



Site Design for Multifamily Housing

Creating Livable,
Connected Neighborhoods

Nico Larco
Kristin Kelsey
and Amanda West

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By Nico Larco, Kristin Kelsey, and Amanda West



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Introduction

Connectivity and Livability

Suburban Multifamily Housing

The Latent Potential for Livability in Suburban Multifamily Housing

The Book's Purpose

How to Use This Book

Further Reading

Increasing the livability and vitality of cities and suburbs is within reach and the design and development of urban and suburban multifamily housing is a key component of achieving this goal.

This book provides guidance for planners, developers, designers, and citizens to create more livable, connected, and vibrant multifamily developments and neighborhoods. Livability is a measure of a community's quality of life and includes factors such as access to education, employment, entertainment, and recreation. The last few decades have seen a groundswell of interest in livability and how our built environment can hamper or promote it. Dense and compact development, the design of transportation systems, the design and distribution of open space, and the mixing of uses all contribute to an area's livability.

The typical disconnected and isolated models of development seen throughout the country have been linked to reduced quality of life, health, and social connections. Yet because of codes and the culture—and at times, simply habits—of planning, development, and design professionals, this form of development persists. This book is focused on shedding light on these codes, cultures, and habits and on describing the aspects of multifamily site design that contribute to livability.

A key concern of the current livability movement has been to increase accessibility, safety, and social interaction by reducing the dominance of the automobile—and design is central to this concern. Single-use, low-density, segregated, and disconnected environments that are uninviting or hostile to pedestrians and cyclists strongly favor auto use. The design of these environments typically lacks basic pedestrian amenities such as sidewalks, allows parking to dominate the landscape, provides no direct route to destinations, and frequently leaves pedestrians and cyclists exposed to fast-moving and dangerous traffic.

When faced with these environments, residents make rational choices and elect to travel by car, even when their destination is within walking or biking distance. Changing the design of these areas in a way that balances the needs of pedestrians, cyclists, and transit riders with the needs of motorists is a key step in increasing livability.

Multifamily housing features prominently in livability discussions, as increased density is an important component of compact and walkable development. This is compounded by the fact that multifamily housing is typically located near destinations such as shops, services, and parks. This condition makes multifamily development an ideal candidate for the livability concept of the “twenty-minute neighborhood”—the idea that many of our daily needs should be located within a twenty-minute walk from our homes.

By focusing on local daily trips and not on work commutes, the twenty-minute neighborhood increases the quality of life for residents by making it easier for them to access the activities, goods, and services they regularly desire. Year after year, surveys have shown increasing interest in living in areas that are well connected to shops, services, and schools. While for some people this is merely a preference, for others it is a life-changing characteristic of their neighborhoods as greater accessibility increases independence for the elderly, the young, and the economically disadvantaged.

Focusing on the livability of multifamily housing can truly move the dial on livability. There are currently more than 20 million units of multifamily housing in this country and they are nearly evenly split between urban and suburban locations. Nationally, it is one of the fastest growing housing types and more than half of the new multifamily developments in the next twenty years will be in infill and redevelopment areas. Increasing the livability of these developments and taking advantage of their location near a mix of uses is an important first step in affecting the livability of the country as a whole.

Connectivity and Livability

A key aspect of livability is the accessibility of nearby destinations. An important means of increasing accessibility is increasing connectivity. Connectivity refers to the amount, directness, and type of routes within an area. The connectivity of an area affects the distance people must travel to desired destinations with higher connectivity correlating to less difference between the ‘as-the-crow-flies’ distance and the actual walking distance between two points.

This is especially significant in suburbia as street patterns are often a fragmented mix of cul-de-sacs as well as curved, looped, and dead end streets. This causes direct paths to destinations to be virtually impossible and instead forces long, convoluted routes. These longer routes discourage walking and biking and reduce the connectivity of an area.

In multifamily housing developments—especially large-lot developments—internal site routes connect residents to the buildings and amenities in their development while access points and external routes connect them to nearby areas such as commercial destinations, parks, and neighboring residential development. The number, length, distribution, and interconnectedness of these routes affect the overall connectivity of an area. This connectivity, along with the aesthetics and design of the path itself, can affect the ease of walking and biking and ultimately the decision residents make to walk, bike, or drive for short trips.

In well-connected areas, distances are shorter and physical barriers to walking and biking are removed, reducing residents’ reliance on automobiles and increasing ‘active modes’ of travel such as walking and biking. This can reduce vehicle miles traveled, which has positive impacts on health, congestion, air quality, and greenhouse gas emissions.

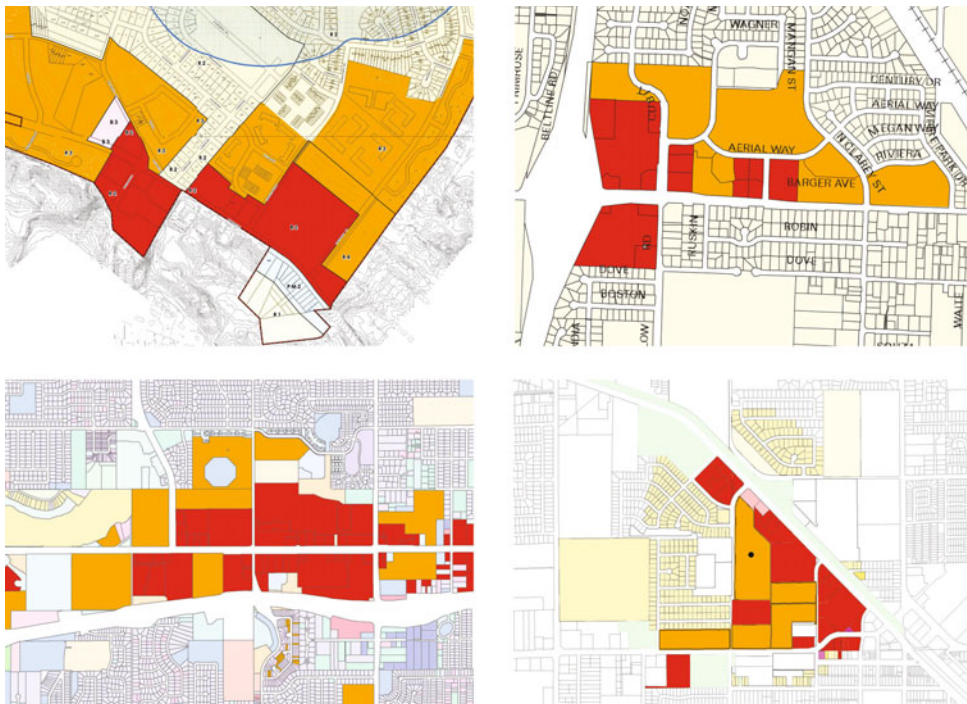
The relationship between connectivity and site design plays out differently in urban and suburban locations. In dense, urban areas, the site design of multifamily housing projects—often smaller than two acres—is more constrained and connectivity is easier to achieve. Urban areas often have tight street networks with street-facing buildings built up to the lot line and parking typically located below or behind buildings. Connectivity in these areas is often dictated by the existing street network and not by the internal site design of multifamily projects. In these developments, it is the distribution and location of building and site entrances and the overall design of the façade that contributes mostly to the connectivity and livability of the area.

In suburban multifamily housing and large-lot urban projects (typically larger than two acres), however, site design is critical to the overall connectivity. These developments are often located in areas that have no legible block structure or, if one does exist, the developments often supersede that structure. Due to the size of these developments, they necessitate their own internal vehicular and pedestrian circulation and structure. With this, the connectivity of these areas is not universally or often even primarily carried by the street system. Instead, the organization of buildings, the form of the internal multifamily site circulation, the design of parking areas, and the distribution of site access points play leading roles in defining area connectivity. The site design of these developments is especially critical in defining an area's livability and this is the primary focus of this book.

Suburban Multifamily Housing

Although urban and suburban multifamily housing are related, suburban multifamily housing is sufficiently different to necessitate an introduction of its own. While multifamily housing may have historically been an urban typology, that is far from the truth today. Multifamily housing is a widespread example of dense residential development in suburbia and it holds great potential for increasing livability and promoting smart growth goals. There are currently over nine million units of suburban multifamily housing in the country and it has been one of the fastest growing housing types in the United States since 1970.

Multifamily housing is home to a wide variety of people and represents some of the most demographically diverse areas of suburbia. Many suburban multifamily residents are drawn to the suburbs due to its amenities or proximity to employment. These residents often choose multifamily housing because of the increased ease of changing places of residence, the lower cost, or the decreased maintenance relative to single-family housing.



Examples of typical land use patterns with suburban multifamily housing developments (yellow); buffering commercial parcels (red); and single family developments (white) in Annapolis, Maryland (top left); Eugene, Oregon (top right); Phoenix, Arizona (bottom left); and Orlando, Florida (bottom right).

While single-family housing is made up primarily of nuclear families, about two-thirds of households in suburban multifamily housing are what the U.S. Census defines as “non-families.” These are individuals living alone or with roommates, divorcees, widows, and unmarried couples. In addition, suburban multifamily housing is significantly more ethnically and racially diverse than suburban single-family housing.

Suburban multifamily housing is built at densities of up to 30 units per acre and is typically located along arterials. Critical to the issue of livability and connectivity, this housing type is often located around commercial development and is often used as a buffer between neighboring commercial and single-family home developments. Because of their design, these developments unfortunately often act as large barriers that impede access of neighboring residents to these areas.

Suburban multifamily housing is different than multifamily housing found in urban areas in that it often occupies large lots, includes multiple buildings within the same site, and typically has its own internal circulation infrastructure. Buildings tend to be two or three stories in height with double-loaded corridors, wood frame construction, exterior vertical circulation, and balconies. Parking is typically exterior to the buildings and often dominates the space around them. Many developments have assigned parking spaces, with one or more spaces per unit.



Examples of typical multifamily housing from Asheville, North Carolina (top left); Salem, Oregon (top right); Phoenix, Arizona (bottom left); and Chelsea, Massachusetts (bottom right).

The Latent Potential for Livability in Suburban Multifamily Housing

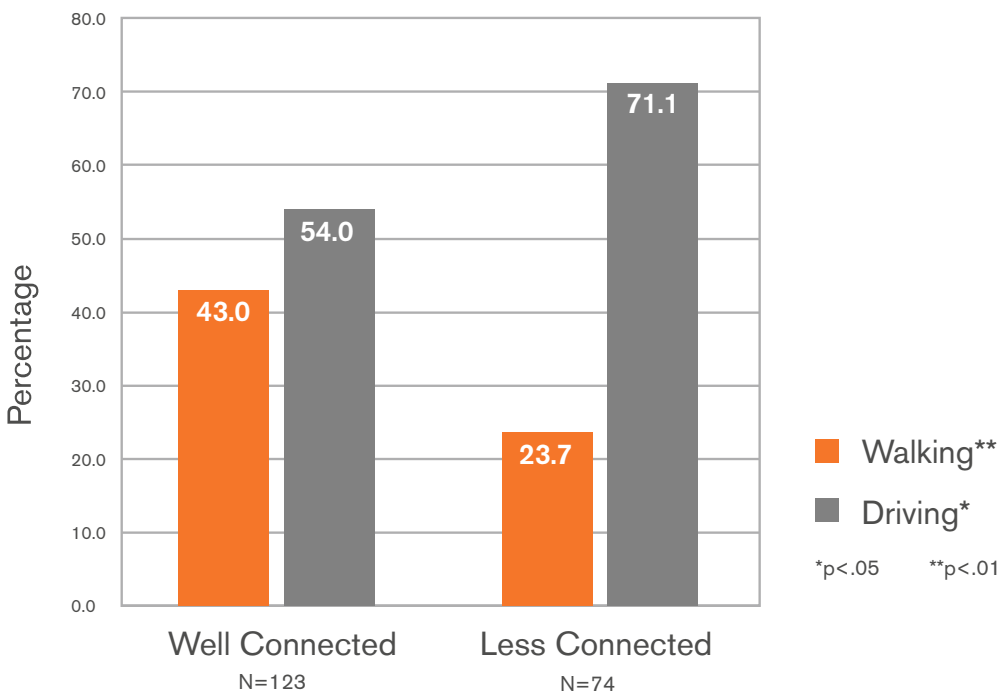
Suburban multifamily housing is mid- to high-density and located near commercial development, meaning that there is a significant opportunity for walking and biking as it puts a large population of residents near daily destinations such as grocery stores, drug stores, banks, dry cleaners, restaurants, and cafes. While density and proximity to destinations exists, the primary factor in deciding if a development will capitalize on this potential for walking and biking is in a project's site design.

Recent studies of suburban multifamily development have shown that increasing the connectivity of developments leads to dramatic increases in residents' rates of walking and biking to local commercial destinations. A 2009 study comparing well-connected and less-connected multifamily developments found that the residents of well-connected developments made more than two and a half walking and biking trips per unit per week to their local commercial area.

This equaled nearly half of their total trips to their local commercial area and represented more than a 60 percent increase in walking trips compared to less-connected developments. In addition, almost three quarters of residents of well-connected developments walked or biked to their local commercial area at least once a week. Of these residents, nearly half did most of these trips walking, and more than 20 percent only walked or biked for these trips. For many residents of the well-connected developments, walking or biking was the default mode of travel for local trips—and site design was the critical factor.

Given the number of units in typical suburban multifamily developments, there is potential for a striking number of walking and biking trips occurring in

Percent of Trips per Week to Local Commercial Areas



What It Means

The Environment, Health and the American Household

A recent study found that residents of well-connected suburban multifamily developments walked to their local commercial area nearly 60% more than residents of less-connected developments (Larco et al, 2010). This equaled nearly one additional walking trip per week per household with the data suggesting that this walking trip was substituting a driving trip. Changing one vehicle trip into a walking trip for suburban multifamily residents around the country can have a powerful cumulative effect.

If all suburban multifamily units in the country were well-connected and their residents switched only one driving trip per week to walking we could...

Reduce



**1/2 Billion Vehicle
Miles Traveled**



**22 Million Gallons
of Fuel Used**



**5.5 Million Pounds
of CO₂ Emitted**

Burn



**21 Billion Calories
per Year**

Save



**Households
\$59.5 Million Yearly**

Larco, N. J. (2010). "Overlooked Density: Re-Thinking Transportation Options in Suburbia." OTREC-RR-10-03, OTREC. Portland, Oregon.

well-connected areas. A single, well-connected multifamily development of 200 units can generate more than 500 walking and biking trips in a single week, drastically reducing dependence on the automobile, increasing residents' independence, and minimizing surrounding traffic and pollution. Multiplying this shift across all of the suburban multifamily developments within a municipality can significantly change the transportation patterns of that city, alleviating congestion in key arterials and intersections and helping attain target automobile travel reductions.

Suburban multifamily housing holds a tremendous latent potential to shift the livability of suburban areas. Many of the changes necessary to do this, both in the retrofits of existing developments and in the typical design approaches in new developments, are not expensive or difficult to layout. Often, the key to implementation is expanding the awareness of planners, developers, and designers to site design and connectivity issues so that more-connected approaches are integral to the design, development, and regulatory process.

This book hopes to be a fundamental step in helping with that implementation.

The Book's Purpose

This book is meant to serve as a desktop reference and guide to planners, developers, and designers involved in multifamily projects. It is part of the larger movement focused on creating more livable, sustainable, and vibrant communities, but it is more narrowly targeted on the multifamily housing typology and on the issue of connectivity.

While larger changes to our built environment may be necessary to fully realize livable communities—especially in suburbia—this book is focused on changes that are doable in the short term, work within existing and accepted development typologies and opportunities, and can be widely applied. This book looks at the incremental changes that can be made within existing development patterns and can have a profound effect on livability.

The book introduces ten key elements of multifamily site design, comparing typical and recommended conditions. Through text, images, and graphics, readers can become familiar with site design elements and learn how these elements affect residents' day-to-day use of multifamily developments and their larger neighborhoods. The book also includes case studies of successful large lot multifamily developments as well as retrofit proposals for existing developments with low internal and external connectivity. A planner checklist, code guide, and code summaries are included to help professionals apply the ideas presented in this book to projects currently in development.

Because of the challenges that exist in large-lot development and the fact that most large-lot multifamily developments are in the suburbs, many of the examples in this book are from suburban multifamily housing projects. While this is case, the principles presented in the book and in the examples shown apply equally well to urban and small lot multifamily developments as well.

How to Use This Book

This book has six components: 10 Site Design Criteria, Project Profiles, Project Retrofits, Project Checklist, Code Guide, and Code Guide Appendix. Each section supports the others and most are organized around the 10 Site Design Criteria framework. At the beginning of each section is a “How-to” page that describes the organization and layout of that section.

Different parts of this book will be helpful to different types of professionals and/or different phases of the design, review, and regulatory process. The 10 Site Design Criteria, Project Profiles, and Project Retrofits give an in-depth understanding of the issues related to suburban multifamily housing site design and are a critical base for professionals as well as interested and involved citizens.

The Project Checklist, Code Guide, and Code Guide Appendix are more technical in nature and are meant to be used by professionals as they are designing or developing multifamily housing projects or the codes that regulate them.

Below is a description of each of the book sections:

Site Design Criteria: The criteria section looks at key issues related to suburban multifamily site design and connectivity and provides descriptions and examples of successful projects. The criteria are organized by scale and complexity, starting at the largest scale first. This section is critical for anyone interested in suburban multifamily site design.

Project Profiles: This section includes suburban multifamily projects from around the country and presents basic background information for each development as well as an analysis of the project’s pedestrian networks, access points, parking strategies, and street network design. Each project includes photographs that help illustrate key points.

Project Retrofits: This section shows how existing projects might be modified to incorporate some of the ideas discussed in the Site Design Criteria section.

Project Checklist: The checklist is a reference that can be used during project design and development or permit review. It is meant to be a guide for planners, developers, and designers and can be modified to include local code issues and conditions.

Code Guide: This section looks at codes from five progressive cities across the country that have focused on multifamily housing development. The guide is organized by the 10 Site Design Criteria and includes specific code language from the case study cities.

Code Guide Appendix: While the Code Guide includes edited sections of the codes from the different case study cities, the Code Guide Appendix shows relevant code sections in their entirety. This section, along with the Code Guide, is an excellent reference for planners who are reviewing their current codes.

Further Reading

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10 points to well-connected
multifamily housing


Site Design Criteria

1. Pedestrian Network
2. Street Network
3. Access Points
4. Edges
5. Parking
6. Street Design
7. Building Massing & Orientation
8. Open Space & Landscape Design
9. Bicycles
10. Relationships

Topic Area **Definition** **Topic Headings**

1. Pedestrian Network

Addressing Pedestrian Access on the Site and to Neighbors



The pedestrian network is the system of walkways, crosswalks, and paths that allow walking within a development. A well-planned network is important for allowing people to easily access all parts of the development without a car, increasing interaction among residents, and decreasing automobile use.


Existing Conditions & Challenges

Limited or No Sidewalks

Buildings are sited on fully paved, open lots without designated space for pedestrians. Physical elements that cue pedestrians where to walk and drivers where to drive are nonexistent, thus hindering safe travel for all users.


Not Networked

Sidewalks that provide only single-loop circulation throughout a development limit travel choices and do not provide the most direct access between units, amenities, and other destinations. This condition creates an uninteresting walking environment and does not encourage recreational walking.



This single-loop road only allows for one path through this development.

Disconnected Sidewalks




Sidewalks that don't lead anywhere, that don't lead to the end of a street, or force pedestrians to make only out-and-back trips are difficult to use. This condition limits route choices and may create a disincentive to walking.

This obstacle is particularly challenging for parents with strollers, the elderly, and residents that may be using a wheelchair.

Unmarked Crosswalks

Natural street crossings exist within developments, but are often not designated as pedestrian crosswalks. They lack any or all of these elements: paint, bulb-outs, raised elements, curb cuts, or signage. Cars may not expect pedestrians to be crossing in these areas because of the lack of identifying elements. These situations can also make it less comfortable for pedestrians to cross the street.




Recommendations

- 1.1 Sidewalks Connecting Every Destination**
Networking building entries, amenities, access points and parking.
- 1.2 Robust Network**
A sidewalk system with many route choices for pedestrians.
- 1.3 Attractive and Usable Pedestrian Paths**
Designated crosswalks at natural crossing points.


1.1 Sidewalks that Connect Every Destination

Developments often lack sidewalks or a network of sidewalks that connect units to other units and/or amenities within the development. This condition forces residents to be exposed in parking lots or through undefined spaces. Building sidewalks to every destination makes walking within the site safe and easy, and discourages the use of automobiles for short distance trips.

Within a development, sidewalks should connect all possible destinations including building entries, access points, and amenities. Internal routes need not be focused only on streets should allow residents to access amenities and neighbors through direct paths.



Parkside Apartments, Eugene, OR
Pedestrian network highlighted in this site map connects all areas of the development through pedestrian travel.



Legends at Lake Nona, Orlando, FL
A well-used and direct path between units and recreational amenities.

Existing Conditions & Challenges

Recommendation Description

How to Use the Site Design Criteria

- Definition** – Describes the topic being discussed and its relationship to connectivity
- Existing Conditions & Challenges** – Gives examples of what currently exists to help orient you to the topic
- Recommendations** – Describes and gives examples of site design elements needed to increase connectivity and active transportation
- Resources** – Provides examples of codes that promote connectivity or examples of what others around the country have done in this area

Introduction to Site Design Criteria

This section is divided into 10 different topic areas. Each topic is a part of a collection of characteristics that make up well-connected, livable and vibrant communities. The topics are arranged based on their scale and complexity. The recommendations for each topic area work best as a complete set of design guidelines, but are not mutually exclusive. They can be used together or as individual elements. Each topic area has a direct link to increasing the connectivity in and around a multifamily housing development.

1. Pedestrian Network

Addressing Pedestrian Access on the Site and to Neighbors



The pedestrian network is the system of walkways, crosswalks, and paths that allow walking within a development. A well-planned network is important for allowing people to easily access all parts of the development without a car, increasing interaction among residents, and decreasing automobile use.

Existing Conditions & Challenges

Limited or No Sidewalks

Buildings are sited on fully paved, open lots without designated space for pedestrians. Physical elements that cue pedestrians where to walk and drivers where to drive are nonexistent, thus hindering safe travel for all users.

Not Networked

Sidewalks that provide only single-loop circulation throughout a development limit travel choices and do not provide the most direct access between units, amenities, and other destinations. This condition creates an uninteresting walking environment, longer travel lengths, and does not encourage recreational walking.



This single-loop road only allows for one path through this development.

Disconnected Sidewalks



Sidewalks that don't lead anywhere, that don't lead to the end of a street, or force pedestrians to make only out-and-back trips are difficult to use. This condition limits route choices and may create a disincentive to walking.

This obstacle is particularly challenging for parents with strollers, the elderly, and residents that may be using a wheelchair.

Unmarked Crosswalks

Natural street crossings exist within developments, but are often not designated as pedestrian crosswalks. They lack any or all of these elements: paint, bulb-outs, raised elements, curb cuts, or signage. Cars may not expect pedestrians to be crossing in these areas because of the lack of identifying elements. These situations can also make it less comfortable for pedestrians to cross the street.



Recommendations

1.1 Sidewalks Connecting Every Destination

Networking building entries, amenities, access points, and parking.

1.2 Robust Network

A sidewalk system with many route choices for pedestrians.

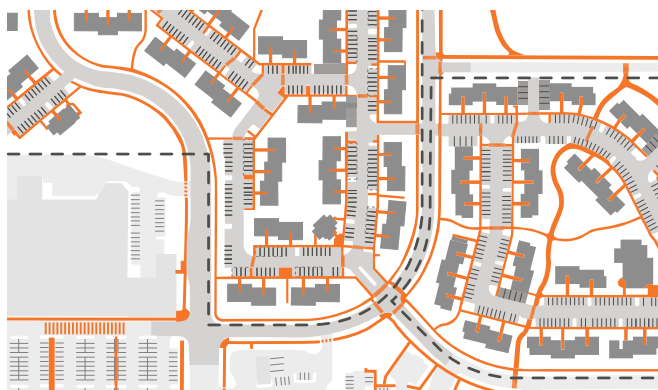
1.3 Attractive and Usable Pedestrian Paths

Designated crosswalks at natural crossing points.

1.1 Sidewalks Connecting Every Destination

Developments often lack sidewalks or a network of sidewalks that connect units to other units and/or amenities within the development. This condition forces residents to be exposed in parking lots or through undefined spaces. Building sidewalks to every destination makes walking within the site safe and easy, and discourages the use of automobiles for short-distance trips.

Within a development, sidewalks should connect all possible destinations, including building entries, access points, and amenities. Internal routes should not be focused only on streets but should allow residents to access amenities and neighbors through direct paths.



Parkside Apartments, Eugene, OR
Pedestrian network highlighted in this site map connects all areas of the development.

Pedestrian walkways should be integrated into parking areas and, when possible, use planting strips to further increase comfort. Where pedestrians must cross streets and parking lots, incorporate marked crosswalks to show where it is appropriate to cross and cue drivers of possible pedestrian presence.

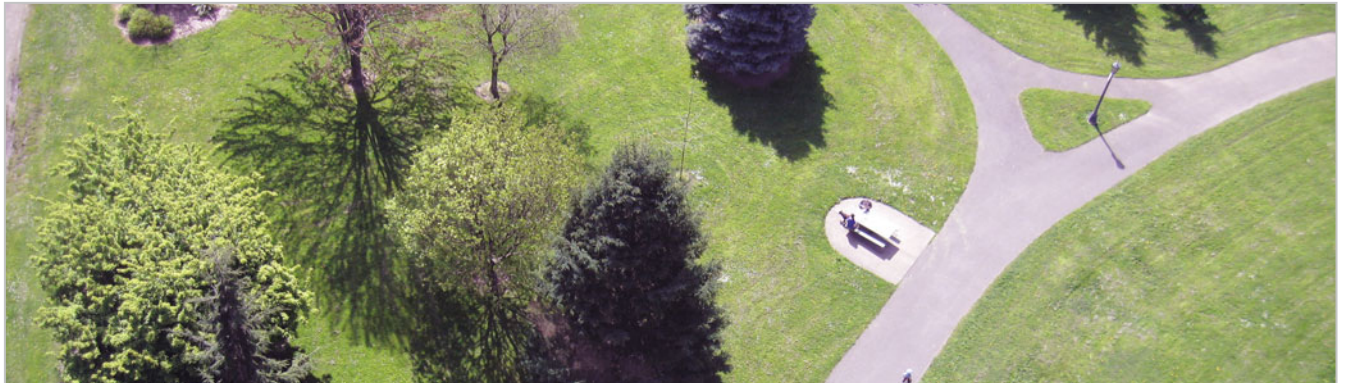
The pedestrian network should extend its reach beyond the development, at a minimum connecting internal sidewalks to those of neighboring public streets and/or other developments.



Legends at Lake Nona, Orlando, FL
A well-used and direct path between units and recreational amenities.



1.2 Robust Network



A robust sidewalk network incorporates many route choices to all destinations, not only the path going between cars and units. Creating a robust sidewalk network gives pedestrians options and makes it easier and thus more likely that they will choose to walk to their destinations. The access points, streets, units, and amenities should all be easily accessible

on foot. Making this system attractive for walkers can increase activity and social interaction among residents and the community.

Many developments only provide single-loop street and sidewalk circulation. This type of system offers minimal route choices and often increases the distance pedestrians must travel to their destinations.



Legends at Lake Nona, Orlando, FL
The pedestrian network flowing through this site allows access to all areas of the development.

Resources: Green Buffers

Green buffers are natural dividers between two elements. Commonly, buffers are green strips consisting of grass or other plantings that separate the sidewalk from the street realm. Buffers provide a more comfortable walking environment for pedestrians by adding a perceived distance from traffic. Green buffers also provide for stormwater remediation on site. These areas also provide great places for street trees to grow.

Buffer Recommendations:

1. Plant native vegetation.
2. Opt for low-maintenance vegetation, with paving that is on-grade so that it can be easily mowed.
3. Avoid 90° angles in paving as these are difficult to edge and increase the cost of maintenance.

1.3 Attractive and Usable Pedestrian Paths



Eola Heights, Salem, OR

Areas with unattractive, unusable, disconnected, or nonexistent sidewalks deter residents from walking within the development. Creating attractive and usable pedestrian paths encourages residents to walk and engage with their neighbors both inside and adjoining the development. The goal is to create the 'stroll effect' by making the development a pleasant and easy place to walk.

Paths should be located at appropriate distances from buildings so that pedestrians feel a part of the public realm and building occupants retain privacy. Where possible, utilize planting strips to buffer paths and sidewalks from cars. Pedestrian paths should be wide enough to accommodate at least two people walking side-by-side.

Pedestrian networks should be designed with adequate landscaping that still allows for usable amounts of green space within the site. (See Section 8, Open Space and Landscape Design, for ideas of natural elements to include.) Some paths can cut along green spaces to create shortcuts through the site and enhance and incentivize walking.

Street crossings should be marked by painted crosswalks on internal streets. Also consider including bulb-outs, signage, and textured or raised pavement at these locations. Crossing designations integrated into the pedestrian network show where pedestrians and cars should travel. Visible pedestrian networks have traffic-calming effects and provide an inherent right-of-way to walkers.

43% of trips by residents living in well-connected multifamily housing are walking trips, compared to only 23% of trips made by those living in less-connected developments.



-Larco et al, 2010. "Overlooked Density: Re-Thinking Transportation Options in Suburbia."

2. Street Network

Creating a System of Well-Connected Streets



A street network refers to the organization of streets through a site; where the streets go, what they lead to, how they relate to each other. A street network should provide many travel choices and create a logical organization for the development. The organization of buildings and internal neighborhoods is dependent upon the street network. Internal street networks should be integrated with neighboring street organizations for logical wayfinding and easy connection. The street network allows for car, cyclist, and pedestrian access to amenities and destinations both inside and outside the development.

Existing Conditions & Challenges

Auto-Dominated Environment

Many developments primarily accommodate auto travel without making provisions for non-auto travel. All areas of the development are accessible by car, but not necessarily by foot. Users rely on cars to get places throughout the site safely and quickly, creating an environment that discourages walking and biking.



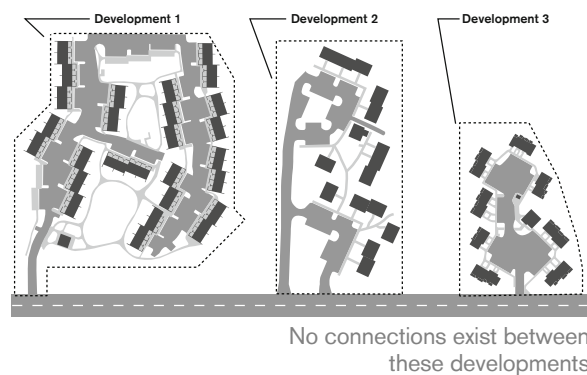
Parking Lots Instead of Streets

Often, developments are designed with parking lots acting as the primary circulation through the site. Parking encompasses all areas of the site, making it seem as though buildings are located in a sea of parking. This condition makes it difficult for people to orient themselves and feel comfortable walking throughout the development.



Limited Connections to Adjacent Street Systems

Often dictated by local codes, developments have just one or two motor vehicle connections to adjacent street systems. These connections are usually focused on arterials and rarely on neighboring developments. Limiting street connections does not allow for local travel between neighboring developments.



Inaccessible Streets

Some developments prohibit or discourage the use of the development's internal street network by non-residents. Although this condition provides residents with control over their streets, it creates physical barriers within the city, causing traffic along arterials and long, circuitous routes for both cars and pedestrians.

Recommendations

2.1 Legible System of Streets and Blocks

Using streets to clarify the organization of developments.

2.2 Connection and Continuity to Adjacent Streets and Properties

Multiple and seamless street connections to neighbors.

2.3 Minimize Cul-de-Sacs and Dead-Ends

Use grid patterns to facilitate local travel.

2.4 Local Auto, Pedestrian, and Bike Travel

Encouraging local, non-commuter travel.

2.1 Legible System of Streets and Blocks

Use a legible system of streets and blocks to reduce confusion, increase safety, and create a neighborhood feeling. Poorly defined streets, lack of a street system, and the use of parking lots as primary circulation routes creates a confusing environment for cars and pedestrians. These environments often result in unpredictable travel patterns and decreased comfort, thus discouraging walking and biking.

Create clear, legible streets for cars and pedestrians to travel to units and amenities. A legible system of streets and blocks orients people, shows them how to travel through the site, and can help determine building locations. It should include clear intersections, stops, and pedestrian walkways. Drivers have been shown to adapt to the road they see, thus it is important that the streets clearly demonstrate that they are a residential area. The context of the site should be used to drive the organization of the streets. Doing so allows for connection and continuity with neighboring networks.

In larger developments, it is possible to create a unique network of buildings and streets. Buildings can be grouped into blocks that promote a neighborhood feel and connect to each other

through the street network. Networking buildings and streets can provide natural and useful connections to surrounding housing, commercial areas, or open spaces.

In smaller developments where block systems are more challenging, the existing site conditions and context should be the first consideration. Design the internal street network as a logical extension of the neighboring street network. Utilizing the look and feel of existing motor vehicle and pedestrian connections can help to create a more seamless integration with new circulation systems.



