DIGITAL MAPPING TECHNIQUES 2013

The following was presented at DMT'13
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Golden, CO)

The contents of this document are provisional

See Presentations and Proceedings
from the DMT Meetings (1997-2013)

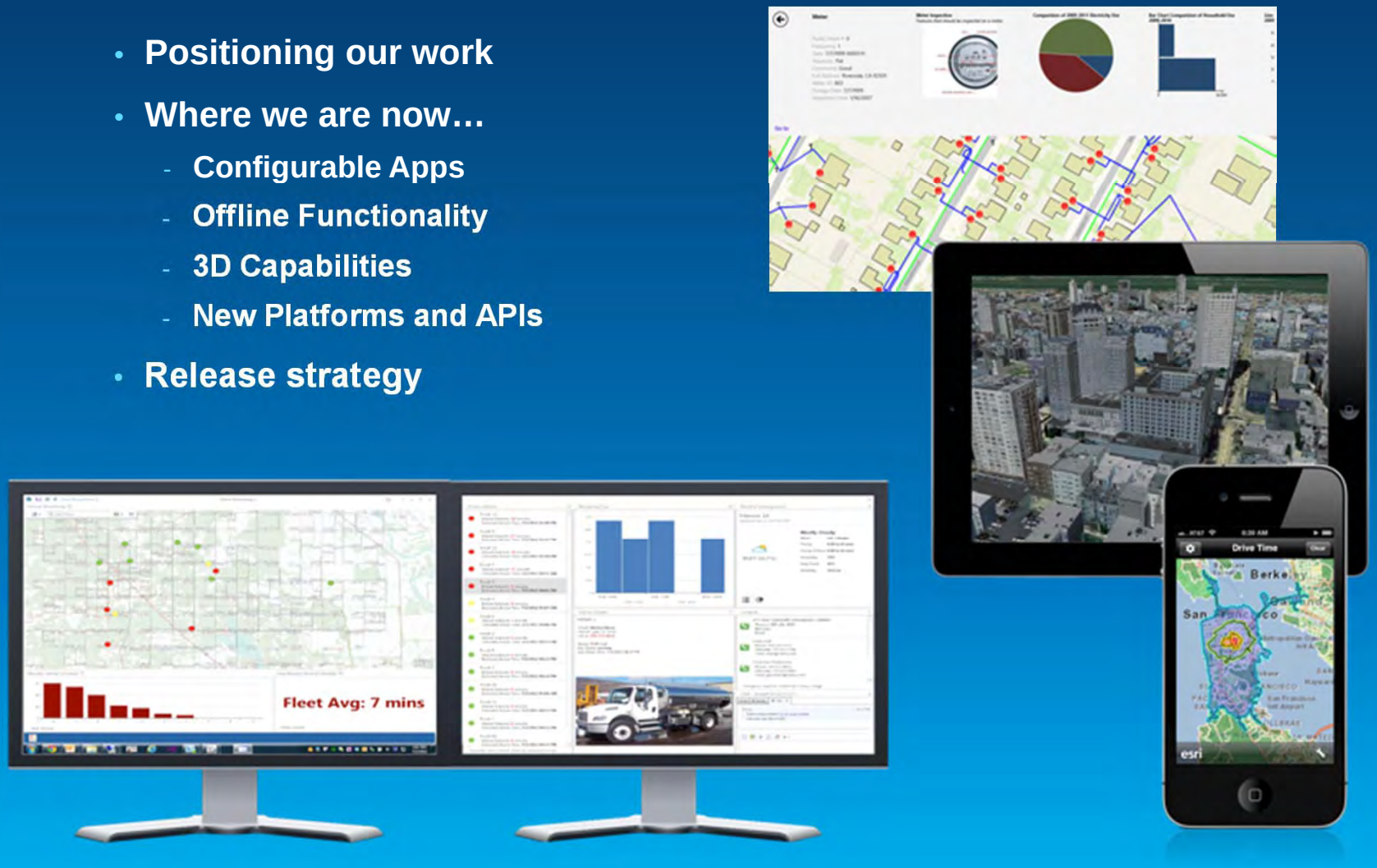
http://ngmdb.usgs.gov/info/dmt/

Mobile GIS for Geoscience Fieldwork- Current and Coming Options on the Esri Platform

