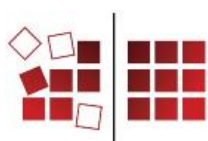


WP 3 Urban Development

Analysis and SWOT of the target areas in Šiauliai, Lithuania

Target area between Gegužiai, Lieporiai, S.Darius and S.Girėnas and Tilžė streets

2010



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1. Characteristics of residential houses in districts

Characterisation of buildings in the territory between Gegužiai, Lieporiai, S.Darius and S.Girėnas, Tilžė streets:

97 buildings of residential and domestic purposes are functioning in the area , these are:

- Residential houses - 81 buildings
- Nursery schools - 4 buildings
- Schools - 4 building complexes
- Trade establishments - 8 buildings.

From 81 residential houses:

- 4 buildings are renovated
- Renovation started for 2 buildings
- 75 buildings are not renovated.

From 4 nursery schools:

- All 4 are not renovated.

From 4 schools (including and Lieporiai primary school) 3 are renovated.

Buildings of trade establishments - all 8 buildings are renovated.

Layout of existing internal roads and pathways within the block satisfy its needs. block. A very actual need is for private car parking lots.

Water supply networks. Water mains of the city's centralised water supply system are laid in all streets bordering the territory of the block. Drinking water is supplied to buildings of this block from these water mains according to the consumer needs without any restrictions. Three water pressure maintaining pump-houses operate for maintaining a required water pressure supplied in the block. The condition of the existing water supply system of the block and its functionality is satisfactory.

Sewage drainage networks. Domestic wastewater is discharged from buildings to centralised city's sewage discharge system. Wastewater does not exceed domestic pollution limits. Wastewater discharge networks belonging to the city's infrastructure are situated in the streets bordering the block. Wastewater pump stations are not available. The condition of the existing wastewater discharge system and its functionality is satisfactory.

Surface water (rain) discharge networks. Surface water (rain) discharge system with the help of which rain water is discharged to the city networks situated in the streets bordering the block are functioning in the block. The condition of the surface water discharge system and its functionality is satisfactory.

Natural gas supply and networks. Natural gas in residential buildings is used only in kitchens for food preparation. The average pressure gas pipeline network in 5 places is connected to the city's gas mains laid in the streets bordering the block. Gas is supplied through the gas pipeline network via a gear-box to gas pipelines in every staircase till the subscriber's cookers. The condition of the block gas pipeline and building networks and functionality is satisfactory.

Electrical networks. „Vakarų skirstomieji tinklai“ („VST“) delivers electrical energy to the functioning buildings of the block. Electrical energy is supplied to the block through a 10 kV power cable network. 13 10/0.04 kV transformer stations operate in the block from which electrical energy through 0.4 kV networks via input and billing shields is supplied to consumers of all buildings. The condition of electrical network and reliability of electrical supply is satisfactory.

Heat supply and heat networks. Heat energy required for heating, ventilation and hot water preparation is supplied to buildings of the block from a centralised supply system of the city that is composed of large heat sources (boiler houses) and a developed mains and underground heat pipeline network operating under temperature schedule 120 - 70 Co depending on the outdoor air temperature and a season of the year. Heating (thermofication) water of the required temperature gets into building systems from central heat units. There are 6 heat units in the block. Heat unit feeding and district heating networks (up to the buildings) are laid in the underground impassable channels insulated with slag wool. District heating networks from heat units to buildings are connected by 4 pipes (2 belong to heating system, 2 - to a hot water supply system). Heat consumption billing systems are decentralised. A subscriber is the owner of each flat. The total amount of electrical energy consumed for heating is divided by the square area of a consumer, and hot water consumption by hot water meter readings available in the subscriber’s flats. The existing centralised heat supply system does not meet the criteria for efficiency. When performing renovation and insulation of buildings, structural improvement operations of existing heat supply networks must be solved either. It may cover:

- Liquidation of central heat supply units and installation of new automatic units in every building.
- Liquidation of existing 4-pipe heat networks and laying of 2-pipe non-channel heat networks.
- Reconstruction of internal heat systems and hot water preparation systems when solving individual billing of every subscriber.

Common evaluation of the existing heat supply system condition and operation is bad and require the reconstruction and renovation. Insulation-isolation works of the buildings must be carried out along with the renovation of the internal heat supply systems of the buildings.

Sorting and removal of domestic waste. Domestic waste is sorted by erecting various purpose containers and their replacement in specialised areas. 18 secondary waste materials sorting container-based places within the area where residents dispose their domestic waste by sorting them. Part of such areas requires renovation and enlargement. Under a special design it is provided to install 6 new container grounds. The condition of the existing domestic waste collection and sorting system is satisfactory.

Table 0.1 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Engineering communication networks are developed and completely satisfy the needs of residents. In performing a feasibility study of district territories, the development of these networks is unnecessary. 	<ul style="list-style-type: none"> • Heating of buildings, hot water preparation and heat supply through central heat units does not meet the criteria for efficiency and requires essential reconstruction when renovating and insulating the buildings; • When analysing collection, sorting

	<p>and transportation of domestic waste, the possibilities of environmental pollution are assigned to weaknesses. A method of containers erection should be solved so that to prevent domestic waste from scattering around when waste is discarded carelessly and when asocial people “sort” the content of containers.</p> <ul style="list-style-type: none"> • Though existing internal roads and pathways and exists to the streets in the district satisfy the need of the residents of the block, however the problem regarding a private parking lot remains actual. It is possible to construct only several small parking lots near the fully used territory areas. Further increase of parking lots is possible only if underground parking lots are constructed.
<p>Opportunities</p> <ul style="list-style-type: none"> • Since there is no place for new buildings in the district, the further improvement of welfare of residents shall be developed by means of interior landscaping and external and internal renovation. 	<p>Threats</p> <ul style="list-style-type: none"> • Since provision of engineering resources (water, sewage, gas, electricity, heat, and domestic waste removal) provide monopoly enterprises and organisations, payment for the consumed energetic resources must be improved so that every subscriber could regulate his needs and pay for it according to individual meter readings, irrespective of other residents of the house.

2. Social situation of district residents

Planning and modernisation of target territories of Šiauliai city covers not only territory planning, but also aspects determined by social needs of residents, demographic tendencies and changes, social infrastructure (education, social support, culture and sports) and possibilities of business and service sector to satisfy social needs of residents. Therefore a social position of residents of Šiauliai and of specific residential developments of the city that may have an impact on scheduling the need of social infrastructure objects is being analysed in this chapter. It is presumed in this study that social evolution of residents of the analysed residential developments relatively corresponds to the demographic and social evolution tendencies of the Šiauliai city municipality.

According to data of the Department of Statistics under the Government of the Republic of Lithuania, the number of residents within a period from 2001 to 2009 decreased in Šiauliai city. At the beginning of 2010 125 461 residents lived in Šiauliai city. Since the number of residents in the city decreases, the density of residents also decreases (2009 - 1 558 residents/km²). Approximately 15 095 (13 995+1 100) residents lived in the analysed districts in 2010, i.e. 12 percent of residents of the Šiauliai city municipality.

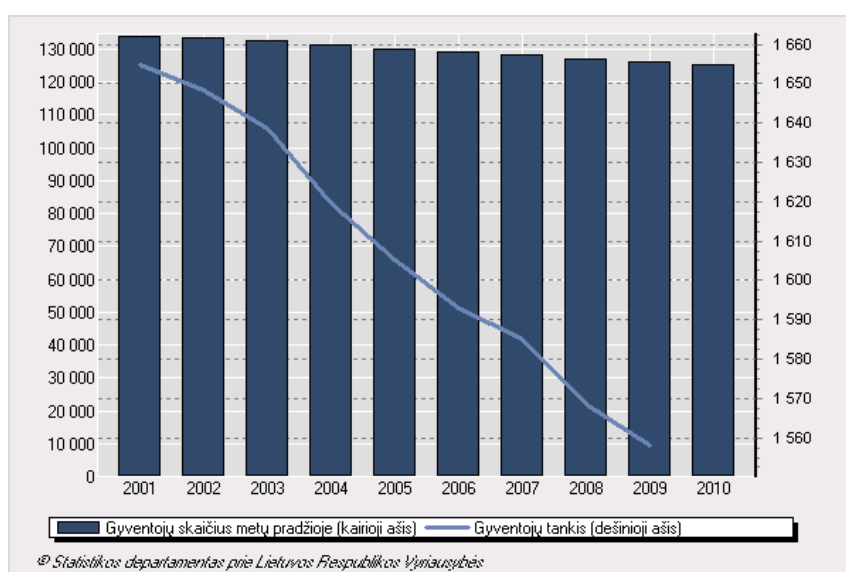


Figure 0.1 - The number and density of residents in Šiauliai city (2001-2010)

More than half of Šiauliai population are female (in 2009 there were 1 199 women per 1 000 men). Such aspect of the development shows the increasing imbalance between male and female. Demographic situation in Šiauliai city is slightly better than in the country and in the region, the number of births within a latter decade had a tendency to grow. More noticeable birth-rates are recorded since 2006.

