



On Site Intelligence
KNOW • INTERPRET • CONTROL

KNOW

where your assets are located.

INTERPRET

through innovative remote asset technology.

CONTROL

for immediate asset status.

CONGRÈS
INFRA
2011



Company Background

Presenter:

Gary Rapp

Zia Systems, LLC

Today's Infrastructure

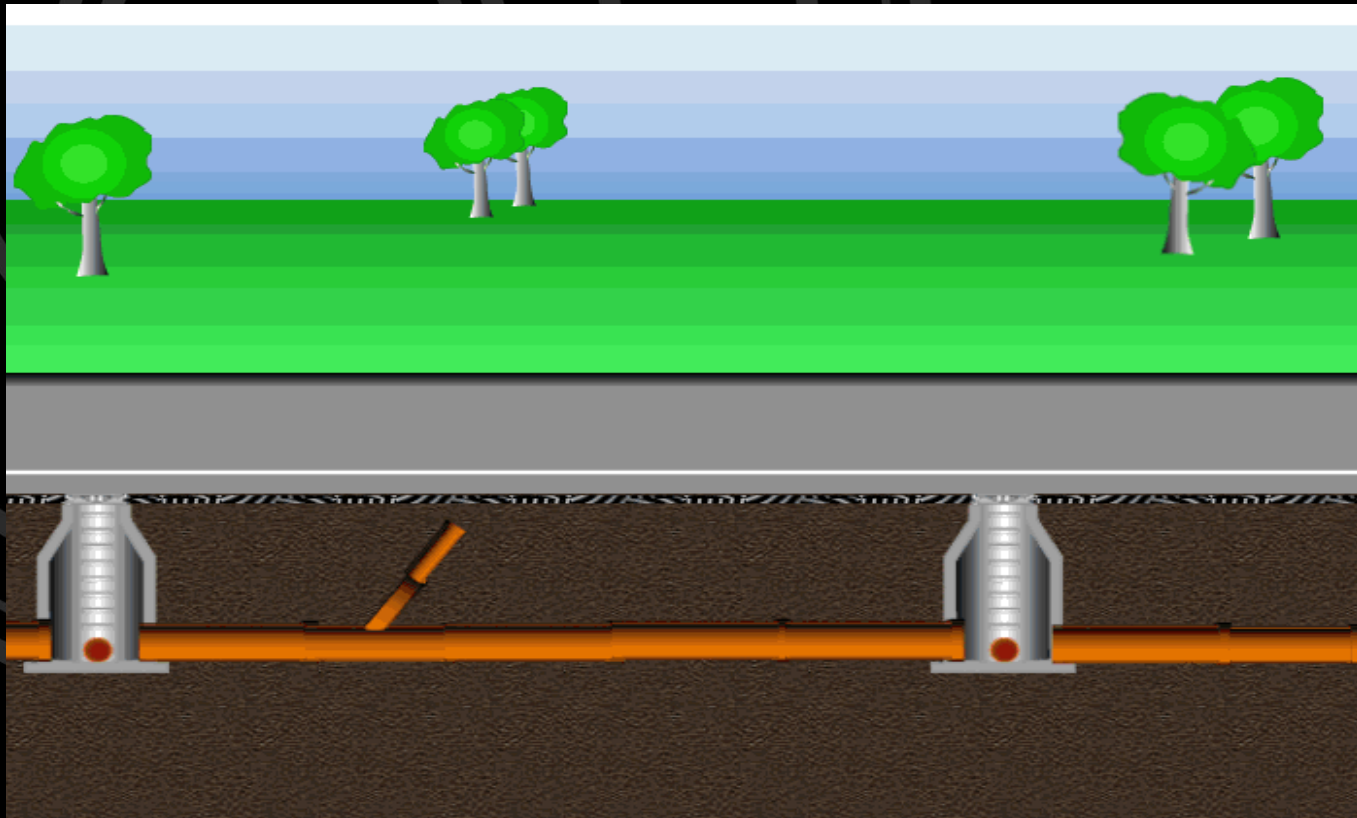
- Aging and Deteriorating Infrastructure Worldwide
- Water, Storm Sewer, Sanitary Sewer, Gas and Chemical pipelines
- Over \$2 Trillion in infrastructure projects in next 5 years in U.S.
- Of this, Rehab of thousands of miles of sanitary and storm sewers

