

CHAPTER 8. Transportation Improvement Projects and Strategies

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Chapter 8. Transportation Improvement Projects and Strategies

This chapter describes transportation improvement projects and strategies by subarea to address the University Area's transportation problems described in Chapter 6. While some projects in the following list came from previous studies, the consultant and City staff team also developed a number of new projects and approaches, several of which originated from open houses and community meetings. **Figures 8-1** through **8-8** show the locations of these improvements, grouped by category.

The project descriptions below should be considered at a first-stage, planning level of analysis. If and when projects move forward to conceptual engineering and CIP development, much more analysis will be completed and the project descriptions could change. Although not meant to be exhaustive, the particular potential benefits, tradeoffs or conflicts between modes identified by the UATS project team and through citizen comment are documented for consideration for future project development.

Each project description also includes a planning-level cost estimate in 2002 dollars. The assumptions used to develop the cost estimates are described briefly in the Appendix. Projects identified during the study process that were not advanced to the evaluation stage are also described at the end of this chapter. Chapter 9 provides an evaluation of each of the improvement projects and strategies described in this chapter.

Figure 8-1. Eastlake Avenue E/ Campus Parkway/ NE 40th Street Corridor Improvements

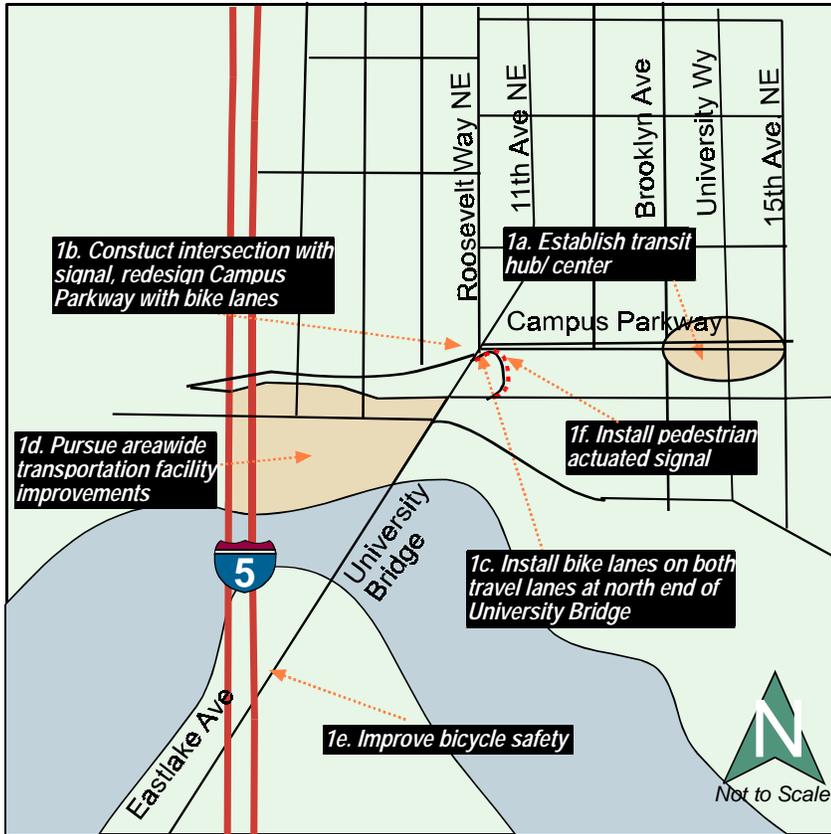


Figure 8-2. Montlake Boulevard NE/ NE Pacific Street Corridors Improvements

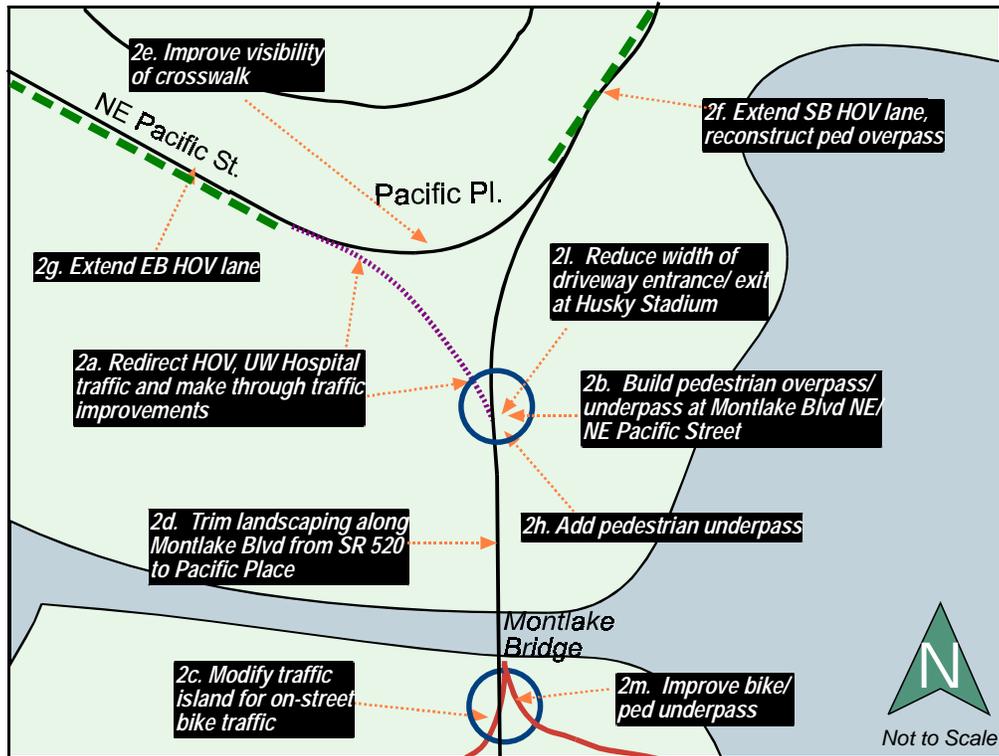


Figure 8-3. Major East-West Access Corridors Improvements, Major North-South Access Corridors Improvements

