



Location-intelligent planning with Oracle Primavera P6 EPPM

Spatially-Enabling Enterprise Project Controls

Locana
EVERYTHING LOCATION

Leverage Location Data to Improve Plans

Programmes have a wealth of location and mapping data which provides an opportunity to improve planning through a web enabled digital twin



Improve Collaboration

- Visualise and align plans across teams and subcontractors
 - Is site access in place?
 - Has utility work been completed?
 - Do we have approval to close roads?
 - Do we have wayleaves?



Plan to meet Environmental needs

- Overlay designs in 2D/3D on maps
 - Evaluate physical access,
 - Proximity check impacted
 - utilities
 - Protected species
 - etc
- Inspect recent and historical surveys (including LiDar)
- Examine satellite and drone imagery



Enhance Stakeholder Communication

- Senior leaders see progress without looking at Gantt charts
- Tell or advise the community who will be impacted and when
- Communicate progress to external parties



Plan for Health and Safety

- Accommodation needs
- Access to medical or emergency services
- Locate local hospital, surgeries, dentists, etc
- Restrooms and other hygiene needs



Track progress

- Near Real time visibility of progress
 - Surveys
 - Live onsite data streams
 - Drone data
 - Imagery
- Compare to plans and designs

Planning Issues



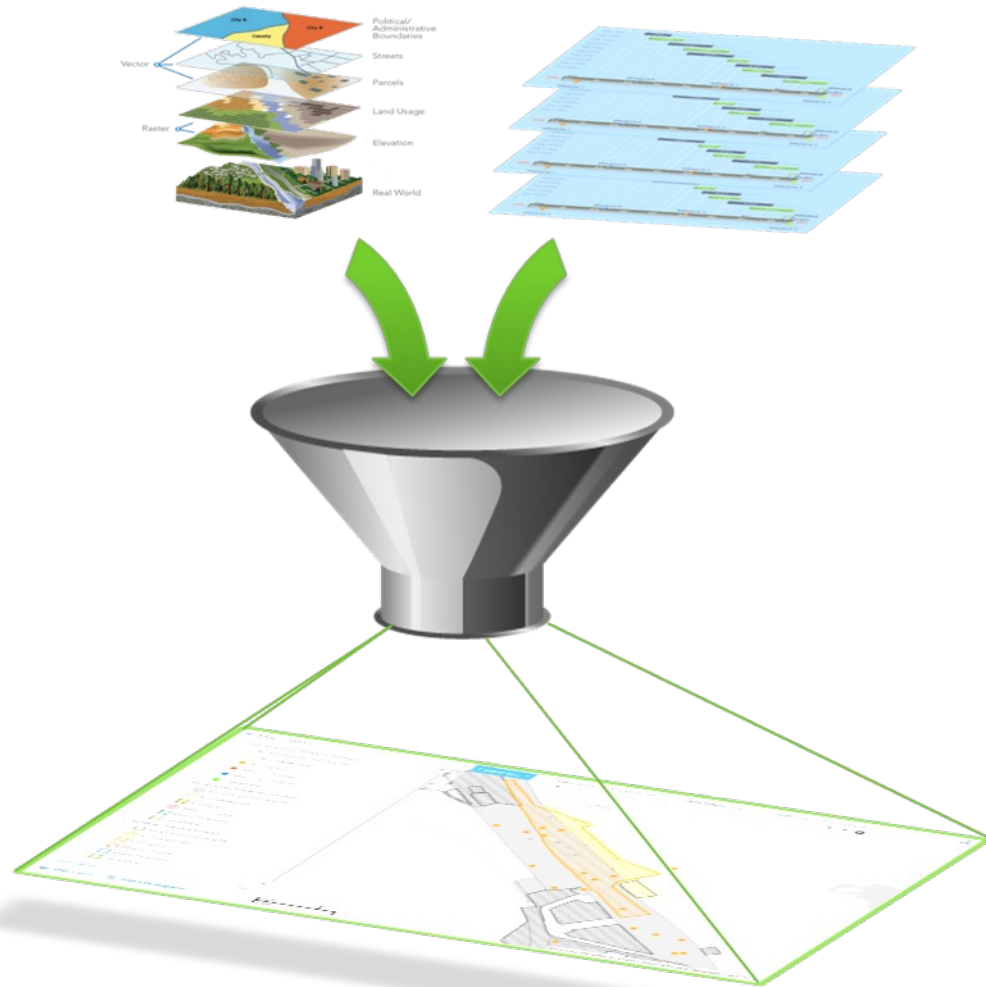
- Poor planning across functions/organisations costs time and money
 - Teams arriving at site denied access
 - Plans do not account for relocating critical equipment
 - Engineers arrive with the wrong equipment
- No environmental context in the plan
 - Can we mitigate the impact of the local environment on progress
 - Who in the community will be most impacted by the work.
 - How will the weather impact work
 - Best way to access the site
 - Have we planned for road closures
- Communication of progress to stakeholders
 - How is work progressing near me and when will it finish
- Commonly used planning tools (Gantt charts and spreadsheets) don't highlight spatial context and conflicts
- Manual approaches to mapping this information are inefficient

Solutions and Benefits



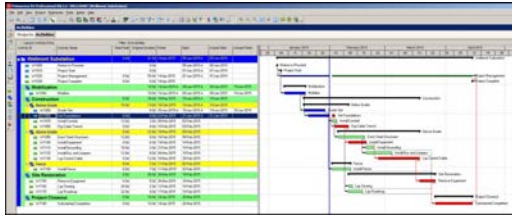
- Spatially enabling your planning systems is the solution
- Apply location analytics to plans
- Visually walk through a schedule on a time-enabled map over the web
- Plan collaboratively across the enterprise

How does it work?

