



Project

Plan for sustainable urban transport planning of the city of Gorna Oryahovitsa



1 INTRODUCTION

Over 60 % of the population of the European Union lives in cities, in Bulgaria this percent is even higher – 71.4%¹. Almost 85 % of the gross domestic product of the EU is produced in the cities. The cities are the engine of the European and the national economies. They attract investments and new places of work and are especially necessary for the unobstructed functioning of the country's economic life.

Being the environment of the greatest part of the population, the city life standard, including the mobility problems, must be as high as possible.

The trend of traffic becoming heavier in the central parts is valid for all European cities. It results in frequent traffic jams, with all the adverse consequences from them as time loss, higher risk of road accidents and pollution of the environment. As a result the European economy loses about 100 billion Euro or 1 % of the GDP of the EU.



The atmospheric and the noise pollution increase every year. The city traffic is the reason for 40 % of the emissions of CO₂ and 70 % of the emissions of the other pollutants originating from the road transport.

At European level, the number of the road accidents in the cities increases every year: at present one of each three accidents with a lethal outcome occurs in the cities, and the most vulnerable, pedestrians and cyclists are most often the victims. In Bulgaria this parameter is even higher: 36% of the killed, 63% of the injured and 66% of the road accidents are registered in the residential areas².

¹ Source: NSI, towards 31.12.2009.

² Source: NSI, 2009



Although these problems are local, their impact is general: climate changes, increase of health problems, delays and obstructions in the logistic chains of supplies, etc.

The above mentioned negative trends are observed in the city of Gorna Oryahovitsa as well. Fortunately, the city “lags behind” the big cities like Sofia, Plovdiv, Varna, Burgas, by this parameter. Nevertheless, the vital importance of the problem of the urban mobility in the city of Gorna Oryahovitsa requires the undertaking of measures for prevention of further worsening, for preservation and in medium-term perspective – improvement of the quality of life of the population. The planning and the implementation of such measures may not be an isolated initiative. They should constitute a part of the collective efforts at all levels: local, regional, national and European, which actually means that:

In order to be efficient, the urban mobility policies should possess as much as possible integrated approach by combining the appropriate solutions for each problem: technological innovations, development of ecologically friendly, reliable and modern transport, economic initiatives and normative changes.

In the event of the city of Gorna Oryahovitsa, the need of a maximally integrated approach as regards the possible solutions and in purely territorial – administrative aspect, is still more pressing, due to the specifics of the peculiar urban agglomeration formed by Veliko Turnovo, Gorna Oryahovitsa and Lyaskovets with population of over 115 500 in total³, which make it occupy the 8th place in the country after Sofia (1.270 million), Plovdiv (375 000), Varna (352 000), Burgas (208 000), Ruse (166 000), Stara Zagora (151 000) and Pleven (120 000).

This Project of a Plan for Sustainable Urban Transport Planning of the city of Gorna Oryahovitsa was elaborated in answer to the need of integrated actions and measures.

The Plan is based on the common European policy set out in the Green Book of the EU “To new culture for urban mobility”⁴ and is a part of the measures which the Municipality of Gorna Oryahovitsa implements within the framework of the initiative **CIVITAS Plus** of the European Commission.

The goal of the **CIVITAS** initiative is to help the cities in testing and demonstrating integrated packages of political and technological measures in order to achieve more sustainable, clean and energy-efficient system of urban transport for ecologically more friendly and better transport in the cities.

³ Source: General Directorate Civil Registration and Administrative Servicing, Population by current address as at 15.06.2010

⁴GREEN BOOK To New Culture for Urban Mobility; Brussels, 25.9.2007 COM(2007) 551 final

2 METHODOLOGY

The approach applied in the elaboration of this document, is in compliance with the Sustainable Urban Transport Planning Manual, developed within the framework of the project PILOT of EC, GD Environment⁵.

2.1 TARGET GROUPS OF THE SUSTAINABLE URBAN TRANSPORT PLANNING (SUTP)

The local administrations at city, municipal and urban agglomeration levels are the main institutions responsible for the sustainable urban transport planning (SUTP) and for the development and implementation of the relevant plans of sustainable transport planning (PSTP). Theirs is a key role in the initiation and the control of the process of plan development. Even more, being responsible for the transport planning at local level, they re the main addressee of the measures for improvement of the existing practices.

Nevertheless, a PSTP concerns a much larger group of interested institutions, organizations and persons – all who are related to the mobility on the relevant territory, namely:

- **Politicians** – the elected representatives of political parties, especially mayors or those responsible for mobility issues (councilors, ministers, deputies, etc.)
- **Public authorities** – municipal, regional, national administrations and their relevant departments of transport, spatial planning, environment, social activities, economic development, etc. as well as the related administrations and/or agencies – road, railway, etc.
- **Civil Society** – including non-governmental organizations and/or such organizations as chambers, schools, hospitals, and also companies for public services or production, the small- and medium-sized enterprises, professional associations and societies.
- **Citizens** – all who live, wok or study in a residential place, including representatives of their organizations (city or district).

2.2 UNDERSTANDING AND SUTP STRATEGIC FRAMEWORK

Transport and mobility are of vital importance to society. Social and economic relations impose the need of physical movement of people and goods and so they affect the quality of life of the population.

Despite its key role, the contemporary transport is responsible for a number of adverse impacts, manifested with special acuteness in the urban regions: air pollution, noise, lower accessibility and mobility, traffic jams and transport safety are only some of them. Besides the motor transport vehicles contribute to the climate changes.

The urban transport planning therefore should include the making of decisions which have a strong impact on the society as a whole: it actually forms the ecological, economic, social and cultural future of our cities and not only that of the transport infrastructure and services.

Practically however, the current separation of the organization prevents the integrated apprehension / understanding of the challenges related to the urban transport and the development of the relevant solutions. The most frequently met organization borderlines which affect the transport planning are usually between:

⁵ Sustainable Urban Transport Planning Manual; Guidance for stakeholders – 2007; <http://www.pilot-transport.org/>

- **The types of transport and the carters** – especially the division of the responsibilities for the public urban mass transport and the car traffic in the cities and also for the movement of pedestrians and cyclists, the car parks, the railway, road and air transport.
- **The administrative division** – the territorial division between municipalities, for instance, which “breaks” the existing transport models (for instance, in the trips to another town or village for work, etc.)
- **The strategic spheres** – the different sector policies like urban planning, economic development or cultural heritage, which to a bigger or lesser extent obviously affect transport and mobility
- **The public and the private** – the authorities responsible for the planning and/or operation of the infrastructure and the services (for instance, public transport, railways, ports, airports, etc.)
- **The authority levels** – the competencies and the responsibilities divided between the different levels, that is, municipal, regional, national authorities.

And last but not least, transport planning is still being considered a technical problem, oriented simply to the “elimination of the weak spots” or to providing “capacity / traffic capacity”, but not an instrument for achieving higher social goals. That is why sufficient commitment of the interested parties for uniting the participants across these borderlines, is missing quite often.

This is exactly the role of the sustainable urban transport planning:

The transport and mobility problems in the cities require urgent and multi-aspect decisions, based on long-term strategy, developed in cooperation by all concerned institutions and the civil society. At the same time it is necessary to set specific and realizable objectives in order to demonstrate an actual change.

The SUTP is the instrument for coping with this challenge by a structured approach aiming the I practices of transport planning to the strategic goal of sustainable urban development.

2.3 SUTP DEFINITION

Three aspects should be pointed out in order to explain the essence of the sustainable urban transport planning and its differences from the conventional transport planning: its actual goals, its scope and its characteristics as a planning process.

2.3.1 SUTP goals

The main goal of the sustainable urban transport planning is to achieve a sustainable transport system taking into consideration the following objectives as a minimum:

- Achieving a transport system which provides accessibility to everyone
- Decrease of the adverse impact of the transport system on the health, safety and security of the citizens and particularly of the most vulnerable of them
- Decrease of the air pollution and the noise emissions, the green house gases and the energy consumption
- Improvement of the efficiency and effectiveness of the costs for the transportation of people and goods, taking into consideration the external ones, and
- Contributing to the increase of the attractiveness and the quality of the urban environment and design.

2.3.2 SUTP scope

The policies and measures determined by the sustainable urban transport planning should cover all types of transport in the relevant urban agglomeration, including

- Public and private
- Passenger and freight
- Motorized and non-motorized
- The moving and the parking.

2.3.3 SUTP characteristics

The sustainable urban transport planning is a method of solving the problems concerning the transport in a more efficient (that is at minimal costs) and more effective (that is, with maximal results) way. Its characteristic features are:

- **Broad participation** by involving the citizens and the interested parties from the beginning and during the whole process of decision making, implementation and evaluation, organizing local capacity for solving the complex problems of the planning and providing equal representation of both sexes.
- **Guaranty of sustainability**, balancing between social equality, ecological quality and economic development
- **Integrated approach** in the reporting of practices and policies between the types of transport, the sector policies (for instance, spatial and urban planning, ecology, social involvement, health, safety), public and private institutions, at the level of the relevant authorities and between neighboring ones
- **Focus on achieving measurable goals**, determined on the basis of short-term objectives, in compliance with the vision about transport and included in the general strategy for sustainable development
- **Still better account of the external costs** by review of the transport costs and the advantages from the standpoint of the other sectors of public life, that is, taking into consideration the more general costs and advantages for the society
- **Cyclic process of making political decisions and execution** – comprising the following 5 tasks:
 1. Analysis of the current condition and scenario development
 2. Definition of vision, general and specific goals
 3. Selection and development of policies and measures
 4. Assignment of responsibilities and resources
 5. Monitoring and evaluation.

It should be pointed out that the sustainable urban transport planning does not simply mean the elaboration of a “general transport plan”, by generalizing all plans and programs which the local authorities are officially obliged to elaborate. The process does not end by the acceptance of a plan containing innovative transport measures.

The sustainable urban transport planning is the direction to which the current methods of planning should be continuously oriented, so that the sustainability of the development of the urban transport increases. The SUTP is a new approach of planning which should be developed by and within the framework of the local authorities and existing practices.

2.4 SUTP LEGAL FRAMEWORK

In January 2006 the European Commission adopted **Thematic Strategy of urban environment**⁶ - a corner-stone in promoting the sustainable development in Europe. In essence the strategy stimulates two interconnected strategic directions, for which guidelines are presented: environmental management and sustainable urban transport planning. It also determines a number of measures supported by the EU, including the exchange of best practices, the dissemination of information, training and financing of activities at local level through appropriate community programs.

The European Parliament supports the Thematic Strategy of the Commission and its objectives, as well as the *“idea of SUTP as an instrument for improving the quality of urban environment”*. **The renovated strategy of sustainable development**⁷, adopted by the Council also recommends *“the local authorities to develop and implement urban transport plans in compliance with the Thematic Strategy of Urban Environment”*⁸.

The Thematic Strategy of the urban environment is an important instrument for achieving the political objectives of the EU, including the commitment of the EU by 2020 to decrease at least by 20% the emissions of green-house gases (in comparison with the levels in 1990), as agreed in the **Conclusion of the Presidency of the European Council of March 2007**⁹. More sustainable urban transport solutions will be needed for this purpose.

The Strategy emphasizes that the SUTP is the decisive political answer to current problems related to urban transport and mobility. It also presents an appropriate framework for achieving compliance with a number of EU Directives adopted in the last 10 years and concerning different aspects of urban planning and environmental management¹⁰:

- **The Directives on ambient air quality** (1996 – 2008), determining the admissible limit values for a number of pollutants which the local authorities should achieve by 2010.¹¹
- **The Directives on EIA and SEA** (1997, 2001), requiring the execution of ecological analysis and the conduct of public discussion of some types of plans, programs and projects¹²
- **The Directive on noise** (2002) concerning the evaluation and the management of noise in the environment and determining the admissible limit values of the noise from air, road and railway means of transport¹³
- **The Directive on bio-fuels** (2003), requiring the increase of the market share of these fuels in the member states up to 5.75% as at 2010.¹⁴
- **The Directive on public access to environmental information** (2003), enacting the provision of complete approach¹⁵
- **The Directives on the contracts for the award of public procurements** (1997, 2001, 2009), determining the procedures of award, including the obligation of implementing “green” public procurements¹⁶ as well as Regulation 1370/2007 on the public services of passenger transport.

⁶ http://ec.europa.eu/environment/urban/thematic_strategy.htm

⁷ Renovated strategy for sustainable development of 9 June 2006, No 10117/06

⁸ Renovated strategy for sustainable development of 9 June 2006, No 10117/06

⁹ <http://register.consilium.europa.eu/pdf/bg/07/st07/st07224.bg07.pdf>

¹⁰ For more information: <http://europa.eu.int/eur-lex>

¹¹ Directives 1996/62/EC; 1999/30/EC; 2000/69/EC; 2002/03/EC; 2004/107/EC; 2008/50/EC

¹² EIA – Environmental Impact Assessment, SEA – strategic ecological assessment; Directives 1997/11/EC and 2001/42/EC

¹³ Directive 2002/49/EC, COM (2004) 160 final

¹⁴ Directive 2003/30/EC

¹⁵ Directive 2003/4/EC

¹⁶ Directive 1997/52/EC, 2001/78/EC, 2009/33/EC

As a result of the medium-term review of the White Book from 2001 on the transport policy, on 25.09.2007 the European Commission adopted **Green Book “To New Culture for Urban Mobility”**¹⁷. On the grounds of this document for discussion there started an extensive debate on the problems of urban mobility, including the easy movement and the green cities and residential places, the better organized urban mobility and urban transport, accessible, safe and secure for all European citizens. On the grounds of the results from these consultations on 30.09.2009 the EC adopted **Action Plan for urban mobility**¹⁸.

This action plan is a coordinated framework for initiatives of the EU in the field of urban mobility, observing the principle of subsidiarity. It includes 6 subjects and the relevant actions for each one of them. In order to emphasize the significance of sustainable planning

The first subject of the Action Plan is
PROMOTION OF INTEGRATED POLICIES
the first action being:
BRINGING FORWARD THE ADOPTION OF PLANS OF SUSTAINABLE URBAN MOBILITY

The Plan points out that the complexity of the urban transport systems, the problems of management and the connections between cities and their environs or regions, the mutual dependence of the types of transport, the limitations within the city areas and the role of the urban systems in the wider European transport system impose the integrated approach as the best one. Such an approach is needed for the development of the transport infrastructure and services and also for the formulation of a policy, in order to associate transport to environmental preservation, provision of healthy living environment, spatial planning, habitation, social aspects of accessibility and mobility, as well as the industrial policy. The development of strategic and integrated transport planning, the setting up of appropriate organizations for planning the key subjects in meeting the long-term challenges of urban mobility and in the same time maintain cooperation between transport operators.

In a short-term plan, the Commission will support the local authorities in the development of plans for sustainable urban mobility, including the transport of freights and passengers in the urban and extra-urban zones, and in long-term plan – it may undertake further steps, for instance, by incentives and recommendations.

Whenever possible the Commission will stimulate the member states to provide platforms for mutual training and sharing experience and best practices, which would promote the development of policies of sustainable urban mobility. The Commission will put the question of urban mobility to the Council of Mayors¹⁹ in order to stimulate the integrated approach, combining energy and climate changes with transport problems. It will encourage the inclusion of problems concerning transport and mobility in the plans of action for sustainable energy which will be elaborated by the cities participating in the Council.

2.5 SUTP BASIC COMPONENTS

The process of preparation of a plan for sustainable urban transport planning and its implementation will obviously be different for the different cities – depending on the specific conditions and needs / requirements. Nevertheless, there exist basic elements which should be present in each plan and process of sustainable urban transport planning. These could be provisionally subdivided by tasks and missions.

¹⁷ http://ec.europa.eu/transport/urban/urban_mobility/green_paper/green_paper_en.htm

¹⁸ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0490:FIN:BG:HTML>

¹⁹ www.eumayors.eu

2.5.1 SUTP tasks

The tasks are the activities needed for the development and the implementation of specific urban transport measures which will finally be summarized into a plan for sustainable urban transport and a relevant plan of funding, officially approved and adopted. The tasks are 5, and the first 2 could be subdivided as follows:

1. Analysis of the current condition and scenario definition, comprising:
 - 1.1 Review of existing plans and policies/strategies, including identification and analysis of the key documents on planning, the procedures and the policies, concerning the process of sustainable urban transport planning.
 - 1.2 Analysis of the current conditions – development of detailed quantitative “diagnosis” of the mobility and the transport development in the town or village, including priority arrangement of the key problems and identification of the missing data.
 - 1.3 Scenario definition – development of perspective scenarios as the basis for the discussion of complex strategies of the future transport development; discussion with the interested parties.
2. Vision, goals and planned results:
 - 2.1 Development of general vision on long-term transport and mobility development in cooperation with the interested parties and the population.
 - 2.2 Definition of goals – determination of clear and measurable goals with respect to which the relevant activities should be arranged by priorities;
 - 2.3 Planning of measures – determination of a group of appropriate and realistic activities by which the defined goals could be achieved.
3. Plan of action and plan of funding – providing realistic implementation and efficient distribution of resources (human, informational, financial).
4. Assignment of responsibilities and distribution of resources – official appointment of responsible persons and providing for the actual implementation of the activities and the budget plan.
5. Monitoring and evaluation of the process of planning and implementation – facilitates the prognostication of the problems and the verification of the implementation; provides information about the development with a view to future improvement.

2.5.2 Missions / principles of SUPT

The missions, following from the tasks, are actually preparatory and parallel activities and principles. They are of a key significance for the successful conduct of the SUPT process, but they should not necessarily contribute directly to the elaboration of the plan of action and the financial plan. The importance of the missions is the establishment of the strategic and operative framework for the development of innovative policies

1. Correct timing

Coordination of the allocation in time of the different technical and political processes and determining the appropriate period for the coordination with the sustainable urban transport planning. Determination of a realistic schedule of the process

2. Strategic coordination and relations between the interested parties

Evaluation of the positions of all parties concerned by the sustainable urban transport planning and establishment of firm grounds for cooperation and legitimacy.

3. Responsibility and territorial scope

Determination of adequate territorial scope of the sustainable urban transport planning, conforming to the actual parameters of transport demand. Determination / establishment of an appropriate institution to manage the process and obtain political approval.

4. Participation of the citizens

Stimulating the population to take part in collective decision making in relation to the sustainable urban transport planning. providing maximal transparency, propagating local political culture and instilling a feeling of compassion.

5. Participation of the interested partners / parties

Providing for a well structured participation of the public and private partners at all stages of the process of sustainable urban transport planning. Increasing the quality, efficiency, effectiveness and legitimacy of the sustainable urban transport plan.

6. Integration of the policies / strategies of the sustainable urban transport planning

Organizing the process of planning the mobility as a joint strategic field which really serves the different society needs. Defining the specific directions and problems of the integration between the sustainable urban transport planning and the sector policies.

7. Social participation and equality of the sexes

Understanding and taking into consideration the role of the sexes and the social status in the urban mobility. Promoting information, balanced participation and development of purposeful measures for social participation and equality of the sexes.

8. Information and public relations

Management of the relations with the local media and stimulation of the regular reporting / information. Management of the dissemination of information and the channels of dissemination with a view to public information and public discussion of the issues of the sustainable urban transport planning.

9. Skill management

Providing the needed (broad) spectrum of skills for management and control of the process of sustainable urban transport planning among the local authorities and the interested partners / parties for the efficient execution of the tasks and the missions.

