

DRAFT

**Bellevue
Pedestrian and Bicycle
Plan Report**

Acknowledgements

Without the support of the citizens of Bellevue, completion of this plan would not have been possible. The City would like to specifically thank the following groups and individuals for their contributions and cooperation in preparing the Pedestrian and Bicycle Plan Transportation Facilities Plan; the long range non-motorized transportation plan for the City of Bellevue.

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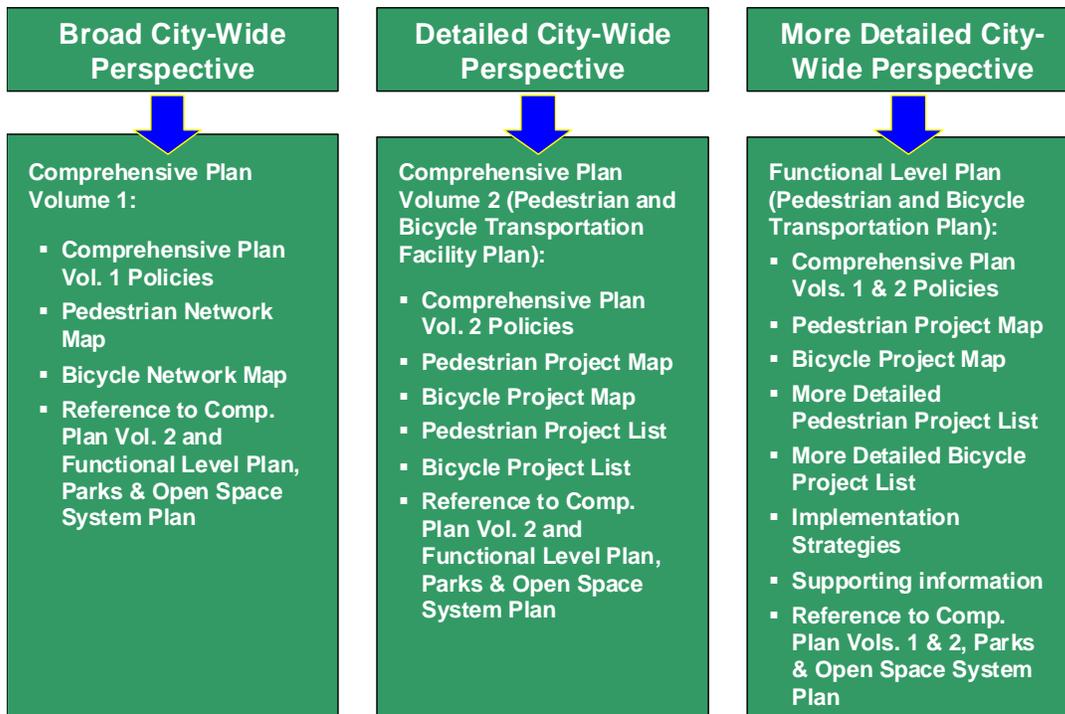
Foreword

On **February 17, 2009**, the Pedestrian and Bicycle Transportation Facility Plan Comprehensive Plan Amendment was adopted by Ordinance [redacted] into the City of Bellevue Comprehensive Plan. As indicated in the figure below, the Transportation Element of the Comprehensive Plan provides the overall vision for the City's transportation system and addresses pedestrian, bicycle, transit, and roadway usage. Broad pedestrian and bicycle policies as well as network maps are included in the Transportation Element. Additional policies and a prioritized list of pedestrian and bicycle projects are located in the Pedestrian and Bicycle Transportation Facility Plan in Volume 2 of the Comprehensive Plan. Other related policies are located in other elements of the Comprehensive Plan. As the document that establishes the City's long range policy direction and serves as framework for implementing capital projects, it's important to have the policies and projects of the Pedestrian and Bicycle Transportation Facility Plan adopted as part of the Comprehensive Plan.

The Pedestrian and Bicycle Plan Report provides documentation of the updated Pedestrian and Bicycle Transportation Facility Plan. The report contains information on the substantive parts of the plan (the policies and prioritized projects) and documents the process undertaken in preparing the plan. Producing a separate stand alone document, the Pedestrian and Bicycle Plan Report, allows all of those related policies, project lists, and figures to be grouped together. Policies in the standalone Pedestrian and Bicycle Plan Report are verbatim policies adopted in the Comprehensive Plan, but organized in a way that facilitates reviewing the policies specific to pedestrian and bicycle issues. The stand-alone document also creates a place to provide greater information about the pedestrian and bicycle network and the process used to draft the plan, which would be more detail than appropriate for the Comprehensive Plan.

The Pedestrian and Bicycle Plan Report is not a regulatory document and will not be adopted by the Bellevue City Council. Instead, it is a guide for City staff to use as they work toward a common vision of making Bellevue more walkable and bikeable, and will be a valuable resource that contains all of the information relevant to the plan in one document. This document is the principal reference for planning, designing, constructing, and maintaining pedestrian and bicycle facilities implemented in the City of Bellevue.

Relation of Pedestrian and Bicycle Plan Report and Comprehensive Plan



Sections in Report

The Pedestrian and Bicycle Plan Report is comprised of the following 4 sections:

Part 1: Vision Statement

Part 1 addresses the interests and changed needs of the City as it responds to regional efforts to realize a statewide multi-modal transportation system. The implementation of bicycle and pedestrian networks, and encouragement of their use, is a responsibility shared by all government agencies and jurisdictions, as well as many community organizations. It relies not only upon the development of good facility plans, but commitment at each level of government to support funding for good bicycle and pedestrian projects, including support to raise new revenues for projects and programs. In reviewing this shared commitment, Part I summarizes Bellevue's vision of creating a continuous, safety oriented network of sidewalks, walkways, trails, and bikeways in and around the City by documenting policies in the City's Comprehensive Plan that relate to the non-motorized network. The policies documented in this section set forth guidance to provide convenient access to schools, activity centers, transit routes, parks, and other recreation areas, thereby increasing citizens' mobility choices while reducing reliance on the single-occupant vehicle.

Part 2: Walking & Bicycling

Part 2 of the Pedestrian and Bicycle Plan Report looks at walking and bicycling both as a mode of transport and as a popular leisure activity. Section I highlights some of the many benefits of walking and cycling, both for the individual and the community as a whole. Section II summarizes the range of facilities presently in place for pedestrian and cyclists in Bellevue. Section III describes current levels of bicycle and pedestrian activity in Bellevue. Section IV describes collision data. Section V examines factors that discourage people from making journeys on foot or by bicycle in Bellevue.

Part 3: Network Planning

Part 3 is a description of the methodology used in arriving at the list of prioritized facilities contained in the Pedestrian and Bicycle Transportation Facilities Plan to accommodate bicyclists and pedestrians throughout Bellevue. Overcoming barriers to walking and bicycling involves first determining how to overcome each deficiency and then identifying and prioritizing those facility improvements that are most important. Staff approached this assignment methodically, attempting to avoid applying standards without regard to how a facility will function within the greater context; which can lead to under- or overbuilt facilities, inappropriate for the context. Setting priorities for solutions involves balancing public input with an analysis of the potential good to be achieved.

Part 4: The Action Plan

Part 4 contains the pedestrian and bicycle network and project maps and the detailed list of project recommendations. On February 17, 2009, these elements of the Pedestrian and Bicycle Transportation Facility Plan 2008 Comprehensive Plan Amendment (07-123138 AC) were adopted by ordinance into the City of Bellevue Comprehensive Plan. Part 4 of this report also creates a place to provide more detailed project maps and facility summaries than would be appropriate for the Comprehensive Plan.



Introduction



Bicycling and walking are fundamental travel modes and integral components of an efficient transportation network. Appropriate bicycle and pedestrian accommodations provide the public, including the disabled community, with access to the transportation network; connectivity with other modes of transportation; and independent mobility regardless of age, physical constraints, or income. Effective bicycle and pedestrian accommodations enhance the quality of life and health, strengthen communities, increase safety for all modes of transportation, reduce congestion, offer recreational benefits, and can benefit the environment. Bicycling and walking are successfully accommodated when travel by these modes is efficient, safe, and comfortable for the public.

Bellevue's Comprehensive Plan acknowledges that responding to anticipated growth in travel necessitates a multi-modal transportation approach that offers the public real choices about how they travel within, to, and through Bellevue. The City Council (and past Councils) have demonstrated a strong commitment to a multi-modal transportation system by many policies supporting pedestrian and bicycle travel in existing plans (including the current and past Pedestrian and Bicycle Plan) and its investments in pedestrian and bicycle facilities throughout the city.

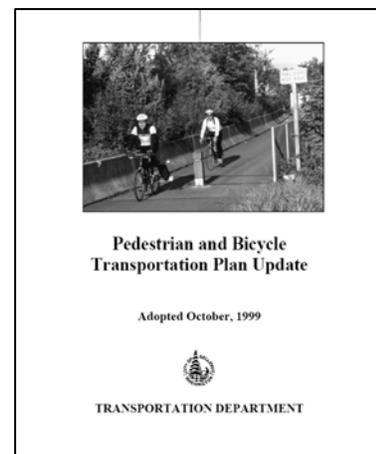
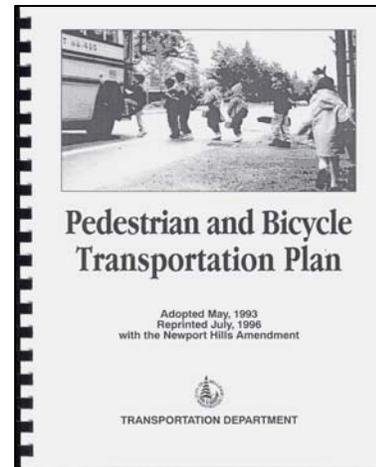
Why update the Transportation Facility Plan?

The Pedestrian and Bicycle Transportation Facility Plan, documented in the City's Comprehensive Plan, is the long range non-motorized transportation plan for the City of Bellevue; it was designed as a living document able to change to meet the evolving needs of the City. The plan was first adopted in 1993 and updated in 1999; as required by Comprehensive Plan policy (which calls for periodic updates).

At its March 12, 2007 meeting the City Council initiated the update to the 1999 Pedestrian and Bicycle Transportation Facilities Plan. Council charged the Transportation Commission with overseeing the update process which included reviewing the Plan's policies, projects, and priorities to ensure they remain consistent with the City's transportation needs. By way of example, the Pedestrian and Bicycle Transportation Facility Plan recommendations include new projects (such as projects in the Bel-Red Corridor which were not envisioned in 1999) and revisions to earlier projects that respond to developments underway in Bellevue. It also includes deletion of projects that are in the 1999 Plan; these deletions, such as trail projects in the Bridle Trails area, were in response to community input and concern.

What did people tell us?

Working closely with interested citizens, boards, commissions, and the City Council, the Transportation Department took the lead in developing the plan with the assistance of a multi-departmental workgroup. The policy and project recommendations referenced in the plan update are the product of extensive public outreach, background research, inter-agency coordination, and detailed field work. The public outreach effort included on-line surveys, focus groups, and outreach to citizens via public events and through the internet.



The 2009 Plan Update is the third in a series of similar efforts that began in the 1993 Plan and then was updated again in 1999.

The major conclusions of this outreach effort can be summarized as:

- Connect “somewhere to somewhere” by conveniently serving the places where people live, work and play, and filling gaps in the bicycle and pedestrian network;
- Pedestrian and bicycle facilities should be developed in a manner that complements, not diminishes, the character and quality of Bellevue;
- An early, ongoing public involvement program is essential for success in Bellevue when implementing projects.
- Additional attention is needed to increase public awareness to “share the road.”



To encourage public engagement in this project, city staff set up booths at numerous community events and at shopping centers.

In response to public feedback, the Plan looks at existing opportunities and constraints to help develop a comprehensive walkway and bikeway network that will make it easier, safer, and more pleasant to get around by walking and cycling in Bellevue.

What does the Plan contain?

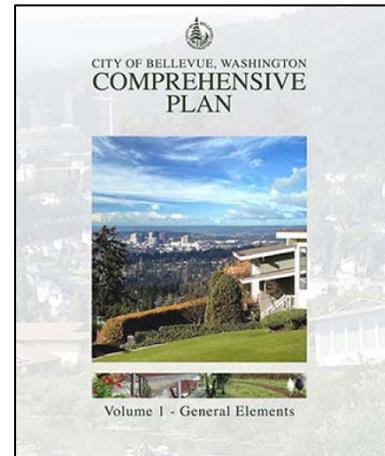
To guide the development of the City of Bellevue's Pedestrian and Bicycle Plan, a policy framework was defined at the start of this initiative to ensure that the Plan's recommendations address the true needs of the City. Defining the goals at the beginning of the project ensured that the project recommendations were tailored to the needs of the City, and linking the project prioritization criteria (described later in this report) to the goals provided a mechanism for ensuring that the most beneficial projects are ranked highly for implementation.

Policy Guidance

The City of Bellevue has a number of existing policies intended to improve conditions for walking and bicycling. In developing the Pedestrian and Bicycle Plan, the City reviewed and amended these policies to achieve the following refinements to the non-motorized policy framework: (i) develop a strong goal statement; (ii) better articulate need for a complete, connected system; (iii) improve organization of policies and avoid redundancy; and, (iv) articulate specific implementation objectives that are measurable and linked to the goal statement.

The following is reference to some of the specific policy refinements addressed in the Plan and adopted by Ordinance in Bellevue's Comprehensive Plan:

- **Implementation Targets.** The Plan identifies performance measures for improving bicycling and walking conditions. Inclusion of specific measures of effectiveness in the Comprehensive Plan (PB-2) represents an increased focus in assessing the City's progress



Bellevue's Comprehensive Plan aims to create a continuous, safety oriented system of sidewalks, walkways, trails, and bikeways in and around the City. Its goal is to provide convenient access to schools, activity centers, transit routes, parks, and other recreation areas, thereby increasing citizens' mobility choices while reducing reliance on the single-occupant vehicle.

toward creating a safe, convenient, and attractive bicycling and walking environment. Among these targets is support for completing connected citywide and downtown bicycle routes and making substantial progress on the sidewalk network within 10 years. Additional targets are set for decreasing collisions while increasing the amount of biking and walking.

