

Technology Integration & Advancement

Transforming the way the world
works!

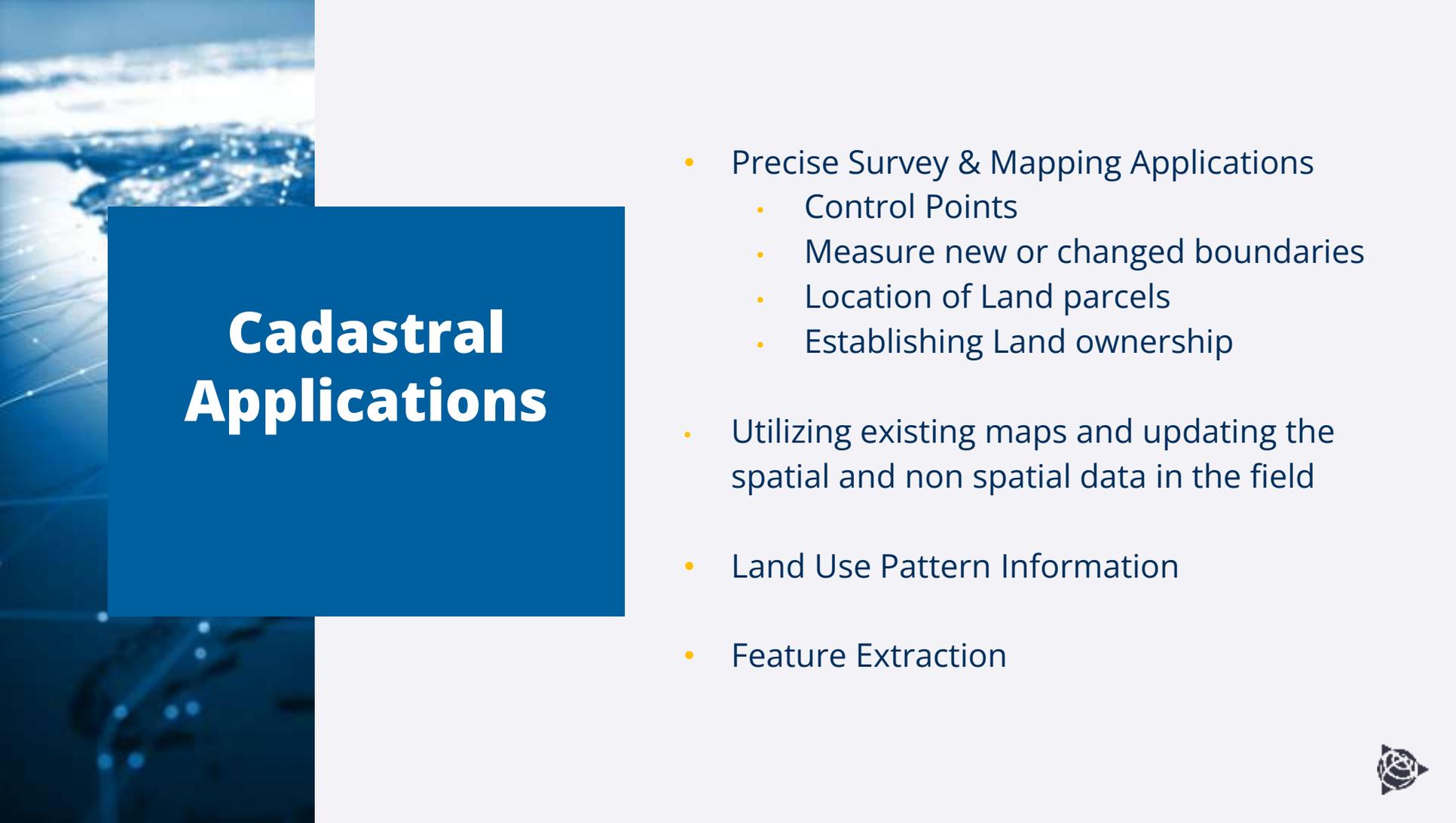




Technology Challenges

1. Which Technology- Too many choices?
2. How to achieve Consistency? Accurate Survey Data
3. How to Share information quickly with back office?
4. How to integrate data captured from various sources?
5. How to integrate with GIS software and update the records?





Cadastral Applications

- Precise Survey & Mapping Applications
 - Control Points
 - Measure new or changed boundaries
 - Location of Land parcels
 - Establishing Land ownership
- Utilizing existing maps and updating the spatial and non spatial data in the field
- Land Use Pattern Information
- Feature Extraction



01

Technology Selection



Multiple Sensors



GNSS



TOTAL
STATION



MOBILE
MAPPING



DRONES



SCANNER



SCANNING TS

Trimble Survey and Data collection Solutions

Combine all sensors for measurements and computations

Integrated Surveying

- One file one Job
- Higher quality and efficiency of data collection
- Higher accuracy – Common scale factor
- Higher productivity
- Collected data and deliverables in Global Platform



2.4 GHz
Radio



02

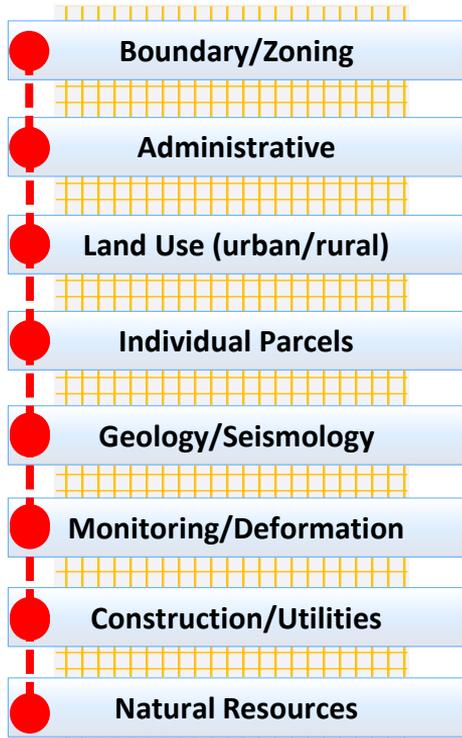
Achieving Consistency



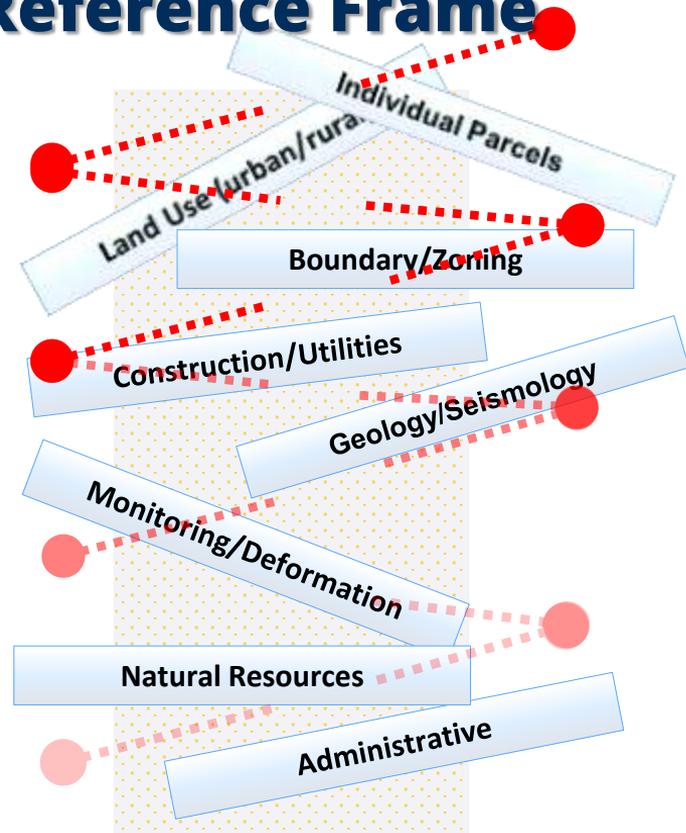
CORS - Backbone to Achieve the Project Goals



