

NE 45th Street Corridor

Transit Speed & Reliability and Vehicle Congestion



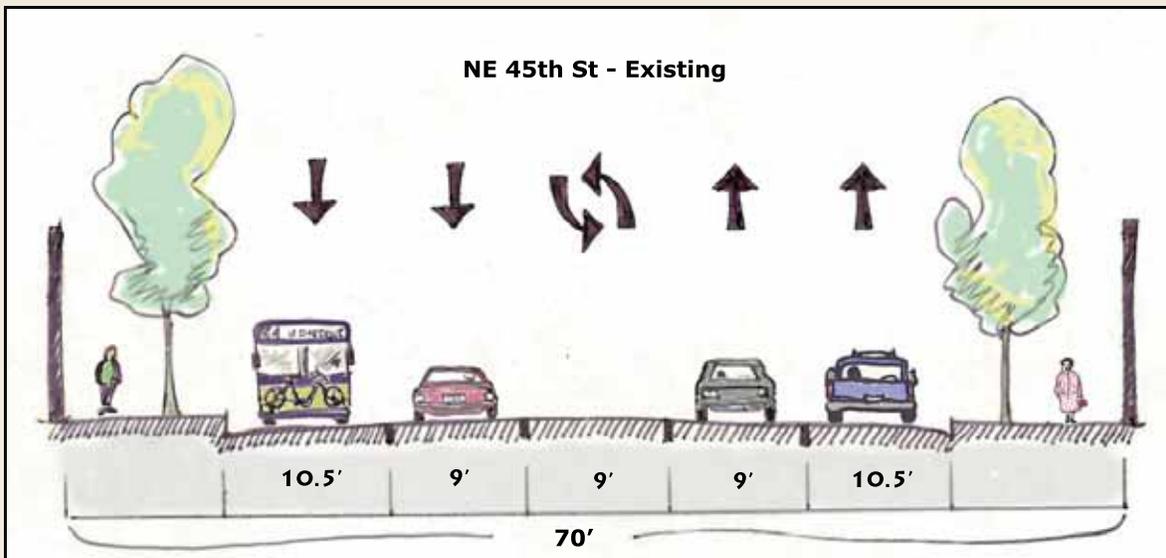
Add westbound Business Access and Transit-only (BAT) lane by restricting left-turns to improve transit speed & reliability and reduce congestion.

Priority Rating: High
 Cost Estimate: \$1.04 million

Problems and Issues

- NE 45th St is a key segment of Seattle's Urban Village Transit Network, providing the primary transit (including electric trolley) route from the University District to the Wallingford, Fremont, and Ballard urban villages. This roadway experiences severe traffic congestion during most times of day, and is one of the corridors where the City can receive additional service hours from King County Metro if transit speeds are improved by 10%.
- During the PM peak period, average vehicle speeds are 9-11 miles per hour (LOS E and F) between I-5 and 15th Ave NE. Transit vehicle speeds are substantially slower (~6 mph) due to passenger loading and operation in mixed traffic.
- Excessive vehicle queues are preventing buses from easily accessing the 6 bus stops along this corridor, which together average nearly 3400 boardings and alightings each weekday.
- 288 buses per weekday (66 during PM peak) travel westbound, and 221 buses per day (44 PM peak) travel eastbound along this corridor.

Existing PM Peak Travel Speeds	
Vehicle	MPH
Auto- Westbound	11.1
Auto- Eastbound	9.4
Transit - Westbound	6.5
Transit - Eastbound	5.8



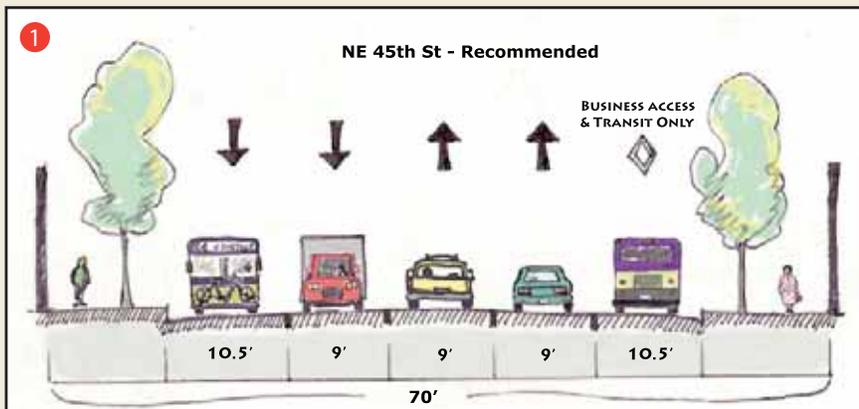
University Area Transportation Action Strategy

