

# Non-Technical Summary

## PROJECT: Kraków Fast Tram (Stage IV)



May 2022

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# 1 Project Description

## 1.1 Introduction and general context

The purpose of this document is to introduce the reader to the Kraków Fast Tram Project, to put related documents and actions into context.

Kraków is one of the largest and oldest cities in Poland. The city dates back to the 7<sup>th</sup> century and it was the first European city inscribed in 1978 on the UNESCO World Heritage List (United Nations Educational, Scientific and Cultural Organization). Situated on the Vistula river (Polish: Wisła) in the Lesser Poland region, has a population of about 780,000 inhabitants, with approximately 8 million additional people living within a 100 km radius of its main square. Kraków is one of the biggest touristic centres in Europe.

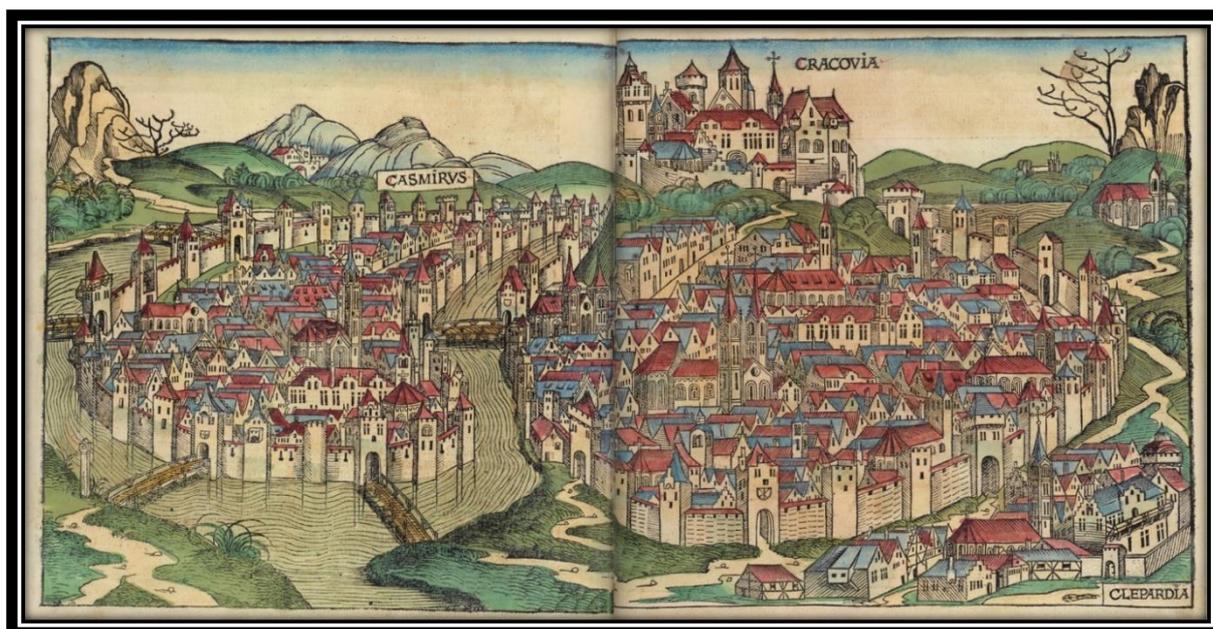


Figure 1 Woodcut of Kraków in 1493

The Kraków Fast Tram Stage IV (the “Project”) will be a new line comprising 4.5 km of new two-track tramway connecting residential districts in the northern part of Kraków with the city centre. The aim of the Project is to reduce car traffic and improve air quality within the city centre and greenhouse gas (GHG) emissions by providing alternative transport options.

The project is of strategic importance for the development of the city due to the fast tram connection between settlements located in the northern part of Kraków and the city centre. The planned tramway will be connecting two existing lines near the north part of Kraków, in District III Prądnik Czerwony and District XV Mistrzejowice. It runs through the following estates: Olsza, Ugorek, Prądnik Czerwony, Oświecenia, Mistrzejowice. This is a residential area with many offices, shops and developed transport infrastructure characterized by dense traffic. The majority of the route is located within the green belt (the central space in the road which divides both directions of traffic) of the dual carriageway. The route starts at al. Jana Pawła II and Lema str. crossing, through Meissnera str., Młyńska str., Lublańska str., Dobrego Pasterza str., Krzesławicka str, Bohomolca str., ks. Kazimierza Jancarza str. to the existing tram loop „Mistrzejowice” - See Figure 2.