Baldwin Park, Orlando, FL
A well-articulated intersection with a block-like feel.



2.2 Connection and Continuity to Adjacent Streets and Properties

Developments with street networks and connections focused only on arterials miss opportunities to connect with neighboring developments and other local streets. This condition can unnecessarily clog arterials with short-trip vehicle traffic. It can also create barriers to easily accessing neighbors by foot as it increases walking distances, which can force residents to drive when a more-direct connection would have made walking or biking possible. A robust network lets residents get to desired destinations easily and more conveniently.

The street network should make logical connections to adjacent street systems and promote travel through the site. Look to existing street systems, not just arterials, around the development to determine the placement and design of the street network. Use similar design features to create continuity and to cue users that the system is continuous and it is possible to travel there. If adjacent sites are vacant, create street stubs to encourage future connections and the continuation of the network (see Section 3, Access Points).

2.3 Minimize Cul-de-Sacs and Dead-Ends

The use of cul-de-sacs and dead-ends can deter walking or biking because they increase the distance that pedestrians and cyclists have to travel. Avoiding the use of cul-de-sacs provides more route choices for travel and distributes auto traffic rather than allowing it to collect on over-burdened connecting streets. Cul-de-sacs also make it difficult for emergency service providers to navigate quickly and safely.

Create internal street networks that are connected to adjacent street systems, provide travel options, and decrease walking and driving distances. Build shared pathways between the development and neighbors to create more community connection and easier/shorter commutes for residents and neighbors.

If there are instances where cul-de-sacs are desired or existing, strive to make inviting bike and pedestrian-only connections between cul-de-sacs and the street network. These connections will promote walking and biking while still limiting pass-through auto traffic.



Parkside and Crossings, Eugene, OR
These developments' street networks connect to one another, the local streets, and the adjacent commercial area.

2.4 Local Auto, Pedestrian, and Bike Travel

Restricted entries and limited connectivity can make it difficult for residents to access outside amenities located adjacent to the development. Allowing local auto, pedestrian, and bike travel through the site integrates, rather than isolates, the development with its surrounding neighborhoods. Many developments might welcome local auto, pedestrian, and bike trips, but are worried that increased connectivity will increase high speed pass-through traffic. This type of traffic can be limited through the design of the street network. Elements such as curves, on-street parking, raised crosswalks, narrow streets and other traffic calming techniques can discourage cut-through traffic and slow all vehicular traffic.

Using these techniques, while still increasing connectivity, encourages non-commuter, local travel to and through the site. This allows residents and neighbors to feel the development is an extension of the larger neighborhood, not an impassable dead-end.

Bike lanes and sidewalks that connect the development with the larger local system create active and interesting local streets that people will be more inclined to utilize.

Resources:

Street Connectivity

The streets should be part of the city street network. Their continuity should contribute to the overall city goals and standards for connectivity. Street connectivity standards can help achieve this goal.

Street connectivity depends on two key components:

- All streets must connect to adjacent street systems and stub-outs.
- All buildings must face a public street.

All buildings must access a public street by code in Huntersville, NC. (See the Code Appendix for more information regarding this code.) This code enables neighboring developments to be linked directly by a common public realm. It immediately provides a more active street realm for the community.

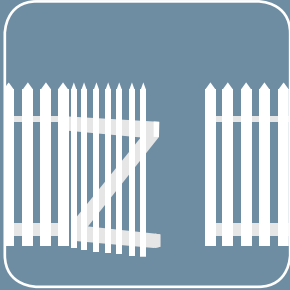


Map data: Google, DigitalGlobe, Orbis Inc.

Colonial Grand, Huntersville, NC
This aerial photo shows three separate developments, all connected by a public street and to adjacent commercial area to the southeast.

3. Access Points

Creating Connections



Access points connect a development with the areas around it [commercial developments, residential, arterial roads, etc]. Any egress point from the site is considered an access point. They may take the form of a street, sidewalk, or informal pathway. Having an adequate number and distribution of access points is essential to promoting interaction with the outside community and allowing residents to travel to nearby residential or commercial areas on foot or bicycle.

What is an Access Point?



A street



A connected sidewalk



A friendship gate



An informal path

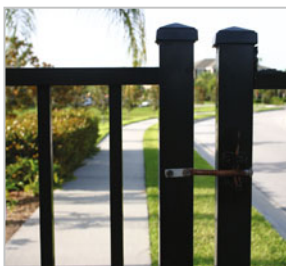
Existing Conditions & Challenges

Limited Number of Access Points

Developments are often designed with only one or two points of entry. Given this limited number, these access points are usually designed with cars as the primary user. Limiting the number of access points forces residents to use longer, indirect routes to go to neighboring residential or commercial developments.

Gated Access

Gated communities control access to the development by blocking free entry and exiting. Often residents can only enter the development in a vehicle. Gated developments create exclusive and inwardly focused communities, limiting interaction with outside neighbors.



Poorly Distributed Access Points

When access points are present they are often poorly distributed around the perimeter of the development. Access points may be located on only one or two sides of the development, preventing travel to adjacent destinations or travel through the site.

No Local or Continuous Travel with Adjacent Developments



Residential and commercial developments and planned open spaces can often be internally focused and have only one point of entry, preventing linking of access points to other multifamily housing. Sidewalks and streets are often disconnected, reducing continuation and consistency, which are needed to create a linked network throughout the community. This condition limits pass through opportunities and increases the distance pedestrians must travel.

Recommendations

3.1 Maximize the Number of Access Points

Create multiple places to enter and exit the development, especially for pedestrians and cyclists.

3.2 Maximize Distribution of Access Points

Evenly distribute access points around the perimeter of the site.

3.3 Provide Stub-Outs for Future Development and Retro-Fits

Create the opportunity for connected neighbors.

3.4 Avoid Gated Communities

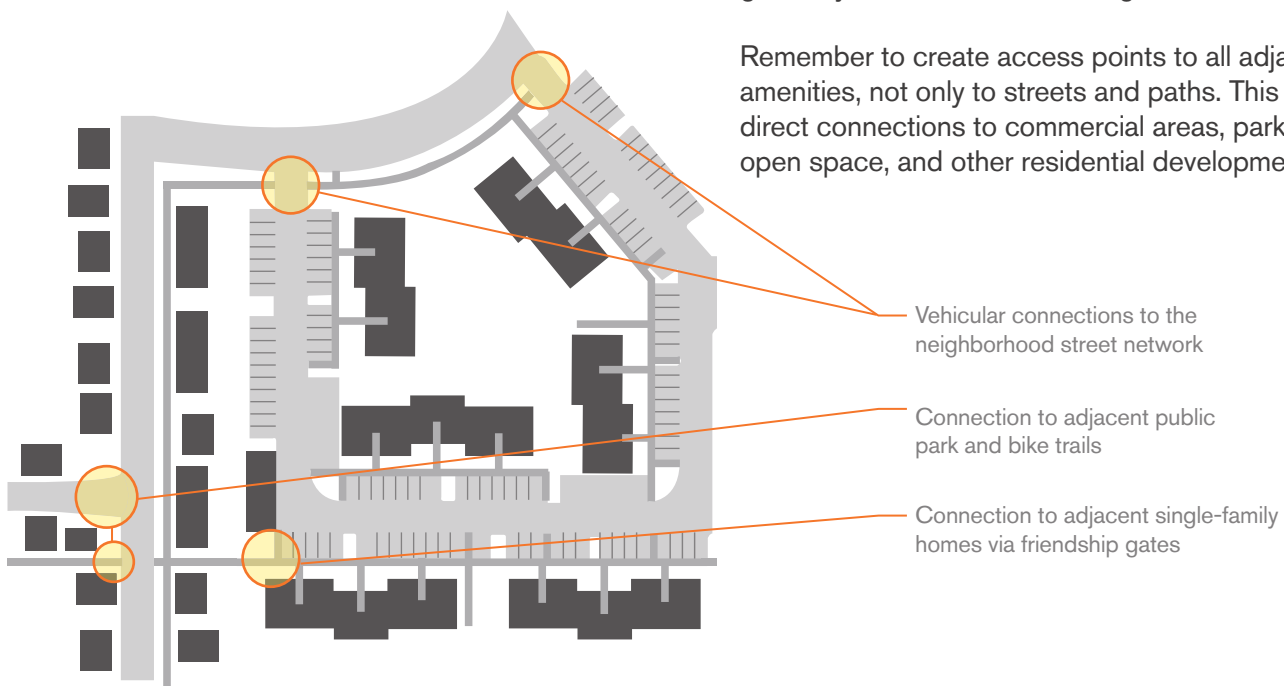
Reduce barriers to active forms of transportation.

3.1 Maximize the Number of Access Points

Developments with minimal access points for cars and pedestrians limit route options and often force residents to use longer, indirect routes to access neighboring amenities. Maximizing the number of access points in a development decreases distances from units to amenities, removes physical barriers, and encourages residents to use active transportation for short trips.

Design developments with the maximum possible access points for cars, bicyclists, and pedestrians. Keep in mind that an access point does not need to be a street; it could be a sidewalk, bike path, gravel path, or a simple opening in a perimeter fence. The bike and pedestrian connections do not necessarily need to be part of the street infrastructure. Non-auto connections take up less space, are less expensive to build and maintain than street connections, and are generally more amenable to neighbors.

Remember to create access points to all adjacent amenities, not only to streets and paths. This includes direct connections to commercial areas, parks and open space, and other residential developments.





3.2 Maximize Distribution of Access Points

An uneven or inappropriate distribution of access points in a development often makes foot or bicycle travel to neighboring amenities difficult or impossible. If a site has numerous access points, these points should be evenly distributed across the site, allowing access in all feasible directions. Residents who wish to walk or bike should not be deterred from doing so by physical barriers around the development. Appropriately distributed access points allow residents to walk or bike through, rather than around, a place, thus shortening the distance and encouraging active transportation.

Where possible, locate one or more access point(s) on each side of the development and to each adjacent use. Provide an adequate distribution of access points so that every resident can easily enter and exit the development near their unit. If the site shape is long and narrow, an access point should be located approximately every 500 feet. In some cases, zoning requirements may include maximum access shadows permitted.

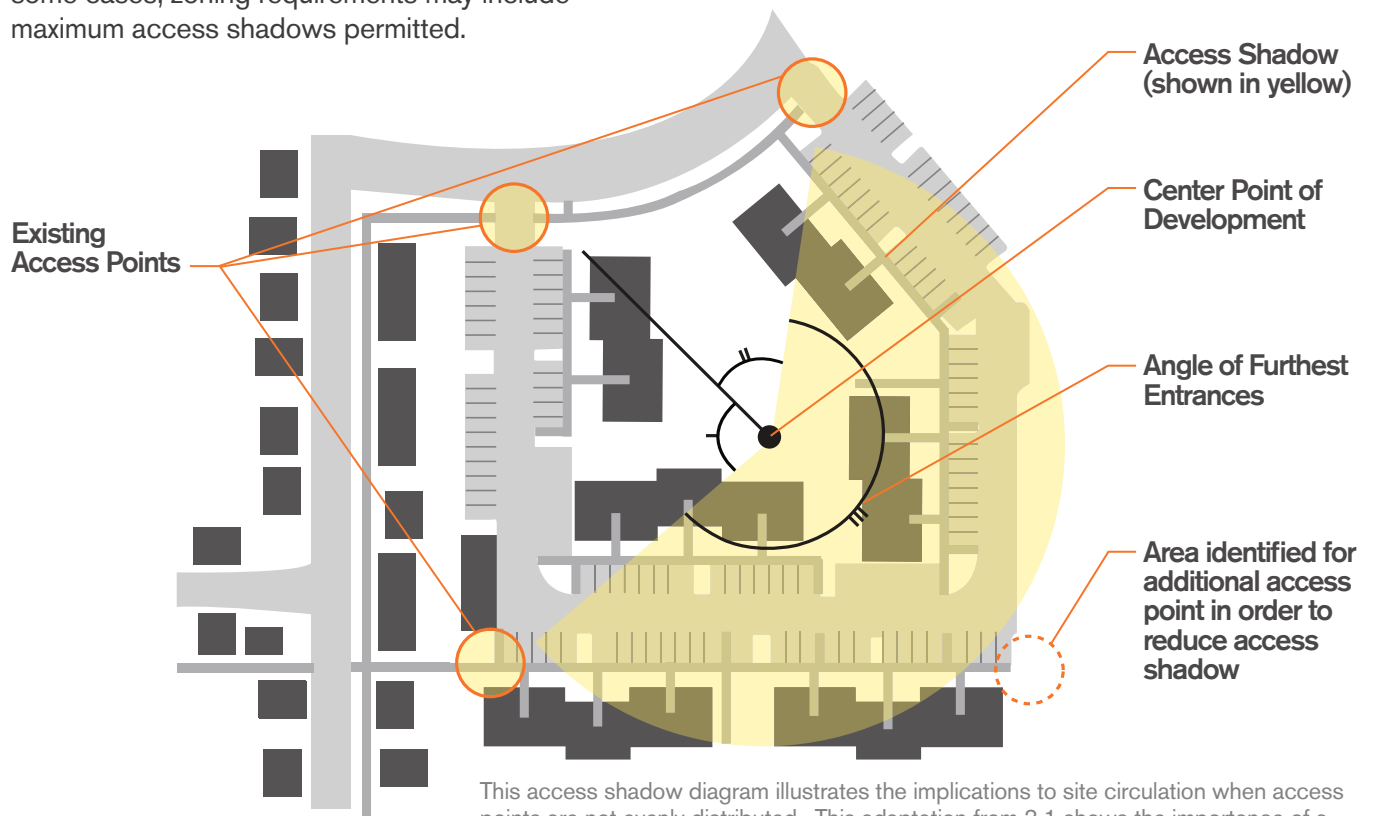
Resources:

How to Calculate the Access Shadow

The Access Shadow represents the largest expanse along the perimeter without entrances. The smaller this angle becomes the greater the distribution of access points throughout the development. This process determines whether access points are concentrated on one side of the development or evenly distributed around the site boundary. It also determines where added access points would be beneficial to site circulation.

To calculate the Access Shadow:

1. Identify the center point of the multifamily housing development
2. Mark each access point within the development
3. Measure the largest angle between egress points (i.e., largest area not served by an access point).

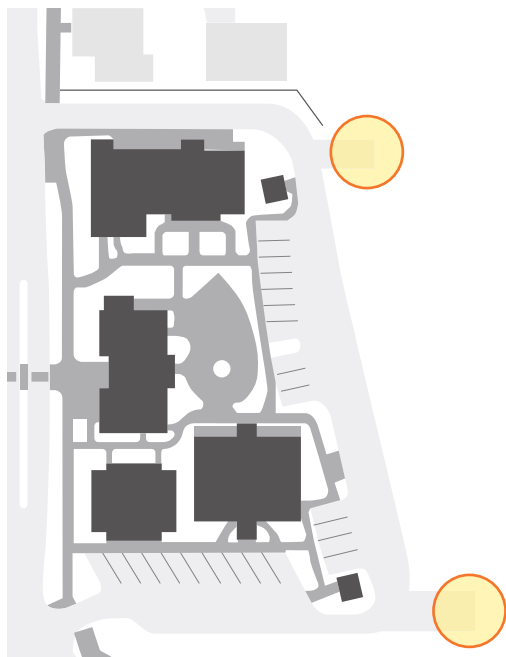


This access shadow diagram illustrates the implications to site circulation when access points are not evenly distributed. This adaptation from 3.1 shows the importance of a southeastern access point.

3.3 Provide Stub-Outs for Future Development and Retro-Fits

Developments often eliminate the opportunity to create a continuous pedestrian infrastructure by closing themselves off to neighbors with high walls, gates, or other barriers. Due to the nature of suburban developments, adjacent lots can sometimes be vacant. Providing stub-outs to these sites facilitates future connections to adjoining properties and allows those connections to be made more seamlessly. Having a stub-out in place encourages the next development to link to it and also provide additional stub-outs, thus creating a continuous network. Stub-outs can be used for vehicular, pedestrian, or cyclist connections.

Stub-outs can also be used toward existing developments, even if no access points currently exist. Creating stub-outs provides an incentive and location for future, retrofitted connections.



This diagram denotes where stub-outs exist within this development for connection to future neighboring developments.

3.4 Avoid Gated Communities

Gated communities act as barriers between the development and its adjacent community. Generally, they have a connotation of being exclusive and/or unwelcoming and make non-auto travel difficult by limiting access and increasing distances to neighboring amenities. Moreover, they can sever regional bike and pedestrian networks. Avoiding gated communities makes the development more inviting and encourages residents to interact with the larger community.

Where desired, design features can help define neighborhood edges without limiting connectivity. Trees, low fences, or friendship gates create thresholds without becoming barriers. Keeping entries open provides the feeling of access and creates an easier, more acceptable transition from the development to the community. Open entries also encourage active transportation by making it easier to do.



Parkside Crossings, Chelsea, MA
An entrance to the site is not gated and other types of safety features are utilized.

4. Edges

Neighbors, Buffers, Perimeters, and Edge Conditions



Edges refer to the outer boundary of a development and the conditions that comprise it (e.g., shrubs, a wall, entries, exits, etc.). Well-designed edge conditions create pedestrian access to commercial areas and other developments, increase walkability, and create visual continuity between developments. Edges between developments and neighborhoods should be seamless.

Existing Conditions & Challenges

Dividing Walls



Walls, often higher than seven feet, are erected between multifamily developments and single-family residences and/or commercial areas. These walls act as a buffer and are usually meant to block sound and sight. This creates discontinuity within neighborhoods with unattractive blank walls.

Buffered By Major Arterials

Multifamily developments are often located along auto-dominated, typically unattractive arterials. Structures that border the arterials rarely engage the street and are often designed to buffer noise, the speed of cars, and the unattractive corridor.



Buildings and Spaces That Do Not Face Adjacent Streets

Even in development edges along local, low-speed streets, multifamily developments rarely address the street through building entries or open space. This condition closes off developments, forces residents to be internally focused, and creates unsightly edge conditions which detract from the larger neighborhood.



Rough Transitions

As development occurs at different times, rough transitions (e.g., a one-story building next to a three-story building) often exist. Rough transitions decrease the continuity of the urban fabric and discourage single-family homeowners from supporting connections with multifamily housing.

Recommendations

4.1 Decrease Wall Height and Increase Wall Transparency

If walls are necessary they should not block visual connection to neighboring developments.

4.2 Create Visual Appeal and Continuity Between Developments

Use attractive and native design elements.

4.3 Create Developments that Engage Neighboring Streets

Site buildings along edges.

4.4 Create Smooth Transitions Between Developments

Use context to create thoughtful transitions.

4.1 Decrease Wall Height and Increase Wall Transparency

While using walls is sometimes appropriate and desirable (for instance to provide a buffer from a high-speed arterial), they should not be a default element in site design. High, opaque walls don't allow for "eyes on the street," a visually interesting streetscape, or easy access to neighbors and amenities outside the development. Often, using walls creates unusable spaces in and around the development as well as a feeling of isolation.



Villas and Union Hills, Phoenix, AZ
A more transparent wall facing an arterial with balconies overlooking the street.

To minimize these effects and promote continuity and ease of walking or biking, only use walls in areas where separation between developments is absolutely necessary. If walls must be erected, in areas where more connection between developments is possible, limit the height to 3 or 4 feet and make the walls both physically and visually permeable and attractive. This increases visual interaction with neighboring developments and decreases concealed, potentially dangerous spaces. Where possible, remove walls and use landscaping and natural elements to create perceived edges that do not physically separate areas.



Baldwin Park, Orlando, FL
A lowered green wall facing a parking area.



4.2 Create Visual Appeal and Continuity Between Developments

Developments are often closed off with high blank walls on all sides. This condition disrupts the neighborhood fabric and discourages walking and biking by making it less convenient and seemingly unsafe to do so. Creating visual appeal and continuity between developments minimizes the perception of barriers and encourages the use of active transportation. Additionally, developments with edges that look open, friendly, and easy to pass through add value to the community by creating a pleasant environment, and reducing distances that pedestrians and cyclists must travel to neighboring amenities.

Visual appeal of edges can include landscaped spaces that are green, neatly kept, and include local species. To create continuity between developments and seamless edges, look at the neighboring and local environment for design elements. The use of local design elements helps the development blend in with the surroundings and can minimize resistance from single-family neighbors.



Briar Ridge, Corvallis, OR
A planted berm, which provides privacy from the adjacent public street, creates a subtle and attractive transition.

4.3 Create Developments that Engage Neighboring Streets

Developments located along quiet, local neighborhood streets should avoid strictly internal organizations that minimize interaction and connection with the larger community. In internally organized developments, buildings face inward with no street-side entries and essentially turn their back on the outside community. Doing so creates dead spaces around the development, decreases “eyes on the street” and discourages residents from interacting with neighbors outside the development. Developments with buildings that face the street feel less secluded, reduce the number of hidden areas, and encourage residents to engage with the community.



1875 Alder Street, Eugene, OR
The front doors to this development open directly onto the street. The stoops and front gardens provide an attractive green edge to the sidewalk and street realm.

Don't ignore neighboring streets. Instead create a physical relationship between the building and the street. Site buildings along the edges of the development. Buildings should be located close to public streets. Entries or social spaces (porches, patios, stoops, etc.) should face the street (see Section 7, Building Orientation and Massing) and be accessible from the street.

4.4 Create Smooth Transitions Between Developments

Rough transitions and buildings sited too close to neighbors may create a backlash to development and the multifamily housing typology as a whole. Rough transitions destroy continuity in the urban fabric. Additionally, buildings too close to neighbors decrease privacy and light for that neighbor and create a feeling of encroachment. Smooth transitions can mitigate these problems and increase the visual appeal of the larger neighborhood.

Provide thoughtful transitions to neighbors that are not visually or physically encroaching. New buildings should respect adjacent buildings by responding to their massing, scale, need for light, natural ventilation, and views. Responding to these contextual cues and needs will yield a more accepted and visually appealing development. Do not create sight lines directly into buildings in neighboring developments since those will decrease privacy. Use landscaping, low fences or walls, and grade changes to aid the transitions and create privacy.



Baldwin Park, Orlando, FL
A 3-story multifamily housing building actively engaging a street that primarily has single-family homes lining it.



Sheldon Village, Eugene, OR
The multifamily housing development is adjacent to an assisted-living facility and addresses it in scale and architectural articulation.

Resources

Kitsap County, Washington: Alternatives to Blank-Fences and Walls

Kitsap County, Washington, provides alternatives to solid or blank-looking fences. The code suggests that developers “employ different textures, color, or materials (including landscape materials) to break up the wall’s surface and add visual interest. If fencing is required, repeat the use of building façade materials on fence columns and/or stringers.” The code also requires that developers “place pedestrian breaks and/or crossings at frequent intervals where a fence, wall, or landscaped area separates a sidewalk from a building or one development from another.”

– County Code of Kitsap County

5. Parking

Think Outside the Lot



Automobile parking is a necessity in any development, but one that needs to be balanced with other modes of travel. Parking can take many forms including: lots, lanes, courts, on-street, covered, and garage bays. Strategically located and designed parking has the ability to increase safety for walkers and bikers.

Existing Conditions & Challenges

Parking-Dominated Landscape



In many developments, parking encompasses the built landscape and is the primary object in site views. Vast amounts of blacktop and lack of shade create heat islands and an unpleasant atmosphere to look at and travel through. Parking-dominated landscapes with large parking lots create a hostile environment for pedestrians and continue to encourage a 'car-to-unit' mentality within the development.

High Parking Space Ratios

Developments are often required to provide between one to two spaces per unit. With poorly designed parking, these ratios can contribute to parking-dominated landscapes.

Large Parking Lots

Developments are often designed like shopping centers, with one large lot comprised of several rows of parking. Rather than having a street based circulation system, parking becomes the primary travel path throughout the site (see Street Network Code Guide).

No Pedestrian Infrastructure in Parking Areas

The lack of designated and protected places for pedestrians to walk creates a hostile walking environment. Additionally, irregular parking lot patterns are confusing for drivers and can cause accidents.



Recommendations

5.1 Use Alternatives to Parking Lots and Lanes

Utilize parallel on-street parking and courts.

5.2 Integrate Pedestrian Infrastructure into Parking Areas

Provide well-designed and protected sidewalks.

5.3 Create More Beautiful Parking

Increase pedestrian friendliness through landscape design.

5.4 Reduce Parking Ratios and Provide Incentives for Active Transportation

Become a less auto-oriented development.

5.1 Use Alternatives to Parking Lots and Lanes

The dominance of parking areas in developments discourages walking and biking by making it unpleasant and seemingly unsafe to do so. Even with high parking ratios, reducing the dominance of parking can be accomplished in several ways. The primary goal is to eliminate long runs of continuous parking and provide shade and visual interest.

Parking Lots: Parking lots are the least desirable form of parking as they create a large barrier to walking and biking. In developments where parking lots cannot be avoided, incorporate pedestrian-friendly and visually interesting features into them (see Recommendation 5.2).

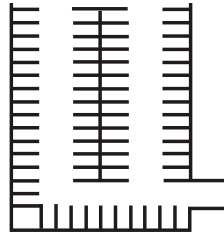
Parking Lanes (with bulb-outs): Lanes of parking are clearer for the driver and pedestrian, but can seem overwhelming and lengthy if uninterrupted runs are too long. Incorporating bulb-outs into lanes is critical. Bulb-outs extend the sidewalk into the parking area creating more easily accessible parking and making drivers more aware of pedestrian presence. They also provide spaces for trees that can create visual interest and shade.

On-street parking: Parallel or diagonal pull-in parking helps to define the street, creates a barrier between the street and sidewalk, and provides a protected area for drivers to access their cars.

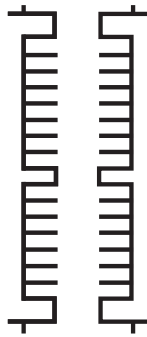
Parking Courts: Parking courts complement parallel on-street parking and allow for the large amount of parking necessary in most developments. A parking court is a group of 12-14 parking spaces per side with a single entrance. Often no more than 2 or 3 courts may be linked together. Parking courts are separated from the street, include bulb-outs, and have pedestrian access on all sides. They do not provide pass-through access and therefore lessen the amount of traffic and the speed of the cars within them.



Parking Typologies

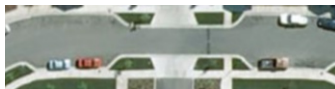


Parking Lot

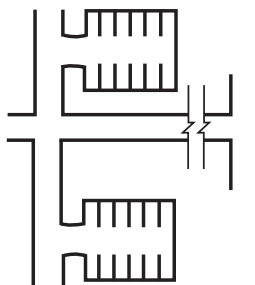


Parking Lane with Bulb-Outs

Recommended Typologies



Parallel or Diagonal On-Street Parking



Parking Court

Map data: Google, DigitalGlobe

5.2 Integrate Pedestrian Infrastructure Into Parking Areas

Pedestrians can feel unsafe walking within parking areas. Pedestrians' lack of perceived and actual safety is one of the biggest barriers to walking. To mitigate this, raise the profile of the pedestrian and create an environment where pedestrians can comfortably traverse parking lots and driveways in designated areas.

Provide usable sidewalks to and through all parking areas. Sidewalks should be buffered from traffic by planting strips, parallel parking, and/or curbs. Planting strips provide visual interest, safety, and shade for pedestrians. Parallel parking buffers traffic from pedestrians while helping to meet required ratios. Curbs provide a physical separation between cars and pedestrians and cue drivers of the pedestrian presence. Sidewalks that connect to parking areas should also connect to the larger pedestrian network that allows access to all areas of the site.



Sidewalks and crosswalks in parking areas indicate where pedestrians should be and make drivers aware of them.



Pedestrian amenities should be usable, remove people from vehicle travel lanes, and connect to the larger pedestrian network.

5.3 Create More Beautiful Parking

Unattractive and invasive parking makes walking less pleasurable and desirable. Creating beautiful landscapes that integrate parking promotes an active lifestyle and increases the likelihood of residents using active transportation.



Parallel parking lets the buildings still have a presence on the street while buffering pedestrians and creating opportunities for bulb-outs.



Landscaping in court configurations improves access and makes more attractive parking areas.

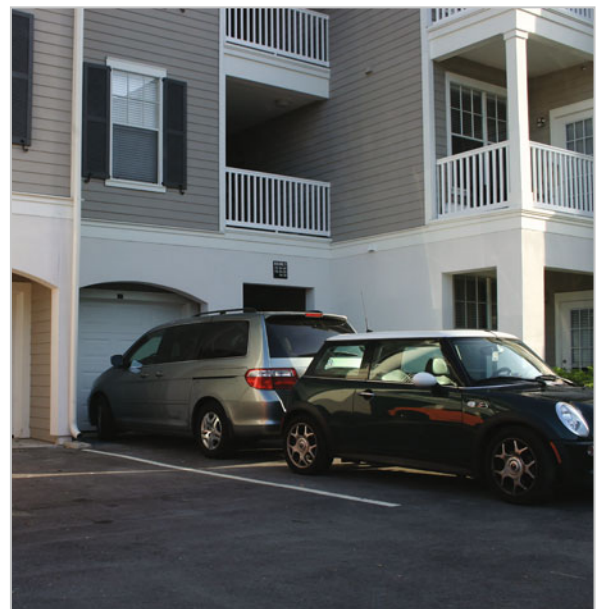
Many features can be used to achieve this effect. Trees reduce the heat-island effect by providing shade that reduces temperatures at the surface and, in drier climates, giving off water that evaporates and cools surfaces and the surrounding air.

Planting bulb-outs and strips provide buffers for pedestrians, cue drivers about where to travel, and enhance aesthetics of the parking area. Flowers and lighting fixtures can also be incorporated throughout the parking area to improve the visual appeal and nighttime comfort.

5.4 Reduce Parking Ratios and Provide Incentives for Active Transportation

High parking ratios contribute to parking-dominated landscapes that are unsafe and unpleasant for pedestrians. Residents should feel encouraged that driving, biking, and walking are all safe and appropriate means of travel in their development.

Consider reduced parking ratios or reasonable maximums to reduce the feeling of being completely surrounded by parking. Some developments separate the unit from the car and charge for parking in addition to rent. If charging extra for parking isn't possible, shared parking schemes with neighboring businesses and developments can be used to help reduce parking requirements. Many cities give financial incentives for putting in a bus stop or bike parking to decrease car parking. In addition, car-share companies like ZipCar and WeCar are gaining popularity in many parts of the country.



Legends at Lake Nona, Orlando, FL
Tandem parking reduces paved areas that need to be dedicated to parking while still maintaining a high number of spaces.

6. Street Design

Complete the Streets



Street design refers to the elements that define the street zone. Complete Street design is a practice that is being promoted throughout the world to create streets that enhance efficiency for all users and promote an active and safe street life for people of all ages and abilities. Complete Streets can have benefits that include safety, health, easy access to active forms of transportation and more livable communities around them.

The streets running through multifamily housing developments are typically local neighborhood streets and do not necessarily need to incorporate all of the techniques that define a Complete Street. However, multifamily housing streets should promote a more livable, pleasant and vibrant place and create a more desirable and successful development. Creating amenities that contribute to the street environment can make significant improvements to how residents utilize the street realm.

Complete Streets are designed for everyone, not just speeding cars or creeping traffic. For more information on Complete Streets visit www.completestreets.org/

Existing Conditions & Challenges

Poorly Defined Streets

Designated routes for cars, pedestrians, and cyclists to travel through sites are often poorly defined or nonexistent. Street elements, like curbs and road markings, are often not required in multifamily housing developments. Without these elements, travel patterns can become erratic, and the safety of all users can be compromised.



No Pedestrian and Cyclist Amenities

Streets often lack sidewalks, bike lanes, trees, and other buffers that promote walking and biking by making it safe to do so.



Auto-Dominated Streets

Wide streets without markings encourage cars to travel fast and create the feeling that drivers are not traveling on a real street or do not need to obey driving laws. This condition creates an unsafe environment and discourages pedestrian and cyclist travel.

6.1 Complete Street Design

Complete Streets promote characteristics that create a street 'place' that is useful, safe, and beautiful.

Multifamily housing streets should accommodate all users. As there is a wide range of demographics living in multifamily housing developments, they should all be welcome to enjoy and participate in the street realm. Streets should be well kept, carefully created based on the site conditions, and attractive.

The street is the outdoor room of the development and the first place that people experience as they enter the site. It should be a vibrant street that can be remembered since it represents the feeling and character of the community.

