TRAFFIC MANAGEMENT IN MOSCOW
CHALLENGES AND SUCCESSES

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MTCC
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ROAD TRAFFIC IN MOSCOW

Major World Cities Rated As Per Traffic Density

<table>
<thead>
<tr>
<th>City</th>
<th>1988</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAZAN</td>
<td>27</td>
<td>71</td>
</tr>
<tr>
<td>MOSCOW 2014</td>
<td>71</td>
<td>27</td>
</tr>
<tr>
<td>MOSCOW 1988</td>
<td>98</td>
<td>96</td>
</tr>
<tr>
<td>TOKYO/YOKOHAMA</td>
<td>141</td>
<td>153</td>
</tr>
<tr>
<td>SINGAPORE</td>
<td>176</td>
<td>203</td>
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<tr>
<td>MADRID</td>
<td>203</td>
<td>176</td>
</tr>
<tr>
<td>LONDON</td>
<td>96</td>
<td>98</td>
</tr>
<tr>
<td>PARIS</td>
<td>141</td>
<td>153</td>
</tr>
<tr>
<td>LOS ANGELES</td>
<td>63</td>
<td>72</td>
</tr>
<tr>
<td>SAN FRANCISCO/OAKLAHOMA</td>
<td>110</td>
<td>203</td>
</tr>
<tr>
<td>NEW YORK</td>
<td>110</td>
<td>203</td>
</tr>
</tbody>
</table>

When there are more than 2 thous. accidents, 10/10 level

4.6 million vehicles registered in Moscow*

3.5 million drive around the city daily

In Moscow 27m² of road space is used by one car
In London it is 98m²
FUNCTIONALITY

Servicing Moscow road infrastructure
Annual processing of public requests
Tuning and processing of the photo and video capture
Managing heavy-load vehicles
Implementing and developing ITS
Managing traffic
Making driver announcements
Analyzing traffic conditions

Managing Traffic

- Managing traffic together with State Road Safety Inspection
- Prioritizing public transport goals
- Servicing and operating infrastructure
- Developing and approving design documentation (Complex Traffic Management Scheme, Traffic Management Project)
- Providing state services for issue of heavy-load vehicle entry passes
INTELLECTUAL TRANSPORT SYSTEM

ITS A complex state-of-the-art system for monitoring and managing road traffic and public transport

Photo and Video Capture of Traffic Accidents

- 902 + 500 fixed cameras until the year end
- 34 mobile systems
- 110 mobile Mosgortrans bus systems
- 375 cars with ParkRight systems
- TV systems
- 2 048 cameras
- Monitoring traffic conditions
- 3 300 detectors

Real-Time Traffic Announcements

- News Ticker on Moscow-24 TV channel
- 157 information signs

Integrated Traffic Management Plan

- Up-to-date traffic plan taking into account all the Road System parameters and limitations

Adaptive and streamlined traffic lights management

1 698 intersections

Operator Surface Transit control of more than 10 000 buses, trolleybuses and trams

Dynamic transport model. Detailed traffic assessment and forecast

Operator Surface Transit control of more than 10 000 buses, trolleybuses and trams

Dynamic transport model. Detailed traffic assessment and forecast
REAL-TIME DRIVER ANNOUNCEMENTS

Preventing traffic issues in congested city areas:

- Announcements of average time to reach a particular site on the main road
- Announcements of traffic jam grades
- Traffic jam diagrams
- Information updates every 1-2 minutes

Analytics System for Moscow 24 TV
Data of Moscow traffic hub
dynamic transport model
transmitted from Autumn 2015

Information Signs on the City Roads

Single Transport Portal
Data of Moscow traffic hub
dynamic transport model
transmitted from Autumn 2015

Moscow.fm
Life radio broadcasts
by Situation Center operators on duty
CONSTRUCTION OF COORDINATED TRAFFIC LIGHTS IN MOSCOW

- 149 coordinated traffic lights constructed in 2014
- 88 coordinated traffic lights constructed in 2015
- 78 coordinated traffic lights constructed in 2015
- 85 coordinated traffic lights to be constructed this year