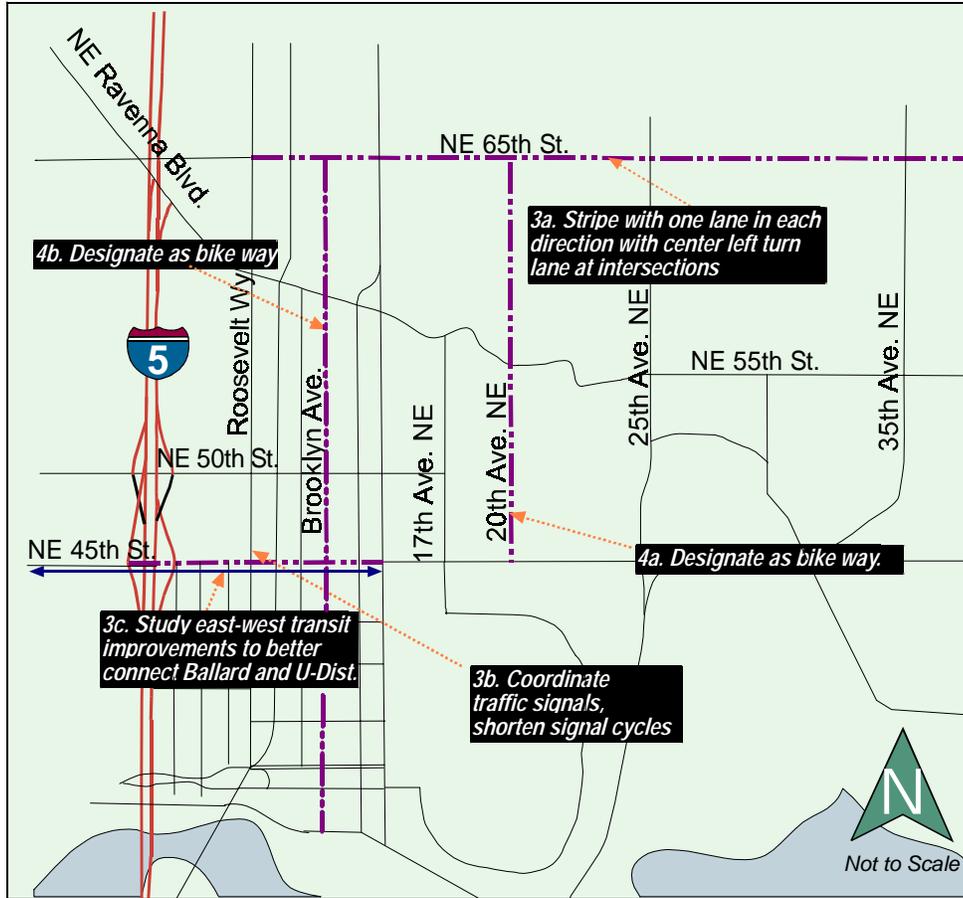


Figure 8-4. I-5 Crossing Improvements

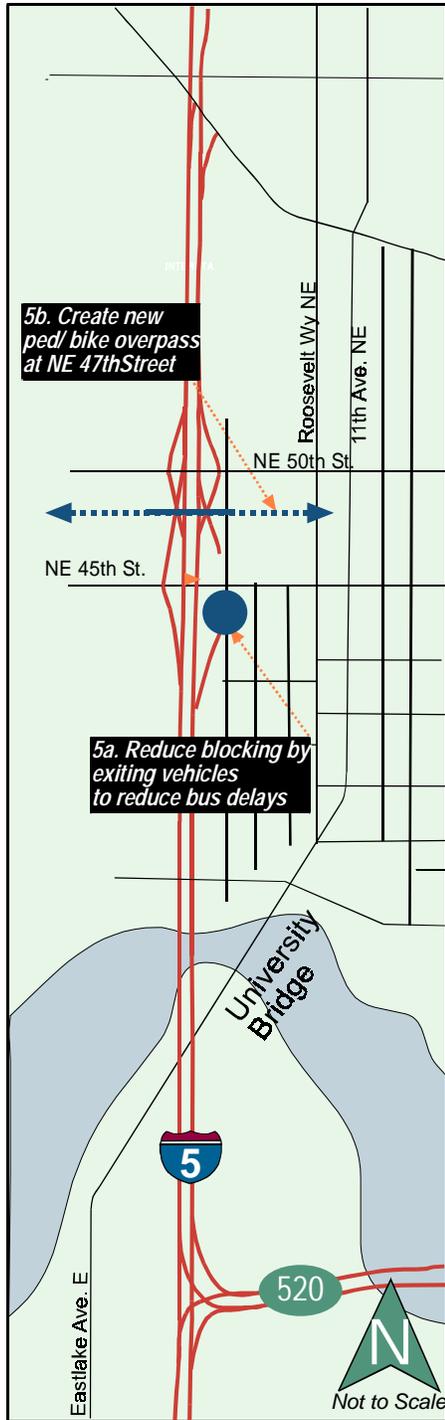


Figure 8-5. University Village Area Access Improvements

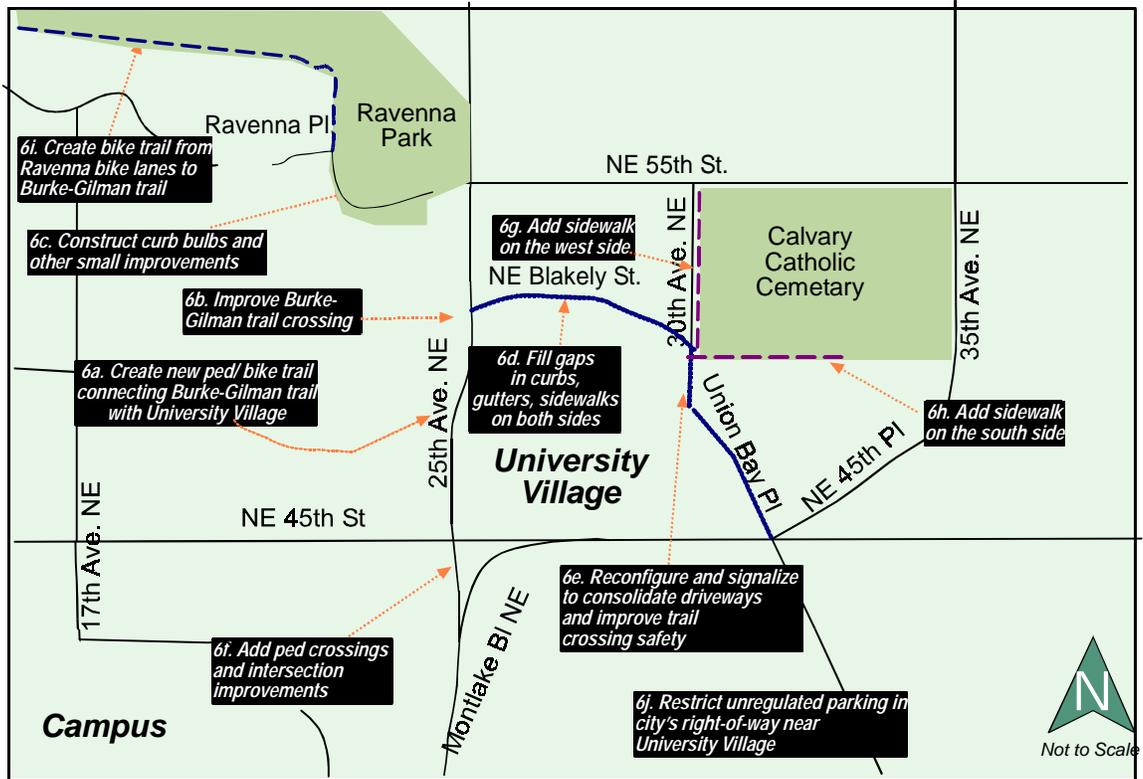


Figure 8-6. Transit and HOV Access Improvements

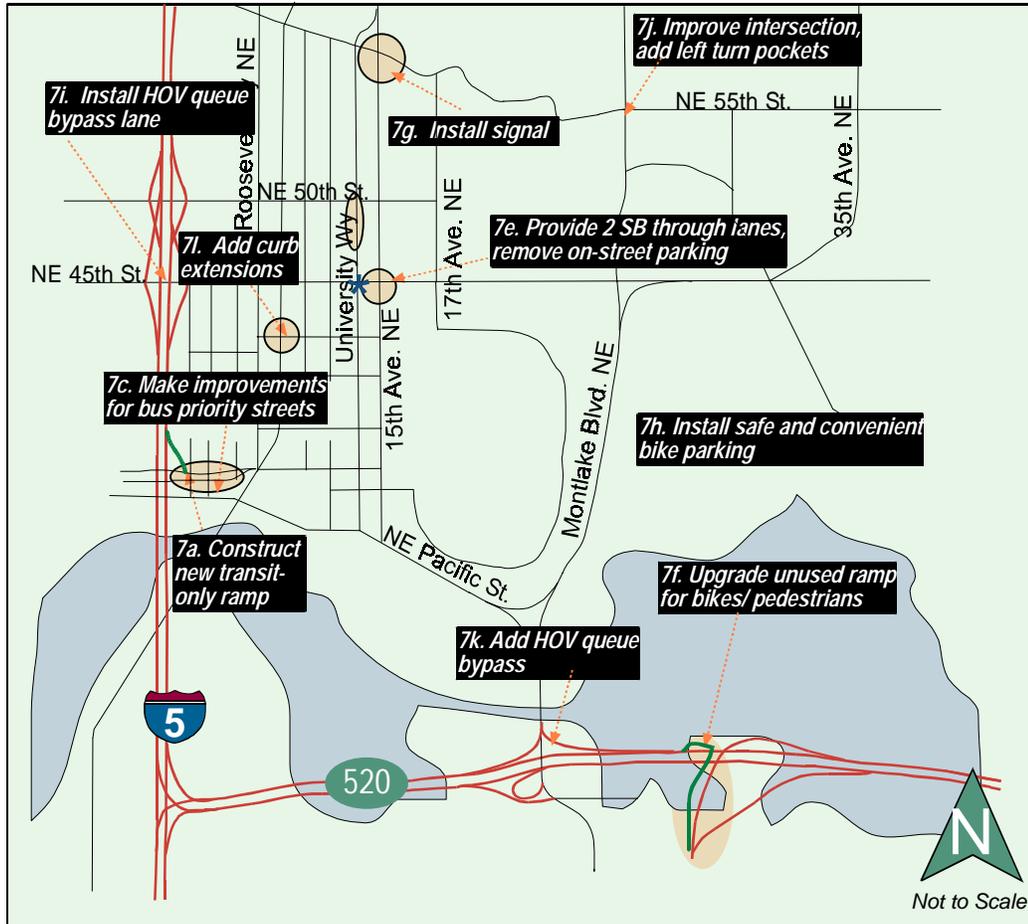


Figure 8-7. Light Rail Station Area Improvements

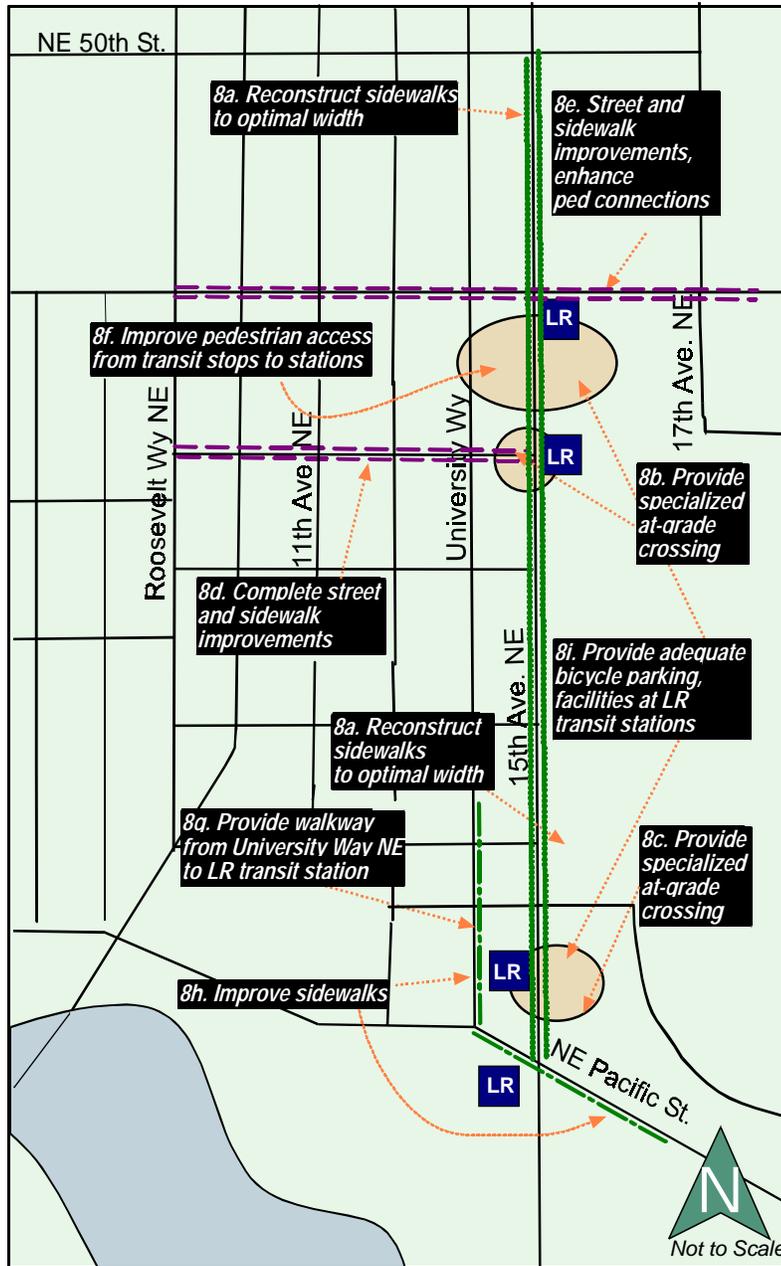
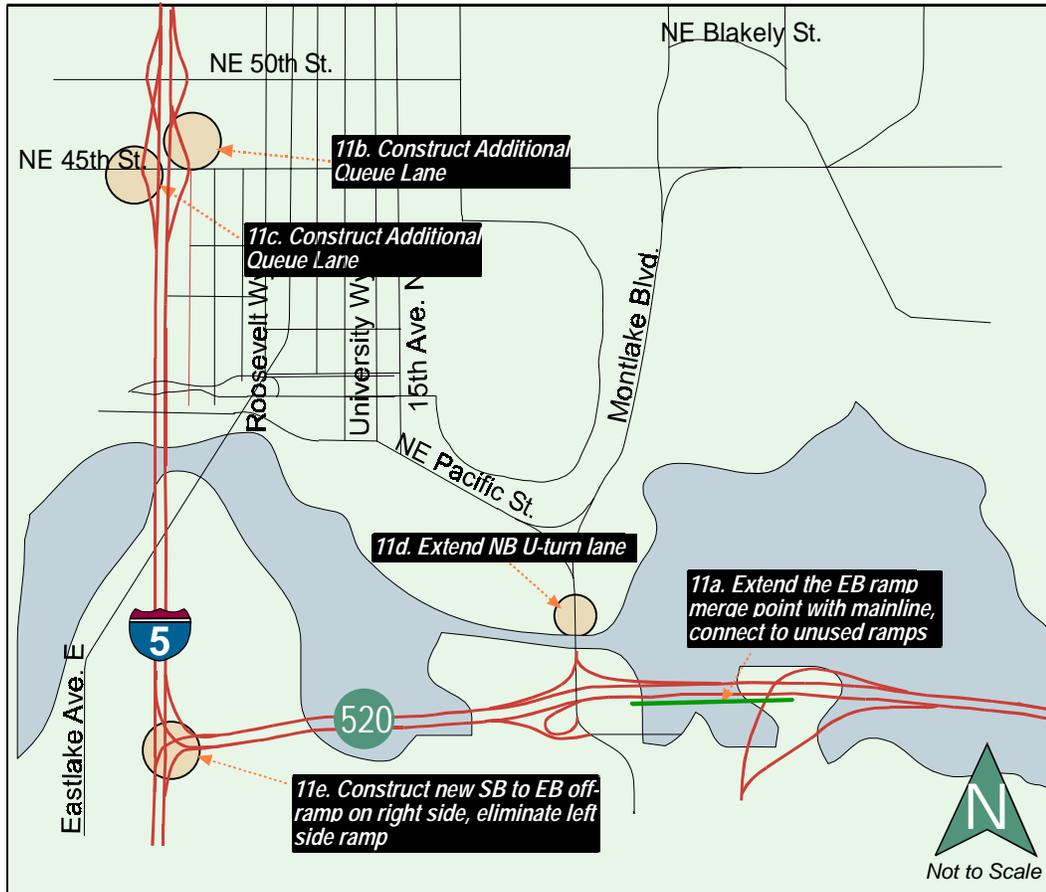


Figure 8-8. Freeway Ramp Storage Expansion Improvements (SR-520, I-5)



1. EASTLAKE AVENUE E/CAMPUS PARKWAY/NE 40TH STREET CORRIDORS

1-a. Transit Hub/Center on Campus Parkway

Establish Transit Hub/Center on Campus Parkway between 15th Avenue NE and Brooklyn Avenue NE, with the possible inclusion of bus layover spaces. No through vehicles except transit and local access will be allowed in the Transit Hub. The general concept is similar to the Bellevue and Northgate Transit Centers.

Thirteen King County Metro bus routes and several Snohomish County bus routes use this area, making it as a natural transit center at this time. The existing wide median will be used to establish the transit center. This improvement does not support the Neighborhood Plan's green space goal and would be very expensive. It may also have an impact on motor vehicle traffic and would need to accommodate bicyclists and pedestrians. Depending on the light rail route between the downtown and U.W., a Transit Center may provide a good connection to the new light rail station.

Cost estimate: \$5-10 million

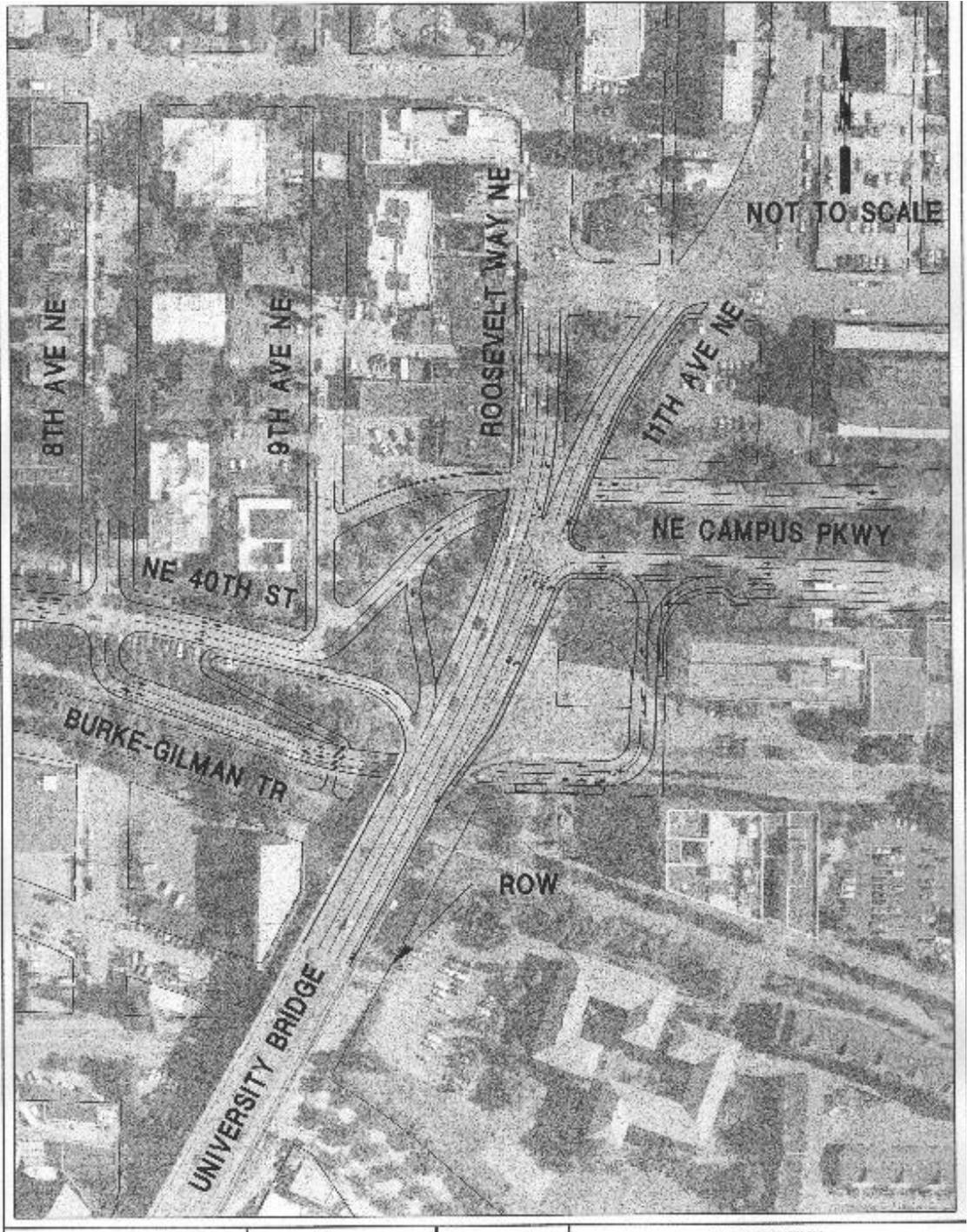
1-b. Intersection improvements at Eastlake Avenue E and Campus Parkway/NE 40th Street

Reconfigure the northbound to westbound loop ramp at the intersection of Campus Parkway and Eastlake Avenue E. **Figure 8-9** shows the concept. The loop ramp would be shared with the northbound right turn lane so that right turn lane and loop ramp will be consolidated to minimize conflicts with the bike lane. A bike left-turn pocket could be added where the loop ramp meets Lower 40th Street. Concern has been expressed that bicyclists would have conflicts with the westbound/northbound transit lane (see project 7-c).

The original concept would have created a regular at-grade intersection with a signal. While this could have reduced the problem of bicycle/auto conflicts both north and southbound, it would have created significant traffic impact in terms of delay that cannot be mitigated. Community leaders have expressed support for this concept.

Cost estimate: \$1.2 million

Figure 8-9. Eastlake Avenue E, Campus Parkway and NE 40th Street Corridor Improvements (drawn by KPG)



1-c. Bike lanes on Eastlake Avenue E at Campus Parkway

Stripe a dashed bike lane through north and southbound "intersections," extending the existing bike lane on the University Bridge, and consider a "blue bike lane" on Eastlake Avenue E at the Campus Parkway exit loop ramps as a second step. Recently installed by the City of Portland in select locations, this would improve alert drivers exiting Eastlake Avenue onto the ramps that bikes may be on their right side. Vehicles must yield to bikes.

A striped bike lane at this location would extend the northbound and southbound University Bridge bike lanes and improve system connectivity for bicyclists accessing the study area and areas to the north and south (entering the bridge). The lane would address bike/vehicle conflicts along this major bicycle corridor and might receive funding as a demonstration project. The community groups in the area supported this project. A City decision on whether to try, and how to evaluate, "blue bike lanes" would be the next step.

Cost estimate: \$10,000

1-d. Small area transportation facility improvements in the Northlake Way area

Pursue area-wide transportation facility improvements for the area bounded by NE 40th Street, NE Pacific Street (under University Bridge), 6th Avenue NE (under I-5 Ship Canal Bridge) and the Ship Canal. The improvements should include the following:

- Reconstructing NE Northlake Way from NE Pacific Street (University Bridge) to 6th Avenue NE with curbs, gutters and sidewalks on both sides of the street;
- Reconstructing 7th Avenue NE and 8th Avenue NE between NE 40th Street and NE Northlake Place with curbs, gutters and sidewalks;
- Adding bicycle lanes to connect Burke-Gilman Trail to Boat Street; and
- Improving bus stops.

These improvements would be consistent with community plans calling for sidewalks and street trees on all new development south of the Burke-Gilman Trail and east of the University Bridge. Better definition of road, parking and sidewalk areas could reduce bicycle/pedestrian/vehicle conflict and improve access to businesses within the area and to the Burke-Gilman Trail. Sidewalks are missing, and the area should be brought up to current development

standards. A connection to the Burke-Gilman Trail is also needed. A short-term, lower cost alternative involving parking management in the area is rated higher (project 1-h).

Cost estimate: \$2.4 million

1-e. Ramp for bicyclists to access push button at Eastlake Avenue E/Harvard Avenue E crosswalk

Install a ramp on Eastlake so that bicyclists can easily access the existing pedestrian push button at the Eastlake Avenue E/Harvard Avenue E crosswalk. The waiting area would need to be expanded as well. This project would let bicyclists traveling up to Harvard Avenue use the pedestrian signal to cross the intersection safely. Turning left from southbound Eastlake Avenue E to Harvard Avenue E is difficult for bicyclists coming from the far-right bike lane.

Cost estimate: Not estimated.

1-f. Pedestrian actuated signal on 11th Avenue NE at NE 41st Street

Install a pedestrian actuated signal at the intersection of 11th Avenue NE and NE 41st Street with adequate sidewalks in the vicinity.

A new signal would provide an additional east-west pedestrian route across Roosevelt Way and 11th Avenue NE, and may prevent pedestrian/vehicle accidents. A new signal may slightly reduce traffic flow. Tying this signal to an improved pedestrian corridor should be pursued with new development in the area.