The Benefits of a Common Reference Frame

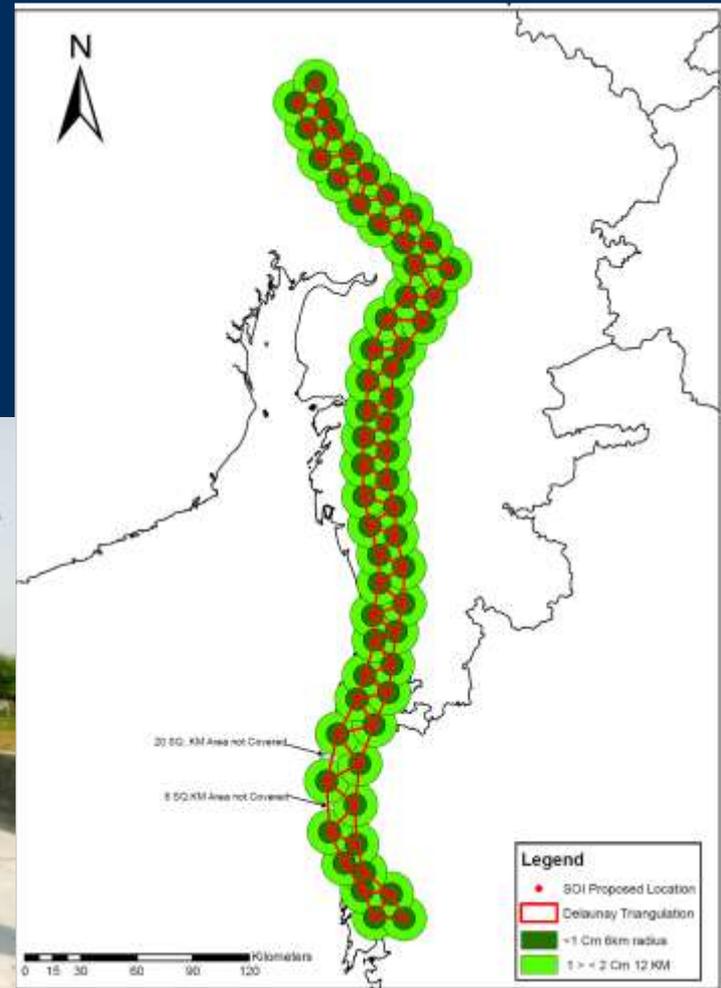


SDI Development with a Common Reference Frame



Sporadic SDI Development

CORS For High Speed Rail





Trimble Catalyst DA2 GNSS receiver

**Brand new engine at the heart of the
Catalyst positioning service**



Key DA2 Features

iOS & Android



Bluetooth
Delivery



Versatile



Lightweight



ProPoint
Technology



Catalyst
Positioning





ProPoint Technology

Receiver performance in challenging* GNSS environments, including operating under tree canopy or near buildings & other urban structures.

Advanced tracking and GNSS signal management delivers increased yield.

Advanced signal filtering and error modelling provide better protection against jamming and multipath errors.

