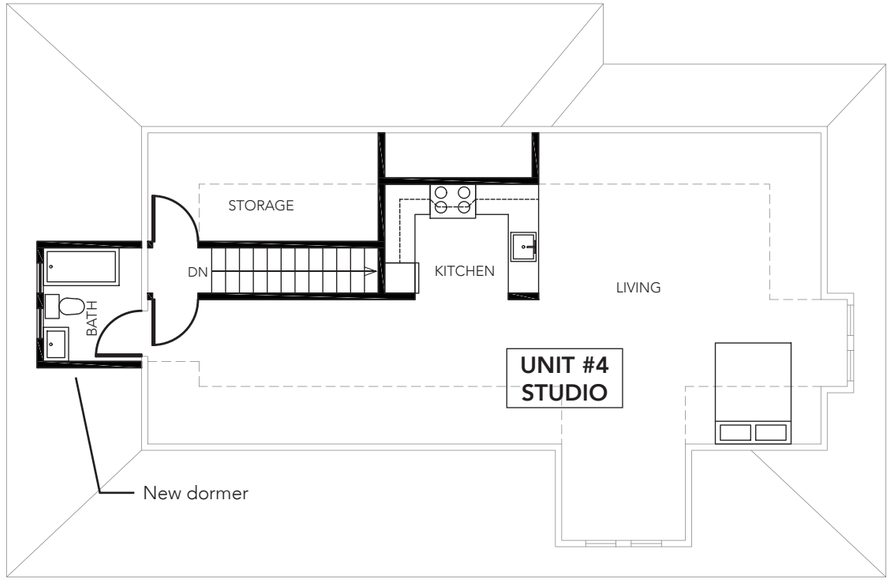
PLAN 1st Level

Note: Existing first level to be elevated, with a new addition story placed below it. New first level is an addition and must meet ADA

1,595 sf



PLAN 2nd Level 1,595 sf



PLAN 3rd Level 1,095 sf

Scale: 1″=10′

0 2′ 5′ 10′

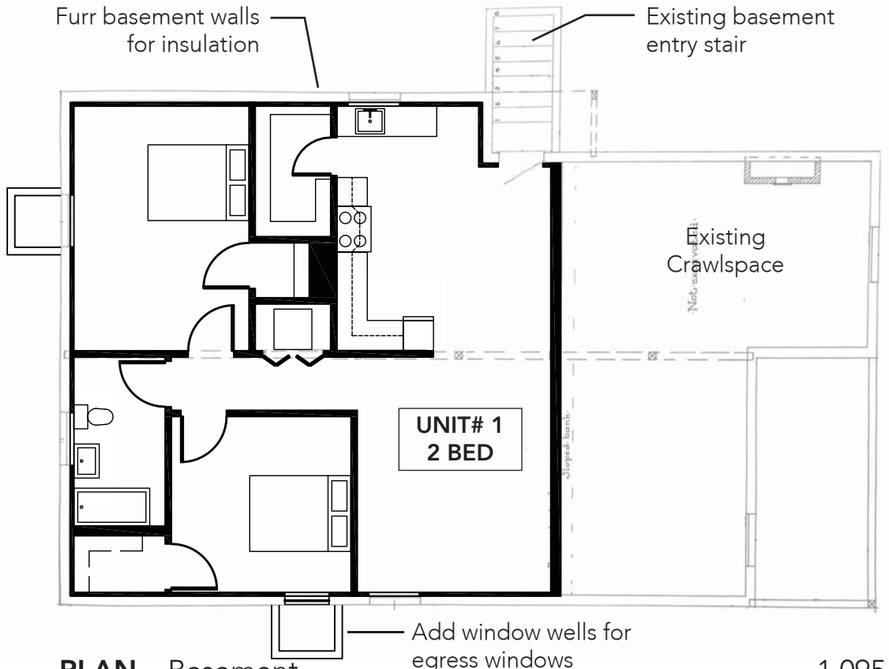
LEGEND

Existing construction (grey)

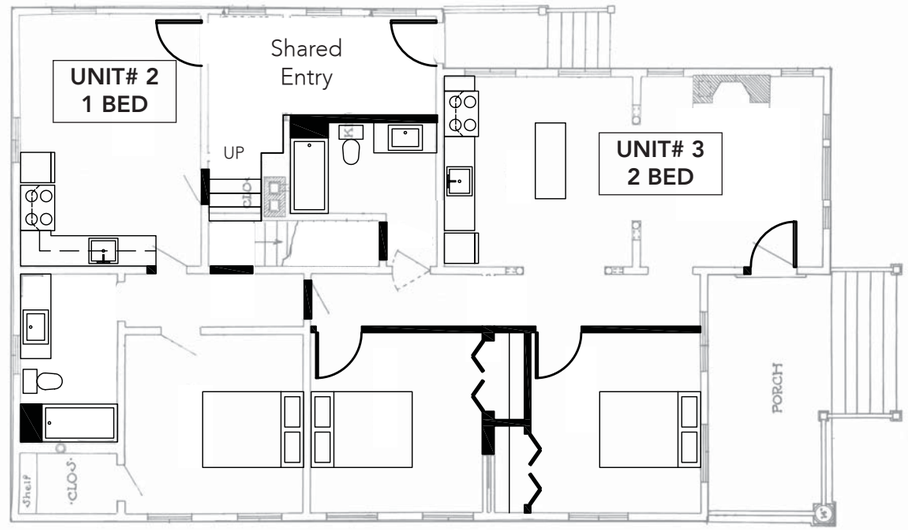
New construction (black)

1910s BUNGALOW PROPOSED CONVERSION **OPT A - ADDITION**

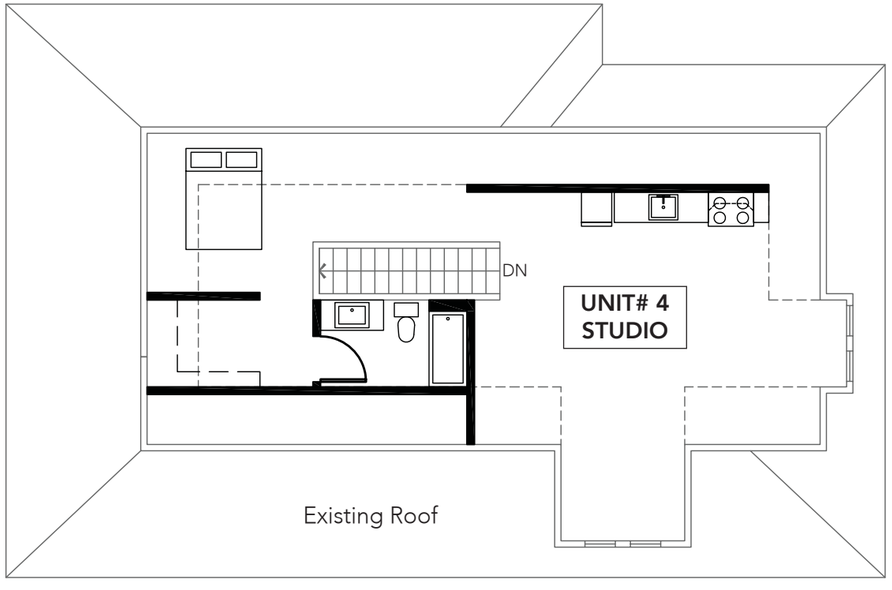
deca ARCHITECTURE INC



PLAN Basement 1,095 sf



PLAN 1st Level 1,595 sf



PLAN Attic / 2nd Level 970 sf

Scale: 1″=10′

0 2′ 5′ 10′

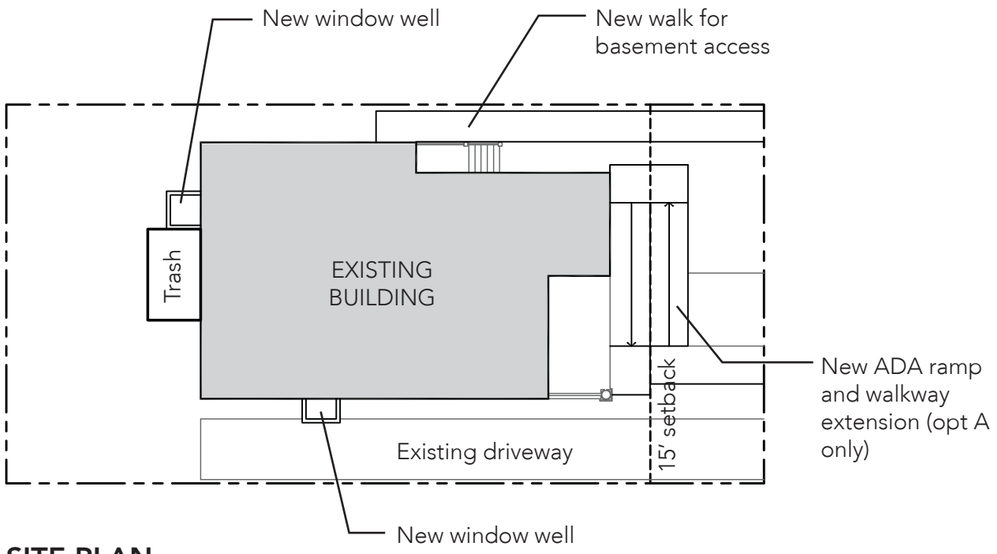
LEGEND

Existing construction (grey)

New construction (black)

1910s BUNGALOW PROPOSED CONVERSION **OPT B - 4 SMALLER UNITS**

deca ARCHITECTURE INC



SITE PLAN

PROPOSED SITE IMPROVEMENTS

- Add walkways for unit access
- Add ramp for first floor ADA access (Opt A only)
- Add window wells for emergency escape at basement bedrooms

PROPOSED CONVERSION SUMMARY

Option A is an experimental case study to keep the existing structure while adding floor area by elevating the existing house and placing a new 1st level addition below it. Option B retains the envelope of the existing house and is a true internal conversion.