Figure 2 Overview of Kraków Fast Tram (Stage IV) Project, source: Environment Impact Assessment (EIA) Report for the Project

## 1.2 Project scope

The total length of the tram line is 4,450.435 m including 1,230 m of a cut & cover tunnel (189 m ramps, 684 open sections of the tunnel in diaphragm walls or retaining walls, 546 m tunnel).

The tramline will provide transport services with a capacity of up to 556 trams per day. The operation of the trams will be possible also during night-time if the decision to run a night tram service over the Meissnera – Mistrzejowice section is decided in the future.

In addition to design and construction of the tramline and its operation over a period of 20 years, the following changes to local transport infrastructure are included in the project:

- Reconstruction of Meissnera and Młyńska streets to include a tramway between the road lines.
- Reconstruction of Młyńskie roundabout
- Reconstruction of Barei roundabout to form an intersection with traffic lights.
- Modification of intersection of Dobrego Pasterza str., Aliny str. and Krzesławicka str.
- Reconstruction of Krzesławicka str.
- Reconstruction of intersection of Bohomolca str., Książna str. and Krzesławicka str.

Additionally, the following elements will be constructed/developed:

- Sidewalks;
- Bicycle paths;
- Street lighting;





Figure 4 Underground tram stop in Polsad roundabout tunnel, source: Gülermak Project presentation

## 2 Background

### 2.1 Rationale of the Project

Kraków was the first Polish city to adopt a sustainable transport policy in 1993. The City decided to develop the trams as a more environmentally friendly means of transport, especially for interconnecting the city centre. Currently, Kraków has an extensive tram network (see Figure 5).

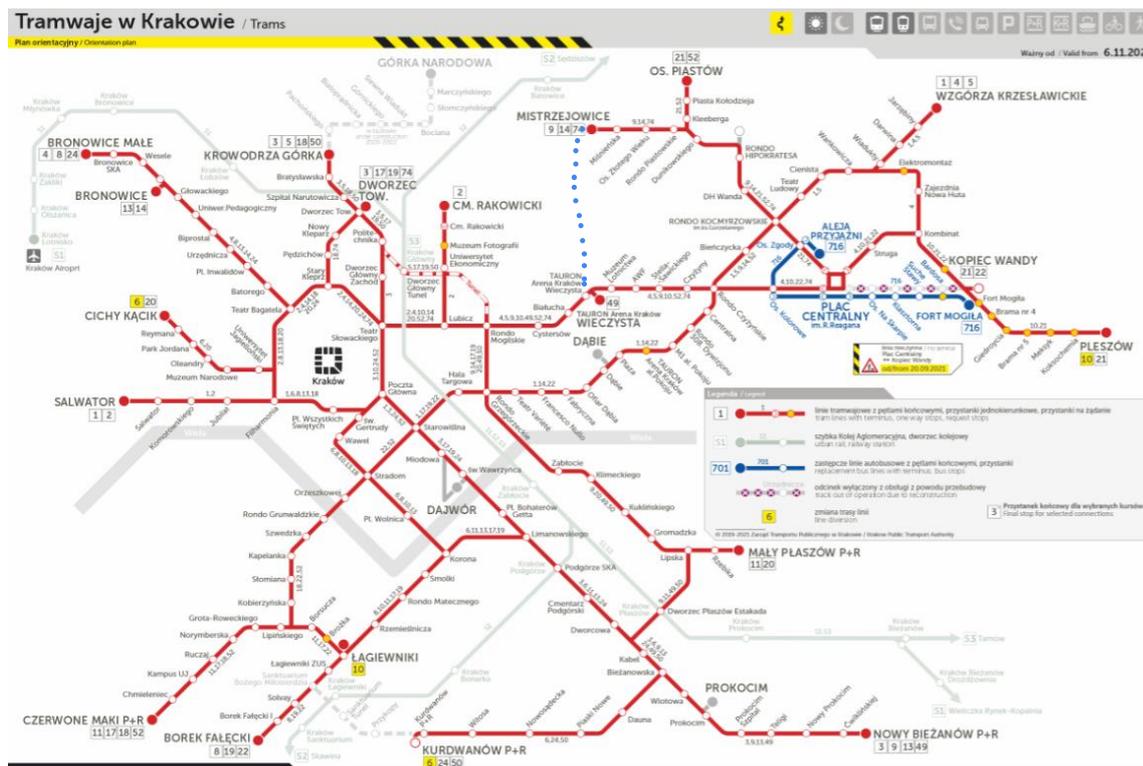


Figure 5 Diagram of tram lines in Kraków, source: <https://ztp.krakow.pl/>

#### Legend

- tram lines with terminus, one way stops and request stops;
- Urban Rail with railway stations;
- temporary bus lines with terminus and bus stops
- tram track out of operation due to reconstruction;
- line diversion
- Project track

The Project is the next stage of implementing the strategy for the development of the public transport system<sup>1</sup>, aimed at improving the service of individual regions of the city through the fast tram network. Track routing concept design for the Project was widely consulted with the city stakeholders in 2014 and two years later during public consultations as part of EIA procedure.

