

89th Annual Road School

Road Weather Information Systems (RWIS)

Presented By Dennis Belter
INDOT Program Support Manager

R-W-I-S Thing



In **FY 03**, **16 RWIS**
purchased by **INDOT** from
SSI, installed by **GSI** all
over **IN**.

What is RWIS?



- Weather Station
- Sensors for Temperature, Wind Speed & Direction, Humidity, Precipitation
- Pavement, Deck and Subsurface Sensors for Temperature and Chemical Concentration
- Remote Processing Unit (RPU)
- Power and Communication Source

**Weather Station & RPU @
I-65 & SR 28**



**Deck Sensors over
Buck Creek**



What does RWIS do?

- Measures and Collect Accurate and Timely Road Weather Information at given site
- Provides Deck, Pavement and Subsurface Temperature and Chemical Concentration
- Provides Air Temperature, Wind Speed & Direction
- Provides Statewide Network of Weather Information



Two Applications

- Regional Weather Information

- Geographic Concern



Why Do We Need RWIS?

- The U.S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration (NOAA), Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) performed a National Needs Assessment Report on Weather Information for Surface Transportation (WIST).

Costs of Roadway Weather

Annually from Weather Related Vehicle Crashes:

- 800,000 injured
- 7,000 fatalities
- Economic cost of \$42 billion

Stats from the National Highway Traffic Safety Administration (NHTSA)

Costs of Roadway Weather

- Snow, Ice and Fog (SIF) caused estimated 544 million vehicle-hours of delay in 1999
- State & Local Agencies spend more than \$2 billion annually on snow & ice removal per Federal Highway Administration (FHWA)
- One day shutdown due to snow in a metro area costs between \$15 & \$93 million in lost wages, retail sales & taxes

Why are we Interested?

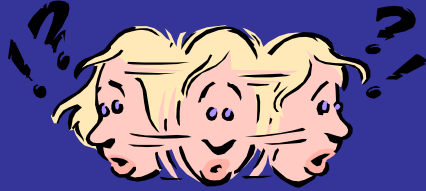
OUR Responsibility to:

- Ensure safe movement of traffic
- Ensure roadway integrity



Why Do We Need RWIS?

- Provides Information for Decision Making Regarding Snow & Ice Removal
- Provide Current Pavement Temperature
- Aid in Storm Tracking
- Improve Pavement Forecasting



Why Do We Need RWIS?



Why Do I Want RWIS?

- Aren't I Doing a Good Job?

**Great Job
This
Winter!!!**



- Can I Do Better With More Information?

SCAN Web



From
Surface Systems Inc.



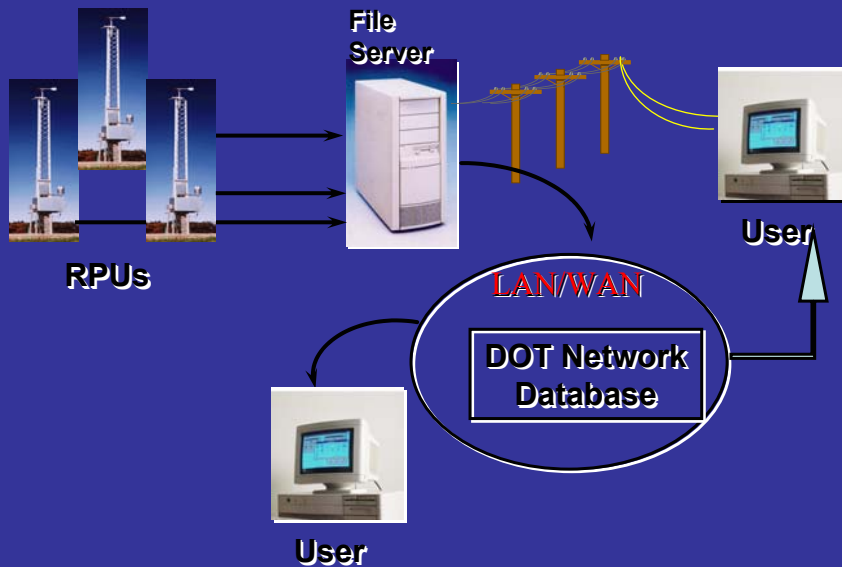
SCAN Web

New Features Include:

- Interactive Map of RWIS data
- Network server allows multiply users
- Users need only LAN/WAN connection and a web browser
- Tabular and Graphical view of RWIS history data



Network System



Missouri Map

Scan Web navigation bar allows for easier movement through the important SCAN Web features.

Surface Systems, Inc.
Mid Rivers
11612
10/20/00 19:00CDT

Air	64.9F
RH	80%
Dew	51F
Precip	None
SpdAvg	Calm
SpdGst	Calm
DirAvg	N
Viz	1.1 mi
Height	6.4 ft

Flat Top S/B Bridge Deck (2)
Status: **On**
Sto: 71.2F

S/B Bridge Deck (1)
Status: **On**
Sto: 71.5F

S/B Approach (0)
Status: **On**
Sto: 72.5F
Sub (0): 144F
Sub (1): 50F
Spencer Rd S/B Departure (3)
Status: No Report

▲ - Site with surface data ● - Surface Sensor ◆ - Site without surface data

Print Preview
Copyright © 1998-2000 Surface Systems, Inc.
All Rights Reserved
Send comments to: SCANWeb@surface.com
SCAN Web © is a registered trademark of Surface Systems, Inc.

Refresh Map
Roadway Sensors
Deck Sensors
Site Status
Mid Rivers Site Map
Mid Rivers Camera
View Site Map

SCAN Web Maps

State Map gives you the "Big Picture" map to display current conditions.

SCAN Web 3.0 - Regional Map - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: [eb/sw/iframe.asp?Pageid=RegionalOverlayMap&Mapid=1293&Units=English&Groupid=&Sysid=&DisplayClass=Java&SenTune=All](#)

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

SCAN Web

- Home
- SCAN Cards
- Weather Source
- WeatherBridge™
- Users Guide
- Disable Java
- Links

Maps

- Kansas State
- Kansas-District 1
- Kansas-District 2
- Kansas-District 3
- Kansas-District 4
- Kansas-District 5
- Kansas-District 6