- **Improvement Priorities.** The Plan identifies refinements to the prioritization framework used in assessing pedestrian and bicycle facility needs. Special consideration is given in the Comprehensive Plan (TR-79) to projects that improve network connectivity, enhance accessibility to major community facilities, and address safety issues. The intent of prioritizing projects is to identify which high-priority bicycle and pedestrian facilities are most urgent and are recommended for construction as soon as possible.
- **Context Sensitive Design.** Informing the project development process, from planning through design and finally construction, is the Comprehensive Plan policy theme of context sensitive design. The concept of Context Sensitive Design has emerged as a process that “asks questions first about the need and purpose of the transportation project, and then equally addresses safety, mobility, and the preservation of scenic, aesthetic, historic, environmental, and other community values. Context sensitive design involves a collaborative, interdisciplinary approach in which citizens are part of the design team.” (NCHRP 480) Starting with the goal statement, and embedded in a number of other policy statements in the Comprehensive Plan (PB-1, PB-10, PB-13, TR-43) is a commitment to work with the public in designing transportation facilities that are safe, attractive, and compatible with surrounding land uses.
- **Inter-Departmental Coordination.** The Plan recognizes that building facilities alone won’t necessarily achieve changes in personal travel behavior. Also necessary are strong public education and encouragement programs, enabling policies and land use patterns that support bicycle and pedestrian movement. The Comprehensive Plan (PB-28) acknowledges that a coordinated approach, supported by an on-going, inter-departmental program is required to implement pedestrian and bicycle projects. Staff support is required to administer programs, design projects, monitor progress, conduct public outreach, and perform other tasks related to implementation.
- **Best Practices.** Numerous cities have adopted innovative and progressive programs aimed at improving walking and bicycling conditions. Cities like Seattle, Portland, Chicago, San Francisco, and New York are recognized for their innovative and accommodating pedestrian and cycling environments. In these cities an impressive increase has occurred in the volume of walking and cycling. The Comprehensive Plan (TR-94) acknowledges that there is merit in looking to other cities for examples of innovative pedestrian and bicycle initiatives and assessing how these strategies might be incorporated into the City of Bellevue’s non-motorized program.
- **Standard Operating Procedures.** It is standard practice for Bellevue to incorporate bicycle and pedestrian facilities and connections in all aspects of transportation system-planning, project development, funding, implementation, and maintenance. The Comprehensive Plan (PB-1, PB-3, TR-77, TR-24) recognizes that cultivating this “complete streets” mind-set is essential in Bellevue’s approach to project delivery.

Prioritized Project List

The prioritized project list is the product of an extensive study and consultation process which the City believes generally reflects the interests of Bellevue residents, and at the same time is a direct response to many of the needs and wishes of pedestrians and cyclists in the community. It is in this context that the Plan Report is composed of a variety of different facility types aimed at appealing to pedestrians and bicyclists with varying levels of experience.



Depending on an individual's level of experience or physical abilities, some types of facilities are preferred over others. Providing a range of facility types that appeal to a variety of user groups creates a functional, comprehensive network for pedestrians and cyclists. From shared bicycle facilities and 5 foot wide sidewalks on quiet streets, to bicycle lanes with 6 foot wide sidewalks and 4 foot wide planter strips on arterials, the pedestrian and bicycle network can address the needs of a range of users as well as be customized to the constraints and opportunities in a wide range of contexts and locations.



Off-Street Path



Bike Lane



Bike Shoulder



Wide Outside Lane



5 ft walk w/o planter



6 ft walk & 4 ft planter



8 ft walk & 4 ft planter



12 ft walk & 4 ft planter



Primitive Hiking Trail



Walking Trail



Multi-Use Gravel Trail



Boardwalk

Altogether, the Plan includes 435 projects that when implemented would result in: 90 miles of sidewalk, 147 miles of bicycle, and, 20 miles of trail facility improvements. Given that the plan represents a long-range vision, all of the project descriptions in the plan are framed as “conceptual” at this stage. In fact, the introductory sentence to the project list reads that “the final details of design will be developed as the projects proceed further along in the implementation process.”

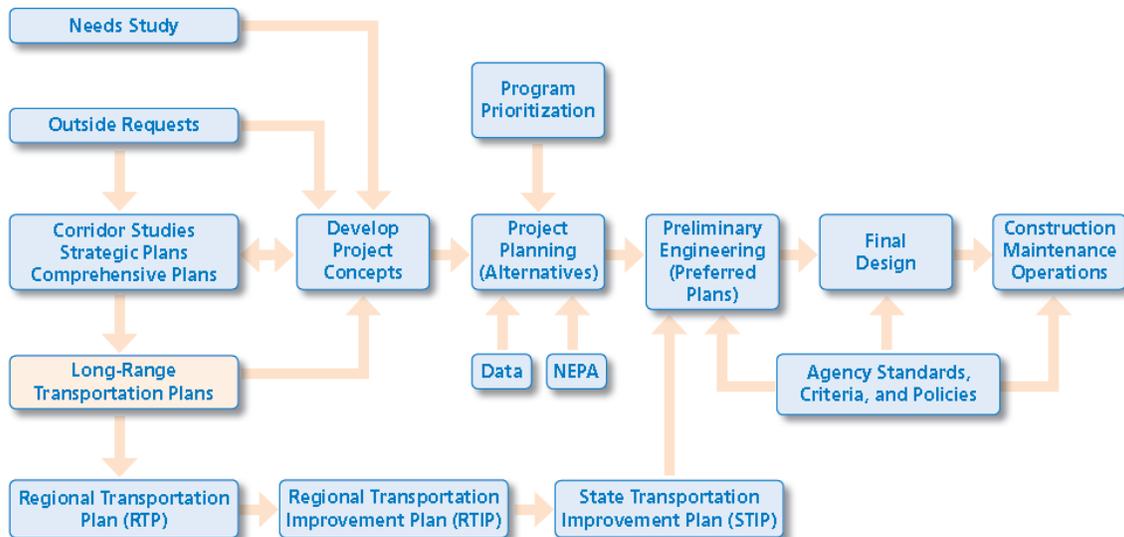


The vision for the new NE 15th/16th Street (Ped-Bike Plan # O-110-N, S-100-N, and S-100-S) through the Bel-Red Corridor will emphasize pedestrian and bicycle mobility.

In the plan update, each project in the project list is assigned a general priority: high, medium, or low. High priority projects being those that are most urgent and are recommended for construction as soon as possible. The benefit of including prioritization in the Plan Update and the Comprehensive Plan’s Transportation Facility Plan is that it provides the first level of project prioritization for Bellevue’s funded seven year-priorities outlined in the Capital Investment Program (CIP). It also assists the City in formulating the Transportation Facilities Plan (TFP), the city’s 12-year, or intermediate-range, transportation planning document. Both the CIP & TFP documents include high-priority projects from other long-range plans and projects that address emerging needs and opportunities.

As a long-range transportation plan, the Pedestrian and Bicycle Plan represents the first step in the project development process. As reflected in the flow-chart below, there are numerous steps in moving a project from this long-range transportation plan through to construction.

Project Development Process





Part 1: Vision Statement
The policy framework

Part 1 addresses the interests and changed needs of the City as it responds to regional efforts to realize a statewide multi-modal transportation system. The implementation of bicycle and pedestrian networks, and encouragement of their use, is a responsibility shared by all government agencies and jurisdictions, as well as many community organizations. It relies not only upon the development of good facility plans, but commitment at each level of government to support funding for good bicycle and pedestrian projects, including support to raise new revenues for projects and programs. In reviewing this shared commitment, Part I summarizes Bellevue's vision of creating a continuous, safety oriented network of sidewalks, walkways, trails, and bikeways in and around the City by documenting policies in the City's Comprehensive Plan that relate to the non-motorized network. The policies documented in this section set forth guidance to provide convenient access to schools, activity centers, transit routes, parks, and other recreation areas, thereby increasing citizens' mobility choices while reducing reliance on the single-occupant vehicle.

Federal Policies

In 2000, the Federal Highway Administration issued *Design Guidance on Accommodating Bicycle and Pedestrian Travel* and a policy statement adopted by the United States Department of Transportation. The approach integrates bicycling and walking into the transportation mainstream with a policy statement noting that: "the challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel." This policy is implemented through the requirement that states, metropolitan planning organizations, and transportation improvement programs must make a transportation plan, which should contain a bicycle and pedestrian element that includes vision and goal statements as well as performance criteria for meeting those goals.

More recently, the US Congress passed the Energy Independence and Security Act of 2007, which outlines the policy of Congress regarding use of Complete Streets design techniques. It states, "It is the sense of Congress that in constructing new roadways or rehabilitating existing facilities, State and local governments should consider policies designed to accommodate all users; including motorists, pedestrians, cyclists, transit riders, and people of all ages and abilities, in order to: (1) serve all surface transportation users by creating a more interconnected and intermodal system; (2) create more viable transportation options; and (3) facilitate the use of environmentally friendly options, such as public transportation, walking, and bicycling."

Washington's Growth Management Act

The Growth Management Act was adopted because the Washington State Legislature found that uncoordinated and unplanned growth posed a threat to the environment, sustainable economic development, and the quality of life in Washington. Known as the GMA, the Act (Chapter 36.70A RCW) was adopted by the Legislature in 1990.

The GMA requires state and local governments to manage Washington's growth by identifying and protecting critical areas and natural resource lands, designating urban growth areas, preparing comprehensive plans and implementing them through capital investments and development regulations. Per the GMA, comprehensive plans are required to contain several elements, including a land use element and a transportation element.

As of 2005, there is a specific requirement in GMA related to bicycle and pedestrian facilities and programs. The Transportation Element of a comprehensive plan must now "include a pedestrian and bicycle component to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles" [RCW 36.70A.070(6)(a)(7)]. The City's Pedestrian and Bicycle Transportation Facilities Plan serves that function.

Destination 2030

Destination 2030 is the Puget Sound region's transportation vision that lays out policies and strategies for meeting its commitment to the state's Growth Management Act. The plan calls for creating a regionally integrated network of bicycle and pedestrian facilities linked to urban centers and transit facilities and seeks to have non-motorized trips account for 20% of all trips within the region by 2030. That plan is presently being updated.

City of Bellevue Comprehensive Plan

Bellevue's Comprehensive Plan is the document that guides the City's future development and provision of capital facilities to serve and accommodate development. The plan, since the early 1990s, has been developed under the provisions of the Washington State Growth Management Act (GMA). The plan consists of two volumes. Volume 1 contains the general elements and framework goals and policies embedded in those elements. Several elements of the plan are required under GMA: Land Use, Transportation, Capital Facilities (per GMA, capital facilities include parks and recreation and other city facilities), Utilities, and Housing. Bellevue's

plan has several other elements, including an Urban Design Element and a Parks, Open Space and Recreation Element. Volume 2 of the Comprehensive Plan contains 14 subarea plans, which outline goals and policies for distinctive neighborhoods in the city, and several transportation facility plans, one of which is the Pedestrian and Bicycle Transportation Plan. Therefore, the Pedestrian and Bicycle Transportation Plan is part of the overall Comprehensive Plan.



Under the provisions of GMA, the City's development regulations (which are outlined in the Municipal Code) are supposed to be consistent with, and implement, the policy direction outlined in the Comprehensive Plan. Therefore, the policies in the plan are not simply vision statements or wish lists; they are intended to directly guide City actions regarding the overall development character, and development of capital facilities.

The City of Bellevue Comprehensive Plan acknowledges that responding to anticipated growth in travel necessitates a multi-modal transportation solution that offers the public real choices about how they travel within, to, and through Bellevue. The Transportation Element of the Bellevue Comprehensive Plan states: "It is neither possible nor desirable to build enough roadway improvements to keep pace with ever accelerating demand for travel in single-occupant vehicles. Rather, the Plan focuses on reducing auto dependency by providing viable travel choices. Transit, ridesharing, walking, and bicycling receive strong emphasis, with focus on a fully multi-modal travel system."

The policy framework is the result of an extensive review process undertaken by the City of Bellevue's Transportation and Planning Commissions. The policies contained in this section were ultimately incorporated, vis-à-vis the Comprehensive Plan Amendment (CPA) process, in the Transportation Element of the Comprehensive Plan (Volume 1) and also in the policies in the

new Pedestrian and Bicycle Transportation Facility Plan found in the Comprehensive Plan (Volume II).

This document contains all policies in the Comprehensive Plan relating to the pedestrian and bicycle environment. Policies in the Transportation Element of the Comprehensive Plan (Volume I) provide broad direction for developing the non-motorized system. These policies are identified with the prefix "TR-__." Policies taken from the Urban Design Element are identified with the prefix "UD-__." Policies in the Pedestrian and Bicycle Transportation Facility Plan found in the Comprehensive Plan (Volume II) are more detailed in nature yet still provide a city-wide perspective. These policies are identified with the prefix "PB-__."

All the policies shown here are grouped by subject to help organize them for the reader. The subject headings are:

- Overall Goals/Vision Policies (Set out the broad goals and objectives for the Plan)
- System Policies (Policies that define more specific citywide system objectives, organized in subsections)
 - System
 - Integrated Network
 - Prioritization
- Regional Coordination Policies (Policies that frame how the ped/bike system is linked with the bigger region/sub-region)
- Accessibility/Special Needs Policies (This issue relates to the City's overall implementation of the Americans with Disabilities Act)
- Implementation Policies (Policies that outline how the plan will be implemented)
 - Design
 - Development-Review
 - Access to Transit
 - Maintenance
 - Education/Enforcement
- Plan Administration (Policies that deal with plan updates and funding)

On **February 17, 2009**, the policies documented in this section were included in the package of 2008 Comprehensive Plan amendments (07-123138 AC) adopted by Ordinance **_____** into the City of Bellevue Comprehensive Plan

Overall Goals/Vision Policies

Plan Goal (contained in Transportation Element):

To plan, design, build, and maintain an integrated, comprehensive network of pedestrian and bicycle facilities in collaboration with community stakeholders. In doing so, the City will advance the following objectives:

- Provide transportation choices for those who can or wish to travel by foot or bicycle to destinations within their neighborhood, city, and the greater Eastside and region
- Improve health and fitness, and enhance recreational benefits
- Ensure that those in the community who cannot drive due to age, income or disability have mobility options
- Provide a safe and accessible street environment for all users
- Improve overall neighborhood livability
- Support and enhance public transit use
- Reduce air and noise pollution, energy use, and oil consumption
- Support economic development



There are many economic benefits to building pedestrian facilities like this combination sky-bridge and enhanced sidewalk system.

Policies:

PB-1: Consider pedestrians and bicyclists as users in the planning, design, construction and maintenance of all roadway projects. Confirm project design prior to implementation by coordinating the planning, development and funding of non-motorized systems with affected citizens and other stakeholders.

PB-2. Work towards specific short and mid-term implementation objectives intended to be completed following the adoption of the 2009 plan update. Specifically:

1. Within 10 years, implement at least two completed, connected, and integrated north-south and at least two east-west bicycle routes that connects the boundaries of the city limits, and connects to the broader regional bicycle system.
2. Within 5 years, implement at least one completed and connected east-west and north-south bicycle route through Downtown Bellevue.
3. Within 10 years, reduce pedestrian/vehicle and bicycle/vehicle accidents by 25 percent from 2007 levels.
4. Within 10 years, construct 25 more miles of sidewalks along arterial streets including collector arterials above 2007 levels.
5. Within 10 years, increase trips by bicycle and foot by 10 percent over 2009 levels.



Increasing abilities for citizens to walk or cycle promotes active and healthy living.

