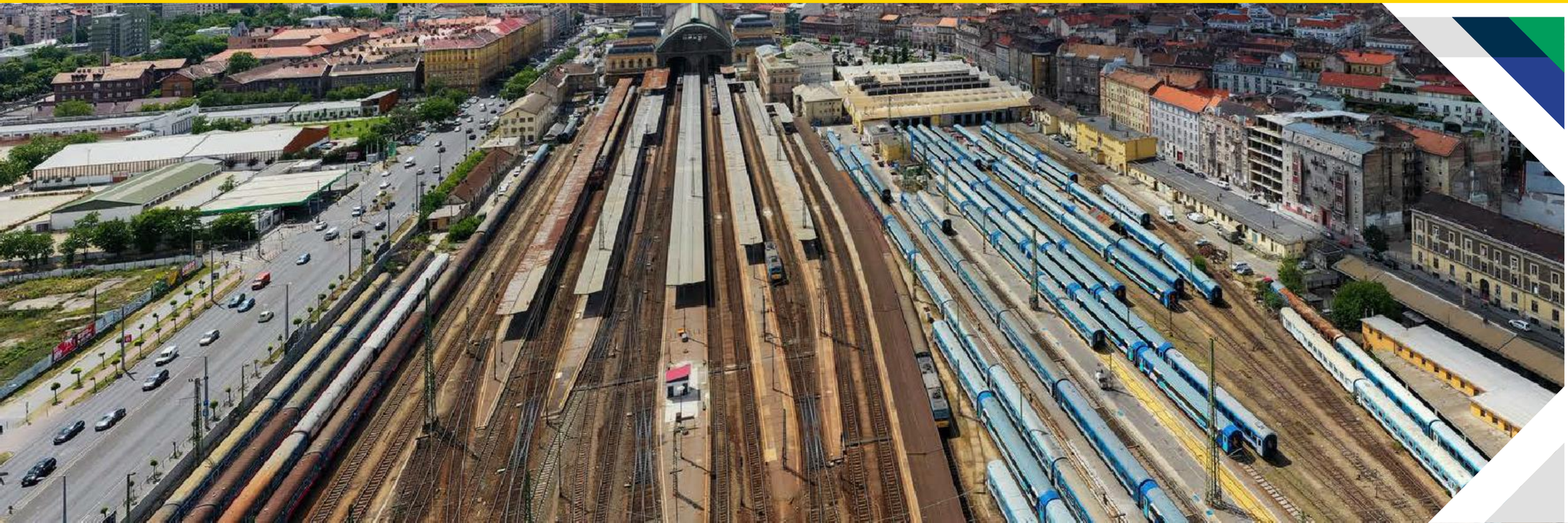
BUDAPEST
FEJLESZTÉSI
KÖZPONT

BUDAPEST SUBURBAN RAILWAY NODE STRATEGY 2020-2040

DÁVID VITÉZY, CEO

16.11.2021.



BUDAPEST FEJLESZTÉSI KÖZPONT

NEW GOLDEN ERA FOR RAILWAYS IN BUDAPEST

- **COMPLEX DEVELOPMENT – INFRASTRUCTURE, ROLLING STOCK, SERVICES**
  - infrastructure
  - rolling stock
  - services