10. Management and organization

Clarification and official establishment of the relations between the affected parties. providing responsibility and transparency of the planning process. Enhancing the efficiency of the planning process by optimal use of resources and taking the risks into consideration.

3 ANALYSIS OF THE CURRENT CONDITION AND SCENARIO DEVELOPMENT

3.1 REVIEW OF EXISTING PLANS AND POLICIES/ STRATEGIES

3.1.1 Plans and policies on national level

There exist a number of strategic documents on national level which, though not directly, concern the sustainable urban transport planning. Some of the most significant and updated of them are presented below.

National strategy on environment 2009 – 2018 “To better quality of life and sustainable environment” of MOEW²⁰

A number of factors are analyzed within the framework of the national strategy, which affect the environment as production and consumption, energy production, farming, forestry, regional development, tourism, transport. According to the analysis there is a distinct trend of:

- increasing the share of the passenger transport by cars (with 12.9 % more in 2008 than that in 2000, and their share reaches up to 72.2 % of the passenger carriage by all means of transport) and
- sharply decreasing the share of the public transport in the carriage of passengers (by 9.0 % for the bus transport and 3.7 % for the railway transport, which respectively fall down to 23.1 % and 3.7%²¹).

The increase of the car transport is due mainly to the improved welfare of the Bulgarian population and the increase of its mobility, which results in the growth of the consumption of fuels and respectively – to the increase of the emissions of harmful gases, to damages of the environment, and to a contribution to the global climate changes. A similar change in the structure of the transport activities resulting in unfavorable consequences to human health, environment and the climate is observed in the transport of freights.

Between 1998 and 2006 the consumption of energy by the transport sector in Bulgaria has increased on the average by 5.8% each year, leaving behind the real growth of the gross domestic product of 4.9% on the average. So the share of transport continuously increases in the final energy consumption in the country and from 21.8 % in 2000 it reached 30.0 % in 2008. Other countries, comparable to Bulgaria by territory and population (but not by the extent of economic development), like the Czech Republic, Hungary and Austria, report quite lower rates of increase of the energy consumption by the transport sector.

For the period of 2000 – 2008 the consumption of diesel fuels by the motor car transport increased more than twice from 735 thousand toe in 2000 - to 1 522 thousand toe in 2008. For the same period the use of benzenes registered an insignificant decrease from 693 thousand toe – to 628 thousand toe, and the consumption of propane – butane increased from 216 thousand toe for 2000 to 400 thousand toe for 2006, and then it decreased to 365 thousand toe for 2008.²².

The burning of benzene and diesel fuel in the engines of the motor vehicles results in the discharge of a considerable amount of emissions of harmful substances which pollute the atmospheric air, including green house gases. The transport remains the main source of emissions of nitrogen oxides, poly-aromatic hydrocarbons, and is the second in significance source of carbon oxide emissions to the atmosphere.

²⁰ Adopted by Resolution No 353 of the Council of Ministers from 15.05.2009.

²¹ Source EUROSTAT, the shares do not get summed up to 100% due to taking into consideration the urban railway transport

²² Source EUROSTAT

The analysis of another negative factor shows that as a whole the noise level in the cities maintains its high values, especially in the central city districts. The increased number of motor vehicles in operation, their not quite good technical condition, the intensity and the velocity of the movement, the poor traffic capacity of the road network, the state and the type of the pavement, the obvious errors in the town planning are among the main factors leading to the increase of the noise impact in the built-up areas.

On the grounds of this analysis the National Strategy identifies a number of problems concerning the sustainable urban transport planning as well:

- The country consumes more resources and generates more waste than nature itself can reproduce or absorb
- A trend is observed of inefficient utilization of raw materials and energy, contributed to by the unfavorable age structure of the wheel in all types of transport, resulting in high energy consumption by the transport processes
- Unsatisfactory technical condition and level of maintenance of the road infrastructure, outdated transport schemes and technologies
- Insufficient measures for preventing the climate changes and for adaptation of all economic and life spheres to the consequences of the climate changes
- Observation of ecological problems in the cities, especially in the bigger ones, like high levels of pollution with dust, noise, etc.
- The experts on national, regional and municipal levels, responsible for the implementation of the new environmental legislation, are insufficiently prepared; the units on regional and municipal levels for the implementation of the policies and the legislation on the environment and the sustained development are not completely set up and do not function effectively.

The hazards identified by the strategy are the following:

- Depletion of resources
- Insufficient business investments for bringing the production into compliance with the European standards and requirements for preservation of environment and sustainable development
- Adverse impact of the processes related with climate changes on all economic sectors and spheres of life, failure to achieve political consensus on global, European and national level on the issues of the policies which should be followed with a view to the climate changes and insufficient funds for the implementation of the measures, which the country should follow in relation to the prevention of and adaptation to the climate changes.

The strategy determines six strategic goals, each of them with several specific objectives, the following of which are directly related to the sustainable urban transport planning:

Strategic goal I. Decrease and prevention of the consequences from climate changes and pure energy

Specific objective I.1: *Decrease of the rate of increase of the emissions of green house gases compared to the growth of the GDP in the country.*

This goal comprises:

- 20 % reduction of the emissions of green house gases by 2020
- 20 % increase of energy efficiency
- 16 % share of the energy from renewable sources in the total energy consumption by 2020

- 10 % share of the bio-fuels in the transport by 2020

Strategic goal III. Healthier environment for better quality of life

Specific objective III.1 *Decrease of the health risk from the pollution of the environment*

The clean and healthy environment is of primary significance for human welfare. The World Health Organization defines the relation Environment – health is a broad meaning. These are aspects of human health, diseases and injuries caused by or affected by environmental factors. That is why the moves for providing clean air considerably contribute to health improvement. The climate changes directly or indirectly also affect human health. In dealing with those challenges child health and the reduction of the adverse impact of environment on it are among the priorities of the European policy.

Parameters to be measures for achieving this goal:

- Exposure of the population to dust particles pollution
- Exposure of the population to ozone pollution
- Population exposed to noise.

Specific objective III.2 *Achievement of the common European standards on the quality of the atmospheric air on the territory of the whole country, reduction of emission levels and improvement of the quality of liquid fuels.*

The main challenge for the country in relation to the improvement of the quality of the atmospheric air is the concentrations of ozone, sulphur dioxide (SO₂), nitrogen oxides (NO₂), lead, dust particles, benzene and carbon oxide (CO) in a town or a village to remain below the established by the national legislation permitted limit values. After 2013 the target standard values for benzo(a)pyrene, heavy metals and arsenic should not be exceeded in any built-up area.

The parameters to be measured for achieving this goal:

- Number of residential areas with measured concentrations of the individual pollutants exceeding the permitted limit values
- Population exposed to pollution exceeding the permitted limit values by individual pollutants (number of residents)
- Total annual emissions of the pollutants, including sulphur dioxide SO₂, nitrogen oxides NO_x and ammonia NH₃
- Sulphur contents in liquid fuels.

Specific objective III.8 *Prevention and decrease of the noise in the towns and villages*

Noise is one of the main factors with adverse impact on the urban population. One of the pressing ecological issues in the urban territories is the emission of noise to the environment by the motor, railway and the air transport, by industrial activities and from local sources.

This objective includes the development of strategic noise maps by 2017 and the elaboration of plans of action for environmental noise management by 2018 for:

- all urban agglomerations with population over 100 000
- main roads with traffic over 3 000 000 motor vehicles per year
- main railway lines with more than 30 000 trips of trains per year
- main airports with over 50 000 flights/landings per year.

Strategic goal IV. Stimulating the sustainable production and consumption

The achievement of this goal is put to the test by the fast global changes which are directly related to the way of life. The way we produce and consume results in global warming, pollution, over-consumption of raw materials and depletion of natural resources. The super-exploitation of the natural resources exposes to risks the wealth and welfare of Bulgaria, Europe and the world. One of the main challenges is the separation, the breaking of the interconnection between economic growth and the impact on the environment, related to the consumption, the use of resources and the waste generation.

Specific objective IV.7 *Achieving sustainable development of the transport system and reduction of the transport impact on the environment*

Transport as a whole and most of all the road transport adversely affects the environment by spoiling the quality of the atmospheric air in the towns and villages, by generating noise and waste and affecting the global climate changes.

With regard to this a number of transport directives and regulations were transposed or will soon be transposed to the national legislation of Bulgaria, concerning the implementation of the principles „user pays” and „polluter pays”, the more stringent requirements to the cars and lorries about the emissions of dust particles and nitrogen oxide –Euro 5 and Euro 6, the initiation of ecological requirements to the purchasing of vehicles for the public transport, in order to stimulate the market of ecologically friendly and energy efficient means of transport.

Special attention should be paid to the balanced development of the separate types of transport, the reduction of the share of the road transport for abatement of the adverse impact on the environment from the growth of the transport production, the achievement of sustainable levels of energy consumption by the transport and reduction of the emissions of green house gases, the noise and the harmful emissions to levels, for which the negative effects on public health and the environment are minimal.

This objective includes:

- Increase of the energy efficiency of the transport processes and reduction of the emissions of green house gases from the transport
- Reduction of the emissions of harmful substances by the transport to levels for which the negative effects on public health and the environment are minimal
- Expanding the use of alternative fuels and energies in the transport activities
- Improvement of the condition, the organization and the efficiency of public transport, including the alternative (by bicycle) transport, for preserving human health and the environment.

Parameters to be measured for this purpose:

- Energy consumption by the transport – in total and by types
- Emissions of ozone precursors from the transport – in total and by types
- Emission of green house gases from the transport – in total and by types
- Emissions of fine dust particles (PM₁₀) from the transport – in total and by types
- Market share of the bio-fuels
- Concentrations of harmful substances in the atmospheric air in urban zones
- Share of the bicycles in the urban transport network
- Number of trips by public transport
- Number of trips by public railway transport

- Number of projects for the construction of alleys for cyclists.

Specific objective IV.9 *Development of sustainable urban environment and agglomerations*

Meeting the challenges in the field of urban environment is of exceptional significance for the health of the population and their quality of life. Cities face the same ecological problems: poor quality of the atmospheric air, intensive car traffic and jams, high noise levels and emissions of green house gases.

These problems are the result of the way of living characteristic for contemporary society – increasing dependence on the use of private cars, increasing the number of the households consisting of one person, increasing the amount of used resources by urban population and the tendencies of demographic development – continuous migration of the population to the cities.

The successful implementation of the national environmental policy is possible only in event of **thorough cooperation with the regional and local authorities**.

Parameters to be measured for the purpose:

- Costs for restoration and preservation of the environment
- Improvement of the condition and increase of the number of green areas in urban territories
- Number of developed new general territorial plans of municipalities and regions.
- Exposure of the population to pollution with dust particles
- Population in households exposed to noise, etc.

Strategic goal VI. Formation of new models of public behavior, environmentally friendly and contributing to the sustainable development and providing higher quality information about and monitoring of the environment

In most of the public groups there are no formed culture and models of behavior, which spare the environment and contribute to the sustainable development. The conscious change in the behavior of all society groups and the informed choice of everyone in everyday life would contribute a lot to the solving of the problems concerning the fight against climate changes, the sustainable production and consumption, the efficient use of resources, the preservation of the environment, the waste management, etc. Each person should be not only acquainted with his own „ecological imprint”, that is, his own impact on the environment, but with the way of reducing it.

One of the main challenges to Bulgaria is the integration of environmental education and that on sustainable development into kindergartens, schools and universities, as well as the establishment of a system of life-long training on sustainable development.

Specific objective VI.2 *Improving public awareness, culture, education and formation of new models of society behavior, environmentally friendly and contributing to the sustainable development*

This objective includes:

- The initiation of integrated training on sustainable development on all educational levels by 2018
- Implementation of informational and training campaigns and edition of information materials about environmental preservation and sustainable development.

The parameters to be measured for the purpose are the following:

- Integration of environmental education and education on sustainable development in the education programs and standards and in re-qualification programs and courses

for the state and local administration, the non-governmental organizations and the business

- Number of issued training aids for teachers and students about preservation of the environment and sustainable development
- Number of issued information materials for different public groups on the preservation of the environment and sustainable development. Number of organized information – educational campaigns
- Number of provided electron programs for training in the area of environmental preservation and sustainable development.

The determined goals and measures for the implementation of the strategy and the plan of action to it require **considerable improvement of the administrative capacity and the inter-institutional coordination on national, regional and local levels**. The development of **new units and functions** will be needed as well as the reorganization of the existing competent authorities in order to make optimal use of the administrative capacity for the implementation of the strategy and the plan of action. Special attention should be paid to the **training of the personnel** in the state administration and of the business, on the efficient implementation of the new environmental legislation.

The Municipalities play an important role in the practical realization of the environmental policy. Following the all-European tendency for the last few years, further powers are assigned by the central to the local authorities for activities concerning the improvement of the environment on local and regional levels. This process of de-centralization is also determined by the fact that the local authorities are the best acquainted with the state and the problems of the environment on the territory of the respective municipality and in most cases they are nearest to the appropriate solutions.

The mayors of the municipalities should develop programs on the preservation of the environment for the relevant municipality in compliance with the guidelines of the Minister of Environment and Water. The territorial units of the MOEW and the relevant ministries and state agencies which collect and possess information about the environment should provide methodical assistance to the regional and municipal administrations in the preparation and the implementation of the regional, district and municipal strategic documents concerning the environment.

One of the main challenges to the municipalities in the implementation of the environmental policy is the non-regulated statute of the specialists and the units operating in the area of environmental preservation, which results in underestimation of the role of these activities and their combining with other conflicting activities.

With regard to this it would be necessary to improve the production management structures and the job characteristics on municipal level in the units and of the specialists in environmental protection and bringing them to compliance with the requirement for implementation of the national priorities on local level.

The development of partnerships of the state authorities and the local institutions with the business, the academic societies, the representatives of branch and non-governmental organizations, the involving of all public groups and separate citizens is the main challenge to the implementation of the environmental policy.

Strategy of development of the transport system of the Republic of Bulgaria by 2020 of the MTITC²³

²³ Adopted on a session of the Council of Ministers on 7.04.2010 by Protocol No 13

This is a long term strategic document whose objective is to outline the most important directions in the development of the transport system in the next 10-year period. All strategic documents for the next 10-year period should be in compliance with this strategy.

The document mentions the following among the **weak points** of the transport sector:

- Insufficient coordination between the types of transport and lack of public transport integrated networks and services.
- Lack of funds for the standard maintenance, the modernization and the development of the current transport infrastructure
- Morally and physically outdated transport park
- Unsatisfactory quality of the public transport services (urban, extra-urban, railway)
- Lack of encircling routes in the settlements resulting to lower traffic safety, environmental pollution and higher social and energy costs for the road transport.
- Low level of utilization of information and telecommunication technologies in the sector
- Comparatively low level of safety and security of the transport system and services.

One of the main **threats** to the development of the transport system is the significant **increase of trips by personal motor vehicles**, leading to depletion of the capacity of the road network in the regions of the bigger agglomerations and to increase of the time and costs for transport, the jams and the harmful emissions.

The document defines three strategic goals:

1. Achievement of economic efficiency

2. Development of sustainable transport sector, where the main priority is:

- ***Limitation of the negative impact of the transport on the environment and the public health***

The minimization of the negative effects on the environment and the public health is achievable in event of maintaining sustainable levels of energy consumption by the transport, drastic reduction of the emissions of green house gases and noise.

The main objective to be achieved in the period 2010 – 2020 is the building up of a sustainable transport system in compliance with the economic, social and ecological demands, which is completely integrated and competitive. The better integration of the separate types of transport is an instrument to improve the general efficiency of the system and to bring forward the development and the implementation of innovative technologies.

3. Promotion of the regional and social development and commitment, with the following 2 priorities:

- ***Provision of high quality and easily accessible transport***. The main function of the transport branch is to satisfy the transport demands of the population and the economics on regional, provincial and local level with minimization of the social costs. The policy in the sphere of improving the quality of the supplied transport services and the sustainable development of the public transport includes the solution of a number of social, financial, technological and infrastructural problems on local, national and international levels.

The main problem identified by the analysis of the Bulgarian transport sector is related first of all to the quality and not the amount of the supplied services. Due to that reason the measures under this priority should be mainly oriented to the requirements of the users to availability, accessibility and reliability of the transport, as the main instrument for the establishment of integrated transport systems.

Sustainable development of mass public transport. The increasing rate of purchasing and use of private cars is the expected result of the growth of the incomes of the population. The end effect of these processes is the congestion of the roads, the jams mostly in the urban and extra-urban regions, the decreased use of railway and public urban transport.

Probably the most difficult task of the transport strategy is to establish conditions under which the public transport would be attractive for social groups with higher economic status and for those in underprivileged position. The factors which could contribute to the attraction of the passengers to the public transport include improvement of the quality and maximally facilitated access to the transport services, optimization of the transport schemes and their integration, establishment of integrated systems for charging, coordination of the time tables of the different types of transport and the implementation of flexible tariff policy.

This priority is in compliance with the main directions of the transport policy of the EU for development of the concept on achieving sustainable urban mobility of the population, which consists of stimulation of the use of all types of transport and combining the different types of public transport with the different types of individual transport. The challenge to the urban territories in the context of the sustainable development is enormous: on one hand, combining the economic development and the accessibility, on the other hand, improving the quality of life and preservation of the environment. Urban mobility should provide for the economic development of the cities, the quality of life of the citizens and the protection of the environment. The implementation of the concept of sustainable urban mobility will result in:

- Reduction of the traffic jams in the cities
- Optimization of the use of private cars
- Decrease of pollution and noise in the cities
- Better organization of the urban transport
- Providing more accessible urban transport, especially to people with reduced motive capacities, disabled persons, adults, families with small children and to the children.
- Development of safer and secure urban transport
- Implementation of a package of physical, regulatory, financial and informational measures for traffic management.

Project of National Strategy for Sustainable Development of the Republic of Bulgaria (2007)

The main goal of that Strategy is to identify and implement activities which will improve the quality of life in Bulgaria for the present and the future generations, outlining the vision for the development of the country in medium and long term plan by 2020. The Strategy covers 7 priority subjects as follows:

1. Climate changes and pure energy
2. Sustainable transport, a subject developed on the grounds of the document of the Ministry of Transport about the **Development of sustainable transport system in the Republic of Bulgaria by 2020** from 2007.
3. Sustainable consumption and production
4. Preservation and management of the natural resources
5. Public health

6. Poverty and challenges to the sustainable development in global aspect, and
7. Good management

Within the framework of the second subject – Sustainable transport, special attention is paid to the urban transport and the strategic goal is to make it more attractive and so to reduce the rate of growth of private car traffic. The strategy identifies the following **problems of urban transport systems**:

- Poor state of the street network used by the public urban transport with difficulties for maneuvering, problems in the organization of the traffic, jams in the main arteries, lack of priority of the urban public transport to the other participants in the traffic, delaying the movement of the public transport by cars parked on the road.
- Unfavourable age structure of the car park, difficulties of the transport operators with the planning of investments.
- Harmful gas and noise emissions to the environment from the motor vehicles
- Lack of complex services (bus – bus or bus – train), etc.

The strategy suggests the following **priority operative goals concerning urban transport and planning**:

- Optimization of the public transport in the residential areas and the urban agglomerations
- Gradual establishment of integrated networks for public transport services
- Setting up favorable conditions for the use of public transport by people with disabilities
- Providing access to transport services at preferential prices to specific categories of the population
- Balanced development of the urban transport systems by increasing then use of the public transport and, where appropriate, the development of electric transport as an alternative more environmentally friendly than the use of private cars and taxis.
- Improvement of the administration of the road traffic
- Stimulation of the non-motor types of transport – cycling, walking.

