

WP 1: Data Collection & Analysis – Data Review and Preliminary Results

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Category 1: Public Transport Plans, Policies & Projects

Document, Year	Key Issues	Key Results	Input for other WP
Kazakhstan Strategy 2050 (2012)	<ul style="list-style-type: none"> - Paper calls for widespread economic, social and political reforms to position Kazakhstan among the top 30 global economies by 2050 - Linked to country's Foreign Policy Concept (2014-2020) 	<ul style="list-style-type: none"> - 3 key aims, incl. fostering PPP - Decentralization of power. This will bring opportunities to P/T planning at the local governmental level - Public Transport and alternative energy features in the top 10 Projects listed under the strategy: <i>"Public service transport in Kazakhstan will become more ecologically friendly. New infrastructure will be created for special electric cars to be used across the country"</i>. 	<ul style="list-style-type: none"> - How can PT contribute to these ambitious goals? - Relevance of PPP for PT projects
National Transport Policy Kazakhstan (2010-2014)	<ul style="list-style-type: none"> - Overall strategy for all transport modes (urban transport not explicitly addressed) 	<ul style="list-style-type: none"> - Transport at a national level is a cross-cutting issues, therefore relevant policies stem from the realms of transport and communications as well as economic development and overall strategic planning (up to 2020) - Allocation and composition of total transport budget for 2010-2014 - Outline of transport infrastructures of national importance 	<ul style="list-style-type: none"> - WP 2 Benchmark: How is urban public transport addressed at the national planning level in other countries, if at all?
Astana Master Plan 2013 (horizon 2030)	<ul style="list-style-type: none"> - Main town-planning document, outlook to 2030, process involved competitive tendering 	<ul style="list-style-type: none"> - Development of modern infrastructure top priority - Plans for transport infrastructure improvements: 23 road interchanges, 2 	<ul style="list-style-type: none"> - Concrete implementation measures and their suitability/comparison to international examples (WP2)

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	<ul style="list-style-type: none"> - urban planning measures aimed at creating a safe environment with convenient and pleasant living conditions - Railway transport design as part of the Master Plan - Adjustment needed due to rapid growth → very broad range and high uncertainty in population forecast estimates 	<ul style="list-style-type: none"> overpasses, 4 road bridges, 25 pedestrian crossings - Scheduled LRT system (27km length) - Improvements to PT are ongoing (detailed schemes according to article in Astana Times, includes new route structure/hierarchy, new vehicles, tariff/ticketing system, driver training) 	<ul style="list-style-type: none"> - Plans for LRT system (dated 2014) (WP2-4)
Master Plan for the Almaty Development 2002 (horizon 2020)	<ul style="list-style-type: none"> - First large-scale urban planning document drawn up under market economy conditions - urban planning measures aimed at creating a safe environment with convenient and pleasant living conditions - Development of the city's new general urban plan began in 2013, and was supposed to be completed by the end of 2014 	<ul style="list-style-type: none"> - Lack of up-to-date Master Plan - Clear lack of policies encountered during attempts to implement Master Plan - Growing number of unplanned car parks - Calls for a new/revised Master Plan - Urban planning and transportation should be subject to an integrated approach, transport should not be fitted into existing urban planning 	<ul style="list-style-type: none"> - Consider focus of TOD (Transit Oriented Development)
Pavlodar – <i>no official document in English language found</i>	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - 2015 route optimization for P/T took place and introduction of electronic ticketing 	<ul style="list-style-type: none"> - EBRD-funded tram project to combat ageing P/T infrastructure - Privatization of bus fleet
Strategic Plan of the Department of Architecture and Urban	<ul style="list-style-type: none"> - Focus seemingly on redeveloping housing 	<ul style="list-style-type: none"> - Developed by RT Consult, Architectural Company; no further information 	<ul style="list-style-type: none"> - Include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian

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Planning of the Karaganda region for 2010-2014 – document not available online in English	<ul style="list-style-type: none"> - Plans for a Turkish investor to build a waterpark/theme park - No information on P/T publicly available in English 	available as to how P/T has been addressed	
Taraz city Master Plan (horizon 2025)	<ul style="list-style-type: none"> - Focus on building residential complex/district designed for 15'600 people - Micro district anticipated to address problems of population growth and traffic flow (not further specified) - 	<ul style="list-style-type: none"> - Pedestrian walkway considered 	<ul style="list-style-type: none"> - Include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian
Oskemen – no official document in English language found	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - decide whether to include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian
Semey – no official document in English language found	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - Public transport supplied by buses and mini-buses 	<ul style="list-style-type: none"> - decide whether to include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian
Oral – no official document in English language found	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - decide whether to include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian
Aktobe Master Plan (undated) – Information available in Turkish	<ul style="list-style-type: none"> - Plans to develop a satellite city 	<ul style="list-style-type: none"> - EBRD funded CNG bus project 	<ul style="list-style-type: none"> - Include in benchmark analysis - Request partner BDC to research for further information in Kazakh/Russian

