



**DOPRAVNÝ PODNIK
BRATISLAVA**

Michal Dekánek

DECARBONISATION THROUGH UPGRADING BRATISLAVA TROLLEYBUS SYSTEM

LONG TERM COOPERATION

Jaspers

- Advisory provided in previous projects through the Ministry of transport of the Slovak Republic

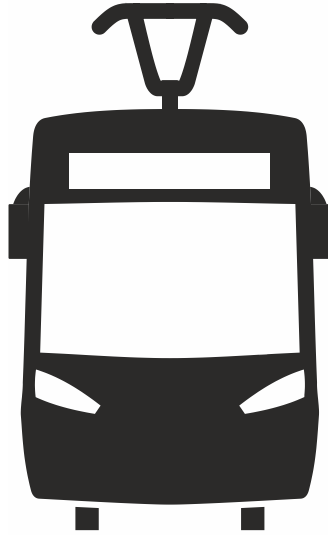


DPB

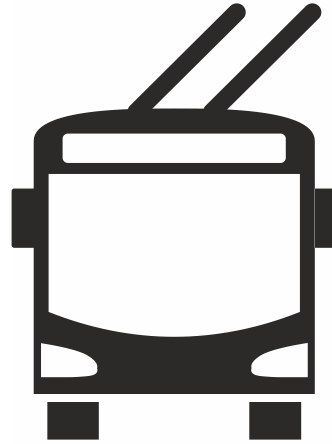
- Operating city transport in Bratislava
- Applies lessons learned to new projects

PUBLIC TRANSPORT IN BRATISLAVA

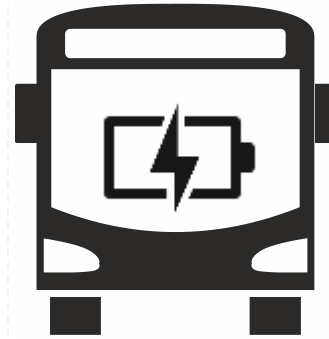
CURRENT FLEET: ~40 % ELECTRIC VEHICLES



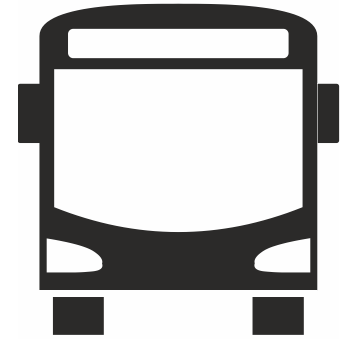
194



126



18



534 (diesel & CNG)

POZSONY. - Vaskutacska.
PRESSBURG. - Eisenbründl.

1909 – 1915: FIRST TROLLEYBUS
1941: FIRST MODERN TROLLEYBUS



2022: 126 TROLLEYBUSES (INCL. 21 WITH APU),
49 KM TRACKS, 11 ROUTES



GOALS

- General objective: >60% zero emission vehicles (including trams) in 2030
- Introduce zero emission vehicles to new neighborhoods
- Replacement of diesel/CNG buses (part of fleet)
- Capacity increase
 - Long term problems with hiring new drivers
 - Shortening of current 3/6 min headway would be ineffective
- Target reliability issues

