CHAPTER VII- PEDESTRIAN ACCESS IMPROVEMENTS TO TRANSIT

Transit-supportive communities are synonymous with pedestrian-friendly communities. Transit users begin their trips by walking from their homes to the nearest transit stop. They will then walk to their destination at the end of their trip. They may also become pedestrians if they switch modes of travel en route. As a result, the success of a transit system will depend in part on the quality of supporting pedestrian systems in the bus stop service area.

Transit planners generally regard the bus stop service area as approximately a 1/4 mile walking-distance radius from a bus stop, a 5-min walk. The bus stop service area is the acceptable walking distance to transit stops, beyond which another connecting mode is required or public transportation will not be used for the trip. Ensuring that the bus stop service area is convenient, safe, and attractive for pedestrians can provide a major impetus for transit travel.

All bus stop service areas should include curbs, gutters, and sidewalks to be fully accessible for the region's aging population, and should include Americans with Disabilities Act (ADA) accessible curb cuts, which provide the greatest flexibility in accommodating mobility aids such as wheelchairs, walkers, canes, etc. The transit industry is increasingly moving towards low floor, kneeling buses with ramps that are quickly deployable. Transit providers and Bellevue will cooperate in evaluating transit corridors to improve accessibility particularly as these new fleets of low floor buses with ramps replace the existing lifts.

Non-Motorized Access to Transit in Bellevue

The City of Bellevue recognizes the importance of non-motorized accessibility to transit. Within the Comprehensive Plan, walking and biking are called-out as important linkages to transit that should be supported:

> **Policy TR-58 Linkages to Transit Systems**
>
> Encourage transit use by improving pedestrian and bicycle linkages to the existing and future transit and school bus systems, and by improving the security and utility of park-and-ride lots and bus stops.

The role of pedestrian access to transit is further affirmed in specific policies within the Pedestrian and Bicycle Transportation Facility Plan that was adopted by the Bellevue City Council in 1993 (Resolution 5653):

> **Policy PB-12 Pedestrian Transit Access**
>
> Increase the accessibility to transit by pedestrians.

The 1993 Pedestrian and Bicycle Plan was updated in 1999 (adopted through Resolution 6364) to highlight the significant progress the City had made in developing its non-motorized transportation system since adopting the 1993 plan. Further, the 1999 revision provided an opportunity to modify policies, projects, and develop system maps that reflected changes in the transportation system and its needs.

Completed and Planned Non-Motorized Access Projects in Bellevue

The 1999 update of the Pedestrian and Bicycle Transportation Plan contained a number of critical elements related to consideration of non-motorized access to transit. First, the 1999 update provided comprehensive system maps of Bellevue's envisioned pedestrian and bicycle systems—these maps noted completed and pending projects. Also, the 1999 update outlined the numerous pedestrian and bicycle projects that had been completed since developing the 1993 version of the plan (*see Appendix E of the 1999 Plan Update).* In all, more than a hundred projects had been or were nearing completion. Finally, the 1999 update provided an extensive list of pedestrian and bicycle projects envisioned for completion during the 30-year planning cycle of the Pedestrian and Bicycle Plan.

With regard to existing prioritization of these projects, the 1999 Plan denotes each project as either Priority A or Priority B. Priority A projects are higher priority because they address pressing safety issues or provide key connections within the pedestrian and bicycle systems. With regard to creating linkages to transit services, Priority A projects are considered to be fulfilling the guidance of **Policy TR-58 Linkages to Transit Systems** by providing critical linkages to transit or school bus systems.

Considerations for Prioritizing Planned Improvements

As noted, Bellevue has plans for an extensive pedestrian system network and a considerable amount of development of this network has already occurred. In assessing the remaining projects on the list, one key consideration is whether the project supports access to transit services via non-motorized modes. The following criteria are designed to facilitate review of the project lists and provide a basis for priority in this regard.

Proximity to Transit Services

An initial screening of projects was based on proximity to transit services, (bus stops, transit hubs, and park-and-ride facilities etc). Ultimately, with regard to building linkages to transit, the connections should be ideally built from the transit service outward. Completion of linkages and facilities closer to transit services is of higher priority than completion of more distant improvements.