NE 45th Street Corridor (Continued)

Recommended Actions

- 1 Provide a westbound transit and business-access only (BAT) lane from University Way NE to 7th Ave NE along the north curb lane by converting the center turn lane and prohibiting left turns off of 45th St. An extension of the BAT lane to 15th Ave NE should be considered if additional transit time savings is significant and if one general purpose lane is sufficient to handle traffic for that one block stretch of NE 45th St.
- 2 Accommodate key turning movements that would be restricted with implementation of the BAT lane by considering traffic signal re-timing, lengthening of certain turn pockets (e.g. left-turn to 15th Ave from NE 45th St), and directional signage at key locations to maintain business access. For example, traffic currently going westbound on 45th St to southbound on Roosevelt Way (the most common turning movement along this roadway segment) could be routed north onto 11th Ave, west on 47th St, and south onto Roosevelt Way; or could make a left at 15th Ave NE and access the University Bridge via Campus Parkway.
- Conduct outreach to affected business and property owners along the corridor to ensure access needs can be met and incorporated into the design.
- Prioritize pedestrian and bicycle improvements on NE 45th St, NE 43rd St, and NE 47th St (such as UATAS projects #6 and #28) to help mitigate impacts of additional and displaced traffic from the BAT lane. (Note: UATAS traffic demand model analysis and past experience from other cities indicate that many drivers will anticipate the turn restrictions and utilize the street grid to adjust their trip accordingly - i.e. the impact of the turn restrictions will likely be dispersed broadly across the study area.)

NE 45th St from 7th to 15th	Travel Time in Seconds		Travel Time Change	
	Existing	With BAT	Seconds	Percent
Auto – Westbound	166	98	- 68	- 41%
Auto – Eastbound	196	172	- 25	- 13%
Auto – Westbound to Southbound on Roosevelt	68	130	61	90%
Transit – Westbound	286	159	-127	- 44%
Transit – Eastbound	316	292	- 25	- 8%



15th Ave NE/NE 45th St

Transit Speed & Reliability; Congestion Management



Extend left-turn lane pocket and modify signal to move more buses through each signal cycle and increase transit speeds.

Priority Rating: High
Cost Estimate: \$97,000

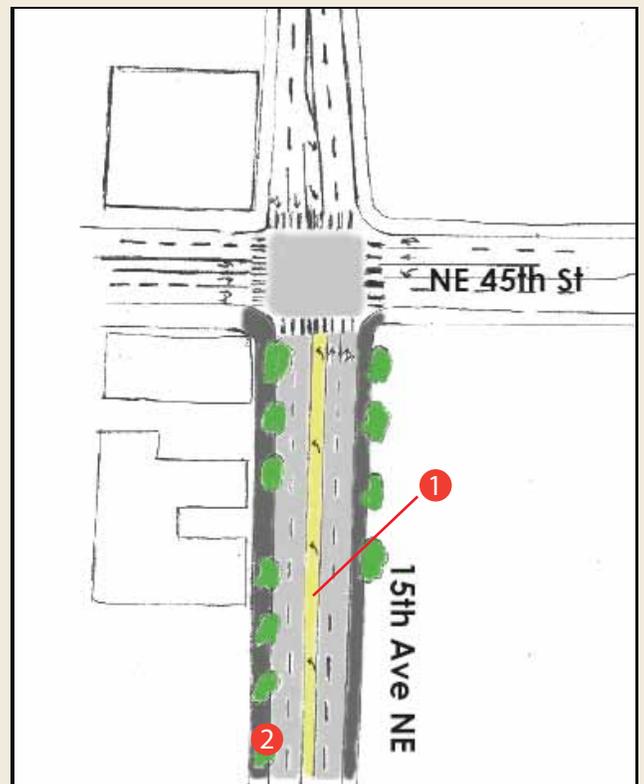
Problems and Issues

- This intersection includes an important turning movement of a primary Urban Village Transit Network (UVTN) corridor (with electric trolley service to and from Wallingford and Ballard).
- There are excessive delays at this intersection. Many northbound buses on 15th Ave turning onto NE 45th St (westbound) can't fit in the left-turn lane and/or can't make it through the intersection in one signal cycle. Buses are getting unnecessarily delayed, while northbound general purpose traffic can get blocked by vehicles waiting to enter the turn lane.
- Increased traffic volumes are projected to further reduce intersection level-of-service (and transit speed & reliability) if no action is taken.



