

What Role Does A Plaza Play In The Railway Station In Intermodal Transport?

—Exploring Multi- Function Space In Station Plaza

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Abstract

Railway station has a long history and as the high speed stations coming out. There is a need to redesign the station area. The station area plays a vital role in the city, it integrates the city fabric and can transfer multiple people. These areas have gradually become the sub-centre in the city. The railway station usually consists of at least one track-side platform and a station building. There is usually a plaza in front of the building. These plazas have different functions such as distributing different flows, public space for recreation, visual affect. If the railway station is a good design then the people there will choose many optional activities rather than merely necessary activities. The current railway stations are no longer a place for interchanging but a high quality place for people to enjoy themselves. In terms of design, using site visit and policy analysis and literature review to summary an evaluation framework to appraise the plaza space. With the conclusion of the evaluation it can afford a strategic framework to guide the future railway station design.

1 Introduction

1.1 Background of Research

The European railway station has a long history of 170 years. This history is usually divided into three phases according to the history of transport. During the first phase, the terminus stations were usually placed at the edge of the city as the surrounding areas started to be built-up, this time period commencing in the 1840s. The second phase started at the beginning of the 20th century, and this time there were

underground rail networks and tramways; most newly designed railway buildings have modernist architectural language. Here the design was more concerned with the function and efficiency of the buildings rather than their ornamentation. During the third phase around the 1980s, the railway and the automobile offered a complementary and integrated service and it became a commuting tool for reducing the traffic problem (Thammaruang Sri, 2001). Currently, the railway station is usually comprised of platforms, a station building (depot) providing such ancillary services as ticket sales and waiting rooms and the forecourt. Most train stations have a plaza in front of the station building. (wikipedia, 2014)

This paper will focus on the role the station plaza plays in the element of movement in intermodal transport and intends to examine the different functions of the station plaza in different situations. It is evident that transport is at a transition point today. One of the immediate priorities is a better integration of the different transport modes as a way to improve the overall efficiency of the system. Intermodality integrates two or more transport modes on the same journey. But for every traveller a change of transport mode is first of all a nuisance (Zhang, 2012). The aim is to make this interchange seamless and also provide a multimodal station where passengers feel safe, secure and comfortable. The station plaza is regarded as the gateway of the city and these areas are redeveloped as the sub-centre of the city. The station plaza is the main design element in the area to show the gateway feature and also the node of the central area. To date there has been relatively limited research into the role of the station plaza in intermodal transport. There is a need to evaluate the space in the plaza within the context of the whole train

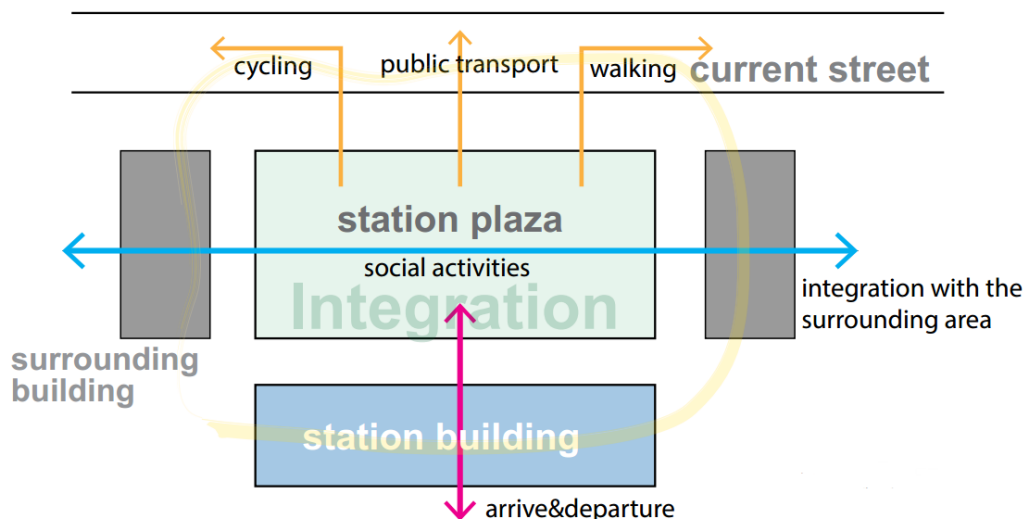


Figure 1. Different flow in the plaza(source: author draw)

station area and summarise final strategic guidance for future urban design. In practical terms, the research seeks a strategic guidance for urban design in the station area which can create a high quality space in the train station with a vibrant mix of pedestrian activities (Cré, 2013).