CIPP – A Case Study

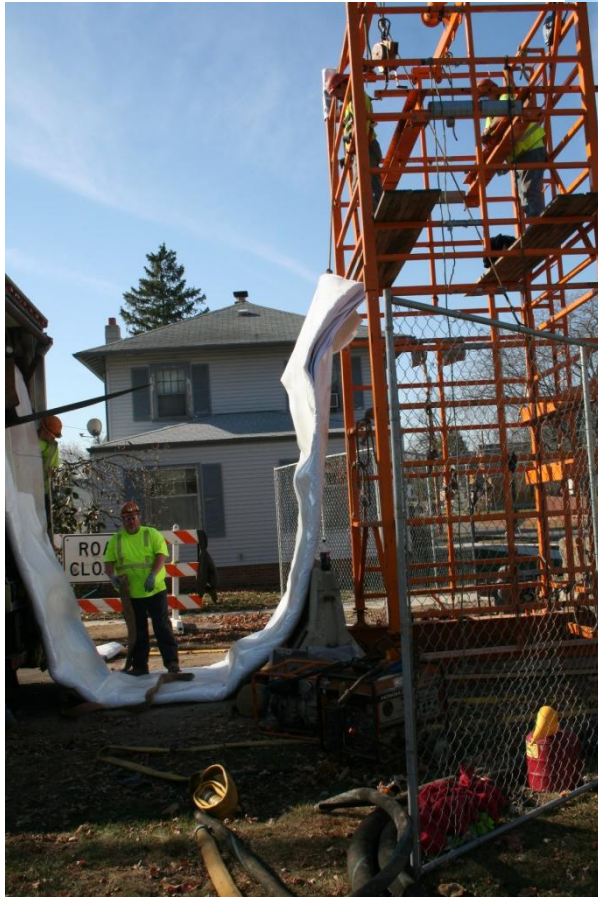
Definition

- Cured In Place Pipe
- Trenchless Technology to repair existing damaged pipelines.
- Resin-based Tube inverted or pulled in Host Pipe.
- Typically from manhole-to-manhole.
- Hot water, steam or UV light used to cure liner.
- Can take from 2 hours to 2 days to cure properly.

How it is Done



Site Photos



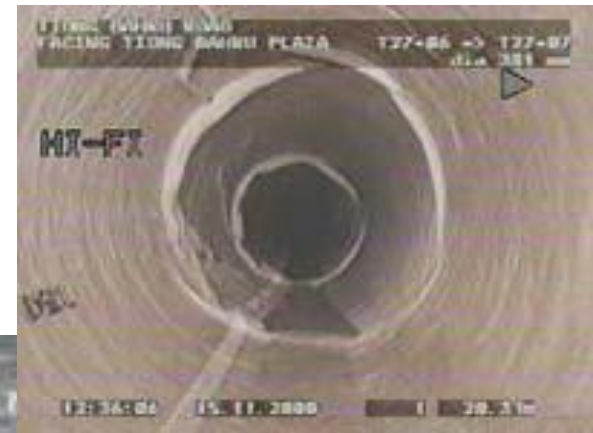
CIPP Monitoring

- Important to monitor and log entire CIPP process.
- Important to properly cure the tube.
- Currently, temperature readings taken manually, only at the A-Station and B-Station (manholes).
- Temperature readings along the pipeline are unknown.

CIPP Monitoring

- Cold spots may prevent proper curing.
- More difficult to warrant the job.
- Proper resin curing requires appropriate temperature readings all along the replacement pipe.

