

Where Should We Go with Warm Mix Asphalt Technology



HOT
Is Not Always
BETTER

Goldilocks, circa 1850

What is WMA?

Allows reduction in

- production temps
- placement temps

How is it done?

- a) Two Component Asphalt
- b) Emulsion Technology
- c) Mix Additives
 - Mineral
 - Organic

Hot Mix Asphalt 275 - 325° F

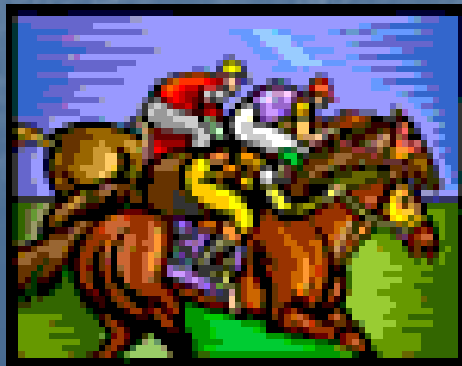
Warm Mix Asphalt 200 - 275° F

Cold Mix Asphalt 60° F

It is not a
Half – Baked
Idea

Hot Mix Asphalt (HMA)
vs.
Warm Mix Asphalt (WMA)

- NOT A CONTEST -



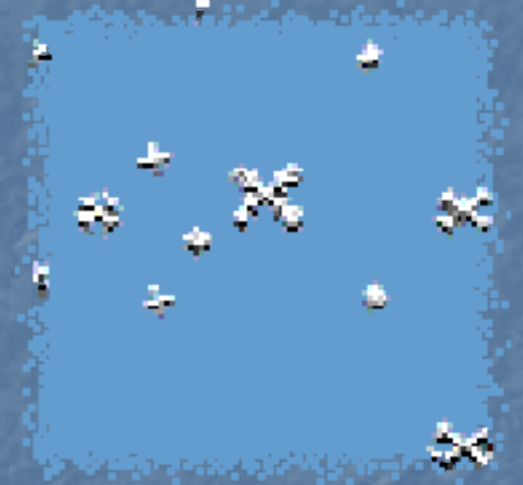
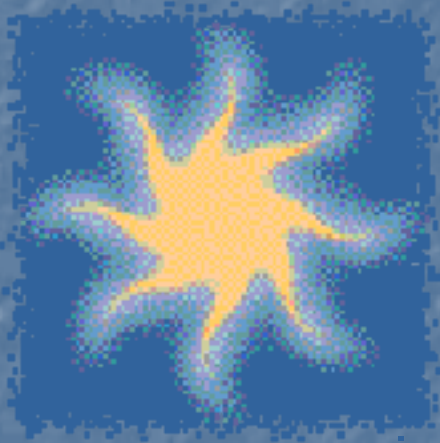
Hot

Warm

Tub - Pool

Chili - Chili

Weather - Weather



GOAL

WMA Optional To:

- Specifiers
- Contractors

- **Why is it Important?**

and

- **How to Git-er-dun!**

Review Benefits

- ↓ Energy
- ↓ Aging/Hardening
- ↓ Emissions
- ↑ Compaction Time

Review Hurdles

- Cost
- Specs
- Mix Design Impacts
- Unfamiliarity
- Performance



Why Important?