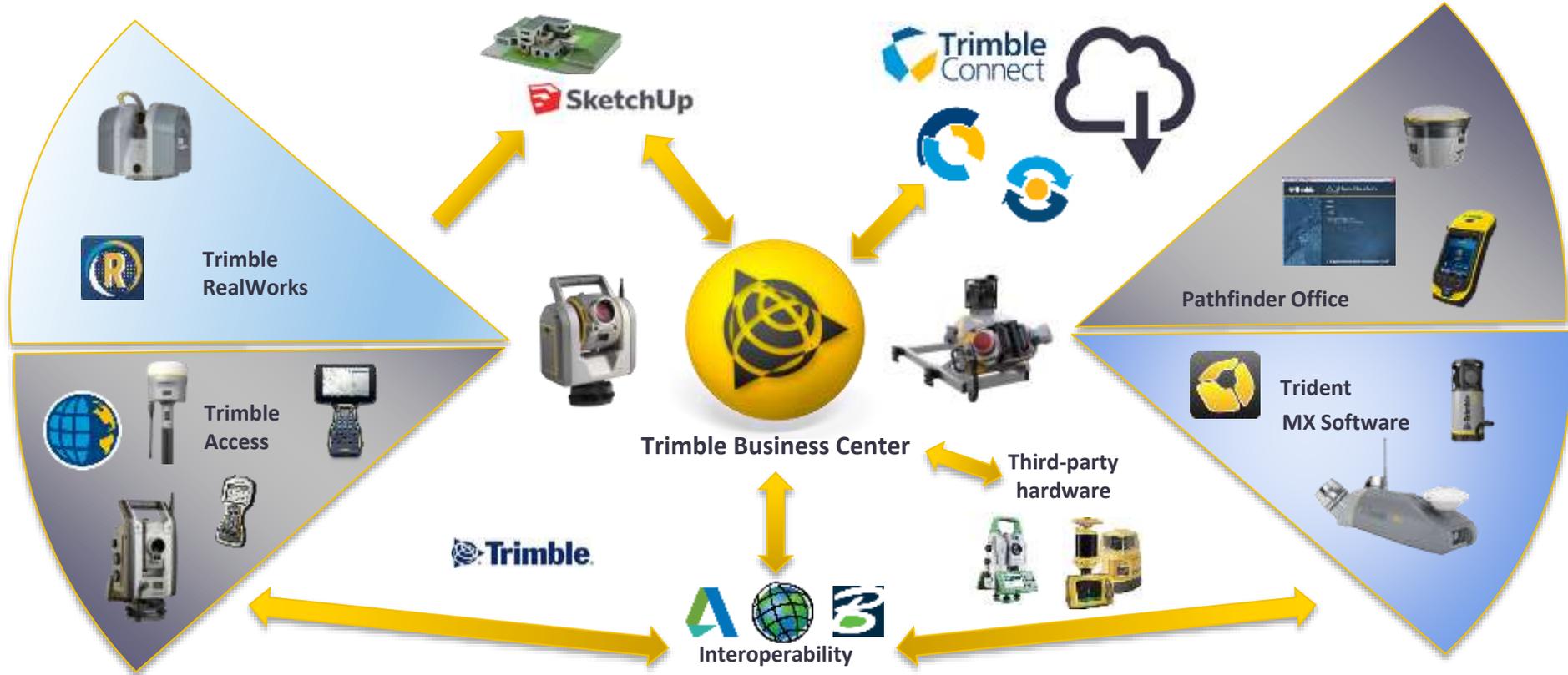


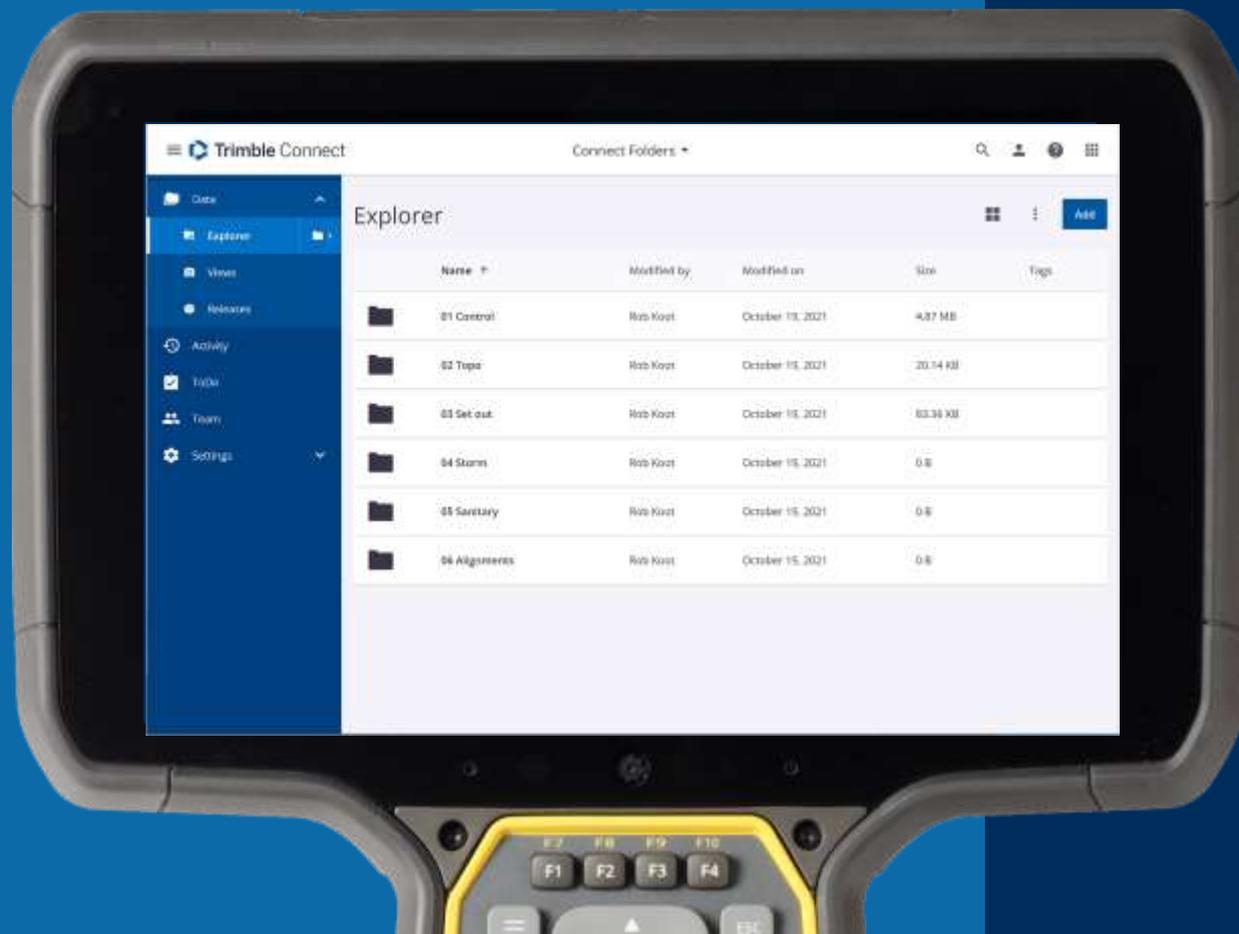
03

Sharing Information



TBC - Positioned as a Data Hub

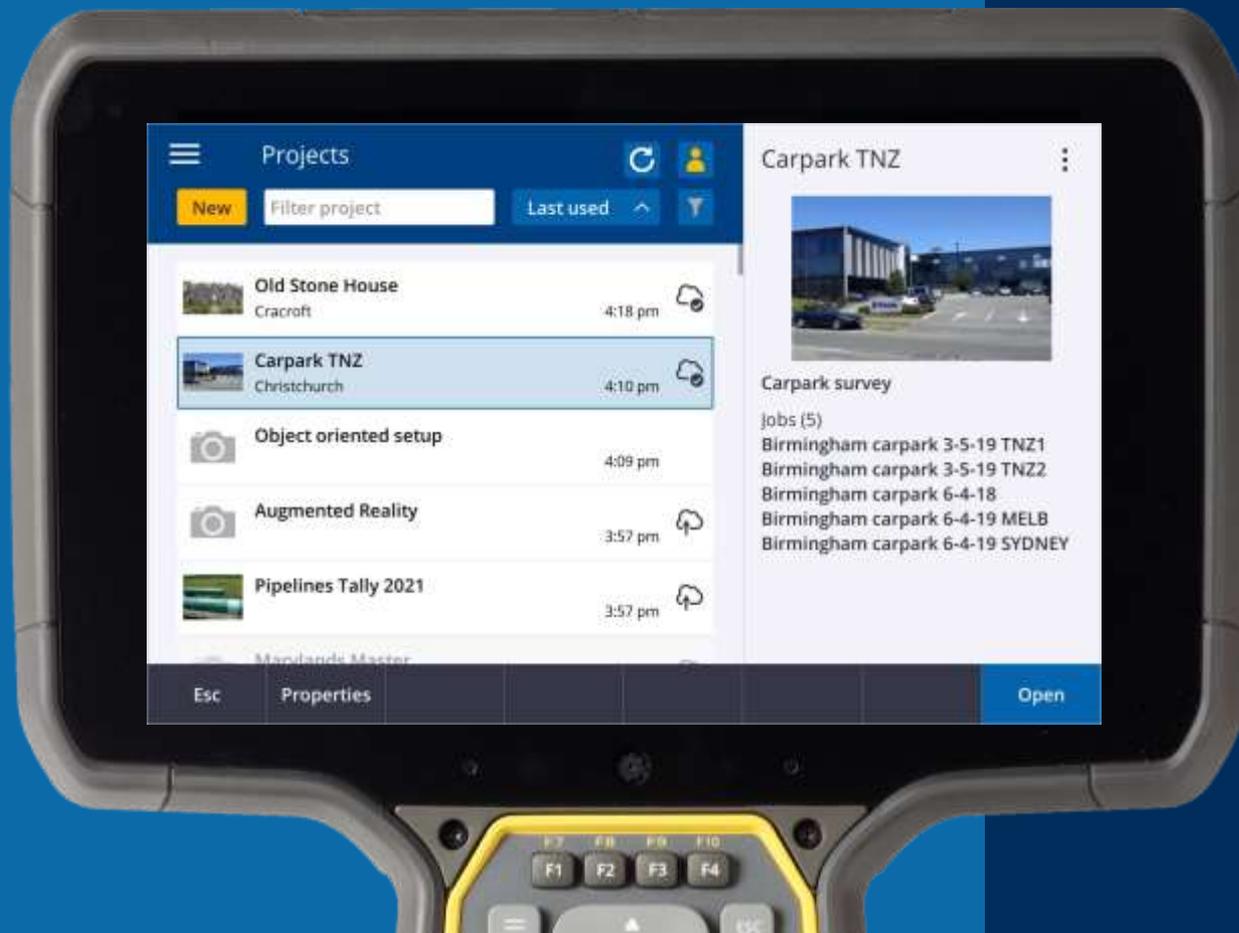




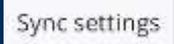
Folders and Files

- Browse files and folders published to a Trimble Connect project
