



# Motorization tendencies in the Budapest region



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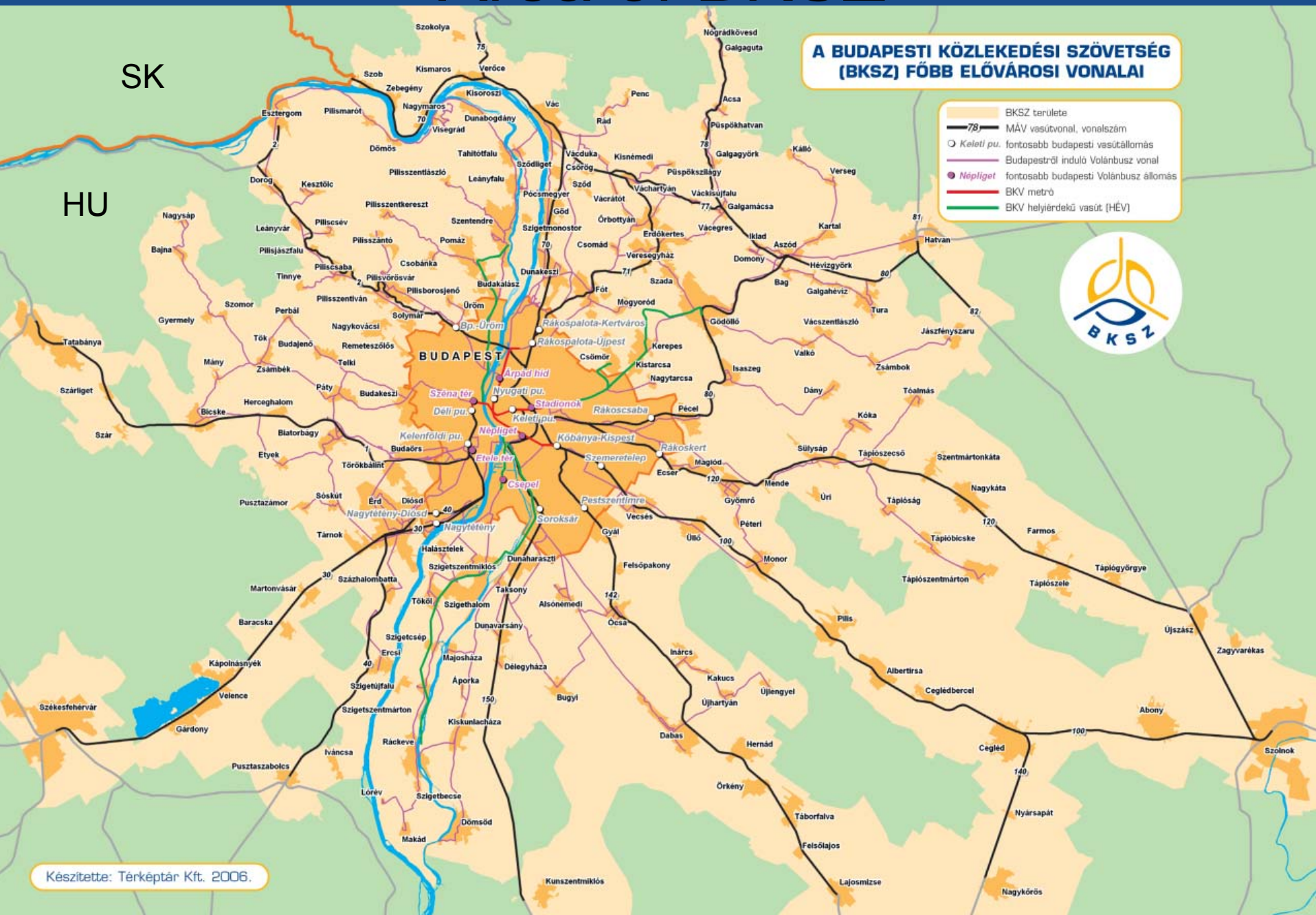
# Content

- Intro of BKSZ Area
- Trends in Budapest Area
- Measures against growing motorization





# Area of BKSZ



# Statistics, geographical data

- Settlements: 193
- Area: 7,600 km<sup>2</sup> / 525 km<sup>2</sup> (Budapest)
- population: 3.2 million / 1,7 million (Bp)
- Heavy rail length: 924 km / 119 km (Bp)
- Heavy rail stations: 378 / 41 (Bp)
- Local rail (hév) length: 98 km / 38 km
- Local rail (hév) stations: 71 / 39 (Bp)
- Regional bus line length (Volán): 2.434 km / 175 km (Bp)
- Regional bus stops: 4.216 / 131(Bp)
- Budapest local network: 1150 km / stops: ~2250





# Regional bus and heavy rail lines in Bp

## Suburban rail (MÁV):

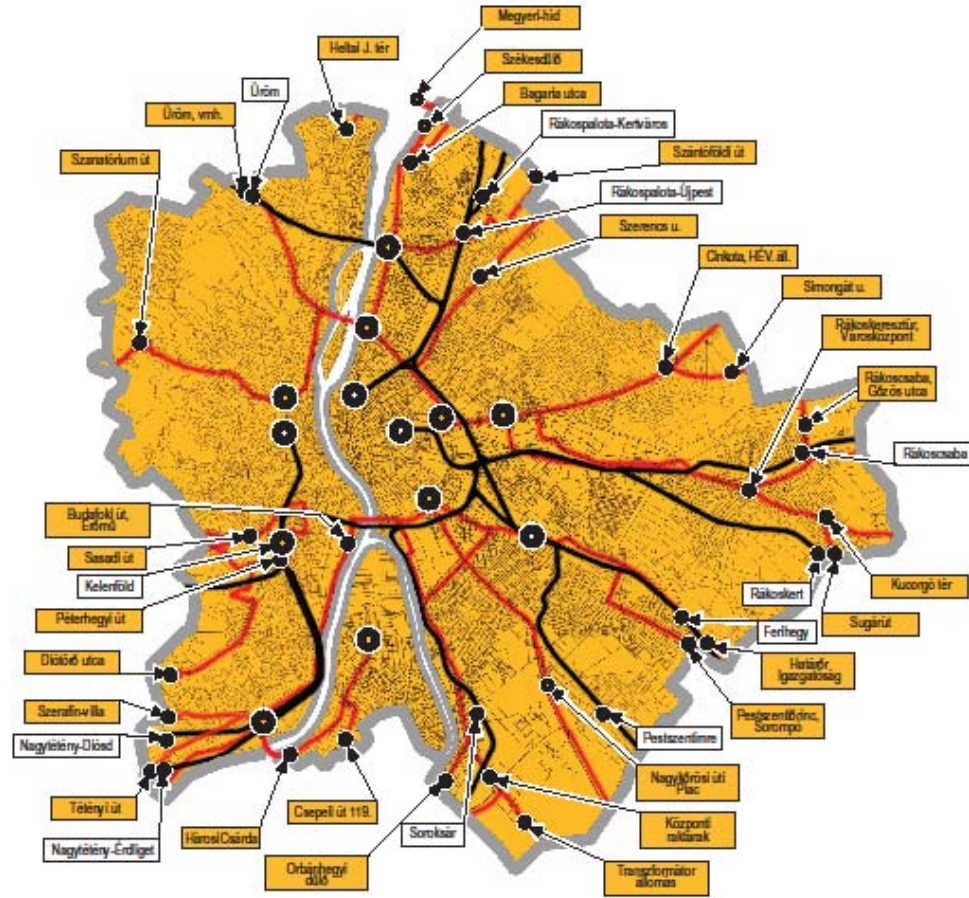
- 41 rail station
- 119 km railway

## Regional bus:

- 131 pair of stops
- 175 km network

(Local service:

- ~2000 stops
- 1153 km network)