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	<ul style="list-style-type: none"> - Presentation of two alternatives: centralized road layout, decentralized layout 										
<p>Sustainable Transport Strategy for Almaty (2013-2023)</p> <p>City of Almaty Sustainable Transport Strategy: Why do we need innovations for the cities?</p>	<ul style="list-style-type: none"> - Efforts to mitigate GHG-Emissions, as Kazakhstan is the largest contributor in Central Asia - Transport as key contributor, especially in Almaty - Aims for holistic approach to transport and urban planning and an increase in sustainable transport and public awareness of this - Aims to curb GHG emissions in general 	<ul style="list-style-type: none"> - Listing of 8 major areas for the development of policies: <table border="1" data-bbox="936 555 1451 981"> <tr> <td>1. Improve level of service of public transport</td> <td>2. Integrate transport and urban planning</td> </tr> <tr> <td>3. Manage parking</td> <td>4. Manage traffic</td> </tr> <tr> <td>5. Promote cycling and walking</td> <td>6. Promote low emissions car zones</td> </tr> <tr> <td>7. Integrate the suburban transport network with the city</td> <td>8. Develop road in sustainable manner</td> </tr> </table> - Focus now on how to implement these policies to achieve – amongst others – a higher share of modal split in favor of public transport - Strategy outlines targets and Status in 2012 of 8 predefined sustainable strategy indicators¹ 	1. Improve level of service of public transport	2. Integrate transport and urban planning	3. Manage parking	4. Manage traffic	5. Promote cycling and walking	6. Promote low emissions car zones	7. Integrate the suburban transport network with the city	8. Develop road in sustainable manner	<ul style="list-style-type: none"> - WP 2 Benchmark: Policy comparison with cities of similar size; listing of case study examples - Mirror 8 sustainable strategy indicators in comparison cities (where existent) - WP 3 Scenarios: Focus on emission scenarios based on the effectiveness of successfully implemented measures. How can this be calculated/modelled? How are emissions from other urban sources (heating, industry) increasing to maybe offset positive contribution by transport improvements? - WP 4 Recommendations: implementation “success” → 1. Devise database/set of Urban Mobility Indicators, link with existing data sources and compare to national averages; 2. Structure indicators around 8 policy measures; 3. Consider importance of timeline to allow for before/after data analysis to detect measure effects; 4. Define roles and responsibilities for
1. Improve level of service of public transport	2. Integrate transport and urban planning										
3. Manage parking	4. Manage traffic										
5. Promote cycling and walking	6. Promote low emissions car zones										
7. Integrate the suburban transport network with the city	8. Develop road in sustainable manner										

¹ 1. Share of sustainable transport modes (P/T, walking, cycling) 2. Share of MRT (Metro, LRT, BRT), 3. Number of MRT corridors, 4. Share of residents living in a radius of 500 meters from an MRT stop, 5. Reduction of GHG emissions, 6. Reduction of overall car accident fatalities

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			database/indicator maintenance and use → link to review of statistical documents (Cat. 2)
City of Almaty Sustainable Transport: UNDP-GEF Project 2011-2016	<ul style="list-style-type: none"> - Motorization rates and GHG emissions for Almaty - Forecast population growth - Listing of main problems: pollution, lack of holistic planning approach, no travel demand management, congestion, poor P/T quality - Lists inventory of public transport (fleets) - Identified core challenges to project success - Outlines Work Plan for 2012-2013 	<ul style="list-style-type: none"> - 4 Project objectives: 1. P/T management and air quality should be improved, 2./3. Capacity building for holistic planning for better P/T quality and more integration should be strived for, 4. Implementation of demonstration project to raise awareness of sustainable transport - Outlines general approach to GHG reduction (3 TDM measures: 1. Conducive urban infrastructure, 2. Increased share of non-motorized and P/T modes, 3. Cleaner fuels/vehicles) 	<ul style="list-style-type: none"> - WP 2: Benchmark → How do other cities address GHG reduction? What travel demand measures are in place elsewhere?
Operation Evaluation Summary: Almaty Transport Integrated Approach (2017)	<ul style="list-style-type: none"> - EBRD US\$10 million loan for Almaty tram system in 2009 (modernization of new electrical substations and improve the reliability and efficiency of the company's services.) - Projects aimed at contributing to commercialization and environmental improvements - Benchmark analyses 	<ul style="list-style-type: none"> - Fourfold integrated approach: 1. Almaty bus sector reform project, 2. Almaty trolleybus project, 3. Almaty e-ticketing system expansion and 4. Almaty LRT PPP. - Status: e-ticketing project dropped, LRT project making slower than expected progress - Project evaluation also concerned with the update and success of PPP 	<ul style="list-style-type: none"> - WP 4 Recommendation: Define clearly challenges, actions, objectives and monitoring indicators - Devise traffic computer model, new comprehensive route scheme, carbon emission reduction assessment methodologies - Creation of new Urban Transport Authority (what has become of EBRD recommendation?)

