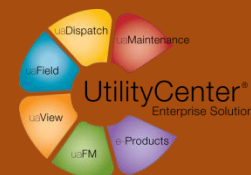




Trimble Fieldport® Overview

Chris Stern, P.E.
Director of Business Development
Trimble Utilities Field Solutions
Webinar
July 2008





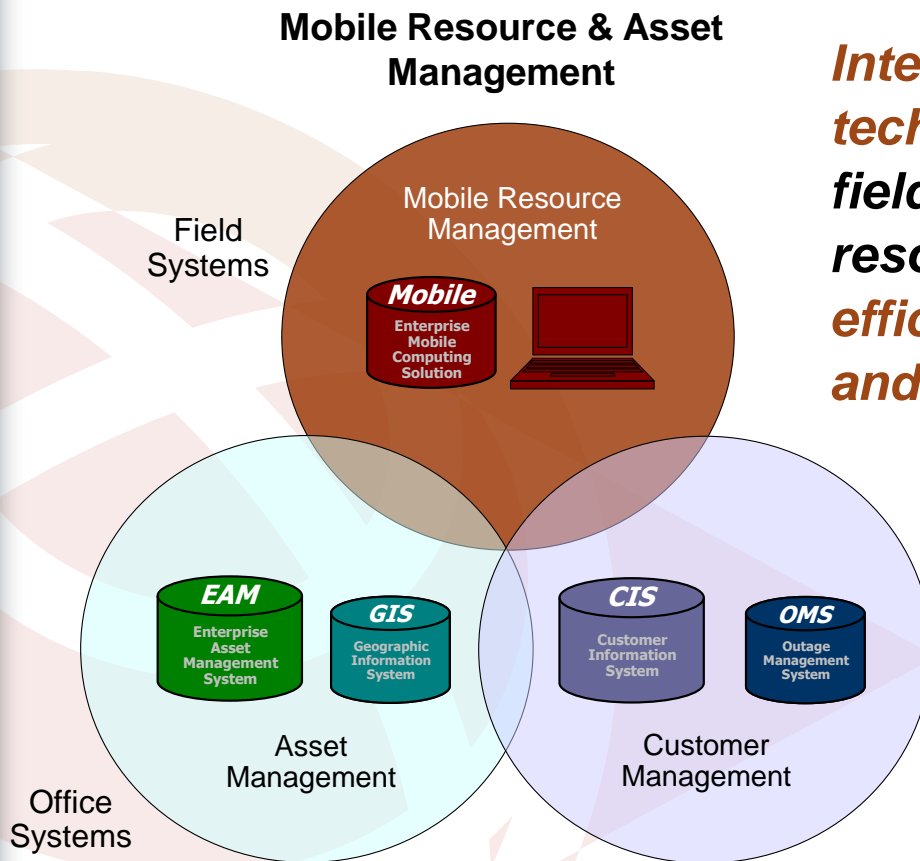
Trimble Fieldport[®]: Software for Utility Mobile Resource & Asset Management

- **Acquired from Spacient in November 2006**
- **GIS-based Software for Mobile Resource and Asset Management**
- **Built on the latest ESRI ArcGIS technology**
- **Customers include some of the largest utilities in the United States**
- **Complementary to other Trimble GIS and GPS products**



Product Vision

CAPTURE → **TRACK** → **MEASURE** → **IMPROVE**



Integrated processes and technologies for managing field activities and mobile resources to enable improved efficiency, asset management, and customer service

Product Focus on Improving Utility Field Operations

- **Bulk of utility workforce are mobile workers** (spend 66% to 86% of their time in the field)*
- **64% of operating budgets spent on field operations***
- **Field workers communicate frequently with the office** (at least 3 to 4 times per day)*
- **Majority of utilities with wireless have deployed to less than 50% of their field employees***
- ***BOTTOM LINE: Opportunity exists for up to 30% annual reduction in operating expenses***

* AwwaRF Field Computing Applications and Wireless Technologies for Water Utilities, 2008

Field Computing Applications
and Wireless Technologies
for Water Utilities

Report
Prepared by: Michael J. White, Robert E. Minko, and Michael A. Berman
for:
AWWA
Manufacturers, Distributors, and Retailers
and
Water Utilities
AWWA
1000 North 17th Street
Denver, CO 80202