To achieve this goal the **strategy recommends**:

- To the **operators** of the urban and extra-urban transport:
 - Gradual renovation of the bus park and initiation of the use of ecologically clean vehicles
 - Conclusion of long-term contracts for the supply of passenger transport services (5-10 years)
- To the **organization** of the mass public transport:
 - Improvement and development of the regulatory basis and the control functions of the municipal administrations
 - Permanent analyses and estimations of the demand of urban and extra-urban transport as the grounds for planning and optimization of the supply of transport services
 - Studying, analyzing, identification and gradual implementation and extension of the scope of the integrated networks for public transport services
 - Establishing/separating of lanes for the movement of the public transport
- To the **accessibility** and the attraction of passengers to the public transport:

- Improvement of the access to the basic infrastructure and the stops of the public transport for all categories of users, improvement of the means of orientation and information, light and audio signalization and messages about the stops, clear visual marking of the lines and timetables even for people with impaired eyesight, information for blind people, etc.
- Building up facilities for access for disabled people to the places for transportation
- Analysis and definition of the categories of users, who should be given the possibility to use the transport services at preferential prices
- To the **management** of the demand and the changing of the models of behavior:
 - Initiating paid parking, increasing the parking fees and limiting the parking time
 - Initiating fees for access of private cars and lorries to the central parts of the big cities, in order to prevent the congestions and to reduce the operation of engines running idle
 - Introduction of differentiated road fees determined in compliance with the traffic levels of the urban road network
 - Establishing favorable and safe conditions for cycling
 - Closing streets and establishment of pedestrian zones
 - Decommissioning of the motor vehicles in the park of the state and local administration with the highest fuel consumption
 - Implementation of permanent media campaigns for the improvement of the culture of behavior of all participants in the transport process and especially of the drivers of private cars, etc.

CONCLUSIONS:

There is an obvious and permanent tendency on national level of increase of the trips by personal motor vehicles and therefore a decrease of the trips by public transport and a permanent increase of the consumption of fuels for the needs of the transport. This forms a negative long-term tendency of consumption, exceeding the capacity of restoration and therefore results in problems like lowering the quality of the atmospheric air, increase of the intensity of the road traffic and the jams, increase and enlargement of the zones exposed to high noise levels, increase of the emissions of green house gases. At present these problems are best manifested in the urbanized territories. They are a consequence of the way of life, characteristic for contemporary society: increasing dependence of the use of private cars, increase of the number of households consisting of one person, growth of the amount of the resources consumed by the urban population, as well as of the trends in the demographic development – continuous migration of the population to the cities.

The national policy determines clear goals about:

- Decrease of the harmful emissions and increase of the energy efficiency
- Development of sustainable transport and sustainable urban environment
- Formation of new models of society behavior which are environmentally friendly and contribute to the sustainable development.

The national strategic documents determine a number of measures for achievement of the goals which should be specified on local level taking into consideration the local specifics. They explicitly emphasize the role and the importance of the local authorities and the need of achievement of thorough cooperation on all levels as an obligatory prerequisite for the successful implementation of the national policy. The task of the municipalities in the

practical realization of the policies is especially important as well as in changing the models of behavior of the population.

3.1.2 Plans and strategies on regional level

Strategy for the development of the region of Veliko Turnovo 2005 – 2015 - it determines the general framework and the directions of the regional development (in medium and long-term plan), in compliance with the goals and the priorities on the higher levels ²⁴ determining the achievement of sustainability in the development of the regional territorial and social community. The strategy is a starting and orientation point for the municipal plans of development and a source of ideas and arguments for the development of municipal projects.

The strategy takes into consideration the territorial proximity of the cities of Veliko Turnovo, Gorna Oryahovitsa and Lyaskovets as a prerequisite for the formation of a co-city – an urbanization nucleus with population of about 100 000 people, dominating within the region. The closeness of the three cities pre-determines the specific connections among them and certain common problems, but their independence is being traditionally maintained. It is manifested in the preservation of three separate municipalities and preserved territorial detachment, maintained by the natural specifics – the Arbanasi plateau. The narrow strip of land between Lyaskovets and Gorna Oryahovitsa is jealously kept non-built up, in order to emphasize the independence of the two cities.

The strategy identifies the problems of the transport accessibility between Veliko Turnovo and the other two cities which is made difficult by the complex relief. Although as at the moment of the elaboration of the strategy the formation of an agglomeration could not be considered as a fact, the document mentions that a future intensification of the connections among the settlements could be expected within the framework of the outlined scope of the agglomeration, on the basis of new interactions between the cities and the villages. These possibilities should be carefully prognosticated in order to establish favorable conditions for their realization in functional and territorial aspect.

According to the **vision** for the sustainable regional development “*Veliko Turnovo is a European region with a leading role of industrial, **transport – logistic**, tourist, cultural and educational center, attractive to investors, population and tourists, achieving **sustainable and balanced development** of the territory and providing safety, clean and harmonious environment and good life standard*”.

The main strategic goal of the region is to achieve **economic progress and improvement of the quality of life** under complex and balanced development, which is subdivided into six priority goals as follows:

- 1 **Economic dynamics and regional competitiveness** with the objective of achieving dynamic growth by development of attractive business environment, promoted new technologies and optimized connections between the agricultural sector and the processing industry
- 2 **Infrastructure and environment**, for providing conditions of attracting of investments and balanced development of the territory of the region by improvement of the basic technical infrastructure and efficient preservation of the environment
- 3 **Quality of life** for achieving new quality of the social sphere and the living environment contributing to the social and working realization of the population in the region and improving the quality of life for them.

²⁴ National and regional (regions for planning)

- 4 **Territorial closeness** for the balanced development of the settlements network by improving the competitiveness of the basic city centers in the region, stimulation of the small towns in the village regions and improvement of the environment in the settlements
- 5 **Sustainable alternative tourism** for achieving efficient and balanced tourist development by re-vitalization and socialization of the cultural and natural heritage in the region
- 6 Building up contemporary **institutional environment** in the region and the municipalities for coordination of the activities for achieving economic stabilization, growth and balanced development.

Regional short-term program for energy efficiency 2005 – 2007

Although the term of operation of this program has expired, the objectives it set are still of interest. The task of the regional short-term program for energy efficiency is the activation of the state policy on regional level in compliance with the conditions specific for each municipality. The main directions of improving the energy efficiency in the transport sector are the following:

- Improvement of the infrastructure, the organization and the regulation of the traffic in the towns and villages
- Promoting the use of the public transport, and
- Conclusion of long-term contracts for transport services between the municipalities in the region of Veliko Turnovo and the licensed companies – carters, with the objective of investing funds for the modernization of the transport and respectively decrease of the energy consumption and the ecological impact.

CONCLUSIONS:

The reviewed documents on regional level precede most of the national documents and respectively do not cover to sufficient degree the priorities, the goals and the measures determined in the latter.

The problem of accessibility and that of the transport connections within the 3-city agglomeration are fixed, but no appropriate measures are determined for their solution. The main priorities are economical, and the quality of life is discussed almost completely as a function of the social and working realization of the population, that is – of the employment.

3.1.3 Plans and policies on municipal level

The main strategic document of the municipality of Gorna Oryahovitsa is the **Municipal plan for development 2007 – 2013**. It determines the strategic goals and priorities of the municipal policy, summarized in the following vision of the development:

“The municipality of Gorna Oryahovitsa should be a municipality, which

- *achieves high rate of economic growth and employment, sustainable development, improved quality of life and harmonious environment, and*
- *is being recognized as an industrial, transport – logistic center, an attractive place for investments, production and commerce in the region.”*

The identified **strong points** of the municipality, concerning the sustainable urban transport planning are the following:

- Well developed technical infrastructure
- Certain extent of sustainability and balanced management of the municipal finances, and

- Adopted municipal programs for the water sector, the energy efficiency, the preservation of environment and the general town planning
- Established non-profit association “For clean towns and villages” of 6 municipalities for the construction of a regional landfill for non-dangerous waste

Weak points of the municipality of Gorna Oryahovitsa, concerning the sustainable urban transport planning:

- Need of reconstruction of the infrastructure in the existing production zones
- Not quite efficient management of the municipal property
- Negative demographic tendency accompanied by irregular distribution of the active population by settlements
- Lack of marketing policy
- Depreciated and outdated networks and facilities of the technical infrastructure
- Incomplete and non-maintained green system.

Among the identified **possibilities for development** there are such with direct or indirect relation to the sustainable urban transport planning:

- The recognition of the city of Gorna Oryahovitsa as a good place for investments, production, commerce and adequate life
- Construction of industrial logistic center
- Making use of the possibilities provided by the availability of railway and air transport
- Preservation and development of the city of Gorna Oryahovitsa as an industrial and transport center
- Promotion of public – private partnership
- Development of alternative tourism – festival, cultural, sport, rural, ecological, monastery, etc.
- Opening of new forms and types of social services
- Providing conditions for normal existence of the people advanced in years
- Development of the utilities in the settlements and improvement of the living conditions of the citizens
- Intensification of the process of agglomeration and achievement of higher stage of urbanization
- Building up rich infrastructure of green system objects

The identified **threats** concerning the sustainable urban transport planning are the following:

- Depopulation of the small settlements
- Loss of positions of the municipality of Gorna Oryahovitsa as a transport and communication center
- Lower requirements to the training and the capacity of the administrative and management personnel.

As seen from the above conclusions, reflected by the vision for the development of the municipality, the emphasis is on the economic development - industrial, transport – logistic center, attractive place for investments, production and commerce. The improved quality of life in the first place is reviewed first of all as a reduction of the unemployment, the increase of the employment and achievement of economic growth.

This approach is reflected by the five identified priority areas of development, two of which directly concern the sustainable urban transport planning.

The priority of **development and modernization of the infrastructure** as a condition for the integrated urban development and for the improvement of the urban environment, includes 6 goals, each of them including several measures.

The first goal anticipates:

- reconstruction and modernization of the local transport infrastructure, and
- improvement of the transport access on municipal level to the regional and national transport corridors.

The main measure for achieving this goal is the construction and the reconstruction of the municipal road network, including the service streets in the settlements. As for the measure of improving the condition of the railway infrastructure, the municipality could hardly execute significant activities, and the third measure – the opening of new places of work as a result of the implementation of transport project, is not more than a desired result at present.

The second goal of the infrastructural priority of construction and improvement of the environmental infrastructure on local level does not anticipate any measures concerning the transport.

The goal of building up the local business infrastructure includes measures for:

- Establishment of an industrial – logistic center for production purposes, with the idea of attracting investments, and
- Construction and rehabilitation of the incoming technical infrastructure.

The implementation of those two measures directly affects the sustainable urban transport planning. The assignment of terrains for the development of existing and/or the construction of new industrial capacities and the specifics of these capacities inevitably affects the transport flows – both passenger (trips to and from the places of work) and freight (supplies of raw materials and distribution of goods).

The increase of the competitiveness of the settlements is anticipated to be achieved by updating and maintenance of the general urban plan, which for the city of Gorna Oryahovitsa is a fact, and also by:

- rehabilitation of the physical environment and the development of the extra-urban districts
- reconstruction and modernization of the technical infrastructure
- assignment of terrains for the development of business and commercial activities, etc.

All these measures concern the sustainable urban transport planning: territorial plans determine the function of the territories, including the extra-urban and those for the development of business and commercial activities, so becoming an instrument for planning and influence on the demand of passenger and freight transport and the organization of the traffic.

The goal of improvement of the communications and the increase of the mobility should be achieved by public works in the settlements and by the construction and the reconstruction of the road connections among them. The satisfaction of the transport – communication demands of the population is in the basis of the sustainable urban transport planning and therefore this goal is related to it.

The connection between the sustainable urban transport planning and the goal of promoting the environmentally friendly public transport is even more direct and it is included in the Municipal plan for development. The outlined measures for updating of the urban transport

scheme, the development of a plan of the organization of the traffic and the construction of by-pass roads contribute but do not exhaust the possible instruments of achieving this goal.

No goals and measures concerning the transport are anticipated in the priority of **improving the quality of life in the municipality of Gorna Oryahovitsa**. This is a significant omission, because the needs of movement and the access to high quality transport services are an invariable part of the daily round of the population, which consume resource (time, physical, financial) and therefore strongly affect the quality of life.

The next **priority of preservation and reproduction of the environment** does not anticipate any measures concerning the transport.

The last priority is looking for an appropriate answer to the identified threat of low requirements to the training and capacities of the administrative and management personnel but is aiming only at **the increase of the capacity for managing the funds from the EU**.

Besides the Municipal plan of development the municipality of Gorna Oryahovitsa has adopted and implements **Municipal program of management of the quality of the atmospheric air of Gorna Oryahovitsa for the period 2003 – 2010**.

By data from this plan, as at September 2002 the car park in the municipality of Gorna Oryahovitsa includes about 6 000 motor vehicles (buses, cars and lorries), and in comparison with 1999 the share of the cars has increased. On the whole the car park is outdated and depreciated.

The program reaches to the following conclusions about the condition of the transport system:

- The main tendency in the last few years which determines the transport behavior in the city of Gorna Oryahovitsa is the increased use of motor vehicles by the population and the increased mobility by private cars.
- The performed studies of the transport flows along the main street network have revealed the peak hours when the city center of Gorna Oryahovitsa is hardly accessible and parking is almost impossible.
- In such cases the reduced traffic capacity of the streets and the crossings in the main street network aggravates the ecological situation and creates conditions for over consumption of fuels, higher emissions of harmful gases and higher noise generated by the motor vehicles.
- The street pavements in the city are old and worn out along significant distances especially in the outlying districts and in the minor street connections, which indirectly contributes to the increased dust concentrations in the air.
- The main factor with a negative effect of the noise emission in the municipality is the intensive transport across the settlements.

Another long-term strategic document is the **Municipal program of waste management for the period 2006 – 2010**. The program covers the activities of maintaining the public places clean, the collection, transportation and rendering harmless the household and construction waste and the control on the storage and rendering harmless of the industrial and dangerous waste generated by the enterprises on the territory of the municipality of Gorna Oryahovitsa.

The program prescribes specific measures for the collection and the recycling of accumulator batteries from the motor vehicles as well as from vehicles out of use. The used lubricants also lead to risk of pollution of the environment and the program plans the prevention of the harmful consequences by systematic and appropriate control of the material flows and the discharged emissions.

Both programs mentioned above - on managing the quality of the atmospheric air and on waste management, are in the basis of the elaboration of the **Plan of preservation of the**

environment of the municipality of Gorna Oryahovitsa. The general strategic goals of this plan are the population of the municipality to live in:

- Clean environment without any risks for human health, the flora and the fauna, etc.
- Clean settlements with well developed and functioning green system.

The achievement of the standards for the quality of the atmospheric air is among the specific objectives of the plan, by means of:

- Development of programs for management of the quality of the atmospheric air
- Gasification of the city of Gorna Oryahovitsa
- Reduction of the noise pollution generated by the transport
- Undertaking of measures for overcoming the noise impact in the central parts by noise-isolating screens or vegetation
- Reconstruction of several principle thoroughfares – Yanko Boyanov Street , Tsar Osvoboditel Street , Otets Paisiy Street , Sveti Knyaz Boris I Street
- Studying the possibilities for leading the transit traffic out of the city along by-pass roads
- Separation of a pedestrian zone in the central part of the city for the day hours.

The municipality of Gorna Oryahovitsa is operating under the **Program of energy efficiency**, whose objective is the reduction of the energy consumption per unit of heated area while increasing the comfort by improvement of the quality of the living environment and decreasing the health risks, that is the consumption of energy resources by the transport, including the public transport, is not a subject of the program.

In 2006 the **General Urban Plan of Gorna Oryahovitsa** (GUP) was adopted, and in 2008 two detailed territorial plans were developed – for the sports facilities and the green system.

According to the explanatory note of the general urban plan is the problem of the sustainable development of the settlements, that is, development which does not adversely impact the environment and does not leave problems to be solved by future generations, is not an insignificant problem the answer to which is sought by the elaboration of new town plans.

The main goal of the General Plan of the city of Gorna Oryahovitsa is the establishment of optimal space and functional structure for the development, the construction and the complex organization of the city in harmonious union of the urbanized structures with the existing natural and anthropogenic elements and the specific social and economic conditions, taking into consideration the regional components. To this effect it was developed for a perspective term of 16-17 years, that is plan horizon 2020 and includes solutions concerning:

- The structure of the life territory, for production, recreation, environment protection, environment reproduction, communication and infrastructure;
- The border lines for construction, including terrains for new urban development taking into consideration the private, state and municipal property, the natural conditions and the restrictions;
- The lay-out zones, the border lines and their lay-out parameters;
- The main and service street network;
- The routes and the facilities of the technical infrastructure;
- The protected architectural, cultural and other zones and the cultural monuments;
- The sites important for state and municipal needs;

- The sites for public services from the systems of education, culture, healthcare, sport, etc., constructed with state and municipal funds;
- Determination of the zones with high concentration of sites from the service sector for economic purposes;
- Ecological measures, parameters and requirements for improvement of the standard and the quality of the environment;
- Investigation and identification of measures for sustainable social and economic development and the relevant lay-out conditions;
- Determination of the stages for the preparation and the construction of zones and sites;
- Development of plans for the balance of the territory, the movement of the population, the demographic capacity of the territory, the dimensioning norms, etc.
- Development of planned conditions for the restructuring of the economic structure and more efficient use of the built-up funds.

The General Urban Plan anticipates the enlargement of the residential territory of the city to the west and south and packing the housing to the west. The district Kaltinets should be preserved as a residential territory with low-floor houses.

The two production zones – the North and the East cover one third of the territory of the city. The restructuring and the changes in the ownership require enlargement of the industrial terrains to the north and the east, and a regime of a mixed multifunctional zone is proposed for the enlargements.

As for the communication equipment, the plan anticipates the completion of the construction of a by-pass ring which will take over the non-typical transport load (transit, freight, between the settlements). The by-pass routes from the north, west and south take into consideration the terrains for the development of the city. They are also in compliance with the existing and perspective routes serving the three-city agglomeration.

Nevertheless, the project for a new communication network of the city takes into consideration the fact that by-pass roads will probably not be constructed in the predictable future, so their functions have to be assumed by the additionally improved and developed system of district thoroughfares.

The project anticipates new district thoroughfares over the North industrial zone and tangents from the west and the south. The existing scheme of the district thoroughfares serving the urban structure will be additionally improved with the construction of a new route connecting Tsar Boris I Street and Patriarch Evtimiy Street and Yanko Boyanov Street (the channel will be covered).

The connection of the district Kaltinets and the city will be realized by a new district thoroughfare from Anton Strashimirov Street to the crossing with Vasil Levski Street, Ivan Momchilov Street and Tsar Osvoboditel Street

The existing scheme of the receiving streets in the residential zone is well developed. The project anticipates the construction of new receiving streets in the Prolet district, in the south terrains of the central part of the city and in the East industrial zone. This will provide transport service for these territories with facilitating the traffic and the parking in the central city parts.

The project suggests a new organization of the traffic. Tsar Osvoboditel Street becomes one-way from north to south (between the crossing with Georgi Izmirliiev Street and Patriarch Evtimiy Str). The street Vicho Gruncharov to the crossing with Tsar Osvoboditel will be one-way from south to north.

