

Observational Methods

The First Step in Science

Adapted from Observational Methods The First Step in Science by
Reuven Sussman in *Research methods for environmental psychology*
(Gifford, ed., 2015)



“Great show last night, Gabe!” exclaims Maria, referring to Gabriel’s band’s show the night before at Clinton’s. “Really, because I thought the show went much better last month at Sneaky Dees,” answers Gabriel. “Don’t you remember, everyone was dancing and singing along ... And they even demanded two encores!”

The conversation reawakens a question in Gabriel’s mind that he had been secretly pondering for some time. Why were the shows at some bars more fun for the audience than others? Last month they played almost the same songs, to a similar audience, who drank (according to the bar tab) nearly the same amount of alcohol; and yet there was far more audience engagement at the first show than at the second. After two years of playing in just about every bar in the city, Gabriel thinks he might have an idea – the physical environment is playing a role in helping the audience engage with the band.

Gabriel decides to put his architectural research skills to use and, for the next few weeks, meticulously records detailed information about every show he attends (as an audience member). He notes all of the physical aspects of the space (such as lighting and the placement of tables and bar stools), as well as the number of people, the alcohol consumed, the weather outside and, of course, the amount of audience participation. Despite Maria's incessant complaining ("this is useless, you can't learn anything without controlling all the variables!"), he enlists her help, and after each show they compare notes to see how much they agree in their observations.

Eventually, a pattern seems to emerge – smaller bars with lower light levels and less seating appear to have more audience members closer to the stage, dancing and singing along.¹ Maria is impressed, but unconvinced. "This doesn't prove anything, Gabe," she points out, "there are too many possible explanations. Maybe the best bands play at certain bars, or maybe people go to those bars because they know that they'll have a good time there."



Gabriel knows Maria has a point. So he asks a friend of his who owns a local bar if he could systematically change certain aspects of the stage and dancing area to see if they have an effect on audience participation. His friend agrees, and over the next few weeks, Gabriel changes the lighting levels, size of the dance floor, and other aspects of the physical environment while several friends independently record observations of audience responses. With the same bands playing every week and similar audiences attending the shows, Gabriel and his team are able to empirically demonstrate that his theory is correct – the physical environment indeed plays a role in audience involvement!

Although Maria isn't impressed at his methods, she can't deny that she had witnessed a real change in behavior as a result of Gabriel's suggestions to the bar owner. Gabriel now knows the secret to picking the best venues for his band and is able to earn a little extra cash as design consultant for bars and restaurants!



Observational Methods in the Social Sciences

- In its simplest form, **observation** can be defined as receiving information through one of the five human senses
 - And to this I'd add...critically reflecting on what you observe
- **Indirect observation**
 - personal diaries, informants, or trace measures
 - Trace measures (or a lack thereof) caused by erosion, leftovers, adaptations, repairs, or personalization to a space can also be “observed” for information about how the physical environment is used.
 - Items and objects left behind can also be considered ‘trace’ elements
- **Direct observation > this is more like what we'll practice in this class**
 - Studying human-environment interactions using any or all of the five senses

Observational Methods in the Social Sciences

- Despite observational methods being drawn from psychology and human-behavior studies, as a research methods, observations can be used for the study of both **humans and the physical (i.e., urban) environment**.
- Recording observations of the physical environment requires
 - multiple observers (or multiple observations)
 - systematic procedures, and
 - replicability (can other observers repeat my method)
- Observations of physical aspects of environment may serve as predictive variables for human behavior. However, we should be sure to **determinism**—because you design something a certain way doesn't mean people will use it that way.
 - Gender, class, race, culture etc. all shape how we interact with the world around us

Observational Methods in the Social Sciences

Why use observational research? There are two primary reasons:

- **measurement accuracy**

- Research on human memory and cognition demonstrates that, despite their best efforts, participants often forget details or recall them based on their current knowledge and frame of mind.
- Also important for individuals who are incapable of self-reporting their behavior or when studying behavior that is difficult to self-report.
- For observations of urban space, one may need to literally measure or supplement other descriptions with in-person, direct observation to better understand

- **preliminary investigation**

- To gain preliminary data to help inform a hypothesis or generate design ideas (e.g., studying the use of a public space to help make decisions about ways to improve it).
- Form the basis of future research

Observational Methods in the Social Sciences

One way to begin an observation...

- Start with **casual observation**
- Follow up with in-depth **systematic observation**
- Create an **ethogram** by carefully noting all aspects of a situation and behavior without a hypothesis or pre-determined idea of what may occur

Behaviour	Definition, following Troisi [50]
Groom	The fingers are passed through the hair in a combing movement
Hand-face	Hand(s) in contact with the face
Hand-mouth	Hand(s) in contact with the mouth
Scratch	The fingernails are used to scratch part of the body, frequently the head
Yawn	The mouth opens widely, roundly and fairly slowly closing more swiftly. Mouth movement is accompanied by a deep breath and often closing of the eyes and lowering of the brows.
Fumble	Twisting and fiddling finger movements with wedding ring, handkerchief, other hand.
Twist mouth	The lips are closed, pushed forward and twisted to one side.
Lick lips	The tongue is passed over the lips.
Bite lips	One lip usually the lower is drawn into the mouth and held between the teeth.

doi:10.1371/journal.pone.0056355.t001

https://www.researchgate.net/figure/Ethogram-of-the-displacement-behaviour-recorded-in-this-study_tbl1_235778483

Ethogram of the displacement behaviour recorded in this study.

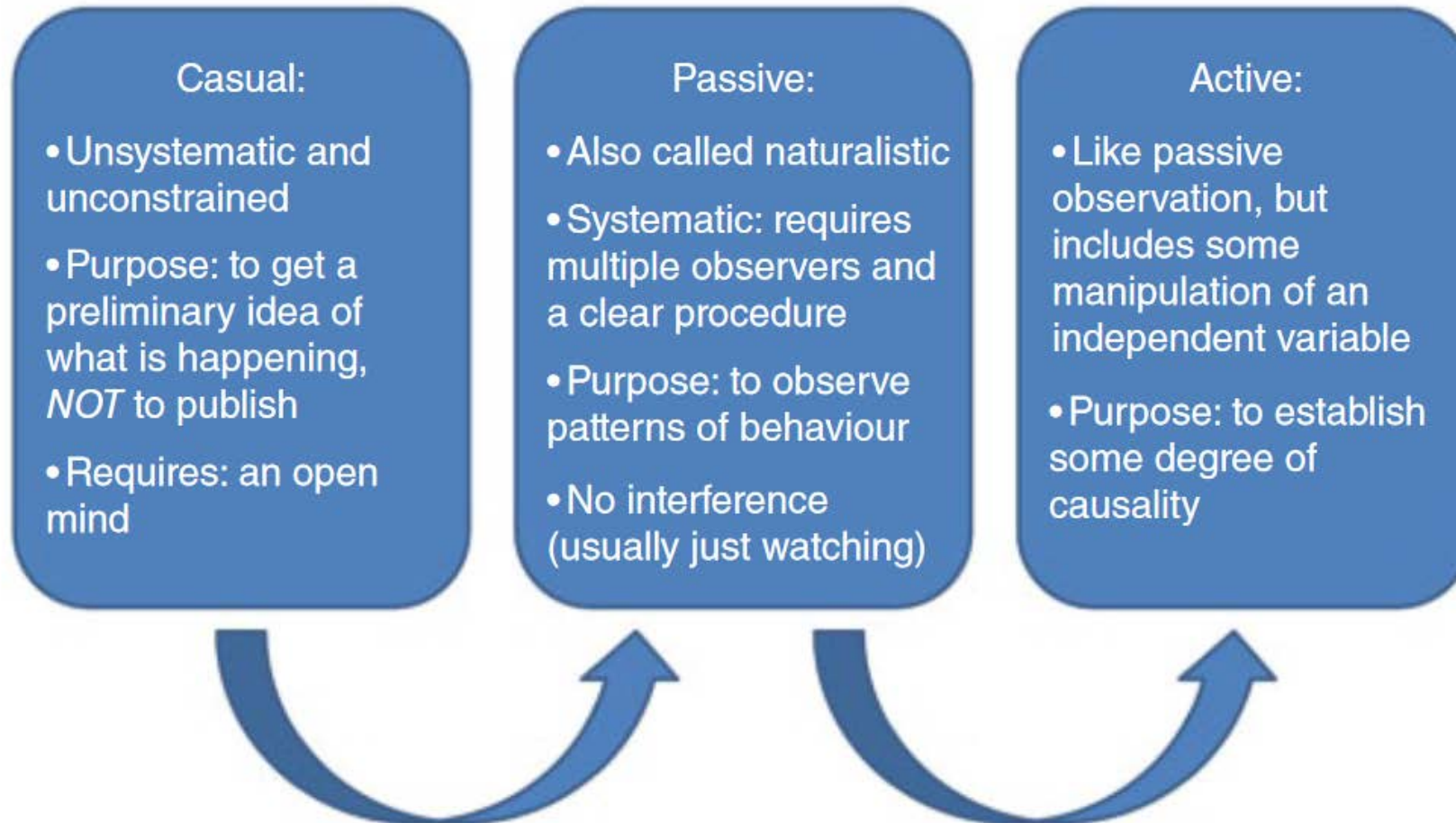
https://www.researchgate.net/figure/Ethogram-showing-state-and-event-behaviors-recorded-for-all-subjects_tbl1_297722347

Examples of ethograms of human/animal behavior, could be adapted to observations of a place or space.