<sup>1</sup> Plan for the sustainable development of public transport for the Municipality of Krakow and neighboring municipalities with which the Municipality of Krakow has concluded an agreement on the organization of public collective transport adopted by Resolution No. LXXX / 1220/13 of the Krakow City Council of August 28, 2013). Current plan: Development Plan for the Krakow Metropolis until 2030 (Mobility)

The Project aligns with the updated Kraków Transport Policy (2016-2025)<sup>2</sup> and fits into four of the five main policy objectives, namely: 1. Ensuring that public transport passengers have good mobility around the city, 2. developing and promoting sustainable forms of city transport, 3. improving the environment, reducing traffic nuisance for residents, and increasing safety, 4. improving the efficiency of land-use and transport.

## 2.2 History of the Project development and planning

The Project follows the sustainable transport strategy of Krakow (1993) and the strategy for the development of the public transport system which is aimed at improving the service of individual districts of the city through the fast tram network. A high-speed tram was planned and its implementation was divided into five stages. The first stages were performed in 2000. The current Project is stage IV. One more stage (stage V) is planned for the future.

The Environmental Impact Assessment (EIA) was carried out for the project between 2014 and 2017. The Environmental Decision (the municipality's decision to proceed with the project) was issued on 24<sup>th</sup> May 2017. A Second EIA is required by the Environmental Consent Decision at the stage of ZRID<sup>3</sup>/construction permit. The Subsequent EIA report is not yet finalised.

Finally, on 21<sup>st</sup> of December 2020 a Public Private Partnership agreement was signed between the City of Kraków and the Private Partner to design and build the tramway, including operation and maintenance.

The track route was reviewed and modified in relation to the implementation of the tunnel and optimisation of its length to reduce land occupation and improve traffic over Polsad roundabout.

## 2.3 Legal aspects of the Project

The Equator Principles Association recognises Poland as a Designated Country, meaning that it is said to have robust environmental and social governance, legislation systems and institutional capacity designed to protect their people and the natural environment<sup>4</sup>. It should be noted that the legal framework, consultation process and monitoring procedures in Poland are considered to meet or exceed the standards resulting from the Equator Principles.

The planning of the Project was implemented based on the Study of Conditions and Directions of Spatial Development of the City of Kraków, as amended (Resolution No. XII/87/03 of the Kraków City Council of April 16, 2003, amended by Resolution No. XCIII/1256/10 of the Kraków City Council of March 3, 2010 and Resolution No. CXII/1700/14 of July 9, 2014) and based on relevant national and local regulations. The provisions of the following acts were also considered:

- The Act of April 10, 2003 on special rules for the preparation and implementation of investments in the field of public roads (i.e. Journal of Laws of 2020, item 1363, as amended, called road spec-act),
- EC Directive 2008/96/EC Road Infrastructure Safety Management,
- Directive 2004/54/EC Minimum Safety Requirements for Tunnels in the Trans European Network.

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<sup>2</sup> adopted on 8 June 2016 by Resolution No. XLVII/848/16 of the City Council of Krakow

<sup>3</sup> Zezwolenie na Realizację Inwestycji Drogowej – Authorization to Proceed a Road investment.

<sup>4</sup> The Equator Principles Association does this through requiring proxy measures that such countries are “both a member of the Organisation for Economic Co-operation and Development (OECD) and appear on the World Bank High Income Country list”. <https://equator-principles.com/about-the-equator-principles/designated-countries/> [Accessed 21 June 2022]

The EIA Procedure was carried out based on the Act on the provision of information on the environment and its protection, public participation in environmental protection and environmental impact assessment and other relevant national regulations which are in line with EU requirements. The Polish EIA process is in compliance with EU EIA Directive.

The Project is also in line with the following regulations as well as other relevant secondary legislation:

- Environmental Protection Law, issued on 27<sup>th</sup> of April 2001 (Dz. U. 2008 No. 62 item 627, as amended),
- Habitats and Bird Directives,

The labour issues are regulated in Poland by Labour Code (Kodeks pracy) which is in line with Directive 2000/43/EC of 29 June 2000 implementing the principle of equal employee treatment, irrespective of racial or ethnic origin.