- **THERE HAS NEVER BEEN SUCH AN OPPORTUNITY IN THE 150-YEAR HISTORY OF HUNGARIAN RAILWAYS**

- **IT WOULD HAVE BEEN NEEDED FOR 100 YEARS**

BUDAPEST FEJLESZTÉSI KÖZPONT

RAILWAY SYSTEM BASED ON TERMINAL STATIONS SINCE THE 19TH CENTURY

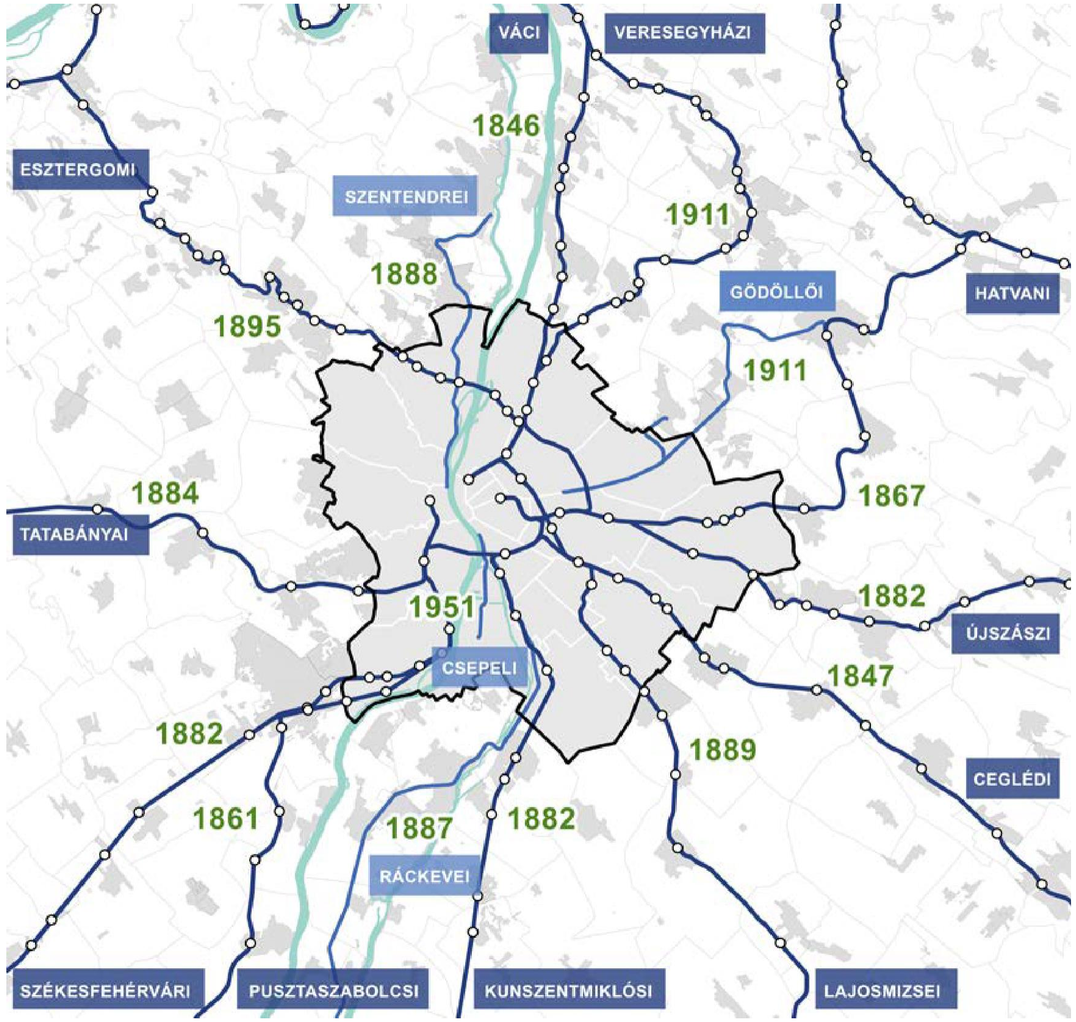
DÉLI RAILWAY STATION

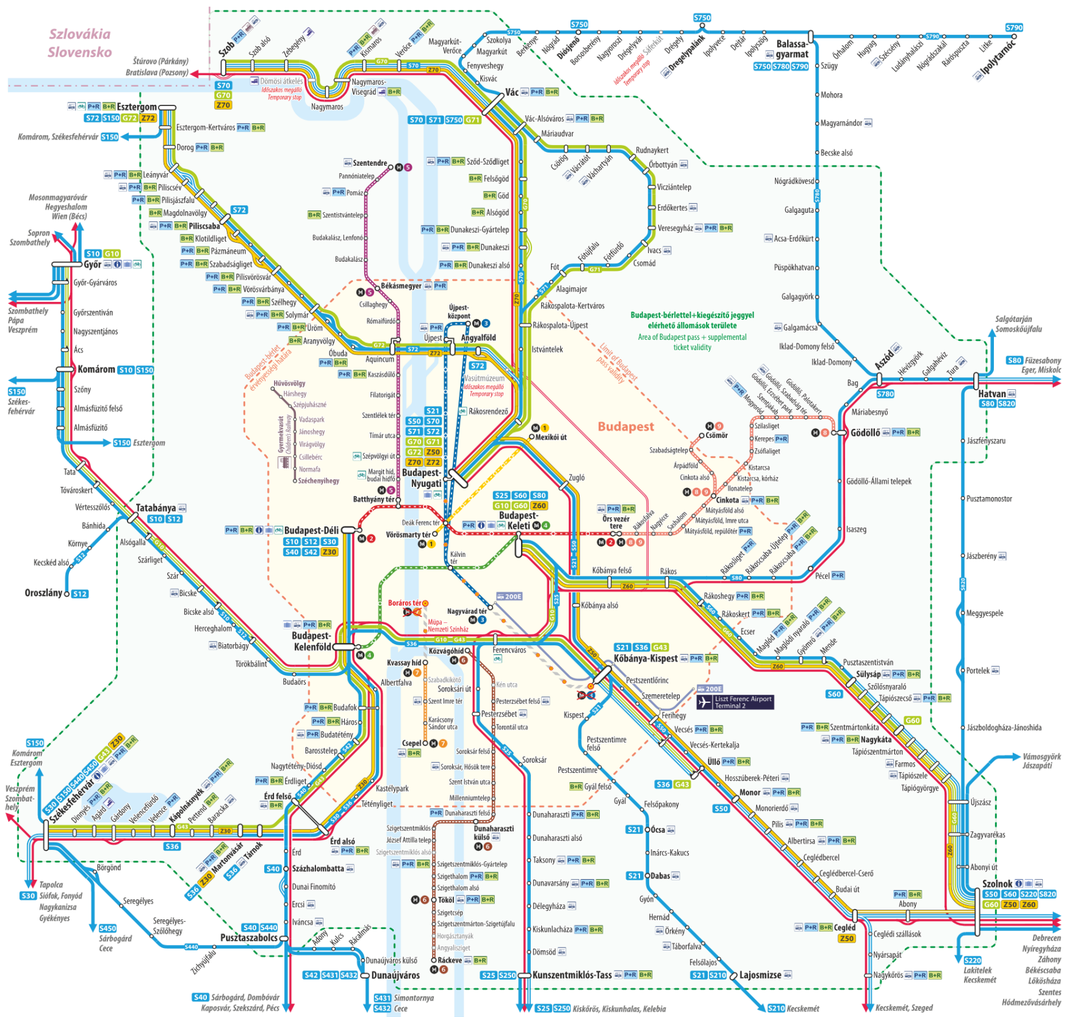
KELETI RAILWAY STATION

NYUGATI RAILWAY STATION

BUDAPEST FEJLESZTÉSI KÖZPONT

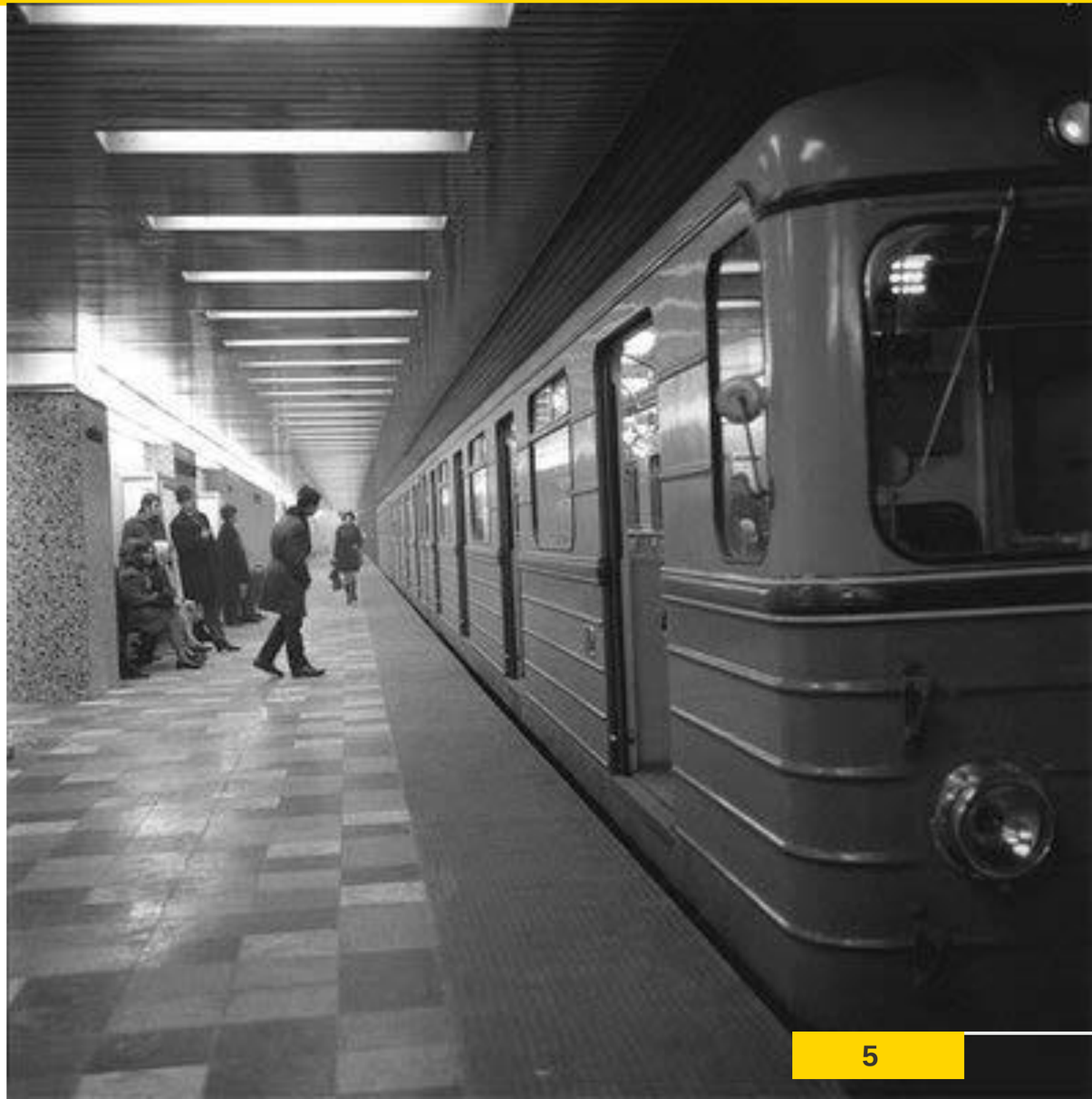
UNCHANGED STRUCTURE FOR OVER 100 YEARS





BUDAPEST
FEJLESZTÉSI
KÖZPONT

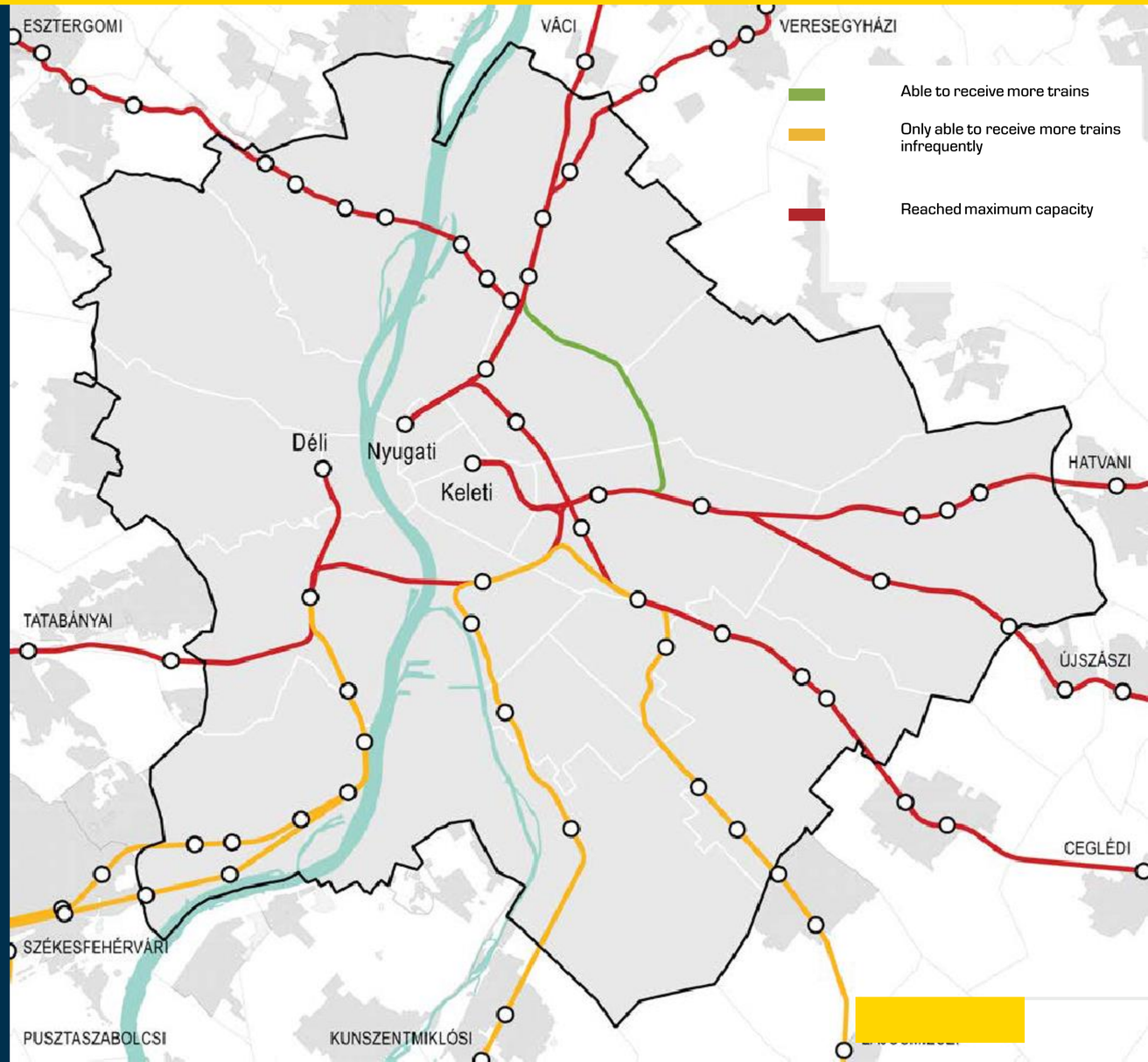
IT WAS NOT EVEN POSSIBLE AFTER THE WW2, IN SOCIALIST TIMES



BUDAPEST FEJLESZTÉSI KÖZPONT

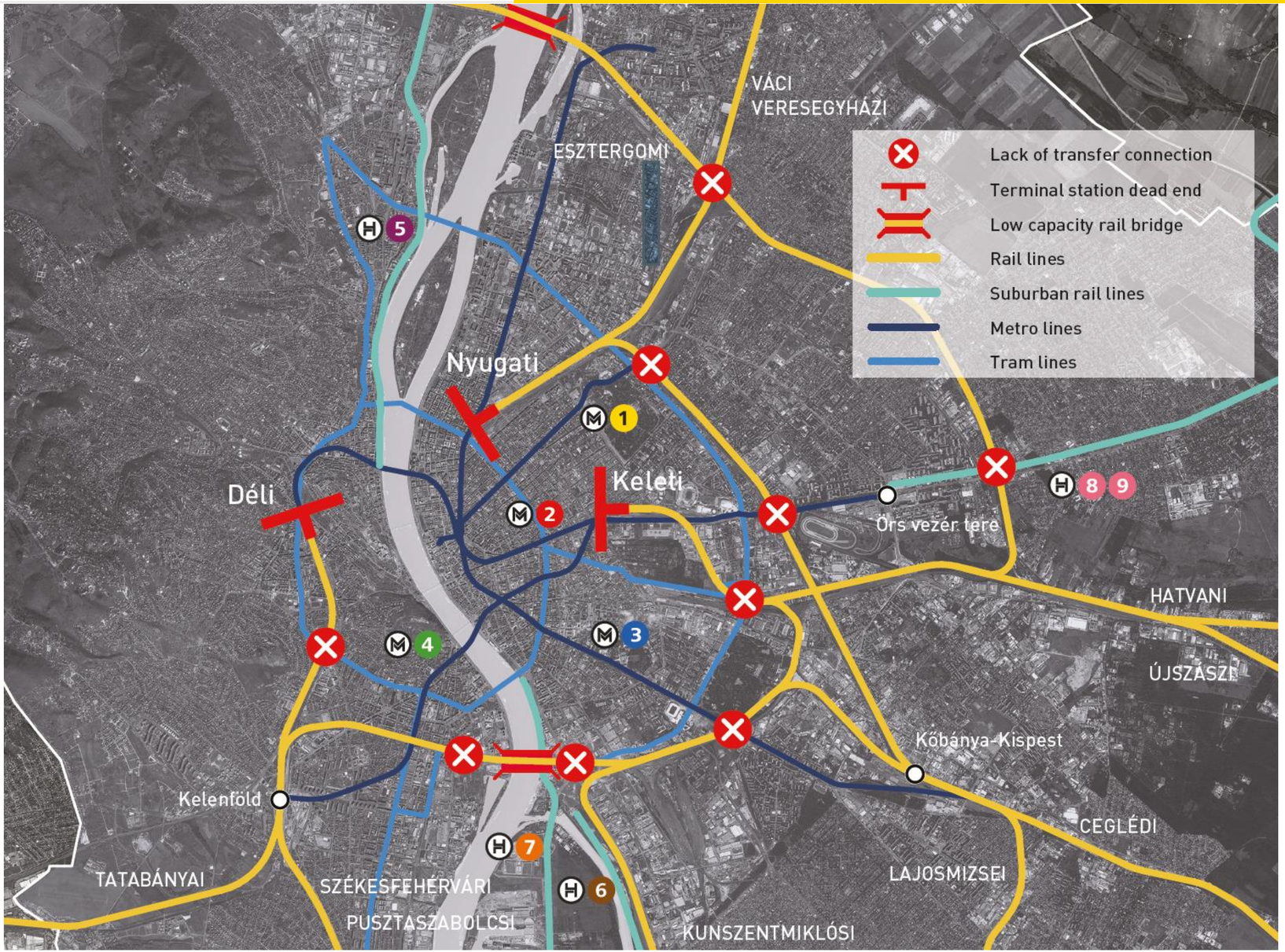
STATE OF THE CORE SECTIONS RESTRICTS THE EXPANSION OF NODE'S CAPACITY

- The Budapest rail network is **currently only able to receive 42 trains in the peak hour** from all directions altogether.
- This is the current maximum capacity.



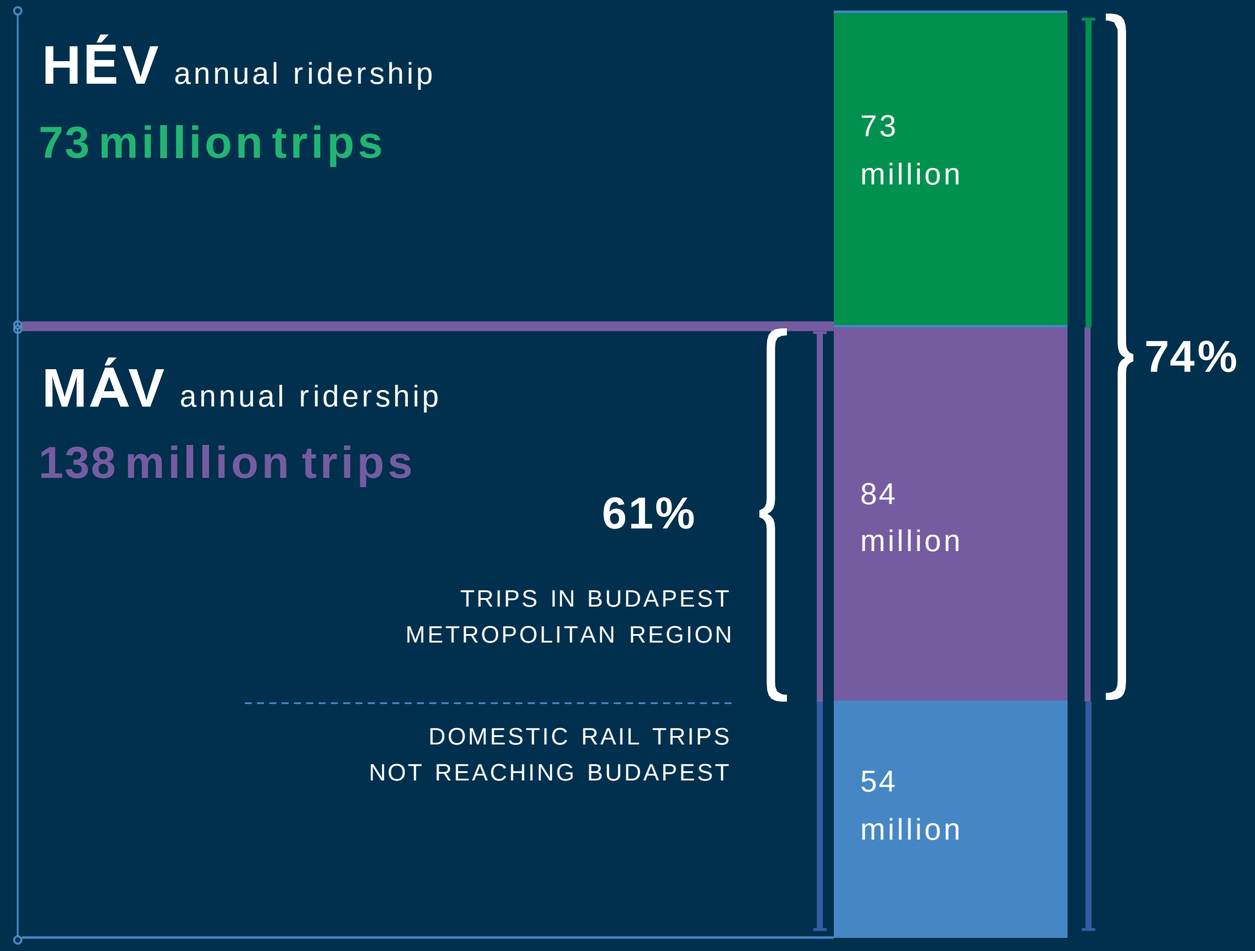
BUDAPEST FEJLESZTÉSI KÖZPONT

THE OBSOLETE NETWORK STRUCTURE PREVENTS A STRONGER RAILWAY ROLE



BUDAPEST
FEJLESZTÉSI
KÖZPONT

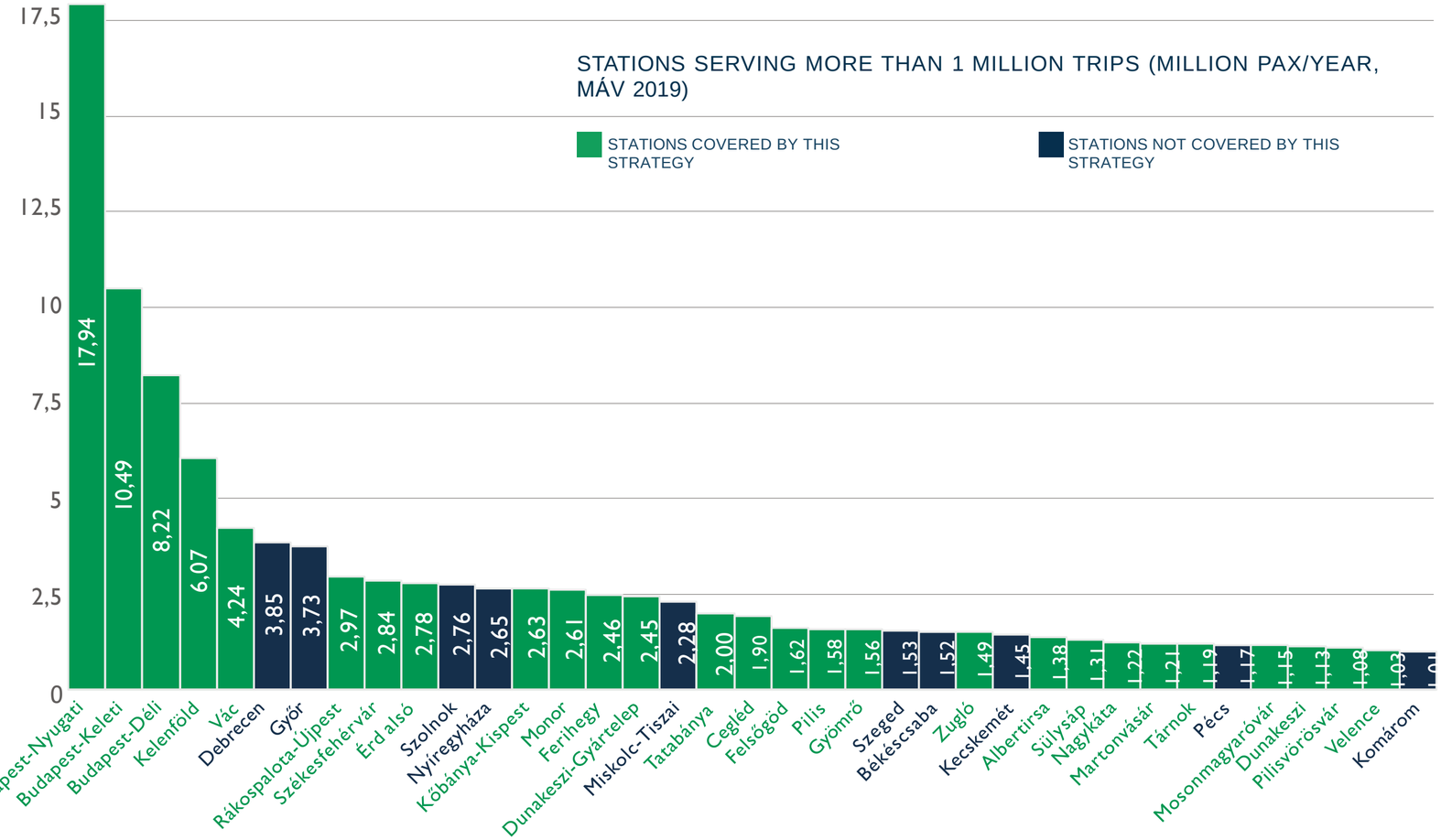
NUMBER OF JOURNEYS IN BUDAPEST AND ITS SUBURBS WITH AND WITHOUT THE HÉV LINES (2019)



BUDAPEST FEJLESZTÉSI KÖZPONT

OUT OF 37 STATIONS, 27 ARE LOCATED IN THE REGION OF BUDAPEST

RAILWAY STATIONS ARE SERVING MORE THAN 1 MILLION TRIPS/YEAR: OUT OF 37 STATIONS, 27 ARE LOCATED IN THE REGION OF BUDAPEST

