## INFRASTRUCTURE

Infrastructure describes the physical systems that provide transportation, energy, utilities and telecommunications to a society. It is a critical element for nations and businesses in the global economy, providing the means to trade in goods and services.

Infrastructure challenges appear to be universal: over one billion people in the world have no access to roads,[1] while in developed countries, infrastructure repair estimates can be in the trillions of dollars and are largely underfunded.[2] In many developed countries, aging infrastructures are in need of repair, upgrading or replacement, while in countries with emerging economies, rapid urbanization is creating demand for new infrastructure projects as they attempt to keep pace with population growth.

In the US, experts say the infrastructure is decaying. According to the 2013 Report Card for America's Infrastructure, the American Society of Civil Engineers gave the US infrastructure a near-failing grade of "D+", estimating that improving it will require an investment of $3.6 trillion by 2020. The Federal Highway Administration estimates that $170 billion in capital investment would be needed on an annual basis to significantly improve conditions and performance.


### Infrastructure and the Environment

A robust infrastructure can be good for the environment. In "10 Solutions to Climate Change," Scientific American Magazine reports that bad roads can lower the fuel economy of even the most efficient vehicle. Investing in new infrastructure, or overhauling and upgrading existing highways and transmission lines, would help cut greenhouse gas emissions and drive economic growth in developing countries. Smooth roadways require less stress on the tires and shock absorbers on a vehicle, and that in turn, adds to fuel efficiency and vehicle longevity.

And while the products used to construct roads and bridges can add to greenhouse gas emissions, asphalt and concrete manufacturers are looking at alternative methods to lower these levels. Through the Federal Highway Administration, the U.S. Department of Transportation is developing new, sustainable, safe and cost-effective paving materials for building roads and highways through programs such as "Highways for LIFE," which aims to establish longer-lasting highway infrastructure by promoting faster construction of efficient highways and bridges.[3]

SOLIDIA CONCRETE™ BLOCKS CAN SPEED CONSTRUCTION PROJECTS

SOLIDIA CONCRETE™ HOLLOW CORE OFFERS ENERGY AND RESOURCE EFFICIENCIES

## Solidia – An Infrastructure Solution

Solidia Technologies® is a sustainable technology company with a patented scientific process that makes it easy and profitable to use $CO_2$ to create better building, construction and industrial products.

Solidia's process uses a sustainable cement to produce concrete that is stronger, more durable, more flexible and costs less—using the same raw materials and equipment but less water, energy, and time throughout the entire supply chain. A huge cost savings would be realized by end-users through the product's ability to speed project development: Solidia Cement™ cures in less than 24 hours, a dramatic improvement over Ordinary Portland Cement that requires up to 28 days to set. Additionally, Solidia Concrete™ has better strength, high resistance to salt spray and better abrasion resistance resulting in enhanced durability for certain types of precast concrete applications.

Solidia provides the infrastructure sector solutions to a wide variety of applications by enabling producers of cement and concrete to consume $CO_2$ and profitably manufacture materials that are not only stronger but also more energy- and resource-efficient.

Additional Resources:
**Strategic, Safe, and Sustainable: Today's Vision for Pavements.** US Department of Transportation Federal Highway Administration, December 2009.
**Better Road Building Paves Way for Energy Savings.** National Geographic News, October 17, 2011.

1. ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT Promoting Pro-poor growth – Infrastructure http://www.oecd.org/dac/povertyreduction/36301078.pdf
2. ASCE 2013 Report Card on Infrastructure http://www.infrastructurereportcard.org/
3. Highways for LIFE http://www.fhwa.dot.gov/hfl/