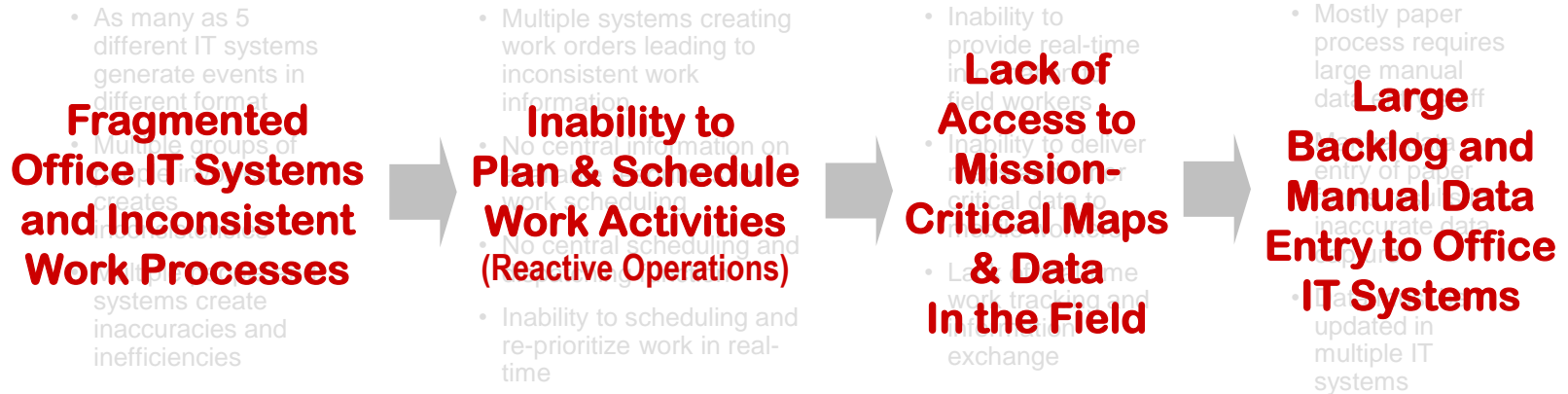
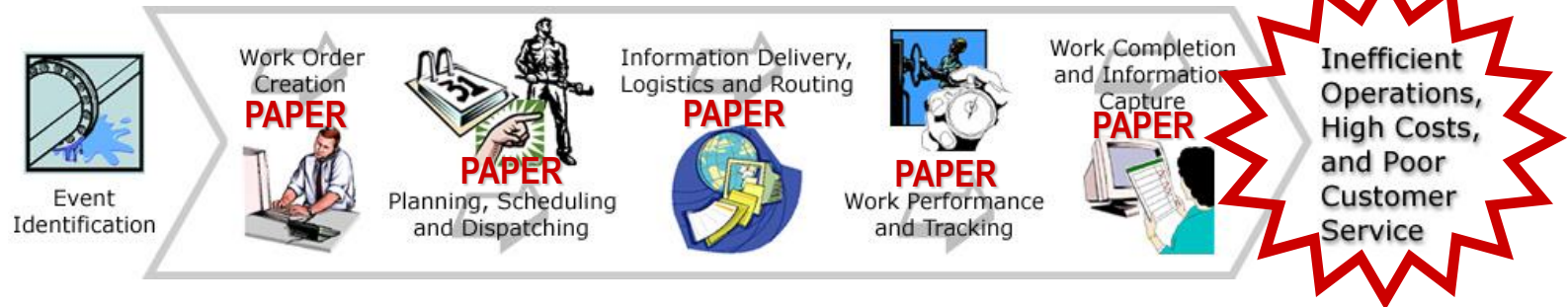
AWWA
Water Research Foundation
1000 North 17th Street
Denver, CO 80202