**BUDAPEST**



## HAVI BUDAPEST-BÉRELET

Béretigazolvány száma: 2009

**Ára: 0000 Ft**

HÓNAP	NAPTÓL	HÓNAP	NAPIG



**BUDAPESTI EGYESÍTETT  
HAVIBÉRLET**

**2008.**



VOLÁMBÚZ 

HONAP	NAPTÓL	HONAP	NAPTÓL

# Demographic changes in Budapest

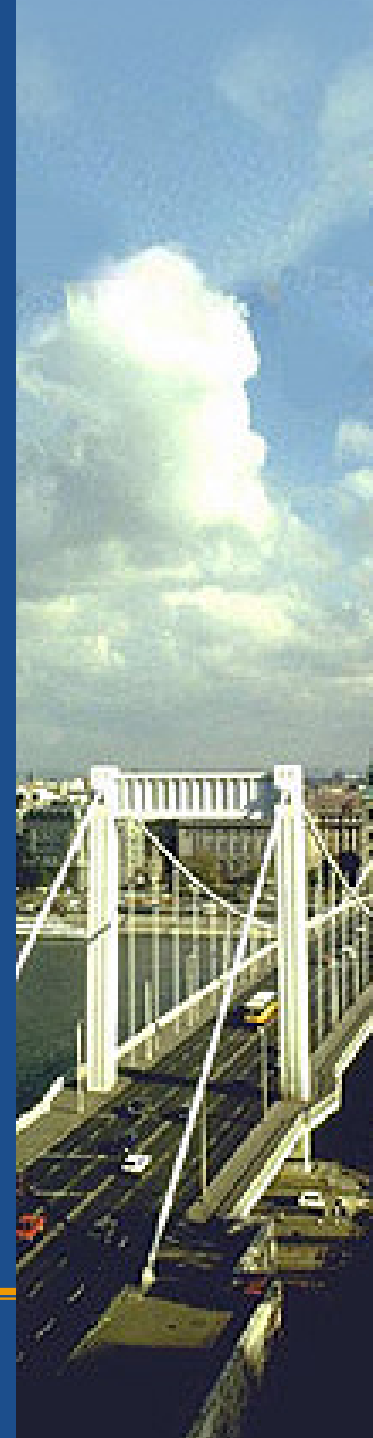


# Proportion of everyday journeys

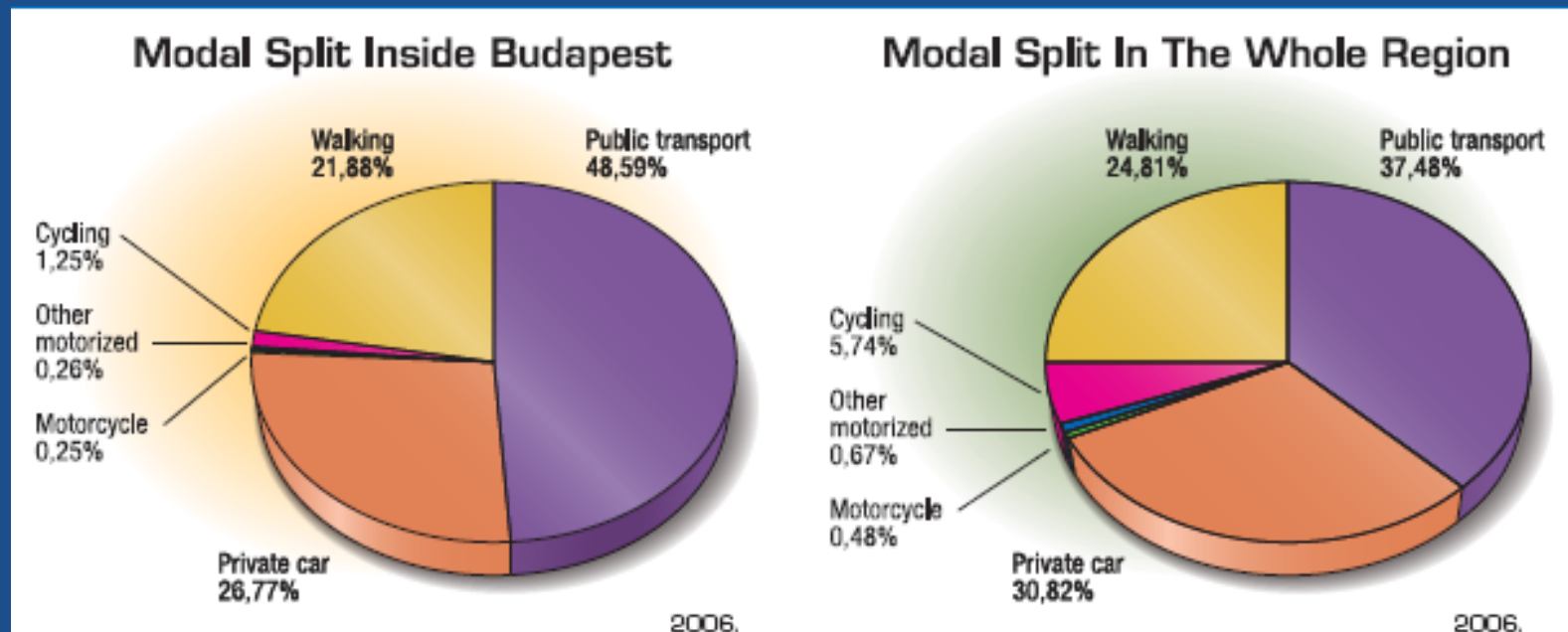
- **2.500.000 journeys** in Budapest per direction a day
  - out of which **600 000 city border crossings** per direction a day (estimated to 800.000 for 2015)
    - Out of which 400.000 by individual car use
    - 200.000 by public transportation
      - 38% - National Railway (MÁV)
      - 36% - Budapest Transport Company (BKV)
      - 26% - Regional bus (Volánbusz)



Warsaw, 5th September 2009



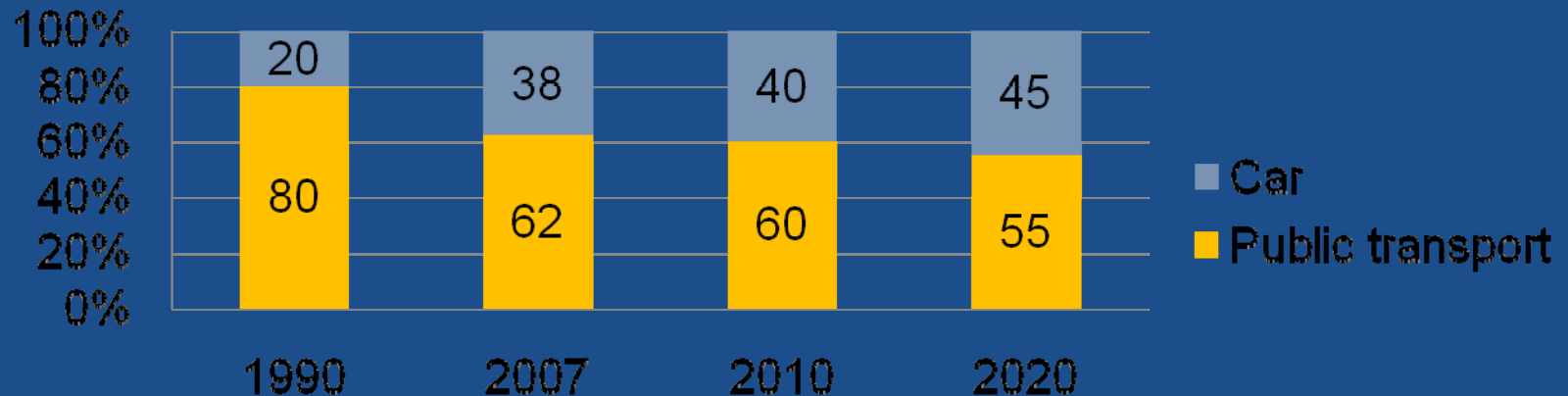
# Modal split in BKSZ area, 2006.



