

MICROSCALE AUDIT OF PEDESTRIAN STREETSCAPES

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN











OBJECTIVES

THE UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN AIMS TO:

- INCREASE WALKABILITY ON CAMPUS
- INCREASE PHYSICAL ACTIVITY AND PROMOTE HEALTHY LIFESTYLES
- ENSURE THE SAFETY OF THOSE USING WALKWAYS
- MAKE OUR CAMPUS IS 100% ADA COMPLIANT

SUBDIVISIONS OF THE SITE OF INTERVENTION

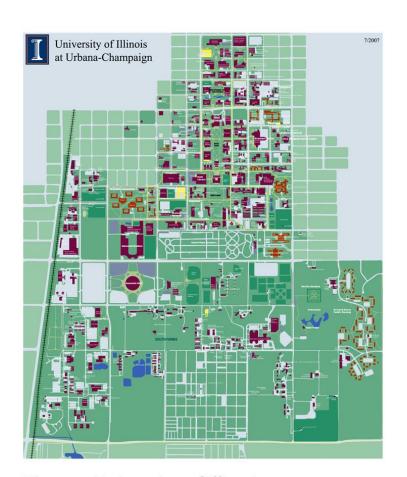


Figure: University of Illinois Urbana-Champaign campus map

29 MAP BLOCKS

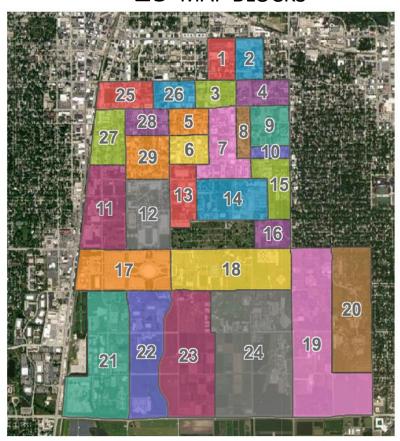


Figure: UIUC campus map divided into 29 map-blocks

120 MINI BLOCKS

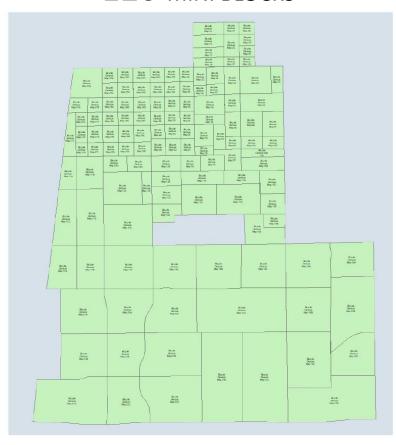
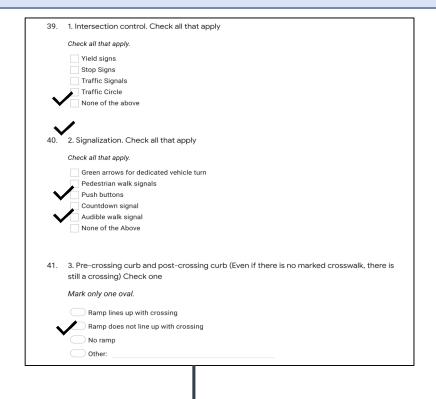


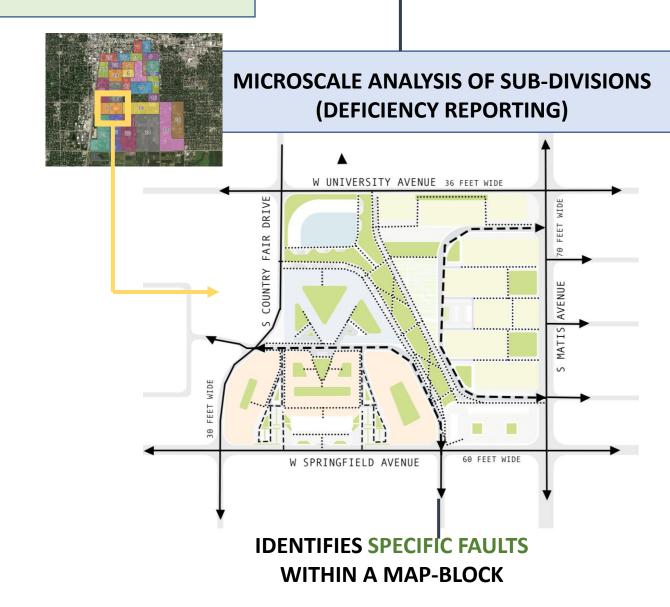
Figure: UIUC campus map divided into smaller mini-blocks for detailed analysis

DATABASE CREATION WALKABILITY AUDIT

SURVEY QUESTIONNAIRE

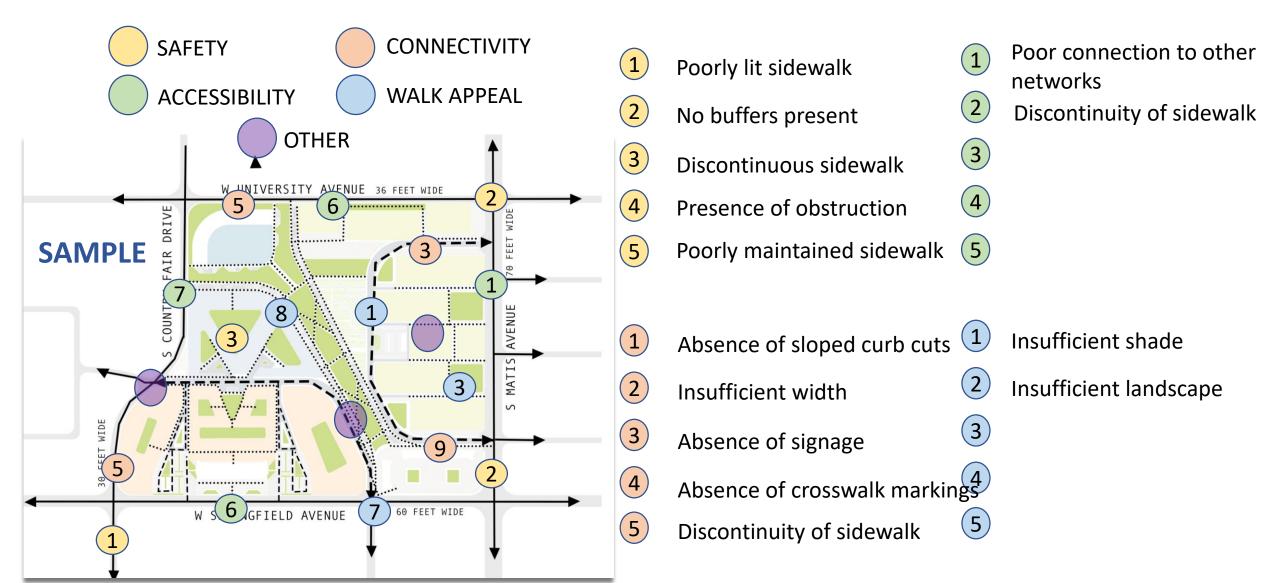


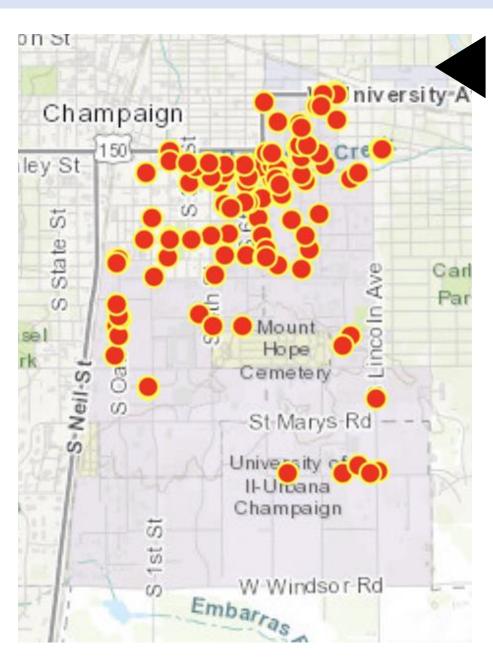
ANALYZES THE GENERAL WALKABILITY OF A MAP-BLOCK





