

# **Appendix E**

**Ann Arbor**

**Lower Town Mobility Study**

**Pedestrian and Bicycle  
Existing Condition Audit**



## MEMO

**TO:** Luke Liu, PE, (City of Ann Arbor)  
**FROM:** Matt Hill, PE, PTOE, Joyce Yassin, PE, PTOE (WSP)  
**SUBJECT:** Lower Town Mobility Study – Pedestrian and Bicycle Focus Areas  
**DATE:** October 26, 2020

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## INTRODUCTION

This memorandum presents the focus areas based on the results of the pedestrian and bicycle environmental quality assessment for the Lower Town area of Ann Arbor. The focus areas were identified based on scoring a Pedestrian Environmental Quality Index (PEQI) or Bicycle Environmental Quality Index (BEQI) of 40 or less, defined as:

0 – 20	Unsuitable for pedestrians/bicyclists
21 – 40	Poor pedestrian/bicyclist conditions exist

Intersection and segment focus areas were identified as they are scored separately for both pedestrian and bicyclist conditions.

## INTERSECTION FOCUS AREAS

Based on the PEQI scores, all of the signalized intersections provide basic or reasonable pedestrian conditions. Although the PEQI score consists of many indicators, basic intersection conditions can be met where crosswalks and curb ramps are provided on all approaches, and at least one intersection light is present. A few intersections had a slightly higher score and was categorized as reasonable. These locations when compared to the basic locations had a combination of the following added features: high visibility crosswalks, traffic control on all approaches, improved intersection lighting, pedestrian engineering countermeasures, and/or traffic calming features. The PEQI intersection focus areas that did not meet these conditions were rated as poor or unsuitable conditions for pedestrians. An in-depth review of these locations was performed to determine the contributing factors as shown in Table 1.

Basic bicyclist conditions are present at all signalized and non-signalized locations. Unlike the PEQI calculations, the baseline for the BEQI intersection scores is basic conditions. The three indicators used to calculate a BEQI score are left turn bicycle lanes, dashed intersection bicycle lanes, and no turn on red signs. Only a few intersections within Lower Town consists of one of these indicators on one approach which has little impact on the overall BEQI score, therefore the scores ranged between 48 and 51 for all locations.



Table 1 – Intersection Focus Areas

Intersection	PEQI Score	No Crosswalk	Missing Crosswalk	No High Visibility Crosswalk	No Lighting	Missing 1 or more ramps
Barton Dr @ Traver Knoll	4	x		x	x	x
Barton Dr @ Starwick Dr	15	x		x		x
Barton Dr @ Hiawatha Pl	22		x	x		x
Barton Dr @ Chandler Rd	15	x		x		x
Barton Dr @ Northside Ave	7	x		x	x	x
Barton Dr @ Longshore Dr/Brede Pl	21		x	x		x
Barton Dr @ M-14/US-23 NB on-ramp	20	x		x		x
Barton Dr @ M-14/US-23 SB off-ramp	15	x		x		x
Pontiac Trl @ Dhu Varren Rd	19		x	x		x
Pontiac Trl @ Knightsbridge Cir	22		x	x		x
Pontiac Trl @ Montana Way	25		x			x
Pontiac Trl @ Polson St	25		x			x
Pontiac Trl @ Skydale Dr	14		x	x	x	x
Pontiac Trl @ Arrowwood Trail	14		x	x	x	x
Pontiac Trl @ Manor Dr	14		x	x	x	x
Pontiac Trl @ Brookside Dr	27		x			x
Pontiac Trl @ Northside Ave	24		x			x
Pontiac Trl @ Starwick Dr	24		x			x
Pontiac Trl @ Taylor St	32		x			x
Pontiac Trl @ Amherst Ave	31		x			x
Pontiac Trl @ John A Woods Dr	24		x			x
Pontiac Trl @ Indianola Ave	21		x			x
Pontiac Trl @ Apple St	26		x			x
Pontiac Trl @ Argo Dr	21		x			x
Pontiac Trl @ Kellogg St	26		x			x
Pontiac Trl @ Bowen St	29		x			x
Pontiac Trl @ Longshore Dr/Moore St	36		x			x
Pontiac Trl @ Swift St	18		x	x		x
Maiden Ln @ Freesia Ct	20		x			x
Maiden Ln @ Wall St/Island Dr	28		x			x
Wall St @ Maiden Ln Ct	28		x			x
Wall St @ Canal St	21		x			x
Plymouth @ Jones Dr	14		x	x	x	x
Broadway @ Wall St	25		x			x
Traver Rd @ Moore St	14		x	x	x	x
Traver Rd @ Bowen St	7	x		x	x	x
Traver Rd @ Pear St	4	x		x	x	x
Traver Rd @ John A Woods Dr	7	x		x	x	x
Chandler Ave @ Argo Dr	21		x			x
Longshore Dr @ Wright St	37			x	x	
Longshore Dr @ Argo Dr	4	x		x	x	x
Longshore Dr @ Indianola Ave	4	x		x	x	x
Longshore Dr @ Amherst Ave	4	x		x	x	x
Wright St @ Kellogg St north	12	x		x		x
Argo Dr @ Ottawa Rd	21		x			x
Indianola Ave @ Ottawa Rd	21		x			x
Pear St @ Apple St	12	x		x		x
Pear St @ John A Woods Dr	14		x	x	x	x
Taylor St @ Pear St	38		x			
John A Woods Dr @ Peach St	29		x			x



