

# Sustainable Development of The Past is Now the Future: The Development of Bike Lanes in Cities and Their Social Sustainability Aspects

By: Ava Yvonne Fink - Advisor: Dr. Erum Haider  
Departments of Environmental Studies and Political Science

## Background

Mixed use is the integration of multiple different uses of buildings and spaces in one geographical area. Mixed use is widely accepted by urban planners to enhance the safety and community cohesion of an area, leading to social sustainability. Mixed use can be formed through the implementation of historical processes and political actors influencing urban design. I use three different cities bike infrastructure to analyze the social sustainability aspects which may have come out of my independent variables.

### Historic Processes

Cities have the ability to cultivate a mixture of ideas from people, groups, or cultures (Tylor 1871). Cities take this mixture of ideas and apply it into the cultural framework where it affects the attributes of a social structure (Isaac and Griffin 1989). Historic processes are typically a bottom-up approach to society. Due to the close attention of society, mixed use can be implemented to handle resources, good, and services (Ortman et al. 2020).

### Political Actors and Urban Design

Political actors are people who affect the society around them (Lampard 1955). These people are most commonly politicians and people with money but can be a group of people or a singular person. These actors can change a society physically or socially (Harvey 2008), most commonly from a top-down, high modernist, perspective. This does not allow for a natural formation to a city as the power of the political actors' results in their desired designs (Scott 2001).

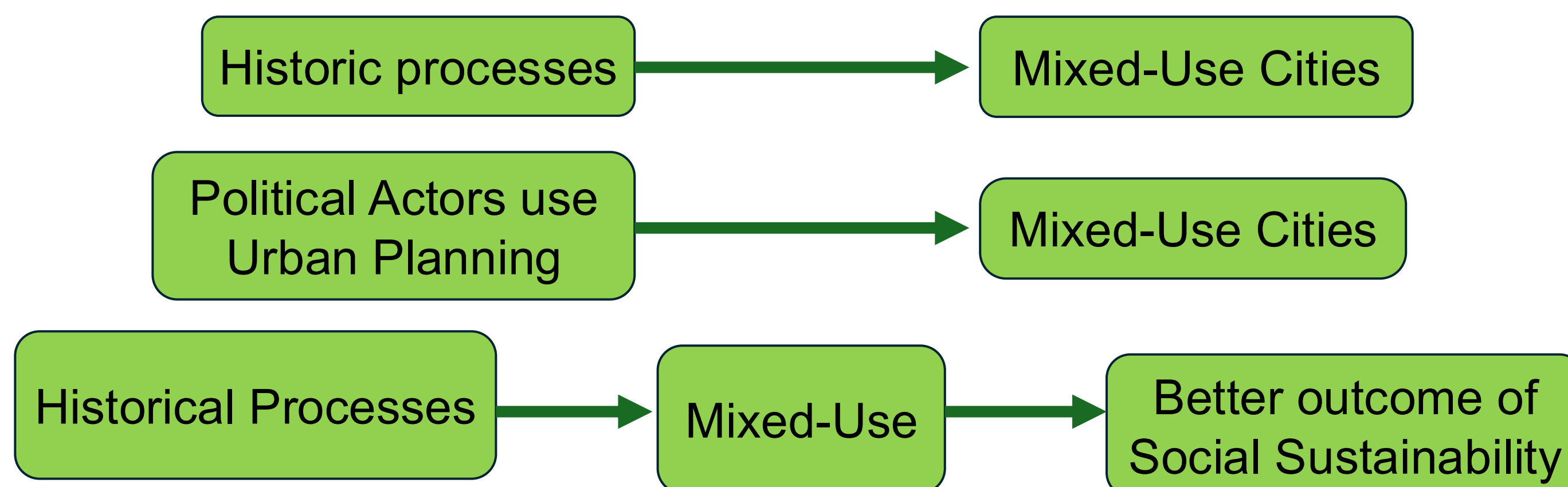
## Social Sustainability

Social sustainability is when a community or a system persists or improves its social well-being, equity, inclusion, and safety (Vallance et al. 2011). Jane Jacobs insists that the usage of mixed-use results in social sustainability, primarily resulting in the outcome of safety (1961). There are different ways in which social sustainability can be implemented, like parks, super blocks, or the one I am using bike infrastructure.

## Research Question

If cities are developed, or made in multiple different manors, then how are cities affected if the creation is implemented by more than one of these options?

## Hypothesis



## Methods

Case Study of Difference	Historical process = culture	Urban Planning	In-depth research into the culture of a city to identify how the historical processes affect the creation of bike infrastructure. For urban planning through political actors, I looked into how actors have insisted upon the implementation of bike infrastructure or the lack there of.
Copenhagen	Y	Y	
D.C.	Y	N	
Sevilla	N	Y	

## Social Sustainability Methods

To identify which independent results in a better outcome of social sustainability I coded content analysis by hand. In the content analysis I coded reddit posts using the subject, nouns and pro-nouns, and then the predicate any words which modify the subject.

