

## PARTNERS

The 19 partners of MAINLINE have been chosen to bring a mix of competencies and experiences into the consortium as well as to ensure a suitable geographical coverage across Europe (11 countries are represented):

### INFRASTRUCTURE MANAGERS:

- » The International Union of Railways (UIC), France;
- » Network Rail Infrastructure Limited, United Kingdom;
- » Deutsche Bahn, Germany;
- » MÁV Magyar Államvasutak, Hungary;
- » TCDD, Turkey;
- » TRAFIKVERKET, Sweden

### INDUSTRY PARTNERS:

- » COWI, Denmark;
- » TWI, United Kingdom;
- » COMSA, Spain;
- » SKANSKA, Czech Republic;
- » Jacobs/SKM, United Kingdom

### UNIVERSITIES:

- » University of Surrey, United Kingdom;
- » University of Minho, Portugal;
- » University of Luleå, Sweden;
- » Polytechnic University of Catalonia, Spain;
- » Graz University of Technology, Austria



### SMEs:

- » ARTTIC, France;
- » DAMILL, Sweden

### A GOVERNMENTAL ORGANISATION:

- » Cerema, France

## CONTACTS

### MAINLINE Project Coordinator

Björn Paulsson, Senior Adviser

UIC / TRAFIKVERKET

Phone: +46 70 72 45 620

E-mail: [bjorn.paulsson@trafikverket.se](mailto:bjorn.paulsson@trafikverket.se)

### MAINLINE Project Office

ARTTIC

58 A rue du dessous des Berges 75013 Paris - FRANCE

Phone: +33 (0)1 53 94 54 88

E-mail: [mainline-team@eurtd.com](mailto:mainline-team@eurtd.com)