Behavior	Code	Description	
State			
Foraging	F	Feeding behavior including searching for/manipulating items	
Locomoting	L	Moving from one place to another using limbs	
	Toward keeper	LT	Movement in the direction of keeper (approaching)
	Away from keeper	LA	Movement in the opposite direction of the keeper (retreating)
Resting	Calm	Rc	A still posture: standing, sitting, or lying with head/ears relaxed
	Alert	Ra	A still posture: upright, alert (possibly with head/ears/tail up)
Socializing	S	Activity directly involving other individuals of the species	
Autogrooming	A	Self-directed behavior including preening/licking/rubbing	
Out of sight	OS	Individual out of sight/behavior unknown	
Event			
Interaction with keeper	Sniff	Sn	Nose directed toward keeper, nasal flare may be seen
	Physical contact	Pc	Any event involving direct physical contact with keeper
	Vigilance	Vi	Eye contact or observation of keeper activity
	Vocalization	Vo	Any sound following the presence/activity of keeper
	Head lift	Hl	Lifting of the head in direction of or in response to keeper
	Ear flick	Ef	Quick movement of ears, in direction of keeper
	Tail swing	Ts	Movement of tail, isolated from body following keeper activity
Other	Scratch	Sc	Any area of the body scraped/rubbed using self or object
	Yawn	Ya	Intake and release of breath with mouth wide open
	Body shake	Bs	Rapid side-to-side movement of the body or head
	Excrete	Ex	Waste products produced (fecal elimination/urination)

Ethogram showing state and event behaviors recorded for all subjects.

3 basic approaches to direct observation: casual, passive, or active



Sequence of observational research approaches for studying human–environment interactions.

Casual observation

- Unsystematic and unconstrained.
- The purpose of this type of observation is not to determine a cause of behavior or publish a report.
- The purpose is merely to get a sense of what is happening in a given situation by putting one's self in the situation, keeping an open mind and brainstorming.

Passive (or naturalistic) observation

- Does not involve changing the environment or interfering with behavior
- Require reliable and systematic data recording.
- Typically consists of watching people within a space doing certain activities.
- Data can be recorded **quantitatively** (e.g., frequency or duration behavior) or qualitatively (e.g., verbatim account of entire situations, followed by an examination of the data for commonalities).

Passive (or naturalistic) observation

- Tends to produce information that has **high external validity** (because it occurs in real-world environments).
 - External Validity: the extent to which the results of a study can be generalized to other situations or people
- Care should also be taken to **maximize internal validity**.
 - Internal Validity: the extent to which the observed results represent the truth in the population, situation, or place being studied
 - sampling and observation consistency are vital
 - to be replicable, the sample being observed should be representative of the population that is being studied and inter-observer agreement should be established (two or more observers should independently record notes about the behavior and then compare them).
 - This can be adapted to studying urban space, you may not be as concerned with the representational aspect, however.

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- Attempt to remain concealed when conducting passive observation in order to reduce reactivity from those being observed and to prevent them from changing their behavior.
 - This may be impossible in some circumstances or rely on deception which raise ethical issues

Passive (or naturalistic) observation

What do I observe? Everything?

Is it possible to record in an uncensored and unbiased way?

- At some point a decision must be made on what to record, where to point the camera, when to turn on the audio recorder, etc.
- These decisions (and related decisions about how to code data) are **affected by culture and shared social understandings**
- Researchers should not pretend that they are completely objective (which is impossible) and, instead, acknowledge their biases, deciding what to observe.

Passive (or naturalistic) observation

Coding

- Sometimes, coding decisions are based on the data themselves (rather than theory) and, in this case, the exploratory nature of the codes (i.e., what they mean) should be declared to readers.
- Cultural and social biases can enter into observation decisions (i.e., what to observe) by affecting the definition of the behavior or the size of the behavioral unit.
- That is, some behavior may be noteworthy in certain cultures but not others.

Passive (or naturalistic) observation

- Based on preliminary observations, previous research, and the researchers' objectives, **observations can be noted at various intervals.**
- Primarily, the two options are:
 - event sampling (recording information when ever a certain event occurs)
 - time sampling (recording information at regular or random intervals).

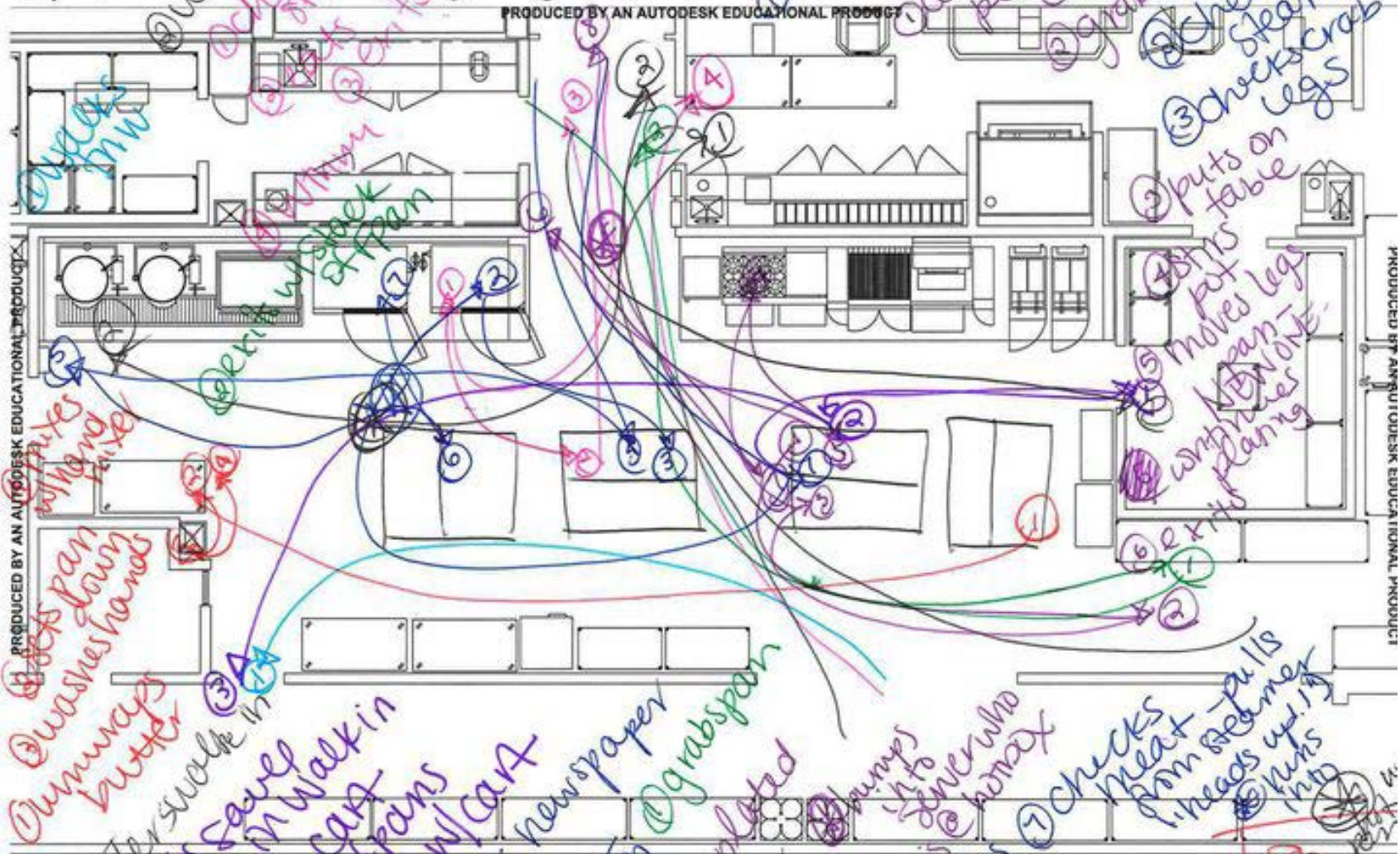
Active observation

- Requires all of the same considerations as passive observation **with the additional requirements of establishing a degree of causality.**
 - Researchers should also think about how they may demonstrate a causal link between the changed environment and resultant behavior.
- Should be replicable and valid measures of behavior and the environment
- Ideally, causality would be established using a true experimental design with participants randomly chosen from a population and then randomly assigned to a comparison or experimental group.
 - However, observational research (especially in the field rather than in the lab) rarely permits this degree of control. Instead, researchers will probably use some form of quasi-experimental design to demonstrate support for a causal link between dependent and independent variables, without establishing a definite causal relationship.
 - Typically, an active observational study involves watching individuals in an environment with or without a small change to it (e.g., watching park users in a sign or no-sign condition to see if they smoke less when there is a no-smoking sign near the park entrance)