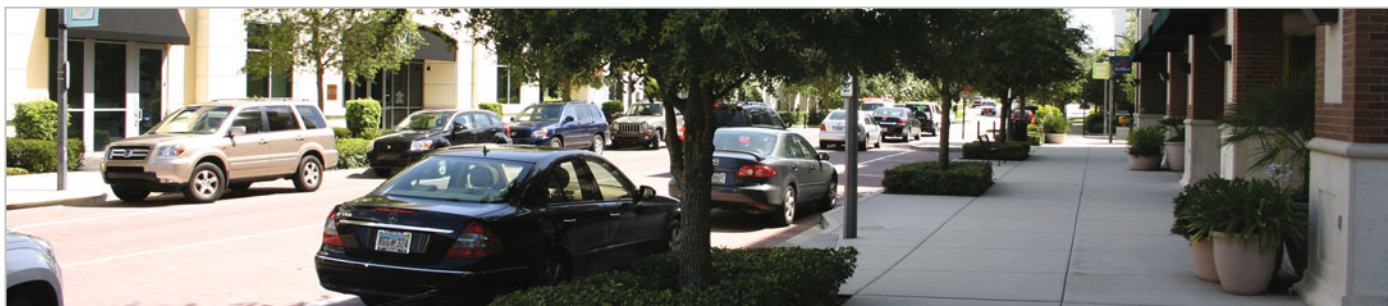
The following places show examples of Complete Street design and elements:



Heron Meadows, Eugene, OR



Sheldon Village, Eugene, OR



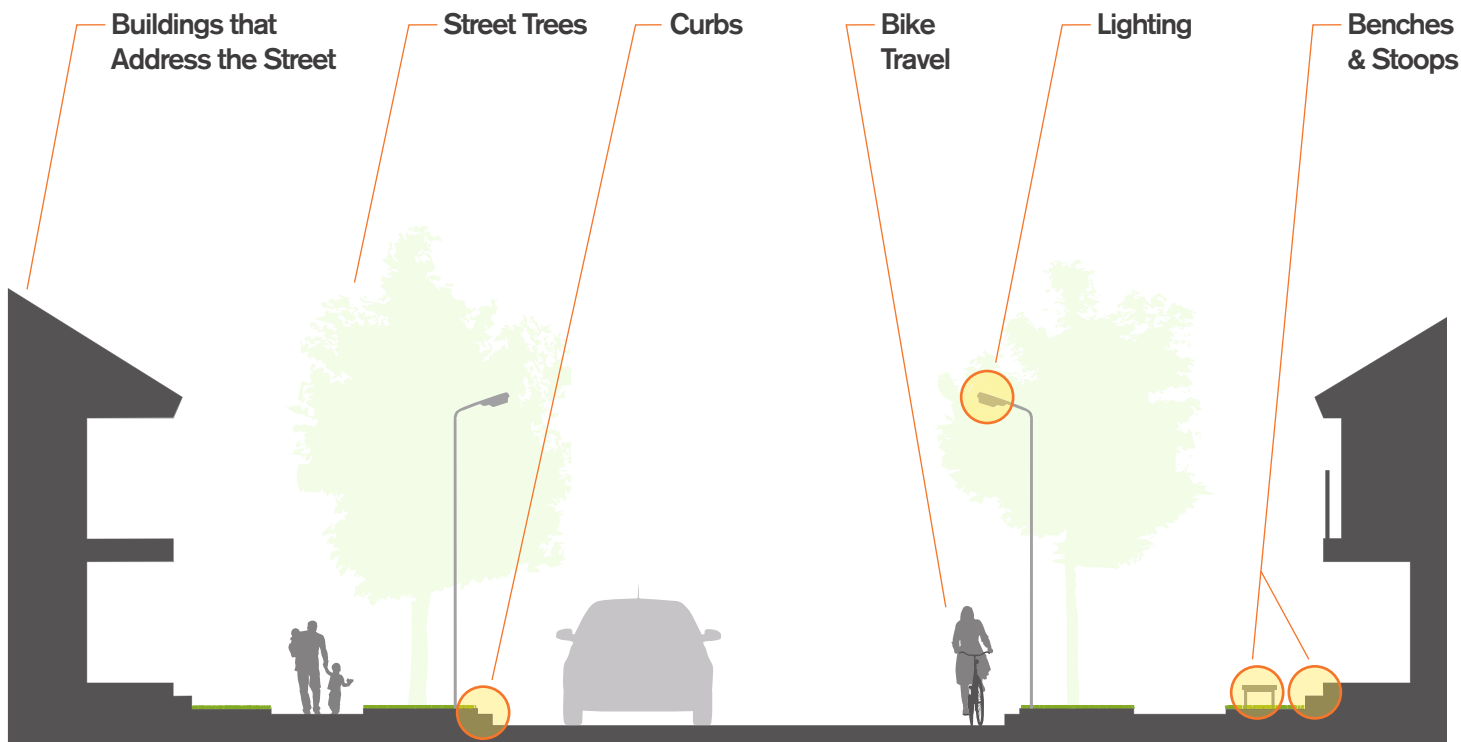
Baldwin Park, Orlando, FL



Colonial Grand, Huntersville, NC



Complete Street Design



Buildings that Address the Street:

Building façades define the street realm. Entries facing the street, porches, windows, and balconies all contribute to keeping eyes on the street and making an active and interesting street zone.

Street Trees: are used as buffers and create a pleasant street experience. Street trees continue to become more useful, valuable, and beautiful overtime.

Curbs: Curbs create a slight grade change to distinguish the edge of the sidewalk from the roadway, making a clear differentiation between the vehicular and pedestrian realm.

Bike Travel:

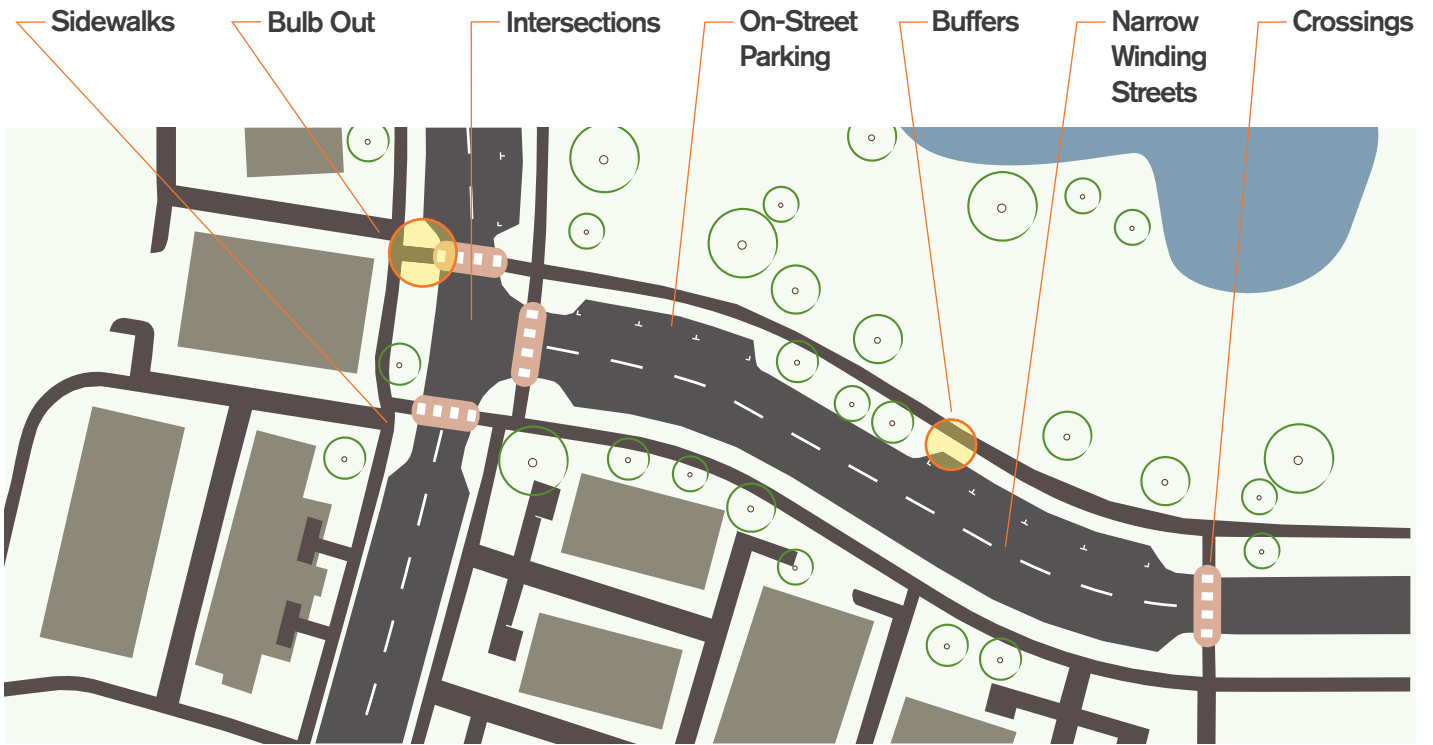
Bike lanes are a component of a complete street, but are not necessary on low volume and low speed streets. Speed reducing strategies like narrow winding streets help promote bike travel.

Lighting:

increases visibility and likelihood of pedestrian use in the evening and night.

Benches and Stoops:

provide a place for watching children play and people watching. People can inhabit the street in a safe and pleasant way.



Sidewalks:

allow for people to safely navigate all parts of the development. They create a designated and raised pedestrian area that has a neighborhood feeling and promotes walking.

Bulb-Outs:

reduce the distance pedestrians have to travel while exposed to traffic, constrain cars, and slow down traffic.

Legible Streets & Intersections:

show where it is safe to travel and cue drivers where pedestrians are present.

On-Street Parking:

provides easy access to units, slows traffic, and buffers pedestrians.

Buffers: (commonly, green strips) create distance and protection between cars and pedestrians; they also provide healthy areas for street trees.

Narrow & Winding Streets:

slow cars and force drivers to be more aware of surroundings.

Frequent, Visible & Raised Crossings:

limit the desire to jaywalk, slow traffic, and provide greater accessibility from sidewalk to sidewalk.

7. Building Massing & Orientation

Facilitate Community Through Design and Siting

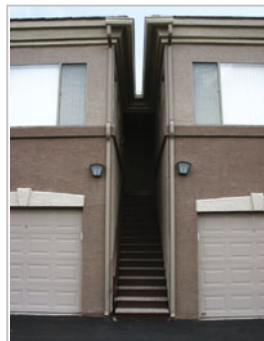


Building massing and orientation refers to the shape, size, volume, and placement of buildings on a site. As buildings are the primary destination in multifamily housing developments their massing and orientation are integral in creating a sense of community. How people are able to navigate through the built environment and the landscape plays a major role in how residents engage the community. Building siting and the placement of openings can determine whether residents proceed directly from their car to their unit or if they choose to enjoy and engage the broader environment in which they live.

Existing Conditions & Challenges

Massive and Unarticulated Buildings

Multifamily building design is often limited by cost constraints, square-footage requirements, and the need to accommodate many tenants. Massive buildings are often uninteresting, unarticulated, constructed of poor-quality materials, and can be difficult to walk around.



Unfriendly Frontage

Thoughtful building frontage is often overlooked in building design. Street-facing garages, single entries into buildings, a lack of stoops, and reclusive patios or minimally transparent patios result in uninteresting and unused frontages.



Buildings That Do Not Address the Street

Buildings and streets are often considered in isolation from each other. Buildings are often sited with no relationship to internal or external streets, or are set back at awkward, long distances. This creates unusable spaces around the building. Moreover, small openings (entries, windows, and porches) limit the degree to which buildings actively contribute to the street environment.



Inappropriate Building Siting

Buildings are often sited in random arrangements or in layouts solely designed to maximize the number of units and parking. This site design approach can lead to a disassociation between buildings, streets, pedestrian networks, and the natural topography or natural amenities of a site.

Recommendations

7.1 Articulate and Break Up Long Building Lengths

Relate buildings to the human scale.

7.2 All Buildings Face a Street

Orientation can allow for “eyes on the street.”

7.3 Activate the Street and Public Spaces

Create direct connections between units and streets.

7.4 Foster Interaction Through Building Groupings

Deliberate building arrangements can promote community.

7.1 Articulate and Break Up Long Building Lengths

Building façades that are long and monotonous can create overwhelming exterior environments that discourage people from being outside. Long, impermeable buildings can become barriers to movement within a development while blank, unarticulated façades can create dull and unpleasant environments. Implement a variety of techniques to create building forms that relate to the human scale and are enjoyable to walk around. The development should add value to the neighborhood through character and a similarity of aesthetic and material choices. Making these decisions thoughtfully can decrease backlash from single-family, multifamily, and commercial neighbors.

Façade articulation and changes in the roof profile can keep a building from looking like a large, singular mass. Articulation can also be achieved by changes in materials and/or colors within different elements on the façade. Openings (entries, windows, etc.) help create a sense that there are occupied units inside the building and activity within the development. Building entries provide opportunities for overhangs, porches, stoops, and other elements that relate to a human scale.

Balconies are a common element employed in multifamily housing to provide articulation to a façade. Balconies should be large enough to be used and can provide an opportunity to add activity to the street. A balcony with people moving in and out of the building can create a sense of vibrancy and consistent “eyes on the street.”

In general, shorter building lengths (<150') are recommended, but regardless of length, articulation can create visual interest and scale for a building. Breaking down the building mass into more human-scaled elements makes buildings more approachable and enlivens the surrounding environment. Many city guidelines provide specific information for building massing. Useful resources include San Jose, California and Pasadena, California’s regulation regarding overall length and articulation (see the Code Guide and Code Guide Appendix sections of this book).



Cherry Orchard in Sunnyvale, CA illustrates unique and articulated façades of large buildings.



7.2 All Buildings Face a Street

Orienting buildings to face the street provides opportunities for interaction with neighbors, encourages conversation, and promotes a general feeling of community. People may walk in the safety of neighbor's windows and doors and the neighborhood then becomes more pleasant for leisure walking. Developments with buildings facing away from a street do not allow for the increased security of "eyes on the street."

Buildings' primary orientation should be toward streets. All ground-floor building entrances should open directly onto the street and not into internal passageways. This may apply to either streets internal to the development or along adjacent roads. Developments that are situated between internal and adjacent streets should try to address both sides in some way.

Where it is not possible to have the front entrance face the street, units should have a street-facing patio with private and semi-private areas. Other openings, like windows, should also be oriented to face the street. Street-facing windows define the human scale of buildings and reveal the human presence within, all the while maintaining "eyes on the street." These openings provide a sense of importance to the street and encourage activity in it and surrounding it. Porches and stoops are great places for parents to watch children playing or just observe people walking through the neighborhood.



Multifamily units at Town Lake Tempe in Arizona open directly on to the street with front doors and balconies.

7.3 Activate the Street and Public Spaces



Building forms, which define public spaces, should be interesting and create active adjacent outdoor spaces where possible. Buildings should address open spaces. This provides opportunities for residents to utilize the outdoor environment and interact with neighbors. Public spaces that have a direct connection to units provide the feeling of a larger living space. Inactive public spaces create a cloistered environment with limited or no opportunities for residents to be outside or enjoy the outdoor space. The organization of buildings helps define outdoor space.

For outdoor, public places to be useful and add value to the site, they should feel safe, be interesting and useful for activities. Consider how multiple buildings come together to frame open space and avoid small leftover strips between buildings. Where possible, consider the use of the spaces created between buildings. (See section 8, Open Space and Landscape Design.)

Creating openings in buildings, cut-throughs, and other connections to public spaces will increase use and activity within a development. The ease of access to these spaces encourages residents to explore and utilize them.

If there is a neighboring public space, consider creating direct visual or physical connections to it. Creating these connections can take little effort or additional investment but greatly increases actual and perceived value for residents by providing views and access to public spaces.

7.4 Foster Interaction Through Building Groupings

Buildings sited in random or solitary arrangements miss opportunities to create groupings and shared outdoor spaces. Buildings should be grouped in ways that promote connection with neighbors while still providing privacy. Building groupings should be thought of as subsets of the development that are distinct but complementary. Creating a clearer relationship between buildings adds value to their residents' living experience.

When siting buildings, do so in thoughtful and deliberate arrangements that create shared outdoor spaces, including community gardens, patios with furniture, areas for outdoor food preparation and local gatherings.

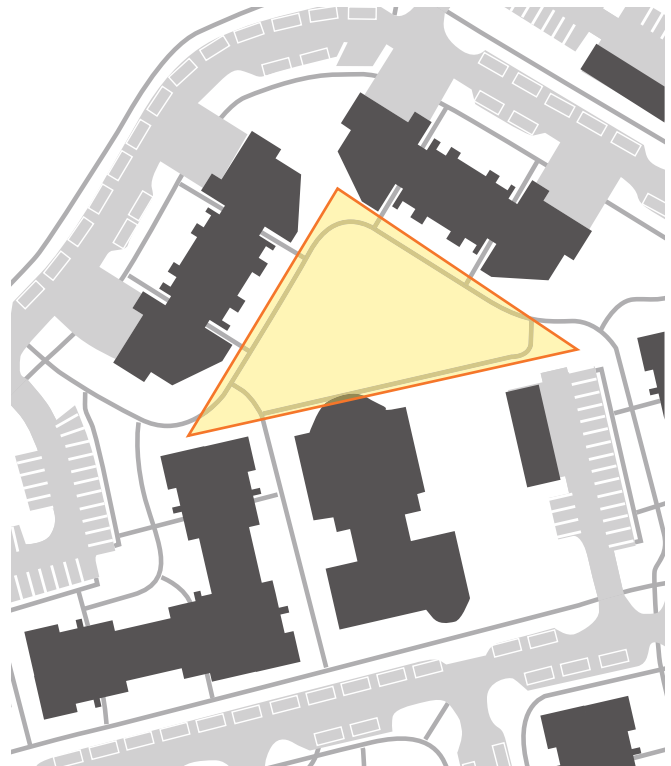
In larger developments, it may be necessary to create smaller groups of buildings that address neighbors. This can be accomplished by siting buildings in small groups of approximately four to six. This site design creates a more intimate relationship between adjacent buildings. Combining several smaller communities will give the feeling of being part of both a smaller and larger neighborhood. Combinations of buildings create semi-public shared spaces that can make residents feel more ownership over outdoor spaces.

In smaller developments, a contextual site design approach is necessary. Look to create relationships with adjacent developments and the site context.

Consider using distinct, visually interesting materials in different locations within sites. Building distinctions and landmarks act as a wayfinding mechanism and promote walking within and throughout the site.



Sheldon Village, Eugene, OR
Articulated building façades open on to a vibrant central courtyard among this multifamily housing community.



The grouping of highlighted buildings in the diagram above denote a small community among the larger multifamily community at Colonial Grand, Huntersville, NC.

8. Open Space & Landscape Design

Use Natural Elements to Create a More Habitable Development



Creating a usable, attractive, and beautiful natural landscape is paramount to achieving desirable and successful developments. Open space serves as a primary destination and as an environment through which people circulate. It is integral to connectivity and active travel through the site. Landscape design includes the selection and consideration of new and existing trees and other vegetation and site features. Landscaping mediates the transition from the built environment to the outside. Open space and landscape design create interest, excitement, and variation of views throughout the development and make the site more enjoyable.

Existing Conditions & Challenges

Buildings Ignore Existing Site

Buildings are often sited on a landscape with little consideration for how their placement relates to the natural features of the site. The site is typically cleared and modified to a flat plain, which negates the opportunity for buildings to interact with the surrounding landscape and ecologies. This tends to result in spaces that are indistinguishable from one another.



No Hierarchy of Open Space

Many developments consist of a series of open spaces without an order or hierarchy. These spaces are generally similar in size and lack an identity and purpose. It results in a development with homogenous buildings and landscapes. This can be difficult for wayfinding and take away from the general character of the development.

Unusable Open Space

Open spaces that are too small are unusable by residents. These areas are often leftover spaces and are not enjoyable, but are still used to calculate required open spaces. Open space is often poorly programmed and results in vacant outdoor space.



Lack of Street Trees and Green Buffers

Landscape design often neglects to incorporate greening that improves aesthetics and safety, while helping moderate outdoor temperatures. A lack of street trees and green buffers is a missed opportunity to increase the natural look and attractiveness of the site and protect pedestrians, cyclists, and motorists at the same time.



Recommendations

8.1 Create Usable and Attractive Open Space

Scale open space and landscaping to the activities that will take place there.

8.2 Integrate with Existing Site Conditions

Use the natural topography and landscape to create identity.

8.3 Use Natural Elements to Provide Privacy

Create softer exterior edges and attractive scenes to look onto from inside.

8.4 Articulated Landscape Design

Variation in terrain creates interest and identity for developments.

8.1 Create Usable and Attractive Open Space

Creating usable and attractive open spaces encourages a more healthy and active lifestyle via outdoor activities. Open space should not be an afterthought, but rather designed and planned along with new buildings and other site elements. Landscaping should respond directly to the existing site conditions and enhance the outdoor realm. Open spaces should be sensitive to the local climate and create outdoor space that is appropriate for the place where it is located. Landscaped areas should incorporate native plants, creating a more thoughtful relationship to the area.

Scale open spaces and landscaping to users and uses. Smaller open spaces should be sited in logical areas for children to play with appropriate landscaping. Larger open expanses should be thought of as a series of small- to medium-sized areas that can also be used as one large space. Ultimately, areas for activities like picnics should exist along with areas for activities like larger soccer games. Landscaping in these areas should be strategic and not interfere with spaces designated for larger groups to use (i.e., do not place trees in every part of a large field and eliminate the opportunity for team sports). Open spaces are easier to maintain when they occupy a larger area.

Open space presents a great opportunity to deal with stormwater issues. Depending on the climate, these areas can be designed to flood and allow the water to percolate into the soil. Additionally, hard-top areas, which are useful for recreational activities should be considered near pervious areas to mitigate stormwater runoff.



Legends at Lake Nona, Orlando, FL
A playground and yard that acts as a front yard to the multifamily building behind it.



8.2 Integrate with Existing Site Conditions

Building organization is often dictated by what fits on the site and does not consider the existing site conditions. Natural features and amenities are sometimes destroyed or neglected to accommodate the site design, resulting in missed opportunities to integrate with and enhance the natural environment.

Existing site conditions can offer unique opportunities to each site. Their features can define the development's brand and character. Buildings should be sited appropriately to integrate with the existing landscape and topography. Keeping existing trees can add character and value to the development and larger community. Projects can gain goodwill from the neighboring community by taking an approach that respects the natural life that existed before the development.

Adapting to the natural features of the site can also provide a feeling that the development is established in its place. Surrounding open space that continues through the site creates seamless transitions to the public realm and continuity with neighborhoods. Native plants and other terrain features can make the development become part of the local environment more easily.



Buildings sited toward a pond at the development Legends at Lake Nona in Orlando, FL add value to residents and allows for the attractive bike and walking path that runs along it.

8.3 Use Natural Elements to Provide Privacy

The density of multifamily housing can make privacy between units and neighboring buildings difficult to achieve. The landscaped areas between the street and adjacent building can provide a buffer to the private units. Landscaping close to the building can also help to soften the façade and reduce the massive feeling of larger buildings.

Instead of using walls, fences, and other built screening devices, where it is possible use natural elements to provide varying degrees of privacy. Natural elements create attractive barriers for people on the outside as well as those within the building. Use multi-scale plantings, trees, shrubs, or other natural elements to achieve this effect. Natural elements, in conjunction with porches or balconies, create privacy while still allowing for “eyes on the street.” Using visually appealing shading devices adds a great deal of value to the residents of the units and can have a positive effect on the thermal comfort of the area.



Units at Baldwin Park in Orlando, FL face out onto a street, but still have private façades through the lush plantings along the façade of the building and the street. This condition is mutually beneficial to those inside and those occupying the street realm.

8.4 Articulated Landscape Design

Open space that lacks any articulation can feel empty, vast, or useless, especially as it approaches buildings. Landscaping, grade changes, and outdoor features demonstrate thought and care for a development. These strategies can provide sensitive transitions to neighboring developments or between individual multifamily buildings.

Well-placed landscaping can also minimize the visual impact of other buildings, define unit entries, and enhance structural elements. The goal is to soften and embellish areas between buildings and adjacent properties with native plant life in a range of scale and cover.

Use trees to provide shade. Grass can be a means of mitigating heat and exposure in parking lots and other paved areas and offer cooling properties to adjacent buildings. Fences higher than 7' should only be used adjacent to high-speed thoroughfares. Thoughtful landscape design around the site encourages residents and neighbors to actively engage with the site.



Site features at Parkside Commons in Chelsea, MA include benches, large planters, and fences. These features provide variation and interest for residents.

9. Bicycles

Accommodations for Cyclists



Bike facilities refer to any amenities that support bicycle travel such as: secure bike parking, air pumps, and bike paths. Adequate bike facilities encourage biking within the development and to neighboring destinations. Creating an infrastructure for bikes in the community can create social interactions between neighbors. It activates streets with people, increasing the level of safety simply through their presence. Cyclists sharing the road with cars can reduce speeds throughout a development and create more balance in travel modes.

Existing Conditions & Challenges

Inadequate Bike Parking

Bike parking in developments is often unlocked, uncovered, and unsafe. Developments often lack bike racks, bike cages, or other secure bike parking. Additionally, unofficial locking areas (e.g., along railings or near unit entries) can create hazardous conditions for others. A lack of secure and easily used bike parking can be a major disincentive to bike use. These conditions create physical and mental barriers to biking.



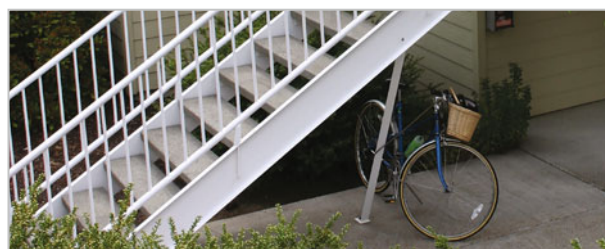
Hostile Auto-Dominated Environments

Within developments, street and parking design generally do not provide for bicycle travel. This condition can create an environment that discourages biking.



Limited or No Bike Amenities

Developments often do not provide bike maps, air pumps, tools, and connections to local bike paths. The lack of these amenities makes biking less convenient for residents and local riders and acts as a disincentive to biking.



Recommendations

9.1 Make Streets Bicycle-Friendly

Create areas for people to bike.

9.2 Provide Locked and Well-Designed Bike Parking

Design useful approaches to storage.

9.3 Provide Bike Amenities

Consider incentives and basic conveniences for bikes.

9.1 Make Streets Bicycle-Friendly

If people do not feel safe riding a bicycle in the development, they won't. However, when vehicular traffic is minimal, convenient, and comfortable, travel for bikes is possible. Bike travel should take place within the street realm where motor vehicle drivers can expect bicyclists, and not through large parking lots. (Bike lanes are not needed on streets where the speed limit is thirty miles per hour or less.) Bikes should feel comfortable staying within the street realm and avoid the use of sidewalks, so as not to discourage walkers.



Willamette Garden Apartments, Eugene, OR
This biker does not have a designated bike lane on the streets of this development, but the slow motor vehicle speeds allows for roadway use.



Willamette Garden Apartments, Eugene, OR



9.2 Provide Locked and Well-Designed Bike Parking

One of the primary reasons that bikes are not used is a lack of convenient and secure parking. Accessing a bike from a unit should be easier than accessing a car from a unit. Bike parking should be easy and located in areas where they can be protected from the elements and can be monitored from units and other public spaces. The most useful, easily accessible, and safe parking configurations should be determined based on individual site conditions. Within every development, there should be a mix of short-term and long-term bike parking options.

Short-Term Parking:

Provide parking at each unit or shared parking between a small cluster of buildings. This is more convenient for guests and those who wish to ride directly to and from their front door. This type of parking usually accommodates four to six bikes in an area that is directly in view of the units and visible to passersby. Possible locations for this parking is in exterior stairwells, which act as a cover, or along the street entrance of the building. In either case, windows and doors should look directly onto the area where the bike parking is located.

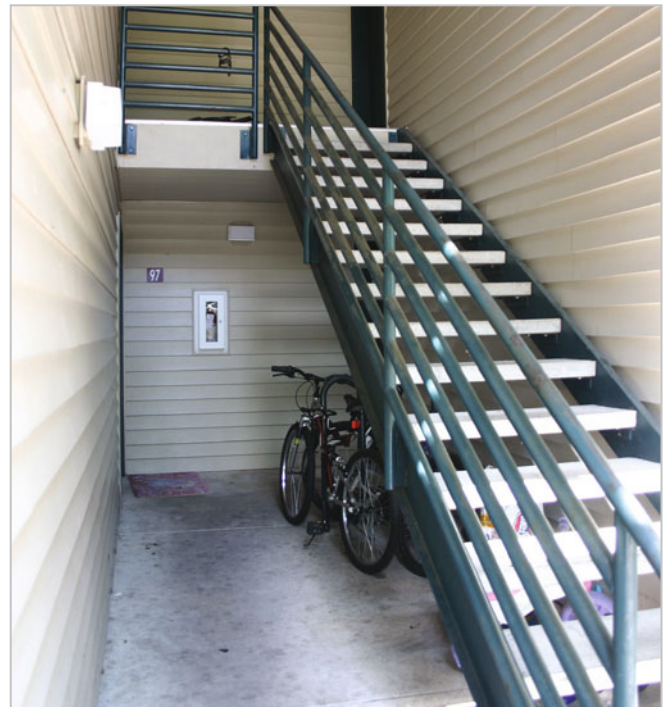


Willamette Garden Apartments, Eugene, OR
A large and attractive shelter accommodates long-term parking for residents.

Long-Term Parking:

Create large covered areas logically dispersed throughout the site. These spaces can hold twenty to fifty bikes. They can be caged or fenced, and must be secured areas. These shelters should provide cover to the bikes and, since they are visible throughout the development, they should not be eyesores. Grouped bike parking creates protected areas that are less likely to invite theft and vandalism. Long-term parking areas should be conveniently located for residents near their front doors.

Both short-term and long-term parking should be well-lit and safe for the bike and the rider. Highly visible areas are best for the safety of the bikes and also to remind and encourage others to utilize the amenities. It is unsafe and cumbersome to carry bikes up and down stairs, steep areas, or in places with other obstacles. These types of situations should always be avoided.



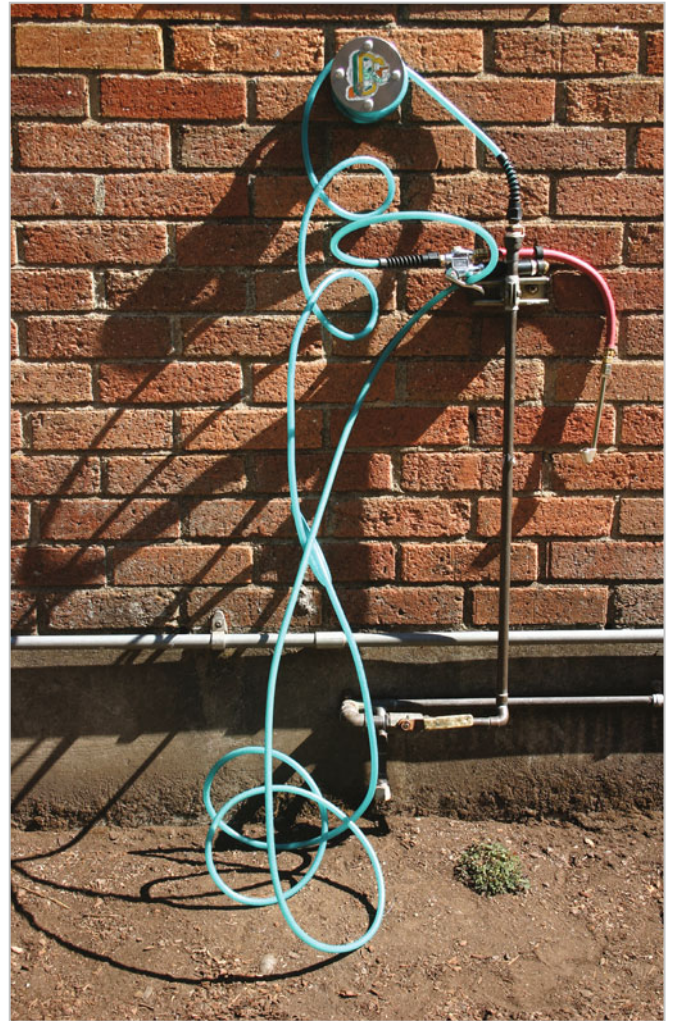
Oak Meadow, Eugene, OR
Racks are conveniently located under the stairs of this building entry. This is directly outside of two unit front doors and below two second floor entries.

9.3 Provide Bike Amenities

One deterrent to cycling is the cost and storage of cycling necessities like pumps and tools. Another deterrent is a lack of connection to public bike paths or local recreation trails that allow cyclists to access locations without traveling on busy arterials. To encourage use of bicycles throughout the site and to neighboring areas, provide cycling amenities that remind residents that alternate forms of transportation are an option. Promoting bike travel throughout a site reduces the need for additional parking at amenities such as pool houses, workout areas, playgrounds, and mailboxes.

Simple items like air pumps and bike tools can provide a feeling of ease and accessibility to biking. Providing vicinity maps to services, shops, and other recreational areas illustrates accessibility by bike. Some multifamily developments have implemented a simple bike sharing program that encourages more residents to bike.

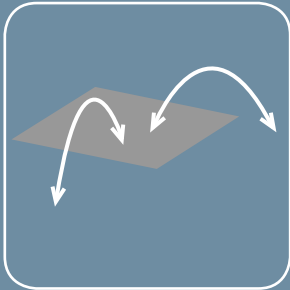
Where possible, connect to surrounding public bike paths or recreational trails. These types of connections provide a high return on a small investment, they are a great benefit to residents, and improve their quality of life.



Some of the bike amenities available at Spencer View in Eugene, OR include the bike pump (top) and the maps that show residents the surrounding public bike paths and trails.