TR-76: Promote and facilitate the effective use of non-motorized transportation.

PA-1: Establish a coordinated and connected system of open space and greenways throughout the city that provide multiple benefits including preserving natural systems, protecting wildlife habitat and corridors, and providing land for recreation.

System Policies

System:

TR-88: Recognize the importance of walking, jogging, bicycling, and equestrian activities as recreational pursuits, and provide adequate opportunities for such activities.

TR-94: Support multi-modal transportation solutions including general purpose lanes, High Capacity Transit, HOV lanes, transit and non-motorized improvements that use the best available technologies and innovative implementation tools and programs such as bike-sharing programs, that have been shown to be successful in other areas and are applicable to Bellevue.

LU-18: Adopt and maintain policies, codes, and land use patterns that promote walking to increase public health.

PB-3: Consider and evaluate Pedestrian and Bicycle Network Maps, Project Maps and Project Lists in the planning, design, construction and maintenance of all roadway projects to ensure that Plan recommendations are weighed whenever there are competing demands for City right-of-way.

PB-4: Secure public non-motorized easements or land dedications through the development review process, donation, tax deduction or exemption programs, or acquisition when the need is identified or supported by the Plan. Consider each facility on a case-by-case basis, factoring in system connectivity, whether the facility is needed to fill a gap or complete a link within the overall system, and neighborhood input and participation in the design process.

PB-5: Acquire rights to private and utility trail systems and easements for public access, where feasible, provided that they are identified on the network and project maps, and provided that there has been close coordination with affected property owners prior to any acquisition. Consider each facility on a case-by-case basis, factoring in system connectivity, whether the facility is needed to fill a gap or complete a link within the overall system, and neighborhood notice and input prior to the design process.

Network integration:

TR-77: Consider pedestrians and bicycles along with other travel modes in all aspects of developing the transportation system.



Trail connections improve access to Bellevue's park and open space system.



Bellevue staff applying the torch-down "X" marking the location of a bicycle actuated signal.

TR-24: Incorporate pedestrian and bicycle facility improvements into roadway projects, and incorporate transit/high-occupancy vehicle improvements where feasible.

TR-25: Provide for adequate roadway, pedestrian, and bicycling connections in newly developing and redeveloping areas of the city, promoting both internal access and linkages with the rest of the city.

TR-78: Implement the Pedestrian and Bicycle Transportation Plan by designing and constructing a safe and connected non-motorized transportation system.

PB-6: Protect and ensure access to all public trail easements.

PB-7: When reconstructing or reconfiguring a roadway or right-of-way, strive to maintain or improve existing pedestrian and bicycle non-motorized facilities.

PB-8: Install way-finding and route signs and provide maps and internet-based information to guide users through the pedestrian and bicycle systems.

PB-20: The on-street and off-street transportation system should be designed and monitored to improve security and safety. Lighting, vegetation placement/removal, and police patrols are suggested methods to accomplish this.

Prioritization:

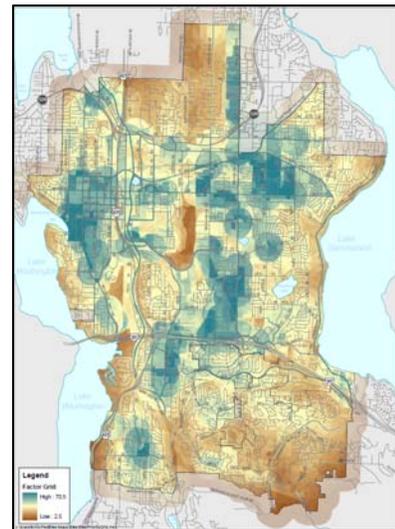
TR-79: Assign high priority to pedestrian and bicycle projects that:

1. Address safety issues;
2. Provide system connectivity or provide connections to the existing portions of the system to develop primary north-south or east-west routes;
3. Complete and connect planned pedestrian or bicycle facilities or trails;
4. Conform to and are consistent with Bellevue's roadway classification system;
5. Provide access to activity centers such as schools, parks, public facilities such as libraries and community centers, retail centers, major employment centers, and concentrations of housing; and commercial areas;
6. Provide accessible linkages to the transit and school bus systems; and
7. Serve concentrations of residents with special accessibility needs.

PA-13: Develop pedestrian and bicycle linkages between neighborhoods and major natural areas, recreation facilities, and education centers.



Pedestrians add to the ambience and security of streets.



Geographic Information Systems (GIS) facilitates prioritization process.

PB-9: Coordinate with the public and private schools in Bellevue to continue developing and implementing recommended walking and bicycle routes that provide access to school bus stops, and pedestrian and bicycle connections to and through school properties.

Regional Coordination Policies

TR-85: Coordinate the planning, design and construction of pedestrian and bicycle facilities with other agencies where City of Bellevue corridors, such as the Lake Washington Loop system, continue into neighboring jurisdictions.

TR-98: Work with state agencies to include non-motorized facilities when planning, designing and constructing enhancements to I-90 (east of I-405), I-405 and SR-520 (including non-motorized facilities on a replacement for the Evergreen Point floating bridge).

PA-21: Coordinate with other jurisdictions in the planning and development of regional greenways, parks, cultural, and recreational facilities.

UD-53: Integrate into the designs of frontage roads along the I-90 freeway corridor the Mountain-to-Sound greenway concept. Give particular attention to multi-use trails, large scale landscaping, and pedestrian amenities



In Bellevue, the Greenway trail that connects to the I-90 trail at Enatai Beach goes eastward through Mercer Slough and ends abruptly at Factoria Blvd.

Accessibility/Special Needs Policies

TR-26: Address the special needs of physically challenged and disabled citizens in planning, designing, implementing, and maintaining transportation improvements, particularly non-motorized improvements, and other transportation facilities, and in delivering transportation services and programs, in accordance with the Americans with Disabilities Act (ADA).

Implementation Policies

Design:

PB-10: Incorporate context-sensitive design for pedestrian and bicycle facilities. Project design decisions should reflect the following factors:

- Relationship to or role in overall system mobility and connectivity
- Intent and objectives of project
- Type of bicycle or pedestrian facility
- Travel speed of roadway
- Topography and other environmental factors
- Cost
- Neighborhood character and context and applicable subarea plan policies
- Equestrian use



A temporary curb ramp provides pedestrians with disabilities a continuous route through a construction area.

PB-11: In subsequent updates of the Development Report, incorporate guidelines to separate sidewalks and walkways from the roadway by a landscaping strip or drainage swale, where practical.

PB-12: Enhance the ability of pedestrians to safely cross or avoid barriers by constructing pedestrian crossing improvements at intersections and mid-block crossings where justified by a traffic engineering study.

PB-13: Adopt design standards to ensure that the bicycle system plan projects are coordinated and consistent in design, as appropriate based on neighborhood context.

PB-14: Consider and mitigate, where possible, the impacts of neighborhood traffic calming devices on existing and proposed pedestrian and bicycle facilities.

TR-43: Provide sufficient arterial right-of-way width to permit landscaping, and to accommodate pedestrian and bicycle facilities.

UD-38: Ensure continuous and ample sidewalks along principal, minor, and collector arterials which are integrated with abutting land uses.

UD-40: Ensure that sidewalks, walkways, and trails are furnished, where needed and appropriate, with lighting, seating, landscaping, street trees, trash receptacles, public art, bike racks, railings, handicap access, newspaper boxes, etc., without interfering with pedestrian circulation.

Development:

PB-15: Address issues of non-motorized access and safety, through or around a site during construction or maintenance work within the right-of-way.

PB-16: Construct sidewalks on both sides of arterials or streets that serve transit, or are built in conjunction with new development. An alternative may be appropriate if terrain, lack of right-of-way or local conditions makes it prohibitive or undesirable. The type of pedestrian facilities on all other streets should be considered on a case by case basis.

PB-17: Consider interim sidewalks, paved walkways or trails as a means to provide pedestrian facilities when the funding for the ultimate project is not programmed or the location of the permanent sidewalks cannot be determined.

PB-18: Internal pedestrian circulation systems shall be provided within and between existing, new or redeveloping commercial, multi-family or single family developments, and other appropriate activity centers, and shall conveniently connect to frontage pedestrian systems and transit facilities.



Plantings and separation from roadway enhance the walking environment.



Bike racks on sidewalks facilitate cycling in Bellevue by providing convenient parking for quick access to businesses.

PB-19: Work with private developers to ensure that future planned bicycle lanes and routes are not precluded by building placement and site design, and that buildings are set back adequately to allow for development of bicycle facilities designated in the Transportation Facilities Plan (TFP).

TR-14: Require new development to incorporate physical features designed to promote use of alternatives to single-occupant vehicles, such as bicycle parking and related facilities.

TR-55: Work with private developers and transit providers to integrate pedestrian and bicycle connections into residential, retail, manufacturing, commercial, office, and other types of development.

TR-84: Secure sidewalk and trail improvements and easements, and on-site bicycle parking and storage consistent with the Pedestrian and Bicycle Transportation Plan through the development review process.

TR-86: Ensure that a safe, permanent, and convenient alternative facility is present prior to the permanent vacation of an off-street walkway or bikeway.

PA-25: Retain and develop underdeveloped public right-of-way for public access and passive recreation where appropriate.

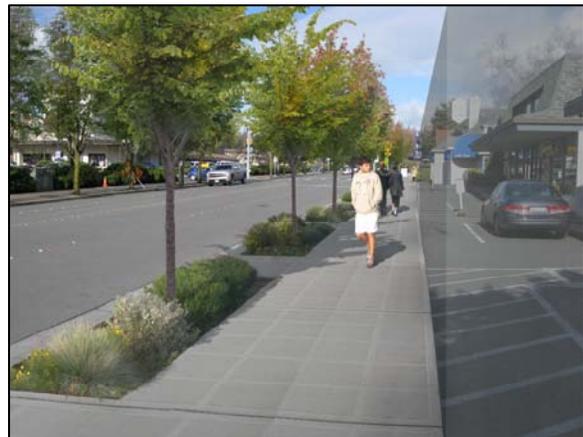


Photo-visualization depicting potential redevelopment of 102nd Ave NE (NE 10 to NE 8) and resulting pedestrian environment.

Access to Transit:

TR-54: Work with transit providers to create, maintain, and enhance a system of supportive facilities and systems such as pedestrian and bicycle facilities.

TR-56: Develop partnerships with transit providers to implement projects providing neighborhood-to-transit links that improve pedestrian and bicycle access to transit services and facilities.

TR-70: Promote transit use and achieve land use objectives through transit system planning that includes consideration of:

- A safe and accessible pedestrian environment, with restrictions on auto access;
- Integrating multiple access modes, including buses, carpools and vanpools, bicycles and



Enabling greater walking and cycling allows all members of society to travel, regardless of their level of mobility or economic situation, including providing basic access to public transit.

- pedestrians;
- Provisions for bicycles on transit vehicles; and
- Access to regional destinations, including employment centers, residential concentrations, and major recreational facilities.

TR-80: Encourage transit use by improving pedestrian and bicycle linkages to existing and future transit and school bus systems.

UD-49: Design and coordinate the proximity of bike racks, wheelchair access, pedestrian amenities, and other modes of transportation with transit facilities.

Maintenance:

TR-46: Maintain and enhance safety for all users of the roadway network using measures such as the following:

1. Maintain an accident reduction program to identify high accident locations in the city, evaluate potential alternative solutions and implement recommended changes;
2. Enforce traffic laws, particularly speeding, and failing to make a full stop at red lights and stop signs;
3. Employ traffic calming measures to slow vehicular travel speed along residential streets and to reduce cut-through traffic;
4. Improve the opportunities for pedestrians to safely cross streets at intersection and mid-block locations;
5. Provide street lighting where needed to improve visibility and safety while minimizing light/glare spillover onto adjacent parcels; and
6. Minimize the number of driveways on all arterials to reduce the potential for pedestrian and vehicle collisions.

TR-82: Minimize hazards and obstructions on the pedestrian and bicycle system by ensuring that the system is properly maintained. Allow different levels of maintenance for certain key linkages based on amount and type of use or exposure to risk.

TR-83: Continue programs to construct, maintain and repair sidewalks. Periodically review standards for maintenance and repair and revise as appropriate.

PB-18: The on-street and off-street transportation system should be designed and monitored to improve security and safety. Lighting, vegetation placement/removal, and police patrols are suggested methods to accomplish this.

PB-21: Inform abutting property owners of their maintenance responsibilities for sidewalks, including pruning overhead and encroaching vegetation, sweeping debris, removing snow and



Where bikes may be present, drainage grates that have bars parallel to the roadway are being replaced with a bicycle safe design.



Rubber sidewalk panels – made of recycled tires – at NE 10 St west of 102 Ave NE allow tree roots to grow under the sidewalk without creating a trip hazard.

eliminating temporary barriers such as parked vehicles, trash containers and recycling bins. Notify property owners that the City is responsible for repairs in the public right-of-way.

Education/Enforcement:

TR-87: Develop an effective “share the road/share the trail” concept for pedestrian and bicycle education programs for the motorized and non-motorized public.

PB-22: Establish a training and education program to increase the awareness of city staff about pedestrian and bicycle needs.

PB-23: Increase the level of enforcement of vehicular laws that protect pedestrians and bicyclists.

PB-25: Cooperate with the public and private schools, businesses, bicycle clubs and other interest groups to provide education programs on the benefits of pedestrian and bicycle facilities, and strategies to promote safe walking and riding and transportation and recreation opportunities walking and bicycling.



Education campaigns can teach children about safe pedestrian and bicycle practices.

Plan Administration

TR-81: Provide adequate and predictable funding to construct and maintain pedestrian and bicycle capital projects as identified in the Pedestrian and Bicycle Transportation Plan.

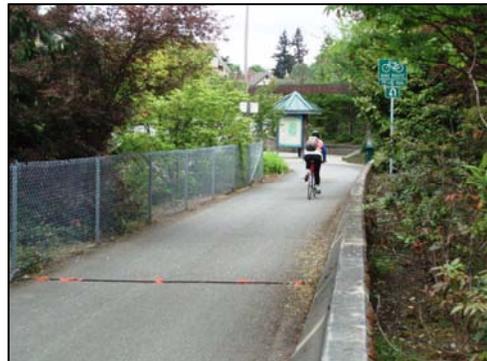
PB-23: Update and review the Pedestrian and Bicycle Transportation Plan every five years. The updates should consider the existing and future role of the single occupant vehicle in relation to non-motorized and public transportation modes, as well as newly annexed areas, areas experiencing unforeseen development and/or redevelopment, and other emerging issues.

PB-27: Coordinate roadway and non-motorized projects to maximize construction efficiencies.

PB-25: Periodically review and update the Mobility Management Matrix included in the Comprehensive Plan to ensure appropriate and achievable pedestrian and bicycle mobility targets.

PB-26: Develop procedures to collect data in order to measure pedestrian and bicycle usage on an on-going basis.