INPUTS

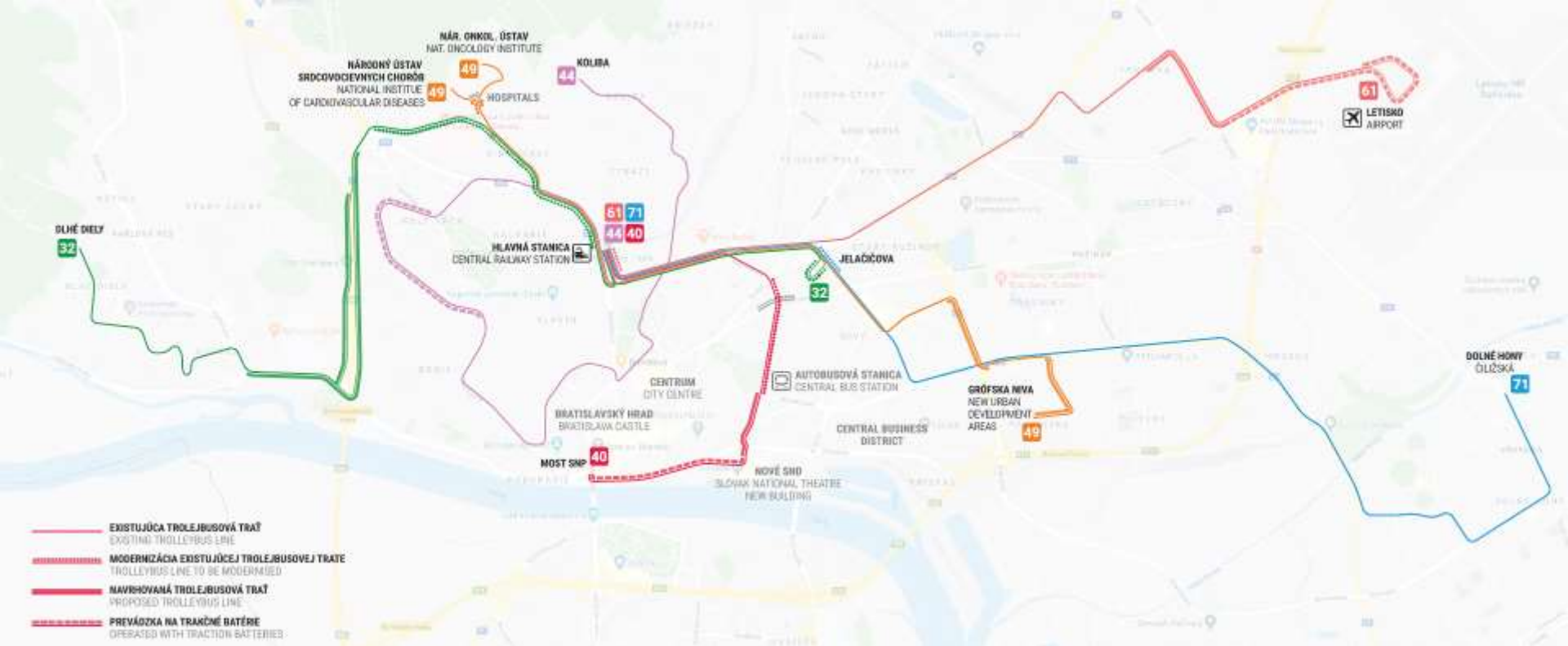
- Sustainable urban mobility plan
 - Jaspers assistance
- Existing infrastructure
 - Trolleybus tracks
 - Transformer stations (shared for trams and trolleybuses)
 - Power supply capacity

ANALYSES

WHERE TO INTRODUCE TROLLEYBUSES?

- Proven bus routes → trolleybus routes
 - Existing and known demand (highly used lines preferred)
- Where electric buses would be insufficient (capacity, charging)
- Minimize infrastructure investments
- IMC trolleybuses – operation under catenary: 70 – 80 %

Line	Route	New trolleybus track	km	km catenary	Share
63	Lamač - Avion Shopping Park (bez zmeny)	-	16,3	6,8	42%
63	Lamač - Trnávka - Avion Shopping Park	Trnávka - Avion Shopping Park	16,1	8,2	51%
63	Lamač - Trnávka - Avion Shopping Park	Trnávka - Avion Shopping Park, Brnianska	16,1	9,6	60%
63	Lamač - Trnávka - Avion Shopping Park	Trnávka - Avion Shopping Park, Brnianska, Tesco Lamač	16,1	11,0	68%
63	Lamač - Trnavská cesta - Avion Shopping Park	Brnianska, Tesco Lamač	15,2	7,7	51%
63	Lamač - Trnavská cesta - Avion Shopping Park	Brnianska, Tesco Lamač, Trnavská cesta po Clementisovu	15,2	8,9	59%
61	Hlavná stanica - Letisko (bez zmeny)	-	8,6	3,7	43%
61	Hlavná stanica - Letisko (bez zmeny)	Trnavská cesta po Clementisovu	8,6	4,9	57%
61	Hlavná stanica - Trnávka - Letisko	Trnávka - Avion Shopping Park	9,4	6,7	71%



New tracks and new vehicles deployment
4 new tracks (extensions, 8 km), 4 upgrades (6 km)

TESTS – 18M AND 24M IMC TROLLEYBUSES



TROLLEYBUSES

- Output of analyses and tests
 - Number of vehicles for each line
 - Delays in operation (traffic jams) taken into account
 - ToRs
 - Different parameters for different lines
 - Predominant track profile: flat / hilly
 - Time under catenary 60 – 70 %
 - Maximum 4 – 10 km section using batteries
 - Maximum 70 – 125 km daily using batteries

TROLLEYBUSES

- Trolleybus tracks to be built in 2023 – 2024
- Vehicles
 - 11 pcs 12-m – 465k €/pc
 - 23 pcs 18-m with extended luggage space – 539k €/pc
 - 16 pcs 24-m – 1.0m €/pc
 - Relocation of existing vehicles to different lines
 - 38 diesel/CNG buses to be withdrawn from operation

OTHER DECARBONISATION PROJECTS

- 40 new trams replacing old ones
 - 34 new trams
 - 3 new tram lines
 - 2 tram line extensions
- Up to 40 new electric buses
 - Lines operated at peak hours
 - Lines with longer stay at terminuses
- Up to 40 new hydrogen buses
 - All-day duties
 - Weekend duties

TROLLEYBUSES = GREEN OPTION

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More Information

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