TRAFFIC CALMING IN HISTORIC CITY CENTRES A CASE STUDY

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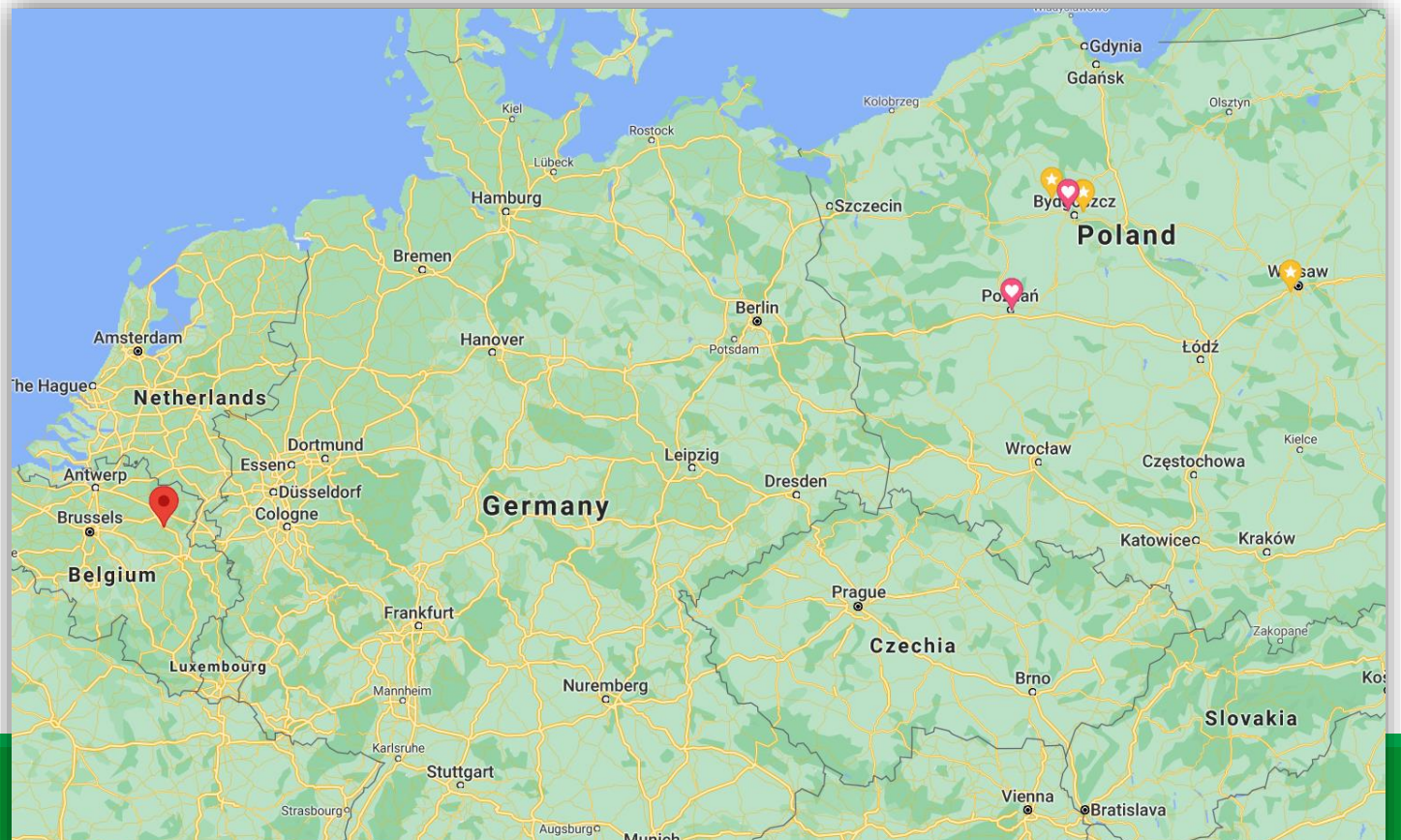
Introduction

- Transport service in city centre is one of the most difficult in a city planning and management.
- Historic urban environment of city centers are the most challenging, where possibilities of any spatial structure and road system transformation are very limited.
- Especially in European cities, where their centres are historically formed.
- The low-capacity road network in these areas leads to the elimination of car traffic.

