a guide to complete streets

Made possible by funding from
the Department of Health and Human Services and Public Health – Seattle & King County

Produced by
bicycle club Cascade

table of contents

introduction

chapter 1: the basics of complete streets

chapter 2: policy guidance and implementation

chapter 3: designing complete streets

Made possible by funding from the Department of Health and Human Services and Public Health – Seattle & King County

bicycle club Cascade

table of contents

chapter 4: design considerations and guidelines

chapter 5: treatment toolbox

chapter 6: measurement and funding

Made possible by funding from the Department of Health and Human Services and Public Health – Seattle & King County

bicycle club Cascade

introduction

The purpose of this Complete Streets guide is to provide King County jurisdictions with the information and tools to develop, adopt and implement Complete Streets ordinances and street designs. At a time when public health, environmental degradation, livability and economic concerns are at a forefront in cities across King County (and throughout the United States), Complete Streets provides a unique opportunity for communities to address many of these issues. Complete Streets can provide communities with a framework for utilizing public streets in ways that encourage people to walk, bike and take public transportation—all of which have positive implications for health, the environment, quality of life and local economies.

Redmond, Washington is a traditional suburban style community that has undergone a number of incremental changes in its outlook and approach to urban planning and design. In September 2007, Redmond became the third community in the Puget Sound region to adopt a Complete Streets ordinance. The city had taken note of other local municipalities' efforts to accommodate all roadway users and with the assistance of Cascade Bicycle Club and Transportation Choices Coalition, Redmond codified the steps it had already taken in its comprehensive and transportation plan to create a balanced, multimodal transportation network.

The idea that streets and sidewalks are public spaces and should therefore accommodate all users of the roadway helped build support among constituents and elected officials. Though city staff already felt they were moving in the right direction, the passage of an ordinance affirmed their belief in creating streets that work for all users. "It's another piece of the puzzle that reaffirms our commitment to moving in a different direction than Redmond was in the last 30 years," explained Principal Planner Joel Pfundt (American Planning Association 2010, 54).

Curb extensions, well-marked crosswalks, wide sidewalks and Americans with Disabilities Act (ADA) compliant curb ramps help make Redmond streets safer and more accessible for all roadway users. Photos: Max Hepp-Buchanan

This guide was developed for city staff (planners, designers, engineers, public works officials, etc.), elected officials and the general public in King County jurisdictions; however, the information presented should be useful to jurisdictions across the country.

The guide is divided into sections that address both the policy and design considerations of Complete Streets development and implementation. Case studies are included to provide examples of best practices and innovative approaches to Complete Streets.

Chapter 1 provides the reader with the basics of Complete Streets, including history, goals and the benefits of adopting a Complete Streets policy. Chapter 2 discusses policy initiation, formulation and adoption, as well as elements of a good policy and typical challenges municipalities may encounter with Complete Streets policies.

Chapters 3, 4, and 5 are focused on the design and engineering of Complete Streets on the ground. Chapter 3 discusses the difference between conventional street design and design of a Complete Street. Chapter 4 goes into further detail of engineering and design considerations and Chapter 5 provides the reader with a Complete Streets design toolbox and photos illustrating a wide variety of Complete Streets treatments.

Chapter 6 briefly discusses measurement and funding strategies.

Each chapter is capable of standing alone and can be read independently according to the reader's interests. The Appendices provide additional information that may be useful to the reader such as model Complete Streets ordinances, Complete Streets checklists and United States Department of Transportation (USDOT) policies relating to the accommodation of bicycles and pedestrians. Additional information can be found on the National Complete Streets Coalition website (www.completestreets.org).

THE NEED FOR COMPLETE STREETS

In King County jurisdictions, and in most cities across the United States, transportation systems have been designed primarily around the automobile. The need for making our streets more accessible and safe for all modes of transportation is significant, not only to reduce death and injury from collisions, but to address broader health, environmental and economic concerns. There are numerous opportunities within King County cities to retrofit streets to serve more users and to assure that new streets are not built in ways that have historically neglected other users, such as pedestrians and bicyclists. By adopting Complete Streets ordinances, King County jurisdictions can begin the process of redesigning their transportation infrastructure to serve all users.

A senior housing community on Seattle's Linden Ave North corridor demonstrates the need for roadway improvements that better accommodate all users, namely senior and disabled residents. Photos: Max Hepp-Buchanan

Redmond's neighboring city of Kirkland uses signage, pedestrian crossing flags, well-marked crosswalks and ADA compliant curb ramps to accommodate elderly and disabled residents. Photo: Max Hepp-Buchanan

chapter 1: the basics of complete streets

WHAT ARE COMPLETE STREETS?

City streets are key public spaces that often make up much of the developed land in the urban environment. Across America, however, streets are frequently built to facilitate the movement of motor vehicles above all other users. Over the years, less attention has been paid to design features like sidewalks and bike lanes that make streets safe and pleasant places to walk or bike. *Complete Streets* are designed and built for all users and therefore serve everyone. Pedestrians, bicyclists, transit users and drivers all benefit from Complete Streets design, as do people with disabilities, elderly persons and children. The Complete Streets movement seeks to change the way transportation agencies and communities approach street projects to ensure safety, convenience and accessibility for all (American Planning Association 2010).

What a Complete Streets Policy Looks Like on Paper

Complete Streets policies come in many shapes and sizes. A simple resolution passed by a city council may direct the city's transportation agency to accommodate the needs of all users. A planning department may work with community members to include Complete Streets goals in city comprehensive plans. Policy makers may pass Complete Streets laws and ordinances at the state or local level. The Alliance for Bicycling and Walking (formerly Thunderhead Alliance), in their *Guide to Complete Streets Campaigns* (2006), defines a good Complete Streets policy as "one that achieves a planning, design and project development process with a constellation of new training, new procedures and design manual changes that put bicycling, walking, and transit on a par with motor vehicles" (8).

Complete Streets Legislation in Seattle States:

> "…transportation improvements will include an array of facilities and amenities that are recognized as contributing to Complete Streets, including: street and sidewalk lighting; pedestrian and bicycle safety improvements; access improvements for freight; access improvements, including compliance with the Americans with Disabilities Act; public transit facilities accommodation including, but not limited, to pedestrian access improvement to transit stops and stations; street trees and landscaping; drainage; and street amenities…" (City of Seattle 2007)

The full text of Seattle's Complete Streets ordinance is located in Appendix A of this guide.

Some policies have been developed very quickly by using the resources of the National Complete Streets Coalition or the USDOT Guidance on Accommodating Bicycle and Pedestrian Travel. In other cases, communities have engaged in an extensive development process. However the legislation or ordinance is adopted, the National Complete Streets Coalition has identified 10 elements that should appear in every comprehensive Complete Streets policy document (American Planning Association 2010, 24).

A Good Complete Streets Policy:

1. Includes a vision for how and why the community wants to complete its streets
2. Specifies that "all users" includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as automobile drivers and transit and delivery vehicle operators
3. Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes
4. Is adoptable by all relevant agencies to cover all roads
5. Applies to both new and retrofit projects—or major maintenance projects—including design, planning, maintenance and operations for the entire right-of-way
6. Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions
7. Directs the use of the latest and best design standards while recognizing the need for flexibility in balancing user needs
8. Directs that Complete Streets solutions will complement the desired context of the community;
9. Establishes performance standards with measurable outcomes
10. Includes specific next steps for implementing the policy

What a Complete Street Looks Like on the Ground

Complete Streets are designed and implemented to enable safe access for all users. Pedestrians, bicyclists, motorists and public transportation users of all ages and abilities are able to move safely along and across a Complete Street. While there is no one prescription for a Complete Street, features can include:

- Wide sidewalks that are in good condition
- Bicycle lanes that meet design standards
- Frequent opportunities for pedestrians to cross the street at varying rates of speed
- Refuge medians on wider streets that provide pedestrians with a "safe haven" while crossing
- Bus shelters and crossings proximate to transit stops
- Dedicated transit lanes
- Raised and/or colored crosswalks
- Audible pedestrian signals for the blind
- Sidewalk bulb-outs to shorten crossing distances
- Pedestrian-scale street lighting
- Striped shoulders

More detail on Complete Streets policy development, design guidance and implementation is provided later in this guide.

THE HISTORY OF COMPLETE STREETS

During the 1990s, in response to public support and advocacy for improved conditions for bicycling and walking, Congress spearheaded a movement towards a transportation system that prioritized the movement of people and goods over motor vehicles. The Intermodal Surface Transportation Efficiency Act (ISTEA) (1991) and later the Transportation Equity Act for the 21st Century (TEA-21) (1998) were passed containing explicit language on providing bicycle and pedestrian provisions in transportation projects. TEA-21 specifically stated that "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted" (Section 1202). The Clean Air Act Amendments of 1990 (CAAA) and the Americans with Disabilities Act of 1990 (ADA) also reinforced the need for routine and equitable accommodation.

In 1999, USDOT adopted a policy statement recommending an approach for accommodating bicycle and pedestrian travel. The full text of Accommodating Bicycle and Pedestrian Travel: A Recommended Approach (2008) can be found in Appendix D.

In late 2003, the term "Complete Streets" was coined by America Bikes, a coalition of leaders from the bicycle community, as they developed a new policy initiative. The Complete Streets concept was defined by America Bikes as a policy that "ensures that the entire right-of-way is routinely designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and transit riders of all ages and abilities must be able to safely move along and across a complete street" (American Planning Association 2010, 3). A variety of practitioner organizations and stakeholder interest groups were

A Complete Street is for people (young and old), cars, bicycles, transit—everyone. Image: http://sfbikecoalition.wordpress.com/category/day-in-the-life/page/5

invited to join the newly created Complete Streets Task Force. In 2006, the task force evolved into the National Complete Streets Coalition, which included founding members of the American Planning Association (APA), Association for the Advancement of Retired Persons (AARP), America Bikes, American Public Transportation Association (APTA), Smart Growth America, the Institute of Transportation Engineers (ITE), the Association of Pedestrian and Bicycle Professionals (APBP), America Walks and a number of other groups. All of the coalition member organizations pushed for the adoption of Complete Streets policies, and in 2008 and 2009, policy adoption began to accelerate.

THE GOALS OF COMPLETE STREETS

Why does a community need Complete Streets? Historically, and still today, streets—although technically public spaces—have been planned, designed, constructed and managed primarily for use by private motor vehicles. Communities have treated multimodal projects separately from road projects and have devoted to them, by necessity, additional planning, funding and effort.

Conventional street design excludes a large segment of the population and often exacerbates environmental, economic and social problems. Traffic congestion, insufficient pedestrian and bicycle safety, decentralized development patterns, air pollution, unnecessarily high vehicle miles traveled and adverse health outcomes, such as disabling injuries, death and increased rates of chronic and cardiovascular disease, are all reasons why communities are deciding to revise their transportation decisions and policies around Complete Streets principles. With Complete Streets, projects as small as repaving can provide the opportunity to make improvements for all users. The ultimate goal of a Complete Streets policy is to ensure that roadways provide safe, efficient and complete transportation networks for all users.

THE BENEFITS OF COMPLETE STREETS

Communities benefit widely from Complete Streets implementation. Complete Streets Spokane, a coalition of local advocates, has developed a Complete Streets advocacy campaign that describes many reasons to pursue a Complete Streets ordinance for the city, including improved public health and safety, economic revitalization and improved livability. The efforts of Spokane's local champions, advocacy organizations and elected officials have resulted in a resolution passed on April 5, 2010 that authorizes the city to take the next steps necessary to develop an enforceable policy. Meanwhile, Sedro-Woolley, a smaller Washington state community of 10,000 residents, passed a Complete Streets ordinance on June 14, 2010 that ensures bicycle and pedestrian ways are accommodated in the planning, development and construction of transportation facilities.

Other benefits to a community pursuing a Complete Streets policy include reduced greenhouse gas emissions, lower transportation costs and increased access and mobility through the creation of well-connected transportation networks—important factors when considering issues of community equity. Many of these benefits are described in greater detail below.

Equitable Access and Mobility

Rural communities and small towns tend to have higher concentrations of older adults and low-income citizens, two populations that are less likely to own cars or drive. Indeed, more than 1.6 million rural households in the United States do not have access to a car (National Complete Streets Coalition n.d.). Without safer roads, those with limited transportation options have little choice but to walk or bike along high-speed roadways with few pedestrian or bicycle accommodations, or stay at home. As stated in the Seattle Pedestrian Master Plan (Seattle Department of Transportation 2009):

> Perhaps the most important factor in walking and social justice is choice. When providing pedestrian facilities, communities allow people to choose how they want to travel. For those who do not have the option to drive—such as adolescents, those unable to afford a car, and people with certain disabilities—lack of choice in transportation creates a barrier to mobility. If automobile travel is the only feasible mode of transportation in a community, low-income families are placed at a large disadvantage.

Complete Streets provide safer travel options for groups that have limited access to automobiles, such as children, elderly adults, people with disabilities and lower-income Americans. A 2004 study by the Surface Transportation Policy Partnership (STTP) found that one in five Americans aged 65 years and older do not drive for a variety of reasons, many of which are beyond personal choice. More than 50 percent of those that do not drive

stay home on any given day because they lack transportation options—resulting in reduced trip-making to important locations (e.g. to the doctor), which disproportionately affects elderly persons in rural and suburban communities as well as racial minorities. Moreover, the demographics of the United States are projected to change dramatically over the next 25 years; the number of Americans age 65 or older will grow from 35 million (2004) to more than 62 million in 2025. This demographic shift will place even greater demand on the provision of alternative methods of transportation (Surface Transportation Policy Partnership 2004).

Public transportation, social service van pools, carpooling and ridesharing services to reach healthcare, employment, and other resources can be a lifeline in rural and suburban areas, especially for older adults, people with disabilities, and low-income households (National Complete Streets Coalition n.d.). In addition, children are more likely to walk or bike to school when sidewalks and bike lanes are present, when there are safe street crossings and when automobile speeds are reduced in school zones (American Planning Association 2010, 6). People in wheelchairs or who have vision impairments also benefit from Complete Streets: poorly designed streets can prevent them from accessing essential amenities such as transit and neighborhood retail.

Creating sufficient walking, bicycling and—where available—public transportation options for rural and suburban residents builds a more accessible and safe community for people of all ages, abilities and income levels. Equity is a recurring theme when discussing the additional benefits of Complete Streets policy—in some cases, it is impossible to discuss the various benefits of Complete Streets without addressing equity issues.

Public Health

The transportation infrastructure associated with Complete Streets—such as well connected, narrow streets; sidewalks; bicycle lanes; crosswalks; and street furniture—makes walking and bicycling more inviting within the community. These elements of the built environment affect physical activity, stress, noise, air pollution, traffic, access to healthful food and other risk factors for obesity and chronic disease, mental illness, respiratory illness, injury and death (American Planning Association 2010, 4).

Research has consistently found that residents of walkable communities have measurably higher physical fitness levels and lower rates of obesity than residents of more automobile-oriented communities (Frank and Kavage 2008, 215). A study of Atlanta residents found that people living in more walkable neighborhoods were 35 percent less likely to be obese than those in the least walkable neighborhoods (Frank, Andresen and Schmid 2004). In response to studies such as these and a 127 percent increase in adult obesity rates in the community, Moses Lake, Washington, adopted a *"Healthy Communities Action Plan"*. Though not necessarily a Complete Streets ordinance, the city's new zoning rules require wider sidewalks and other features that improve accessibility for pedestrians and cyclists (National Complete Streets Coalition n.d.). Similarly, the Tacoma-Pierce County Board of Health adopted a resolution urging decision makers in all Pierce County municipalities to adopt and implement Complete Streets policies to promote healthy living (National Complete Streets Coalition n.d.).

Safety

A fundamental impetus behind Complete Streets is the need to provide safe access to public rights-of-way. Close to 5,000 pedestrians and bicyclists die each year on U.S. roads and more than 70,000 are injured. In the United States, pedestrians and bicyclists comprise approximately 13 percent of all traffic fatalities, while representing 12 percent of trips. Meanwhile, these modes only receive about two percent of the federal funding, which has resulted in streets that don't safely accommodate bicyclists and pedestrians (Cohen 2010). Residents of rural and suburban towns are more likely to be hurt or killed in or along the transportation system than those in urban areas. For example, in 2006, 23 percent of the U.S. population lived in rural areas, yet 56 percent of all traffic fatalities occurred in rural areas (National Complete Streets Coalition n.d.). Higher driving speeds on rural roads and arterials are also more likely to cause fatalities: 68 percent of fatal crashes on rural roads occurred when the posted speed limit was 55 miles per hour or higher (National Complete Streets Coalition n.d.). In addition, over 40 percent of annual pedestrian fatalities occur on roads that have no crosswalks, and are more prevalent in rural and suburban communities (American Planning Association 2010, 4).

Complete Streets serve to reduce collisions with pedestrians through comprehensive safety improvements such as sidewalks, raised medians, better bus stop placement, traffic calming measures and treatments for disabled travelers. Complete Streets also encourage safer bicycling. A recent review of bicyclist safety studies found that the addition of well-designed bicycle-specific infrastructure such as on-road bicycle lanes tends to reduce injury and crash risk by about 50 percent (National Complete Streets Coalition n.d.).

Climate Change

Because walking, bicycling and taking transit are low- to no-emissions options for travel, shifting trips commonly made by automobile to lower-carbon modes can be a successful strategy for meeting greenhouse gas reduction targets. The 2001 National Household Transportation Survey found that 50 percent of all trips in metropolitan areas are three miles or less, and 28 percent of all metropolitan trips are one mile or less. These distances are easily traversed by foot or bicycle, yet 65 percent of trips under one mile are now made by automobile (U.S. Bureau of Transportation Statistics n.d.). By making walking, biking and transit safer and more enjoyable, many of these short automobile trips could be converted to other forms of travel. By using transit instead of driving to work, a solo commuter can reduce carbon dioxide emissions by 20 pounds per day, or more than 4,800 pounds in a year (Davis and Hale 2007, 12). Walking and biking are zero-emission forms of travel; according to the World Watch Institute, replacing an automobile trip of four miles with a bicycle would keep 15 pounds of pollutants from entering the air.

Connectivity

Well-designed and connected Complete Streets make travel more efficient by providing increased access to other transportation modes of (walking, biking, transit) and more route choices. Some communities with Complete Streets policies have included provisions designed specifically to increase connectivity, for example, by requiring new developments to connect into the existing grid in multiple locations (National Complete Streets Coalition n.d.). A number of built-out suburban communities with sprawling residential networks have looked for opportunities to create more non-motorized connections by installing paths that connect cul-de-sacs and other disconnected streets to nearby roads. Even when roads are well-connected for automobile travel, there may still be a need to connect walking and biking networks. Seattle's Complete Streets ordinance is helping to identify transportation network gaps and prioritize investments that create complete networks for all modes (National Complete Streets Coalition n.d.) Design that promotes walking, biking and transit can result in connected streets that reduce traffic congestion by dispersing traffic and offering additional travel options.

Livable Communities

More than half of Americans recently surveyed would like to walk more and drive less (Bureau of Transportation Statistics n.d.). Poor community design and lack of pedestrian facilities are the primary reasons people cite for why they do not walk more (National Complete Streets Coalition n.d.). Fortunately, communities are increasingly moving toward more traditional development patterns to meet their residents' desire for choices in shopping, recreation, housing and sustainable transportation (National Complete Streets Coalition n.d.).

It is worth noting here that Zillow (www.zillow.com), an online real estate marketplace that assists potential homebuyers locate information about specific properties for sale in Washington state (and other states across the country), recently started using Walk Score (www.walkscore.com) to help rate property locations (Meyers 2009). Walk Score helps determine the walkability of an individual home with an algorithm that awards points based on the proximity of essential amenities such as neighborhood centers, mixed-use development, schools and employers, parks and most importantly—Complete Streets (Walk Score n.d.). This recent and meaningful development shows that walkability and livability have become an important factor to people when deciding where to live.

Complete Streets also compliment Smart Growth development. A better integration of land use and transportation through Complete Streets creates an attractive combination of buildings and street design, increases safety, and encourages "active" modes of transportation (walking and biking).

Economic Revitalization

Creating infrastructure for non-motorized transportation and transit, while lowering automobile speeds through changed road geometry, can improve economic conditions for both business owners and residents. A network of Complete Streets is more safe and appealing to residents and visitors, which is beneficial for retail and commercial development. When Valencia Street in San Francisco reduced its traffic lane widths to accommodate other users, nearly 40 percent of merchants reported increased sales, and 60 percent reported more area residents shopping locally (National Complete Streets Coalition n.d.). Complete Streets also boost the economy by increasing residential property values, as homeowners are generally willing to pay more to live in walkable communities (National Complete Streets Coalition n.d.).

Transportation Costs

Transportation is the second largest expense for American households, costing more than food, clothing and even health care (National Complete Streets Coalition n.d.). For families and individuals who live in sprawling areas that lack sidewalks, bike lanes and convenient public transit facilities, these high costs are nearly unavoidable (McCann n.d.). Household transportation expenses can be reduced if local infrastructure supports mobility needs without necessitating automobile ownership. When residents have the opportunity to walk, bike or take transit, they have more control over their expenses. Indeed, households located near public transit facilities drive an average of 16 fewer miles per day compared to similar households without transit access, saving them hundreds of dollars each year (National Complete Streets Coalition n.d.).

WHO SHOULD BE INVOLVED IN ADOPTING COMPLETE STREETS POLICY?

There is no prescription for the development and adoption of a Complete Streets policy, though doing so may include several steps. For example, in Seattle, the concept of Complete Streets was first included in a special funding measure and then formally adopted through an ordinance that covered all transportation funds and projects (American Planning Association 2010, 10). Many communities have begun with a simple resolution that led to a detailed revision of design standards and right-of-way manuals.

In Pierce County, Washington, the Tacoma-Pierce County Board of Health spearheaded policy development through its concerns about residents' sedentary lifestyles. The Board prompted a call for "elected officials, government agencies, private businesses, the food industry, health care providers, schools, parents and community organizations [to] immediately adopt and begin to implement recommended policies and practices to reduce the consumption of excessive calories and promote increased physical activity" (American Planning Association 2010, 10). In July and August of 2008, the Tacoma-Pierce County Board of Health Complete Streets Resolution and the Pierce County Council Complete Streets Resolution were developed and adopted. The Board's Complete Streets resolutions called for improved bicycle and pedestrian infrastructure along with programs to increase the availability and accessibility of opportunities for physical activity in new developments, near schools and within neighborhoods (American Planning Association 2010, 10).

The story of Pierce County illustrates the power of political partnership, local government staff support, community outreach and alignment with other community problems in the Complete Streets policy-making process. Just as Complete Streets benefit everyone, so can virtually anyone undertake an effort to design and adopt a Complete Streets policy in a community.

WHERE SHOULD COMPLETE STREETS BE IMPLEMENTED?

Complete Streets can be planned, designed and constructed in communities of all sizes, from rural towns to suburbs to urban cities. Complete Streets legislation can even be passed at the state-wide level. Currently, 23 states across the nation have provisions that qualify as Complete Streets policies. Every street to which pedestrians and cyclists are legally allowed access can and should, in its own way, be a Complete Street. In short, every road from the bustling central business district arterial to the small town main street should allow equal access for all users. Complete Streets, however, will look different in rural communities than they do in their more urban counterparts.

In smaller suburban towns and cities, low-speed roads with on-street parking,

well-marked crossings, and sidewalks with accessible curb cuts lining the street may best meet the needs of a residential street . For example, an ordinance in Sedro-Woolley, Washington ensures that bicycling and walking are safe, convenient options for its 10,000 residents. However that doesn't mean that every street in their community must have the full complement of urban amenities (National Complete Streets Coalition n.d.).

Complete Streets are important in helping town centers and main streets thrive as well, by improving street connectivity and allowing everyone to reach these important community focal points. Many smaller communities do not control their own main streets, but rather it is the state department of transportation. Construction or widening of main streets that function as state highways often compromises pedestrian safety and can have a negative impact on small-town economies. As such, Complete Streets policies at the local level help communicate the community's vision, while policies at the state level ensure that main streets in smaller towns are safe, accessible and attractive (National Complete Streets Coalition n.d.).

WHEN IS THE BEST TIME TO INTRODUCE COMPLETE STREETS TO YOUR COMMUNITY?

Complete Streets legislation or elements of Complete Streets can be introduced at various points in a community's development. For example, community members might identify the desire to prioritize non-motorized transportation during a community long-term visioning exercise. Conversely, a vision for Complete Streets may arise out of a more specific transportation or other planning process. This section briefly describes various situations in which it may be timely to introduce Complete Streets to the community.

