A Plan for Walkable Neighborhoods in Tigard

TIGARD WALKS

STEP UP Studio
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Doug Vorwaller, Photographer

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Executive Summary

CORE VALUES

The Walkable Neighborhoods Plan for Tigard, Oregon outlines a set of strategies to help residents, businesses, and leaders build their city into a more walkable place. These five strategies are based on three core values gleaned from StepUP Studio’s outreach efforts to the people living and working in and for the city of Tigard.

Family-Friendly Neighborhoods
- Tigard’s neighborhoods should be safe, vibrant communities, where people of all ages and backgrounds are welcome and encouraged to walk, talk, learn, and play.

Living Close to Home
- Tigard’s neighborhoods should contain the destinations, facilities, and amenities that meet the needs of their residents.

Informed and Empowered Citizens
- Tigard’s residents should have the tools, resources, and expertise to help make their communities better.

STRATEGIES

Five strategies were developed after extensive analysis of the city’s pedestrian network and existing conditions; research on best practices and case studies from other cities; and feedback from Tigard residents, community groups, and city staff. Each strategy responds to one or more of the three core values.

1. SAFE ROUTES TO SCHOOL

Safe Routes to School programs have proven successful at increasing neighborhood walkability in a number of comparable cities across the country. Eugene and Portland, Oregon, and Alexandria, Virginia have each developed city-wide or regional SRTS policies that have led to SRTS curriculum and programming at their schools, the development of community resources to promote bicycle and pedestrian safety around schools, and helped secure funding for bike/ped infrastructure projects. Of particular benefit to Tigard, the SRTS Program Manager for the region is eager to work with the City and the school district to get started in Tigard.

Recommendation for Safe Routes to School
- Create and adopt a Safe Routes to School policy to ensure the successful implementation of a Safe Routes to School strategy for the city.

2. ACTIVE PARKS AND TRAILS

Parks and trail systems are already the heart of Tigard’s pedestrian network. Providing consistent activities such as walks and runs, community gardens, or summertime movies under the stars gives area residents more opportunities to take advantage of these existing, and mostly walkable neighborhood destinations, and gets people out on their feet in their neighborhoods on a more regular basis.

Recommendation for Active Parks and Trails
- Engage non-profit entities with the Tigard Parks Department to organize, fund-raise, promote and fulfill activities and events that make parks and trails destinations.

3. NEIGHBORHOOD CENTERS

Small, neighborhood commercial nodes provide a walkable alternative for basic goods and services. These centers, located on arterial or collector roads, house service sector businesses like restaurants, coffee shops, and small grocery markets. Increasing the number of walkable destinations within a low-density residential neighborhood can have a dramatic impact on overall walkability. Tigard’s zoning code allows for this kind of activity through a C-N zone, but it is not currently in use.

Recommendation for Neighborhood Centers
- Support the development of small neighborhood commercial nodes of restaurants, coffee shops, or neighborhood retail in residential neighborhoods.

TIGARD WALKS BY THE NUMBERS

<table>
<thead>
<tr>
<th>Studio Members</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>15</td>
</tr>
<tr>
<td>Malls walked</td>
<td>109</td>
</tr>
<tr>
<td>Cups, pints, or beverages at downtown Tigard businesses</td>
<td>41</td>
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<tr>
<td>Trips to Tigard</td>
<td>87</td>
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<tr>
<td>Community Events &amp; Meetings</td>
<td>15</td>
</tr>
<tr>
<td>Weeks</td>
<td>23</td>
</tr>
</tbody>
</table>

STEPS UP TEAM MEMBERS 2023
4. SIMPLE SIGNS

Much of the city’s existing pedestrian infrastructure, including many cut-throughs and off-street paths, are unknown even to nearby residents. Part of the problem is that neighborhoods often lack adequate signage directed at people on their feet. Simple, visible, and frequent signs for both way-finding and education can go a long way to help walkers feel more confident knowing where they’re going and how long their journey will take. There are great examples of citizen-led, and city-assisted pedestrian signage initiatives from Raleigh, North Carolina to nearby SW Portland.

Recommendations for Simple Signs

- Develop a policy for pedestrian signage, as well as standards and procedures for sign production and installation.
- Add supplemental signage to existing Dead End signs where off-street paths permit through movement of pedestrians.

5. TALK THE WALK

With its crisscrossing trails and central downtown, Tigard is already more walkable than many realize. One thing that sets the most walkable cities apart is their commitment to sharing where and how they walk, through a regular column in the local paper, a set of easily available neighborhood walking maps, or even a “walk of the month” club. A set of communication tools for city staff, and a walkable neighborhoods guide with tips for the community should help shape the conversation about walkability in Tigard.

Recommendations to Talk the Walk

- Create Walking Maps for the areas around Woodward Elementary/Summerlake, Fowler Middle School, Tigard High School/Durham City Park, Bull Mountain, and others. Consider working within existing neighborhood boundaries and highlighting interesting routes.
- Implement the procedures laid out in Walkable Tigard: A Communications Plan to integrate Walkability messaging into the city’s communication efforts.
- Make Walkable Neighborhoods: A Community Toolkit available for use by Tigard residents by promoting it online, in the CityScape newsletter, and in the press.

SUPPLEMENTAL TOOLS

In addition to the Walkable Neighborhoods Plan, StepUP Studio is developing a set of tools to support the continued implementation of the five walkability strategies, as well as the City of Tigard’s efforts to promote walkability through their ongoing strategic planning process.

Pedestrian Network Analysis Guidebook

A step-by-step how-to guide for continued use of the Pedestrian Network Analysis ArcGIS tool.

Walkable Neighborhoods: A Community Toolkit

A simple guide book for community members containing steps they can take to make their city and neighborhoods more walkable.

Walkable Tigard: A Communications Plan

A basic communications plan to help the city promote walkability.

ABOUT STEPUP STUDIO

StepUP Studio is a team of urban planning graduate students at Portland State University. The City of Tigard partnered with StepUP Studio to craft outside-the-box strategies that would help make walking in Tigard’s neighborhoods a more safe and enjoyable travel alternative.

Chase Ballew, Planner/Policy Analyst

A lifelong Portlander, Chase earned his bachelor’s degree in Community Development, with a minor in Sustainability, at Portland State University in 2018. Pursuing a planning master’s degree specializing in transportation, Chase also has a graduate Certificate in Transportation, and has a special interest in how planning policies can better integrate active transportation into our daily lives.

Mark Bernard, Planner/Project Manager

Pursuing a lifelong interest in geography led Mark to undergraduate and master’s degrees in the subject at UC Davis and Oregon State University, respectively. His professional planning experience includes stints as a land use and real estate paralegal, a consultant acting on behalf of vineyard and winery owners and as a land use and transportation planner in Douglas and Lane Counties. He is particularly interested in land use and transportation issues on the urban fringe.

Jeremy Dalton, Planner/Communications Specialist

Jeremy worked for Portland State University from 2005-2013, most recently as the Director of Communications for Research and Strategic Partnerships. His time at PSU sparked an interest in urban policy and best practices for cities, leading him to pursue a Master’s in Urban and Regional Planning. He recently completed 3-month internship in Shenzhen, China with the Urban Planning and Design Institute of Shenzhen.

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Laura’s prior experience includes work in both community development and land use planning across a variety of organizations, including nonprofits and government agencies. Laura currently holds a bachelor’s degree in Community Development from Portland State University and will be obtaining her master’s degree in Urban and Regional Planning this June.

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Szilvia holds an undergraduate degree in Environmental Science from the University of Minnesota. Before moving to Portland for graduate school, she worked as an Environmental Organizer. Most recently, she completed an internship in Shenzhen, China working on urban design projects.

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Steven has worked for the City of Portland for 9 years, and held positions in GIS utility mapping, land use review, building plan review, permit center customer service and construction management. Steven has lived in Portland since 1995 with the exception of attending the University of Oregon, where he graduated with a B.S. in Geography.
Introduction

What is Walkability?
Definitions of walkability typically describe it as a measure of the effectiveness of urban design to promote walking as an alternative to auto travel. Walkability is also an essential complement to transit use, an important element of urban design that can replace auto trips and an attribute of healthy communities. Urban design, land use diversity and development density all influence decisions to take walking trips.

Walkable places within the context of cities are characterized by design elements, like small block sizes with high intersection densities, and diverse residential neighborhoods containing a mix of destinations. More detail about the nature of walkability can be found in Appendix A: Literature Review.

Recent planning work in Tigard around walkability is manifested in the findings, goals and policies found in various plans adopted in the past five years. For instance:

- **The Comprehensive Plan** references community values related to pedestrian paths and development of a well-connected network;
- **The Transportation System Plan** states that off-street trail connections will be maintained to provide efficient circulation in and out of residential neighborhoods and access to schools, parks and commercial areas;
- **The Neighborhood Trails Plan** emphasizes walkability through a vision for enhancing access to neighborhood schools, parks, employment centers and shopping destinations; and,
- **The Tigard Greenways Trails Master Plan** pledges to increase opportunities for walking by adding to the existing greenway trail system.

This emphasis on alternative modes of travel, such as walking, speaks to Tigard’s commitment to sustainable development, healthy lifestyles and alleviating auto dependency in the community. Tigard Walks builds on these existing plans with a set of strategies to assist in their continued implementation.

How Walkable is Tigard?
In many ways Tigard is ahead of its peers as a walkable city. Like most suburban cities across the country, Tigard’s mid-20th century development patterns resulted in sprawling, low-density clusters of single uses. Oregon’s land-use policies somewhat mitigated the sprawl, protecting nearby agricultural land and natural resources. Meanwhile, natural features like Fanno Creek brought coordinated regional efforts to ensure their accessibility by way of multi-use paths. And the City has worked to create convenient and comfortable pedestrian connections over barriers and between disconnected cul-de-sacs.

Yet there is still much more that could be done to make Tigard a truly walkable city. Current zoning throughout the city keeps the majority of residents too far away from any employment, shopping, or entertainment options to make walking a viable alternative (Appendix B: Existing Conditions). Many of the aforementioned pedestrian connections are poorly marked and difficult to find. And Tigard currently lacks the comprehensive programming efforts that have been game-changers for some of the country’s most walkable cities, such as Safe Routes to School (Appendix C: Case Studies).

The five strategies outlined in this plan are intended to make Tigard more walkable on a neighborhood scale. Meanwhile, the City’s ongoing comprehensive planning effort should uncover the steps to citywide walkability, including the roles of transit and employment distribution. But any strategy, on any scale, relies on a persistent commitment to walkability by the City and Tigard residents. The values are there (page 22), the enthusiasm is there (page 14: Community Engagement), and the mandate has been given (page 41: Existing Plans and Policies). Let’s celebrate Tigard’s successes and keep walking the walk.

Figure 2: Tigard Walks Plan Development

The strategies contained in this Walkable Neighborhood Plan were developed based on analysis of the city’s pedestrian network and existing conditions; research into best practices and case studies from other cities; and feedback from Tigard residents, community groups, and city staff.

### WALK ON TIGARD

- **11.8 square miles** within Tigard City Limits
- **123 miles** of sidewalks
- **15 miles** of off-street trails
- **190 miles** of streets
- **3,200 street intersections**
- **approximately 800 acres** of parks and open spaces
- **over 30 miles** of streams and rivers

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Tigard is to be commended for their dedication and hard work planning for pedestrians over the past decade. Walking was a major priority of a 2007 Comprehensive Plan update and the impetus for the Neighborhood Trails Plan adopted just two years later. Many of the short neighborhood access trails proposed in the plan, particularly on Bull Mountain, have already been built. A 2010 update to the Tigard Transportation System Plan (TSP) further supported walking through policies that improve pedestrian access and neighborhood commercial activity and recommendations for funding specific sidewalk projects. Finally, the 2011 Tigard Greenways Trails Master Plan sought to complete and upgrade the city’s trail system, making improvements to existing multi-use trails and enhancing the connectivity of the off-street pedestrian network.

**I. Pedestrian Network Analysis - pg 8**

We worked with partners at Portland State University to develop a Pedestrian Network Analysis model using ArcGIS and data from Metro and the City of Tigard. The tool allows us to mimic the existing walking environment, identify critical barriers to pedestrian mobility, and evaluate the impact that potential infrastructure improvements would have for pedestrians.

**II. Best Practices Research - pg 12**

We explored walkability efforts and pedestrian improvements in cities around the world to better understand best practices and possible pitfalls most relevant to Tigard. The most successful efforts by other cities can be sorted into the following categories:

1. Establishing Pedestrian Connections
2. Creating Walkable Facilities and Destinations
3. Building Community Attachment and Investment

**III. Community Engagement - pg 14**

We reached out to Tigard residents to learn what they thought about walking in their neighborhoods. Specifically, we wanted to know if walking was important to them, where they did and did not walk (and why), what barriers to walking and opportunities to improve walkability they experienced, and what changes they would like to see. We reached out to the community in the following ways:

1. Online and Intercept Surveys
2. Resident Interviews
3. Interactive Map
4. Open Houses
5. Walking Tours
6. Public Presentations
7. Community Conversations
I. Pedestrian Network Analysis

To reach their pedestrian connectivity goals, the City of Tigard required a robust and varied analytical approach through which the pedestrian environment could be assessed. StepUP Studio initially envisioned an analytical model that delivered various neighborhood typologies, each with different pedestrian characteristics. However, after exploring several types of geospatial analysis, the typology method was replaced with a more widely useful and applicable network analysis tool that the City could continue to use for future pedestrian infrastructure projects across the city.

Tigard has an active and knowledgeable GIS team with a strong collection of geospatial data. They maintain a series of publicly accessible pages on the City’s website, providing information, tools, and an interactive mapping system to the public. Additionally, the City provided a great deal of raw GIS data, containing feature classes of municipal data including transportation, transit, utility, environmental, boundary, land use and zoning.

### Table 1: Select neighborhood typology analysis measures

<table>
<thead>
<tr>
<th>Washington County</th>
<th>UC Davis ITS</th>
<th>ESRI Model</th>
<th>Walk Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 Survey Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Land Use: density, proximity to transit, stores, schools, senior housing</td>
<td>• Link to Node Ratio (connectivity)</td>
<td>• Density (Res. pop density)</td>
<td>• Density</td>
</tr>
<tr>
<td>• Street Network: higher scores for lower density of roads and intersections</td>
<td>• &quot;Ped Sheds&quot; (from Origin/Destination)</td>
<td>• Diversity (distance to M/U centers)</td>
<td>• Block length</td>
</tr>
<tr>
<td>• Safety: crash incidence over two years, traffic volume and truck route</td>
<td>• Pedestrian Route Directness</td>
<td>• Design (trails per 1K residents SW per 100 residents # of intersections/mile)</td>
<td>• Intersection density</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Nearby amenities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Schools, Parks, Shops, Transit</td>
</tr>
</tbody>
</table>

Suitability Analysis map shows combined weighted scoring of land use, street network, safety, and social equity evaluation factors. The respondents weighted the factors as follows:
- 36% Land Use
- 36% Safety
- 21% Street Network
- 13% Social Equity

Accessibility to destinations within a specified travel distance and is a function of proximity and connectivity

Link to Node Ratio: the ratio of road links (segments of a road between two intersections) to the number of nodes (intersections and maybe cul-de-sac ends)

Establishes service areas for various activity centers (DU) such as transit stops, stores and schools.

Uses the network analyst tool in ArcMap to identify the service area for each DU

Walk Score measures the walkability of any address by analyzing hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category. Amenities within a 5 minute walk (.25 miles) are given maximum points.

A decay function is used to give points to more distant amenities, with no points given after a 30 minute walk (IDW).

### NEIGHBORHOOD TYPOLOGY ANALYSIS

As presented in Appendix A: Literature Review, there exists a variety of documented methods for using GIS technology to view and model pedestrian connectivity. StepUP Studio started its assessment of the pedestrian network by attempting to formulate neighborhood types using GIS data, case study research and public input as guides.

Neighborhood types were initially defined based on distinguishing characteristic variables such as the predominant development period, intersection density, and slope. A similar project conducted in Davis, California, ArcMap product manufacturer ESRI, Walk Score criteria, and background information from the Washington County Transportation System Plan update all uncovered different ways of measuring neighborhood types.

### LINK TO NODE ANALYSIS

A link to node ratio is a basic measure of connectivity, with a greater number of intersections (nodes) to network segments (links) indicating greater connectivity. The only data requirements are a line feature class of streets and a point feature class of intersections. ESRI’s ArcGIS Model Builder helps to further automate the processes (Figure 4 on opposite page).

There is some variation in the ratio across different existing Tigard neighborhoods (Figure 5 on opposite). However, these boundaries do not follow other spatial criteria (land use density, slope, development age, etc.).