## Results

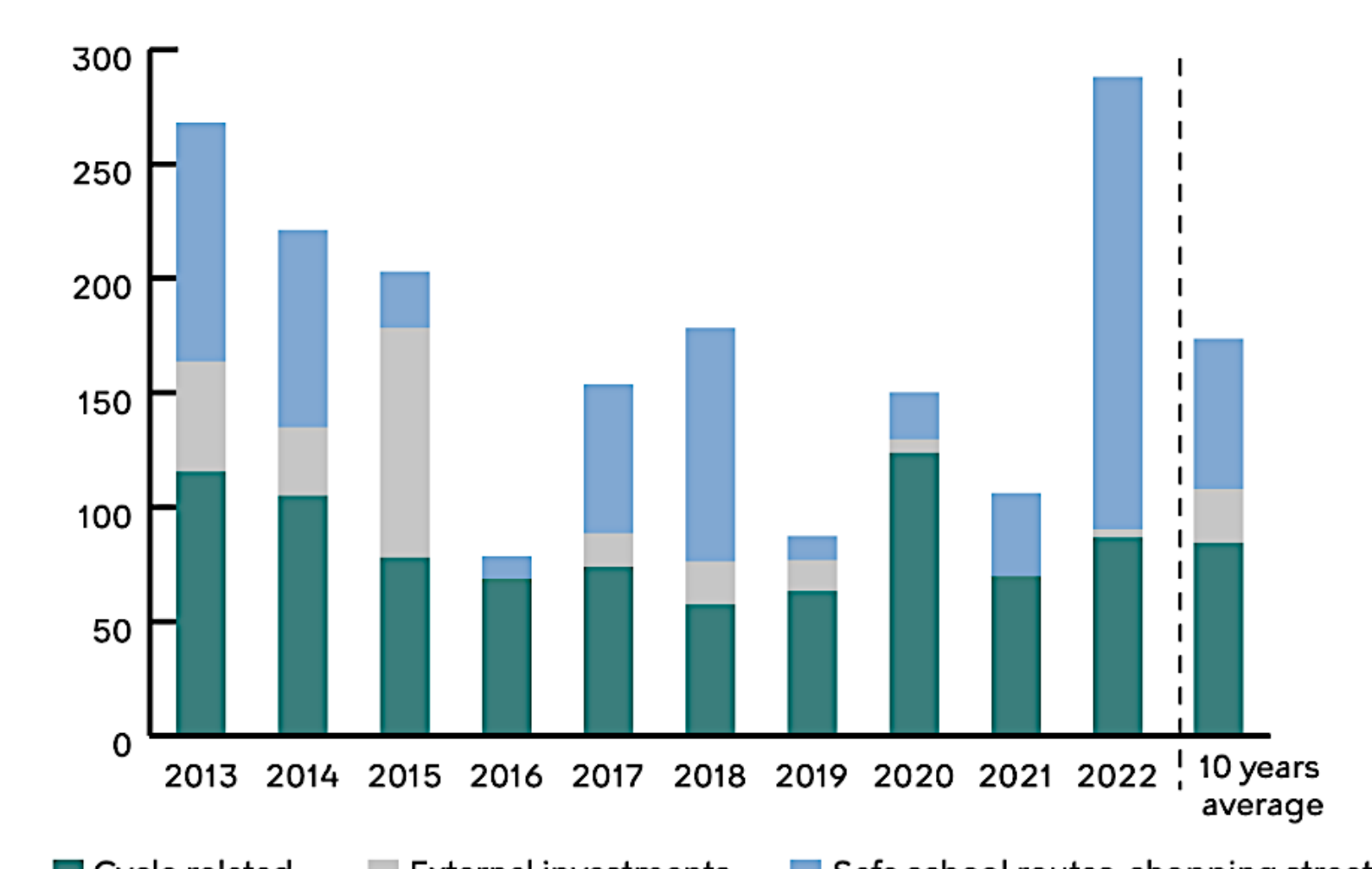


Figure 2: Investment in Cycling related initiatives 2013-2022 million Danish Kroner (City of Cyclists 2022)  
Table 2: Copenhagen, Denmark Shortened Content Analysis Count Sheet: Helmet on Bike

Copenhagen has used their government to perpetuate their culture. The government focuses on there social equity, community spirit, community trust.

- 1 – bike city
- 2 – bike lanes
- 1 – pretty safe
- 1 – really good

Washington D.C. historical process is focused under their social dynamics of race and class. Which affected the implementation of bike lanes in the city.

