



**DESC**  
MANAGEMENT

DESC MANAGEMENT – **SAFE** road infrastructure



# DESC MANAGEMENT - EFFECTIVE ROAD INFRASTRUCTURE

One of the challenges in the successful execution of any major industrial project is uninterrupted and cost-effective operation of the project road infrastructure.

DESC MANAGEMENT LLP together with partners executes the development and operation of safe, forecasted and effective road infrastructure for major industrial projects.



## "TURN KEY" PROJECT EXECUTION

DESC MANAGEMENT LLP offers the following solutions for development and operation of Tengiz transport infrastructure model:

- Improving the traffic participant safety and decrease of road accident rate (injuries as a consequence) both in operational activities of TCO and in the Future Growth Project;
- Increase of TCO and Business Partners' employees working time by reducing transportation time between places of residence and actual workplace;
- Improving economic indicators by reducing costs for fuel and lubricants, vehicle consumables, etc.



## CREATION OF DYNAMIC TRANSPORTATION MODEL



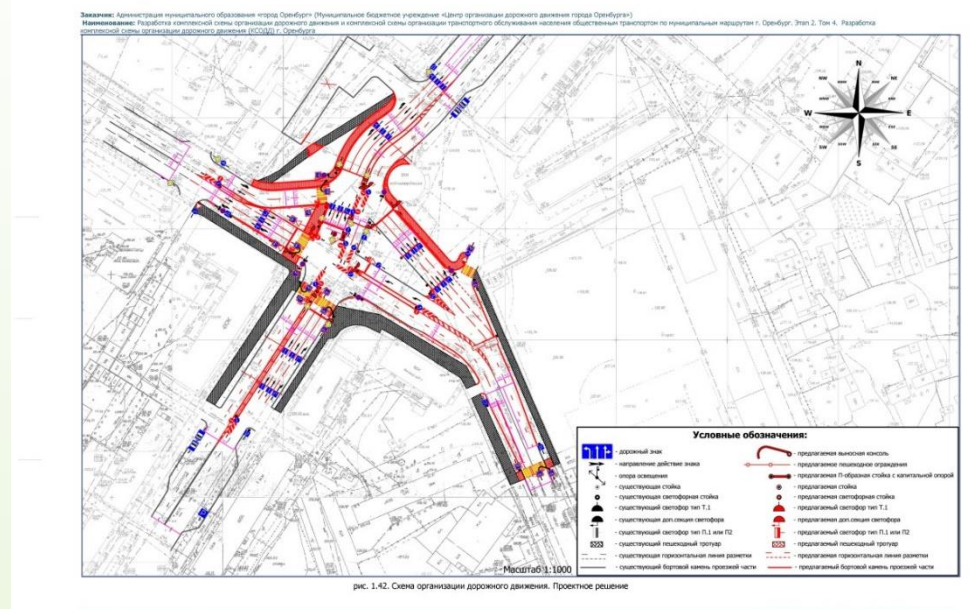
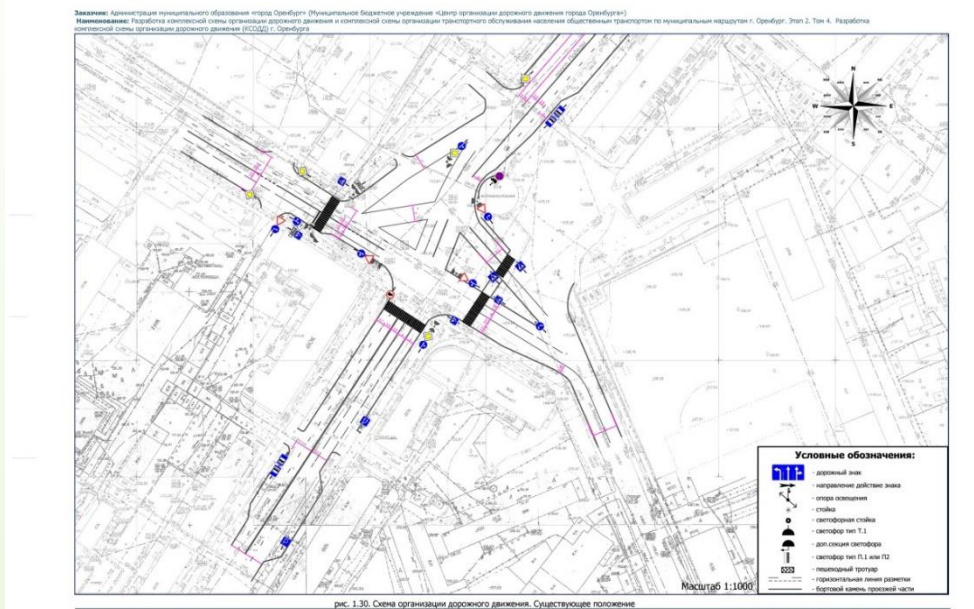
Expansion of road infrastructure leads to increase of hazards and risks, as well as occurrence of new. In order to manage the increasing risks on time, maintain an adequate level of road safety, as well as improving road infrastructure efficiency, we offer the following solutions:

- Macrosimulation is the construction of entire territory model, the center of attraction of which is TCO production process. Macrosimulation gives the opportunity to understand principles of cargo and passenger transportation and movement, execute predictive calculation based on constant monitoring of production development and changes of workplace number.
- Microsimulation of individual units (intersections) is executed in order to find the optimal solutions for traffic management, as well as microsimulation of the separate scenarios related to traffic management in case of carrying out specific activities



# Macrosimulation

According to macrosimulation results, the recommendations on development and/or reconstruction of the street and road network, placement of signs, traffic lights, boards, etc, as well as on creation of a single management center are developed.



## SIMULATION OF SAFE PERSONNEL EVACUATION IN CASE OF EMERGENCY



We would like to bring to your attention several executed projects as an illustrative example:





# "TURN KEY" PROJECT EXECUTION

- The possibility of microsimulation of individual units (intersections) in order to find the optimal solutions for traffic management, as well as microsimulation of the separate scenarios, related to traffic management in case of carrying out specific activities, have particularly proven themselves in working out the following scenarios:
- emergency evacuation / staff dispersal from individual production sites and the entire field in general;
- the organization of the movement of technological transport in the production territory;
- delivery of oversized cargo;
- emergency response, etc.

\* Activity list shall be agreed by Parties .

Example of microsimulation of the individual intersection units for searching the optimal solutions for traffic management

