ENHANCING SEATTLE'S URBAN STREET SAFETY AND ENVIRONMENT: MERCER CORRIDOR PEDESTRIAN WALKABILITY ANALYSIS

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Abstract

The Mercer Corridor is an integral part of a transportation network serving Seattle's urban neighborhoods just north of downtown. This corridor has been the subject of decades of study with a wide range of alternatives. Creating an acceptable solution has been complicated by the range of stakeholders, disagreement on project objectives and high costs. Previous alternatives typically focused on travel through the South Lake Union area to get to the Seattle Center - a regional arts and entertainment center – and surrounding neighborhoods, with little

consideration of how transportation works in the South Lake Union neighborhood itself. Changing land uses in South Lake Union have been a catalyst for developing a solution that works for a diverse stakeholder group, including the immediate neighborhood. The purpose of the Mercer Corridor project is to improve local safety, access, and circulation for vehicles, bicycles, and pedestrians, and provide for more efficient movement of traffic and freight through the corridor.

This paper offers a case study of Mercer Street Corridor alternatives to show how design changes can enhance neighborhood pedestrian connectivity and contribute to a safer, more connected urban street environment. The presented analysis will shows how trade-offs are often needed to balance the sometimes conflicting priorities in the project's purpose, improving overall pedestrian safety, access and circulation.

Pedestrian system characteristics analyzed include: accident risk (accident location, curb radius), connectivity (intersection crossing density and distance), sidewalk width, pedestrian/vehicle separation (amenity area width and on-street parking) and ADA compliance.

Background

The proposed 2030 project alternative developed as part of the Mercer Corridor Improvements Project is often referred to as the "two-way Mercer" alternative (build alternative). The study area for the project encompasses the Mercer Street and Valley/Broad Street corridors, east to Fairview Avenue and west to Dexter Avenue, located in the South Lake Union area of Seattle, Washington. Changing land uses in South Lake Union have been a catalyst for developing a solution that works for a diverse stakeholder group, including the immediate neighborhood. This paper compares key pedestrian characteristics for the proposed two-way Mercer Street build alternative to the future no-build alternative for year 2030. For this analysis, the no-build future 2030 alternative is approximated by the no-build condition which assumes construction and completion of the South Lake Union streetcar.

Summary of Analysis

The analysis included in this paper shows that while certain pedestrian system characteristics show greater improvement under the proposed build alternative than others, overall, pedestrian safety and pedestrian environment are generally improved as a result of the proposed two-way Mercer Street build alternative.

Table 1 shows the pedestrian system characteristics analyzed in this paper, and describes how well the build alternative performs when compared to the no-build alternative. Later sections describe detailed findings for each characteristic, as well as the definitions and rationale for choosing these characteristics for analysis. Current deficiencies for pedestrians are characterized by crumbling sidewalks, lack of facilities to accommodate pedestrians with disabilities, a poor quality pedestrian environment and crash data indicating pedestrian safety issues. The Mercer Corridor Improvement Project coupled with the new pedestrian scale-design and Lake Union improvements (streetcar and South Lake Union Park) will make this an inviting area for pedestrians.

Table 1. Summary of Pedestrian System Characteristics - 2030 No-Build and Build Comparison

Pedestrian System Characteristic Evaluated	Overall Impression of 2030 Build Alternative	Notes
Pedestrian accident location improvements	Better than no-build	-6 existing pedestrian accident locations will improve with the build alternative.
Sidewalk width	Better than no-build	-67% of blocks analyzed will have wider sidewalks with the build alternative. -The amount of linear feet of >10' sidewalk increases by over 2,400' with the build alternative.
Intersection crossings and distance	Better than no-build (number of crossings) Worse than no-build (distances)*	-11 additional crossings added with the build alternative. -More crossings are lengthened as opposed to shortened with the build alternative.
Curb radius	Worse than no-build*	-95% of curb radii measurements are 35 feet or less with the build alternative (compared to 91% with the no-build alternative). -20'/25' radii are more common than 10'/15' with the build alternative; 10'15' radii are more common than 20'/25' radii with the no-build alternative.
Amenity area (between street and sidewalk)	Better than no-build	-78% of amenity area block measurements increase amenity area width with the build alternative over the no-build alternative.
ADA curb ramp improvements	Better than no-build	-50% of study area intersections are improved with the build alternative. -15 curb ramps improve ramps in poor condition or with limited access with the build alternative. -16 ramps are completely new with the build alternative.
On-street parking	Better than no-build	-28% of study area blocks would include new on-street parking with the build alternative.

*Note: The two characteristics performing worse than the no-build are intended to be balanced by other positive characteristics. Design or technology mitigation will likely be considered for locations where curb radius or intersection crossing distance appears to be an issue. Most of the increases in curb radii and crossing distances are located along the Mercer Corridor, which is intended to be somewhat secondary to the Valley Corridor in terms of pedestrian environment, because vehicles are to be concentrated along Mercer Street.