DEFICIENCY REPORTING STRUCTURE





2021 UI Campus Walkability Audit

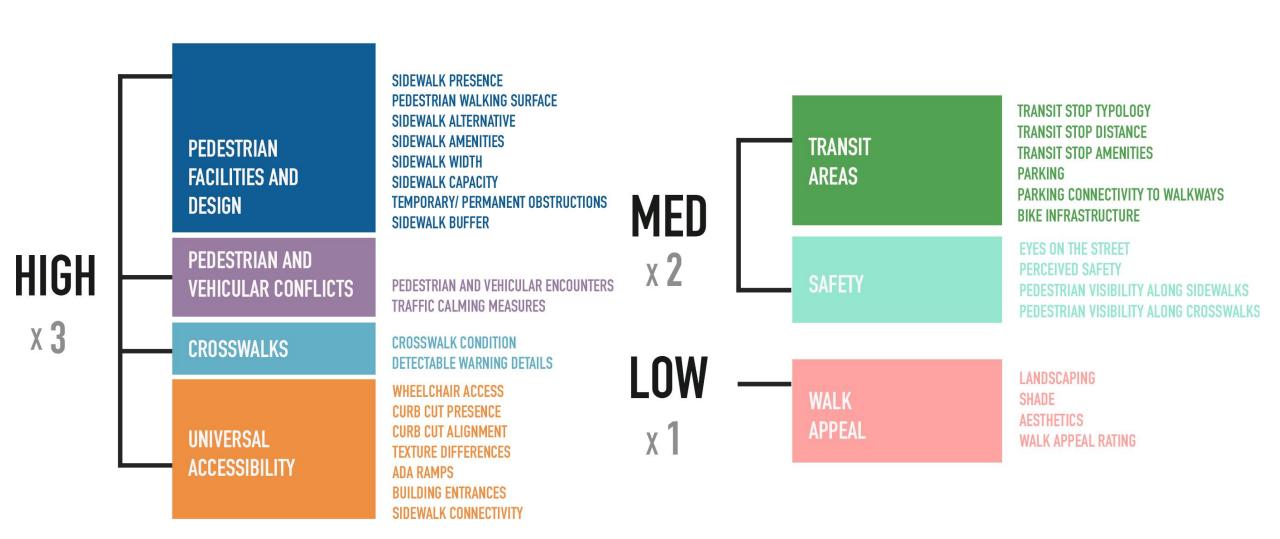
177 RECORDS

2021 UI Campus Deficiency Survey

820 RECORDS



GENERAL SURVEY: WEIGHTED SCORING SYSTEM



GENERAL WALKABILITY QUESTIONNAIRE- QUESTIONS AND SCORE

			QUESTIONS							
1		No scoring system	Investigated by:							
2	SURVEYOR	No scoring system	2. Block number : (Enter the small block ID here-e.g. 1a, 1b, 1c)							
3	INFO	No scoring system	SURVEYOR INFORMATION 3. How are you collecting the audit information? (Select one) A. Walking B. Using a wheelchair C. Using a bicycle D. Other							
			LAND USE							
			LAND USETYPOLOGY 4. Select the land-uses prevalent in this map-block. (Check all that apply)							
4	LAND USE	Contextual question	A. UIUC campus institutional buildings B. Residential buildings C. Commercial or retail (shopping centers, restaurants, cafés) D. Industrial buildings (warehouses, factories) E. Parking lots or granges F. Designated green spaces/parks G. Underdeveloped land H. Vacant land I. Place of worship J. Recreation spaces (eg. tennis courts, basketball courts)							
5		Contextual question	RESIDENTIAL LANDUSE 5. What type of residential uses are present in the map block? (Check all that apply) A. Single-family housing B. Multi-family housing C. Apartments or condominium C. Apartments or condominium D. Apartments above street retail E. Retirement/senior living facility							
			PEDESTRIAN FACILITIES AND DESIGN							
6	PEDESTRIAN FACILITIES AND DESIGN	SCORE A:5 B:3 C:1 D:0	SIDEWALK PRESENCE 6. In general, describe the sidewalks in this map-block (Select one) A. Sidewalks present on both sides of the street throughout the map-block 8. Sidewalks generally present on both sides of the street but certain areas have sidewalks on one side of the street C. Sidewalks generally present on just one side of the street D. Sidewalks not present							
			Sidewalks present on Sidewalk present on Sidewalks not present both sides of the road one side of the road							

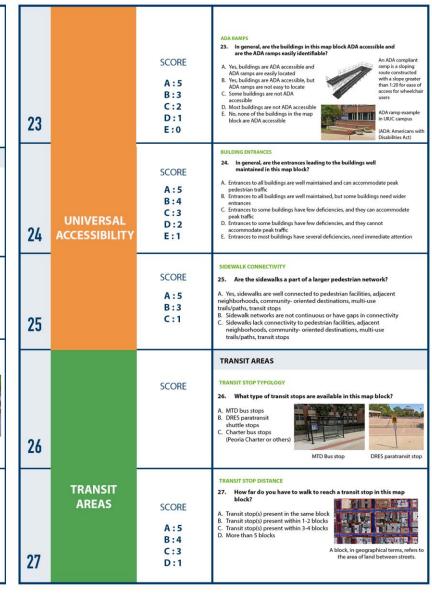
7		SCORE A:0 B:2 C:3 D:4 E:5	PEDESTRAIN WALKING SURFACE 7. In general, your overall assessment of walking surfaces in this map-block: A. Poor-No permanent walking surface, discontinuous walkways, or major maintenance problems - Sidewalk on one side of the road with a few deficiencies or sidewalk on both sides with several deficiencies C. Satisfactory - Sidewalk on both sides of the street, minor discontinuities and maintenance problems but does not present major obstacles for walking, D. Good - Sidewalk on both side of the street, minor aesthetic deficiencies E. Excellent - Continuous sidewalk on both side of the street, well maintained and of sufficient width to accommodate pedestrian traffic.					
8	PEDESTRIAN	Und in						
9	FACILITIES AND DESIGN	SCORE	9. Which of the following amenities are present along the streets and sidewalks of the map block? Only mark the ones easily identifiable by pedestrians. (Check all that apply) A. Overhangs that provide shelter from inclement weather in public spaces B. Trees C. Green space J. Other D. Kiosks or information booths E. Benches or other places to sit F. Bicycle racks					
10		SCORE A:0 B:1 C:3 D:5	SIDEWALK WIOTH 10. What is the average path size, in general, in the map block? (Select one) A. No permanent walloway/sidewalk C. 3-5 feet wide D. > 6 feet wide (University standard)					

11		SCORE A:5 B:1 C:0	SIDEWALK CAPACITY 11. In general, is the present width of the sidewalks adequate to handle pedestrian during class change (typically around noon on Tuesday or Wednesday) in this map block? (Select one) A. Yes B. No, needs to be wider C. Not observed during heavy foot traffic
12	PEDESTRIAN FACILITIES AND DESIGN	SCORE A:5 B:3 C:1 D:3 E:1	TEMPORARY/ PERMANENT OBSTRUCTIONS 12. In general, are there temporary or permanent obstructions present along the sidewalks of this map-block? (Check all that apply) A. No obstructions present B. Yes, a few temporary obstructions C. Yes, several temporary obstructions D. Yes, a few permanent obstructions E. Yes, several permanent obstructions Permanent obstruction examples: trees, telephone poles, fire hydrants, lamp-posts, street lights, man holes etc.
13		SCORE A:1 B:3 C:4 D:5	3. Mark the option that most closely matches your overall assessment of buffers in this map block (average amount of buffer): A. No buffer from roadway B. Buffer is 3-5 ft wide C. Buffer is 3-5 ft wide D. Buffer is 5 5 feet from roadway
14		SCORE A:1 B:3 C:5	SIDEWALK LIGHTING 14. In general, is the lighting adequate for the walking surfaces (including sidewalks, crosswalks, and intersections) of this map block? A. No, this map block does not have adequate lighting B. Some parts of this map block require lighting improvement C. This map block has adequate lighting Different types of lighting present in the UIUC campus