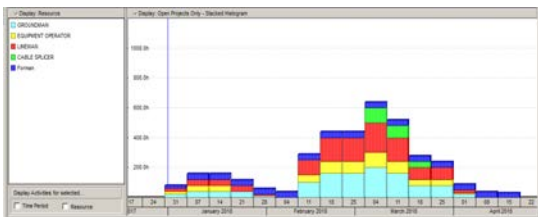


- Activities in plans are visualised on spatial data layers
- Time based scenarios show the changes in the work status of each feature
- Simple location analysis reveals
 - Missing activities
 - Error in logic, spatial interdependencies and sequencing
 - Feature or asset conflicts
 - Unrealistic plans
 - Potential for collaboration
- Status warnings identify common issues

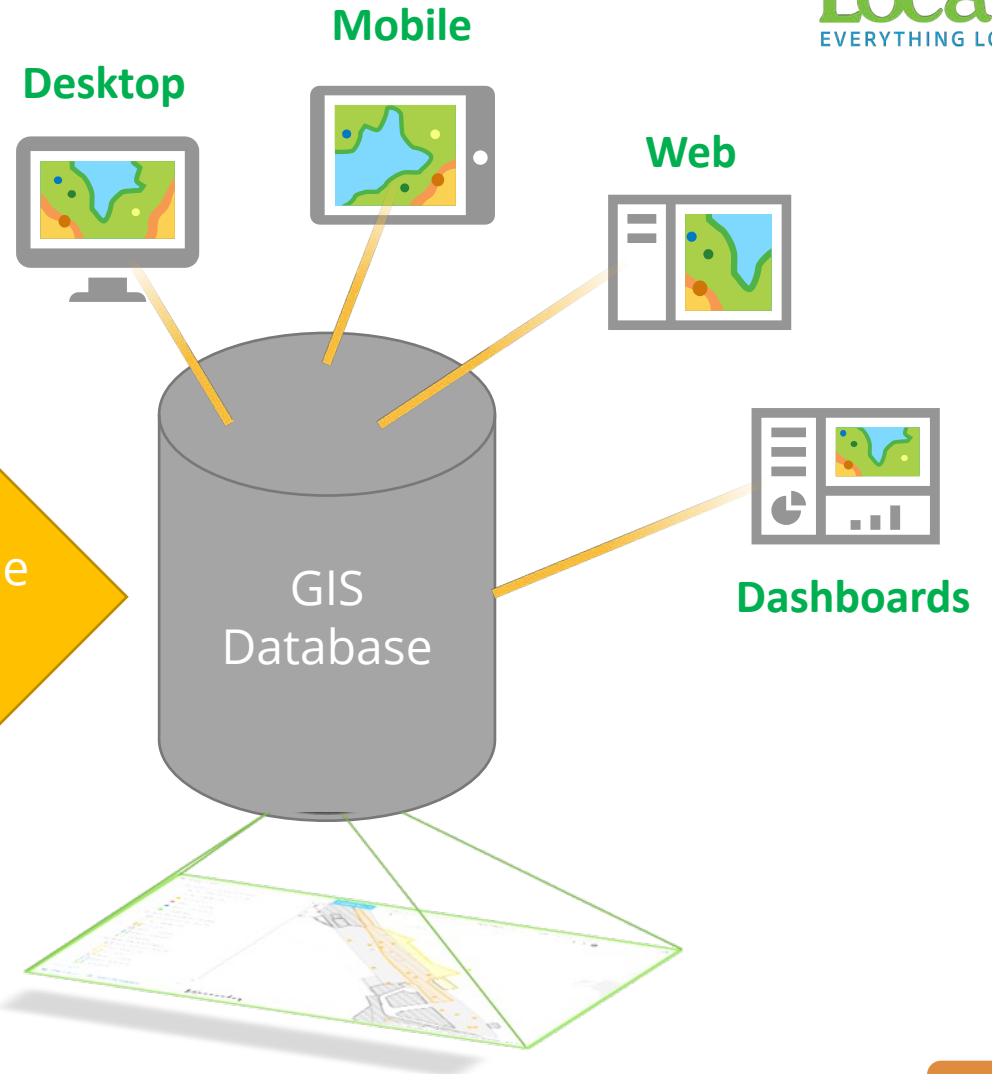
How does it work?



Planning and scheduling application



On the fly schedule data extraction





Scenario Walk-Throughs

Collaborative Planning Scenario – Benefits/Functions

- Incorporates plans for different project areas with different planning systems into a common data set
- Enables **location analytics** to be performed to identify
 - Resource clash/optimisation
 - Inter-project sequencing
 - Missing activities/dependencies
- Display warnings based on predefined business queries
- Run scenarios to determine how best to resolve conflicts

Collaborative Planning Scenario – Benefits/Functions

1-Select Desired Map Area

2-Select P6 Projects per each GIS Dataset

3-Run Workflow

Home Mapping Tax Parcels Workflow Find Markups

Point Freehand Line Polygon Rectangle Buffer Shape Results for...

Identify

P6 Programme Workflow

I want to...

