

Digital Twin Evolution: Paperless As-built Field Collections

City of Ottawa - Geospatial Analytics, Technology and Solutions
Brought to you by the Geospatial Intelligence Unit

Stuart Ferguson, Geospatial Data Analyst
Jean-Francois Dionne, Geospatial Intelligence Program Coordinator

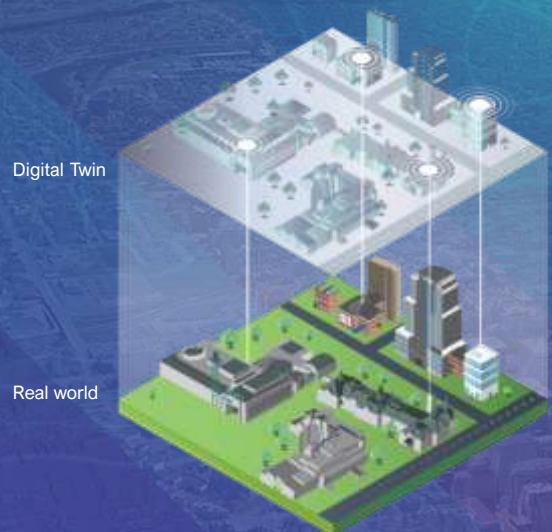


1

Ottawa's Digital Twin

A living, spatially anchored system that fuses real-time data, immersive visualization, and advanced analytics and predictions — fully leveraging the city's ESRI Enterprise investment to ensure interoperability, scalability, and security

It's a cornerstone of a smart city, enabling better decisions, inclusive planning, and operational excellence



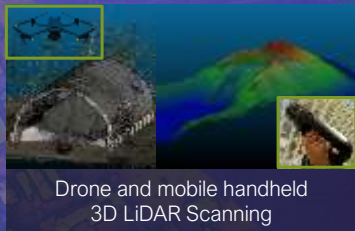
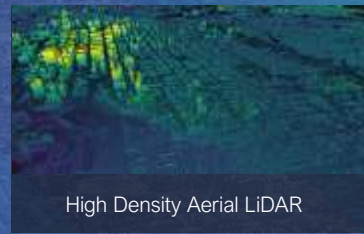
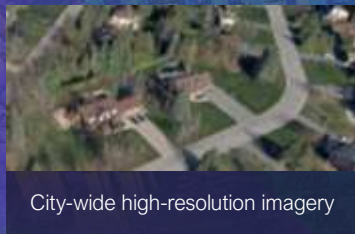
2

Our Digital Twin Journey



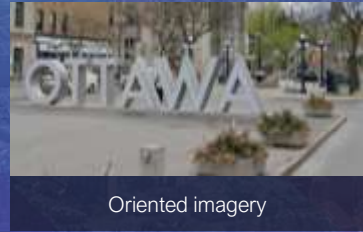
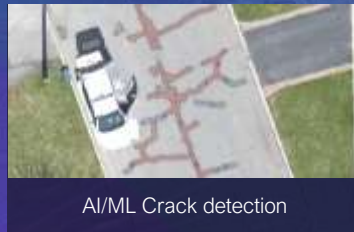
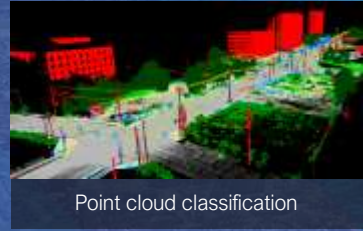
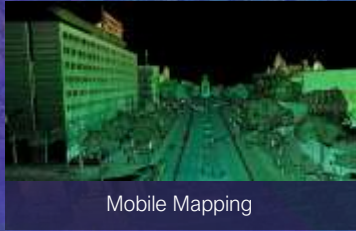
3