1.2 Research question

My research question is what role does a plaza play in the railway station in intermodal transport? The research will focus on the urban design quality. It will study the node, space and place quality in the station area. In addition, in order to determine how the area facilitates sociability it will investigate different types of pedestrian activities in the public space in the train station area.

1.3 Research aims and objectives

The objectives of the research in the design of the railway station are as follows:

The ideal intermodal network of the future would attempt to deliver seamless intermodality and provide flexible, reliable and secure connections in a true polycentric, multimodal network. Moreover, the connecting would be environmentally friendly. The traveller would be well informed, and be able to travel independent of assistance. He/she could also benefit from new technologies and enjoy a high-quality user experience. Through evaluation of the public space in the plaza and the forecourt of

the station building, the research will identify what kind of elements can effect the quality of the public space in the train station. After summary of the strategic framework, the research can guide the future urban design in the train station area.

2 Function feature changes of the railway station plaza

2.1 The function of the station plaza

The great railway station concourse and the forecourt represents one of the last public enclosed spaces in the modern city. It is the place for people to meet friends and congregate during their civilized life. Nowadays, there are some investment returns in redeveloping the railway station, so these areas will again become a part of life in the city because of the external architecture and the internal spaces which shaped the perceptions of the cities (Brain, 1997).

A smooth transition depends on the sequence of the station square, station concourse, and the inner space of the architecture (Brain, 1997). In terms of this, the plaza is for distributing different transport flows. Most railway stations have become the hub in the central area of the cities and the interior space is used to afford a variety of non-transport related activities such as shopping, having food, meeting friends, and

even doing spa and reading in a library (Thammaruangstri, 2001). And these appendix functions of the station do not occur merely in the interior space, sometimes they are located in the station plaza.

2.2 The relationship of the node and space

It is obvious that in Bertolin,2007's model of the railway station, the railway station has two main functions. One function is being a node which has a transport function. It is an exchange point in the transport network. People come to the station and interchange to another place. There are many different traffic flows connected to the area. In terms of this, the node is considered to be a sort of switch between networks and scales. The primary function of the node is exchanging flows. Secondly, the station is regarded as a place. Therefore, there will be various activities in the station area, which function as a meeting place (Trip, 2013).

According to these two function, there is relationship between the node function and the place function. Ideally, both are in balance. Sometimes, the balance will be achieved by reducing the transport value such as cancelling redundant transport service or enhancing the place value such as improving the real estate development (Trip, 2013).

The figure 2 shows the general analytical framework for a node, which contains four layers for the two functions. The start point is the layer of functional network which means different activities happen in the space, this is usually related to the origins and destination of transport flows. The other three layers have some relationships with one another. However, not all of these elements are required in all situations. Therefore, arrow b reflects that the different layers of each function relate indirectly, but the same layer of the function has the same relationship (Trip, 2013).

According to Bertolin,2007, the quality of place of the station area relates to the different scale connections. Heonly talks about the different context of development affecting the quality of place in the station area. Personally, I believe that Bertolin fails to study the detail about the quality of place which station acts as.