- Using Connect Sync you can sync data from your network to the cloud and the controller - retain your organizations folder structure
- Download selected Folders + Files to a Trimble Access Project





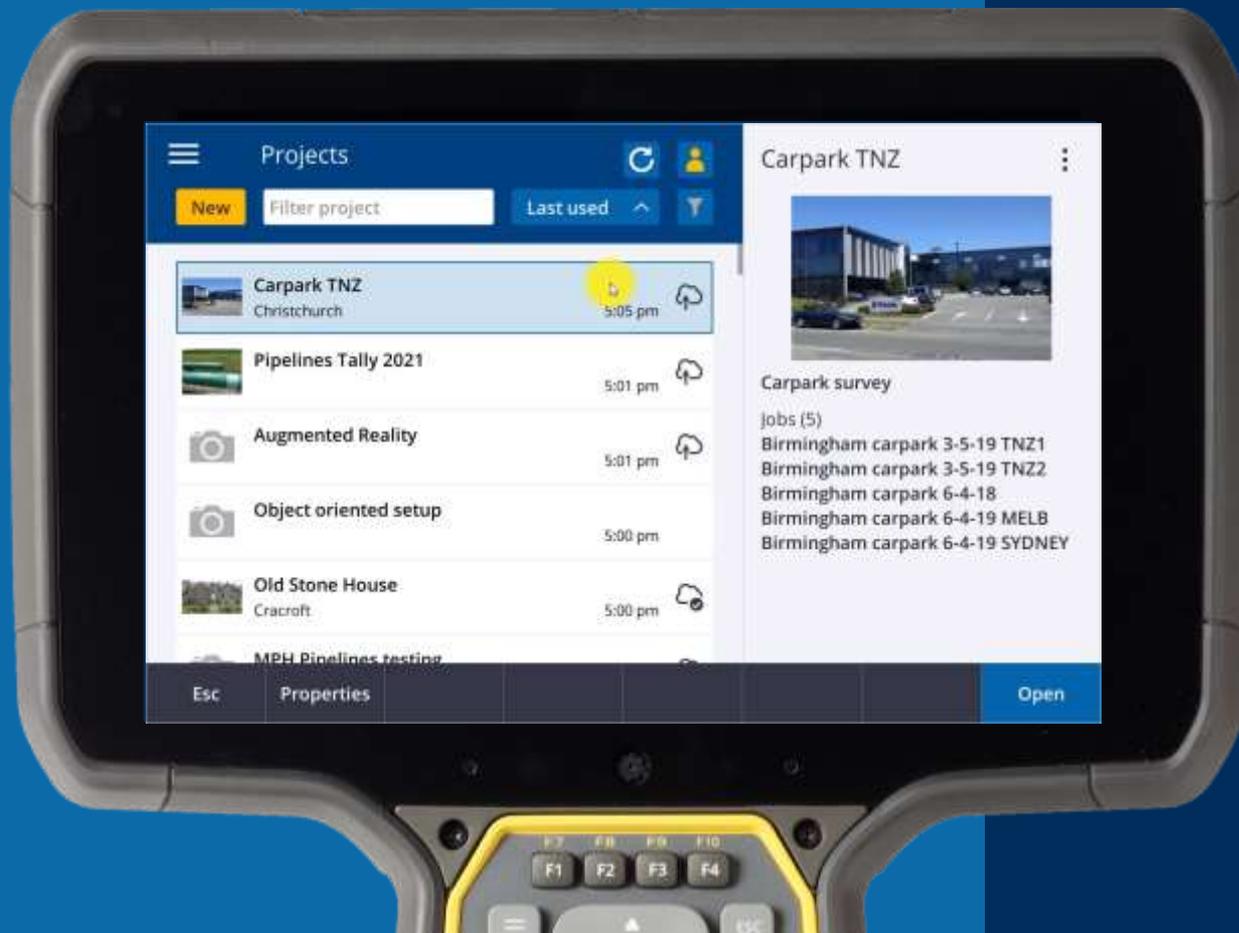
Invite people to Project

To invite people to the project, and manage who is in the project team, select  in the Projects screen and then tap  and select the  tab

