

PASSENGER-FRIENDLY DEVELOPMENT OF PUBLIC TRANSPORT IN DEBRECEN.

**EPF conference
21 03 2015 Budapest**

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Chief Executive Officer**



Presentation topics

- 1. Historical review, main activities of DKV Zrt.**
- 2. Recent development of community transport in Debrecen:**
 - Trolleybus vehicle-reconstruction program in 2005-2007**
 - Construction of the CIVITAS II. GPS-based traffic control and passenger information system in 2006**
 - Modernization of passenger transport by buses in 2009**
 - Antibacterial cover in the cab of new trams (pilot project 2014)**

Presentation topics

3. Large-scale European Union projects:

- **Development of public tramway network in Debrecen, construction of Tramway No.2.**
- **Realization of a Multimodal Transport Centre (under preparation)**





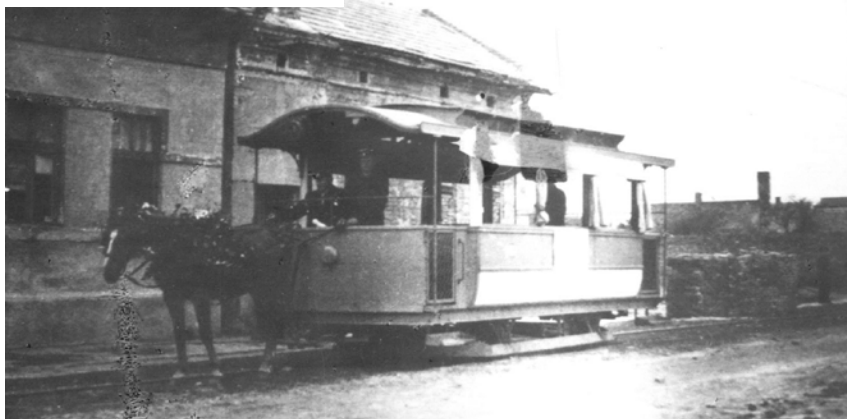
Debrecen is the second largest city in Hungary.
Population: 210 thousand people
With agglomeration: 430 thousand people



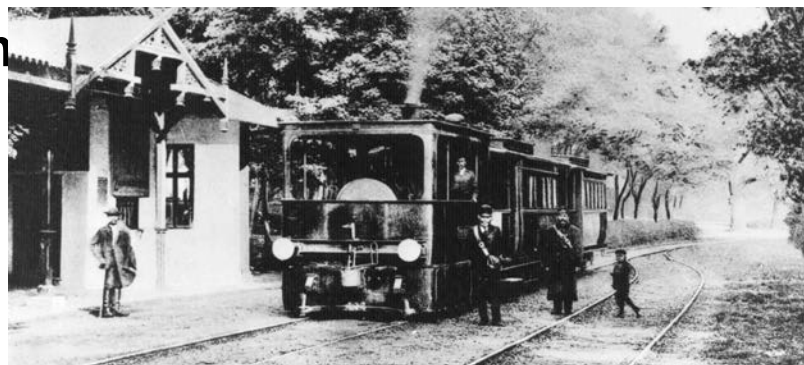
1. Historical review

- **DKV Zrt. and its legal predecessors in the service of the population for 131 years (1884.07.02 DHV Rt.)**

Omnibusz 1863



10. 02. 1884. DHV Co. stem traction city tram



16 03 1911. begining of tram traffic



1962 the first FVV tram in Debrecen





1. DKV Debrecen Transport Service Co. 1884-2015



1. Main activities of DKV Zrt.

a, features of tramway traffic

- two routes
- length of tramway: 19 km
- number of passengers carried per year: 21.530 thousand
- 11 pc of KCSV6 and 18 pc of CAF URBOS 3 type vehicles



1. Main activities of DKV Zrt.

b, features of trolleybus traffic

- three routes
- length of catenary network: 12.2 km
- number of passengers carried per year 7.595 thousand
- 5 pc of Ganz-Solaris T12; 5pc of Ganz-Solaris T12-D; 11 pc Ganz-Skoda Solaris T12-D2; 1pc of MAZ 103T; 6 pc of ZIU-9; 4 pc of IK 280-T type vehicles