Observation Techniques

- Observers may either translate what they see (or hear) into codes immediately (on site) or produce video or audio recordings that are coded later. >> we will look at examples of this in Week 7.
- **Paper-and-pencil method:** observers watch an area or population of interest and note observations by jotting them down on a paper using either codes (for efficiency) or extensive notes (for detail).
- **Behavioral mapping:** noting where behaviors occur within a space.
 - To create a behavioral map, it helps to first design a template that contains a drawn to scale map of an area that allows for a mark to be made each time a specific behavior occurs within the mapped area.

10:15am - 10:23am
6/16/13



① enters walk in
 ② puts sawe in walk in
 ③ grabs cart
 ④ gets pans
 ⑤ reads newspaper
 ⑥ grabs newspaper
 ⑦ grabs plates
 ⑧ exits
 ⑨ bumps into server who is @ wmax
 ⑩ travels
 ⑪ checks meat from steamer
 ⑫ pulls heads up
 ⑬ puts in
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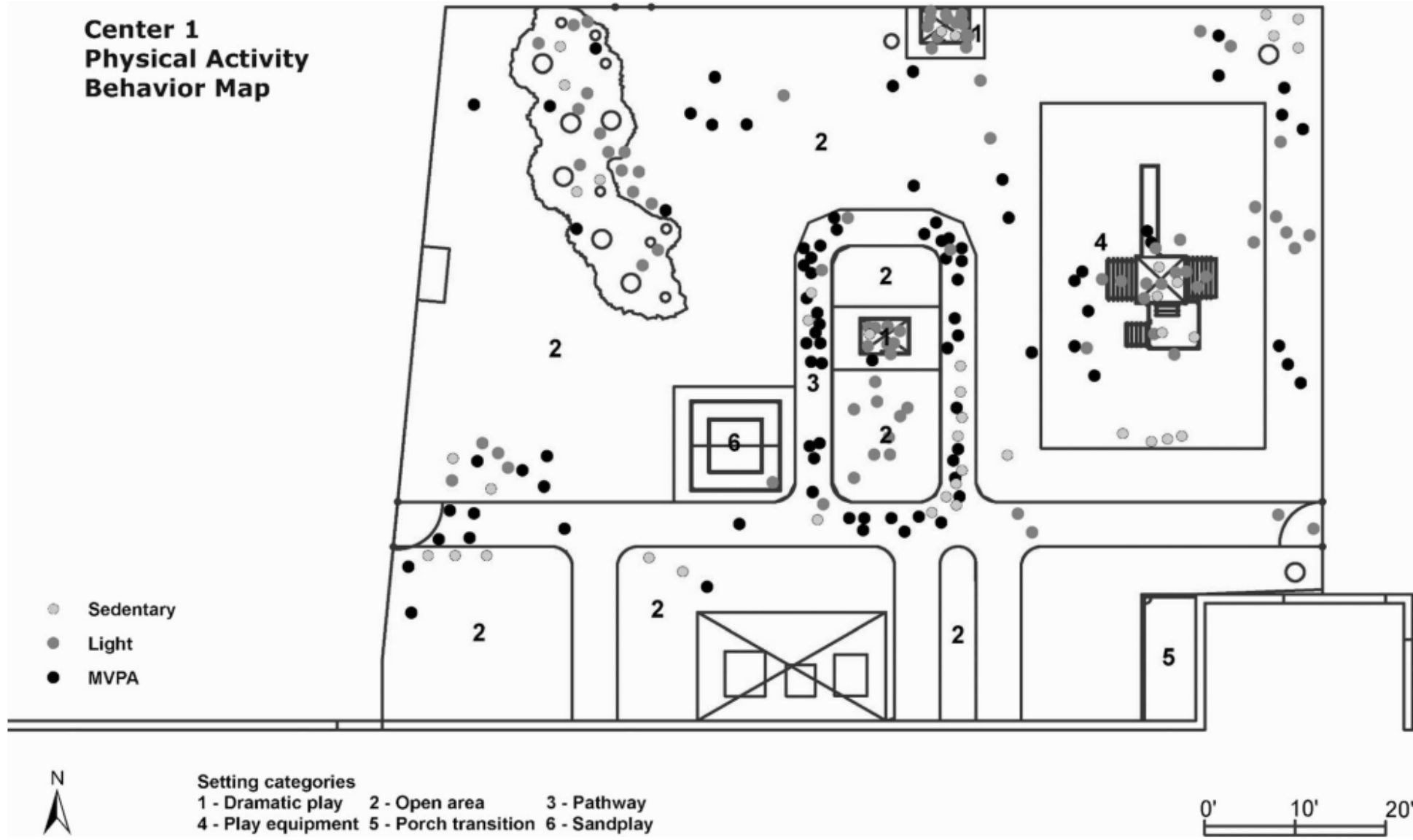
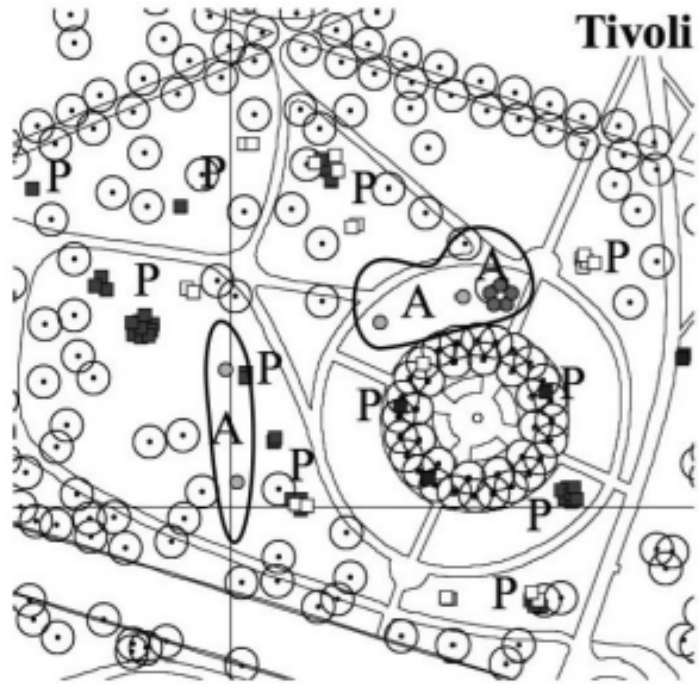


FIGURE 1—Center 1. Physical activity behavior map.