PB-27: Establish an inter-departmental Pedestrian and Bicycle Coordination Team that will work together to implement the City's Pedestrian and Bicycle Transportation Plan.



Tube count equipment identifies the level of bicycle activity taking place on the I-90 trail during Bike to Work Week.



Part 2: Walking & Bicycling
The benefits and barriers

Part 2 of the Pedestrian and Bicycle Plan Report looks at walking and bicycling both as a mode of transport and as a popular recreational activity. Section I highlights some of the many benefits of walking and cycling, both for the individual and the community as a whole. Section II summarizes the range of facilities presently in place for pedestrian and cyclists in Bellevue. Section III describes current levels of bicycle and pedestrian activity in Bellevue. Section IV describes collision data. Section V examines factors that discourage people from making journeys on foot or by bicycle in Bellevue.

I. Benefits of Bicycling & Walking

Bellevue City Council's commitment to a multi-modal transportation system is demonstrated by policies supporting pedestrian and bicycle travel in existing planning documents and by its investments in pedestrian and bicycle facilities. The City is designing its transportation system to provide for all travel modes, and to reap the benefits associated with pedestrian and bicycle facilities as outlined in the overall Plan goal statement. These benefits include:

Transportation System Benefits

- Overall, biking and walking is increasing in Washington, particularly in cities where housing infill is occurring. Bicycle commuting increased 75 percent between 1990 and 2000 (US Census). Biking and walking currently account for about six percent of statewide commute trips (National Household Transportation Survey). In the Puget Sound Region, bicycling and walking account for nine percent of all trips. In several urban core areas across Washington, bicycling and walking account for 15 percent of all trips (Puget Sound Regional Council).
- According to the 2001 National Household Travel Survey, nearly half of all travel trips taken in the United States are 3 mi or less in length and 28 percent are less than 1 mi; yet 80 percent of these trips are being made by car. Most people drive for short trips because the built environment often makes walking and biking either uninviting or very difficult. By taking advantage of the opportunity to convert short automobile trips to bicycling and walking, communities can reap significant benefits from healthier air and reduced traffic congestion.
- In Bellevue, almost 50 percent of the 30,000 average weekday transit riders (ons/off) occur on the city's street system outside of downtown Bellevue and outside of the city's park and ride lots. Transit depends on the city to facilitate access to its local bus stops through sidewalk and bikeway investments.

Environmental Benefits

- Increased levels of bicycling and walking can play an important role in reducing air pollution. According to the Environmental Protection Agency (EPA), approximately 160 million tons of pollution are emitted into the air each year in the United States. A serious threat to public health, air pollution contributes to the deaths of 70,000 people nationwide each year, according to an estimate from the Harvard School of Public Health.
- Short auto trips produce far more pollution per mile than longer trips. According to the Federal Highway Administration (FHWA) publication, Transportation Air Quality: Selected Facts and Figures, "starting the car cold generates about 16 percent more NOx and 40 percent more CO than starting the car when it is warm."



Bellevue's Environmental Stewardship Initiative affirms that walking and bicycling are part of a balanced transportation system that will reduce the amount of trips made by car, thereby reducing GHG emissions caused by motor vehicles.

- A two-year Federal Highway Administration pilot study found that increased bicycle and pedestrian safety and mobility improvements in four pilot communities reduced total vehicle miles residents traveled by an estimated 156.1 million miles over the course of a year. Based on the reductions reported in miles driven, a reduction of 67,000 metric tons of CO₂ emissions were projected.

Economic Benefits

- For many households, a motor vehicle is typically one of the highest expenses after housing. The option of bicycling can improve mobility for people who cannot afford to own and operate a motor vehicle, and would allow some households with autos to own one vehicle instead of two.
- Pedestrian and bicycle transportation allows people to incorporate physical activity into their daily lives which reduces health care costs and morbidity rates.
- Outdoor activities such as bicycling and walking are the most popular activities for people on vacation from work. They are more popular than visiting museums or national parks, doing beach and water activities, and shopping.
- Businesses invest in locations that have a high quality of life. Corporate employers have an easier time attracting highly skilled workers to these locations.
- According to the National Bicycle and Pedestrian Clearinghouse, trails and greenways can have a positive effect on the value of nearby properties.



Recent studies of the preferences of new homebuyers indicate that there is a demand for more livable communities and, specifically, better bicycle and pedestrian facilities in the vicinity.

Quality of Life Benefits

- Accommodating pedestrians and cyclists produces calmer and safer streets, improves walkability and lessens noise and congestion. These changes also increase opportunities for social interaction.
- Providing a livable community is a necessary part of attracting and keeping businesses, and ensuring local communities remain competitive in the 21st century.

Health Benefits

- A number of research studies have shown a correlation between the built environment and the amount of routine physical activity, such as regular walking trips. A study published in the September 2003 issue of the *American Journal of Health Promotion* titled "Relationship between Urban Sprawl and Physical Activity, Obesity, and Morbidity" found that people living in sprawling counties "were likely to walk less, weigh more, and have greater prevalence of hypertension than those living in compact



Numerous studies have shown tremendous health benefits from even a brief amount of light but routine exercise each day.

counties.” An earlier study published in the *American Journal of Preventive Medicine* showed a direct relationship between the amount of walking and the age of the home in which a person lives, as a proxy for the style of urban residential development that is common in older versus newer communities. People who lived in older homes were found to walk more.

- Research conducted in 1999 by the Centers for Disease Control and Prevention found that “obesity and overweight are linked to the nation’s number one killer—heart disease—as well as diabetes and other chronic conditions.” The report also states that one reason for Americans’ sedentary lifestyle is that “walking and cycling have been replaced by automobile travel for all but the shortest distances.”
- Today, there are nearly twice as many overweight children and almost three times as many overweight adolescents as there were in 1980. Results of the 1999 National Health and Nutrition Examination Survey showed that 13 percent of children and adolescents were overweight. Bicycling or walking to the store, school, or work also provides a time-efficient way of attaining the U.S. Surgeon General’s recommended daily allowance of physical exercise.
- Pedestrian and bicycle transportation offers more opportunities for people to socialize than driving alone in automobiles.

Safety

- A Federal Highway Administration (FHWA) study that analyzed vehicle-pedestrian collisions and exposure under various roadway situations found that locations with no sidewalks are more than two times more likely to have vehicle-pedestrian crashes than sites with sidewalks.
- National and international evidence to date has demonstrated that the most important way to promote bicycle transportation is to provide bicycle facilities – safe and clear places where people can ride, including bicycle lanes. A major study sponsored by the Federal Highway Administration, for example, demonstrated that bicycle usage in urban areas is directly proportional to the percentage of arterial streets with bike lanes.



The placement of the stop bar set back from the crosswalk together with “stop here for pedestrian” signing and the flashing light system is showing improved driver compliance to pedestrians within the crosswalk. (Location: 156th Ave SE North of Eastgate Way SE)

Accessibility

- People with disabilities make up nearly one-fifth of the U.S. population, so it is important that sidewalks meet their needs. Additionally, many Americans are aging into sensory or cognitive disabilities. It is important that sidewalks be usable by pedestrians for whom they may represent the only mode of independent travel.
- Based on the 2000 Census, the number of persons with a disability is 488,153 in the central Puget Sound region. This is approximately 15 percent of the total regional population.



Since pedestrian facilities must be accessible to persons with disabilities, Bellevue addresses ADA compliance on streets included in the City’s overlay program. (2008 Ramp: NE 12th St and 176th Ave NE)

II. Existing Pedestrian and Bicycle Facilities in Bellevue

Every year the City advances the implementation of the pedestrian and bicycle systems as envisioned in the adopted Pedestrian and Bicycle Transportation Plan. Projects are completed by leveraging support from a variety of sources, including stand-alone project and programmatic budgets (Pedestrian Access Improvements Program and Neighborhood Enhancement Program) in the Capital Investment Program. As a result of these investments, the City of Bellevue currently maintains a wide range of on-street and off-street pedestrian, bicycle, and trail facilities. This combined network is shown in both the existing facility maps (Figure 1, Figure 2) and described below.

Sidewalk Facilities

As defined in WSDOT's Design Manual (Chapter 1025 Pedestrian Design Considerations), "Pedestrian travel is a vital transportation mode. It is used at some point by nearly all citizens and is the main link to everyday life for many others. Pedestrians vary in their physical abilities; this variation must be accommodated in design to allow near universal access." In response to this guidance, the sidewalk facility network is composed of a variety of different facility types (ranging from 5 feet to 12 feet in width) that appeal to pedestrians with varying levels of experience. There are an estimated 300 miles of existing sidewalk facilities in Bellevue.



Example of a 6 foot-wide sidewalk and a 4 foot wide planter at 140th Ave NE and NE 1st Place.

On-Street Bicycle Facilities

Bicycles are legally classified as vehicles and are ridden on most public roads in Washington, which are open to bicycle traffic with a few exceptions. On-street bicycle facilities are grouped into two distinct classifications: bicycle lanes and bicycle routes. In Bellevue there are an estimated 138 miles of bicycle facilities.

- **Bicycle Lanes:** As defined in WSDOT's Design Manual (Chapter 1020 Bicycle Facilities), a bike lane is "a portion of a highway or street identified by signs and pavement markings as reserved for bicycle use." Bike lanes provide bicyclists with their own lane designation along street corridors with high vehicular volumes or speeds. The following features of bicycles lanes increases the comfort of the average cyclist and the overall safety of the roadway: (i) Results in more predictable movements of motorists and bicyclists; reducing motorist lane changes when passing bicyclists. (ii) Allows for additional room for motorists to move right to allow emergency vehicles to pass, space for disabled vehicles to stop or drive slowly.



Designated bike lane along 118th Ave SE.

Existing Bicycle Facilities

MAP

Existing Sidewalk & Trail Facilities

MAP

(iii) Increases turning radius for trucks and space for off-tracking of truck's rear wheels in curved sections. (iv) Reduces the number of bicyclists using the sidewalk or gutter pan. (v) Improves sign distances. (vi) Increases bikeway visibility in the transportation system. (vii) Compared to wide curb lanes, bicycle lanes also decrease the frequency of drivers encroaching into the adjoining travel lane when passing bicyclists. In Bellevue there are an estimated 33 miles of bicycle lane facilities.

- *Bicycle Routes: The AASHTO Guide for the Development of Bicycle Facilities* describes signed shared roadways (bike routes) as "those that have been identified by signing as preferred bike routes" and goes on to describe the reasons why routes might be so designated: (i) continuity between bicycle lanes, trails or other bicycle facilities; (ii) marking a common route for bicyclists through a high demand corridor; (iii) directing cyclists to low volume roads or those with a paved shoulder; and, (iv) directing cyclists to particular destinations (e.g. park, school or commercial district). Bellevue includes four different facility types in the bicycle route designation: (i) bicycle shoulder with fog line; (ii) shared shoulder with fog line; (iii) wide outside lane without fog line; and (iv) shared wide outside lane. All of these facilities are provided where delineated bike lanes are not possible. In general, 14 feet of usable lane width is the recommended width, wider if encroaching drainage grates are present. In Bellevue there are an estimated 105 miles of bicycle route facilities.



Bike shoulder with fog line along SE 36th St

Off-Street Paths

As defined in WSDOT's Design Manual (Chapter 1020 Bicycle Facilities), an off-street path is "a facility physically separated from motorized vehicular traffic within the highway right of way or on an exclusive right of way with minimal cross-flow by motor vehicles. It is designed and built primarily for use by bicycles, but is also used by pedestrians, joggers, skaters, wheelchair users (both non-motorized and motorized), equestrians, and other non-motorized users."

Ideally an off-street path should be 10 to 12 feet of paved surface width; with minimum 2 foot wide graded shoulders on each side to protect users from grade differences. These shoulders can be grass, sand, finely crushed rock or gravel, natural groundcover, or other material.

Under severely constrained conditions, the paved path width may be reduced to 8-feet for a limited distance. Signing and pavement markings may be used to highlight the reduction in path width.

The key components to successful off-street paths include:



Off-street path running parallel to SE 34th St along the I-90 Trail.

- *Continuous separation from traffic to reduce conflicts and maintain safety*, by locating paths along a river or a greenbelt such as a rail-to-trail conversion, with few street or driveway crossings; however, this must be balanced with;
- *Frequent connections to land-uses*, such as residential areas, shopping, schools and other destinations;
- *Security*, proximity to housing and businesses increases visibility (despite fears of some property owners, paths do not attract crime into adjacent neighborhoods); illumination helps provide a sense of security at night;
- *Scenic qualities*, offering an aesthetic experience that attracts cyclists and pedestrians that keeps the contour of the land for aesthetic and environmental reasons but for practicality reasons should not be unnecessarily curved;
- *Well-designed street crossings*, with measures such as signals or median refuge islands (paths directly adjacent to roadways are not recommended, as they tend to have many conflict points);
- *Shorter trip lengths* than the road network, with connections between dead-end streets or cul-de-sacs, or as short-cuts through open spaces;
- *Good design*, by providing adequate width and grades, and avoiding problems such as poor drainage, blind corners and steep slopes; and,
- *Proper maintenance*, with regular sweeping and repairs. Paths that fall into disrepair are not used to their full potential and can be a liability.

Many inexperienced cyclists don't want to ride in traffic and may not ride on streets until they gain experience and confidence. An off-street path provides a learning ground for potential bicyclists and can attract cyclists who prefer a more aesthetic experience. In Bellevue there are an estimated 11.5 miles of off-street path facilities.

Trail Facilities

Bellevue's trail system is an interconnected, multiuse trail system that guides citizens through the Bellevue's Park and Open Space System and plays a significant role in the implementation of the City's non-motorized transportation plan. Although the primary function is to provide passive recreational use, trails also provide for viable non-motorized transportation alternatives and connect to larger, more regional systems.



A multiple use gravel trail in Wilburton Hill Park.

Trails are planned and constructed to provide access for a spectrum of opportunities for different users including walkers, bicyclists, wheelchairs, joggers, skaters, hikers and equestrian. Different users may require different surfacing, widths, and grades. For example, bikers or wheelchairs may require a smooth, firm, flat surface like asphalt or concrete. In contrast, equestrian or hikers prefer a softer surface such as gravel or bark and are able to traverse steeper terrain. Although some trails are designed for specific uses, Bellevue maintains an open trail policy unless otherwise posted.

The trail system is designed to minimize impacts to sensitive wildlife habitat and enhance the visitor experience. Trail construction and maintenance standards seek to create a system that is accessible year-round and accessible for all age groups and abilities. In Bellevue there are an estimated 109 miles of pedestrian, equestrian and multiple use trails located on park property, public easements and public right of way.

