FortisBC Asset Realignment Project

Software Enabled Conflation of Gas Facilities Data

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Introduction

- FortisBC GIS **Landbase** is a patchwork of developers plans, municipal plot plans and cadastral data
- The absolute **spatial accuracy**, when comparing with gps xy coordinates, varies from ± 1 m to 50 m and in one occasion 700 m
- FortisBC is implementing new accurate ICIS landbase and is in the process of conflating or **adjusting its gas facilities data** to this new accurate landbase
- FortisBC is utilizing **adjust.IT conflation software** and consultancy services to move more than 30 million points to its new geographic location
- This presentation will discuss the project, business benefits, software and lessons learned

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Overview FortisBC

- Formerly known as BC Gas, Terasen Gas
- Gas Distribution Company
- Service area British Columbia
- 1 million customers
- 135 communities & 150 Indian reserves
- 30,300 miles pipelines (48,000 km)
- Smallworld GIS
- 300 GIS users

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Business Drivers

- FortisBC One Call Ticket or Call Before you Dig Process
- Expecting an increase of One Call Tickets from 80,000 to 100,000 in 2013-2015
- No increase in staff to process 100,000 tickets
- Reduce One Call ticket processing time
- **Goal is from 26 minutes -> 10 minutes per ticket**

Reduce Processing Time

- How can we reduce the processing time?
- Automation of the One Call Ticket Process
- Improve spatial accuracy of the landbase and the underground infrastructure
- **This lead to the Conflation Project**

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Business Benefits

- **Increasing the number of tickets without increasing staff**
- Overlaying spatial data sets - new construction project drawings, aerial photos, archeological sites and third party gas/oil pipelines, power lines
- Providing spatially accurate pipeline information to the Regulator, ICIS and Agencies
- Fully utilizing mobile GIS by having accurate GPS locations of the underground infrastructure
- Systematically thorough quality review of all data across the service area

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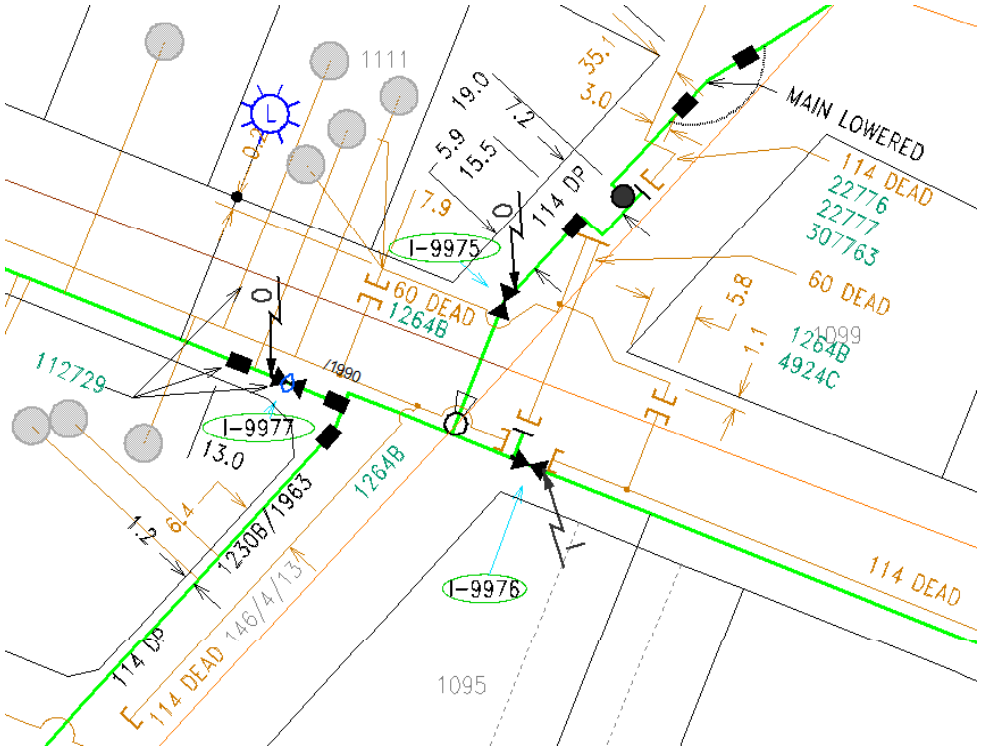
Project Scope

