Aalborg

TOD2 Perceptual Study of Mobility Hubs in Denmark

Analysing urban morphology and design elements on experiential qualities of TODs and mobility hubs in a Danish context



Aalborg



Randers



Ishøj

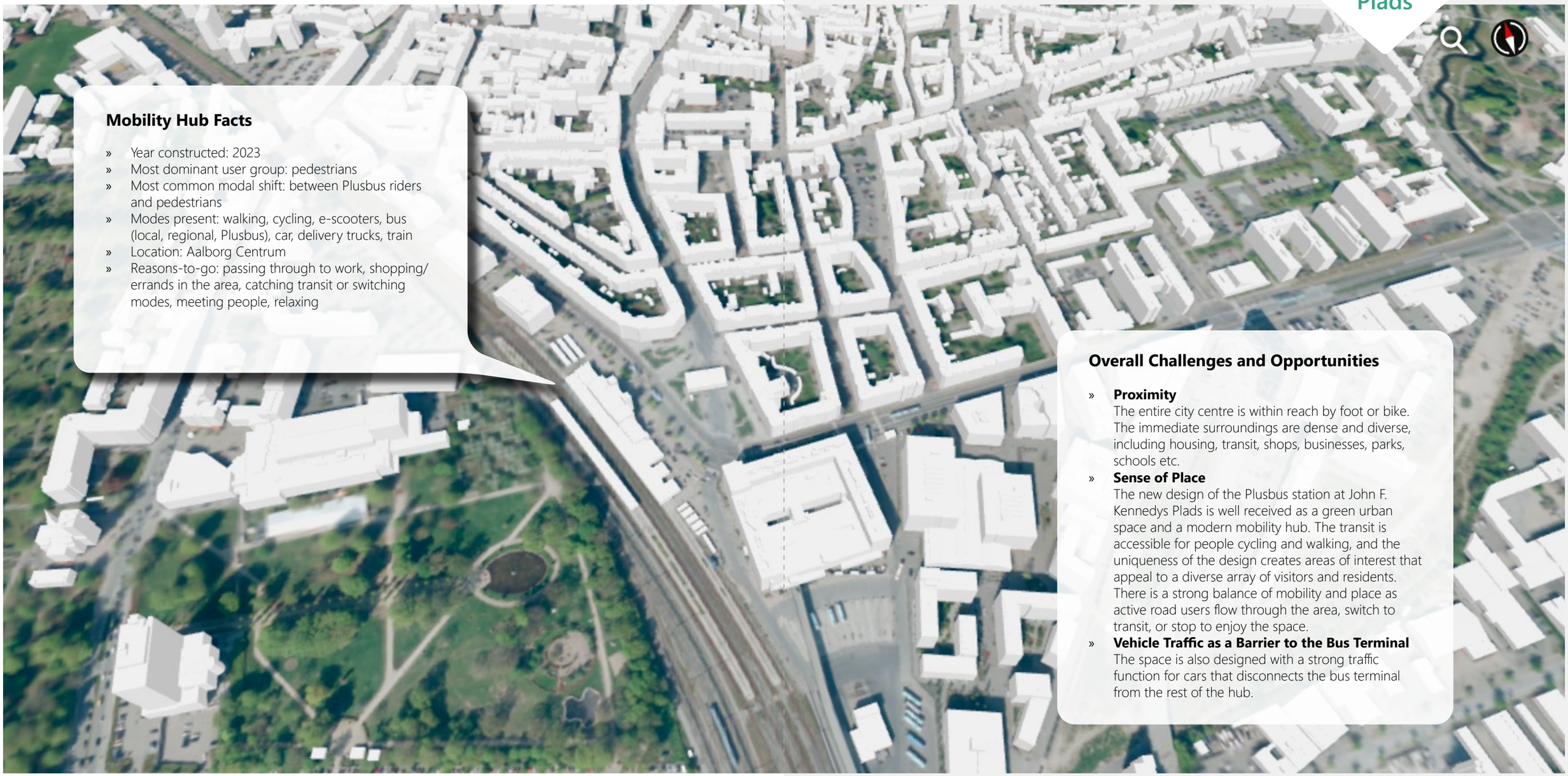


Roskilde



Frederiksberg

John F. Kennedys Plads



Mobility Hub Facts

- Year constructed: 2023
- Most dominant user group: pedestrians
- Most common modal shift: between Plusbus riders and pedestrians
- Modes present: walking, cycling, e-scooters, bus (local, regional, Plusbus), car, delivery trucks, train
- Location: Aalborg Centrum
- Reasons-to-go: passing through to work, shopping/ errands in the area, catching transit or switching modes, meeting people, relaxing

Overall Challenges and Opportunities

- **Proximity**
  The entire city centre is within reach by foot or bike. The immediate surroundings are dense and diverse, including housing, transit, shops, businesses, parks, schools etc.
- **Sense of Place**
  The new design of the Plusbus station at John F. Kennedys Plads is well received as a green urban space and a modern mobility hub. The transit is accessible for people cycling and walking, and the uniqueness of the design creates areas of interest that appeal to a diverse array of visitors and residents. There is a strong balance of mobility and place as active road users flow through the area, switch to transit, or stop to enjoy the space.
- **Vehicle Traffic as a Barrier to the Bus Terminal**
  The space is also designed with a strong traffic function for cars that disconnects the bus terminal from the rest of the hub.

KEY OBSERVATIONS

The urban space – divided into smaller spaces by landscaping, good sightlines, and a variety of materials and architectural landmarks – creates a pleasant environment for visitors with good reasons for staying, and easy pathways for moving through.

The new square is designed as an 'island' with motorised traffic going around it and a thoughtful design that elevates the station area from a mobility hub to a significant urban space and meeting place.