Designed to Address the Common Business Process Challenges

Multiple, manual paper-based work processes

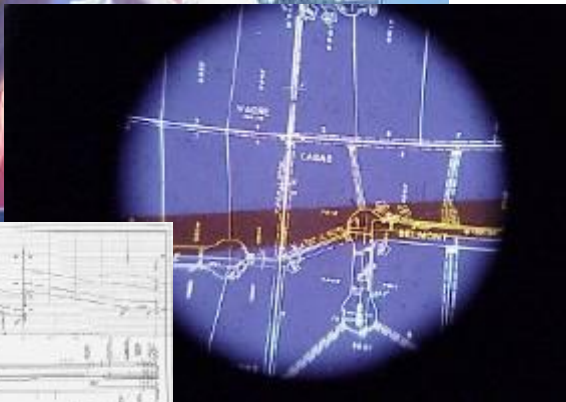


About 2/3 of mobile worker's day spent on unproductive activities

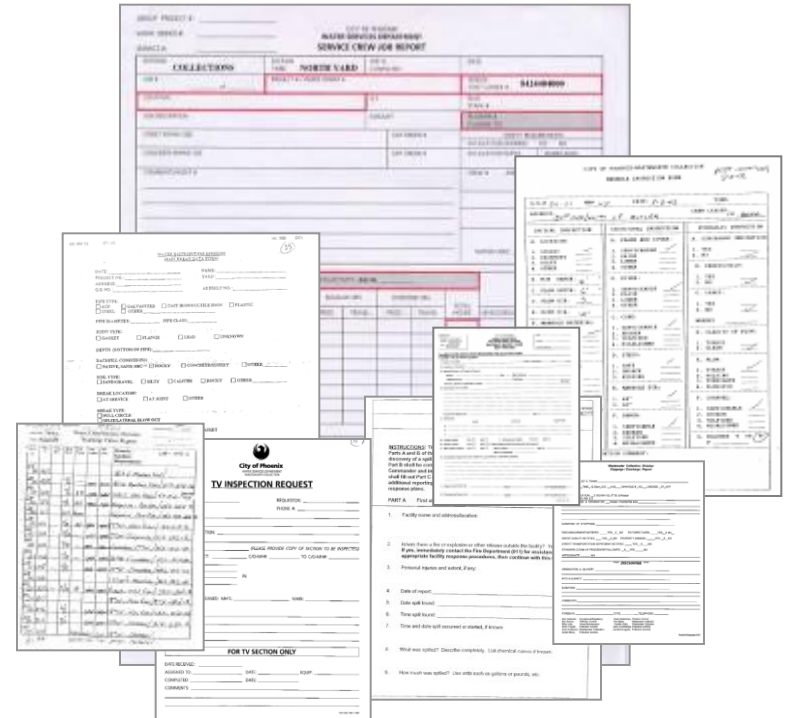


Providing Automation for Utilities that Lack Technology in the Field

Paper Maps Outdated and Difficult to Read



Volumes of Paperwork & Forms





The Trimble Fieldport® Solution: Automated Workflow

Automated, streamlined work processes

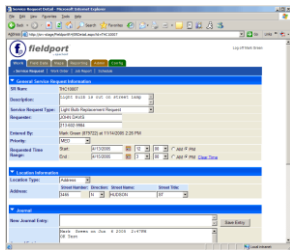


Event
Identification

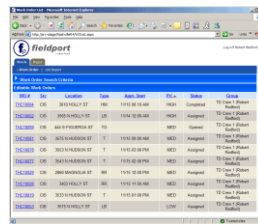


Streamlined
Operations,
Reduced Costs,
and Improved
Customer
Service

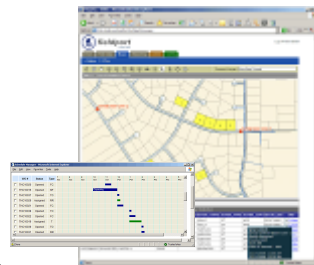
Capture / Input
Service Request



Deliver /
Dispatch Work



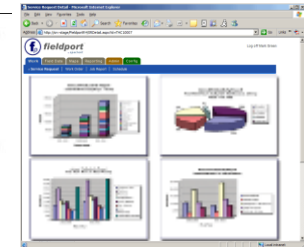
Plan and
Schedule Work



Perform Field
Work Using
Mobile Device



Generate Reports,
Track Work, and
Measure Performance





Typical Uses for Trimble Fieldport® Software

- **Deploying Mobile GIS to your Field Crews**
- **Adding Mobile to your Asset Management (EAM/CMMS) system**
- **Adding Mobile/Dispatching to your CIS**
- **Deploying a Mobile solution for asset inspection**
- **Adding Mobile GPS to your field operations**

Trimble Fieldport[®] Software: Technology

- Microsoft .NET Framework 2.0
- Identical web interface for desktop & mobile
- Modular, role-based, configurable architecture
- ESRI ArcGIS & GPS integration
- MSSQL/Oracle database
- Mobile device independent
- On-line & off-line functionality
- Enterprise application integration

Trimble Fieldport[®]

Software for Utility Asset and Field Service Management





Trimble Fieldport® Modules



Mobile GIS and Redlining
(ESRI Mobile GIS and Image Files with Redlining)

Web GIS
(GIS for Desktop Users with Web Browser)

Work Management
(Service Requests, Work Orders, Job Reports and *Workflow Automation*)



Asset Maintenance
(Scheduling for Asset Maintenance and Repair)

Resource Scheduling
(Automated advanced resource scheduling for work dispatch)

