
Infill Design Project Report: Medium-Density Residential Development

October 10, 2005



Issues & Staff Recommendations



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**The majority of the work on this report was undertaken in 2004 and a discussion draft of the report, without appendices, was released on December 22, 2004. The current report includes minor edits to the previous draft, together with the complete appendices.*

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CHAPTER

1

Introduction and Project Summary

- Project Focus
- Why this Project?
- Public Input and Project Research
- Project Approach and Considerations
- Summary of Issues
- Summary of Staff Recommendations



Design Principles for Multidwelling Infill Development

Based on design guidance from the Comprehensive Plan, Community Design Guidelines, Zoning Code, and other City documents. Included to help clarify the principles are bulleted statements, listed below the basic principles, that indicate potential ways of implementing the principles.

1. Contribute to a Pedestrian-Oriented Environment

- Use architectural features (such as façade articulation, window and entrance details, and porches or balconies) that provide a human-scaled level of detail
- Avoid large areas of blank wall
- Minimize the prominence of parking facilities
- Provide strong connections between main entrances and sidewalks

2. Respect Context and Enhance Community Character

(note: while the continuation of existing community character may be a priority in established neighborhood areas, contribution to a desired future character may be more important than compatibility in areas where change is expected and desired, such as in mixed-use centers)

- Arrange building volumes and use setback patterns in ways that reflect neighborhood patterns or that contribute to its desired character
- Consider utilizing architectural features (such as window patterns, entry treatments, roof forms, building details, etc.) and landscaping that acknowledge the surrounding context and neighborhood
- Use site design that responds to natural features of the site and its surroundings
- Minimize solar access impacts on adjacent properties

3. Consider Security and Privacy

- Orient windows and entrances to the public realm to provide opportunities for “eyes on the street” and community interaction
- Minimize impacts on the privacy of neighboring properties

4. Provide Usable Open Space

- Maximize the amenity value of unbuilt areas, providing usable open space when possible
- Make usable open space, not surface parking, the central focus of larger projects

5. Design for Sustainability

- Use durable building materials
- Use energy-efficient building design and technologies
- Minimize stormwater runoff



The objective of the Infill Design Project is to foster medium-density infill development that contributes to meeting City design objectives, such as those calling for design that is pedestrian oriented and serves as a positive contribution to neighborhood context. Other key considerations of the project are implementation of City objectives calling for housing diversity and for accommodating new housing near transit facilities and centers. The project seeks to achieve a balance between goals for providing additional housing opportunities in established neighborhoods with community concerns for reinforcing cherished aspects of community character. Particularly in areas where City policies call for growth to be concentrated, such as mixed-use centers and transit corridors, the City's design objectives recognize that change is inevitable, even desirable; but that new development should help create desirable and attractive places.

The purpose of this document is (1) to report on issues related to the design of multidwelling and rowhouse development in the medium-density zones, and (2) to present Planning Bureau staff recommendations on implementation strategies to pursue in order to help improve the design of future development. The report provides information on development trends, community concerns, contextual issues and potential solutions related to the design of medium-density infill development. This information is intended to serve as background to staff's recommended implementation strategies, as well as to serve as a resource for City decision makers.

Project Focus

The project's primary focus is the design of development in the low- and medium-density multidwelling zones, particularly the R2 and R1 zones, which constitute the majority (89 percent) of the City's multidwelling-zoned land area. Development in these zones typically consists of rowhouses, plexes, and low-rise apartment projects (2 to 4 stories). The emphasis of the project is on development on small infill sites in established neighborhood areas outside the Central City and other mixed use centers.

The Infill Design Project is not a re-examination of the City's design objectives, which have been developed through many years of planning efforts and public involvement. Rather, its intention is to find ways of better achieving these objectives. The City's design objectives, as they pertain to multidwelling infill development, are summarized on the facing page (see Appendix B for a

compilation of design-related policies and directives from the *Comprehensive Plan* and other City documents). This project does not address the appropriateness of where multidwelling zoning is mapped or the required densities. Instead, the project considers the question of, given the location and required densities of the multidwelling zones, how can the design of new infill development be improved? Also note that, while encouraging sustainable design that minimizes environmental impacts has become an important City policy objective, the extent to which development is incorporating sustainable design strategies is not a primary focus of this report. This is due to limited project resources and because sustainable design is already a focus of the City's Office of Sustainable Development.

Why this Project?

In recent years, Portland has experienced a substantial amount of infill development in neighborhood areas with multidwelling zoning, most of which is located along transit corridors or at the edges of mixed-use centers. This infill development is helping to realize macro-level design goals calling for higher-density development to be concentrated near transit facilities. However, the design of individual projects is frequently not contributing to the community's design objectives and aspirations. Reasons for the Infill Design Project's particular focus on rowhouse and multidwelling development in the low- and medium-density multidwelling zones (referred to in this report as "medium-density" development and zones) include:

- Past design-related projects have focused on single-dwelling development (e.g., the Base Zone Design Standards Project) and on specific 2040 mixed-used centers (such as Gateway, Hollywood, and St. Johns), but there has been no focus on design in the medium-density zones.
- The majority of apartment and rowhouse building permits in recent years have been for projects in the medium-density zones (from 1997-2004, 66 percent of all apartment and rowhouse permits were for projects in these zones). Also, more residential *units* have been built in recent years in the medium-density multidwelling zones than in either the commercial or employment zones. This is despite the fact that the latter two types of zones predominate in areas such as the River District where the larger, high-density projects are located.
- The medium-density zones will likely continue to be the location of a large proportion of the City's multidwelling and rowhouse construction, as these zones constitute the majority of Portland's multidwelling-zoned land area and include considerable amounts of vacant or underdeveloped land.

Public Input and Project Research

Staff work on this report was based on information and guidance from a wide-range of sources. The Infill Design Advisory Group, which met monthly from April of 2004 through early 2005, played a particularly important role in identifying issues and considering potential solutions. This group consists of 24 community members, including developers, builders, architects, Realtors, representatives from City regulatory agencies, as well as representatives from each of the city's seven neighborhood coalition areas. Three public open houses were held in different parts of the city in the Spring of 2004 to solicit initial public input (these events featured a design preferences survey, which was used to help inform the project). Project research included analysis of over 75 recent infill projects, which involved interviews with project developers and designers; as well as a review of implementation strategies used in other cities, analysis of GIS data, and review of neighborhood plans and other City policy documents. Work on this report was also informed by a Portland State

University research project, undertaken in conjunction with the Infill Design Project, which focused on development and design issues in an area of Outer East Portland.

Project Approach and Considerations

This report proposes a multifaceted approach to improving the design of infill development. The range of implementation strategies places an emphasis on non-regulatory, collaborative approaches. While the central objective of the Infill Design Project is to improve the design of medium-density infill development so that the community's design objectives can be better met, the following also serve as guiding project considerations:

- Find ways of encouraging *desirable* development, rather than simply regulating against “bad” design.
- Minimize regulatory complexity.
- Think broadly about potential implementation strategies, relying on regulatory approaches only when there are no other realistic strategies.
- Consider impacts on other issues and priorities, such as environmental sustainability, construction costs, and livability for the residents of new housing. Whenever possible, pursue strategies that can meet multiple community objectives.
- Identify and promote additional housing types that hold potential to serve as positive contributions to neighborhoods, including owner-occupied alternatives to rowhouses.
- Focus on basic design principles and patterns, not on architectural style.
- Solutions should be supportive of Portland's *Comprehensive Plan* and adopted neighborhood plans.

Summary of Issues

The following is a summary of topics that emerged as key infill design issues:

Compatibility and desired community character. Most neighborhood plans call for infill development in established residential areas to be “compatible” with existing neighborhood character. However, little guidance is provided as to what aspects of neighborhood character are especially important to continue in new higher-density development that might provide some measure of compatibility with surrounding lower-density housing. Compounding the confusion about compatibility is that some areas, such as mixed-use centers and main streets, are intended to be places where growth and change is concentrated and where a desired future character may be more important than compatibility with existing development.

Patterns in inner neighborhoods versus outer east neighborhoods. Differences in lot and block patterns between inner neighborhoods and outer neighborhoods require different housing types, site configurations and design approaches. Medium-density housing types common in inner neighborhoods, such as street-oriented apartment buildings and rowhouses, are often not practical on Outer East Portland's characteristically narrow, deep lots. A challenge for Outer East is to identify higher-density housing types appropriate to the area's lot configurations that can contribute to a future transit- and pedestrian-oriented urban environment.

Street frontages dominated by vehicle facilities. The street frontages of new rowhouse and multidwelling projects are often dominated by vehicle facilities, such as driveways, garages, and

parking areas. The impacts of this include interruption of neighborhood patterns, such as landscaped setbacks and street-oriented facades, as well as the loss of on-street parking. Most medium-density multidwelling development is not subject to limitations on front parking, while City driveway-width requirements sometimes dictate that large portions of small infill sites be devoted to vehicle circulation space.

Scale contrasts. Contrast in scale between existing development and new, higher-density development is often a key community concern, particularly in areas where detached houses predominate. While there are numerous ways of minimizing scale contrasts, relatively few infill projects use such strategies. Instead, neighborhood residents frequently perceive infill projects as monolithic masses interrupting the fine-grain pattern of surrounding neighborhoods.

Additional housing diversity. The rowhouse type provides many advantages and serves as Portland's most common form of medium-density, owner-occupied housing. However, there has been criticism that Portland has been over-reliant on the rowhouse for infill housing and that additional types of housing should be encouraged to promote housing diversity. Community members have expressed interest in cluster housing, such as cottage clusters and courtyard townhouses, as alternative housing types. A need has also been identified for additional forms of owner-occupied housing appropriate for small sites in the R1 zone, where density requirements often make rowhouse development impractical.

Competing City priorities. An issue of particular concern to developers is that the City's various regulations sometimes work at cross-purposes, and that this can be particularly debilitating for higher-density infill development on small sites. An example of this are Office of Transportation requirements for wide driveways, which conflict with other City objectives for minimization of impervious surfaces and for design that minimizes the prominence of vehicle areas. Developers indicate that reducing regulatory conflicts between various City bureaus will be key to facilitating well-designed development on small sites.

Summary of Staff Recommendations

In the past, the City of Portland has tended to rely primarily on design review and regulatory standards as strategies to implement its design objectives; which, while often effective, add complexity and cost to the development process. For the Infill Design Project, staff is recommending an approach that places greater emphasis on a wide range of non-regulatory implementation strategies. As part of this approach, staff proposes that *Zoning Code* amendments be processed as part of an upcoming iteration of the Regulatory Improvement Workplan to allow Infill Design Project staff to focus on near-term implementation of non-regulatory strategies.

The four primary thrusts of the proposed implementation strategies are to:

1. **Educate and foster dialogue about design.** Pursue strategies that increase developers', designers', and the general public's awareness of infill design strategies. Also, foster dialogue about design among a wide range of community stakeholders. Recommended implementation strategies include:
 - Creation of a "Portland Infill Design Guide," consisting of: (1) a collection of housing prototypes highlighting design solutions and alternative housing configurations for typical infill situations, (2) a guide to various strategies for addressing problematic infill design issues (e.g., illustrating ways of ameliorating scale contrasts, minimizing the prominence of vehicle areas, reducing privacy impacts, managing stormwater, etc.), and (3) case studies highlighting exemplary infill projects from Portland and elsewhere.
 - Establishment of a neighborhood contact requirement for new construction in the multidwelling zones, triggered by a project size threshold, in order to encourage dialogue

between neighborhood residents and developers and to provide opportunities for community input regarding the design of large projects.

- Investigate the possibility of holding workshops for builders and the public on infill design strategies (Bureau of Development Services implementation).
2. **Remove barriers to desirable design and development.** As much as possible, make desirable development the “easy thing to do.” Recommended implementation strategies include:
 - Regulatory changes to minimize the amount of site area that must be used for driveways and other impervious surfaces (will require consultation with the Office of Transportation on potential amendments to Title 17 driveway width requirements).
 - *Zoning Code* amendments to facilitate rear parking arrangements and to provide additional flexibility in the design of outdoor spaces, pedestrian areas, and setbacks along busy streets.
 - Investigate the feasibility, in partnership with implementing bureaus, of a range of strategies intended to facilitate desirable infill development. These include: expedited permit processing or reduced fees for projects meeting specified design criteria; reducing regulatory barriers to the use of existing alleys; and City participation in providing sidewalks in areas zoned for multidwelling development.
 3. **Adopt a limited number of regulatory design standards** to bring conformance with the community’s most fundamental design principles and to provide greater consistency in how multidwelling development is regulated. Recommended implementation strategies include *Zoning Code* amendments to:
 - Limit the amount of property frontage that can be used for vehicle areas, possibly by extending the 50 percent limitation that already applies to transit streets.
 - Require street-facing windows for all multidwelling development (this requirement currently applies to development in multidwelling zones, but not to multidwelling development in commercial zones).
 4. **Facilitate a wider range of housing types and configurations** that hold potential for meeting the community’s design objectives. Recommended implementation strategies include *Zoning Code* amendments that would:
 - Adjust common green requirements and other regulations to facilitate courtyard-oriented housing arrangements on small sites that can serve as alternatives to rowhouses.
 - Facilitate duplex development in higher-density zones.
 - Provide greater flexibility for attached house arrangements.
 - Create a new “shared street courtyard housing” provision, that would allow residential lots in higher-density zones to front onto a courtyard-like “shared street,” designed for both vehicles and pedestrians and characterized by paving blocks and traffic-calming features (similar to the Dutch *woonerf* concept). This would facilitate homeownership opportunities and additional housing types on small sites zoned for higher-density development.

INTRODUCTION AND PROJECT SUMMARY

CHAPTER

2

Project Background

- Progression from Past Projects
- Development Trends
- Policy and Design Considerations
- What is Multidwelling Development?



PROJECT BACKGROUND



The Infill Design Project’s focus on medium-density development addresses a category of housing that has become a significant component of Portland’s new housing production.

While not as high profile as the large-scale projects typical in Central City areas such as the Pearl District, medium-density infill projects in neighborhoods outside the Central City hold potential to become important parts of the architectural mosaic that makes up the built environment of neighborhoods. Because of their location within established neighborhoods, medium-density infill projects, such as fourplexes and rowhouses, impact community character in ways out of proportion to their size and have often been at the heart of community controversy regarding growth and change.

This chapter provides background information clarifying the rationale for the Infill Design Project’s focus on the low- and medium-density multidwelling zones. It also includes a housing typology describing the different forms of housing that the City classifies as “multidwelling development,” as well as other housing types commonly built in the multidwelling zones.

There are several reasons for the project’s focus on rowhouse and multidwelling development in the low- and medium-density multidwelling zones. These include: progression from past infill design projects, development trends, and the lack of City strategies to foster quality design in such development. The reasons for the project’s focus are discussed further below.

Progression from Past Projects

In 1997, the Planning Commission initiated a project to develop objective design standards that would apply to housing occurring outside of situations where design review was required. Subsequent work by a Planning Commission subcommittee and Planning Bureau staff resulted in draft regulations called the Interim Design Regulations for Infill Development. The goal of this work was to identify a small subset of design standards, drawn from the much more extensive Community Design Standards that then applied only in areas with design review, that could apply more broadly throughout the city. Subsequently, the scope of the project was further narrowed and split into phases based on public input. “Phase 1” was adopted as the Base Zone Design Standards project in 1999 and resulted in zoning standards that regulate the design of single-dwelling development in all zones, in particular restricting the ability of houses to rely on garage-forward designs.

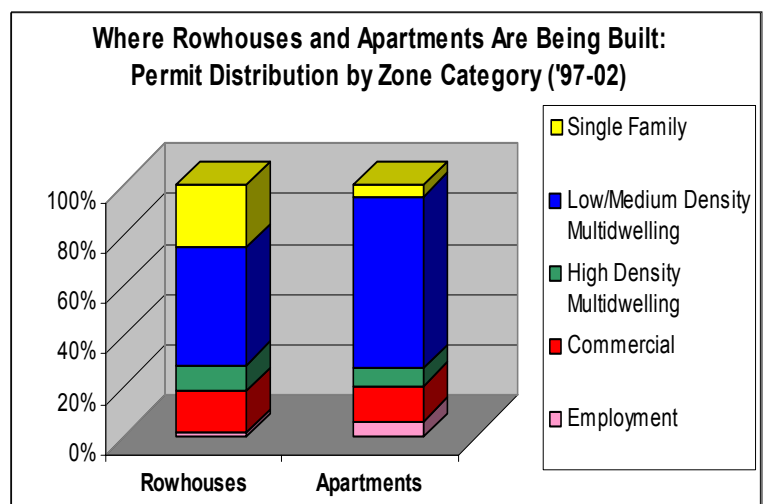
The intention was that a subsequent phase (“Phase 1.a”) would refine base zone standards for the design of rowhouses, and that “Phase 2” would develop base zone standards for higher-density residential projects. In January 2000, the Planning Commission reported to the City Council on preliminary findings related to the design of housing on small lots, and regulatory approaches that could be taken to intervene in their design. While the City Council did not approve a specific work program to address the findings, many of the findings were ultimately incorporated into the work program of the Land Division Code Rewrite project. As part of the rewrite of the Land Division Code, the City adopted new standards for the design of detached and attached houses on newly-created narrow lots in single-dwelling residential zones (most notably, these standards placed additional limitations on front garages and driveways). However, the Land Division Code Rewrite project did not adopt standards for the design of housing on existing narrow lots or on any lots within the multidwelling residential and commercial zones.

The Infill Design Project has been envisioned as the project that would take up where the Base Zone Design Standards and Land Division Code Rewrite projects left off, completing phases 1 and 2 of the original Design Regulations for Infill Development Project. The current project’s focus on medium-density development will thus address design issues not completed by these previous projects.

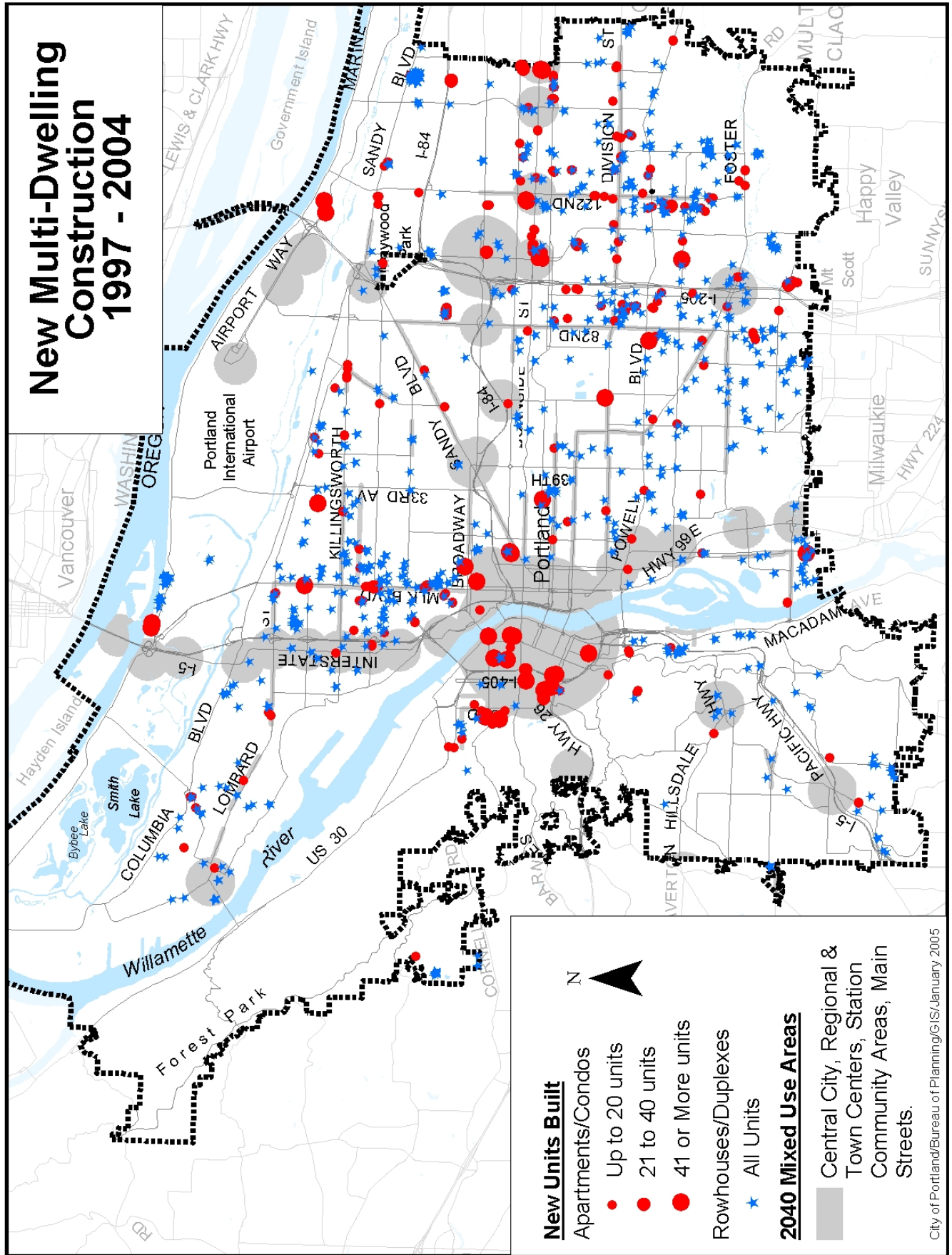
Development Trends

Current Trends. The majority of apartment and rowhouse projects are being built in the low- and medium-density multidwelling zones, particularly in the R2 and R1 zones. While larger residential developments are being concentrated in the high-density multidwelling, commercial and employment zones in the Central City (particularly in the River District), more total housing units are being produced by numerous small infill projects in the low- and medium-density multidwelling zones in neighborhoods outside the Central City. Neighborhood areas that have had particularly large concentrations of infill development include Outer East Portland and Inner North and Northeast Portland (see Map 1 for citywide distribution of multidwelling building permits). Summary data (permit data is for 1997-2004):

- 66 percent of apartment and rowhouse permits (within the multidwelling, commercial and employment zones) have been for development in the low-/medium-density multidwelling zones.
- Distribution of new housing units, by zone category: low-/medium density multidwelling zones = 6288 units; high-density multidwelling zones = 3151 units; commercial zones = 3719 units; employment zones = 3347 units.
- 90 percent of apartment building permits have been for relatively small buildings of fewer than 20 units.

