

VINNYTSIA CITY COUNCIL

INTEGRATED URBAN TRANSPORT AND SPATIAL PLANNING STRATEGY



Strategy document March 2015

Clients

Vinnysia City Council, Department of Architecture, Urban Planning and Cadastre
State Secretariat of Economic Affairs (SECO)

Consultants



mrs partner ag
Birmensdorferstrasse 55
CH-8004 Zürich

Tel +41 (0)44 245 46 03
info@mrspartner.ch
<http://www.mrspartner.ch>



Van de Wetering Atelier für Städtebau GmbH
Birmensdorferstrasse 55
CH-8004 Zürich

Tel +41 (0)44 245 46 09
staedtebau@wetering.ch
<http://www.wetering.ch>



Ernst Basler + Partner AG
Mühlebachstrasse 11
CH-8032 Zürich

Tel +41 (0)44 395 16 16
Fax +41 (0)44 395 16 17
<http://www.ebp.ch>

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INTRODUCTION

A project of spatial structuration of an European city

The Integrated Urban Transport and Spatial Planning Strategy lays the foundation for the General plan for Vinnytsia's development until 2031. By its definition in the Ukrainian planning system the General Plan is essentially a spatial plan and does not directly put forth economic or social policy. Its goal is simply to create the spatial conditions for city development. From the point of view of a holistic attitude towards city development, this means the improvement of the city's ecological quality, its social cohesion, economic growth or, more in general, the sustainable development. However, as a planning instrument the General Plan roots deeply in the age of functionalism, planned economy and top-down planning methods. The concept of "sustainability" is a new approach to be introduced with the present integrated strategy.

Obviously, the impact of a spatial plan upon a city's society and economy is important. Thus the economy and the society structure, and their current situation and potential, inform the aspects of the plan, but the course taken by the plan starts off from the city's and region's spatial structure and is extended to its economy and society rather than the other way around.

Uncertainty and inertia are the reasons why the General Plan, as a comprehensive plan that attempts to decide every question in every place for anytime, is not enough. Rather needed is an approach that tends towards distinct and discrete actions – strategic projects – in specific areas – strategic spaces – that can respond to those ambitions and questions considered strategic by the city.

Obviously the problem of such a "selective" policy is a problem of legitimacy. Why these actions and not others? Why in those places and not elsewhere? Why now and not later? In this regard it is important to remember that legitimacy is not the same as legality. Legitimacy concerns consensus and, moreover, the coalition of different groups and social subjects around a long-term vision. This explains the importance that the Integrated Urban Transport and Spatial Planning Strategy places upon the vision of a "comfortable, innovative European city" according to the City Council's Development Strategy Vinnytsia 2020 and the ways this image of the future can be constructed.

A project that follows a strategic approach

Strategic spatial planning is a matter of selecting certain actions in certain places to modify the city's spatial structure. It is about selecting the timing and sequences for implementing of the projects and identifying the basic features of the spatial relationships that these projects will establish within their direct context and with a broader urban environment. Each of these choices has to be done within specific economic, social and political conditions that the strategy puts to test in relation to their more or less easily removable constraints and to their efficiency.

A strategy not only looks, but also in fact is selective and creates discontinuities with physical and social space and even within the city's image. In order to prove its legitimacy, the proposed plan cannot do anything less than articulate these different dimensions, clarifying how the pursuit of the plan's goals involves and justifies the selection of certain operations and projects. A strategy must be economical, selecting only projects, places and times essential for achieving the established goals. Not all urban space and not all projects can be considered strategic. Saying that everything has strategic value is equivalent to not constructing any strategy whatsoever.





Selecting some strategic spaces and, within them, some strategic projects, defining conceptual priority, the Synthesis plan of the Integrated Urban Transport and Spatial Planning Strategy tries to propose a new structure for Vinnytsia and its territory.

A project that creates a framework for the future

The construction of the city requires time and we must remember that often the qualities of parts of the city that we admire today were not recognized by those who built them but rather by later generations (vice versa also happens). In the acceleration of every aspect of contemporary life, we expect to be able to see and assess results immediately; this often leads to favouring the most spectacular, and seemingly immediate, projects (in Western Europe often fancy cultural institutions but also urban infrastructures, in post-socialist countries most often commercial buildings). Our strategy adopts a different attitude inspired substantially by downplaying appearances; it proposes to create the underlying framework with conditions upon which to base a series of major and minor interventions for the city. From this starting point derives the plan's attention to the city's landscape structure and the quality of public space.

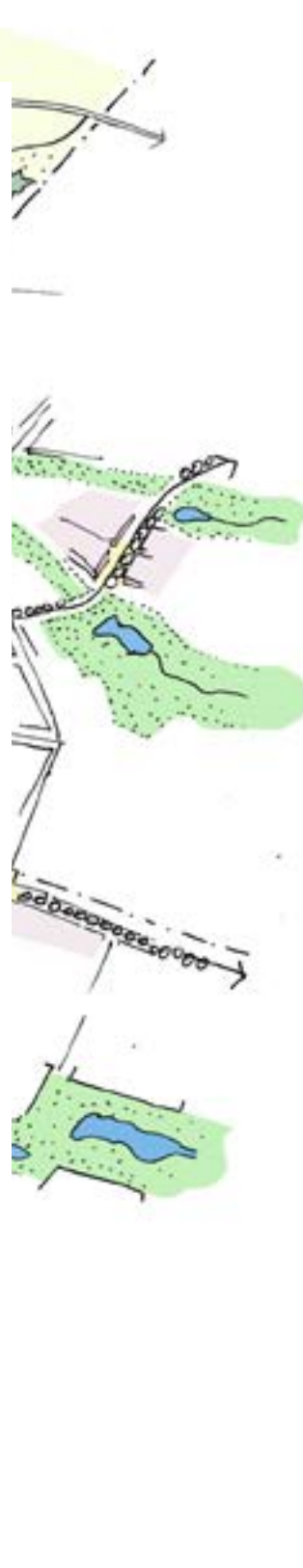
About implementation of the strategy and its projects

Organizing the different strategic areas/projects identified in the plan within a defined time sequence involves thinking on three different aspects: the first is a technical one; the second is tied to the possible mobilization of public and private resources, the third - and probably the most strategic one - relates to the concrete mobilization of specific subjects promoting individual projects.

The projects which the plan considers strategic are, especially in mid-term and long-term, large projects designed to resolve complex problems and whose implementation must be carried out by several municipal sectors and various public and private actors, each constrained by specific budgetary limitations. It is quite clear that this exposes the entire strategy - and General Plan - to a continuous process of reflection. How, for example, can a plan that is essentially a project for the transformation of the city's spatial structure, help resolve the economic and social problems that the city considers important? How can a plan that proposes to create the support for a more cohesive urban life and for a more lively economy help, de facto, to achieve these goals?

For this process of reflection specific instruments are delivered together with the conceptual plans: The System of Objectives is a tool for the evaluation of existing conditions and expected effects of possible measures and projects. The Measure Sheets on the other hand are an instrument for coordination of implementation of planned actions, measures and projects. Finally, the Guiding Plan evolves, when at regular intervals updated, a picture of the city development process as it moves forward in relation to the reference frame given by this Integrated Urban Transport and Spatial Planning Strategy.

Zurich/Vinnytsia, March 2015



1. FRAMEWORK CONDITIONS

This part delivers a summary of the analytical work and the most relevant trends in defining and positioning Vinnytsia's spatial structure today. Deeper analysis and assessment can be found in the technical report.

1.1 CITY STRUCTURE AND APPROACH

Sophisticated scenic situations as a basic structure

Green city



The green qualities in the valleys and the embankments of the river are the main natural assets that have structured the landscape. They have potential to structure the city, and improve quality of life in adjacent neighbourhoods. When these green assets are programmed, designed and maintained for green outdoor recreational use, the city as a whole will become a much more sustainable environment for all citizens.

Historic places and local identity

Strong foundation for the city



The city centre is surrounded by scenic elements and consists of attractive urban spaces. However, currently many important places are little visible and weakly integrated in city life and historic routes are only partially recognizable. Making special historic places visible and revaluating of historic road axes as tree-lined urban streets will improve the identity of individual districts and contribute to a better cohesion of the city as a whole.

Early 20th Century city expansions

Inner development - Densification, mixed-use



Relatively large areas to the east and to the west of the city centre are based on a clear structure of urban blocks and streets. Due to relatively large building sites and change of functions many extensively used areas exist. The existing block structure delivers a valuable framework for development with infill and consolidation projects with mixed-use buildings and forming a clear street frontage.

Modernistic housing areas

Inner development - Renovation, revaluation



The microrayon (microdistrict) is another dominant urban morphology. Despite a clear transport system it lacks a clear definition between the streetscape and high amount of green spaces. The potentials for a great living quality lie in moderate densification for a better mix of uses, renovation or replacement of existing buildings for larger housing units and revaluation of common yards to an internal network of quiet green areas.

Industrial sites and brownfields

Inner development - Activation



Vast industrial areas are another legacy of the modernistic planning system. Many of them are underused and often they exist as a barrier in the city, occupying areas with specific attractive qualities. Diversification of these mono-functional zones by integrating new uses and typologies in the existing fabric and better permeability with completed or revaluated connections brings a huge potential for the city's development.

Detached housing in the hilly districts

Preservation of the green character



The settlements situated in the hilly areas benefit from the landscape qualities on one hand, but suffer from limited accessibility of public transport and lack of services on the other hand. If development has to take place, it must be done cautiously, consolidating the existing urbanized area and respecting the existing borders and scale of the built up area.

Well developed road network

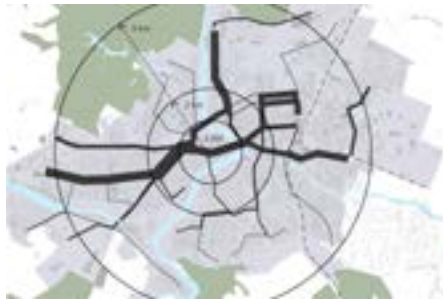
Close gaps and improve hierarchy



Topography, hydrography and industrial infrastructure have a strong influence on the development of the road network. Only few relations exist over the Southern Bug river. A direct connection between outer districts does not exist. However, most of outer districts have low population and employment density. The railway and vast industrial areas cut off some historical relations, what causes a big problem for soft mode mobility.

Well-extended public transport

Underused network effect



The current organization of the network is strongly designed on the base of the type of vehicles instead on the demand, what generates a concentration of vehicles along the main corridors. Nevertheless, it is a well-structured network that serves most housing and employments districts and connects them with the centre. The size of the system is optimal for trams and buses (max. 5 km from the centre; it means in well running conditions max. 15-20 min for a journey to the centre).

Large street spaces

Comfortable space for all modes of transport



A well-extended street network was developed with various city extensions in the past and it structures urban area and traffic flows of the city. Today they are strongly oriented toward needs of motorized individual traffic. Carrying big potential for improved traffic management, profiles of the existing streets offer enough space for all different modes of transport (including bicycle) and for quality urban space with tree lined avenues.



1.2 POTENTIALS AND TRENDS FOR EVOLUTION

Urban uses

The population of Vinnytsia is distributed almost equally on both banks of the Southern Bug river. Only 13 % of residents live east of the railways. Jobs of the second sector are to 60 % located on the east bank, jobs of the third sector mainly on the west bank which includes city centre. However, when concerning all urban uses more formative than the natural division in east and west bank is an existing west-east corridor between the western city border and the railway. Nearly 70% of inhabitants, more than 80 % of jobs and almost all large and medium commercial uses, social services and leisure institutions are located in this corridor. Structured by an effective tram and trolleybus network forms an “urban spine” - consisting of the city centre and dense neighbourhoods - which is enclosed by green quarters of individual housing and by industrial areas.

Investigation of development potentials shows huge potentials within this “urban spine” through densification and transformation of underused areas. Taking into account an increasing amount of living space per inhabitant, it becomes clear that Vinnytsia has space for around 80'000 new inhabitants within already urbanized areas and only slight extensions of the urban spline, but still without extensive extension to the east of the railways.

So, in fact the city faces a rather unexpected dilemma: there is an abundance of capacity and development possibilities! The realization of the half of this growth potential (+33'000 inhabitants) until year 2031 is the rather ambitious goal of Vinnytsia City Council and the point of reference for this integrated Urban Transport and Spatial Planning Strategy.



Figure: Existing urban structure with potential transformation and development areas.



Figure: Scheme of determined city areas and proportion of inhabitants existing (red) and capacity (blue).

Traffic capacity

Nowadays, modal share of public transport in Vinnytsia is high. Nevertheless, traffic pressure is felt notably in and around city centre with the River crossings as eye of a needle. Soborna and Kozitskoho bridge in peak hours are on the limit of their capacity, Chornovola bridge has some relevant reserves and only the bridge on the Ring Road has big capacity reserves.

Evolution of traffic intensity until 2030 will be influenced by three factors:

1. Socio-economic growth: 10% more inhabitants, 10% more jobs, 15% more commercial services.
2. Evolution of car-occupation-rate: currently approx. 1.5 person per car in peak hours, expected 1.3 pers./car in the future.
3. Evolution of the modal share: today 35 % by car, in future 40 % by car.

More important for traffic intensity than growth of inhabitants and jobs is traffic generated by commercial uses, car-occupation-rate and modal share.

A Strategy with proactive distribution of future demand is supposed to influence the behaviour of persons in cars. Measures are needed already in short term as well as in long term. The following factors are essential:

1. More car drivers to use the bridges in the north. Important is that new built areas at the periphery are located in the east and the north.
2. Measures and policies that keep the modal share for public transport high and car-occupation-rate stable for the centre.
3. Traffic management to guide car drivers to routes where spare capacity is available and traffic flow is better (Chornovola and Ring Road Bridge).

Nevertheless, larger or a new bridge in the centre is needed in mid-term.

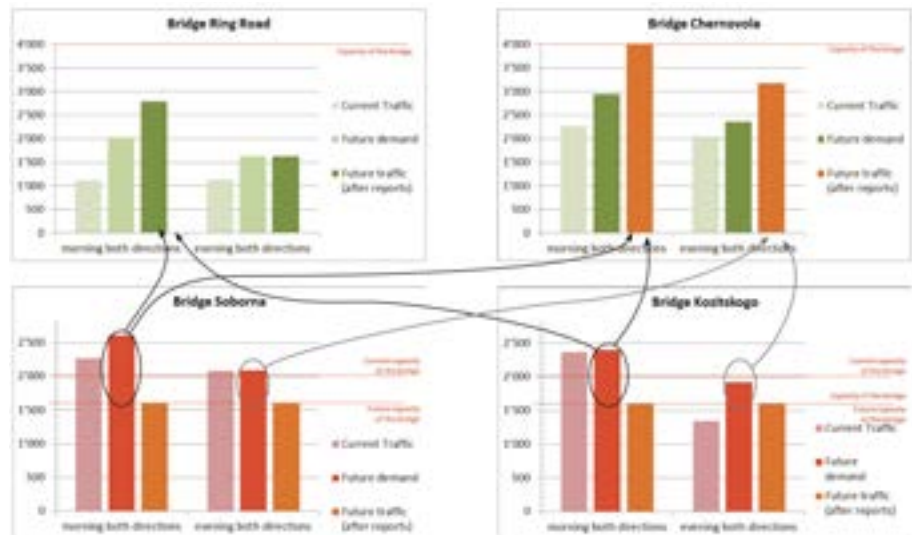


Figure: Cascade effect with reports of traffic from overloaded bridges to bridges with capacity reserves

1.3 MODELS AND OPTIONS FOR DEVELOPMENT

Model: Compact City

“Vinnytsia 2020” Development Strategy is oriented towards the Compact City model for future development. This kind of development promises a series of environmental improvements like reduction of traffic induced air pollution or better energy efficiency. For urban development, the Compact City model has a number of basic advantages over an extensive model of a decentralized ring-city as foreseen by the General Plan 2012.

Explanation of advantages of the Compact City model and assessment between the two models can be found in Chapter 5 of the technical report.

Not at last, the Compact City model is more economically advantageous for the city administration since it requires comparatively smaller investment and maintenance cost. Development of infill and brownfield sites has the great advantage of investing in and developing existing potential. This includes technical and road infrastructure, public transport, as well as spatial and social assets such as schools, hospitals, parks and playgrounds.

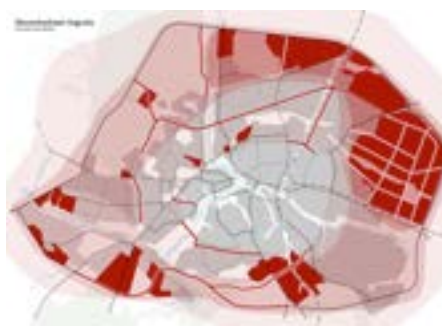
Considering the adaption of the Compact City model on Vinnytsia’s development potentials, we see that the transformation of the existing west-east corridor to a smile-like form brings a huge potential and requires relatively little new roads infrastructure.

Main characteristics of Compact City model in Vinnytsia



- Existing structure is extended and more densely used.
- Urban potential in already built areas (50% / gaps) and in direct extensions of built areas (50% / new zones).
- Mostly improvement of existing streets.
- Dense urban structure is very good served with public transport.
- Preservation of green belt with forest, fields and dachas in the hilly parts within the ring road.

Main problems of the Decentralized Ring-city model in Vinnytsia



- No urban potential on almost the half of the figure: either forest or existing low-density housing.
- Structural integration of city development and public transport system from an existing linear system to a ring system is very difficult.
- Very expensive due to large amount of necessary new infrastructures.
- Development of needed new infrastructures in a strategic manner is difficult, as they are spread all over the city territory.

Options: Butterfly and Smile city

For other studied options "Station district east" and "Small new extensions" please see technical report.

Basis for all development in the Compact City model is "Scenario 0". Due to its close relationship to the existing city structure it is crucial in any case for short and mid-term actions. The main west-east corridor for urban revaluation (Keletska St. - Pirohova St. - Soborna St. - Kotsyubinskoho Pr.) is of great importance both, on strategic level for spatial development as on technical level for better traffic management.

Three options with different directions for extension were investigated. In their relation to the main urban corridor all of them have the potential for long-term sustainability. However, the feasibility of needed initial infrastructure for options with short and mid-term developments in the east is highly questionable. The northern direction on the other hand requires much less initial investments and will be easy adaptable even for future expansion.

Basis for development
Scenario 0 - Butterfly



- Existing potentials for densification in the main west-east urban corridor.
- Concentration of public services and commercial functions along the tram system.
- Sub centres around public transport interfaces
- Distinguish spatial characteristics, integration of scenic elements (Southern Bug, side-arms, forests).
- Clear and integrated street hierarchy. Capacity increase with better traffic management.

Selected option ("Smile"): Revitalisation of industrial zones north



- Underused areas with large potentials, long term development possibilities.
- Mixed use districts along the existing urban areas, insertion of housing.
- Long term development in the peripheral areas on the northern city edge.
- Insertion of public institutions directly connected with the new tram line.
- Extension of tram, redesign of the Kirova Street as new urban backbone for all means of transport.

2. STRATEGICAL DEVELOPMENT FRAMEWORK

The strategical development framework is based on the Quality Objectives for landscape, urban and transport development and integrates them to the composition of the image of the future. Moreover, it forms a bridge to the field-specific Strategies which are used to realise the image of the future.

2.1 STRATEGY STATEMENT

Improving quality of life through improving the urban environment is the global task of the Integrated Urban Transport and Spatial Planning Strategy. To achieve this goal it provides a system of objectives that strengthens urban policy in attaining quality and steering funding towards greater public good. To improve the quality of the urban environment it targets the quality of urban interventions and public space, seeking to enhance the image of the city and create a strong sense of place and identity. It aims to improve pedestrian and public transport flows in the city, amplify the quality of the green and public space and protect its landscape and natural environment. The following particular statements form the frame of the Integrated Urban Transport and Spatial Planning Strategy and lead to the formulation of guidelines for development.

Coordinated development of housing, working and leisure areas with the needed infrastructure and services in a specific design, that strengthens identity and social cohesion of Vinnytsia's community (Smile city).

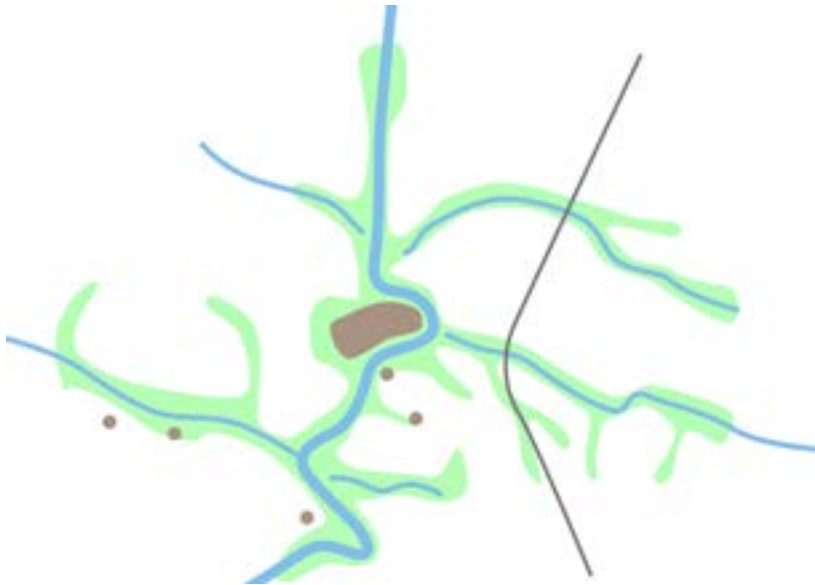
Priority to the development of small urban units in which daily needs are reachable on foot (City of short distances).

Priority to the development of public transport and public transport's friendly urban areas (Compact city).

Development from the inside with priority to reinforcement of existing urban areas and infrastructures for a better efficiency (Efficient city).

Ensure of further long term developments with upwards-compatible options depending of the real growth of population in the next generation (Resilient city).

2.2 GUIDELINES FOR DEVELOPMENT



Guideline 1

Green and historic city structure

Landscape as basic structure provides a viable and healthy environment for all citizens.

Green recreation areas and public parks shall be situated in a walking distance to urban areas.

Particular attention paid to the Southern Bug River and the green spaces of its sidearms:

- Local identity and open space for cultural activities, recreation, sports and leisure, pedestrian zones and bicycle tracks.
- Access to the river and green spaces shall be used to improve the quality of surrounding residential districts.
- Strengthened green structure of the side arms of the Southern Bug River (no buildings and transport infrastructure).

Integration of the city centre and small historic places in the existing districts and future urban developments.