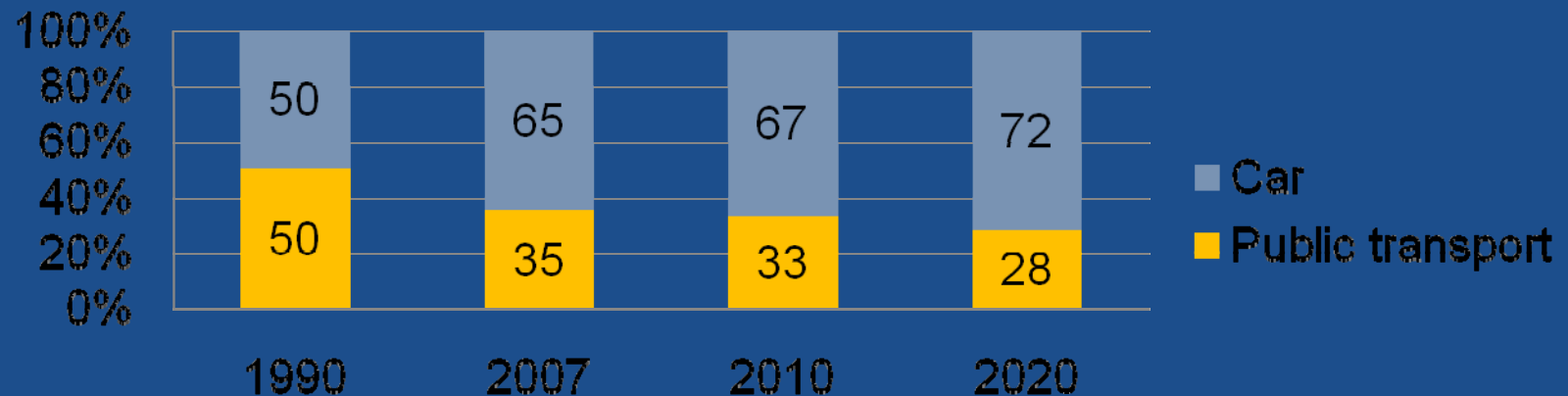


# Modal split trends

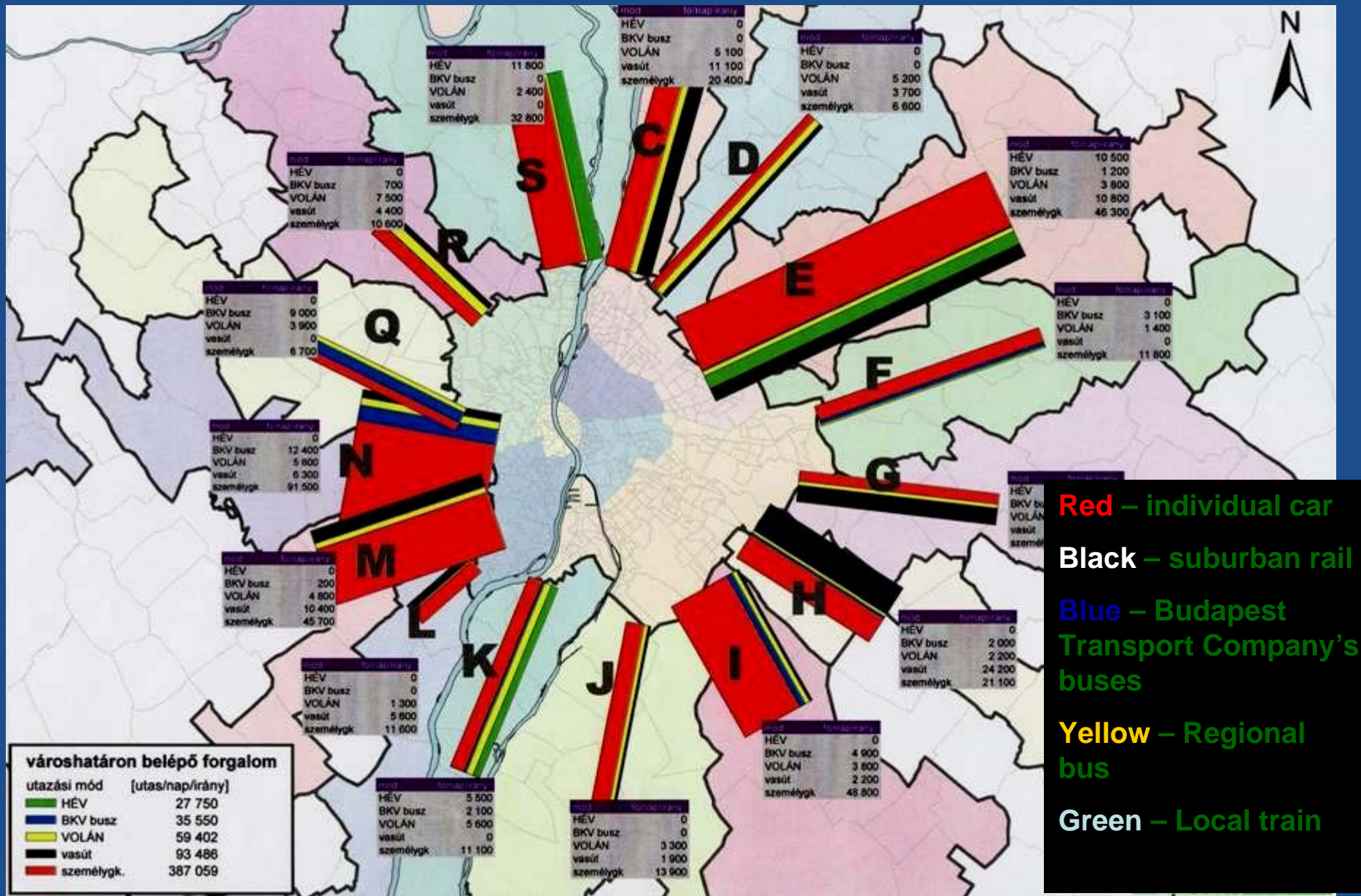
## Budapest



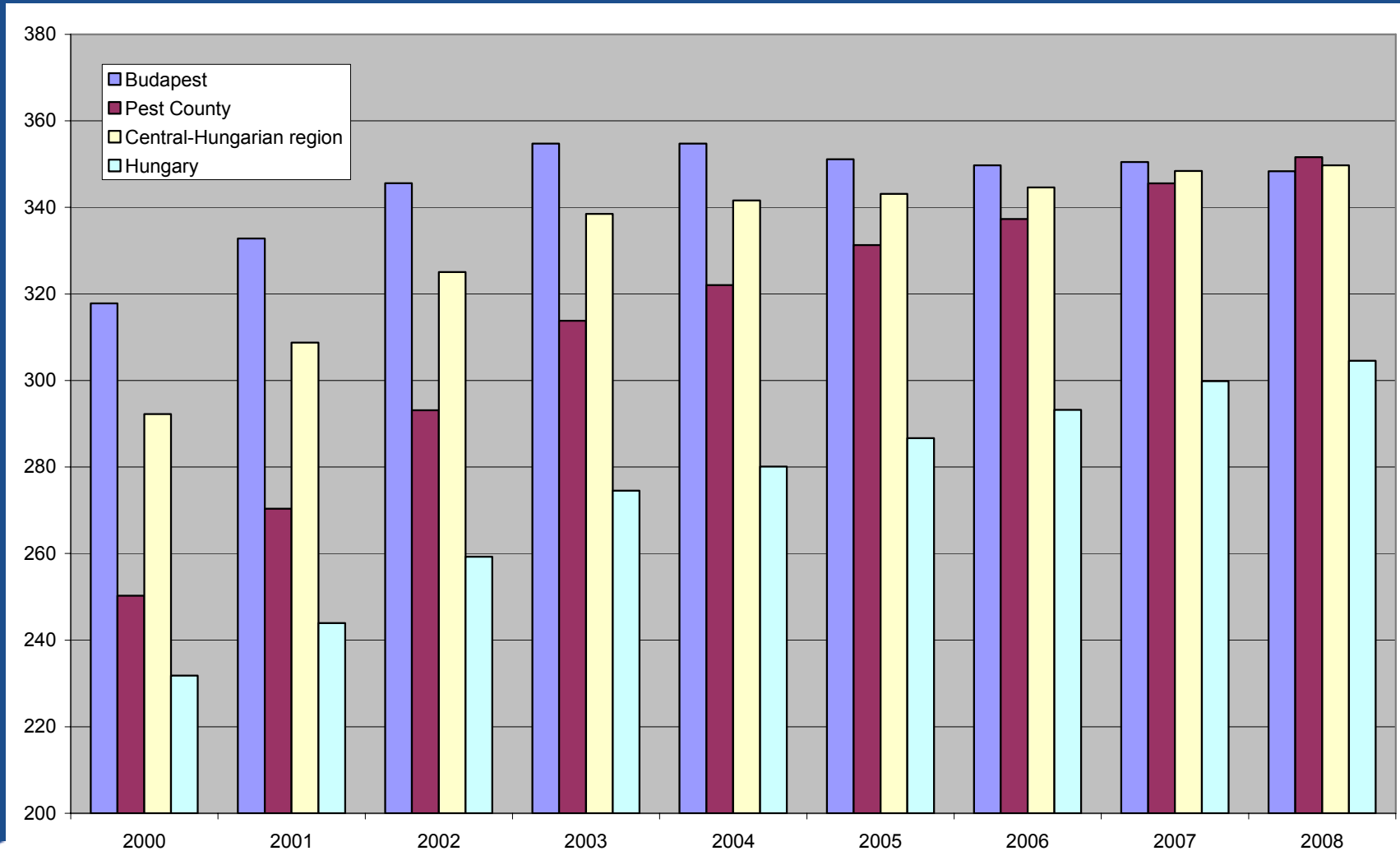
## City borders



# Modal split at the city borders



# Motorization trends





# Motorization trends

- Motorisation:
  - Budapest 348 cars /1000 inhabitants, national average: 305 cars /1000
  - Number of registered cars rose by 130% since 1980 and 26% since 1990 – and even more in the agglomeration
  - Car is still a status symbol
- As a consequence, average speed declined considerably



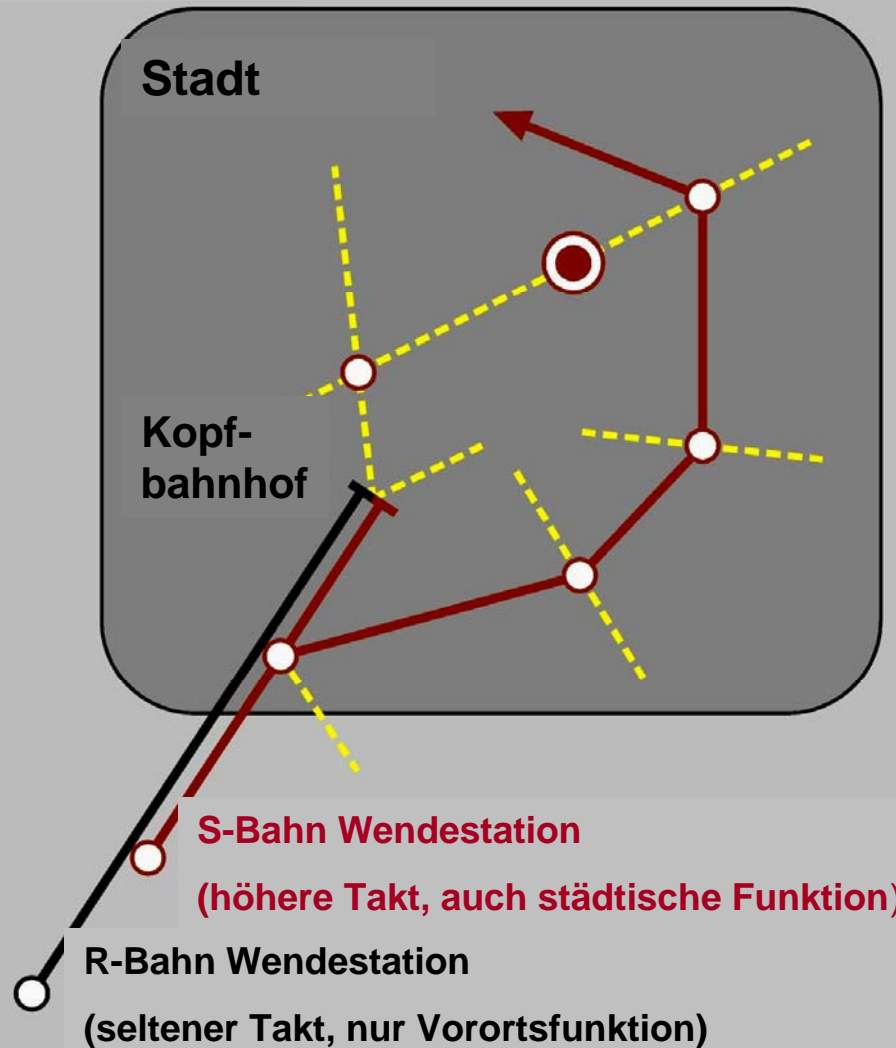
# Measures against growing motorization

- Rapid Rail (S-Bahn) development in the  
hole region
- Track based transport development in  
Budapest
- Parking measures
- Congestion charging – study phase