Site Photos



A Solution

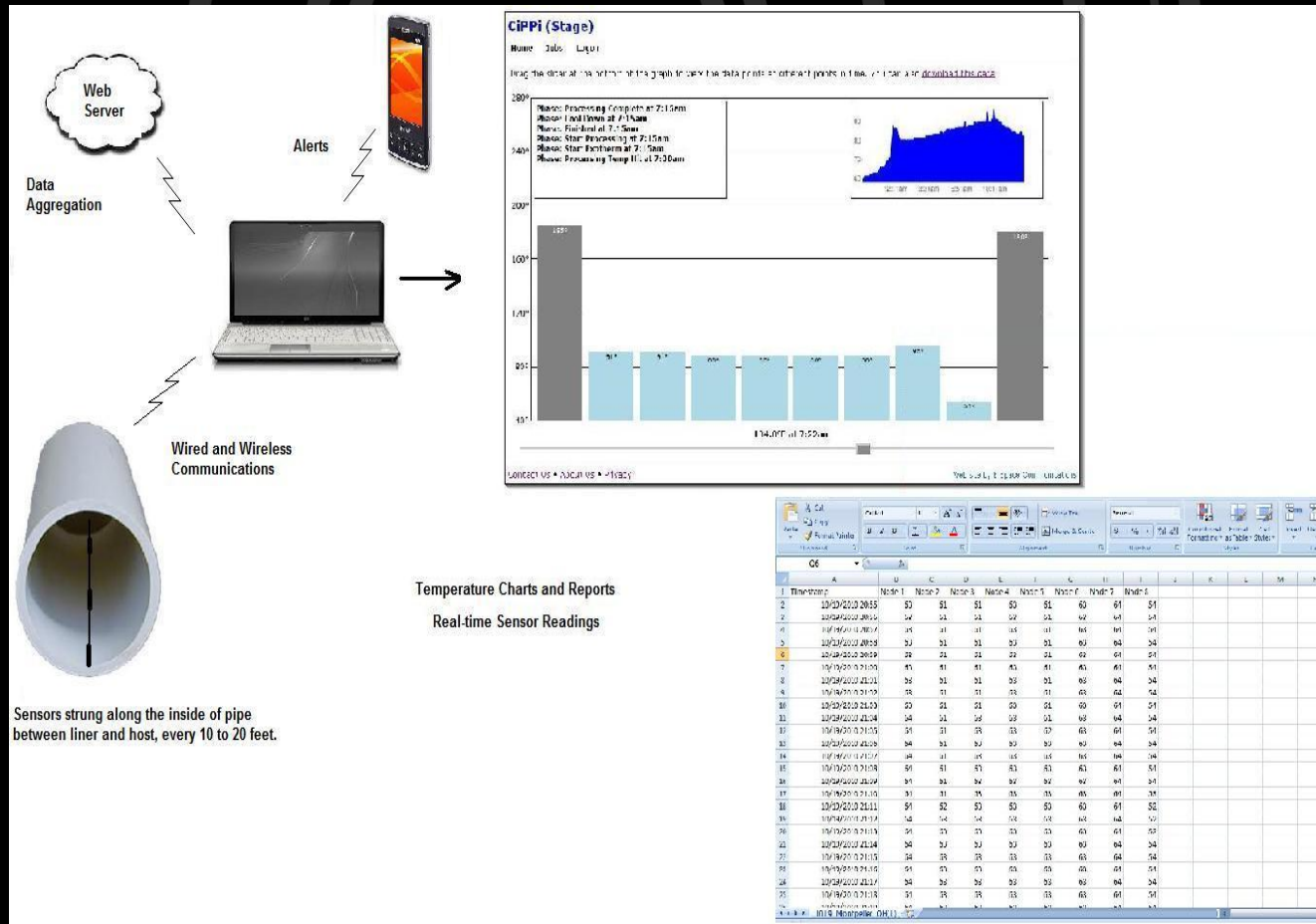
Real Time Sensor Monitoring

CIPP Intelligence (CiPPi TM)

- Incorporate a private wireless and wired mesh network at the site.
- Distribute Smart Temperature sensors along the inside of the pipe to be repaired (every 10 – 20 ft.).
- Monitor and report temperature readings in real-time to onsite computer (charts and reports), as well as remote.
- Alert crew if readings outside proper range.

