5.3 Public places. Green and blue.

Vilnius, born surrounded by impenetrable forests, raised and strengthened the pagan culture, which is manifested affection and respect for wildlife. Most of current old town open and green space systems are legacy of historical changes in the city. However, most of the green and open spaces disappear by developing city, and existing as abandoned and neglected. (Urbonaitė, I., 2012) Therefore, there are going renewal projects of green and open spaces as Bernardinų sodai (Benedictine gardens). Some others, open spaces, are formatted after the war when old city quarters were bombed and vanished after war. Sometime after the war opened up the city’s urban fabric became toothless squares and plazas (K. Sirvydo Square, Ghetto victims’ Square and All Saints Square) and the other to be premature in the absence of pledging the wider public interest assessment. (Urbonaitė, I., 2012)

In the city centre, most of the green and open spaces function is just symbolic and compose by small squares, plaza, historic parks, gardens, existing and former graveyard. (Figure nr.49) Most of the formal cemeteries used as squares and parks. It happened in the Soviets period because the politicians were doing on purpose to abolish historical heritage (Vilniaus reformatu square, J. Montvilos square). Although, in Vilnius green spaces are more than enough, they perform better than public spaces or recreational functions. However, it works as green connections or buffer zone, although it has the potency become parks or squares. Examination of the recreational areas typological distribution shows that the dominant greenery separate small parks, squares and beaches, unfortunately, most of them part-managed and equipped recreational spaces cannot be described. (Urbonaitė, I., 2012)

Most of the rivers and rivers’ banks have big recreational potential, but these days it used fragmented and passively. There are going few projects, how to use the River Nėris by creating wharfs for touristic trips with ships in the river. Also, there are propose several projects for recreational use of Vilnelė river banks, but none of them realized. In summer time, Vilnia River is used by canoeist who travels from Belmontas area until Nėris River. Significant numbers of residents spend time by walking next Vilnia.

The project study area is very close to the natural environment; green and public space (Misionerių garden, squares) and it is the part of the Vilnia river bank. Most of the areas are not developed and only have —fragmented structure. Historical formatted linden tree alley is decadent next to Vilnia River. Green surrounding has good potential for creating recreation and public areas in the study area. The project area has historical formatted squares and backyards in the west part. Therefore, most open spaces are used as parking lots or overgrown by trees and bushes.

Figure nr. 49 Green and blue zone, squares around the study area
Territory is part of two city districts (Senamiestis, Rasos) which have different typology. (Figure nr.50) Senamiestis (Old town) district is the oldest area of the city which has been formatted in several centuries, there live around 19447 residents in 4,5 km² territory. The district characterizes by the density of the buildings, narrow streets and historical heritage. In Senamiestis, there are located different schools (from primary to high schools), universities (Vilnius University, Vilnius Technology University), academies (Art Academy, Music and Theatre Academy), and colleges. Also, there are located amount administration building (Presidential administrative building with courtyard, Ministry of National Defence) and foreign countries’ embassies. Other buildings functioned as residential, offices, various commercial uses (shops, restaurants, hotels, bars and pubs), churches, museums, galleries, hospitals. Part of the study area which is in the Senamiestis district, used to be an industrial and residential area, however, until now, it is used as industrial, residential and offices, other buildings are abounded.

Rasu district takes the east side of the project area. There is exist functions as industrial, commercial and residential. In the district live around 10597 inhabitants in 12,7km². Major part of the district covered by forest, south part is used by offices, commercial and industry. Markučiai as part of the Rasu district characterize by two floors, individual/single family houses, which most of them walls covered by wood and are next to study area. Rasu district is famous by Rasu and Sentikiu cemeteries. There are several different schools in the district area. East side of the study is used as industrial, service, office and residential.

The study area is a part of the inner-city and to predict what kind of people are going to live and the type of users of the area, it need to look surrounding and existing functions in the area. As Bayoh et al., (2006) says that by improving the schools’ quality increases the possibility of new residents in the area more than lowering crime levels. About security in inner-city has talked in chapter 5.4.3. Analyzing the surroundings in a bigger dimension is found that the study area is close
to city centre, where are located different type schools, universities (Figure nr.50).
In the design process, it needs to talk what kind of group of people, it is expected
to live and use this area. Young families, families with little children always look
for an area to live where distance between home and educational institution would
be accessible by feet even bicycle. Moreover, city municipality wants to reduce
the car’s accessibility in the old town by increasing parking taxes, creating one
way streets. Walk is unpaid relaxation and transportation, which are area available
for different age people.

First, It will be analyses of social distance of the various schools and hospitals
around/in the study area by using “amenities’ distance wheel” which has been
created by Barton et al. (1995). Also, it represents the distance between points
by looking from possible facilities in local, neighbourhood, district, town, city
measure (Appendix nr.7). The wheel will be applied differently in this case study
part. It will look how the potential facilities can impact and be reachable by dif-
ferent transportation especially by walking. (Figure nr.51) Analysis shows that
existing kindergartens and primary schools are concentrated more in Senamiestis
district and in the south part of Paplauja and Markuciai area, but the social dis-
tance does not reach the area. However, there is one kindergarten in the east side
of the territory. Middle schools, high schools, and other special type of schools
have an impact in the study area, and it shows that high schools concentrate in the
Senamiestis district. Hospitals and day care centres do not have significant social
influence in the study area.

