paving the way for neighborhood play:

examining the social and environmental affordances which support children's neighborhood activity & mobility

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neighborhood play

- first arena for negotiating world beyond home
- independent exploration & activity

skill & interest development
environmental competence
new relationships
identity, place attachment

changing relationship with neighborhood

+

+

increase in structured activities, parental caution

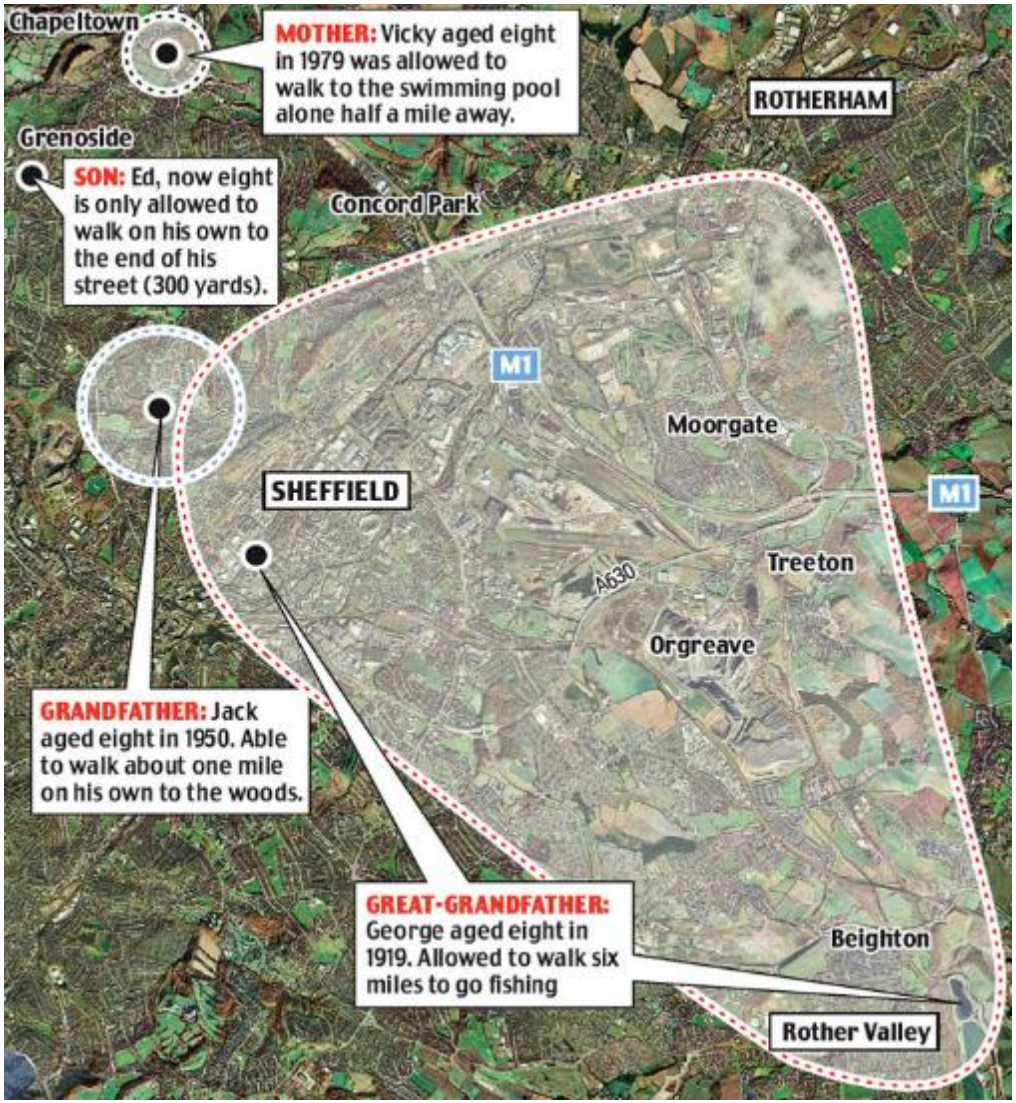
changes in community form & amenities, increased traffic

increase in sedentary activities, time indoors

=

Reduction in opportunities for, appeal of & engagement in neighborhood activity?

shrinking neighbourhood range?



British study of childhood mobility and home range, *One False Move;* Hillman et al, **1990**

- evidence is scarce, anecdotal … but concerning

- active, independent travel has significantly ⬇ in Canada, US, UK, AU & NZ*

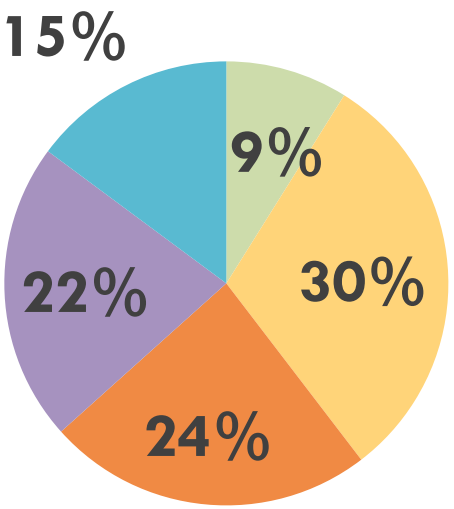
1970s → 70-90%

2000s → 10-25%

* Mikkelsen & Christensen, 2009; Mackett et al, 2007; McMillan, 2007; McDonald, 2007; Tranter & Pawson, 2005

outdoor & neighborhood play survey 2018

n=1062; ages 10-13



- 1 hour or less
- 1 to 4 hours
- 4 to 8 hours
- 8 to 14 hours
- more than 14 hours

total time (hrs) outside per week

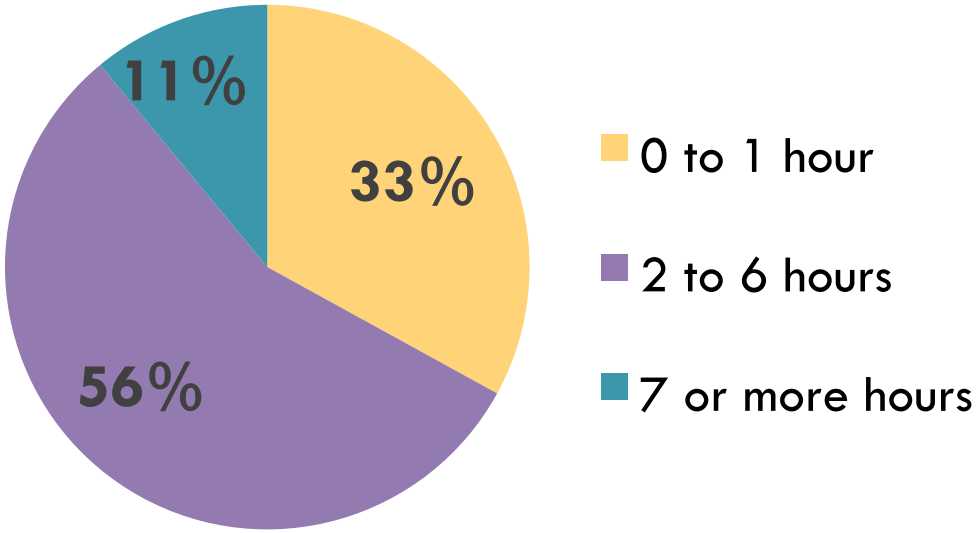
40% playing outdoors for ~ 30 min or less per day

30% cannot travel beyond their home/yard without an adult

22% said they are not allowed to play very far from home

outdoor & neighborhood play survey 2018

indoor, screen-based activity



hours per day

n=1062

3.0 hours

average out-of-school time per day

67%

spend 2 or more hours on screens / devices per day

11%

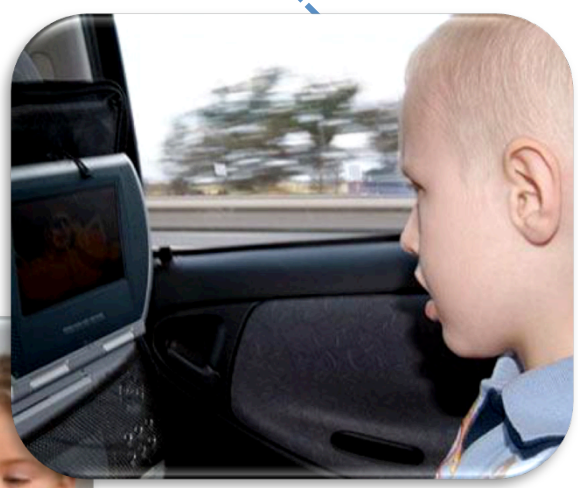
spend 7 or more hours on screens / devices per day

changing relationship with neighborhood

outdoor childhood

indoor childhood

backseat childhood



Source: Karsten, 2006

consequences of declining outdoor play

psychopathologies in children

anxiety

depression

feelings of helplessness

narcissism

opportunities for (outdoor) play

children spending much less time outdoors (in both frequency & duration) than parents did

Source: Gray (2011)

Between 2005 – 2017, rates of major depressive episodes (MDE) during the previous 12 months rose by 52% among 12-17 year olds

Most of the increase occurred after 2010; MDE among adolescents increased 63% during this period