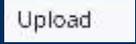
Assign job to team member

- In the job details pane, tap 
- Select the team member(s) to assign to the job

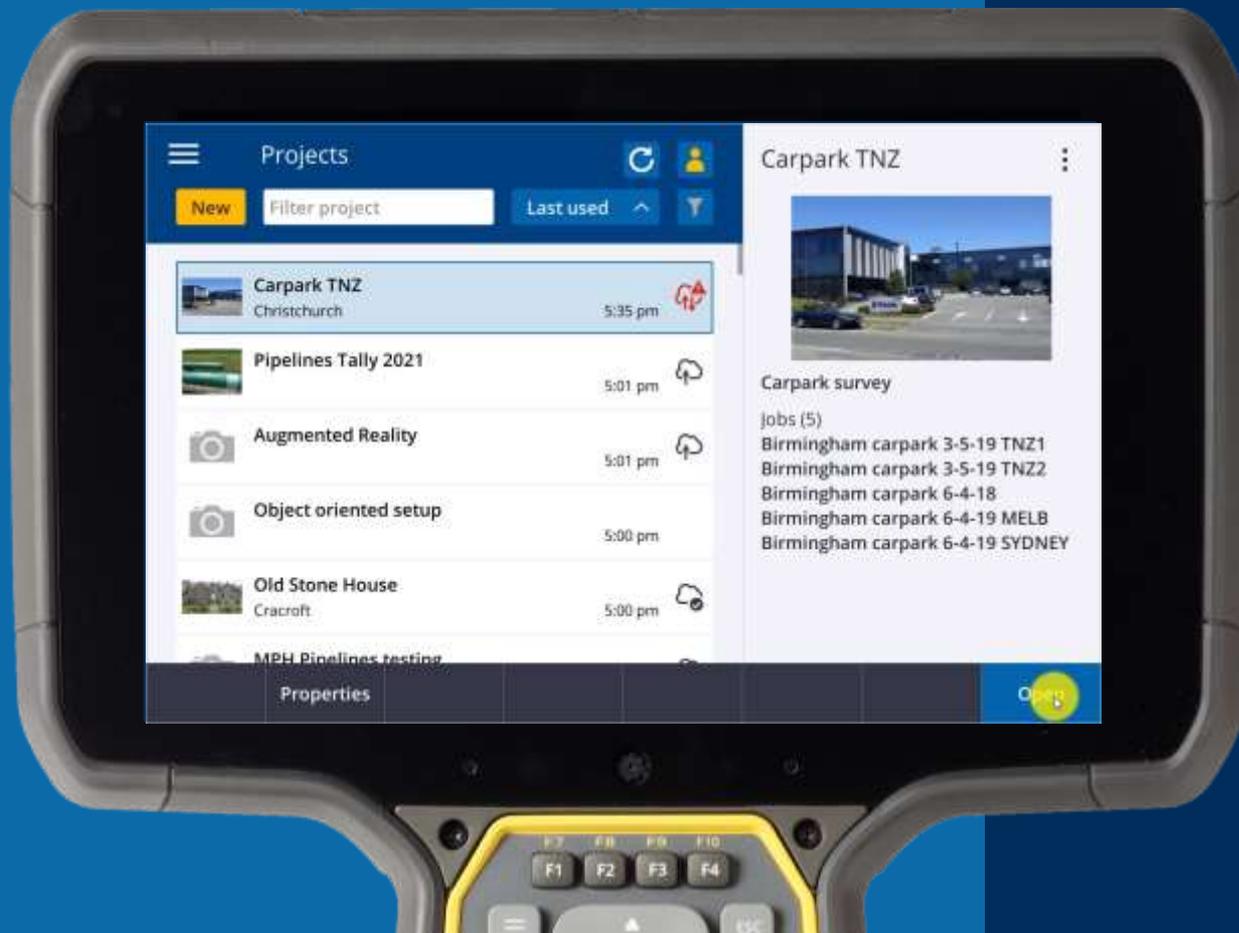




Sync by tapping the cloud icons

- Tap  to upload
- Tap  to upload
- Tap  then decide if you want to  
- Tap  then decide if you want to   and then how you want to manage the conflict





File Conflicts

File conflict popup now appears automatically asking how to manage the conflict

- Overwrite – replacing local file
- Keep local file – don't replace local file with cloud file. Replace cloud file with local file.



04

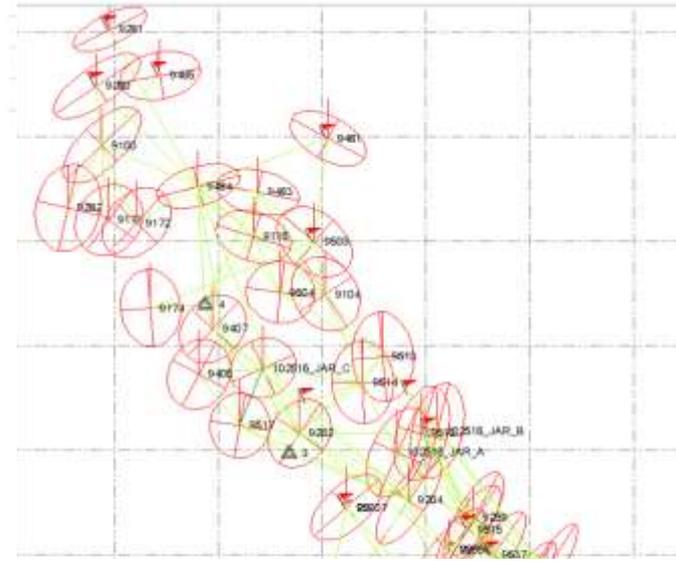
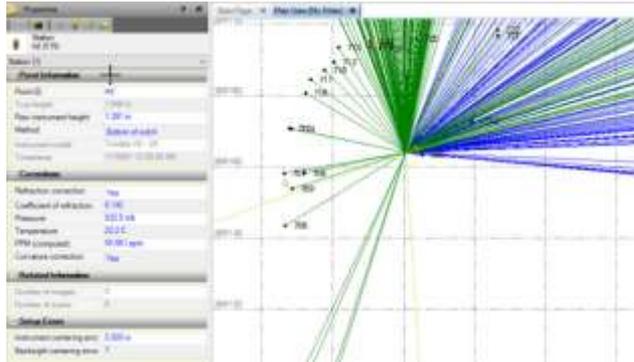
Data Integration



Confidence

Ensuring data is right every time

- Stand confidently behind your deliverables
- Get consistent results you can trust
- Reduce the need to go back to the field



Stamp Worthy Data

TBC IS THE BEST WAY TO MANAGE, PROCESS, CLEAN
AND PREPARE YOUR SURVEY DATA FOR CIVIL 3D.



Rich Deliverables

Expand opportunities with unique deliverables

- Spreadsheets
- QA Reports
- Measurements
- Fixed / Custom Exports
- Adjustments
- Drafting + Designs
- Printed Plans / PDFs
- Digital imagery

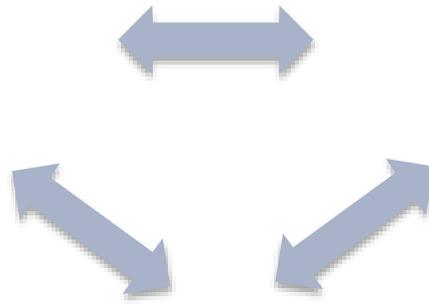


Interoperability

Transfer data among enterprise software



Trimble
Access



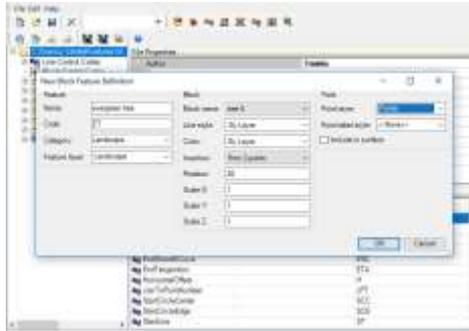
System of Record (SoR)



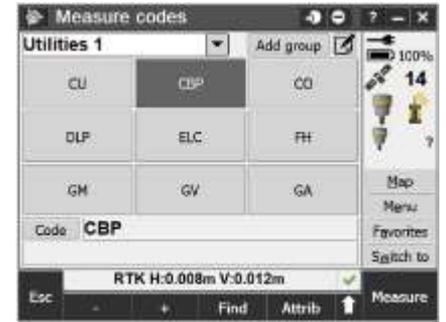
Feature Coding Workflow



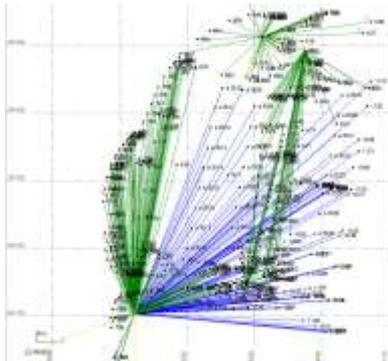
1. Convert Existing Feature Library or System of Record