Selected Area: HS2-000001147 (Z-Z004-M-DESEmbankment)

Selected Project: Cons - Construction Proje Compare to: Primary Baseline (23-9-2015)

DES Areas

L&P

GI

Amphibian Pond

Get related GI & Amphibian Ponds: using L&P polygons

Prepare & View Plan

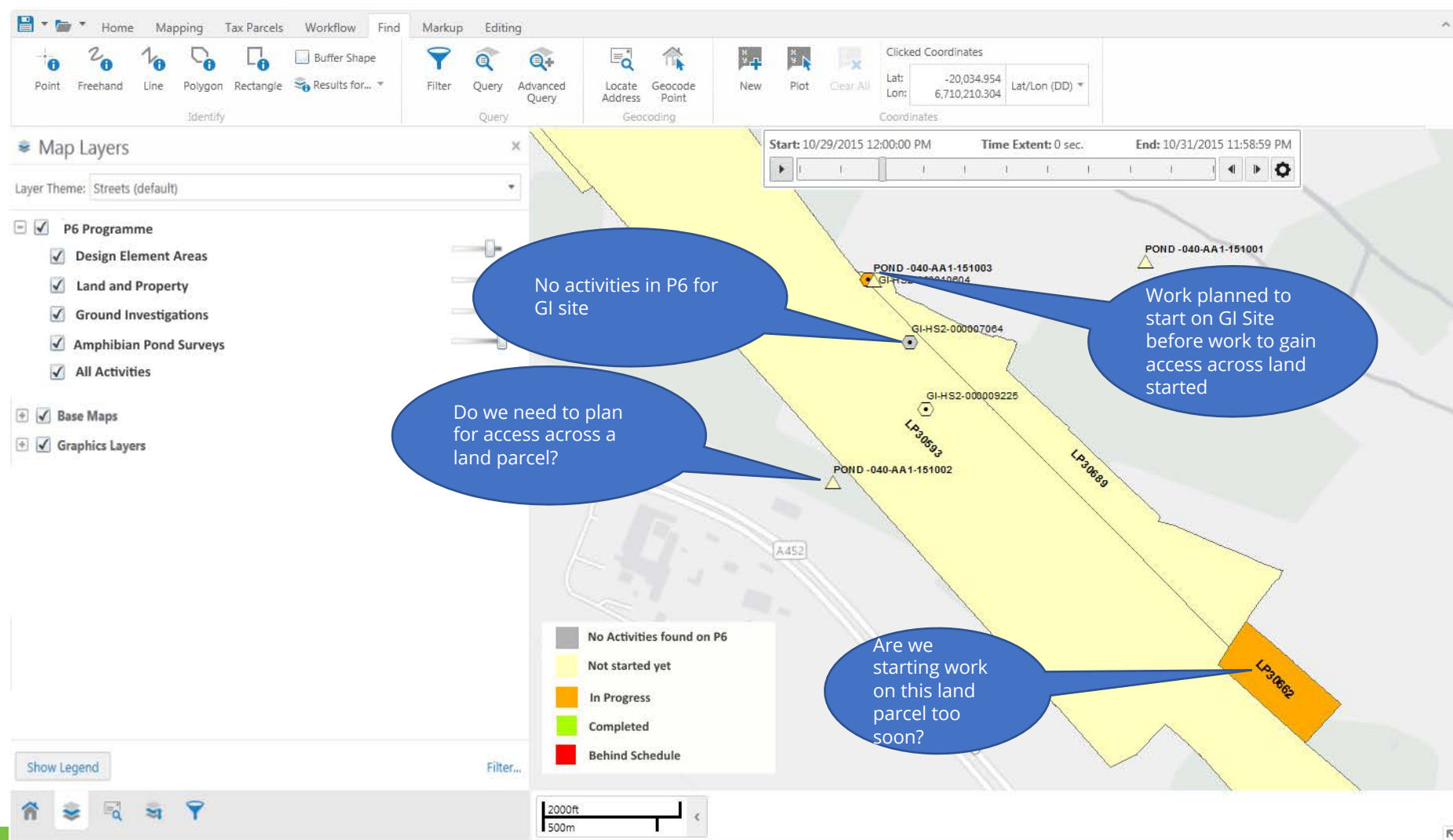
Clicked Coordinates: Lat: -20,034.954 Lon: 6,710,210.304 Lat/Lon (DD)