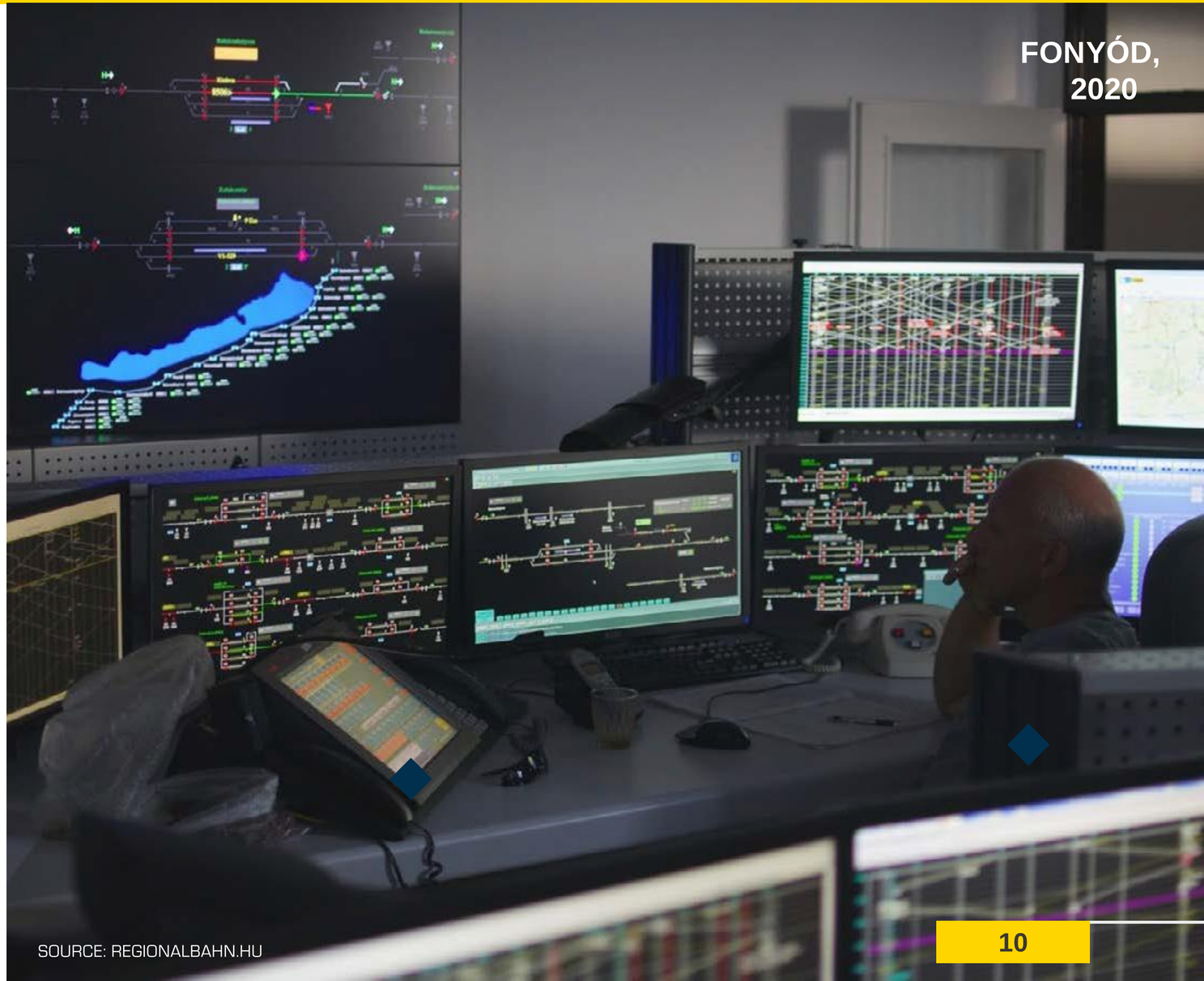


BUDAPEST FEJLESZTÉSI KÖZPONT

INSTEAD OF OBSOLETE TECHNOLOGY, MODERN DIGITAL SOLUTIONS ARE NEEDED

NYUGATI RAILWAY STATION, 2020

SOURCE: MÁV



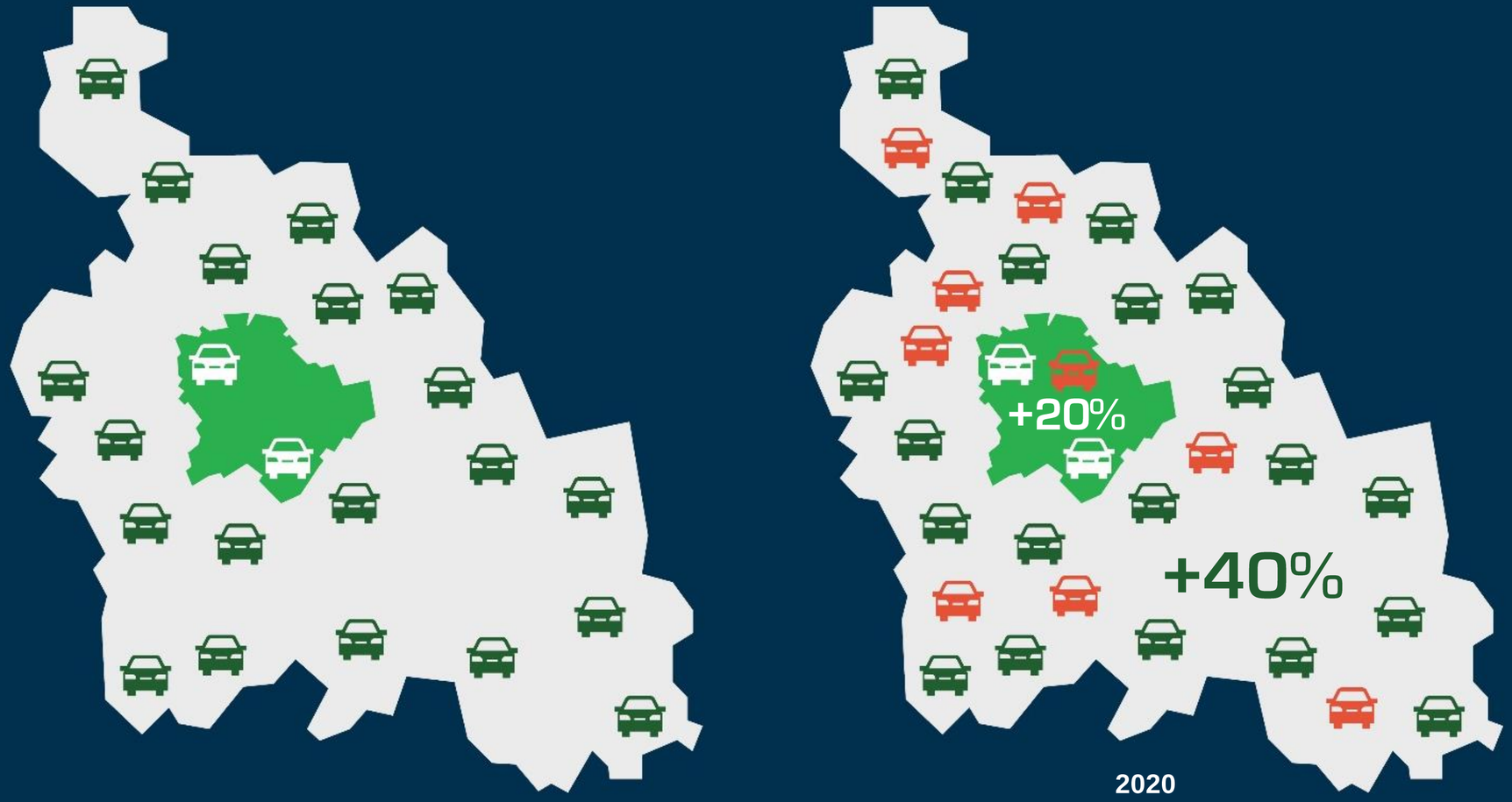
FONYÓD, 2020

SOURCE: REGIONALBAHN.HU

BUDAPEST FEJLESZTÉSI KÖZPONT

NO SPACE LEFT FOR THE INCREASING NUMBER OF CARS

NUMBER OF CARS



1 million → 1,28 million

BUDAPEST FEJLESZTÉSI KÖZPONT

RAILWAY DEVELOPMENT IS THE ONLY SOLUTION

SOURCE: MTI

4 MILLION

TONNES ANNUALLY

CO_2

SOURCE: EUROPEAN PARLIAMENT

O_3 NO_2 PM_{10} SO_2 CO

300 bn HUF

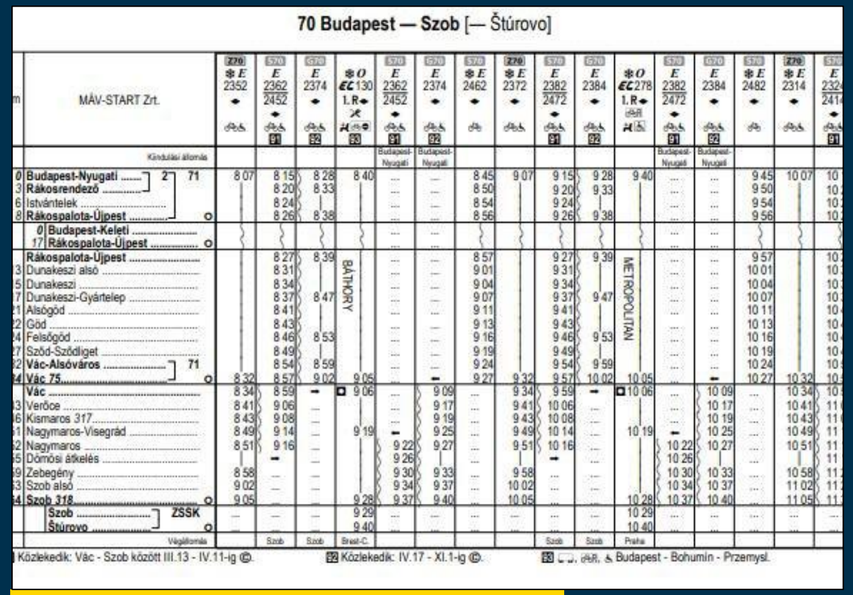
public health costs

BUDAPEST FEJLESZTÉSI KÖZPONT

DEVELOPMENTS HAVE PROVEN THE POTENTIAL OF THE RAILWAY

BUDAPEST FEJLESZTÉSI KÖZPONT

A FEW IMPORTANT STEPS OF RAILWAY DEVELOPMENT FROM PAST YEARS

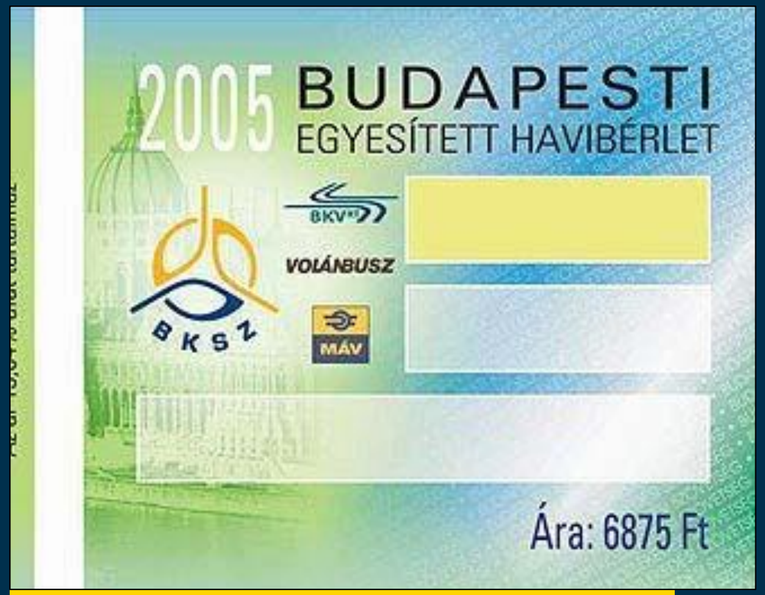


70 Budapest — Szob [— Štúrovo]

	MÁV-START Zrt.	Z70 E 2352	Z70 E 2362	Z70 E 2374	EC 130	Z70 E 2362	Z70 E 2374	Z70 E 2462	Z70 E 2372	Z70 E 2382	Z70 E 2384	EC 278	Z70 E 2382	Z70 E 2384	Z70 E 2482	Z70 E 2314	Z70 E 232
	Kiindulási állomás					Budapest-Nyugati	Budapest-Nyugati						Budapest-Nyugati	Budapest-Nyugati			
0	Budapest-Nyugati 2 71	8 07	8 15	8 28	8 40	...	...	8 45	9 07	9 15	9 28	9 40	...	...	9 45	10 07	10
3	Rákosrendező		8 20	8 33		...	...	8 50		9 20	9 33		...	...	9 50		10
6	Istvántelek		8 24			...	...	8 54		9 24			...	...	9 54		10
8	Rákospalota-Újpest		8 26	8 38		...	...	8 56		9 26	9 38		...	...	9 56		10
0	Budapest-Keleti					...	...						...	...			
17	Rákospalota-Újpest					...	...						...	...			
	Rákospalota-Újpest		8 27	8 39	BATHORY	...	...	8 57		9 27	9 39	METROPOLITAN	...	...	9 57		10
3	Dunakeszi alsó		8 31			...	...	9 01		9 31			...	...	10 01		10
5	Dunakeszi		8 34			...	...	9 04		9 34			...	...	10 04		10
7	Dunakeszi-Gyártelep		8 37	8 47		...	...	9 07		9 37	9 47		...	...	10 07		10
11	Alsógöd		8 41			...	...	9 11		9 41			...	...	10 11		10
12	Göd		8 43			...	...	9 13		9 43			...	...	10 13		10
14	Felsőgöd		8 46	8 53		...	...	9 16		9 46	9 53		...	...	10 16		10
17	Szód-Szódliget		8 49			...	...	9 19		9 49			...	...	10 19		10
22	Vác-Alsóváros 71		8 54	8 59		...	...	9 24		9 54	9 59		...	...	10 24		10
24	Vác 75	8 32	8 57	9 02	9 05	...	▬	9 27	9 32	9 57	10 02	10 05	...	▬	10 27	10 32	10
	Vác	8 34	8 59	▬	9 06	...	9 09	...	9 34	9 59	▬	10 06	...	10 09	...	10 34	10
33	Verőce	8 41	9 06	...	...	...	9 17	...	9 41	10 06	...	...	...	10 17	...	10 41	11
36	Kismaros 317	8 43	9 08	...	...	...	9 19	...	9 43	10 08	...	...	...	10 19	...	10 43	11
41	Nagymaros-Visegrád	8 49	9 14	...	9 19	▬	9 25	...	9 49	10 14	...	10 19	▬	10 25	...	10 49	11
42	Nagymaros	8 51	9 16	...	...	9 22	9 27	...	9 51	10 16	...	...	10 22	10 27	...	10 51	11
45	Dömösi átkelés		▬	...	...	9 26		...		▬	...		10 26		...		11
49	Zebegény	8 58	...	...	...	9 30	9 33	...	9 58	...	...	...	10 30	10 33	...	10 58	11
53	Szob alsó	9 02	...	...	...	9 34	9 37	...	10 02	...	...	...	10 34	10 37	...	11 02	11
54	Szob 318	9 05	...	...	9 28	9 37	9 40	...	10 05	...	...	10 28	10 37	10 40	...	11 05	11
	Szob ZSSK	...	...	...	9 29	...	...	...	...	...	...	10 29	...	...	...	...	...
	Štúrovo	...	...	...	9 40	...	...	...	...	...	...	10 40	...	...	...	...	...
	Végállomás		Szob	Szob	Brest-C.					Szob	Szob	Praha					

Közlekedik: Vác - Szob között III.13 - IV.11-ig ©. Közlekedik: IV.17 - XI.1-ig ©. Budapest - Bohumín - Przemysl.

CLOCKFACE-SCHEDULE ON LINES 70 (VÁC-SZOB) AND 71 (VERESEGYHÁZ-VÁC) (2004)

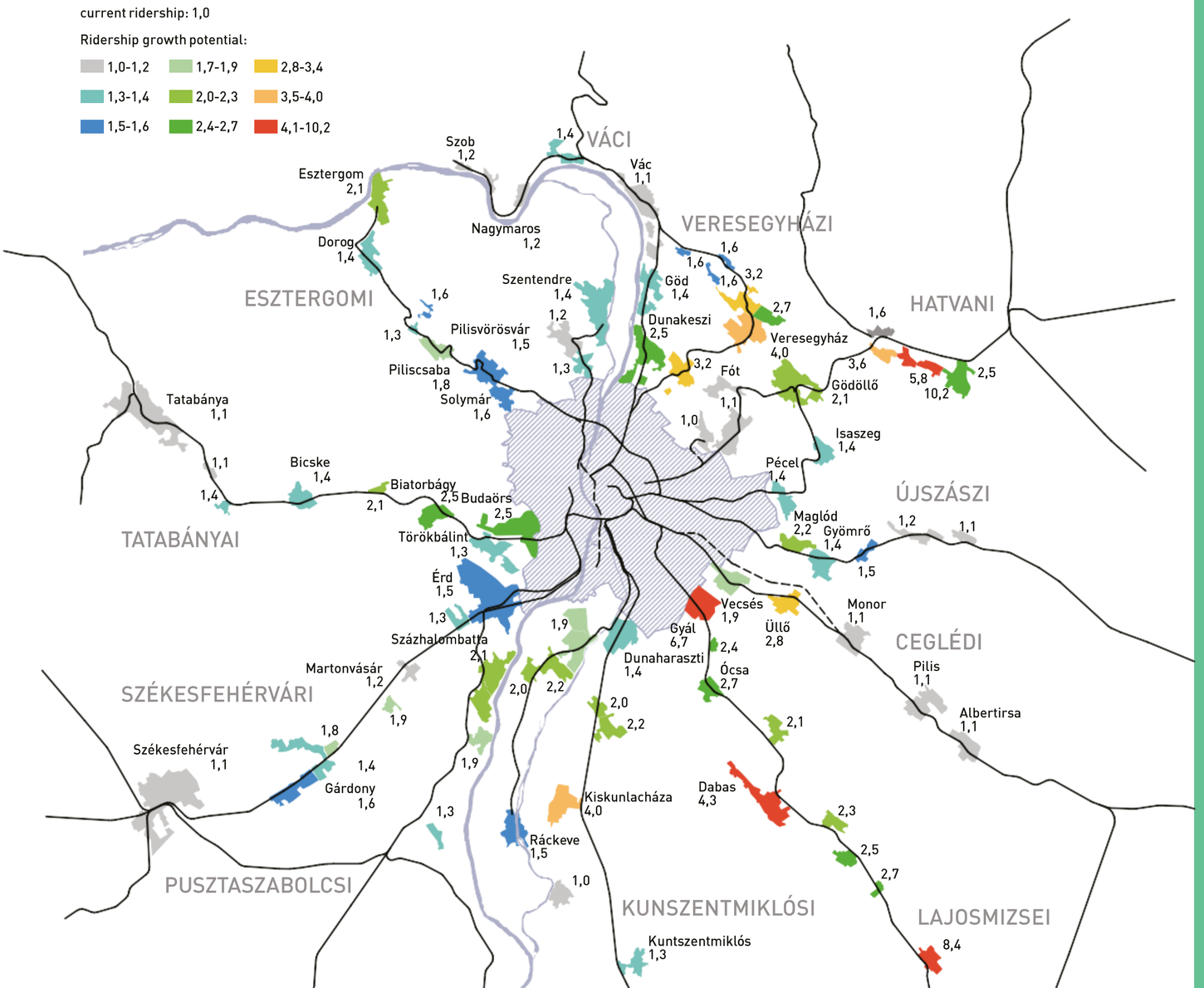


BUDAPEST PASS VALID FOR TRAINS AND REGIONAL BUSES WITHIN CITY LIMITS (2005)

ACCESSIBLE, MULTIPLE UNIT FLIRT TRAINS (2007-)

BUDAPEST FEJLESZTÉSI KÖZPONT

RIDERSHIP GROWTH POTENCIAL

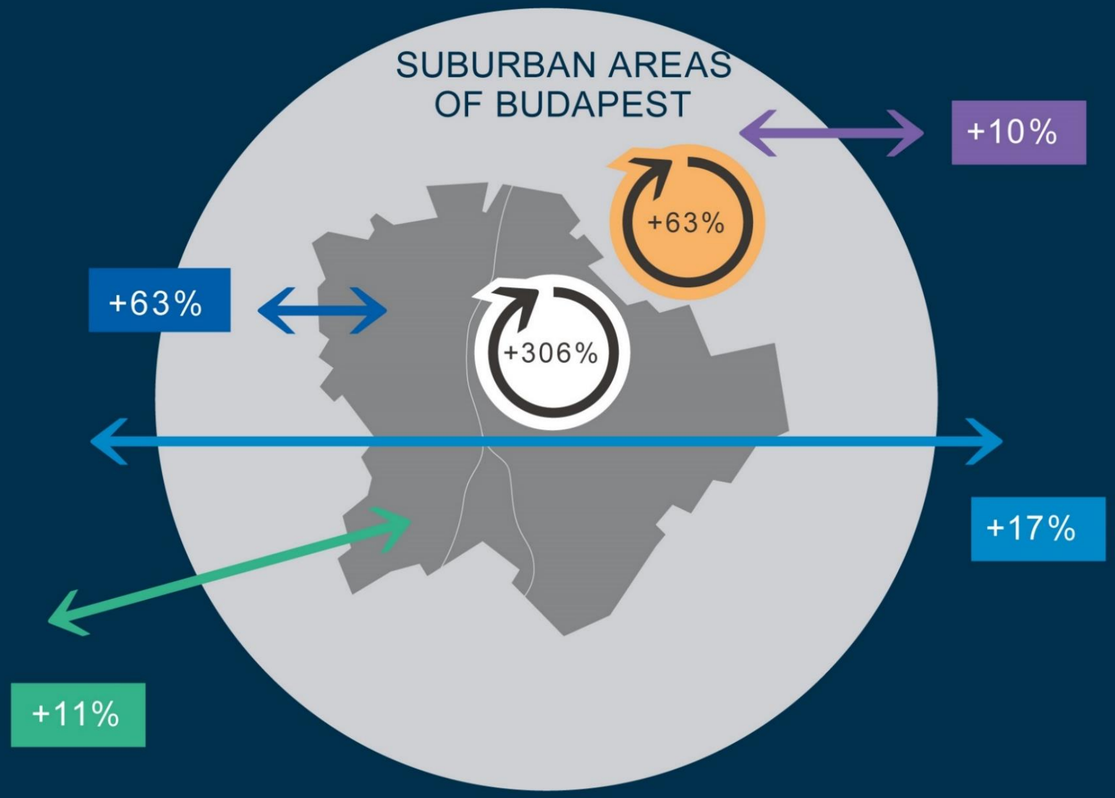


HOW MANY PEOPLE WOULD CHOOSE TRAINS INSTEAD OF CARS?