GIS was used in this initial screening to identify and map projects within ¼ mile or less of transit services. Of the 305 pedestrian projects identified in the 1999 update of the Pedestrian and Bicycle Transportation Plan, 216 projects are within ¼ mile or less of transit services. Projects that were not within ¼ mile or less of transit services were not considered for further analysis.

Level of Service at Transit Connections

A second-level criterion is the average weekday transit trips operated within ¼ mile of the project as depicted by the Transit Priority Network. Projects supporting connections to

higher levels of transit services are more critical than those supporting low levels of service (e.g., connections to bus stops served by local routes are not as critical as connections to transit hubs).

As with the initial screening of proximity, this determination was facilitated by using GIS mapping to depict the levels of service at different transit facilities. With this depiction of levels of transit service, the City of Bellevue's Transit Priority Network is used to define the three "service tiers" that show the value of the connection being provided by the improvement. The Transit Priority Network definitions are based upon the number of buses projected to operate on each roadway.

Transit Propensity

Transit propensity measures the probability of transit ridership. Pedestrian projects in an area with higher transit propensity should be prioritized over those with lower transit propensity.

Transit propensity may be determined by population density, elderly population density, vehicle accessibility (auto ownership), and income. All four measures are readily available from the 2000 Census. For the purposes of measuring transit propensity, elderly is defined as those 65 years of age or older. The four measures were chosen because:

- High population densities tend to foster greater transit use.
- Elderly are much more likely to use transit; therefore, elderly population is measured.
- People not owning automobiles are more likely to use transit than those who do.
- Low-income residents are more likely to use transit than high-income residents.

The City completed a GIS analysis on 2000 Census data that summarized the demographics of each census tract. The data in each census tract was grouped into four categories: low, medium-low, medium-high, and high. These categories were then assigned a corresponding point value of 1 to 4. The point values for each census tract were summed to produce an average propensity score between 4 and 16 points. For pedestrian projects in several census tracts, the average score of the affected tracts was calculated. The next step was to reduce the scores to high, medium, and low propensity. Census tracts that had propensity one standard deviation above the mean were assigned a high propensity, census tracts that had propensity one standard deviation below the mean were assigned a low propensity, and all other tracts were assigned a medium propensity.

Transit Attractors

Transit attractors are defined as commute trip reduction employment sites, shopping and governmental facilities, libraries, hospitals, and other high pedestrian generators. Pedestrian

projects in the vicinity of multiple transit attractors should be prioritized over areas with few or no transit attractors.

Pedestrian Amenities at Transit Facilities

A final criterion is the quality of pedestrian amenities at the facility being served. Given two projects that are similar in the above three criteria, the project connecting to a transit facility(s) with bus shelters is of higher priority than one that does not.

Table VII-1 outlines the scoring system for pedestrian projects.

Table VII-1
Point System for Pedestrian Projects

Level of Transit Service	Transit Principal Corridor	Transit Minor Corridor	Transit Local Access
	4	3	1
Transit Propensity	High	Medium	Low
	3	2	1
Transit Attractors	More than One	One	Zero
	2	1	0
Amenities at Transit Facilities	Shelters Available	No Amenities	
	1	0	

Recommendations

Based on the GIS analysis and the point assignments from Table VII-1, each of the 216 pedestrian projects adjacent to transit routes included in the 1999 update of the Pedestrian and Bicycle Transportation Plan were evaluated and ranked. The total cost of implementing all pedestrian projects is estimated at $119,385,600 (2001 dollars[1])

Table VII-2
Pedestrian Project Prioritization Summary

	Prioritization Score	Number of Pedestrian Projects	Cost
Highest Priority Projects	10	16	$6,475,600
Second Highest Priority Projects	9	33	$21,735,700
Remaining Projects	2-8	167	$91,174,300
Total	-	216	$119,385,600

As shown in Table VII-2, sixteen projects received the highest possible ranking and represent the most important pedestrian projects from a transit perspective. Thirty-three projects received the second highest possible ranking. The descriptions of the top 49 priority pedestrian projects are listed in Table VII-3 and shown in Figure VII-1. The

[1] Cost estimate by City of Bellevue: Cost Estimate Worksheet Ped/Bike Plan Update (Autumn 1999)

remaining 167 pedestrian projects are listed in Appendix J. The cost figures shown are estimates, based on costs incurred for similar projects in recent years. Not included in the estimates is the cost of any additional right-of-way or easement that may be necessary. For projects that extend beyond the Bellevue city limits, the estimates are for the Bellevue portion only.

