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Strategic Environmental Assessment (SEA): Purpose, process, and benefits

Online Awareness Raising Workshop
on Practical Application of Strategic Environmental Assessment (SEA)
in the Republic of Moldova

23 April 2021

Chisinau, Republic of Moldova

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What is SEA?

SEA is a systematic & anticipatory process, undertaken to analyze environmental effects of proposed plans, programmes & other strategic actions and to integrate findings into decision-making

Key principles:

- Undertaken by the authority responsible for the given Plan/Programme (e.g. sectorial, spatial)
- Applied as early as possible in decision-making process
- Focused on key issues
- Evaluates reasonable range of alternatives
- Provides appropriate opportunities for involvement of key stakeholders & the public
- Carried out with appropriate, cost-effective methods & techniques of analysis

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SEA: What does it take?

- SEA runs in parallel with Planning (drafting of the Plan or Programme)
- SEA team of environmental specialists looks into the draft Plan/Programme and provide comments to planning (drafting) team about:
 - Potential impacts(risks) from the proposed actions to the environment, and
 - Measures to prevent, mitigate, and minimize identified risks
 - Measures to enhance likely positive effects
- SEA team put together Environmental Report summarizing its findings and recommendations
- SEA Environmental Report together with the draft plan are made available for public consultations
- Planning institution takes the SEA findings (Environmental Report) together with feedback from the public consultations into consideration when finalizing and approving the draft Plan or Programme

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SEA: What does it take? (2)

- SEA initiation – when main thesis, objectives and priorities of the Plan or Programme are available.
- SEA Scoping – identification of what environmental issues are relevant for given Plan or Programme, where the environmental impacts are likely to appear.
- Draft Plan/Programme evaluation by environmental experts
- Environmental Report compilation
- Public consultation of the draft Plan/Programme together with the Environmental Report
- SEA Authority (MARDE) concludes the SEA process, and the Plan can be subsequently approved while taking into account the results of the SEA process

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SEA: Key tangible deliverables

1. Scoping Report, which outlines the scope of assessment and suggests further analyses – submitted to the governmental authorities and other stakeholders for consultations to determine of the scope and focus of the future SEA Report.
2. SEA Report summarizing all environmental expert analyses, assessment findings and recommendations – subject of stakeholder consultations and basis for SEA conclusion.

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Typical / Generic SEA Steps

0. Screening: to determine if SEA is required for the specific plan or programme (P/P)

1. Scoping / Baseline Analysis

Determination of key issues that should be considered within the SEA process

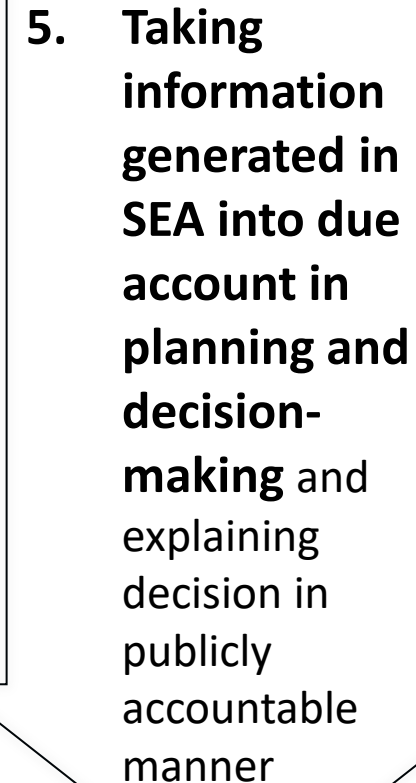
Analysis of key issues i.e. past evolution, current situation and likely future evolution if the plan or programme is not implemented

2. Assessment of effects of the plan or programme on the key issues and development of mitigation measures (including monitoring scheme)

3. Compilation of the SEA Report and its submission for consultations with environmental and health authorities and the public



4. Consultations



5. Taking information generated in SEA into due account in planning and decision-making and explaining decision in publicly accountable manner



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International Legal Framework: EU SEA Directive

The EU Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment

- Implemented in EU countries
- Transposed in accession countries => different levels of implementation

In force since July 2004 (EU)

- Varying integration of SEA Directive into national and regional legislation
- Varying practice and flexibility

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International Legal Framework: EU SEA Directive

Defines plans and programmes that need to undergo SEA

- By sector – 11 sectors
- By criteria

Defines topics to be assessed: roughly 4:

- environment,
- nature,
- human health and
- cultural heritage

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International Legal Framework: SEA Protocol

Protocol to the so-called Espoo Convention (Convention on Environmental Impact Assessment in a Transboundary Context)

Signed in 2003 in Kyiv, entry into force July 2010

- also known as „Kyiv“ Protocol
- Signatories: 38; Parties: 33

Similar to SEA Directive, but additional focus on:

- Impacts on human health
- Public consultation

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Requirements of the SEA Protocol

Article 2 – Definitions

“Plans and programmes” means plans and programmes and any modifications to them that are:

- (a) Required by legislative, regulatory or administrative provisions; and
- (b) Subject to preparation and/or adoption by an authority or prepared by an authority for adoption, through a formal procedure, by a parliament or a government.

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Requirements of the SEA Protocol (2)

Article 4 – Field of Application concerning Plans and Programmes

“Plans and programmes” means plans and programmes and any modifications to them that are:

1. SEA is carried out for plans and programmes (...), **which are likely to have significant environmental, including health, effects.**
2. SEA shall be carried out for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry including mining, transport, regional development, waste management, water management, telecommunications, tourism, town and country planning or land use, **and which set the framework for future development consent for projects listed in annex I and any other project listed in annex II that requires an environmental impact assessment under national legislation.**

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Requirements of the SEA Protocol (3)

The following plans and programmes **are not subject** to this Protocol:

- (a) Plans and programmes whose sole purpose is to serve national defence or civil emergencies;
- (b) Financial or budget plans and programmes.

SEA is also not required, if the plan or programme determines the use of a **small area at a local level** or is a **minor modification** to a plan or programme (SEA will be required only if the plan or programme is likely to have significant environmental effects)

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SEA Benefits

- Provide for high level of environmental protection
- Improve quality of P/P making
- Increase efficiency of decision-making
- Facilitate identification of new development opportunities
- Help prevent costly mistakes
- Strengthen governance
- Facilitate transboundary cooperation

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Example: SEA for Transport Strategy of Kosice City, Slovakia



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Background information

- Strategy was elaborated in two levels
 - Strategic i.e. priorities for further transport development (mainly focused on public transport)
 - Project i.e. indication of priority activities and projects to be implemented (e.g. new tram lines, road sections etc.)
- SEA was conducted in parallel with Strategy preparation

Key aspects addressed in SEA

- Air quality
- Human health (air quality, noise, road safety)
- Biodiversity and nature protection

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Approach to impact assessment – air quality

- Transport model available i.e. expected transport intensities in 2030 with and without the Strategy
- Emissions of NO_x, PM₁₀, PM_{2.5}, and PAH from transport were calculated and compared for both scenarios
- Results were displayed in the maps and linked to population density i.e. for how many inhabitants the emissions of air pollutants will change