Guideline 2: Green city boundary for a Compact City

Compact City approach:

- Preservation of compact, efficient regional structure and consideration regional contrast as a quality.
- Prevent urban sprawl at the city edges.
- Determination of optimum urban boundary (built-up area for midterm development) for stimulation of use of existing infrastructure and revitalization of already urbanized areas.

Green buffer on the city edge:

- Completion of inner green basic structure as interface to the surrounding landscape.
 - Strategic «pre-investment» in green spaces as basic structure for long term urban developments.
-



Guideline 3:

City corso as a dynamic backbone

The element of the City corso as a sustainable land-use and city development strategy concentrates investments along the revaluated urban corridor (strong urban identity).

Comprehensive approach to social, environmental and economic needs to create a sustainable city structure:

- Transit-oriented development stimulates the existing and planned infrastructure in an effective and cost-efficient way.
 - Increased density and intensity in optimal accessible area reduces vehicle kilometres travelled.
 - People live within walking distance of their destination or of excellent public transportation.
 - High density mixed-use developments include retail, commercial, working places and residential space.
 - Revitalizing already urbanized areas and brownfield zones along the urban backbone.
 - Potential for future greenfield developments along the urban backbone.
-



Guideline 4

Hilly districts and strategic reserve

Preservation of the green character of the hilly districts:

- Moderate densification with realization of ground-based and family-oriented housing types (semi-detached houses, terraced houses).

Strengthen of good accessible industrial sites:

- Focus on city and public transport related industrial functions in the western industrial sites (railway west); redevelopment with mixing of functions in zones adjacent to existing housing areas.
- Focus on space-intensive land use in the eastern industrial sites (railway east).

Strategic reserve in the eastern part of the city for special land uses, long-term development or for the case of establishment of a key industry for city development. Development only in case of simultaneously investment in integrated infrastructure (a.o. transport infrastructure).

Guideline 5

Revaluation of road links

Clear street hierarchy of in local context integrated urban streets:

- Ring road with main access to the city and outside connections.
- Revaluation of historic and important city road axes and development of tree-lined urban streets.

Redesign of existing main roads - transformation to an attractive urban and traffic space for all means of transport:

- Capacity increase by resizing of intersections and reorganization of street lanes.
- Traffic management at existing main roads.

Revaluation and expansion of the existing public transport system:

- Tram system in the dense urban areas.
 - Revaluation and expansion of main trolleybus lines.
 - Bus lines in hilly districts of lower density.
-



Guideline 6

Sub centres

Creation of sub centres with concentrated activities, which combine living and workplaces, educational activities, commercial, public services, recreation and entertainment along the City corso (support of densification and diversification).

Concentration of sub centres (local centres, district centres) around tram stops and on attractive public transport interfaces (mixed use, high density, urban landmarks).

Improving the public space network by developing a link between public spaces and recreational areas.

2.3 IMAGE OF THE FUTURE

The image of the future illustrates the integrated strategy in the fields of landscape, transport and urban development. It is composed of the guidelines for development and its ambition is to improve the territorial and social cohesion of the city through a long-term urban vision. With the field-specific strategies and measures in the subsequent Chapters the essential conditions over the next 15 years for the achievement of this image shall be created. The Synthesis plan illustrates the reference frame for actions and measures in all fields of landscape, urban and transport development .



Image of the future: Landscape in form of water and green corridors together with main streets as boulevards are shaping the future development of the city for pedestrians and public transport

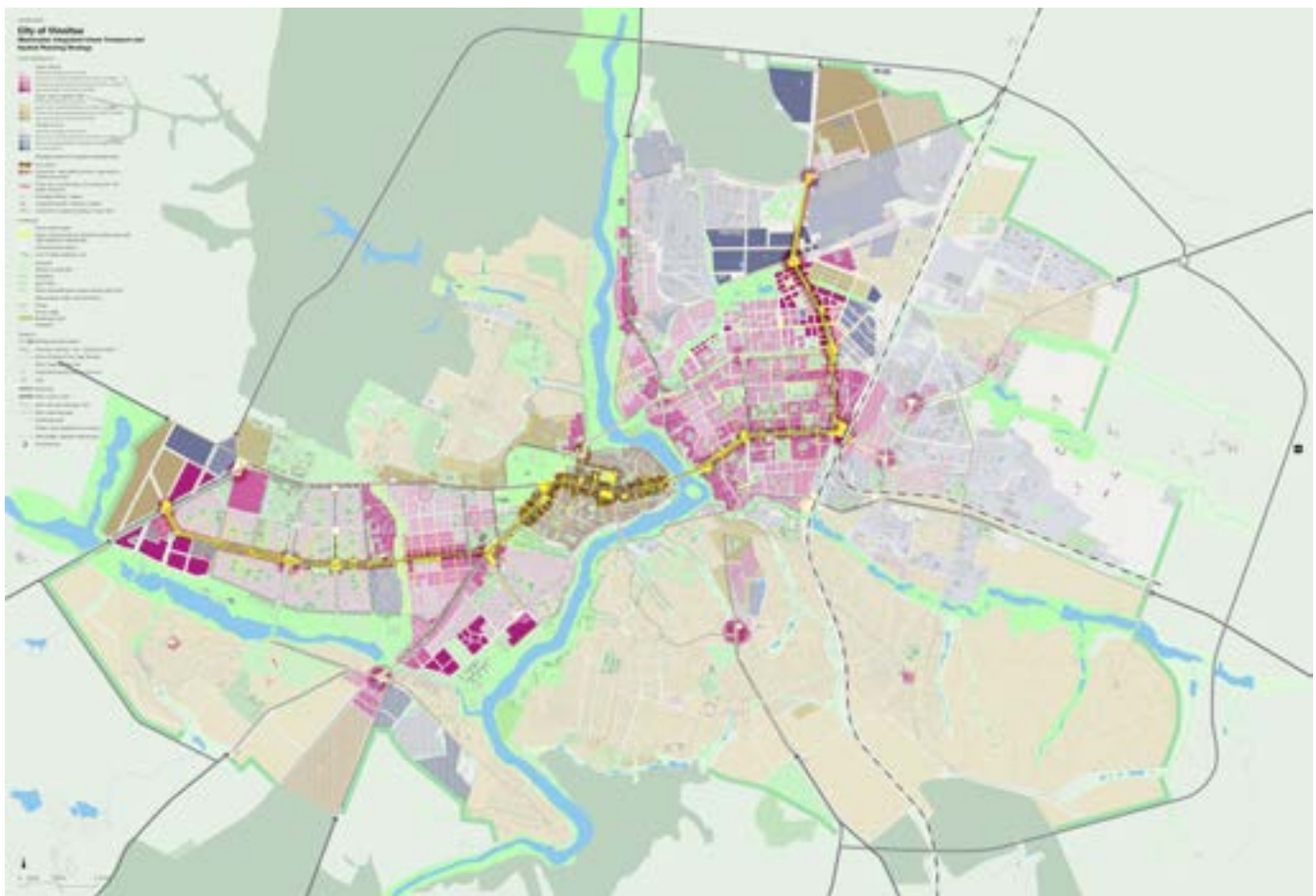


Figure: Synthesis plan - reference frame for measures and guiding tool for taking action on integrated spatial and transport development which should arise the "image of the future" .

3. FIELD-SPECIFIC STRATEGIES

This part contains six field-specific Strategies that deal with the landscape, street and built structure of the city and with the development of an intermodal transport system. Each Strategy begins with a statement on starting position and approach and names goals and principles for development before the concept for development is defined and explained and finally measures for implementation are outlined. The field-specific Strategies are complementary, nevertheless contents partly overlap. They must be read in conjunction. References and technical basis can be found in the technical report.

3.1 URBAN AND LANDSCAPE DEVELOPMENT

This specific Strategy deals with the landscape and land use structures of the city. At a large scale, it describes the contours of the urbanised areas, which future development should be restricted to. It advocates the protection of natural resources and proposes the creation of well-defined green and public spaces in the city and the establishment of clear spatial connectins between them. At a smaller scale, it shows how far the urban structure is defined and reveals the opportunities for consolidation of the existing urban form. It shows scale and typological character of buildings and the relationship between them and open space.

Starting position

Vinnytsia is the regional centre of an agricultural region. The contrast between the urbanized city and the open landscape and villages is one of the main qualities of the city. However, there is a risk of urban sprawl impairing valuable landscapes. At the same time, developments on the city border threaten the quality of the city centre as heart of Vinnytsia. This trend should be prevented.

The city of Vinnytsia is characterized by its landscape and different historic places. The city centre and the Southern Bug River with its side arms are attractive basic structures of the townscape. The more flat areas are densely urbanized and well accessible by public transport, the hilly districts are less densely populated, its traffic system is less structurized. This structure of dense flat districts and open-built hilly districts is a valuable initial position for the urban development concept.

In the last 50 years, the main urban and transport extensions were realized in the west and the east of the city centre. A well-developed infrastructure consisting of roads and public transport already exists. The historic boulevards and the city network from the time of the great city extensions serve as a good basis structure. Furthermore, the existing city grid allows a lot of densification potentials. As part of a densification and transformation strategy, it would be desirable to create new forms of dense housing typologies, in order to increase the diversity of housing supply and to integrate industrial and brownfield sites within the city structure.

Objectives and principles

Objectives	Principles
Take account of a moderate population growth of about 30'000 inhabitants 2011-2031	<ul style="list-style-type: none"> • Development according to different growth scenarios (slow +0.5%/a and faster) with capability to adapt to the real demand
Consider an increase of living space of about 6 m2 per Person 2011-2031	<ul style="list-style-type: none"> • New floor space is needed for the existing population with possibilities to extend living space in already built flats and dwellings. • Granting of new housing for rising living space mainly in housing typologies with effective use of ground.
Promote a selective growth of work places	<ul style="list-style-type: none"> • Work places of the 3rd sector (offices, education, services) in City centre and mixed use areas • Work places of the 2nd sector (industry, processing of raw materials) in mixed use areas (light industry, research and development) or specialized zones (heavy industry, building, logistic), especially those with railway access • Natural ground for work places of the 1st sector (agriculture, forestry, other natural resources) has to be preserved, especially in city surroundings, facilitate synergies with food processing industries (dairy, vegetables, crop)
Promote mix of urban uses	<ul style="list-style-type: none"> • Use opportunities for densification or requalification to improve balance of utilisation between living, working and recreation • Ensure mixture of uses on reasonable level of scale (building, block, district, city)
Promote appropriate positioning of traffic-intensive facilities (big generators of traffic)	<ul style="list-style-type: none"> • Concentration of important public or commercial services along tram system and main interfaces (priority soft modes and public transport) • Development of an attractive pole of commercial services with intensive motorised traffic (private and public) in the west of Bars'ke shosse • Avoid big generators outside dense urban structures without public transport service
Promote good reachable amenities (city of small distances)	<ul style="list-style-type: none"> • Arrangement of amenities and facilities (workplaces, shops for daily needs, kindergarten, school) in the main part of built up area to ensure reachability by foot or bike • Areas designed for amenities, service and trade on ground floor level of residential buildings

Ensure coherence of the urban strategy with the global strategy	<ul style="list-style-type: none"> • Coordination of land use development with development of transport infrastructure within the financial resources • Avoid unintended effects due to improvement of accessibility (urban sprawl, periurbanisation) • Carry out compensation measures for development of new building zones • Reduce building zone not served by public transport
Determine a limit for urban expansion	<ul style="list-style-type: none"> • Definition of city edges by strengthen landscape elements
Define logical phasing of extension of built-up territory to defined city edges	<ul style="list-style-type: none"> • Establish zones of requalification or new building zones in accordance to the real population growth
Improve transport services within limits for urban expansion	<ul style="list-style-type: none"> • Coordinated development of new transport infrastructures and services according to the phasing of urban expansion
Respect topography and hydrography structures	<ul style="list-style-type: none"> • Structure of river Southern Bug with sidearms as basic structure for city development • Scale and form of urban structure adapted to topographical situation
Protect natural landscape	<ul style="list-style-type: none"> • Careful urban developments on city edges
Promote green spaces in the city for green network	<ul style="list-style-type: none"> • Develop network of small river valleys as green public spaces / green corridors with footpaths
Strengthen local identity	<ul style="list-style-type: none"> • Amelioration of the shores of Southern Bug for local recreation and activation of tourism • Use caesura of green network for distinction of neighborhoods and for the infiltration of nature • Enhance historic road axes as urban space, make visible special historic places
Improve public space network	<ul style="list-style-type: none"> • Reduction of the natural barrier effect (Southern Bug, small rivers, gulleys) • Reduction of the barrier effect of infrastructures (roads, railway), better crossing of roads for pedestrians (safety islands, green phase at traffic lights) • Direct connection of green public spaces (parks, natural landscape) and mineral public spaces (streets, paths, places) • Network of public spaces useable for pedestrians and cyclists

Promote quality of public spaces

- Integrated approach considering programme, safety and well-being for users as well as design criterias
 - Reduce dominance of traffic in street space
 - Quality everywhere, in common areas as well as on representative places
-

Measures

Development of the urban spine “Corso”:

Revaluation to attractive street space along Keletska-Pirogova-Soborna-Kot-sybinskoho-Kirova Street with a traffic regime according to the principles shown in chapters 3.2-3.6. High quality design of street space attractive with use of consistent materials and elements (see also Public Space Strategy of Vinnytsia City Council). Development of mixed-use buildings with commercial uses in ground floor oriented on the street.

Revaluation of urban nodes around interfaces of public transport (Urozhay, Gagarin Square, Zhovtneva Square, Pryvokzalna Square, Kirova district etc.). High quality design of public space with easy crossings for pedestrians, resting and meeting places and commercial or public uses.

Key element for taking action is Soborna Street (see chapter 4.1 City centre and 4.2 Soborna street).

Concept for urban and landscape development

City Corso as urban line and backbone of the main urban corridor

Based on the guidelines, a sequence of attractive street spaces creates a distinctive city Corso. It connects the city centre and the main urban areas in one coherent corridor.

- The Corso as a concept supports the urban development and densification in the main urban area.
- The Corso is based on the existing urban structure. As an integral element it generates synergies and cost-efficiency between urban development and improvements in the transport system.
- The Corso promotes urban quality and creates good conditions for diversity and mixed use; it forms the basis of a representative street space with public transport and high frequency of pedestrian and cyclists.



Figure: Concept element “Corso” with structure of City Centre and sub-centres

City centre as the heart of Vinnytsia

The city centre of Vinnytsia is the heart of a region and plays an important role as identity carrier and centre of attraction. The historic structure, the green surrounding (green ring) and the dense network of open spaces give the city centre its distinctive appearance.

The following issues play an important role in order to preserve and strengthen the city centre as an attractive location for commercial, business, public and social services and an attractive place to live, offering different housing types for diverse lifestyles:

- Revaluation of the typical urban character: strengthening and making better visible the historical structure, preservation and spatial accentuation of special or historical buildings.
- Creation of a distinctive riverfront along the Bug River, integration within the existing urban structure and definition of the immediate environment of the river as non-built area.
- Amelioration of the shorelines of the Bug River for local recreation and tourism; offering diverse public facilities and an attractive space for pedestrians and cyclists; respecting of environmental functions and maintaining vegetation.
- Attractive sequence of internal urban spaces (Corso, Maidan, Soborna Street).
- Ensuring of a multimodal accessibility to all parts of the city centre by an improved traffic management.

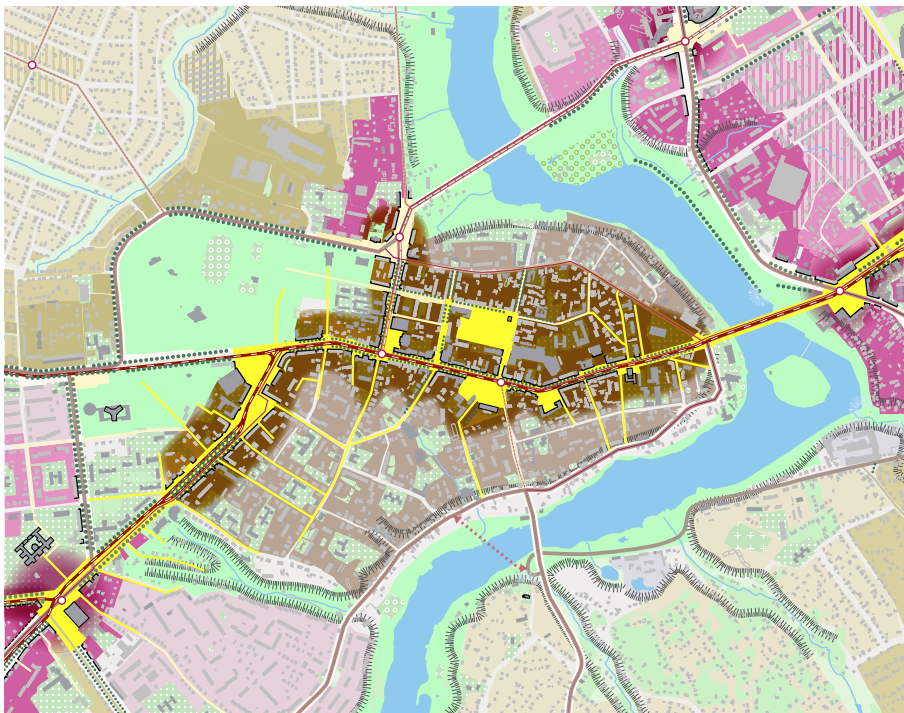


Figure: Excerpt of Synthesis plan with City Centre and green ring

Measures

For location and development of commercial institutions and workplace areas:

Ensure that traffic intensive institutions are located only at suitable locations, which ensure the best possible modal-share, take in account capacity of parent road network and enable management of traffic with the present or accordingly planned and realised infrastructure. To guarantee this, the city shall establish criteria for the evaluation of objects, which classifies a project as traffic intensive. For these projects required quality of public transport service, required quality of accessibility by soft modes and supply and arrangement of parking must be defined. Improve distribution of local services to prevent unnecessary traffic. Especially in stable residential areas ensure basic supply for daily needs. Preference is to be given to locations around public transport.

Define strategic workplace areas and clarify conditions for their development (e.g. transport, uses, minimal sizes or maximal intensity etc.). Fix restrictive conditions that preserve strategic areas for long-term development («far east») from unwanted sell off and uncoordinated development. For strategic areas for short-mid-term development (e.g. Kirova district) on the other hand take action to make them available as soon as possible. To do so, the city can support land owners with advises on possible development potential and on necessary procedure to start development or even prefunding initial planning steps. If necessary and possible, initiate or support land reallocations.

Sub-centres as meeting places and locations for local services

In addition to the city centre, several sub-centres play an important role for supply with local services. These locations form meeting points and are distinguished as local landmarks. They are well connected with the transport network. These sub-centres are attractive local sites for commercial, business, public and social service, which asks for:

- Concentration of different urban functions in combination with spatial landmarking; the sub-centres and their surroundings are characterized by high densities, mixed-use and special or high-rise buildings.
- Representative open spaces (local centres, district centres) around tram stops and public transport interfaces.
- Good connection with the surrounding neighborhood, with a dense network of pedestrian and bicycle paths.

Stable areas for moderate and qualitative development

Stable areas are those locations where no significant population growth is foreseen. Especially in the already densely built housing districts, the number of persons per dwelling is supposed to decrease. Therefore, despite to possible punctual in-fills, the population of these districts will not increase. The creation of additional gross floor space enables an increased living comfort.

Important issues for stable areas within dense urban districts:

- Revaluation and renovation of city structures, buildings, open spaces and green areas (renewal out of existing).
- Creating links between neighbourhood, corso, sub-centres and public transport interfaces for pedestrians and cyclists.

Important issues for stable areas within the green district (garden city):

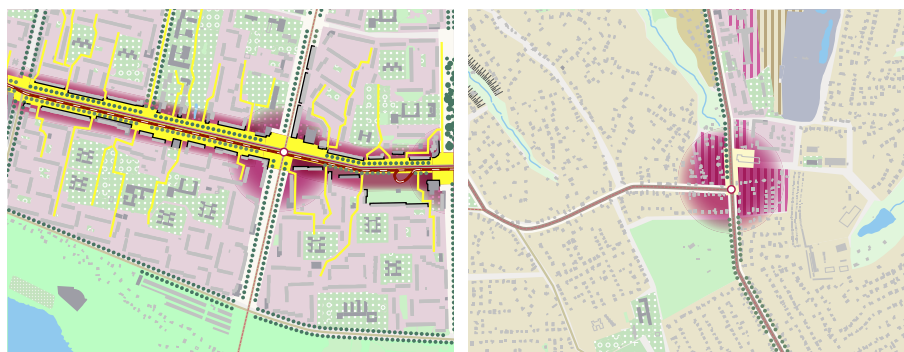
- Strengthening the villageous green character and typical hilly landscape by preventing of large-scale urban developments (renewal out of existing).
- Focus on housing typologies with private garden, creation of areas for self-sufficient lifestyles (family housing, more generations living).
- Creating links between neighbourhood, public infrastructure (schools) and sub-centres with local supply and public transport interfaces.

Important issues for stable areas in industrial and activity zones:

- Long-term reserve for future district transformation.

Measures

For rehabilitation of stable areas in low building density («garden city») the Zoning plan has to ensure that no new multi-storey housing is possible anymore. For areas of high density the focus is on energetic facade rehabilitations combined with possible flat extension and on improvements in the green yards between buildings.



Figures: Excerpt of Synthesis plan of stable areas in the urban district (left) and in the garden city (right)

Dynamic areas for significant densification and qualitative further development

Dynamic areas are those sites where an inner development and a significant population growth is desired and possible.

Important issues for dynamic areas within the urban district are:

- Densification and transformation with urban quality.
- Reconstruction and conversion to a mixed-use structure for living and work places of the 3rd sector (offices, education, services).
- Offer of amenities and public facilities (workplaces, shops for daily needs, kindergarten) in the ground floor level of residential buildings.
- Implementation of high densities along the city corso and around public transport interfaces.
- New direct tram connection to the railway station

Important issues for dynamic areas within the garden city:

- Transformation of locations with optimal accessibility to public transportation into dense but green housing districts.
- Focus on small scale and open building structures in moderate density. Specific characteristics of the local context necessary have to be taken into account.

Important issues for dynamic areas in industrial and activity zones:

- Densification and urban transformation along Corso (Kirova Street) as a kick-off for future investments along the strong public transport corridor (see key element Kirova district, chapter 4.5).
- Revitalization of abandoned industrial sites (brownfields and fallow lands) with improved access to public transport.
- Develop locations for interconnected groups of companies and cluster activities along Kirova Street and Honty Street.
- Conversion of well-located industrial zones in mix-use zones for workplaces of the 2nd and 3rd sector with living function.
- Development of specialized zones (heavy industry, logistic) with a high employment density along Honty Street.
- Cluster of trade industries around the freight station.
- Creating links between working area, Corso, sub-centres and public transport interfaces.