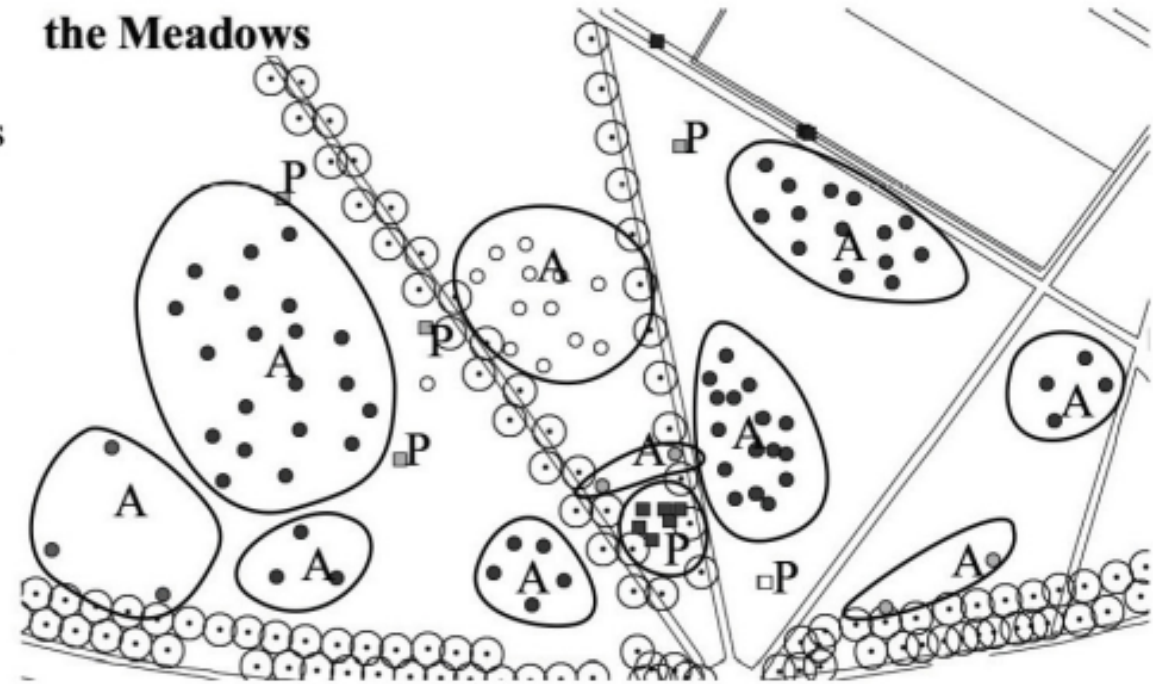
P long-stay passive activities

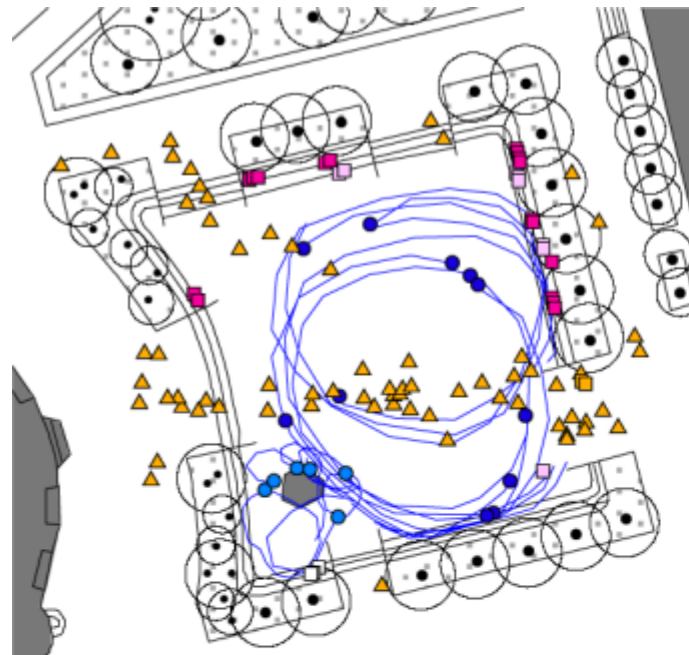
- sitting
- sitting on a bench
- lying down
- standing

A long-stay active activities

- playing football
- playing with a ball
- playing cricket
- playing frisbee

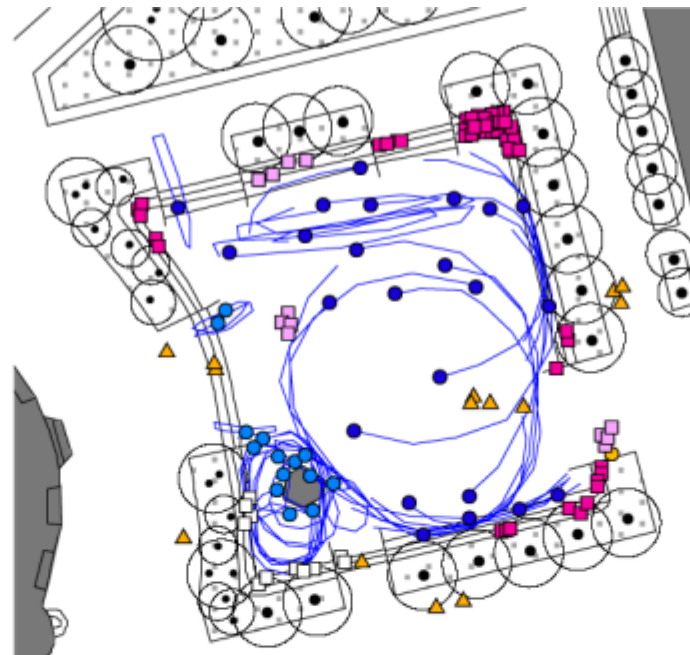
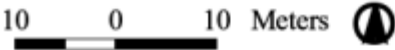
20 0 20 m





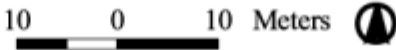
Daily occupancy Bristo Square

- skateboarding
- sitting while skateboarding
- sitting while roller-skating
- sitting
- ▲ walking through
- propelling scooter
- standing



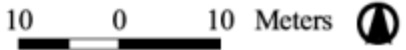
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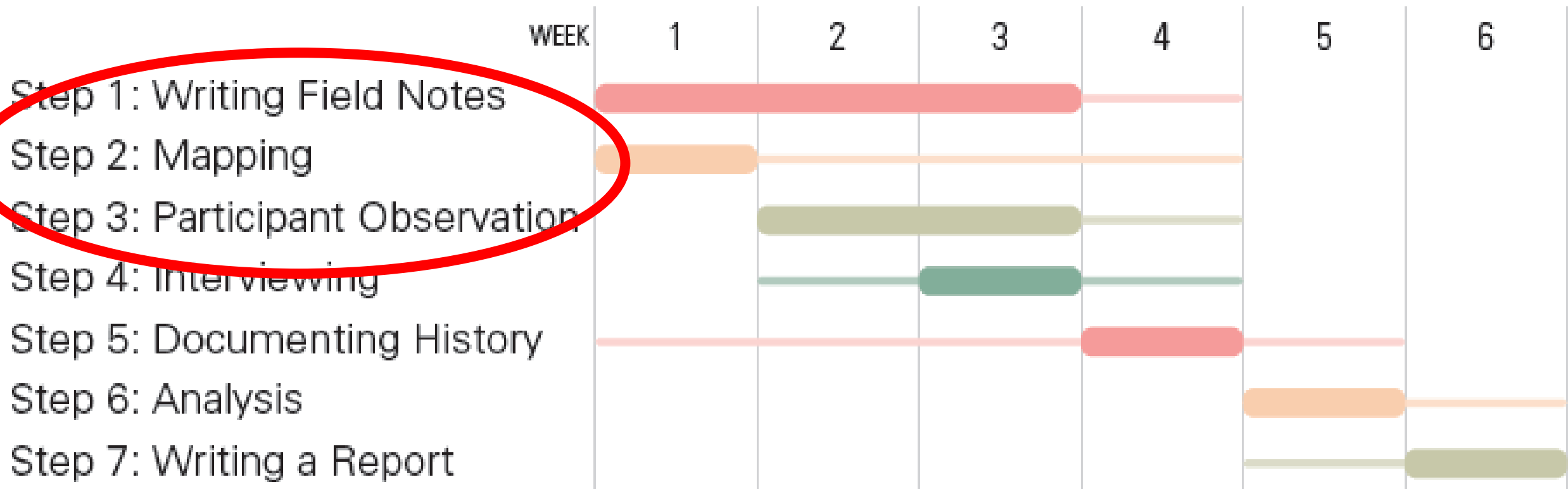


Toolkit for the Ethnographic Study of Space

- TESS (Low, Simpson & Scheld, 2018)
- Qualitative methodology to capture a snapshot of the everyday life and social dynamics of a public space
 - Help the researcher understand the meaning and context of what is learned
 - A way to reveal dynamics behind forms of social exclusion, lack of diversity, or inequality that may exist
 - Allows for triangulation from multiple viewpoints via different techniques of data collection



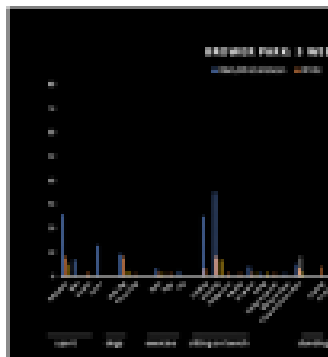
The Toolkit for the Ethnographic Study of Space (TESS)



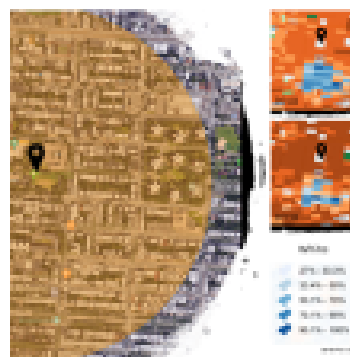
Mapping



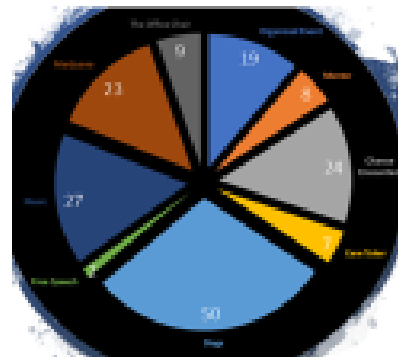
Activities & People



Area Demographics



Coding Field Notes



Memos: Emergent Patterns & Themes



Review Community Board Minutes & Interviews



- **Scratch Notes** | →
- **Field Notes** | →
- **Memos** →
- **Participant Observation** →
- **Mapping**
 - Behavioral | →
 - Movement | →
 - Trace | →
- **Photography** →
- **Interviews** →

Weekday – 1 hr ea.