The real estate acquisition is carried out according to Polish law including the following acts:

- The Constitution of the Republic of Poland; adopted on 2 April 1997 (Dz. U. 1997 No. 78 item 483), which protects the right to ownership and inheritance. According to Article 21 of the Constitution, deprivation or restriction of property rights can be made only “for public purposes and against fair compensation”.
- The Civil Code Act of April 23, 1964 (i.e. Journal of Laws of 2020, item 1740, as amended).
- Act on real estate management of August 21, 1997 (i.e. Journal of Laws of 2020, item 1990, as amended), which defines the rules for expropriation of a real estate and valuation. According to the act, property expropriation may be affected only for public purposes. The valuation of real estate property can only be done by a surveyor (real estate valuation expert).
- The Act of April 10, 2003 on special rules for the preparation and implementation of investments in public roads (i.e. Journal of Laws of 2020, item 1363, as amended, called road spec-act), which regulates the acquisition of a property and identifies the authorities responsible for implementing acquisition procedures. Properties which are located in the area indicated for the road location may be acquired through standard purchase or appropriate compensation for expropriation. If only part of the property is acquired and the remaining part is not suitable for normal use, this part of the property should be purchased as well, on the basis of owner's or perpetual usufructuary's request.
- Environmental Protection Law, issued on 27<sup>th</sup> of April 2001 (Dz. U. 2008 No. 62 item 627, as amended), according to which purchase of properties located in the area of restricted use is required if it is not possible to apply appropriate technical protection measures in this area (against noise, for instance).

At the same time the project is also subject to the requirements of lenders and international financial institutions like EBRD (European Bank for Reconstruction and Development) and EIB (European Investment Bank). Their additional requirements have also been considered in the project.

#### 2.4 Current environmental and social situation and considerations

The Project is performed in a highly transformed urban environment. The routing for the tram track was planned along existing roads, between the two direction lines or on the side of existing streets. Part of the tram track is planned as a tunnel, as presented in Figure 3.

As the Project is located in urban area there are no areas protected under the Nature Conservation Act or Habitat or Birds Directives. The area is of low natural value, and the wildlife is limited to synanthropic species as stated in environmental decision

There is limited number of trees and shrubs species. These are mostly urban plantings. An inventory of trees and bushes was carried out during EIA report preparation for environmental consent decision, and it is planned to replant the trees whenever it is possible and plant new trees after commissioning of the tram line.

With respect to land acquisition, only 29,5 ha of land will be acquired (27,3 ha of unbuilt plots of which only 0,82 ha are private and 2,2 ha of built-up plots (0,74 ha of them are private)). No residential nor agriculture land is affected. No involuntary resettlement of residents is foreseen, and only a limited number of economic displacements is expected. The Project is also ensuring that access to local businesses and services is retained for the local communities during construction. No physical displacement, only economical ones are needed. No vulnerable group were identified to be affected by the Project.

### 3 EIA process

#### 3.1 EIA process

The Environmental Consent Decision was issued on the 24<sup>th</sup> of May 2017 after the conditions of the project implementation had been agreed with the Regional Director of Environmental Protection in Kraków and after obtaining the opinion of the State District Sanitary Inspector in Kraków.

During the EIA procedure and public consultations, the following information was made available to the stakeholders:

Date	Given information and link
July 23 of 2015	Information on starting the proceedings for issuing the environmental consent decision, the possibility of consulting the case files (made available at the Mayor office), the opportunity to file comments and to request opinions from the District State Health Inspector (PPIS) and the Regional Environmental Protection Director (RDOŚ) on the obligation to conduct an environmental impact assessment and to define the scope of the EIA report. <a href="https://www.bip.krakow.pl/?news_id=69678">https://www.bip.krakow.pl/?news_id=69678</a>
December 21 of 2015	Submission of additional information to the project information document (Karta informacyjna projektu – KIP), possibility of consulting the case files (as above: in the office or upon request) and a re-submission of the opinions issued by PPIS and RDOŚ. <a href="https://www.bip.krakow.pl/?news_id=72910">https://www.bip.krakow.pl/?news_id=72910</a>
February 12 of 2016	Decision WS-04.6220.55.2015.RJ issued on 12 February 2016 on the obligation to conduct full EIA procedure and the scope of the EIA report (screening and scoping procedure), the possibility of examining the files at the office and of lodging a complaint with the Local Government Appeals College (Samorządowe Kolegium Odwoławcze – SKO) within 7 days of the date of the decision. <a href="https://www.bip.krakow.pl/?news_id=73915">https://www.bip.krakow.pl/?news_id=73915</a>
April 5 of 2016	Resolution dated 5 <sup>th</sup> April 2016 Sign: WS-04.6220.55.2015.RJ requesting to supplement the submitted EIA report. <a href="https://www.bip.krakow.pl/?news_id=75139">https://www.bip.krakow.pl/?news_id=75139</a>
July 7 of 2016	Information about the possibility to comment on project documentation available at the Mayor office <b>within 21 days of the date of notice publication</b> (i.e. from 8.07 to 29.07.2016). The notice includes a list of the land plots on which the project is to be located. <a href="https://www.bip.krakow.pl/?news_id=77615">https://www.bip.krakow.pl/?news_id=77615</a>
October 7 of 2016	Upon submission of an Annex to the EIA report, the authorities informed about <b>the possibility to comment on project documentation within 21 days of the publication of the notice</b> (i.e. 7.10 to 28.10), and a request for a re-opinion issued to the PPIS. <a href="https://www.bip.krakow.pl/?news_id=79964">https://www.bip.krakow.pl/?news_id=79964</a>
February 1 of 2017	Upon submission of an Annex to the EIA report, the authorities informed about <b>the possibility to comment on project documentation within 21 days of the publication of the notice</b> (i.e. 1.02 to 22.02), a request for a re-opinion to the PPIS. <a href="https://www.bip.krakow.pl/?news_id=83417">https://www.bip.krakow.pl/?news_id=83417</a>
May 24 of 2017	Information about issuing the environmental consent decision for the Project, the possibility of consulting the case file and the content of the