Coordinates

Streets

2000ft 500m

Collaborative Planning Scenario – Benefits/Functions

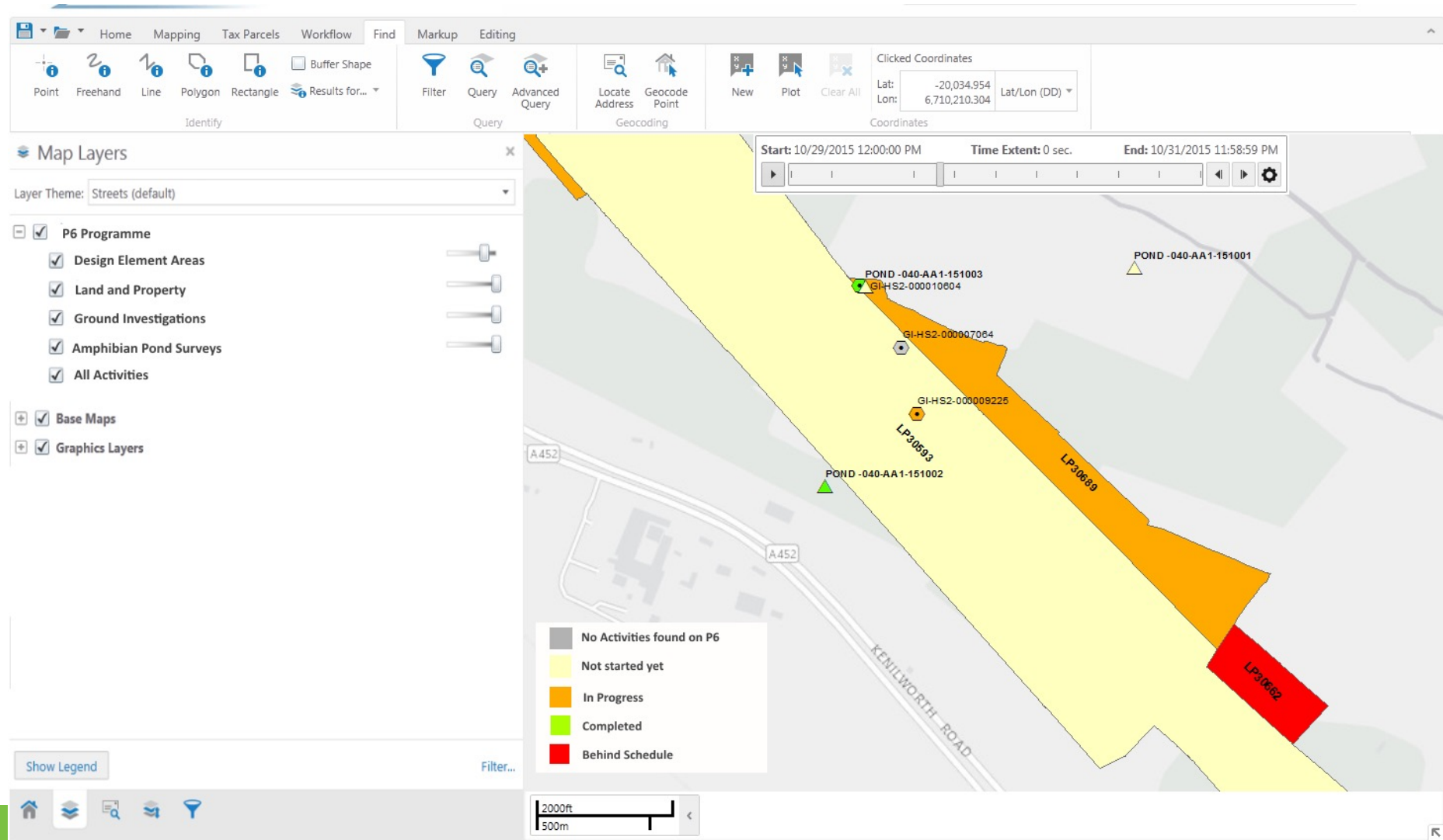


Collaborative Planning Scenario – Benefits/Functions

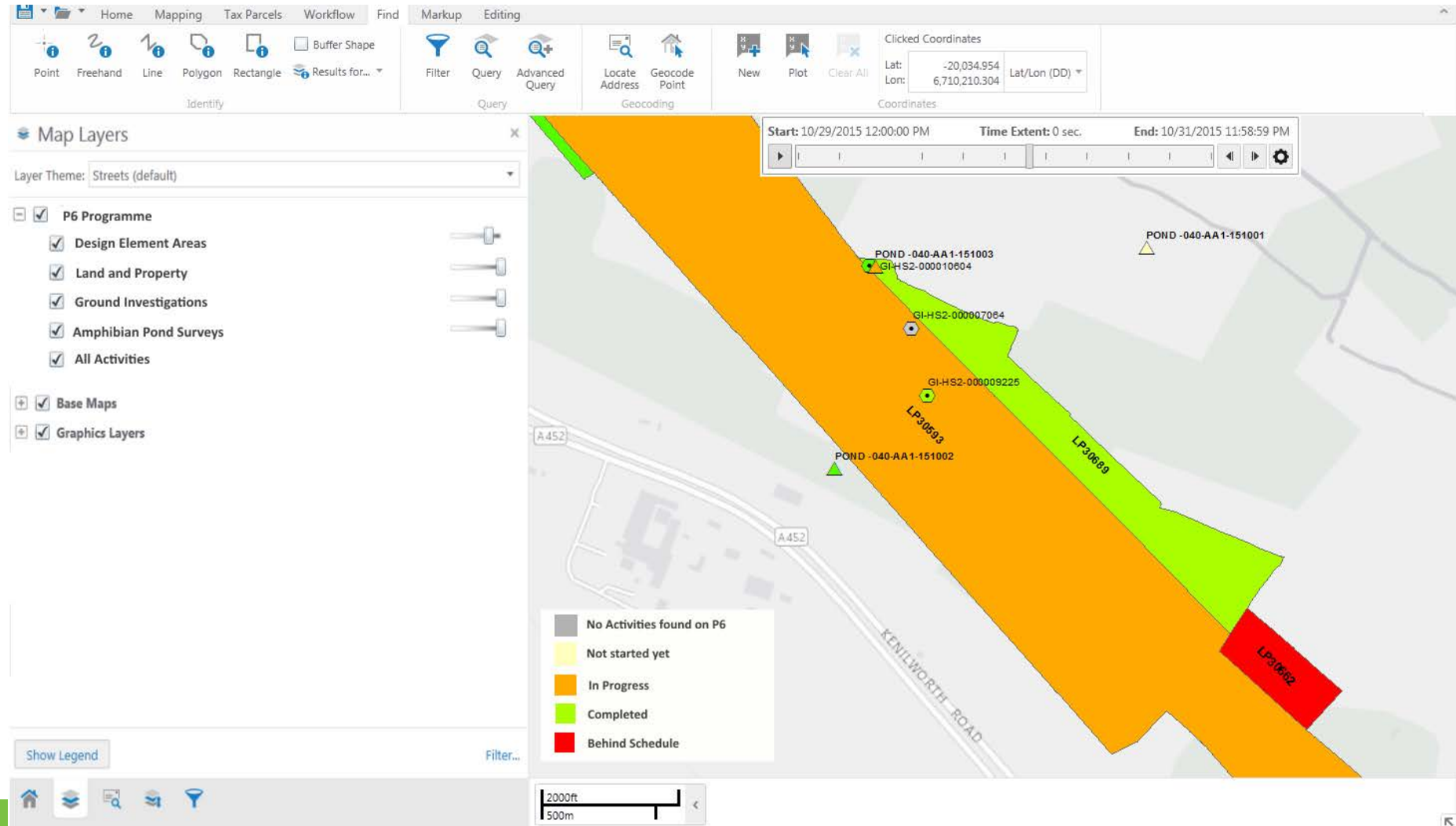
The screenshot displays a GIS application interface with the following components:

- Top Menu:** Home, Mapping, Tax Parcels, Workflow, Find, Markup, Editing.
- Toolbars:** Identify (Point, Freehand, Line, Polygon, Rectangle, Results for...), Query (Filter, Query, Advanced Query), Geocoding (Locate Address, Geocode Point), and other utility tools (New, Plot, Clear All).
- Map Layers Panel:** Layer Theme: Streets (default).
 - P6 Programme:** Design Element Areas, Land and Property, Ground Investigations, Amphibian Pond Surveys, All Activities.
 - Base Maps:** Base Maps.
 - Graphics Layers:** Graphics Layers.
- Map View:** A map showing a yellow highlighted area along Kenilworth Road. Specific features include:
 - POND -040-AA1-151003 (orange circle)
 - GI-HS2-000010604 (blue circle)
 - GI-HS2-000007064 (blue circle)
 - GI-HS2-000009225 (blue circle)
 - LP30693 (blue circle)
 - POND -040-AA1-151002 (yellow triangle)
 - LP30699 (yellow polygon)
 - LP30692 (orange polygon)
 - POND -040-AA1-151001 (yellow triangle)
- Legend:**
 - No Activities found on P6 (grey square)
 - Not started yet (yellow square)
 - In Progress (orange square)
 - Completed (green square)
 - Behind Schedule (red square)
- Time Slider:** Start: 10/29/2015 12:00:00 PM, Time Extent: 0 sec., End: 10/31/2015 11:58:59 PM.
- Scale Bar:** 2000ft / 500m.
- Callout:** A blue speech bubble points to the time slider with the text "Move time slide to view planned progress".

Collaborative Planning Scenario – Benefits/Functions



Collaborative Planning Scenario – Benefits/Functions



Collaborative Planning Scenario – Benefits/Functions

The screenshot displays a GIS application interface with a map showing various colored overlays. A detailed view of feature LP045736 is shown, including a table of activities.

Map Layers:

- Map Layers (x)
- Layer Theme: Streets (default)
- P6 Programme
 - Design Element Areas
 - Land and Property
 - Ground Investigations
 - Amphibian Pond Surveys
 - All Activities
- Base Maps
- Graphics Layers

Activity Table for LP045736:

Activity ID	Activity Desc	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date
ACT01	First Activity	5-1-2016	6-2-2016	10-1-2016	----
ACT012	Purchase Land	5-1-2016	6-2-2016	10-1-2016	----
ACT013	Construct	5-1-2016	6-2-2016	10-1-2016	----

Legend:

- No Activities found on P6
- Not started yet
- In Progress
- Completed
- Behind Schedule

Map Details:

- Clicked Coordinates: Lat: -20,034.954, Lon: 6,710,210.304
- Start: 10/29/2015 12:00:00 PM, Time Extent: 0 sec., End: 10/31/2015 11:58:59 PM
- Scale: 2000ft / 500m

Collaborative Planning Scenario – Benefits/Functions

The screenshot displays the Locana software interface. At the top, there is a menu bar with options like Home, Mapping, Tax Parcels, Workflow, Find, Markup, and Editing. Below this is a toolbar with various icons for map manipulation. The main area is divided into a left sidebar and a central map view.

Simple Query Builder Panel:

- Query Layer: All Activities
- Find records in layer for which:
 - StartDate: Greater... 10/26/2015
 - and
 - EndDate: Less than 10/29/2015
 - + Add a query condition
- Spatial Filter: None
- Run button

Map View:

- Map showing highlighted areas in orange and green.
- Callout bubble: "View All Activities returned from the query and zoom to map locations."
- Map labels include: POND -040-AA 1-151003, GI-HS2-000010604, GI-HS2-000007064, GI-HS2-000009225, LP30693, POND -040-AA 1-151001, LP30669.
- Coordinates: Lat: -20,034.954, Lon: 6,710,210.304
- Time Extent: Start: 10/29/2015 12:00:00 PM, End: 10/31/2015 11:58:59 PM

Results (471) Table:

ID	Description	Project	WBS	Planned Start Date	Planned End Date	Actual Sta
★ 2231	Purchase Land	L&P Land And Property	WB1.WB2.WB3	10/26/2015	10/26/2015	
★ 2231	Purchase Land	L&P Land And Property	WB1.WB2.WB3	10/26/2015	10/26/2015	
★ 2231	Purchase Land	L&P Land And Property	WB1.WB2.WB3	10/26/2015	10/26/2015	
★ 2231	Purchase Land	L&P Land And Property	WB1.WB2.WB3	10/26/2015	10/26/2015	
★				10/26/2015	10/26/2015	