Cost estimate: \$150,000

1-g. Bicycle connection from Lower 40th Street to Eastlake Avenue E

Construct a new bicycle connection from Lower NE 40th Street to Eastlake Avenue E. Although a stairway is provided on the west side of Eastlake Avenue E at the north end of the University Bridge, the grade is steep, thus not accessible for bicyclists. This improvement concept is shown in **Figure 8-9**.

This project would improve bicycle mobility by providing a direct bike connection between Burke-Gilman and Eastlake Avenue. Project design could be challenging, due to the large grade difference between Eastlake Avenue E and NE 40th Street. The project is supported by community plans.

Cost estimate: \$100,000

1-h. Parking management in the Northlake Way area

Restrict unregulated parking in the area between Northlake Way and Lower 40th, under and west of the University Bridge, including the City right-of-way and at City properties. The unregulated parking may encourage U.W. and other area employees to drive to work. Regulating the parking may negatively affect businesses in the area or residents who rely on this parking. This is a short-term, lower cost alternative to area-wide improvements (1-d).

Cost estimate: Staff time

2. MONTLAKE BOULEVARD NE/NE PACIFIC STREET CORRIDORS

2-a. HOV, U.W. hospital access and through traffic improvements in the area of Montlake Boulevard NE/NE Pacific Street/NE Pacific Place

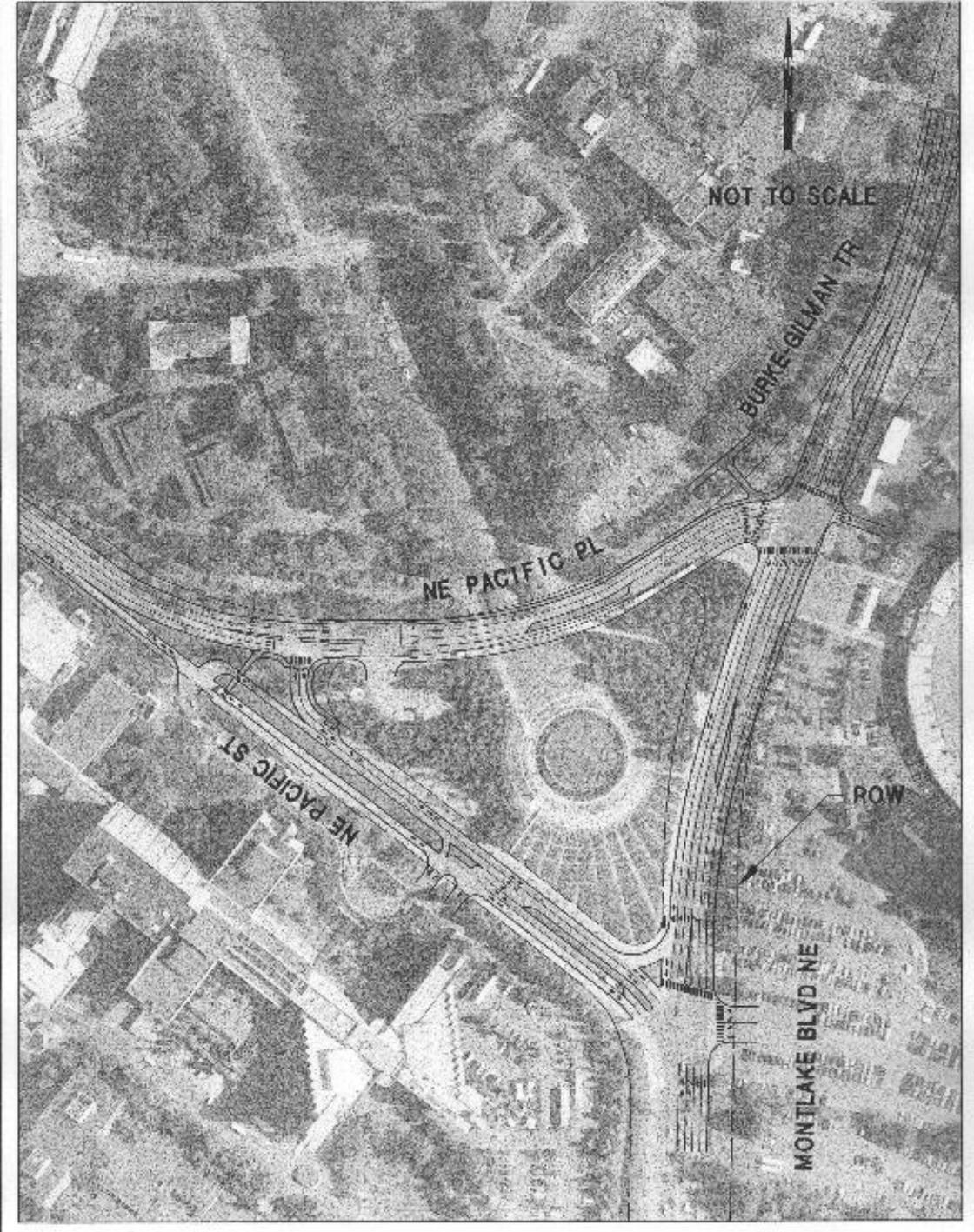
Redirect HOV and U.W. hospital-bound vehicles to use the northbound to westbound left turn lane at the Montlake Boulevard NE and NE Pacific Street intersection. Channel the through traffic on NE Pacific Street to NE Pacific Place. Widen Montlake Boulevard NE approaches to the intersection with NE Pacific Place and make NE Pacific Place a four-lane road. Make a connection between the Burke-Gilman Trail and the intersection of NE Pacific Place and Montlake Boulevard NE. A sidewalk should be provided on the north side of NE Pacific Place. Two new signals, at NE Pacific Street and NE Pacific Place, the intersection for HOVs, and the entrance of the Hospital parking underground structure, should be coordinated as one signal operation. This improvement concept is shown in **Figure 8-10**.

These improvements could potentially reduce conflicts between vehicles at the high accident areas on Montlake Bridge and Montlake Boulevard, while reducing traffic congestion and improving northbound traffic flow. These improvements would reduce transit delays and improve reliability as well as improve transit access to the U.W. health complex.

This project may be implemented as a potential interim project for the Trans-Lake study. A further study is needed to address several significant design issues, including an analysis of traffic impacts on event days.

Cost estimate: \$4.4 million

Figure 8-10. Montlake Boulevard NE and NE Pacific Street Corridor Improvements (drawn by KPG)



2-b. Pedestrian overpass/underpass at Montlake Boulevard NE/NE Pacific Street

Provide a pedestrian overpass (or underpass) over Montlake Boulevard NE at NE Pacific Street connecting the U.W. Hospital with parking areas east of Montlake Boulevard NE. This will eliminate the need for pedestrians from the Health campus to cross two busy streets: NE Pacific Street and Montlake Boulevard NE.

This crossing would improve access between the U.W. medical campus and the U.W. parking areas east of Montlake Boulevard. It reduces the accident potential for the high volumes of pedestrians crossing the two arterials and could reduce vehicle/bike conflicts. It is a high cost project. It is not directly tied to 2-a. An alternative crossing at Pacific Place (2-h) was rated higher.

Cost estimate: \$1.6 million

2-c. Traffic island modification at Montlake Boulevard NE/NE Shelby Street

Remove a portion of the traffic island and modify the channelization on the west side of Montlake Boulevard NE at the intersection with NE Shelby Street to help bicyclists get onto the southbound general traffic lane from the sidewalk on the Montlake Bridge. Consider installation of a bicycle symbol on southbound Montlake Boulevard NE south of the Montlake Bridge.

This is a low cost project, which can be implemented with existing resources. It removes a barrier to bicycling on Montlake Boulevard and would reduce vehicle/bike conflicts. A longer-term approach would redesign the west curb of Montlake Boulevard in this vicinity.

Cost estimate: \$30,000

2-d. Landscape trimming on Montlake Boulevard NE from SR 520 to NE Pacific Place

Trim landscaping, eliminate blind turns, and remove over-grown trees on both sides of Montlake Boulevard NE from SR 520 to NE Pacific Place. These low-cost improvements would enhance a pedestrian and bike connection between the Burke-Gilman Trail and the Montlake Bridge. It would also reduce pedestrian/bike conflicts. The proposal received positive community feedback. The City's Department of Design, Construction and Land Use (DCLU) currently notifies property owners and enforces compliance.

Cost estimate: Staff time

2-e. Improve visibility of NE Pacific Place crossing at Rainer Vista.

This project would improve pedestrian and bicyclist safety by making the mid-block crossing clearer and more visible. Four alternative concepts were discussed: consolidate the crosswalks located at both ends of the overpass at the highest point of Pacific Place, stripe a larger crosswalk, add directional signage in the area to better direct pedestrians and motor vehicles, and/or consider installation of in-pavement strobe lights. Seattle Transportation does not install strobe lights on a regular basis but does have a multi-year pilot installation near Seattle University.

The U.W. Transportation Office reported that a consolidation of the crosswalks was attempted before, but that pedestrians continued to cross at both locations.

Cost estimate: \$50,000

2-f. HOV lane extension on southbound Montlake Boulevard NE

Extend the HOV lane on southbound Montlake Boulevard NE. Reconstruct the pedestrian overpass connecting the main campus with Hec Edmundson Pavilion, as the existing bridge clearance is not adequate.

This southbound roadway is highly congested with long queues extending from SR 520. This project would improve HOV/transit speed and reliability and the linkage to the SR 520 HOV lanes. At this time, only three buses in the AM peak period travel this section of Montlake Boulevard. The additional lane would require reconstruction of the existing pedestrian overpass in front of Hec Edmundson Pavilion. There is likely to be latent demand for HOV travel in this corridor.

Cost estimate: \$4.5 million

2-g. HOV lane extension on eastbound NE Pacific Street

Extend the HOV lane on eastbound NE Pacific Street. This project would improve transit and HOV speed and reliability and provide better transit access to the Montlake freeway station. Ninety-two buses are traveling on eastbound NE Pacific Street during the PM peak period. The cost estimate includes a retaining wall and sidewalk reconstruction.

Cost estimate: \$1.1 million

2-h. Bicycle/pedestrian underpass under Montlake Boulevard at NE Pacific Place

Construct a bicycle/pedestrian underpass under Montlake Boulevard on the north side of the new intersection with NE Pacific Place.

This project would provide a much safer bicycle/pedestrian crossing of Montlake Boulevard at a location serving a very high number of pedestrians (164 in the morning peak hour and 219 in the afternoon peak hour). This project would reduce pedestrian and bicycle mid-block crossings at Rainier Vista on Pacific Place and also reduce the need to travel through the ground level of the hospital parking structure. This would provide a more direct route to bring bicyclists to the east side of Montlake Boulevard from the Burke-Gilman Trail. However, creating an underpass at this location would have to overcome considerable grade changes between the Burke-Gilman Trail and the east side of Montlake Boulevard.

Of the two grade-separated pedestrian and bike crossings of Montlake Boulevard considered in this study, this location is preferred as higher priority. It would be difficult to implement both this and an underpass at Montlake Boulevard NE/NE Pacific Street (Project 2b). The U.W. developed a project and cost estimate in 1992 that should be evaluated further as this project moves forward.

Cost estimate: \$2 million

2-i. Provide navigation strategies for bicyclists between the University District, the Burke-Gilman Trail, and the area south of SR 520

Place signs and pavement clues in strategic places to navigate bicyclists between the University campus and the area south of SR 520 through Montlake Cut and the Burke Gilman Trail.

The primary emphasis of this project is on directing bicyclists and pedestrians toward the best Montlake crossings, in some cases well in advance of destinations. This low cost project would improve the connectivity of the bicycle system within the study area and to and from other communities such as Capitol Hill.

Cost estimate: \$25,000

2-j. Eastbound transit-only loop on-ramp addition to the existing SR 520 HOV ramp

Construct an eastbound transit-only loop on-ramp addition to the existing SR 520 on-ramp HOV lane. **Figure 8-11** shows this concept in detail.

Buses traveling to Eastbound SR 520 via southbound Montlake Boulevard do not have access to the SR 520 Montlake Freeway Station. This project would add a transit loop ramp in addition to the existing HOV lane to provide bus access to the Freeway Station. This would make transfers between the bus routes heading to the Eastside easier. However, it is not critical for those routes on Montlake Boulevard to access this station because the passenger transfers can take place at other freeway stations along SR 520. The new transit loop ramp could create an unsafe merge on SR 520 with the buses exiting from the mainline to the freeway station. Sufficient space would have to be allocated for the existing bicycle racks at this location.

Cost estimate: \$550,000

2-k. Variable message sign on Montlake Boulevard NE

Install a variable message sign on Montlake Boulevard NE near NE 45th Street for southbound drivers to inform them about the location of any traffic back-ups. In addition, traffic cameras could be tied into the City of Seattle and WSDOT traffic web pages.

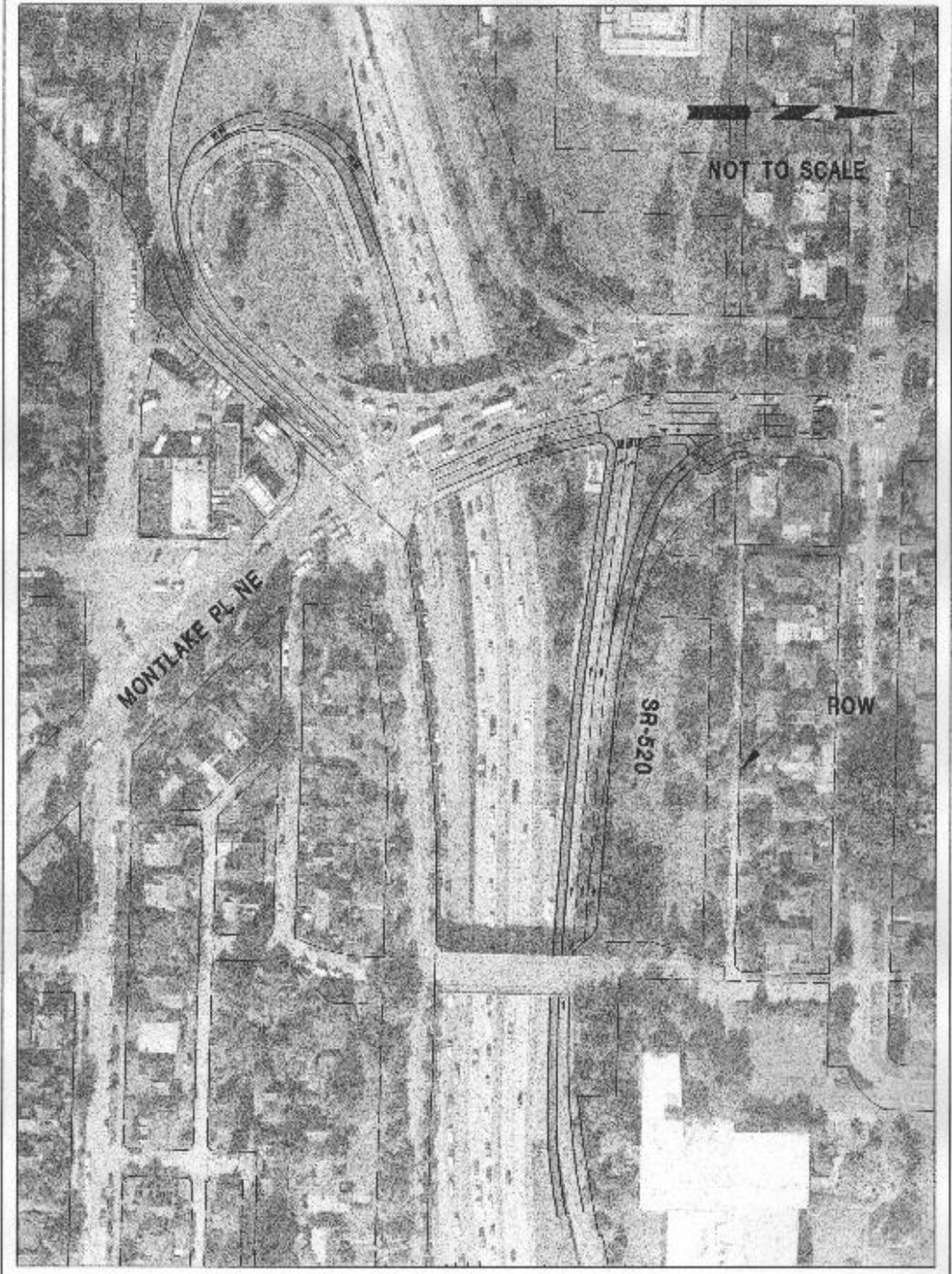
Traffic on Montlake Boulevard during peak periods is always congested, so drivers generally expect long delays traveling on this street. This concept would install signage north and east of the Montlake/45th Street intersection to alert southbound traffic to delays. However, few alternative routes exist and they are also congested.