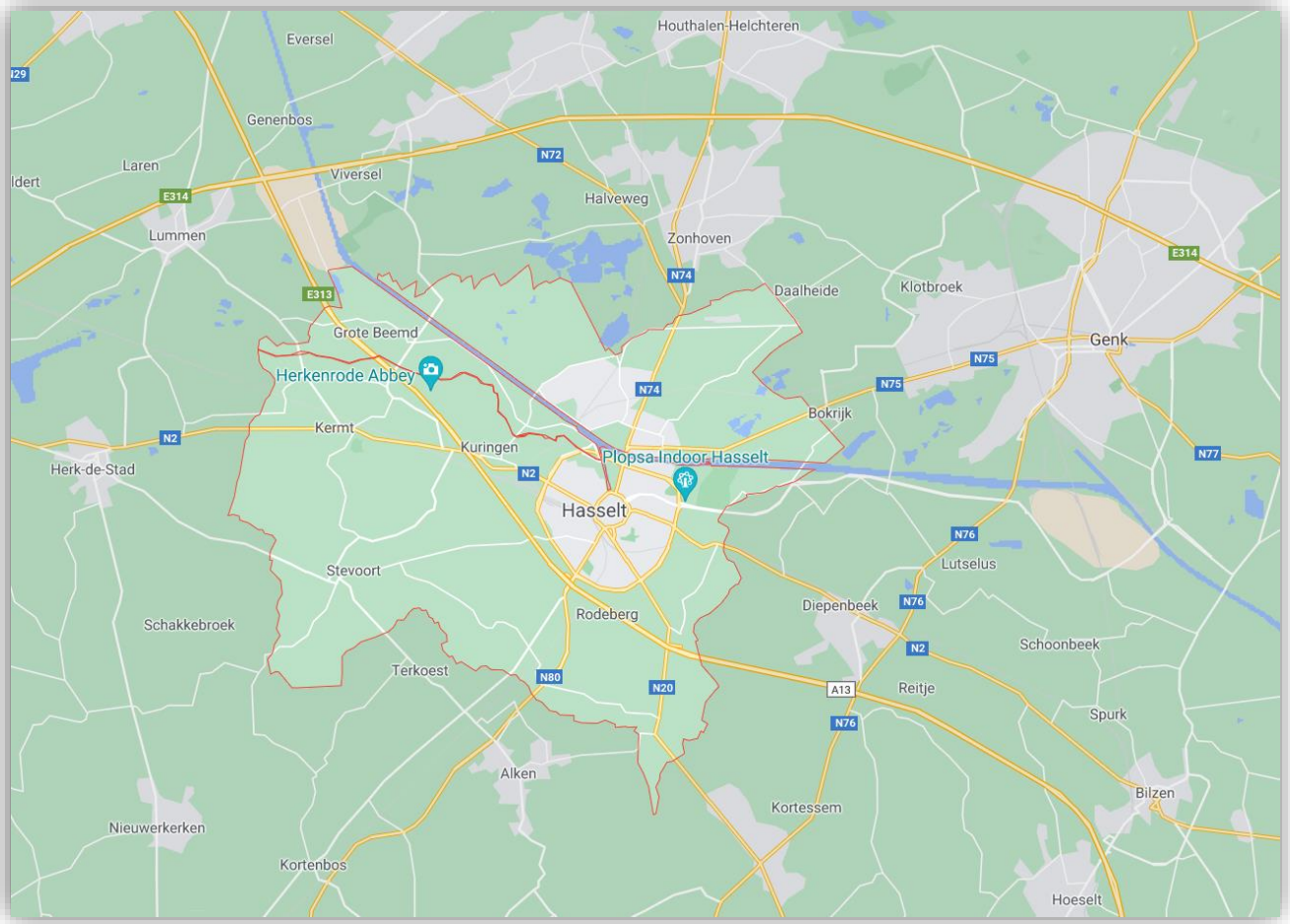
Objective

- Compare the existing transport service in the center for two cities:
  - Hasselt in Belgium, and
  - Bydgoszcz in Poland