- 1 – bike infrastructure
- 3 – cautious
- 1 – protected
- 1 – get hit
- 1 – trying to kill

Sevilla had previously been ruled by Muslim countries in the 7<sup>th</sup> to the 13<sup>th</sup> centuries. When the Spanish empire took rule and tried to erase Islamic culture and third places (Torres Garcia 2016).

- 1 – cycle lane system
- 2 – option
- 1 – fantastic
- 1 – great
- 1 – very good

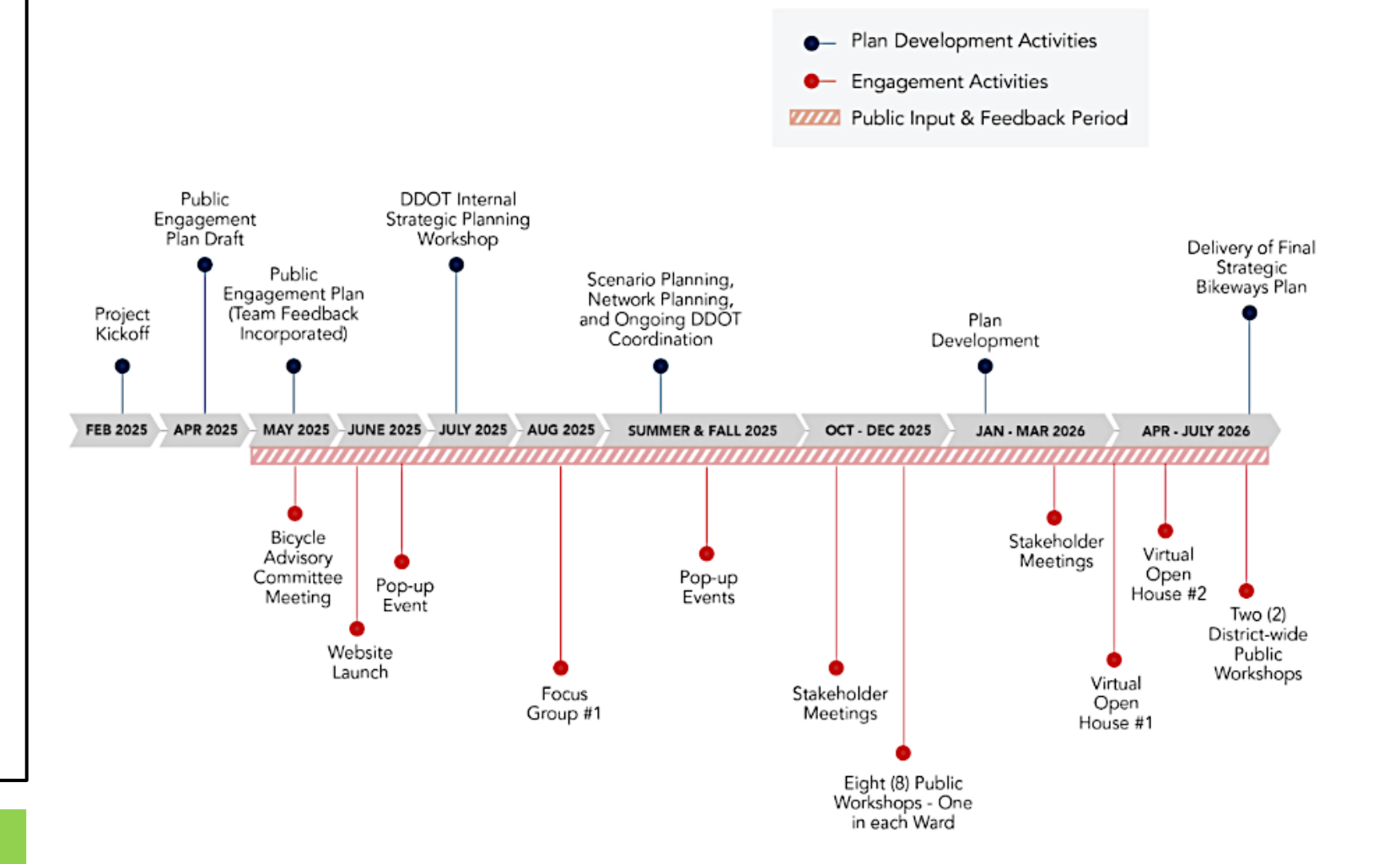


Figure 4: Strategic Bikeway Plan Project Timeline (Project Overview, DDOT)

Table 4: D.C. Shortened Content Analysis Count Sheet: Why don't people ride their bikes in the street?

