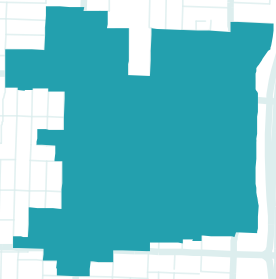


CONNECTED CENTERS STREET PLAN

A strategy for improving street and
pathway connectivity in centers



Focus on Jade District and Rosewood/Glenfair Neighborhood Centers

SEPTEMBER 1, 2019
PORTLAND BUREAU OF TRANSPORTATION

The City of Portland is committed to providing equal access to information and hearings. For ADA Title II or Civil Rights Title VI Accommodations, Translation/Interpretation Services, Complaints, or for additional information call 503-823-6177, TTY: 503-823-6868, or use Oregon Relay Service: 711.

Portland City Council

Ted Wheeler, Mayor
Chloe Eudaly, Commissioner
Nick Fish, Commissioner
Amanda Fritz, Commissioner
Jo Ann Hardesty, Commissioner

Project Staff

BUREAU OF TRANSPORTATION

Denver Igarta
Daniel Soebbing
Taylor Phillips
Shane Valle

BUREAU OF PLANNING & SUSTAINABILITY

Tom Armstrong
Bill Cunningham
Marc Asnis
Shannon Buono
Radcliffe Decanay
Neil Heller
Leslie Lum
Sarah Wright

CONSULTANT TEAM

David Evans and Associates, Inc.

Andrew Mortensen,
Project Manager
Jacob Nigro,
Transportation Planner

To obtain a copy of this document or more information about this project, please contact:
Denver Igarta
Portland Bureau of Transportation
1120 SW 5th Avenue, Suite 900
Portland, OR 97204
Phone: 503-823-1088 |
Email: Denver.Igarta@portlandoregon.gov
Website: www.portlandoregon.gov/transportation/71334



PBOT
PORTLAND BUREAU OF TRANSPORTATION

TABLE OF CONTENTS

4	Preface
5	Introduction
8	Background
13	Opportunity Analysis
27	Plan Recommendations
39	Safe Routes to Centers
49	Plan Implementation

PREFACE



PBOT is undertaking the Connected Centers Plan (the Plan) to examine regulatory and implementation measures that will improve street connectivity and create more attractive and integrated neighborhoods and community spaces. Using the Jade District and Rosewood neighborhood as case studies, the Plan aims to achieve new connections and in turn improved access for walking, bicycling and motor vehicles.

The Plan is a strategy to realize new street and pathway connections as sites develop on blocks that do not meet existing connectivity requirements. Portland's long-range planning policies call for safe and accessible street and pedestrian connections, especially within centers, where more concentrated services and housing are intended. In order to achieve these goals, the Portland Bureau of Transportation (PBOT) is working with the Bureau of Planning and Sustainability (BPS) to improve street connectivity in Jade and Rosewood, explore revisions to the City's zoning code development standards, and revise design standards that shape development in Portland's multi-dwelling zones.

BPS is undertaking the Better Housing by Design (BHD) project, which is updating multi-dwelling zoning code regulations to improve development outcomes outside Portland's Central City. The project is revising regulations for multi-dwelling zones (RH, R1, R2, and R3), typically located in and around centers and corridors, and includes a focus on East Portland to foster development outcomes that reflect the area's distinct characteristics and needs. PBOT staff have worked with the BHD team to ensure that the new zoning code provisions complement the Connected Centers Plan and support the goal of improving street connectivity in eastern centers. The Jade and Rosewood neighborhoods were selected as case study areas for both BHD and Connected Centers project because both have areas that are broadly zoned multi-dwelling and both have poor street connectivity.

PLAN OVERVIEW

“The Plan aims to achieve new connections and in turn improved access for walking, bicycling and motor vehicles”

Good street connectivity is the backbone of safe, vibrant and healthy communities. More compact and connected street networks provide greater accessibility through more direct routes and shorter trip distances that generally result in more people walking, biking and taking transit.

Several parts of Portland do not meet the City’s street spacing standards due to established development and street grid patterns. Most Eastern Neighborhoods were developed after the Second World War prior to annexation into the City of Portland and were built with large blocks, deep lots, and many lack basic infrastructure such as sidewalks. Short of clearing the established neighborhood and starting over, the city must rely on new street connections being built through infill development.

Since the Jade District and Rosewood areas are already established neighborhoods, this plan seeks to increase the feasibility of building new street connections as infill development occurs (or at a minimum, preventing sites being built in a manner that precludes a potential connection in the future). The plan proposes allowing new streets to be built incrementally (or phases) in locations where sites are narrow, and the right-of-way needed for a full width street is not available. Due to the lack of narrower street improvement options, often opportunities to build streets on these sites are missed even if the site does not meet the City Code required street spacing standards. The Connected Centers Street Plan

proposes allowing the requirement to be split across multiple properties. This would allow adjacent properties to share the responsibility of building a street and only requires a fraction of the space and cost, e.g. as little as 20 feet of right-of-way, from each site.

The Plan proposes to complement Better Housing by Design zoning amendments, such as calculating development allowances before street dedication (so that new street connections do not cause the loss of development opportunity), combined with new types of narrower connections proposed in the Connected Centers Street Plan, to make a substantial difference in reducing the disincentives and the costs to developers of providing new public street connections rather than simply building a private driveway.

While successfully achieving new street connections will remain opportunistic and incremental, this is of necessity. PBOT does not currently have a funding source available to purchase properties or acquire private property and remains dependent on connections being made as infill development occurs. In order to further increase the feasibility of new connections in the Jade District and Rosewood area, the Connected Centers Street Plan proposes a Transportation System Development Charge (TSDC) project to provide a way for a city to contribute to a portion of the cost of a public connection and to allow for credits/discounts to the required TSDC for a given development.



INTRODUCTION

Portland aims to create safe and accessible street and pedestrian connections, especially within centers, where more concentrated services and housing are located.

Growth in Centers

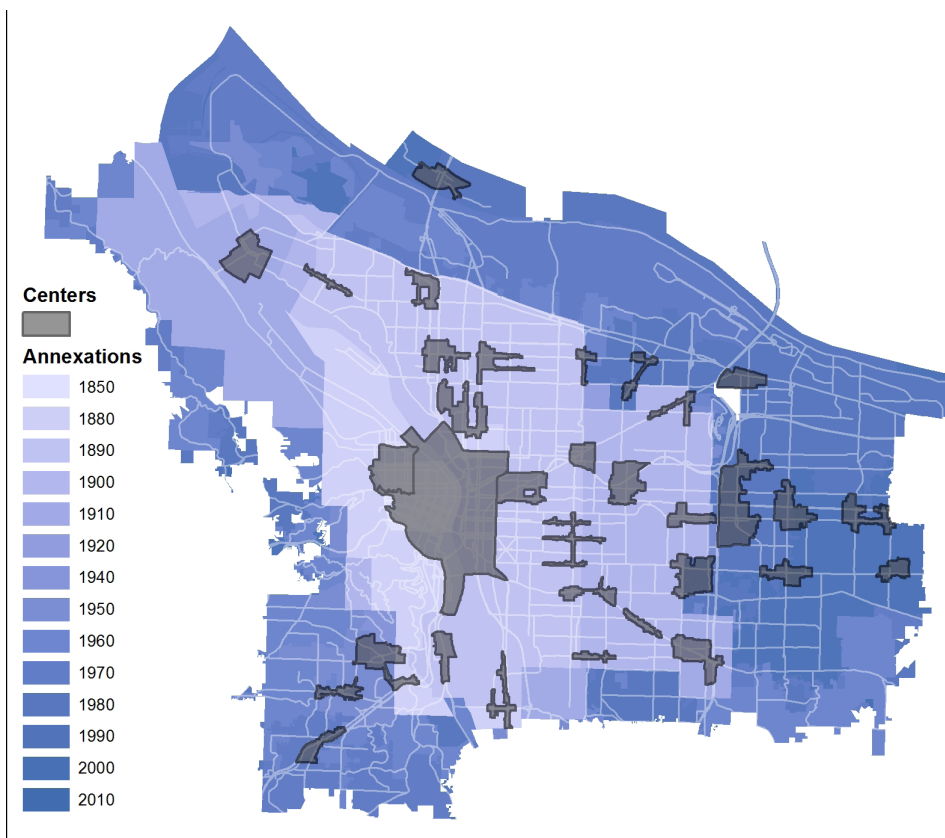
Portland is expected to continue growing rapidly over the next 20 years. According to projections, 260,000 new residents will be added to the 620,000 people who currently live here by the year 2035. The 2035 Comprehensive Plan, the City's guide for accommodating this growth, aims to focus 80% of the growth in centers (including downtown) and along corridors in an effort to increase density where there are destinations, services and good access to transit, bike and pedestrian infrastructure.

Portland's centers, including the Central City, Gateway Regional Center, Town Centers and Neighborhood Centers, are envisioned as walkable places with dense concentrations of housing and commercial destinations, easy access to well-connected transit, and street and utility infrastructure that can support dense, growing communities. However, in many cases the existing conditions still do not reflect this vision.

Historical Context

Portland's boundaries have not always extended as far as they currently do. Over the last century, Portland has expanded by annexing unincorporated land from Multnomah County. Most of the annexed area had already been developed under County standards prior to being added to the City with low density housing on large parcels, connected by a sparse and car-centric street network that does not meet Portland connectivity standards. Many of these areas still retain some of their rural character, and they continue to have insufficient infrastructure to meet the needs of residents in regard to walking, bicycling, and traffic circulation. As a result, many residents don't currently have good access to transit and have few options for getting around other than driving in private vehicles.

The figure on the following page illustrates that several Centers are located in relatively recently annexed Eastern Neighborhoods of Portland. Though the Comprehensive Plan envisions eastern



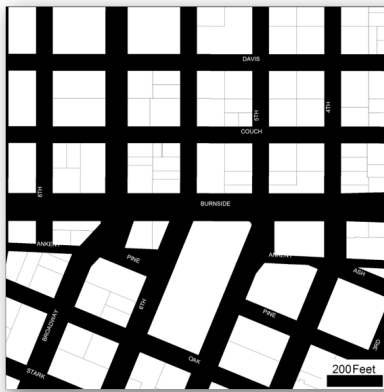
Portland Centers and Annexation Dates

centers as dense, walkable communities, their level of street connectivity is amongst the lowest in the City of Portland. Street connectivity is a measure of the frequency and number of intersections in an area. Routes between destinations are more direct, there are more route options and it's easier to get around in neighborhoods with good connectivity.

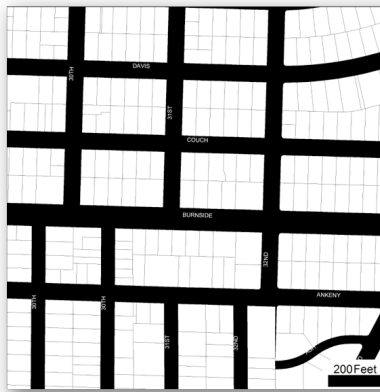
The locations of the designated Centers were officially adopted by City Council through the passage of the Comprehensive Plan. The boundaries of the Centers contain residential areas that are primarily zoned multi-dwelling, as well as concentrated areas zoned commercial/mixed-use. But many of the parcels in eastern neighborhoods that are zoned for higher density housing still retain single-dwelling houses; many of which were built prior to annexation when they were subject to different zoning designations. The fact that the zoning allows for higher density development than currently exists in many centers in the annexed eastern neighborhoods is one of

the reasons that so much of the future population growth is expected to occur there. As population density increases in centers, there will be greater demands on the transportation system, and a need for more street connections to make it easier for people to get to destinations.

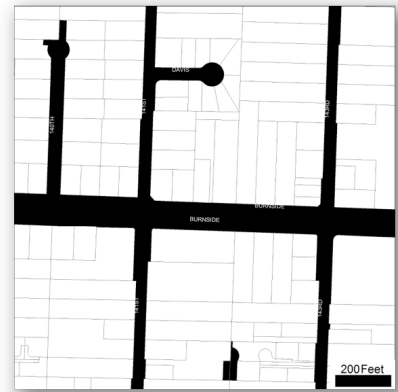
Given the expected increase in density, it is essential that new street and pathway connections are developed as these Centers grow. New connections will serve to better disperse neighborhood traffic, increase connectivity, and improve the walkability and bikability of these growing communities. New tools and processes to help facilitate the creation of new connections are needed to ensure that they are built in time to match the pace of redevelopment.



Highly Connected
Central City block pattern



Well Connected
Inner neighborhood block pattern



Poorly Connected
East Portland block pattern

Importance of Connectivity

Street connectivity refers to the density of connections in street and non-motorized pathway networks. A well-connected network is characterized by many short blocks, more intersections and minimal dead-ends (culs-de-sac). **As connectivity increases, travel distances decrease and route options increase, allowing more direct travel between destinations and creating a transportation system that is more accessible, especially for pedestrians and people using bicycles.**

In essence, better connectivity makes it easier to walk or bicycle to places within the neighborhood. Increased street and non-motorized pathway connectivity also reduces per capita vehicle travel and improves overall accessibility, particularly for non-motorists. Poorly connected streets force more trips, whether by car, foot or bicycle onto arterial streets, including trips that both begin and end within the neighborhood. **In East Portland, these busy streets are often on the high crash network, which includes some of the most dangerous streets in Portland for any mode—motor vehicle, pedestrian, and bicycle.**



This private drive was built with a development in an eastern neighborhood of Portland. With sidewalks on both sides and pavement wide enough for a 2-way vehicle travel lane, it has the outward appearance of a public street. But it was built as a fenced dead end, and does not provide any connectivity to the rest of the neighborhood or local destinations.

BACKGROUND

Currently, some East Portland Centers lack connectivity, making it difficult to increase walking, biking and transit use in these areas.

Challenge in Achieving New Connections

The City anticipates continued growth within the designated centers, making them attractive to a wide range of residential and commercial developments. More residents will be walking, bicycling and taking transit in Centers for everyday activity. Today's transportation networks are not fully suited to meet community interests. New streets, walking and cycling connections are needed within and around Centers to meet the mobility and safety needs of current and future residents.

Centers in East Portland have particularly large blocks, deep lots, and wide gaps in street and pathway connectivity. There are few vacant lots in these Centers; however, infill development is filling in gaps adding new buildings on underutilized sites. **Since these areas are not a blank slate, the completion of the street grid must work with the infill pattern** incrementally building out new connections wherever feasible as part of development.

According to Portland City Code (33.654.110 and 17.88.040), streets must be spaced at maximum intervals of 530 feet. If development occurs in a location where the street spacing exceeds this standard, a new street must be built. Historically, new streets have been dedicated and built by developers at the time of development. But

despite the relatively high rate of redevelopment that is currently occurring in East Portland, many opportunities for building new street connections and filling gaps in the street network are being missed.

If developments involve a land division, Development Review staff have an opportunity to review site plans to determine if street spacing in the area of the development is in compliance with City standards. Other developments occur in planned districts, or involve special use permits. These situations represent circumstances in which Development Review staff have an opportunity to get needed new connections built as a condition of permit approval. However, many developments in multi-dwelling zones are not located in planned districts and don't involve land divisions. In these situations, there is no clear step in the permit process to trigger City code requirements for developers to build dedicated public streets in locations where they are needed, even though they are technically required to do so if street spacing exceeds 530 feet. Small sites have proven especially problematic for getting new connections. When the City has been successful in getting required new connections built, it has often been in situations where large, multi-acre development has occurred.

Problem Statement

Many areas of East Portland were platted with long, narrow parcels. Developers report that it is difficult to fit developments in small or narrow parcels that achieve required density, setbacks, open space requirements and a new public street connection.

Public streets are expensive, so developers may be avoiding building multi-dwelling units on lots where new public street connections are needed. Further, under existing code, rights-of-way dedications are deducted from the parcel (lot) area, thus reducing the development density allowances, which reduces the amount of profit that can be generated by a development.

The cost of building public streets is of particular concern for developers of non-profit and other

affordable housing developments. Many of these types of projects have lower profit margins, and their viability may be more sensitive to the added expense. Portland City Council has declared that there is a housing emergency, as the cost of renting and buying housing has increased rapidly in recent years.

The issue of developers avoiding lots where new connections are needed is illustrated in the Gateway Town Center, where master street plans show the location of several needed new street connections. Despite fourteen years of development that has occurred since the first Gateway master street plan was adopted, only one new connection has been built.



A deep, narrow development in an eastern neighborhood. Constrained lot dimensions make it difficult to build new connections on lots of this type.

In conjunction with the Better Housing by Design Plan, The Connected Centers Plan is making a specific range of recommendations to:

- 1 Allow street improvements that require less space, including pathways and phased street improvements that can be built incrementally by adjoining developments over time.
- 2 Require new developments in specific, connectivity deficient East Portland Centers to only occur on parcels with a minimum frontage width. Narrower parcels may be consolidated with others to meet this requirement. (This proposal is contained in the BHD plan).
- 3 Identify potential incentives, specifically Transportation System Development Charge projects and credits, to increase feasibility of new connections and remove disincentives to developers.