10-12 14-16 18-20

Weekend – 1 hr ea.

10-12 14-16 18-20

x 3 = 18 hours

After several field notes are taken; periodically to uncover emerging themes

Weekday – 1 hr

10-12 14-16 18-20

Weekend – 1 hr

10-12 14-16 18-20

= 15 hours

On site or drawn later from detailed scratch notes

= 3 hours

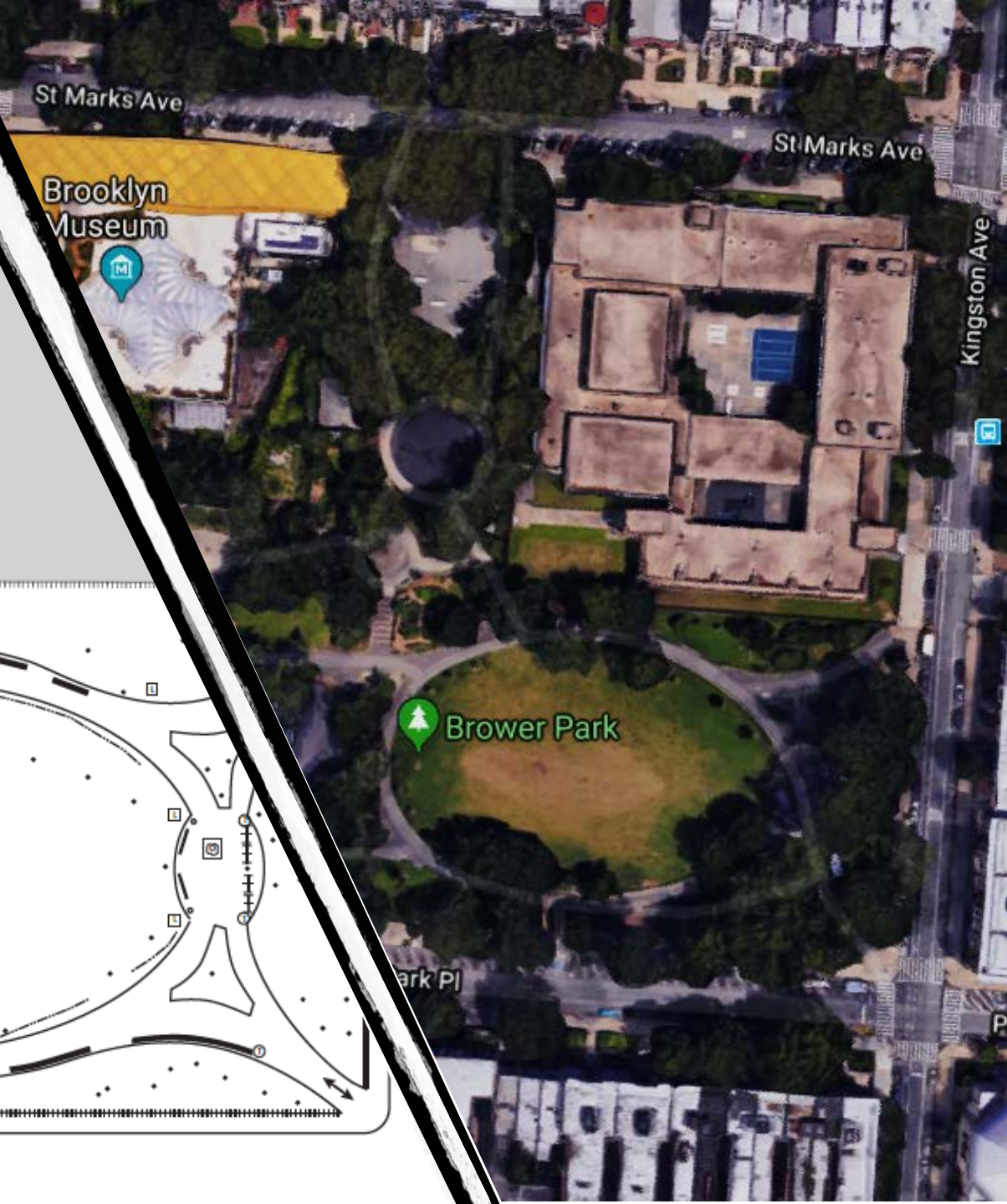
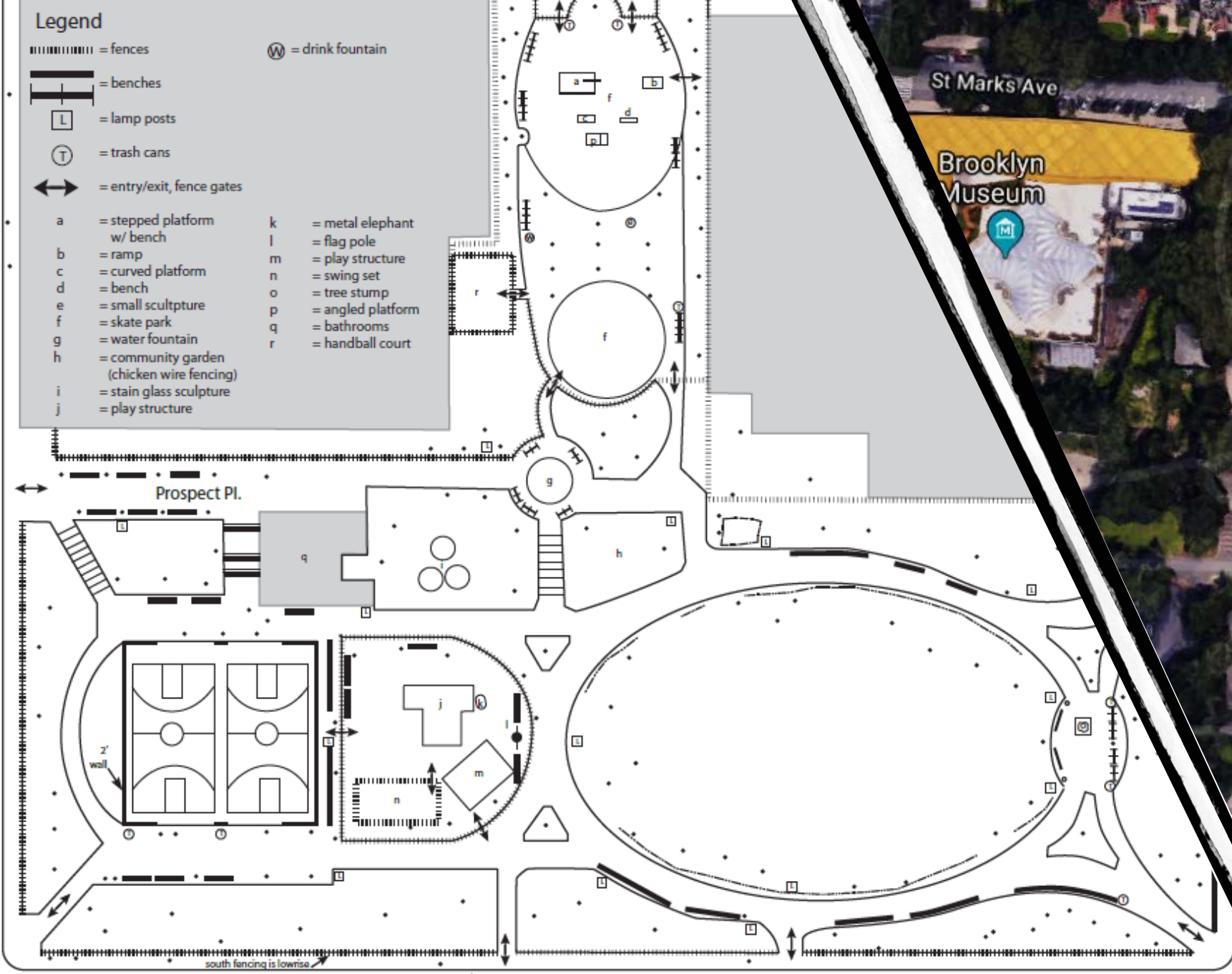
Periodically when useful, no face recognition

Periodically, not during scheduled data collection; N=10+

(Based on Low, Simpson & Scheld, 2018, forthcoming)

Legend

- ||||| = fences
- ⊞ = benches
- ⊞ = lamp posts
- ⊞ = trash cans
- ↔ = entry/exit, fence gates
- ⊞ = drink fountain
- a = stepped platform w/ bench
- b = ramp
- c = curved platform
- d = bench
- e = small sculpture
- f = skate park
- g = water fountain
- h = community garden (chicken wire fencing)
- i = stain glass sculpture
- j = play structure
- k = metal elephant
- l = flag pole
- m = play structure
- n = swing set
- o = tree stump
- p = angled platform
- q = bathrooms
- r = handball court



Brooklyn Ave.