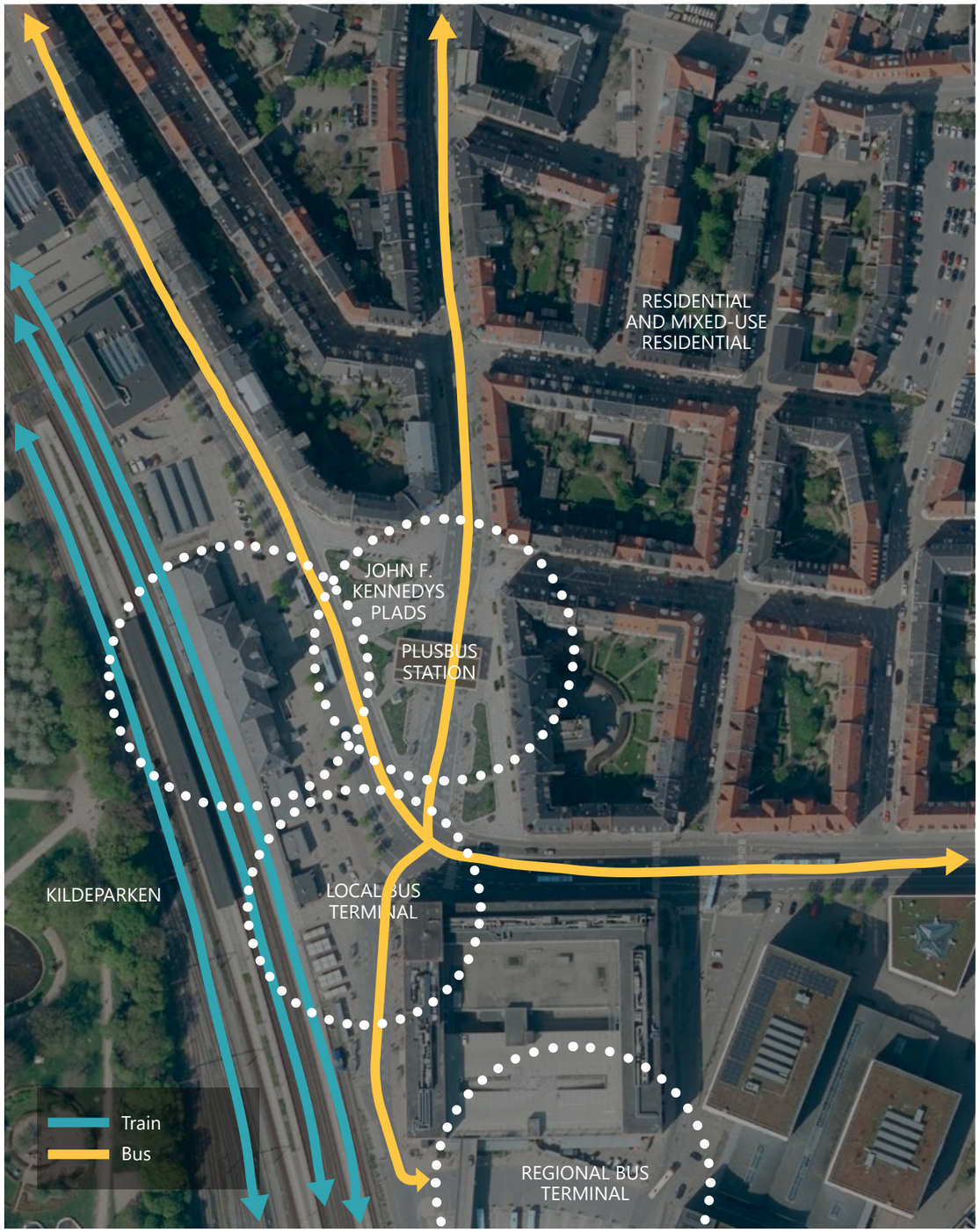
The area functions well as a mobility hub with opportunities for connecting active modes to the train, Plusbus, local or regional buses. However, improvements could be made between the regular bus and the Plusbus, and where cyclists must also share the road with the buses and truck traffic.

The space caters best to the Plusbus and is oriented toward getting people to the Plusbus. Buses and pedestrians are at the top of the mobility hierarchy (particularly within the 'island') followed by motor vehicles, and then by people on bicycle at the bottom.

The needs of all users of the space seem to be met at this station. People of all ages and abilities were observed in the space, indicating it is accessible to navigate.

The area feels less safe in the evening, where the diverse spectrum of visitors during the day gives way to people drinking and behaving in ways that make others feel insecure.

URBAN AND MORPHOLOGICAL CONTEXT

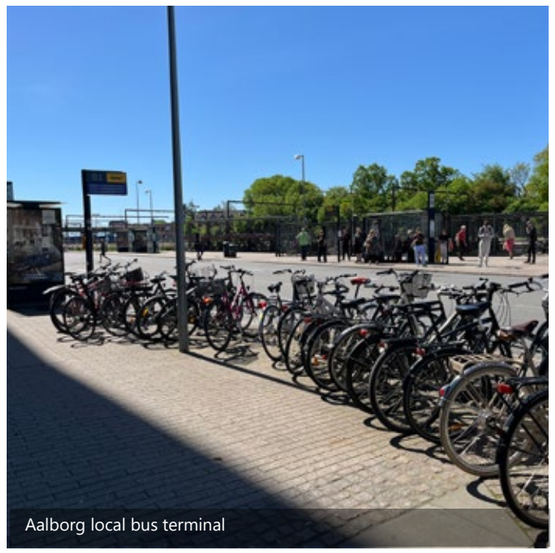


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The map shows John F. Kennedy Plads with the Plusbus station in the surrounding urban context in the city centre of Aalborg. The Plusbus station is situated in an infrastructural node, with the main train station to the west, and the bus terminal with local and regional busses to the south. The overall mobility system is illustrated (yellow = bus routes, blue = train route).


Aalborg Station from JFK Plads


Aalborg regional bus terminal


Aalborg local bus terminal


Wide roadway, edged by Kennedy Arcade (shopping centre) to the south, the Plusbus, apartments and businesses to the north

The Plusbus station at John F. Kennedys Plads is located in the city centre. Connected to the main train station and the regional and local bus terminal, the area is the main public transit node in Aalborg.

Spatial context

- The intersection of Jyllandsgade, Boulevarden, and Prinsensgade creates a notable spatial node
- Within the area there are 4 distinct sub-hubs, as indicated by the circles in the map: the Plusbus station, the train station, the local bus terminal and the regional bus terminal
- The roadway is a barrier to connectivity between the sub-hubs
- The Plusbus station functions as an island in the hub area

