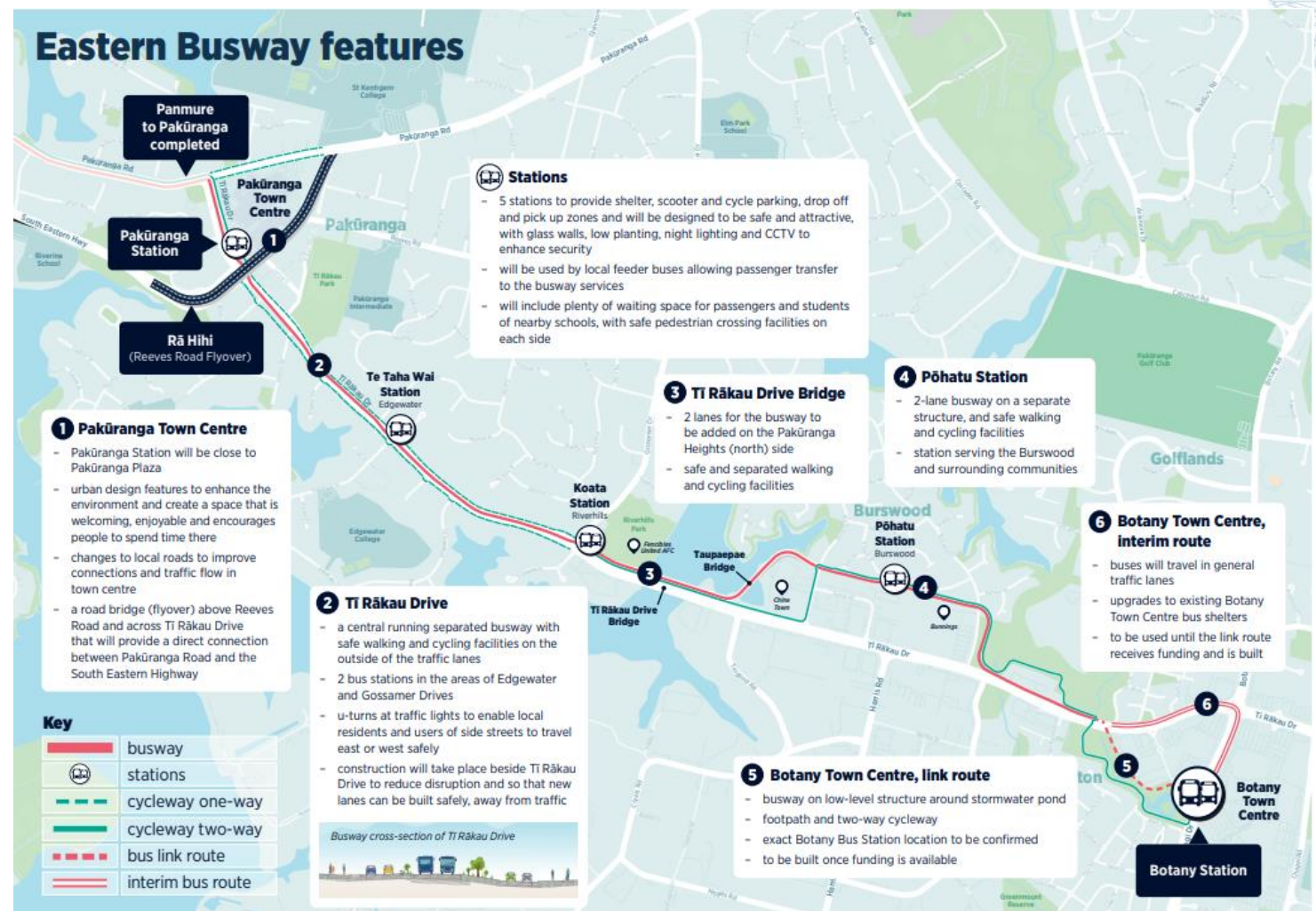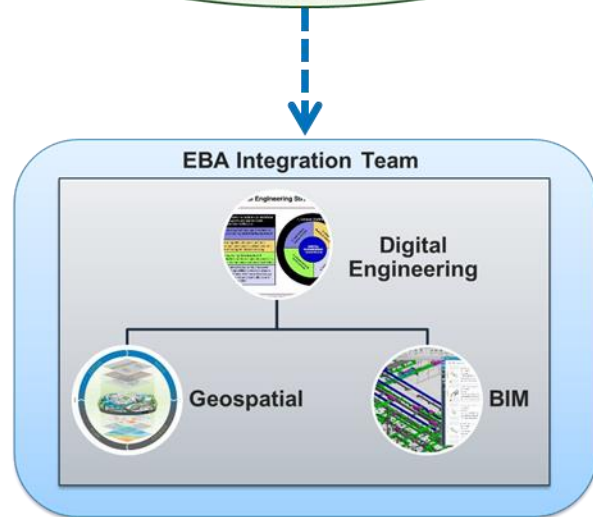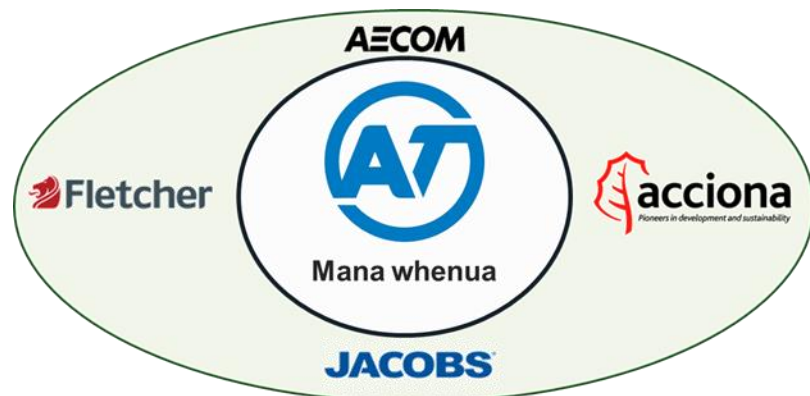# ~~Breaking~~ Bridging the Silos in AEC Projects:

How FME is Enabling Key Information Flow in Eastern Busway Project

Amit A. Kokje
Alliance Geospatial Specialist

AT Eastern Busway

Eastern Busway Alliance (EBA)

Eastern Busway features

Panmure to Pakūranga completed

Stations
- 5 stations to provide shelter, scooter and cycle parking, drop off and pick up zones and will be designed to be safe and attractive, with glass walls, low planting, night lighting and CCTV to enhance security
- will be used by local feeder buses allowing passenger transfer to the busway services
- will include plenty of waiting space for passengers and students of nearby schools, with safe pedestrian crossing facilities on each side

1 Pakūranga Town Centre
- Pakūranga Station will be close to Pakūranga Plaza
- urban design features to enhance the environment and create a space that is welcoming, enjoyable and encourages people to spend time there
- changes to local roads to improve connections and traffic flow in town centre
- a road bridge (flyover) above Reeves Road and across Ti Rākau Drive that will provide a direct connection between Pakūranga Road and the South Eastern Highway

2 Ti Rākau Drive
- a central running separated busway with safe walking and cycling facilities on the outside of the traffic lanes
- 2 bus stations in the areas of Edgewater and Gossamer Drives
- u-turns at traffic lights to enable local residents and users of side streets to travel east or west safely
- construction will take place beside Ti Rākau Drive to reduce disruption and so that new lanes can be built safely, away from traffic