1. Main activities of DKV Zrt.

c, features of bus traffic

- 46 routes
- number of passengers carried per year 75.918 thousand
- 85 pc of VOLVO B9L – ALFA CIVIS 12 type solo buses,
- 40 pc of VOLVO B9L – ALFA CIVIS 18 type articulated buses





2. Trolleybus vehicle-reconstruction (2005-2007)

- 5 pc of Ganz Solaris Trollino 12-type trolleybuses of normal operation mode (2005)
- 5 pc of „self-propelled” Ganz Solaris Trollino 12D-type trolleybuses (2005)
- 11 pc of „self-propelled” Ganz Skoda Trollino 12-D-2 (2007)
- 1 pc of Ganz MAZ 103T-2-type trolleybus (2007)
- Total volume of investment: 1.800 M HUF
- 100% low floor vehicles, with ramp for disabled people



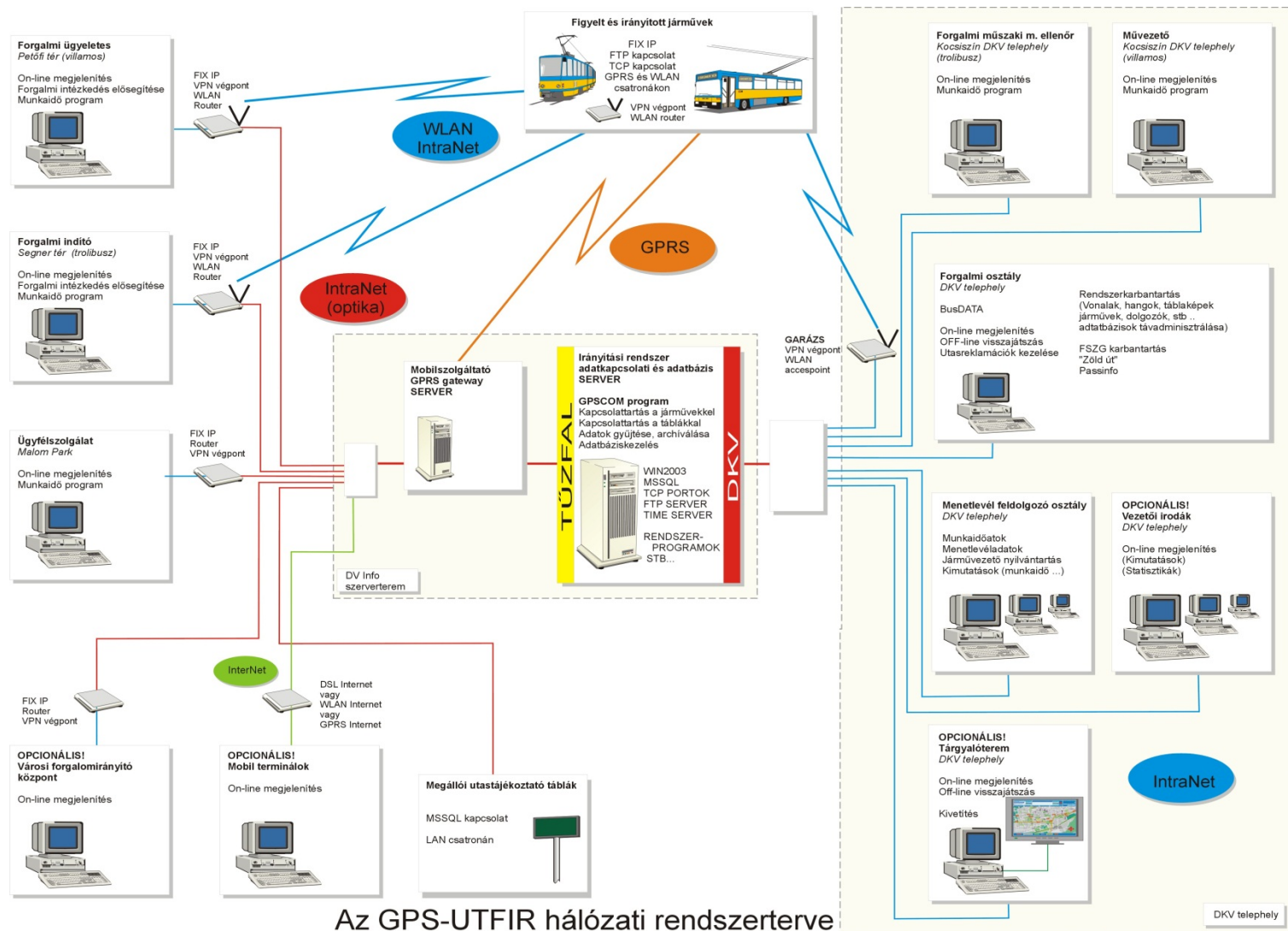


2. Trolleybus vehicle-reconstruction (2005-2007)

Out of the procured 22 vehicles 16 are also capable of self-propelled Diesel aggregate operation mode



2. CIVITAS II (2006) Construction of a traffic control and passenger information system





2. CIVITAS II.

Real-time passenger information system on trams and trolleybuses and in tram stopping points. (2006)

Total amount of project: 160 M HUF

EU support: 36 %



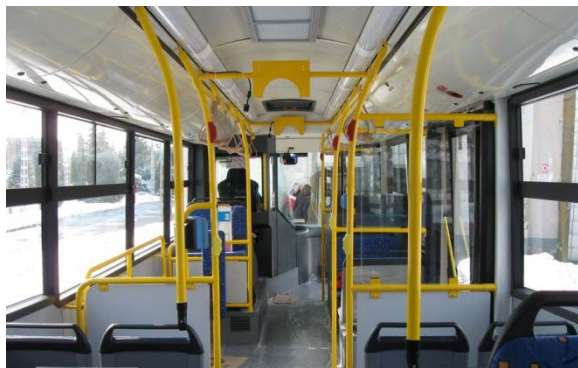
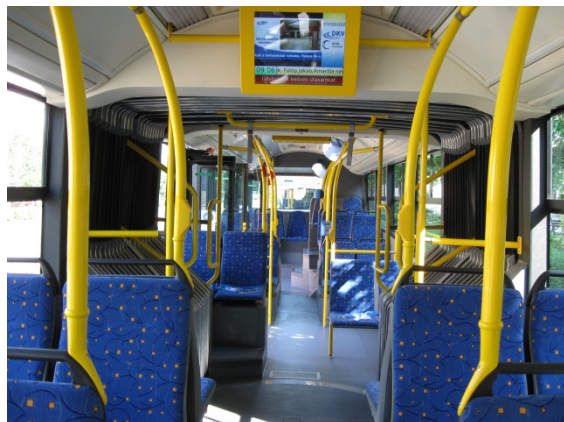


Intertanker



2. Modernization of bus traffic (2009)

Volume of development: 11.000 M HUF



Most significant tasks included in the tender

- Construction of a GPS-based traffic control system.,
- **Operation of a bus fleet of 100% uniformly manufactured, air-conditioned, low floor vehicles in compliance with EURO 5 environmental standards.**
- Introduction of GPS-based acoustic and visual passenger information system in the vehicles.
- Development of an electronic passenger information system of higher quality than the present system of information boards at stopping points, in Nagyállomás, Segner Square, Doberdó Street terminal points, and also in Kossuth St., and at the Klinika (Clinics) stops.
- The deviation of the planned passenger capacity from the present one will not exceed 5 % on a yearly basis.
- The rate of annual tariff rise will not exceed current inflation.



Distribution of tasks in the Consortium

Intertanker



- **INTER TAN-KER Tanácsadó és Kereskedelmi (Consulting and Trading) Zrt.:**
 - provision of the vehicle fleet, construction of premises; maintenance, cleaning, overhaul and repair of vehicles, operation of routes.
- **DKV Debreceni Közlekedési Zrt.:**
 - planning of community transport tasks, preparation of time-tables, organization and control of traffic, human resources management (drivers, dispatcher personnel), sale of passes.