Recommended Actions

- 1 Increase length of the northbound-to-westbound left turn pocket to accommodate more buses.
 - 2 Remove several on-street parking spaces on 15th Ave near 43rd St to install longer turn lane. Maintain 2 southbound through lanes during peak periods, and work with the adjacent Malloy Apartments to accommodate their loading space needs.
- Lengthen the northbound left-turn phase to clear more buses in one signal cycle.
 - Coordinate signal timing with NE 45th St/University Way intersection to minimize westbound turning queues from 15th Ave.



Roosevelt Way NE/11th Avenue NE Corridor
Bicycle and Pedestrian Mobility & Safety



Restore all-day parking and add bicycle lanes to increase bicycle and pedestrian safety & mobility.

Priority Rating: High
Cost Estimate: \$480,000

Problems and Issues

- The right-side curb lanes on Roosevelt Way NE and 11th/12th Ave NE allow parking most of the day, except during the peak periods when parking is restricted to accommodate an additional general purpose lane. These restrictions force pedestrians to cross three lanes of traffic (substantially decreasing safety and comfort) and encourage high speeds through several growing neighborhood business districts.
- ① Due to its gentle grades, directness between business districts and downtown, and relative lack of signals, this one-way couplet is a major north-south bicycle route. No bicycle facilities are provided, however, and the existing configuration (with narrow curb lanes) exposes cyclists to the “door zone” of parked cars and deters all but the hardest of riders. The Seattle Bicycle Master Plan recommends several improvement options, although curb extensions on the left side of these streets limit feasible bike improvements to the right-side of the roadways.
- The corridor is part of the Urban Village Transit Network (UVTN), with 22 buses on Roosevelt during the AM peak period and up to 59 buses on 11th Ave during the PM peak.
- The Roosevelt Neighborhood Plan calls for the City to consider returning Roosevelt Way NE and 11th Ave NE to two-way streets. UATAS analysis indicates that such a revision is not warranted at this time.



Typical lane widths for Roosevelt and 11th/12th Ave



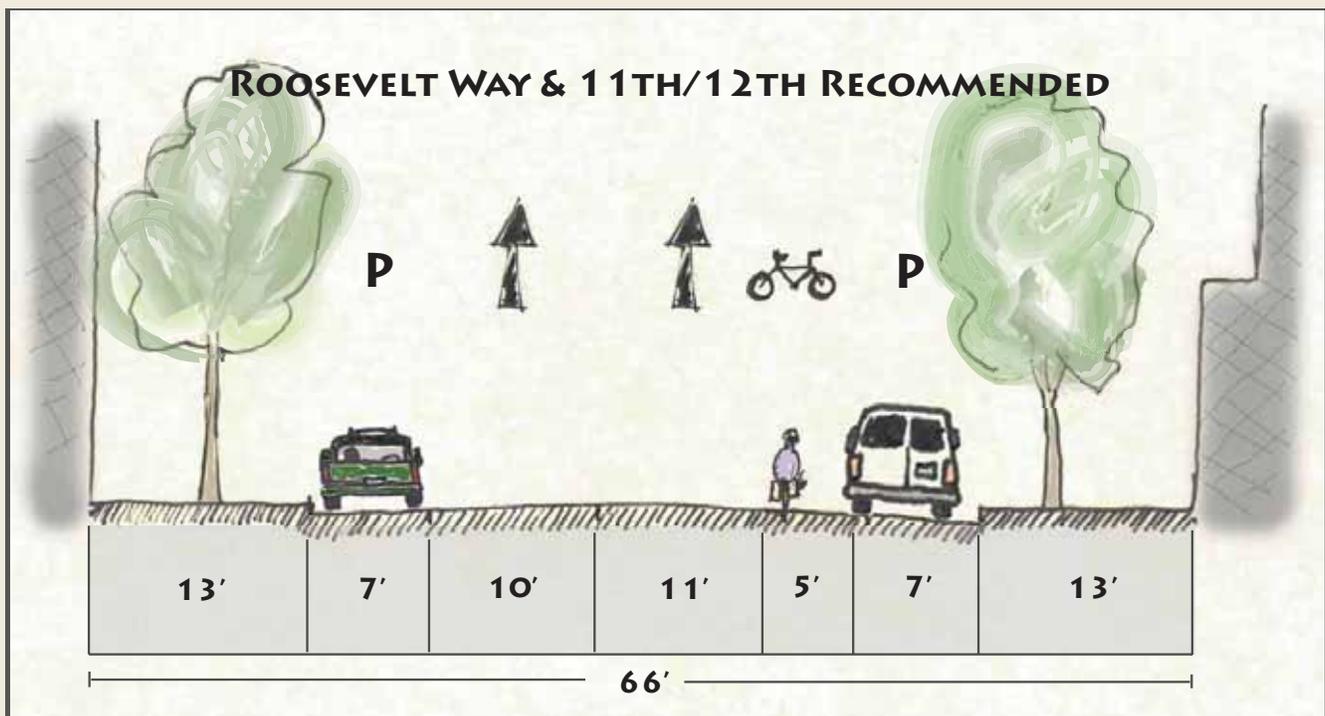
Parking not only provides access to local businesses along Roosevelt Way and 11th/12th Ave, but a buffer for pedestrians travelling on narrow sidewalks.