To test the usefulness of this method of analysis to Tigard, three distinct "preliminary neighborhood typologies" were selected based on some of the spatial and built environment characteristics described above. However, these three initial types presented even less variation than the existing neighborhood boundaries (Figure 6 on opposite page).
Step 1: Pedestrian Network Analysis

The Link to Node results were inconclusive, showing ratios of 1.31 to 1.38 in the neighborhoods selected using the above criteria overlaid by hexagonal boundaries found in the Metro Context Tool and neighborhood age. With little context to separate neighborhoods based on the assessment of the Link to Node analysis of select residential areas found in Figure 6 above, the group turned a custom ArcGIS utility designed to run with the Network Analyst tool that entertains all facilities in Tigard that are suitable to walking.

SERVICE AREAS OR “PED SHEDS”

Another tool StepUP Studio used for assessing the connectivity of Tigard’s pedestrian environment is through determining service areas. Service areas, when used for pedestrian connectivity, are often referred to in popular nomenclature as “ped sheds.” A ped shed encompasses an area on a network that can be reached by traveling along a route in that network. It is different from a typical GIS buffer geoprocessing analysis in that it is irregularly shaped because the distance is held by the constraints of the network.

A drawback to this type of pedestrian connectivity analysis is that the ped shed or service area analyses do not account for the number of potential users in an area. An important aspect of assessing pedestrian connectivity is the ability to determine how many people are being impacted by either the network as it currently exists, or by how a proposed project or new development may impact people, and the amount of people it may impact.
Building a Better Network

The quality of the network dataset is the backbone of any analysis carried out, and a better network would thereby provide commensurate results. The network used in these analyses was from the centerline street feature, provided by the City of Tigard, includes important attribute data, such as the presence or absence of sidewalks on any given street segment and other fields covering pedestrian use. However, it is a street dataset used primarily for road maintenance purposes.

The network needed to be rebuilt to connect it with regional trails and other off-street pedestrian facilities. Doing this involved digitally connecting each and every trail segment to the center of the street segment in the digitizing edit environment within ArcGIS. Every trail-to-street and/or sidewalk connection was effectively separated. Joining these two datasets presented a far more true and holistic network that most adequately models the real world.

Included in the City of Tigard transportation feature dataset was a “trail” feature class. This dataset differed from other available trails GIS data in the region, particularly from Metro, in that it was very localized and contained the small cut-through and unofficial trails, often very short in length, that are used by pedestrians in Tigard to connect roads or trails for easier access to their destination.

Synchronizing the two transportation networks built a much better dataset from which to run analyses and could be left alone at that. To create a more accurate representation of real world conditions, StepUP sought to improve the network even further by adding attribute information concerning signalized intersections and the presence of sidewalks on one or both sides of the street. This was done by joining the Metro RLIS sidewalk data to the network dataset with the outcome providing a value of “y” or “n” for the presence or absence of sidewalks. Likewise, signal data from the City of Tigard was added to the network street segments that intersected street signals. The assembled network model is the best predictor of pedestrian movement regionally, and perhaps nationally.

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The node fixer works to fix the different data sources that are combined to create the network. For example, Tigard street centerlines, Tigard trails, Metro RLIS sidewalks and Tigard signal data files were all joined or added in the fashion described above, to create a powerful network. The node fixer provides an automated system for checking and editing node and segment IDs for errors and duplicate data.

Walkway Generator

The walkway generator derives its topology from the topology of the network being used as an input. It generates a dataset based on this topology that includes sidewalks, crosswalks, midwalks, streetwalks and connectors. This generated dataset provides the foundation for assigning the weights, in a future step, that allow the model to calculate levels of difficulty for the pedestrian to travel in a real world circumstance.

Weighter

Weighting the walkways allows the model to replicate real world pedestrian actions. The weights are attributed according to the walkway segment’s difficulty level for pedestrian flow. Assigning weights can be considered as a representation of the cost of pedestrian travel. Various costs for pedestrians include length of segment, traffic volume, presence or absence of sidewalks, crosswalks or signals, or the ability to circumnavigate a particular street segment.

StepUP Studio met with Scott Parker from the Portland based GIS Jammers group who had developed a plug-in extension for ArcGIS. Scott was happy to offer his tool to StepUP Studio for our analysis of Tigard’s pedestrian network. It was through his advice that we created such a thorough network that combined auto travel, off-road trails, signals and sidewalks into one dynamic network. His walkway network analysis tool (walkway tool) works by applying weights as the impedances to pedestrian travel.

The walkway tool utilizes a combination of several different tools built in to the ArcGIS plug-in. It consists of a node fixer, walkway generator, weighter and an analysis function.

Analysis

After having built the network and assigning the weighting scheme or schemes, the Walkway Network Analysis Tool can be run. It uses the network as an input, as well as a point file of population in a defined area, and produces outputs indicating the number of people that travel through a given intersection to get to a particular destination. The first file created is a point file with graduated circles indicating the varying numbers of people impacted by access to a particular destination. From the point file in this or any particular location, the user can use other GIS tools and techniques to best visualize the analysis results. Spatial interpolation is a valuable tool to take known data and investigate how it will spread over a given geography. On the general basis of things being close together having a stronger relationship than things further apart, spatial interpolation can show how a destination impacts the network in a greater geographic area. Inverse Distance Weighting (IDW) is the spatial interpolation tool used in this analysis to present the data. Each point on the raster surface indicates walking distance from that point to the input destination.

SUMMARY

Having used several different geospatial analysis methods to analyze Tigard’s pedestrian network, StepUP Studio is most content with the results provided from the extension built by Scott Parker. Not only did this tool require a much more thorough and complete network to be constructed, the results of this model present the most realistic pedestrian behavior of any of the analyses performed. StepUP Studio plugged in a few destinations and ran the analysis with a weighting scheme based on literature and an understanding of real world pedestrian habits. But one of the most flexible aspects to this tool is that it can be handed over to the City of Tigard and they can use the network StepUP Studio constructed to input any destination and they can create their own unique weighting schemes. It is a very flexible tool, in that respect, and one that can be used for numerous public projects.
Step I: Pedestrian Network Analysis

The results of a network analysis of walking to the new Whole Foods shown in the maps to the right was accomplished using the Network Analyst tool in ArcGIS along with a custom utility developed by Scott Parker. The network data results represent potential pedestrian movement on streets, existing regional and neighborhood trails and eleven proposed new neighborhood trails. Potential walking activity on the three aforementioned pedestrian assets are presented separately.

The first representation of the data shows potential throughput at each node for the network assets used to reach the Whole Foods location.

The second representation shows the service area of the selected network assets in quarter mile increments.

The final representation is a slope of the service area that reveals barriers in the network for selected assets, with redder areas showing higher impedance values.

Taken together, the three presentations of selected network assets tell a story about how the street network, existing trails and proposed neighborhood trails affect pedestrian access in western Tigard.
II. Best Practices

There are good examples of walkability and pedestrian improvements in cities all over the world that provide best practices and possible pitfalls relevant to Tigard. A complete summary of related case studies can be found in Appendix C: Case Studies. Broadly speaking, the most successful efforts do one or more of the following:

- Demonstrate how communities establish pedestrian connections
- Create walkable facilities and destinations
- Encourage community values and investment around walking

One of the main ingredients of successful walkability projects is developing policies to help prioritize adequate and safe pedestrian infrastructure. Sidewalks on arterials (on both sides of the street), repair programs, and crossing amenities are the most basic requirements for better walkability. It is also essential to gather data and track achievements: pedestrian and bike counts, surveys, and audits are key to many plans, such as those in Flagstaff (AZ), Cary (NC), and Charlottesville (VA).

Successful programs also create advocacy and advisory groups. Ann Arbor’s Safe Streets and Sidewalks Taskforce leads educational, outreach and enforcement campaigns throughout the city. The most successful cities (big and small) have staff dedicated to pedestrian or non-motorized transportation who create plans, conduct surveys, and engage citizens.

Many cities develop Safe Routes to School programs where the City, school staff, parents and students work together to promote safe walking and biking to school. Enabling mixed-use developments and providing accessible destinations are also common strategies. Connections between these destinations need not only include streets but also greenways, and the public transportation system.

For example, Flagstaff’s urban trail system not only provides recreational opportunities, but also connects neighborhoods, open spaces, residential areas, shopping, schools and places of employment. In a very different environment, Mill Valley’s ‘Steps, Lanes and Paths’ program provides another great example of connectivity through terrain that is challenged by steep hills and curvy roads.

Tigard is different than each of these cities in some ways. Some are larger in size, some have different populations and economies (e.g. college towns), or are located in very different settings. But they all have in common is a commitment to walkability across institutions and their communities.

### Walkability Case Studies across the country

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Area (sq mi)</th>
<th>Density (per sq mi)</th>
<th>Home Ownership</th>
<th>Median Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigard</td>
<td>49,774</td>
<td>11.8</td>
<td>4,066</td>
<td>60.5%</td>
<td>$62,576</td>
</tr>
<tr>
<td>Alexandria, VA</td>
<td>139,966</td>
<td>15.2</td>
<td>9,208</td>
<td>43.9%</td>
<td>$83,996</td>
</tr>
<tr>
<td>Ann Arbor, MI</td>
<td>114,024</td>
<td>27.7</td>
<td>4,116</td>
<td>45.5%</td>
<td>$53,814</td>
</tr>
<tr>
<td>Cary, NC</td>
<td>135,234</td>
<td>55.5</td>
<td>2,438</td>
<td>70.9%</td>
<td>$91,349</td>
</tr>
<tr>
<td>Charlottesville, VA</td>
<td>41,225</td>
<td>10.3</td>
<td>4,002</td>
<td>40.8%</td>
<td>$44,535</td>
</tr>
<tr>
<td>Flagstaff, AZ</td>
<td>63,505</td>
<td>64.0</td>
<td>992</td>
<td>46.8%</td>
<td>$48,676</td>
</tr>
<tr>
<td>Mill Valley, CA</td>
<td>14,159</td>
<td>4.8</td>
<td>2,920</td>
<td>69.0%</td>
<td>$116,983</td>
</tr>
</tbody>
</table>

~ Source: U.S. Census Bureau 2012 - Social Explorer
ESTABLISHING PEDESTRIAN CONNECTIONS

The city and residents of Mill Valley, California have built over 175 sections of steps, lanes, and paths to connect walkers with key destinations such as transit, stores, churches, and the library. These little shortcuts are often the difference between a quick neighborhood stroll and an otherwise impossibly long hike along busy arterial streets.

CREATING WALKABLE FACILITIES AND DESTINATIONS

Flagstaff, Arizona utilizes a place-based approach to city zoning to help promote more walkable neighborhoods featuring a mix of uses. The city believes that different types should be regulated in different ways.

The Flagstaff Urban Trail System (FUTS) also greatly enhances walkability. The urban trails connect the city’s neighborhoods with commercial amenities, employment centers, and the surrounding National Forest.

BUILDING COMMUNITY ATTACHMENT AND INVESTMENT

Alexandria, Virginia has built an extensive Safe Routes to School program that goes well beyond infrastructure improvements and materials. The city, schools, and parents worked together on programs such as “Walking Wednesdays” and parent-led “Walking School Buses” at some schools.
III. Community Engagement

We used a number of outreach methods to learn what Tigard residents thought about walking in their neighborhoods. Specifically, we wanted to know if walking was important to them, where they did and did not walk (and why), what barriers to walking and opportunities to improve walkability they experienced, and what changes they would like to see. We reached out to the community in the following ways:

**GOALS**

- Broad and inclusive community engagement
- Provide the public with accurate, timely, and understandable information and/or access to the information needed to understand the project as it moves forward;
- Provide the public with the opportunity to give informed and meaningful input;
- Ensure adequate time and opportunity for the public to provide input;
- Give full consideration to community input; and
- Assist the public in understanding the project decisionmaking process during project design and delivery and the community’s role in that process.

**PROCESS**

**Planning**

- City of Tigard Staff & Council Member Consultation
- Stakeholders Identification
- Community Gathering Spaces Identification
- Community Engagement Plan Development

**Awareness**

- CityScape Article
- Project Website, Facebook Page, Online Survey and Mapping Tool Development

**Outreach**

- Implement Community Engagement Plan
- Public Presentations
- Open Houses
- Walking Tours
- Community Conversations

*Timeline of Engagement Events*

- **City of Tigard’s Pedestrian and Cyclist Monthly Subcommittee Meeting**
  - 2.20.14
- **PNW Regional Walkability Meet & Greet**
  - 3.16.14
- **City of Tigard’s Pedestrian and Cyclist Monthly Subcommittee Meeting**
  - 3.19.14
- **Walnut St. Improvement Project Open House**
  - 3.27.14
- **Good Neighbor Center Resident Meeting**
  - 4.1.14
- **Tigard Walks Kick Off Event**
  - 4.13.14
- **Tigard Senior Center Walking Tour**
  - 4.14.14
- **Tigard Senior Center Walking Tour**
  - 4.16.14
Step III: Community Engagement

METHODS

In an effort to connect with as much of the public as possible, StepUP Studio reached out through a variety of different methods, both online and in person.

- Community Conversations
- Open Houses
- Interviews
- Walking Tours
- Public Presentations
- Surveys
- Outreach Methods
- Interactive Mapping Tool
- Surveys

This map at the April 1st Kick Off Event allowed Tigard residents to mark barriers to walking and common destinations in their neighborhoods.
Step III: Community Engagement

SURVEY SUMMARY

A survey was issued as part of the community outreach effort in order to collect important information from Tigard residents on walking related matters. The purpose of this report was to:

- Learn how Tigard residents get to everyday destinations
- Identify the amount of time Tigard residents spend walking
- Identify barriers to walking in Tigard, and
- Identify demographic factors that are related to time spent walking

Key Takeaways

- 73% of survey participants reported walking on a regular basis for exercise or recreation but not utilitarian purposes. Utilitarian trips to work, school, and the grocery store were predominantly made by car.

- When asked which barriers impede walking in Tigard, the highest rated barrier was lack of sidewalks and trail connections and in many instances the lack of connectivity and safe crossing where sidewalks and trails do exist.

- The reported factor that makes walking in Tigard the most difficult or unpleasant is the long distances between destinations (work, school, parks, shopping, etc.).

144 Tigard residents responded to the Tigard Walks survey online or in person.

Nearest Intersection to Residences of Survey Respondents and Interviewees

Survey Period

The survey was available online and in person.
Step III: Community Engagement

SURVEY DEMOGRAPHICS

**Gender**

- Gender: 41% Male, 59% Female

**Race**

- Race: 83% White, 4% Black or African American, 2% Asian, 8% American Indian or Alaska Native, 2% Pacific Islander, 1% Prefer not to respond

**Age**

- Age Distribution:
  - Under 12 years old: 0%
  - 12-17 years old: 0%
  - 18-24 years old: 3%
  - 25-34 years old: 15%
  - 35-44 years old: 28%
  - 45-54 years old: 23%
  - 55-64 years old: 16%
  - 65-74 years old: 12%
  - 75 years or older: 3%

**Education**

- Education Levels:
  - Less than high school: 0%
  - High school / GED: 5%
  - Some College: 10%
  - Vocational or trade school: 15%
  - Associates / 2-year degree: 20%
  - 4-year degree: 30%
  - Post-graduate degree: 40%
  - Prefer not to respond: 5%

**Average Number of Adults per Household**: 2

**Average Number of Children per Household**: 2

**Average Number of Motor Vehicles per Household**: 2
Step III: Community Engagement

WALKING BEHAVIOR

How often do you walk in your neighborhood for exercise, recreation, or dog walking?

- Rarely or Never: 9%
- Once or Twice a Month: 17%
- Once or Twice a Week: 36%
- Daily: 37%

How often do you walk to transit (bus stop or WES commuter rail station)?

- Rarely or Never: 78%
- Once or Twice a Month: 12%
- Once or Twice a Week: 6%
- Daily: 5%

How often do you walk in your neighborhood to a designation other than a bus stop or WES rail station?

- Rarely or Never: 38%
- Once or Twice a Month: 30%
- Once or Twice a Week: 20%
- Daily: 12%

How often do you walk on the off-street trails such as Fanno Creek Trail?

- Rarely or Never: 34%
- Once or Twice a Month: 33%
- Once or Twice a Week: 23%
- Daily: 11%

Feel very comfortable walking on my neighborhood streets.

- Typically use the city's off-street trails for exercise.

- Usually drive alone to work or school.

- Feel very comfortable walking on my neighborhood streets.

- Would support a new neighborhood market, restaurant, or other small business destination within walking distance of their home.