GENERAL WALKABILITY QUESTIONNAIRE- QUESTIONS AND SCORE

15		SCORE A:1 B:2 C:3 D:4 E:5	PEDESTRIAN AND VEHICULAR CONFLICTS PEDESTRIAN AND VEHICULAR ENCOUNTERS 15. Mark the option that most closely matches your overall assessment of pedestrian conflicts in this map block: A. Very High conflict potential – very high multi modal activity (bus, cars, trucks, pedestrians, bicyclists, etc.) – Eg. Illini (union, Wright St. B. High conflict potential – High multi-modal activity, Eg. – Springfield Ave by Grainger Library, Main Library on Gregory Dr. C. Moderate conflict potential – limited motorized vehicular traffic and moderate to high pedestrian traffic. D. Low conflict potential – High pedestrian volume, low motorized vehicular traffic, low speed limit – Eg. Peabody by Law building E. Very low conflict potential – High pedestrian volume, no motorized vehicular traffic or bicycle traffic.
16	PEDESTRIAN AND VEHICULAR CONFLICTS	SCORE	Traffic lights Pedestrian island Flashing beacon Traffic lights Pedestrian island Flashing beacon Flas
17	CROSSWALKS	SCORE A:1 B:2 C:3 D:4 E:5	CROSSWALK CONDITION 17. Mark the option that most closely matches your overall assessment of the crosswalks in this map block: A. Poor - Marked Crosswalks not present, obstacles present in the crosswalk, intersection is inaccessible, no curb cuts, insufficient crossing time, etc. 8. Some problems - Some crosswalks are unmarked, but fine to walk or marking has faded and there are other sourcesswalks are unmarked, but fine to walk or marking has faded and there are other are some crosswalks with maintenance issues D. Good - Crosswalks are marked, and there are very few deficiencies Excellent - Crosswalks are clearly marked for there are no intersections), and there are no tanglible deficiencies When the control of the crosswalks are clearly marked for there are no intersections), and there are no tanglible deficiencies When the control of the crosswalks are clearly marked for there are no intersections), and there are no intersections and the curb of a sidewalk to the road. Curb cuts:

18	CROSSWALKS	SCORE A:1 B:5 C:5 D:3	DETECTABLE WARNING DETAILS 18. Mark the presence of detectable warning details while entering or exiting the crosswalls? (Check all that apply) A. No, none present B. Yes, truncated domes C. Yes, vertical strips D. Other detectable warnings
			UNIVERSAL ACCESSIBILITY
19		SCORE A:1 B:3 C:5	WHEELCHAIR ACCESS 19. Mark the option that that most closely matches your assessment of the ease of access for mobility impaired users. A. Poor - Difficult or dangerous for people with disabilities -e.g., no curb cuts, ADA ramps not available or not easy to locate B. Good - Accessible route available with some deficiencies C. Excellent - Designed to facilitate wheelchair access
		SCORE	CURB CUT PRESENCE
		A:5	20. Are there curb cuts present and accessible at each crossing in this map block?
20		B:3 C:1	A. Yes B. No (Refer to Q. 17 for curb cut C. At most crossing locations definition and image)
21	UNIVERSAL ACCESSIBILITY	SCORE A:5 B:3 C:2 D:1 E:0 F:-	21. Do the curb cuts along the sidewalks of this map block align? A. Curb cuts align with sidewalks and crosswalks throughout the map block. B. Curb cuts align with sidewalks and crosswalks in most areas D. Curb cuts do not align with sidewalks and crosswalks throughout the map block. B. No curb cuts present F. Other: Check if the sidewalk surface and the curb cuts are aligned to ensure a smooth transition.
22		SCORE A:5 B:3 C:0	TEXTURE DIFFERENCES 22. Are there texture differences along sidewalks for pedestrians with vision disability? A. Texture differences present throughout map block B. Texture differences present in a discontinuous way in the map block C. No texture differences present

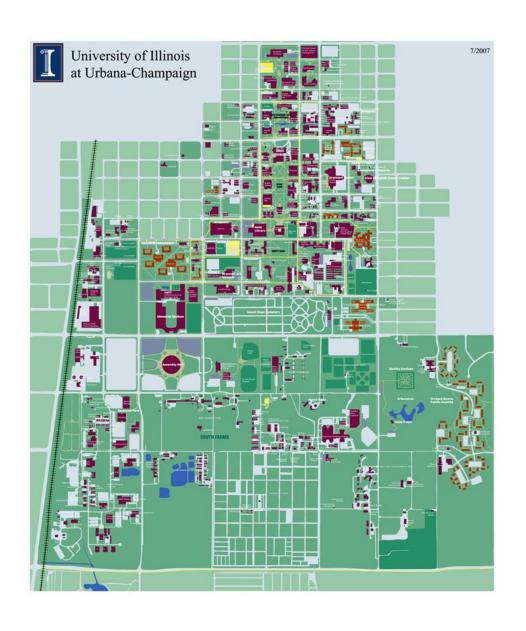


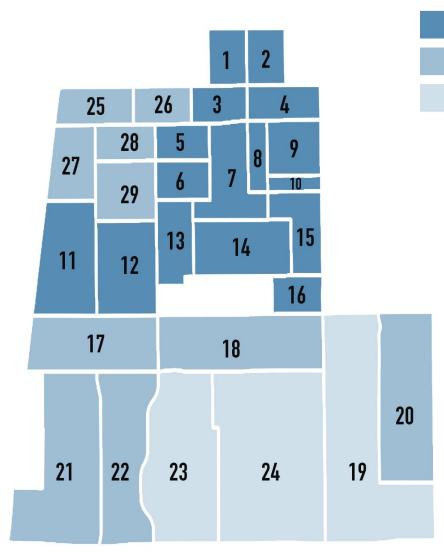
GENERAL WALKABILITY QUESTIONNAIRE- QUESTIONS AND SCORE

	* I							
28		SCORE	TRANSIT STOP AMENITIES 28. What are the amenities present at transit stops of this map block? Only mark the ones easily identifiable by users. (Check all that apply) A. Covered bus shelter B. Enclosed bus shelter C. Benches D. Transit schedule information – Kiosk E. Bicycle racks F. Recycling bins G. Trash cans H. Lighting I. Emergency phones J. None of the above					
29		SCORE	29. What parking facilities are present in this map block? (Check all that apply) A. None B. On street parking (parallel or angled parking) C. Small lot or garage (< 30 spaces) D. Medium to large lot to garage					
30	TRANSIT AREAS	SCORE A:5 B:1 C:-	PARKING CONNECTIVITY TO WALKWAYS 30. Are the parking facilities connected to the walkways? A. Yes B. No C. N/A					
31		SCORE A:5 B:5 C:5 D:0	BIKE INFRASTRUCTURE 31. What kind of bikeway infrastructure are prevalent in the map block? (Check all that apply) A. On street bike lane 8. Off-street bike path C. In-street bike sharrows D. No specified bikeway infrastructure					
32	SAFETY	SCORE A:5 B:3 C:2 D:0	SAFETY EYES ON THE STREET 32. Are there pedestrians walking nearby in this map block? A. Yes, several B. Some C. Very few D. None					
33		SCORE A:5 B:4 C:3 D:0	PERCEIVED SAFETY 33. How safe did you feel walking in this map block? A. Very safe B. Mostly safe C. Somewhat safe D. Lacked sense of safety (perception of high-speed traffic, low pedestrian visibility or crime)					