Planning

A comprehensive plan is a state-mandated guiding document for the future of an entire community that describes existing conditions, identifies goals and priorities, and lays out action steps for meeting those goals (American Planning Association 2010, 37). By including Complete Streets in a comprehensive plan's transportation section, a community can encourage the integration of design elements, planning and policies that make non-motorized travel safer and more convenient.

While comprehensive plans are the guiding document of an entire city, neighborhood plans lay out the vision of an individual community, or in some cases, a corridor. These plans provide an opportunity to include more specific details on Complete Streets elements in a smaller geographic area. Almost all of the nearly 40 different neighborhoods in Seattle have their own neighborhood plans. Some are quite different than others in the way bicycling and walking are prioritized. Neighborhood plan development is a good opportunity for a community to express its views and priorities with regards to non-motorized travel and safety.

Finally, many jurisdictions have standalone bicycle, pedestrian or transit plans. These plans are critical documents that guide the future of communities' transportation systems. Ensuring that Complete Streets policy and design are addressed in the transportation planning process and subsequent updates is an important step in implementing Complete Streets goals.

Standards, Policies and the Development Process

Planners and engineers write and amend standards, policies and incentives that guide what, where and how things are built and/or preserved. Tools included in these documents include zoning codes, subdivision codes, design guidelines and manuals and other regulations and ordinances. Not only should communities review these existing tools to identify how to better incorporate Complete Streets, but any time a new policy, code, guideline, etc. is created, Complete Streets standards should be worked into the language.

Planners and engineers also review project applications for consistency with applicable plans, standards and policies. While goals and standards for Complete Streets should be addressed in plans and regulations, the development process is another opportune time to make sure these goals and standards are met or exceeded.

Public Investment

All towns, cities and counties at some point undertake major investments in infrastructure and community facilities. Planners and transportation staff should be involved in investment decisions, as these choices have the ability to substantially affect the design and location of transit, streets, sidewalks, bikeways and other infrastructure and facilities so that they are consistent with Complete Streets. For example, capital improvement programs (CIPs) typically lay out public improvements and associated costs over a set time period. By taking an active role in their city's CIP, planners, engineers and transportation staff can make sure that public investments reflect a commitment to Complete Streets ideals.

A more immediate opportunity for making Complete Streets improvements comes when utility or road work is being done, such as undergrounding overhead utilities or upgrading sewer lines (American Planning Association 2010, 43). As the road infrastructure is torn up, improvements to streets and intersections can be made, such as the installation of sidewalks and crosswalks. Another opportunity to incorporate Complete Streets design exists when streets are being resurfaced—changing the paint on a road, also known as rechannelization, is sometimes the only thing a city needs to do in order to install bike lanes or crosswalks.

TAKING COMPLETE STREETS TO THE NEXT LEVEL: CONTEXT SENSITIVE DESIGN

Conventional roadway design standards define features such as minimum lane width, design speed and minimum parking supply. They often reflect the assumption that bigger-and-faster-is-better, resulting in wider roadways and higher design speeds than what may be optimal in a particular situation. Many of the Complete Streets elements discussed in this chapter may be prohibited or discouraged by current roadway development practices.

Context Sensitive Design (CSD, also called Context Sensitive Solutions) refers to roadway standards and development practices that are flexible and sensitive to individual community values. CSD allows narrower lanes, lower design speeds, sharper turns and special features not included in generic road design guidelines to help create a more balanced and efficient transportation system and meet community land use objectives (Victoria Transportation Policy Institute 2010).

Context Sensitive Design promotes six key principles (University of Minesota 2010):

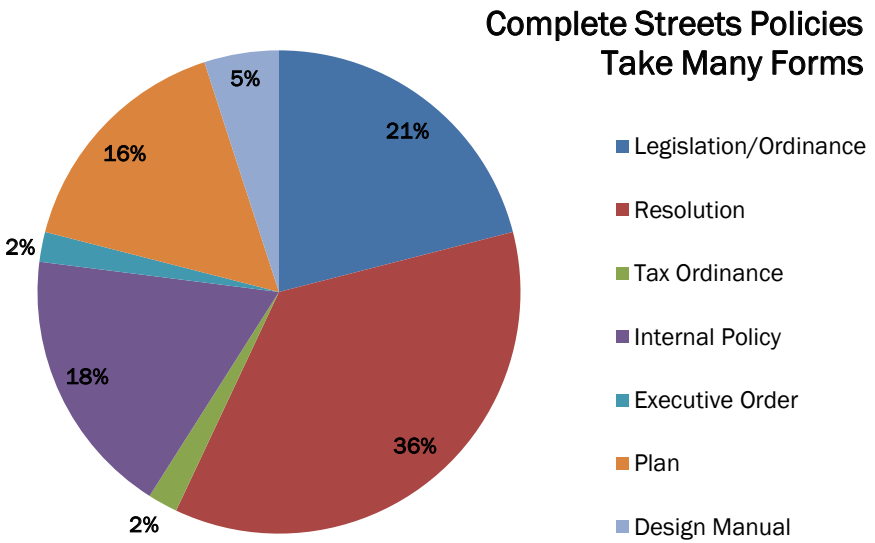
1. Balance safety, mobility, community and environmental goals in all projects.
2. Involve the public and affected agencies early and continuously.
3. Use an interdisciplinary team tailored to project needs.
4. Address all modes of travel.
5. Apply flexibility inherent in design standards.
6. Incorporate aesthetics as an integral part of good design.

In short, CSD is not just the installation of bicycle and pedestrian amenities, but the art of creating public works projects that meet the needs of the community residents, the neighboring communities and the environment. This requires careful planning, consideration of different perspectives and tailoring designs to particular project circumstances. Early public involvement can help reduce expensive and time-consuming rework later on and thus contributes to more efficient project development (University of Minesota 2010).

STATE OF THE PRACTICE

Types of Policy and Legislation

Across the United States, policies have been adopted through a variety of approaches, including legislation, resolutions, tax ordinances, internal policies, executive orders and updates to plans, manuals and design standards. Complete Streets policies can be adopted through any of these means, however an *ordinance* is the most enforceable approach. Some communities, however, prefer to adopt a resolution or incorporate Complete Streets language into a plan prior to adopting an ordinance. The chart below illustrates the breakdown of types of Complete Streets policies that exist throughout the country.



Source: (National Complete Streets Coalition 2010)

In the United States, policies have been adopted at the state, county, regional and city levels. At the regional level, they are commonly adopted by the regional metropolitan planning organization (MPO). As of 2010, 179 jurisdictions of all sizes have adopted a Complete Streets policy or have made a commitment to do so. The Complete Streets movement has grown significantly in the past couple of years, with 50 jurisdictions adopting policies in 2010 (to date) and 47 in 2009. Places that made an early commitment to Complete Streets are beginning to experience the positive effects. For instance, Boulder, Colorado has experienced tremendous growth in rates of bicycling (rising from 10.6 percent of work trips in 1990 to 20.5 percent in 2006), walking and transit use as a product of their approach to Complete Streets (Pedestrian and Bicycle Information Center n.d.).

Eleven jurisdictions in Washington state have adopted Complete Streets policies. These jurisdictions range in size from Washington's largest city (Seattle) to smaller cities throughout the state, as well as a county-wide policy in Pierce County. Several other communities are in the process of or are considering adopting Complete Streets policies for their jurisdictions, including Spokane, the state's second-largest city. The table below (Washington state Complete Streets Policies) categorizes each Washington state jurisdiction's policy and quotes the language used to mandate Complete Streets implementation.

WASHINGTON STATE COMPLETE STREETS POLICIES			
Jurisdiction	**Population**	**Policy Type**	**Language**
Pierce County	813,613	Resolution	"The Pierce County Council requests that the Transportation Plan Update include an assessment of the plan's support of the "Complete Streets" concept, identification of relevant policies within the plan that support the creation of 'Complete Streets', and an identification of barriers to, and opportunities for, the development of 'Complete Streets' throughout Pierce County. The Council further requests that a specific 'Complete Streets' policy be Included within the Transportation Plan Update."
Seattle	612,000	Ordinance	"A ordinance relating to Seattle's Complete Streets policy, stating guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling, and transit use while promoting safe operations for all users."
Tacoma	204,200	Comprehensive Plan Amendment; Design Guidelines	"Support a balanced transportation system; Provide options to reduce environmental impacts; Safely accommodate larger vehicles such as transit and emergency services; Add cost-effective street design options to Tacoma's 'toolbox'; All users and transportation modes to be considered in street design; Support efforts to make streets safe, attractive and comfortable; Support growth vision for mixed-use centers; Livability in residential areas; Approaches tailored to existing conditions in Tacoma and to community objectives."
Everett	104,100	Resolution	"Moved by Council Member Olson, seconded by Council Member Stonecipher to adopt Resolution No. 6016 recognizing the City of Everett's adoption of the Complete Streets Program. Roll was called with all council members voting yes. Motion carried."
Renton	86,230	Ordinance	"It is the purpose of this section to establish design standards and development requirements... with Complete Streets principles. Complete Streets principles are to plan, design, and operate streets to enable safe and convenient access and travel for all users including pedestrians, bicyclists, transit riders, and people of all ages and abilities, as well as freight and motor vehicle drivers, and to foster a sense of place in the public realm with attractive design amenities."
Redmond	53,680	Ordinance	"The City of Redmond will plan for, design, and construct all new transportation projects to provide appropriate accommodation for bicyclists, pedestrians, transit users, and persons of all abilities in comprehensive and connected networks."
Kirkland	49,620	Ordinance	"Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs."
University Place	31,550	Ordinance	"Develop facilities for pedestrians and bicyclists as alternative travel modes to the automobile… Require sidewalk facilities on all public streets… Develop a system of bicycle routes, both east/west and north/south, that provides for travel within the City with connections to local parks and regional facilities."
Issaquah	27,160	Ordinance	"Bicycle and pedestrian facilities should be included in the planning, engineering, design and construction of transportation facilities, including transportation plans and programs."
Tukwila	18,190	Bicycle and Pedestrian Plan	"The Walk and Roll Plan is created to carry out the goals of the Comprehensive Plan. It expands the idea of transportation from simply keeping cars and trucks moving to the idea that Tukwila's streets ought to be for everyone, whether young or old, motorist or bicyclist, walker or wheelchair user, bus rider or shopkeeper, shopper or employee. This "Complete Streets" perspective will ensure that Tukwila residents and visitors can get around as freely as possible with a range of both motorized and non-motorized choices."
Sedro-Woolley	10,040	Ordinance	"Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs."
Spokane	206,900	Resolution	No ordinance in place yet—five of seven councilmembers voted to enact a Complete Streets policy in Spokane, but the creation of the ordinance is ongoing.

Made possible by funding from the Department of Health and Human Services and Public Health – Seattle & King County

bicycle club Cascade

LOCAL CASE STUDIES

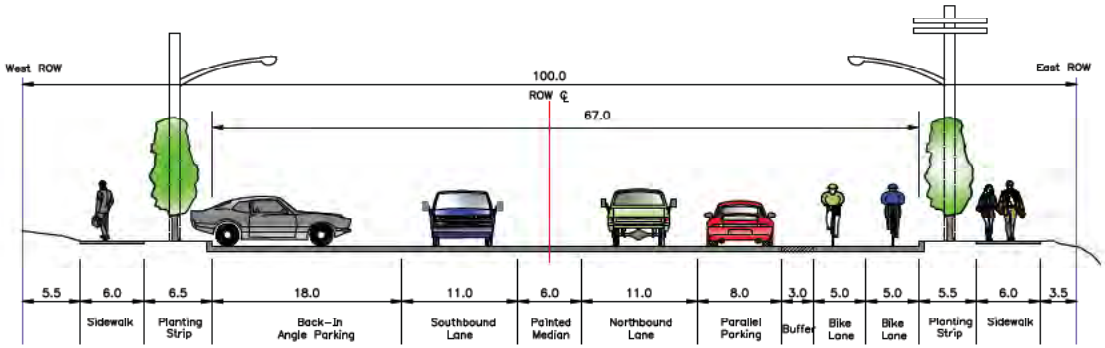
In Washington, Complete Streets policies, which are primarily ordinances, have supported the development of a growing bicycle and pedestrian network, as well as programs that encourage walking and biking. The sections below discuss some selected local case studies in Washington state that are notable because of unique funding mechanisms, roadway treatments, safety programs and other important elements of Complete Streets policies.

Full text of several notable Washington state cities' Complete Streets ordinances can be found in Appendix A.

The Linden Avenue North corridor in north Seattle is currently unsafe for pedestrians, bicyclists, transit users and the elderly and disabled residents in the area. Photos: Max Hepp-Buchanan

Seattle

In 2006, Seattle voters passed a nine-year, $365 million levy for transportation maintenance and improvements known as "Bridging the Gap". Among other things, the new transportation funding was dedicated toward increasing public transportation speed and reliability, as well as allocating funds to the creation of Complete Streets. Six months later, the City Council adopted an ordinance so that all transportation projects, not just those funded through Bridging the Gap, would improve travel for all users (American Planning Association 2010, 59). The results have been impressive. On Rainier Avenue South, bus bulbs and priority signals through the corridor help transit operators save time. On Second Avenue and Fourth Avenue downtown, new street designs include bus bulbs, green bike lanes, advanced stop bars, "sharrows", and bus-priority signals.



The 67-foot wide cross-section of the Linden Avenue North Complete Streets project provides users with wide sidewalks, landscaping, and a two-way buffered bicycle facility. Image: http://www.seattle.gov/transportation/linden.htm

Linden Avenue North Complete Streets Project

Between 128th and 145th Streets in the Bitter Lake neighborhood of Seattle, Linden Avenue North is languishing. There are few sidewalks, curbs or storm drains, and the shoulders are gravel. The asphalt is in poor condition and there are few marked crossings. The street in this part of town doesn't meet ADA standards, which is a problem because hundreds of seniors and people with disabilities live in the neighborhood.

In late 2010, however, the Mayor's budget to fund a full Complete Streets renovation to the Linden Avenue North corridor was approved by Seattle City Council. The Linden Avenue North Complete Streets Project proposes new pavement and markings, continuous sidewalks, curbs and curb ramps, tree planting on both sides of the street, buffered bicycle facilities and new street lighting.

Issaquah

In 2007, the City of Issaquah adopted a Complete Streets ordinance which added to the city's existing streets improvements program the objective of retrofitting existing facilities to accommodate more users. The city is currently developing plans to improve a stretch of Newport Way NW, a road made up of one lane of vehicle traffic in each direction, as well as narrow shoulders (less than two feet), ditches and an asphalt walking path on the east side of the street. About half of the stretch of road is located in a school zone. The city's options are either to transform the corridor into a three-lane road with signalized intersections or to build a two-lane alternative with roundabout intersections (City of Issaquah, Washington n.d.). Either option would include significant improvements for pedestrians and bicyclists, such as bike lanes and more comfortable sidewalks.

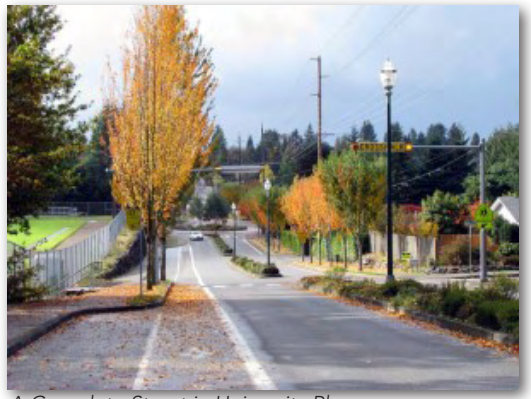
Kirkland

Also in 2007, the City of Kirkland won the Environmental Protection Agency's Building Healthy Communities for Active Aging Achievement Award, which recognized the city for its commitment to more than 50 physical activity programs designed for older adults; investment of $6 million to improve sidewalk conditions; and innovative pedestrian policies, such as PedFlag (flags placed at crosswalks to make pedestrians more visible while crossing) and the Flashing Crosswalk Program (American Planning Association 2010, 17).

A crosswalk on one of Kirkland's busiest arterials uses buffers, curb extensions and a pedestrian refuge island for shorter crossing distances, as well as pedestrian crossing flags for increased visibility and safety. Photos: Max Hepp-Buchanan

University Place

When University Place incorporated in the mid 1990s, the town established the priority of adding sidewalks to the former county roads. The town was committed to the idea that all future road projects would need to integrate the needs of all users, not simply motorists. While the term "Complete Streets" was not in use at the time, University Place had essentially shifted to a Complete Streets paradigm. Bridgeport Way was one of the first streets to get a full Complete Streets treatment, including a landscaped median, new pedestrian crossings, bicycle lanes, a multi-use path and improved sidewalks. Since incorporation, University Place has installed 23 miles of sidewalks in addition to some of the first modern roundabouts in the state of Washington (McCann 2009, 48).



A Complete Street in University Place, Washington. Image: http://www.completestreets.org/wp2/wp-content/uploads/2010/04/universityplacewa-burden-300x225.jpg

Sedro-Woolley

The rural town of Sedro-Woolley, Washington adopted a Complete Streets ordinance in 2010, ensuring that bicycling and walking are safe, convenient options for its 10,000 residents. While Complete Streets in a rural community like Sedro-Woolley might be implemented differently than in an urban city like Kirkland, the objective is the same: establishing safe and attractive places for people to walk and bicycle.

COMPLETE STREETS POLICY INITIATION, FORMULATION AND ADOPTION

The development and adoption of a new Complete Streets policy is often complex and is influenced by a variety of factors and stakeholders. Policies are usually part of a broader movement, including bicycle and pedestrian planning, smart growth, community visioning, safety initiatives, climate protection initiatives and physical activity/health campaigns. Complete Streets can be adopted through various approaches, including resolutions; local ordinances; state laws; comprehensive plan amendments; criteria included within funding measures; internal agency policy directives; and rewrites of manuals, standards and subdivision ordinances. Policy adoption varies by jurisdiction—some cities have started with a resolution and later revised their right-of-way manuals and design standards. For example, though the City of Tacoma does not yet have an official Complete Streets ordinance, the city has made comprehensive plan amendments and established design guidelines that support a balanced transportation system and considers all transportation modes and roadway users in street design. Similarly, the City of Tukwila's bicycle and pedestrian plan ("Walk and Roll") was created to carry out the goals of the city's comprehensive plan in a way that ensures that Tukwila residents and visitors can get around as freely as possible with a range of both motorized and non-motorized choices. Lastly, both the Everett and Spokane City Councils have passed Complete Streets resolutions for their respective cities and efforts to put ordinances in place are ongoing.

Concerns with Complete Streets

Before discussing best practices for Complete Streets policy initiation, formulation and adoption, it is worth discussing the potential barriers and resistance within a community. Many of the practices discussed below will help a city or region overcome barriers about adopting Complete Streets.

In a Complete Streets survey of municipalities across the U.S. conducted by the Thunderhead Alliance, several respondents indicated public resistance to Complete Streets policies, including landowner resistance to wider rights-of-way, worries about costs and concerns about safety or appropriateness of accommodation. Some respondents mentioned resistance from specific groups, such as the local congestion management association (which saw the move as competing for funds) and the development industry (in cases where developers are responsible for providing the roads) (Thunderhead Alliance 2006, 20).

In some cases, resistance comes from within the department of transportation (DOT) itself. Though the DOT may not completely oppose Complete Streets policies, planners or engineers may initially resist them because they have questions or concerns about implementation. As demonstrated in some communities, initial resistance to Complete Streets usually softens as engineers apply themselves to the task of determining how to make multimodal accommodation a routine practice (Thunderhead Alliance 2006, 21). Community and government leaders can address this issue early in the process by providing department staff with opportunities for training. Other ways to get around resistance to Complete Streets adoption are discussed in more detail below.

POLICY INITIATION AND FORMULATION

Before legislation can be passed and adopted, a community should define the need for a Complete Streets policy. Common problems that require Complete Streets intervention include traffic congestion, insufficient pedestrian and bicycle safety, noise, decentralized development patterns, air pollution, unnecessarily high vehicle miles traveled and adverse health outcomes, such as increased rates of chronic and cardiovascular disease. These are all reasons why communities decide to revise their transportation decisions and policies around Complete Streets principles (American Planning Association 2010, 10). Identifying a community problem that can be addressed through Complete Streets and identifying the range of stakeholders affected by that problem are the first steps in the Complete Streets policy-making process (American Planning Association 2010, 10).

Once the problem has been identified, a community should gather quantitative evidence to support the need for a Complete Streets policy. Qualitative evidence is also useful, but statistics provide a better picture of current and future transportation-related conditions across a geographic area for different demographic groups in a community (American Planning Association 2010, 11). Important information can include bicycle and

pedestrian crash data; bicycle and pedestrian commute trip data, including the percentage of children or adolescents biking or walking to school; chronic disease prevalence statistics; rates of obesity and the percentage of a population that is overweight; population projections; and air pollution data[1].

It is also important to understand how a community currently addresses transportation issues. This can help in identifying the nature and extent of the problem, as well as mitigation strategies currently used by the community (American Planning Association 2010, 12). The following methods can be used in the process of gathering and analyzing this information:

- Collection, review and assessment of existing local programs, projects, plans and policies
- Identification of best practices from other jurisdictions
- Compilation and examination of current academic research, studies and reports developed by universities, advocacy organizations and other local government departments
- Formal and informal conversations with political, institutional, private and public stakeholders

The identification of the needs and interests of an array of community stakeholders is essential to the successful adoption of a Complete Streets policy. Planners, public health professionals, traffic engineers, policy makers, developers, business owners and residents will likely be concerned with differing elements of a particular transportation corridor's functionality and will approach transportation policy from different perspectives. Cross-departmental and inter-jurisdictional coordination, as well as effective communication between diverse groups of stakeholders is one of the most common ways to address concerns related to Complete Streets adoption.

The most successful champions of Complete Streets have convened a variety of traditional and nontraditional stakeholders to identify common goals, list mutual benefits and develop a common understanding of the transportation needs of all users in the community. More and more, communities are realizing that open communication among stakeholder groups has great benefits, as does creating advisory boards or task forces of varied community groups. Convening a multi-stakeholder committee or coalition can help city staff build both political and public support—two important driving forces of policy change (American Planning Association 2010, 12).

1 Public Health – Seattle and King County produced a Health of King County Report in 2006 that examines the health status of King County residents and recent trends—an important source of health data for King County municipalities and neighborhoods (http://www.kingcounty.gov/healthservices/health/data/hokc.aspx).

POLICY ADOPTION

Policy adoption processes vary as much as initiation and formulation processes, but the most successful policy adoption processes have involved community groups that ensure the policy covers all stakeholder groups' concerns: political support, local governmental staff support, public support, individual champions, partnerships and other stakeholder influences can all help bring about policy change (American Planning Association 2010, 14). Building and retaining this kind of support requires education, outreach and engagement, as the political leadership, government staff or public may not completely understand the concept, principles and goals of Complete Streets.

Other factors that can help facilitate the policymaking and adoption process include (American Planning Association 2010, 18):

- A single event, hallmark research study, community workshop or presentation
- Media advocacy
- Private or public financial support
- Other initiatives, regulations or policies

These actions can help educate the community about the environmental, economic or social issues at stake, supply resources for the problem identification and quantification stages and provide synergistic support for other complementary initiatives, regulations or policies (American Planning Association 2010, 18). The combination of several of the above factors can create the ideal setting for successful development and adoption of a Complete Streets policy.

ELEMENTS OF A GOOD COMPLETE STREETS POLICY

As stated in Chapter 1, the National Complete Streets Coalition has outlined 10 elements that should appear in a comprehensive Complete Streets policy (National Complete Streets Coalition n.d.). This section describes those 10 elements in more detail. In addition to the 10 elements discussed below, Complete Streets should incorporate strong guiding language. For example, instead of saying "shall be considered in every project", the language should read "shall be included in every project".

Sets a Vision

A strong vision can inspire a community to follow through on its commitment. Just as no two policies are identical, visions differ from community to community. One community might envision Complete Streets as promoting health through physical activity and active transportation, while another may focus on creating streets safe for travel by even the most vulnerable users—children, older adults and those with disabilities. Select a vision that is most appropriate and true to your residents through community outreach and public comment.

