DAWON OH

Urban Design Portfolio, Selected Works
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Designing streets and neighborhoods for everyday life has been the main goal of my work in planning and urban design. I was trained first as a civil engineer, and I learned to read a street by measuring it and by spending time in it at the hours when people use it. My approach is data-driven, but I use the data to make design more inclusive, by asking who a street or a park works for and who it leaves out.

'Winter Hill School' measures and draws the streets around an elementary school in Somerville and shows what the standard scores miss. 'Safer Routes to School' redraws the city's maps so that each route begins at a park or playground that children already know. 'Parks as Neighborhood Infrastructure' asks who can actually reach green space in Seoul, and what this means for the edges and entrances of a park.

Each project deals with a local street or neighborhood. I hope to bring the same careful way of looking to my students and to the communities where I will work.

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Prepared for *the Somerville Pedestrian and Transit Advisory Committee*

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Best Paper Prize *International Conference of Asia-Pacific Planning Societies 2021*

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Mapping Daily Life and Public Space Design
Entry Prize *Public Space Design Competition, Seoul Metropolitan Government 2016*

01 WINTER HILL SCHOOL

Street Segment Evaluation, Somerville, Massachusetts

Prepared for the Somerville Pedestrian and Transit Advisory Committee

Year: 2024
Type: Street Evaluation and Design Recommendations
Supervisor: Carole Voulgaris
Team: Dawon Oh, J. Beekenkamp, M. Philip, T. Tasaki
Role: Collaborative Work as a Team of 4 Members

We evaluated the streets around an elementary school with the standard measures of comfort for people on foot and on bicycles, and then measured the section of each street and observed it at the morning peak. The scores rated the hilly street beside the school as comfortable, because they do not count slopes or broken pavement. Time on site told a different story, since families gathered at the playground at every pick-up and drop-off, and the uphill walk was hard for anyone pushing a stroller or using a mobility aid. Our recommendations therefore focused on the public realm, such as benches on the slopes and tree placement that keeps sight lines clear.



Sycamore Street beside the school, with speed humps and a school zone sign

Context: A School Block inside a Dense Neighborhood

Winter Hill School sits on Medford Street, in a dense neighborhood of narrow streets bounded by I-93 and the McGrath Highway. At the start and end of the school day, the streets around its block carry walking families and through traffic at the same time.



Study area. The school within the greater Boston region. Rings mark the school as the center of the study.



The playground, where families gather at pick-up and drop-off



Sycamore Street, sloping along the side of the school



Medford and Sycamore, the signalized corner of the block



Bike share racks beside the school yard

Issue: What a Score Can Miss

Level of traffic stress and level of service scores rate a street from the number of lanes and the speed of traffic. They do not see a steep slope or a broken sidewalk, although these conditions shape the walk for a parent with a stroller and for an older neighbor.



Priority segments. Segments in direct contact with the school block in red, and the wider network in black.

Method

We scored each segment for people on foot and on bicycles. We then checked every score on site at the morning peak, with a measuring tape and a camera.

Streets

Sycamore Street, Medford Street, Thurston Street and Evergreen Avenue frame the block, and the Somerville Community Path runs just to the south.

Output

A street by street report with measured sections, scores and design recommendations for the city's advisory committee.

On Site: The Block in Winter







Site visit photographs, February 2024. The middle image shows Medford Street, an urban minor arterial with a 50 ft right of way.

Measured Streets: Each Street around the School, Drawn in Plan and Section

Each street was measured on site and drawn in section, so that the width of the sidewalk could be read against the width of the roadway and the edge of each building. Red lines in the plans mark the segments that were scored.

A Sycamore Street





Local street beside the school. It scored as low stress, although the slope makes the walk hard for some families.

B Medford Street

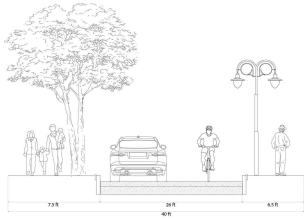




Urban minor arterial, 50 ft right of way, 25 mph, two travel lanes. Its segments beside the school scored worst for pedestrians.

C Thurston Street





Local street, 40 ft section with a 26 ft roadway and one southbound lane. It feels comfortable mainly because traffic is light.

D Evergreen Avenue





Local street, 40 ft right of way, 20 mph, on sloped terrain. Segments next to the school rated PLTS 2, so physical buffers may help.



Slope

Sycamore Street climbs along the school, and the scores do not count it.