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Bus depot.



GPS-based acoustic and visual passenger information system on vehicles





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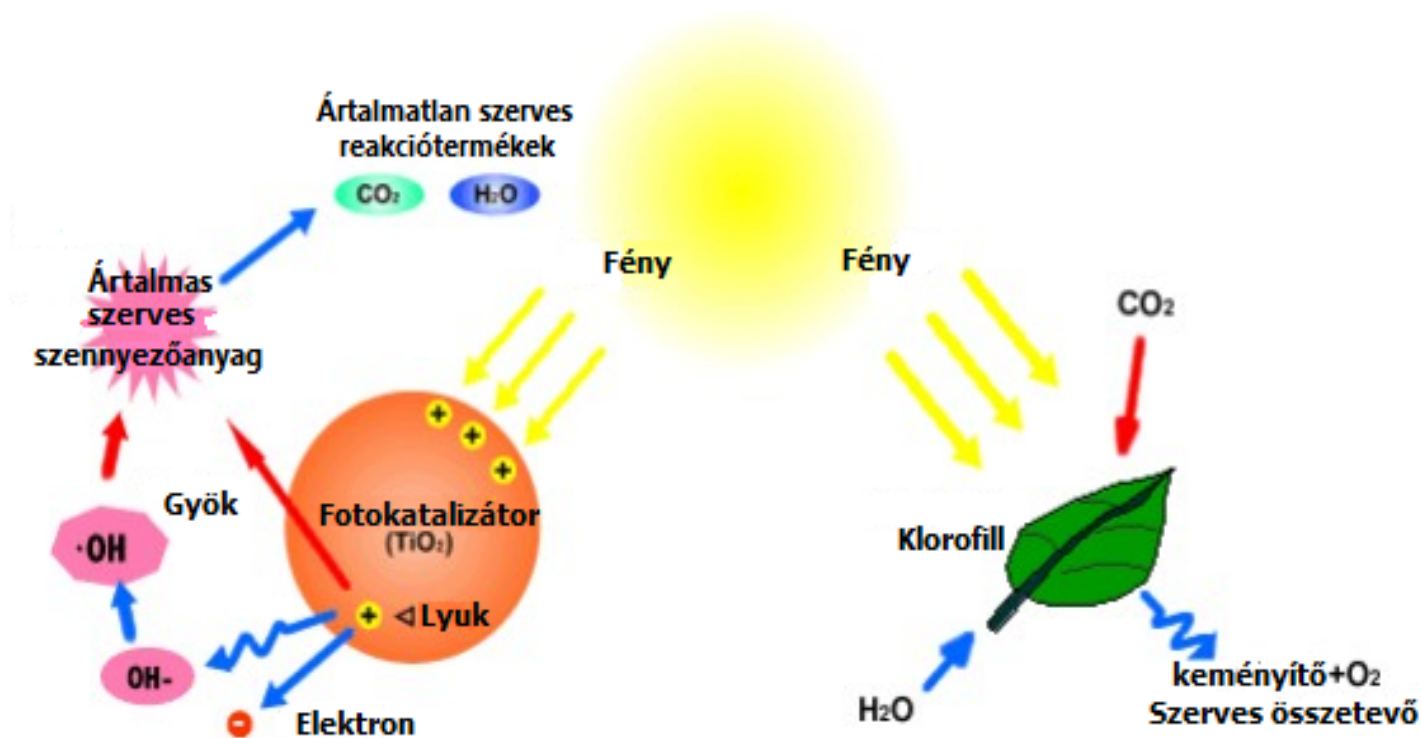
Modernization of bus traffic

Real-time passenger information system at stopping points



Antibacterial cover in the cab of new trams (pilot project 2014)

Nano technology used for defensive cover with titanium-dioxide





Results of the pilot project:

- **We used this technology in two new trams.**
- **We measured the number of microorganisms by help of light intensity of ATP enzyme, before and after the handling.**
- **92% of microorganisms were killed.**



