



**Cartography M.Sc.**

## **Improving the cartographic visualization techniques of platial features – the example of London parks.**



### **1 Motivation and Problem Statement**

A place ballet is the frequent unintentional convergence of routines in place (Seamon, 1980). The convergence of common routines between strangers such as waiting for the same bus every morning or walking past their home as they leave for work “generates a sense of friendliness and familiarity... [which] wouldn’t be there if they were new faces each day” (Seamon, 1980, p. 159).

A pop-culture example of a place ballet is the opening scene of Paddington 2. Paddington Bear goes on his morning commute making his all usual interactions with his neighbors. All in one fluid motion he: joins a neighbor as she cycles by his front door; reminds another that they’ve again forgotten their keys; collects a daily newspaper while conducting routine small talk and then jumps on a new vehicle when their routes converge. These place ballets have been employed in the opening scene to generate a sense of place and community for the viewer. The only thing that Paddington narrates? “I really feel at home in Windsor Gardens” (Heyman & King, 2017, 03:44).

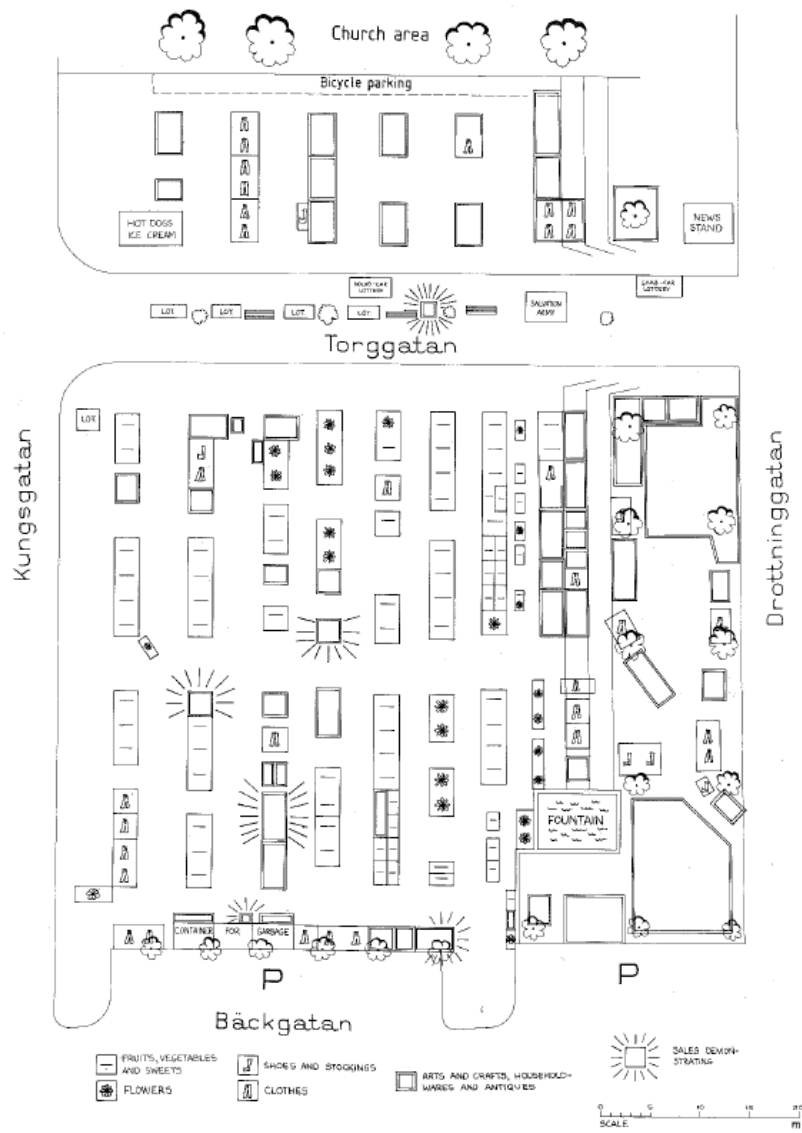


Figure 1: Varberg Market (Sweden) as depicted by Seamon & Nordin (1980, p.37).

