

Global Issues and LEED Points

What Do You Need to Know?

Greening the Blacktop



Overview

- ◆ **Is Asphalt on Someone's Radar?**
- ◆ **The Carbon Footprint**
- ◆ **What is a Climate Registry?**
- ◆ **Getting Ahead of the Regulators**
- ◆ **LEED Points**

Who's Interested in Your Operations?

- ◆ **Government agencies:**
 - ◆ Local, state & federal
- ◆ **Various climate registries**
- ◆ **Environmental Groups**
- ◆ **Community Activists**
- ◆ **Neighbors**

What Do They Want to Know?

- ◆ **Which Greenhouse Gases are Emitted?**
- ◆ **How Much Greenhouse Gases are Emitted?**
- ◆ **In some cases...What Harm are You Doing?**
- ◆ **Unfair Assumptions You are Evil**

What is a Greenhouse Gas?

- ◆ **Gases that trap heat in the atmosphere – Allows us to live here**
- ◆ **Some occur from nature, others from man-made activities**

What is a Greenhouse Gas?

Principal greenhouse gases entering the atmosphere from human activities are:

- ◆ Carbon dioxide (CO₂)
- ◆ Methane (CH₄)
- ◆ Nitrous Oxides (N₂O)
- ◆ Fluorinated gases (HFCs & PFCs)

What the heck is a Carbon Footprint?



A carbon footprint is defined as:

The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of (CO₂)

Doesn't segregate GHGs

Climate Registries

- ◆ **Voluntary organizations that collect and compile emissions data**
- ◆ **Encourages voluntary early actions to increase energy efficiency and decrease GHG emissions**

Climate Registries

- ◆ Calculate, verify and publicly report carbon footprints in a single, unified registry
- ◆ Accounting infrastructure supports a wide variety of programs that reduce GHG emissions including voluntary, regulatory and market-based programs

We're in a **Greening!**

- ◆ Being green is now common business practice
- ◆ Customers demand **Green & Sustainability**
- ◆ Our business models have to follow



Regulatory Concerns

- ◆ Efforts to make you report emissions
- ◆ Benefits of being ahead of the wave
- ◆ Demonstrates concern for the public and the environment

Ways to Reduce Emissions

- ◆ Sustainable Pavements
- ◆ Warm Mix
- ◆ RAP
- ◆ Plant O & M
- ◆ Truck and other equipment maintenance

Sustainable Pavement

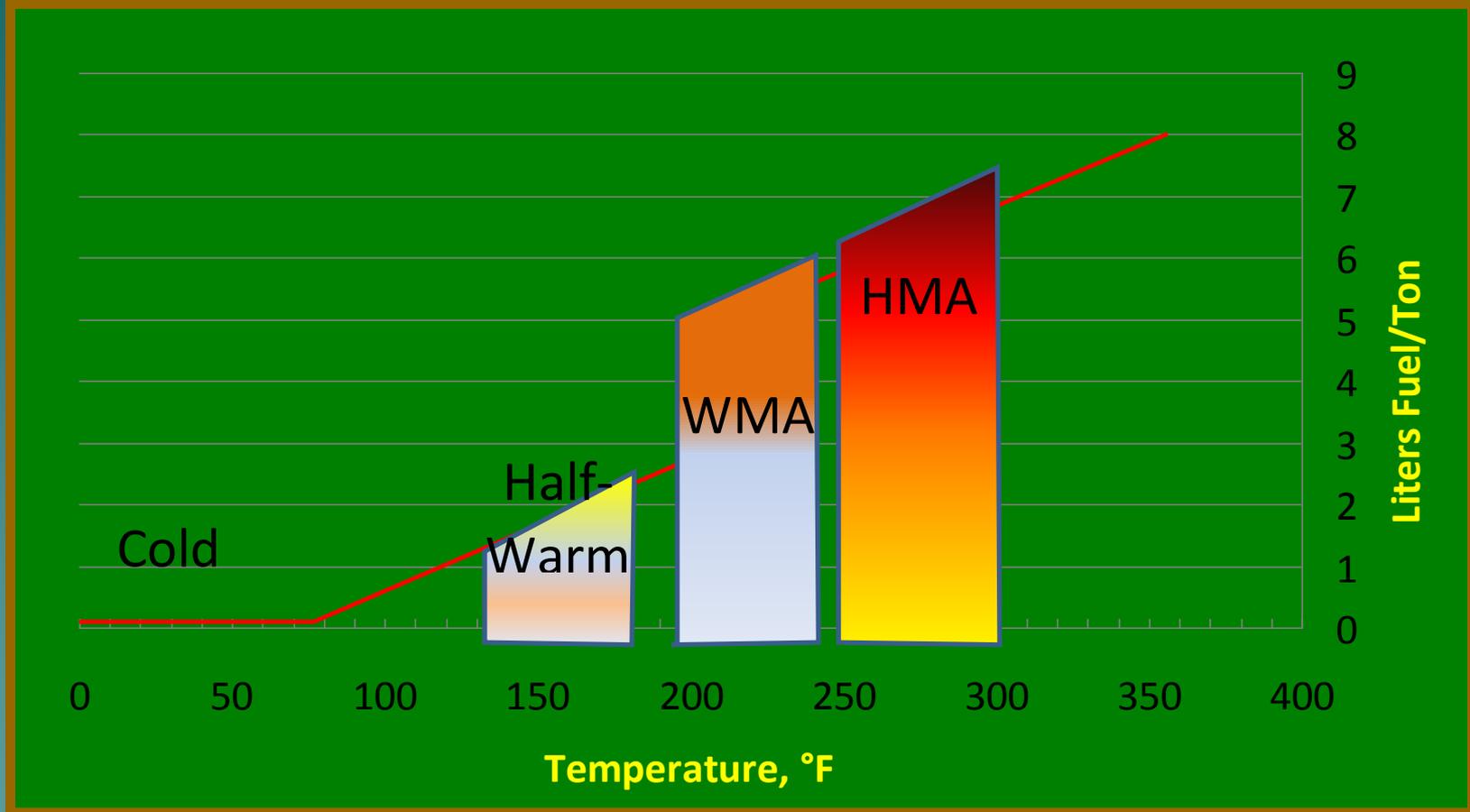
- ◆ Requires less energy to construct an asphalt pavement
- ◆ Per ASCE...20% less
- ◆ Less energy consumed by public
- ◆ Less maintenance keeps traffic moving