In Chapter XV - Funding Alternatives, only the $6,475,6000 needed to address the "highest priority" projects is called out as being most beneficial to the service network requested in the Bellevue Transit Service Plan.

Figure VII-1
Highest Priority Pedestrian Projects

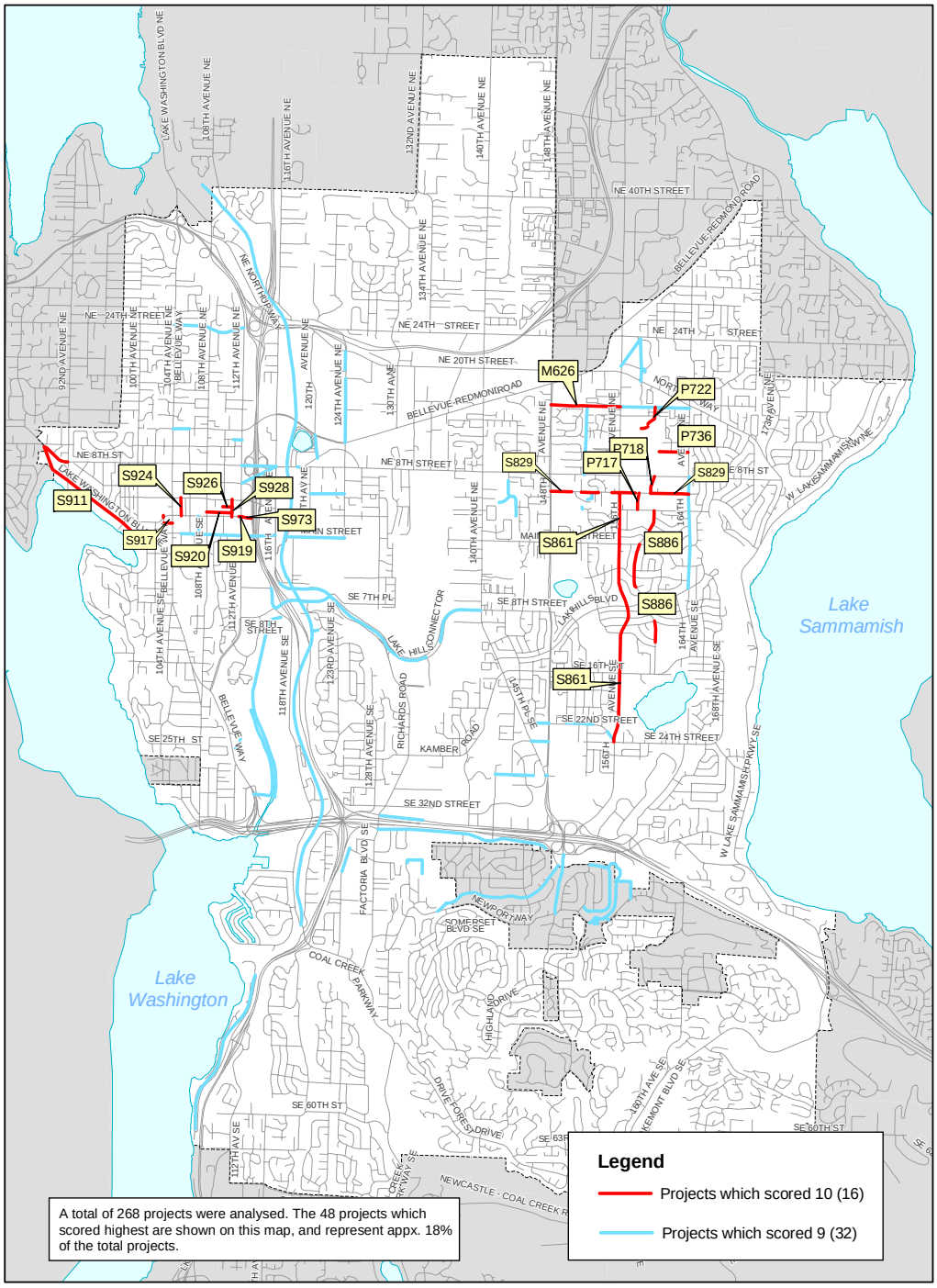

Table VII-3
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
P718	Hillaire to Crossroads	NE 6th St to NE 8th St	Acquire easement and construct paved connection; Location of easement yet to be determined	Crossroads Subarea Plan; Neighborhood connection to shopping and parks	4	3	2	1	10	$62,900
S886	160th/158th /159th Pl SE /NE	NE 4th St to SE 16th St	Construct sidewalk on one side	North-South ped connection on non-arterial street; Access to schools & parks	4	3	2	1	10	$951,800
P717	Hillaire Access Trail	NE 4th St to Hillaire Park	Acquire easement and construct paved trail if possible	Cross block neighborhood connection to Hillaire Park	4	3	2	1	10	$56,800
S924	105th Ave NE	NE 2nd St to NE 4th St	Construct sidewalk along entire length of west side	Downtown Plan; Safety; Access to Downtown services; Access to transit	4	3	2	1	10	$359,100
S928	111th Ave NE	NE 2nd St to NE 4th St	Construct sidewalk on both sides; developers should build	Downtown Plan; Access to transit; Access to housing, services & offices; Safety	4	3	2	1	10	$590,700
S861	156th Ave	NE 20th St to SE 24th St	Construct sidewalk on both sides where missing; Construct boardwalk or WW on one side on SE 16th-11th St; Section immediately S of SE 16th should be environmentally sensitive (asphalt path & swale); upgrade sidewalk in Crossroads area to improve pedestrian safety	Major north-south ped system corridor; Access to schools, parks & shopping; Safety; Bus route; EBTS rec.	4	3	2	1	10	$1,529,800
S926	110th Ave NE	NE 12th St to Main St	Construct sidewalk on both sides where missing & new 110th section (NE 2nd-4th)	Downtown Study; Safety; Access to transit	4	3	2	1	10	$370,800