Sveti Knyaz Boris I Street in the section from the crossing with 19-ti Fevruari Street to Georgi Izmirliev square becomes receiving street with longitudinal parking.

The project suggests the completion of the construction of the Chestovo junction. The crossing of the new northern route with the road to Dolna Oryahovitsa is suggested to be on two levels.

The connections among all district thoroughfares and receiving streets are on one level (crossing). The crossings of the street roads with the existing railway lines are on two levels.

The scheme of organization of the public transport should be modified with the implementation of the new transport communication scheme of the urban territory.

It is recommended the parking in the central part to be longitudinal in the street Sveti Knyaz Boris I and in the local parts – along Makedoniya Street – parallel to the new route and the covered gully in the section between Pirot Street and Alexander Stamboliyski Street

Four years after the General Urban Plan was adopted, **there are no changes** in the transport communication scheme of the city, neither in the scheme of the routes nor in the route scheme of the public transport.

On the grounds of the presented survey of the main strategic documents on municipal level, the following conclusion could be drawn:

In the medium-term and long-term strategic documents of the municipality of Gorna Oryahovitsa goals and/or measures are partially included concerning the sustainable urban transport planning. These could and should be used as referent documents, but as a whole, the Municipality of Gorna Oryahovitsa has not developed logically structured long-term policy of sustainable transport planning and relevant sector strategic document.

3.1.4 Institutional framework and procedures of planning and decision-making

According to the Local self-government and local administration act²⁵ the citizens and the respective institutions elected by them – municipal council and mayor, have the right and the powers to solve independently all problems of local significance, including these concerning:

- the planning and the development of the territory of the municipality and its settlements
- the public works and the public services
- the social services
- the preservation of the environment and the rational use of natural resources.

Although transport and transport planning are not explicitly mentioned by the act, they are implicitly included in the terms public and social works and services, planning and development of the territories. The institution which determines the policy of construction and development of the municipality in relation with the above-mentioned activities is the Municipal Council. Its powers include:

- Decision-making on the elaboration and approval of town plans and their modifications
- Adoption of strategies, prognostications, programs and plans for the development of the municipality
- Determination of the requirements to the activities of physical and juristic persons on the territory of the municipality, following from the ecological, historical, social and

²⁵ Art. 17 of the LSGLAA

other specific features of the settlements, as well as from the condition of the engineer and social infrastructure

The activities of studying the demands of the population in specific areas, the elaboration of proposals for solving the eventually identified problems and in general the preparation of decisions concerning problems put forward to the Municipal Council for discussion and solving, are performed by permanent or temporary committees, constituted by municipal councilors. These committees are empowered to use outsiders as experts and consultants.

The permanent committees to the present Municipal Council of Gorna Oryahovitsa are the following:

- Budget and finances
- Privatization
- Municipal property
- Territorial development, construction and public works
- Education, science, culture, religion
- Economic structure, agriculture, forestry, water, preservation of environment
- Healthcare, social activities, youth, sport, tourism
- Public peace, traffic safety and transport
- Local self-government, regulations and Euro-integration
- Committee for prevention and discovering of conflict of interests

As it could be observed, the wide specter of problems concerning the sustainable urban transport planning is at present a subject-matter of the operation of several permanent committees:

- the territorial planning is in the permanent committee of territorial development, construction and public works
- the issues of sustainability are in the permanent committee of economic structure, agriculture, forestry, water and preservation of environment, and
- the transport is combined with the public peace and the traffic safety.

In other words, **the current institutional organization structure lacks integrated approach to the issues of the sustainable urban transport planning.**

The function of the other institution of local self-government – the mayor, is to manage the executive activities of the municipality, including:

- Direction and coordination of the activities of the specialized executive bodies – the municipal administration
- Organization of the implementation of the long-term programs, of the statements of the Municipal Council, as well as the tasks following from the national legislation
- Assignment and permitting the elaboration of town plans and organization of their implementation
- Provision of expert and organizational services for the Municipal Council, determination in the Structure Regulations of the municipal administration the obligations of its employees, etc.

The structure of the municipal administration of Gorna Oryahovitsa includes two directions:

- Common administration, including:
 - Administrative – legal services and Civil Registration and Administrative Servicing

- Budget and financial and accounting activities
- Local receipts and property management
- Specialized administration, including the departments:
 - Territorial planning, cadastre and regulation
 - Investor's control, EE and ecology
 - Economic activities
 - Education and culture
 - Local economic development and Euro-integration.

Such administrative structure is not an exception for our country and is present in many municipalities, especially in small ones. Characteristic feature is the lack of specialized administrative unit – department, sector, office, etc., whose main function is the organization of the activities for appropriate and sustainable satisfaction of the transport demands of the population and the economic subjects in the municipality. This fact logically results in insufficient knowledge of the transport characteristics as supply and demand, the relevant problems and the methods of dealing with them. As a whole **the municipal administration lacks capacity for studying, planning, organizing, control and estimation of the transport.**

At the same time, by virtue of several legal and subordinate legislation acts this administration is imposed several exceptionally important functions:

- By proposal of the municipal administration the Municipal Council approves the municipal transport scheme, which includes both main and/or additional urban bus lines and the lines between the settlements within the territory of the municipality
- The mayors of the municipalities are empowered to suggest changes and additions to the route time-tables of the district transport schemes and to suggest new ones.
- Determination of the transport task and the route time tables, developed in such a way as to provide connections between the different types of transport and coordination with the specialized transport, taking into consideration the anticipated passenger flow
- Assignment of execution of public transport in the municipal and partially in the regional and republican transport schemes to licensed carters, determined by competition, organized and conducted by procedure and criteria approved by the Municipal Council after a proposal from the municipal administration
- Control within the settlements on the condition of the road pavement, the road facilities, the road signs and marking, the means of organization and regulation of the traffic, on the observation of the parking regulations by the drivers of passenger motor vehicles and of the traffic regulations by the pedestrians.
- The Municipal Council is empowered to determine the local policy on issues affecting the supply and demand of transport services, namely:
 - Taximeter transport: The mayors of the municipalities and the Municipal Council determine the number of the taxi cars operating on the territory of the municipality and the procedure of their distribution among the carters
 - Determination of regions, roads and parts of roads as short-term parking zones and eventually the fees for parking in these zones,
 - Determination of measures for improving the condition of the traffic safety on the roads in the municipality, developing programs in coordination with the State – Public Consultative Committee for the problems of traffic safety, etc.

Besides these functions, directly related to the transport, the functions of the municipal administration include others, which concern the sustainable urban transport planning:

- Management, coordination and control of the activities of city planning, participation in the development, review, adoption, updating of territorial city plans, general urban plan, specialized studies of different functional systems (occupation, work, services, recreation, green system, etc.)
- Facilitating the implementation of the resolutions of the Municipal Council by development of programs for territorial distribution of the elements of the different systems
- Development of strategies, plans, programs and projects concerning the environment on the territory of the municipality
- Participation in the development, the implementation and the control of the measures for preservation and restoration of the environment, etc.

The procedures of planning, coordination and execution of these activities by the municipal administration in Gorna Oryahovitsa are determined in two documents:

- The Organization and Activity Regulations of the Municipal Council, its committees and its interaction with the municipal administration, and
- The Structure Regulations of the municipal administration.

The Municipal Council of Gorna Oryahovitsa has adopted a special Ordinance on the construction, management, control and preservation of the green system on the territory of the municipality, which determines the **mayor through the Directorate of the Territorial and Settlement Structure** as the responsible body on the issues of this system. At the same time the Ordinance on the organization and the safety of the traffic in Gorna Oryahovitsa does not explicitly mention the responsible administrative structure, which is assigned with the control of observation of the Ordinance and the right to impose sanctions in event of violation, or to collect fees (for instance, for parking).

CONCLUSIONS:

The practical realization of the strategy for sustainable urban transport planning by all means requires higher level of integration of the activities of the separate administrative units, and probably an amendment of the regulations with a view to the better coordination in sector decision making which significantly affects the other systems.

3.2. ANALYSIS OF THE CURRENT CONDITIONS

3.2.1 Detailed quantitative diagnosis of the mobility and the transport development in the city of Gorna Oryahovitsa

3.2.1.1. Passenger transport demand

A procedure was not created for systematic and regular collection, processing and regular analysis of data about the mobility and the demand of transport services in Gorna Oryahovitsa. The main reason is the indicated herein above absence of an administrative structure which shall be responsible for these activities.

Owing to that in the time period 2008 - 2009 a number of measures for collection of information were organized and implemented: repeated profile counts of the automobile traffic in the city, inquiries in the households and of the main economic subjects, generating and/or attracting freight traffic. In 2010 a cordon inquiry was additionally organized for the establishment of the entry, exit and transit automobile traffic.

The main results of the tests are presented herein below.

Motorization rate

According to data from the enquiry in the households, the motorization rate of the population of the city of Gorna Oryahovitsa 376.6 cars of 1000 inhabitants. With regard to the average indicator for the country of 311.1 and that for the region of Veliko Turnovo of 257 cars/1000 inhabitants²⁶, the indicator for Gorna Oryahovitsa seems high. Nevertheless it should be taken into consideration that it shows the motorization rate solely of the urban population, whilst the average for the country or the region coefficient also includes the rural population, which is traditionally with much lower motorization than the urban one. For juxtaposition, comparison may be made with Sofia Municipality, at which motorization is 466.4/1000 inhabitants with 95.4% of urban population or with the region of Varna – 347.6/1000 inhabitants with 81.4% of urban population. At national level the share of the urban population is 71.1%, and for the region of Veliko Turnovo it is 67.6%.

In this sense, it may be accepted that the degree of motorization of the city of Gorna Oryahovitsa is similar to that of other towns with similar social-economic characteristics.

According to data of the General Urban Plan as at year 2002 the number of motor vehicles in the Municipality is about 6 000, which corresponds to about 115 motor vehicles/1000 inhabitants (urban and rural population included). In spite of the fact that the data about 2002 and 2008 are not fully comparable, a definite conclusion may be drawn for an accelerated motorization of the population, a tendency which is observed in the entire country and in all the states from Central and Eastern Europe.

Mobility

The citizens of Gorna Oryahovitsa aged over 14 at the average per day make 5.8 trips. In general this coefficient of mobility is relatively high, but yet characteristic for the smaller populated places, in which the distances are smaller and which are not a motivation for refusal of a trip or for optimization/combination of the trips.

The total number of trips, which the inhabitants of the city make at the average per day is about 197 000, of which about 120 000 on foot. The trips of the daily traveling students, employees, visitors should also be added to this number.

Trips purpose

Over half (57%) of the trips in the city are connected with the work – going to or return from work. The trips aimed at shopping (27%) take the second place, followed by those with social purpose (visiting as guests, visits of cultural/public event, meeting with close relatives or friends and so on – 10%). The trips aimed at training represent 6% of all the trips.

The investigation was conducted at the end of the time period 2004 – 2008, during which in the city of Gorna Oryahovitsa and within the region a growth of the people occupied under employment and official relations was registered and respectively the coefficient of unemployment in the municipality is lower than the average for the country (6.32% as at the end of year 2008 and respectively 8.28% as at the end of 2009²⁷). Yet, at the attainment of a high economic growth of the municipality and the city as the strategic goal of the Municipal Development Plan is, the employment is expected to grow up which will additionally be reflected in a bigger number of commutations.

The increase of the employment and the welfare of the population logically result in the growth of the consumption and respectively – in more trips aimed at shopping but also of such with social purpose.

²⁶ Source: NSI

²⁷ Source: Analysis of the situation and evaluation of the needs in the Municipality of Gorna Oryahovitsa, July 2010

The total tendency for aging of the population does not leave the municipality of Gorna Oryahovitsa behind, but it is manifested in a weaker form: 21.3% of the population of the Municipality are under working age, with regard to 15% of the same indicator for the region of Veliko Turnovo. This fact forms a perspective for the increase of the population in working age. This provides grounds to expect in the future growth of the trips aimed at work and the preservation of the number of the trips aimed at training.

Average distance traveled

The average length of all the trips in Gorna Oryahovitsa is 1.8 km, but the average distance for movement to/from the workplace is longer – 2.4 km. The predominant part of all the trips (63%) is with length of up to 2.5 km, which is accepted as the normal distance for movement with non-motorized means of transport – on foot or by bicycle. Only 2% of the trips are at a distance of over 5 km.

The planned in the General Urban Plan expansion of the residential territory of the city in the western and southern directions on the one hand and the expansion of the production terrains in the directions of north and east in a regime of mixed multi-functional zone²⁸ suppose certain increase of the average length of the trips by about 200 m to 300 m.

At the same time, in event of increase of the integration processes in the three cities a considerable growth of all the kinds of trips may be expected (aimed at work, training, shopping, social) to and from the neighboring city – Veliko Turnovo and Lyaskovets, which will inevitably increase the average distance traveled.

Modal split

The biggest part of the movements in Gorna Oryahovitsa are made on foot, along with those by bicycle forms a share of 61% of all the trips. The exceptionally low share of the trips by bicycle makes impression – only 0.8%. The relatively big displacement between some parts of the city may only partially explain the low number of the cycling trips. In all the events in practice the full absence of specialized cycling routes/lanes, which should provide higher level of safety as well as the imposed behavioral models, are the main reason for the very low degree of use of the bicycles as a means of transport.

The very low share of trips by public transport (urban, interurban coach and route taxi) of only 9% raises alarm as well, in particular in comparison with the share of the trips by cars (personal and by taxi) – 30%.

The cross analysis indicates that the inhabitants of Gorna Oryahovitsa choose to walk solely in very short distances – at the average about 580 m. The next cartogram indicates the main pedestrian routes in the city and their number in the interval between 7 and 9 hours in the morning on working days.

²⁸ Source: General Urban Plan

The world practice indicates that there is enhancement of the welfare of the population as a mandatory result in the motorization rate. This tendency, applied with regard to the current transport habits of the population of Gorna Oryahovitsa and the expected future increase of the average transport distance, outlines a clear perspective for the growth of the trips by cars at the expense of those by public or non-motorized transport.

The frequency of the trips per kinds of transport is not to the benefit of the sustainable development, either. 62% of the population of Gorna Oryahovitsa declare that they never use urban bus transport, and solely 1/5 of the population aged over 14 are regular users, i.e. such that travel at least twice a week. On the other hand, a little over 50% of the same group regularly travel by cars and only 30% declare that they never use cars for their daily trips.

Profile of the regular users by type of the motorized transport

The data of the inquiries conducted about the social profile of the regular users of the public and personal motorized transport are presented in the following table:

	Public transport	Personal transport
Occupied	76%	93%
Age:		
Under 20	21%	3%
Between 20 and 60	73%	96%
Over 60	6%	1%
Education:		
Higher	23%	56%
Lower than higher	77%	44%

The conclusion, which is imposed, is that cars are preferred by the active part of the population with higher degree of education and probably with higher income. The public bus transport is used in a higher degree by the inactive population – students and pensioners, with lower degree of education and income and by those who are under the minimal age for drivers of motor vehicles. There are all the grounds available at hand to assume that a psychological model is imposed in Gorna Oryahovitsa in conformity with which the public transport is “old-fashioned” and the use of cars is a symbol of higher social status.

These characteristics outline an unfavorable picture of the future: at the attainment of the strategic goal of the municipality for high economic growth and employment the trips with public transport will decrease even more and the trips by cars will increase. The situation being as it is the public transportations will become more and more economically unprofitable for the carriers. This on its hand will impose either the spending of bigger and bigger amounts from the public funds for compensations for transportation activities, or the closure down of the urban transportations. The first variant shall mean deviation of funds from other social spheres as education and/or health care, urbanization and so on into the direction of the transport. The second variant shall mean abdication of the local power from the obligation for provision of transport services for the population. Both variants are not in the favor of the sustainable development of the municipality and the enhancement of the quality of life of its population.

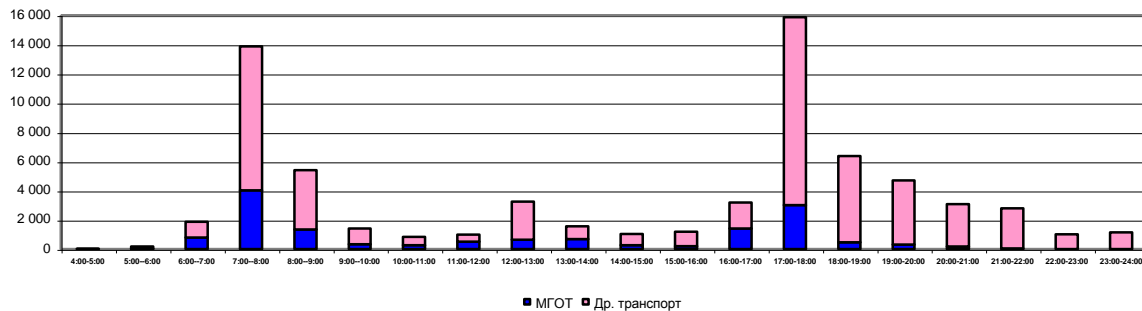
Transport demand intensity and variations

The demand of trips, naturally, is irregular and there are day and night, weekly and most probable seasonal variations as well. The results of the conducted counts of the automobile traffic indicate that during the working days the average intensity for the interval 7:00 – 19:00 hours is about 560 motor vehicles/hour, and on days off it is by about 25% lower – about 420 motor vehicles/hour.

According to data of the General Urban Plan the average intensity of the automobile traffic in Gorna Oryahovitsa in 2002 was 337 motor vehicles/hour, and in 2003 – 344 motor vehicles/hour. Although full coincidence of the methodologies used for the calculation of the

average for the city intensity of the traffic may not be guaranteed, it should be outlined that out of the 18 points, at which in 2009 measurement of the intensity of the traffic was made, traffic flows lower than 344 motor vehicles/hour were reported on only two of them. In all the remaining ones the intensity is by 13% to 165% higher than the average for year 2003. In other words, the automobile traffic in Gorna Oryahovitsa increases, at that at very fast rates.

Within the framework of the day and night two clearly stated intervals are observed with peak demand of passenger transport: morning peak between 7 hours and 9 hours and evening peak - between 17 hours and 19 hours, as it may be seen from the following diagram.



MGOT = Mass urban public transport (MUPT)

Др. транспорт = other transport

The passenger flow of the mass urban public transport (MUPT) is intensely irregular as well. With average 850 passengers/hour in the interval, in which there are bus transportations from 5 h to 22 h, between 7 h and 8 h in the morning the number of the transported passengers reaches 4 000, and in the afternoon between 17 h and 18 h – respectively about 3 000. Thus during the morning peak transport demand 28% of the trips are by public transport and this percentage is even lower during the evening peak – 16%.

Similar irregularity was registered at the counts of the automobile traffic: average loading during the morning peak of 585 motor vehicles/hour and respectively 580 motor vehicles/hour during the evening peak. The difference between the average and the peak automobile loading is much smaller as compared with that in the demand of trips from the one hand because of the great number of the trips on foot and on the other hand – because more than one passenger travels in cars most frequently.