Surroundings analysis of local and neighbourhood shows the existing functions
in the area and around, later it would help to design missing functions which com-
bine with stakeholder wishes. The surroundings of the study is occupied by var-
ious function zones (Figure nr.52). From south – west - north the study territory
surrounded by residential houses (single-family, one/two floor houses, apartment
buildings’ (5-7 floors buildings and 2-3 floor building in Senamiestis and Užupis).
Some of this apartment’s buildings first floor are occupied by different com-
mercial and service functions (small boutiques, grocery store, restaurants, cafe-

Figure nr.51 Social walkable dimensions, zones of scholastic institutions, hospitals
teria, restaurant, pubs and galleries) and concentrated next to the main pedestrian streets. In the same direction, there are located few different kind education institutions. On the west side, there are four churches, abbeys and, chapels that one of them belongs to the penitentiary territory in the south side. Moreover, there is historic Vilnius city wall Bastion, which is reconstructed and works as a museum in the west side and Puškino museum with place in the south east side. Supermarket/ grocery store exist in the Užupis area and are accessible by foot. In this area exists abounded “Vilija” manufactory, historical heritage - Bernardinų cemetery in the north side above study district. A big part of the area occupied by green environment (Pavilnių regional park, Belmonto park) in the north- east side. Also, Misionierų and Kūdrų parks situated in the south west side which are parts of the study area. The last, Vilnelė River is connected with surrounding, old town and natural environment.

**Local functions** are categorized by building not the zones. (Figure nr.53) As mentioned before, park of Misionierų and Kūdrų is part of study area also the green environment next to the Vilnelė River from the west to the east side by coast-wise. There are some empty zones which doesn’t functional and formatted as green field. Notable existing situation of some buildings is abounded industrial group of buildings in the west side and some single building in the east side. Other dominate the function is residential houses and apartment buildings which developed in different historical periods. New apartments building movement is conversion of industrial administration building as loft that the number of offices and companies occupied first few floors. Few offices are located in the west and the south-east side of the study area. Industrial function dominates in the east side by occupying big area and “Vilniaus kailiai” site in the west side of the project. Moreover, there are many functions that notable more individual- supermarket, furniture stores, chapel, hostel and some type service (garage, petrol station) and one education institution (kindergarten) in the south-east side. Local and neighbourhood functions are different types and dominate residentially, natural and industrial. The local area is missing grocery store and abounded territories and building attract homeless people in the area. Moreover, this area lacks daily care centre, kindergarten, post-office and other daily need functions.
The city of Vilnius has big potential as tourist city in the north east of Europe. The main concentration is the historic core Senamiestis and study area is part of it. Senamiestis (old town) and Naujamiestis (new town, in the west side from the old town) concentrate many tourist attractions. (Figure nr.54) The old town was influenced by different type architecture styles which can be found in famous churches, chapels, city hall, offices and residential buildings. Different style churches, the most of baroque style, are one of the biggest attraction in the city. National government protected Cemeteries as heritage of Lithuania catholic history and the two closest are Bernandinių and Rasų cemeteries to study area. Moreover, some historic national buildings (Gediminas Tower, Valdovų rūmai, Vilnius city wall bastion) are resort place in the old town. As it was mentioned before, the Vilnius old town with all buildings and street structure is registered and protected by UNESCO as an architectural, historical heritage. Moreover, several type museums and galleries are concentrated in the old town, and none of them located in the study area. At the same time, the theaters have been located in the city core. The city core zone some biggest local and daily tourist attractions and movements. Gediminas avenue connects the west and east side of inner-city. There are located several shops, commercial and service stores, and some theaters. Second zone, Pilies street till Rotušės square, Vokiečių street and Vilniaus street is the circle of people moving in the old town and third, Užupis area where are located familiar functions as in the first zone. None of these zones is part of the study area, and only the Užupis is the closest zone next to study area. Study territory has some interesting objects which can be used for city users and city visitors’ attraction. In study location, it is located only one hostel. Hotel, hostel service development, could be a good opportunity for this function in the west side and east side of the area. Two observation spots are close to part of the study territory which view open to the old town and study area. In design part, it should be addressed to the tourist life development as part of the old town, not only the west side but even east side. Development could help to connect both sides despite Drujos street because these days this area is distinguished from city core life.
Creating the new area, it needs to look for safety of the area and it can be one of the problems in the developing area. Safety is a central dimension of contemporary debate on urban sustainable develop. (Ceccato, et al., 2011, p. 83) Being a safe city is part of having a good image, a quality that helps attract investments (Hall, 1998). Transition counties which are changing their economic status, political power, are the Post-Soviet Union countries in Europe. And one of those countries city is Vilnius. For the case study, it will be look not only at the study area, but concentrated to the inner-city of Vilnius as study area part of it.