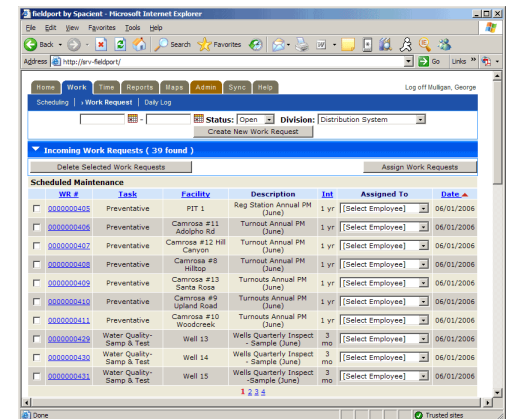
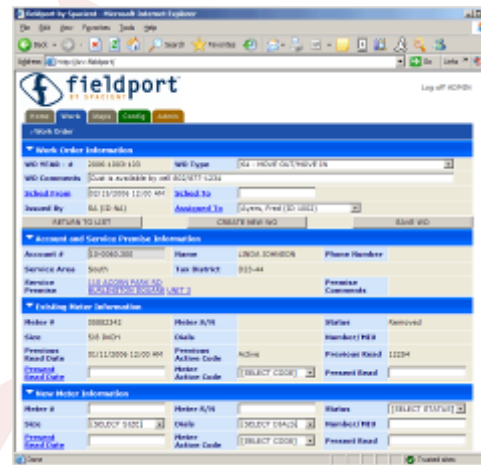
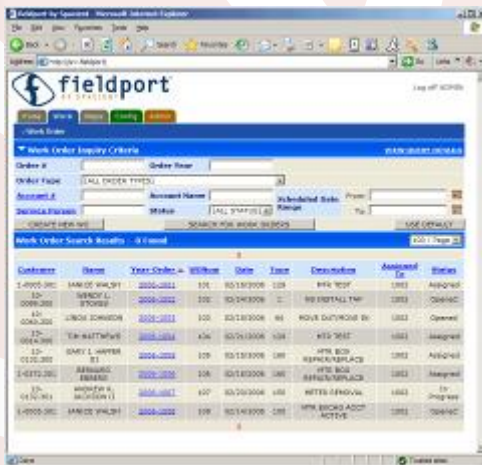
Timekeeping
(Timesheets for Time Management and Reporting)

GPS Tracking, AVL and Data Collection
(Automated Location Tracking and Field Data Capture)



Work Management Module

- Service Requests, Work Orders & Job Reports
- Custom and Standard Forms
- Multi-phase/component work flow
- Flexible routing rules
- Financial/account modeling





Asset Maintenance Module

- Preventative Maintenance (PM) scheduling
- Horizontal and vertical assets
- Maintenance routes
- Materials management

ID	Facility	Facility Type	Description	Estimated Hours	Actual Hours	Int	Delete
000000005			Charts - Run	16	0.00	1 wk	X
000000009			Chart data entry	4	0.00	1 wk	X
000000010			End of Month Readings	32	0.00	1 mo	X
000000011			End of Month Data Entry	4	0.00	1 mo	X

ID	Facility	Facility Type	Description	Estimated Hours	Actual Hours	Int	Delete
000000040	PIT 1	Rep Station	PIT 1	16	0.00	1 yr	X
000000046	Borland	Turnout	Borland Turnout	2	0.00	1 yr	X
000000058	Borland 2	Turnout	Borland #2	2	0.00	1 yr	X
000000102	Callie Yuca	Turnout	Callie Yuca Turnout	2	0.00	1 yr	X
000000110	East Kelly	Turnout	East Kelly	2	0.00	1 yr	X
000000118	Gansborough CA	Turnout	Gansborough CA	2	0.00	1 yr	X
000000120	La Jolla	Turnout	La Jolla	2	0.00	1 yr	X
000000146	Las Flores CA	Turnout	Las Flores CA	2	0.00	1 yr	X
000000171	Lawrence	Turnout	Lawrence	2	0.00	1 yr	X
000000141	Los Robles	Turnout	Los Robles	2	0.00	1 yr	X
000000144	NP Tank	Turnout	Newbury Park Tank	2	0.00	1 yr	X