Academic literature has examined place ballets in various contexts. Seamon & Nordin (1980) use the setting of a Swedish Market place as they describe the many place ballets that can be found. The paper contains a rich description of what is occurring in the market making observations and interviewing regular visitors to the market. It explains how slight changes to a place ballet, such as a market stall changing from its usual location, can lessen the sense of community (Seamon & Nordin, 1980). The paper then visualizes the market with a map (Figure 1). Unlike the rich text the map does little to invoke a sense of place and struggles to communicate the place ballets, the focus of the paper, to the map reader. The map contributes little without the supporting text.

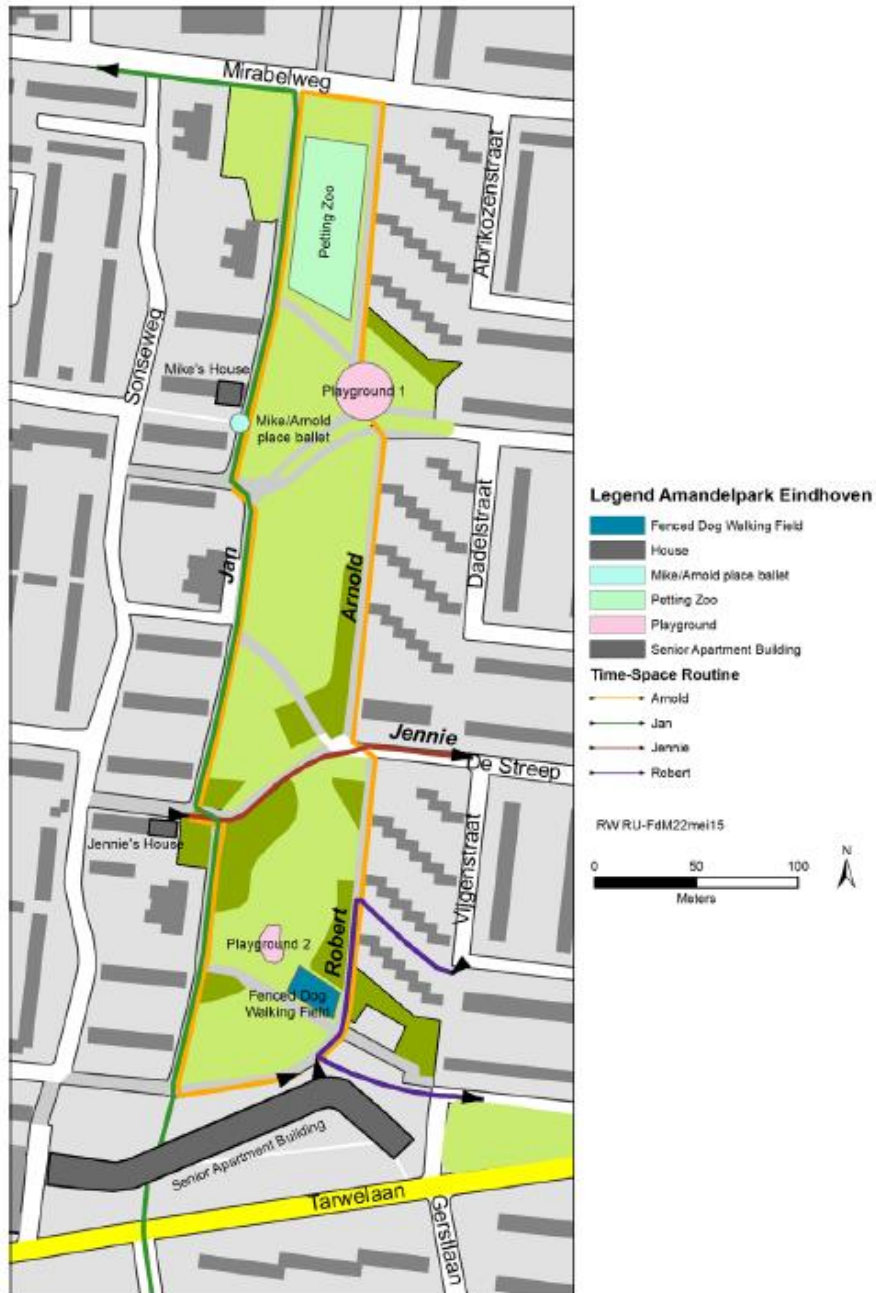


Figure 2: Place ballets in Amandelpark, the Netherlands, as depicted by Eck & Pijpers (2017, p.170).