Traffic

Medford Street, an arterial, runs along the front of the school.



Pavement

Worn pavement on Thurston Street, where cyclists are expected to ride.



Crossing

The signalized corner of Medford and Sycamore, with a raised crosswalk.



Path

The Somerville Community Path, a car-free link a short walk from the school.



Thurston Street beside the school. The street scored well, but mainly because it carries little traffic, not because of its sidewalks.

Findings: What the Scores Missed

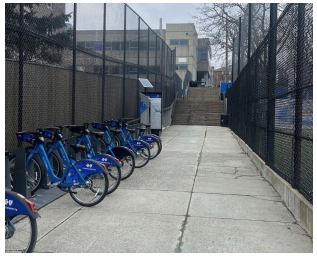
Medford Street scored worst for pedestrians in the segments beside the school. The hilly Sycamore Street scored as low stress, and Thurston Street felt comfortable mainly because of low traffic. The scores alone would have sent the city's attention to the wrong places, so we read each one again against what we saw on site.

	Sycamore St.			**Medford St.**			**Thurston St.**	**Evergreen Ave.**	
	Medford St. - Forster St. (SB)	Medford St. - Evergreen Ave. (NB)	Richdale Ave. - Medford St. (NB)	349748 (NB) 349767 (NB)	349748 (SB)	349767 (SB)	L141971 (SB)	Sycamore St. - Thurston St. (WB)	Sycamore St. - Thurston St. (EB)
LOS Pedestrian									
Link	B			F	B	A	A	E	
Intersection	B			F	A	A	B	B	
Segment	C			F	B	A	A	A	
LOS Bicycle									
Link	C	D	C	C	D	D	A	A	
Intersection	C	E		C			B	B	
Segment	D	D		C	D	E	A	B	
LTS Bicycle									
Link	2			2	N/A	2	2	1	
Intersection				2	1	2			
Segment				2	1	2			
PLTS									
Link	2			3			2	2	
Intersection				2	1	1	1	1	
Segment				3			2	2	

Summary of results. Level of service and level of traffic stress for pedestrians and cyclists, by link, intersection and segment. Red and orange cells mark the poorest scores.

Recommendations for the Public Realm

1. **Benches on slopes and near the playground,** for parents, guardians and anyone tired after an uphill walk.
2. **Wider sidewalks** for the peak hour and for people using mobility aids.
3. **Tree placement** that keeps paths and sight lines clear.
4. **Better lighting** in poorly lit segments.
5. **Repair of street edges,** where cyclists are expected to ride.
6. **Lower stress on Medford Street,** through better crossings and traffic calming.
7. **Bike racks** at the school entrances.





What the Project Taught Me

Standard measures are a starting point rather than an answer. A short walk on site can show what the scores in a report miss, which is why I take students to the site before they draw.

02 SAFER ROUTES TO SCHOOL

New Safe Routes to School Maps for Three Schools in Somerville

Planning for Pedestrians and Cyclists, Harvard GSD

Year: 2023
Location: Somerville, Massachusetts
Type: Route Design and Mapping
Team: Dawon Oh, Michael Whelan
Role: Collaborative Work as a Team of 2 Members

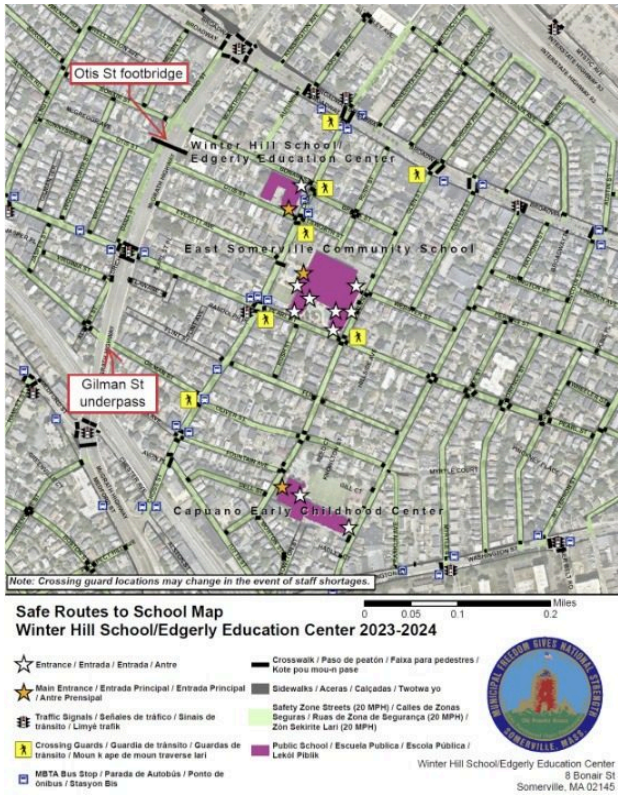
The city's Safe Routes to School maps worked as an inventory of signals and crossing guards around each school, but they did not point out dangerous spots or recommend a route. We drafted new maps that children and parents can use as tools. Each route begins at a park, a playground or a library that children already know, so that students can meet and walk or bike together as a walking school bus. Routes follow the lowest-stress streets found in street network analyses by course teams, checked against what we observed at school dismissal. Where no low-stress route exists, the map does not pretend that one exists, and it marks an aspirational route that would follow future street changes.