34		SCORE A:5 B:1 C:0	PEDESTRIAN VISIBILITY ALONG SIDEWALKS 34. Are the pedestrians walking along the sidewalks easily visible to vehicular traffic? A. Yes, easily visible B. Low visibility C. Not visible
35	SAFETY	SCORE A:5 B:1 C:0	PEDESTRIAN VISIBILITY ALONG CROSSWALKS 35. Are the pedestrians entering/ exiting a crosswalk easily visible to vehicular traffic? A. Yes, easily visible B. Low visibility C. Not visible
36	WALK APPEAL	SCORE A:1 B:3 C:5	WALK APPEAL LANDSCAPING 36. Are the landscaping and trees in this map block well maintained? A. Landscaping and trees are not well-maintained. B. Partially maintained landscape areas with a few unevenly placed trees. C. Well maintained landscape areas with even tree coverage. Landscaped areas at the UIUC campus
37		SCORE A:1 B:3 C:5	SHADE 37. Mark the option that most closely matches your overall assessment of the available shade in this block: A. Absence of shaded areas throughout sidewalks B. Somewhat shaded with a few trees and/or overhangs C. Well-shaded with regular spacing of trees Unshaded sidewalks Shaded sidewalks
38		SCORE A:1 B:2 C:3 D:4 E:5 SCORE A:5 B:4 C:3	AESTHETICS 38. Mark the option that most closely matches your overall assessment of the aesthetics in this map block: A. Very Poor -I will not walk in this area again! 8. Below Average -walkable but has immense scope for improvement C. Average D. Above Average- has minor deficiencies but a good area to walk around E. Excellent - pleasant walk with good infrastructure, maintenance, landscaping, tree cover and architecture WALK APPEAL RATING 39. How pleasant was your walk in general? A. Excellent, pleasant walk with good infrastructure, landscaping, tree cover and architecture
39 40	OVERALL	D:2 E: 1	B. Mostly satisfied C. Somewhat satisfied D. Needs considerable improvement E. I will not walk in this area again! FINAL COMMENTS 40. [Text answer] – Volunteers can add their final comments about the map block that they would like to report.

CAMPUS PRIORITY MAP





HIGH PRIORITY

LOW PRIORITY

MEDIUM PRIORITY

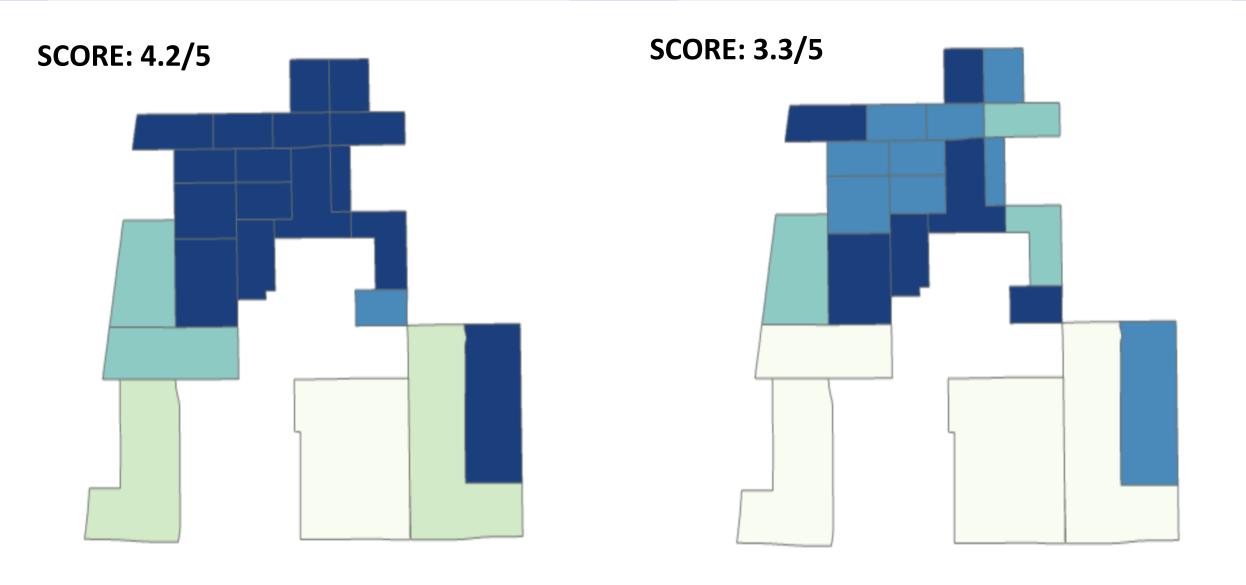
PEDESTRIAN FACILITIES AND DESIGN MED PEDESTRIAN AND VEHICULAR CONFLICTS CROSSWALKS UNIVERSAL ACCESSIBILITY TRANSIT AREAS SAFETY SAFETY WALK APPEAL

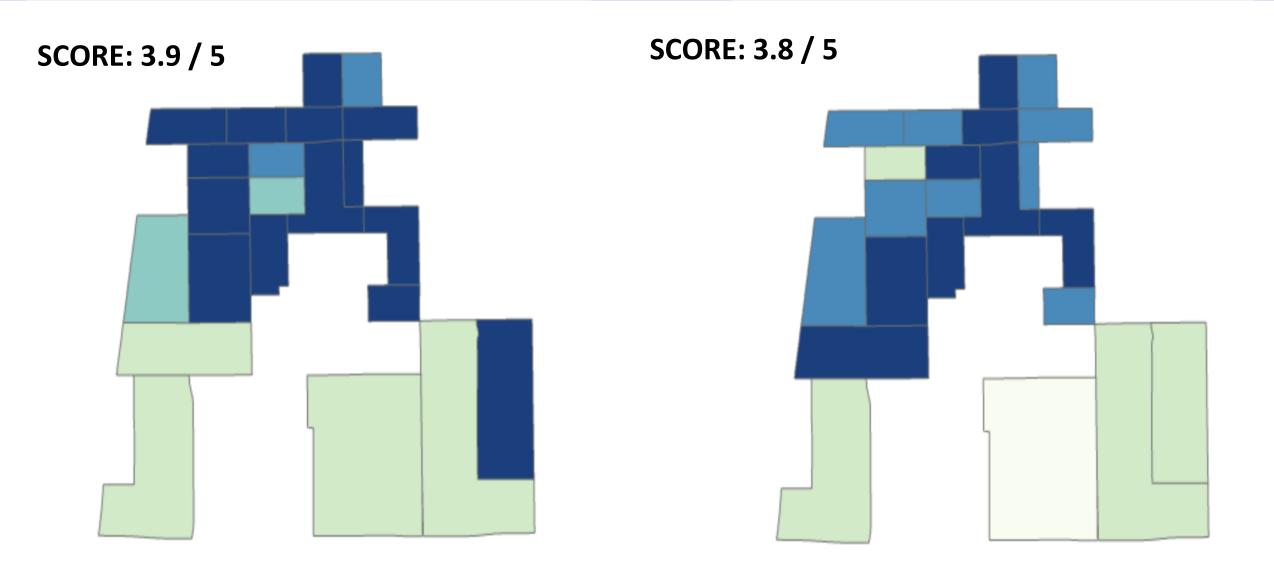
WEIGHTED SCORES

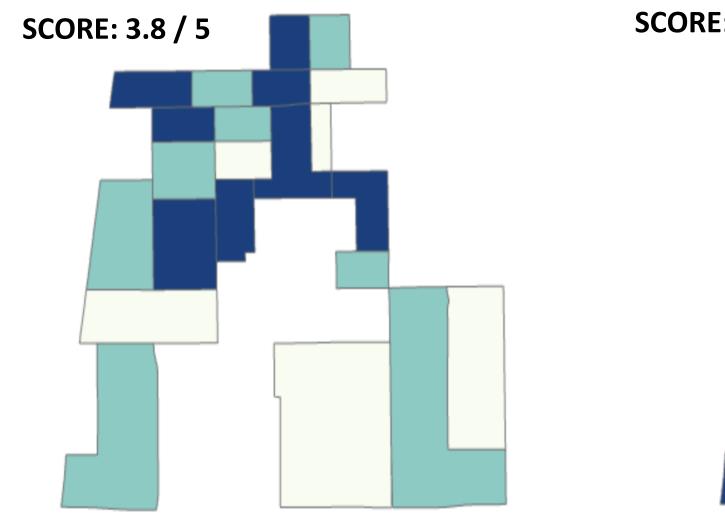
Highest scoring map-blocks: 1, 3, 12, 13