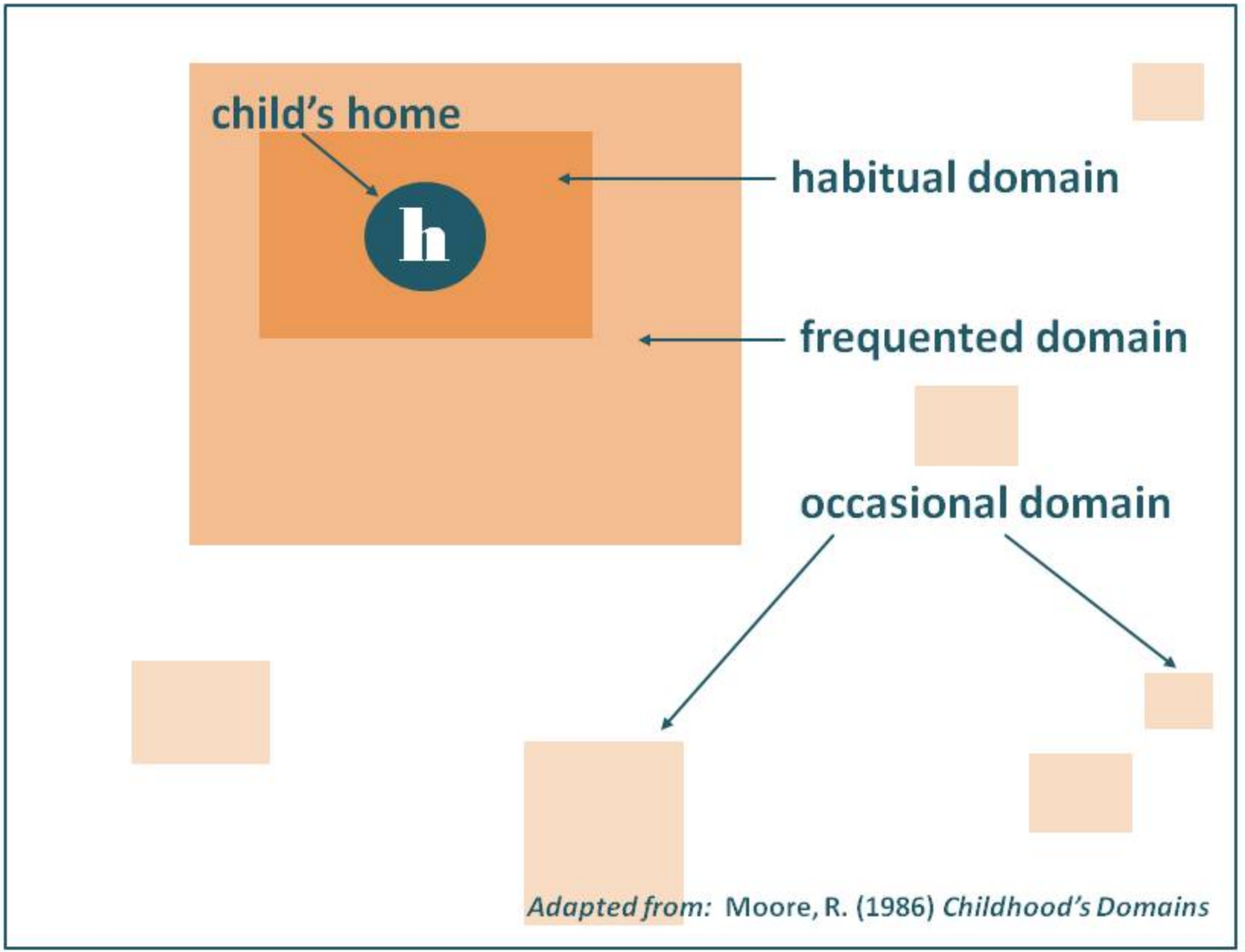
Source: Twenge et al. (2019)

research questions

what are the characteristics of the neighbourhood activity spaces of children in a mid-sized Canadian city?

1. **how far from home are children actively travelling within their neighbourhood environments?**
2. **how much of their free time are children spending in different neighbourhood zones around their homes?**
3. **how do individual, perceptual or environmental factors influence the extent of or time spent in neighbourhood activity spaces?**

model of childhood's 'domains'



STEAM project: spatio-temporal environmental activity monitoring

Portable GPS

Activity Location & Routes

Date & Time

Accelerometer

Intensity of Activity

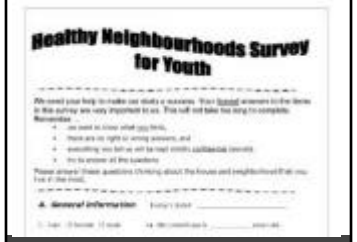
Date & Time

Date & Time

Activity Diary

Activity Details & Context

Youth AND Parent Surveys



Demographics, Activities, Perceptions

Google Earth Interviews

Environmental Perceptions & Use

study tools

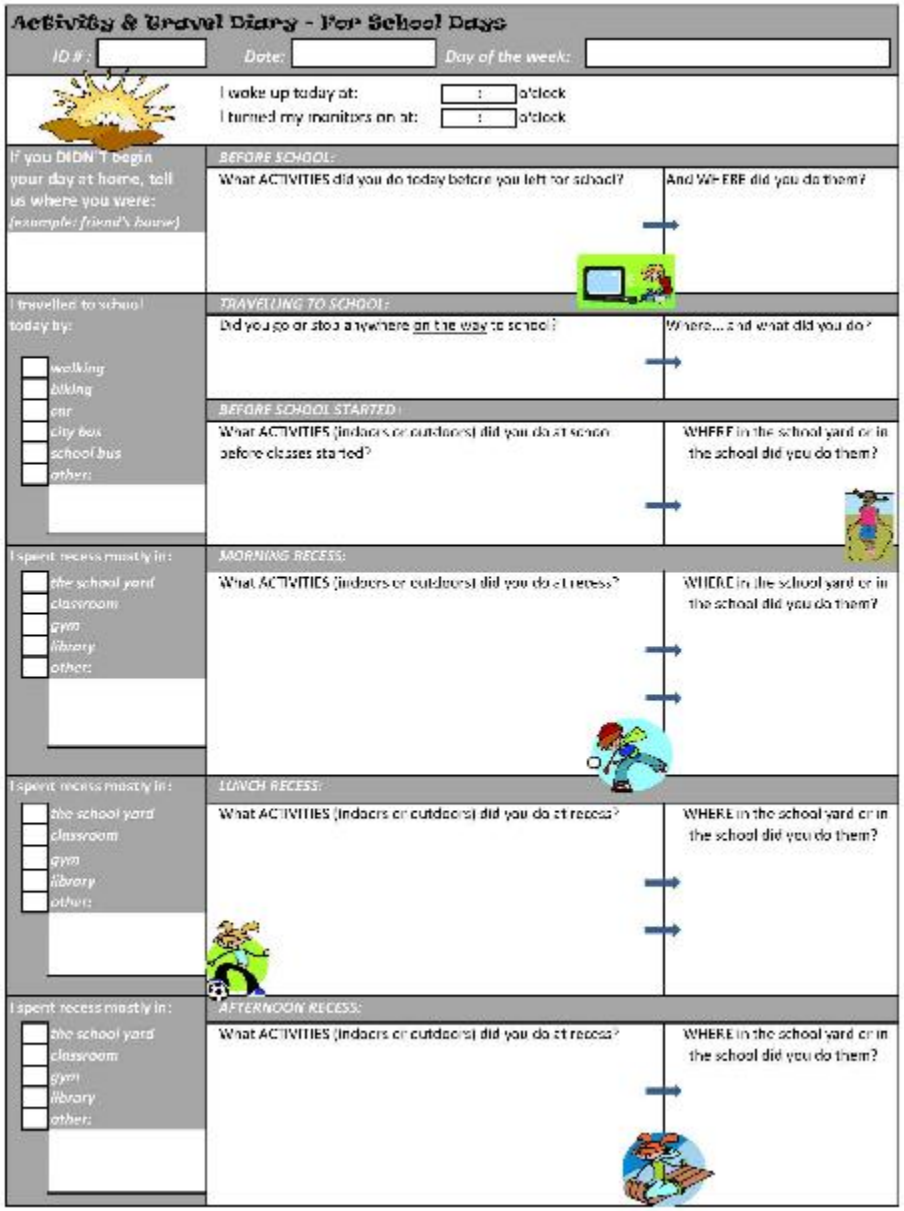
daily activity diaries

group interviews /w Google Earth

GPS monitoring

child annotated neighbourhood maps

activity diaries & child-annotated maps



Activity & Travel Diary - For School Days

ID # : Date: Day of the week:

I woke up today at: : o'clock
I turned my monitor on at: : o'clock

If you DIDN'T begin your day at home, tell us where you were: *(example: friend's house)*

BEFORE SCHOOL:
What ACTIVITIES did you do today before you left for school? And WHERE did you do them?

I travelled to school today by:
- walking
- biking
- car
- city bus
- school bus
- other:

TRAVELLING TO SCHOOL:
Did you go or stop anywhere on the way to school? Where... and what did you do?

BEFORE SCHOOL STARTED:
What ACTIVITIES (indoors or outdoors) did you do at school before classes started? WHERE in the school yard or in the school did you do them?