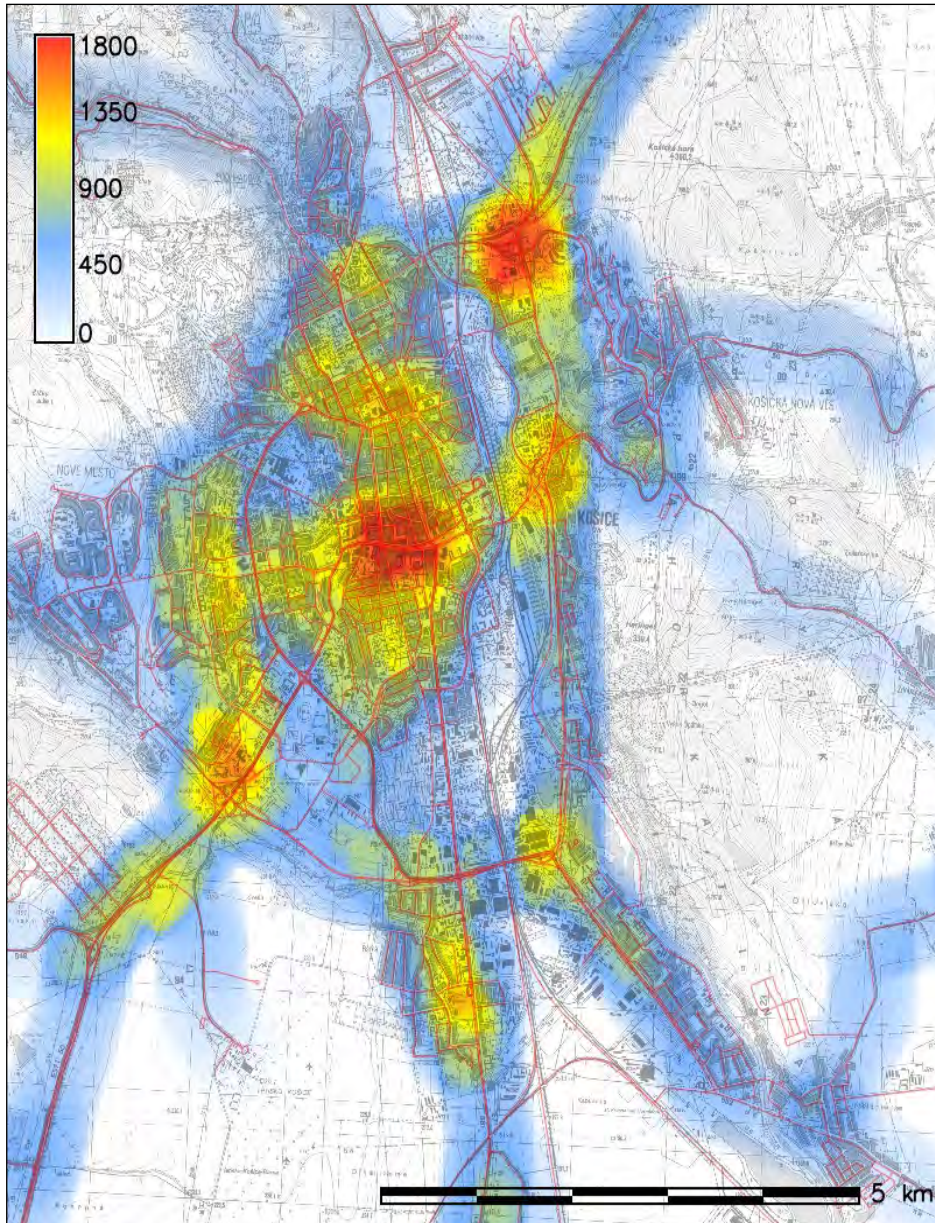
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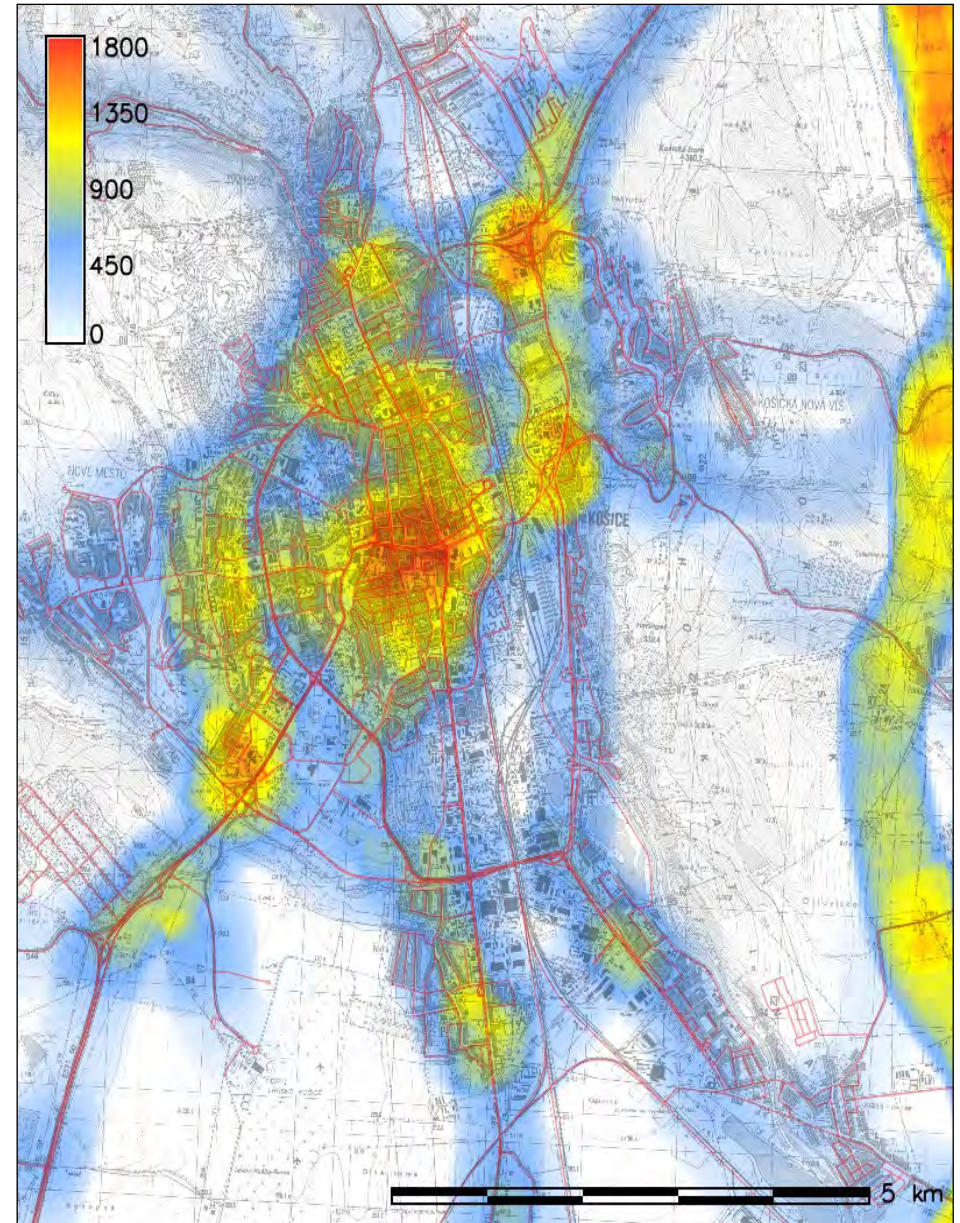
Approach to impact assessment – air quality

Scenario	NO _x	NO ₂	PM ₁₀	PM _{2,5}	B(a)P
	t/year	t/year	t/year	t/year	g/year
Zero	785	194	374	120	715
Active	646	163	375	116	609
Difference	-139	-31	1	-5	-106
	-18%	-16%	0,3%	-3,8%	-15%

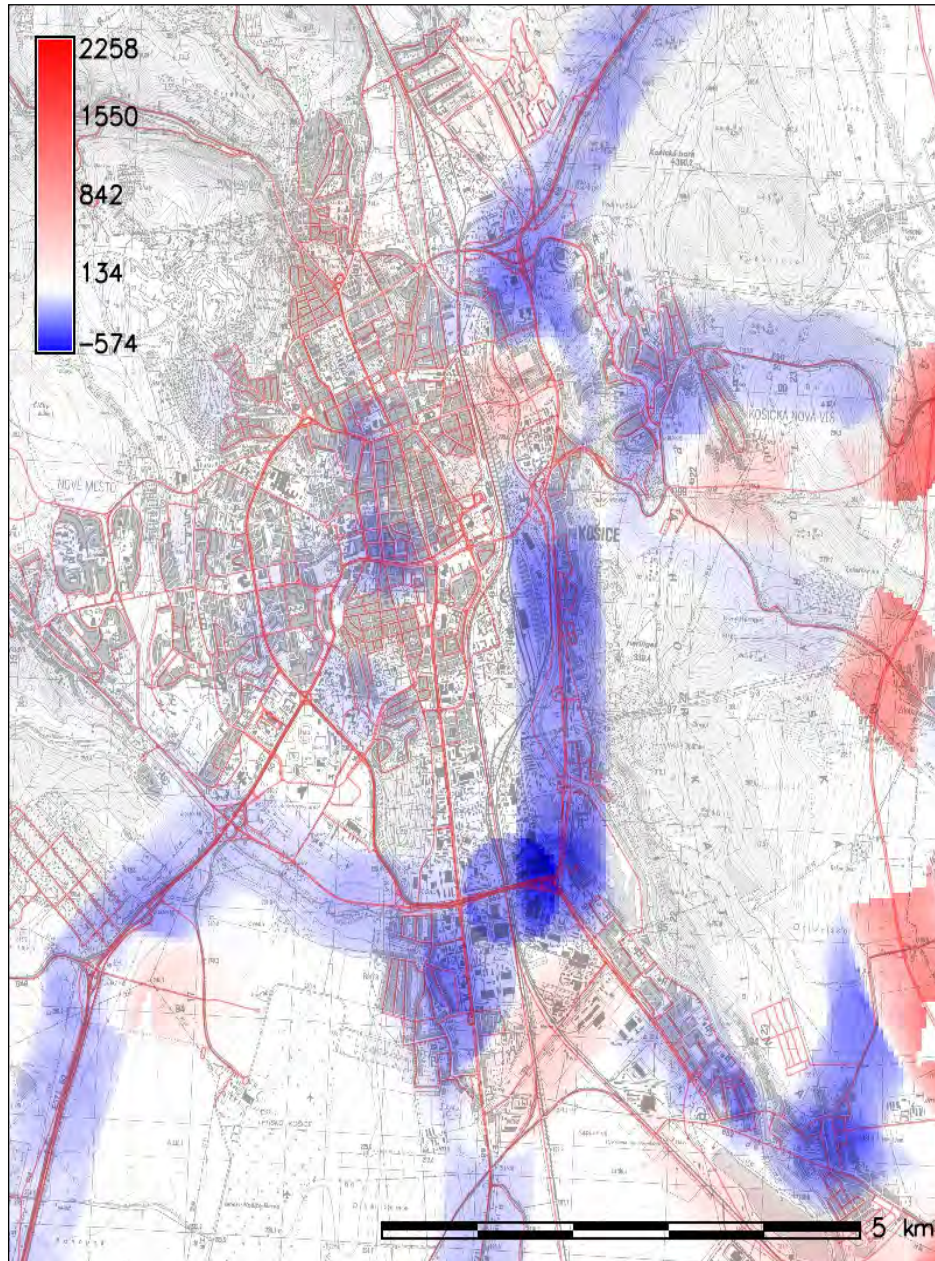
Emisná hustota PM_{2,5} - nulový variant (kg/rok/ha)