Cost estimate: \$500,000

2-l. Narrowing driveway entrance at Husky Stadium south lot entrance on Montlake Boulevard

The existing driveway on Montlake Boulevard, serving as the entrance and exit of the Husky Stadium south lot is very wide, which makes crossing this driveway difficult for pedestrians. The east side of Montlake Boulevard is used by a significant number of bicyclists, although there is a utility pole and other bicycle hazards in the area. A wide bike/vehicle conflict area exists today. A proposal is to consider narrowing this driveway so that it would make it safer for the pedestrians crossing this driveway (see **Figure 8-10**).

**Figure 8-11. Montlake Boulevard/SR 520 Improvements
(drawn by KPG)**



The U.W. is working on a study of potential design solutions for this driveway. The study is expected in 2002 and implementation in 2003. This summer the U.W. will be widening the sidewalks as well as other minor improvements on the other side of Montlake Boulevard from the Montlake Bridge to Pacific Street.

Cost estimate \$10,000

2-m. Improve bicycle-pedestrian underpass at SR 520 Flyer Stop

This project will improve the trail and add signage to this underpass below SR 520. The trail links the north end of the Montlake/SR 520 intersection with the Montlake Community Center and residential area.

The existing underpass for bicycles and pedestrians at the SR 520 freeway station is overgrown and underutilized. This project would improve the trail, trim the landscaping and add directional signage for users traveling between the north end of the Montlake/SR 520 intersection and the Montlake residential area and Montlake Community Center.

Cost estimate \$10,000

3. MAJOR EAST-WEST ACCESS CORRIDORS

3-a. Left turn lanes at major arterial intersections on NE 65th Street

Create left-turn lanes on NE 65th Street from 35th Avenue NE to Roosevelt Way NE at the major arterial intersections (25th Avenue NE, 20th Avenue NE and 15th Avenue NE) by restricting on-street parking at those intersections. This action would include providing left turn lanes on the north-south approaches as well. **Figure 8-12** illustrates the proposed geometry at the intersection of NE 65th Street and 25th Avenue NE. This project can be integrated into the planned reconstruction of NE 65th Street in 2003.

This project would improve traffic flow in both directions and improve safety for vehicles making left turns at major intersections. It would improve the overall level of service during peak periods, since the signals would operate more efficiently than the current “split phasing” condition. The level of service during non-peak periods would improve significantly.

The loss of parking near the major intersections could affect businesses and residents. It might be possible to restore mid-block peak hour parking. The City might wish to consider lifting parking restrictions in other areas to compensate for the loss of parking on NE 65th Street. Community members and pedestrian advocates have expressed concern about the parking restrictions and the left-turn lanes. There were also concerns expressed that the project might increase the number of travel lanes at intersections (3 or 4 travel lanes) beyond what could appropriately accommodate crosswalks. As part of the City's funded Capital Improvement Program (CIP) project to reconstruct NE 65th Street, the City would need to conduct further evaluation of the concept described above. The City would also need to work with Metro to evaluate the safety and consider consolidation and improvement of bus stops in this corridor.

Cost estimate: Part of existing CIP project cost

3-b. Short signal cycles at the NE 45th Street/I-5 ramp intersections and coordination of all signals on NE 45th Street

Shorten the traffic signal cycle lengths at the NE 45th Street and I-5 southbound off-ramp intersection and the NE 45th Street and I-5 northbound on-ramp intersection. Coordinate all of the signals on NE 45th Street between the I-5 southbound off-ramp to 15th Avenue NE, and to 20th Avenue NE as appropriate.

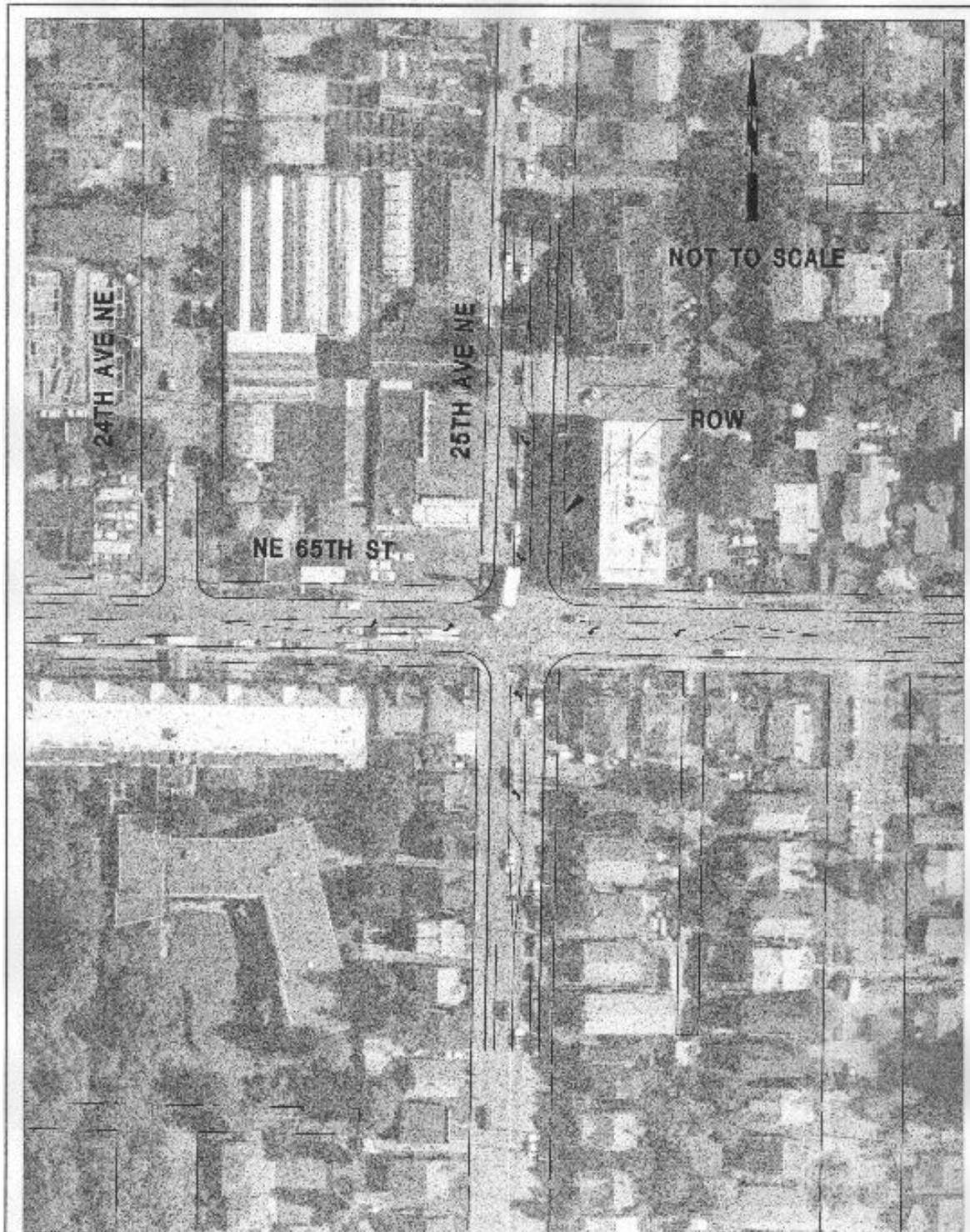
The two traffic signals at the Interstate 5 ramps on NE 45th Street operate on a very long 180-second signal cycle. The long signal cycle inhibits pedestrians and bicyclists at these intersections. Although all signals on NE 45th Street east of I-5 are generally coordinated, it is possible to further enhance signal programming to improve the east-west traffic flows. The community expressed strong support for this improvement, which would reduce pedestrian and bicycle delays at the NE 45th Street/I-5 intersections.

Cost estimate: Staff time (add to current University Controllers project).

3-c Implementation study of east-west transit improvement project to better connect Ballard to the University District

Conduct a project to develop corridor-wide transit improvements that enhance Route 44 bus transit speed and reliability for existing Metro bus riders and to attract new transit riders. Route 44 currently serves 1.6 million annual riders today with potential for substantial growth. This project will improve bus service in this heavily traveled east-west corridor as well as traffic conditions for other corridor users (cars, trucks, bikes and pedestrians).

Figure 8-12. Street Channelization Concept at NE 65th Street and 25th Avenue NE (drawn by KPG)



The project will develop incremental improvements in stages, such as dedicated bus lanes on arterials or adding capacity by restricting parking during commute periods. The Ballard to U-District Transit Improvement project also meets transit and transportation Neighborhood Plan goals and supports neighborhood business district economic vitality.

This corridor is one of seven that comprised an integrated city-wide Intermediate Capacity Transit network envisioned in the Seattle Transit Study. All the other corridors except one are moving forward with new or improved transit: two are light rail corridors, two are being considered for monorail, and one is considered for bus rapid transit.

Cost estimate: \$250,000 - \$500,000

3-d. Two-way operation on Lower 40th Street between 7th Avenue NE and Brooklyn Avenue NE

Make improvements necessary to convert the existing one-way street operation to a two-way street operation on Lower NE 40th Street between 7th Avenue NE and Brooklyn Avenue NE.

This project is intended to provide an additional east-west traffic corridor by allowing eastbound traffic on Lower NE 40th Street. This action would eliminate the westbound bike lane. The major drawback is that the level of service at the intersection of 7th Avenue NE and NE 40th will be poor without a signal and associated roadway improvements. Since the street right-of-way on the University Campus east of Eastlake Avenue has been vacated, it might be no longer suitable for a City street, and property acquisition would make this a costly project.

There are concerns about potential negative interaction and conflicts between transit and bicyclists on the loop, where bicyclists cross the transit-only lane to turn left into the U.W. campus.

Cost estimate: \$300,000

4. MAJOR NORTH-SOUTH ACCESS CORRIDORS

4-a. Bikeway on 20th Avenue NE from NE 65th Street to NE 45th Street, and traffic calming on NE 54th Street

Designate 20th Avenue NE from NE 65th Street to NE 45th Street as a bikeway and stripe the southbound (uphill) lane wider by shifting the center lines between Ravenna Boulevard and NE 50th Street. Consider traffic calming measures at intersections on 20th Avenue NE from NE 50th Street to NE 54th Street, including the intersection of NE 54th Street and 21st Avenue NE.

Between Ravenna Boulevard and NE 50th Street, the centerline should be shifted to the east to create a wider travel lane for bikes and autos on southbound (uphill) side. Bike symbols may also be stamped in-lane. This project is consistent with the neighborhood plan, although there were some questions on allowing more bikes on this street from the adjacent communities. It would improve safety by reducing bicycle/vehicle conflicts and connect residential neighborhoods with the University District and downtown Seattle. Narrowing or shifting the travel lanes would slow vehicle traffic.

The connection from 20th Avenue NE to the University Campus should be improved. The sidewalk on the south side of NE 45th Street between 19th Avenue NE and 20th Avenue NE should be widened.

This strategy received mixed support from the community. Members of the bicycling community and some residents supported improved safety for bicyclists and "calm" arterial traffic. Some residents questioned the effectiveness of the strategy, and expressed concern that it might compromise the safety afforded by the current wide roadway.

Cost estimate: \$40,000

4-b. Bikeway on Brooklyn Avenue NE from NE 65th Street to NE Pacific Street

Designate Brooklyn Avenue NE from NE 65th Street to NE Pacific Street as a bikeway. Stripe bike lanes south of 43rd Street where the street is wide enough. Other components would be to ensure that the pavement loop detectors "detect" bikes adequately

This project would enhance the bicycle connection between the Ravenna Boulevard bike lanes and the University District. It is consistent with the Neighborhood Plan that calls for improving Brooklyn Avenue NE as a "green street" and a signed bicycle route from Ravenna Boulevard to the Ship Canal. The City may wish to consider additional markings (such as in-lane symbol stamping) and signage (such as bike/car "share the road" signage). There is strong community support for this project, especially the bicycle symbol.

Cost estimate: \$30,000

5. I-5 CROSSING IMPROVEMENTS

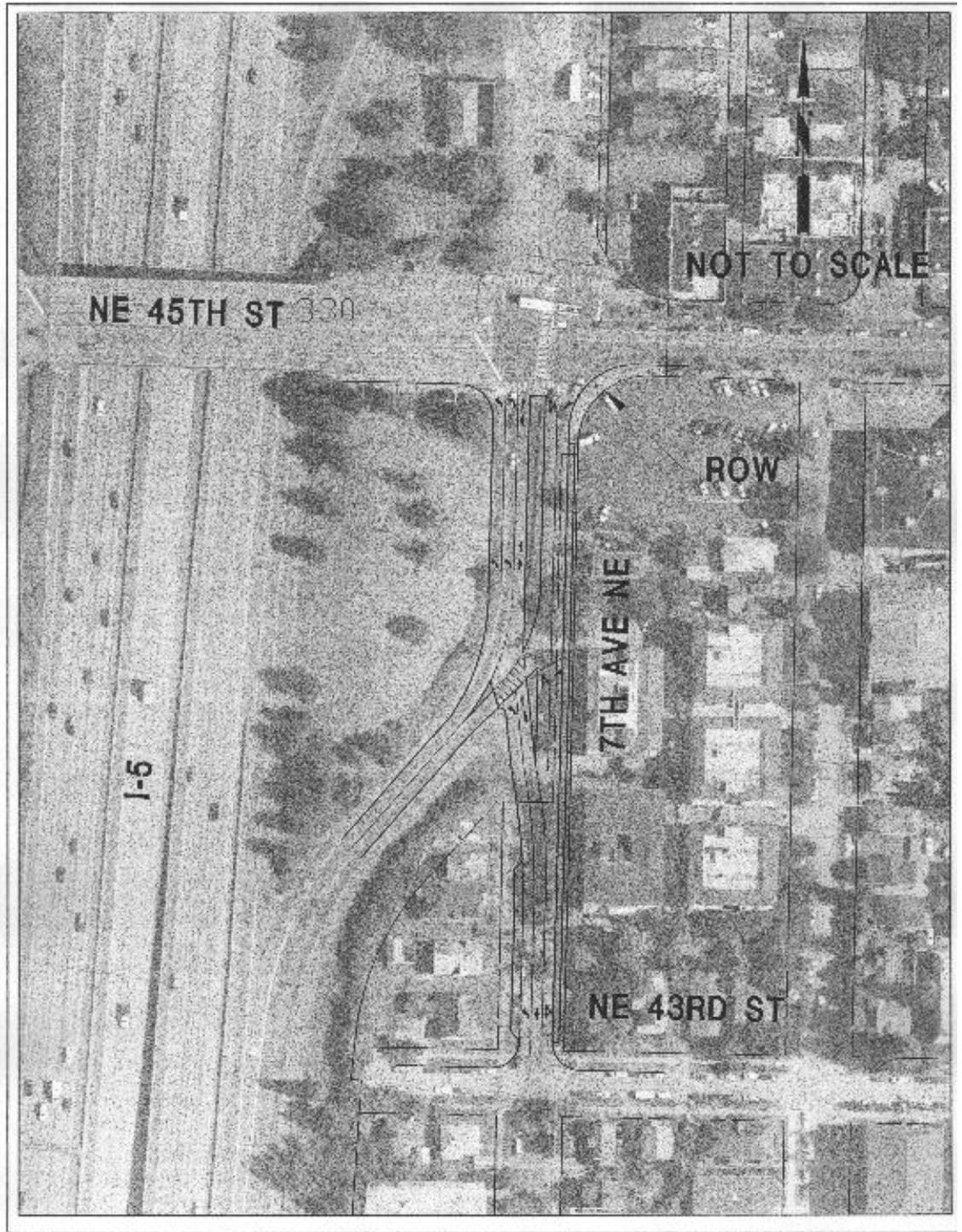
5-a. Queue bypass lane on northbound 7th Avenue NE south of NE 45th, and delineation of the intersection of 7th Avenue NE and I-5 northbound off-ramp

Construct a queue bypass lane on northbound 7th Avenue NE south of NE 45th and create an intersection where the I-5 northbound off-ramp intersects with 7th Avenue NE. Place a sign not to block the intersection. Placement of the sign without the bus queue bypass lane may be a feasible early action.