University Area Transportation Action Strategy

Roosevelt Way NE/11th Avenue NE Corridor (Continued)

Recommended Actions

- Restore all-day parking on both sides of the street by removing peak hour restrictions on the right-side curb lanes.
- Restripe roadway to provide a southbound bicycle lane on Roosevelt Way and a northbound bicycle lane on 11th/12th Ave. Work with SDOT's Ped/Bike Program to design transitions from bicycle lanes to vehicle right-turn lanes at the intersections of NE 50th St, NE 45th St, and other locations with heavy turning movements.
- Begin to allow pedestrian curb-bulbs on both sides of the street (in feasible locations) to decrease crossing distances and improve pedestrian safety and comfort. Areas of particular benefit would include the Roosevelt business district and at key crossings in the University District where pedestrian volumes are high.
- Work with King County Metro on street design concepts that include bicycle lanes and in-lane bus stops. Coordinate in-lane stops with potential increases in transit service, such as when light rail operation to Roosevelt begins.



Burke Gilman Trail/25th Ave NE
Pedestrian and Bicycle Safety



Modify signal timing and intersection design, and upgrade crossing to improve safety for pedestrians and bicyclists.

Priority Rating: High
Cost Estimate: \$102,000

Problems and Issues

- 1 High volumes of pedestrians and bicycles cross this intersection as a part of the Burke Gilman Trail.
- This intersection has one of the highest rates of turning vehicle/pedestrian conflicts in the study area.
- 2 bicycle collisions were reported at this intersection between 2004-2006, and historically the intersection has been considered a high collision location.
- The Bicycle Master Plan identified a need to “further study” this intersection for necessary improvements, which the UATAS study has done.



Recommended Actions

- 1 Provide a raised, colored crosswalk on the south leg of the intersection where the Burke Gilman Trail crosses 25th Ave NE.
- 2 Provide a tighter turning radius for the eastbound-to-southbound movement from Ravenna Place NE onto 25th Ave.
- Provide a 5-10 sec “lead phase” for the pedestrians and bicyclists crossing the trail.



NE 43rd St Corridor

Pedestrian Mobility & Safety; Transit Connections



Widen sidewalks and add curb extensions to improve pedestrian capacity & safety and encourage transit use.

Priority Rating: High
Cost Estimate: \$930,000

Problems and Issues

- 1 NE 43rd St will be the major east-west pedestrian corridor linking the University campus and neighborhood with Sound Transit's light rail station at Brooklyn Ave.
- In anticipation of light rail, the City has given a pedestrian priority designation to NE 43rd St. This street is also designated a Neighborhood Green Street by the University District Neighborhood Plan.
- All or portions of the sidewalk fail to meet both the pedestrian clear space and the pedestrian buffer space performance measures as established by UATAS analysis.
- There is currently more than enough right-of-way to widen sidewalks while maintaining adequate roadway width for vehicles.