- 71%
- 76%
- 42%
- 43%
- 88%
Step III: Community Engagement

WALKING IN TIGARD

Do any of the following keep you from walking more often?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of sidewalks in my neighborhood</td>
<td>73</td>
</tr>
<tr>
<td>Too much / too fast automobile traffic</td>
<td>68</td>
</tr>
<tr>
<td>Concerns about safety / security</td>
<td>53</td>
</tr>
<tr>
<td>Destinations are too far away</td>
<td>47</td>
</tr>
<tr>
<td>Walking takes too long to get where I’m going</td>
<td>37</td>
</tr>
<tr>
<td>Weather</td>
<td>10</td>
</tr>
<tr>
<td>Hills are too steep</td>
<td>8</td>
</tr>
<tr>
<td>Streets are confusing / I get lost</td>
<td>6</td>
</tr>
<tr>
<td>Mobility challenges</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
</tr>
</tbody>
</table>

What changes would make your neighborhood more comfortable to walk in?

<table>
<thead>
<tr>
<th>Change</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>No changes</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
</tr>
<tr>
<td>More street trees</td>
<td>13</td>
</tr>
<tr>
<td>Better pedestrian directional signs/maps</td>
<td>14</td>
</tr>
<tr>
<td>Closer bus stops</td>
<td>20</td>
</tr>
<tr>
<td>More neighborhood activities</td>
<td>29</td>
</tr>
<tr>
<td>Closer destinations</td>
<td>39</td>
</tr>
<tr>
<td>More bike paths / lanes</td>
<td>40</td>
</tr>
<tr>
<td>More neighborhoods parks</td>
<td>47</td>
</tr>
<tr>
<td>Improved street lighting</td>
<td>48</td>
</tr>
<tr>
<td>Sidewalks</td>
<td>53</td>
</tr>
<tr>
<td>Slower vehicles</td>
<td>57</td>
</tr>
<tr>
<td>More trails / easier access to trails</td>
<td>19</td>
</tr>
</tbody>
</table>

Traffic enforcement (for cars mainly) would help reduce many problems/barriers. i.e. Speeding, not yielding to pedestrians at crosswalks (yes, even marked ones), Rolling through stops signs, etc.

"LACK OF CONNECTIVITY"

Drivers need to be educated to look out for pedestrian as they drive in Tigard.

"SAFER CROSSWALKS"

"DOGS OFF LEASH!"

"TREES & SHRUBS CUT BACK FROM SIDEWALKS"
Step III: Community Engagement

INTERVIEWS

The StepUP Studio team interviewed 15 Tigard community members. These conversations allowed interested individuals to give input into the process and helped us develop important relationships.

Interview Period

**Lifestyles, and Social Norms Fail to Support Physical Activity**
Informants noted lack of time/motivation and car dependency as key issues regarding physical activity in Tigard.

What Residents Said:

- People in the city think differently about walking to get places than those in the suburbs. [In the suburbs], it’s a lifestyle thing. [People] live in a place dependent on the car, every family has two or more cars & only walk to and from the car. We just use our car without thinking about it!
- Many people are aware that of how their habits jeopardize their health, (poor diet, lack of exercise) but they don’t see viable avenues for change and don’t do much amidst their busy lives.

**Lack of Opportunities**
Informants spoke of the lack of opportunities for physical activity, lack of access to playing areas.

What Residents Said:

- There is a lack of access to places to play. We want an active parks and recreation department to provide services and programs. We want to make sure these opportunities are accessible to everyone. We want to provide ample opportunity for outdoor recreation.

**Pathways, Crosswalks, and Safety**
Informants highlighted the lack of sidewalks and trails and in many instances the lack of connectivity and safe crossing where trails do exist as major factors influencing physical activity in Tigard.

What Residents Said:

- More pathways and sidewalks are needed for walking. [We want] the ability to commute by foot to work, school, and to other activities. There is a lack of pathways and safe connections between home, work, and play. Also, community design is not pedestrian friendly. [Communities are] designed for automobiles. For example, Progress Ridge Townsquare is a mixed-use development straddling the city line between Tigard and Beaverton. It is nearly impossible to safely walk or bike there.
- Neighborhoods and trails [are separated] by busy throughways. We need to address pedestrian safety on city sidewalks and roads. The most populated sections of our city do not have complete sidewalks. The increase in traffic on residential streets and the increase in number of people speeding and/or going through stop signs causes concerns for pedestrian and child safety. The city is separated into two quadrants by a busy state highway (Pacific Highway). This creates safe pedestrian crossing problems.

“Our youth aren’t even able to walk safely to school!”

“Highway 99 is not only a barrier, it is a travel dynamic changer, not only with respect to crossing it on foot, but with commute times.”
ONLINE MAP FEEDBACK

StepUP Studio team members worked with Kittleson and Associates, Inc. to create an Interactive Online Map so that Tigard residents can share their thoughts and experiences on specific locations in their neighborhoods.

The map on the right illustrates some of the sidewalk improvements and crossings recommended by Tigard residents through the online map. Below are a few examples of what some had to say.

- “Crossing Pfaffle at Hall is dangerous. Vehicles heading south on Hall and turning on Pfaffle are paying attention to oncoming traffic to turn, not pedestrians. Also cars on Pfaffle generally roll too far forward for people to cross in front of because the bridge partially blocks visibility. It needs a light and crosswalk lighting system.”

- “I love all the neighborhood connections! I hope they are high priority and come to fruition. They will make a huge difference in walkability. With these in place, it becomes feasible to get places without having the expense of adding sidewalks to certain areas. It would also make Tigard rival the SW with its SW Trails system.”

- “No Continuous Sidewalk. Kids should be able to walk to and from school without having to walk in a ditch or out into the street.”

- “Vehicles heading north on Main St but turning onto Hwy 99 east tend to turn right on red without stopping while people are in the crosswalk. I believe it’s because the traffic signal is not on the same pole as the other signals. When the other cars heading north from Main onto Greenburg have a green light, those turning right have a red light to allow for people to cross—but drivers need to look at the signal on a pole at the corner of Greenburg and Hall near the bank. If this sounds confusing, it’s because it is.”

- “The section of N Dakota from Greenburg Rd to the Fanno Creek Trail is probably about the most dangerous stretch of ground for a pedestrian in all of Tigard. There is no sidewalk and no extra room whatsoever crossing the little road bridge that goes over Fanno Creek. It’s amazing no one has been hit there. It’s a busy street with a lot of foot traffic.”

- “121st between SW Gaarde St and SW Walnut St has no shoulder, bike lane, or sidewalk. People walking or riding to the bus stop on Walnut, Fowler Middle School on Walnut, or to Gaarde have to walk or ride in the street and risk being hit by speeding cars and trucks. This is a very dangerous section of road and is a huge barrier for the neighborhoods.”
WALKABILITY STRATEGIES

Through our research, analysis, and community outreach, we uncovered three core values in Tigard that support better walkability.

**Family-Friendly Neighborhoods**
Tigard’s neighborhoods should be safe, vibrant communities, where people of all ages and backgrounds are welcome and encouraged to walk, talk, learn, and play.

**Living Close to Home**
Tigard’s neighborhoods should contain the destinations, facilities, and amenities that meet the needs of their residents.

**Informed and Empowered Citizens**
Tigard’s residents should have the tools, resources, and expertise to help make their communities better.

Each of these three core values are reflected in one or more of the plan’s five strategies.

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**Why No “Sidewalks” Strategy?**

One of the most common responses to StepUP Studio’s community outreach efforts was the lack of continuous sidewalks in Tigard. While we recognize the importance of a complete sidewalk network, we have not recommended sidewalk construction as a stand-alone strategy for several reasons.

First, the city already has active plans to increase sidewalk coverage as funding becomes available, and will soon complete several important sidewalk projects, including along Walnut Street near Fowler Middle School. Further, we recognize that there are limited financial resources to be devoted to walkability, and have attempted to suggest lower-cost, “outside the box” strategies. Finally, simply building more sidewalks doesn’t resolve other issues addressed by the strategies, such as the lack of neighborhood destinations.

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1. **Safe Routes to School**
Safe Routes to School programs have proven successful at increasing neighborhood walkability in a number of comparable cities across the country. Eugene and Portland, Oregon, and Alexandria, Virginia have each developed city-wide or regional SRTS policies that have led to SRTS curriculum and programming at their schools, the development of community resources to promote bicycle and pedestrian safety around schools, and helped secure funding for bike/ped infrastructure projects. Of particular benefit to Tigard, the SRTS Program Manager for the region is eager to work with the City and the school district to get started in Tigard.

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2. **Active Parks and Trails**
Parks and trail systems are already the heart of Tigard’s pedestrian network. Providing consistent activities such as walks and runs, community gardens, or summertime movies under the stars give area residents more opportunities to take advantage of these existing, and mostly walkable neighborhood destinations, and gets people out on their feet in their neighborhoods on a more regular basis.
WALKABILITY STRATEGIES

3. Neighborhood Centers

Small, neighborhood commercial nodes provide a walkable alternative for basic goods and services. These centers, located on arterial or collector roads, house service sector businesses like restaurants, coffee shops, and small grocery markets. Increasing the number of walkable destinations within a low-density residential neighborhood can have a dramatic impact on overall walkability. Tigard’s zoning code allows for this kind of activity through a C-N zone, but it is used in just three locations city wide.

4. Simple Signs

Much of the city’s existing pedestrian infrastructure, including many cut-throughs and off-street paths, are unknown even to nearby residents. Part of the problem is that neighborhoods often lack adequate signage directed at people on their feet. Simple, visible, and frequent signs for both way-finding and education can go a long way to helping walkers feel more confident knowing where they’re going and how long their journey will take. There are great examples of citizen-led, and city-assisted pedestrian signage initiatives from Raleigh, North Carolina to nearby SW Portland.

5. Talk the Walk

With its crisscrossing trails and central downtown, Tigard is already more walkable than most people realize. One thing that sets the most walkable cities apart is their commitment to sharing where and how they walk, through a regular column in the local paper, a set of easily available neighborhood walking maps, or even a “walk of the month” club. A set of communication tools for city staff, and a walkable neighborhoods guide with tips for the community should help shape the conversation about walkability in Tigard.
EXAMPLES OF SUCCESSFUL SRTS PROGRAMS

Eugene, Oregon
eugenesrts.org
The school districts in Eugene and Springfield teamed with local stakeholders to develop an SRTS strategy for the entire region, leading to programs, maps, tools, and resources for schools of all grades.

Portland, Oregon
portlandoregon.gov/transportation/article/373691
Portland has implemented a comprehensive SRTS policy that includes tools, and resources for schools of all grades.

Alexandria, Virginia
alexandriava.gov/localmotion/info/default.aspx?id=11552
In Alexandria, 80% of the city’s schools have SRTS curriculum and programing, including regular Walk to School events and support for Walking Wednesdays at a number of schools.

SRTS PROGRAM COMPOSITION

Though the specifics of SRTS programs vary from school to school, they are typically organized around the following primary components:

- Educational and curricula for students that promote active transportation;
- Community engagement efforts to encourage safe driving behavior near schools and support for active transportation choices for students;
- Prioritization of and support for bike-ped infrastructure projects.

On the curricular front, schools might partner with local active transportation advocacy organizations to offer pedestrian and bicycle safety classes during the day. Bicycle safety lessons are often incorporated into the Physical Education curriculum. A pedestrian safety curriculum could cover safe walking behavior in different scenarios and environments, including parking lots, intersections with and without crosswalks, or near buses or heavy traffic. Safe walking behavior can be practiced on school grounds and through regular community walks. Parents and caregivers should be provided guidance materials so they can model safe behavior and practice them with their children.

School administrators, parents and PTAs will need to work together to provide structured support for safe biking and walking to school. Federal funding may be available for the creation of safe walking maps that show existing sidewalks, crosswalks, traffic signals and crossing guards within an average 5-, 10-, and 15-minute walking radius. Printed maps should include safety and encouragement tips as well.

Some schools have organized 'Walking School Bus' events to raise awareness of active transportation. Once a week parent volunteers “pick up” students in the neighborhood on the way to school, just like a regular school bus. Providing incentives for students who walk or bike often, through “frequent walkers/bikers” punch cards has also proved successful for many schools.

In Alexandria, 80% of the city’s schools have SRTS curriculum and programing, including regular Walk to School events and support for Walking Wednesdays at a number of schools.

IMAGINE SAFE ROUTES TO FOWLER

Depending on the level of interest and cooperation across the city, Tigard might have greater success through a city-wide policy like those in Eugene and Portland. Decisions regarding which specific curricular and programing elements are the best fit for Tigard will need to come from district and school administrations, PTAs, and community stakeholders, by way of a steering committee or a preliminary Action Plan that leads to a more thorough SRTS strategy. But the first step is for the city to adopt a Safe Routes to School policy to guide future work.

For the purposes of this document, we conducted a preliminary assessment of pedestrian infrastructure projects that would potentially have the greatest impact on Safe Routes to Fowler Middle School, based on analysis of Tigard’s pedestrian network and the city’s existing list of bike-ped priority projects.

- Construction of sidewalks along Tiedeman Avenue between Tigard Street and Greenburg Road serving Fowler could potentially be funded with $1.4 million listed as financially constrained in the Tigard TSP.
- Sidewalks serving the school on Walnut Street between Tiedeman Avenue and Hwy 99 that have not been programmed in the RTP could be partially funded through SRTS programs.
- Other pedestrian projects serving the school that have been identified by City staff and been placed on the financially constrained list include sidewalks on North Dakota Street between Tiedeman Avenue and 121st Avenue, and on Tigard Street between 115th Avenue and Hwy 99.

Map showing potential sidewalk projects around Fowler Middle School
Funding for Safe Routes to School

Appealing to Tigard residents' existing support for walking will go a long way towards the successful implementation of SRTS curriculum and education programs, but it cannot fully cover ongoing programmatic expenses or the cost of building necessary pedestrian infrastructure around schools. Funding for SRTS originating at the federal level is administered by the Federal Highway Administration (FHWA) and programmed by the Oregon Department of Transportation (ODOT).

Under MAP 21, the 2012 transportation bill, SRTS falls within the Transportation Alternatives Program (TAP). The program, equal to 2% of funds available in the Highway Trust Fund, includes all bicycle, pedestrian, trail and SRTS funding. The amount allocated for Bike and Ped improvements has been reduced by 40% while dedicated funding for SRTS at the national level has ended.

Oregon is supplementing national funding under TAP with $2 million in non-infrastructure funding from the state's surface transportation allocation. They permit pedestrian improvements near schools to compete with other State projects in the Enhanced category beginning fiscal year 2016. Accessing federal TAP dollars for pedestrian projects under SRTS requires a minimum 20% local match.

Money for pedestrian improvements is still available from the previous SAFETEA-LU transportation bill. Oregon allocated 70% of roughly $2.5 million in programmed funds to infrastructure projects with no local match requirement. Money for SRTS is divided between state and regional administrators of the program through a competitive grant process.

Federal transportation funds are allocated within the Portland region by the regional government, Metro. Metro lists projects in a Regional Transportation Plan (RTP) as "financially constrained" when a local capital project has been adopted. Tigard adopted a new TSP in late 2010 and has nine pedestrian projects listed as financially constrained. Working with Metro regional partners to prioritize pedestrian projects on the financially constrained list will be critical to ensure improvements are built in the near term, as represented in the Tigard TSP.

Funding for local SRTS match requirements for sidewalk improvement projects under MAP 21 could potentially come from a number of sources. A special assessment on local property taxes after the formation of a Local Improvement District (LID) would be a reliable source of revenue to pay for needed sidewalk facilities and could help meet the required 20% match for SRTS projects under MAP-21. A precedent exists in Tigard where an LID was formed to make street improvements in the Tigard Triangle. While some properties were removed from the LID at the request of certain property owners, the special assessment helped pay for millions of dollars worth of street, sidewalk and curb and gutter improvements to bring artifact county roads up to City standards.

Implementing a local gas tax increase targeted at safe and comfortable access to schools is a reliable way to fund needed sidewalk projects. In 2006, Tigard passed such a limited duration gas tax to fund intersection improvements at Greenburg Road and Hwy 99 without being referred to the voters. More recently, the Tigard City Council resolved to block State legislation that extends or makes permanent a moratorium on local gas tax increases. These local initiatives demonstrate an appetite for raising funds for specific projects through local gas tax increases.

Transfers of transportation funds from Washington County are another potential match source for SRTS capital projects. The county Board of Commissioners approved a $175 million Major Streets Transportation Program (MSTIP) in 2012, of which $160 million was set aside for multi-modal street projects with sidewalks. This five year capital improvements program funding pool will be used to rebuild Walnut Street from 116th Avenue with bike lanes and sidewalks, providing critical connections to Fowler Middle School. Opportunities exist to further tap into Washington County MSTP funds cover the required 20% match for SRTS projects under MAP-21 and improve important pedestrian connections like new sidewalks and replacing the narrow bridge on North Dakota Street over Fanno Creek.

NEXT STEPS FOR TIGARD

Adopt a Safe Routes to School policy

- Engage Tigard-Tualatin School District and Safe Routes to School Pacific NW Regional Policy Manager in preliminary SRTS policy development discussions.