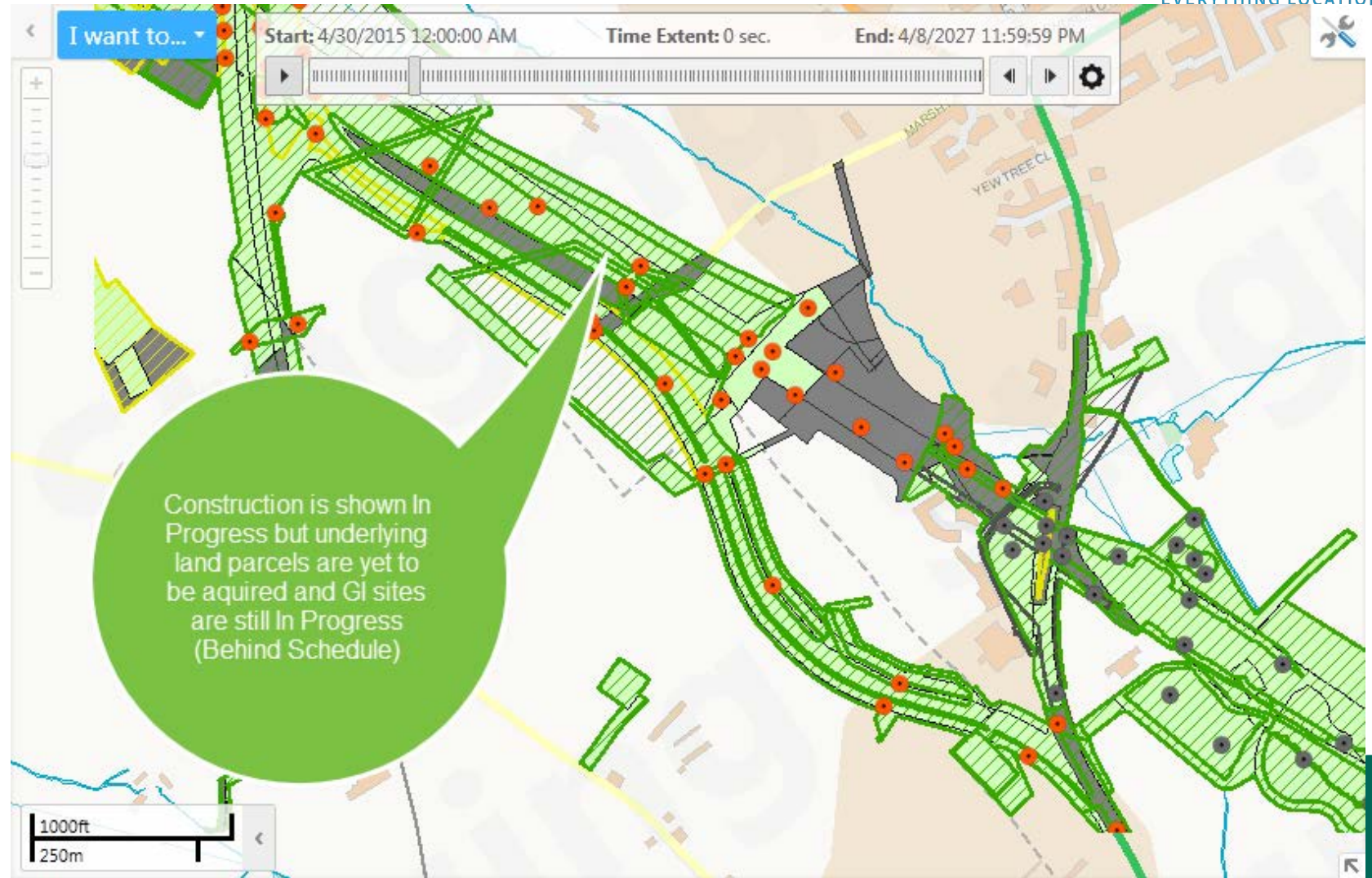
Query/Filter the activities using any field like: Start Date, Project Name, WBS etc.

Performance Management Scenario - Benefit/Functions

- Visualises cross-functional schedule conflicts
- Visualises data issues such as geographic features with no associated P6 activities both on the map and in the table

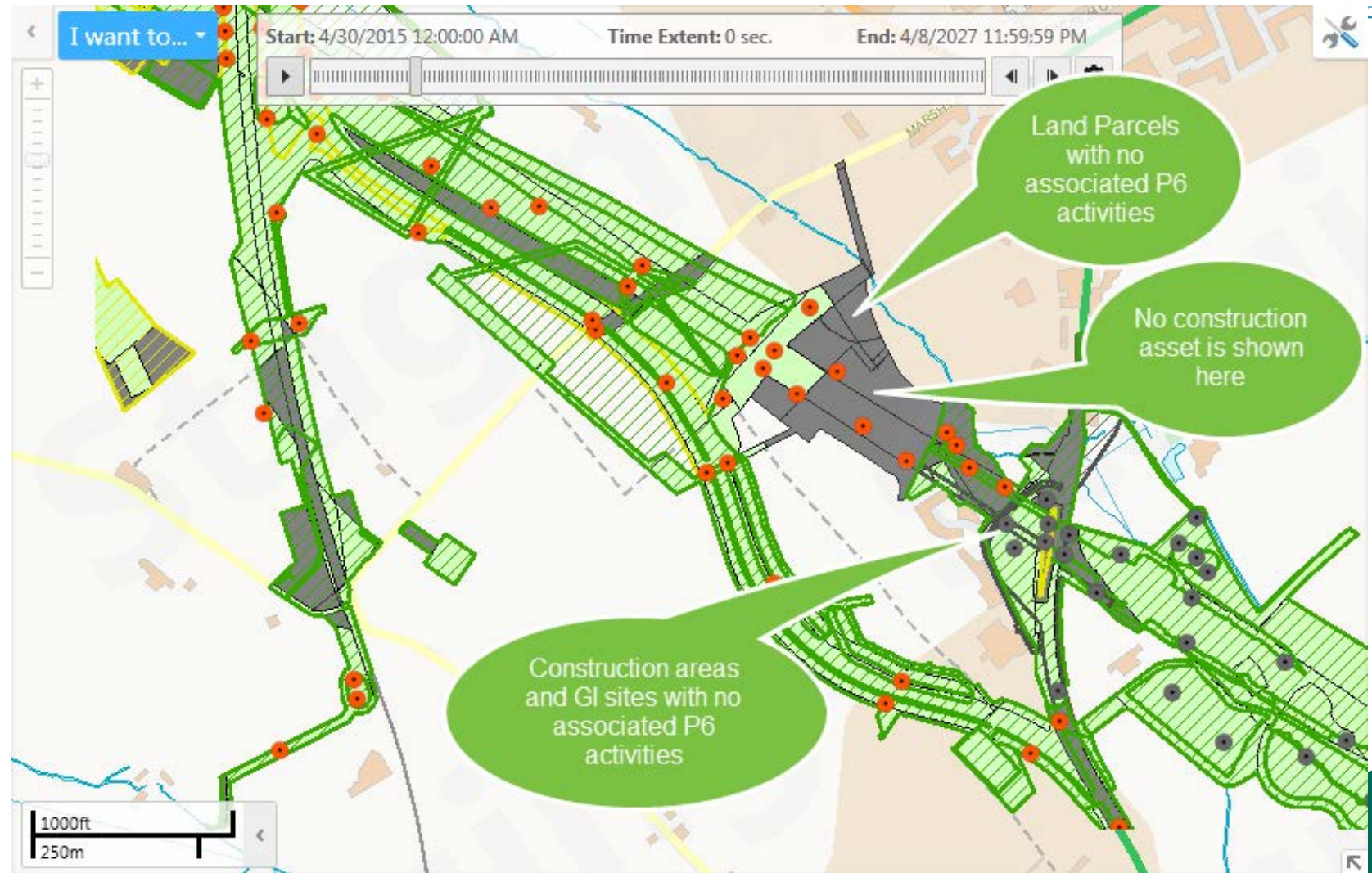
Performance Management Scenario - Benefit/Functions