3 Ti Rākau Drive Bridge
- 2 lanes for the busway to be added on the Pakūranga Heights (north) side
- safe and separated walking and cycling facilities

4 Pōhatu Station
- 2-lane busway on a separate structure, and safe walking and cycling facilities
- station serving the Burswood and surrounding communities

5 Botany Town Centre, link route
- busway on low-level structure around stormwater pond
- footpath and two-way cycleway
- exact Botany Bus Station location to be confirmed
- to be built once funding is available

6 Botany Town Centre, interim route
- buses will travel in general traffic lanes
- upgrades to existing Botany Town Centre bus shelters
- to be used until the link route receives funding and is built

Key
- busway
- stations
- cycleway one-way
- cycleway two-way
- bus link route
- interim bus route

Busway cross-section of Ti Rākau Drive

EBA Integration Team
- Digital Engineering
- Geospatial
- BIM

Eastern Busway

Technology at EBA

Multiple solutions / platforms:

- **Inevitable** to use several tools/platforms in a Complex projects such as Eastern Busway

- The platforms often do not talk to each other, and create information silos

- Project users must **switch** between platforms to **connect the dots.**

- No single point or cross-platform access to retrieve related information.

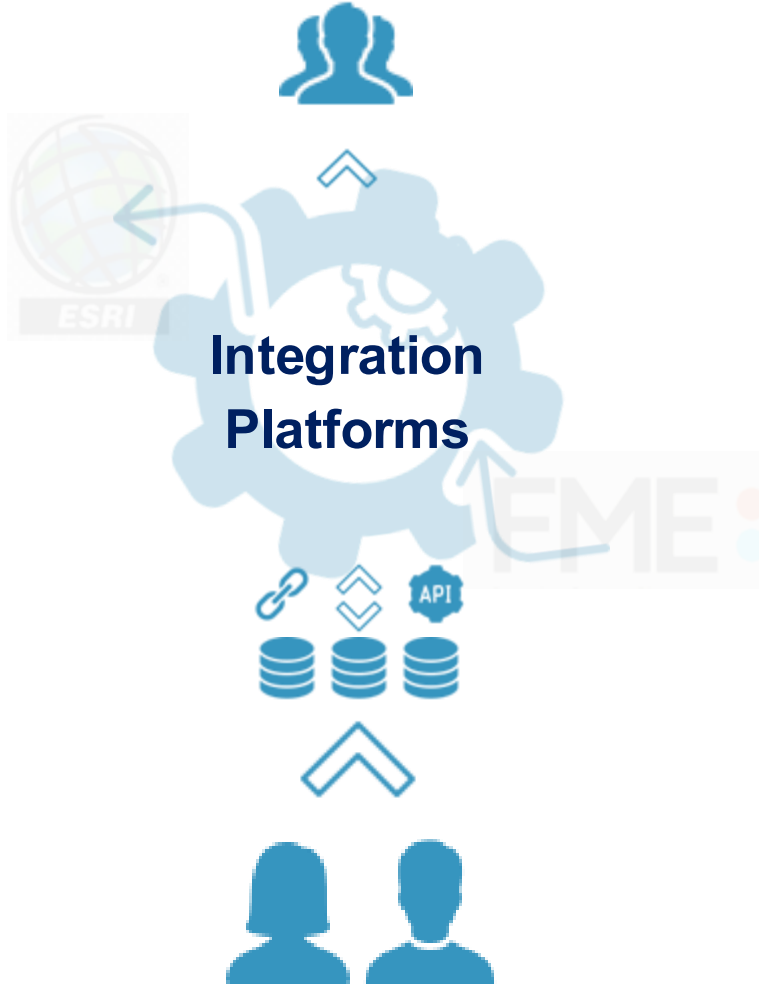# Digital engineering: What we want

Project users

Access front end

Common data environment

Integration Platforms

Reliable data

DE pros

Data resources

Eastern Busway

Digital engineering: what we get
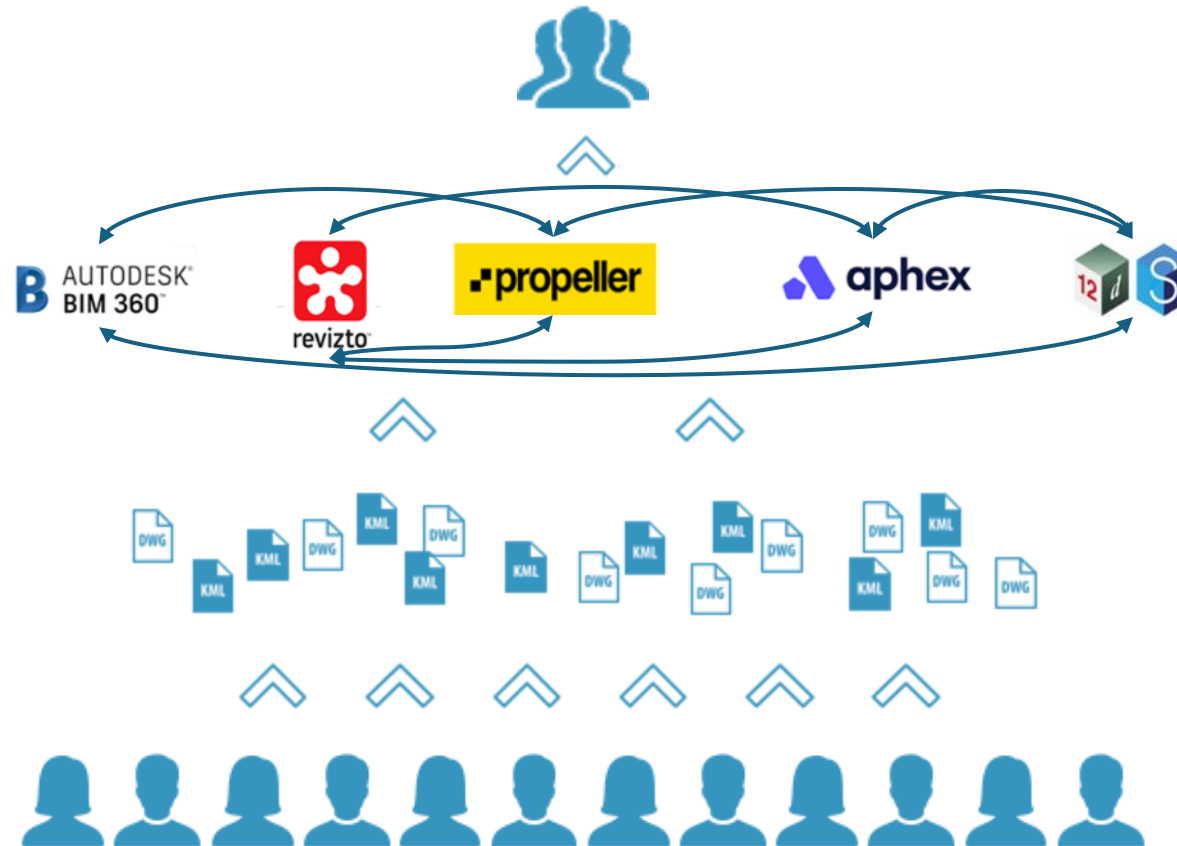
Digital engineering: What we do