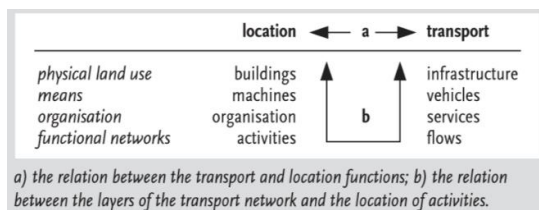


Figure 2. The two functions of the transport node: transport and location function. Source: (Trip, 2013)

3 Methodology

3.1 Measurement tool

The combination of the theories about the node, place and the spatial quality results in four key criteria. In terms of these four aspects, it can propose the evaluation framework. Each aspect is analysed on a regional, local and internal scale. In the traffic light method, choose the traffic light colour to show the final result. Generally, red; lots of improvement can be done orange; some improvements can be done green; improvements are not necessary (Heimeriks, 2011).

3.2 Evaluation framework

According to the handbook (Heimeriks, 2011). In my research, it aims at accessibility (integration with context), public life (pedestrians' activities) and the space quality. All of these three aspects will be used on three scales: regional, local, internal. The local and internal scale is about 400 meters which is about five minutes walking distance. Regional scale is about 800 meters (Heimeriks, 2011).

In terms of accessibility, the Reach aspect shows the physical connectivity of the area to find out how integrated the area is. It also shows the spatial barriers such as some traffic and lost space to explore the weak linkages of the area. On the basis of the Reach aspect, anchoring of the area can reveal the mental reach of the node. In this part, use the three steps theory from the space syntax, to show all possible paths (on pavement) for the pedestrians. Thirdly, the station as the destination should be accessible from multiple directions so as to capture the flow of people. Meanwhile, some other key buildings can be the destinations as well. And the pedestrian zone can also attract pedestrians' activities. Therefore, the main access points of the area can show the attribute. Lastly, different routes like vehicular routes, cycle routes and

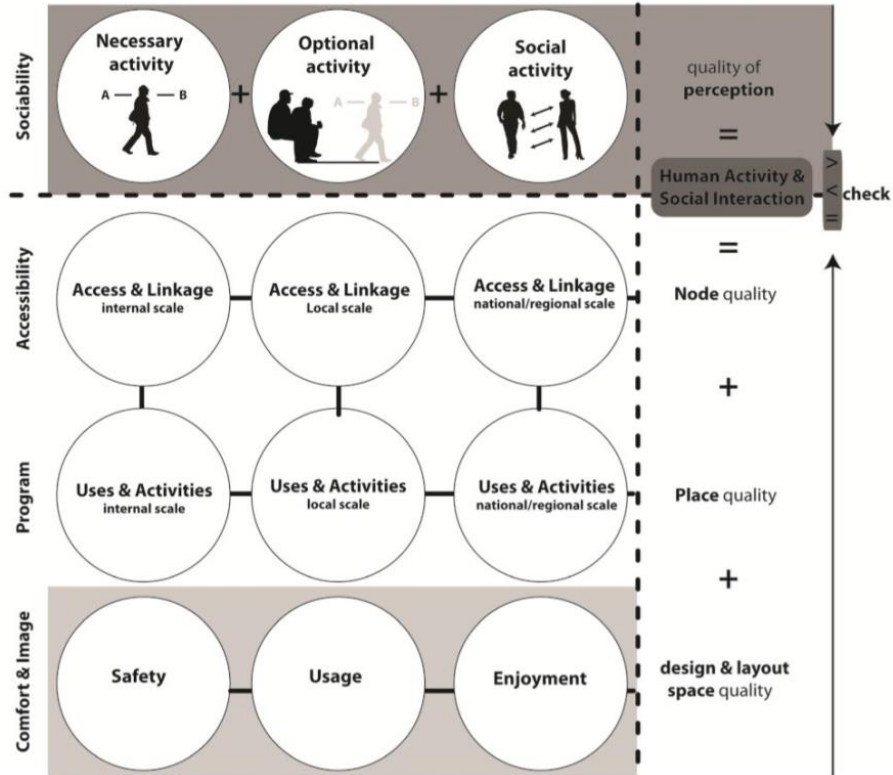


Figure 3. Traffic light method(source: Heimeriks, 2011)