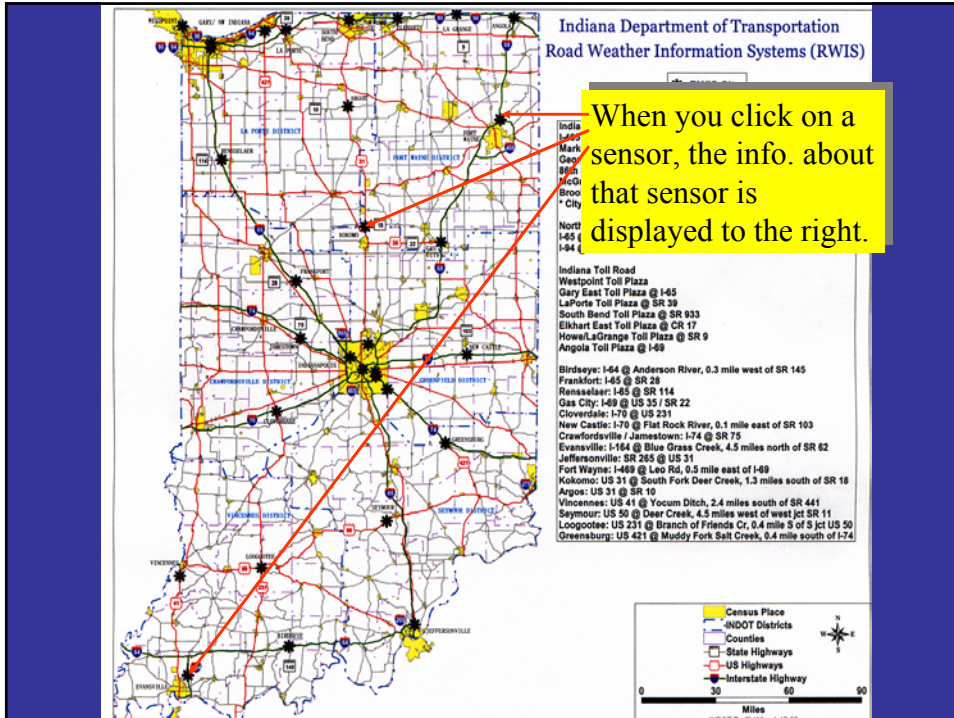
Summaries

- Kansas - District 1
- Kansas - District 2
- Kansas - District 3
- Kansas - District 4

th surface ● - Surface Sensor ◆ - Site without surface data

Refresh Map
Roadway Sensors
Deck Sensors

Menu Bar has links to all maps in system



Site Summary Page

Address: <http://185.201.14.122/scanweb/SWFrame.asp?Pageid=5>

SCAN Web ssi® Kansas - District 1 (123000)
 Site Summary Page
 (Selected surface sensor may change based on conditions)

Current Time: 7/16/01 2:54:40 PM CDT

Status	Stc	Sub	Air	RH	Dew	BaroPs	Precip	Intens	Rate	Vis	SpdAva	DirAva	
Wet	K-7 @ Kansas R., Bonner Springs - K-7 NB Deck (123.2.0)												SCAN'Cast History
	71.9F	-	88.5F	58	72F	-	None	-	None	-	Calm	E	
Dry	I-35 @ Bull Creek - #46 I-35 NB Deck (123.14.1)												History
	109.1F	-	84.8F	66	72F	-	None	-	None	-	8 mph	NE	
Dry	US-73/K-7 Leavenworth - #49 K-7 NB Deck (123.15.0)												History
	104.5F	-	81.4F	75	73F	-	None	-	None	-	8 mph	NW	
Dry	US-77 @ Blue R., Blue Rapids - SB Deck (640.0.0)												SCAN'Cast History
	126.2F	-	93.2F	43	68F	-	None	-	None	-	4 mph	S	
Dry	I-35 @ Neosho R., Emporia - I-35 WB Deck (640.3.0)												SCAN'Cast History
	66.0F	-	52.7F	59	39F	-	None	-	None	-	10 mph	NW	
Dry	K-10 @ Wakarusa R., Lawrence - K-10 EB Deck (640.5.0)												SCAN'Cast History
	115.0F	-	88.6F	69	77F	-	None	-	None	-	Calm	S	
Dry	K-177 @ Kansas R., Manhattan - K-177 Deck (640.7.1)												History
	126.9F	-	92.1F	56	74F	-	None	-	None	-	4 mph	SW	
Dry	US-36 - Troy - US-36 WB Deck (640.6.0)												SCAN'Cast History
	112.8F	-	84.3F	72	74F	-	None	-	None	-	9 mph	SE	
Dry	US-36 @ Delaware R., Sabetha - EB Deck (640.1.0)												History
	113.9F	-	85.5F	50	66F	-	None	-	None	-	11 mph	W	
No Report	US-75 @ Kansas R., Topeka - SB Deck (640.2.0)												SCAN'Cast History
			89.1F	61	72F		None		None		11 mph	SE	Internet

Site Summary allows you to look at sensor info. in a tabular form.