- 73% of traffic lights are coordinated with intellectual controls
- 2,313 coordinated traffic lights
- 40,000 traffic lights
- 470 requests per week

1 hour and 30 minutes is the average time of repairing traffic lights.
Wrong lane turn - 22 sites on the Third Ring Road and Moscow Ring Road (MKAD) Roadside - 83 items - MKAD Back plate capture - 54

Within 6 months of 2016, 20-40 km/h overspeeding has decreased by 15% in Moscow

Overspeeding by 20-40 km/h

Overspeeding by 40-60 km/h

Wrong lane turn Third Ring Road — Warshaw highway
Complex Traffic Management Scheme (KSODD) is united design documentation for comprehensive approach to managing events on the city roads.

- 448 streets within the Garden Ring (182.5 km)
- 730 streets within the area from the Garden Ring to the Third Road Ring (442 km)
- 45 outbound routes + Third Road Ring and MKAD (375 km)

- Changing traffic management,
- Optimizing parking spaces by installing new road signs,
- Re-tuning coordinated traffic lights,
- Implementing road crossings and sidewalks,
- Implementing parking pockets, transferring
- Public transport stops,
Issue:

- parking perpendicular to the road,
- 2.9 m free road space after parking (pursuant to GOST 52289-2004 it must be at least 5.9 m)

Change in parking procedure allowed to increase the free space up to 6 m — positive influence on road safety.

Traffic Accident statistics *:
2014 - 103,
2015 - 68
Decrease of 34 %

Donskaya Street
NO PARKING ON SIDEWALKS

Issue:

- parking on the sidewalks,
- parked cars blocking the way for pedestrians and public transport

After the introduction of KSODD, sidewalk parking was prohibited, freeing the sidewalks for the pedestrians, improving conditions for Surface Transit and minimizing traffic accident risk,
INTRODUCING ONE-WAY ROADS

Issue:

• S Two-way roads with 8.5-9 m carriageway width,
• S Private vehicles parked on both sides of an alley,
• S 3.5 m free for traffic in the alley,
• S Hindered opposed traffic

Introduction of one-way roads helped arrange additional parking space; the minimum lane width for vehicles going in one direction is 3.5 m, enabling free transit of cars.

Traffic Accident statistics*:
2014 - 22
2015 - 10
Decrease of 55%

B. Kondratievskiy Alley
NO STOP RULE

Issue:

• Private cars parking along the sidewalks,
• Cars partially parked on the sidewalks — blocking the way for pedestrians,
• Cars using tram lines — blocking the way for trams,
• Low level of traffic safety

Introduction of this rule lead to free tram transit and less road accidents

Traffic Accident statistics*:
2014 - 74
2015 - 51
Decrease of 31%
SUMMARY

1H 2016, as compared to the same period of 2015, the average traffic speed on MKAD and outbound routes has increased by 2 km/h.

* data for January-June 2015 and 2016. Photo: glavstroyinvest.ru
The following results have been recorded for the half-year:

Moscow road accident indicators for 8 months of this year show sustainable improvement dynamics.

Decreasing indicators:

- Traffic accidents: -12.8%
- People injured: -13.1%
- Children injured: -19.2%
- People dead: -2.0%
- Children dead: -50.0%

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td>Traffic accidents</td>
<td>7,642</td>
<td>6,642</td>
</tr>
<tr>
<td>People injured</td>
<td>6,614</td>
<td>5,769</td>
</tr>
<tr>
<td>Children injured</td>
<td>580</td>
<td>493</td>
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<tr>
<td>People dead</td>
<td>433</td>
<td>350</td>
</tr>
<tr>
<td>Children dead</td>
<td>10</td>
<td>2</td>
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According to the analysis by Lomonosov Moscow State University, Moscow came 3rd among the 10 world major metropolises (climbing from 7th to 3rd place in 5 years) in the road safety record in respect to traffic environmental impact.