Gathering and Visualising PDPs Project Locations

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Introduction

- PDP is an Engineering and Environmental consultancy
- NZ owned and operated for > 30 years
- We work on a project by project basis working categorised as:
  - Contaminated Land, Environmental Management, Groundwater, Surface Water, Geotechnical, Geospatial & Water Infrastructure
- Generated maps & spatial data for most projects

Software	Number of Files	Used Since
ArcMap	>16,000	2002
AutoCAD	>20,000	1990's
ArcGIS Pro	>200	2017

Project Management

- All .mxds (in fact all PDP documents) must start with the project number and a unique letter relating to the document type e.g. A03155101Z001.mxd
  - All mxds created for a report must have a unique Z number.
  - No Z number means not an official document e.g. a working plan
- Project data held in a Project Management Database on SQL Server (Workbench), such as:
  - Project Number (unique)
  - Project Manager
  - Project Type
  - Client Name
  - Budget etc.

The Idea

- Create an Interactive Map to search for PDP projects spatially and pop up project info.

Potential Benefits

- Utilise historical data
  - Reduce rework by using existing data
- Improved project management
  - Instead of creating a new project number, find and use an existing project number

Gathering GIS Project Locations

- Focused on gathering ArcMap projects initially.
- Manual method: Open each mxd, draw rectangle covering project extent, open next mxd and repeat…
- Not always obvious project extent
  - Size may be a parcel, cover regional area or multiple areas
- Extremely slow
  - At 2 mins per mxd = 13 working weeks for 1 full time person

Initial Python Script Summarised

List file paths to process

Export Data Frame as JPEG with world file

Add to **Raster Mosaic**

Export Mosaic **Footprints**

Join to PM SQL database by Project Name

Export as new polygon **Feature Class**

Multiple Coordinate Systems

Most .mxds set up in NZTM, but older mxds are in NZMG and some related to engineering projects are in Local Circuits.

Solution

- Create multiple Raster Mosaics for each coordinate system encountered.
- Export Footprints from each Mosaic
- Re-project feature classes into one master feature class in NZTM

PDP Procedures Occasionally Not Followed

- Inconsistent GIS project folder structure & .mxd naming
- Workbench data entry errors e.g. lowercase, not uppercase so join to PM database fails

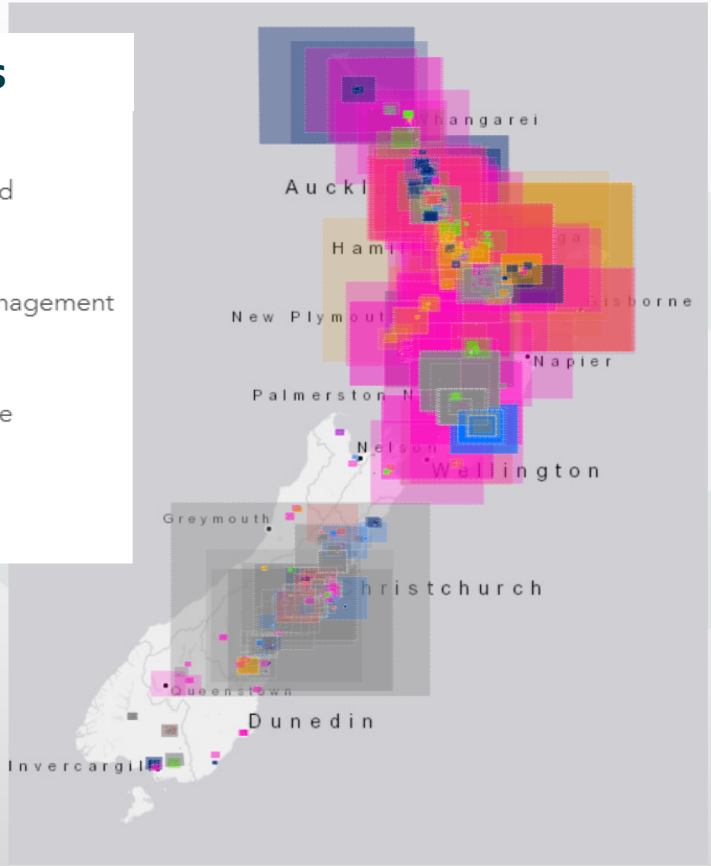
Solution

- Collect error logs
  - Tweak script to capture any inconsistencies and re-run it
- Re-iterate importance of following procedures – staff training