Site Status

SCAN Web
 Home
 SCAN® Casts
 Weather Source
 Weather@Bridge™
 User's Guide
 Disable Java
 Links

Maps
 Kansas State
 Kansas-District 1
 Kansas-District 2
 Kansas-District 3
 Kansas-District 4
 Kansas-District 5
 Kansas-District 6

Summary
 Sites
 Surface Sensors
 Roadway
 Deck

Site Data
 Site Status
 SCAN® Cast
 Atmospheric History

Kansas - District 1 - K-10 @ Wakarusa R., Lawrence (640.5)
 Site Status
 Data Time: 7/16/01 2:47:03 PM CDT

Air Data						Wind Data			
Temp	RH	Dew	WtBlt	Min	Max	SpdAvg	SpdGst	DirAvg	DirGst
88.6F	69%	77F	-	-	-	Calm	4 mph	S	-

Precipitation				
Type	Intensity	Rate	Time Since	Accum
None	-	None	32000 mins	None

Surface Data										
Sensor	Status	Slc	Sub	Frz	CF	Chem	Dpth	Ice	Cond	Saln
K-10 EB Deck (0)	Dry	115.0F	-	-	-	-	-	-	-	History
K-10 EB Approach (1)	No Report	117.9F	88F	-	-	-	-	-	-	History

Subsurface Data			
Sensor	Temp	Moisture	
Subsurface Sensor (0)	88F	-	History

The Site Data menu appears once a individual site is selected.

History Graph

SCAN Web
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Maps
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 Kansas-District 4
 Kansas-District 5
 Kansas-District 6

Summary
 Sites
 Surface Sensors
 Roadway
 Deck

Site Data
 Site Status
 SCAN® Cast
 Atmospheric History

Print Preview Generated: 7/16/01 3:01:41 PM CDT Atmos. Table Sf/Pc. Table Sf/Atm. Table

Temperature
 Precip
 Status

System Information
 System: Kansas - District 1 (540)
 CPU: K-10 @ Wakarusa R., Lawrence (5)

Chart Scale
 End Date: (mm/dd/yyyy hh:mm)
 7/10/2001 14:59

Chart Selections
 Air Temp K-10 EB Deck (0)
 Dew Temp K-10 EB Approach(1)
 Freeze Temp
 Surface Temp

Legends
 Update
 Reset

History Graph allows you to look back at past events.

Indiana Department of Transportation Road Weather Information Systems (RWIS)

 RWIS Site

- Indianapolis**
 I-465 (East Leg) @ I-74
 Market St Ramp to I-65/70
 Georgetown Rd over I-65 *
 88th St over White River *
 McGregor Rd over Buck Creek (Acton) *
 Brookville Rd over SR west of Shadeland Ave *
 * City of Indianapolis RWIS Site
- Northwestern Indiana**
 I-45 @ I-80/94
 I-94 @ US 421
- Indiana Toll Road**
 Westpoint Toll Plaza
 Gary East Toll Plaza @ I-465
 LaPorte Toll Plaza @ SR 38
 South Bend Toll Plaza @ SR 933
 Elkhart East Toll Plaza @ CR 17
 Howe-LaGrange Toll Plaza @ SR 9
 Angola Toll Plaza @ I-49
- Bidkeys:** I-64 @ Anderson River, 0.3 mile west of SR 145
 Frankfort: I-65 @ SR 28
 Rensselaer: I-65 @ SR 114
 Gas City: I-69 @ US 35 / SR 22
 Cloverdale: I-70 @ US 231
 New Castle: I-70 @ Flat Rock River, 0.1 mile east of SR 103
 Crawfordsville / Jamestown: I-74 @ SR 75
 Evansville: I-164 @ Blue Grass Creek, 4.5 miles north of SR 62
 Jeffersonville: SR 265 @ US 31
 Fort Wayne: I-469 @ Leo Rd, 0.5 mile east of I-69
 Kokomo: US 31 @ South Fork Deer Creek, 1.3 miles south of SR 10
 Argos: US 31 @ SR 10
 Vincennes: US 41 @ Yocum Ditch, 2.4 miles south of SR 441
 Seymour: US 50 @ Deer Creek, 4.5 miles west of west jct SR 11
 Loogootee: US 231 @ Branch of Friends Cr, 0.4 mile S of S jct US 50
 Greensburg: US 421 @ Muddy Fork Salt Creek, 0.4 mile south of I-74