Foundation: Reality Capture Program



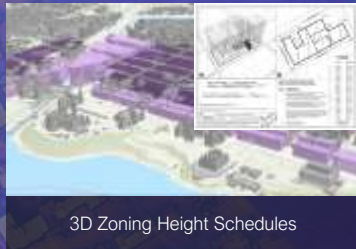
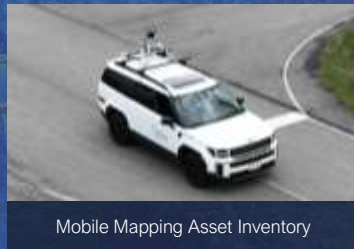
4

Foundation: Reality Capture Program – Mobile Mapping

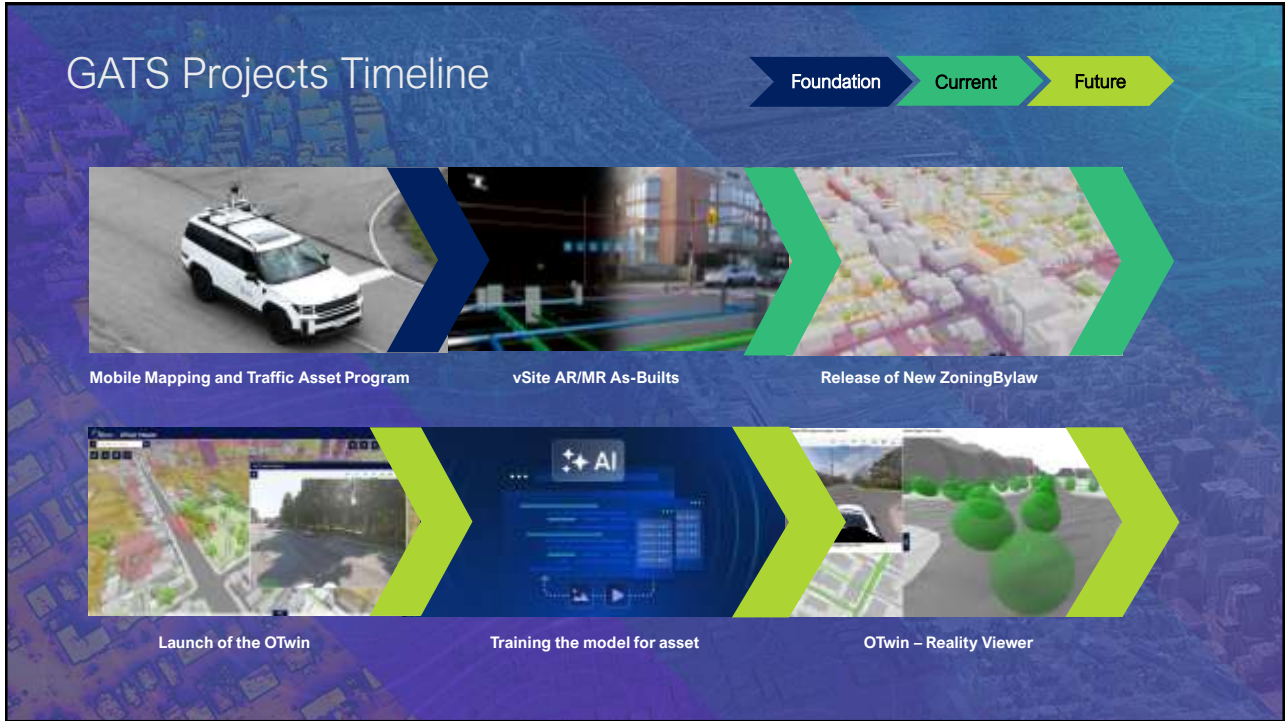


5

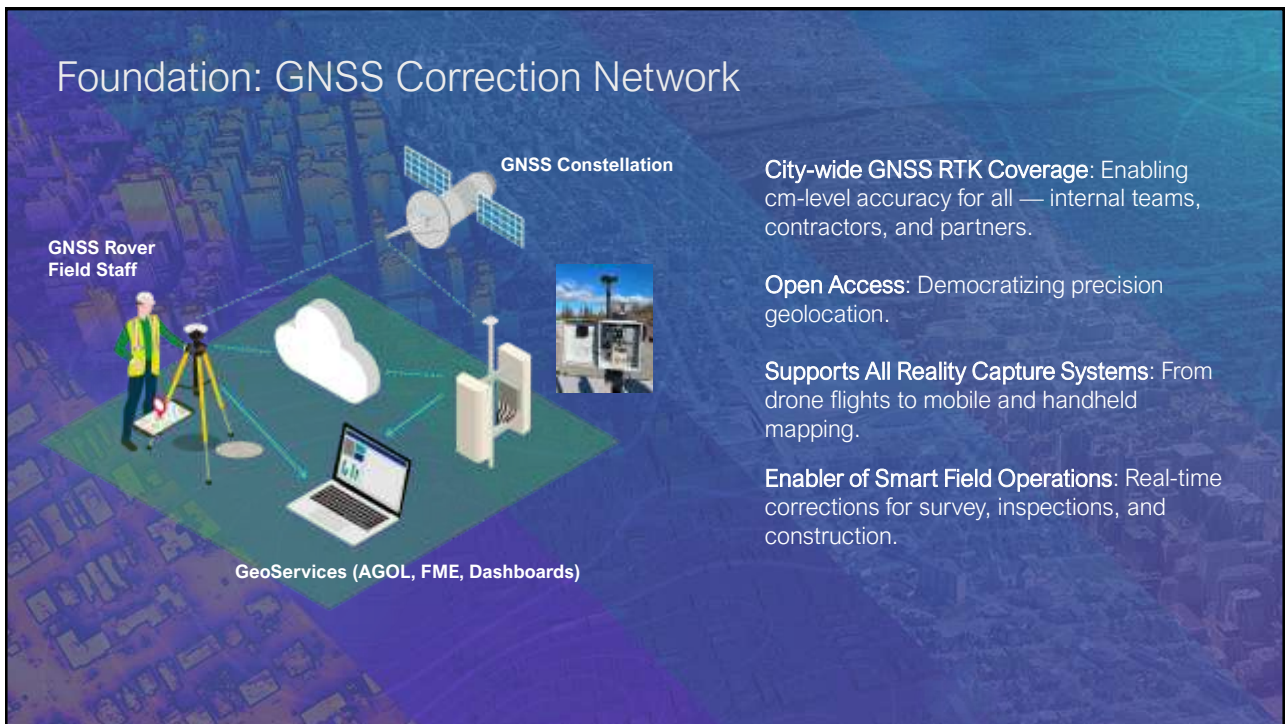
2025 Accomplishments



6

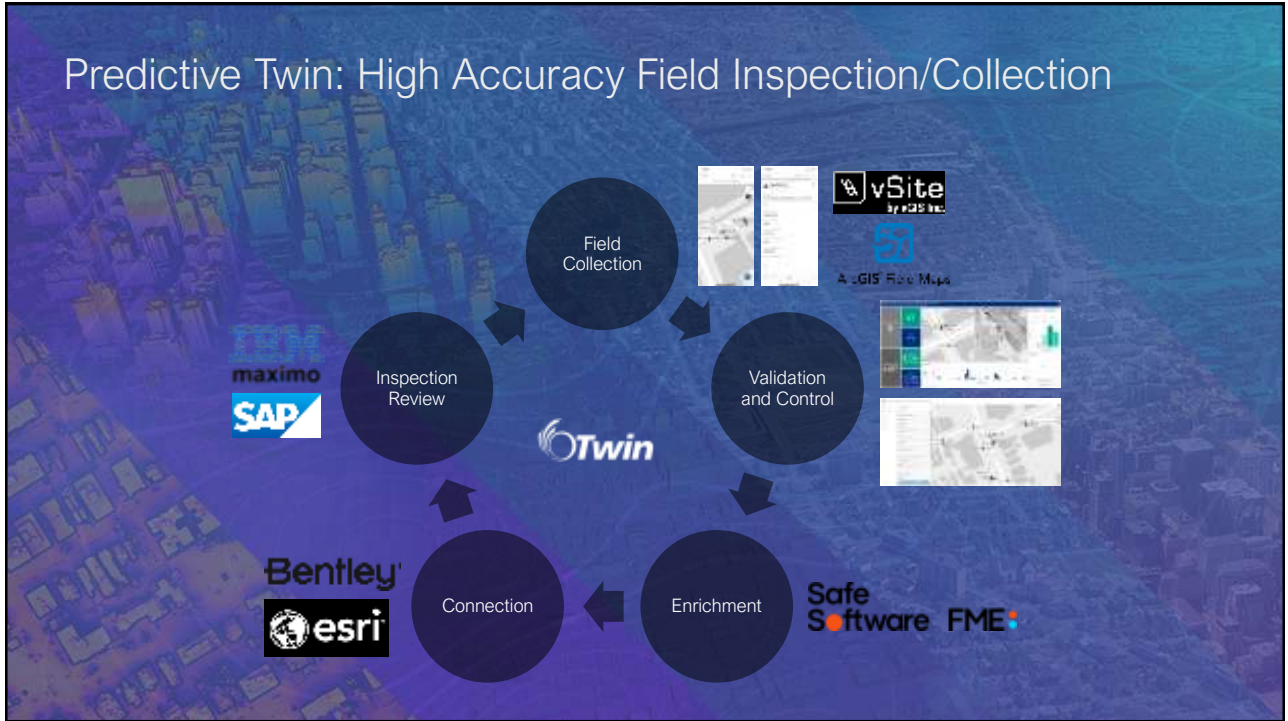


7



8

Predictive Twin: High Accuracy Field Inspection/Collection



9

Predictive Twin: Modern As-Built Collection Tools

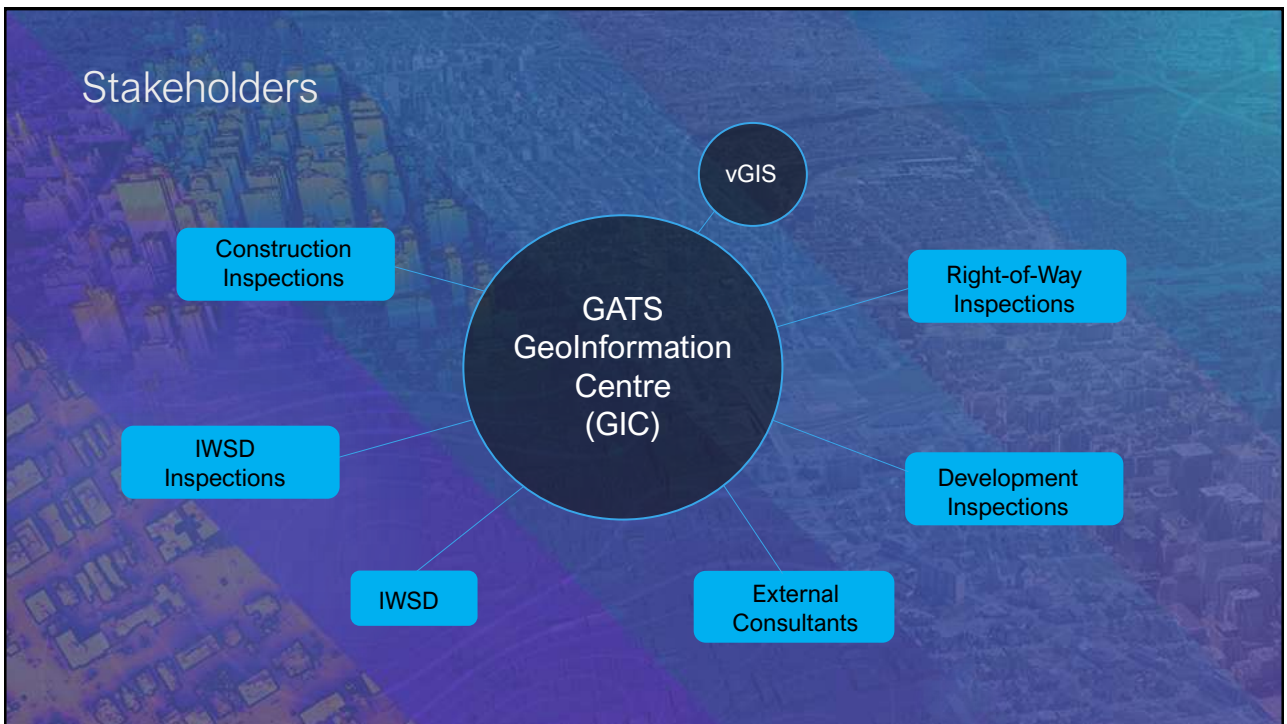


- ▶ Significant update to technology on the back end (vGIS) and in the field (iOS devices with LiDAR capabilities)
- ▶ Enhanced GNSS network for RTK positioning

10



11