Many existing pedestrian accident locations are improved as a result of the build alternative, with various types of proposed treatments. Sidewalk width is generally improved throughout the study area as a result of the build alternative. The number of intersection crossings is increased as a result of the build alternative, but a greater number of crossings are lengthened as opposed to shortened. Slightly more curb radii are 35 feet or smaller as a result of the build alternative, but several curb radii are also increased as a result of the build alternative. Amenity area width, ADA curb ramps, and on-street parking are all improved as a result of the build alternative. In general, pedestrian conditions are improved with exceptions at specific locations. These locations can be targeted for mitigation.

Walkability Characteristics

Many characteristics can be used to evaluate pedestrian facilities. The following seven characteristics were chosen from an extensive listing (shown in ***Appendix 1***) as those most relevant to the Mercer and Valley Corridors, because these characteristics are most important for pedestrian safety and environment *and* serve to differentiate between alternatives. For example, a characteristic such as proximity to transit would be the same for each alternative, offering no differentiation. Each of these characteristics has interrelated elements of safety, quality, accessibility, and traffic calming:

(1) Pedestrian accident location improvements
(2) Sidewalk width
(3) Intersection crossings and distance
(4) Curb radius
(5) Amenity area (between sidewalk and street)
(6) ADA curb improvements
(7) On-street parking

The following includes a brief description of each characteristic and why it was chosen as an indicator of walkability and pedestrian-friendliness for the comparison of the no-build 2030 and proposed 2030 alternatives.

Pedestrian accident location improvements. Certain intersection configurations lend themselves to unsafe conditions for pedestrians. This analysis examines how many accident locations will be improved by the two-way Mercer proposed alternative compared to the no-build alternative. Improvements such as narrower crossing distances, curb bulbs, or other treatments are intended to help reduce the potential for accidents in the future. This characteristic is critical because pedestrian safety is important for the Mercer and Valley corridor study area.

Sidewalk width. The width of a sidewalk influences pedestrian safety, accessibility, quality of pedestrian environment, and comfort. Sidewalk width also affects the streetscape; a wider sidewalk shows a commitment to the pedestrian environment, and conveys the importance of pedestrians to drivers. Amenities added to wider sidewalks (landscaping, street furniture, public art, etc.) contribute to the pedestrian environment and also send a message to drivers that the area is a pedestrian-friendly location. By measuring and comparing the difference of width in feet for the existing (future no-build alternative) and proposed alternative scenarios, the improvement or lack of improvement for this element is clearly demonstrated. Sidewalk width is a common measure of sidewalk adequacy and safety.

Intersection crossings and distance. There is a greater chance for vehicle/pedestrian conflicts when crossing distances are longer because pedestrians must spend more time in the street in potential conflict with vehicles. Improvement for this characteristic is measured by reduction in distance (in feet). This characteristic was selected because of its relationship to pedestrian safety. The number of crossings is also relevant, because more crossings generally offer increased pedestrian accessibility.

Curb radius. Curb radii affect intersection crossing distances and can affect the speed of traffic traveling around a corner (a larger curb radius allows for more sweeping higher speed movements by vehicles). Larger curb radii can, however, be mitigated through striping or other cues that guide vehicles to square their turns. This characteristic is examined because of its relationship to pedestrian safety. Curb radii are measured per the City of Seattle Street Improvement Manual (pages 3-11). A comparison of curb radii between the future no-build and preferred future build scenario demonstrates where curb radii are improved, and how many are improved as a result of the proposed build alternative. This characteristic was selected for analysis due to its effect on pedestrian safety.

Amenity area between sidewalk and street. Amenity areas include landscaped buffers, street trees, street furniture, or other pedestrian amenities. For this analysis, amenity areas between the street and sidewalk were analyzed. These areas separate pedestrians from the street and traffic, lending safety and a more inviting pedestrian environment.[1] Amenity areas also serve as cues to drivers that the area is pedestrian-friendly; sometimes, interesting amenities incite drivers to slow their speeds. For this analysis, amenity areas between the sidewalk and street were quantified by width in feet. Amenity areas were selected for this analysis because they relate to pedestrian safety as well as a pedestrian's sense of comfort.

ADA curb improvements. Providing ADA curb ramp improvements benefit all users by easing the transition from sidewalk to intersection. Specifically, ADA improvements benefit people using wheelchairs, people with visual challenges, the elderly and children, because curbs are difficult to impossible to navigate for these groups of people. This analysis shows where curb improvements would be constructed under the proposed build alternative.

On-street parking. On-street parking provides a buffer between vehicle traffic and pedestrians, and also can serve to slow traffic (drivers must be vigilant regarding other drivers pulling into and out of traffic). On-street parking is evaluated by comparing the future no-build to the future proposed alternative in terms of whether on-street parking is available or not. On-street parking is also seen by many property owners as critical to their survival, and can contribute to the amount of pedestrian activity on a sidewalk. On-street parking was selected as a characteristic because of its influence on pedestrian safety.