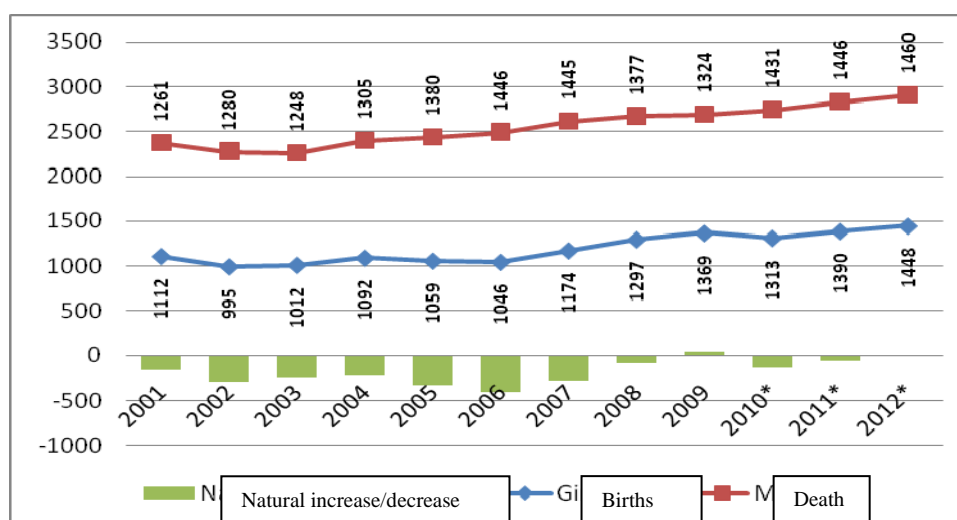
Table 0.1 - Births and natural increase and decrease of Šiauliai city population at the end of the year

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Births	1 112	995	1 012	1 092	1 059	1 046	1 174	1 297	1 369
Births per 1 000 population	8.3	7.5	7.7	8.4	8.2	8.1	9.2	10.3	..

Deaths	1 261	1 280	1 248	1 305	1 380	1 446	1 445	1 377	1 324
Deaths per 1 000 population	9.4	9.6	9.5	10.0	10.7	11.2	11.3	10.9	..
Natural increase/decrease	-149	-285	-236	-213	-321	-400	-271	-80	45
Natural increase/decrease per 1 000 population	-1.1	-2.1	-1.8	-1.6	-2.5	-3.1	-2.1	-0.6	..

Source: the Department of Statistics under the Government of the Republic of Lithuania.

The ageing population process is described by the distribution of its number by age. Indirectly this process in the country is illustrated by the rate of deaths per 1000 population. The death rate changes within the analysed period were insignificant, however based on the analysis of population decrease tendencies it may be stated that the dynamics of mortality indicators is not unfavourable to the social development of the Šiauliai city municipality, though a relative increase of population mortality is provided for during the forecast period also.

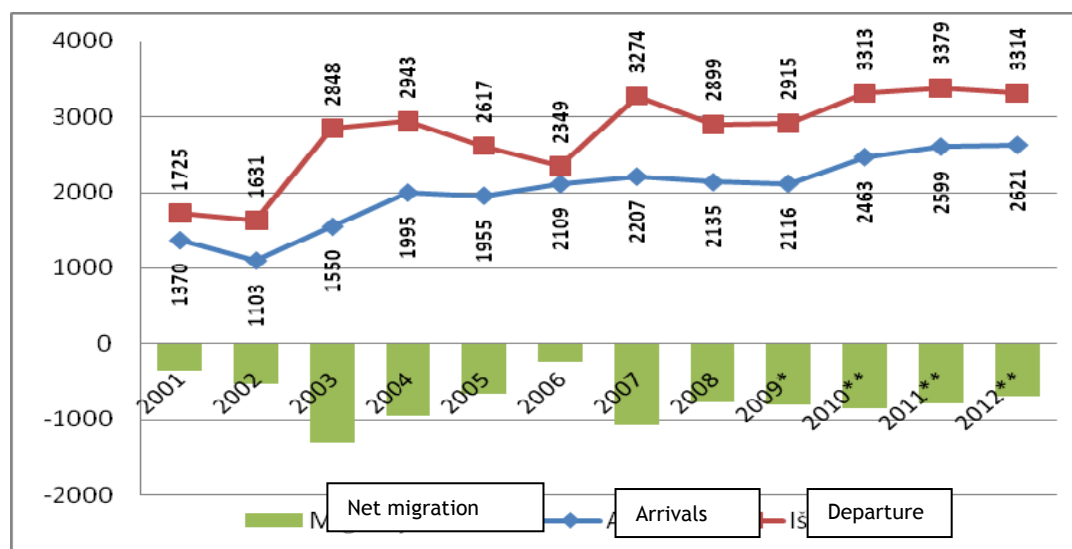


Source: the Department of Statistics under the Government of the Republic of Lithuania.

Figure 0.2 - Tendencies of vital statistics in Šiauliai city by 2012.

Vital population statistics in 2001-2008 was negative due to the general decrease of population, steady increase of mortality and insufficient birth rate, however according to provisional data submitted by the Department of Statistics the demographic situation in 2009 flattened out since the birth rate exceeded the death rate. According to the forecast of population changes provided by the Department of Statistics, the rate of births and deaths during the entire forecast period should further flatten out and the rate of natural increase should rise.

The net migration (internal and international migration) for 2001-2009 in Šiauliai city analogous to the situation of Lithuania and Šiauliai county was negative and according to provisional data for 2009 amounted (-799).



Source: the Department of Statistics under the Government of the Republic of Lithuania.

Note: * - provisional data; ** - forecast data.

Figure 0.3 - Trends of changes in internal and international migration in Šiauliai city since 2012.

Having assessed the population age structure, it can be stated that every year from Šiauliai city mostly emigrates the population of pre-working or pension age. It is not the worst situation since the flow of intellectual and physical labour force to the city strengthens the intellectual and cultural development potential of the municipality weekend by the negative net migration and natural population decline. It is likely that at the end of the forecast period migration processes shall remain negative.

When analysing the need of dwelling renovation, the dynamics of marriages and divorces in Šiauliai city must be analysed since family formation processes are directly related with the needs for renovated dwellings.

Table 0.2 - The number of marriages and divorces in Šiauliai city (2001-2009).

	2001	2002	2003	2004	2005	2006	2007	2008	2009*
Marriages	541	646	650	825	845	875	1 008	944	772
Marriages per 1 000 population	4.0	4.9	4.9	6.3	6.5	6.8	7.9	7.5	..
Divorces	579	512	521	489	451	439	471	393	360
Divorces per 1 000 population	4.3	3.9	4.0	3.7	3.5	3.4	3.7	3.1	..

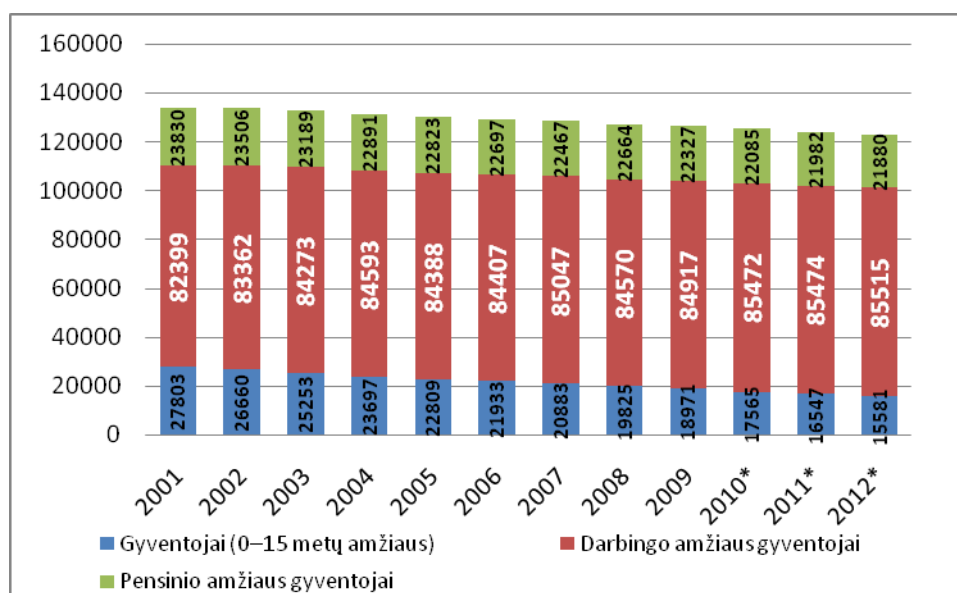
Source: the Department of Statistics under the Government of the Republic of Lithuania.

Note: * - provisional data.

A trend of a steady increase in marriage rates was noticed by 2007 in the Šiauliai city municipality, however since 2008 a relatively smaller number of marriages has been recorded (in 2008 7.5 marriages per 1 000 population). The rate of divorces during the analysed period remained rather stable in Šiauliai city, since 2008 a decline in divorce number has been observed.

The scope of population ageing in Šiauliai city is slightly less than on average in the entire country. Pension age population for 2009 in the country composed 19.27%, in the county of Šiauliai- 19.49%, and Šiauliai city - 17.69%. On the one hand, it reduces the competition in the labour market, however on the other hand the ageing of population reduces economic efficiency, diminishes the possibilities of re-qualification of employees and adoption of up-

to-date knowledge, increases the comparative weight of dependents, and the population health state of the region is worsened. The population ageing reduces the rate value of natural increase.



Source: the Department of Statistics under the Government of the Republic of Lithuania.
Note: * - forecast data

Figure 0.4 - Trends of changes in population age in Šiauliai city since 2012.