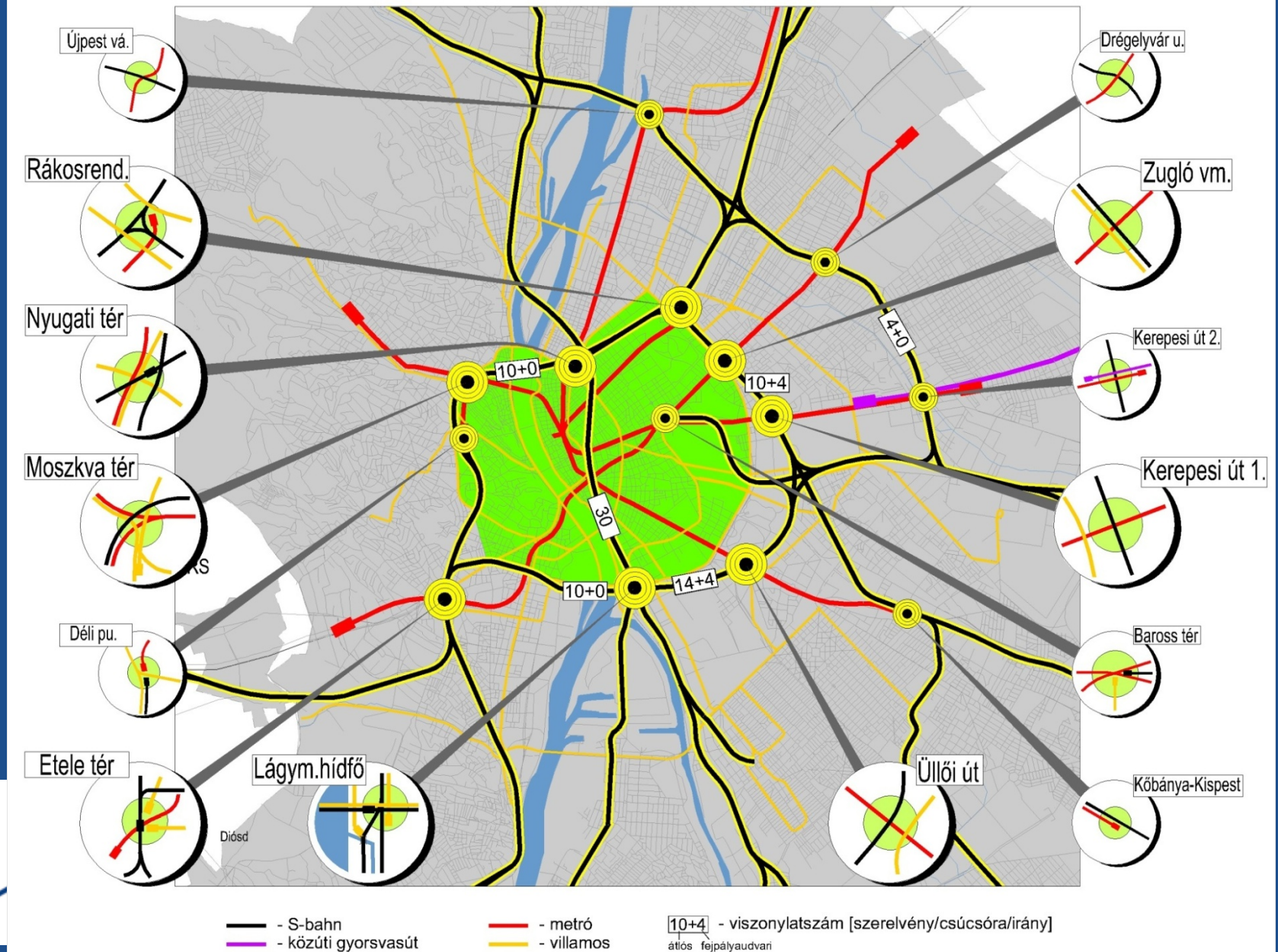
# Principle of Rapid rail network

Umland





# Planned Budapest track based transport network in 2034



# Metro 4

## A 4-es metró nyomvonala



# Metro 4

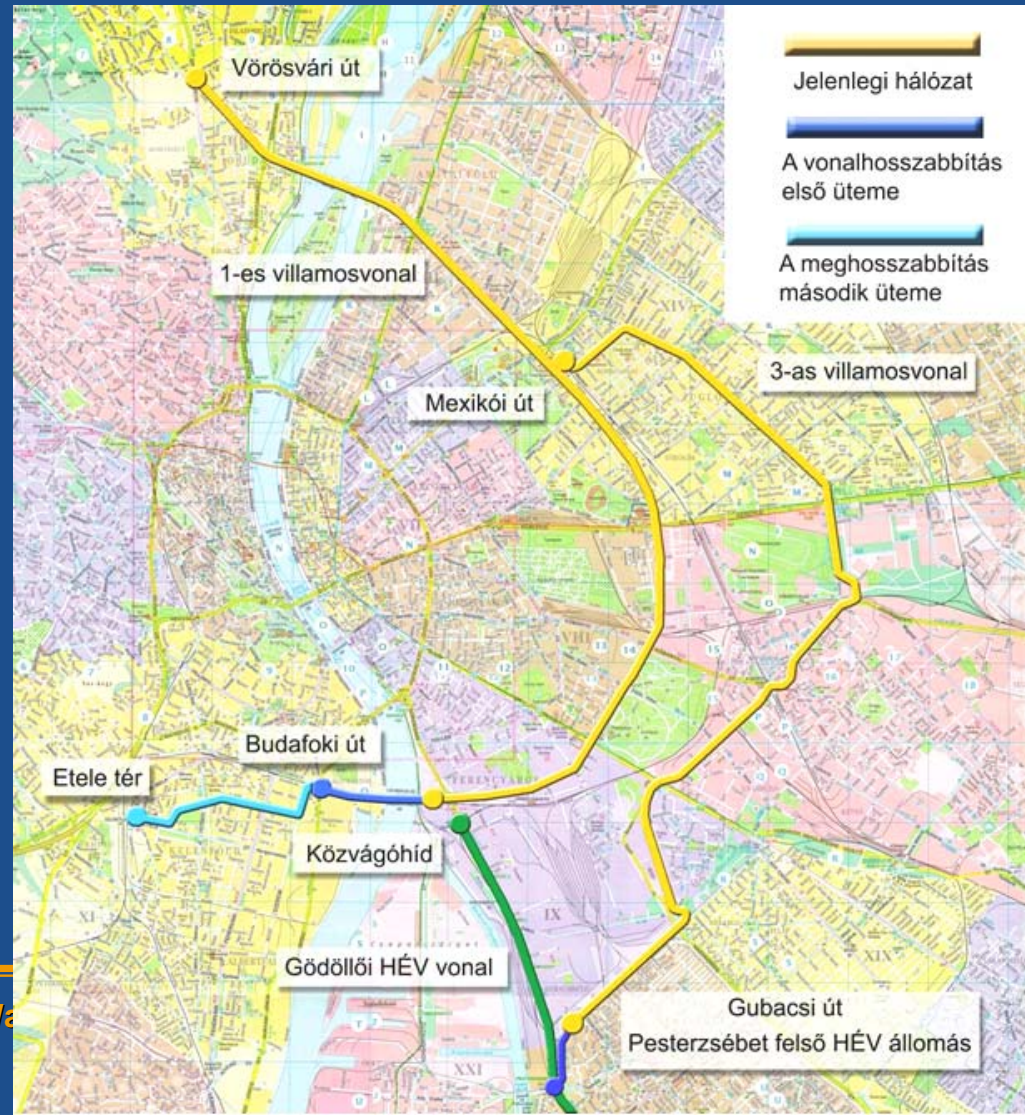
- First part: 7,3 km, 10 stops. Under construction; to be ready by 2012
- Second part: 4 more stops
- Controversies:
  - Huge and ever-increasing costs (and opportunity costs)
  - Disputed cost-effectiveness
  - Does not reach the outer congestion zones