Specifies All Users

A true Complete Streets policy is one that addresses the needs of everyone traveling along the road. A sidewalk without curb ramps presents a significant obstacle to wheelchair users. An awkwardly placed and inconvenient public transportation stop without safe crossings does little to benefit public transportation riders. A four-lane road with no bike lanes will discourage and possibly endanger bicyclists, while a road with heavy freight traffic must be planned with those vehicles in mind. Automobile travel is also an important part of Complete Streets: any change made to better accommodate other modes of travel will affect the use of personal vehicles, as well.

Creates a Network

Over time, Complete Streets should result in the creation of a complete and—to the greatest extent possible—connected transportation network for all modes of travel. A network approach helps to balance the needs of all users. Instead of trying to make each street perfect for every traveler, communities can create an interwoven array of streets that emphasize different modes and provide quality accessibility for everyone. This may result in bicycle boulevards that prioritize the movement of bicycles along one corridor, dedicated lanes for bus traffic in another, or pedestrian improvements along routes that are already overflowing with people on foot. This type of network approach, however, should not result in one type of user being overly favored while others are required to take long detours.

All Agencies and All Roads

Creating Complete Streets networks is made more difficult by the array of jurisdictions that may have an interest in or control over one or more of a community's rights-of-way. Many states, including Washington, maintain a state highway design manual, deviation from which may require a waiver. Additionally, streets in some communities are built and maintained by the local department of transportation (DOT), while others are owned by the state DOT. Typical Complete Streets policies cover only one jurisdiction's roadways, which can cause network problems: a bike lane on one side of a bridge disappears on the other because the road is no longer controlled by the agency that built the lane. A good Complete Streets policy is adoptable by all relevant agencies to cover all roads in a particular community.

All Projects

For many years, multimodal streets have been treated as "special projects" that require extra planning, funding and effort. The Complete Streets approach differs in that its intent is to view all transportation projects—large or small—as opportunities to create safer, more accessible streets for all users. This principle applies to both new and retrofit projects, including design, planning, maintenance and operations for the entire right-of-way. In addition, the safety of all users can be improved within the scope of pavement resurfacing, restriping or signalization operations.

Exceptions

Making a Complete Streets policy work requires developing a process to handle exceptions to the general rule of providing accommodations for all modes in each project. The Federal Highway Administration (FHWA) has named three exceptions that have become commonly used in Complete Streets policies, discussed in more detail below. Many communities have also developed their own exceptions, such as severe topography constraints. In addition to defining exceptions, there must be a clear process for granting them and they should be kept on record and available to the public. Exceptions and exemptions are discussed in more detail below.

Design Criteria

Communities adopting a Complete Streets policy should review their existing design policies to ensure their ability to accommodate all modes of travel while still providing the flexibility required for designers to adapt a project to unique circumstances. Some communities will opt to rewrite their design guidelines or right-of-way manual. Others will refer to existing design guides, such as those issued by the American Association of State Highway and Transportation Officials (AASHTO), state design standards and the Americans with Disabilities Act (ADA) Accessibility Guidelines.

Context-Sensitive

An effective Complete Streets policy must be sensitive to and complement the context of an individual community. Being clear about sensitivity to community context in the initial policy statement can alleviate concerns that the policy will require inappropriately wide roads in quiet neighborhoods or miles of little-used sidewalks in rural areas. A strong statement about context can help align the community's transportation and land use planning goals.

Performance Measures

The traditional performance measure for transportation planning has been vehicular level of service (LOS), a measure of automobile congestion through an intersection or corridor. Complete Streets planning requires that planners and engineers take a broader look at how the system is serving all users, in addition to drivers. Examples of ways a Complete Streets policy can be measured for success include: miles of on-street bicycle routes created; new linear feet of pedestrian accommodation; changes in the number of people bicycling, walking, or using public transportation (mode shift); and the number of new street trees. The fifth edition of Highway Capacity Manual, due out at the end of 2010, will include a new multimodal LOS standard that better measures the quality of travel experience. Communities can also create their own multimodal LOS standard. San Francisco and Charlotte, North Carolina have already begun to develop their own multimodal standards.

Implementation

There are four key steps for successful implementation of a Complete Streets policy: 1) restructure procedures to accommodate all users on every project; 2) develop new design policies and guides; 3) offer workshops and other training opportunities to planners and engineers and 4) institute better ways to measure performance and collect data on how well the streets are serving all users. Some policies establish a task force or commission to help guide the city toward effective policy implementation.

ADDITIONAL POLICY TOOL: COMPLETE STREETS CHECKLIST

Communities may also want to consider adding a Complete Streets checklist to their policy toolkit as a way of ensuring that projects meet the goals of the Complete Streets policy from the beginning planning stages. For example, the Pennsylvania Department of Transportation (PennDOT) uses a bicycle and pedestrian checklist throughout its project planning, programming, scoping and final design processes to ensure early consideration of bicycle and pedestrian accommodations (American Planning Association 2010, 50).

Some examples of questions taken from the PennDOT bicycle and pedestrian checklist include (American Planning Association 2010, 51):

- Is the transportation facility included in or related to bicycle and pedestrian facilities identified in a master plan?
- Do bicycle/pedestrian groups regularly use the transportation facility?

- Does the existing transportation facility provide the only convenient transportation connection/linkage between land uses in the local area or region?
- Would the transportation facility (and all users) benefit from widened or improved shoulders or improved markings (shoulders, crosswalks)?
- Are sidewalks needed in the area?
- Is the transportation facility in close proximity to hospitals, elderly care facilities, or the residences or businesses of persons with disabilities?
- Is the transportation facility on a transit route?
- Is the community considering traffic calming as a possible solution to speeding and cut-through traffic?

The City of Seattle developed its own Complete Streets checklist in January 2010 to ensure that Seattle Department of Transportation (SDOT) projects "meet [the City's Complete Streets] goals and help to sort through potentially conflicting modal priorities" (Seattle Department of Transportation 2010). This checklist is included in Appendix C.

EXEMPTIONS AND EXCEPTIONS TO A COMPLETE STREETS POLICY

Ideally, Complete Streets design principles would be applied to every street in every community. There are circumstances, however, in which this is not feasible or appropriate. Therefore, an important element of practical policy implementation is the creation of a process for handling exceptions to requirements that all modes be accommodated in all projects. In 2000, FHWA guidance on accommodating bicycle and pedestrian travel named three exceptions that have become commonly used in Complete Streets policies. The first is that accommodation is not necessary on corridors where non-motorized use is prohibited, such as certain state routes and interstate freeways. The second principle states that exceptions must be allowed when the cost of accommodation is excessively disproportionate to the need or probable use. The third exception is a documented absence of current or future need. The future clause is important because, although many corridors are currently unfriendly to pedestrian travel, redevelopment under new standards could change that.

Many communities have developed their own exceptions. A common exception used by municipalities is ordinary maintenance and repairs, which reassures planners and engineers that the most basic and routine maintenance work will not trigger the full reconstruction of an intersection or corridor (American Planning Association 2010, 29). Several Complete Streets policies also make exceptions for repaving projects but include a clause to encourage agencies to take advantage of repaving where appropriate. For example, the Complete Streets legislation in Illinois states, "Bicycle and pedestrian ways may be included in pavement resurfacing projects when local support is evident or bicycling and walking accommodations can be added within the overall scope of the original network" (American Planning Association 2010, 29).

Other common exceptions include the provision of infrastructure where it would be detrimental to public safety or inappropriate in light of the scope of the project; in areas where existing Complete Streets facilities currently exist or are scheduled for construction; or where there are topographic or natural resource constraints (Northwestern Indiana Regional Planning Commission 2010).

There is also a common worry among city agencies that Complete Streets policies will be prohibitively or inappropriately expensive, causing many communities to provide an exception for cost. The common interpretation of the FHWA's "excessively disproportionate" cost principle is any Complete Streets improvement that adds 20 percent or more to the total project cost (American Planning Association 2010, 58). This is the ceiling that Seattle originally accepted as part of its Complete Streets ordinance, but city planners later decided that every project should be evaluated on an individual basis. That way, if the Complete Streets improvements add 21 percent to the total project cost, but the benefits outweigh those costs, the project is deemed just as valid as one where the Complete Streets elements add 19 percent to the total project cost (American Planning Association 2010, 61).

However defined, it is important that all exceptions require high-level approval from a designated staff person or elected official(s) to be granted. Many policies make the head of the transportation department responsible for approving exceptions, while others require approval by an elected body, such as the city council (American Planning Association 2010, 30). The purpose behind assigning exception responsibility to a designated entity is to ensure that it is possible to figure out in the future why a particular street lacks particular amenities consistent with the community's Complete Streets policy.

DRAFT ORDINANCE LANGUAGE

Most Complete Streets ordinances follow a similar approach, or template, and incorporate many of the same provisions. The following section provides draft language that can be used as a starting point for communities as they begin to develop a Complete Streets ordinance. This language should be amended to fit the context of the community and the Complete Streets characteristics desired. Appendix A includes several examples of model Complete Streets ordinances that have been adopted in Washington state as guidance.

In addition to adopting a Complete Streets ordinance, Complete Streets language should be integrated into community plans and guiding documents. The National Policy and Legal Analysis Network (NPLAN) has produced model comprehensive plan language focused on Complete Streets principles. This language can be used for guidance as communities update their comprehensive and transportation plans to reflect Complete Streets goals and objectives. Example NPLAN template language can be found in Appendix B.

ORDINANCE NO. ____

AN ORDINANCE OF THE CITY OF _____ RELATING TO BICYCLE AND PEDESTRIAN WAYS ALONG TRANSPORTATION FACILITIES.

The City Council of the City of _____ do ordain as follows:

Section 1. The _____ Municipal Code is amended by the addition of a new Section _____ to read as follows:

_____ Bicycle and pedestrian ways along transportation facilities.

Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs.

Notwithstanding that provision of paragraph (1), bicycle and pedestrian ways are not required to be established:

Where their establishment would be contrary to public safety;

When the cost would be excessively disproportionate to the need or probable use; or

Where there is no current or future identified need.

In instances where an exception under paragraph (2) is granted, it shall be approved and documented by the Public Works Director.

Passed by majority vote of the _____ City Council in open meeting this _____ day of _____, 20xx.

OVERVIEW

Creating Complete Streets often means restructuring traditional design policies, practices and guidelines to support street designs that serve all users. Many of today's cities have street design standards that allow for wide lanes and wide streets, which ultimately facilitate faster motor vehicle speeds while neglecting other roadway users, such as pedestrians and bicyclists. When designing Complete Streets, key considerations should include the width of the street, pattern and connectivity of the street network, block length, physical elements along the streetscape, land use and the provision of bicycle and pedestrian amenities.

Because streets comprise a significant percentage of the built environment in the United States, cities are beginning to recognize that the design of these public spaces is an important determinant of neighborhood character and quality of life. As cities develop new street design standards, the following design imperatives are often prioritized (Airport Corridor Transportation Association n.d.):

- Improve functionality and appearance of new streets
- Facilitate pedestrian and bicycle travel
- Reduce the potential for speeding and safety concerns
- Introduce desirable design elements such as landscaped buffers and detached sidewalks
- Shorten block lengths to slow traffic and shorten walking distances

A variety of design treatments can be used to create Complete Streets. Chapter 4 discusses Complete Streets design considerations, a new approach to street classification and design standards to better serve all modes. Chapter 5 presents a Complete Streets Design Toolbox with specific bicycle, pedestrian and transit improvements that can be applied to streets to improve the accommodation of these modes. Before choosing a specific design for a street, however, it is important to establish a framework for determining the needs of each street and the relevant design constraints.

UNIQUE USERS & NEEDS

A Complete Street is a street that safely accommodates all potential users, or a street where all users can coexist in a safe environment. With this goal in mind, it is important first to understand who the users are and what their specific needs are. Comprehensive evaluation of how streets meet the needs of the following users should be part of the street planning and design process (New Haven n.d.):

- Pedestrians of all ages and abilities—from children to seniors to disabled individuals
- Bicyclists – primarily commute and utilitarian trip-making, but recreational routes deserve attention as well
- Transit users
- Transit vehicles
- Emergency access for police, fire and ambulance services
- Commercial trucks
- Private motor vehicles

Bicyclists

A bicycle-friendly environment is supported by a **well-connected network** of **safe** and **direct** bicycling facilities and routes, with slow to moderate speeds and controlled motor vehicle movements. The *Bicycle Level of Service* model identifies specific factors that should be evaluated in determining the overall bike-friendliness of a route, which include:

- Average effective width of the outside vehicular through-lane of travel (includes striping for bike lanes)
- Volume of motorized traffic on the thoroughfare
- Speed of motorized traffic on the thoroughfare

- Amount of heavy vehicles/trucks on the thoroughfare
- Condition of pavement over which bicyclists are expected to ride

Pedestrians

There are many design considerations to support and encourage walking in communities. Historically, pedestrian needs were defined simply as 1) a sidewalk and 2) the ability to safely cross the street. While these two considerations are still important, there are other factors that support the safety, desirability and overall walkability of an area. As outlined in the *Charlotte Urban Street Design Guidelines* (2007), pedestrians value features that:

- Help shorten walking distances
- Separate them from moving traffic
- Create aesthetically pleasing surroundings
- Protect them from the elements
- Let them walk as safely as possible

In addition, good pedestrian design should strive to incorporate the following (City of New Haven 2010):

- Pleasant visual environment
- Continuous and connected pedestrian facilities, separated from vehicle traffic
- Short street crossing distances
- Good mix of land uses
- Pedestrian scale lighting
- Slow and controlled motor vehicle movements

In designing for pedestrians, people of varying abilities and ages need to be considered. This includes elderly populations, youth and people with disabilities.

Transit Users

Often times, road design does little to support the needs of people who are riding public transportation. Poor transit design ultimately slows transit services and discourages people from using the service. Because a person's transit experience starts and ends at home, improving the pedestrian environment within the service area of local and regional transit is important. In places where there are difficult and unsafe street crossings and a lack of connected sidewalks and curb ramps, people will be less likely to use public transit (National Complete Streets Coalition 2009). Generally speaking, transit riders have the same needs as other pedestrians; however in addition, transit riders seek (City of Charlotte 2007):

- Accessible bus stops in locations that are not isolated from essential community amenities and other people
- Easy connections
- Personal comfort and security while waiting for the bus
- Street and pedestrian-scale lighting
- Increased visibility through "eyes on the street" urban design strategies (such as windows and doorways that face the street)

Other users that should be considered in Complete Street design include transit operators, motorists, and people living, working or using adjacent land uses. In addition, all streets should be designed according to American Disability Act standards.

A HISTORY OF (IN)COMPLETE STREETS

Over the past 50 years, transportation systems in the United States have been designed to move high volumes of automobile traffic as efficiently as possible. This type of street design is largely based on a *functional*

Incomplete Streets
Image source: http://www.flickr.com/photos/completestreets/4080213277/in/set-72157607770347211/

Image source: Tessa Greegor, Cascade Bicycle Club

classification in which streets are categorized into a system of increasing speed and volume. This approach (conventional street design) has led to street designs that prioritize the movement of motor vehicles over other modes such as bicycling and walking. In addition to high speed and volume arterials, conventional street design has supported the development of conventional, sprawl style subdivisions, where land uses are highly segregated, blocks and streets are wide and long, and there are limited routes in and out of the neighborhood.

In response to a long history of auto-oriented street design and the undesirable outcomes, many cities are embracing Complete Streets for reasons including the health of residents and communities, the costs associated with maintaining and expanding the current transportation system and the environmental impacts associated with current transportation systems. Rethinking the common approach to street design and planning, however, means accepting a public right-of-way as a street that has many purposes and should function to balance the needs of all users.

Functional Classification System

The functional classification of roadways is the prevailing concept underlying existing transportation systems in the United States. This approach to roadway design has supported the development of auto-dependent communities, where many Americans live today. The primary objective of the functional classification system is to move more cars more efficiently. Under the functional classification system roadways are classified as either urban or rural, and as a principal arterial, minor arterial, collector or local road. Under this approach, arterials by their definition are intended primarily to provide mobility with emphasis on speed and capacity. As a result, arterials have been designed with wide lanes and large turning radii, supporting fast and efficient movement of motor vehicles, and neglecting other roadway users such as bicyclists and pedestrians (LaPlante and McCann 2008).

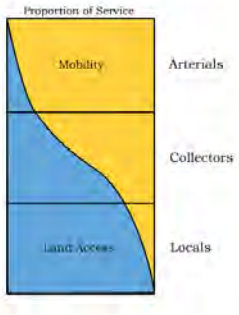
Conventional street design "often leads to urban roadways dividing neighborhoods, destroying local businesses in established communities and creating sterile, inhospitable streetscapes in developing suburbs" (LaPlante and McCann 2008).

FUNCTIONAL CLASSIFICATION SYSTEM	
Roadway	**Services Provided**
Arterial	Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
Collector	Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local	Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.
source: Federal Highway Administration	

Functional classification is largely based on a relationship between mobility and land access: as mobility increases, land access decreases. Arterials, for example, are intended to provide the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control. In practice, the functional classification of roadways has resulted in the concentration of traffic onto collectors and arterials, with few alternative routes. Cul-de-sac streets connect to higher volume sub-collectors, which connect to higher volume collectors and ultimately to major arterials. Most conventional post-war neighborhoods have been designed according to the same street hierarchy.

The concept of Complete Streets is seen as being at odds with the

conventional approach to road design and the supporting street hierarchy as mentioned above. The functional classification is largely based on moving traffic and generally ignores the different contexts among different roadway functions. The decision to move away from the functional classification system to a system that focuses on transportation systems *within their context* is gaining traction throughout the United States. According to Dan Burden (1999), designing healthy streets and neighborhoods in a way that supports bicycling and walking should be less dependent on the conventional road hierarchy and should instead focus on narrow streets, short blocks, high connectivity, sidewalks and landscaping.



The relationship of functionally classified systems in serving traffic mobility and land access. Image: http://pedshed.net/blog/wp-content/uploads/2009/02/functional_classification.gif

STREET TYPOLOGIES

Cities are beginning to understand the limits of conventional street design as an approach to designing Complete Streets and creating livable communities. In response, many cities have developed a new approach to street design—one that goes beyond the functional classification system and considers all current and potential users while explicitly considering the land use context and street function. In order to address the design related elements of roadways, developing a new system of street typologies is recommended as an approach to designing Complete Streets while preserving the functional classification system.

Cities such as Denver, Seattle and Tacoma, have developed street typologies with the goal of further refining a street classification system in a way that considers all potential users as well as the land use context. Street typologies expand upon the functional classification system and provide a framework for all modes of transportation to be considered in the street design and planning process, effectively complementing the Complete Streets paradigm. Street typologies further delineate the needs and characteristics of each public right-of-way, while in some cases, retaining the functional classification system. For example, a street typology could be a "mixed-use arterial" rather than an "arterial". This new classification presents planners with a more holistic understanding of how specific streets should be designed to support the different uses.

The following case studies provide information on cities that have developed new street typologies and design standards that support Complete Streets planning and design decisions. Cities can use street typologies to classify the existing street network and identify where improvements should be made to improve the functionality of the existing and future street network to support all users. Street typologies can also bring meaning and understanding to the public uses of streets and can provide a framework for developing street design standards and cross-sections that support priority design elements of each typology.

City of Charlotte

As characteristic of many cities where street networks burgeoned after World War II, the City of Charlotte was left with a sparse street network, dominated by cul-de-sacs, limited connections and low-density development. Charlotte's historic development patterns led to a street network of large intersections, wide cross-sections and an inhospitable pedestrian environment. In an effort to reverse these trends and increase the quality of life for residents, the city adopted Smart Growth principles in 2001, which included a call to expand transportation choices. The city developed new street design guidelines that integrated transportation and land use and established a process for creating streets that integrated transportation choices.

First, the city established new street typologies, categorized as: parkways, boulevards, avenues, main streets and local streets. The street typologies were created to support existing and proposed land uses, the street function and the design character. Ultimately, the street typologies were used to develop preferred design elements and recommended cross-sections. Unique to Charlotte's Design Guidelines, however, is the recommended approach to applying them. The city developed the following six-step

participatory process to arriving at alternative street design solutions (City of Charlotte 2007):

- Step 1: Define the land use and urban design context
- Step 2: Define the transportation context
- Step 3: Identify deficiencies
- Step 4: Describe future objectives
- Step 5: Recommend street typology and test initial cross-section
- Step 6: Describe tradeoffs and select cross-section

Denver: Multimodal Street Type Designation

In 2002, Denver began implementing a new street classification system to better understand and consider the multimodal uses of their streets and the surrounding land uses. The City of Denver sought a new approach to street classification: one that was sensitive to the needs of alternative modes of transportation and that reflected the actual function of the street.

Blueprint Denver, the City's integrated land use and transportation plan, outlines the City's new approach to street classification. First, the plan outlines six functional categories: arterial, collector, local, landmark street, one-way couplet and downtown access street. Supplementing the functional classification are five new street typologies: residential streets, main streets, mixed-use streets, commercial streets and industrial streets. The new classification system allows Denver planners to better characterize streets, such as "mixed-use arterial" or "residential collector" and develop cross-sections that support the needs of the specific typologies and users (U.S. Department of Transportation 2006); (City of Denver n.d.).

Santa Monica

Santa Monica came to a similar realization as Denver, deciding that they needed a better approach to determining the success of the overall transportation system and balancing the needs of each mode in street improvement projects. The 2009 version of the City's Draft Land Use and Circulation Plan outlines this new approach, with a detailed set of street typologies and guidelines that consider the land use context and identify priorities for each transportation mode (City of Santa Monica 2010).

SANTA MONICA: SAMPLE OF STREET TYPOLOGIES	
Street Type	**Description**
Boulevard	Emphasis on transit and walking
Commercial: Downtown	Prioritize pedestrian movement above all others
Commercial: Neighborhood	Prioritize pedestrian movement above all others
Avenue: Secondary	Remove parking along nonresidential frontages to improve pedestrian quality and add bicycle lanes as needed; set design speed at 25 mph to improve pedestrian and bicycle comfort
Avenue: Industrial	Prioritize truck movement
Neighborhood Street	Set design speed at below 25 mph so bicycles can share travel lane with cars and pedestrians can safely walk across the street at any location
Shared Street	Favor bicyclists and pedestrians over motor vehicles; set design speed at or below 15 mph
Parkway	Prioritize landscape character and continuous bikeway and pedestrian paths over vehicle capacity or vehicle delay.
Bikeway: Lane/Path/ Bicycle Boulevard	Design street as bicycle boulevard, with physical measures to reduce motor vehicles and volumes so that cyclists can comfortably share lanes with autos where right-of-way is not available for bicycle lanes.

Seattle

In recognizing that the functional street classifications by themselves were not an adequate local planning and design tool, the City of Seattle established street types as a way to provide a more specific definition of the design elements that support the street's function and its adjacent land uses. Seattle's street types are intended to provide design guidance rather than additional classification of the streets. Seattle's Right-of-Way Improvement Manual provides guidance on the street design features and characteristics relevant to each typology. A typical cross-section is included to further illustrate the desired design of each street type. The table below further illustrates street types commonly used by the City of Seattle (n.d.).

