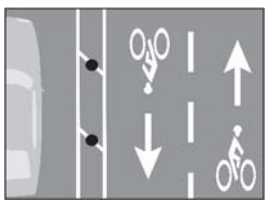
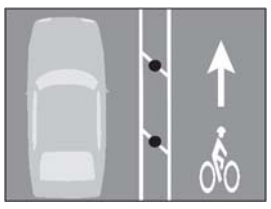
University Avenue SE/4th Street SE Protected Bikeways
DRAFT Evaluation Matix

Minneapolis City of Lakes | Hennepin | DEPARTMENT OF TRANSPORTATION

Evaluation Criteria		Preliminary Concept 1 **Two-way Protected Bikeway on University Avenue SE**  *Two-way protected bikeway on south side of University Ave SE; University Ave - 3 Auto Lanes 8th Ave SE to 11th Ave SE; 2 Auto Lanes east of 11th Ave SE, Right turn lanes at I-35W West Ramp, 11th Ave SE, 14th Ave SE, 17th Ave SE & Oak St SE; WB bike lane remains on 4th St SE*	Preliminary Concept 2 **One-way Protected Bikeways on University Avenue SE and 4th Street SE**  *One-way pair protected bikeways on right side of University Ave SE & 4th St SE; 4th St SE - 2 auto lanes west of 8th Ave SE, 2 auto lanes 17th Ave SE to Oak St SE; Univeristy Ave SE - 2 lanes 17th Ave SE to Williams Arena midblock crossing*
WALKING	*Sidewalk width/buffer*	**More Sidewalk Impacts** 856' boulevard removed at 3 transit stops and two pinch points (10th Ave and 16th Ave); wider sidewalk provided at 15th Ave SE	**Fewer Sidewalk Impacts** 285' boulevard removed at 2 transit stops on 4th St SE.
	Effective crossing distance	**Shorter Crossings** Shorter effective crossing distance due to decrease in travel lanes	**Less Crossing Improvement** Slight decrease in effective crossing distance due to narrowing of travel lanes
BICYCLING	*Network connections*	**More Complex** 2-way bike facility to 1-way (15th, 10th option) requires permissive bike crossings of bikeway	**Less Complex** 1-way to 1-way bike connections do not require permissive crossings of other bike lanes
	Access to key destinations	**More Convenient** Two-way bikeway adjacent to campus provides direct connection to main campus destinations	**Less Convenient** One-way bikeway results in WB located one block N of main campus destinations, thus requires access via bike boxes, two-stage queue boxes, signal phasing. Bicylists are more liklely to ride the wrong way on University Ave SE due to campus destinations
	Ability to accommodate high bicycle volumes	**2 Options are relatively equal**	
		7 blocks with wider bike lanes. Two-way facility allows for easier bike-bike passing	9 blocks with wider bike lanes
	Conflicts with driveways and intersections	**Less Total Conflicts** Protected bikeway on one street has fewer number of access conflicts and more intersections; 13 Intersections, 12 accesses, although consideration for 2-way bike traffic on 1-way street	**More Conflicts** Protected bikeway on two streets has a greater number of access conflicts and more intersections; 28 Intersections, 37 accesses
TRANSIT	*Delay*	**Increase in Delay*** Maintaining travel lanes for portion of corridor provides the best ability to manage auto traffic. Slight increase in transit delay due to waiting for gap in traffic to enter traffic at bus pullout provided at 15th Ave SE	**Increase in Delay*** Maintaining travel lanes for majority of the corridor provides better ability to manage auto traffic.
	Adequate stop/shelter design	**2 Options are relatively equal**	
		Includes 9 floating transit stops on University Ave SE	Includes 9 floating transit stops on University Ave SE and 7 floating transit stops on 4th St SE
DRIVING	*Delay*	**Increase in Delay*** Maintaining travel lanes for portion of corridor provides the ability to manage high auto volumes. Lane reduction results in more blocking of motorists by stopped transit.	**Increase in Delay*** Maintaining travel lanes for majority of the corridor provides better ability to manage high auto volumes. Lane reduction results in more blocking of motorists by stopped transit.
	Impacts to connecting streets/network	**Increase in Delay*** Reduction in travel lanes on University Ave SE results in less green time for side streets	**Increase in Delay*** Reduction in travel lanes on University Ave SE and 4th St SE result in less green time for side streets
	Event Considerations *Ability of proposed changes to serve event demands at University of Minnesota venues*	**2 Options are relatively equal**	
		Fewer lanes to serve event arrival on University Ave SE; No. of blocks with lane reductions = 7 blocks on University Ave	Fewer lanes to serve event departure; No. of blocks with lane reductions = 13 blocks (11 blocks on 4th St, 2 blocks on University Ave)
PARKING	*Loss of motor vehicle parking*	**Most Impact - 50 Daily** Daily - 50 spaces on University Ave SE Sunday Only - 85 Spaces on University Ave SE - Alternative cross section 11th to 13th Ave SE impacts 56 Sunday only parking spaces (total impact of 106 spaces)	**Least Impact - 31 Daily** Daily - 20 spaces on University Ave SE Daily - 11 spaces on 4th St SE Sunday Only - 40 Spaces on University Ave SE
IMPLEMENTATION	*User friendliness of design* *Design legibility for users/bicyclists*	**More Complex** 2-way bikeway less intuitive due to limited corridors in metro area	**Less Complex** 1-way bikeway typical of current system (more intuitive for bicyclists)
	Right-of-way impacts	**2 Options are relatively equal**	
		10'x500' area of ROW needed west of Oak Street to replace sidewalk being used by the bikeway	6'x500' area of ROW needed west of Oak Street to replace sidewalk being used by the bikeway
	Implementation opportunities	**Longer Lead Time Required** Scope of improvements likely would require some years to program	**Shorter Lead Time** Opportunity to phase implementation via a retrofit completed without constructing transit platforms and using only pavment markings and flexibile delineators
	Costs	**$$$$** 9 transit platforms; one roadway of pavement marking; 10 signals Likely requires reconstruction level of improvements	**$$-$$$$** 16 transit platforms; two roadways of pavement markings; 9 signals at transit stop locations Could likely be implemented as a retrofit level of improvement
INTERACTION BETWEEN MODES	*Pedestrian with Bicycle*	**Most Impact** 2-way pedestrian movements with 2-way bike movements increases conflict points	**Less Impact** 2-way pedestrian movements with 1-way bike movements has less potential conflict than Concept 1
	Pedestrian with Auto	**Most Impact** Lower multiple threat crash potential across fewer travel lanes	**Less Impact** Greater multiple threat crash potential across more travel lanes
	Bicycle with Auto	**Less Impact** 2 locations without protected bike phase at right turn at signalized intersections;	**Most Impact** 3 locations without protected bike phase at right turn at signalized intersections;
	Auto with Transit	**Most Impact** Added delay of waiting for transit buses in outside lane; only two lanes of traffic means less opportunity to use other lanes to bypass stopped transit	**Less Impact** Added delay of waiting for transit buses in outside lane; three lanes provides more opportunity to bypass stopped transit
	Bicycle with Transit	**2 Options are relatively equivalent**	
		Retains bus pulling over in bike lane on 4th St SE; potential bus/bike conflict; Provides pull-out bay for buses at highest volume transit stop at 15th Ave SE	Provides transit islands for all transit stops on both University Ave SE and 4th St SE. A retro-fit improvement would result in "leap-frogging" between bicyclsits and transit increasing conflicts

* *Additional delay data is pending further traffic analysis.*