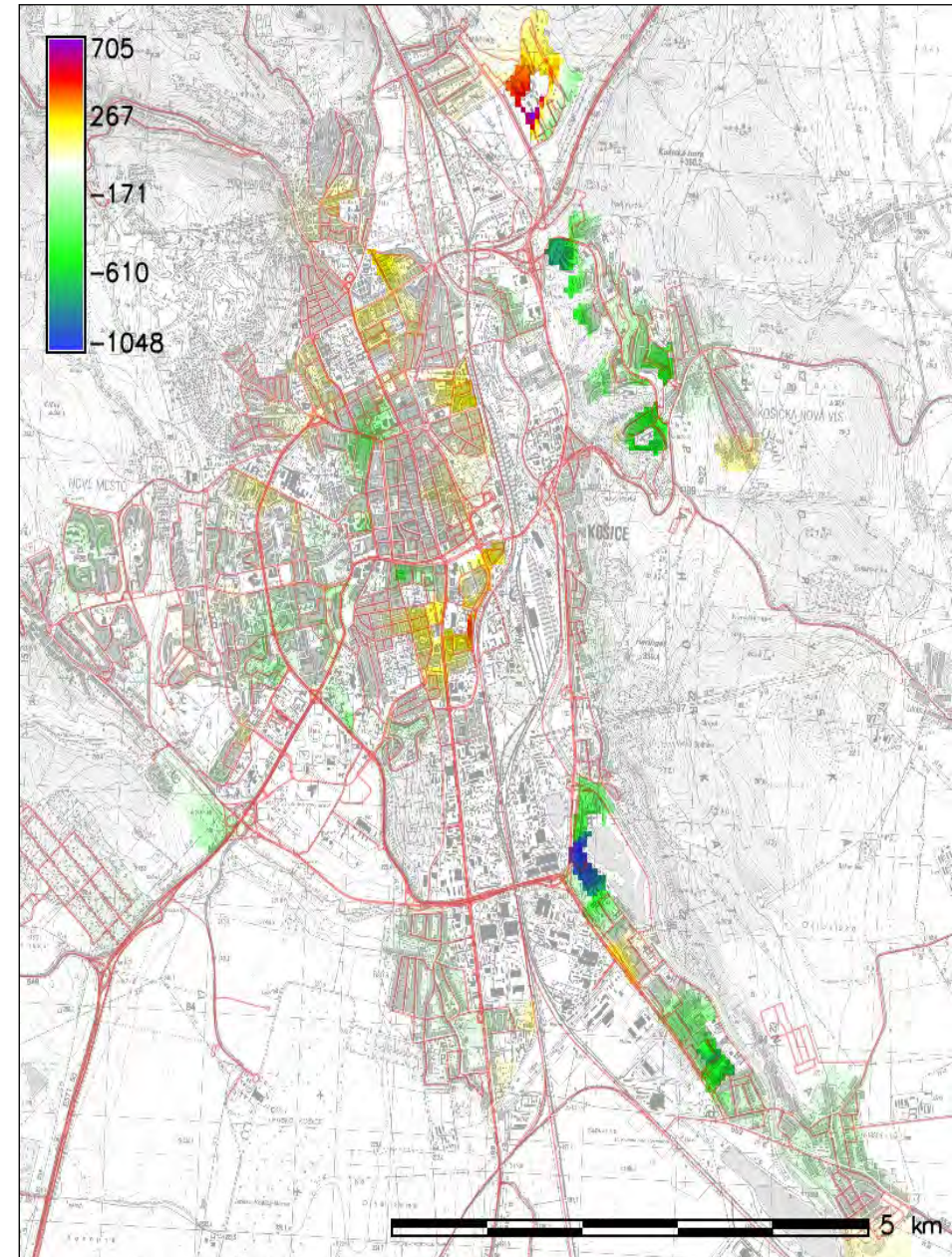
Emisná hustota PM_{2,5} - návrhový variant (kg/rok/ha)



Emisná hustota PM_{2.5} - rozdielová mapa (kg/rok/ha)



Emisná hustota PM_{2.5} - rozdielová mapa (kg/rok/ha).(obyv/ha)





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Proposed mitigation measures

- To apply additional measures to decrease dust in the city – i.e. to clean the streets on a regular basis (twice a week)
- To implement measure to protect inhabitants from noise in the most affected areas (noise protection walls, better windows)
- To construct certain new roads only if not other transport option is available (to avoid effects to nature)
- Selection on alternatives for specific road sections based on likely impacts on human health (air, noise) and biodiversity

The most of the recommendations were integrated in the final version of the Strategy

Success factors

- Primary goals of the Strategy
- Transport experts open for communication
- Timing of SEA i.e. initiation of SEA process together with start of the planning process
- Existence of the transport model enabling calculations of future noise levels and emissions to the air

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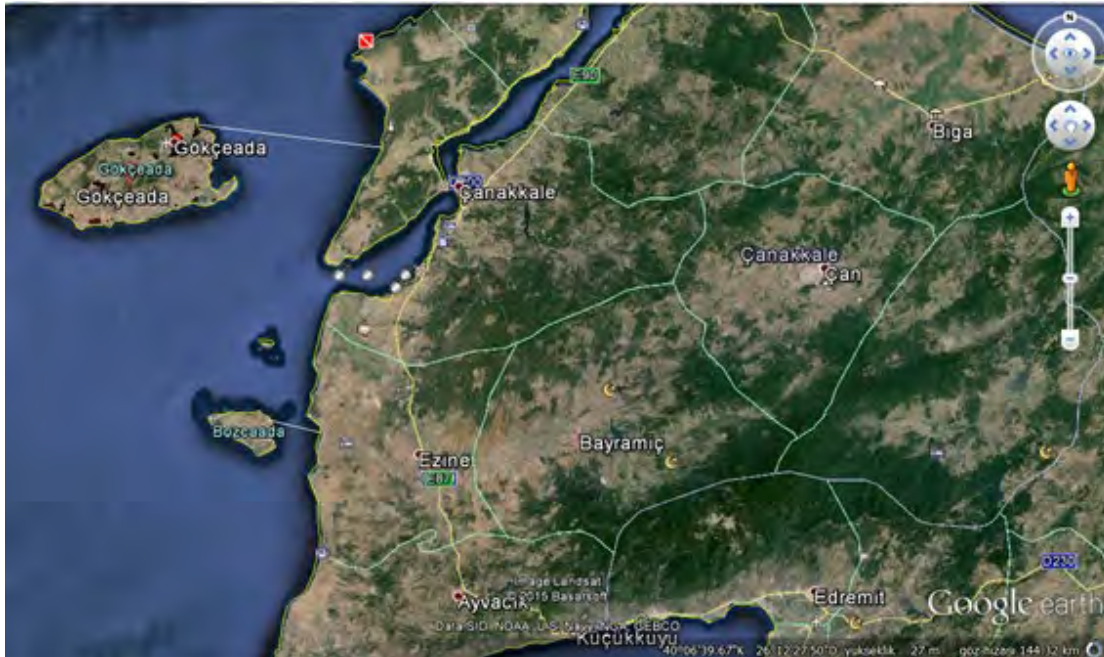