S911	Lake Washington Blvd	NE 10th St to 100th Ave NE	Improve driveway aprons so that sidewalk is wheelchair safe (reconstruct driveways that cross sidewalk)	Access to park; Safety	4	3	2	1	10	$161,700
P736	Crossroads Park East Access	Crossroads Park to 164th Ave NE	Paved path; Sign; Acquire easement	Crossroads Subarea Plan; Existing connection	4	3	2	1	10	$40,100

Table VII-3 (continued)
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
S829	NE 6th St	148th Ave NE to 164th Ave NE	Construct sidewalks on one side where missing; Sign trailhead to NE 8th St and Lake Hills Greenbelt	Neighborhood to schools, shopping, parks	4	3	2	1	10	$1,392,700
M626	Highland Middle School	148th Ave NE to 156th Ave NE @ NE 16th	Acquire easements; Construct path/sidewalk; SSS	Access to schools and shopping	4	3	2	1	10	$94,200
S973	NE 2nd	112th Ave NE to 114th Ave NE	Sidewalks on both sides	Build in conjunction with Downtown Access project mitigation; Improves access to transit, businesses, parks	4	3	2	1	10	$358,000
S919	NE 2nd St	108th Ave NE to 112th Ave NE	Construct sidewalk on both sides where missing; CIP Downtown Sidewalk Program; Implement ULI Green St improvements as funding permits	Access to Downtown services; Downtown Plan; Safety	4	3	2	1	10	$0
S920	NE 2nd Pl	108th Ave NE to 111th Ave NE	Construct sidewalk on both sides; developers should build	Low-volume pedestrian/residential street in Downtown; Downtown Plan; Access to transit; Safety	4	3	2	1	10	$463,300
S917	Old Bellevue Sidewalks	100th Ave to Bellevue Way	Construct sidewalk on NE 1, 102 & 103 Ave where missing; Consider design of 1st/2nd connector; CIP Downtown s/w Program; Install ped crossings, especially to park	Access to shopping, parks, housing & transit; Safety (no curbs or sidewalks currently exist); Old Bellevue Study	4	3	2	1	10	$43,700
S983	SE Allen Rd	SE Newport Way to SE 36th St	Sidewalk on both sides	Access to schools, shopping, transit, library; EBTS rec.	4	2	2	1	9	$413,100
S975	114th Ave SE	SE 6th to SE 8th St	Sidewalk on both sides where missing; developers should build west side	North-south connection to Wilburton P & R lot, connection to businesses; Safety	4	2	2	1	9	$287,200