BUDAPEST FEJLESZTÉSI KÖZPONT

CURRENT RAIL RIDERSHIP COULD INCREASE BY 80%

– Inside Budapest railway trips could be quadrupled.
– Suburban railway journeys in the whole wider region could be increased by 63%
– Long distance and international rail travel may see a 10% increase into the Budapest node.
– Overall the number of MÁV Start trips in Budapest and its metropolitan area could reach more than half a million per day, which would be an 80% growth.
– This includes 97% expected growth in trips from the neighboring suburban areas into Budapest.
– According to traffic modeling 115 000 people are expected to shift from car to rail if the Strategy is implemented.



-115.000 car commuters

519.000 (289.000) +80% daily train ridership

Long distance journeys to the suburban region

Journeys between long distance destinations outside Budapest

Suburban region to Budapest journeys

Journeys within suburban areas of Budapest, but not into the city

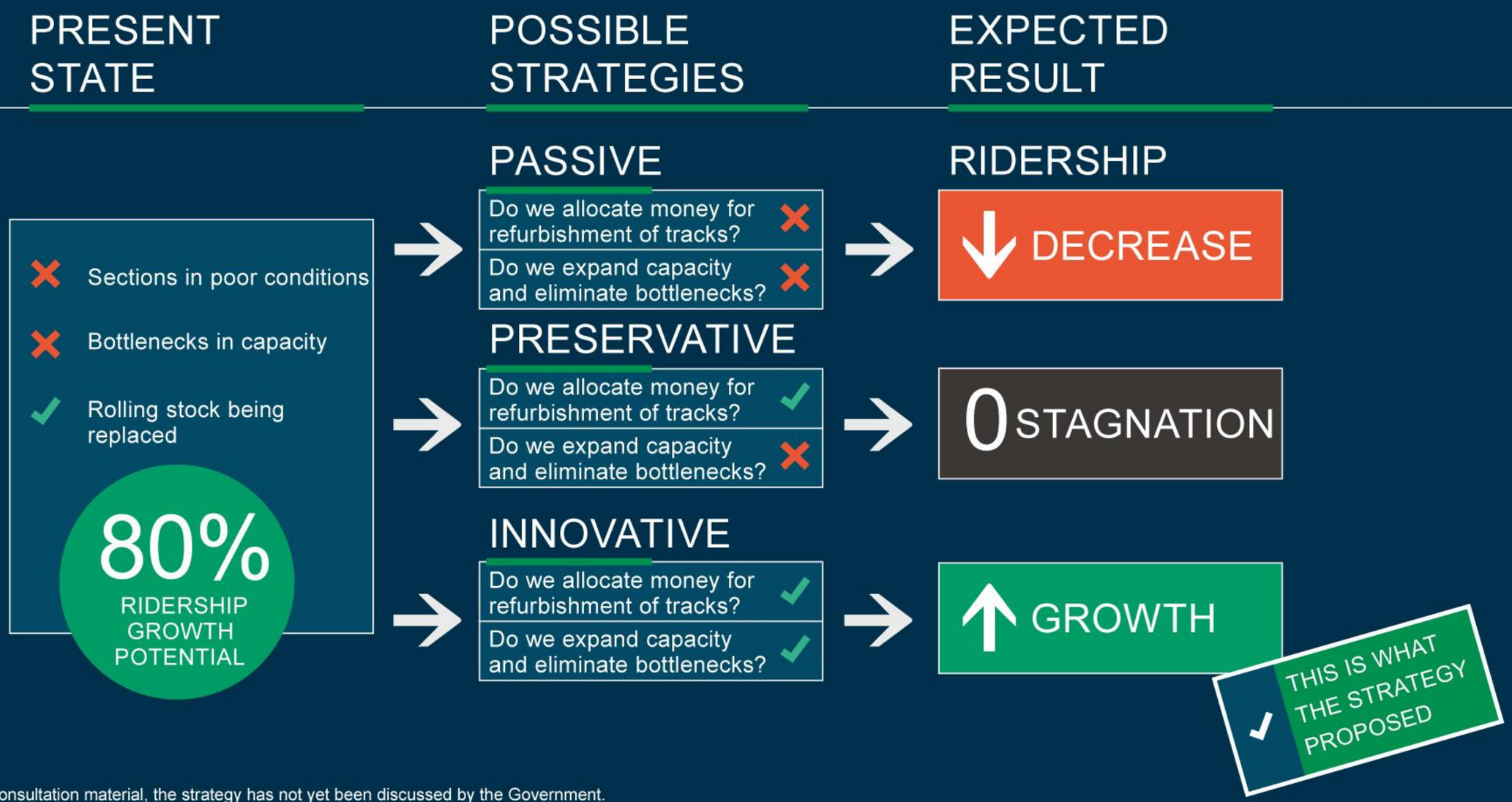
Long distance journeys to Budapest

Budapest intra-city journeys

HÉV ridership excluded from this data

BUDAPEST FEJLESZTÉSI KÖZPONT

INSTEAD OF SIMPLE ‘RENOVATIONS’ THE POTENTIAL OF RAILWAY DEVELOPMENTS HAS TO BE EXPLOITED



Social consultation material, the strategy has not yet been discussed by the Government.
During implementation, some measures may deviate from the strategy.

BUDAPEST FEJLESZTÉSI KÖZPONT

GOALS OF THE STRATEGY

From all suburban railway station

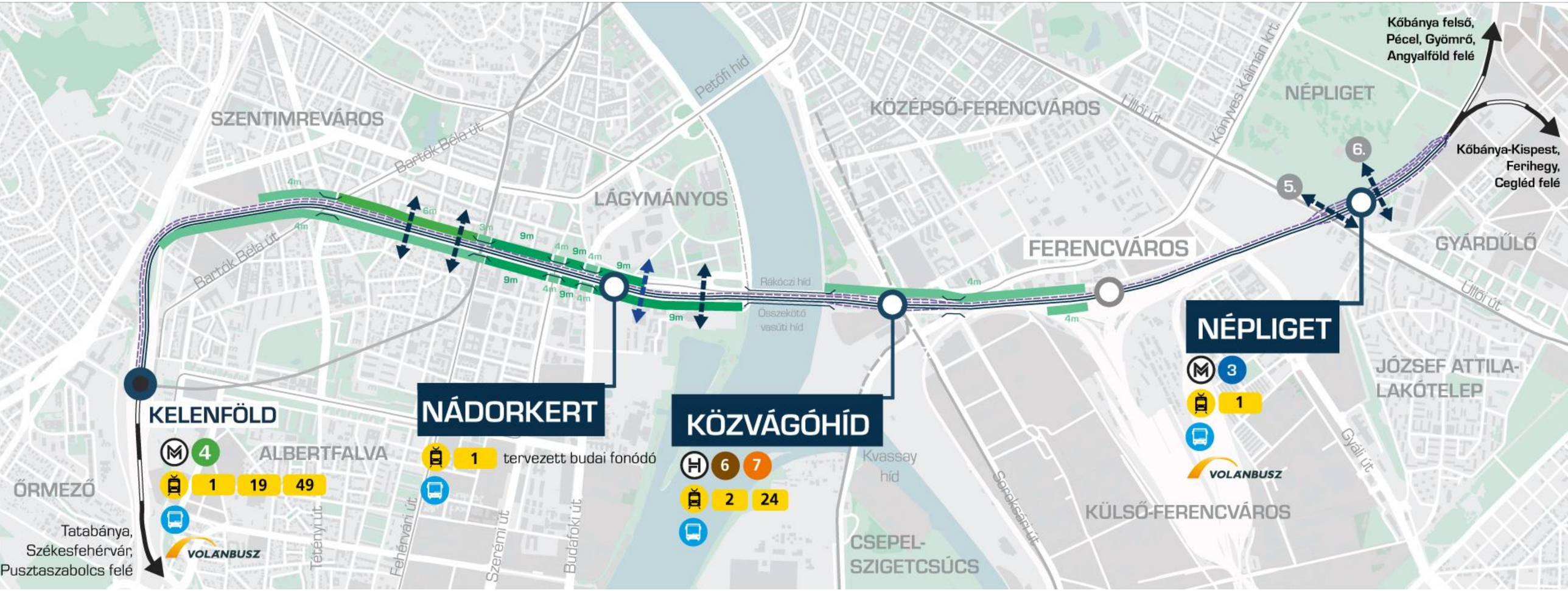
4x 	At least 4 trains shall depart to Budapest every hour.
3x 	Those shall provide direct connections to at least 3 metro lines.
2x 	Number of passenger traffic shall be doubled.
1x 	And all of these services shall be accessible with a unified pass or ticket.

INCREASING CAPACITY IS ESSENTIAL TO UNLOCK THE POTENTIAL RIDERSHIP GROWTH OF THE RAILWAY.

SOUTHERN RAILWAY RING – THE FIRST STEP IN ELEMINATING THE BOTTLENECKS

BUDAPEST FEJLESZTÉSI KÖZPONT

SOUTHERN RAILWAY RING

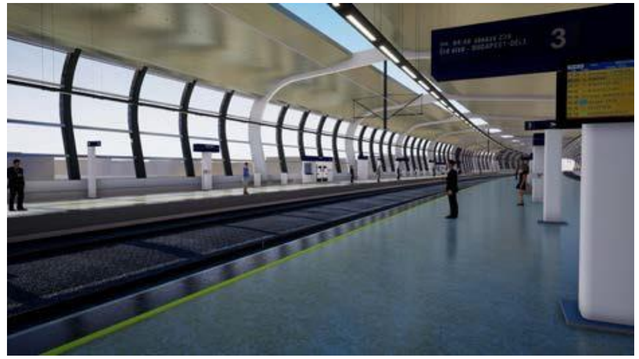


BUDAPEST FEJLESZTÉSI KÖZPONT

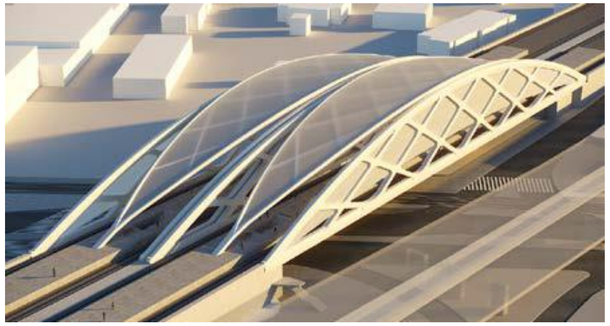
NEW STATIONS AND TRANSPORT RELATIONS

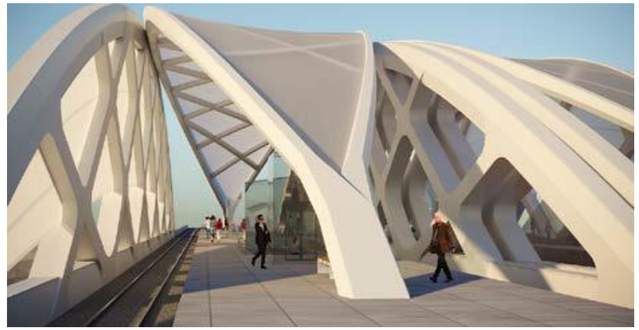
NÉPLIGET

NÁDORKERT



KÖZVÁGÓHÍD





BUDAPEST FEJLESZTÉSI KÖZPONT

NÉPLIGET TRAIN STATION

BUDAPEST FEJLESZTÉSI KÖZPONT

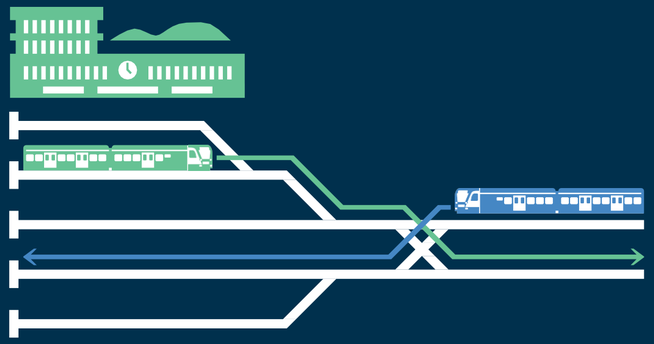
WHY IS A THROUGH RAIL SYSTEM MORE BENEFICIAL THAN JUST RENEWING THE EXISTING TERMINAL STATIONS?

TRAINS CROSSING THE BOUNDARIES OF BUDAPEST PER DIRECTION

CURRENTLY: **42 TRAINS / HOUR**

GOAL: **93 TRAINS / HOUR**

EXPANSION OF THE TERMINAL STATION BASED SYSTEM



✕ **Goal not reached**

The arriving train is forced to change direction, the arriving and departing trains cross paths.

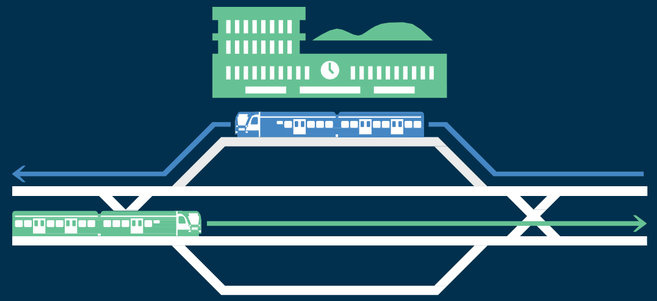
A single track handles 2 trains per hour.

Requires more urban space.

ft

Development costs are similar.

THROUGH STATION SYSTEM



✓ **Goal reached**

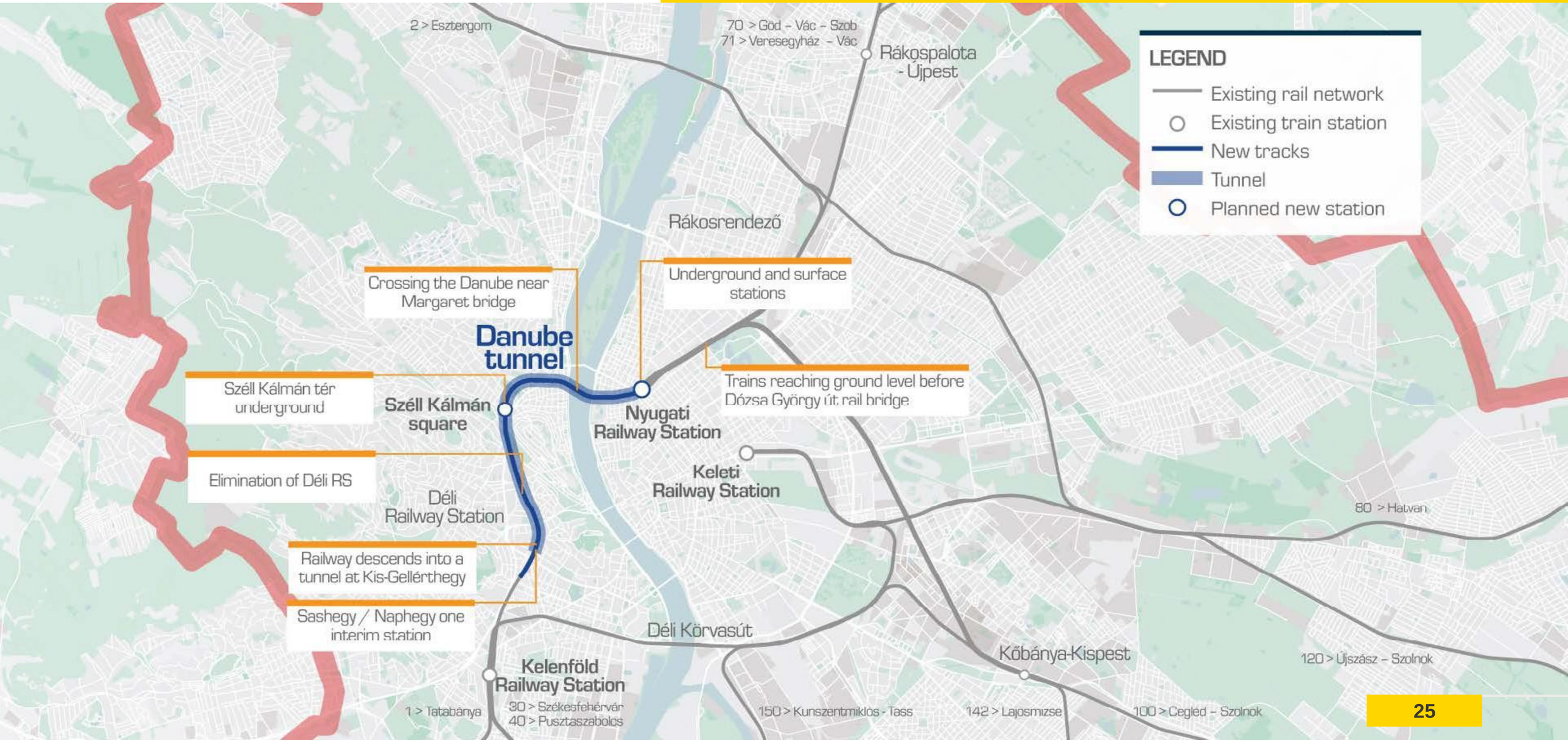
Arriving trains can depart after a few minutes, the service is continuous.