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Example: SEA for for Bozcaada Gökçeada islands Agricultural Master Plan (Turkey, 2015)

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Example: SEA for for Bozcaada Gökçeada islands Agricultural Master Plan (Turkey, 2015)

Nature of the Plan:

- Setting development goals and guidance for future investments in Agriculture sector
- Identify suitable areas for cultivation of different crops
- Propose measures for increasing value added and efficiency of local production

Baseline environmental conditions:

- 2 small islands in Aegean Sea
- Agriculture and Tourism dominant sectors
- Small population but projected increase
- Considerable biodiversity

Focus of SEA:

- biodiversity, waste management, water resources, land and soil, social conditions and cultural heritage, human health

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Example of Identification of biodiversity hotspots:
Çayır location and Azmak Creek: an important area in terms of aquatic amphibian, reptile, fish and bird species

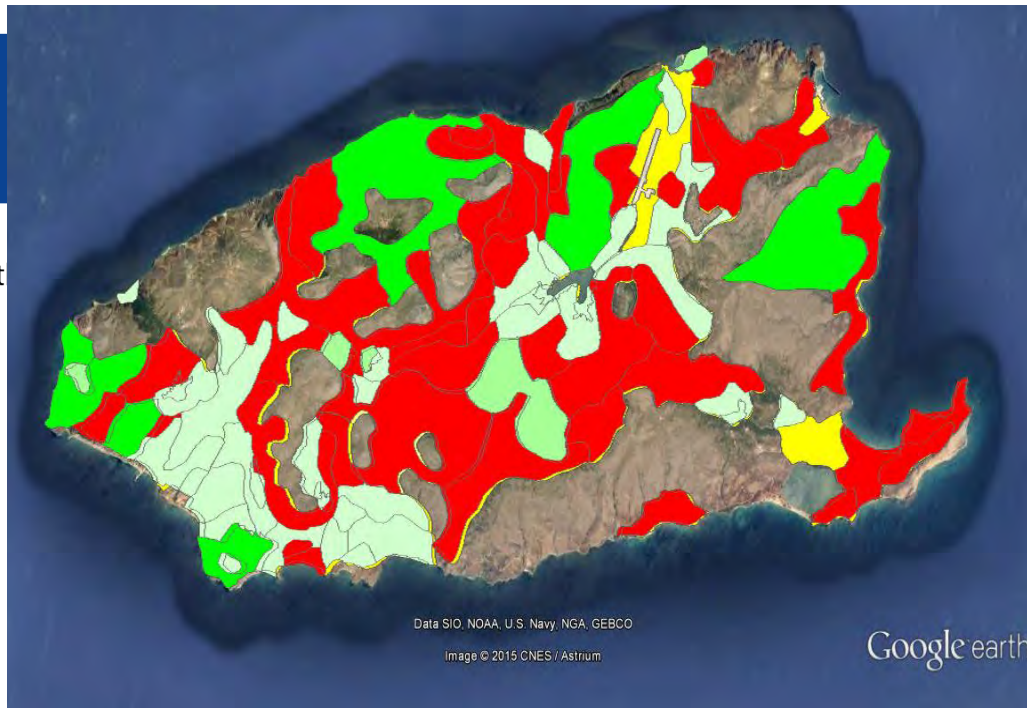








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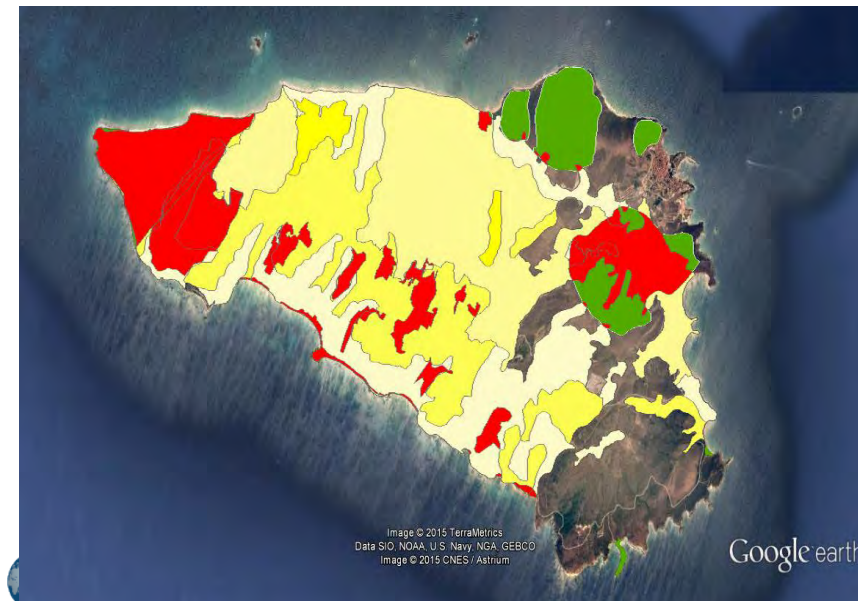








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	High fertile land for grape cultivation
	Fertile land for grape cultivation
	Very high erosion potential
	High erosion potential
	Moderate erosion potential
	Overlap: High erosion potential & High fertile/fertile land for grape cultivation



	High fertile land for wheat cultivation
	Fertile land for wheat cultivation
	Moderate fertile land for wheat cultivation
	Less fertile land for wheat cultivation
	Sensitive Area (Biodiversity)
	Overlap: Sensitive areas (biodiversity) & High/Less fertile land for wheat cultivation



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Expert assessment of potential of planned measures for the effects on environment

Assessment matrix

	Master plan measures/recommendations	Biodiversity	Waste	Water	Land and soil	Social conditions, cultural heritage	Population and human health	Comments
Gökçeada Measure # 1	Determination- There are empty fields suitable to forestation on island. Recommendation- Program of a rapid forestation with specific species in selected areas (available map indicating the suitable areas).	+1	0	+1	+1	0	0	Existing frigana and scrubs and the stony and rocky areas, which are favorable areas for the animals lives in this areas should not be damaged.

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SEA Recommendations (examples)

Gökçeada Measure #2: The expansion of closed meadows AND Gökçeada Project # 7: Development of Closed System Meadow Project)

- While planning delineation of the closed (fenced) areas, consult a biodiversity specialist.
- Closed meadow systems should not be established close to surface water resources;
- Animal husbandry facilities should not be established in the short range (700 m from the strict protection border) from protection areas of Zeytinli Dam (According to Regulation on Water Pollution Control –Article 18)
- Proper animal waste management systems should be implemented in closed meadow systems and established sheltered areas.

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SEA Recommendations (examples)

Bozcaada Measure #9: Establishment of olive processing facilities.

- Olive oil processing facilities should be located in a defined area and should establish a common wastewater treatment plant
- Environmental friendly technologies should be selected for olive oil production
- Biogas production from residues should be assessed;

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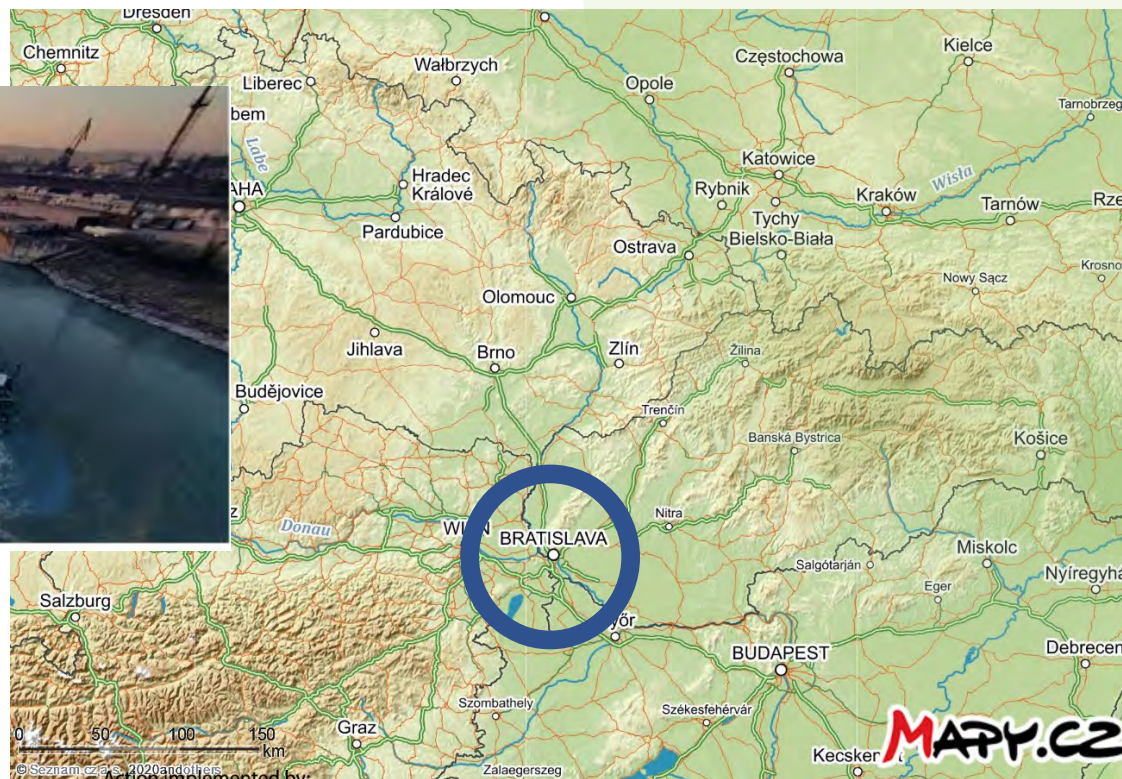