Recommended Actions

- Widen sidewalks and place curb extensions on NE 43rd St between Roosevelt Way NE and 15th Ave NE.



Eastlake Avenue E

Bicycle Mobility and Safety



Add bicycle signal queue jump and upgrade sidewalk access to improve bicycle safety and comfort

Priority Rating: High
 Cost Estimate: \$496,000

Problems and Issues

- Eastlake Ave E (University Bridge) to Harvard Ave E is a critical path for many cyclists traveling between Capitol Hill and the University District.
- 1 Experienced cyclists use the southbound Eastlake Ave left-turn lane to access Harvard Ave E, merging from the Fuhrman Ave intersection across 2 lanes of heavy traffic.
- 2 Less confident cyclists continue straight through the Fuhrman intersection and access Harvard Ave E from a signalized crosswalk farther south on Eastlake Ave, although raised curbing and sidewalk clutter (large utility and Metro poles, overgrown vegetation) make it difficult to reach the pedestrian-actuated push button on the sidewalk.
- 4 bicycle-vehicle crashes were reported on Eastlake Ave between Harvard Ave E and Fuhrman Ave E between 2004-2006.



Recommended Actions

- 1 Provide a southbound bicycle queue jump at Fuhrman Ave signal to allow lead time for cyclists to merge across Eastlake before general purpose southbound traffic gets the green light. This movement could be coordinated with the left-turn only signal phase for southbound vehicles turning onto Fuhrman Ave E.
- Upgrade curb ramps on west side of Eastlake to improve bicycle access to sidewalk and the pedestrian push button farther south. Look to consolidate utility and transit poles, and widen sidewalks, when opportunities allow.



Bicycle-only signals have been effectively implemented in other cities, such as Portland and Berkeley.

Eastlake Ave and Campus Parkway Bicycle and Pedestrian Safety & Mobility

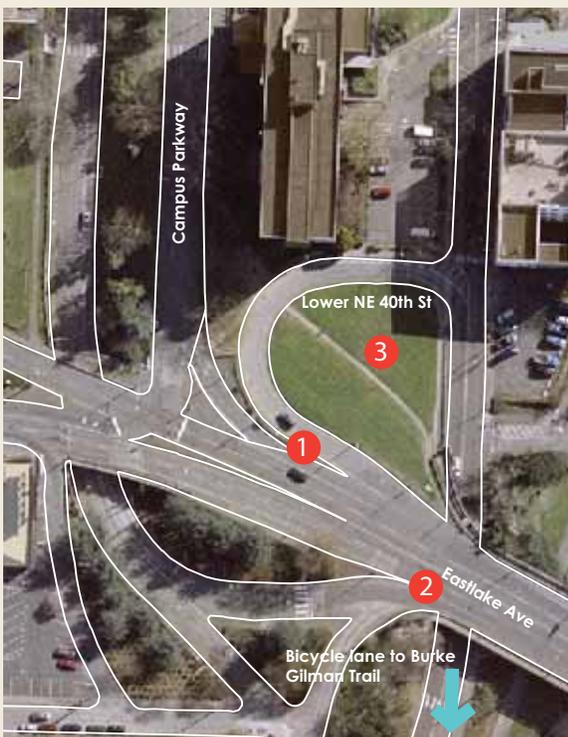


Reconfigure intersection, and add bicycle lanes and sidewalks, to reduce conflicts between modes and improve safety.