This project would provide significant savings in transit travel times and improve transit reliability for 28 buses in the morning and 26 buses in the evening peak periods. It may have a moderately negative impact on traffic congestion on I-5 northbound off-ramp traffic. It would require removal of some parking on 7th Avenue NE. Coordination with WSDOT is needed to implement this project. A short-term "do not block" striping and sign may be feasible and provide some benefit. **Figure 8-13** shows this concept.

Cost estimate: \$1 million

Figure 8-13. HOV Queue Bypass Lane Improvement at NE 45th Street and 7th Avenue NE (drawn by KPG)



5-b. Pedestrian/bike-only overpass at NE 47th Street over I-5

Construct a new pedestrian/bike-only I-5 overpass at NE 47th Street, connecting Wallingford with the University area. Designate NE 47th Street and the overpass as an east-west bike route.

Both the University and Wallingford Community Plans designate NE 47th Street as a major east-west pedestrian/bicycle street. This project connects both streets directly over I-5. The concept is to establish a new corridor separate from the congested NE 45th and NE 50th Streets. I-5 is a major barrier to community connections for pedestrians and bicyclists. The bike community expressed strong support for this project. This project would likely require WSDOT funding and may warrant a study to estimate usage/demand relative to project costs. **Figure 8-14** shows this concept.

Cost estimate: \$4.3 million

5-c. Reconstruction of NE 45th and NE 50th I-5 overpasses

Reconstruct NE 45th Street and NE 50th Street overpasses over I-5 with adequate vehicle storage spaces, sidewalks and bicycle facilities. Additional left turn vehicle storage spaces for I-5-bound traffic will improve traffic flow on these busy arterials. Wider sidewalks will make the highway crossing less of a barrier for pedestrians, although crossing the ramps will still be difficult. Implementation could be difficult due to high cost and disruptions to existing traffic during construction. This concept should be considered in the WSDOT study to improve operation of I-5.

Cost estimate: \$25 million

6. UNIVERSITY VILLAGE AREA ACCESS

6-a. Pedestrian/bike trail connecting the Burke-Gilman Trail with the University Village entrance at NE 47th Street

Create a new pedestrian/bike trail connecting the Burke-Gilman Trail with the main signalized entrance (NE 47th Street) to University Village on 25th Avenue NE (see **Figure 8-15**).

This project would provide a safer, direct pedestrian and bike connection between Burke-Gilman Trail and University Village but may require acquisition of private property. It could be implemented in phases. The project addresses comments on the need to improve connections from the U.W. campus to University Village.

Cost estimate: \$700,000

Figure 8-14. Pedestrian/Bike-Only Overpass at 47th Street over I-5 (drawn by KPG)

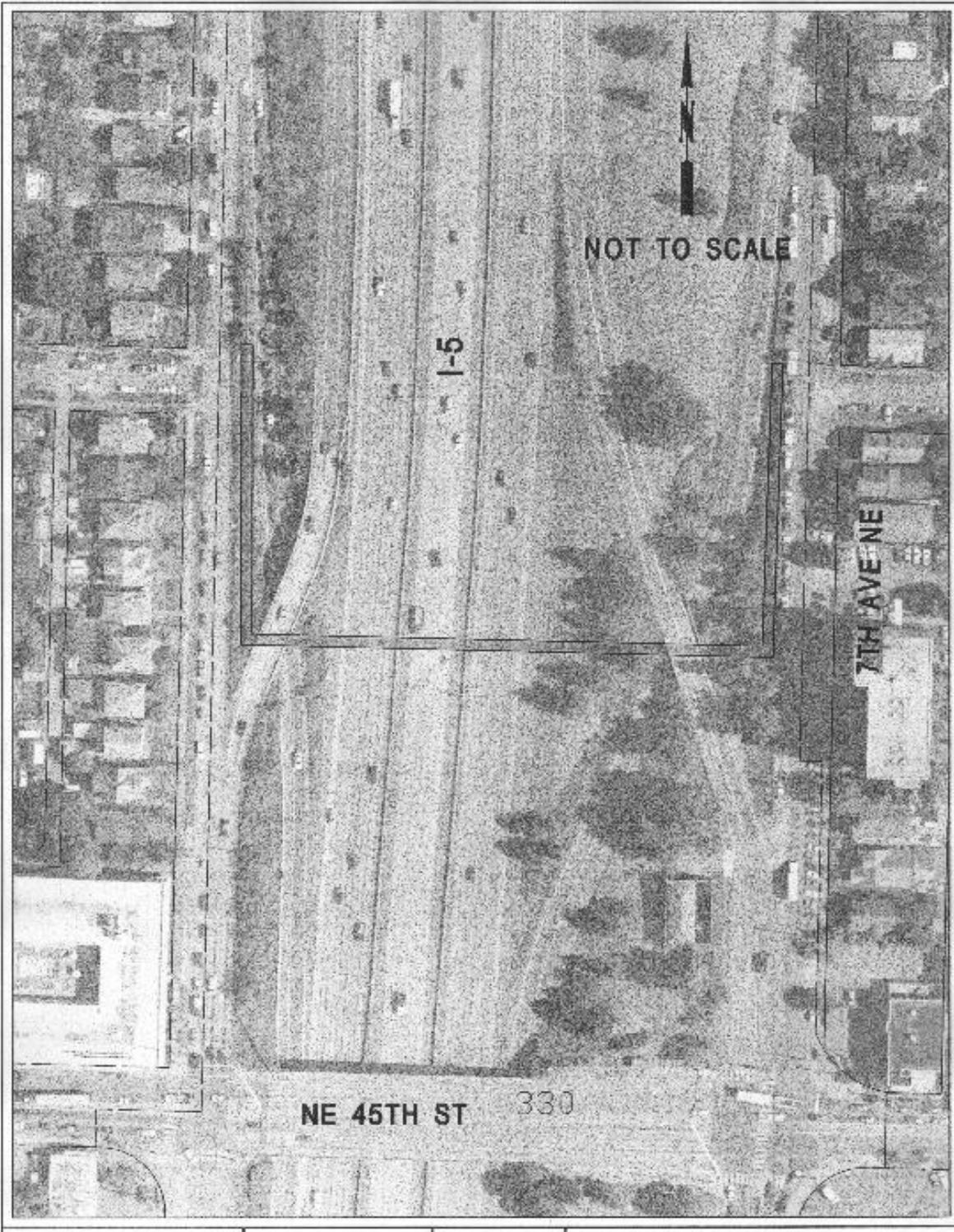
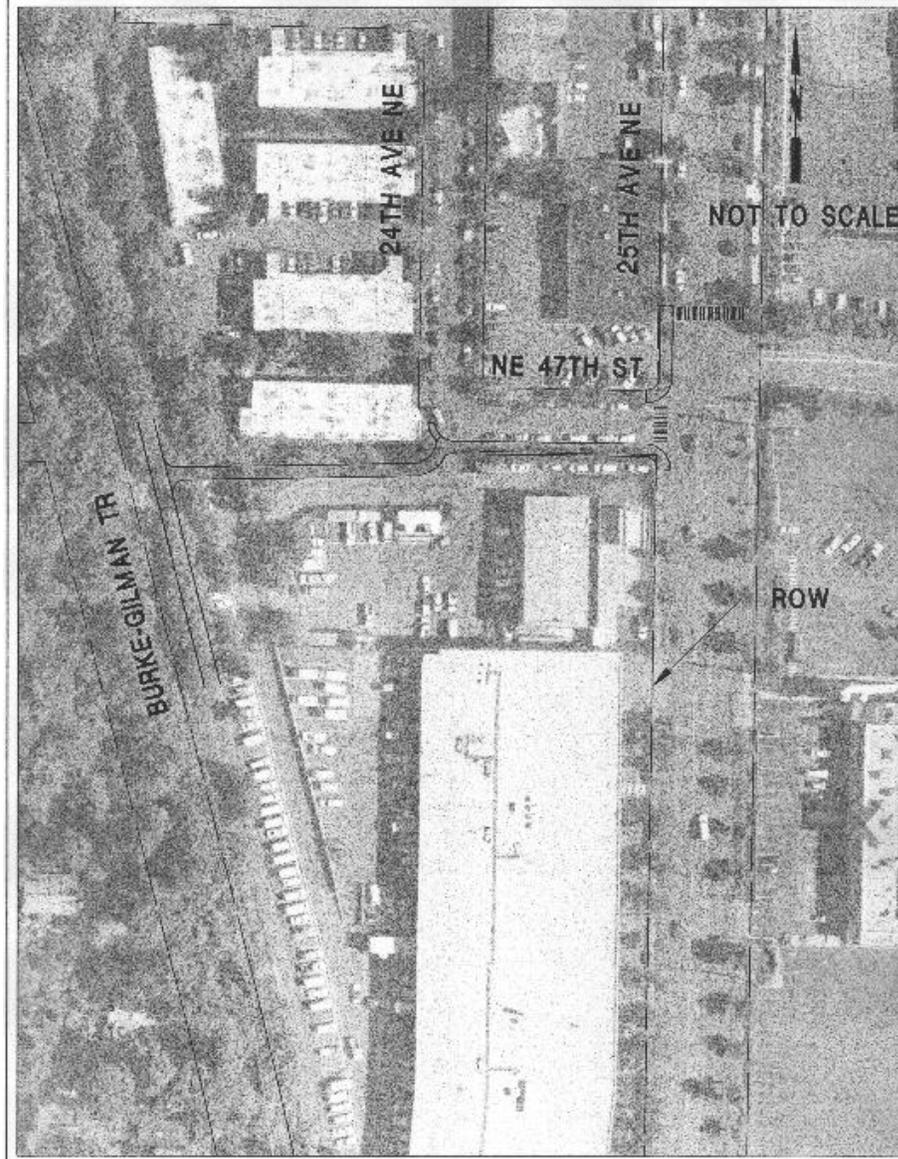


Figure 8-15. New Pedestrian/Bike Connection between Burke-Gilman Trail and U-Village at NE 47th Street (drawn by KPG)



6-b. Burke-Gilman Trail crossing improvement at 25th Avenue NE

This project would improve pedestrian and bicycle safety for those on the Burke-Gilman Trail crossing 25th Avenue NE. The project would enlarge the curb bulb on the west side of the intersection and install signage to increase bike visibility and reduce "free right" turn activity. The concept has received favorable community support.

Cost estimate: \$50,000

6-c. Curb, gutter, sidewalk and other improvements in the vicinity of the Ravenna Boulevard and NE 55th Street intersection

Improve the intersection geometry of the Ravenna Boulevard/Ravenna Place NE/NE 55th Street area intersections by tightening intersection corners and installing curb bump-outs. The design concept of the proposed improvements is illustrated in **Figure 8-16**.

This project would improve pedestrian, bicycle and vehicular safety by modifying the geometries of the intersection design. The cross section of NE 55th Street will be narrowed to reduce vehicle speeds. This project can be implemented in stages and should be coordinated with a recommended bike trail improvement (6-i). It is consistent with community plans. Part of this project will be constructed in 2002-03.

Cost estimate: \$1 million

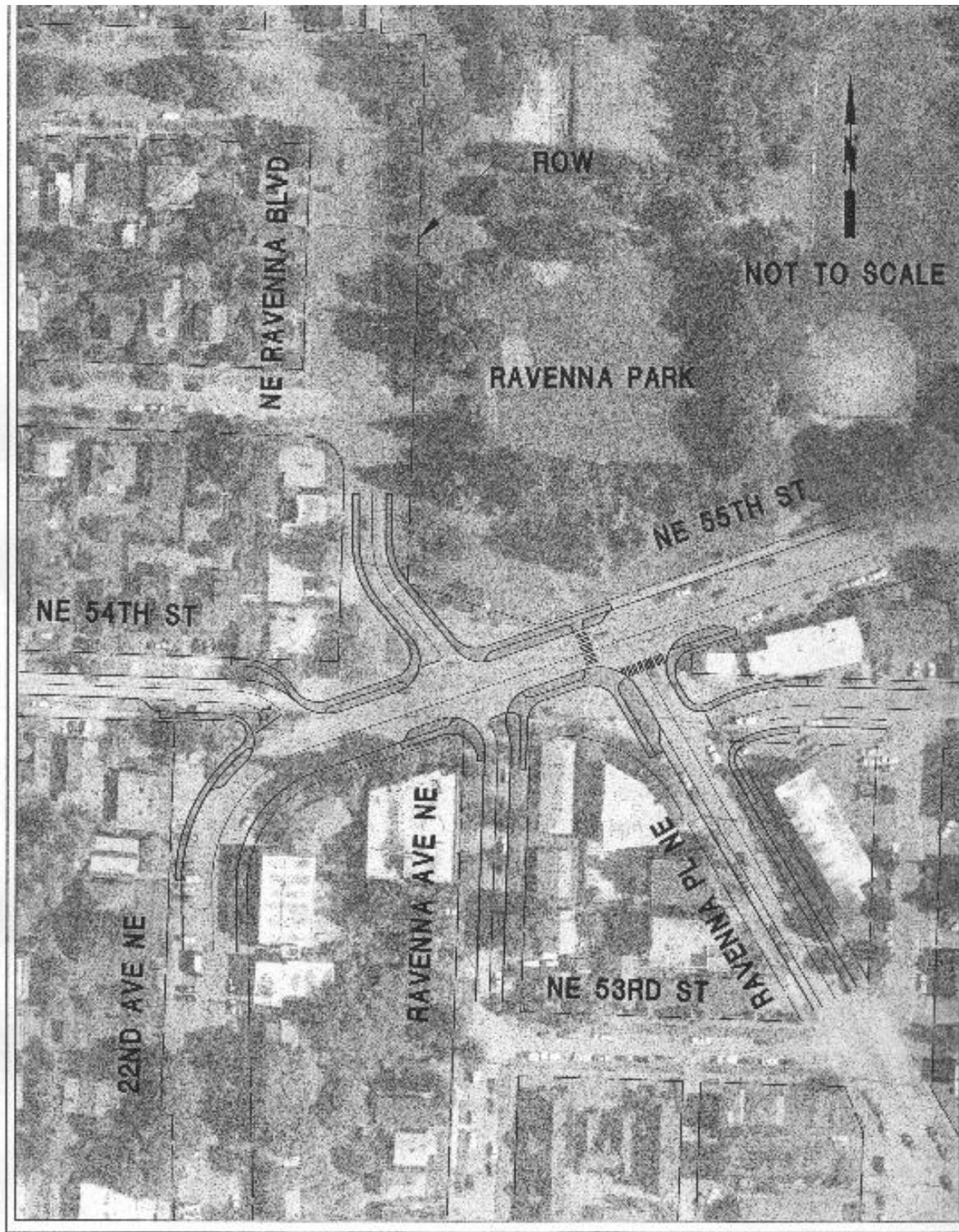
6-d. Curbs, gutters and sidewalks on NE Blakely Street/30th Avenue NE/Union Bay Place from 25th Avenue NE to NE 45th Street

Reconstruct NE Blakely Street/30th Avenue NE/Union Bay Place from 25th Avenue NE to NE 45th Street with curbs, gutters and sidewalks on both sides of the streets. The concept of the project is shown in **Figure 8-17**.