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Example: SEA for Development Strategy for the Bratislava port, 2nd phase





Nové Mesto

BRATISLAVA

Ružinov

Staré Mesto

Vrakuň

Petržalka

MAPY.CZ

0 800 1600 2400 m

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Background information

- **Bratislava Public Port**
 - Important part of the national water transport system;
 - First established in 1897, further major development in 1970 – 1985;
 - Mainly cargo port, with limited capacity for passengers vessels;
 - Close to the Bratislava City center;
- **Purpose of the Master Plan**
 - To estimate future demand on the various Port's services;
 - To define a long-term concept for development of the Port;
 - To determine general spatial arrangements for specific aspects and functions of the Port (in alternatives) – Multi-Criterial Analysis (MCA) applied to select alternatives.

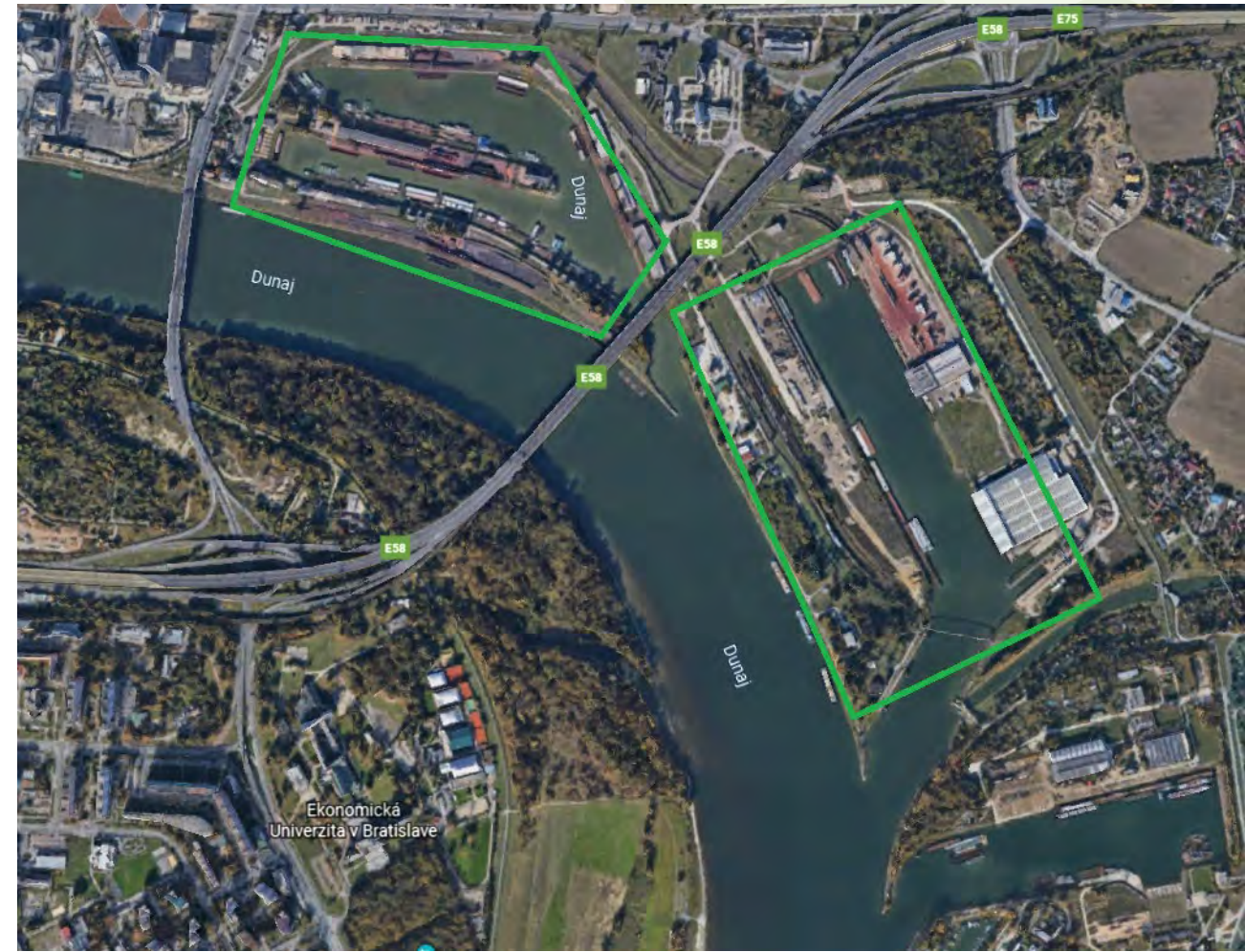


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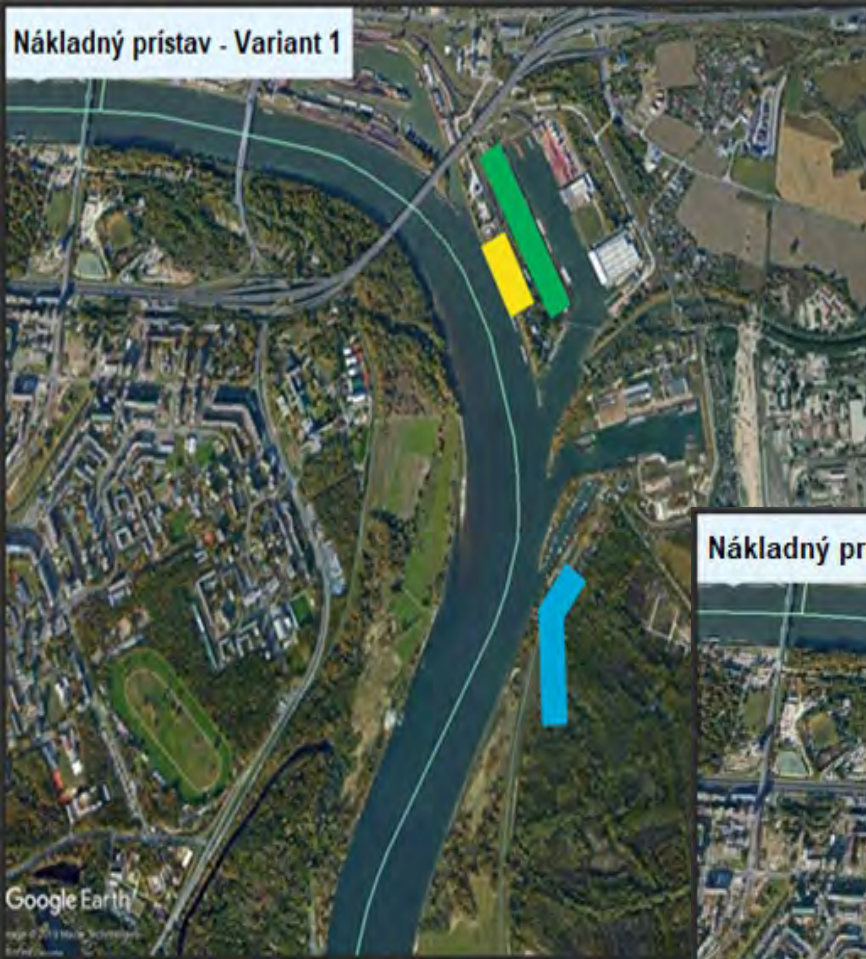
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Proposed development of the Port (alternatives)