Priority Rating: High
Cost Estimate: \$1.17 million

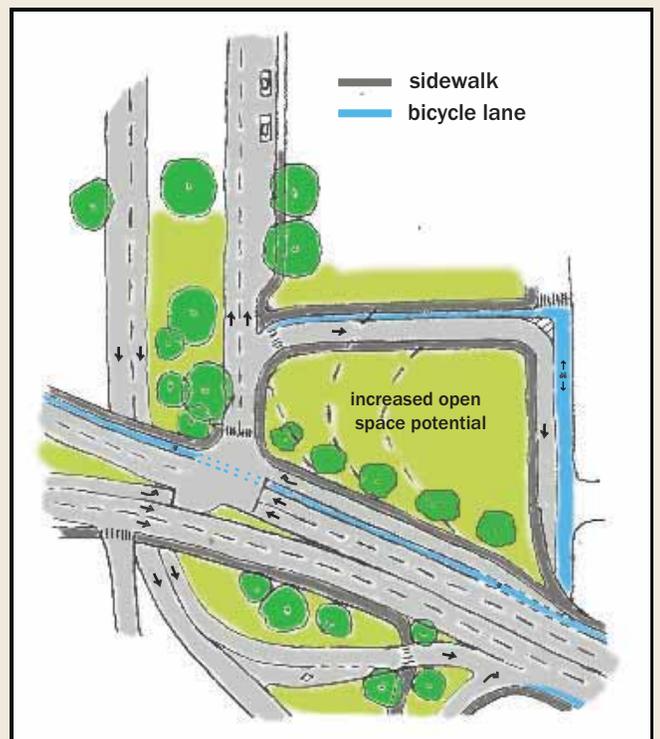
Problems and Issues

- 1 Multiple conflict points between right-turning vehicles and cyclists are a significant problem at the north end of the University Bridge:
 - Northbound to westbound vehicles turning onto the NE 40th St loop ramp travelling at excessive speeds.
 - Eastbound vehicles turning onto Campus Parkway.
 - Heavy bicycle demand for both right-turn movements as well as for continuation northbound.
- 2 Bicycle lanes currently do not extend to the north of the bridge, even though this segment is critical to the Urban Trails and Bikeways System and the planned Lake Union Loop Trail, and is a heavily-utilized connector to the Burke Gilman Trail.
- 3 Sidewalks are missing or in poor condition throughout the project area, and an informal trail across the grass between the bridge and Campus Parkway indicates demand for improved facilities.



Recommended Actions

- Consolidate right-turns by relocating the westbound loop ramp from Eastlake Ave to Campus Parkway. Create a single right-turn pocket for vehicles and cyclists travelling to Campus Parkway and the loop ramp.
- Add/improve sidewalks along Eastlake Ave and the NE 40th St ramp.
- Add continuous northbound bike lanes on Eastlake Ave E between the University Bridge and 11th Ave NE.
- This action implements a “key corridor recommendation” in the Bicycle Master Plan and a “gateway treatment” recommendation from the neighborhood plan.



University Way NE from NE 50th St to 15th Ave NE

Pedestrian & Bicycle Mobility, Urban Design

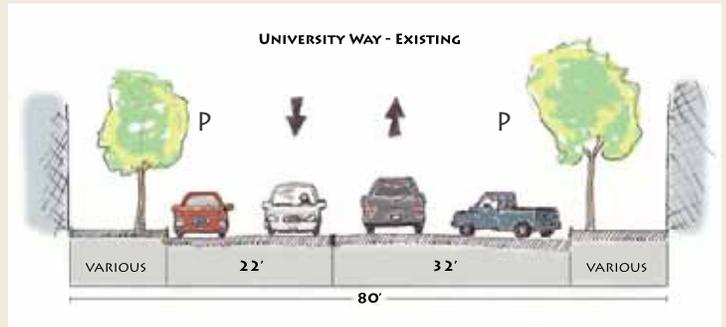


Reconfigure University Way to provide dedicated bicycle facilities, wider sidewalks, and improved urban design.

Priority Rating: High
Cost Estimate: \$2.7 million

Problems and Issues

- University Way is the “main street” of the University District and Urban Center, and a designated bicycle route. Several years ago it was upgraded south of NE 50th St.
- North of 50th St the roadway is wider, although sidewalk widths and pedestrian “buffer” spaces are inadequate and no bicycle facility is provided. The Bicycle Master Plan recommends full bicycle lanes along this segment.
- University Way is a major transit route, with direct service to downtown. Access to bus waiting areas and their general quality should be improved as housing density and commercial activity increase over time.



Recommended Actions - Phase 1

- In the near term, repair broken sidewalk segments and tree pits, and install pedestrian lighting and banner poles, to improve the pedestrian environment of “The Ave” north of NE 50th St.
- As the area redevelops, prohibit new curb cuts and prioritize vehicular access from the alleys in order to maintain and/or improve the pedestrian environment.
- By 2012, undertake a parking analysis to identify parking needs and key issues.



Increased road width and the University Heights Center/Farmers' Market (above) provide many urban design opportunities for University Way north of NE 50th St.