Eastern Busway
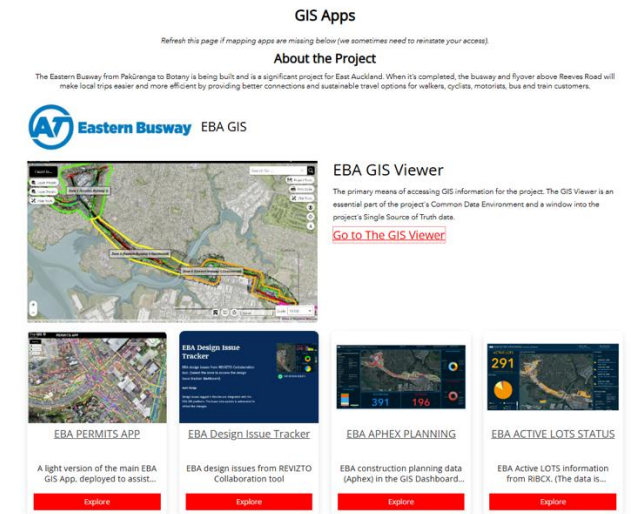
EBA integrations: Power of FME

- FME is the "backbone" of EBA's GIS integrations.

- EBA leverages FME's strong **data interoperability** capabilities to connect and access the information from different sources

- Processed information is channeled to ESRI ArcGIS online based GIS solutions, that acts as info. gateway.

- **Dynamic access URLs** are generated in FME data translation, enabling the launch and access the data in the relevant software/platform, from the GIS app.
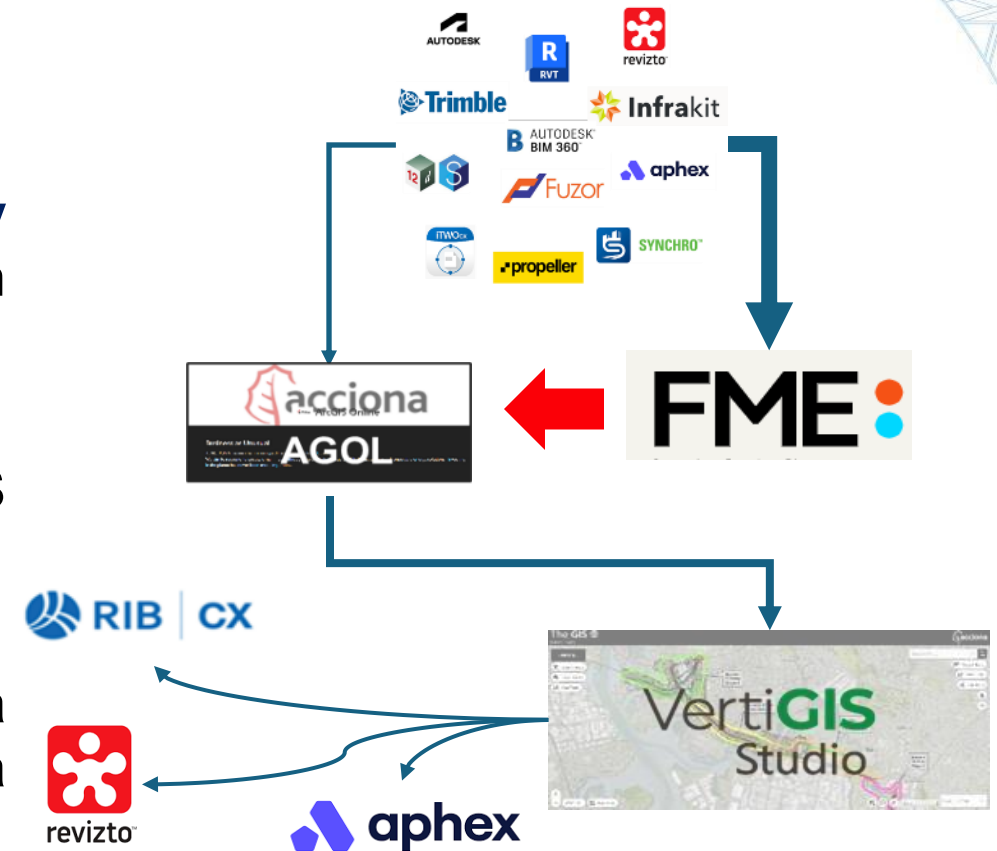
EBA FME-GIS integrations: Revizto

revizto™

Cloud-based BIM collaboration platform designed to connect all project members on one platform.

- Centralised Data Repository
- Real Time collaboration
- Clash Detection & Resolution
- Issue tracking
- Visualisation.

But

- Revizto yet to offer a map centric overview capability

- Users want to see the design issues overlayed with the info not available in Revizto

- Native Revizto- ESRI integration is yet to be implemented, limiting Revizto's ability to access and use the live GIS layers.

In progress **29** (1.54%)
Solved **273** (14.5%)
Total: 1883
Closed **943** (50.08%)
Open **638** (33.88%)

Eastern Busway
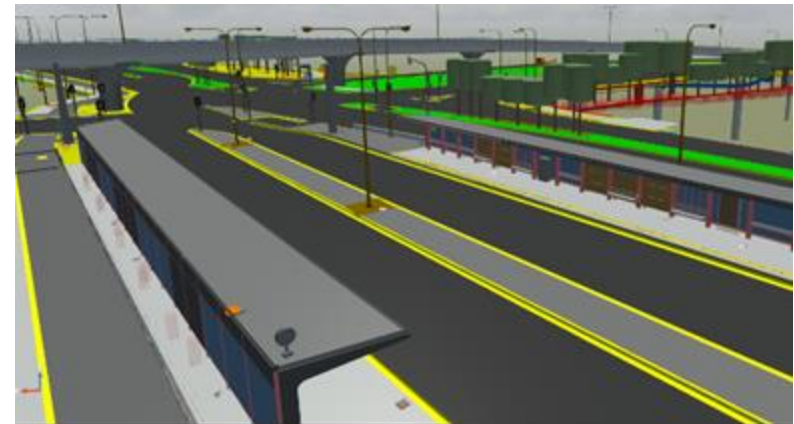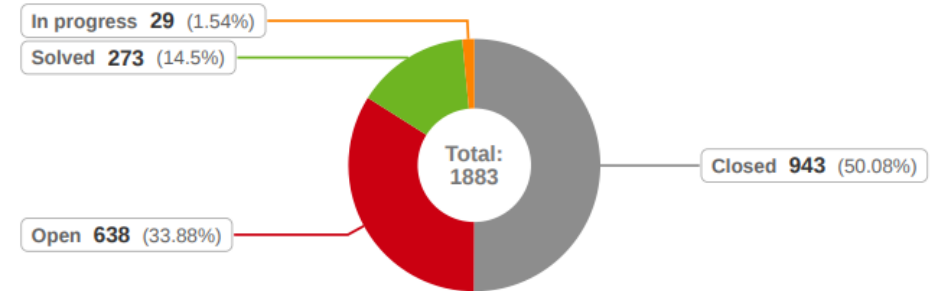
EBA FME-GIS integrations: Revizto

Revizto <-> FME <-> GIS

- FME taps the Issue Tracker data From Revizto API

- **Dynamic URLs**, linking the GIS point data to Revizto Issue details are created