SEATTLE: STREET TYPOLOGIES			
Street Type	**Street Classification**	**Adjacent Land Use**	**Priority Design Features**
Regional Connector	Principal Arterial	Industrial, Commercial, Residential	• Sidewalks buffered from moving traffic by additional sidewalk width or planting strip • Pedestrian facilities including weather protection and lighting at transit zones and in locations where adjacent land uses support pedestrian activity • Bicycle access accommodated if parallel route is not feasible
Commercial Connector	Minor Arterial	Commercial, Residential	• Wide sidewalks and planting strip buffer walking area from moving traffic • Street trees and landscaping • Bus shelters at transit zones • Signed and/or striped bicycle lanes on designated bicycle routes
Local Connector	Collector Arterial	Residential, Institutional (community service)	• Wide sidewalks with planting strips • Signed and/or striped bicycle lanes on all designated bicycle routes • Street trees and landscaping • Traffic calming may be appropriate • Bus shelters at transit stops
Main Street	Arterial—all	N'borhood commercial with a pedestrian designation	• Wide sidewalks and planting strip • Curb bulbs in locations where there is on-street parking • Street trees and landscaping • Pedestrian scaled lighting • Street furniture • Awnings and weather protection • Signed and/or striped bicycle lanes on designated bicycle routes • Bike parking in business districts • Short-term, on-street parking
Mixed-use Street	Arterial—all	N'borhood commercial	• Wide sidewalks and planting strips • Curb bulbs in locations where there is on-street parking • Street trees and landscaping • Pedestrian scaled lighting • Awnings and weather protection • Signed and/or striped bicycle lanes on designated bicycle routes • Bike parking in business districts
Industrial Access Street	Arterial – all, non-arterials in commercial areas	Industrial, Maritime	• Truck route signage • Load zones to support delivery activities • Low landscaping or high branching trees in planting strips
Green Street	Non-arterial in Downtown Seattle	Residential	• Wide sidewalks and planting strip • Tight curb radii (and curb bulbs when there is on-street parking) • Curb bulbs in locations where there is on-street parking • Street trees and landscaping • Driveways not encouraged in order to create a continuous sidewalk • Pedestrian scaled lighting • Street furniture • Awnings and weather protection • Bike route shared with motor vehicles
Neighborhood Green Street	Non-arterial outside of Downtown Seattle	Residential	• Walkways and planting strip • Street trees and landscaping • Driveways not encouraged in order to create a continuous sidewalk • Natural drainage encouraged • Pedestrian scaled lighting • Street furniture • Awnings and weather protection • Bike route shared with motor vehicles

Source: http://www.seattle.gov/transportation/rowmanual/manual/

Suggested Complete Street Typologies

Adopting a Complete Streets ordinance is particularly valuable in shifting current practices and paradigms around street design. However to ensure that the objectives of a Complete Streets ordinance do not contradict the city's approach to road design, it is important to develop a system of street typologies and design standards that align with the goals of Complete Streets. A new system of street typologies can also provide a framework for determining the needs of other modes of transportation while reflecting land use patterns. Jurisdictions that have gone through this process have found it to be invaluable from a public outreach and consensus building standpoint, but also with respect to the design outcomes. Local jurisdictions are best

suited to define and implement new street design standards and typologies, given their comprehensive knowledge of the land use and transportation patterns and needs within the area (Strate et al 2007).

As recommended in Dan Burden's Street Design Guidelines for Healthy Neighborhoods (1999), there are seven street types that can be used to support the design of healthy streets. It should be noted however that these typologies are intended for the development of new streets rather than retrofit projects.

It should also be noted that the following guidelines should be used as examples for different street typology classifications and design considerations. The context of individual communities should always be considering when developing street typologies and design standards, and the emphasis should always be on slower vehicle movements and shorter crossing distances. **Maximum standards should be viewed as the absolute threshold, not the desired standard.

STREET DESIGN GUIDELINES FOR HEALTHY NEIGHBORHOODS

Street Type	Purpose	Street Features	Buildings and Land Use
Lane	Provides access to single-family homes	Width: 16-18', informal parking Planting strip: 6' Sidewalks: 5', both sides Average speed: 15 mph 38' ROW	Residential – primarily single family Buildings brought close to the sidewalk Consistent building line recommended
Street	Provides access to housing	Width: 26', informal parking Planting strip: 6' Sidewalks: 5', both sides Average speed: 20 mph 48' ROW	Residential – many types Residences brought close to the sidewalk Consistent building line recommended
Avenue w/ Parking	Connects town centers and neighborhoods	Width: 24' both sides of median w/ on-street parking Median width: 12-16' Travel lanes: 11' Maximum 2 travel lanes Bike lanes & planting strips Sidewalks: 5-8' on each side Average speed 25-30 mph	Mixed residential and commercial Buildings brought close to the sidewalk Consistent building line recommended
Main Street without Median	Provides access to, and a space for, neighborhood commercial and mixed-use buildings	Travel lanes: 11" w/striped parking Maximum 6 travel lanes ** Planting wells 6'/landscaped median optional Sidewalks: minimum 8' on each side Average speed 20-25 mph Bulbouts at intersections and mid-block crossings Bike lanes optional but preferred	Commercial and mixed-use Buildings next to sidewalk Consistent building line recommended Pedestrian awnings, arcades, sidewalk dining and retail recommended
Boulevard	Provides multi-lane access to commercial and mixed-use buildings and carriers regional traffic	Lanes 11' w/ striped parking and bike lanes Maximum 6 travel lanes Planting wells: 6-11' Sidewalks 5' minimum each side Average speed 30-35 mph	Commercial and mixed-use Buildings next to sidewalk Consistent building line recommended Sidewalks and bike lanes on both sides Pedestrian awnings and arcades recommended
Parkway	Bring people into town, or pass traffic through natural areas. Parkways are not designed for development. When the parkway enters town, it becomes a boulevard.	Travel lanes 11-12' Median width 12-20' Average speed 45-55 mph Multi-use trails 8-12' Planting strips 7-20' Bike lane not adjacent to travel lane 6' minimum paved shoulder on high-speed parkway (>50mph)	No buildings, preserve nature Parkways are designed to be on the edge of towns, nature preserves or agricultural areas Multi-use trails may be on either or both sides.

Source: http://onlinepubs.trb.org/onlinepubs/circulars/ec019/Ec019_b1.pdf

Another basic approach to developing street typologies used by some cities is to categorize streets according to the following hierarchy (Sacramento Transportation and Air Quality 2005):

- Commercial Streets – Typically dominated by automobiles, however, all modes should be accommodated on these streets. Detached sidewalks, marked crosswalks and bicycle lanes should be provided.
- Mixed-Use Streets – Provide wide sidewalks and bicycle facilities while facilitating slower motor vehicle speeds. Parking should be considered on these streets.
- Main Streets – Designed to prioritize the movement of pedestrians and bicyclists while supporting the businesses along the street.
- Residential Streets – Provide a safe, traffic controlled environment for pedestrians and bicyclists to feel comfortable crossing and traveling along the street.
- Industrial Streets – Designed to support freight traffic, which may mean providing wider lanes while still accommodating other modes of transportation.

Once street typologies have been decided upon, design guidelines can be applied to each typology (further discussed in Chapter 4). Design considerations may include:

- Design goal, priority elements
- Lane widths
- Number of travel lanes
- On-street parking
- Transit use and features
- Sidewalk (width)
- Buffered landscape (width)
- Maximum posted speed and design speed
- Bicycle facility (type and width)

ENGINEERING CONSIDERATIONS

There are specific design considerations, called *design controls* that help guide the selection of criteria for the design of a thoroughfare. While some design controls are fixed, such as terrain and climate, most controls are selected and defined within the street design process. Design controls, as defined by the American Association of State Highway Transportation Organizations (AASHTO) include speed, capacity, level of service, design vehicle and functional classification.

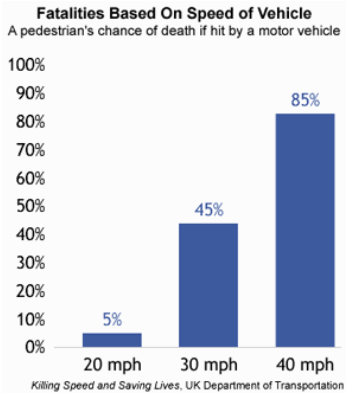
Design controls should be factored into the design of a Complete Street, however often in a different context than in the conventional street design process. The following section provides a brief discussion of selected street design parameters and how they should be applied in Complete Streets planning and design.

Functional Classification

The functional classification can be used to develop street types (Chapter 3) and characterize the users and design priorities of the street. This information is helpful in determining how best to allocate the right-of-way to serve the multimodal uses.

Speed

Speed is one of the most influential design controls, particularly when it's applied to Complete Streets planning. Vehicle speeds present the greatest threat to bicyclists and pedestrians. A pedestrian struck by a vehicle traveling at 20 miles per hour has a 95 percent chance of survival. At 40 miles per hour, the chance of a pedestrian surviving is only 15 percent (Federal Highway Administration 2002).



The *target speed* of a street is the speed at which vehicles *should* operate, or the posted speed limit. The *design speed* is typically higher than the target speed and is controlled by the geometric features of the roadway. The Institute of Transportation Engineers recommends that the design speed be only five miles per hour over the target speed to support Complete Streets and Context Sensitive Solutions.

Streets should be designed with target speeds that are appropriate for their current and future context and should be based on roadway classification and street type as well as land use context and user demand. A lower target speed can be achieved through various measures, including narrow travel lanes, appropriate signal timing and physical measures such as curb extensions that narrow the travel way.

Capacity

Conventional street design is largely based on future traffic projections and achieving the highest level of service possible to serve automobile traffic. While traffic projections should be considered in Complete Street design, there are several other factors that should be taken into account and prioritized when designing Complete Streets. In this context, a lower automobile level of service (LOS) may be acceptable if it allows for bicycle lanes and wide sidewalks along a downtown main street. Those concerned with conformity and the state Growth Management Act (GMA) should be aware that there is substantial flexibility within the law, which allows cities to designate their own LOS. Moreover, there are now multimodal LOS guidelines, including the Institute of Traffic Engineer's forthcoming urban arterial level of service standards, which may present a more complete picture of right-of-way performance than simple "vehicle to capacity" ratios.

Design and Control Vehicle

A *design vehicle* is the type of vehicle that should be expected to regularly use the roadway. Roadways should be designed according to the predominant users of the roadway—as opposed to the largest potential user. For example, residential streets should not be designed to support the infrequent movement of freight traffic, but rather non-motorized users and slow vehicle traffic. Streets must meet the minimum standards for emergency vehicle access as well (Gresham Smith and Partners 2009); (Institute of Transportation Engineers n.d.).

DESIGN CONSIDERATIONS

There are several overarching street design elements inherent to creating Complete Streets. These considerations, such as block length and street width, contribute to the overall safety and desirability of bicycling and walking. The following section presents an overview of these considerations as well as guidelines where appropriate.

Street Widths

When considering street widths, there are three factors to be considered: 1) lane width; 2) total number of lanes and 3) total street width. Streets are often designed to wider standards than necessary, which negatively influences the safety of users by facilitating faster vehicle speeds and increasing crossing distances at intersections. Streets over 60 feet wide can present barriers for pedestrians and facilitate higher vehicle speeds while discouraging crossings for transit connections (Institute of Transportation Engineers 2010).

Research has shown that narower streets calm traffic and improve safety and crash risk for all users. One study found the most significant relationship between injury crashes and street design to be width and curvature (Swift 2003). According to this study, the safest residential street width (curb to curb) was 24 feet. Wider streets not only result in a higher average 85th percentile speed, but also present longer crossing distances for pedestrians (Daisa and Peers 1997); (Ridgway 1997). In addition to slowing traffic and creating a pedestrian-friendly environment, narrower streets reduces the environmental impacts associated with pavement (urban heat island effect, runoff).

Example Residential Street Width Standards (Kreck 1998)	
City	Width
Portland, Or	18'-24' depending on parking
Madison, Wi	27-28', parking on both sides
Novato, Ca	20-28' with parking on both sides

Travel Lane Widths

A common misconception is that wider motor vehicle lane widths provide more safety and/or automobile capacity. Research has shown that reducing travel lane widths from 12 feet to 11 or even 10 feet has little negative impact on motor vehicle traffic—safety, movement and flow, and in fact there is a demonstrable postive impact on safety with narrower lanes (Noland 2003).

AASHTO has identified benefits to narrower travel lanes (10 to11 feet) on lower-speed streets, such as reduced pedestrian crossing distances. In addition, by reducing travel lanes (for instance from 12 feet to 10 feet), enough space can be provided to add bicycle lanes and/or buffers between sidewalks and the travel-way. Reducing lane widths is also a good traffic calming strategy on roads where excessive 85th percentile speeds are an issue.

The Institute of Transportation Engineers (ITE) recommends selecting lane widths based on the target speed, design vehicle, available right-of-way and the width of adjacent bicycle and parking lanes. The ITE suggests a range of lane widths from 10 to 12 feet on arterials and 10 to 11 feet on collectors. On arterials with target speeds below 30 mph, 10 to 11 feet widths are appropriate. On collectors with a target speed below 30 mph, a 10-foot lane width may be appropriate (Institute of Transportation Engineers 2010).

Block Length

A longer average block length not only increases the 85th percentile speed of streets, but also negatively affects the pedestrian and bicycle experience. Longer blocks increase the likelihood that a pedestrian will cross between intersections to access destinations, whereas shorter blocks provide increased connectivity and route choices for pedestrians and bicyclists. In a study out of San Antonio, Texas, streets with blocks exceeding 600 feet in length had 85th percentile speeds that exceeded the legal speed limit (Sacramento Transportation and Air Quality 2005).

ITE (2010) recommends spacing pedestrian facilities so block lengths in less dense areas (suburban or general urban) do not exceed 600 feet (preferably

200 to 400 feet) and in the densest urban areas (urban centers and urban cores) block lengths do not exceed 400 feet (preferably 200 to 300 feet) to support higher densities and pedestrian activity.

Connectivity

A connected street network is important for encouraging bicycle and pedestrian travel. High connectivity provides route options for bicyclists and pedestrians while also dispersing traffic within the network. In the United States however, cities have incorporated cul-de-sacs within the neigborhoods as a way to impede through-traffic. This type of street design has resulted in reduced connectivity and increased traffic on arterials, ultimately precluding bicycling and walking from being convenient, direct and safe modes of transportation. By maintaining a connected street grid within neighborhoods and throughout communities, traffic is dispersed, people have options and direct connections, and bicyclists and pedestrians are not forced to use high-speed and volume arterials (Sacramento Transportation and Air Quality 2005).

Connectivity is also affected by block lengths. In communities with vehicle dominated contexts, block lengths tend to be longer, which makes walking distances longer and reduces the likelihood that people will walk to destinations (Institute of Transportation Engineers 2010).

Bicycle and Pedestrian Amenities

Bicycle Facilities

Bicycle facilities are a fundamental part of Complete Streets. Bicycle facilities should be designed to support a range of users—from novice bicyclists to experienced. When designing Complete Streets to support bicycle use, it is important to consider the context and characteristics of the street. Specific considerations should include the type of intended user, surrounding density and land use, available right-of-way, pavement width, traffic volume and speed. While a bike lane may be the desired facility in an urban environment, a paved shoulder may be sufficient along a low-density rural road. There are several guidelines that can be used to determine what the appropriate facility type should be in different situations (Resources Here). Chapter 5 presents a toolbox of innovative and traditional bicycle facility treatments.

Sidewalks

Sidewalks are a basic provision for pedestrian-friendly streets. Suburban streets often provide a bare minimum of four- to five-foot sidewalks, with little or no buffer from traffic and often lack attention to ADA standards. Complete Streets should consider not only the provision of sidewalks, but the quality of the sidewalk and pedestrian realm. As with bicycle facilities, the width and placement of the sidewalk should depend on the context of the street. For example, sidewalks along rural roads should be well separated from the travelway. If a paved shoulder is used instead, a five-foot wide shoulder is acceptable for pedestrians along low-volume rural highways. A 10-foot shoulder is preferred along higher-speed highways.

Minimum Sidewalk Width Guidelines (Unobstructed)	
Local or collector streets	5 feet
Arterial or major streets	6-8 feet
Central Business District areas	8-12 feet
Along parks, schools and other major pedestrian generators	8-10 feet
Source: (PEDSAFE, USDOT, FHA n.d.)	

Sidewalk Buffers

Buffers between pedestrians and motor vehicles are important for safety and added comfort and security. Landscaped buffers serve additional purposes as well, such as providing space for poles, signs and trees, and greening the right-of-way. Desirable width for landscaped buffer, or a planting strip, is six feet (PEDSAFE, USDOT, FHA n.d.)

Minimum Sidewalk Buffer Guidelines	
Local or collector streets	2-4 feet
Arterial or major streets	4- 6 feet
Source: (PEDSAFE, USDOT, FHA n.d.)	

On-Street Parking

In many suburban communities, parking is provided in surface lots between buildings and streets. This type of land use is typical of an auto-oriented area, with little support for pedestrians. On-street parking, however, can provide a variety of benefits, in the appropriate context. On-street parking can provide a buffer between pedestrians and motor vehicle traffic, while calming traffic and supporting adjacent businesses. When deciding whether or not to include on-street parking in a design, the tradeoffs should be considered, such as potential conflicts with bicycle facilities and reduced traffic capacity on the street. The preferred width of parallel on-street parking is seven feet on residential thoroughfares and eight feet on commercial thoroughfares.

STREET STANDARDS AND DESIGN GUIDELINES

Street typologies, as discussed in Chapter 3, should provide a general basis for determining the potential and desired uses and functions of each street. In addition, street typologies provide a framework for developing new design standards that fit the needs and the character of each street type and ultimately support Complete Streets planning. This can help to focus Complete Streets planning and better understand the types of design treatments that should be used in different contexts.

As discussed in Chapter 3, to develop a framework for Complete Streets typologies, it is important to consider and define the land use context (existing and future); streets should be designed to support the current or planned adjacent development. While all streets should accommodate all users (particularly pedestrians), some streets should prioritize the movement of certain users. For instance, a neighborhood commercial street should be designed to facilitate slower moving traffic and an active pedestrian realm, whereas a local residential street should be designed to encourage safe and desirable use by pedestrians and bicyclists of all ages and abilities while slowing and discouraging cut-through automobile traffic.

As cities develop new street standards and design manuals, they are placing greater emphasis and priority on the types of design features that contribute to livable communities. Common goals of many of the new street design manuals include (Hawkes and Sheridan 2009):

- Livability and placemaking
- Access and mobility
- Pedestrian and bicyclist safety
- Flexibility in design
- Context
- Balance
- Healthy environment
- Visual excellence

The following case studies provide a snapshot of the types of new street design standards being adopted by cities and states to support Complete Streets principles:

City of Eugene: Multimodal Street Design

In 1996, the City of Eugene adopted a local street plan that called for narrower streets, shorter blocks, increased street connectivity, planting strips and detached sidewalks in new subdivisions. The new street standards not only reduced maximum block length from 1200 to 600 feet, but also provided local street width classifications based on expected traffic volume. The city also identified appropriate traffic calming measures for major streets, discouraged cul-de-sacs and required street connectivity (City of Eugene Planning Division n.d.).

Sacramento

In 1998, the City of Sacramento updated its street design standards in response to community concerns around the existing standards and their

failure to support livable neighborhoods. Community groups were concerned that the high traffic volumes and speeds in neighborhoods were negatively impacting quality of life. The city responded by launching an aggressive traffic-calming program; however, it became apparent that the program was only effective with respect to the existing street system. The city decided to develop new street standards to address these deficiencies and to improve the design of new streets. The design standards included (Sacramento Transportation and Air Quality 2005):

- Reduced minimum width of local residential streets, from 36 feet to 30 feet
- Flexibility in the design of new streets, for instance, a developer could choose to increase the width of a sidewalk if desired
- Required landscaped medians (on collectors exceeding a certain traffic volume)
- Seven-foot parking lanes (depending on adjacent land use)
- Bicycle lanes required on arterial streets
- Planter strips required on all streets
- Traffic calming devices encouraged to enhance the pedestrian environment

More recently, the Sacramento City Council adopted Pedestrian Friendly Street Standards that are designed to encourage alternative modes of transportation and work towards a balance of street users. Some of the changes included separated sidewalks on all streets and adding bike lanes to all collector streets.

SACRAMENTO: PEDESTRIAN FRIENDLY STREET STANDARDS

Street Type	Range of Average Daily Traffic	Sidewalk (feet)	Planter	Parking Lane (feet)	Bike Lane (feet)	Travel Lanes (feet)	Median (feet)	Total ROW (feet)
Local Residential	0-4000	5	6.5	7	0	8	NA	53
Local Commercial	0-14,000	5	6.5	7	0	11	NA	59
Local Industrial	0-14,000	5	6.5	8	0	12	NA	63
Collector Minor – no parking	4,000-7,000	5	6.5	0	6	11	NA	57
Collector Minor – with parking	4,000-7,000	5	6.5	7	6	11	NA	71
Collector Major – no parking	7,000-14,000	5	6.5	0	6	11	12	69
Collector Major – with parking	7,000-14,000	5	6.5	7	6	11	12	83
4-lane Arterial – no parking	14,000-27,000	6	8.5	0	6	11/12	12	99
4-lane Arterial – with parking	14,000-27,000	6	8.5	7	6	11/12	12	113
6-lane Arterial	27,000-48,000	6	8.5	0	6	11/11/12	12	121

Source: http://www.cityofsacramento.org/transportation/dot_media/engineer_media/pdf/Approved-Ord.pdf

Made possible by funding from the Department of Health and Human Services and Public Health – Seattle & King County

City of Tacoma

In 2009, the Tacoma City Council adopted Complete Streets Design Guidelines to provide specific guidance for adopting Complete Street policies and practices within the City. The city developed both "Mixed-Use Center Guidelines" as well as "Residential Guidelines". The city began by developing Complete Street typologies, based on predominate right-of-way conditions. The adopted "Mixed-Use Center Typologies" included: main street, avenue, transit priority and urban residential. These typologies provided the framework for developing Complete Streets design guidelines. For example, Tacoma's main street typology guidelines include the following priority design elements:

- Narrow roadway: recommended two 11- or 12-foot lanes
- Bicycle facilities: five- to six-foot bicycle lanes where there is adequate right-of-way
- On-street parking: seven-foot preferred to minimize street width
- Curb extensions at intersections and mid-block
- Sidewalk: 10- to 12-foot recommended
- Amenity Zone: six- to eight-foot recommended (trees, furnishings, lighting, transit amenities)
- Driveways restricted
- Maximum posted speed and design speed = 25 mph

OVERVIEW

Designing Complete Streets means that planned streets contribute to a safe, convenient and comfortable travel experience for all users. As outlined in Chapter 3, prior to selecting a set of treatments for a street, it is important to first understand who the different (existing and potential) user groups are. Street typologies and supporting design standards can help to better understand the intended users of specific streets, and the type of design that is warranted. Other data that should be considered when choosing the most appropriate design treatments for a Complete Streets project include (City of New Haven 2010):

- Speed: high speeds are incompatible with pedestrian and bicycle environments
- Existing non-motorized volumes
- Major trip generators, such as school, libraries, transit centers, mixed-use centers, hospitals etc.
- Crash data: higher numbers of injury or fatality crashes indicate the need for bicycle and pedestrian improvements and traffic calming measures
- Street classification and type
- Other data such as transit use, school walking routes, etc.

Other factors, such as right-of-way constraints, community desires, existing and planned land uses, and available budget, will also need to be considered when choosing a design for the street. Once a conceptual understanding of the needs and users of a street, and the relevant constraints, there are several design strategies that can be utilized to create Complete Streets. In retrofit projects, one particularly effective strategy for allocating space for the types of treatments identified in the toolbox is through the rechannelization of a roadway (also called a *road diet*).

ROAD DIETS

A road diet is an effective treatment with positive implications for all users of the roadway. Conventional transportation planning and street design may result in roadways and lanes that are wider than necessary, which have sufficient right-of-way to be re-programmed for different uses, ultimately creating a more balanced public space. Road diets can provide space for the following:

- Bicycle lanes
- Sidewalks
- Sidewalk buffers
- Street trees
- On-street parking
- Medians and/or turn lanes

Road diets are typically approached by either reducing the number of travel lanes on a roadway or by reducing the width of the individual travel lanes. Road diets can be a cost effective solution to creating Complete Streets and improving traffic safety for all users.

Where to Apply Road Diets

- Four-lane to three-lane conversion: should be considered on all four-lane roadways with an average daily travel (ADT) lower than 24,000
- Travel lane width reduction: considered when traffic volumes warrant preservation of four travel-lanes

COMPLETE STREETS TREATMENT TOOLBOX

The following "toolbox" includes examples of bicycle, pedestrian and transit-friendly designs. However, as mentioned throughout this guide, the types of designs chosen for a specific street or project should reflect a variety of factors, including adjacent land use, traffic volumes and speeds, intended users and right-of-way constraints. The toolbox is presented to illustrate the myriad of options for cities to consider when designing Complete Streets.

COMPLETE STREETS FOR BICYCLES

BICYCLE TREATMENT TOOLBOX

Cycle Track

A cycle track is an exclusive bicycle facility adjacent to—but separated from—the roadway by a physical barrier. It combines the user experience of a separated path with the on-street infrastructure of a bike lane. Cycle tracks are commonly used on arterial roadways with higher motor vehicle speeds and volumes and on roads with fewer cross-streets and longer blocks (City of Portland Bureau of Transportation 2010, 8).

Source: Max Hepp-Buchanan, Cascade Bicycle Club

BICYCLE TREATMENT TOOLBOX

Multi-use Trail

A multi-use trail is a separated non-motorized facility, often used for recreation or commuting purposes by cyclists and pedestrians.