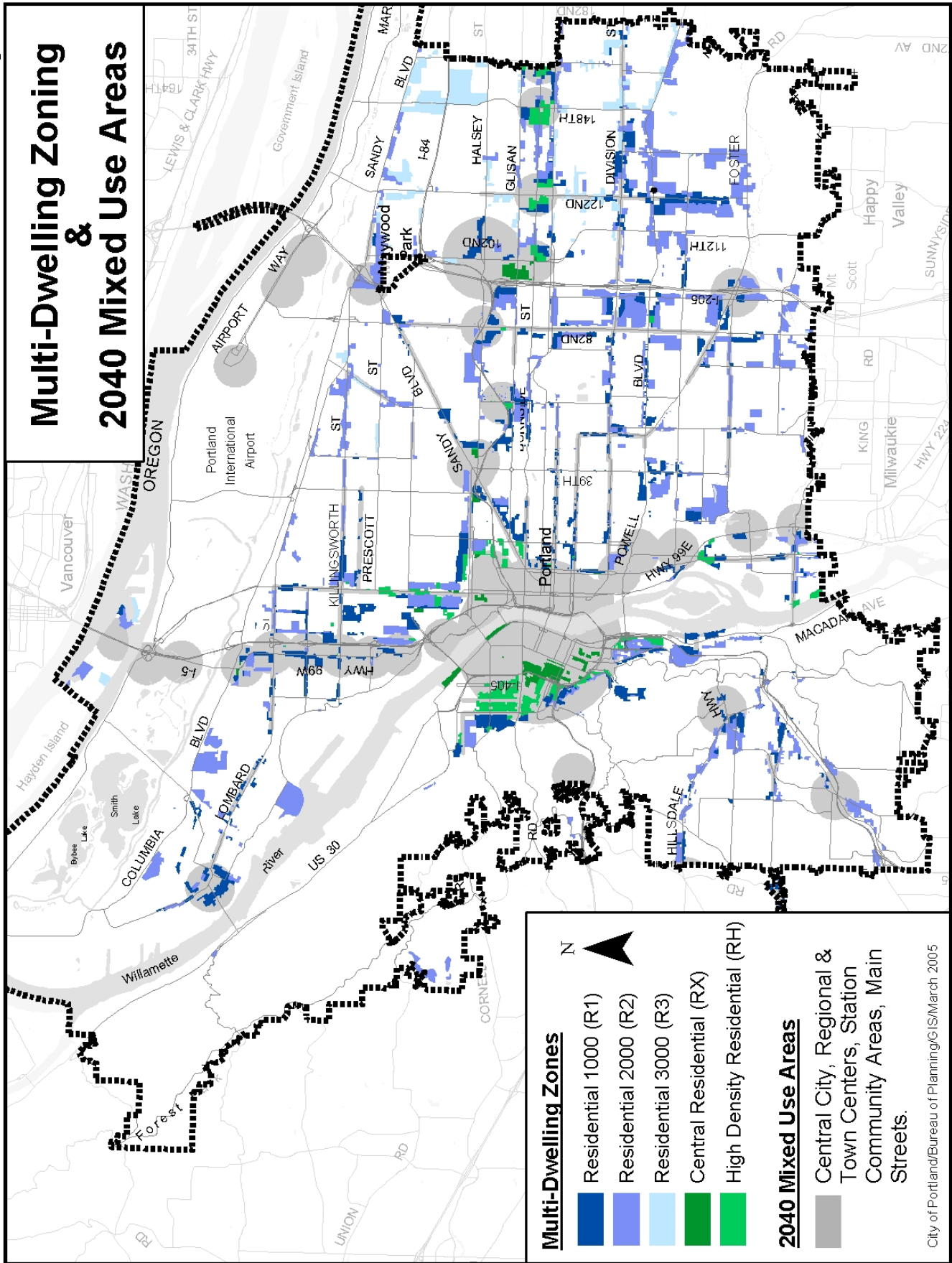


Map 1



Map 2

Multi-Dwelling Zoning & 2040 Mixed Use Areas



Multi-Dwelling Zones

- Residential 1000 (R1)
- Residential 2000 (R2)
- Residential 3000 (R3)
- Central Residential (RX)
- High Density Residential (RH)

2040 Mixed Use Areas

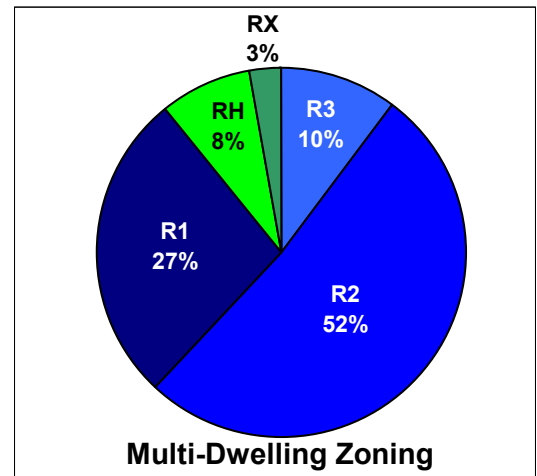
- Central City, Regional & Town Centers, Station Community Areas, Main Streets.

City of Portland/Bureau of Planning/GIS/March 2005

Future Potential. The low- and medium-density zones will likely continue to be the location of a large proportion of the City’s apartment and rowhouse construction, as these zones constitute the majority of the City’s multidwelling zoned land area and include considerable amounts of vacant and underdeveloped land. Summary data:

- 89 percent of the City’s multidwelling zoned land is in the low/medium-density zones.
- Current zoning provides capacity for up to 70,000 additional housing units in the low/medium density multidwelling zones.
- 95 percent of vacant land (400 acres) in the multidwelling zones is in the low/medium density zones.
- Over 1100 acres of land in the low/medium density multidwelling zones is underdeveloped (building value less than 50 percent of property value).
- Estimates derived from Metro’s “Metroscope” analysis of residential capacity indicate potential for 9000 additional residential units within the low/medium density zones over the next 20 years.

(See *Appendix A* for more detailed data related to multidwelling zones and development trends.)



Policy and Design Considerations

The low- and medium-density multidwelling zones are key to implementing City and regional goals for concentrating development in and around 2040 mixed-use areas, as these zones provide a large proportion of these areas’ residential zoning and housing capacity. While the low- and medium-density multidwelling zones are frequently located in areas at the interface between the cores of mixed-use centers and the surrounding neighborhoods (and where community concerns about change are often most acute), few design controls apply in these areas or to medium-density development along main streets and transit corridors. These zones also implement *Comprehensive Plan* policies calling for transit-supportive, higher-density development to be concentrated along transit corridors and near station areas (see Map 2, showing proximity of the low- and medium-density zones to 2040 mixed-use areas and corridors). Summary data:

- 2,368 acres of the low/medium density multidwelling zones are within 2040 mixed-use areas (i.e., centers, light rail station areas and main streets), and most of the remaining 5,094 acres of these zones are near the 2040 mixed-use areas or are adjacent to transit streets.
- While the core areas of mixed-use centers are often subject to design review and design-related standards have recently been applied extensively to single-dwelling zones, few design controls apply to areas where the majority of multidwelling development is occurring. For example, most areas in the low/medium density multidwelling zones have no limitations on front parking areas, resulting in many apartment projects with parking-dominated street frontages, particularly in Outer East Portland. In commercially-zoned areas designated as main streets, apartment projects can, and are, being built with no street-facing windows or doors.

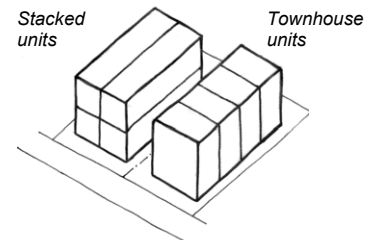
As indicated above, the Infill Design Project’s focus on the design of development in the low- and medium-density multidwelling zones allows attention to be paid to a segment of Portland’s residential development that will likely remain a significant proportion of such development and that is currently subject to only minimal design controls.

What is Multidwelling Development?

The following summarizes the terminology that will be used in the rest of this report in reference to the different housing types that constitute “multidwelling development” or that are being built in the multidwelling zones. Portland classifies a wide range of residential development types that feature more than one dwelling unit on a shared lot as “multidwellings.” Multidwelling development includes:

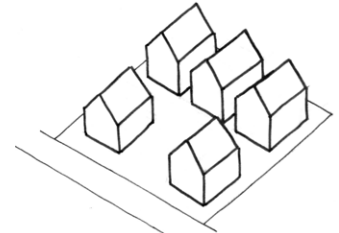
Plexes (most commonly triplexes and fourplexes)

Often have a house-like form, can be in stacked-unit (“flats”) or townhouse configurations.



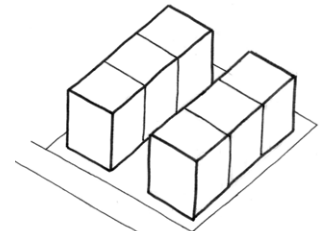
Cottage Clusters

Detached houses on a shared lot, often oriented around a common open space.



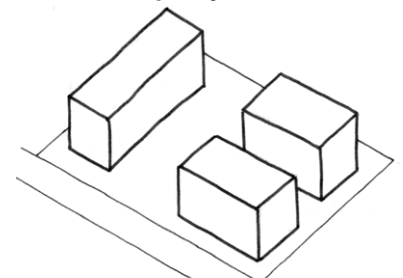
Courtyard Townhouses

Units similar to rowhouses, but feature a shared driveway and are often oriented around common open space, rather than to the street.



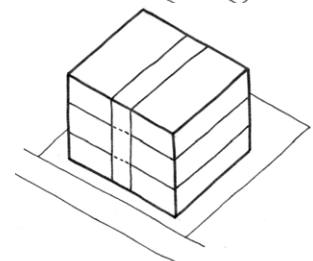
Apartment Complexes

Clusters of low-rise apartment buildings. Only possible on larger sites.



Block Apartment Buildings

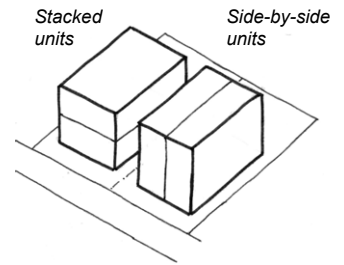
Multi-story apartment buildings with a shared main entrance and with stacked units accessed by interior corridors.



Other housing types, not classified as “multidwelling” housing, but commonly built in the multidwelling zones include:

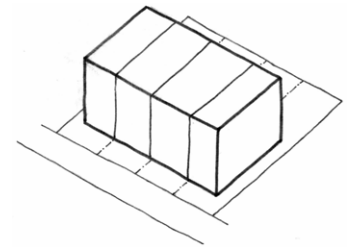
Duplexes

A two-unit structure on a shared lot. Two attached units on separate lots are classified as rowhouses.



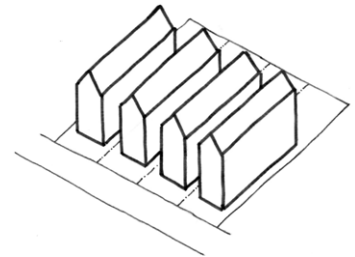
Rowhouses (also “attached houses”)

Attached units, each on a separate lot, and each with its own entry from a public street.



Narrow Lot Houses

Detached houses on narrow lots, with density similar to that of rowhouses (narrow lot houses are not a focus of the Infill Design Project, as their design has been the subject of the Bureau of Development Services’ “Living Smart” project and design competition).



PROJECT BACKGROUND

CHAPTER

3

Issues and Opportunities

- Design Guidance from Neighborhood Plans
- What Is Being Built?
- Contextual Issues
- Area Specific Patterns and Issues
 - Inner Neighborhoods
 - Outer East Portland
 - Southwest Portland
- Key Infill Design Issues
 - Issue 1: Street Frontages
 - Issue 2: Scale Contrasts
 - Issue 3: Housing Diversity
 - Issue 4: Regulatory Responsiveness



Multi-unit buildings especially should contribute to the street.

Provide an interesting building wall facing the street.

Plant street trees & planting strips.

Plant more generous landscaping in setbacks than required
-Use a variety of landscaping materials, including flowering plants.



An active building edge with windows, entries and balconies contributes to this streetscape.

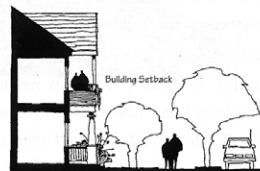
The wider the planting strip, the larger the type of tree that will thrive and the better the

The use of a fence or a change in level can be combined with landscaping to help distinguish between public and

STREETSCAPE



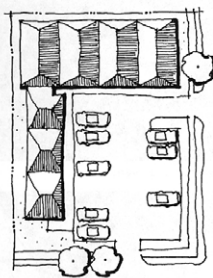
NO LAYERS, NO INDIVIDUAL ENTRIES



Parking lots and garages should not dominate the streetscape.

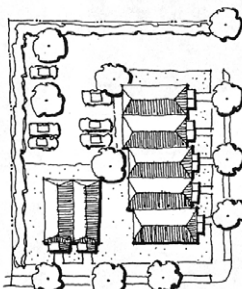
PARKING

- A narrow curb cut makes less of a visual impact on the street.
- Integrating landscaping into the parking area softens the effect of the expanse of paving.
- Group buildings around shared open space with a common access path to the parking in the back.
- Taller buildings, as opposed to bigger "footprints," preserve open space and allow more room for parking.



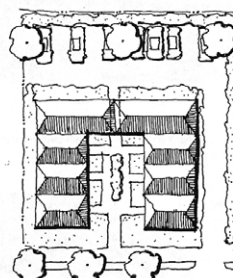
BAD

Avoid locating parking between the building and the street, especially at intersections.



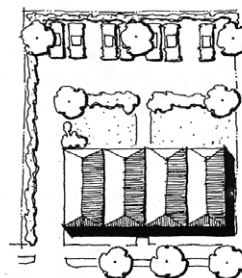
MUCH BETTER

Locate parking so that it isn't the dominant visual element: Buildings at the street edges.



EXCELLENT

Parking area should be visible from some dwelling units for casual surveillance.



EXCELLENT

Stacked units accommodate both parking and useable outdoor space on the site.

Pages from "Building Blocks for Outer Southeast Neighborhoods" (1996), intended to convey the community's vision for how multidwelling development can be designed to be a positive addition to neighborhood character.



New multidwelling development has not always contributed to meeting the community's vision.

Comprehensive Plan Goal 12. Urban Design

12.6 Preserve Neighborhoods

Preserve and support the qualities of individual neighborhoods that help to make them attractive places. Encourage neighborhoods to express their design values in neighborhood and community planning projects. Seek ways to respect and strengthen neighborhood values in new development projects that implement this Comprehensive Plan.

Objectives:

- A. Encourage new developments to respond to the positive qualities of the place where they are to be built and to enhance that place through their development...
- B. Respect the fabric of established neighborhoods when undertaking infill development projects.
- C. While accommodating increased density build on the attractive qualities that distinguish the area. Add new building types to established areas with care and respect for the context that past generations of builders have provided.

Comprehensive Plan Goal 12.6 highlights the importance of neighborhood context when considering the impact of infill development on the built environment of neighborhoods. Perceptions that new development is not serving as a positive contribution to the desired character of neighborhoods tend to be central to community concerns about the design of infill development. Very often, new development is seen as not continuing character-defining neighborhood patterns or as being “out-of-scale” with the neighborhood. This chapter will summarize issues related to the impact of new infill development, discuss factors shaping their design, and will present examples of recent projects that highlight potential solutions to common infill design problems. After a general summary of community design expectations and common contextual issues related to infill development, subsequent sections provide a more detailed focus on area-specific issues, followed by a focus on issues and opportunities related to four key topics: street frontages dominated by vehicle facilities, scale contrasts, housing diversity, and regulatory responsiveness.

Design Guidance from Neighborhood Plans

Virtually all neighborhood and community plans outside the Central City call for new infill development in established residential areas to be “compatible” with existing community character (see Appendix C for a compilation of relevant objectives from adopted neighborhood plans). The vagueness of the term “compatible,” and differing understandings of what this means, is often at the heart of community controversy regarding the design of infill development. This is particularly so in regard to multidwelling and rowhouse infill projects, which are usually larger in scale than existing single-family houses. A common public understanding is that compatibility means that infill development should be of similar scale to nearby houses. Replication of existing scale, however, is usually not possible with higher-density development, given the need to fit a greater number of units on a site. With higher-density development, a more realistic approach to achieving some measure of compatibility is that the design of infill projects should reflect, but not mimic, key character-giving traits of the surrounding neighborhood. Most plans, however, do not explicitly identify the community’s character giving traits or provide any guidance as to what future community character new development should help contribute toward. Also note that not all neighborhoods have adopted plans, significantly limiting their ability to convey their design aspirations.

A few neighborhood plans, including those for the Buckman, Centennial, Concordia, Creston Kenilworth, Hazelwood and Portsmouth neighborhoods, include more specific guidance in the form of voluntary design guidelines. Guidance regarding positive aspects of community character are also highlighted by two publications sponsored by the Bureau of Planning: *The 10 Essentials for North/Northeast Portland Housing* (1991), oriented to the Albina Community Plan area; and *Building Blocks for Outer Southeast Neighborhoods* (1996), applicable to the Outer Southeast Community Plan area. Feedback from neighborhood activists, as well as from developers, indicates that few private-sector developers utilize these voluntary guidelines, or are even aware of them. The guidance provided by these documents regarding infill design generally supports the principles outlined on Page 2 of this report.

Plans for inner neighborhoods generally call for new development to be integrated with the character of older (Pre-World War II) structures. Neighborhoods such as Buckman and Creston-Kenilworth that have significant amounts of infill apartment development from the 1960s through 1970s (described in these plans as “motel style”), call for these structures to be modified over time to be better integrated with the character of the neighborhoods’ pre-World War II architecture. Community plans for outer neighborhoods, such as those in Southwest and Outer East Portland, tend to place a greater emphasis on trees and other natural features, rather than architecture, as character-defining elements of the community.

What is being built?

The R2 zone is intended for residential development with densities between one unit per 2500 square feet of site area and one unit per 2000 square feet of site area (17 to 22 units per acre). Infill housing types typically consist of rowhouses (which are especially prevalent in close-in neighborhoods), plexes, and small apartment projects (typically 2 to 3 stories). Until minimum density standards were established in 2002, detached houses on separate lots were also one of the most common infill housing types in the R2 zone. Detached houses may again become common as an infill type due to recent *Zoning Code* amendments that now allow detached houses on small lots in the R2 zone at densities similar to those of rowhouses.

The R1 zone is intended for residential development with densities between one unit per 1450 square feet of site area and one unit per 1000 square feet of site area (30 to 43 units per acre). In the R1 zone, infill housing types typically consist of plexes and low-rise apartments (up to 4 stories), and, to some extent, rowhouses. The latter have become less prevalent in the R1 zone than in the R2 zone, as R1 minimum density requirements (as amended in 2002) now make rowhouse projects impractical except on corner locations and on large sites.

In an analysis of multidwelling projects built outside the Central City between 1997 and 2002, the majority of projects (57 percent) were found to be stand-alone plexes (primarily 3 to 4 units) on separate lots. Clusters of apartment buildings or townhouses were also common, constituting 28 percent of multidwelling projects. Stand-alone apartment buildings were 11 percent of new projects, while mixed-use (residential/commercial) projects were only 3 percent of multidwelling projects. These figures do not include rowhouses, of which over 1000 units were built between 1997 and 2002, and which constitute the primary owner-occupied medium density housing type in neighborhoods outside the Central City. Recently, increasing numbers of housing projects featuring multiple detached houses built on the same lot have been built, both as rental units and as owner-occupied condominiums. (See the “Housing Diversity” discussion, beginning on page 52, for more on housing types and associated issues.)

Contextual Issues

The following is a summary of common context-related infill design issues. More detailed discussion related to these issues is included in the “Area Specific Issues” section that follows, and in subsequent sections focusing on street frontage, scale contrasts, and housing diversity.

Existing housing. Most neighborhood areas zoned for medium-density development still have detached houses as the predominant building type. The predominance of detached houses defines much of the challenge of designing compatible higher-density infill development in ways that reflect neighborhood scale and patterns. Related to this, the *Zoning Code* purpose statement for the R2 zone, the predominant medium-density residential zone, states that this zone is intended for housing types that are “compatible with adjacent houses.” Regarding the higher density R1 zone, the *Comprehensive Plan* states that “The scale of development is intended to reflect the allowed densities while being compatible with nearby single-dwelling areas.” Achieving this compatibility is a key challenge of the Infill Design Project.

Height and scale contrasts. Many areas zoned for multidwelling development, especially outside the inner-most neighborhoods, are characterized by one and one-and-a-half story houses. New development is often two or three stories and is frequently perceived by neighbors as “towering” over older houses. The comparatively large size of medium-density infill development is due both to (1) the need to fit a greater number of housing units into a relatively small amount of site area – thus the need to stack living space on multiple floors, and (2) contemporary preferences for larger housing units. Many pre-World War II multidwelling housing types, such as courtyard apartments, were often one-story structures, but these usually consisted of small studio or one-bedroom units of 600 square feet or less. Scale differences between existing lower-density existing housing and higher-density infill housing are thus a key issue.

Neighborhood patterns. Basic neighborhood patterns, such as houses on 50’-wide lots in inner neighborhoods, and the predominance of trees and other vegetation in outer neighborhoods, are often key character-giving elements that define the “feel” of neighborhoods. While it is possible to use site design and arrange building volumes in ways that allow higher-density development to reflect established neighborhood patterns, these design strategies are usually not used in new rowhouse and multidwelling development, which often appear as interruptions to the fine-grain patterns of surrounding neighborhoods. Another neighborhood pattern issue is that builders often use the same housing types on main streets and major arterials as they do for residential side streets, when the desired character for these streets differs (e.g., main streets are intended to have a more urban environment defined by a relatively continuous streetwall of buildings, while residential streets have a more fine-grained and greener character defined by smaller building masses and landscaping).