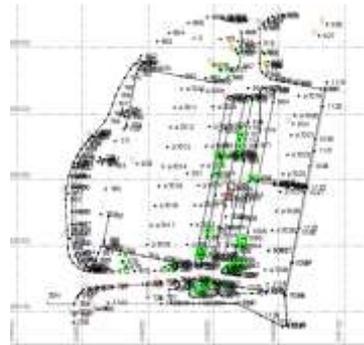
2. Refine Control + Feature Codes



3. Collect + Code Data



4. Import Data

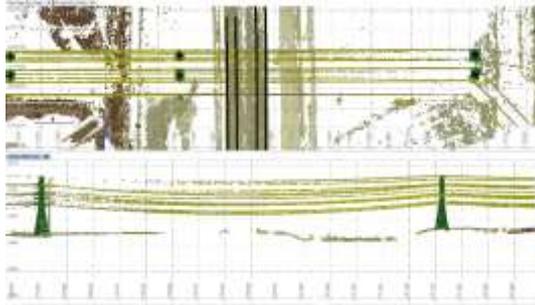


5. Process Feature Codes

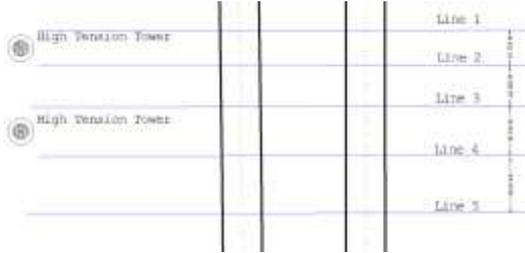


6. Generate Plan Set

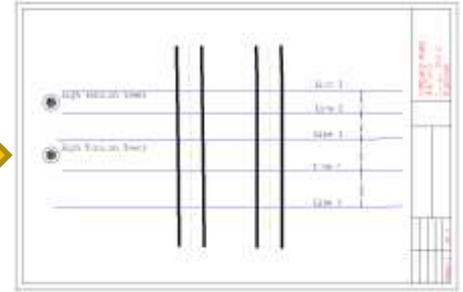
CAD + Drafting Workflow



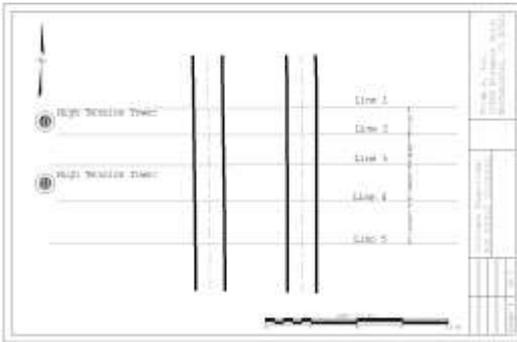
1. Prepare, Extract, + Draft Geometry



2. Add Dimensions, Labels, + Tables



3. Insert Drafting Template



4. Customize Plan Set

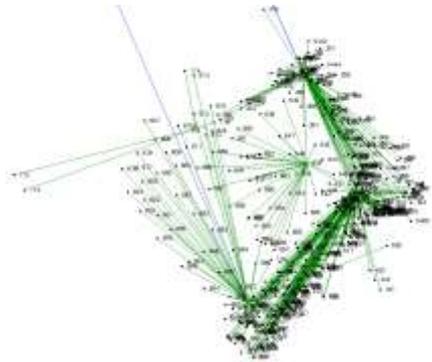


5. Create Digital Deliverables

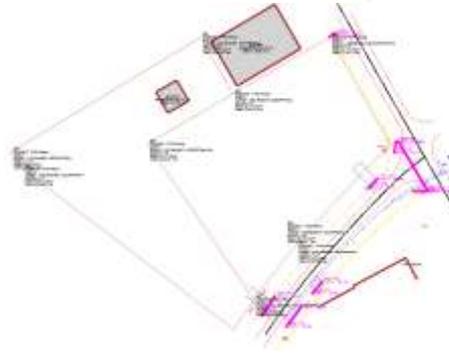


6. Export to CAD

Cadastral Workflow



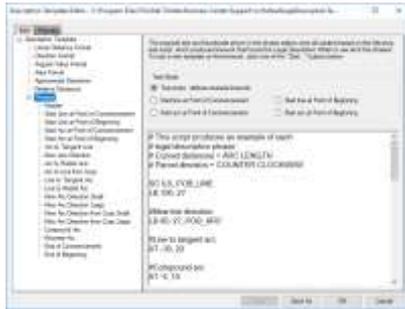
1. Import Field Data



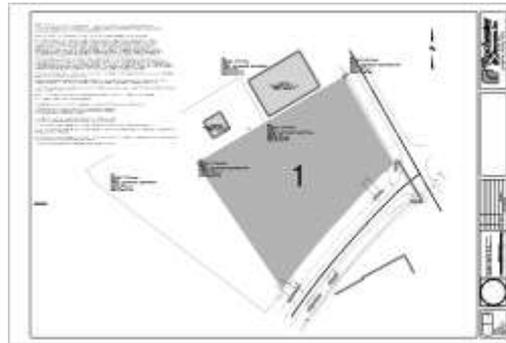
2. Process Feature Codes



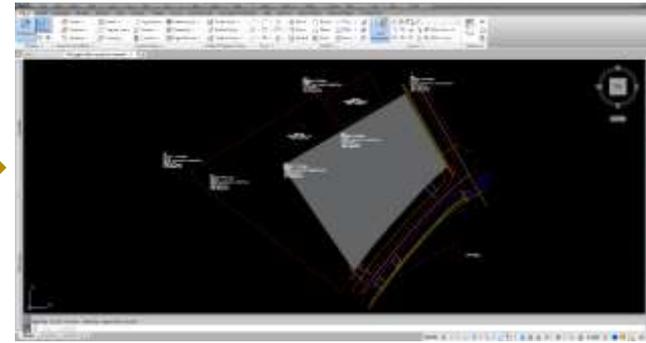
3. Create Parcels



4. Customize Legal Description Template



5. Prepare Plan Set



6. Create Digital Deliverables

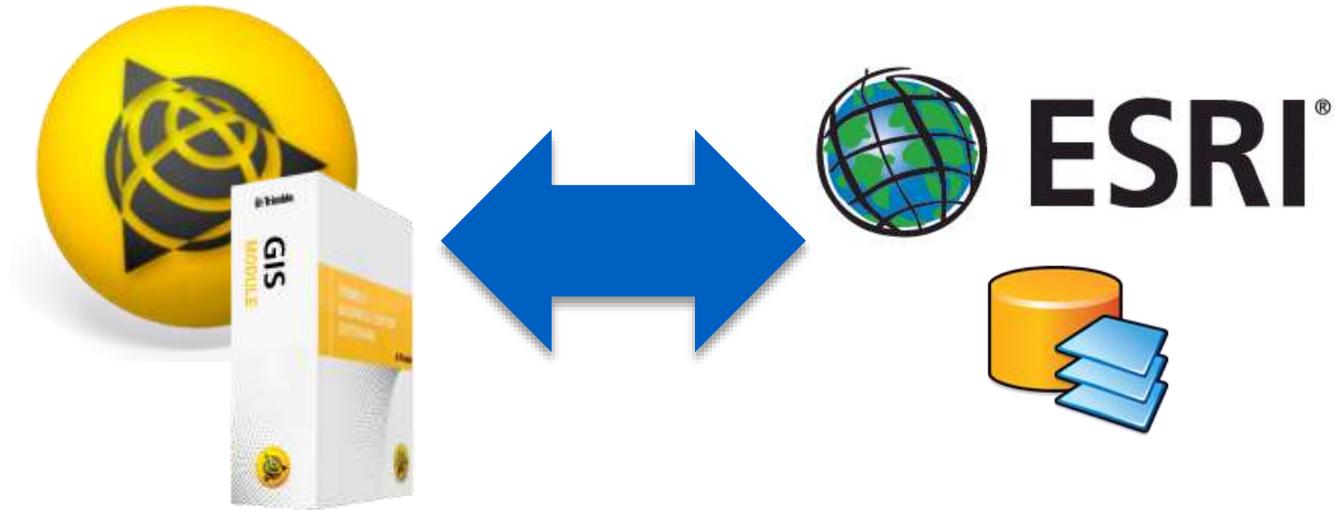
05

Integration with existing systems



The Solution

- A seamless integration with a GIS data source