Eck & Pijpers (2017) studied place ballets that occur in a park in Eindhoven, the Netherlands. Again, the paper describes complex relationships and patterns occurring in the park and how it has built a sense of community and identity. However, the accompanying map (Figure 2) again fails to represent these things other than simply locating them. The place ballet between Michael and Arnold is represented just by a green

circle and accompanying annotation. The map fails to communicate what the place ballet is or what occurs there.

This thesis attempts to take place ballets and other platial elements, such as sense of place and atmosphere, and improve their visualization through advancing existing and creating novel cartographic techniques. This will also allow for a better understanding and communication of platial elements and the places where they are found.

The research will use parks as its context. Parks are a common public space where many platial elements can be found (Eck & Pijpers, 2017). Parks can vary greatly, from large wild national parks to small heavily maintained patches of green in city centers. Each park has its own identity and atmosphere, something I hypothesize can even change within regions of the same park. The specific parks this research will focus on are introduced in section 3.1.

## 2 Research Identification

### 2.1 Research Objectives (ROs)

The overarching research objective for this research is **to develop new, or apply existing, cartographic methods to better visualize the identity, atmosphere, and sense of place in mapped regions.**

This work is not focusing on developing and extending place theory. It is also not conducted with the intention to generate new geographic phenomena. It is about trying to better communicate the existing phenomena cartographically.

This body of work will be intended for human geographers who would like to better visually represent their own research findings about place theory. It will also be beneficial to cartographers who would like their maps to better communicate the sense of place and complex identities of their subject areas.

In order to tackle this research, it has been broken down into three sub-objectives for a navigable workflow.

**RO1: To identify the need for conveying platial aspects cartographically to do justice to the geographical concept of place.** This objective will lead to a concrete understanding of current place visualization attempts and techniques. This will then allow for a critical analysis of these attempts and the identification of aspects that are unsuccessful and need to be improved.

**RO2: To generate and understand cartographic means to better convey platial aspects** This objective concerns the world of visual variables and dabble in experimental cartography to get an overview of which cartographic methods could be best used to visualize a places identity. Unorthodox methods or applications could potentially yield better visualization results than traditional ones. The slate is clean, and nothing is ruled out in the beginning.

A review of the proposed visualization methods will be undertaken. They will be assessed empirically to determine if they have succeeded in better communicating the sense of place. Why they have succeeded or failed will be examined to provide context improvements to the methods.

## **2.2 Research Questions (RQs)**

In order to meet the objectives, they have been split into three research questions.

### **RQ1: Which aspects related to place are important and would need to be better visualized?**

The identification of important aspects will allow the research to focus on a suitable, finite quantity of aspects where the visualization techniques can be improved. This will be achieved through a literature review. Examples of these geographic phenomena will then be identified in the two study locations. This will be done by interviews, following a similar technique by Eck & Pijpers (2017), and observation (Seamon & Nordin, 1980).

Specifically, I aim to answer the following questions:

RQ1A: How does the sense of place change for a park user as they walk along their usual route?

RQ1B: What place ballets can be found in the two parks?

RQ1C: How does the atmosphere of the park change to users within its sub-regions?

RQ1D: How do the affordances of sub regions in the park change for its users?

### **RQ2: Which cartographic means can be employed to provide better visualization of the identified phenomena?**

The evaluation of existing cartographic means and whether they are suitable to better visualize aspects of geographic phenomena is the crux of the thesis. This question will be answered by the evaluation of current, more orthodox visualization techniques whilst also exploring more unorthodox methods. This question considers how point, line and polygon features can be utilized to communicate more context and display stronger identities of places.

These sub-questions will act as a focus during the study:

RQ2A: How can a line be styled along a walking route to convey the changing sense of place?

RQ2B: How can place ballets be depicted on a map with maximum detail?

RQ2C: To what extent can the map style communicate the atmospheres of sub-regions?

RQ2D: Which visual variables are best suited to convey the affordances of sub-regions in the park?