Date	Given information and link
	decision, the possibility of lodging an appeal within 14 days of the date of publication to the Local Government Appeals College (SKO). <a href="https://www.bip.Kraków.pl/?news_id=86532">https://www.bip.Kraków.pl/?news_id=86532</a>

According to the provisions of the Environmental Consent Decision, the Private Partner is obliged to take into account the following environmental requirements when developing the project Design Documentation:

- Determine the excavated soil management arrangements;
- Determine the geotechnical parameters of the ground in accordance with the applicable legal regulations;
- Re-evaluate and verify the buildings identified as requiring acoustic protection;
- Prepare a detailed noise screen design preceded by detailed calculations in accordance with the applicable guidelines (developed by the Environmental Management Department for the road administration) for designing noise barriers, to establish the optimal screen parameters and their exact location;
- Use durable and harmless for the environment materials, having the necessary technical approvals;
- Consider the use of trackside lubricators where appropriate;
- When designing the tramway track, utilise solutions that reduce vibration and noise associated with the operation of the tramway;
- Include the planting of screening vegetation (trees, shrubs) in the construction design, maximising the number of plants;
- Use forced mechanical ventilation in the tunnel in a longitudinal arrangement using jet fans; and
- Provide smoke extraction in the tunnel by ventilation fans and additional jet fans for smoke extraction only.

Climate and climate resilience issues were not presented in the EIA Report because it had been elaborated before implementation of EIA Directive 2014/52/EU to the Polish law. This gap will be covered in subsequent EIA report and second EIA procedure which is a part of ZRID decision process. That means that climate mitigation and climate resilience issues will be part of the project design.

## Second EIA

The Environmental Decision requires an Environmental Impact Re-Assessment report to be submitted at the ZRID/construction permit stage. In accordance with the applicable regulations (Article 67 of the Act on the provision of information on the environment and its protection, public participation in environmental protection and EIAs), the EIA report update should take into account the data resulting from the design solutions that emerged after the issuance of the Environmental Consent Decision, and incorporate any recommendations resulting from this decision.

The EIA report update will be undertaken as part of the proceedings for the issuance of the construction permit/ZRID (Article 72 (1) of the Act on the provision of information on the environment and its protection, public participation in environmental protection and EIAs). Possible changes resulting from the report and the EIA update process must be introduced into the Project documentation.

### 3.2 Public consultations

The public consultation of the Project was carried out according to the Polish regulations, which are in line with the EU EIA Directive. The relevant information was disclosed to the public and the comments were collected and dealt with. From the discussions with the SPV it may be concluded that the Design was changed based on comments, especially to limit the impact on local businesses and reduce expropriation. Additional public consultation is to be carried out during the Subsequent EIA procedure in line with the Polish regulations and in line with the EU EIA Directive.

The SPV (Special Purpose Vehicle) is now carrying out a number of communication activities. The majority of consultation-related activities conducted until now have been online communication (i.e. social media channels) or indirect communication (press conference, meeting with district council representatives, meetings with people), as well as distribution of leaflets or newspapers, all according to PPP Agreement requirements. As identified during the site visits there was lack of general knowledge about the Project and its impact both among the people living on the affected area or conducting businesses there. Starting June/July of 2021, the SPV carried out many communication and public consultation activities.

