

Pranay Johri

Digital Cities Infrastructure

Trimble Geospatial Technology



Office Software



Field Software



Data Collectors



GNSS Systems



Total Stations



Laser Scanning



Mobile Mapping



Digital Cities for Digital India



Technology-powered
cities of the future



Enhanced living and
working conditions
for citizens



More sustainable and
ecologically-focused



Cleaner, safer
urban environments



Everyday Life Geospatial

Using Geospatial Technologies to Make Lives Easier

What is Geospatial



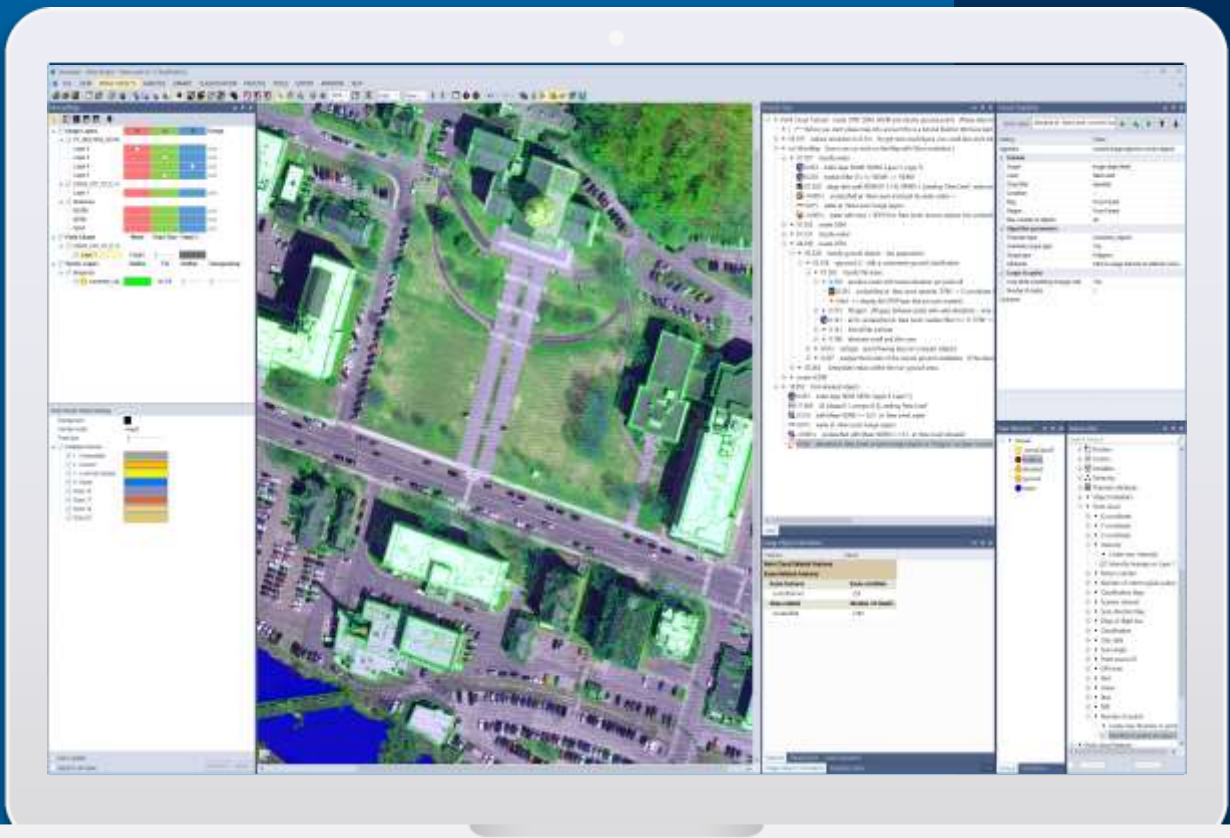
- Spatial Data which relates to the surface of the earth.
- Geospatial Systems can also be called Geographic Information System.
- Enables capture, modelling, storage, retrieval, sharing, manipulation & analysis of geographically referenced data.



Geospatial In Our Everyday Lives

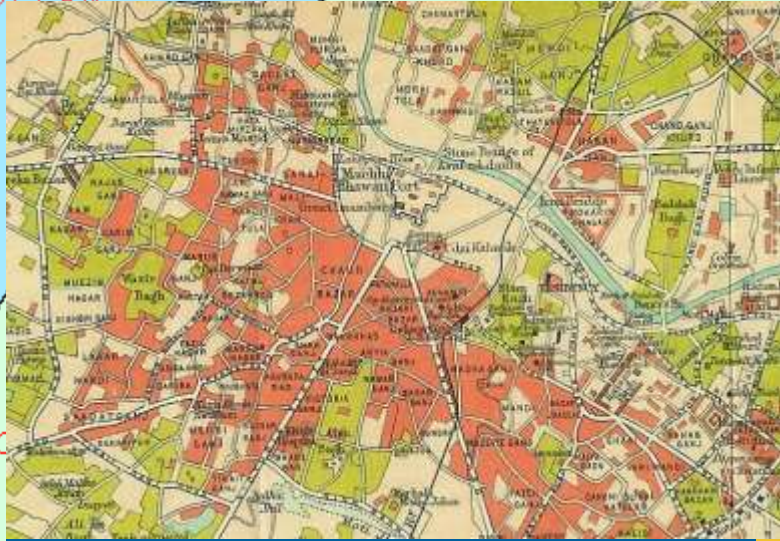
- Mapping
- Telecom & Network

- Urban Planning
- Transportation Planning
- Environmental Impact Analysis
- Agriculture
- Disaster Management & Mitigation
- Navigation
- Surveying
- Technology
- Assets Management & Maintenance
- Planning & Community Development



OCEAN

OCEAN



The Earliest Common Language - Maps

Tartess

Syracuse

Egypt

Thebes

ca





GatiShakti
National Master Plan for
Multi-Modal connectivity

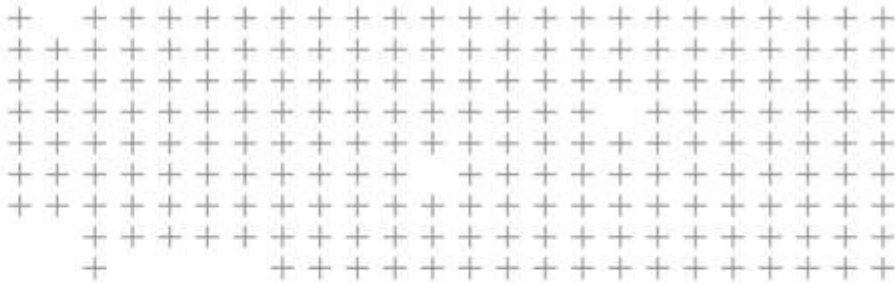
प्रगति की गति
भारत की शक्ति

india.gov.in

Geospatial for Planning

Communicate & Visualize Information
Between all Stake Holders





Learning a Smart City

SMART CITY

BUILDING TOMORROW'S CITIES



INDUSTRY



RETAIL



SECURITY



SOCIETY



HEALTHCARE



HOME



ENERGY



MOBILITY



Smart City



PLATFORM

- Technology
- Governmental Policies
- Public Participation



GEOSPATIAL

- Where?
- What?
- How Much?