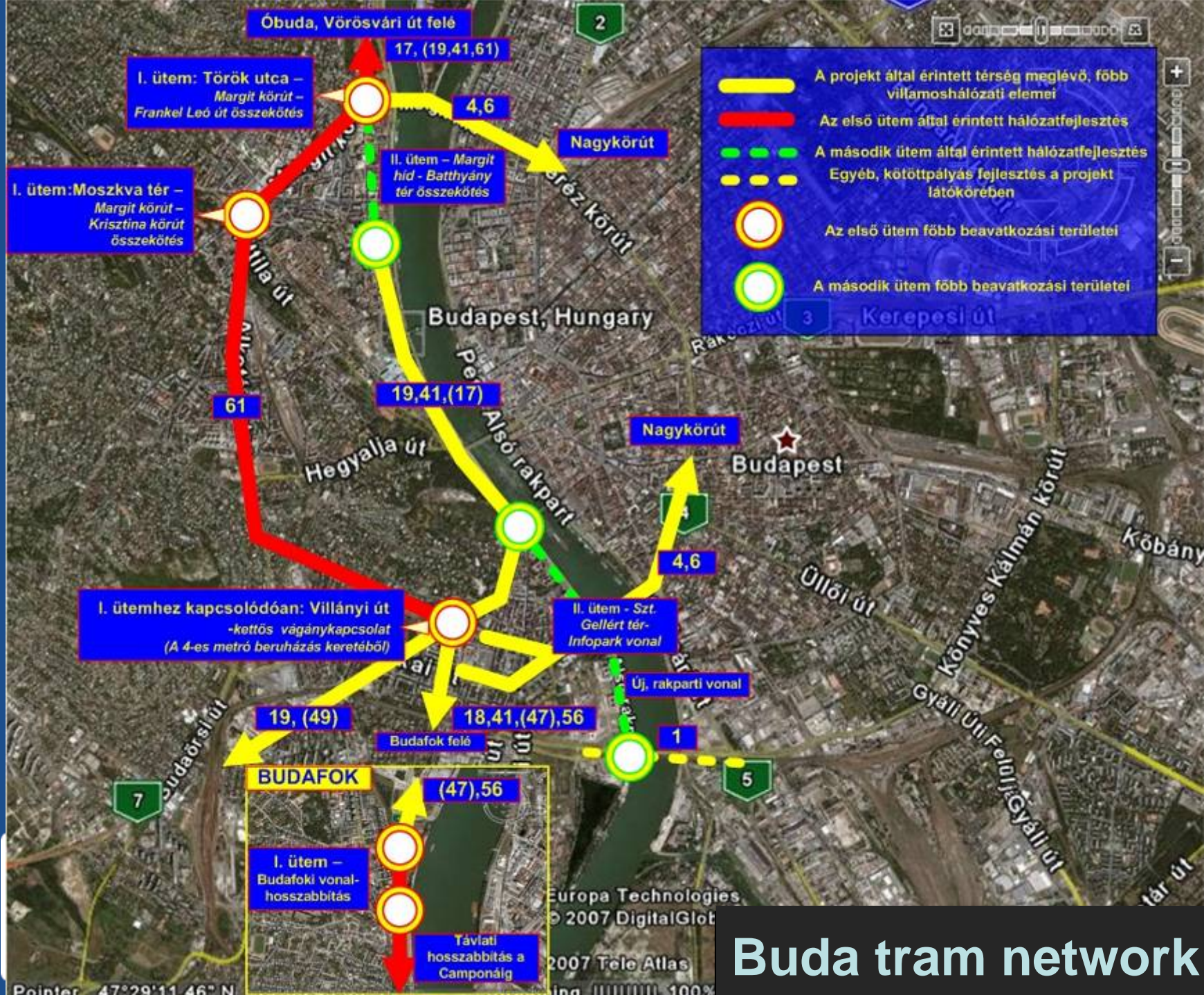


# Tram lines 1 and 3

- Mainly reconstruction works
- Small sections of new tracks
  - Ongoing debates on the route
- New vehicles to provide a partly accessible service





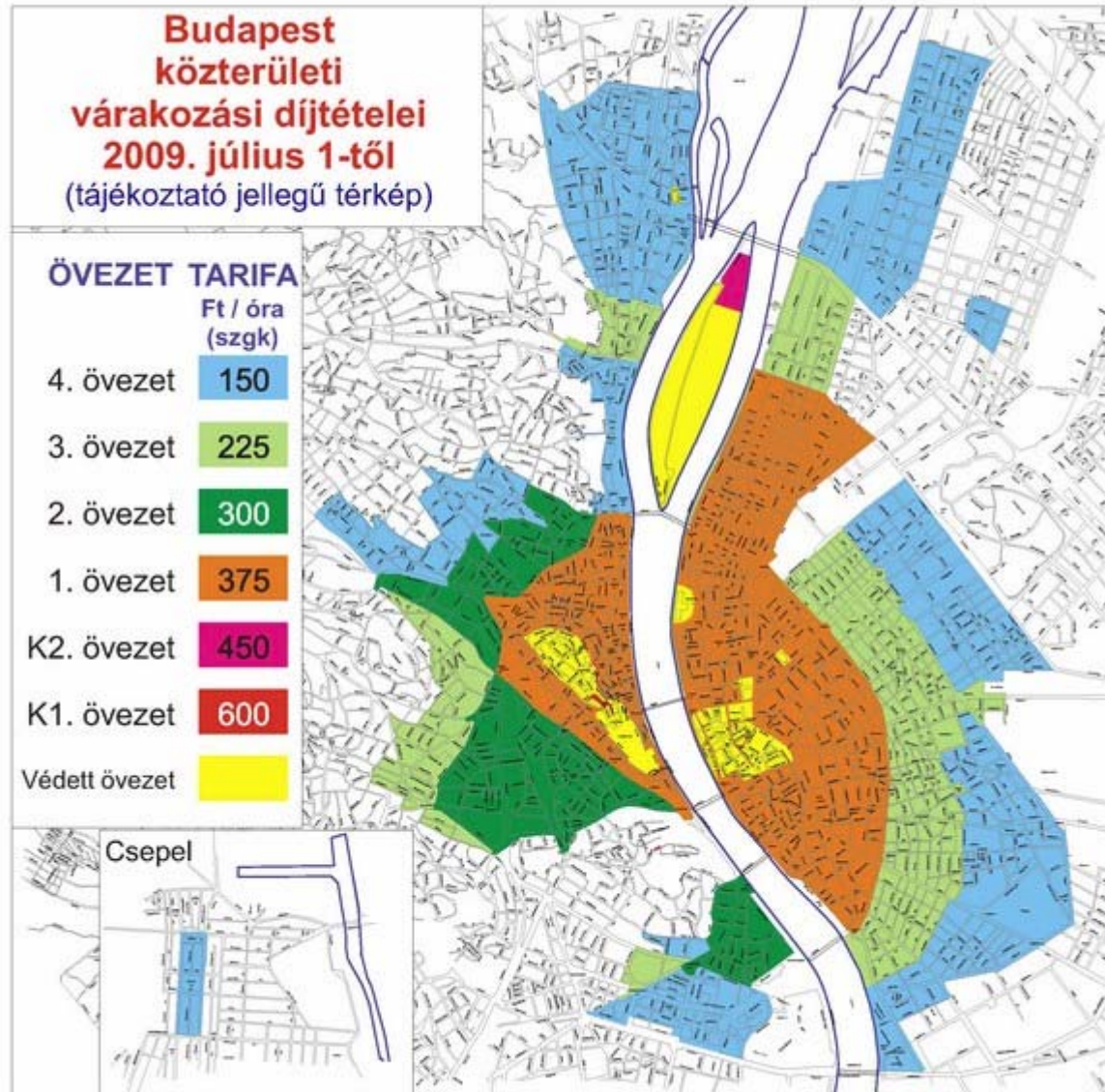


Buda tram network

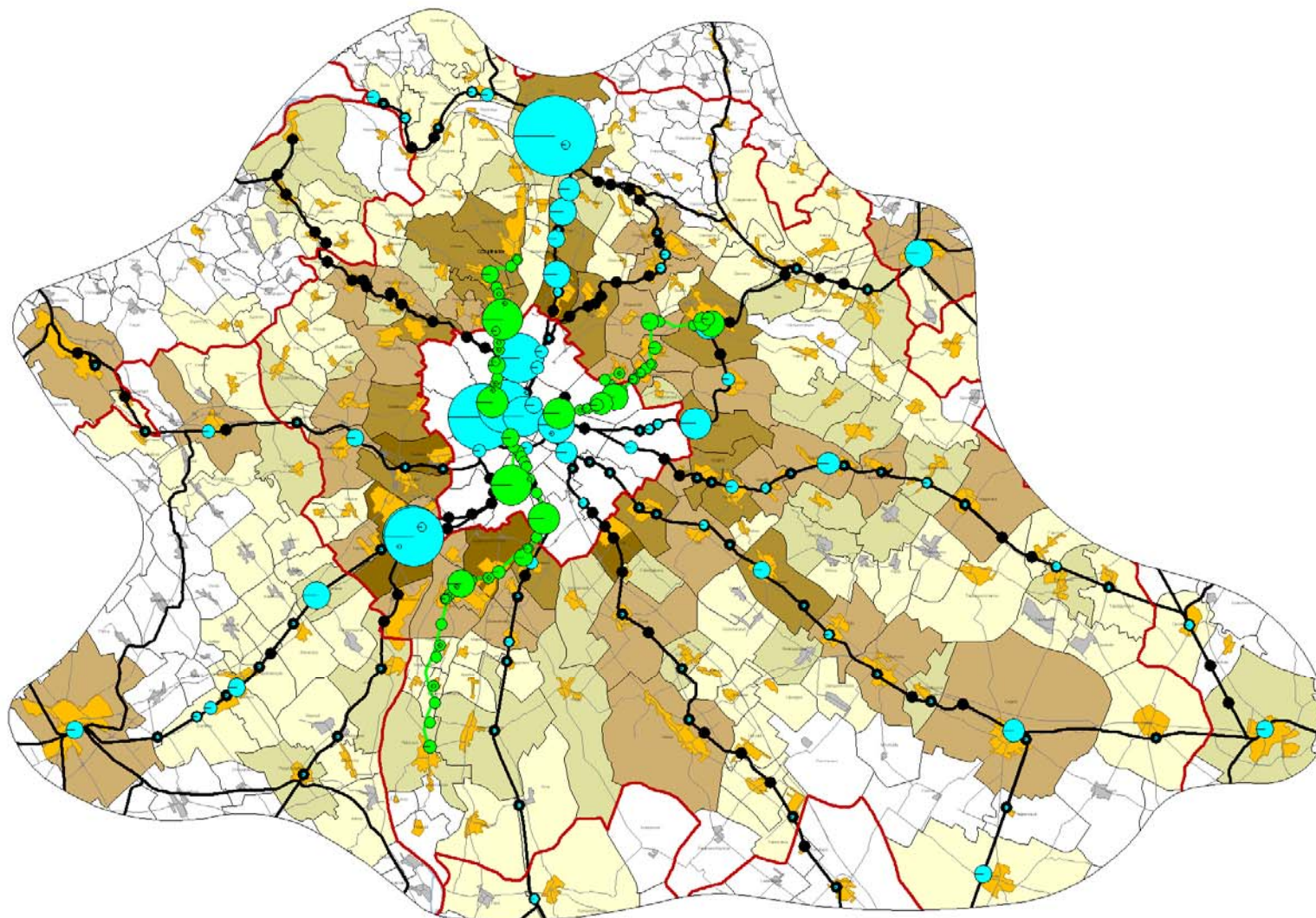


# Parking – new zones and fares

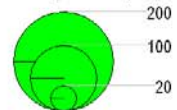
- New zones
- Extensions
- Less and more coherent zones
- Higher fares
- Fares connected to BKV ticket prices
- Remaining problems
  - 3 different (private) parking companies
  - Most incomes spent on operation



