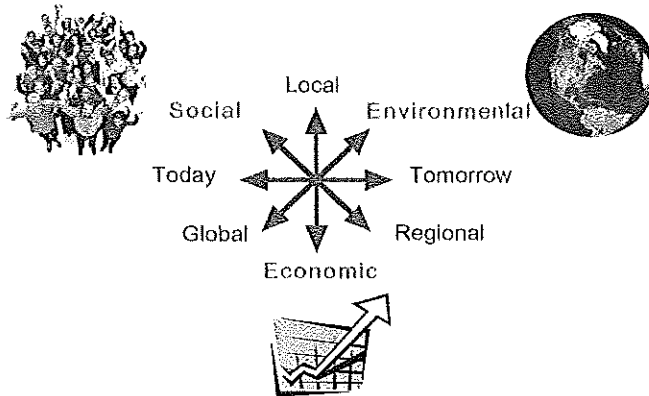


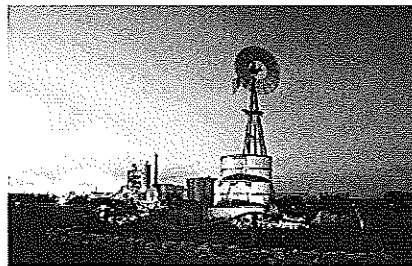
## GROWTH: MEETING DEMAND IN A SUSTAINABLE WAY

- Sustainable development integrates social, economic and environmental impacts.
- We could be held hostage for cement just as we are for oil.



## Challenges for North Texas

- Roads, schools, hospitals, houses to accommodate new growth
- Increased need for energy
- Increased pollution?



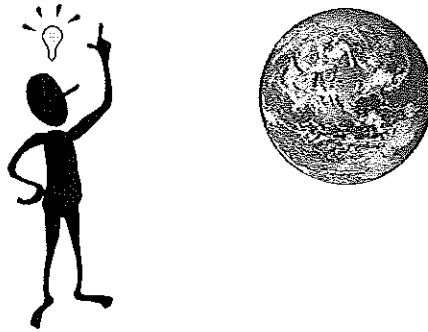
## Challenges for the Cement and Concrete Industry

- Provide enough product to accommodate growth
- Improve efficiencies
- Alternative fuels
- Re-formulate cement
- Recycled materials in concrete
- Emissions reduction continuation\*

\* Since 1972, the U.S. Cement Industry has reduced emissions by 30%

## **Solution: Easy Answer -**

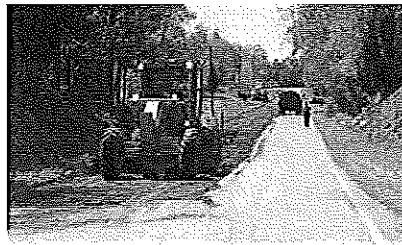
- **Work together to provide solutions both environmentally and economically**



**How Cement and Concrete Can  
Mitigate Environmental  
Issues....**

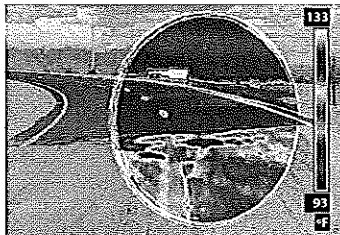
## Recycling City Streets with Cement

- Significantly reduces emissions versus previous methods
- Increases life span of road - less long-term maintenance
- Saves \$\$



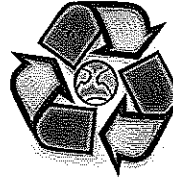
## Concrete's Light Color Reduces "Heat Island" Effects

- Concrete's high albedo means more light is reflected and less heat is absorbed
- Concrete pavements reduce energy consumption at night by reduced lighting needs



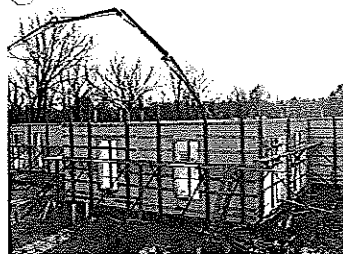
## Optimizing Recycled Material in Concrete

- Typically replace 20-30% of cement in a cy of concrete
- Reduces landfill needs
- Extends cement supply
- Reduces import needs from countries with NO emissions controls on plants



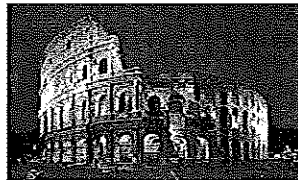
## Concrete Buildings and Energy Use

- Can reduce energy consumption by 25-40%
- Heating and cooling can be designed with smaller capacity
- Concrete buildings are also safer



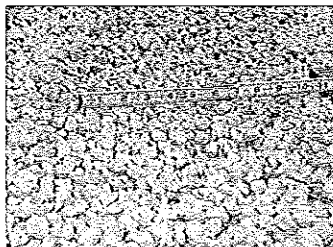
## **Concrete Buildings and Durability**

- Extremely durable and low maintenance – examples: Box Retailer Floors Wal-Mart, Kroger
- Not susceptible to mold, rust or rot
- Structures thousands of years old are still standing – Pantheon, Colosseum



## **Pervious Pavements Reduce Stormwater Run-Off**

- Can reduce or eliminate stormwater retention ponds
- Captures “first flush” and percolates into ground
- EPA and NRMCA study at Villanova University



## Concrete Pavements Improve Fuel Efficiency of Vehicles

- Several studies already done on highways
- UTA study underway here in DFW

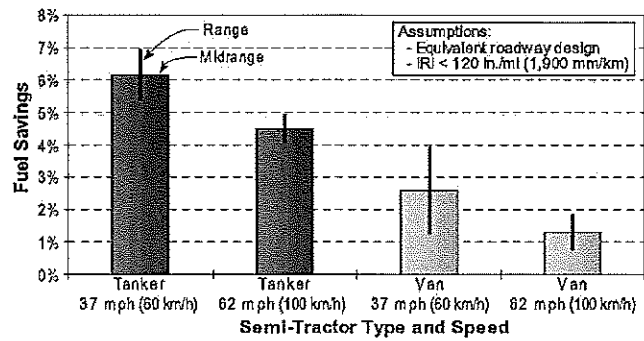


Figure 3. Fuel savings with concrete versus asphalt pavement

## LEED Credits and Concrete/Cement

- Using concrete in various fashion can help a project earn from 19-28 points
- All materials locally produced



## **Cement and Concrete Industry – Communicating Solutions**

- Printed Materials - Industry Studies and Support Literature (see packet)
- Activities – Workshops on specific technologies (i.e., Pervious concrete, Full Depth Reclamation)
- Meetings with Agencies, Municipalities, etc.
- Other Outreach Programs

## **Brainstorming - Ideas to Develop and Integrate Information with Planning**

- Sharing Technology
- Partnership in Research Projects
- Identify Stakeholders – Share Information
- Sustainable Development Forum – Dallas
- Other Ideas – Brainstorming

**How Can we Move Forward?  
Next Steps and Dates to Consider**

- Regular Meetings – Sustainable Skylines Initiative Group, EPA, City of Dallas, North Central COG, Others?
- Dates for Sustainable Development Forum
- Participants in Forum
- Topics to be Discussed
- Sponsorship and Technical Information
- Next Meeting Date
- Other