

C4.3 ROAD PAVEMENTS

Long life pavements, recycling and reduction of nuisance impacts from construction activities are of growing interest to the international highway community. PIARC Technical Committee 4.3 has studied these subjects within the 2004-2007 period. Below are the key recommendations that resulted from this work.

Recommendations for Road Decision Makers

- Roads and streets being investments, they should not only be looked at as initial expenses but also be evaluated in terms of benefits to users over the long term. These benefits include minimising hindrance at construction, and delivering good serviceability while maximising the economic performance of the investment.
- Many factors make Long Life Pavements attractive even though their initial costs may be higher. These include: reduced frequency of maintenance works, fulfilling better functional requirements over a longer period, better public image, reduced vulnerability, high potential for economic gains and increased sustainability.
- Many examples throughout the world have shown that this concept of Long Life Pavements is a reality, even though designs are not universal for every set of conditions. These pavements require high levels of quality in design, construction and maintenance. However, further performance monitoring and research are still needed.
- Economic and environmental gains resulting from recycling are so great that using recycled materials remains an option that inevitably should always be considered. Legislation and regulations assist in stimulating supply and demand for recycled pavement materials.
- It is important that information related to recycling is disseminated to the industry and to clients, in particular the benefits in terms of sustainable development, expected performance and whole life costing.
- Many means, either technological or managerial, have proved to be effective in reducing the impact of road works. Innovation still remains necessary to minimize these impacts even more in the future, including those needed to reduce congestion at road works.
- These developments should be directed by road administrations and road agencies, in order to encourage innovation by suppliers and contractors using a legal framework, client policy framework and appropriate contract conditions.

Technical Conclusions

- Many documented examples from several countries of successful long life flexible, semi-rigid and rigid pavements have been recorded. The factors that drive this high level of performance include: appropriate materials, high quality construction, high bearing capacity of the subgrade and subbase, effective drainage, quality of design and preventive maintenance.
- Urban pavements are complex elements of infrastructure that require an integrated planning and design approach combining durability, aesthetics and functional properties of materials.
- Sustainable development requires the minimisation of waste and the efficient use of materials. Barriers to the greater use of pavement recycling can be overcome for instance, by creating a climate beneficial for private investment in recycling technology.

- Access to full information on the benefits of recycling in the long run and clear objectives on sustainable development are key factors that foster development and implementation of pavement recycling techniques.
- Road works have a range of impacts on many stakeholders such as safety of drivers and workers, availability of the road to users, noise, vibrations, pollution (water, air and soils) of the surroundings and other types of nuisances. Most of the road agencies and road administrations have implemented laws, regulations and guidelines to minimize these impacts.
- Road work impact mitigation measures can be put in place at various stages of projects planning, design and preparation as well as during construction. An innovative and improved design as well as modifications to contractual requirements can reduce the duration and impact of works.

Recommendations for PIARC

PIARC should stay as a leading forum for all those involved in the road sector. Moreover, cooperation between experts in the field of urban infrastructures should be encouraged by international bodies such as PIARC.

More extensive exchanges of information and sharing of views between PIARC technical committees would be beneficial. One way of doing this could be by selecting a cross committee transverse topic at the beginning of a period, to be examined jointly under the leadership of the Strategic theme coordinator.

Committee TC4.3 suggests some topics of interest for future work:

- contribution of pavements to sustainability and the effects of climate change on pavements;
- evolution of pavement loadings and impacts on performance and design;
- pavement performance specifications and risk management; and,
- reducing pavement construction time and cost.