Pedestrian Accident Location Improvements

Pedestrian accident data was evaluated for years 2001-2003. *As shown in **Table 2**, 6 existing pedestrian accident locations will be improved by the proposed 2030 two-way Mercer build alternative.* Improvements include treatments such as curb bulbs, ADA ramps, signals, or landscaped buffer. While these improvements cannot predict a reduction in future levels of pedestrian accidents at the identified locations, the improvements are intended to help reduce the potential for accidents in the future.

[1] Amenity areas, including landscaping and street trees, can also provide environmental benefit through sidewalk and street runoff control. The degree to which an amenity area controls stormwater depends on the landscaped design and type of vegetation/soil used.

As the table shows, three of the existing pedestrian accident locations (Mercer/Dexter, Mercer/Fairview, and Fairview/Republican intersections) exhibit both "pros" and "cons" for future improvements. Although these locations would have increased crossing distances in the future, they would also have improved ADA ramps and in some cases, new crosswalks or curb bulbs. The reason for the increased crossing distances is because in some cases, certain intersection corners need to accommodate freight trucks, which require space to make wide turns. The increased pedestrian crossing distances will be mitigated through design and technology treatments, and also through encouragement of pedestrians to use Valley Street where reasonable (as Valley Street is intended to be the more pedestrian-oriented roadway).

It should also be noted that the Mercer Street corridor within the study area was the location of seven bicycle accidents during 2001-2003. Three of these involved bicyclists in the roadway, and four involved bicyclists in the walkway. One bicycle accident was recorded along the Roy Street corridor. As part of the 2030 two-way Mercer build alternative, bicycle lanes will be constructed along the Valley/Broad/Roy corridor and along 9th Street. These bicycle facilities will offer delineated ways of moving through the study area – and are intended to serve as the primary routes for bicyclists, rather than Mercer Street. It is intended that this delineation will result in a lower potential for vehicle/bicycle and pedestrian/bicycle conflicts.

Table 2. Pedestrian Accident Location Improvements

Existing Pedestrian Accident Location (2001-2003)	Number of Accidents	Future Improvements (2030 Two-way Mercer Build Alternative)
Mercer Street		
at Dexter	1	**Pros:** ADA ramps at every corner. Curb bulbs on the east leg. **Cons:** Increased crossing distances on E/W legs.
at Terry	1	**Pros:** ADA ramps and curb bulbs at every corner. Crossing on all legs. Signalized intersection in 2030 (both no-build and build).
at Fairview	1	**Pros:** ADA ramps at all crossings. North leg crossing provided. **Cons:** Increased crossing distance on west and south legs
Westlake Avenue		
between 9th and Broad/Valley	1	**Pros:** Landscaping on west side of street provides buffer between vehicle traffic and pedestrians.
at Broad/Valley	1	**Pros:** ADA ramps at every corner. Curb Bulbs at SE, SW, and NW corners. Narrower crossing distances.
Fairview Avenue		
at Republican	1	**Pros:** Improved ADA ramps at the NW and SE corners. **Cons:** Increased crossing distances

Sidewalk Width

Existing sidewalk width was evaluated, which is used as a proxy for future no-build conditions. Existing sidewalk width was compared to sidewalk widths included as part of the proposed 2030 two-way Mercer build alternative. *The evaluation showed that the proposed 2030 two-way Mercer build alternative will improve sidewalk width throughout the study area.*

Table 3 shows that of the 36 blocks analyzed, 24 blocks (67%) result in increased sidewalk width under the proposed 2030 two-way Mercer alternative.

Table 4 shows that of the 36 blocks analyzed, the 2030 no-build shows 25 blocks as 10+ feet, 10 as 5-9 feet, and one as 0-4 feet, while the 2030 proposed two-way Mercer alternative shows that 35 blocks are 10 feet wide or greater, while only one is 5-9 feet. The 2030 no-build alternative would include 240′ of 0′-4′ sidewalk, 2,615′ of 5′-9′ sidewalk, and 7,885′ of 10′+ sidewalk. The 2030 proposed build alternative would include a noticeable increase in the number of linear feet of 10′+ sidewalk; it would include 370′ of 5′-9′ sidewalk, and 10,315′ of 10′+ sidewalk. For this analysis, 0′-4′ is poor, 5′-9′ is adequate and 10′+ is good, especially for commercial areas with significant pedestrian traffic.