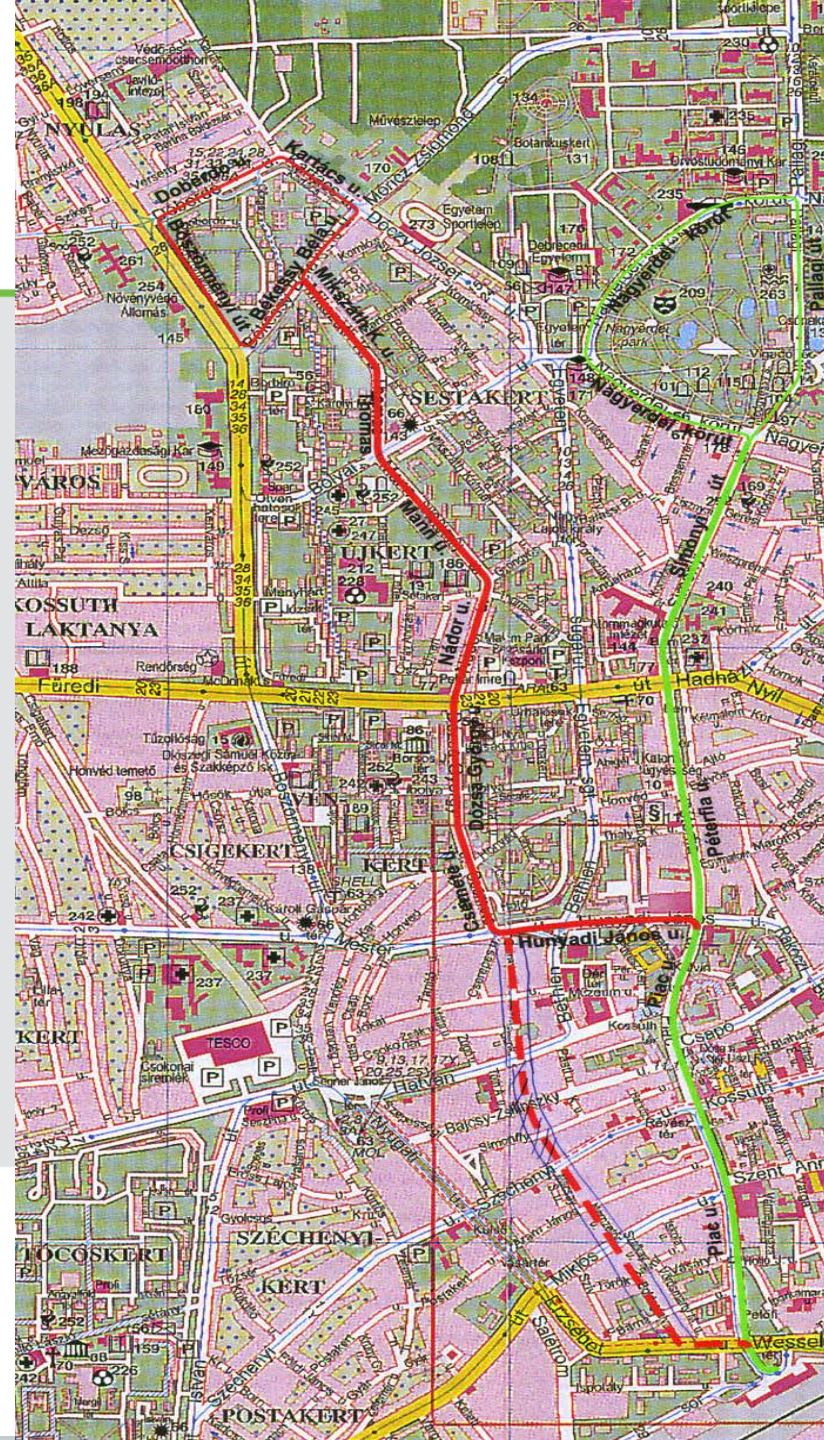
3. Construction of Tramway No. 2. in Debrecen

Key elements of project

- **Number of population directly affected by the project: 80.000 people**
- **Number of total affected population: 150.000-200.000 people**
- **Total investment costs:
23.944 M HUF (with the procurement of 18 tramcars)**
- **Rate of support: (89.7%, there of 80% EU)**
- **Realization of project: 2010-2014**

Track of Tramway No.2.