Figures: Excerpt of Synthesis plan, dynamic areas for inner development in urban district (left) and garden city (right)

Measures

Making use of inner reserves:

First step is the localization of inner reserves. Task of this measure is to collect the necessary basics and information to be able to recognize where, to what extent and when general potentials for conversion and densification of areas exists. Needed information among others is ownership structure, the owner's intentions and information about contamination of the soil. Also analyzed shall be quality of integration in existing transport network. Key area for inner development is Kirova district (see chapter 4.5).

Once areas for restructuring/conversion of use are clear, absolute priority is to be given to these sites for development of residential and mixed-use buildings.

Proactive work of the city is needed to make these areas available for development. Therefore the foundation of a development agency is highly recommended.

For densification areas studies have to be elaborated, that show the potential of existing reserves and the needs to improve quality of urban space in these areas. An attractive planning framework has to be created, that eases procedure for developments in these areas according to defined specific principles.

Limitation of settlement development (outward) has to be fixed with settlement boundary lines. These are used for long-term preservation of the character of the landscape, the structure of the settlement edges, the recreational and ecological connectivity.

New urban extensions

Important issues for new urban extensions of dense urban districts (example: city extension Bars'ke shosse):

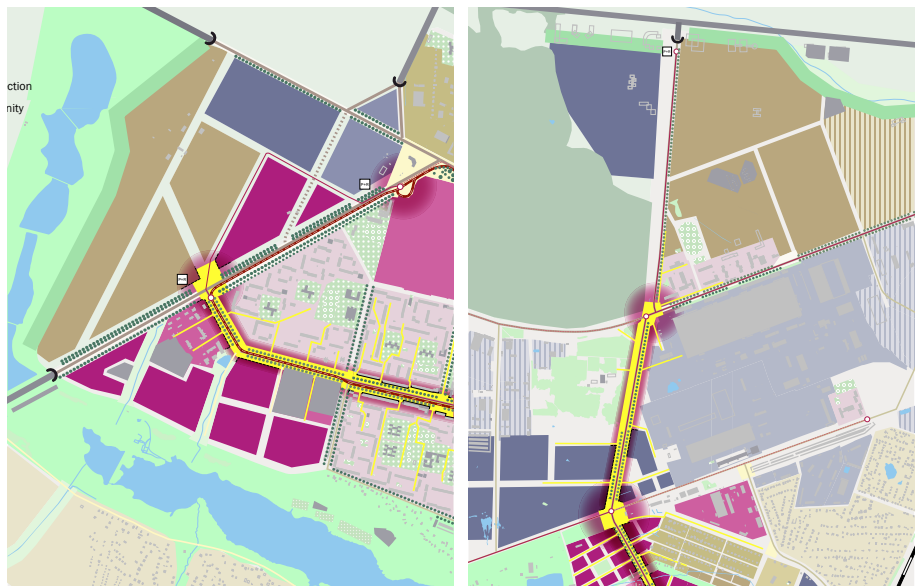
- Coordinated urban and transport development for effective use of already made investment in public transport infrastructure (tramway loop Bars'ke shosse).
- Creating a city entrance with a distinctive Corso: Keletska street and Bars'ke shosse become an inner-city street space for all means of transport.
- Redirecting ring road (Bars'ke shosse) to the west of the bus station improves the ring road junction and allows developing the urban potential around the bus station.
- Definition of city edges by strengthened landscape elements.
- Important issues for new urban extensions connected with existing green districts (example: city extension south):
- Create urban developments for the demand of housing environs with a moderate density.

Measures

To ensure Greenfield development only takes place according to the overall strategy of the Compact City, extension areas in the actual General plan have to be reduced. Only well suited locations have to be kept (locations showed in Synthesis plan). For these locations it has to be ensured that they will be developed in appropriate densities. For Locations inside the urban spine (Bars'ke shosse, Keletska, Tarnhrodskoho) this means mainly a higher density than the one currently is foreseen in the General plan, as only in high-density profit from their excellent accessibility by public transport can be taken. For extensions in the «garden city» (south, Akademichne) on the opposite density has to be kept low. For a balanced internal (brownfield, densification) and external (greenfield) development, areas have to be released for development in several stages. Thereby, mechanisms shall be applied to motivate (or force) Greenfield developers to also invest in inner development and reconstructions.

Important issues for new urban extensions with industrial or special uses (example: city extension north):

- Development of an attractive cluster of commercial services and/or special recreation with intensive traffic (private and public).
- Immediate access from the external road network for private transport.
- Good connections with the internal public transport network.



Figures: Excerpt of Synthesis plan with new urban extensions of the corso in the west (left) and north (right)

Strategic reserves for long-term developments

The synthesis plan defines strategic reserves for new industrial sites or special land uses. The location is intended for long-term development or for the case of establishment of a key industry. The development of these strategic reserves requires following elements:

- Development only in case of simultaneously investment in integrated infrastructure.
- Realizing an optimal accessibility by high performance public transportation (bus or tramway) and integration in the urban street network (new bridge over railway between Frunze and Vatutina street).
- Ensuring of green caesura (small side arms of Southern Bug River) as important green corridor and connections for pedestrians and cyclists.
- Defining of the settlement edges to avoid more urban sprawl.

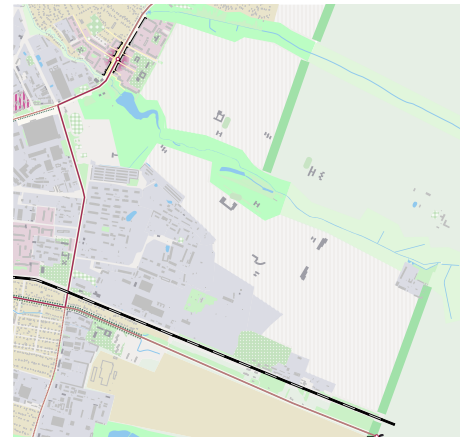


Figure: Excerpt of Synthesis plan with strategic reserve for long-term development in the east

Dense network of public squares and urban streets

The synthesis plan shows the open space network consisting of important squares, main Corso and other attractive street spaces:

- Creation of an attractive open space network, which is usable for pedestrians and cyclists.
- Taking into account of the human scale for the design of public spaces.
- Enhance historic road axes as urban spaces and make visible special historic places.
- Improve the public space network by reducing the barrier effect of natural elements (Southern Bug, small rivers, gulleys) and infrastructures (roads, railways). Creation of new bridges or passages for pedestrians and cyclists.
- Reduction of the dominance of car traffic in street space.

Southern Bug and side arms as green basic structure

The Southern Bug River and its side arms characterize the green structure. This creates a robust network of parks and green corridors in the city of Vinnytsia. This basic structure is to be strengthened as follows:

- Amelioration of the shores of the Southern Bug River for recreation, strengthen the riverfront in the loop of the city centre as open green space with public facilities.
- Side arms of Southern Bug River as landscape corridor between urbanized areas and the surrounding open landscape (integrate foot paths).
- Careful urban development on the city edges to protect natural landscape in the surroundings of Vinnytsia as natural ground for work places in the 1st sector (agriculture, forestry, other natural resources) and facilitate synergies with food processing industries.

Measures

Concerning Landscape and Public space the following measures are foreseen:

Strengthening of natural caesuras: As settlement boundary that prevents sprawl of urban areas, as recreation areas, as a natural area, which ensures the ecological connectivity, even as agricultural area, which shapes the image of the traditional cultural landscape, natural elements of the landscape shall be preserved and their quality enhanced.

Completion of the network and improvements of design of open space have to be implemented by the city and with private construction projects. Attention is to be given on integrated concepts and solutions which consider the organization of public and publicly accessible open spaces (including street spaces!) with respect to materialization, greening and necessary infrastructure. Care concepts have to be worked out from the beginning, also regarding ecological aspects.

Coordinated urban and landscape development



3.2 PRIVATE MOTORISED TRANSPORT

The aim of this specific strategy is to guide car traffic effectively (Quality of transport system) and compatible with the settlement structure (Quality of life). It shows how to organise car-flows on a minimum number of main streets and in particular:

- *how to get to the centre and to main districts from the outside (connection of the city with the national / regional road-system),*
- *how to move within the city, or in other words, the interchange of flows between city districts.*

This organisation of flows at a regional / city level is the basis for definition of the road hierarchy for all modes of transport, as well as for definition of traffic management on a district level.

Starting position

Most of the road network in Vinnytsia is well developed, although often not in good shape. The network is rationally structured in the city centre and in dense areas. In the hilly areas and at the edge of the city, the network is less legible, with a lot of narrow roads, some of them abruptly ending.

Problems with traffic loads exist mainly in the central areas and in the eastern part of the city (Lebedynskoho street). However, congestion happens mostly due to insufficient traffic management (vast area of crossroads, too long pedestrian crossing, uncivilised parking along the streets). In fact, most main roads underuse the capacity potential of their large streets spaces.

The Southern Bug River and the railway lines cause substantial network gaps, with the result of traffic concentration at the few crossings of these barriers. The actual situation is critical and due to growth of population and motorisation action has to be taken.

Very pleasant streets can be found in Vinnytsia (e.g. Soborna Street), but unfortunately there are also too many traffic-only-oriented streets (e.g. Kyivs'ka Street). Thereby, the meaning of attractive streets for the townscape and local identity is good recognizable on old pictures of the city – many of them exhibited in restaurants, cafés and the City Council of Vinnytsia – which mostly show the Southern Bug River and old Street spaces.

Objectives and principles

Objectives	Principles
Clear network hierarchy for a better distribution of all modes of transport and for a better living quality	<ul style="list-style-type: none"> • Clear network hierarchy with better distribution of all modes of transport mostly with the existing network and only few new connections • Canalize traffic on main streets for better living quality in the neighbourhood an centres • Traffic calming in the tranquilised zones of neighborhoods (cells without transit) • Minimal number of main roads and maximal size of tranquilised zones • Strategic complementation of road network to report traffic without creating new demand.
Improve the fluidity of traffic and reduce congestion	<ul style="list-style-type: none"> • Traffic management with regulation and control of flows on main roads • Local capacity increase by resizing and limitation of relations on crossroads
Apply transport system management	<ul style="list-style-type: none"> • Establishment of a plan at a city scale for traffic management and signalisation
Conceive main transports axes in their urban and landscape context	<ul style="list-style-type: none"> • Attractive design of street space, tree lined urban streets, less dominance of traffic, easy crossing, speed reduction • Construction of new roads integrated with local redevelopments of settlement
Ensure coherence of measures on private motorized transport with the global strategy	<ul style="list-style-type: none"> • Road extensions according to limits for urbanisation and the structure of urban development

Private motorised transport concept

City access from the outside

All external access from the region is converging to the Ring road. The Ring road stays uncompleted in the south (no essential urban development, not in direction of essential demand for city generated traffic as well as for regional transit). The Ring road is used in the north to divide different regional accesses from each other. The system avoids transit traffic through the city centre.

The main accesses from the Ring Road towards the centre are using already existing roads of high capacity. They follow mostly the historical access routes, but without using transit through the city centre.

The secondary accesses from the Ring road also enable direct access to dense areas or zones with a high requirement for motorised accessibility (logistic, extensive industry). They are not connected directly with a significant external regional road to the outside.

The local accesses facilitate access to all districts and main areas of the city, without crossing the city centre.

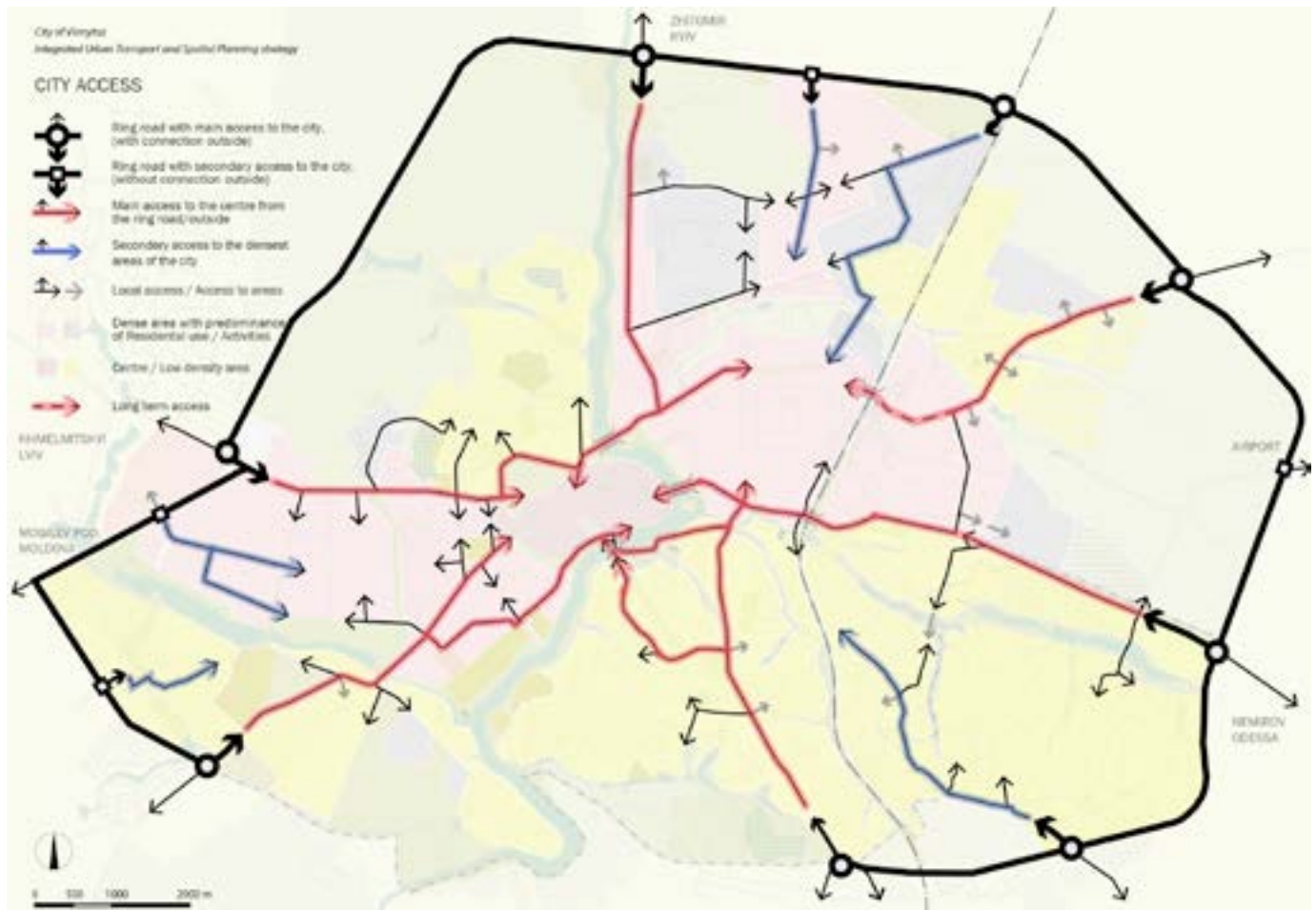


Figure: City access for private motorised traffic from the outside (long term with new bridge over railway)

City access from the inside (interchange)

The main internal relations enable to connect each district with another, without passing through the city centre. They make use of existing large roads and avoid neighbourhoods with many inhabitants. In the scheme, relations with high intensity of use (broad) and minor intensity of use (thin) are distinguished. Proposed new relations are a better connection over the Southern Bug River in the south (Sverdlova St. - Hleba Uspenskoho St., mid-term) and a new connection over the railway north of the train station (Frunze St. - Vatutina St., long term).

The main relations drive around densely populated areas without transit function through them. These “cells” are drained with local streets for local accessibility. Not possible is this only on Zodchih Street in the most recently built Podillya district, a bright example of post-soviet urbanism, which doesn't follow the basic principles of integrated urban and transport development.

To connect some of the districts with another, the use of the Ring Road could be shorter in time and more comfortable. In this case, external accessibility is used, with significant potential (broad) and minor potential (thin).

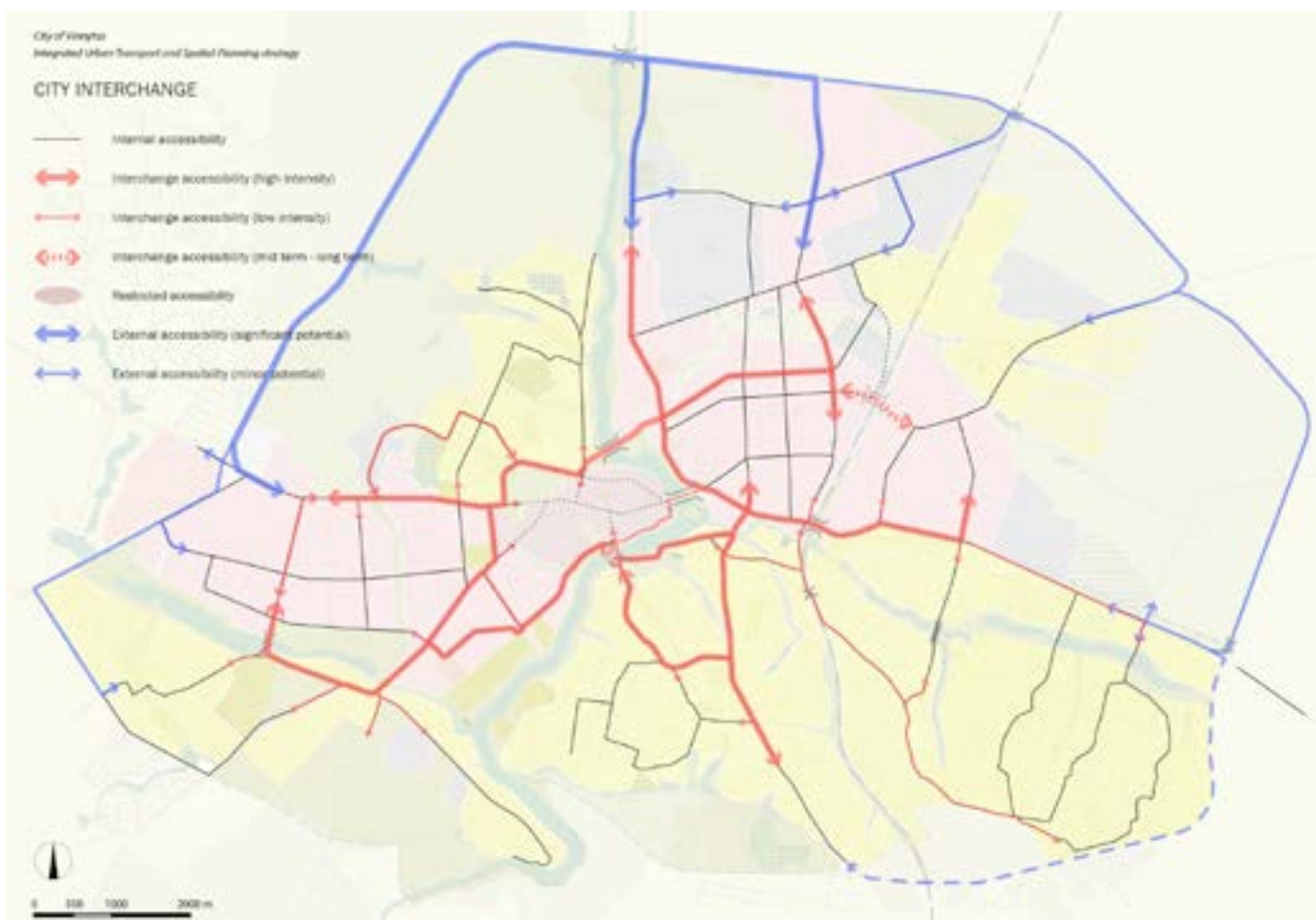


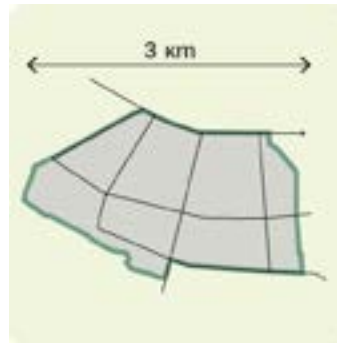
Figure: Scheme of the city accessibility for private motorised traffic from the inside (interchange)

Management of interchange relations

Internal accessibility of a "cell" without transit (trip < 3km)

In a cell, trips are supposed to be mostly done by soft modes (by foot, bicycle). Accordingly, local streets are organised, managed and designed to avoid transit traffic.

A general observation shows that 1/3 of all trips by car are shorter than 3 km, so there exists significant potential to reduce car traffic inside these neighborhood cells.



Interchange accessibility (trip less than 6 km)

Most of distances between two districts (respectively two cells) are too long for pedestrians. Hence, when not considered bicycle or public transport, the car is used for these trips. These connections for cars should avoid the heart of the cells (heart of neighbourhood). For public transport, on the other hand, lines should run directly through the heart.



Restricted accessibility (pedestrian city 2 km)

An area that is oriented on pedestrians (city centre or "ecological neighbourhood") should avoid motorised traffic on a scale of pedestrian accessibility of about 2 km.

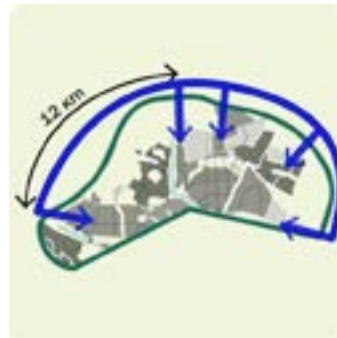
Transit traffic has to be avoided and parking on public spaces reduced in order to make trips on foot very attractive on a large scale.



External accessibility (trips of more than 6 km)

For internal relations of more than 6 km the Ring road can be used. The potential depends on how attractive - or not attractive - connections are (low speed and many stops are not attractive for cars).

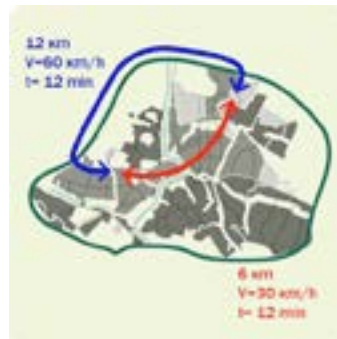
External accessibility will be used, when the time of travel inside the city is longer than the time needed when using the streets outside the city (Ring road). As some people always prefer to travel through the city, probably not by everyone, but however by a significant amount of people.



Areas of equal accessibility external/interchange

This example shows that an internal trip of 6km with an average travel speed of 30 km/h (including stops at crossroads etc.) needs the same time as an external travel of 12km with speed of 60 km/h.