A single track can handle 12 trains per hour.

Unlocks valuable urban space for redevelopment.

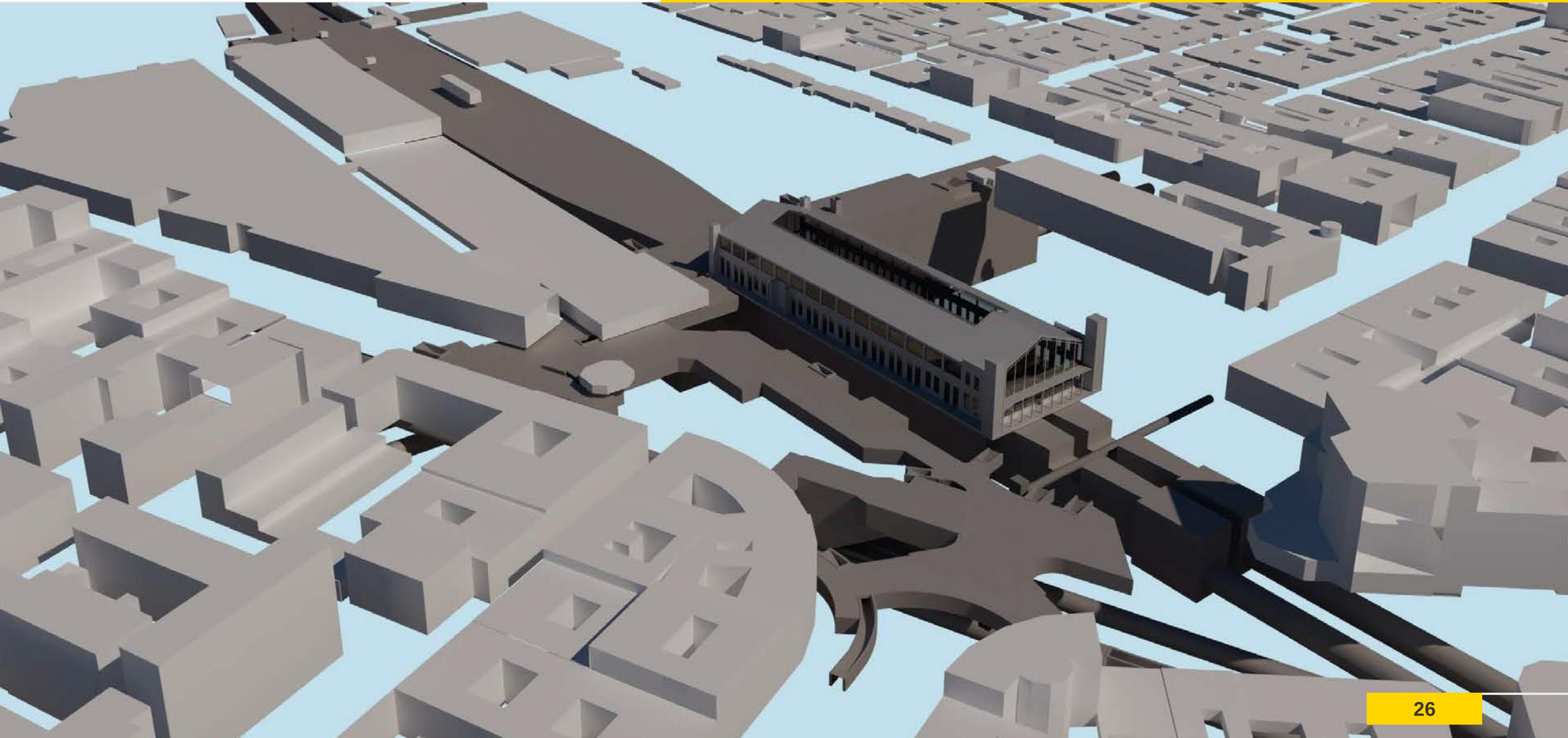
BUDAPEST FEJLESZTÉSI KÖZPONT

CHOSEN AND PLANNED TRACK FOR THE TUNNEL



BUDAPEST FEJLESZTÉSI KÖZPONT

3D MODEL OF THE NEW NYUGATI STATION



BUDAPEST FEJLESZTÉSI KÖZPONT

RENEWAL OF NYUGATI RAILWAY STATION AND ITS SURROUNDINGS

International design competition: huge interest, 36 architects' firms applied

BUDAPEST FEJLESZTÉSI KÖZPONT

ARCHITECTURAL DESIGN CONTEST PLANNING PROGRAM

1. New sub-surface and surface station (Historical hall with new functions)
2. New walking underpasses
3. Territory of Green Axle and New Downtown area
4. Refurbishment of Nyugati square
5. Ferdinánd bridge – rebuilding possibly with tunnel connection
6. Rail tunnel entry structure and northern rehabilitation area
7. Connecting privately owned yards

BUDAPEST FEJLESZTÉSI KÖZPONT

BROWNFIELD REDEVELOPMENT AREA

Whole development area:
44 ha

Brownfield area:
23,5 ha

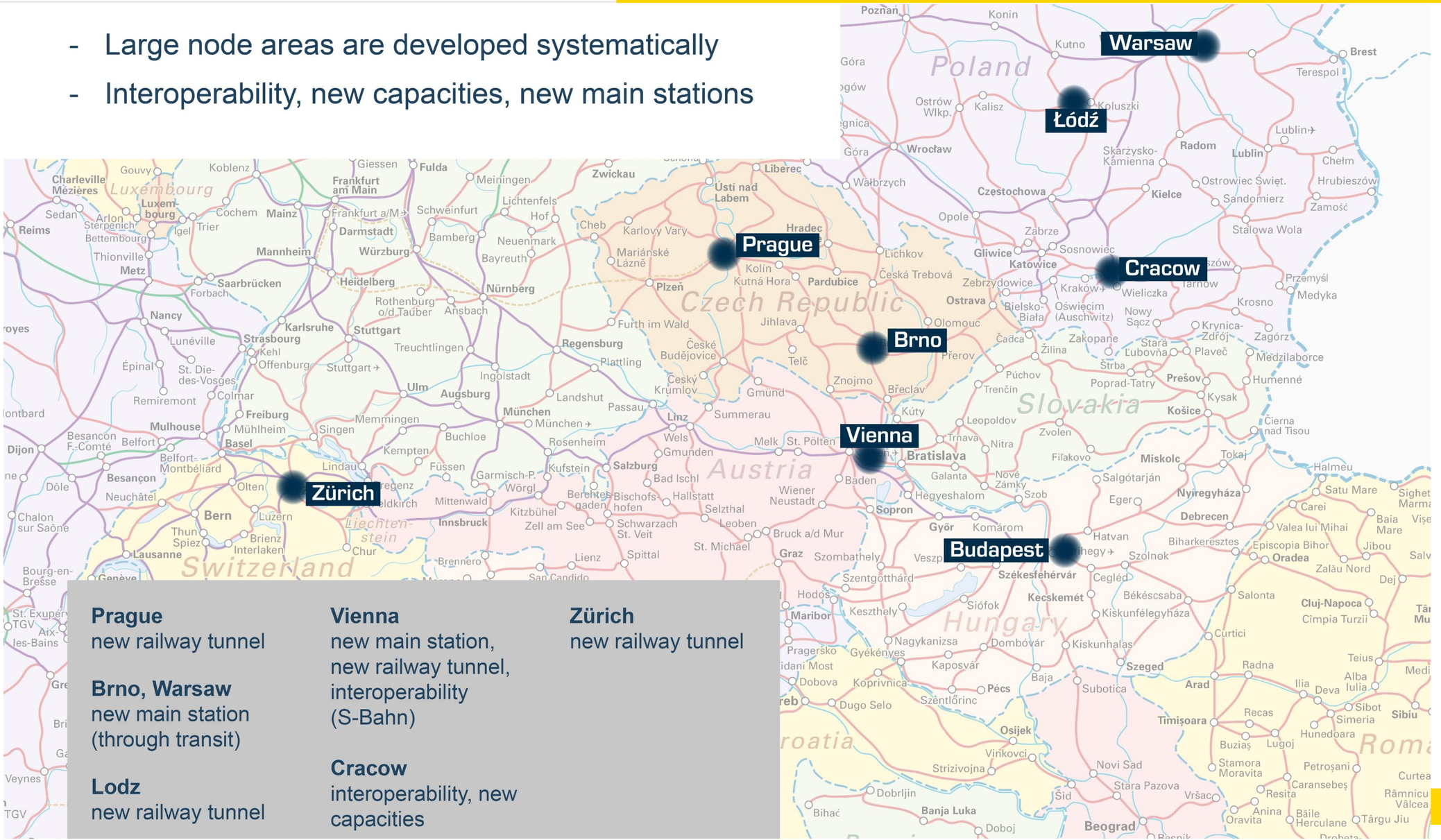
State owned:
15 ha

Privately owned:
8,5 ha

IMPORTANT BROWN FIELD ZONES

INTERNATIONAL OUTLOOK – STRATEGY IN FOCUS IN CENTRAL EUROPE

- Large node areas are developed systematically
- Interoperability, new capacities, new main stations



Prague
new railway tunnel

Brno, Warsaw
new main station
(through transit)

Lodz
new railway tunnel

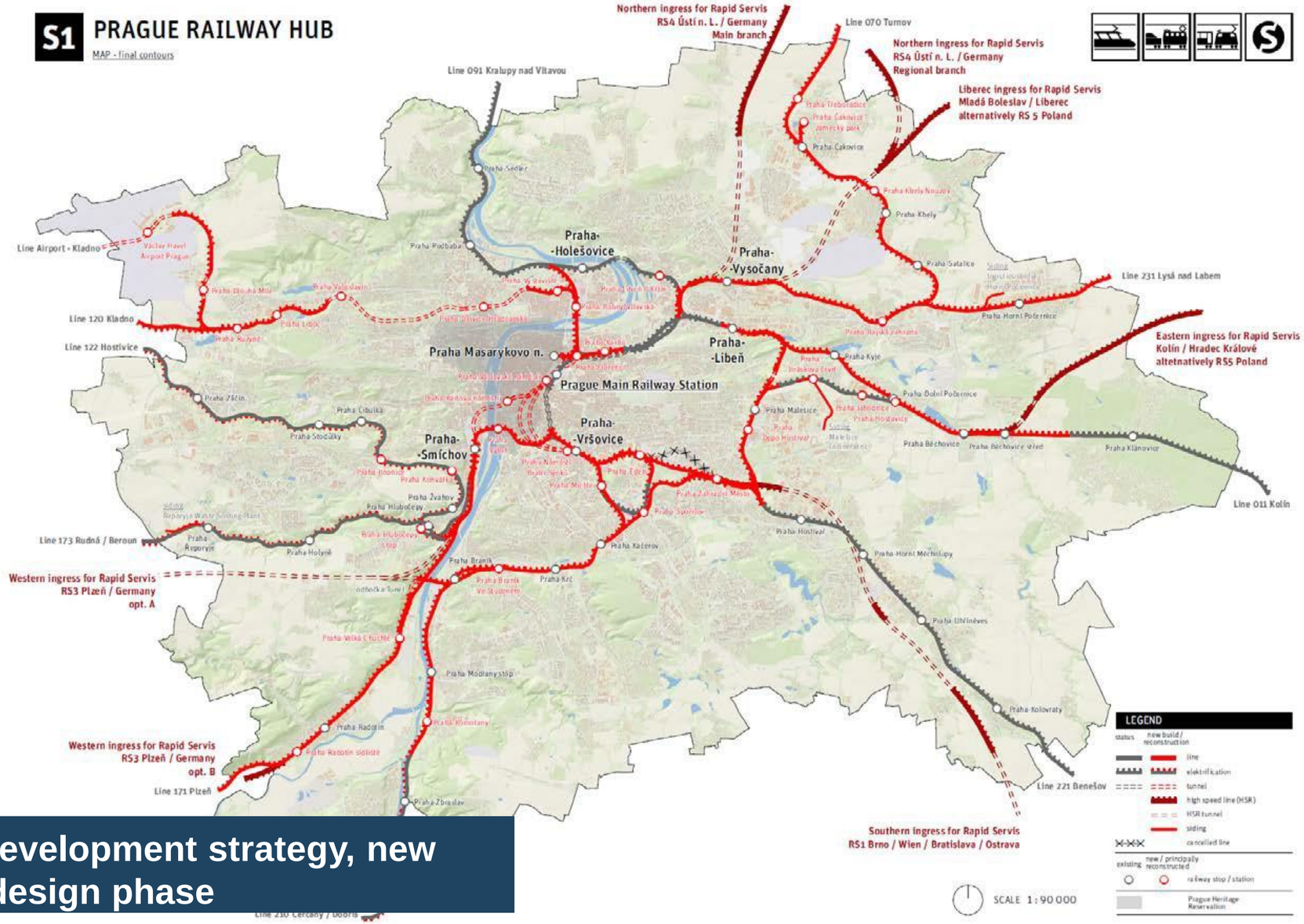
Vienna
new main station,
new railway tunnel,
interoperability
(S-Bahn)

Cracow
interoperability, new
capacities

Zürich
new railway tunnel

BUDAPEST FEJLESZTÉSI KÖZPONT

PRAGUE



adopted railway development strategy, new railway tunnel in design phase

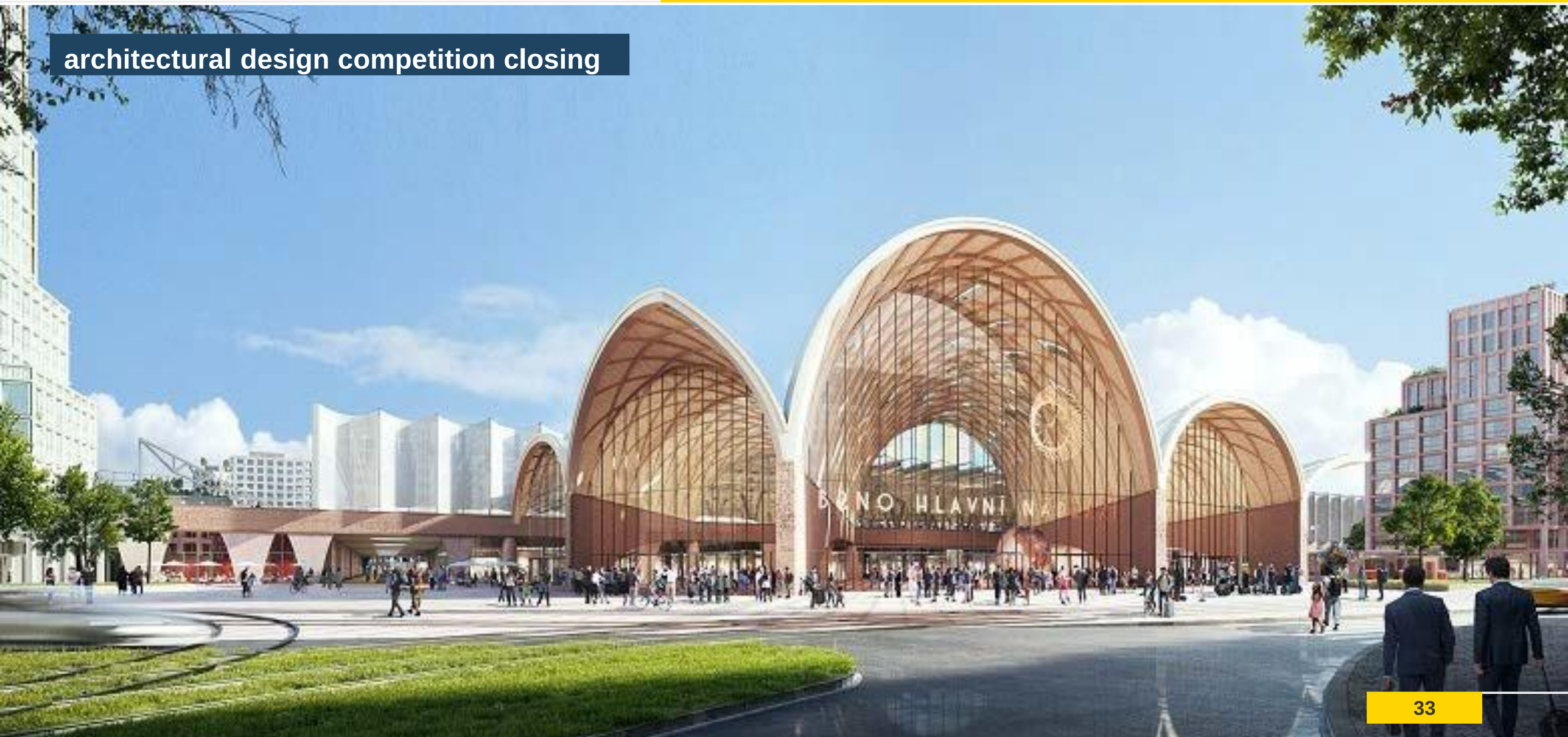
BUDAPEST FEJLESZTÉSI KÖZPONT

PRAGUE

BUDAPEST FEJLESZTÉSI KÖZPONT

BRNO

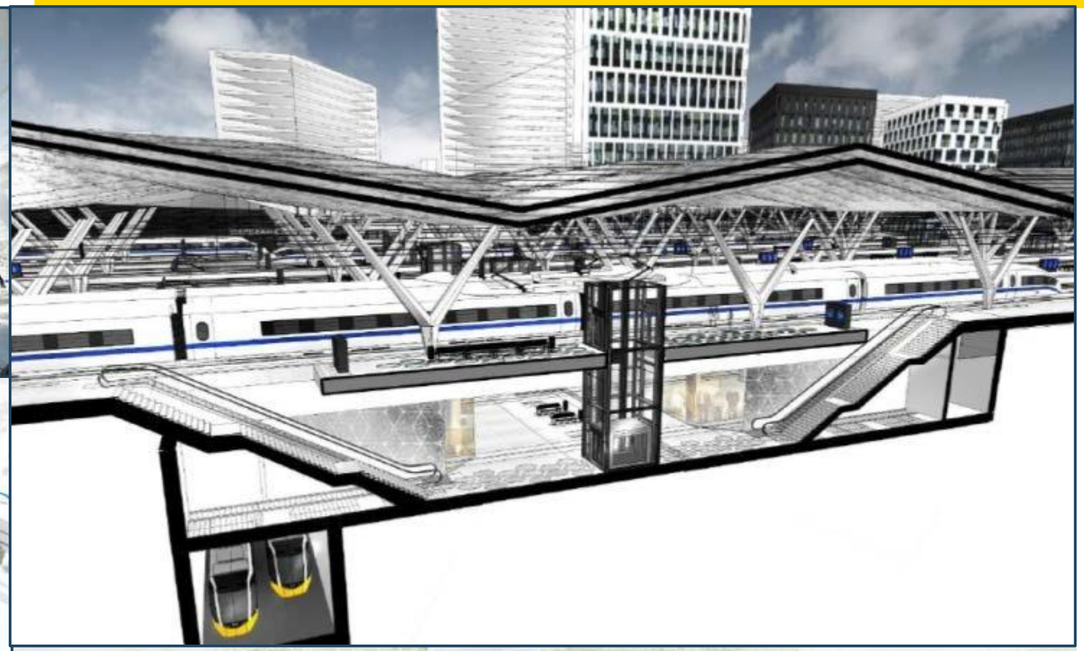
architectural design competition closing