Environment

- Reduced Energy
- Reduced Emissions



Environmental Pressures

- Energy
- Recycling
- Fumes
- Noise

Current Non-Attainment Areas

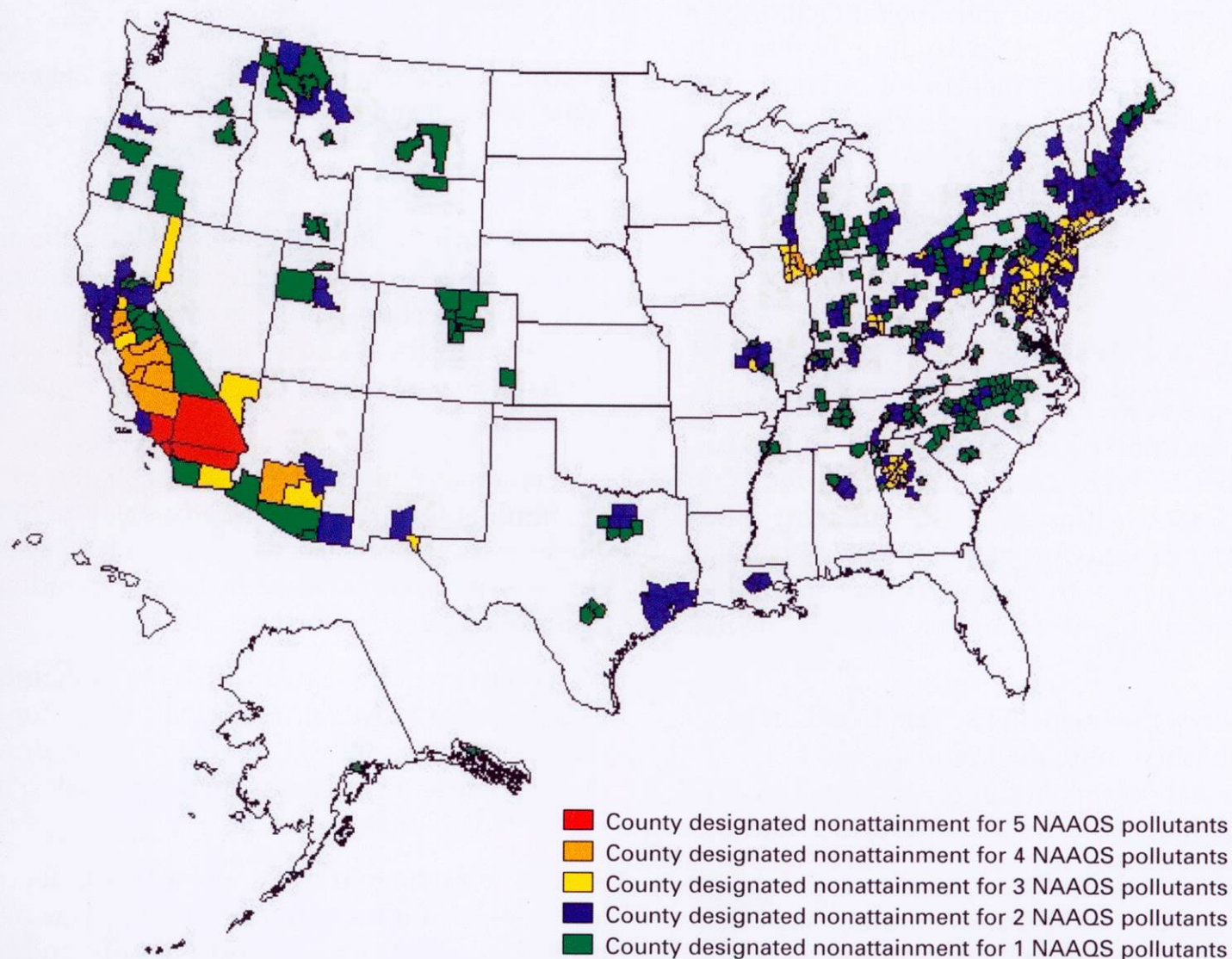


FIGURE 3: Counties not attaining the National Ambient Air Quality Standards (NAAQS) of the Clean Air Act, April 2005.

Environmentalists

- Heard About
- Read About
- Europe Using
- Want it now!