- Reallocation of cargo terminal further from the City center
- Reallocation of winter terminal further from the City center
- Increased capacities for private boats and cruises (new terminal)
- New intermodal terminal
- LNG terminal and other new services (petrol station, solid waste management system)



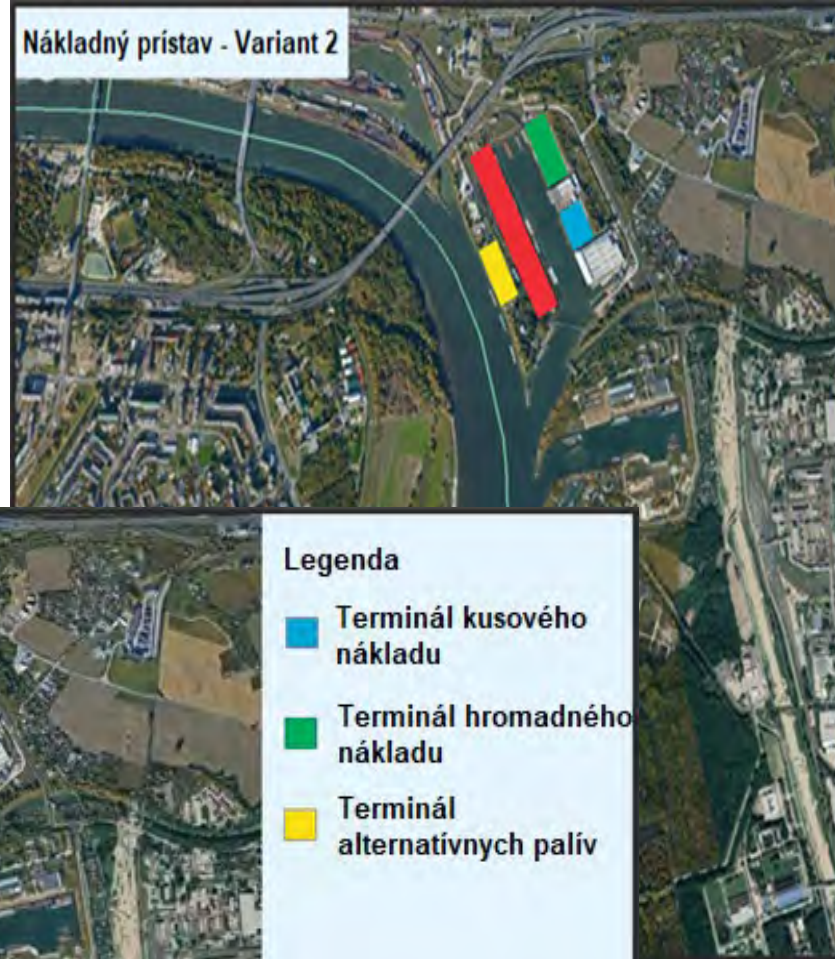
Nákladný prístav - Variant 1



Legenda

- Nový bazén - lokalita Vlčie hrdlo
- Terminál hromadného nákladu
- Terminál alternatívnych palív