Sometimes the safety problem can affect development of the area because residents feel unsafe of big crime level. In addition, there are indications that in transition counties fear of the state has quickly been transformed into fear of crime (Los, 2002) and that corruption and lack of trust in society would make people feel unsafe (Ceccato, et al., 2011, p. 84, Transparency International, 2007) After gaining independence from Soviet Union, many Easter European capital cities, including Vilnius, experienced a rise of drug-related offices and other illegal activities related to organize crime, such as human trafficking and prostitution (Ceccato, et al., 2011, p. 84, Aral et al., 2006). In Vilnius, theft increased by more than 30% between 1994 and 2000 while crimes such as homicides, assault and robbery continued at the same level or even decreased in the same period. (Ceccato, et al., 2011, p. 84) (Figure nr.55)

There are two new important structural features which affect the crime and keeps safety in the city. The inner city of Vilnius is one of those areas in the city which are related. These days, the city center is a dynamic area influenced by new commercial and business services. Governmental and private institutions and businesses attract a large part of the labour force and temporary visitors. The big concentration of restaurants, bars, nightclubs is located in the city center. Residents of inner-city share the public spaces with flourishing service sector and daily visitors. Transport nodes and links bring people from the outskirts to the city centre on a daily basis. All this movement in the city centre invites the offenders to choose as their commission area. Crime will take place where people spend time and converge, so crime is likely to be concentrated in the most central areas of Vil-
The second is the social-spatial differentiation and concentration of socio-economic disadvantages in the city areas. Moreover, socio-economic disadvantages can influence the crime level and safety in the inner-city. At one extreme, there are employed, highly educated, and well-off groups living in valued housing (either new buildings of less than 10 years or long-standing buildings more than 70 years old) located in central areas (with sights of gentrification), but also on the outskirts of Vilnius, within the avant-garde sector of current city development (mix of rural and urban elements where the most mobile population group lives). At the other extreme, most of the population, but particularly the most disadvantaged groups, live in housing developments dating from the Soviet era. In the southern part of Vilnius, a social disadvantage has an ethnic dimension. Some of the regions with high unemployment rates are also those with poor collective resources (older houses which lack basic urban infrastructure).

There are few forms of urban crime in the inner-city which are most noticeable and registered. Homicide in Vilnius has a dispersed pattern around the old town where most problematic neighborhoods: Naujamiestis, Šnipiškės, Naujininkai and Senamiestis. In Vilnius, there is noticeably the concentration of thefts robbery and to a certain extent, drug-related crimes because of daily users in the inner-city as in other Western European cities. Moreover, inner-city area don’t only have a high concentration of crime such as in Vilnius but also other social deviations, such as problems associated with alcoholics, drug addicts, and homeless people. The last, there are small crimes which create an unsafe feeling in the city and city centre like rubbish and litter lying round, graffiti on walls, teenagers hanging around street corners, noisy neighbours, unkempt lots, abandoned storefronts and lack of illumination.

Figure nr.56 Cluster of thefts in Vilnius’ old town (‘Senamiestis’) – 2004–2005 using Nearest Neighbour Hierarchical Cluster. Criteria for Small ellipses: Fixed distance: 100 m, minimum number of points per cluster: 50.
5.5. Traffic system and intensity. Pollution.

The study of transportation and pollution show the existing systems, location and main problems with it. Pedestrian, movement of cars, public bus system in the city, parking and traffic intensity are the main key points of the analysis of the traffic system. This study shows the advantages and disadvantages of existing systems and movement in the study area and around it. Moreover, development of an urban area impacts the changes of transportation system (Jakimavičius et al., 2009). When wide range indicators of urban transport system area known, it is possible to use multi-criteria methods for the correct urban area development scenario estimation (Ruichun et al., 2007; Jakimavičius et al., 2009). Study area analysis of pollution shows the main problems of polluted soil, building and traffic noise problem.

The consequence is that if the population and car ownership is unchanged as compared to the base year situation, but the total number of workplaces increased, than the total number of car trips will be the same as for the base year situation. If the workplaces are relocated, for example, to more central areas, it will have an effect on the trip’s pattern for cars, but not on the total number of trips (Jakimavičius, et al., 2009 p. 363)

5.5.1 Traffic movement

Pedestrians. The people’s movement can be noticed by existing function in and around the study area, by streets and paths system. (Figure nr.57) In the west surrounding of the area, various number of people moving is notable in Maironio street where people flows come from Subačiaus Rusų, Išganytojo and Kūdrų streets and Užupis area. These flow sizes are dependent from daytime when people are going to/back from work and schools, a university student movement in the area between education institutions and suitable bus stop. In the west side of the study area, movement of the people is significant because, there is live a small number of people and that area notable also in the east side. In the study area, the pedestrian movement is restricted by street intensity and the flow goes from the bus stop to living place, living place and grocery shop most of the time. On the east side of the study area, people, movement exists because next to the study area is developed private houses – Markučiai, and southeast side located two high-rise
buildings, five floor block of flats and a supermarket “Maxima”.

**Bicycle paths.** The movement of the cyclist in the study area is low and it is dependent from undeveloped and heterogeneous bicycle path system. The study shows existing and planned bike tracks in the area and around it. (Figure nr.58) This study plan area based on “Vilnius city bicycles’ transport infrastructure development program until 2020” (Appendix nr.9) Developed section is only from Tymų market (Maironio st and Aukštaicių st. Crossing) until Subačiaus streets. Other paths are just in the blueprint form and have to be developed until 2020. Great planned bicycle axes would develop bike paths in the north and south parts of the study (red - Subačius street, orange – by Vilnelė river bank, and Paplauja street). These axes could connect the old town and natural environment, Belmontas park, which function would develop as a recreational bike path. The last, cyclist number is growing and its influence by development of the path system and season in the city. Moreover, this culture is growing in the city and more different age choosing this vehicle.