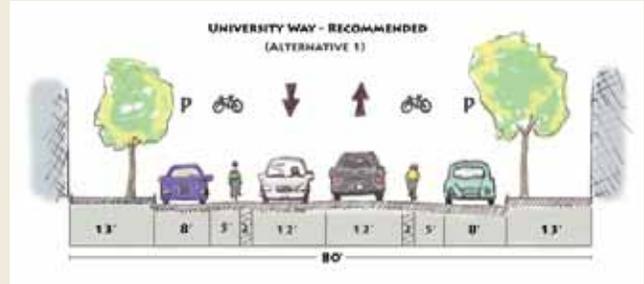
University Area Transportation Action Strategy

University Way NE (Continued)

Recommended Actions - Phase 2

- Reconstruct University Way NE from NE 50th St to 15th Ave NE with the following elements:

- Wider sidewalks at key locations
- Pedestrian-scaled lighting
- Dedicated bicycle facilities
- Bicycle parking
- Additional street trees & landscaping
- High-amenity transit stops



Phase 2 - Alternative 1

● Street Design - Alternative 1

Install extra-wide, or “buffered,” bicycle lanes to encourage bicycling and improve bicycle safety. Where feasible, install in-lane transit stops to improve transit speed and transit waiting areas.

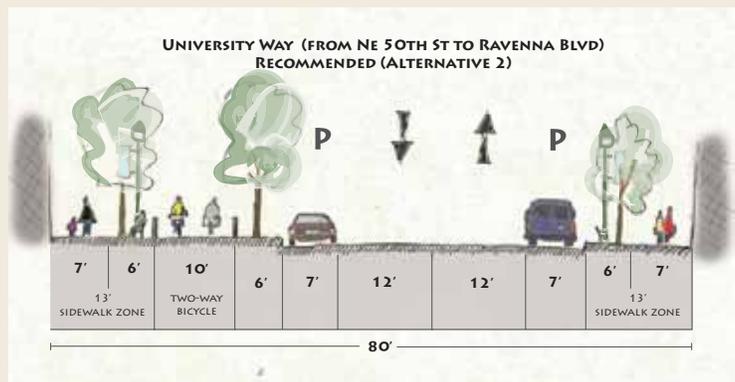
(This alternative would allow the existing curb-to-curb roadway width to remain as it is.)

● Street Design - Alternative 2

Reconstruct University Way NE from NE 50th St to 15th Ave NE to provide a dedicated two-way, 10-ft wide bicycle “sidepath” in addition to wider sidewalks, pedestrian lighting, and improved urban design. The “sidepath” would be on the west side of NE 50th St from the University Heights Center to Ravenna Blvd, which would provide a high-quality, dedicated bicycle facility from the heart of the University District to Greenlake without forcing users into mixed traffic.

Provide in-lane transit stops to improve transit speed, reliability and comfort. With this alternative, there would be no conflict with bicycles and buses.

(This alternative would require significant reconstruction of University Way due to the reconfiguration of roadway width.)



Phase 2 - Alternative 2

Ravenna Ave NE/NE 55th St Corridor

Traffic, Pedestrian & Bicycle Safety



Reconfigure corridor to provide curbs, gutters and sidewalks, and to delineate street corners to improve safety

Priority Rating: High
Cost Estimate: \$1.2 million

Problems and Issues

- Where Ravenna Ave NE, NE 55th St, NE 54th St, 22nd Ave NE, and Ravenna Place NE come together is an awkward and confusing series of intersections.
- Poorly-defined street corners confuse some drivers and encourage others to speed.
- Long crossing distances and a lack of sidewalks create an extremely poor pedestrian environment and a gap in the bicycle network. The Bicycle Master Plan calls for improved connections to the adjacent off-street trail within Ravenna Park.



- NE Ravenna Place is designated as a Neighborhood Green Street.

Recommended Actions

- Reconstruct the geometries of the Ravenna Ave NE, NE 54th/55th St, 22nd Ave NE, & Ravenna Pl NE corridor with more regularized intersections and tighter corners, while maintaining sufficient curb radii for turning buses.
- Add new curbs, sidewalks, landscaping, and crosswalks to improve and delineate pedestrian facilities, and improve access for cyclists to and from the off-street, multi-use park trail at Ravenna Park.
- 1 If phasing is needed, prioritize the narrowing/landscaping of NE Ravenna Pl at 55th St to help reduce the speeds and volume of right-turning vehicles headed southbound for 25th Ave. Consider angled back-in parking on Ravenna Place as an additional traffic calming measure.