### **RQ3 Do the new visualization techniques better communicate the sense of place and identity of a place? Why do they/do they not do this?**

The evaluation will determine how successful the research has been in improving the visualization techniques used to display aspects of place. An analysis of the proposed solutions for RQ2A–D will be undertaken through people's perceptions via an online survey. The survey can be generated via [www.smartsurvey.co.uk](http://www.smartsurvey.co.uk).

## **2.3 Innovations Intended**

This work intends to generate new and improved cartographic methods of visualizing places. This work will combine place theory and cartographic visualization techniques to better communicate platial elements.

## **2.4 Related Work**

Seamon (1980) introduces many terms relating to how humans interact with space and place. Examples include an environmental experience group which is a sequence of regular, habitual movements which do not require much conscious thought as they are worn into your muscle memory (Seamon, 1980). A real-life example could be a commute to work. Another introduced term is the place ballet which has been discussed in Chapter 1. Seamon's work however does not explore how these spatial and platial elements can be visualized cartographically.

Seamon and Nordin's (1980) paper explores place ballets in the context of a Swedish market. The paper reveals how regular shoppers navigate the market in unchanging, unique routes. The changed location of a market stall risks loses in regular sales as it no longer fits in with the pattern of the place ballet. A stall risks be considered absent entirely even if it's only a few sites to the side (Seamon & Nordin, 1980). This paper visualizes the market in a map (Figure 1). However, the rich text about the place ballets is not communicated through the map and the map adds little context to the identity of the market. This proposed research aims to improve these cartographic visualization methods to allow for greater context visually.

Eck and Pijpers (2016) paper explore how place ballets take place in an Eindhoven park. The paper reveals strong consistencies in the walking patterns amongst elderly park users. The paper reveals that the convergence of these walking routes has established a sense of place and community despite most members are strangers and some don't share a mutual language. However, this paper also fails to successfully convey these platial elements cartographically. The accompanying map (Figure 2) contributes little to the context of the sense of community and place ballets that occur there. This proposed research aims to develop cartographic visualization techniques in order to better convey these platial aspects to the map reader.

Aalbers (2014) discusses how maps are not only descriptive of geography but they themselves have the power to influence the geography. The example maps Aalbers use to describe this are very basic in visualization techniques. This research aims to be able to generate methods that are able to visualize more context about idiosyncratic events or routines.

Mocnik and Fairbairn (2018) discuss the shortfalls in how maps communicate narratives. The comparison between text and maps reveal the strengths both have when communicating to a reader. The paper looks at how maps can better tell stories. Mocnik and Fairbairn (2018) discuss how a text is far more effective at describing an atmosphere of a place. The paper discusses how the changing the map style could influence the perceived atmosphere of a region. The proposed research would like to continue to explore and improve how the atmosphere of a place can be cartographically visualized.

Gröbe and Burghardt (2018) explore how user generated geo-information from Flickr and OpenStreetMap can be used to visualize spatial information. The paper presents two methods of visualizing the place through using diagrams (area-proportional and micro). Both methods communicate changes of identity however neither attempt does so instinctively and without a key, the only inference that can be made is that there is a change in identity. Only the key provides the context about the identity change. The proposed research deviates from this paper as it aims to put more context into the map and it doesn't use user generated geo-information.

Gardener *et al's* (2019) paper looks at how maps are able to be used as a tool to understand the perceptions of place. The paper discusses how artistic expression can invoke a sense of place. Methods included tying colours to places and exploring emotional connections to places. The proposed research will deviate from this study by incorporating time-space routines such as place ballets into cartographic visualizations which this paper does not.

Antoniou *et al's* (2014) book curates illustrative and artistically styled maps. The selected cartographer's works are reviewed, and their narratives explained. The book features many maps who have described spatial factors as inspiration behind the works. The book is a fantastic stimulus for generating artistic and expressive cartographic methods of representing spatial features.

Powell's (2010) work discusses the importance of maps and the value of mapping the has in communicating relationships to place. The paper explores mapping methods "in which the senses are invoked, contributing to an embodied, sensory experience of a place as lived" (Powell, 2010 p.553). The experimental techniques came from contributions of researchers from an interdisciplinary background highlighting the value in thinking outside of orthodox visualisation methods.