- The data is loaded in the EBA GIS AGOL.
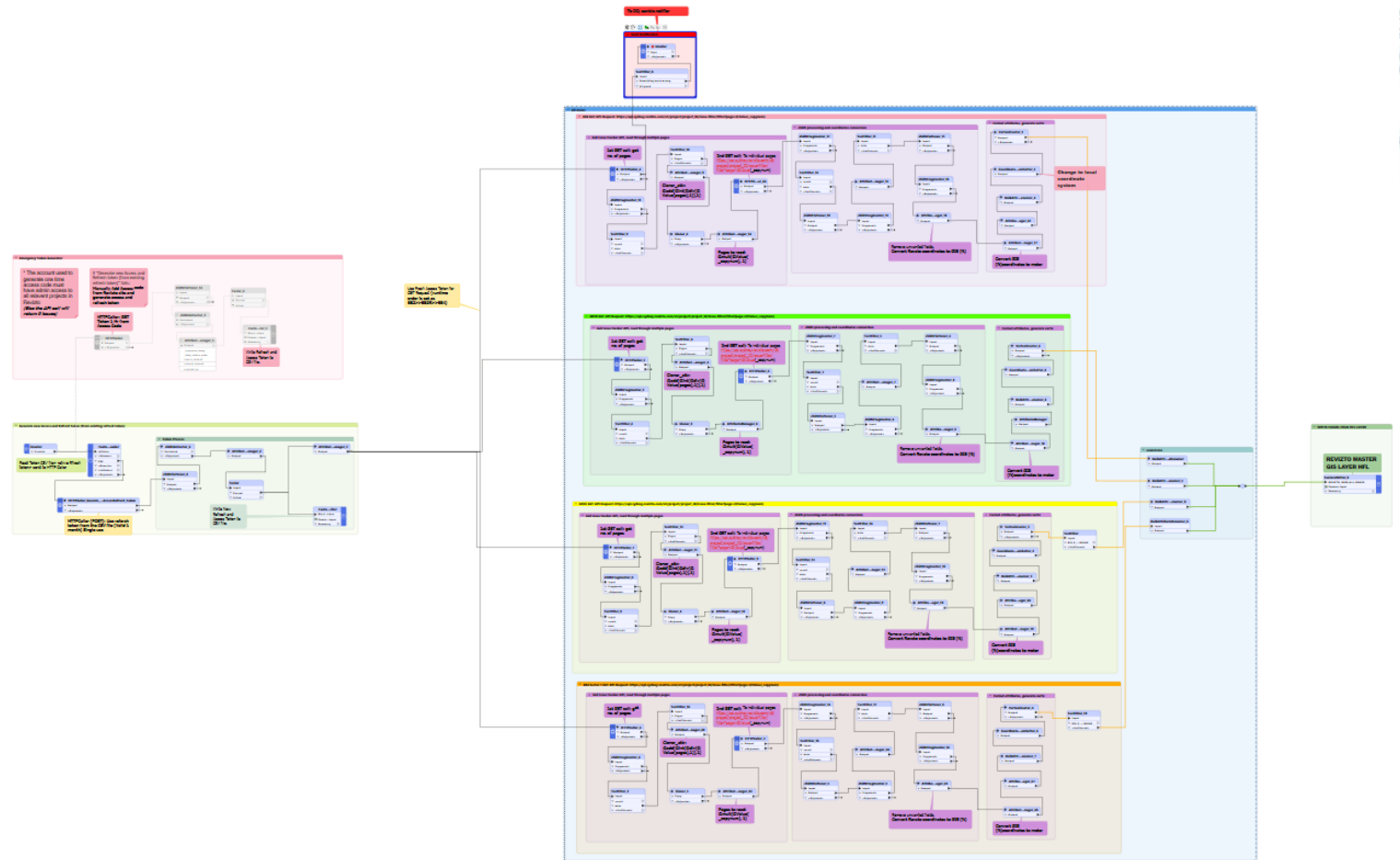
EBA FME-GIS integrations: Revizto

Revizto and FME

- Different **Tokens handling** approach in FME and other conventional managed ETL services tools (AWS glue, Informatic, Stitch etc.)
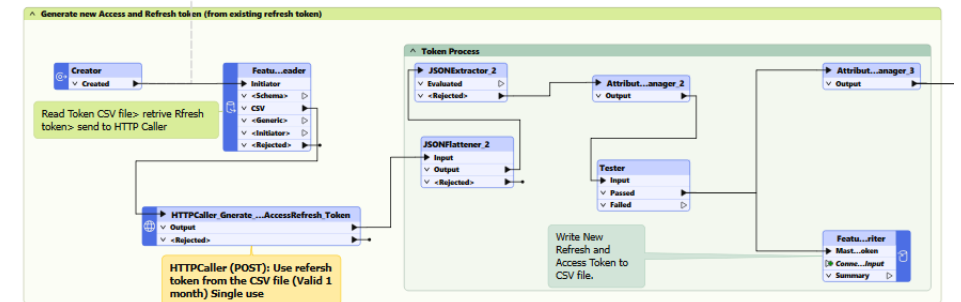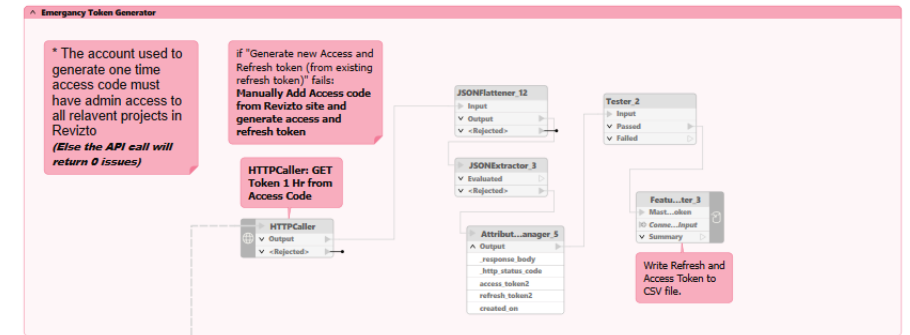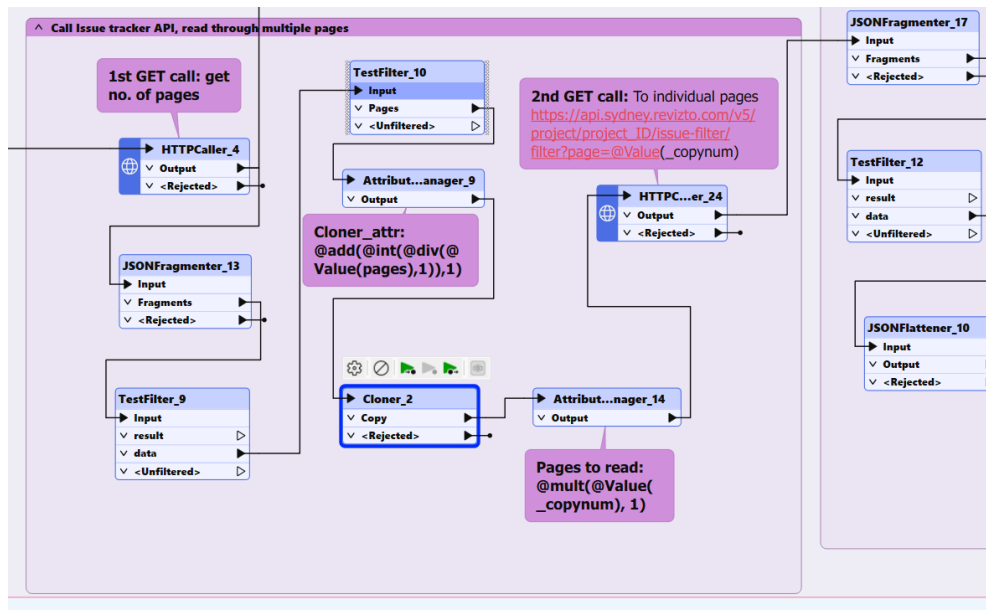
- Cycling through the pages (without using loops or custom transformers)