Table VII-3 (continued)
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
S885	Eastgate Way	Richards Rd to 148th/150th Ave SE	Construct sidewalk on north side where missing; Install bus passenger waiting areas on south side at bus stops	East-west connection; Access to Park & Ride, offices, commercial & BCC; Bus route; EBTS rec.	4	2	2	1	9	$887,100
S860	164th Ave	Northup Way to Lake Hills Blvd	Construct sidewalk on east side where missing	Access to schools and parks; Major north-south ped system link; EBTS rec.; Safety; Bus route	4	3	1	1	9	$805,300
L437	Unigard Trail System	Northup to NE 24th St East of 156th Ave NE	Maintain north-south and east-west trail system from Northup to NE 24th St and to 156th Ave NE	Maintain important neighborhood linkages to shopping	4	2	2	1	9	$0
P738	BNSF Railroad Path	North City Limits to South City Limits	Acquire easements; construct hard surface trail within or parallel to railroad ROW. Consider phased development of segments: N. City Limit to I-405, I-405 to SE 5th St, SE 5th St to Coal Crk Pkwy, Coal Crk Pkwy to S. City Limit. Connect 118th at SE 5th to Lake Hills Connector; connections to Mercer Slough, Woodridge, 116th near Northup, 120th Ave at SE 40th	Major north-south linkage through City and beyond; already grade-separated; Richards Valley Subarea rec.; part of regional trail network plan	4	2	2	1	9	$9,093,500
L423	Vasa Creek System	Newport Way to I-90	Construct soft surface trail system; Acquire easements	Eastgate neighborhood connections to Vasa Park/Lake Sammamish	4	2	2	1	9	$78,700
S871	124th Ave NE	NE 8th St to Northup Way	Construct sidewalk on both sides from NE 8th to Bel-Red and on one side between Bel-Red & Northup	North-south ped corridor; Connects Midlakes/Wilburton to Northup area; Bel-Red Subarea rec.	4	2	2	1	9	$1,092,600

Table VII-3 (continued)
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
M625	NE 8th St to Highland	NE 8th St to Bel-Red Rd	Acquire connection through/between multi-family complex; SSS	Access to schools, shopping, Crossroads Subarea	4	3	1	1	9	$104,700
L438	Lake Hills Greenbelt N.	NE 4th Pl/School to NE 6th St	Maintain developer constructed soft surface trail through wetlands	Neighborhood to school and shopping connections	4	3	1	1	9	$0
M612	Odle / Sammamish Trail	Main St to NE 8th St	Establish linkage through school to NE 8th St; SSS	Neighborhood to school connection	4	3	1	1	9	$55,700
S927	107th Ave NE	Main St to NE 2nd St	Construct sidewalk on both sides; developers should build	Downtown Plan; Access to transit; Access to offices, residential & services; Safety	4	2	2	1	9	$260,600
M646	Mercer Slough Park Trail	I-90 to SE 8th St	Construct boardwalks and soft surface trails throughout park; Construct bridge over main slough channel	Major recreational and wildlife interpretive trail system	4	2	2	1	9	$1,224,700
S941	NE 24th St	Bellevue Way to 112th Ave NE	Construct sidewalks on south side where missing	East-west connection; Access to schools, parks; Bus route	4	2	2	1	9	$517,300
M634	Crossroads E-W Connection	156th Ave NE to 164th Ave NE	Construct trail and acquire easements (where necessary); SSS	Crossroads Subarea Plan; Breaks up superblock; Access to parks and shopping	4	3	1	1	9	$98,400
S946	SE 38th St	150th to 156th/156th to SE 42/SE 42 to 153rd	Construct sidewalk on one side	Project primarily in King County; provides neighborhood connection to shopping, transit, businesses	4	2	2	1	9	$347,800
S833	SE 24/ Phantom Lk-Richards Valley	148th Ave SE to 145th Pl SE	Construct sidewalk on north side	BCC access; Neighborhood to park connection, Transit access; Section of East-West route from Phantom Lake to Richards Valley	4	2	2	1	9	$145,600
S881	SE 22nd St	145th Pl SE to 156th Ave SE	Construct sidewalk on one side where missing	EBTS rec.; Access to parks and schools; Safety	4	2	2	1	9	$841,800