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		<ul style="list-style-type: none"> - Technical cooperation aspects most pronounced (EBRD states “over reliance”) - Policy dialogue too vague (EBRD statement) - Policy amendments suggested for signing and implementation of PSCs and strengthening of regulatory function 	
Transport Policy in London: lessons for Almaty (2010)	<ul style="list-style-type: none"> - Good summary of Almaty’s geographic/planning development, situation - Overview of transport policies in London - Figures on actual effectiveness/reduction of vehicles for London congestion charging 	<ul style="list-style-type: none"> - Private/commercial organizations (e.g. staff buses) make up considerable part of bus services → 63% of buses, according to study, do not directly operate P/T services 	<ul style="list-style-type: none"> - WP 4 Recommendation: highlights limitations to introducing EURO Standards to buses - WP 2 Benchmark: details on transport policy in London → deduction of recommendations for Almaty for congestion charging scheme
Energy Efficiency in the Transport Sector in Kazakhstan: Current measures and status for improvement, 2015	<ul style="list-style-type: none"> - Mostly environmental issues addressed - Also analysis of choice of transport mode and reasons to choose / or not to choose car 	<ul style="list-style-type: none"> - Challenges in PT according to survey: 49% traffic jams and congestion, 35% environmental damage due to high GHG emissions, 8% each high energy consumption and wear&tear of PT vehicles - Critical assessment of the currently poor actual mobility provided by PT due to 1. Lack of dedicated bus lanes, 2. Lack of priority as signals, 3. Lack of integration between modes, 4. Poor PT 	<ul style="list-style-type: none"> - 78% of people surveyed believe that the Elaboration of mechanisms to encourage purchase of fuel-efficient and electric cars would encourage PT use - This information together with other sources suggests that the public is indeed ready for change in mobility patterns and a shift towards PT - Include in benchmark, scenarios and recommendations

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		planning, 5. Lack of navigation and timing systems, 6. Lack of incentives for transport energy efficiency	

Category 2: Public Transport Statistics

Document, Year	Key Issues	Key Results	Input for other WP
Recommendations on promotion of the bicycle-pedestrian movements and infrastructure development in Central Asian cities, Conference Summary (2016)	<ul style="list-style-type: none"> - Promotion of walking and cycling by means of governmental initiatives - Identification of problems/challenges for the region - Cycling to date not integral part of urban transport planning - Professional knowledge for cycle planning needs to be established - Clear organizational structures and delineation of responsibility for cycling issues needs addressing - Training and awareness programs for citizens lacking 	<ul style="list-style-type: none"> - Recommendation for the performance of a street inventory with special focus on existing/lacking infrastructure to enable safe walking and cycling - Recommendation to derive a Street Network Modernization Plan in a participatory manner (stakeholder involvement) 	<ul style="list-style-type: none"> - WP 4: Make use of generally wide roads to incorporate cycle lanes; discuss various approaches (segregation, combination) - WP 2: Benchmark: City budget for cycling, walking: what proportion of transport budget is allocated to walking and cycling in other cities?
Main indicators of transport development 2003-2015	<ul style="list-style-type: none"> - Socio-economic indicators - Growth rate index for transport - Main socio-economic indicators for 2013,2014,2015 available in .doc-format 	<ul style="list-style-type: none"> - Up to date information for first quarter of 2017 - Transportation statistics at national level, divided into freight and passenger 	<ul style="list-style-type: none"> - General: Transport-related statistics of limited further use - WP2: Detailed socio-economic statistics for Benchmark

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<p>Ecological indicators of environmental monitoring and assessment</p> <p>incl. GHG-emissions 1990-2014</p>	<ul style="list-style-type: none"> - Comprehensive and well-structured overview, relevant data-sets include: - Air pollution and ozone depletion: 1. Emissions of pollutants into the atmospheric air, 2. Ambient air quality in urban areas - Climate Change: GHG emissions - Transport: 1. Passenger transport demand, 2. Composition of road motor vehicle fleet by fuel type, 3. Average age of road motor vehicle fleet 	<ul style="list-style-type: none"> - Detailed Excel-Datasets with significant timelines (2010-2015) available for further analysis/graph generation; e.g. “Ambient Air Quality” for Karaganda City; “Ground Level Ozone” for 5 cities - GHG emissions timeline 1990-2014, however, no aggregation by transport / public transport - Passenger transport demand for long timeline 1990-2015 for municipal transport – this has risen significantly in the observation timeframe - Vehicle fleet by fuel type: timeline shows that gasoline dominates with >95%, Diesel and electric almost no impact - Vehicle age: 5 year data timeline shows that old vehicles dominate (> years), however, this share is gradually decreasing 	<ul style="list-style-type: none"> - WP2 Benchmark: if possible, mirror passenger transport demand levels across countries (national level figure), however, consider issue of calibration across such diverse data sets
<p>Tramway Statistics 2003-2015 [http://www.stat.gov.kz/]</p>	<ul style="list-style-type: none"> - Breakdown of operating tramways length (double track) for 4 regions (Karaganda, Pavlodar, East Kazakhstan, Almaty City) - Breakdown of tram park rolling stock 	<ul style="list-style-type: none"> - Overall from 2003-2015 there has been a slight reduction in the track length for trams, esp. in the Karaganda region - The same applies to tram park rolling stock 	<ul style="list-style-type: none"> - What has the reduction in the offer of tram-based services been replaced with? How has the composition of P/T offer changed over time?