# Existing P+R, partly unofficial

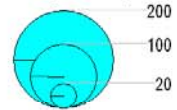


P+R parkolók (hév)



parkolásra alkalmas férőhelyszám

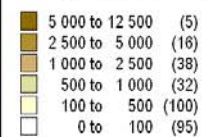
P+R parkolók (MÁV)



parkolásra alkalmas férőhelyszám

Napi ingázók száma

Agglomerációból - Budapestre

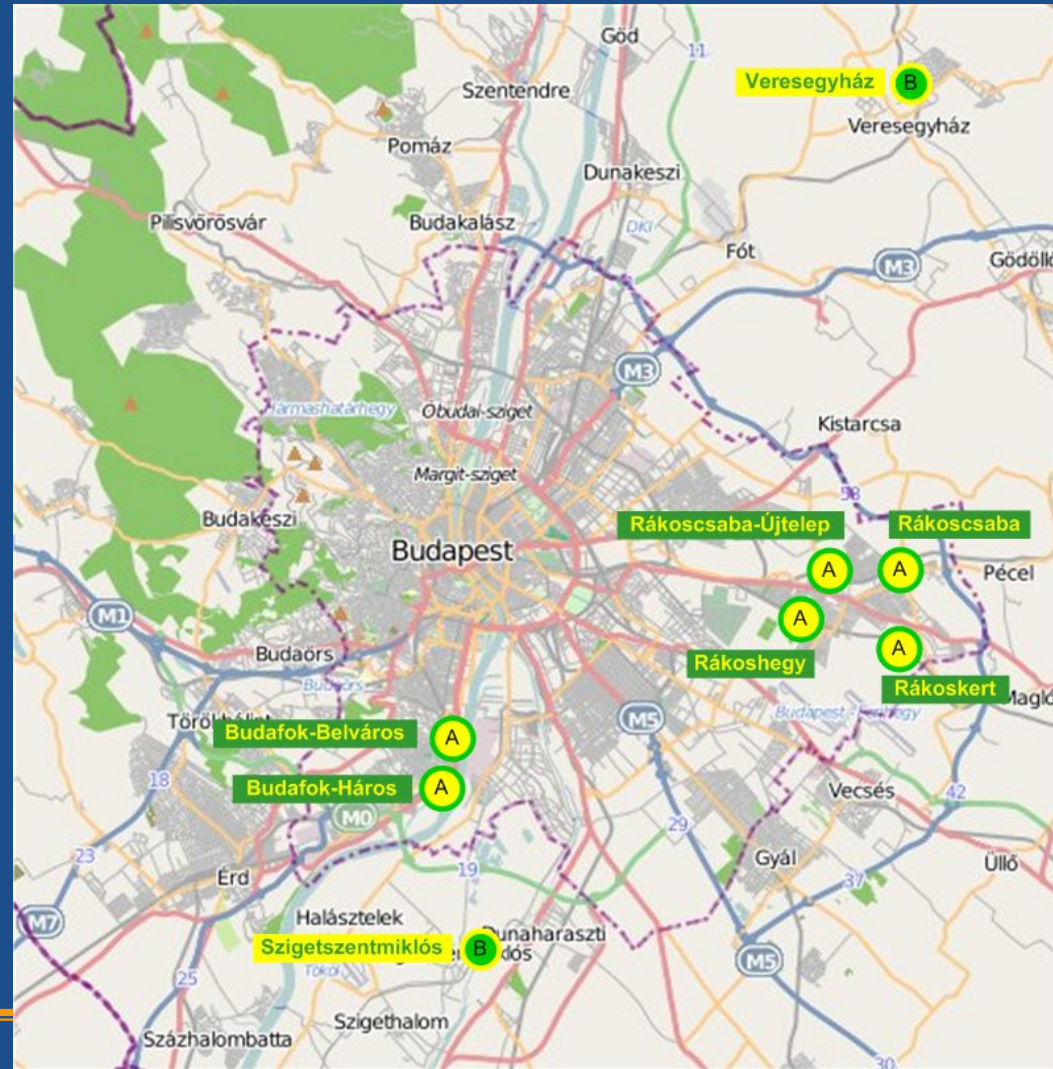




# Parking – P+R developments

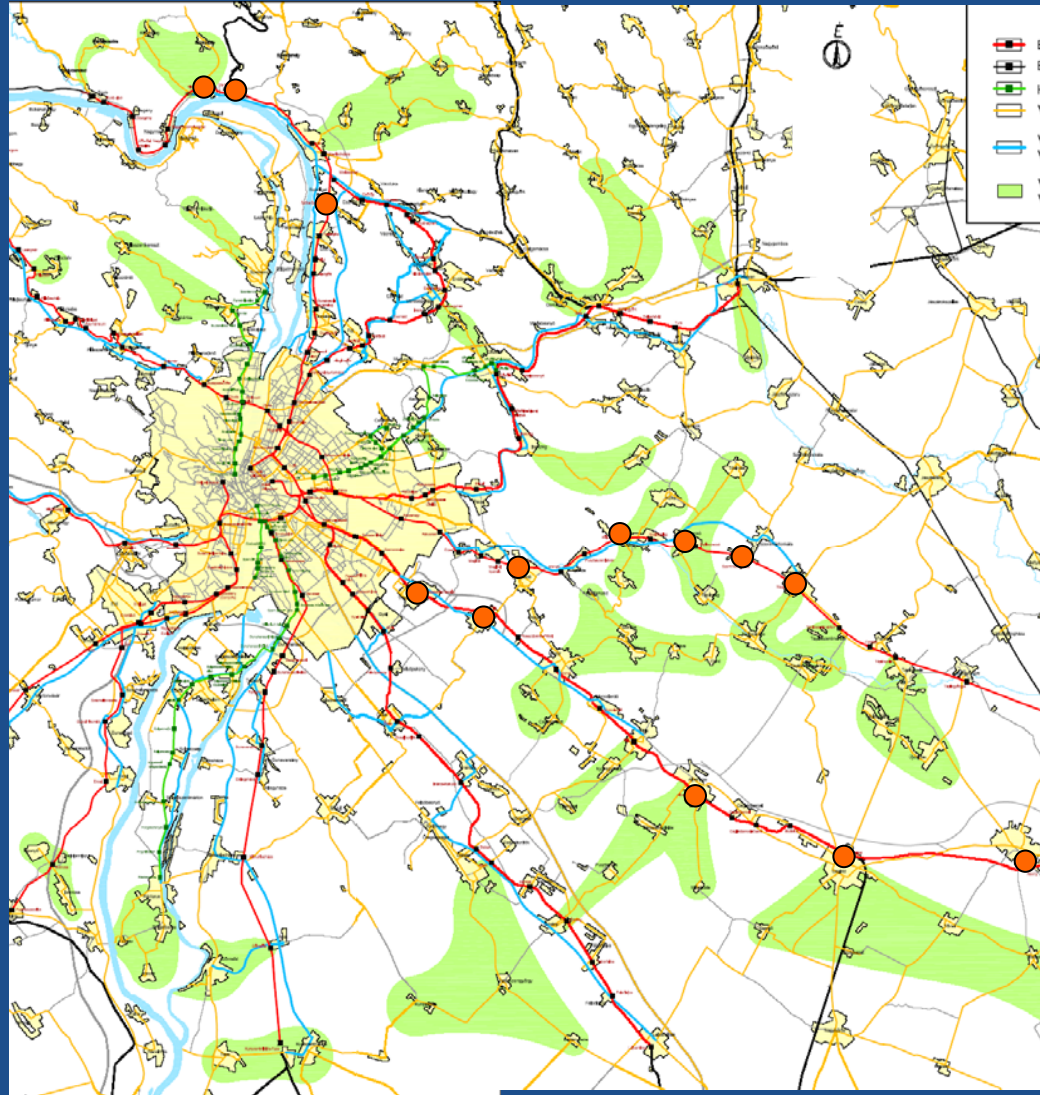
Small-scale P+R developments

- EU funding, 2 rounds
- 6+2 locations at suburban railway stations
- 570+221 parking lots
- Additional B+R facilities



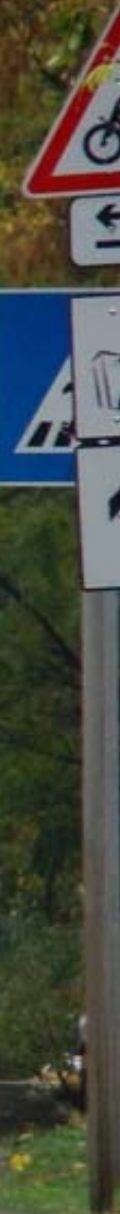
# Development of intermodal nodes in 13 settlements, Pest County