As it may be expected, there are sections and crossroads, at which the traffic varies within the framework of the day in significantly bigger limits. For instance, in the morning within the interval between 7 and 8 hours 35% more motor vehicles (582 motor vehicles) pass along Mladost Street, in the proximity with the crossroads with Tsar Osvoboditel Street, Stoil Voyvoda Street and Nikola Petrov Street with an average daily traffic of 430 motor vehicles/hour and in the evening within the interval between 17 h and 18 h by 61% (691 motor vehicles). Moreover, there are sub-intervals within the framework of the morning and the evening peak (between 7:30 h and 8:00 h and between 17:00 h and 17:30 h), during which the traffic exceeds the average daily one by 30% to 75%.

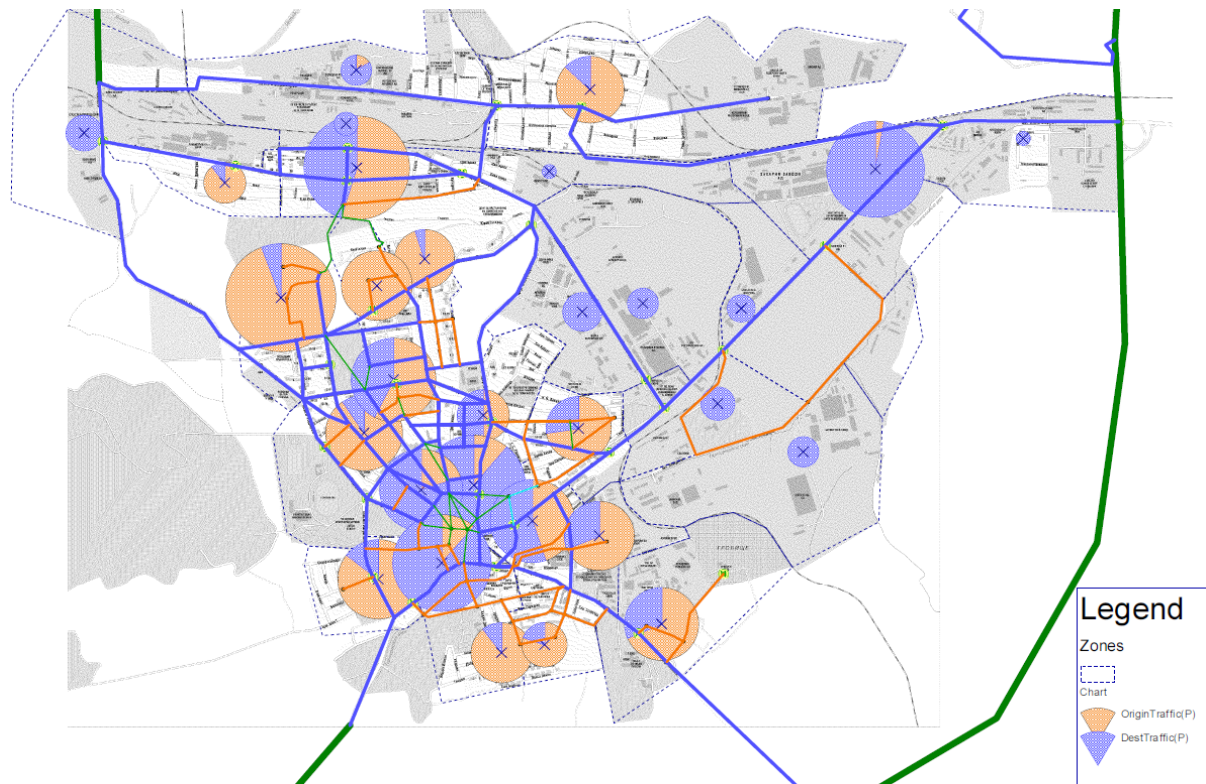
This intensely expressed irregularity is a prerequisite for delay and in places also for traffic jams as well, which results in extended time of travel and increased hazardous emissions as the motor vehicles do not work in the optimal regime.

Origin / Destination zones of the passenger trips

The variations indicated hereinabove in the demand of transport services and the relevant changes in the automobile traffic are directly related to the goal of the trip and the location of the sites attracting trips.

The following cartogram indicates visually which parts of the city generate and which attract passenger trips and in what dimensions within the interval from 7 h to 9 h (the generated trips from the relevant zone of trips are shown in orange and the attracted ones – in blue).

Quite normally, owing to the concentration of population district of Prolet generates a great



number of trips but as it nearly does not offer workplaces, it attracts a small number of trips. The situation with the industrial regions on the north-east – to the east of the central city part is just the opposite: they attract a great number of trips and nearly do not generate such related to the hostels of Zaharni Zavodi AD. The district of Garata (Station) generates and attracts a nearly equal number of trips. The number of the residents in the central urban part is relatively smaller and their average age is bigger than the average one for the city. At the same time a big number of workplaces are concentrated in this area (in administrative offices and shopping outlets), because of which this part of the city attracts much more trips than it generates.

As the General Urban Plan does not anticipate radical changes (expansion of the residential territory of the city in the western and southern direction and expansion of the production terrains in the directions of north and east) it is expected that the present characteristics shall not undergo significant changes in the part of trips to and from the place of work. The building up of new commercial, social and/or cultural-attraction sites could, however, influence to a considerable degree the non-employment trips. If such a site is located on a territory which generates but nearly does not attract trips, a new attraction center will be formed and respectively the routes of a part of the existing trips will change reaching a better balance. If, on the contrary, the site is located in a zone which so far has predominantly attracted trips, the opposite effect will be attained – over-accumulation of demand with probable negative consequences for the traffic.

Main passenger trips and destinations

The following cartogram visualizes the directions for travel in the greatest demand during the morning peak. These are mainly the trips aimed at work and training and as such are the most sustainable (regularly repeated). The evening peak indicates higher degree of scattering as on the one hand the training classes do not obligatorily finish at the same time and simultaneously with the working time of the main enterprises and on the other hand return home may be combined with other activities as shopping and/or social and cultural events.

As it is seen, there is significant demand of transport from the district of Garata (the Station)



and the district of Prolet (Spring) to the center, but cars are used for these trips because the supply of public transport on the one hand is intensely limited and on the other hand the existing bus routes go round a lot and are slow. The demand of transport to the eastern industrial zone is also big but this direction does not have the urban bus routes, change of an interurban bus is needed, because of which the passengers logically prefer traveling by cars. The data about the directions, along which there is the biggest and most sustainable demand should be used as grounds for planning the routes of the urban public transport.

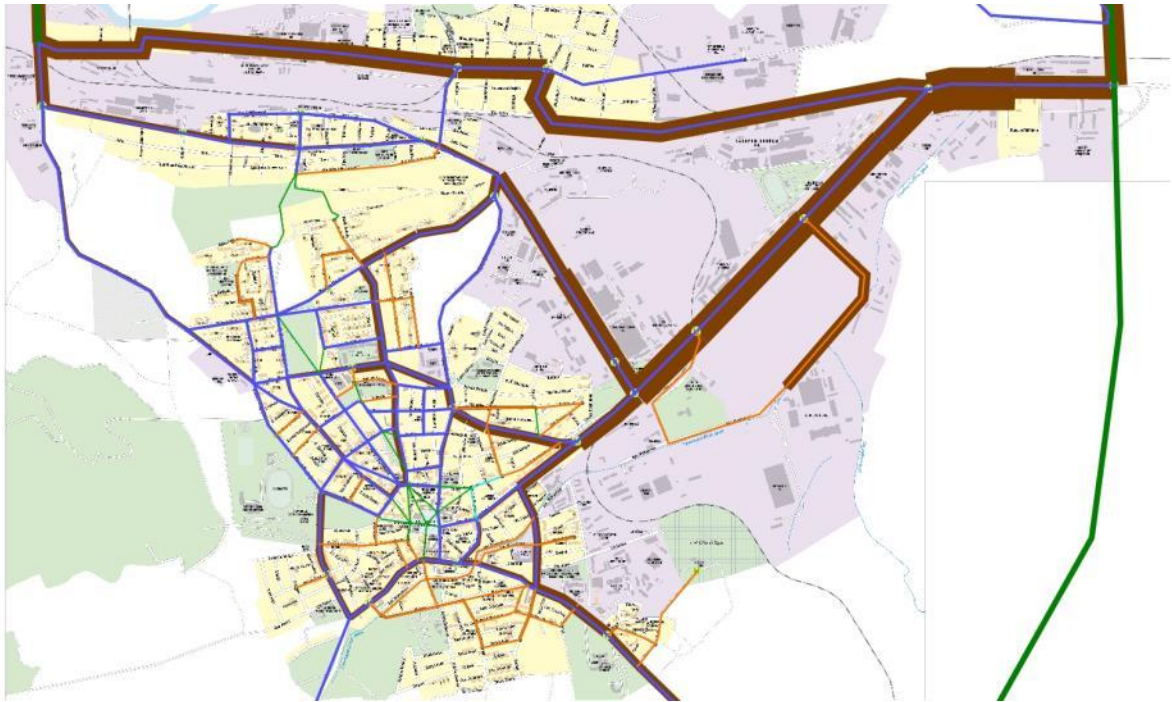
3.2.1.2. Freight transport demand

The analyses for the demand of freight transport were conducted on the grounds of an inquiry with the 20 main enterprises freight providers and freight recipients on the territory of Gorna Oryahovitsa, as well as of the counts of the automobile traffic.

According to data from the inquiry only 3 of the 20 biggest companies receive and/or send freights by railway, and even in this case the predominant quantity is transported by automobile transport. On the grounds of the information submitted by the enterprises, at the average per day about 1 000 tons of freights enter into and exit from by automobile transport the city of Gorna Oryahovitsa.

The average daily intensity of the freight traffic within the time period between 7 h and 19 h is about 510 motor vehicles, or at the average 42 TA/hour.

Daily and weekly variations are observed in the passenger traffic and in the freight traffic but at the freight traffic the amplitudes are considerably lower as compared with the passenger one. The following cartogram indicates the intensity of the freight transport during the morning peak hours.



According to the results of the inquiry 40% of the inquired companies plan to expand their activities within a short- to medium-term perspective (1-3 years), i.e. future growth of the freight transportations may be expected and respectively of the freight traffic in the city by 5 to 10%. In long-term perspective the expectations are for additional growth of the freight transportations.

The absence of access routes from the north, west and south load the street network with non-characteristic (transit) traffic, which on the grounds of the cordon inquiry conducted in 2010 was evaluated to add up to about 110-115 trucks/day.

3.2.1.3 Transport infrastructure and transport services supply

Infrastructure

According to data from the General Urban Plan, the total length of the street network is 78 km, of which 13 % are without lasting flooring (asphalt concrete or pavement). The main street network consists of streets, which are the natural continuation of the incoming-outgoing directions of the city in the directions of the village of Purvomaytsi, the town of Dolna Oryahovitsa, the city of Veliko Turnovo (through Arbanasi) and the city of Lyaskovets. They provide the connection of the residential districts with the central urban part and the production zones. Further to that they are also the bearers of the incoming-outgoing, transit traffic as well as of the routes of the urban transport.

The main street network is built up of the following streets:

- **District thoroughfares:** streets Patriarch Evtimiy, Otets Paisiy, Knayz Boris I, Mano Todorov, Vasil Aprilov, a part of Tsar Osvoboditel Street, Ivan Momchilov, Soedinenie, Anton Strashimirov, Varnenska and Vasil Levski.

- **Collection streets:** a part of Tsar Osvoboditel, Hristo Smirnenski, Mladost, 19 February, V. Gruncharov, Georgi Izmirliiev, Khan Kroum, Sider Voyvoda, Macedonia, 1st May.

According to the conclusion of the General Urban Plan “*the technical condition and the geometric characteristics of the main street network do not correspond to the requirements for the relevant class of streets, but the following streets are in a satisfactory technically kind: Knyaz Boris I, Iv. Momchilov, Tsar Osvoboditel, A. Strashimirov, M. Todorov, Otets Paisiy, 19 February and V. Gruncharov, a part of which will exhaust their admission possibility in the near future. All the remaining streets from the main street network do not satisfy the requirements for main street network although the mass urban public transport passes along them as well.*”

According to the generalized evaluation, presented in the Municipal Development Plan, “*the predominant part of the road network in the city is intensely depreciated and the share of the reconstructed streets is minimal*”²⁹. Moreover, 25% of the inquired companies determine the transport situation in the city as unfavorable for the development of the business namely because of the poor condition of the road network.

Transport services

Further to non-motorized (on foot and cycling) and own (cars), the citizens of Gorna Oryahovitsa may use public bus and taxi transport.



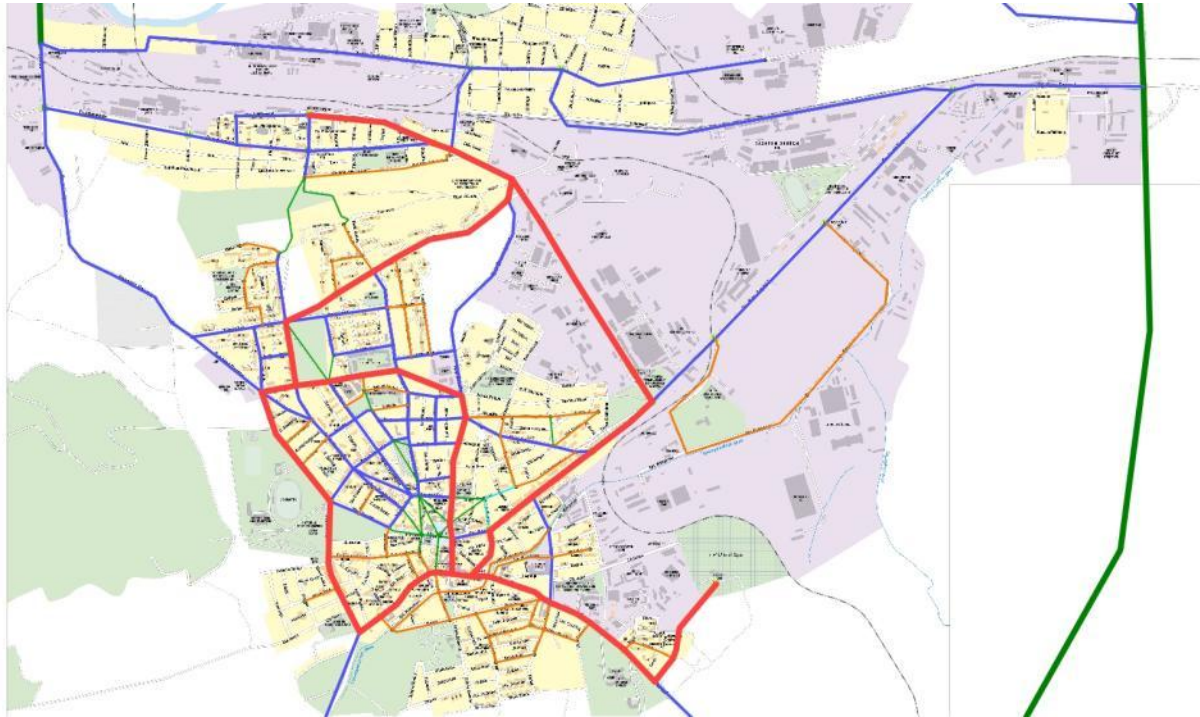
According to data of the Municipal Development Plan 2007 – 2013 taxi services in the city are offered by 52 companies with 130 cars, which corresponds to 0.39 taxis per 100 inhabitants usually accepted norm in the developed countries from Western Europe between 0.15 and 0.2/100. The offer of taxi services seems even bigger than the demand, taking into consideration the competition with taxi companies from Veliko Turnovo and Lyaskovets as well.

The network of the mass urban transport in Gorna Oryahovitsa consists of 3 bus lines, shown on the following map:

- No 1 with length of the run of 10 km along the route Bus Station – district of Prolet – railway station; in practice this is the only regular line of the urban transport along which the buses move with an interval of 20 minutes from 6:50 h to 19:30 h, there are another 12 runs in the remaining part of the day and night
- No 2 with length of the run 8 km along route Bus Station – CST – Railway Station; there are two runs in the morning along this line within the interval 6:30 h – 7:30 h and 4 runs in the evening within the interval 16 h – 20 h and
- No 44 with length of the run 12 km along the route Funeral Home – Railway Station, along which there are 3 runs in the morning within the interval 7 – 11 h.

²⁹ Source: Municipal Development Plan 2007 – 2013

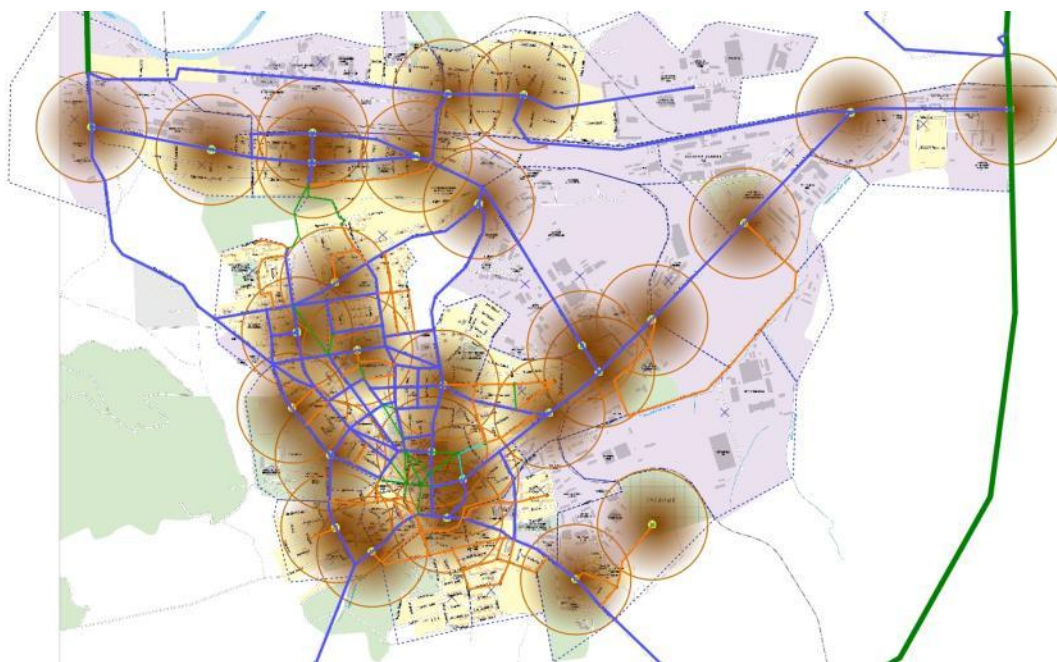
The total route length of the network is 15 km. As a whole the three lines are orientated into the direction north - south, the railway station is the initial/end stop of the three lines, the bus station – of two of them, and the third one passes through it. There is no supply of urban transportations in the eastern direction from the central urban part, in spite of the demand. There are residential territories, from and to which there is no supply of urban public transport. Public transport to the Multi-Profile Active Treatment Hospital Saint Ivan Rilski, Diagnostics Consultative Center 1 and the Emergency Medical Aid Center is offered only in the morning, at that in very big intervals (1-2 hours).



As a part of the municipal transport scheme, the mass public transport of passengers along the lines from the network of the urban transport by the month of January 2011 was awarded by Contract to Yantra Transport AD – Gorna Oryahovitsa. For the execution of the urban transportation services the Company receives subsidies and compensations. The same transportation operator also performs the interurban transportations in conformity with the municipal transportation scheme. The internal urban demand is serviced within the framework of the city, which is in conflict with the legislative base³⁰.