III. Bicycling and Walking in Bellevue Today

The primary source of information on bicycling and walking is the U.S. Census "Journey to Work" survey. The survey is conducted every 10 years and is targeted toward participants in the work force age 16 or older. It is important to note that the U.S. Census survey only reports on travel to and from work, excluding trips to school, shopping, and other frequent destinations. Data is collected for a one-week period in April, making it likely that bicycling and walking trips are underreported for many parts of the country due to cold weather. Moreover, only the predominant transportation mode is requested, so that occasional bicycling and walking trips as well as bicycling and walking trips, made to access transit or other travel modes, are not recorded.

With these limitations in mind, in 2000, an estimated 2.9% of all workers commuted to work by walking, and 0.44% commuted by bicycle. These are national averages; as reflected below, there is a great deal of variability in walking and bicycling levels to work among the cities surveyed.

Walking in Bellevue

Citywide, an estimated 2.73% of Bellevue employees walk to work; placing it at the 207th highest ranked small city (population 50,000-250,000) in the nation for walking to work.¹ Within the Downtown area, a much larger percentage of residents walk to work (16.4% of working Downtown residents walked to work). This was largely due to the high number of jobs within the Downtown area. In 2000, Downtown Bellevue had more than 30,000 employees and very high employment densities.



Approximately 5,500 residential housing units have been constructed since 2000 or are planned for the downtown area by 2010 (to total 7,500 units). New housing will substantially increase pedestrian activity and allow more residents to be within walking distance to work. As part of the Comprehensive Plan, the number of planned units will increase the downtown total to upwards of 11,000 by 2022.

Peer Group Assessment of Walking & Biking to Work Data Among Small Cities in Washington State (2000 US Census)

Jurisdiction	Population	% Bike Commuters	% Pedestrian Commuters
Bellevue	109,189	0.43%	2.73%
Bellingham	66,815	2.71%	7.07%
Everett	91,290	0.48%	4.60%
Federal Way	83,233	0.18%	1.31%
Kennewick	55,090	0.17%	1.78%
Kent	79,325	0.24%	1.99%
Lakewood	58,317	0.19%	2.40%
Shoreline	52,954	0.43%	1.79%
Spokane	196,143	0.87%	3.78%
Tacoma	193,177	0.31%	3.60%
Vancouver	143,226	0.49%	1.90%
Yakima	72,294	0.60%	3.34%

Nationally, the top three highest ranked small cities in the nation for walking to work are: Cambridge, Massachusetts (25.76%); Jacksonville, North Carolina (19.79%); and, Ann Arbor, Michigan (16.52%).

¹ <http://www.bikesatwork.com/carfree/carfree-census-database.html>

In Washington State, Bellevue ranks sixth among the twelve small cities for residents who walk to work. The top three highest ranked small cities for walking to work are: Bellingham (7.07%); Everett (4.6%); and, Spokane (3.78%).

Bicycling in Bellevue

Citywide an estimated 0.43% bike to work; placing it at the 232nd highest ranked small city (population 50,000-250,000) in the nation for bicycling to work.

Nationally, the top three highest ranked small cities in the nation for bicycling to work are: Davis, California (15%); Boulder, CO (7.37%); and, Berkeley, CA (6.03%)

In Washington State, Bellevue ranks seventh among the twelve small cities for residents who bicycle to work. The top three highest ranked small cities for bicycling to work are: Bellingham (2.71%); Spokane (0.87%); and, Yakima (0.60%).

IV. Collision Data

Among the concerns cited by individuals in determining whether or not to walk, safety is by far the one most frequently cited. The number of pedestrian accidents occurring year to year have remained fairly constant while bicycle related accidents have occurred with more fluctuation year to year.

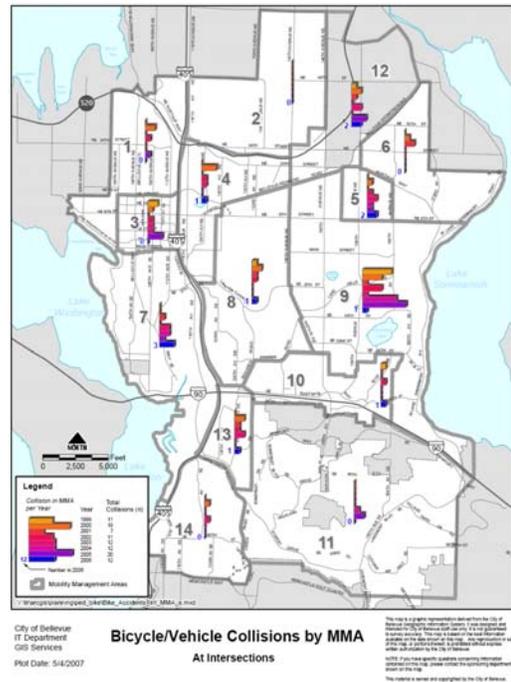
The following represent some of the themes from a review of Bellevue's collision data for the years of 1999 to 2006 (additional data is available from the Bellevue Police Department).

Bicycle/Vehicle Collisions

- Reviewing a data set of 8 years, there were a total of 14,067 reported collisions (all-types). Bicyclists were involved in 194, or about 1.4 percent of these collisions and averaging about 24 per year.
- Of the 194 bicycle collisions, about half occurred at intersections while the other half occurred between intersections.
- About half of the bicycle collisions (56%) result in injury.
- Of the 68 bicycle accidents occurring within a crosswalk, over 2/3rds were signalized.

Pedestrian/Vehicle Collisions

- Of the total 14,067 reported collisions over 8 years (all types) pedestrians were involved in 273 collisions or about 1.9 percent and averaging about 34 per year.
- Similar to bicycle injuries, about half (57%) of pedestrian collisions result in injury.
- Almost half of pedestrian-motor vehicle collisions (49 percent) occurred while individuals were in a crosswalk. Over 1/3rd of these crosswalks were signalized.



Maps reflecting pedestrian/vehicle and bicycle/vehicle collisions by Mobility Management Area in Bellevue from 1999 to 2006 (at intersections and at mid-block locations) are located in **Appendix ___**.

V. Barriers to Bicycling and Walking in Bellevue

User counts done by various cities, including San Francisco and Portland, suggest that investments in non-motorized facilities correlate to increases in biking and walking. Data from Davis, California — a city about the same size as Bellingham, Washington — corroborates this hypothesis. Davis is recognized as having the most elaborate system of biking facilities of any American city. It also has, by far, the highest biking mode share.² In Copenhagen, a European city with weather and topography more similar to Bellevue's, 34 percent of work trips are made by bike and 20 percent of all trips are by bicycle.³ By comparison, it is estimated that only about two percent of all trips in the Puget Sound region are taken by bike.

This is strong public support for building safe places to walk and ride bikes. Bellevue surveys and focus groups confirm that many people want to ride or walk more but are dissuaded by concern over traffic danger and other barriers, and case studies have shown that when those barriers to walking bicycling are removed, people start riding and walking more frequently. Many factors influence choice of travel mode and, in particular, the decision to bicycle or walk. This section examines existing barriers to increasing bicycling and walking in Bellevue. A starting point for this review is consideration of the various user groups.

Meeting the Needs of Different Bicyclists

Any roadway treatment intended to accommodate bicycle use should consider the needs of both experienced and less experienced riders. In the FHWA manual, "Selecting Roadway Design Treatments to Accommodate Bicycles,"⁴ the concept of a "design cyclist" was developed and a classification system was adopted for bicycle users such as the following:

- **Advanced Bicyclists:** These are experienced riders who can operate under most traffic conditions. They comprise the majority of the current users of collector and arterial streets, and are best served by the following:
 - Direct access to destinations usually via the existing street and highway system;
 - The opportunity to operate at maximum speed with minimum delays; and
 - Sufficient operating space on the roadway or shoulder to reduce the need for either the bicyclist or the motor vehicle operator to change position when passing.

- **Basic Bicyclists:** These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. They prefer:
 - Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities; and
 - Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.



Photo: David Quick

Accommodating bicycles begins with the understanding that bicyclists vary greatly in age, skill, dimensions and needs.

² City of Davis Comprehensive Bicycle Plan, October 2006.

³ Traffic and Environment Plan for Copenhagen, City of Copenhagen, The Lord Mayor's Department, 1997.

⁴ *Selecting Roadway Design Treatments to Accommodate Bicycles*, Publication No. FHWA-RD-92-073, Federal Highway Administration, Washington, DC, January 1994, available online at http://safety.fhwa.dot.gov/ped_bike/docs/select.pdf.

- **Children:** These are preteen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system. They and their parents prefer the following:
 - Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas;
 - Residential streets with low motor vehicle speed limits and volumes; and
 - Well-defined separation of bicycles and motor vehicles on arterial and collector streets using sidewalks or separate bike paths.

Using a philosophy of progressive levels of skill and experience, novice cyclists will gain the skill and confidence they need from off-road or low traffic volume routes, and can gradually make the transition to on-road facilities. Over time, cyclists may become confident enough to ride on any road, integrated with vehicular traffic, including busy roads with wide curb lanes or without designated cycling facilities.

Meeting the Needs of Different Pedestrians

Everybody is a pedestrian to some extent during their journeys each day, whether at either end of their trip or at points along the way. Many persons walk or jog for personal fitness or enjoyment, as these activities are part of a healthy lifestyle. Although pedestrians share many similar attributes, there are various levels of physical and mental abilities that affect their ability to walk safely in certain conditions. For example:

- **Children** may have more difficulty seeing (and being seen by) drivers of all types of vehicles, and often have trouble deciding when and where it is safe to cross the street. They also have trouble with peripheral vision and gauging speed.
- **Older pedestrians** may have reduced motor skills that limit their ability to walk at certain speeds or turn their heads, so they may need more time to cross a street. They also may have trouble getting oriented and understanding traffic signs, so they may need more information on how to get around safely.
- **Recent immigrants** (often with little understanding of English, traffic laws, or roadway culture) may not understand the traffic and pedestrian signals that indicate when to walk or have the experience as to how to safely interact with drivers.
- **People with disabilities** (e.g., people using wheelchairs, crutches, canes, or those with visual or mental impairments) may be more affected by surface irregularities in the pavement, changes in slope or elevation/grade, and width restrictions. Ample consideration must be given to the needs of these pedestrians when determining such parameters as: pedestrian crossing time at intersections; placement of street furniture and signs; curb cuts at street crossings; pathway width and slopes; and maintenance of the pathway.



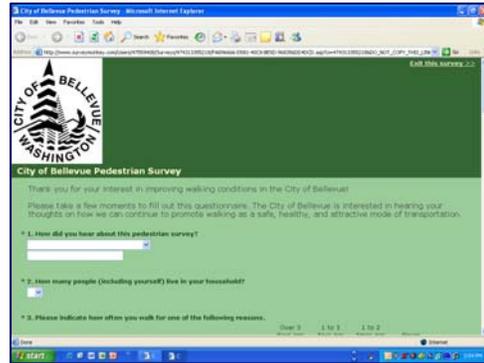
Crossing instructions in multiple languages on 156th Ave NE signal pole

To better understand the issues faced by these various user groups, the City employed a number of targeted community engagement strategies aimed at identifying what would encourage people to walk or bicycle more often. Reflected below is a summary of these strategies; additional information on these outreach efforts and the detailed findings are found in Technical Appendix

Opinion Surveys

The web-based surveys conducted in support of this project generated responses from 405 pedestrians and 919 bicyclists and allowed city staff to get an idea of where various types of bicycle and sidewalk facility enhancements are needed within Bellevue. Based on the responses:

- The top bicycle facility improvement that would make it easier and safer for people to ride a bicycle in Bellevue are: adding designated bike lanes (78%); adding paved shoulders (73%); repairing pavement, fixing potholes, removing loose gravel or sand (57%); adding off-road greenways or trails (56%); and, educating motorists / bicyclists, encouraging share the road, improving attitudes (56%).
- The top pedestrian facility improvement categories that would make it easier and safer for people to walk, jog or run in Bellevue are: adding sidewalks (65%); adding off-road greenways and trails (56%); repairing sidewalks, fixing cracks, removing loose gravel or sand and improving street/intersection design were each considered very improvement (37%).



More than 1,300 people responded to on-line public opinion surveys.

Focus Groups

To delve deeper into these concerns, the City retained Opinion Research Northwest, formerly Northwest Research Group to facilitate six follow-up focus groups (58 participants) to further explore citizen perceptions of walking and bicycling in Bellevue. The most common concerns expressed during these focus group sessions were: missing infrastructure; facility maintenance; inadequate facilities; blocked facilities; difficult street crossings; driver awareness; lack of amenities; and, lack of cross-city bike corridors.



Almost 40 community events with in excess of 500 attendees.

Public Events

To ensure that the public had ample opportunity to provide face-to-face comments, staff targeted outreach to seniors, youth, cyclist and running organizations, downtown employers, and non-native English speaking populations (Spanish, Mandarin, & Russian) at specific events throughout the City.

In addition to the many community events attended by staff, the Transportation Department learned a great deal about neighborhood priorities through the many hours of public testimony and written comments shared at formal City Council, Transportation and Planning Commission, and Parks Board meetings.



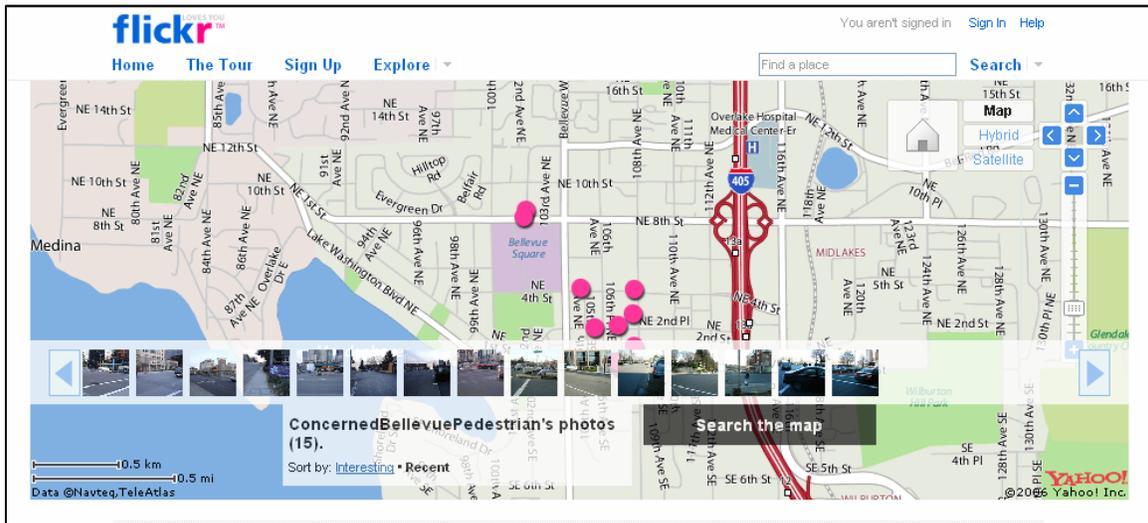
Comment card on pedestrian issues from Mandarin-speaking resident.