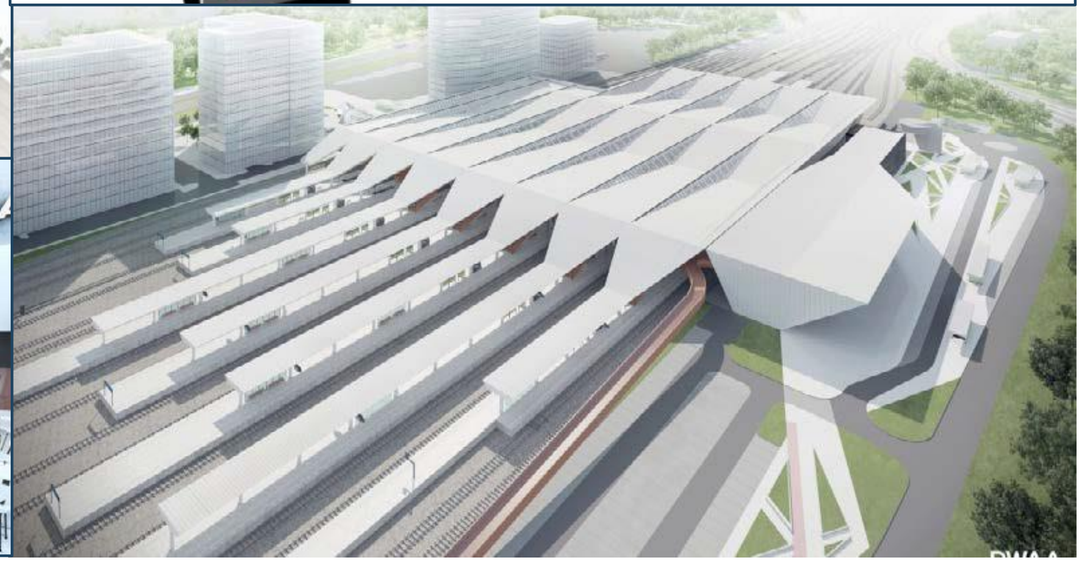


BUDAPEST FEJLESZTÉSI KÖZPONT

WARSAW

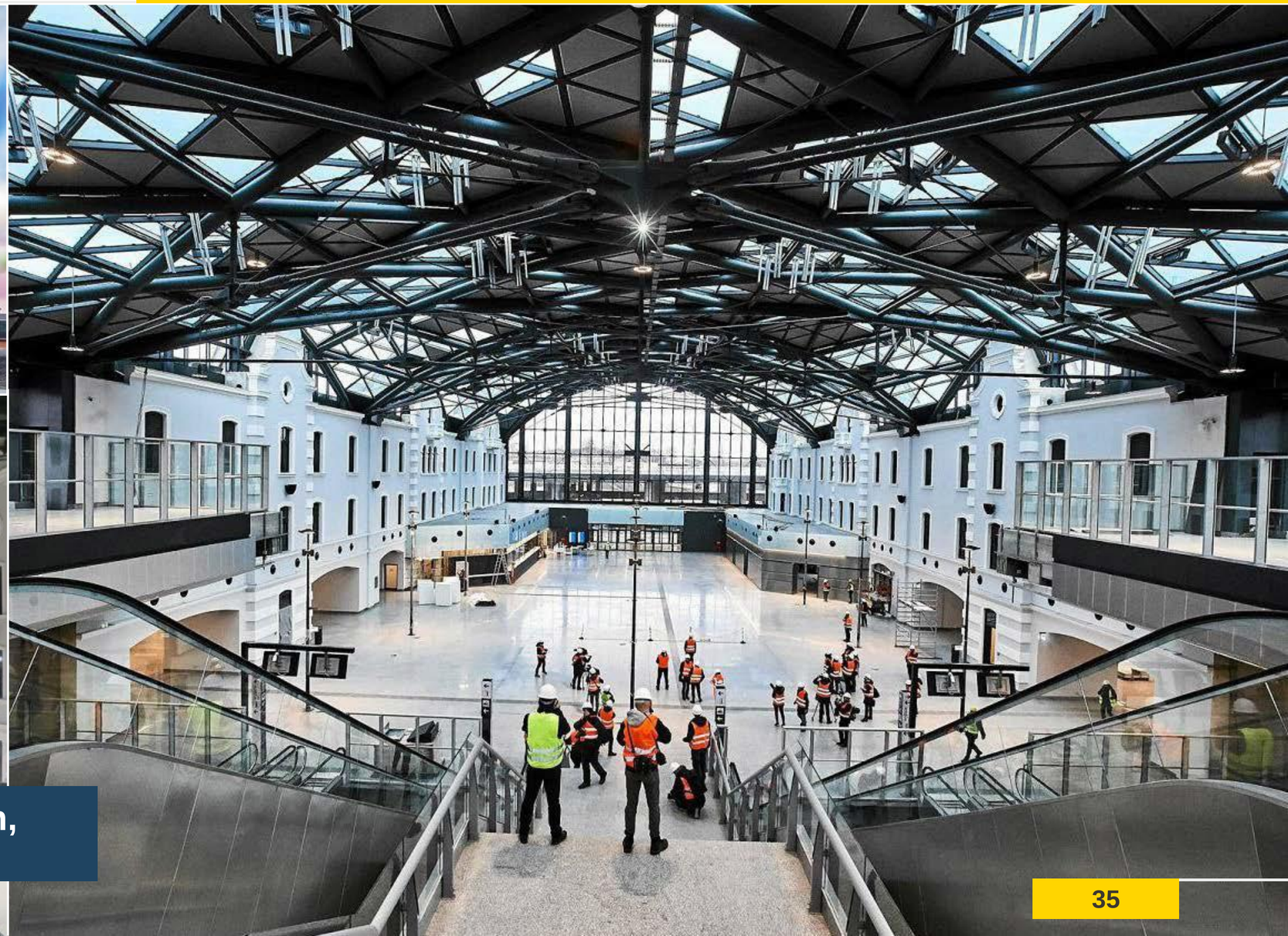
new station under construction





BUDAPEST FEJLESZTÉSI KÖZPONT

LODZ



new railway tunnel under construction,
new station completed in 2016

BUDAPEST FEJLESZTÉSI KÖZPONT

CRACOW

new capacities

BUDAPEST FEJLESZTÉSI KÖZPONT

VIENNA

new main station completed in 2014

BUDAPEST
FEJLESZTÉSI
KÖZPONT

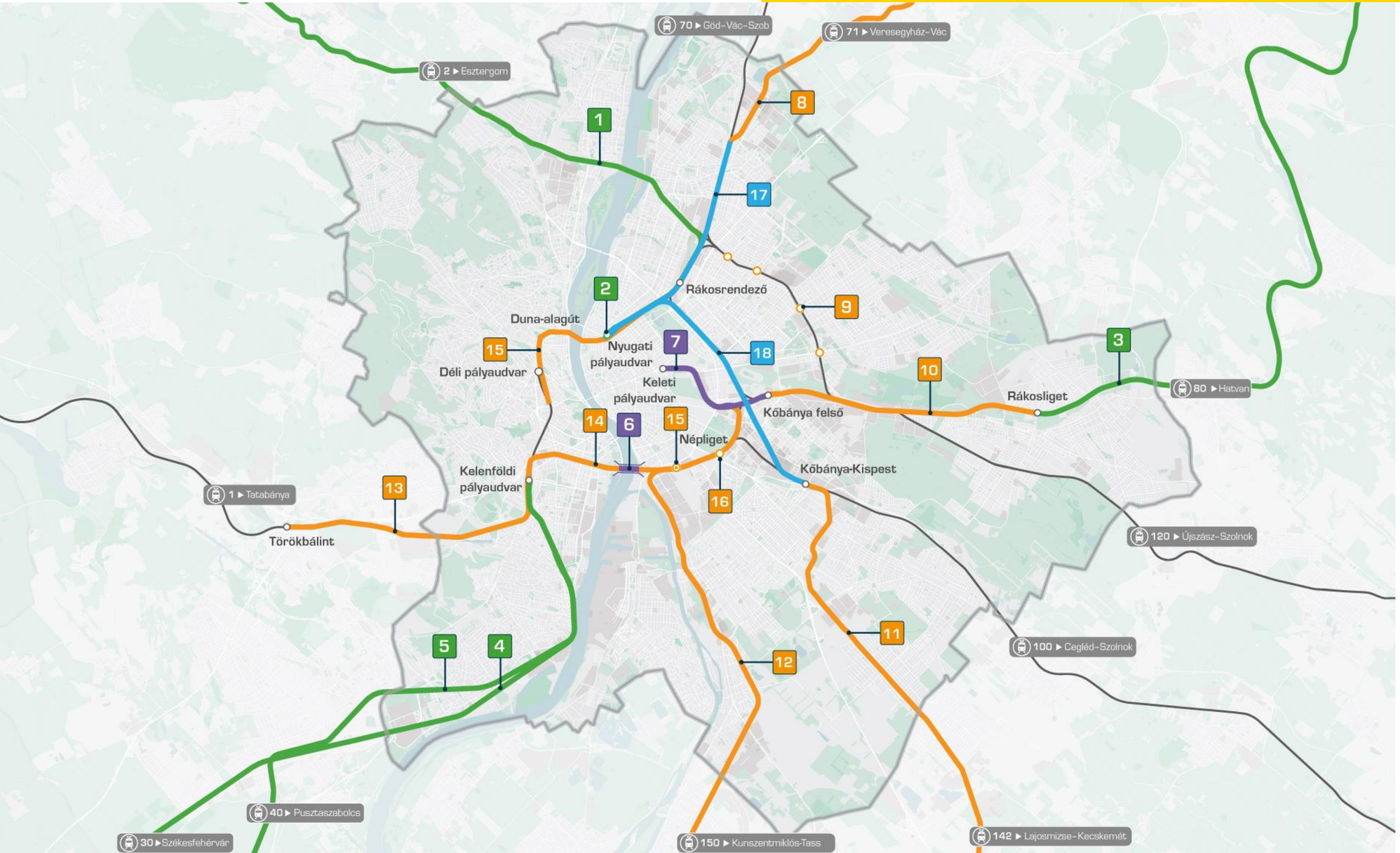
VIENNA

BUDAPEST FEJLESZTÉSI KÖZPONT

ZÜRICH

BUDAPEST FEJLESZTÉSI KÖZPONT

DELIVERY OF THE STRATEGY



Already completed

1. Budapest - Esztergom
2. Nyugati pályaudvar műemlék csarnok felújítás
3. Budapest - Hatvan
4. Budapest - Pusztaszabolcs
5. Budapest - Székesfehérvár

Under construction

6. Összekötő vasúti híd
7. Keleti-Kőbánya felső szakasz

Under planning

8. Budapest - Veresegyház - Vác
9. Új megállók
10. Kőbánya felső – Rákosliget szakasz
11. Budapest - Lajosmizse - Kecskemét
12. Budapest - Kunszentmiklós - Tass
13. Kelenföld – Törökbálint szakasz
14. Déli körvasút
15. Ferencváros különszintű vasúti keresztezés
16. Népliget megálló