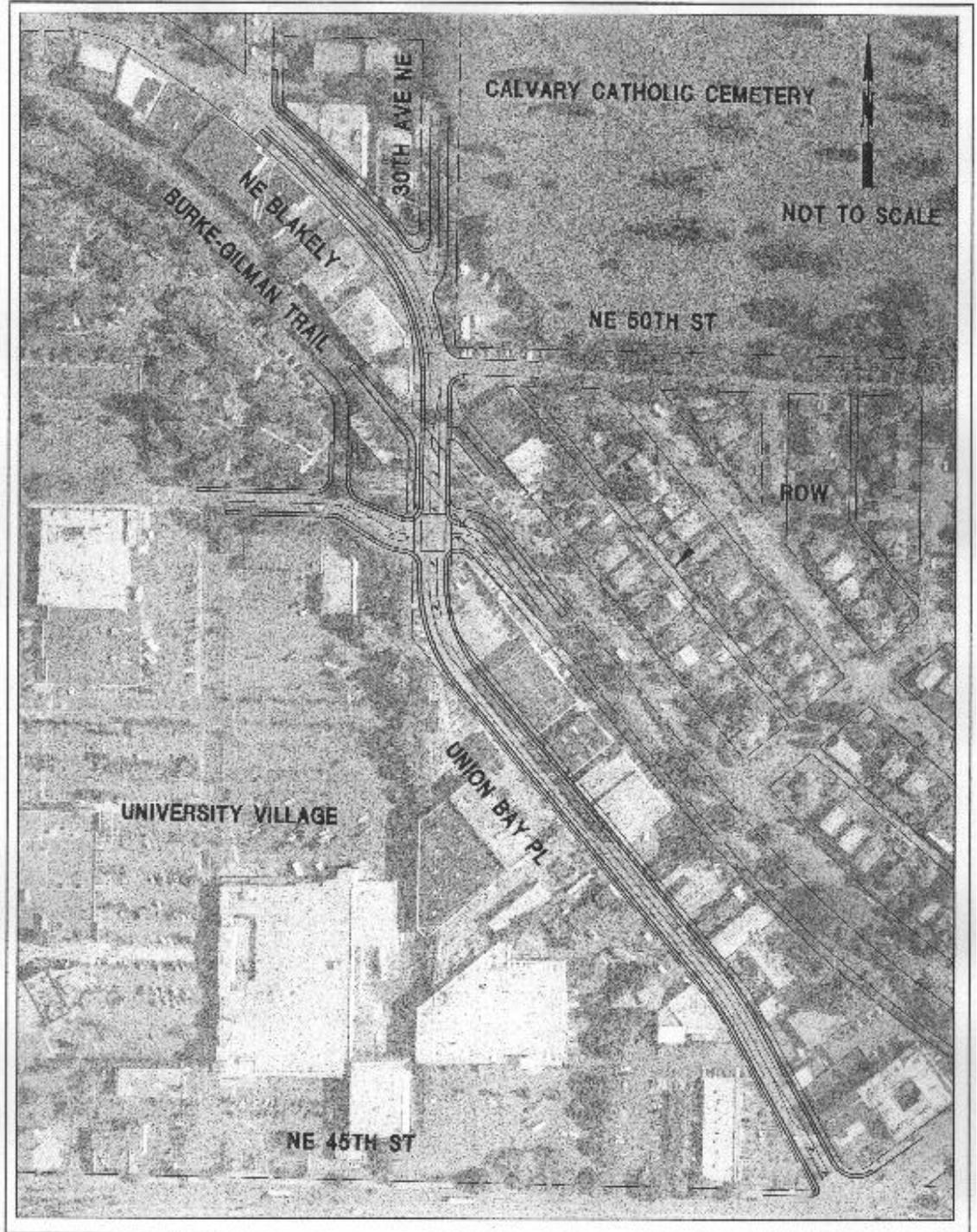
This project would complete missing sidewalk facilities along the arterial corridor in the Blakely business district from 25th Avenue NE to NE 45th Street. As the University Village has expanded, and redevelopment along this arterial has taken place, pedestrian and vehicle conflicts have become significant problems. This project received strong community support and is consistent with neighborhood plans.

Cost estimate: \$3.2 million

Figure 8-16. Improvements in the Vicinity of NE 55th Street and Ravenna Boulevard (drawn by KPG)



**Figure 8-17. NE Blakely/30th Avenue NE/Union Bay Place
Corridor Improvements (drawn by KPG)**



6-e. Safety improvements at the Burke-Gilman Trail crossing at the intersection of 30th Avenue NE/NE Blakely Street

Install a traffic signal at the intersection of 30th Avenue NE and the University Village driveway and re-route the Burke-Gilman Trail crossing in the newly installed signalized intersection. Consolidate driveways that serve University Village and U.W. housing. Other streets in the area need to be realigned as shown in **Figure 8-17**.

This project would provide significant vehicle, pedestrian and bicycle safety improvements. The point where the Burke Gilman Trail crosses 30th Avenue NE is a high bicycle accident location. A traffic signal at the University Village driveway and consolidation of other driveways should improve intersection level of service and safety. A new signal could delay commuter bicyclists traveling through this area, although loop detectors and bicycle/pedestrian accessible signal controls at intersections could help. Lighting improvements and reducing the grade change at this intersection would be helpful and could be considered as lower cost, shorter-term improvements.

The project is consistent with neighborhood plans, but implementation could be complicated by the need for both the U.W. administration and University Village ownership to agree to the improvements.

Cost estimate: \$600,000

6-f. Pedestrian crossing and left turn vehicle improvements at Pend Oreille Road/25th Avenue NE

Add a pedestrian crossing and protect left turn vehicles at the intersection of Pend Oreille Road and 25th Avenue NE. Add an adequate sidewalk or trail from this intersection to the south entrance of University Village and to a bus stop at the intersection of Montlake Boulevard NE and NE 45th Street.

This project would improve pedestrian safety and mobility by adding a pedestrian crosswalk on the north side of the intersection and a protected left turn signal phasing. It is possible that the signal system may have to be updated and replaced. . The improvement could reduce the two left-turn lanes to one lane to reduce exposure for crossing pedestrians.

Cost estimate: \$150,000

6-g. Sidewalk addition on the west side of 30th Avenue NE from Union Bay Place NE to NE 55th Street

Construct a sidewalk on the west side of 30th Avenue NE from Union Bay Place NE to NE 55th Street.

No sidewalk currently exists at this location. This project will fill a missing pedestrian link (on one side of the roadway) to University Village from residential neighborhoods, and along the Blakely business district. It will improve pedestrian safety and mobility, and it is supported by community plans and community feedback. It may require drainage improvements.

Cost estimate: \$400,000 - \$800,000

6-h. Sidewalk addition on the south side of NE 50th Street from 30th Avenue NE to 35th Avenue NE

Construct a sidewalk on the south side of NE 50th Street from 30th Avenue NE to 35th Avenue NE.

No sidewalk currently exists at this location, so this project will fill a missing pedestrian link (on one side of the roadway) to University Village from residential neighborhoods, and along the Blakely business district. It will improve pedestrian safety and mobility, and is supported by community plans and community feedback. It may require drainage improvements.

Cost estimate: \$300,000 - \$600,000

6-i. Bicycle trail from the Ravenna bicycle lanes to the Burke-Gilman Trail

Create a bicycle trail outside the southern edge of Ravenna Park, from the end of the bike lanes on Ravenna Boulevard in the vicinity of Brooklyn Avenue NE to NE 55th Street, the southern end of Ravenna Park. Install bike lanes on Ravenna Place to access the Burke-Gilman Trail at 25th Avenue NE.

This project will create a bicycle connection between Green Lake and the Burke-Gilman Trail. The project will reduce bicycle/vehicle conflicts along Ravenna Boulevard and at the high bike accident intersection of 15th Avenue NE and Ravenna Boulevard. The trail could create bicycle conflicts with pedestrians, depending upon its design, and it would need to be coordinated with the Park Department. It has generated positive feedback from the community.

Options are being refined and some segments fit better than others, especially for the connection between 17th Avenue NE and 15th Avenue NE.

Cost estimate: \$750,000

6-j. Unregulated parking restriction in City right-of-way in the areas surrounding University Village

Restrict unregulated parking in City right-of-way in the areas surrounding University Village. These parking restrictions were studied in the University Village expansion EIS and have received support from the community. The project would require some combination of curb-gutter-sidewalks, signage, and other improvements. A Residential Parking Zone is currently being analyzed in some affected areas.

Cost estimate: Staff time

6-k. Access consolidation at the Office Depot and University Village driveways

Consolidate the Office Depot and University Village access driveways into a single road, aligned with NE 49th Street on the opposite side of 25th Avenue NE. If consolidated to align with NE 49th Street, this location may also qualify for addition of a signal. This study did not consider additional driveway consolidation or further restrictions to left turns on 25th Avenue NE as recommended in the UCUC Neighborhood Plan.

This project would improve safety for drivers traveling to University Village and Office Depot on 25th Avenue NE. Given that these two businesses are separate, independent entities, the consolidation of the driveways must be done with corporation of the property owners.

Cost estimate: not estimated

7-A. TRANSIT HOV ACCESS

7-a. Bus ramp connecting NE 40th Street with the I-5 express lanes

Construct a new bus-only ramp (southbound off-ramp in AM and northbound on-ramp in PM) in the vicinity of NE 40th Street in the I-5 right-of-way, connecting NE 40th Street with the I-5 express lanes (Figure 8-18).

This project would enhance transit mobility and accessibility, bypassing mainline congestion on I-5 and avoiding the congested NE 45th Street corridor. Community Transit would be the primary user of this ramp. It would serve about 40 buses in each of the morning and afternoon peak periods. This ramp would reverse the existing transit service route pattern through the University District and U.W. campus, which could affect some transit riders.

Cost estimate: \$3.1 million

7-b. Southbound bus lane on 5th Avenue from NE 42nd Street to NE 40th Street

Construct a bus lane on the west side of I-5 by extending 5th Avenue NE from NE 42nd Street to NE 40th Street. This concept is illustrated in **Figure 8-18**.

This project can be viewed as a substitute project for 7-a. If 7-a is not constructed, this bus lane (southbound one-way) could be used by 39 buses during the AM peak period. No bus would use it in the PM peak period. Since the travel lane on 5th Avenue NE south NE 45th Street is narrow for buses, the existing on-street parking on 5th Avenue NE would have to be restricted. The Wallingford community may not accept such a condition.

Cost estimate: \$1.1 million

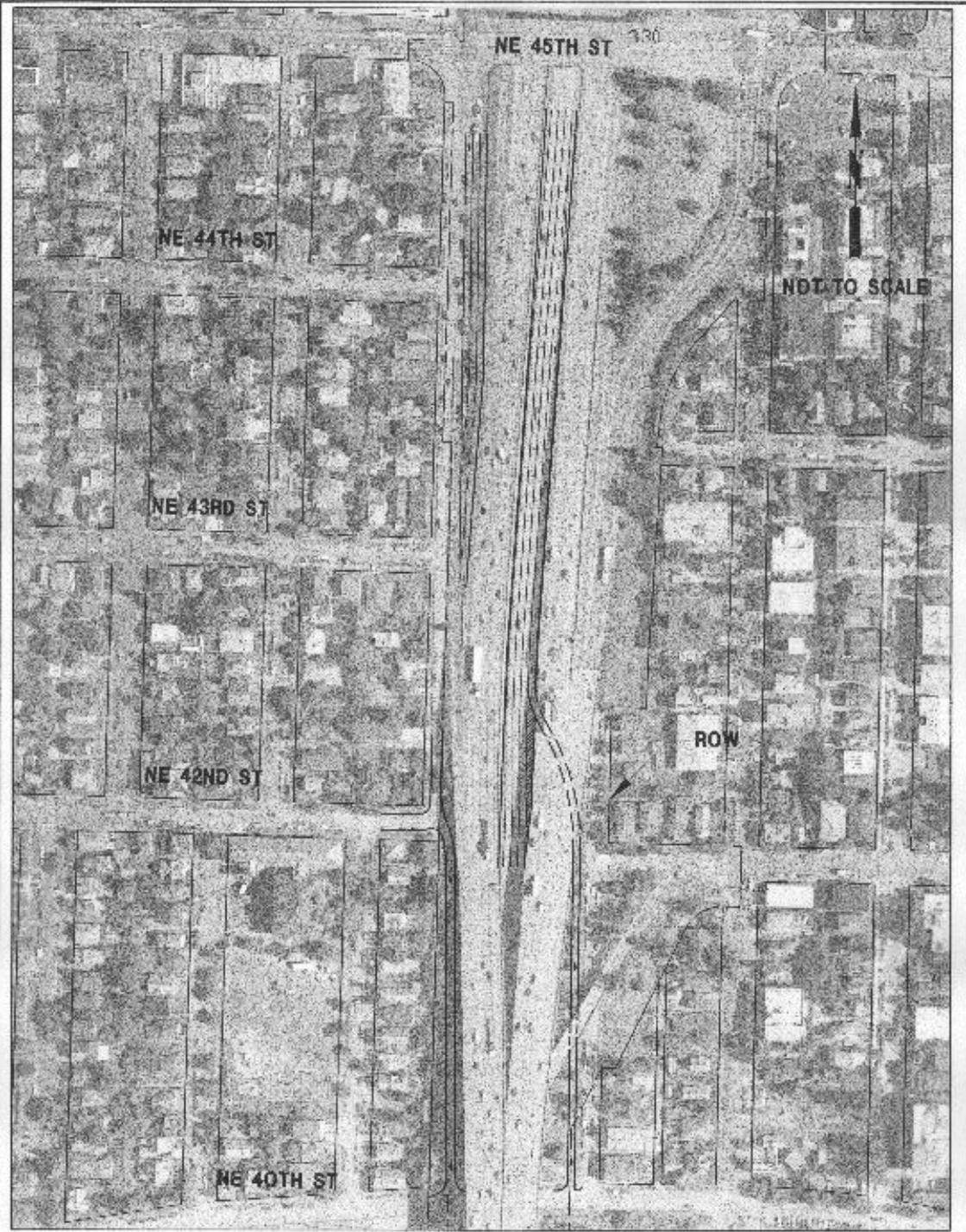
7-c. Bus priority streets on Upper NE 40th Street and Lower NE 40th Street from I-5 to Eastlake Avenue NE (Campus Parkway)

Reconstruct Upper NE 40th Street and Lower NE 40th Street from I-5 to Eastlake Avenue NE (Campus Parkway) as a bus, bicycle and pedestrian priority use street. Allow vehicles local access. Lower NE 40th will link to 8th Avenue NE instead of 7th Avenue NE (see **Figure 8-9**).

This project would enhance transit mobility by providing a missing east-west link between the U.W. and Wallingford areas and through direct access to I-5 (through project 7a and/or 7b). It could create bicycle/transit conflicts, particularly if the 1-a and 1-b are implemented. It would also displace an existing bicycle facility on NE 40th Street and denigrate an existing connection to the Burke-Gilman Trail.

Cost estimate: \$1.8 million

Figure 8-18. I-5/NE 45th Street/NE 40th Street Area Access Improvements (drawn by KPG)



7-d. Grade-separated transit circulator in the UATS area

Pursue a grade-separated transit circulator system connecting Sound Transit light rail stations with major travel destinations such as the U.W. hospital, University Village and the U.W. Main campus.

A grade-separated transit system would increase the speed and reliability of transit circulation within the study area. This project also reduces traffic congestion and enhances vehicular mobility by taking buses out of general traffic. However it would be very expensive and requires major changes in the existing transit service concept. Implementation is much beyond the planning horizon of this study.