Table VII-3 (continued)
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
M604	Sunset Ravine Trail	132nd Ave SE to Sunset Ravine Park Trail	Maintain existing soft surface loop trail around school; Sign	Neighborhood to school connection; Access to park and services; Per Subarea Plan	4	2	2	1	9	$1,600
S987	SE 36th St	128th to 150th Ave SE	Bus passenger waiting areas on north side at bus stops	Access to transit, offices, shopping, Bellevue Community College	4	2	2	1	9	$17,000
S933	SE 38th St/124th Ave SE	128th Ave SE to Coal Creek Pkwy	Construct sidewalks on both sides where missing	Access to Factoria Square, Newport High School, Lake Washington Blvd rec. corridor, transit; EBTS rec; Factoria rec; Safety;	4	2	2	1	9	$0
S857	NE 5th St	120th Ave NE to 124th Ave NE	Construct sidewalk where missing	Neighborhood to shopping connections; Safety	4	2	2	1	9	$453,900
S900	Main St	116th Ave to 112th Ave	Construct widened sidewalk on I-405 overpass; Construct trail link through City Hall campus; Improve ped environment on City Hall frontage including lighting	Part of Lake to Lake trail; Major pedestrian corridor	4	2	2	1	9	$463,500
S868	Lake Hills Connector	116th Ave SE to 140th Ave SE	Construct sidewalk on south side where missing; Install signing; P729 Paved Path between SE 8th & Richards Rd	Access to parks & schools; Bus route; Safety; Major East-west ped linkage; EBTS rec.	4	2	2	1	9	$2,505,800
S943	I-405 Downtown Crossing	116th Ave NE to 112th Ave NE	Construct sidewalk on one side of new facility in conjunction with I-405 Downtown Access Project. Provide ped facilities in conjunction with any future overpasses	Provides another ped crossing over I-405; Access to transit, shopping, businesses. Downtown Access Ped/Bike Crossing Study recommendation	4	2	2	1	9	$0
S902	Main St	112th Ave to Bellevue Way	Construct sidewalk where necessary on both sides; Developers to construct sidewalk to Downtown standards	Major ped trail link; Part of Lake to Lake Trail	4	2	2	1	9	$213,100

Table VII-3 (continued)
Highest Priority Pedestrian Projects

					Prioritization Criteria					
Bellevue Project No.	**Link**	**Limits**	**Description**	**Justification/Benefits**	**LOS**	**Transit Propensity**	**Transit Attractors**	**Amenities**	**Total**	**COST**
S891	SE 8th St	112th Ave SE to Lake Hills Connector	Construct sidewalk or separated paved path on both sides where missing; Acquire easements as necessary	Key missing link; Park & Ride; Bus route; Safety; EBTS rec.; Lake to Lake Trail	4	2	2	1	9	$0
S866	NE 8th St	112th Ave NE to 120th Ave NE	Construct sidewalk on both sides where missing; Improve safety on I-405 interchange for E-W peds	Safety; System continuity; Wilburton Subarea rec.; Access to shopping, hospital, downtown & bus route; EBTS rec.; Downtown rec.	4	2	2	1	9	$117,200
S922	NE 11th St	110th Ave NE to 112th Ave NE	Construct sidewalk on both sides; developers should build	Access to library, park, offices & residential areas; Safety; Access to transit	4	3	2	0	9	$115,800
S915	NE 12th St	106th Ave NE to Bellevue Way	Construct sidewalk on north side; Developer should build	Downtown Study; Access to transit; Access to Downtown; Safety	4	2	2	1	9	$264,200

S/W = Sidewalk WW = Walkway rec = recommendation CIP = Capital Improvement Project Xings = crossings
P&R = park-and-ride BCC = Bellevue Community College ROW = right-of-way