Warm Mix

- ◆ Will dominate the market in < 5 years
- ◆ Reduced energy consumption
- ◆ Reduced emissions
 - ◆ No hazardous fumes/worker exposure
- ◆ Plants compatible in congested areas
- ◆ No odors

The sooner the better!

Warm Mix Classifications



Lower Temperature Advantages

- ◆ Lower energy consumption ($\approx 30\%$)
- ◆ Lower plant wear
- ◆ Decreased binder aging
- ◆ Early site opening – Return to user
- ◆ Cool weather paving
- ◆ Compaction aid for stiff mixes
- ◆ Cooler working conditions

Recyclability

- ◆ **Asphalt is the No. 1 recycled material**
- ◆ **1995 FHWA Report to congress**
 - ◆ **90 Million tons reclaimed**
 - ◆ **80% recycled**
- ◆ **2006 Contractor Survey**
 - ◆ **~69% reused in HMA**
 - ◆ **~27% other recycling**
 - ◆ **<3% discarded**

Why Recycle RAP into HMA?

- ◆ Best and Highest use
- ◆ Reduces demand for new materials
- ◆ Reduces carbon footprint
- ◆ Contains valuable materials
 - ◆ Aggregate ~95% >\$10/ton
 - ◆ Asphalt ~5% > \$600/ton
 - ◆ Value >\$39.50/ton (minus processing)