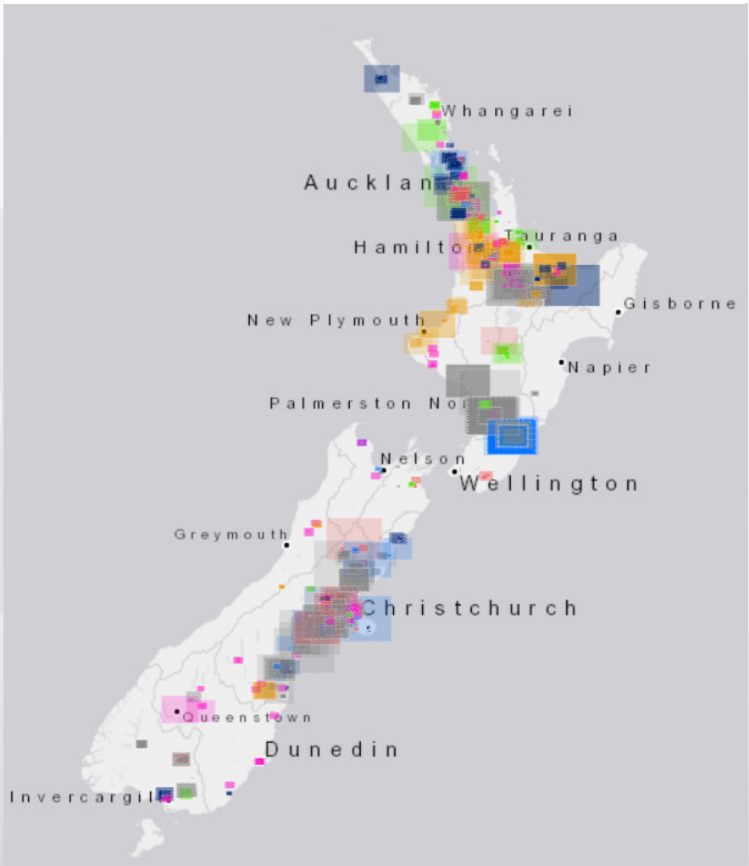
Initial Results in ArcGIS Pro

Project Types

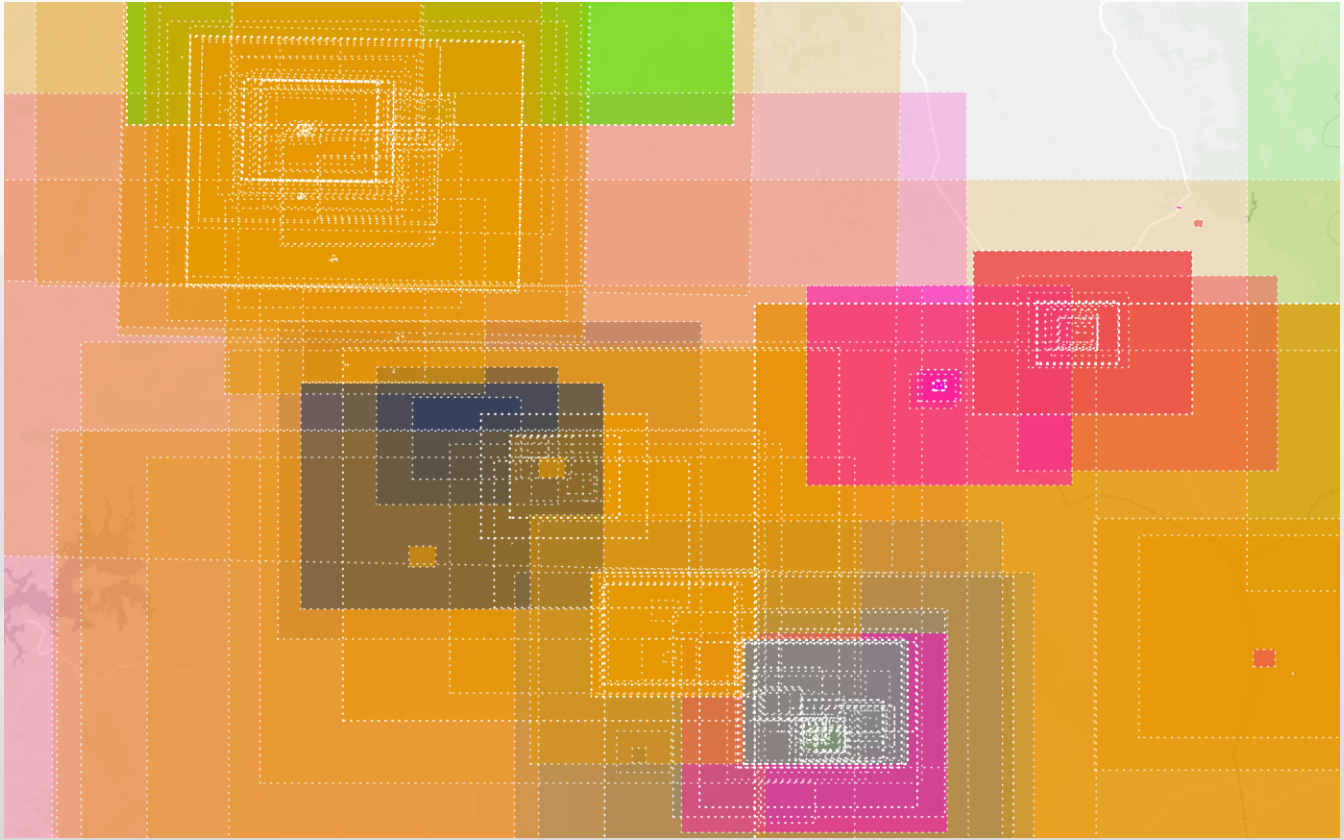
- Geotechnics
- Contaminated Land
- Groundwater
- Environmental Management
- Surface Water
- Water Infrastructure
- Spatial Services
- Other