CiPPI Solution

Mesh Networked Sensors



- “Smart” tags laid by cable within pipe.
- Sensors collect and transmit temperature readings to Onsite Computer.
- Temperature Readings are displayed in real-time on charts and reports.
- Data is transmitted to web-server for data aggregation and reporting.
- Alerts and reports can also be processed on smartphones.



CiPPi Value Proposition

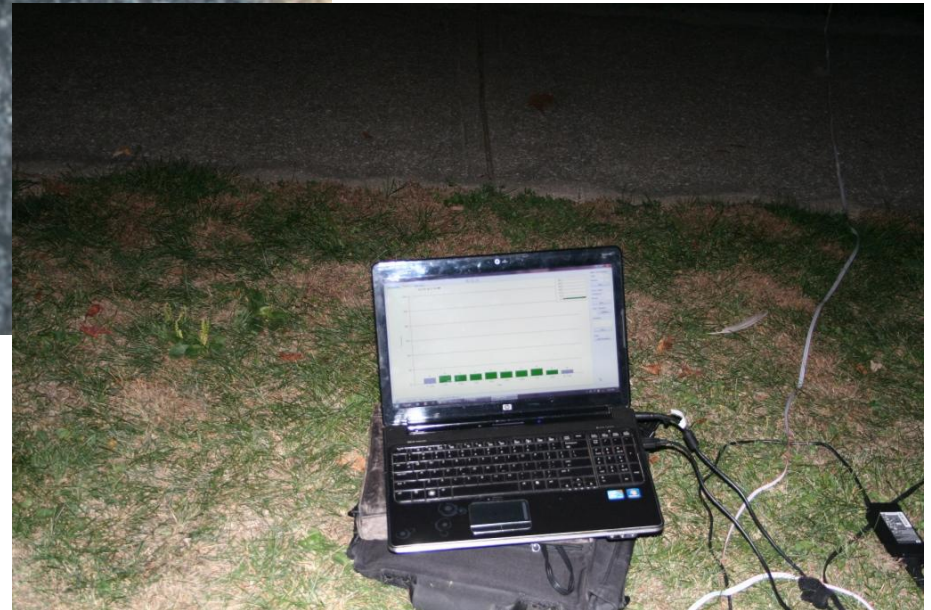
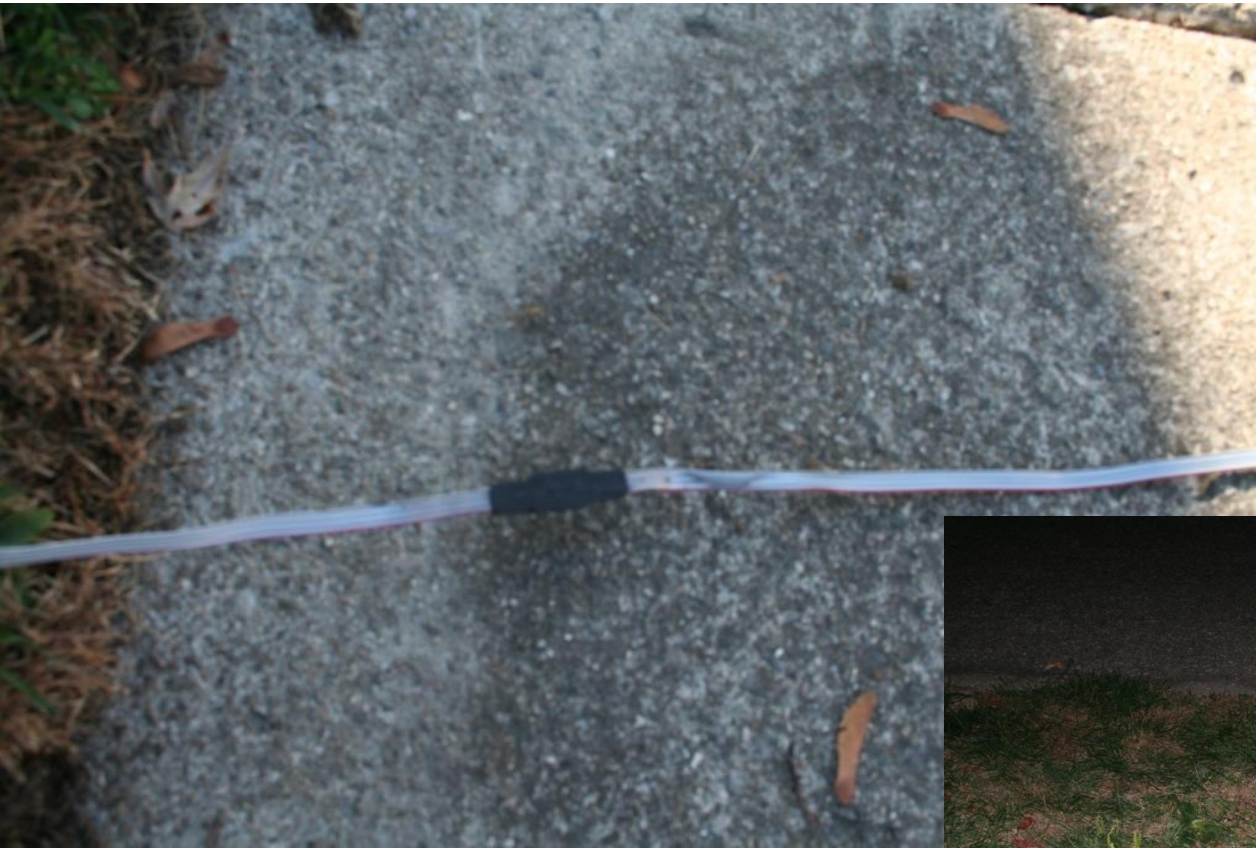
- Accurate and timely sensor readings (takes away recording errors).
- Pinpoints actual time of cure process.
- Easy to Install.
- No upfront capital expenses.
- Installed to design specs.