Table 3. Sidewalk Width Comparison by Block (2030 No-Build and Build)

Location	Side of Road	Width of Sidewalk (ft)		2030 Build is better than Existing/2030 No-Build
		Existing/ 2030 No-Build	2030 Build	
Valley/Broad Street				
between 9th and Westlake	North	12	19.5	√
	South	8	10.5	√
between Westlake and Terry	North	10	10.5	√
	South	5	16	√
between Terry and Boren	North	10	48*	√
	South	10	16	√
between Boren and Fairview	North	13	52*	√
	South	12	16	√
Mercer Street				
between Dexter and 8th	North	9	21	
	South	16	16	
between 8th and 9th	North	9	21	√
	South	16	16	
between 9th and Westlake	North	17	20	√
	South	12	16	√
between Westlake and Terry	North	15	21	√
	South	16	16	
between Terry and Boren	North	12	21	√
	South	12	16	√
between Boren and Fairview	North	5	21	√
	South	8	16	√
Roy Street				
between Dexter and 8th	North	8	10.5	√
	South	12	10.5	
between 8th and 9th	North	8	10.5	√
	South	0	10.5	√
9th Avenue				
between Westlake and Broad	East	18	10.5	
	West	14	13.5	
between Broad and Mercer	East	11	16	√
	West	8	16	√
Westlake Avenue				
between 9th and Valley/Broad	East	18	10.5	
	West	12	10.5	
between Valley/Broad and Mercer	East	12	16	√
	West	16	16	
Fairview Avenue				
between Valley and Mercer	East	6	16	√
	West	12	16	√
between Mercer and Republican	East	13	7.5	
	West	12	10.5	

Notes: (1) Sidewalk widths for both existing/no-build and the 2030 build alternatives include landscaped buffer widths.
(2) Sidewalk widths were approximated for each block; the most common width for a sidewalk block (defined as the length between two streets on one side of the street) was used.
*Includes streetcar loading area.

Table 4. Sidewalk Width Category Comparison by Block & Length (2030 No-Build and Build)

Location	Side of Road	Width Category of Sidewalk (ft)		Length of Sidewalk (ft)	
		Existing/ 2030 No-Build	2030 Build	Existing/ 2030 No-Build	2030 Build
Valley/Broad Street					
between 9th and Westlake	North	10+	10+	220	210
	South	5-9	10+	260	250
between Westlake and Terry	North	10+	10+	350	350
	South	5-9	10+	230	290
between Terry and Boren	North	10+	10+	290	290
	South	10+	10+	280	280
between Boren and Fairview	North	10+	10+	310	310
	South	10+	10+	310	180
Mercer Street					
between Dexter and 8th	North	5-9	10+	260	280
	South	10+	10+	260	260
between 8th and 9th	North	5-9	10+	300	300
	South	10+	10+	280	290
between 9th and Westlake	North	10+	10+	260	240
	South	10+	10+	270	260
between Westlake and Terry	North	10+	10+	260	270
	South	10+	10+	275	270
between Terry and Boren	North	10+	10+	280	280
	South	10+	10+	270	280
between Boren and Fairview	North	5-9	10+	320	300
	South	5-9	10+	310	290
Roy Street					
between Dexter and 8th	North	5-9	10+	260	260
	South	10+	10+	190	290
between 8th and 9th	North	5-9	10+	260	260
	South	0-4	10+	240	290
9th Avenue					
between Westlake and Broad	East	10+	10+	400	400
	West	10+	10+	410	410
between Broad and Mercer	East	10+	10+	270	220
	West	5-9	10+	140	210
Westlake Avenue					
between 9th and Valley/Broad	East	10+	10+	480	480
	West	10+	10+	360	360
between Valley/Broad and Mercer	East	10+	10+	345	340
	West	10+	10+	380	320
Fairview Avenue					
between Valley and Mercer	East	5-9	10+	275	275
	West	10+	10+	360	320
between Mercer and Republican	East	10+	5-9	370	370
	West	10+	10+	405	400

Intersection Crossing Distance

Existing intersection crossing distance was evaluated, which is used as a proxy for future no-build conditions. Existing intersection crossing distance was compared to crossing distances included as part of the proposed 2030 two-way Mercer build alternative. *The evaluation showed that the proposed 2030 two-way Mercer build alternative will add 11 crossings to the area. The evaluation also showed that more crossings are lengthened rather than shortened under the 2030 no-build scenario; however, most of these increases in distance are located along the Mercer Corridor, which is intended to be slightly secondary to the Valley Corridor in terms of pedestrian environment, in that vehicles are to be concentrated along Mercer Street. For the Mercer Corridor Improvement most locations provide curb bulbs, which make pedestrians more visible.*

Table 5 shows that under the future proposed alternative, 11 crossings decrease in length, 5 crossings remain the same distance, and 23 increase in length. Generally, locations with increased crossing distances are located along the Mercer Corridor. It is also notable that 11 crossings are added under the 2030 proposed build alternative while only one crossing is eliminated. Therefore, the amount of crossings is enhanced for the study area. At locations with increased intersection crossing distance, mitigation through design and technology treatments will be important where feasible.