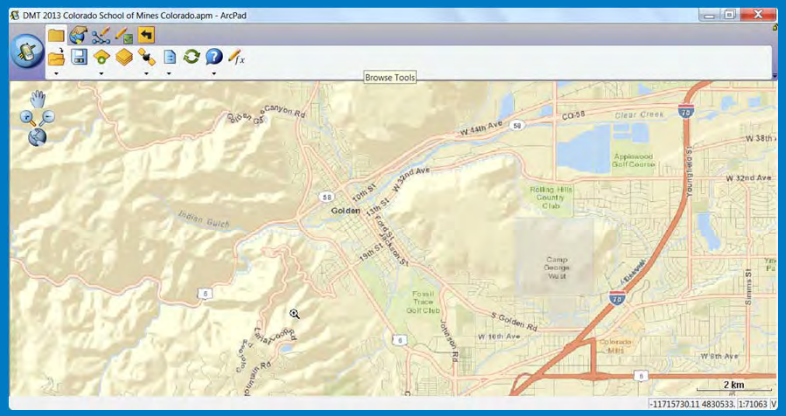
Willy Lynch, Jeff Shaner & David Cardella

Mobile GIS

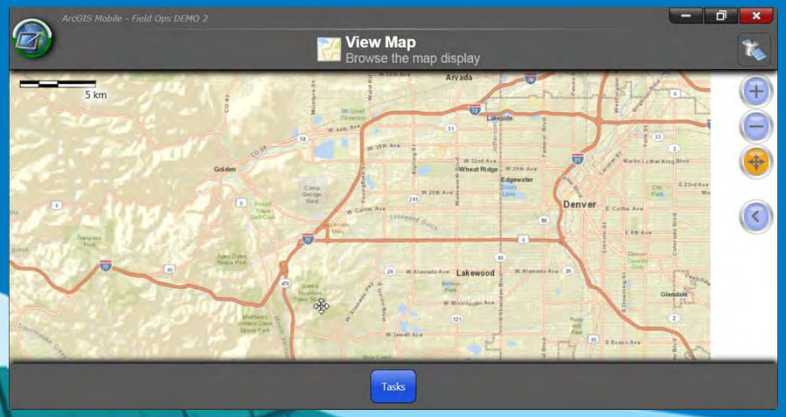
- Positioning our work
- Where we are now…
  - Configurable Apps
  - Offline Functionality
  - 3D Capabilities
  - New Platforms and APIs
- Release strategy



Mobile Technology for the Knowledge Worker



Where Are We Now?