A successful SRTS program in Tigard - at Fowler or elsewhere - will first and foremost require leadership and support from the city in the form of a city-wide SRTS policy, that will lead to participation and involvement from school leadership (principal and teachers), the school district (superintendent), Parent Teacher Associations, and students and their parents. For many schools faced with a seemingly endless list of unmeetable financial obligations, it can be difficult to make SRTS programing a high enough priority to ensure its success. Here, civic and community leaders play an important role, by ensuring that their support for an SRTS program is felt by the school, the district, and the community at large.

ADDITIONAL RESOURCES

SRTS Policy Workbook
changelabsolutions.org/safe-routes/welcome

The SRTS Policy Workbook is a remarkable tool designed to help Schools and city build a successful SRTS policy. Users are walked step-by-step through the different components of SRTS and given guidance on how large or comprehensive of a policy to create.

Safe Routes to School National Partnership - Pacific Northwest
safesrteapacificnorthwest.org

The Pacific Northwest chapter of the Safe Routes to School National Partnership can provide guidance for establishing a new SRTS policy.
Strategy 2: Active Parks and Trails

Core Values: Family-Friendly Neighborhoods, Living Close to Home

Parks and trail systems are already the heart of Tigard’s pedestrian network. Providing consistent activities gives leverage these great assets and gives area residents more opportunities to take advantage of existing, and generally walkable neighborhood destinations on a more regular basis. This strategy involves partnering with community organizations to promote and fulfill activities and events that can consistently attract interested residents.

MOBILIZING VOLUNTEERS

Many examples of private sector initiatives to activate parks and trails are evident around the country. Citizen volunteers have founded non-profit organizations to bring musicians, festivals, crafts, tournaments and movies to parks. The Austin Parks Foundation, for instance, uses grants, donations and corporate sponsorships to support improvement programs such as Adopt-a-Park. Its My Park Day and Natural Trails Day volunteer events, as well as organizing events like movies in the park, yoga in the park and a youth giant chess tournament.

The foundation bridges a gap between what needs to be done to reach the full community potential of parks and trails and what their parks department can offer with limited public funding. Their record of success is noteworthy; the latest Its My Park Day, for example, mobilized over 3,000 volunteers putting in over 10,000 hours working on more than 100 projects. With support from the Tigard Parks Department, citizen advocates wanting more active parks could engage the community and organize volunteers to promote and run events in parks.

Management of programming and operations of Pioneer Courthouse Square in downtown Portland has been delivered by a private 501(c)(3) corporation since the public space opened in 1984. With help from community volunteers and private sector sponsorships, the urban park organizes over 300 events per year and hosts more than 26,000 visitors a day. A diverse Board of Trustees draws from the business, non-profit, construction, communications, entertainment and civic communities. Essential local police, fire, water, transportation and parks and recreation agencies work with media and marketing partners to promote and serve events in the square. The organizational structure and community partnership approach of Pioneer Courthouse Square can serve as a model for Tigard to activate its parks. Soliciting volunteers through the Tigard Parks Department’s Recreation Resource Guide could form a catalyst of support for a non-profit group interested in orchestrating engaging events in Tigard’s parks, and stimulate walking throughout the city.

EXAMPLES OF ACTIVE PARKS AND PUBLIC SPACE

Live Music

Concerts in parks can be a good way to attract new parks and trails users who may walk to shows. This concept has worked well in Napa, California where the Napa City Nights concert series has packed the waterfront for years. Founded in 2008 by a group of musicians, their summer events are run entirely by volunteers under a non-profit model. Free weekly shows on Fridays at Veterans Memorial Park overlooking the Napa River are Family-Friendly, drawing hundreds of fans. The non-profit is supported with donations from the community and sponsorships from the city parks and recreation foundation, the downtown association, and local businesses.

Music on the Half Shell in Roseburg, Oregon has been attracting a diversity of bands from Pink Martini to Susan Tedeschi to The Whalers. The music series brings more than 10,000 spectators to Stewart Park, many of whom walk due to limited parking at the venue. Its annual budget of over $100,000 is covered through grants, sponsorships and donations dropped in a hat at shows. Rallying musicians around their trade is a natural fit. Connecting talent with a public venue to promote the musical arts, with assistance from Tigard’s economic development and parks officials, may be initiated through a call for proposals in the Tigard’s monthly CityScape newsletter.

Art and Wine Festivals

Putting on art and wine festivals can be a good way to stimulate walking to parks. In California, the Santa Clara Art and Wine festival attracted 50,000 people to its Central Park in 2013. While the event drew people from surrounding communities who mostly drove, local art and wine fans walked or biked to the park’s location in the city’s core. Local artists and charities benefit from visitors who enjoy tasting the new releases from nearby wineries, the participation of micro-breweries and shows by talented musicians. The two-day event generates hundreds of thousands of dollars in donations for local charities. Although the event is organized by the city’s Parks and Recreation Department, a private non-profit organization could achieve the same ends.

Events for Kids

World famous Balboa Park in San Diego has a 234 seat puppet theater that appeals to small children. The Marie Hitchcock Puppet Theater is operated by a non-profit guild dedicated to serving children (and adults) with wholesome entertainment. Shows run year round in Pallisades Building. The picnic shelter at Summerlake Park or the Bishop-Scheckla Pavilion at Cook Park would be appropriate venues for year-round performances.

Storytelling in parks would also attract families to Tigard’s parks. The city of Hampton, Virginia hosts storytelling groups during the summer months at Bluebird Gap Farm. As with puppet theaters, this type of event can be held year round with proper cover. Securing grants to provide seed money for storytelling or a puppet theatre company would be a key ingredient to launch such efforts.

Movies in the Park

The Portland Metro region has numerous examples of movie nights in parks during the summer months. The cities of Lake Oswego, West Linn, Portland, and Beaverton all have this park amenity. Lake Oswego holds four kid friendly shows at Millennium Plaza Park in July and August. Moviegoers bring blankets, pillows and lawn chairs and relax under the stars. The movies are put on by the Lake Oswego Parks and Recreation Department, with the help of sponsors, and feature free popcorn and other movie snacks. This is a relatively inexpensive way to activate Tigard’s parks and encourage walking to reach destinations. The only requirements are available power, a projector and portable screen.

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Community Gardens
Hosting community gardens in parks would create daily foot traffic by neighbors wanting to cultivate their own fruits, vegetables and flowers. The local food movement is in full swing, making the timing right to take advantage of this momentum. The best locations for community gardens in Tigard's parks appear to be in Windmill, Woodard, Commercial, Summerlake and Jack parks. The parks are evenly dispersed throughout western Tigard and offer ready access via neighborhood trails to pedestrian traffic. Hosting community gardens in Tigard's parks would create daily foot traffic by neighbors wanting to cultivate their own fruits, vegetables and flowers. One example with twelve plots at Greenfield Drive and 132nd Avenue has been tilled since 2009. Parks are evenly dispersed throughout western Tigard and offer ready access via neighborhood trails to pedestrian traffic.

Residents of Greenburg Oaks apartments discussed organizing around community gardens in their regular meeting last month. Facilitating a community garden at Commercial Park could generate significant foot traffic in the neighborhood, benefiting the health of their low-income residents. Additional buzz has been created by a condominium association, which has organized a community garden fronting Fanno Creek Trail where it intersects North Dakota Street. An interview with a family living in the condos demonstrates local demand for such garden plots. Their testimonial included stories about passers by on the trail asking about how to start a community garden.

Another nearby example of community gardens in parks can be found in the adjacent Tualatin Hills Parks and Recreation District (THPRD). The district has initiated a community garden program to provide cultivation opportunities in eleven parks. Residents that are part the district, including Tigard residents who have purchased an assessment, can rent community garden plots for a year with an option to renew their plot. Residency cards are renewed every three years to ensure that interlopers are not occupying plots.

Garden plots managed by THPRD can be a gathering place for families and provide opportunities for chance encounters with neighbors. Renters of plots must bring their own hand tools (machine tools are not permitted) and garden hoses. Sharing gardening implements, hoses and growing tips builds relationships in the community. Cooperation and trust are further enabled when water is conserved, plots are kept free of weeds and the fruits of labor respected. The only cost to THPRD would be setting aside half an acre of land in each park and the cost of materials to build raised beds, since the Boy Scouts can be engaged to build the raised beds, and rental fees collected for plots cover the cost of administering the program.

Action on the Trails
Activating trails requires mobile strategies to maximize the value of targeted events. Walkathons and ambling dog shows could attract attention to Tigard’s many trails, exposing users to new routes and experiences. Walkathons are natural catalysts to initiate a shift towards the pedestrian mode of travel. Numerous charity events use them to raise money for their cause, with the March of Dimes, the American Cancer Society’s Relay for Life and AIDS walks some of the most popular. Finding representatives of the charity organizations to form local chapters and organize walkathons is something the Tigard Parks Department can assist with. Once engaged, the city can influence a charity’s choice of route by offering walking maps with loops of a mile or less. Ultimately, a walkathon will increase awareness about walking routes in Tigard and encourage residents to get out and walk more.

Mobile dog shows are a way to engage dog walkers on Tigard’s trails and draw residents to trails about which they may not be aware. This could be an engaging way for Tigard’s many dog-owning residents to interact with each other and connect with the city’s parks and trails. The viewing public could hold score cards up as dog walkers pass by with the winner awarded a dubious prize. These shows could be organized as a charitable event by coordinating with the local Humane Society.

Organize community programming board or authority
- Engage non-profit entities with the Tigard Parks Department to organize, fund-raise, promote and fulfill activities and events that make parks and trails destinations.
- Activities could include community gardening, walkathons or dog shows. Plan events like movies in parks, musical performances, art and wine festivals, or kid friendly puppet shows and storytelling.

Oregon Walks
oregonwalks.org
Oregon Walks is a non-profit organization dedicated to promoting walking and making the conditions for walking more safe, convenient, and attractive. They are a leading resource for efforts to promote walking all over the state.

OSU Master Gardener Program
extension.oregonstate.edu/mg
The Master Gardener extension service program through Oregon State University facilitates community education and training for Oregonians on growing and caring for plants. They are a great resource for brand new Community Garden efforts.
Strategy 3: Neighborhood Centers

Core Value: Living Close to Home

While sidewalks, street crossings, off-street trails, and other walking infrastructure are important, a truly walkable neighborhood includes multiple destinations within walking distance that provide residents ample reasons to walk. From WalkScore.com’s rating of real estate to Portland’s 20-minute neighborhoods, proximity to goods and services is a crucial metric for walkability. Yet most of Tigard’s residential neighborhoods exist under zoning that explicitly prohibits nearby neighborhood-oriented businesses, forcing residents to drive to meet their daily needs.

Allowing for small neighborhood centers of commercial activity can go a long way towards activating a neighborhood with pedestrians. Small commercial nodes containing markets, cafes, restaurants or boutique shops help to draw people out of their houses and cars, offering casual walking trips to everyday locations and allowing Tigard residents to experience the value of living close to home.

Plan and Code Support

The City of Tigard has already recognized the importance of neighborhood commercial districts in crafting the development plan for the River Terrace area, which includes a commercial node. In fact, the City’s zoning code has a category specifically to support neighborhood commercial centers;

The C-N zoning district is designed to provide convenience goods and services within a small cluster of stores adjacent to residential neighborhoods. Such uses include convenience markets, personal services, and repair shops. A limited number of other uses are permitted conditionally.

18.520.020(a) See Appendix B: Existing Conditions for full code description.

At the same time, the Tigard 2035 Transportation System Plan recognizes commercial nodes in residential areas as a land use strategy for potential further plan or study that supports non-automobile travel choices while retaining the suburban residential character;

Commercial nodes in residential areas would provide residents with the opportunity to take non-work trips by bike or walking. These neighborhood commercial (N-C) nodes could include small restaurants, coffee shops, or neighborhood retail. This could be accomplished by allowing neighborhood-commercial as a permitted or conditional use in residential zones, or through designating specific nodes on the City’s comprehensive plan map as neighborhood commercial. The N-C designation currently exists within the City.

While Tigard’s zoning code has a designation for neighborhood-oriented commercial uses, it is currently in use in only three locations city wide, as the majority of land in Tigard is zoned specifically for residential uses. Residential areas are separated from the commercial areas, which are located primarily along Pacific Highway and in the Tigard Triangle. This leaves the heart of Tigard’s residential neighborhoods, such as the area around TVFR Fire Station 50, devoid of neighborhood businesses, with some areas being over a mile from the nearest corner market or coffee shop.

Plan and Code Support

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NEIGHBORHOOD-SCALE COMMERCIAL

Studies using regularly collected household surveys to assess commercial walking trips in California and Texas found that neighborhood commercial establishments can induce walking trips, as people take trips they would not otherwise consider in a car. Researchers found that residents in neighborhoods without commercial destinations walked to stores less than once a month, while residents in neighborhoods with commercial destinations did so more than six times a month.

Similarly, studies in the Portland region found that while people who walk or bike to shops spend less money on each visit than those who drive, they make substantially more visits to those businesses, ultimately spending more money overall. Thus expanded neighborhood commercial opportunities can not only promote walking, but also promote economic development as residents spend more of their money close to home.

IMPLEMENTATION OPTIONS

Introducing neighborhood commercial zones could be accomplished by allowing neighborhood-commercial activity as a permitted or conditional use in residential zones, or through designating neighborhood commercial at specific nodes on the City’s comprehensive plan map. As legislative amendments to an adopted comprehensive plan can be challenging, another option could be to have the City’s economic development agency purchase suitable properties for redevelopment, and attract a developer who could request a quasi-judicial plan amendment and zone change.

SITE SELECTION CRITERIA

Based on the local examples discussed below and national best practices, the following basic criteria serve as baseline for the siting of neighborhood commercial nodes.

- Allow for at least 10,000-20,000 square feet of developable land; single parcel preferred.
- Are along a collector street; at the intersection with another collector or arterial preferred.
- Are between one-quarter mile and one-half mile from other commercial nodes.
- Are reasonably well connected to the pedestrian network, or can be made so.

Good pedestrian access is also important from an equity standpoint, as this same study also found a disproportionate percentage of suburban shoppers who walk to stores were under age 18, and are therefore particularly vulnerable to unsafe walking conditions.

Neighborhood Commercial and Sidewalks

Just as a perfect network is insufficient without adequate destinations, neighborhood commercial centers need a good pedestrian network to positively impact walkability. It is the interplay between places to walk and an accessible pedestrian network that induces walking trips. A study in the Puget Sound region found 78% of pedestrians arrive at suburban commercial centers via the sidewalk network, yet less than half of suburban retail locations have sidewalks, demonstrating that retail centers without sidewalks are less able to attract walkers.4

Good pedestrian access is also important from an equity standpoint, as this same study also found a disproportionate percentage of suburban shoppers who walk to stores were under age 18, and are therefore particularly vulnerable to unsafe walking conditions.

SPOT ZONING

Whether as part of a legislative plan amendment or a quasi-judicial change, concerns over spot zoning may arise, as small neighborhood commercial zones, like in the examples later in this section, are small enough in nature to be contained on one or two parcels. The classic definition of spot zoning is “the process of singling out a small parcel of land for a use classification totally different from that of the surrounding area for the benefit of the owner of such property and to the detriment of other owners.” Such practices are generally prohibited by law.

The size of the parcels of land under consideration is only one aspect of determining instances of spot zoning; as is the importance of the proposed land use and its inter-relationship with surrounding properties. However the primary consideration is the consistency with the city’s comprehensive plan; Tigard Comprehensive Plan Chapter 2, Goal 2.1, Policy 15(c) states:

The new land use designation shall fulfill a proven community need such as provision of needed commercial goods and services, employment, housing, public and community services, etc. in the particular location, versus other appropriately designated and developable properties.

Findings of consistency with statute, rule, plan policies and local ordinances would have to be made prior to any quasi-judicial land use approval.

PHASING

Development of a neighborhood commercial center, including any applicable zone changes and subsequent construction, will take time. An interim step could be to allow less permanent commercial uses such as farm stands or food carts. Popular throughout the metro region, such uses could provide some walkability benefit in the near-term while awaiting decisions on further development.
Strategy 3: Neighborhood Centers

EXAMPLES

There are a number of examples of small neighborhood scale commercial nodes throughout the Portland Metro region. These pockets of neighborhood commercial zoning allow small businesses to thrive by catering to neighborhood foot traffic. Aerial photos of Portland-Region examples are below, and include such nodes at NE 24th and Fremont, NE 33rd and Knott, NE 15th and Prescott, and SW Virginia and Nebraska. While these examples are host to corner markets, coffee shops, restaurants, and personal services, their small scale blends well with the adjacent residential neighborhoods.

Commercial centers make walking, biking, or taking transit more viable options for meeting everyday shopping, dining, and entertainment needs.