I spent recess mostly in:
- the school yard
- classroom
- gym
- library
- other:

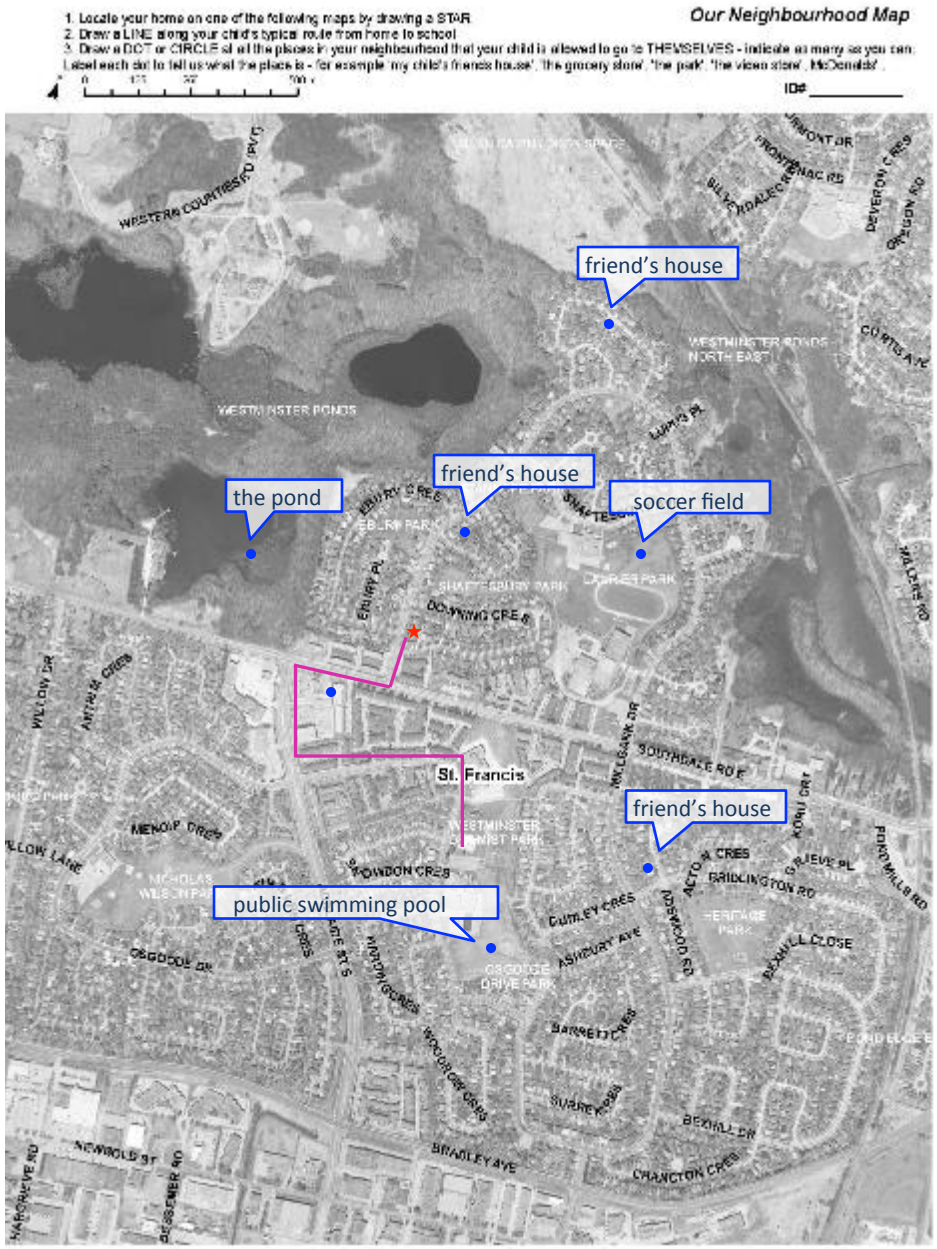
MORNING RECESS:
What ACTIVITIES (indoors or outdoors) did you do at recess? WHERE in the school yard or in the school did you do them?

I spent recess mostly in:
- the school yard
- classroom
- gym
- library
- other:

LUNCH RECESS:
What ACTIVITIES (indoors or outdoors) did you do at recess? WHERE in the school yard or in the school did you do them?

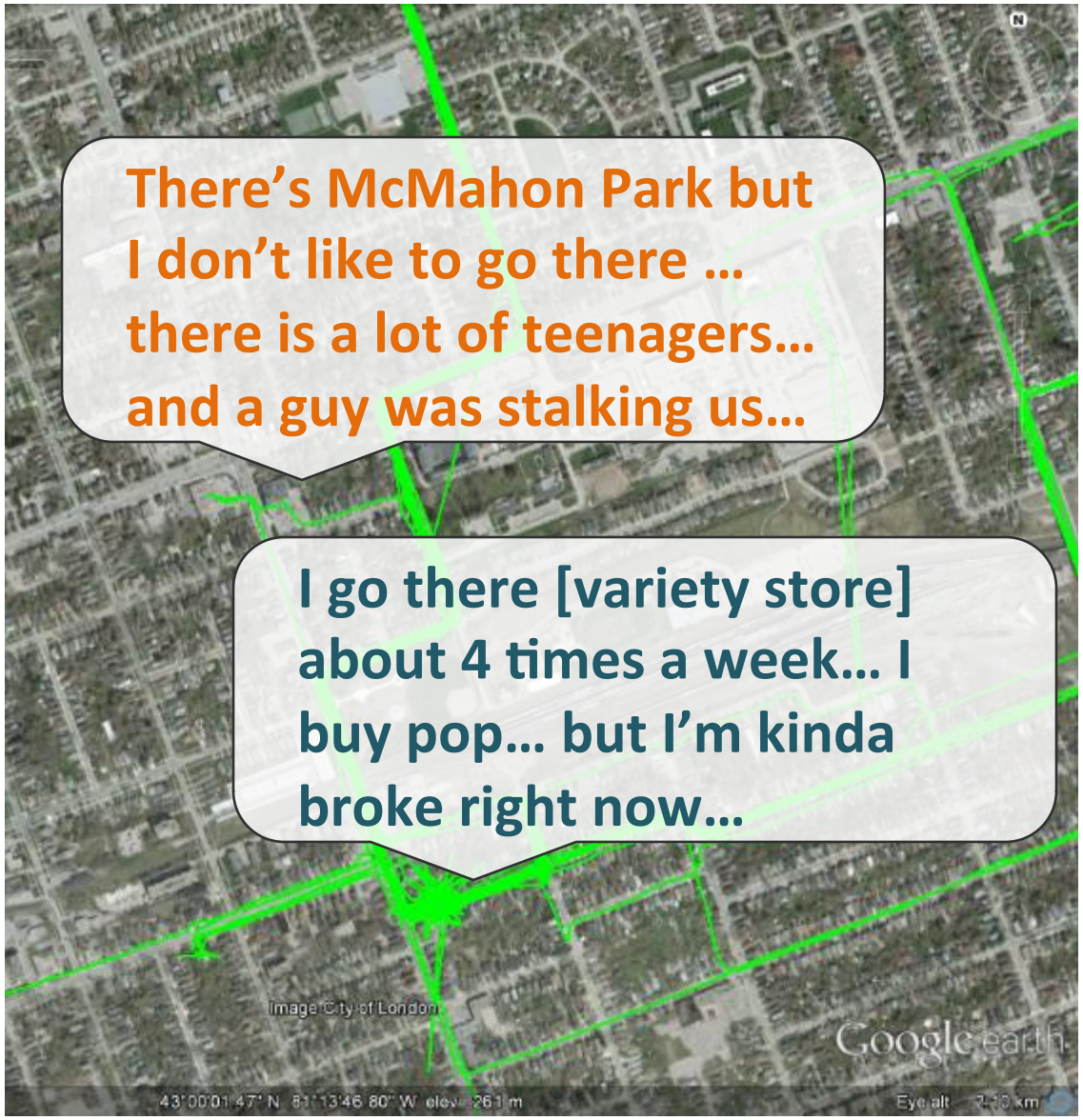
I spent recess mostly in:
- the school yard
- classroom
- gym
- library
- other:

AFTERNOON RECESS:
What ACTIVITIES (indoors or outdoors) did you do at recess? WHERE in the school yard or in the school did you do them?