SOLUTION

- Data Collection & Survey
- Software
- Data Consumption



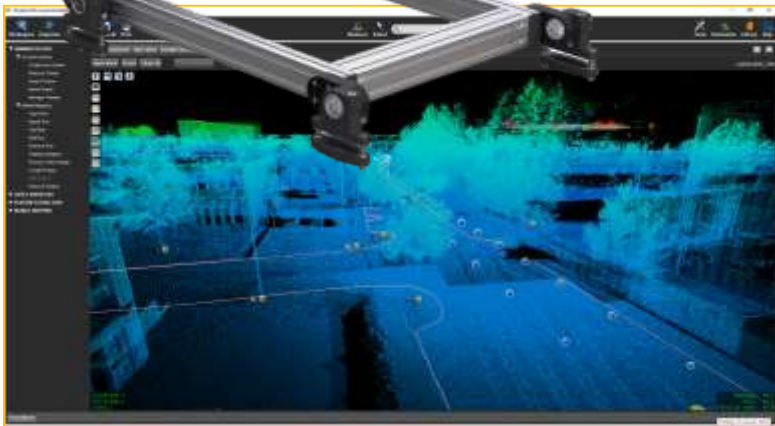
Capturing the Assets



Planar



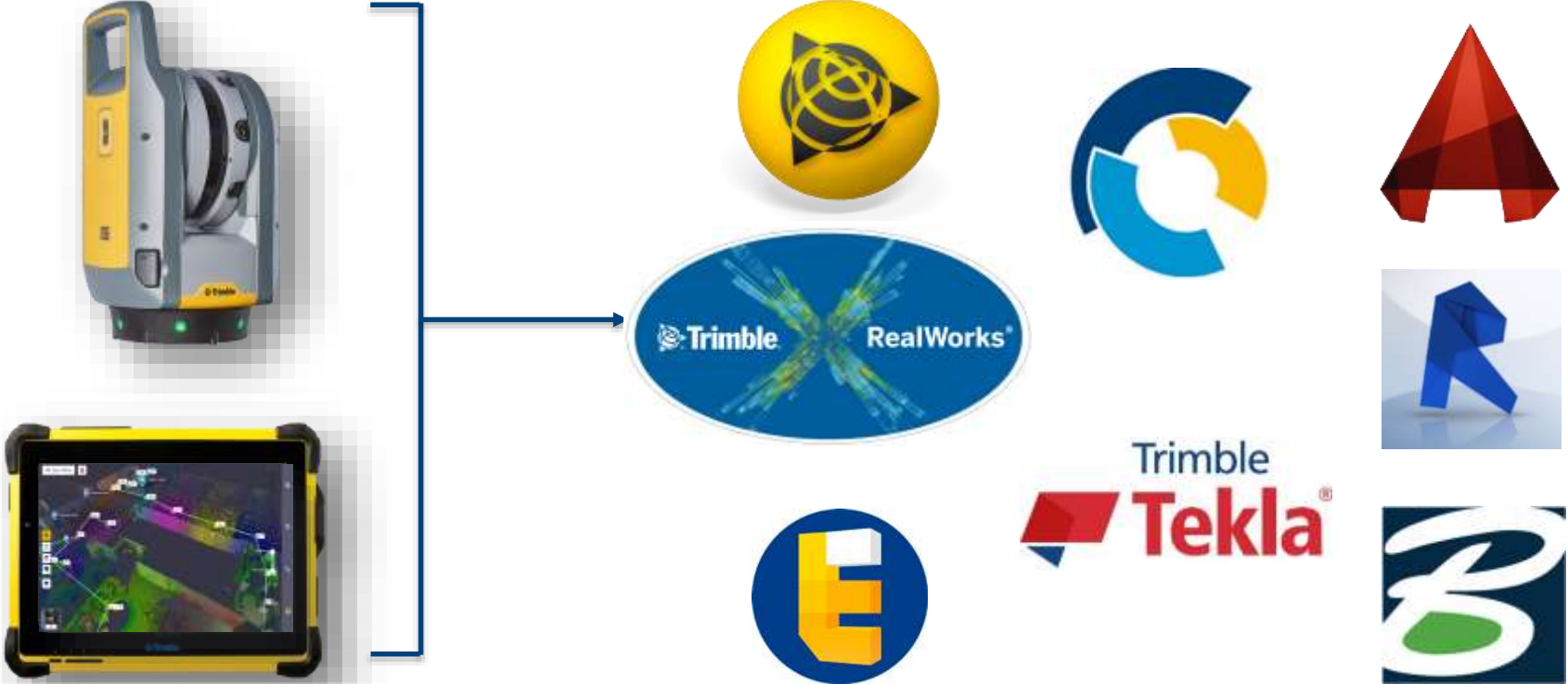
3D Lasers



Panorama



Professional - Seamless Data Integration



Or any other software that can import point clouds!