According to data of the Department of Statistics under the Government of the Republic of Lithuania, at the beginning of 2009 22 327 pension age persons lived in Šiauliai. Among them the number of population aged 70-75 years comprised 4.9 thousand, aged over 75 years - 7.7 thousand. 17.69 % population in Šiauliai city are of pension age, the disabled comprises 6.57 % of the total population and 15.03% of the total population are children under 15 years.

Table 0.3 - The average age of the population of Šiauliai city at the beginning of the year

	2005	2006	2007	2008	2009
Male and female	37.6	38.0	38.2	38.7	39.0
Male	35.1	35.4	35.7	36.1	36.4
Female	39.7	40.1	40.4	40.9	41.3

Source: the Department of Statistics under the Government of the Republic of Lithuania.

It is evident that the pension age population, the disabled and children comprise the most part of the population. As it is stated in the Project of Social Services Programme of the Šiauliai city municipality for 2010 „it determines the higher demand for social services since this demand is assessed according to the demographic, economic and social situation developing in the city“ (www.siauliai.lt). Therefore it may be stated that similar trends of the entire country are characteristic to the indicators of the population structure of Šiauliai city. The rate of the pension age population shall decrease and the rate of the working age shall increase in the city.

The analysis of strategic documents of the municipal level connected to the social position of the population in the target territories is provided further (see Table Table 0.4).

Table 0.4 - The analysis of strategic documents connected to the social position of the population.

Document	Comments
Strategic Development Plan of Šiauliai City for 2007-2016 approved on 22 December 2005 by Decision No. T-477 of the Šiauliai city municipality.	The priority provided for in the Plan - Open, Creative and Responsible Society. It aims to provide conditions for every member of the city community to realise himself and actively participate in the economic and public life. Measures for the system improvement in the field of education, health, culture and sports, public administration and other social fields and the increase of accessibility of these social services for residents of the city are provided for. Detailed information on the development of social services and the infrastructure are provided in Table Table 0.10.
Activity Plan of the Šiauliai City Municipality for 2010-2012 approved on 25 February 2010 by Decision No. T-41 of the Šiauliai city municipality.	Most of 12 programmes composing the Plan are oriented towards the increase of accessibility and quality of social and other public services for residents. Social resident support and community health treatment programmes are directly connected with social position of residents of the city.
Social Services Plan of the Šiauliai City Municipality for 2010 approved on 25 February 2010 by Decision No. T-44 of the Šiauliai city municipality.	Social service delivery and development goals provided in the Plan of the Šiauliai city municipality are the following: to deliver qualitative social services to various client groups; to cooperate with non state and other organisations of Šiauliai city when providing social services.

It showed that strategic development documents of the regional or municipal level seek to manage the volume of the population emigration by improving the accessibility and quality of the social services.

The analysis of strengths, weaknesses, opportunities and threats summarises the social position of residents of Šiauliai city in the target territories:

Table 0.5 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Absolute increase of birth-rates; • Absolute decrease of death rate; • Prolongation of the population age; • Decrease of divorces; • Decrease of competition in the labour market; • Increase of a comparative part in the working age population; • Number of prepared strategic documents regulating the social development of the city. 	<ul style="list-style-type: none"> • Decrease of population due to negative vital statistics and scopes of unmanaged emigration; • Increasing sex imbalance; • Population ageing, unfavourable population age structure; • Decline of marriages.
Opportunities	Threats
<ul style="list-style-type: none"> • Impact of the State social policy on the improvement of the social position of the population, birth-rates promotion, health 	<ul style="list-style-type: none"> • Population ageing and the need for the social support and services; • Deterioration of the social position of the population that may stimulate

<p>improvement, and restriction of the scope of emigration in the target territories;</p> <ul style="list-style-type: none"> • Impact of the State family policy; • Support of the European Union to satisfy social needs of residents and to promote entrepreneurship. 	<p>residents to emigrate;</p> <ul style="list-style-type: none"> • Residents' resistance against renovation of residential buildings and the increasing number of social support receivers.
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Summary. The forecast of the population social demographic, internal and international processes was carried out by applying the method of trend forecasting. The straight line trend was chosen considering the rate value of a standard deviation. Forecasting results indicate the trend of one or another indicator. When preparing a modernisation plan of residential developments in Šiauliai city the implementation of territorially differentiated demographic and social policy of the district considering social, demographic and population migration trends must be ensured. Modernisation plan solutions of residential developments of Šiauliai city should be adopted considering the following trends:

Šiauliai city population shall decrease since the death rate shall be higher than birth rate (see FigureSource: the Department of Statistics under the Government of the Republic of Lithuania.

Figure 0.2). It determines a negative increase of the population in the city. In addition, the population decline in the Šiauliai city municipality is determined mostly by the increasing scope of emigration resulting in negative net migration (see Figure Figure 0.3), therefore the optimisation of the residential zone layout and rational use of the available ones must be essential.

Certain impact on changes in the labour market of the district without economic factors increasing the competition in the labour market has the increase of working age population. Since 1995 the increase in working age population is also impacted by the extension of the retirement age. The latter trend should emerge during the entire forecast period. The population of 0-15 years of age and the retirement age population and part of population in the age structure shall decline (see Figure Figure 0.4), therefore the territorial accessibility of education and social services infrastructure must be optimised. Change in working age population show sufficiently good perspectives for the change in the demographic situation of the city. The same trends may remain in the future either. It may be stated that the latter factor in the region shall act as a competition increasing factor.

3. Urban-spatial structure of the district territory

The available urban structure of the developments hasn't changed for 20 years when the development of construction of block of flats, industrial objects and agricultural complexes were terminated. Most changes occurred recently during construction of super markets, gas stations and renovation of single buildings.

The analysis of the historic urban structure development showed that spatial planning of the analysed territory since the post-war time has not passed any essential changes. Territorial planning was not directed towards uniqueness mad formation of high level spaces, in essence towards the new quality formation in the residential environment.

New natural urban framework of the country, technical infrastructure and planning priorities were determined after the approval by the Seimas of the Republic of Lithuania the General Plan of the Republic of Lithuania by Decision No. IX-1154 of 29 October 2002.

According to the General Plan of the Republic of Lithuania the territory of Šiauliai city is not the main axis of the urban development of the Republic. The most intensive direction is in the west and the east from Šiauliai city. Urban-metropolitan integration axis (1A category, 1 level) of the Republic runs across Šiauliai. Šiauliai city belongs to Category A of the 2nd level as the available centre maintained at the highest level of municipalities.

Renovation possibilities of available territories. Having analysed territories of residential developments, the main areas requiring renovation are:

1. Residential block of flats;
2. Infrastructure of the city, public spaces (parking lots, traffic);
3. New and qualitative equipment required for recreation zones and grounds indented for common use and connection of these zones with residential and central districts by pathways, bicycle lanes.

The possibilities and scope of all these renovation works in general depend on budgetary means and EU structural funds.

Natural environment in the analysed territory is suitable to form natural recreation spaces for short-term recreational needs of local residents. The main natural resources are plants in the block and around the education establishments.

Plants. Plants impact the planning and spatial structure of the city. They improve hygienic and microclimatic conditions and form the modern city image. Plant territories are installed and adapted for use in the analysed territory: parks, squares, plants in the yards and streets.

Plant areas in the analysed territories are supervised by the Šiauliai city municipality, premises, housing cooperatives, education establishments, public institutions, commercial enterprises and traffic system management enterprises.

Two plant groups compose a plant system of the analysed residential district of Šiauliai city:

1. Common use plants (the Lieporiai Park);
2. Restricted use plants (plants of children and education establishments, residential districts).

Only one park is available in the analysed territory - the Lieporiai Park. However, there are several open spaces in the territory where green areas could be formed (or green oases), i.e. spaces between Gvazdikai and Saulė pathways, and Lieporiai street and Gvazdikai pathway, Krymas and V.Grinkevičius and Tilžė and Statybininkai streets. It was noticed that the residential development has its own plant structure however it is not sufficiently developed: in many places it is decayed therefore it is not sufficient for the environment formation of suitable quality. The main common use plant of the district is in

the east part of this district - the Lieporiai Park. Lieporiai Gymnasium with its own stadium, Lieporiai primary school and nursery school “Kūlverstukas”, and leafy trees and bushes and flower gardens (parterres) are in the centre of the district. However in front of them at the crossing of Gvazdikai and Lieporiai streets there is a derelict territory that could be adapted for the active children recreation purposes. Yard plants have a decorative and recreation function, whereas plant streets directly improve hygienic conditions and the aesthetic image of the environment.

The biggest demand for plants is at the crossing of Saulė and Gvazdikai pathways. Here in the open spaces green areas could be possible to form. Qualitative improvement of the plant system in the yards is hardly possible therefore the available plant system must be qualitatively formed, arranged and renewed.

Housing estates and house communities take care of yard plants at the block of houses. Most lawns here are decayed, paths are trampled by residents. Lawns become places for dogs therefore it should be mandatory to install special places for dogs in the residential districts.



Picture 1 - A play area for dogs.



Picture 2 - Unformed plants in the yard.

Plants compose about 44 percent of all analysed block territory. The most important plant areas are near the Gvazdikai pathway, Lieporiai, S.Darius and S.Girėnas and Statybininkai streets. Slightly smaller plant areas are near the corners of Tilžė and Statybininkai streets, Lieporiai and V.Grinkevičius streets, and Gvazdikai pathway and Tilžė streets. Leafy trees prevail in the analysed territory. A huge role in formation of the qualitative residential surrounding in the analysed territory plays built-up areas which could be used for the development and formation of recreation plants. Such areas should be maintained and further formed in empty spaces between Gvazdikai pathway and S.Darius and S.Girėnas streets, Gvazdikai pathway and Lieporiai street, V. Grinkevičius and Krymas streets, and others.