Bicycle network completeness analysis around Winter Hill School, prepared by a course team

Limits of the Existing Maps

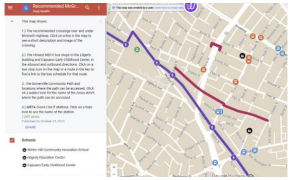
The city already publishes good resources, but none of them tells a family which way to go. Our first step was to read them closely and to note what each one leaves to the reader.



1 **Existing walking map** for Winter Hill School at the Edgerly Education Center, 2023 to 2024.



2 **Somerville Bikes** map for the whole city.

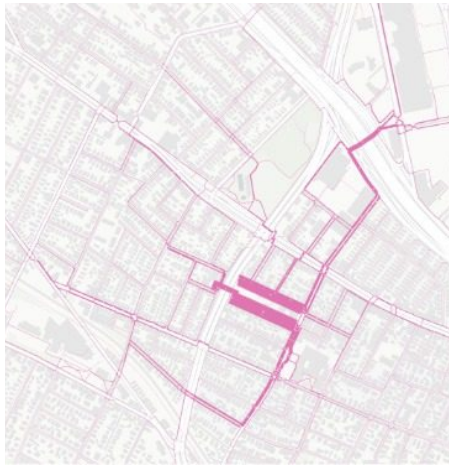


3 **Interactive map** of crossings of the McGrath Highway.

1. The walking map notes speed limits rather than how people actually drive, and it does not show the Community Path.
2. The bike map shows off-street trails clearly, but it does not show where the schools are.
3. The crossing map solves one hard barrier very well, and we kept its crossings in our routes.

Potential: Where Children Are Likely to Walk and Bike

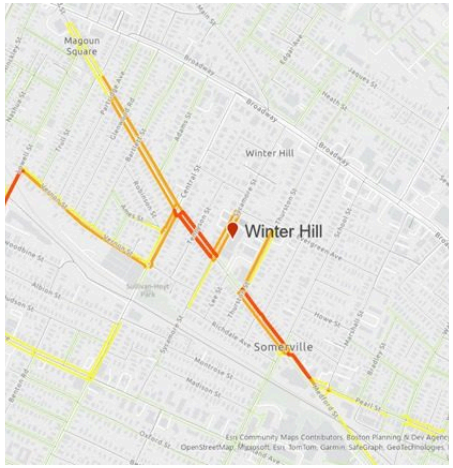
Course teams placed one point for each enrolled student inside the school attendance areas and traced routes on the street network, with r5r for cycling and Madina for walking. Thicker and brighter lines carry more likely trips.



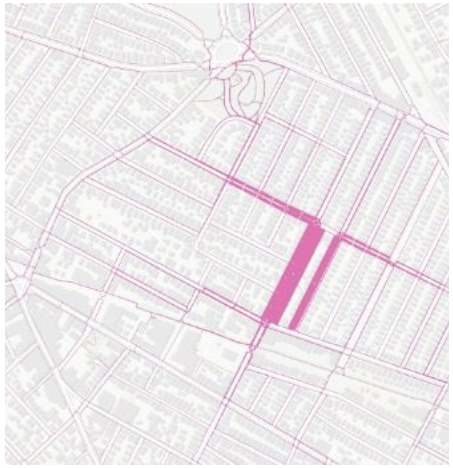
Edgerly, walking. Likely walking routes, weighted by the comfort of each segment.



Edgerly, cycling. Routes limited to the lowest level of traffic stress.



Winter Hill, walking. Network completeness around the school.