## SEGMENT FOCUS AREAS

Basic pedestrian conditions exist along the majority of segments in Lower Town. Although the PEQI score consists of many indicators, basic segment conditions can be met where a 5 foot continuous sidewalk is present with no obstructions, no impediments, and 5 or less driveway cuts. A few segments had a slightly higher score and was categorized as reasonable. These locations when compared to the basic locations had a combination of the following added features: traffic calming, no driveway cuts, continuously lined trees between the sidewalk and roadway, planters or gardens, public seating, and/or bike lane/parallel parking buffer. The PEQI segment focus areas that did not meet these conditions are summarized in Table 2. All of these segments are either missing a pedestrian facility or the pedestrian facility is discontinuous on at least one side of the road.

Reasonable or basic bicyclist conditions are present along all study segments within the study area, except for one location. Basic conditions can be met where a smooth surface is present, the speed limit is 40 mph or less, and there is a clear line of sight. A few segments had a slightly higher score and was categorized as reasonable. These segments consisted of a marked bicycle area including dedicated bike lanes or sharrows.

The east side of Longshore Drive between Amherst Avenue and Barton Drive scored a BEQI of 40, which is the upper limit of poor bicyclist conditions threshold. Contributing factors for this score include: no marked bike facility, medium obstructions due to the unpaved road conditions, no lighting or bike signs, and the line of sight is obstructed due to a horizontal curve.