Interruption of neighborhood landscaped setback patterns by vehicle facilities. Most neighborhood residential streets in Portland are characterized by landscaped setbacks between the fronts of buildings and sidewalks. This front setback landscaping provides residential streets with a clearly-identifiable character that serves as a counterpoint to the “hardscape” of commercial main streets. New rowhouse and multidwelling development is often characterized by front garages and setbacks dominated by paved driveways. This interrupts the character-defining landscaped setbacks of neighborhoods and limits opportunities for trees and other vegetation that would otherwise help integrate new development with the surrounding community.

Privacy impacts. New development is often not designed to minimize negative impacts on the privacy of neighboring properties. Because most infill projects use “off-the-shelf” building plans that are not designed for the specific site, balconies and windows are often situated in ways that compromise the privacy of adjacent properties, even when opportunities exist for relatively minor adjustments to the design of windows and balconies that can minimize privacy impacts.

Other context related issues include concerns about impacts to the solar access of adjacent properties and concerns that the design of infill projects often does not take advantage of the natural attributes of their sites, such as solar orientation, unbuilt areas, and the amenity value of existing trees. Architects relate that a basic problem is that most medium-density projects are not designed by architects and thus do not benefit from architects' expertise in providing site-specific solutions to the complex issues related to the built environment and context. Many neighborhood activists would like greater opportunities to provide input regarding the design of higher-density infill development, in large part due to concerns about site-specific issues.

Other frequently-cited infill design issues include:

- **Lack of usable outdoor space.** Multidwelling projects often do not include usable outdoor space, other than small patios or balconies. Unbuilt areas are often dominated by surface parking and driveways, with other open areas frequently only in the form of unusable slivers of landscaping. The lack of usable open space and play areas is exacerbated in Outer East neighborhoods by the relatively large numbers of families with children living in apartments and by the scarcity of conveniently-located public parks. While earlier examples of multidwelling projects were often oriented around a shared open space or courtyard, more recent development is frequently oriented around surface parking lots. Some community members also cite the valuable role of shared open space in cultivating a sense of community.
- **Loss of existing trees.** Tree preservation is not required for multidwelling development. Some developers clear a site of trees before applying for building permits, which prevents City staff or community members from suggesting strategies that might allow trees to be preserved.
- **Poor quality details.** This final category relates to community concerns about more detailed aspects of new multidwelling projects. Common concerns are that multidwelling projects often use materials, such as T1-11 or vinyl siding, that do not present the appearance of durability, or lack façade details and articulation that can provide more visual interest and human scale.



“The devil’s in the details.” Contrasting images, of similarly-configured apartment developments, highlighting the difference that details such as façade articulation, materials, window treatments, roof forms, and trim can make. A challenge is finding ways to achieve quality design in ways that are affordable.

Area Specific Patterns and Issues

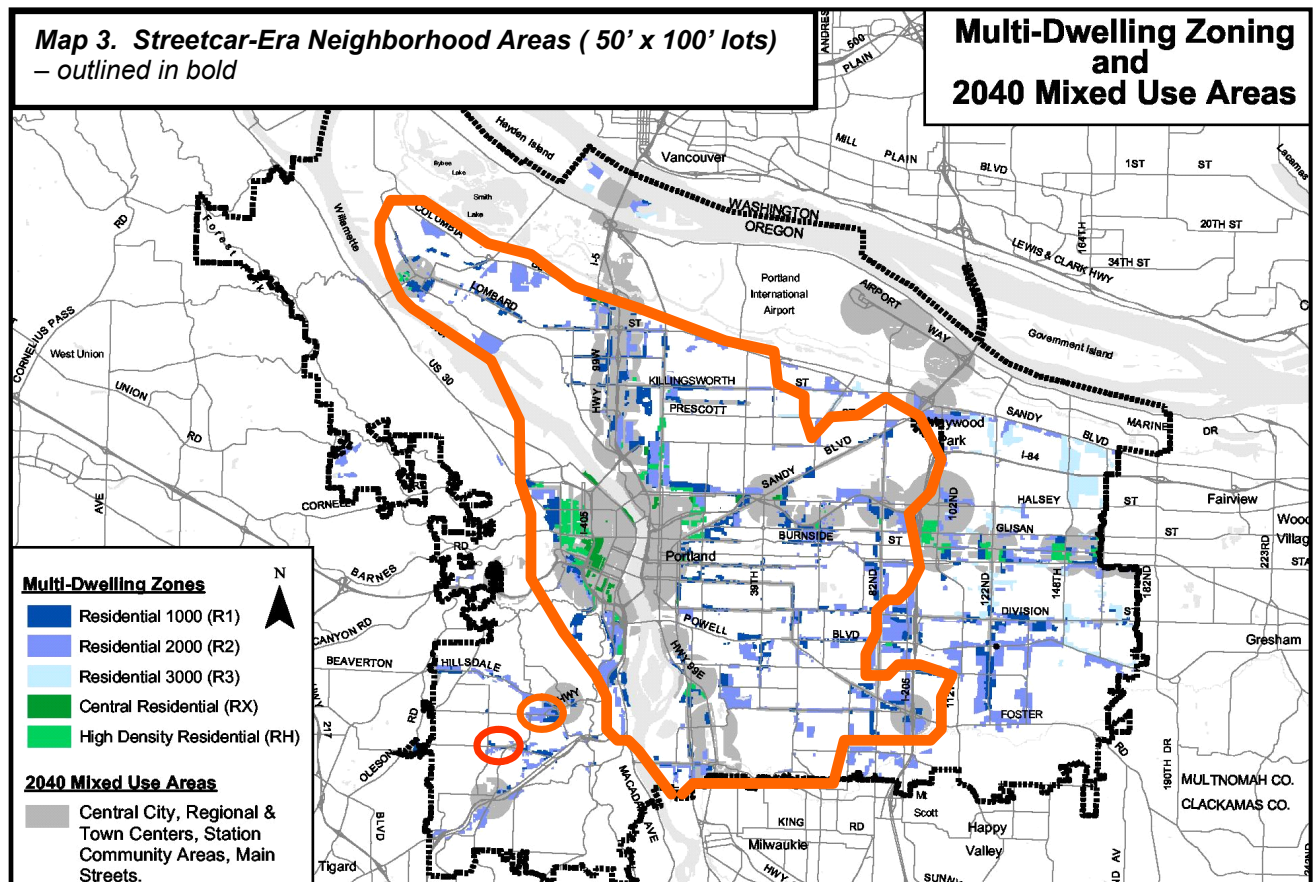
Inner Neighborhoods

Close-in neighborhoods, whether in the southeast, northeast, north, northwest, or southwest areas of Portland share a common platting pattern that dates from their Streetcar Era origins (see area outlined in Map 3, below). Most of the lots in these neighborhoods are approximately 50' wide by 100' deep. Infill opportunity sites are usually in increments of these dimensions, with 5000 square foot and 10,000 square foot sites being especially common. While the small size of infill opportunity sites facilitate continuation of neighborhoods' fine-grain development patterns, they also present significant design challenges for higher-density development, particularly regarding the need to fit multiple housing units together with vehicle facilities on sites as small as 50' wide.



The inner neighborhood pattern: houses on 50'-wide lots, with landscaped setbacks and planting strips.

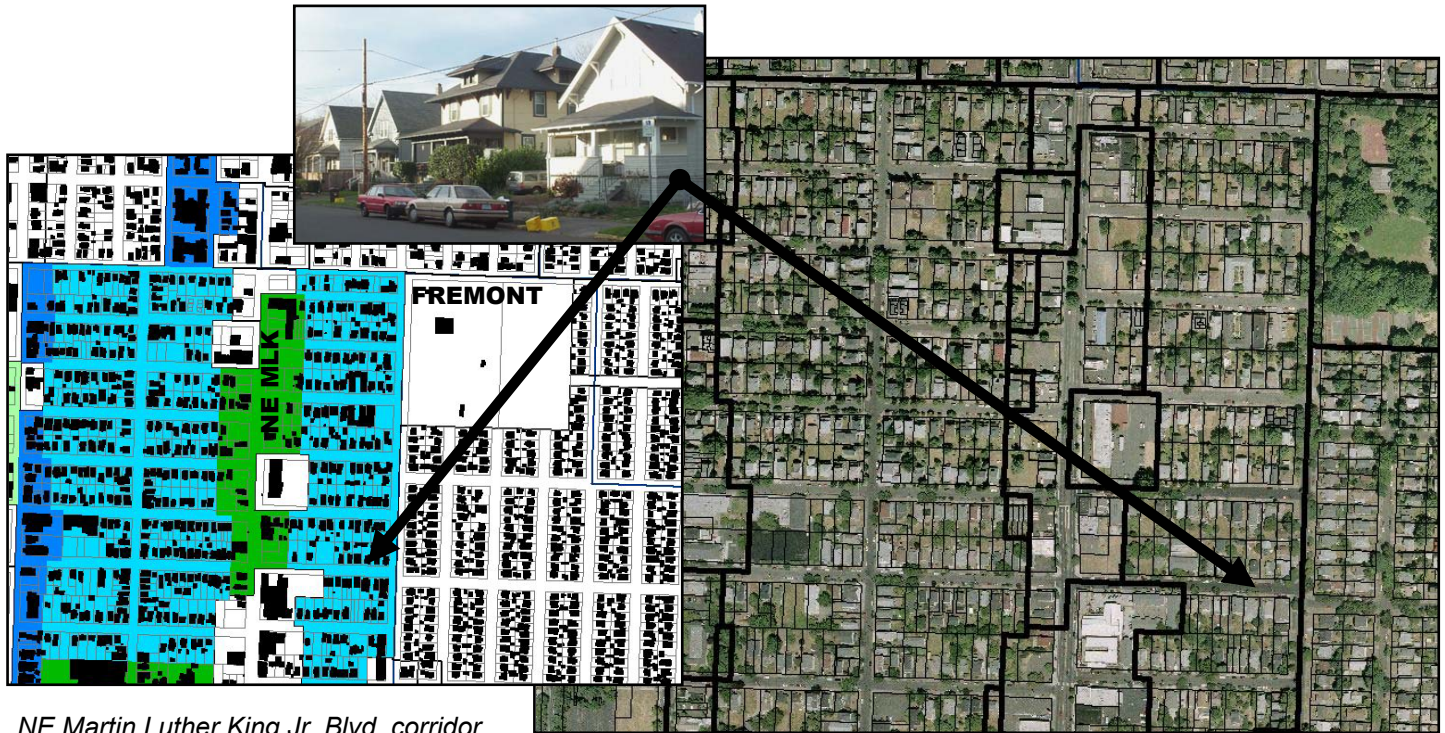
Detached houses remain the predominant building type in most areas zoned R2 and R1, even in the Northwest District, Portland's highest-density neighborhood. An issue regarding infill rowhouse projects is that their combined facades often present a continuous street wall that interrupts the established development pattern defined by houses on 50'-wide lots. In the older, most central neighborhoods, the existing housing stock includes many 2- to 2½-story Victorian-era and early-twentieth century houses, whose relatively large size facilitates the integration of higher-density infill development. Integrating higher-density development has proven more difficult in other neighborhoods, where, successively, low-lying 1- to 1½-story bungalows, Cape Cods, and ranch houses are increasingly common further out from the inner-most neighborhoods (see "Scale Contrasts" discussion, page 47).



Examples of Inner Neighborhood Contexts

Note: Light shading on maps indicates R2 zoning, while darker shading indicates R1 zoning.

The following maps and aerial views highlight how the R2 and R1 multidwelling zones are overlaid over neighborhood areas where detached houses on 50'-wide lots predominate. The existing urban fabric within these multidwelling-zoned areas is therefore often a seamless continuation of patterns found within surrounding areas zoned for single-dwelling development.



NE Martin Luther King Jr. Blvd. corridor



NE Killingsworth area, east of MLK

These additional maps highlight how multidwelling zoning is often located along transit corridors or adjacent to mixed-use centers and transit stations. Lot patterns and existing housing in these multidwelling-zoned areas nevertheless continue the fine-grain development patterns established by the 50'-wide lots of the surrounding neighborhoods. Also note that multidwelling zoning along transit corridors is often only one lot deep. As a result, the rear portions of multidwelling-zoned lots often abut lots with lower-density, single-dwelling zoning; which can bring contrasts in building scale that are often a contentious neighborhood issue.

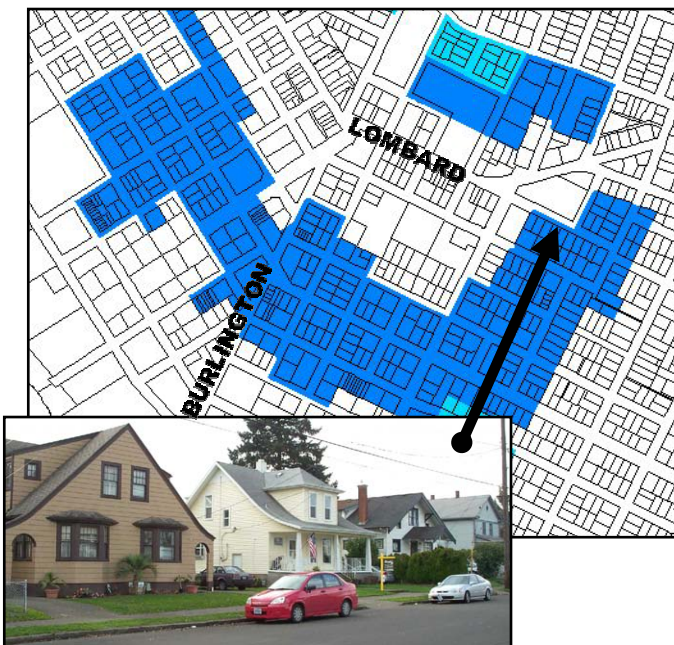


Corridors in North and Northeast Portland



60th Avenue light rail station area

St. Johns town center

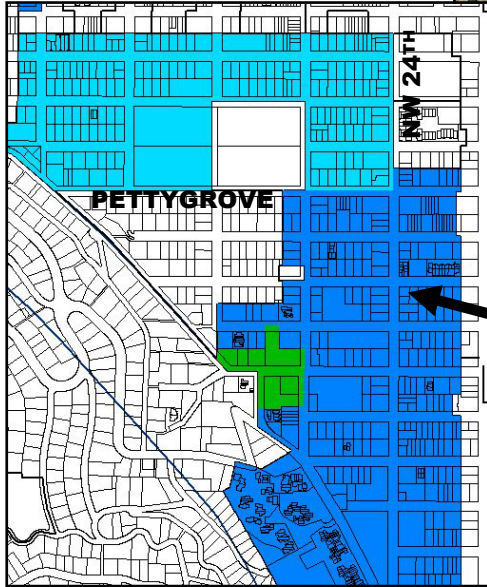


SE Foster corridor



ISSUES AND OPPORTUNITIES

R2 and R1 zoned areas in the Northwest District, Portland's highest-density neighborhood. Even here, the pattern established by the original platting of 50'-wide lots predominates.

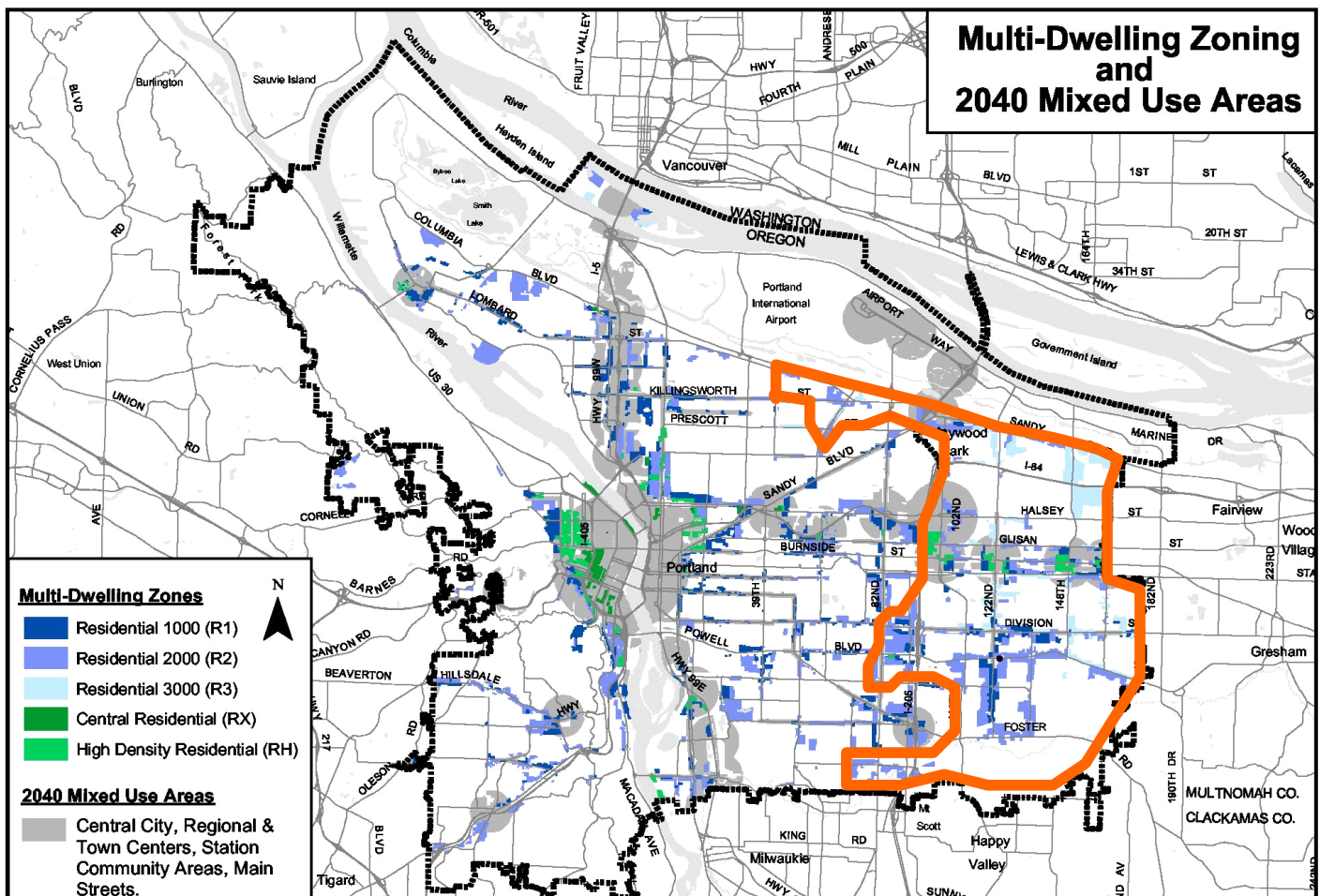


The Johns Landing area of Southwest Portland, showing the contrast between rowhouse infill projects and the established neighborhood pattern.



Outer East Portland

The outer east areas of Portland (generally located east of I-205) are characterized by lot and block patterns very different from those found in the inner neighborhoods. In Outer East Portland, multidwelling-zoned lots are typically far deeper than the 100' deep lots common in the inner neighborhoods. Lots in Outer East are often 200' to 300' feet deep, but only 70' to 90' wide (Map 4, below, outlines in red areas where narrow, deep lots predominate). Higher-density housing configurations common in inner neighborhoods are often not possible on typical Outer East sites. The strong street orientation facilitated by the inner neighborhoods' relatively shallow lots is difficult to replicate on Outer East's narrow, deep lots, where often only a small proportion of units can be oriented to the street. A challenge for Outer East areas is to identify higher-density housing types appropriate to the area's lot configurations that can contribute to a future transit- and pedestrian-oriented urban environment. This challenge is compounded by the fact that multidwelling zoning in Outer East tends to be located along multi-lane arterial streets, where post-World War II development has tended to be auto-oriented in form, with few precedents for creation of a more transit- and pedestrian-oriented future. An additional issue in Outer East is that existing densities are typically far lower than allowed densities (in some multidwelling-zoned areas, single houses on half-acre lots are common), presenting challenges to achieving compatibility with higher-density infill development. This is further complicated by the predominance of one-story bungalows, Cape Cods, and ranch houses.



Map 4. Outer East Areas Characterized by Narrow, Deep Lots – outlined in bold (applies primarily to areas with multidwelling zoning)

Outer East Portland

These images highlight how higher density development has been transforming the SE 122nd Avenue corridor (south of Powell Boulevard), which has large concentrations of R1 and R2 zoning. Until recently, this area was largely semi-rural in character.

Rural identity, urban future

Windmill lawn ornament along SE 122nd Avenue, with new apartment buildings in background.



Left image: houses on 90'-wide by 220'-deep lots along SE 122nd Avenue, where R1 zoning is intended to lead to a more urban future with transit-supportive densities. Each lot is zoned for 14 to 20 units. SE 122nd is a multi-lane arterial with transit service, but lacks sidewalks. Inset image is an early 20th-century house, also in the R1 zone along 122nd Avenue, on a lot zoned for 8 units.



Recent multidwelling development along SE 122nd Avenue. While they provide transit-supportive density, their design falls short of community objectives for design that contributes to a pedestrian-oriented environment. A challenge in Outer East Portland is to find ways to cultivate infill development that, while clearly a departure from the area's semi-rural character, can serve as a positive contribution to the character of the community.



R2-zoned area in the Powellhurst-Gilbert neighborhood (recent infill projects outlined in red)

The above images highlight some of the challenges unique to Outer East Portland. The pictured area (between SE 82nd and I-205, between SE Division and SE Powell in the Powellhurst-Gilbert neighborhood) is located within one of the largest areas in Portland zoned for medium-density development. Properties here are typically 95' wide by 180' deep. Narrow, deep sites such as this do not lend themselves to owner-occupied housing types requiring street-fronting lots. A site of similar width in the R2 zone in an inner neighborhood typically results in four to five rowhouses. In contrast, sites such as this in Outer East must have 7 to 8 units in order to meet minimum density requirements, which is not possible with conventional street-oriented rowhouses. As a result, recent development in this area has tended to consist of rental plexes (in the aerial image, recently-developed sites are outlined in bold). A recently-adopted *Zoning Code* provision that provides an opportunity for owner-occupied housing configurations for such sites is the “common green” provision, which allows lots to be created that front onto a pedestrian access tract, instead of the usual requirement for street frontage (*see Issue 3 discussion*). However, because it is a new provision, few developers are aware of the opportunities provided by this configuration.