- Conflation the Gas Distribution Network – 28,000 miles (45,000 km)
- 1 million Services
- Offsets, Annotations
- Right of Way, Buildings
- **Moving 33 million points to its new geographic location**



Pre-empts

- **Landbase** – Access to up to date and accurate landbase
  - 135 different municipal jurisdictions, First Nations -> ICIS partnership*
- **Gas Facilities Data** – Good Quality Data is required
  - Connectivity, solve data errors i.e. self intersecting chains
  - Improve drawing inconsistencies between geographical areas
- **External Factors** – Impact Schedule
  - Budget and resource constraints multi year project
  - Large enterprise (IT) projects

**) ICIS = Integrated Cadastral Information Society – partnership of utility companies, provincial government and local governments to create a common cadastral landbase*

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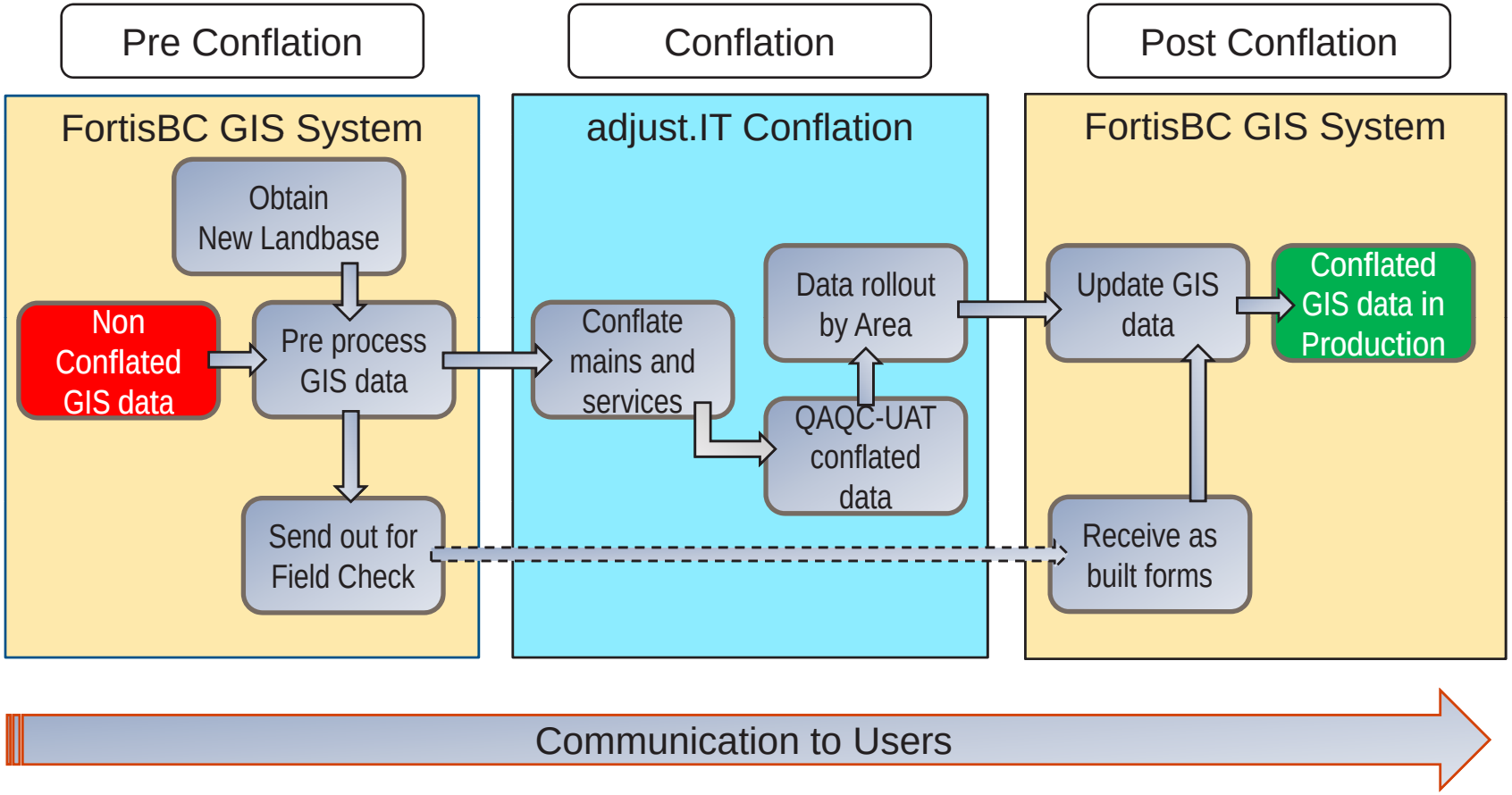
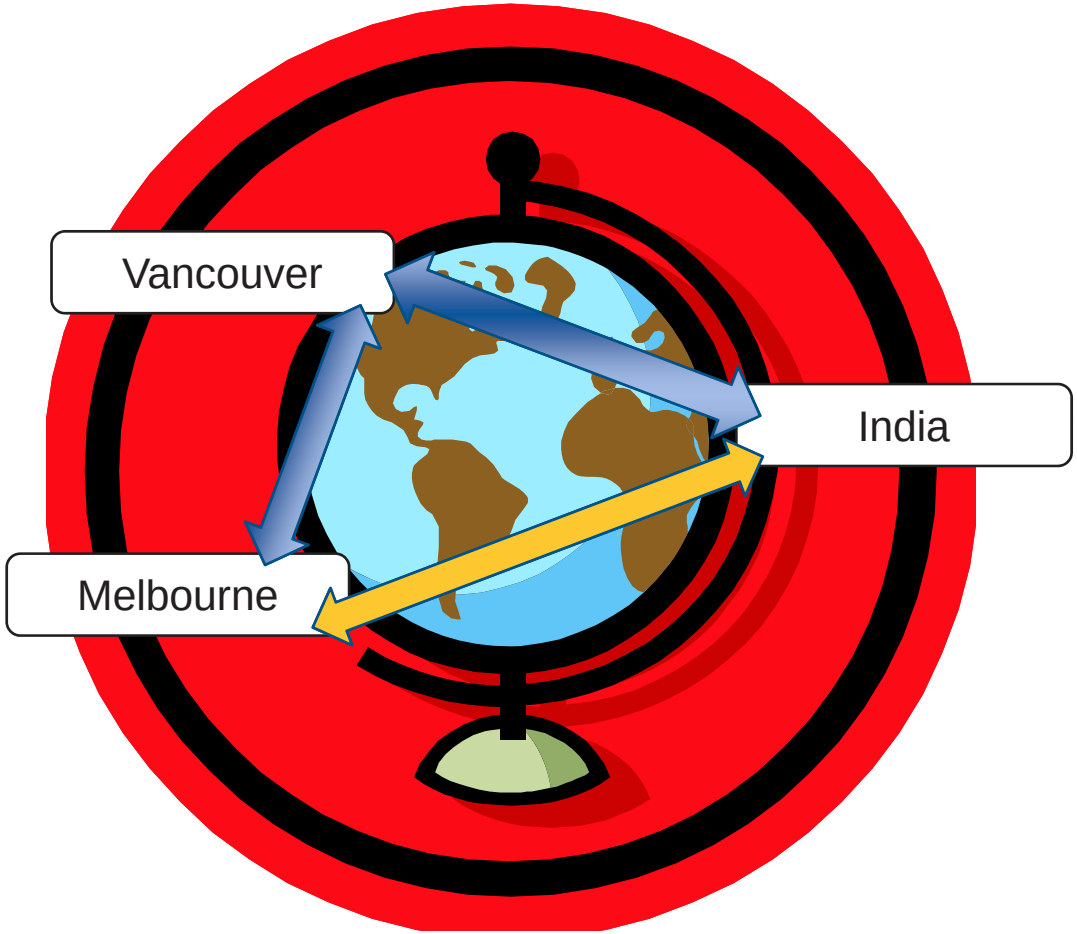
Project Phases





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Adjustment Project Methodology