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	<ul style="list-style-type: none"> - Breakdown of transportation of passengers by tram and passenger turnover 	<ul style="list-style-type: none"> - The transportation of passengers has significantly dropped across all 4 regions and so has the turnover 	
Bus statistics 2003-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - No distinction between urban buses and national services (long-distance) - Breakdown of data into 16 cities/regions - Development of bus fleet size (number of buses) - Number of passengers transported by bus - Bus passenger turnover by KM 	<ul style="list-style-type: none"> - Increase for all indicators = bus travel has increased, so has bus service in terms of fleet size - Exception Almaty: Here fleet has slightly shrunk but passenger turnover has grown → higher occupancy rates? Large buses? 	<ul style="list-style-type: none"> - Deduction: bus services have replaced tram services over time (see above comment)
Car ownership levels 1990-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Data available at overall national level (needs to be supplemented by city-level data) - Car per 100 persons - Timeline 1990-2013 	<ul style="list-style-type: none"> - Steady rise of private car ownership levels from 4,7 in 100 persons in 1990 to 21 out of 100 persons in 2015 	<ul style="list-style-type: none"> - WP 2 Benchmark: Comparison to other countries/cities this level – although it has risen significantly – may be considered low on an international scale
Trolley bus 2003-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Evaluation for 8 regions/cities - Data categories same as for tram (see above) 	<ul style="list-style-type: none"> - Data sets suggest, trolley bus systems were abandoned in some regions/cities (no more data available from a certain year onwards) - Figures have decreased for network length, passenger volumes 	<ul style="list-style-type: none"> -
Road Accidents 2012-2015 (fatalities/injuries) [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Evaluation for 4 year period 	<ul style="list-style-type: none"> - Significant rise of accidents in observed timeframe - Especially for Almaty city 	<ul style="list-style-type: none"> - WP 2 Benchmark - Consider calibration issues; Kazakhstan reports absolute figures, not indexed or

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	<ul style="list-style-type: none"> - Division into 16 regions/areas; Astana and Almaty city both separate entries - Distinction of accidents by severity (death and injury) 	<ul style="list-style-type: none"> - However slight decrease of fatal accidents (more injured) 	<ul style="list-style-type: none"> - by 100 inhabitants, comparability uncertain
Labour Statistics 2001-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Comprehensive array of data-subsets, further consider the following (for benchmarking): - Unemployment rates - Employment by economic activity → Category Transportation and Storage - Figures reported quarterly 	<ul style="list-style-type: none"> - Though category Transportation and Storage encompasses many more systems, P/T is represented here. Overall the sector has seen an continuous rise in employment levels from 2010-2016 	<ul style="list-style-type: none"> -
Labour Statistics CIS 2001-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Allows national comparisons between Kazakhstan and a further 9 CIS countries for economically active population; unemployment rate 	<ul style="list-style-type: none"> - Diverse picture: Kazakhstan comparatively prosperous = rise in economically active population and decline in unemployment rate 	<ul style="list-style-type: none"> -
Passenger Turnover by Mode 2003-2015 [http://www.stat.gov.kz/]	<ul style="list-style-type: none"> - Absolute figures reported - Number of passengers per KM reported - Modal split at national (not urban) level: railway, bus, taxi, trolley bus, tram, river, air - Relevant categories: bus, taxi, trolley bus, tram 	<ul style="list-style-type: none"> - Bus: significant increase - Taxi: moderate increase - Trolley bus and tram: significant decrease 	<ul style="list-style-type: none"> - Link to availability of service and service levels evident

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World Bank Statistics for Kazakhstan	<ul style="list-style-type: none"> - Development indicators: population, GDP, GDP per capita, School enrollment (primary), Life expectancy at birth - Annual reporting 	<ul style="list-style-type: none"> - Very general figures at national level, no regional distinction - Income status has increased - Since 2002, GDP per capita has risen sixfold and the incidence of poverty has fallen sharply (World Bank). 	<ul style="list-style-type: none"> - WP 2: common denominators for international comparison of benchmark countries
UN World Statistics Pocketbook (2016)	<ul style="list-style-type: none"> - 50 indicators over various years from 2005 to 2016 - Urban population growth rate 	<ul style="list-style-type: none"> - n/a 	<ul style="list-style-type: none"> - WP 2 Benchmarking guaranteed, as all countries represented. - Good source as an overview starting-point

Category 3: Individual Transportation (Cars)

Document, Year	Key Issues	Results	Input for other WP
Almaty Parking Strategy, 2013	<ul style="list-style-type: none"> - Analysis of current parking practices in Almaty - Development of a financial concept for a parking strategy and a city action plan (10 step program) 	<ul style="list-style-type: none"> - One objective of the parking strategy is to arrange for income for the municipality to be invested into sustainable public transport provisions - A dynamic parking routing information system (PRIS) is suggested in order to reduce traffic jams in certain areas and allow for smoother traffic flows. - Establishment of a parking organization within the municipality 	<ul style="list-style-type: none"> - The parking strategy can be extended to a Park+Ride system including its legislative consequences - Capacity building: development of a parking organization within the municipality - Inputs for WP 2 and 3 <p><i>Open question: what is the implementation status of this project? Has a parking organization / unit been developed?</i></p>
Automotive Industry in the Republic of Kazakhstan, 2016	<ul style="list-style-type: none"> - Quantitative Analysis of the automotive industry sector - Motorization rate - Analysis of car age and fleet renewal among inhabitants - Availability rate of cars for inhabitants - Absorption ratio (purchase of all cars supplied to the local market) 	<ul style="list-style-type: none"> - Sensitivity of the automotive sector to global economic changes - Irregularity of income distribution leads to a high number of older cars being used and the impossibility of renewal - It is assumed that more than 70% of cars used do not apply the new Euro-4 ecological guidelines adopted by the government - The availability ration decreased meaning that cars are generally more 	<ul style="list-style-type: none"> - Cars have become more affordable; thus an increase in car ownership can be expected - Even though the ecological Euro-4 rules have been set in place, older cars with respective emissions are still the majority in traffic - Emissions in urban areas and air pollution can be expected to remain the same or increase further - Input for WP 2, 3 and 4