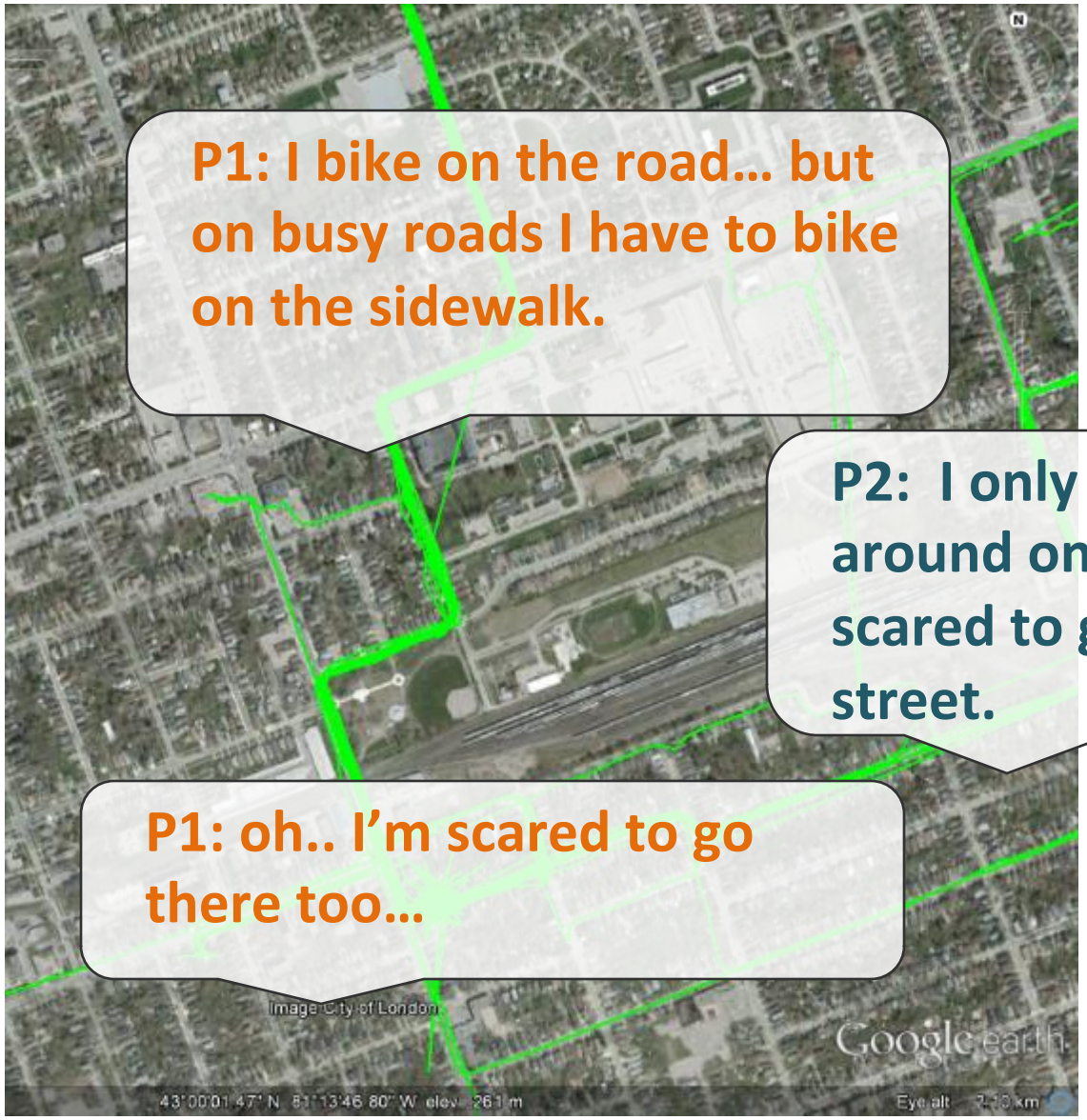


group google earth interviews

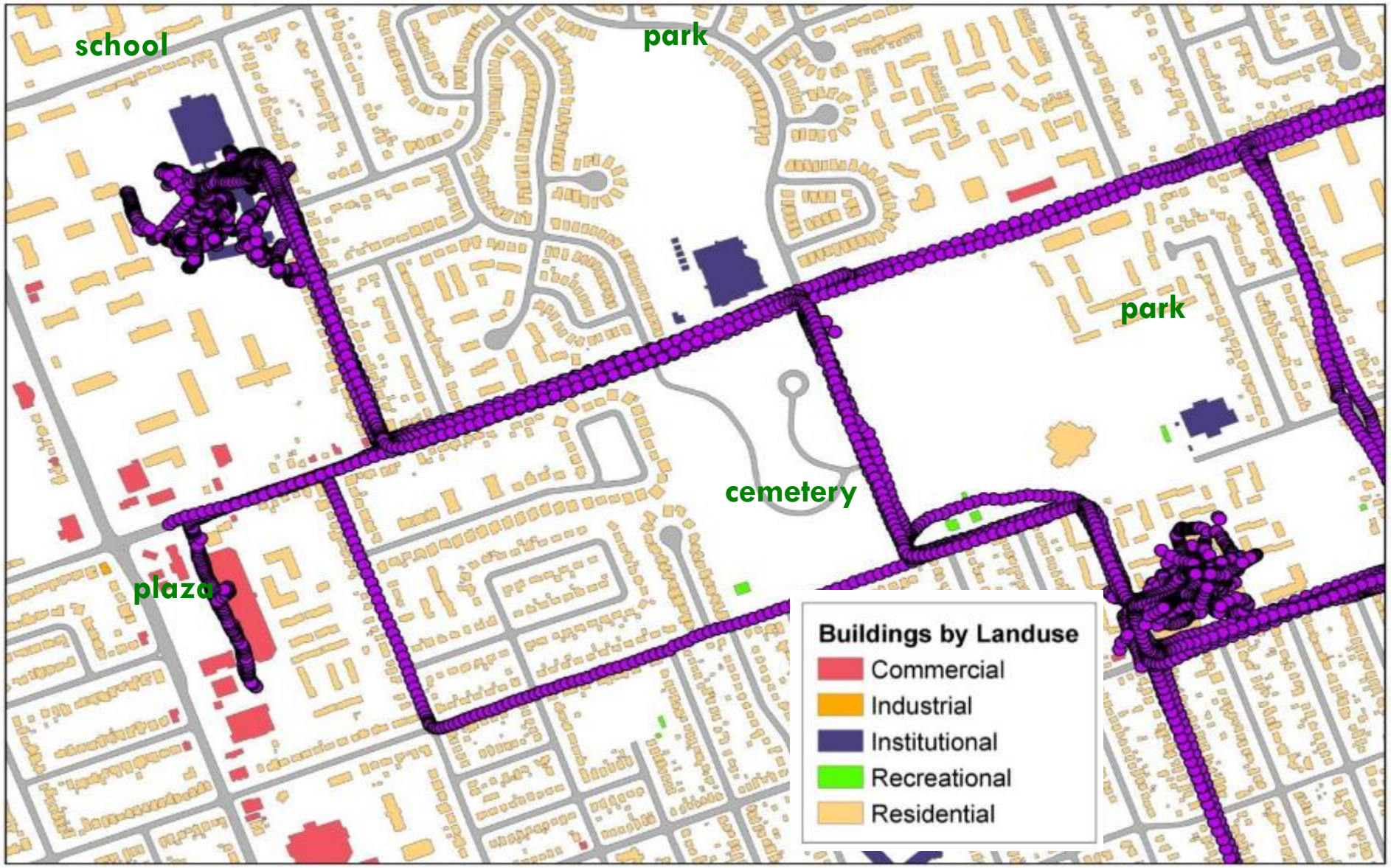
group interviews



group interviews



GIS integration



participants

sample n = 143 (65%)