Open spaces. Open spaces in the analysed territories form about 25 percent of all territory. Big open spaces are: at the territory bordered by Gvazdikai pathway and S.Darius and S.Girėnas street, Gvazdikai pathway and Lieporiai street, V. Grinkevičius and Krymas streets and part of the Lieporiai Park (see the map „Internal spaces“). In formation of the qualitative residential environment zones corresponding residents’ needs may be formed in the mentioned spaces (active recreation zones, passive recreation zones, or areas for pets by maintaining their sanitary zones).



Picture 3 - Unkept space in the residential area.



Picture 4 - Unkept recreational infrastructure in the residential area.

Children and sports playing fields. Mostly children use the yard territory. Fields of a simple play structure are installed in the yards of residential areas however their technical condition is unsatisfactory; car parking lots are not supervised. Older children (7 - 15 years-old) lack care since all playing grounds in the analysed area are installed for the preschool children.



Picture 5 - Covered sandbox.



Picture 6 - Kids playing ground in the Lieporiai Park.



Picture 7 - Unduly renovated kids playing field in the yard of Lieporiai residential area.



Picture 8 - School stadium equipment use residents of the residential area.

Yards. Depending on the built-up area, the link-up between the street and the inner space of residential developments is understood and executed differently. In small plots of the

residential area the yard can be separated as the main type of an open space. The yard as a structural element of the residential surrounding attracts more and more attention. Residential areas built-up in the form of rows, fans, or scattered dots destroy the traditional concept of a yard. The analysed territory of Šiauliai city especially lack plantings improving the quality of residential areas. In the analysed areas yards comprise 11 percent of all territories.



Picture 9 - The yard territory that is neither formed nor kept.

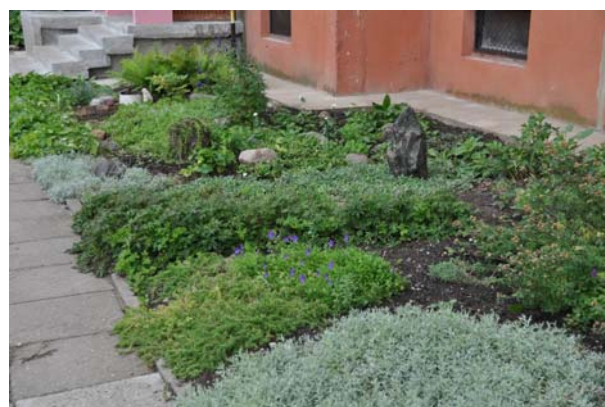


Picture 10 - Unkept yards of Lieporiai district.

Aesthetic image of the yards is spoiled by domestic waste containers however this problem may be solved by planting the areas around such containers and in this way hide the unpleasant view.



Picture 11 - Duly formed the surrounding environment of the yard (annual plants).



Picture 12 - Duly formed the surrounding environment of the yard by evergreen annual and perennial plants.



Picture 13 - Fragment of the pathway



Picture 14 - Fragment of an unkept pedestrian

network in the residential area of Lieporiai. pathway and bicycle lane.

During reconstruction of the yards environment, spaces intended for the recreation purposes in the yards of residential houses must be interlinked. The best way to do this is to form there green areas. It is very important to improve natural light of the yards by duly arranging green areas considering a positive impact of natural light on the leisure-time within the home environment. Yards must be formed according to one general idea, however in each of them characteristic environmental elements must appear there. As such may be landscaping solutions for yard spaces and one individual element.

It is important to analyse functional yard zones:

1. Public zones - parks and squares (the area available within the analysed territory is bordered by Gvazdikai pathway, Lieporiai, S.Darius and S.Girėnas and Statybininkai streets);
2. Semi-public zones - common yard space;
3. Semi-private zones - entrance to the building (leading to a stairwell) or house;
4. Specialised spaces - territories of gymnasium and preschool establishments within the territories of the development.

The following planning principles may be indicated in the analysed residential development of Šiauliai city:

- Clear territory zoning and protection against traffic;
- Moderate planting (trees and bushes);
- Separation of recreation zones by green areas;
- And the like.

Car parking territories. During the analysis of the development territory, it was noticed that common areas of the development are used for car parking (about 5 percent), the number of separately planned lots adopted for parking of cars is not big. The biggest common spaces that currently are used for car parking are in the majority places of residential developments. It is required to provide for places for car parking lots and/or underground garages.



Picture 15 - Car parking lot in Lieporiai district.



Picture 16 - Cars are parked in wrong places.

Table 0.1 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Arrangement of open spaces and green areas in the territory; • Sufficient territory for formation short-time recreation place ; 	<ul style="list-style-type: none"> • Lack of duly arranged parking lots; • Derelict kids playing fields; • Play areas for dogs are not available.

<ul style="list-style-type: none"> • Sufficient. 	
Opportunities	Threats
<ul style="list-style-type: none"> • Install car parking lots and underground garages; • Install kids playing fields; • Install play areas for dogs. • Provide active and passive recreation zones. 	<ul style="list-style-type: none"> • Amendments of legal acts regarding formation of spaces; • Requirements of the European Union for the environmental and hygiene standards.

Improvement of environmental conditions in Lieporiai district of Šiauliai city. The idea of improvement of environmental conditions in the residential area of Šiauliai city is proposed considering human principles of environmental planning by drawing the main attention to the development of residents' welfare and formation of the surrounding environment.

Measures for the improvement of environmental conditions in Lieporiai district of Šiauliai city

<i>Measure</i>	<i>Comments</i>
<i>Improvement of short-time recreation zones</i>	Reconstruction of recreation spaces, recreation zones and children playing fields in the most derelict places of the development - south part of the Lieporiai Park behind the nursery logopedical school and Saulėtekis secondary school in the surroundings of Saulė and Gvazdikai pathways and Gvazdikai pathway and Lieporiai street.
<i>Formation of the environmental design of the housing development</i>	<p>Formation of the surrounding environment, planning is described as a study of physical, social, economic, ecologic and aesthetic parameters and regulation of these parameters with the intention to integrate them and direct them so that to meet the needs of residents (Morisson et al, 1996). Availability of natural elements in the residential environment (water, green areas) enriches the surrounding environment of the housing developments and has a positive impact on the process of human life and leisure-time. Facades of residential buildings are renovated; trees and bushes are formed, annual and/or perennial flower gardens make an impression of cosiness and neatness.</p> <p>In the formation of the residential environment the following aspects must be considered:</p> <ol style="list-style-type: none"> 1. Quality improvement of green areas in the park of the residential district and its environment; 2. Maintenance of biodiversity of green areas; 3. Network formation for pedestrian paths and bicycle lanes; 4. Formation of children playing fields; 5. Formation of complex and specialised sports fields; 6. Formation of areas for dogs; 7. Formation and improvement of water reservoirs and their environment; 8. Use of small architecture in spaces formation; 9. Improvement of the recreational infrastructure.
<i>Formation of green areas</i>	In the formation of the surrounding environment of the housing development, the attention must be drawn to the green area

	<p>system in the city since the recreational environment formed along with green areas acquires individual features and positively impacts the microclimate of the residential areas.</p> <p>Seeking to optimise the housing area environment, the green area system must be developed. Anthropogenic spaces should not be increased; instead green links and spaces would show up. Green links should stimulate the use of ecological transportation means - bicycles. The structure of these links may be very diverse. Reconstructed green links intended for the recreational relationships shall be formed according to the following physical and psychological requirements for environment:</p> <ul style="list-style-type: none"> • The width of a green link should be not less than 20 m; • Its environment must be protected against air, acoustic, visual and physical pollution; • Provide the impression of recreational and visually attractive environment; • Green link route between the objects of attraction - as short as possible. <p>The green area system in the residential development must be formed considering the need of people for the sense of nature. Green areas are formed not only as environment elements to ensure leisure time for residents, but also as the element improving the microclimate, air quality and as a noise barrier. During selection of plants, the attention must be drawn to their biological, phytonocidic properties and their aesthetic image - flowers (blossoms), fruits, etc. Green area formation in the yards of residential houses shall make a unified chain of green areas surrounding the objects and facilities available therein.</p>
<i>Formation of spaces</i>	<p>Spaces of residential areas may be zoned according to their attendance and use into:</p> <ol style="list-style-type: none"> 1. Public - common use spaces: the Lieporiai Park; 2. Semi-public spaces: yards of block of flats; 3. Special spaces: territories of schools and nursery-schools. <p>Spaces zoned in this way may compose a unified space structure. Elements of environment of Šiauliai housing development: green areas, flower gardens, children playing fields, sports fields, their colour scale, materials, and layout should be planned according to the unified idea.</p>
<i>Arrangement of connection infrastructure</i>	<p>Pebbles, tiles may be used for pedestrian paths and bicycle lanes; water element may be expressed by various forms (fountains, decorative runlets) and for the formation of small architecture elements may be chosen any colour scope, materials and layout. Bicycle lanes and pedestrian paths in the residential housing development shall form connection infrastructure, pathways framework. The priority in the streets of the housing development shall be drawn to pedestrians and cyclists (except Tilžė street).</p>
<i>Pathways in the public spaces, their arrangement</i>	<p>Are intended only for pedestrians and cyclists. Pebble is used for the coating of paths, for more loaded pathways with higher consumer streams - tiles, blocks and asphalt may be used.</p>
<i>Handling of streets</i>	<p>Planted with trees and with separate pedestrian paths and bicycle</p>