Project Initiation	adjust.IT Installation and configuration	**QA/QC of adjust.IT Installation and Configuration**	
Model Shift	Define Shift Models covering Service Territory	Match old and new land base to produce shift vectors	**QA/QC of Shift Vectors**
Adjustment of assets	Define adjustment Job Areas covering service territory in Service Territory	Capture shape of existing asset information and adjust	**QA/QC of Adjustment Result**
Delivery to Production GIS	Group adjustment Jobs into a Delivery	Propagate Jobs to top alternative tree and sub alternatives.	**QA/QC of rollout**

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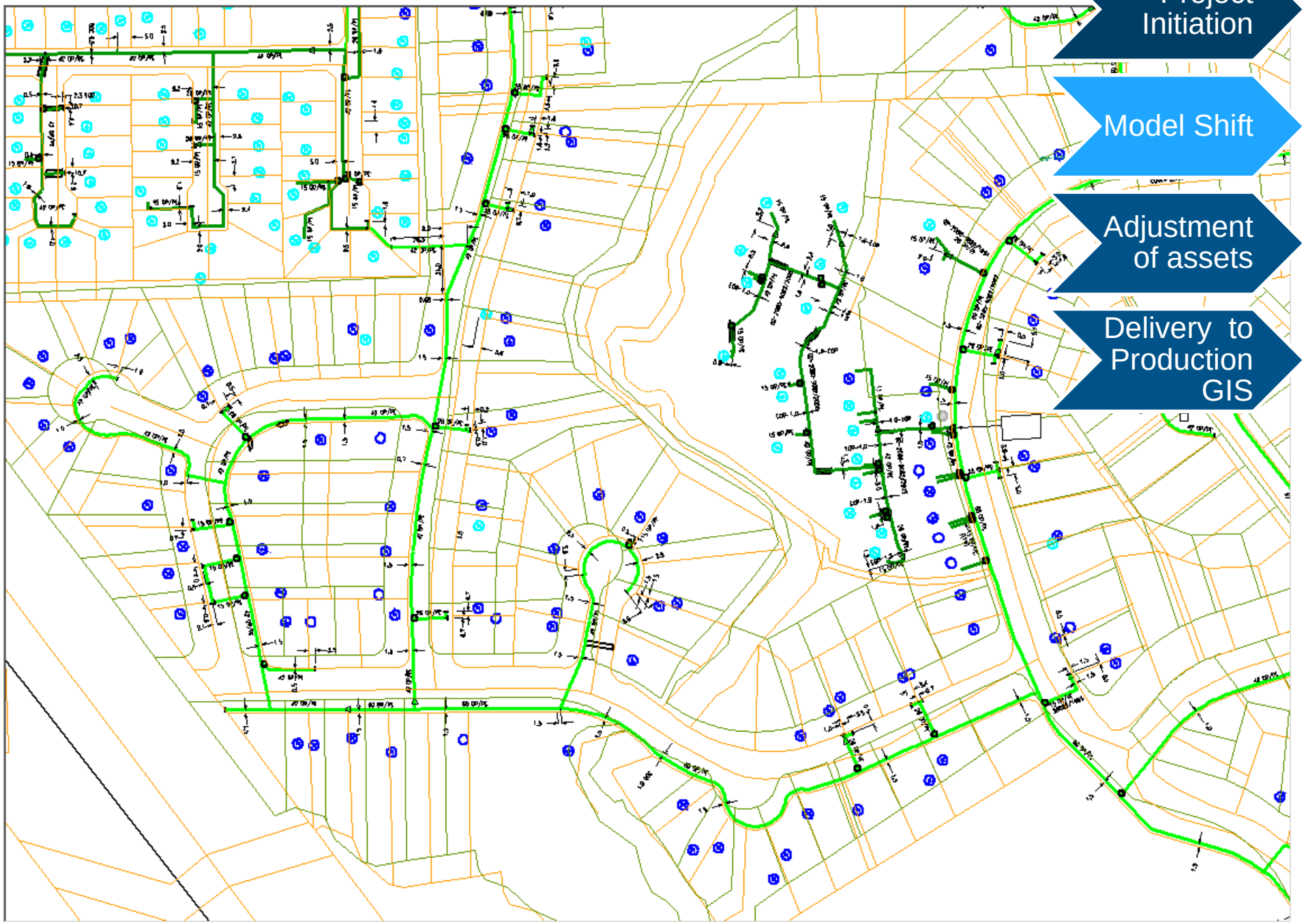
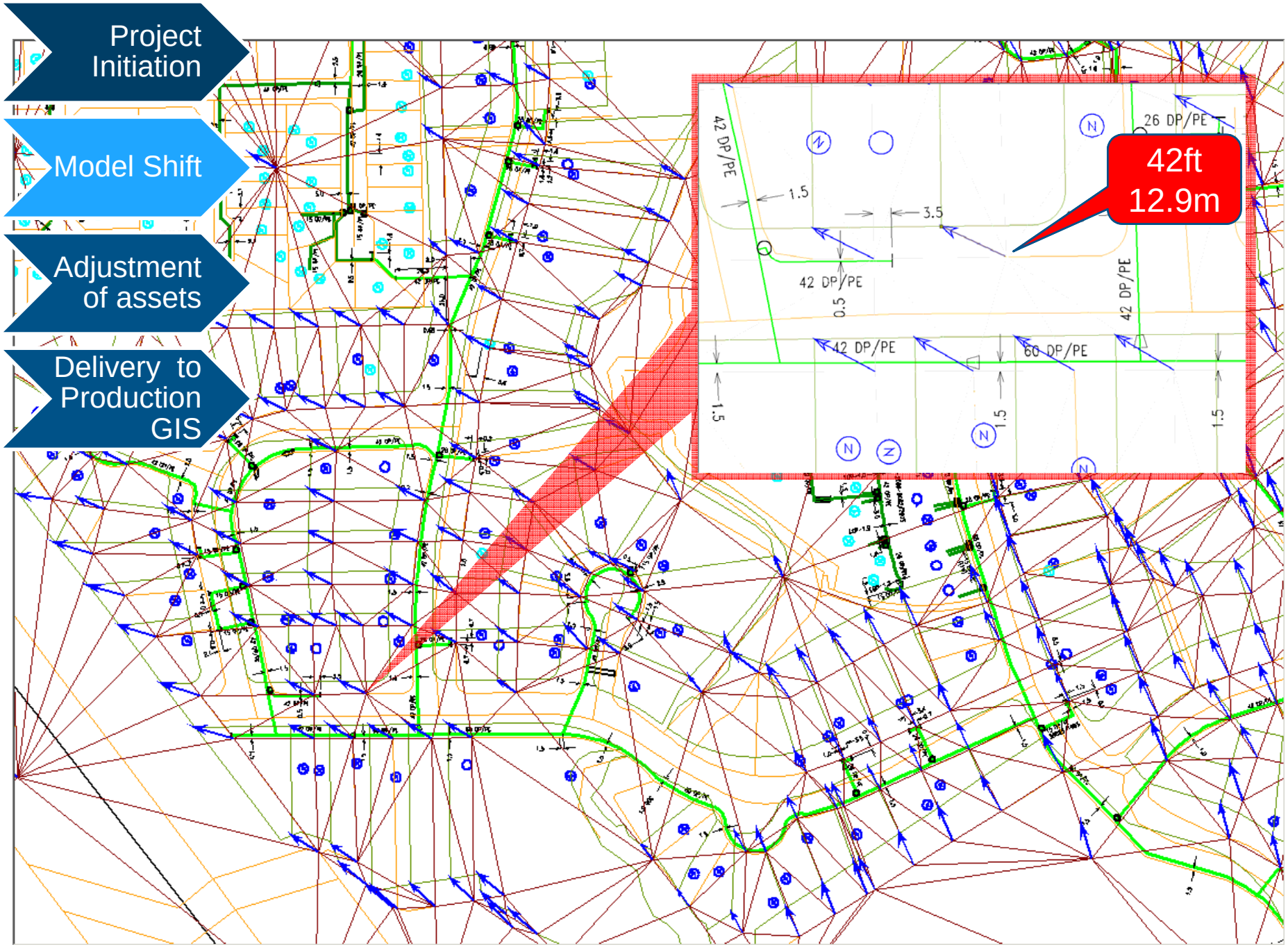
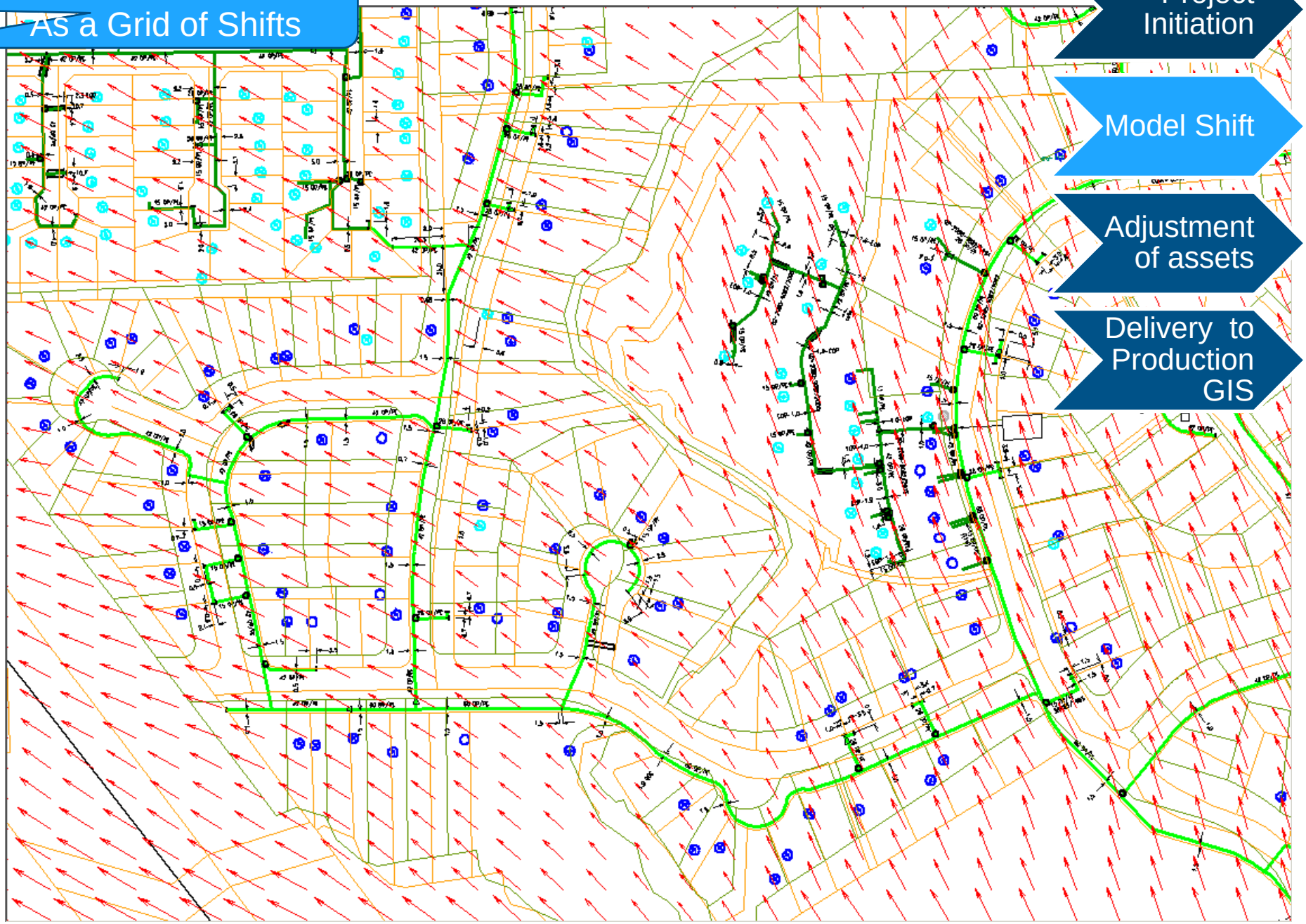