Accordingly, the Ring Road has to be attractive in terms of comfort, speed and design. At the same time, low speed has to be promoted in the internal relations.



Measures

Redefine the hierarchy in the road network. Follow accessibility principles with additional detailed considerations to adapt the plan.

Establish a traffic management plan at a large scale to guide flows. The map of this plan has to show where flows have to be directed to and which measures are taken for this (e.g. high capacity road, traffic lights with preferred flows, access control, one-way street, speed zones, limited speed, etc.)

Adapt road signalisation on basis of the accessibility principles and traffic management plan.

Establish a traffic operation centre for coordinated command of the traffic lights and road signalisation.

Take into account the guiding principles when planning developments on district and quarters scale (example demonstrated in chapter 4.6 "Kirova district") as well as on local scale like the redesign of crossroads (demonstrated in chapter 4.3 "October square").

Control and manage the private motorized transport efficient and compatible



3.3 PARKING

This specific strategy guides the provision of high quality parking solutions, to ensure that it contributes to high quality public space and to help integrate car parking well with public transport use. In this way private car use can integrate with and complement the public transport network. Zoning principles for the city describe the parking policies in an area to define where and for how long it is possible to park and the quantity of parking spaces which should be provided according to the density and types of activity.

Starting position

In the last years Vinnytsia has seen a constant increase in car ownership and the demand for parking has consequently soared with it. The lack of organisation and steer has led the city to an unorganized situation that affects public spaces, especially in the City Centre. At the root of the problem is an inadequate and not fully effective legislation on state level, which at the moment makes it difficult for traffic police to accomplish parking bans. The lack of coordination has caused:

- An absence of parking norms for specific locations;
- An absence of parking policies based on street hierarchy;
- An absence of parking policies based on public space quality;
- Inefficient use of the areas dedicated to parking (predominance of long-term parking / deficit of short-term parking);
- The growth of unregulated parking;
- Absence of paid parking areas with time limitations in the City Centre.

It has to be highlighted that existing data on Vinnytsia's parking supply and demand is deficient what allows only for the proposal of general parking principles.

Parking restrictions should be preceded by and coordinated with alternative services and provision, for example improvements to public transport services in an area. The general parking guidelines are formulated around two types of measures: organisational and physical. The organisational measures focus on zoning and formulation of parking policies. Establishing a zoning is a way to strike a balance between public transport use and provision of parking places, while maintaining the desired level of accessibility. Strict parking norms and policies are needed for the City Centre in order to accommodate and stimulate the spatial quality of these streets and activity around them. Policy categories proposed are Parking restrictions, time limitations and Parking fees.

Physical measures focus on spatial organisation and quality of on-street parking, built parking structures and Park + Ride areas. Thereby, the hierarchy of street network and public space is defining the principle guideline of on-street parking. Roads operated by electric public transport are mainly free of parking. Built parking structures are supposed to be integrated into large scale developments and located close to important destinations and/ or public transport stops. Their capacity should be based on site specific demand. However, to create better overall distribution and reduce traffic concentration small size structures are preferred. For Park + Ride facilities existing and forecasted public transport patronage and coverage has to be taken into account, as the willingness of people to swap from car to public transport depends largely on comfort and the overall quality of the public transport network.

Objectives and principles

Objectives	Principles
Set a parking policy to contain the use of cars	<ul style="list-style-type: none"> • Ensure private parking on private land-plots with graduate requirements according to the local situation • Prevent on-street parking on main axes with public transport, on-street parking only on adequate places for visitors of shops and services • Parking policy for steering demand of traffic in city centre and sub-centres
Ensure coherence of parking policy with global strategy	<ul style="list-style-type: none"> • Location of public transport stops as advantageously for visitors as parking areas • Location of parking in settlements in common constructions, access for pedestrians through public or semi-public spaces
Promote multimodal mobility (Park and Ride)	<ul style="list-style-type: none"> • Location of public parkings close to main public transport stops, outside centres, combined ticket P+R and public transport
Ensure coherence of measures on private motorized transport with the global strategy	<ul style="list-style-type: none"> • Road extensions according to limits for urbanisation and the structure of urban development

Parking concept

City Centre

For the City Centre the main goals are to keep commuter traffic outside and to increase quality of public space that more specifically implies the following guidelines:

Accessibility:

- Ensure car access to existing public parking garages public and parking lots and private parking facilities in city centre.
- Improved accessibility by public transport.

Parking supply:

- Less parking for commuters (long-term), better parking for customers/visitors (short-term).

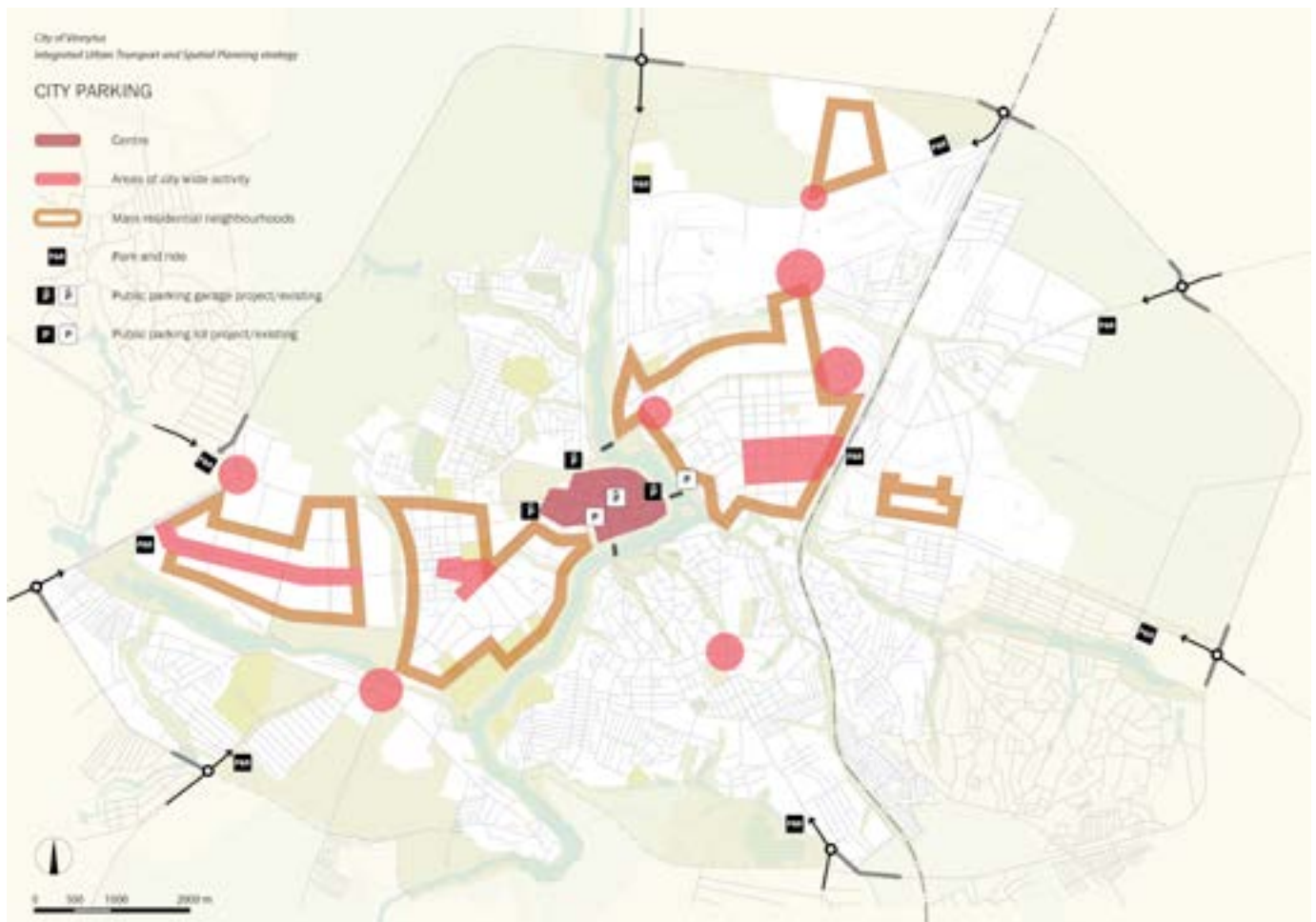


Figure: Overall conception for Parking: Zones for regulations, P&R locations and Public Parking city centre

- Less public parking inside the city centre for better quality of public space, ensured priority for public transport and bicycle.
- More public parking (multi-storey parking) on edge of the city centre.
- Private parking for new developments must be solved on private ground within a block!

Parking policies:

- Time limitation to max. 1 hour for on-street parking inside the city centre (without time limitation one parking place can be owed by one car of a commuter for 10 hours, with time limitation the same parking place can be owed by 10 different costumers for one hour on the same day).
- Time limitation to max. 2 hours (inside the city centre) resp. 4-8 hours (edge of the city centre) in public parking garages for additional preventing of commuting by car.
- Parking fee for public parking. Exponential increasing fee for parking more than 4 hours in public parking garages.
- Special treatment for inhabitants of the city centre (parking card, badge).

Areas of citywide activity

The main goal for these areas is to solve parking for commercial institutions what implies the following guidelines:

Accessibility:

- Location of large-scale commercial institutions as well as areas of concentrated small shops (shopping street, markets) only in highly accessible areas by public transport (see schemes chapter 5.4 "City public transport").

Parking supply:

- No parking for commuters (exception: Railway station or Park + Ride facilities), better parking for customers (short-term).
- On-street parking not along routes of public transport but only in adjacent streets.
- Parking for new developments must be solved on private ground within a block!

Parking policies:

- Time limitation to max. 1 hour for on-street parking.
- Time limitation to max. 2-4 hours in parking garages.
- Parking fee for public parking.
- Special treatment for inhabitants of area (parking card, badge).

Main residential neighbourhoods

For main residential neighbourhoods the main goal is to keep commuter traffic outside and provide an adequate supply of parking for residents what more specifically implies the following guidelines:

Accessibility:

- Ensure car access to existing public parking garages public parking lots and private parking facilities in the neighbourhoods.
- Improved accessibility and connections by public transport.

Parking supply:

- Less parking for commuters (day-long), better parking for residents.
- New Parking with new developments. Thereby size and supply depends on type of use, location and access quality by public transport of development. The range of an adequate supply can be:
 - 1 parking place per apartment for residents.
 - 0.2-0.6 parking place per work place.
 - 1.5-3 parking place per 100 m² retail for costumers.
- New public parking garages for replacements of existing garage boxes in yards and garage cooperatives in green areas.

Parking policies:

- Time limitation to max. 1,5-4 hours for on-street parking (allows visit to lawyers, health institutions etc. but not day-long parking of commuters).
- No time limitation for residents (parking card, badge)
- No parking fees.

Park and ride

Park + Ride facilities need to take the following into account:

- Location at the extremity of urban arterial streets, connecting to other modes of transportation in a user friendly and efficient way.
- Adequate number of parking places (at some locations smaller facilities on parking lot can be enough).
- Parking fee at these locations must be significantly lower than those of the City Centre.
- High quality, speed and frequency of public transport at these locations.
- High comfort level of waiting facilities at the Park + Ride station.

Measures

Introduce parking policies as quickly as possible. The first phase should be based on a simplified, easy differentiation of the city into three zones: City Centre; Areas of city wide activities (commercial centres); Main residential neighbourhoods. The initial focus of implementation of any policy or concept has to be the City Centre.

For all new built parking structures (commerces, big housing complexes) it is necessary to carry out traffic assessment studies.

Peripheral Park and Ride stations introduced coordinated with improved public transport connections of these areas.

Steer and accommodate the demand for parking without being detrimental to the quality of the urban environment of the city



3.4 PUBLIC TRANSPORT

To improve public transport quality and coverage is seen as key in providing a real alternative to private car use and improving overall quality of the city environment. The principles presented in this specific strategy illustrate how the Public transport network layout could be restructured to become clearly legible, efficient and with a high level of modal integration.

Starting position

Vinnytsia's public transport system has a strong history of providing mobility and connectivity for its inhabitants with a high level of covering. The network is rather well structured and connects most of the housing and employment districts with the city centre. However, operation of the network in many cases is too strong based on types of vehicles instead of demand. Private bus, tram and trolley-bus lines in some cases overlap, rather than providing complementary services. Schedules are not coordinated and the placing of public transport stops and lack of interchanges makes coordinated use of various modes of public transport difficult. There is also no integrated fare and ticketing system. This is true for both the local transport system and the integration of the local and regional transport systems.



Figure: Existing network of public transport with 300 m service area: Layout covers main parts of the city but is too strong based on types of vehicles

Objectives and principles

Objectives	Principles
Shorten the average travel time of public transport	<ul style="list-style-type: none"> • Direct itinerary through the city, without detours • Put in place public transport priority with regulations, own lanes, etc.
Reduce waiting time and connecting time	<ul style="list-style-type: none"> • Introduce fixed timetable instead of interval timetable • Localization with better connection of stops on interchanges at strategic places in the city (network effect)
Improve timetable stability and punctuality for passengers	<ul style="list-style-type: none"> • Preventing obstacles (parked cars, traffic jams, pedestrian crossings, etc.) or self-obstruction (very high demand, vehicle breakdown) • Creation of alternative routes and turning loops in case of perturbations
Improve legibility of public transport network	<ul style="list-style-type: none"> • Public transport as a network of functional relations to reach and connect different parts of the city, without or max. with one change of vehicle • Level of services (frequency, number of interchanges) according to importance of demand
Improve image of public transport	<ul style="list-style-type: none"> • More capacity and comfort in vehicles • Better accessibility and design of stops of public transport
Promote multimodal mobility (Park and Ride)	<ul style="list-style-type: none"> • Location of public parkings close to main public transport stops, outside centres, combined ticket P+R and public transport
Ensure coherence of public transport measures with the global strategy	<ul style="list-style-type: none"> • Increase of capacity targeted with urban development along corridors • Main interfaces located on main places of the city

Public transport concept

The connectivity of the entire network will be improved by promoting interchange between lines and modes. One structural measure to improve interconnections is to increase the number of intermodal hubs in the network. The creation of a grid of intermodal hubs will greatly improve accessibility and mobility in the city (black circles in the scheme). These can be independent structures with platforms for different modes of transport and could also integrate other functions, such as commercial uses. Each hub should bring together at least two public transport lines and should offer passengers a sheltered space to wait. Intermodal hubs can also provide good interconnections between hard and soft modes of transportation, by providing bicycle-parking facilities, for example. They then become the interface between the hard and soft modes so that they are integrated into a fine-grained network with a high level of connectivity.

A special form of intermodal hub is the Park + Ride area. They are placed at the edges of the city and provide the possibility to reduce the influx of private car traffic into the city.

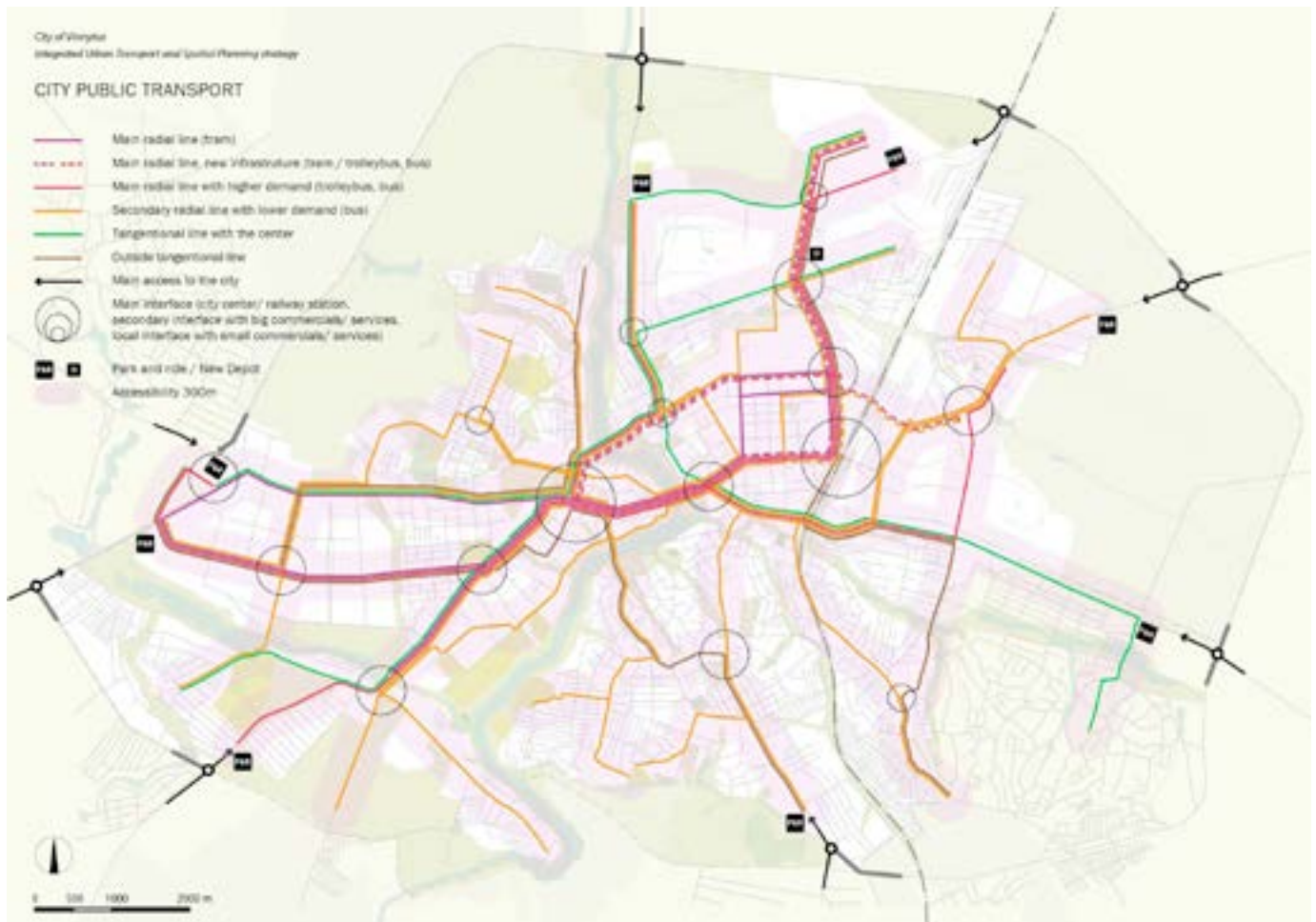


Figure: Public transport functional lines with 300 m service area. Major part of city areas is covered directly by lines on main axes. Only a few shifts of Buslines to secondary axes (e.g. Stakhurskoho St) will be necessary for total coverage.

A fundamental element of a modally integrated public transport system is the use of a single fare and ticketing system. This will help the public transport system to be seen as a network, since there will be little resistance to choose between one mode of transport, or company and another. Such a system should include the whole city and – at least desirable - its immediate surroundings, allowing users to travel over the entire network with one single ticket. Additional services such as a parking fee payment system or bicycle rental could be integrated into the payment and ticketing system. However, the base for an integrated fare and ticketing system has to be a proper network of public transport first!

The structure of such a proper public transport network is based on functional lines of radial and tangential connections:

- Main radial line (red): lines for radial main corridor with higher demand (tram, trolleybus, bus); peak frequency higher than 7.5 min (5 min); connecting important districts with the centre.
- Secondary radial line (orange): line for radial relations with lower demand (trolleybus, bus); peak frequency higher than 7.5 min (e.g 5 min); from important quarters towards the centre.
- Tangential line (green): line for tangential relation near the centre with important demand (trolleybus, bus); peak frequency 7.5 min; interchange between important districts without crossing the centre.
- Outside tangential line (brown): line for tangential relation away from the centre with important demand (trolleybus, bus); peak frequency 7.5 min; interchange between important districts without crossing the centre.

This system of clear defined lines generates the effect of an efficient network. It allows direct relations to the centre and between all important city parts without interchanges (main lines) or with only one interchange (secondary lines). Not at last the system also takes advantage of the rather canalized structure of traffic relations and flows due the concentrated locations of River crossings around the city centre.

The main routes and stops are to be found along the main streets. High public transport accessibility to these streets supports the high concentration of activity found here. The public transport network needs to connect the main areas of the city in a balanced way. Coverage is to be evenly distributed across the city. Main development areas (e.g. Vishenka) have to be served with main lines and district centres developed around important interfaces (e.g. Kirova) respectively interfaces have to be arranged where important nodes of city life already exist (e.g. Zhovtneva Square).

Additional alternative routes and possibilities to turn around in case of perturbation are important for improved network operation. Final solution for the existing network can only delivered by a tramway connection between City centre and Zamostya over Chornovala Bridge (red dotted line in the concept scheme). Already in short term important for the whole system is a direct tram connection to the train station in Kotsyubinskoho Street.

The proposed network is rational, legible and has a high level of intermodal integration. It conforms closely to the proposed city structure. In this way the areas of greatest accessibility will coincide with areas with the highest concentrations of activity. This also will help to ensure adequate coverage.

For more detailed setting out of the network and routes a number of guidelines need to be followed:

- The existing network should be enlarged and simplified. Routes along which different lines overlap for a significant distance should have the extra routes removed (more direct routes according to the principles of functional lines also for marshrutki).
- Direct connections should be maintained along the lines of strongest demand.
- Priority should be given to public transport modes at intersections. The introduction of measures privileging public transport should be combined with guidance and restrictions on car use when restructuring of the network.

The level of coverage and connections provided of the network in main corridors is already almost optimal. It will be enough to direct some secondary lines with lower demand inside districts to get full coverage.

Important to make the use of the public transport network more attractive and comfortable for passengers (and more efficient for operator) is a compact layout of interchange stops. Today stops of different modes (sometimes even different lines of the same mode) are very far from each other. In future they have to be arranged as close as possible on intersections and bus/trolleybus platforms have to be direct connection with tram platform.



Figure: Main interchange “Teatralna”. Disperse with long ways, existing (red); Compact and convenient, new (blue)

Measures

Redefine public transport system by using principles of functional lines (tram, trolleybus, bus, marshrutki). Take reference of the guiding principles with additional detailed considerations to adapt the plan. Establish prioritization on junctions and run all public transport by timetable (improved) and not only by intervals.

Invest in important network optimizations of Tram and Trolleybus network. Highest priority is for Tram in Kotsyubinskoho Prospekt and Tram/Trolleybus in Corso Kirova to a new depot at Honty. Important is also to provide more alternatives for network stability.

Rearrange interfaces more compact to allow fast interchanges and provide unified tickets to generate an attractive network effect for passengers to use public transport in all relations.

