



# Effects and mechanisms of electric urban transport prioritizing in Russia

**Alexander S. Morozov,**

Vice-president, International association of Electric urban transport enterprises

+7 (903) 157-9733

asmorozov@gmail.com



## *Russian national goals and urban electric transport*

7 of 12 Russian National goals tied to urban public transport:

1. Demography;
2. Health and safety;
3. Urban environment;
4. Ecology;
5. Road safety;
6. Employment and labor efficiency;
7. Spatial development.

Green public transport – rail and electric – fits best to the national goals and sustainability.

The main effects of transformation PT into rail and electric modes are:

1. Reduce emission;
2. Reduce road accident damage;
3. Reduce transit time expenditures;
4. Reduce direct operational expenses.

# Efficiency of tramway transport in figures

The following effects provided when substitute bus transport with light rail (per passenger seat-km):



**1. Road safety:** 4 times less accidents then bus, 55 time less accidents then car;



**2. Emission:** zero emission (on clean power sources), ~5-10 times less of bus in residential area (on other power sources);



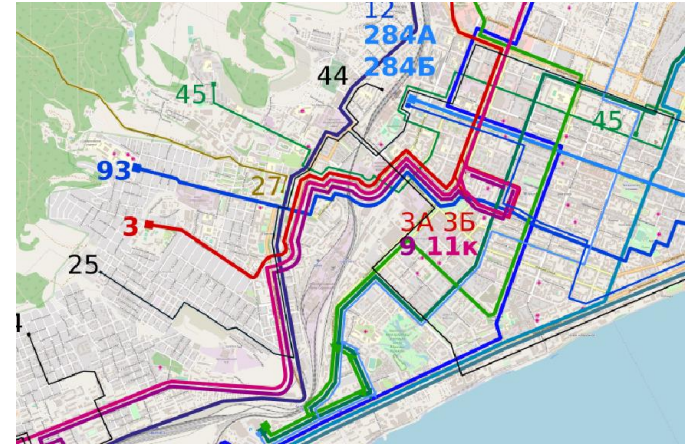
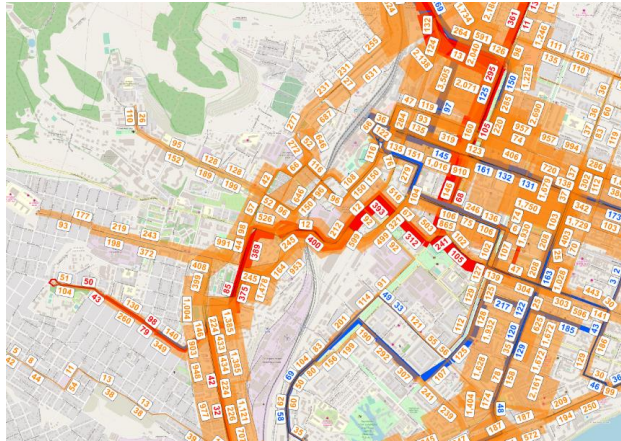
**3. Travel time:** about 8-12% less (due to segregated track, traffic light priority);



**4. Operational expenses:** 30-40% less then 12-m diesel bus.

Route network optimization plan was developed for the following cities:

- Ekaterinburg
- Saratov
- Novokuznetsk
- Ulyanovsk



The following effects – as a result of the optimization – are estimated over all the route network:

1. **Accident losses:** drop by 20-33%;
2. **Emission losses:** drop by 23-42%;
3. **Travel time:** drop by 6,7 – 8,2%;
4. **Expenses:** drop by 12-23%.



## *National program as a booster of public transport*

2017: Russian Road safety and quality national program:

- Reduce accident concentration “black spots” on the road network by 50%;
- Bring into compliance at least 50% of roads.

The program was solely road-oriented.

2019: the Program extended with urban public transport:

- Renewal of public transport fleet in 20 agglomerations.

**Competitive selection** of the cities allows to change local policies:

- Money provided to the 10-12 cities yearly, demonstrating the best public transport policy according to the qualification criteria.

The national program became greener and boosts public transport development, thanks to the competition.



## Qualification criteria and results

The following qualification criteria provided in the competition:

1. **Transport planning acts** (Traffic management plan, Route network plan, Transport infrastructure plan, Quality service standard) signed into law;
2. **Length of the electric transport** (tramway, trolleybus) lines, dynamics of the length on the last 10 years (additional score to the cities, building new tramway and trolleybus lines);
3. **Share of routes with regulated tariffs** (100% - 5 scores, less – 0 scores);
4. **Share of gross contracts** with operators (the fare is collected by city authorities);
5. **Share of vehicles with electronic fare payment;**
6. **Length of bus lanes** and tramway separate track;
7. **Fare affordability** (monthly unlimited pass price is less than 7% of average wage);
8. **Walking accessibility** of bus stops (% of residential buildings in normative distance);
9. **Service reliability** (share of trips provided on-time, less than 3 minutes late);
10. **Capacity compliance** (share of stretches with a load factor less than 4/m<sup>2</sup>);
11. **Efficiency estimates** for the transport measures (including emission, road accident damage, transit time expenditures, direct operational expenses);
12. **Overall expert transport policy score.**

As a result, leading cities provided several administration measures to improve their transport policies, to comply to the program.