Both options result in four dwelling units, although the units in Option A are significantly larger and would result in increased rents. Both schemes stack dwelling units on top of each other, so the commercial code must be used.

Fire and sound separation is required vertically and horizontally between units. Changing the existing R-3 (single dwelling) occupancy to R-2 (apartments) will require a Type 13R sprinkler system throughout. The change in occupancy from R-3 to R-2 will also require a seismic upgrade per city code 24.85.040.

Opt A Building Area:	5,380 sf
Opt A Building Height:	30 ft
Opt B Building Area:	3,660 sf
Opt B Building Height:	20 ft

Conversion Requirements

- Construct horizontal fire/sound separation between units
- Seismic upgrade
- Install automatic fire sprinkler system (Type 13R)
- Install walls and doors as shown on plan to create new units
- Install additional kitchens and bathrooms
- Ensure that units have independent heating control

Pros

- Option A maximizes building area
- Maximizes number of separate dwelling units
- Re-use existing walls, doors and other construction to the extent possible
- Matching materials and fenestration patterns can minimize visual impact of vertical addition (Opt A)

Cons

- ADA access is difficult to elevated first level and basement
- Costly commercial code upgrade including seismic & sprinklers
- Opt A may be beyond scope of internal conversion

BUILDING ELEVATIONS OPT A

Scale: 1"=10'

0 2' 5' 10'

1910s BUNGALOW SITE PLAN & SUMMARY

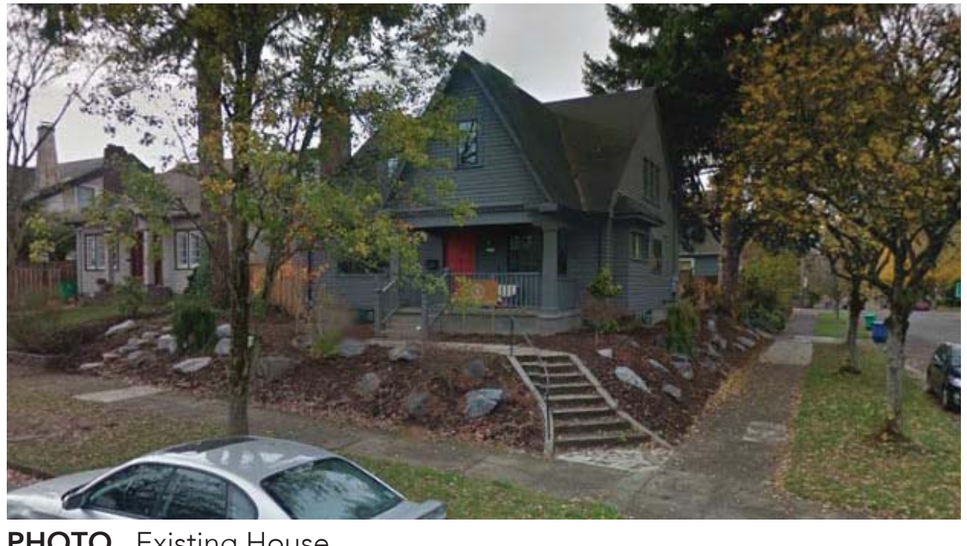


PHOTO Existing House

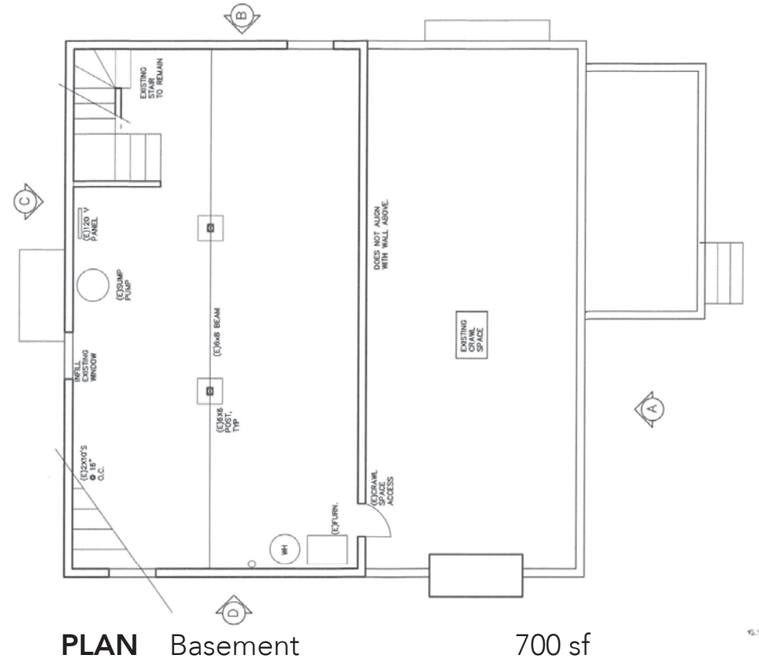
EXISTING BUILDING SUMMARY

The existing building is a two-story Tudor-style home with a partial basement. For the purposes of this study, it is assumed the basement has adequate head height. The site also includes a 1-story detached garage.

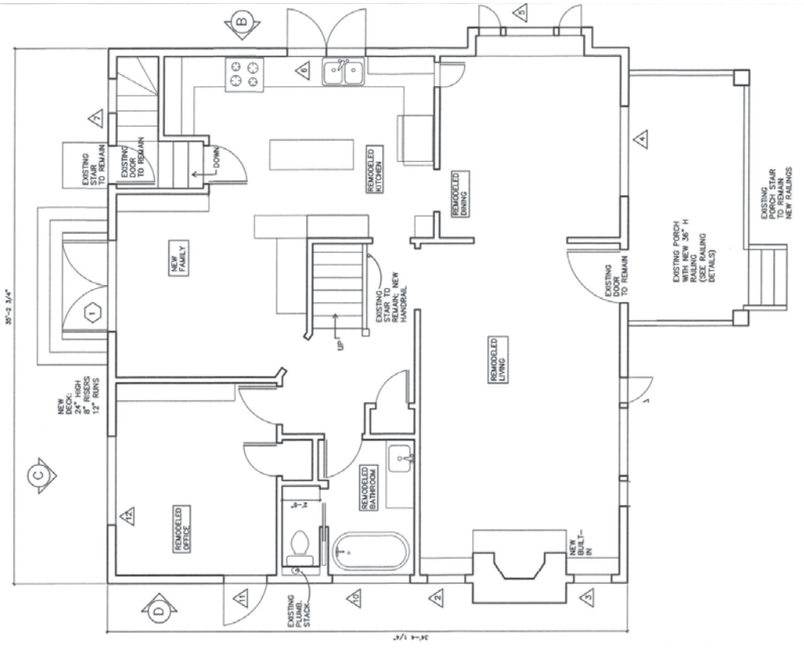
Building Area:	2,875 sf
Building Height:	28 ft
Site Area:	5,000 sf
FAR:	0.44:1 (basement excluded)
Construction Type:	V-B (Unprotected Wood Frame)
Sprinklering:	No
Existing Occupancies:	R-3

Scale: 1″=10′

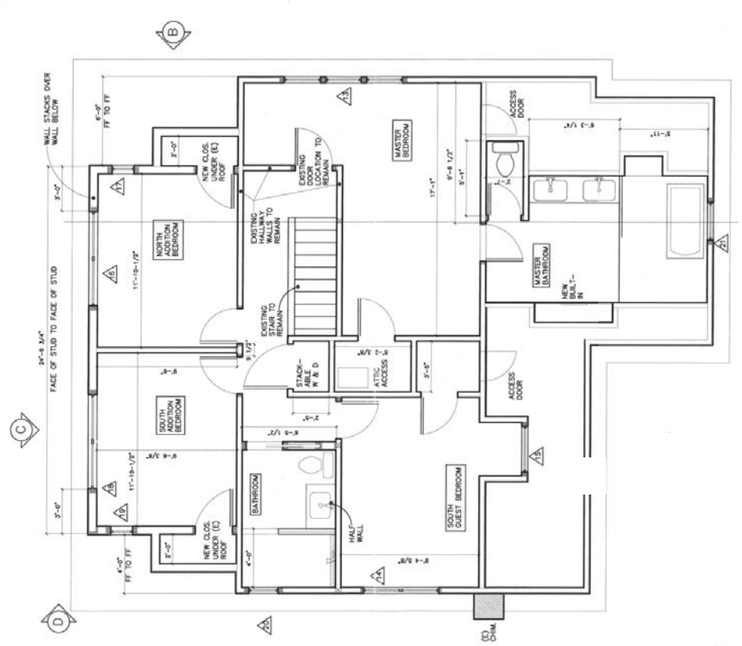
0 2′ 5′ 10′



PLAN Basement 700 sf



PLAN 1st Level 1,225 sf



PLAN 2nd Level 950 sf

1920s TUDOR EXISTING BUILDING

PROPOSED CONVERSION SUMMARY

This scheme proposes dividing the house into five units. A sixth dwelling unit could be added on site by converting the existing detached garage structure into a dwelling unit without having to meet OSSC. The proposed internal conversion will require compliance with commercial code (2014 OSSC) requirements.