SCALE	ATTRIBUTES	FRAMEWORK
Local & Internal	Accessibility (Integration With Context)	<ul style="list-style-type: none"> • Reach: The Physical Connectivity Of Context. • Anchoring: Mental Reach Of The Node • Accessibility: Relationship Between The Destination And Multiple Directions. Main Access Points. Pedestrian Zone • Route: Place Users routes(Pedestrian/Cycle)
	Public Life	<ul style="list-style-type: none"> • Necessary Activities • Optional Activities • Social Activities
	Space Quality	<ul style="list-style-type: none"> • Land Use • Green Space(Integration With The Surrounding) • The Relationship Between The Key Facilities With Surrounding Public Realm.
Regional	Connectivity	<ul style="list-style-type: none"> • The Connectivity Of The Wider Context

Figure 4. Case studies evaluation framework (source: author draw)

pedestrian routes can reveal the interconnectivity in the traffic network (Heimeriks, 2011).

Coming to the point of public life, from the literature review, it is clear that there are three types of activities in the public space. Urban designers generally design high quality space to attract more optional and social activities. In this section, a behaviour map will be used to record whether people can enjoy the space.

As to space quality, it will focus on the land use, key facilities and public realm. There is no doubt that if the surrounding area contains key programmes it can attract flow, which can revive the space. Furthermore, the key facilities also need a good linkage with the surrounding public realm. In this way, it can make a good quality space network (Heimeriks, 2011).

4 Case studies

4.1 Overview of case studies

Case studies are an efficient way to analysis the cases in the same framework. Through this, the research can summarise the final key findings. It is believed that the study of a few cases allows possibilities for deep analysis in even quite complex process or relations.

4.2 Motivation for the choice of the case studies

Two railway stations were chosen as the cases. One is King's Cross, the other is St. Pancras. The motivation for the choice is as follows.

St. Pancras: the station plaza is small so that there are few activities on the outdoor station plaza. However, the indoor space of St. Pancras is huge, there are many shops, restaurants and other facilities. St. Pancras acts as the public space in the area. By studying this case, a contrast can be made between the two outdoor plazas.

King's Cross: The space in King's cross is considered to be the highest quality among the area. By studying King's Cross, it can convey ideas about what is the good station plaza and how it may be integrated with the surrounding area.

4.3 The evaluation of the cases

According to the evaluation framework, it is clear that accessibility can show the permeability of the area. Furthermore, if the place is well integrated, then the accessibility of the area is quite high. This sort of analysis can

help to obtain how to make a good integrated area.

The public life can be researched by the pedestrian activities. In the station plaza, the passengers' activities include predominantly seating, secondary seating, standing and walking. When the space quality is good, the passengers are likely to talk to the people nearby. Therefore, it can reveal whether pedestrians enjoy the station plaza.

The space quality analysis is supplemental. It discusses the integration of the land use.

5 Key findings and conclusion

5.1 Key findings of case studies

For regional scale

1. No matter what kind of station, the station plaza acts as a public space in the integrated area. When in intermodal transport, the efficiency is a key element. Generally, if the station area is well integrated with the surrounding area, then it can distribute the passengers quickly. Furthermore, a good integration with the surrounding area can afford a good space network which can improve the quality of the whole area.

2. If the station plaza is well designed such as it can afford sufficient facilities, provide greenery and be easy to locate, then it can attract more flows to the area and guide them to the surrounding areas. Obviously, the railway station is one of the destinations in the area, if the quality of the space in the station is quite good then people would love to go there, the spatial integration can be enhanced.

For local and internal scale

1. If the size of the station building is big enough it can reduce the function of the outside station plaza. The indoor space needs more consideration because it is comprised of multiple activities.

2. The station plaza needs more facilities if there are many passengers waiting in the area. And the location of the time screen is important.

3. Different entrances should be distributed in a reasonable manner so that they can distribute the passenger flows and avoid congestion.

4. The station can be a leisure area at night so the lighting should be considered to make the place safe and attractive.