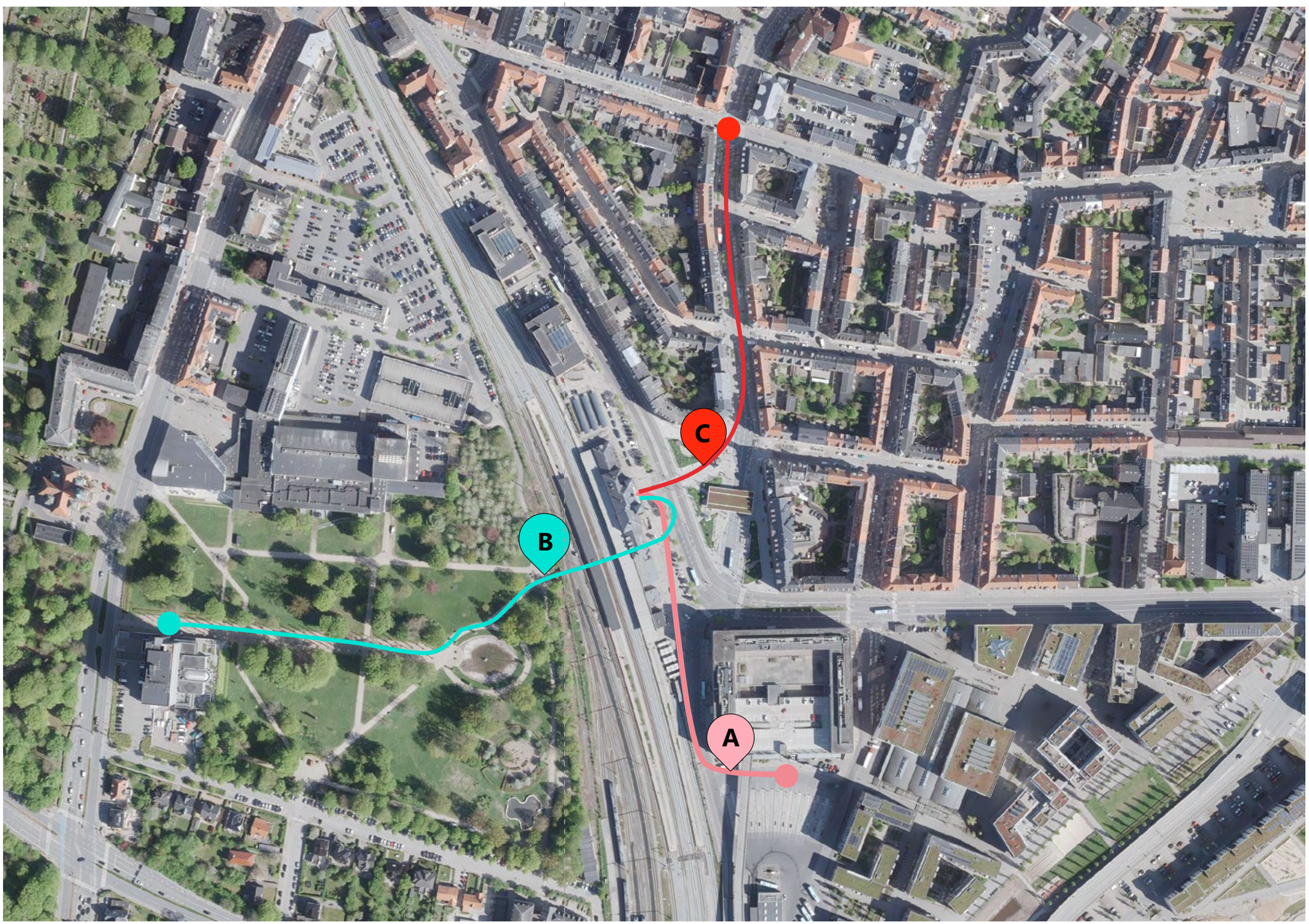
Urban typology

- The area has a mixed urban typology, on the edge of the downtown district
- It is characterised by multi-storey blocks along with newer detached buildings
- In addition to the public transit hubs, the Kennedy Arcade shopping centre is a major function in the area
- The area is bordered by apartments to the north and the east
- A few businesses and shops are on the ground level of the apartment buildings
- The roadways are wide and clearly define the space as being oriented toward motor vehicles

Navigation

- Multiple routes lead to the Plusbus station, located near the intersection of several roads
- Arrival can happen by train, bus, bike, and foot; there is drop off and parking for cars at the train station
- There is a desire line from the island and over Prinsensgade to reach the local and regional bus stops

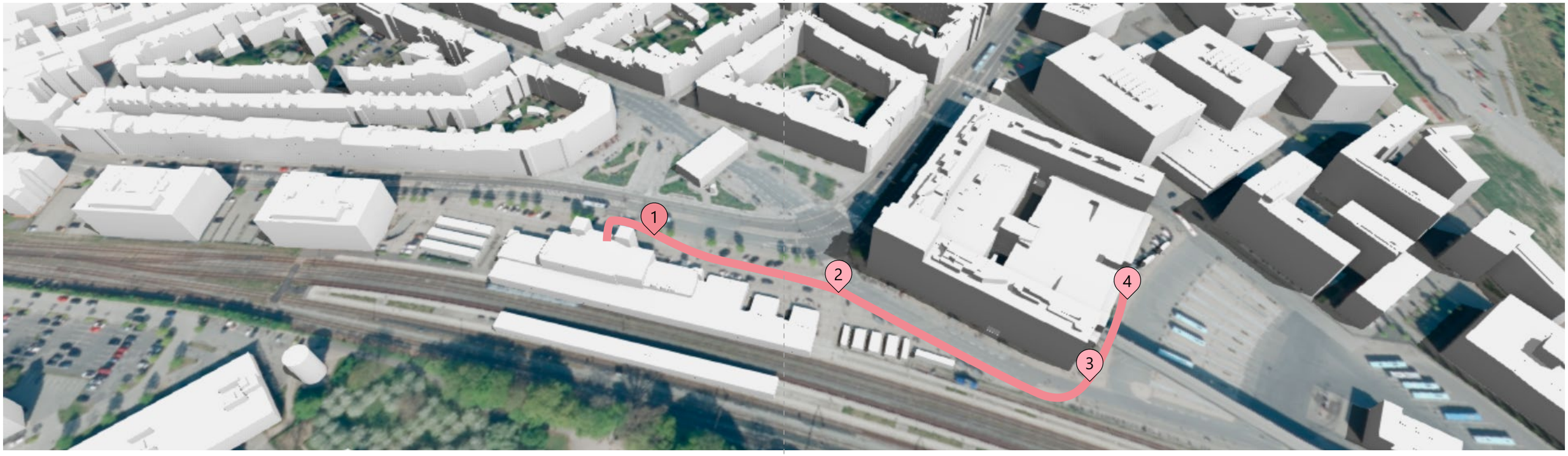
POPULAR ROUTES FROM THE STATION



The map shows three common routes as people depart the station. The routes are based on on-site observations of flow, desktop analysis, and discussions with the municipality.

SERIAL VISION ROUTE A

departing the station and walking to the bus terminal





1. From the station, the route toward the bus terminal leads along the “kiss and goodbye” parking area to the right. The path is clear and avoids crossing traffic. The space feels active and relatively safe, supported by human-scale street lighting, nearby shops, and the steady flow of cars and pedestrians.



2. Crossing toward the bus terminal is less intuitive. While movement is initially guided along the right side of the parking area, it soon becomes unclear where pedestrians should cross. With no designated crosswalk, one must walk around the building, making the transition feel inconvenient and slightly confusing for first-time visitors.



3. Turning left at the corner of Kennedy Arcade, is the main waiting area for regional buses. The space feels open and safe, equipped with benches and clear departure information. Its visibility and steady activity make it a functional and comfortable area to wait before continuing the journey.