**Bus lines.** The most of the bus lines were developed long time ago. Therefore, some public transport lines had changed, for example, there was a bus line until “Skaitėkas” area which was developed for workers’ connection with workplace when a company had closed, city municipality withdrawn this line. These days, there are several bus lines with stops around the study area(Figure nr.59 Appendix nr. 10). In the west side, existing system could be considered as well developed, but the east side it is not developed. However, the area development could be changed by attaching line/section of line in the territory or even connecting both sides of the study area. It could help reduce private car number and size of parking lots in the territory. Moreover, public transport impacts the preservation of the environmental balance and consumes five times less energies per passenger than private transport. (Zavadskas, et al., 2007, p. 67)

**Parking.** The study area is part of pay-parking green zone of the inner-city. (Figure nr.60) This program is going for one decade by taking more territories in structure, and the city municipality developed this program to reduce the private car number.
in the inner-city and limiting parking time. Around and in the case study territory, there exist open the parking lots and used mostly by workers in the industrial companies, offices and for service and commercial customers. On the west side, the Aukštaičių street beginning and Tymų market is occupied by tourist buses. This area, one of few zones, could be parked in the tourist bus in the old town. In the study territory, most of the streets adapted for parking in the street because the width of the streets is small for pavement, parking and double-way in the west side. On the east side, there isn’t developed until the end the pavement and parking system in the streets, because the low pedestrian and high trucks movements impact the street structure in the area.

Traffic system. Most of the streets had developed in a few decades and centuries in Vilnius. Some streets have historical meaning (Gedimino avenue, Pilies street, Paplaujos street) or have been developed as a pedestrian’s street (Vokiečių street). These days, the city municipality is developing the bypasses structure which helps to control the heavy traffic flow in the city centre and direct the truck flow too fast movement around the city. Moreover, this bypasses project has been developed to reduce the air and soil pollution in the city. How traffic brings pollution problems will be talked about in later chapter 5.5.2. The study area is surrounded by small streets and divided territory into two sides by Drujos street (former Zarasų street) the study area. (Figure nr.61) Drujos street area categorizes as B1 and B2 street which means high street and speed range 60-70km/h. This street has constructed in the second part of the 20th century. On the south side of the area, Subačiaus and Maironio streets are C2 category- serving street and their speed-limit is 50 km/h that it is regulation speed in the city of Lithuania. Other streets are supporting (D1, D2) streets where the speed limit is 50-60 km/h (D1, D2), 20-30 km/h (D2). Next to bus stops and some main crossroads situated passages of pedestrians. All of them are in the same street level as cars. The traffic causes different pollution and noise problems in Paplaujos and the north part of Markučiai territory. (Figure nr.62)
5.5.2 Pollution

Pollution reduction is one the key point of analysis of the developing brownfield, and it can be the main subject and, or problem of the regeneration process in the study area. Private cars, trucks and other vehicles’ number have increased in the last two decades, in the city of Vilnius and the country. The biggest pollutant emissions come from transport, which comprises around 88% of all pollutant emissions in Vilnius. The soil and roadside of busy streets are polluted and accumulate pollutant from industry, energy and transport. The territories with industrial enterprises, excessive amounts of heavy metals and oil products detected. They are hazardous to the environment and human health, especially when chemical substances from the soil get into the ground and surface water. (Zavadskas, et al., 2007, p. 64) Moreover, the main problem could be the high noise level which comes from the heavy transport flow, old cars, densely built areas and poor window acoustic isolation in developing new area. Also regenerate the brownfield in residential, commercial and office use. The most sensitive and the highest noise level norms are in residential territories. (Zavadskas, et al., 2007)

Existing problems of pollution problems in the study area are the cause of traffic flow, industry and historical urbanized and populated territories. Noise from traffic is one of the main problems of the area because of the high street- Drujos, serving streets- Maironio, Subačiaus that flow number per day is higher than another city street in/around the territory. (Figure nr.63, Figure nr.64) The black spots for noise are the crossroads and overpasses because many numbers of vehicles are passing the spot. The industry doesn’t have a significant impact in the sound, in the area, because half of the manufactories are not operating the production or far away from the study territory. (Figure nr.65) Industrial noise comes from the southwest side to north east because in the south east side area located several manufactories. Other noise indicators are airport and train station with all infrastructures, which have various noise levels to the study area. Moreover, the topographical structure of the Paplauja and Markučiai keep the sound in the area.

The soil pollution is causes of former and existing industries in Paplauja and
Markučiai territory. There has been amount research on the quality of the soil and the buildings which identify heavy metal, oil and another pollutant concentration (Figure nr.). The west side of study area eco-geological investigations show that some of the buildings and soil contaminated by former industrial activities, a large part of existing buildings should be rebuilt, reconstructed or demolished, and part of the soil removed from the area for utilization. (Vilniaus planas, 2012 p. 64) The familiar situation could be in the east side of the soil and building quality. Moreover, the detail eco-geological investigations could give the more detail situation in the area. Those studies have to do because the industrial, infrastructure, pollution could affect future residents and users healthy. In urban areas, the increasing pollution has a negative effect on both the environment and traffic, participants such as cyclists and pedestrians. (Zavadskas, et al., 2007, p. 67)

Figure nr.65 Black spot in the Paplauja and north part of Markučiai territory.

After analysis of the stakeholder and a case study, the paper gives design proposal for the study area. Design was created by discoveries from both analyses. Moreover, this design proposal is an idea how this area could be look and it could be begging to second step of participatory process—consultant with stakeholder about design, details, but not in this paper.