GIS Module – The new way

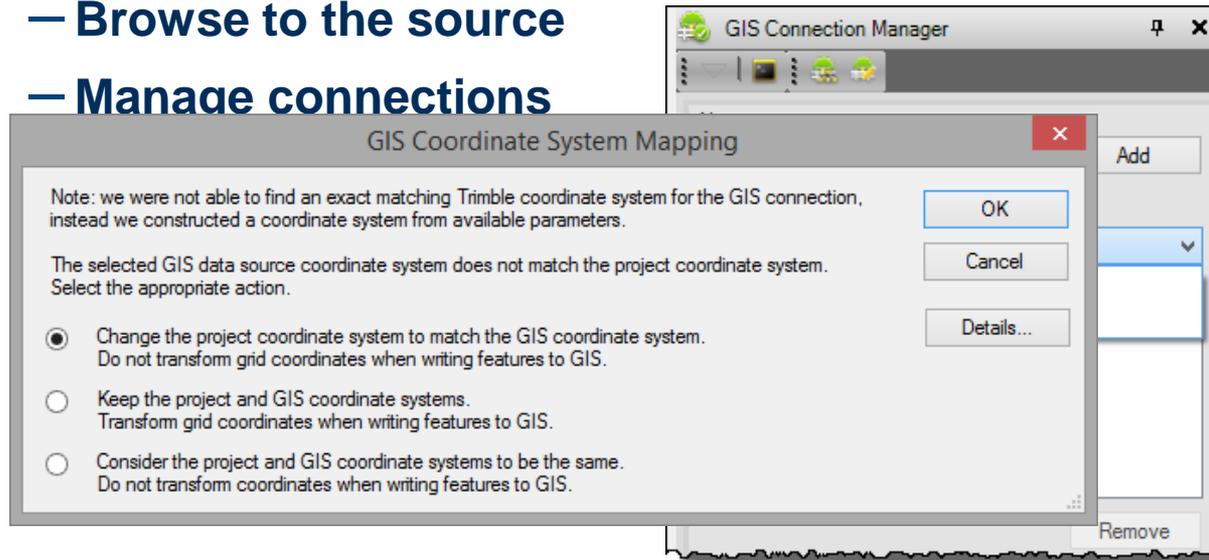
1. Connect to GIS Data Source
2. Extract Schema and Create FXL
3. Collect & Process Field Data
4. *Integrate* data directly into a geodatabase



1. Connect to GIS Data Source

- **GIS Connection Manager**

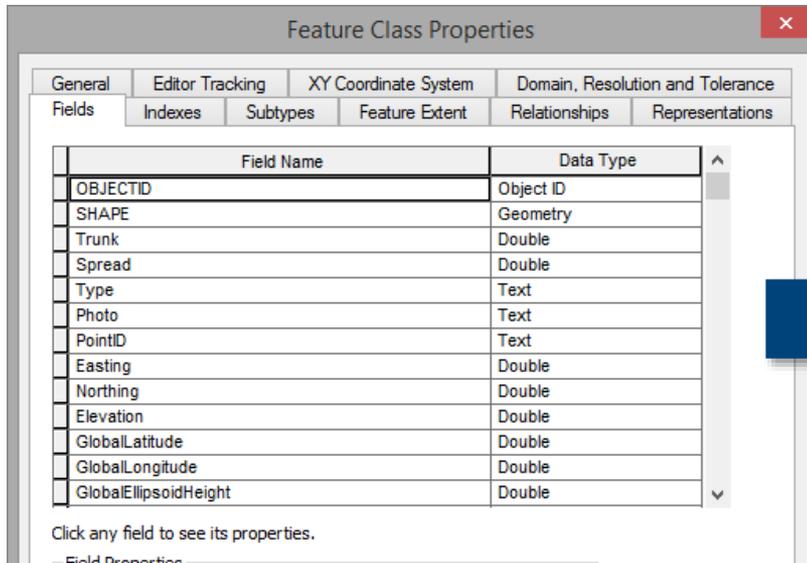
- Name the connection profile
- Specify the type of GIS data source
- Browse to the source
- Manage connections



2. Extract Schema and Create FXL

- **Get GIS Schema**

- Choose the connection profile
- Select feature classes
- Generate and edit FXL in FDM



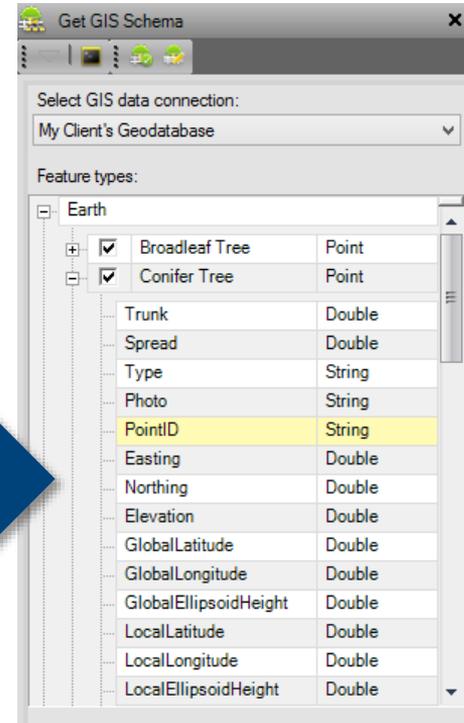
Feature Class Properties

General Editor Tracking XY Coordinate System Domain, Resolution and Tolerance

Fields Indexes Subtypes Feature Extent Relationships Representations

Field Name	Data Type
OBJECTID	Object ID
SHAPE	Geometry
Trunk	Double
Spread	Double
Type	Text
Photo	Text
PointID	Text
Easting	Double
Northing	Double
Elevation	Double
GlobalLatitude	Double
GlobalLongitude	Double
GlobalEllipsoidHeight	Double

Click any field to see its properties.