Table 5. Intersection Crossing Distance Comparison (2030 No-Build and Build)

Location	Leg	Crossing Distance (ft)		2030 Build is better than Existing/No-Build 2030
		Existing/ No-Build 2030	2030 Build	
9th/Westlake	North	50	No Crossing	
	East	45	86	
	South	50	62	
	West	NA	NA	
Roy/Dexter	North	55	55	
	East	50	44	√
	South	75	75	
	West	35	35	
Roy/8th	North	50	50	
	East	No Crossing	44	
	South	NA	NA	
	West	No Crossing	42	
9th/Roy/Broad	North	48	64	
	East	70	50	√
	South	52	64	
	West	No Crossing	44	
Westlake/Valley/Broad	North	68	62	√
	East	90	48	√
	South	66	70	
	West	60	38	√
Terry/Valley	North	24	30	
	East	No Crossing	32	
	South	92	50	√
	West	No Crossing	34	

Table 5. Intersection Crossing Distance Comparison (2030 No-Build and Build)

Location	Leg	Crossing Distance (ft)		2030 Build is better than Existing/No-Build 2030
		Existing/ No-Build 2030	2030 Build	
Boren/Valley	North	NA	NA	
	East	No Crossing	No Crossing	
	South	42	46	
	West	No Crossing	34	
Fairview/Valley	North	NA	60	
	East	72	NA	
	South	114	52	√
	West	No Crossing	48	
Dexter/Mercer	North	80	84	
	East	60	93	
	South	80	80	
	West	62	94	
8th/Mercer	North	NA	NA	
	East	No Crossing	No Crossing	
	South	46	32	√
	West	No Crossing	No Crossing	
9th/Mercer	North	48	74	
	East	No Crossing	100	
	South	46	42	√
	West	46	93	
Westlake/Mercer	North	60	64	
	East	48	92	
	South	60	64	
	West	46	94	
Terry/Mercer	North	62	54	√
	East	No Crossing	92	
	South	54	48	√
	West	No Crossing	90	
Boren/Mercer	North	24	52	
	East	No Crossing	No Crossing	
	South	48	46	√
	West	No Crossing	No Crossing	
Fairview/Mercer	North	No Crossing	100	
	East	No Crossing	No Crossing	
	South	90	110	
	West	80	124	
Republican/Fairview	North	61	80	
	East	40	50	
	South	61	74	
	West	43	48	

Curb Radius

Existing curb radii were evaluated, which is used as a proxy for future no-build conditions. Existing curb radii were compared to curb radii included as part of the proposed 2030 two-way Mercer build alternative. *The evaluation showed that 95 percent of curb radii measurements for the 2030 proposed two-way Mercer alternative are 35 feet or less (compared to 91 percent for the no-build).*

Curb radii for study area intersections are listed in ***Appendix 2***. ***Table 6*** shows that 95 percent of curb radii measurements for the 2030 build alternative are 35 feet or less. For the no-build alternative, 91 percent are 35 feet or less. Under the 2030 proposed build alternative, all of the 75-foot, 125-foot, 175-foot and 400-foot curb radii are eliminated. Although certain corners do show an increase in curb radius, most of those are located along the Mercer Corridor, which is intended to be slightly secondary to the Valley Corridor in terms of pedestrian environment, in that vehicles are to be concentrated along Mercer. At locations with increased curb radii, mitigation through design and technology treatments will be important where feasible.

Table 6. Curb Radii Comparison (2030 No-Build and Build)

	Number (%) of Intersection Corners	
Curb Radius (feet)	Existing/ No-Build 2030	2030 Build
2	1 (2%)	0 (0%)
5	1 (2%)	1 (2%)
10	10 (17%)	4 (7%)
15	21 (36%)	1 (2%)
20	12 (21%)	17 (29%)
25	3 (5%)	26 (44%)
30	3 (5%)	5 (8%)
35	2 (3%)	2 (3%)
40	0 (0%)	1 (2%)
45	0 (0%)	1 (2%)
50	1 (2%)	1 (2%)
75	1 (2%)	0 (0%)
125	1 (2%)	0 (0%)
175	1 (2%)	0 (0%)
400	1 (2%)	0 (0%)

Note: (1) 2030 build totals include only corners for which there were existing/no-build corners, to maintain a logical comparison.

Amenity Areas

For this analysis, comparisons were made regarding amenity areas between the street and sidewalk (also commonly referred to as landscaped buffer, planter strips or street trees). Existing amenity area widths were evaluated, which is used as a proxy for future no-build conditions. Existing amenity area widths were compared to amenity area widths included as part of the proposed 2030 two-way Mercer build alternative. *The evaluation showed that 78 percent of amenity area measurements for the 2030 proposed two-way Mercer improve conditions over the 2030 no-build.*

Table 7 shows the comparison of amenity areas by block for the 2030 no-build and 2030 proposed build alternatives. Much of the existing Mercer/Valley corridor study area does not currently include amenity area between the street and sidewalk. The comparison showed that of the 36 blocks examined, 28 (78 percent) include increased amenity area width under the 2030 build alternative. In most of these cases, amenity area is added between the street and sidewalk where there previously were no amenity areas.