Division & Project: Control System

For Division: Control System

Project Option: None

Account: N/A

Task: Maintenance

Task Name: Preventive

Task Desc: Borland

Facility: Turnout

Facility Type: Turnout

Facility Name: Borland

Estimated Hours & Staff

Unit Hours: 1

Estimated total

Attachment	Del	Attachment	Edit
Conejo PS Distribution Checklist (Weekly)	X		

Target: Conejo PS Distribution Checklist (Weekly) :103

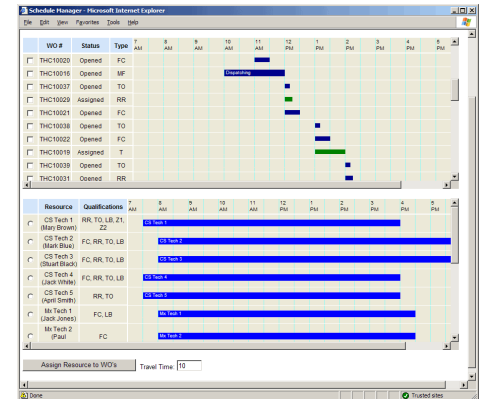
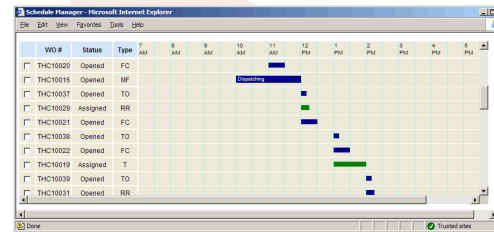
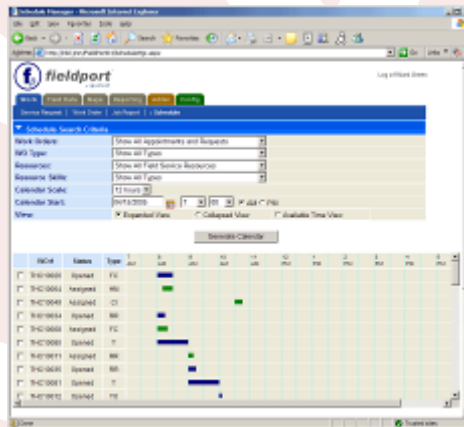
Equipment: Pump Systems

- Inspect Pump B for Leaks: Complete Repair Needed
- Inspect Motor B for Proper Oil Level: Complete Repair Needed
- Inspect Pump C for Proper Lubrication and Leaks: Complete Repair Needed
- Inspect Motor C for Proper Oil Level: Complete Repair Needed
- Inspect Pump D for Lubrication and Leaks: Complete Repair Needed
- Inspect Motor D for Proper Oil Level: Complete Repair Needed
- Inspect Pump E for Lubrication and Leaks: Complete Repair Needed
- Inspect Motor E for Proper Oil Level: Complete Repair Needed
- Inspect Motor F for Proper Oil Level: Complete Repair Needed
- Reset Tripped Pump and MCC Safety Alarms: Complete Repair Needed
- Inspect Pump B Section Valves for Leaks: Complete Repair Needed
- Inspect Pump C Section Valves for Leaks: Complete Repair Needed
- Inspect Pump D Section Valves for Leaks: Complete Repair Needed
- Inspect Pump E Section Valves for Leaks: Complete Repair Needed



Resource Scheduling Module

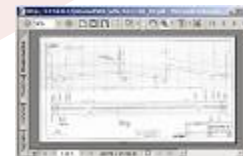
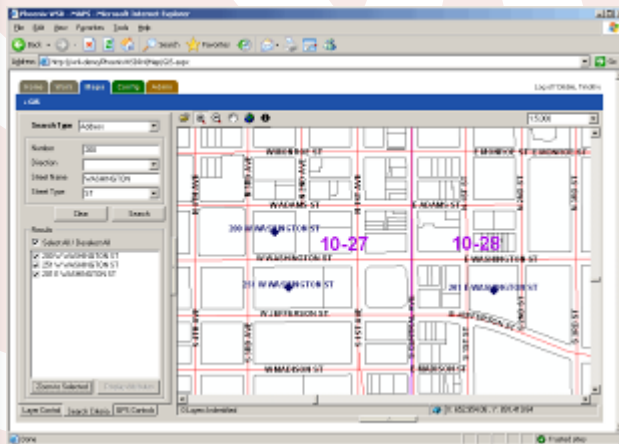
- Worker and resource scheduling
- Based on:
 - Skills & certifications
 - Resource availability
 - Location (with GPS)
- Appointment scheduling & tracking





GIS & Mapping Module

- Desktop/web and mobile GIS
- Integration with Work Management
- GPS/AVL Tracking
- Redlining and map markup (workflow-enabled)
- Image/Drawing/File management





GPS Tracking Module

- **GPS Track Equipment and resources**
- **Improve worker safety**
- **Improve resource management**
- **Deploy field crews based on resources and location**





Reporting Module

- Integration with SQL Server Reporting Services or Crystal Reports
- Track time and cost of work activities across modules
- Scheduled or on-demand with self-authoring also available