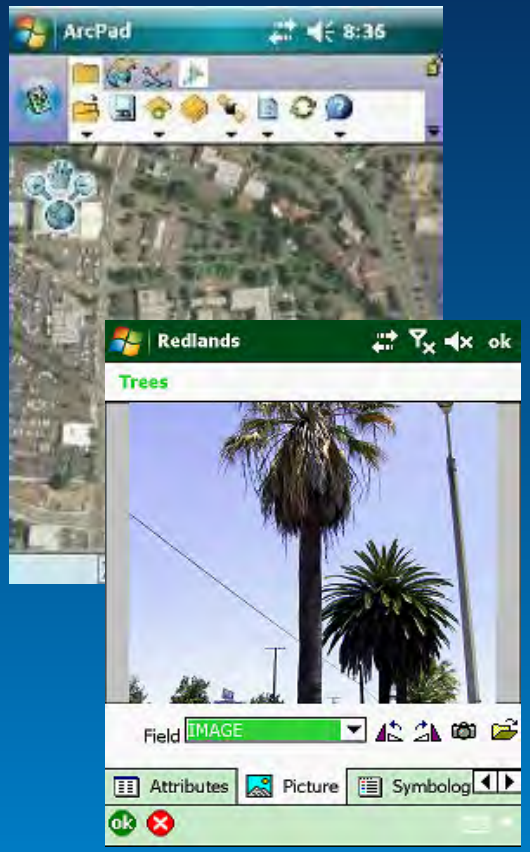


Device Platforms

Windows Mobile	Windows	Windows Phone 7/8	iOS	Android	Linux
Apps • ArcGIS, ArcPad	**Apps** • ArcGIS • Ops Dashboard	**Apps** • ArcGIS	**Apps** • ArcGIS • Collector	**Apps** • ArcGIS • Collector	
Runtime SDK • .NET CF	**Runtime SDKs** • WPF, Java	**Runtime SDK** • Silverlight	**Runtime SDK** • Objective C	**Runtime SDK** • Java	**Runtime SDK** • Java

ArcPad

- Full Featured Mobile GIS App
- Ad-hoc data collection projects
- High accuracy GPS
- Configurable
- Custom forms
- Fully Disconnected
- Users typically need GIS Training

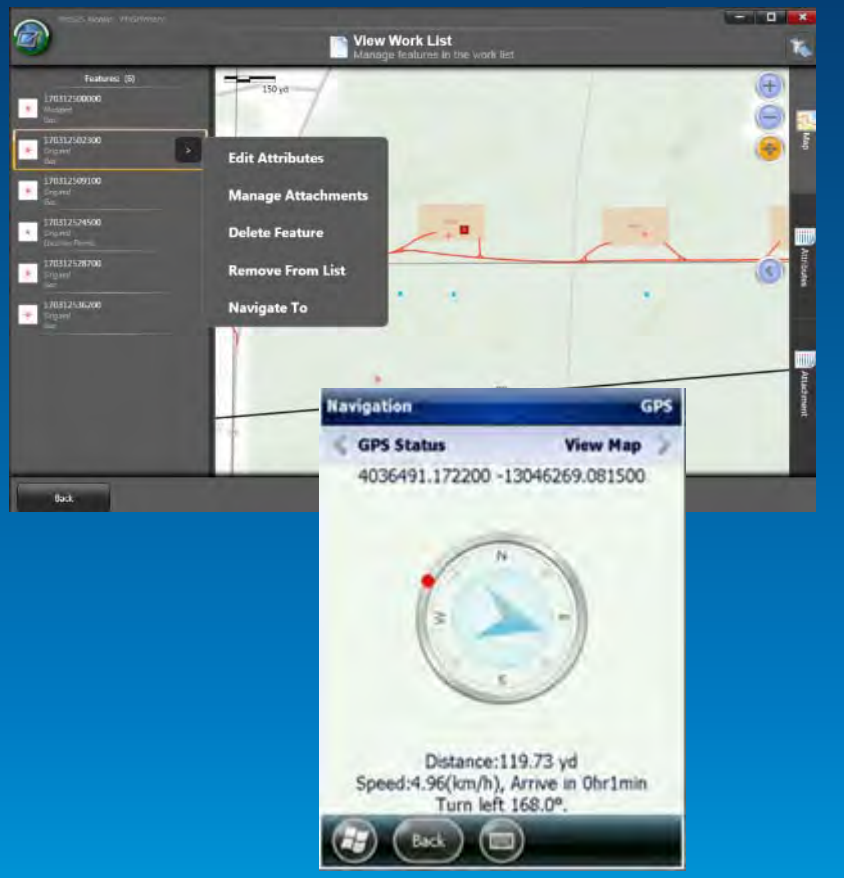


Windows 7/8 Laptops

Windows Mobile handhelds

ArcGIS for Windows Mobile

- Configurable workflows
- High accuracy GPS
- Custom forms
- Fully disconnected
- ArcGIS Online/ArcGIS Server Packaging and Deployment
- Users typically need little training
- .NET/CF API for Windows Tablet/Mobile
- Applications are extensible!