Source: http://www.americantrails.org/photoGalleries/cool/10-Rail-trail-bridge-retrofit.html

Bicycle Lane

Bicycle lanes are marked spaces along length of a roadway for use exclusively by bicyclists. Bike lanes create a separation between cyclists and motor vehicles. Bike lanes are commonly used on roadways with more than 3,000 vehicle trips per day or any street where bike lanes could help reduce vehicle lane widths, where appropriate (City of Portland Bureau of Transportation 2010, 1).

Source: http://www.mtc.ca.gov/news/transactions/ta1106/grand.htm

BICYCLE TREATMENT TOOLBOX

Buffered Bicycle Lane

A buffered bicycle lane is a bike lane with a marked (often hatched) buffer to increase the separation between bicycles and motor vehicles. Buffered bike lanes are common on roads with high motor vehicle traffic speeds and volumes, on roads with a high volume of truck/oversized vehicle traffic and on bike lanes adjacent to on-street parking (City of Portland Bureau of Transportation 2010, 3).

Source: Max Hepp-Buchanan, Cascade Bicycle Club

Contraflow Bicycle Lane

Contraflow bicycle lanes are bike lanes placed on a one-way street, with a bicycle travel flowing in the opposite direction as car travel. Contraflow bike lanes are commonly used on one-way auto traffic streets and narrow streets where on-street parking and bicycle accessibility are given priority over traffic accessibility (City of Portland Bureau of Transportation 2010, 4).

Source: http://dcist.com/2010/08/new_contraflow_bike_lanes_installed.php

BICYCLE TREATMENT TOOLBOX

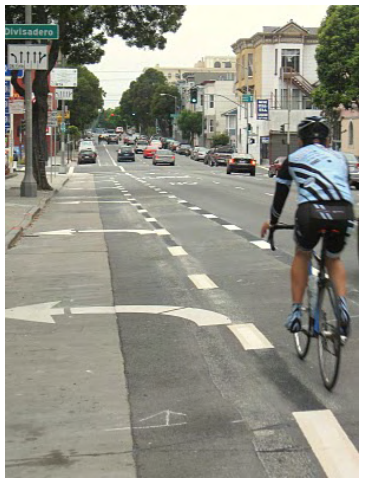
Colored Bicycle Lane

Colored bike lanes are commonly used on heavy auto traffic streets with bike lanes; at dangerous intersections or where cyclists and motorists must weave with one another; and in conflict areas with a record of crashes. Color is applied to the bike lanes to distinguish the bike lane, alert roadway users at high-conflict areas and to clearly assign right-of-way to cyclists. Motorists are expected to yield to cyclists in these areas (City of Portland Bureau of Transportation 2010, 6).

Source: http://thecityfix.com/top-21-time-saving-cities/

Advisory Bicycle Lane

Advisory bicycle lanes are dotted white lines on both sides of a narrow roadway to delineate bicycle areas. They are used when the automobile zone is not wide enough for two cars to pass in both directions or in areas where bicycles and cars must cross paths. Motorists may enter the bicycle zone when no bicycles are present. Advisory bike lanes are commonly used on streets with low traffic volumes and speeds (City of Portland Bureau of Transportation 2010, 7).



Source: http://ibikenopa.blogspot.com/2010/07/mta-tweaks-lane-striping-to-direct.html

BICYCLE TREATMENT TOOLBOX

Bicycle Boulevard

A bicycle boulevard is a shared roadway where the bicycle, or any other human-powered vehicle, is the primary design vehicle. Bicycle boulevards should be considered as a potential improvement on residential streets or neighborhood streets where high-volume, high-speed motor vehicle traffic is undesirable (City of New Haven 2010, 53). Bike boulevards are commonly used on low traffic residential streets parallel to a proximal arterial.

Source: Max Hepp-Buchanan, Cascade Bicycle Club

Shared Lane Markings ("Sharrows")

Shared roadway pavement markings, or "sharrows", are markings used to indicate a shared lane environment for bicycles and automobiles. Sharrows increase the visibility of the roadway as a valid place for bicycle traffic and guide proper roadway positioning of bicyclists on streets where a separated facility is desired but not feasible (City of Portland Bureau of Transportation 2010, 37).

Source: http://www.bikearlington.com/pages/biking-in-arlington/sharing-the-road/

BICYCLE TREATMENT TOOLBOX

Paved Shoulder

A paved shoulder refers to the part of the roadway that is adjacent to and at grade with the vehicle travel lane. Paved shoulders for bicycle use are not typically provided on roadways with curb and gutter, but rather on roadways where there is a need to more safely accommodate bicycles. On rural roadways where bicycle travel is common, such as roads in coastal resort areas, wide paved shoulders are highly desirable (North Carolina Department of Transportation n.d.).

Source: http://news.guelphmercury.com/Life/article/531266

Bicycle Signals

Bicycle signals are traffic signals specifically for bicyclists. These are usually placed at signalized intersections where bicyclists travel at a high speeds, locations where intersection operation is not intuitive for cyclists crossing through the automobile traffic signal and where there are a high volume of bicycle trips (City of Portland Bureau of Transportation 2010, 23).

Source: Max Hepp-Buchanan, Cascade Bicycle Club

BICYCLE TREATMENT TOOLBOX

Bicycle Box

Bicycle boxes (a form of "advanced stop line") are a traffic control device at signalized intersections that require motorists to stop a short distance before the crosswalk and allow bicyclists to stop in the area between the cars and the crosswalk. Bicycle boxes give bicyclists priority by allowing them to go to the head of the line of queuing vehicles. Bike boxes are used at intersections where there is a high number of queuing bicyclists, high automobile and bicycle volumes, frequent turning conflicts or a high percentage of turning movements by both bicyclists and motorists (City of Portland Bureau of Transportation 2010, 28).

Source: Max Hepp-Buchanan, Cascade Bicycle Club

Bicycle Parking

Bicycle parking is typically divided into four types of categories: 1) short-term public parking; 2) long-term public parking; 3) short-term private parking and 4) long-term private parking (City of New Haven 2010, 53). Bicycle racks come in all shapes and sizes, other than the fact that they should support the bicycle by its frame rather than by its wheels—the benefits of which are debatable. In any case, Complete Streets should provide enough secure public bike parking to meet demand in that area.

Source: Max Hepp-Buchanan, Cascade Bicycle Club

BICYCLE TREATMENT TOOLBOX

Bicycle Signage (wayfinding)

Bicycle wayfinding signage is used to direct cyclists to certain areas of the community, common attractions and through parts of town that might be difficult to navigate on a bicycle. A typical bicycle wayfinding sign may include three elements: 1) a universal symbol for bicycle; 2) the name of the attraction or part of town it is guiding the cyclist to and 3) the distance from the sign to the destination.

Source: http://www.flickr.com/photos/71527680@N00/2533667311

Roundabouts

A bicycle roundabout is the use of a circular intersection conforming to modern roundabout standards to organize the interaction of bicycles (and automobiles) where bicycle boulevards or off street pathways intersect. They are commonly used where two bike boulevards or shared use pathways cross (City of Portland Bureau of Transportation 2010, 35).

Source: http://frozenbrody.blogspot.com/2010/08/italy-and-adriatic-slovenia-piran.html

COMPLETE STREETS FOR PEDESTRIANS

PEDESTRIAN TREATMENT TOOLBOX

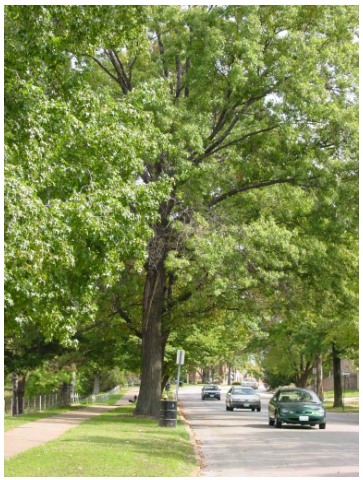
Curb Extensions

Curb extensions reduce pedestrian cross times and exposure to motor vehicles, increase visibility, encourage appropriate motor vehicle operating speeds and create public space and enable placement of street furniture—essential elements for an active street life (Gresham Smith and Partners 2009, 28).

Source: http://www.flickr.com/photos/20816835@N00/180848197

Street Trees

Street trees provide a buffer between the sidewalk and adjacent motor vehicle travel lanes; add a frame of reference to the roadway, encouraging the driver to proceed at appropriate speeds; as well as provide shade and gathering places (Gresham Smith and Partners 2009, 28).



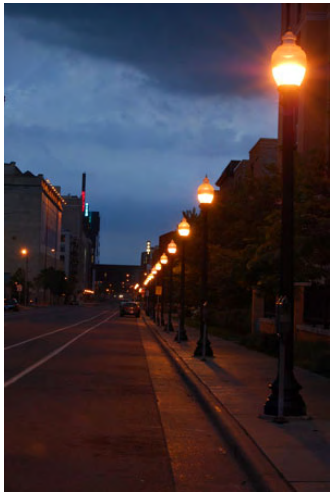
Source: http://stlouis.missouri.org/citygov/parks/forestry_div/ordinance.html

PEDESTRIAN TREATMENT TOOLBOX

Lighting

Studies have shown that the presence of lighting not only reduces the risk of traffic crashes, but also their severity. Complete street lighting designs should (Gresham Smith and Partners 2009, 31):

- Ensure pedestrian walkways and crossways are sufficiently lit
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown and at key intersections
- Install lighting on both sides of streets in commercial districts
- Use uniform lighting levels



Source: http://minnesota.publicradio.org/display/web/2009/07/15/street_light_fee/

Sidewalk Widening

Wider sidewalks provide separation between pedestrians and adjacent travel lanes, create space for people to congregate and allow the placement of fixed objects — street trees, lighting, street furniture, etc. (Gresham Smith and Partners 2009, 17). ADA standards specify a minimum of five feet clear path width to accommodate two wheelchairs passing each other. Generally, sidewalks should be as wide as possible to accommodate foot traffic, given available street width. No existing sidewalks should be reduced in the course of street widening projects. Opportunities for widening sidewalks and narrowing streets should be considered whenever roads are reconstructed (City of New Haven 2010, 48).

Source: http://www.planbike.com/2010/05/cycling-las-vegas-strip.html

PEDESTRIAN TREATMENT TOOLBOX

ADA Compliant Curb Ramps

Access for all users is an important part of any Complete Street. Per ADA guidelines, wheelchair ramps with detectable warning strips should be installed wherever a sidewalk crosses a curb, and existing ramps should be upgraded to meet current ADA guidelines (City of New Haven 2010, 48). One ramp should be installed per crossing-leg and it should be installed in such a location as to facilitate the shortest possible crossing distance. Finally, there must be a level landing at the top of each ramp.

Source: http://www.sfgov2.org/index.aspx?page=391

Street Furniture

Functional and aesthetically pleasing street furniture contributes to a pleasant walking environment and supports the use of the street as a public space. Examples of street furniture include benches, lighting, bike racks and shelters, bus stop shelters, newsstands, informational signs and kiosks and waste receptacles. Proper design and application is essential to maintain functionality and accessibility of the sidewalk (City of New Haven 2010, 48).

Source: http://blog.oregonlive.com/oldtown/2009/06/retrograde.html

PEDESTRIAN TREATMENT TOOLBOX

Crosswalks

Crosswalks should generally be installed at controlled intersections and should be placed to minimize crossing distances and conflicts between pedestrians and vehicles. Midblock crosswalks on arterials and collector roads should be considered as needed, subject to traffic studies and engineering judgment. High visibility crosswalks (also known as International Style) are preferred over designs consisting of two parallel lines as volumes warrant (City of New Haven 2010, 48).

Source: http://www.portlandmercury.com/images/logimages/2010/09/15/1284581293-foster_crosswalk.jpg

Sidewalk Surface Treatments

Sidewalks are typically surfaced in standard concrete, but alternative materials such as brick or stone pavers or even tinted concrete can be used for aesthetic enhancements that contribute to a pleasant walking environment, as well as to improve stormwater control through permeability. Proper maintenance is essential, as some materials, particularly brick pavers, can lift or settle over time and create tripping hazards or obstacles for wheelchairs (City of New Haven 2010, 49).

Source: http://calmstreetsboston.blogspot.com/2010/04/vassar-street-cycle-track-cambridge-ma.html

PEDESTRIAN TREATMENT TOOLBOX

Roadway Surface Treatments

Roadways are typically paved in asphalt or concrete. However, other surface treatments such as pavers or stamped/ imprinted concrete or asphalt may be used in certain locations to enhance aesthetic character, improve stormwater control through permeability and/or delineate space for various street users. Maintenance is an important consideration for any unconventional surface treatment (City of New Haven 2010, 49).

Source: http://www.renewcrete.sg/sconcretegal.html

Pavement Markings

A variety of pavement markings can be employed to improve street safety and functionality for all road users. Some examples include directional arrows, school zone warning signs and stop bars (City of New Haven 2010, 49).

Source: http://www.pavement-markings.com/

PEDESTRIAN TREATMENT TOOLBOX

Speed Humps

A speed hump is a raised area in the roadway pavement surface that can help reduce speeds. Speed humps are most effective when used in combination with other traffic calming/speed reducing measures and they are not suitable for all locations. Also, they require strong community support to offset negative impacts such as noise (City of New Haven 2010, 49).

Source: http://www.ci.burlington.nc.us/index.aspx

Refuge Islands

Islands enhance pedestrian safety and accessibility on streets with two-way traffic by reducing crossing distances and providing refuge for pedestrians to cross one direction of traffic at a time. They can also serve as a traffic calming tool by narrowing the roadway at intersections, forcing vehicles to move more slowly (City of New Haven 2010, 49).

Source: http://www.internetigloo.com/wildwood/calming.htm

PEDESTRIAN TREATMENT TOOLBOX	
Chicanes A chicane shifts traffic from one side of the street to the other through the use of staggered curb extensions or a serpentine roadway alignment. Chicanes discourage or make it impossible for drivers to drive in a straight line, which can reduce vehicular speeds. Chicanes may also be created by staggering on-street parking. Impacts on drainage, street sweeping and snow clearance must be addressed in any chicane design (City of New Haven 2010, 50).	 *Source: http://streetswiki.wikispaces.com/Chicane*
Diverters Diverters are physical barriers that redirect or obstruct motor vehicle traffic with the purpose of reducing vehicle speeds and cut-through traffic on local streets. Diverters must be designed with particular consideration for drainage and emergency vehicle access, and designs should not impede bicycle circulation (City of New Haven 2010, 50).	 *Source: http://carfreeburque.blogspot.com/2010/02/bicycle-boulevard-thoughts.html*

COMPLETE STREETS FOR TRANSIT

Complete Streets and public transportation planning go hand in hand. Every transit trip requires crossing the street at least once, and a Complete Streets policy ensures those streets have safe crossings and accessible sidewalks to get passengers, regardless of ability, from the bus or train to where they need to go (Seskin 2009). Complete Streets policies should encourage people to use public transit by making it a safe, convenient and attractive option.

Not only must people be able to easily access transit stops and stations, but transit vehicles must also be able to operate efficiently and connect users to destinations. Transit agencies aren't always consulted when roads are designed, so a Complete Streets policy can enable decision makers to prioritize transit through roadway improvements and design solutions for efficient bus movement. Bus-only lanes, curb bump-outs and bus priority signalization are just some of the tools available to make transit trips faster and more reliable—and usually in the toolboxes of communities with Complete Streets policies (Seskin 2009). Streets that are well designed for transit can also encourage people to use transit more frequently. For example, in 2000 Los Angeles launched a rapid bus service which allowed buses to extend green lights and shorten red ones if needed. As a result, within the first year travel time decreased by 25 percent and ridership increased by more than 30 percent (National Complete Streets Coalition n.d.).

Suburban Bus Stops

There are five main elements to a safe suburban bus stop (Airport Corridor Transportation Association n.d.). These are:

- Clear, accessible pathways
- Protected crossing
- Visibility to and from the roadway
- Closeness to activity generators (comfortable walking distance to and from destinations)
- Level terrain

There are also a number of design features to consider when planning suburban bus stops as part of a Complete Streets policy:

- Bus stops should typically be located at the far side of the intersection to minimize intersection delay
- Provide well-marked pedestrian crossings at all transit stops using striped crosswalk, pedestrian refuges and curb extensions, as appropriate
- Use a priority signal where appropriate
- Use appropriate standards for length of bus stops or bus stop on a curb extension
- Curb radii and curb extensions should be designed to avoid conflicts with buses and ensure safe turns for buses and other larger vehicles
- Reinforced bus-pads may preserve pavement quality on higher-volume transit corridors, which can reduce the need for regular maintenance

Bus stop prototype design for a busy roadway Image source: (Airport Corridor Transportation Association n.d.)

Transit Improvement Treatments

Other transit efficiency and prioritization improvements can be considered as part of a Complete Streets policy, several of which were mentioned above. The below matrix further illustrates and provides descriptions of different types of treatments that can be administered as part of a Complete Streets policy to improve the efficiency and speed of transit through a corridor.

TRANSIT TREATMENT TOOLBOX

Curb Bump-outs

A curb bump-out is an extension of the sidewalk to the edge of the vehicle travel lane. It is used at transit stops so that a bus can board and de-board passengers without having to exit and reenter traffic at every stop. This adds more efficiency and speed to stops where there are curb bump-outs.

Source: http://www.flickr.com/photos/jmchuff/2353304873/

Bus-only Lanes

Bus lanes give priority to buses and cut down on journey times where roads are congested with other traffic. A bus-only lane is not necessarily very long, as it may only be used to bypass a single congestion point such as an intersection. Some cities have built large stretches of bus lanes amounting to a separate local road system, often called a busway system.

Source: http://urbanplacesandspaces.blogspot.com/2010/03/bus-transit-prioritization-and-creating.html

Bus Priority Signalization

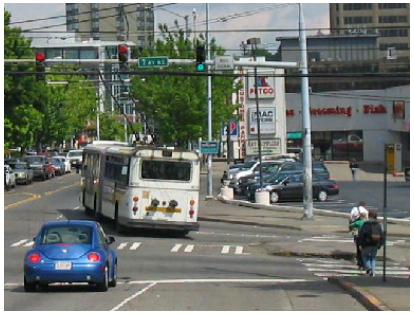
A bus priority signal is a light at an intersection that indicates transit vehicles may pass though while cars often may not. This is done to move transit through traffic more quickly and/or to help buses cross several lanes of traffic immediately after passing through the intersection.

Source: http://www.flickr.com/photos/32557421@N03/3491791644

TRANSIT TREATMENT TOOLBOX

Queue-jumper Lanes

A queue jump lane is a short stretch of bus lane combined with traffic signal priority. The idea is to enable buses to by-pass waiting queues of traffic and to cut out in front by getting an early green signal. A special bus-only signal may be required. The queue jump lane can be a right-turn only lane or installed between right-turn and straight-through lanes. A similar arrangement can be used to permit a bus to cross traffic lanes to make a left turn immediately after serving a curb-side stop.



Source: http://www.kehoe.org/owen/portfolio/

MEASUREMENT

Measurement is an important part of evaluating the performance of Complete Streets projects. Measurement helps to determine how effective projects are in meeting the goals of Complete Streets. The New Haven Complete Streets Design Manual (2010) outlines the following reasons for establishing and measurement and evaluation program:

- Provide baseline data to determine trends, effects, determine where improvements are most needed and provide valuable information for grant applications
- Determine the overall level of travel demand by mode
- Determine changes in travel speed brought about by changes to the roadway
- Determine the benefits of different types of transportation improvements
- Calculate performance measures for each mode including walking, cycling, transit and driving
- Assist in the data collection necessary for the continued application for, and receiving of, state and federal grants
- Assist in the allocation of funding for transportation projects

FUNDING STRATEGIES

Paying for transportation projects is always a challenge and the costs associated with Complete Streets implementation may be a concern to some communities. However, in many case-study communities, concerns over expenses for Complete Streets faded as the agency moved to implement the policy (American Planning Association 2010, 66). Communities begin to see the benefits discussed in earlier chapters of this guide: an improved environment, public health gains, new economic opportunities and an increased capacity of the transportation network. This section discusses strategies communities can use to help ensure that their Complete Streets improvements are fully funded from the beginning.

Early Inclusion of All Modes

Complete Streets policies ensure early multimodal scoping, which saves money by avoiding costly project delays and expensive retrofits of existing infrastructure. Without a Complete Streets policy, bicycle, pedestrian and transit improvements to an intersection or corridor are often an afterthought and are considered disruptions rather than necessary elements of roadway and project design.

Just as including all modes in the initial scope of transportation projects saves money, the failure to accommodate certain user groups—such as elderly or disabled persons—can trigger expensive retrofit projects later. Worse yet, neglecting to anticipate the needs of all users can also bring about costly lawsuits (American Planning Association 2010, 68).

As the transportation paradigm shifts away from vehicle-oriented design to Complete Streets, accommodating all users becomes less of an afterthought and more of an accepted step in design, budgeting and construction (American Planning Association 2010, 67).

Funding Complete Streets

By definition, Complete Streets should be implemented through use of mainstream transportation funding programs. Proper implementation often requires the reworking of program criteria to ensure full inclusion of all modes (American Planning Association 2010, 71-72). One challenge, however, is that funds have traditionally been allocated according to mode and as a result, projects are thought of in modal terms rather than multimodal terms. This complicates the funding process of Complete Streets projects.

Communities with Complete Streets policies are demonstrating that it is possible to escape these modal funding silos when using federal funds. Several communities who have passed Complete Streets laws—including Seattle and Portland—have used more than 10 federal programs to fund transportation improvements, such as the Congestion Mitigation and Air Quality (CMAQ) program and the Surface Transportation Program (STP) (American Planning Association 2010, 72).

A few other cities have tied new transportation funding sources that were approved by voters to the accommodation of all users. Such funding streams guarantee that Complete Streets projects will move forward and offer important leverage for other funds (American Planning Association 2010, 72). Seattle's nine-year "Bridging the Gap" transportation funding levy is a good example of a voter-approved initiative that is designed to fund Complete Streets projects.

Getting the Most out of Your Dollars

With proper planning and thought, communities can identify many effective Complete Streets improvements that can be accomplished at little or no extra cost, yet yield big results. For example, paint costs very little but can transform corridors from four-lane high-speed arterials to major bicycle routes. The Stone Way North and West Nickerson Street rechannelization projects in Seattle are a good example of how far a little paint can go. These "road diets" eliminated two of the four automobile travel lanes, added a center turn lane and provided bike lanes in both directions. The Seattle Department of Transportation has stated that the rechannelization of these corridors is to "make the street better for pedestrians and bicyclists, reduce vehicle speeds, and reduce collisions… narrowing the space for motor vehicles has been shown to reduce travel speeds, while not decreasing the capacity of the street" (Seattle Department of Transportation 2009). Portland and Seattle have also installed bike corrals—on-street bicycle parking in the space where a car would normally parallel park.

Changing the prioritization and style of pedestrian crossings, installation of bike-only traffic lights, use of bus priority signals and other operational improvements is also an important aspect of Complete Streets. Simple but effective measures such as these make it apparent that all modes are not only expected but also welcomed (American Planning Association 2010, 68).

Another important way to manage costs is to take an incremental planning approach to projects and take advantage of opportunities as they present themselves. For example, when signal detectors are moved in Seattle, the city also installs bike loop detectors to allow cyclists to activate the signal. In University Place, Washington, planners and engineers took advantage of utilities projects to install the city's first sidewalks, paying only the marginal cost of the sidewalk installation.

This incremental approach means a community can focus on filling in the gaps of its transportation network as projects come to the table. Seattle's ordinance specifically allows planners and engineers to view projects in an incremental way, a principle described by Barbara Gray, transportation system design and planning manager at SDOT, as "a powerful tool in both managing costs and expectations" (American Planning Association 2010, 70). One caveat, however, is that communities using this approach must have a clear system to achieve the needed improvements and should not simply put off improvements into the indefinite future.

Putting Cost into Perspective

It is important for city staff and elected officials to remember that when all is said and done, the cost of accommodating pedestrians and bicyclists—including better access to (and for) transit—represents a very small percentage of a city or region's transportation budget. Full implementation of a Complete Streets policy, which can take decades, may actually cost less than a single bridge project or a handful of highway interchanges—projects that often only benefit one type of roadway user: automobile drivers.

Communities that express a clear desire for adopting Complete Streets policies must accept that some projects will be more expensive than others. However, the costs are often tempered by the communities' understanding that Complete Streets will benefit all users and the belief that non-motorized and transit improvements are necessary for the livability and sustainability of the community. Michael Ronkin, national bike and pedestrian expert, may have said it best when he stated, "That's the whole beauty of the Complete Streets movement: it becomes normal. It's like adding insulation to a house; people understand that it's an upfront cost, but that it is absolutely necessary" (American Planning Association 2010, 77).

works cited

Airport Corridor Transportation Association. "Rethinking the Suburban Bus Stop." http://www.acta-pgh.org/nu_upload/BusStopBook2LOW_copy1.pdf (accessed November 22, 2010).