12

Thank you!

If you are interested in participating in this project, please contact us.
We will have a demo outside during the break


Project contact:

Stuart Ferguson
Geospatial Data Analysis
Stuart.ferguson@ottawa.ca

Other questions:

Randal Rodger, randal.rodger@ottawa.ca
Program Manager, Geospatial Analytics, Technology and Solutions

13



vSite
by vGIS Inc.

vSite

**Subsurface Utility Projects
Operational Control Software**

14

The banner features a background image of a construction site with a white pickup truck, blue pipes, and a blue truck. A dark grey overlay on the left contains the vSite logo and navigation links: PLATFORM, PRODUCTS AND SOLUTIONS, WHO WE SERVE, NEWSROOM, and PORTAL SIGN-UP. The main headline reads "Platform for Utility Construction" with a sub-headline: "All your utility project data and field tools unified in one platform. vSite delivers visual, real-time insights into what's built and where, so utility contractors and owners can work safer, faster, and smarter." A yellow button at the bottom of the overlay says "REQUEST INFORMATION".

15

The diagram illustrates the vGIS workflow. At the top left is the vGIS logo. Below it, the text "Plan. Build. Control." is displayed. Three yellow boxes labeled "Plan", "Build", and "Control" are arranged horizontally. Below each box is a corresponding