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		<p>affordable and can be paid off during fewer years</p> <ul style="list-style-type: none"> - The absorption ratio has been rising continuously; more locally produced cars have been offered on the market due to legislation on import restrictions 	
<p>Transport Policy in London: Lessons for Almaty, 2010</p>	<ul style="list-style-type: none"> - Assessment of the Public Transport Situation in Almaty and Kazakhstan 	<ul style="list-style-type: none"> - The private car-ownership rate in Almaty is above average - Diverse public transport system (Bus, Trolleybus, Tram, Metro) - Reduction of the public transport fleet for economic reasons during the economic crisis of 2008/2009 - Difficult situation regarding the quality of routes and street in Almaty that haven't been designed for so many cars, plus public transportation - "Almaty Parking" is considered too cheap, private transportation is therefore more attractive than Public Transportation and too few revenues can be invested by the municipality 	<ul style="list-style-type: none"> - The private car-ownership rate in Almaty is above average - Almaty's past transport policies have favored private transportation over public transportation - Valuable steps have been taken to improve the situation, with the support of international organisations - E.g. urban planning has become more important and is integrated into recent planning documents - Information to be requested / verified within interviews - Input for WP 2, 3 and 4 - Possible lessons from London PT Policies: 1. Congestion Charging Scheme; 2. Taxation policies for cars; 3. Urban planning measures to promote walking, cycling and the use of Public Transportation,.

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			4. Park+Ride facilities & park management

Category 4: Sustainability & Environment

Document, Year	Key Issues	Results	Input for other WP
Transport Policy in London: Lessons for Almaty, 2010	<ul style="list-style-type: none"> - Assessment of the Public Transport Situation in Almaty and Kazakhstan 	<ul style="list-style-type: none"> - 90% of all emissions into the atmosphere in Almaty stem from transportation - Since 2009, new ecological Euro standards have been implemented continuously, in 2016 Euro-4 was adopted legally 	<ul style="list-style-type: none"> - Problematic factors for emission reduction: 1. Fuel quality, 2. Implementation of governmental control systems for Euro-standards, 3. Quality of vehicle inspection
ADB Country Partnership Strategy: Kazakhstan 2012-2016: Environmental Assessment	<ul style="list-style-type: none"> - Environmental assessment of the current national situation in Kazakhstan 	<ul style="list-style-type: none"> - The majority of air pollution stems from industry and transportation - Total greenhouse gas emissions are equivalent to 250 mio. t of carbon dioxide and thus highest in Central Asia - Legal achievements: <ul style="list-style-type: none"> o Adoption of the Environmental Code in 2007 o Strategic Plan for the Republic of Kazakhstan, 2011–2015 o 2006 Concept of Transition of the Republic of Kazakhstan to Sustainable Development for 2007–2024 o National Environmental Action Plan, National Biodiversity o Strategy and Action Plan 	<ul style="list-style-type: none"> - Threat of current developments and climate change to economic development, health and life quality - Suggestions for future environmental law and related issues: 1. Mainstreaming environmental issues into other policy making and development plans, 2. Raising public awareness, 3. Provide funding, 4. Promote collaboration

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		<ul style="list-style-type: none"> ○ Conception of Environmental Safety for 2004–2015 ○ Green Bridge Partnership Programme (GBPP) 	
CAST: City of Almaty Sustainable Transport, UNDP-GEF Project 2011-2016	<ul style="list-style-type: none"> - Presentation on public transport situation - Introduction to the CAST project - Situation on emissions in Almaty 	<ul style="list-style-type: none"> - Emissions per vehicle type: 1% electric, 77% cars, 22% busses - Lack of mobility management and an integrated transport strategy - High emissions, high air pollution and low life quality in congested areas - One of the first steps to PT management: Center Almatygortrans 	<ul style="list-style-type: none"> - Include information in further analysis within WP 2, 3 and 4 - Verify information within stakeholder interviews - Incorporate next steps into WP 3&4
Assessment of the Air Quality of Almaty. Focussing on the Traffic Component, 2013	<ul style="list-style-type: none"> - Assessment of air quality in Almaty and its consequences 	<ul style="list-style-type: none"> - Almaty has highest illness and morbidity rate regarding respiratory, endocrine, bronchial asthma, cancer and blood disease - Almaty's geography and topology situated in a valley surrounded by mountains further prevent proper air circulation - Transportation and the three power plants result in very high nitrogen dioxide levels in the air 	
Energy Efficiency in the Transport Sector in Kazakhstan: Current measures and status for improvement, 2015	<ul style="list-style-type: none"> - Concept for Transition of the Republic of Kazakhstan to Green Economy (2013) to lay the grounds for low-carbon development and energy efficiency 	<ul style="list-style-type: none"> - Energy consumption by sector in 2012: 42,3% industry, 56,1% other, 1,6% transport - Oil use by sector in 2012: 63,7% transport, 16% non-energy, 11,8% other, 8,5% industry 	<ul style="list-style-type: none"> - Derive information for benchmark analysis, scenarios and recommendations - Verify recommendations: 1. Monitor and enforce fuel efficiency; 2. High quality fuel; 3.