Give priority to public transport



3.5 SOFT MODES - WALKING AND CYCLING

This specific Strategy aims to encourage walking and cycling. It describes a possible pedestrian and cycle network that will improve connectivity and help to integrate soft modes well with public transport. Soft modes have less rigid requirements, but are more sensitive to quality. A good pedestrian environment allows longer journeys to be undertaken by foot, improving overall mobility in the city. It also makes people more prepared to walk short distances to reach public transport stops, so that use of these modes of transport is promoted.

Starting position

For many citizens walking still constitutes a part of the daily commute to and from work, often in combination with use of public transport. Today this is under threat due to:

- The growth of the city outwards in a rather mono-functional way.
- Private fences or barriers related to traffic and bad street management.
- Not enough maintenance of footpaths (e.g. inadequate drainage).
- Not enough comfort of public transport service that will inevitably stimulate private car use.

The recent trend of increasing car use has led to large amounts of space being given over for further traffic lanes and parking, often at the expense of pedestrian space. Adequate land is not safeguarded for good pedestrian facilities. Integration between public transport stops and the pedestrian and cycle network is often poor. The design of the streetscape needs to be more oriented towards pedestrians.

Despite the small amount of infrastructure catering specifically to cyclists and the harsh climate, cycling is becoming more popular among younger people, especially in good weather.

As walking and cycling are more sensitive to the quality of the infrastructure that caters to them it is important to integrate pedestrian and cycle paths well into street sections. The street network has to become more attractive and safer for these users. Accordingly, key to stimulate people to walk by foot are not pedestrians-only-areas in City Centre, but an integrated network with safe, comfortable and direct connections in neighbourhoods, to stops of public transport and between City districts.

Another focus is on making the inner landscape structure accessible for pedestrians and cyclist and to connect this framework with the open landscape around the city.

Objectives and principles

Objectives	Principles
Develop a network of foot-paths	<ul style="list-style-type: none"> • Better connections with interventions in infrastructure on main crossing points (safety islands, green phases)
Develop a network of cycle-paths	<ul style="list-style-type: none"> • More and better connections from the city center with the districts according to programme bicycle infrastructure 2013-2020
Shorten the average duration of walking and bicycling routes	<ul style="list-style-type: none"> • Direct paths, reduction of barriers, closer destinations, access to services, stores and leisure
Put in place a coherent and readable network (paths markings and signs)	<ul style="list-style-type: none"> • Better signalisation accordingly of standard design for foot-paths and bicycle lanes
Remove or reduce risks to increase share of soft modes	<ul style="list-style-type: none"> • Reducing speed of traffic and reducing distance at crossings, better design for soft modes
Ensure coherence of soft mobility measures with the global strategy	<ul style="list-style-type: none"> • Urban development and urban design for pedestrians (human scale), quality for pedestrian of the first step out of the door
Promote green spaces in the city for green network	<ul style="list-style-type: none"> • Develop network of small river valleys as green public spaces / green corridors with footpaths
Improve public space network	<ul style="list-style-type: none"> • Reduction of the natural barrier effect (Southern Bug, small rivers, gulleys) • Reduction of the barrier effect of infrastructures (roads, railways), better crossing of roads for pedestrians (safety islands, green phase at traffic lights) • Direct connection of green public spaces (parks, natural landscape) and mineral public spaces (streets, paths, places) • Network of public spaces useable for pedestrians and cyclists
Promote quality of public spaces	<ul style="list-style-type: none"> • Integrated approach considering programme, safety and well-being for users as well as design criterias • Reduction of the dominance of traffic in street space • Quality everywhere, in common areas as well as on representative places
Increase traffic management for the benefit of pedestrians and bicycles	<ul style="list-style-type: none"> • Traffic calming on main axes (speed limit 50 km/h), calmed traffic zones (30 km/h), shared spaces (20 km/h), pedestrian zones (no traffic)

Concept for soft modes

Pedestrian network

There is a lot of potential to build on the current network to create high quality pedestrian facilities. The large amount of trees and planting in the streets makes a significant contribution to raising the quality of public space for pedestrians. The creation of the pedestrian network should conform to the following guidelines:

- There should be several attractive routes linking different areas of the city. Along streets (red and orange lines) but also using the inner (green dotted line) and outer (green solid line) framework of green spaces (see also Landscape Strategy of Vinnytsia City Council).
- The emphasis should first be on the “Corso” and on streets in city centre then on the surrounding streets.



Figure: Network of main routes for soft mode mobility

- Deliver new crossings of natural barriers (red arrows).
- Care should be taken to integrate good pedestrian facilities with public transport stops.
- Pedestrian crossings and crossroads should be transformed to grant convenient crossing on street level.
- Enlargement of the pedestrian zone in the city centre to connect it with the central Park (yellow).

With future development of new sub-centres new pedestrian zones could become possible. However, introduction of new pedestrianised streets should be done according to the following principles:

- A critical mass of activity must be established in an area, in particular retail and recreational facilities.
- There must be good public transport provision.
- It is only possible to pedestrianise streets in areas with moderate car traffic pressure.
- There should be adequate alternative routes for car traffic.

Bicycle network

As with the pedestrian network, there is a lot of potential to build on the current network to create high quality cycling facilities. The wide existing streets mean that it is relatively easy to adjust the street profiles to include new cycle lanes. Awareness will need to be raised of cyclists so that they come to be seen as legitimate road users. Lack of familiarity with cyclists in daily traffic however, will require a guided and phased implementation of the network. With its program for development of Bicycle infrastructure 2013-2020 Vinnytsia City Council already has solid basis to improve conditions for bicycle transport. Taking this program into consideration, the upgrade and transformation of cycle routes and facilities should be done according to the following principles:

- Routes in and into the City Centre should be developed first.
- The emphasis should be on the „Corso“ to provide longer-distance cycle connections.
- Local roads should then be transformed to make the network finer grained.
- Cycle routes should be integrated with the public transport network and cycle facilities such as secure parking provided at public transport stops.
- There should be several attractive routes linking different areas of the city.



River crossings for pedestrians and cyclists, which take into account the qualities of the landscape: motorized ferry in Nantes (top) and non-motorized ferry in Berne (bottom).

Measures

The following steps are needed to make the city more walkable and to encourage cycling.

Increase supply: Creation of an extensive, continuous pedestrian and cycle network;

Make landscape accessible: There is high potential of walking and cycling for a better urban mobility. However, also recreational routes in the Landscape are important for identity;

Shape the spaces: Get the design right and people will walk in almost any climate;

Mix the uses: Neighborhoods with a diversity of uses – places to walk to - have significantly more walking;

Protect the pedestrian and cyclist: Provision of safety islands for pedestrians and of dedicated cycle lanes on streets with large amounts of traffic;

Put car drivers in their place: Raising awareness amongst motorists of pedestrians and cyclists as legitimate road users;

Get the parking right: Provision of better and integrated cycle facilities throughout the city;

Let public transport work: While walkability benefits from good public transport, good public transport relies absolutely on walkability.

Improve livability in the city with a high quality environment for pedestrians and cyclists



3.6 ROAD HIERARCHY FOR MULTIMODAL USE, ATTRACTIVE PUBLIC SPACES AND URBAN DEVELOPMENT

This specific Strategy identifies the main streets in the city. These streets create an urban structure and provide clear legibility in the street network. It also forms a framework for other field-specific Strategies as it touches on and brings together principles related to urban grain, public spaces, transport and multi-modal accessibility.

Starting position

The road network is well developed, with emphasis on large roads for motorised traffic. Some of these roads are really loaded by traffic; some are not. Small streets and interrupted relations (dead-end streets) are mostly found in hilly districts.

Historically, streets were conceived to satisfy external and internal transport demand, but not less important, they served as public space with multi-functional purpose. Currently, street space is mostly oriented on the needs of the car either moving (flows of traffic) or standing (parking). Where not physically separated even tram lanes are used by cars.

The well-developed network with large street space is currently resulting in a too big number of main streets dominated by private motorised transport. Traffic flows almost everywhere without resistance.



Figure: Existing road hierarchy with many main roads. Structured hierarchy is barely visible at all.

Even Soborna Street which supposed to be free of transit is significantly loaded with around 1000 private vehicles in peak hours. A road hierarchy, which considers also the needs of public transport, soft modes or quality of live is barely visible. Consequence of this lack of hierarchy is recognizable also in the very widespread crossroads that imply longer clearing time for vehicles and long crossing for pedestrians, what directly results in lower capacity.

Objectives and principles

As the Road Hierarchy is an element related to various other particular concept elements, objectives and principles cover these particular concepts too.

Objectives	Principles
Clear network hierarchy for a better distribution of all modes of transport and for a better living quality	<ul style="list-style-type: none"> • Network hierarchy with better distribution of all modes of transport mostly within the existing network and only few new connections • Canalization of traffic on main streets for better living quality in the neighbourhood an centres • Traffic calming in the tranquilised zones (cells without transit) • Minimal number of main roads and maximal size of tranquilised zones with collecting roads • Strategic complementation of road network to report traffic without creating new demand
Improve the fluidity of traffic and reduce the congestion	<ul style="list-style-type: none"> • Traffic management with regulation and control of private flows on main roads, priority for public transports • Local capacity increase by resizing and limitation of relations on crossroads
Promote multimodal mobility (Park & Ride)	<ul style="list-style-type: none"> • Location of public parkings close to main public transport advantageously at the city entrance
Conceive main transports axes in their urban and landscape context	<ul style="list-style-type: none"> • Construction of new roads integrated with local redevelopments of settlement
Ensure coherence of measures with the global strategy	<ul style="list-style-type: none"> • Road extensions according to limits for urbanisation and the structure of urban development

Concept for Road Hierarchy

Clear hierarchy in the road network contributes to the legibility of the city, supports orientation and improves comprehensive understanding of the use of street and other public spaces. On a hierarchized network, street space is distributed, taking in account all modes of transport (flowing and standing), different speeds are allowed and traffic is managed accordingly to the function and situation of the street in the urban context. Proposed is the following hierarchy:

Ring road (orange): obligated route for freight traffic, distribution of access to the city from outside, and to a certain level also for interchange between outer districts of the city (back to the ring road to get to another part of the city as explained in chapter 3.2).

Main city roads (red): main direct relations towards the centre, main interchange route between main parts of the city from both side of the river (westbound and eastbound).



Figure: Plan of the City Road Hierarchy (mid-term with long-term opportunities)

Main city roads with restricted access (dotted red line): natural prolongation of the main city roads, but with restricted access for cars; keeps to be highly important for public transport and for the image of the city (visually keeps to be a main road).

Main collector roads (blue): main access and feeder road for the dense areas of the main development corridor; secondary connection from the ring road to the city; interchange route between main parts of the city of one side of the river (westbound or eastbound).

Collector roads (green): main interchange route between quarters and feeder road for the neighbourhoods. Main access from the ring road to peripheral low-density quarters.

Entrance to the city (black): point of change between outside in inside of the city: speed reduction 50 km/h, has to be spatially distinguished (design city entrance).



Figure: Bridge locations for River and Railway crossing

River and Railway crossings

The question of the need and locations of new bridges raises in any discussion about Vinnytsia's spatial development and indeed is important for the city authorities as the construction of a new bridge is very expensive and has to be planned as a long-term investment. The river and railways cause gaps in an otherwise well-developed network of city roads. Landscape structure and existing residential areas prevent the construction of new bridges over the river on the three additional locations defined by the actual General plan. But above all, a new bridge requires also a connection with the city street network of adequate capacity, what is not possible at the proposed locations on Honty street and Skaletskoho street.

The conditions for crossing of the railway (also three additional locations), as defined by the actual General plan are partly a bit easier. But for two of them it is quite questionable if they make sense at all, as one is in close location to the existing ring road (Honty) and the other one forms a connection of low potential (Tyazhylivka).

A bridge construction plan must also take into account considerations such as the consistency of this approach with the Land use plan and the effect that a new bridge is likely to have in encouraging development in the forest, for example in the case of Honty connection as proposed by the existing General plan. A new bridge over the railway would definitely stimulate Greenfield development in the east. So, especially examined have to be conflicting objectives with the Compact city developing strategy of the city and, of course, financial aspects of a bridge construction plan that is too excessive. Crucial is also the purpose of a bridge that is not limited on benefits for car traffic. This means not only that a bridge should have dedicated public transport and bicycle lanes but also that the location of the bridge fits into layout and demand of public transport system. For bridges on Honty Street this is not the case concerning river crossing as well as concerning railway crossing.

All these factors show that the situation with river crossings has to be improved first, before any investments in additional railway crossings should be taken. Highest priority has reconstruction of Chernovola Bridge and construction of a new bridge just south of Kozitskoho Bridge. If demographic and economic development takes place as wished by City Council and as modeled, these projects have to be realized in the time horizon of the General Plan (mid-term, until 2031) to make sure that the transport system not collapses.

After this, in long term a new Bridge over the Railway at Frunze St. – Vatuina St. can be established. New river crossings for soft modes (Festivalniy Kempa, Skaletskoho, Honty) are opportunities for mid-long-term. At Honty in a very long term a bridge for cars is not excluded. However, its potential for the traffic system is only low due to the given situation in Pyatnichaniy that prevents to prolongue a street. All other new bridge locations that are proposed in the existing General plan are dropped.

Measures

Redefine the hierarchy in the road network by using accessibility principles (chapter 3.2). Take reference of the guiding principles with additional detailed considerations to adapt the plan.

Requalificate roads according to their function in network hierarchy and taking into account the needs of all means of transport (including soft modes).

Carry out main network optimizations with ring road access (Lypovetska St, Bars'ke shosse, Tarnohrodskoho), connections of missing segments in the existing network (Honty, 50-richchya Peremohy etc.) and increased capacity of river crossings.

Reconstruct and reorganize traffic on main intersections according to accessibility principles (chapter 3.2) and road road hierarchy, taking into account the needs of all modes of traffic (exemplary showed in chapter 4.3 Zhovtneva Square).

Make the transition from out of town to inner city road network (city entrances) and from main city roads to roads with restricted access (City Centre entrances) spatially visible and physically noticeable in Street design.

Determine a road hierarchy, which increases multimodal traffic capacity and supports better quality of life in city centre, sub centres and housing areas



4.

KEY ELEMENTS



The key elements bridge the gap between the conceptual framework of the strategy and the realisation in individual projects. They provide illustrations of the application of the themes developed in the concept, addressing a range of territories and scales. Thereby every element is an urban study, carried out for a specific site at the backbone for development of Vinnytsia. The aim is to illustrate the quality and possibilities of the application of the various strategies of the integrated strategy based on actual examples. Not at last this has been done with the intention of strengthening and supporting the implementation process of the integrated strategy, as the elements can be defined as projects of high priority.

4.1 ATTRACTIVE CITY CENTRE

IMPROVEMENT OF ACCESSIBILITY

Starting position

Why access to the city centre and its design is so important?

The city centre is the heart and the soul of the urban system. It reflects the history and gives impulses for the future. A lot of people converge to this particular place. Accessibility for everyone needs to be ensured, without damaging the spatial qualities of this historic place. The city centre has to cope with many different requirements, which occur on limited ground. Therefore, well-planned and well-designed urban space is needed to allow coexistence of all people in the city centre.

An example for interdisciplinary and interscaled work

Institutions and public services in the city centre need to be accessible from the whole city/region and with high quality multimodal connections. Bringing people in the centre with public transport allows keeping a lot of open public space free of traffic. Quality of public space increases and pedestrians take advantage to move easily and to stay comfortably. A living centre is a mixed-use area with a good environment for inhabitants. Motorised traffic has to be managed to improve security and reduce noise and air pollution.

Problem with public transport

Too many lines are crossing the city centre with stops almost only in Soborna Street. For passengers it is very difficult to understand which line stops where. Tram stops and bus/trolleybus stops are far away from each other. Some buses do not use every stop in Soborna. Main stops are not situated close to main pedestrian crossings. Due to all this, interchanges are not convenient and not attractive. Distances between two stops are variable and rather far from each other. Only the middle part of the centre along Soborna street is well served. Lack of service exists in the northern part (Pershotravneva St) and in the southern part (Sverdlova St). Altogether, the City centre visibly suffers from the weakness of Vinnytsia public transport system, which is orientated on using single lines instead of connect them to a more efficient network.



Figure: Existing public transport network coverage and stops in City centre

Particular objectives

Ensure multimodal accessibility to all parts of the city centre:

- for pedestrians and cyclists within the different parts of the centre;
- for cyclists from the neighbourhoods;
- for people in tram and buses from all parts of the city and within the centre (including people using Park&Ride);
- and for people in cars visiting the Centre (short period of parking).

Concept for accessibility by car: The loop system

Access to the centre is ensured preventing crossing it. Every outside corridor (purple lines) gets its own access. Using the ring road in the north is promoted to get another main access towards the Centre.

Discharging Soborna Bridge - the main public transport axis - of private motorised traffic is an important conceptual issue. Vis-a-vis capacity of the other river crossings around the centre is to be improved (optimisation of crossroads, broader existing bridge Chornovola, new bridge Kozitskogo).

A system of loops (one-way traffic, green lines) for direct access of different parts of the centre is applied. Crossing the whole centre is complicated/not possible and therefore not attractive for motorised private transport.

At main entrances for access (red arrows) clear information (main destinations, parking) is to be provided.

Discharging of Soborna Street is achieved thanks to management of car traffic on the whole City centre street system with the following regulations:

- one-way traffic, and/or
- no traffic allowed except buses, or
- pedestrian zone.



Figure: Access to City centre with loop system for private motorised transport

Concept for parking policy with clear priorities

The main goals are to keep commuter traffic outside and to increase quality of public space. Foundation for this is improved accessibility by public transport. The following guidelines for parking are considered:

- Car access to existing public parking garages and public parking lots and private parking facilities in city centre is ensured.
- Improved quality of public space, ensured priority for public transport and secured space for bicycles theoretically allows to park approximately the same amount of cars in city centre as today. However, as today almost 50 % are “wild” parked cars (especially in Soborna Street) the concept determines clear marking of areas and roads where parking is allowed and where it is not permitted. In general, a bit more on-street parking than today will be located in the eastern part, a bit less in the western part of city centre. Free of on-street parking is the heart of City centre with its high quality public spaces. The scheme shows the potentially locations. In the end it is a political decision which number of on-street parking place will be offered.
- Time limitation and parking fees ensure better parking for customers/visitors (short-term) and avoid parking for commuters (long-term).
- New public parking (multi-storey parking) on the edge at access points of city centre.
- Private parking for new developments must be solved on private ground within a block!

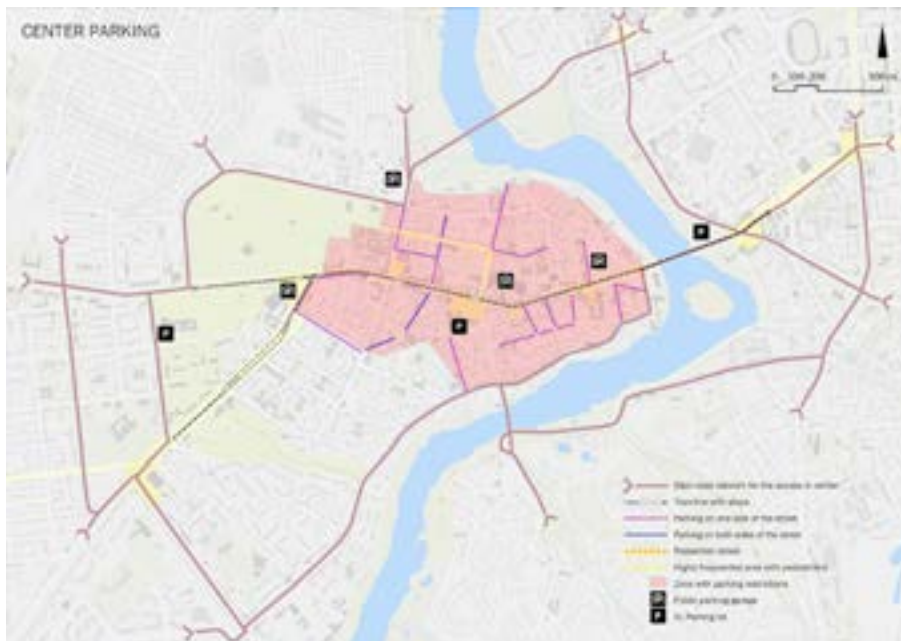


Figure: Parking in city centre with on-street parking and public parking garages

Steps for implementation

Improve traffic management on City scale to direct car transit traffic around City centre (see chapter 3.2).

Extended surveys of parking situation, political decision for introducing parking management (see chapter 3.3).

Extended surveys of traffic situation (counts of cars entering and leaving city centre, observation of main destinations). Adapting system of loops according to results. Implement loop system.

Reconstruction Soborna Street (see chapter 4.2) with new interfaces for public transport, pedestrian crossings and traffic regime.

Reform Public transport network to reduce number of lines and vehicles in Soborna Street (see chapter 3.4).

Reservation locations and putting forward plans for parking garages at the border of City centre.

Improve design of Street space and Public spaces. Support small structured commercial uses in first floors of buildings along streets.

Concept for public transport accessibility

The number of tram and trolleybus lines along Soborna St. is conserved. On the other hand, the number of bus lines should be reduced. Marshrutki lines should not cross the City centre at all (distract lines at the edges of the centre, before crossing the bridges).

Steady distribution of stops with distance of maximum 400 m between two stops through the centre. Tram/Bus/Trolleybus are common located on one and the same stop (example see chapter 4.2). Every stop is served with all lines (except express lines). Secured pedestrian crossings.

New public transport routes (Pershotravneva, Sverdlova, Teatralna-Tolstoho) apart of the main axis to ensure coverage of the entire City centre with public transport.

Interfaces of main lines are located along Soborna Street. Secondary lines and tangential lines are crossing Soborna Street.

Main interfaces are directly connected to main institutions and public spaces (Teatralna/University, City Council/Kozitskoho square).