The lots around each intersection are zoned for neighborhood-scale commercial activity, intended to support the surrounding residential areas.
NE 33rd and Knott Street in Portland

SW Virginia Avenue and Nebraska Street in Portland

NEXT STEPS FOR TIGARD

Policy changes to promote Neighborhood Centers
- Support the development of small neighborhood commercial nodes of restaurants, coffee shops, or neighborhood retail in residential neighborhoods. This can be done by expanding locations designated with the Neighborhood Commercial (N-C) zone, or by permitting certain N-C uses in residential zones as a conditional use.

ADDITIONAL RESOURCES

Healthy Corner Stores Network
healthycornerstores.org/resources
The Healthy Corner Stores Network provides educational, programmatic, and industry resources to support the availability and sales of healthy, affordable foods through small-scale stores.

Example code for commercial uses in residential zones
dczoningupdate.org
Washington DC is currently updating their zoning code to support development of new corner stores as a permitted use in certain residential zones, and legalize existing stores. Subtitle D, Chapter 16, Section 1605 - Corner Stores Conditions specifies where in ‘R’ zones this is an allowable use, what kinds of commercial uses, hours of operation, and other important considerations.

Special Use Infill Options and Design Tools (Austin TX)
austintexas.gov/department/neighborhood-planning-resources
These special uses (including corner stores) are designed to permit a greater diversity of housing types and to improve compatibility between existing neighborhoods and new development. The corner store special use allows a small retail use on a property with residential zoning at an intersection, and regulates the appearance and management of corner stores to gain the acceptance of residents.
### Core Value: Informed and Empowered Citizens

Navigating the disconnected street grid of a suburban landscape can be a daunting challenge for pedestrians. Loops and cul-de-sacs may be effective at reducing cut-through vehicular traffic but they are often an unmarked, complex maze to people on their feet. To alleviate these issues, the city and parks department have done a remarkable job creating pedestrian connections through many of the city’s cul-de-sacs by way of short segments of off-street walkways. But such connections are provided intermittently, and often lack clear indication of where such off-street trails are and where they go.

Community-driven way-finding and informational pedestrian signage strategies have helped address these challenges in other communities, and have the potential to be successful in Tigard. As in Raleigh, North Carolina (see sidebar), local residents and community organizations could work in partnership with the city on designing a network of pedestrian-scale way-finding signs to be installed by the city or community volunteers.

This strategy is a perfect reflection of value of informed and empowered citizens in Tigard. The resulting signs provide needed navigational information and increases awareness of the connections throughout the community, while using local knowledge and community volunteers to build the sign network creates a sense of community ownership.

Other local community-driven public works groups have a successful history of working with city governments to leverage volunteer labor for the public good. Friends of East Bull Mountain Park, a community organization based in Tigard, has worked with the City and volunteer groups such as the Boy Scouts of America to build trails and other improvements in city-owned Bull Mountain Park. Similarly, SW Trails is a community group which promotes walking and biking in southwest Portland, in part by organizing volunteer work parties to build and maintain trails, many in the public right-of-way.

### SIGN CONTENT

There are many examples of pedestrian way-finding signs. The best design for Tigard would need to be determined in consultation with residents, engaged community-based organization, and the city. Even so, best practices show two key features of way-finding signs that can improve walking rates and inform citizens:

**Destination**
- Because the signs are intended to help stitch together the confusing, disconnected street system, information about where a walking route goes should be a key component of a way-finding sign, particularly for routes involving off-street connections.

**Time/Distance**
- Part of the appeal of way-finding signage is the ability to reduce perceived distances. In listing walking time to community destinations, the project in Raleigh attempted to highlight that these destinations were actually much closer than many residents believed; Portland’s bicycle way-finding signs include time and distance for much the same reason.

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**SW Trails**

SW Trails is a community group that promotes wellness through walking and biking in Southwest Portland. They work with local governments to build and maintain trails and related facilities, relying on the local knowledge of residents about cut-through passages in parks and the unbuilt rights-of-way that neighbors already use. By organizing large volunteer groups, SW Trails has completed 30-40 trail projects. They employ innovative construction techniques, including “bucket brigades” to lay gravel along dirt trails with limited vehicle access.

Working in partnership with the City of Portland, SW Trails designed the signs the city installs to mark their seven numbered trails, and conducted field engineering for sign placement locations.

**Walk Raleigh**

In Raleigh, NC, a community group known as Walk Raleigh created and installed a series of pedestrian way-finding signs, intended to highlight the convenience of walking to neighborhood destinations. Printed on cheap corrugated plastic and installed illegally in the public right-of-way with removable zip-ties, the signs generated a positive response in the community.

Noting the signs were consistent with Raleigh’s long-term goals to integrate travel modes, enhance bike/ped infrastructure and expand way-finding signage, the city developed a process to legalize the community-made signs as part of a formal public education campaign. Based on their success organizers created the “Walk [Your City]” campaign, providing a toolkit to spur similar efforts in other communities.
Vehicular Dead End Signs

Tigard has a significant number of cul-de-sacs and dead end streets, most of which are posted with “no outlet” or “dead end” signage to communicate to motorists that such streets are not a through route for vehicular travel. However, many dead end roads connect to off-street trails. Such routes, dubbed “Living End Roads” by the International Federation of Pedestrians, are through routes for pedestrians, and sometimes cyclists depending on trail surface.

Yet the purpose of the dead end sign discourages people from traveling these roads, when in fact they may be the most direct and appropriate route for cyclists and pedestrians. This is especially the case for people not familiar with the area, yet even local residents are often misled by the dead end sign, as everyone must at some point be a first-time user.

Building trails connecting dead end streets may not be sufficient if pedestrians do not know such connections exist, and the standard dead end sign poses a barrier to that knowledge. While other nations incorporate through passage for pedestrians and cyclists into their dead end signs in the U.S. this would need to be done with supplemental signage, as in figure x above. Such sign changes could be a simple and cost effective step to increasing walkability in Tigard’s residential neighborhoods.

SIGN CODE AND RIGHT-OF-WAY PLACEMENT

City code currently prohibits placement of any sign within the public right-of-way, except those placed by or on behalf of a government agency (Tigard Municipal Code 18.780.070 (K)). Collaboration between the city and community organization wishing to implement the sign strategy will be necessary to mobilize volunteers and build community trust.

If the city is unable to permit such actions by a community group, pedestrian way-finding signs would need to be installed by city crews, as is the case in the Walk Raleigh and SW Trails examples. Having the city do the work may diminish the community-building aspect and sense of community ownership, so care should be exercised to ensure the community is sufficiently involved.

Criteria for sign placement

Local knowledge from within the community is crucial for identifying ideal sign placement and optimal routes not readily visible to outsiders. Still, some basic criteria for sign placement should include the following locations:

- At the entrance to off-street trails, including cul-de-sac passageways.
- At the entrance to dead-end streets that provide through passage for pedestrians.
- At intersections along key walking routes to important neighborhood destinations, such as schools, parks, and commercial centers.

Partners and Funding

Having strong community partners and adequate funding are both vital to the success of this strategy. There are several existing community groups who utilize volunteer labor towards similar missions, including Friends of East Bull Mountain Park in Tigard, and SW Trails in Portland. Alternately, the city could work through existing contacts, such as the bike-ped committee, to establish and promote a new community group. If costs are kept down by having a community group to do the design work or installation, the fabrication of the signs could more easily be covered by the city through the existing transportation budget or travel options grants.

NEXT STEPS FOR TIGARD

Pedestrian Signs policy and procedures

- Engage existing or new community groups such as SW Trails or Friends of Bull Mountain Park in developing standards and procedures for sign production and installation.

Bike/Ped exceptions for Dead End signs

- Add supplemental signage to existing Dead End signs where off-street paths permit through movement of pedestrians.

ADDITIONAL RESOURCES

Walk [Your City]
www.walkyourcity.org

Based on the successful Walk Raleigh campaign, Walk [Your City] now provides an online toolkit to creating pedestrian signs for use in other cities.

SW Trails
www.swtrails.org

SW Trails can help organize volunteer efforts to create and distribute walking signs along pedestrian paths and trails.
Strategy 5: Talk the Walk

Core Value: Informed and Empowered Citizens

Tigard residents like to walk. They walk their dogs around the neighborhood, they walk for fitness along Fanno Creek, and they walk downtown to visit the Farmer’s Market and the businesses on Main Street. Nearly every Tigard resident we spoke with stated that they enjoy walking and love the region’s trails. Yet despite overwhelming support for walking in Tigard and a growing network of trails and pedestrian facilities, most people do not think of Tigard as a city where people walk.

There are a number of steps the city can take to help shape the public perception about Tigard’s walkability. By utilizing the tools and assets that the city already has at their disposal, such as the CityScape newsletter, website, and social network sites, Tigard’s walkability could be promoted much more regularly to help keep walking at the forefront of people’s minds. Basic guidelines for messaging around walkability are outlined in the Walkability: Communications Guide, created as a supplement to this plan.

Communication can also play a significant role in empowering the community to be part of the solution. Two neighbors who would like to have a pedestrian cut-through between their property should not have to wait for the city to come knock on their doors to make it happen, but likely have questions about what steps they can or cannot take. The city can help inform and empower citizens to be involved, by providing them with the resources necessary. Walkable Neighborhoods: A Community Guide outlines some of these steps, and is intended to help support informed and empowered citizens in Tigard.

While many in Tigard walk regularly for fun or exercise, even more still are likely to do so with a little motivation and the right information. Walking maps for different neighborhoods around the city can further inform and empower pedestrians, not only providing the a valuable guide but insights into points of interest and previously unknown destinations.

Kirkland, Washington

The City of Kirkland, Washington partnered with their neighborhood associations to produce walking maps for different neighborhoods around the city, complete with safety tips, viewpoints, and suggested routes. Maps like these empower residents to get out on their feet and explore different neighborhoods, while their very existence helps to change public perceptions about how seriously their city is about walking.

Rochester, New York

The City of Rochester, New York went a step further. With help from a New York State Department of Health grant the city created a Rochester Walks! landing page on their website, where community members can go for route maps, tips, and information about walking groups. The city offers pedometers, Rochester Walks! t-shirts, and other incentives to community organized walking groups.

NEXT STEPS FOR TIGARD

Walking Maps

- Create Walking Maps for the areas around Woodward Elementary/Summerlake, Fowler Middle School, Tigard High School/Durham City Park, Bull Mountain, and others. Consider working within existing neighborhood boundaries and highlighting interesting routes.
- The city already has a walking map template in the form of the Downtown Tigard Walking Map (www.tigard-or.gov/downtown_tigard/going_green/walking_map.asp). The map on the opposite page is an example of what such neighborhood maps could look like.

Implement the Communications Plan

- Institute the steps outlined in Walkable Tigard: A Communications Plan to promote pedestrian activity in Tigard.

Promote the Toolkit

- Make Walkable Neighborhoods: A Community Toolkit available for use by Tigard residents by promoting it online, in the CityScape newsletter, and in the press.

ADDITIONAL RESOURCES

Walkable Tigard: A Communications Plan
A simple guide book for community members containing steps they can take to make their city and neighborhoods more walkable.

Walkable Neighborhoods: A Community Toolkit
A basic communications plan to help the city promote walkability.
Strategy 5: Talk the Walk

WOODARD PARK WALKING ROUTES

1. **Route #1**
   This casual 1.4 mile loop starts by heading south from Woodard Park to SW Johnson. Walk down Johnson until SW Grant where you will take a left and walk to connect to the brand new segment of the Fanno Creek Trail. Take the trail southeast, going under Hwy 99 before reaching Main Street, where you can enjoy the local flavor of Tigard businesses. From there walk northeast on Main Street until reaching Tigard Street where you take a left, again going under Hwy 99, heading northwest on this return portion of the loop. You will see the railroad tracks to your right where there is a plan for future trail development. When you reach SW Katherine St. take a left and walk for about 500 ft. until Karol Ct., where you will take another left to head south, back to Woodard Park to finish the loop.

2. **Route #2**
   This 2.6 mile loop also begins by heading south from Woodard Park to SW Johnson, but you take a quick right on SW Brookside and walk until reaching SW Walnut. Take care while crossing Walnut and take its sidewalk northwest until reaching SW Pathfinder Ct. which is a dead-end street where you will take a left. At the end of the cul-de-sac, you begin the Pathfinder-Genesis trail. Begin walking southwest and enjoy the quiet natural surroundings as you head along Krueger Creek. Continue walking for about 2/3 of a mile until reaching SW 115th. Head north on this quiet street’s sidewalk until the sidewalk ends then carefully continue for about 30 feet before turning left on SW Fonner, and a quick right on SW 116th Pl. A cut-through trail at the end of the cul-de-sac will lead you to SW 116th. Take this street for about 300 feet until reaching a paved trail on your right. Taking this will get you to SW 114th Terrace, where you will head north to SW Walnut. Take a right on Walnut and walk through Fowler Middle School’s parking area until you reach a path. Follow this path behind the school until the next path which is the Fowler Woods Trail. This trail heads north and then east until reaching the Fanno Creek Trail, where you will head south, crossing SW Tiedeman at the marked crosswalk to reach Woodard Park.

3. **Route #3**
   This 2.6 mile loop takes you across SW Tiedeman, briefly along the Fanno Creek Trail until reaching the Fowler Woods Trail. Take this trail to SW 113th Pl., up to SW Tigard St. where you will take a left to reach SW 115th. Take a right turn to head north until reaching SW Cottonwood Ln. and follow that around the curve until your first right which is a cul-de-sac. Take the trail at the end of the cul-de-sac which will bring you in to Englewood City Park. Ignore the first left trail you come to and walk a few more feet to take a right on a well traveled path that will take you southeast. After traveling on this path between two houses you will end up on SW Mary Pl. Continue on this until reaching SW Black Diamond Way where you will take a left and continue until meeting back up with the Fanno Creek Trail. Take a right on Fanno Creek Trail and walk until you get back to Woodard Park, after using the cross walk on SW Tiedeman.

4. **Route #4**
   This quick route is a third of a mile and allows you to walk from Woodard Park along a small section of the Fanno Creek Trail before quickly heading back east along the SW Katherine Street, a Tigard neighborhood street, until reaching SW Karol Court. Here is where you will take a right, continuing down Karol Court until coming back to Woodard Park.

These routes are easy to moderate in difficulty. Not all sections are ADA accessible. You assume risk for your safety when walking these routes.
Implementation

The city of Tigard has done great work creating pedestrian connections through residential neighborhoods. With priorities for walkable neighborhoods set by Tigard staff and elected officials for the Strategic Plan, realizing the goals and objectives of many years of planning may consist of building sidewalks on certain arterial and collector roads, developing more neighborhood commercial destinations and providing signage and activities on trails and in parks. The table below illustrates existing policy and other support in Tigard’s long-range planning documents speaking to walking.

Implementing the plan’s recommended strategies and using its supplemental tools will build on a significant body of recent planning work. New opportunities exist in strengthening partnerships with regional Safe Routes to School representatives, employing frequent, targeted communications about walking, and involving community groups to permit and install signage for trails and to activate parks with events and community gardens. These, and other recommendations in this plan for walkable neighborhoods, will continue to advance Tigard’s legacy of improving pedestrian access.
Appendices and Supplemental Tools

APPENDICES

The following three appendices provide useful background information, context, and additional resources for the Walkable Neighborhoods Plan for Tigard.

Appendix A: Literature Review - pg 38
A review of current literature around GIS-based analysis for pedestrian travel, walkability, and role of neighborhood-scale commercial activity.

Appendix B: Existing Conditions - pg 41
A summary of existing plans, policies and current zoning that pertain to walkability.

Appendix C: Case Studies - pg 46
Summaries of lessons to learn from a handful of other cities.

SUPPLEMENTAL TOOLS

The following set of tools were created to support continued implementation of the five walkability strategies, as well as the City of Tigard’s efforts to promote walkability through their ongoing strategic planning process.

Pedestrian Network Analysis Guidebook
A step-by-step how-to guide for continued use of the Pedestrian Network Analysis ArcGIS tool.

Walkable Neighborhoods: A Community Toolkit
A simple guide book for community members containing steps they can take to make their city and neighborhoods more walkable.

Walkable Tigard: A Communications Plan
A basic communications plan to help the city promote walkability.
Appendix A: Literature Review

GIS

Measuring the pedestrian environment through GIS analysis has been validated by several academic studies using buffers, service area generation and the Network Analyst tool in ArcGIS. While GIS has been employed mostly to measure accessibility of certain destinations using the road network, few studies have evaluated using it to measure walkability in a complex pedestrian network with high and low capacity streets, off-street trails and neighborhood trails.