American Planning Association. Complete Streets: Best Policy and Implementation Practices. Edited by Barbara McCann and Suzanne Rynne. Chicago, Illinois: American Planning Association, 2010.

Burden, Dan. "Street Design Guidelines for Healthy Neighborhoods." Transportation Research Board, 1999.

City of Charlotte. "Urban Street Design Guidelines (Draft)." Charlotte, 2007.

City of Denver. Land Use Transportation Plan. denvergov.org.

City of Eugene Planning Division. Mixed-Use Development in Eugene: Multi-Modal Street Design. Eugene: City of Eugene.

City of Issaquah, Washington. Newport Way Northwest. http://www.ci.issaquah.wa.us/Page.asp?NavID=2264 (accessed December 6, 2010).

City of New Haven. City of Hew Haven Complete Streets Design Manual. DRAFT Design Manual, City of New Haven, 2010.

City of Portland Bureau of Transportation. Bikeway Facility Design: Survey of Best Practices. Portland Bicycle Plan for 2030: Appendix D, Portland: City of Portland, 2010.

City of Seattle. City Council Bills and Ordinances. April 24, 2007. http://clerk.ci.seattle.wa.us/~scripts/nph-brs.exe?d=CBOR&s1=115861.cbn.&Sect6=HITOFF&l=20&p=1&u=/%7Epublic/cbor2.htm&r=1&f=G (accessed November 1, 2010).

Daisa, James, and John Peers. "Narrow Residential Streets: Do They Really Slow Down Speeds." 1997.

Davis, Todd, and Monica Hale. Public Transportation's Contribution to U.S. Greenhouse Gas Reduction. McLean, Virginia: Science Applications International Corporation, 2007.

Federal Highway Administration. "Pedestrian Facilities User Guide: Providing Safety and Mobility." 2002.

Frank, L.D., and S. Kavage. "Urban Planning and Public Health: A Story of Separation and Reconnection." *Journal of Public Health Management Practice* 14 (2008): 214-220.

Frank, L.D., M.A. Andresen, and T.L. Schmid. "Obesity relationships with community design, physical activity, and time spent in cars." *American Journal of Preventative Medicine* 27 (2004): 87-96.

Gresham Smith and Partners. *Complete Streets Design Guidelines.* Knoxville: Knoxville Regional Transportation Planning Association, 2009.

Hawkes, Amber, and Georgia Sheridan. "Rethinking the Street Space: Toolkits and Street Design Manuals." *Planetizen.* August 31, 2009. http://www.planetizen.com/node/40394 (accessed 2010).

—. "Rethinking the Street Space: Toolkits and Street Design Manuals." *Planetizen.* August 31, 2009. http://www.planetizen.com/node/40394 (accessed 2010).

Institute of Transportation Engineers. *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach.* Institute of Transportation Engineers, 2010.

Kreck, J. Kevin. "Caught in the Middle: The Fight for Narrow Residential Streets." *ITE 14th International Conference.* 1998.

LaPlante, John, and Barbara McCann. "We Can Get There from Here." *ITE Journal*, 2008.

McCann, Barbara. "Driven to Spend." *Surface Transportation Policy Partnership.* http://www.transact.org/report.asp?id=36.

—. "Complete Streets 2009 - Pedestrian- and Bike-Friendly Street Successes." *On Common Ground*, Summer 2009: 48-51.

Meyers, Drew. "Walk Score Are Now on Zillow." *Zillow Blog.* February 4, 2009. http://www.zillow.com/blog/walk-scores-are-now-on-zillow/2009/02/24/ (accessed December 22, 2010).

National Complete Streets Coalition. *Completing the Streets for Better Transit.* November 4, 2009. http://www.completestreets.org/resources/completing-the-streets-for-better-transit/ (accessed November 2010).

—. "Complete Streets Improve Safety for Everyone." http://www.completestreets.org/webdocs/factsheets/cs-safety.pdf (accessed November 3, 2010).

—. "Complete Streets in Small Towns." http://www.completestreets.org/webdocs/factsheets/cs-rural.pdf (accessed November 1, 2010).

—. "Complete Streets Lower Transporation Costs." http://www.completestreets.org/webdocs/factsheets/cs-individuals.pdf (accessed November 3, 2010).

—. "Complete Streets Make for a Good Ride." http://www.completestreets.org/webdocs/factsheets/cs-transit.pdf (accessed November 3, 2010).

—. "Complete Streets Promote Good Health!" http://www.completestreets.org/webdocs/factsheets/cs-health.pdf (accessed December 22, 2010).

—. "Complete Streets Spark Economic Revitalization." http://www.completestreets.org/webdocs/factsheets/cs-revitalize.pdf (accessed November 3, 2010).

—. "Create Livable Communities." http://www.completestreets.org/webdocs/factsheets/cs-livable.pdf (accessed November 3, 2010).

—. "Networks of Complete Streets." http://www.completestreets.org/webdocs/factsheets/cs-networks.pdf (accessed November 3, 2010).

works cited

—. "Policy Elements." http://www.completestreets.org/changing-policy/policy-elements/ (accessed November 4, 2010).

—. *Progress Report 2010.* Washington, D.C.: National Complete Streets Coalition, 2010.

Noland, Dr. Robert B. "Traffic Fatalities and Injuries: The Effect of Changes In Infrastructure and Other Trends." *Accident Analysis and Prevention*, 2003: 36.

North Carolina Department of Transportation. "Wide Paved Shoulders." *Bicycle Facilities Guide: Types of Bicycle Accommodations.* http://www.campo-nc.us/BPSG/docs/NCDOT_on_Wide_Paved_Shoulders.pdf (accessed November 12, 2010).

Northwestern Indiana Regional Planning Commission. "Complete Streets Planning & Design Guidelines." May 2010. http://www.nirpc.org/transportation/pdf/CompleteStreetsGuidelinesFINAL.pdf (accessed November 8, 2010).

Pedestrian and Bicycle Information Center. "Complete Streets Laws and Ordinances." *bicyclinginfo.org.* http://katana.hsrc.unc.edu/cms/downloads/ENG.CompleteStreetsLawsandOrdinances.pdf (accessed December 6, 2010).

PEDSAFE, USDOT, FHA. *Recommended Guidelines/Priorities for Sidwalks and Walkways.* http://www.walkinginfo.org/pedsafe/moreinfo_sidewalks.cfm.

Ridgway, Matthew - Fehr & Peer. "Residential Streets - Quality of Life Assessment." 1997.

Sacramento Transportation and Air Quality. *Complete Streets Best Practices.* Sacramento: Sacramento Transportation and Air Quality, 2005.

Seattle Department of Transportation. "Equity, Health, and Environment Tools." *Seattle Pedestrian Master Plan.* City of Seattle, 2009. http://www.seattle.gov/Transportation/pedestrian_masterplan/pedestrian_toolbox/tools_ehe.htm (accessed December 22, 2010).

—. "Complete Streets Checklist." City of Seattle, January 2010.

—. "Nickerson Rechannelization Facts and Answers." City of Seattle, March 4, 2009. http://www.seattle.gov/transportation/docs/NickersonRechannelizationFAQ.pdf (accessed November 9, 2010).

Strate, Harry E., E. Humstone, S. McMahon, L. Gibson, B.D. Bender. "Functional Classification for Mulimodal Planning." *Transportation Research Board,* 2007.

Surface Transportation Policy Partnership. *Aging Americans: Stranded Without Options.* April 14, 2004. http://www.transact.org/report.asp?id=232 (accessed December 22, 2010).

Swift, Peter. "Residential Street Typology and Injury Accident Frequency." 2003.

Thunderhead Alliance. *Thunderhead Alliance Guide to Complete Streets Campaigns.* New York: iUniverse, Inc., 2006.

U.S. Bureau of Transportation Statistics. "Highlights of the National Household Travel Survey 2001." *Bureau of Transporation Statistics.* www.bts.gov/publications/highlights_of_the_2001_national_household_travel_survey (accessed October 29, 2010).

University of Minesota. *Context Sensitive Solutions.* 2010. http://www.cts.umn.edu/contextsensitive/index.html (accessed November 3, 2010).

Victoria Transportation Policy Institute. "Context Sensitive Design - Roadway Design That Is Responsive To Local Community Values." *TDM Encyclopedia.* January 26, 2010. http://www.vtpi.org/tdm/tdm57.htm (accessed November 3, 2010).

Walk Score. "Walkable Neighborhoods." http://www.walkscore.com/walkable-neighborhoods.shtml (accessed December 22, 2010).

recommended resources

PRIMARY RESOURCES USED FOR THIS GUIDE

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An ITE Proposed Recommended Practice.

Completestreets.org

Thunderhead Alliance Guide to Complete Streets Campaigns

Complete Streets Design Guidelines (FHWA, FTA, USDOT, Tennessee Dept. of Transportation)

Best Practices for Complete Streets: Sacramento Transportation & Air Quality Collaborative

Complete Streets: Best Policy and Implementation Practices

City of New Haven Complete Streets Design Manual

Tacoma Complete Streets Design Guidelines

PEDESTRIAN FACILITY DESIGN GUIDANCE (FHWA)

Design and Safety of Pedestrian Facilities, A Recommended Practice, 1998. Institute of Transportation Engineers, 525 School Street, S.W, Suite 410, Washington, DC 20024-2729, Phone: (202) 554-8050.

Pedestrian Compatible Roadways-Planning and Design Guidelines, 1995. Bicycle / Pedestrian Transportation Master Plan, Bicycle and Pedestrian Advocate, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625, Phone: (609) 530-4578.

Improving Pedestrian Access to Transit: An Advocacy Handbook, 1998. Federal Transit Administration / WalkBoston. NTIS, 5285 Port Royal Road, Springfield, VA 22161.

Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas, Report No. 294A, Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214.

Pedestrian Facilities Guidebook, 1997. Washington State Department of Transportation, Bicycle and Pedestrian Program, P.O. Box 47393, Olympia, WA 98504.

Portland Pedestrian Design Guide, 1998. Portland Pedestrian Program, 1120 SW Fifth Ave, Room 802; Portland, OR 97210. (503) 823-7004.

BICYCLE FACILITY DESIGN RESOURCES (FHWA)

Guide for the Development of Bicycle Facilities, 1999., American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

AASHTO Policy on Geometric Design of Streets and Highways, 2001. American Association of State Highway and Transportation Officials, Washington, DC. www.transportation.org

Manual on Uniform Traffic Control Devices (MUTCD), 2003. Federal Highway Administration, Washington, DC. http://mutcd.fhwa.dot.gov

Washington State Design Manual, Division 15 – Pedestrian and Bicycle Facilities. http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm

Implementing Bicycle Improvements at the Local Level, (1998), FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA .

Bicycle Facility Design Standards, 1998. City of Philadelphia Streets Department, 1401 JFK Boulevard, Philadelphia, PA 19103.

Selecting Roadway Design Treatments to Accommodate Bicyclists, 1993. FHWA, R&T Report Center, 9701 Philadelphia Ct, Unit Q; Lanham, MD 20706. (301) 577-1421 (fax only)

North Carolina Bicycle Facilities Planning and Design Guidelines, 1994. North Carolina DOT, P.O. Box 25201, Raleigh, NC 27611. (919) 733-2804.

Bicycle Facility Planning, 1995. Pinsof & Musser. American Planning Association, Planning Advisory Service Report # 459. American Planning Association, 122 S. Michigan Ave, Suite 1600; Chicago, IL 60603.

Florida Bicycle Facilities Planning and Design Manual, 1994. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Evaluation of Shared-use Facilities for Bicycles and Motor Vehicles, 1996. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Appendix A

MODEL WASHINGTON STATE COMPLETE STREETS ORDINANCES

1. Seattle
2. Kirkland
3. Redmond
4. Renton
5. Sedro-Woolley

Barbara Gray/sfm
SDOT Complete Streets ORD
April 24, 2007
V #3

ORDINANCE 122386

AN ORDINANCE relating to Seattle's Complete Streets policy, stating guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling and transit use while promoting safe operations for all users.

WHEREAS, the City Council, with the Mayor concurring, adopted Resolution 30915 that defines the Complete Streets policy; and

WHEREAS, City policy as stated in the Transportation Strategic Plan and the Seattle Comprehensive Plan is to encourage walking, bicycling and transit use as safe, convenient and widely available modes of transportation for all people; and

WHEREAS, Seattle's Complete Streets guiding principle is to design, operate and maintain Seattle's streets to promote safe and convenient access and travel for all users --- pedestrians, bicyclists, transit riders, and people of all abilities, as well as freight and motor vehicle drivers; and

WHEREAS, other jurisdictions and agencies nationwide have adopted Complete Streets legislation including the U.S. Department of Transportation, numerous state transportation agencies, San Francisco, Sacramento, San Diego, Boulder, Chicago and Portland; and

WHEREAS, the Seattle Department of Transportation (SDOT) will implement Complete Streets policy by designing, operating and maintaining the transportation network to improve travel conditions for bicyclists, pedestrians, transit and freight in a manner consistent with, and supportive of, the surrounding community; and

WHEREAS, transportation improvements will include an array of facilities and amenities that are recognized as contributing to Complete Streets, including: street and sidewalk lighting; pedestrian and bicycle safety improvements; access improvements for freight; access improvements, including compliance with the Americans with Disabilities Act; public transit facilities accommodation including, but not limited, to pedestrian access improvement to transit stops and stations; street trees and landscaping; drainage; and street amenities; and

WHEREAS, SDOT will implement policies and procedures with the construction, reconstruction or other changes of transportation facilities on arterial streets to support the creation of Complete Streets including capital improvements, re-channelization projects and major maintenance, recognizing that all streets are different and in each case user needs must be balanced; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. SDOT will plan for, design and construct all new City transportation improvement projects to provide appropriate accommodation for pedestrians, bicyclists, transit riders, and persons of all abilities, while promoting safe operation for all users, as provided for below.

Section 2. SDOT will incorporate Complete Streets principles into: the Department's Transportation Strategic Plan; Seattle Transit Plan; Pedestrian and Bicycle Master Plans; Intelligent Transportation System Strategic Plan; and other SDOT plans, manuals, rules, regulations and programs as appropriate.

Section 3. Because freight is important to the basic economy of the City and has unique right-of-way needs to support that role, freight will be the major priority on streets classified as Major Truck Streets. Complete Street improvements that are consistent with freight mobility but also support other modes may be considered on these streets.

Section 4. Except in unusual or extraordinary circumstances, Complete Streets principles will not apply:

- to repairs made pursuant to the Pavement Opening and Restoration Rule (SDOT Director's Rule 2004-02);
- to ordinary maintenance activities designed to keep assets in serviceable condition (e.g., mowing, cleaning, sweeping, spot repair and surface treatments such as chip seal, or interim measures on detour or haul routes);

- where the Director of Transportation issues a documented exception concluding that application of Complete Street principles is unnecessary or inappropriate because it would be contrary to public safety; or
- where other available means or factors indicate an absence of need, including future need.

Section 5. Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time. It is the Mayor's and Council's intent that all sources of transportation funding be drawn upon to implement Complete Streets. The City believes that maximum financial flexibility is important to implement Complete Streets principles.

- *Please check one of the following:*

____ **This legislation does not have any financial implications.**

__X__ **This legislation has financial implications.**

There is no way to forecast the financial impacts of this Council Bill because the projects and improvements have not yet been determined. The Council Bill states that Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time. It also states that Complete Streets principles will not apply when the cost of complying exceeds approximately 20% of the overall project cost. Maximum financial flexibility is important to implement Complete Streets principles. All sources of transportation funding could be drawn upon to implement Complete Streets; however, at this time SDOT does not anticipate requesting additional funding from the City's General Fund for Complete Streets work.

Section 6. This ordinance shall take effect and be in force thirty (30) days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten (10) days after presentation, it shall take effect as provided by Municipal Code Section 1.04.020.

Passed by the City Council the 30th day of April, 2007, and signed by me in open session in authentication of its passage this 30th day of April, 2007.

President _____ of the City Council

Approved by me this 7th day of May, 2007.

Gregory J. Nickels, Mayor

Filed by me this 7 day of May, 2007.

City Clerk

(Seal)

Barbara Gray/sfm
SDOT Complete Streets ORD FISC)
February 2, 2007
V #2

Form revised December 4, 2006

FISCAL NOTE FOR NON-CAPITAL PROJECTS

Department:	Contact Person/Phone:	DOF Analyst/Phone:
Seattle Department of Transportation	Barbara Gray, 615-0872	Stephen Barham, 733-9084

Legislation Title AN ORDINANCE relating to Seattle's Complete Streets policy, stating guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling and transit use while promoting safe operations for all users.

- **Summary of the Legislation**: This Council Bill states that "Complete Streets" principles (see Resolution 30915) will be incorporated, to the maximum practicable extent, in all new City transportation improvement projects on arterials to provide appropriate accommodation for pedestrians, bicyclists, transit riders, and disabled persons while promoting safe operation for all users. Additionally, these Complete Streets principles will be incorporated into (The Seattle Department of Transportation's) Transportation Strategic Plan, Seattle Transit Plan, Pedestrian Master Plan, Bicycle Master Plan, Intelligent Transportation System Strategic Plan, and other SDOT plans, manuals, rules, regulations and programs as appropriate. SDOT will implement Complete Streets policy by designing, operating, and maintaining the transportation network to improve travel conditions for bicyclists, pedestrians, transit and freight in a manner consistent with and supportive of the surrounding community. Street and sidewalk lighting, pedestrian and bicycle safety improvements, access improvements for freight, access improvements in accordance with ADA requirements, public transit facilities accommodation, street trees, landscaping, and street amenities are all components of the Complete Streets program.

- Background: ***(Include brief description of the purpose and context of legislation and include record of previous legislation and funding history, if applicable):***
Resolution 30195, relating to Bridging the Gap, includes support for the principles of "Complete Streets" and states that all Bridging the Gap projects will provide appropriate accommodation for pedestrians, bicyclists, transit riders, and disabled persons while promoting safe operation for cars and trucks. Additionally, these Complete Streets principles will be incorporated into SDOT's Transportation Strategic Plan, Seattle Transit Plan, Pedestrian Master Plan, Bicycle Master Plan and other SDOT plans, manuals, rules, regulations and programs as appropriate. The Resolution states that the City Council will work with SDOT and the Mayor to assess the feasibility of legislation adopting Complete Street principles. This Ordinance results from that statement.

ORDINANCE NO. 4061

AN ORDINANCE OF THE CITY OF KIRKLAND RELATING TO BICYCLE AND PEDESTRIAN WAYS ALONG TRANSPORTATION FACILITIES.

The City Council of the City of Kirkland do ordain as follows:

Section 1. The Kirkland Municipal Code is amended by the addition of a new Section 19.08.055 to read as follows:

19.08.055 Bicycle and pedestrian ways along transportation facilities.

(1) Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs.

(2) Notwithstanding that provision of paragraph (1), bicycle and pedestrian ways are not required to be established:

(a) Where their establishment would be contrary to public safety;
(b) When the cost would be excessively disproportionate to the need or probable use;
(c) Where there is no identified need;
(d) Where the establishment would violate Comprehensive Plan policies; or
(e) In instances where a documented exception is granted by the Public Works Director.

Passed by majority vote of the Kirkland City Council in open meeting this _____ day of _____, 2006.

Signed in authentication thereof this _____ day of _____, 2006.

_____
MAYOR

Attest:

_____
City Clerk

Approved as to Form:

_____
City Attorney

CITY OF KIRKLAND
123 Fifth Avenue, Kirkland, WA 98033 (425) 587-3000
www.ci.kirkland.wa.us

To: Dave Ramsay, City Manager

From: Daryl Grigsby, Public Works Director
Noel Schoneman P.E., Neighborhood Transportation Program Coordinator

Date: September 7, 2006

Subject: Complete Streets language

RECOMMENDATION

It is recommended that the Council enact the attached ordinance regarding Complete Streets.

BACKGROUND

On May 2, representatives from the Cascade Bicycle Club addressed the City Council requesting provision of complete streets legislation in Kirkland codes. The Council requested that the Transportation Commission review the request and make a recommendation to Council. The purpose of the request from Cascade is to codify practices that are already being followed for accommodating bicycle and pedestrian facilities in Kirkland.

The idea behind complete streets legislation is to make sure that all transportation projects include the appropriate facilities for all users. For example, appropriate facilities for cyclists could range from no additional improvements on a low volume residential street to bike lanes on higher volume streets.

Staff met with representatives from Cascade and proposed language based on Florida regulations to the Commission for the Commission's June meeting. The Commission had several concerns about the language that was originally proposed, primarily around the structure of the language but also because of what might be required of the City. The original language was modified by the Commission and taken back to the Cascade Bicycle Club by staff. By changing a word or two, the new Commission language was satisfactory to Cascade. Representatives of Cascade met with the Commission at the Commission's July meeting and the Commission unanimously passed the compromise language which is reflected in the proposed ordinance.

The Transportation Commission's concern was the extent to which the City would be required to do improvements which may increase the cost or scope of various transportation projects. After discussion of the issue, both the Commission members and City staff believe the bicycle and pedestrian improvements are already considered in transportation projects and that project costs already include such facilities. In cases where projects do not include pedestrian and bicycle facilities, we believe this ordinance rightly demands that full consideration and accommodation be

made for pedestrians and bicyclists. In addition, in cases where the cost outweighs the need and benefit, the proposed language allows flexibility to the Public Works Director.

We believe the Complete Streets Ordinance both confirms our existing practice and ensures we continue this emphasis in the future. By adoption of this ordinance by the City Council, Kirkland will be the first City to do so in the State of Washington.

It is recommended that the Complete Streets language be placed in a new section (§19.08.055) of the Kirkland Municipal code, preceding material that describes general requirements of street lighting and following general information about the 6 year Transportation Improvement Plan.

ORDINANCE NO. 2359

AN ORDINANCE OF THE CITY OF REDMOND, WASHINGTON IN ORDER TO ADOPT "COMPLETE STREET" LEGISLATION IN REDMOND'S MUNICIPAL CODE TO ENSURE THAT ALL TRANSPORTATION PROJECTS INCLUDE SAFE AND APPROPRIATE FACILITIES FOR PEDESTRIANS, BICYCLISTS, TRANSIT USERS, AND PERSONS OF ALL ABILITIES; ADDING A NEW CHAPTER 12.06 TO THE REDMOND MUNICIPAL CODE; PROVIDING FOR SEVERABILITY AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, walking and biking are non-motorized travel modes that enhance health through physical activity and help to reduce air pollution; and

WHEREAS, the Comprehensive Plan Goals include providing safe and environmentally friendly transportation, as well as emphasizing transportation choices; and

WHEREAS, Comprehensive Plan Framework Policy FW-32 directs the City to promote mobility choices by developing a range of practical transportation alternatives through increased investment in alternative modes and projects that emphasize safety and efficiency; and

WHEREAS, the Comprehensive Plan Transportation Element places the highest priority for allocating transportation resources on addressing public health and safety concerns and provides policy guidance for the implementation of the Pedestrian and Bicycle Plans contained in the Transportation Master Plan in order to create a system of pedestrian and bicycle facilities; and

WHEREAS, the City of Redmond's Transportation Master Plan places

particular emphasis on creating streets throughout Redmond that accommodate pedestrians, bicyclists, and transit users and allow for seamless interconnections between all modes; and

WHEREAS, the 2007 Redmond Community Indicators Report states that in a survey of Redmond residents, "nearly half of the 417 respondents believe that the City should emphasize pedestrian safety and walk ability citywide more than it already does", NOW, THEREFORE,

THE CITY COUNCIL OF THE CITY OF REDMOND, WASHINGTON DO ORDAIN AS FOLLOWS:

Section 1. A new chapter 12.06 is hereby added to the Redmond Municipal Code to read as follows:

Chapter 12.06
Complete the Streets

Sections:

12.06.10 Complete the Streets

The City of Redmond will plan for, design and construct all new transportation projects to provide appropriate accommodation for bicyclists, pedestrians, transit users and persons of all abilities in comprehensive and connected networks.