10. Relationships

Connections to Neighboring Developments



This section refers to opportunities where multifamily developments can engage with specific surrounding uses. The section is organized by use types and includes discussion of multifamily housing adjacencies to commercial developments, single-family homes and other multifamily developments, and open space. Integrating multifamily housing developments into their larger context provides opportunities to effectively create mixed-use areas that increase livability and vibrancy.

Issues to Consider

Direct Pedestrian Access to Commercial Strip

When multifamily housing is adjacent to commercial development, there is a large opportunity to connect directly to the pedestrian walkway that typically exists between the commercial parking areas and stores. Making this direct connection both shortens the trip distance for residents and also avoids having residents walk along arterials and through auto-dominated commercial parking lots. This can minimize potentially hazardous conditions and creates a more inviting experience for pedestrians and bicyclists. Making this type of connection has been shown to increase the number of trips residents make to the commercial area and eliminates the need for parking for these trips.

Two means of connecting to the commercial strip can be considered in this situation. The simpler connection is a direct link to the ends of the commercial pedestrian walkway. This should include a continuous walkway from the multifamily site to the commercial walkway and should incorporate marked crossings across any access ways or drive aisles.

For multifamily housing that is behind the commercial development, a connection can be made through a path created between stores in the strip. This is a more complicated connection in that it requires increased coordination with the commercial development and has ramifications for the design of the commercial strip.



Heron Meadows, Eugene, OR
Connection to neighboring commercial development.

This type of connection does, however, provide opportunities for adding storefronts and entrances along the connecting path. Because of safety concerns during the evening, these connections are often well lit and have gates that can be locked during off hours.

Recommendations

10.1 Connect Multifamily Housing to Commercial Areas

10.2 Connect Multifamily Housing to Single-Family Homes and Other Multifamily Developments

10.3 Connect Multifamily Housing to Open Space



Map data: Google, DigitalGlobe



Sheldon Village in Eugene, OR connects by a pedestrian path to the neighboring commercial area. The path continues through the building to the public pedestrian network (shown on right).

If direct pedestrian access to commercial areas is not possible, access points that link the pedestrian network to external sidewalks should be located to

create the shortest possible route. This may require multiple access points depending on the shape and orientation of the development.

10.1 Connect Multifamily Housing to Commercial Areas

Throughout the country, multifamily housing is often used as a buffer between commercial areas and single-family homes. This creates a charged condition where a substantial amount of dense multifamily housing is located within walking distance to commercial areas. In addition, the location of multifamily housing makes it a critical element in the accessibility of the commercial area by surrounding

single-family housing. Connectivity in these situations is critical to facilitating walking and biking trips.

In this role, multifamily housing can block safe foot or bike travel to the commercial area or it can facilitate it. There may be greater opportunities for single-family residents to easily access local shopping areas.



Vehicular Connections to Commercial Areas

Vehicular connections are much more complicated than pedestrian paths in that they have the potential to increase traffic through the multifamily development and because developers are generally less receptive to them. Where connections are made, they should be narrow in order to limit travel speeds and in order to limit non-local traffic, should not lead to direct connections to arterials or other major roads.

Parking

Commercial developers often express concern that making pedestrian connections to adjacent multifamily housing will lead some residents to use the commercial parking lot for residential parking or to store extra cars. In interviews with developers who have made pedestrian connections to multifamily developments, they have stated that this is not a problem as this type of parking would typically occur during the night and is easy to locate and control. Towing a single car was enough incentive to remediate the problem for an entire development.

Through Paths for Other Residential Developments

The location of multifamily housing adjacent to commercial areas can make it a barrier or a connection point for other single-family and multifamily developments to access the commercial area. Creating clear, well-lit paths through the multifamily development can make more direct and pleasant paths for neighboring residents, increasing the number of residents that live within walking distance to the commercial area, and reducing the number of auto trips to this area.

While some developers have expressed safety concerns regarding having other residents travel through their multifamily development, many of these concerns can be mitigated through design. Having the through path occur along an internal street, having buildings face this street, and avoiding tall, opaque walls and areas where a person can be hidden can all help mitigate safety concerns. In addition, individuals walking through the multifamily development increase the number of “eyes on the street” that help control an area’s safety.

Path Lighting

Some municipal codes limit a site’s lighting so that it does not illuminate areas outside of the site boundary. This can create dark gaps in paths to adjacent areas that can become a safety concern. Coordinating lighting with adjacent property owners can eliminate these gaps and create safe, continuously lit paths.

Headlights and Glare

Cars using the commercial parking area in the evening can create disturbing glare within the multifamily development and especially within buildings that are adjacent to the parking area. This glare can be mitigated by orienting buildings so that they don’t face the commercial area and/or by the location of low walls or shrubs along the perimeter of the multifamily development.

10.2 Connect Multifamily Housing to Single-Family Homes and Other Multifamily Developments

Multifamily developments often face significant opposition when they are proposed adjacent to existing single-family homes. This is often based on the perception that multifamily housing will increase traffic, increase crime, and burden local schools. While multifamily housing has a higher unit density than single-family homes, residents typically own fewer cars per household and make less auto trips per household. In addition, multifamily housing has no difference in crime rates than lower-density housing, and because the large majority of multifamily households do not include children, they actually are a much smaller load on schools than single-family developments. (For further discussion on these topics, please see: Haughey, Richard M. [Higher-Density Development: Myth and Fact](#). Washington, D.C.: ULI—the Urban Land Institute, 2005.)

One primary concern of single-family residents regarding multifamily housing that is related to site design is a fear that multifamily development will become an eyesore that is incompatible with the existing neighborhood. The design of multifamily housing is critical to mitigating this concern.

Beyond single-family resident concerns, well-connected multifamily housing can also be a benefit to surrounding single-family and multifamily developments. Because multifamily housing is often located between single-family or other multifamily homes and commercial areas, increasing connectivity between these developments can actually increase the accessibility of the commercial area for all residents and give them a protected, pleasant path on which to travel.

Because zoning typically clusters mid to high density housing in suburbia, multifamily housing developments are often directly adjacent to one other. This condition avoids issues of incompatible scale seen with other use adjacencies and instead provides an opportunity to create larger continuity between developments. Creating this continuity not only helps create a larger sense of neighborhood, but also allows residents to access all of the areas beyond any particular development.

Issues to Consider

Smooth Transitions

To mitigate concerns about the compatibility of multifamily and single-family housing, strategies to help smooth transitions between the two housing types are critical. These strategies include creating compatibly scaled buildings, creating edges that engage the surrounding neighborhood, and designing high quality, attractive buildings. Creating smooth transitions between multifamily developments creates a larger sense of neighborhood.

Compatible Scale

As multifamily housing typically includes larger buildings, breaking down the scale of the buildings can help them blend with neighboring developments. This includes articulating the façades, massing large buildings, and bringing down the height of buildings as they approach the perimeter of the site. Mimicking adjacent single-family home set-backs and avoiding units that can look directly into adjacent yards and homes can also help smooth the transition between developments.



Engaging Edges

The perimeter of developments is a primary place of interaction. Creating engaging edges can not only avoid conflict, but can also add to the quality of the neighboring development. In these areas, avoid blank walls or fences that lack articulation or wall openings. Where possible, orient buildings toward neighboring local streets and create façades along those streets that include entry doors and stoops. Activating the street with these elements can help foster “eyes on the street” and a feeling of safety.



Engaging edges and active building façades with stoops, windows and front doors looking out in Baldwin Park, Florida.

Architectural Design and Details

Creating well-designed, attractive buildings is a key component to offering a positive contribution to the larger neighborhood. Avoid low-quality materials that require high degrees of maintenance or that will not weather gracefully. Avoid blank walls or largely unarticulated buildings. Pay attention to building detailing and provide a similar or higher quality of design than the surrounding neighborhood. It is sometimes helpful to use an architectural language that is compatible with surrounding development and creates a feeling of continuity. Consider similar architectural details and articulation as those of surrounding buildings.

Continuous Pedestrian Network

Because of their size, multifamily developments have the potential to act as barriers within larger neighborhoods, increasing travel distances, forcing residents into their cars, and increasing traffic. To mitigate this, connect to the surrounding multifamily pedestrian network both at vehicular access points and also in areas that may only have pedestrian connections. Consider how neighboring residents may be able to walk through the multifamily development to access other residential or commercial areas. Creating a dense network of connections allows residents from both multifamily and single-family developments to walk and bike to destinations.

Continuous Street Network

To create a feeling of continuity and cohesion throughout the area, have internal streets align with surrounding local streets. Look for opportunities to locate multifamily development entries at existing intersections where possible, making the entry an extension of the street system. Also, consider using similar block sizes and layouts as the surrounding neighborhoods and connecting streets all the way through the multifamily development. Consider the use of stub-outs where adjacent areas are currently undeveloped.



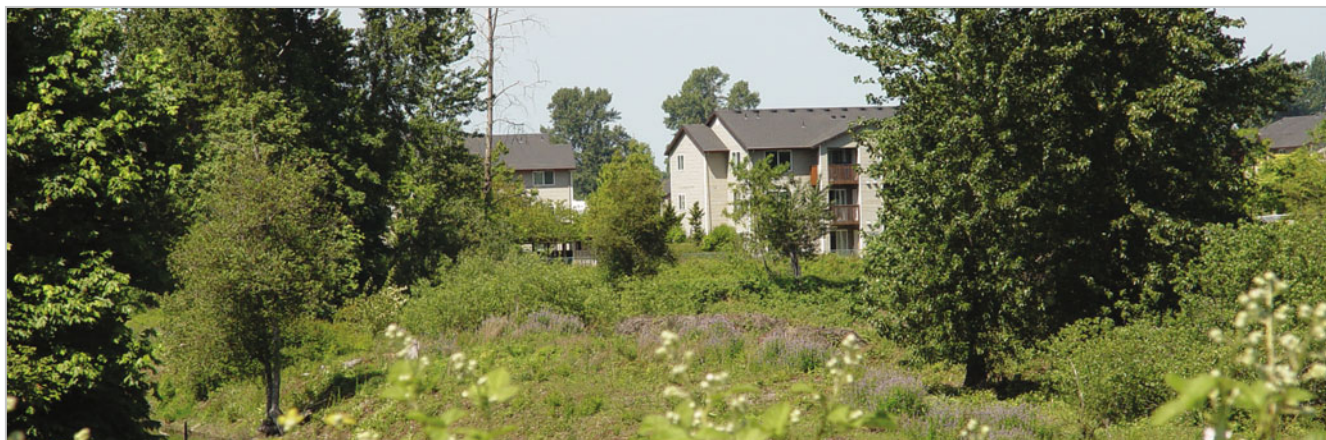
Map data: Google, DigitalGlobe

A continuous system of paths and streets at Parkside and Crossings developments in Eugene, Oregon.

10.3 Connect Multifamily Housing to Open Space

City parks, greenways, and waterfront areas provide recreational and social opportunities for multifamily residents that typically do not have access to private yards.

Connections to these areas give multifamily residents direct access to these larger amenities and can significantly improve residents' quality of life.



A connection to a neighboring park in Eugene, Oregon.

Issues to Consider

Direct Pedestrian Links

Where possible, create direct connections between the open space and multifamily housing. This minimizes travel distances for residents and encourages increased use of the open-space amenities. Pedestrian access points should link the open space and multifamily networks. Consider multiple access points if there is a lengthy adjacency. If needed, 'Friendship Gates' – gates that do not lock – can be used to define the edge of the development and create thresholds that can discourage unwanted visitors.

Building Face and Activate the Space

Where possible, buildings should be oriented toward the open-space amenities and should have doors, stoops, and wall openings facing this area. This can provide an attractive view for residents and also allows them to informally monitor the activities occurring within the open space.

Avoid Blocked Views and Hidden Areas

Large, opaque fences and planting located between the open space and multifamily housing can create unsafe conditions within the open space. These barriers can create areas where residents cannot see activities and where individuals can hide. Keeping areas open to "eyes on the street" helps create a safer environment for everyone.

Lighting

Open spaces can feel threatening during evening and nighttime hours if they are not adequately lit. Dark walkways and access points can discourage use of the open space and can create conditions that do not feel safe to residents. Particularly, avoid gaps in lighting continuity at site edges.

Existing, well-connected
developments across the country

Project Profiles

Heron Meadows - Eugene, Oregon

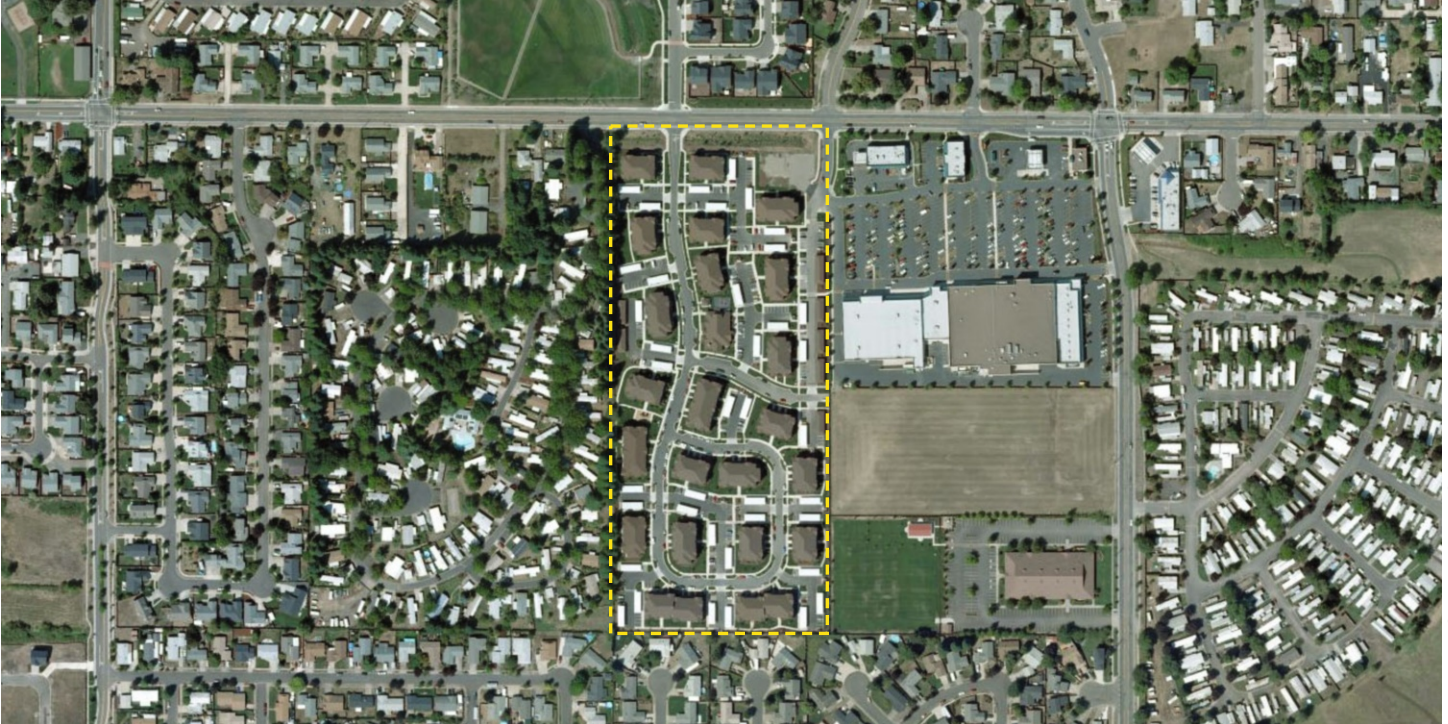
Cherry Orchard - Sunnyvale, California

Colonial Grand - Huntersville, North Carolina

Sheldon Village - Eugene, Oregon

Project Profile: Heron Meadows

Eugene, Oregon



Map data: Google, DigitalGlobe

Heron Meadows succeeds in many of the areas outlined in this book. It provides particularly good examples of pedestrian and street networks with simple and usable connections to adjacent commercial areas. This project was driven by a new city code and the design has an emphasis on street frontage, parking, access points, and street design.

Heron Meadows is disconnected from the single-family homes to the south and west of the site; although vehicular and pedestrian access is provided at four points along the north and east edges of the development. These links connect to the public street system and an adjacent commercial property.

Since the case study of this development took place, a new multifamily housing development was constructed to the east of Heron Meadows. The existing stub-out that is shown in the map above now connects to new neighbors and a park that is shared with the community.

The Facts:

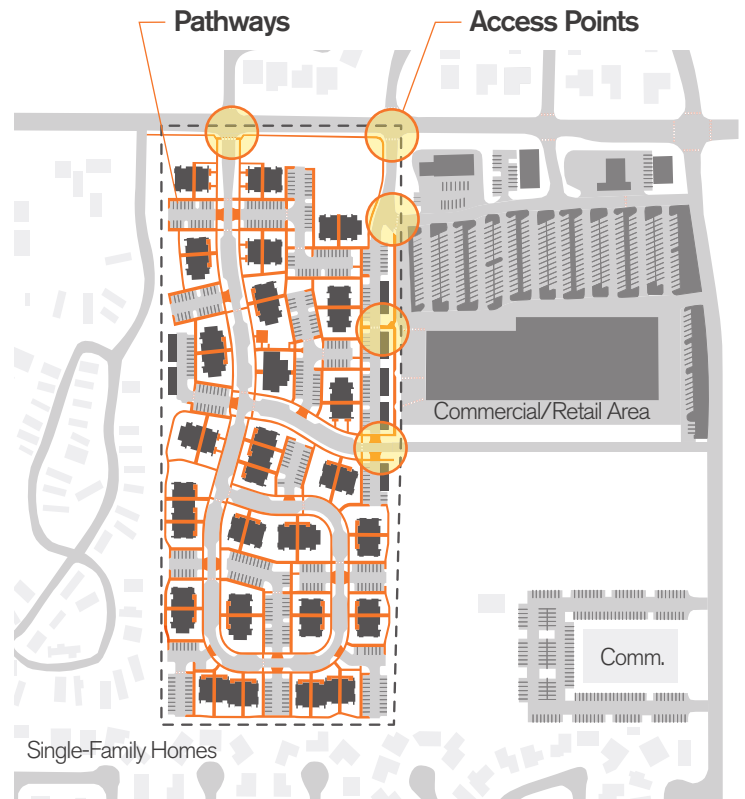
Total Number of Units:	300
Total Area:	16 acres
Units per Acre:	19
Largest Open Area:	400 sq ft
Parking Spaces:	440
Year Built:	2007
Unit Types:	1, 2 and 3 BR
Architect:	Reiter Design Group Architects, Inc
Landscape Architect:	Anderson Associates
Developer:	Candle Light Partners, LLC
Total Buildings on Site:	23

Pedestrian Network

There is an extensive network of paths that connect this site internally. There are also pedestrian links between Heron Meadows and its neighbors, specifically to those to the north and east. These pedestrian paths connect to the public street system and allow for walking far beyond the boundary of this site. The pathways are also critical to accessing the parking courts throughout the site.

Access Points

Heron Meadows links directly, by a paved path, to the neighboring commercial area. A crosswalk from the pathway to the sidewalk of the commercial strip has been created for protected pedestrian travel. It is heavily used by residents. The proximity and connection to the adjacent commercial area is touted in promotional material as a key amenity. There are additional access points that create vehicular links to major arterials. More access points are needed to connect to the single-family homes along the west and south edges of the site.



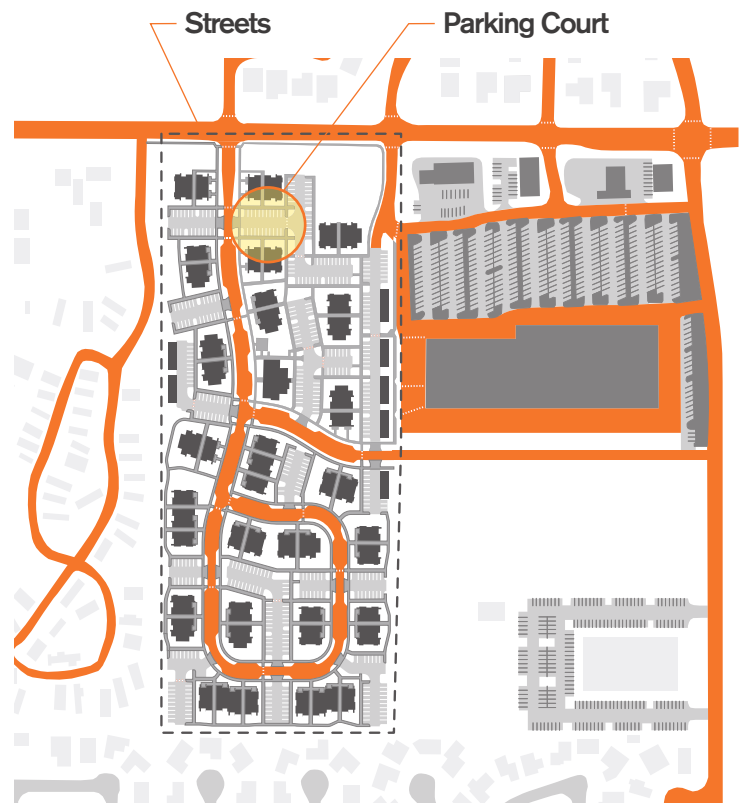
Pedestrian Network and Access Points

Parking

A series of small parking courts are linked to the internal street network and provide residents with parking close to their buildings, without making cars and parking the most dominating feature of the development.

Street Network

Vehicular access is provided to all areas of the site through a loop road. A stub-out (the most southern access point on the east edge of the site) was turned into a through street after the development of an adjacent multifamily housing complex.



Street Network and Parking





Top: Narrow, winding streets provide a neighborhood feel while slowing vehicular traffic. The pedestrian network is an integral component of the street system and allows for “eyes on the street.”

Right: Front doors, entry ways, balconies, and windows punctuate the façade of this building.



(Opposite Page)

Top: On-street parking, bulb-outs, sidewalks, and street trees characterize the street design throughout Heron Meadows. It creates a pleasant walking experience for residents.

Left: A protected pedestrian path that is buffered by trees, green planting strips, and parallel parking. Buildings face the street with entrances opening onto and connecting to the sidewalk.

Right: The connection to the adjacent commercial area.

Project Profile: Cherry Orchard

Sunnyvale, California



Map data: Google, DigitalGlobe

Cherry Orchard Apartments place an emphasis on providing ample green space for the residents to enjoy. In addition to grand commons, usable green areas can be found throughout the development, with all units looking out onto one of these common areas. The adjacent commercial area has a fully integrated pedestrian network for residents to easily access the grocery store on foot. This development utilizes the mild climate of California to create a highly connected, walkable, and well-used development.

The Facts:

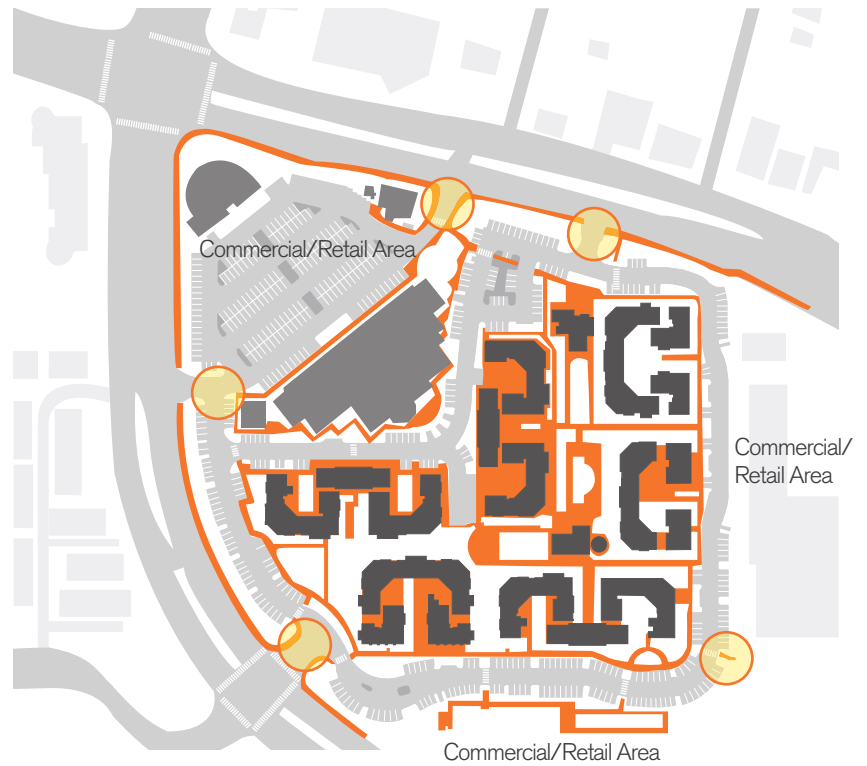
Total Number of Units:	300
Total Area:	11.2 acres
Units per Acre:	27
Largest Open Area:	37,000 SF
Parking Spaces:	600
Year Built:	2002
Unit Types:	1, 2, 3 BR
Architect:	KTGY Group
Landscape Architect:	The Guzzardo Partnership
Developer:	Irvine Company
Total Buildings on Site:	8

Pedestrian Network

Sidewalks provide a multitude of walking choices within this development. Each building is linked with many landscaped areas to encourage pleasure walking and recreation. The adjacent shopping center is connected by crosswalks and paths which makes it more convenient on foot.

Access Points

Primary vehicular access to Cherry Orchard is provided by connections to two major public roadways with secondary access provided to the shopping center. Pedestrian access points are provided throughout the perimeter, minimizing access shadows and providing direct routes to destinations.



Street Network

Vehicular traffic within the development is limited to a ring road on the perimeter of the site and has accommodations for pedestrian crossings throughout. There is vehicular access to multiple arterial roads surrounding the development, as well as direct access to the adjacent shopping area.

Parking

Parking is primarily provided along the ring road surrounding the buildings. An area of dense parking in the northern section of the development includes ample plantings and green space and mitigates any feeling of being in a parking lot. There is additional semi-underground parking accessible by elevator from the units. Above ground parking is easily accessible by paths, which keeps pedestrians from passing through high traffic areas. The parking typology allows for a pedestrian dominated development core.





Top: Balconies and windows look out onto recreation areas with walking paths connecting each part of the site.

Bottom: Entries that engage the street and are easily accessible from on-street parking.



(Opposite Page)

Bottom: Buildings relate and address each other on this site. Pathways that are lined with trees provide shade and privacy. Each path leads directly to a building entrance. The entrances are attractive and encourage residents to sit outside.



Highly articulated building façades create interest and reduce the feeling of monotonous and repetitious building design.



Usable green spaces encourage walking and using outdoor spaces.



Project Profile: Colonial Grand

Huntersville, North Carolina



Map data: Google, DigitalGlobe

The site design of Colonial Grand at Huntersville emphasizes its physical location and focuses on providing community features such as outdoor living areas.

Both vehicular and pedestrian access to Colonial Grand are provided at five points along the north, east, and south of the development. Sidewalks run along all of the streets and connect to all buildings and parking areas within the development, helping make walking a good option. A ring road runs along the perimeter of the development and is connected to internal roads that allow more direct access to various parts of the site.

The Facts:

Total Number of Units:	250
Total Area:	14.5 acres
Units per Acre:	17
Largest Open Area:	22,000 sq ft
Parking Spaces:	455
Year Built:	2002
Unit Types:	1, 2, 3 br
Architect:	Watts Leaf
Landscape Architect:	Design Resource Group
Developer:	Colonial Properties Trust
Total Buildings on Site:	9

Pedestrian Network

An intense network of walkways cross the site and run along all of the streets. This provides residents direct paths to multiple destinations both within and beyond the development, making walking an integral part of the community. Sidewalks and paths outside of the development connect to a bike path and neighboring developments.

Access Points

This development has numerous vehicular and pedestrian access points along its perimeter, giving residents many locations from which to connect to adjacent commercial and residential developments. Access locations are well distributed along the development's north, east, and south edges, minimizing the access shadow.



Parking

Numerous on-street parking spaces make best use of roadway space, while protecting pedestrian pathways and reducing the need for parking lots. This is supplemented by smaller parking courts located near most of the buildings.

Street Network

A continuous street network, based on city code, provides access to all adjacent developments and links directly to the existing street network. Improvements could be made by connecting to the single-family housing development to the southwest.





Top: Street trees, green buffers, and parallel parking make this an enjoyable place for residents to walk.

Middle: A bioswale is highlighted and mitigates rainwater on site.

Bottom: This crosswalk and path lead to the adjacent commercial area.

(Opposite Page)

Top: Parking courts outside of buildings provides convenient parking that does not dominate the entire landscape.

Bottom: Balconies and windows face the street and the entry of the building provides stairs and benches for street on-lookers.



Photos courtesy of Huntersville Planning Department

Project Profile: Sheldon Village

Eugene, Oregon



Map data: Google, DigitalGlobe

The Sheldon Village design team focused on connectivity throughout the development of the project. As a result, they were able to take advantage of Sheldon Village's proximity to commercial properties and increase the neighborhood feel of the development. This is an affordable-housing project that is widely seen as a successful development with a high demand and happy residents.

The Facts:

Total Number of Units:	78
Total Area:	3 acres
Units per Acre:	26
Largest Open Area:	3800 sq ft.
Parking Spaces:	214
Year Built:	2003
Unit Types:	SROs, 1, 2, 3 br
Architect:	Bergsund DeLaney Architecture & Planning, PC David Edrington, Architect
(in joint venture with)	
Landscape Architect:	Stangeland & Associates, Inc.
Developer:	Housing and Community Services of Lane County
Total Buildings on Site:	13

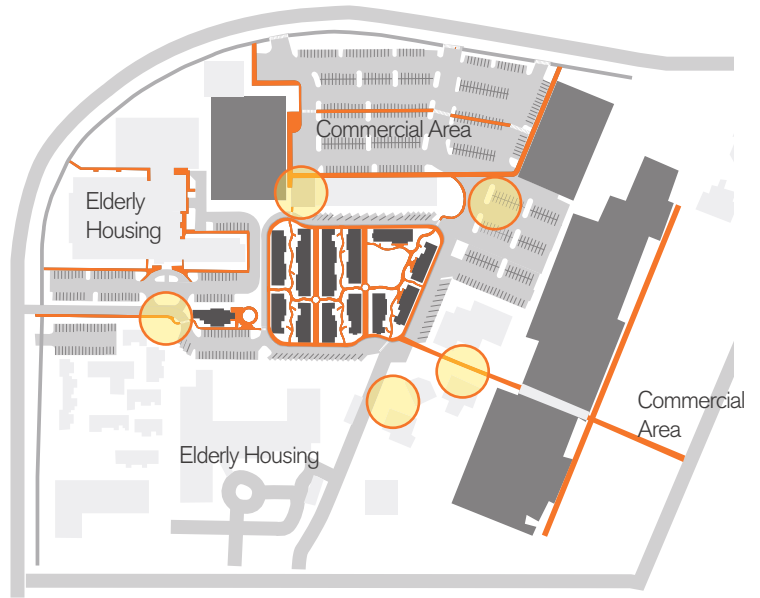
Pedestrian Network

This project has a dense pedestrian network that serves as the primary means of circulation within the site. The meandering nature of the paths encourages walking inside the development and enhances the sense of community felt by residents.

Access Points

Residents at Sheldon Village benefit from its close proximity to several different commercial properties. Pedestrian paths link the development to a number of the neighboring properties. The connection to the commercial area to the east is made from behind, through a break in the building.

Without access points residents would have to drive or walk out of the development and around the block to access commercial properties immediately adjacent to their homes.

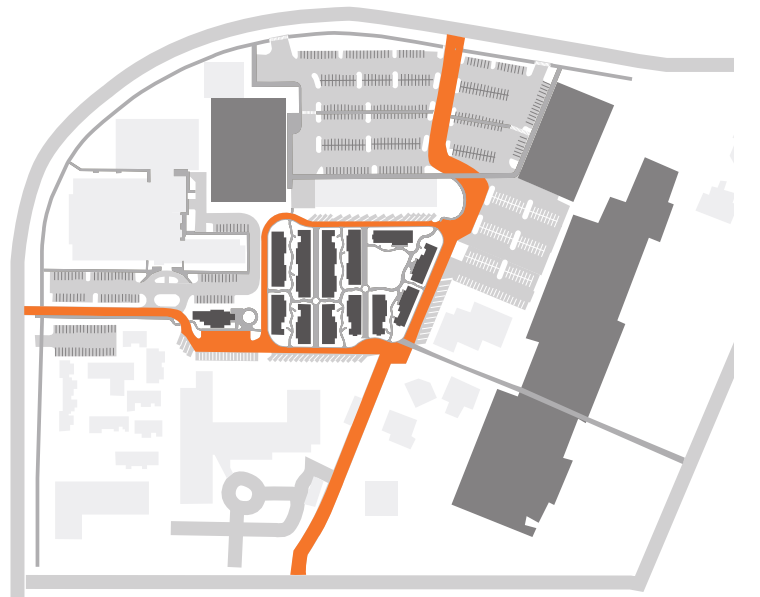


Street Network

A private road loop provides the primary link between Sheldon Village and the public street system. Although this is not ideal, it is supported by an intricate system of walking paths in between the buildings.

