EUPAVE
EUROPEAN CONCRETE PAVING ASSOCIATION

POSITION PAPER
SUSTAINABLE URBAN MOBILITY

Concrete applications can make a difference for transport infrastructure in cities. They provide advanced and real solutions to improve urban mobility by enhancing safety, preventing congestion and reducing the environmental impact.

On 17th December 2013, the European Commission adopted its "urban mobility package" [1] consisting of:

- A Communication entitled *"Together towards competitive and resource-efficient urban mobility";*
- An Annex setting out the concept of *Sustainable Urban Mobility Plans;*
- And four Staff Working Documents on respectively:

- Urban logistics;
- Urban access regulation;
- Deployment of Intelligent Transport Systems in urban areas; and
- Urban Road Safety.

EUPAVE welcomes this initiative aiming to improve transport in cities. Sustainable urban mobility can improve citizens' quality of life. About 70% of the EU population lives in cities and most of the transport operations occur in a city or have urban areas as either the point of departure or destination. Congestion, air pollution and noise are some of the most important transport challenges faced by urban areas. On top of that, urban transport is responsible for about a quarter of CO_2 emissions from transport, and 69% of road accidents occur in cities.[2]

[1] COM(2013) 913 final + Annex 1 + SWD(2013) 524 to 529
[2] White Paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system /* COM/2011/0144 final */para 30

The package aims to reinforce the support to European cities for tackling urban mobility challenges and sets out in which areas the Commission will strengthen its actions on sustainable mobility. While conforming to the principle of technological-neutrality, the Commission should be also aware of all technical alternatives present in the market. Whereas many solutions are well recognised, less well known is the role that concrete pavements can play towards achieving sustainable urban mobility.

■ Tackling urban congestion and preventing traffic jams

- The low maintenance of concrete pavements increases availability and reduces road traffic congestion. Such low maintenance requirements mean that fewer road works are needed during the lifetime of the pavement. This translates into fewer interventions and less nuisance to citizens, who do not want to be greatly delayed by road works. Concrete pavements avoid disruptions in urban mobility and help to prevent traffic jams, saving millions of lost hours and millions of litres of fuel and thereby generating huge value for the urban community.

■ Less CO_2 and cleaner air

- Thanks to its higher rigidity, concrete pavement enables lower fuel consumption of heavy vehicles and subsequent CO_2 reduction.

- Concrete pavements can also help tackle the increasing problem of air pollution in densely populated areas and towns. Indeed it is possible to achieve an air-purifying effect by using TiO_2 (titanium dioxide) concrete pavements.

→

It acts as a catalyst, removing harmful compounds such as nitrogen monoxide and nitrogen dioxide (NO_x) from the air.

- Finally, the lower heat absorption of light surfaces such as concrete also contributes to reducing the warming effect that occurs in large urban areas. The "urban heat-island effect" leads to higher energy consumption by air-conditioning systems of buildings and consequently has a high economic and environmental price. Higher temperatures also encourage the formation of smog. Light-coloured pavements can play a beneficial role by limiting warming and reducing the likelihood of smog. In addition they require less energy for night-time illumination, allowing 20 to 30% cost savings.

■ Urban mobility and safety

- Safe solutions for mobility include the provision of roundabouts in plain concrete or continuously reinforced concrete. Roundabouts are critical points for urban mobility. Any disruption in this element of the road means serious effects on urban mobility. In addition to improving traffic safety due to increased visual perception of the route, these concrete roundabouts also reduce the number of points of conflict and limit maintenance operations;

- The visual appearance of through-roads, streets and squares is an important consideration in the urban environment. A wide range of concrete paving blocks, coloured exposed aggregate or imprinted concrete can be used in such locations, for purely aesthetic reasons or for an improved readability of the street.

■ Integration of different urban mobility modes

- Concrete pavements also permit the integration of different urban mobility modes. Increasing use is being made of concrete as a sustainable solution for the infrastructure used by public transport systems, whether buses, trams or trains. In this sense, dedicated bus and tram lanes in concrete offer a practical approach to public transport since they meet the long-term requirements of functionality, comfort, cost-efficiency and aesthetics. As they allow for faster routes into city centres, they become a sustainable and efficient solution to congestion with fewer emissions. In addition, non-deformable concrete surfaces are adequate for the installation of optical guidance systems for buses;

- Moreover, sidewalks and cycling paths meet the needs of the vulnerable road user. Concrete provides aesthetically pleasing and slip-free surfaces.

■ More value for public money

- Concrete pavement is the most economically attractive solution from the public finance point of view. Experience in other parts of the world has shown that if public procurement practices allow for competition between pavement types, concrete pavement has not only a life-cycle cost advantage but, increasingly, an initial investment cost advantage.

- Besides the aforementioned applications and road applications in general, concrete delivers superior performance in the field of sustainable construction, with a higher resilience, recyclability, and improved fire safety in tunnels.

- To learn more about these benefits of concrete pavements in the field of sustainable construction, we refer to our publication "Concrete roads: A smart and sustainable choice".

September 2014.

EUPAVE
EUROPEAN CONCRETE PAVING ASSOCIATION

EUPAVE
68, Boulevard du Souverain
1170 Brussels
Belgium

Tel: +32 (0) 2 790 42 06
Fax: +32 (0) 2 640 06 70
info@eupave.eu
www.eupave.eu