Park Place

Legend

- ||||| = fences
- ⊗ = drink fountain
- |— = benches
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- ⊙ = trash cans
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St Marks Ave

Brooklyn Museum

St Marks Ave

Kingston Ave

Brooklyn Ave.

Prospect Pl.

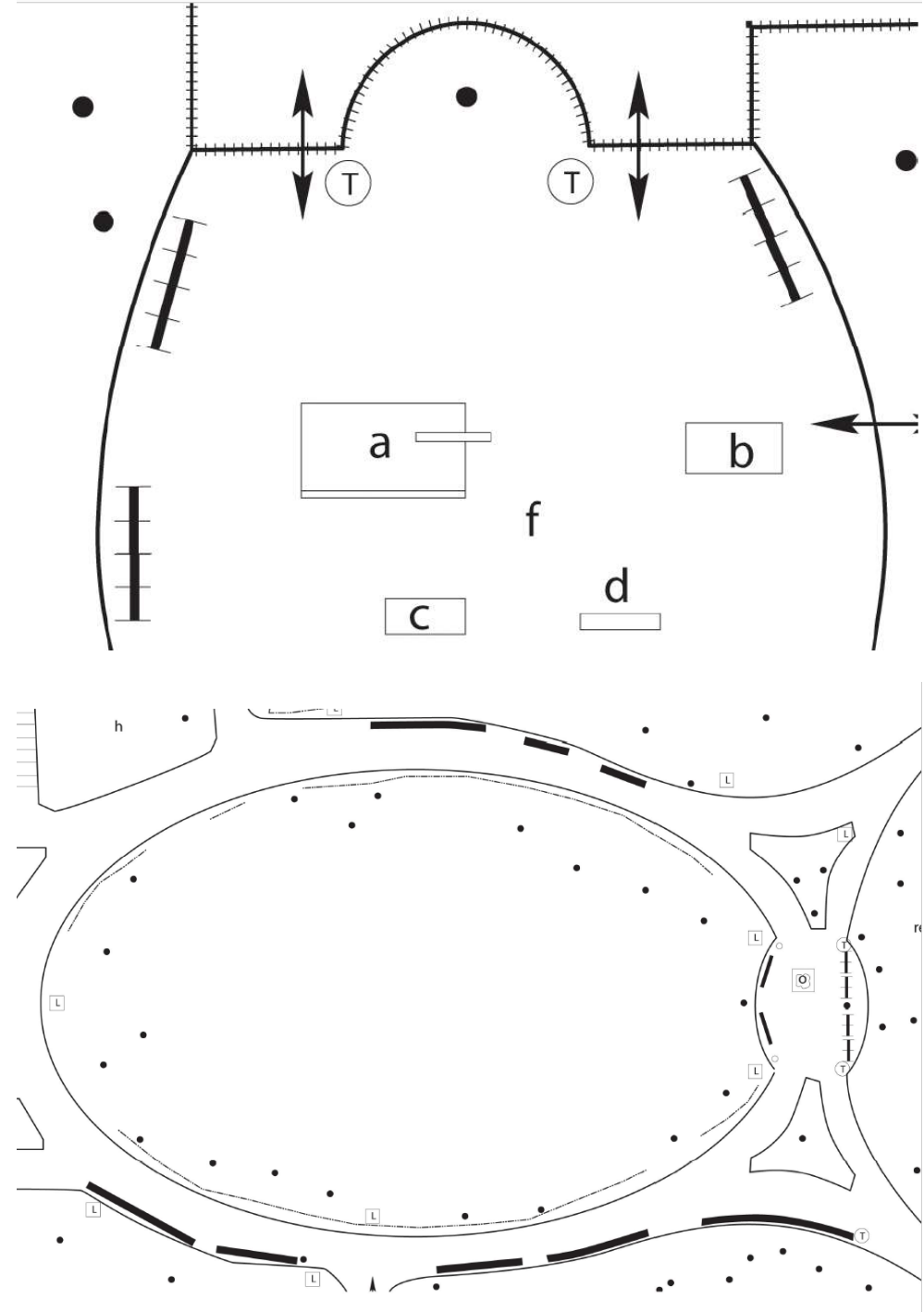
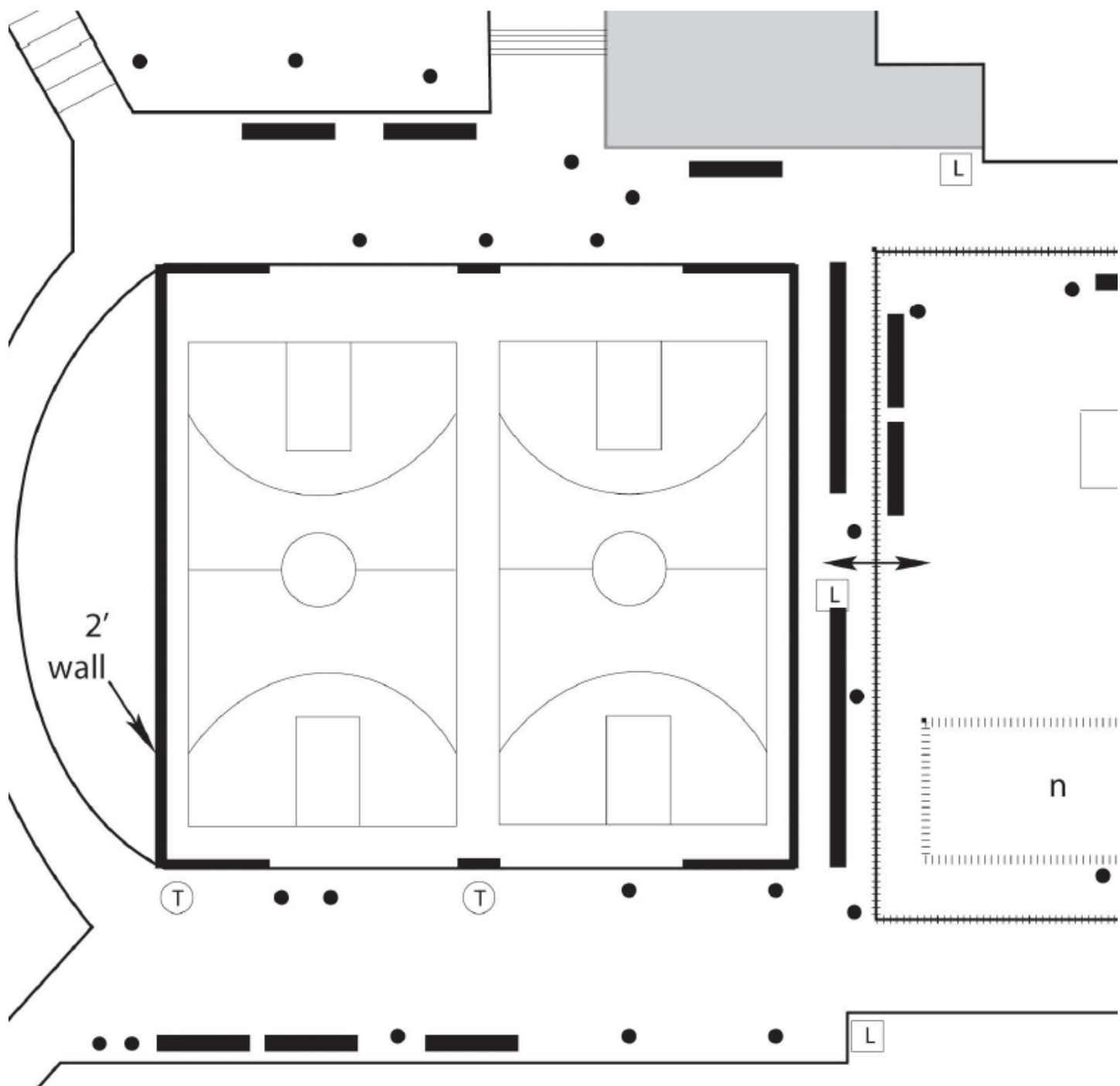
Brover Park