EBA FME-GIS integrations: Revizto

Interacting Revizto data in the GIS

- EBA users can interact the design issues in the GIS app, overlaying with other layers

- Users can preview issue as a snapshot captured in the Revizto

- An interactive **GIS dashboard solution** is deployed for the managers and leadership team

- This solution provides an overview of various parameters in an interactive map-centric format

- Both solutions enables the users to access more details by launching the Revizto app or the web issue tracker solution using the **Dynamic URLs.**

Eastern Busway
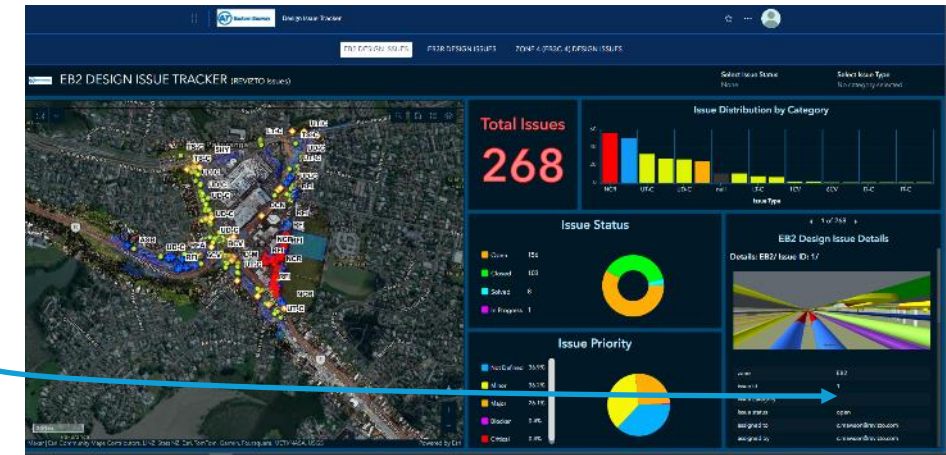
EBA FME-GIS integrations: Aphex

Aphex and GIS

- Aphex is a primary construction planning tool in the EBA

- Great web-based interface, intuitive and easy to use

- Direct ESRI (GIS) integration, to consume the GIS layers in Aphex

- Offers both map based and Gantt chart view of the schedule.

But

- Current Aphex version only support up to 10 GIS layers

- The Aphex API does not provide clashes/overlaps info

- In Aphex, clashes / planning overlaps are only available as a gantt chart, and not in the map view.
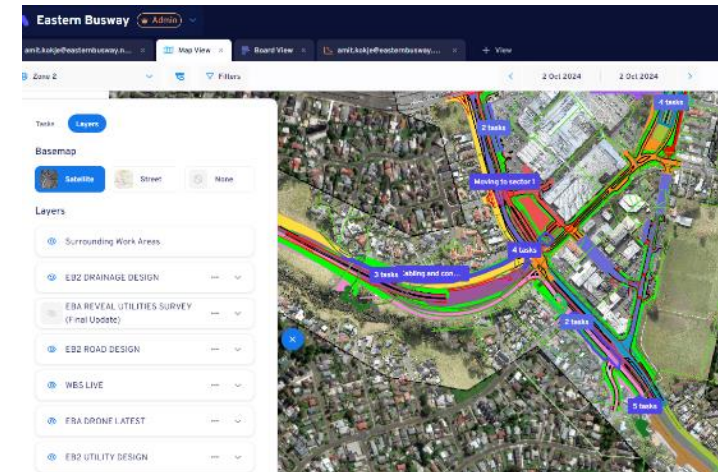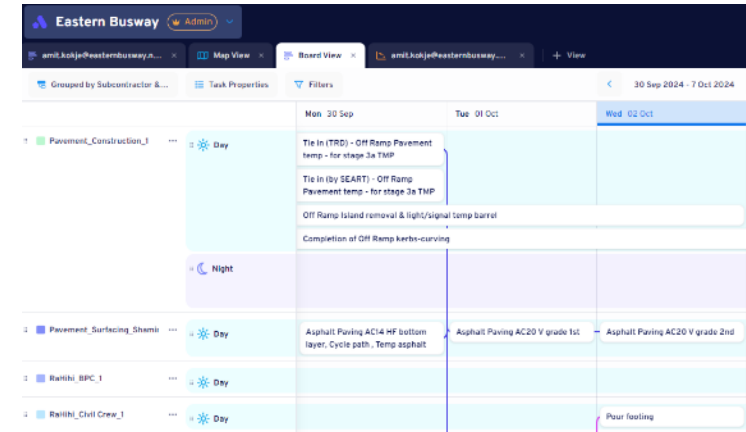
EBA FME-GIS integrations: Aphex

Aphex and FME

- FME process is set up to access Aphex API.

- **Dynamic URLs** for Aphex Work area are generated and added to the GIS layers

![Eastern Busway logo]
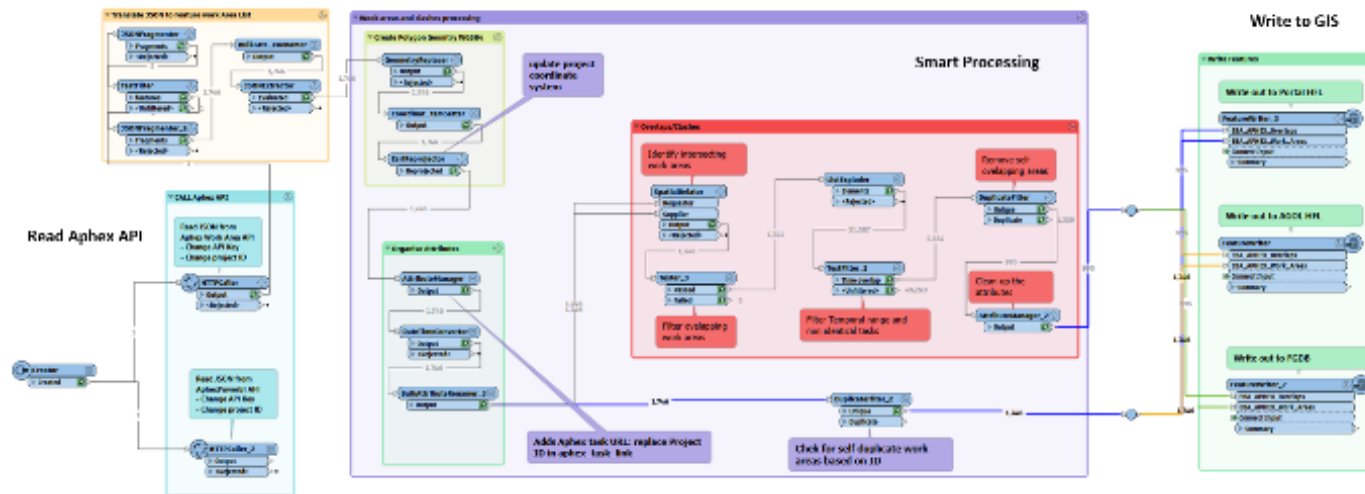
EBA FME-GIS integrations: Aphex

