



Sofia Metro Extension Project

OP “Transport” 2007 - 2013 and 2014 - 2020



OPT 2007-2013

MS “Sofiyska Sveta gora”-Lot 1-start 04 2015

Beneficiary

SM-Metropolitan JSC

OPT 2007-2013

MS “Druzhba” – start 04 2015

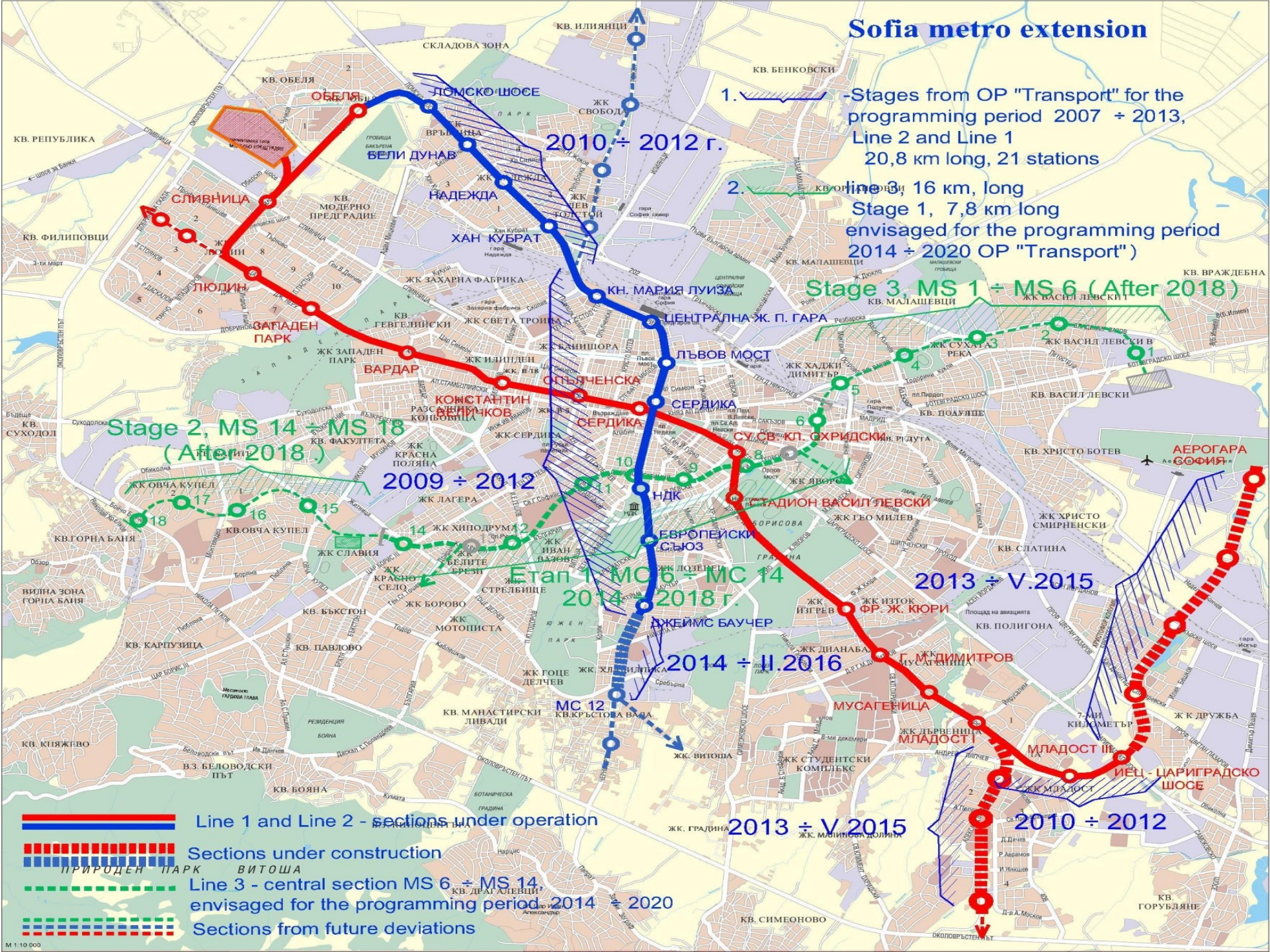


Part 1

**General information on the Sofia Metro Extension
Project – Beneficiary: Metropolitén JSC**

**A/ Sections completed in the Programming Period
2007-2013**

Sofia metro extension



1. - Stages from OP "Transport" for the programming period 2007 ÷ 2013, Line 2 and Line 1 20,8 km long, 21 stations

2. - Line 3, 16 km, long Stage 1, 7,8 km long envisaged for the programming period 2014 ÷ 2020 OP "Transport")

Stage 3, MS 1 ÷ MS 6 (After 2018)

Stage 2, MS 14 ÷ MS 18 (After 2018)

2009 ÷ 2012

Etap 1, MS 6 ÷ MS 14 2014 ÷ 2018 г.