- Nagyállomás
- Piac u.
- Hunyadi u.
- Csemete u.
- Dózsa György u.
- Nádor u.
- Thomas Mann u.
- Mikszáth K. u.
- Békeassy u.
- Kartács u.
- Doberdó u.



Most significant elements of the project

- **Construction of tramway (up to 8.000 of track linear meter, 13 group detours)**
- **Construction of tramway catenaries and an energy supply system (two transformers, up to 9.000 m of catenary, 250 pc of catenary bearing columns)**
- **Reinforcement of the current supply network for the joint section of tramways No.1 and No. 2. (modernization of feeder and forth rail cable network in the length of up to 1.500 m)**
- **Platform construction (31 pc)**
- **Other additional constructions, necessary public utility renovations (utility relocation along up to 9.000 m, road construction of 41.000 m²)**
- **Procurement of tramcars (18 pc)**
- **Technology development on premises, construction of a depot**

The new tram-depot



Inside of repair yard.



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A projekt az Európai Unió támogatásával, az Európai Kohéziós
Alap társfinanszírozásával valósul meg.



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Transformer station.



Terminal point in the Petőfi square



Tramway No. 2 was built



**Branch line of Tramway No. 2
at the Hunyadi street**



Grass court in the Hunyadi street

Tramway No. 2 was built



Stop in the Mikszáth street



Terminal point in the Doberdo street

Technical requirement of new CAF URBOS 3 tram car.

- 18 pc equivalent production,
- passenger cabin in one block
- 100% low floor,
- normal rail-gauge,
- maximum 32.5 m length
- 2650 mm width,
- air conditioner,
- 178 standing and 48 sitting places
- 600 V DC,
- two driver cabs and two sides doors
- delivery of vehicles spare parts
- delivery of technical equipment



The tram from outside



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Inside of the tram



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Technological equipment and devices



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Technological equipment and devices



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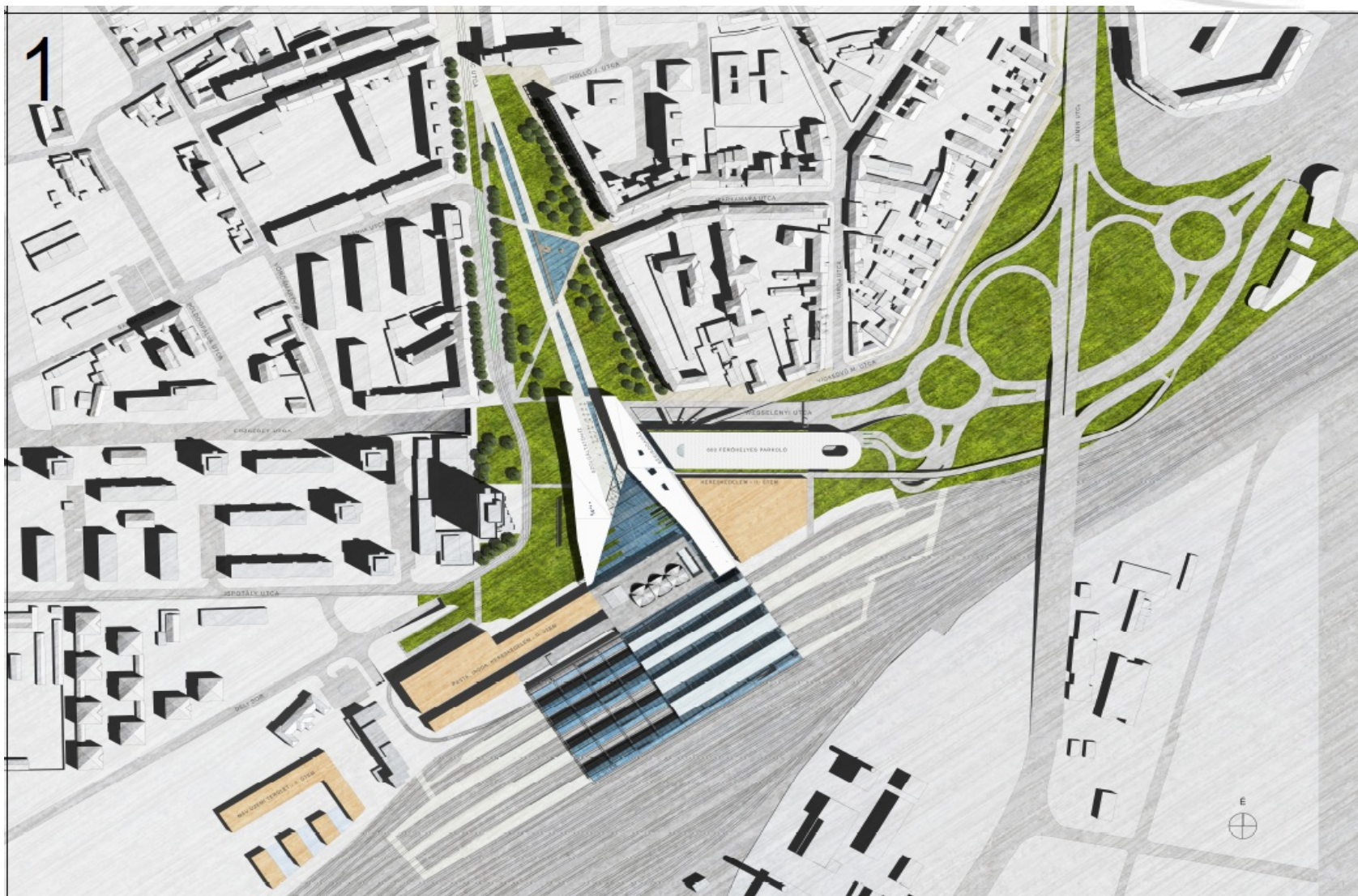