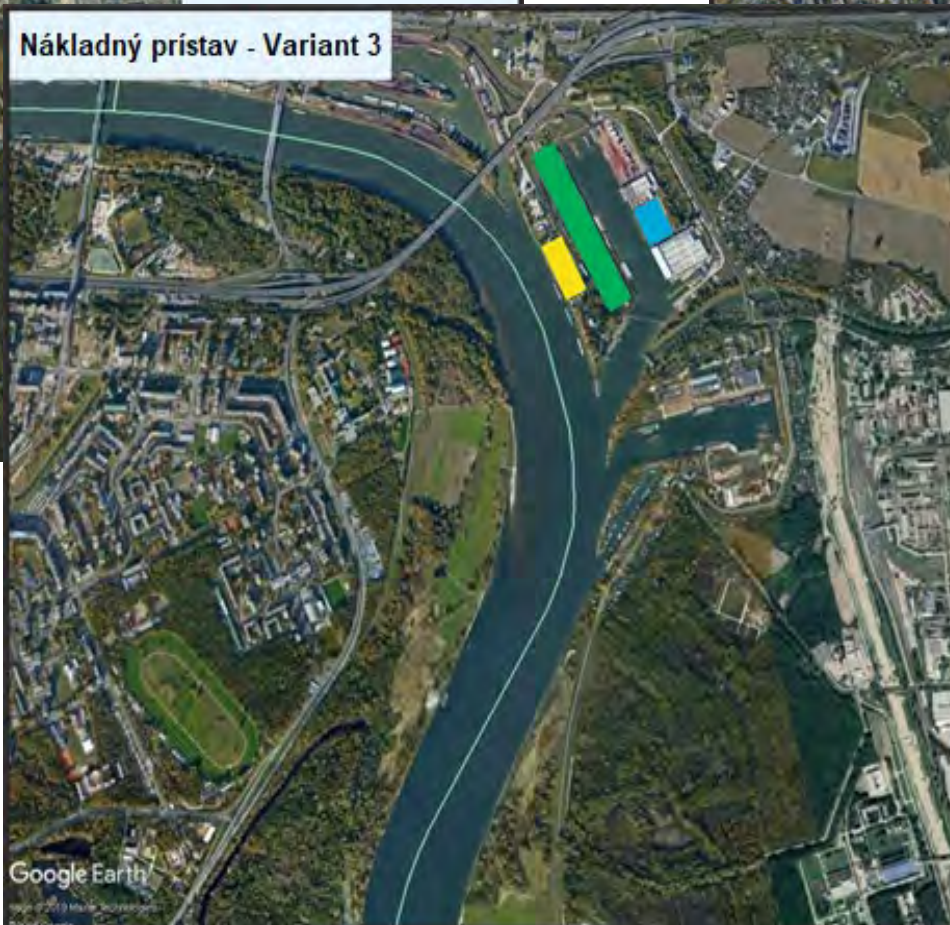
Nákladný prístav - Variant 2



Legenda

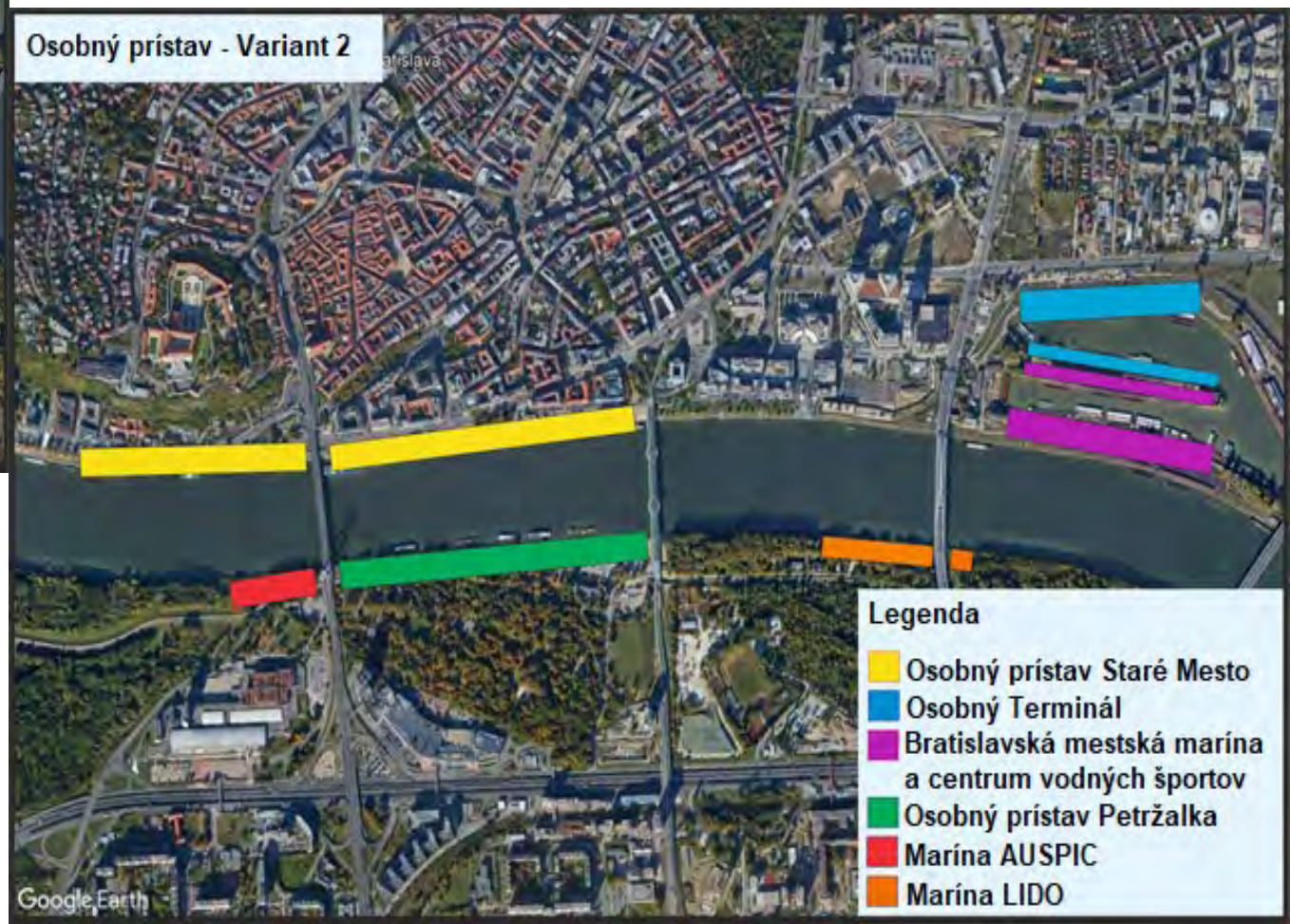
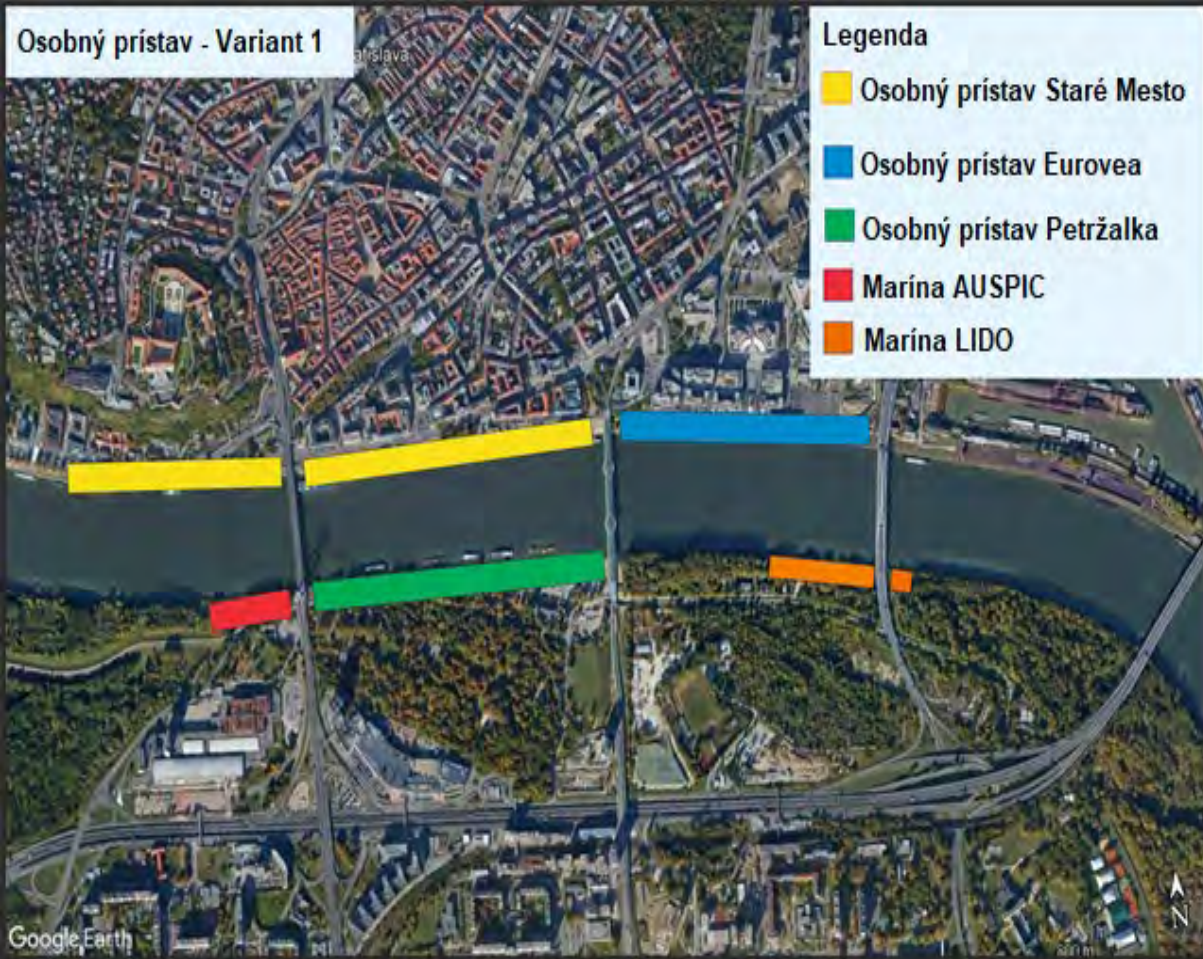
- Terminál kusového nákladu
- Terminál hromadného nákladu
- Terminál alternatívnych palív
- Terminál intermodálnej prepravy

Nákladný prístav - Variant 3



Legenda

- Terminál kusového nákladu
- Terminál hromadného nákladu
- Terminál alternatívnych palív





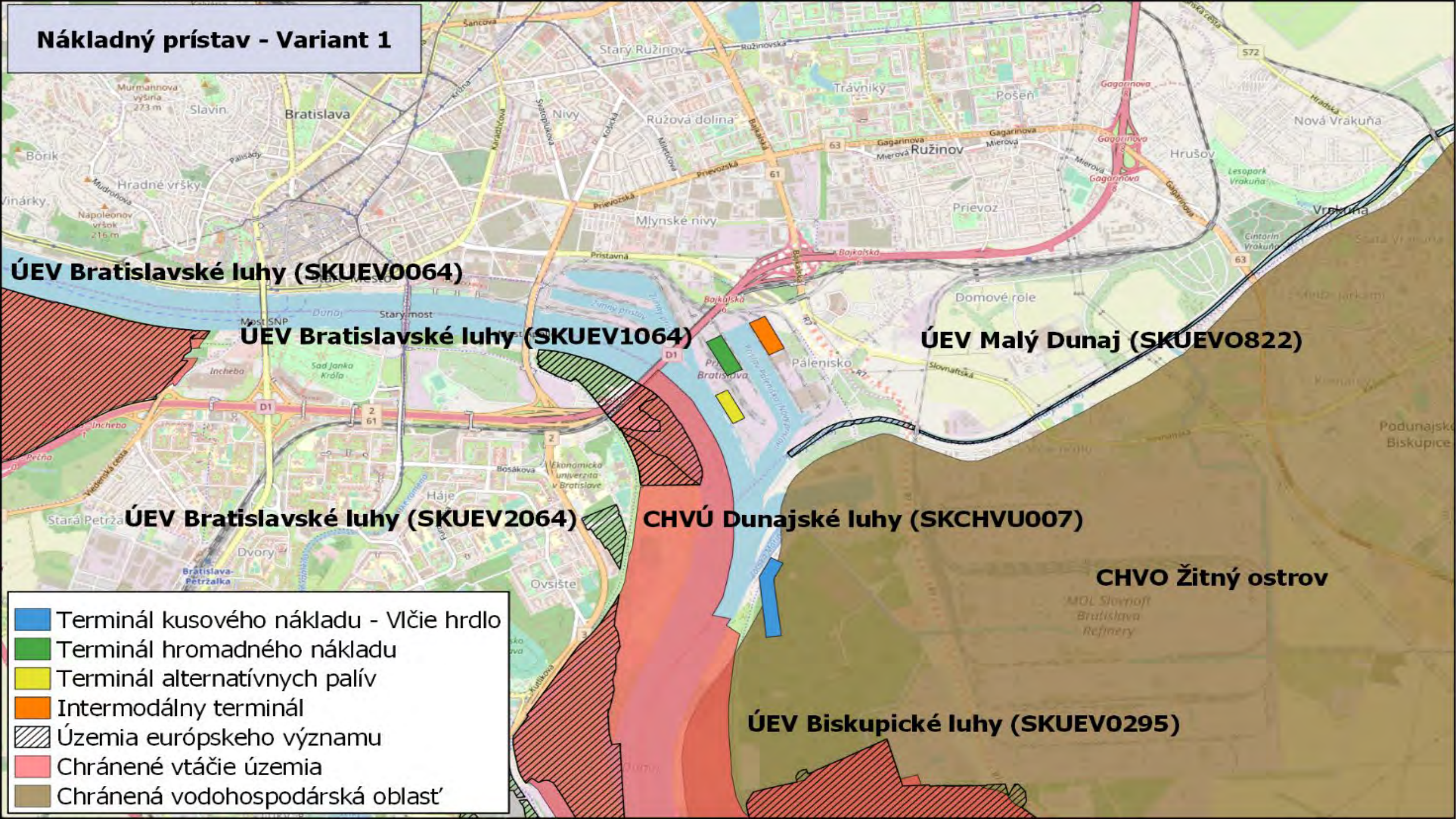
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Approach to SEA