Poplin's (2017) paper explores mapping emotions through the expressed thoughts of the interviewees about places they feel relaxed in. The paper makes note of fuzzy borders where it is hard to locate clear borders and discuss how a place's fuzziness is integral to how it is perceived. This is beneficial for this research proposal as the experienced emotions in a park's location may not have concrete borders and will therefore be fuzzy. This should be considered in its visualization.

## 3 Project Setup

### 3.1 Study sites

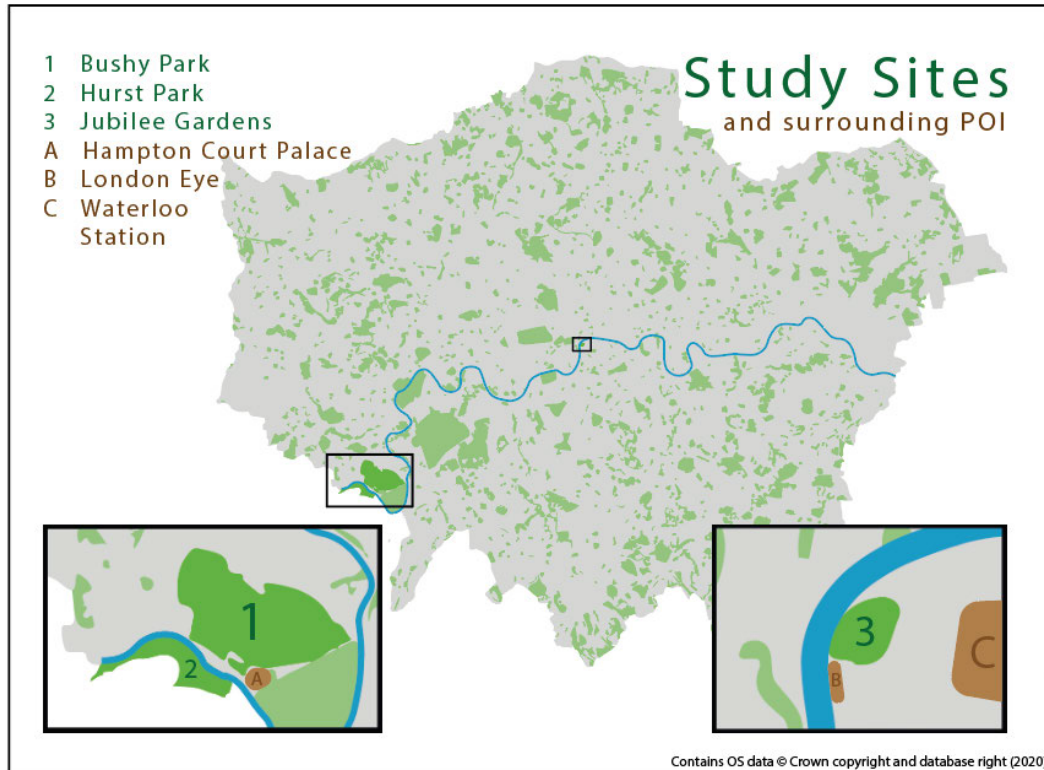


Figure 3: the locations of the study sites in within Greater London

Figure 3 shows the locations of the two study parks, Jubilee Gardens and Bushy Gardens, as well as Hurst Park which is a contingency park. Jubilee Gardens and Bushy vary greatly in many aspects. Jubilee Gardens is a small park in Central London and neighbours the London Eye. As a result, it is often visited by tourists. Jubilee Gardens is heavily maintained with regular cleaning and gardening. However, Bushy Park is a much larger park in suburban South West London. Bushy Park is frequented mostly by the local population and is kept in a semi-natural state. Most notably it has a free roaming deer population and is a Site of Significant Importance (Natural England, 2014). More information about the parks can be found in the appendix.

### 3.2 Method Adopted

In order to answer all the research questions and meet the research objectives, the following methodology will be followed.

#### 3.2.1 Research Question 1



To answer RQ1a-d I will conduct interviews with park users. The interviews will be conducted in a similar style to that in Eck & Pijpers (2017). I will accompany the park users on their regular route in the park to experience the atmosphere along the route with them, this will also provide the interviewee the opportunity to communicate their thoughts as they experience them. The interviews will use a discourse-based analysis. Along the route I will ask questions regarding the frequency and motivation of their visits as well as how they feel during the walk. Around these questions open ended dialogue will be maintained giving the interviewee to make spontaneous comments and answers to previous questions. The interview will last the duration of the visit to the park, which is determined by the interviewee. The interviewee will be asked if they consent to the audio of the interview being recorded. Without consent, it will not be recorded.