- Total project cost HUF 624 m /
- EU support HUF 561 m /
- Preparation cost of BKSZ HUF 15 m
- 834 P+R lots (min. 22, max. 100)
- 540 B+R lots
- 1 bus loop



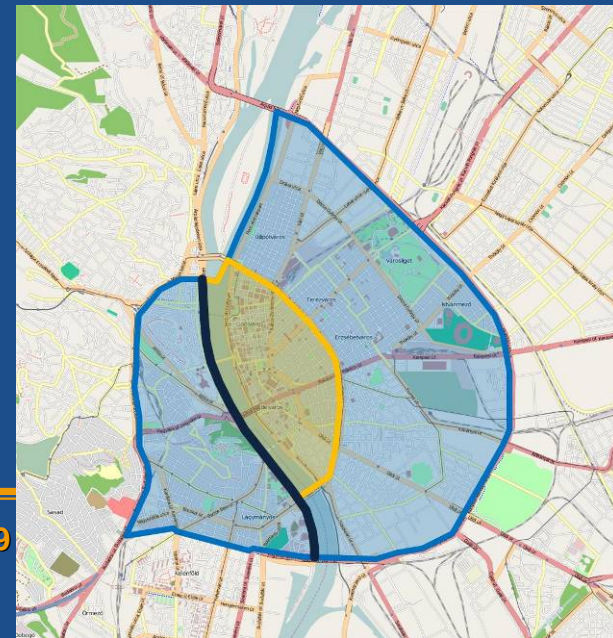
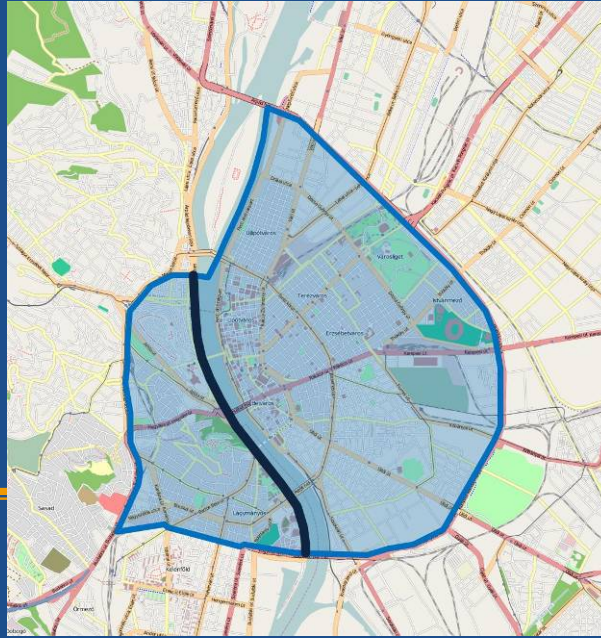
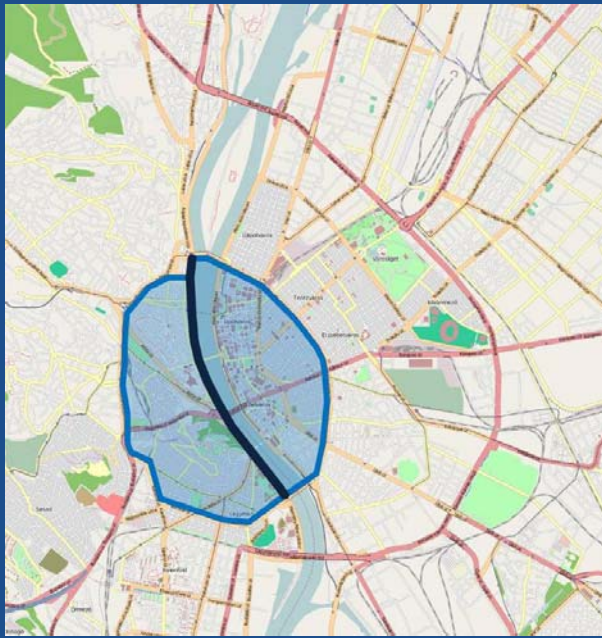


# Congestion charging



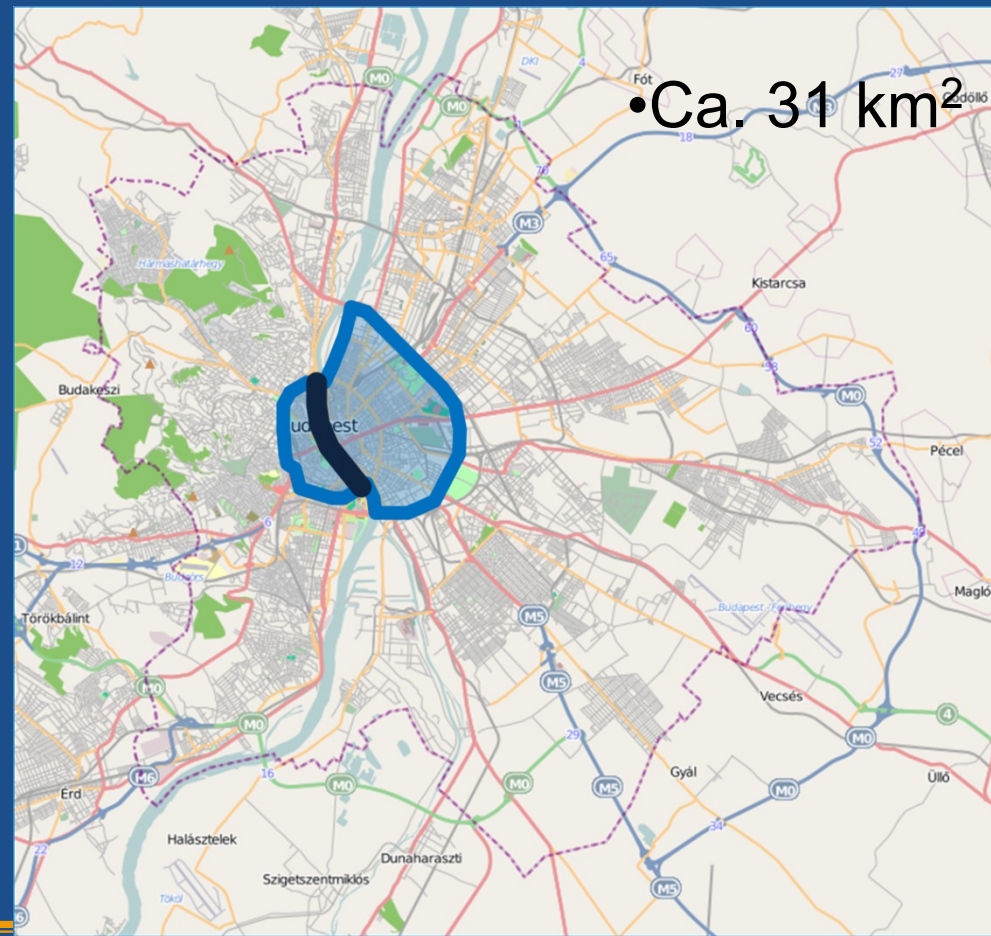
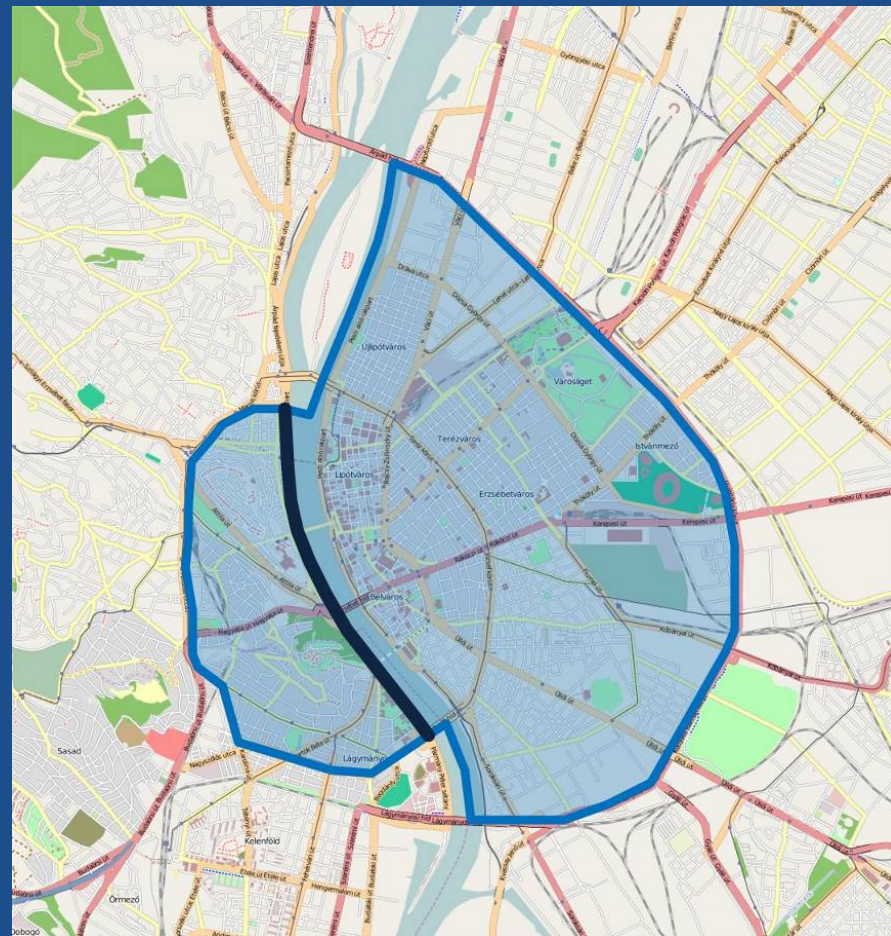
# Congestion charging - options