Another key challenge for such areas is how to achieve some measure of compatibility with existing houses, given that infill projects with 7 to 8 units are necessarily of very different scale than the existing small cottages on nearly half-acre lots that characterize the area. A concern raised by staff of the East Portland Neighborhood Office is that, because of the great contrast between existing and allowed densities, the medium-density multidwelling zones in Outer East are serving as “redevelopment” zones, rather than as “infill” zones. They indicate that, in contrast to close-in neighborhoods, where development in the R2 zone has typically been on vacant sites (because of the relatively small difference in existing versus allowed densities, largely leaving existing housing and established neighborhood character intact); such zoning in Outer East is leading to widespread redevelopment that appears likely to eventually leave little of these areas’ original character.

ISSUES AND OPPORTUNITIES

The images, below, highlight the still semi-rural character of some areas in Outer East that are zoned for multidwelling development and the lack of complete public facilities, such as sidewalks. The existing low densities make continuation of existing neighborhood character a challenge. The great contrast between existing and allowed densities suggests that a desire *future* character, rather than existing neighborhood character, would be a more useful guide for such areas. However, City planning documents lack clear guidance as to what a desired future character might be for such areas that reflects the zoned densities and typical lot configurations.



Views of R2-zoned area in the Powellhust-Gilbert neighborhood. The site with the bungalow, in the lower-right image, is zoned to allow 16 units.



Views of R1 and RH -zoned areas in the 148th Avenue light rail station community. Lots, currently occupied primarily by single houses, are typically 70' wide by 300' deep and are zoned for 21 units or more units.



Examples of Outer East apartment developments, with typical barracks-like massing (similar to the inset image from Building Blocks for Outer Southeast Neighborhoods intended to highlight what should be avoided in the design of multidwelling projects). The narrow, deep lots of Outer East Portland tend to lend themselves to such arrangements.

Other Outer East Issues

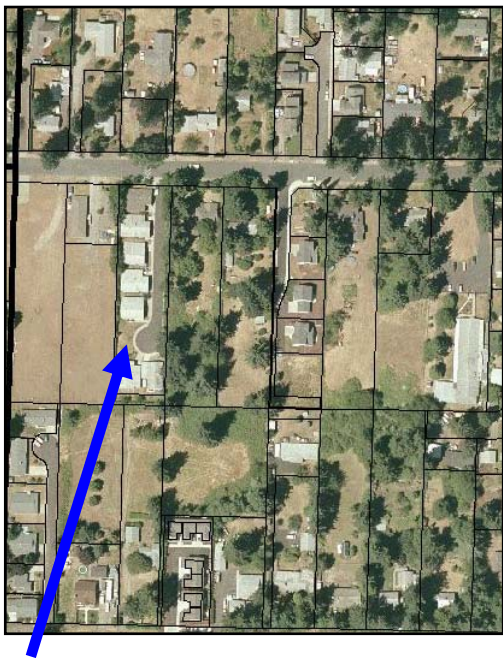
- Substandard street infrastructure.** The existing street infrastructure, which often lacks sidewalks or is characterized by a very auto-oriented environment of multiple traffic lanes and few crosswalks, does not encourage developers to place a premium on pedestrian-oriented design in which buildings are oriented to the street. Some developers have indicated that creating an attractive street environment, or at least one that has basic elements such as sidewalks and street trees, could serve as a catalyst that would encourage developers to use design that acknowledges the amenity value of public streets. In addition, some neighbors relate that they find the lack of sidewalks acceptable as long as streets primarily serve single-family homes, but feel that higher-density infill development creates a need for a comprehensive sidewalk system due to increased traffic and greater numbers of pedestrians. While sidewalk improvements are usually required at the property frontages of new development, some neighbors do not feel that the resulting pattern of scattered sidewalk improvements is acceptable because this does not create a continuous system. Similar issues regarding substandard streets are significant neighborhood concerns in Southwest Portland.
- Required density and market demand.** Many multidwelling infill projects in Outer East do not meet the City's density goals. Some developers relate that the housing market in Outer East does not support the required densities. They indicate that the housing products desired by buyers and renters, such as townhouse units and detached houses, are often not practical at the required densities, especially those of the R1 and RH zones. Developers frequently retain an existing house on a site in order to avoid minimum density requirements. An increasingly



Unimproved street in the Powellhurst Gilbert neighborhood. Right side is zoned R1, left side is zoned R2.



Townhouse infill, in the backyard of a pre-existing house. Neighborhood perspectives on such configurations are mixed. Some see it as preserving the existing neighborhood streetscape. Others feel it represents a missed opportunity, in not contributing to a more urbane environment, while compromising the privacy of neighboring properties' backyards.



Infill project with 7 detached houses on a 100'-wide by 400'-deep lot, whose R2 zoning is intended for 16 to 20 units.

popular housing form is multiple detached houses on a single lot, either condominiums or rentals. These detached house clusters are more feasible at densities (some cite 1 unit per 3000 square feet) somewhat lower than what is required in the R2 and R1 zones. The narrow and deep dimensions of the area's lots compound the challenge of meeting the City's density goals. The City originally assumed new higher-density development would primarily involve aggregated lots, which would better accommodate the intended densities. Parcelized ownership patterns, however, have meant that infill opportunity sites often consist only of single lots.

- **Low-income households.** Many private-sector developers of multidwelling projects in Outer East indicate that their target market is lower-income families who desire relatively affordable new housing. Some of these developers relate that many of the new tenants are families from close-in North and Northeast Portland neighborhoods who could no longer afford the rising rents in those areas. Some community members feel that this trend, combined with the large amount of multidwelling zoning in Outer East, may result in a concentration of poverty in this part of the city.
- **Families and large unit size.** Some Outer East developers indicate that the area has a glut of 1- and 2- bedroom apartments. Because of this, and in response to the many families seeking new housing, new rental apartment projects often include units with greater numbers of bedrooms. The correspondingly larger unit size accentuates the scale contrasts between new multidwelling infill development and existing houses.
- **Long-term viability.** Some community members are concerned about the long-term viability of projects that are built with materials such as T1-11 or vinyl siding, have no substantial open space amenities, and do not contribute to a desirable neighborhood character. Some ask, "While a selling point now is that they are new housing, what happens when they are deteriorating 20 years from now and have nothing else going for them? What happens to the neighborhood?" Some in Outer East are concerned about the potential for a

future similar to Gresham's nearby Rockwood neighborhood, whose concentration of poor-quality apartments has resulted in corresponding concentrations of poverty and crime.

- **Loss of trees.** A character-defining aspect of Outer East are the groves of trees, often native Douglas Fir, on the area's large lots. Community members are concerned about the practice of some developers of clearing sites of trees in preparation for development, sometimes in advance of obtaining building permits. The City's tree preservation requirements do not apply to multidwelling projects that do not involve land divisions.

For additional perspective on Outer East issues, see also the *Outer Southeast Livable Infill Project* report (Appendix I), undertaken by a Portland State University workshop group, which helped inform this section of the *Infill Design Project Report*.

Southwest Portland

Streetcar-Era neighborhood areas in Southwest Portland (see Map 3), such as Corbett-Terwilliger-Lair Hill and (to a lesser extent) the Hillsdale town center and Multnomah Village, share lot patterns and contexts in common with other inner neighborhoods, as described previously. Outside these areas, Southwest Portland has relatively little multidwelling zoning, most of which is located along the Beaverton-Hillsdale Highway and along Barbur Boulevard. These corridors, which are characterized by relatively large lots of irregular size, have experienced relatively little infill development in recent years. Sloped sites and environmental zones in some of these areas bring unique topographical challenges to multidwelling development, but greater regulatory flexibility is provided for sites in environmental zones by exemptions to the minimum density requirements that normally apply to multidwelling zones. As in some Outer East areas, a salient issue in Southwest Portland is that some areas zoned for medium-density development lack improved streets and sidewalks.

Area Specific Issues – General

A general recommendation by Infill Design Advisory Group members was that the City needs to better convey to developers, as well as to the general public, a hierarchy of design principles for centers, main streets, and residential side streets. Currently, few builders have much awareness of the community’s aspirations for these types of places, or how they are intended to differ from each other. Also, advisory group members suggest that the City needs to help counteract the prevalent “one-size-fits-all” approach to infill design by emphasizing how design responses should differ for infill projects in Streetcar-Era neighborhoods with urban street grids, versus design on curvilinear streets in Southwest Portland and in other areas where a greener neighborhood character predominates and is valued (one suggestion was development of a street and urban area typology, identifying what building types and design responses are appropriate for each).

The following pages discuss infill design issues that are a key focus of the Infill Design Project. They provide background for the staff recommendations outlined in Chapter 4.

Issue 1:	Street Frontages Dominated by Vehicle Facilities
Issue 2:	Scale Contrasts
Issue 3:	Housing Diversity
Issue 4:	Regulatory Responsiveness



Above: Most neighborhood residential areas are characterized by landscaped setbacks, such as this R1-zoned street in North Portland.

Below: Recent rowhouse, plex, and apartment projects with frontages dominated by vehicle facilities.



Issue 1: Street Frontages Dominated by Vehicle Facilities

A key issue regarding the design of infill development is that the street frontages of new rowhouse and multidwelling projects are often dominated by vehicle facilities, such as driveways, garages, and parking areas. The impacts of such facilities are wide ranging. Street frontage dominated by vehicle facilities can:

- Interrupt neighborhood patterns, such as landscaped setbacks and street-oriented facades;
- Cause the loss of on-street parking;
- Prevent opportunities for street trees; and
- When garages occupy building frontage, this can compromise neighborhood security by limiting the ability of residents to view the street (the “eyes-on-the-street” concept of passive surveillance).

Other impacts of vehicle facilities are related to the large proportion of site area, particularly on small sites, sometimes devoted to driveways and other vehicle areas. Impacts of this include:

- Increased stormwater runoff;
- Contribution to urban heat island effects; and
- Inefficient use of site area, as the driveways of small multidwelling projects only serve their intended purpose for a few minutes of each day when cars pass over them. Some have suggested that site area now typically devoted to driveways needs to be used for additional purposes, such as including additional building area or decks above driveways, or by designing driveways to be multifunctional, perhaps even as additional recreation space for residents.

Reasons

Auto Age infill in Streetcar Era neighborhoods. Designing the vehicle facilities of new medium-density infill housing to be visually unobtrusive and to respect neighborhood patterns are challenging because of two basic reasons:

1. The existing Streetcar-Era housing that defines the character of many neighborhoods typically include only minimal parking facilities, often in the form of small garages at the rear of properties, or has no off-street parking at all. In contrast, parking facilities and garages figure prominently in new housing because of today’s high rates of automobile ownership and builders’ perceptions of demand for off-street parking and garages (which are also valued for the storage space that basements once provided).
2. While adjacent properties with detached houses may each provide parking for only a single household’s vehicles, a medium-density infill development must accommodate parking for multiple households.

It can be especially problematic to locate parking in ways that are visually unobtrusive on the small 50’-wide sites

that are common in inner neighborhoods, particularly in the R1 zone, where three to five units are required for new development on such sites. Fitting parking onto small sites zoned for higher-density development often results in plexes similar to those illustrated on the previous page. Not surprisingly, architects relate that the most difficult aspect of designing infill development for small sites is how to fit in the parking. As one architect put it, “parking is 80 percent of the design problem.”

Builders. It is usually possible to minimize the prominence of parking by locating it toward the rear of sites. However, from the perspective of many builders, the front is the most rational place to locate parking. Reasons include the following:

- Locating parking in the front can preserve rear yard area as private outdoor space (for rowhouses, builders indicate that buyer demand for private backyard space, rather than cost, is the main reason they do not use rear parking arrangements more often);
- Rear parking access for rowhouses complicates property arrangements and ownership issues, since this requires an access easement (or, for larger projects, a separate tract) and creates a common property element with attendant maintenance complications (in contrast, the more typical rowhouse arrangement with front garages, each with its own driveway, avoids the need for an access easement, simplifying property arrangements).
- Front parking minimizes the amount of driveway paving and attendant costs, compared to rear parking arrangements.
- For apartment complexes, locating surface parking at the front and center of the site minimizes the distance residents need to walk between their cars and their units.
- Small infill sites often leave little room to locate driveways alongside buildings to access rear parking.
- Even when alleys exist, alley access is often not practical because alleys are often not improved and the costs of improving them to City standards can be prohibitive.

Many builders, especially those building in Outer East, indicate that ample off-street parking (more than one space per unit) is one of the most highly prized amenities for residents. Some builders indicate that they sacrifice potential open space, and sometimes even additional units, because of this demand for parking. In close-in neighborhoods, however, some builders are finding that projects with little or no off-street parking, are proving financially successful. They credit this to convenient transit service and to a niche of buyers who are attracted to the pedestrian-friendly nature of close-in neighborhoods. Developers and designers also give credit to the City’s recent relaxation of parking requirements for providing new opportunities for projects that are not auto-centric in their design.

Regulations. Several *Zoning Code* development standards discourage front parking configurations. Among these are standards preventing detached and attached houses, as well as duplexes, from having garages that extend in front of living areas and that limit the amount of garage frontage. Front parking is also limited for multidwelling development along transit streets and in pedestrian districts. For multidwelling projects that do not directly front transit streets and are not in pedestrian districts, however, there are no limits on front parking. This allows the common garage- and parking-dominated triplexes shown on the previous page. While these projects are not located directly on transit streets, they are located in multidwelling-zoned areas near transit facilities that are intended to become transit- and pedestrian-oriented places.

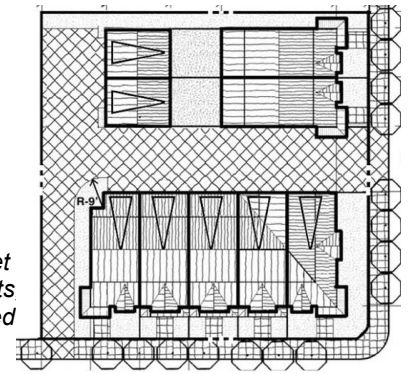


Triplex designed to meet transit street requirements, with parking at rear

Despite the emphasis of many *Zoning Code* development standards on limiting the prominence of vehicle areas, other City regulations have the unintended effect of encouraging prominent vehicle facilities. Land division requirements for alley tracts for rowhouses with rear parking, in combination with minimum lot size requirements and building coverage limits, sometime require

multiple code adjustments (particularly at higher densities), unintentionally favoring rowhouses with front garages. Developers and designers have identified Title 17 (*Public Improvements*) driveway requirements as resulting in overly-wide driveway widths for small multidwelling projects, which also makes it difficult to provide driveway access to rear parking.

Rear-accessed rowhouses at R1 densities fail to meet minimum lot requirements and building coverage limits due to site area devoted to alley tract. Front-accessed rowhouses have no such regulatory hurdles.



Related Issue: Rowhouses – Tradeoffs between Rear Parking and Open Space

The following highlights tradeoffs between front and rear parking arrangements for rowhouses. Note that a lot depth of 120' is typically needed to provide space for a rear driveway, detached garage, and backyard. The 100'-deep lots typical in Portland tend to preclude anything but a residual backyard (no more than 10' deep) when a rear driveway and garages are included.



Rowhouses with Rear Parking

Positives

- Good relationship to the street
- Preserves on-street parking
- Maximizes potential for front landscaping (and continuation of neighborhood landscaped setback patterns)
- Allows ground floor living space and good entrance arrangements (no need for tall stairways or narrow entrance corridors)
- Facilitates two-story height (no need to stack living spaces above garages)

Negatives

- Little opportunity for usable rear yard space
- Greater amount of paved area required for rear driveway
- Somewhat more expensive (one developer of a four-unit project cited an additional cost of \$4000, compared to a front parking arrangement).

Rowhouses with Front Parking

Positives

- Allows private backyards and a greater proportion of site area can be landscaped
- Less impervious surface, compared to rear parking configuration

Negatives

- Compromised relationship to the street, with ground level dominated by garage doors
- Loss of on-street parking
- Front setbacks dominated by driveway paving
- Interrupts neighborhood patterns of landscaped setbacks
- Stacking living space above garages sometimes results in taller building height, bringing scale contrasts with surrounding houses and greater impacts to the privacy of neighbors.

A lot depth of 120' allows for rear parking as well as backyard space, as shown in this example in Outer East Portland. The resulting larger lot sizes however, fail to meet R2 minimum density requirements.



Related Issue: Driveway Standards (Title 17)

Designers and developers relate that Title 17 driveway standards sometime function at cross-purposes to City goals for minimizing the prominence of vehicle facilities. The primary issue is that Title 17 requires a minimum driveway width of 20' for all multidwelling projects on sites wider than 50' (only 10' is required for sites less than 50' wide). This same 20' dimension, intended to allow for pass-by traffic, applies to a fourplex as well as to a 200-unit project, despite their very different traffic generation characteristics (note that small apartment projects are also subject to the same standards as convenience stores and supermarkets, as these are all classified as "Commercial" projects). Designers and developers relate that these standards unnecessarily complicate development on small sites. They suggest that small apartment projects should not be designed around the rare occurrence of cars needing to pass each other (note that the two 10' travel lanes required for a fourplex are wider than the 9' lanes found on SE Hawthorne Boulevard).

While a 20'-wide driveway occupies relatively little of the total frontage on a large site, the same driveway width on a small site (such as the 60'-wide lots common in some areas in Outer East) results in a large portion of street frontage devoted to driveway area, counter to City objectives for pedestrian-oriented design. Other issues related to these driveway standards and the resulting predominance of paved driveway area include:

- Loss of opportunities for landscaping that could provide better contextual response to context (some community members characterize the typical results as "barracks-on-asphalt");
- Loss of site area that could be used for usable outdoor space or for additional street-oriented building area;
- Disincentive to rear parking arrangements, because of the amount of pavement and site area needed to provide driveway access; and
- Environmental impacts that run counter to City objectives calling for minimization of stormwater impacts and urban heat island effects.



8 unit project along Powell Boulevard with minimum required 20'-wide driveway



Infill project in the R1 zone in the Gateway Plan District. This six-unit project does not exceed the minimum required driveway width of 20'. In conjunction with the required 5'-wide walkway and surface parking, this nevertheless results in most of the site being devoted to impervious surfaces.



ISSUES AND OPPORTUNITIES

Developers indicate that they would build narrower driveways if City standards clearly allowed this. While Title 17 allows applicants to petition for narrower driveway widths than are normally required, many developers indicate that they do not take advantage of this because of the uncertain outcome.

In conjunction with the Infill Design Project, Office of Transportation staff are currently considering the possibility of amending Title 17 to differentiate small multidwelling projects from other Commercial projects. One possibility discussed is the application of a minimum driveway width of 10' for multidwelling projects with no more than 10 parking spaces, when access is from streets with low traffic volumes.

To provide additional perspective, the following is a summary of narrow driveway standards in other cities as they apply to multidwelling development:

Seattle: 10' minimum driveway width for multidwelling projects (also, Seattle generally allows only one driveway per site in multidwelling zones. Rowhouses must be served either from an existing alley or from a shared driveway. This prevents the multiple garage and curb cut arrangement common in Portland.). Examples:



10.5' driveway serving 4 townhouse units



11' driveway serving 4 townhouse units

Note: Townhouse clusters (shown above), typically featuring 4 units on sites 50-60 feet wide, have become a common infill housing type in Seattle (with 1000 to 1500 such units being built yearly). They feature two units facing the street and two units behind, with driveway access to garages that open onto a central auto court. The narrow driveway widths allow the driveways to be visually unobtrusive and allow for more efficient use of the limited site area.



10.5' driveway serving 8 townhouse units



14' driveway, to basement parking, serving 12 townhouse units

Driveway Standards in Other Western Cities

Los Angeles: 10' minimum driveway width for up to 24 parking spaces

Pasadena: 8' minimum driveway width for up to 9 parking spaces
10' minimum driveway width for up to 25 parking spaces

Red Bluff (CA): 15' minimum driveway width

Berkeley: 20' maximum width (no minimum width specified)

Honolulu: 12' minimum driveway width

Anchorage: 14' minimum driveway width

Boulder: 10' minimum driveway width

Also note that the following reference, *Parking Spaces: A Design, Implementation and Use Manual for Architects, Planners, and Engineers* (1999), recommends a maximum width of 12' for residential driveways serving 2 to 10 cars.

Seattle duplex cluster with “shared driveway” – another Seattle example that provides lessons for Portland. Features a 12'-wide driveway providing access to six units for both cars and pedestrians. Shared use of space minimizes amount of impervious surface and makes efficient use of limited site area, while paving blocks signal that it is intended for pedestrians as well as cars. For this configuration to be allowed in Portland, Title 17 driveway width requirements would need to be reduced and the Zoning Code would need to be amended to allow alternatives to grade-separated walkways.



Issue 1: Street Frontages Solutions

The following are examples of recent infill projects that illustrate alternative strategies for minimizing the prominence of vehicle facilities.



Rowhouses with rear-accessed parking, highlighting how this allows for continuation of the surrounding neighborhood's pattern of landscaped setbacks.

Rowhouses with clearly contemporary design, whose preservation of landscaped setbacks (afforded by rear parking) achieves a more meaningful contextual response than is provided by the rowhouses in the inset image, despite the latter's more traditional gabled roofs.



This paired rowhouse project, with only 50 feet of street frontage, illustrates that rear parking can be achieved on even the smallest sites. Note, however, that this results in most of the backyard being paved. The designer of these rowhouses indicated that it was somewhat more expensive to do rear parking, but that it did not significantly impact the affordability of the project.