Web-Based Outreach

In undertaking the Pedestrian and Bicycle Plan, the City of Bellevue embraced changing trends in the use of World Wide Web technology to enhance citizen participation. For many Bellevue residents, a high percentage of whom are tech-savvy and own home computers, finding the time to provide meaningful input into a planning process is challenging. It is in this context that the City supplemented traditional community engagement efforts (focus groups, public meetings, etc.) with web-based applications that do more than dispense information to the community.

Web-Based Photo-Sharing

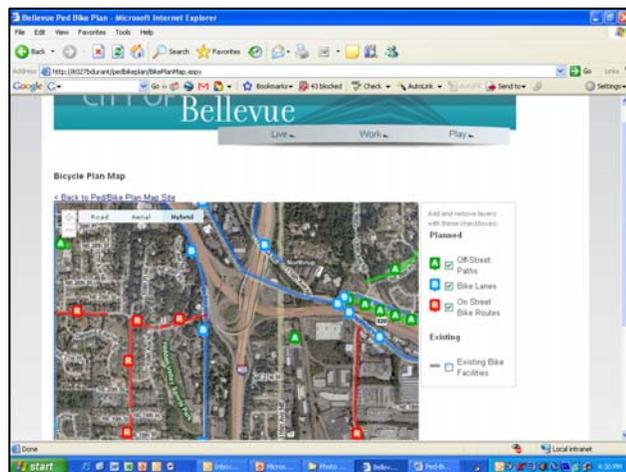
The City tapped into the creative energy of residents with digital cameras who wanted to provide photographic images and commentary on specific locations in the City warranting consideration in the planning process.



Use of the on-line photo-sharing site [Flickr.Com](http://www.flickr.com), enabled the public to contribute approximately 100 geo-tagged photographic images identifying areas in the City warranting attention.

Web-Based Interactive Mapping

The City's preliminary thoughts on recommended facility improvements were shared with the public early-on in the planning process through a web-based interactive mapping interface. The mapping system allowed interested walkers and bicyclists to view and comment upon proposals to improve Bellevue's bicycle, pedestrian, and trail facilities. The public was invited to review the project lists in three online maps then submit comments, either on a particular project (using the links from the maps) or on the plan as a whole.



Citizens were willing to interact on-line; the mapping interface generated over 600 comments.

Public Input

Through its various outreach efforts, the City generated numerous ideas on existing opportunities and constraints to help develop a comprehensive walkway and bikeway system that will make it easier, safer, and more pleasant to get around by walking and cycling in Bellevue. The following is a summary of themes expressed through public input process, each of these concerns is reviewed in great detail in the technical appendix.

Missing infrastructure

There is broad public agreement that existing sidewalk facilities do not adequately connect to schools, transit stops, parks, churches, etc. Missing sidewalk segments along busy streets are particularly challenging for pedestrians of all ages and abilities; at the location below (11839 NE 8th Street) pedestrians have the additional burden of needing to traverse a steep slope with a variety of obstructions (utility covers & light posts).



Many neighborhood streets in Bellevue also lack sidewalks. The public supports the City's efforts to "fill the gaps" to improve access to transit, schools, libraries, community centers, and parks. As reflected in the comments below, there is a sense of urgency that the City needs to address these barriers to safe pedestrian travel.



*Main St (SE 1st St to 124 Ave NE):
"This is a very dangerous route for pedestrians and cyclists with limited sight distance. A sidewalk here will be so helpful for people walking from the neighborhood downtown or to catch the bus.!" (Comment from interactive mapping system)*



*173rd Ave NE (NE 19th to NE 18th St):
"Please, a sidewalk is desperately needed along here, especially between NE 19th and NE 18th. We walk our son to the school bus stop every morning along 173rd and it is positively scary!" (Comment from interactive mapping system)*

A recurring message from the public was that bike paths often “stop” and feed into dangerous main arterial roads before meeting back up with another path further down the way. Bellevue’s focus group participants stated that: “Designated bike lanes are a good idea, especially in high volume areas for both commuter riding and recreational riding. Participants mentioned safety by separation as a huge benefit as it allows both cars and bicycles distance between each other.”

A number of on-line survey respondents noted that without on-street bicycle facilities; many cyclists will opt to ride on sidewalks. There was consensus among the bicycle respondents that it would be preferred to separate the modes of walking and biking to minimize the potential for conflicts with motor vehicles at intersections, as well as with pedestrians and fixed objects.

- “Pedestrians have to dodge cyclists on the sidewalks all around Crossroads--the cyclists have the choice of getting run over because there is no bike lane or riding on the sidewalk.”
- “Cyclists should not have to use the sidewalks. Cyclists are not visible to drivers pulling out of driveways when they are on the sidewalks.”



“Now, if the bike lane didn't just end, squeezing you into a narrow lane of traffic on 108th.” - Matt Leber

As reflected in the following comments, the public greatly appreciates the City’s efforts to develop improved bicycle facilities:

- “My commute has become markedly safer since the new bike lanes on 145th SE were added so that bikes are separated from cars that are turning right. (I.e., the bike lane is painted in between the lane going straight and the lane for right turns.) Even though it is just a painted line, cars visibly obey it and give me much more room than they used to.” (Email by Mike Barnett. 1/18/08)
- “My company employs seven people, and half of us do some form of bicycle commuting. Having good access to bicycle trails and bike lanes is a key determinant about where we locate our business. We chose our current location because of its proximity to the 520 bike trail.” (Email by Chris Williams, 1/18/08)



Bicyclists riding on the sidewalk along NE 8th (possibly because they do not feel safe in the street) may cause conflicts with people walking.

Maintenance Concerns: Focus group participants expressed concern over sidewalk surfaces that are uneven or broken and emphasized the importance of providing a smooth and “soft surface” to walk on. Cycling participants were “aggravated with the condition of some bike lanes and often referred to the ‘debris from the street’ being pushed onto the paths. Many felt that although the roads and streets are being well-maintained the same could not be said of the bike lanes.”

Sidewalk Maintenance: Sidewalks should be well maintained and free of cracks or lifted sections that could become tripping hazards and barriers to people in wheelchairs. Sidewalks that are buckled, lifted, or cracked due to tree roots or other causes can render a sidewalk unusable to pedestrians. The Americans with Disabilities Act (ADA) considers slab-to-slab heaving greater than ¼” vertical difference non-compliant and in need of a beveled treatment. This is typically done with an asphalt patch. Heaving greater than ½” should be beveled and treated as a ramp (no greater than 8.3%).



Example of 2 inch sidewalk heave at 148th AV NE & NE 35th Street

Among the top pedestrian facility improvement categories that would make it easier and safer for people to walk, jog or run in Bellevue “repairing sidewalks, fixing cracks, removing loose gravel or sand” was considered very improvement by 37% of on-line survey respondents.

Bicycle Facilities Maintenance: Bicycles and bicyclists tend to be particularly sensitive to maintenance problems. Most bicycles lack suspension systems and, as a result, potholes that motorists would hardly notice can cause serious problems for bicyclists. In addition, since bicyclists often ride near the right margin of the road they use areas that are generally less well maintained than the main lanes. On higher speed roads, the passage of motor vehicle traffic tends to sweep debris to the right, again where most bicyclists travel. In addition, ridges, like those found where a new asphalt overlay does not quite cover the older roadway surface, can catch a wheel and throw a bicyclist to the ground.

The web-based surveys conducted in support of this project generated responses from 919 bicyclists. The results of the survey allowed city staff to get an idea of specific bicycle facility enhancements within Bellevue that need improvements. Based on the survey results, 57% of the bike respondents identified “repairing pavement, fixing potholes, removing loose gravel or sand” as among the top five bicycle facility improvement categories that would make it easier and safer for people to ride a bicycle in Bellevue. The following comments were received from the on-line survey:

- “Lake Wash Blvd bike trail S. of Newport Shores is very uneven with roots ruining pavement. Down by Pleasure Point past Bellevue the recent repaving is delightful.”
- “I’ve found that Bellevue’s streets are well-maintained compared to other cities. But the bike lanes often have debris in them for the winter time. This can make riding in the lanes hazardous. Then, one must ride in the lane and cars attempt to pass in an un-safe manner.”



Trail edge sloughing along bike path at 118th Ave & I-90 Viaduct (Mercer Slough)

Focus group participants reiterated many of the same comments stating that street sweepers will frequently move glass as well as branches, leaves, and other debris commonly found on roads directly into the shoulder of the street or bike lane. This makes it difficult to ride and forces bicyclists to ride in the street – aggravating both parties.

Facility Concerns: Although a number of 2 to 4 ft sidewalks were built in the past, this width does not provide adequate clearance or mobility for pedestrians, or people using wheelchairs, to pass in opposite directions. The minimum width for a new sidewalk in Bellevue is five (5) feet. Five foot sidewalks are found in low density areas such as single family neighborhoods. As adjacent land uses become more intense the minimum widths for sidewalks increase to six (6) feet for medium density areas, such as townhouses or small commercial areas, and twelve (12) feet in high density areas, like the city's downtown corridors.

These minimum widths are the clear area of the sidewalk and do not include things like street trees, street lights, traffic signal poles, signs and parking meters.



A fire hydrant on this 3 foot sidewalk on the north side of Main Street (between 107th and 106th) renders the entire sidewalk unusable.

Respondents to the on-line survey had the following comments on sidewalk widths:

- “My family lives on Bellevue Way, street with heavy traffic and narrow or non existing sidewalks. Since I have two small kids, I really feel very uncomfortable when we have to take a walk (usually that is a walk to Enatai elementary). Then, 108 Ave SE, next to Enatai school, is also missing sidewalks, and I would like to see something done about it.”
- “The city core must be made more walker friendly. Narrow sidewalks should either be made wider or should have protection to keep the cars away from walkers.”

Blocked facilities: Sidewalks and paths that are blocked by barriers such as vehicles, trash cans, vegetation, snow, utility poles, mail boxes, benches, fire hydrants can make walking difficult or impossible, especially for people pushing carts or strollers, older pedestrians, those with impaired vision and people with mobility difficulties who may be using walkers, canes, wheelchairs, and crutches.

The following are some of the public comments on blocked facilities (from both pedestrians and cyclists):

- “Improve the condition of the sidewalks - make sure residents do not leave garbage cans blocking the sidewalks or park their cars across the sidewalks.” (*On-line survey*)
- “Shrubbery (trees, bushes, etc.) and signs obscure sight lines at intersections for both pedestrians and drivers.” (*On-line survey*)

Difficult street crossings: There are long crossing distances and wide intersections that allow cars to turn at higher speeds and that do not provide pedestrians enough time to cross streets. Countdowns on the light crossings was mentioned by participants as a way to “help both pedestrians and drivers gauge the amount of time remaining for both foot and car traffic.” Shorter cycle lengths and longer WALK intervals generally provide better service to pedestrians. A recurring message from the public centered around the need to improve signal timing.

- “Can the City adjust signal timing to increase the time that walk signs are on to allow for slower and disabled walkers, and to change more quickly to the walk sign? Sometimes you have to wait for considerable time to cross.” (Letter from HDR employees, 2/11/08)

- “Improve the pedestrian experience in downtown. Five minute wait cycles at lights due to all the left-hand turn lanes are infuriating. It really de-motivates people from walking. Moving to a one-way street design for several key arterials in downtown will go a long way to alleviating this problem.” (Email from Sarah Phillips, 2/13/08)

Driver awareness: A number of people expressed concern about driver behavior. By way of example, the City received the following letter from employees at a downtown building: “Cars don’t yield to pedestrians. Cars don’t stop for right turns on red and don’t look to see if pedestrians are in the crosswalk before turning. Cars don’t stop for pedestrians in mid-block crosswalks. Cars stop in the crosswalks at intersections, particularly when traffic is heavy (which is also the time when there are more pedestrians).” (Letter from HDR employees, 2/11/08).

The following is a summary of the issues noted on this topic from the public outreach process (both from pedestrians and cyclists):

- Drivers do not stop or yield to pedestrians/cyclists crossing the roadway.
- Drivers drive too fast through neighborhoods, around schools, or near other places where people are walking/bicycling.
- Drivers take short cuts through neighborhoods to avoid traffic on major streets.
- Red light or stop sign runners endanger pedestrians and bicyclists.
- Drivers pass other vehicles stopped at crosswalks for pedestrians or pass stopped school buses.
- Drivers are more distracted than ever by cell phones, passengers, and other activities.
- Drivers turning right at stop lights fail to see pedestrians/bicyclists.
- Aggressive drivers do not show cyclists respect on road.

Amenities – The City heard from a number of people that there are not enough amenities along pathways. A high-quality pedestrian and bicycle environment includes the ability to travel through a comfortable and interesting environment provided by high-quality urban design; and to have appropriate pedestrian and bicycle amenities such as benches, shade, water fountains, bicycle racks, and way-finding.

Pedestrian amenities: Based on the May 2007 on-line survey results, the second highest ranking barrier to walking/jogging/running are areas that are “unpleasant to walk” (28% of the respondents). These respondents noted that creating a pedestrian-oriented environment requires high quality urban design and pedestrian amenities. The following are representative comments from the on-line survey:

- “For future sidewalks, require developers to separate sidewalks from the vehicle traffic with a landscaped strip or vegetated buffer something so cars are more than an arm’s length away.”
- “Awnings along sidewalks provided by businesses downtown helps walkers & joggers.”
- “Adding rests stops with bench, water, and trash cans might help people walk longer.”

Bicycle Amenities: There are several ways to improve streets for cyclists. Both bike racks and route way-finding signage are items that surfaced as important considerations that would help all types of bicycle facilities operate effectively for cyclists.

Bike racks. The fear of bicycle theft or vandalism can discourage bicyclists from riding. Like motorists, bicyclists require secure and conveniently located facilities for bike storage at destinations. Based on the May 2007 on-line survey results, 6% of the respondents indicated that more bike racks/secure place to park bike was critical to encouraging more to bicycle in Bellevue. The following is a representative comment received from the on-line survey: “Provide more places to secure bikes. I don’t use my bike for errands (i.e. going to the grocery store, etc.) because there is no place to stow it while in the store.”

Bike Signage. Implementing a well planned, attractive, and effective system of network signing greatly enhances bikeway facilities by promoting their presence to both potential and existing bicyclists as well as motorists. Signing helps increase bicycle use by leading people to city bikeways and also helps increase visibility for safety reasons. There are four major types of signs, including those used to identify a route, destination signs, access signs and safety signs warning cyclists and motorists of each other. Surveys indicate that signage is lacking in Bellevue, and good signage would improve bicycling in the City. The following are representative comments received from the on-line survey:



While many buildings provide free and secure long-term bicycle storage in their garages, these new bike racks on the sidewalks will facilitate bicycling in downtown Bellevue by providing convenient parking for quick access to businesses.