2013 ÷ V.2015

2014 ÷ II.2016

2013 ÷ V.2015

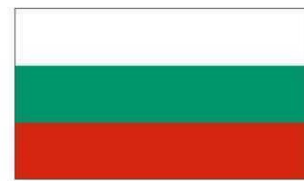
2010 ÷ 2012

Line 1 and Line 2 - sections under operation

Sections under construction ПРИРОДЕН ПАРК ВИТОША

Line 3 - central section MS 6 ÷ MS 14, envisaged for the programming period 2014 ÷ 2020

Sections from future deviations



Transport situation in the capital of R. Bulgaria

- Population of Sofia as of 2012 including the temporary inhabitants
- Annual increase during the last 5 years
- Number of registered vehicles in 2014
- Traffic jams along the busiest directions
- Trips duration in rush hours
- Traffic speed of Mass Public Transport in rush hours/without metro/
- Average transport capacity of the MPT lines /without metro/
- Load along the busiest directions /along the metro L 1, L 2 and L 3/
- Duration of a trip by metro from the city suburbs to the center
- Transport capacity of Sofia Metro
- more than 1.5 mln. people
- 10- 20 thousand a year
- more than 850 000
- more than 1.5-3 hours/daily
- more than 40 - 60 min.
- 8 - 12 km/h
- 4 - 8 thousand pass./hour
- more than 20-30 th.p./hour
- 10-15 min. in each hours
- 40- 50 thousand pass./hour

The above said requires an expedited construction of the metro extension along the three main directions of the city,





Stages in the implementation of Sofia Metro Extension Project included in the OP “Transport” 2007-2013y up to 2015y

Sofia metro extension Project is divided into three stages:

Stage I: Metro section from Line 2 – „Nadezhda Overpass-Center-Lozenets quarter” 6,5km long with 7 metro stations. Construction duration: 2009-2012.

Total cost stage I - 247 mln. euros

Stage II: Lot 1- metro section „Obelya RD-Nadezhda Overpass”, 4,2km long, 4 metro stations, connection and depot extension and 12 trains. Construction duration: 2010-2012

Lot 2- metro section „Mladost I RD-Tsarigradsko shose blvd. “ , 2,2km long, 2 metro stations and 6 trains. Construction duration 2009-2012.

Total cost-stage II 280mln. euros

Stage III: Lot 1-metro section „Tsarigradsko shose blvd. –Druzhba RD-Airport“, 5km long, 4 metro stations and joint metro and railway station. Construction duration: 2013-2015

Lot 2-metro section „Mladost I RD-Business Park“ 2,7km long and 3 metro stations. Construction duration: 2013-2015. Total cost stage III – 119 mln. euros

Share in the Public Transport System after Stage III- 30%



MS "Lavov Most"

MS "European Union"

Stage I: "Nadezhda Overpass – Central Railway Station – Cheni Vrah blvd" – 31.08.12

MS "Serdika"

Archaeological finds at MS "Serdika"





MS Beli Dune



Station MS Mladost III

Stage II, Lot 1 and Lot 2: commissioned on 25.04.2012

MS Al.Malinov

MS A. Balan





Construction of a station using an arch structure according to the New Austrian Tunneling Method /MS Serdika II/



Construction of a station open method

Connections with the national network



B/ Sections which implementation is included in the next Programming Period 2014-2020 of OP Transport and Transport Infrastructure

Lane 3: Stage 1 /OP TTI-2014-2020/

“VI. Vazov blvd. – Orlov most - NDK – Bulgaria blvd. – Krasno selo quarter” - 8 km and 8 metro stations.

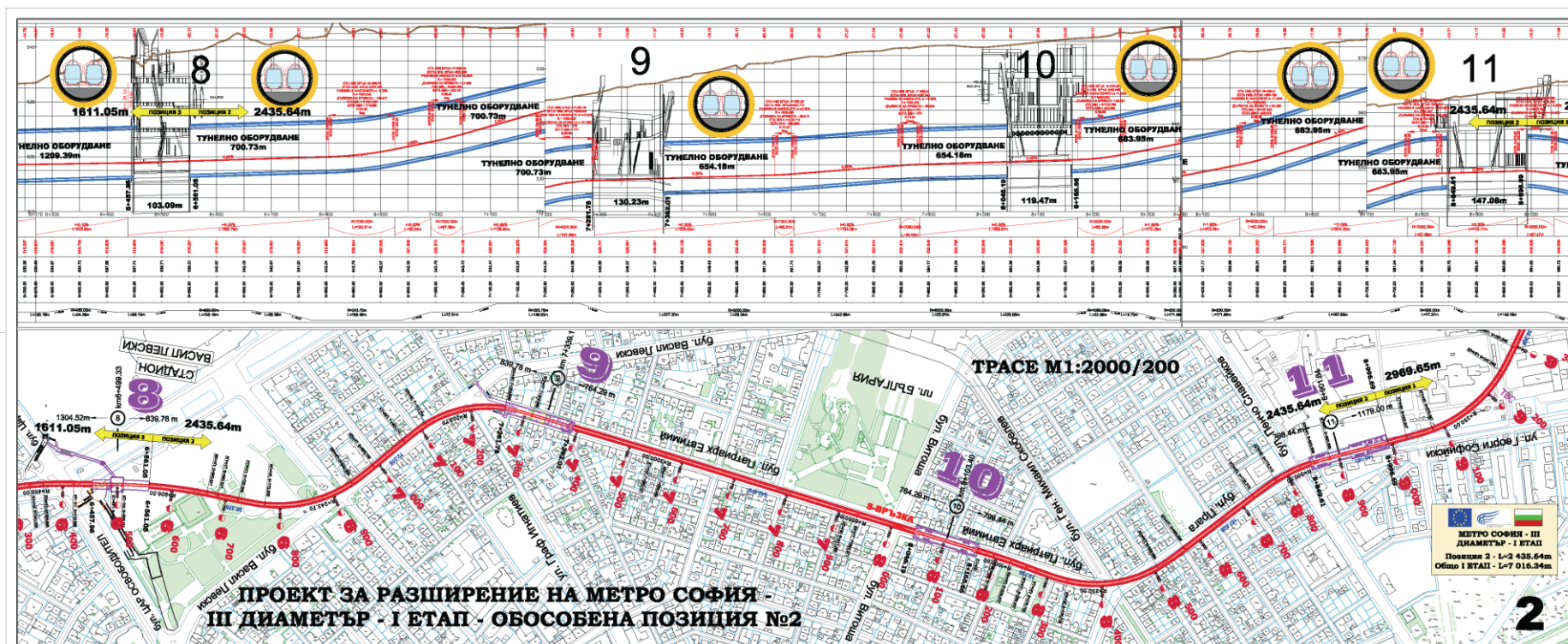
Construction – tunnels under shield method, metro stations –open method, with the exception of MS “Orlov most”.