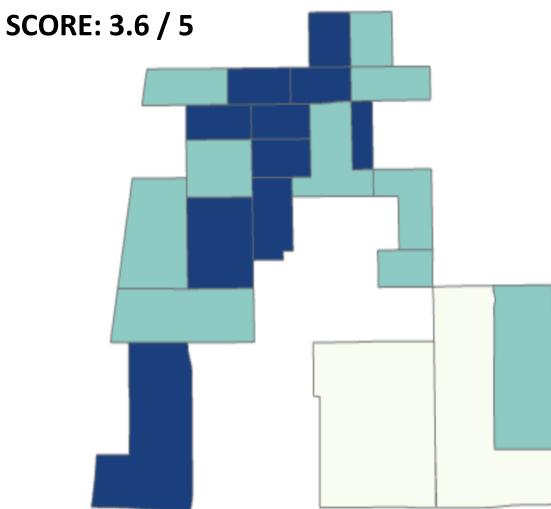
Lowest scoring map-blocks: 19, 24

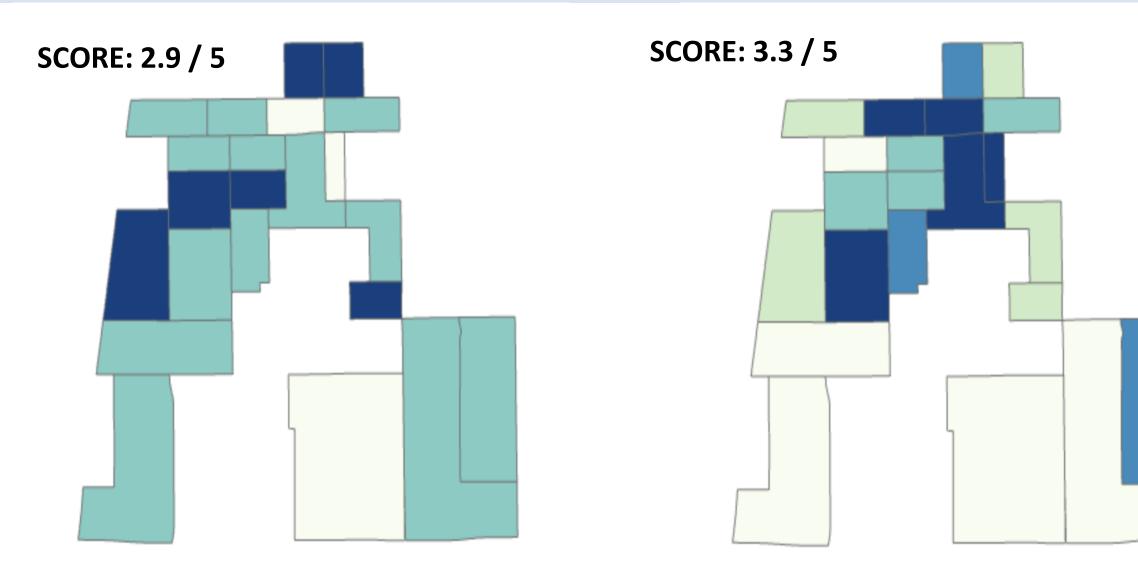
							PEDESTRIAN AND																			
		PEDEST	TRIAN FACILIT	TIES AND DES	IGN		VEHICULAR CONFLICTS	CROSS	WALKS			UNIVERSAL	ACCESSIBILITY			TRANSIT	AREAS		SAF	ETY			WALK A	APPEAL		
MAP BLOCKS	Sidewalk Presence	Pedestrian Walking surface	Sidewalk Alternative	Sidewalk width	Sidewalk Capacity	Sidewalk Lighting	Conflicts	Crosswalk condition	Detectable Warning Details	Wheelchair access	Curb cut presence	Texture Differences	ADA ramps	Building entrances	Sidewalk Connectivity		Parking connectivity to walkways	Eyes on the street	Perceived safety	Pedestrian visibility along sidewalks	Pedestrian visibility along crosswalks	Landscaping	Shade	Aesthetics	Walk Appeal	AVERAGE
1	5.0	4.6		4.7	4.3	4.7	3.2	3.9	4.7	4.0	4.7	2.8		4.8	5.0		5.0		4.8	5.0	5.0		4.8	4.8	4.9	4.5
2	5.0	3.1		3.4	3.3	3.5		3.2	4.6	2.5	4.1			3.5			5.0		3.7	4.1			3.6	3.4	3.5	3.7
3	4.9	3.5		4.1	4.2	4.6	1.7	4.3	5.0	3.1	4.2			4.8	5.0	4.9	4.5		4.8	5.0	4.9		4.1	4.5	4.7	4.4
4	5.0	2.8			3.0		2.7	3.7		2.0	4.7			4.2	4.7	5.0	5.0		4.0	5.0			3.7	3.7	4.2	4.0
5	5.0	3.4		4.5	3.8	4.1	2.8	3.5		3.0	4.7			4.4	5.0	4.2	4.4		4.2	5.0		5.5	3.2	3.3	3.9	4.1
6	5.0	3.3			2.7	5.0	4.2	3.5	_	3.0	4.3			4.0			5.0		4.2	5.0			3.3	3.7	3.7	4.0
7	5.0	4.1		4.9	4.9	3.9	2.9	4.2		4.0	4.6	V		4.6	5.0	4.4	4.4		4.9	4.9	5.0		4.4	4.2	4.6	4.4
8	4.2	3.4	5.0	3.8	3.0	4.6	1.8	4.2	5.0	3.4	5.0	4.6	3.8	3.6	4.6	4.6	5.0	2.4	4.2	4.2	4.6	2.6	4.2	3.8	4.0	4.0
9																										
10 11	2.7	2.7	2.1	3.4	4.0	3.6	3.4	2.8	4.6	2.4	4.2	2.8	3.3	3.1	3.6	4.4	4.2	3.0	3.7	4.6	4.4	3.6	3.0	3.5	3.6	3.5
12	4.5	4.5		4.5	4.0	4.0	2.5	4.5		3.5	5.0			4.3	5.0	4.4	5.0		4.5	4.5			4.0	4.0	3.0	4.3
13	5.0	5.0			5.0	5.0	3.0	4.0	5.0	5.0	5.0	0.0		5.0	5.0	5.0	5.0		4.0	3.0			5.0	4.0	3.0 4.0	4.6
14	5.0	5.0	5.0	5.0	5.0	5.0	3.0	4.0	5.0	5.0	3.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0	4.0	4.0	
15	5.0	3.0	5.0	5.0	5.0	3.0	3.0	3.0	5.0	3.0	1.0	3.0	4.0	4.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.2
16	4.0	4.5			4.0	3.0	4.0	3.0		3.0	4.0			5.0	5.0	5.0	5.0		4.0	3.0	3.0		5.0	4.0	3.5	4.2
17	3.0	2.0	1.7	5.0	3.0	3.0	3.0	2.3	5.0	2.3	5.0	3.0	4.3	4.0	2.3	4.3	5.0		2.0	3.0	3.0		3.0	1.7	1.7	3.0
18																										
19	2.0	2.0	2.0	3.0	3.4	0.0	3.0	2.4	1.0	1.0	1.0	1.0	1.0	1.4	3.0	4.0	5.0	2.0	0.0	1.0	1.8	3.8	5.0	1.0	1.0	2.1
20	5.0	4.0		3.0	3.0	3.0	3.0	4.0	5.0	3.0	5.0	3.0	4.0	4.0	5.0	4.0	5.0	3.0	4.0	5.0	5.0	3.0	3.0	4.0	4.0	4.0
21	2.0	2.0	2.0	3.0	3.7	4.3	3.0	2.0	2.3	3.0	5.0	1.0	5.0	4.0	3.0	4.3	5.0	2.0	3.3	5.0	5.0	3.0	3.7	4.0	4.3	3.4
22																										
23																										
24	0.8				3.0	1.0	2.3	2.0		1.7	2.0			2.7	2.3	4.3	3.7		1.7	4.0	3.7		2.3	2.2	1.5	2.3
25	5.0	4.3			4.6	3.3	2.7	2.9		3.2	4.8		0.0	4.1	5.0	3.7	5.0		4.3	5.0	4.6		3.7	3.7	3.8	4.1
26	5.0	3.2	5.0	3.8	3.8	4.5	2.7	4.3	5.0	2.7	4.8	3.7	3.8	4.3	5.0	4.3	5.0	4.5	4.8	5.0	4.8	4.5	3.3	4.2	4.3	4.3
27																										
28	5.0	3.3			4.3	5.0	3.0	2.3		3.0	4.3			5.0	5.0	4.3	5.0		4.3	5.0	5.0		3.0	4.3	4.3	4.1
29	4.6	3.2	4.2	3.2	3.4	3.6	3.4	3.3	4.6	2.2	4.4	3.6	3.0	3.9	4.2	4.1	3.8	2.5	3.5	4.4	4.2	3.4	3.6	3.2	3.7	3.6