Table 7. Amenity Area Comparison by Block (2030 No-Build and Build)

Location	Side of Road	Width of Amenity Area (ft)		2030 Build is better than Existing/No-Build 2030
		Existing/ No-Build 2030	2030 Build	
Valley/Broad Street				
between 9th and Westlake	North	0	5	√
	South	0	5	√
between Westlake and Terry	North	0	0	
	South	0	5	√
between Terry and Boren	North	0	0	
	South	3	5	√
between Boren and Fairview	North	7	0	
	South	0	5	√
Mercer Street				
between Dexter and 8th	North	0	5	√
	South	0	5	√
between 8th and 9th	North	0	5	√
	South	0	5	√
between 9th and Westlake	North	0	5	√
	South	0	5	√
between Westlake and Terry	North	0	5	√
	South	0	5	√
between Terry and Boren	North	0	5	√
	South	0	5	√
between Boren and Fairview	North	0	5	√
	South	0	5	√
Roy Street				
between Dexter and 8th	North	0	5	√
	South	0	5	√
between 8th and 9th	North	0	5	√
	South	0	5	√
9th Avenue				
between Westlake and Broad	East	9	5	
	West	0	5	√
between Broad and Mercer	East	0	5	√
	West	0	5	√
Westlake Avenue				
between 9th and Valley/Broad	East	9	0	
	West	0	5	√
between Valley/Broad and Mercer	East	3	5	√

Table 7. Amenity Area Comparison by Block (2030 No-Build and Build)

Location	Side of Road	Width of Amenity Area (ft)		2030 Build is better than Existing/No-Build 2030
		Existing/ No-Build 2030	2030 Build	
	West	0	5	√
Fairview Avenue				
between Valley and Mercer	East	0	5	√
	West	5	5	
between Mercer and Republican	East	7	0	
	West	5	0	

Notes: (1) Amenity area widths were approximated for each block; the most common width for a block (defined as the length between two streets on one side of the street) was used.

ADA Curb Ramp Improvements

Existing ADA curb ramps were evaluated and used as a proxy for future no-build conditions. The number of existing ADA ramps was compared to the number of ADA ramps included as part of the proposed 2030 two-way Mercer build alternative. All construction related to the build alternative would include new ADA ramps. The condition of existing ramps was also evaluated, for comparison with improvements included as part of the proposed build alternative. *The evaluation showed that approximately 50 percent of the study area intersections examined are improved with new ADA ramps when comparing the 2030 proposed two-way Mercer alternative to the 2030 no-build.*

Table 8 shows that out of the 61 intersection corners examined in the study area, 31 (approximately 50%) are improved with ADA ramps included as part of the 2030 proposed two-way Mercer alternative. Fifteen of the new curb ramps improve conditions over existing ramps that are in poor condition or that do not provide full access. Sixteen of the new curb ramps add ramps to locations where currently ramps do not exist. This increases the accessibility of the study area for all pedestrians.

Table 8. ADA Curb Ramp Improvements (2030 No-Build and Build)

Key:

0 No ramp access provided at corner with crossing

- Ramp at corner, but does not provide access to all crossings and/or is in poor condition

+ Provides access to crosswalks at corner and is in good condition

NA Not applicable because no crossing provided at this location

Location	Corner	Existing/ No-Build 2030	2030 Build	2030 Build is better than Existing/No-Build 2030	Comments
9th/Westlake	NE	+	+		
	SE	-	+	√	Existing ramp in poor condition
	SW	-	+	√	Existing ramp in poor condition
	NW	+	NA		
Roy/Dexter	NE	+	+		
	SE	+	+		
	SW	+	+		

Table 8. ADA Curb Ramp Improvements (2030 No-Build and Build)

Key:

0 No ramp access provided at corner with crossing

- Ramp at corner, but does not provide access to all crossings and/or is in poor condition

+ Provides access to crosswalks at corner and is in good condition

NA Not applicable because no crossing provided at this location

Location	Corner	Existing/ No-Build 2030	2030 Build	2030 Build is better than Existing/No-Build 2030	Comments
	NW	+	+		
Roy/8th	NE	-	+	√	Existing does not provide full access
	SE	-	+	√	Existing does not provide full access
	SW	-	+	√	Existing does not provide full access
	NW	-	+	√	Existing does not provide full access
9th/Roy/Broad	NE	+	+		
	SE	+	+		
	SW	+	+		
	NW	+	+		
Westlake/Valley/Broad	NE	+	+		
	SE	0	+	√	
	SW	+	+		
	NW	-	+	√	Existing does not provide full access
Terry/Valley	NE	0	+	√	
	SE	+	+		
	SW	0	+	√	
	NW	0	+	√	
Boren/Valley	NE	NA	NA		
	SE	+	+		
	SW	+	+		
	NW	NA	+		
Fairview/Valley	NE	+	+		
	SE	+	+		
	SW	0	+	√	
	NW	NA	+		
Dexter/Mercer	NE	0	+	√	
	SE	+	+		
	SW	0	+	√	
	NW	0	+	√	
8th/Mercer	NE	NA	NA		
	SE	-	+	√	
	SW	+	+		
	NW	NA	NA		
9th/Mercer	NE	-	+	√	Existing ramp in poor condition
	SE	+	+		
	SW	-	+	√	Existing ramp in poor condition
	NW	0	+	√	
Westlake/Mercer	NE	-	+	√	Existing ramp in poor condition
	SE	+	+		
	SW	+	+		