average GPS time = 38.0 hrs

7 elementary schools

urban 55%

suburban 45%

participants

n = 143

f → 66%

m → 34%

9-11 yrs → 61%

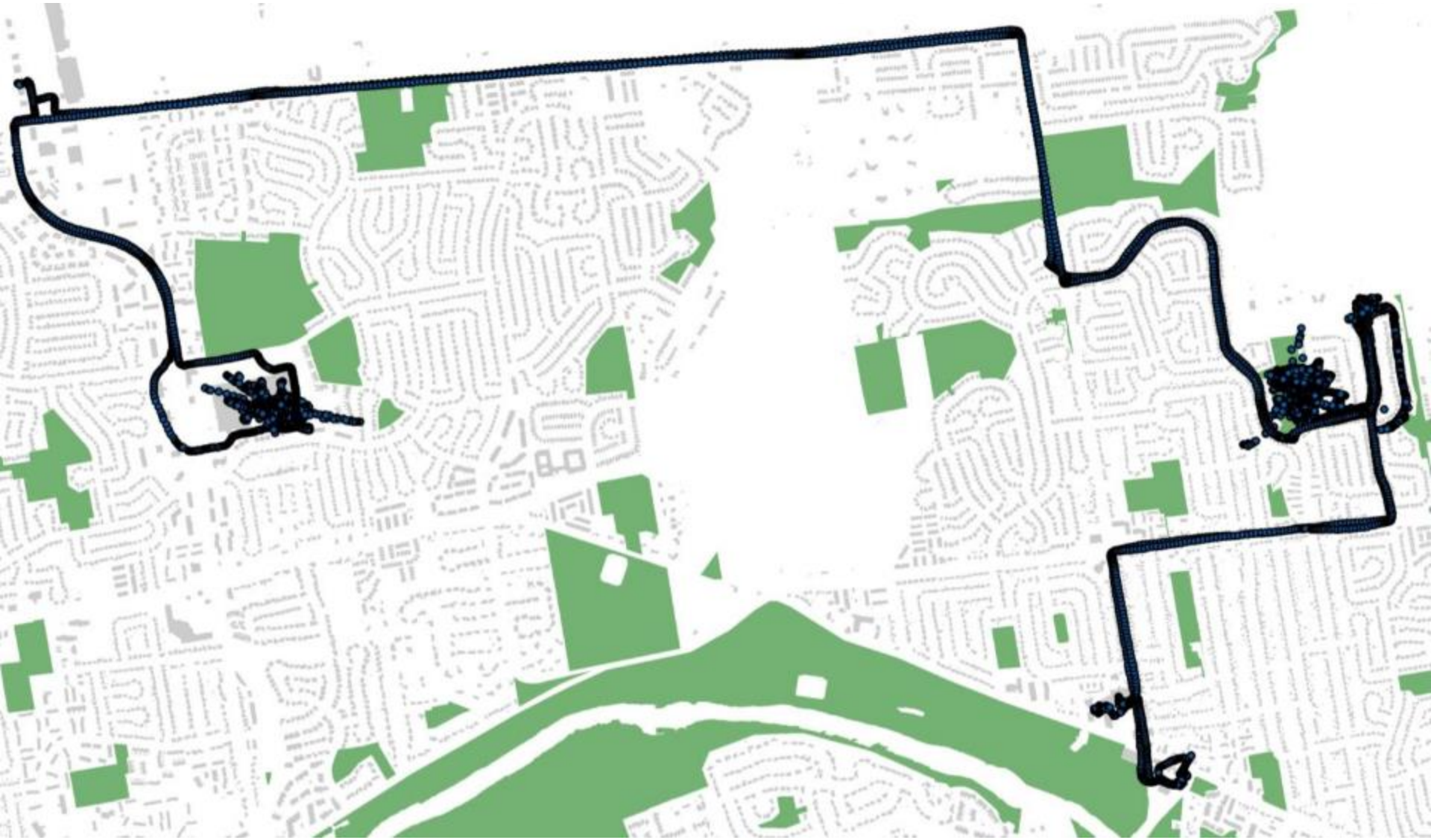
12-13 yrs → 39%

Mean age = 11.0 yrs

active traveller → 50%

non-active traveller → 50%

isolating 'NAS': neighborhood activity spaces