Decisions Based on Geospatial Data

More than 70% of Our decisions are based on Geospatial Data



Positioning



Geometry & Boundaries

Geo- Coded Addressing

Imagery & Analytics



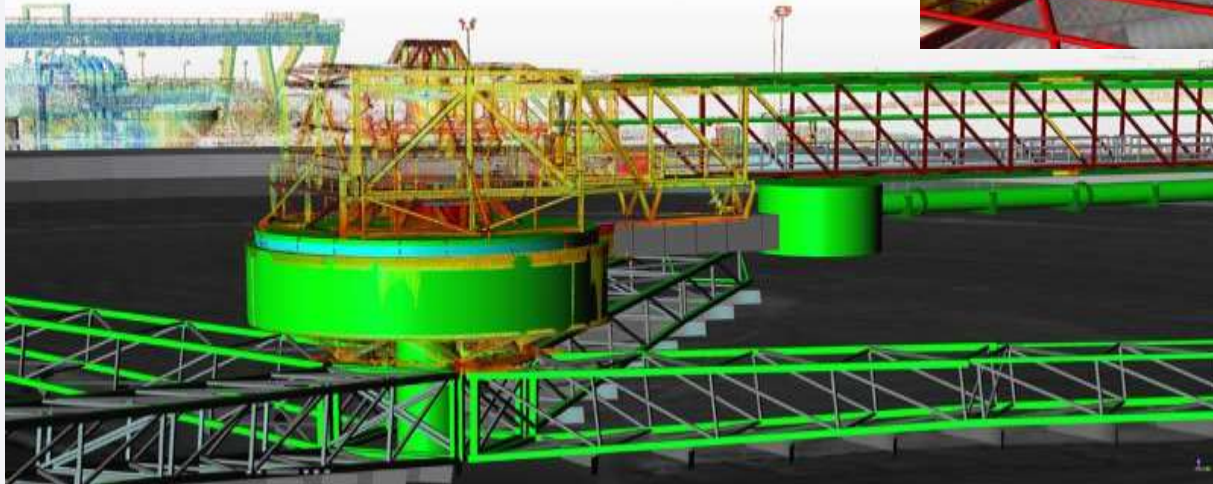
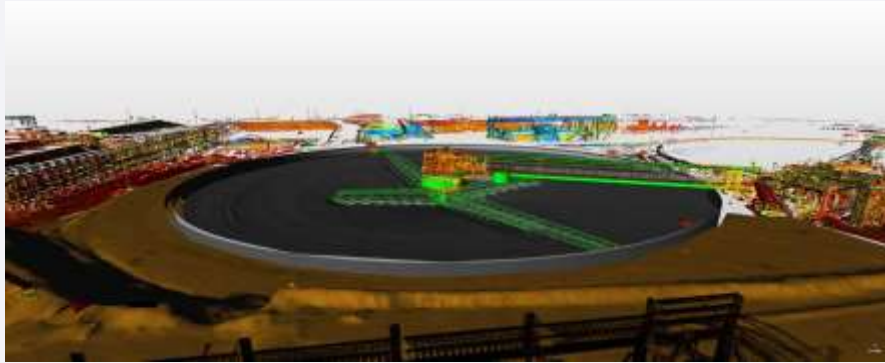
Industrial Surveys



Industrial Surveys - Retrofitting



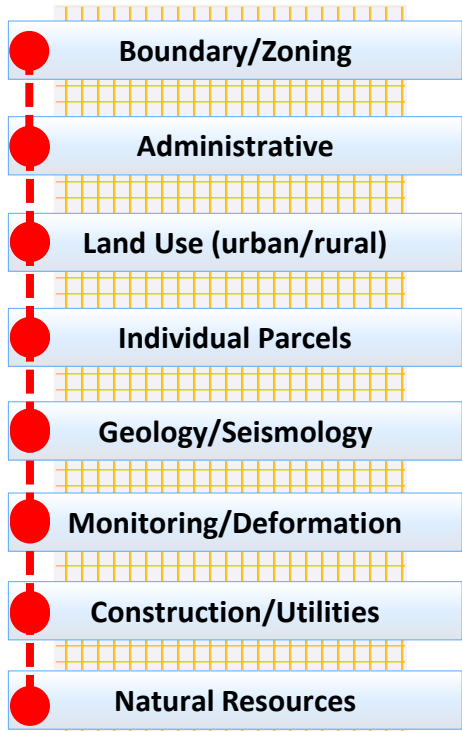
Facilities Modeling



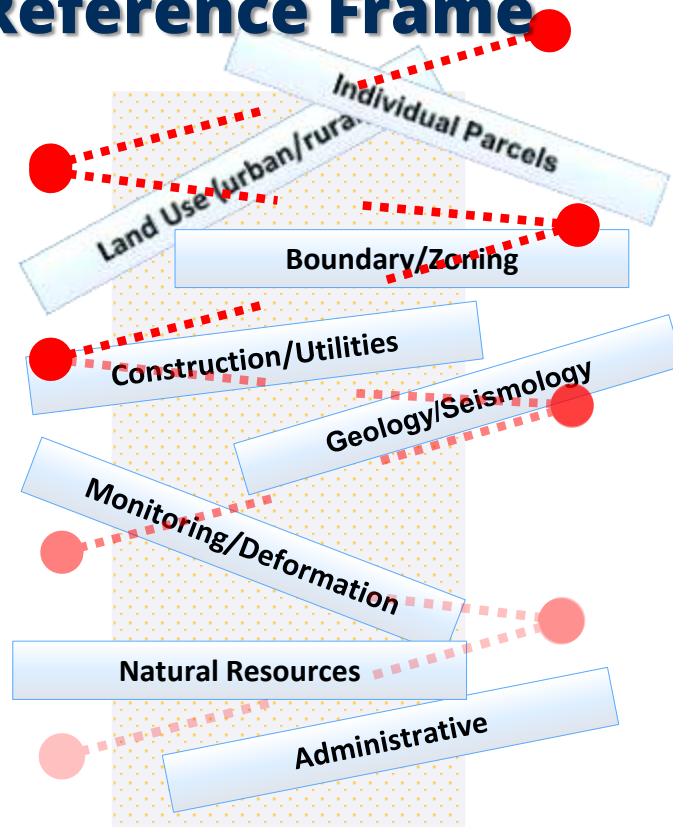
CORS - Backbone to Achieve the Project Goals