Identify Clashes / Overlaps

- Clash / Overlap info is dynamic and, on the fly, not available as a content via API

- An additional logical step identifies work areas with overlapping start-end date range and geometrical overlap and highlight as a clash

- Clash data is recorded as a separate layer in the GIS.
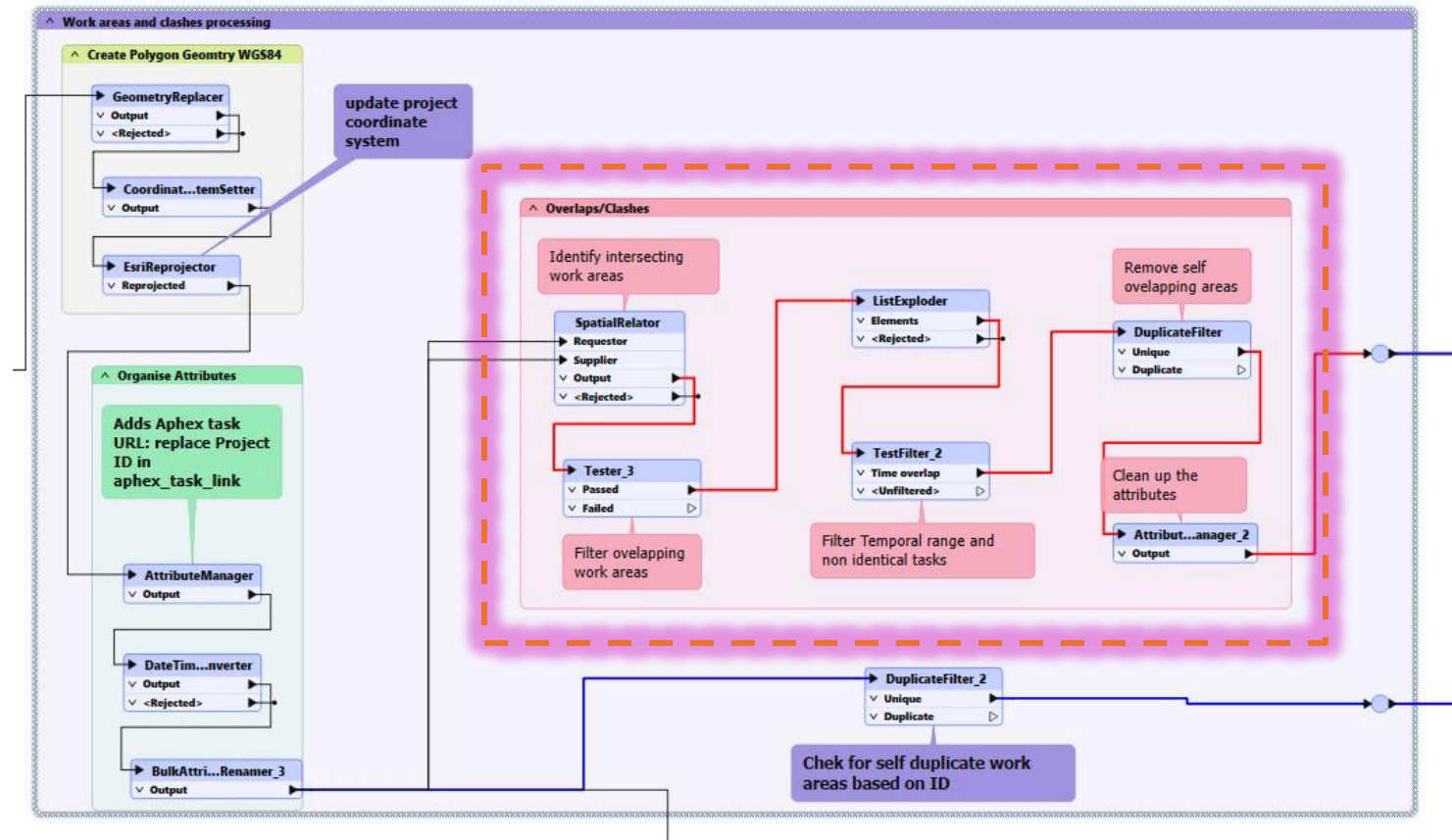
EBA FME-GIS integrations: multi platforms

Aphex <-> GIS <-> Revizto

- Visibility of known design issues during construction planning is very handy

- Separate instances of Revizto and Aphex were used to connect the dots between issues and construction stages

- Onboarding of both Revizto (Issues) and Aphex (Planning) data in the GIS enables the bridging the information gap

- Design issue data is added to the Aphex GIS dashboard

- The layers are configured to interactively filter and display the related issues in the given Aphex planning areas

- **Dynamic URLs** to launch the relevant content in Aphex and Revizto issue tracker from the GIS.

Eastern Busway
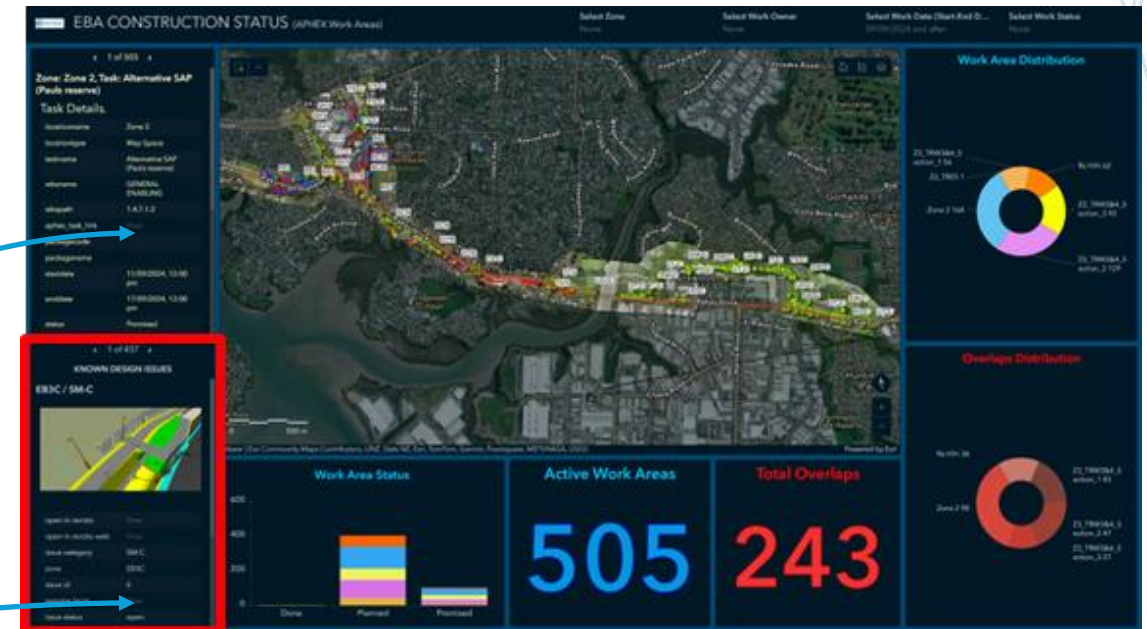
EBA FME-GIS integration: RiBCx

EBA's primary construction management tool

- Web based, robust and configurable

- Extensively used in the EBA to manage all construction, testing, permits, survey, audit, quality and delivery activities.