As number and location, the stops along the routes only of the urban public transportation do not comprise the population in the residential district well; combined with the additional stops along the routes of the interurban public transport within the framework of the city, relatively good coverage of the territories is attained, as it is indicated in the following cartogram, with the exception of the northwestern part of the district of Prolet and partially within the area of 19th February Street.

³⁰ Regulation (EC) No 1370/2007 of the European Parliament and of the Council on public passenger transport services by rail and by road in force from 3 December 2009.



The price of a trip by an urban bus is 0.7 BGN, which seems high with regard to the quantity and the quality of the service offered, as seen from the comparison with some other cities presented in the following table:

City	Public urban transport				Price/trip (BGN)	Degree of use (Number of trips/ inhabitant/day)
	Bus		Trolleybus			
	Number of lines	Route length (km)	Number of lines	Route length (km)		
Veliko Turnovo	17	-	-	-	0.50 – 0.60	-
Pleven	7	114	15	134	0.60 (50% reduction for students and pensioners)	0.5
Gorna Oryahovitsa	3	15	-	-	0.70 (6 free of charge/month for pensioners)	0.02³¹
Ruse	17	181	10	90	0.80 (50% reduction for students and pensioners)	0.2
Stara Zagora	11	94	5	33	0.8 (50% reduction for students and pensioners)	0.3
Plovdiv	29	720	3	54	1.00 (0.40 for pensioners, disabled people and students)	0.4
Varna	42	300	4	50	1.00 (free of charge travel cards for 2 lines for inhabitants aged over 67; 20% reduction for pensioners aged up to 67; subscription travel card 21 BGN for 1 line for students)	0.4

It is seen even without reporting the frequency of the offered services of the urban transport that the more route services are on offer and the lower the price for transportation is, in

³¹ According to data of Yantra Transport AD in 2009 271 thousand passengers were transported with population of the town per permanent address of 33 548 inhabitants (Source General Directorate Civil Registration and Administrative Servicing)

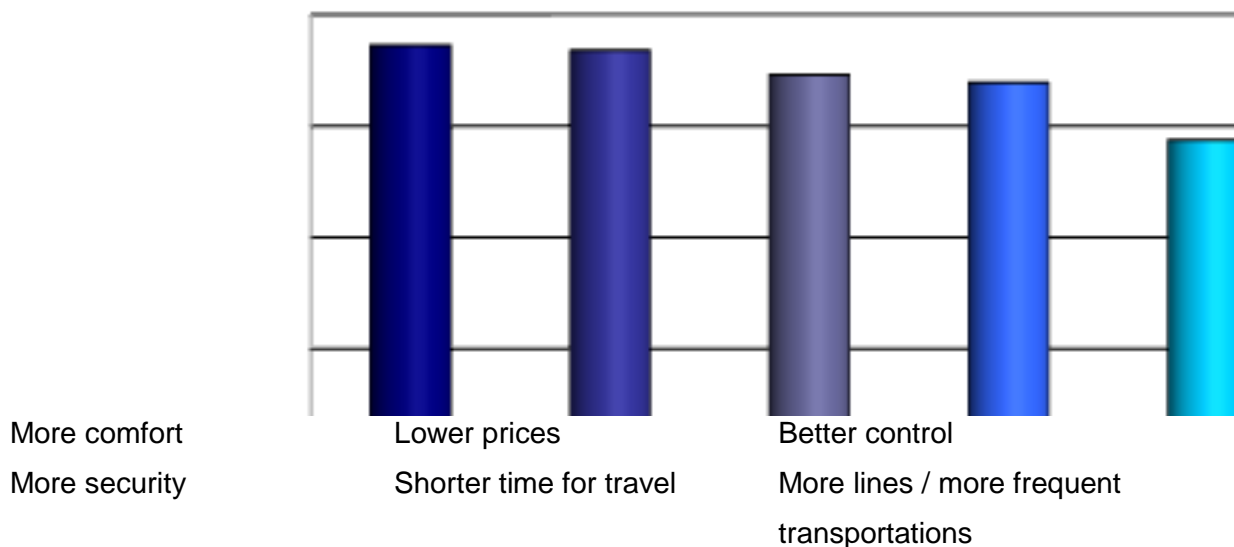
particular if there are more substantial reliefs for specific categories of passenger, the higher the degree of use of the public transport is. This indicator is of substantial significance as with the evidently low number of the passengers traveling by urban transport, the share of the subsidies and the compensations reaches nearly 50% of the revenues of the carrier, which does not indicate sustainability – financial, as well as operational.

According to data of Yantra Transport AD the urban transportations are performed by means of 12 buses as follows:

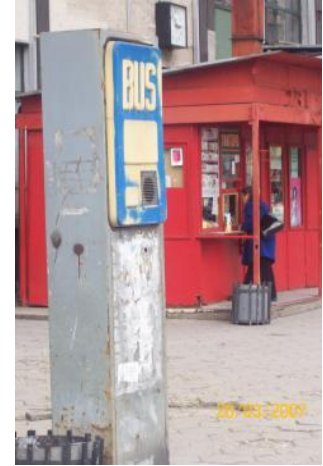
- 4 numbers Isuzu Urban 50 (2 nos. produced in 2004 and 2 nos. – in 2007) and
- about 8 numbers – Karosa B 731 (produced within the time period 1988 - 1990).

Thus the average age of the urban transport buses in Gorrna Oryahovitsa is about 19 years, which is a prerequisite for comparatively low reliability and unsatisfactory technical – operational qualities.

The analysis stated hereinabove is confirmed by the results of the inquiry amongst the population for the most significant factors for the improvement of the urban public transport indicated in the following diagram.

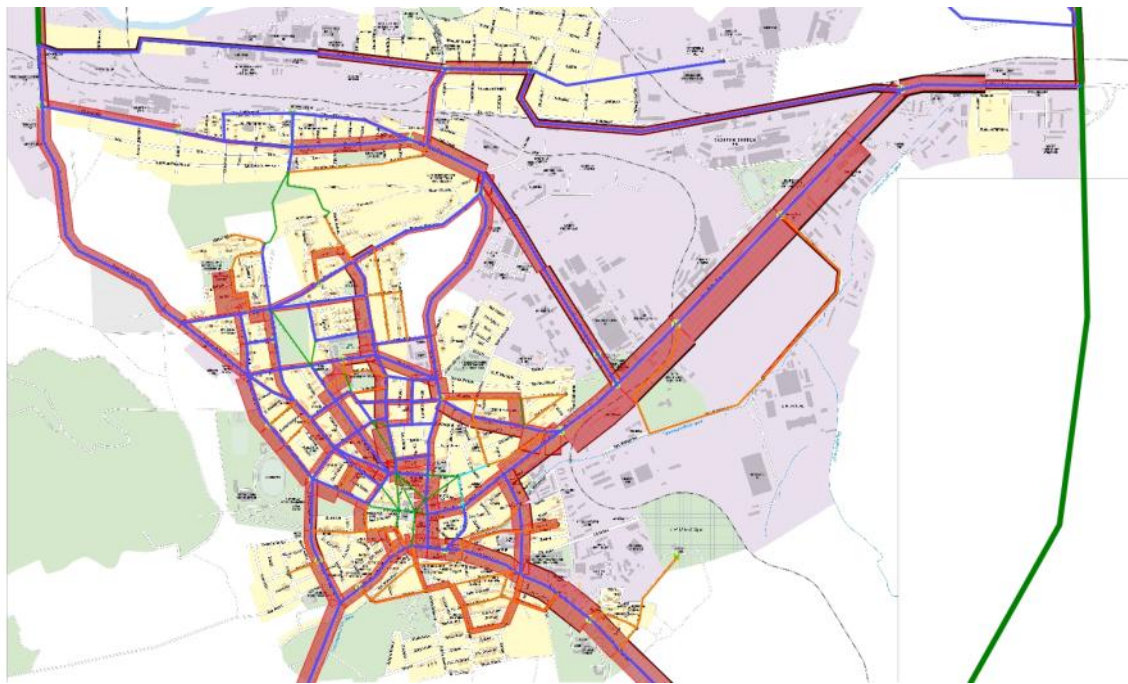


The aged bus fleet offering minimum comfort as well as the absence of information on the bus stops, along with the high price for traveling without any reductions in events of changing from one to another urban or interurban line are indicated as the main defects of the public transport. The control over the performance of the runs per timetable and the need of more security at the stops and in the vehicles themselves are indicated as nearly as important as the first two factors. Finally, but with a small difference with regard to the preceding ones is the dissatisfaction with the long travel time, the few lines and the low frequency of the transportations.



Street network capacity and traffic organization

As it was indicated hereinabove as well, the intensity of the traffic in Gorna Oryahovitsa grows up at accelerated rates as a result of the increasing degree of motorization and mobility of the population on the one hand and the weaker and weaker use of the public urban transport due to the low quality of the service and its high price on the other hand. The following cartogram indicates the intensity of the automobile traffic in the city during the morning peak hours.

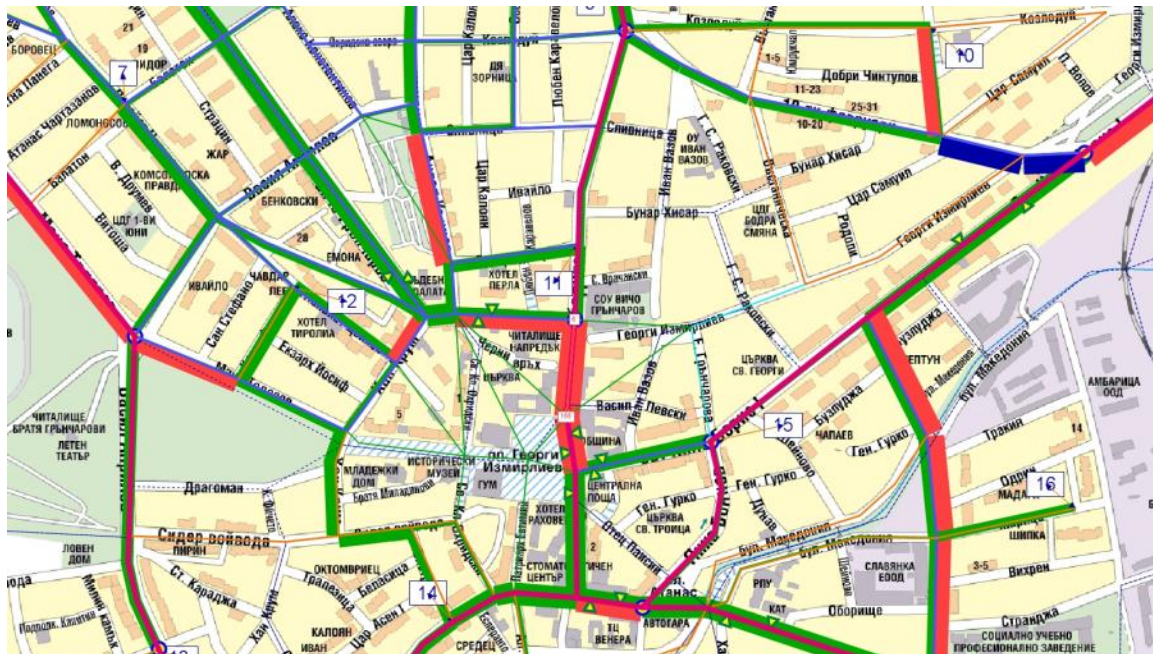


As it is seen, the intensity of the traffic is relatively high along the streets Sv. Knyaz Boris I in the direction from the center to Dolna Oryahovitsa, along Streets Tsar Osvoboditel from Yanko Boyanov Street to G. Izmirliiev Street and from Vasil Levski Street to the station, along the streets of Otets Paisiy, Angel Kunchev, Mano Todorov, Rodopi and 19th February. In spite of the fact that as at this moment it is difficult to speak about traffic jams in the real sense of the word, the traffic organization³², the poor condition of the road pavement, the peak loading and frequently the motor vehicles parked along the carriageway reduce the

³² Two-way, one-way, in crossroads, traffic light systems (in good working order or not), stopping and parking along the carriageway, location of the stops of the urban transport and so on.

admission capacity of individual sections and crossroads and result in delay and obstacles of the traffic.

The following cartogram indicates the sections in the central urban part in which there are already some capacity problems, colored in red and blue respectively.



There are all the prerequisites that these problems should be manifested in a more intensive form in the future if the relevant measures are not undertaken.

There are several crossroads in the city whose geometrical characteristics and/or the existing traffic organization make the automobile traffic difficult, in particular in the intervals with peak loading and/or create prerequisites for road traffic accidents.

Parking

The municipal program for management of the quality of the ambient air of Gorna Oryahovitsa for the time period 2003 – 2010 and the General Urban Plan indicate the parking in the central part of the city as a significant problem:

“Peak hours were established from conducted tests of the transport flows along the main street network at which the urban center of the city of Gorna Oryahovitsa is difficult for access and impossible for parking.”

The parking infrastructure as at the moment includes several sites, in most of which the parking is rather chaotically organized, and it is not in compliance with the legislative documents. Such sites are:

- Behind the building of the Municipality (32 parking spaces)
- Behind the building of Panorama (30 parking spaces)
- Behind the shopping complex “The Cinema” (35 parking spaces)
- The square in front of the station (about 60 parking spaces).

There are additional institutional parking lots (Zaharni Zavodi AD, Hlebozavod Corn AD, E-on, and so forth), as well as with the hospitals.



There is possibility for parking on the carriageway also along some of the streets in the center of the city and the total number of these spaces adds up to about 160.

As at this time the parking in the entire town is free of charge. There are proposals for the organization of paid parking along the zones indicated hereinabove, but this idea is not institutionalized yet.

It should be taken into consideration that the parking policy may be a powerful instrument for the effect over the use of cars in the centers of the cities. In a long-term plan the opening of more parking spaces, especially if they are free of charge, encourages the use of the automobile transport and vice versa. The fee for parking may be used as an economic instrument by establishing various tariffs which shall reflect the limited liability of public space and create various stimuli (for instance, free of charge parking lots in the periphery areas and high tariffs in the center, lower prices for ecologically cleaner cars and so on).

Pedestrian areas, bicycle-alleys, accessible environment and transport

At present the pedestrian zones in the city are practically limited to G. Izmirliiev Square, There are no bicycle alleys, designated as such and respectively safeguarded, which shall provide possibility for the use of bicycles as means of transport.

The implementation of a project for improvement of the physical environment is in progress, within the framework of which a pedestrian zone is being built in the district of Garata (the Station) and reconstruction of the pedestrian zone connecting the districts of Garata and Prolet is being executed as well.



A total of 2 437 persons of age with disorders were registered for year 2009 according to data of the Directorate Social Policy in the Municipality of Gorna Oryahovitsa who get integration allowances under the Integration of Persons with Disorders Act. They constitute

only a part of all the persons with permanent disorders³³, so that it may be stated with a considerable degree of certainty that 10% of the population has specific needs with regard to the accessibility of the environment and the transport vehicles. In spite of the undertaken measures most of all in the direction of building up of ramps, there is still much to do in this direction: none of the buses which perform internal urban transportations is equipped for transportation of people who have difficulty in moving, the sidewalks and the light regulated crossroads are not conformed to the needs of people with poor eyesight and so on.

3.2.1.4 Environmental characteristics of the transport system

Harmful emissions

The transport is the source of a number of harmful emissions as nitrogen and sulphur oxides, lead aerosoles, dust particles. It is also amongst the main sources of greenhouse gases exerting impact over the change of the climate in a global aspect.

The main source of dust particles (PM₁₀) is the industry. In spite of that, the direct emissions of the exhaust gases of the cars, the wearing out of tyres and brakes and repeated suspension of the dust along the road, caused by the motor vehicles, also contribute to the total level of dust loading. According to evaluations of various investigations there is a significant dependence between the high concentrations both of dust particles and of nitrogen oxides and the development amongst the exposed to these emissions population of respiratory diseases, respectively – the number of the admissions to hospital institutions, disorders of the cardiovascular system and the total level of mortality.

An automatic measurement station of the Regional Inspectorate of the Environment and Waters works on the territory of the city of Gorna Oryahovitsa (19th February Street), which registers the concentrations of nitrogen oxide, nitrogen dioxide and dust particles. According to reporting data for the time period March 2008 – December 2008 the levels of nitrogen oxides in the city do not exceed the maximally admissible concentrations. The situation with the dust particles, however, is not such. For the same time period, from 2008 the average annual concentration exceeds the maximally admissible norms by over 48%. The situation with the average daily levels is even more serious. With maximally admissible excess of the average daily concentration on not more than 25 days per year, it was exceeded 87 times for the time period of the 9 months of year 2008!

Although the transport is not the main factor contributing to the increased levels of dust particles, the reduced admission capacity of the streets and the crossroads along the main street network of the city of Gorna Oryahovitsa, as well as the worn out road pavements especially in the suburban quarters, additionally deteriorate the environmental situation and create conditions for increase of the air dust loading but also for over consumption of fuels, but also for over consumption of fuels, increased emissions of hazardous gases and noise, generated by the automobile flow.

Alternative fuels and environmental characteristics of the vehicles

Propane-butane is also offered in Gorna Oryahovitsa further to the conventional automobile fuels – petrol and diesel.

A station for filling cars with compressed natural gas (metane) is in the process of construction. The construction works are completed, the assembly of the technological equipment and the finishing works related to that remain, which, however, are delayed as a result and make the time when such a fuel will be offered in Gorna Oryahovitsa difficult to anticipate as a result of the economic crisis.

³³ The integration additives are granted in a differentiated manner depending on the kind and the degree of the damages and there is no sufficient information about a part of them (mainly the persons with 50% -70% permanently reduced working capacity); Source: Analysis and evaluation of the needs of the risk groups in the municipality of Gorna Oryahovitsa, month of July 2010

An industrial installation for the production of biodiesel with capacity of 193 t/day or 60 000 t/year was built up in the village of Kozarevets in the immediate proximity of the city of Gorna Oryahovitsa from the month of March 2010.

There are data about what the share of the cars in the city equipped for work with propane-butane is but all the 12 buses of Yantra Transport AD which are used for transportation in the city are diesel ones. The buses Karosa make, which represent 2/3 of the fleet for internal urban transportations, are old and with very high emissions of harmful substances, do not correspond to any European norms and are visibly with inadmissible high flue of the exhaust gases. It may be stated for sure that namely these 20-year old buses Karosa B 731 have the biggest contribution to the pollution of the air in Gorna Oryahovitsa caused by the public passenger transport. They are also ineffective from the point of view of the fuel consumption – their average consumption is about 34 l/100 km. The remaining 1/3, the buses with Isuzu make are newer and correspond to norms Euro 2.

Traffic safety

Within the time period 2006 – 2008 the safety of the automobile traffic in the city remains stable in general, and in 2008 the number of road accidents and of the injured people even decreased, as it may be seen from the following table. Although the damages evaluated decrease for the community, this does not mean that the desired situation was attained.

Damages	2006	2007	2008
Killed	1	1	1
Injured	45	37	22
Road accidents only with material damages	289	303	269
Total number of road accidents	323	336	288
Evaluated losses for the society (million BGN)	1.96	1.88	1.42

In 2008 the most frequent reason for the road accidents is the improper manoeuvre (84 road accidents or 29%), which is probably an indicator for omissions in the training of the drivers. The non-observation of a distance is also a quite frequently encountered reason (41 road accidents). The accidents which occurred due to these two reasons are only with material damages.