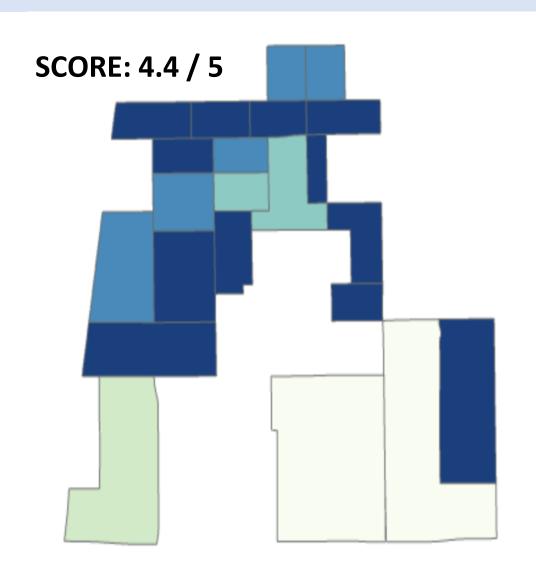


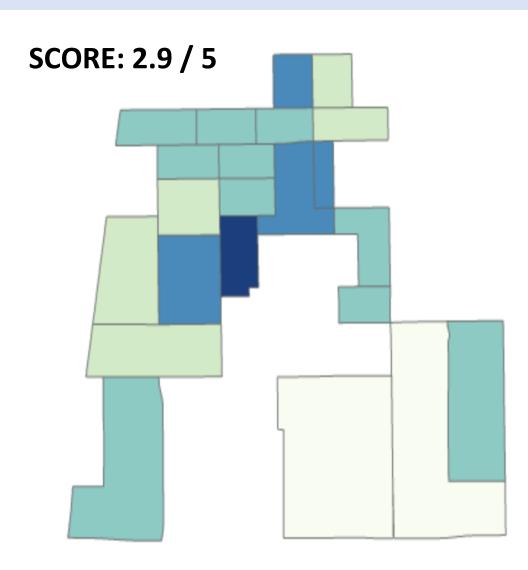


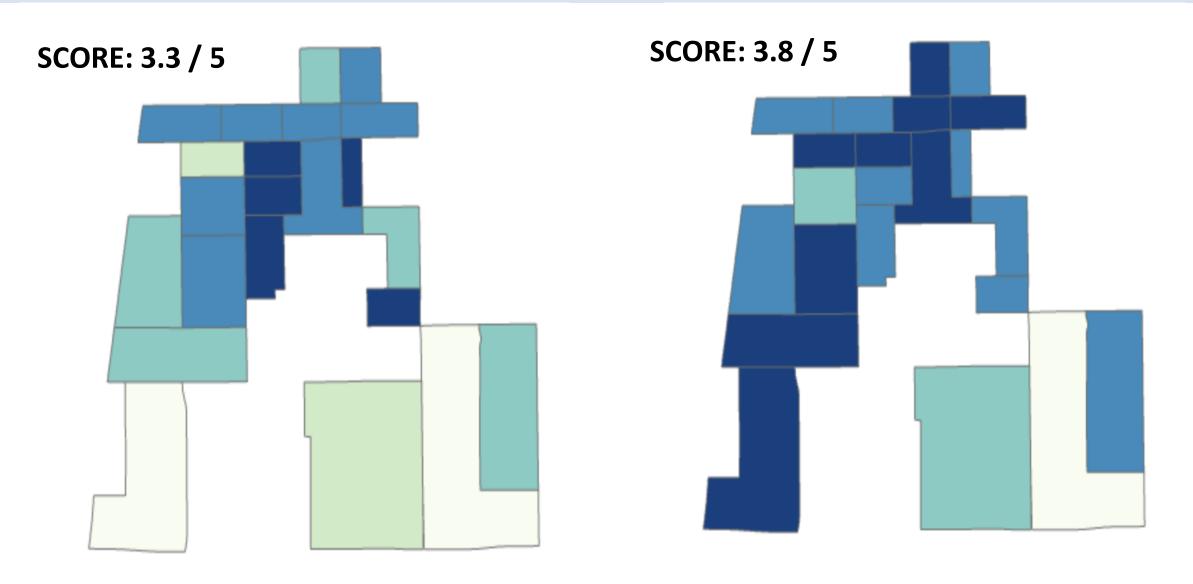


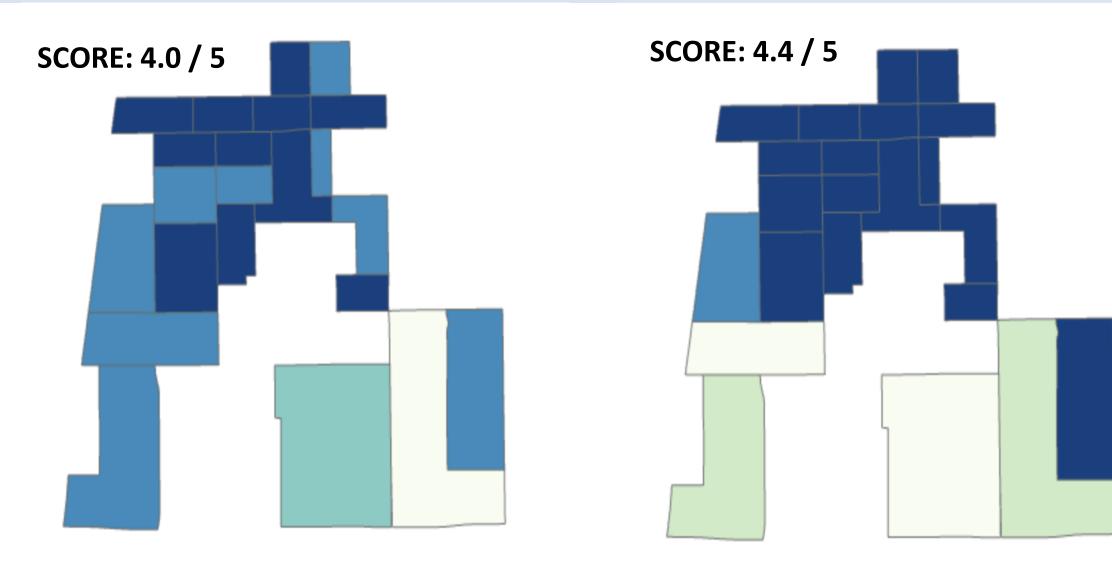


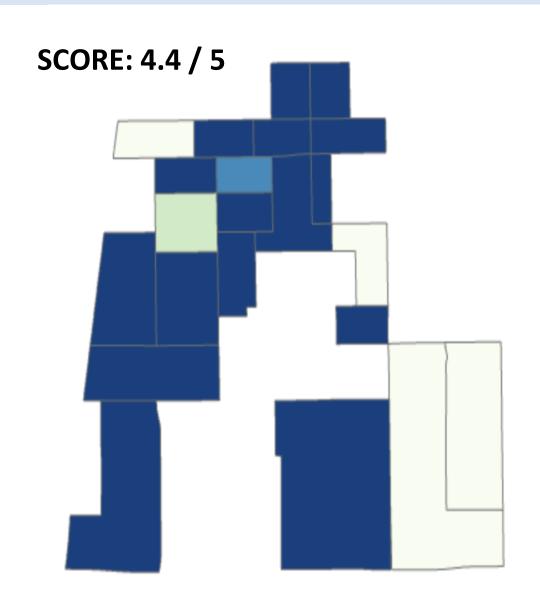


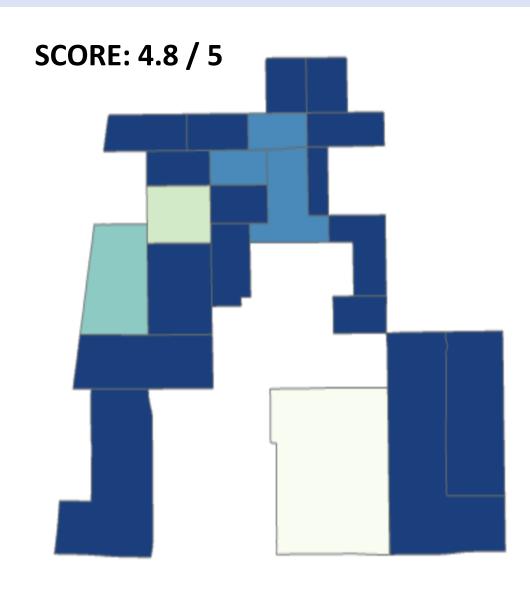


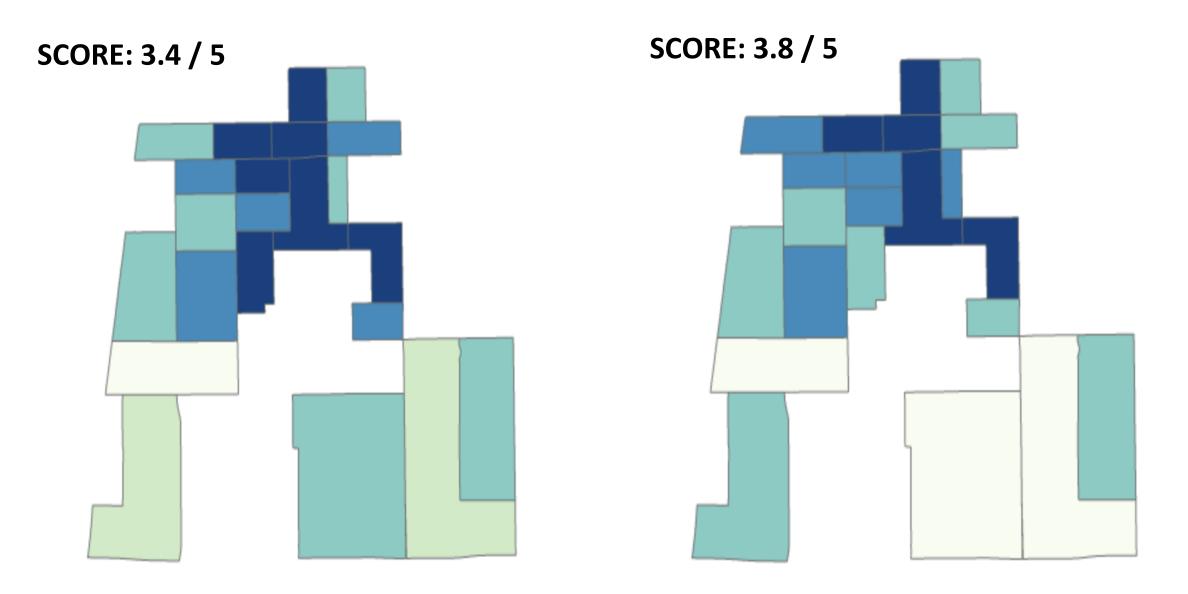


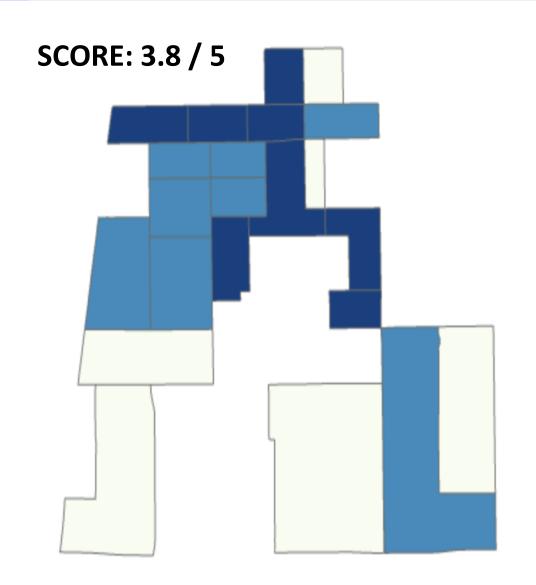


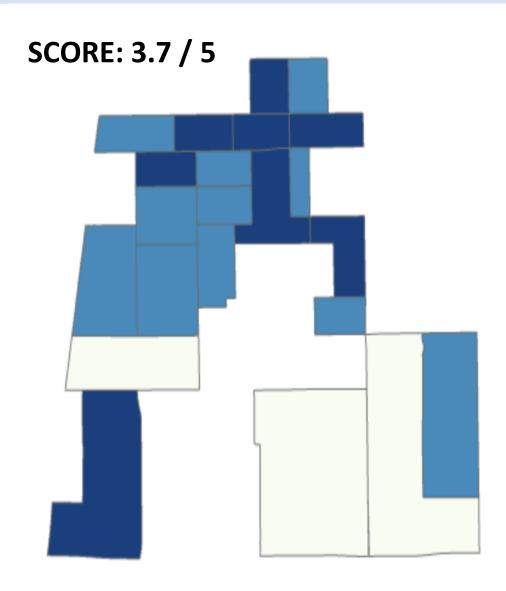






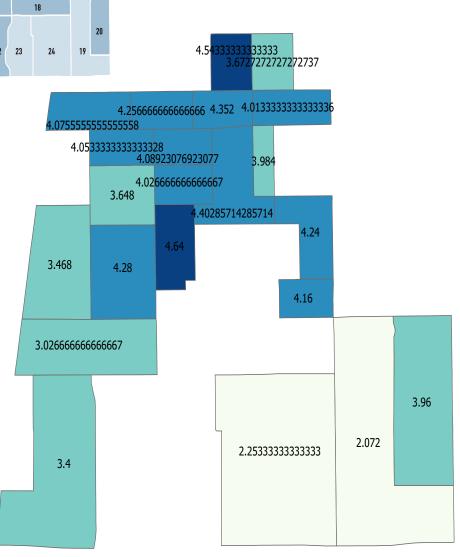






1 2 25 26 3 4 27 28 5 7 8 9 29 6 7 8 9 11 12 13 14 15 16 17 18 20 21 22 23 24 19

MAP BLOCK- OVERALL SCORES SCORE: 76/100



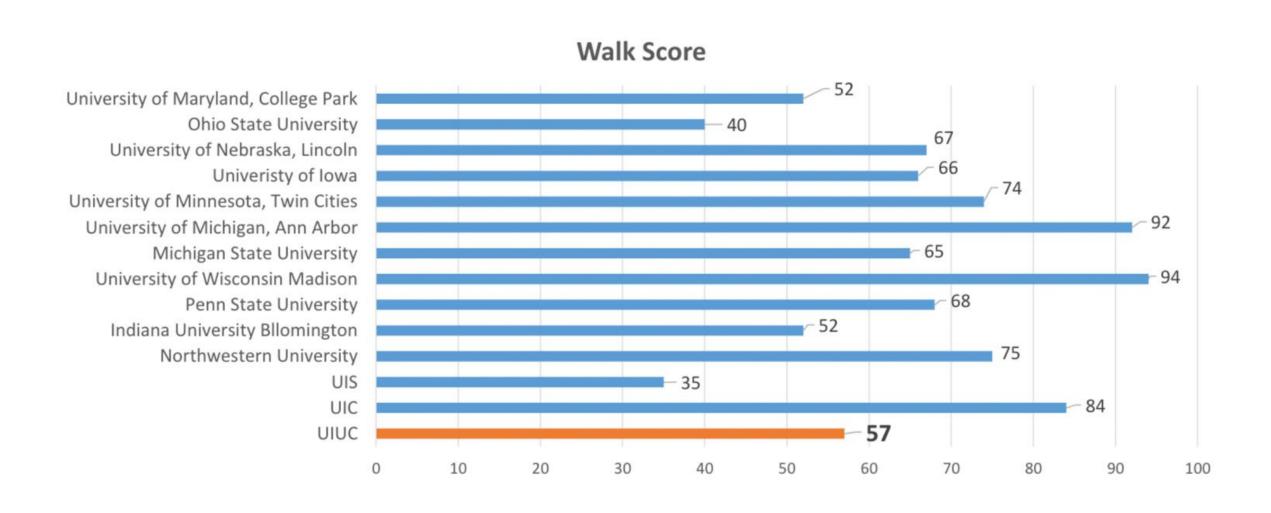
MAP BLOCKS	AVERAGE
1	4.5
2	3.7
3	4.4
4	4.0
5	4.1
6	4.0
7	4.4
8	4.0
9	
10	
11	3.5
12	4.3
13	4.6
14	

MAP BLOCKS	AVERAGE
15	4.2
16	4.2
17	3.0
18	
19	2.1
20	4.0
21	3.4
22	
23	
24	2.3
25	4.1
26	4.3
27	
28	4.1
29	3.6

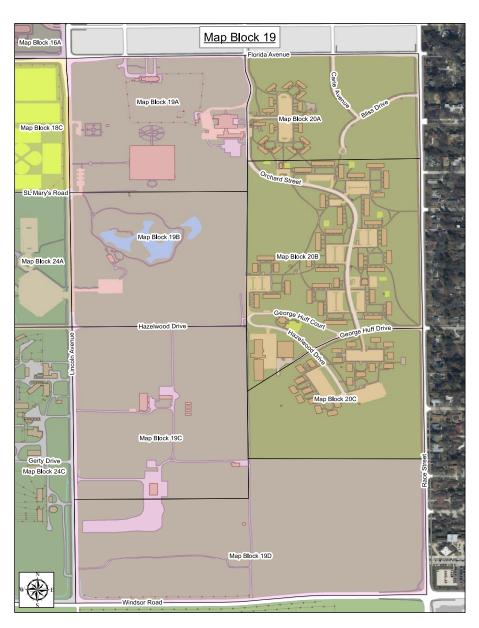
Highest scoring map-blocks: 1, 3, 12, 13