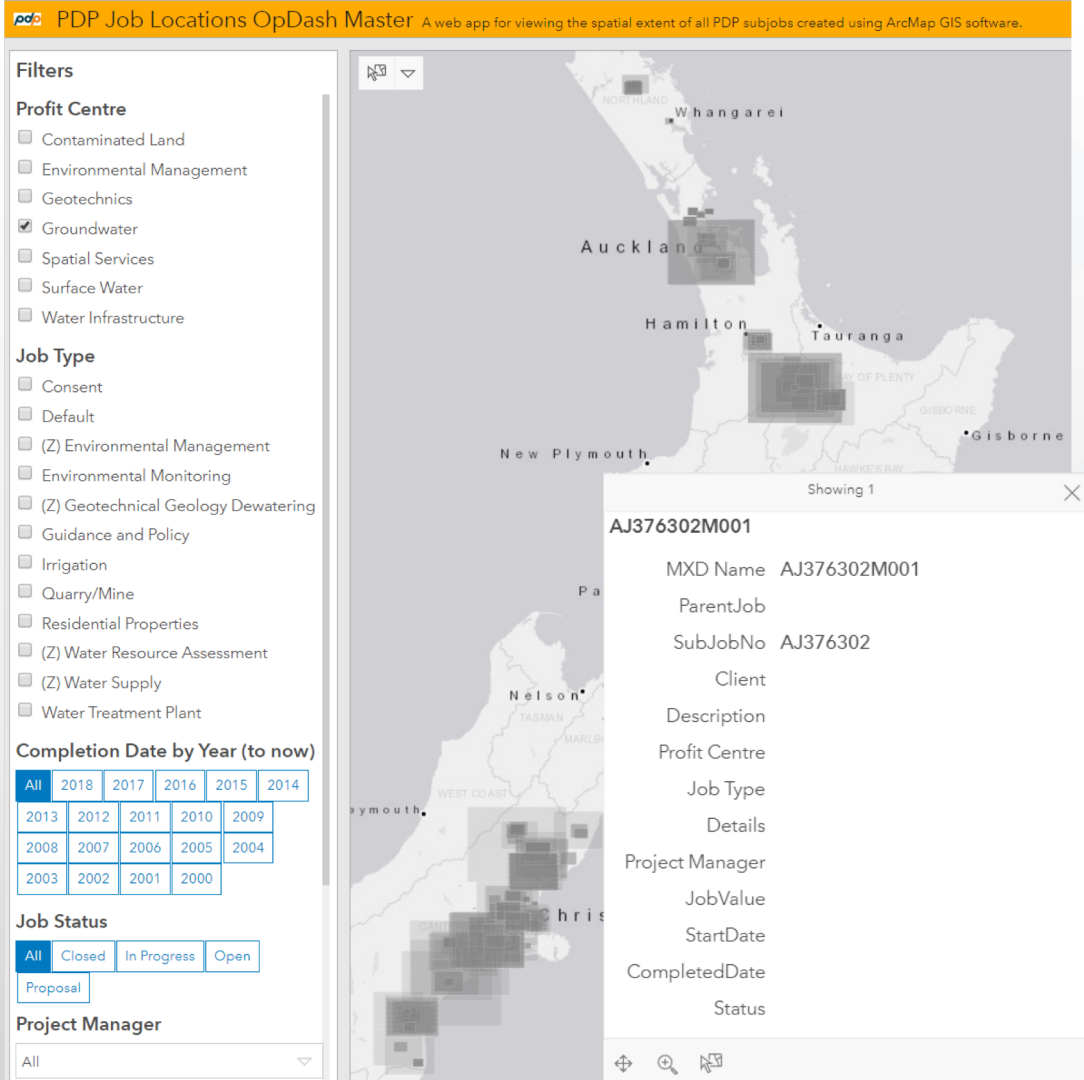


Map extents <10,000km2 only



Still Too Many Polygons

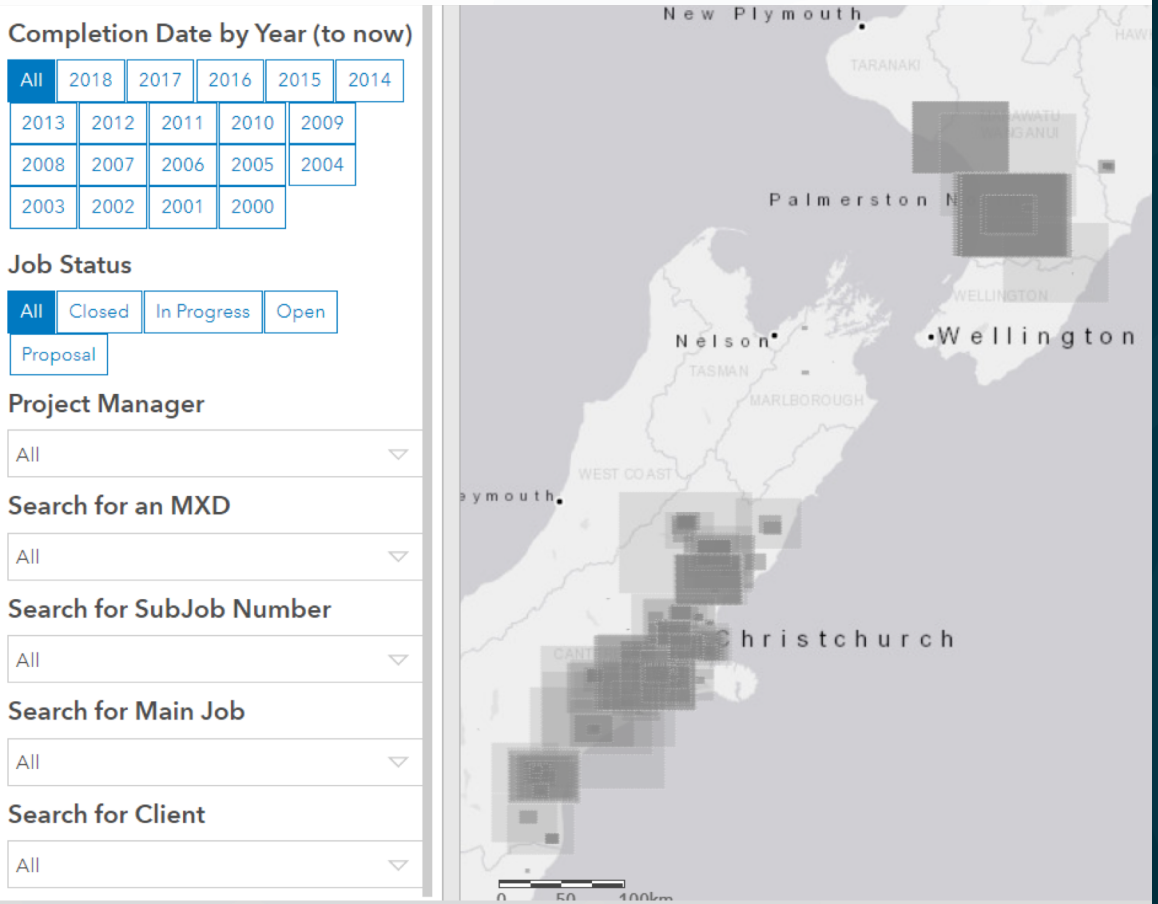




Operation Dashboard App Template

Dynamic Filters

Popups



Experimented with other app widgets, but filters were the most useful.

Next Phase

- Identify all inconsistencies and re-run script to capture all MXD extents
- Data cleanse & remove duplicate extents
- Add thumbnails of JPEGS generated to popup
- Only captured ArcMap projects, so need to capture CAD next
  - Export pdfs – convert to JPEG and use convert to Raster Mosaic etc..?
- More work to do, but is already proven to be a useful tool!

Questions?