<i>and their environment</i>	lanes. Asphalt, tiles and blocks may be used for path coatings.
<i>Handling of recreational fields</i>	A huge attention is drawn to open spaces, their illumination, small architecture (outdoor furniture). Surface coats: paving stones, stone plates, tiles, blocks.
<i>Installation of equipment for children playing fields and installation of playing fields</i>	Several children playing fields are installed: the biggest one - children complex is proposed to be installed in the south part of the Lieporiai Park; 3-4 smaller fields are installed in other places of the housing development. Ecologically clean materials shall be used for the installation of playing fields. New and modern equipment for children playing fields are installed for children of different age groups.
<i>Installation of sports fields</i>	Available fields are reconstructed and new fields are installed faraway from streets, green areas isolate them from noise and pollution.
<i>Handling of pedestrian paths</i>	Pedestrian paths in the housing areas should be planted by turning them into promenades.
<i>Handling of yard green areas</i>	Moderate planting: sanitary-hygiene requirements should be considered.
<i>Handling of green areas of parks and squares</i>	Composition of specific green areas is improved considering their recreational properties, aesthetics; they are used for forming closed - opened spaces.
<i>Handling of protective green areas</i>	They are reconstructed and newly planted along the perimeter of the streets, and around educational and preschool establishments by covering domestic yard elements spoiling the view, i.e. trash cans and containers, car parking lots, etc.
<i>Handling of water reservoirs in the park</i>	Water reservoirs in the Lieporiai Park are reconstructed by maintaining their natural forms and handling and cleaning their coasts; in some places they are planted with trees and bushes.

4. Distribution of service establishments in the territory and in adjacent territories

Municipal establishments, public enterprises intended for meeting social needs of local residents are located in the analysed developments.

Education. Upon increase of birth rates, the annual number of pre-school pupils of Šiauliai city is also increasing. The table below shows that preschool establishments are overcrowded (in 2008 86 places per 100 children). 29 preschool establishments were operating in the Šiauliai city municipality in 2008.

Table 0.1 - Preschool establishments in Šiauliai city (at the end of the year)

	2003	2004	2005	2006	2007	2008
Number of preschool establishments	28	28	29	29	29	29
Places per 100 children	89	90	78	91	91	86
Number of places in the preschool establishments	3 858	3 842	3 294	3 924	3 995	4 025
6 year old children compared with children of corresponding age, %	..	67.9	69.7	72.0	75.5	79.4
Pupils of preschool establishments	4 335	4 251	4 234	4 302	4 405	4 695

Source: the Department of Statistics under the Government of the Republic of Lithuania.

6 preschool establishments are operating in the analysed residential developments (see Table Table 0.2), the founder of which is the administration of the Šiauliai city municipality.

Table 0.2 - Preschool establishments in the analysed territory

Establishment	Address and telephone	Email address and Internet website	Identification number (code)
Nursery-school "Gintarelis"	Saulės takas 5, Šiauliai LT-78301 8 41 552562 8 41 552562	gintarelis@splus.lt http://www.gintarelis.mir.lt/	1905 28240
Nursery-school "Kūlverstukas"	Krymo g.3, Šiauliai LT-78254 8 41 553021 8 41 553021	kulverstukas@splus.lt http://siauliai.mok.lt/kulverstukas	1905 28393
Šiauliai logopedic nursery-school	Lieporių g.4, Šiauliai LT-78244 8 41 552744 8 41 552744	logopedinisdarzelis@splus.lt www.logopedinis.mir.lt	1905 28774
Nursery-school "Voveraitė"	Saulės takas 7, Šiauliai LT-78302 8 41 552591 8 41 552591	voveraite@splus.lt http://voveraite.mir.lt	1905 28055

Source: VĮ Registrų centras.

In the Strategic Development Plan of Šiauliai City for 2007-2013 it is provided for to prepare in 2010 the analysis regarding the need of preschool establishments. Therefore, the future of establishments remains in the competence of the City Municipal Board. Education system of the Šiauliai city municipality is coordinated and controlled by the Education department of the Šiauliai municipality administration. The number of school pupils in Šiauliai since 2000-2001 is constantly negative. During the period of 2008-2009 18 917 school pupils studied.

Table 0.3 - General education schools in Šiauliai

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
School children of general education schools	24 703	24 615	24 125	23 624	22 991	22 048	20 915	19 852	18 917
Number of general education schools	42	43	44	45	44	45	44	44	44

Source: the Department of Statistics under the Government of the Republic of Lithuania.

3 gymnasiums and 1 primary school operate in the analysed residential developments (see Table 0.4). Šiauliai city municipality carries out reorganisation of general education schools. According to the General Plan of the Šiauliai city municipality on Reorganisation of General Education Schools for the period 2005-2012 Šiauliai „Saulėtekis“ and „Lieporiai“ gymnasiums have been already reorganised and by 2012 Šiauliai „Gegužių“ secondary school should be reorganised into a lower secondary school. Preschool and primary education programmes should be further executed by Lieporiai primary school of Šiauliai.

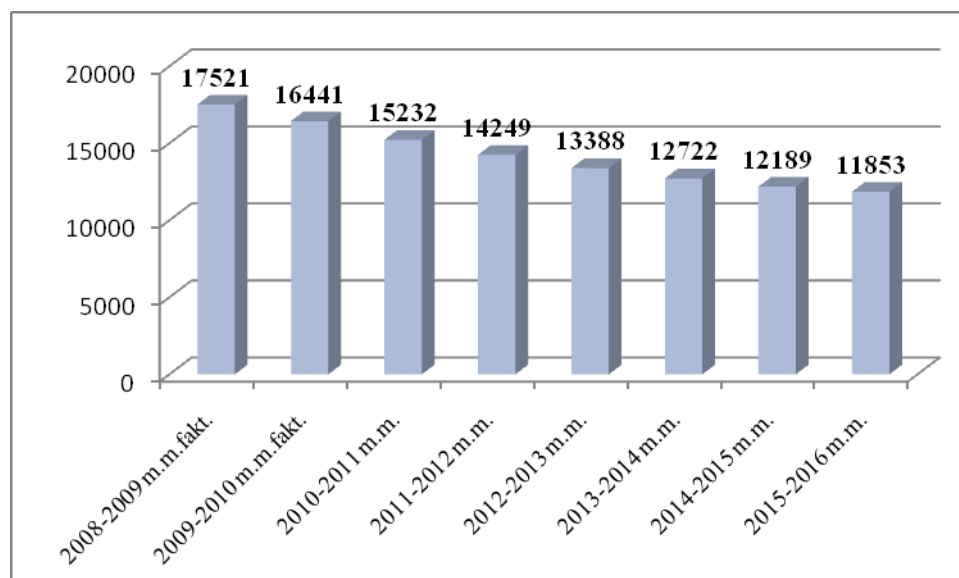
Table 0.4 - General education schools in the target territory

Establishment	Address and telephone	Email address and Internet website	Identification number (code)	Number of school children on 01-09-2008 (including preparatory class)	Reorganisation of school
GIMNASIUMS					
Šiauliai Saulėtekis Gymnasium	Lieporių g.2, Šiauliai LT-78244 8 41 552748 8 41 552748	sauletekis@splius.lt http://www.sauletekis.lt	2905 32510	738	Not provided for
Šiauliai Lieporiai Gymnasium	V. Grinkevičiaus g.22, Šiauliai LT-78254 8 41 450214 8 41 450214	lieporiai@splius.lt http://www.lieporiai.lt	1905 32324	801	Not provided for
SECONDARY SCHOOLS					

Šiauliai Gegužių Secondary School	Dariaus ir Girėno 22, Šiauliai LT-78302 8 41 552560 8 41 552560	rastine@geguziai.lt , http://www.geguziai.lt	1905 32281	771	It is provided to reorganise into a lower secondary school
PRIMARY SCHOOL					
Šiauliai Lieporiai Primary School	Krymo g.1, Šiauliai LT-78254 8 41 553017 8 41 553017	lieporiu_pradine_mokykla@splus.lt	1905 28436	291	Not provided for

Source: Šiauliai municipality administration

The forecast of schoolchildren number for 2016 shows that a number of schoolchildren shall decrease every year and in 2016 only 11 853 schoolchildren shall study in the schools of the city (see Figure 0.1). Therefore actual questions regarding the optimisation of general education schools network are currently considered in the city: the process of schools network reorganisation is still going on. Decisions regarding the optimisation of schools network are adopted by the Board of the Šiauliai municipality administration.



Source: the website of Šiauliai municipality administration: www.siauliai.lt.

Figure 0.1 - The forecast of schoolchildren number in Šiauliai general education schools by 2016.

Uneven number of schoolchildren shows that a network of schools is not effective and the streams of schoolchildren are allocated unevenly. Both in the Strategic Plan of the Development of the City and the Activity Plan of the Šiauliai City Municipality it is provided for to fulfil the process of schools reorganisation and seek to renovate all education schools of the developments (buildings of „Lieporiai“ and „Saulėtekis“ gymnasiums and „Gegužių“ secondary school mostly corresponds the requirements for the type of a school, a slightly different situation

is in Lieporiai primary school). Therefore it is necessary to continue reorganisation and optimisation processes of schools network without any interruptions.