- Combination of qualitative assessment and spatial analyses
- Emphasis on evaluation and comparison of alternatives (including 'business as usual' scenario i.e. no further development of the Port)
- Providing inputs to Multi-Criterial Analysis (MCA)
- Key issues: air quality, water resources, soil, nature and protected areas (including Natura 2000), waste, climate change risks, noise, culture heritage, health

Nákladný prístav - Variant 1



ÚEV Bratislavské luhy (SKUEV0064)

ÚEV Bratislavské luhy (SKUEV1064)

ÚEV Malý Dunaj (SKUEV0822)

ÚEV Bratislavské luhy (SKUEV2064)

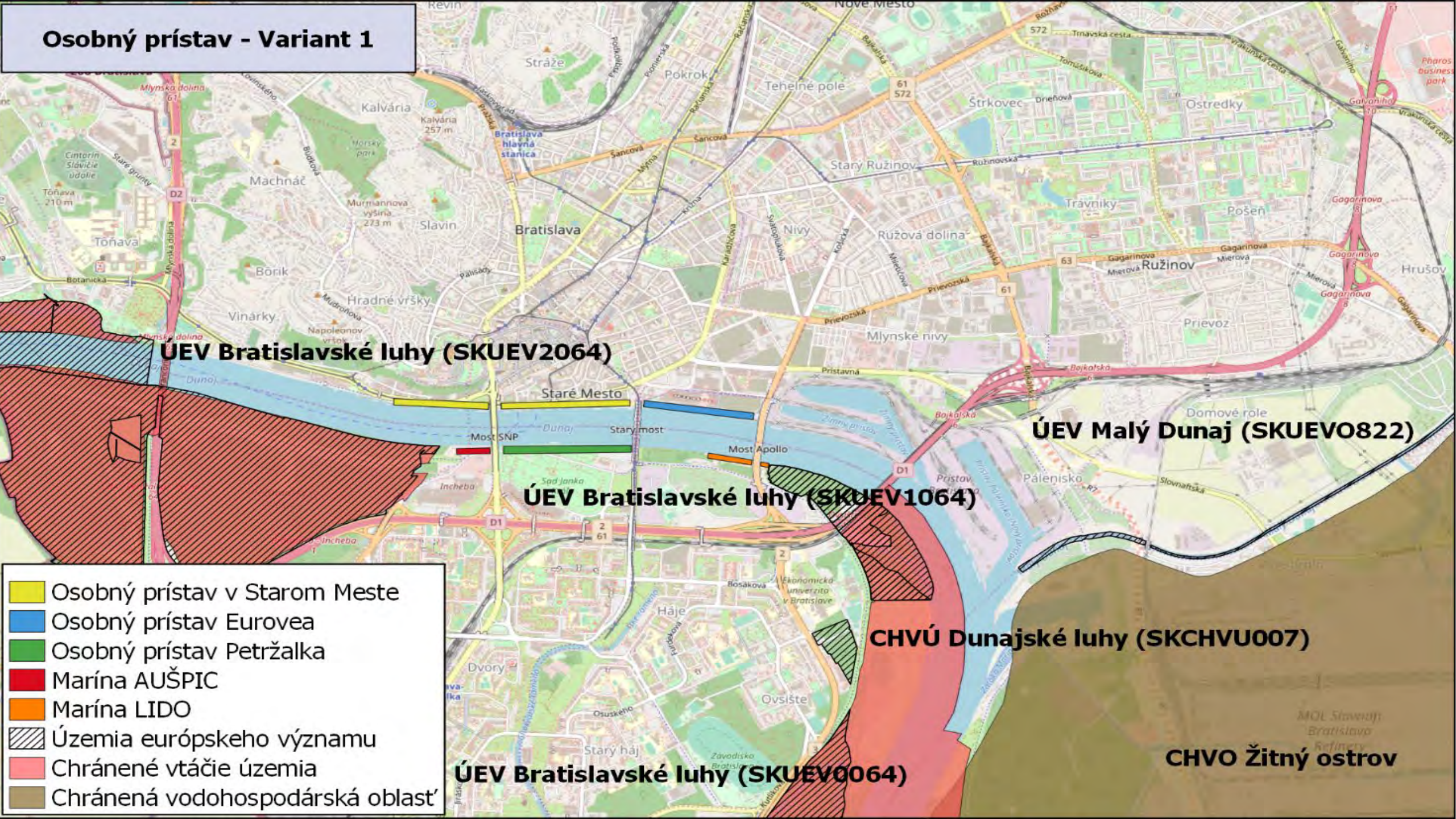
CHVÚ Dunajské luhy (SKCHVU007)

CHVO Žitný ostrov

ÚEV Biskupické luhy (SKUEV0295)

- Terminál kusového nákladu - Vlčie hrdlo
- Terminál hromadného nákladu
- Terminál alternatívnych palív
- Intermodálny terminál
- Územia európskeho významu
- Chránené vtáacie územia
- Chránená vodohospodárska oblasť

Osobný prístav - Variant 1



ÚEV Bratislavské luhy (SKUEV2064)

ÚEV Malý Dunaj (SKUEVO822)

ÚEV Bratislavské luhy (SKUEV1064)

CHVÚ Dunajské luhy (SKCHVU007)

ÚEV Bratislavské luhy (SKUEV0064)

CHVO Žitný ostrov

- Osobný prístav v Starom Meste
- Osobný prístav Eurovea
- Osobný prístav Petržalka
- Marína AUŠPIC
- Marína LIDO
- Územia európskeho významu
- Chránené vtáče územia
- Chránená vodohospodárska oblasť

Environmental (including health) issue	Location			Comments
	Pálenisko	Zimný prístav	Osobný prístav	
1. Air quality				
Air emissions from operations in the port (vessels)	1	1	1	<p>A frequency of shipping and the type of fuel(s) need to be considered in further assessment.</p> <p>Assessment shall consider effects to the city centre (from operations getting close/closer, in particular regarding PM) and also likely positive effects resulting from relocation of the cargo port to the Pálenisko.</p>
Air emissions from the land transport related to the port: cargo transport	1	1	0	The cargo transport to/from the port significantly affects the quality in the areas along the transport routes. Also transport for LNG terminal operations needs to be considered.
Air emissions from the land transport: passengers transport	0	1/0	1	Impacts on the air quality in the vicinity of new P&R capacities and access roads (mainly local – up to approx. 500 m distance – but potential significant).

Environmental and health issues	Likely effects														
	Cargo port – Alt. 1			Cargo port – Alt. 2			Cargo port – Alt. 3			Passengers port – Alt. 1			Passengers port – var. 2		
Air	-2			-1			-1			-1	-2		-1		
Water resources	-2			-1			-1			-1			-1	+1	
Soil	-2			?			?			?			?		
Nature and protected areas	-2			-1			-1			-1			-1		
Waste	-1			-1			-1			-1			-1	+1	
Climate change risks	-1	0	?	-1	0	?	-1	0	?	-1	0	?	-1	0	?
Noise	-2			-1	-2		-1			-1			-1	-2	
Health	-1			+1			+1			-1			+1		
Cultural heritage	0			0			0			0			+1		



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SEA conclusions and results

- BAU scenario will mean a ‘missed opportunity’ to upgrade the Port’s services and thus reduce current adverse effects on the environment
- Alternative 1 of cargo port evaluated as unacceptable due to likely significant effects on nature protection
- Likely effects of other alternatives can be effectively mitigated
- Likely environmental and health effects fully considered in MCA
- Alternative 1 of cargo port excluded from the final draft Master Plan
- The public hearing to be organised when Covid-19 restrictions allow so



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In conclusion: What makes good SEA?

- Proper participatory process
- A good reliable report with
 - Identifies environmental risks and opportunities
 - Scientifically sound estimation of likely effects
 - Mitigation measures proposed
- Improvement of the plan under assessment
 - Ensured compliance with environmental goals
 - Put in place safeguards and monitoring for unforeseen effects
- Final decision (permit/approval) considering SEA conclusions
- Something else?
 - Seeking windows of opportunity to influence planning and decision making
 - Quality of planning and decision making are critical limits
 - Commitment to SEA results

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