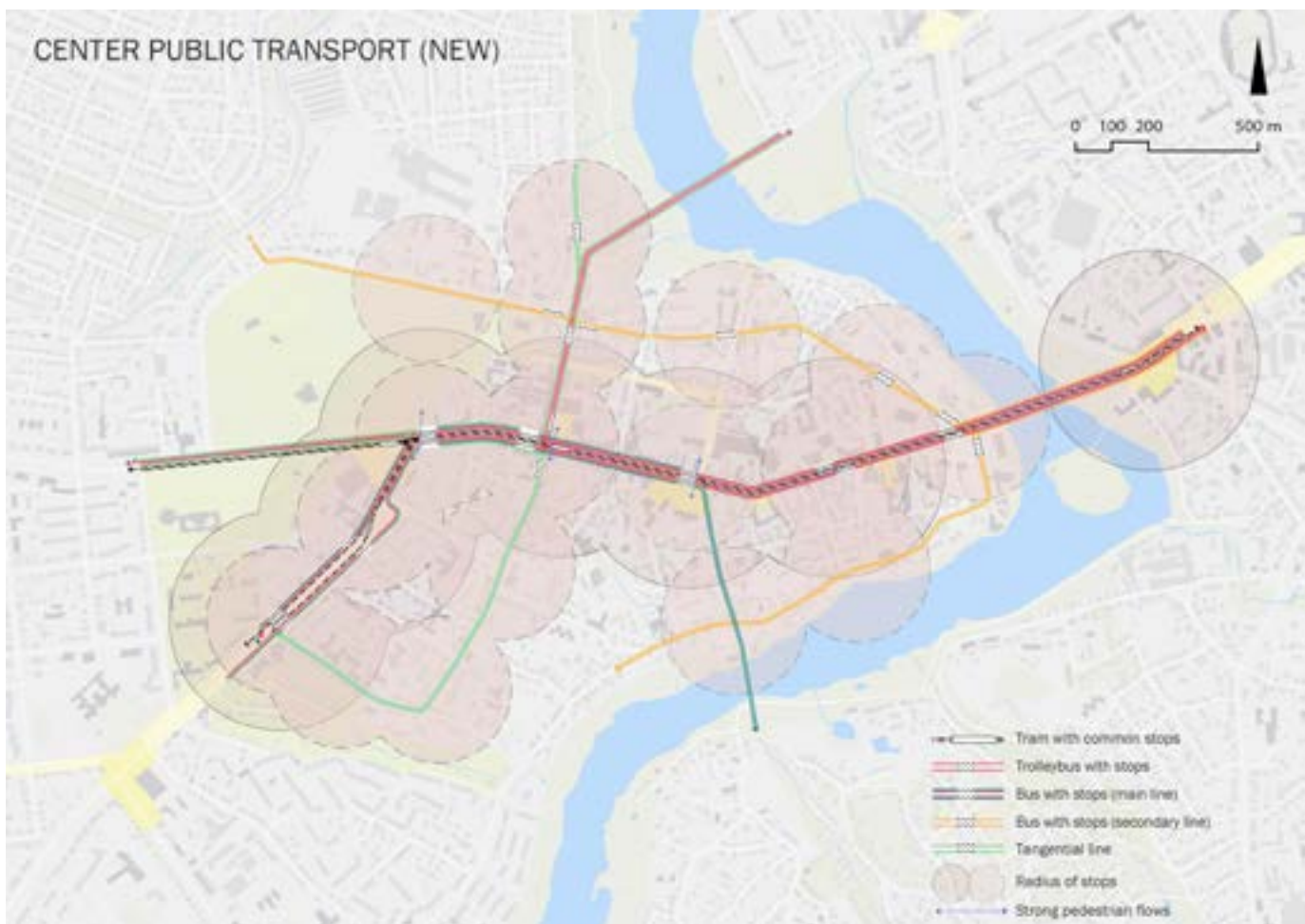


Figure: Proposed public transport network coverage and stops in City centre

4.2 SOBORNA STREET

CORSO CONCEPT IN THE CITY CENTRE

Starting position

Why Soborna Street as an example for traffic management and urban design?

The City centre with the Southern Bug River represents the most positive and often communicated image of Vinnytsia. Soborna Street is one of the most sensible parts of the Corso concept (the representative and active backbone of the Compact city).

The urban design of Soborna Street reveals its typical character while satisfying the requirements of the needs of multimodal transport with better access to the centre.

An example for interdisciplinary and interscaled work!

Urban design and traffic management are conceived together. Accessibility of different scales of the city is managed at scale of one concrete street.

The City centre has to cope with many different requirements, which occur on limited ground. Well-planned and well-designed urban space is needed to allow coexistence of all people in the City centre.



Historic postcard of central part of Soborna street (formerly Mykolaevski prospekt)

Particular objectives

Objectives for urban design:

- Image of the Corso as a strong axis for public transport.
- Representative public spaces with direct connections to common public transport stops and pedestrian zones.
- Clear design of pedestrian areas as common grounds of the centre. Continuous profile of the street (roadway) despite to different traffic functions. Composition of streets and places.
- Use of few and simple materials for surfaces, tree lined Corso, lighting system oriented on the human scale of pedestrians, good design of the electrical catenary.

Objectives for traffic management:

- Improve traffic management in accordance to the principles of urban design (attractive and connected public spaces) that ensures:
 - Priority for trams and buses, better commercial speed of public transport.
 - Clear locations of tram and bus stops, which are easily accessible for pedestrians and located in the vicinity of important institutions and intensive uses.
 - Access system for cars in different parts of the center that discourages transit and minimises conflicts in Soborna Street (left turns).
 - Safe and comfortable pedestrian crossings coordinated with cross-roads design and public transport stops.
- Short time on-street parking for customers and delivery services, no parking on sidewalks!

Concept for improvement of Soborna street

Image of Soborna Street

The elaborated concept strengthens the visual qualities of the street and establishes much better access to the whole city centre by public transport and soft modes. Traffic management of Soborna Street relieves its load of motorised traffic and allows much better pedestrian crossing. Like in the old times Soborna Street again will become the probably most inviting and representative public space of Vinnytsia.

The most popular and representative Squares of the city (Teatralna Square, Maydan Nezalezhnosti, Kozitskoho-Europa Square) will be able to attract even more people thanks to compact and directly connected stops of public transport, which allow straight flows directly in the main pedestrian zones of the city centre.

Priority is given to the flows of tram and buses/trolleybuses. Secure pedestrian crossings will significantly improve efficiency of public transport (higher operational speed, steady service, less costs).

Decent use of materials, the simple presence of the avenue of trees (even though technically quite difficult), and the lighting will emphasize the quality of the whole street space including hemming buildings.

General principles for traffic management and urban design in Soborna Street

The whole segment of Soborna Street represents one continuous image of a urban boulevard.

Compact stops of public transport are located at the «hot spots» of the centre.

Traffic management and urban design correspond with different requirements in different sections. The width of the street (roadway) is continuous, but the division of lanes is adapted on different traffic functions.

Covering is basically mineral (asphalt and granite paving) and adapted on traffic functions:

- Asphalt for the roadway (smooth surface, noise reduction of traffic) and for sidewalks away from representative areas;
- Pavement with granite stones is for squares/places and sidewalks in representative areas;
- Pavement also for tram lanes (rugged surface signalizes that cars are not welcomed here);
- Concrete slabs on bus stops (more resistant than asphalt, recognizable presence in the roadway).

Lanes plan for traffic management (calibration for all modes)

Fundamental for the traffic management are own lanes for trams in both directions in the centre of the street profile. Tram stops are located at important pedestrian crossings, what allows introducing safety islands (3 m wide) for tram stop combined with pedestrian crossing. Thanks to these safety islands it is also possible to give tram priority on pedestrian crossings (no marking of crosswalk over tram lane). Tram and bus stops are distributed very close to each other and to pedestrian crosswalks.

Bus/Trolleybus shares lane with car traffic, as the level of traffic in Soborna Street is (must be) low. Thanks to one-way regime for private cars in central section of Soborna Street a separate bus lane is introduced. Bus stops are located along the sidewalk (no move sideways) and are combined with short bus-only-lane on crossroads with secondary access roads. This allows front position of buses and accordingly priority for them at crossroads.

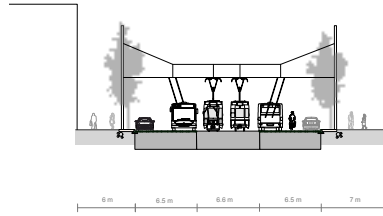
For cyclists a continuous offer of safe supply exists. In sections with private cars in the form of bike lanes (1.75/1.50m), where there is no car traffic (one-way regime) a wide lane of 4.2 m for bus and bike exists. Short time parking for visitors/customer and delivery services exists at different sections along the street.

Crossroads are regulated with traffic lights, with exception at Hlebna Street with low level of traffic. Traffic lights can be operated in only two phases. One long phase for the main axis (Soborna Street), where most of public transport lines are running. Traffic lights guarantee that no left turning vehicles are standing on the tram lanes and are blocking public transport.

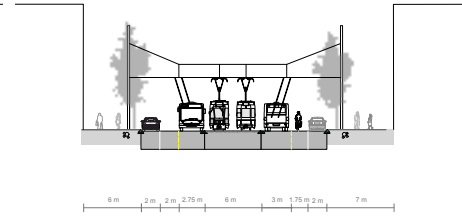
Introducing of safety islands is not only more comfort pedestrians, but also allows shorter red light phases for car/bus/tram traffic on crossroads. During hours of low level of traffic it is possible to switch out traffic lights.



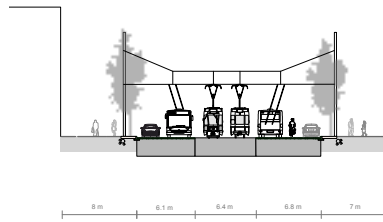
Figure: Lane plan (overview) for traffic management in Soborna street



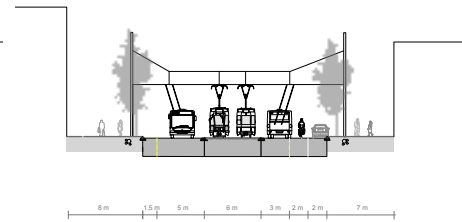
Section A-A: Existing situation



Section A-A: On-street parking on both sides, separate bike lanes, mixed lanes for bus and cars, tram line



Section B-B: Existing situation



Section B-B: On-street parking on one side, separate bike lanes, mixed lanes for bus and cars, tram line

Steps for implementation

Introduction of new tram interfaces with safety islands for pedestrians. Introduction of combined interfaces Tram/Trolleybus/Bus at the same location. Realisation in stages is possible (e.g. at Maydan Nezalezhnosti first), but every interface has to be equipped fully with safety island from the beginning.

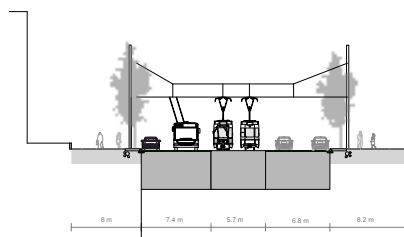
Introduction of safety islands and traffic lights at crossroads.

Realize loop system for traffic management in City centre (as described in chapter 4.1) and complete reorganisation of public transport interfaces and on street parking. Introduce bicycle lanes.

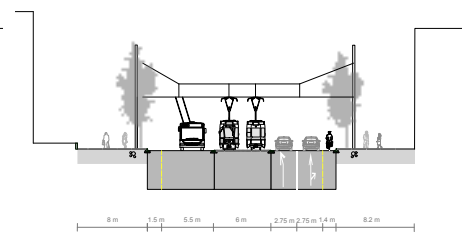
Renewal of avenue of trees along Soborna Street (see program for planting of trees of Vinnytsia City Council).

Renewal of system overhead lines for Tram and Trolleybus. Displacement of all other wires (telephone etc.) underground. Renewal of catenary poles and reduction of the vast amount of poles currently used for signage and billboards.

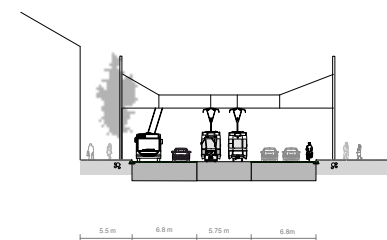
Substitution of road surfaces (roadway = asphalt, tramlane = cobblestone).



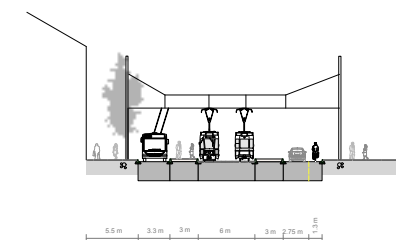
Section C-C: Existing situation



Section C-C (crossroads): separate bike lanes, mixed lanes for car and bus with separate lane for left turn



Section D-D: Existing situation



Section D-D (Tram/Bus stop): Safety island for tram stop and integrated pedestrian crossings



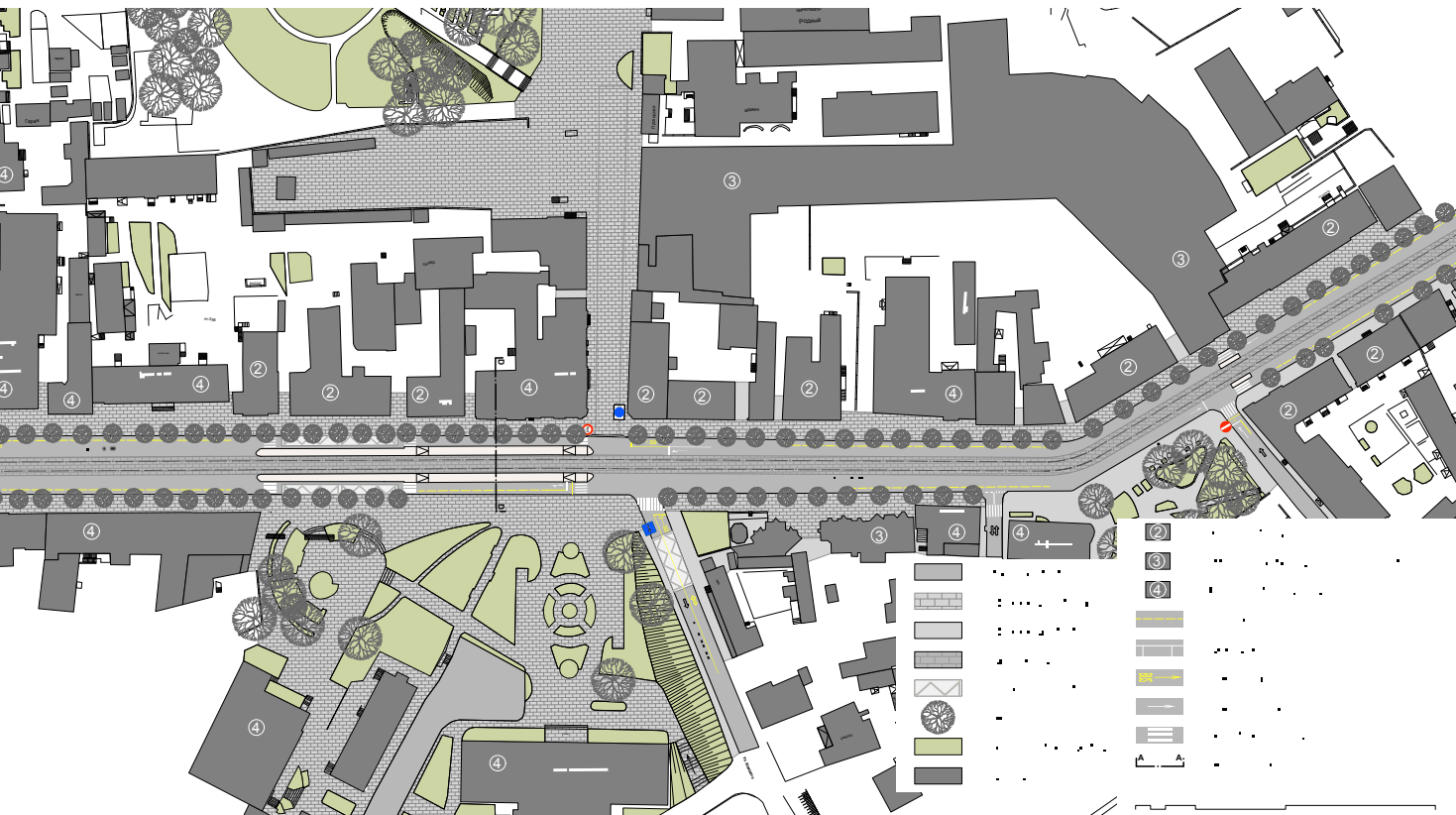
Photo: Soborna Street/Maydan Nezalezhnosti, existing situation



Plan: Integrated traffic management and urban design concept for Soborna street



Visualization: Soborna Street/Maydan Nezalezhnosti with Tram/bus stop including safety island for pedestrian crossing at very high frequented place in the city



4.3 ZHOVTNEVA SQUARE

MAJOR INTERFACE OF PUBLIC TRANSPORT

Starting position

Zhovtneva Square in fact is a very extensive junction for all kind of flows over and along the Southern Bug River. Also it is a gate to Zamostyanskyi district vis-à-vis of city centre. Today, the crossroad is a vast area of asphalt, which lacks distinction between areas for main traffic, space for pedestrians and access roads with secondary traffic.

Public transports stops are located away from the intersection, without connection between them; a tram stop is missing at all and public transport suffers perturbations due to conflicting cars, which use the tram lane.

The square is crossed by many and very long (25 m) pedestrian crosswalks without crossing aids (safety island) at all or even longer crossings in 2 steps (50m) with only a marked island. For cyclists no infrastructure exists.

Traffic of public transport (trams, trolleybus, bus and also minibus) crossing Zhovtneva Square is very intense as it is the natural intersection between the westbank network (based on tram) and the east-bank network (based on trolleybus). However, this interface is currently missing. Its establishment allows direct connections with nine important destinations in the city and creates a main interchange between tangential and radial lines.



Figure: Junction on Zhovtneva Square, current geometry, pedestrians crossings and traffic load 17:30 – 18:30

Particular objectives

Instead of a vast area of asphalt with its repellent effect on pedestrians an attractive place for urban leisure can be created. A hot spot of city life can be established at an inviting park, easily accessible by trams and buses from the whole city and even region. To achieve this quality space the following particular objectives are considered:

- Design of a compact intersection with clear organization of traffic and established main interface for public transport.
- Public transport stops located close to each other, with minimal distance for pedestrians. Each stop should be easily visible with each other for optimal orientation of interchanging passengers.
- Location and arrangement of public transport stops that allow priority for public transport on traffic lights at the crossroads in a easy way (without need of high-tech solution).
- Convert the currently large street intersection to a square with more space for pedestrians.
- Consider bicycle for the street space distribution.

Concept for a new major interface

The proposal shows a very efficient solution wich needs only 3 green-phases at traffic lights and contributes to an increased capacity (less "between-phases" when the crossroads is blocked for any relations). To improve capacity and comfort for pedestrians some restrictions are applied:

- No right turn for cars allowed from Ostrovskoho street in Kotsyubinskoho prospect (currently used only by very few cars) and from Kyivska Street on Soborna Bridge (for decrease of traffic). Space is gained for pedestrians, public transport interface and improved public spaces.
- No left turn for cars from Soborna street in Kyivska street; priority for right turn from Soborna street in Ostrovskoho street (not under traffic lights).
- Implement short cycles on traffic lights (about 90 seconds, today 100 seconds)

At the crossroads priority is to be given to public transport through:

- Separated lane for tram; priority for tram before crossing pedestrians.
- Mostly separated lane for bus/trolleybus and separated bus stop.
- Safety island for pedestrians to reach the stops.

By exception of the needed space for the new tram-stop no enlargements of existing streets is needed and a lot of space is even won for improvements of public space. However, a solution within existing roadways does not provide enough space for a continuous separated bus lane and for bicycle lanes. These could only be achieved with larger streets or less lanes for private motorised transport.

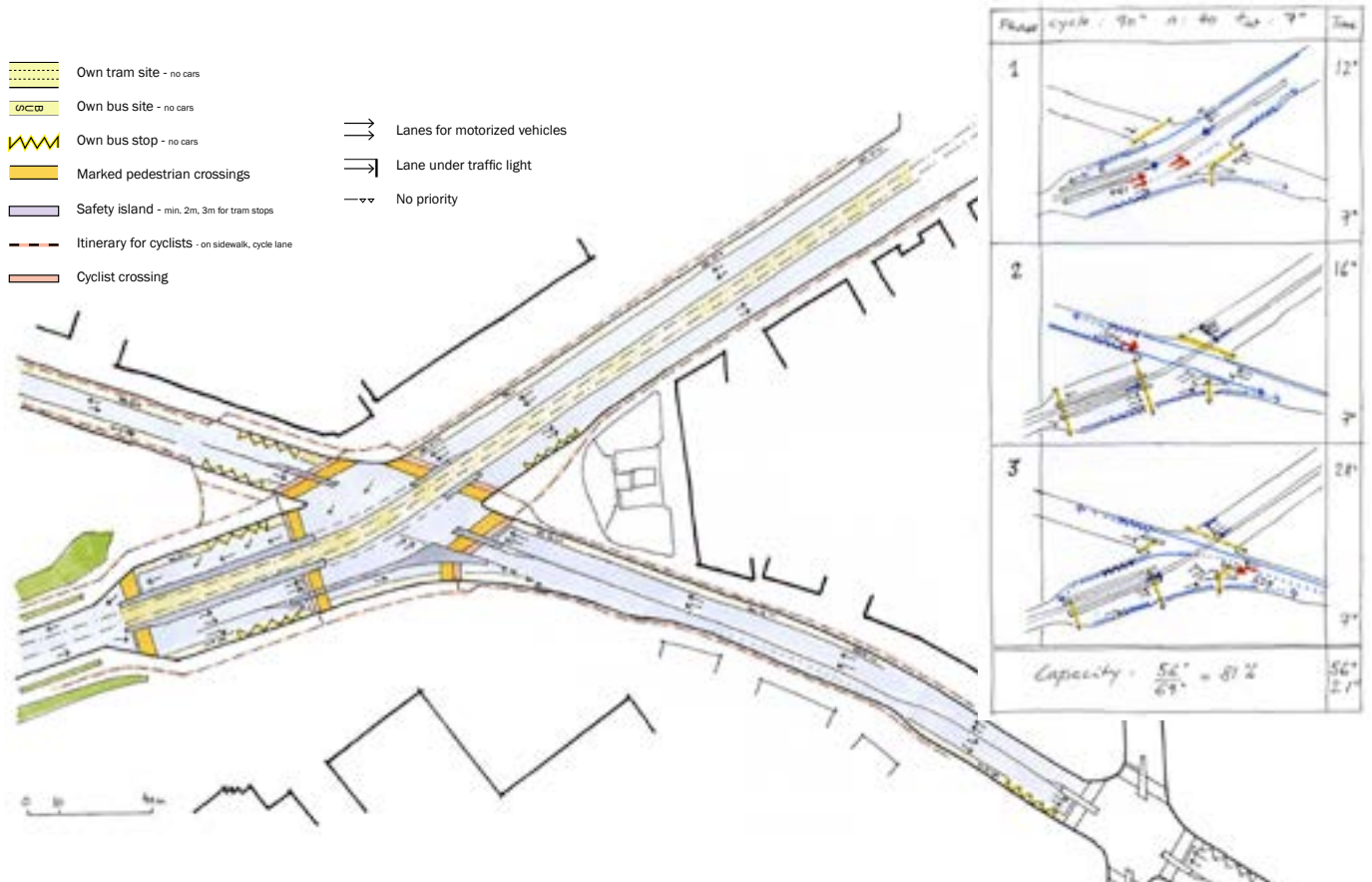


Figure: Sketch of "optimum variant" for Zhovtneva Square with maximal compactness of public transport stops. Allocation of green phases on traffic lights.