Portland's Policies and Code Requirements for Street Connectivity

Street Connectivity Policies within the Portland 2035 Comprehensive Plan and Transportation System Plan (TSP)

Portland's Comprehensive Plan and TSP contain specific policies supporting and requiring appropriate spacing of public streets and pedestrian and bicycle connectors, especially within priority Centers and Corridors:

- Establish an interconnected, multimodal transportation system to serve centers and other significant locations. Promote a logical, direct, and connected street system through street spacing guidelines and district-specific street plans found in the Transportation System Plan. (Policy 9.47)
- Establish a safe and connected rights-of-way system that equitably provides infrastructure services throughout the city. (Policy 8.39)
- Provide accessible sidewalks, high-quality bicycle access, and frequent street connections and crossings in centers and corridors. (Policy 4.23)
- Require private or public entities whose prospective development or redevelopment actions contribute to the need for public facility improvements, extensions, or construction to bear a proportional share of the costs. (Policy 8.29)

Building and Land Use Permit Requirements in Portland City Code

City Code establishes regulations affecting public street, pedestrian and bicycle facility improvements (Title 17) and public rights-of-way and street spacing requirements (Title 33) within and through land division requirements. The purpose of the City Code is "to ensure an adequate level of street connections to serve land uses, and to ensure that improvements to these streets are made in conjunction with development consistent with fire, life safety, and access needs" (Title 17.88.001). The following City Code sections are central to the Connected Centers objectives:

TITLE 17 PUBLIC IMPROVEMENTS

Property Owner Responsibility for Streets (17.42)

- Streets are constructed at the expense of abutting property owners. (17.42.010 A.)

Land Divisions (17.82)

- Public streets and public alleys within or adjacent to land divisions shall be improved in accordance with requirements of the City Engineer. (17.82.070 A)
- Public pedestrian and bicycle connections, within the Land division site and located in public right-of-way or easements dedicated to the City shall be improved in accordance with the requirements of the City Engineer. (17.82.070 A)

Street Access (17.88)

- Developments or redevelopments must include through streets as required by the Director of the Bureau of Transportation connecting existing dedicated streets or at such locations as designated by the Director of PBOT. (17.88.040 A.)

- New residential or mixed-use developments or redevelopments must build streets to respond to and expand on the adopted street plans, or in the absence of such plan, as directed by the Director of PBOT. (17.88.040 C. 1.)
- New residential or mixed-use developments or redevelopments must build street connections that are spaced no further apart than 530 feet, except when prevented by barriers. (17.88.040 C. 2.)

TITLE 33 PLANNING AND ZONING

Land Divisions - Rights-of-Way (33.654)

- Rights-of-way should be located to ensure provision of efficient access to as many lots as possible, and enhance direct movement by pedestrians, bicycles, and motor vehicles between destinations. (33.654.110 A)
- Through streets should be no more than 530 feet apart and pedestrian connections should be no more than 330 feet apart. Approval of land division permits is conditional upon developers dedicating and building right-of-way to conform with street spacing standards. (33.654.110 B. 1. a.)
- Where the existing street spacing in the immediate area surrounding the site is no greater than 530 feet, the existing street pattern should be extended into the site. Approval of land division permits is conditional upon extension of streets into the site. (33.654.110 B. 1. b.)

U.S. Supreme Court Rulings

ESSENTIAL NEXUS (NOLLAN)

In Nollan, the U.S. Supreme Court held that a permit condition subject to scrutiny under the Takings Clause must have an “essential nexus” to “legitimate state interests.” The “essential nexus” evaluates the nature of an exaction. According to the ruling, “an exaction condition on development permission must substantially advance a government purpose that would justify denial of the permit.”

ROUGH PROPORTIONALITY (DOLAN)

In Dolan, the Court held that requirements imposed on a development must be “roughly proportional” to the impacts of that development. Dolan requires that the City enumerate the potential impacts of the proposed development here and demonstrate that the potential requirements would be related to those impacts.

APPLICATION OF NOLLAN/DOLAN (KOONTZ)

In Koontz, the Supreme Court held “that the government’s demand for property from a . . . permit applicant must satisfy the requirements of Nollan and Dolan . . . even when its demand is for money.”



NE Everett Ct: new one-way street connection built with development in the Gateway Regional Center

Why Require ROW Dedication With New Connections?

The City of Portland requires right-of-way dedication when new connections are built. Right-of-way dedication is preferred over public access easements for a number of reasons, including the following;

- Consistency with Zoning Code, Land Division and Planned Development - Title 33.654, Rights-of-Way provisions:
 - 33.654.150.B. Ownership
 1. Through streets. Through streets must be dedicated to the public.
 2. Partial streets. Partial streets must be dedicated to the public.
 - 6.a. Pedestrian connections that connect or are intended to eventually connect two through streets, must be dedicated to the public.
- It fosters consistency in design and ensures access for all users.
- It provides clear public ownership and eliminates the perception of trespassing. This also provides wayfinding benefits.
- The City has control over closures, and there is less risk of property owners blocking access.
- The City assumes the responsibility of maintenance given the importance of public access.
- The City can provide public safety and emergency access

OPPORTUNITY ANALYSIS

“In places that lack basic public facilities or services and also have significant growth potential, invest to enhance neighborhoods, fill gaps, maintain affordability, and accommodate growth.”

-2035 Portland Comprehensive Plan Policy 8.22.b

Street Networks in Jade and Rosewood Neighborhoods

The Jade District and Rosewood neighborhoods were chosen as case studies to represent street connectivity issues in Eastern Neighborhood Centers. Their street networks were the subjects of a detailed analysis, focusing on connectivity. They both have disjointed and poorly connected street networks, but the conditions in each area are not identical.

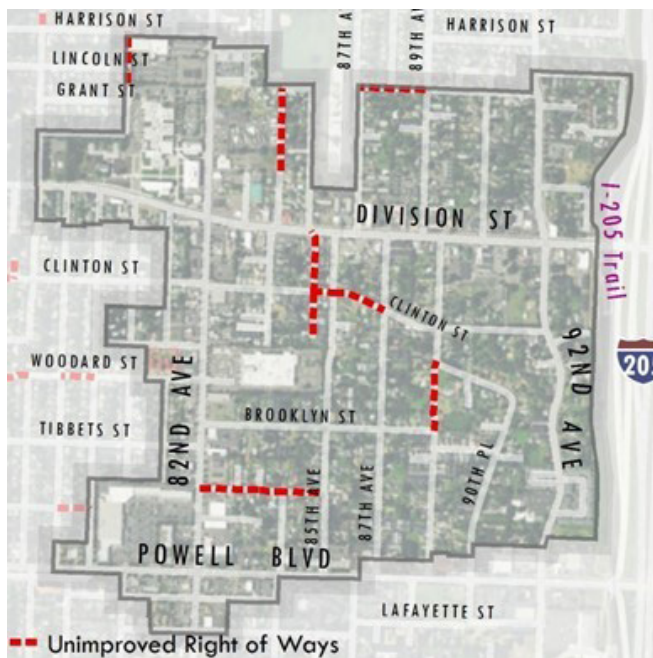
Jade District Neighborhood Center

The Jade District is generally bound by Harrison Street (north), Powell Boulevard (south), 80th Avenue (west), and I-205 (east). Key arterial streets in the study area include 82nd Avenue (north-south), and Division Street and Powell Boulevard (east-west). These streets are generally very wide and difficult to cross, even in those cases where crosswalks exist.

The internal study area consists of a series of blocks that are elongated in the north-south direction. Spacing of north-south streets between Division Street and Powell Boulevard is relatively regular, but east-west street connectivity is very

limited. Connectivity issues are exacerbated by the fact many of the primary connections through the middle of the neighborhood are unpaved or unimproved.

Only Clinton St creates a link through the Jade District between 82nd and 92nd Avenues. East of 84th Avenue, Clinton Street is an unimproved street, lacking curbs or sidewalks. There are few arterial pedestrian crossings.



Jade District Neighborhood Center



Rosewood Neighborhood Center

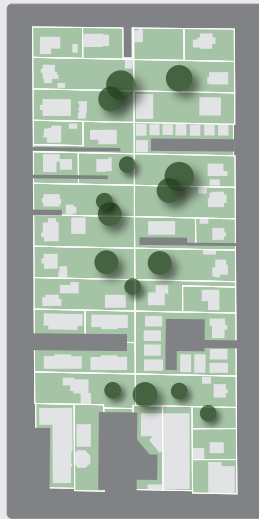
Rosewood Neighborhood Center

The Rosewood Neighborhood Center is generally bound by Glisan Street (north), Alder Street (south), 144th Avenue (west), and 162nd Avenue (east). Key arterial streets the study area include 148th and 162nd Avenues (north-south), and Glisan, Burnside and Stark Streets (east-west). Burnside Street includes the center-running MAX Blue line, with stations at 148th and 162nd Avenues. There are off-set designated pedestrian crossings along Burnside at several key intersections, including 146th, 151st, 154th, 157th and 160th Avenues. There are fewer segments of unimproved right-of-way in and around the Rosewood Neighborhood Center than there are in the Jade District, but there are fewer, more widely spaced through-streets in Rosewood, in general. Most blocks in Rosewood are 600 x 1000 feet. This means that street spacing is out of compliance with City Code in both the east-west direction and the north-south direction throughout the neighborhood.

Like the Jade District, the blocks in the Rosewood Neighborhood Center are also elongated in the north-south direction. There are limited local street connectors that link the mix of residential, commercial and school uses within the neighborhood. There is very limited east-west connectivity aside from Burnside and Stark.

East Portland Block - Future Possibilities

These graphics show potential long-term outcomes for East Portland blocks. The second graphic shows a continuation of current trends, with development – often on narrow sites – built to the rear of each site. The third graphic shows how a potential new street connection could be built mid-block with new development, as well as a few bike/ped connections to other sites.



Existing



Continuation of current trends



Potential connections under new standards

Identifying Where Connections are Needed

Blocks where new connectivity is most deficient were identified as Connection Opportunity Areas within the Jade District and Rosewood neighborhoods. These Connection Opportunity Areas are based on two discrete mapping measures: street buffering and parcel-level connectivity (PRDI analysis). The age of residential and non-residential buildings within each neighborhood and frontage length analysis also provided helpful indication of those land parcels more apt to redevelop sooner, in consideration of real estate market forces.

Measuring Connectivity

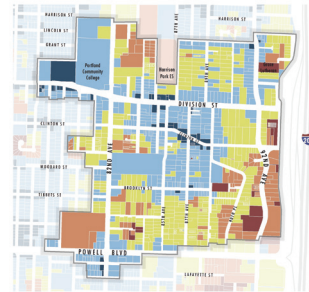
Highly connected neighborhoods and Centers typically contain street patterns of relatively small blocks and networks of connected streets and good sidewalks. Within these neighborhoods people can walk, bike, ride transit and even drive to destinations, along multiple routes. If the street network has many unconnected dead-ends or other travel barriers and blocks are large, people must travel farther, and are often reliant on driving rather than walking, bicycling or riding transit.

By using a buffering analysis and Pedestrian Route Directness analysis broad swaths of area where new connections are needed could be identified in the Rosewood and Jade neighborhoods. Within these areas, a further understanding of the construction year (building age) and platting of parcels helps to identify the locations where it might be the most feasible to get new connections through blocks in future development.

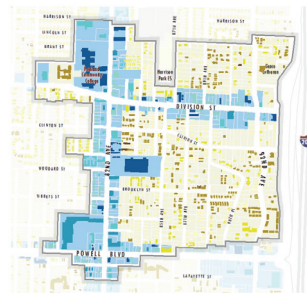
Steps to Measuring Street Connectivity



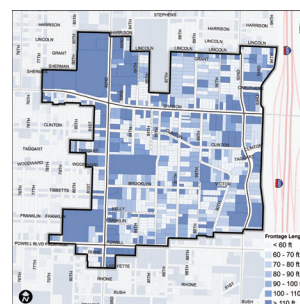
STREET BUFFER ANALYSIS



PEDESTRIAN ROUTE DIRECTNESS INDEX (PRDI)



BUILDING AGE



FRONTAGE LENGTHS

Connection Opportunity Analysis

Street Buffer Analysis

Mapping analysis of the study neighborhoods was completed by applying a 530-foot buffer to the streets bordering each block, both north-south and east-west. The analysis identifies gaps in connectivity of streets running in each direction and combines the overlapping results to identify connectivity opportunity areas. City Code Title 17 requirements will apply in these areas for land owners seeking new development or redevelopment of parcels, through the permit application review and approval process. See the following pages for maps of these analyses

JADE DISTRICT STREET CONNECTIVITY

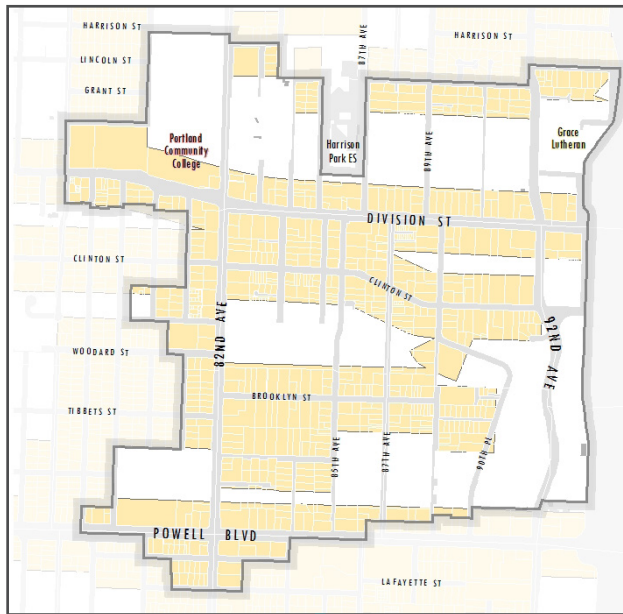
Most blocks in the Jade District are elongated in the north-south direction. Because of this, gaps in the east-west street network are large. South of Clinton Street the buffering identifies two primary corridors lacking east-west street connectivity: east of the Fubonn Shopping Center and east of Kelly Street to SE 92nd Avenue. North of Division Street the gaps in east-west street connectivity are further complicated by the location of Harrison Park Elementary School.

The map also indicates significant gaps in north-south street connectivity through several commercial and institutional sites, including the Fubonn Shopping Center, Winco Shopping Center and Portland Community College (PCC). PCC has multiple internal, private driveway and sidewalk connectors that makes for good and practical north-south and east-west connectivity not accounted for in the street buffering analysis.

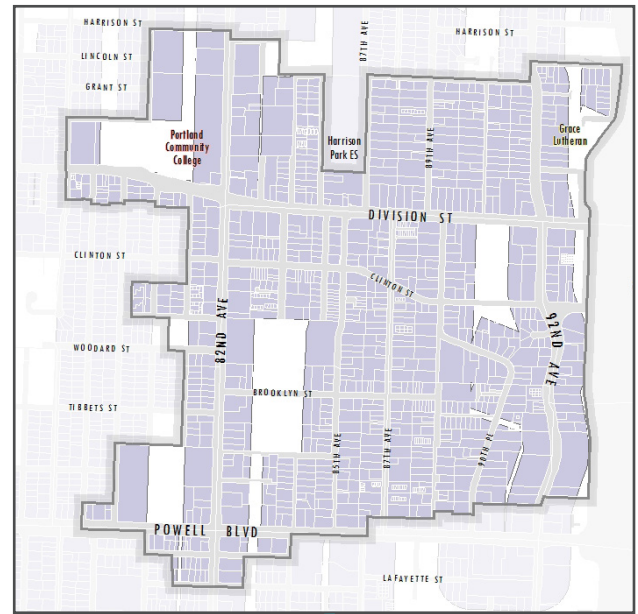
ROSEWOOD STREET CONNECTIVITY

Like the Jade District, long north-south blocks are also characteristic of the Rosewood Neighborhood Center. Burnside and Stark Streets run through the middle of the Center. But there is very little east-west street connectivity other than these major arterial streets. The spacing of streets that run in the north-south direction is not as great as the spacing between east-west streets, but large commercial buildings and parcels on either side of 162nd Avenue cause gaps in north-south street connectivity.