Properly characterizing the walking environment has been the greatest challenge for GIS analysis of the pedestrian network (Parker and Vanderslice, 3). The use of buffers to determine the ped sheds of particular uses has immediate shortcomings, as it measures distance to destinations as-the-crow-flies instead of distances traveled on the actual network (MTC, G-1). Measuring distances along a pedestrian network can be relatively easy using the Network Analyst tool, however, the tool constrains the network by assuming road centerlines are the only pedestrian corridors (Parker and Vanderslice, 9). The use of service areas shows an area of influence different destinations like parks, schools and stores have based on street patterns, development density and specific impedances (MTC, G-1).

Recently, more robust measures of the walking network have been developed that better reflect the behavior of pedestrians. These new tools rely on measures of connectivity and accessibility to capture the nature of the pedestrian environment and determine how walkable it is (Tal and Handy, 4). Accessibility and connectivity of the pedestrian network was measured in Davis, California by Tal and Handy using measures of Link to Node Ratio (LNR), Pedestrian Route Directness (PDR) and service areas for various walking destinations. LNR is the ratio of road segments to road intersections and measures the connectivity of the walking network, with higher values showing the availability of alternative routes and directness of travel. The service area measure looks at ped sheds, or the area that can be accessed by traveling a network distance accounted as the share of a circle with the same radius. The PDR measure takes the service area established above and tallies the number of households in it (a density factor).

A comprehensive approach to quantifying walkability using GIS involves modeling pedestrian behavior. Experiences in Halton, Ontario demonstrate that the pedestrian network can be modeled with Network Analyst and ArcGIS Model Builder to complete an automated analysis of pedestrian network performance. Rattan and his colleagues measured three components of the walking network to determine walkability, density, diversity and design.

Density was defined by population and employment density; diversity was established as proximity to certain destinations; and, design was defined as trail availability per 1,000 residents (Modeling Walkability, 30). Destinations used to characterize diversity included transit stops, grocery stores, convenience stores and elementary schools. Service areas were calculated for each destination to determine the proportion of residents that are within a walkable distance to it. The combination of density, diversity and design calculations can be used to assess the walkability of communities to see if they need to engage in marketing to promote walking where indicators show that walkability is high, or to concentrate on pedestrian design where walkability is low.

Agent-based simulation models have been used recently to mimic pedestrian behavior in a suburban context. Jin and Grammenos have developed a model structure to explicitly simulate pedestrian activity considering traffic conditions, preferred routes and the likelihood of social encounters. The authors acknowledge that generalizing about suburban walking activity is risky since distinct neighborhoods have their own design characteristics. Their model allows planners to test scenarios for enhancing walkability by simulating pedestrian behavior patterns. Although agent-based models have been used previously to simulate pedestrian activity in buildings and parks, its application at the city and regional scale has not been attempted.

The authors tested their model on seven different suburban residential street patterns, finding that pedestrian-only routes combined with the availability of desired destinations can increase the share of walking trips by 24% in certain neighborhoods.

Another GIS model developed by J. Scott Parker focuses solely of pedestrian network analysis. The walking network is characterized in this model by recognizing walking corridors throughout the built environment. The model assigns two walking corridors to each street and links the road network to off-street trails, neighborhood trails and desire paths. Each pedestrian facility can be weighted based on ease of travel, with features that are significant pedestrian impediments, like freeway ramps, fully weighted and local streets and collectors and arterials with uninterrupted sidewalks with little or no weight. The model also acknowledges the presence of signals and crosswalks and weights those pedestrian assets accordingly. The Parker model is not only an accurate depiction of the performance of a walkway network, it can be used to evaluate individual capital projects by placing weights or taking weights off specific pedestrian facilities. Model outputs are rendered spatially as potential throughput at different intersections in the network based on number of households in a service area.


Metropolitan Transportation Commission, Planning Section (2006). Characteristics of Rail and Ferry Station Area Residents in the San Francisco Bay Area: Evidence from the 2000 Bay Area Travel Survey


Walkability

The term walkability has become a popular way to describe the connection between urban form and ease of pedestrian movement. While current literature regarding walking as a utilitarian form of transportation has blossomed, the term walkability still remains ill defined. General definitions of walkability describe it as a measure of the effectiveness of urban design to promote walking as an alternative to auto travel (Rattan et. al.). Scholars associate walkability as a mode of transportation, an essential part of transit use and an attribute of healthy communities (Tal and Handy).

The relationship between urban form and walking was explored over a decade ago by Cervero and Duncan. The authors drew from responses to a household travel survey sent to 15,066 randomly selected households in nine counties around the San Francisco Bay Area. The study looked at walking and biking behavior, although only the findings related to walking are presented here. The results were modeled to validate factors that form perceived barriers to walking, including distance, steep inclines, darkness, crime and precipitation. Ignoring steep slopes means that the impact of associated model features, like curvilinear and cul-de-sac street layouts, are diluted. It is notable that other scholarly literature on the subject of walkability does not account for inclimate weather or steep topography.

The affect of urban design, land use diversity and development density on the walking network was examined by the authors to determine what factors influence decisions to take walking trips. Urban design was quantified by assessing block size and intersection density; diversity of land uses was characterized by an absence of homogeneous residential neighborhoods; and, density was related to a concentration of population and variety of destinations. Study findings demonstrated that number of cars per household and physical disabilities reduced walking trips while a diverse mix of land uses and greater development densities promoted walking. The authors found that urban form exerts a modest influence on travel behavior – more so than demographics or distance and travel time.

Ability to access destinations and a welcoming pedestrian environment were cited as the most important factors influencing pedestrian activity by Tal and Handy. Walkability is an important element of urban design that can replace auto trips. It is a measure of the quality of the pedestrian environment encompassing safety, comfort and enjoyment. The authors characterize accessibility as a function of network connectivity, which limits out-of-direction travel and shortens travel distances. The authors found that when the street network is combined with a robust off-street trail network, walking was preferred for trips under a ½ mile.

Rauterkus and Miller studied 5,603 property transactions to see if walkability, as measured by Walk Score, affected home valuation. They defined walkability as a measure of how amenable a community is for walking to everyday destination like schools, parks and stores. Pedestrian friendly neighborhoods are seen as a “housing intervention” by the authors because they are more apt to take cars off the road and promote public health through active lifestyles. Diverse land uses, such as mixed-use developments, encourage and sustain a walking culture. The authors found a correlation between home prices and walkable neighborhoods.


Access to nearby retail establishments is good for the promotion of walking. Small nodes with markets, cafes, restaurants and boutiques within residential neighborhoods draw people out of their houses and cars by offering casual walking trips to everyday locations. While enticing people to local stores by providing easy pedestrian access seems intuitive, scholarly literature concerning the relationship between pedestrian movement and neighborhood commercial nodes is sparse and inconclusive.

Perhaps the best treatise on the subject is a 1996 article by Susan Handy. She sought to understand the link between walking and urban form by advancing the concept of accessibility to explain this relationship. The decision to walk is dependent on the circumstances leading to mode choice and characteristics of individual values. Urban form needs to be evaluated by the diversity and nature of the choices inherent to it. Handy uses accessibility as a measure because it is a useful approach to explain patterns of activity by examining “their quantity, quality, variety, and proximity; and the connectivity between them as provided by the transportation system.”

The author argues that greater accessibility leads to shorter trips and the variety and availability of destinations enhances accessibility by offering more options from which to choose. The interplay between an accessible pedestrian network and places to walk induces walking trips, according to the study. While accessibility and a diversity of destinations within walking distance may generate more foot traffic, that doesn’t mean it reduces auto travel. Therefore, testing the link between urban form and walking behavior separately is critical understanding which components of the pedestrian environment influence travel choices.

The author’s research focuses on walking trips to commercial establishments to reveal travel choice, as these are the most plausible and frequent category of non-work pedestrian travel. She compares two traditional grid network neighborhoods and two post WWII suburban neighborhoods in the extreme north and south of San Francisco Bay Area to understand how urban form and the availability of shopping destinations influence decisions to walk. The two Silicon Valley neighborhoods are Mountain View (traditional) and Sunnyvale (suburban) and the two Santa Rosa neighborhoods are Junior College (traditional) and Rincon Valley (suburban). The study relies on regularly collected household surveys to assess commercial destination walking trips in these four neighborhoods.

Criteria examined by the author includes number of supermarkets, corner stores and department stores within a given area and time of travel. Key findings from her research include:

- Supermarket trips are not suited to walking due to heavy loads;
- A greater number of destinations counters a desire for short distance trips;
- The opportunity to walk to a variety of shopping locations induces new walking trips;
- Walking trips that substitute for driving do not significantly reduce overall auto travel;
- Decisions to walk to a shopping destination are not necessarily to the closest store because pedestrians are willing to travel greater distances to a store of choice when a diversity of choices are available.

Conclusions made by the author as a result of the study indicate that people are willing to take trips they would not otherwise consider in a car when they are able to walk and travel greater distances on foot to seek a store of choice.

An article by Hess et al. looks at the relationship between urban sites with short blocks versus post-WWII suburban sites with loop and lollipop street patterns and gaps in the sidewalk network. The authors aggregate 12 sites into four groups with large commercial centers, medium size retail centers and small neighborhood commercial nodes. Commercial service areas are assumed to be half a mile by the authors. They found that most people arrive at suburban commercial centers via the sidewalk network (78%), yet less than half of retail locations have sidewalks. Use of sidewalks by shoppers is evidenced by a 60% share of pedestrians using them to access retail locations. Not surprisingly, multi family housing complexes with nearby grocery stores produce high numbers of shopping trips on foot, indicating a correlation between the share of walking trips in areas with high housing density and commercial shopping opportunities. Pedestrian network distance is 27% greater in compact urban environments versus 66% longer in suburban areas and distances to commercial nodes are 29% greater in suburban areas, indicating that pedestrian travel is much more challenging in a suburban context.

Another article by Susan Handy examines walking behavior in six neighborhoods in Austin, Texas. Similar to her study in the San Francisco Bay Area, the author chooses several traditional neighborhoods built during the teens and twenties, and two modern, post-WWII neighborhoods. She looks at commercial neighborhood commercial destinations through the lens of pedestrian amenities and their proximity to residential neighborhoods. The residential neighborhoods examined are characteristic of those throughout the US, with relatively good pedestrian access to commercial nodes in the traditional neighborhoods and poor access and fewer retail choices in the more modern settings.

The study relies on conclusions made from statistical analysis of the results of a thousand random household surveys. The response rate is reported at 25%. Residents of the traditional neighborhood reported higher incidences of walking with recreational walking, exercise and dog walking the most popular responses. Few residents reported qualitative barriers to walking such as hills, traffic and weather.

Responses to questions concerning the frequency of walking trips to stores showed distinct differences between traditional and suburban neighborhood types. Suburban residents made trips to a store on foot less than once a month while residents in the traditional neighborhoods did so more than six times a month. Traditional neighborhoods, the author found, generated more walking trips due to a larger share of houses within walking distance of a commercial center. Her findings indicate that walking to neighborhood commercial centers substitute for auto trips, but reductions in vehicle miles traveled are insignificant.


Appendix B: Existing Conditions

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Table B1: Tigard Statistics

Existing Plans and Policies

Table B2: Select Plans Affecting Walkability

Existing Zoning and Land Use

Table B1: Tigard Statistics

Approximate Population 49,774
Approximate Land Area 11.81 square miles
Approximate Density 4,066 persons per sq. mi.
Rate of Commuting on Foot 2.85%
Rate of Commuting on Transit 4.14%
Mean Travel Time to Work 22.7 Minutes
Home-Ownership Rate 60.46%
Median Household Income $62,576
~ U.S. Census Bureau 2012 - Social Explorer

Existing Plans and Policies

Increasing walkability is a common goal shared by a number of plans and policies at the state, regional, and local levels, and a brief summation follows. Selected excerpts of some of the relevant goals and policies in the Tigard 2035 Transportation System Plan, Oregon Bicycle and Pedestrian Plan, and Metro 2035 Regional Transportation Plan are provided below.

At the state level, the Transportation Planning Rule (TPR) requires that effort be applied to the development and enhancement of alternative modes of transportation, including walking, biking and transit. In addition, the TPR requires that local jurisdictions adopt land use and subdivision ordinance amendments to protect transportation facilities and to provide bicycle and pedestrian facilities between residential, commercial, and employment/institutional areas. It is further required that local communities coordinate their respective plans with the applicable county, regional, and state transportation plans.

At the Regional level, Metro is committed to increasing walkability as an important component to meeting the Metro 2040 Growth Concept. This is reflected in the Regional Transportation Plan, Regional Active Transportation Plan, and other regional planning efforts, such as the Southwest Corridor Plan.

At the Local level, the Tigard 2027 Comprehensive Plan and Tigard 2035 Transportation System Plan both support increased walkability by designing public streets within Tigard that encourage pedestrian and bicycle travel, and requiring / facilitating construction of off-street trails to develop pedestrian and bicycle connections that cannot be provided by a street. These plans also require appropriate access to bicycle and pedestrian facilities for all schools, parks, public facilities, and commercial areas. Increased walkability would be achieved through various strategies, such as prioritizing fixing gaps in the current sidewalk and trail system to create a more complete network of pedestrian facilities.

While these plans and policies demonstrate a clear mandate to increase walkability, there are other transportation priorities which may produce outcomes detrimental to walkability. The need to reduce traffic congestion and enhance vehicular capacity through wider roads and higher speeds, or facilitate the movement of large trucks through wider turning radii at intersections, negatively impacts walkability, and balancing these competing priorities requires careful consideration.

Table B2: Select Plans Affecting Walkability

<table>
<thead>
<tr>
<th>State</th>
<th>Oregon Statewide Planning Goal 12 - Transportation</th>
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<tbody>
<tr>
<td>State</td>
<td>Oregon Bicycle And Pedestrian Plan</td>
</tr>
<tr>
<td>Regional</td>
<td>2035 Regional Transportation Plan</td>
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<tr>
<td>Regional</td>
<td>Metro Regional Active Transportation Plan</td>
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<tr>
<td>Regional</td>
<td>Southwest Corridor Plan</td>
</tr>
<tr>
<td>Local</td>
<td>Tigard 2027 Comprehensive Plan</td>
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<tr>
<td>Local</td>
<td>Tigard 2035 Transportation System Plan</td>
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<tr>
<td>Local</td>
<td>Tigard Greenways Trail System Master Plan</td>
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</table>
**Excerpt - Tigard 2035 Transportation System Plan**

**Goal 1** – Land Use and Transportation Coordination
- Develop mutually supportive land use and transportation plans to enhance the livability of the community.
  - Policy 1 - The City shall prioritize transportation projects according to community benefit, such as safety, performance, and accessibility, as well as the associated costs and impacts.
  - Policy 2 - The City shall maintain and enhance transportation functionality by emphasizing multi-modal travel options for all types of land uses.
  - Policy 3 - The City shall promote land uses and transportation investments that promote balanced transportation options.

**Goal 3** – Multi-Modal Transportation System
- Policy 4 - The City shall develop and maintain neighborhood and local connections to provide efficient circulation in and out of neighborhoods.
- Policy 5 - The City shall require development adjacent to transit routes to provide direct pedestrian accessibility.
- Policy 6 - The City shall develop and implement public street standards that recognize the multi-purpose nature of the street right-of-way.
- Policy 7 - The City shall design all public streets within Tigard to encourage pedestrian and bicycle travel.
- Policy 8 - The City shall require sidewalks to be constructed in conjunction with private development and consistent with adopted plans.
- Policy 9 - The City shall require and/or facilitate the construction of off-street trails to develop pedestrian and bicycle connections that cannot be provided by a street.
- Policy 10 - The City shall require appropriate access to bicycle and pedestrian facilities for all schools, parks, public facilities, and commercial areas.

**Goal 4** – Safe Transportation System
- Policy 1 - The City shall consider the intended uses of a street during the design to promote safety, efficiency, and multi-modal needs.
- Policy 2 - The City shall coordinate with the appropriate agencies to provide safe, secure, connected, and desirable pedestrian, bicycle, and public transit facilities.

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**Excerpt - Oregon Bicycle and Pedestrian Plan**

**Vision:** The Oregon Bicycle and Pedestrian Plan envisions a transportation system where:
- People can bicycle or walk safely and conveniently to all destinations within reasonable walking or bicycling distance.
- People can walk or ride to and from their transit stops and have a comfortable and convenient place to wait or transfer.
- Touring bicyclists can enjoy Oregon’s natural beauty on roads and highways that are designed for bicycle travel.
- Appropriate transportation choices are available to all.
- Streets, roads and highways are designed to encourage bicycling and walking.

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**GOAL:** To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.

**ACTION 1:** Provide bikeway and walkway systems that are integrated with other transportation systems.
- STRATEGY 1A. Integrate bicycle and pedestrian facility needs into all planning, design, construction and maintenance activities of the Oregon Department of Transportation, local governments and other transportation providers.
- STRATEGY 1B. Retrofit existing roadways with paved shoulders or bike lanes to accommodate bicyclists, and with sidewalks and safe crossings to accommodate pedestrians.
- STRATEGY 1C. Provide financial and technical assistance to local governments for bikeway and walkway projects on local streets.