Account	Breaker	Drive	Lends	Poles	Blank	HUBB	BMD	Labor	Service	Occupancy	Puffing	Scales	Paper	Bob	Pugh	Jim	Station	Craig	Aches	Rick	Total
01285	4-8443							\$1,514.53												\$70.21	\$1,585.75
7080	4-8292							\$1,455.94												\$70.21	\$1,525.84
	4-8293							\$114.50	\$721.33											\$70.21	\$2,028.99
	4-8294							\$2,368.11	\$489.91											\$70.21	\$3,087.83
	4-8296								\$1,704.32											\$70.21	\$1,833.94
	4-8297																			\$70.21	\$70.81
	4-8298							\$1,471.57	\$4,432.05											\$70.21	\$5,982.84
	4-8311																			\$70.21	\$70.21
	4-8313							\$2,684.14												\$70.21	\$2,684.80
	4-8314							\$762.78	\$1,144.90											\$70.21	\$2,480.81
	4-8315								\$32.85											\$70.21	\$52.64
	4-8316							\$237.31												\$70.21	\$327.89
	4-8317							\$1,450.27	\$3,270.84											\$70.21	\$4,831.90
	4-8318							\$32,398.28	\$709.88											\$70.21	\$33,178.79
	4-8319								\$123.83											\$70.21	\$164.43
	4-8320							\$66.56												\$70.21	\$136.36
7033	4-096A	8436.52																		\$486.52	\$486.52
Total CR Costs		8436.52						\$22,358.48	\$11,938.49											\$1,089.20	\$35,783.73

Order Date:	Order No.:	Task Type / Task Desc:	Account / Npac:	Facility Type / Facility:	Com. Type / Conn:	Station No.:	Category:	Description:	Qty:	Rate (\$/hr):	Amount:
2/15/2004	3025	Capital Project / Project	7023-A-DPBA				Category:	Furnish. wire	1.50	\$29.20	\$43.80
							Order Labor:	Carroll wire	1.50	\$29.20	\$43.80
							Station:	wireline 17	1.50	\$29.40	\$44.10
Notes: Work on large tank building #2											
2/15/2004	3045	Capital Project / Project	7023-A-DPBA				Category:	Furnish. wire	2.00	\$29.20	\$58.40
							Order Labor:	Carroll wire	2.00	\$29.20	\$58.40
							Station:	wireline 17	2.00	\$29.40	\$58.80
Notes: surge tank well # 1											



Phoenix WSD: Trimble Fieldport® Enterprise Mobile GIS & Work Management

Enterprise mobile solution for utility field services

Client: **City of Phoenix Water Services Department**
The 5th largest City in the United States



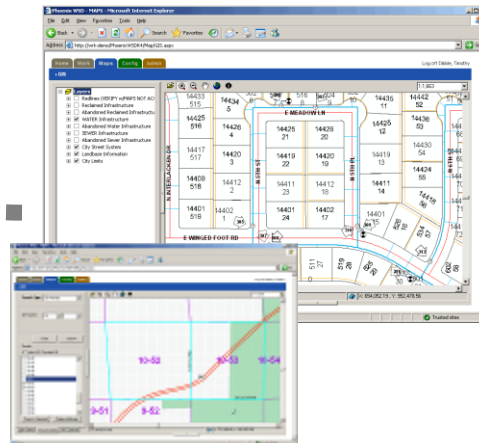
Project: **Mobile Application Program Solution (MAPS)**

Strategy, assessment and implementation of an enterprise web-based, mobile GIS and field computing system for over 200 water distribution and wastewater collection field service employees; with CMMS integration.

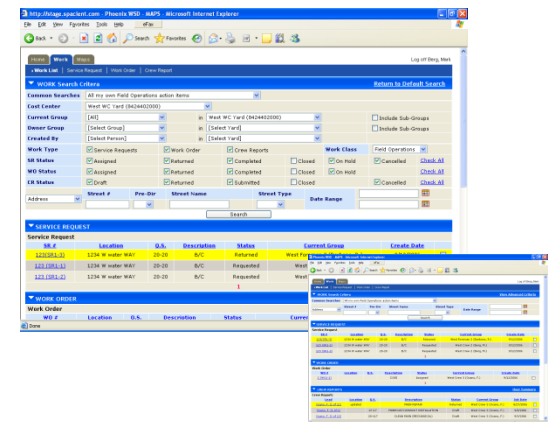
Mobile and Wireless
(Panasonic Toughbook
w/Built-in GPS)