The Benefits of a Common Reference Frame



SDI Development with a Common Reference Frame

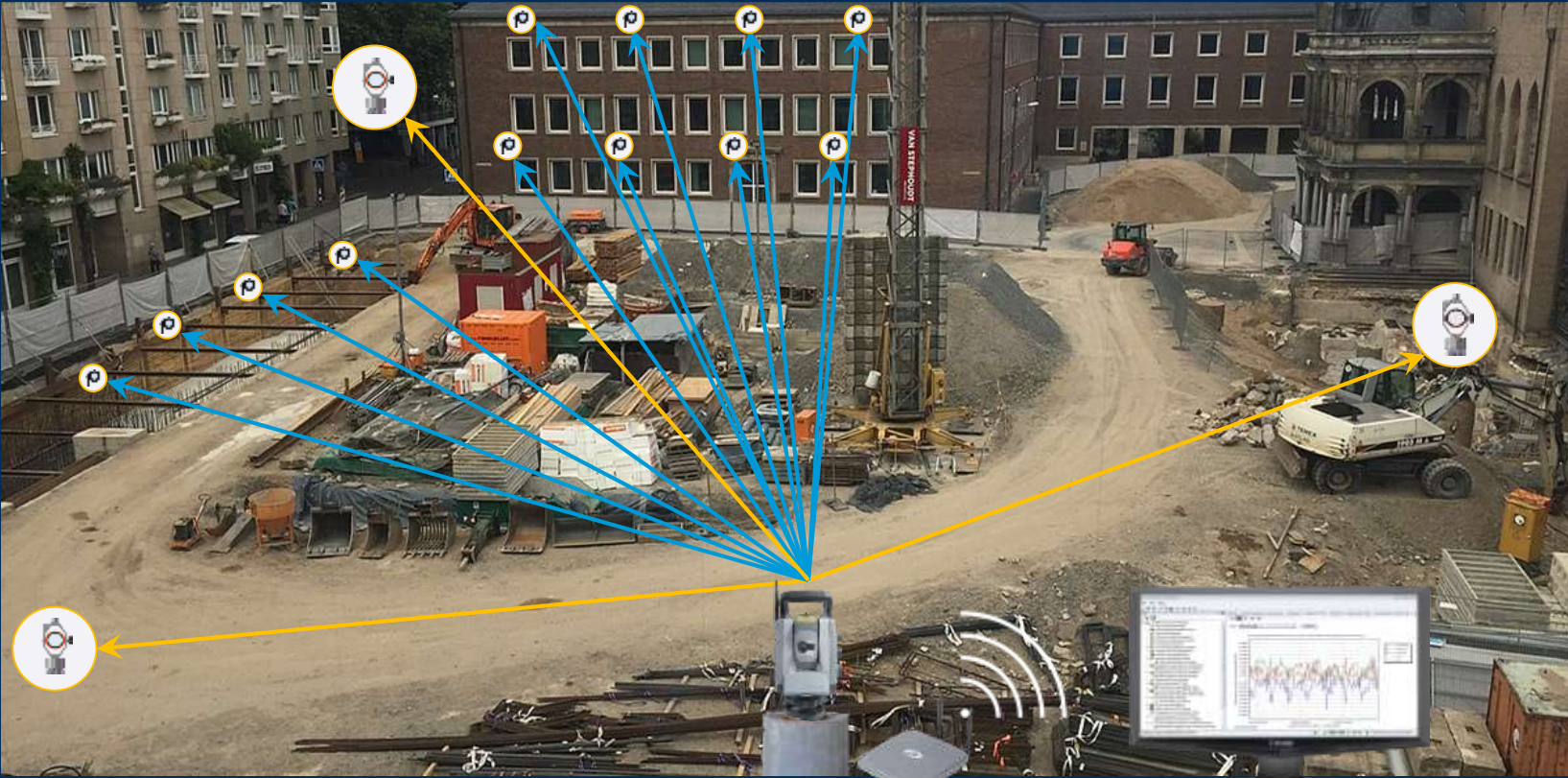


Sporadic SDI Development

Trimble monitoring solutions are an integral part of our portfolio



Total Station



Trimble 4D Control



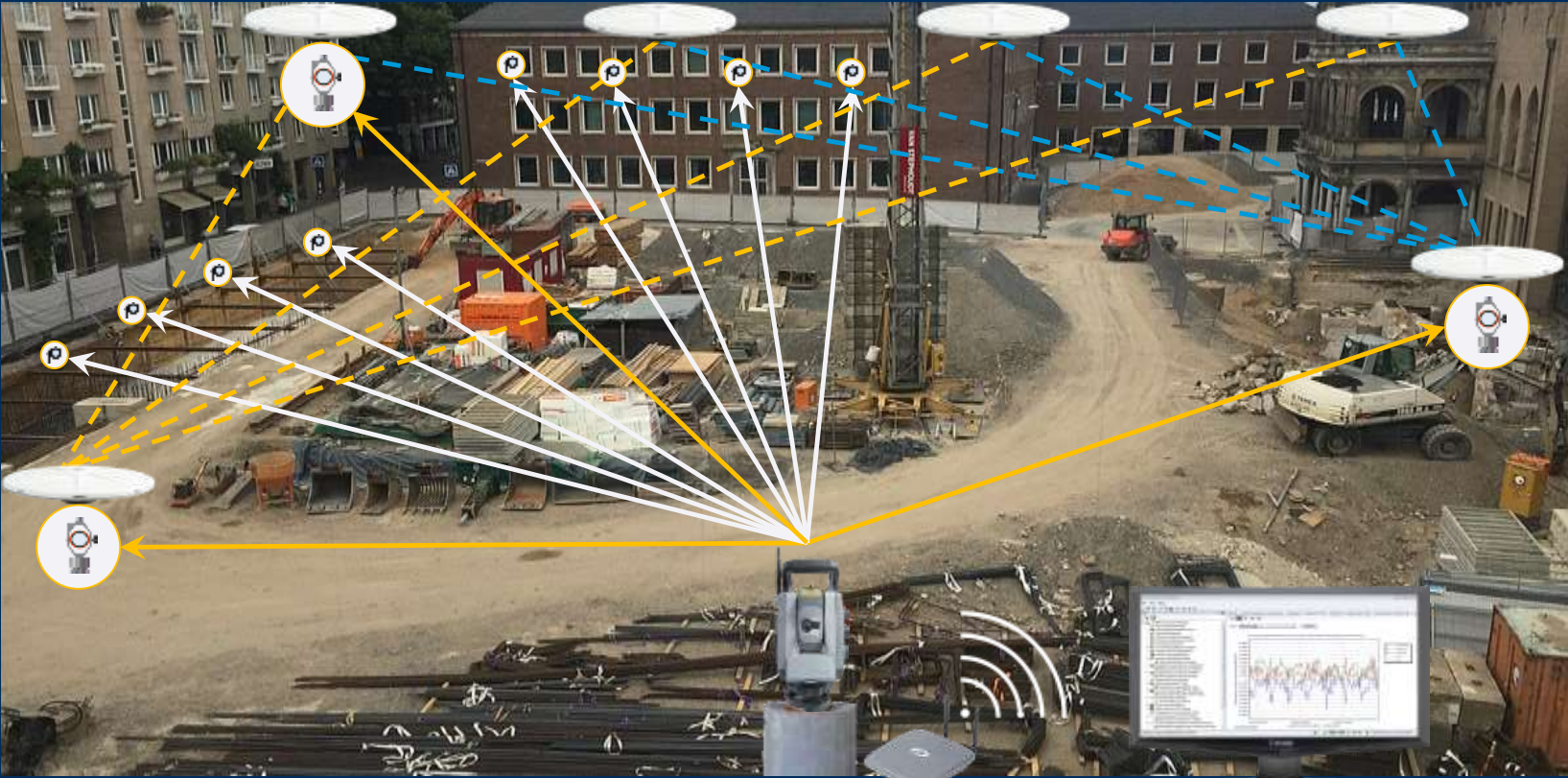
GNSS



Trimble 4D Control



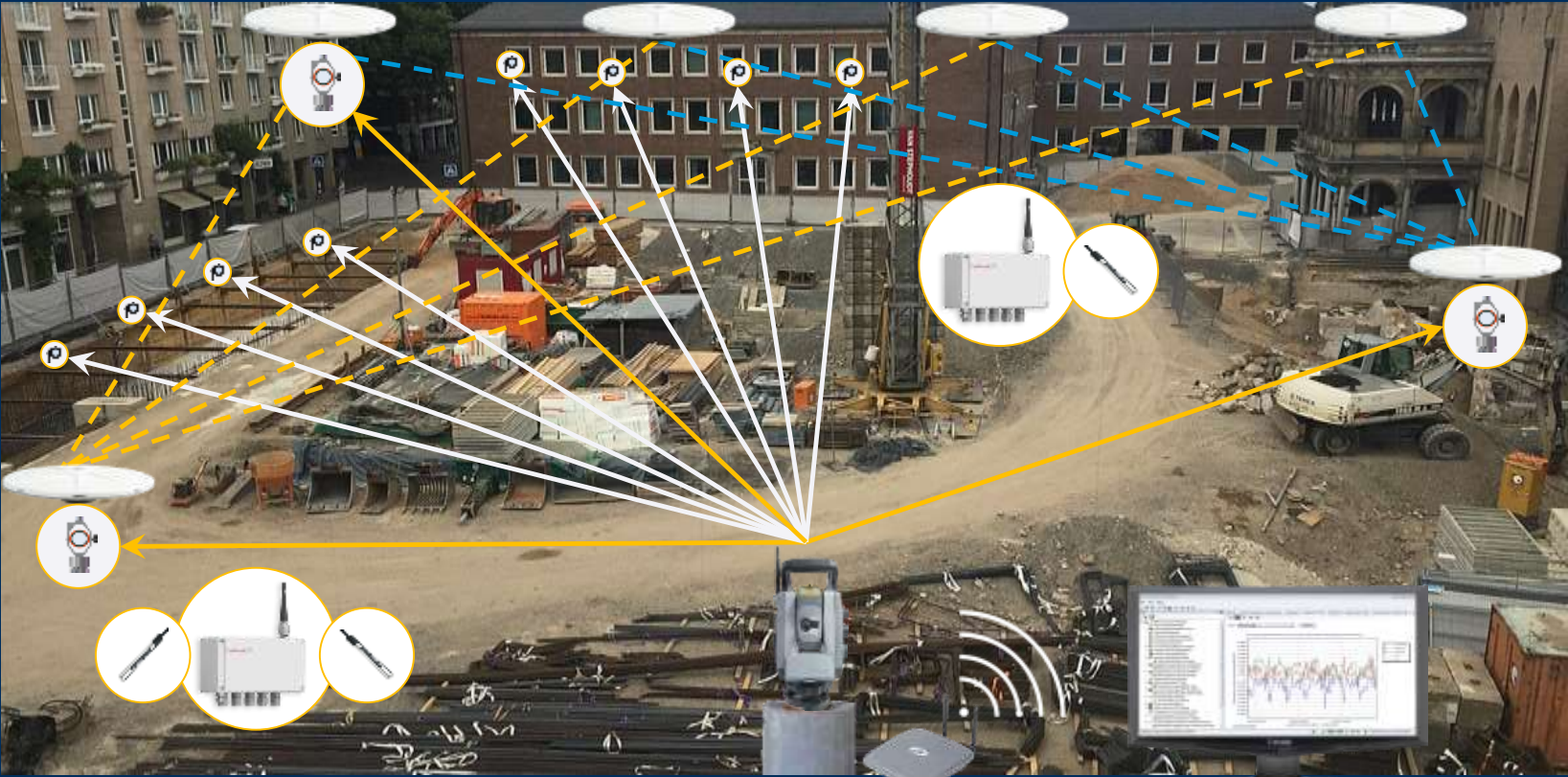
Integrated Survey



Trimble 4D Control



Additional Sensors



Trimble 4D Control





Deliverables

It's all about...

- Charts
- Analysis
- Reports
- Alarms



RTX CATALYST GPS

VILLAGE - MUKHIMPUR SIWARA

Making Lives Easier

Land Information

Problem

- Location
- Elevation
- Extent
- Land Use / Land Cover
- Type – Public / Private / Government



Solution

- Topographical
- Cadastral Survey
 - WAYS
- Field Survey – DGPS / Total Station
- UAV Photogrammetry
- LIDAR
- Remote Sensing Images



Making Lives Easier

Urban Planning

Problem

- Visualize City Design like reality
 - Buildings
 - Roads
 - Parks
 - Streetlamps
 - Public Infrastructure

Solution

- Aerial UAV Survey
- Terrestrial LIDAR Survey
- Mobile LIDAR Survey
- DGPS Based GIS Survey
- Utilities Survey
- 3D City Model in GIS/
Other Software
- Web Maps