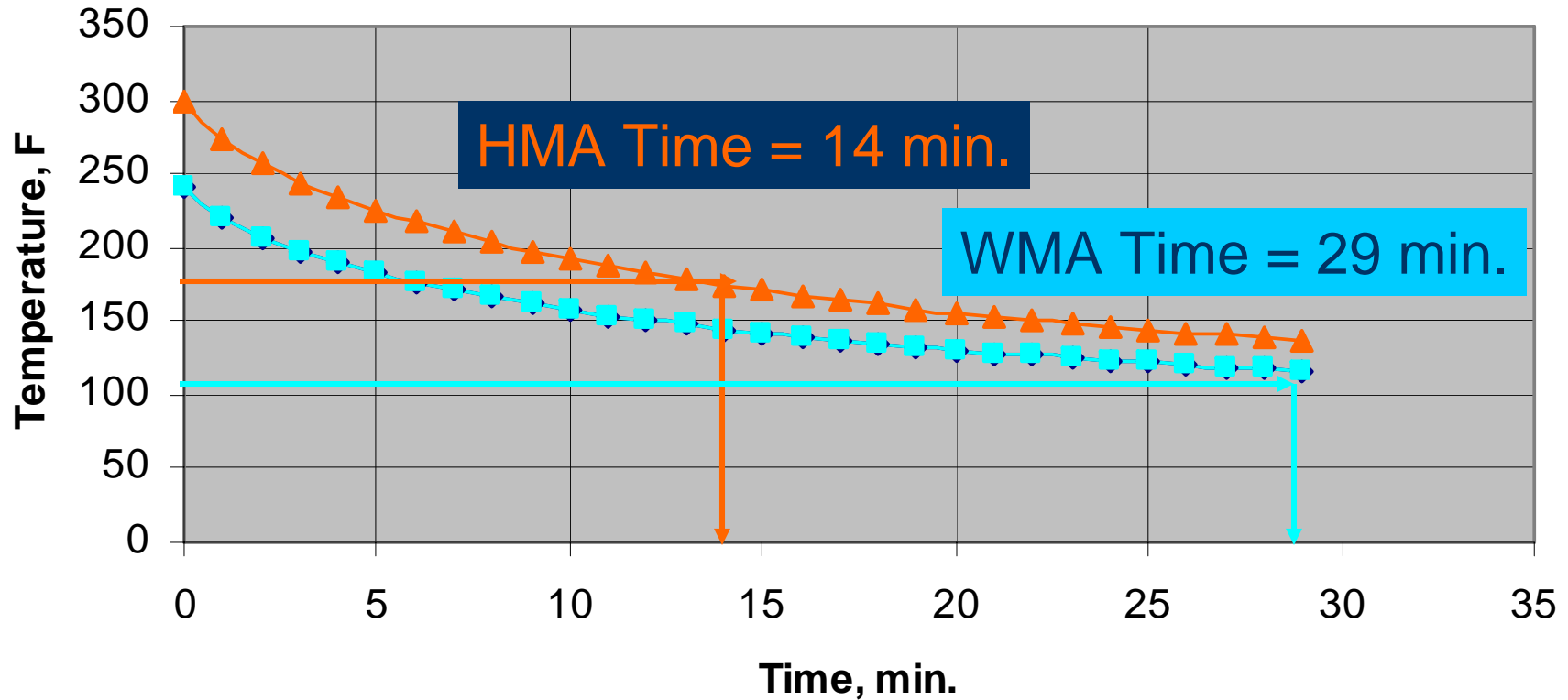


Contractor Perspective

- ↓ Heating Costs
- Favorable Zoning
- Longer Season
- Happier Employees



Late Season Paving



For $\Delta T = 125^{\circ}\text{F}$

DOT Perspective



Illinois Department
of Transportation

- Environmentally Sensitive
- Longer Season
- ↓ Project Costs
- Improved Product?

GOAL

Option

~~Mandate~~





How
to
Achieve?

Hurdles (unknowns)

- Cost
- Correct Specs
- Mix Design
- Constructability
- Performance

Cost

Don't Worry!