But

- The tool is form centric

- No easy process to visualize any activity on a graph or map.
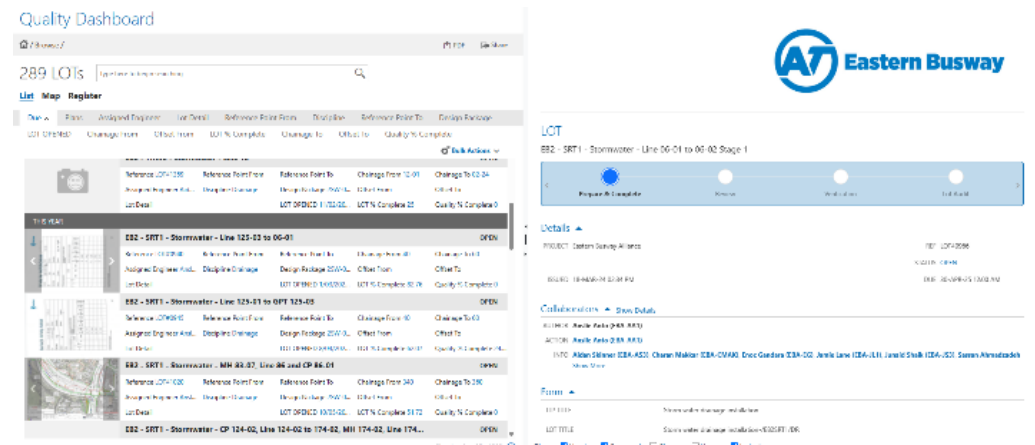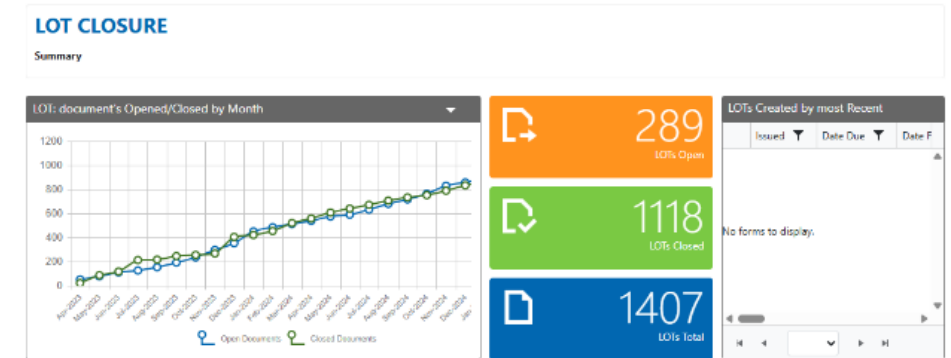
EBA FME-GIS integration: RiBCx

RiBCx and FME

- RiBCx is configured to add construction LOTS and other relevant areas as geometry

- FME is used to access RiBCx API to process LOTS requests

- LOTS areas and associated data is extracted and loaded in the EBA GIS AGOL

- **Dynamic URLs** for LOTS area are generated and added to the GIS layers.
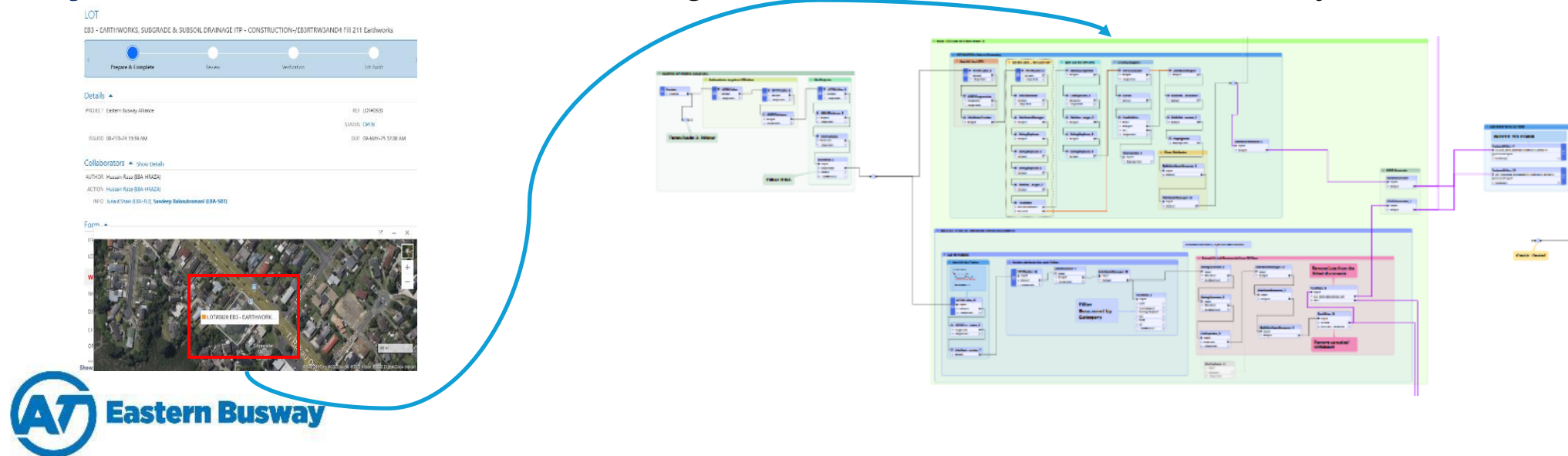
EBA FME-GIS integration: RiBCx

Interacting RiBCx data in the GIS

- EBA team, Interacts the Construction LOTS in the GIS app, overlaying with other layers

- **Dynamic URLs** to open the relevant LOTS document in RiBCx to access the further details

- Related documents associated with the LOTS (Survey request, test requests, holding points etc.) are pulled from the API and added as related records

- User can select the related document to launch RiBCx and access further details