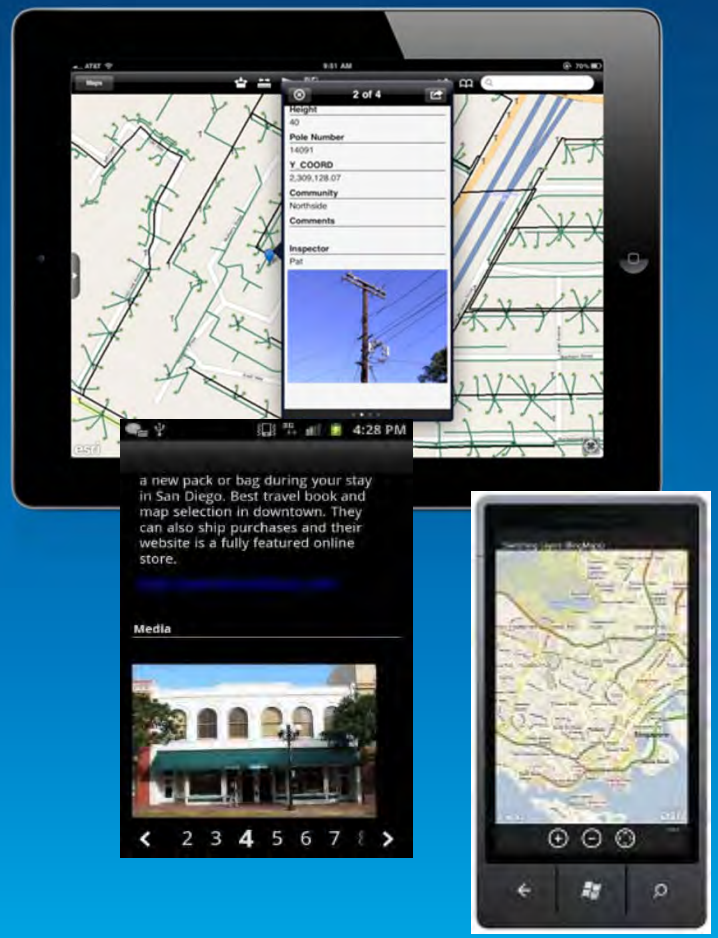
Windows 7/8 Laptops

Windows Mobile handhelds

ArcGIS App

Map viewing and display

- Role-based access
- View and Share Maps
- ArcGIS Online/ArcGIS Server access
- Popups
- Search
- Redlining
- Online access only



Operations Dashboard

Monitor day to day operations or events

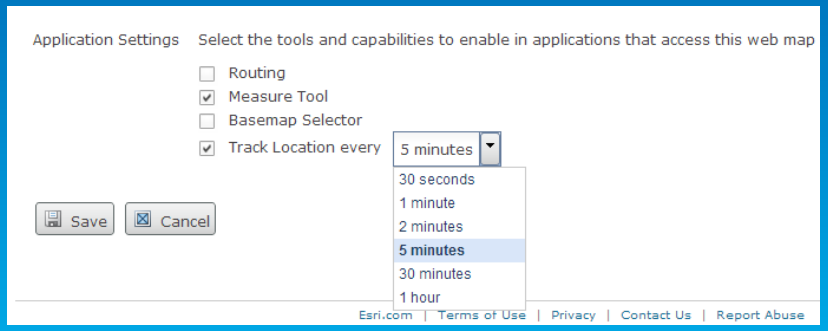
- Role-based access, configurable
- Widgets
  - Bar Charts
  - Gauges
  - Histograms
  - Indicators
  - Lists
  - Details
- Monitor operations in a control center
- Provide executive view on laptops, touch screen devices