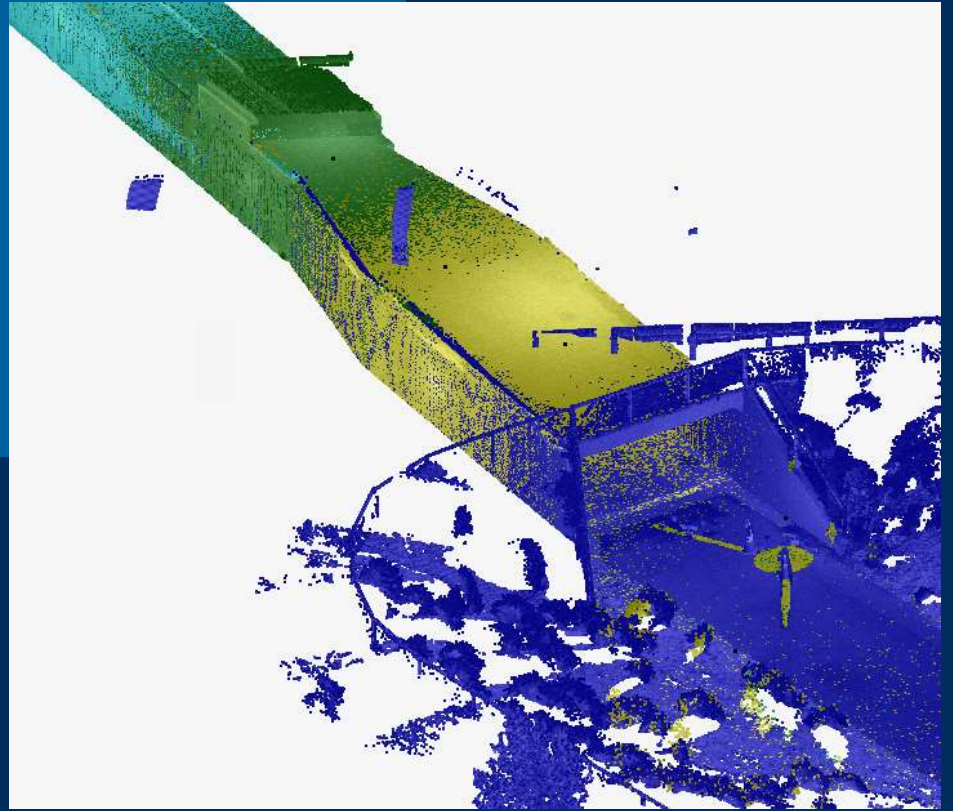


Trimble Geospatial Solution In Road



Tunnel

Trimble Technology







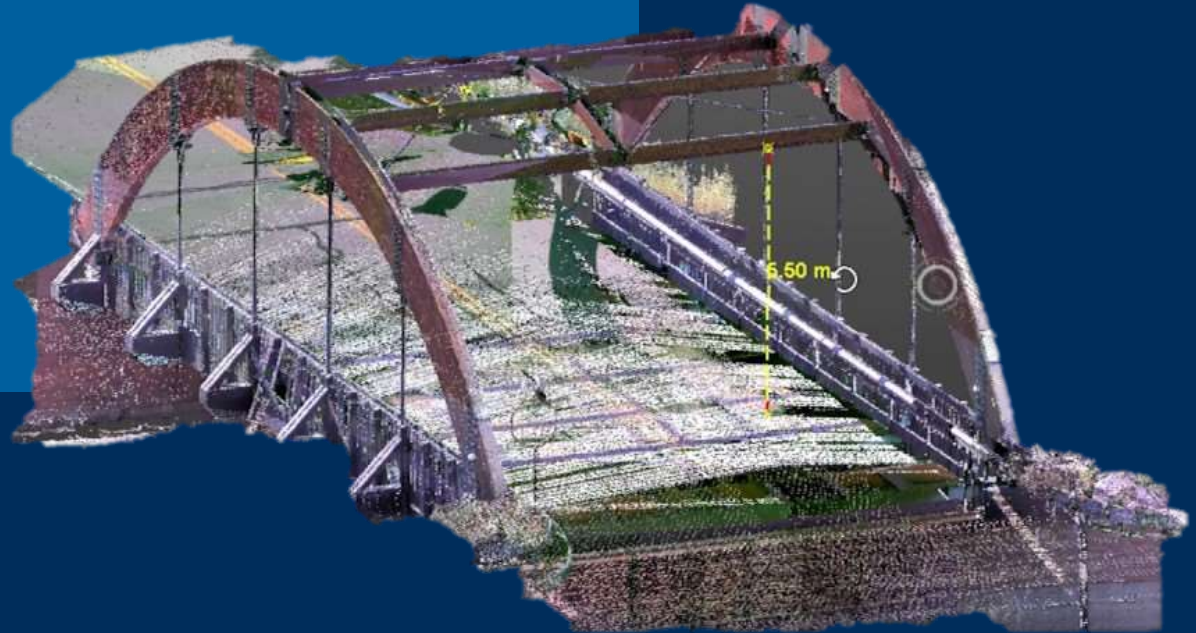
Trimble Tunneling

Fast and reliable surveying solutions for each stage of the tunnel construction project