Section 12.06.20 Exceptions

Facilities for bicyclists, pedestrians, transit users and/or people of all abilities are not required to be provided:

(a) Where their establishment would be contrary to public health and safety;
(b) Where there is no identified long-term need; or
(c) Where the Public Works Director grants a documented exception which may only be authorized in specific situations

where conditions warrant. Such site-specific exceptions shall not constitute general changes to the standards set in RMC 12.06.10.

Section 2. If any section, sentence, clause, or phrase of this ordinance should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 3. This ordinance, being an administrative action, is not subject to referendum and shall take effect five days after passage and publication of an approved summary thereof consisting of the title.

CITY OF REDMOND

MAYOR ROSEMARIE IVES

ATTEST/AUTHENTICATED:

CITY CLERK, MALISA FILES

APPROVED AS TO FORM:
OFFICE OF THE CITY ATTORNEY

BY: _____

FILED WITH THE CITY CLERK: August 31, 2007
PASSED BY THE CITY COUNCIL: September 4, 2007
PUBLISHED: September 10, 2007
EFFECTIVE: September 15, 2007
ORDINANCE NO.: 2359

CITY OF RENTON, WASHINGTON

ORDINANCE NO. 5517

AN ORDINANCE OF THE CITY OF RENTON, WASHINGTON, AMENDING CHAPTER 4, CITY-WIDE PROPERTY DEVELOPMENT STANDARDS, AND CHAPTER 6, STREET AND UTILITY STANDARDS, OF TITLE IV (DEVELOPMENT REGULATIONS) OF ORDINANCE NO. 4260 ENTITLED "CODE OF GENERAL ORDINANCES OF THE CITY OF RENTON, WASHINGTON", TO UPDATE MINIMUM STREET DESIGN STANDARDS WITH COMPLETE STREETS PRINCIPLES TO ENABLE SAFE AND CONVENIENT ACCESS AND TRAVEL FOR ALL USERS, AND TO FOSTER A SENSE OF PLACE IN THE PUBLIC REALM WITH ATTRACTIVE DESIGN AMENITIES.

WHEREAS, the goal of the Transportation Element in the Renton Comprehensive Plan is to provide a balanced multi-modal transportation system with various transportation choices such as automobiles, buses, rail, transit, bicycles, and walking, that will serve existing and future residential and employment growth; and

WHEREAS, Renton Comprehensive Plan policy states non-motorized transportation modes should be developed in tandem with motorized transportation systems, recognizing safety, user diversity, and experiential diversity; and

WHEREAS, Renton Comprehensive Plan policy promotes new developments and attractive, safe, and healthy neighborhoods that are walkable places to live, shop, play, and get to work without having to drive; and

WHEREAS, Renton Comprehensive Plan promotes and encourages pedestrian and bicycle traffic within all areas of the City and not only as a viable means of transportation, but as an important method for maintaining overall health and fitness of Renton's citizens; and

WHEREAS, Renton Comprehensive Plan policy supports pedestrian-oriented environments that address safety as a first priority and the use of a landscape strip along the roadway as a safety buffer between pedestrians and moving vehicles; and

WHEREAS, Renton Comprehensive Plan policy promotes planting trees along streets; and

WHEREAS, Renton Comprehensive Plan policy encourages residential streets to be constructed to the narrowest widths feasible, curb to curb, without impeding emergency vehicle access; and

WHEREAS, this matter was duly referred to the Planning Commission for investigation, study, and the matter having been duly considered by the Planning Commission, and the zoning text amendment request being in conformity with the Renton Comprehensive Plan, as amended;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF RENTON, WASHINGTON, DOES ORDAIN AS FOLLOWS:

SECTION I. Subsection 4-4-080I.3.b, Single Family and Duplex Uses, of Chapter 4, City-Wide Property Development Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

b. Single Family and Duplex Uses: The maximum width of single loaded garage driveways shall not exceed nine feet (9') and double loaded garage driveways shall not exceed sixteen feet (16').

SECTION II. Subsection 4-6-060A, Purpose, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

A. PURPOSE:

It is the purpose of this section to establish design standards and development requirements for street improvements to insure reasonable and safe access to public and private properties. These improvements include appropriately scaled sidewalks related to the urban context, a range of landscape buffers, curbs, gutters, street paving, monumentation, signage, and lighting, to be developed with complete streets principles. Complete streets principles are to plan, design, and operate streets to enable safe and convenient access and travel for all users including pedestrians, bicyclists, transit riders, and people of all ages and abilities, as well as freight and motor vehicle drivers, and to foster a sense of place in the public realm with attractive design amenities.

SECTION III. Subsection 4-6-060B, Administering and Enforcing Authority, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

B. ADMINISTERING AND ENFORCING AUTHORITY:

The Administrator of the Department of Community and Economic Development and/or designee is responsible for the general administration and coordination of this section.

SECTION IV. Subsection 4-6-060C, Applicability, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

C. APPLICABILITY:

The standards in this section will be used for all public and private street improvements within the City of Renton. Whenever a building permit is applied for or application made for a short plat or a full subdivision, the applicant for such permit and/or application shall build and install certain street improvements, including, but not limited to: lighting on all adjacent right-of-ways, and all private street improvements on access easements. The minimum design standards for streets are listed in the tables set forth in subsection 4-6-060F.2. These standards will determine specific street improvement requirements for development projects, including short plats and subdivisions.

SECTION V. Subsection 4-6-060E.3, Waiver of Dedication, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

3. Waiver of Dedication: The Administrator of the Community and Economic Development and/or designee may waive the requirement for additional right-of-way dedication pursuant to RMC 4-9-250C, Waiver Procedures, where it is determined by the Administrator and/or designee that construction of full street improvements is not anticipated in the future.

SECTION VI. Subsection 4-6-060F, Public Street and Sidewalk Design Standards, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby

amended to change the title to "Public Street Right-of-Way Design Standards", and to read as follows.

F. PUBLIC STREET RIGHT-OF-WAY DESIGN STANDARDS:

1. Level of Improvements: The minimum level of street improvements required are listed in the following tables including but not limited to curbs, planting strips, sidewalks, and lighting.

a. Street Lighting Exemption: No street lighting is required for the following smaller project sizes: 2-4 units for residential; 0-5,000 square feet commercial; or 0-10,000 square feet industrial.

b. Additional Walkway Requirement: A pedestrian walkway to the arterial is required for the following larger project sizes with more than: 20 units residential; 10,000 square feet commercial; or 20,000 square feet industrial.

2. Minimum Design Standards for Public Streets and Alleys: All such improvements shall be constructed to the City Standards for Municipal Public Works Construction. Standards for construction shall be as specified in the following table, and by the Administrator of the Department of Community and Economic Development and/or designee.

MINIMUM DESIGN STANDARDS TABLE FOR PUBLIC STREETS AND ALLEYS:

Minimum Design Standards (1- see notes)	Functional Classifications: Public Streets and Alleys						
	Principal	Minor	Commercial-	Commercial-	Residential	Limited	Alleys

	Arterial	Arterial	Mixed Use, Industrial, & Neighborhood Collector Arterial	Mixed Use & Industrial Access	Access	Residential Access	
Structural Design	See Standard Drawing or Pavement section and may be designed using procedures described in the *WSDOT Design Manual,* latest edition.						
Average Daily Vehicle Trips (ADT)	14,000-40,000	3,000-20,000	3,000-14,000	0- 3,000	0- 3,000	0- 250	N/A
Right of Way (R-O-W)	4 lanes- 91' 5 lanes- 103' 6 lanes- 113' 7 lanes- 125'	4 lanes- 91' 5 lanes- 103' 6 lanes- 113' 7 lanes- 125'	2 lanes- 83' 3 lanes- 94'	2 lane- 69' 3 lane- 80'	2 lanes- 53'	1 lane- 45'	Res.- 16' Com.- 16'
Sidewalks (2)	8' both sides (3)	8' both sides (3)	8' both sides (3)	6' both sides	5' both sides	5' both sides	None
Planting Strips (4)	8' between curb & walk both sides	8' between curb & walk both sides	8' between curb & walk both sides	8' between curb & walk both sides	8' between curb & walk both sides	8' between curb & walk both sides	None
	Tree grates and hardscape may be substituted for planting strip area if approved by Reviewing Official.				May be reduced if approved by Reviewing Official (5)		
Street Trees	Required, see Street Trees Standards RMC 4-4-070						N/A

Curbs	Curb both sides	Curb both sides	Curb both sides	Curb both sides	Curb both sides	Curb both sides	None
Parking Lanes	Allowed at 8'	Allowed at 8'	8' both sides	8' both sides	6' one side (6)	6' one side (6)	
Bicycle Facilities (7)	All classifications of Arterials will have Class I, or Class II, or Class III bicycle facility.			None	None	None	N/A
Paved Roadway Width, not including parking	4 lanes- 54' 5 lanes- 66' 6 lanes- 76' 7 lanes- 88'	4 lanes- 54' 5 lanes- 66' 6 lanes- 76' 7 lanes- 88'	2 lanes- 30' 3 lanes- 41'	2 lanes- 20' 3 lanes- 31'	2 lanes- 20'	1 lane- 12' (8)	Res.- 12' Com.- 16'
Lane Widths (9)	11'travel lanes, 5' bike lanes, and 12' center left turn lanes.		10' travel lanes, 5' bike lanes, and 11' center turn lanes.	10' travel lanes		1 travel lane- 12' (8)	Res.- 12' Com.- 16'
Center Median	Center median allowed for boulevard treatment and center left turn lane. Width will be width of center left turn lane minus 1-foot from thru traffic travel lanes on both sides. Pull-outs with a minimum 25 foot length required for maintenance and emergency vehicles within the median at intervals of 300-350'						N/A
Pedestrian Bulb-outs	Curb bulb-outs required where on-street parking is located.					N/A	N/A
Intersection	35'	35' turning	35' turning	25' turning	25' turning	25' turning	N/A

Radii (10)	turning radius	radius	radius (11)	radius (11)	radius	radius	
	At the intersection of two classes of streets, the radius for the higher class street is to be used. Where larger trucks, transit and school buses are anticipated, further design will be required to determine an adequate radius. The minimum curb radius is 15 feet.						
Cul-de-sacs	Limited application per RMC 4-6-060H.				Limited application. See RMC 4-6-060H for pavement and R-O-W widths when permitted.		N/A
Maximum Grades	0.5-8%	0.5-8%	0.5-10%	0.5-15%, greater than 15% only allowed within approved hillside subdivisions.			0.5-15%
Site Access	Determined on a case-by-case basis.	125' from intersection	125' from intersection	N/A	N/A	N/A	N/A
Street & Pedestrian Lighting	Architectural street and pedestrian lighting standards will be established on a case-by-case basis for streets. Street lights above the roadway are required at each corner of a street intersection only. Pedestrian scale lighting is required between street intersections and at each corner of an intersection.						N/A

NOTES AND CONDITIONS: MINIMUM DESIGN STANDARDS TABLE FOR PUBLIC STREETS AND ALLEYS:

(1) Minimum design standards may be altered to allow alternative stormwater management and low impact development techniques within the R-O-W by the Department.

(2) Sidewalk width will be 12 feet both sides in the City Center Community Planning Area. This sidewalk width includes street tree grates for locating street trees.

(3) Sidewalk areas may be required at a wider width to accommodate required multi-use path facilities when a Class I multi-use path is required within a street R-O-W by the Department. The width of a required 5 foot bicycle lane will be transferred to the sidewalk area to create a Class I multi-use path.

(4) Maintenance Responsibilities: Unless otherwise agreed upon by the City of Renton, maintenance of landscaping within the planting strip area, including but not limited to elements such as groundcover, turf, softscape, and hardscape, is the responsibility of the

	adjacent property owner. Maintenance for street trees within the public right-of-way shall be the responsibility of the City of Renton. **(5)** Planting strips may be reduced if one of the following conditions is met: a) when R-O-W acquisition is problematic; or b) when critical areas would be impacted. If approved, a permanent alternative landscaped area should be provided equal or greater than the allowed planting strip area reduction that is in addition to any minimum existing code requirements. **(6)** A second parking lane may be required by the Reviewing Official. **(7)** Class II bicycle facilities (bike lanes) included in roadway width for both sides. Bicycle facilities that are shared travel lanes, Class III bicycle facilities, require less roadway width. Class III travel lanes are a minimum of 14 feet. **(8)** Requirement: Either fire sprinklers shall be provided as approved by Fire & Emergency Services or a clear roadway area shall be provided for emergency vehicles midblock. All of the clear area must be 20 feet in width for vehicular movement with a minimum length of 50 feet and maximum length of 100 feet, so as to provide emergency access to homes within 150 feet. Along the clear area only, the planting strip would not be required and the clear area will be in place of the landscaping area. **(9)** The City may require different lane width dimensions to address safety concerns or to meet state and federal requirements for state routes or grant funding. **(10)** Turning radius dimensions represent the vehicle turning path. The smallest curb radius should be used while maintaining the specified turning radius. Lane width and the presence of a bike lane and parking lane affect a vehicle's turning path. On streets with more than one lane in that direction of travel, large vehicles may encroach into no more than one-half of the adjacent travel lane to complete the turn. On Arterials and Collector Arterials, encroachment into oncoming travel lanes is unacceptable. The minimum curb radius is 15 feet. **(11)** Turning radius for streets which include industrial access may increase to 50 feet.

3. Length of Improvements: Such improvements shall extend the full distance of such property to be improved upon and sought to be occupied as a building site or parking area for the aforesaid building or platting purposes, and which may abut property dedicated as a public street.

4. Additional Alley Standards: Alleys may be used for vehicular access, but are not to be considered as the primary access for emergency or Fire Department concerns. Alley access is the preferred street pattern except for properties in the Residential Low Density land use designation. Refer to RMC 4-7-150.

5. Pavement Thickness: New pavement shall be a minimum of four inches (4") of asphalt over six inches (6") of crushed rock. Pavement thickness for new arterial or collector streets or widening of arterials or collector streets must be approved by the Department of Community and Economic Development. Pavement thickness design shall be based on standard engineering procedures. For the purposes of asphalt pavement design, the procedures described by the "Asphalt Institute's Thickness Design Manual" (latest edition) will be accepted by the Department. Alternate design procedures or materials may be used if approved by the Department through the process listed in RMC 4-9-250E.

6. Minimum Sidewalk Measurements: New sidewalks must provide a minimum of four feet (4') of horizontal clearance from all vertical obstructions. Sidewalk widths include the curb width for those sidewalks constructed abutting or attached to the curb.

7. Curves:

a. Horizontal Curves: Where a deflection angle of more than ten degrees (10°) in the alignment of a street occurs, a curve of reasonably long radius shall

be introduced, subject to review and approval of the Administrator of the Department of Community and Economic Development and/or designee.

b. Vertical Curves: All changes in grade shall be connected by vertical curves of a minimum length of two hundred feet (200') unless specified otherwise by the Administrator of the Department of Community and Economic Development and/or designee.

c. Tangents for Reverse Curves: A tangent of at least two hundred feet (200') in length shall be provided between reverse curves for arterials; one hundred fifty feet (150') for collectors and one hundred feet (100') for residential access streets.

8. City Center Planning Area and Urban Design Districts – Special Standards: Greater sidewalk widths may be required in the City Center Planning Area and Urban Design Districts as part of site plan review for specific projects. The Administrator of the Department of Community and Economic Development and/or designee may require that sidewalks be extended from property line to the curb with provisions made for street trees and other landscaping requirements, street lighting, and fire hydrants.

9. Vehicular Access and Connection Points To and From the State Highway System:

a. Chapter 47.50 RCW, Highway Access Management, is hereby adopted by reference to provide for the regulation and control of vehicular access and

connection points of ingress to and egress from the state highway system within the incorporated areas of the City of Renton.

b. Pursuant to Chapter 47.50 RCW, the provisions of Chapters 468-51 and 468-52 WAC, together with all future amendments, are hereby adopted and incorporated by reference.

c. At least one (1) copy of each law, rule or regulation adopted hereby is on file with the City Clerk and available for inspection by the public.

SECTION VII. Subsection of 4-6-060G, Dead End Streets, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to change the title to "Complete Streets", and to read as follows:

G. COMPLETE STREETS:

1. Complete Streets: The City of Renton will plan for, design, and construct transportation projects to appropriately provide accommodations for pedestrians, bicyclists, and transit riders of all ages and abilities, and freight and motor vehicles, including the incorporation of such facilities into transportation plans and programs.

2. Exemptions: Pedestrian and bicycle facilities are not required to be established when it is concluded by the Administrator of the Department of Community and Economic Development and/or designee that application of complete streets principles is unnecessary or inappropriate:

a. Where their establishment would be contrary to public safety; or

b. When the cost would be excessively disproportionate to the need or probable use; or

c. Where there is no identified long-term need; or

d. Where the establishment would violate Comprehensive Plan policies; or

e. Where the Administrator of the Department of Community and Economic Development and/or designee grants a documented exemption which may only be authorized in specific situations where conditions warrant. Such site-specific exemptions shall not constitute general changes to the minimum street standards established in this chapter RMC 4-6-060.

SECTION VIII. Subsection 4-6-060H, Alley Standards, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to change the title to "Dead End Streets", and to read as follows:

H. DEAD END STREETS:

1. Limited Application: Cul-de-sac and dead end streets are limited in application and may only be permitted by the Reviewing Official where, due to demonstrable physical constraints, no future connection to a larger street pattern is physically possible.

2. Cul-de-Sacs and Turnarounds When Permitted – Minimum Requirements: Minimum standards for dead end streets, if approved by the Department of Community and Economic Development, are as follows:

LENGTH OF STREET	TYPE OF TURNAROUND
For up to 150' in length	No turnaround required.
From 150' to 300' in length	Dedicated hammerhead turnaround or cul-de-sac required.
From 300' to 500' in length	Cul-de-sac required.
From 500' to 700' in length	Cul-de-sac required. Fire sprinkler system required for houses.
Longer than 700' in length	Two means of access and fire sprinklers required for all houses beyond 500'.

3. Turnaround Design: The hammerhead turnaround shall have a design approved by the Administrator of the Department of Community and Economic Development and/or designee and Fire and Emergency Services.

4. Cul-de-Sac Design: Cul-de-sacs shall have a minimum paved and landscaped radius of forty five feet (45') with a right-of-way radius of fifty five feet (55') for the turnaround. A landscaped center island with a radius of twenty feet (20') delineated by curbing shall be provided in the cul-de-sac. The landscaping shall be maintained by the homeowners' association or adjacent property owners. The cul-de-sac turnaround shall have a design approved by the Administrator of the Department of Community and Economic Development and/or designee and Fire and Emergency Services.

5. Secondary Access Requirement: Secondary access for emergency equipment is required when a development of three (3) or more buildings is located more than two hundred feet (200') from a public street.

6. Waiver of Turnaround: The requirement for a turnaround or cul-de-sac may be waived by the Administrator of the Department of Community and Economic Development and/or designee with approval of Fire and Emergency Services when the development proposal will not create an increased need for emergency operations pursuant to RMC 4-9-250C, Waiver Procedures.

SECTION IX. Subsection 4-6-060I, Street Lighting Standards, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to change the title to "Street and Pedestrian Lighting Standards", and to read as follows:

I. STREET AND PEDESTRIAN LIGHTING STANDARDS:

1. Lighting Design: Architectural street lighting standards will be established on a case-by-case basis for streets.

2. Lighting Location: Street lighting is only required at street intersections, where each corner of the intersection shall have a street light. Pedestrian lighting for sidewalks and pathways shall be installed between intersections along streets and at intersection corners.

3. Average Maintained Illumination: The street lighting shall be constructed to provide average maintained horizontal illumination as illustrated below. The lighting levels shall be governed by roadway classification and area zoning classification. Values are in horizontal foot-candles at the pavement surface when the light source is at its lowest level.

	Commercial-Mixed-Use	Industrial	Residential
Principal Arterial	2.0	2.0	1.0
Minor Arterial	1.4	1.2	0.6
Collector Arterial	1.2	0.9	0.6
Access Street	0.9	0.6	0.2

4. Uniformity Ratios: Uniformity ratios for the street lighting shall meet or exceed four to one (4:1) for light levels of 0.6 foot-candles or more and six to one (6:1) for light levels less than 0.6 foot-candles.

5. Construction Standards: Street lighting systems shall be designed and constructed in accordance with the City publication, "Guidelines and Standards for Street Lighting Design of Residential and Arterial Streets".

SECTION X. Subsection 4-6-060J, Private Streets, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

J. PRIVATE STREETS:

1. When Permitted: Private streets are allowed for access to six (6) or fewer lots, provided at least two (2) of the six (6) lots abut a public right-of-way. Private streets will only be permitted if a public street is not anticipated by the Department of Community and Economic Development to be necessary for existing or future traffic and/or pedestrian circulation through the subdivision or to serve adjacent property.

2. Minimum Standards: Such private streets shall consist of a minimum of a twenty six-foot (26') easement with a twelve-foot (12') pavement width. The private street shall provide a turnaround meeting the minimum requirements of this Chapter. No sidewalks are required for private streets; however, drainage improvements per City Code are required, as well as an approved pavement thickness (minimum of four inches (4") asphalt over six inches (6") crushed rock). The maximum grade for the private street shall not exceed fifteen percent (15%), except for within approved hillside subdivisions. The land area included in private street easements shall not be included in the required minimum lot area for purposes of subdivision.

3. Signage Required: Appurtenant traffic control devices including installation of traffic and street name signs, as required by the Department of Community and Economic Development, shall be provided by the subdivider. The street name signs will include a sign labeled "Private Street".

4. Easement Required: An easement will be required to create the private street.

5. Timing of Improvements: The private street must be installed prior to recording of the plat unless deferred.

SECTION XI. Subsection 4-6-060K, Shared Driveways, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to change the title to "Shared Driveways – When Permitted", and to read as follows:

K. SHARED DRIVEWAYS – WHEN PERMITTED:

A shared private driveway may be permitted for access up to a maximum of four (4) lots. Up to three (3) of the lots may use the driveway as primary access for emergencies. The remainder of the lots must have physical frontage along a street for primary and emergency access and shall only be allowed vehicular access from the shared private driveway. The private access easement shall be a minimum of sixteen feet (16') in width, with a maximum of twelve feet (12') paved driveway. Minimum turnaround requirements for emergency access to lots can be found in RMC 4-6-060H.

SECTION XII. Subsection 4-6-060L, Timing For Installation of Improvements, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

L. TIMING FOR INSTALLATION OF IMPROVEMENTS:

No building shall be granted a certificate of final occupancy, or plat or short plat recorded, until all the required street improvements are constructed in a satisfactory manner and approved by the responsible departments unless those improvements remaining unconstructed have been deferred by the Administrator of the Department of Community and Economic Development and/or designee and security for such unconstructed improvements has been satisfactorily posted.

SECTION XIII. Subsection 4-6-060N, Review of Construction Plans, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

N. REVIEW OF CONSTRUCTION PLANS:

1. Submittal: All street improvement plans prepared shall be submitted for review and approval to the Department of Community and Economic Development. All plans and specifications for such improvements are to be submitted at the time application for a building permit is made or, for plats, prior to construction (street/utility) permit issuance.

2. Fees and Submittal Requirements: All permits required for the construction of these improvements shall be applied for and obtained in the same manner and same conditions as specified in Chapter 9-10 RMC, relating to excavating or disturbing streets, alleys, pavement or improvements. Fees shall be as stipulated in RMC 4-1-180. Money derived from the above charges shall be deposited to the General Fund. Half of the fee is due and payable upon submittal for a construction permit application, and the remainder is due and payable prior to issuance of the construction permit.

3. Cost Estimate Required: The applicant will be required to submit a cost estimate for the improvements. This will be reviewed by the Department of Community and Economic Development for accuracy.

SECTION XIV. Subsection 4-6-060Q, Variations From Standards, of Chapter 6, Street and Utility Standards, of Title IV (Development Regulations) of Ordinance No. 4260 entitled "Code of General Ordinances of the City of Renton, Washington", is hereby amended to read as follows:

Q. VARIATIONS FROM STANDARDS:

1. Alternates, Modifications, Waivers, Variances: See RMC 4-9-250.

a. When Permitted: Half street improvements may be allowed for a residential access street by the Administrator of the Department of Community and Economic Development and/or designee when it is determined that the adjacent parcel of property has the potential for future development and dedication of the right-of-way necessary for the completion of the street right-of-way.

b. Minimum Design Standards: The right-of-way for the half street improvement must be a minimum of thirty-five feet (35') with twenty feet (20') paved. A curb, planting strip area, and sidewalk shall be installed on the development side of the street according to the minimum design standards for public streets. If the street is permitted a cul-de-sac, then the right-of-way for the half of the cul-de-sac shall be dedicated, with installation of a temporary hammerhead turnaround. The property shall also dedicate easements to the City for street lighting and fire hydrants. Additional easements shall be provided for the franchise utilities outside of the dedicated right-of-way.

c. Standards for Completion of the Half Street: When the adjacent parcel is platted or developed, the additional right-of-way width needed to complete the type of street classification shall be dedicated from the developing property. The pavement shall then be widened to the width needed to complete the type of street classification, curb, planting strip, and sidewalk shall be installed on the developing side of the street. If the street is a dead end street requiring a cul-de-sac, then the developing parcel shall dedicate the remainder of the right-of-way for the cul-de-sac and construct the final complete cul-de-sac, including curb, sidewalk, and other required improvements.