*Table 1: How RQ1a-d will be answered during the fieldwork stage.*

<b>Research Question</b>	<b>Method</b>	<b>Question Angle(s)</b>	<b>Resulting data type</b>	<b>Equipment needed</b>
1a	Interview questions whilst experiencing the route with the participant	How do you feel at this location?	Qualitative	Dictaphone, GPS
1b	Interview questions whilst experiencing the route with the participant	How often does this meeting occur? Do you notice if it doesn't occur?	Qualitative	Dictaphone
1c	Interview questions whilst experiencing the route with the participant	How would you describe the atmosphere at this location?	Qualitative	Dictaphone
1d	Interviews and observations whilst experiencing the route with the participant	What do you use this area of the park for?	Qualitative	Dictaphone

I aim to interview a minimum 5 people per park. This will ensure that there is a vast amount of dialogue about each park for analysis and that all areas of the parks have been covered. 5 participants per park is also a reasonable figure in the provided timeframe of this research. I aim to interview a wide range of park users who make use of the parks various affordances as well as covering a wide age range. Prospective interviewees will be approached via online community Facebook Groups based around the parks as well as directly in the parks themselves.

### 3.2.2 Research Question 2

Following on from these interviews RQ2a-d will be approached. Using the information obtained from the interviews and the literature review, new visualization methods will be generated for four main areas: emotions along a route, place ballets, the (changing) atmosphere of a place and representing affordances. The individual approach for each sub question is outlined in Table 2.

*Table 2: How RQ2a-d will be approached*

<b>RQ</b>	<b>Expected result from the interviews</b>	<b>Next action</b>
2a	GPS recording of the route and the experienced emotions along the route	Experiment with line visualizations. E.G. Jagged for distressed/smooth for calm.
2b	Identified place ballets within the parks	Exploring different visual variables and artistic styles to generate multiple point, line and polygon symbols to represent place ballets
2c	Knowledge of different experienced atmospheres within both parks	Using the interview results, generate map styles that suit a persona
2d	Knowledge of the different affordances in the various sub regions in the parks	Generate multiple point, line and polygon symbols for different places in the park.

### 3.2.3 Research Question 3

In order to establish if the new visualization techniques are successful, and answer question 3, an online survey will be employed (Table 3). The survey will last approximately 25 minutes (10 minutes per park and 5 minutes on background demographic questions). The questionnaire will be distributed online and aims for approximately 200 responses. This will allow for enough statistical analysis of the responses. The survey will ask the respondent if they have visited the park before as prior experiences of the park could influence their interpretations of the visualizations. For privacy reasons, the survey will be confidential and anonymized.

*Table 3: How RQ 3 will be solved by assessing the proposed solutions to RQ2a-d*

RQ addressed	Method	Question type	Question angle	Resulting data type
2a	Online survey	Nine-level likert	How does the interviewee perceive the emotion at different stages of the visualized route	Quantitative
2b	Online survey	Nine-level likert	What inferences can you make about the interaction between the two actors in the place ballet?	Qualitative
2c	Online survey	Place the persona	Place the persona in the area of the map you feel they are most happy.	Quantitative
2d	Online Survey	Select all that apply	What affordances do you think are at this part of the park?	Quantitative

The responses with the nine-level likert scale will be able to be statistically analyzed through the calculation of the mean average, standard deviation, and P-value. For the “place the persona” the respondents will also be shown a map of a park with varying map styles. Furthermore, a character description of a fictional park users’ persona will also be given. The respondents will then be asked to mark on the map where they feel the persona enjoys spending most of their time in the park. From here the average guessed location of respondents can be located and analyzed against then intended, original location for the persona.

Post analysis, it will be possible to determine which new generated visualization techniques have been successful in their aims. This will enable future research perspectives to be identified.

### 3.3 Planned Schedule of the Project

Table 1: The planned schedule of the research project.