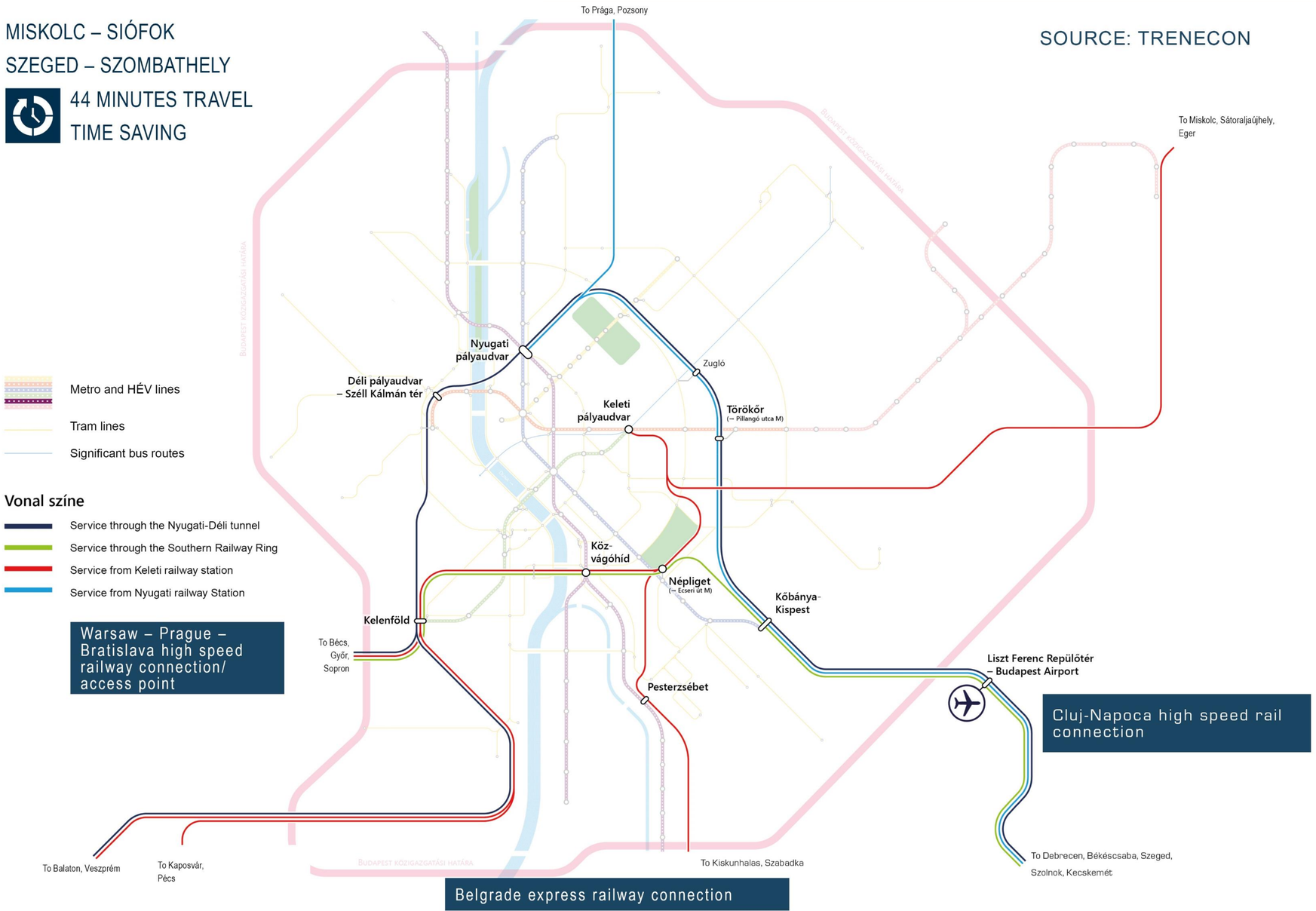
Under preparation

Nyugati bevezető szakaszai

17. Nyugati pályudvar - Rákosalota -Újpest
18. Nyugati pályudvar - Kőbánya- Kispest

BUDAPEST FEJLESZTÉSI KÖZPONT

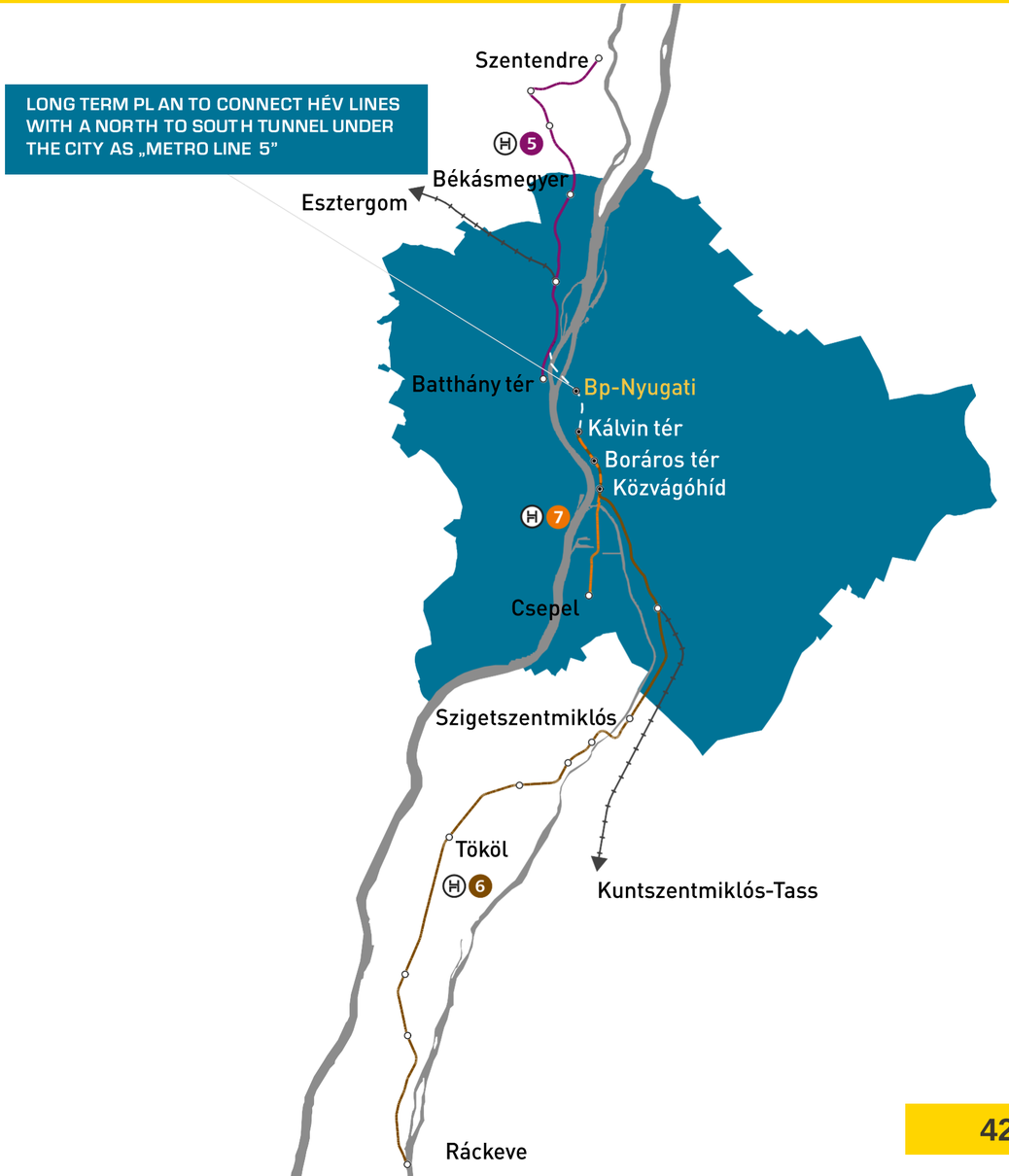
LONG DISTANCE RAILWAY NETWORK



BUDAPEST FEJLESZTÉSI KÖZPONT

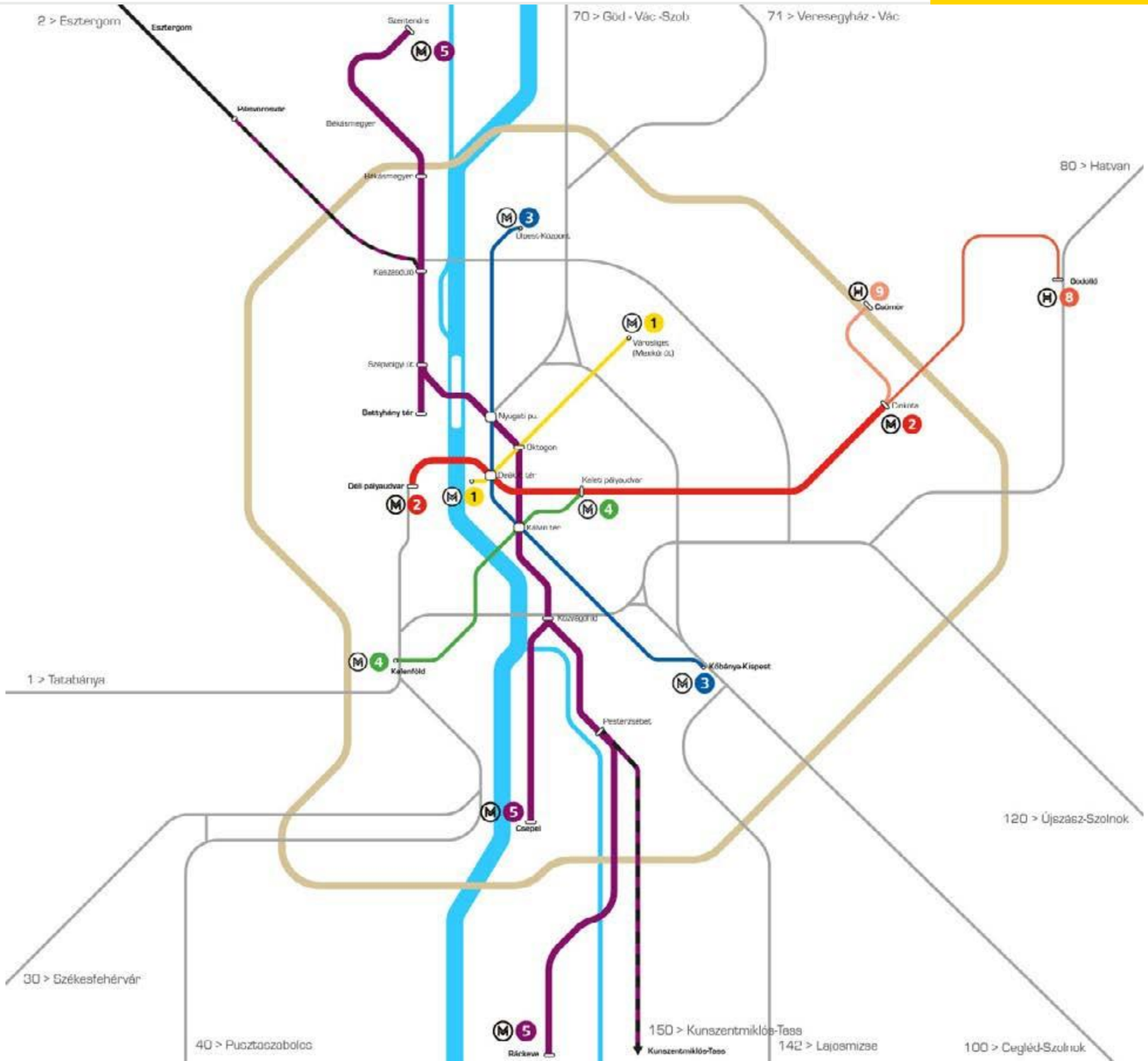
SIGNIFICANCE OF HÉV-LINES IN URBAN AREAS: 620 000 AFFECTED RESIDENTS

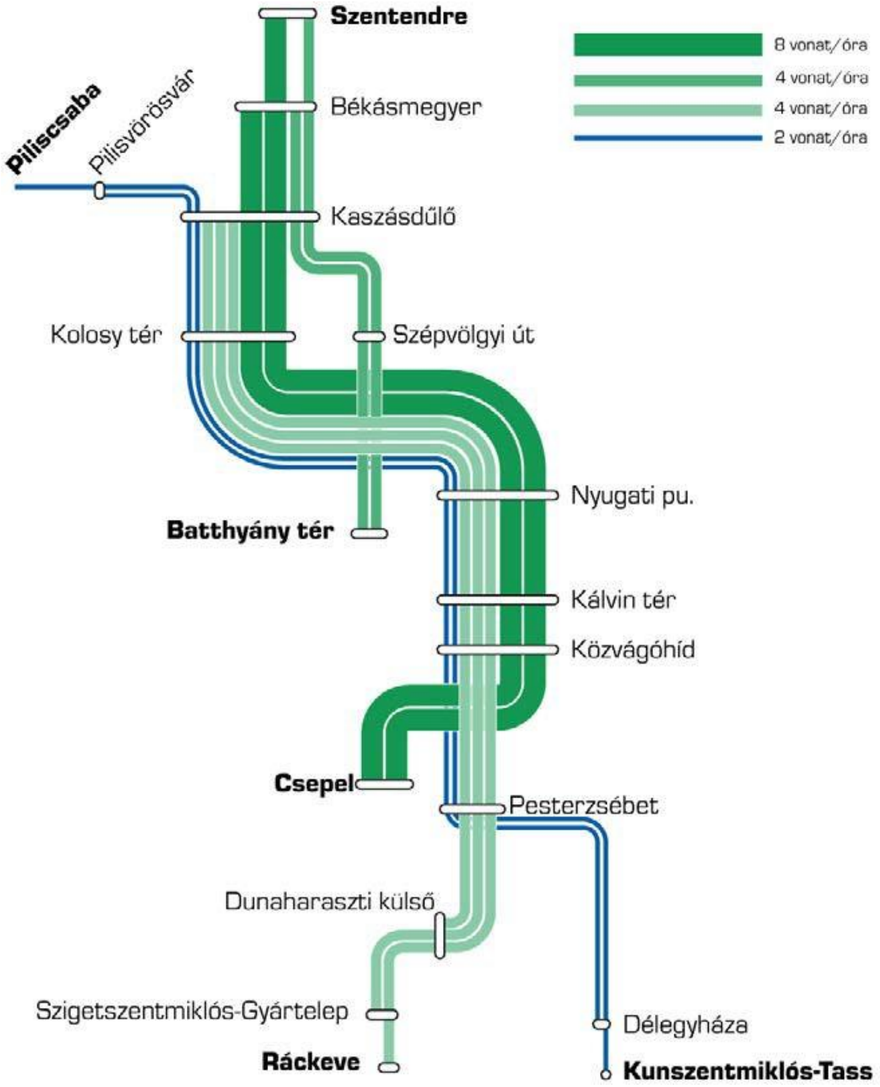
LONG TERM PLAN TO CONNECT HÉV LINES WITH A NORTH TO SOUTH TUNNEL UNDER THE CITY AS „METRO LINE 5”



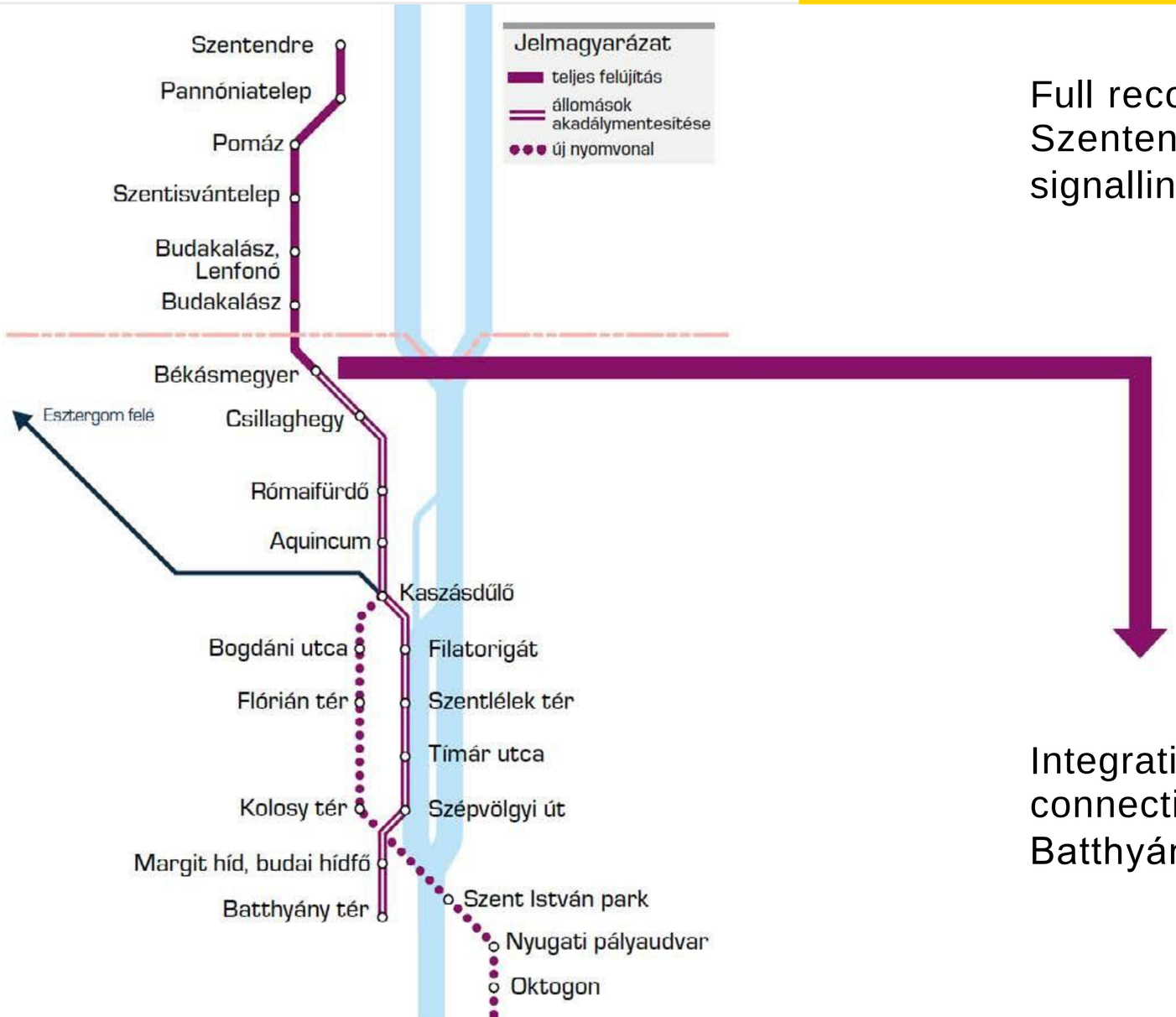
BUDAPEST FEJLESZTÉSI KÖZPONT

A VISION FOR THE FUTURE: M5 METRO LINE





THE FIRST PHASE OF THE DEVELOPMENT: H5 LINE – GENERAL PARAMETERS



Full reconstruction between Békásmegyer and Szentendre: tracks, electric power-supply system, signalling, stations, P+R facilities

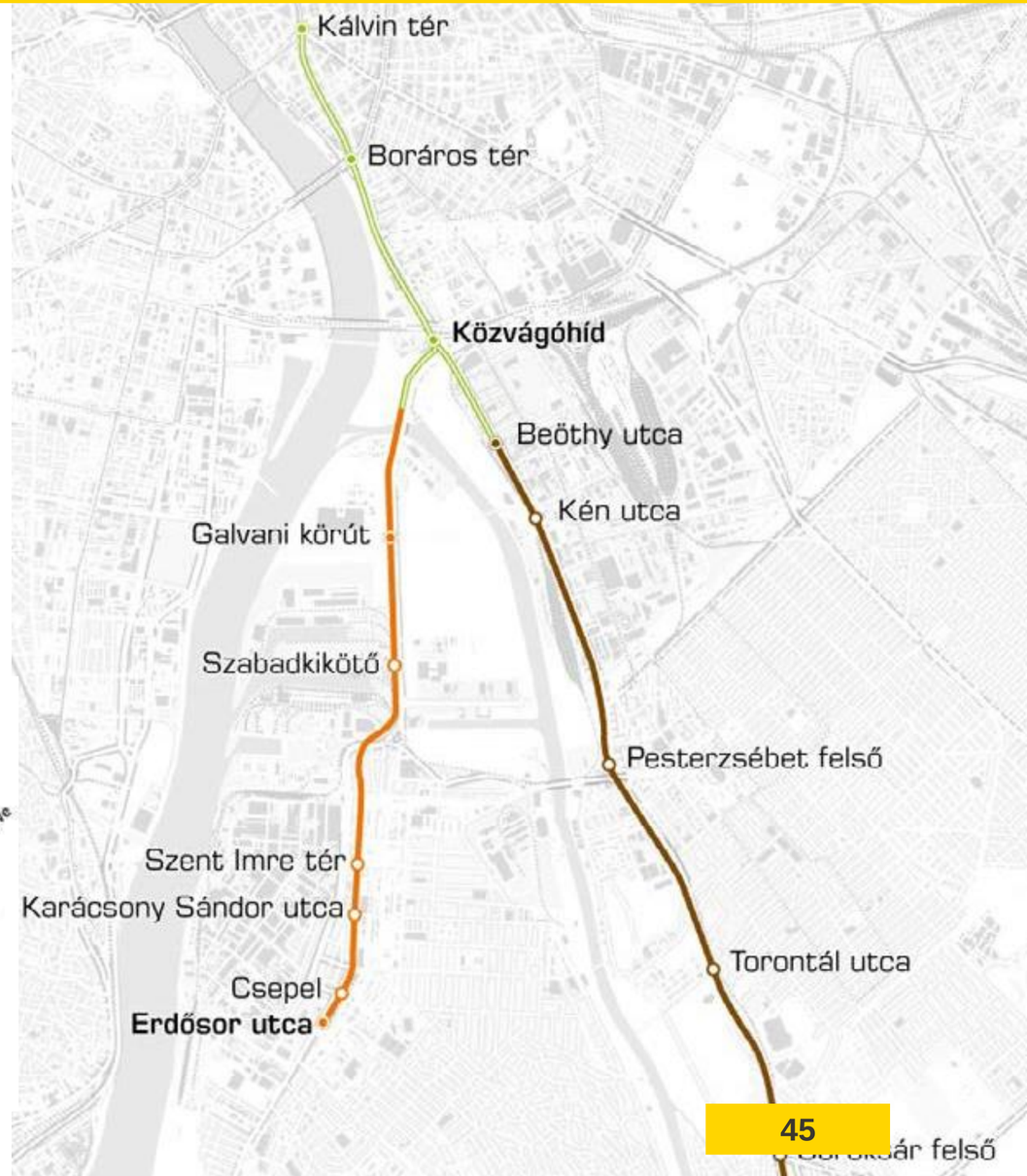
TRAINS RUNNING FROM BÉKÁSMEGYER EVERY 4 MINUTES

Integration with the national railway network: connection of the Esztergom commuter railway line to Batthyány tér