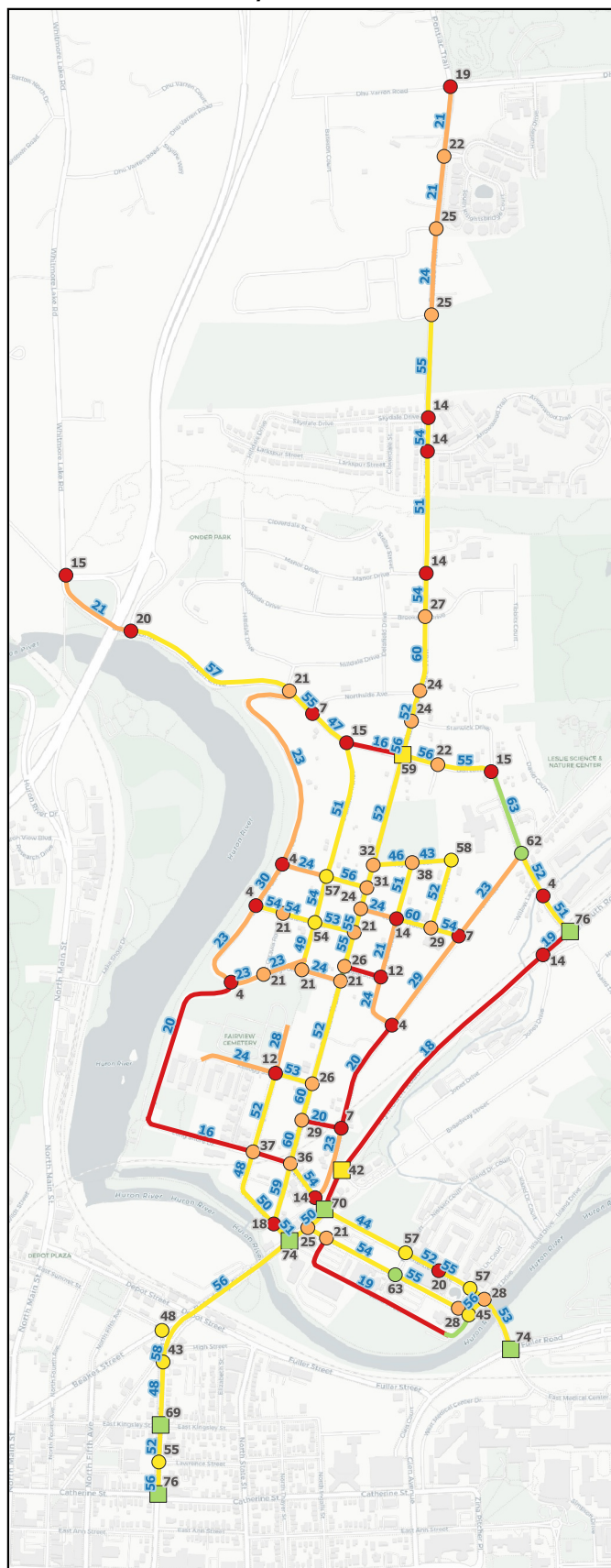
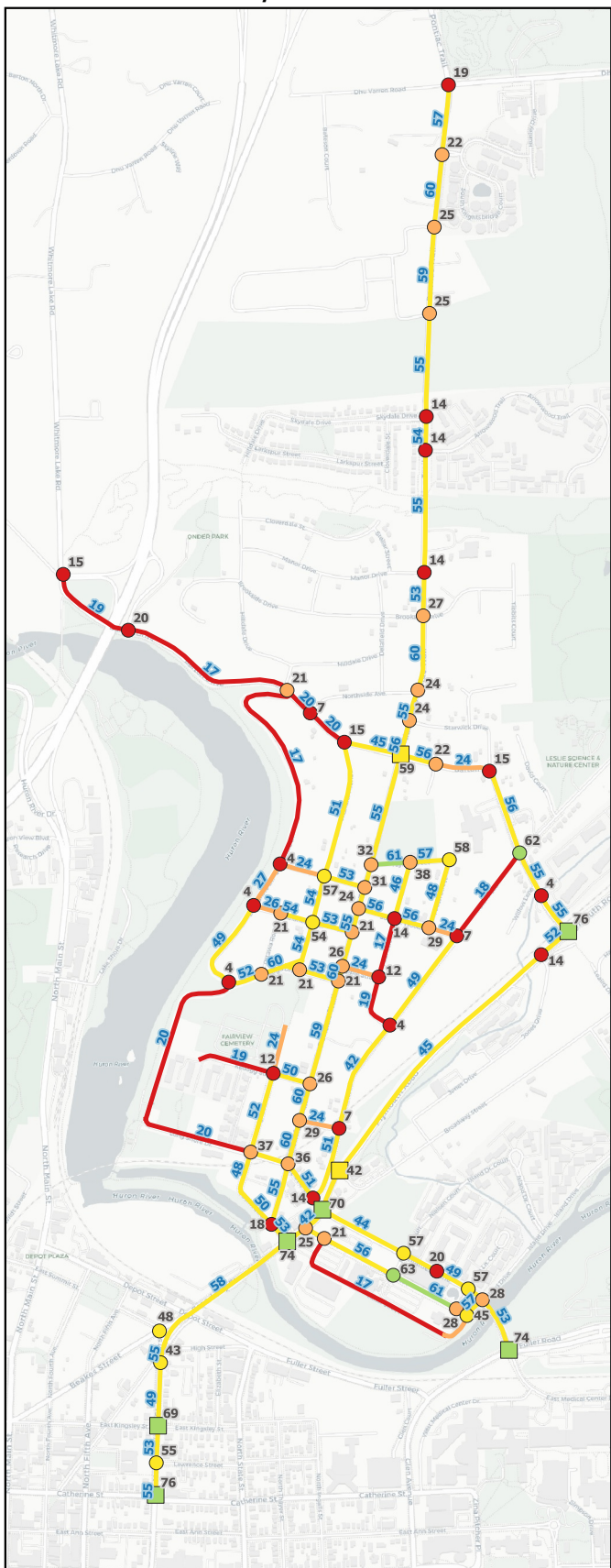
Table 2 – Segment Focus Areas