**MAINLINE Website:**

<http://www.mainline-project.eu/>

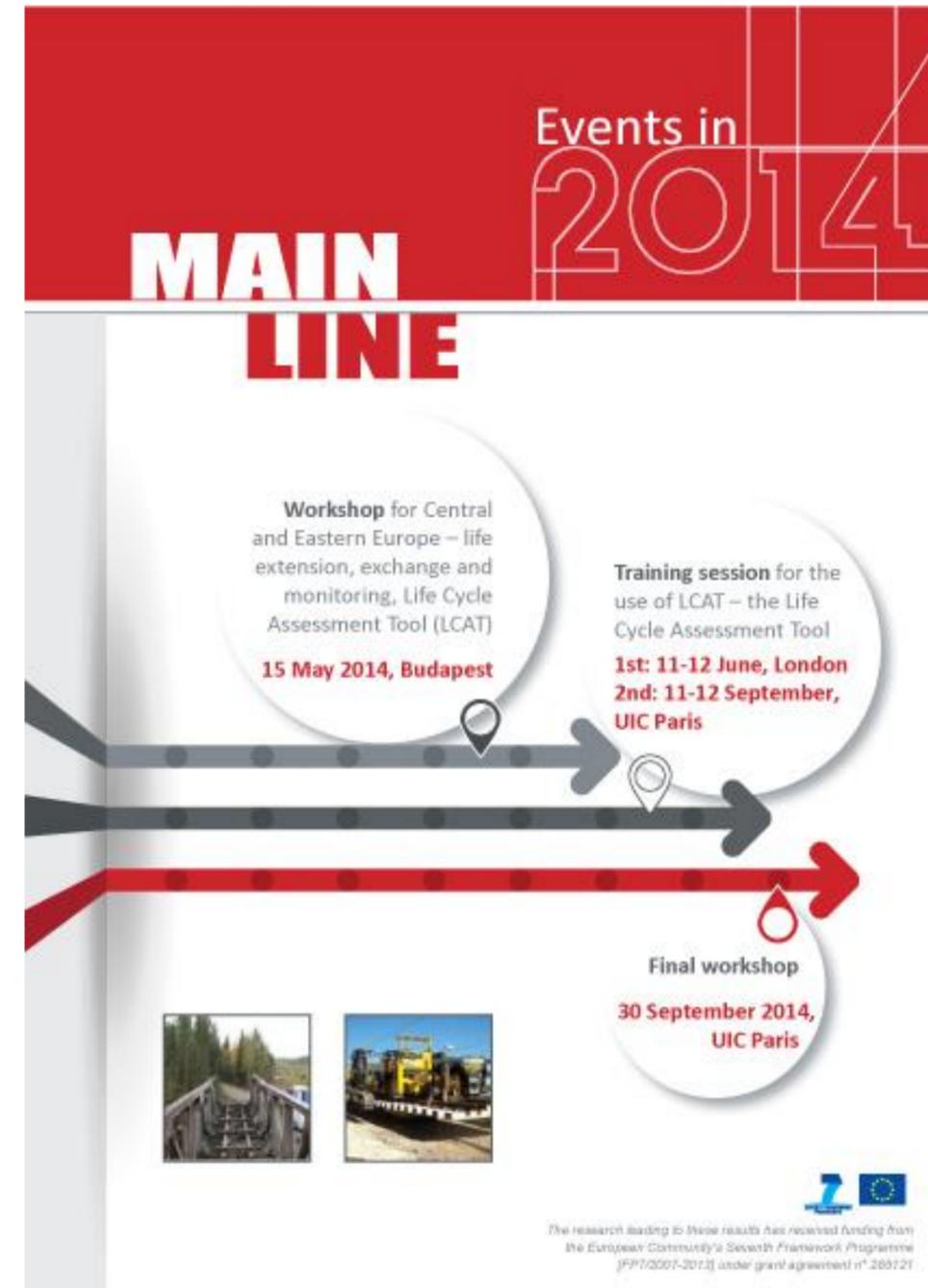
## MAINLINE FINAL RESULTS AVAILABLE

The MAINLINE project, launched on 1<sup>st</sup> October 2011, as now reached its end.

During the whole project period, **26 technical deliverables** have been prepared. 24 of them are available on the [Results section of MAINLINE Public Website](#), and you are invited to read them.

MAINLINE has organised the following events in 2014.

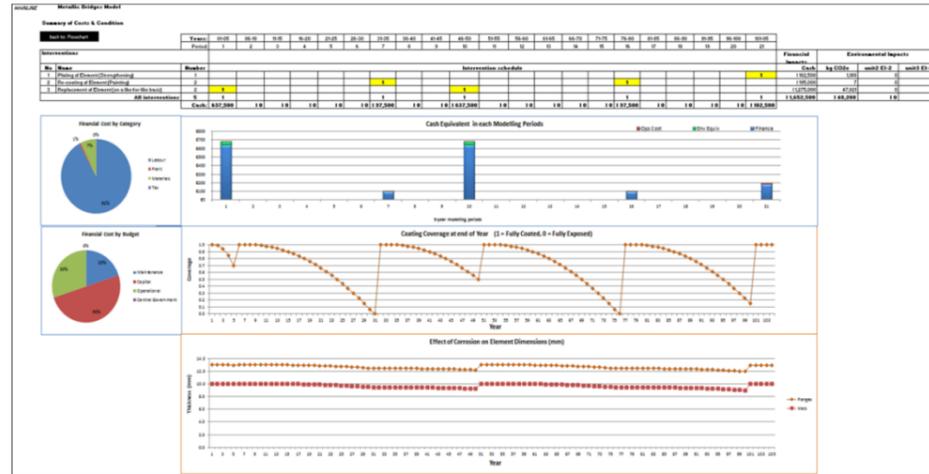
The presentations of both workshops are available on the [Events section of the website](#).



The MAINLINE project has received funding from the European Community's Seventh Framework Programme [FP7/2007-2013] under grant agreement n° 285121

MAINLINE's main outputs

**Life Cycle Assessment Tool (LCAT)** that evaluates whole life environmental and economic impact for maintenance and renewal activities of three specific rail assets – bridges, track and earthworks – and the corresponding user manual



**MAINLINE**

MAINTenance, renewal and Improvement of rail transport iNfrastructure to reduce Economic and environmental impacts

Collaborative project (Small or medium-scale focused research project)  
Theme SST.2011.5.2-6.: Cost-effective improvement of rail transport infrastructure

**Deliverable 5.7:**  
Manual for a Life Cycle Assessment Tool (LCAT) for Railway Infrastructure  
Metallic Bridges, Track and Soil Cuttings

Grant Agreement number: 285121      SST.2011.5.2-6.  
Start date of project: 1 October 2011      Duration: 36 months

Lead beneficiary of this deliverable:      Jacobs/GKM  
Due date of deliverable: 31/09/2014      Actual submission date: 10/09/2014  
Release:      Final

Project co-funded by the European Commission within the 7th Framework Programme	
Dissemination Level	
PU	Public
PP	Restricted to other programme participants (including the Commission Services)
RE	Restricted to a group specified by the consortium (including the Commission Services)
CO	Confidential, only for members of the consortium (including the Commission Services)

Life Cycle Assessment Tool (LCAT)

The Life Cycle Assessment Tool (LCAT) can compare different maintenance/replacement strategies for track and infrastructure based on a life cycle evaluation. This evaluation quantifies direct economic costs, availability and environmental impact costs. Three models have been developed in the project: one for metallic bridges, one for plain track and one for soil cuttings.