Figure: Regrouped lines allow to build a compact interface at Zhovtneva Square (blue, project) instead of several stops pulled apart from each other (red, current).

Steps for implementation

Detailed assessment of variants for reconstruction. If needed to take decision simulation of traffic flows in Vissim-trafficmodel.

Elaborate project documentation for reconstruction.

Introduce traffic management and signalization on City scale according to concept (chapter 3.2.)

Realize reconstruction of Zhovtneva Square with introduction of new public transport interface.

Adjustments on trolleybus and bus routes to make use of the new interface.

Improvement of public space design around Zhovtneva Square.



Figure: Principle intersection of functional lines at Zhovtneva Square. It will be possible to reach 9 important destinations in the city from this point.

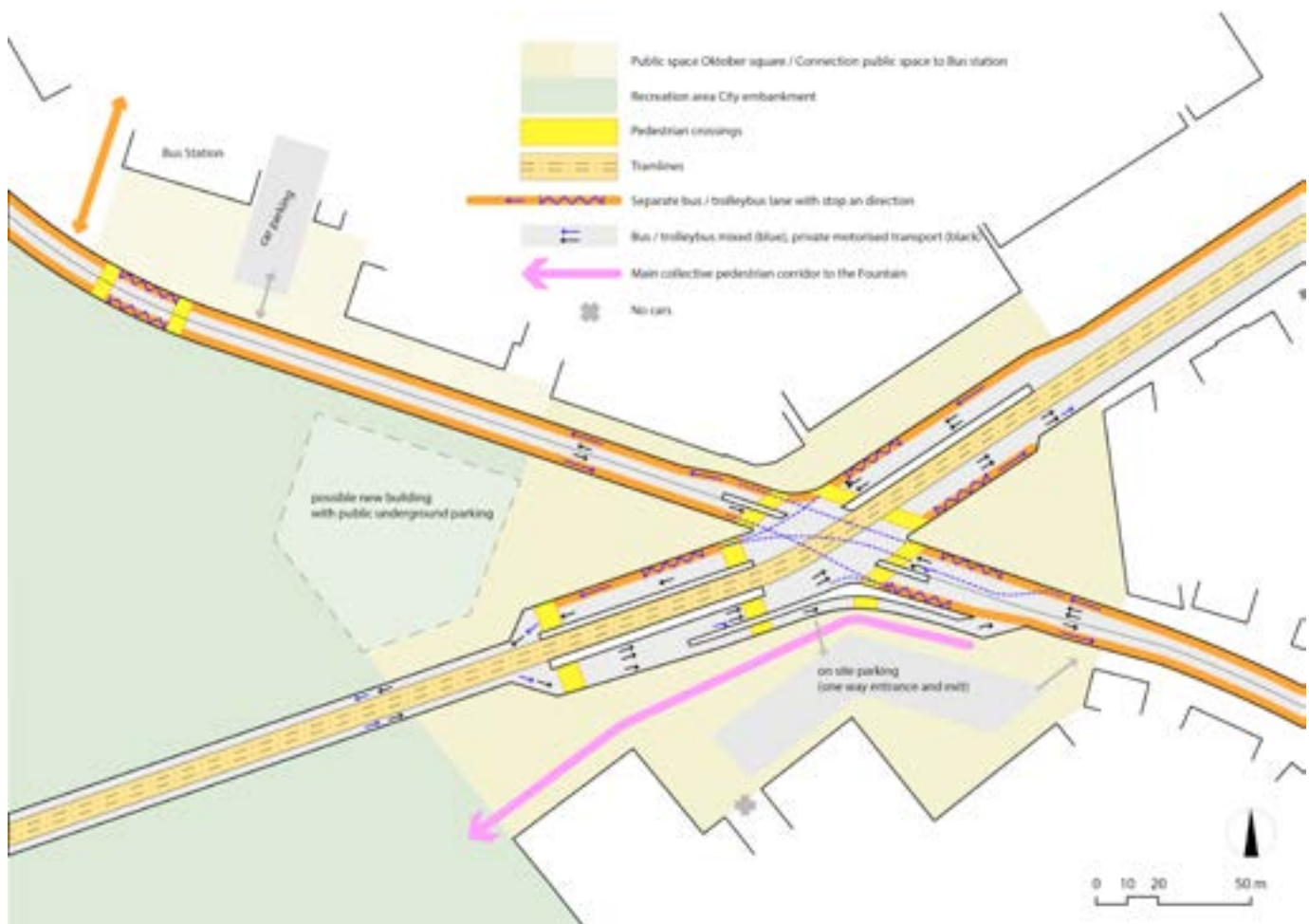


Figure: Variant for Zhovtneva Square with distribution of tram stops according to Ukrainian norms in each direction before road intersection. Bus stops moved from Soborna Street into Prospekt Kotsyubinskoho and Ostrovskoho Street.

4.4 PRYVOKZALNA SQUARE

NEW PUBLIC TRANSPORT HUB AND SUB CENTRE

Starting point

Transformation and development of the Station Area should be seen as a catalyst for the public transport system and for the larger renewal process of the city as a whole. The approach is highly integrated and addresses the wider context. Great potential for urban development is not only in the nearby-located Kirova district (Key element 5.4) but also immediately adjacent areas (Myasokombinat, Tractor aggregate factory, Market area but also area east of Railway lines) have great potential for redevelopment. The transformation approach for these areas must be broad, holistic and should take advantage of the cross benefits of developing of the Station square.

Rearrangement and development of the Pryvokzalna Square in a first step is therefore key as it enhances the status of this area within the City structure.

Already in 2012 on behalf of Vinnytsia City Council, Van de Wetering Atelier für Städtebau elaborated a conceptual study for the reconstruction of the Square of the heroes of Stalingrad and its function as a hub for public transport. On basis of this study afterwards a construction project for a tramline in Prospekt Kotsyubinskoho was elaborated. However, due to lack of finance the realization of this project is postponed on an indefinite time.

Particular objectives:

- Creating an attractive Pryvokzalna Square as a “business card” of the city.
- Optimal combination of transport function and significance as a place (transport hub, meeting place, shopping place).
- Public transport hub, concentration of interchanges in one location.
- Upgrading of the station as an attractive transfer point in the urban public transport network.
- Development of building block: exploiting synergies between transport (central location, accessibility) and settlement (uses, development opportunities).
- Definition of building lines and building structures in the station environment, particularly the construction site between Kirova street and station square, taking into consideration traffic management of various public and private transport means.
- Allowing development in short- and long-term stages.

Concept for a new public transport hub and sub centre

Fundamental for the establishment of a public transport hub on station square is reconstruction of Kotsyubinskoho Prospect that introduces the tramway in the street profile and creates a direct connection between Peremohy Square and Pryvokzalna Square.

This condition is provided in a symmetrical street profile. Tram lanes are in lateral position to keep reconstruction works in and under the street as low as possible (a given political constraint). In central position is short-term parking. Bike lanes are separated with wide pedestrian areas that create links between street space and buildings (mixed use). At intersection with Kirova street the crossroads is reconstructed to a roundabout, equipped also with traffic lights to give way free for tramway.

The explained concept is resulting in a Pryvokzalna Square that is mostly car-free in favor of generous pedestrian areas and comfortable platforms for public transport stops for easy interchanges.

While the traffic regime for Trams, Trolleybuses and Buses allows both directions, for private cars only one-way regime is allowed to prevent physically that cars enter areas of public transport platforms. Only few Kiss&Ride parking places are located on the square. Paid long term Parking (Park&Ride) is available immediately north of Station square on location of the existing tram loop which becomes obsolete.

Operation of public transport on the Square is effective as exit direction from the platform corresponds with target direction of the route (e.g. all trams toward center are available at the same edge of a platform). Buses can enter and leave their stop independently from each other at a common platform. Reformations of public transport network according to the principle of functional lines supports proceeding of interchanges even more.

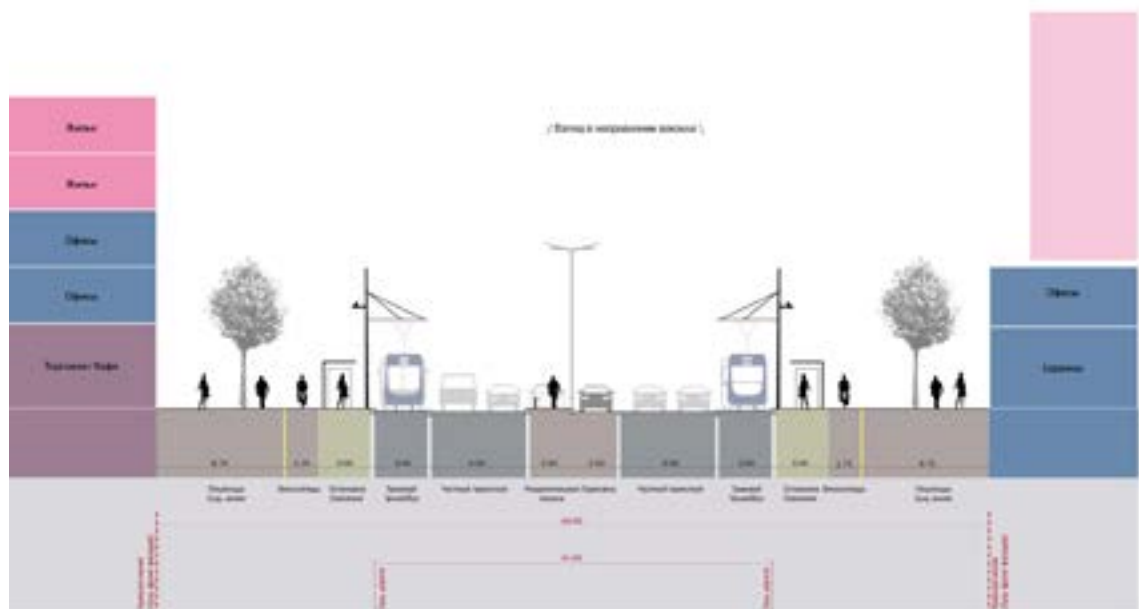


Figure: Kotsyubinskoho prospect; Section with Tramway (adapted project for minimal reconstruction works)



Figure: Access for public transport (adapted on project with minimal reconstruction works): Tram stop and loop on Pryvokzalna Square. Bus and Trolleybus stop at Pryvokzalna Square, linked with tram stop; Various expansion options, flexibility management / operation

Figure: Access scheme for bicycle transport: Separate bike paths along Kotsyubinskoho prospekt, On Pryvokzalna Square bicycle in mixed traffic with cars and buses. Bicycle parkings on station Square and at the market.

Figure: Access motorized private transport, Taxi, Marshrutki: Roundabout with possible priority for Bus, One-Way system on Pryvokzalna Square (T20), access for Kiss and Ride and short-term parking; Public parking underneath new construction site, smaller packages of on street parking.



Figure: Overall situation Pryvokzalna square incl. Tramway loop (adapted scheme on minimal reconstruction works in Prospect Kotsyubinskoho and Kirova street)



Visualization: Perspective view of station square with Tram/Bus/Trolleybus interface and building development

Steps for implementation

Relocation of parking on Pryvokzalna Square and reorganisation of lines and stops of Bus/Trolleybus/Marshrutki.

Realisation of Tramloop and stop on Pryvokzalna Square. Complete public transport hub.

Realisation of Tramline in Kotsyubinskoho Prospekt for direct connection with City Centre along the "Corso".

Realisation of mixed-use Building development on Pryvokzalna Square and reorganisation of the market area.

Redevelopment of under-used areal in extended Station area. Also better connection to the east of railway.



Visualization: Tree lined avenue of "Corso" Kirova with tramway

4.5 KIROVA DISTRICT

INNER DEVELOPMENT OF THE CITY

Starting position

The study on Kirova district is an example of urban transformation, based on the application of the principles of the Strategy. It focuses on improvement city structure, efficient use of resources, stimulating mixed use and diversity, treatment of public space and good accessibility for all modes of transport.

The Kirova district is situated on the northern edge of the eastern inner city (Zamostyanski district) less than one kilometre from the Railway station. The study area is structured by the Chervonoarmiska street – intended to be strengthened as east-west connection to the city centre – and Kirova street which is intended to prolong the Corso in northern direction from the Railway station. The lines of Honty Street and 50-rychchya Peremohy Street are completing the framework of structuring streets.

Today the area is partly occupied by military barracks and uses which are supposed to be relocated in mid-term and a partially shut down military equipment factory. Besides of some existing apartment blocks the other parts of the area are either very extensive used by garage cooperatives, a municipal market and workshops, or - especially to the north of the small river Tyazhylivka - fallow lands never used at all. To the east of Kirova Street is the territory of the disused chemical plant.

Inner city situation and transformation potential of the area together with the industrial greenfields around the new Roshen factory form a large development potential already in short-term and until long-term. Accordingly, the aim of the study on key element Kirova district is demonstration of a long-term vision for the area, which sets a case example, based on strategic priorities of “Vynnytsia 2020 Strategy” and the integrated Urban Transport and Spatial Planning Strategy.

Particular objectives

- Development of urban identity of Kirova district.
- Social diversity and quality housing with various possibilities.
- Delivering a creative urban space and green structure.
- Cost-efficient handling of public finances, create potentials for PPP.
- Development of infrastructure for SME (Small and medium-sized enterprises).
- Create basic structure for large industrial sites.
- Support of densification and diversification (mixed use).

Concept for inner development in Kirova district

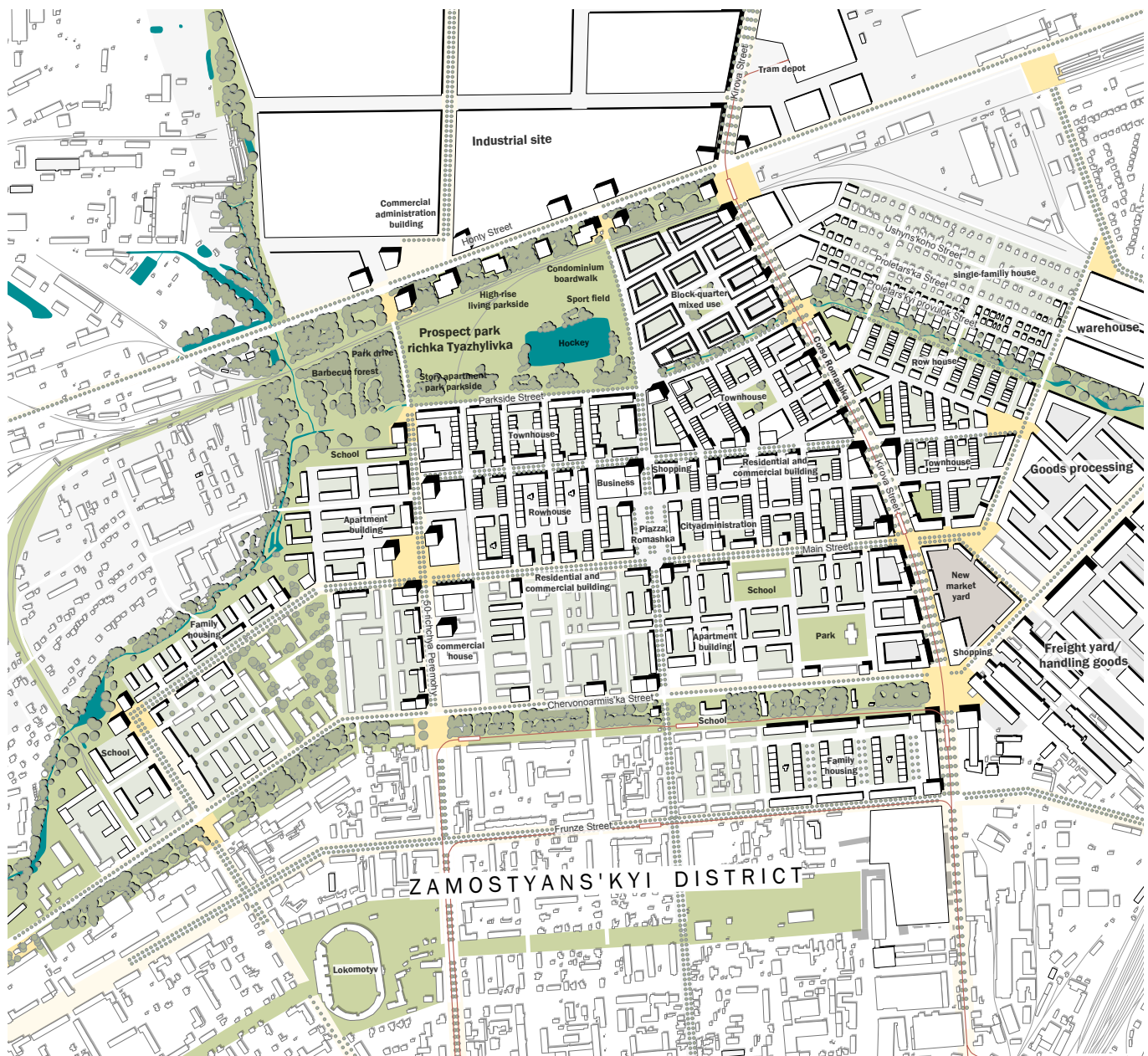


Figure: Long term vision of urban and green structure of Kirova district. The basic structure of Zamostya district is continued and sophisticated with a new urbanity.

Development of urban identity for a strong community

To build a strong community also urban identity has to arise. This process is supported by the urban design of the area in several dimensions:

- Situation and dimension of the area lead to a development that will go on for many years. A process of continuous change and a growth, which is spread over a long time helps to establish social and demographic diversity in the district (integration of local community).
- Development of this vast area creates a spatial link between the central urbanized parts of Vinnytsia (Zamostya) and the nowadays excluded satellite area of VPZ in the north (better integration of city community).
- Strong design of Kirova street as prolongation of the West-East Corso creates a «big picture» of a citywide identity carrier and becomes the urban backbone of the new (re-)developed district between railway station and industrial sites (connection with other parts of the city).
- City streets like prolongation of 50-richchya Peremoha St. and Nekrasova St. strengthen identity on a local level by connecting existing neighborhoods of Zamostyans'kyi district with the future Kirova district and integrating the new district in the existing structure of urban blocks.
- A new park creates a landscape interface between residential area and citywide landscape structure and delivers new possibilities for recreation in nowadays underserved part of the city.



Figure: Typology of building uses. The whole spectrum of urban uses with various housing types (apartments, townhouses, rowhouses, detached houses), social services, industries, manufacture, commercial, office and business uses

Urban uses: Social quality of density and diversity



Reference: Apartment family housing with green park and playgrounds for children



Reference: Condominiums in perimeter block quarter with urban open space and shops on street level



Reference: Townhouses with private garden and small public park in walking distance



Reference: Ground-based living for families in Rowhouses with private garden along green corridors

- Dense urbanized areas with different land use patterns create a liveable neighbourhood during the whole day and gives people secureness.
- Concentration of mixed use buildings along the Corso Kirova street (main collecting road), important interior streets and open spaces, which are visited during the day and evening.
- Commercial uses are located at spots with high frequencies and access points to public transportation.
- Manufacture and logistic companies are located close to the freight yard.
- Large industrial properties in the north with distinctive address at diagonal Honty street.
- Libraries, schools, community centres within walking distance strengthen local community and reduce dependence on cars.
- Different building typologies provide space for different housing needs and lifestyles (families, singles, couples, apartment sharing, affordable housing or luxury living).

Housing with various possibilities:

- Individual lifestyle should find correlation with the appropriate residential typology. New models of housing emerge for family, work at home, short-term and rental accommodations.
- Future economic prosperity and sustainable social development of the city is closely connected to the future quality of its living environment. The diversity and physical attractiveness will ensure its ability to compete with other cities for residents and businesses. Range of designs and price categories will be indispensable to the success.
- Diversity brings advantages in terms of quality of the urban environment, improved quality of life and creation of the new economic possibilities.

Economic development: Commerces, Services, Industry

The area provides recognizable locations for commercial and service companies as well as small and medium-sized businesses, which are easily reachable by customers and employees.

- Industrial, manufacturing and trading companies:
 - Easy access to collecting roads and public transport.
 - Benefit from transport and cargo handling space (brownfield areas).
 - Developed at locations which are not noise-sensitive.
 - Locations for manufacturing with low value added (workshop, car service etc.).
- Large transit oriented industrial use (workplaces, handling goods):
 - Large properties which allows flexible growth steps.
 - Located in the north of the main urban area with a distinctive address along Honty street.

Open spaces and Groundfloor uses: Urban space for social cohesion

Groundfloor uses contribute to a creative and active community with urban public spaces on the one hand and liveability with green spaces on the other hand. Along collecting streets and around public squares ground floors are used for small or bigger shops and services. Within city blocks and along local access streets ground floors are used by housing and oriented to joint or private gardens.



Reference: Ground floor uses, distinguished street design

Integrated urban transport and spatial development

Basis for development of Kirova district is its excellent accessibility from all city parts and service by all modes of transport. The tree-lined Corso Kirova as artery for public transport (including tramway extension), motorized traffic, bicycles and pedestrians provides optimal conditions for dense and mixed-use urban development with representative buildings. Requalification of Kirova Street to a urban Corso is able to initiate immense private investments along the Corso and within Kirova district over many years. Inside the district a fine network of well designed access streets (for all means of transport including parking) and footpaths creates connections between neighborhoods and creates best conditions for a high quality of life.



Reference: Development along a corridor of attractive urban transport



Figure: Groundfloor uses and interaction with open space

Public transport access

Kirova district is easily integrated in the highly efficient public transport network of functional lines and will be served by all kinds of lines.

With main radial lines by tram and trolleybus the city centre and outer parts in the west and north will be accessible directly and in short time. Tangential lines by bus and trolleybus provide direct connections to the southern and eastern parts of the city.

With a bus line through the inner part (secondary radial line) total coverage of Kirova district with public transport is ensured. Almost any place of the district is inside a radius of 300 m to a public transport stop.

Public Transport stops are compact (Tram and bus/trolleybus together). Along the Corso they are located at intersections («entrances» to the district, hubs for commercial uses), inside the district at public Squares.

Kirova district is very good located in terms of potential long-term development of new connections by public transport. Improvements on Chornovola bridge (Tram in very long-term) make an even more direct connection with the City centre possible. A new Bridge in long-term over the railways at Frunze Street allows direct connection to the city's most eastern part.