Identifying potential cross functional scheduling issues



Performance Management Scenario - Benefit/Functions

Missing features and features with no P6 activities associated



Performance Management Scenario - Benefit/Functions

Scheduling issues pinpointed on map and in table

The screenshot displays a software interface for performance management. At the top, a search bar contains "I want to...". A date range is set from "Start: 1/29/2017 12:00:00 AM" to "End: 11/3/2022 11:59:59 PM" with a "Time Extent: 0 sec." indicator. The map shows a road network with several assets highlighted in yellow and green. A scale bar indicates 2500ft and 500m. Below the map, a "Results (2)" section shows navigation options like "View History", "View Selected", "Refine Results", etc. A table titled "Missing Activities Warnings" lists two assets with their respective IDs, codes, descriptions, warning messages, and coordinates.

OBJECTID	AssetCode	AssetDescription	WarningMessage	X	Y	Layer	Project
149194	HS2-000020354		This asset does not have any associated activities in P6 for the selected project	483469.7278	209659.9827	DesignElementSchedule	Area Central - C2 - North of Chiltern Tunnel
149195	TPY-000001579		This asset does not have any associated activities in P6 for the selected project	486447.6933	207613.9002	DesignElementSchedule	Area Central - C2 - North of Chiltern Tunnel

Higher Level Performance Management Scenario - Benefits/Functions

- Visibility of strategic direction and performance
- Enable location analytics to be performed on project and subcontractor performance, identify performance trends and underlying causes
- High level view with ability to drill down into lower level issues

Higher Level Performance Management Scenario - Benefits/Functions

Work Package
Areas Progress



Stakeholder Communication Scenario – Benefits/Functions

- Communication tool to demonstrate the programme phasing to executives and stakeholder
- Resourcing impact on project and community
- Communications to 3rd parties to show the phasing of impact on their asset
- Dashboards for any need
- Can be used for communication and marketing plans

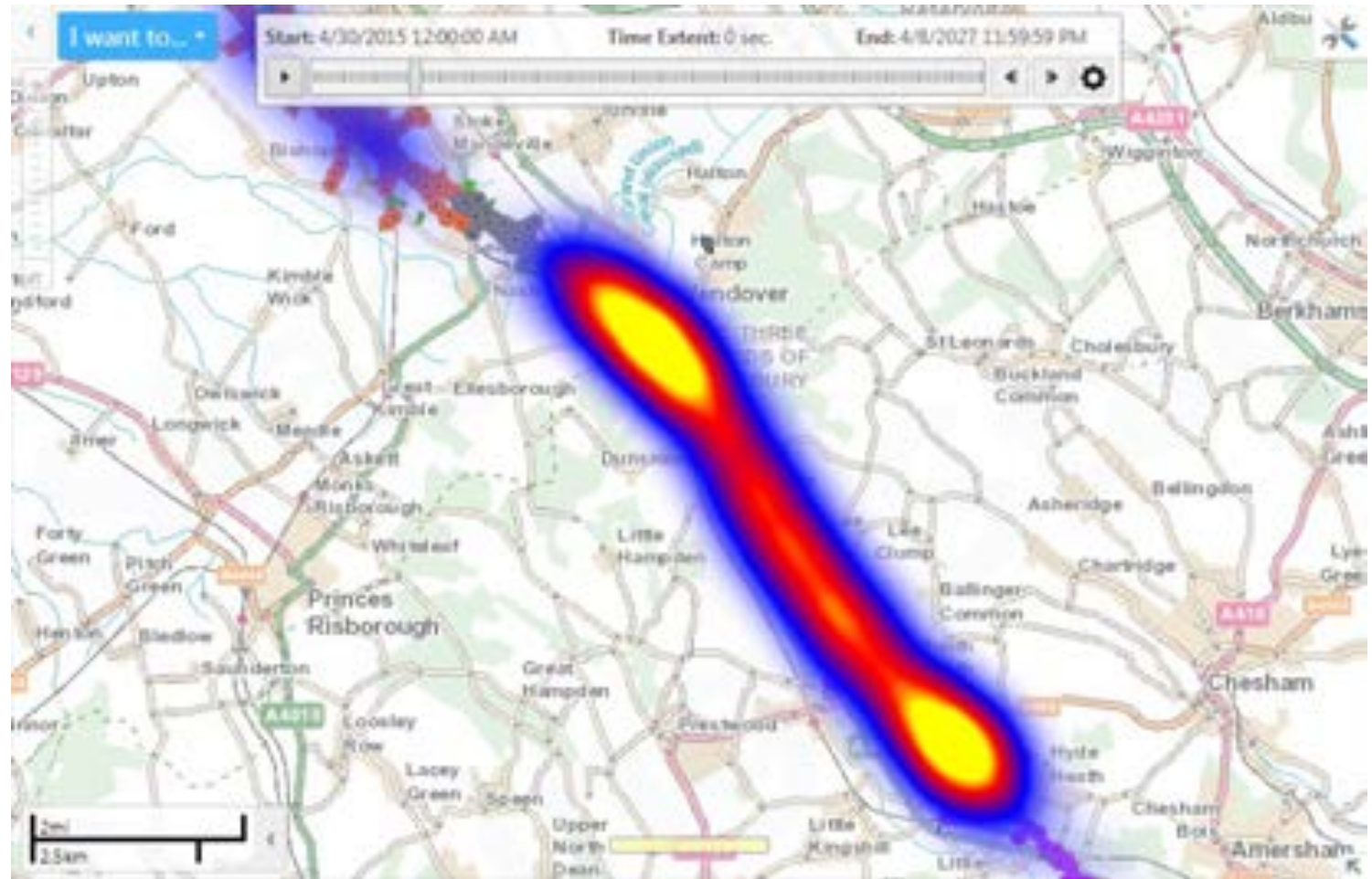
Stakeholder Communication Scenario – Benefits/Functions