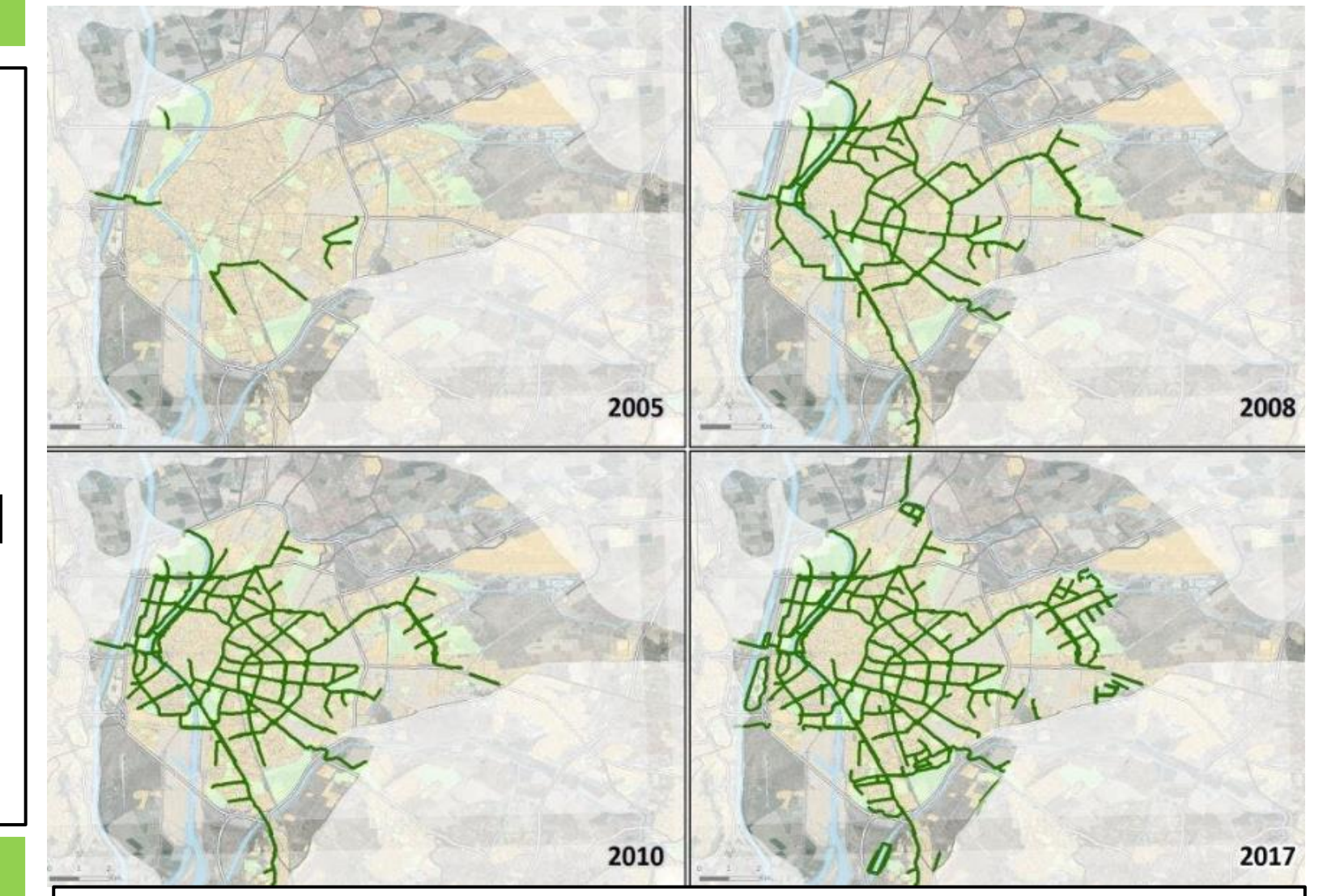


Figure 5: Sevilla, Spain's Bicycle network (Andersen 2018; Calvo and Marqués 2020)

Table 6: Sevilla, Spain Shortened Content Analysis Count Sheet: Do people go out at night with bikes?

## Conclusion

Throughout this project I have found that mixed-use, bike infrastructure, can be implemented through both historical processes and urban planning via political actors. Copenhagen uses both of these independent variables to implement bike infrastructure. D.C. only uses historical processes as political actors failed to affect the urban planning of the city. Sevilla used political actors to implement bike infrastructure. However, they did not have historical processes because Sevilla tried to eliminate their cultural heritage of Islamic culture. The erasure led to an authoritarian, highly modernistic way in which to infrastructure was made. Through my use of content analysis, I found that the best way to implement social sustainability is the usage of both urban planning via political actors and historical processes. I had previously hypothesized that historical processes would implement the best social sustainability, specifically safety. However, when historical processes combine with political actors affecting how a city develops, it provides an increase in safety.