What Would Make a DOT Use Modified Asphalt?

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Then and Now

2000

- 2,800 tons of polymer modified asphalt mix
- Placed on 4-lane miles of major roads

2006

- 3,000,000 tons of polymer modified asphalt mix
- Placed on 3,175 lane miles of major roads

We Had A Problem!

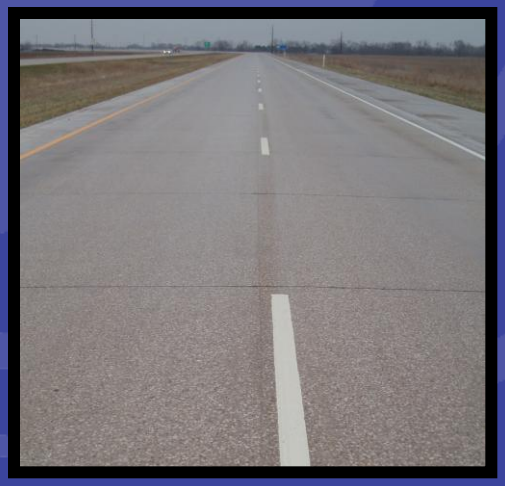
- Unhappy with quality of mixtures.
- Progressed from rutting mixtures to dry raveling fatigued mixtures.
- Mixtures were prone to stripping.
- Internal culture of MoDOT was resistant to changing asphalt binders.

Raveling

Rutting

New Business Model – Alternate Bidding

- Alternate bidding requires longer lasting asphalt pavements



Asphalt and concrete go head to head

NCAT Results

- Polymer modified asphalt reduced rutting.
  - Modified (PG 76-22) asphalt had 60% less rutting over unmodified sections (PG 67-22).
- Polymer allowed higher asphalt content without rutting.
  - 0.5% increase in non-polymer asphalt (PG 67) increased rutting about 50%.
  - 0.5% increase in polymer asphalt (PG 76) had no significant effect.

Life Cycle Cost-Savings Analysis

- Polymer modified asphalt pays for itself with longer life.
- 0.4 – 0.8 year increase in service life required to justify cost of polymer.
- Average increase in service life from polymer modification is 3.1 years.*

*Based on Colorado, Alabama and Texas DOT studies

Savings to MoDOT

- MoDOT saved more than $24 million by using polymer modified asphalt.
- MoDOT placed polymer modified asphalt on 3,175 lane miles in 2006.
- Colorado DOT showed a savings of $7,804 per lane mile.

(3,175 x $7,804 = $24,777,700)

Why Did We Change?

- Problems with our asphalt mixtures.
- Needed a better asphalt mix for alternate bidding.
- Polymers actually save money.

Smooth Roads Initiative

BETTER ROADS

BRIGHTER FUTURE

Future of Polymer

- MoDOT is willing to pay more for polymer modified asphalt to provide a longer lasting pavement.
- As long as it saves MONEY!
- Ground Tire Rubber