Fire and sound separation is required vertically and horizontally between units. Changing the existing R-3 (single dwelling) occupancy to R-2 (apartments) will require a Type 13R sprinkler system be installed throughout the building. The change in occupancy from R-3 to R-2 will also require a seismic upgrade per city code 24.85.040.

Building Area: 2,875 sf
Building Height: 28′

Conversion Requirements

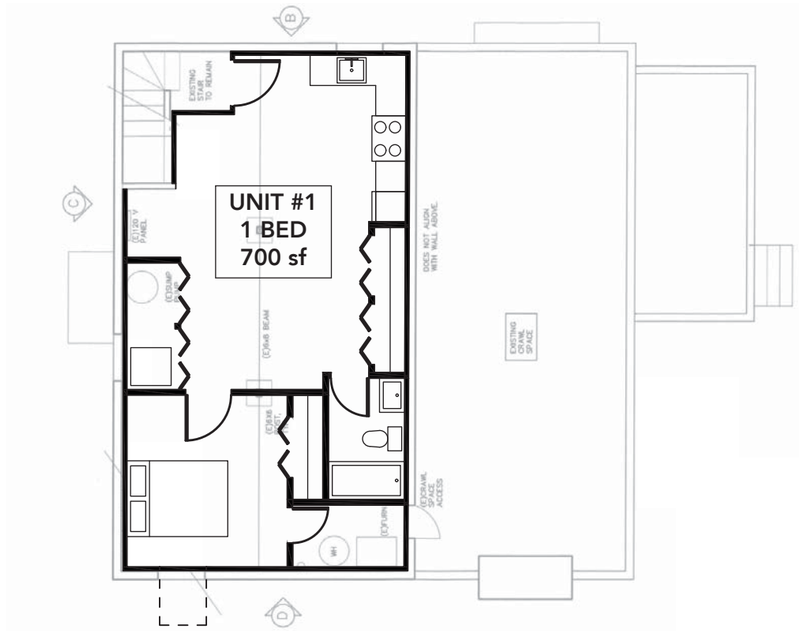
- Construct horizontal and vertical fire/sound separation between units
- Seismic upgrade
- Install automatic fire sprinkler system (Type 13R)
- Install walls and doors as shown on plan to create new units
- Install kitchens and bathrooms as shown
- Provide access and emergency escape to basement units
- Envelope upgrades at existing unheated spaces

Pros

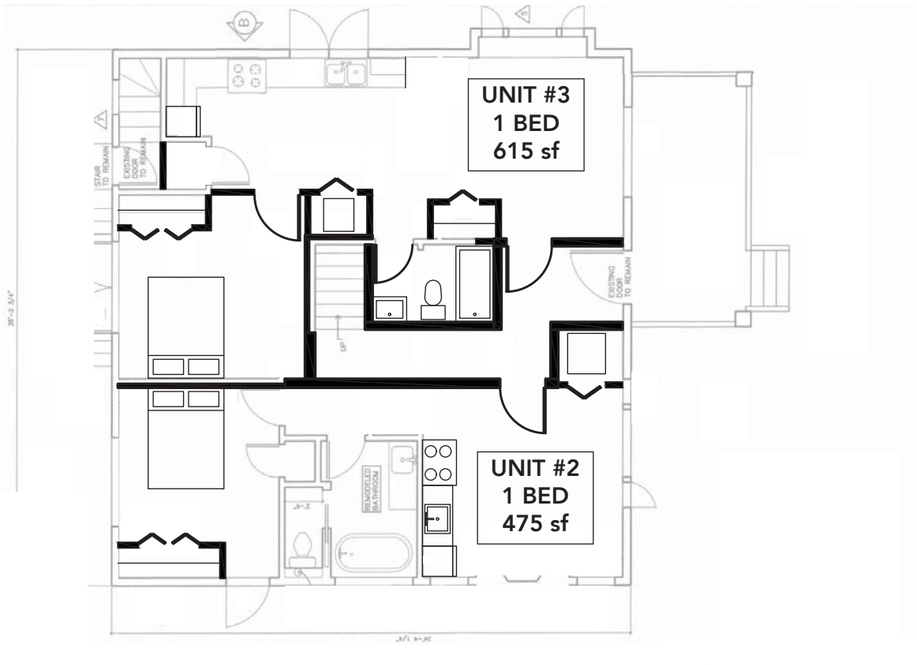
- 5 units in 2,875 sf maximizes density
- No ADA units required for internal conversion
- Existing interior stair can be re-used

Cons

- Units are small and awkward
- Costly commercial code upgrade including seismic & sprinklers



PLAN Basement 700 sf



PLAN 1st Level 1,225 sf

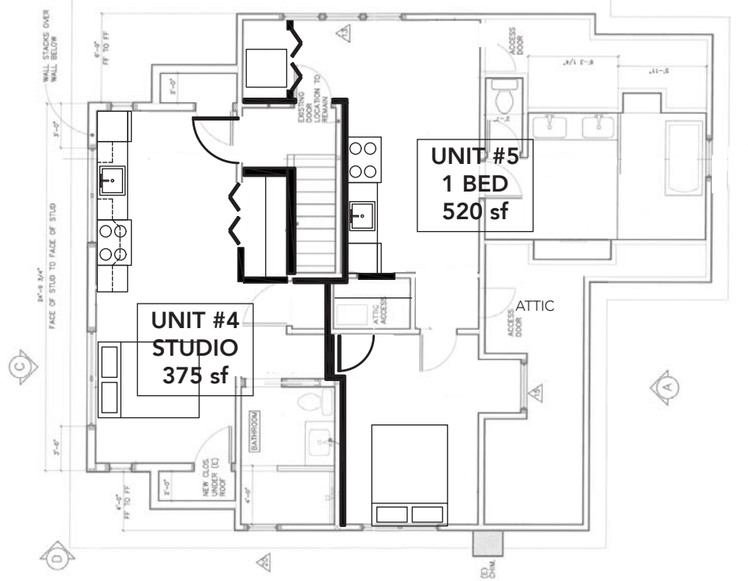
Scale: 1″=10′

0 2′ 5′ 10′

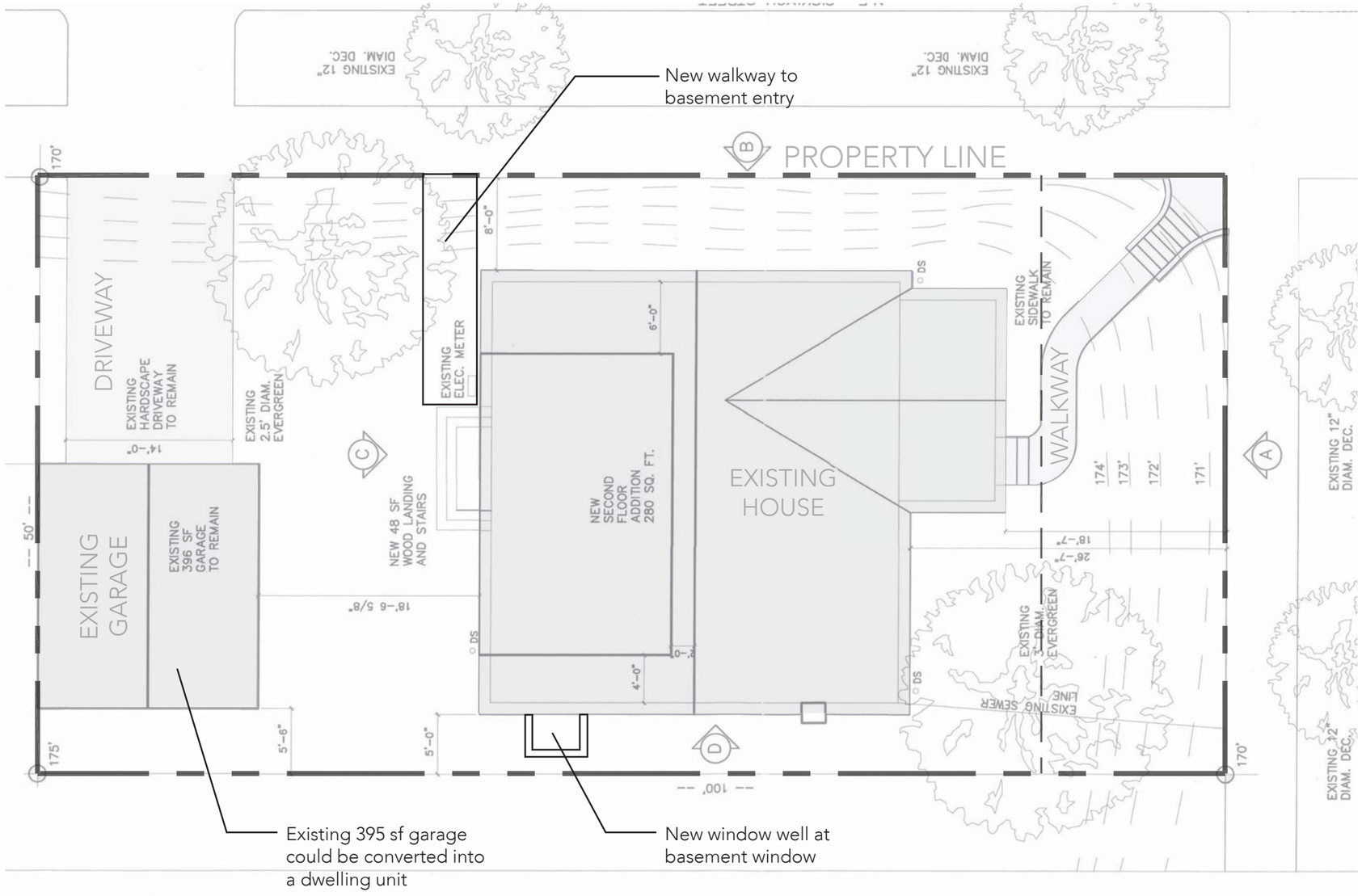
LEGEND

Existing construction (grey)