Status – tender for selection of contractors and Engineering consultant.

Duration of construction– 3 years and 6/9/months.

Prognosticated start – start construction - 2016y. Depot and rolling stock - duration of 2,5 and 3 years. Start – 2016y.

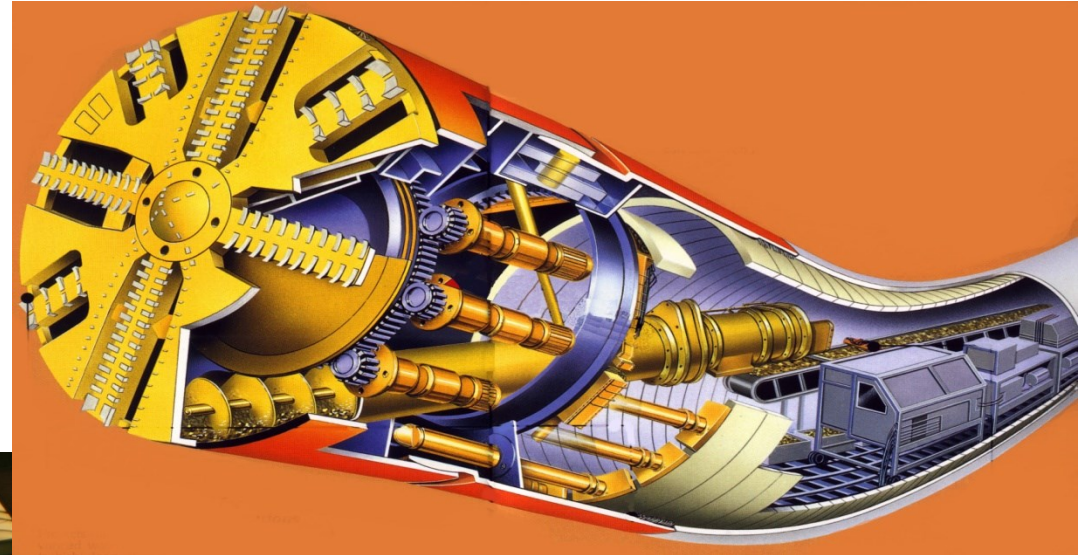
Plan, longitudinal profile and section of the tunnels in the central city part from the route from Line 3



General view of the tunnel boring machine with pressure in the head and diameter of 9.40 m – for section “Krasno Selo – Off The Channel Theatre ”

General structure

View of the similar German machine used in the Line 2
- Manufactured by Herrenknecht Germany



Преминаване на машината през метростанция





Economic Indexes

Stage	Construction period years	Investment Value (mill EUR)	Economic Rate of Return %	Economic Payback Period (years)	Benefit-Cost Ratio (times)
Stage I <i>6,4 km - 7 metro stations</i> "Road junction Nadejda - Cherni Vrah Blvd."	2009-2012	247 (157)	16,56	9	2.70
Stage II <i>6,5 km - 6 metro stations</i> Lot 1 "Obelya – Nadezhda" Lot 2 "Mladost I – Tsarigradsko Shose"	2010-2012 2009-2012	311 (200)	10,00	14	1.85
Stage III <i>7,7 km - 7 metro stations</i> Lot 1 "Tsarigradsko Shose Blvd. – Sofia Airport" Lot 2 "Mladost 1 RD – Business Park in Mladost 4"	2012-2015 2013-2015	120 (116)	7,05	18	1.36
Stage I of Line 3 <i>7,8 km – 8 metro stations</i> "Vladimir Vazov Blvd. – Centre – Zhitnitsa str."	2015-2020	433 (341)	5,70	19	1.12

* Investment value of eligible costs ** Community Assistance is presented in brackets



Public benefits from the completion of Stage I, Stage II and Stage III from Sofia Metro extensionn project and from the future Line 3