6.1 Main guidelines and conception

Stakeholder analysis and a case study give the opportunity to look detail the study territory from urban planning analysis and society needs. Every analysis gives the guidelines (needs, problems, opportunities) which are summarized (Figure nr.66) and design proposal is based by trying to fix the problems, improve the opportunities and needs. Guidelines critically selected words and phrases which stakeholders have mentioned many times, ideas of the development brownfield, and a case study discovery problems and opportunities. (Appendix nr. 14) The main guidelines of the design proposal are to create public spaces, harmony, connection, daily functions, “city in the city”, social functions and others. All guidelines help to create sustainable and neighbourhood community.

The conception of the design is to create sustainable and multi-functional territory which used to be a brownfield. Functions in the conception are just abstract type later it is a detail developed in the overall plan. (Figure nr.67) Functions should be zoned and mixed: residential, commercial, offices, culture and others. It would help to keep the area alive in weekdays and weekends. The west and east side of the territory should have a connection between each other and surroundings. It could make by developing public spaces and connection (pedestrians and bicycles paths, bus lines) which invited to come and stay residents and visitors of this area. Moreover, there is a possibility to develop the area as part of the old town and connection with other districts of the city by public transport and bicycles. In both sides, it should develop the public and common land which is separated from traffic, but connected with each other. This places could have next to it commercial, residential and education type buildings which help to develop and keep places alive.
Proposal takes sites of the study area which used to be an industrial land and undeveloped, also, it gives suggestion how to use the old industrial and protected buildings by giving new function. (Figure nr.68) New design keeps and develops new street structure for cars and paths for cyclist and pedestrians. It was trying to create sustainable design based stakeholder opinions and apply the Lucien Kroll and Christopher Alexander theory about designing territories “with people and by people”. New design is an idea how this area could be developed and more focusing to people needs. Moreover, it was trying to find connection between sustainable planning and planning for people. Design was developed by combining different building, streets morphology, functions and guidelines from analysis. (Appedix nr.15) New design of the territory will be explained in details plans by giving examples of developed projects from the world and using patterns from “A Pattern Language”. It could help to explain and understand the idea about it.

6.2.1 New functions of study area and domestic life

In the first, it needs to talk about the functions which are provided in the study area. There is trying to design daily use functions, which have been missing in this area and new functions for recreation and leisure. (Figure nr.69) New functions could help to improve life quality and style in this area. Moreover, it was trying to create “city in the city” and to combine with existing neighbourhood infrastructure. Also, this territory is designed as the core which survives by itself. In one of the patterns, there suggested how to developed districts of the old town that “..if each of the core not only serves a catch basin of 300,000 people but also offers some kind of special quality which none of the other centers have, so that each core, thought small, serves several million people and can, therefore, generate all the excitement and uniqueness which become possible in such a vast city.” (Alexander et al., 1977, p. 61) The idea of the territory is to keep valuable and interesting industrial buildings and combine with other functions, but keeping the soul of the territory. In a paper about buildings, it will be talking in the next subchapter.
6.2.2. Buildings density and volume.

The dominate functions is residential and trying to combine with commercial and office use. In the west side, there is keeping existing residential houses and develop new few floor buildings, also, it includes existing historic buildings. The old industrial building could be use for commercial (grocery stores, restaurants, cafeteria, bakery, meat shop, gallery, hostel and other), offices (craftsman studios, offices of different business) and education (classes, studios of university, academy students). Some new building designed for the residential use which could be for dormitories or students apartments in the industrials areas. In all study area, there suggest creating students apartment or dormitories together with other social groups. Because the case study showed that there is concentration of universities and colleges in the old town and the study area is close to it. Moreover, it provides for different social groups and family types. In the north of the west part, there are designed residential type buildings with 1-3 floors. Some of those buildings first floor could be occupied by shops, cafeterias, other commercial function and offic-

es, which are close to square and street. It would help to keep active people movement next to the street and in/around the square. Also, residential blocks and green area next to Vilnia river for passive use: walking, jogging, cycling, picnics. In the area, there is planned the building which could be use for kindergarten and primary school. Next to it, there is designed community centre which can be combined with kindergarten and other culture objects in the east side of the study territory.

Two greenways connect the west and east sides and plan for pedestrians and cyclist: one next to Vilnia River, the second cross the Drujos Street by tunnel. These greenways give opportunity people movement independent from cars in and around the area. In the east side, there designed the group of building with 2-3 floors which function for commercial and office use next to Drujos street. This zone contain the buildings for recreational and leisure use (swimming pool, sport centre) The healthy centre is designed further from recreational and education zones, but it is still reachable by walking and cycling. It was recommended in the pattern “47 Healthy center” that it need to develop “the network of small healthy

Figure nr. 69 Plan of functions
centers perhaps one per community of 7000” (Alexander et al., 1977, p. 255) and keep close to other activities. This healthy centre developed for the inhabitants of the study area and neighbourhood. Next to a greenway, buildings are designed for multi-functional use; there first and second floor use for commercial and offices and third for residential, also, there could be blocks of buildings there only first floor occupied by offices and commercial functions and other floors residential. Other buildings’ blocks planned for residential use with backyards. There recommended to reconstruct the existing kindergarten and playground. The boiler house with chimneys converted as culture and education centre. The open green area is planned for active recreation next to Vilnia river and it should be designed together with existing and future residents of the study area. Moreover, it develops path network next to Vilnia River for connection with the old town, Belmontas area and other parts of Markučiai. The study territory is designed that different functions could overlay each other. The analysis has been done by using “Amenities distance wheel” as in the case study. (Appendix nr.17) It shows the walkable distance from the object to surrounding and the biggest dimension has the healthy centre, supermarket and education centres.