New construction (black)



PLAN 2nd Level 950 sf



SITE PLAN

Scale: 1"=10'

0 2' 5' 10'

PROPOSED SITE IMPROVEMENTS

- Add walkway for basement unit access
- Add window well for emergency escape at basement bedrooms
- Option to convert existing garage into dwelling unit

PHOTO Existing House

EXISTING BUILDING SUMMARY

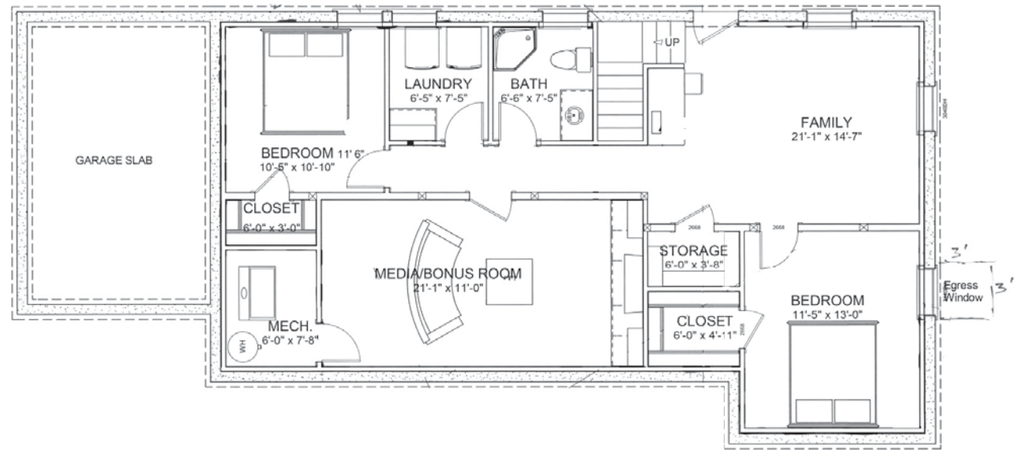
This existing building is a typical one-story single family ranch house with a one car garage and a full height basement. An interior stair connects the 1st level and the basement. The construction of the house is wood framing on concrete basement/ foundation walls. The existing site slopes to the south and allows for a walk-out basement at the rear of the house.

The house was originally built in 1952, but has since been renovated to accommodate 4 bedrooms and 3 baths. During renovations, the basement walls were furred-out and insulated to meet energy code and a window well was added to provide code required egress for a basement bedroom.

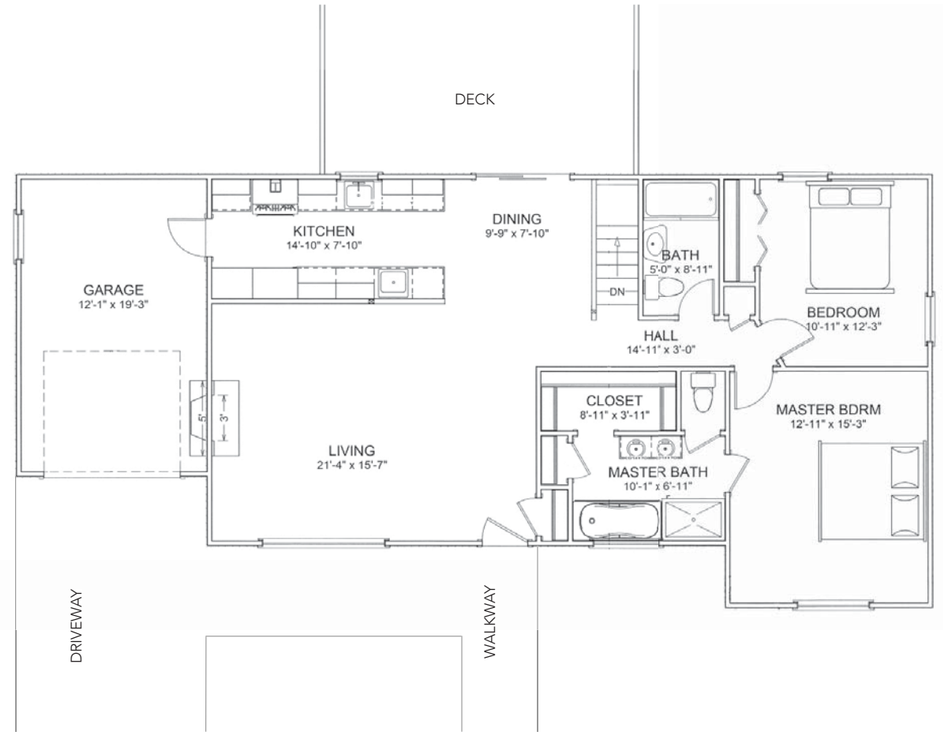
Building Area:	2,700 sf
Building Height:	15 ft +/-
Site Area:	8,300 sf
FAR:	0.18:1 (excluding basement)
Construction Type:	V-B (Unprotected Wood Frame)
Sprinklering:	No
Existing Occupancies:	R-3

Scale: 1"=10'

0 2' 5' 10'

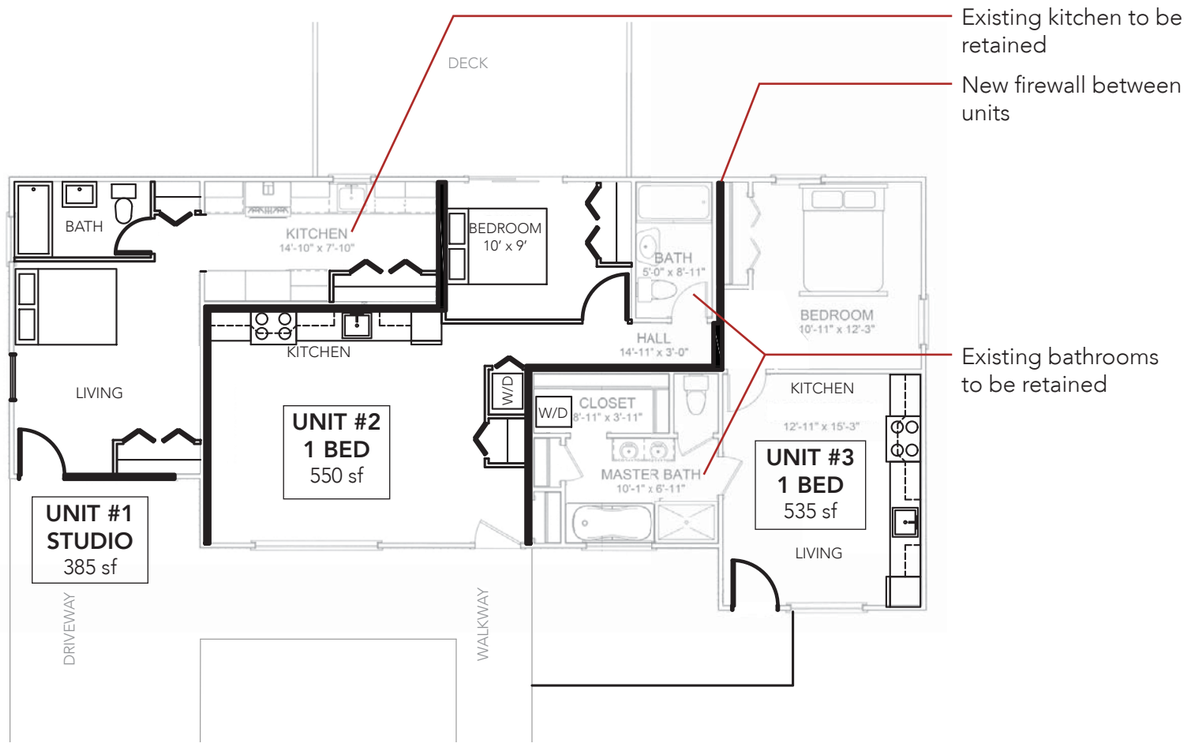


PLAN Basement 1,225 sf



PLAN 1st Level 1,475 sf

1950s RANCH EXISTING BUILDING



PLAN 1st Level 1,475 sf

PROPOSED CONVERSION SUMMARY

This scheme aims to maximize the number of dwelling units achievable in a typical post-war ranch house, in this case assuming there is no existing basement.