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Document, Year	Key Issues	Results	Input for other WP
	<ul style="list-style-type: none"> - Review of “Concept for Transition of the Republic of Kazakhstan to Green Economy, 2013” - Review of Action Plan for Implementation of the Concept for Transition of the Republic of Kazakhstan to Green Economy for 2013-2020 - Review of the The Energy Efficiency 2020 Program (2013) 	<ul style="list-style-type: none"> - Emissions per passenger are 5 to 10 times less in PT than cars; less road space is occupied in PT per passenger - Pilot projects: 1. Development of four green cities (“Green 4”); 2. Electric and hybrid vehicles in Almaty and Astana; 3. National resource accounting system, 4. Environmental zones with limited car access in Almaty - Reasons for choice of transport mode: 32% other, 19% health, 16% mobility - Reasons for possibly giving up car: 42% greater mobility of PT, 25% strong air pollution, 12% each eco-taxes for vehicles and increased gas prices 	<p>Traffic management systems: 4. Mobility management</p> <ul style="list-style-type: none"> - Verify pilot projects - Statistics for choice of mode and reasons for giving up cars clearly shows that the public is sensible to environmental developments and open for change; also it is clear that change needs to come top-down through policies regarding taxation, gas prices, high quality fuel as well as financing of PT improvements → include in scenario analysis and recommendations <p><i>Open question: What is the current status of the mentioned four pilot projects?</i></p>
<p>Greenhouse Gas Emissions 1990-2014 [http://www.stat.gov.kz/]</p>	<ul style="list-style-type: none"> - Data available for the years 1990 to 2014 for six specific gasses as well as by sector - Sector analysis shows differentiation between total energy use, industry, forestry and agriculture 	<ul style="list-style-type: none"> - In the past 14 years, overall emissions as CO2 equivalents have been decreasing from 370.000 mt/year to approx. 340.000 mt/year - Emissions by energy consumption and from agriculture has been reducing as well - But emissions from waste increased over the past 14 years, from industry it 	<ul style="list-style-type: none"> - Transportation is not identified individually, but should most likely be included in overall emissions from energy consumption - Statistical input will be further used in the benchmark analysis, the scenario development and the recommendations

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Document, Year	Key Issues	Results	Input for other WP
		decreased in the 1990s and has been increasing steadily since	

Category 5: Policies and regulations

Document, Year	Key Issues	Results	Input for other WP
Concept proposals on the development of legislation for the Ministry of Investments and Development	The document outlines key goals required for achieving better organized and managed public transport services in the city of Almaty.	<p>The Concept specifies following 6 major areas of improvement:</p> <ul style="list-style-type: none"> - Management of public transport services (hereinafter – PTS); - planning procedures for PTS; - development of PTS; - development of paid parking areas; - taxi services; - Use of private vehicles. <p>The document includes several general recommendations for each major area specified above. No particular amendments are specified. Originator – unknown. Status of implementation – unknown.</p>	Request partner (BDC) to proceed with detailed legal analysis of the concept and legal initiatives specified in the document.
Draft regulation on differentiated tariff	The document outlines procedure of applying multiple tariff in the city of Almaty.	<p>The document shall replace existing procedure of applying fixed tariff which was approved by the Almaty municipal authority with the Decree # 2/571 dated June 27, 2012.</p> <p>New procedure specifies one basic tariff and four multiple tariffs, which shall be implemented utilizing coefficient. Rules of</p>	Request partner (BDC) to proceed with detailed legal analysis of the legal situation and legal initiatives specified in the document.

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Document, Year	Key Issues	Results	Input for other WP
		<p>applying different coefficients are not clear.</p> <p>Originator – Local Municipal Authority (Almaty Akimat).</p> <p>Status of implementation – the draft; has not been approved.</p>	
Legislative proposals on paid parking and public transport	<p>The document provides detailed recommendations for improvement of city public transport, paid parking. It includes detailed amendments to particular Kazakhstani laws and regulations and justification.</p> <p>All recommendations specified therein shall apply to Astana and Almaty only.</p>	<p>The goal is to improve and develop city and surrounding areas' transportation area and paid parking through increasing the liability (administrative fines) and modifying the procedure of tariff approval and subsidy allocation.</p> <p>The Document includes comparison table and demonstrates the difference between existing revision of laws and regulations and proposed.</p> <p>The content includes recommendations for amendment of State Codes and Laws and shall pass through Kazakhstani Parliament approval.</p> <p>Originator – Government of Kazakhstan. Name of Ministry is not available. Status of implementation – unknown.</p>	Request partner (BDC) to proceed with detailed legal analysis of the legal situation and legal initiatives specified in the document.
'Ticket and Fare System Almaty Public Transport / 'Итоговый отчет «Система билетирования и тарификации в	The document provides detailed recommendations for improvement of public transport services. It includes detailed amendments to particular	The goal is to improve and develop Public transport services though utilizing multiple tariff and increasing the liability (administrative fines) violation of the law in the area of public transport.	Request partner (BDC) to proceed with detailed legal analysis of the legal situation and legal initiatives specified in the document.