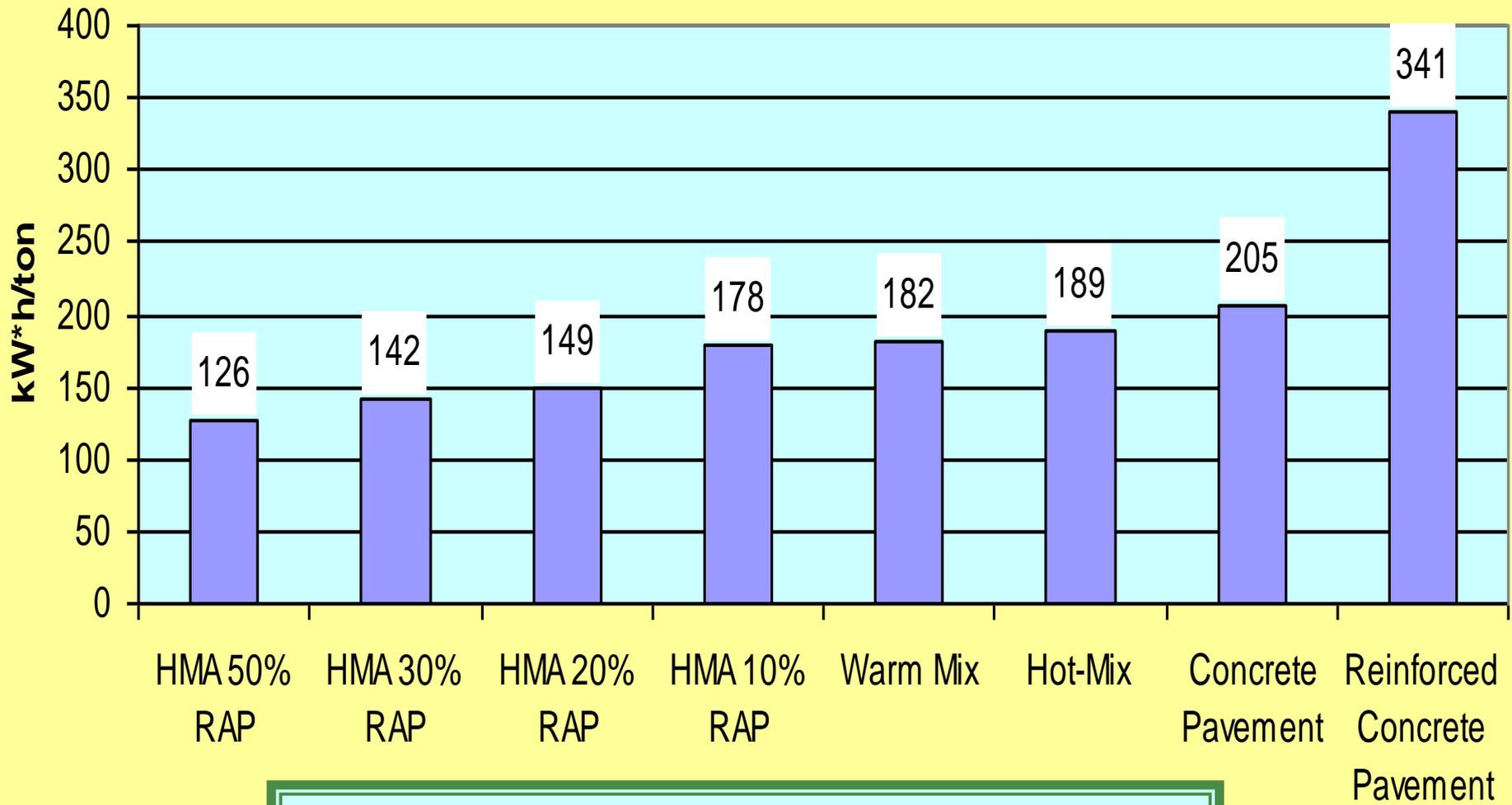
Remedial Efforts

- ◆ Use the components of the carbon footprint to identify problem areas
- ◆ Take action and make adjustments to reduce emissions
- ◆ Switch to Warm Mix sooner
- ◆ Conduct energy audits
- ◆ Take action to reduce energy

Reduced Energy Consumption

- ◆ Energy Audits
- ◆ DOE Software
- ◆ Use RAP
- ◆ Warm Mix Can Reduce Energy by $\frac{1}{3}$
- ◆ **Cover the Aggregate**

Energy Use by Road Material Type



Colas Group Data

Why is Asphalt Sustainable

- ◆ **100% Recyclable**
- ◆ **Can use other recycled materials**
- ◆ **Low carbon footprint pavement**
- ◆ **Long life & fast resurfacing**
- ◆ **Warm-Mix Asphalt**
- ◆ **Porous pavement for stormwater**

NAPA Theme

**RAP + Porous
+ Warm Mix +
Perpetual Pavements =
Sustainability**

LEED Points

- ◆ **USGBC LEED Program**
- ◆ **Most popular in the nation**
- ◆ **Preference of federal agencies**
- ◆ **Preference of other U.S. jurisdictions**
- ◆ **Confusing to asphalt producers**
- ◆ **It's only for buildings**

Documentation

- ◆ Amounts of Recycled Material
- ◆ Reflective Materials
 - ◆ Use of Coating/Coloring/Chip seals
 - ◆ Regionally Extracted Materials
 - ◆ Stormwater Management Metrics

Documentation

- ◆ **Work with the building team leader**
- ◆ **Assist with documentation of:**
 - ◆ **Recycle materials**
 - ◆ **Regionally acquired materials**
 - ◆ **Amounts of Porous Asphalt used**
- ◆ **Solar Reflectance Index - at least 29**
 - ◆ **ASTM Method** :E1980 Pyranometer**

Summary & Review

- ◆ **Is Asphalt on Someone's Radar?**
- ◆ **The Carbon Footprint**
- ◆ **What is a Climate Registry?**
- ◆ **Getting Ahead of the Regulators**
- ◆ **LEED Points**

Questions?