**ACTION 2:** Create a safe, convenient and attractive bicycling and walking environment.
- STRATEGY 2A. Adopt design standards that create safe and convenient facilities to encourage bicycling and walking.
- STRATEGY 2B. Provide uniform signing and marking of all bikeways and walkways.
- STRATEGY 2C. Adopt maintenance practices to preserve bikeways and walkways in a smooth, clean and safe condition.

**ACTION 3:** Develop education programs that improve bicycle and pedestrian safety.
- STRATEGY 3A. Monitor and analyze bicyclist and pedestrian crash data to formulate ways to improve bicyclist and pedestrian safety.
- STRATEGY 3B. Publish bicycling and walking maps and guides that inform the public of bicycle and pedestrian facilities and services.
- STRATEGY 3C. Develop bicycling and walking safety education programs to improve skills and observance of traffic laws, and promote overall safety for bicyclists and pedestrians.
- STRATEGY 3D. Develop safety education programs aimed at motor vehicle drivers to improve awareness of the needs and rights of bicyclists and pedestrians.
- STRATEGY 3E. Develop a promotional program and materials to encourage increased usage of bicycling and walking.
Quotes from the Oregon Bicycle and Pedestrian Plan

“Effective walkway and bikeway networks are best achieved by modifying the existing street system, rather than trying to create a separate network.” (Page 6 - emphasis added)

“Disconnected streets and cul-de-sacs create long travel distances, even though the actual distance from origin to destination may be fairly short, making walking and bicycling impractical. A grid street system provides continuity for pedestrians and bicyclists along the shortest routes; lacking this, disconnected streets can be improved with connecting paths.” (Page 10 - emphasis added)

“Many land use practices result in long distances between origin and destination points, requiring an automobile for most trips. Zoning for high densities of employment, housing and mixed-use development places origin and destination points closer together, creating a more pedestrian and bicycle-friendly environment. This can be done more easily in new developments, but can be retrofitted into established areas with neighborhood commerce zoning.” (Page 10 - emphasis added)

Excerpt - Metro 2035 Regional Transportation Plan

In the 21st Century, the Portland metropolitan region remains a vibrant and extraordinary region, with a world-class transportation system that manages both demand and capacity, employs the best technology, and joins rail, highway, street, bus, air, water, pedestrian and bicycle facilities into a seamless and fully interconnected network.

Goal 3: Expand Transportation Choices

Multi-modal transportation infrastructure and services provide all residents of the region with affordable and equitable options for accessing housing, jobs, services, shopping, educational, cultural and recreational opportunities, and facilitate competitive choices for goods movement for all businesses in the region.

- Objective 3.1 Travel Choices – Achieve modal targets for increased walking, bicycling, use of transit and shared ride and reduced reliance on the automobile and drive alone trips.
- Objective 3.2 Vehicle Miles of Travel – Reduce vehicle miles traveled per capita.
- Objective 3.3 Equitable Access and Barrier Free Transportation – Provide affordable and equitable access to travel choices and serve the needs of all people and businesses, including people with low income, children, elders and people with disabilities, to connect with jobs, education, services, recreation, social and cultural activities.

Goal 7: Enhance Human Health

Multi-modal transportation infrastructure and services provide safe, comfortable and convenient options that support active living and physical activity, and minimize transportation-related pollution that negatively impacts human health.

- Objective 7.1 Active Living – Provide safe, comfortable and convenient transportation options that support active living and physical activity to meet daily needs and access services.
- Objective 7.2 Pollution Impacts – Minimize noise, impervious surface and other transportation-related pollution impacts on residents in the region to reduce negative health effects.

Metro 2035 Performance Targets

Investments that work together toward achieving a set of performance targets is critical for the region to be successful in realizing a truly integrated, multi-modal transportation system that achieves the goals and objectives of this plan.

- Active transportation – By 2035, triple walking, biking and transit mode share compared to 2005.
- Basic infrastructure – By 2035, increase by 50 percent the number of essential destinations accessible within 30 minutes by trails, bicycling and public transit or within 15 minutes by sidewalks for all residents compared to 2005.
- Safety – By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50% compared to 2005.
- Travel – By 2035, reduce vehicle miles traveled per person by 10 percent compared to 2005.
- Access to daily needs – By 2035, increase by 50 percent the number of essential destinations accessible within 30 minutes by bicycling and public transit for low-income, minority, senior and disabled populations compared to 2005.

~ Metro 2035 Regional Transportation Plan -pages 2.07-2.11
Metro 2035 Regional Pedestrian Network Vision
Successful communities across America are increasingly defined by their walkability. Everyone is a pedestrian, but too often walking is not a safe and convenient option for getting to work or school or meeting daily travel needs. Walking, however, contributes to a healthy lifestyle for young and old alike and walking supports vibrant local economies. This travel mode is the common denominator for all other modes of travel as each trip begins or ends with at least a short walk. Transit trips in particular are based on walk access to transit stops and stations.

As a primary mode of travel that serves short trips and supports other modes the pedestrian system should be complete, direct, safe and enjoyable to use. It must be accessible to everyone regardless of one's ability to walk unassisted. Walking for short distances is an attractive option for most people when safe and convenient pedestrian facilities are available. The combination of well maintained and illuminated sidewalks of appropriate width, curb ramps, well marked and protected street crossings, and streetscape amenities that might include benches, landscaping and wide planting strips make walking an attractive, convenient and safe mode of travel. On-street facilities might be supplemented with trails and separate sidewalk connections that provide direct and pleasant connections for the pedestrian.

Four policies form the foundation of this vision:
1. Promote walking as primary mode for short trips
2. Build a well-connected network of pedestrian facilities that serves all ages & abilities
3. Create walkable downtowns, centers, main streets and station communities
4. Improve pedestrian access to transit

~ Metro 2035 Regional Transportation Plan - page 2.67

Metro 2035 Regional Pedestrian Network Summary
Currently the regional pedestrian network is incomplete and unsafe; the sidewalk network accessing transit in particular has gaps in continuity and quality. A complete pedestrian system provides a basic building block for economic vitality in centers and other commercially-oriented areas, but when incomplete fails to maximize the connection between transportation and land use that helps contribute to vibrant communities. The existence of gaps prevents the basic system from functioning uniformly throughout the region by inhibiting access to transit, limiting access to centers and other community-level destinations such as parks and schools. It is important for local jurisdictions to pursue sidewalks on every street (except expressways), even if they are not defined as part of the regional pedestrian network (transit mixed-use corridors, mixed-use centers, station communities and regional trails.)

Planning for pedestrian system improvements requires the same level of planning and analysis as might be applied to roadway planning. Investment programs should set priorities for sidewalk improvements to and along major transit routes and communities where physically or economically disadvantaged populations are resident. Emphasis should be given to filling gaps and providing safe crossings of the busiest streets. Access to schools, parks and community centers that are active parts of the local community is important for influencing a healthy lifestyle that includes walking.

Oregon State statutes and administrative rules establish that pedestrian facilities are required on all collector and higher classification streets when those roads are built or reconstructed. Exceptions are provided where cost is excessively disproportionate to need or where there is an absence of need due to sparse population or other factors.

~ Metro 2035 Regional Transportation Plan - page 2.73

Existing Zoning and Land Use
As discussed in the strategies section of the main walkability plan, an important factor to the walkability of a neighborhood is the presence of something worth walking to; thus having community institutions (schools, churches, libraries) and neighborhood-oriented commercial areas within walking distance is an important component to increasing walking for transportation, particularly as walking trips can potentially substitute for auto trips.

While areas along Pacific Highway and in the Tigard Triangle are well served in this regard, many other areas have few commercial or institutional uses within comfortable walking distance; in such areas it may be worthwhile to consider establishing new neighborhood-oriented commercial nodes of C-N (Neighborhood Commercial) or C-C (Community Commercial).

Alternately, another option could be to change regulations for single-family zones to permit small-scale commercial uses similar to the C-N zone as a conditional use for properties fronting arterials/collectors, subject to certain limitations; this has the advantage of using market forces determine locations for neighborhood-oriented businesses rather than have planners specify specific locations which may or may not be economically viable.

High-Density residential zones (R-25, R-40) already allow certain commercial activities on the ground floor of multi-family structures. However, such use is limited to 10% of the building, which may be insufficient, particularly for smaller infill sites; developing the entire ground floor as retail, common practice in denser cities such as Portland, would require a 10-story building under Tigard's regulations, which would be out of scale and likely not economically viable. As Tigard's high-density residential zones develop it may be worthwhile to revisit the floor area percentage limitation.
Chapter 18.510 - Residential Zoning Districts
Of Tigard's eight residential zones, only the two highest density zones permit limited commercial uses, and only on the ground floor level of multi-family projects, and not to exceed 10% of total gross square footage of building. In all other residential zones commercial uses are prohibited.

Purpose
18.510.010 (A) Preserve Neighborhood Livability
One of the major purposes of the regulations governing development in residential zoning districts is to protect the livability of existing and future residential neighborhoods, by encouraging primarily residential development with compatible nonresidential development – schools, churches, parks and recreation facilities, day care centers, neighborhood commercial uses and other services- at appropriate locations and at an appropriate scale.

Selected List of Zoning Districts
18.510.020 (G) R-25: Medium High-Density Residential District
The R-25 zoning district is designed to accommodate existing housing of all types and new attached single-family and multi-family housing units at a minimum lot size of 1,480 square feet. A limited amount of neighborhood commercial uses is permitted outright and a wide range of civic and institutional uses are permitted conditionally.

18.510.020 (H) R-40: High-Density Residential District
The R-40 zoning district is designed to accommodate existing housing of all types and new attached single-family and multi-family housing units with no minimum lot size. A limited amount of neighborhood commercial uses is permitted outright and a wide range of civic and institutional uses are permitted conditionally.

Chapter 18.520 - Commercial Zoning Districts
Two commercial zones are specifically neighborhood-oriented, the C-N and C-C zones

Purpose
18.520.010 (A) Provide a range of commercial services for city residents
One of the major purposes of the regulations governing development in commercial zoning districts is to ensure that a full range of retail and office uses are available throughout the city so that residents can fulfill all or most of their needs within easy driving and, ideally within easy walking and/or biking distance of their homes. The location of land within each commercial district must be carefully selected and design and development standards created to minimize the potential adverse impacts of commercial activity on established residential areas. At the same time, it is important to create more opportunities for mixed use, including residential, commercial and institutional activities, in new and redeveloping areas.

Selected List of Zoning Districts
18.520.020 (A) C-N: Neighborhood Commercial District
The C-N zoning district is designed to provide convenience goods and services within a small cluster of stores adjacent to residential neighborhoods. Convenience goods and services are those which are purchased frequently, i.e. at least weekly; for which comparison buying is not required; and which can be sustained in a limited trade area. Such uses include convenience markets, personal services and repair shops. A limited number of other uses, including but not limited to restaurants, gas stations, medical centers, religious institutions, transit-related park-and-ride lots, and facilities with drive-up windows, are permitted conditionally.

18.520.050 (A) Special Limitations on Uses
1. The use shall be conducted wholly within an enclosed structure, except as allowed in Subsection A.3 below;
2. No use shall have a gross floor area greater than 4,000 square feet;
3. Accessory open-air sales, display and/or storage shall be permitted for horticultural and food merchandising uses only and shall constitute no more than five percent of the gross building floor area of any individual establishment; and
4. Uses operating before 7 a.m. and after 10 p.m. shall be subject to the conditional use provisions, as governed in Chapter 18.330.

18.520.020 (B) C-C: Community Commercial District
The C-C zoning district is designed to provide convenience shopping facilities which meet the regular needs of nearby residential neighborhoods. With a service area of about 1.5 miles, such commercial centers typically range in size from 30,000 – 100,000 gross square feet on sites ranging from 2-8 acres. Separated from other commercially-zoned areas by at least one-half mile, community commercial centers are intended to serve several residential neighborhoods, ideally at the intersection of two or more collector streets or at the intersection of an arterial and collector street. Housing is permitted on or above the second floor of commercial structures at a density not to exceed 12 units/net acre, e.g. the maximum density permitted in the R-12 zone. A limited number of other uses, including but not limited to car washes, gas stations, religious institutions, and transit-related park-and-ride lots, are permitted conditionally. In addition to mandatory site development review, design and development standards in the C-C zone have been adopted to ensure that developments will be well-integrated, attractively landscaped, and pedestrian-friendly.

18.520.050 (B) Special Limitations on Uses
1. Such centers shall be developed preferably as a single unit and occupy only one quadrant of the intersection at which it is located;
2. The use shall be conducted wholly within an enclosed structure, except for outside play areas for children's day care facilities, and as allowed in paragraphs 3 and 4 of this subsection B;
3. No use shall have a gross floor area greater than 5,000 square feet except for the retail sales of food and beverages, when the maximum floor area shall not exceed 40,000 gross square feet, and all other sales-oriented retail, where the maximum floor area shall not exceed 10,000 gross square feet;
4. Accessory open-air sales, display and/or storage shall be permitted for horticultural and food merchandising uses only shall constitute no more than five percent of the gross building floor area of any individual establishment;
5. Accessory open-air dining or drinking areas shall be permitted for approved eating and drinking establishments or retail food stores only. Outside dining areas are not permitted within 200 feet of any developed residential area. Public or private sidewalk areas around dining areas may not be reduced to less than five feet of clear walkway; and
6. Uses operating before 6 a.m. and/or after 11 p.m. and drive-up windows are subject to conditional use provisions, as governed by Chapter 18.330.

Additional requirements apply in C-C zones, see:
18.520.060 (A) Additional Development and Design Guidelines
**Summary**

We explored walkability efforts and pedestrian improvements in cities around the world to better understand best practices and possible pitfalls most relevant to Tigard. The most successful efforts by other cities demonstrate how they established pedestrian connections, created walkable facilities and destinations, and fashioned community attachment and investment. Case study research entertained a variety of community sizes and types to glean the widest representative sample of examples and best practices available. A summary of best practices was crafted from the case study literature to offer guidance to Tigard on the best way to reach their goal of becoming the most walkable city in the Northwest.

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Area (sq. mile)</th>
<th>Density (sq. mile)</th>
<th>Trail Network</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tigard</td>
<td>49,774</td>
<td>11.8</td>
<td>4,566</td>
<td>Fanno Creek (4.5 miles), Westside Trail, Washington Square Loop, Tualatin River Trail and neighborhood trails</td>
<td>126 miles of sidewalks</td>
</tr>
<tr>
<td>Ann Arbor, MI</td>
<td>116,121</td>
<td>28.7</td>
<td>4,116</td>
<td>Huron River Greenway/Border-to-border, and Allen Creek Greenway Trail is 35 miles</td>
<td>98% of arterial and 82% of non-arterial roads, 25 miles of new sidewalks, and 128 major pedestrian crossing improvements</td>
</tr>
<tr>
<td>Alexandria, VA</td>
<td>151,238</td>
<td>15.2</td>
<td>9,948</td>
<td>Alexandria Heritage Trail, 15 miles of multi-use trails (2008)</td>
<td>All arterial and collector roads are required to provide sidewalks on both sides of the street, with 147.3 miles of existing sidewalks</td>
</tr>
<tr>
<td>Mill Valley, CA</td>
<td>13,903</td>
<td>4.8</td>
<td>2,867</td>
<td>Part of Bay Trail</td>
<td>18 miles of sidewalks</td>
</tr>
<tr>
<td>Flagstaff, AZ</td>
<td>63,505</td>
<td>64.0</td>
<td>992</td>
<td>50 miles of trails (and more than 80 more miles planned) – the Flagstaff Urban Trail System (FUTS). Trail maps etc., Adopt-A-FUTS.</td>
<td></td>
</tr>
<tr>
<td>Charlottesville, VA</td>
<td>41,225</td>
<td>10.3</td>
<td>4,002</td>
<td>10 miles city trails plus other networks. Map and info</td>
<td></td>
</tr>
<tr>
<td>Cary, NC</td>
<td>135,234</td>
<td>52.8</td>
<td>2,561</td>
<td>Greenway system of over trail 70 miles (plus 10 miles inside parks), with 150 miles proposed</td>
<td>242.8 miles of existing sidewalks = .45 miles of sidewalks for each mile of road (ideal is 1.75 miles of sidewalk for each mile of road)</td>
</tr>
<tr>
<td>Houten, S Holland</td>
<td>48,427</td>
<td>22.78</td>
<td>2,260</td>
<td>Extensive (see pg. 53)</td>
<td>Extensive (see pg. 53)</td>
</tr>
</tbody>
</table>

~ U.S. City data from 2012 U.S. Census, Social Explorer.
ANN ARBOR, MI

Population: 114,024 people
Area: 27.7 square miles
Density: 4,116 persons per square mile

Main Achievements
• Safe Streets and Sidewalks Taskforce
• Entire sidewalk system repair program
• Achievements in active transportation and active living
• Successful Crossing Guard Program at schools

Ann Arbor is a college town (home to the University of Michigan). Its economy is focused on high technology and university research, has several commercial and historic areas. Arbor has numerous attractions and activities such as museums, theaters, farmers markets, restaurants and stadiums.