Bridge

Trimble Technology





Trimble

PROCESSED RESULT

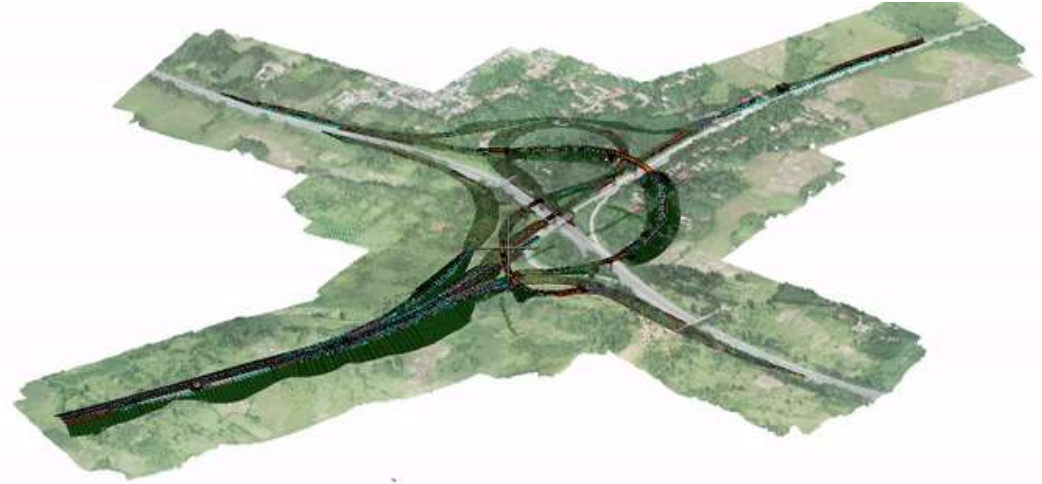


**Combination of Point Cloud and
Photogrammetry**

SUPERIMPOSED MODELLING

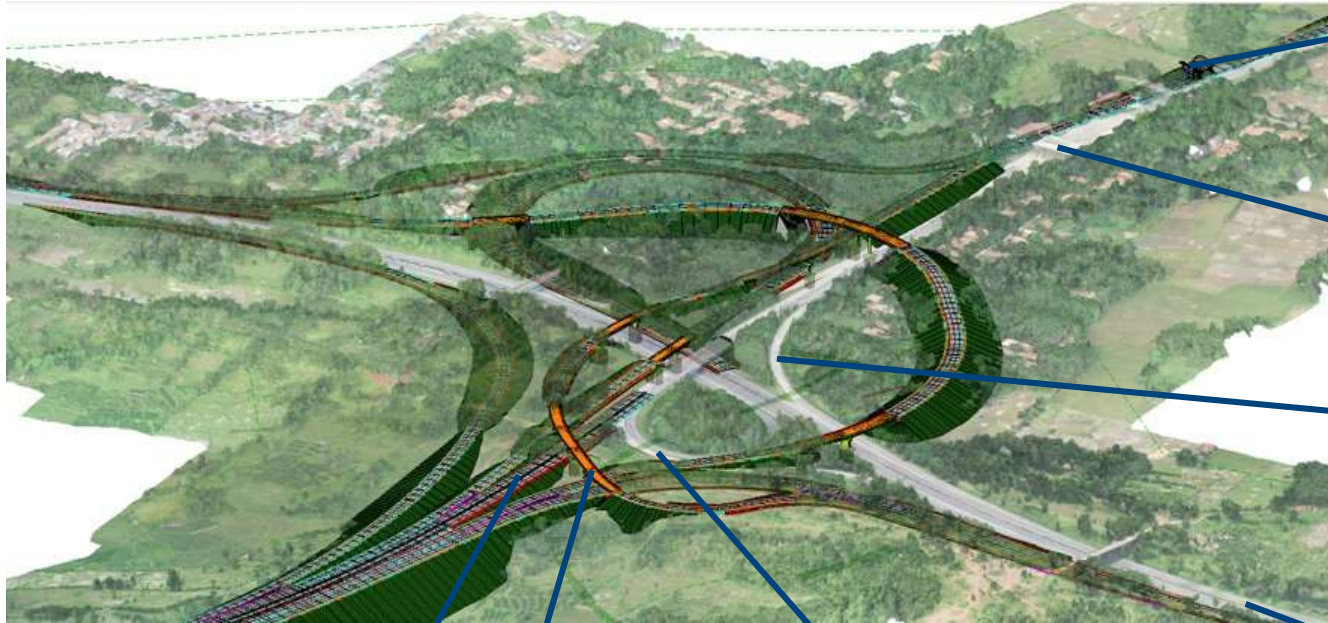


**Drawing from
Client**



BIM Model

SUPERIMPOSED MODELLING



New Toll Gate

Existing Toll Gate

Used existing ramp

Existing toll road

Designed Road

Designed Bridge

Destroyed existing ramp

Infrastructure As-Built

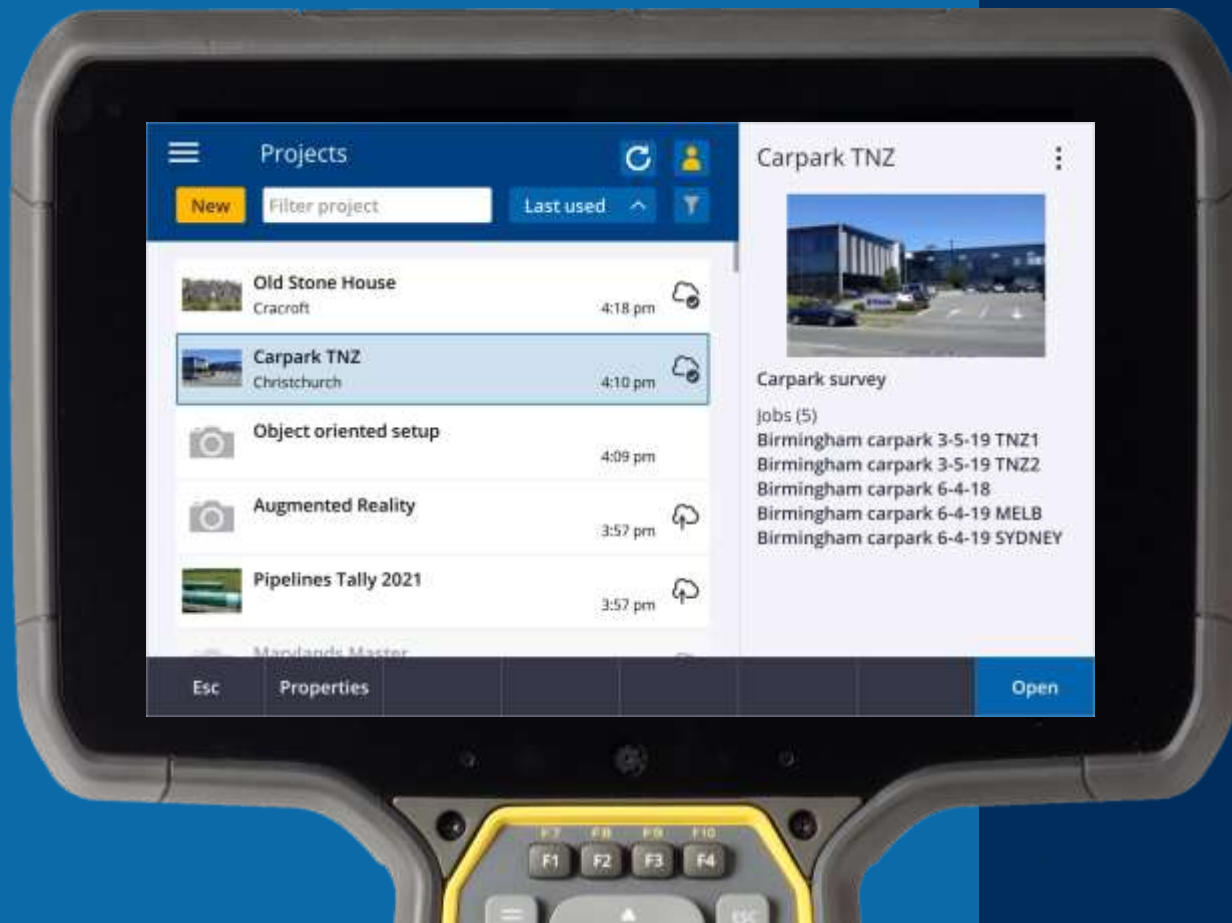
Bridges, Dams, Tunnels

- Also Power Substations, Above-Ground Pipelines, Comm Towers, Complex Structures
- Highlights
 - As-Built Plans/Profiles, Inspection, Clearance
 - Deformation Monitoring, Cracks Assessment
 - Load Testing, 3D Modeling
- Benefits
 - Rapid capture of rich asset information
 - Reduce station setups and ability to capture data on inaccessible objects e.g. long bridge spans
 - Complete geometrical information and visual documentation to enhance communication