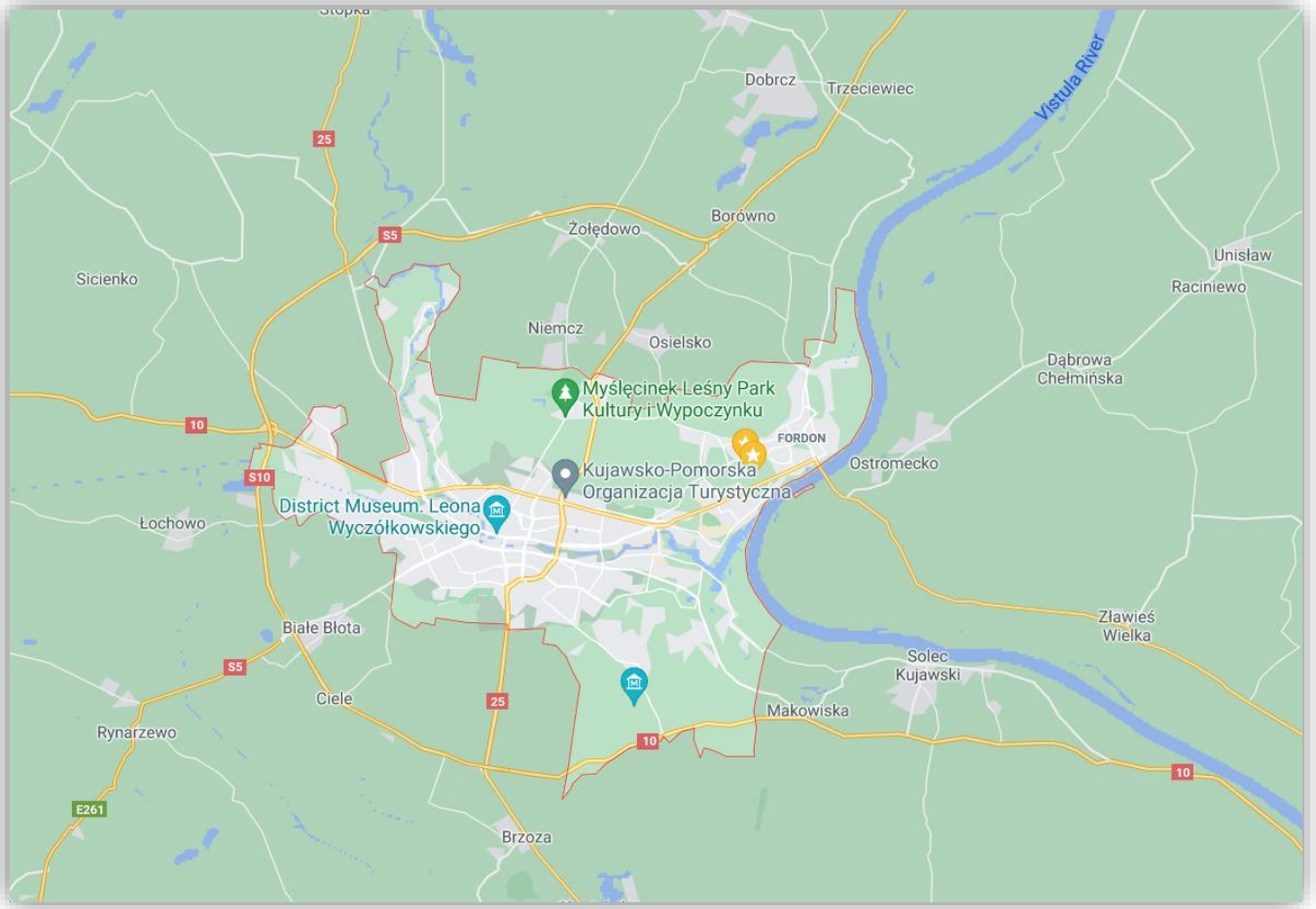


Hasselt in Belgium

- Facts:
  - total population - 71,520
  - area - 102.24 km²
  - density - 760 p/km²



Bydgoszcz in Poland



- Facts:
  - total population - 348,190
  - area - 175.98 km^2
  - density – 1’980 p/km^2

Traffic calming idea

- It is a concept that has been developed for almost half a century in cities and European agglomerations of various sizes.
- It is a widely used measure for shaping public space, especially in city centers.
- The basic idea is to adjust its transportation system to the basic functions, to recover the functional, cultural and ecological characters of the city center.
- And to remove the principle of full freedom of car use and reduction of the degree of penetration of the area by car traffic.

Why do we need traffic calming

- to reduce the effects of the intensive development of the automotive industry,
- to improve road safety
- to reduce environmental nuisances caused by car traffic,
- to hold on the degradation of urban spaces, especially downtown and residential districts,
- to improve standards of our daily activity,
- to make our and future societies live better.

How do we calm traffic

- changes in street hierarchy and traffic restrictions,
- traffic speed and volume reduction,
- reduction of through traffic by an internal center bypass,
- pedestrian zones and zones with limited vehicle access,
- prioritizing pedestrians and cyclists, where vehicle drivers have to yield them,
- implementation of traffic obstacles, like barriers and other physical devices to reduce vehicles speed, volume and thus pollution and noise caused by car traffic,
- limitations of parking lots, etc.

Hasselt in Belgium

- The solution applied in Hasselt has been implemented since the 1990s.
- It is a typical solution seen in the aspect of transport policy in the scale of Belgium and Western Europe.
- It represents the idea of a relationship between the street system and the center area development.