Table 8. ADA Curb Ramp Improvements (2030 No-Build and Build)

Key:

0 No ramp access provided at corner with crossing

- Ramp at corner, but does not provide access to all crossings and/or is in poor condition

+ Provides access to crosswalks at corner and is in good condition

NA Not applicable because no crossing provided at this location

Location	Corner	Existing/ No-Build 2030	2030 Build	2030 Build is better than Existing/No-Build 2030	Comments
	NW	-	+	√	Existing ramp in poor condition
Terry/Mercer	NE	-	+	√	Existing ramp in poor condition
	SE	+	+		
	SW	0	+	√	
	NW	0	+	√	
Boren/Mercer	NE	+	+		
	SE	0	+	√	
	SW	0	+	√	
	NW	+	+		
Fairview/Mercer	NE	NA	+		
	SE	0	+	√	
	SW	0	+	√	
	NW	0	+	√	
Republican/Fairview	NE	+	+		
	SE	-	+	√	Existing ramp in poor condition
	SW	+	+		
	NW	-	+	√	Existing ramp in poor condition

Notes: (1) In future 2030 build alternative, ADA ramps will be included at all corners with crossings.
(2) Ramp additions are considered improvements only in cases where a current ramp **should** exist.

On Street Parking

Existing on-street parking was evaluated and used as a proxy for future no-build conditions. The amount of existing on-street parking was compared to the on-street parking included as part of the proposed 2030 two-way Mercer build alternative. For this analysis, on-street parking was considered a benefit because it buffers pedestrians from traffic, and sometimes slows speeds. *The evaluation showed that approximately 28 percent of the study area blocks examined would include new on-street parking.*

Table 9 shows that of the 36 blocks analyzed, 10 (28%) would experience the addition of on-street parking with the 2030 proposed two-way Mercer alternative (mostly along Mercer and Valley/Broad Streets). Five blocks would experience the elimination of on-street parking (Roy Street, 9th Avenue and Westlake Avenue).

Table 9. On-Street Parking Comparison by Block (2030 No-Build and Build)

Location	Side of Road	Existing/ No-Build 2030	2030 Build	2030 Build is better than Existing/No-Build 2030
Valley/Broad Street				
between 9th and Westlake	North	No	No	
	South	No	Yes	√
between Westlake and Terry	North	No	No	
	South	No	Yes	√
between Terry and Boren	North	No	Yes	√
	South	No	Yes	√
between Boren and Fairview	North	No	No	
	South	Yes	Yes	
Mercer Street				
between Dexter and 8th	North	No	No	
	South	No	Yes	√
between 8th and 9th	North	No	No	
	South	No	Yes	√
between 9th and Westlake	North	No	No	
	South	No	Yes	√
between Westlake and Terry	North	No	Yes	√
	South	No	Yes	√
between Terry and Boren	North	Yes	Yes	
	South	No	Yes	√
between Boren and Fairview	North	No	No	
	South	No	No	
Roy Street				
between Dexter and 8th	North	Yes	No	
	South	Yes	Yes	
between 8th and 9th	North	Yes	No	
	South	Yes	Yes	
9th Avenue				
between Westlake and Broad	East	Yes	No	
	West	No	No	
between Broad and Mercer	East	No	No	
	West	No	No	
Westlake Avenue				
between 9th and Valley/Broad	East	No	No	
	West	Yes	No	
between Valley/Broad and Mercer	East	No	No	
	West	Yes	No	
Fairview Avenue				
between Valley and Mercer	East	No	No	
	West	No	No	
between Mercer and Republican	East	No	No	
	West	No	No	

Conclusions

In conclusion, while certain pedestrian system characteristics show greater improvement under the proposed build alternative than others, overall, pedestrian safety and pedestrian environment are generally improved as a result of the proposed two-way Mercer Street build alternative.

Roadway design changes can enhance neighborhood pedestrian connectivity and contribute to a safer, more connected urban street environment. Trade-offs are often needed to balance the sometimes conflicting priorities in the project's purpose to achieve overall pedestrian safety, access and circulation. The Mercer Corridor Improvement Project coupled with the new pedestrian scale-design and Lake Union improvements (streetcar and South Lake Union Park) will make this an inviting area for pedestrians.