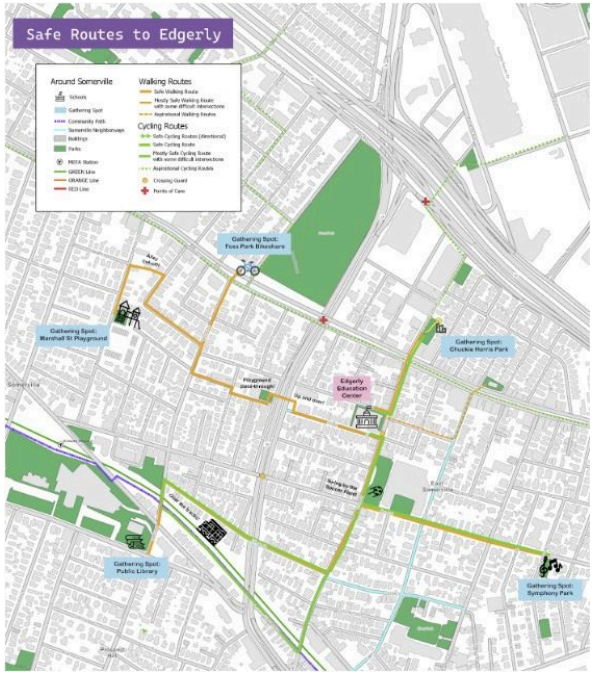
Brown, walking. Willow Avenue carries the most likely trips.

The points were spread at random within each attendance area, so the analysis is a little imprecise in some neighborhoods. Our observations at school dismissal were therefore an equally important input.

Proposals: From an Inventory to a Tool That Families Can Use

Orange lines are walking routes and green lines are cycling routes. Dashed lines are aspirational routes that need future street improvements, and red marks are points of care.

E Edgerly

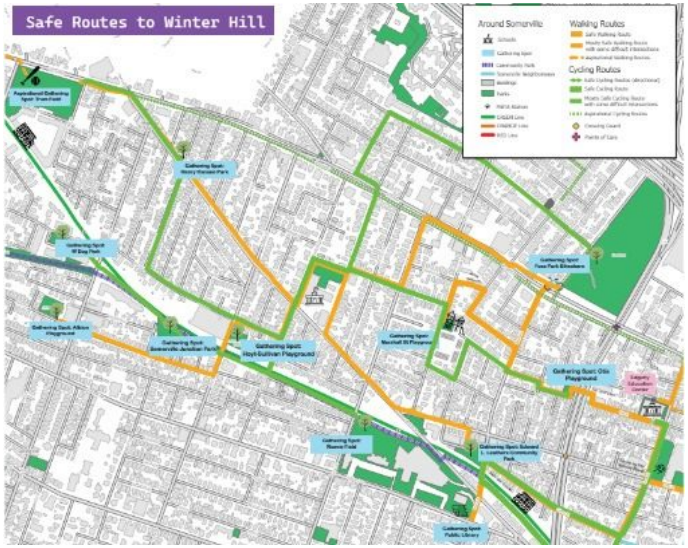


Gilman Street, a new neighborway, passes under the McGrath Highway all day. The main library and Central Hill Playground give children a place to wait indoors or outside.

Points of Care

At first we marked every location with a crash involving a pedestrian. Over time we refined the list by severity and by the street as we found it. Some points were added before we looked at any crash data, for example where we saw people running across because the light cycle was too short.

W Winter Hill



Direct routes avoid complicated intersections, which makes the trip easier for younger children and for those who have never walked or biked to school.

B Brown



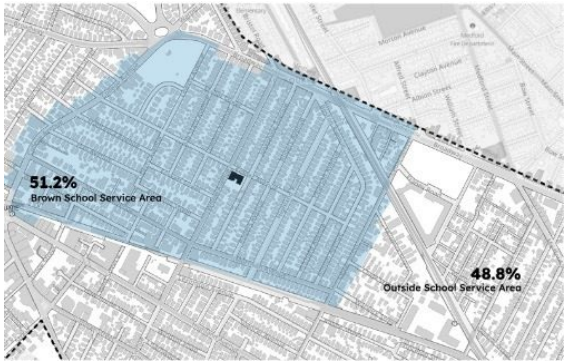
The main route links the school to the car-free Community Path. Broadway stays aspirational until traffic calming is in place.

Mapping Principles

1. Show real routes with a starting point that children can join along the way.
2. Start each route at a well-known place, such as a park or a playground.
3. Show only low-stress routes, judged by both the standards and the street as it is.
4. Mark hazards as points of care, and avoid steep hills on bike routes where possible.