JADE DISTRICT STREET CONNECTIVITY ANALYSIS



East-West Buffer



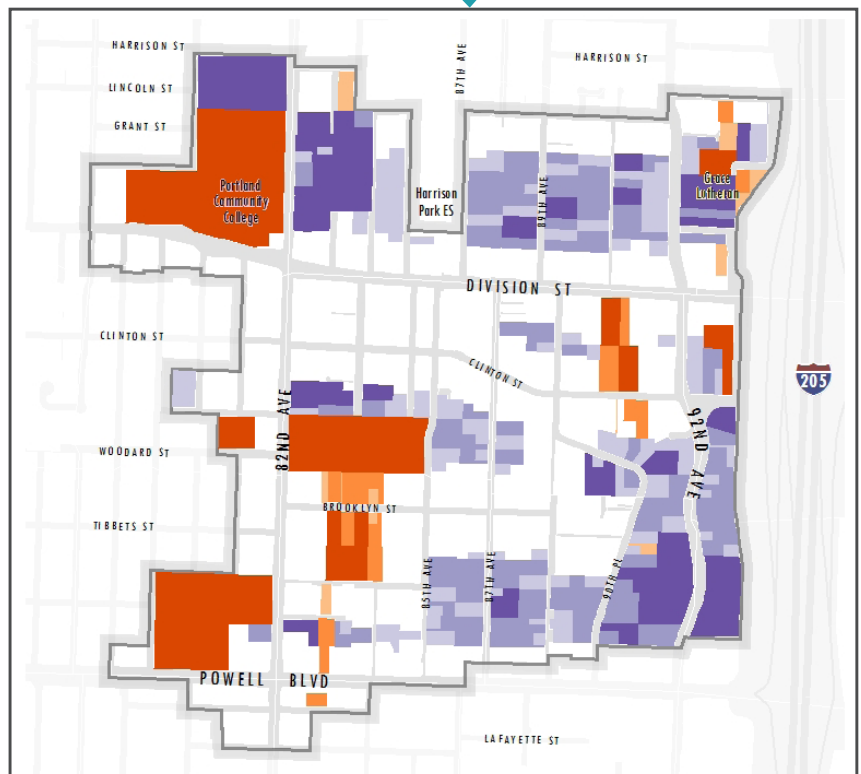
North-South Buffer

Legend

Parcels Deficient in NS Street Connectivity Area of Parcel in Square Feet

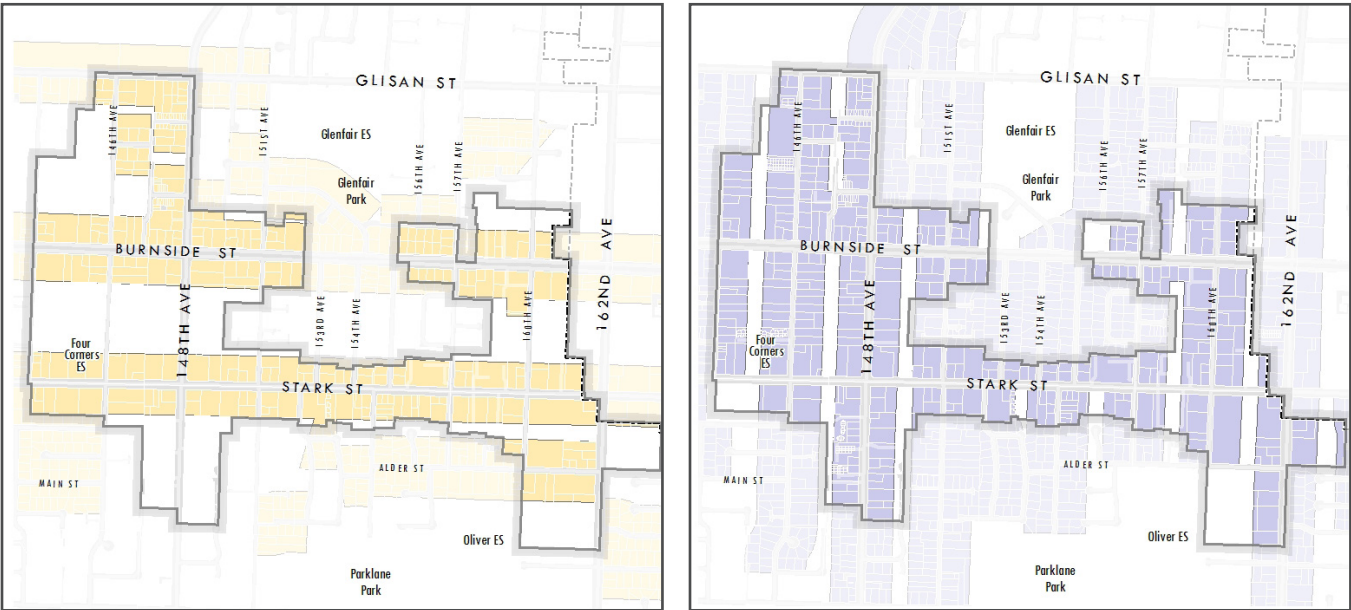


Parcels Deficient in EW Street Connectivity Area of Parcel in Square Feet



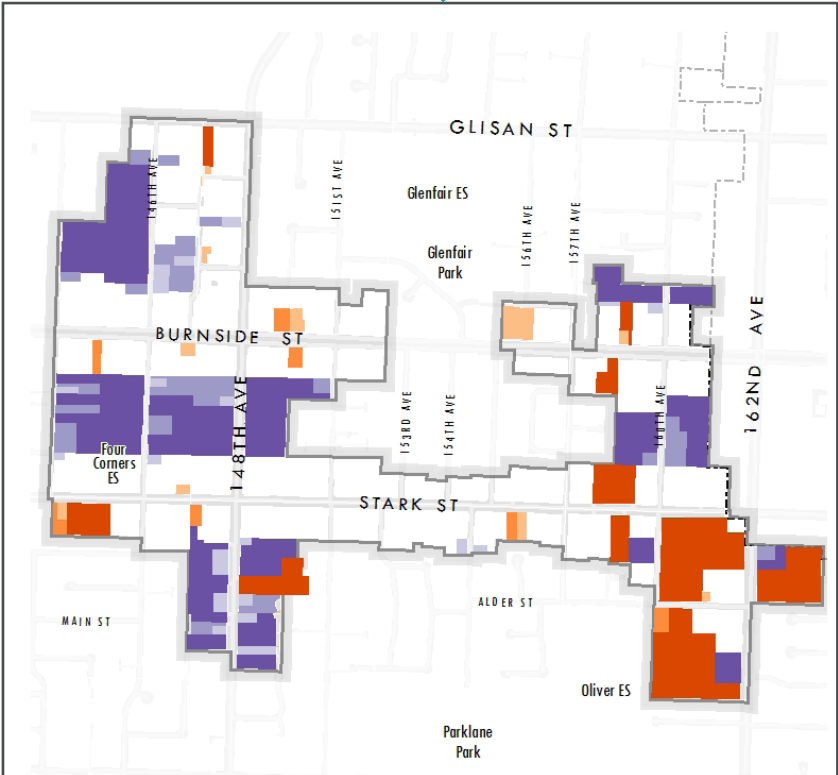
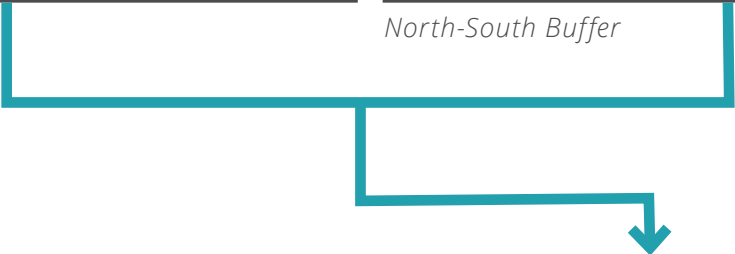
Jade Opportunity Areas

ROSEWOOD STREET CONNECTIVITY ANALYSIS

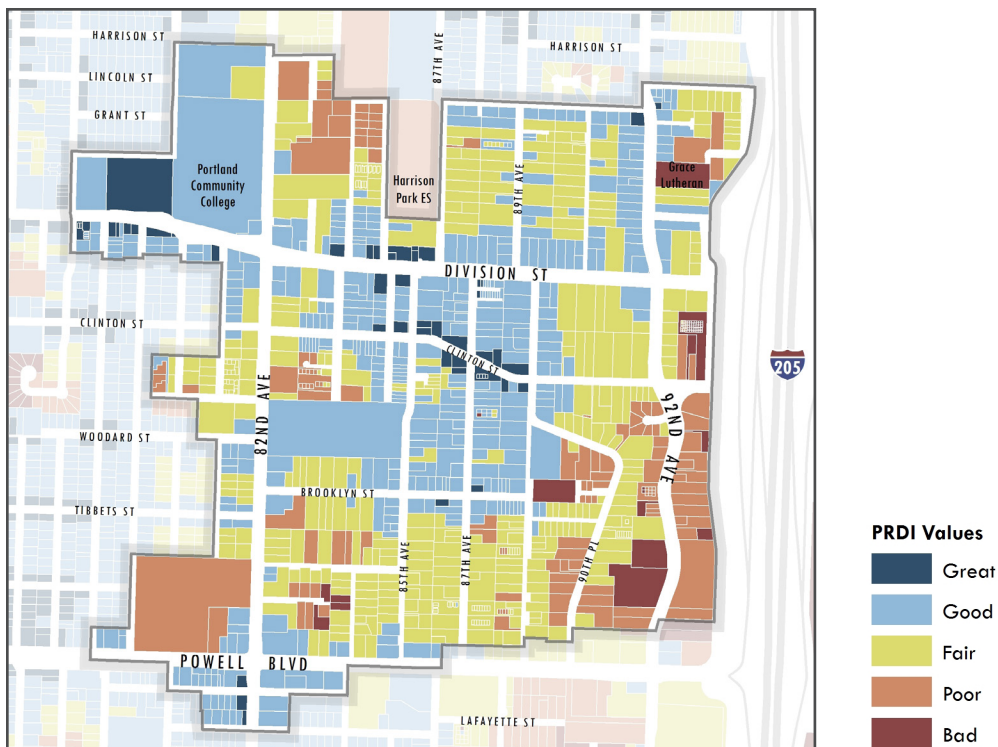


East-West Buffer

North-South Buffer



Rosewood Opportunity Areas



Jade Parcel Connectivity

Pedestrian Route Directness Index

The Pedestrian Route Directness Index (PRDI) is calculated and mapped to reflect the relative connectedness of each individual land parcel. PRDI is scored at the individual land parcel level, and directly accounts for the presence of nearby dead-end streets or other barriers that prohibit or diminish direct walking opportunity. The analysis measures the difference between the straight line distance between a parcel and adjacent parcels and the distance that would need to be traveled to get to those parcels using the existing street network.

JADE PARCEL CONNECTIVITY

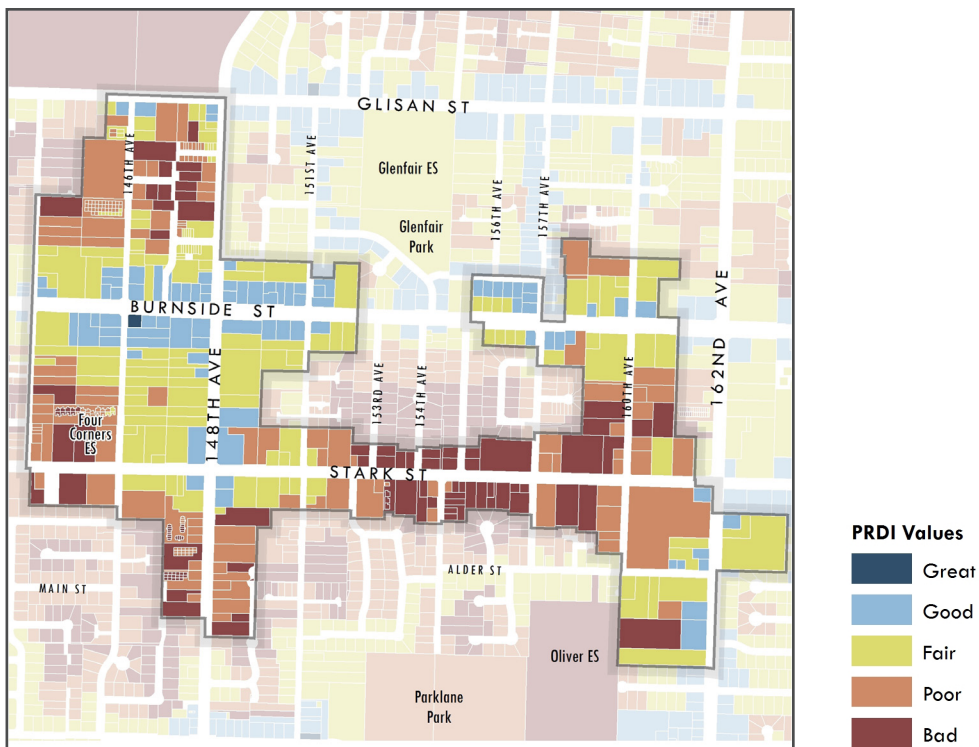
There are some pockets of good connectivity within the Jade District, given the smaller block sizes and street network surrounding the western section of Clinton Street. Fubonn is rated with good connectivity due to the small pedestrian access pathway at its eastern edge on 85th Avenue. However, the connection has poor visibility, poor lighting, is too narrow for strollers

or wheelchair access and the rear of the shopping center does not have a public entrance. There are also 2 streets that dead end into the north end of the Fubonn property, which do not provide access.

PCC is also rated with good connectivity given its extensive internal pathway connectors and sidewalk linkages to 82nd Avenue, Division Street and 80th Avenue. While both Fubonn and PCC have internal pedestrian circulation systems, the system on the PCC property is vastly superior because it is open, well lit, accessible to all users, and provides access from all sides of the property.

JADE DISTRICT CONSTRAINTS

- Numerous dead-end streets
- Limited crossings of Division Street, 82nd Avenue, Powell Boulevard and I-205
- Discontinued and disconnected streets
- Long street blocks (lacking internal, pedestrian-bike connectors)



Rosewood Parcel Connectivity

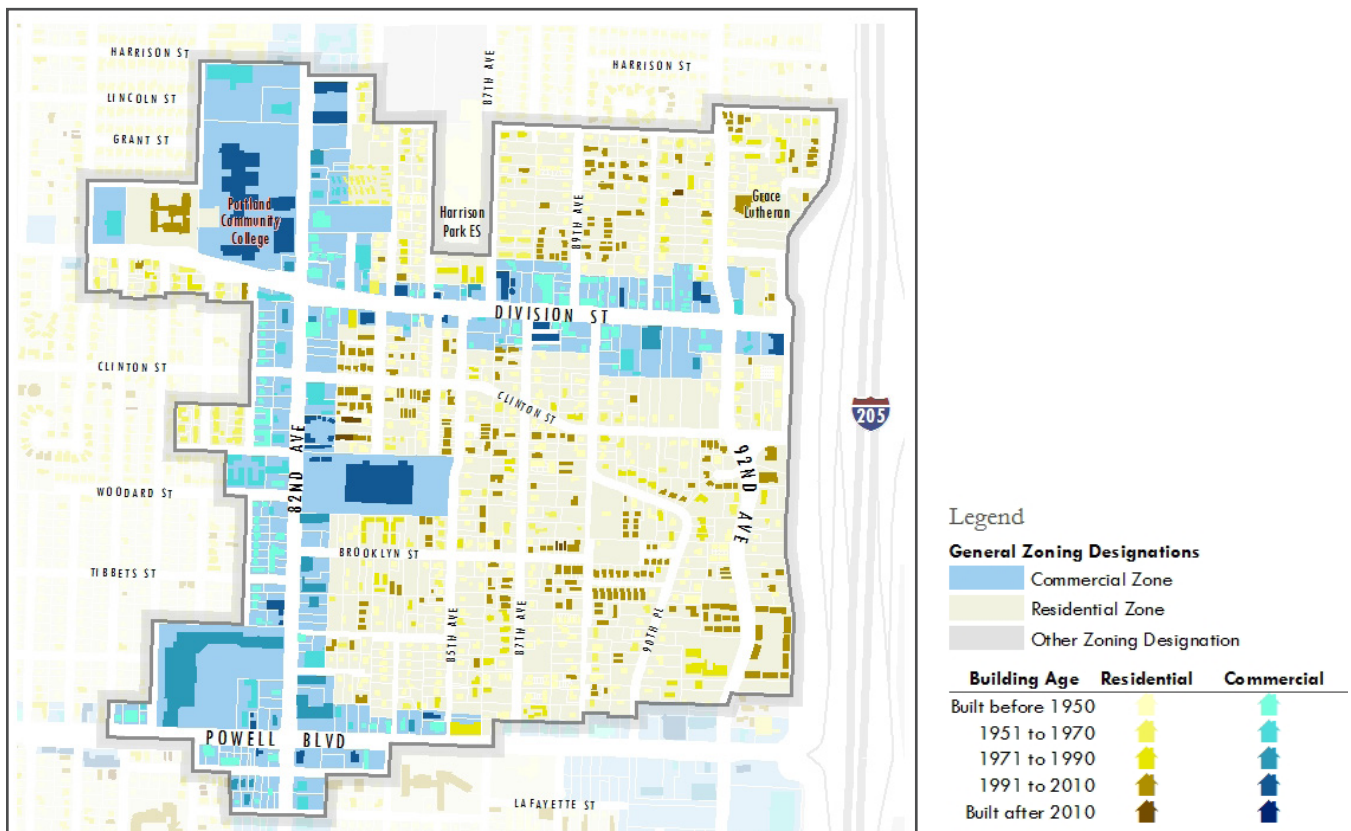
ROSEWOOD PARCEL CONNECTIVITY

There are some pockets of good connectivity within the Rosewood Neighborhood, given the relatively smaller block size and street network between Stark and Burnside Streets and 147th and 148th Avenues. The eastern portion of the Stark Street corridor has some of the poorest connectivity scores measured in the study. The largest blocks of bad scores are along a long stretch of Stark that completely lacks pedestrian crossings. The blocks along Burnside score better because there are relatively frequent pedestrian crossings.