	May	June	July	August	Sept
Literature Review	RQ1		mid term		
Search for Interviewees					
Experiment with Visualization Techniques		RQ2			
Observation and Interviews					
Generate Visualization					
Write Introduction					
Write Methods					
Summarize Fieldwork Findings					
Write Questionnaire					
Publish and Distribute Questionnaire					
Analysis of Results					
Write Results			RQ3		
Write Discussion					
Write Conclusion					
Write Abstract					
Contingency					
Final Submission					

Table 4 shows the anticipated schedule of the project and which research question each step predominantly focuses on. This is all in preparation for a **final submission date of Friday 4<sup>th</sup> September**. This then allows for 6 days of contingency if needed whilst still being a reasonable deadline.

The expected outputs from each stage are outlined below:

**Literature review** - a comprehensive view of existing techniques and styles to cartographically communicate platial features are examined.

**Search of interviewees** – willing participants to undertake interviews have been identified.

**Experiment with visualization techniques** – an array of new and improved visualization techniques has been created

**Observation and interviews** – all fieldwork has been completed and is ready for analysis.

**Generate visualizations** – new visualizations for the park areas can be created.

**Write introduction** – a completed introduction has been written. Chapter review deadline 22<sup>nd</sup> June. This is in time for the mid-term presentation.

**Write methods** – a completed methodology has been written. Chapter review deadline 22<sup>nd</sup> June. This is in time for the mid-term presentation.

**Summarize fieldwork findings** – the results of the fieldwork have been collated and analyzed.

**Write questionnaire** – a questionnaire testing the effectiveness of the new visualizations has been created and is ready to be published.

**Publish and distribute questionnaire** – the created questionnaire is starting to get responses.

**Analysis of results** – the results from the questionnaire analysed.

**Write results** – the results chapter is completed. Chapter review deadline 27<sup>th</sup> July.

**Write discussion** – the discussion chapter is completed. Chapter review deadline 3<sup>rd</sup> August.

**Write conclusion** – the conclusions chapter is completed. Chapter review deadline 17<sup>th</sup> August.

**Write abstract** – the abstract is completed. Chapter review deadline 17<sup>th</sup> August.

**Final submission** – Completed thesis paper by the 4<sup>th</sup> September.

### **3.4 Risks and Contingencies**

**Risk 1: Social distancing measures and park closures with the ongoing COVID-19 crisis will prevent successful interviews from taking place.** The elephant in the room is the ongoing corona-virus crisis. This research intends to interview people in the parks whilst accompanying them on their regular route. Due to current social distancing guidelines this would not be possible.

**Contingency measures:** If the restrictions remain for too long in the thesis these interviews will need to be taken online over video messaging applications such as Skype. Although this is the best contingency method it still has downfalls. The participant will not currently be in the park and their perceptions and feelings will be from memory rather than invoked from the current situation. This could lead to romanticizing feelings or the accidental omission of potentially valuable information.

**Risk 2: Unable to access the park due to current COVID-19 measures.** Jubilee Gardens

**Contingency measures:** one contingency for this would be to substitute Jubilee Gardens for Hurst Park. This would remove unnecessary travel as the two study sites would then be safely reachable by foot instead of public transport. This however still doesn't guarantee that interviews can be carried out safely.

**Risk 3: Finding a representative sample of park-users during COVID-19.** In the last few weeks park usage has changed. With more people working from home in the suburbs, people can visit suburban parks (Bushy Park) during lunchbreaks than city parks (Jubilee

Gardens). Tourism is expected to have dropped in both parks. The affordances in both parks has also reduced as facilities have temporarily closed including playparks, cafés and car parks.

**Contingency measures:** A contingency for this would be the creation of fictional personas who you would expect to find in both parks and then visualize their presumed perceptions.

## 4 Resources Required

This research will not require a vast amount or resources. What will be needed is outlined in this section.

- **Information:** Outside of literature no information sources should be necessary.
- **Data:** Base map data from the Ordnance Survey will be needed when creating visualizations. The data is freely available and accessible here: <https://www.ordnancesurvey.co.uk/opendatadownload/products.html>
- **People:** A cross section of park users willing to participate as interviewees will be required. Another set of interviewees will be required to answer the online survey.
- **Software and hardware:** The Adobe suite is needed. Access to this already exists.
- **Finances:** To conduct the online survey a one- or two-month membership to a survey making website may be required. This will allow for the opportunity to ask a greater selection of questions and have an increased amount or viewable responses. A suitable one-month membership with SmartSurvey costs 20€/£17.50 (SmartSurvey, 2020).