Public benefits	Measure	2012/with Stage 1 and 2/	2015/with Stage 3/	2020 /after Stage 1-L3/
Length	Km	31/27MS	40km/35MS	48km/43MS
Number of carried passengers	Th. daily	280	380	550
Share in the system of Mass public transport	%	24	30	over 45%
Traffic reduction	%	18	25	35
Reduction of road accidents	%	12	18	25
Connections with the national network	number	1	2	3
Connections with tram lines	number	9	10	14
Connections with bus and trolley lines	number	31	37	over 55
Number of passengers transfers per day	Th.	95	110	over 180
Reduction of noxious gasses per year	Th. Tons	59	79,5	110
Saved time for the citizens daily	Th. hours	75	115	160

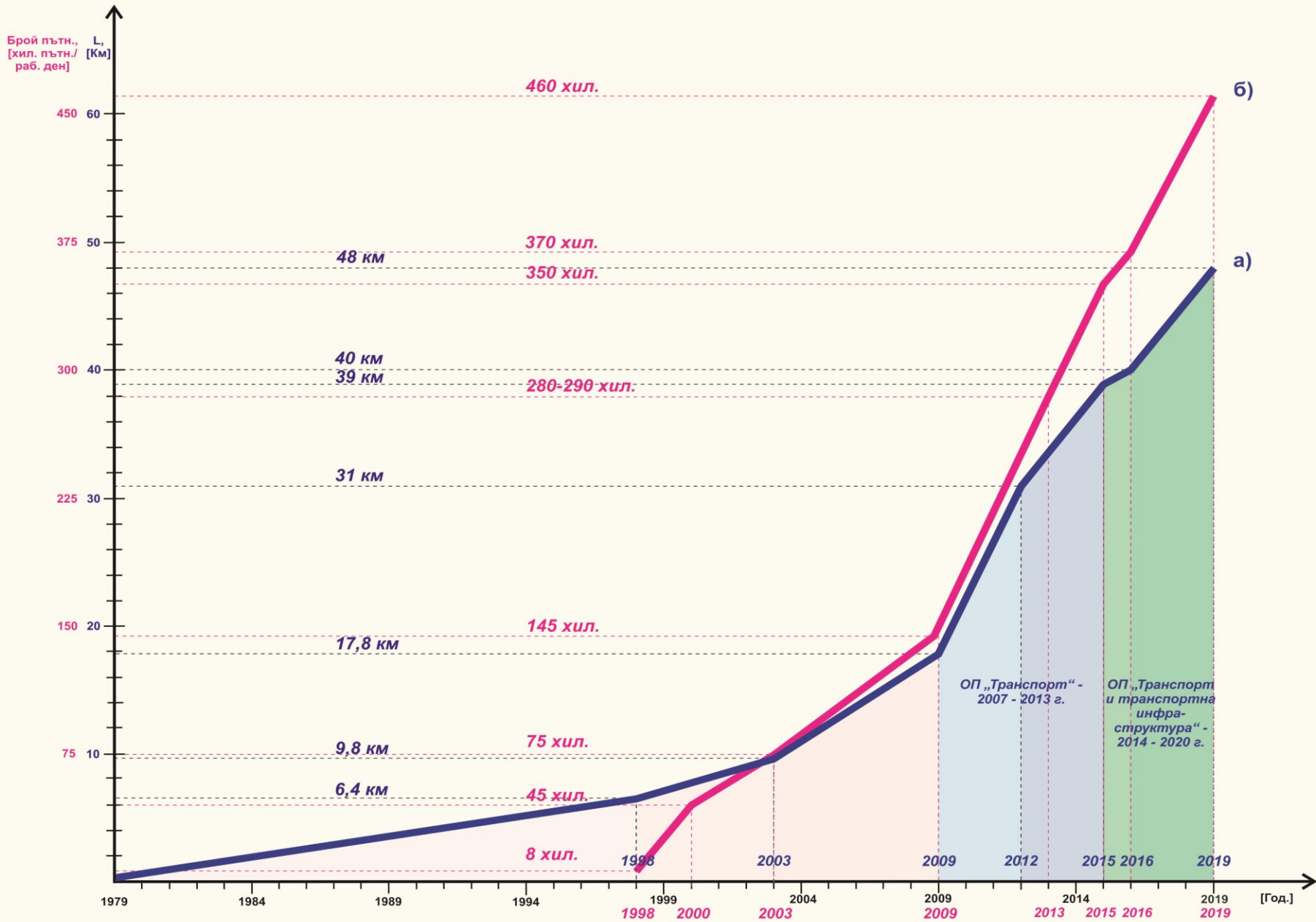
- High carriage capacity - 50 thousand passengers/hour
- High travel speed - up to 80 km/h
- Duration of traveling time to the Centre of the city 10-18 min



Distribution of Socio-economic benefits of the project

Benefit	Stage I PV (EUR)	Stage II PV (EUR)	Stage III PV (EUR)	Total	%
Total Value of Time	623 493 834	371 109 817	195 253 915	1 189 857 566	66%
Total Vehicle Operation Costs	183 146 276	85 334 113	55 082 319	323 562 707	18%
Total Decrease of Accidents	151 449 864	72 776 722	26 660 545	250 887 131	14%
Total Decrease of Emission Costs	20 322 905	16 279 320	8 186 966	44 789 191	2%
TOTAL ECONOMIC BENEFITS	978 412 879	545 499 972	285 183 745	1 809 096 596	100%

Benefit	Measure	Stage I	Stage II	Stage III
Saved time a day	Hours	19 300	13 420	4 755
Reduction of CO2 emissions per year	Tons	11 500	9 899	2 600





