

# Remote Maturity Monitoring Using the TEMP System

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presented by:  
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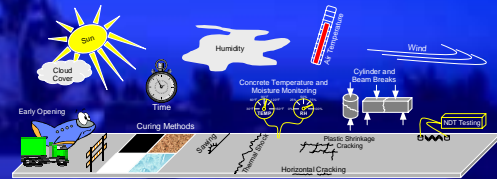
## Outline

- TEMP System Concept
- Case Studies
  - Manchester, IA - July 2002
  - Des Moines Int'l Airport, IA - November 2002
  - Washington County, IA - August 2003
  - Williamsburg, VA - October 2003
- Additional Applications
- Summary

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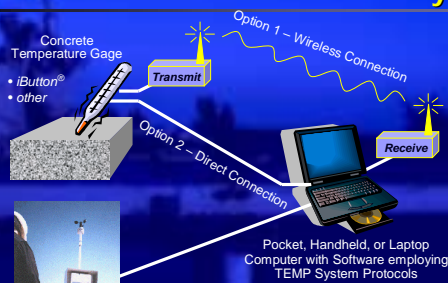
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## TEMP System



**T**otal  
**E**nvironmental  
**M**anagement for  
**P**aving

## TEMP System

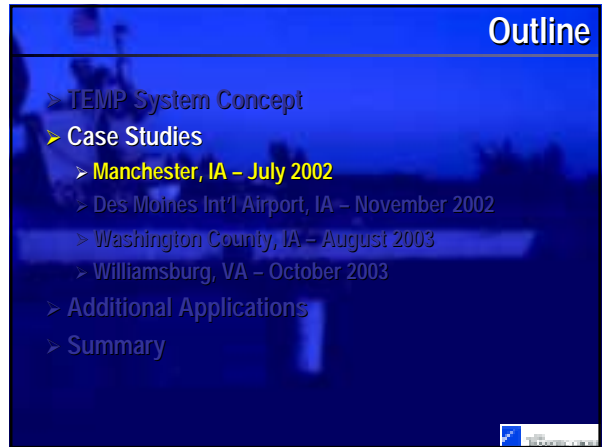
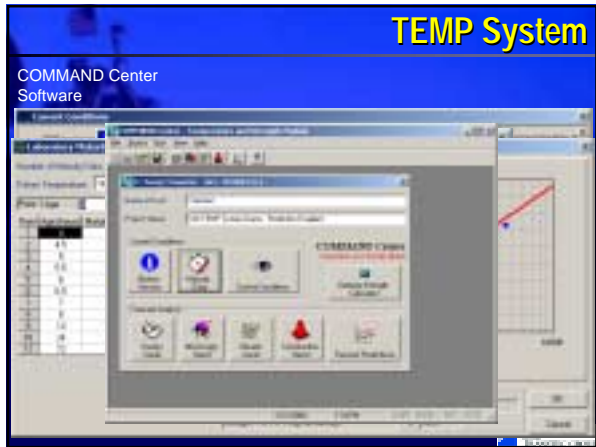


Portable Weather Station

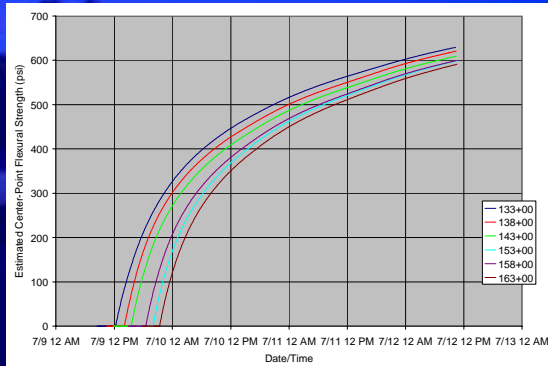
## TEMP System

Dallas Semiconductor  
Thermochron iButton®

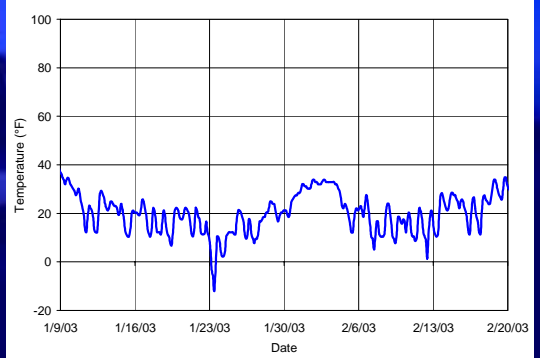




## Manchester, IA – July 2002



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## Des Moines Airport – November 2002

- Instrumented 20-21 November 2002
- 15" P-501 Taxiway on CTB
- 8" P-501 Shoulder on AB
- 3 unique concrete mixes
- Paved by Flynn Company
- Research Sponsored by IPRF/FAA