5.2 conclusion

From the literature review and the case studies it is believed that the most permanent aspect of the plaza is its link with the surroundings. The

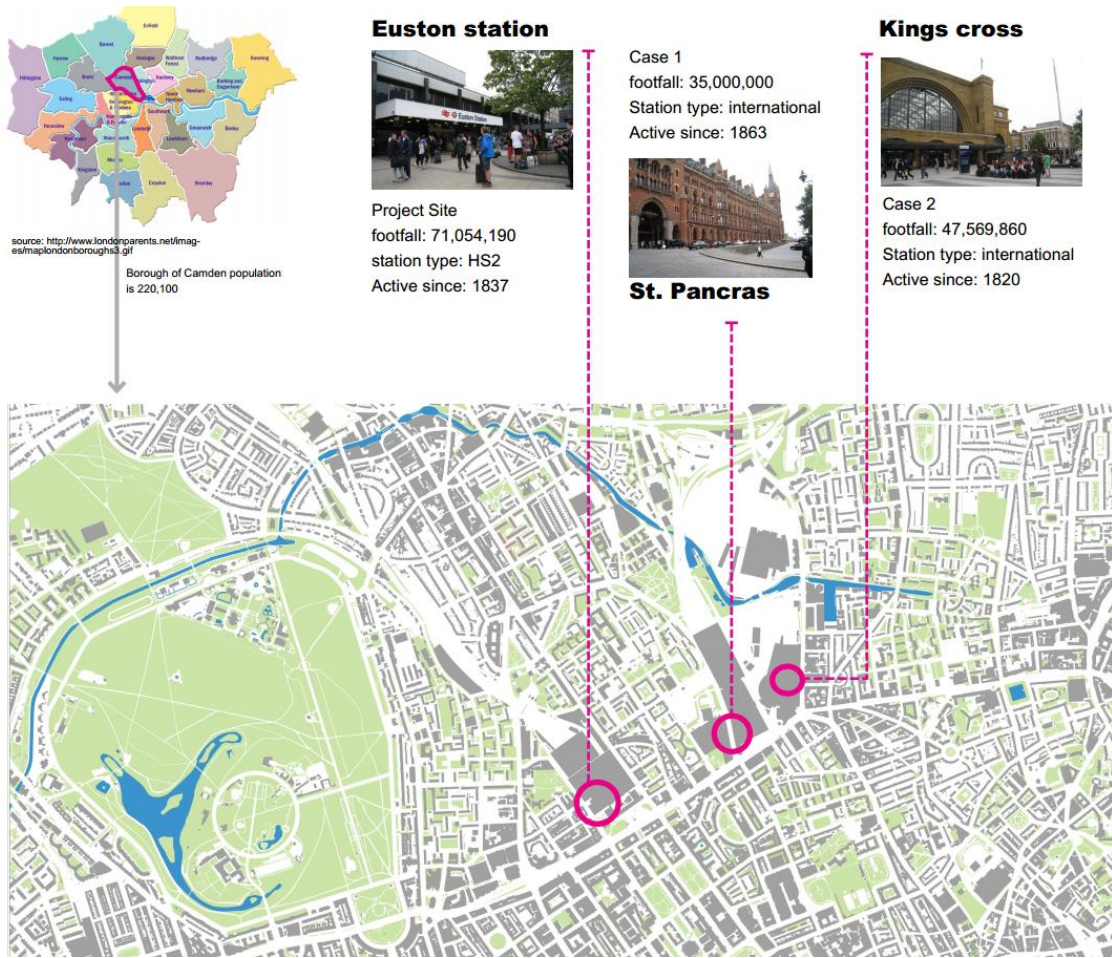


Figure 5. Cases selection. Source: author draw from digimap.