GIS and Asset Management

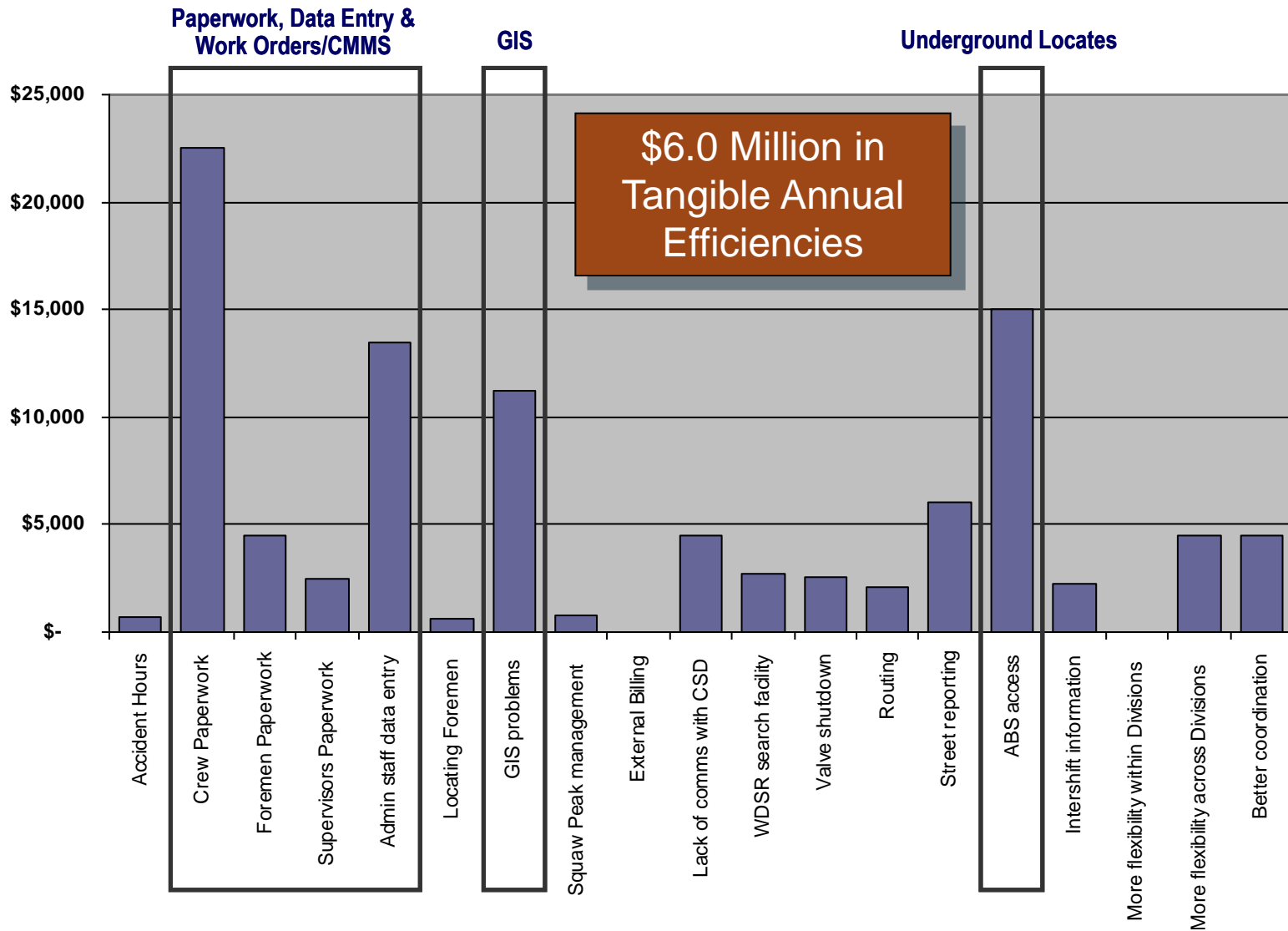


Work Management, Service
Requests and EAM Integration





Phoenix WSD: A Compelling Business Case for Field Automation





Phoenix WSD Benefits Delivered

- **Reduced GIS backlog from 2 years to 48 hours**
- **Improved # of field revisions from 50 to 500 per year**
- **Improved accuracy of GIS**
- **Opened direct communication lines between Field Crews and GIS Group**
- **Better asset management in the field**
- **Improved Field Crew efficiency and morale**



Summary

- **Fieldport[®] provides integrated solution for mobile resource and asset management**
- **Provides GPS and GIS based utility mobile mapping and work management**
- **Integrates with leading EAM/CMMS, CIS and ERP/Back office applications**
- **Scalable, configurable solution to support your mobile workforce**