Construction schedule overlaid on community forum areas



Resource Management Scenario

- When and where resources are needed
- Ties into health and safety risk mitigation



Interactive dashboards including KPIs

- Interactive maps, charts and graphs to show performance levels, budget, et al
- Could include programme KPIs



Why integrate instead of just manual GIS mapping?

- Automated
- Up-to-date
- Consistency
- Democratisation of data
- Helps drive programme business processes
- Efficiencies gained in whole project lifecycle including senior decision making

Planning System/GIS Integration Benefits Recap

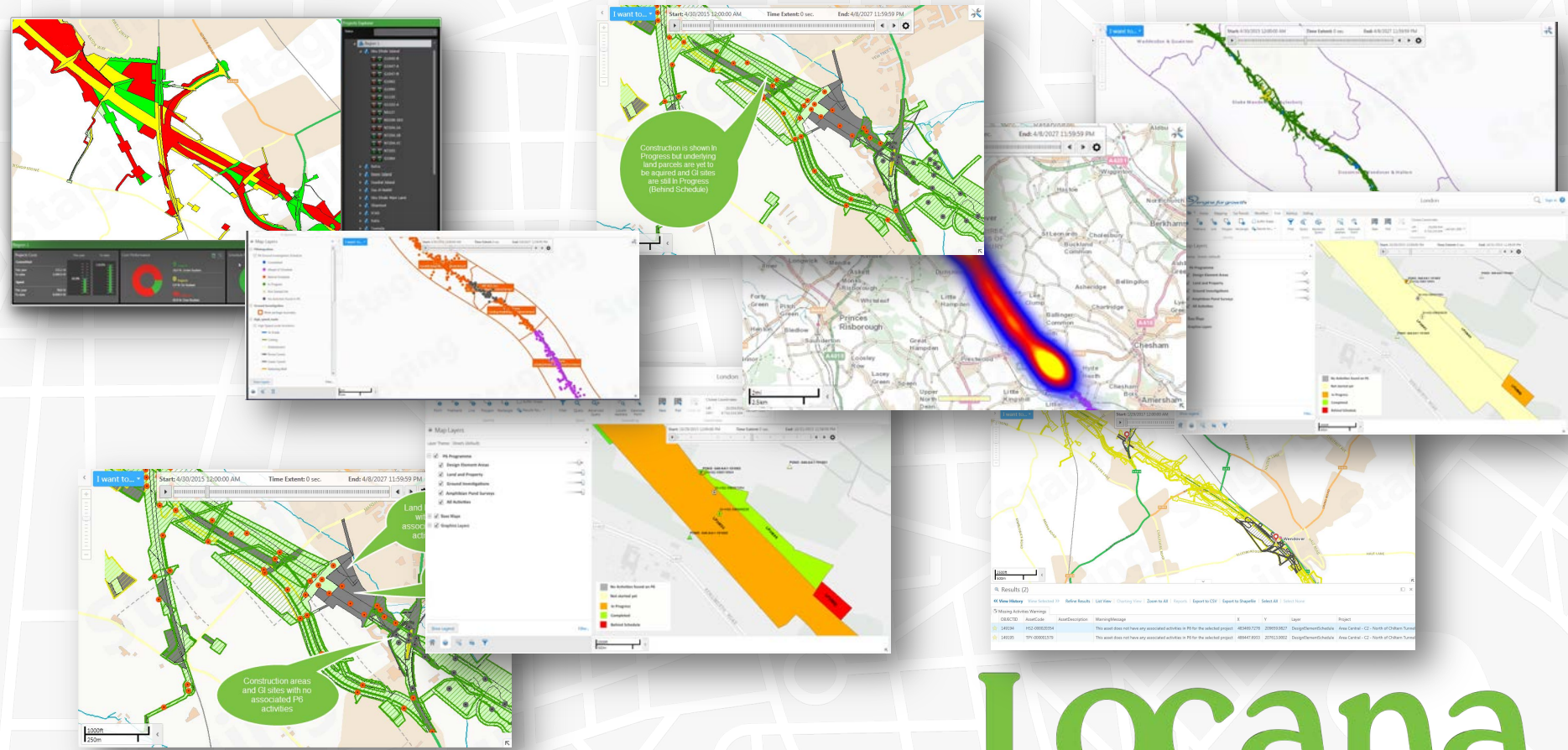


- Common understanding based on one cross discipline map view
- All stakeholders can easily view the plans
- Increased visibility of strategic direction and performance
- Enable location analytics to be performed on projects
- Drives efficiencies across the programme lifecycle

To learn more about Location-Intelligent Planning

Contact Us:

info@locana.co.uk
www.locana.co



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EVERYTHING LOCATION