The result is three single-story "townhouse" units separated by code required firewalls. The goal of this scheme is to minimize the amount of demolition of existing materials, especially the kitchen and bathrooms. With the addition of two kitchens, a bathroom, and a few partition walls, the existing house is able to be converted in to two one-bedroom units and one studio unit.

Building Area: 1,475 sf

Conversion Requirements
- Construct fire/sound separation walls between units
- Install (2) additional entry doors
- Install (2) additional kitchens
- Install (1) additional bathroom

Pros
- Commercial building code not required due to townhouse layout
- Seismic upgrade not required
- Sprinklers not required
- Reuse existing kitchen and baths
- Potential for accessible units with minor upgrades

Cons
- Awkward unit layouts
- Removal of garage

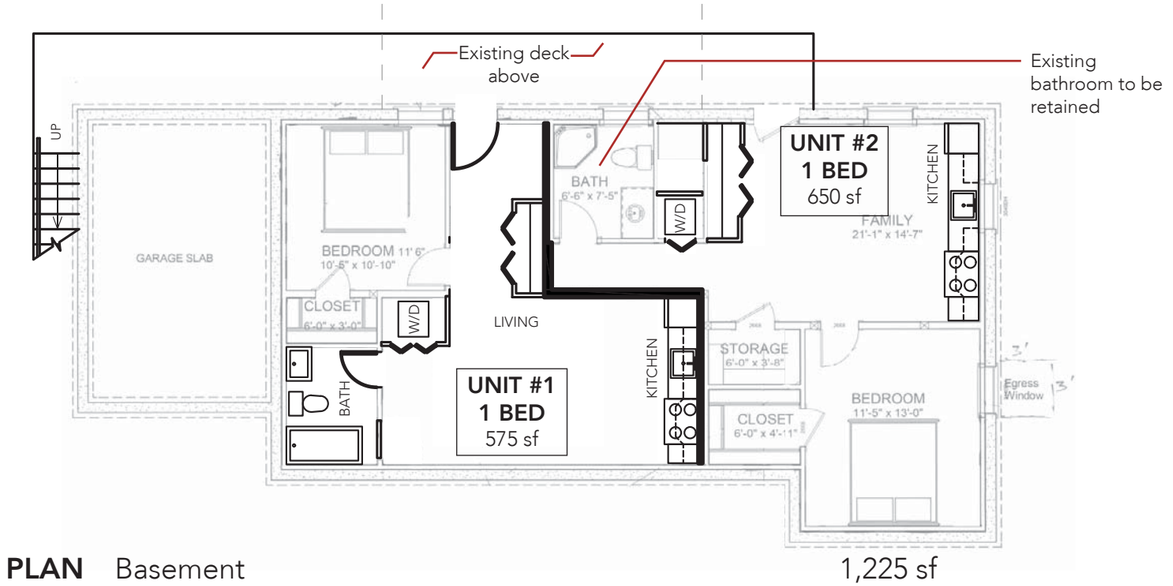
Scale: 1"=10'

0 2' 5' 10'

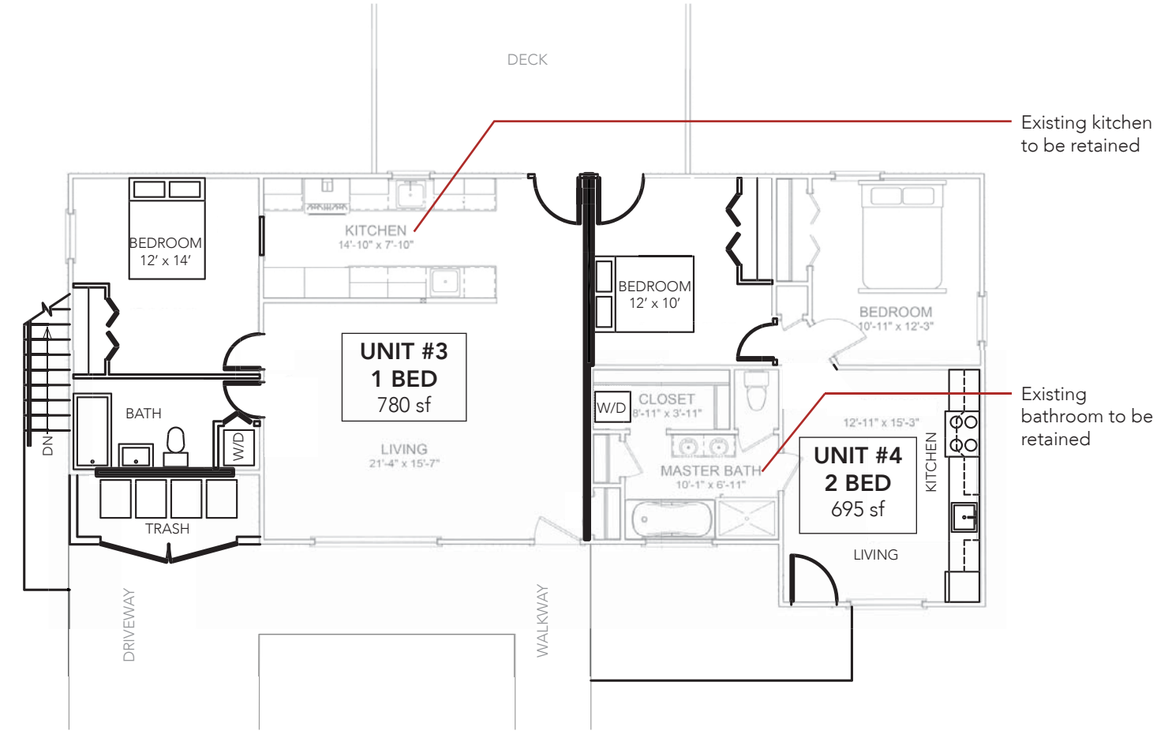
LEGEND

Existing construction (grey)

New construction (black)



PLAN Basement 1,225 sf



PLAN 1st Level 1,475 sf

PROPOSED CONVERSION SUMMARY

This scheme aims to maximize the number of dwelling units achievable in a post-war ranch house with an existing full height walk-out basement.

The result is a four unit apartment building with a one-bedroom unit and a two bedroom unit on the 1st level and two one-bedroom units on the basement level. Fire and sound separation is required vertically and horizontally between units. This scheme stacks separate units vertically; therefore the occupancy classification is to be converted from an R-3 single family home to an R-2 apartment building. R-2 occupancies require conformance with the commercial building code including providing an automatic fire sprinkler system. This conversion will also require a seismic upgrade per city code 24.85.040.

Conversion Requirements

- Construct fire/sound separation walls between units
- Construct horizontal fire/sound separation between units
- Seismic upgrade
- Install automatic fire sprinkler system
- Install (2) additional unit entry doors
- Install (3) additional kitchens
- Install (2) additional bathrooms

Pros

- Maximizes number of units
- Potential for accessible units on 1st level with minor upgrades

Cons

- Commercial building code required
- Seismic upgrade required
- Sprinklers required
- Removal of garage

Scale: 1"=10'

0 2' 5' 10'

LEGEND

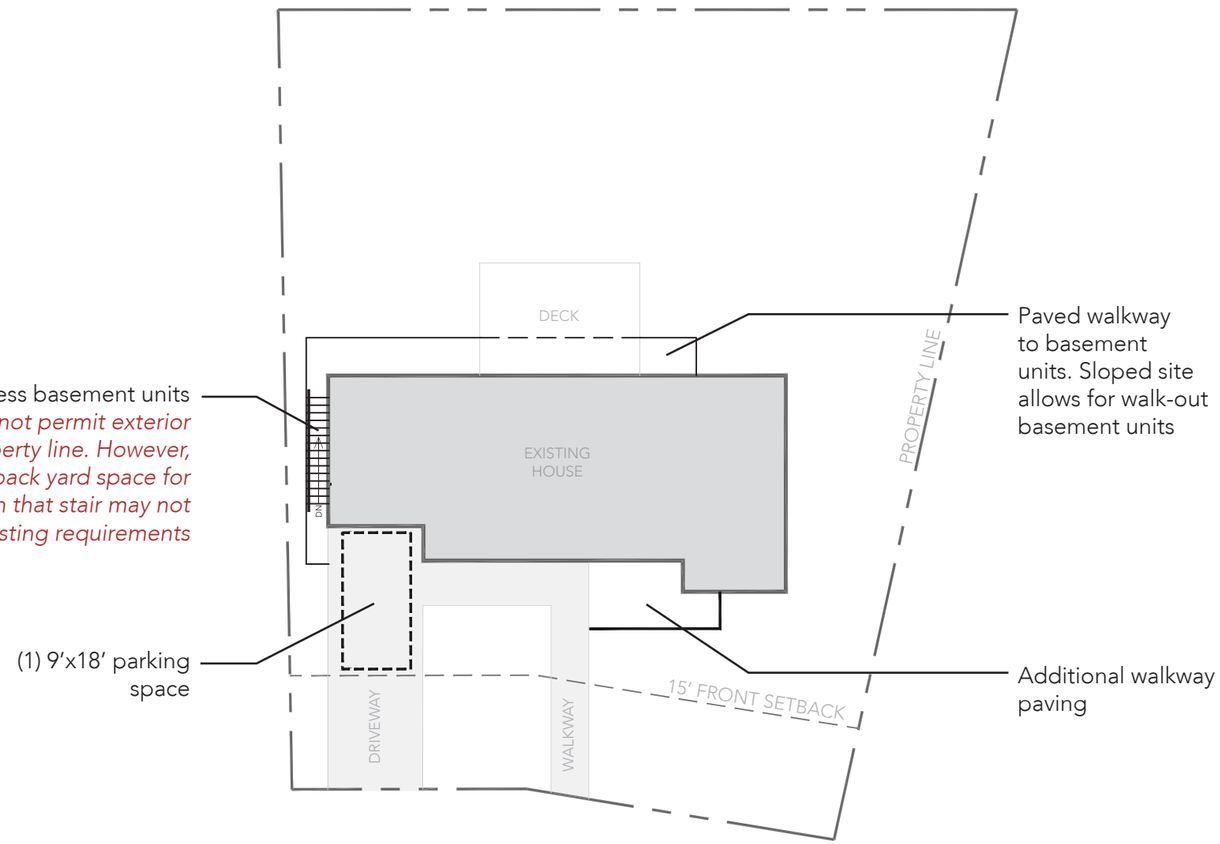
Existing construction (grey)