6.2.2. Buildings density and volume

In the function part, there mentioned about building structure. In this subchapter, it will try explain about the new and old building network. The new design tries to combine new and old buildings. It is recommended to preserve heritage protected building and wall in the west side and the east, side keep boiler house with chimneys, other chimneys, some group of buildings and construction which could be left in the area. (Figure nr.70, Appendix nr.18) It was decided to leave because these remains of the past and today industrial buildings and elements which could be converted for the new use and preserved for future generations to remind about existed brownfield in the area. Moreover, there are several good projects in the world where old industrial areas is converted for the new use and keeping of industrial elements, construction in the territory, for example, Duisburg Park in the Duisburg, Germany. (Appendix nr.21) In the west side, the historic buildings and some other buildings should be renovated and developed for the new function by

![Figure nr. 70 Protected and saved buildings, walls](image)

![Figure nr.71 New buildings height and typology.](image)
saving volume and space of buildings. New development of old buildings should be integrated inside of the building, but it doesn’t destroy the existing structure. (Appendix nr.22) The historic buildings walls preserved and integrated into the new building facade (Museum of Natural History, Berlin, Germany. Appendix nr.23) or stand separated from other buildings (Mill city museum, Minneapolis, USA. Appendix nr.24).

Most of the new buildings are designed the parametrically type typology and keep the familiar structure with the old town, also, there are developing smaller density of the buildings which are familiar with suburbs of the old town. (Figure nr.71) There designed 1-3 floors buildings with mansard. Buildings height should keep the Markučių hills topography (Appendix nr.19) Moreover, there recommend to divided buildings blocks in smaller parts which would have different floors configuration and familiar facades. (Appendix nr.19) It could help divided and develop different type apartments.


In the new design the green space proportion compare with existing situation, there keep the same even increase the number by developing greenway between buildings’ blocks and small green public spaces between buildings. (Figure nr.72) Kudrų park and Misionierių garden should be developed by keeping it open for public use. Višnelė riverside kept as natural green space with path’s network which is connected with study area and Pavilnių regional park paths systems. This green space and greenway operate as a common land. “Without common land, no social system can survive” (Alexander et al., 1977, p. 337) Common land is the place for meeting people. Peripheries of it can be occupied by outdoor cafes, daily leisure and recreation activities even playground land for children. Most all territory is open for public, however, residential buildings’ blocks backyards are private and open for public only working hours. (Figure nr.73) It would keep the safety between buildings because there provide for buildings’ block residents use, parking bicycles even small playgrounds. Each backyard should be designed together with residents.
6.2.4. Traffic movement

In the new design, there planned to increase the movement of pedestrians and cyclist in the area. (Figure nr.74) It was designed by opening the industrial territories for public and creating pedestrians paths along streets and distinct from the street system, also giving possibility walk between blocks and in the natural environment. In the east side, existing paths network designed for soft and natural ground (no asphalt or concrete). Street structure kept familiar with existing situation and designing new streets which are supporting D1,D2 category, and speed is limit 50 km/h (D1), 30 km/h (D2). These supporting streets created in the existed brownfields sides. Limitation of the speed helps to keep security in the streets for pedestrians and cyclist, also control the traffic movement in the study area. It recommended limiting speed in Drujos street zone which cross study area and closer to others residential territories. New bus lines with bus stops help to reduce the number of the private cars in the study. Moreover, bus lines connections with other cities’ districts more convenient and helps to come visitors in the area. New bus lines and bicycles paths have to integrate into the existing systems that it would help to reduce the number of the private cars and give the opportunity to inhabitants to choose alternative transportation. Designed bicycles’ paths are similar which already provide in the “Vilnius city bicycles’ transport infrastructure development program until 2020” (Appendix nr. 9) and planned some new cycling paths. The tracks should have different pavement and lower than the sidewalk. Parking designed two types open parking lot (next to commercial and office buildings) and closed (residential buildings). Noise and pollution are provided to reduce by creating sound protection walls, and parametric type buildings structure next to Drujos street (Figure nr.74, Appendix nr.25). The study area could be protected from the traffic noise and pollution by reducing speed and sound walls. Moreover, improved the street infrastructure helps to keep sustainability in the study territory.

Figure nr. 74 Traffic movement
The paper shows that Vilnius city is growing and developing as others European cities and have good potential to become a sustainable and green city. Vilnius city have been developed by different urban planning systems and the results is visible in the city urban structure. One of the biggest influences has the Soviet Union occupation when the most beautiful river banks and city sites cover by various types industry. Today, some of these industries are abandoned and moving in the peripheries, greenfields of the city. These days, revitalization of the brownfields is the new urban planning movement in the Vilnius and Lithuania.