Much of the remaining areas within the Rosewood Neighborhood are rated from fair to poor connectivity, due to a number of prevailing factors.

ROSEWOOD DISTRICT CONSTRAINTS

- Numerous dead-end streets
- Discontinued and disconnected through-streets
- Long street blocks (lacking internal, pedestrian-bike connectors)
- Limited crossings along Stark Street



Jade Building Age

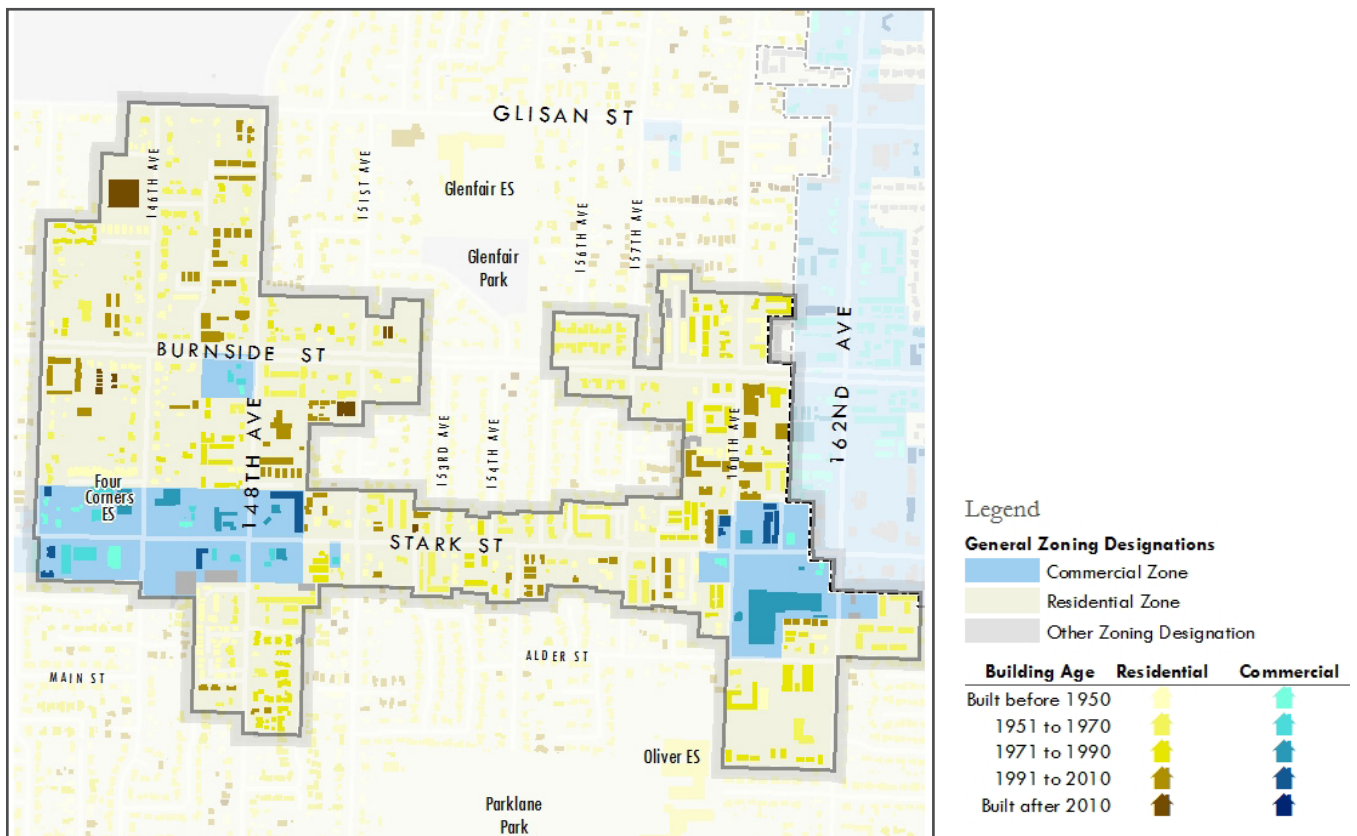
Building Age

Lots within East Portland's Centers that contain older structures and homes predating the 1960s and 1970s are considered to be more likely to redevelop sooner than more recently developed lots. Real estate market forces, guided by the City's prevailing zoning code, may precipitate developments of higher density residential and mixed-uses within the Connection Opportunity Areas.

Parcel size and configuration is also a crucial factor in determining what type of connection is feasible on a given lot, whether it be a full street or pathway.

JADE DISTRICT BUILDING AGE

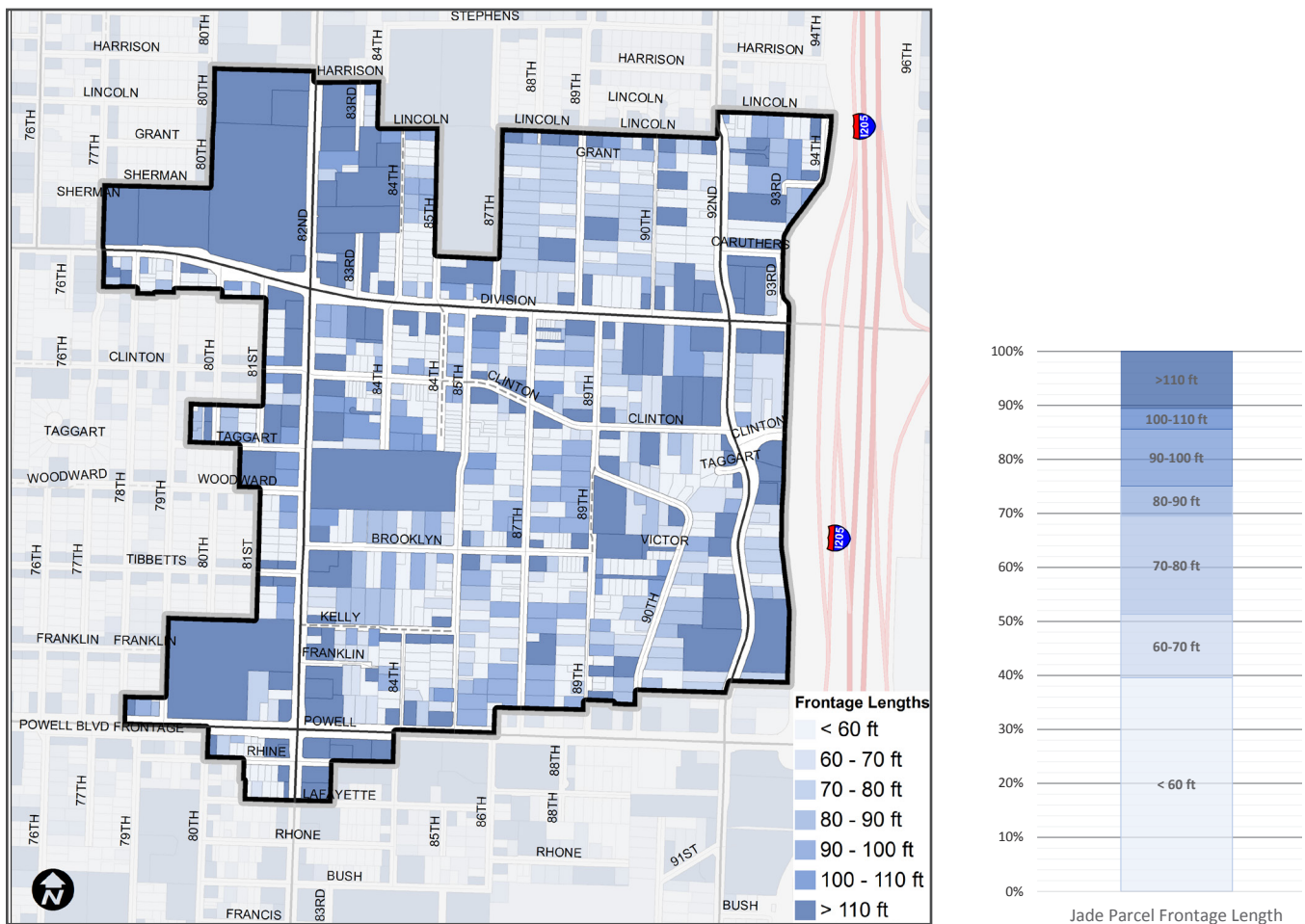
In mid-block areas of north and south Jade District, the construction dates of residential buildings range from the 1950s to after 2010. There are multiple lots with older structures that may see re-development over the coming years in areas where the street network lacks connectivity.



Rosewood Building Age

ROSEWOOD BUILDING AGE

The recent residential development that has occurred in the Rosewood Neighborhood Center has occurred in relatively small clusters. There remain large swaths of area that haven't been redeveloped in decades and may be good candidates for redevelopment and construction of new street connections. There are many relatively large parcels that are likely to see re-development over the coming years in locations that are most lacking in street connectivity.



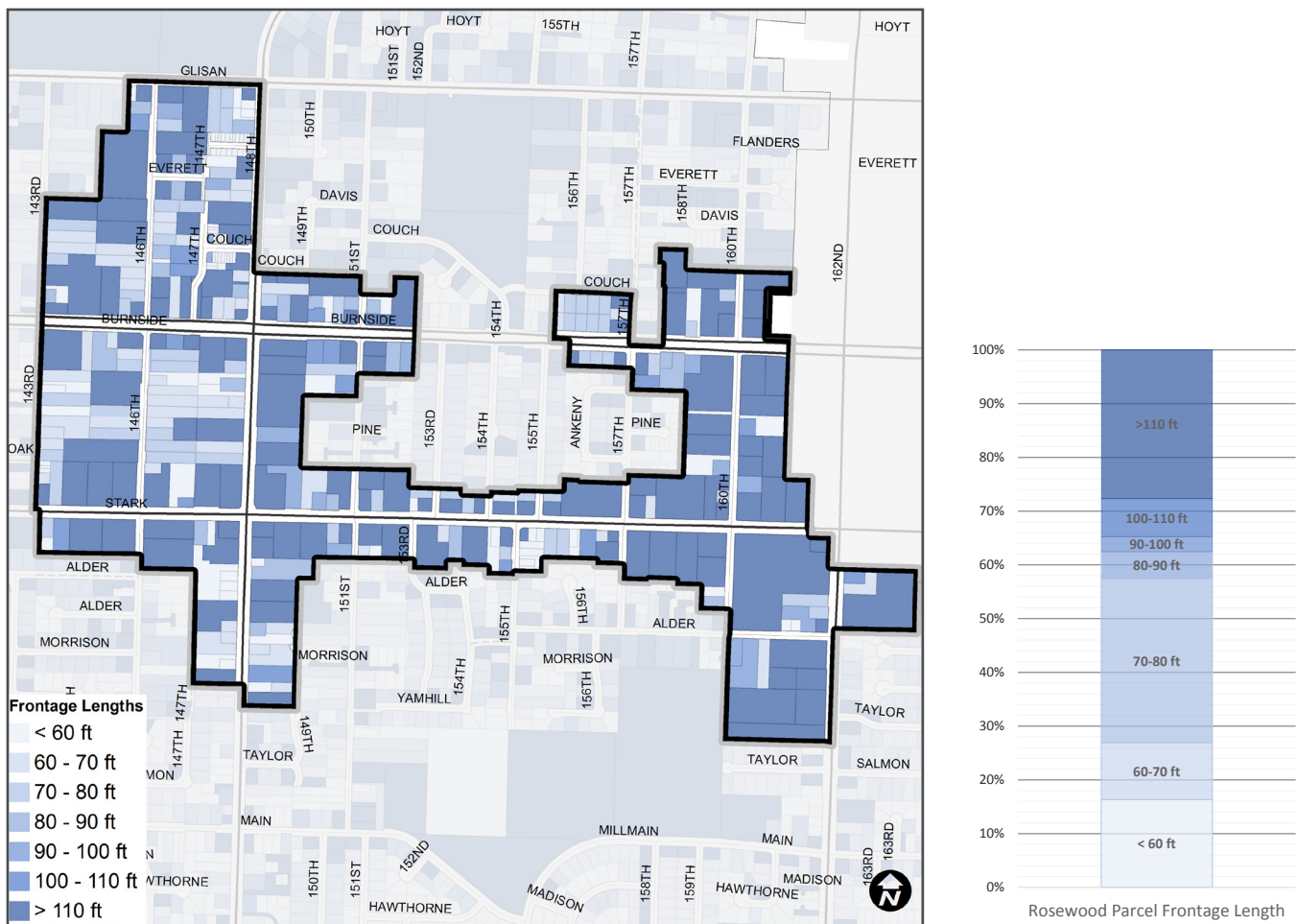
Jade Frontage Lengths

Frontage Lengths

A frontage length analysis was performed to determine the location and number of deep, narrow sites in Jade and Rosewood. Analysis of parcel frontage lengths compared with the sizes of multi-family development that is typical in East Portland indicates that it would be difficult to fit buildings and new connections while complying with setbacks, building coverage and open space requirements. It is unlikely new connections will fit on lots developed at minimum required density on the narrowest lots. Analysis by the BHD team also shows that deep, narrow lots suffer from other site inefficiencies, such as higher utility costs and larger portions of site area devoted to vehicle circulation and parking.

JADE PARCEL FRONTAGE LENGTHS

Parcels in the Jade District were platted with very narrow frontages. Around 70% of parcels in the Jade District are less than 80 feet in width. These narrow parcels are typically concentrated together in areas with very low connectivity. If something isn't done to combine parcels or find ways to build street connections, these areas may redevelop without through streets, perpetuating the existing problems for years to come. It may not be possible to get needed new connections unless narrower lots are consolidated prior to development.

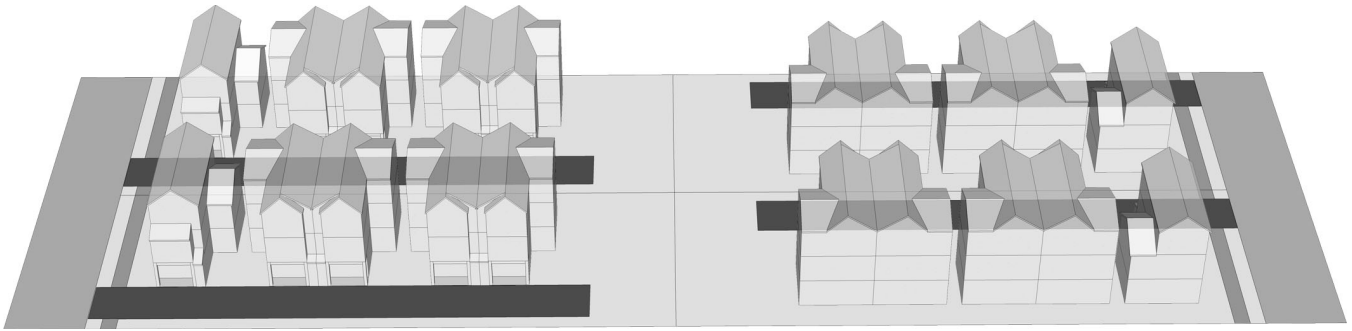


Rosewood Frontage Lengths

ROSEWOOD PARCEL FRONTAGE LENGTHS

Parcels in the Rosewood Neighborhood were platted with slightly wider frontages than those in the Jade District. Nonetheless, nearly 58% of the parcels have frontages that are less than 80 feet in width. Rosewood parcels are also, in many cases, much deeper than those in the Jade District. Many Rosewood parcels are around 300 feet in depth, compared to Jade District parcels, which typically range between 160-250 feet in depth. Many of the narrowest and deepest lots in the Rosewood Neighborhood are located in areas that have been identified in both the buffer and the PRDI analysis as needing new connections, such as the blocks that are bounded by Burnside, Stark, 143rd, and 148th.

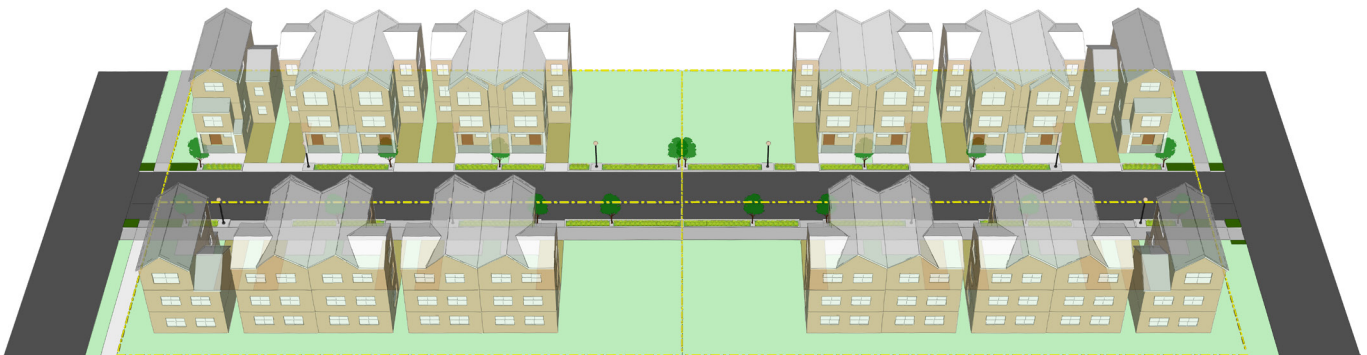
Existing Development Patterns



Piecemeal infill of multi-dwelling developments in the deep narrow lots of Eastern Neighborhoods often results in site designs that include long driveways that dead end. The driveways provide access and circulation within the site, but they don't contribute to the connectivity needs of the

surrounding neighborhood. The above image represents typical infill development in East Portland. Long driveways occupy large amounts of space on these sites.