## 4 Environmental Benefits, Adverse Impacts and Mitigation Measures

The Project is situated in a highly modified urban environment, therefore key environmental benefits, adverse impacts and mitigation measures are specific for this type of area. The key issues to consider are air quality and emissions of pollutants and noise as well as management of existing greenery (necessary cutting of trees and bushes). Less significant impact is expected with respect to water resources and wastewater management and waste. No significant issues are anticipated with other aspects of the Project construction.

### 4.1 Air quality, impacts and management measures

The construction of the tramway may increase the emissions of pollutants into air due to increased use of construction machinery fuelled with diesel or petrol, dust emission generated by site activity and changes in the traffic organization. These impacts will be minor and temporal.

The emissions during the operation phase shall be decreased in the area. The tramway operation will reduce the use of ICE (Internal Combustion Engine) vehicles by taking over some part of transport which otherwise would have been performed by buses or private cars. Therefore there will be a benefit from the Project consisting in reducing pollutant emissions and improvement of air quality.

The analysis of the impact on greenhouse gas emissions carried out within the GET (Green Economy Transition) Report proves a reduction of 55% of the greenhouse gas emissions thanks to the project. It results mainly from the reduction of car usage thanks to the modal switch from people using cars to the tramway.

### 4.2 Traffic, noise and vibration; impacts and management measures

Noise emissions during the construction phase were omitted in the EIA report but the construction activities will be limited to daytime (6am – 10pm), excluding activities which are required continuously, for technical reasons.

The noise level during the operation phase was deeply investigated as the first results showed exceeded noise standard levels around some part of the tramline. It is important to highlight that noise standard levels are exceeded already and the impact of the tramway on the increase of noise emissions is not decisive in this matter, especially considering that the Environmental Decision imposes among other actions, the following solutions to reduce noise level from the tramline:

- Use of silent asphalt – at least SMA8 on all streets rebuilt during the project,
- Use of systems like Rail Comfort System to limit noise emissions and vibration on section 2+400 – 3+500 of the tram track (part of Dobrego Pasterza Str, Krzesławicka Str. and part of Bohomolca Str).
- Installation of acoustic screens in specific locations
- Use of vibration isolating layer in tram track design

The Environmental Decision **imposes** also detailed design of acoustic screens preceded by noise modelling calculations to develop optimal screen parameters and exact location. The subsequent EIA report shall include updated analysis and will verify noise screen locations and its parameters as well as the need for further measures.

### 4.3 Management of existing greenery

Within the scope of the project's impact, there are no areas protected on the basis of separate regulations, including in particular those protected under the Nature Conservation Act but there is a diversity in the species of existing trees and shrubs. Trees and shrubs growing within the range are mostly urban plantings. An inventory of trees and bushes was carried out during the EIA report preparation for the EIA decision (on 2014-2015) and updated on the building permit stage. From the analysis of the bottom-up inventory and the results of the on-site visit, it can be concluded that many trees and shrubs are growing in a good healthy manner and are in a good state of health.

As a result of the final inventory set out 1,728 trees and 11,015 m<sup>2</sup> shrubs were listed on the investment site and in the immediate area (where there could be a collision with the technical infrastructure). In total, about 83 species of trees and shrubs were inventoried. Greenery has an urban character, it is cared for. No valuable fauna species were found.

The number of trees and bushes is considerable which was noted by the request for a subsequent EIA report. Following the EIA decision, whenever possible the trees are to be replanted. To compensate for the negative impact of removed trees and bushes, the typical good practice is to plant new ones. During subsequent EIA process when a number of trees and bushes are to be cut is defined obligation about number of trees and bushes to be planted may be written in the subsequent EIA decision.

### 4.4 Water resources, impacts and management measures

The project is located more than 1 km from the closest natural surface water body so no potential impact is expected. The nearest stream called Sudół Dominikański is an artificial, partially piped stream.

During construction phase, water will be supplied from the municipal supply system or from tanks (only in emergency needs). The sanitary sewage will be discharged to the municipal sewage system or collected in septic tanks and transported to a wastewater treatment plant. The water from excavations will be pumped into storm water drainage in accordance with the technical conditions obtained from the authority The Sudół Dominikański pipe cross section is planned to be extended to accommodate the increased stormwater flow.

During operation of the tram, water consumption will be insignificant. The precipitation water will be discharged into storm sewers or road ditches after sedimentation. It is also planned to discharge storm water to the Sudół Dominikański stream.

### 4.5 Other issues

The Project has been developed according to Polish regulations regarding spatial planning, land use, occupational health and safety, waste management and environmental protection regulations. The Polish regulations are in line with EU requirements and therefore meet the EU standards.

The EIA procedure was carried out by competent authorities and the Environmental Consent Decision was obtained. No substantial impact on flora and fauna biodiversity and critical habitats were identified, but plans to replant and move plants are to be prepared.