The paper looks through theoretical part about participatory process to understand how to the planners and developers should create a design for people and how to design “with people and by people”. Paper analyzed and proposed new design for one of the brownfields’ regeneration, Paplauja and Markučiai territory, and it was done by using a participatory process. From stakeholder analysis, there wasn’t expected this interesting from community and academy. Also, it shows that the society wants to attend in the planning process of brownfields. However, it indicates that society and professionals aren’t ready to work together, but it can be changed by educating both sides and by doing this the projects. The case study exposes the problems and opportunities in the study area. The main problems is connected with pollution, traffic flow and undeveloped infrastructure.

Design proposal was trying to appeal the stakeholder wishes and needs about the territory regeneration, finding solution for the problems and improve potential. Design is focusing in the multifunction development, buildings structure and reducing the private cars flow by developing the greenways and paths network. The paper finds out that this design proposal isn’t final, and it is just second part of the participatory process. However, the stakeholder opinions influence the design idea and strategy, and let to understand what community expectations from revitalized brownfield.

Limitation of time stopped from interviewing bigger group of people, and some groups people reluctance to communicate. There doesn’t interview residents from Markučiai (the east side), and it was complicated to understand the needs and expectations. Moreover, there lives the small number of inhabitants in the territory, and there isn’t information about future residents and visitor of this area. These lead to the next detail research about development revitalized brownfield with prospective inhabitants and how it could impact the already existing design.

7. Conclusion

The paper shows that Vilnius city is growing and developing as others European cities and have good potential to become a sustainable and green city. Vilnius city have been developed by different urban planning systems and the results is visible in the city urban structure. One of the biggest influences has the Soviet Union occupation when the most beautiful river banks and city sites cover by various types industry. Today, some of these industries are abandoned and moving in the peripheries, greenfields of the city. These days, revitalization of the brownfields is the new urban planning movement in the Vilnius and Lithuania.

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56
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### Appendixes

**Appendix.1**

List of figure and tables resourses

<table>
<thead>
<tr>
<th>Figure nr.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing and future industrial and infrastructure areas in Vilnius</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Study area and Lithuania position in the World</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>View to Old town of Vilnius from Gedeminas tower</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>View to new territories of Vilnius city from Gedeminas tower</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Industrialized areas are planning to convert in Vilnius General Plan</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Radio loft</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Soho loft</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Ateities g. loft</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>Loft town</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>Belmontas loft</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>MicroLofts</td>
<td>8</td>
</tr>
<tr>
<td>13</td>
<td>Loft town</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>Vytenio g. 50</td>
<td>8</td>
</tr>
<tr>
<td>15</td>
<td>Park of architecture area</td>
<td>9</td>
</tr>
<tr>
<td>16</td>
<td>“Skaiteks” territory design proposal. I stage area</td>
<td>9</td>
</tr>
<tr>
<td>17</td>
<td>View to west side of territory and “Skaiteks” area</td>
<td>10</td>
</tr>
<tr>
<td>18</td>
<td>Participation process stages from french student poster</td>
<td>13</td>
</tr>
<tr>
<td>19</td>
<td>‘What the user wanted’</td>
<td>16</td>
</tr>
<tr>
<td>20</td>
<td>HafenCity master plan</td>
<td>23</td>
</tr>
<tr>
<td>21</td>
<td>Bird view of built area of HafenCity</td>
<td>23</td>
</tr>
<tr>
<td>22</td>
<td>Birdview of Wilhelmsburg island</td>
<td>24</td>
</tr>
<tr>
<td>23</td>
<td>One of the new built residential blocks and backyard</td>
<td>24</td>
</tr>
<tr>
<td>24</td>
<td>Regeneration areas in Gdansk, Poland</td>
<td>25</td>
</tr>
<tr>
<td>25</td>
<td>“Young City” project vision of Gdansk city, Poland</td>
<td>26</td>
</tr>
<tr>
<td>26</td>
<td>1737 from Johann Georg Max Fürstenhoff plan of city Vilnius</td>
<td>30</td>
</tr>
<tr>
<td>27</td>
<td>271840 y. from Plan of city Vilnius</td>
<td>30</td>
</tr>
<tr>
<td>28</td>
<td>28 1898 y. from Plan of city Vilnius</td>
<td>30</td>
</tr>
<tr>
<td>29</td>
<td>1904 y. from Plan of city Vilnius</td>
<td>31</td>
</tr>
<tr>
<td>30</td>
<td>30 1944 y. from Plan of city Vilnius</td>
<td>31</td>
</tr>
<tr>
<td>31</td>
<td>2014 existing situation</td>
<td>31</td>
</tr>
<tr>
<td>32</td>
<td>Heritage and protection</td>
<td>33</td>
</tr>
<tr>
<td>33</td>
<td>Paplaujos bridge</td>
<td>34</td>
</tr>
<tr>
<td>34</td>
<td>Aukštaicių str. 2., group of buildings</td>
<td>34</td>
</tr>
<tr>
<td>35</td>
<td>Paupio str. 28 administrative building</td>
<td>34</td>
</tr>
<tr>
<td>36</td>
<td>Paupio str. 18 Group of buildings</td>
<td>34</td>
</tr>
<tr>
<td>37</td>
<td>Building facades are protected by Paupio street left side</td>
<td>34</td>
</tr>
<tr>
<td>38</td>
<td>Paupio str. 33., group of buildings’ facades</td>
<td>35</td>
</tr>
<tr>
<td>39</td>
<td>Boiler-house with chimneys (above and on the left)</td>
<td>35</td>
</tr>
<tr>
<td>40</td>
<td>Paupio str. 20 Group pf buildings and buildings’ facades protected</td>
<td>35</td>
</tr>
</tbody>
</table>
Figure nr. 1 Created by Egle Vainoriute
Figure nr. 2 Created by Egle Vainoriute
Figures nr. 3,4 Source. Egle Vainoriute
Figure nr. 5 Created by Egle Vainoriute
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Figure nr. 7,8 Source www.gyvenklofte.lt
Figure nr. 9,10 Source www.gyvenklofte.lt
Figure nr. 11 Source. Egle Vainoriute
Figures nr. 12,13,14 Source. www.gyvenklofte.lt
Figures nr. 15,16 Source. www.archparkas.vilnius.lt
Figures nr. 18 Source. article, Arnstein S. R. (1969) A ladder of citizen participation
Figure nr. 19 Source. article, Bhatt, R. (2010) Christopher Alexander’s pattern language: an alternative exploration of space-making practices.
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Figure nr. 29,30 Source www.maps4u.lt
Figure nr. 31 Created by Egle Vainoriute
Figure nr. 32 Created by Egle Vainoriute
Figure nr. 33 Source lt.wikipedia.org
Figures nr.34,35 Source. Egle Vainoriute
Figure nr. 36 Source www.vilnius21.lt/
Figures nr.37 Source. Egle Vainoriute
Figures nr.38,39,40 Source. Egle Vainoriute
Figures nr.41Source. “Vilniaus planas”
Figure nr. 42 Created by Egle Vainoriute
Figure nr. 43 Created by Egle Vainoriute, www.bing.com/maps/
Figure nr. 44 Created by Egle Vainoriute
Figure nr. 45 Created by Egle Vainoriute
Figure nr. 46 Created by Egle Vainoriute
Figure nr. 47 Created by Egle Vainoriute, www.bing.com/maps/
Figure nr. 48 Created by Egle Vainoriute, www.bing.com/maps/
Figure nr. 49 Created by Egle Vainoriute
Figure nr. 50 Created by Egle Vainoriute
Figure nr. 51 Created by Egle Vainoriute
Figure nr. 52,53 Created by Egle Vainoriute
Figure nr. 54 Created by Egle Vainoriute
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Figure nr. 56 Source article, Ceccato, V. Lukyte, N., (2011) Safety and sustainability in a city in transition: The case of Vilnius, Lithuania.
Figure nr. 57,58 Created by Egle Vainoriute
Figure nr. 59,60 Created by Egle Vainoriute
Question 1. Could you describe the feeling and memories about Paplauja and Markučiai territory?