Initial focus is on development of public transport connections (Tram, Trolleybus) in Kirova Street (Corso) between the train station and VPZ. Combined is this development with an intended new depot for Vinnytsia Public Transport Company at Honty Street.



Figure: Accessibility and service by public transport. Whole area is covered, particularly high level along Corso

Access for motorized private transport

The road access system ensures straight access from outside and central parts of the city (Corso) on the one hand and avoids through traffic inside Kirova district (loops, restricted access) on the other hand.

Intersections of main roads are defined as main crossroads. Here no access functions to the district are given. Inside the quadrangle defined by these main crossroads the district is divided into several neighborhood units. At intersections of main streets with access streets secondary crossroads are defined, where these units are entered (or left) and from where over the system of access streets detailed access to the developments takes place.

Principles are defined also to avoid perturbation of traffic on main streets. The building blocks along the corso are accessed not directly from it, but from the backside with the system of secondary crossroads and access loops. Access to/from neighbourhood units along Chervonoarmiska Street (main street) are partly restricted of left turns.



Figure: Access principles for private transport. Access roads and loops create pockets, which are free of through-traffic

Parking for motorized private transport

The block structure of the district allows supply of enough parking space by keeping yards and main open spaces free of cars. Dense mixed-use developments along Kirova Street make underground parkings economically feasible. These and roof parkings of big commercial institutions can be used during the day by visitors etc. and during the nighttime by residents. The vast area east of Kirova Street can be used for big parking facilities (short-term, mid-term open, long-term with building) within walking distance. Spatially integrated on-street parking is possible in access streets.



Figure: Principles for location of private and public parking. Various solutions, no parked cars in courtyards!

Quantitative potential (long term and first stage)

Kirova district contains an immense quantitative potential for development. Over a long term 70 ha land surface for industry and 50 ha for manufactures can be developed. 230 ha land surface for mixed-use development provide housing for more than 30'000 people (1'000'000 m2 GFA à 30m2/person) plus commercial areas, offices, social services and even a new city park.

Kick-off this development is along Kirova Street. Here, already in short until mid-term relatively easily construction of 450'000 m2 living space (15'000 residents!) and 250'000 m2 GFA commercial and office area (5'000 – 12'000 working places) is possible.

Activated are these developments by relocation of the municipal market on the eastern side of Kirova Street that provides a first land plot of 7 ha for housing/mixed use development. Prolongation (1,5 km) of Tram/Trolleybus line to a new depot on Honty Street is a worthwhile investment that creates excellent conditions for development west of Kirova Street. The fallow lands on the east side of Kirova street in this first step can be used to provide cheap parking space (open lots or built structures) for new developments and also compensate for existing garage cooperatives south of Honty street. At main intersections east of Kirova Street large commercial developments are possible already in first stage too (new market at Chervonoarmiska Street, retail warehouses at Honty street).



Figure: First stages of development along Corso Kirova, municipal market and western edges

Steps for implementation

Establish a development and implementation agency.

Initial steps to be done and documentation to be elaborated are:

- **Overview of land-ownership (including terms of use-right treaties).**
- **Memorandum of Understanding on overall vision of development of the area between city, private and other institutional landowners.**
- **Contamination register of brownfield areas.**
- **Strategy/Concept for relocation of existing garages and garage cooperatives in the area.**
- **Building line plan to secure street corridors (Kirova Street and 50-richchya Street immediately, internal main access roads probably later).**
- **Creating a label for a successful pilot project, initiate status of Kirova district as pilot area for adaptation of new (European) building standards.**
- **Basic requirements (size, sanitary) for industrial developments north of Honty Street.**
- **Cleaning program for Tyazhylivka River to create conditions for a park in the future.**

First projects to realize in the area are:

- **Relocation of municipal market and "tramway-cemetery".**
 - **Detailed plan and realization of a mixed-use, mixed-typologie development on current location of municipal market and "tramway-cemetery".**
 - **Improved public transport service (Tramway or Trolleybus) and revaluation of street space in "Corso" Kirova Street (planting avenue of trees etc.).**
-



*Vizualization in birds-eye view of long-term vision for Kirova district.
The inner city location of the area is easily recognizable with the Southern Bug River and City centre visible in the background.*

6. IMPLEMENTATION

The implementation chapter is designed to assist decision-making and facilitate the implementation of the concept. In this section we show an overview of possible innovations for guiding the process and provide a framework to help the city in defining the short and long term goals and measures for urban transformation, focusing efforts and resources on key areas. Additional recommendations can be found in the technical report.

Method to determine priority of measures

Three priority levels are determined.

- Priority A relates to measures that satisfy all the following conditions:
 - Relevance to Vinnytsia Development Strategy 2020 and to the image of the future according the synthesis plan.
 - Good or even very good cost/benefit ratio of the measure/project.
 - Achievable construction and financial maturity until year 2020.
- Priority B covers two types of measures:
 - Measures/projects which are Relevant to “the image of the future” measures/projects with a good or very good cost/benefit ratio, but those construction and financial maturity is expectable only in the period after 2020.
 - Relevant for “the image of the future” measures/projects, which have only a sufficient cost/benefit ratio.
- Priority C assigned are:
 - All other measures/projects which are relevant for the image of the future but have an insufficient cost / benefit ratio or an insufficient level of maturity. These measures require further clarifications and specifications.

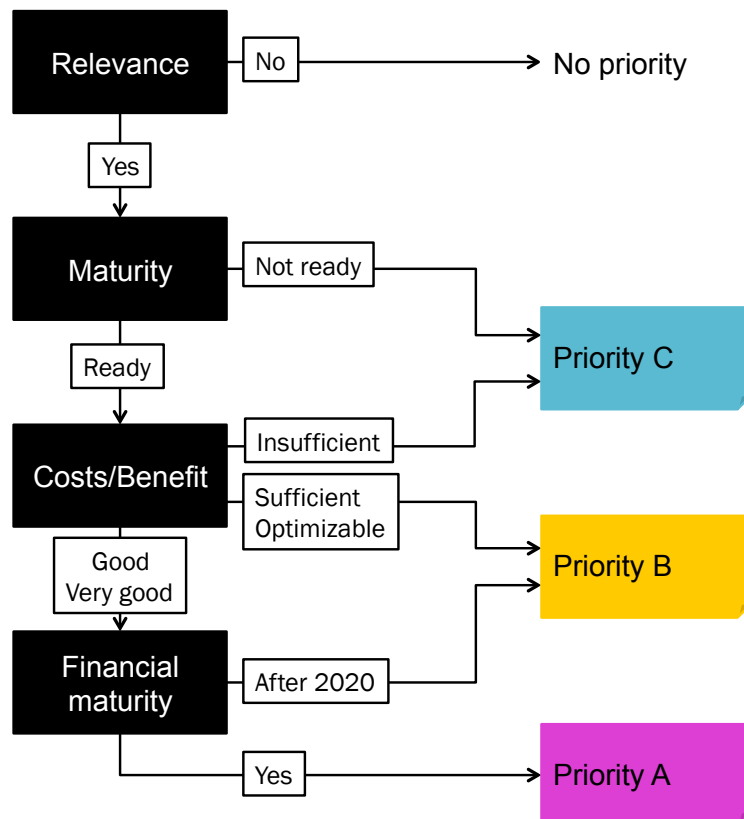


Figure: Illustration of method and procedure of the prioritization of measures

	Measure	Priority			
		A	B	C	
Street network	SN 1	River crossings			
		01 Reconstruction "Bridge Chernovola"		●	
		02 Deflection "Bridge Soborna"	●		
		03 Doubling "Bridge Kozitskoho"			●
		04 Additional Bridge "Honty"			●
	SN 2	Railway crossings			
		01 Improve capacity crossing "Lebedinskoho"	●		
		02 Additional Railway crossing "Frunze -Vatutina"			●
	SN 3	Main network optimization			
		01 Ring-road access "Lypovetska street"		●	
		02 Construction "Honty street"	●		
		03 Ring road access "Barske shosse"		●	
		04 Ring-road access "Tarnohrodskoho"			●
		05 Connection "50-richchya Peremohy - Honty"		●	
		06 Connection "Nekrasova - Honty"			●
		07 Connection "Prodolnaya - Frunze"		●	
	08 Connection "Cimlyanskaya - Kirova"			●	
SN 4	Main network consolidations				
	01 Consolidation Gleba Uspenskoho street	●			
	02 Consolidation Sverdlova street	●			
Public Transport	PT 1	Main network optimization			
		01 Tram "Kotsyubinskoho"	●		
		02 Trolleybus "Kirova - Lypovetska"	●		
		03 Depot Tram + Trolleybus "Lypovetska"		●	
		04 Tram "Kirova - Lypovetska"			●
		05 Trolleybus "Frunze - Vatutina"			●
	PT 2	Operation of Public Transport			
		01 Reorganisation "functional lines"	●		
		02 Bus prioritization (lanes, junctions)	●		
		03 Operation by timetable	●		
		04 Renewal and Refurbishment of fleet	●		
	PT 3	Main interfaces			
		01 Interface "Zhovtneva Square"	●		
		02 Interface "Teatralna square"	●		
		03 Interface "Railway station"	●		
		04 Interface "Western Bus station"		●	
PT 4	Alternatives for Network stability				
	01 Tram "Bridge Chornovola"			●	
	02 Tram "Chervonoarmiska street"			●	
Traffic management	TM 1	Traffic guidance for operation city area			
		01 Automated system for traffic control		●	
		02 Traffic regime "40 richchya peremoha"	●		
		03 Traffic regime "Bloka"	●		
		04 Traffic regime "Zhovtneva Square"	●		
		05 City entrances	●		
	TM 2	Accessibility and operation city centre			
		01 One way traffic loops	●		
		02 Entrances to city centre	●		
		03 Distribution public transport stops city centre	●		
		04 Parking management city centre	●		
	TM 3	Parking			
	01 Prevention of street parking on main axes	●			
	02 Parking management city wide		●		
	03 Parking Garages		●		
	04 Peripheral Park and Ride stations			●	
Soft modes	SM 1	Extension and improving network			
		01 Bicycle lanes "Programme 2020"	●		
		02 Crossings of natural barriers		●	
	03 Safety islands for pedestrians	●			
Policies and Marketing	SP 1	Public awareness			
		01 Mobility awareness in city administration	●		
		02 Monitoring of distribution by type of transport	●		
		03 Establish model for simulation of traffic	●		
		04 Establish mobility management agency		●	
	SP 2	Demand oriented measures			
		01 Unified electronic ticket for public transport		●	
		02 Promote or initiate car sharing organisation		●	

	Measure	Priority				
		A	B	C		
Organization	O1	Foundation of Development agency	●			
Built-up areas	BA 1	Urban spine "Corso"				
		01 Revaluation to attractive street space	●			
		02 Revaluation of urban nodes	●			
		03	Key element "Soborna street"	●		
	BA 2	Making use of inner reserves				
		01 Localization of inner reserves	●			
		02 Areas for restructuring/conversion of use	●			
		03 Densification areas	●			
		04 Settlement limit	●			
		05	Key area Chervonoarmiska-Honty		●	
	BA 3	Rehabilitation in stable areas	●			
Extension areas	EA 1	Extensions on well suited locations				
		01 Release for development in stages			●	
		02 Appropriate densities	●			
Industry + Commerce	IC 1	Traffic intensive institutions on integrated locatio	●			
	IC 2	Distribution of local services	●			
	IC 3	Strategic workplace areas	●			
Landscape/Public realm	LP 1	Strengthening of natural caesuras	●			
	LP 2	Open space network in urban space	●			

Tables: Overview and preliminary prioritization of Urban Transport measures (left page) and Urban Development measures (this page, above)

Measure sheets

Measure sheets are an excellent tool to steer and administrate the process of implementation of the Strategy as defined by Guidelines and Synthesis plan. Temporal, financial and organizational details of the individual measures may change during the implementation process.

Structure of the measure sheets (example in technical report):

- **Situation:** Describes the condition and the aim of the measure.
- **Objectives:** References to measures of Vinnytsia 2020 Development Strategy and the system of objectives of Integrated Urban Transport and Spatial Planning Strategy.
- **Measure:** The "measure" field describes those measures that are necessary to achieve the objectives. It provides information on the order in which the individual measures should be realized.
- **Priority:** according to evaluation by method as described above.
- **Timeframe:** Information about the time horizon for implementation of the measure. There are four time horizons determined. Thereby "short term" means the horizon of Vinnytsia 2020 Development Strategy, "mid-term" the horizon of the General plan and "long term" beyond it.
- **Costs and financing:** The cost estimate shall be listed for the measure as a whole (total costs). As far as possible the shares of different payers are to be listed.
- **Effects/ratio of costs and benefits:** Assessment of the effect and costs/benefit ratio of the measure with respect to the four effectiveness criteria as described above.
- **Dependencies:** Reference and dependence to other measures are shown. Potential conflicts between goals are listed.
- **Maturity:** Planning and financial maturity as described above.
- **Responsible and main participants:** Listed are Departments, which are directly involved in the realization of the measure.

5.2 GUIDING THE PROCESS

Planning and development agency

Big changes need different organizations and working methods. Historically, municipal governments have had insufficient skills and capabilities to manage complex projects, projects with complex assets, or those, which have complex financial arrangements. Management of these kinds of projects has typically been moved from the normal bureaucratic system to local government owned special purpose vehicles to carry out the management for them. Today in Europe, many cities have created project offices and specialist investment facilitation bodies. These bodies either come as specialist departments within the city council, development agencies or are specific investment facilitation organizations. Ideally they should be staffed with talented individuals, have a clear understanding of the city's offer and investment potential, be accessible and be involved in destination marketing and promotion.

Aiming for an urban development framework that is based on the experience in Western Europe but developed further to match the local context of Vinnytsia to a certain extent also requires an understanding of the underlying regulatory framework of the cities in the West. Like the physical framework the regulatory framework has to match Ukrainian culture and legal system. Achieving this will have to be a continuous and iterative process.

For the implementation of the Integrated Urban Transport and Spatial Planning Strategy this means a permanent steering and the creating and adjusting regulations, rules and procedures. The task of highest priority should therefore be the establishment of an effective and powerful agency that will steer and coordinate all aspects of this process like:

- Facilitate understanding of the territory:
 - identify, observe and analyse urban change processes (the Guiding plan is one of the instruments for this);
 - listen to and inform actors in the public and private sectors, facilitate exchange between these actors.
- Foster urban development:
 - provide data, tools etc. to reinforce coherent governance and development in the territory;
 - coordinate the development of strategic areas;
 - setting-up development projects.

Two different kinds of agencies are possible. Either a mandate office with tight relationships with the city administration (Municipal enterprise), but with a clear independent mandate for city planning as described above. Or a project office (Public-private partnership) with a clear task for e.g. Kirova district to conduct feasibility studies, steering and monitoring the process, securing funding, public relation and stakeholder management.

Guiding plan

The integrated Urban Transport and Spatial Planning Strategy aims to build the conceptual framework for urban development policies and taking action over a certain period. As a good strategy is built up around a fairly open and flexible approach, what it has to be especially when its matter is a process of transformation, an appropriate tool is needed for guiding and steering this process. For this purpose the “Synthesis plan” (chapter 2.3) can be adapted and used as a “Guiding plan” of the implementation process.

The «image of the future» in the “Synthesis plan” is of central importance for the Integrated Urban Transport and Spatial Planning Strategy. But unlike the scheme of the General Plan, the “Synthesis plan”/“Guiding plan” doesn’t show a blueprint for a final stage of development at some point in a given future. Therefore, its graphic language illustrates not only designation of development, but is also intended to point adaptability within a framework that leaves room for opportunities.

Implementation of the project has to be accompanied by continuous analysis and exploration of the capacity of the urban territory. Here the “Guiding plan” proposes an innovative approach especially for transformation areas. If used as a working tool at regular intervals updated it evolves a picture of the city development process as it moves forward and helps to make well-founded decisions that are based on the relationship of the respective current present to the «image of the future».

So, the synthesis plan shows not a definitive project, but is a statement of the principles, guidelines and themes that ought to make it possible in the future to put into effect the various potential projects contained in the Integrated Urban Transport and Spatial Planning Strategy.

How to use the Guiding plan as a working tool	
Aim and Content	<ul style="list-style-type: none">• Accompaniment of long term development process and thereby feed itself also on the projects and the experiences on site;• Coordination of different development projects around a framework of landscape, transport infrastructure and public spaces.
Purpose and significance	<ul style="list-style-type: none">• To equip the public authorities with a clear strategy and direction for gradual urban transformation;• Significance between intentions, programming and regulation allows updating the planned situation in order to factors like new potentialities during future achievements.
Use	<ul style="list-style-type: none">• Regularly update the scheme to document the constant movement between what exists and what is planned;• On the basis of this tool the discussions with the community can be conducted. Here it delivers a way for defining a system of negotiation with the development stakeholders.

31.03.2015

Vinnitsya City Council Guiding plan Integrated Urban Transport and Spatial Planning Strategy

Urban development

- Urban district:**
 - Stable area, revitalization and renovation
 - Dynamic area, moderate densification (until 2030 / until 2050)
 - Dynamic area, high densification potentials (until 2030 / until 2050)
 - New urban extension (until 2030 / until 2050)
- Green district, garden city:**
 - Stable area, revitalization and renovation
 - Dynamic area, moderate densification (until 2030 / until 2050)
 - Dynamic area, high densification potentials (until 2030 / until 2050)
 - New urban extension (until 2030 / until 2050)
- Industrial zone:**
 - Stable area, revitalization and renovation
 - Dynamic area, moderate densification (until 2030 / until 2050)
 - Dynamic area, high densification potentials (until 2030 / until 2050)
 - New urban extension

Strategic reserve for long-term developments

- City centre
- Subcentre: main district centre / local centre / small local centre
- Urban line, concentration of commercial and public functions
- Existing building / project
- Important (public) building / project
- Landmark or special building / urban front

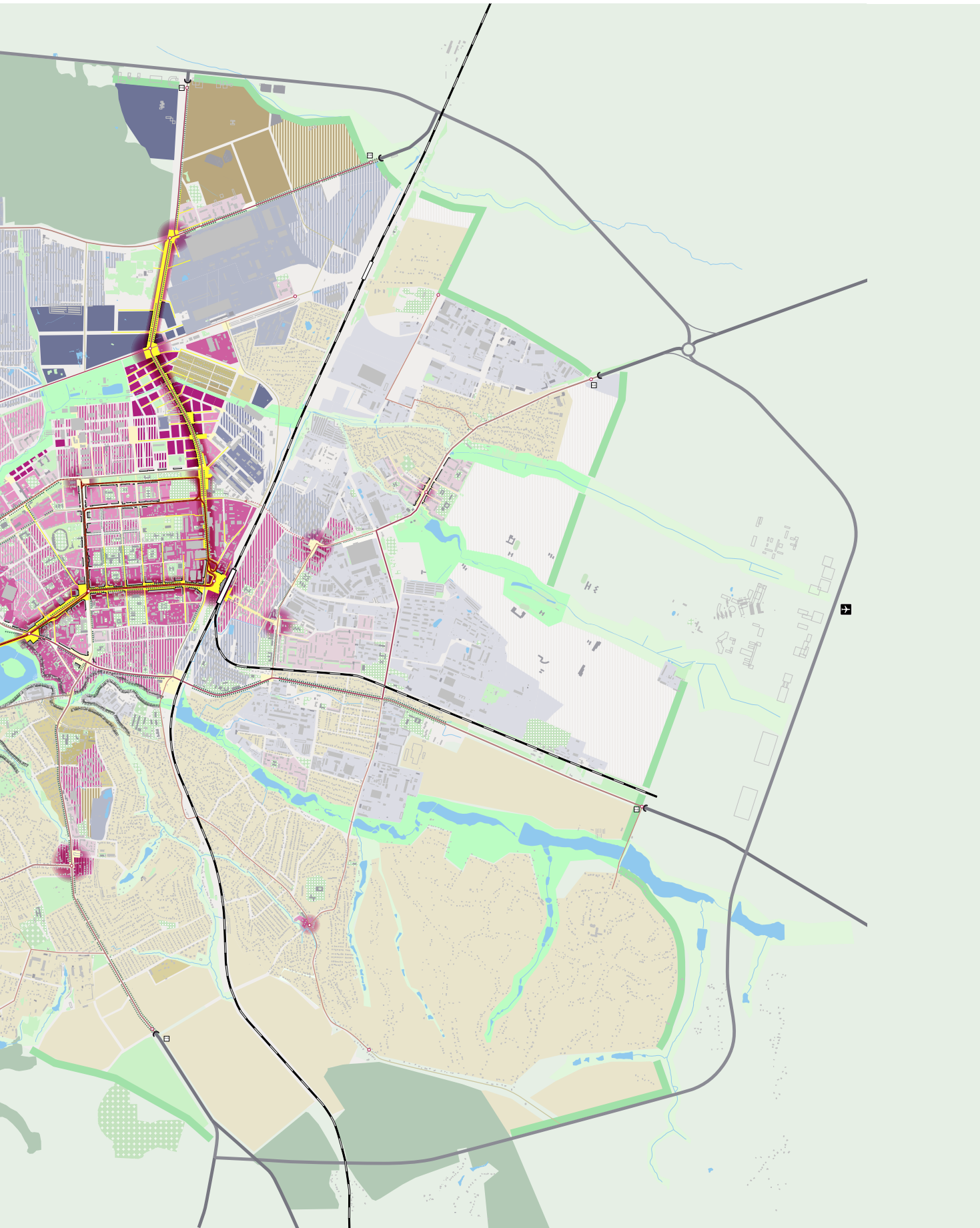
Landscape

- Urban public space
- Corridor: urban boulevard, attractive street space with high pedestrian frequencies
- Attractive street space
- Line of trees, existing / new
- City park
- District or local park
- Cemetery
- Sport field
- Other dedicated green space (school place etc.)
- Recreation area
- Natural green area, river bank area
- Forest
- Terrain edge
- Settlement limit
- Viewpoint

Transport

- Railway line with station
- Tramway: existing / new / long-term project
- Bus or trolleybus line, high demand
- Other important bus line
- Important transfer point or terminal
- P+R
- Ring road
- Main country road
- Main city road, existing / new
- Main collecting road
- Collecting road
- Feeder road, pedestrian connection
- New bridge, long-term opportunity
- Ferry for soft modes
- City entrance





“It is pointless trying to decide whether Zenobia is to be classified among happy cities or among the unhappy. It makes no sense to divide cities into these two species, but rather into another two: those that through the years and the changes continue to give their form to desires, and those in which desires either erase the city or are erased by it.”

Italo Calvino, *Invisible cities*, 1972



*Vinnytsya
City Council*

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