As the project is located inside the Krakow city, in urban area, the impact on landscape and visual impacts are low, as the tramway is a typical element of city landscape, especially in Krakow, where it is a widely used means of transportation.

The waste management process during construction and operation are to be carried out according to national regulations and internal procedures of the SPV.

Effective resource management was analysed during EIA procedure for soil use and it is required the use of the soil from earthworks for construction purposes if it meets the technical requirements.

All changes in traffic organization need to be agreed and validated by local authorities so the safety level will be met.

Minor investments are planned in associated infrastructure, mainly upgrades of local electric network and refurbishment of the Sudół Dominikański stream. All existing infrastructure found during construction is to be rebuilt.

Cumulative impacts have been properly considered in case of pollutants and noise emissions.

The operation of the tramway will reduce the tramway traffic on alternative lines which use a longer path, reducing overall impacts related to the operations of these tramlines.

An Environmental and Social Action plan was prepared by the Contractor. It includes information concerning the Actions required to meet legislative and EBRD or good practice requirements, as well as investment needs and a timetable for the action to be completed.

## 5 Social Benefits, Adverse Impacts and Mitigation Measures

### 5.1 Project benefits

The Project will improve the public transport with the area of the tramline and reduce greenhouse gases and pollutants emissions thanks to the modal shift from buses and private vehicles to trams. The duration of journey to the city centre will be reduced for people living or working close to the tramline.

Modern tramway infrastructure, lighting at tram stops, public lighting and modern trams will improve security in public transport, especially for women.

During the construction the local traffic will be considered in Temporary traffic organisation projects to be prepared and approved by due authorities. It will address the issues of local traffic and access to properties from public roads.

All issues related to contractor management, occupational health and safety and labour issues are carried out according to national regulations which are in line with EU requirements.

There are no remaining cultural heritage issues remaining in the Project as the design was changed to consider former Benedictine farm complex areas.

### 5.2 Land acquisition and resettlement

The Project is associated with limited land acquisition. According to the preliminary design, the Project area is ca. 30.6 ha **and neither residential nor agriculture land is affected**.

Most of the properties in the tramline already belong to the city of Kraków. In most cases, the investment will only cover a small portion of the land plots. This will require formal division of plots which will be made by the ZRID decision. According to the data provided by Gülermak the project realisation will require a purchase of 26.2 ha of undeveloped plots (only 8.7 ha are private) and 4.4 ha of built-up plots (0.01 ha of them are private).

At the time of writing, across all the plots, KSR and SPV has identified 10 active business properties and up to 30 PAPs (business property owners, business operators and employees) potentially subject to economic displacement as a result of project expropriation. These PAPs have, or are in the process of being, surveyed, with the details being collated and analysed during August and September 2022.

Under Polish law, the 50 private owners of the project affected land plots and the 10 private owners of the project affected business properties are entitled to compensation at current market value, with no requirement to compensate the affected business property owners, business operators and their employees, for loss of income and livelihoods.

Under EBRD Performance Requirement 5, however, the private owners of the affected plots and business properties are entitled to compensation at *Full Replacement Cost* for the affected land and property, and the affected business property owners, business operators and their employees are entitled to compensation for their income and livelihood losses. As a result, an independent valuation of PAP eligibilities and entitlements has been commissioned by the SPV to compliment state valuations under ZRID, so that the compensation sums allocated to PAPs meet EBRD PR5 requirements.

This is consistent with the obligations of the Private Partners and the Public Entity to collectively find the best solutions in meeting both national and local legal requirements, as well as EBRD requirements, on resettlement. As part of these obligations, the costs related to resettlement compensation are covered by the Municipality, but the SPV is obliged to provide documentation to the Public Entity to support the expropriation process.

## 6 Monitoring of Impacts

The following key monitoring processes for project impacts were proposed:

### **Soil stability and groundwater level**

The geotechnical parameters of the ground and groundwater level will be investigated. The ground water will be monitored to allow engineers to properly design the tunnel and choose an adequate method of securing the excavations. This will also allow for assessment of potential long term impact of the tunnel for ground water levels and flows.

### **Trees and shrubs**

The Environmental Consent Decision sets the following conditions for the construction and operation of the project:

1. Leave and protect as many trees and bushes as possible to reduce the traffic nuisance to residents of nearby homes through natural screening;
2. Prepare a greenery design that includes:
  - insulation greenery in various forms,
  - design the arrangement of tree and bush species and location to absorb dust and other contaminants,
  - replanting young trees and shrubs which are in good health and condition,
  - design of ornamental green (low vegetation in the form of clusters and hedges cut in the form of aesthetic multicolour compositions) along the tramline route, in particular around roundabouts and terminus,
  - compensatory planting (trees and shrubs), lawns and green bogs;
3. The felling of trees and shrubs shall take place outside the bird breeding period, i.e. from 16<sup>th</sup> of October to 1<sup>st</sup> of March. Trees and shrubs may be cut outside this period, but only if no nests are found and under the strict supervision of an ornithologist;
4. Trees and/or shrubs in the vicinity of the construction site must be protected against damage.