isolating NAS

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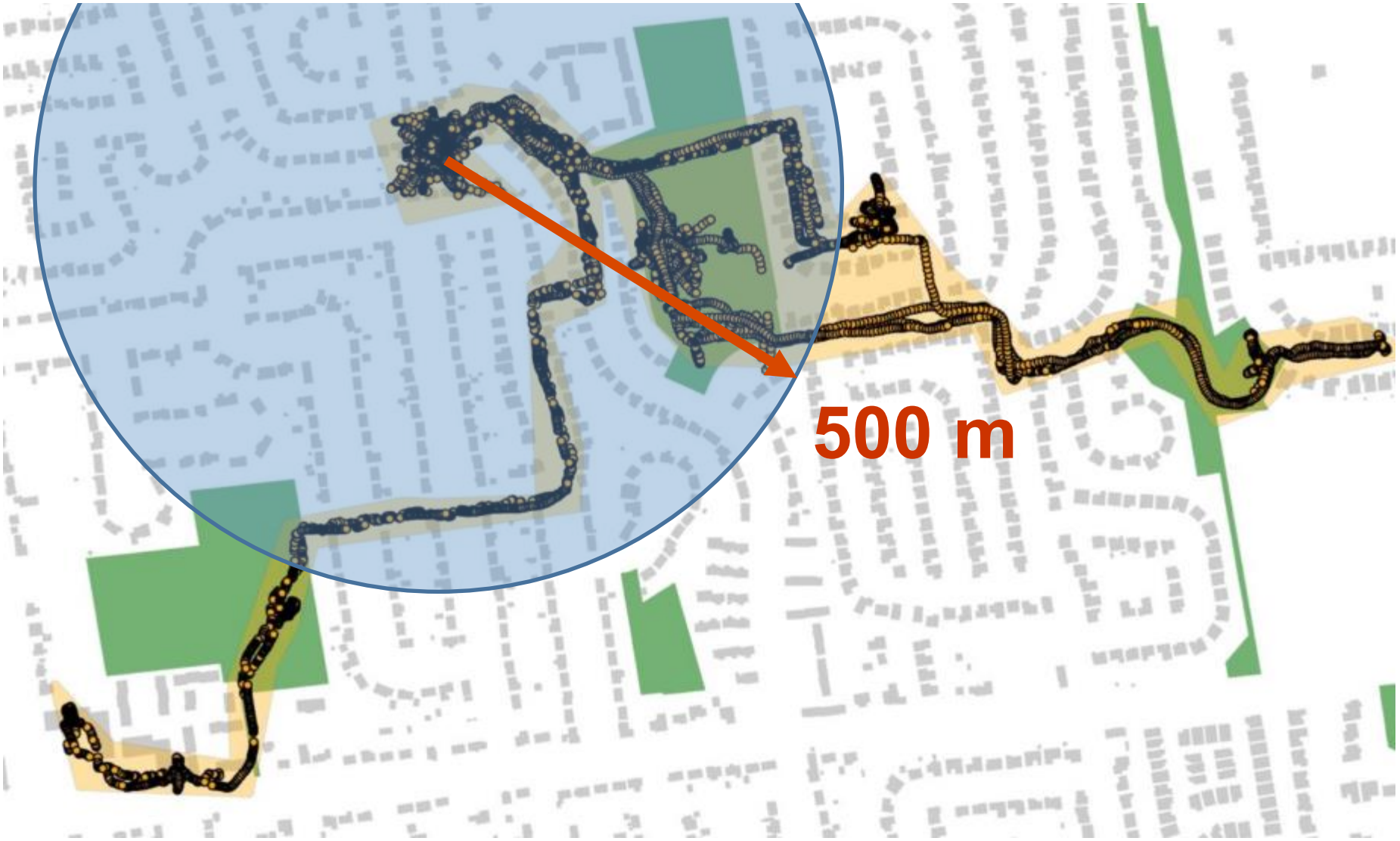
neighbourhood activity spaces

neighbourhood activity spaces



maximum distance travelled

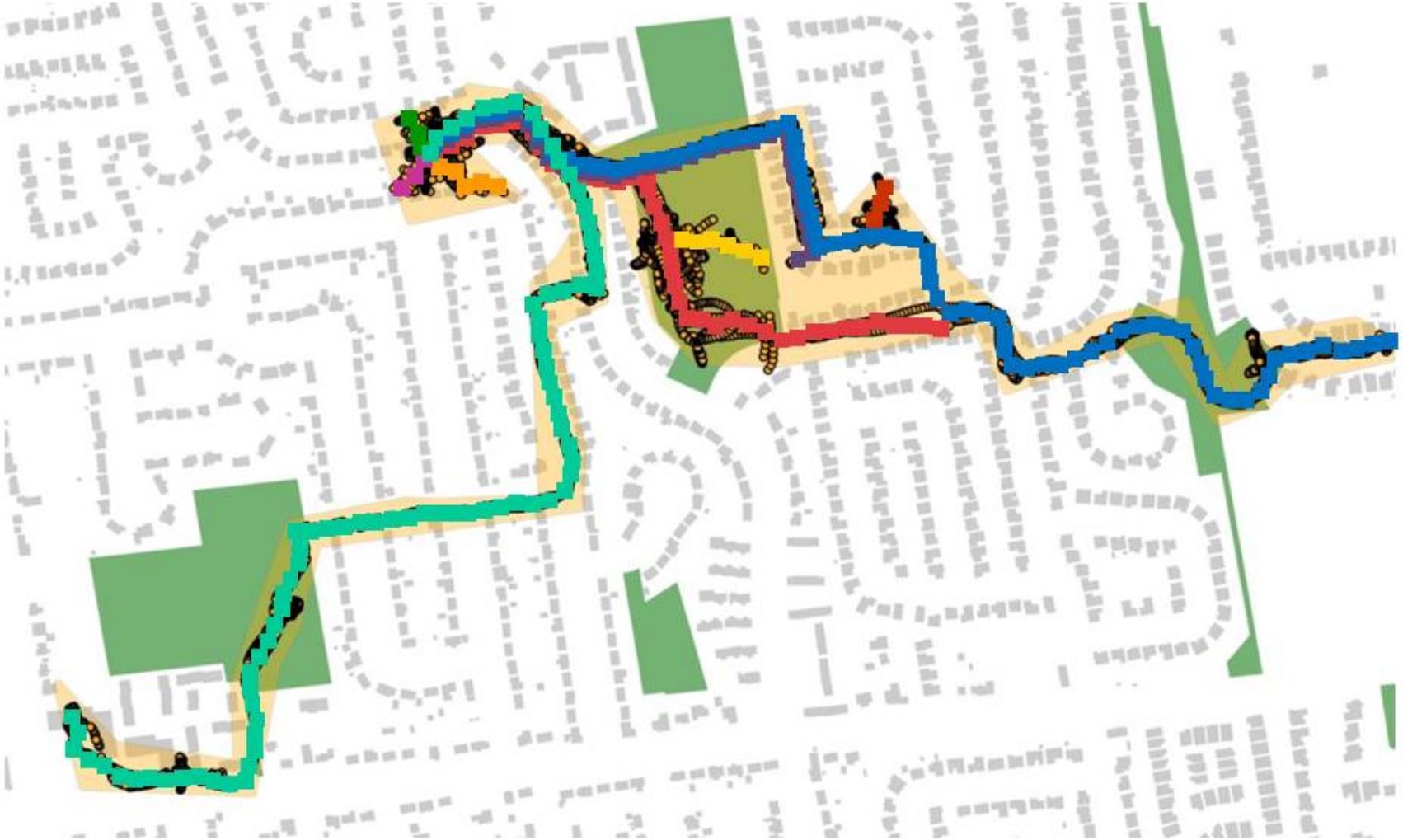
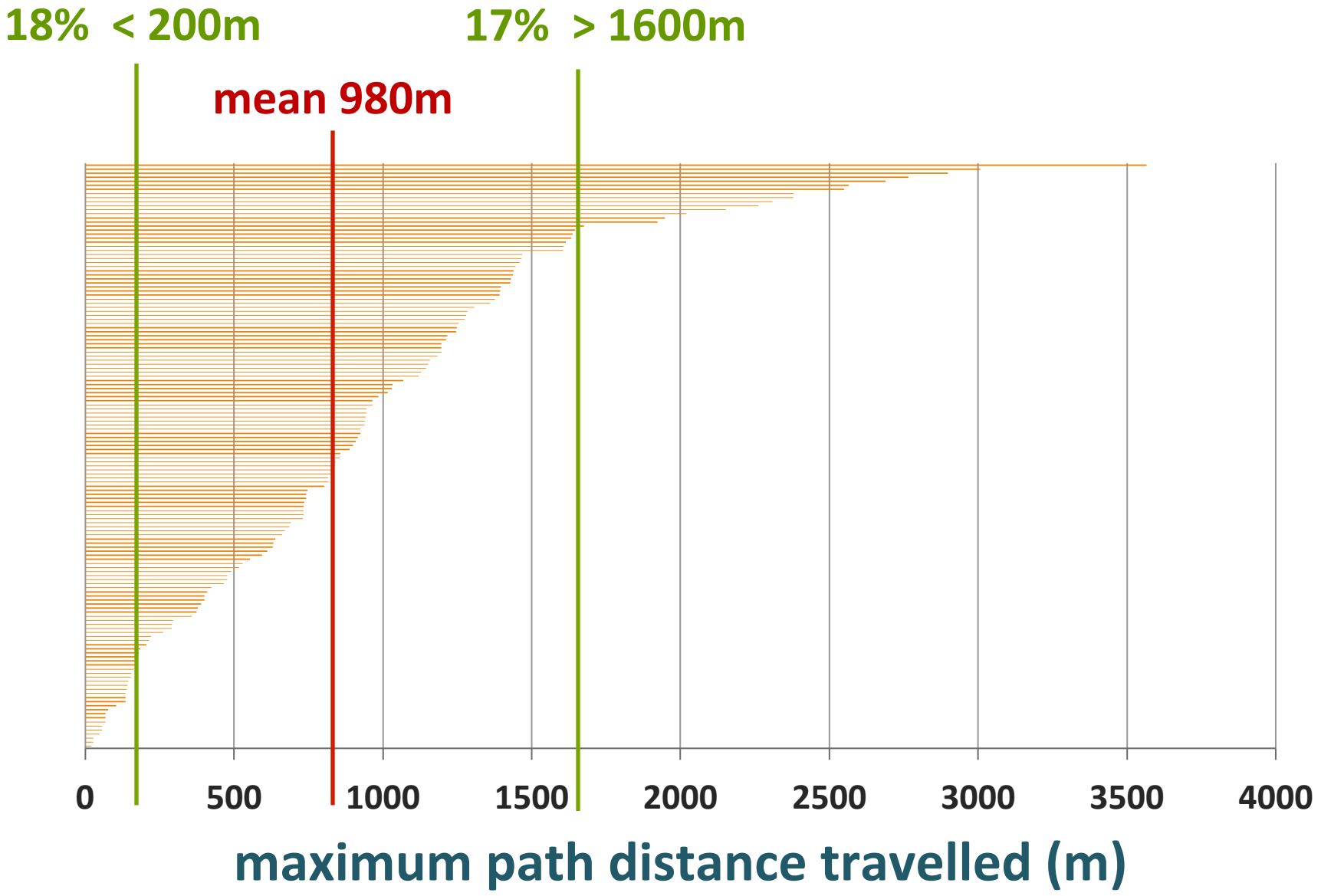