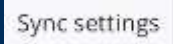



Field to office Integration






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

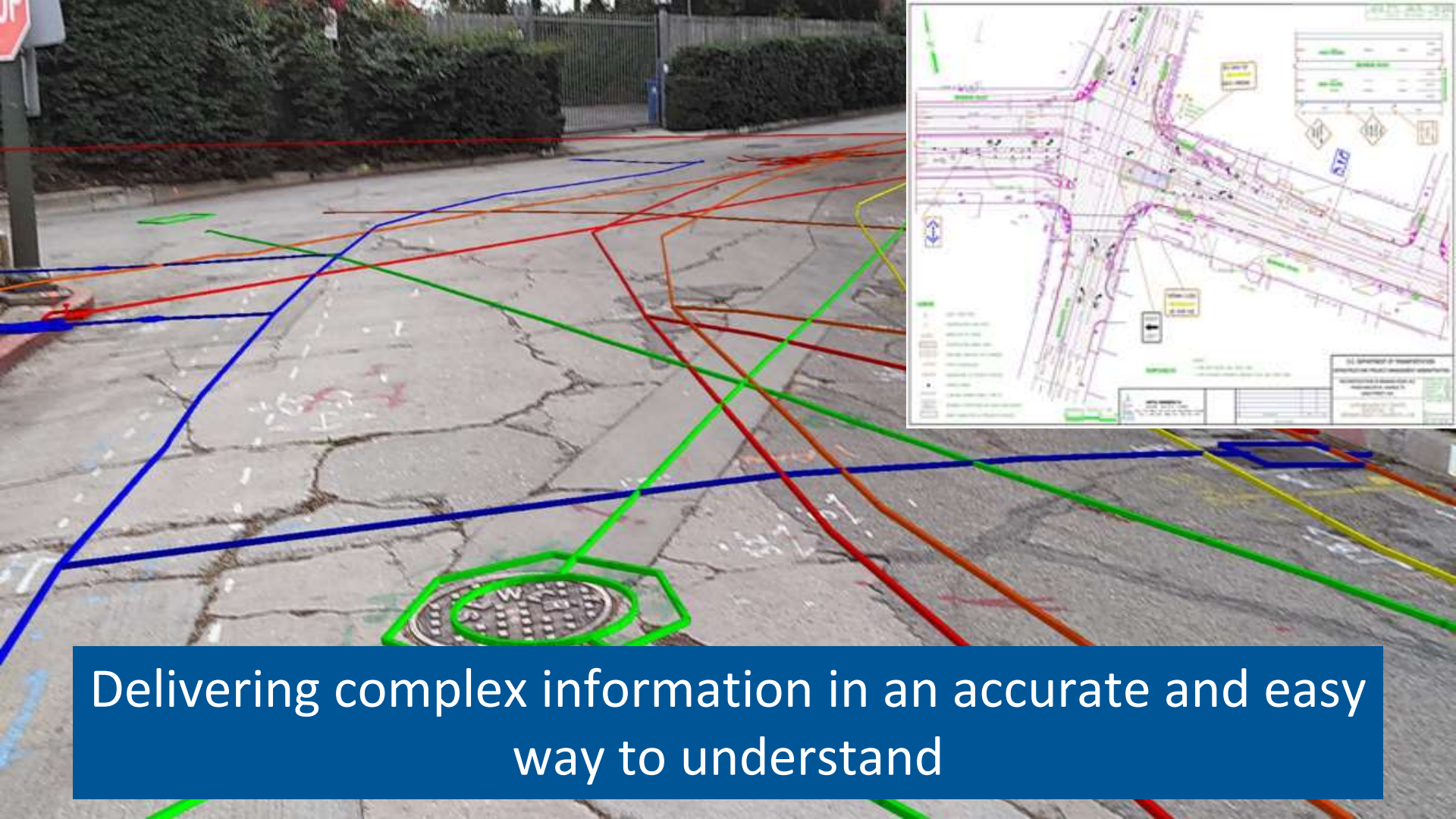


Trimble SiteVision – Augmented Reality



Design visualization





Delivering complex information in an accurate and easy way to understand

Public Engagement understanding the visual impact



Locating and communicating property boundaries



Solutions at Trimble



LAND

- GNSS
- ETS
- GIS Data Collectors
- Terrestrial LIDAR
- Mobile LIDAR



Solutions at Trimble



Water & Utilities

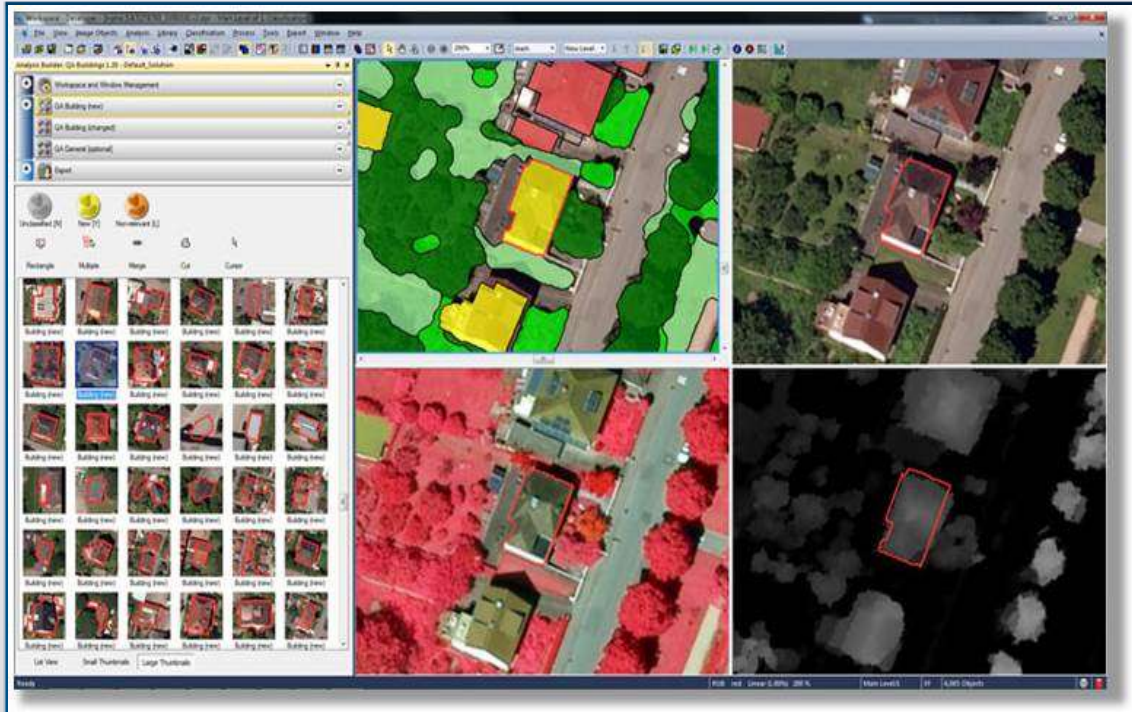
- Handheld GNSS
- ETS
- GIS Data Collectors
- SiteVision



Solutions at Trimble

Imagery Analysis

- eCognition
- Inpho



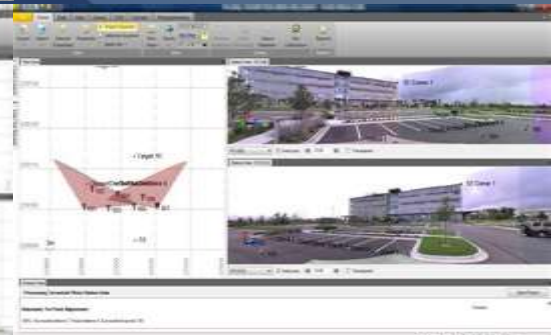
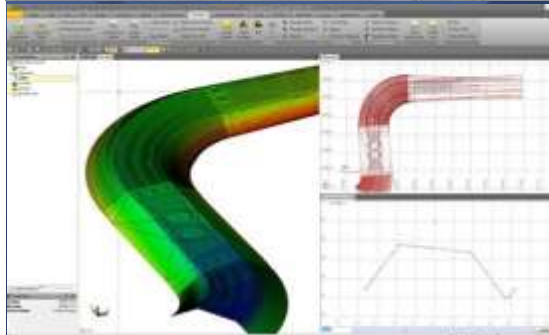
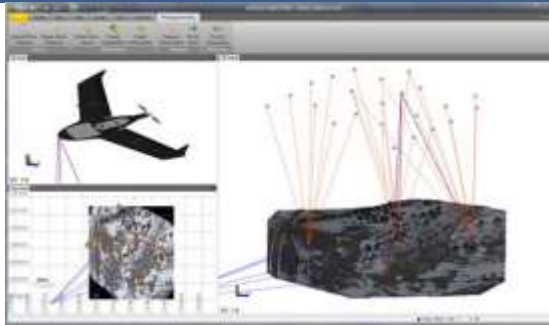
Solutions at Trimble



Monitoring

- Trimble 4D
- Bridge Monitoring
- Dam Monitoring
- Structural Health Monitoring
- Landslide Monitoring
- Early Warning Systems





Thank You

THANK YOU

GRAZIE VINAKA
TERIMA KASIH
THANK YOU
TAKK
merci

감사합니다
謝謝
謝謝
ありがとう