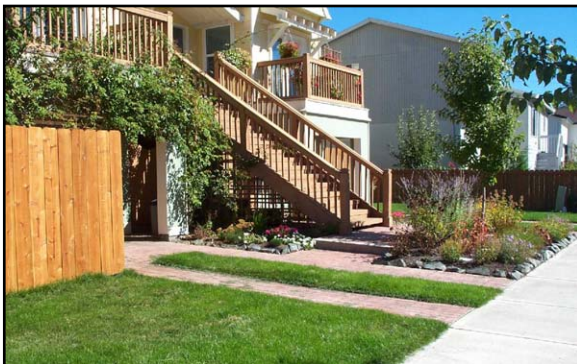
Paired rowhouses with parking pads. This configuration allows avoidance of the impacts of street-facing garage doors, while preserving backyard space, leaving room for a sizable landscaped front setback, and reducing construction costs.



Some designers note that current City requirements for rowhouse driveways to be paired result in design that has pavement as the central design feature (as in upper image to left), and that this prevents configurations in which landscaping is central (as in lower image to left). PDOT staff, however, indicate that they are flexible about the paired driveway requirements, often allowing separated driveways if a parking space is preserved between the driveways.



Wider rowhouses, such as these 25'-wide examples, allow preservation of some on-street parking, additional landscaping, and ground-level living space. A drawback is that the greater width complicates achievement of minimum density requirements.



Rowhouse driveways with only treads paved, allowing greater preservation of front landscaping than is typical with front-accessed parking.



Paired rowhouses with no parking, allowing preservation of on-street parking, backyard space, and optimizing contextual compatibility. While most builders insist that home buyers demand off-street parking, other builders are finding a market niche for well designed projects with no parking.



Triplex with front garages (5000 sq.ft. lot)

Left: Triplex (on a 5000 sq.ft. lot in the R1 zone), built to a standardized plan, whose rear parking arrangement was required by Zoning Code standards. This illustrates how, even on small sites, builders are finding solutions that accommodate parking in ways that preserve neighborhood patterns, while allowing housing that is affordable to moderate income households. Note contrast with triplex, pictured above, which highlights the very different impacts on neighborhood context resulting from their parking arrangements.

Fourplex with no parking (on a 5000 sq.ft. site in the R1 zone). This example illustrates one way of solving the dilemma of how to accommodate density on small sites: by taking advantage of recently-adopted Zoning Code provisions which allow projects in areas with frequent transit service to include no parking. The resulting fourplex form is reminiscent of the house-like plexes that were a common type of multidwelling housing in Streetcar Era Portland. This project was by a private-sector homebuilder, who reported that the project was financially successful, despite the lack of parking.



Fourplex with partially-excavated basement parking. This arrangement both limits impacts on street frontage and provides the opportunity for backyard space. Few developers, however, use basement parking for small projects, citing high costs. This project's developer indicated that this configuration was not expensive to do (with total construction costs in 1997 of \$45-50 per square foot), but that most other builders are not familiar with cost-effective techniques for constructing partially-excavated basement parking.

Larger Multidwelling Infill Development – Contrasting Approaches. Two projects on similarly-sized sites and with similar numbers of housing units and parking spaces, but with contrasting design approaches:



Courtyard view



Example 1: Center/Front Parking

- Street frontage dominated by parking, which serves as the central design feature
- Visual prominence of surface parking contrary to community goals for pedestrian- and transit-oriented development along transit streets
- Little usable open space

Example 2: Side/Rear Parking

- Building provides strong street presence
- Parking located at periphery, with some tucked under building, minimizing its visual prominence
- Usable shared open space sheltered from busy street and serves as the project's central focus

Note that Example 1 met Zoning Code development standards, applicable to transit streets and intended to foster transit- and pedestrian-friendly design, that require 50 percent of building frontages to be located close to the street. That Example 1 is nevertheless quite auto-centric in design suggests the limitations of the current development standards in ensuring implementation of City goals for transit- and pedestrian-oriented design.

Issue 1: Street Frontages

Future Direction – Staff Comments

Overall approach: Balance the need to accommodate parking with community goals for pedestrian-friendly design and preservation of neighborhood patterns.

- **Driveway and Alley Requirements.** Planning Bureau staff will continue working with Office of Transportation (PDOT) staff on the possibility of amending Title 17 requirements to allow narrower driveway widths for small multidwelling projects. Reducing Title 17 requirements will remove a barrier to more pedestrian-oriented design. Staff will also continue discussions with PDOT on finding ways to facilitate the use of existing alleys to provide vehicle access to new infill development. Also, amend the *Zoning Code* to provide the option of a “shared driveway” arrangement, perhaps with a requirement for paving blocks, as an alternative to requirements for raised walkways adjacent to driveways.
- **Rowhouse Parking.** Staff recognizes that backyard space is a valued amenity and that rear driveways may result in increased impervious surface area. Because of this, rather than creating regulations requiring rowhouses to have rear-accessed parking, staff is recommending an approach that focuses on making it easier to include rear parking for rowhouse projects and on encouraging housing types that can serve as alternatives to rowhouses.
- **Multidwelling Parking.** Development standards applicable to transit streets prevent parking from occupying more than 50 percent of setback area between buildings and the street in order to cultivate a more transit- and pedestrian-friendly street frontage. Because most areas with multidwelling zoning are located near transit facilities and are intended to be transit oriented, staff recommends that transit street limitations on front parking apply to all multidwelling development. This parking limitation would prevent configurations, such as those shown on page 36, where most of the front setback is devoted to vehicle areas, and would provide greater consistency in how multidwelling parking is regulated.
- **Education.** Recognizing that there are a wide range of strategies that can minimize the prominence of vehicle facilities whose possibilities cannot be conveyed through regulatory standards alone, staff recommends that education and outreach be a key implementation approach. Through guidebooks and public workshops, the possibilities of various parking configurations can be conveyed to developers and to the general public. Case studies of recent infill projects will be used to highlight the feasibility of alternative approaches, helping to overcome concerns about the financial and regulatory feasibility of unfamiliar strategies.
- **Incentives.** Planning Bureau staff, together with the staff of regulatory agencies, will explore the possibility of providing incentives to encourage parking configurations that meet the City’s design objectives. Possibilities include expedited permit processing or reduced fees for projects that utilize specified parking configurations. Another idea to be explored is the possibility of reduced stormwater SDCs when sand-set pavers or other pervious materials are used for vehicle areas (sand-set pavers also provide the advantage of signaling that the surface is intended for pedestrians as well as for automobiles, providing both environmental and design benefits).

Issue 2: Scale Contrasts

Contrast in scale between existing development and new, higher-density development is often a key community concern. This contrast tends to be less severe in inner neighborhoods, which often include a mix of large Streetcar Era houses and plexes. It is more of a factor in neighborhoods located further out from the Central City that are characterized by relatively small detached houses. Scale contrast between old and new buildings, however, is not always something that should be avoided. Some areas, such as mixed-use centers and main streets, are intended to be places where growth and change are concentrated and where a desired future character may be a more important consideration than compatibility with existing development. Scale contrasts are of greater concern in established neighborhood residential areas that are not intended to be places of great change and where the desired neighborhood character corresponds to the *existing* character of the built environment.

In other cities, such as San Francisco and Chicago, where older neighborhoods of three-story rowhouses or townhouses are common, transition from single-family densities to mid-range densities, typically through conversion of townhouses into apartment flats or through infill development, has relatively little impact on the predominant scale of neighborhoods. This graceful transition to higher density is harder to achieve in many Portland neighborhoods where low-lying bungalows, Cape Cods and ranch houses predominate. Small-scale houses such as these do not lend themselves to conversion to triplexes and fourplexes, and new higher-density housing tends to be of significantly larger scale. It is not surprising, therefore, that higher density infill development brings with it significant change to the predominant scale of many Portland neighborhoods.

Reasons

Large unit size and greater density. The relatively low-scale of many Streetcar Era multidwelling structures, such as courtyard apartment buildings, is often due to the small size of their units, which were typically studios and 1-bedroom apartments of approximately 600 square feet¹. In contrast, contemporary rowhouse and multidwelling housing units are often 1,000 to 2,000 square feet in size. The square footage of each unit is often comparable, and sometimes larger, than the size of nearby detached houses. When multiple units of this size are located on a site, the resulting development is therefore often significantly larger than nearby older houses. Key reasons



Chicago residential street. Some of these three-story buildings are single-family houses, while others are three stacked flats, or even six unit apartments. The same building form accommodates a wide range of densities, with no difference in impact to neighborhood patterns (this is aided by the presence of rear alleys, which spares street frontage from the need to accommodate additional parking).



Two infill plex projects flanked by pre-existing houses, in Inner Northeast Portland. The relatively tall pre-existing houses of some inner neighborhoods allow additional density to be accommodated with little scale contrast, similarly to the Chicago example.



Infill project showing the scale contrast with existing housing typical in many parts of Portland.



Scale contrast in Outer East Portland

¹ Peter Keyes. *Historic Streetcar Apartments in Portland, Oregon* (unpublished paper).

for the relatively large size of contemporary rowhouse and multidwelling units include:

- The size of owner-occupied rowhouse units has been subject to the same national trends in buyer preferences that have resulted in increasingly larger house sizes; and
- Apartment units frequently have 2-3 bedrooms (and sometimes more). In Outer East areas, many apartment developers indicate that their target market includes low-income families. A Portland State University study of housing along the SE 122nd Avenue corridor found that household sizes in new apartment developments were actually larger than those of nearby single-family houses. These trends appear to be different than those in central neighborhoods, such as the River District and the Northwest District, where relatively few households with children are occupying new apartment and condominium units.

Breaking up the mass of relatively large multidwelling or rowhouse structures into components that reflect the scale of nearby existing houses is one way of ameliorating scale contrasts (see “Solutions” below). Few projects, however, utilize such design strategies because of: (1) the greater costs of articulating façade walls compared to constructing building walls with few interruptions, and (2) most builders do not consider the scale of nearby structures, often using “off-the-shelf” building plans, and only rarely using the services of architects to create context-specific design solutions.

Regulations. *Zoning Code* development standards for the multidwelling zones, such as allowed building heights, are not responsive to context or to differing neighborhood areas. For example, the R2 height allowance of 40 feet applies citywide, regardless of whether a project is set in an inner neighborhood where 2½-story houses predominate or an Outer East neighborhood where a building site may be surrounded by one-story houses. The Community Design Standards (which serve as a standards-based alternative to discretionary design review in areas subject to design review) originally included provisions that based allowed building height and façade size on that of adjacent structures. These context-sensitive provisions, however, were subsequently removed from the *Zoning Code* because they were difficult to administer and were time-consuming for applicants.

Another regulatory issue concerns the close juxtaposition of medium-density multidwelling zoning and lower-density single-dwelling zoning. For example, R1 zoning is frequently located along transit streets, mapped in narrow bands often only a single lot deep. R1 zoning often abuts properties with single-dwelling zoning, such as R5 (and R7 in Outer East), that are intended to be preserved for single-family housing. In these situations, the 45' height allowance in the R1 zone can lead to great contrasts in building height with abutting single-dwelling zoned properties and also frequently involves privacy impacts due to upper-story balconies overlooking backyards.



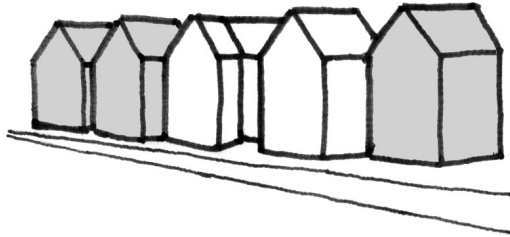
Rowhouse project that acknowledges neither the scale of surrounding houses nor the neighborhood pattern defined by houses on 50' wide lots.

Issue 2: Scale Contrasts Solutions

The following images highlight some of the diverse ways of ameliorating scale contrasts between new higher-density development and lower-scale houses. The variety of potential approaches, it should be noted, makes it difficult to craft regulations that foresee and accommodate the wide variety of desirable strategies.

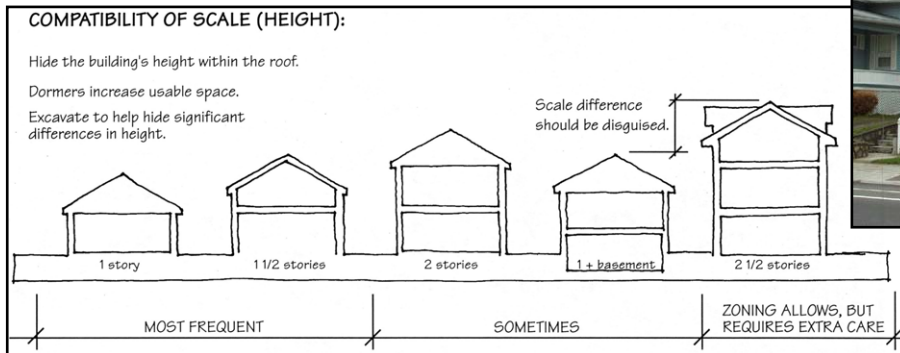
Approaches that allow higher-density to reflect neighborhood scale:

Dividing building massing into smaller volumes that continue neighborhood patterns



Instead of an uninterrupted wall of four units, these rowhouses are divided into pairs with massing that is similar to the large detached houses of the surrounding neighborhood.

Setting back the upper stories of taller structures or accommodating them within dormers



From *Building Blocks for Outer Southeast Neighborhoods* (1996)



The effectiveness of the above approach, combined with partially excavated basement parking, is highlighted by these contrasting images:

Left image: three-level rowhouses with no design treatment relieving their height and verticality.

Right image: three-level rowhouses with top floor accommodated within dormers and featuring excavated basement parking.

Other Examples:



Four-level rowhouses whose height is broken up by porches, recessed balconies, and by partially excavated parking.



Three-story fourplex, with top floor set back.

Examples of rowhouses with massing reflective of neighborhood patterns defined by houses on 50-wide lots.



4-unit rowhouse project in Ladd's Addition (pre-existing house visible at right)



2-unit rowhouse project in North Portland.



Apartment project in Outer East Portland, with façade divided into "house-like" building volumes.

Recent infill projects in Outer East, with design features providing a horizontal emphasis reflective of the area's characteristic low-lying housing.



Issue 2: Scale Contrasts

Future Direction – Staff Comments

Overall approach: Increase awareness of strategies for designing higher-density infill development in ways that reflect established neighborhood scale and patterns.

As noted previously, the very context-specific nature of established development patterns and scale renders the “one size fits all” approach of citywide regulatory design standards an insufficient tool. This could be rectified by development standards that base allowed height and façade dimensions on those of adjacent structures, but this would add considerably to the complexity of plan reviews and to the submittal material required of applicants, as well as present a potential barrier to meeting the densities required in multidwelling zones. Limiting building scale through such regulations would also stifle the ability of the medium-density zones to accommodate change over time (particularly in the R1 zone, which is intended to foster a more urban scale of development). Instead, staff recommends an approach that focuses on the following:

- **Education.** Increase awareness within the development community and among the general public of various ways of ameliorating scale contrasts between new higher-density development and the surrounding neighborhood’s established scale and patterns. Also, as part of a future Planning Bureau work program, increase awareness of what areas of the city are intended for change, such as mixed use centers, and what areas are intended to have their existing character continued.
- **Additional housing types.** Facilitate the development of alternative housing types, such as cluster housing, that hold potential to respond successfully to typical neighborhood contexts (see the next section, Issue 3: Housing Diversity). An advantage of cluster housing configurations, such as cottage clusters and courtyard townhouses, is that they avoid the wall-like effect often presented by rowhouses.



Issue 3: Housing Diversity

Rowhouses are the predominant type of medium-density, owner-occupied housing being built in Portland neighborhoods. While the rowhouse type provides many advantages and is a versatile form that provides needed ownership housing, there has been criticism that Portland has been over-reliant on the rowhouse as a medium-density housing type and that additional types of owner-occupied housing should be encouraged to promote housing diversity. In a report issued in January of 2000 that examined rowhouse design issues, a Planning Commission subcommittee recommended that, instead of focusing solely on refining rowhouse design standards, the Planning Bureau should identify and promote housing types that can serve as alternatives to rowhouses. The Infill Design Project is, in part, a response to this recommendation. Potential alternative housing



Rowhouses typical of infill in the 1980s and 1990s.

types include cluster housing, such as cottage clusters and courtyard townhouses, oriented around shared open space. The public has also expressed interest in alternative housing types, in part due to concerns that the predominance of rowhouses as an infill housing type is resulting in a “cookie-cutter” approach to infill development. In a public design preference survey administered as part of the Infill Design Project, three out of the top four most highly rated projects were cluster housing projects (see Appendix G). Besides providing additional housing diversity, advantages of cluster housing include: fewer street-facing garages and curb cuts, opportunities for shared open space larger than can be provided for individual units, and

building forms that reflect typical neighborhood patterns. Also, cottage cluster housing provides opportunities for single-level living arrangements suitable for elderly or mobility-impaired residents, for whom the multiple floor levels and stairways typical of rowhouses can be significant barriers.

Other issues related to the need for greater housing diversity include the following:

- Developers indicate that required R1 densities make it difficult to develop owner-occupied housing on small R1-zoned sites. Such sites, particularly those ranging in size from 5000 to 10,000 square feet, require too great a density and lack the needed amount of street frontage for rowhouses to be practical, but do not allow enough units for most developers to consider them feasible for development as condominiums. For example, paired rowhouses are the typical medium-density ownership housing type on the 5000 square foot sites common in Streetcar Era neighborhoods, but such sites in the R1 zone require a minimum of three units, which is not possible to achieve in the form of rowhouses at mid-block locations.
- Additional medium-density housing types are needed for Outer East Portland, where the typically narrow and deep lot configurations are often not practical for conventional street-facing rowhouses (see previous discussion on Outer East Portland issues).

Reasons

Over the past two decades, rowhouses have been popular among builders as an owner-occupied housing type for many reasons, including the following:

- Perhaps the primary reason is that rowhouses lend themselves well to being developed as fee-simple arrangements, with each unit on its own lot.¹ Portland requires that all lots have street

¹ The term “fee simple” is used loosely in this report to refer to arrangements in which each unit is located on its own lot, to differentiate them from condominium arrangements, in which multiple individually-owned units are located on commonly-owned land. Not all fee-simple arrangements referenced in this project meet more strictly-defined definitions of this term, as they may include easements and common elements, or other shared ownerships and obligations.

frontage, which is often not possible with cluster housing arrangements in which some units are located around courtyards and other locations removed from the street. Conventional rowhouses, in contrast, are by definition a street-oriented housing type. Placing housing units on separate lots allows avoidance of many of the liability issues and legal complexities associated with condominium development;

- Most developers believe that buyers prefer to own the land beneath their housing units;
- Rowhouses are a medium-density housing type that buyers feel particularly comfortable with, as they continue familiar patterns of houses with integrated garages, front doors, and private backyard space;
- Side-by-side unit configurations, such as rowhouses, make sound-buffering easier to achieve between units as compared to stacked units; and
- The versatility of this housing type allows for the same unit plans to be used on a variety of site sizes, by adding or subtracting the number of attached units.



Cluster housing – 1920's courtyard apartment building. The landscaped emphasis provided by the courtyard and the house-like form of end units provide a good contextual fit with nearby houses.

Alternative housing types

Two primary medium-density alternatives to rowhouses are: (1) **various forms of cluster housing**, such as cottage clusters and courtyard townhouses; and (2) **stacked unit configurations**, such as plexes with housing units stacked on top of one another. Both of these general housing types have precedents in multidwelling housing built in Portland during the Streetcar Era, such as courtyard apartments and house-like plexes, which are seen by many community members as positive contributions to neighborhood character. A third medium-density alternative are narrow lot detached houses (also known as “skinny houses”), which are not a focus of the Infill Design Project.

Barriers and opportunities related to alternative housing types are discussed in general terms below, followed by a discussion of issues specific to particular housing types (in the “Solutions” section).

Barriers: home ownership opportunities. A general issue that has limited the ability of cluster housing and stacked unit configurations from serving as alternatives to rowhouses has been that they have not been possible to develop as fee simple arrangements, with each unit on its own lot. These housing types have only been possible as rental apartments or as condominiums. As mentioned previously, many developers avoid developing small-scale infill projects as



Stacked units – Early 20th-century fourplex, with similar massing and appearance to nearby detached houses.

condominiums because of legal complexities and because of the high liability insurance rates associated with condominium projects, which add considerably to project costs. Architects have related that the key to encouraging more alternative housing types to be built will be to find ways of allowing them to be built as fee-simple arrangements.

Barriers: Zoning Code regulations. Analysis of *Zoning Code* standards, together with input from architects and developers, indicate that *Zoning Code* regulations are not a major barrier to the development of alternative housing types when they are built as rental apartments or condominiums. The primary barrier *Zoning Code* regulations present is to the development of cluster housing projects as fee simple arrangements, largely due to requirements that all lots have street frontage. The “common green” land division provision, adopted as part of the Land Division Code Rewrite Project in 2001, presents new opportunities for cluster housing arrangements. The common green provision allows lots to front onto a landscaped pedestrian tract, instead of onto a conventional street, which permits courtyard housing arrangements to be developed with fee simple lots, instead of as condominiums. Regulations identified as barriers to alternative housing configurations, including the common green provision, are discussed in reference to particular housing types in the “Solutions” section that follows.

Future Opportunities: Condominiums

While the preceding discussion has referred to some of the problems and disincentives associated with condominium arrangements, condominiums do provide many advantages that may result in their becoming a greater component of owner-occupied, medium-density infill development in the future. Issues and opportunities related to condominium arrangements include the following:

- Condominiums allow a greater variety of design approaches than do fee-simple rowhouses, as they provide more flexibility in locating housing units on a site and the ability to cluster parking spaces (such as in shared basement parking or concentrated in one area of the site, allowing street frontage to be preserved for more active uses).
- Some developers and designers have indicated that a key to getting more innovative infill housing is to change Oregon condominium law, such as by reducing the period of liability for construction defects to make condominiums more attractive to developers. Another issue developers have identified is that Oregon laws governing condominiums do not seem to be oriented to detached dwelling units. For example, some developers have related that current requirements that homeowners associations carry insurance for structures assume that units are part of a larger building, when individual homeowner insurance would be a preferable arrangement in the case of condominium units that are detached houses.
- A growing minority of developers and designers believe that condominiums present many advantages to fee-simple arrangements, and that greater awareness among developers of these advantages will lead to increasing numbers of medium-density condominium projects. Among the advantages and opportunities of condominiums some developers cite are:
 - Avoidance of the year-long process required for land divisions;
 - More design flexibility;
 - Avoidance of having to meet expensive construction standards needed for streets (streets within condominium projects are classified as “driveways”);
 - Increased homebuyer acceptance of condominium arrangements; and
 - Opportunities to limit liability risks and expenses usually associated with condominiums through design, such as by using side-by-side units rather than stacked units (which minimizes liability issues related to sound barriers and other impacts). Utilizing detached houses limits liability risk even further, with no shared walls and thus fewer common elements.