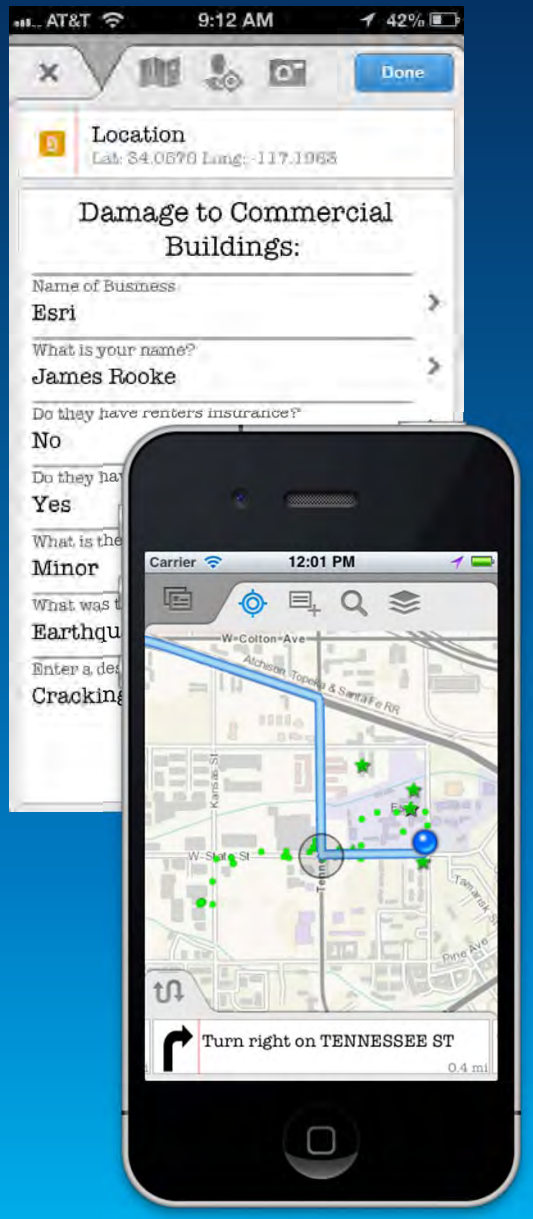
Multi-monitor use

Single-monitor use

Collector

- Collect new GIS features using map or GPS
- Complete intelligent data entry forms
- Attach photos and video
- Find places and points of interest
- Get driving directions to places and features
- Measure distance and area
- Location tracking





iPhone, Android Phone devices

ArcGIS for Windows 8

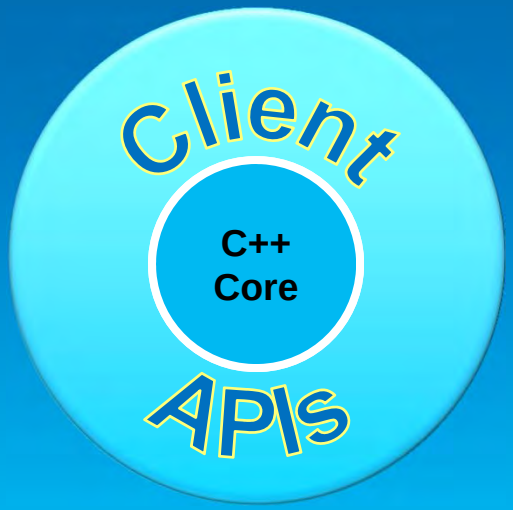
Preview Application

- Designed for Windows 8 tablets
- Browse collection of maps
- Popups
- Measure
- Search

Preview of things to come…

ArcGIS Runtime SDKs

- Runtime Core
  - C++
  - Small
  - High performance
- Client APIs Expose Functionality to Developers
  - DotNet
    - C#, VB.NET
  - Java
    - Android, Java SE
  - Objective C
    - Cocoa, Cocoa Touch
  - C++
    - Qt



Device Platforms

Built from a common GIS Runtime

Configurable Apps

- ArcGIS for iOS, Android, Windows Phone
- Collector for ArcGIS
- Operations Dashboard
- Your Apps

ArcGIS Runtime SDKs

- Mac OS X (Objective C)
- iOS (Objective C)
- Android (Java)
- Linux (C++, Java)
- Windows Phone (Silverlight)
- Windows (WinRT)
- Windows (WPF)
- Windows (Java SE)

Core ArcGIS Runtime Components

- Geometry
- Sync Framework
- Graphics
- Symbols
- Map Grids
- Spatial Reference
- Feature Cache
- Tiles
- Messaging
- Map Display
- 3D
- More…

Where Are We Heading?