Asset Degradation and intervention strategies

Work has been focused on performance cycles. A deterioration model has been developed for soil cuttings, track, metallic bridges and concrete lined tunnels. Model validation has been carried out and could be extended as more field data become available.

Methods to extend Life of assets

Three bridges located in Sweden have been tested: one trough bridge and two metal truss bridges. For the Åby bridge an analysis and test to failure was performed after the bridge was moved to be replaced. A guideline for the application of the new technologies that can be used by infrastructure owners and their consultants and contractors was produced, in the form of deliverable D1.4 "Guideline for application of new technologies to extend life of elderly rail infrastructure".

Guideline to the application of new technologies to extend life of elderly rail infrastructure

Guideline for replacement of elderly rail infrastructure

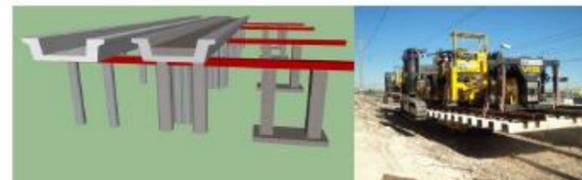
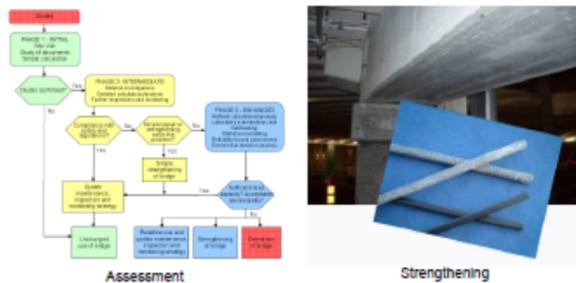


MAINLINE

MAINLINE

MAINTenance, renewal and Improvement of rail transport iNfrastructure to reduce Economic and environmental impacts  
Collaborative project (Small or medium-scale focused research project)  
Theme SST.2011.5.2-6.: Cost-effective improvement of rail transport infrastructure

MAINTenance, renewal and Improvement of rail transport iNfrastructure to reduce Economic and environmental impacts  
Collaborative project (Small or medium-scale focused research project)  
Theme SST.2011.5.2-6.: Cost-effective improvement of rail transport infrastructure



**Deliverable 1.4:**  
Guideline for application of new technologies to extend life of elderly rail infrastructure

**Deliverable 3.4:**  
Guideline for replacement of elderly rail infrastructure

Grant Agreement number: 285121      SST.2011.5.2-6.  
Start date of project: 1 October 2011      Duration: 36 months  
Lead beneficiary of this deliverable:      LTU  
Due date of deliverable: 30 June 2014      Actual submission date: 2014-09-29  
Release:      Final version

Grant Agreement number: 285121      SST.2011.5.2-6.  
Start date of project: 1 October 2011      Duration: 36 months  
Lead beneficiary of this deliverable: ARTTIC      Participant short name: ARTTIC  
Due date of deliverable: 30/09/2014      Actual submission date: 26/09/2014  
Release:      Final Version

Project co-funded by the European Commission within the 7th Framework Programme	
Dissemination Level	
PU	Public

Project co-funded by the European Commission within the 7th Framework Programme	
Dissemination Level	
PU	Public
PP	Restricted to other programme participants (including the Commission Services)
RE	Restricted to a group specified by the consortium (including the Commission Services)
CO	Confidential, only for members of the consortium (including the Commission Services)

Replacement of assets

Work has been focused on the investigation of construction methods that minimise the time and cost required for replacement of old infrastructure. The final result is a "Guideline for replacement of elderly infrastructure" (D3.4), in which costs, economical factors, logistics needed and environmental impact of selected techniques are presented. Infrastructure Managers will thus find guidance on how to determine the suitable methods corresponding to their specific demands.

Degradation Monitoring: gaps and opportunities

The final deliverable is a "Report on monitoring and examination case studies", in which two bridge case studies and one cuttings case study are presented. They were designed to validate new approaches to monitoring and examination for improved asset management.

Summary of MAINLINE results



MAINLINE final results are presented in more detail in the book available on the website main page