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Document, Year	Key Issues	Results	Input for other WP
общественном транспорте г. Алматы»	<p>Kazakhstani laws and regulations, and justification.</p> <p>If approved, it will be applied to the whole territory of the Republic of Kazakhstan.</p>	<p>The Document includes comparison table and demonstrates the difference between existing revision of laws and regulations and proposed.</p> <p>The content includes recommendations for amendment of State Codes and Laws and shall pass through Kazakhstani Parliament approval.</p> <p>Originator – Government of Kazakhstan. Name of Ministry is not available. Status of implementation – unknown.</p>	

Category 6: Socio-economic Development

Document, Year	Key Issues & Results	Input for other WP
World Bank Development Indicators 2007-2015	<ul style="list-style-type: none"> - Kazakhstan has an average GDP per capita of approx.. 7000 USD (2016) and an overall nominal GDP of 130 billion USD (2016) - Kazakhstan is among the transforming states - Overall population of approx.. 17,3 Million inhabitants - High urbanization rate → approx. 55% live in cities - Both the overall population as well as the urban population has been slowly rising 	
United Nations World Statistics Pocketbook 2016	<ul style="list-style-type: none"> - The overall economic development came to a drastic halt with the world economic crisis in 2008/2009 that can be clearly identified in the development of GDP and inflation rate - After an increased economic development, Kazakhstan experienced a slight decrease in the past years 	<ul style="list-style-type: none"> - Relevant issue for recommendations: add urban transportation projects into the national strategy and allow for national funding
Kazakhstan National Statistics Office: Population Development / Kazakhstan in Figures 2016	<ul style="list-style-type: none"> - Unemployment rate has been decreasing drastically since the beginning of the millennium and is currently at approx.. 5% - The Strategy “Kazakhstan 2050” promotes 100 steps to a modern state, sustainable industrialization and economic growth <ul style="list-style-type: none"> o It refers primarily to economic and industrial development by reforming the financing sector, the extension of oil production and locally produced oil related products, attracting investments, etc. o Regarding transportation, special emphasis is put on international transport corridors, freight transportation and logistics as well as civil aviation and railways 	
Transport Behavior and Mobility in the City of Almaty, 2016	<ul style="list-style-type: none"> - The survey shows that PT is currently primarily used by inhabitants between 14 to 24 years as well as above 50 years with a very low monthly income of less than 100.000 tenge 	<ul style="list-style-type: none"> - Analyse further relationship between household income and use of public transportation

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Document, Year	Key Issues & Results	Input for other WP
	<ul style="list-style-type: none"> - Cars are primarily used by medium and high income households using it for work and by housewives - 24% of Almaty residents have never used PT; main reasons stated: long trips, full busses, low comfort, inconvenient routes, poor frequency, next stop too far away - The majority of answers suggest that PT would be more attractive when dedicated bus and trolleybus lanes would be used - As source of information, the majority would use timetables at stops, the internet as well as TV - 84% of students are not offered specific transportation by organization but 66% would be interested in using it - 93% of employees are not offered company transportation, but 57% would be interested in using it - Regarding the costs for transportation: 66% are willing to pay up to 100tenge per trip (30 eurocents), 21% up to 120 tenge (35 eurocents), 11% up to 150 tenge (40 cents) - Regarding payment: 54% pay by cash at the driver, the rest uses the Onay cards - Regarding car usership and parking behavior: 29% state they have a car in the family, 11% pay for parking, the majority using city car parks - In the event of significant increase of parking fees, 16% are willing to give up their car, 7% are uncertain - Transportation used if giving up car: 61% would use PT, 28% would use cabs, 17% would walk, 19% would do ride-sharing - 16% have a bicycle in the family; 53% of which use it for leisure, only 6% use it for daily routines; 40% are not prepared to use bicycles more frequently - Reasons for not using bicycles: 37% safety and security, 21% health, 14% lack of dedicated cycling tracks 	<ul style="list-style-type: none"> - Analyse external costs related to air pollution and traffic congestion in comparison to PT costs (examples available from selected European cities) - Evaluate possibilities for company-borne transportation for employees and the promotion of respective cooperation - Include survey on PT prices and fares in financial analysis of PT and the benchmark analysis - Include inhabitant's assessment of possibly giving up car or using bicycles in scenarios and suggestions/recommendations

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Document, Year	Key Issues & Results	Input for other WP
	<ul style="list-style-type: none"> - Regarding environmental issues: 72% agree that GHG emissions from transportations has a negative impact on health; 67% believe that trucks should be permitted entry into city center 	