image: a hand holding a tablet showing a colorful utility map for the "Plan" stage; a worker in a hard hat using a tablet on a construction site for the "Build" stage; and a close-up of a tablet screen showing a utility line with markers for the "Control" stage. A small icon of a hand holding a pen is in the bottom right corner.

16

vGIS Plan

Better Project Planning

- Site surveying
- Documentation
- Design reviews
- Plan optimization
- Excavation planning
- Safety planning

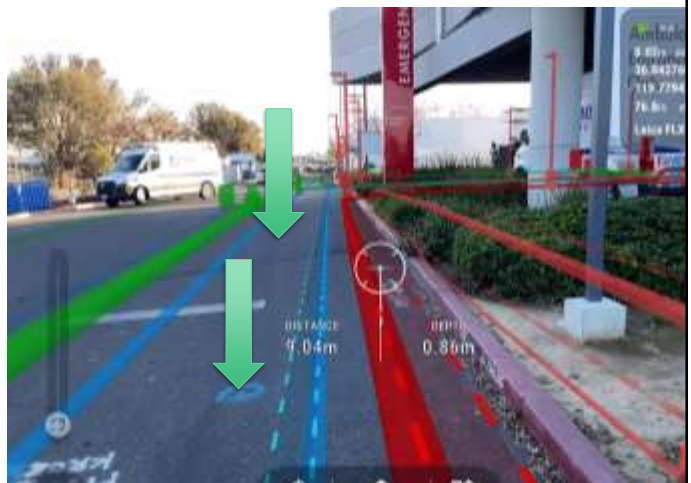


17

vGIS Build

More Precise Excavation

- Damage prevention
- Real-time QC
- Referencing
 - Existing infrastructure
 - Proposed
- Documentation