Appendices

1. Pedestrian System Characteristics Table
2. Curb Radii Table

TABLE 1 PEDESTRIAN AND BICYCLE FACILITY CHARACTERISTICS

Pedestrian Facility Characteristic	Measure
Community Connections	Number of pedestrian destinations within 1/4-mile on continuous sidewalks (Civil Community Centers and Parks)
Pedestrian accident location improvements	Types and numbers of treatments
Sidewalk width	Width in Feet
Sidewalk surface condition	good/fair/poor
Average Clear Width (e.g. obstacles such as utilities, vegetation, etc)	Width in feet per segment
Steepness	Percent grade
Intersection Crossing Distance	Distance in feet
Curb Height	Height in Inches
Curb radius	Number of curb feet percentage (15, 20, 25)
Curb ramp to ADA Standard	Yes/No (and how many improved)
Raised Crosswalks	Number of New
Crosswalk Medians	Yes/No
Sidewalk Intersections	Number signalized/unsignalized
Buffer	Width in Feet
Shoulder width	Width in Feet
On-street Parking	Yes/No
Street Furniture	Number of New
Trash Receptacles	Number of New
Lighting	Percent of New Areas Covered
ADA Accessible	Yes/No
Driveways to Design Standard	Number
Curb Ramps	Number of new
Cross slope	Average per segment (ADA)
Crosswalks	Number of new
Curb extensions	Number of new
Landscaping	Yes/No
Public Art	Yes/No
Retail with windows on street level	Yes/No
Continuous sidewalk	Feet
Signage Variable	Yes/No
Signage ITS	Yes/No

TABLE 1 PEDESTRIAN AND BICYCLE FACILITY CHARACTERISTICS

Pedestrian Facility Characteristic	Measure
Pedestrian-scale lighting	Yes/No
Pedestrian Push button accessibility	Yes/No
Presence of crossing signals for visually impaired	Yes/No
Narrowed lanes	Yes/No
Chicanes	Yes/No
Opportunity for Video Detection	Yes/No
View of Traffic Blocked	Yes/No
Traffic Volume	Light/Medium/Heavy
Traffic Light Wait Time	Time
Crossing Points within 400 to 600-feet	Yes/No
Streetcar Issues/Impacts	Define Type
Parking Restrictions	Define Type
Grade Separations(under-/overpasses)	Yes/No
Bicycle Facility Characteristic	**Measure**
Bike Lane clear width	Width in Feet
Steepness	Percent grade
Crossings	Width and Number
Bike Lane obstructions-gutter pans	Yes/No
Bike Lane surface condition maintenance	Yes/No
Bike Lane Connectivity	Number of bike destinations within 1/4-mile on continuous lanes or signed routes (Civil Community Centers and Parks)
Bicycle Parking	Yes/No
Bicyclist Amenities	Yes/No

Appendix 2
Mercer Corridor Curb Radii Comparison

Intersection and Corner	Existing 2006/ Future No Build 2030 *(curb radii in feet)*	Two Way Mercer 2030 *(curb radii in feet)*
Dexter Ave & Roy St		
NE	5	10
SE	15	20
Dexter Ave & Mercer St		
NW	20**	25
NE	20**	25
SE	15	25
SW	10**	25
8th Ave N & Roy St		
NW	15	20
NE	15	20
8th Ave N & Mercer St		
SE	10	25
SW	10	25
9th Ave N & Aloha St		
NW	20	25
SW	15	25
9th Ave N & Westlake Ave		
NE	0	35
SE	35	15
9th Ave N & Broad St & Roy St		
NW	25	25
NE	15	20
SE	20	20
SW S	20	20
SW N	2	
9th Ave N & Mercer St		
NW S	15	5
NW N		30
NE	10	50
SE	15	25
SW	20	25
Westlake Ave N & Valley St & Broad St		
NW	15	20
NE N	125	25
NE S	175	
SE	20	25
SW	30	20
Westlake Ave N & Mercer St		
NW	20	25
NE	15	25
SE	20	25
SW	15	35 + Taper
Terry Ave N & Valley St		
NW	75	20
NE	15	20
SE	10	20
SW	30	20
Terry Ave N & Mercer St		
NW	25	25
NE	25	25
SE	35	30
SW	20	10
Boren Ave & Valley St		
SE	10	20
SW	10	20
Boren Ave & Mercer St		
NW	15	25
NE	15	25
SE	20	30
SW	20	30
Fairview Ave & Valley St		
NW	400	40 + Taper
NE	15	25
SE	15	25
SW	15	20
Fairview Ave & Roy St		
NW	0	0
NE	10	20 + Taper
SE	10	20
SW	0	0
Fairview Ave & I-5 Ramps		
NW	30	30
SW	50	45 + Taper
Fairview Ave & I-5 Ramps & Mercer St		
NE	0	10
SE	10	10
Fairview Ave & Republican St		
NW	15	25
NE	15	25
SE	15	25
SW	15	25

** estimated