Question 2. What do you think about developing project “Park of Architecture”? Are you accepting the solution of the project developing? Do you this project could be developed differently?

Question 3. In your opinion, do you think that community could be more involve in the developing process of project “Park of Architecture”? (Involving in various workshops and large discuss with community, society about development and results.)

Question 4. Do you think that the project results could be different after involving more community and society?

Question 5. As the citizen of Vilnius city, what do you like to see and have to be developed in this territory?

Question 6. What kind of functions would you like to be developed in the converted territory? Do you think some new functions and objects should be developed in this territory than in other inner-city areas?

Question 7. What kind of group of people should be developed in this territory? What kind of expectations?

Question 8. What kind of reason would you like to visit territory Paplauja and Markučiai? (Investment, live, work)

Question 9. To conclude. Do you think that society and community should be more involve in city planning, old industrial territory renewal? Or Do you think it is better to leave all the developing and idea process for city planners, architects and city municipalities?

Source: http://www.maps4u.lt
Appendix 6

Source: from book, “Public Places - Urban Spaces” by Carmona, M.

Appendix 7

Source: from book, “Public Places - Urban Spaces” by Carmona, M.
Appendix 11
Paid parking zones

Source: https://www.parking.lt

Appendix 12

Source: http://aplinka.vilnius.lt/lt/

Source: http://aplinka.vilnius.lt/lt/
Appendix 13

Stakeholders analysis and a case study guidelines.

Source: http://aplinka.vilnius.lt/lt/

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Appendix 15

Building and street morphology ideas.

All created by Egle Vainoriute
Appendix 16
Conceptions. Created by Egle Vainoriute

Appendix 17
Social walkable dimensions from some objects in new design.

Kindergarten/primary school
Community center/Recreation center
Healthy center
Shopping hubs/supermarket
Leisure/culture center

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Appendix 18
Preserve buildings in the study area

Created by Egle Vainoriute, source www.bing.com/maps/
Appendix 19
New design typology of the buildings

- No boring mono facade
  - No connection with topography
  - 

- One height buildings
  - No connection with topography
  - 

- Different height buildings
  - Connection with topography
  - ✓

Created by Egle Vainoriute

Topography

Source: http://www.archparkas.vilnius.lt

Appendix 20
Parking.

Parking in separated building

Parking in building between residential type building

Underground parking

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Appendix 21
Duisburg Park in the Duisburg, Germany
Source: http://en.wikipedia.org

Appendix 22
The Henry Jones Art Hotel

Appendix 23
Museum of Natural History, Berlin, Germany
Source: http://www.detail.de

Appendix 24
Mill city museum, Minneapolis, USA
Source: http://www.millcitymuseum.org/
Appendix 25

Protection from noise

- Wooden area
- Sunken Carriageway
- Bank of Earth
- Buildings not affected by sound
- Wall in the garden of the house

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