Cost estimate: not estimated

7-i. HOV queue bypass lane on the I-5 southbound-off ramp at NE 45th Street

Add an HOV queue bypass lane on the I-5 southbound-off ramp at the intersection with NE 45th Street.

This project is intended to provide an exclusive HOV off-ramp to bypass the traffic queue. This may be a substitute for project 7-a. If implemented, it would increase transit/HOV delays at the NE 45th Street intersection. Unless the I-5/NE 45th Street interchange is substantially modified, the addition of an HOV lane to the southbound off-ramp and on 5th Avenue NE would be very difficult. It would have substantial negative impacts on traffic safety and general traffic circulation, as one of the southbound lanes on 5th Avenue NE approaching NE 45th would have to be converted to HOV use only. To mitigate the negative traffic impacts, closure of 5th Avenue NE at a location north of the I-5 off-ramp might be required.

Cost estimate: not estimated

7-k. HOV queue bypass lane on SR 520 westbound off-ramp at Montlake Boulevard NE and signal at the ramp terminal

Add an HOV queue bypass lane on the SR 520 westbound off-ramp at Montlake Boulevard NE. Separate general-purpose traffic from the HOV traffic on the off-ramp. Provide two general-purpose lanes on the off-ramp approaching Montlake Boulevard NE and signalize the intersection of the general-purpose off ramp lanes and northbound Montlake Boulevard NE. This concept is illustrated in **Figure 8-11**.

This project would substantially reduce the merging problem that exists today with SR 520 traffic exiting onto Montlake Boulevard with a free right turn. This project should reduce the high number of rear end traffic accidents occurring on this section of Montlake Boulevard. It would reduce the need for vehicles exiting SR 520 to change lanes in a short distance to get to Pacific Street. It may be an early action of the Trans-Lake project.

Cost estimate: \$1.4 million

7-B. SMALL SCALE IMPROVEMENTS

7-e. Two southbound through lanes on 15th Avenue NE south of NE 45th Street

Remove on-street parking on 15th Avenue NE from NE 45th Street to NE 43rd Street to provide adequate space for two southbound through lanes and to extend the northbound to westbound left turn lane. Another problem in this area is the vehicles queuing to access the University Bookstore parking lot.

This project would eliminate a congestion point on southbound 15th Avenue NE as it crosses NE 45th Street, improving general traffic flow as well as providing enough space for the northbound left turn pocket south of NE 45th Street on 15th Avenue NE. However, local access would be affected due to the loss of a loading zone and some short-term parking on west side of 15th Avenue NE south of NE 45th Street. Eliminating parking would also remove a buffer for pedestrians walking along the 15th Avenue NE. An alternative would keep a loading zone to the south.

Cost estimate: \$40,000

7-f. Pedestrian and bicycle use of the unused ramp over SR 520

Upgrade the unused ramp in the SR 520 corridor for pedestrian and bicycle users from Lake Washington Boulevard to Montlake Boulevard NE. The ramp is placed over SR 520 and swings toward the west and touches down between the SR 520 mainline and the westbound off-ramp. This unused ramp is shown in **Figure 8-19**.

This modification would create a new pedestrian and bicycle connection between Lake Washington Boulevard and the area south of Montlake Bridge, which would enhance bicycling mobility. It has received strong community support. The structure is within WSDOT right-of-way and would require a safety railing along the length of

the bridge and the trail between SR 520 and the westbound off-ramp, which would be costly. It would also require permission from the WSDOT. The project can be connected with the Arboretum trail along Lake Washington Boulevard. The Trans-Lake project may also provide a permanent SR 520 pedestrian/bicycle crossing.

Cost estimate: \$750,000

7-g. Install signal at the 15th Avenue NE and Ravenna Boulevard intersection

Install a signal at the intersection of 15th Avenue NE and Ravenna Boulevard. This may require a removal of on-street parking spaces on NE 15th Avenue NE in the vicinity of the intersection.

This project would improve safety at this high vehicle accident location. The location meets traffic signal warrants. A signal was considered in the past, but not supported by the community at that time. A northbound turn lane would require removal of some parking on east side of 15th Avenue NE; the feasibility of westbound turn movements requires further design work. The pedestrian advocacy community has noted the difficulty in street crossings in this area. This strategy could also address the lack of continuous sidewalk across the Ravenna median on the east side of the intersection.

Cost estimate: \$200,000

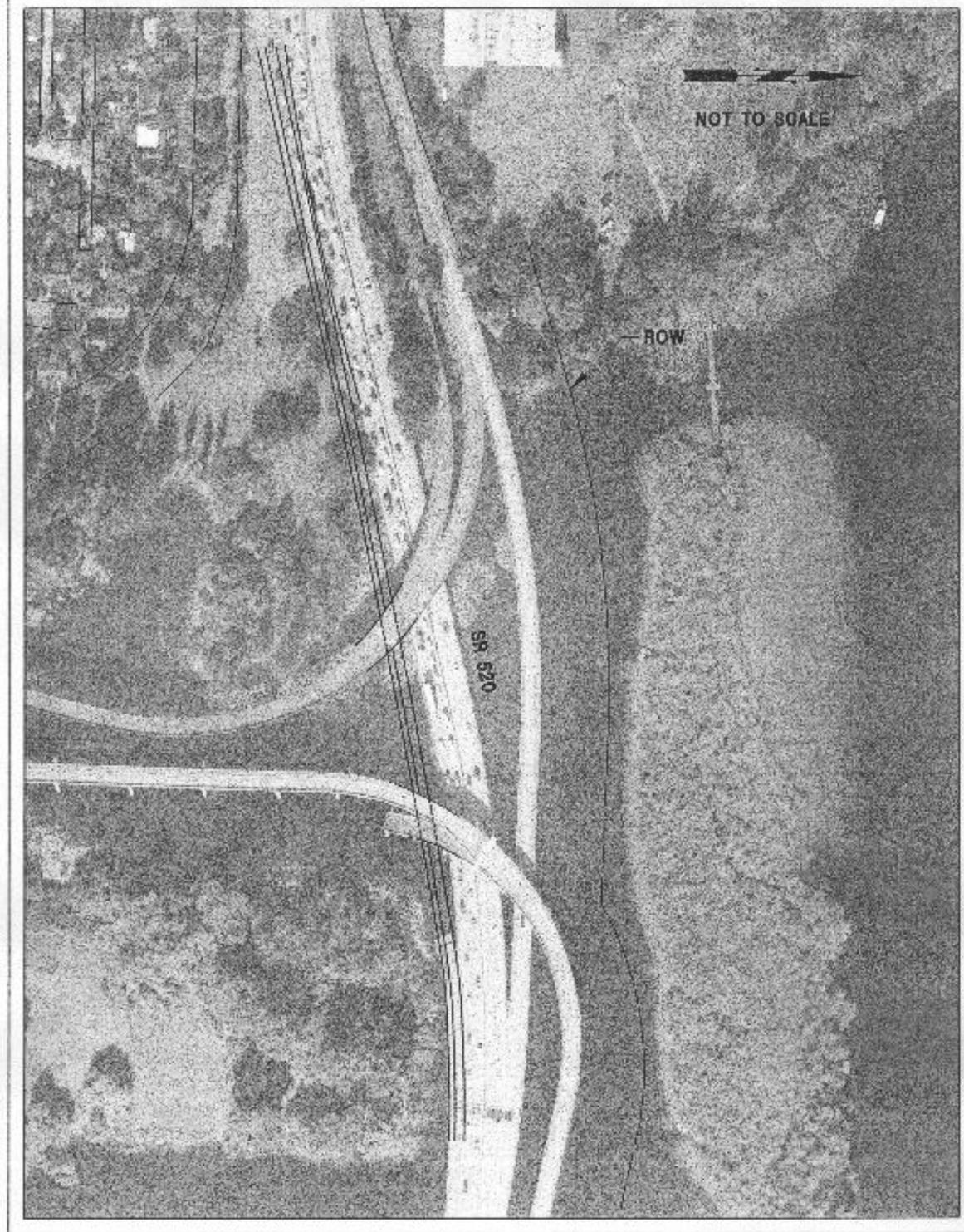
7-h. Bicycle parking facilities

Install safe and convenient bicycle parking facilities throughout the study area.

Provision of safe bicycle parking facilities is a mobility enhancement for people who bike to work, school or for errands. Additional facilities are consistent with neighborhood plans. High priority facilities should be identified. One strategy to do so could be to distribute bicycle-parking information in order to generate requests through the U-District. Racks cost \$300 - \$1,200 each. The amount currently budgeted will provide approximately 20 new racks.

Cost estimate: \$10,000

**Figure 8-19. Extension of SR 520 Eastbound On-Ramp
(drawn by KPG)**



7-j. Intersection improvements at 25th Avenue NE and NE 55th Street

Improve the intersection operation at 25th Avenue NE and NE 55th Street by adding left turn pockets on all approaches. This may require removal of on-street parking spaces in the vicinity of the intersection

This project would reduce vehicle conflicts at a high vehicle accident location and improve level of service. Local businesses may lose some on-street parking spaces. The project has received strong community support. With 6-b (Early Action) and 6-c (High Priority), the project can help shift arterial traffic from the intersection of Ravenna Place and 25th Avenue NE to this intersection, especially if right-turns are directed here instead of at the Burke-Gilman Trail crossing.

Cost estimate: \$75,000

7-l. Curb extensions on NE 43rd Street at 11th Avenue NE

Provide curb extensions at the intersection of NE 43rd Street and 11th Avenue NE. This project is a short-term strategy for NE 43rd pedestrian street recommendations from the Neighborhood Plan.

This project received strong community support.

Cost estimate: \$50,000

7-m. Install traffic circles at selected locations

Install traffic circles at the following three locations: NE 43rd Street and 12th Avenue NE, NE 42nd Street and 12th Avenue NE, and NE 55th and 12th Avenue NE. These projects are a short-term strategy from the Neighborhood Plan and community organizations. The traffic circles on NE 43rd Street would need to be coordinated with the Health Science Express bus route that travels on northbound Brooklyn to westbound NE 43rd Street.

This project received strong community support. The next step is for the nearby property owners or community organizations to contact Seattle Transportation's Neighborhood Traffic Control Program and proceed with the petition process.

Cost estimate: \$30,000

8. LIGHT RAIL STATION AREA IMPROVEMENTS

The City of Seattle developed these projects in the Station Area Planning effort with the University community and Sound Transit. They have not been evaluated separately in this study. Should opportunities arise with the U.W. and the community, the projects could be considered before the Sound Transit project is developed.

8-a. Sidewalk widening on 15th Avenue NE between NE 50th Street and NE Pacific Street

Reconstruct sidewalks along 15th Avenue NE between NE 50th and NE Pacific Street to optimal width (17 feet) to accommodate pedestrian and bus riders. Install street trees, lighting and other pedestrian facilities.

This project will enhance pedestrian mobility and safety by providing additional width on these heavily used sidewalks. The sidewalks will improve pedestrian access to a future light rail station and are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-b. Specialized at-grade crossing improvements at the intersection of 15th Avenue NE and NE 43rd Street

Improve the at-grade pedestrian crossing at the 15th Avenue NE and NE 43rd Street intersection near the future north light rail station with paving treatments. This project will enhance pedestrian safety by providing a more visible crossing. It will improve pedestrian access to a future light rail station and is consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-c. Specialized at-grade crossing at the intersection of 15th Avenue NE near the north entrance of NE Pacific Street. Station

Improve the specialized at-grade pedestrian crossing of 15th Avenue NE near the north entrance of NE Pacific Street light rail station with paving treatments. This project will enhance pedestrian safety by providing a more visible crossing at this busy intersection. The crossing will improve pedestrian access to a future light rail station and is consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-d. Sidewalk improvements between Roosevelt Way NE and the light rail station on NE 43rd Street

Provide street and sidewalk improvements between Roosevelt Way NE and the light rail station on NE 43rd Street. These improvements will improve pedestrian access to a future light rail station and are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-e. Street and sidewalk improvements between Roosevelt Way NE and 20th Avenue NE on NE 45th Street

Complete street and sidewalk improvements on NE 45th Street between Roosevelt Way NE and 20th Avenue NE to enhance pedestrian connections to the light rail station. These improvements will improve pedestrian access to a future light rail station and are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-f. Pedestrian access from transit stops to stations on University Way NE

Improve pedestrian access from transit stops to light rail stations on University Way NE. These improvements will improve intermodal connections for pedestrians transferring from buses to future light rail stations on University Way NE. They are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-g. Walkway through parking lot from University Way NE to the north Pacific Station light rail station entrance

Improve pedestrian access by providing a walkway through the parking lot from University Way NE to the north Pacific Station entrance. These improvements will improve pedestrian access to a future light rail station and are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-h. Sidewalks along the south side of NE Pacific Street and the east side of University Way NE

Improve the vicinity of the Pacific Street station south entrance by providing sidewalks along the south side of NE Pacific Street and the east side of University Way. These new sidewalks will improve pedestrian safety and access to a future light rail station and are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

8-i. Bicycle parking facilities at the two light rail stations in the University area

Provide adequate bicycle parking spaces and facilities at the two light rail stations in the University area. These improvements will improve bicycle access to a future light rail station and provide improved intermodal connections for bicyclists and light rail riders. They are consistent with the City plan used to negotiate project mitigation with Sound Transit.

Cost estimate: not estimated

9. TRAFFIC SIGNAL MODIFICATION

9-a. Removal of the pedestrian push button installations

Consider removing the existing pedestrian push buttons in selected intersections, particularly along north-south corridors where pedestrian volumes are high. The public is confused about the presence of the pedestrian push buttons where they are not activated most of the time or where they appear to be malfunctioning.

The City Council adopted a resolution (30241) in October 2000 directing Seattle Transportation to address issues regarding pedestrian push buttons. Policies were established as follows:

- Work with neighborhoods to determine locations for specific pedestrian push button requests.
- Use written criteria to evaluate specific pedestrian push button requests.
- Add key areas throughout the City to the Pedestrian Pushbutton Study Findings database.
- Based on feedback from the neighborhood, choose between pedestrian pushbutton removals or extended “pedestrian recall” operation.

The Seattle Transportation Department has established a pedestrian pushbutton practice with the following criteria:

- Remove pedestrian pushbutton and operate signal on fixed time (so that pedestrian walk signal comes up each cycle) if pedestrians are present at the main street crossing for 75% of the cycles for a majority (12 hours) of the day.
- Operate the signal on fixed time during hours of heavy pedestrian use, and actuated (by push buttons) during other times if pedestrians are present at the main street crossing for 50% of the cycles for a majority of the day.

Citizens involved in the UATS project expressed confusion about the City's pushbutton practice. Many do not know the adopted policies, nor do they know which traffic signals operate independently of the pedestrian pushbuttons, even if a pedestrian pushes the button. They do not understand why the pushbuttons are provided if they do not affect the signal operation. Many questions on this issue were raised during the project open houses.

Most pedestrian pushbuttons in the study area were reviewed in May 2000 by the Seattle Transportation Department and put into pedestrian recall operation from 7am-11pm. Regardless of whether a pedestrian pushes the button, a pedestrian crossing sign appears at the intersection during the time between 7am and 11pm. The pedestrian pushbutton would activate the pedestrian signal phase only when it is pushed during the night. As long as this practice is continued, the pushbuttons will still be needed and pedestrians will still believe they must always push the button, since they would not know that such action is not needed during the most of the day. Many in the study area who advocate making the University area more conducive to pedestrian activities do not support the current practice. Other options should be examined, including a pilot program for 24-hour pedestrian recall and removal of pushbuttons at key locations. There are reports from community members that specific pushbuttons along NE 45th Street east of 15th Avenue NE are malfunctioning.

Cost estimate: Staff time

9-b. Scramble signal at the NE 43rd and University Way NE intersection

Consider a "scramble signal" (four-way pedestrian crossing at the same time) at the intersection of NE 43rd Street and University Way.