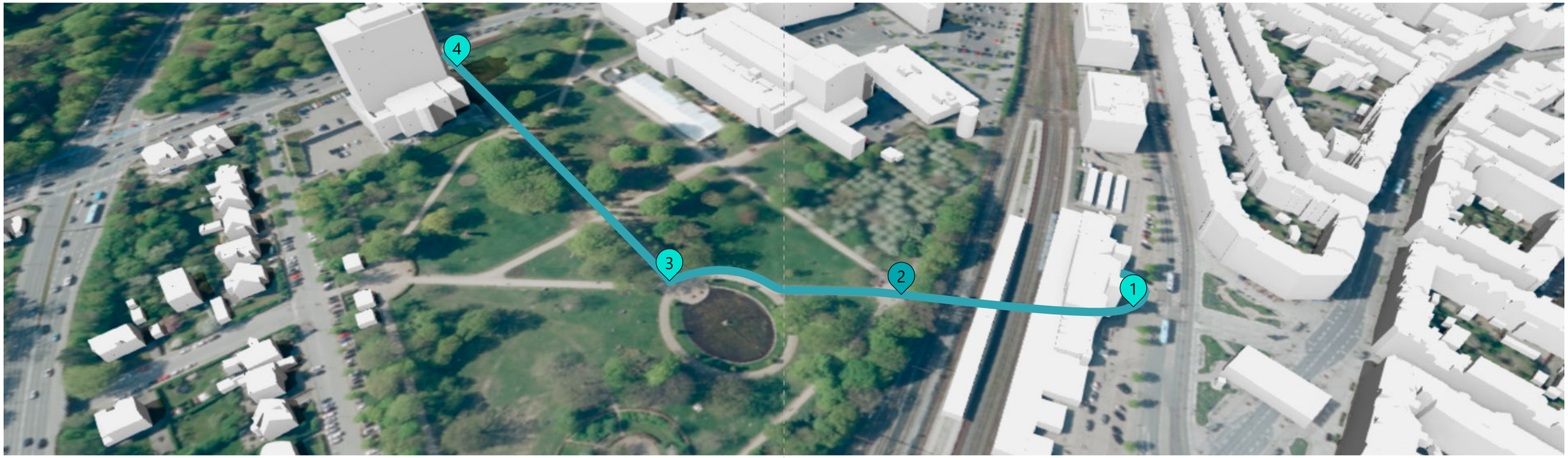


4. During peak hours, with multiple buses moving through simultaneously, access to the platforms can feel unstructured and uncomfortable for some. While generally safe, the lack of design detail, the sense of being at the back of a building, the heavy infrastructure and hard materials create a space that is not human scale. It feels decidedly different from John F. Kennedys Plads and the front of the train station.

Overall summary of route A
Route A connects the train station and bus terminal through a series of functional but uneven spaces. The area feels generally safe and active due to lighting, shops, and steady movement. However, unclear pedestrian crossings and confusing navigation points reduce comfort and ease, especially during busy hours.

SERIAL VISION ROUTE B

departing the station and walking through Kildeparken





1. From the main station entrance to the south, a tunnel leads toward Kildeparken. The tunnel entrance appears dark and uninviting, giving an uneasy first impression despite its clear directional purpose. Inside the tunnel, it feels dim and unpleasant, with echoes from the train tracks above and the smell of urine. Although lit, it remains gloomy even in daylight, creating a sense of discomfort.



2. Exiting the tunnel, the space opens into Kildeparken with wide paths, good sightlines, and large trees. Musical installations, 'De syngende træer', add liveliness and character to the soundscape, creating a more positive and engaging environment.



3. Kildeparken offers generous open space and broad paths, but at night it becomes poorly lit. When there is no active programming, most use it for passing through and many avoid it after dark. During the visit, a few people were drinking and smoking, reinforcing the park's mixed sense of safety and informality.

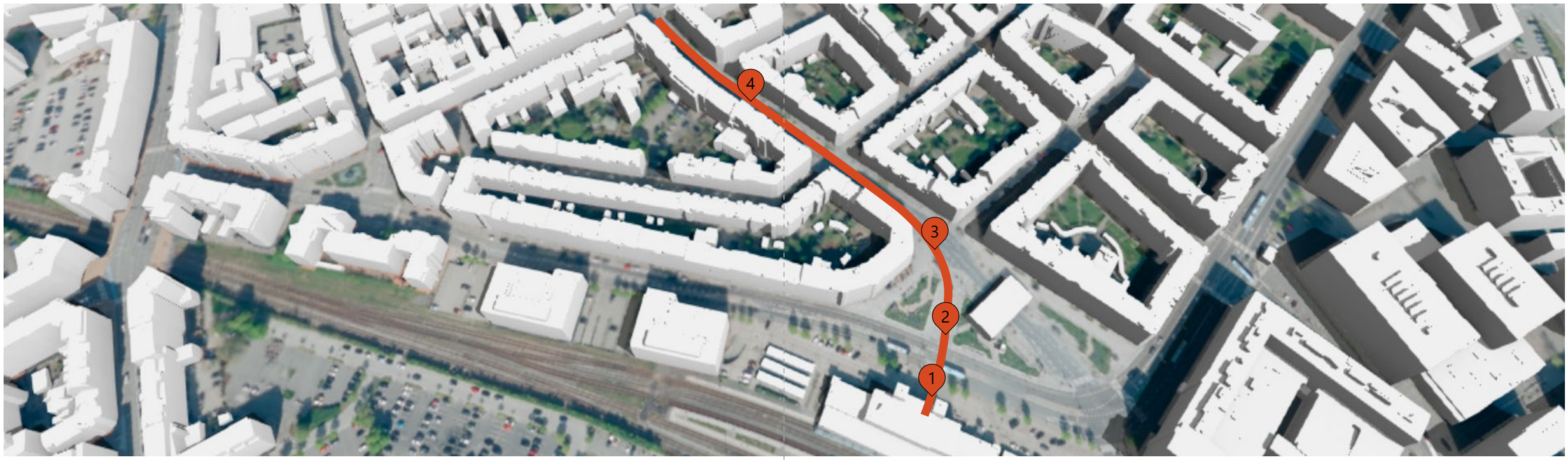


4. The park Ts into Vesterbro Street, which has two driving lanes in each direction, sidewalks, and cycle tracks. The Kildeparken path continues on the opposite side of the road, but the closest crosswalk is 150 meters away, and the road is a barrier for safe crossing.

Overall summary of route B
The route from the station to Kildeparken transitions from a dark, uninviting tunnel to an open and pleasant park environment. While the park offers greenery, culture, and space, it may feel unsafe after dark. The journey ends at Vesterbro, where heavy traffic and limited crossings create a clear physical and psychological barrier for pedestrians.

SERIAL VISION ROUTE C

departing the station and heading towards city centre





1. Exiting the station through the main entrance, you enter a lively square filled with city activity. There is a clear overview of transport options such as the Plusbus and taxis, and the open, well-lit space feels generally safe and welcoming.



2. John F. Kennedys Plads was renovated to offer clearer pedestrian routes, benches, green space, and inpsire a busy, active urban environment. However, groups of people drinking on the benches create noise and discomfort, making the area feel less inviting for those who wish to stay longer or pass through undisturbed.



3. Continuing onto Boulevarden to the NW, the route follows an intuitive pedestrian path lined with shops and cafés. It is light, active, and welcoming, with limited car access due to Plusbus priority. Bicyclists share the road with the Plusbus, which is a deterrant to cycling for more vulnerable road users, or the 'interested but concerned' population. The dense development and commercial activity make the area feel lively and urban.