The city has a strong focus on creating a walking environment. The walking mode share is substantially higher than the US average. The city also has dense forestation of its parks and residential areas. It has more than 100,000 trees along its streets and parks. The city has 157 municipal parks - from small neighborhood green spots to large recreation areas.

• Ann Arbor Transportation Program operates the Ann Arbor Safe Streets and Sidewalks Taskforce (A2S3) which brings diverse stakeholders together around pedestrian safety issues. They specifically address safety issues on streets and sidewalks. A2S3 also encourages educational outreach of non-motorized travel, and campaign to enforce the right-of-way for pedestrians at two crosswalks.
• A successful Crossing Guard Program has been in place at schools in Ann Arbor where Hired crossing guards provide a safe walking environment for children and foster a culture of walking in a community
• Pedestrian counts are conducted to aid better planning initiatives and targeted engineering treatments.
• Ann Arbor Transportation Authority operates public bus services throughout the city, and also connects to Detroit. There's a separate zero-fare bus service operates within and between the University of Michigan campuses. Traffic calming initiatives.

Infrastructure
• 98% of arterial roads have sidewalks on both sides
• 82% of non-arterial roads have sidewalks on both sides
• Sidewalk system repair program (2012-2016) has the purpose of repairing sidewalks in all areas of the City, in the public right-of-way, starting with the most deficient sidewalks. The program will also address curb ramps to meet the requirements of ADA.
• Providing crossing amenities are placed as priorities: regularly maintained crosswalks, in-road stop/yield signs, and stop/yield lines and raised crosswalks.

Advocacy Programs and Organizations
• Ann Arbor Area Campaign for Active Transportation
• Since 2008 the city participates national initiative to promote Active Transportation, coordinated by the Rails-to-Trails Conservancy
• Ann Arbor was designated a Silver-level Bicycle Friendly City by the League of American Bicyclists since 2005. Ann Arbor has over 400 bike hoops, 26 secured bike lockers and on-street bike parking in the city's downtown area. Ann Arbor continues to provide cyclists with opportunities to make trips by bike.
• Friends of the Border to Border Trail: promotion for the completion, maintenance, enhancement, and use of this non-motorized transportation and recreation resource.
• Re-imagine Washtenaw Avenue public-arts plan for the Washtenaw Corridor.
• Washtenaw Biking and Walking Coalition: sustainable transportation advocacy
• 'Get Downtown': sustainable commuting in Ann Arbor
• 'Bike Ypsi': organized rides, events, and bike safety advocacy in Ypsilanti
• League of Michigan Bicyclists: statewide bicycle advocacy
• Ann Arbor Bicycle Touring Society: organized mountain and road bike rides in Michigan and beyond
• Ann Arbor Velo Club: road, mountain, cyclocross, and track racing and support
ALEXANDRIA, VA

Population: 139,966
Area: 15.2 square miles
Density: 9,208 persons per square mile

Main Initiatives and Achievements
- Intensive sidewalk policies
- Complete streets program and form-based codes
- Promotion of mixed use and dense development
- Comprehensive Safe Routes to School Program
- City-wide wayfinding program
- Multiple staff members dedicated to work towards pedestrian and bicycle efforts

Alexandria is located close to Washington DC, and it is its high income suburb. The city has a historic center (Old Town) that is full of restaurants, antique shops, boutiques, theaters and a marketplace. This area is favored by tourists. This and many other neighborhoods in Alexandria are compact and walkable.

- The City dedicates multiple staff members work towards pedestrian and bicycle efforts.
- Intensive sidewalk policies require all arterial streets and collector streets to provide sidewalks on both sides of the street, and new private developments are required to construct or upgrade sidewalks. It also has a sidewalk retrofit policy that aims to repair sidewalks as needed

Comprehensive Safe Routes to School Program
- 80% of schools have an ongoing Safe Routes to School program.
- Nearly every school has a walking related event or program.
- In 2010: 11 Walk to School Day events in multiple schools and regular Walking Wednesday programs at 6 schools
- Surveys of the number of children walking to school are conducted yearly
- Walking audits are conducted resulting in walking maps for schools

Citywide Wayfinding Program
- Led by the Department of Transportation and Environmental Services with support from the Department of Planning & Zoning
- A consistent image for the entire city, reduce visual clutter, promote walking, bicycling, and use of mass transit
- Wayfinding Design Guidelines Manual
- Implemented in phases

Promotion of Mixed-Use and Dense Development
- The City embraced the complete streets program and utilizes form-based codes.
- 100 percent of development in the City has been infill in the last few years.
- Walkable environments have been created by providing retail on ground floors of residential buildings and by density bonuses to developers.
- Encouraging ground floor mixed-Use: the City has a measure that states, “No room or space used for residential purposes or commercial purposes, other than restaurant or retail room or space, shall be permitted on the ground floor of residential buildings in mixed use zones.”
MILL VALLEY, CA

Population: 14,159
Area: 4.848 square miles
Density: 2,920 persons per square mile

History
Due to its terrain, Mill Valley can be difficult to navigate as a pedestrian through its twisty and curvy roads. In the late 1800’s, the city began with hundreds of short-cuts that provided connections between the streets on the hillside and the flatland. In 1890, ‘Steps, Lanes and Paths’ were constructed to be used by residents as an easy way to get to town and to public transportation.

Local volunteers have undertaken actions to address the need for pedestrian connections in areas that are not easily served by conventional sidewalk networks. They began to address pedestrian challenges by documenting unused existing and potential historic pedestrian rights-of-way in the town. In 2000, after years of neglect, the citizens and the city began an effort to identify and rebuild the historic ‘Steps, Lanes and Paths.’ The project is funded through the City of Mill Valley’s ‘Vegetation Management Program’. The program allows crews to clear vegetation, replace steps and add marker posts or signage.

Today, there are over 175 heritage ‘steps, lanes and paths’ in the city that provide direct connections for pedestrians. Some of these facilities are simple pathways, others require stairways due to steepness. The right of way still exists to include these passageways which continue to provide connections between streets, commercial areas and other hillside neighborhoods. Many are published on a map published by the city in 2006. The map shows conditions (developed/undeveloped, passable/blocking) and connections to other facilities.

Purpose
- Circulation: Improved linkage to destinations (public transit stops, schools, stores, churches the City Hall and the Library) resulted in an increase in the use of paths and the reduction in traffic.
- Emergency: ‘Steps, Lanes and Paths’ serve as only viable exit from Mill Valley’s narrow streets in the event of a disaster.
- Health: People who use walking to reach their destinations as a way of life are more likely to be and remain healthy.
- Community building: walking around town is a pleasurable and an effective way of meeting people in the community.
Flagstaff, AZ

Population: 63,505
Area: 64 square miles
Density: 992 persons per square mile

Main Initiatives and Achievements
- Flagstaff Urban Trail System (FUTS)
- Pedestrian & bike counts
- A yearly weeklong Flagstaff Walks! event
- Placed based approach to zoning
- Level of Service standards for pedestrian, bicycle, and transit facilities

Flagstaff is a college town, the home of Northern Arizona University. It has a strong tourism sector, and an active cultural scene. The city is also a magnet for outdoor enthusiasts: there are 679.2 acres of city parks in Flagstaff. The city has an extensive trail system (called “FUTS”). The network extends throughout the city and is widely used for both recreation and transportation.

The city has a bicycle and pedestrian coordinator, an active pedestrian advocacy group, and a Pedestrian Advisory Committee. Flagstaff provides its staff with excellent training opportunities to expose the staff to current ideas and developments in pedestrian safety and walkability.

Flagstaff conducts pedestrian & bike counts every 3 years, and Trip Diary Survey (FTDS) every 5 years. The FTDS is a City administered survey designed to inform future planning efforts by evaluating resident travel habits. Participants keep a log of all of their trips for one day, including the origin and destination, mode, number of people, and distance.

Place-Based Approach to Zoning that reinforces the unique character of the city. They use the idea that based on their form and character different types of places should be regulated in different ways. Flagstaff was classified into three types of places: Natural Places, Walkable Urban Places, and Drivable Suburban Places.

The Flagstaff Metropolitan Planning Organization developed detailed indices of Level of Service standards for pedestrian, bicycle, and transit facilities in rural, suburban, and urban settings. These standards evaluated factors like sidewalk width, provision of amenities, crossing frequency, crosswalk markings, curb extensions and median islands, and average daily traffic (ADT), among others. The City built these standards into the plan and uses them to prioritize investment, guide development review, and monitor ongoing performance.

Flagstaff Urban Trail System (FUTS)
The city has a popular and extensive trail system called the Flagstaff Urban Trail System (FUTS).
- 50 miles of trails, with more than 80 more miles planned.
- Offer an incredibly diverse range of experiences; some trails are located along busy streets, while others traverse beautiful natural places - canyons, riparian areas, grasslands, meadows, and forests - all within the urban area of Flagstaff.
- The system connects neighborhoods, shopping, places of employment, schools, parks, open space, and the surrounding National Forest, and allow users to combine transportation, recreation and contact with nature.
- The city has good trails maps

A trail users survey was conducted July 2011
- In 2011 they found that The FUTS system is used for multiple purposes, including recreation (79.6 percent of respondents), health and exercise (78.2 percent) and to experience nature and open space (56.0 percent). In addition, more than half of respondents (50.9 percent) use the FUTS for travel and commuting.
- FUTS trails were all very highly rated by survey respondents, with more than 90 percent of respondents rating these items as “excellent” or “good.”
- Respondents felt that the FUTS provides good connections around town (29.2 percent) and is convenient and is easy to access from many places (23.8 percent) even though they also felt that there are missing segments (connections) and system is incomplete (32.2 percent of respondents)

Adopt-A-FUTS: opportunity for local non-profits, clubs and organizations, businesses, neighborhood associations, schools, families, and individuals to help improve our FUTS trails and make a visible difference in the community.

Flagstaff Walks!
- Annual series of events organized by the City’s Pedestrian Advisory Committee to celebrate Flagstaff’s walkable character and to raise awareness of pedestrian issues
- Activities include education programs (such as the Safe Routes to School Workshops and Science in the parks programs), Geocaching, walkability audits, guided walks (e.g. mural walk), sidewalk and park clean up, International Walk to School Day
CHARLOTTESVILLE, VA

Population: 41,225
Area: 10.3 square miles
Density: 4,002 per square mile

Main Achievements
• Adopted Complete Streets policy in 2010
• Zoning policies promote walkability
• Excellent transit service
• Large outdoor pedestrian mall
• Good pedestrian infrastructure
• Safe Routes to School programs

Charlottesville is a college town (home of University of Virginia), but it also attracts approximately half a million tourists every year. It has a large series of attractions and venues for its relatively small size. These attractions are wine and beer tours, recreational opportunities, and other entertainment.

Zoning Policies
• Require all new development to be infill development tough The Infill Special Use Permit (SUP) (2006) which allows for deviations from the current lot size requirements
• Have maximum parking standards, parking location requirements, and priced public parking to ensure that valuable public space is not unnecessarily used as parking

Infrastructure
• 100% of signalized intersections have been converted to push-button signals with countdown timers
• City has installed in-ground LED crosswalks and uses rapid flash beacons at crosswalks
• Schools received SRTS funding for sidewalk improvements

Excellent transit services (Charlottesville Area Transit and University Transit Services). Transit is available within a 1/4 mile of 95% of the population seven days a week and operates at 95% on time performance. The city is well connected by bus lines and rail to other major cities such as Chicago, Boston, New York City, New Orleans. Charlottesville also has an electric streetcar line.

Charlottesville Downtown has one of the longest outdoor pedestrian malls in the US (created in 1975). Eight blocks of the downtown was closed permanently. The mixed use mall on the historic Main Street is home to over 150 businesses situated in rehabilitated historic buildings.
CARY, NC

Population: 135,234
Area: 55.48 square miles
Density: 2,438 persons per square mile

Main Achievements

- Created a walkable downtown
- Built an extensive greenway network
- Citizen based sidewalk request program
- Ordinances to support walkability standards
- Dedicated staff resources for walkability issues

Cary is not only the largest town in North Carolina, but it is also one of the fastest growing municipalities in the United States. Cary has a long history of its Planned Unit Development (PUD), which allows a developer to plan an entire community before beginning development. The City is committed to improving walkability in its downtown and creating an extensive trail network. Similarly to Tigard, the City has a Downtown Streetscape Project that was created to provide a walkable environment by improving roadway design and streetscape environments. It has dedicated staff resources for non-motorized travel goals such as a pedestrian coordinator, and several other planning, engineering, and parks department staff.

Walkability Program

- $1 million annual sidewalk request program: a citizen-based program where residents can evaluate and request missing sidewalk links and/or pedestrian related infrastructure. It requires a petition at the neighborhood level and encourages collaboration between neighbors.
- Land Development Ordinance includes Street Connectivity Standards that require residential developments to achieve a connectivity index of 1.2 or greater. If the requirement is waived by the Planning Director the development must provide a pedestrian trail to link any cul-de-sacs (more information in Cary’s Transportation Plan – Pedestrian Plan 3.6. Destinations: Parks, Schools, and Shopping Centers, Streets Plan).
- Approximately 60 miles of trails and greenways, and a couple hundred additional miles planned. It has completed approximately 50 miles of greenway and 8 grade-separated crossings in 2012

Trails and Signs

All greenways in Cary have benches, directional signs, and public art to aid a better walking environment. The Comprehensive Sign Plan (2007) includes design specification for greenway signage and wayfinding.

Conducted trail user counts and surveys that showed high values of greenways parks and trails for residents.
HOUTEN, SOUTH HOLLAND, THE NETHERLANDS

Population: 48,427
Area: 22.78 square mile
Density: 2,260 persons per square mile

Houten, situated about 32 miles southeast of Amsterdam, shows what is possible when a city’s commitment to walkability (and bikeability) are carried out to the fullest. Like Tigard, Houten is a mid-century, low-density suburb, though it was developed from scratch following a strictly-planned model with a handful of guiding principles.

Confining Through Traffic to a ‘Ring Road’
- A limited access ring road circumvents the town and isolates the residential communities inside by segregating fast and slow traffic. Fast traffic (45 miles per hour) is limited to the ring road and beyond, while residential areas on the inside are protected by slower speed limits of about 20 miles per hour.

Design of the Interior Streets
- Streets of Houten are rarely straight to discourage traffic from going fast. Town policy states that all roads within the ring road may only have straight sections for 75 meters or less. Even on the ring road, speed is reduced by curved sections. Town policy limits straightaways to 0.25 miles or less along the ring road, forcing drivers to remain in control at a safe speed.
- Due to the many access points to the interior town on the ring road, traffic is distributed over many collectors, so that no collector linking to the ring road accumulates much traffic.

Blocking Through Auto Traffic
- Permeable barriers (housing complexes and green space) are placed throughout the town and are intended to block through auto traffic. To get from one part of town to the other, cars first must exit a circuitous route to the ring road, travel around the residential areas and reenter at another access point. Greenways create a barrier for cars, but bike paths through the greenway allow cyclists easy, undisturbed access.

High Quality Bicycling and Walking
- Town policy intentionally made traveling through the middle of Houten very difficult by car. Cyclists and pedestrians are able to navigate about town with a network of standalone, one-way and two-way cycle tracks. Exclusive connections were built that make bicycle and pedestrian paths the most direct routes through town, encouraging short, in-town trips to be made by bicycle or on-foot.
- Where standalone bike paths are not available, shared lanes and bicycle streets act as safe connections in residential areas thanks to reduced speed limits for cars. Where bikes need to cross motorways the town has built bike underpasses and underground bicycle roundabouts, completely separating bikes from the dangerously fast auto-traffic.

Centrally Located Shopping, Schools, and Transit Options
- Two main town centers
- A train rail bisects the town and makes two stops within Houten.
- Cycling is further promoted by an indoor bicycle parking garage underneath the train station that can hold up to 3,100 bikes
- Shopping centers surround the stations creating an organized and easily accessible town center.
- The bicycle and pedestrian network radiates from the town centers making them easily accessible to residents.
- Residential neighborhoods are segmented and organized by a series of similarly named streets, “themeing” the neighborhoods.
- Schools are strategically placed allowing children to never need to walk more than a ¼ mile to school. Today, the town is expanding this model to the southern train station. When construction is complete, this station will have a layout of shopping areas surrounding the center of town similar to that found in the northern section.
Walk on, Tigard.