Park Pl

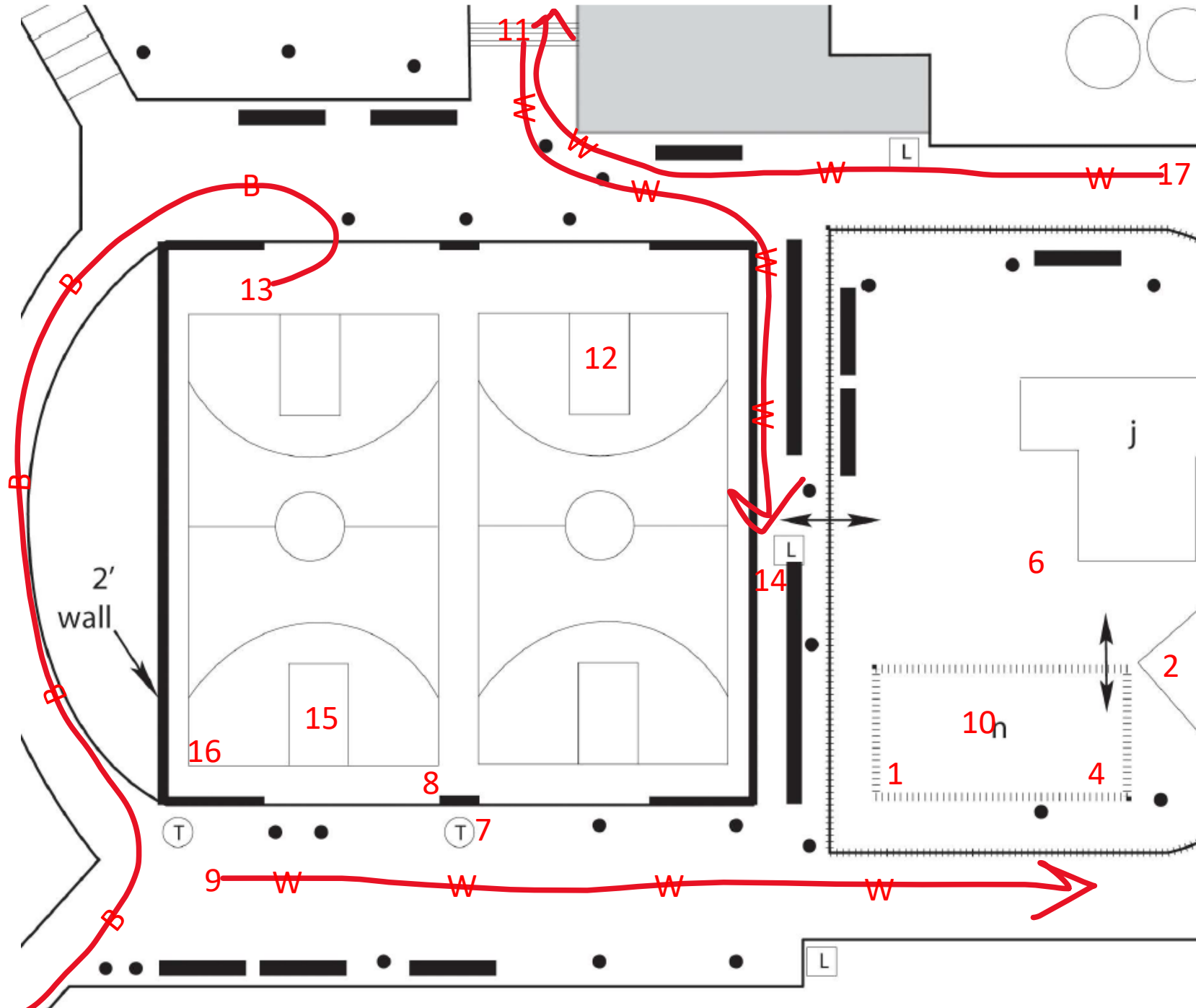
N

south fencing is lowrise

Park Place



Sunday, 7.29.18 @ 11:36-11:43, 75° overcast, light breeze & slight humidity

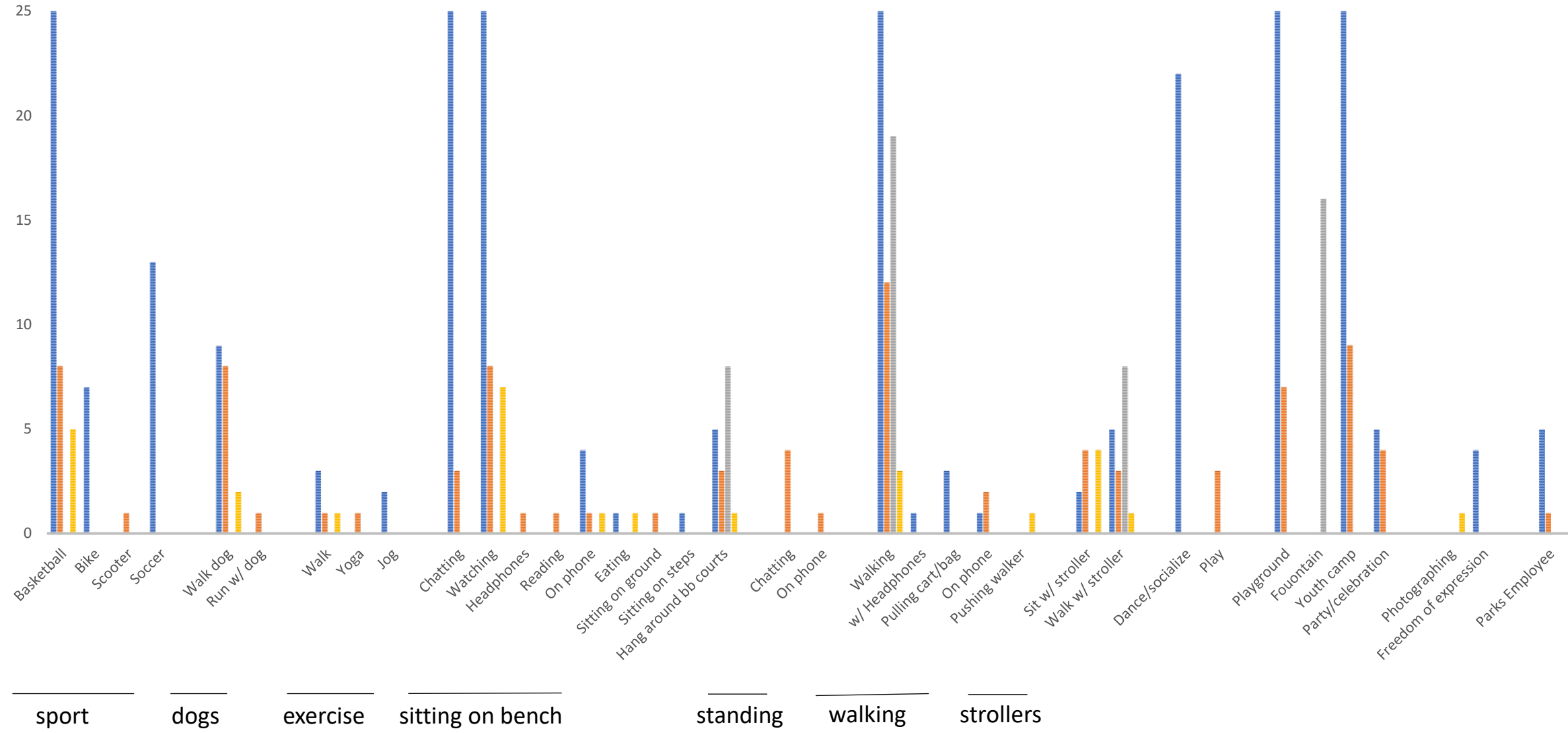


1. white, male, 20s – pushes child on swing
2. white, female, toddler - plays
3. Jewish, boy - plays
4. white, female, 30s – joins swingset
5. black, female, 30s, parks worker – gets more paint & ‘wet paint’ sign
6. white, female, 20s – playfully tosses up white, female, toddler
7. parks worker asks teen to move so she can paint
8. where teen moved to
9. black, female, 60s – walks by
10. all swigs are in use, all/mosly whites using playground area
11. Latina, 40s - hands me flier for Maria’s Hair (I happily take it and ask if she’s maria and she was)
12. 2 white, males, 30s – play basketball
13. 2 white, males, 30s – leave courts on bike and two others with same description start to play there
14. white hetero couple, young w/ white, female toddler – sit on bench
15. 2 Jewish boys & Jewish, male, toddler on bike
16. Jewish, male, 30s - stands
17. 2 white, males, 30s – chat