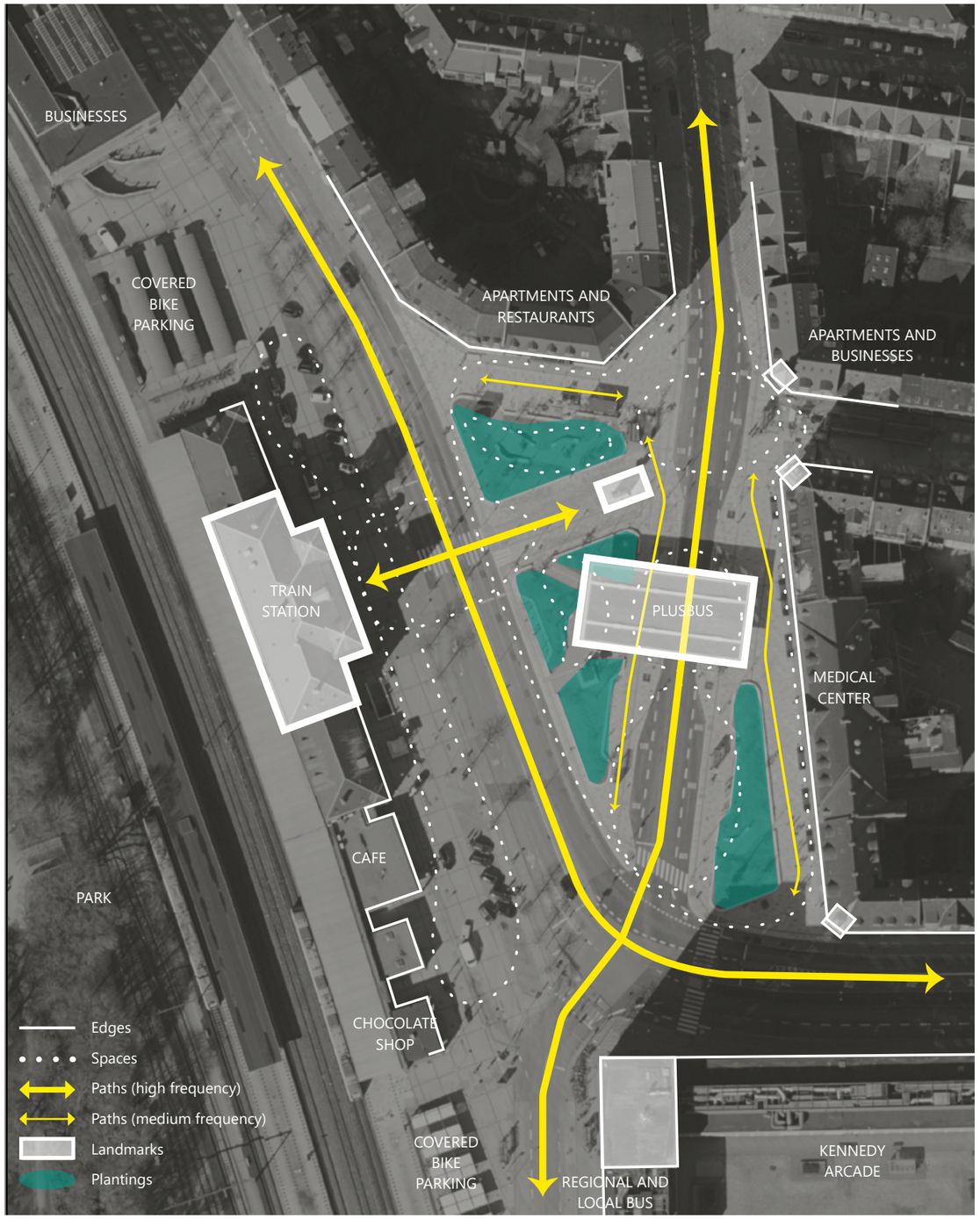


4. The sidewalks along Boulevarden are wide and pleasant, with four-storey buildings that support a comfortable human scale. Shops occupy the ground floors, and give a sense of ownership with goods displayed outside, signage, and outdoor seating. The buildings range in height from 4-5 storeys, with apartments on the top floors with apartments above. Patterned paving adds visual interest, while the mix of uses contributes to a vibrant, lived-in atmosphere. It is dense and diverse.

Overall summary of route C
The route from the station through John F. Kennedy Plads and along Boulevarden offers a lively, urban experience with good visibility, a strong mix of uses and intuitive pedestrian orientation toward city centre. While the renovated square and busy street feel generally safe, social gatherings involving drinking and noise occasionally create discomfort - slightly undermining the public space as attractive and welcoming.

FUNCTIONAL ANALYSIS

The station as a place



The map shows the organisation and overall design features of the station area. White solid lines mark spatial edges; white dotted lines mark smaller spaces; yellow arrows mark paths - where they cross nodes are observed; green areas mark the significant plant beds; and white areas mark landmarks.



The landmark roof above the Plusbus station and the lush greenery and light paving



School-aged kids follow a north-south path as they pass through the area



Flower bed behind the Plusbus station



Smaller rooms are defined within the island by plant beds, different path materials, and low edges that double as benches

The immediate area around the Plusbus station has a distinct character as a green pedestrian island, separate from the road bending around it to the south and the west.

Edges and Open Spaces

- The island space, and within that smaller spaces, is defined by visual links, landscaping and hard edges, constituted by surrounding building facades and the roads
- The overall area is well defined by the edges of the train station, Kennedy Arcade, and the buildings to the north and east of the Plusbus station

Human Scale

The medium scale environment is slightly large - buildings have larger footprints, crossing distances are long, and heavy vehicles move relatively fast. However, the island is divided into smaller spaces for a more human scale environment with good sightlines and landmarks. Variety in materials and small details add to the effect.

Landmarks

- Kong Christian IX statue located centrally in the pedestrian island
- Train station building from 1902 with significant facade (architect: Thomas Arboe)
- Plusbus station roof that appears as a large floating structure and creates a sheltered yet urban space
- Building turrets mark the corners of surrounding blocks

Materials

- Lush, extensive plant beds with coloured flowers and greenery
- Light paving tiles, bricks, and cobblestones
- Wood and stone benches