Correct Specifications

Who

- Technical Working Group
- Industry Leadership

Correct Specifications

How

- Define Desirable Properties
- Develop Generic Spec
- National Approval Process
- Let Suppliers Loose

Infrastructure in Place

If All Are Willing



Mix Design Constructability Performance

All fall in place

- Supplier Responsibility

Why

- Generic Spec
- Various Products
- Supplier Responsible for
 - Mix Design modifications
 - Constructability issues
 - Performance issues

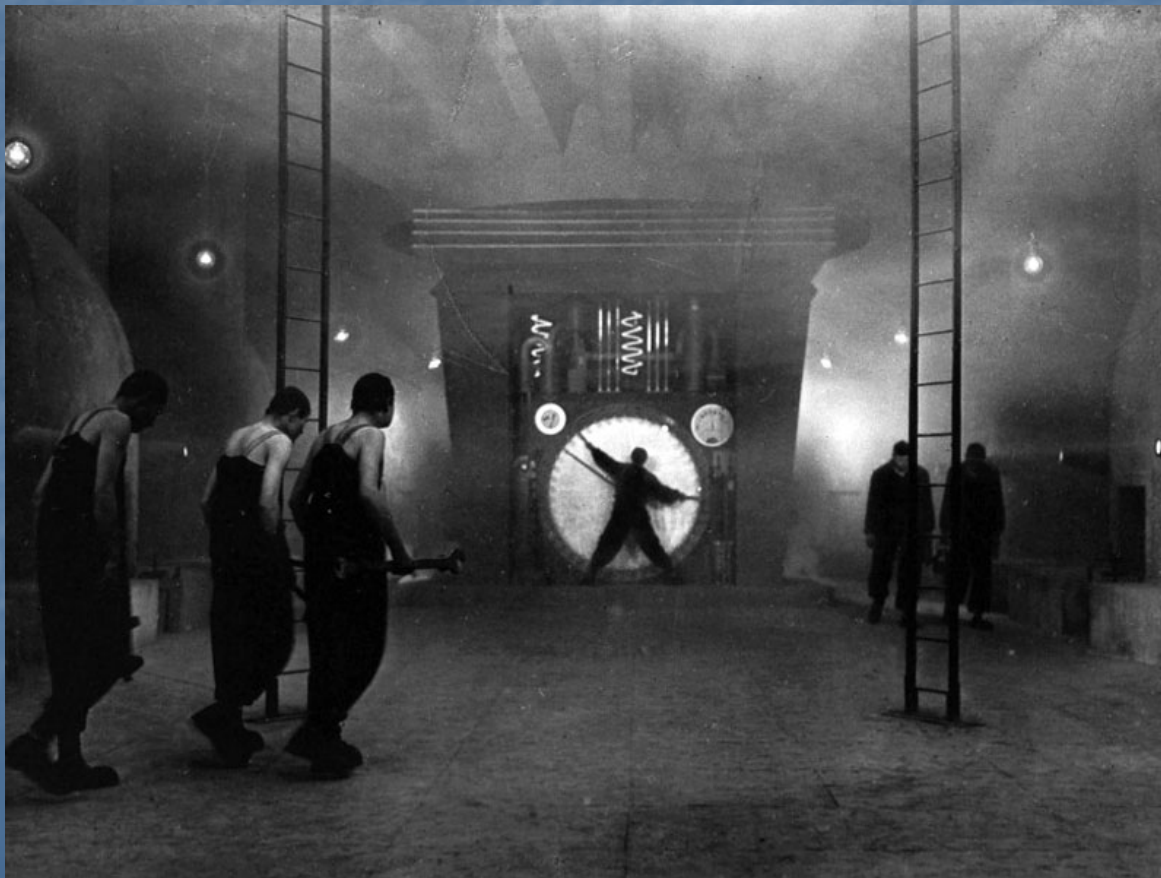
Will Process Work?

- Industry Needs It
- Faster Acceptance by DOT's
- Faster Market Establishment
- Less FHWA Refereeing

Why It Has To Work

Control Our Own Destiny

Or Others Will Control It For Us



**BIG
BROTHER**



IS WATCHING

Status

Demo Projects

- State Initiated
- Contractor Initiated

Lab Studies

- Moisture Damage
- Rutting
- Hardening

May 2006 European Scan

Visit Practicing Countries

Participants

- State DOT's
- FHWA
- HMA Industry

Look at Details

- Mix Design
- Equipment/Work Practices
- Climate Conditions
- Performance

Batch Plant of the FUTURE!



THANK YOU