- An interactive **GIS dashboard solution** for the managers and leadership team.
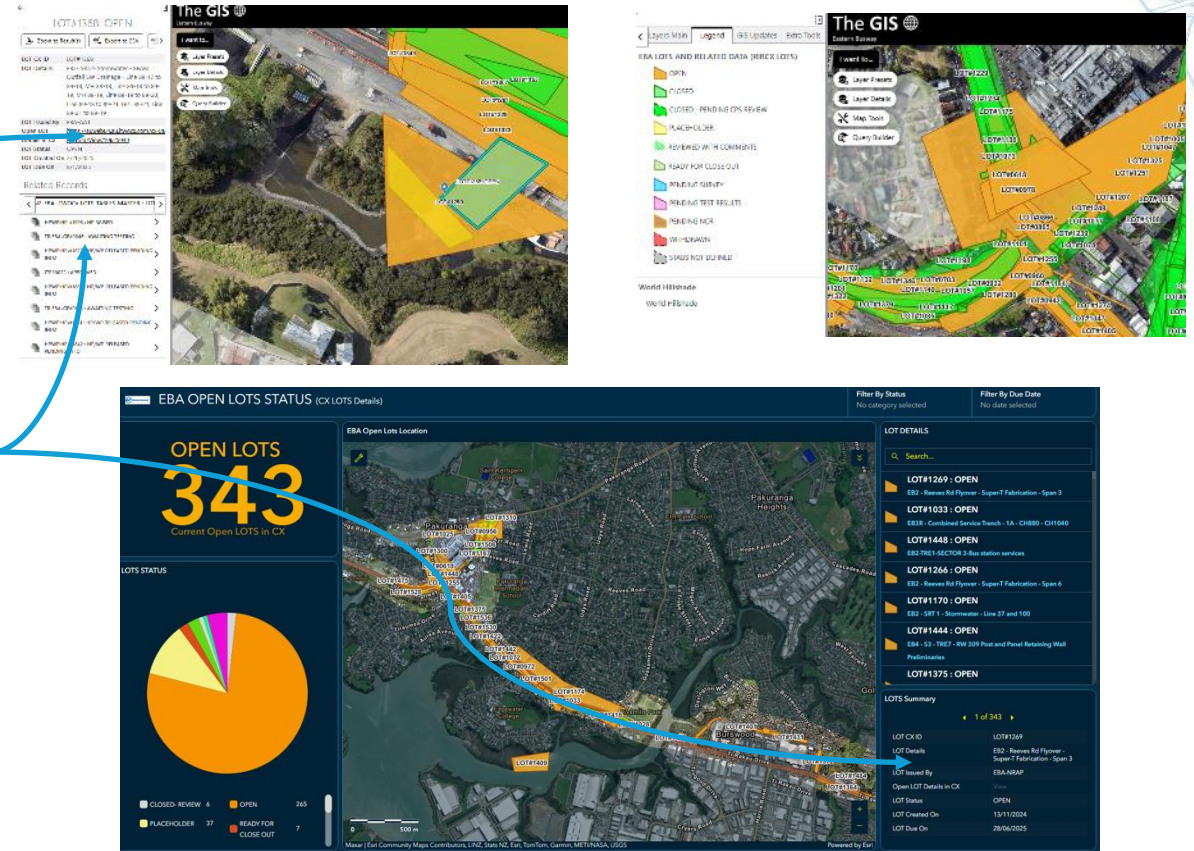
EBA FME-GIS integration: RiBCx
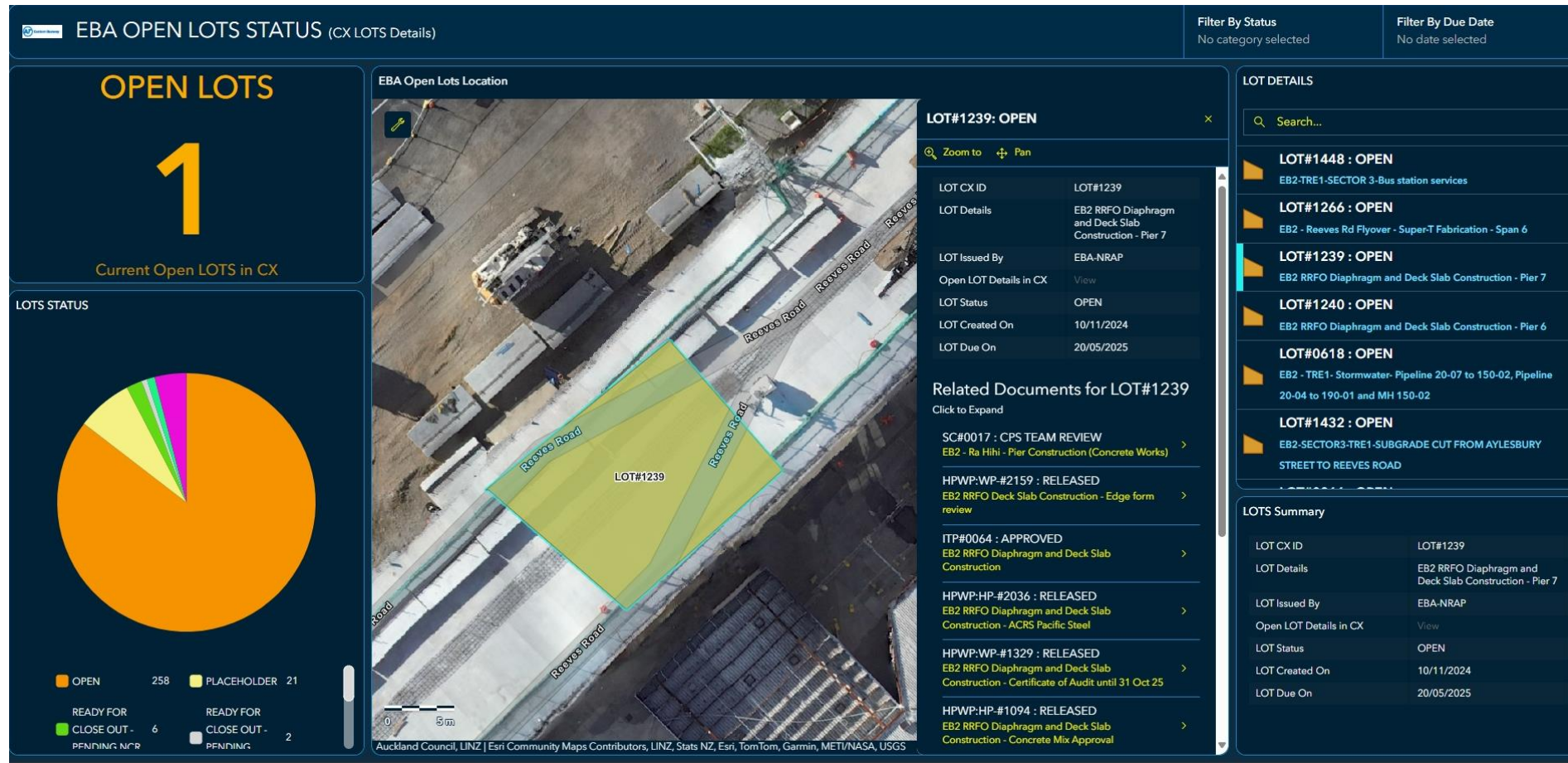
Things we learned

$$ preferers info. silos: Commercial model, means these solutions prefers users only to use their solution. So, they are mostly poor in **giving out** the info. To the other platforms.

Identify (the info. sharing) gaps: of these solutions and identify the opportunity.

Complement not Compete : Let purpose built softwares / solutions do their job Not need (to attempt) to mimic everything in the GIS.

Bridge not break the silos: **T**ools such as **FME** plays a crucial role, in "tapping the shoulders" of these solutions to bridge the data.

Re-route the bridged data: using the powerful integration abilities of **FME,** it is possible to make the data discoverable via centralised / interactive map centric gateway

Attribute manager is a king: Dynamic URLs generated in the attribute manager enables users to access the precise info in the solution via information gateway (GIS).

Eastern Busway

Questions ?

Ka kite anō
and thank you