Paths and Nodes

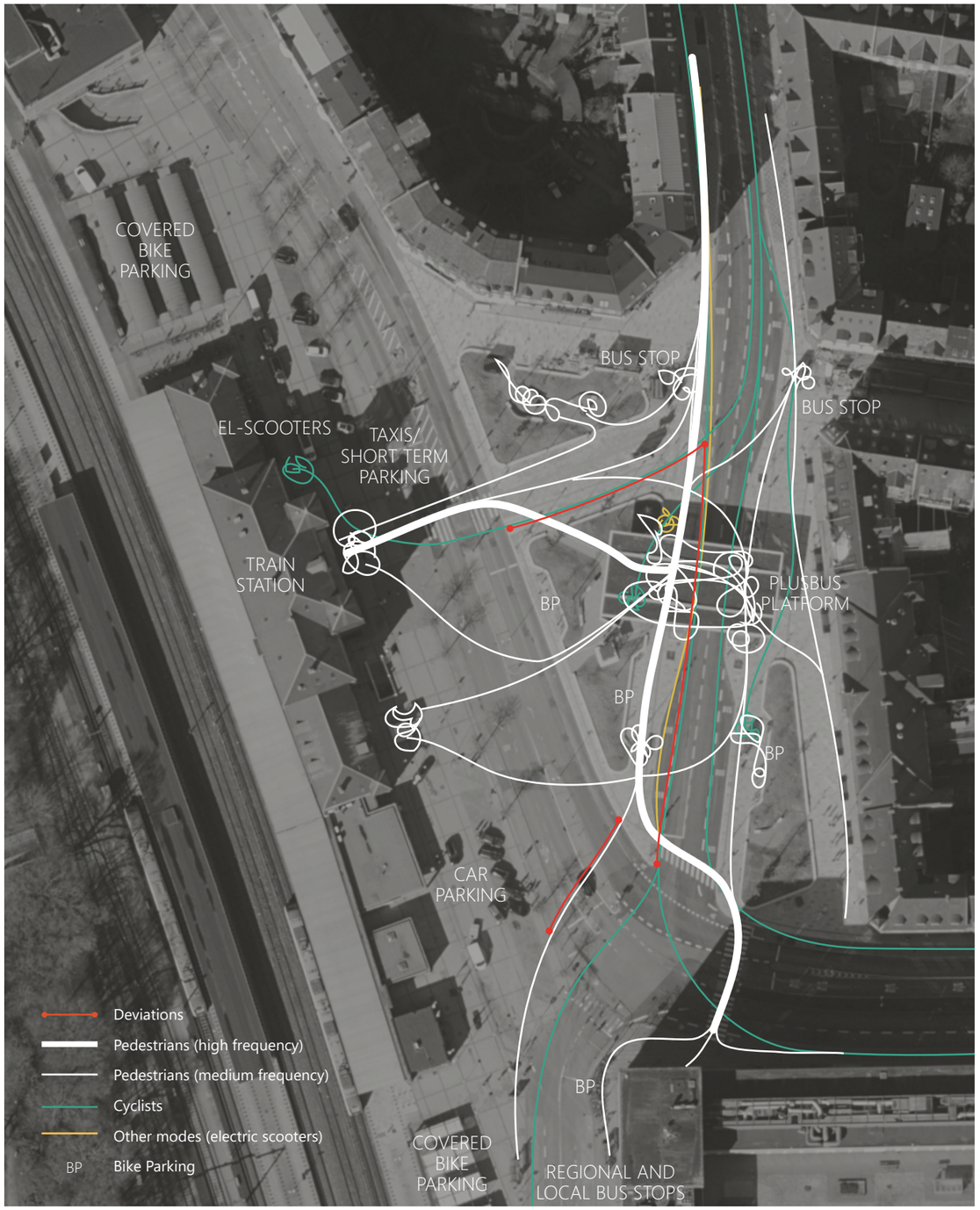
- Strong north-south connection led primarily by Boulevarden (and Prinsensgade); where those two meet there is a traffic node
- East-west connection from the train station to the square
- Pedestrian paths are integrated into the design of the square

Personal Safety

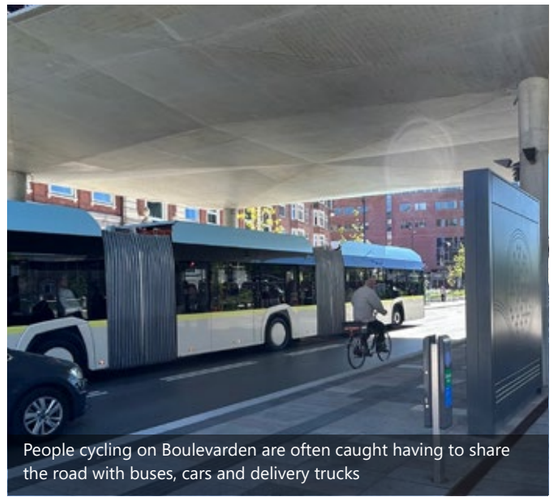
- JFK Plads has a distinct identity that supports a feeling of personal safety.
- Its low landscaping, open design and transparent Plusbus shelters contribute positively to sightlines.
- The mix of uses in the surrounding area bring more people throughout the day for more eyes on the street.
- In the evening, some users report feeling unsafe around people hanging out, drinking and making noise.

MOBILITY ANALYSIS

The station as a hub



The map shows the most common mobility patterns and routes based on observations of different modes. The tangled lines indicate where pedestrians are often stopped - waiting, meandering, or meeting others. The deviations marked with a red line indicate areas where active mobilists behaviour strays from the intended design.



People cycling on Boulevarden are often caught having to share the road with buses, cars and delivery trucks



A pedestrian jaywalking



A bicyclist opts to walk her bike through the island



Passengers alight from the bus and walk north toward town

Movement through the area is primarily relaxed and unhurried. The space caters well to both the ebbs and tides of people related to bus arrivals and departures. The area between the train station and Plusbus platform is distinctly pedestrian-oriented, while the area south and east of the Plusbus island caters more towards automobiles.

Primary Modes/Modal Hierarchy

- Within the island, and connecting to the train, the area decidedly prioritises pedestrians and busses. Motor vehicles are second tier, followed by people cycling or on electric scooter.
- Outside the island area, busses and cars dominate the space, followed by pedestrians and cyclists

Behaviour and Practices

- Cyclists are often seen walking in the island bikeway, including dismounting their bike to walk through island, and pedestrians observed walking in the bikeway - perhaps due to the island's overall design as a pedestrian-oriented space.
- Jaywalking is frequent across Jyllandsgade, south toward the regional and local bus stops
- Cyclists are also seen walking on the eastern side of the Plusbus station. This could be a result of biking through Boulevarden feeling unsafe, and biking around it would be circuitous

Mobility patterns

- The pedestrian density of the area was in line with the arrival of buses, but it was rarely empty during the day
- There is a noticeable rush hour in the morning and evening
- There is a mix of people staying vs passing through
- Meetings are common in the island

Traffic Safety

It is a busy transit node. Bicycles only have cycle paths on the main road, not on Boulevarden, leaving them vulnerable to the large Plusbuses. Although the area does not feel particularly unsafe overall, buses, cars and trucks dominate the streetscape.

Modal Links

- Train
- Bus (local, regional, Plusbus)
- Bicycle
- Walking
- Taxi
- Personal cars

TEMPORALITY AND SECURITY



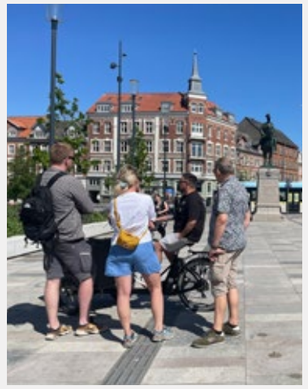
Daytime



Afternoon rush hour



Evening





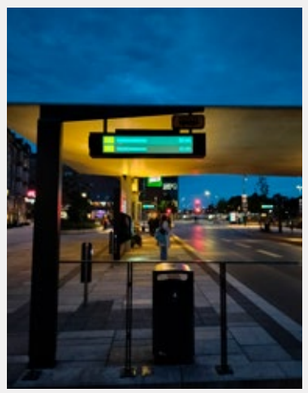




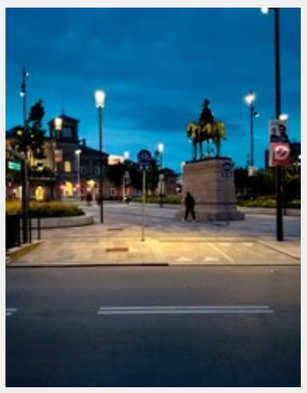














The area experiences morning and afternoon rush hours, with lulls in between. However, the variety of users and activities in the area keeps the station busy during the daytime, and fluctuations in foot traffic are not solely linked to bus arrivals. The main difference is in the evening, where fewer people are present.