Table 0.5 - General education schools in the target territory

Establishment	Address and telephone	Email address and Internet website	Identification number (code)
HIGHER (NONUNIVERSITY) SCHOOL			
VšĮ Šiaurės Lietuvos kolegija	Tilžės g. 22, LT-78243 Šiauliai (8*686) 3 03 99, (8*41) 52 51 00, fax.(8*41) 55 00 35	info@slk.lt http://www.slk.lt /	111966571

Source: Šiauliai municipality administration, VĮ Registrų centras.

VšĮ Šiaurės Lietuvos kolegija (Northern Lithuanian College) operates in the target territory where full time (day time) and extended (extramural) studies are organised according to the programmes in law, business administration, financial economics and other studies. In addition, advisory services in the analysed territory provide the Office of Šiauliai district of Lithuanian Agricultural Consultation Service.

Sports and culture. The branch of the Republican Yoga School and the Children's Literature Department of the Public Library of the Šiauliai City Municipality operate in the development.

Table 0.6 - Sports and culture establishments in the analysed territory

Identification number	Title	Contacts
LIBRARIES		
188204772	Children's Literature Department, Public Library of the Šiauliai City Municipality	Gvazdikų takas 8, LT- 78253 ŠIAULIAI - (41) 552894
LEISURE TIME ORGANISATION SERVICES		
300566916	PENKLINĖ, UAB (family and youth leisure time centre)	Krymo g. 28, 2 a., LT- 78296 ŠIAULIAI - (699) 88020

Source: Šiauliai municipality administration, VĮ Registrų centras.

The Strategic Plan of the Development of the Šiauliai City Municipality provides for to renovate the premises of all branches of the Public Library of the Šiauliai City Municipality.

Health care and social services. The balance of activity of Šiauliai health care establishments in all levels is very important, i.e. prevention, nursing care and rehabilitation. The Centre of Lieporiai Family Physicians and Dentist Cabinet provide health care services in the analysed territory.

69 pharmacies operate in Šiauliai. The number of pharmacists per 10 000 population in Šiauliai in 2008 was 8.4, this indicator exceeds relative indicators of the country and county. The supply of these services is sufficiently developed therefore in the future the need of pharmacies should have to remain stable. Three pharmacies were operating in the target territories.

Table 0.7 - Health care and social support service providers in the target territory

Identification number	Title	Contacts
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HEALTH CARE ESTABLISHMENTS		
144907228	R. Kušleikienė Dentist Cabinet	V. Grinkevičiaus g. 4-2, LT- 78243 ŠIAULIAI - (41) 457824
PHARMACIES		
134778482	CAMELIA Pharmacy, UAB NEMUNO VAISTINĖ	Krymo g. 28, LT- 78296 ŠIAULIAI - (41) 550375
244940720	Branch of JAUTROS VAISTINĖ, UAB	Gegužių g. 23, LT- 78315 ŠIAULIAI - (41) 456039
SOCIAL SUPPORT ESTABLISHMENTS		
300558912	PARAMOS ŠEIMAI CENTRAS, VŠĮ	Saulės takas 5, LT- 78301 ŠIAULIAI - (41) 553646
293248910	SPINDULĖLIS, Šiaulių vaikystės invalidų globos draugija (Disabled children society)	Saulės takas 7, LT- 78302 ŠIAULIAI - (685) 77458

Source: VĮ Registrų centras.

Social services are delivered for the elderly and disabled people in Šiauliai seeking to provide as normal living conditions as it is possible and to postpone placement in the old people's house. Here a very important role plays non governmental organisations (NGO). Public organisations are founded in the analysed territory and also provide social services for separate population groups: Family Support Centre and Disabled Children Society of Šiauliai.

Business and household maintenance services. Post Office subdivision, communal service enterprises „Šiaulių namų valda“ and „Apkaba“ operated in the analysed territory. In addition, three territorial subdivisions of two banks and Šiauliai agency of UAB „HANSAB“ trading in bank equipment and providing maintenance services operated in the target territory of feasibility study.

Table 0.8 - Service providers of household maintenance sector in the target territory

Identification number	Title	Contacts
	Banks, bank equipment, system installation	
112056876	Bankas SNORAS, AB Šiauliai savings division	Krymo g. 28E (SUSTOK IR PIRK), LT- 78296 ŠIAULIAI - (800) 27272
112025254	ŠIAULIŲ BANKAS, AB Lieporiai client service division	Krymo g. 28, LT- 78296 ŠIAULIAI - (41) 504126

Source: VĮ Registrų centras.

Retail trade network (including restaurants and other catering enterprises) is more widely developed in Šiauliai when comparing the number of retail trade and catering enterprises per 1000 population for 2008 with similar indicators of the county of Šiauliai and the country. The network of retail trade is concentrated in Šiauliai. The biggest supermarkets and specialised shops operating in Šiauliai are mostly located in the central part of the city.

A number of business enterprises, the list of which is provided below, engaged in sewing, food industry, furniture manufacturing, sales of various products (including food products) and other activities and services operated in the analysed territory.

Table 0.9 - Business enterprise in the analysed territory

Entity code	Title	Residence address
Sewing industry		
244679640	KAMELĖ, UAB	Krymo g. 28, LT- 78296 ŠIAULIAI - (41) 553029
145460050	S. Pleskūnaitė-Bordiugovienė Enterprise	Krymo g. 14-1, LT- 78294 ŠIAULIAI - (680) 16152
Food industry		
144605913	PUMPURĖLIS, UAB	Krymo g. 18, LT- 78295 ŠIAULIAI - (41) 552542
Furniture manufacturing		
145672263	R. Dulinsko IĮ	Gegužių g. 31-24, LT- 78319 ŠIAULIAI - (688) 82908
145816589	Branch of MINKAMA, UAB	Gvazdikų takas 1, LT- 78252 ŠIAULIAI - (612) 10675
145331618	BERŽALAPĖ, UAB	J. Sondeckio g. 20, LT- 78214 ŠIAULIAI - (611) 10556
Sales		
145467568	GEMA, E. Čekanausko IĮ	Lieporių g. 19-48, LT- 78299 ŠIAULIAI - (41) 390694
300132898	TOREMA, IĮ	Saulės takas 3-85, LT- 78301 ŠIAULIAI - (612) 48286
145319587	ŠIAULIŲ INJUSTA, UAB, shop	Tilžės g. 2A, LT-78243, ŠIAULIAI (682) 27393
144912937	AIBĖ, shop, UAB NABATĖJA	V. Grinkevičiaus g. 18, LT- 78256 ŠIAULIAI - (41) 550428
110193723	CENTO, UAB PALINK, shop	Gegužių g. 21, LT- 78314 ŠIAULIAI - (5) 2601700
145255540	BIRUMA, UAB	Gegužių g. 11, LT- 78312 ŠIAULIAI - (41) 417009
180210385	S. JURKUS IR PARTNERIAI, UAB, supermarket	Krymo g. 28D, LT- 78296 ŠIAULIAI - (41) 550132
145502243	R. Bučinsko IĮ	Gegužių g. 21B, LT-78314, ŠIAULIAI (41) 461146
151466232	ARVI KALAKUTAI, UAB KŪB, shop	Gvazdikų takas 6, LT- 78253 ŠIAULIAI - (650) 93075
110778328	NORFOS MAŽMENA, UAB, shop	Gvazdikų takas 1, LT- 78252 ŠIAULIAI - (685) 70770
175797543	PREKIŲ GAUSA, IĮ, shop	Krymo g. 28, LT- 78296 ŠIAULIAI - (41) 581726
301558858	Šiauliai office of SRS SERVISAS, UAB	Gegužių g. 11, LT- 78312 ŠIAULIAI - (611) 36544
300973577	BUTONJERĖ, UAB	Krymo g. 40-43, LT- 78297 ŠIAULIAI - (618) 81166
300123689	ALARANDA, IĮ	Krymo g. 2-56, LT- 78255 ŠIAULIAI - (685) 27777
145428750	SIDABRININKAS, UAB	Krymo g. 22-24, LT- 78294 ŠIAULIAI - (699) 31151
4567651	V. Vadeikio IĮ	Krymo g. 28, LT- 78296 ŠIAULIAI - (614) 86365