The non-observation of the right of way or the deprivation of the priority takes the second place in frequency with 50 road accidents (17%), but there were 5 victims injured during these accidents further to the material damages. The most dangerous are the road accidents caused because of inappropriate speed, in total 31 in number but with 9 injured victims and 1 killed in 2008. The poor condition of the road pavement is the reason for 4 road accidents in 2008

The reasons for the road accidents and the consequences from them for the preceding years were similar to these.

The most dangerous from the point of view of the automobile traffic are the streets Sv. Knyaz Boris I with 43 road accidents for year 2008 (including the crossroads with Ivan Momchilov Street and 19th February Street), Otets Paisiy Street with 27 road accidents (and most of all the crossroads with Rodopi and Bezimenna), Tsar Osvoboditel Street with 21 road accidents and Vicho Gruncharov Street with 19 road accidents.

3.2.2 Key problems prioritizing

It is seen from the prepared analysis that according to a number of indicators the city of Gorna Oryahovitsa still preserves quite a good position, in particular as compared with the bigger cities. Such are:

- The high share of non-motorized trips,

- The average daily intensity of the automobile intensity of the automobile traffic under 1 000 motor vehicles/hour,
- Level of nitrogen oxides essentially below the maximally admissible norm,
- The relatively good condition of the safety of the traffic with a few in number serious road accidents in the town.

Simultaneously, other indicators are alarming:

- Exceptionally low degree of use of the public urban transport
- Very high share of the population declaring full rejection to use public transport
- Accelerated growth of the automobile traffic, in particular during peak hours
- Aged automobile fleet of the public transport
- Low share of use of alternative fuels, zero – in the public transport
- Troubled communications between some zones of the city and weakly accessible public transport system
- Absence of infrastructure for bicycle transport, minimal quantity of pedestrian and green areas
- High levels of dust loading of the air, although the contribution for this is not only and solely of the transport and so forth.

This combination of positive and negative tendencies means that Gorna Oryahovitsa has the chance of setting up and undertaking preventive measures for solution of the forthcoming problems before becoming late and the transport situation and hence the quality of life in the city drastically deteriorating.

The main threat before the sustainable transport development of Gorna Oryahovitsa, as well as of the most of the cities, is the significant growth of the automobile traffic and most of all – of the trips by personal motor vehicles. This is the main problem which in combination with the remaining ones, results in a number of adverse economic, social, health and environmental consequences and this directly exerts impact over the quality of life of the population.

The main negative consequences, whose full (or at least partial) removal the process of sustainable urban transport planning is to be directed at, are:

- The high expenditures for transport – personal, public, commercial
- The difficult movement in the city/to neighboring populated areas – distance, time, efforts, inconveniences
- The limited accessibility to (or the relative insulation of):
 - territories – per principle or at a defined time or by a definite kind of transport
 - transport services – per kind, time or for certain categories of passengers

Основни проблеми на съществуващата транспортна система	Последствия		
	икономически	социални	здравословни и екологични
Нарастващо автомобилно движение	ръст на консумацията на горива	затруднено придвижване в града	ръст на вредните емисии
		непривлекателна градска среда	ръст на шума намалена безопасност
Ниска пропускателна способност на мрежата	повишаване разходите за транспорт поради преразход на гориво при работа на празен ход или в неефективен режим на работа на двигателя	затруднено придвижване в града	ръст на вредните емисии
		загуба на време	ръст на шума
		ненадежден транспорт	
Остарели транспортни схеми и технологии/слабо предлагане на обществения транспорт	високи цени на билетите за градски транспорт	райони от града, достъпа до които е затруднен или невъзможен с обществен транспорт	
	високи експлоатационни разходи на превозвача	загуба на време	
	високи разходи за субсидии	ненадежден транспорт	
Остарял автомобилен парк на обществения градски транспорт	високи експлоатационни разходи на превозвача	затруднен достъп до обществен транспорт за някои категории пътници	високи нива на вредни емисии
	високи цени на билетите за градски транспорт	липса на комфорт	намалена безопасност
Лошо състояние на пътната настилка	повишени експлоатационни разходи на МПС (гориво, ремонти)	затруднено придвижване	ръст на вредните емисии
		липса на комфорт	
Липса на обходни пътища	повишени разходи за поддържане на уличната мрежа	допълнително затрудняване на придвижването в града	намалена безопасност допълнителни вредни емисии в града
Недостиг на зелени и пешеходни зони, вело-алеи		ограничени възможности за социални, културни, спортни, развлекателни дейности	ограничени възможности за здравословно придвижване замърсен въздух
		неприветлива градска среда	намалена безопасност
Проблеми с организацията на движението		затруднено придвижване	вредни емисии
		загуба на време	намалена безопасност
Слабо използване на алтернативни горива	по-високи експлоатационни разходи		високи нива на вредни емисии

Main problems of the existing transport system	Consequences		
	Economic	Social	Healthy and environmental
Growing automobile traffic	Growth of the consumption of fuels	Difficult movement in the city	Growth of the harmful emissions
		Unattractive urban environment	Growth of the noise Reduced safety
Low admission capacity of the network	Increase of the expenditures for transport due to over-consumption of fuel with idle running	Difficult movement in the city	Growth of the harmful emissions
		Waste of time	Growth of the noise
		Unreliable transport	

	or in ineffective working regime of the engine		
Aged transport schemes and technologies / poor supply of public transport	High prices of the tickets for urban transport	Districts of the city the access to which is difficult or impossible with public transport	
	High operational expenditures of the carrier	Waste of time	
	High expenditures for subsidies	Unreliable transport	
Aged automobile fleet of the public urban transport	High operational expenditures of the carrier	Difficult access to public transport for some categories of passengers	High levels of harmful emissions
	High prices of the tickets for urban transport	Absence of comfort	Reduced safety
Poor condition of the road pavement	Increased operational expenditures of the motor vehicles (fuel, repairs)	Difficult movement	Growth of the harmful emissions
		Absence of comfort	
Absence of access roads	Increased expenditures for the maintenance of the street network	Additional difficulty of movement in the city	Reduced safety
			Additional harmful emissions in the city
Insufficiency of green and pedestrian zones, bicycle-alleys		Limited possibilities for social, cultural, sports, entertainment activities	Limited possibilities for healthy movement
		Unattractive urban environment	Polluted air Reduced safety
Problems with the traffic organization		Difficult movement	Harmful emissions
		Waste of time	Reduced safety
Poor use of alternative fuels	Higher operational expenditures		High levels of harmful emissions

- The hazardous impact over the vital environment – from the healthy, environmental but also esthetic point of view.

3.2.3 Elaboration of development scenarios

The need of movement of people or goods arises as a result of external and most diversified factors of various nature (economic, social-demographic, political, ecological), with a different scope, which interact between each other and often have divergent effect. The policies and the activities aiming at the attainment of sustainable urban transport planning do not exert any impact over the external factors. Nevertheless they should be known and as far as possible they should be taken into consideration during the elaboration of scenarios

for the development of the transport and the transportation systems in principle and in particular for Gorna Oryahovitsa.

Qualitative evaluation of the probable future development of the factors external for the transport and their influence

	Passenger trips	Freight transport	Consumption of fuel	Price of oil fuels	Harmful emissions and noise	Risk for the traffic safety
Economic development						
Increase of the employment	3		3		3	3
Increase of the income	33		33		33	33
Growth of the production and the services	3	333	333		333	333
Increased consumption of goods and services	33	33	333		333	333
Demographic development						
Reduction of the number of the population	3		3		3	3
Extension of life expectancy	3		3		3	3
Aging of the population	3		3		3	31
Social development						
Increased migration and urbanization	3		3		3	3
Increased requirements for lifelong education and qualification	3		3		3	3
Increase of social contacts and needs	3		3		3	3
Exhaustion of the petrol reserves	3	33	33	333	33	3
Technological development	33	3	3		333	3
Integral evaluation	33333	333	33333 3333	333	333 333	33333 3333

3 Poor growth 3 Poor decline
33 Moderate growth 33 Moderate decline



Significant growth



Significant decline

The table hereinabove presents in a generalized kind the expectations for the probable future development of a part of the main external factors, which exert influence over the mobility of the population and the demand of transportation services. The evaluation is qualitative and not quantitative, i.e. number of the passenger trips is not expected to increase 5 times or the quantity of the harmful emissions - 6 times.

In all events, however, considerable growth of the passenger trips and of the freight transportations should be expected, which will inevitably result in even higher consumption and respectively demand of fuels. The increased needs, along with the decreasing global reserves, have as their final result a stable tendency for increase of the price of the conventional fuels, whose witnesses we already are, and general increase of the expenditures of the population and the economy for transportation. The bigger quantities of burnt out fuels discharge more harmful emissions, though not in direct ratio, owing to the improvement of the technologies. The saturation of the roads and streets with motor vehicles negatively affects the risk of accidents.

The conclusion of the analysis of the external factors is that the mobility will increase, more and more people will want or will have to travel more frequently, they will be able more and more to afford it and will look for the most convenient for them manner to do it. Within this meaning the goal of the sustainable urban transport planning is not to impede, limit or prohibit the trips but to create optimal conditions for the satisfaction of the specific transport needs of the various groups of passengers in a manner optimal for the society and for the surrounding and vital environment.

The possible scenarios for future development of the transport system in Gorna Oryahovitsa are three in number, and the conclusions drawn hereinabove for the growing up needs for traveling are valid for the three of them:

- Scenario "No Change"
- Scenario "Minimal Changes"
- Scenario "Sustainable Transport Planning"

No Change

With this scenario no activities are anticipated for impact over even one of the identified problems:

More trips will be needed but as no appropriate and safe conditions for non-motorized trips will be created, and the public transport will still be expensive, slow, unreliable and inconvenient, the automobile traffic will increase. With the existing problems with the traffic organization, the broken pavements and the cars parked on the carriageway, the anyway limited admission capacity of the street network will not be in a position to let the flow pass in an optimal manner and more and more frequently, traffic jams will occur in more and more places, for longer time periods. The passengers in cars will pay more to move more slowly and with more difficulties. All the inhabitants will breathe more polluted air and will be exposed to noise and hazard of road accidents. The city will not improve its image and the quality of life will decline more progressively.

Expected future development with scenario NO CHANGE



Public transport of poor quality	More trips		Improper conditions for walking and movement by bicycle	
	↓			
	More automobile traffic		Absence of an access road	
Road pavement in poor condition	Poor traffic organization		Parked motor vehicles on the road, insufficient admission capacity	
	↓			
	Difficult movement, traffic jams			
↓	↓	↓	↓	↓
Harmful emissions	Risk of road accidents	Unattractive urban environment	Waste of time	More expenditures
Deteriorated quality of life				

Minimal changes

It is little probable that the scenario No Changes will occur as some projects are already in the process of implementation which aim at the partial solution of some problems:

- A pedestrian zone is being built in the district of Garata (the Station) and reconstruction of the pedestrian zone connecting the districts of Garata and Prolet is in progress
- Annually repairs are conducted along the street network but their scope is minimal against the background of the needs
- There is a proposal for organization of paid parking lots, which in events of the right choice of location and enhanced control against the unregulated parking, could have a positive effect.

With this scenario, however, no changes are anticipated with regard to the supply of public transport in the city, the optimization of the transport network and task, and the introduction of more flexible tariff system. No optimization of the traffic organization is planned. Various proposals are discussed, which seem dictated by specific needs or a problem situation and they do not seem bound to an overall vision for optimization. The renovation of the automobile fleet – of the municipal administration, of the bus carrier, of the companies implementing activities under contracts for public services with the municipality, but also the private one, as well as encouragement of the use of alternative fuels, were left entirely to the personal or business initiative. The construction of an access road is defined as needed, but the administrative division of the responsibilities and the absence of a working structure for integration of all the stakeholders, does not contribute to the fast implementation.

All this means that the minimal changes, logically, will have minimal impact. Both in the preceding and in the implementation of this scenario of development as well, the perspectives for the transport system and for the population of the city are too pessimistic.

Sustainable transport development

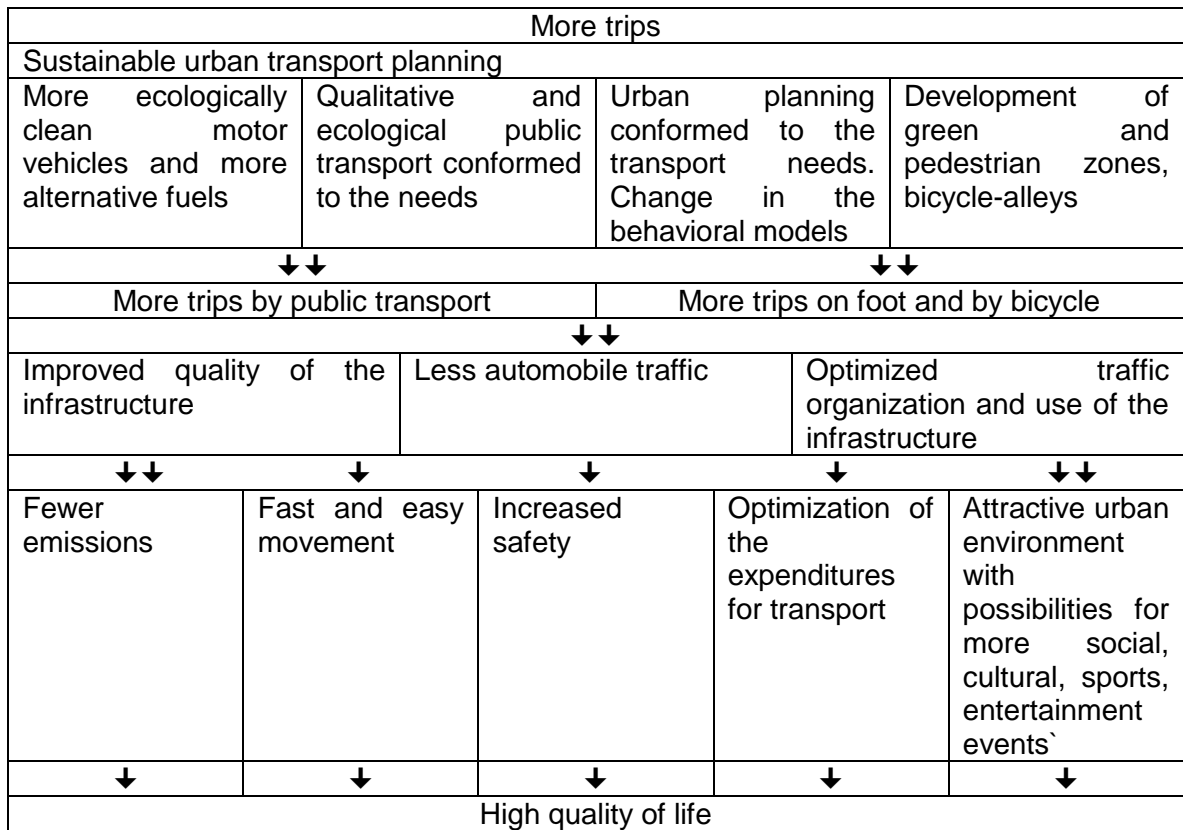
The availability of intensely heterogeneous in their essence problems imposes the use of a complex of measures for their solution, which are united under the general title of

sustainable transport planning because they aim at the attainment of the urban mobility, which should contribute to the economic development of the cities, the enhancement of the quality of life of their inhabitants and the protection of the environment.

The following scheme demonstrates the integrated approach which, attacking the main identified in Gorna Oryahovitsa problems may contribute to stop their deepening and to the improvement of the existing situation in a more distant perspective.

Expected future development in scenario SUSTAINABLE TRANSPORT PLANNING





4 VISION, GOALS AND PLANNED RESULTS

4.1 GENERAL VISION ON LONG-TERM TRANSPORT DEVELOPMENT

The conducted inquiries and investigations of the public opinion in Gorna Oryahovitsa confirm the need of more than optimal changes: the population wants:

More comfortable, cheaper, more secure and faster transport to more places!

At the same time the inhabitants of the city do not wish that they or their vital environment should be sacrificed to this same transport:

- **78%** of the inquired propose the prohibition of trucks through the residential districts
- **58%** want regulation of the problems with the parking, inclusive of the introduction of paid parking
- **57%** want expansion of the pedestrian zones
- **45%** propose that the central urban part should remain open only for the transport vehicles of the urban transport
- **36%** insist that the central city part should be turned into a green zone without any automobile traffic.

Therefore:

The mission of the sustainable urban transport policy of Gorna Oryahovitsa is to contribute to the increase of the quality of life of the population and the economic development of the city on the grounds of integrated urban and transport planning, providing for easy, secure and safe movement in compliance with the needs in clean and healthy environment.

Gorna Oryahovitsa SUPT is called to contribute to the increasing quality of life and economic development based on integrated urban and transport planning while providing free-flowing, safe and secure transportation meeting the needs within a clean and healthy environment.

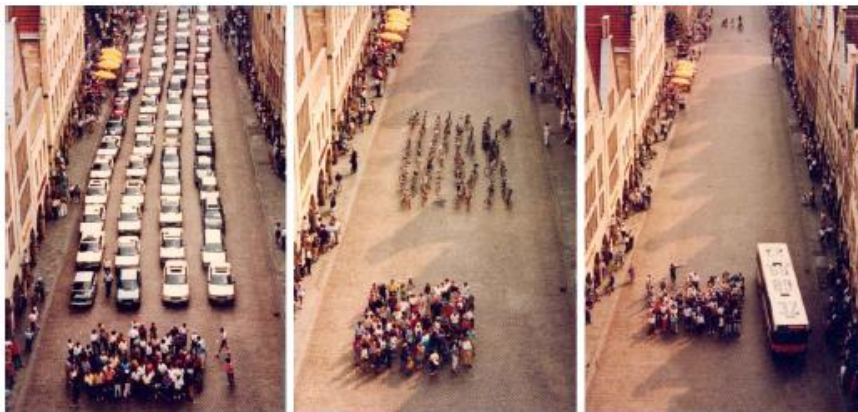
The priorities of the transport policy follow logically from the mission:



MOBILITY FOR EVERYONE

The difficult movement, the delay of the traffic and finally – the traffic jams are amongst the main problems of the cities. They have negative economic, social, health and environmental consequences and destruct the natural and the urban environment. A normally functioning transport system would allow people and goods to arrive in time and would limit these negative effects.

There is no single solution of these problems and the most appropriate and effective combination of measures should be found for each individual city. Yet, the walking, moving by bicycle, by motorcycle or by urban public transport are the most secure method for the decrease of the automobile traffic. Each of these alternative methods “consumes” much less place on the road and does not contribute to the increase of the traffic jams.



Additional capacity of over 20-30% may be provided by more efficient use of the road space. This is of particular significance, taking into consideration the fact that the possibilities for creation of extra free space in the urban zones are quite limited.

Lately an increased tendency has been observed for centralization of public services (schools, hospitals, shopping centers and so on) and production aimed at the increase of the efficiency. The result is increased distances for the population and the centers for services and/or the workplaces. This results in need of a great number of trips under deteriorated access conditions. Because of that the urban solutions and plans of use of terrains or for the location of the public authorities and the enterprises, not only the need of freight transportations should be reported, but also the consequences with regard to the need of the clients and the workers to travel as well as by what kind of transport they could do it.

The need of transportations may also be reduced through increase of the “virtual” accessibility with the help of the information technologies (work from a distance, electronic administrative services, electronic health care and so forth).