Gathering Places

Chuckie Harris Park · Symphony Park · Central Hill Playground · Marshall Street Playground · Nathan Tufts Park · Trum Field · the Davis Square busway plaza · George the Giraffe and Big Poppy on the Community Path



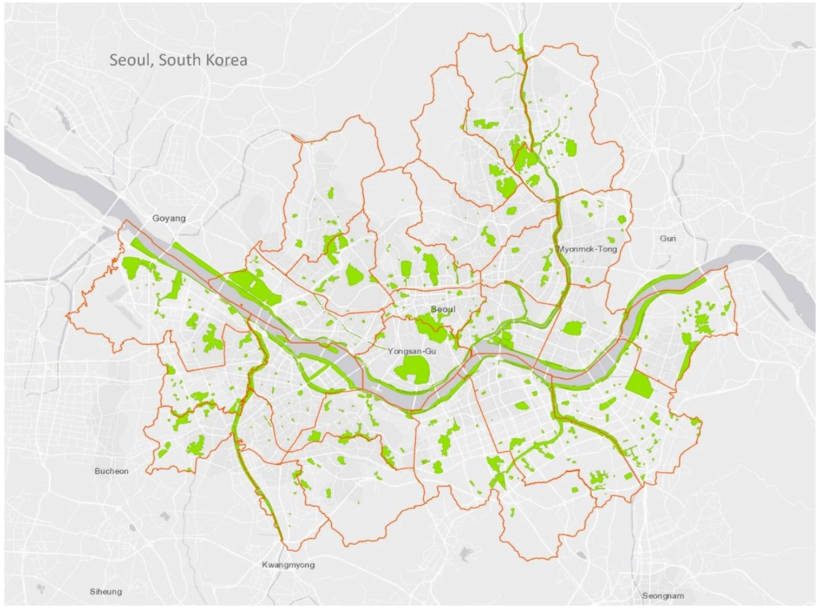
51.2% of Brown students live inside the school's service area, so many can walk to school.

03 PARKS AS NEIGHBORHOOD INFRASTRUCTURE

Who Can Reach Green Space in Seoul

Best Paper Prize *International Conference of Asia-Pacific Planning Societies 2021*

Years: 2020 to 2026 · Location: Seoul, Korea · Type: Research on Park Use and Access
Collaborator: In Kwon Park, Seoul National University · Data: anonymized mobile phone data



Seoul's districts and parks of at least 10,000 square meters, studied with mobile phone data on where each visitor lives.



Cluster 1, 92 parks

Visits rose and fell with each wave of infection.



Cluster 2, 149 parks

Visits grew steadily after spring 2020.



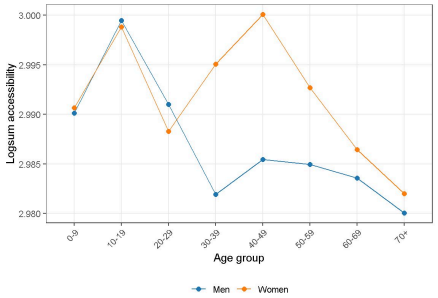
Cluster 3, 184 parks

Visits dropped after the summer outbreak.

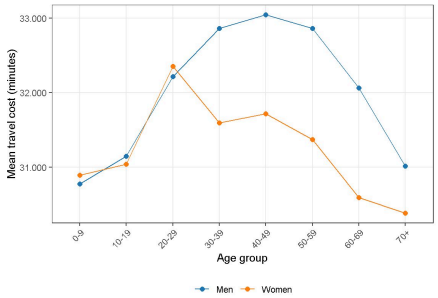
Parks with more bus stops nearby were less likely to lose visitors during the pandemic. Oh and Park (2025), *Computational Urban Science*

Same Distance, Different Access

For 274 parks, I compared the parks that residents could reach with the parks they actually visited. Women and men had almost the same potential access, but from their thirties onward women visited parks much closer to home. Two neighborhoods at the same distance from a park can therefore have very different access.