Get GIS Schema

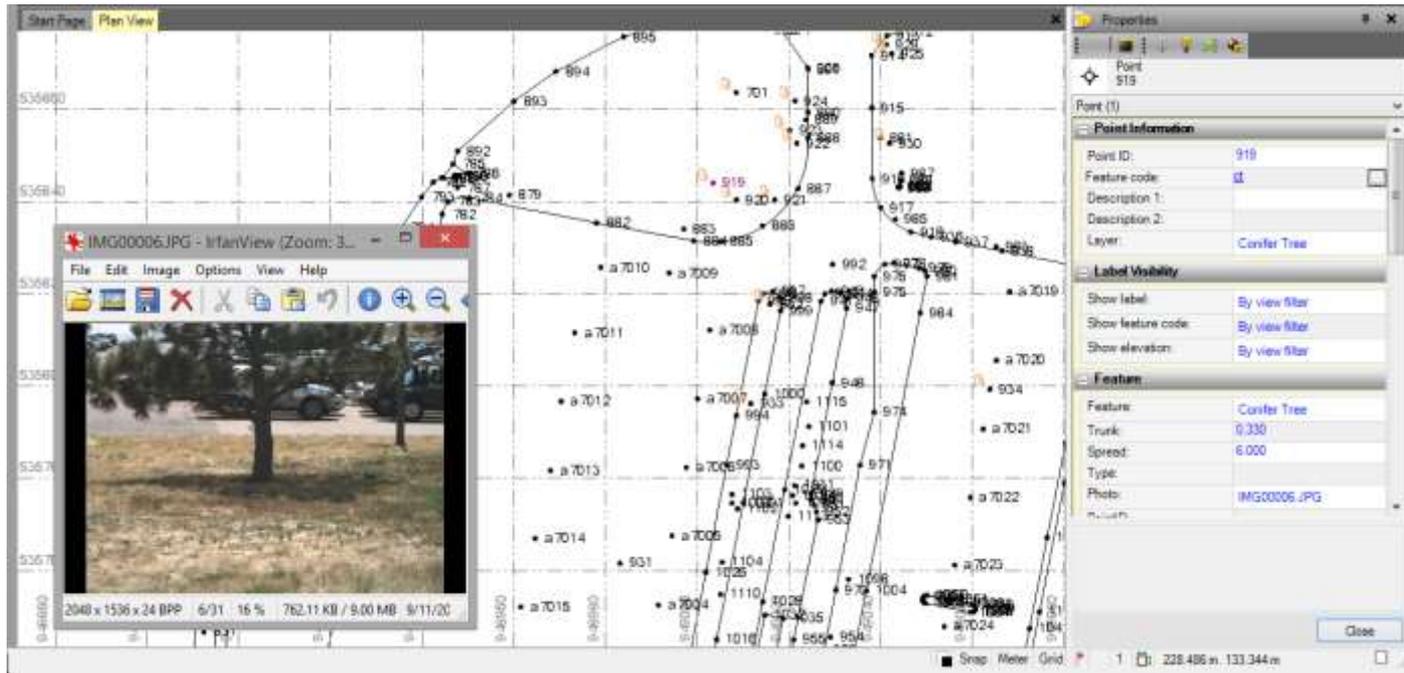
Select GIS data connection:
My Client's Geodatabase

Feature types:

- Earth
 - Broadleaf Tree Point
 - Conifer Tree Point
 - Trunk Double
 - Spread Double
 - Type String
 - Photo String
 - PointID String**
 - Easting Double
 - Northing Double
 - Elevation Double
 - GlobalLatitude Double
 - GlobalLongitude Double
 - GlobalEllipsoidHeight Double
 - LocalLatitude Double
 - LocalLongitude Double
 - LocalEllipsoidHeight Double

3. Collect and Process Field Data

- Process Feature Codes
- QA/QC



4. Write Features to GIS

- Select Connection Profile
- Select features to be written
- Write features to the geodatabase directly

The image displays the ArcMap interface with the 'Write Features to GIS' dialog box open on the left. The dialog box shows the following configuration:

- Select GIS data connection: My Client's Geodatabase
- Last write time: Not yet written
- Select data to write: Selected: 558
- Select feature classes:

Category	Feature Class	Type	Count
Earth	Broadl...	Point	28
	Conifer...	Point	6
	Natural...	Point	32
	Flow Li...	Point	3
Landscape	Wire F...	Polyline	1
Roads	Sign P...	Point	22
	Catch...	Polyline	4
	Edge P...	Polyline	7
	Guard...	Polyline	1

A blue arrow points from the 'Selected: 558' field to the map view. The map view shows a site plan with various features. The 'Identify' window is open, showing the following information for a selected feature:

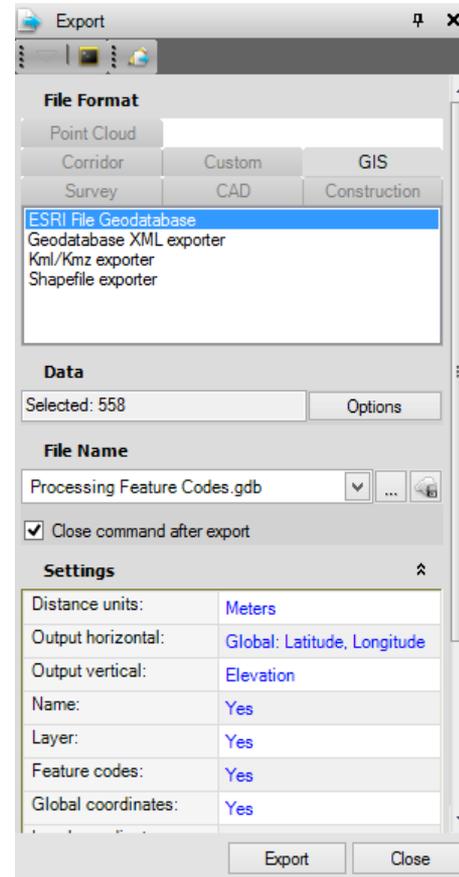
- Identify Item: Top-stand Igars
- Category: Conifer Tree
- Location: 3,113,520,330 1,750,012,753 Feet
- Field Value:
- DB_HEIGHT: 27
- SHAPE: Point
- Flute: 0.31
- Spread: 6
- Type: -cndp
- Photo: C:\Users\volker\Desktop\TFC\Processing\featureCodes - Cop...

The 'Identified 1' window shows a photo of a tree, with the following metadata:

- 10240 x 1328 x 24 BPP
- 6/21 12 % 102,114 KB / 800 MB
- T14765.317 1752403.114 Feet

File Geodatabase Import/Export

- Schema doesn't exist yet
- Client requirement
- No connection possible
- Archiving



Questions

Amit_Saxena@trimble.com