- “Sign alternative routes which are good for cyclists without being much longer. It took me years to find an alternative to the above section of Northrup Way. 164th should be signed as an alternative to 156th or 148th.”
- “More signage is always helpful- it took me quite a while to find the I-90 bicycle route through Bellevue, even with a bicycle map in hand. The areas getting on and off the I-90 path between SE Eastgate Way and W Lake Sammamish Pkwy SE are especially tricky.”

Cross-City Bike Corridors: A number of focus group participants and public comments stressed the importance of developing a connected network of cycling routes through the city that provide safe and reasonably direct ways of traveling from destination to destination.

- “The establishment of a backbone of high quality North-South and East-West bicycle corridors that penetrate barriers is essential for realization of bicycling as a mainstream transportation option.” (*Letter by Cascade Bicycle Club, 12/11/07*)
- “One of the problems with the existing bike lanes that I see is the piecemeal nature of them. With the projects listed, I am concerned that projects will be completed as money is available rather than focusing on a specific corridor. For example, finishing the bike lane on 112th but not completing other projects that will link them to Lake Hills connector and beyond.” (*Email by Matt Leber, 1/23/08*)

Several north-south and east-west priority corridors received special attention from the public. In the case of the Mountains to Sound Greenway, SR-520 Trail, and the BNSF Corridors there is a recognition that extensive coordination with other public agencies is necessary to realize the objectives of these major regional facilities.

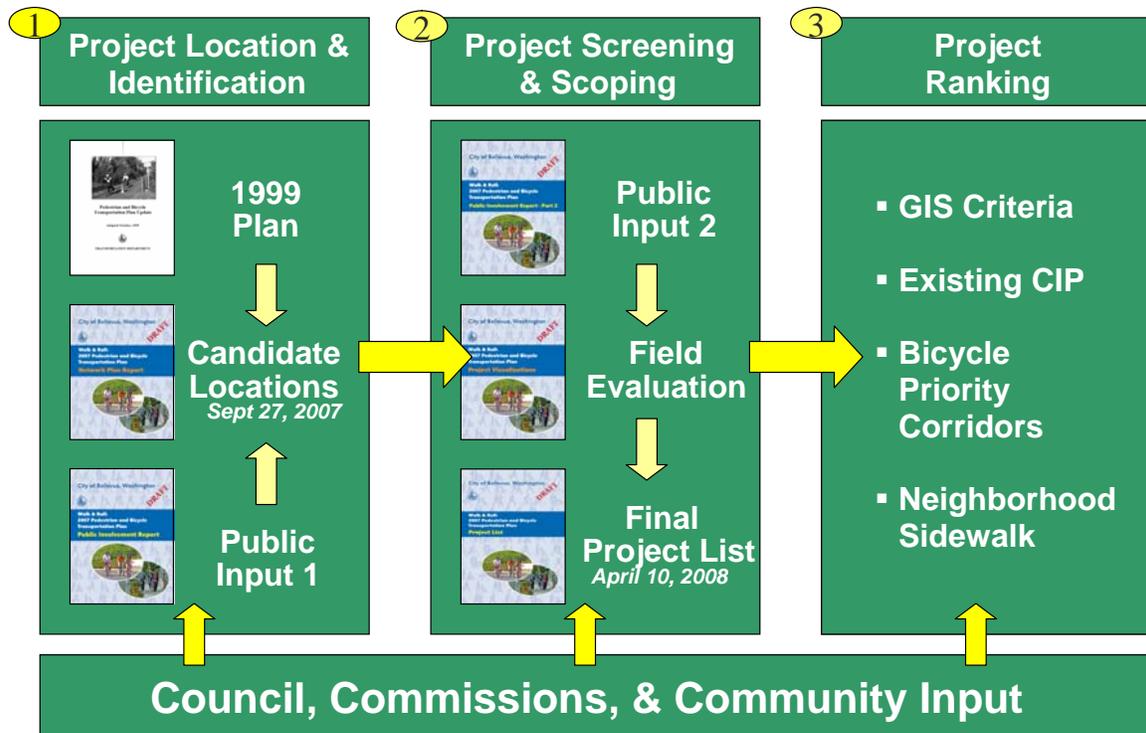


Part 3: Network Planning
The three-phased approach

Part 3 is a description of the methodology used in arriving at the list of prioritized facilities contained in the Pedestrian and Bicycle Transportation Facilities Plan to accommodate bicyclists and pedestrians throughout Bellevue. Overcoming barriers to walking and bicycling involves first determining how to overcome each deficiency and then identifying and prioritizing those facility improvements that are most important. Staff approached this assignment methodically, attempting to avoid applying standards without regard to how a facility will function within the greater context; which can lead to under- or overbuilt facilities, inappropriate for the context. Setting priorities for solutions involves balancing public input with an analysis of the potential good to be achieved.

I. Network Planning Process

The Pedestrian and Bicycle Plan Report project list and prioritization process took shape out of the following three phased approach: (i) project location and identification; (ii) project screening and scoping; and, (iii) project ranking. Each of the phases of the network planning process are reflected in the image below (technical reports are found in the Technical Appendix).



- **Phase I: Project Location & Identification** – This phase built on the project list in the 1999 Pedestrian and Bicycle Transportation Plan and provided staff a snapshot of citywide pedestrian and bicycle conditions. While many areas of Bellevue have extensive sidewalk, bicycle, and trail coverage, there are also areas with only partial coverage or lacking sidewalks, bicycle facilities, and trail connections altogether. Phase I involved an extensive community outreach effort with various user groups to document barriers to walking and cycling in Bellevue; the results of this outreach is documented in the Phase 1 Public Involvement Report. Community input at this phase of the planning process was instrumental in helping the City formulate the first Draft Network Plan, released for public review and comment in September 2007. The Draft Network Plan provided the public with a proposed network of facility improvements aimed at responding to the many different issues faced by various user groups throughout the City.

- *Phase II: Project Screening & Scoping* – Between September 2007 and April 2008, City staff employed a variety of community engagement strategies to review and refine the Draft Network Plan. During this phase of work the Transportation Commission also focused on reviewing and updating the policy framework in the existing Plan. The community feedback received from this second phase of outreach prompted numerous rounds of public and staff consultation, field assessments, and technical evaluation. Photo visualizations of project recommendations provided elected officials, staff, and the public with an opportunity to review and comment on visual representations of proposed projects outlined in the Draft Network Plan. On April 10, after months of technical review and public input, and based on the policy deliberations to date, the Transportation Commission recommended a list of projects to include in the updated plan. This list of projects would result in 90 miles of additional sidewalks, 143 miles of bicycle routes, and 21 miles of trail facility improvements.
- *Phase III: Project Ranking* – Between April and September 2008, staff worked with the Transportation Commission in arriving at a recommended “high, medium, and low” priority scoring for each of the projects. The Transportation Commission regarded all of the following evaluation considerations as critical to this assessment: GIS analysis; existing CIP projects; Neighborhood Sidewalk Program priorities; priority bicycle corridors; and, plan policy direction.

This next section provides additional details on each of the three phases of the network planning process.

Phase I: Project Location and Identification

As indicated in Part 2: Walking & Bicycling (The Benefits and Barriers) of this Report, Bellevue staff undertook a significant public outreach process for the Pedestrian and Bicycle Transportation Plan Update. A recurring message from the on-line survey effort, the focus-group sessions, public meetings, and on-line interactive mapping was the need for improved connectivity to facilitate pedestrian and bicycle travel. There is broad public agreement that many of the existing corridors have been implemented in a piecemeal approach and therefore lack a connected and easily navigable network.

Phase I of the network planning process responds to this public sentiment by identifying desire lines for pedestrian and bicycle travel between various locations throughout the City. With a map of gaps in the network, this step in the process focused particular attention on those streets that combine important characteristics: (i) close proximity to residential areas; (ii) serve potentially popular destinations (parks, shops, schools, work centers); (iii) continuous with good access to surrounding neighborhoods; and (iv) few nearby alternatives for through access. By way of example, the 140th Avenue NE projects generated the greatest level of public interest and discussion of all the projects included in the plan update and prompted staff to assess whether this, or an alternative north-south corridor, would be best suited to enhance cross-city bicycle trips.

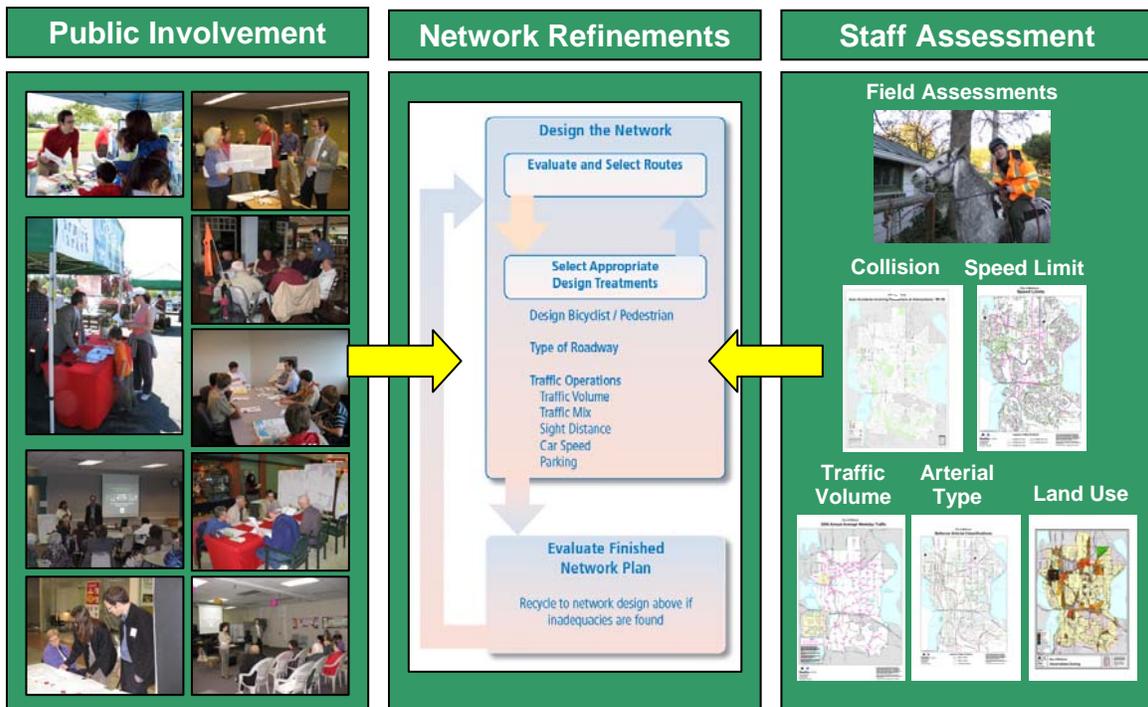


NS-4: Somerset-Redmond Connection, is one of eleven priority bike corridor; completed facilities in green.

Phase II: Project Screening & Scoping

At this stage in the network planning process, the key decision was how to describe the project in the updated Pedestrian and Bicycle Plan. Choosing the most appropriate pedestrian and bicycle facility for a given corridor is dependent on a number of factors. These include the intended user or "design bicyclist/pedestrian", the type of roadway and land use being served, physical and environmental constraints, and a variety of traffic operations considerations. For example, if a corridor being evaluated connects a residential neighborhood with an elementary school, it is likely that the majority of users will be children. The objective is to achieve a balanced approach by providing a facility that serves the needs of pedestrians and cyclists as much as possible while being cognizant and sensitive to field conditions and the needs of other roadway users.

Reflected below is an image depicting the project screening and scoping phase that informed the network planning process. As indicated, it was a collaborative, interdisciplinary approach involving the community in the identification of transportation facilities that fit within their physical setting and preserve scenic, aesthetic, and environmental resources, while maintaining safety and mobility.



In undertaking this phase of the project, staff visited project locations to assess existing conditions. The following type of information was assessed during these on-site visits: (i) existing roadway widths; (ii) location of sidewalks and other objects that may occur within or adjacent to the road right-of-way and may restrict improvements; (iii) existing posted speed for motor vehicles; and, (iv) adjacent land use.

Staff formed a multi-department project review team to evaluate information about Bellevue



Staff met with residents to assess sidewalk, bicycle, and trail facility improvement options.

corridors in a series of roundtable discussions evaluating existing conditions. During these roundtables, staff determined whether the facility type that best matches the needs of the design user group could be accommodated within each road segment.

The selection of appropriate non-motorized design treatments for Bellevue's street network arose out of a highly interactive engagement effort with the community. Visualizations assisted in the collaborative aspect of planning and design to assess whether a given project could be implemented in a way that was sensitive to community concerns.

Photo-realistic representations of project recommendations improved communication between staff and the public for whom a context sensitive design is one that is consistent with the values of the community. It should be noted that these conceptual images (found in the technical appendices) of how sidewalk and bicycle facilities could be implemented in Bellevue was not done to definitively design the project; design would not occur until a project is funded in the CIP, and would be done with additional input from community stakeholders.

Representative Visual Simulations of Improvements



Photo-visualization depicting potential redevelopment of Main Street (100th Ave NE to 116th Ave NE) and pedestrian and bicycle environment resulting from projects: S-213-N, O-121-S, and B-129-N.



Photo-visualization depicting SE 16th Street (104th Avenue SE to 108th Avenue SE) with pedestrian and bicycle environment resulting from projects: B-213-N, B-213-S, S-435-S, and S-435-N.