CHAPTER 2

**Transport Public Services provided by the transport operator –
Metropoliten EAD**

**Public Service Contract according to EU Regulation 1370/2007
signed following recommendation from JASPERS and
prepared by EIB consultants hired by Sofia Municipality**



Public Service Contract (1)

- **Contract parties** – tree parties

Sofia Municipality and Urban Mobility Center - Clients
Metropoliten EAD - operator

- **Contract date** - 05.12.2013
- **Period of the contract** – 15 years
- **Annual transport volume of services** – According to annual transport task approved by the Client with the decision of Sofia Municipal Council
- **Financial parameters** – The annual financial frame for execution of the transport task is defined every year by the Client with the decision of Sofia Municipal Council



Public Service Contract (2)

- **Terms subject of control from of the Client :**
 - Rights and Obligations of the Operator
 - Report and Monitoring – daily, monthly, quarterly, annually
 - Payments and monthly invoicing
 - Sanctions, control and audits – on base of monthly report and control
- **Annexes to be submitted to the Client:**
 - Business planning and Financial frame
 - Tariffs, Financial reports, Assets
 - Operation plans and schedules
 - Methodology for reporting and quantifying the transport work
 - Indexes of Quality of service, stimulus and sanctions
 - Methodology for defining of Compensation, etc.



Economic Frame and Revenue Reporting

- **The Client defines routes, schedule and kilometers for every year according to the demand for transport service**
- **On the annual base the following parameters are forecasted:**
 - **sales of tickets and passes for the whole public network and only of the operator**
 - **the amount of compensation for preferential trips**
 - **the number of passengers**
 - **revenues of the operator:**
 - **Share of revenues from passengers using passes for the whole public network**
 - **Share of revenues from sale of tickets by the operator**
 - **Share of compensation for preferential trips**
 - **Other revenues**



Compensations

- Pursuant to the Contract for Public Transport of Passengers and **Regulation (EC) No 1370/2007** the compensation **should not exceed the net financial effect-costs less the revenues and reasonable profit**
- Compensations received by transport operators follow the **Methodology for the allocation of compensation for tariff obligation of Sofia Municipal Council**
- **“Reasonable profit”** - rate of return on capital that is normal for the sector - in the Bulgarian legislation is set to **maximum 5 percent of the total costs** for providing the compensated transport services
- In case that provided funds as Compensation for a public service exceed the **amount of the operating expenses and 5% reasonable profit, reduced by own revenues of the Operator, the excess of compensation must be reimbursed within 20 days** after completion of the respective reporting period.

Methodology for distribution of compensation

1. Vehicle capacity – VC and base carriage capacity BC.c. /lowest capacity of all the operators/
2. Coefficient of reduction of run (Crr) = Carriage capacity/ Base carriage capacity
3. Reduced run= Crr x Route run
4. Coefficient of distribution (C distrib.)=Reduced run of operator/ Total of reduced runs of operators
5. Number of passengers with discounts by operator = C distrib. of operator x Total discounted trips
6. Compensation of tariff duty of operator = C distrib. x Total amount of compensations under Regulation 2

It is set for compensations by the state and compensations by the municipality by types of discounted trips compensated by the state and municipality. Each 6 months it is updated of the parameters if there is a change exceeding 5%.



Structure of Service Costs

- **Variable costs**
 - Costs for materials and fuel
 - Electricity
 - Spare parts, etc.
- **Fixed costs**
 - Protective equipment
 - Work clothing
 - Expenses for external services
 - Security
 - Maintenance
 - Salaries of staff of the exploitation
 - Depreciation
 - Other operating expenses



Business Plan of the Operator

- Planned Vehicle kilometers
- Planned Heavy maintenance and Maintenance
- Planned Costs for electricity
- Planned Costs for Security, External services and other expences
- Forecast of revenues from different sources:
 - own revenues from sale of tickets
 - from passes for the whole public network
 - from rent and advertising
 - Corrections due to sectionals for outstanding mileage
- Cost price of transport service

Intermodal connections of the lines of the middle term scheme of metro development (up to 2020 - 2022) with the other transport types





CHAPTER 3

COORDINATION AND CONSULTATIONS WITH JASPERS



ASSISTANCE FROM JASPERS' CONSULTANTS WITHIN THE PERIOD 2007-2014

- **Start in June 2007** - Introduction to the project (I-st stage) and initial review of documents prepared by Metropolitan company
- **2007 -2009** – Meetings and Comments on CBA and AF of the **I stage of Sofia Metro Extension project**
- **2010-2011** - Meetings and Comments on CBA and AF of the **II stage of Sofia Metro Extension project**
- **2011 -2012** - Meetings and Comments on CBA and AF of the **III stage of Sofia Metro Extension project**
- **2008-2014** - preparation by JASPERS of **Completion Notes** for every stage
- **2009 -2014** - Review, coordination and consultations regarding the preparation of **answers to comments to the questions of the EC**, before receiving the final approval from the Commission

During the whole work process continuous contacts with the Jaspers' experts were kept by emails or phone calls to settle different problems and coordinate texts.