Parking

Resident parking is provided along the primary access road along the perimeter of the site, and in concentrated lots to the east. While the lot is not ideal, it frees the core of the site for open, community-enhancing green spaces.





Top: A view of front stoops that face one another and create a welcoming and community-oriented entry.

Left: Buildings at this site are organized around walking 'courts' that are well-used by residents.

Right: Highly articulated façades, which include roof changes, operable windows, and balconies, create interest and an active building façade.



This backyard has balconies, doors, and windows that look onto it so families can watch children at play. This usable outdoor space encourages residents of the building to interact with one another.



Thoughtful site landscaping creates character and interest throughout the community. This encourages pleasure walking and walking to neighboring commercial areas and multifamily developments.



Top: Low stone walls separate green spaces from the pedestrian network. This creates semi-private outdoor spaces and also provides places to sit throughout the development.



Left: Trellises with native plants lead walkers through the pedestrian network.

Right: Connection to adjacent commercial area.



Top: A well-landscaped pedestrian path leads through the development with personalized outdoor seating at the ground level and on elevated decks.

Bottom Left: Buildings face the primary open space with doors, patios, windows, and stoops.

Bottom Right: Balconies and windows overlook walking courts and keep “eyes on the street.”



Proposed changes to existing developments
with latent potential for connectivity

Project Retrofits

Riviera Village - Eugene, Oregon

Villas at Union Hills - Phoenix, Arizona

Project Retrofit: Riviera Village

Eugene, Oregon



Map data: Google, DigitalGlobe

Riviera Village is a 168-unit apartment community on the outskirts of a medium-sized metropolitan area in Oregon. Some critical issues exist at this site which make it disconnected internally and externally. There are only two vehicular access points, which are both located on the north side of the site. Pedestrian paths only exist along the front of buildings which face directly onto parking areas and do not connect all buildings. This orientation encourages car-to-unit travel only.

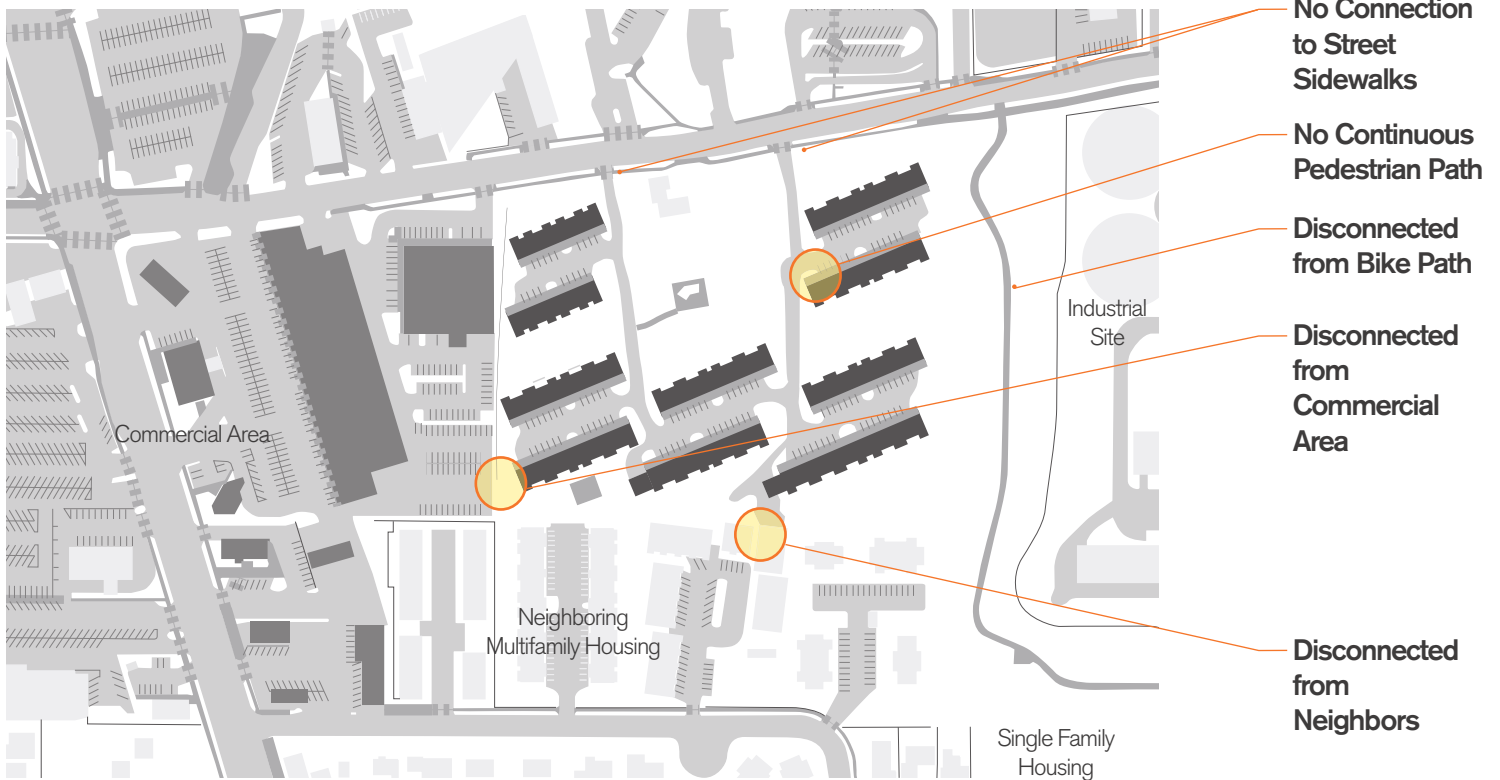
This site is surrounded by an impenetrable fencing. It prohibits access to the neighboring commercial area to the west, the neighboring multifamily to the south, and the public bike path to the east.

The buildings of this development are not oriented to face the street or to take advantage of existing site conditions. The random building placement creates large areas of open space which are not utilized by residents because they are too vast.

Proposed improvements to the site include:

- Careful planning of outdoor spaces to create activity areas for the community
- Vehicle and pedestrian access added at several points around the development
- A more extensive network of paths, linking all parts of the site

Existing Conditions



Proposed Improvements



Existing Conditions



This photo illustrates the existing unfriendly building frontage. The buildings are placed far away from the sidewalk, not providing any direct street access to front doors. The open green space is unprogrammed and not useful to those that live there.



An internal street that leads out to the main arterial does not provide any accommodation for bicyclists or pedestrians. There are no areas that would encourage pleasure walking. This development encourages car-to-unit activity only.

Proposed Improvements



The proposed improvements for this site include a building façade that engages the street and open space, and is connected by a paved path to the existing sidewalk infrastructure. A fenced front yard separates it from the street and can encourage kids to play.



The addition of a sidewalk, crosswalks, green buffers, and street trees makes this street universally accessible and friendly to walk along.

Project Retrofit: Villas at Union Hills

Phoenix, Arizona



Map data: Google, DigitalGlobe

The Villas at Union Hills is surrounded by multifamily housing and commercial buildings. It is an internally focused development which is walled off from all of its neighbors. A four-lane arterial road surrounds the site and cuts off residents from walking to the grocery store and commercial strip to the east.

This development is the epitome of buildings randomly placed within a sea of parking. There is no relationship between buildings and there are no pathways that connect the buildings. The orientation of these buildings and their relationship to the surrounding environment encourages a car-to-unit mentality and certainly does not encourage walking through the neighborhood.

Proposed improvements to the site include:

- Creating through streets connecting to the western and southern adjacent properties
- Developing a pedestrian network that leads directly to relocated front entries or stoops
- Adding bulb-outs and crosswalks to break up long parking lots and provide pedestrians with a place to walk and a right-of-way in the street.
- Make pedestrian connections to the commercial area adjacent to the property on the corner with breaks in the fence and paved paths



Existing Conditions

High walls disconnect this development from its neighbors and create large and inaccessible parking lots.



Proposed Improvements - Option I

Changing the building orientation will create more cohesive groupings of buildings and allow for the addition of a through street.



Proposed Improvements - Option II

Clearly defined pedestrian areas and crosswalks connect neighboring developments with green spaces and a friendship gate. Decreased wall height and increased wall transparency further decreases isolation.



This checklist is meant to be a starting point for reviewing suburban multifamily projects and can be used as a guide during design or as an evaluation tool during the permitting/review process. The issues covered in this list mirror the content covered in the Site Design Criteria section of this book. We recommend that individuals edit and add to this list to coordinate it with the specific code language of their jurisdiction.

We also recommend reviewing the Code Guide section of this book while considering this checklist and local existing codes. The Code Guide Appendix section lists actual code language from cities around the country that are focused on increasing connectivity and livability in suburban multifamily housing.

Project Checklist

Project Checklist

Pedestrian Network

- Walkways connect all units
- Walkways connect units to all on-site amenities (open space, community buildings, storage areas, etc.)
- Walkways connect units to all access points to the development
- Walkways provide direct routes between all units, amenities, and access points
- No large internal barriers that limit access across the site
- Crossings over driving alleys are marked
- Walkways along driving alleys are buffered or raised
- Walkways are at least 4 feet wide
- Parking areas have integrated pedestrian walkways that, where possible, are buffered from automobiles

Street Network

- Primary vehicular circulation within site is on streets instead of parking aisles where possible
- Streets include clear intersections and stops
- Parking lanes (streets with perpendicular parking on both sides) are minimized
- Street network connects directly to neighboring streets, at existing intersections where possible
- Cul-de-sacs are used only when absolutely necessary and no existing or future connections exist
- Streets use similar features as neighboring street to promote continuity
- Streets are narrow
- Streets include traffic calming devices such as speed bumps, pavement changes, and stop signs
- Internal street network does not provide direct paths through the site that can attract non-local traffic

Access Points

- At least one access point has been considered to each adjacent property and/or to each side of the development
- The distribution of access points minimizes 'access shadows' or large segments of the perimeter that don't include any access points
- Access points that are solely for pedestrians and cyclists have been considered
- All vehicular access points include pedestrian paths
- Stub-outs are located toward areas of future/existing development
- The development is not gated

Edges

- Walls taller than 4 feet are only used to border freeways or high speed arterials
- Use of visually permeable walls is maximized and use of solid/opaque walls is minimized
- Where appropriate, landscaping and natural elements are used instead of walls
- Edges are visually appealing and consistent with the surrounding neighborhood
- Where possible, buildings and open spaces engage neighboring streets
- Building heights, articulation, and scale create a smooth transition between this development and the surrounding neighborhoods

Parking

- Use of parking courts (short runs of parking that are off of the primary circulation route) is maximized
- On-street parallel parking is maximized
- Parking lots that have more than one double loaded parking aisle are avoided
- Parking areas include bulb-outs, pedestrian walkways, pedestrian crossings, lighting, trees, plantings, and other landscape elements
- Parking runs are no longer than 12 spaces and are separated by landscape elements
- Parking ratios are at or near minimums allowed by code
- Shared parking schemes are considered

Street Design

- Streets include trees and, where possible, green strips that buffer pedestrian areas
- Streets include pedestrian-scale lighting
- Street crossings include bulb-outs and raised and/or marked crosswalks
- Curbs are used at street edges
- Walkways are incorporated along all streets

Building Massing & Orientation

- Long buildings are avoided and where they do exist, contain articulations to mitigate length
- Building façades have many openings
- Building orientation is parallel to streets
- Main entrances of ground floor units face street
- Buildings along site perimeter are facing neighboring streets where possible
- If primary orientation is not facing the street, units have a street-facing patio
- Building siting and building groupings create shared open spaces

Open Space & Landscape Design

- A variety of open-space sizes is provided for different users and uses
- Open spaces are attractive and usable
- Landscaping uses native plants
- Buildings are sited to integrate with existing natural features (such as topography, existing trees, streams/ rivers/ponds, etc.)
- Where possible, natural elements (plantings, trees, shrubs) instead of walls or fences are used to provide privacy for units

Bicycles

- Bicycle parking is located in safe, highly visible, and well-lit areas
- Guest bicycle parking near units or sidewalks is provided

Relationships

Connection to Commercial Development

- Direct connection to pedestrian area of commercial strip is provided
- Paths to commercial area incorporate marked and/or raised crossings across any streets or drive aisle (both in the multifamily and commercial development).
- Paths to commercial areas (both direct connections and paths that access street sidewalks) are as direct as possible for all areas of the development
- Paths allowing residents of adjacent development to access commercial area are considered. These paths have buildings oriented towards them and are associated with primary circulation areas in order to increase informal monitoring by residents.
- Paths to commercial area are well lit, especially at site perimeter
- Buildings near commercial parking areas avoid headlight glare by either not facing these areas or by the use of low walls and/or shrubs along site perimeter

Connection to Single-Family Homes and Other Multifamily Developments

- Multifamily buildings at edge of site match the scale of adjacent development through compatible height and/or increased articulation
- Blank walls along the edge of the site are avoided
- Multifamily buildings at edge of site are oriented toward and face adjacent local streets (this includes orienting doors, stoops, and windows towards these streets)
- Architectural design and details are compatible with surrounding development
- Pedestrian paths connect multifamily and single-family development at multiple locations if possible
- Internal streets align with neighboring streets and have access points at existing intersections where possible

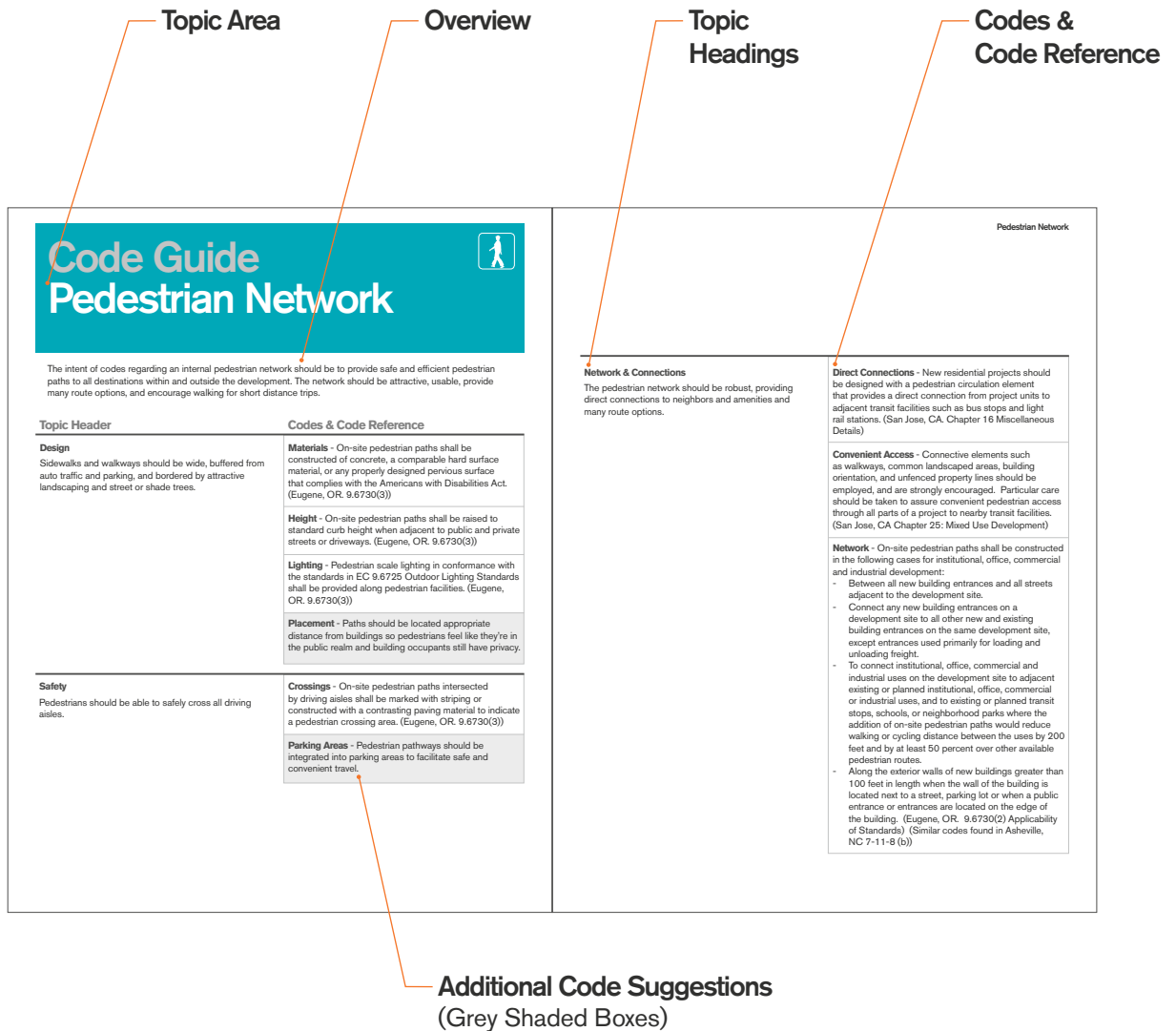
Connection to Open Space

- Pedestrian paths link directly to open space where possible. Multiple access points have been considered for larger open spaces and/or developments
- Buildings face the open space (this includes orienting doors, stoops, and windows toward the open space)
- Opaque walls and hidden areas are avoided between the site and open space
- Paths to open space are well lit, especially at site perimeter

Current code examples that can help apply connectivity standards in your area

Code Guide

1. Pedestrian Network
2. Street Network
3. Access Points
4. Edges
5. Parking
6. Street Design
7. Building Massing & Orientation
8. Open Space & Landscape Design
9. Bicycles



How to Use the Code Guide

- Topic Area** – Corresponds to the site design criteria of the book. Codes are organized by the site design criteria to facilitate connection to previously presented material
- Overview** – briefly summarizes the intent and approach of the codes as they relate to the site design criteria
- Topic Headings** – organizes codes with similar intents and describes the main idea
- Codes & Code Reference** – code language from one or more of the five case study cities with a reference that shows where to look for the code in each city's code book
- Additional Code Suggestions** – ideas from the book that were not seen in codes from the five cities

Introduction to the Code Guide

Some of the current barriers to creating well-connected multifamily housing developments include zoning codes that specifically limit connectivity between dissimilar uses and zoning codes that do not promote or prescribe connectivity. The purpose of this code guide is to present multifamily housing codes from five cities identified as progressive in this area (Eugene, OR; San Jose, CA; Asheville, NC; Arlington, VA; and Huntersville, NC). This guide is meant to provide ideas of how concepts presented in this book can be articulated in code language. It presents several codes related to the site design criteria of the book and provides narrative about the intent and approach these cities have taken with their code. Additional ideas from the book are added as needed. While this code guide has limited excerpts from each code, the following section, Code Guide Appendix, contains more complete code language for each city.

Code Guide

Pedestrian Network



The intent of codes regarding an internal pedestrian network should be to provide safe and efficient pedestrian paths to all destinations within and outside the development. The network should be attractive, usable, provide many route options, and encourage walking for short distance trips.

Topic Header

Codes & Code Reference

Design

Sidewalks and walkways should be wide, buffered from auto traffic and parking, and bordered by attractive landscaping and street or shade trees.

Materials - On-site pedestrian paths shall be constructed of concrete, a comparable hard surface material, or any properly designed pervious surface that complies with the Americans with Disabilities Act. (Eugene, OR. 9.6730(3))

Height - On-site pedestrian paths shall be raised to standard curb height when adjacent to public and private streets or driveways. (Eugene, OR. 9.6730(3))

Lighting - Pedestrian scale lighting in conformance with the standards in EC 9.6725 Outdoor Lighting Standards shall be provided along pedestrian facilities. (Eugene, OR. 9.6730(3))

Placement - Paths should be located appropriate distance from buildings so pedestrians feel like they're in the public realm and building occupants still have privacy.

Safety

Pedestrians should be able to safely cross all driving aisles.

Crossings - On-site pedestrian paths intersected by driving aisles shall be marked with striping or constructed with a contrasting paving material to indicate a pedestrian crossing area. (Eugene, OR. 9.6730(3))

Parking Areas - Pedestrian pathways should be integrated into parking areas to facilitate safe and convenient travel.

Network & Connections

The pedestrian network should be robust, providing direct connections to neighbors and amenities and many route options.

Direct Connections - New residential projects should be designed with a pedestrian circulation element that provides a direct connection from project units to adjacent transit facilities such as bus stops and light rail stations. (San Jose, CA. Chapter 16 Miscellaneous Details)

Convenient Access - Connective elements such as walkways, common landscaped areas, building orientation, and unfenced property lines should be employed, and are strongly encouraged. Particular care should be taken to assure convenient pedestrian access through all parts of a project to nearby transit facilities. (San Jose, CA Chapter 25: Mixed Use Development)

Network - On-site pedestrian paths shall be constructed in the following cases for institutional, office, commercial and industrial development:

- Between all new building entrances and all streets adjacent to the development site.
- Connect any new building entrances on a development site to all other new and existing building entrances on the same development site, except entrances used primarily for loading and unloading freight.
- To connect institutional, office, commercial and industrial uses on the development site to adjacent existing or planned institutional, office, commercial or industrial uses, and to existing or planned transit stops, schools, or neighborhood parks where the addition of on-site pedestrian paths would reduce walking or cycling distance between the uses by 200 feet and by at least 50 percent over other available pedestrian routes.
- Along the exterior walls of new buildings greater than 100 feet in length when the wall of the building is located next to a street, parking lot or when a public entrance or entrances are located on the edge of the building. (Eugene, OR. 9.6730(2) Applicability of Standards) (Similar codes found in Asheville, NC 7-11-8 (b))

Code Guide

Street Network



Codes related to the street network are primarily intended to promote connections and continuity to adjacent street systems and a legible system of streets and blocks within the development. This is preferable over parking lots being used for streets. Connections should open the development to neighbors and encourage future developments to connect to the street system as well. The approach taken by these cities includes using typical residential streets standards for all circulation areas, emphasizing the continuity of streets, the use of cul-de-sacs and street stubs, and encouraging public instead of private streets.

Topic Header

Codes & Code Reference

Same Standards as Residential Streets

The street circulation network in multifamily housing is subject to the same standards as residential streets.

Standards - Street standards and connectivity requirements for local residential streets shall be applied to public and private streets within multiple-family developments. (Eugene 9.5500(11)(a) (Refer to EC 9.6815 Connectivity for Streets.))

Continuity of Streets

The surrounding street network should help determine the look and placement of streets.

Alignment - Public streets should be aligned so that they are continuous through adjacent existing and planned residential development, creating a network of neighborhood streets. (San Jose, CA Chapter 6: Internal Organization Section A)

Connections - Streets and alleys shall, wherever practicable, terminate at other streets within the neighborhood and connect to existing and projected streets outside the development. (Huntersville, NC Article 5)

Context - Allow the context of the site to determine a logical street network and block pattern for the development, thus promoting connections to existing street systems.

Design - Emulate the look and feel of neighboring streets to create continuity.

Use of Cul-de-sacs

Cul-de-sacs should only be used when other configurations are not possible.

Topography - Cul-de-sac shall be allowed only where topographical and/or lot line configurations offer no practical alternatives for connections or through traffic. (Huntersville, NC Article 5.1)

Regulations - Cul-de sacs shall not exceed 250 feet in length, must be accessed from a street providing internal or external connectivity, shall be permanently terminated by a vehicular turnaround, and are permitted where topography makes a street connection impracticable. (Huntersville, NC Article 5)

Alternatives - In most instances, a “close” or “eyebrow” is preferred to a cul-de-sac. Vehicular turnarounds of various configurations are acceptable so long as emergency access is adequately provided. (Huntersville, NC)

Street Stubs

Provide street stubs to encourage future connections and continuation of the network.

Future Connections - Street stubs shall be provided within development adjacent to open land to provide for future connections. The Land Development Map should be reviewed to locate potential connections in new neighborhoods. (Huntersville, NC Article 5.1)

Public vs. Private Streets

Keep developments open to neighborhoods by making streets public.

Public Access - Private streets are not permitted within any new development. Alleys will be classified as public or private depending on function, according to the street acceptance policy. (Huntersville, NC Article 5.5)

Code Guide

Access Points



Codes regarding access points were generally lacking in the codes reviewed. The intent behind the few codes found is to provide residents direct access to nearby amenities. The approach of these codes focuses on specific amenities that should be connected to.

Topic Header

Codes & Code Reference

Direct Connections

Access points should be located near existing amenities

Pedestrian Access - Mixed use projects should include direct and attractive pedestrian access to all nearby commercial areas, transit stops and transit stations. (San Jose, CA Chapter 25: Mixed Use Development (A) Pedestrian Orientation)

Pedestrian Paths - On-site pedestrian paths shall be designed and constructed to provide a direct connection to existing public right-of-way and public accessways. (Eugene, OR 9.6730(2)(a)(1))

Number and Distribution

Create multiple, well-dispersed places to enter and exit the development.

Number of Access Points - Maximize the number of access points for cars, bicyclists, and pedestrians to reduce distances from units to amenities and remove physical barriers to active transportation.

Distribution of Access Points - Locate at least one access point on each side of the development and to adjacent uses where possible.

Future Connections

New developments should be able to easily connect to yours.

Stub-outs -Street stubs shall be provided within development adjacent to open land to provide for future connections. The Land Development Map should be reviewed to locate potential connections in new neighborhoods. (Huntersville, NC Article 5.1)

Relationship to Neighbors

Support community interaction and active transportation through an open development.

Edges - Avoid gated communities. Use transparent materials or natural elements to create permeable edges if needed.

Code Guide

Edges



The intent behind codes regarding edge conditions is to promote neighborhood cohesion, consistency in the urban fabric, and active streets. Where possible and desirable, the development should be connected to adjacent uses and residents should have easy access to amenities and neighbors outside the development. The approach these cities have taken is to have codes around setbacks, street frontage, and various components of fences and walls.

Topic Header

Codes & Code Reference

Setbacks

Appropriate setbacks should promote consistency in the neighborhood.

Building Location - No structure shall be located closer to the centerline of any street or officially designated street right-of-way (as defined in this ordinance) than fifty (50) percent of the height of the building. For the purpose of determining setbacks, a limited access highway shall be considered as an abutting lot and not as a street or street right-of-way. (Arlington, VA Section 32D. Placement.1 Setbacks.) (Similar codes found in San Jose, CA Chapter 5: Perimeter Setbacks - Relationship to Surroundings A. Setbacks from Perimeter Streets & B. Perimeter Setbacks From Adjacent Uses)

Transitions to Neighbors - Provide smooth transitions to neighbors that are not visually or physically encroaching.

Street Frontage

Street frontage should activate local streets and create visual continuity in the neighborhood.

Street Definition - On development sites that will result in 100 feet or more of public or private street frontage, at least 60 percent of the site frontage abutting the street (including required yards) shall be occupied by a building(s) or enhanced pedestrian space with no more than 20 percent of the 60 percent in enhanced pedestrian space, placed within 10 feet of the minimum front yard setback line. (Eugene, OR 9.5500 (4)(b))

Community Interaction - Developments located along quiet, local streets should avoid strictly internal organization. Units along these streets should front onto these streets.

Continuity - Create visual continuity between the development and surrounding neighborhood; use local design elements.



Fences and Walls

Uses fences and walls appropriately to provide safety, privacy, and access to neighboring amenities.

Height - Fences and walls should be no more than 7 feet high, except when adjacent to freeways, expressways, railroads, incompatible uses, or when they are required for sound attenuation. (San Jose, CA Chapter 4: Perimeter Walls & Fences - Relationship to Surroundings A. Height Fences)

In a residential or mixed use district, a fence or wall in an established rear or side yard which abuts a street or alley may not exceed 6 feet in height unless placed 15 or more feet inside property boundary. (Huntersville, NC 8.11.2)

In a residential or mixed use district, a fence or wall in an established rear or side yard which does not abut a street or alley may not exceed 8 feet in height. (Huntersville, NC 8.11.2)

Material - Solid walls and fences are not permitted between public streets and common open spaces including public or semi-public areas within a project. (San Jose, CA Chapter 4: Perimeter Walls & Fences - Relationship to Surroundings C. Non-Permissible Locations)

Gates in walls or fences over 100 feet in length between public streets or open spaces and public or semi-public areas within a project are encouraged. (San Jose, CA Chapter 4: Perimeter Walls & Fences - Relationship to Surroundings E. Pedestrian Gates)

Within the first 15 feet of the property line, fences of chain link or similar material are permitted only if screened on the exterior side by evergreen shrubs planted no farther apart than 6 feet on center, minimum height 3 feet at installation, or if obscured from view by the screening method(s) set out in the paragraph immediately above. (Huntersville, NC 8.11.2)

Neighborhood Compatibility - Front yard fencing higher than 3 feet should not be introduced on streets that have an existing pattern of residences fronting onto the street. Such fencing should be avoided or minimized to continue the front yard pattern of the surrounding neighborhood. (San Jose, CA Chapter 4: Perimeter Walls & Fences - Relationship to Surroundings J. Neighborhood Compatibility)

Code Guide

Parking



The intent behind these parking codes is to help reduce the dominance of parking in the site and to create a comfortable and safe environment for pedestrians to travel from car to unit. The approach taken by these cities includes a combination of language around desirable types of parking and locations, integration of a pedestrian infrastructure into parking, aesthetics, and some effort to reduce parking ratios. See the Open Space and Landscape Design Code Guide section for a discussion of landscaping requirements in parking areas.

Topic Header

Codes & Code Reference

Use Alternatives to Lots and Lanes

Parking should not be the dominant feature in the development and, where possible, should not be the primary means of circulation. Eliminate long runs of continuous parking.

Types - The city shall allow on-site parking to be provided as part of any multiple-family development project in the form of garages (private or common), carports, open parking areas. (Eugene, OR 9.5500(12)(a))

All parking, except common garages, should be designed as parking courts (Eugene, OR 9.5500(12)(a))

Where considerations preclude parking beneath or within residential buildings, combinations of partial and interrupted parking drives; on-street parking; and small, dispersed parking courts are an acceptable alternative. (Eugene, OR EC 9.8030(8)(f))

Location - No parking lots shall be permitted in required setbacks (Asheville, NC Sec. 7-8-3. RS-4 Residential Single-Family Medium Density District. (f)(9))

Parking lots shall be placed behind buildings; side of building parking will be permitted only as indicated by Building Type and shall be measured along the build-to line. (Huntersville, NC Article 6)

To strengthen the presence of buildings on the street, parking and vehicle use areas and garages adjacent to any public or private street frontage shall extend across no more than 50 percent of any street frontage. (Eugene, OR 9.5500(12)(c))

Parking areas shall not be located between buildings and the streets. (Eugene, OR 9.5500(12)(c))

Every cluster housing project should have a restricted parking zone on all sides that commences at the required setback and extends 18 feet into the site.



Use Alternatives to Lots and Lanes (Continued)

(The percentage of the total area within this zone that may be devoted to parking drives, parking courts, and all areas for parking not within residential buildings should not exceed 50%.) (San Jose, CA Chapter 23: Cluster Housing H. Restricted Parking Zone)

Parking is an appropriate separation between dwelling units and incompatible uses. (San Jose, CA Chapter 23: Cluster Housing H. Restricted Parking Zone)

Entries to parking levels should never be placed in prominent location in primary building façades. Parking entries should be placed in less visible locations at the sides or rears of buildings or at least at a far end of a front elevation. (San Jose, CA Chapter 25: Mixed Use Development (J))

Dimensions - Individual parking courts shall be no more than 9,000 square feet and shall be physically and visually separated by a landscape area a minimum of 20 feet in width. (Eugene, OR 9.5500(12)(b))

No more than 3 individual parking courts may be connected by an aisle of driveway. (Eugene, OR 9.5500(12)(b))

A parking court of any length shall consist of no more than 1 double-loaded parking aisle. (Eugene, OR 9.5500(12)(b))

Integrate Pedestrian Infrastructure into Parking (maintain pedestrian comfort)

Create an environment where pedestrians can move through cars without being overwhelmed.

Parking lots shall be designed to allow pedestrians to safely move from their vehicles to the buildings. On small lots, provide a sidewalk at the perimeter. On larger lots, integrate corridors, delineated by a different paving material, into the lots. (Huntersville, NC Article 6)

To maintain pedestrian comfort and calm the speed of entering traffic, driveways to parking areas should be no wider than 24 feet. (Huntersville, NC Article 6)

Pedestrian Access Landscape bulbs should, wherever possible, align with major building entrances to provide pedestrian access to the building entrance from the parking court or drive. Bulbs that align with entrances should be at least 2 cars spaces wide and should include a pathway as well as a vertical landscape element (trellis or a tree) (San Jose, CA Chapter 7: Driveways L. Pedestrian Access)

Create More Beautiful Parking

Parking should be welcoming and pedestrian-friendly.

Planting Islands - Planting islands shall be placed between parking courts to visually interrupt rows of parked vehicles and to separate individual parking courts. Planting islands between parking courts shall have a minimum width of 20 feet and a minimum area of 360 square feet. Each of these islands shall provide at least 1 canopy shade tree having a clear trunk height of 9 feet. Architectural elements such as trellises, porches, and stairways may extend into planting islands between parking courts. (Eugene, OR 9.5500(12)(b))

Parking courts should be separated from project street, parking drives, and access roads they face by landscaped areas. (San Jose, CA Chapter 7: Driveways K. Parking Court Landscaping)

Landscape buffers should be at least 10 feet in courts with 18 or fewer parking spaces and 20 feet in court with more than 18 spaces. (San Jose, CA Chapter 7: Driveways K. Parking Court Landscaping)

Reduce Parking Ratios

Reduce the feeling of being completely surrounded by parking.