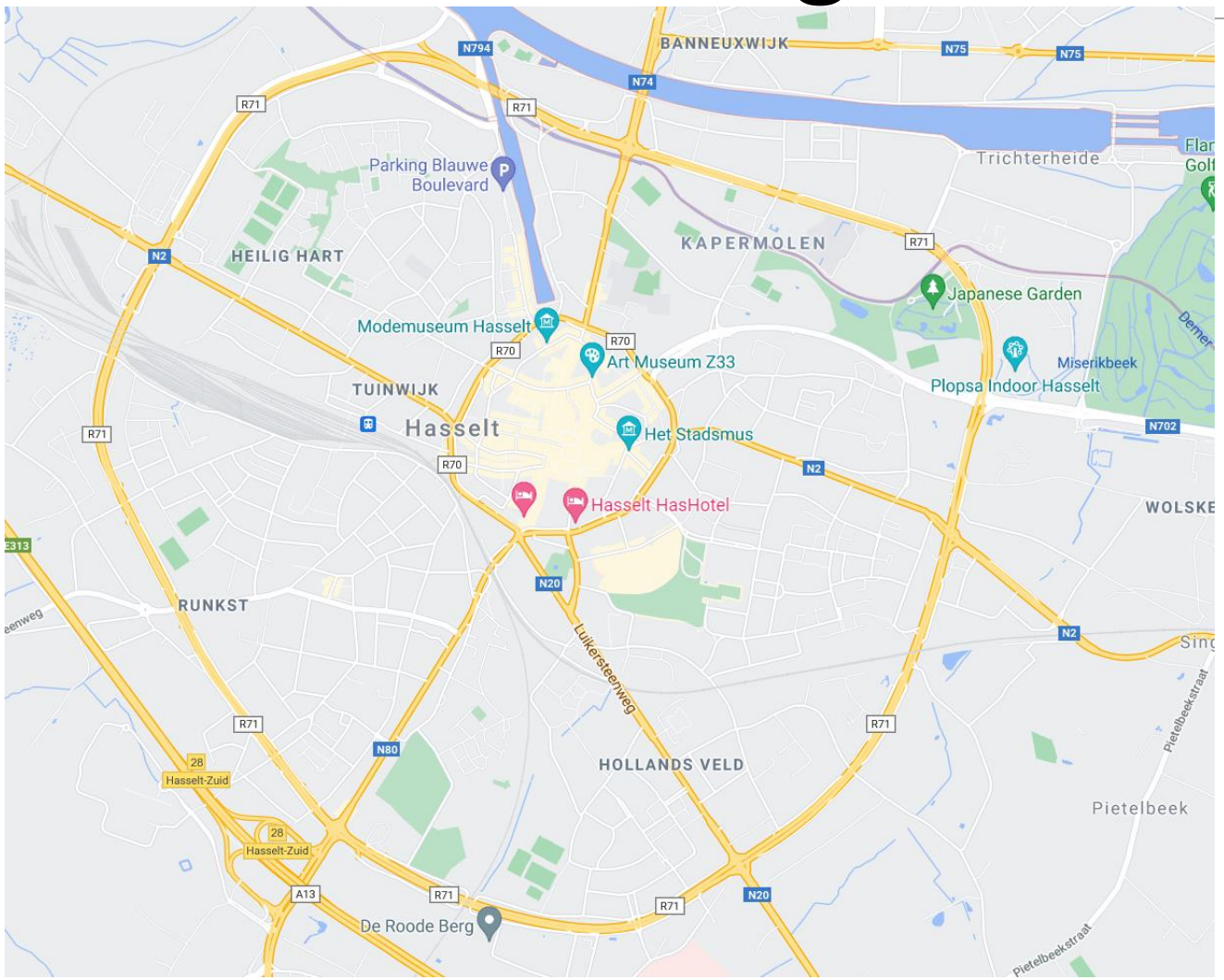
Hasselt in Belgium - Facts

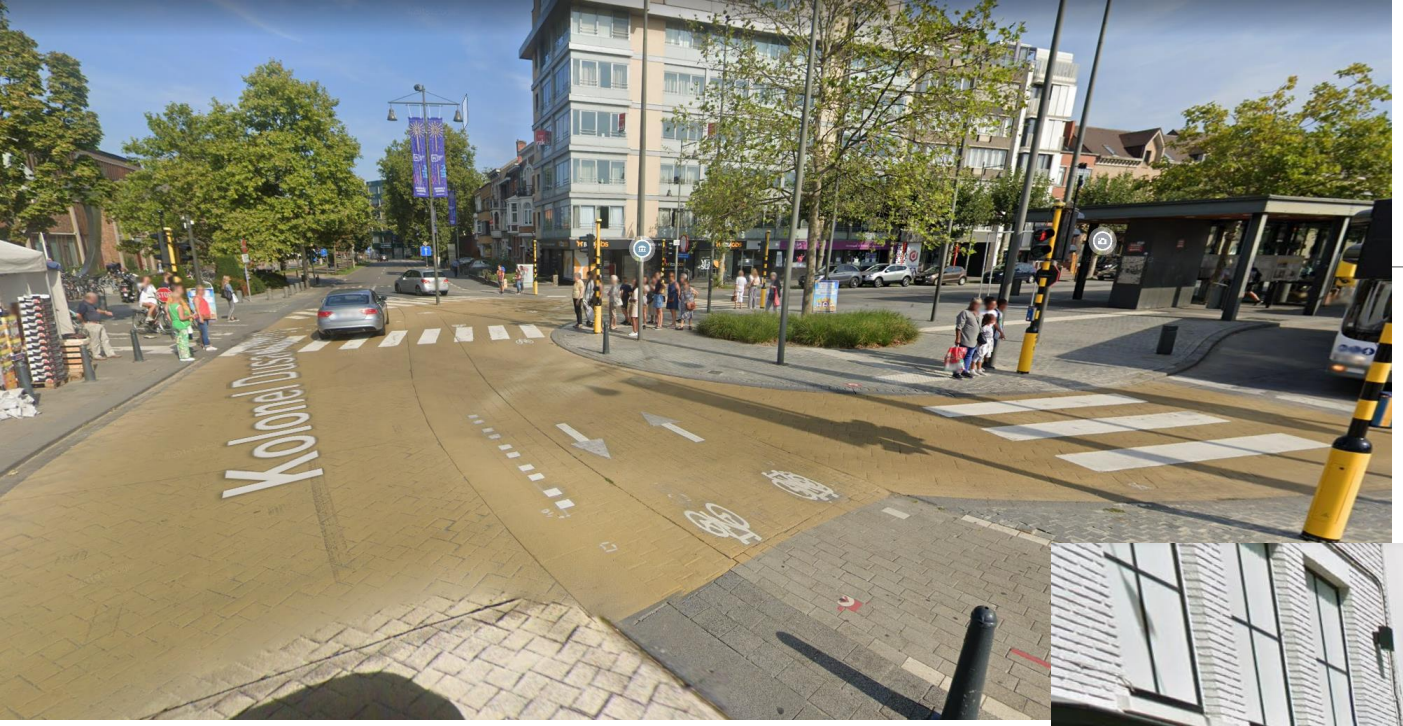
- Medium size city, where significant part of transport demands can be served by walking and cycling
- The bold decision of the city authorities, which decided to move away from the policy of a "pro-car city" towards a city policy with sustainable urban mobility.
- This city policy is focused on pedestrians, cyclist, public transport, as well as implementation restrictions for car traffic and road safety improvement.
- Free public transport service for the city’s residents started in 1997, and a fare system was partly restored in 2014.