Development of offers for traffic management optimization in the intersections





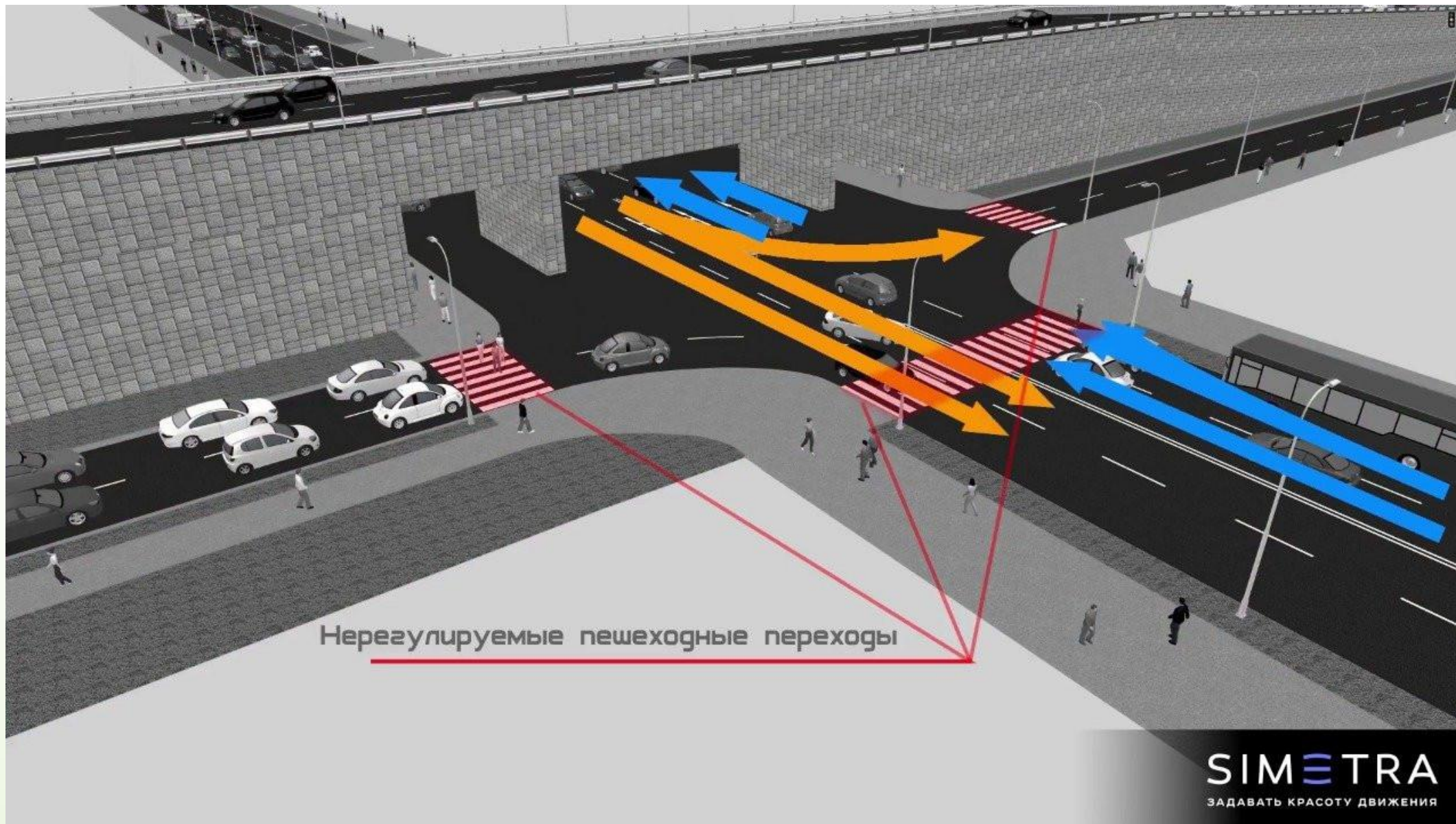




Средняя скорость: 4 км/ч  
Среднее время в пути: 750 с.  
Среднее время задержки: 693 с.

**SIMETRA**  
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Нерегулируемые пешеходные переходы

**SIMETRA**  
ЗАДАВАТЬ КРАСОТУ ДВИЖЕНИЯ

# Traffic situation after implementation of the offer to optimize traffic management and adaption of Traffic Signal Ahead





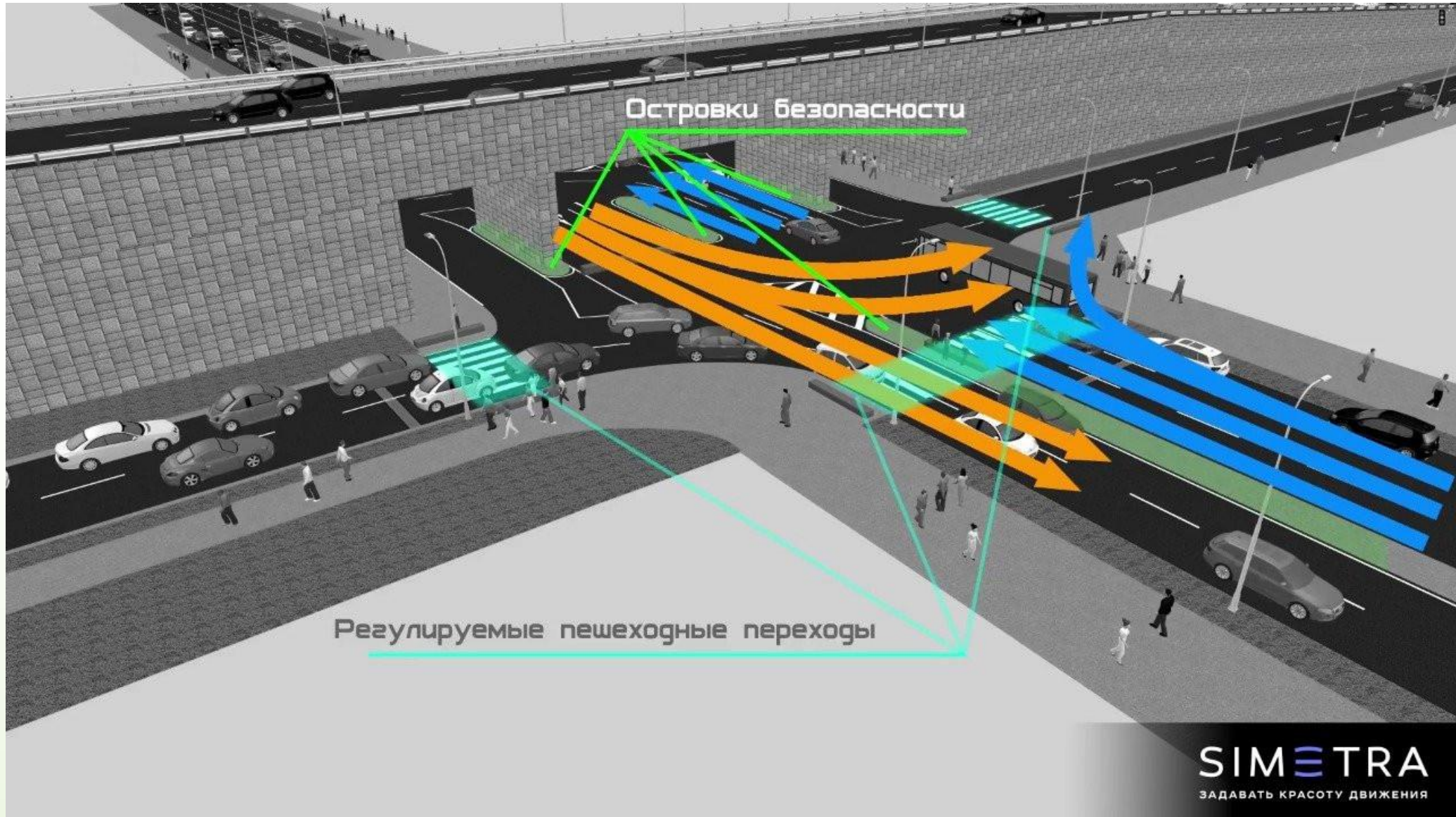
Средняя скорость: 23 км/ч  
Среднее время в пути: 105 с.  
Среднее время задержки: 66 с.