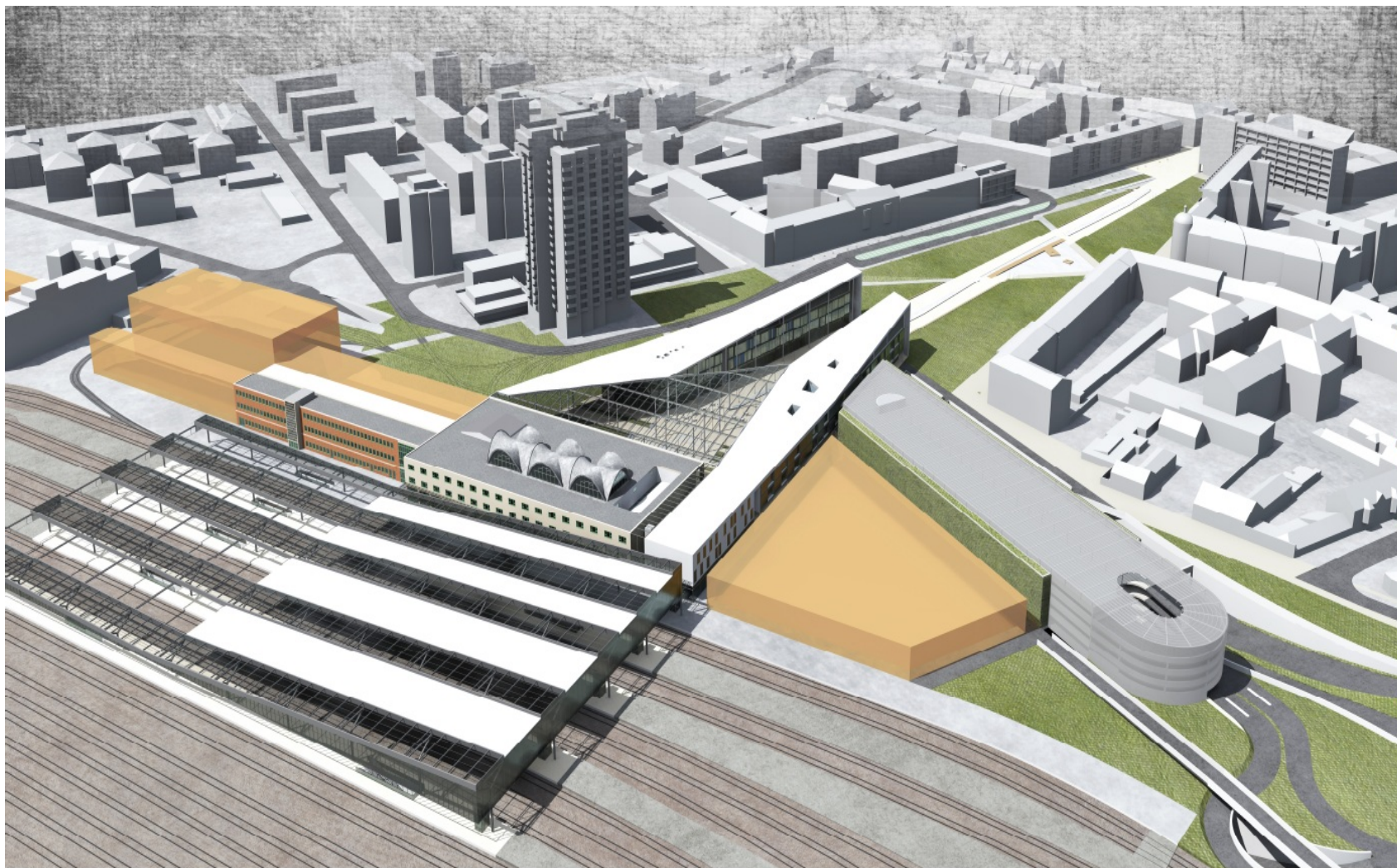
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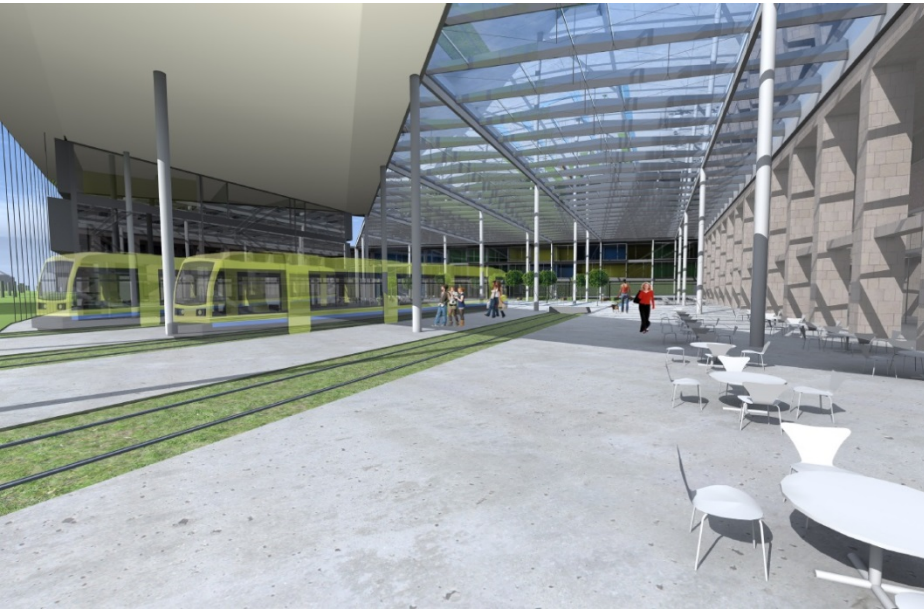


3. Implementation of the Multimodal Transport Centre

- **Rational transport system**
- **Model-like community interconnection point**
- **Placement of inter-urban bus terminal**
- **Improvement of services for customers**
- **Centralized and uniform services for customers**
- **High-level environmental renewal**
- **Well-arranged pedestrian pathways and commercial areas**
- **Planned site: Petőfi Square**







Vision of Debrecen public transport

The public transport let be:

- modern
- competitive over private traffic
- affordable for passengers
- financed by order
- sustainable in the long run



Thank you for your kind attention!