Proposed Development Patterns



If the sites were to instead develop around a new public street, a similar amount of site area would need to be devoted to vehicle circulation, but the new street would serve as a connection for pedestrians, bicycles and vehicles from around the neighborhood, and it would help to make routes between people and destinations shorter and more direct. The above image represents an alternate site layout. In four separate developments, a similar amount of area is devoted to vehicle circulation and parking as in the above example. But instead of long driveways, a new street provides street connectivity and access to residents.

The following section features recommendations for narrow local streets that are tailored to the context of infill development in East Portland. The reduced cross sections of the proposed rights-of-way are intended to be fit into typical multi-dwelling developments that are being built in Eastern Neighborhoods without the need for substantial changes to site layouts. Though it is often more expensive for developers to build streets to City standards than it is to build driveways, some incentives are being proposed to partially offset the increased cost of building required connections.

PLAN

RECOMMENDATIONS

Objective: Provide more feasible options to achieve needed street and pedestrian connections when development occurs.

This section outlines new approaches to creating much needed street connections in outer Portland neighborhoods. Recommendations outlined in the following pages include;

- A process for determining right of way widths,
- A variety of street type options for development,
- A method for phasing construction of a new street connection as development occurs, and
- Other considerations that may arise as these recommendations are implemented.

Steps for Determining Connections Required With Development

1. SITE PROPOSED FOR REDEVELOPMENT

2. CONNECTION REQUIRED IF

Existing street/pathway spacing requirements are not met per Title 17.88.040.

3. FACTORS TO DETERMINE DEVELOPMENT IMPACTS

- Number of dwelling units
- Number of new trips generated
- Impacts on transportation system

4. ELIGIBILITY FOR TSDC SUPPORT

- On TSDC project list
- TSDC credit
 - Percentage of credit eligible based on estimated fee (or exemption status)

5. FACTORS TO DETERMINE ROW DEDICATION

- Total site area
- Frontage length
- Dedication required/site area ratio
- ROW options 1-7 (widest feasible)

Selecting Right-of-Way Dedication Options

OPTION 1
52' ROW



If not feasible

OPTION 2
38' ROW



OPTION 3
35' ROW
(Phase 1 of 52')



OPTION 4
28' ROW
(Phase 1 of 38')



OPTION 5
23' ROW
(Phase 1 of 43')



OPTION 5
24' ROW
One-way Street



OPTION 6
15'-20' ROW
Multi-Use Path



Pilot
OPTION 7
20' ROW
(Phase 1 of 40')

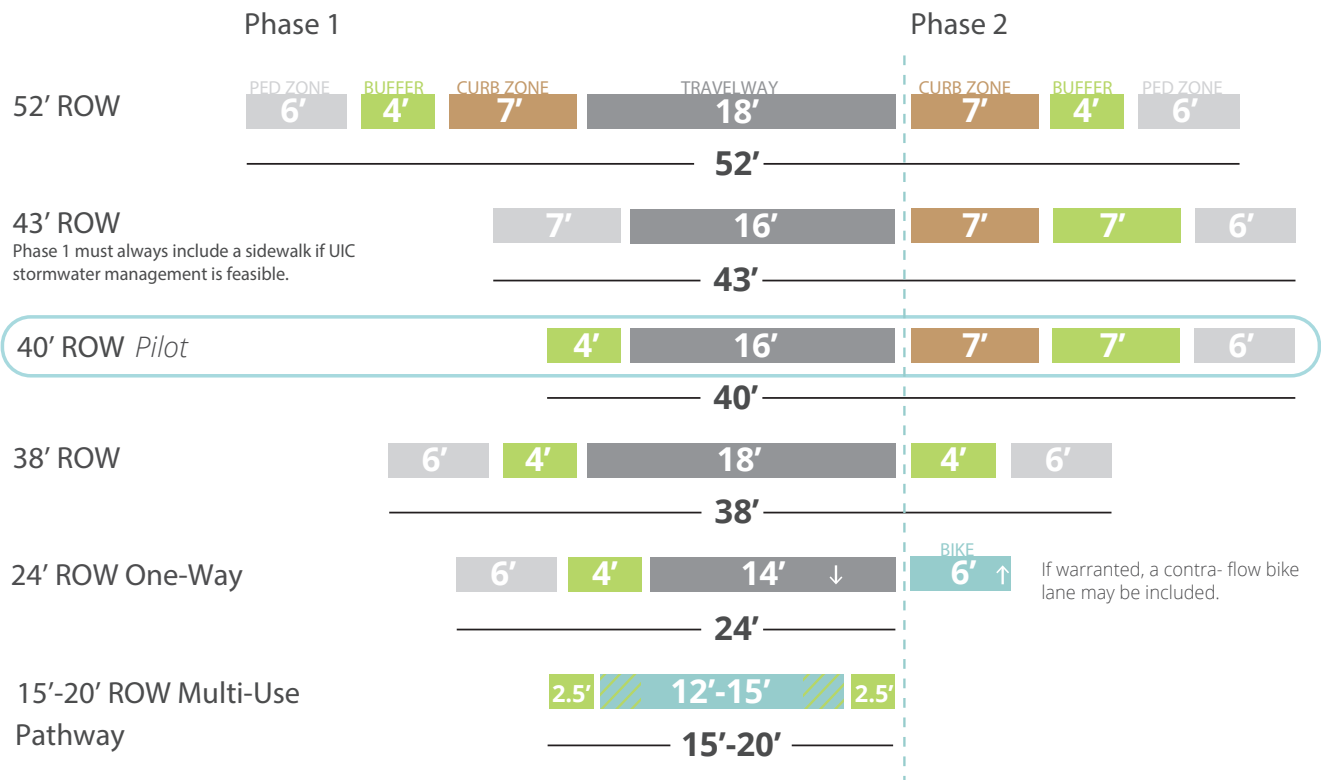


NO
CONNECTION

Selecting New Connections

A variety of right-of-way widths, from a full 52' street to a 15'-20' multi-use path, are described in detail on the following pages. **The graphic above shows the order in which these options should be considered, as well as steps to determine whether a connection is required with development.**

Currently, local streets are typically either built as 38'/50' full streets or 28'/35' partial streets (depending on provisions of on-street parking) on one lot or no connection is provided. This approach allows narrower streets to be built in the interim while awaiting adjoining lots to develop and complete the full build-out of a more complete street.



Overview of options for new connections

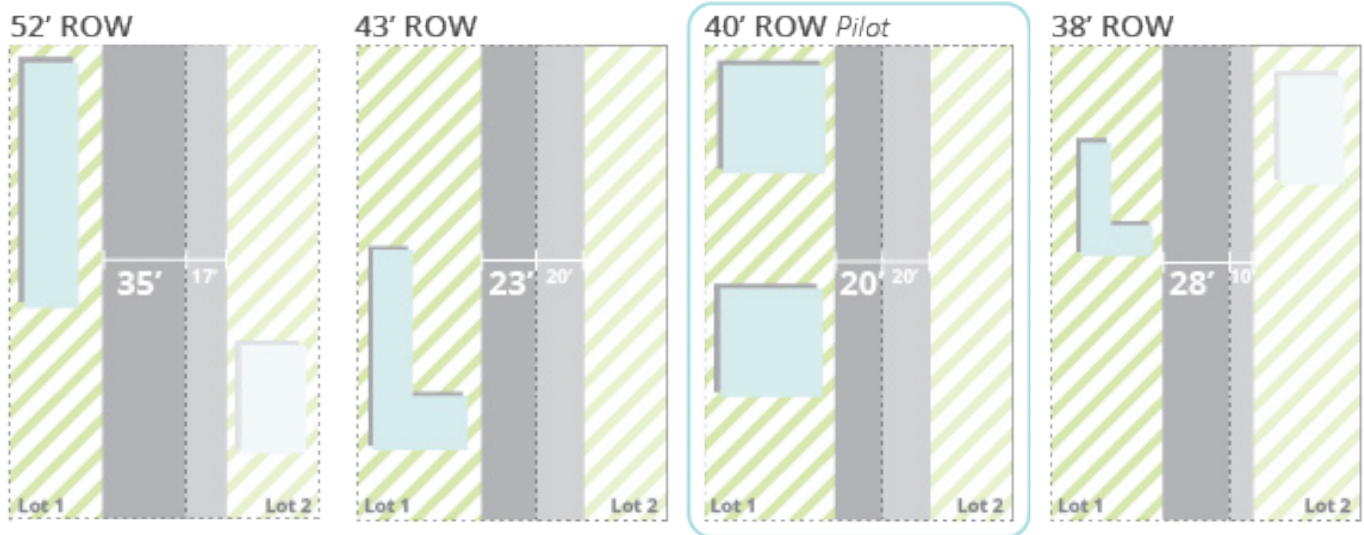
Options for New Connections

The following options for new local street or pathway connections should be considered where sites do not currently meet the 530' spacing requirements. Right of way dimensions should be considered based on feasibility with the underlying lot dimensions and orientation or other factors affecting site development. A lower priority option should only be pursued if the option requiring a greater amount of right-of-way does not appear to be proportional to the scale of the proposed development.

In order to meet the growing demands and overall City policy objectives for the Jade District and Rosewood neighborhoods, a street in public right-of-way is preferred over a path or a private street in a public access easement for the following reasons:

- Full public streets provide access for all transportation modes, allowing traffic to be dispersed throughout the neighborhood.
- Full public streets ensure access for all at all hours.
- Public input in these neighborhoods showed that individuals from communities of color may feel excluded, unwelcome or uncomfortable when using narrow paths or private connectors due to the perception of trespassing.

These new street connections will be classified as local service streets for all modes in the Portland Transportation System Plan. New pathways may be given pedestrian and bicycle classifications.



Examples of how the burden of building a full street can be phased between two lots. In these examples, Lot 1 is the first to be developed, leaving the remaining right-of-way to be built when Lot 2 gets developed.

Phased Street Division Between Two Lots

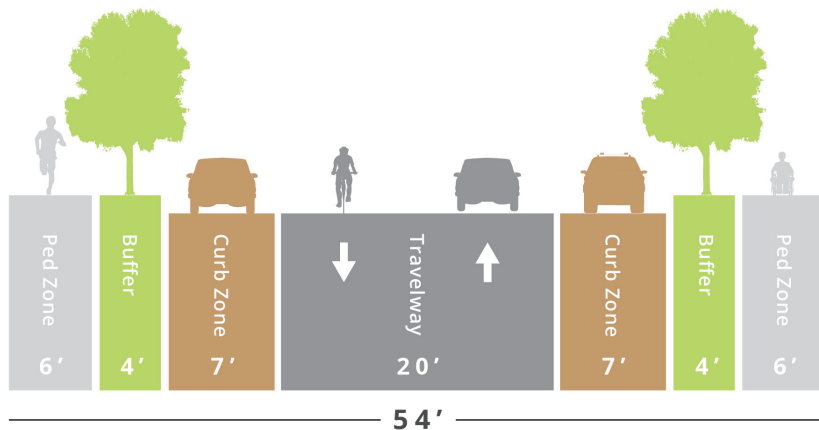
In locations where lots undergoing development are of sufficient size and scale to fit a full street connection on a single parcel, **the preferred option is to require the construction of a full street** that can accommodate two way traffic for all travel modes, and includes parking, stormwater management, street lighting and street trees.

The following section uses several terms to describe elements of the right-of-way, defined below;

- **Pedestrian zone:** the area intended to provide for pedestrian movement, generally improved as a sidewalk.
- **Buffer:** a linear portion of the pedestrian corridor, adjacent to the curb often referred to as the furnishing zone, which contains elements such as street lights, street trees, planting strip, stormwater planters, hydrants, traffic signs, street furniture, etc.
 - Stormwater management may be implemented in planters or swales in the buffer.
- **Curb zone:** the area adjacent to the curb that can be used for a wide variety of mobility and access functions, including but not limited to on-street parking, curb extensions, street trees, etc.
 - Stormwater management may be implemented in planters or swales in the curb zone as long as fire access requirements are met.
- **Travelway:** the area intended to provide for the movement of traffic, including bicycles and motor vehicles.

Street Cross Section Options

Current Standards: Full Street or No Street



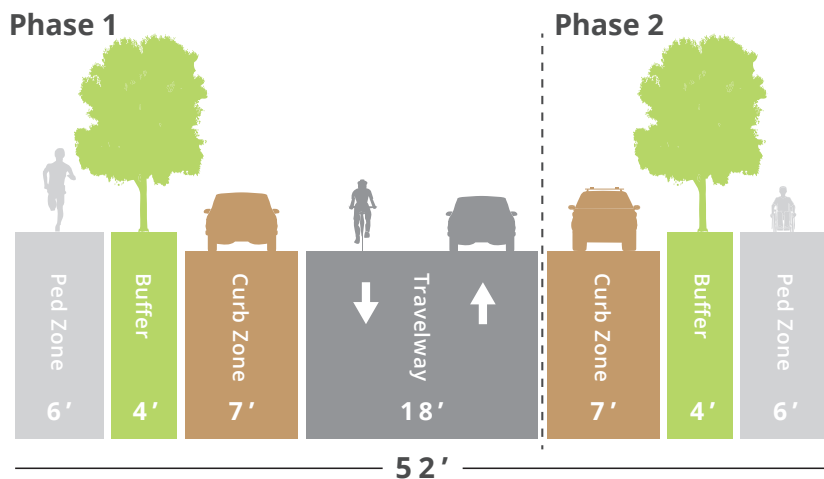
Current standards call for a build-out of a roughly 54' right-of-way or "three quarter" partial improvement. By offering a variety of street types and options at various right-of-way widths, there will be a better chance of some sort of connection happening, as opposed to no connection.

Assumptions For All Cross Section Options

The following cross sections detail various options for building street connections through right-of-way dedication when development occurs. For each of these options, the following standards will apply.

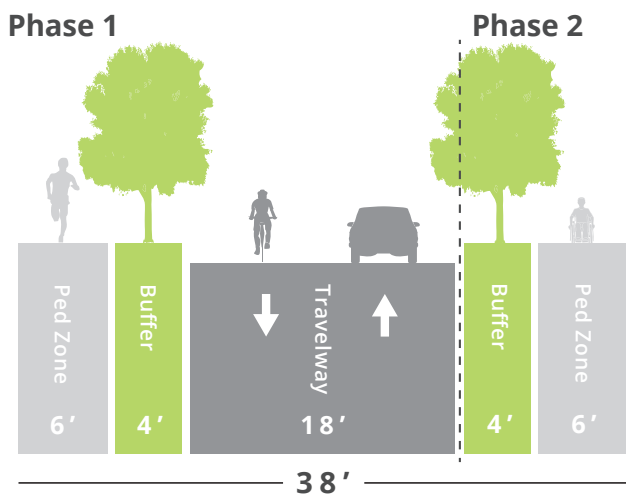
- Build out of a full street as part of a single development is preferred, where possible. Otherwise a partial ("three quarter") street improvement can be built in phase 1.
- Street lighting will be installed in both phases for each option.
- A full street connection will be completed with through access for all modes when adjoining and back-to-back lots are developed.
- Green street facilities can manage some stormwater in the buffer and/or curb zone.
- Addressing stormwater requirements as part of construction can be done in one of the following ways, as approved by BES:
 - In Underground Injection Control Areas: use UIC's, such as sumps, to manage stormwater.
 - Dedicate additional right-of-way at the rear or front of the lot for placement of a vegetated stormwater facility per the Stormwater Management Manual.
 - Expand the buffer/planter strip to 7 feet wide to allow for green street facilities, where feasible.