Shared residential and commercial parking is encouraged to reduce the number of parking spaces required for the project. (San Jose, CA Chapter 25 (K.) Alternating Parking Opportunities)

Sharing parking with adjacent sites can also be considered. (San Jose, CA Chapter 25 (K.) Alternating Parking Opportunities)

On-street parking spaces maybe counted toward the fulfillment of the off street parking requirements for a development. (Asheville, NC)

Code Guide

Street Design



The intent behind these street design codes is to strengthen the presence of buildings on the street, create safe and inviting areas for all users to travel, and reduce the speed of cars in the development. The approach taken by these cities includes codes around street frontage, the streetscape, pedestrian and bicycle amenities, and speed reduction strategies. See the Street Network section of this Code Guide for additional information on streets.

Topic Header

Street Frontage

Street frontage should strengthen the presence of buildings on the street.

Codes & Code Reference

Building Setbacks - Front building setbacks are required for most housing types to buffer living areas from the public activity of the street and to provide space for landscaping in the configuration associated with traditional residential neighborhoods. Buildings containing living areas should be set back at least 35 feet from major streets, freeways, and expressways (25 feet minimum if average is 40 feet, or 25 feet behind a sound attenuation wall). The 35-foot setback may be reduced on major streets if such a reduction is consistent with the existing or projected urban character. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES A. Building Setbacks)

Reduced Setbacks - Zero or reduced building setbacks from the street may be more appropriate for higher density housing types in areas near downtown, along streets with established reduced setback patterns and in areas with specific plans which call for reduced setbacks to reinforce the planned urban character of the neighborhood. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES B. Reduced Building Setbacks)

Presence of Buildings - To strengthen the presence of buildings on the street, circulation elements and parking areas in the front setback area and/or adjacent to the street should extend across no more than 50 percent of the street frontage. Parking areas should not comprise more than 50% of the elements along a project's street frontage. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES E. Limitations on Parking Frontage)

Bicycle Amenities

Consider cyclists in street design

Street Expansion - For larger streets (other than Limited Access Streets, Narrow Residential Streets and Minor Residential Streets) as determined appropriate by the Department of Streets and Traffic and City Council Policy, the width of one travel lane in each direction should be expanded by an additional five feet to provide space for bicycle travel. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES H. Provisions to Accommodate Bicycle Traffic)

Speed Reduction Strategies

Streets should be designed with safety in mind.

Methods -To prevent the buildup of vehicular speed, disperse traffic flow, and create a sense of visual enclosure, long uninterrupted segments of straight streets should be avoided. Methods:

1. a street can be interrupted by intersections designed to calm the speed and disperse the flow of traffic (Article 5) and terminate vistas with a significant feature (building, park, natural feature);
2. a street can be terminated with a public monument, specifically designed building façade, or a gateway to the ensuing space;
3. perceived street length can be reduced by a noticeable street curve where the outside edge of the curve is bounded by a building or other vertical elements that hug the curve and deflect the view;
4. other traffic calming configurations are acceptable so long as emergency access is adequately provided. (Huntersville, NC Article 5.6)



Streetscape

Incorporate attractive and pedestrian-friendly elements into streets.

Street Features - Streetscape including curb, gutter, sidewalk, street light, street furniture, landscaping and other elements, shall be provided as contained in the Rosslyn Station Area Plan Addendum, and other plans and policies established for the area by the County Board. (Arlington, VA SECTION 25 C-0)

Street Trees - The developer should plant street trees of an approved species and size along all public and private streets. There should be at least one tree for approximately every 25 feet of street frontage, depending on species, or at least one tree for each lot abutting the street. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES F. Street Trees)

Streets should be lined with street trees on both sides, with the exception of rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways. Private drives are permitted only as described in the Rural and Transitional zone. (Huntersville, NC Article 5.4)

Use 'Complete Street' ideals within the development (curbs, crosswalks, sidewalks, green strips, street trees, lighting, benches, narrow, winding streets, etc.)

Sidewalks

Create a safe environment for pedestrians and drivers.

Requirements - Setback sidewalks shall be required along any public or private street adjacent to or within the development site. (Eugene, OR 9.5500(11)(d) Setback Sidewalks)

Location - Street should be bordered by sidewalks on both sides, with the exception of rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways. Sidewalks on one side of the road may be permitted in the Rural zone as an incentive to protect water quality. (Huntersville, NC Article 5.3)

Width - In street rights-of-way serving higher density residential development or located in more urban, pedestrian oriented areas of the City, sidewalks should be at least 6 to 10 feet in width, depending on adjacent densities and expectations for pedestrian activity. (San Jose, CA Chapter 2: Street Frontage - Relationship to Surroundings GUIDELINES I. Wider Sidewalks to Accommodate Heavier Pedestrian Demand)

Code Guide

Building Massing & Orientation



These building massing and orientation codes are intended to: 1) promote interesting, aesthetically pleasing buildings that have many front facing openings, are easy to walk around, and have a functional relationship with neighboring buildings and 2) create direct connections between units and streets thus activating the street and public spaces. The approach to achieve these goals includes codes around building dimensions, orientation, articulation and façade, materials, openings, relationships, and street presence.

Topic Header

Codes & Code Reference

Building Dimensions

Buildings should be easy to walk around and should relate to the human scale.

Length - Extremely long buildings, if they are richly articulated, may be acceptable; however, buildings (including garages and carports) exceeding 150 feet in length are generally discouraged. (San Jose, CA Chapter 11: Building Façade C. Building Length)

Height - The maximum height of structures shall be 40 feet. (Asheville, NC Sec. 7-8-5)
A building may have a maximum height of one hundred thirty-six (136) feet, including penthouses and parapet walls, measured from the average elevation at the perimeter of the site. (Arlington, VA Section 32 RA4.8(C))

Ratios - For good definition, the ratio of one increment of height to six of width is the absolute maximum, with one to three being a good effective minimum. (Huntersville, NC Article 5.6)

Neither the maximum length nor width of any building within 40 feet of a front lot line can exceed 100 feet in the R-1 and R-2 zones and 150 feet in all other zones. (Eugene, OR 9.5500(6)(a))

Building Materials

Use material choice to articulate and add interest.

Materials - The exterior materials and architectural details of a single building should relate to each other in ways that are traditional and/or logical. For example, heavy materials should appear to support lighter ones. (San Jose, CA Chapter 11 Building Façade D. Building Materials And Details)



Building Orientation

Building orientation should promote “eyes on the street” and interaction with neighbors.

Buildings should be oriented parallel to the street particularly at corners. (San Jose, CA Chapter 25: Mixed Use Development E. Building Orientation)

The major orientation of buildings nearest the street should be parallel to that street or to the prevailing pattern of existing property lines. (San Jose, CA Chapter 25: Mixed Use Development E. Building Orientation)

Multiple-family residential buildings located within 40 feet of a front lot line shall have their primary orientation toward the street. (Eugene, OR 9.5500(5)(a))

Generally, buildings should be oriented with the main façades and primary building entrances facing main and secondary streets and service and parking access points facing tertiary streets. (Arlington, VA Clarendon Sector Plan)

Building Openings

Openings should allow for “eyes on the street”.

Main Entrances - The main entrance(s) of ground floor units of any residential building located within 40 feet of a street must face the front lot line. Main entrances may provide access to individual units, clusters of units, courtyard dwellings, or common lobbies. (some exceptions apply – see matrix) (Eugene, OR 9.5500(5)(b))

Windows - Street façades shall contain windows covering a minimum of 15% of the façade on each floor level. (Eugene, OR 9.5500(6)(b))

Adjacency to Public Streets

Continue the neighborhood by connecting to adjacent streets.

Public Streets - Any lot on which a building (or buildings) is to be erected or use is to be established shall abut a public street. (Huntersville, NC Section 8.1)

Building Articulation & Façades

Buildings should add value to the neighborhood and have character.

Articulations - All building façades containing 3 or more attached dwellings in a row should incorporate at least one of the following: 1. At least one architectural projection per unit. Such a projection must project no less than 2 feet 6 inches from the major wall plane, must be between 4 feet 6 inches and 15 feet wide, and must extend the full height of a one-story building, at least one-half the height of a two-story building, and two-thirds the height of a three-story building. On buildings three stories in height, projecting elements may be linked by one level of living space at the top or bottom floor 2. A change in wall plane of at least 3 feet for at least 12 feet every 2 units. (San Jose, CA Chapter 11: Building Façade A. Façade Articulation)

Side Design - If a side or rear elevation faces or is substantially visible from a street, it should be designed with the same care and attention to detail, and in the same material, as the front. (San Jose, CA Chapter 25: Mixed Use Development D. Building Façades)

Wall Surfaces - To preclude large expanses of uninterrupted wall surfaces, exterior elevations of buildings shall incorporate design features such as offsets, projections, balconies, bays, windows, entries, porches, porticos, or similar elements.

1. Horizontal Surface. At least 2 of the design features outlined above shall be incorporated along the horizontal face (side to side) of the structure, to be repeated at intervals of no more than 40 feet.
2. Vertical Surface. At least 2 of the design features outlined above shall be incorporated along the vertical face (top to bottom) of the structure, to be repeated at intervals of no more than 25 feet.

(Eugene, OR 9.5500(7)(a))

Entry Ways - Individual and common entry ways shall be articulated by roofs, awnings, or porticos. (Eugene, OR 9.5500(7)(c))



Relationship to Surrounding Buildings

Buildings should have a clear relationship to each other and surrounding areas.

Relationship - Buildings should have a positive functional relationship with each other as well as an aesthetically pleasing spatial relationship. (San Jose, CA Chapter 25: Mixed Use Development H. Building & Site Design, Horizontal Mixed Use) must project no less than 2 feet 6 inches from the major wall plane, must be between 4 feet 6 inches and 15 feet wide, and must extend the full height of a one-story building, at least one-half the height of a two-story building, and two-thirds the height of a three-story building. On buildings three stories in height, projecting elements may be linked by one level of living space at the top or bottom floor 2. A change in wall plane of at least 3 feet for at least 12 feet every 2 units. (San Jose, CA Chapter 11: Building Façade A. Façade Articulation)

Continuity - The exterior building design, including roof style, color, materials, architectural form and detailing, should be consistent, or at least compatible, among all buildings in a complex and on all elevations of each building to achieve design harmony and continuity within the project and with its surroundings. (San Jose, CA Chapter 25: Mixed Use Development H. Building & Site Design, Horizontal Mixed Use) and in the same material, as the front. (San Jose, CA Chapter 25: Mixed Use Development D. Building Façades)

Street Presence

Orient buildings to the street to promote a community feeling and safety.

Connections - Active connections between buildings and the street, for example residential and retail entries, porches, stairs, decks, courtyards, and windows, should be maximized. (San Jose, CA 25: Mixed Use Development F. Relationship to the Street)

Placement - Residential buildings located away from the street, as on flag lots, should maintain a presence to the street. This may be achieved by placing the rear building so that it is visible from the street. (San Jose, CA 25: Mixed Use Development G. Street Presence)

Street Frontage - On development sites that will result in 100 feet or more of public or private street frontage, at least 60 percent of the site frontage abutting the street (including required yards) shall be occupied by a building(s) or enhanced pedestrian space with no more than 20 percent of the 60 percent in enhanced pedestrian space, placed within 10 feet of the minimum front yard setback line. (Eugene, OR 9.5500(4)(b))

Code Guide

Open Space & Landscape Design



The intent of these open-space and landscape codes is generally focused on deterring randomly placed patches of unusable open space, to encourage use of natural screening materials to provide privacy and hide unattractive features such as dumpsters, to connect with adjacent open space, and to create beautiful parking and streets.

Arlington defines the purpose of its open-space and landscape codes more broadly by stating:

“The purpose of this section is to provide landscaping in order to better control and ameliorate problems of air and noise pollution, afford wind protection, help moderate temperature extremes, to increase property values and attract prosperous business activities into the County and to make the County a healthier and more aesthetically pleasing place to live, shop and work.”

The approaches these cities have taken include codes around open-space requirements, screening, relationship to adjacent open spaces, parking lot landscaping, and street trees and buffers.

Topic Header

Codes & Code Reference

Size and Amount of Open Space

Designate an appropriate amount of open space and landscaping in developments.

Landscape Requirement - Twenty (20) percent of total site area is required to be landscaped open space in accordance with the requirements of Section 32A, “Landscaping”. (Arlington, VA Section 25 C-O)

Minimum Landscaping - Landscaping is required according to the applicable base zone minimum landscape area standards. If there are none specified, the minimum landscape area shall be equal to the amount of area required as open space specified in EC 9.5500(9). (Eugene, OR 9.5500(8)(a))

Private Open Space - There should be a minimum of 60 square feet of private open space and 200 square feet of usable common open space for every dwelling unit. (San Jose, CA Chapter 23: Cluster Housing F. Open Space)
Private open space should be provided at a minimum of 60 square feet per unit with a minimum dimension of 6 feet. Common open space should be provided at a minimum of 100 square feet per unit. (San Jose, CA Chapter 25: Mixed Use Development L. Residential Open Space)



Size and Amount of Open Space (Continued)

Amount of Open Space - All residential districts, 500 square feet of open space per unit or 15% of lot area, whichever is greater. In no case shall the amount of open space devoted to active recreational facilities constitute more than 10% of lot area. (Asheville, NC 7-11-4 (c) Open space requirement)

Minimum Dimensions - The minimum area of any single space shall be 250 square feet, with no dimension being less than 15 feet. (Eugene, OR 9.5500(9)(a))

Common Open Space - Interior common open space shall be at least 10 feet in floor to ceiling height; glazed window and skylight areas shall be provided in the proportion of 1 square foot for each 4 square feet of the floor area of the common space. (Eugene, OR 9.5500(9) (a))

Size & Use - Scale open space and landscaping to the activities that will take place there. Create open space for small numbers to use (e.g., for picnics or reading) with table or tress and use those areas as components to spaces for higher occupancy use (e.g., soccer games)

Landscaping in open spaces should be strategic and not interfere with spaces designated for larger groups to use (i.e., do not place tress in every part of a large field and eliminate the opportunity to play team sports there).

Street Trees & Buffers

Use trees to reduce the heat-island effect and make walking more pleasurable.

Requirement - The developer should plant street trees of an approved species and size along all public and private streets. There should be at least one tree for approximately every 25 feet of street frontage, depending on species, or at least one tree for each lot abutting the street. (San Jose, CA Chapter 9: Landscaped Areas Developer Responsibility D. Street Trees)

Street trees are required along the frontage of all developments abutting newly created public or private streets in accordance with provisions of Chapter 7 of this code regarding the Street Tree Program - Policies, Standards, and Procedures. (Eugene, OR 9.5500(8)(c))

Parking Lot Landscape Design

Create beautiful, pedestrian-friendly parking areas.

Areas to Landscape - All end islands of parking rows and all areas not otherwise used for ingress, egress, aisles or parking must be landscaped. (Arlington, VA SECTION 32A. 3. Parking Lot Landscaping Design Criteria)

Dimensions - The interior space of any planting area shall be no less than nine (9) square feet and not narrower than two (2) feet across its center. (Arlington, VA SECTION 32A. 3. Parking Lot Landscaping Design Criteria)

Materials - The primary landscaping materials used in parking lots shall be deciduous trees which are capable of providing shade at maturity. Shrubbery, hedges and other live plant materials are to be used to complement the tree landscaping. Effective use of berms and existing topography is also encouraged as a component of the landscape plan. (Arlington, VA SECTION 32A. 3. Parking Lot Landscaping Design Criteria)

Trees and shrubs are required in and around parking lots in order to provide attractive views from roads and adjacent properties, provide shade to reduce the heat generated by impervious surfaces, reduce glare from parking lots, and to help filter exhaust from vehicles. (Asheville, NC 7-11-3 (d)(2))

Protection from Vehicles - All interior planting areas shall be protected from vehicle intrusion by a permanent barrier not less than four (4) or more than eight (8) inches high. (Arlington, VA SECTION 32A. 3. Parking Lot Landscaping Design Criteria)

Amount of Planting Required - One deciduous tree and four shrubs are required for every 1,500 square feet of vehicular use area (VUA). At least 75 percent of the required deciduous parking lot trees must be large-maturing trees. Trees and shrubs must be planted within 15 feet of the vehicular use area to count as parking lot landscaping. (Asheville, NC 7-11-3 (d)(4)(b))
When more than four trees are required in a parking lot with interior rows, 50 percent of the trees and shrubs must be planted in islands or medians located within the parking lot. (Asheville, NC 7-11-3 (d)(4)(c))
Each parking space shall be located within 60 feet of a tree as measured from the trunk of the tree to the closest point of the parking space. (Asheville, NC 7-11-3 (d)(4)(h))



Parking Lot Landscape Design (Continued)

Landscape Bulbs - Except where architectural elements extend into required landscape bulbs in parking drives and courts, each landscape bulb should be planted with one or more trees as well as shrubs and/or groundcover. (San Jose, CA Chapter 9: Landscaped Areas Developer Responsibility F. Landscape Bulbs)

Screening

Use natural elements to provide privacy.

Visual Separation - Private Open Space shall be physically and visually separated from common open space through the use of perimeter landscaping and/or fencing. (Eugene, OR 9.5500(8)(c))

Screen & Protect - Tall shrubs or vines should be planted to help screen walls and fences and provide protection from graffiti. (San Jose, CA Chapter 9: Landscaped Areas Developer Responsibility B. Landscaping In Front Of Walls And Fences)

Features to Screen - All dumpsters, loading docks, or utility structures visible from a public street or adjacent property line shall be screened unless already screened by an intervening building or bufferyard. All enclosed outdoor storage areas greater than 25 square feet shall also be screened from adjacent properties and streets. (Asheville, NC Sec. 7-11-3. (6))

Screening Materials - A continuous hedge of evergreen trees and/or densely twigged deciduous trees planted in a seven-foot strip spaced no more than eight feet apart. (Asheville, NC Sec. 7-11-3. (6))
Fence or wall with a minimum height of six feet with the finished side of the fence facing the abutting property or street. Fences longer than 25 linear feet shall be landscaped with trees and/or shrubs planted in a minimum five-foot planting area, except around access areas, spaced no farther than eight feet apart in order to screen at least 50 percent of the fence or wall. (Asheville, NC Sec. 7-11-3. (6))

Relationship with Adjacent Open Space

Capitalize on and integrate with neighboring open space.

Open Space Credit - An open space credit, not to exceed 25 percent of the total open space requirement, may be applied toward compliance with that requirement, for developments that are located within one-quarter mile of a public park. (Eugene, OR 9.5500(9)(c))

Adjacencies - New residential developments adjacent to existing or planned open space should take full advantage of the space and provide maximum visibility. (San Jose, CA Chapter 3: Open Space Interfaces – Intent)

Public Frontage Roads - All new projects adjacent to open spaces (i.e., parks, school fields, riparian corridors, open hillsides) should strive to include adjacent public frontage roads. (San Jose, CA Chapter 3: Open Space Interfaces - Relationship to Surroundings GUIDELINES A. Frontage Roads)

Creeks - Developments along natural creeks are subject to City's Riparian Corridor Development Guidelines. (San Jose, CA Chapter 3: Open Space Interfaces D. Riparian Setbacks)

Setbacks - New buildings should be set back a minimum of 25 feet from parks and public open spaces to reduce the risk of vandalism and theft. Active uses, such as entry walkways or recreation activities, in the setback area are encouraged in order to foster casual surveillance of the transitional area between public and private uses. (San Jose, CA Chapter 3: Open Space Interfaces - Relationship to Surroundings B. Setbacks From Parks)

Integration - Urban open space shall be integrated into the design of the site. (Huntersville, NC Article 7.10.2)

Fences and Walls - No walls or fences are permitted between public open space and roads adjacent to them within a development. (San Jose, CA Chapter 3: Open Space Interfaces C. Limitations on Walls/Fences)
Landscaping should be provided by the developer in all setback areas between project walls and/or fences and the rights-of-way of public streets and sidewalks. (San Jose, CA Chapter 9: Landscaped Areas Developer Responsibility B. Landscaping In Front Of Walls And Fences)

Code Guide

Bicycles



Bicycle codes are intended to encourage the use of bicycles by providing safe, convenient, and attractive areas for the circulation and parking of bicycles. The approach taken by the case study cities includes language around bicycle parking requirements, kinds of storage that can be used, the location and specifications of storage, and bicycle access to right of ways.

Topic Header

Codes & Code Reference

Minimum Requirements

Require bicycle parking spaces as well as car parking spaces.

Requirements - Each city settled on different minimum requirements for bicycle parking. Examples are listed below:

- One bicycle space per two units (San Jose, CA Chapter 8: Parking L: Bicycle Parking)
- Equal to 5% of the total number of automobile spaces (Asheville NC, 7-11-2(c)(3))
- One bicycle space for every three residential units, one visitor space for every 50 residential units (Arlington VA 'Standard Conditions for High Density Office, Residential and/or Mixed Use Developments' referenced in Zoning Ordinance, Section 36.H)
- One (1) resident bicycle parking space for every three (3) residential units, or portion thereof, of residential units and one (1) visitor space for every 50 residential units, or portion thereof, of residential units. (Arlington VA 'Standard Conditions for High Density Office, Residential and/or Mixed Use Developments' referenced in Zoning Ordinance, Section 36.H)

Long Term versus Short Term Parking

Bicycle parking should be designed with the user in mind.

Long Term – Long term bicycle parking space requirements are intended to accommodate employees, students, residents, commuters, and other persons who expect to leave their bicycle parked for more than 2 hours. Long term bicycle parking shall be provided in a well-lighted, secure location within a convenient distance of a main entrance (Eugene, OR 9.6105 (2)(a))

Short Term - Short term bicycle parking spaces shall be provided to accommodate visitors, customers, messengers, and other persons expected to depart within approximately 2 hours. (Eugene, OR 9.6105.(4)(b))

Storage Specifications

Accessing and parking a bicycle should be convenient and safe.

Type of Storage

- Inverted-U design bicycle racks (Arlington, VA Clarendon Sector Plan, 2.8)
- Hoop rack (can be used to reduce the required width) (Eugene, OR 9.6105 (2)(b))
- Bicycle locker or other lockable enclosure - (short term doesn't have to be secure but must be a fixed structure that supports the bicycle frame in a stable position without damage) (Asheville, NC 7-11-2(c)(3), Eugene, OR 9.6105 (3)(a))

Location - It is desirable to locate bicycle storage and parking in locations with these characteristics:

- Highly visible (Arlington, VA, Eugene, OR)
- Convenient to building entrances - shall not be located further than the closest automobile parking space (except disabled parking) (Arlington, VA, Eugene, OR)
- Ground level (Eugene, OR)
- Well-lighted (Eugene, OR)
- Secure (San Jose, CA, Asheville, NC)
- Sheltered from precipitation (Eugene, OR)

Dimensions - Bicycle storage facilities should be at least 6 feet long, 2 feet wide with an overhead clearance of at least 7 feet and a 5 foot access aisle. (Eugene, OR 9.6105 (2)(b))

Access to Right of Ways and Buildings - Bicycle parking should have direct access to right of ways and buildings – direct access with ramps and pedestrian access from parking area to building entrance. (Eugene, OR 9.6105 (2)(d))

Ease & Safety

Bicycling in the development and to neighboring amenities should be convenient and safe.

Consider the use of bike lanes, decals or signage to designate where it is safe for cyclists to travel in the site and remind drivers to use caution and look for cyclists.

Provide basic bike amenities like air pumps, tools, and maps to lower the cost of owning a bike and encourage cycling.

Where possible, connect to neighboring public bike paths and recreational trails.

The Code Guide Appendix is designed to show codes each of the five cities has related to the site design criteria. While the Code Guide earlier in this book deconstructs the intent and approach of the codes and excludes codes if the idea has already been presented, the Code Guide Appendix presents the information without interpretation and in its entirety so you can see how each city's codes work together. This appendix demonstrates the differences between these five progressive cities and can be a resource for other cities considering revisions to their multifamily housing codes. If your city is considering adopting or modeling its code after one of these cities, we suggest you contact them for a complete and updated copy of their development code.

Code Guide Appendix

Arlington, Virginia
San Jose, California
Eugene, Oregon
Huntersville, North Carolina
Asheville, North Carolina

Code Appendix

Arlington, Virginia

Clarendon Sector Plan: <http://www.arlingtonva.us/departments/CPHD/forums/clarendon/CPHDForumsClarendonMain.aspx>

Zoning Ordinances: <http://www.arlingtonva.us/Departments/CPHD/planning/zoning/CPHDPlanningZoningOrdinanceCode.aspx>

Pedestrian Network

Service/loading and parking access points should not typically be located where build-to lines are specified and should be located along tertiary streets. Where a project does not have frontage on a street designated for a Service/Alley Frontage Type, consideration can be given to alternative locations for service access points where the alternative locations minimize pedestrian and vehicular conflicts. (Clarendon Sector Plan Chapter 3)

Crosswalks. A good pedestrian circulation system continues through each street to the next block with a clearly defined and visible pedestrian walkway. In the R-B Corridor, crosswalks should be marked with white reflective material in a ladder pattern or by a pair of parallel lines. The crosswalk width should be either 10-, 12-, or 15-foot wide depending upon the pedestrian volume, traffic speed, and visibility constraints. In most instances, two curb ramps should be placed on each corner with each leading directly into the crosswalk. The path itself should be oriented to be as short as possible, while also directing pedestrians towards the intended corner. (Clarendon Sector Plan Chapter 3)

Street Network

SEE SPECIFIC AREA DISTRICT PLAN for more details

SECTION 25 C-O ROSSLYN COMMERCIAL OFFICE BUILDING, RETAIL, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

I. Streetscape including curb, gutter, sidewalk, street light, street furniture, landscaping and other elements, shall be provided as contained in the Rosslyn Station Area Plan Addendum, and other plans and policies established for the area by the County Board.

Access Points

None found.

Edges

SECTION 32

D. Placement.

The following regulations shall govern the placement on a lot of any building or structure, or addition thereto, hereafter erected, except as may be allowed by site plan approval:

1. Setbacks: No structure shall be located closer to the centerline of any street or officially designated street right-of-way (as defined in this ordinance) than fifty (50) percent of the height of the building. For the purpose of determining setbacks, a limited access highway shall be considered as an abutting lot and not as a street or street right-of-way. Structures shall be set back from streets no less than as follows: (8-18-79)

a. For all "C" and "M" Districts excepting "C-1," "C-1-O," "C-O," "C-H" and "C-S-C": Forty (40) feet from said centerline except for properties located within the "Clarendon Revitalization District" on the General Land Use Plan and zoned "C-3".

- b. For all "RA4.8" and "C-O" Districts: Fifty (50) feet from said centerline.
 - c. For all properties that are: (1) located in the "Clarendon Revitalization District" on the General Land Use Plan; and (2) zoned "C-3": 50 feet from the centerline of Fairfax Drive or any street containing more than five lanes, including travel lanes and on-street parking lanes, and 40 feet from the centerline in all other cases. (5-23-06)
 - d. For all residential structures and all structures in all other districts except for one- and two-family dwellings and their accessory structures regulated by subsection 32.D.1.e.: Fifty (50) feet from said centerline but in no case less than twenty-five (25) feet from any street right-of-way line.
 - e. For all one- and two-family dwellings and their accessory structures:
 - (1) No structure shall be located less than twenty-five (25) feet from any street right-of-way line, except that the distance between any street or officially designated street right-of-way line and the front wall of a structure, with the exception of stoops and covered or uncovered but unenclosed porches, may be reduced as follows:
 - (a) The distance shall be at least the average of the distances between the street right-of-way line, and the edges of the front walls of existing structures located on the frontage where the structure is proposed to be located;
 - (b) The distance shall be at least fifteen (15) feet, provided, however, that no parking garage shall be located closer than eighteen (18) feet to the street right-of-way line; and
 - (c) No structure located within twenty-five (25) feet of a street right-of-way line shall exceed two and one-half (2 1/2) stories. (6-9-07)
2. Side and Rear Yards: No structure shall be located closer to side or rear lot lines than as follows:
- a. For all "RA4.8," "C," and "M" Districts, not including "C-1-O": No side or rear yard shall be required except that no wall either on the side or rear of a lot abutting an "R" or "RA" District or containing openings or windows, whether or not they can be opened, shall be located closer to side or rear lot lines than eight (8) feet for the first ten (10) feet of building height, plus two (2) additional feet for each ten (10) additional feet of building height, or fraction thereof.
 - b. For all single-family dwellings and their accessory structures: Ten (10) feet, provided that one (1) side yard may be reduced to eight (8) feet. The aggregate width of both side yards on any lot shall not be less than thirty (30) percent of the required width of the lot, provided that on interior lots no structure shall be located closer than twenty-five (25) feet from a rear lot line."
 - c. For all nonresidential main buildings in "R" and "RA" Districts: Double the side and rear yard requirements for the district in which said structures are located.
 - d. For all other residential buildings and for structures in all other districts: Ten (10) feet plus one (1) additional foot for each two and one-half (2 1/2) feet, or fraction thereof, of building height above twenty-five (25) feet, provided that on interior lots no structure shall be located closer than twenty-five (25) feet from a rear lot line.
 - e. For accessory buildings in "R" Districts:

(1) For additions to existing main buildings: No addition shall be located closer than eight (8) feet to any part of an existing accessory building.

(2) For new construction of accessory buildings with heights lower than one and one-half (1 1/2) stories or twenty-five (25) feet, whichever is less, and footprint smaller than five hundred and sixty (560) square feet in "R-5" or "R-6" Districts, or six hundred and fifty (650) square feet in any other zoning district: No accessory building shall be located closer than eight (8) feet to any part of a main building; on interior lots, no accessory building shall be located closer than one (1) foot to a side or rear lot line and on corner lots, no accessory building shall be located closer than one (1) foot to any side lot line. The provisions of this subsection shall not apply to air-conditioning units.

(3) For accessory buildings of two (2) or more stories, or taller than twenty-five (25) feet, in "R" Districts: No such building shall occupy any part of a required rear yard or be located closer than ten (10) feet to any lot line. In addition, no such accessory building shall be located closer than fifteen (15) feet to a main building.

f. For the purpose of side yard regulations, a semidetached dwelling shall be considered as one (1) building occupying one (1) lot.

Parking

SECTION 33. AUTOMOBILE PARKING, STANDING AND LOADING SPACE

Virtually every land use in the County now requires, and in the foreseeable future will require, access by motor vehicles. For the purposes of reducing and avoiding congestion of streets and providing a more suitable living and working environment, it is hereby declared to be the policy of the County that: For every land use hereafter established, there shall be provided sufficient space for access by, and for the off-street standing and parking of, all motor vehicles that may be expected to come to the establishment at any time under normal conditions for any purpose, whether as patrons, customers, purveyors, guests, employees or otherwise.

SECTION 16. RA4.8(C) MULTIPLE-FAMILY DWELLING DISTRICTS

As specified and regulated in Section 33, except that the following may be approved by site plan:

1. Multiple-family dwelling: One (1) off-street space per dwelling unit.
2. The parking provided under the provisions of paragraph C.1., above, shall be located below grade or within the structure housing the use to which the parking is appurtenant, except as may be allowed in an approved site plan.

SECTION 18. RA-H-3.2 MULTIPLE-FAMILY DWELLING AND HOTEL DISTRICTS

C. Parking Requirements

As specified and regulated in Section 33, except that the following may be approved by site plan:

1. Multiple-family Dwelling: One (1) off-street parking space per dwelling unit.
2. Hotel: One (1) off-street parking space for each guest room and dwelling unit.
3. Commercial Uses: One (1) off-street parking space for each three hundred (300) square feet of gross floor area of commercial space provided.

4. The parking provided under the provisions of paragraphs 1., 2., and 3., above shall be located below grade or within the structure housing the use to which the parking is appurtenant, except as may be allowed in an approved site plan.

SECTION 25. C-O COMMERCIAL OFFICE BUILDING, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

C. Parking Requirements

As specified and regulated in Section 33, except that the following may be approved by site plan: 2. Multiple-family Dwelling: One (1) off-street parking space for each dwelling unit. 4. The parking provided under the provisions of paragraphs 1., 2., and 3., above, shall be located below grade or within the structure housing the use to which the parking is appurtenant, except as may be allowed in an approved site plan.

SECTION 25B. C-O ROSSLYN COMMERCIAL OFFICE BUILDING, RETAIL, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

F. Parking Requirements

Parking shall be regulated as specified and regulated in Section 33, and as specified below, except that the County Board may specify and modify parking regulations by Site Plan Approval:

1. Dwelling unit: One (1) off-street parking space shall be provided for each dwelling unit.
2. Transportation Demand Management plans shall be required to be approved as part of any site plan approval unless determined otherwise by the County Board. Office, retail and service commercial parking may be approved within a range between the rate of one (1) off-street parking space for each five hundred thirty (530) square feet of office, retail and service commercial gross floor area and the rate of one (1) off-street parking space for each one thousand (1,000) square feet of office, retail and service commercial gross floor area depending on the adequacy of the

Transportation Demand Management plan in addressing the need for parking. Short-term, convenient parking shall be provided for customers of commercial tenant retailers when the business premises are open to the public for business.