## 5 References

1. Aalbers, M. B. (2014). Do Maps Make Geography? Part 1: Redlining, Planned Shrinkage, and the Places of Decline. *ACME: An International E-Journal for Critical Geographies*, 13(4), 525–556.
2. Antoniou, A., Ehmann, S. and Klanten, R. (Eds.), (2015). *Mind the Map – Illustrated Maps and Cartography*. Berlin: Gestalten.
3. Cresswell, T. (1996). In *Place/Out of Place: Geography, Ideology, and Transgression* (NED-New edition). University of Minnesota Press; JSTOR. <https://www.jstor.org/stable/10.5749/j.ctttt1xt>
4. Eck, D., & Pijpers, R. (2017). Encounters in place ballet: A phenomenological perspective on older people's walking routines in an urban park. *Area*, 49(2), 166–173. <https://doi.org/10.1111/area.12311>
5. Gardener, J., Cartwright, W., Duxbury, L., & Griffin, A. (2019). Mapping Perception of Place through Emotion, Memory, Senses, and the Imaginary. *Abstracts of the ICA*, 1, 1–2. <https://doi.org/10.5194/ica-abs-1-87-2019>
6. Gröbe, M., & Burghardt, D. (2018). A Contribution to the Visualization of the Diversity of Places. Zenodo. <https://doi.org/10.5281/zenodo.1472751>
7. Heyman, D (Producer), & King, P (Director). (2017). *Paddington 2* [Motion Picture] United Kingdom & France: Heyday Films & StudioCanal UK.
8. Jubilee Gardens Trust (n.d.) Regulations. Retrieved from: <https://jubileegardens.org.uk/regulations/>
9. Mocnik, F. B, & Fairbairn, D. (2018). Maps Telling Stories? *The Cartographic Journal*, 55(1).
10. National Trails (n.d.). Thames Path. Retrieved from: [https://www.nationaltrail.co.uk/en\\_GB/trails/thames-path/](https://www.nationaltrail.co.uk/en_GB/trails/thames-path/)
11. Natural England (2014). Bushy Park and Home Park SSSI. Retrieved from: [https://web.archive.org/web/20150117084942/http://www.sssi.naturalengland.org.uk/Special/sssi/images/uploaded\\_files/Bushy%20Park%20and%20Home%20Park%20SSSI%20notification%20document%205%20Sept%202014.pdf](https://web.archive.org/web/20150117084942/http://www.sssi.naturalengland.org.uk/Special/sssi/images/uploaded_files/Bushy%20Park%20and%20Home%20Park%20SSSI%20notification%20document%205%20Sept%202014.pdf)
12. Parkrun (2020) Bushy parkrun – Free Weekly 5km Timed Run. Retrieved from: <https://www.parkrun.org.uk/bushy/>
13. Poplin, A. (2017). Cartographies of Fuzziness: Mapping Places and Emotions. *The Cartographic Journal*, 54(4), 291–300. <https://doi.org/10.1080/00087041.2017.1420020>
14. Powell, K. (2010). Making Sense of Place: Mapping as a Multisensory Research Method. *Qualitative Inquiry*, 16(7), 539–555. 553.
15. Seamon, D. (1980). Body-subject, time-space routines, and place-ballets. In Buttimer, A. & Seamon, D. (eds). *The Human Experience of Space and Place*, 148–165.
16. Seamon, D., & Nordin, C. (1980). Marketplace as place ballet: A Swedish example. In *Landscape* (Vol. 24).
17. SmartSurvey. (2020) Dissertation Surveys. Retrieved from: <https://www.smartsurvey.co.uk/dissertation-surveys>
18. The Royal Parks (2009) Bushy Park Map. Retrieved from: <http://www.mappery.com/map-of/Bushy-Park-Map>
19. The Royal Parks. (n.d.a). Bushy Park. Retrieved from: <https://www.royalparks.org.uk/parks/bushy-park>