52' Right-of-Way



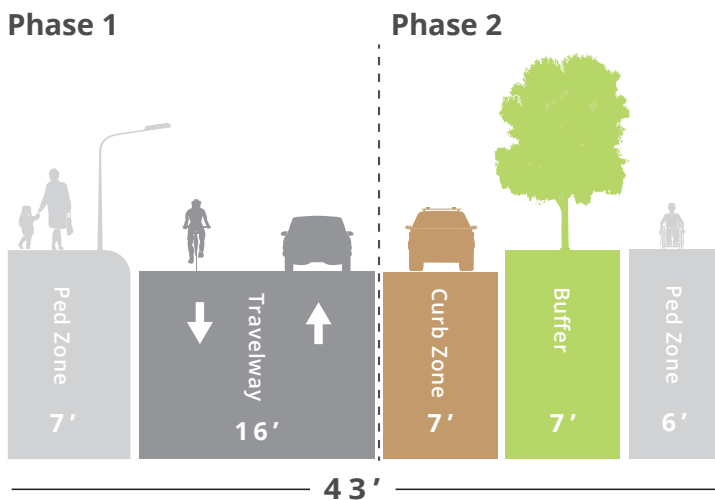
- Full low-traffic street with access for all modes, including parking, stormwater treatment, and street lighting

38' Right-of-Way



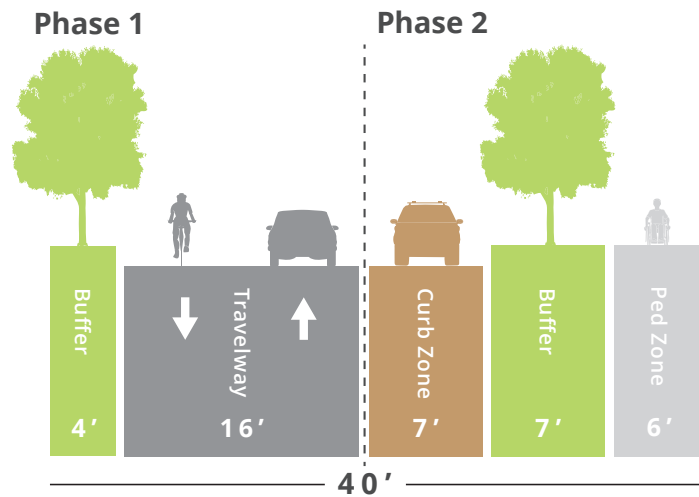
- No street parking provided

43' Right-of-Way



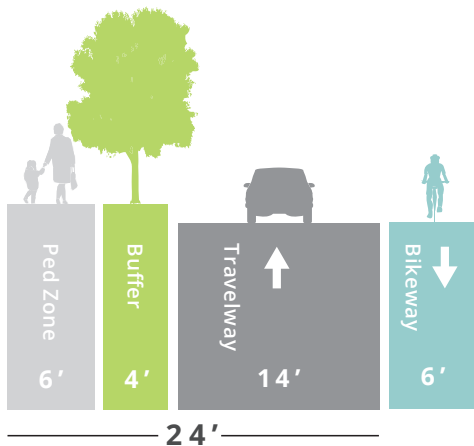
- Phase 1 is only permissible if underground injection control stormwater management is feasible and sidewalk is built with a mountable curb for fire department access

40' Right-of-Way *Pilot*



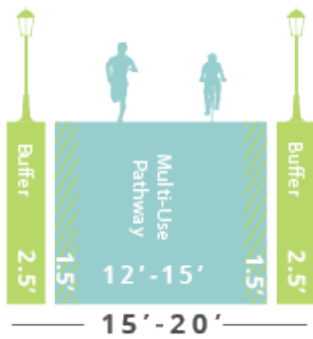
- In phase 1, an interim dead-end accessway is built to meet shared street standards, including necessary traffic calming features. This street can be signed 15 mph and the narrow (18 ft max.) roadway may include speed bumps
- Sidewalk and curb zone only provided in phase 2

24' Right-of-Way One-Way Street



- Dedicated rights-of-way and partial, one-way street and sidewalk connection.
- 2 way bicycle travel may be provided by the addition of a contra-flow bicycle lane in 30' of right-of-way.

Multi-Use Path



A multi-use pathway may be an option if a full or partial street connection is not feasible. Due to the length of blocks and multi-use access, a wider pathway is preferred to provide a safe and secure connection with adequate space for lighting and other amenities. Pathways should be a minimum of 12' with 1.5' buffers or 15' with 2.5' buffers

- Dedicated right-of-way (20 feet) for new bicycle-pedestrian pathway is preferred over a private path with public access easement
- Public pathway connection is completed through the block when adjoining, back-to-back lots are developed, rights-of-way are purchased by the City and pathway funded and constructed.
- Wide pathways may accommodate water or sewer utility connections, where necessary.
- Vehicles may access buildings through a separate private driveway.

Public Street Through Phased Development



Conceptual layout of a street built incrementally by 4 contiguous developments.

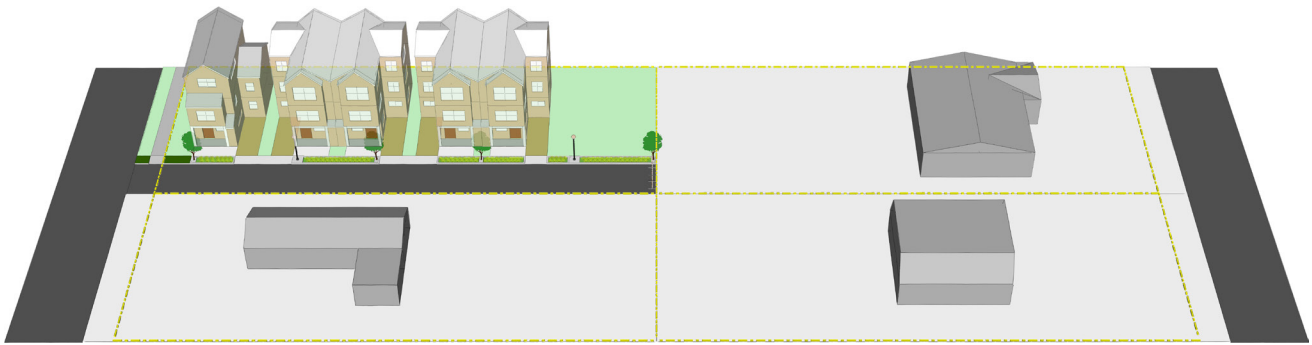
Phased Street Improvement

Based on the analysis of existing connectivity and public input on connection options, new connection options were developed for building new streets in increments or phases. This approach is intended to increase the feasibility of obtaining new connections in locations where sites are narrow, and where current standards for wider street dimensions often result in no connection being created through redevelopment.

The complete street connection and the right-of-way needed to accommodate it are split across multiple properties. This allows adjacent properties to share the responsibility of creating the street and only requires a fraction of the space, e.g. as little as 20 feet of right-of-way, from each site. Conceptually, the phasing of development of four neighboring parcels illustrates interim through-connections for pedestrians and bicyclists.

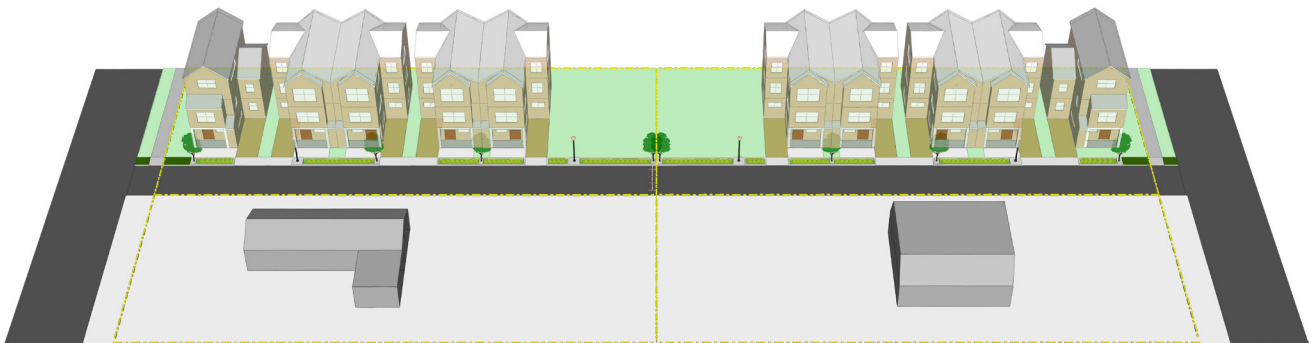
Construction of public streets through phased private development can help to achieve street spacing standards over time.

The feasibility of completing all phases of the phased street must be confirmed for a site to be eligible for the phased street option. This will provide confidence that the sidewalk will be constructed before the street is opened to through traffic.



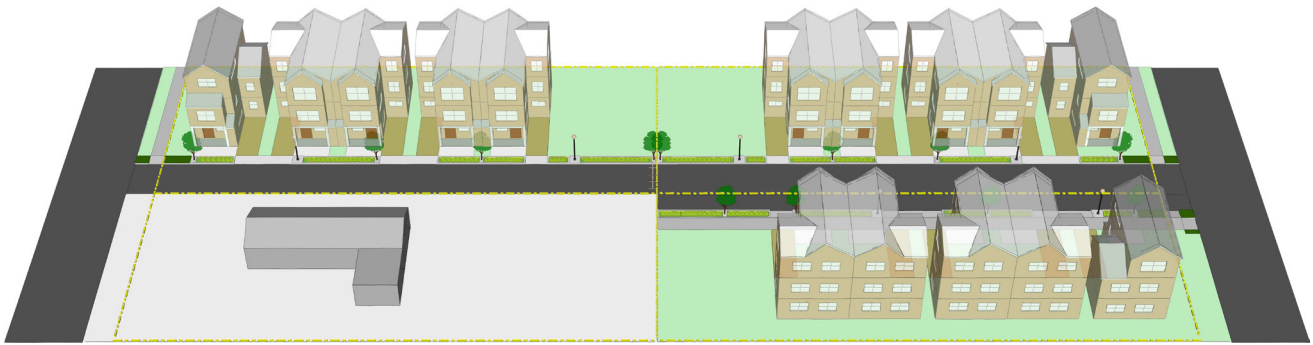
Phase 1

- Interim shared accessway within public rights-of-way.
- Partial street improved to provide access for cars, bicycles and pedestrians.
- No through connection. A traffic barricade is installed at the dead end on the rear lot line.
- **For 40' ROW** - Buffer strip with stormwater, street lighting and street tree features.
- **For 43' ROW** - curb-tight sidewalk installed.
- In Underground Injection Control Drainage Areas (including portions of Eastern Neighborhoods), sumps might replace green streets. In these areas a 7' curb tight sidewalk with street lighting is an option in the first phase.



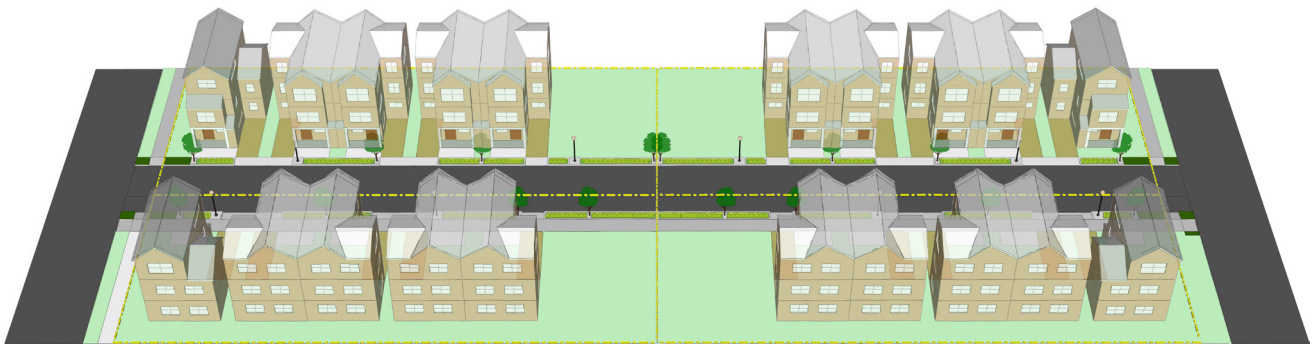
Phase 2

- Improvements in Phase 1 continued
- **40' and 43' ROW** - Through-connection for pedestrians and bicyclists only - barricades are installed to prohibit vehicle through-traffic.
- **38' and 52' ROW** - Barricade is removed to allow through connection for all modes
- Buffer strip with stormwater, street lighting and street tree features installed
- In Underground Injection Control Drainage Areas (including portions of Eastern Neighborhoods), sumps might replace green streets. In these areas a 7' curb tight sidewalk with street lighting is an option in the first phase.



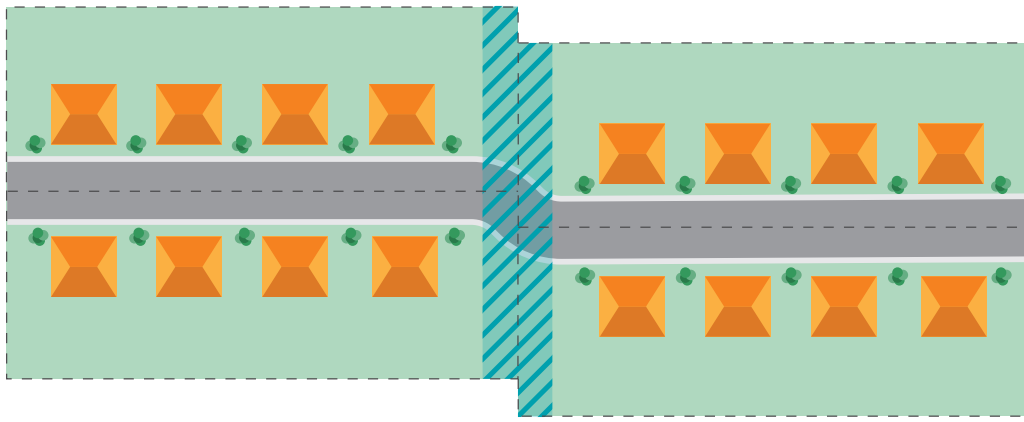
Phase 3

- Partially completed Public Street and completed street section within public rights-of-way added with new development.
- **40' and 43' ROW** - Through-connection for pedestrians and bicyclists only - barricades are installed to prohibit vehicle through-traffic.
- Buffer strip with stormwater, lighting and street tree features.



Phase 4

- Completed public street section added with new development.
- Interim signing and barricades are removed to allow through connection for all modes.
- Buffer strip with stormwater, lighting and street tree features.



Parcels dedicate extra ROW to allow street to jog

Other Considerations

Parcel Dedication for Street Jogs

In practice, lot lines may not align, or development may occur in a different sequence than the steps that were outlined in the previous example. The dedication of an extra segment of right-of-way at the rear lot line can allow for the street to jog when it is completed. If paved at the time of development, the extra right-of-way can be used for turn around space needed for fire access until the street is completed. The rear lot dedication may also be used for stormwater management or parking, depending on site configuration and needs.

Other Street Features

- **Stormwater management** consistent with Portland's Stormwater Management Manual is required for development and redevelopment projects on both private property and public right-of-way. The manual emphasizes the use of vegetated surface facilities, often swales for existing neighborhood redevelopment, fit within the buffer (planter) or in parking zones. In Underground Injection Control Drainage Areas (including portions of Eastern Neighborhoods), sumps might replace green street surface stormwater management.

- **Street trees** should be planted in the buffer (planter) or in planters located in the curb zone.
- **Street lighting** is an essential feature of new street and pathway connections.
- **Traffic calming** is an optional upgrade for street connections, based on the desires of the adjacent property owners and City Traffic Engineer approval.

Private Street or Pathway with Public Access Easement

Private streets or pathways may be considered in situations where dedicated public streets or dedicated public pathways are not feasible and the only other alternative is no connection. Public access easements would be obtained to ensure that connectivity needs are still addressed. Pathways on a public access easement may be approved through a permit or land use process while private streets are only created through a land division. If an easement is obtained, signage and design elements should indicate that the connection is accessible to the public. Street light is an essential feature, whether the connection is public or private. Public, dedicated rights-of-way are always preferable to private streets, even if a full-width street is not feasible.

SAFE ROUTES TO CENTERS

“Connect centers to each other and to other key local and regional destinations, such as schools, parks, and employment areas...”

-2035 Portland Comprehensive Plan Policy 3.19

Identifying Needed Connections

Safe Routes to Centers is a systematic approach for identifying needed improvements and gaps in the active transportation networks that allow those who live in surrounding neighborhoods to access Centers. Active transportation routes include the primary walking and biking routes that run from adjacent neighborhoods and through Centers. The major walking routes designated as Major City Walkways are often on busy arterial streets. Bike routes include streets on the Bikeway Network, that have separated biking facilities or neighborhood greenways on quiet neighborhood streets.

Connection options were presented in the preceding sections of this report that are tailored to the context of new local streets or pathway connections, and will primarily serve local, neighborhood trips. The improvements that are proposed through the Safe Routes to Centers analysis will help to address gaps in the active transportation networks needed to link neighbors to the Centers.