CiPPi Value Proposition

- Reduction in installation time.
- Reduction in fuel, equipment and labor costs.
- Ensures product safeguards and QA.
- Customer satisfaction.
- Data collected and stored for history reporting and monitoring.

Site Photos



Site Photos

Shot Information

CIPI, 1.2.1.9

Menu Site Information Temperatures Diagnostics

Job Number* Dublin0926 Crew Number Crew 00

First Node* 00 First Node Location* A Station

Temp Scale* Fahrenheit

Heat Cure: Temp* 130 Minutes* 30 Cool Cure: Temp* 110

Contractor Za CIPP Installers Customer City of Dublin

Site Address 1234 Main St Weather Clear

Suite 100

Columbus OH

Upstream Manhole # MH101 Downstream Manhole # MH201

Pipe Length 220 Pipe Diameter 10"

Pipe Type Pipe Shape

Wall Thickness 9 mm

Liner Supplier CIPP Inc Resin Type

Cure Type Water Sensor Spacing 20'

Begin

Instructions could go here. All of the input fields on the left side could be described here.

Or, this area could change as the user tabs from field to field, showing context sensitive help.

Or, we could use this real estate to group the related fields together and provide some extra white space between those groups.

Or, maybe a combination of all three would work.

Click "Begin" after completing form

12:27 PM 9/26/2011

Site Photos

Job Chart



Site Photos

Smart Phone App



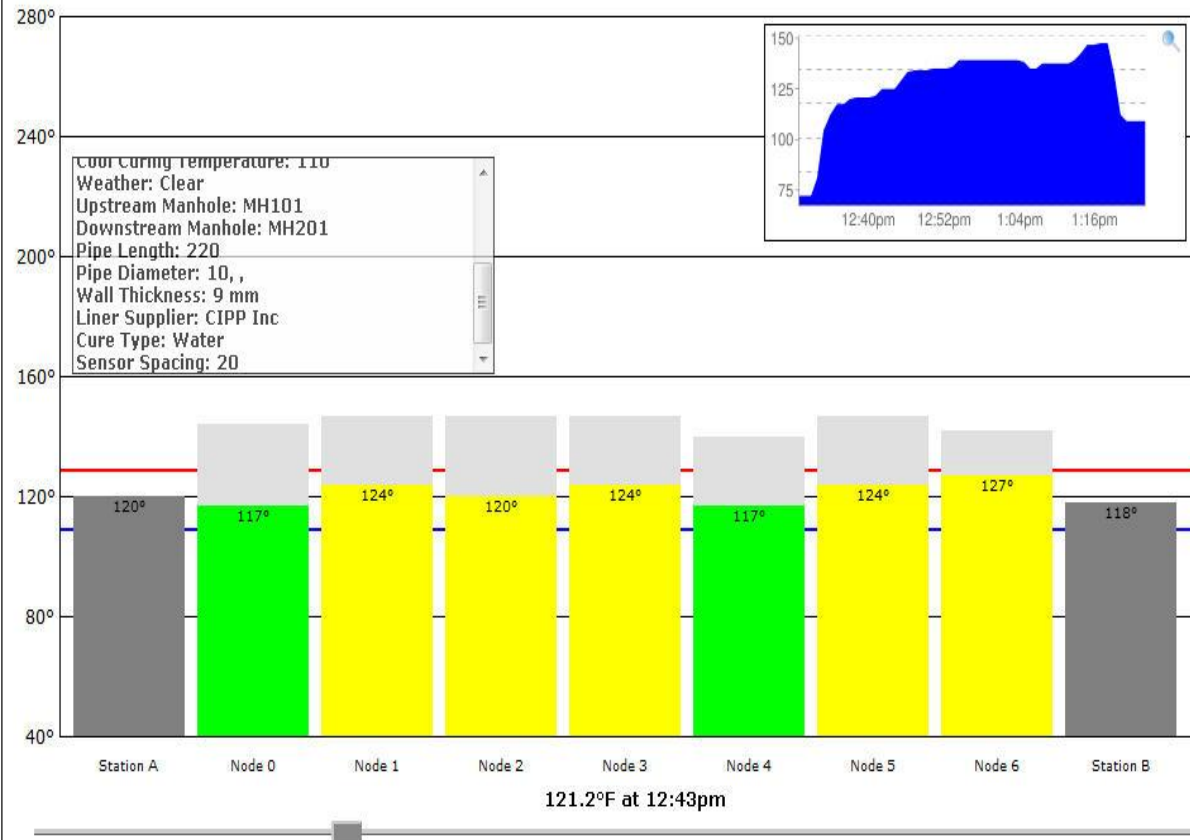
Site Photos

Web Chart

CiPPi (Stage)

[Home](#) [Jobs](#) [Upload](#) [Logon](#)

Drag the slider at the bottom of the graph to view the data points at different points in time. You can also [download this data](#) or [share this chart with someone else](#).



[Contact Us](#) • [About Us](#) • [Privacy](#) • [Admin](#)

Web site by E Space Communications

Site Photos

[illegible]



Contact

Gary Rapp

Zia Systems, LLC

614-419-4581

garyrapp@ziasystems.com

www.ziasystems.com