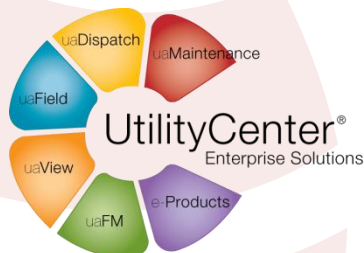
Contact GeoSystems NZ Ltd

Trimble Fieldport®

For Additional Information:

Trimble Utilities Field Solutions

Web: www.Trimble.com/UFS





Field Inspector

Warren Eade





Product Positioning

- **Field Inspector was created to automate a utilities existing CMMS.**
 - **CMMS = Computerized Maintenance Management System**
 - **A CMMS can a robust off-the-shelf solution**
 - **GBA Master Series**
 - **Maximo**
 - **Ventyx**
 - **CityWorks**
 - **Or it could be a home grown solution**
 - **Access Database**
 - **Excel Spreadsheet**
 - **Paper**
 - **Spatial Database**



Product Positioning

- **There has long been a gap between CMMS and Field GIS**
 - **Many systems, off-the-shelf or homegrown, have put significant effort into bridging the tabular/spatial gap but have come up short.**
 - **Field Inspector is not meant to be a replacement of a utilities CMMS but a tool to bridge the gap between tabular based systems and GIS.**



Trimble Field Inspector

Utility handheld field maintenance and inspection solution for asset management and Smart Meter deployment

Features and Benefits:

- Manage jobs and inspections
- Eliminates paper forms
- Incorporates GPS, barcodes and digital photos
- Seamless flow of data between the field and office
- Improves accuracy of field collected GIS and asset data

Handheld Work Management with Integrated GPS, Barcode Scanning, and Digital Image Capture





Features

- Office software component for centralized configuration, device management, and administration
- Interoperability with back-office ESRI GIS and ODBC compliant databases
- Simple user interface that is easy to introduce to non-technical field workers
- Configurable forms for simple, efficient, and accurate field data collection
- Map view of data allows for easy identification of work assignments and status
- Support for asset maintenance and inspection checklists
- Integration of GPS location information with field inspections
- Seamless digital photo capture and association with inspection tasks
- Internal 1D barcode scanner on supported hardware models
- Digital sketch capability on handheld devices
- Electronic signature capture



Benefits

- **Simple, intuitive, and easy-to-use** handheld solution for utility field workers
- **Automates** a wide variety of utility field applications—from smart meter deployment to valve inspections
- **Cost effective** turnkey solution for utility organizations of all sizes
- Enables **seamless flow of data** between field and office
- Easily **integrates with existing utility back office systems** and Trimble Utilities Field Solutions software
- Offers **configurable workflows** to match current business processes
- Works with choice of **Trimble handheld devices**
- **Integrates** GPS, 1D and 2D barcode scanning, digital photos, digital sketches, and electronic signatures
- **Standardizes** field data collection and management
- Improves field **worker productivity and reduces costs**



Trimble Field Inspector

Many Utility Field Activities

Water, Wastewater & Remote Facilities activities

WATER DISTRIBUTION

1. Main Repairs
2. New Service Taps \leq 2 in.
3. Service Line Repairs
4. Service Turn-ons/off
5. Small Valve Maintenance
6. Hydrant Replacements
7. Transmission Line Repairs
8. New Service Taps $>$ 2 in.
9. Large Valve Maintenance
10. Hydrant Repairs
11. Line Flushing
12. Fire Flow Testing

WASTEWATER COLLECTION

1. New Sewer Taps
2. MH Repairs
3. MH Inspections
4. Sewer Stoppages
5. Sewer Spills
6. Vactor Cleaning
7. Rodder Cleaning
8. Dye Testing
9. Smoke Testing
10. WC Construction
11. TV Inspection

REMOTE FACILITIES

1. Well Maintenance
2. Reservoir Maintenance
3. Booster Pump Stations
4. Tank Maintenance
5. Pump Maintenance
6. Lift Station Maintenance
7. Large Valve Maintenance
8. Large Meter Maintenance
9. Pressure Regulating Sta.



Water-Wastewater Industry Use Cases

- **Fire Hydrant Inspection**
- **Valve Inspection**
- **Pump Station Inspection**
- **Meter Test**
- **Underground Locate**
- **Manhole Inspection**
- **Sanitary Sewer Overflow Check**
- **Lift Station Inspection**
- **Well Inspection**



Field Inspector End User

Enabling “Precise” Smart Meter Deployment and Management

Trimble Field Inspector Handheld Software and GPS Field Device



GIS Spatial View of Meters and Work



Location-Aware Work List and Route for Meter Change Out



Scan Meter Barcodes and Capture Digital Photos



Complete Meter Work Order with Data Validation