Lowest scoring map-blocks: 19, 24

COMPARATIVE WALKABILITY INDICES OF BIG 10 UNIVERSITIES



LOWEST SCORING MAPBLOCKS



19

- Arboretum
- Japan House
- Pollinatarium
- Green spaces

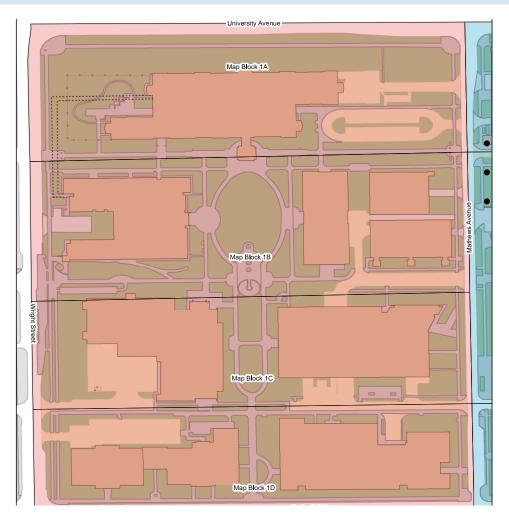
24

Dairy cattle
 research units

Agricultural crop fields



HIGHEST SCORING MAPBLOCKS



01

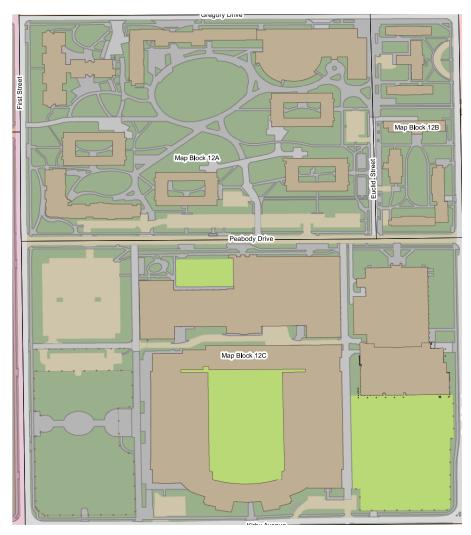
Beckman Institute
Engineering laboratory
Electrical Engineering
dept.

03

- Grainger library
- Bardeen quadrangle
- Campus Instructional facility



HIGHEST SCORING MAPBLOCKS

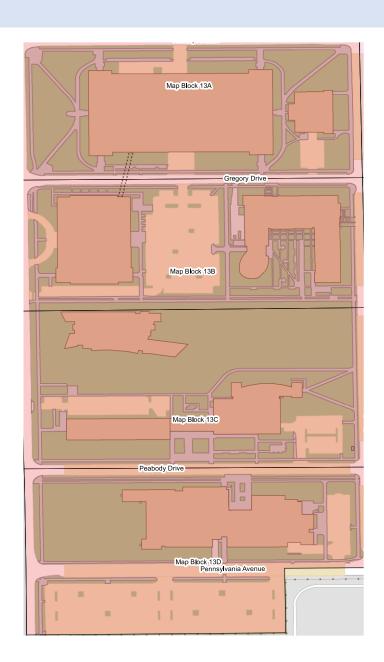


12

- Recreation center
- Memorial stadium

13

- Armory
- South quad areas
- Krannert art museum
 - Law College



NEXT STEPS



- Develop a scoring system for the Walkability Audit (Mid Jan- Jan end)
- Score each option of the survey questionnaire appropriately on a 5-point system.
 Consider adding negative points.
- b. Determine how to portray contextual questions





- Analyze the data collected for 2021 UI Campus Walkability Audit survey and 2021 UI Campus Deficiency Reporting survey (Feb- Mid Mar)
- a. Identify the 7 criterions that affect walk score. Create priority list of the above criterions (High, Med, Low) and apply weightage to each (e.g., *3, *2, *1)
- b. Identify Highest and lowest scoring map blocks
- c. Identify the general trends seen in the university walk infrastructure. Visualize data using tools like graphs, charts, analysis maps, regression analysis, tables etc.
- d. Create a final table of consolidated scores of each map block. Derive averages for each map block and each criterion



- Derive final walk score of the University (Mid Mar-April)
- **Develop a priority list** of sidewalk preservation and improvement projects and a set of recommendations to improve walking infrastructure based on data collected (Mid Mar-April)