USER ANALYSIS

Use of the space

John F. Kennedys Plads follows the use patterns one might expect of a station area with major transit connections - a concentrated rush of people in the morning and afternoon, punctuated with smaller flows throughout the day. This is reflected in the chart below of Boarding and Disembarking at the Plusbus stop. In addition to making their connections, or embarking/alighting from the busses, people are also observed using JFK Plads as a meeting space - some meetings short, and some lasting for hours (at least in nice weather). People using active modes are observed passing through the space on foot, bicycle, and to a lesser extent on electric scooters.

Users say...

People of all ages and abilities are observed in John F. Kennedys Plads. Six user groups were identified and later interviewed about their perception of the area, with 16 interviews in total being conducted. Every group noted that the area was a really attractive place to be in, while acknowledging public drunkenness detracted from the experience. People on bikes had the least positive experience due to concerns about traffic safety. The following is a summary of key points that emerged from the interviews for each user group.

Seniors and people with disabilities
- Attractive, clean, lovely place, with particular appreciation of the flowers
- Easy to find your way around, with the exception of getting from the far bus terminal to the Plusbus station in reasonable time
- Some people make the space feel less safe with drinking, yelling out profanities, and general ruckus. It feels safe enough during the day, but this group is not likely to use the place in the evening.

Parents with children
- The space works well, is easy to navigate, and is attractive and nice to use during the day
- The plantings, the roof over the Plusbus stop and the smaller spaces within the island create an added layer of comfort and enjoyment
- It feels unsafe at night due to drunk people hanging around, making noise

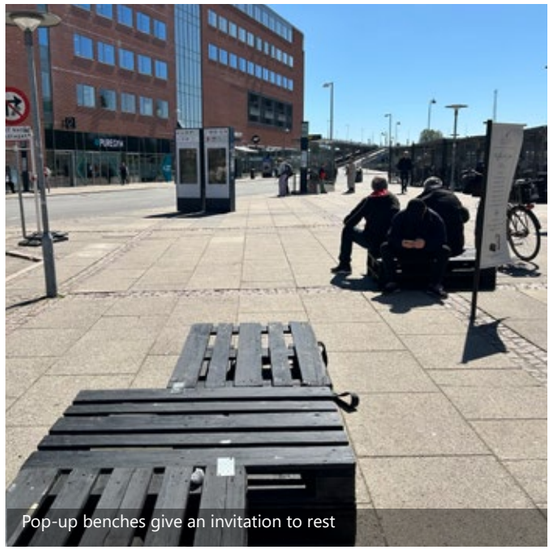
Regulars
- It is a central meeting spot for both meeting/staying as the primary purpose, as well as for taking the bus
- It is a lovely place, especially with all of the flowers. This group does not always feel welcome in public spaces, including in the previous design of JFK Plads, but now they feel they belong and are equal participants in the urban life.

Pedestrians
- The space is attractive, clean, and is easy to access the city from here
- Despite being yelled at by drunk occupants, the space generally feels safe during the day

Cyclists
- The area feels unsafe and chaotic as a cyclist. Often cyclists will be stuck between the busses and cars
- People say it is missing cycle tracks - without cycle tracks and roadway markings, it is unclear where cyclists belong.
- The space also feels unsafe at night due to drunk people

People waiting/switching
- The space is a nice place to be
- It was noted that many cross the road inappropriately, but that may be because the lights take too long to change and there are too few pedestrian crossings


People of all ages and abilities


Pop-up benches give an invitation to rest

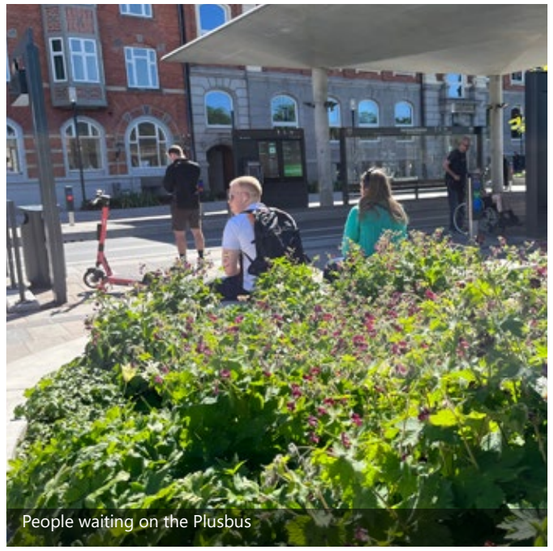

Cyclist on the road

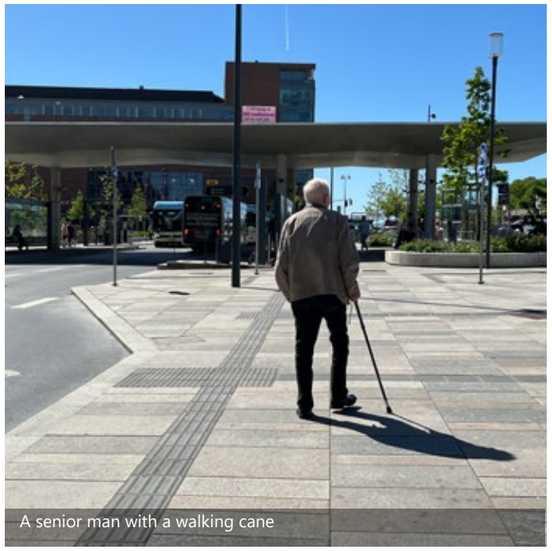


People hanging out at the square


Public life - pedestrians, a meetup and a rest on the bench


A group of children emerging from the tunnel

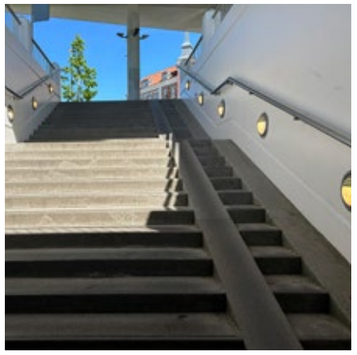

People waiting on the Plusbus


A senior man with a walking cane

AFFORDANCES

Facilitates









Flowers beds are high enough to help create separate enclosures, but low enough to maintain good sightlines and feelings of security. The flowers bring the area to life and add character with their seasonality, and were mentioned by the majority of people in the interviews. Gravel pathways further define the rooms as a distinct space from the flow pathways.

The abundance of choice in types of seating to choose from - wood, modular pallet benches, concrete, inside a mini park, or along the outside edge of a flower bed - further solidifies this as an area for sitting or meeting people. Cleanliness is an important factor in the enjoyment of staying in a transit area. The trash bins signal opportunity for longer stays and encourage people cleaning up after themselves.

Use of clear glass at the stop shelters and the elevators helps maintain an unobstructed view and good sightlines that contribute to a feeling of personal safety/security. Human scale lighting helps with a feeling of safety in the evening.

The stairwell and tunnel facilitate movements between the train station and Plusbus stop, as well as Kildeparken to the east. The ramps on the stairs enable easy movement of bicycles. Elevators connect people to and from the tunnel and are important for people with disabilities, strollers, or simply heavy luggage. Variations in pavers help people with disabilities mark their position in the space better.