Illustration of development of raster-based measure of maximum path distance

maximum distance travelled



maximum distance travelled

trends

active traveller [to school] **

high parent-reported IM **

* $p < 0.05$ ** $p < 0.01$

maximum distance travelled

trends

active traveller [to school] **

high parent-reported IM **

gender

age

neighbourhood type

* $p < 0.05$ ** $p < 0.01$

maximum distance travelled

trends

active traveller [to school] **

high parent-reported IM **

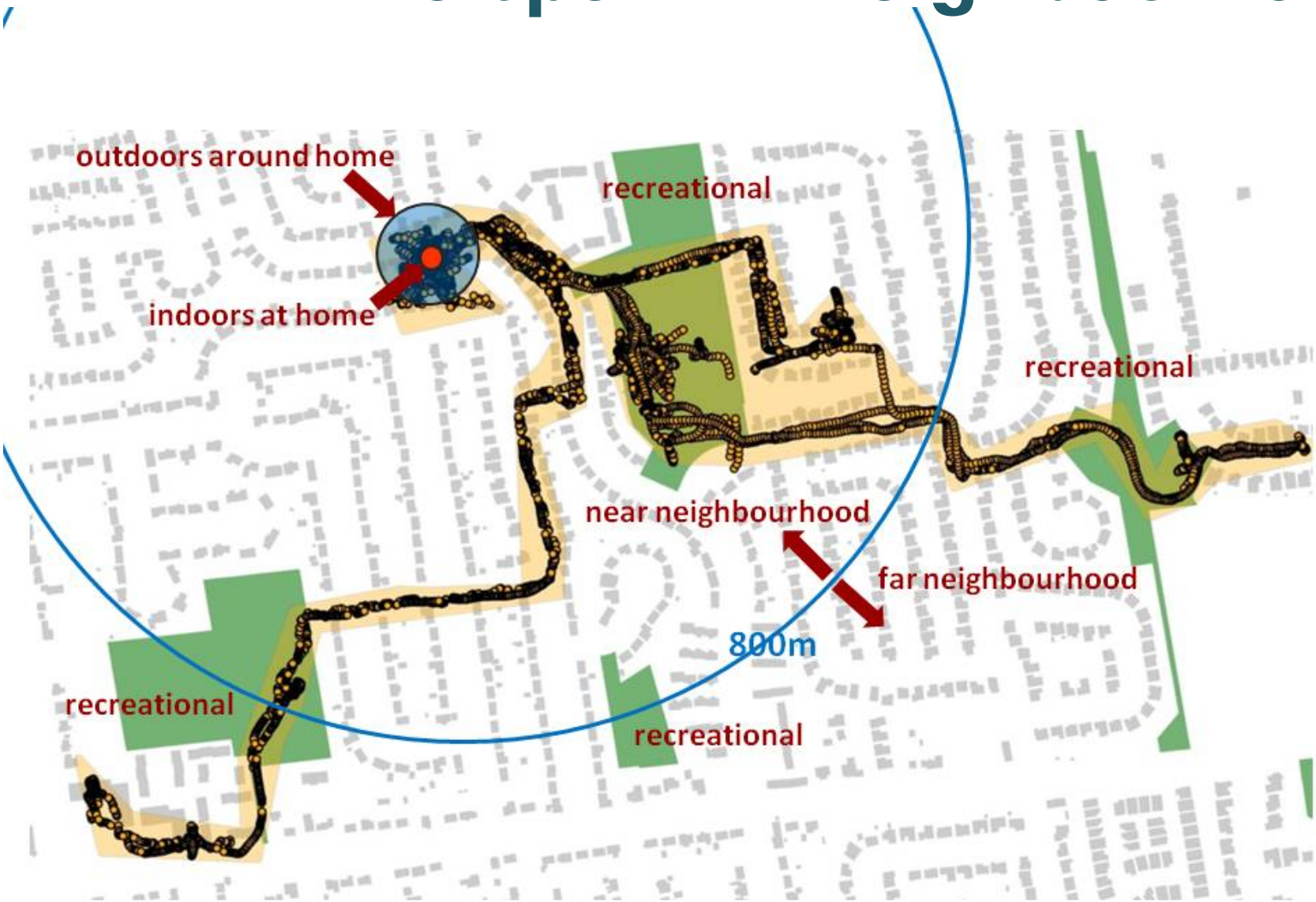
~~gender~~

~~age~~

~~neighbourhood type~~

* $p < 0.05$ ** $p < 0.01$

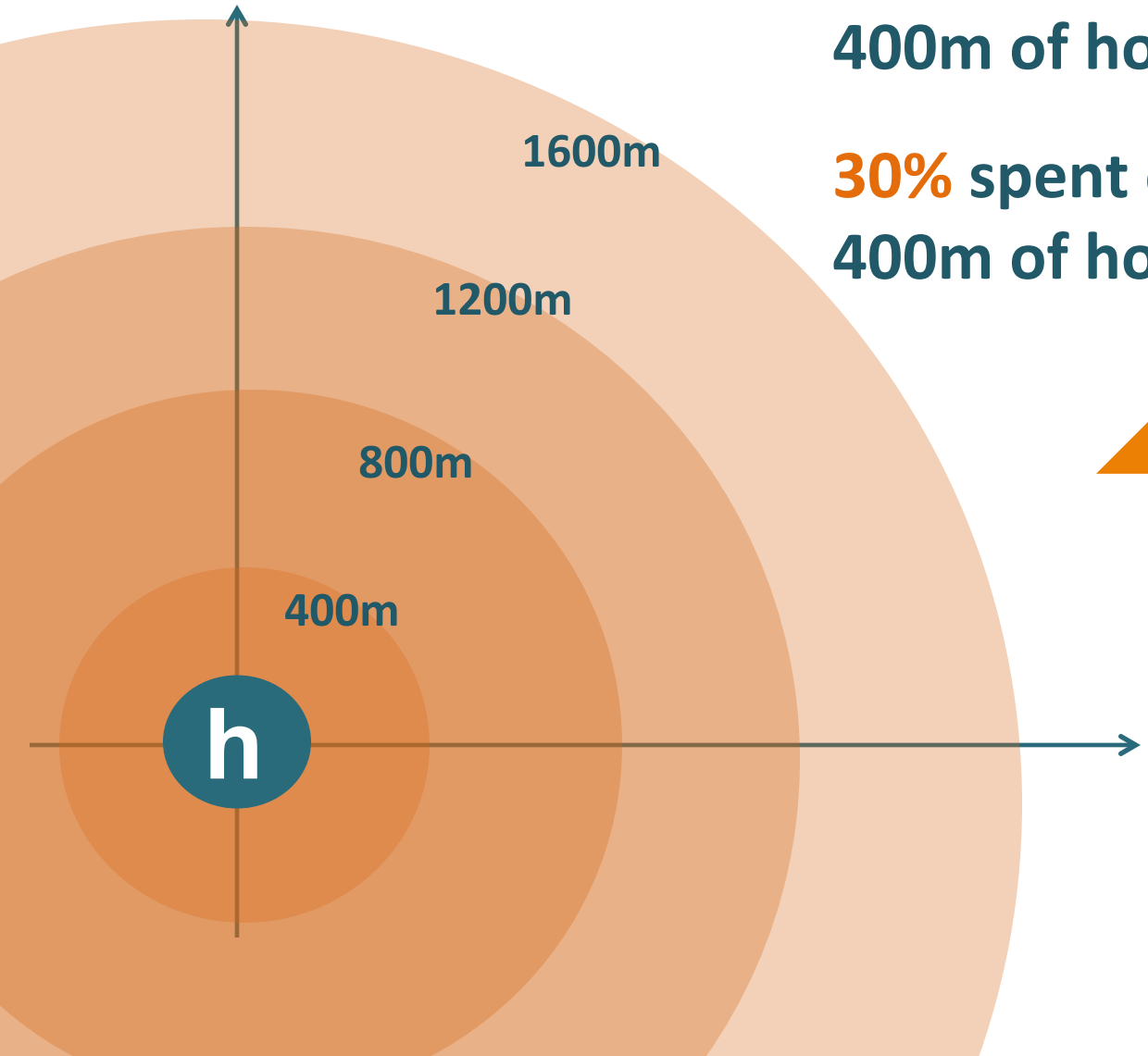
time spent in neighbourhood



time spent close to home

95% of time in NAS spent within 400m of home

30% spent entire week within 400m of home



younger **

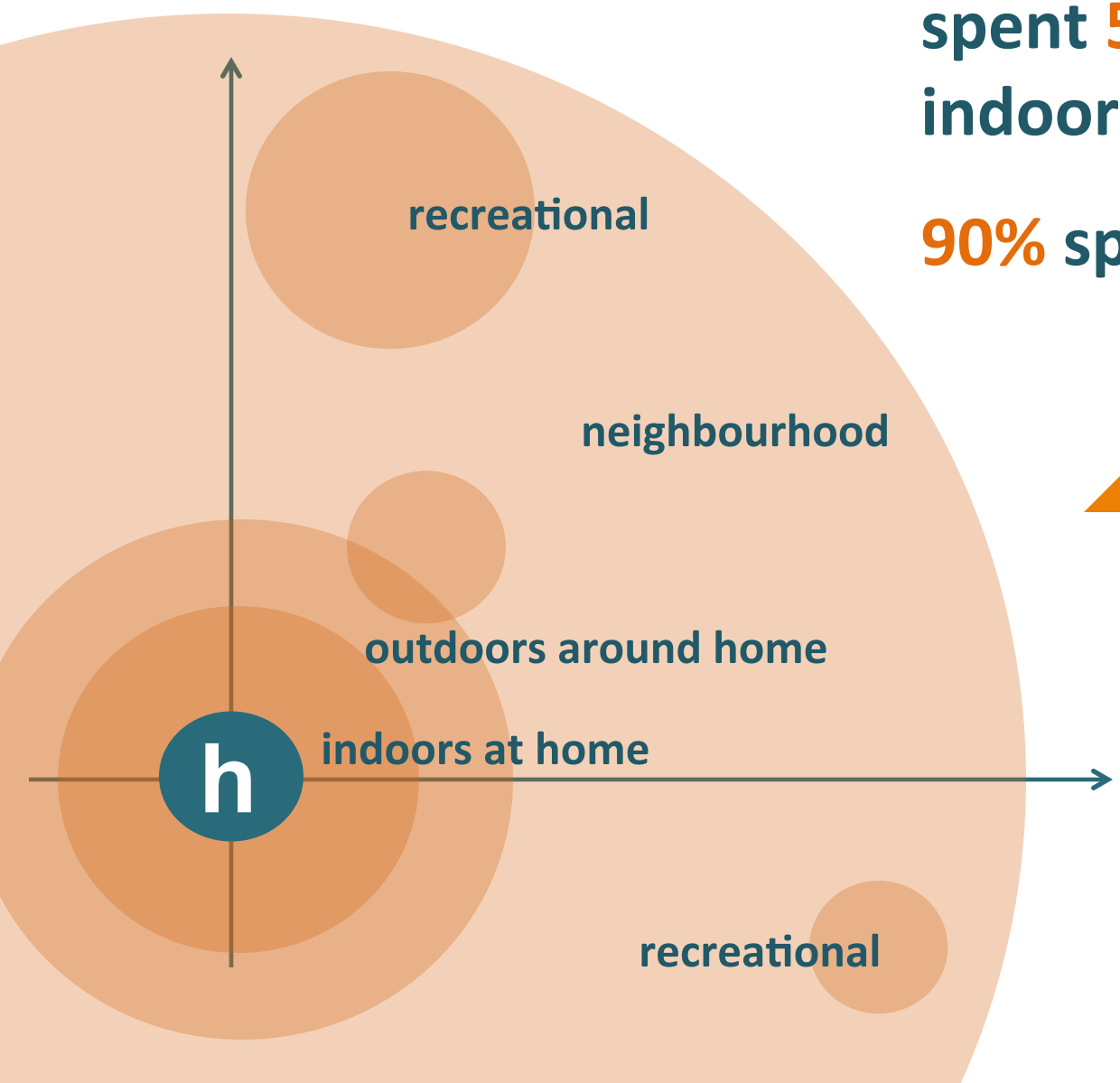
non-active travellers *

low IM ** (parent)

time spent in different zones

spent **51%** of time in NAS indoors at home

90% spent in ***Home Zones***



suburban *

non-active traveller *

low IM * (parent)

predictors

regression analyses

individual

- gender
- age
- school travel mode
- mobility license

perception

- child & parent:
- neighborhood risk & distance to activities

built environment (within buffers)

- neighborhood type (urban v suburban)
- proportion of each type of land use
- population density
- traffic & intersection density
- recreational opportunity density

predictors

regression analyses	distance	% time close to home (< 400m)
individual	~~gender~~ ~~age~~ urban neighborhood* active school travel *** higher IM license *	~~gender~~ younger ^ ~~nbhd type~~ non-active school travel *** lower IM license*
perception	~~child: risk & access~~ parent: risk ** ~~& access~~	~~child: risk & access~~ ~~parent: risk & access~~
built environment	more commercial land within 800m of home ^	more residential*, industrial^ & agricultural* land within 800m of home

^ $p < 0.10$
* $p < 0.05$
** $p < 0.01$
*** $p < 0.001$

summary

- **diversity** in range & character of activity spaces
- some larger frequented NAS, but **habitual NAS very small**
- **little time in neighbourhood**; most spent at/near home
- most influential factors:
    - *higher level of IM (perception of risk; age)*
    - *active travel mode to school*
    - *nearby BE influential (urban features & amenities)*