Hasselt in Belgium - Implementation

- The road network was categorized, and road hierarchies were defined.
- The two-bypass system was implemented,
  with a one-way traffic system on the inner beltway of the historic centre, inside of which pedestrian and cyclist traffic are prioritized by implementation of:
  - car restricted access in the form of loops,
  - 30 pace zones,
  - cyclist and pedestrians' zones.

Hasselt in Belgium

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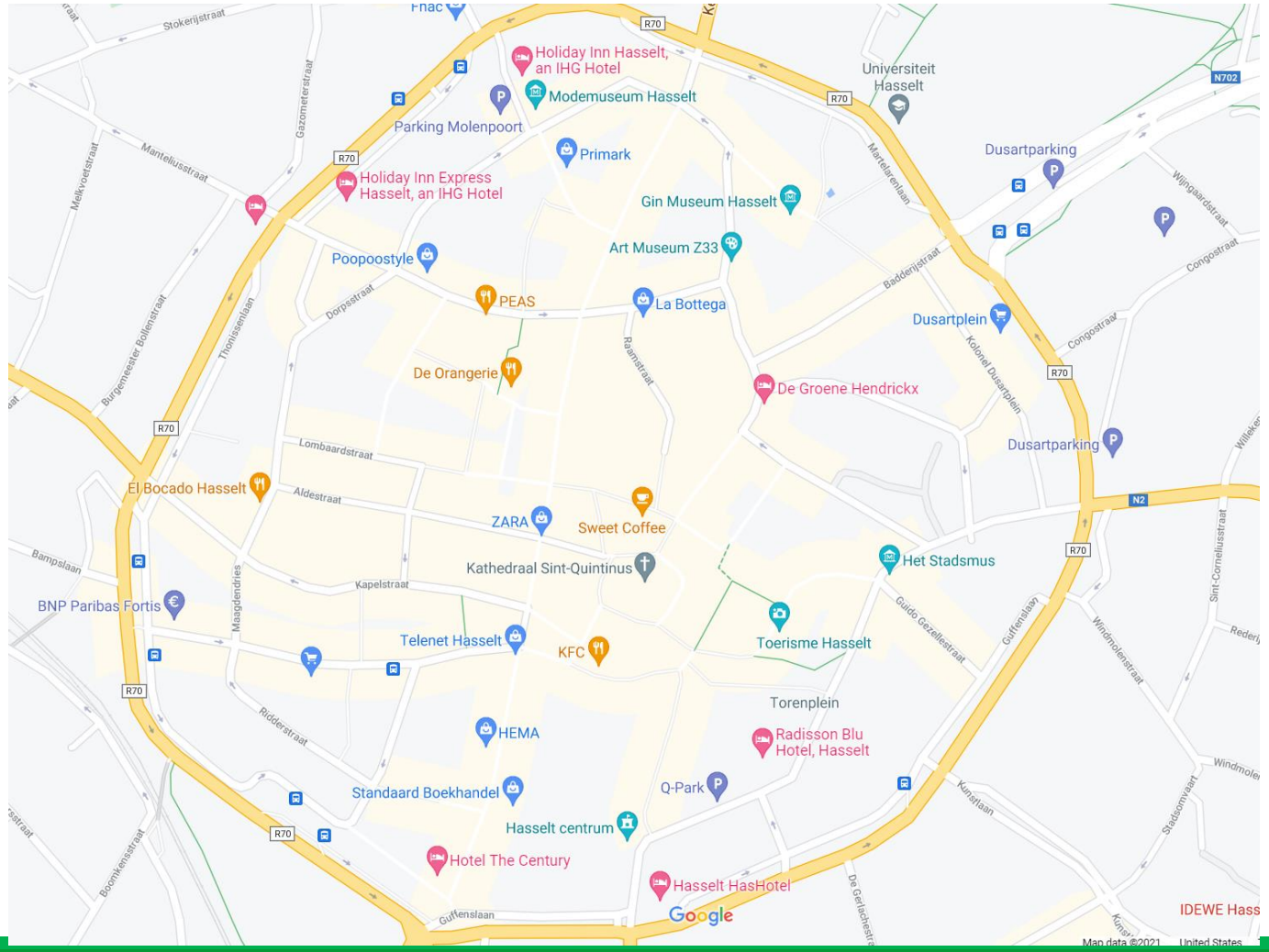
Hasselt in Belgium