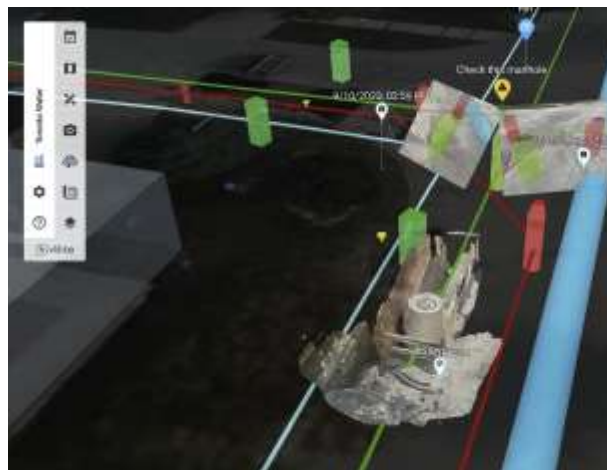


18

Document

Ultimate Documentation Tool

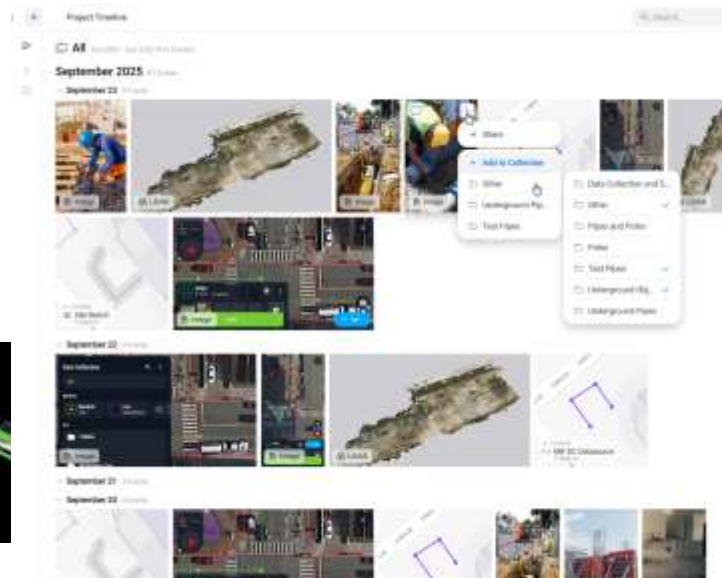
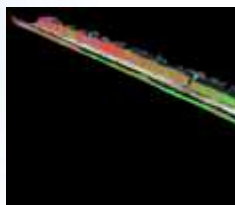
- Images
 - Oriented images
 - 360
- 3D scanning
 - LiDAR
 - Photogrammetry
- GIS/vector data collection
 - AR
 - Pole



19

Control

- Instant review
- Timeline view
- AI
 - Surface discrepancies
 - Trench analysis
 - More



20

vGIS Use Case: Utility Project



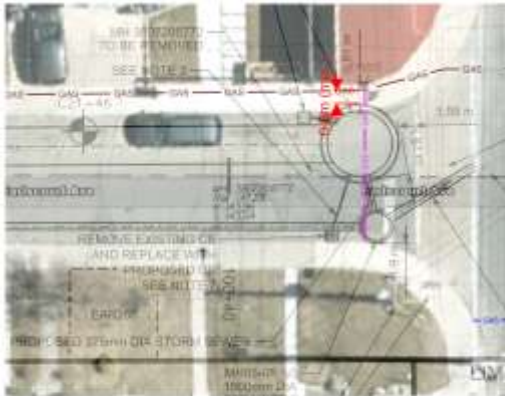
Sewer System Upgrade

- 1. Site preparation mark-outs
- 2. Design reviews and design issue reporting



21

vGIS Use Case: Utility Project



LEGEND

	Existing Gas Main
	Existing Gas Service
	Proposed Gas Service



22

Use Case: Utility Project



Sewer System Upgrade

1. Site preparation mark-outs
2. Design reviews and design issue reporting
3. Documentation of trenches
4. Locates documentation
5. Redlining/Internal as-builts
6. Stakeouts



23



Thank You

Alexandre Pestov

CEO

416-939-5449

Alec.Pestov@vgis.io

www.vGIS.io



24