participants

urban --> n=12

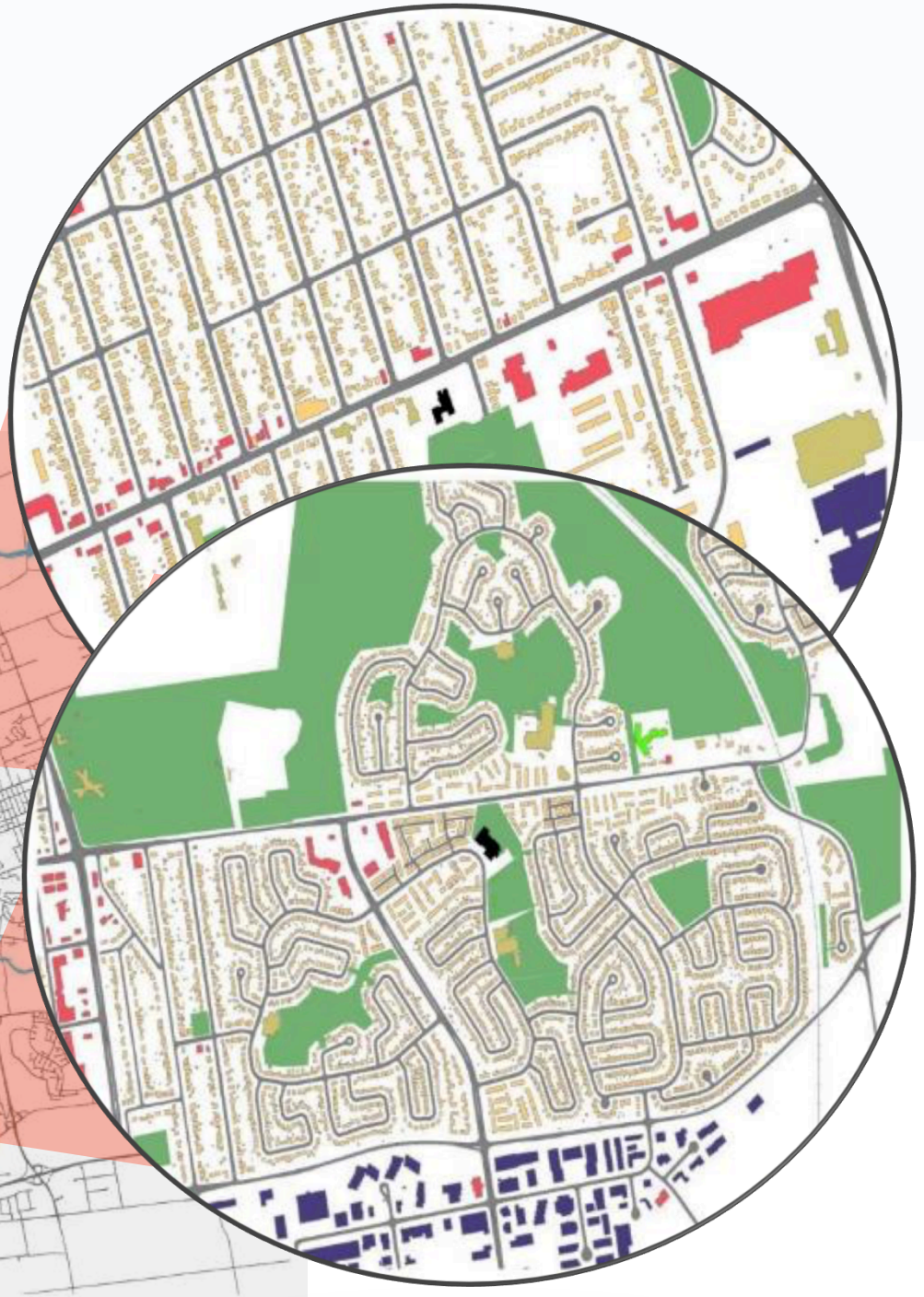
suburban --> n=11

f --> 82%

m --> 18%

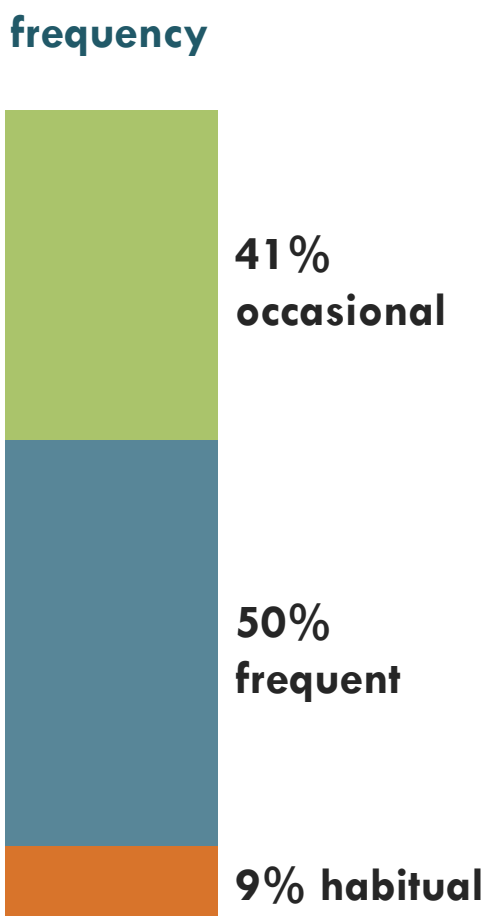
ages 9 – 13 years

mean age = 11 .0 yrs



independent nbhd destinations

independent destinations	total (%)
friend's houses	21.2
parks/playgrounds	19.7
streets / cul de sacs	10.1
variety stores	8.2
home locations (back or front yard; common space)	6.7
malls or other retail (department or drug store)	6.3
wooded/natural areas (incl ponds, rivers, forests, ravines)	5.3
multi-use trail/path	4.8
dollar/thrift stores	3.8
coffee shop/cafe	3.4
fast food restaurants	3.4
relative's houses	2.4
grocery stores	1.4
video stores	1.0
libraries	0.5
churches	0.5
community centre	0.5
outdoor swimming pool	0.5
lesson/class locations	0.5



deep pattern analysis

neighbourhood perception and activity classification

- NAS / neighbourhood domain size
- # of independent destinations
- activity schedule (very structured, semi- or unstructured)
- reduced free time (on 2 or more weekdays)
- time spent in-vehicle
- daily screen time level
- childhood experience type (indoors, outdoors, backseat)
- perception of neighbourhood affordances
- use of neighbourhood affordances
- independent mobility level

deep pattern analysis

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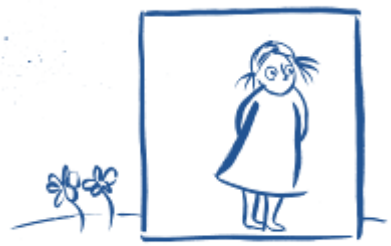
ENVIRONMENTAL CHILD-FRIENDLINESS

actualized affordances

independent mobility	low	high
high	WASTELAND 	BULLERBY 
low	CELL 	GLASSHOUSE 

Graphics shown with permission of M. Kytta

childhood play experience

high *outdoor* component

med-high to high IM

high perception of affordances

med to high use of affordances

highest # independent destinations

med to large independent domains

unstructured schedule

low in-vehicle time

low screen time levels

little to no reduction in free time

high # and range of resources nearby

indoor and *indoor-backseat*

type 1: very or semi-structured schedules,

reduced free time & high in-vehicle times

low screen time levels

med to high IM but med to small domains

type 2: unstructured schedules,

no reduced free time & low in-vehicle time

high screen time levels

low to high IM, med to small domains

all: med to low affordance perception, low use

residential islands

land use legend

residential

commercial

recreational

institutional

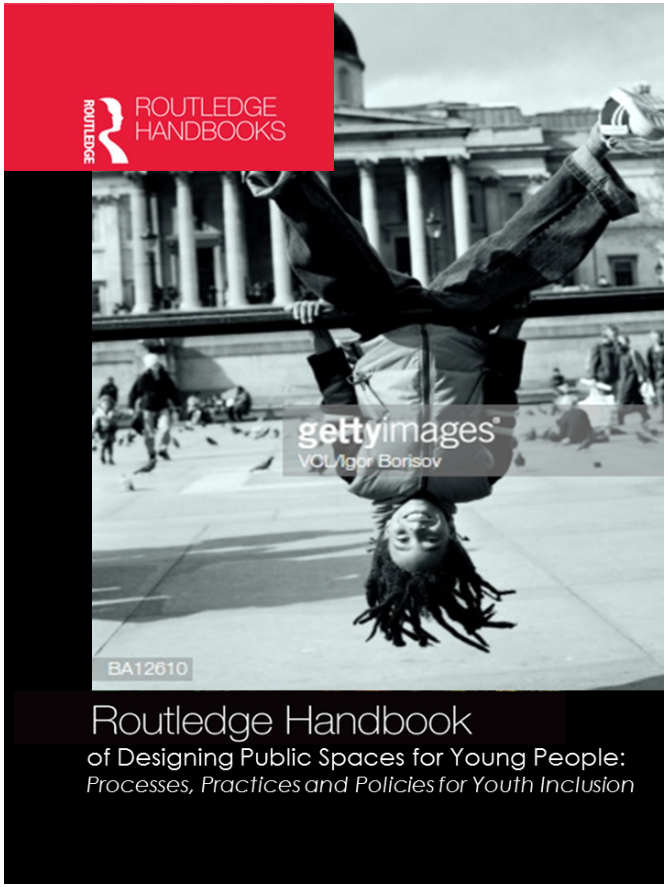
industrial

agricultural

neighbourhood use

what to do ?

- improve / promote IM
- evaluate micro-neighborhoods
- rethink neighborhood type designations
- neighborhood nodes & pathways
- maximize environmental diversity, flexibility
- more engagement of youth re needs
- cultural shift in notions of play, risk



Routledge Handbook of Designing Public Spaces for Young People:

Processes, Practices and Policies for Youth Inclusion

Editors:

Janet Loebach, Sarah Little, Adina Cox & Patsy Eubanks Owens

Scheduled for Publication Spring 2020

publications:

Loebach, J. & Gilliland, J. (2019). **Examining social and built environment factors influencing children's independent use of their neighbourhoods and the experience of local settings as child-friendly.** ***Journal of Planning Education & Research*** *(published online ahead of print March 5, 2019).*

Loebach, J. & Gilliland, J. (2016). **Neighbourhood play on the endangered list: Examining patterns in children's local activity and mobility using GPS monitoring and qualitative GIS.** ***Children's Geographies,*** Vol. 14 (5), pp. 573-589.

Loebach, J. & Gilliland, J. (2016). **Free range kids? Examining socio-environmental factors influencing children's use of their neighbourhood activity spaces.** ***Environment & Behavior,*** Vol 48 (3), pp. 421-453.

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