- 3 main zone options
- Several fare options (1,5€, 2€, 2,75€)
- Differentiation (emission, time of the day)





# Proposed zone



# Proposed fare system

	Green	Yellow	Red
<b>Morning peak (6-9)</b>	1,5 BKV tickets	2 BKV tickets	2 BKV tickets
<b>During the day (9-20)</b>	1 BKV ticket	1,5 BKV tickets	1,5 BKV tickets
<b>Night and weekend</b>	free	free	free

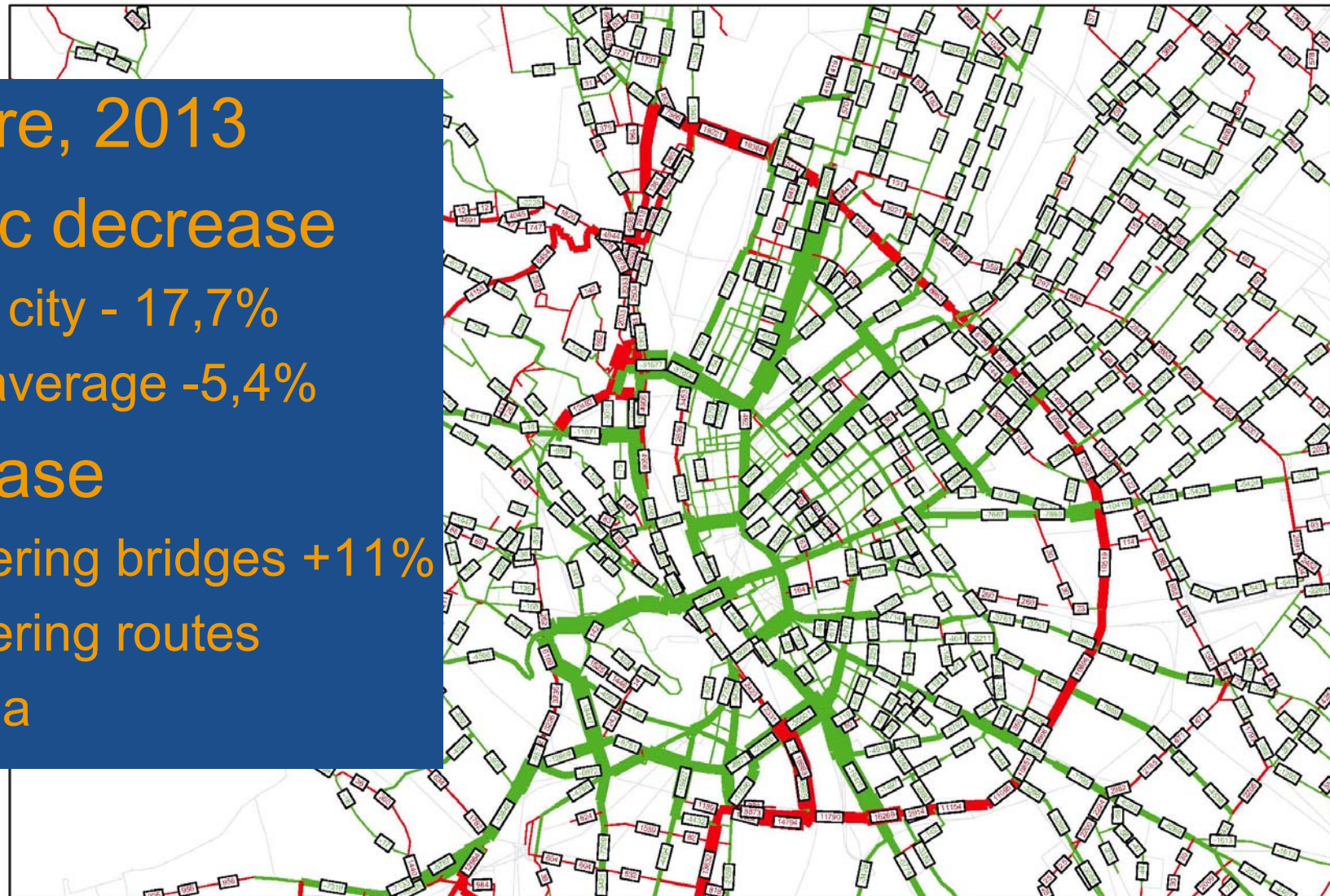
- Payment per entry, with a daily limit of 2 BKV tickets.
- Peak hour charging only in the morning (prefers residents within the zone)
- Exemptions: the less possible





# Effects – road traffic

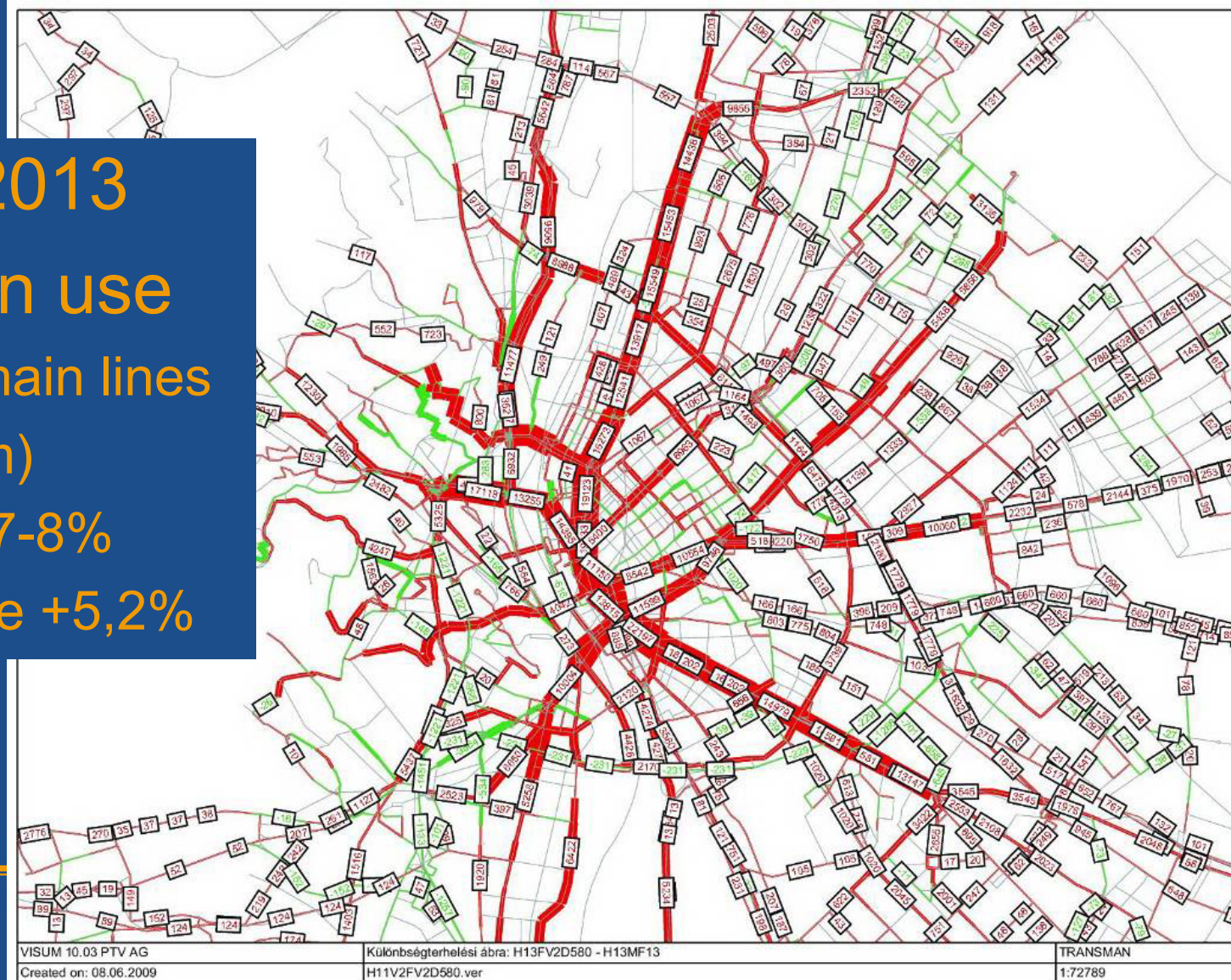
- 2€ fare, 2013
- Traffic decrease
  - Inner city - 17,7%
  - City average -5,4%
- Increase
  - Bordering bridges +11%
  - Bordering routes
  - Óbuda





# Effects – public transport

- 2€ fare, 2013
- Increase in use
  - Mostly on main lines
  - (metro, tram)
  - Inner city +7-8%
  - City average +5,2%





# Financial and economic effects

- Investment costs of the enforcement system: ca. 2,5 Bn HUF
- Investment costs necessary before the introduction: ca. 22-37 Bn HUF
  - Capacity increase on existing lines
  - New lines
  - New vehicles (e.g. buses)
  - P+R, cycling infrastructure, traffic lights corrections...
- Incomes: ca. 30-35 Bn HUF yearly  
(of which 5 Bn to be spent on operation, the rest on transport development)
- Economic benefits: time saving, air pollution





Thank you for your attention!

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