Street Segment		PEQI Score	Side
Barton Dr	Starwick Dr to Hiawatha Pl	24	N
	Pontiac Trail to Chandler Rd	16	S
	Chandler Rd to Northside Ave	20	N
	Northside Ave to Longshore Dr	20	N
	Longshore Dr/Brede Pl to M-14 NB on-ramp	17	N
	M-14/US-23 NB on-ramp to M-14 SB off-ramp	21/19	S/N
Pontiac Trail	Dhu Varren Rd to Knightsbridge Cir	21	W
	Knightsbridge Cir to Montana Way	21	W
	Montana Way to Polson St	24	W
Canal St	Wall St to Island Dr	17/19	N/S
Island Dr	Canal St to Wall St	23	N
Plymouth	Barton Dr to Jones Dr	19	W
	Jones Dr to Broadway St	18	W
	Broadway St to Moore St/Maiden Ln	14	W
Traver Rd	Moore St to Bowen St	23	W
	Bowen St to Pear St	20	W
	Pear St to John A Woods Dr	29	W
	John A Woods Dr to Barton Dr	23/18	W/E
Longshore Dr	Pontiac Trail to Wright St	20	S
	Wright St to Longshore Dr curve	16/20	S/N
	Longshore Dr curve to Argo Dr	20/20	W/E
	Argo Dr to Indianola Ave	23	W
	Indianola Ave to Amherst Ave	30/27	W/E
	Amherst Ave to Barton Dr	23/17	W/E
Wright St	Kellogg St north	28/24	W/E
Kellogg St	Wright St to western limits	24/19	S/N
Argo Dr	Pontiac Trail to Chandler Rd	24	S
	Chandler Rd to Ottawa Rd	23	S
	Ottawa Rd to Longshore Dr	23	S
Indianola Ave	Ottawa Rd to Longshore Dr	26	N
Amherst Ave	Chandler Rd to Longshore Dr	24/24	S/N
Bowen St	Traver Rd to Pontiac Trail	20/24	S/N
Pear St	Traver Rd to Apple St	19/24	E/W
	Apple St to John A Woods Dr	21/17	W/E
John A Woods Dr	Traver St to Peach St	24	N
	Pear St to Pontiac Trail	24	S
Apple St	Pear St to Pontiac Trail	19/24	S/N

# Pedestrian Environmental Quality Index (PEQI)

N / E Side

S / W Side



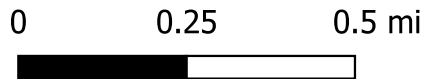
## PEQI Score

- 0 - 20 Unsuitable for pedestrians
- 21 - 40 Poor pedestrian conditions exist
- 41 - 60 Basic pedestrian conditions exist
- 61 - 80 Reasonable pedestrian conditions exist
- 81 - 100 Ideal pedestrian conditions exist