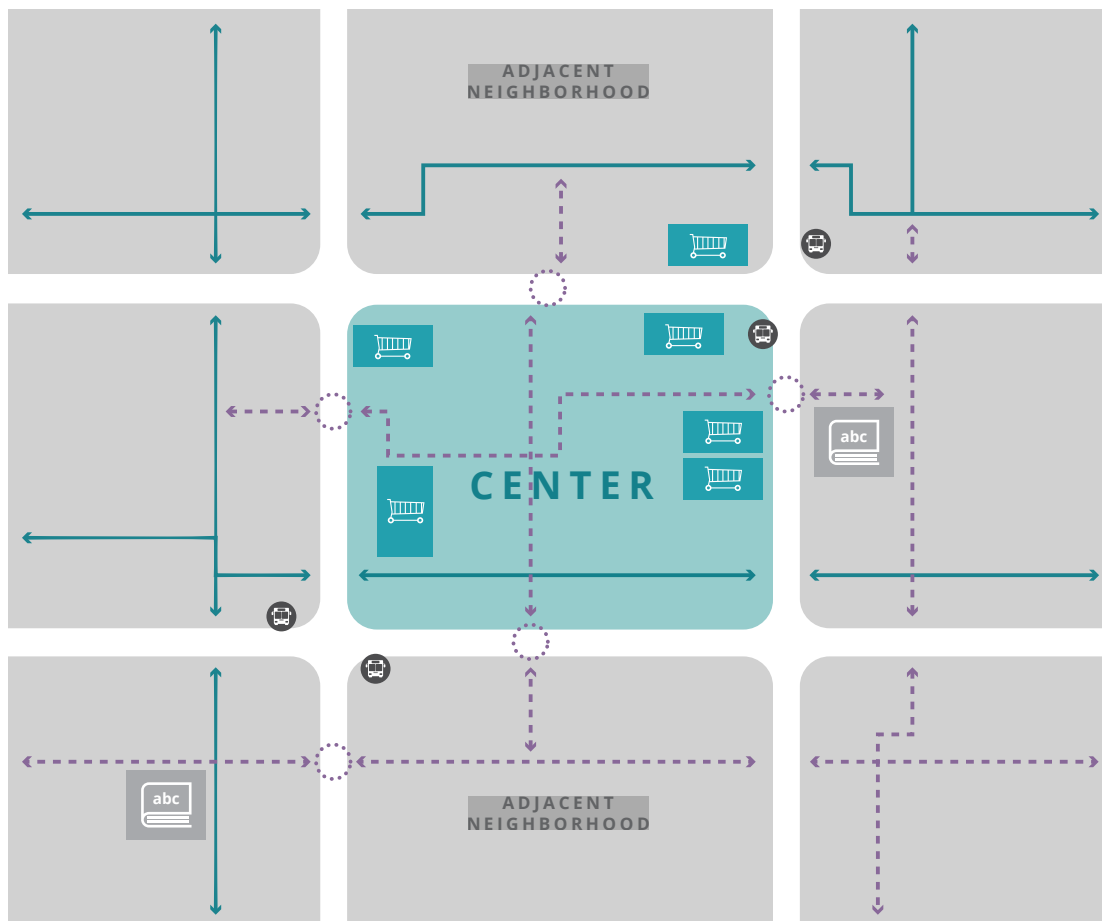
The Safe Routes to Centers analysis is intended to complement the new approaches for creating new street connections that are recommended in this Plan. The goal of this analysis is to create

a reproducible process for identifying new routes and crossings that can be applied to other Centers to create healthy connected neighborhoods throughout the City.

The following section includes a Safe Routes to Centers analysis of the Jade District and Rosewood neighborhoods, which were selected as the first case studies for this type of analysis. This methodology will be replicated for other centers in future PBOT street plans.

Process

- 1 Identify major destinations:** Destinations include parks, schools, commercial properties, and stops on frequent service transit routes. For this study, destinations were mapped and input was gathered at community outreach events. Concentrations of destinations within each Center were identified.
- 2 Define the walkshed (service area):** ¼ mile buffers were created around each Center. The area encompassed by the buffers represents the destination walksheds, including neighborhoods surrounding the Center.



THE PROCESS

1) Define the service area: center boundary + adjacent neighborhoods



2) Map the destinations



3) Map the Pedestrian and Bike networks



4) Identify the routes used today and missing connections



5) Identify the needed improvements; scope the improvement options and prioritize projects

3 Map the active transportation (pedestrian and bike) networks: The pedestrian and bicycle networks are designated within the Portland Transportation System Plan (TSP).

4 Identify improved active transportation routes: Map the existing active transportation routes and identify missing connections.

5 Define projects: For the missing connections, describe the project extents, proposed improvements and determine the cost to fill gaps in the active transportation network. Prioritize the major capital projects for grant funding or minor projects for program implementation .



Partial street build with development in SW Portland

Jade District Safe Routes to Centers

Existing Conditions

Current conditions in the Jade District include an existing bike network on Division and Mill Streets in the east/west direction and 85th and 92nd in the north/south direction. The Woodward/Tibbetts/Brooklyn bikeway is a bit disjointed, as Woodward ends at 75th Ave, making for a less than optimal path to the Center. An east/west connection south of this bikeway is lacking, as Powell does not have bike facilities.

There are generally sidewalks along the major arterials, with only a few missing gaps encountered occasionally. Sidewalks within the residential neighborhood to the east of 82nd Ave are greatly lacking, as are east/west roadways, resulting in large, long blocks.

Major arterials have relatively frequent crossings, when compared to similar East Portland neighborhoods, but these crossings do not meet City of Portland crossing spacing standards for roadways on the Pedestrian Network and many more are still needed.



Jade Existing Conditions

Plans and Recommendations

There are plans for improved bikeways on Division, and along the 79th/80th Ave bikeway, as well as recommended bikeways on Powell, and the 70's neighborhood greenway. These are shown on the map on the following page, where planned bikeways are projects that have identified funding sources, and are planned to be built in the next 10 years. Recommended Bikeways have been identified in the TSP or other planning documents, but do not have an identified funding source. Proposed Bikeways are new recommendations from the Connected Centers Plan.

Through this analysis, two possible alignments for an east/west neighborhood greenway connection were identified. Option 1 would utilize Woodward, crossing 82nd Avenue at the existing signal at the entrance to the Fubonn Shopping Center. This alignment would rely on recommendations that were proposed in the EPA funded Jade Greening Project for changes to the south side of the Fubonn Shopping Center. The recommendations include building a through-street connection to SE 85th Avenue, and creating a more pedestrian oriented streetscape on the south side of the building. Option 2 would divert the neighborhood greenway south at the intersection of Woodward and 79th Avenue to Tibbets St. The greenway would cross 82nd Avenue at a new pedestrian crossing at the intersection of Tibbets and 82nd. A new connection from Clinton to the I-205 path is also recommended, which would provide more direct access from the Jade District to the MAX light rail station.

Several new crossings of Powell and Division are also recommended to support these bikeways and major walkways, including crossings at Division and 77th, Division and 79th, Powell and 79th, Powell and 80th, Powell and 85th, Clinton and 92nd, and Tibbets and 82nd. These recommendations will greatly improve access to the commercial centers along these arterials.

Twelve additional crossings are proposed to bring the spacing of crossings on City Walkways within the 800 foot spacing standards that are currently being proposed. These crossings are proposed at the following general locations: Division between 72nd and 74th, Powell and 84th, Powell and 90th, 82nd and Harrison, 82nd and Clinton, 82nd and Franklin, 82nd and Rhone, 92nd and Lincoln, 92nd and Caruthers, and two crossings on 92nd between Clinton and Powell.

Project Definition

The 4 new pedestrian crossings on Division St are recommended to be built as part of either the Division St Transit Improvement TSP project (70015) or the Inner Division Corridor Improvements, Phase 3 TSP project (70014). Both of these projects are projected to be built in the 11-20 year time frame.

The 5 new pedestrian crossings on 82nd Ave are recommended to be built as part of the 82nd Ave Corridor Improvements TSP project (40013). This project is projected to be built in the 1-10 year time frame.

The 5 new pedestrian crossings on Powell Blvd are recommended to be built as part of the Inner Powell Bikeway TSP project (70046). This project is projected to be built in the 11-20 year time frame.

The 5 new pedestrian crossings on 92nd Ave are not aligned with any existing TSP projects. These projects should be constructed through either the Pedestrian Network Completion Program, Vision Zero, or Safe Routes to School.



Pathway Connection in Gresham

Rosewood Safe Routes to Centers

Existing Conditions

In Rosewood, the bike network is centered around the major arterials: 148th, 162nd, and Burnside. There are currently no designated bikeways outside of these arterials, creating a cycling environment that is not comfortable for people of all ages and abilities.

The arterial sidewalk network is relatively filled out, with the exception of small gaps where newer development has not yet occurred and two big gaps on the north side of Glisan along the frontage of the Glendoveer Golf Course, which together, represent a gap of nearly one half mile in the sidewalk network on a designated City Walkway. There are abundant crossings of Burnside, where the MAX line runs, but additional crossings are needed along Stark, Glisan, 148th, and 162nd to meet crossing spacing guidelines.



Rosewood Existing Conditions

Plans and Recommendations

In the map on the following page, planned bikeways are projects that have identified funding sources, and are planned to be built in the next 10 years. Recommended Bikeways have been identified in the TSP or other planning documents, but do not have an identified funding source. Proposed Bikeways are new recommendations from the Connected Centers Plan.

There are already planned bikeways along Glisan and Main Streets, making a more comfortable all ages and abilities network available in this Center. Several bikeways are planned and recommended along 151st, 154th, and 155th Avenues. The Growing Transit Communities plan identified several new crossings on Stark St to improve access to transit stations.

This plan proposes that the 151st and Yamhill connections be removed in favor of a more direct route on 154th or 155th and through Parklane Park to the south. This analysis recommends a crossing at Stark and 155th and 154th to accommodate pedestrian and bike traffic across this busy corridor. Crossings are also recommended on Glisan at 146th, 155th, and 156th Avenues to facilitate these new bikeways.

Twelve additional crossings are being recommended to bring the spacing of crossings on City Walkways within the 800-foot spacing standards that are being proposed in the Pedestrian Master Plan update. These crossings are recommended at the following locations: Glisan and 136th, Glisan and 143rd, Glisan and 146th, Glisan and 151st, Glisan and 160th, 148th between Couch and Flanders, 148th between Burnside and Stark, 148th and Alder, 148th and Taylor, Stark and 157th, 162nd and Alder, 162nd and Taylor, Main and 151st, and Main and 164th.

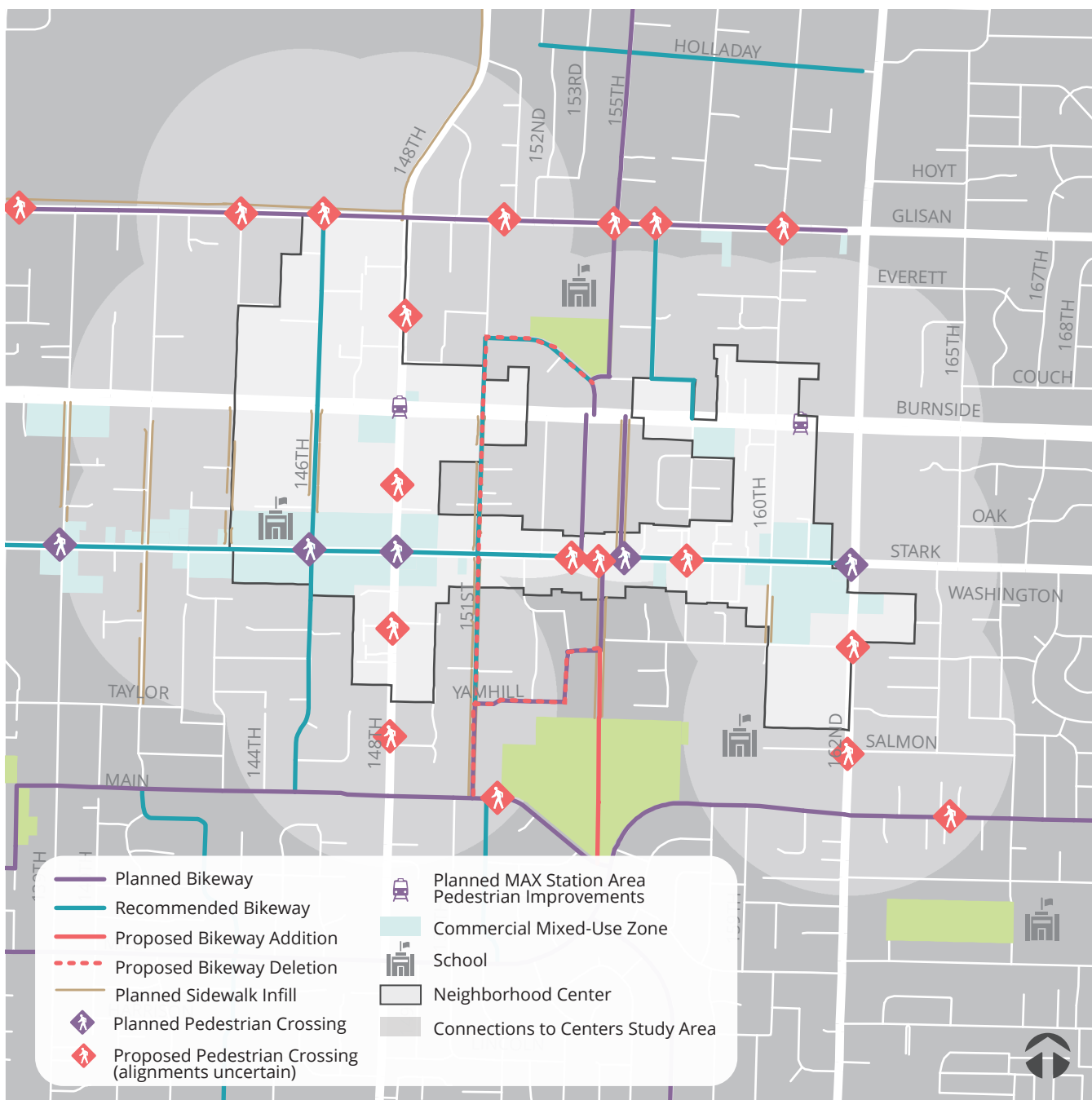
Sidewalk infill is recommended on the north side of Glisan St, east of 148th Ave. There is currently no sidewalk along the frontage of the Glendoveer Golf Course between the bus stop at 148th, and the golf course entrance at 141st Pl. Sidewalk infill is also needed along the frontage of the golf course between 140th Ave and 134th Pl. A project is on the current TSP project list to build the sidewalk and bike lane that are needed on Glisan St.

Project Definition

The 7 new pedestrian crossings on Glisan St are recommended to be built as part of the Outer Glisan Safety and Streetscape Improvements TSP project (50025). This project is projected to be built in the 11-20 year time frame.

The 3 new pedestrian crossings on Stark St are recommended to be built as part of the Outer Stark Ped/Bike Improvements TSP project (80017), in addition to the pedestrian crossings that have already been identified in the Growing Transit Communities plan. This project is projected to be built in the 1-10 year time frame.

The 4 new pedestrian crossings on 148th Ave are not aligned with any existing TSP projects. These projects should be constructed through either the Pedestrian Network Completion Program, Vision Zero, or Safe Routes to School.



Rosewood Planned Network

PLAN IMPLEMENTATION

“Guide development and land use to create the kinds of places and street environments intended for different types of streets”

-Portland Transportation System Plan Policy 9.13

Incentives

The following concepts were considered to improve the feasibility of new connections in Centers with poor street connectivity. These concepts would complement and supplement the proposals that are presented in this plan:

1 Incentives for connection opportunity

areas: Based on the “Connection Opportunity” Analysis, the Connected Centers Street Plan identified the blocks that are most crucial for connectivity and seeks to help reduce the burden on sites where a new public street or pathway is required by providing Transportation System Development Charge (TSDC) incentives, specifically potential TSDC credit and TSDC capital funding. These opportunity areas are outlined on the following pages.

TSDC credit: A proposed credit for TSDC charges to developments that are required to build new street connections would help to offset the cost of building new connections, and it would recognize the important contribution that new connections make to local street connectivity. This credit will be geographically focused in the Jade and Rosewood neighborhood centers

2 Calculate development allowances prior to dedication of right-of-way: Calculate development allowances prior to the dedication of right-of-way for new street connections, i.e. when the developer is proposing multi-dwelling development through a permit or land use review process. This would allow developers to build up to the density or floor area ratio that would be allotted to the parcel if no dedication was required. Under current rules, density is calculated after parcel area is deducted for frontage improvements and new public street connections. Calculating parcel area prior to dedication would remove a disincentive to create new street connections (Proposal is included in the Better Housing by Design Discussion Draft).

3 Explore a new funding source: A new funding source to consider could be a fund for property acquisition or a charge on development similar to the Local Transportation Infrastructure Charge (LTIC). This would implement a charge to all developments in areas not meeting street spacing standards, which would be collected and distributed to help offset the costs incurred by those specific developments that are required to build new connections.

Incentives for Connection Opportunity Areas

TSDC Incentives

The Connection Opportunity Areas were identified by selecting parcels whose centers do not fall within 265 feet of a street connection, and thus don't meet Portland's connectivity standards. Parcels highlighted in blue represent the parts of the East Portland blocks that are out of compliance with the street connectivity standards. Areas that are outlined in black and numbered are Connection Opportunity Areas where TSDC incentives for building street connections can be provided. For both the Jade and Rosewood neighborhoods, East-West connectivity is lacking much more than North-South connectivity, so the Connection Opportunity Areas identified here focus on incentives for East-West connections. Private driveways and off-street parking are commonly built for access and circulation on these sites when a public street is not required. The TSDC incentives are intended to help offset some of the additional costs from building a public street to city standards.