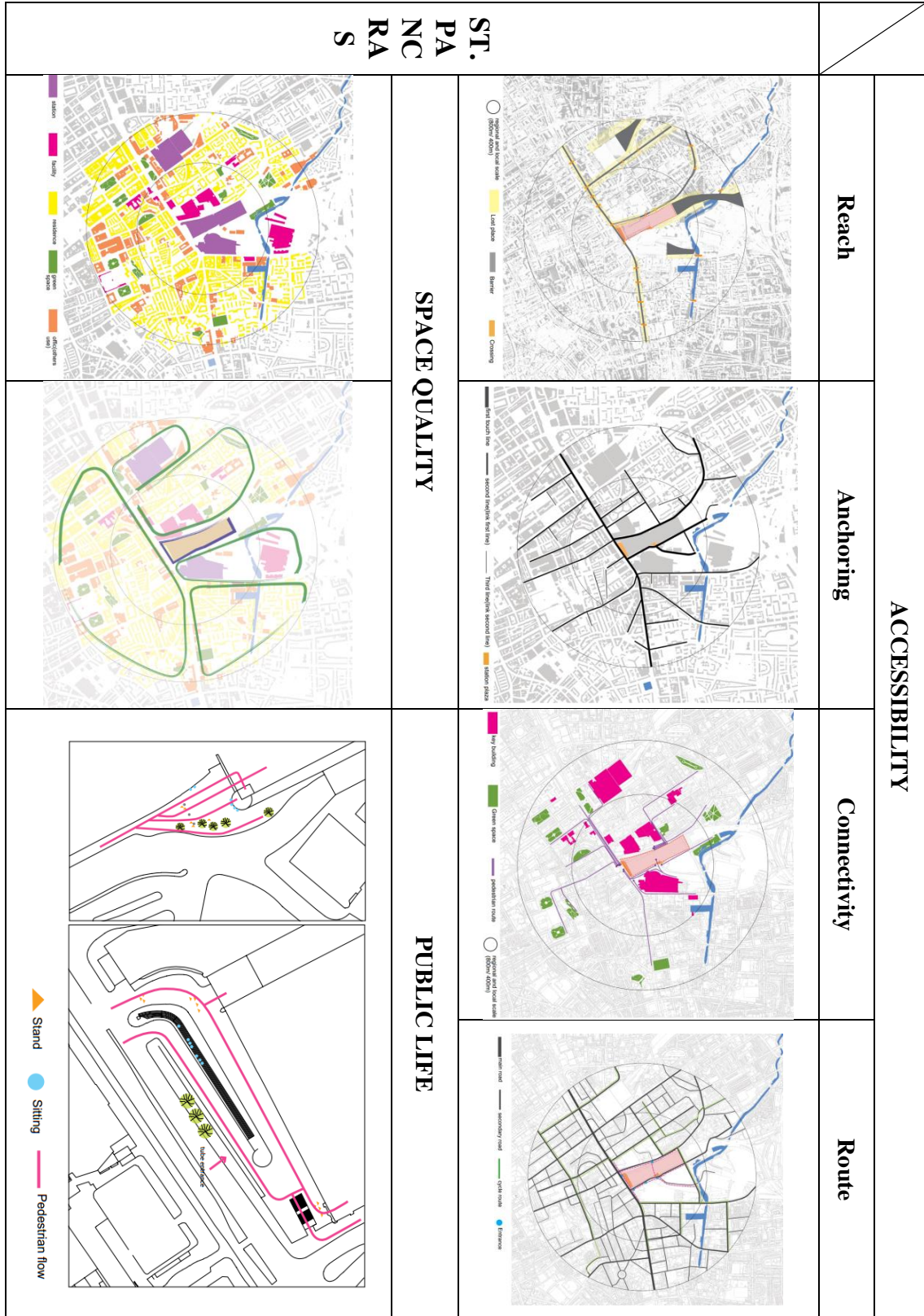


Figure 6. St. Pancras case studies. Source: author draw from digimap

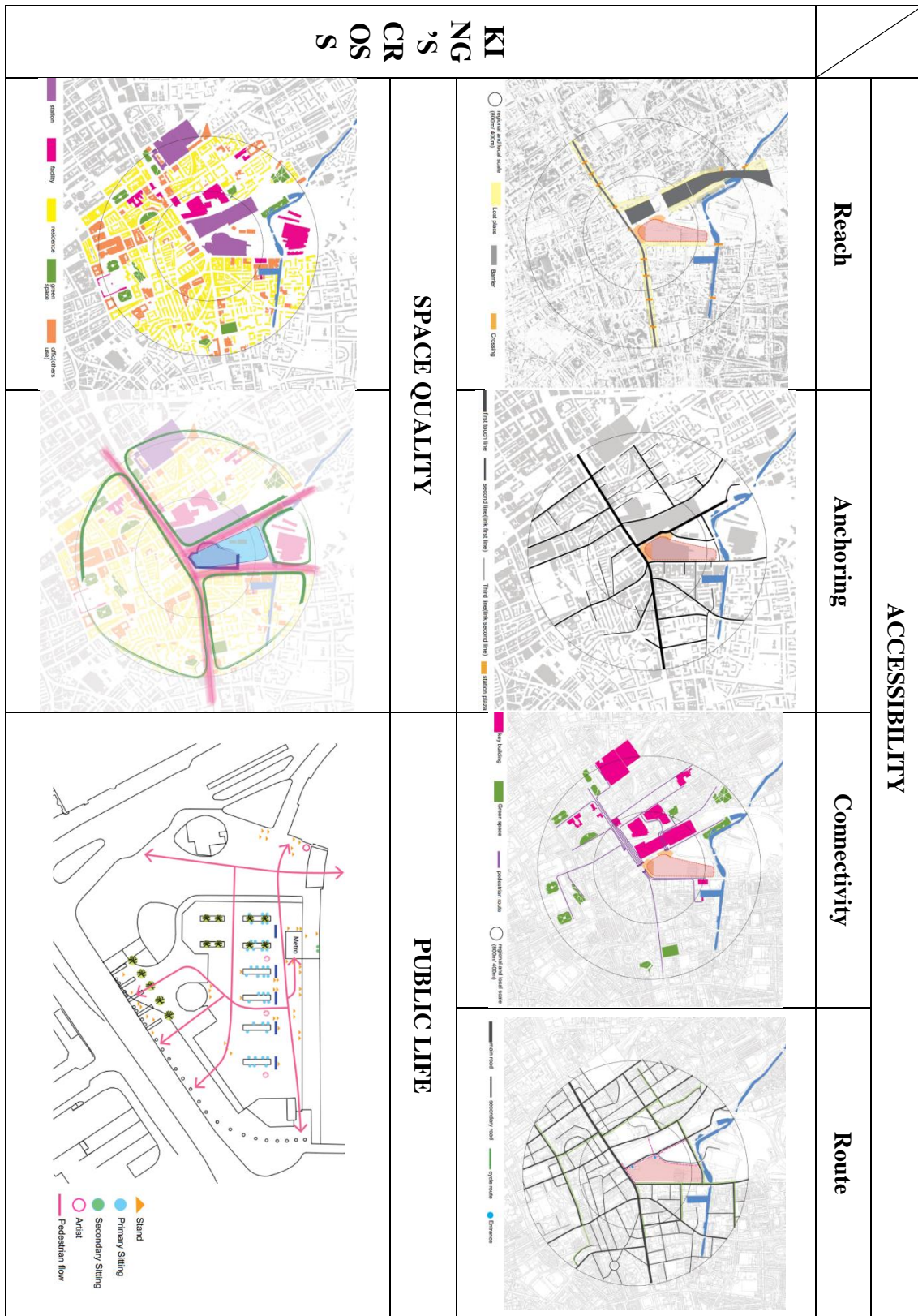


Figure 7. King's cross case studies. Source: author draw from digimap

station has already changed: it become the centre in the city. The plaza also changed, but still keeps the spatial integration in the area. From the diagram, it is obvious that different design themes appear to be current for a decade or so before they are supplanted by an alternative evolving or reactionary agenda. The different circles vary in different timescales, but all of them can affect the urban design and development projects. The inner circle fashion means the visual appearance of the places, which occupies the shortest timescale. On the other hand, the outer circle: nature has a much longer timescale, representing the enduring nature of infrastructure. Apparently, the fashion changed rapidly nowadays, but the public realm, street layouts usually exist longer than the buildings which define them. Eventually, the linkage and the integration of the area which lasts over a long timespan should be considered carefully.

Endnotes

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