Several trees, especially those recently planted, will be relocated to different areas outside the tramline route, and outside the roads and technical infrastructure being rebuilt. Decisions concerning greenery are taken after the final track layout is confirmed and a detailed inventory is conducted.

### **Air emission**

During the construction phase, good practice techniques will be used to reduce air emission, notably dust nuisance. The internal "Environment Management Procedure" of Gülermak (Procedure: PRO-G-ENV-001) sets the rules for pollution prevention and control. This procedure, as with other project management procedures, will be adopted from Gülermak to the SPV and used during construction and operation. The Procedure will be updated by operation and maintenance stage.

### **Noise and vibration**

The design documentation must be prepared in line with the Environmental Consent Decision. Generally, the closer the residential buildings are to the planned project, the greater the likelihood of protecting them with sound barriers. The exact set-up of the screens is individually adjusted to the terrain and the comfort of the residents. The design is being developed and the residents' comments are gathered. Also, opinions on the design are issued by all municipal

entities and institutions responsible for the review of documentation, utility owners or environmental authorities. The designer must reassess the environmental impact of the project – more specifically, or must review the solutions that are included in the building permit design.

The crossing with the roadway of Krzesławicka and Bohomolca street, as well as road passes, cycle paths, pedestrian passes and tramway located in the tunnel, will be constructed as a 'floating track' to significantly reduce vibrations and noise generated by the trams.

Additionally, there will be trackside lubricators located before curves to prevent grinding noise or rail squeal caused by friction between the wheels and the rails.

The Environmental Consent Decision provides for noise barriers along sections of the tramway route. The provisions of the decision may be changed following the amendments introduced in the design (like the lowering of the tramway route in the area of Młyńskie roundabout, which is a positive change for the neighbouring areas in terms of noise emissions). Therefore, the changes in the design documentation will be considered in the second EIA report (under preparation).

Post-commissioning noise monitoring will be conducted to verify the efficiency of the noise reduction measures.

Construction works are planned to start in the fourth quarter of 2022. Works will be performed in stages along with implementation of temporary traffic arrangements which will have to be agreed and approved by municipal entities and services. Prior to implementation of any changes in the traffic system, the SPV together with municipal entities will in advance notify neighbours and passengers using urban transport of such changes. Access to private properties will be maintained, and works will be carried out in the least burdensome manner.

Solutions for cyclists and pedestrians designed as part of KST IV tram route received a positive opinion of the team tasked with reviewing the safety of vulnerable road users. The designer will still add some minor comments from the opinion.

### **Heritage resources**

Likelihood of any chance finds is assessed as very low. If any archaeological site or object is discovered during the construction stage, the EPC (Engineering, Procurement and Construction) Contractor is obliged by the Polish law to take proper actions (stop works and contact relevant heritage office). According to PPP Agreement requirements, the EPC Contractor will organise supervision of the archaeologist during the execution of earthworks.

### **Temporary traffic management**

Temporary traffic organisation will be prepared and agreed before the start of the works. The arrangements must be approved by the Department of City Traffic Engineer at the Kraków City Council after obtaining the opinion of the Chief of Police as well as a positive approval by Kraków City Roads Management (Zarząd Dróg Miasta Krakowa – ZDMK) and Public Transport Authority (Zarząd Transportu Publicznego - ZTP). An experienced local company will be subcontracted for the scope of temporary traffic management and signalling.

## 7 Where can stakeholders find more information or provide comments ?

The Stakeholder Engagement Plan (SEP) prepared by the Contractor includes different communication channels available for the public to find more data and deliver information about the Project. A grievance mechanism is included in the SEP as a tool to submit further comments about the Project.

All direct requests can be addressed to:

Telephone number: +48 722 220 088

e-mail: [info@tramwajdomistrzejowic.pl](mailto:info@tramwajdomistrzejowic.pl)

### 7.1 Process for addressing any issues arising

The SEP defines the process for addressing any issues which may arise and assigns roles and responsibilities within the grievance mechanism. The SEP includes five steps:

1. Acceptance of grievance,
2. Pre-assessment of the grievance,
3. Consideration of the grievance,
4. Giving answer,
5. Reporting.



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