A scramble signal is useful when a high level of pedestrian activity is present and high levels of pedestrian and auto conflicts pose a

hazardous situation. While a scramble signal appears to enhance pedestrian mobility, it would generally add delays to both vehicles and pedestrians. It would increase vehicle congestion as traffic stops and no right turns on red are allowed. Pedestrians are not allowed to cross the streets along with traffic green phase.

Although 9-c was found as a better alternative to address pedestrian mobility, scramble signals were examined at three locations: NE 45th Street and University Way; 15th Avenue NE and NE 40th Street; and NE 43rd Street and University Way. NE 43rd Street and University Way appears somewhat feasible. More detailed study should be conducted before this concept is implemented.

Cost estimate: Staff time

9-c. Evaluation of signal operations at University Way NE/NE 42nd Street and University Way/NE 43rd Street to assure adequate pedestrian crossings.

This improvement is an alternative to a scramble signal at NE 43rd. Comments have been made that, while pedestrians have mid-block alternatives for an east-west crossing, vehicular traffic is light and more pedestrians flow in the north-south direction on the University Way, but more “green time” is provided for the east-west movements. The *U.W. Master Plan Transportation Technical Report* provides pedestrian volume counts that support this sentiment. Actions are needed to consider pedestrian volumes and movements when setting the signals timings in this area.

Cost estimate: Staff time

10. AREAWIDE STRATEGIES

These Transportation Demand Management (TDM) strategies will encourage people to use transit, van- and carpools and alternative modes of transportation through a combination of incentives and parking programs.

10-a. Transportation Management Plan (TMP) Guidebook

Develop a TMP Guidebook for new developments in the University Area. A TMP Guidebook would provide ideas and structure for businesses seeking to implement transportation management plans. The City may incur some cost for research and publication.

Cost estimate: \$10,000

10-b. Expansion of Access Package to include Area FlexPass

Expand the Access Package to include an Area FlexPass. Cost is primarily for staff time and for resolving issues related to providing a monthly/annual transit pass for small businesses. This project would involve partnerships between the City, the Chamber of Commerce, the BIA and King County.

Cost estimate: Staff time

10-c. Parking Cash-Out for Buildings

Pursue parking cash-out for buildings in the University Area. Parking cash-out programs encourage employers to offer their employees the choice between a subsidized parking space and cash. For example, if a company leases a parking space for \$100 monthly, an employee can be offered the choice between using the space regularly, or \$100 cash. In return, the employer can then "unlease" the space or use it for some other purpose, such as customer or vanpool parking. Cost to encourage employers in the U-District area to implement this program is primarily for staff time.

Cost estimate: Staff time

10-d. Create a Transportation Management Association in the University area.

Formation of a Transportation Management Association could provide opportunities for shared transportation and parking programs. Implementation of more effective plans and programs will increase transit and HOV usage. These programs require staff time, but not capital investment, and they are consistent with neighborhood plans.

Cost estimate: Staff time

10-e. Expansion of Access Package to Carpool and Vanpool Programs

Expand the University District Access Package program to include carpool and vanpool programs.

Cost estimate: Staff time

10-f. Promote shared use parking with garages and lots on nights and weekends.

Pursue a transportation demand management strategy of shared use parking with garages and lots on nights and weekends. For instance, residents may be interested in parking either overnight or 24-hour parking instead of having to rely on limited on-street parking.

Cost estimate: Staff time

10-g. Adjustments to Residential Parking Zone (RPZ) Permit Programs

Evaluate adjustments to some of the RPZ permit programs, such as reducing the number of permits offered per household or reducing the number of guest permits, to help maintain residential parking supply.

Adjustments to RPZ Permit Programs will improve access to Ravenna and other residential neighborhoods by maintaining the residential parking supply in the study area. The University Heights community is interested in more restrictive permit program. Legal and administrative issues need to be evaluated.

Cost estimate: Staff time

10-i. Pedestrian bicycle safety education, training and public awareness programs

Develop safety education, training, and public awareness programs to promote pedestrian and bicycle safety.

Safety-educated pedestrians, bicyclists and drivers within the Study area will contribute to safer pedestrian and bike facilities and provide a means for safer intermodal connections within the study area. These programs can reduce bike/ped/vehicle conflicts and improve safety for transit riders as they arrive at and depart from their bus stops.

Cost estimate: Staff time

10-j. Way-finding study for pedestrians, bicyclists and transit riders

Conduct a comprehensive way-finding study for the University area to direct pedestrians, bicyclists and transit riders to major destinations.

Additional directional information for pedestrians, bicyclists and transit riders within the study area will improve pedestrian and bike facilities, provide easier intermodal connections and improve activity center access within the University District. Clear directions may also have the added benefits of reducing bike/ped/vehicle conflicts and improving safety for transit riders as they arrive at and depart from their bus stops. The proposed study also supports the City's urban center goals. This study would build on results of the current Downtown Way-finding Study; the lower cost is for planning only; the higher cost includes implementation

Cost estimate: \$75,000 - \$250,000

10-k. Consider requiring the posting of Transportation Management Program requirements in the buildings conditioned by the City of Seattle

Several buildings in the University area are required to develop Transportation Management Programs (TMPs). A TMP includes transportation demand management measures that are likely to achieve goals for reducing the proportion of single occupant vehicle (SOV) trips. This policy would have to be implemented on a citywide basis. Significant staff resources would be needed to enforce this policy.

Cost estimate: Staff time.

11. FREEWAY RAMP STORAGE EXPANSION

11-a. SR 520 eastbound on-ramp extension

Extend the eastbound SR 520 on-ramp merge point with the mainline toward the east to increase vehicle storage space. Connect the extended ramp with the unused ramp designed for the R.H. Thomson freeway. **Figure 8-19** shows the general alignment of the ramp extension.

The major causes of traffic congestion on southbound Montlake Boulevard are the lack of SR 520 ramp vehicle storage capacity,

ramp meter operation, and mainline capacity limitations. Vehicle queues from SR 520 back up onto Montlake Boulevard daily. While the issue of SR 520 mainline capacity is addressed in the Trans-Lake project, this study examined the most effective and feasible ways to increase vehicle storage spaces on the eastbound on-ramp.

This project would significantly reduce traffic congestion and improve levels of service on Montlake Boulevard. However, it is expensive and would not be compatible with the improvement concepts considered in the Trans-Lake Project, since improvements in the Trans-Lake projects would require a change in the existing grade.

Cost estimate: \$5.7 million

11-b. I-5 dual northbound on-ramp at NE 45th Street

Add a northbound on-ramp to the existing lane to form a two-lane northbound on-ramp at the I-5/ NE 45th Street interchange. Modify the ramp meter to accommodate a two-lane approach. The two general-purpose lanes will merge to one lane north of the ramp meter. **Figure 8-20** shows the layout of this improvement.

As is the case for SR 520, the traffic flow on NE 45th Street is often constrained by the queues from the I-5 northbound on-ramp. This project would improve the level of service on NE 45th Street. Several design alternatives have been explored. The most cost-effective and feasible option appears to be widening the on-ramp south of the ramp meter, providing two on-ramps with two ramp meter heads. The project could be implemented by WSDOT as part of its I-5 project.

Cost estimate: \$1.5 million

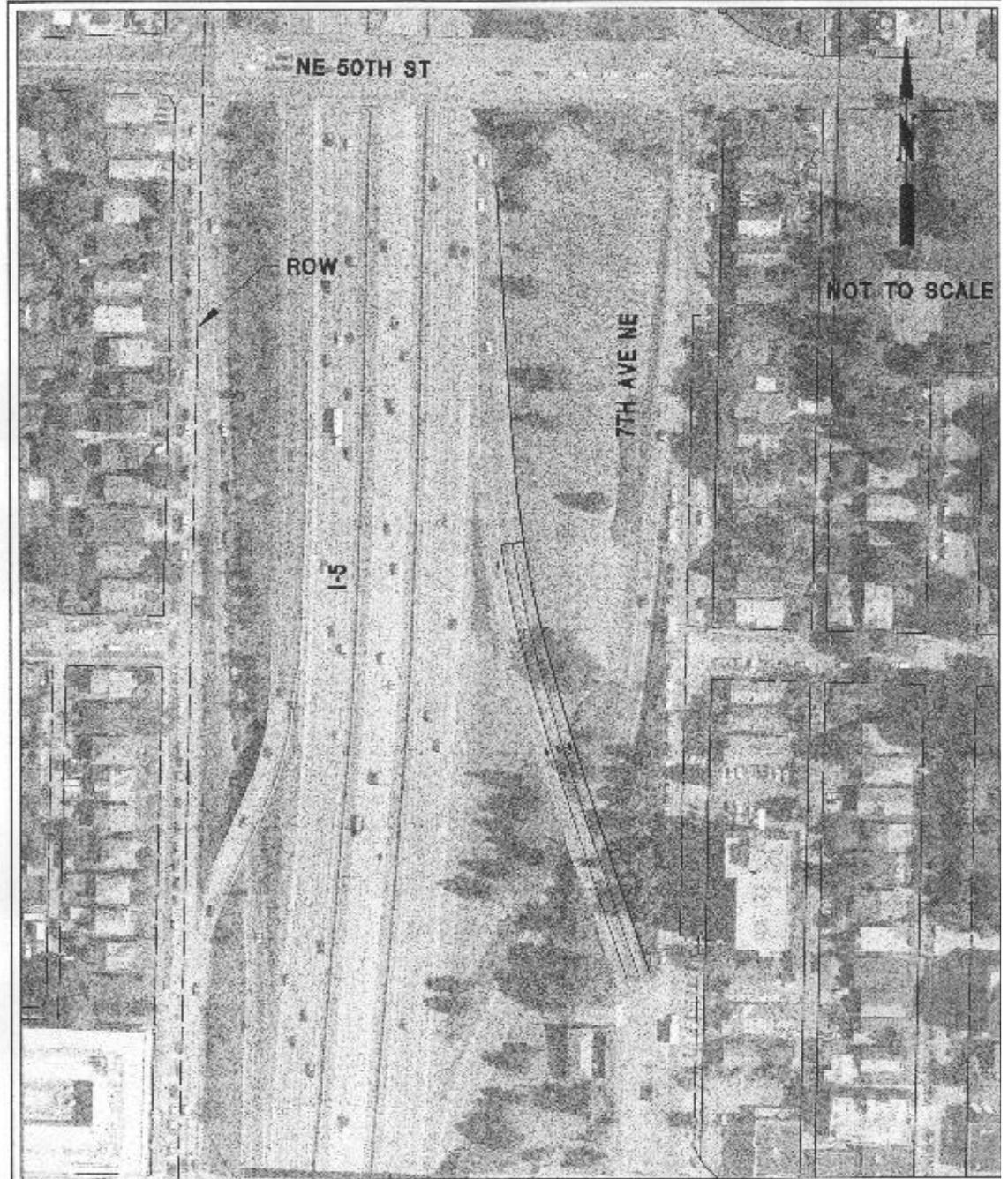
11-c. Expanded vehicle storage space at the I-5 southbound on-ramp at NE 45th Street

Add an additional general-purpose lane on the I-5 southbound on-ramp at NE 45th Street. Modify the ramp meter for the two general-purpose lane approaches. **Figure 8-18** shows this improvement.

As with 11-b, the traffic flow on NE 45th Street is often constrained by the queues from the I-5 southbound on-ramp. This project would improve the level of service on NE 45th Street. It appears that the widening of the on-ramp toward the east is feasible. Two general-purpose southbound on-ramps, both of which the ramp meter would control, and an HOV queue bypass would be provided. The project could be implemented by WSDOT as part of its I-5 project.

Cost estimate: \$1.5 million

**Figure 8-20. I-5 Dual On-Ramp Improvement at NE 45th Street
(drawn by KPG)**



11-d. Northbound U-turn lane extension at Hamlin Street on Montlake Boulevard NE

Extend the northbound U-turn lane at Hamlin Street on Montlake Boulevard NE to increase vehicle storage capacity by reducing the landscaped median. Figure 8-11 shows this improvement.

This project would require removal of part of the landscaped median. It will improve traffic flow on Montlake Boulevard, with minimal environmental impact. As Montlake Boulevard at this location is in WSDOT right-of-way, an approval from WSDOT is needed for implementation.

Cost estimate: \$120,000

11-e. I-5 southbound off-ramp on the west side to enter eastbound SR 520

Construct a new southbound to eastbound off-ramp on the west side of I-5 at the I-5/ SR 520 interchange and eliminate the existing east side off-ramp in the I-5/SR 520 interchange.

This project would improve traffic flow on I-5 by eliminating the need for vehicles entering from NE 50th and NE 45th Streets to weave across multiple lanes to get to SR 520. It is consistent with the concepts planned in the Trans-Lake Study.

Cost estimate: not estimated

**TRANSPORTATION IMPROVEMENT IDEAS NOT
ADVANCED FOR FURTHER EVALUATION**

During the course of this study, staff, the consultant and the public suggested many ideas for transportation improvements. Upon review by the project team, some of these suggestions lacked sufficient merit to advance them for detailed evaluation. The following is a list of those ideas and explanations as to why they were not advanced for further consideration in this study.

A vehicle tunnel under NE 45th Street between Roosevelt Way and 25th Avenue NE

The cost of the tunnel is very expensive, and right of way needs and land acquisition impacts in the portals at the both ends of the tunnel would be very high. In addition, the amount of traffic using this tunnel would not justify the high cost.

Two-way operations on Roosevelt Way and 11th Avenue NE in the study area

The one-way operation of Roosevelt Way and 11th Avenue NE is firmly established. To convert those streets to two-way operation, all of the signals would have to be modified and signal posts and heads had to be added. While two-way operation would slow traffic, and help pedestrians cross those streets, such benefits may not be enough compared with the high cost.

Transit Lanes on NE 45th Street between I-5 and 15th Avenue NE

NE 45th Street is a five-lane roadway, carrying a high level of traffic throughout the day. Dedicating two of the five lanes to HOVs would mean that the remaining general purpose lanes would be severely congested. The congestion, not only for the NE 45th Street corridor, but also the other corridors, would be so severe that those corridors would not function effectively.

Direct HOV Access to the I-5 Express Lanes at NE 50th Street

This concept was identified in the *HOV Pre-Design Study, Puget Sound Region* by WSDOT in 1995. A new intersection would be created on the I-5 overpass on NE 50th Street. Adding one more intersection in the area where two ramp intersections are in place at both ends of the overpass would cause a major operational problem. The *HOV Pre-Design Study* did not recommend this concept because many impacts could not be mitigated and others would be very expensive.

East-West One-Way Couplet with NE 45th and 50th Streets

NE 45th Street and NE 50th Street are too far apart to operate as an effective one-way couplet. Traffic congestion would increase if the roads operated in this fashion.

Signals at the intersections of Cowen Place NE and 15th Avenue NE and Ravenna Boulevard and 15th Avenue NE

The volume of traffic on Cowen Place is relatively light. However, this street intersects with 15th Avenue NE at roughly a 45-degree angle. The consultant team felt that it would be better to signalize the 15th Avenue NE and Ravenna Boulevard intersection. This would break-up the traffic stream on 15th Avenue NE.

Alternative improvement concepts being analyzed in the Trans-Lake Washington Study

The Trans-Lake Project has identified many options to improve general-purpose, HOV and high capacity transit circulation in the SR 520 corridor, including changes to Montlake Boulevard NE. The UATS considered these as potential long-range options (post-2010) and so did not provide further review. The UATS focused on improvements for the more immediate and mid-range future.

Capital improvement projects funded and/or under design, such as the University Way improvement program

An assumption was made that the CIP projects that are funded or are under design are considered as an analytical baseline and will be constructed in the next few years.

Trail on “NE 47th St” alignment from 25th Avenue NE to 21st Avenue NE.

There was a proposal to construct a new pedestrian trail approximate to the NE 47th Street alignment from 25th Avenue NE to 21st Avenue NE through Ravenna Woods. The City recently acquired Ravenna Woods to be preserved as passive open space. Since the slope on the potential alignment for the trail is steep and unstable, it would be difficult to construct the trail.