SECTION XV. This ordinance shall be effective upon its passage, approval, and five (5) days after publication.

PASSED BY THE CITY COUNCIL this 14th day of December, 2009.

Bonnie I. Walton, City Clerk

APPROVED BY THE MAYOR this 14th day of December, 2009.

Denis Law, Mayor

Approved as to form:

Lawrence J. Warren, City Attorney

Date of Publication: 12/18/2009 (summary)

ORD:1607:11/20/09

ORDINANCE NO. 1676-10

AN ORDINANCE AMENDING THE SEDRO-WOOLLEY MUNICIPAL CODE REGARDING COMPLETE STREETS WHICH INCLUDE BICYCLE AND PEDESTRIAN FACILITIES

Whereas, community wellness has become an issue of national significance and is of importance to the people of Sedro-Woolley, and

Whereas, a variety of users compete to share limited roadway space including motor vehicles, bicycles and pedestrians, and

Whereas, the City Council desires to design and maintain streets to allow for all of those uses when practical; and

Whereas, the City Council finds that the addition of bicycle and pedestrian facilities provides communing, traveling and recreational opportunities to contribute to a healthier community, now therefore,

THE CITY COUNCIL OF THE CITY OF SEDRO-WOOLLEY DO HEREBY ORDAIN AS FOLLOWS:

Section 1. A new section of the Sedro-Woolley Municipal Code is created as follows:

15.40.____ Bicycle and pedestrian ways along transportation facilities.

(1) Bicycle and pedestrian ways shall be accommodated in the planning, development and construction of transportation facilities, including the incorporation of such ways into transportation plans and programs.

(2) Notwithstanding that provision of subsection (1) of this section, bicycle and pedestrian ways are not required to be established:

(a) Where their establishment would be contrary to public safety;

(b) When the cost would be excessively disproportionate to the need or probable use;

(c) Where there is no identified need;

(d) Where the establishment would violate comprehensive plan policies; or

(e) In instances where a documented exception is granted by the public works director.

Section 2. This ordinance shall be effective five (5) days after passage and publication as provided by law.

Section 3. The provisions of this ordinance are declared to be severable, and if any section, sentence, clause or phrase of this ordinance shall for any reason be held invalid or unconstitutional or if the application of this ordinance to any person or circumstances shall be held invalid or unconstitutional, such decisions shall not affect the validity of the remaining sections, sentences, clause or phrases of this ordinance.

PASSED by majority vote of the members of the Sedro-Woolley City Council this 9th day of June, 2010, and signed in authentication of its passage this 10th day of June, 2010.

Mike Anderson, Mayor

Attest:

Christine Salseina, Deputy Clerk

Approved as to form:

Eron Berg, City Attorney

Published: June 14, 2010

Appendix B

EXAMPLE NATIONAL POLICY AND LEGAL ANALYSIS NETWORK (NPLAN) LANGUAGE

The National Policy and Legal Analysis Network (NPLAN) has produced model comprehensive plan language focused on Complete Streets principles. This language can be used for guidance as communities update their comprehensive and transportation plans to reflect Complete Streets goals and objectives.

Communities may choose to incorporate the following vision statement and policies into the transportation element of their comprehensive plan. Communities are encouraged to amend the following statements and policies to fit the needs and character of the community.

Example: Transportation Vision Statement

> The community of [Jurisdiction] envisions a transportation system that encourages healthy, active living, promotes transportation options and independent mobility, increases community safety and access to healthy food, reduces environmental impact, mitigates climate change, and supports greater social interaction and community identity by providing safe and convenient travel along and across streets through a comprehensive, integrated transportation network for pedestrians, bicyclists, public transportation riders and drivers, [insert other significant local users if desired, e.g. drivers of agricultural vehicles, emergency vehicles, freight, etc.] and people of all ages and abilities, including children, youth, families, older adults, and individuals with disabilities.

Example: Transportation Goals, Objectives and Policies

> *Goal T1:* Provide safe and comfortable routes for walking, bicycling, and public transportation to increase use of these modes of transportation, enable convenient and active travel as part of daily activities, reduce pollution, and meet the needs of all users of the streets, including children, families, older adults, and people with disabilities.
>
> *Objective T1.1:* Integrate Complete Streets infrastructure and design features into street design and construction to create safe and inviting environments for all users to walk, bicycle, and use public transportation.
>
> *T1.1.1.* In planning, designing, and constructing Complete Streets: Include infrastructure that promotes a safe means of travel for all users along the right-of-way, such as sidewalks, shared use paths, bicycle lanes, and paved shoulders.

The full text of NPLAN's model comprehensive plan language on Complete Streets can be found at this website: http://www.nplanonline.org/nplan/products/model-comprehensive-plan-language-complete-streets

The full text of NPLAN's Complete Streets laws and resolutions templates can be found at this website: http://www.nplanonline.org/nplan/products/model-complete-streets-laws-and-resolutions

Appendix C

CITY OF SEATTLE COMPLETE STREETS CHECKLIST (DRAFT, JANUARY 2010)

Intent

SDOT will plan for, design and construct all new City transportation improvement projects to provide appropriate accommodation for pedestrian, bicyclists, transit riders, freight, and persons of all abilities, while promoting safe operation for all users.

Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time. It is the Mayor's and Council's intent that all sources of transportation funding be drawn upon to implement Complete Streets. The City believes that maximum financial flexibility is important to implementing Complete Streets principles.

This checklist was developed to ensure SDOT projects meet these goals and help to sort through potentially conflicting modal priorities. Please reference the following materials to help guide you through this checklist:

- Complete Streets - (DRAFT) Street Type Design Guidelines
- Chapter 4.2 of the Right-of-Way Improvements Manual

Project: _____

Average Daily Traffic: _____

If available,

Pedestrian Counts: _____

Bicycle Counts: _____

Truck Volumes: _____

Classifications

What is the Traffic Classification? (see map)

☐ Principal Arterial ☐ Minor Arterial ☐ Collector Arterial ☐ Non-Arterial

What is the Transit Classification? (see map)

☐ Transit Way ☐ Principal ☐ Major ☐ Minor ☐ Local

Is this project located on a route with one of the following classifications?

☐ Major Truck Street ☐ Urban Village Transit Network ☐ Urban Trail & Bikeway ☐ Boulevard
☐ SFD Non-arterial Route

Street Types

What is the Street Type(s)? (see map)

☐Regional Connector ☐Commercial Connector ☐Local Connector ☐Main Street
☐Mixed Use Street ☐Industrial Access Street ☐Green Street ☐Neighborhood Green Street

Review the priority elements matrix (page 11)

Describe any priority elements included in this project:

Describe any priority elements NOT included in this project:

Sidewalks and Crosswalks

Sidewalk maintenance

Are existing sidewalks within the project area in good condition? ☐ Yes ☐ No

If "no", will they be repaired as part of this project? ☐ Yes ☐ No

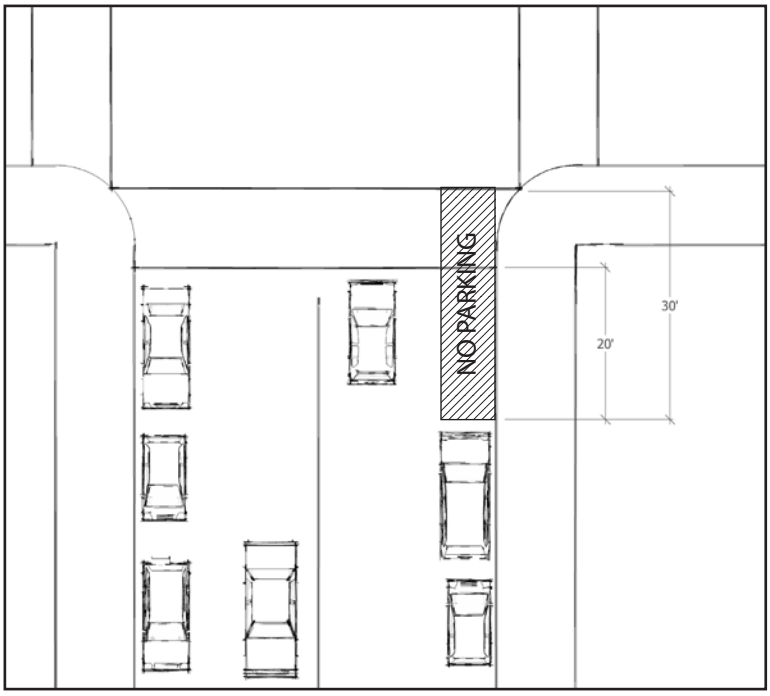
If "no", is there a plan to repair in the near future?

Parking restrictions at crosswalks and intersections (see graphic)

Note: curb side parking shall be restricted 20' from the back of any crosswalk (marked or implied), and 30' from the back of any intersection.

Does the project area include curb side parking? ☐ Yes ☐ No

If "yes", describe how will the restriction be addressed (signs, physical barriers, etc.):



Approved Plans

Was an SDOT sub-area plan completed within the project area? ☐ Yes ☐ No
If "yes", are there specific recommendations that fall within the project area?
Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Seattle Transit Plan/ Transit Master Plan (draft)

Are there Seattle Transit Plan/Transit Master Plan (draft) recommendations for bus stop configuration or facilities met within the project area? ☐ Yes ☐ No
Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Bus Stops

Are there bus stops within the project area? ☐ Yes ☐ No
Describe average distances between bus stops in/or adjacent to the project area:

If bus stops are less than 0.20 mile (1,056 ft.), can stops be consolidated? ☐ Yes ☐ No
Describe which stops could be consolidated:

Bicycle Master Plan

Are there Bicycle Master Plan recommendations within the project area? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Pedestrian Master Plan (draft)

Are there Pedestrian Master Plan (draft) recommendations within the project area? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Pedestrian-Scaled Lighting Opportunities

Is the project within a High Priority Area as defined by the Pedestrian master Plan? ☐ Yes ☐ No

If yes, please refer project to Terry Plumb (CPRS)

Freight Mobility Action Plan

Note: Freight is important to the basic economy of the city and has unique right-of-way needs to support that role. Complete Street improvements that are consistent with freight mobility and support other modes should be considered.

Are there Freight Mobility Action Plan recommendations that apply to the project? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Streetscape Concept Plans (amended in Right-of-Way Improvements Manual, chapter 6)

Is there a Streetscape Concept Plan with recommendations for the project area? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Intellegent Transportation Systems (ITS) Strategic Plan

Are there ITS Strategic Plan recommendations within the project area? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Green Stormwater Infrastructure (GSI)

Does the project fall under the 2009 updated stormwater code? ☐ Yes ☐ No

If "no", explain why not:

If "yes", describe any GSI elements or techniques included in this project:

Describe any GSI recommendations NOT included in this project and reason for deferral:

Bands of Green

Are there recommendations in the Bands of Green Report that apply to the project? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

SDOT Art Plan

Is there an opportunity to utilize 1% for the Arts funding of implement Art Plan Toolbox elements (e.g. signal box art, special inlays or materials) with this project? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

SDOT Urban Forestry Management Plan

Are there opportunities to add canopy coverage and/or better protect the health of existing trees with this project? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Other Plans

Have other significant plan(s) been completed within the project area (e.g. Neighborhood or Station Area Plans, DPD City Design projects)? ☐ Yes ☐ No

Describe any recommendations included in this project:

Describe any recommendations NOT included in this project and reason for deferral:

Project Manager Summary

Describe any Complete Streets elements that will need to be addressed outside of this project and the division or program responsible for implementation:

How does the project accommodate bicycles, pedestrians, transit, freight, and traffic during construction?

Describe impacts to the funding schedule and/or other commitments as a result of incorporating Complete Streets elements:

Exceptions

In the following unusual or extraordinary circumstances, Complete Streets principles will not apply:

Does the project wholly consist of simple repairs made pursuant to the Pavement Opening and Restoration Rule (SDOT Director's Rule 2004-02)?

Does the project wholly consist of standard maintenance activities designed to keep assets in serviceable condition (e.g. mowing, sweeping, spot repair, and surface treatments such as chip seal)?

Is there a plan to implement Complete Streets principles incrementally through a series of smaller improvements or maintenance activities over time?

Does the Project Team recommend an exception to Complete Streets for this project?

Author of the exception:

Note: the Complete Streets Ordinance requires the SDOT Director to issue a documented exception concluding that the application of Complete Streets principles is unnecessary or inappropriate because it would be contrary to public safety; or where other available means or factors indicate an absence of need, including future need.

Comments:

Project Engineer: _____
please print *date*

_____
signature

Project Manager: _____
please print *date*

_____
signature

Complete Streets Coordinator: _____
please print *date*

_____
signature

CC Board/Division Director: _____
please print *date*

_____
signature

Attachment 1:

Ordinance Number: 122386

AN ORDINANCE relating to Seattle's Complete Streets policy, stating guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling and transit use while promoting safe operations for all users.

Date introduced/referred: April 9, 2007

Date passed: April 30, 2007

Status: Passed

Vote: 9-0

Date of Mayor's signature*: May 7, 2007

Committee: Transportation

Sponsor: DRAGO, STEINBRUECK

Index Terms: TRANSPORTATION, TRANSPORTATION-PLANNING, PEDESTRIANS, PUBLIC-TRANSIT, BICYCLING, BIKEWAYS, BICYCLES, LAND TRANSPORTATION

References/Related Documents: Related: Res 30915

Text

AN ORDINANCE relating to Seattle's Complete Streets policy, stating guiding principles and practices so that transportation improvements are planned, designed and constructed to encourage walking, bicycling and transit use while promoting safe operations for all users.

WHEREAS, the City Council, with the Mayor concurring, adopted Resolution 30915 that defines the Complete Streets policy; and

WHEREAS, City policy as stated in the Transportation Strategic Plan and the Seattle Comprehensive Plan is to encourage walking, bicycling, and transit use as safe, convenient and widely available modes of transportation for all people; and

WHEREAS, Seattle's Complete Streets guiding principle is to design, operate and maintain Seattle's streets to promote safe and convenient access and travel for all users --- pedestrians, bicyclists, transit riders, and people of all abilities, as well as freight and motor vehicle drivers; and

WHEREAS, other jurisdictions and agencies nationwide have adopted Complete Streets legislation including the U.S. Department of Transportation, numerous state transportation agencies, San Francisco, Sacramento, San Diego, Boulder, Chicago and Portland; and

WHEREAS, the Seattle Department of Transportation (SDOT) will implement Complete Streets policy by designing, operating and maintaining the transportation network to improve travel conditions for bicyclists, pedestrians, transit and freight in a manner consistent with, and supportive of, the surrounding community; and

WHEREAS, transportation improvements will include an array of facilities and amenities that are recognized as contributing to Complete Streets, including: street and sidewalk lighting; pedestrian and bicycle safety improvements; access improvements for freight; access improvements, including compliance with the Americans with Disabilities Act; public transit facilities accommodation including, but not limited, to pedestrian access improvement to transit stops and stations; street trees and landscaping; drainage; and street amenities; and

WHEREAS, SDOT will implement policies and procedures with the construction, reconstruction or other changes of transportation facilities on arterial streets to support the creation of Complete Streets including capital improvements, re-channelization projects and major maintenance, recognizing that all streets are different and in each case user needs must be balanced;

NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. SDOT will plan for, design and construct all new City transportation improvement projects to provide appropriate accommodation for pedestrians, bicyclists, transit riders, and persons of all abilities, while promoting safe operation for all users, as provided for below.

Section 2. SDOT will incorporate Complete Streets principles into: the Department's Transportation Strategic Plan; Seattle Transit Plan; Pedestrian and Bicycle Master Plans; Intelligent Transportation System Strategic Plan; and other SDOT plans, manuals, rules, regulations and programs as appropriate.

Section 3. Because freight is important to the basic economy of the City and has unique right-of-way needs to support that role, freight will be the major priority on streets classified as Major Truck Streets. Complete Street improvements that are consistent with freight mobility but also support other modes may be considered on these streets.

Section 4. Except in unusual or extraordinary circumstances, Complete Streets principles will not apply:

* to repairs made pursuant to the Pavement Opening and Restoration Rule (SDOT Director's Rule 2004-02);

* to ordinary maintenance activities designed to keep assets in serviceable condition (e.g., mowing, cleaning, sweeping, spot repair and surface treatments such as chip seal, or interim measures on detour or haul routes);

* where the Director of Transportation issues a documented exception concluding that application of Complete Street principles is unnecessary or inappropriate because it would be contrary to public safety; or

* where other available means or factors indicate an absence of need, including future need.

Section 5. Complete Streets may be achieved through single projects or incrementally through a series of smaller improvements or maintenance activities over time. It is the Mayor's and Council's intent that all sources of transportation funding be drawn upon to implement Complete Streets. The City believes that maximum financial flexibility is important to implement Complete Streets principles.

Section 6. This ordinance shall take effect and be in force thirty (30) days from and after its approval by the Mayor, but if not approved and returned by the Mayor within ten (10) days after presentation, it shall take effect as provided by Municipal Code

Section 1.04.020.

Passed by the City Council the ____ day of _____, 2007, and signed by me in open session in authentication of its passage this _____ day

of _____, 2007.

President _____of the City Council

Approved by me this ____ day of _____, 2007.

_____

Gregory J. Nickels, Mayor

Filed by me this ____ day of _____, 2007.

City Clerk

April 24, 2007

Priority Elements Matrix

Preferred
Consider
Preferred in Center City

Street Types	Regional Connector	Main Street	Green Street	Commercial Connector	Mixed Use Street	Neighborhood Green Street	Local Connector	Industrial Access
Primary Design Features								
Sidewalks buffered from moving traffic by additional sidewalk width or planting strip	■							
Street trees and landscaping		■	■	■	■	■	■	
Low landscaping or high branching trees in planting strip	■							■
Weather protection integrated with buildings for street level uses and at transit zones	■	■			■			
Pedestrian scaled lighting	■	■	■		■	■		
Emphasis on coordinated street furniture	■	■	■		■			
Short-term, on-street parking		■			■			
Curb bulbs where there is on-street parking		■	■		■	■		
Emphasis on small curb radii and curb bulbs where on-street parking exists			■			■		
Load zones to support delivery activities		■						■
Striped bicycle lanes or sharrows, and signage on designated bicycle routes	■	■		■	■		■	
Bicycle access accommodated if parallel route is not feasible	■							
Bicycle route appropriate to share with motor vehicles			■			■		
Emphasis on bicycle parking in business districts	■	■	■		■			
Truck route signage								■
Traffic calming			■			■	■	
Bus shelters at transit stops				■			■	
Minimize curb cuts and driveways to create continuous sidewalk		■	■			■		
Natural Drainage encouraged			■	■		■	■	

Appendix D

ACCOMMODATING BICYCLE AND PEDESTRIAN TRAVEL: A RECOMMENDED APPROACH

A USDOT POLICY STATEMENT INTEGRATING BICYCLING AND WALKING INTO TRANSPORTATION INFRASTRUCTURE

Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right-of-way or within the same transportation corridor.
- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.
- Where sparsity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day, as in states such as Wisconsin. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

- Planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years, might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case
- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
- Designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and

Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities".

Full text of the entire policy statement can be found at this website: http://www.fhwa.dot.gov/environment/bikeped/design.htm

Appendix E

USDOT POLICY STATEMENT ON BICYCLE AND PEDESTRIAN ACCOMMODATION

Regulations and Recommendations – Signed March 11, 2010

Purpose

The United States Department of Transportation (DOT) is providing this policy statement to reflect the Department's support for the development of fully integrated active transportation networks. The establishment of well-connected walking and bicycling networks is an important component for livable communities, and their design should be a part of Federal-aid project developments. Walking and bicycling foster safer, more livable, family-friendly communities; promote physical activity and health; and reduce vehicle emissions and fuel use. Legislation and regulations exist that require inclusion of bicycle and pedestrian policies and projects into transportation plans and project development. Accordingly, transportation agencies should plan, fund and implement improvements to their walking and bicycling networks, including linkages to transit. In addition, DOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. Transportation programs and facilities should accommodate people of all ages and abilities, including people too young to drive, people who cannot drive and people who choose not to drive.

Policy Statement

The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.

Authority

This policy is based on various sections in the United States Code (U.S.C.) and the Code of Federal Regulations (CFR) in Title 23—Highways, Title 49—Transportation, and Title 42—The Public Health and Welfare. These sections, provided in the Appendix, describe how bicyclists and pedestrians of all abilities should be involved throughout the planning process, should not be adversely affected by other transportation projects, and should be able to track annual obligations and expenditures on non-motorized transportation facilities.

Recommended Actions

The DOT encourages states, local governments, professional associations, community organizations, public transportation agencies and other government agencies to adopt similar policy statements on bicycle and pedestrian accommodation as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system. In support of this commitment, transportation agencies and local communities should go beyond minimum design standards and requirements to create safe, attractive, sustainable, accessible and convenient bicycling and walking networks. Such actions should include:

Considering walking and bicycling as equals with other transportation modes: The primary goal of a transportation system is to safely and efficiently move people and goods. Walking and bicycling are efficient transportation modes for most short trips and, where convenient intermodal systems exist, these non-motorized trips can easily be linked with transit to significantly increase trip distance. Because of the benefits they provide, transportation agencies should give the same priority to walking and bicycling as is given to other transportation modes. Walking and bicycling should not be an afterthought in roadway design.

Ensuring that there are transportation choices for people of all ages and abilities, especially children: Pedestrian and bicycle facilities should meet accessibility requirements and provide safe, convenient and interconnected transportation networks. For example, children should have safe and convenient options for walking or bicycling to school and parks. People who cannot or prefer not to drive should have safe and efficient transportation choices.

Going beyond minimum design standards: Transportation agencies are encouraged, when possible, to avoid designing walking and bicycling facilities to the minimum standards. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.

Integrating bicycle and pedestrian accommodation on new, rehabilitated and limited-access bridges: DOT encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.

Collecting data on walking and biking trips: The best way to improve transportation networks for any mode is to collect and analyze trip data to optimize investments. Walking and bicycling trip data for many communities are lacking. This data gap can be overcome by establishing routine collection of non-motorized trip information. Communities that routinely collect walking and bicycling data are able to track trends and prioritize investments to ensure the success of new facilities. These data are also valuable in linking walking and bicycling with transit.

Setting mode share targets for walking and bicycling and tracking them over time: A byproduct of improved data collection is that communities can establish targets for increasing the percentage of trips made by walking and bicycling.

Removing snow from sidewalks and shared-use paths: Current maintenance provisions require pedestrian facilities built with Federal funds to be maintained in the same manner as other roadway assets. State agencies have generally established levels of service on various routes especially as related to snow and ice events.

Improving non-motorized facilities during maintenance projects: Many transportation agencies spend most of their transportation funding on maintenance rather than on constructing new facilities. Transportation agencies should find ways to make facility improvements for pedestrians and bicyclists during resurfacing and other maintenance projects.

Conclusion

Increased commitment to and investment in bicycle facilities and walking networks can help meet goals for cleaner, healthier air; less congested roadways; and more livable, safe, cost-efficient communities. Walking and bicycling provide low-cost mobility options that place fewer demands on local roads and highways. DOT recognizes that safe and convenient walking and bicycling facilities may look different depending on the context — appropriate facilities in a rural community may be different from a dense, urban area. However, regardless of regional, climate and population density differences, it is important that pedestrian and bicycle facilities be integrated into transportation systems. While DOT leads the effort to provide safe and convenient accommodations for pedestrians and bicyclists, success will ultimately depend on transportation agencies across the country embracing and implementing this policy. -- Ray LaHood, United States Secretary of Transportation

Full text of the entire policy statement can be found at this website: http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

Cascade Bicycle Club | A Guide to Complete Streets | January 2011

Made possible by funding from
the Department of Health and Human Services and Public Health – Seattle & King County

Produced by

bicycle club Cascade