Issue 3: Housing Diversity Solutions – Cluster Housing

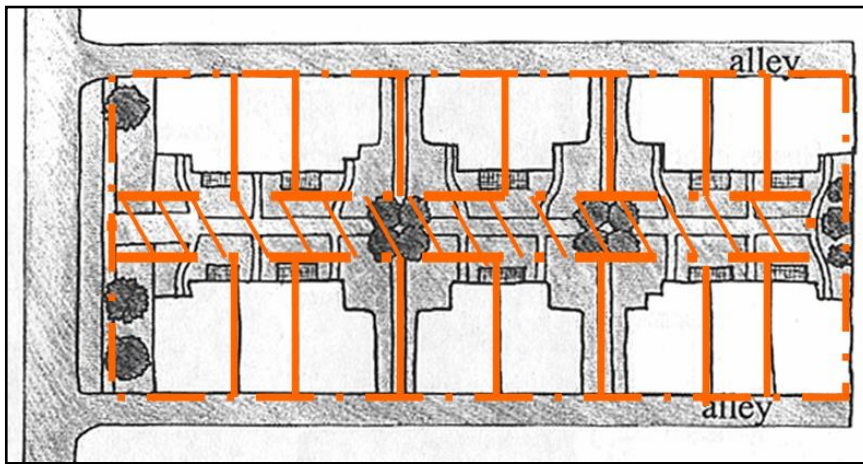
Illustrative of some of the opportunities provided by cluster housing is this five-unit project, Marysville Commons, developed by ROSE Community Development Corporation. This infill project was originally envisioned as a rowhouse-type project, but was changed to a cluster housing configuration in response to neighborhood input. During a design charrette, neighbors (in the Foster-Powell neighborhood) related that they did not want rowhouses, preferring housing more similar in character to the detached houses predominant in the area. Response from neighbors since the project was completed has been mostly positive (a typical comment was, “I like what you did, it’s much better than what I thought would be built”).



Examples of cluster housing oriented around landscaped courtyards, which “common green” provisions are intended to facilitate as owner-occupied housing. The first two examples were among the top three most highly rated projects in a recent design preferences survey. The cottage cluster project at left, “Hastings Green” (developed as condominiums), had all units sold before project completion, suggesting that market demand exists for such housing.

Common Green Cluster Housing

Zoning Code “common green” provisions allow residential lots to be oriented to a pedestrian access tract, or common green, instead of the usual requirement for lots to front onto a conventional street. The common green provision allows cluster housing units to be developed on fee-simple lots, which many developers prefer to condominium arrangements. This facilitates owner-occupied housing configurations similar to the courtyard apartments built in Portland during the Streetcar Era. Code modeling indicates that common green configurations are possible on sites in the R2 zone as small as 10,000 square feet, making them a realistic medium-density alternative to rowhouses. The common green provision may be a particularly useful tool for facilitating owner-occupied housing in Outer East Portland, where conventional rowhouses are often not practical on the area’s typically large, but narrow and deep sites, which have relatively little street frontage. Greater utilization of common green configurations may be facilitated by increasing awareness within the development community of the common green concept and by highlighting how common greens can be used on small infill sites.



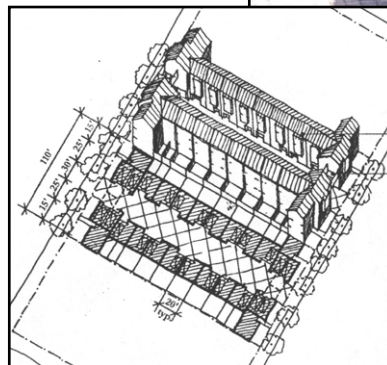
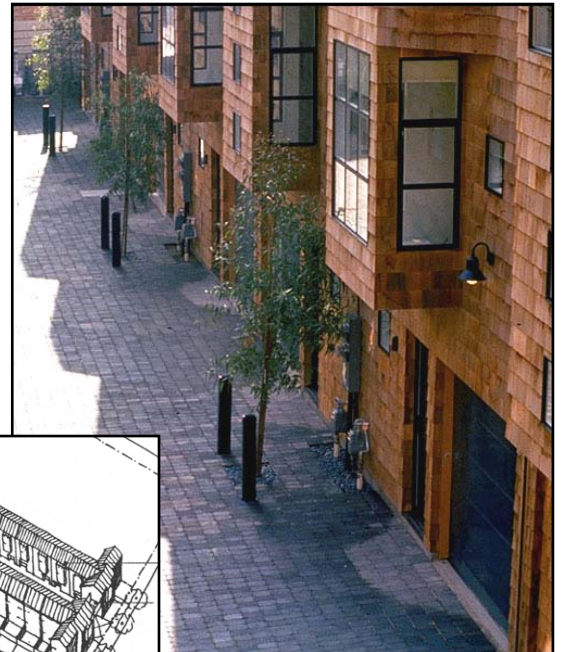
Common green concept. Lots are oriented to a landscaped pedestrian-access tract, with parking accessed by rear alleys.

Common greens: regulatory barriers. Staff has found only a few significant regulatory barriers to greater utilization of common green configurations. Identified regulatory barriers include the following:

- R2 front setback requirements, which require buildings to be set back at least 10 feet from the common green, are an impediment to utilizing common greens on small sites. These setback requirements prevent common green housing from serving as alternatives to rowhouses on the small sites typical of infill development.
- Common greens result in somewhat reduced development potential, which could serve as a disincentive to some builders, as the common green tract area is subtracted from density calculations. Note, however, that this reduced density can also serve as an opportunity, as it facilitates courtyard housing arrangements that can be difficult to achieve at higher densities.
- Building coverage limits are calculated on a per lot basis (rather than for the project as a whole), meaning that open space provided by common greens is not counted and each lot within a common green project must provide as much unbuilt land area as a conventional rowhouse lot, despite the additional open space provided by the common green.

Shared Street Courtyard Housing

“Shared street courtyard housing” is an additional housing type that could serve as an alternative to rowhouses and provide additional owner-occupied housing opportunities, although the *Zoning Code* currently does not currently allow this housing type. This concept involves rowhouse-type units on lots fronting onto a privately-owned “shared street,” designed to accommodate both cars and pedestrians in the same area. To clearly indicate that the street is meant for pedestrians as well as cars, the shared street is surfaced with paving blocks or similar treatments. A shared street provision may provide additional development opportunities for small sites, such as those common in the R1 zone, which currently present barriers to development of owner-occupied housing.



Shared street concept – similar in form to the Fulton Grove Townhouses (San Francisco), shown here.

Courtesy Solomon E.T.C.

Shared streets – Portland precedents: The following images are of condominium projects that include features similar to what would be allowed by the shared street concept, such as circulation space designed for both cars and pedestrians.



River Place Condominiums



Townhouse cluster with central driveway, Southwest Portland. General configuration is similar to what would be facilitated by the shared street concept. In contrast to typical rowhouse projects, curb cuts are minimized and end units reflect the massing of detached houses.



Jake's Run townhouses, Northwest Portland



Shared streets – Dutch precedents (“woonerfs”): Special paving and other features provide traffic calming and a pedestrian-friendly environment, with little or no grade-separated sidewalk areas. Woonerfs have become a standard street type in rowhouse neighborhoods in the Netherlands, particularly for residential streets that are not intended to be through ways for automobile traffic.

Issues Addressed by the Shared Street Concept

- Provides additional homeownership opportunities for small sites zoned for higher density development. Such sites are often too small for condominium arrangements to be feasible, but are subject to density requirements and have site constraints that make rowhouses and common green arrangements impractical.
- Diversifies the range of potential housing types, allowing fee-simple cluster housing configurations that would otherwise require condominium arrangements.
- Preserves on-street parking and allows a more pedestrian-friendly street frontage by allowing a single curb cut, rather than the multiple curb cuts common with rowhouses.
- By providing an alternative to the usual requirements for roadway plus sidewalks, allows for less impervious surface, thus contributing to minimizing stormwater impacts and urban heat island effects.
- If sand-set pavers are used to meet requirements for paving blocks, could provide additional opportunities for stormwater management by serving as a semi-pervious surface.
- Provides for a larger pedestrian-oriented area (the entire street) than a conventional street with sidewalk arrangements, particularly since rowhouse-type projects at R1 and higher densities typically have sidewalks interrupted by frequent driveways.
- Allows for efficient use of limited site area.

Shared Streets – Regulatory Barriers

New *Zoning Code* provisions, and accompanying private street standards, would need to be created to allow shared street cluster housing to be built. Currently, streets are required to have grade-separated sidewalks, which results in right-of-way widths not practical on small infill sites zoned for higher-density development. Because of the Office of Transportation’s interpretation of Americans with Disabilities Act requirements, it may not be possible to develop shared streets as public streets. Staff thus anticipates that shared streets would only be possible as private street tracts, and that their use would be limited by a site size or housing unit threshold to ensure shared streets are only used for small projects with low traffic volumes.

Other Cluster Housing Types



House cluster in Southwest (R2 zone)



House cluster in Outer East (R2 zone)

Detached house clusters. Not all cluster housing configurations feature shared open space as a central design feature. A development configuration that is being built with increasing frequency in medium density zones, especially in Outer East Portland, are clusters of detached houses on shared lots, facing onto “street-like” driveways. Builders of this type of housing, which is being built as both condominiums and as rentals, indicate that it appeals to homebuyers and renters who would otherwise avoid multidwelling housing (indeed, their design is calculated to provide the visual effect of a conventional housing subdivision with “streets” and fenced yards). Other reasons developers provide for why they are building this form of housing include the following:

- Avoids the land division process, which can take a year or more to be completed;
- Many buyers prefer detached houses to rowhouses;
- Some rental property owners relate that detached houses have lower maintenance costs than apartments, because the residents of detached rental houses have a stronger sense of “ownership”

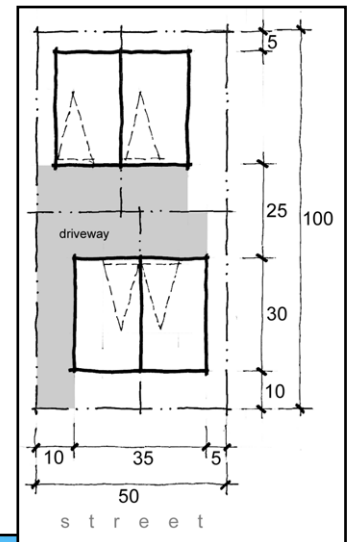
of their units compared to the residents of plex or apartment units, and therefore tend to keep better care of them;

- Detached houses are easier to rent and command higher rents than apartment units;
- Developers relate that neighbors in Outer East are more accepting of this type of development than other multidwelling types, because the use of detached houses avoids the negative connotations often associated with apartment buildings and plexes; and
- While developers relate that this form of housing can be difficult to build at the densities required in the medium-density zones, the use of detached houses facilitates the avoidance of minimum-density requirements as they are relatively easy to add onto a site with a pre-existing house. This is because the *Zoning Code* allows additional housing units to be added to a site with existing housing without triggering minimum density requirements, which otherwise apply with land divisions or in the case of new construction on a vacant site. In situations in which preservation of an existing house is not feasible as part of the desired development configuration, some builders will avoid minimum density requirements by initially keeping the existing house, then building a new house that fits into the desired site plan, followed by demolition of the pre-existing house (the first new house then becomes the “existing development”), after which the rest of the new houses are constructed.



House cluster built behind a pre-existing house

Townhouse clusters. A housing type that has become one of the most common forms of owner-occupied infill housing in Seattle are clusters of townhouses on separate lots. On a typical infill site of approximately 5000 square feet, this configuration accommodates four townhouses, with two units fronting onto the street and two other units toward the rear of the site. The two rear units’ lots have no street frontage, but are accessed by an easement. The shared driveway arrangement minimizes the visual prominence of parking facilities, compared to the rowhouses with front garages typical in Portland.



Seattle townhouse clusters

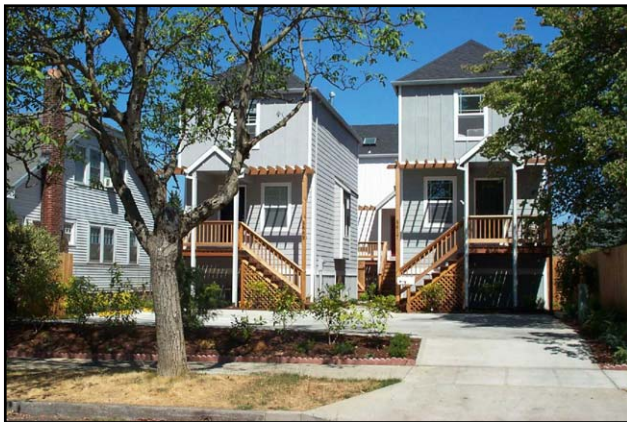
While this housing type would appear to present a market-proven solution to the puzzle of creating owner-occupied housing on small sites in the R1 zone, such a configuration cannot be approved through Portland’s current regulations. The primary reason for this is that lots are required to have street frontage (note that common greens are considered to be a type of private street), partially to accommodate Water Bureau requirements for the location of water lines. The limited scope of the Infill Design Project precludes a reconsideration of this street frontage requirement, as it is a fundamental aspect of how the City treats land divisions in all zones. Even as condominiums, however, similar townhouse clusters are not possible in Portland because of *Zoning Code* requirements for driveway setbacks and separate walkways that would leave insufficient frontage for two street-facing townhouse units.



Cluster Housing – Regulatory Barriers

Barriers that *Zoning Code* regulations may present to cluster housing in general, other than those already noted in relation to specific cluster housing types, include the following:

- Lack of provisions allowing for shared outdoor space, such as courtyards, to meet multidwelling outdoor space requirements (which for ground-level units must be provided separately for each unit).
- Requirements for 5’ walkways connecting buildings to streets complicates the design of cluster housing configurations on small sites (some architects indicate a narrower dimension would suffice).
- Some designers and developers indicate that cottage cluster projects work most successfully at densities no greater than approximately one unit per 3000 square feet of site area. Portland zoning, however, does not provide much allowance for development at this density, as:
 - It falls below the minimum density requirements of the R2 zone;
 - While the R2.5 zone would allow this density, it does not allow cottage clusters (which are classified in the *Zoning Code* as “multidwelling development”); and
 - While the R3 zone does accommodate this density and housing type, it is located in only a few areas in Outer East Portland (the R3 zone is a remnant of Multnomah County zoning).



Three-unit house cluster (condominiums) on a 5000 square foot lot in the Montavilla neighborhood, highlighting how such housing can be accommodated at even R1 densities on small sites (albeit, with no private yard space). Their market success indicates that Portland may be ready for a wider range of infill housing types than has been thought feasible up to now.

Issue 3: Housing Diversity Solutions – Stacked Unit Housing Types

Triplexes and fourplexes are a common medium-density housing type in Portland. Most of these consist of two-story townhouse type units. While plexes with stacked units (“flats”) were frequently built in Portland during the Streetcar Era and remain a common housing type in other cities, they are currently an uncommon infill housing type in Portland. Plexes with stacked flats, however, can provide several advantages compared to rowhouses and townhouses, particularly on small sites where higher densities are called for, including the following:

- Accommodation of open floor plans with no stairways within each unit;
- Greater access to light compared to many townhouse configurations;
- Potential street frontage for most units;
- Additional opportunities for site area to be preserved as outdoor space;
- Ability to continue neighborhood patterns defined by housing on small lots, similar to the house-like character of Streetcar Era plexes; and
- Accommodation of relatively high densities on small sites. This last point is perhaps this housing type’s greatest advantage, as they are often the only multidwelling housing type possible on the very small sites sometimes found in close-in neighborhoods (with one project built on a site smaller than 1600 square feet). They thus serve as potential solutions to the puzzle of meeting R1 and RH density requirements on typical 5000 square foot sites.

The *Zoning Code* presents few barriers to stacked-flat development. Their relative scarcity as medium-density infill housing is due to most developers’ preference for side-by-side townhouse units or rowhouses rather than stacked units. Reasons for this include the following:

- It is easier to buffer sound between walls than between floors;
- Perceptions that buyers and renters prefer direct access to ground-level outdoor space;
- Fair Housing Amendments Act requirements are triggered in buildings with four or more units when they include single-level units. In these situations, some of the units must be handicapped accessible, which adds to development costs (note, however, that some architects relate that there are ways to meet these requirements that add little to project costs). These accessibility requirements do not apply when buildings only have two-story units, as is the case with townhouses and rowhouses;
- The building code requires two exit stairways for stacked units higher up than two stories. The expense of including two stairways in a small project is often cost-prohibitive, effectively preventing the three-level triplexes common in cities such as Boston (“triple deckers”) and Chicago (“three flats”).

A key reason for the scarcity of stacked-flat plexes as an owner-occupied housing type, however, is that stacked units must be condominiums if they are to be owner-occupied. If required densities allow rowhouses, most developers will choose rowhouses over stacked condominium units. Housing trends in other West Coast cities suggest that higher density, stacked-flat condominiums on small sites will only become common when housing costs rise significantly, placing a greater premium on maximizing the number of units on a given site (which helps overcome the relatively high per-unit costs of stacked housing). In Portland, stacked-flat housing types are most practical in the R1 and higher density zones, when density requirements and site configurations preclude rowhouses.



Courtesy Vallaster & Cori Architects.

Triplex in Northwest on a 1590 sq.ft. site (82 units/acre). Note that, although the density of this project is double what is allowed in the R1 zone, its small scale continues the fine-grain pattern of its neighborhood, avoiding the appearance of overwhelming scale often associated with high density housing.

The following examples illustrate some of the opportunities provided by plexes and other stacked unit housing types. Site size and project density are indicated for some projects to highlight the ability of these housing types to be built on small infill sites. Note that stacked-unit plexes are most common in the Northwest District, facilitated by the relatively high property values of that area. More widespread development of these housing types may occur as property values continue to rise in other parts of Portland and as more developers become aware of their market viability. A regulatory barrier to these small-lot housing types, however, is that minimum lot size requirements for duplexes (4000 sq.ft.) and multidwelling development (10,000 sq.ft. in the R1 zone) prevent new lots from being created to accommodate them. For instance, 4000 sq.ft. is required for a new duplex lot in the R1 zone, but this does not allow for the minimum required density to be met. A stacked duplex on a smaller lot (similar to those illustrated below) would meet density requirements, but would fall short of the lot size requirement.



*Fourplex in Northwest
(3133 sq.ft. site, 56 units/acre)*



*Fiveplex (condominiums) in Northwest
(5000 sq.ft. site, 44 units/acre)*



*Duplex in Southeast
(1450 sq.ft. site, 60 units/acre)*



*Duplex in Northwest
(2670 sq.ft. site, 33 units/acre)*



Recent plex infill project (condominiums) in Irvington, adjacent to Streetcar Era plexes. These are townhouse units, not stacked units, but illustrate how the plex type can continue established neighborhood patterns. Despite including no off street parking, this project proved financially successful.

Three-unit project in Seattle. A hybrid form of owner-occupied housing, it consists of a two story owner-occupied unit over two studio apartments (essentially a house with two ADUs). This could serve as a solution for 5000 sq.ft. lots in the R1 zone, where many builders feel the only feasible option are rental plexes.



Issue 3: Housing Diversity Additional Issues

Additional allowances for mixed-use development. Much of Portland's medium-density zoning, particularly the R1 zone, is located along major streets, often with multiple lanes of traffic that can negatively impact the livability of ground-level units adjacent to these streets. One solution that has been suggested by Infill Design Advisory Group members is that residential development in higher-density zones along major streets should be allowed to include limited amounts of ground-floor commercial space or live-work units. In addition to serving as one way to buffer residential units from traffic impacts, this could provide more destinations for residents to walk to along corridors with little commercial zoning. While this solution may have merit, it involves significant policy issues that are beyond the scope of this project, which is not intended to address the allowed uses of the multidwelling zones.



Live-work rowhouses in Northwest.

Potential opportunities provided by accessory dwelling units (ADUs) in the multidwelling zones. Currently, ADUs are excluded from residential density calculations. Allowing ADUs to count toward meeting minimum density requirements in the multidwelling zones, however, could provide additional solutions for accommodating density on small sites. In conjunction with rowhouses, ADUs could serve to facilitate owner-occupied housing in the R1 zone, increase the range of potential medium-density housing configurations, and facilitate a mix of owner-occupied and rental housing. In the R2 zone, allowing ADUs to help meet minimum density requirements would permit rowhouses to be developed on lots deep enough to accommodate rear parking and backyards (current density requirements often prevent such configurations).



Rowhouses, in Ladd's Addition, which met R1 zone density requirements by including ADUs over rear garages. Neighbors considered it an ideal project for the site, given the zoning. More recent Zoning Code amendments, which exclude ADUs from density calculations, now prevent this configuration.

Definition of "attached houses." Some developers and architects indicate that the *Zoning Code's* definition of rowhouses and other attached houses as being connected along at least 50 percent of building length prevents some desirable housing configurations from being built. They relate that this requirement sometimes prevents spaces from being created between units which could provide valuable opportunities for outdoor space or allow building volumes to be divided in ways that reflect neighborhood patterns.



Attached houses (joined at garage in above image) in Northeast that fail to meet the 50% attachment requirement. The small area of attachment, however, allows them to reflect the surrounding neighborhood's pattern of detached houses.

Issue 3: Housing Diversity

Future Direction – Staff Comments

Overall approach: Reduce regulatory barriers to alternative housing types and configurations that hold potential to meet the community’s design objectives. Increase awareness of alternative housing types, and highlight their financial feasibility to the development community.