New construction (black)

1950s RANCH PROPOSED CONVERSION **OPT B - APARTMENTS**

PROPOSED SITE IMPROVEMENTS

- Additional walkway paving required to provide paved access to all units
- Paved steps required to access basement units



SITE PLAN

City of Portland Residential Infill Project

Use of Floor Area Ratios (FARs) in Single Family Zoning

Prepared by
DYETT & BHATIA
Urban and Regional Planners

June 2016

Concept Report
Appendix C

City of Portland
Residential Infill Project

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IĀ Introduction

As part of Dyett & Bhatia's work on Portland's Residential Infill Project, City staff requested a written report of research analyzing different cities' codification of square footage limits through floor area ratios (FARs) in single-family zoning districts. FARs have been used in Portland's downtown and in commercial and mixed-use zones in the City, and they may be an appropriate tool to control bulk and mass in the single-family neighborhoods. However, in SAC meetings, some questions have been raised about how they would be implemented and whether they might not be too complicated. City staff noted that FARs are well understood when they apply to box-shaped buildings on flat sites, but shifting to an FAR approach in the single dwelling zones raises some implementation concerns because of the wide variety of house forms and lot topography.

Of particular interest to the Bureau of Planning & Sustainability are the specific zoning code provisions and implementation approaches as they relate to describing the measurement of FAR in single dwelling house proposals. Topics that were called out as warranted specific attention included:

- Area within roof forms when or if they are counted (attics, under gables, dormers);
- Basements (especially daylight basements or basements on sloping lots);
- Garages (when or if they are counted, tuck-under garages vs. at grade vs. detached);
- Porches, balconies, and decks (how are they defined or distinguished from other floor area);
- Double height rooms (foyers, cathedral ceilings);
- Bay windows; and
- Stairwells.

Nine cities were selected for the FAR analysis, with a pre-condition being that they had set an FAR for single-family homes. We sought a range of planning climates, geographies and perspectives on regulations. We also wanted to include some cities that have recently fine-tuned their FAR regulations or are in the process of doing so. Key characteristics of the case study cities and their 2015 population follow:

- **Atlanta (pop. 464,000):** This southern city has a strong planning tradition in a community committed to preserving the City neighborhoods' identity by preserving the unique character of established neighborhoods and supporting revitalization efforts that will increase housing opportunities and neighborhood stability. The City also is committed to preserving single-family residential neighborhoods and ensuring infill development that preserves neighborhood character. Atlanta has a diverse population,

which is aging in place, supportive state planning, and strong environmental protection policies. Its approach to single family FAR controls is fairly traditional, cleanly drafted, and effective. Its controls are straight-forward and easily administered, with no discretionary review and a well-conceived set of exemptions – items excluded from FAR calculations.

- **Beverly Hills (pop. 35,000):** The City has dealt with mansionization at a different scale, in that the "target" house size is now 10,000 square feet for a family to feel they have "arrived" and can be recognized in Beverly Hills society. The City Council, being fairly conservative, has not wanted to reduce its FARs to control house size, but instead adopted standards for architectural modulation, setbacks, and upper-story stepbacks to reduce visible mass. Basement space and light wells also have been big planning issues and are addressed in the zoning controls. Their regulations are instructive in showing how a community deals with bulk and mass at the high end of the price scale.
- **Boston (pop. 667,000):** Under the aegis of the Boston Redevelopment Authority, planning in Boston is very neighborhood oriented; the City deals with gentrification in its older single family neighborhoods with a "light touch", and been fairy conservative in its zoning. Their FAR controls are another example of a clean, straightforward approach to controlling single family home size without discretionary review or design standards.
- **Burbank (pop. 105,000):** Home to the entertainment and high tech industries, Burbank was a fairly sleepy community until it began to face pushback from neighborhoods dealing with teardowns and large homes in established neighborhoods as "new money" moved in. An Interim Development Control Ordinance was adopted to reduce FARs and set some other limits on new houses while permanent zoning is being put in place. How this interim zoning was structured and what some of the changes in FAR controls are may provide some lessons for Portland.
- **Chicago (pop. 2.7 million):** Mayor Dailey initiated a comprehensive zoning reform program about 15 years ago, which included a complete overhaul of the residential regulations and resulted in adoption of FAR controls for single family homes. This ordinance represents "best practices" in doing zoning for a large and diverse city with a strong tradition of residential architecture and limited support for design review and discretionary development controls on new homes. It also represents a "light touch" that has been quite effective.
- **Los Angeles (pop. 3.9 million):** The City Council adopted a Base Mansionization Ordinance in 2008, which was followed by a Base Hillside Ordinance shortly thereafter. Technical guidance materials also were prepared that may be instructive for Portland's coding efforts. These ordinances were effective in dealing with bulk and mass through FAR controls and other standards, but loopholes and some generous exceptions prompted the City Council to initiate a set of amendments to the FAR controls that are now under public review.
- **Mill Valley (pop. 14,400):** A smaller Bay Area community with limited land, beautiful hillsides, and a tradition of craftsmen architecture. Their zoning has long regulated single family houses with FARs and recent Code amendments initiated because of community concerns about big houses in the hills may offer some insights, particularly in dealing

with defining "covered" floor area, basements and garages, cathedral ceilings, and grading.

- **Minneapolis (pop. 411,000):** A city with a history of strong neighborhood planning and innovative zoning; older single family housing stock, and a well-developed process for design review. Minneapolis also has a long tradition of small area planning, stemming from the work in the 1960s on interconnected urban villages. The planning initiatives in recent years have focused on infill and transit-oriented development, urban gardens, live work/shared space, urban design, and zoning. The FAR controls for single-family homes are clean and straight-forward, involving minimal discretion. They are effective in doing the job they were designed to do.
- **New York City (pop. 8.6 million):** The Mayor's recently adopted affordable housing program included an extensive set of far-reaching Code amendments (1,000+ pages), including minor adjustment to FAR controls for single-family homes. New York City is known for its fine-grained zoning that deals with social issues as well as economic and environmental considerations. How the new zoning has responded to the pressures in the diverse neighborhoods facing gentrification seemed worthy of study.

Our findings are presented in three sections:

- Defining floor are and measuring FAR
- Base FARs and FAR Bonuses
- Special situations (hillsides and large lots)

The appendix to this report includes relevant code language from the zoning regulations adopted for each on these cities. In a couple of instances, we also found summary materials and guidelines, but in most of the cities surveyed, such guidance was not readily available. We also interviewed planning staff in some of the cities to explore how the regulations have worked and refinements under consideration. Their observations helped us draft our findings and suggestions for Portland to consider as it movers forward with this project.

2Ā Defining Floor Area & Measuring FAR

DEFINING FLOOR AREA

Based on our review of zoning codes in the selected jurisdictions, the "best practice" is to have an inclusive definition of floor area based on total visible building mass. Do not use the definition to make policy about what to include or exclude in calculating the floor area ratio (FAR), as these clarifications then are buried in the ordinance. Having a separate set of rules for measurement, as Portland does, is preferable. The simplest definition is just to say:

Floor Area. The total horizontal enclosed area of all the floors below the roof and within the outer surface of the walls of a building or other enclosed structure.

Chicago among others is more inclusive in defining floor area and specifically lists what is included, as follows:

- Ā Floor area of any floor located below *grade* or partially below *grade* when more than one-half the floor-to-ceiling height of the below-*grade* (or partially-below-*grade*) floor is above *grade* level, provided that below-*grade* or partially below-*grade* floors with a clear height of less than 6 feet 9 inches are not counted as floor area;
- Ā Elevator shafts and stairwells on each floor;
- Ā Floor area used for mechanical equipment, except equipment located on the roof and mechanical equipment within the building that occupies a commonly owned contiguous area of 5,000 square feet or more;
- Ā Those portions of an *attic* having clear height (head-room) of 6 feet 9 inches or more;
- Ā Mezzanines;
- Ā Enclosed porches;
- Ā Floor area devoted to *non-accessory parking*;
- Ā Parking provided in excess of the maximum *accessory parking* limits, provided that each such parking space will be counted as 350 square feet of floor area; and
- Ā Floor area within a *principal building* that is occupied by *accessory uses*.