Hasselt in Belgium



Hasselt in Belgium - results

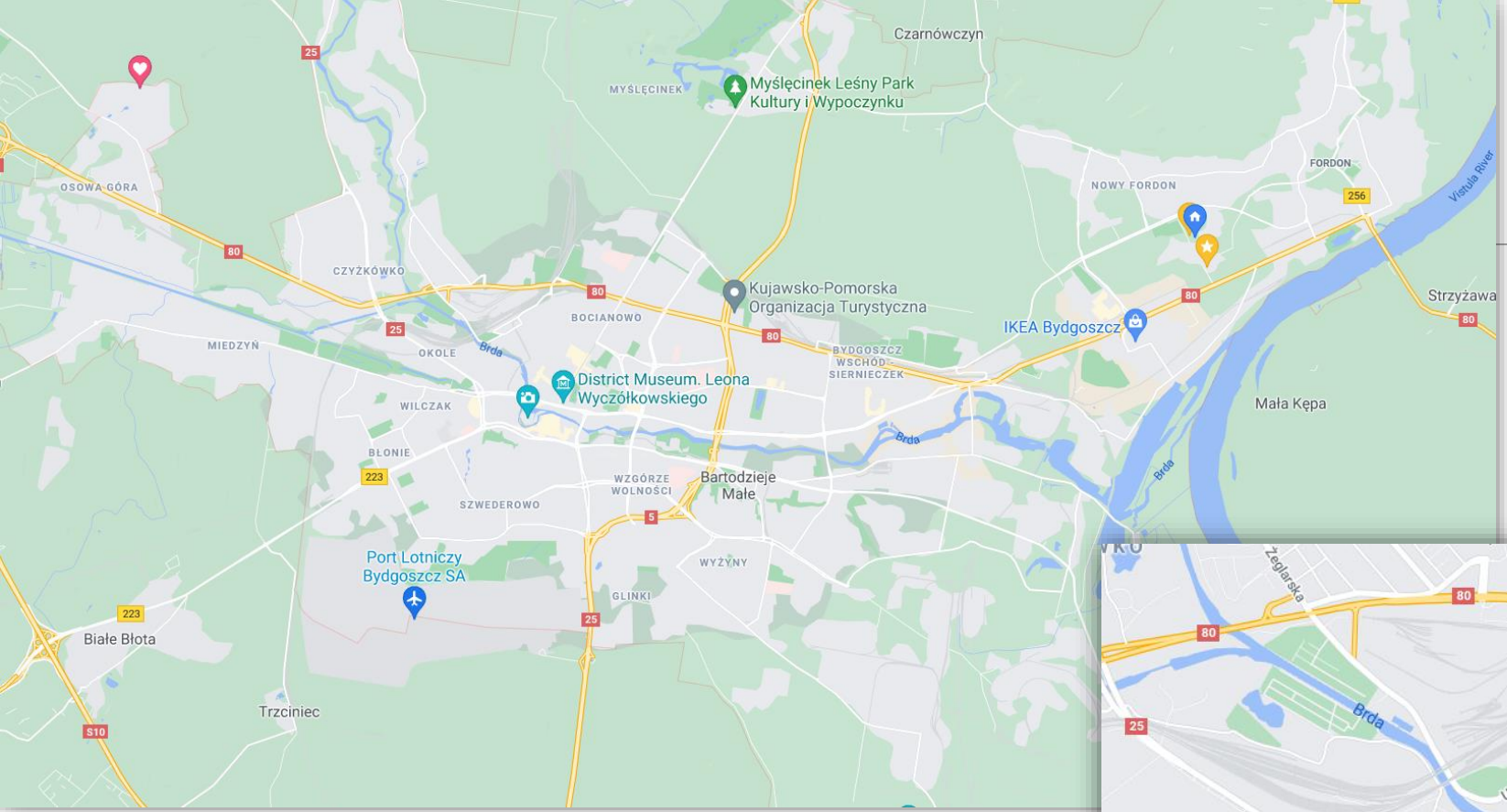
- The implementation of a traffic calming zone in the centre of Hasselt resulted in significant changes in the distribution of transport modal split in year 2000 and 2013:
  - a significant increase in public transport trips was observed from 4% to 41% of all trips,
  - from 9% to 26% as a pedestrian, and
  - a reduction in motorized trips from 71% to 23%.

Bydgoszcz in Poland

- The solution applied in Bydgoszcz has been implemented since the late 1990s, when the problem of traffic volume and parking lots occurred unacceptable by inhabitants.
- The implemented solutions are mainly based on the best practices from traffic-calming implementation in Western Europe, mainly in Germany and the Netherlands.
- It follows trends and measures successfully implemented in the center areas of middle-size European cities.