3. Hotel: Seven-tenths (0.7) off-street parking space for each guest room and dwelling unit.
4. The parking provided shall be located below grade or within the structure housing the use to which the parking is appurtenant, except as may be allowed in an approved site plan.
5. Off-street loading spaces for all permitted uses shall be provided as specified in SECTION 32A. 3. Parking Lot Landscaping Design Criteria: SEE LANDSCAPING

Section 33. Section 33 General Requirements: The requirements set forth in this article with respect to the location or improvement of parking, standing and loading space shall apply to all such space that is provided for any use, whether said space is provided in accordance with the requirements of this ordinance, or said space is voluntarily provided. Off-street parking, standing and loading space shall comply with the following regulations:

1. Use and Parking on Same Lot: Off-street parking and off-street loading space appurtenant to any use permitted in “R” and “RA” Districts shall be provided on the same parcel of land occupied by the use to which said space is appurtenant or on common areas in the same subdivision.

2. Off-site Parking: All off-street parking space appurtenant to any use other than a use permitted in an “R” and “RA” District shall be on the same parcel of land with the use to which it is appurtenant or on common areas in the same subdivision; provided, however, that where there are practical difficulties in the way of such location of parking space or if the public safety or the public convenience, or both, would be better served by the location thereof other than on the same parcel of land with the use to which it is appurtenant, the Zoning Administrator, acting on a specific application, shall authorize such alternative location of required parking space as will adequately serve the public interest, subject to the following conditions:

a. Such space shall be located on land in the same ownership as that of the land on which is located the use to which such space is appurtenant or, in the case of parking for certain restaurants, shall conform to the requirements in Section 33.C.3. of the Zoning Ordinance.

b. A pedestrian entrance to such space shall be located within a distance of six hundred (600) feet, by the shortest route of effective pedestrian access, entrance to entrance.

c. Such space shall be conveniently usable without causing unreasonable:

(1) Hazard to pedestrians.

(2) Hazard to vehicular traffic.

(3) Traffic congestion.

(4) Interference with safe and convenient access to other parking areas in the vicinity.

(5) Detriment to the appropriate use of business property in the vicinity.

(6) Detriment to any residential neighborhood.

Street Design

SEE SPECIFIC AREA DISTRICT PLAN for more details

SECTION 25 C-O ROSSLYN COMMERCIAL OFFICE BUILDING, RETAIL, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

I. Streetscape including curb, gutter, sidewalk, street light, street furniture, landscaping and other elements, shall be provided as contained in the Rosslyn Station Area Plan Addendum, and other plans and policies established for the area by the County Board.

Building Massing & Orientation

2006 CLARENDON SECTOR PLAN

C. 2. Building Orientation and Frontage Types. Address the rhythm of building entries, level of transparency, relationship of building entries to sidewalk grade, minimum structural clear heights and minimum interior ceiling heights, and permitted projections beyond the specified build-to lines Generally, buildings should be oriented with the main façades and primary building entrances facing main and secondary streets and service and parking access points facing tertiary streets. Consideration may be given to adjusting orientation in order to make a new structure compatible with an historic structure and/or façade.

SEE SPECIFIC AREA DISTRICT PLAN for more details

SECTION 32. BULK, COVERAGE AND PLACEMENT REQUIREMENTS

Virtually every land use requires an appropriate relationship between lot area and intensity of use, and sufficient open space surrounding such use, to secure safety from fire, panic and other dangers; to ensure privacy; to lessen congestion in the streets; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate adequate provision for transportation, drainage and other public requirements; to conserve the value of buildings and encourage the most appropriate use of land.

RA4.8(C) MULTIPLE-FAMILY DWELLING DISTRICTS

D. Height Limit. As regulated in the “RA14-26” District, except that by site plan approval, a building may have a maximum height of one hundred thirty-six (136) feet, including penthouses and parapet walls, measured from the average elevation at the perimeter of the site.

RA-H-3.2 MULTIPLE-FAMILY DWELLING AND HOTEL DISTRICTS

D. Height Limit. As regulated in the “RA14-26” District, except that by site plan approval, a building may have a maximum height of one hundred eighty (180) feet, including penthouses and parapet walls, measured from the average elevation at the perimeter of the site.

C-O COMMERCIAL OFFICE BUILDING, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

D. Height Limit. Thirty-five (35) feet, except that the following may be approved by site plan:

1. Office and commercial buildings: A maximum height of one hundred fifty-three (153) feet, including penthouse and parapet walls, measured from the average elevation at the perimeter of the site.
2. Multiple-family and hotel buildings: A maximum height of one hundred eighty (180) feet, including penthouses and parapet walls, measured from the average elevation at the perimeter of the site.

Open Space & Landscape Design

SEE SPECIFIC AREA DISTRICT PLAN for more details

SECTION 32A. LANDSCAPING

The purpose of this section is to provide landscaping in order to better control and ameliorate problems of air and noise pollution, afford wind protection, help moderate temperature extremes, to increase property values and attract prosperous business activities into the County and to make the County a healthier and more aesthetically pleasing place to live, shop and work. It is the further intent of this section to provide minimum standards for the selection of plant materials to ensure their survival.

SECTION 25 C-O ROSSLYN COMMERCIAL OFFICE BUILDING, RETAIL, HOTEL AND MULTIPLE-FAMILY DWELLING DISTRICTS

H. Landscaping. Twenty (20) percent of total site area is required to be landscaped open space in accordance with the requirements of Section 32A, "Landscaping". The County Board may modify landscaping requirements by site plan approval when the County Board finds that the proposed site plan accomplishes the policies and recommendations contained in the Rosslyn Station Area Plan Addendum and other plans and policies established for the area by the County Board.

SECTION 32A.

B. Additional Landscaping Requirements for Parking Areas, Public and Private.

3. Parking Lot Landscaping Design Criteria:

- a. All end islands of parking rows and all areas not otherwise used for ingress, egress, aisles or parking must be landscaped.
- b. The interior space of any planting area shall be no less than nine (9) square feet and not narrower than two (2) feet across its center.
- c. The primary landscaping materials used in parking lots shall be deciduous trees which are capable of providing shade at maturity. Shrubbery, hedges and other live plant materials are to be used to complement the tree landscaping. Effective use of berms and existing topography is also encouraged as a component of the landscape plan.
- d. All interior planting areas shall be protected from vehicle intrusion by a permanent barrier not less than four (4) nor more than eight (8) inches high.
- e. In those instances where plant material exists on a parking lot site prior to its development, such landscape material may be used if approved as meeting the landscaping requirements of this subsection.

Bicycles

Fairfax County Department of Planning and Zoning Arlington Bicycle Storage Facility Requirements

Bicycle Storage Facilities. The developer agrees to provide, at no charge to the user, secure bicycle storage facilities in locations convenient to office, residential (except for townhouses) and retail areas on the following basis at a minimum:

Office and Residential Bicycle Storage Facilities:

One (1) employee bicycle parking space for every 7,500 square feet, or portion thereof, of office floor area and one (1) additional such visitor space for every 20,000 square feet, or portion thereof, of office floor area.

One (1) resident bicycle parking space for every three (3) residential units, or portion thereof, of residential units and one (1) visitor space for every 50 residential units, or portion thereof, of residential units.

Install "Inverted-U" design bicycle racks in highly visible locations convenient to building entrances in retail and office centers; and Enhance bicycle parking.

Retail Bicycle Storage Facilities:

Two (2) retail visitor/customer bicycle parking spaces for every 10,000 square feet, or portion thereof, of the first 50,000 square feet of retail floor area; one (1) additional retail visitor/customer space for every 12,500 square feet, or portion thereof, of additional retail floor area; and one (1) additional retail employee space for every 25,000 square feet, or portion thereof, of retail floor area. The retail visitor/customer bicycle spaces shall be installed at exterior locations that are convenient to the retail visitors/customer.

Code Appendix

San Jose, California

<http://www.sanjoseca.gov/documentcenter/home/view/439>

Pedestrian Network

Chapter 16: Miscellaneous Details. A. Access To Transit Facilities New residential projects should be designed with a pedestrian circulation element that provides a direct connection from project units to adjacent transit facilities such as bus stops and light rail stations.

Chapter 23: Cluster Housing. E. Balcony/Corridor Circulation Common exterior balconies and corridors that provide access to units should not require circulation past adjacent unit windows and entries. (I) Security Fences And Gates Security fences and gates are strongly discouraged in any residential project. If extraordinary circumstances warrant security fences they should comply with the guidelines in Chapter 4 "Perimeter Walls and Fences".

Chapter 25: Mixed Use Development. (A) Pedestrian Orientation Mixed use projects should include direct and attractive pedestrian access to all nearby commercial areas, transit stops and transit stations. Sidewalks and walkways should be wide, separated from conflicting activities and bordered by attractive landscaping, most importantly by street and/or shade trees. (G) 2. Connective elements such as walkways, common landscaped areas, building orientation, and unfenced property lines should be employed, and are strongly encouraged. 3. Particular care should be taken to assure convenient pedestrian access through all parts of a project to nearby transit facilities.

Street Network

Chapter 6: Streets - Internal Organization Guidelines. A. Continuity of Streets Public streets should be aligned so that they are continuous through adjacent existing and planned residential development, creating a network of neighborhood streets.

Access Points

Chapter 25: Mixed Use Development. (A) Pedestrian Orientation.

Mixed use projects should include direct and attractive pedestrian access to all nearby commercial areas, transit stops and transit stations.

Edges

Chapter 4: Perimeter Walls & Fences - Relationship to Surroundings. A. Height Fences and walls should be no more than 7 feet high, except when adjacent to freeways, expressways, railroads, incompatible uses, or when they are required for sound attenuation. Where the fence is engaged to a retaining wall, this guideline may require special interpretation.

C. Non-Permissible Locations Solid walls and fences are not permitted between public streets and common open spaces including public or semi-public areas within a project.

E. Pedestrian Gates: Gates in walls or fences over 100 feet in length between public streets or open spaces and public or semi-public areas within a project are encouraged.

J. Neighborhood Compatibility Front yard fencing higher than 3 feet should not be introduced on streets that have an existing pattern of residences fronting onto the street. Such fencing should be avoided or minimized to continue the front yard pattern of the surrounding neighborhood.

Chapter 5: Perimeter Setbacks - Relationship to Surroundings

A. Setbacks From Perimeter Streets identifies setback standards for key project elements that are adjacent to existing and proposed perimeter streets. Setbacks identified in Chapter 1 "Existing Neighborhoods" may supersede setbacks identified on this table. Exceptions to the setbacks listed in this table may be appropriate for projects covered by approved specific plans such as Communications Hill, Tamien, Midtown and Jackson-Taylor.

B. Perimeter Setbacks From Adjacent Uses Table 5.b identifies the setback standards for key project elements from existing uses immediately adjacent to the project perimeter. Setback dimensions are measured from common property lines. Setbacks identified in Chapter 1 "Existing Neighborhoods" may supersede setbacks identified in this table.

Parking

Attached unit projects, which do not include enclosed garages, should provide secure parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles

Chapter 8: Parking. L. Bicycle Parking Attached unit projects, which do not include enclosed garages, should provide secure parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles.

Chapter 16: Miscellaneous Details. C. Bicycle Parking Attached unit projects, which do not provide private enclosed garages, should provide secure bicycle parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles (Fig. 16-2).

Street Design

Chapter 2: Street Frontage. Guidelines. A. Building Setbacks Front building setbacks are required for most housing types to buffer living areas from the public activity of the street and to provide space for landscaping in the configuration associated with traditional residential neighborhoods. Buildings containing living areas should be set back at least 35 feet from major streets, freeways, and expressways (25 feet minimum if average is 40 feet, or 25 feet behind a sound attenuation wall). The 35-foot setback may be reduced on major streets if such a reduction is consistent with their existing or projected urban character

B. Reduced Building Setbacks Zero or reduced building setbacks from the street may be more appropriate for higher density housing types in areas near downtown, along streets with established reduced setback patterns and in areas with specific plans which call for reduced setbacks to reinforce the planned urban character of the neighborhood.

E. Limitations On Parking Frontage To strengthen the presence of buildings on the street, circulation elements and parking areas in the front setback area and/or adjacent to the street should extend across no more than 50 percent of the street frontage (Fig. 2-1). Fig. 2-1: Parking areas should not comprise more than 50% of the elements along a project's street frontage.

F. Street Trees The developer should plant street trees of an approved species and size along all public and private streets. There should be at least one tree for approximately every 25 feet of street frontage, depending on species, or at least one tree for each lot abutting the street.

H. Provisions to Accommodate Bicycle Traffic For larger streets (other than Limited Access Streets, Narrow Residential Streets and Minor Residential Streets) as determined appropriate by the Department of Streets and Traffic and City Council Policy, the width of one travel lane in each direction should be expanded by an additional five feet to provide space for bicycle travel.

I. Wider Sidewalks to Accommodate Heavier Pedestrian Demand In street rights-of-way serving higher density residential development or located in more urban, pedestrian oriented areas of the City, sidewalks should be at least 6 to 10 feet in width, depending on adjacent densities and expectations for pedestrian activity.

Building Massing & Orientation

Chapter 11: Building Façade A. Façade Articulation All building façades containing 3 or more attached dwellings in a row should incorporate at least one of the following: 1. At least one architectural projection per unit. Such a projection must project no less than 2 feet 6 inches from the major wall plane, must be between 4 feet 6 inches and 15 feet wide, and must extend the full height of a one-story building, at least one-half the height of a two-story building, and two-thirds the height of a three-story building. On buildings three stories in height, projecting elements may be linked by one level of living space at the top or bottom floor 2. A change in wall plane of at least 3 feet for at least 12 feet every 2 units.

C. Building Length Extremely long buildings, if they are richly articulated, may be acceptable; however, buildings (including garages and carports) exceeding 150 feet in length are generally discouraged.

D. Building Materials And Details The exterior materials and architectural details of a single building should relate to each other in ways that are traditional and/or logical. For example, heavy materials should appear to support lighter ones.

Chapter 25: Mixed Use Development H. Building & Site Design, Horizontal Mixed Use Horizontal mixed use projects will typically have multiple buildings as well as multiple uses. Buildings should have a positive functional relationship with each other as well as an aesthetically pleasing spatial relationship: 1. The exterior building design, including roof style, color, materials, architectural form and detailing, should be consistent, or at least compatible, among all buildings in a complex and on all elevations of each building to achieve design harmony and continuity within the project and with its surroundings.

Chapter 25: Mixed Use Development

E. Building Orientation. Buildings should be oriented parallel to the street particularly at comers. Buildings and, in particular, entrances should be oriented toward light rail stations and bus stops for convenient access by public transit passengers.

F. Relationship to the Street Active connections between buildings and the street, for example residential and retail entries, porches, stairs, decks, courtyards, and windows, should be maximized.

C. Building Orientation The major orientation of buildings nearest the street should be parallel to that street or to the prevailing pattern of existing property lines. This guideline is not intended to limit either the inclusion of architectural elements, articulation, or embellishments that may not align with the street or the inclusion in large projects of minor buildings that do not align with the street.

D. Building Façades If a side or rear elevation faces or is substantially visible from a street, it should be designed with the same care and attention to detail, and in the same material, as the front (see Chapter 11 “Building Design”).

G. Street Presence Residential buildings located away from the street, as on flag lots, should maintain a presence to the street. This may be achieved by placing the rear building so that it is visible from the street (Fig. 2-2).

Open Space & Landscape Design

“New residential developments adjacent to existing or planned open space should take full advantage of the space and provide maximum visibility. All new projects adjacent to open spaces (i.e. parks, school fields, riparian corridors, open hillsides) should strive to include adjacent public frontage roads. No walls or fences are permitted between public open space and roads adjacent to them within a development.

When a frontage road is not possible, residential buildings should be oriented to the open space, with a minimum setback of 25'. It is intended to encourage a neighborhood watch and garages that block these areas should be avoided.

Development along natural creeks are subject to City's Riparian Corridor Development Guidelines.

1. Minimum setback of 100'.
2. Public recreation areas/passive use areas may be located adjacent to the riparian corridor, subject to site inspections
3. Any vegetation within setback area should be native/compatible with the trees, shrubs, groundcover with the riparian corridor type
4. Areas with night lighting must have a 200' separation
5. Where lighting is required for safety, low light and light directed down and not visible from the riparian corridor is preferable
6. Fences along riparian corridors should be intended for the protection of the area from public or pets, or critical to security of development. Fences should be no higher than 3' or 4' and should not obstruct views.

Chapter 3: Open Space Interfaces - Relationship to Surroundings GUIDELINES

A. Frontage Roads All new projects adjacent to or which include parks, school playgrounds, riparian corridors and open hillsides should be designed to incorporate public frontage roads adjacent to such features.

B. Setbacks From Parks Where a frontage road is not feasible, residential buildings and the private open spaces associated with them should be oriented to the park. New buildings should be set back a minimum of 25 feet from parks and public open spaces to reduce the risk of vandalism and theft. Active uses, such as entry walkways or recreation activities, in the setback area are encouraged in order to foster casual surveillance of the transitional area between public and private uses. Garages and carports that substantially block visibility between proposed residential units and parks are discouraged.

C. Limitations On Walls/Fences No walls or solid fences will be permitted between public open spaces and roads adjacent to them within a project.

Chapter 23: Cluster Housing F. Open Space There should be a minimum of 60 square feet of private open space and 200 square feet of usable common open space for every dwelling unit. Required common open space per unit may be reduced by an area equivalent to the amount of private open space in excess of 60 square feet. Projects with fewer than eight units need not have common open space, provided that each ground floor unit has at least 120 square feet of private open space.

Chapter 9: Landscaped Areas Developer Responsibility

A. Landscaping should be provided by the developer in all planted areas except within private rear yards or patios and within single-family detached lots which are 4,000 square feet or larger. For single-family detached lots less than 4,000 square feet and for paired dwellings, rowhouses and courthomes, the developer should install landscaping and irrigation in the front yards, parkstrips and common areas. All landscaping should be planted and maintained in accordance with the City's Landscape and Irrigation Guidelines.

B. Landscaping In Front Of Walls And Fences Landscaping should be provided by the developer in all setback areas between project walls and/or fences and the rights-of-way of public streets and sidewalks. This landscaping should be generous and should include trees and/or shrubs as well as groundcover. Tall shrubs or vines should be planted to help screen walls and fences and provide protection from graffiti. All slopes should include sufficient erosion control measures to prevent the loss of topsoil.

C. Frontage Roads And Landscaping Islands or medians that separate frontage roads from public streets should be planted with trees and shrubs of sufficient density to form a solid screen at least 5 feet high and a continuous tree canopy.

D. Street Trees The developer should plant street trees of an approved species and size along all public and private streets. There should be at least one tree for approximately every 25 feet of street frontage, depending on species, or at least one tree for each lot abutting the street. The City's street tree planting standards should be used. Solid screen and continuous tree canopy between frontage road and street.

E. Open Space Setback Landscaping Private rear yards, patios, and balconies should be provided with an extra 10 to 20 feet of landscaped setback when adjacent to incompatible uses or close existing decks or balconies.

F. Landscape Bulbs Except where architectural elements extend into required landscape bulbs in parking drives and courts, each landscape bulb should be planted with one or more trees as well as shrubs and/or groundcover.

Chapter 23: Cluster Housing. C. Landscape Areas (Interior Use Separations) Within a cluster housing project, landscaped areas of the following dimensions should be provided to separate the following site elements: Residential building from parking areas, drives, Residential building (unit entrance side) from drives without parking 10 feet (1) (unit entrance side) carports or parking, 15 feet Residential building (garage entrance side) from drives 0 feet (2) Residential building faces having no entries from parking areas, drives or sidewalks 10 feet (1) This 10 feet should remain clear of stairways and patios. (2) A nine (net) square-foot planter area containing a tree or large shrub located between every two parking stalls or at least every 20 feet should be provided. Due to the small size of these landscape pockets, no utilities or meter boxes should be placed in them. Walkways or sidewalks between buildings and parking areas, carports and driveways may not be counted as part of the minimum dimension for a landscaped area.

Chapter 25: Mixed Use Development. L. Residential Open Space Private open space should be provided at a minimum of 60 square feet per unit with a minimum dimension of 6 feet. Common open space should be provided at a minimum of 100 square feet per unit (see Chapter 10 "Common and Private Open Space").

Bicycles

Attached unit projects, which do not include enclosed garages, should provide secure parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles)

Chapter 8: Parking L. Bicycle Parking Attached unit projects, which do not include enclosed garages, should provide secure parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles.

Chapter 16: Miscellaneous Details

C. Bicycle Parking Attached unit projects, which do not provide private enclosed garages, should provide secure bicycle parking facilities (one bicycle space per two units) to encourage the use of bicycles instead of automobiles (Fig. 16-2).

Code Appendix

Eugene, Oregon

<http://www.eugene-or.gov/portal/server.pt?open=512&objID=269&PageID=1790&cached=true&mode=2>
<https://scholarsbank.uoregon.edu/xmlui/handle/1794/3780?show=full>

Pedestrian Network

9.6730(1) Purpose of Pedestrian Circulation On-Site.

These standards are intended to provide safe and efficient circulation for pedestrians within all developments.

9.6730(2) Applicability of Standards.

As more specifically provided in this section, the standards in this section apply to any development that creates a new building entrance, but not to a building alteration or change in use.

a. In any zone, except I-2 and I-3, on-site pedestrian paths shall be constructed in the following cases for institutional, office, commercial and industrial development:

1. Between all new building entrances and all streets adjacent to the development site. On-site pedestrian paths shall be designed and constructed to provide a direct connection to existing public right-of-way and public accessways.
2. To connect any new building entrances on a development site to all other new and existing building entrances on the same development site, except entrances used primarily for loading and unloading freight.
3. Along the exterior walls of new buildings greater than 100 feet in length when the wall of the building is located next to a street, parking lot or when a public entrance or entrances are located on the edge of the building, except in the following cases:
 - a. When the edge of a building is within 20 feet of a public sidewalk and the building entrance is connected to the public sidewalk by an on-site pedestrian facility, no on-site pedestrian facility on the edge of the building adjacent to the sidewalk is required.
 - b. When the edge of the building is bordered by a perimeter of landscaping which does not exceed 30 feet in width, and an on-site pedestrian facility is constructed at the edge of the landscaping, no on-site pedestrian facility immediately adjacent to the landscaped building edge is required.
4. To connect institutional, office, commercial and industrial uses on the development site to adjacent existing or planned institutional, office, commercial or industrial uses, and to existing or planned transit stops, schools, or neighborhood parks where the addition of on-site pedestrian paths would reduce walking or cycling distance between the uses by 200 feet and by at least 50 percent over other available pedestrian routes.

5. Along any development site, an on-site pedestrian facility connecting the street to the main building(s) shall be provided for every 300 feet of street frontage or for every 8 rows of vehicle parking, or for whichever standard requires the most on-site pedestrian paths. (b) In industrial developments on I-1 zoned property, on-site pedestrian paths shall be constructed in the following cases:

1. Between the main building entrance and all streets adjacent to the development site. On-site pedestrian paths shall be designed and constructed to provide a direct connection to existing public right-of-way and public accessways.

2. To connect the main building entrance on the development site to adjacent existing or planned office, commercial or industrial uses, and to existing or planned transit stops where the addition of the on-site pedestrian facility would reduce walking or cycling distance between the uses by 200 feet and by at least 50 percent over other available pedestrian routes. (c)

In all zones, on-site pedestrian paths shall be constructed within new multiple-family residential developments with 3 or more units to insure that access is provided:

1. From every unit to all other units within the residential development.

2. From every unit to all laundry, recreational and other community facilities in the residential development.

3. From every building located within 40 feet of a public or private street to the street right-of-way line.

9.6730(3) Design of On-Site Pedestrian Facilities. All on-site pedestrian paths provided for the purposes of complying with this land use code shall conform with the following standards:

(a) On-site pedestrian paths shall provide direct access from public ways to building entrances.

(b) On-site pedestrian paths shall be constructed of concrete, a comparable hard surface material, or any properly designed pervious surface that complies with the Americans with Disabilities Act.

(c) On-site pedestrian paths shall be raised to standard curb height when adjacent to public and private streets or driveways.

(d) On-site pedestrian paths intersected by driving aisles shall be marked with striping or constructed with a contrasting paving material to indicate a pedestrian crossing area.

(e) Pedestrian scale lighting in conformance with the standards in EC 9.6725 Outdoor Lighting Standards shall be provided along pedestrian facilities.

9.6730(4) Adjustment. These standards may be adjusted if consistent with the criteria of EC 9.8030(22) See Block Requirement EC 9.8030(8)(d)(1).

Street Network

9.5500(11)(a) Streets

Street standards and connectivity requirements for local residential streets shall be applied to public and private streets within multiple-family developments. (Refer to EC 9.6815 Connectivity for Streets.). (See Figure 9.5500(12) Multiple-Family Parking.)

9.5500(11)(b) Driveways

Driveways and parking drives are private roadways for projects or portions of projects not served by streets. Driveways and parking drives shall be designed in accordance with the following standards:

1. Driveways. Driveways provide vehicular access to parking and dwelling units but do not provide primary pedestrian access to units. Driveways are intended to be used primarily for vehicular circulation and dwelling access and should be visually distinct from streets. (See Figure 9.5500(11)(b) Multiple-Family Driveways). The following standards apply:

a. Two-way driveways shall be a minimum width of 20 feet, one-way driveways shall be a minimum width of 12 feet. The maximum driveway width is 28 feet.

b. All driveways shall be perpendicular to the street they connect to and shall be constructed with a 10- to 15-foot curb radius.

c. On lots without alley access, driveway connections to public streets shall be limited as specified in Table 9.5500(11)(b)1.c. Multiple-Family Driveway Standards for Lots Without Alley Access.

2. Parking Drives. Parking drives are driveways lined with head-in parking spaces, diagonal parking spaces, garages, or any combination thereof along a significant portion of their length. Parking drives for multiple-family developments with more than 20 units shall be designed so as to permit no through-motor vehicle movements. (See Figure 9.5500(12) Multiple-Family Parking.)

9.5500(11)(c) Alley Access

Development sites with alley access, either at the rear yard or along the side yard, shall use the alley to provide access to the development site. In these instances, no direct access to the street, other than by the alley, shall be permitted. (See Figure 9.5500(11)(b) Multiple-Family Driveways.)

Access Points

On-site pedestrian paths shall be designed and constructed to provide a direct connection to existing public right-of-way and public accessways.

To connect institutional, office, commercial and industrial uses on the development site to adjacent existing or planned institutional, office, commercial or industrial uses, and to existing or planned transit stops, schools, or neighborhood parks where the addition of on-site pedestrian paths would reduce walking or cycling distance between the uses by 200 feet and by at least 50 percent over other available pedestrian routes.

Edges

9.5500 (4) Minimum and Maximum Building Setbacks.

(a) Required Setbacks. The required building setbacks are those required in the applicable base zone.

(b) Street Frontage. On development sites that will result in 100 feet or more of public or private street frontage, at least 60 percent of the site frontage abutting the street (including required yards) shall be occupied by a building(s) or enhanced pedestrian space with no more than 20 percent of the 60 percent in enhanced pedestrian space, placed within 10 feet of the minimum front yard setback line. (See Figure 9.5500(4)(b) Multiple-Family Minimum Building Setback Along Streets.) On development sites with less than 100 feet of public or private street frontage, at least 40 % of the site width shall be occupied by a building(s) placed within 10 feet of the minimum front yard setback line. Building projections and offsets with an offset interval of 10 feet or less meet this standard (excluding required yards). "Site width," as used in this standard, shall not include areas of street frontage that have significant natural resources as mapped by the city, delineated wetlands, slopes greater than 15%, recorded easements, required fire lanes or other similar non-buildable areas, as determined by the planning director.

Parking

9.5500(12)(a) Parking Element Types

The city shall allow on-site parking to be provided as part of any multiple-family development project in the form of garages (private or common), carports, open parking areas. All parking, except common garages, shall be designed as parking courts according to EC 9.5500(12)(b) Parking Courts.

9.5500(12)(b) Parking Courts

1. Maximum Size of Parking Courts. Individual parking courts shall be no more than 9,000 square feet in size and shall be physically and visually separated by a landscape area a minimum of 20 feet in width. No more than 3 individual parking courts may be connected by an aisle or driveway. (See Figure 9.5500(12) Multiple-Family Parking and Multiple-Family Parking Continued.)

2. Parking Court Width. A parking court of any length shall consist of no more than one 1 double-loaded parking aisle.

3. Parking Court Separation. Planting islands shall be placed between parking courts to visually interrupt rows of parked vehicles and to separate individual parking courts. Planting islands between parking courts shall have a minimum width of 20 feet and a minimum area of 360 square feet. Each of these islands shall provide at least 1 canopy shade tree having a clear trunk height of at least 9 feet. Architectural elements such as trellises, porches, and stairways may extend into planting islands between parking courts. Other parking area landscape standards in EC 9.6420 Parking Area Standards also apply. (See Figure 9.5500(12)(b) Multiple-Family Parking Courts).

9.5500(12)(c) Limitations on Parking Frontage

To strengthen the presence of buildings on the street, parking and vehicle use areas and garages adjacent to any public or private street frontage shall extend across no more than 50 percent of any street frontage. No parking spaces, with the exception of underground parking, shall be placed within any required front yard area. Parking areas shall not be located between buildings and the street. A single-story street level parking garage may not occupy the street frontage of a multiple-family development, except for parking garage driveways.

EC 9.8030(8)(f). Vehicle Parking.

The requirements set forth in EC 9.5500(12) may be adjusted if the proposal achieves to the same degree as would strict compliance with the standards all of the following:

1. Limitations on the use of continuous parking drives in large-scale multiple-family developments.
2. Limitations on the size of individual parking lots in multiple-family development.
3. Minimal negative aspects of parking uses in multiple-family developments.

Where cost considerations preclude parking beneath or within residential buildings, combinations of partial and interrupted parking drives; on-street parking; and small, dispersed parking courts are an acceptable alternative.

Street Design

9.5500(11)(a) Streets

Street standards and connectivity requirements for local residential streets shall be applied to public and private streets within multiple-family developments. (Refer to EC 9.6815 Connectivity for Streets.) (See Figure 9.5500(12) Multiple-Family Parking.)

9.5500(11)(d) Setback Sidewalks

Setback sidewalks shall be required along any public or private street adjacent to or within the development site.

9.5500(11)(e) Adjustments to the standards in this subsection may be made, based on the criteria of EC 9.8030(8)(e).

EC 9.8030(8)(e). Site Access and Internal Circulation.

The requirements set forth in EC 9.5500(11) may be adjusted in accordance with the criteria in this subsection. In the case of an adjustment, all of the following standards apply:

1. Sidewalks may be designed as curbside walks only along those portions of the private streets providing parallel on-street parking.
2. Street trees may be placed in tree wells or adjacent to the sidewalk.

Building Massing & Orientation

9.5500 (3)

The maximum building heights allowed are those permitted according to the applicable base zone.

9.5500(4)(b)

On development sites that will result in 100 feet or more of public or private street frontage, at least 60 percent of the site frontage abutting the street (including required yards) shall be occupied by a building(s) or enhanced pedestrian space with no more than 20 percent of the 60 percent in enhanced pedestrian space, placed within 10 feet of the minimum front yard setback line. (See Figure 9.5500(4)(b) Multiple-Family Minimum Building Setback Along Streets.) On development sites with less than 100 feet of public or private street frontage, at least 40 % of the site width shall be occupied by a building(s) placed within 10 feet of the minimum front yard setback line. Building projections and offsets with an offset interval of 10 feet or less meet this standard (excluding required yards). "Site width," as used in this standard, shall not include areas of street frontage that have significant natural resources as mapped by the city, delineated wetlands, slopes greater than 15%, recorded easements, required fire lanes or other similar non-buildable areas, as determined by the planning director.

9.5500(5)(a)

Multiple-family residential buildings located within 40 feet of a front lot line shall have their primary orientation toward the street.

9.5500(5)(b)

The main entrance(s) of ground floor units of any residential building located within 40 feet of a street must face the front lot line. Main entrances may provide access to individual units, clusters of units, courtyard dwellings, or common lobbies. The following exceptions shall apply: 1. On corner lots the main building entrance(s) may face either of the streets or be oriented to the corner.

2. For buildings that have more than 1 entrance serving multiple units, only 1 entrance must meet this requirement.

3. For buildings proposed to be "side oriented" to public streets due to access requirements and/or dimensional constraints not created by the applicant, main entries may face up to 90 degrees away from the street provided both of the following apply:

a. They are visible from the street.

b. The building side facing the street shall not include windows or views into a parking area or garage and shall contain windows that occupy a minimum of 15% of the façade.

9.5500(5)(c)

The main entrance of upper story units shall be provided from the interior of the building or from an exterior walkway that serves no more than 2 units. Stairways to upper floors shall be adequately lighted and protected from the elements. Access to upper-story units may be provided at the front, side or rear of a building.

EC 9.8030(4) Building Orientation and Entrance Standards Adjustment.

Where this land use code provides that building orientation and entrance standards may be adjusted, the standards may be adjusted upon finding that the proposal complies with one of the following:

(a) Promotes compatibility with adjacent property.

