

Nantes  Mētropole  
C O M M U N A U T É U R B A I N E

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# **SYMPOSIUM INTERNATIONAL**

LCA & construction 2012



## Context

Nantes Métropole as an owner  
Choice and objectives of the LCA concepts

### **Description of actions in Nantes Métropole**

Climate Plan axes of Nantes Métropole  
Mobilization of public institutions

### **Actions on municipal road network in the structure and materials unit**

Action N° 1 : Use environmentally friendly materials  
Action N° 2 : Enhance the value of materials

### **Deploy the use of an eco-comparator**

Seek for a software recognised and used by public works companies

### **Integrate Sustainable Development criteria in call for tenders**

Environmental assessment of technological variants:  
Software validation, choice of weighting factors



# Climate Plan axes in Nantes Métropole

CO2 emissions

6%



- Exemplary nature of the Institution

Contribution of functional action plans of the metropolis

94%



- Mobilization of public policies

Contribution of 10 public policy themes

**Travels**



**Environment**



**Higher Education, research, and innovation**



**Water**



**Economical development of the territory**



**Urban development of territories**



**Employment**



**Habitat**



**Energy**



**Public Spaces**



- Animation of territory



## Contribution of public policies

- 127 contributing actions issued from action plans inside themes of public policies

### Public spaces



Contributing actions to the Climate Plan

- Action 1 : use environmentally friendly materials
- Action 2 : enhance the value of materials

### INDICATIONS

> Reuse of fills:

between – 1,000 and – 10,000 tons of CO2 eq/year

> Road network, 1 year extend of service life for asphalt pavements :

between – 1,000 and – 10,000 tons of CO2 eq/year



## Description of actions on road network at the Structure and materials Unit

### **ACTION N° 1**

Use environmentally friendly materials

#### **-Orientation :**

- Constructions using fossil energy saving materials
- Minimize energy consumption of asphalt concrete manufacturing

#### **-Choice of actions :**

- Integrate deconstruction materials inside natural aggregates from quarry to obtain gradings in conformity with standards
- Enhance use of cold or warm asphalt concrete with equal performances.

#### **-Objectives :**

- Integrate environmental variants into call for tenders



## Description of actions on road network at the Structure and materials Unit

### **ACTION N° 2**

Enhance the value of materials

#### **Orientation :**

- Limit transports by using in-situ technologies
- Organize the reuse of recovered materials

#### **Choice of actions :**

- Incorporate deconstruction materials within the limits of available stocks.
- In-situ treatment of fills, roadbeds and road foundations after performance assessment.

#### **-Objectives :**

- Standardize recovered materials and integrate them into the French road structure design methods.



## **Deploy the use of eco-comparator.**



### **Orientation :**

- Propose the use of LCA based software as a common tool for road building companies.

### **Choice of actions :**

- Acquire the software, educate the designers of Nantes to the use of the software.

### **-Objectives :**

- Assessing environmental variants with objectivity.





## **Integrate sustainable development criteria into public call for tenders.**

### **Orientation :**

- On the basis of LCA software, assess proposals of companies on the basis of a minimum set of indicators:
- Energy consumption.
- GHG Emissions.
- Aggregates consumption.
- Aggregates recycling

### **Choice of actions :**

- Organize advices to fulfill orientation within the frame of regulations

### **-Objectives :**

- Assessing environmental variants with objectivity.



## Long term objectives

### Towards the « ideal » tool:

- On the basis of history of the road network, to be able to calculate global investment costs for:
- comforting choices of environmental variants on their life duration time.
- measure impacts of economical variants.
- establish a long term management planning using past experiences.
- propose maintenance scenarios

### Choice of actions :

- Couple a database on the road network state, with a Life Cycle Assessment tool and structural design tool, identify the impacts of claim holders.

### Objectives :

- towards "ideal" road network management.