Bydgoszcz in Poland - Facts

- Medium size city, where the shape of the spatial structure is determined by the Brda river passing through the city center, as a rectangle of 25 km/7 km where area most occupied are located far away from the city centre.Significant part of transport demands have to be served by private or public transit trips.
- Public transport service consists of trams and buses, and a fare system for regular trips (€ 0.66) has not changed for a decade.
- The main road network in the centre and downtown of Bydgoszcz is not well developed.
- Therefore, intra-district routes are heavily loaded with traffic in the immediate vicinity of the historic centre.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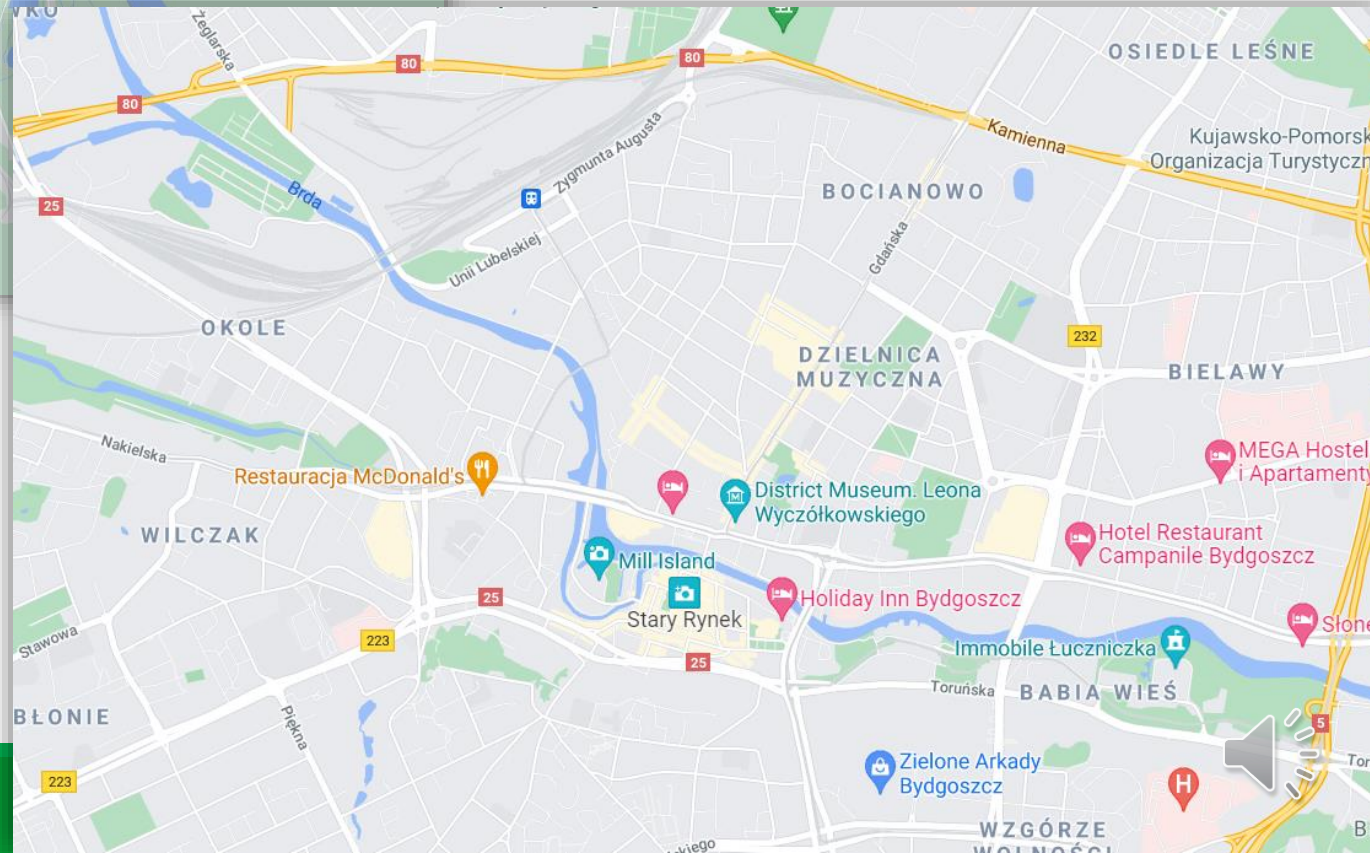
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Bydgoszcz in Poland - Implementation

- Only part of the centre with the most historic values was considered.
- The area of the Old Market Square and streets reaching this square have been excluded from car traffic.
- Direct access to the city centre is limited to residents, deliveries, police and other municipal services, as well as vehicles for the disabled users.
- Public (paid) parking lots are located on the outskirts of the traffic calming zone.
- Public transport service (buses, trams) is organized by the routes and lines of urban public transport connecting the centre with other parts of the city.
- A public bike station was constructed in the Market Square.