The clarification and the awareness campaigns will be of significance to exert impact over the future behavior of the users and their motivation to make decisions for sustainable mobility. The transport policy has quite direct impact over the life of the people and may turn

out to be a very disputable subject: this is why the citizens should receive more information about the motivations of the political decisions and about the existing alternatives. The better understanding of the forthcoming challenges is a prerequisite for the acceptance of the decisions by the society.



MORE EFFECTIVE AND EFFICIENT TRANSPORT

The citizens expect the public transport to satisfy their needs from the point of view of quality, efficiency and availability. To be attractive, further to accessible, the urban transport should also be in frequent intervals, fast, reliable and comfortable. The experience indicates that the obstacle for change from personal to public transport frequently is in the low quality of the services, the slowness and the unreliability of the public transport.

Frequently the accessibility is understood solely as possibility of groups of people with reduced motive capacity (disabled, aged ones) or with specific requirements (families with little children or the children themselves) to use the infrastructure of the urban transport. But the accessibility has a much broader significance in the meaning of availability and quality of the possibilities for movement, provided by the infrastructure and the transport services.

The urban infrastructure, including streets, sidewalks, bicycle alleys, bus stops and terminals (bus station, railway station), parking lots and public spaces should be with high quality. New infrastructure, however, is expensive and not always the building up of such is the right outcome. By means of good management, reasonable operation and regular maintenance the existing facilities may be used optimally with the consumption of fewer resources.



GREEN, SECURE AND SAFE CITY

The main problems with the environment in the cities are related to the use predominantly of petroleum as fuel, a source of CO₂, emissions polluting the air and noise, which have a negative effect over the public health. In spite of the progress of the automobile technologies, the increase of the automobile flow and the constant stops and starts in the urban traffic make the cities more and more main and growing up source of emissions of CO₂, which results in changes in the climate.

The municipal and state authorities have effective instruments for impact over a part of the automobile fleet in traffic. It should be maximally used at least for demonstration of the advantages of the more environmentally clean motor vehicles and the use of alternative fuels.

Each citizen should have possibility to live and move in a secure and safe manner in the urban areas. Walking, traveling by bicycle, by car or bus should take place with minimal risk for the people. This requires good design of the infrastructure and in particular of the crossroads. Frequently the feeling for low security prevents some social groups from traveling or using the services of the public transport. This refers not only to the motor

vehicles, the stops and the terminals, but also to the movement to and from the stops. The unnecessary use of cars takes place as a result.



The creation of green, pedestrian zones not only contributes to the reduction of the automobile traffic, but it also changes the look of the city. They are a place for meeting people and space for alternative social, cultural, entertainment and other activities. The most successful and liked cities throughout the world have remarkable pedestrian streets and spaces, which they are proud of and which attract both the local population and visitors.



4.2 GOALS AND MEASURES DEFINITION

The goals are defined with regard to the priority, which they are most related to, although the attainment of one goal also contributes to the attainment of one or more other goals. The measures also have



MOBILITY FOR EVERYONE

Goal: Road traffic decrease and encouragement of NMT use

Measure: Construction of appropriate infrastructure increasing the attractiveness and safety of NMT

Further to guaranteeing comfort and safety the infrastructure should constitute a network for access to the various areas of the city and not isolated routes and directions. Such should be available in particular between school, shopping areas, parks and residential districts.

Measure: *Organization of initiatives and information-educational programs for encouragement of NMT use*³⁴

The goal is to exert impact over that part of the population, which is in process of formation of behavioral and transport habits and therefore is more open to new ideas than of the population at a mature age in which the change would be more difficult and dictated most frequently by more different reasons. The competitions between schools and/or classes for regular movement of students and teachers on foot or by bicycles and respectively the most saved harmful emissions have a proven effect.

Goal: Road traffic decrease through optimization of the use of private cars

Measure: *Encouragement of NMT use or use of „combined” trips through mobility plans*

The mobility plan aims at encouraging people who travel daily at the same time along the same route (for instance for taking a child to a kindergarten or to school or to their workplaces) to get combined in one car. This results in the decrease of the cars on the road, transporting more people and sharing / reducing the expenditures for transport.

Measure: *Development and implementation of parking policy aiming at private cars use restriction*

It is proven that a direct result of the opening of more parking spaces, especially if they are free of charge, is the increase of the automobile traffic in the relevant zone, which on its hand results in the exhaustion of the capacity of the existing parking lots and the need of constructing new ones. On the contrary, the introduction of paid parking and more over the prohibition for parking in a certain territory release the infrastructure from the automobile traffic.

The measure would attain the sought effect with appropriately developed tariff policy and strict control over its implementation.

Measure: *Implementation of integrated urban development policy in line with the priorities and goals of the sustainable urban transport.*

The procedure for a decision for designation of terrains for various needs should obligatorily include an evaluation of the additionally generated trips and automobile traffic, as well as their impact over the existing network and traffic. Priority should be given to projects, which after their implementation will reduce the number of the trips or will re-direct them to non-motorized kinds of transport.

Measure: *Extension of the scope of the administrative e-services for the respective trips restriction*

Further to the services directly related to the municipal administration, similar initiatives of other institutions or enterprises should be encouraged and assisted.

Goal: Optimization of the use of the road infrastructure

Measure: *Limitation at maximum extent the parking of the private cars along the routes with intensive traffic, including urban transport routes*

³⁴ Recommendable manual: Sustainable Transport – Manual for Students (Appendix???)

The measure aims at the reinstatement of the initial admission capacity of the network, reduced because of parking and in some events also use of the road carriageway for other not inherent goals. It may attain a result solely if it is accompanied by strict control over the execution.

Measure: *Activities related to the construction of City bypass road – competent bodies and stakeholders communications*

The building up of an access from the southern and the western sides of the city will not only deviate the transit traffic from the city but will also re-direct a significant part of the incoming and outgoing traffic along the new route, thus alleviating the city street network.

Measure: *Effective and efficient maintenance of the main street network including control on the construction and repair works, imposing the demolition and the reinstatement of the road pavement*

The good condition of the road pavement is a mandatory condition for passing of automobile traffic without any problems in volume up to the planned admission capacity of the road infrastructure.

Measure: *Investigation of the possibilities for implementation of the dislocated working time schedule*

The concentration of peak traffic, intensely exceeding the average one for a day and night, within the framework of a relatively short time interval (30-45 min.) indicates, that big groups of people need to move at an exactly defined time. The expansion of this interval would alleviate the network and reduce this “salvo” effect.



MORE EFFECTIVE AND EFFICIENT TRANSPORT

Goal: Increase of the urban transport attractiveness

Measure: *Optimization of the urban transport routes scheme*

A mandatory condition for the attraction of the passengers is that the offered services should satisfy their needs for movement from one place to another within the time they need it and for reasonable time limit. This transport scheme and task do not satisfy the transport needs of the travelers.

Measure: *Implementation of flexible tariff policy*

With average transport distance of 3.5 km this price of a single ticket for urban public transport is lower or equal to the expenditures for traveling by car. This makes the choice of transport evident if changing of a bus line is needed.

The introduction of a ticket which will be valid for a definite time interval or travel cards for regular trips with reduction, or a combined ticket for interurban and urban transport would make the urban transport more competitive and more accessible for the groups of the population with lower income.

Measure: *Bus fleet and equipment modernization allowing access of the disabled passengers to the public urban transport services*

The essential condition for attraction of more passengers by public transport is the increase of the increase of the comfort and the

conveniences for traveling. The orders for award of public transportation services and the methodologies for evaluation of the applicant-carriers represent good possibility for enhancement of the requirements for the age of the transport vehicles, their equipment for transportation of persons with difficulties in movement and their environmental characteristics.

Measure: *Strict control on the transport task implementation and observation of the timetable*

The reliability of the transportations constitutes an important part of the understanding for the quality of the service and therefore should be controlled by the Employer and the carrier should be sanctioned in events of non-execution.

Goal: [Optimization of the urban transport organization](#)

Measure: *Optimization of the traffic organization on key crossroads and/or main destinations*

The appropriate channeling and direction of the automobile traffic of the crossroads, the properly chosen geometric scheme and manner of regulation not only organize the automobile and pedestrian flows, but are also an instrument for facilitation of the traffic, increase of the safety and improvement of the accessibility.

Measure: *Establishment of appropriate conditions for development of intermodal passenger transport*

Over 50 passenger trains pass daily through the railway junction of Gorna Oryahovitsa, which offer transport, both along the direction north-south and along east-west and offer good possibility for daily trips aimed at work or training from/to neighboring populated areas. The binding of the timetables of the trains with those of the city transport, the creation of appropriate conditions for parking (free of charge or at very low prices) of cars is a prerequisite for effective and efficient organization and planning of the trips.

Measure: *Provision of detailed and clear information about the possibilities for movements within the city*

An important condition for optimization of the trips and the transport is the availability of precise and topical information. This includes the mandatory availability on the stops and the terminals (bus station, railway station) of maps with the routes of the urban transport and the timetables of the lines. The placement in key positions of maps of the city with the main places of interest and sites, with designated routes of the urban transport and stops, pedestrian zones and bicycle-alleys would help the visitors to have possibility to make a well informed choice how to move.

Measure: *Regular collection and actualisation of the information to be used in the process of transport related decision makings.*

The creation and the regular updating of the transport and automobile traffic organization is based on topical and precise information about the needs and the demand of transport services – per directions, per kind of transport, per category of passengers, per time and so on. The investigations of the public opinion for the quality of the transport system include the population in the transport planning and render

assistance to the enhancement of its quality, but also to the higher level of approval in the offering and introduction of changes.

Measure: *Increase the integration with the neighbour municipalities concerning the optimisation of the transport connections policy.*

The high number of the journeys between the neighboring cities of Gorna Oryahovitsa, Veliko Turnovo and Lyaskovets is expected to grow up more in the future and thus to form a significant part of the internal urban transport flows. The optimization of the supply of transport services which should satisfy the needs of the citizens is impossible without general and purposeful actions on the part of the three interested cities.



GREEN, SECURE AND SAFE CITY

Goal: **Restriction of the negative impact of the transport on the environment and the people**

Measure: *Stimulation of the purchasing and use of environmental friendly and effective vehicles and/or vehicles using alternative fuels*

The competitions for award of public transport services are one of the forms for impact over the private sector for accelerated replacement of the automobile fleet with new, corresponding to possibly higher standards for harmful emissions, inclusive of noise and consumption of fuel. Moreover, with the acceptance of Directive 2009/33/EC the public authorities are obligated to conduct awards of “green” public procurements.

The role of the Municipality in the provision of an example to the business and the population in the replacement of the municipal automobile fleet, inclusive of though its equipment for work with alternative fuels.

Encouragement of the use of ecologically clean and energy effective transport vehicles may also be attained through the introduction of stricter requirements or such specifically related to the kind of the fuel, for the taxi cars, licensed by the Municipality.

A significant reason for the poor use of alternative fuels is also the insufficiently developed network of points for filling. Without obligatorily being the initiator, the municipal administration may support such private initiatives, through the establishment of joint ventures or at least with the active cooperation in the administrative procedures.

Measure: *Control and limitation of the noise caused by the road transport*

The regular examination/measurement of the levels of noise, in conformity with the ratified methodology will provide the needed information. The undertaking of appropriate measures for re-organization and/or restriction of the automobile traffic with a view to the limitation of the noise especially in sensitive places / crossroads (in the proximity of medical, children’s establishments, densely populated districts) will contribute to coping with the problem and will be appreciated by the citizens.

Measure: *Stimulation the new form of transport vehicles driving*

Significant economies of fuel and harmful emissions may be achieved by means of environmental friendly driving of cars³⁵. The inclusion of the topic in the program for training in the motor vehicle schools, the organization of races for passing a certain route with minimum fuel, are a part of the methods for forming initial interest as a needed condition for gradual change.

The creation of appropriate conditions for restriction of the traffic of automobiles on the principle “stop – start” and “gas-brake is another aspect of the measure. The most harmful emissions are discharged in such traffic, further to its being connected with over-consumption of fuel. The appropriate measures for its restriction include installation of timers of the traffic lights, restriction or prohibition of the parking along the road carriageway (the looking of the drivers around in search of a space for parking is not needed), regulation of the cycles of the cycles of the traffic lights, inclusive of switching off at low levels of the traffic, organization of roundabout in as many crossroads as possible, restriction of the speed of movement to 30 km/h and so on.

Measure: *Widening the pedestrian and/or green zones*

The creation of new or the expansion of existing zones solely for walking or with restrictions for certain categories of cars has direct impact not only over the quality of the ambient air but also over the safety of the traffic. Within brief terms such zones turn into an attractive center for the population which also results in the development of shopping and entertainment centers. The availability of only one such a zone in the center of the city in lieu of several such in the various residential districts, instead of saving, generates additional trips. The formation of more district “sub-centers” exerts positive impact over the urbanization of these territories.

Goal: Increase of the transport safety and security

Measure: *Strengthening the role and function of the Traffic Safety Commission*

The periodic analysis of the condition of the safety of the automobile traffic on the territory of the city, the reasons for occurrence of road accidents and determination of the “black points/zones”, where accidents most frequently occur, is a needed condition for setting up specific measures for change of the traffic organization and/or other respectively needed actions.

Measure: *Establishment of more secure and safety environment for movements*

The perception for safety and security of the urban environment depends on a lot of factors and requires the undertaking of specific actions. The infrastructure of quality, the good pavement of the road carriageway but also of the sidewalk or the pedestrian / bicycle-alley are of decisive significance. The better visibility both for drivers and for pedestrians, the improvement of the lighting in streets, crossroads, stops as well as more evident presence of control authorities in the city, are amongst the factors increasing the sense of security.

Measure: *Education and promotion of safety behaviour*

³⁵ Specific recommendations for proper driving in sustainable transport – Students Manual (Appendix???)

The educational and information campaigns are of great significance for the enhancement of the responsibility in the behavior on the road and the strict observation of the rules. Initiatives which have clearly defined focus and target group are especially effective, for instance cyclists or moped or motorcycle riders than those sending too general messages.

VOCABULARY OF TERMS USED

Sustainable transport system (in conformity with the definition of the Transport Council of the EU of 2001)³⁶

Sustainable transport system shall be such a system, which:

- Provides the main access and the development of the needs of the individuals, the companies and the organizations to be satisfied in a safe and healthy from the point of view of the human being and the eco-system manner and encourages justice within the framework of one and between consecutive generations
- Is accessible, is operated in an honest and efficient manner, proposes choice for the kind of transport and supports the competitiveness of the economy, as well as their balanced regional development
- Limits the emissions and the wastes within the framework of the possibilities of the Earth to absorb, uses renewable sources in quantity to or below their level of generation/production and uses non-renewable sources in quantity to or below the level of development of renewable substitutes minimizing the effect over the use of the earth and the noise emission.

Sustainable transport system and use of the earth³⁷

Sustainable transport system and use of the earth is such, which:

- Provides all the inhabitants of a certain urbanized territory with efficient access to goods and services
- Preserves the environment, the cultural-historical heritage and the eco-systems for the present generation and
- Does not place under threat the possibilities of the future generations to attain at least the same welfare as the present one, inclusive of the welfare which is a result of the environment and the cultural-historical heritage.

The greenhouse effect is increase of the temperature of the Earth as a result of the fact that certain gases in the atmosphere (for instance water vapors, carbon dioxide, nitrous oxide and methane) catch energy from the sun in consequence of the absorption of infrared radiation. Without these gases the heat would go back to the space and the average temperature of the Earth would be by about 30 degrees lower. They are called greenhouse gases because of that influence of theirs.

The dust particles which are smaller than 10 microns are called fine powder or else **Disperse Particles (ДЧ10)**. These particles may be breathed in and if their size is smaller than 2,5 microns, they may get into the zones of exchange of gases in the respiratory tract and they could affect other organs further to the lungs.

Alternative fuels are all the materials and substances, other than the traditional ones, which could be used as fuel (also known as non-conventional fuels).

Bio-fuel shall be any fuel which is obtained from renewable biological source, especially from biomass. The biofuels include ethanol, bio-diesel fuel and methanol.

Fuel cells shall be electrical chemical cells, in which the energy of the reaction between fuel (such as hydrogen) and an oxidizer (such as oxygen) turns directly and continuously into electric energy.

³⁶ Page 50, PILOT SUPT Manual (hard copy)

³⁷ The same source

Greenhouse gas shall be gas, which assists the warming up of the atmosphere round the Earth (the troposphere) through absorption of the heat radiation from the earth surface (such gases are carbon dioxide, water vapor, methane, nitrous oxide).

Alternative transport shall be each transport, which assumes reduced consumption of petrol or diesel fuels. In general, this is any transport vehicle other than cars, which uses traditional fuels.

The alternative transport vehicles, considered in this manual, are all these automobiles which use alternative fuels and renewable sources of energy, so that they could replace fully or partially the use of traditional fuels (as petrol and diesel fuel).

The electric transport vehicle (ETV) shall be a transport vehicle, which uses an engine, driven by solar energy, stored in special batteries.

Hybrid automobiles shall be those, which use more than one source of energy. More precisely, the hybrid-electric transport vehicles (HETV) unite an internal combustion engine (working with petrol or diesel fuel) and the technology of the electric automobile (an electric engine and regenerative braking system with batteries).

Appendix (the full text is in pdf)

(LexUrlServ)

ANNOUNCEMENT OF THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Action Plan for Urban Mobility³⁸

Topic 1 — Encouragement of integrated policies

Action 1 — Acceleration of the acceptance of plans for sustainable urban mobility

Action 2 — Sustainable urban mobility and regional policy

Action 3 — Transport for healthy urban environment

Topic 2 — Concentration onto the citizens

Action 4 — Platform about the rights of the passengers in the public urban transport

Action 5 — Improvement of the access for persons with limited mobility

Action 6 — Improvement of the information about the trips

Action 7 — Access to green zones

Action 8 — Campaigns about behavior for sustainable mobility

Action 9 — Energy effective driving as a part of the training of the drivers

Topic 3 — More ecological urban transport

Action 10 — Investigation and demonstration designs for transport vehicles with low and zero emissions

Action 11 — Internet manual for clean and energy effective transport motor vehicles

Action 12 — Study of the urban aspects of the internalization of the external expenditures

Action 13 — Exchange of information about the urban price schemes

Topic 4 — Increase of the financing

Action 14 — Optimization of the existing sources of financing

Action 15 — Analysis of the needs of future financing

Topic 5 — Sharing of experience and knowledge

Action 16 — Updating of the data and the statistics

Action 17 — Creation of an observatory for urban mobility

Action 18 — Contribution to the international dialogue and exchange of information

Topic 6 — Optimization of the urban mobility

Action 19 — Urban freight transport

Action 20 — Intelligent transport systems (ITS) for urban mobility

(LexUrlServ2)

Appendix (the full text is in pdf)

³⁸ Brussels, 30.9.2009q COM(2009) 490 final

ANNOUNCEMENT OF THE COMMISSION

Sustainable future for the transport: integrated, based on technologies and easy for use system³⁹

³⁹ Brussels, 17.6.2009, COM(2009) 279 final

Appendix: Manual for the Students – sustainable urban transport

I, the undersigned, Meglena Dimitrova Bazhdarova, certify that this is a true and accurate translation done by me from Bulgarian into English of the attached document: Plan for Sustainable Urban Transport Planning. The translation comprises 74 pages.

Translator:

Meglena Dimitrova Bazhdarova