What Are We Working On?

More than just a runtime…

- **Apps**
  - **Deliver functionality to end users across platforms**
- **APIs and SDKs**
  - **Deliver capabilities to developers native to the platform**
- **The Runtime**
  - **Enabling technology**
- **Release Strategy**

ArcGIS 10.2 Release- Consistent across Platform

Rugged Device Apps

Windows and Windows Mobile Platforms

- ArcPad
  - Support Data Synchronization using Feature Services
  - Project Hub
  - Quick Fields
- ArcGIS for Windows Mobile
  - Stability and Performance

Smartphone and Tablet Apps

- ArcGIS
  - Full support for Windows Phone 8
  - Expanded support for scale dependency on layers
  - Support for overriding editing on web maps
  - Support for layer filters on web maps
  - New Layer Support: KML
  - Federated Security
- Collector
  - New Sign in experience
  - Sample maps experience, trial and resource information
  - Offline use
  - More advanced collection capabilities
- Dashboard
  - Video integration
  - Dispatching and Management
  - Enhanced layer support
  - Analysis widgets

Disconnected GIS Capabilities

- Support Disconnected and Partially Connected Workflows across platforms
- Disconnected Functionality Supported
  - Map Viewing, Data Editing, Feature Query, Routing, Geocoding
  - Feature Data storage using SQL Lite
  - Replica of a Feature Service (will require 10.2 of ArcGIS Server or ArcGIS Online Hosted Feature Service)
- Release in phases
  - Map Viewing, Data Editing, Feature Query
    - Includes stand-alone and related table support
    - “Cache on Device” sync model
  - Routing…
    - Along with client navigation capabilities
    - Provision to device model…

ArcGIS Online/ArcGIS Server Feature Services

Routing and Navigation

- Connected and disconnected routing and navigation solutions
- Capabilities include:
  - Point to point routing
  - Multi-stop routes
  - Navigation with turn-by-turn and voice directions

3D on Devices

- Driving Use Cases
  - Desktop Users - Better performance
  - Mobile Customers – site selection

- 3D Data Viewing
  - Map Services
  - Elevation Services
  - Feature Services
  - KML

New Platforms

- Mac OS

- Windows 8 “Metro”
- Windows Phone 8

Release Strategy

- Applications team release strategy for 2013:
  - Similar functionality across SDKs
  - Synchronized releases between SDKs
  - Synchronized releases across apps

Demo

Download ArcPad

http://www.esri.com/software/arcgis/arcpad/evaluate

Download ArcGIS & Collector Apps

Visit Google Play, the Apple App Store, Amazon Appstore, and Windows Phone Marketplace

Download ArcGIS for Windows Mobile

Download from Esri Customer Care Portal (https://customers.esri.com/)

Mobile Solutions That Fit Your Enterprise

A variety of mapping applications are available to help you improve field operations and make more informed business decisions.

Apps for Smartphones and Tablets

Apps for Smartphones and Tablets extends the reach of your enterprise GIS to a wider audience.

- Leverage the Collector app and ArcGIS app on a variety of devices.
- Navigate maps, collect and report data, and perform GIS analysis.
- Access and share your enterprise GIS via ArcGIS Online or ArcGIS for Server.
- Includes a developer SDK to build custom mapping applications that meet your specific

ArcGIS for Windows Mobile

ArcGIS for Windows Mobile provides an accurate, reliable, common operating picture for staff.

- Task-driven mobile GIS application for Windows Mobile and Windows tablet devices.
- Central management, configuration, and deployment of apps and projects.
- Synchronizes GIS information from server and desktop clients.
- Includes a .NET SDK for building custom applications.

ArcPad

ArcPad increases data accuracy and improves field productivity.

- Map-centric and Windows-based field mapping and data collection application for GIS professionals.
- Advanced GIS capabilities which support ad-hoc data collection.
- GPS integration to facilitate post-processing.
- Supports related tables.

Questions ?

esri

Understanding our world.