Entity code	Title	Residence address
4493148	A. Urbono IĮ	Lieporių g. 1, LT- 78251 ŠIAULIAI - (41) 417455
Various services		
144546190	G.J.U., Urbono IĮ	Krymo g. 34-42, LT- 78296 ŠIAULIAI - (41) 454723
301503534	ALGANTA, IĮ	V. Grinkevičiaus g. 6-28, LT- 78243 ŠIAULIAI - (689) 67109
4555757	A. Zaura enterprise	Krymo g. 10-28, LT- 78256 ŠIAULIAI - (686) 73678
147685829	Branch of AKVIJA, D. Petraitiienė firma	Gvazdikų takas 1, LT- 78252 ŠIAULIAI - (41) 524778
301566602	VEITO PERVEŽIMAI, IĮ	Krymo g. 6-40, LT- 78293 ŠIAULIAI - (698) 29087
300072561	DANEKSA, UAB	Lieporių g. 19-54, LT- 78299 ŠIAULIAI - (41) 502190
145219124	APŠILTINIMAS, UAB	V. Grinkevičiaus g. 18-1, LT- 78256 ŠIAULIAI - (41) 390499
144946035	ALEFAS, UAB	Sevastopolio g. 15 (Lieporių PC), LT- 78296 ŠIAULIAI - (41) 550211
148385553	Dry cleaning unit of KAGRIS, UAB	Krymo g. 28, LT- 78296 ŠIAULIAI - (615) 64758
301637608	TAVO ERDVĖ, UA	Gegužių g. 29-32, LT-78319, ŠIAULIAI
300589007	INFOSIDE, UAB	Saulės takas 3-49, LT- 78301 ŠIAULIAI - (656) 42759
145444612	J. Dagio IĮ	Gegužių g. 9, LT- 78312 ŠIAULIAI - (699) 15460
300011494	RIDVEILA, UAB	Gegužių g. 31-1, LT- 78319 ŠIAULIAI - (615) 80800
300593386	DEVAS, UAB	Gegužių g. 27-2, LT- 78316 ŠIAULIAI - (41) 398284
4479672	BŪRIMO SALONAS, A. Reimerienės IĮ	Sevastopolio g. 11-27, LT- 78296 ŠIAULIAI - (699) 61948
147829382	Šiauliai branch of AULAUKIS, UAB	Krymo g. 26, LT- 78254 ŠIAULIAI - (41) 451055
145206963	J. Kavaliauskas design enterprise	Sevastopolio g. 3-18, LT- 78318 ŠIAULIAI - (41) 456184
301815765	PROVEKTA, IĮ	Klevų g. 15-18, LT- 76334 ŠIAULIAI - (699) 80116
Advertising and publishing services		
144145710	A. S. Narbutas publishing house	Klevų g. 9, LT- 76335 ŠIAULIAI - (41) 429335
145149291	LAIMUŽĖ, UAB	Klevų g. 6-23, LT- 76339 ŠIAULIAI - (41) 525645
Television		
123816348	Branch of TELERADIJO KOMPANIJA HANSA, VšĮ	Sevastopolio g. 19, LT- 78296 ŠIAULIAI - () 1517

Source: VĮ Registrų centras.

Below are provided strategic documents of the municipal level connected with the analysis of health care and social support infrastructure and household maintenance services (see Table Table 0.10).

Table 0.10 - Analysis of the strategic documents connected with the social infrastructure development

Document	Comments
<p>Strategic Development Plan of Šiauliai City for 2007-2016 approved on 22 December 2005 by Decision No. T-477 of the Šiauliai city municipality.</p>	<p>According to Priority I provided for in the Plan - Open, Creative and Responsible Society it is scheduled by 2016 to renovate preschool education establishments, prepare technical modernisation designs of preschool playing fields, renovate premises of general education schools, branches of the Public Library of Šiauliai municipality, provide conditions to set up cabinets for family physicians, renovate buildings and energetic economy of public service enterprises controlled by the municipality, establish new daily centres for children of problematic families and develop the activity of the available centres.</p> <p>In addition, it is planned to prepare the analysis regarding the need of preschool education services in 2010 and constantly analyse the activity efficiency and need of the enterprises set up by the municipality.</p>
<p>General Plan of Reorganisation of General Education Schools of the Šiauliai City Municipality for the period of 2005-2012 approved on 23 June 2005 by Decision No. T-210 of the Board of the Šiauliai city municipality.</p>	<p>It is provided for in the Plan “to develop the optimal network of schools in the city performing various education programmes; provide equal rights and possibilities to enter gymnasiums; more rationally use funds allocated for education; improve education conditions and education quality and provide conditions for investments into education“.</p>
<p>Activity Plan of the Šiauliai City Municipality for the period of 2010-2012 approved on 25 February 2010 by Decision No. T-41 of the Board of the Šiauliai city municipality.</p>	<p>Twelve activity programmes comprising the Plan are directed towards the increase of accessibility and quality of social and other public services for residents.</p>
<p>Social Service Plan 2010 of the Šiauliai City Municipality approved on 25 February 2010 by Decision No. T-44 of the Board of the Šiauliai city municipality.</p>	<p>The following goals of social service delivery and development of the Šiauliai city municipality are provided in the Plan: to provide qualitative services to various client groups; to cooperate with non governmental and other organisations of Šiauliai in providing social services.</p>
<p>Cooperation Programme of the Šiauliai City Municipality and Non Governmental Organisations approved on 23 February 2006 by Decision No. T-48 of the Board of the Šiauliai city municipality.</p>	<p>This Programme seeks: to ensure the continuity of cooperation based on open, equal, and partner-based principles between non governmental organisations and the municipality upon change of personal composition of municipal institutions, and expiration of tenures of the Municipal Board; cooperation between organisations and initiative</p>

	<p>residents of the city and establishment of associated structures to solve problems of residents and pursue aims favourable to the society, and provide required services, and represent public interests; promotion of the efficient and useful activity to the city and its residents by Šiauliai non governmental organisations.</p>
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The analysis of strengths, weaknesses, opportunities and threats summarises the availability of population education, health and other social infrastructure and service networks in the target territories of Šiauliai:

Table 0.11 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Availability of establishments controlling and regulating the activity of education establishments; • Availability of cultural and sports enterprises in the housing development; • Availability of establishments providing health care and social services; • Reorganisation of education establishments; • Sufficiently large network of retail trade and catering enterprises. 	<ul style="list-style-type: none"> • Preschool education establishments are overcrowded; • Negative change in schoolchildren number; • Uneven number of schoolchildren.
Opportunities	Threats
<ul style="list-style-type: none"> • Renovation of available education, cultural and sports establishments; • Expansion of available health and social service establishments; • Attraction of the national, European Union and private capital for the renovation of cultural, sports and health establishments. 	<ul style="list-style-type: none"> • Absence of continuation of social policy; • Low efficiency of education, cultural and sports system reform; • Irregularities of health care, social support and services development.

Summary. Since entrepreneurship of local population is sufficiently low and social needs are increasing, therefore in scheduling modernisation possibilities of the target territories the following circumstances must be considered:

- The development of education establishments was fatally impacted by radical changes in political, economical and social position during the last decade. These changes also affected the demographic situation of the country and Šiauliai. Reorganisation process of general education schools network is going on in the city. General education schools and nursery schools of the target territory must be renovated.
- The main users of social services are the pension age population and the disabled. Considering the trends of changes in the average age of the

population of Šiauliai, the need of health care and social services in the future should have to remain sufficiently stable or may even increase.

- Seeking to promote the increase of economics and household activity in the target territory, the attention must drawn to the development trends of the most actual activity sectors: education, health care and other communal and social services, sales and household service sectors.

Improvement of service establishments and their conditions in the housing development of Šiauliai. Improvement measures of environmental conditions of service establishments in the residential development of Šiauliai city.

<i>Measure</i>	<i>Comments</i>
<i>Optimisation of preschool and education establishments network</i>	Maintain the existing network of preschool and education establishments, i.e. 4 preschool education establishments, 1 primary school, 3 (1 secondary and 2 gymnasium) schools.
<i>Renovation of preschool establishments and their environment</i>	It is required to install and handle the environment of establishments during renovation of preschool institutions of the residential development, i.e.: to renovate playing equipment; design the network of pathways, comfort facilities and illuminations in the territory of the establishment. To separate children playing fields from streets by groups of green areas and to plant in the territory low trees of the weeping form.
<i>Renovation of education establishment environment</i>	It is required to renovate outdoor stadiums of the education establishments. It is recommended close to the stadiums of the education establishments to form sports fields (for instance, mechanic trainers for adults and school age children) for local population.
<i>Renovation of health and social service establishments</i>	Renovate health and social service enterprises, develop their network, install and handle their environment.

5. Transport

The analysis of communication systems of the analysed territories of Šiauliai is carried out on the basis of effective legal acts of the Republic of Lithuania and using the form of analysis of strengths, weaknesses, opportunities and threats. The most important technical document regulating the assessment of the existing transport condition and promising development is STR 2.06.01:1999 „Communication systems of cities, towns and villages“.

5.1 Number of autos and its increase

Table 0.1 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • The network of neighbouring trunk roads, streets and access roads is sufficiently dense; • The possibility to increase the number of available car park spaces in the analysed districts exists; • Public transport system in the city is sufficiently developed. 	<ul style="list-style-type: none"> • Insufficient number of available car park spaces at the block of flats; • Parameters of majority car park spaces do not meet the requirements of regulated territory standards; • Due to a lack of car park spaces, a number of cars are parked in the adjacent streets and therefore the problems of traffic safety occur; • A big number of morally obsolete, technically worn-out and environment polluting cars; • High traffic intensity in neighbouring streets; • Waste handling infrastructure is identified with car park spaces.
Opportunities	Threats
<ul style="list-style-type: none"> • Installation of additional car park spaces; • Renovation and expansion of the available car park lot infrastructure; • State and private capital attraction for the renovation and expansion of the parking lot infrastructure; • Increase of possibilities of the road capacity in the neighbouring streets and access roads; • Development of park spaces of the cars for the disabled (upon the need). 	<ul style="list-style-type: none"> • Possible increase of the number of cars when the number of car park spaces does not increase or almost does not increase; • Installation of car park spaces on the account of green areas, children playing fields and pedestrian paths; • Rapid depreciation of available car park spaces due to insufficient financing of repair works; • Decrease of the scope of development of car park spaces due to a lack of funding; • Obsolescence and failure to renovate the available transportation vehicles; • The development of a waste handling infrastructure on the account of car

	<ul style="list-style-type: none"> park spaces; • Increase of need for car park spaces near available and future trade and service infrastructure objects.
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5.2 Public transport stations