MAIN ISSUES DURING THE PREPARATION OF THE APPLICATION DOCUMENTS

○ Related to the preparation of the documents:

- **Correct and Update the Cost-Benefit Analysis** - by following the recommendations of JASPERS additional data for the transport in Sofia was included; project costs were increased by including the rolling stock as part of project costs
- **Recalculation of the economic benefits** – by following the recommendations of JASPERS new unit values were used applicable for Bulgaria, for example value of time per hour

○ Related to the financing:

- **insufficient funds in the OP Transport and increase labor costs and costs for materials from 2008 to 2012**

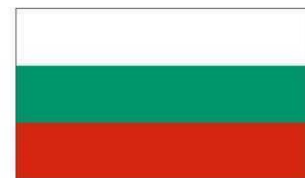
Solution 1- Repeat the tender for selection of contractors at Stage 1 in April - August 2008 and the investment costs were reduced by 42 mln. euro

Solution 2 - Additional financing was provided by Sofia Municipality amounting to 61 mln. euro to cover the difference between available funds at OPT and tender price; EIB provided loan amounting to 105 mln. euro for additional financing of the next stages of the project



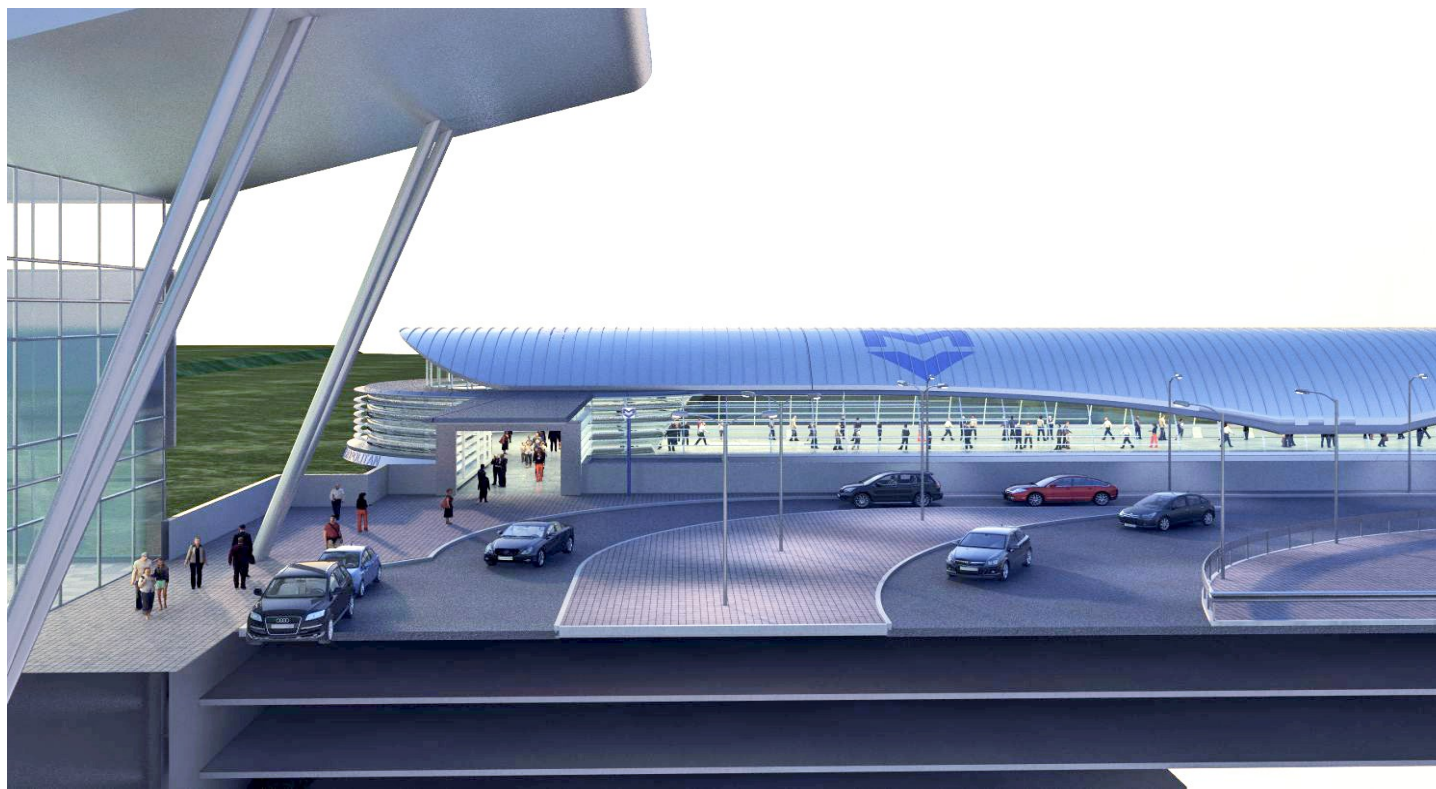
MAIN AREAS OF ASSISTANCE FROM JASPERS

1. **General reviews** of Cost – Benefit Analyses and Application forms (Regulation EC1083/2006”)
2. Recommendations regarding **Traffic analysis** - assessment of actual data from the General Master Plan for demand and supply of transport service; methodology for traffic surveys
3. Recommendations regarding **Option analysis** – presentation of alternative options considered at earlier stages
4. Recommendations regarding **Project Costs** - update of project costs with actual investments costs according to the tender price
5. Recommendations regarding **Economic analysis** - unit values for Bulgaria of saved time, harmful emissions and other benefits; excluding tickets’ revenues form the project benefits
6. Recommendations regarding the use of Information for **Environmental Impact Assessment**
7. Recommendations regarding **Appendixes** - submission of additional information and maps
8. Consultations regarding the **contents and update of the documents**
9. Consultations regarding preparation of **answers to comments and questions from EC**



Thank you for your attention !

