Illinois Tollway Warm Mix Asphalt – Lessons Learned

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Tollway WMA - 2012

- **762,000+ total tons**
- **SMA mainline**
  - **304,000 tons**
- **N50 Shoulder Binder**
  - **204,000 tons**
- **N70 Shoulder Surface**
  - **210,000 tons**
- **Stabilized Subbase**
  - **8,400 tons**

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Tollway WMA - 2012

- 10 different plants
- 2 chemicals
  - Evotherm (4)
  - Rediset LQ (3)
- 3 water injection
  - ASTEC (1)
  - MAXAM AQUABlack (1)
  - Stansteel Accu-Shear (1)

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Tollway WMA - 2012

- High recycle in Tollway WMA:
- SMA
  - All used RAS (2 GTR, 7 SBS)
  - ABR – 31 to 38%
- Shoulder Binder and Surface
  - ≈ Half used RAS
  - Binder ABR – 33 to 50%
  - Surface ABR – 30 to 40%
- Stabilized Subbase
  - Both used RAS; both had 64% ABR

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- RAS needs higher temperature

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WMA Lessons Learned

- Mix temperature ranges
  - Mix type
    - Shoulder mixes and moderate RAP: 250 - 270F
    - Shoulder mixes with RAS: 280 – 300 F
    - SMA with RAS: 280 – 320F
  - Plant and personnel
  - Weather (night, day, summer, fall)

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WMA Lessons Learned

- Contractor Learning Curve – some: steep
- All technologies "performed" effectively
- Industry-wide: Plant Operations need reviewing to fully implement WMA
  - Flighting, air flow – for both WMA and high recycle
  - Combination of high recycle and lower temperatures
  - Stress on motors from stiff mixes (SMA + RAS + modified PG)

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WMA – Moving Forward

- Contractor
  - Personnel need to become comfortable with the practice
  - Plant "optimization" to incorporate WMA and high recycle
  - Investigation of benefits
    - Lower energy
    - Compaction aid

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WMA – Moving Forward

- Agencies
  - Proven to Improve Performance
  - Better Definition of "Warm Mix" Needed
    - Temperature
    - "Use of the technology"
    - Mix variables (RAP, RAS, modified PG)

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Specifications Needed to Better Define WMA

- Tollway specifications in 2012 provided with little control on temperature
- Better control on production temperature limits to be established for 2013 contracts
- More lessons to be learned by all

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THANK YOU

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