Some architects and developers have related that a key reason for the lack of diversity in housing types and configurations is that Portland’s development community is conservative and risk averse, and are thus very reluctant to try unfamiliar approaches. In recent years, however, there has been a small but growing number of infill projects reflective of a wide range of alternative housing types and configurations. That most of these projects have been financially successful suggests that alternative housing types may be on the cusp of broader market acceptance. The City’s role, besides amending regulations to facilitate innovative housing types, may also prove useful by increasing the development community’s awareness of the viability and success of innovative projects.

- **Education.** A key, overarching strategy that staff recommends is to increase awareness among developers and the general public about innovative housing types. This will be achieved through the creation of a collection of housing prototypes, highlighting various housing types and configurations that can meet the communities design objectives; through publicizing successful examples that have been built in Portland and elsewhere; and by highlighting new regulatory tools that facilitate these housing types. Education and outreach can also be used as a tool to increase awareness of advantages provided by condominium arrangements, including opportunities for greater design flexibility and for additional housing configurations.
- **“Facilitative” regulatory changes:**
 - **Common greens.** Amend the *Zoning Code* to facilitate the development of common green configurations on small sites to provide opportunities for courtyard housing that can serve as owner-occupied alternatives to rowhouses.
 - **Shared street courtyard housing.** Amend the *Zoning Code* to allow lots in higher-density zones to front onto a “shared street,” designed for both cars and pedestrians, as a more urban alternative to the common green. This would facilitate homeownership opportunities, and additional housing types, on small sites zoned for higher-density development.
 - **Cottage clusters and courtyard townhouses.** Encourage the creation of courtyards by amending the *Zoning Code* to allow the provision of shared open space as an alternative to private outdoor space. Reduce walkway width requirements to facilitate cluster housing configurations on small sites.
 - **Duplexes.** Reduce minimum lot sizes for duplexes to facilitate their serving as a higher-density infill housing type.
 - **Attached houses.** Provide additional design flexibility and more opportunities for the use of attached housing by allowing accessory dwelling units to count toward meeting minimum density requirements and by reducing the current 50 percent attachment requirement.

Issue 4: Regulatory Responsiveness

This section discusses aspects of the City's regulatory requirements and processes that are sometimes not responsive to market-driven opportunities for improved infill design. Staff acknowledges that whether or not the City's infill design strategies are successful will ultimately depend on those who design and build new housing. This section therefore highlights feedback received from designers and developers in order to identify barriers and opportunities related to the interplay between City regulations, development considerations, and the design of infill development.

Developers and quality design. Some developers relate that the City too often assumes an adversarial relationship with developers regarding design issues and has not done enough to explore collaborative approaches to achieving the community's design objectives. These developers indicate that the City should do more to capitalize on appealing to the self interest of developers; for example, by emphasizing how quality design provides monetary awards and by highlighting cost-effective ways of incorporating desirable design features. Some developers in close-in neighborhoods indicate that design that reflects the character of the surrounding neighborhood is used as a selling point. They relate that buyers are seeking these areas partially because they are attracted to these neighborhoods' architectural character and want their housing to reflect this character (there seems to be less of this dynamic in Outer East areas, where developers indicate that prospective residents are primarily interested in interior amenities and off-street parking).

City density requirements not responsive to market demands and site constraints.

Some developers and designers relate that the City's minimum density requirements sometime result in compromised project design, or preclude development that they feel would best meet market demands and site constraints. This is particularly so in Outer East Portland, where many developers indicate that the minimum densities required by the City in the multidwelling zones, in combination with site constraints brought by the area's often disproportionately deep lots, sometime do not facilitate the types of medium-density housing for which there is the most market demand, such as larger townhouse units or clusters of detached houses. In order to build the types of housing they feel meet market demand, some developers in Outer East avoid minimum density requirements by preserving an existing house on the project site (the *Zoning Code* allows additional housing units to be added to existing housing, without triggering minimum density requirements, if no land division is involved). This often results in compromised site planning, in which preservation of an existing house sometimes precludes consideration of site plans that would provide more unified site design. Instead of being oriented to the street and contributing to a more urban and pedestrian-oriented streetscape, new higher-density housing is frequently built behind pre-existing houses on what had been backyards, where privacy impacts on adjacent properties are greatest. Therefore, an unintended consequence of minimum density requirements, in areas where developers feel these densities are not supported by the market, is that sometimes neither the City's density goals nor its design objectives are met.



"Backyard" infill in Outer East

A related issue concerns the R1 zone, which some developers characterize as requiring too great a density for conventional rowhouses, but as not allowing enough density (or associated economies of scale) for multidwelling configurations featuring housing units over lower-level structured parking to be financially realistic. As a result, apartment buildings surrounded by surface parking areas are a common development type in the R1 zone, particularly in Outer East Portland. Staff analysis of several multidwelling projects featuring courtyards and other shared open space, built prior to the City's increasing of R1 minimum density requirements in 2002, found that many would not now meet current minimum density requirements.

Some developers and designers relate that it is easier to design residential projects for sites with commercial zoning than for sites with multidwelling zoning, particularly because the commercial zones do not have minimum and maximum density requirements. The lack of density requirements in commercial zones allows a wide range of housing types and unit densities to be built, facilitating greater responsiveness to market conditions and site constraints and providing considerable design flexibility.

Competing City priorities. Developers and designers relate that the City's various regulations (e.g., *Zoning Code* standards, various Bureau of Development Services reviews, and transportation and stormwater management requirements) sometime seem to work at cross-purposes, and that this dynamic can be particularly debilitating for higher-density infill development on small sites. They indicate that reducing regulatory conflicts between City bureaus will be key to facilitating development on small infill sites because of the limited site area in which to locate required elements. Examples of conflicts include:

- The City's driveway dimensional requirements (in Title 17), intended to facilitate vehicle access, sometime result in small infill sites dominated by impervious surfaces, counter to other City objectives for minimization of stormwater impacts and for context-sensitive design (see page 39).
- Finding ways to fit the required stormwater management facilities for higher-density projects on small sites can be particularly difficult because of the limited site area. Compounding this are BDS plumbing requirements which, for example, call for stormwater infiltration trenches to be located 10' from buildings and 5' from property lines. Finding space for such dimensions on small higher-density infill sites is often very problematic, typically resulting in the need for a code appeal.
- The City no longer requires off-street parking for residential development near transit. However, when certain narrow-lot provisions are used during the land division process, the code still requires that sites be configured to accommodate off-street parking. While the intent of these requirements is to prevent frontages from being dominated by garages and driveways, no allowance is provided for projects to meet the code's intent by providing *no* off-street parking.

Additional comments by developers and designers. The following is a listing of additional issues, as described by developers and designers, regarding barriers and opportunities related to the City's role in fostering better-designed infill development. This listing is grouped first by those items that primarily relate to the City's regulations and processes, followed by items related to how developers approach design.

Regulations and regulatory processes:

- There are many "grey area" situations in interpreting regulations when City planners have the opportunity to make judgment calls to allow features that result in better design. Too often, however, they do not seem to understand development or design and rarely use their discretion to accommodate better design. A key way to improve the design of projects is to have more planners who are experienced with development and design and who are empowered to use their discretion in positive ways and to help applicants with problem solving.
- The City's various regulations present a cumulative complexity that deters some potential developers. For projects that do go forward, the design process can become a puzzle aimed at maneuvering through regulations rather than at designing what is best. Complicating this is that it is hard to keep up with *Zoning Code* changes. Recent code changes should be marked (such as by margin symbols), as they are in the building code.
- Regulatory design standards prevent "bad" design, but they can also impede innovative design that could serve as a positive contribution to the community.

- Additional prescriptive design standards would be acceptable only if code adjustments were made easier (with reduced fees and approval timelines). Regulatory standards are formulated in response to theoretical “typical” situations, but actual projects often have site-specific situations that the regulations do not anticipate.
- The Community Design Standards (CDS), applicable in areas with design review, force too much of a traditional style by requiring features such as pitched roofs or cornices and prohibiting certain building materials. The CDS may be appropriate for conservation districts in Albina, for which the standards were originally created, but they discourage creative design in centers and other areas where they also now apply. The City needs to reconsider the suitability of the CDS for areas outside Albina, such as Outer East and mixed-use centers. Standards requiring a roof pitch of at least 6/12 result in roofs that are steeper than anything existing in many Outer East areas, which are often dominated by ranch houses with low pitched roofs. Some good recent mixed-use projects, built in areas not subject to the CDS, include features such as shallow pitched roofs and metal siding, which are not allowed by the CDS.
- Stormwater management requirements have made the design and approval process much more complex, especially for builders of small projects who tend not to use technical consultants.

Developers’ approaches to design:

- Most builders are not trained in design. As a result, few are aware of basic design strategies that could improve their projects. The City should consider hosting seminars for builders highlighting infill design “best practices.”
- Better standardized building plans are needed. Since builders tend to use standardized plans and will likely continue to do so, a challenge is to get them to use well-designed plans that are appropriate for common neighborhood infill situations, instead of the contextually-inappropriate plans that are too often used. There is also a need to highlight ways of adapting standardized building plans to respond to context.
- A barrier to better medium-density infill design is that it is difficult for builders to make the leap from building single-family housing to multifamily construction, not only because of unfamiliarity with building code requirements, but also because of the more complex site design typically needed for multifamily projects.
- Lenders play an important role in shaping development. One builder related that a lender recommended against the high-quality building materials proposed for a project, recommending instead that cheaper materials (in this case, vinyl siding) be used because the lender did not believe that the housing prices in the project’s surrounding neighborhood warranted investment in quality materials. Lenders prefer development types and design features that have proven themselves financially.
- It is difficult to get builders to be sensitive to community concerns unless a public review process is required. A problem with public input, and a key reason why many builders seek to avoid land use reviews that require a public review process, is that very often the feedback builders receive is not constructive (e.g., neighbors often object to project densities, even when only the minimum required density is proposed, and sometimes are opposed to any development whatsoever).

Issue 4: Regulatory Responsiveness

Future Direction – Staff Comments

Overall approach: Foster a collaborative approach to improving the design of infill development.

Staff would like to pursue a range of implementation strategies whose success will be dependent on a collaborative approach involving developers, as well as others in the broader community. For example, staff has placed a premium on finding solutions that both meet the community's design objectives and that make sense from the perspective of developers. Recommended implementation strategies that reflect this collaborative approach include the following:

- Creation of a collection of housing prototypes highlighting development configurations that meet the City's design objectives, are realistic from a market perspective, and that meet regulatory requirements. The housing prototypes would be part of a larger document (and/or website feature) that would also highlight various ways of approaching difficult infill design problems and that would present case studies of exemplary projects to provide information on infill design techniques and costs. All these approaches are intended to foster a collaborative approach to finding solutions to infill design problems.
- A design awards programs which would acknowledge exemplary work by developers and designers.
- Workshops could serve as an opportunity for City staff, designers, and developers to share their knowledge of successful infill design strategies and techniques.
- Staff is recommending consideration of possible incentives, such as expedited permit processing or reduced permit fees, for projects that voluntarily meet specific design criteria.
- Most recommended regulatory changes are "facilitative" in nature, intended to provide additional options by reducing barriers to alternative housing configurations and providing greater regulatory flexibility.
- Staff also recommends an examination of various City regulations to find ways of reducing regulatory conflicts that may be unnecessarily hindering desirable development.
- While outside the scope of this project, staff recommends that a future Planning Bureau project consider the possibility of providing greater regulatory flexibility in meeting minimum density requirements.

C H A P T E R

4

Implementation Strategies: Staff Recommendations



This chapter summarizes potential implementation strategies for improving the design of infill development and presents staff recommendations as to what strategies should be pursued as part of the Infill Design Project. The staff recommendations are preceded by discussion of the possibilities and problems associated with three general implementation approaches: regulatory design standards, design review, and non-regulatory approaches.

As mentioned previously in this report, the City of Portland has in the past tended to rely primarily on design review and regulatory standards as implementation strategies; which, while often effective, add complexity and cost to the development process. For the Infill Design Project, staff is recommending an approach that places greater emphasis on consideration of a wide range of non-regulatory implementation strategies. As part of this approach, staff proposes that *Zoning Code* amendments be processed as part of an upcoming iteration of the Regulatory Improvement Workplan to allow Infill Design Project staff to focus on near-term implementation of non-regulatory strategies.

To provide background on the potential range of implementation strategies, the following table summarizes some of the factors that shape the design of infill development, as well as potential opportunities for City involvement.

Opportunities for City Influence on Design

Factors	Potential City Roles
Regulations: Besides the <i>Zoning Code</i> and design review, a wide range of other regulations shape design, including building codes, stormwater management regulations, and transportation and other infrastructure requirements.	While <i>Zoning Code</i> development standards and design review are the regulatory strategies most readily associated with City efforts to guide design, the many other regulations the City administers also play important roles in shaping the design of new development.
Potential design options: Potential design options may include a wide range of housing types, building materials, construction techniques, and architectural approaches. The range of potential design options actually considered by developers, however, is limited to those options of which developers have knowledge.	Through outreach and education, the City can increase developers' awareness of the range of potential design options (this has been a goal of past design competitions and demonstration projects). Highlighting cost-effective techniques for achieving these design options can further encourage their consideration by developers.
Costs: The costs associated with different housing types, design features, and construction techniques play a critical role in determining their feasibility. Note that some costs are impacted by regulatory requirements, many of which the City controls.	Grants, tax incentives, reduced fees, expedited permit processing, regulatory changes, and publicly-subsidized infrastructure improvements can be targeted to encourage particular design outcomes by reducing associated costs.
Market demand: Market demand, as shaped by shifting demographics and consumer preferences, ultimately determines the feasibility of any housing product. Evolving market demand can bring the emergence of market niches for innovative housing types and design.	The City can influence consumer demand by increasing public awareness of the possibilities and benefits of design approaches. An example of this is the Office of Sustainable Development's promotion of sustainable housing design.
Developer willingness: In order to minimize financial risk, developers tend to focus on housing types and design features they have personally found to be profitable. As a result, there is often considerable lag time between when innovative housing first achieves market success and when it becomes more broadly built.	By publicizing the regulatory feasibility and market success of projects with innovative design, the City can help reduce developer resistance by addressing concerns about risk. Public investments, such as street improvements and parks, have also been used to inspire developer investment in quality design.

Discussion of Alternative Implementation Approaches

Alternative 1: Regulatory Design Standards

Regulatory design standards, in the form of *Zoning Code* development standards, provide the advantage of regulatory certainty – both in terms of providing community members certainty that new development must comply with them, as well as providing applicants with predictability as to what can be approved. Examples of basic regulatory design standards include requirements in commercial zones for ground floor windows and for buildings to be located close to sidewalks. These regulations ensure that new development will continue the established characteristics of main street areas, or contribute to a more pedestrian- and transit-oriented built environment in areas where this is desired. A more comprehensive example of regulatory design standards are the Community Design Standards (*Zoning Code*, Chapter 33.218), which apply as a regulatory standards alternative to design review in most areas outside the Central City and historic districts that are subject to the Design Overlay Zone. The Community Design Standards call for features, such as porches, pitched roofs, and window trim, that are intended to ensure that infill development reflects the established architectural character of neighborhoods and provides a visually-rich, pedestrian-friendly street frontage.

While regulatory design standards have proven to be valuable tools for ensuring that the design of new development contributes to meeting some of the community’s most basic design objectives, these standards have not been without shortcomings. Problems related to regulatory design standards, particularly in relation to the Infill Design Project’s focus on multidwelling development, include the following:

- Citywide regulatory design standards have been criticized as a “one-size-fits-all” approach that cannot ensure that infill development responds to the varying characteristics of different parts of the city. For example, the Community Design Standards were originally created to reinforce the established architectural character of the Albina area and do not respond as well to the very different characteristics of other areas, such as Outer East Portland and Southwest Portland, where these standards now apply. An alternative approach is to create different sets of regulatory design standards for different areas of the city. This latter approach, however, is beyond the scope and resources of the Infill Design Project. The Bureau of Planning’s Regulatory Rethink Project may be an opportunity to consider the possibility of area-specific design standards as part of a comprehensive re-evaluation of the *Zoning Code*.
- Regulatory design standards are often not effective at addressing context-specific issues, such as contrasts in building scale between new and exiting development. In its original form, the Community Design Standards did include context-based provisions, such as limitations on building height and front façade area based on those of adjacent structures. These provisions, however, were later eliminated because City staff found them to be difficult and time consuming to administer and because developers (including non-profit community development corporations) cited the costs of having to inventory the dimensions of area structures and of producing contextual site plans for each project.
- Regulatory design standards appear to be effective at preventing the “worst of the worst,” but do not ensure design that community members consider to be *desirable*.



Apartment building approved through the Community Design Standards. While it includes the requisite front porch, pitched roof, and front windows, feedback from community members suggests that its design falls short of serving as a positive contribution to the community.

- It is difficult to translate the nuances of good design into code. For example, well-designed window treatments are about placement and proportion as well as amount of window coverage. Also, it is difficult to prescribe how to achieve a successful sequence of transitions between public streets and the interiors of residential units.
- The great diversity of housing types and site arrangements that comprise multidwelling development outside the Central City make the application of design standards focusing solely on the interface with the public realm problematic. In many multidwelling projects, particularly in Outer East areas, only a small portion (if any) of the development is oriented to a public street. Of greater prominence in the design of multidwelling development, compared to detached and attached housing development, are broader site design issues, such as the arrangement and utilization of open space, and the relationship of the project to adjacent properties.



“Façade composition, window proportions and arrangements make a big difference. Both examples have front porches, entrances, windows, and no front parking, but it is understandable why they were rated so differently. Execution, the details of how you do things, make a big difference.”
(comments by an advisory group member on two triplex projects that share basic façade features, but which the public rated very differently in a design preferences survey)

Alternative 2: Design Review

Discretionary design review is one of the primary strategies that Portland and other cities use to guide the design of new development. In the Puget Sound region, most larger cities, including Seattle, Olympia, and Everett, require design review for most multifamily development. More locally, most multifamily projects in both Gresham and Beaverton are subject to design review. In Portland, design review is restricted to geographically-targeted areas, such as the Central City, other mixed-use centers, and historic districts. The majority of multidwelling zoning, however, is in areas where design review does not apply.

Design review, because it allows site-specific consideration of projects, could be quite effective at addressing the many site- and context-specific issues related to the design of infill development that are not easily addressed by regulatory standards. Design review can also facilitate constructive dialogue between the City, applicants, and community members. Indeed, one of the primary reasons why community activists seek design review is to provide a means for community input (multidwelling development, regardless of scale, is otherwise allowed by right, with no requirement for community input or notification).

Extending design review is not being proposed as part of the Infill Design Project for several reasons, including the following:

- City staffing is not available to support a greatly expanded application of design review;
- Design review adds considerably to the time and costs that applicants must bear for development approvals; and
- State law requires that jurisdictions provide the option of regulatory design standards as an alternative to discretionary design review (except for Portland’s Central City and in historic districts), which means that extending the Design Overlay Zone does not necessarily provide the advantages of a discretionary design review process.

Alternative 3: Non-Regulatory Approaches

A wide range of possible implementation approaches fall under this alternative, such as incentives, public investments, education and outreach. Specific strategies that have been identified as possibilities include: guidebooks and other publications, “prototype plans” highlighting approvable housing configurations, workshops, design competitions, demonstration projects, expedited permit processing, reduced fees, grant programs, and public investments in infrastructure supportive of good design.

Advantages of non-regulatory approaches include:

- Provides potential for transcending the limitations of regulatory design standards by allowing the nuances of design strategies to be addressed;
- Facilitates a cooperative approach (as one designer noted, “good design does not happen through force of regulations, it happens when developers *want* good design”);
- Avoids additional regulatory complexity;
- Limits costs to developers; and
- Accommodates flexible responses to a constantly changing marketplace, facilitating the creation of housing reflective of changing consumer preferences, shifting land and housing prices, and emerging market niches. Illustrative of such opportunities is the City’s recent removal of minimum parking requirements (for residential projects located near transit), which has allowed for the emergence of a niche market for well-designed housing without off-street parking, enabling avoidance of the design impacts associated with providing parking for higher-density projects on small infill sites.

The most basic disadvantage with non-regulatory approaches is that they do not provide certainty of outcome. In contrast to the certainty of regulations, these approaches depend on voluntary action on the part of developers (note that discussions with developers in Outer East, where the contrast between the community’s design objectives and what is actually being built is perhaps most acute, indicate that they are mostly satisfied with the success of their projects and see no reason to change their approach to design). Another issue regarding non-regulatory approaches is that some of these strategies would require ongoing commitment of Planning Bureau staff time, while others would require ongoing commitment by other bureaus. In contrast, Planning Bureau staff commitment to a regulations-based approach ends once *Zoning Code* amendments are adopted, after which the adopted regulations continue to shape development.

Preferred Approach: Staff Recommendations

Staff recommends an approach that includes an emphasis on non-regulatory strategies, but also combines elements from the regulatory and design review alternatives. For example, while a key near-term product will be the creation of a “Portland Design Guide,” intended to increase awareness of desirable design strategies and innovative housing configurations, staff also recommends consideration of a limited number of regulatory amendments to facilitate desirable infill design, as well as consideration of a neighborhood contact requirement for multidwelling development to foster the opportunities for community input that are an advantage of design review. The four primary thrusts of the proposed implementation strategies are to:

1. **Educate and foster dialogue about design.** Pursue strategies that increase developers’, designers’, and the general public’s awareness of infill design strategies. Also, foster dialogue about design among a wide range of community stakeholders.
2. **Remove barriers to desirable design and development.** As much as possible, make desirable development the “easy thing to do.”
3. **Adopt a limited number of regulatory design standards** to bring conformance with the most fundamental design principles and to provide greater consistency in how multidwelling development is regulated. Staff proposes that existing standards which limit the amount of front parking and require street-facing windows (currently applicable to most, but not all, multidwelling development) be extended to apply to all multidwelling development.
4. **Facilitate a wider range of housing types and configurations** that hold potential for meeting the community’s design objectives.

The specific strategies that constitute the four components of this implementation approach are described below. Many of these strategies would require implementation by other City bureaus (noted in parentheses), rather than the Planning Bureau, and their feasibility will need to be determined by the relevant bureaus. The inclusion of these implementation strategies in this report is intended only as a starting point for further discussion, not as an indication that other bureaus have agreed to their implementation.