Table 0.2 - The analysis of strengths, weaknesses, opportunities and threats (SWOT)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Public transport network near the analysed territories, where a significant part of public routes are running is developed sufficiently well. • Intervals between running bus routes or minibuses are balanced rationally. • Driving duration from stations to other most important public transport stations does not exceed 30 minutes as it is provided for in the regulating documents. • Passenger waiting pavilions, shelters and other required infrastructure are installed at the stations. 	<ul style="list-style-type: none"> • Most public transportation vehicles of Šiauliai city are rather depreciated and that does not ensure the delivery of a sufficiently safe passenger service in buses and stations (lack of low deck buses, regulation of the bus lurching angle when passengers are getting on the board, etc.). • Installation of additional safe public transport stations is restricted due to sufficiently intensive traffic. • Distance between public transport stations exceeds 500 m. • Public transport stations are installed not very safe; safety measures for pedestrians such like regulated or unregulated crossings, steady routes of pedestrians considering dominant or changing routes in the neighbouring territories are lacking. • Public station infrastructure is not sufficiently adapted to the disabled.
Opportunities	Threats
<ul style="list-style-type: none"> • Install new or repair existing public transport station places considering the needs of residents and traffic safety requirements. • Construct safe passenger waiting pavilions or shelters intended to protect against wind and bad weather in all places of public transport stations. • Implementation of an additional infrastructure for the disabled. • Implementation of up-to-date passenger information systems in places of public transport stations. 	<ul style="list-style-type: none"> • Damage of the public transport stations infrastructure due to deliberate actions, vandalism or other similar cases. • When implementing certain safe traffic measures, it may be recommended to close or relocate certain public transport stations and in this way increase distances between stations. • Termination of the development of the public transport system due to economical reasons.

6. Installation and improvement of innovations of a waste handling infrastructure of lieporiai district

The main initiator of the implementation and improvement of innovation processes of a waste handling infrastructure at the local level in the analysed territories is the Šiauliai city municipality and its respective subdivisions. The activity and functional tasks of the city's infrastructure and Environmental division is important here in particular. The division of the city's infrastructure organises sanitary cleaning of the territory, pet care works, handling works of domestic and surface wastewater systems, define the location of waste containers in the common use places, areas cleaned by city's establishments, enterprises, organisations, residential house communities and individual house owners. Environmental division prepares measures and rules of waste handling plan, controls its execution and coordinates its implementation.

One of the biggest problems is lack of specially installed waste sorting grounds where residents can dispose domestic waste. Container erection places are provided in the special plan of secondary and mixed waste container grounds in Šiauliai, however considering lack of funding, the old grounds are expanded or new ones are installed on the account of existing car park spaces. Very often such grounds are not safe, ground boundary lines are not marked, waste treatment system employee's often empty containers unneatly and due to these reasons conflicts or even property damage situations are possible. Most problems mentioned herein would solve the adopted special plan of secondary and mixed waste container grounds in Šiauliai. This plan proposes a significant increase of container grounds however such places in the special plan were chosen as close to the driveway as possible, and in the street grounds or car spaces. In this way, the plan does not solve the conflict-based planning situation when waste containers are erected in car parking spaces the number of which upon the increase of need to sort waste shall only increase.

In the future this conflict situation due to different functional needs should be coordinated during installation of new car parking spaces so that the effective standards for the installation of car parking spaces, i.e. 1.1 spaces for each flat would be ensured and adapted to houses of new construction, and that would be the main goal to achieve. Coordination between these two systems (car parking and waste handling) is necessary since it is required to ensure a due and safe access of heavyweight and large-scale vehicles to the grounds of waste containers.

It is observed that lately residents more willingly use sorted waste containers however too much waste is still disposed to the unsorted domestic waste containers therefore there is no need to change calculation method of unsorted domestic waste containers. However the possibility that such a situation shall change in the future both considering environmental directives and standards of the European Union and Lithuania, and the changing consumption and waste handling habits of residents must be provided for. The number of unsorted waste containers shall inevitably decrease and gradually disappear, whereas the number of sorted waste (secondary raw materials) containers shall grow.

Considering a long-term statement of the Committee of the Regions of the European Union regarding the implementation of the Directive on the landfill of waste (1999/31/EB) at the regional and local levels 2006/C115/21 according to the so called waste handling hierarchy waste disposal in landfills should be the last way out. Currently glass, paper and plastic waste can be disposed in specialised containers. It should be noted that considering the practice of foreign countries, it is required to provide for the place for other waste not yet sorted in Šiauliai and other cities of Lithuania, i.e. aluminium and tin packaging waste, for

separation of coloured and colourless glass waste, waste window glass and glass packaging waste, cardboard packaging waste, press waste, etc.

Shafts for prompt waste disposal were installed in the blocks of flats built before 1990 (in all 6-storey and higher buildings, and in some 5-storey and lower buildings). Waste was accumulated in the containers erected in the lower storeys. Lately, by the initiative of the municipality or home owners regarding failure to meet hygiene requirements and due to the increased operating expenses, the following systems are not used, the apertures of the shafts are welded and rooms of containers are used for other functional needs.

Innovations of a waste handling infrastructure in Lieporiai district of Šiauliai city:

1. Grounds must be clearly marked and boundary lines must be duly legalised. This violation and its improper use must be punished by administrative measures and in the prescribed manner.
2. Waste handling grounds should not be expanded on account of available car park spaces or this loss shall be compensated by other territory planning measures (by installing recreational and children playing fields or new car park spaces).
3. Design solution on the perspective to use waste disposal shafts has to be adopted. These shafts in the future may serve as additional halls of communication, for instance for the implementation of new and economically efficient energetic systems or renovation and modernisation of old systems.
4. Upon installation of mixed and sorted waste containers (secondary raw materials), it should be provided for that in the future the number of containers and the space around it should increase. Temporary places of containers must also be provided (for biodegradable waste) (for instance, mowed grass and fallen leaves), and for the collection of construction and large-scale waste)).
5. By supplementing the special plan of secondary raw material and mixed waste container grounds of Šiauliai that provides the replacement of the available large containers (5 and 7.5 cubic meter volume) by smaller containers (approx. 1.1 cubic meter volume) and of a more attractive appearance that would less despoil the surrounding environment, it is necessary to enclose the improved area by adopting harmonious architectural solutions.
6. Possible available and future conflict situations due to the different functional use of territories should be resolved by installing new car park spaces so that the effective standards for car park spaces would be possibly ensured and adopted to new construction houses.
7. In adopting decisions regarding the required number of containers, this need must be very flexibly regarded and, upon the necessity, change this number, this must be provided in legal documents of the municipality and in the agreement with waste collection service providers.
8. Upon the possibility, new areas for waste containers must be installed or old ones must be repaired considering population flows.

7. Implementation of hydrotechnical measures in Lieporiai district

The analysed territories are not distinguished by plenty of surface water reservoirs or streams, however even under such conditions climatic changes and trends must be considered.

The increased repetition of heavy rain within the last decades and significant changes of winter regime conditions must be indicated as climate changes. Rainwater drainage systems designed earlier according to the applied standard-technical basis do not meet present-day requirements.

To solve these questions on rain water drainage system separately and only regarding the territories analysed in the plan is not expedient since it should be a complex design solution of the entire Šiauliai city coordinating the capacities of the entire water management system.

It should be noted that within the last decade's temperature regime during different seasons of the year significantly changed. It happens that sometimes in winter a steady snow cover does not accumulate and the average monthly temperature is very close to 0°C or even exceeds it. It impacts hydrological regime if the environment therefore sometimes plenty of moister may be formed or on the contrary - lack of moisture. In the event of plenty of moister in the open surface soil, wetlands may start forming that, with the course of time, may change the entire hydrological regime and cause certain inconveniences.

Wetland formation processes are evident in some places in the Lieporiai Park and near Norfa supermarket at Gegužiai pathway. These places are marked in the enclosed diagram. Seeking to increase recreational attractiveness and potential of the Lieporiai Park, application of certain hydro-technical measures at least in some places of this territory must be provided for. Firstly - increase a number and area of water reservoirs. Implementation of these measures should be performed together with the drainage system implementation in the park. Providing that the length and width of pathways with a solid coat shall only increase, it is necessary to provide drainage systems too. Combination of these systems is also possible when installing rainwater collection systems.

Implementation of hydro-technical measures in the housing development of Šiauliai city:

1. Upon preparation of reconstruction and renovations projects of the Lieporiai Park, to propose to increase the area and number of existing open water reservoirs by planning them in places of forming wetlands. Seeking to maintain general circulation regime of surface water in the park, it is proposed to install open connate water connections between these reservoirs.

2. Another possible solution seeking to handle wetlands forming under relevant conditions in the Lieporiai Park - the possibility to install the so called rain gardens, i.e. form certain dendroflora in the lower parts of a relief that would consume plenty of moister. The idea of rain gardens can also be adapted when surface drainage systems are formed.

3. Regarding the territory near the Norfa supermarket, to present hydro-technical proposals for the territory arrangement of the former nursery school without a plan of development of this entire territory and detailed planning documents is rather complicated. The problem of moisture could solve the enlargement of rainwater system by the borders of the land plot of the mentioned supermarket.

4. It is proposed near the main pedestrian paths in the Lieporiai Park to install drainage systems that could be both of closed and half-closed systems. Such systems can be grouped with rain water systems. Drainage systems of the Lieporiai Park must feed open water reservoirs of the park.

5. It is not purposeful to solve rainwater arrangement questions only in the territories analysed in the plan since it should be a complex design solution of the entire Šiauliai city or separate for certain territory units considering the layout of communication halls combining the capacities of all water management system.

Imprint

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