**SIMETRA**  
ЗАДАВАТЬ КРАСОТУ ДВИЖЕНИЯ









# ORGANIZATION OF SAFE PERSONNEL EVACUATION IN CASE OF EMERGENCY



Microsimulation of pedestrian flows during EXPO in Astana:  
Simulation of evacuation from large crowded places:





# CREATION OF SINGLE REAL-TIME TRAFFIC MANAGEMENT CENTER

According to the analysis results, recommendations on the following issues are developed:

- integrated traffic management scheme (TM);
- automatic system for road condition management;
- installation and coordination with traffic police authority of traffic signal ahead for both internal field roads and state roads;
- implementation of special vehicle's priority in the traffic;
- parking space development;
- implementation of temporary restrictions or traffic congestion.



# CREATION OF SINGLE REAL-TIME TRAFFIC MANAGEMENT CENTER

- Increasing the road capacity by eliminating conditions which enable the creation of obstacles for traffic or create a threat to its safety, construction of ring intersections and junctions, reconstruction of crossroads and construction of traffic interchanges;
- Vehicle allocation management on the roads, including division of traffic flow to homogeneous groups depending on vehicle categories, speed and traffic direction, their allocation by traveling time;



# FUNCTIONS OF REAL-TIME TRAFFIC MANAGEMENT CENTER

- Strategic and current planning of road infrastructure development;
- Ensuring interaction on the general planning and industrial construction;
- Ensuring interaction with Traffic Police authority for ensuring traffic security;
- Monitoring of road infrastructure operation;
- Researching problems of road infrastructure development and transportation services for TCO and Business Partners' employees;
- Development of target program projects and road infrastructure development plans;



# FUNCTIONS OF REAL-TIME TRAFFIC MANAGEMENT CENTER

- Development of road infrastructure development proposals;
- Development of traffic management draft schemes for street and road network;
- Approval of Method Statements regarding traffic management at and near the work sites;
- Execution of traffic management measures, including taking measures for traffic management by construction of detours, as well as approval of vehicle movement schedules and vehicle traffic diagrams in case of decisions on temporarily restriction or traffic congestion on the roads;
- Decisions on the temporary restriction or traffic congestion on the roads;



# FUNCTIONS OF REAL-TIME TRAFFIC MANAGEMENT CENTER

- Ensuring traffic management based on traffic management projects and schemes, approved according to established procedure;
- Informing the road users about the time of temporary restriction or traffic congestion on the roads and the possibility to use detours;
- Creation and operation of information system “Transport model”, as well as provision and distribution of the information.

Our transport experts are ready to proceed with assessment of road infrastructure immediately.

We firmly believe that the results of the joint work will have a positive effect on the existing road infrastructure, primarily aimed at improving the safety of each employee working in TCO Projects and Business Partners, as well as in the Future Growth Project .







## CREATION OF DYNAMIC TRANSPORTATION MODEL

- Transport experts with vast experience on information collection, systematization, digitalization and analysis will be involved within this project realization. According to simulation results the recommendations on development and/or reconstruction of Street and Road Network, placement of signs, traffic lights, boards, etc, as well as on creation of a single management center will be given.
- According to our experience, 12-18 months on average are required for local projects of this kind, it depends on the road infrastructure development.



# "TURN KEY" PROJECT EXECUTION

## Company Profile:

**DESC MANAGEMENT** is:

- Team of managers, line managers employees, who are competent and motivated for success
- Innovative software and 4 information processing centers
- New professional tools and stock of measuring instruments;
- Unrivalled expertise in performance of complex industrial projects;
- Its own industrial base, specialized parking and service.

Company has been certified according to the standards of an integrated management system (ISO 9001:2015/14001:2015/18001:2007/50001:2012).

**DESC MANAGEMENT** is your guarantee of successful execution of any complexity level project.



# CREATION OF SINGLE REAL-TIME TRAFFIC MANAGEMENT CENTER

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