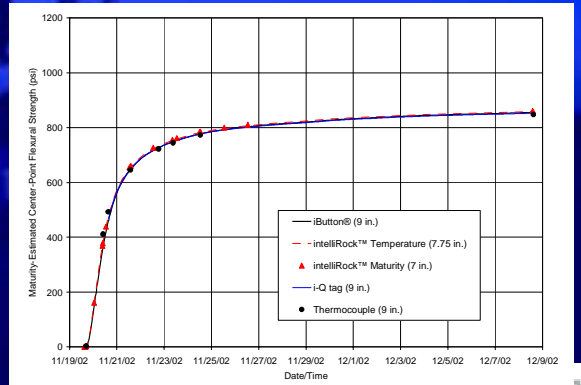
## Des Moines Airport – November 2002



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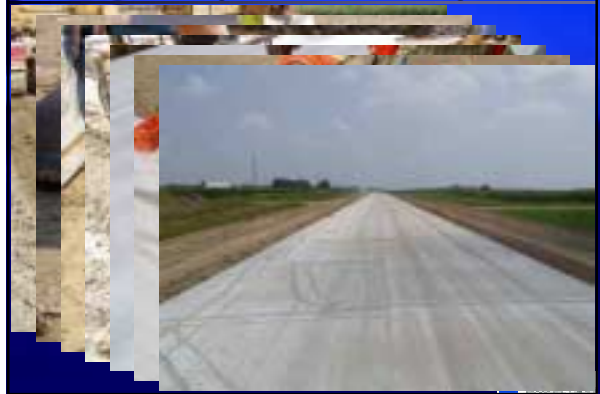
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## Washington Co., IA – August 2003

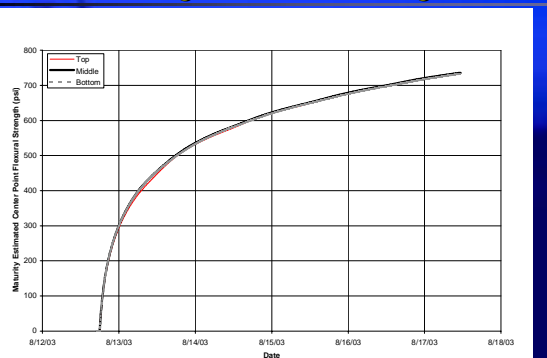
- 1<sup>st</sup> demo project under FHWA Task 7
- 320<sup>th</sup> Street – south of Washington
- 10"-7"-10" undoweled & skewed on subgrade
- Paved by Fred Carlson Co.



## Washington Co., IA – August 2003



## Washington Co., IA – August 2003



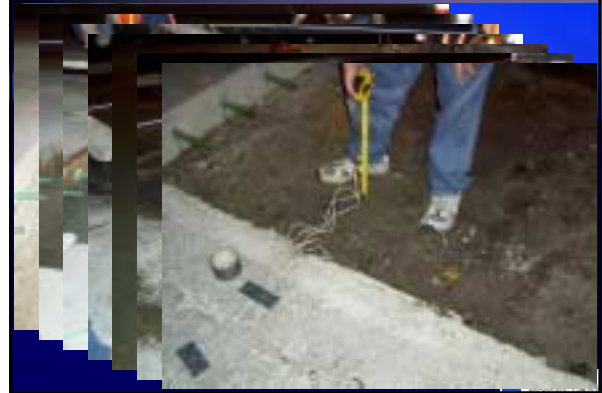
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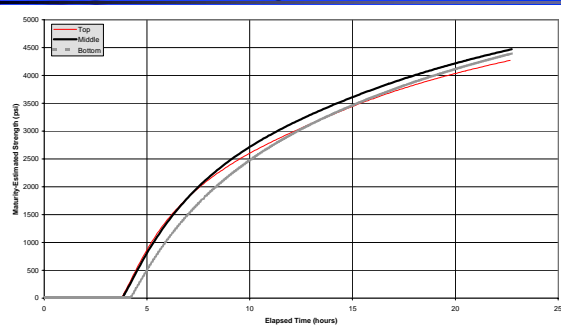
## Williamsburg, VA – October 2003

- Final demo project under FHWA Task 7
- Interstate 64 main lanes
- Full depth patching / panel replacement
- Night work
- 8 hours to traffic opening
- Placed by Denton Concrete Services

## Williamsburg, VA – October 2003



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## Additional Applications

- HIPERPAV Slag Aggregate validation site – Detroit, MI
- Structural columns for cold weather spec – Des Moines, IA
- Soil-cement monitoring – Ames, IA
- “Mass” Concrete Temperature Gradients – Austin, TX
- Heat island effect study – Phoenix, AZ
- FHWA / CPTP Task 63 (Impact of Curling and Warping on Jointed Concrete Pavement Performance) – 38 sites Nationwide

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- TEMP System Concept
- Proven technology
- Adaptable to a variety of specifications
- Future – Maturity from the office?