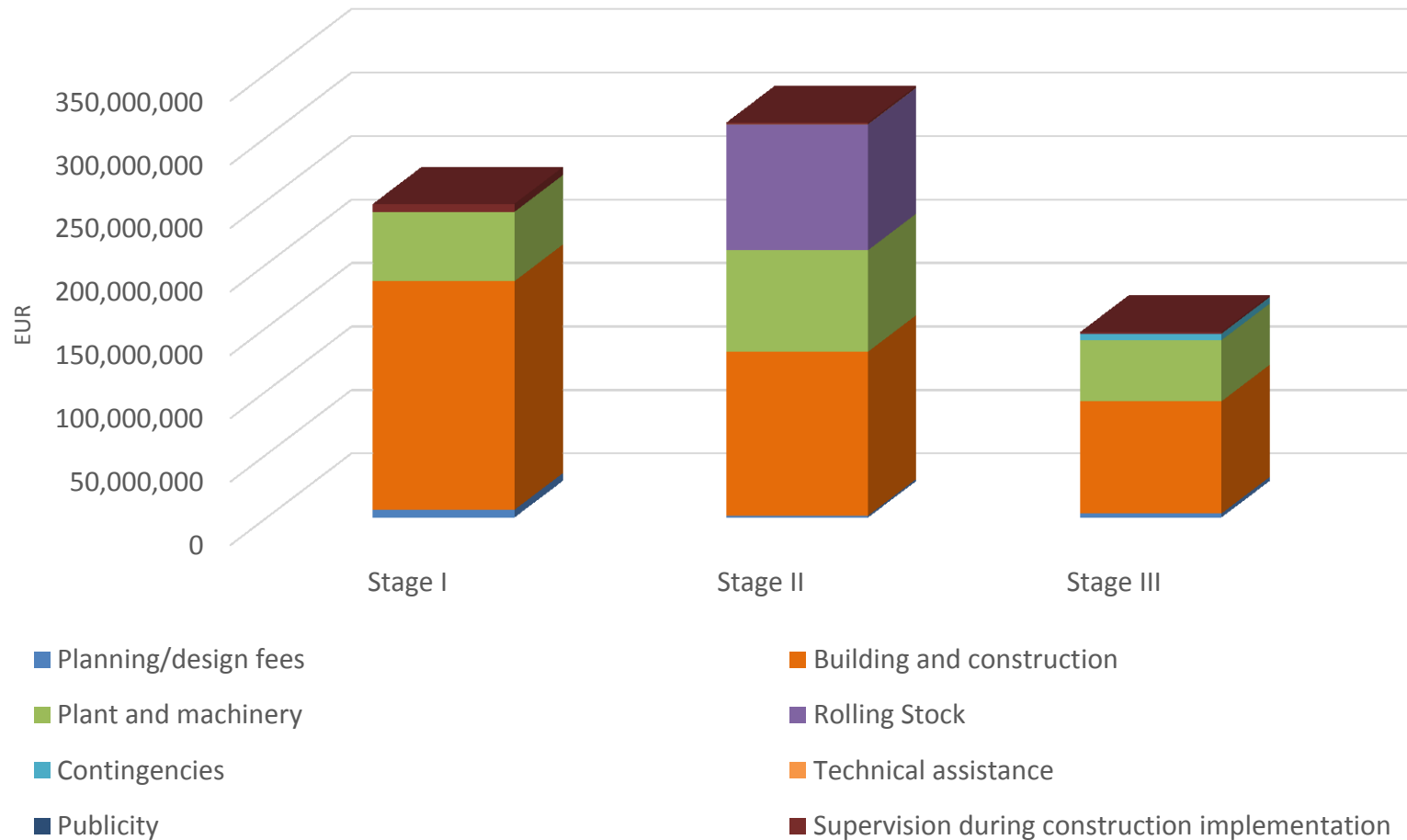
**Prof. PhD, eng. Stoyan Bratoev
Consult. Rozalina Kozleva
Metropoliten JSC 27-28. 05..2014**