Hinders







The main source of friction is at the intersection of Boulevarden and Jyllandsgade where pavement dominates. This hinders crossings, creates uncertainty about where cyclists belong in the space, and encourages jaywalking.

This is an extension of the friction between bicyclists and vehicles on Boulevarden. Although speeds are low enough for cyclists to share the road, the disparity in size and mass between cyclists and buses creates an uncomfortable environment, with cyclists sometimes squeezed between buses and cars.

The material differences between the bikeway and footpath in the island might be too subtle too notice - with pedestrians walking in the cycle path, and cyclists walking their bike in the island. The pavers, edged by seating, orient the space towards walking and sitting - perhaps making cycling feel somewhat out of place.

QUALITY CRITERIA

Developed from Jan Gehl's 12 quality criteria to include transit and mobility hub navigation, *the table assesses the affordances of the place on the basis of the on-site observations and desk analysis. It details how the spatial arrangement and design facilitate or hinder practices or experiences, collected in 15 parameters across five categories. Each category is summarised in the coloured column to the right.*

MOBILITY HUBS

opportunities for switching

- major hub, with Plusbus station, train station, and regional and local bus stations, in near vicinity
- multimodal area, with options to switch between the train, local buses, regional buses, Plusbus, electric scooter share, bicycle, taxi or private vehicle, or walking.
- most of the switching observed at the Plusbus station was from bus rider to pedestrian, and vice versa.

modefinding

- in general there is a good overview, with the Plusbus station located centrally and with a landmark roof
- signage differentiating the bus and Plusbus is both limited and subtle, making wayfinding for newcomers harder
- signage connecting the train underground to the bus stations does not obviously reference the Plusbus station

cohesiveness/intuitive design

- good connection between the train station and the Plusbus and between the train station and regular bus station
- not a strong intuitive connection between the Plusbus and bus stations, especially the crossing between the local bus station and the Plusbus station
- jaywalking was observed at the intersection connecting the bus and Plusbus, indicating a lack of cohesiveness and pedestrian priority

MOBILITY HUBS summary

This major public transport hub holds ample mobility options in close vicinity. People switch between the Plusbus, local and regional buses, however pedestrian connections between these are not optimal. Between the Plusbus station and the train station the connection is clear and direct. The 'island' of JFK Plads has a cohesive organisation and design that provdes good overview, logical routes and freedom of movement.

PROTECTION

against traffic and accidents - feeling safe

- the pedestrianised urban space of JFK Plads is a protected space, separated as an 'island' from the rest of vehicle traffic
- users bike on Boulevarden along the bus road, yet this may feel unsafe for people of all ages and abilities sharing limited space with heavy vehicles
- unclear intersection at Boulevarden/Jyllandsgade/JFK, where pedestrians rush across to reach the next bus

against harm by others - feeling secure

- some users reported feeling unsafe at nighttime due to people drinking and being loud
- in the daytime a continuous flow of few people coming and going means plenty of "eyes on the street"
- the spatial design and the transparent shelters of the Plusbus station afford easy visual contact with other people which increases perception of safety

against unpleasant sensory experiences

- mostly protected from the wind, opportunities for sitting in the sun or shade
- the large roof over the Plusbus station affords shelter from the rain
- not too much noise pollution during the day from vehicles, however some people were quite loud
- some unpleasant smells (perhaps from the public bathroom)

PROTECTION summary

There is a feeling of protection with pedestrians separated from the traffic on the 'island', but exposed when connecting to the other bus areas. People drinking appear to pose a feeling of unsafety with some other users, especially during the evening. Decent options for finding protection against wind, sun and rain. Holds ample mobility options in close vicinity. People switch between the Plusbus, local and regional buses, however pedestrian connections between these are not optimal.

LIVABILITY

opportunities for active modes

- walking is in general comfortable except for the crossing between the island and the local bus station
- dedicated bike lanes except for the bus road through JFK Plads. There are bike facilities across the island, though many people walk in them.
- ample space at the island for people to meet each other, walk side-by-side and for small kids to enjoy some freedom of movement

opportunities to stand and linger

- multiple opportunities to stand and linger at JFK Plads, with some people staying a short time, and others for an hour or more
- at JFK Plads flow and staying in place is well-balanced with clear and direct routes, and subtly divided from smaller spaces and corners for pausing
- good options for waiting for the bus, with overview of its arrival

opportunities for sitting

- there are plentiful and diverse options for sitting (sun, shade, dedicated benches, landscape edging, elevator edges)
- sitting options are distributed across the entire JFK Plads, with options also to sit and wait for the bus both under the roof at the station itself, and in multiple other locations
- possibilities to find spots where a group of people can sit together

LIVABILITY summary

JFK Plads affords ample space for pedestrians, as well as very good opportunities for standing, lingering and sitting in many different locations, fx to enjoy urban life and good weather, and maintain an overview of bus arrivals. There is a good balance between flow and stay, which adds to the vibrancy of the area.

EXPERIENCE

human-scale

- the medium scale environment felt slightly large, with heavy vehicles, buildings with large footprints, and long crossing distances
- the environment within the island of JFK Plads is approx. 60 x 110 m and more balanced with the human scale, with good/low sightlines, small spaces within the larger space, materials, plants and detailing

opportunities for enjoying the weather

- at JFK Plads the ample seating options, multiple spots for lingering and standing, and the routes for moving through the space provides opportunity for enjoying the weather, and to face the sun in different directions during the day

aesthetic and positive sensory experiences

- JFK Plads is perceived by several users as a neat and clean place
- the miniature parks, the flowers, and the relative quiet (with regard to traffic) provides an overall positive experience
- the large roof, the cohesive use of materials and the lush greenery with colourful flowers makes JFK Plads stand out as a landmark urban space

EXPERIENCE summary

JFK Plads is a human-scaled, clean, and urban green space. It stands out as a landmark plaza in the city centre, and affords opportunities to enjoy the weather and city life. At the medium scale, the expression is less positive for pedestrians and cyclists with vehicle traffic and long crossings.

TOD

priority

- The area is highly accessible on foot, with modal priority being designed for pedestrians and mass public transit.
- The space is relatively accessible for other automobile traffic, except for driving restrictions through the Plusbus stop segment of Boulevarden.
- The area is accessible for people on bike, but it is perhaps the mode least accommodated for.

density

- Medium density of housing and jobs (services).
- The development pattern around the mobility hub can be considered TOD with its density of commercial activity, jobs, services, transit, and housing,
- There is a grocery store within 100 meters of the Plusbus, and multiple markets and shops within 500 meters.

mix

- There is a good mix of businesses, restaurants, shops, and housing.
- There is also a mix of urban green space with JFK Plads and larger green space with Kildeparken
- The hub connects intuitively to walking streets and the urban core
- Access to multiple modes of transportation.

TOD summary

The area functions fairly well as a TOD, featuring a variety of transit modes to choose from, as well as good proximity to daily goods and services. There is room for improvement with connections between regional/ local buses and the Plusbus, as well as an overall station environment more oriented to cyclists and pedestrians.

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