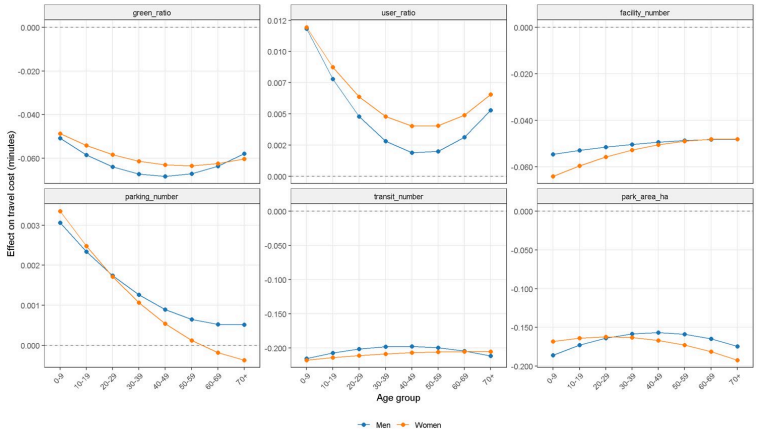


Potential access by age and sex. The values barely differ between groups.



Realized travel cost by age and sex, in equivalent minutes. Here the gap opens.

What a Park Contains Matters

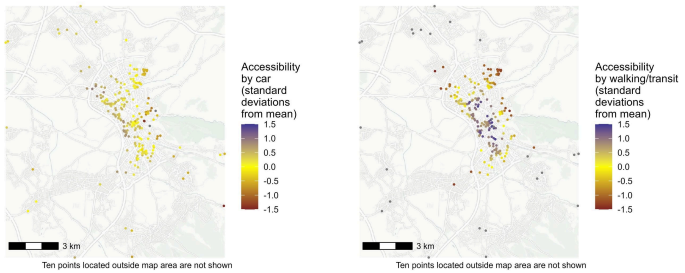


Marginal effects of six park amenities on travel cost, by age and sex. Each transit stop within 500 m is linked to about 0.20 fewer equivalent minutes of travel, and park size matters more for older women and young boys.

For design, a park should be planned around the people it serves, including where its entrances face and how its edges meet the surrounding blocks. Oh and Park, under review at *Health & Place*

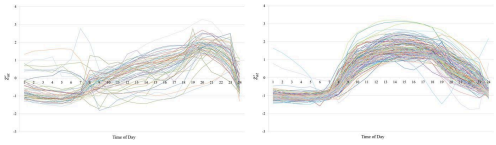
04 OTHER WORKS

Mapping Daily Life and Public Space Design



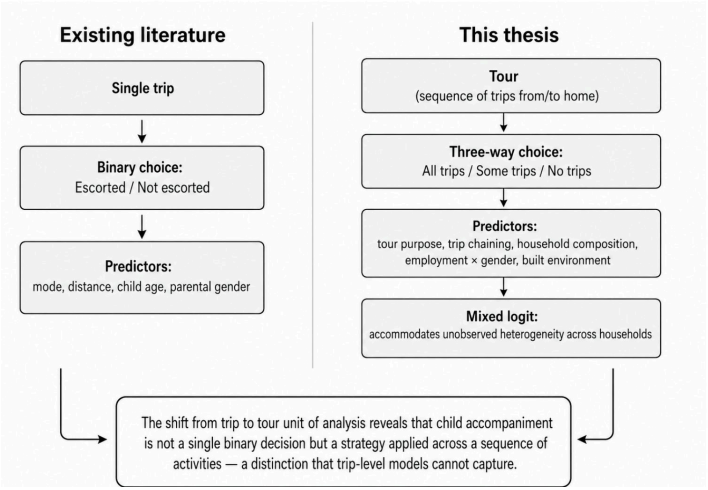
Activity Spaces in Granada

Accessibility by car and by walking or transit for 327 residents. Lower accessibility goes with smaller activity spaces on weekdays. Duro et al. (2025), *Findings*



Streets at Night in Seoul

Hourly visit patterns in commercial districts. More mixed use keeps streets lively at night. Oh and Park (2023), *Applied Spatial Analysis and Policy*



Caregivers' Daily Travel

Doctoral thesis on how caregivers decide when children travel with them, with travel surveys from the United States and Denmark.

Seoul Fear Map

Project Lead, 2020, with Jirka Pánek

A web-based participatory map in which women across Seoul marked the public spaces where they felt unsafe and explained why.

Community Park Design, Seoul

Entry Prize *Seoul Metropolitan Government 2016*

A neighborhood park beside the Seoul Thermal Power Plant, designed for a public space competition held by the city.

Practice in Seoul

Planning firm and city government, 2017 to 2019

Site access and parking for a large shopping mall, and work with district leaders on informal housing.

Portfolio

DAWON OH

Selected Works

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