Staff proposes that the recommended *Zoning Code* amendments included among these strategies be taken through the legislative approval process as part of the Regulatory Improvement Workplan. This is a significant departure from past Planning Bureau infill design projects, which have tended to focus on *Zoning Code* amendments, and will allow project staff to concentrate instead on implementing non-regulatory strategies. Note that the recommended *Zoning Code* amendments in this report are conceptual only. Specific code language will be developed as part of the Regulatory Improvement Workplan, which staff anticipates will begin the legislative approval process in the Summer of 2005.

I. Educate and foster dialogue about design

The strategies listed below are at the core of the non-regulatory implementation focus recommended by Planning Bureau staff. Included among these strategies are several that would need to be implemented by the Bureau of Development Services (BDS). This reflects the fact that BDS, rather than the Planning Bureau (“Planning”), is responsible for the current planning functions that provide the best opportunities for ongoing outreach to developers.

A. Near-term implementation

1. **Creation of a “Portland Infill Design Guide,”** which will serve as a resource for developers, designers, City staff, and the general public. Because of community interest, staff has already initiated work on the housing prototypes component of the guide, which staff anticipates will be completed in the Summer of 2005. This guide will consist of the following components:
 - a. A collection of **housing prototypes**, suitable for common infill site configurations, that meet City regulations and design objectives and that are feasible from a market perspective. The prototypes will serve as models for future development and as a “path of least resistance” incentive for developers by providing the advantage of regulatory certainty in illustrating approvable configurations. They will also highlight ways of meeting difficult design objectives, such as balancing parking needs with pedestrian-friendly design, and could help broaden the range of housing types being built in Portland by presenting innovative configurations. One prototype, for instance, will highlight how cluster housing oriented around a common green can be configured on a small infill site, as an alternative to rowhouses. The prototypes will be based on site configurations common in different parts of the city, such as the Streetcar Era neighborhoods and Outer East, and will thus provide a variety of area-specific solutions. Staff anticipates that the collection of housing prototypes will be added to over time to expand the range of solutions.
 - b. A **design strategies guide**, highlighting a variety of infill design strategies (such as various ways of ameliorating scale contrasts, minimizing the prominence of vehicle areas, reducing privacy impacts, managing stormwater impacts, etc.) that are difficult to achieve through regulations alone.
 - c. Presentation of **case studies**, highlighting exemplary infill projects from Portland and elsewhere, and including information on construction costs and techniques. The case studies will help increase awareness of the viability of innovative housing types and configurations.
2. **Wider dissemination of existing infill design guidebooks** (such as *The 10 Essentials of North/Northeast Portland Housing* and *Building Blocks for Outer Southeast Neighborhoods*).
3. **Design awards program for small-scale residential infill development.** This could serve as a positive incentive by acknowledging exemplary work by builders and designers and would serve to highlight design that can serve as models for future development. Implementation of a design awards program will require further consideration, as it could be administered by Planning, BDS, the Office of Neighborhood Involvement, the various neighborhood coalitions, the local chapter of the American Institute of Architects, or some combination of these.
4. **Establish a neighborhood contact requirement** for new construction in the multidwelling zones, triggered by a project size threshold. This would address a salient concern of neighborhood associations that they often have no opportunity for input regarding even large-scale multidwelling projects.

B. Potential future work program (*requires resources not currently available*)

1. **Design competitions**, to cultivate innovative solutions to infill design problems. A design competition focused on medium density infill development could build on the interest generated by the City’s “Living Smart” competition for narrow house designs. Such competitions could focus on particular infill situations that have proven problematic, such as housing with three to five units on a 5000 sq.ft. lot in the R1 zone, or courtyard housing possibilities on a 10,000 sq.ft. site in the R2 zone.

2. **Demonstration projects.** Could involve using existing exemplary projects, or Planning’s involvement in the development of new projects, to foster awareness of design strategies and alternative housing types.

C. Investigate feasibility with the Bureau of Development Services (BDS):

1. **Encourage builders to contact neighborhood associations early in the development process**, such as by including neighborhood/ONI/coalition contact information as part of permit packets and other information disseminated by BDS. **(BDS)**
2. **Training/workshops for builders and the public on infill design strategies and techniques.** **(BDS/Planning)**
3. **Reduced land use procedure fees** if an applicant provides letters from abutting neighbors and the neighborhood association stating their support for an adjustment. This would encourage early communication with neighbors and neighborhood associations and be an incentive for cooperative problem solving. An alternative possibility may be to base land use review fees on the amount of staff time spent on the review in order to encourage early resolution of issues. **(BDS)**
4. **Provision of basic design consultation services by City staff** to provide suggestions regarding site design and to help find solutions for difficult sites. **(BDS)**
5. **Allow/encourage proposals to voluntarily go through design review**, providing regulatory flexibility and “bundling” of adjustments as an incentive. This is called for in Comprehensive Plan Goal 12 (Objective 12.7G), but has not been implemented. Voluntary design review would provide an additional opportunity for public input and bring greater attention to design issues than is the case with other types of land use review. A potential problem, however, is that BDS indicates that applicant fees do not entirely cover the costs of design review. Any expansion of design review would therefore be a further burden on BDS’s limited resources.

II. Remove barriers to desirable design and development

This category includes a variety of strategies, including code amendments, targeted incentives, and possible public investments, intended to facilitate desirable infill design. They include *Zoning Code* amendments that would allow for more efficient use of the limited site area typical of infill projects, with particular emphasis on regulatory changes that would allow less area to be devoted to vehicle areas and other impervious surfaces. They also include recommendations for consideration of changes to the regulatory practices of other bureaus, together with suggestions for potential incentives to encourage desirable design features. Staff has also included within this category the idea of targeting City investments in street infrastructure in areas zoned for multidwelling development to encourage pedestrian-oriented design in areas that currently lack sidewalks.

A. Zoning Code amendments

1. **Provide the option of a “shared driveway” arrangement**, perhaps with a requirement for paving blocks, as an alternative to requirements for raised walkways adjacent to private driveways. This would facilitate driveways designed to accommodate both pedestrians and automobiles and would minimize impervious surface area.
2. **Allow the driveways of small multidwelling projects to be located closer to property lines than the 5’ currently required**, perhaps in conjunction with a requirement for a site-obscuring fence. This will facilitate the ability to provide access to



Shared driveway in Seattle

rear parking on small sites, facilitate more street-oriented building frontage, and make more efficient use of site area.

3. **Change the definition of “driveway”** so that its width is not dependent on PDOT’s curb cut width requirements. This would allow for narrower driveway dimensions in situations in which additional space is not needed for vehicle maneuvering or fire equipment access.
4. **Facilitate housing with rear alleys and other shared access arrangements**, by amending lot size and building coverage requirements to reduce barriers to the creation of shared access tracts. These amendments would facilitate alternatives to housing projects with multiple front garages.
5. **Allow rear decks to exceed lot coverage limits for rowhouses with rear-accessed parking.** This would allow more efficient use of space otherwise used only for vehicle maneuvering and remove a disincentive to rear-accessed parking arrangements (ground-level patios, common with rowhouses with front garages, do not count against lot coverage requirements).
6. **Reduce walkway width requirements for interiors of projects.** The current requirement of 5’ is excessive for private walks and complicates the design of cluster housing configurations on small sites.
7. **Drop requirement that required outdoor space for each unit be screened from each other by material that is totally site obscuring.**
8. **Allow a maximum front setback of 20 feet for purely residential development along transit streets**, to allow more buffering from busy streets. Current maximum setback is 10 feet, which fosters the desired pattern of sidewalk-oriented storefronts for commercial development, but exacerbates traffic and privacy impacts for ground-level residential units. Also, the minimum and maximum transit street setbacks in the R2 zone are currently both 10’, which provides little design flexibility.



Rowhouses with rear decks



Outdoor space screening requirements lead to walled balconies (upper image), while preventing the more open arrangements typical of cottage clusters (lower image).

B. Investigate feasibility with other bureaus *(implementing agency in parentheses)*

1. **Expedited permit processing or reduced permitting fees** for projects that voluntarily meet specific design criteria. Developers have identified this strategy as having great potential for improving the design of infill projects, since it appeals to the self-interest of developers. Initial conversations with BDS, however, suggest this strategy is particularly problematic and may not be feasible. **(BDS)**
2. **Reduce driveway width requirements for small multidwelling projects.** Current Title 17 requirements for 20’-wide driveways for multidwelling projects complicate projects on small sites and result in large portions of sites devoted to impervious surface. **(PDOT)**
3. **Consider the possibility of reducing requirements for improvements to existing alleys** to minimize costs and to encourage more builders to use existing alleys, or consider strategies to help finance alley improvements. **(PDOT)**
4. In specific areas zoned for multidwelling development, **examine possibilities for City funding to improve deficient streets** (lacking sidewalks, etc.) in order to provide the

infrastructure framework needed to support pedestrian-oriented infill development and neighborhoods. *(Note: only possible in long-term, as much additional consideration of this idea is needed.)* **(PDOT)**

5. In specific areas with oversized blocks that are zoned for multidwelling development (such as in Outer East), **examine possibilities for City involvement in building or financing alleys to facilitate pedestrian-oriented street frontages, or in creating additional streets to enhance street system connectivity.** This would address problems related to lot and block patterns in Outer East, where much of the street frontage of the area's typically narrow lots must now be devoted to vehicle access, leaving little room for street-oriented buildings. *(Note: only possible in long-term, as much additional consideration of this idea is needed)* **(PDOT)**
6. **Reduce stormwater system development charges (SDCs)** when sand-set paving blocks or other pervious surfaces are used for driveways. This could provide the dual benefit of reducing stormwater impacts while providing a pedestrian-friendly design feature. **(BES)**
7. **Creation of stormwater management system prototypes for small urban infill sites,** where constrained site area makes the design of such systems especially problematic. Could also involve the use of right-of-way area. Currently, BES's stormwater management manual often clashes with plumbing code requirements, especially on small infill sites. **(BES/BDS/PDOT)**
8. **Investigate the possibility of creating a grant program to provide funding for design services for multidwelling projects outside urban renewal areas.** Related to this, create a clearinghouse for design-related grants. **(PDC/Planning)**

III. Adopt a limited number of regulatory design standards

Besides the “facilitative” *Zoning Code* amendments described above, staff recommends two more restrictive *Zoning Code* amendments. These are intended to ensure adherence to fundamental design principles calling for multidwelling development that contributes to a transit- and pedestrian-oriented environment, and to bring greater consistency in how the design of multidwelling development is regulated.

1. **For multidwelling projects, limit the amount of property frontage that can be used for vehicle areas.** One possibility is to extend the applicability of the transit street limitation of 50 percent to all multidwelling development. Development standards applicable to transit streets prevent parking from occupying more than 50 percent of setback area between buildings and the street in order to cultivate a more transit- and pedestrian-friendly street frontage. Because most areas with multidwelling zoning are located near transit facilities and are intended to be transit oriented, staff recommends that transit street limitations on front parking apply to all multidwelling development. This parking limitation would prevent configurations where the entire front setback is devoted to vehicle areas.
2. **Require street-facing windows for all multidwelling development.** Currently an 8 percent window coverage requirement applies to development in multidwelling zones, but there is no window requirement for multidwelling development in commercial zones. Also, consider expanding the required window coverage to 15 percent, which would bring consistency with the window coverage standards that apply to detached houses, rowhouses, and duplexes.



Triplex with driveway occupying most of the street frontage.



Triplex built to standardized plans designed to conform to transit street limits on front parking.

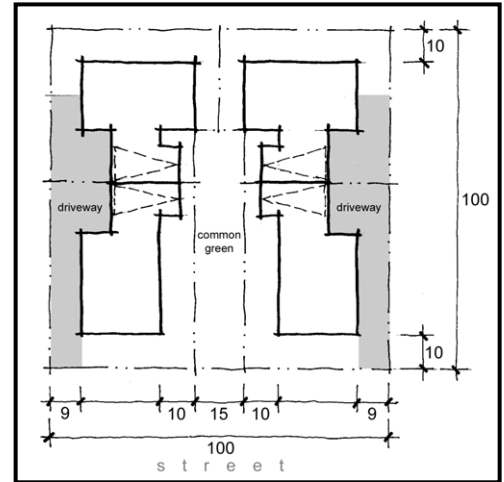


Apartment building on a commercially-zoned main street. Meets transit street setbacks and front parking limits, which are intended to foster transit- and pedestrian-oriented design, but the lack of windows works against this intent.

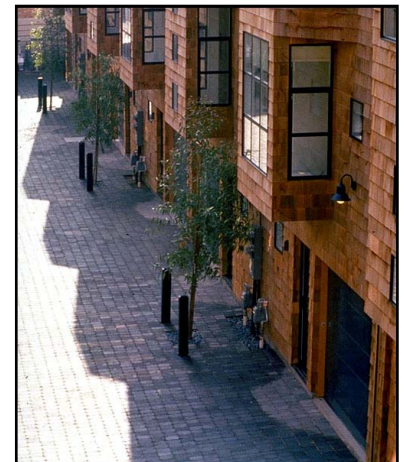
IV. Facilitate a wider range of housing types and configurations

These strategies, which consist of amendments to the *Zoning Code*, are intended to reduce regulatory barriers to alternative housing types and configurations that hold potential to meet the community's design objectives. They facilitate cluster housing arrangements such as common greens and other housing oriented to shared courtyards, provide for a new form of cluster housing oriented to a shared street, allow additional opportunities for duplexes on small lots, and expand the range of owner-occupied housing possible on small sites zoned for higher-density housing (see the Chapter 3, Housing Diversity for more detailed discussion).

1. **Reduce front setback requirement for structures fronting onto a common green to allow this provision to be used on small sites.** Currently, front setback requirements for lots fronting onto common greens are the same as setbacks on public street frontage. In the R2 zone, common green configurations could serve as alternatives to rowhouses, but are effectively precluded because of requirements for 10' setbacks from the common green, which results in insufficient space for buildings. Code modeling indicates that reducing setbacks on common greens to 5' would allow common greens to be possible on sites with as little as 100' of frontage. This would facilitate the development of fee-simple cottage clusters and courtyard townhouses on small sites.
2. **Allow space required for individual outdoor areas to be combined into a larger shared area.** This would facilitate courtyard housing arrangements by allowing shared open space to serve as an alternative to private outdoor space.
3. **Create a land division provision to allow lots in higher-density zones to front onto a "shared street,"** designed for both vehicles and pedestrians, as a more urban alternative to the common green. This would facilitate homeownership opportunities and additional housing types on small sites zoned for higher-density development.
4. **Reduce minimum lot size requirements for duplexes.** Duplexes on small lots provide opportunities for accommodating density in a form that maintains fine-grain neighborhood patterns. However, minimum lot sizes for duplexes conflict with minimum density standards in the R1 zone, precluding new duplex lots from being created. Reducing minimum lot sizes for duplexes would thus expand their possibilities as infill housing solutions.
5. **Allow accessory dwelling units (ADUs) to count toward minimum density requirements in the multidwelling zones.** This would provide additional owner-occupied housing possibilities for the R1 zone by increasing the ability of rowhouses, in conjunction with ADUs, to meet minimum density requirements. In contrast to the approach taken in the *St. Johns/Lombard Plan*, which reduced minimum density requirements for small R1 sites to accommodate rowhouses, this code amendment would not result in a reduction in housing unit density. It would also increase the range of medium-density housing configurations and facilitate a mix of owner-occupied and rental housing.



Code modeling of a common green configuration on a 10,000 sq.ft. site.



Housing on a shared street

Courtesy Vallaster & Cori Architects

6. **Change definition of “attached house,”** currently defined as attached along at least 50 percent of each dwelling, to allow additional housing configurations. Consider changing the percentage requirement to 25 percent.

Strategies Requiring Implementation by Non-City Organizations

While considering potential implementation strategies that the City could pursue, Infill Design Advisory Group members also raised ideas for strategies that could be implemented by outside organizations, such as the local chapters of the Home Builders Association (HBA) and the American Institute of Architects (AIA). These ideas included the following:

1. Encourage joint HBA/AIA efforts, such as co-sponsored workshops on infill design strategies and techniques. Another suggestion involved the idea of a joint program to increase builders’ awareness of the benefits of architectural services, especially in finding solutions to the challenges of higher-density development on small infill sites, and to help link up builders and architects.
2. Encourage the AIA to develop a program to educate architects about undertaking design/develop projects. Facilitating more design/develop projects by architects could lead to creative infill development solutions, as this provides architects greater control over the design of projects and more creative leeway. This could build on the success of pioneering design/develop projects by architects in Portland, which have resulted in some of the city’s most innovative small mixed-use projects.

Items for Future Consideration

The following are ideas that were identified during work on the Infill Design Project as meriting consideration, but which are beyond the scope of this project and would need to be the focus of future Planning Bureau work programs:

1. **A focus on design and development issues along main streets and corridors, particularly regarding residential and mixed-use development.** Main streets, together with mixed-use centers, are intended to be the focus of more intense development. Unlike the centers, however, most main street areas do not have design review and have not been the focus of area-specific planning. Recent increases in development activity along main streets, such as new mixed use projects on the Hawthorne, Belmont, and Alberta main streets, provide an opportunity to evaluate issues and opportunities related to infill development in these areas. Also, challenges related to creating livable multidwelling housing along major streets with high traffic volumes remain to be addressed; as well as consideration of allowances for additional uses in multidwelling-zoned areas on major streets.
2. **A focus on Outer East Portland development and design issues,** perhaps as an evaluation of the Outer Southeast Community Plan, including consideration of:
 - **Creating a vision for the future of growth areas outside of mixed-use centers.** A key need identified by the Infill Design Advisory Group is a clarified vision for areas outside the Gateway Plan District where significant change is expected and occurring (such as the SE 122nd Avenue corridor, the 148th Avenue light rail station area, and the Powellhurst-Gilbert neighborhood west of I-205). A potential focus is the 82nd Avenue/1-205 corridor, where a future light rail line together with the existence of large amounts of commercial and multidwelling zoning provides many opportunities for growth. One area within this corridor that particularly merits attention is concentrated around SE Division Street from 82nd Avenue to I-205 (extending southward to SE

- Powell Boulevard), which has been experiencing much recent development and appears to be poised for significant future growth. At the western end of this area is the new Portland Community College campus, while a future light rail station will anchor its eastern end. In between, this area has been the location of several recent commercial projects (two designated main streets intersect at SE Division and SE 82nd) and it includes large amounts of multidwelling zoning (among the largest concentrations of such zoning in Portland), where large lots with small houses are being redeveloped with higher-density housing, including several condominium projects.
- **Coordination with the Parks Bureau to explore possibilities for locating new park facilities in areas with large amounts of multidwelling zoning.** Locating parks in areas with concentrations of multidwelling development would help address issues related to the many families in Outer East Portland living in apartment buildings, which frequently provide little outdoor space suitable as play areas.
 - **Explore possibilities for designing major streets to be supportive of adjacent multidwelling zoning.** An issue in Outer East Portland is that much of the area's multidwelling zoning is located along major streets with multiple lanes of traffic that can compromise the livability of adjacent residential units. When opportunities exist for improvements to major streets in areas with multidwelling zoning, consider placing a priority on features such as wide planting strips, on-street parking, and landscaped medians that can help buffer residential units from traffic and provide a greener, more residential emphasis.
3. **Clarify design expectations for different parts of Portland.** City design-related policies and regulatory approval criteria call for new development to contribute to the “desired character” of neighborhoods. In many parts of the city, however, little guidance exists on what constitutes this desired character, resulting in uncertainty as to whether it corresponds to the character of the *existing* built environment or whether a desired *future* character is the goal. Possible approaches include:
 - Creation of a hierarchy of design principles highlighting how design approaches should differ between areas intended to be places of changes, such as mixed-use centers and main streets, and areas intended to be places of relative stability, such as neighborhood residential areas.
 - Creation of voluntary design guidelines for parts of Portland that do not already have them (such guidelines presently exist for Inner North/Northeast, inner parts of Outer Southeast Portland, and as part of some neighborhood plans). These guidelines would help clarify what constitutes desired community character in different parts of the city.
 4. **Examine opportunities to foster tree preservation in multidwelling development.** In many parts of Portland, existing trees are cherished aspects of community character. However, while tree preservation requirements apply to the development of detached and attached houses, no such requirements apply to multidwelling development.
 5. **Consideration of the possibility of allowing lots to be created without any street frontage,** perhaps as part of a re-evaluation of the Land Division Code Rewrite. Such allowances have facilitated a wide variety of fee-simple, owner-occupied housing types to be created in Seattle and in cities in California, and could be particularly useful in providing solutions to development on small sites in Portland. This, however, would be a significant departure from how land divisions have been regulated in Portland and raises issues regarding the provision of utilities infrastructure.
 6. **Explore possibilities for changing state law to facilitate a streamlined land division timeline.** The lengthy approval process for land divisions (often a year-long process) has

been identified as presenting a barrier to providing owner-occupied housing on fee-simple lots. City staff in charge of reviewing land division proposals indicate that it would be possible to significantly reduce the amount of time needed to process land divisions if not for certain state rules, particularly those requiring final plat reviews to be treated as separate land use decisions. Developers indicate that reducing the time required to approve land divisions would help reduce the cost of new owner-occupied housing.

7. **Re-evaluation of the Community Design Standards**, which were originally created for the Albina Community Plan area but now apply citywide to areas subject to design review. A criticism of the Community Design Standards is that they are not responsive to areas, such as neighborhoods in Southwest and Outer East Portland, as well as mixed use-centers, whose existing built environment and desired character are very different from Albina.
8. **Reconsideration of minimum density requirements**, to allow greater design flexibility and responsiveness to site constraints and market demands.
9. **Review of Zoning Code requirements for the R2.5 zone.** Because it is a single-dwelling zone, the R2.5 zone was not a focus of the Infill Design Project, although it allows similar densities to the R2 zone. Preliminary analysis indicates that some R2.5 zone requirements have the unintended effect of encouraging design that interrupts typical neighborhood patterns and that prevent alternative housing types, such as cottage clusters and common green arrangements, that might otherwise be appropriate in this zone.