(b) Creates building orientations and entrances that achieve all of the following:

1. Support and augment the building setback, massing and architectural details.
2. Achieve an attractive streetscape with a strong building presence on existing and future streets.
3. In the case of multiple-family developments, provides socialization benefits to residents.

9.5500(6)(a) Maximum Building Dimension

Neither the maximum length nor width of any building within 40 feet of a front lot line can exceed 100 feet in the R-1 and R-2 zones and 150 feet in all other zones.

9.5500(6)(b) Windows

Street façades shall contain windows covering a minimum of 15% of the façade on each floor level.

9.5500(6)(c)

Adjustments to the standards in this subsection may be made, based on criteria of EC 9.8030(8)(a).

EC 9.8030(8)(a). Maximum Building Dimension.

The requirements set forth in EC 9.5500(6)(a) may be adjusted if the proposal creates building massing and/or façades that:

1. Create a vibrant street façade with visual detail.
2. Provide multiple entrances to building or yards.

9.5500(7)(a)

To preclude large expanses of uninterrupted wall surfaces, exterior elevations of buildings shall incorporate design features such as offsets, projections, balconies, bays, windows, entries, porches, porticos, or similar elements.

1. Horizontal Surface. At least 2 of the design features outlined above shall be incorporated along the horizontal face (side to side) of the structure, to be repeated at intervals of no more than 40 feet.
2. Vertical Surface. At least 2 of the design features outlined above shall be incorporated along the vertical face (top to bottom) of the structure, to be repeated at intervals of no more than 25 feet.

9.5500(7)(b)

When offsets and projections are used to fulfill articulation requirements, the offset or projection shall vary from other wall surfaces by a minimum of 2 feet. Such changes in plane shall have a minimum width of 6 feet.

9.5500(7)(c)

Individual and common entry ways shall be articulated by roofs, awnings, or porticos.

9.5500(7)(c)

Individual and common entry ways shall be articulated by roofs, awnings, or porticos.

9.5500(7)(d)

Adjustments to the standards in this subsection may be made, based on criteria of EC 9.8030(8)(b).

EC 9.8030(8)(b). Building Articulation.

The requirements set forth in EC 9.5500(7) may be adjusted if the proposed building design: 1. Utilizes architectural masses, features or details to distinguish elements of the building. 2. Defines entryways in appropriate scales.

9.5500(8)(a) Minimum Landscape Area

Open Space & Landscape Design

Landscaping is required according to the applicable base zone minimum landscape area standards. If there are none specified, the minimum landscape area shall be equal to the amount of area required as open space specified in EC 9.5500(9).

1. Any required landscaping, such as for required front and interior yard setbacks and to comply with parking landscape standards, shall apply toward the development site area landscaping requirements.
2. Common open space areas required under EC 9.5500(9) Open Space also apply toward meeting the minimum landscaped area requirements of this section, if they are uncovered.
3. Any portion of a private, ground level open space area exceeding one hundred square feet shall be counted toward the minimum landscape area requirement.

9.5500(8)(b) Compliance with Landscape Standards

Except as may be otherwise provided in this subsection (8), all required landscaping shall comply with the standards beginning at EC 9.6200 Purpose of Landscape Standards. In the event of a conflict between the standards beginning at EC 9.6200 and this subsection, the standards in this subsection shall control.

9.5500(8)(c) Landscape Requirements

Site landscaping shall conform to the following:

1. **Required Landscaping in Yards Abutting Streets.** Landscaping shall be installed and maintained in yards abutting streets that complies, at a minimum, with the standards in EC 9.6210(1) Basic Landscape Standard (L-1). The required landscaping shall be placed within the required front yard setback area and may be pierced by pedestrian and vehicular access ways.
2. **Private Open Space Screening.** Where provided, ground-level private open space required under EC 9.5500(9) Open Space (b) Private Open Space shall be physically and visually separated from common open space through the use of perimeter landscaping and/or fencing. If landscaping is used, such landscaping shall apply toward the minimum landscape requirement.
3. **Street Trees.** Street trees are required along the frontage of all developments abutting newly created public or private streets in accordance with provisions of Chapter 7 of this code regarding the Street Tree Program - Policies, Standards, and Procedures.

9.5500(8)(d) Adjustments to the standards in this subsection may be made, based on the criteria of EC 9.8030(3) Landscape Standards Adjustment.

EC 9.8030(3)Landscape Standards Adjustment.

Where this land use code provides that the landscape standards may be adjusted, the standards may be adjusted upon finding that the proposed landscape is consistent with the following applicable criteria:

(a) **General Landscape Standards.** Standards establishing a minimum percent of landscape area on the development site, may be adjusted upon a finding that the proposal achieves all of the following:

1. Where necessary, provides visual separation between adjacent development.
2. Provides clearly defined entries and pedestrian pathways.
3. Enhances and softens structural elements.
4. Breaks up large expanses of parking.
5. Protects and enhances the value of adjacent or on-site natural areas.
6. In the case of multiple-family developments, buffers dwellings from views that are unattractive and creates areas for outdoor privacy for residents.

(b) **Basic Landscape Standard (L-1).** The standards of EC 9.6210(1) may be adjusted if the proposal enhances a development site by providing attractive, open landscaped areas where distance is the primary means of separating different uses or developments.

(c) **Low Screen Landscape Standard (L-2).** The standards of EC 9.6210(2) may be adjusted if the proposal achieves at least one of the following:

1. A landscape treatment that uses a combination of distance and low-level screening (minimum 30 inches, maximum of 42 inches) to separate uses or development and the screening is adequate to soften the impact of the use or development.

2. In those instances where visibility between areas is more important than a total visual screen, the alternative landscape treatment is appropriate for the site.

(d) High Screen Landscape Standard (L-3). The standards of EC 9.6210(3) may be adjusted if the proposal uses landscape screening to provide a physical and visual separation between uses or development.

(e) High Wall Landscape Standard (L-4). The standards of EC 9.6210(4) may be adjusted if the proposal continues to provide extensive screening of both visual and noise impacts to protect adjacent users.

(f) Partial Screen Fence Landscape Standard (L-5). The standards of EC 9.6210(5) may be adjusted where the proposal achieves at least one of the following:

1. A moderate level of screening, adequate to soften the impact of the use or development.

2. In those instances where visibility between areas is more important than a total visual screen, the alternate landscape treatment is appropriate for the site.

(g) Full Screen Fence Landscape Standard (L-6). The standards of EC 9.6210(6) may be adjusted if both of the following are achieved:

1. The proposal provides a tall, complete visual separation to protect abutting uses.

2. Living plant landscaping is not practical for the site.

(h) Massed Landscape Standard (L-7). Adjustments may be made to the standards of EC 9.6210(7) if the proposal provides a landscape treatment appropriate for interior yards of large development sites adjacent to arterial and collector streets or to non-residential uses adjacent to residential development as the case may be.

9.5500(9)

Open space that complies with Table 9.5500(9) and the standards in this subsection (9) shall be provided unless exempt under other provisions of this land use code.

9.5500(9)(a)

Common open space may include any of the following:

1. Outdoor areas incorporating:

a. Lawn or hard surfaced areas in which user amenities such as trees, shrubs, pathways, tables, benches or drinking fountains have been placed.

b. Ornamental or food gardens.

c. Developed and equipped adult recreation areas.

d. Developed and equipped children's play areas.

e. Sports courts (tennis, handball, volleyball, etc.).

f. Swimming pools, spas and adjacent patios and decks.

g. Roof terraces.

h. Picnic areas.

i. Covered, but unenclosed, patios.

j. Internal courtyards.

2. Common open space may also include up to 30% of the required area in natural resource areas, such as steep slopes greater than 25%, forested areas, conservation areas and delineated wetlands.

3. Up to 30% of common open space may be located in indoor recreation areas fitted with game equipment, work-out equipment, court sports facilities, swimming pools, plant greenhouse, wood shop, or other designated project or game equipment, if the facility conforms to the following standards:

a. The minimum area of any single space shall be 250 square feet, with no dimension being less than 15 feet.

b. Interior common open space shall be at least 10 feet in floor to ceiling height; glazed window and skylight areas shall be provided in the proportion of 1 square foot for each 4 square feet of the floor area of the common space.

c. The space shall be accessible from a common lobby, courtyard or exterior common open space.

4. The minimum area for any common open space shall be 250 square feet.

5. The minimum dimension for any common outdoor open space shall be 15 feet.

9.5500(9)(b) Private Open Space

Private open space is outdoor space directly adjacent to dwelling units providing an outdoor area for private use by the occupants. Private open space, where provided, shall meet the minimum standards in the following Table 9.5500(9)(b).

9.5500(9)(c) Open Space Credit

1. An open space credit, not to exceed 25 percent of the total open space requirement, may be applied toward compliance with that requirement, for developments that are located within one-quarter mile of a public park.

2. Required setback areas and areas required to comply with perimeter parking lot landscape standards may be applied toward the minimum open space requirements when the minimum dimension of such space is 15 feet or greater."

9.5500(9)(d) Adjustments to the standards in this subsection may be made, based on the criteria of EC 9.8030(8)(c).

EC 9.8030(8)(c). Open Space.

The requirements set forth in EC 9.5500(9) may be adjusted if the proposal will achieve better overall compliance with the purpose of the open space standards than what would result from strict adherence to the standards.

Bicycles

9.6105 Bicycle Parking Standards. (2) Bicycle Parking Space Standards.

(a) A minimum of 4 bicycle parking spaces shall be provided at each development site.

(b) A bicycle parking space required by this land use code shall be at least 6 feet long and 2 feet wide with an overhead clearance of at least 7 feet, and with a 5 foot access aisle. This minimum required width for a bicycle parking space may be reduced to 18" if designed using a hoop rack according to Figure 9.6105(2) Bicycle Parking Standards. Bicycles may be tipped vertically for storage, but not hung above the floor. Bicycle parking shall be provided at ground level unless an elevator is easily accessible to an approved bicycle storage area.

(c) All required long term bicycle parking spaces shall be sheltered from precipitation. Shelters for short term bicycle parking shall be provided in the amounts shown in Table 9.6105(2)(c) Required Sheltered Bicycle Parking Spaces.

(d) Direct access from the bicycle parking area to the public right-of-way shall be provided with access ramps, if necessary, and pedestrian access from the bicycle parking area to the building entrance.

(a) Long term bicycle parking required in association with a commercial, industrial, or institutional use shall be provided in a well-lighted, secure location within a convenient distance of a main entrance. A secure location is defined as one in which the bicycle parking is:

1. A bicycle locker,
2. A lockable bicycle enclosure,
3. Provided within a lockable room, or
4. Clearly visible from, and within 30 feet of the employee's work station.

Bicycle parking provided in outdoor locations shall not be farther than the closest automobile parking space (except disabled parking). Long term bicycle parking required in association with a multiple-family residential use shall be provided in a well-lighted, secure ground level location within a convenient distance of an entrance to the residential unit. A secure location is defined as one in which the bicycle parking is provided outside the residential unit within a garage, a lockable room, a lockable bicycle enclosure, or a bicycle locker.

(b) Short term bicycle parking shall consist of a securely fixed structure that supports the bicycle frame in a stable position without damage to wheels, frame, or components and that allows the frame and both wheels to be locked to the rack by the bicyclist's own locking device. The required spaces for each use category are listed in EC 9.6105(4) Minimum Required Bicycle Parking Spaces. Short term bicycle parking shall be provided within a convenient distance of, and clearly visible from the main entrance to the building as determined by the city, but it shall not be farther than the closest automobile parking space (except disabled parking).

Sections 9.6100 through 9.6110 set forth requirements for off-street bicycle parking areas based on the use and location of the property. Bicycle parking standards are intended to provide safe, convenient, and attractive areas for the circulation and parking of bicycles that encourage the use of alternative modes of transportation. Long-term bicycle parking space requirements are intended to accommodate employees, students, residents, commuters, and other persons who expect to leave their bicycle parked for more than 2 hours. Short term bicycle parking spaces accommodate visitors, customers, messengers, and other persons expected to depart within approximately 2 hours.

Code Appendix

Huntersville, North Carolina

http://www.huntersville.org/ZONING_TOC.htm

Pedestrian Network

Off-street parking areas should be designed to minimize breaks in the pedestrian environment along the public street and create safe and comfortable passage for pedestrians. (Article 6 Off –Street Parking Design Standards)

Main pedestrian access to the building and to individual units is from the street (indicated by larger arrow), unless specifically exempted by one of the provisions of Section 8.1. Secondary access may be from parking areas (indicated by smaller arrow). (Article 4 Encroachment/Pedestrian Access)

Main pedestrian access to the building is from the street. Secondary access may be from parking areas. (Article 4)

Street trees and sidewalks are required on both sides of public streets except rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways except that sidewalks may be permitted on only one side of the street to accommodate low impact design in the Rural district. Planting area for street trees should be a minimum of 7' in width and sidewalks shall at a minimum be 5' in width unless otherwise provided. On Commercial Town Streets, sidewalks should be a minimum of 7' in width. A 10' minimum width sidewalk with tree grates or cut-outs is encouraged on Commercial Town Streets. Generally, canopy trees shall be planted at a spacing not to exceed 40' on center. Where overhead utility lines preclude the use of canopy trees, small maturing trees may be substituted, planted 30' on center. (Article 5 Street Design)

Safe and convenient pedestrian access to the open space from all lots not adjoining the open space shall be provided (except in the case of farmland, or other resource areas vulnerable to trampling damage or human disturbance). (Article 7 Landscaping and Open Space)

Accordingly, the town shall evaluate proposals to determine whether the proposed subdivision plan: Includes a pedestrian circulation system designed to assure that pedestrians can walk safely and easily on the site, between properties and activities or special features within the neighborhood open space system. All roadside footpaths should connect with off-road trails, which in turn should link with potential open space on adjoining undeveloped parcels (or with existing open space on adjoining developed parcels, where applicable). (Article 7 Landscaping and Open Space)

Street Network

Article 5 1. Interconnect within a development and with adjoining development. Cul-de-sac shall be allowed only where topographical and/or lot line configurations offer no practical alternatives for connections or through traffic. Street stubs shall be provided within development adjacent to open land to provide for future connections. The Land Development Map should be reviewed to locate potential connections in new neighborhoods.

5. Be public. Private streets are not permitted within any new development. Alleys will be classified as public or private depending on function, according to the street acceptance policy.

Public streets shall provide access to all tracts and lots. Streets and alleys shall, wherever practicable, terminate at other streets within the neighborhood and connect to existing and projected streets outside the development. Cul-de sacs shall not exceed 250 feet in length, must be accessed from a street providing internal or external connectivity, shall be permanently terminated by a vehicular turnaround, and are permitted where topography makes a street connection impracticable. In most instances, a “close” or “eyebrow” is preferred to a cul-de-sac. Vehicular turnarounds of various configurations are acceptable so long as emergency access is adequately provided. The average perimeter of all blocks within the TND should not exceed 1,350 feet. No block face should have a length greater than 500 feet without a dedicated alley or pathway providing through access.

A hierarchical street network should have a rich variety of types, including bicycle, pedestrian, and transit routes.

Access Points

Streets and alleys shall, wherever practicable, terminate at other streets within the neighborhood and connect to existing and projected streets outside the development. (Article 3 TND Districts)

Where connectivity between subdivisions is appropriate for high quality neighborhood design, the Town Board may reduce or waive the required buffer yard. (Article Landscaping and Open Space)

Accordingly, the town shall evaluate proposals to determine whether the proposed subdivision plan: Includes a pedestrian circulation system designed to assure that pedestrians can walk safely and easily on the site, between properties and activities or special features within the neighborhood open space system. All roadside footpaths should connect with off-road trails, which in turn should link with potential open space on adjoining undeveloped parcels (or with existing open space on adjoining developed parcels, where applicable). (Article Landscaping and Open Space)

Edges

8.11.2 In a residential or mixed use district, a fence or wall in an established rear or side yard which abuts a street or alley may not exceed 6 feet in height unless placed 15 or more feet inside property boundary. Within the first 15 feet, fences of chain link or similar material are permitted only if screened on the exterior side by evergreen shrubs planted no farther apart than 6 feet on center, minimum height 3 feet at installation, or if obscured from view by the screening method(s) set out in the paragraph immediately above.

In a residential or mixed use district, a fence or wall in an established rear or side yard which does not abut a street or alley may not exceed 8 feet in height.”

Consistent build-to lines shall be established along all streets and public space frontages; build-to lines determine the width and ratio of enclosure for each public street or space. A minimum percentage build-out at the build-to line shall be established on the plan along all streets and public square frontages.

Parking

Article 6: Parking lots shall be placed behind buildings; side of the building parking will be permitted only as indicated by Building Type and shall be measured along the build-to line. Parking lots shall be designed to allow pedestrians to safely move from their vehicles to the building. On small lots, this may be achieved by providing a sidewalk at the perimeter of the lot. On larger lots, corridors within the parking area should channel pedestrians from the car to the perimeter of the lot or to the building. These corridors may be delineated by a paving material which differs from that of vehicular areas and planted to provide shade. Small posts or bollards may be included. To maintain pedestrian comfort and calm the speed of entering traffic, driveways to parking areas should be no wider than 24 feet.

Street Design

Article 5 1. Interconnect within a development and with adjoining development. Cul-de-sacs shall be allowed only where topographical and/or lot line configurations offer no practical alternatives for connections or through traffic. Street stubs shall be provided within development adjacent to open land to provide for future connections. The Land Development Map should be reviewed to locate potential connections in new neighborhoods.

2. Be designed as the most prevalent public space of the town and, thus, scaled to the pedestrian.
3. Be bordered by sidewalks on both sides, with the exception of rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways. Sidewalks on one side of the road may be permitted in the Rural zone as an incentive to protect water quality.
4. Be lined with street trees on both sides, with the exception of rural roads, lanes, alleys, and the undeveloped edge of neighborhood parkways. Private drives are permitted only as described in the Rural and Transitional zone.
5. Be public. Private streets are not permitted within any new development. Alleys will be classified as public or private depending on function, according to the street acceptance policy.
6. Be the focus of buildings. Generally, all buildings will front on public streets. For good definition, the ratio of one increment of height to six of width is the absolute maximum, with one to three being a good effective minimum. As a general rule, the tighter the ratio, the stronger the sense of place. Very tight relationships of one to one can create special pedestrian places.

To prevent the buildup of vehicular speed, disperse traffic flow, and create a sense of visual enclosure, long uninterrupted segments of straight streets should be avoided. Methods: (1) a street can be interrupted by intersections designed to calm the speed and disperse the flow of traffic (Article 5) and terminate vistas with a significant feature (building, park, natural feature); (2) a street can be terminated with a public monument, specifically designed building façade, or a gateway to the ensuing space; (3) perceived street length can be reduced by a noticeable street curve where the outside edge of the curve is bounded by a building or other vertical elements that hug the curve and deflect the view; (4) other traffic calming configurations are acceptable so long as emergency access is adequately provided.

Building Massing & Orientation

8.1 Any lot on which a building (or buildings) is to be erected or use is to be established shall abut a public street.

4. A site specific development plan may be considered for approval in the TC, NC, NR, R, TR, HC, CB and both TND districts where residential and/or non-residential lots and/or structures front upon a private courtyard, carriageway, mid-block private alleyway with courtyard, or pedestrian way, or urban open space as defined in Article 7, Part B, where adequate access by emergency vehicles is maintained by way of a street or alley and where the off-street placement of uses does not diminish the orientation of building fronts to the public street.

6. Be the focus of buildings. Generally, all buildings will front on public streets. For good definition, the ratio of one increment of height to six of width is the absolute maximum, with one to three being a good effective minimum. As a general rule, the tighter the ratio, the stronger the sense of place. Very tight relationships of one to one can create special pedestrian places.

Open Space & Landscape Design

Article 7.10.2 Urban Open Space shall be planned and improved, accessible and usable by persons living nearby. Improved shall mean cleared of underbrush and debris and may contain one or more of the following improvements: landscaping, walls, fences, walks, statues, fountains, ball fields, and/or playground equipment. Walls and fences shall be made of brick, stone, wrought iron, or wood and shall not exceed 3.5 ft. in height.

Article 7.10.3 In major subdivisions and multi-building developments in all zoning districts except Rural, urban open space shall be integrated into the design of the site. Such open space, whether on-site or off-site, shall be located within 1/4 mile of each building lot as measured along the rights-of-way of streets providing access between the two. In large-lot subdivisions such urban open space shall be integrated into the design of the site so that, whether located on-site or off-site, such open space is located within 1/2 mile of all building lots, as measured along the rights-of-way of street providing access between the two.

Article 7 - All residential development fronting a major or minor thoroughfare shall provide a 20-foot landscape easement located within common area between the future right-of-way and any proposed lots or public streets.

Dumpsters shall be set on a concrete bed and shall be hidden by an opaque fence or wall of sufficient height to screen the bin and any appurtenances, but not less than 6' in height. Wooden shadow box fences are recommended. Trash containers such as dumpsters shall not be located abutting residential property. Wherever used, fences and walls should be constructed to match the architectural detail of the main building(s).

Bicycles

Article 6 - All non-residential buildings should include an area for parking bicycles. This area may be a designated parking space within the parking lot near the building or an area outside the parking lot adjacent to the building. The bike parking area must include a bike rack with locking area.

Code Appendix

Asheville, North Carolina

<http://www.ashevillenc.gov/government/subpage.aspx?id=576>

Pedestrian Network

7-11-8 (b) Guidelines for requiring sidewalks. Sidewalks shall be required for all new construction and for renovations, additions and/or expansions to existing structures which fall into one of the following categories:

(2) All new multi-family residential development, except for the construction of less than ten units; (5) All new streets, improved streets or extension to streets.

(c) Additional conditions for requiring sidewalks. Notwithstanding (b) above, the following findings must be made prior to the city engineer/designee requiring the construction of a new sidewalk or a “fee in lieu of” constructing a sidewalk for an applicable project. One of the following conditions must be met, as determined by the city engineer/designee.

(1) The applicable project area, including the street frontage, is identified as a needed pedestrian linkage within an adopted City of Asheville transportation or corridor plan, including but not limited to such plans as the Transportation Improvement Program (TIP), greenway, small area, pedestrian thoroughfare plans.

(2) The current or projected (within five years) average daily traffic count (ADT) for the street is 300 vehicles per day or more as determined by the city Traffic Engineer. Traffic generated from the applicable project or any additions to the applicable project will be included in calculating the ADT for this condition.”

Street Network

General. Except as set forth in subsection (i)(2) below, all residential lots must abut a public street or an approved private street built to public street standards: Residential lots shall meet the minimum lot width requirements of the applicable zoning district where they abut a public street, except for lots on a cul-de-sac or flag lots. (Sec. 7-11-2. Parking, loading, and access standards (j)(1)a.)

b. Lots on a cul-de-sac. A lot on a cul-de-sac shall be a minimum of twenty-five (25) feet at the front property line, and shall be 80 percent of the required lot width at the front setback line. (Sec. 7-11-2. Parking, loading, and access standards (j)(1)b.)

Access Points

Minimum distances between access points and street intersections shall be determined by the access triangle. No access points shall be permitted within the access triangle. The access triangle is that triangle formed by the intersecting undisturbed right-of-way lines (“A” and “B” in the graphic below) and a line connecting the ends of the undisturbed right-of-way lines. (Sec. 7-11-2. Parking, loading, and access standards (g)(2)a.)

Distance from other access points. The distance measured along the right-of-way line between the tangent projection of the inside edges of adjacent access points shall be at least 25 feet. (Sec. 7-11-2. Parking, loading, and access standards (g)(3).)

Distance from property line. Unless the access point will be shared between two or more adjoining properties, all access points shall be located at least five feet from all property lines perpendicular to the street. (Sec. 7-11-2. Parking, loading, and access standards (g) (4).)

Edges

7-8-5.f.5 The following minimum setbacks shall be required for uses in the RM-6 District.

Front: 15 ft.

Side: Single family detached and multi-family less than 4 units/building: 6 ft.

Rear: Single family detached and multi-family less than 4 units per building: 15 ft.

The landscape and buffering standards (section 7-11-3) may require additional setback; if so, the most restrictive requirement shall apply.

The minimum spacing between structures shall, in addition, be as per the Asheville Fire Prevention Code.

Parking

Parking and loading facilities shall be provided as required by section 7-11-2 of this chapter. No parking lots shall be permitted in any required setback.(One Parking Space Required for Each):

Dwellings, multi-family with 2 bedrooms or less: Min = 1 unit, Max = 0.5 unit

Dwellings, multi-family with 3 bedrooms or more: Min = 0.5 unit, Max = 0.33 unit

On-street parking spaces may be counted toward the fulfillment of the off-street parking requirements for a development. Any on-street parking space meeting these standards shall count as 0.75 of a required off-street parking space.

Street Design

Street buffers. Street buffers are designed to provide for a separation of activities and a more comfortable pedestrian environment. The street buffer is required in addition to the street trees planted in a ten-foot planting strip as required in subsection 7-11-2(d) (3)(c). a. Street buffer determination. Vehicular use areas greater than 4,000 square feet that are located within 50 feet of the edge of a street must be buffered from the street. b. Calculating the requirement. One evergreen or deciduous shrub planted for every five linear feet of buffer required. Species selected must achieve a minimum of three feet in height at maturity. (Sec. 7-11-3. Landscape and buffering standards (2))

Street trees. Street trees are required for all new developments except for single- or two-family homes. This requirement is designed to create or enhance an attractive streetscape pattern while contributing to Asheville's urban forest and a more comfortable pedestrian environment. (Sec. 7-11-3. Landscape and buffering standards (3))

Street tree spacing. Trees may be evenly spaced or staggered to accommodate other site features. In no case shall a required street tree be closer than 15 feet or farther than 65 feet from another required tree. No street tree shall be farther than 20 feet from the edge of pavement or, in cases of planned road widening, 20 feet from the proposed edge of pavement. Existing trees credited towards street tree requirements shall meet spacing requirements. (Sec. 7-11-3. Landscape and buffering standards (3)(c))

Planting strip. Trees shall be placed in a planting strip the width of which may vary but shall maintain a minimum of not less than seven feet and an average width of ten feet. The planting area must be covered with living material, including groundcover and/or shrubs, except for mulched areas directly around the trees so that no soil is exposed. No stone much is permitted in the planting strip. Sidewalks may interrupt the planting strip provided the width on either side of the sidewalk totals ten feet. (See the City of Asheville Standards and Specifications Manual for detail(s)). (Sec. 7-11-3. Landscape and buffering standards (3)(d))

Building Massing & Orientation

The maximum height of structures in the RM-6 District shall be 40 feet.

Open Space & Landscape Design

7-11-4 (c) Open space requirement. Open space shall be provided in accordance with the following table for: initial residential development containing eight or more units or redevelopment or additional development that adds eight or more units; for initial nonresidential or mixed use development of lots containing one acre or more in area; or for redevelopment or additional development that adds 25 percent more nonresidential or mixed use floor area on lots containing one acre or more in area. The CBD district and single-family residential subdivisions with a minimum lot size of one acre or more are exempt from the requirements of this section.

All residential districts, 500 square feet of open space per unit or 15% of lot area, whichever is greater. In no case shall the amount of open space devoted to active recreational facilities constitute more than 10% of lot area. .”

7-11-3 (d)(2) Street buffers. Street buffers are designed to provide for a separation of activities and a more comfortable pedestrian environment. The street buffer is required in addition to the street trees planted in a ten-foot planting strip as required in subsection 7-11-2(d)(3)(c).

a. Street buffer determination. Vehicular use areas greater than 4,000 square feet that are located within 50 feet of the edge of a street must be buffered from the street.

b. Calculating the requirement. One evergreen or deciduous shrub planted for every five linear feet of buffer required. Species selected must achieve a minimum of three feet in height at maturity.

(3) Street trees. Street trees are required for all new developments except for single- or two-family homes. This requirement is designed to create or enhance an attractive streetscape pattern while contributing to Asheville's urban forest and a more comfortable pedestrian environment.

a. Street tree determination. Street trees are required along all street frontages. b. Calculating the requirement. Street tree requirements are as follows:

- Overhead utilities present -- One small maturing tree (less than 35 feet in height at maturity) for every 30 linear feet of property abutting a street.
- All other conditions -- One large maturing tree (greater than 35 feet in height at maturity) for every 40 linear feet of property abutting a street.

c. Street tree spacing. Trees may be evenly spaced or staggered to accommodate other site features. In no case shall a required street tree be closer than 15 feet or farther than 65 feet from another required tree. No street tree shall be farther than 20 feet from the edge of pavement or, in cases of planned road widening, 20 feet from the proposed edge

of pavement. Existing trees credited towards street tree requirements shall meet spacing requirements.

d. Planting strip. Trees shall be placed in a planting strip the width of which may vary but shall maintain a minimum of not less than seven feet and an average width of ten feet. The planting area must be covered with living material, including groundcover and/or shrubs, except for mulched areas directly around the trees so that no soil is exposed. No stone much is permitted in the planting strip. Sidewalks may interrupt the planting strip provided the width on either side of the sidewalk totals ten feet. (See the City of Asheville Standards and Specifications Manual for detail(s))

(4) Parking lot landscaping. Trees and shrubs are required in and around parking lots in order to provide attractive views from roads and adjacent properties, provide shade to reduce the heat generated by impervious surfaces, reduce glare from parking lots, and to help filter exhaust from vehicles.

a. Parking lot determination. Parking lots with six or more spaces shall require parking lot landscaping.

b. Calculating the requirement. One deciduous tree and four shrubs for required for every 1,500 square feet of vehicular use area (VUA). At least 75 percent of the required deciduous parking lot trees must be large-maturing trees. Trees and shrubs must be planted within 15 feet of the vehicular use area to count as parking lot landscaping.

c. Interior rows of parking. When more than four trees are required in a parking lot with interior rows, 50 percent of the trees and shrubs must be planted in islands or medians located within the parking lot.

d. Multiple parking bays. When more than four bays of parking are proposed, an interior island with an average width of 20 feet and a length equivalent to the length of the average parking bay is required. This island must be planted and include a pedestrian walkway no less than five feet wide and placed in a location that enhances pedestrian circulation, preferably leading directly to a building entrance or sidewalk.

e. Perimeter parking spaces. All continuous runs of 15 or more parking spaces shall be interrupted by a tree island.

f. Minimum island size. The minimum island size shall be 200 square feet of pervious planting surface per tree. Islands must maintain an average width of ten feet with a minimum width no less than five feet.

g. Protection of trees. Curbing, bollards, or parking barriers shall protect trees and shrubs within five feet of the edge of the pavement. Trees and shrubs in islands should be set back at least three feet from the curb so as not to interfere with car doors opening.

h. Canopy coverage. Each parking space shall be located within 60 feet of a tree as measured from the trunk of the tree to the closest point of the parking space.

i. Parking decks. Exposed parking decks are required to plant a minimum of one tree and two shrubs for every 30 linear feet of the parking structure's perimeter. Trees shall be planted within 20 feet of the structure. This requirement shall be waived for any side of the structure where the property line buffer standards of subsection 7-11-2(d)(1) require a greater number of plantings.

j. Additional landscaping required for parking lots exceeding the maximum number of parking spaces. When the number of parking spaces exceeds the maximum city parking standards as set forth in section 7-11-1, one tree and two shrubs per 1,000 square feet of the additional vehicular use area shall be required in addition to the minimum requirements of this subsection.

k. Landscaping of parking areas and other uses by right, subject to special requirements and conditional uses. All parking areas required for specified uses outlined in article XVI shall be screened from adjacent properties with a mix of evergreen and deciduous trees and shrubs to result in a vegetative screen that is 75 percent opaque year round.

(5) Building impact landscaping. Building impact landscaping shall be required for new or existing buildings in order to soften views “

“from roads and adjacent properties, provide shade to reduce the heat generated by impervious surfaces, reduce glare, and to help enhance the urban landscape.

a. Building impact determination. All new developments with an existing or proposed building with a footprint greater than 3,000 square feet. Developments with more than one building shall combine the total footprint areas.

b. Calculating the requirement. One tree and two shrubs for every 1,000 square feet of building footprint. Trees and shrubs may be planted anywhere on site.

(6) Screening of dumpsters, loading docks, outdoor storage areas, and utility structures. All dumpsters, loading docks, or utility structures visible from a public street or adjacent property line shall be screened unless already screened by an intervening building or bufferyard. All enclosed outdoor storage areas greater than 25 square feet shall also be screened from adjacent properties and streets. Screen types include:

- A continuous hedge of evergreen trees and/or densely twigged deciduous trees planted in a seven-foot strip spaced no more than eight feet apart.
- Fence or wall with a minimum height of six feet with the finished side of the fence facing the abutting property or street. Fences longer than 25 linear feet shall be landscaped with trees and/or shrubs planted in a minimum five-foot planting area, except around access areas, spaced no farther than eight feet apart in order to screen at least 50 percent of the fence or wall.”

Bicycles

7-11-2(c)(3) Bicycle parking shall be provided for all uses except single-family and two-family dwellings. The minimum number of bicycle parking spaces required shall be equal to five percent of the total number of automobile parking spaces in the lot. Bicycle parking facilities shall include standard bike racks or other secured, lockable facilities.

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