BROWER PARK: 3 WEEKDAYS 10:00-12:00

Black/AfroCaribbean White Jewish Asian/Latinx/Other



sport

dogs

exercise

sitting on bench

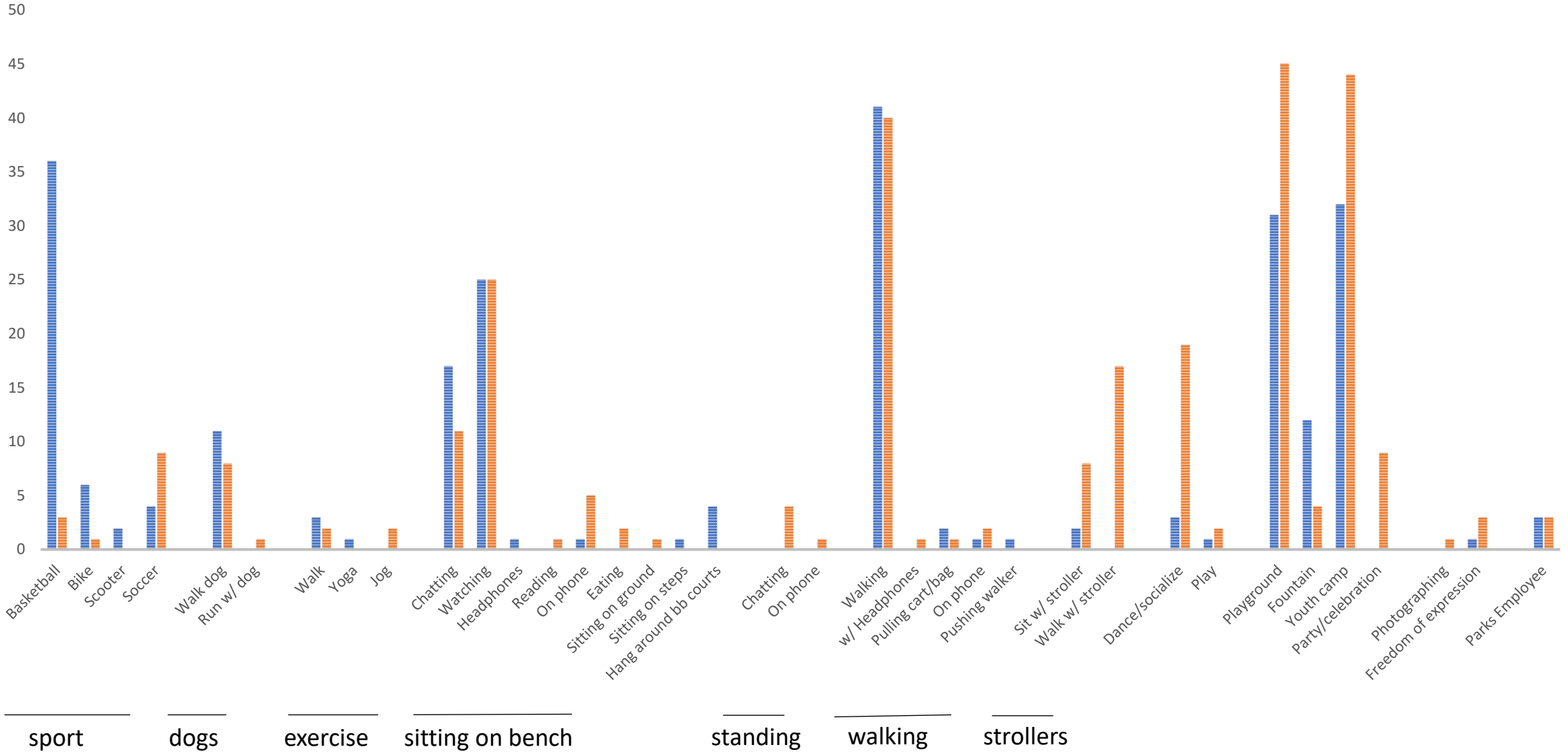
standing

walking

strollers

BROWER PARK: 3 WEEKDAYS 10:00-12:00

Male Female



sport

dogs

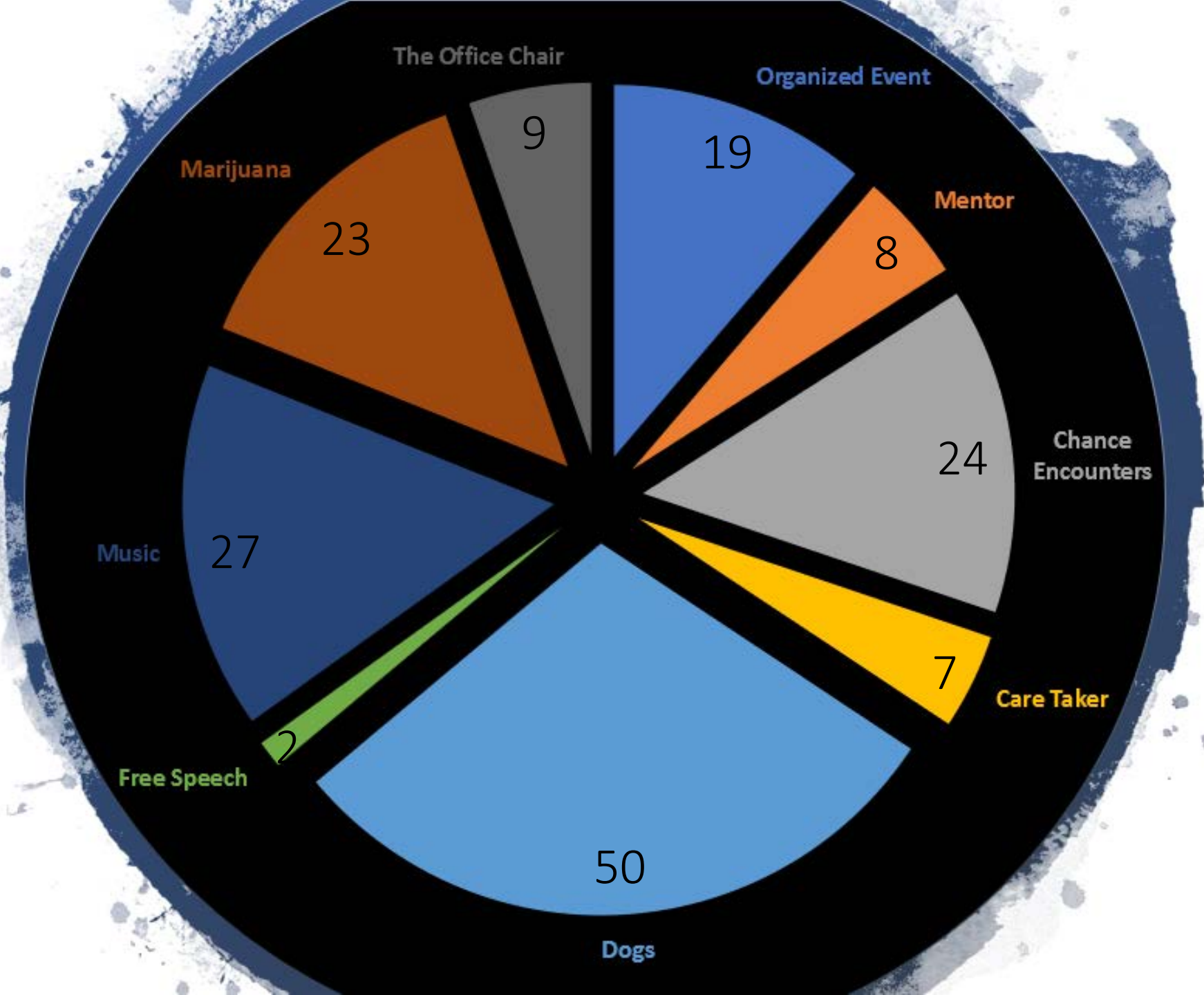
exercise

sitting on bench

standing

walking

strollers



Field
Note
Codes