Delving more deeply into the codes in each of the jurisdictions reveals some specific differences in approach, such as how to deal with attic space, basements, covered porches, and high ceilings. Some of these are highlighted below with our recommendations; details are in the appendix.

Area within roof forms when or if they are counted

Most jurisdictions include floor area in attics, under peak roofs, whether or not it is habitable, meaning does the attic have the minimum floor to ceiling clearance set by the Uniform Building Code (UBC) for a habitable room. The Senior Planner in Los Angeles pointed out that dormers are easily added, and they do not want to track whether this would put a house over an FAR limit. So they ignore ceiling height.

- Chicago sets a minimum height of 6 feet 9 inches to be counted, but no minimum area. This is less than the current UBC standard of 7 feet, down from a previous 7.5 foot standard.
- Mill Valley is more specific: if attic space has 7 foot headroom with minimum horizontal dimensions of 6 feet by 8 feet, then it is counted toward FAR.
- Minneapolis refers to headroom clearance as set by the building code in determining whether to count attic space, but does not include a specific number in the zoning regulations.
- New York City is more nuanced, counting some attics with only 5 feet of headroom (in R2A and R2X zoning districts, among others) and others with 8 feet of headroom (R1 and R2 zoning districts).

Mill Valley's approach might be worth a closer look, as it recognizes the value of attic space and sets out specific parameters on when to count it; they have gone a bit further than Chicago.

Basements

Most jurisdictions exclude basements from FAR calculations based on a Building Code definition or something similar. Usually this translates to a rule that the basement has to be below a finished first floor that is no more than 2.5 or 3 feet above grade for at least 50 percent of its perimeter (or for the whole perimeter, as in Beverly Hills, Burbank and Mill Valley, among others).

- Burbank and New York City includes basement space within the definition of floor area because it is used. However, in hillsides, you get the "walk-in" basement problem, and are really giving away space that contributes to overall building mass.
- New York City has a separate definition for cellar space and allows that space to be excluded unless it's used for dwelling purposes.
- The Burbank Assistant Director cautioned against using the term "habitable space" for basements as it invites arguments about whether a below grade interior space, such as an unfinished room below a garage slab, should be excluded or included.
- The Mill Valley Senior Planner said that when they had the basement exclusion and only required a portion of the perimeter to be completely underground, "it was a real nightmare". Since changing the rule, Mill Valley is much happier with the results as building bulk in the hillsides has been reduced.
- Mill Valley also allows "raw space" as found under a garage or carport in a hillside home to be converted to habitable space with the following rule: " *During the improvement of an*

existing single-family dwelling, any enclosed but undeveloped volumes may be converted to habitable space and shall not be restricted to the maximum adjusted floor area as determined by Section 20.16.040(A)(2); provided that the conversion of the existing space does not change the existing height, bulk, mass or footprint of the structure and only if minimal excavation or modification of the existing grade is required."

- Los Angeles specifically addresses the issue of daylight access to basements and allows the basement exclusion from floor area even with 2 light wells, provided they are not visible from a public right-of-way, they do not project more than 3 feet from the exterior walls of the basement, and they are not wider than 6 feet. This is similar to rules adopted in upper-income communities on the San Francisco Peninsula where tight FAR controls may the option of a family room that is below grade a viable alternative.
- Los Angeles also excludes basement space only if the upper surface of the floor or roof above does not exceed 2 feet in height above natural or finished grade, whichever is lower.

Burbank's approach – count everything, but deal with garage space separately – may make sense as a starting point because such space does contribute to overall mass, even is partially below-grade.

Garages

Most jurisdictions exclude garage space for required parking; some do this with a general rule, while others state a specific amount of floor area that is excluded (300 square feet in New York City, 400 square feet in Beverly Hills, Burbank and Los Angeles, and 500 square feet in Mill Valley and in New York City if two spaces are provided).

- Boston exempts all garage space, whether at grade or underground.
- Chicago counts garage space if it's for parking more than the minimum number of required spaces. This was intended in part to be a disincentive for the three-and four-car garages being built.
- Minneapolis counts garage space if attached to single family and two-family homes.
- Beverly Hills has the most developed concepts for garage entrance locations (see Section 10-3-114) and, notably, does not allow sloped garage entries to tuck-under or partially below-grade or subterranean garages in the front yard setback area. The idea being to move the entry to a below-grade garage back into the lot. Limits on garage width also are set (40 percent of the lot width or 24 feet, whichever is less).

On balance, we think some for of exemption for garage space may make sense, with additional attention to underground and tuck-under garages. Burbank is currently considering not only a garage proscenium width, but also restrictions on apron width and curbcuts for drives, along with a rule that a garage door for a third space be offset at least two feet from the front of a two-garage garage entrance.

Porches, balconies, and decks

If porches, balconies, and decks are generally open, they are typically excluded, but if they are enclosed on two or three sides, then the floor area is counted in a FAR calculation.

- Burbank counts all covered porches as floor area.
- Chicago counts enclosed porches.
- Los Angles exempts porches and breezeways with an open lattice roof, and gives a partial exemption (250 square feet) for porches, patios and breezeways with a solid roof if they are open on two sides.
- New York City excludes floor space in open or roofed porches and breezeways provided not more than 50 percent of the space is enclosed.

Of the cities surveyed, Los Angles may be the best model, with its partial exemption.

Double height rooms

The issue of cathedral ceilings for family rooms and foyers has been approached in several ways:

- **Allow an Unlimited Exemption**. Beverly Hills does not limit interior space with high floor to ceiling heights.
- **Allow a Limited Exemption.** Los Angles has allowed an exemption for only a certain amount of space (100 square feet) to have floor-to-ceiling heights over 14 feet.
- **Requiring Double-Counting.** Burbank requires interior space greater than 12 feet to count as a second story, meaning the floor area is double-counted. Los Angeles is considering a similar rule in its amendments to the Base Mansionization Ordinance, but they would set an allowable ceiling height of 14 feet.
- **Assign a 50% Premium to Foyer or Cathedral Ceiling Space.** Mill Valley uses this option, meaning the floor area in rooms where the interior space exceeds 14 feet is multiplied by 1.5. Mill Valley also has some specific rules for top floor space related to roof pitch.

Mill Valley offers a good model, with its 50 percent premium, but if there is SAC support, you could require double-counting as this is more-effective in controlling overall building bulk.

Bay windows

In generally, floor area created by a bay window only is counted if it is a floor-to-ceiling bay, but not if it is a traditional bay window with a shelf or bench for seating. The best way to do this is to set a minimum vertical distance for the bay window to be above the floor, such as 30 inches. However, many of the zoning ordinances reviewed did not address this topic explicitly.

Stairwells

Stairwells usually are counted once, not twice, but some jurisdictions do count this space at each level.

ESTABLISHING AN "ADJUSTED" FLOOR AREA FOR FAR CALCULATIONS

Several jurisdictions establish specific rules for determining floor area as the basis for determining compliance with FAR standards. This is done by stating, first, that the floor area of a building is the sum of the gross horizontal areas of all floors of a home and other enclosed structures, measured from the outside perimeter of the exterior walls and/or the centerline of interior walls, and then listing what is included and excluded in these calculations.

Interestingly, Mill Valley allows exclusion for enclosed but undeveloped volumes, which could be utilized in the future as floor area if they have minimum horizontal dimensions of 8 feet by 10 feet and 7 foot headroom. The Burbank Assistant Planning Director cautions against this approach, preferring to count all interior floor area, whether or not it is habitable and be a bit more generous with the FAR (Mill Valley sets a 0.35 base FAR, while Burbank's is 0.40, which can go up to 0.45 if certain features are included in the home design (e.g. wider side yards, upper-story stepbacks, so the second floor is smaller than the ground floor).

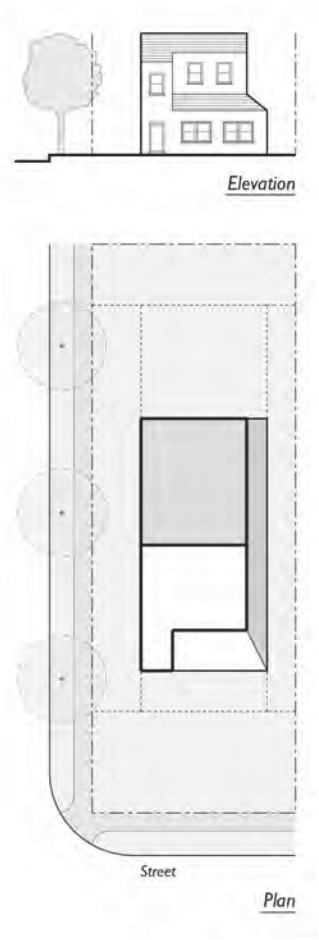
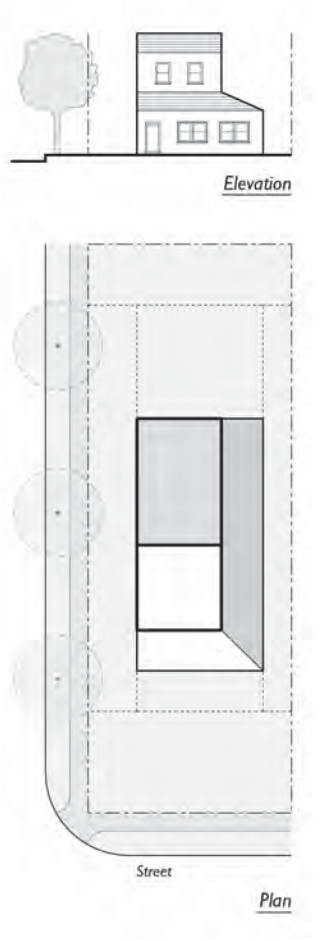
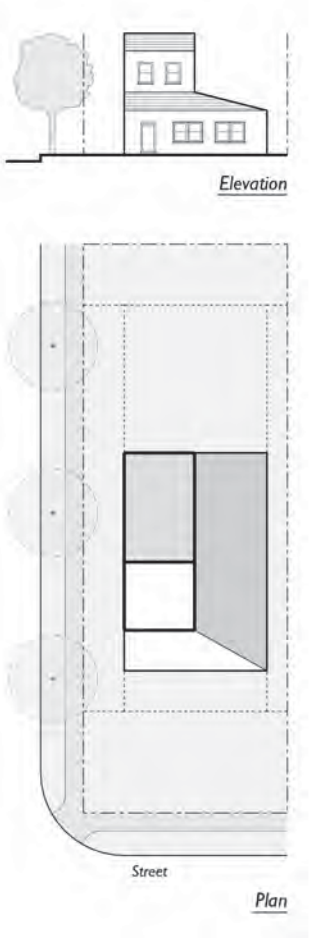
DETERMINING THE FLOOR AREA RATIO