Input from the community on the photo-visualizations and web-based interactive mapping interface assisted staff in formulating and then subsequently refining the network plan for the City. Staff combined the separate projects recommendations into a cohesive network plan that builds upon, broadens, and complements existing non-motorized facilities. The cross-city bicycle

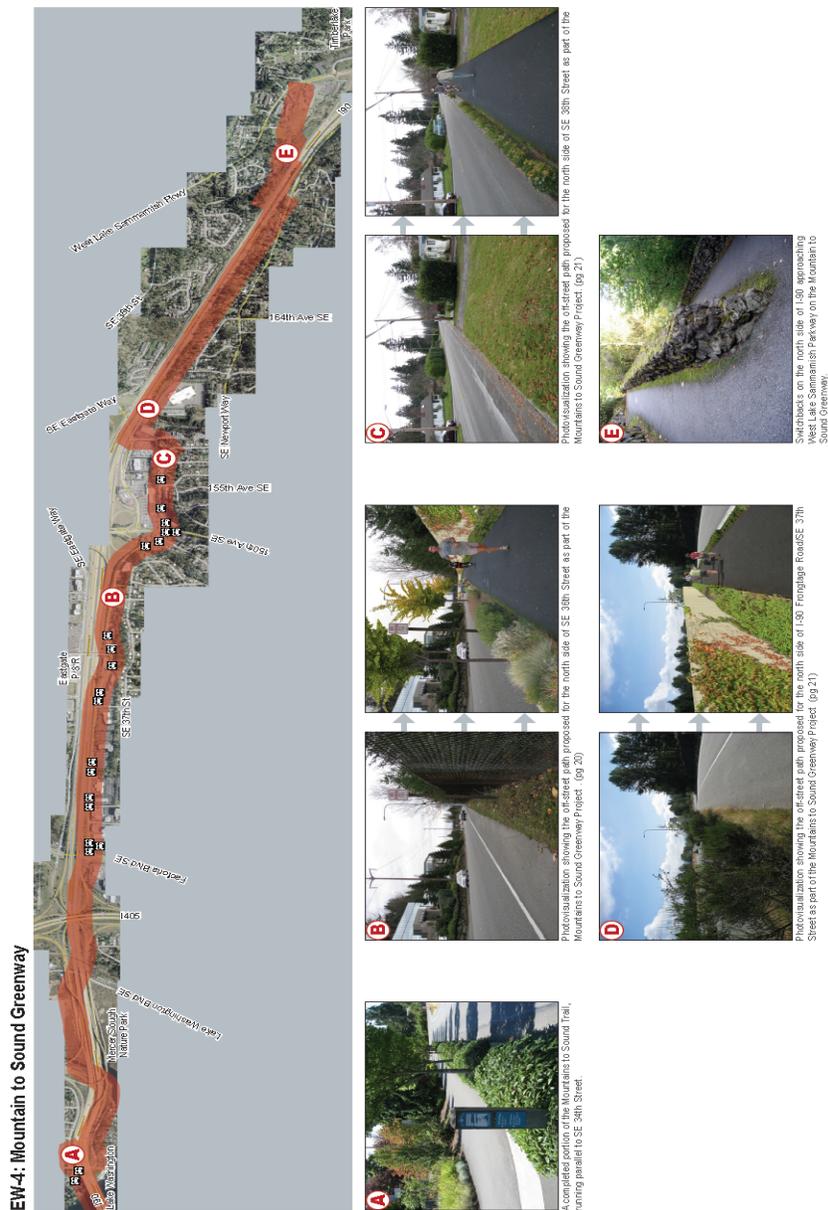
corridor report (found in the technical appendices) highlights how the various bicycle project recommendations come together as continuous and cohesive corridors that facilitate cross-city travel (an example of which is depicted in the image on the following page).

The final products of the Phase II: Project Screening & Scoping effort are:

- 1) project descriptions (included in the project list spreadsheet are the prioritized rankings developed in Phase III of the network planning process);
- 2) project maps that depict the location of each of the recommended improvements; and,
- 3) network maps that depict the overall vision of realizing a robust, integrated non-motorized network.

All of these documents are contained in Part 4: The Action Plan of this report.

Representative Bicycle Corridor Improvements



Phase III: Project Prioritization

In general, non-motorized activity is directly attributable to factors such as the density of development, mix of land uses, and proximity to major destinations. The greater the intensity of these factors, the higher the potential for walking and bicycling, and the greater the need for these facilities. The priority ranking system employed by the City is the result of an extensive process involving a quantitative, GIS-based ranking system with additional refinements based on whether or not the projects were along the same corridor of an existing CIP project, priority neighborhood sidewalk project, or priority bicycle corridor.

GIS Analysis

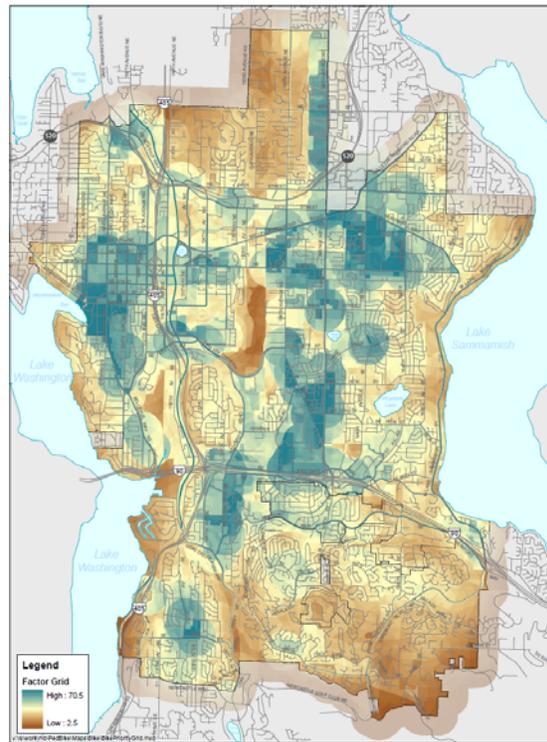
By overlapping a series of maps, each representing one of several characteristics, one can easily visualize the concentration of resources in a particular area. If each characteristic is assigned a number value based on its importance or potential for a given condition, then the cumulative intensity of all characteristics at a specific location can be determined. Geographic Information System (GIS) effectively adapts this methodology by identifying the specific characteristics that most affect the potential for walking and cycling.

Priority is given to projects that improve system connectivity, complete missing links between existing facilities, and address safety issues and access to activity centers, transit and school bus routes. The figure at right illustrates how the prioritization approaches utilizes the overlay concept (areas in blue being locations with the greatest potential for pedestrian and bicycle usage, followed by areas in yellow, and finally areas in brown).

The GIS-based quantitative overlay system, approved by the Transportation Commission builds on guidance reflected in Comprehensive Plan Policy TR-79.

Policy TR-79: Assign high priority to pedestrian and bicycle projects that:

1. Address safety issues;
2. Provide system connectivity or provide connections to the existing portions of the system to develop primary north-south or east-west routes;
3. Complete and connect planned pedestrian or bicycle facilities or trails;
4. Conform to and are consistent with Bellevue's roadway classification system;
5. Provide access to activity centers such as schools, parks, public facilities such as libraries and community centers, retail centers, major employment centers, and concentrations of housing;
6. Provide accessible linkages to the transit and school bus systems; and
7. Serve concentrations of residents with special accessibility needs.



After deliberating on the policy language, the Transportation Commission discussed the relative weighting of each of these criteria. Based on this discussion, the Commission directed staff to employ the following GIS-based prioritization point structure in identifying areas of strong walking and bicycling potential.

GIS-Based Prioritization Framework

- Corridor Conditions = 50 points
- Social Justice Conditions = 15 points
- Destination Network = 35 points

Data for each of these priority indicators was layered to derive a composite score for a particular geographic area or street. The areas or streets with the greatest concentrations of non-motorized characteristics receive the highest scores, and therefore have the highest priorities. The [technical appendix](#) presents the detailed GIS criteria and proposed weighting system.

The GIS-based priority ranking resulted in project scores ranging from: (i) 1 to 238 for pedestrian projects; (ii) 1 to 142 for bicycle projects; and, (iii) 1 to 55 for trail projects. While the advantages of GIS for analyzing spatial data are recognized, the Commission determined that it would be beneficial to refine the GIS scores by taking into account a number of other considerations; these include information on whether a given project is: (i) already identified in the current CIP; (ii) along a corridor that is a component of a priority bicycle corridor; and, (iii) along a corridor that was identified as a priority neighborhood sidewalk program.

Existing CIP and Neighborhood Sidewalk Projects

At three of its meetings in June/July 2008, the Transportation Commission evaluated the results of the GIS prioritization analysis and refined the rankings of the pedestrian, bicycle, and trail project lists based on whether or not the projects were along the same corridor of an existing CIP project or along corridors identified as priority neighborhood sidewalk projects.

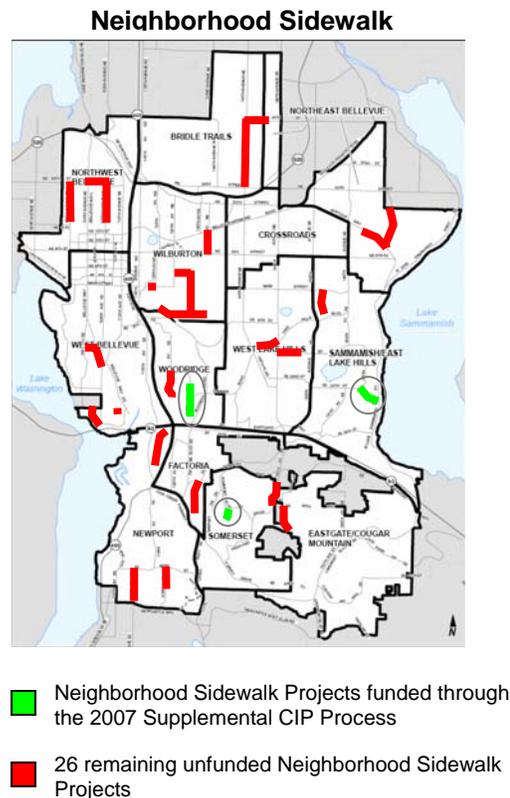
The pedestrian prioritized project list included GIS priority rankings from 1 to 238. Of these 238 projects, there were 23 neighborhood projects that initially ranked either medium or low, and 11 CIP projects ranked medium or low.

Given the extensive public buy-in on the Neighborhood Sidewalk Projects and dedicated funds programmed to CIP-related projects, the Transportation Commission determined that all of these projects should move into the high priority category, regardless of their GIS-based ranking.

Bicycle Priority Corridors

In the case of the bicycle projects, a significant determinant of the Transportation Commission's ranking was whether the project helped realize a priority bicycle corridor. The decision to focus on projects along priority bicycle corridors was based on previous policy direction about the importance of completing connections (see Comprehensive Plan Policy PB-2).

Responding to public input, the Commission directed staff to designate a series of proposed cross-city bicycle corridors that link together the numerous project segments documented in the bicycle project list. Regardless of the facilities that these proposed primary routes will be made up (bike lanes on major streets, separate bicycle paths, routes on quieter streets), the



components of the routes must be well connected and each ought to provide safe and reasonably direct ways of traveling from destination to destination.

Bellevue staff identified 11 primary bicycle corridors (five east/west, six north/south) comprised of existing and proposed bicycle facilities that provide general bicycle mobility throughout the City. Together, these primary cross-city bike corridors represent a continuous network aimed at promoting connections to surrounding jurisdictions, while at the same time creating links among communities within the City.

The following north/south and east/west routes are designed to provide direct links between major nodes throughout Bellevue, including commercial, employment, institutional, residential and recreational destinations.

▪ *East-West Corridors:*

- (i) EW-1: 520 Trail
- (ii) EW-2: Downtown-Overlake Connection
- (iii) EW-3: Lake-to-Lake Trail
- (iv) EW-4: Mountain-to-Sound Greenway
- (v) EW-5: Coal Creek-Cougar Mountain

▪ *North-South Corridors:*

- (i) NS-1: Enatai - Northtown Connection
- (ii) NS-2: Lake Washington Loop Trail
- (iii) NS-3: BNSF Trail Corridor
- (iv) NS-4: Somerset-Redmond Connection
- (v) NS-5: Spirit Ridge-Sammamish River
- (vi) NS-6: West Lake Sammamish Parkway



The Transportation Commission referenced this bicycle corridor framework during the prioritization process to inform their decision-making. Projects that might have scored a lower numerical point ranking on the GIS network (because they were not proximate to densely populated areas) were elevated in their “high, medium, and low” rankings to account for their importance in realizing priority bicycle corridor connections.

After grouping the 69 component projects that make up the 11 priority bicycle corridors, the Transportation Commission examined each of the corridors and arrived at a determination of which of these corridors should receive a “high” or “medium” level priority rating. The outcome of these deliberations is: (i) high rating bicycle corridors: EW-1: 520 Trail; EW-3: Lake-to-Lake Trail; NS-2: Lake Washington Loop Trail; NS-4: Somerset-Redmond Connection; and, NS-6: West Lake Sammamish Parkway; and, (ii) medium rating bicycle corridors: EW-2: Downtown-Overlake Connection; EW-4: Mountain-to-Sound Greenway; EW-5: Coal Creek-Cougar Mountain; NS-1: Enatai - Northtown Connection; NS-3: BNSF Trail Corridor; and, NS-5: Spirit Ridge-Sammamish River. A “high” or “medium” rating was then assigned to each of the project segments that make up the priority corridors.



Part 4: Action Plan
The facility recommendations

Part 4 contains the pedestrian and bicycle network and project maps and the detailed list of project recommendations. On February 17, 2009, these elements of the Pedestrian and Bicycle Transportation Facility Plan 2008 Comprehensive Plan Amendment (07-123138 AC) were adopted by ordinance into the City of Bellevue Comprehensive Plan. Part 4 of this report also provides more detailed project maps and facility summaries than would be appropriate for the Comprehensive Plan.

Network & Project Maps

The pedestrian and bicycle network maps provide a guide for building out a functional non-motorized transportation system in the future. Both existing facilities and proposed facilities (or projects) are identified on the network maps. These maps were adopted by ordinance into the Transportation Element of the Comprehensive Plan.

In contrast to the network maps, the pedestrian and bicycle project maps only identify projects. Project maps show locations of proposed projects and identify projects by facility type. These maps were adopted by ordinance into the Pedestrian and Bicycle Transportation Facility Plan in Volume 2 of the Comprehensive Plan.

Project List

The project list was adopted by ordinance into the Pedestrian and Bicycle Transportation Facility Plan in Volume 2 of the Comprehensive Plan. Altogether, the Plan includes 435 projects that when implemented would result in: 90 miles of sidewalk, 147 miles of bicycle, and, 20 miles of trail facility improvements.

Each project in the project list is assigned a general priority: high, medium, or low. High priority projects being those that are most urgent and are recommended for construction as soon as possible. The benefit of including prioritization in the Plan Update and the Comprehensive Plan's Transportation Facility Plan is that it provides the first level of project prioritization for Bellevue's funded seven year-priorities outlined in the Capital Investment Program (CIP). It also assists the City in formulating the Transportation Facilities Plan (TFP), the city's 12-year, or intermediate-range, transportation planning document. Both the CIP & TFP documents include high-priority projects from other long-range plans and projects that address emerging needs and opportunities.

Given that the plan represents a long-range vision, all of the project descriptions in the plan are framed as "conceptual" at this stage. In fact, the introductory sentence to the project list reads that "the final details of design will be developed as the projects proceed further along in the implementation process." Like other public projects, neighborhood involvement will also be an important part of the evaluation during the implementation process.

Detailed Project Maps

The detailed projects maps are not included in the City of Bellevue Comprehensive Plan. Project numbers listed on these maps are cross-referenced to the project lists contained in this report.

Facility Summary

Providing a range of facility types that appeal to a variety of user groups creates a functional, comprehensive network for pedestrians and cyclists. From shared bicycle facilities and 5 foot wide sidewalks on quiet streets, to bicycle lanes with 6 foot wide sidewalks and 4 foot wide planter strips on arterials, the pedestrian and bicycle network can address the needs of a range of users as well as be customized to the constraints and opportunities in a wide range of contexts and locations. This section details the number of existing and proposed miles of facility improvements resulting from the implementation of the project recommendations.

Pedestrian Project List

List

Bicycle Project List

List

Detailed Project Maps

Maps