BUDAPEST FEJLESZTÉSI KÖZPONT

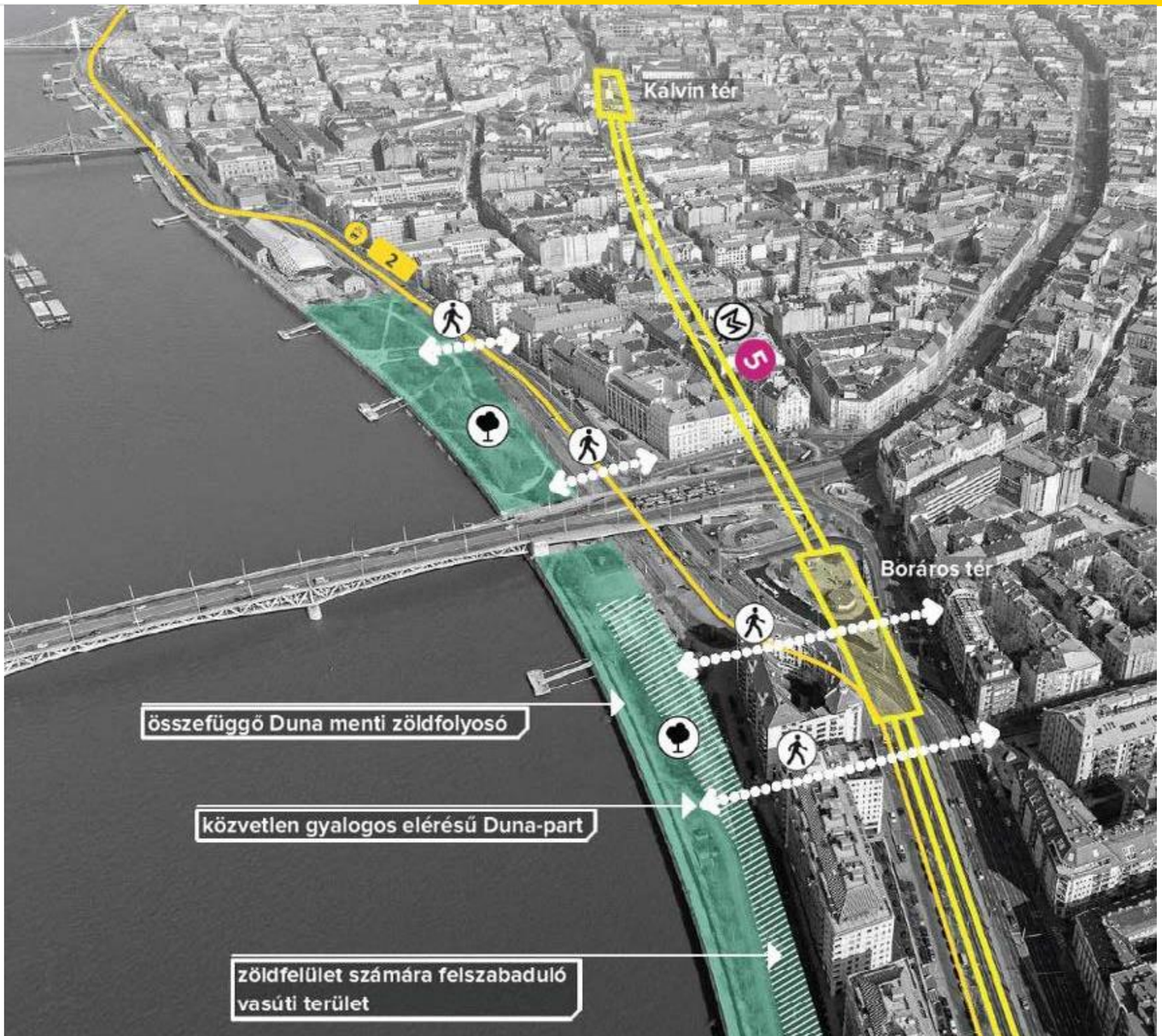
THE FIRST PHASE OF THE DEVELOPMENT: H6/H7 LINES

- Full reconstruction, modernisation and improving accessibility on Csepel (H7) és Ráckevei (H6) HÉV lines
- Connection and extension of the two line to Kálvin tér, Direct transfer to M3 and M4 metro lines.
- Extension of H7 line in Csepelen until Erdősor utca, construction of P+R parking
- Integration with the national railway network: connection of the Kunszentmiklós commuter railway line to Kálvin tér



BUDAPEST FEJLESZTÉSI KÖZPONT

NEW PROMENADE ON THE DANUBE RIVERBANK



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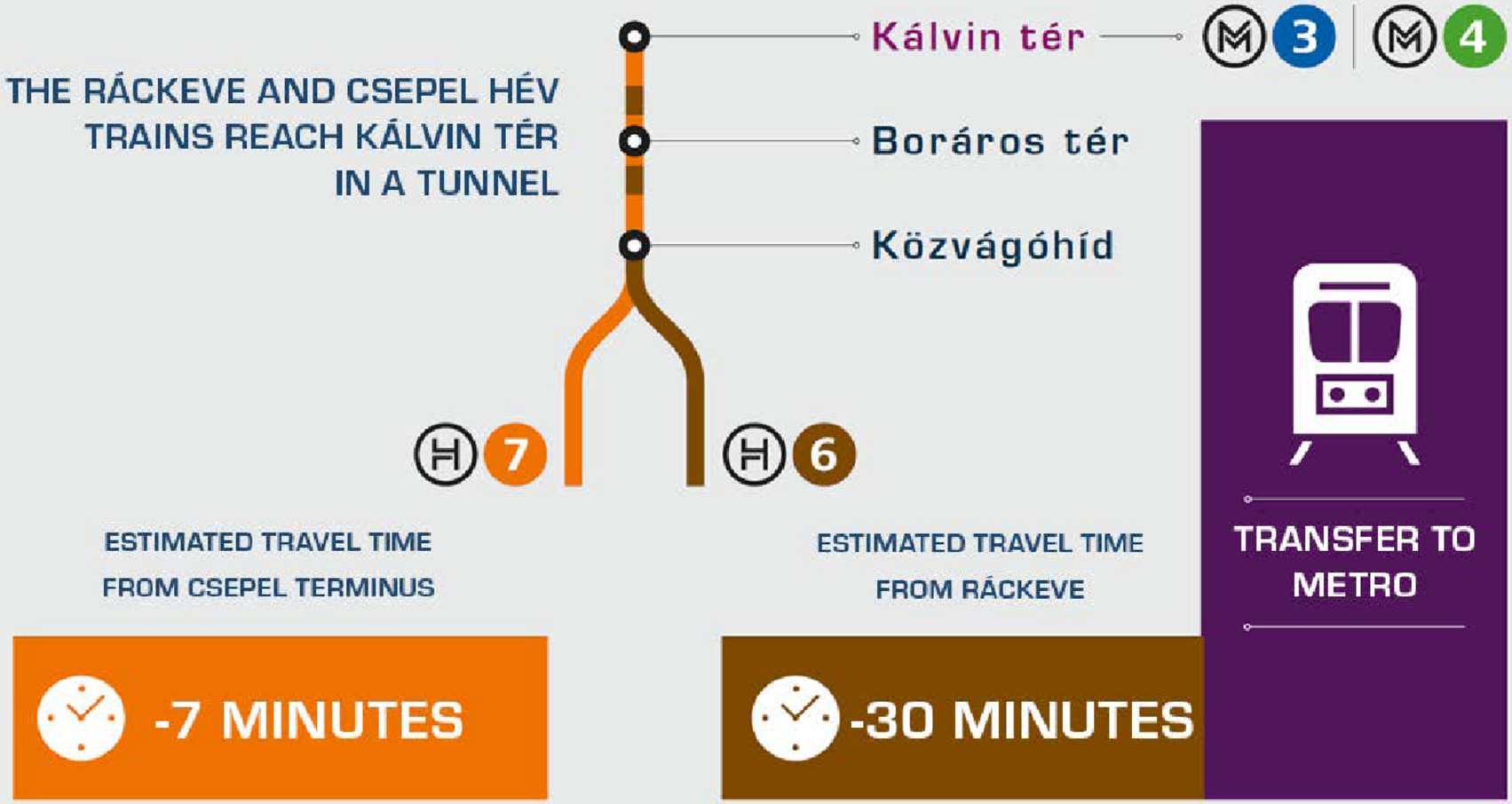
WHAT DO WE EXPECT FROM MODERNISATION OF THE LINES?



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CONNECTING M2 METRO LINE WITH SUBURBAN RAILWAY LINE H8/H9

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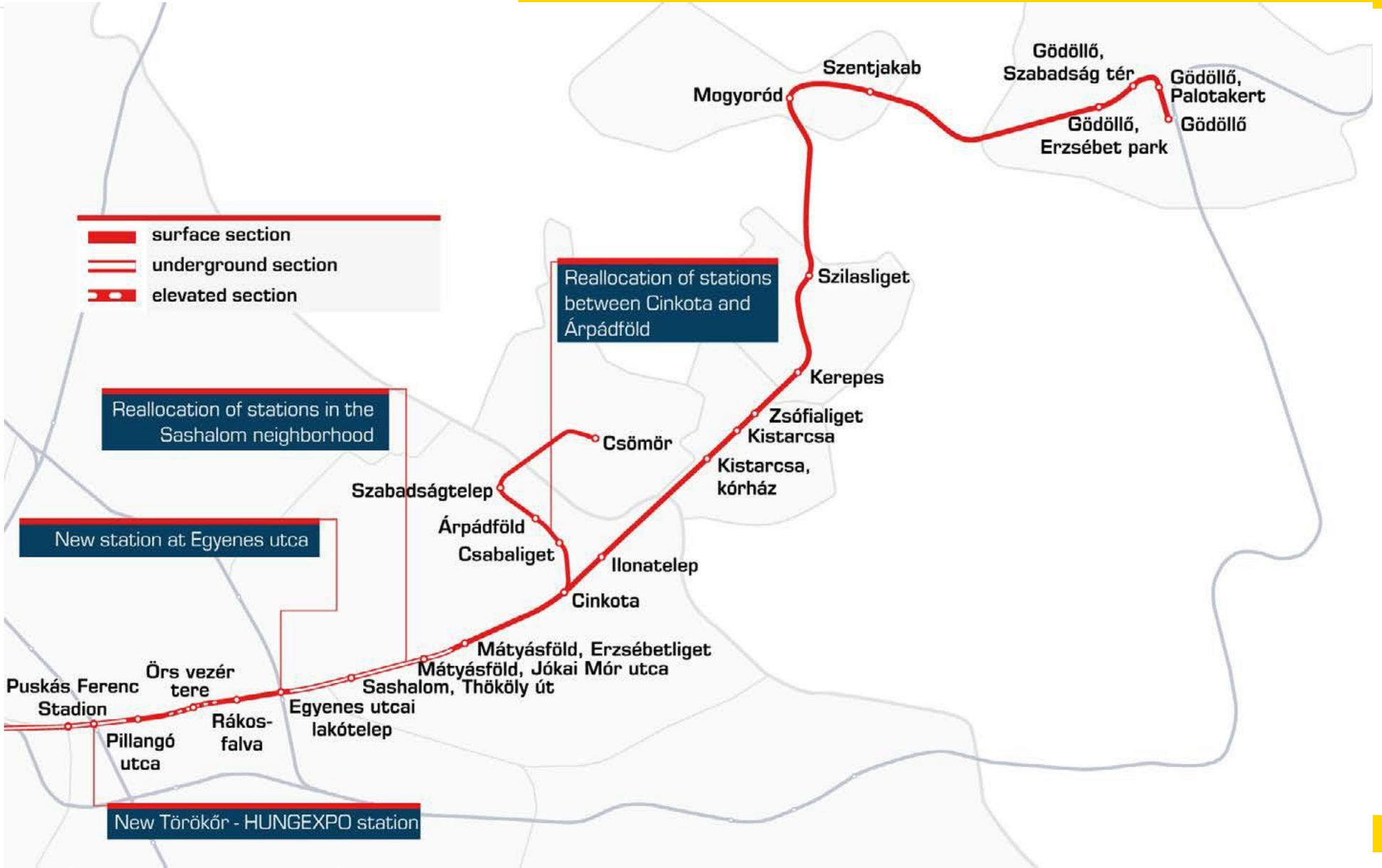
GOALS OF THE DEVELOPMENT



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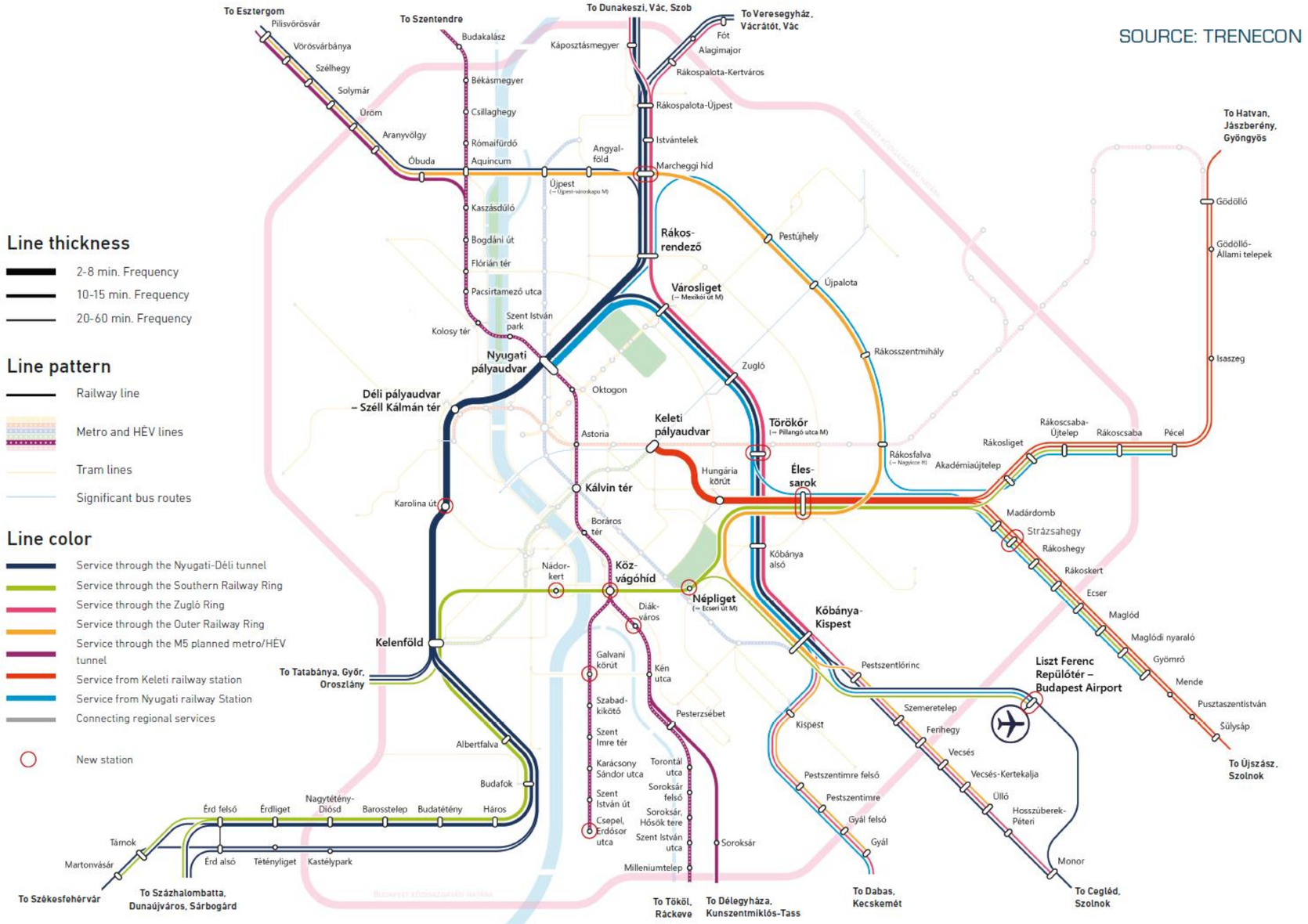
RAILWAY NETWORK IN 2040



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THANK YOU FOR THE ATTENTION