Summary: Preliminary outcomes and open questions

Category		Summary
Cat. 1	Public Transport Plans, Strategies & Projects	<ul style="list-style-type: none"> - Public Transport and alternative energy features in the top 10 Projects listed under the strategy: <i>“Public service transport in Kazakhstan will become more ecologically friendly. New infrastructure will be created for special electric cars to be used across the country”</i>. - City transport master plans can be found for Almaty, Astana and Aktobe - In these cities in particular, development goals for public transportation have been developed, this is especially the case for Almaty - Several international organizations promote and co-finance PT projects, such as UNDP, EBRD, ADB - Kazakhstan Strategy 2050 and the National Transport Policy Kazakhstan primarily focus on national transportation with special emphasis on freight traffic and the involvement in Eurasian corridors. Specific urban transport targets are mostly missing. - <i>Next steps: do further analysis with documents concerning Cat. 5 and evaluate the current policy status; compare local and national transport policies in Kazakhstan with comparable European cities in benchmark analysis.</i> - <i>Open issues: are further documents, policies and plans available for other Kazakh cities? Are additional sources available that could be able for benchmark analysis and the provision of recommendations?</i>
Cat. 2	Public Transport Statistics	<ul style="list-style-type: none"> - In general valuable statistical information on the use of transport modes are available through the Committee on statistics from the Ministry of national economy of the Republic of Kazakhstan - Information is also available through city websites of some of the larger cities (Almaty, Astana), but not the smaller ones - Nonetheless, a validation of data is almost impossible due to lack of other sources of information; for this reason the given numbers are used in order to get an overall picture of the past and current transport situation - First deductions: bus services have replaced tram services over time; Passenger transport demand has risen significantly in the observation timeframe (since 1990)

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Category		Summary
		<ul style="list-style-type: none"> - Vehicle fleet by fuel type: timeline shows that gasoline dominates with >95%, Diesel and electric almost no impact; Vehicle age: 5 year data timeline shows that old vehicles dominate (> years), however, this share is gradually decreasing - Regarding cycling: Recommendation for the performance of a street inventory with special focus on existing/lacking infrastructure to enable safe walking and cycling; Recommendation to derive a Street Network Modernization Plan in a participatory manner (stakeholder involvement) - <i>Next steps: compare overall PT use, offer, demand, financing and organization with</i> - <i>Open issue: valid information on Public Transport Financing could not be found and evaluated. Is it possible by UNDP, EBRD or other source to provide this type of information? For instance: amount of funding for Public Transportation in cities; by national or local governments; relationship between government funding and revenues; regarding private bus companies: do they solely rely on revenues from services offered? What is the average fare? ...</i>
Cat. 3	Individual Transportation	<ul style="list-style-type: none"> - The analysis shows that the motorization rate has been increasing, also due to an increase in GDP per capita. - The national car production industry is sensitive to global economic developments and was therefore hit by the 2008/2009 economic crisis. - On the national level, the ecological Euro-4 standards have been implemented by law in 2016, but implementation remains a difficult issue - <i>Next step: assess within stakeholder interviews and compare motorization rate within benchmark analysis.</i>
Cat. 4	Sustainability & Environment	<ul style="list-style-type: none"> - The analysis of environmental issues in Kazakhstan and selected cities shows that the country itself has the highest GHG emissions in Central/West Asia, Almaty has the highest in the country. - The national and regional governments have been aware of the situation and several national legislative approaches have been taken to tackle this problem. Almaty has also been promoting sustainability and environmental friendly growth. - <i>Next steps: Further verify information within stakeholder interviews and compare within benchmark analysis.</i> - <i>Open question: What is the current status of the mentioned four pilot projects?</i>
Cat. 5	Policies and regulations	<ul style="list-style-type: none"> - The result of overview of legal documents demonstrates that Kazakhstan has acknowledged existing issues in Public transport area and expresses interest in its development. However, recommendations presented in legal documents does not include sufficient justification. Several recommendations even do not have legal grounds and shall not be a subject of law amendment. The documents include recommendations, which might be

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Category		Summary
		<p>implemented utilizing existing regulations, without any amendments. The concept of legal documents does not include implementation plan and transition period, which might be critical.</p> <ul style="list-style-type: none"> - <i>Open question: what is the status of legal documents? Whether it have been reviewed and approved by legislative authority?</i> - <i>Next steps:</i> <ul style="list-style-type: none"> ○ <i>Proceed with detailed analysis of the situation and applicable regulations.</i> ○ <i>Analyze recommendations specified in legal documents comparing its consistency with existing legislation.</i> ○ <i>Participate in State working Group under responsible Ministry and assist with development of suitable amendments to laws and regulations (if necessary).</i> ○ <i>Assist with developing reasonable justification based on best international practice (if necessary).</i>
Cat. 6	Socio-economic development	<ul style="list-style-type: none"> - The overall socio-economic development suggests that whilst GDP p.c. has been increasing, the motorization rate has been increasing as well (taking into account other factors as well) - The Mobility survey showed that the use of Public Transportation or car depends highly on the monthly income and that PT needs to stay affordable - <i>Open question regarding ticketing: Is the Onay Card System actually in place and are there user statistics available?</i> - <i>Issue to be further analyzed: Analyze external costs related to air pollution and traffic congestion in comparison to PT costs (examples available from selected European cities)</i> - <i>Next steps: Further verify information within stakeholder interviews and compare within benchmark analysis.</i>