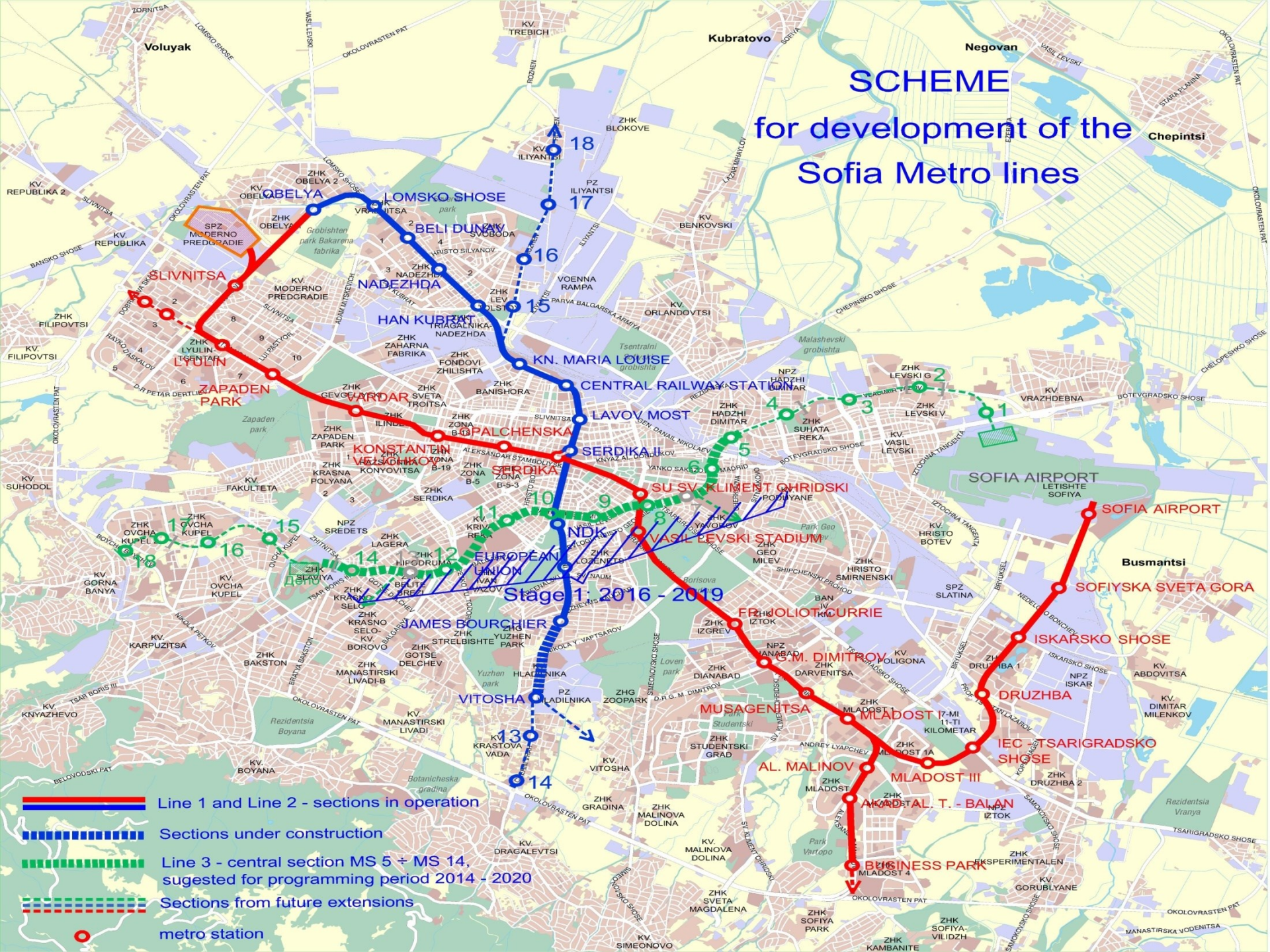







Investments

Structure of Eligible costs



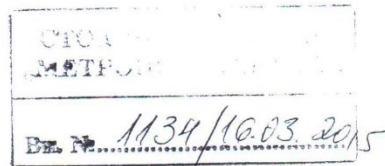
SCHEME for development of the Sofia Metro lines



-  Line 1 and Line 2 - sections in operation
-  Sections under construction
-  Line 3 - central section MS 5 ÷ MS 14, suggested for programming period 2014 - 2020
-  Sections from future extensions
-  metro station



Изх. № 919 / 14.03.2015 г.



ДО
МЕТРОПОЛИТЕН ЕАД

УВАЖАЕМИ ГОСПОДА,

С Решение № 634/21.11.2013 г. са одобрени и подписани Договорите за възлагане на обществен превоз на пътници между Столична община, Център за градска мобилност ЕАД, Столичен Електротранспорт ЕАД, Столичен Автотранспорт ЕАД и Метрополитен ЕАД, които са в сила от 01.01.2014 г.

Съгласно чл.11,1,1,1 от Договорите, разпределението на компенсациите за тарифно задължение по реда на Наредба № 2 на МФ и допълнителните компенсации за тарифно задължение по наредба за превоз на пътници на СОС, се извършва по методиката, описана в Приложение № 16 „Методика за разпределяне на компенсацията за тарифно задължение”.

На основание гореспоменатите обстоятелства, за периода 01.02.2015 г. – 28.02.2015 г. начислените средствата за компенсации за тарифно задължение от Държавния бюджет и от бюджета на СО, са разпределени както следва:

Транспортни оператори	ОБЩА СТОЙНОСТ НА РАЗПРЕДЕЛЕНАТА КОМПЕНСАЦИЯ ЗА ТАРИФНО ЗАДЪЛЖЕНИЕ ОТ ДБ БЕЗ ДДС в лева	КОМПЕНСАЦИЯ ЗА ТАРИФНО ЗАДЪЛЖЕНИЕ ОТ СО БЕЗ ДДС в лева
Метрополитен ЕАД	453 680.25	1 484 273.88

С уважение,
Симеон Арнаудов
Изпълнителен директор





For info or further questions on the JASPERS Networking Platform, please contact:

Massimo Marra
JASPERS Networking and Competence Center
Senior Officer
ph: +352 4379 85007
m.marra@eib.org

www.jaspersnetwork.org

jaspersnetwork@eib.org