Jade District Connection Opportunity Areas

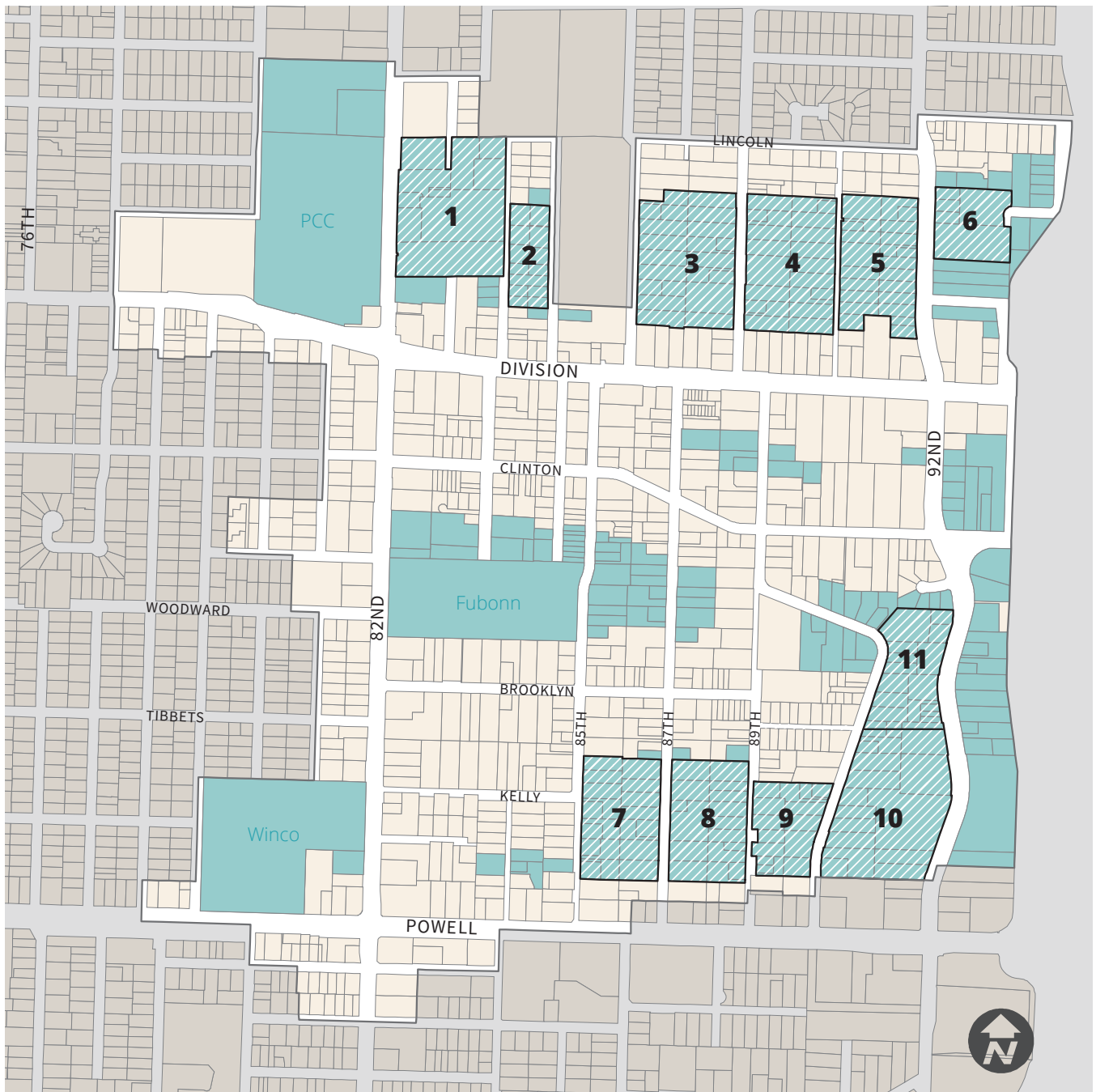
The Jade District Map on the following page identifies eleven Connection Opportunity Areas that would be eligible for TSDC incentives for required East-West connectivity. If street connections are built in each of the 11 blocks, this would equate to roughly 4,200 centerline feet of new roadway constructed. The cost to build these 11 blocks is roughly \$5M, based on the rate charged to developers on under-improved local traffic streets without a curb for frontage is consistent with PBOT's Local Transportation Infrastructure Charge. Based on prior development trends over the past decade, it is anticipated that a small percentage of these sites will redevelop over the next ten years.

This Plan proposes a \$1.26M TSDC capital project for the Jade District along with a TSDC credit to reduce costs for developers on sites the build a public connection. This would assume roughly half of these sites develop over the next 10 years and the TSDC project would cover half the cost for the developer to build the street.

Rosewood Connection Opportunity Areas

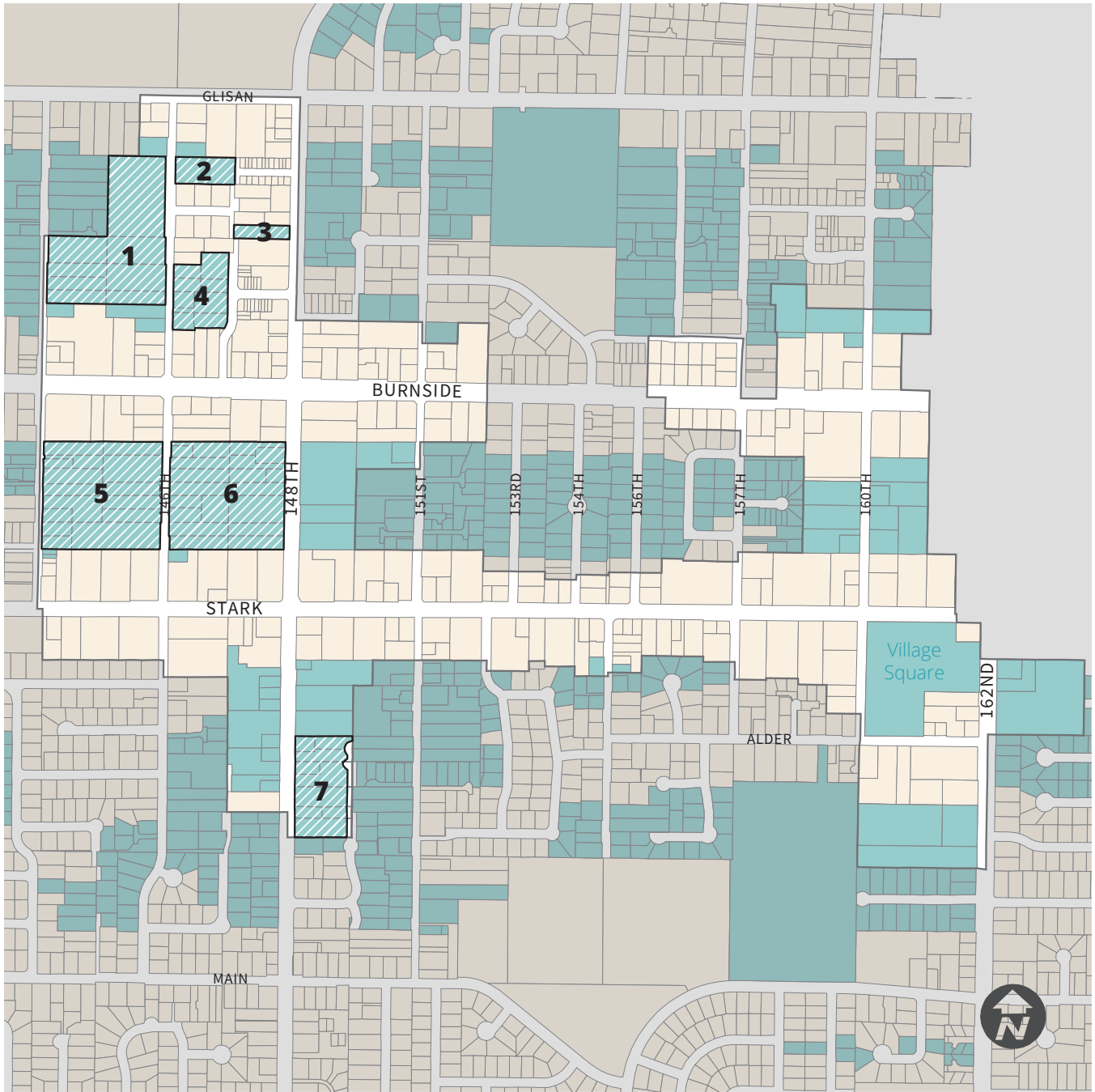
The Rosewood Area Map identifies seven Connection Opportunity Areas that would be eligible for TSDC incentives for required East-West connectivity. If street connections are built in each of the seven blocks, this would equate to roughly 3,225 centerline feet of new roadway constructed. In some cases, specifically Connection Opportunity Area #2 and #3, the required connection would include a rear-lot dedication and street improvement to link two dead-end public rights-of-way. The cost to build these seven blocks is roughly \$3.87M (based on the LTIC rate).

This Plan proposes a \$967,500 TSDC capital project for the Jade District along with a TSDC credit to reduce costs for developers on sites the build a public connection. This would assume roughly half of these sites develop over the next ten years and the TSDC project would cover half the cost for the developer to build the street.



Jade Opportunity Areas Map

- Sites not meeting east-west connectivity requirements
- Opportunity areas targeted for east-west connectivity



Rosewood Opportunity Areas Map

- Sites not meeting east-west connectivity requirements
- Opportunity areas targeted for east-west connectivity

Better Housing by Design Code Provisions (DRAFT)

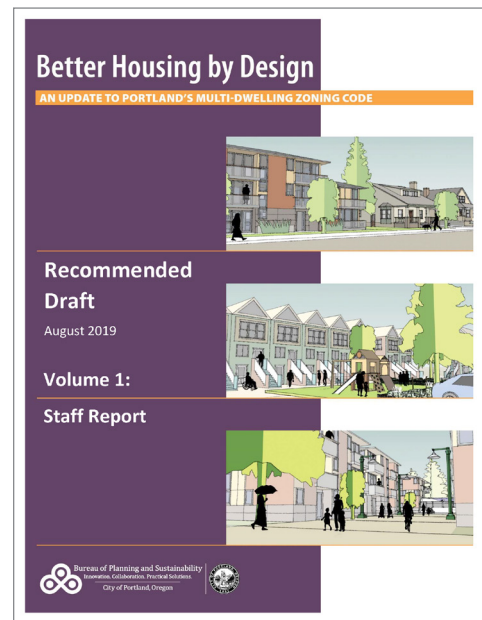
The following is a summary of proposed Title 33 changes to the multi-dwelling zoning code included in the Bureau of Planning and Sustainability Better Housing by Design Plan. These provisions will help to support the creation of connections in new developments.

Properties in the multi-dwelling zones in East Portland are often both narrow and very deep (sites 60-feet wide and 200-feet or more in depth are common), making it difficult to achieve quality site design. In recognition of some of the design challenges related to development on East Portland's narrow sites, Comprehensive Plan Policy 3.94 calls for land in Eastern Portland to be combined into larger sites before development occurs.

Require street frontages wide enough for quality site design and to provide space for new street connections in East Portland centers.

This Title 33 proposal will apply to sites with multi-dwelling zoning located in the Jade District, 122nd/Hazelwood, Rosewood/Glenfair neighborhood centers and in and around the Midway town center. Within these areas, for multi-dwelling zone sites more than 160-feet deep, the proposal requires a minimum street frontage of 90 feet for development of new units to take place. Exceptions are provided for projects approved through a Planned Development Review or that are surrounded by fully-developed properties.

This minimum street frontage width will provide enough space for a variety of site configurations, more efficient site design and partial street connections (if needed), as well as allow for driveways to take up less than a quarter of the site width. While there are many benefits to larger



sites, a tradeoff is that requiring narrow sites to be combined adds time, cost, and complexity to development.

Calculate development allowances prior to street dedication to facilitate street connections.

This proposal will apply citywide. It allows FAR to be calculated before street right-of-way is dedicated, to reduce disincentives to providing street connections.

Summary of Recommendations

This Connected Centers Street Plan establishes a strategy for attaining new street and pathway connections where blocks do not meet existing connectivity requirements. The recommendations contained in this plan will be applied in the following areas: I) Citywide, II) Focus Area, III) Multifamily Zones.

I. CITYWIDE

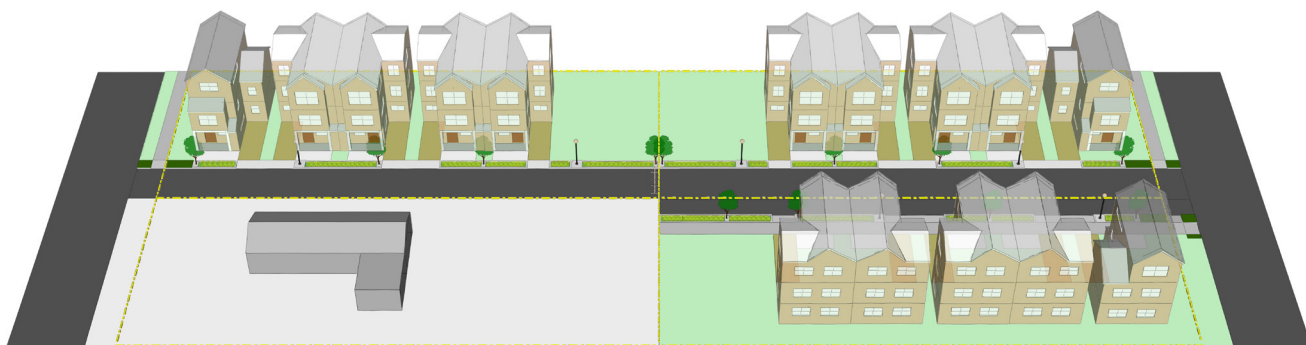
1. Retain Existing Street Spacing Requirements

The Plan does not propose a change to the minimum street spacing standards that are currently set in City Code, and which are in alignment with the Metro Regional Transportation Plan spacing standards. These requirements are 530' for streets and 330' for pathways.

2. New Options to Phase Street Improvements

In locations where new connections are needed, but it is not feasible to build a street on a single parcel, streets may be built in phases, across multiple parcels.

- When phased street connections are required in locations where lot lines are not aligned, new developments may be **required to dedicate right-of-way on the rear lot line** to allow the street to jog and connect through the block when future development provides the remaining connection.



II. FOCUS AREAS: JADE DISTRICT AND ROSEWOOD NEIGHBORHOOD CENTERS

3. Provide Financial Incentives to Offset Cost of Street Construction

Incentives, such as TSDC credits, provided to developers would offset the difference between the cost of building a driveway and the cost of building a new connection to City standards.

4. Safe Routes to Centers

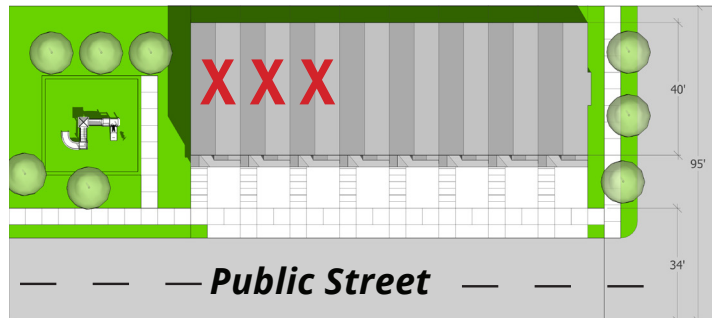
Complete active transportation connections and new crossings to support pedestrian and bicycle access to destinations within the Jade and Rosewood Centers from surrounding neighborhoods.

III. MULTIFAMILY ZONES (BETTER HOUSING BY DESIGN PROPOSAL)

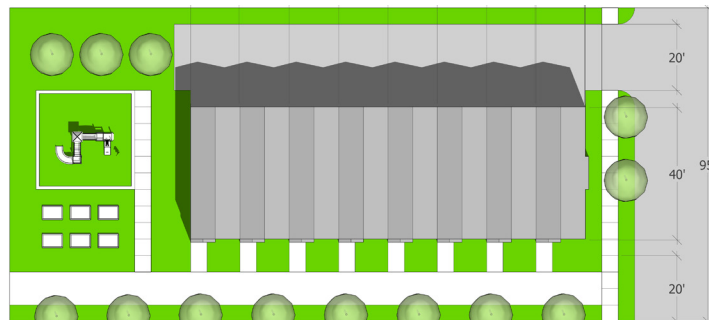
5. Calculate Development Capacity Prior to Dedication of Right-of-Way

The Plan proposes that development allowances for multi-dwelling developments be allowed to be calculated prior to the dedication of right-of-way. This would eliminate disincentives to creating new connections.

Currently, development that provides a public street connection loses development allowances.



While a development that only includes a private driveway has no such penalty.



6. Minimum Frontage Length (East Portland Centers)

Require street frontages wide enough for quality site design to provide space for new connections in East Portland Centers. Within the multi-dwelling zoning in the Jade District, 122nd/Hazelwood, Rosewood/Glenfair neighborhood centers, and in and around Midway town center, for multi-dwelling zone sites more than 160-feet deep, the proposal would require a minimum street frontage of 90 feet for development of new units to take place.