Segment Score ##  
Intersection Score ##

## Intersections

- Signalized
- Non-Signalized



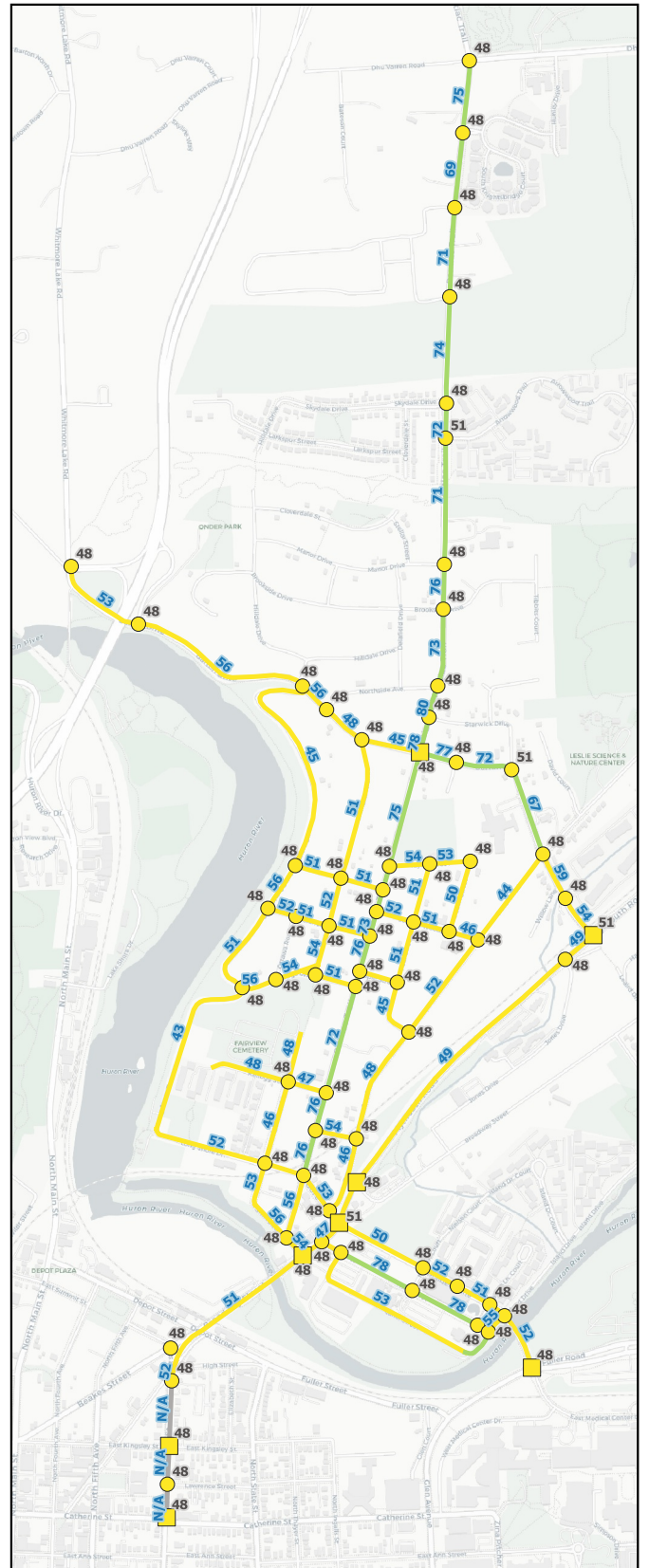
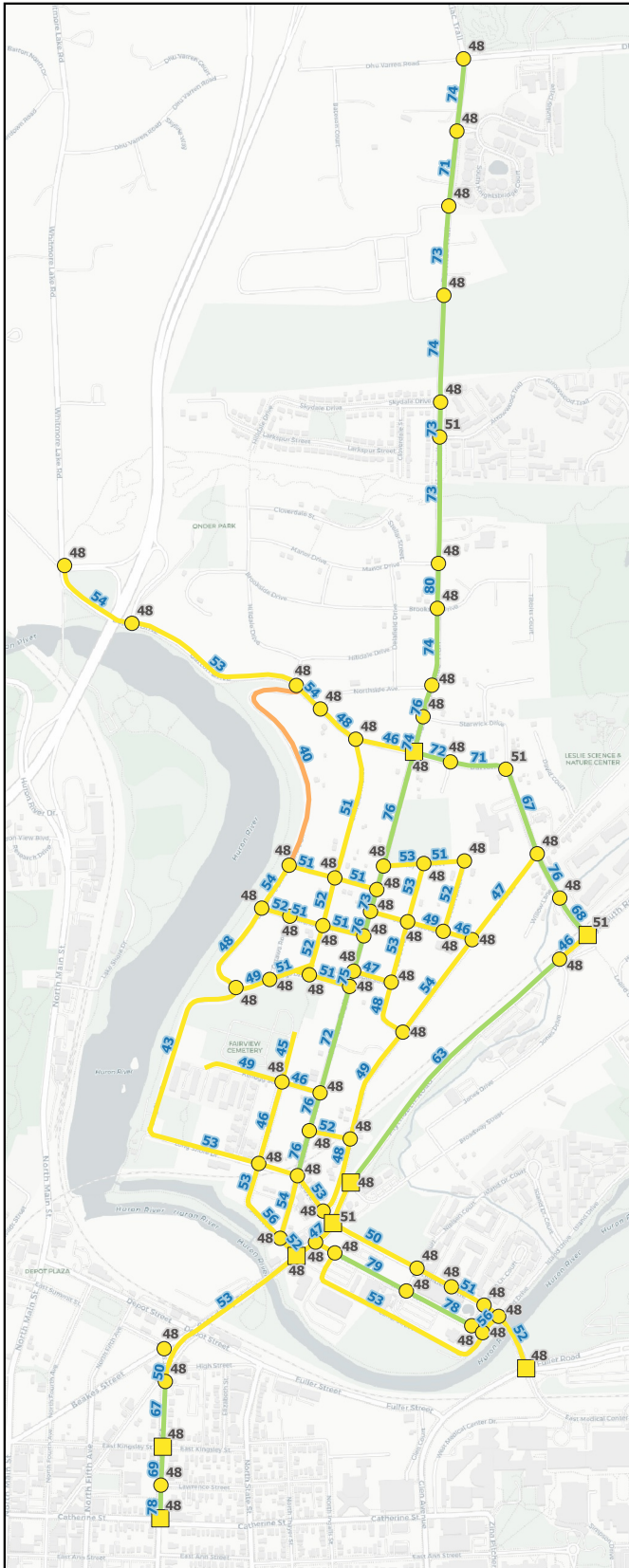
Street & Intersection PEQI Scores calculated based on San Francisco Department of Public Health Methodology.



# Bicycle Environmental Quality Index (BEQI)

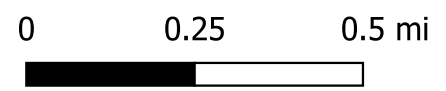
N / E Side

S / W Side



BEQI Score		Segment Score	##
—	N / A	One-Way Street	
—	0 - 20	Unsuitable for bicyclists	
—	21 - 40	Poor bicyclists conditions exist	
—	41 - 60	Basic bicyclists conditions exist	
—	61 - 80	Reasonable bicyclists conditions exist	
—	81 - 100	Ideal bicyclists conditions exist	

Intersections	
□	Signalized
○	Non-Signalized



Street & Intersection BEQI Scores calculated based on San Francisco Department of Public Health Methodology.