The floor area ratio (FAR) is the ratio of the floor area, excluding areas specifically noted, of all principal and accessory buildings on a site to the site area. To calculate the FAR, floor area is divided by site area, and typically expressed as a decimal. For example, if the floor area of all buildings on a site totals 20,000 square feet, and the site area is 10,000 square feet, the FAR is expressed as 2.0.

The diagram on the following page shows how Burbank illustrates different FARs in combination with standards intended to reduce visible bulk.

VERFICATION OF EXISTING CONDITIONS

Los Angeles has a counter handout on procedures they follow for verification of existing residential floor area, including when "as-built" plans are required (any project involving more that 1,000 square feet of construction or demolition of more than 50 percent of perimeter walls).

Comparison of FAR on a Typical Burbank Lot (50' x 150')		
		
FAR = 0.45	FAR = 0.40	FAR = 0.35
Total Floor Area = 3,375 sf	Total Floor Area = 3,000 sf	Total Floor Area = 2,625 sf
2nd Story Floor Area = 75% of 1st Story Floor Area	2nd Story Floor Area = 56% of 1st Story Floor Area	2nd Story Floor Area = 56% of 1st Story Floor Area
Conforms to section 10-1-803 of the current Zoning Code with the eight feature listed to achieve a 0.45 FAR.	Reduces 2nd story floor plate by 375 square feet.	Further reduces the 1st and 2nd story floor plate to yield an FAR of 0.35.

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3Ā Base FARs and FAR Bonuses

BASE FARS IN SURVEYED CITIES

The table below summarizes the base FAR in the cities studied, with notes on the right-hand column about typical lots size and some other notable provisions. These FARs are substantially less than the typical FARs calculated for the SAC discussions by DECA.

City	*Base FAR in Single Family Zones*	*Comments*
Atlanta	R-4A: 0.50 R-4B: 0.75	R-4A zone has 7,500 sq. ft. lots R-4B zone has 2,800 sq. ft. lots
Beverly Hills	Central Area: 1,500 sq. ft. plus 0.40	Additional floor area allowed with a Central Area Permit
Boston	R-5: 0.50 S-3: 0.30	R-5 zone has 5,000 sq. ft. lots S-3 zone has 9,000 sq. ft. lots
Burbank	R-1: 0.40	Typical lot: 7,500 sq. ft. Bonus of 0.05 for lots over 10,000 sq. ft. for certain features
Los Angeles	R-1: 0.50 R-S: 0.45	R-1 zone has 5,000 sq. ft. lots R-S zones has 7,500 sq. ft. lots
Mill Valley	RS: 0.35 if under 8,000 sq.ft.	If lot is 8-12,000 sq.ft.: house size is 2,000 sq. ft. plus 0.10; over 12,000 sq.ft. 3,000 sq.ft. plus 0.5 up to maximum of 7,000 sq.ft. gross floor area. One-time allowance of 100 sq. ft. for existing homes.
Minneapolis	R-1: 0.5	May be increased to match FARs of 50% of the homes within 100 feet of the lot; one time allowance of 500 sq. ft. for existing homes
New York City	R1: 0.50	Minimum lot area: 5,700 to 9,500 sq. ft.

Interestingly, in Atlanta, the R-4B zoning district is intended specifically as an alternative single-family zone for affordable housing that is centrally located and accessible to public transit, jobs and social services. Areas with this zoning were formally zoned for multi-family residential uses and the City's objective is to transit these areas to single-family development pattern meeting the affordability goals specified.

FAR BONUSES

Nonresidential FAR bonuses are often granted for affordable housing, community benefits, dedication of right-of-way or other off-site improvements, urban gardens and green roofs, but for single family home, there are fewer bonuses that make sense. Bonuses that have been offered in the cities studied include:

- **Single story homes.** Los Angeles gives a 20 percent floor area bonus for home that stay within an 18-foot height "envelope". As an alternative, in Studio City, Los Angeles gives an FAR bonus if the maximum height is reduced by 20 percent under a "menu" approach to FAR options.
- **Reduced second story size and stepbacks.** Burbank allows up 0.05 additional FAR with a second story setback 10 feet at the front elevation for 75 percent of the width and 5 feet on at least one side elevation. The second story floor area cannot exceed 75 percent of the floor area of the first floor.
- **Front façade stepbacks.** Los Angeles allows a 20 percent floor area bonus for an upper-story front stepback that is at least 20 percent of the building depth.
- **Increased side yards.** Los Angeles allows a 20 percent floor area bonus when the combined width of the side yards is 25 percent of the lot width, provided no single yard is less than 10 percent of the lot width.
- **Minimal grading.** Los Angeles offer a 20 percent floor area bonus if the grading does not exceed 10 percent of the lot area, expressed in cubic yards, or 1,0000 cubic yards, whichever is less. By contrast, Mill Valley just sets a 300 cubic yard standard.
- **Green building.** Los Angeles offers a 20 percent floor area bonus (30 percent if the lot is less than 5,000 square feet), for a home that substantially complies with the "certified" level or higher, as set by the U.S. Green Building Council LEED program. The City Council has proposed eliminating this bonus, as they would prefer to see green building requirements established for all homes.
- **General Articulation Option.** For Studio City, Los Angeles offers a floor area bonus if all sides of a building façade are relieved by one or more variations that, in total, are no less than 20 percent of the façade and have a minimum average depth of 9 inches. These may include façade details, such as recessed windows, insets, pop-outs, or window trim. For existing homes and additions, only new exterior walls and existing walls that are altered are required to have the articulation. The precise FAR bonus is determined by a "menu" approach, with different FAR bonus increments for specific zoning districts.

The Burbank FAR bonus for larger lots is being reconsidered by the City Council because of concerns about house size.

4Ā Special Situations

HILLSIDES

Hillsides present a special situation for FAR controls because of bulk and mass is more visible. Larger homes on upslope lots also can loom over downslope lots and intrude into a neighbor's privacy. Increasing side setbacks and decreasing front setbacks also can help, as can height limits that distinguish an upslope from a downslope condition. The easiest way to regulate bulk though may be to establish a rule for reduced FAR as a function of slope.

- Ā In Los Angeles, for example, the maximum FAR in the RS zoning district (0.45) drop to 0.4 in the 15-30 percent slope band, 0.35 in the 30-45 percent slope band, 0.30 in the 45-60 percent slope band, and 0.25 percent for lots with a slope band of 60+ percent.
- Ā Burbank is considering a similar rule in its Neighborhood Compatibility Project.

LARGE LOTS

Two jurisdictions have "bent line" rules to address FAR on larger lots. The concept is straightforward: the amount of floor area that can be added on larger lots is proportionally less than on a standard-size lot. This rule also does not reward lot mergers, the purchase of an adjacent lot with a "teardown", for example, with twice the floor area of the standard lot.

In Burbank, the bent line rule is presented in a table format:

Maximum Residential Floor Area Based on Lot Size and Allowable Floor Area Ratio (FAR)		
Lot Size (Sq. Ft.)	*Maximum FAR*	*Maximum Residential Floor Area (Sq. Ft.)*
7,500 or less	0.4	3,000
7,501 – 15,000	0.4 for lot area up to 7,500; 0.3 for lot area over 7,500	3,000 to 4,350
Over 15,000	0.4 for lot area up to 7,500; 0.3 for lot area over 7,500 but less than 15,000; and 0.2 for lot area over 15,000	Over 4,350, as determined by the applicable maximum FARs

In Mill Valley, the maximum floor area is determined as follows:

- Lots with less than 8,000 square feet of effective lot area: 35% of the effective lot area.
- Lots with 8,000 to 20,000 square feet of effective lot area: 10% of the effective lot area plus 2,000 square feet.
- Lots with more than 20,000 square feet of effective lot area: five percent of the effective lot area plus 3,000 square feet, to a maximum of 7,000 square feet.

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