Bydgoszcz in Poland


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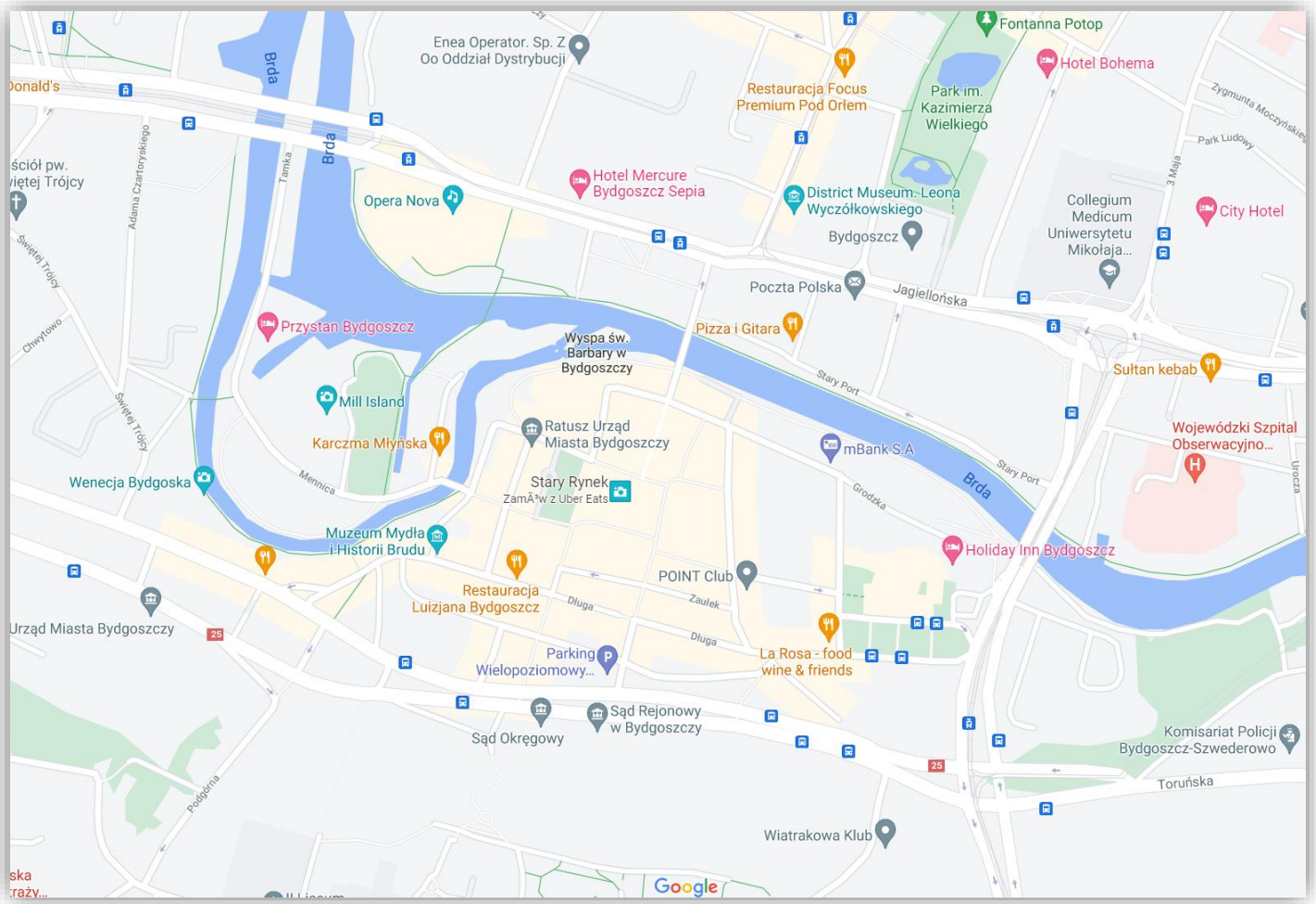
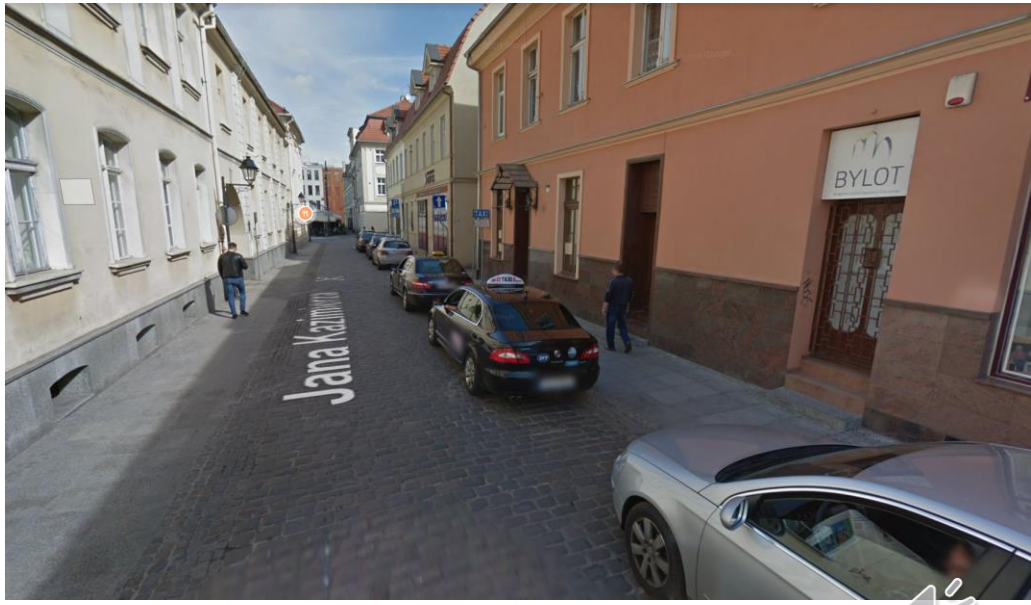
Bydgoszcz in Poland





Bydgoszcz in Poland - results

- The implementation of a traffic calming zone in the centre of Bydgoszcz have not resulted in significant changes in the distribution of transport modal split, since it was introduced in 2019.
- Opinions of the residents in Bydgoszcz indicate their positive reception.
- Car access and parking restrictions enabled to reduce internal traffic and vehicle speeds, and that way to improve accessibility for pedestrians and cyclists.
- The historical centre of the city, after the introduction of traffic calming solutions, became a user-friendly area for its inhabitants and tourists.

Final conclusions

- The presented traffic calming solutions in Hasselt and Bydgoszcz show great possibilities of shaping transport service and improving the quality of public space in central areas of cities.
- Creation of user-friendly zones and improvement of the operating conditions of these areas enabled much better quality of public space in central areas.
- In both cities the traffic calming effect in the central areas was achieved by reducing through traffic, limiting private cars and parking lots, speed limits, and cyclist and pedestrian infrastructure.
- The traffic calming solution in Hasselt covers the entire city center, while in Bydgoszcz only part of the center with the most historic values. This is the result of different spatial structures of these areas and the sizes of both cities.

THANK YOU FOR YOUR ATTENTION!

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