Project Initiation
Model Shift
Adjustment of assets
Delivery to Production GIS


Project Initiation
Model Shift
Adjustment of assets
Delivery to Production GIS
42ft
12.9m
42 DP/PE
26 DP/PE
1.5
3.5
0.5
42 DP/PE
42 DP/PE
42 DP/PE
60 DP/PE
1.5
1.5
1.5

Shift Model
As a Grid of Shifts

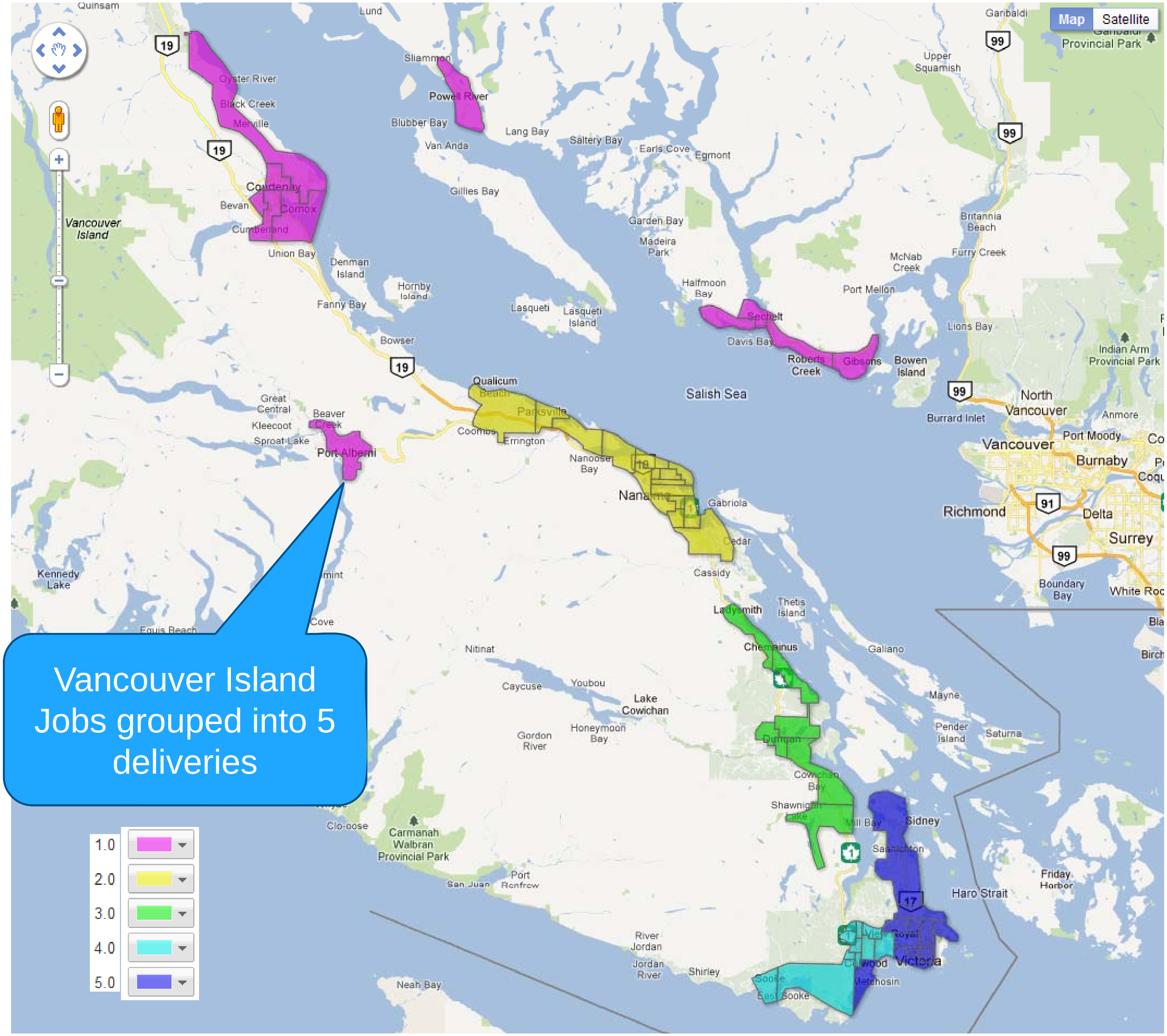


Project Initiation

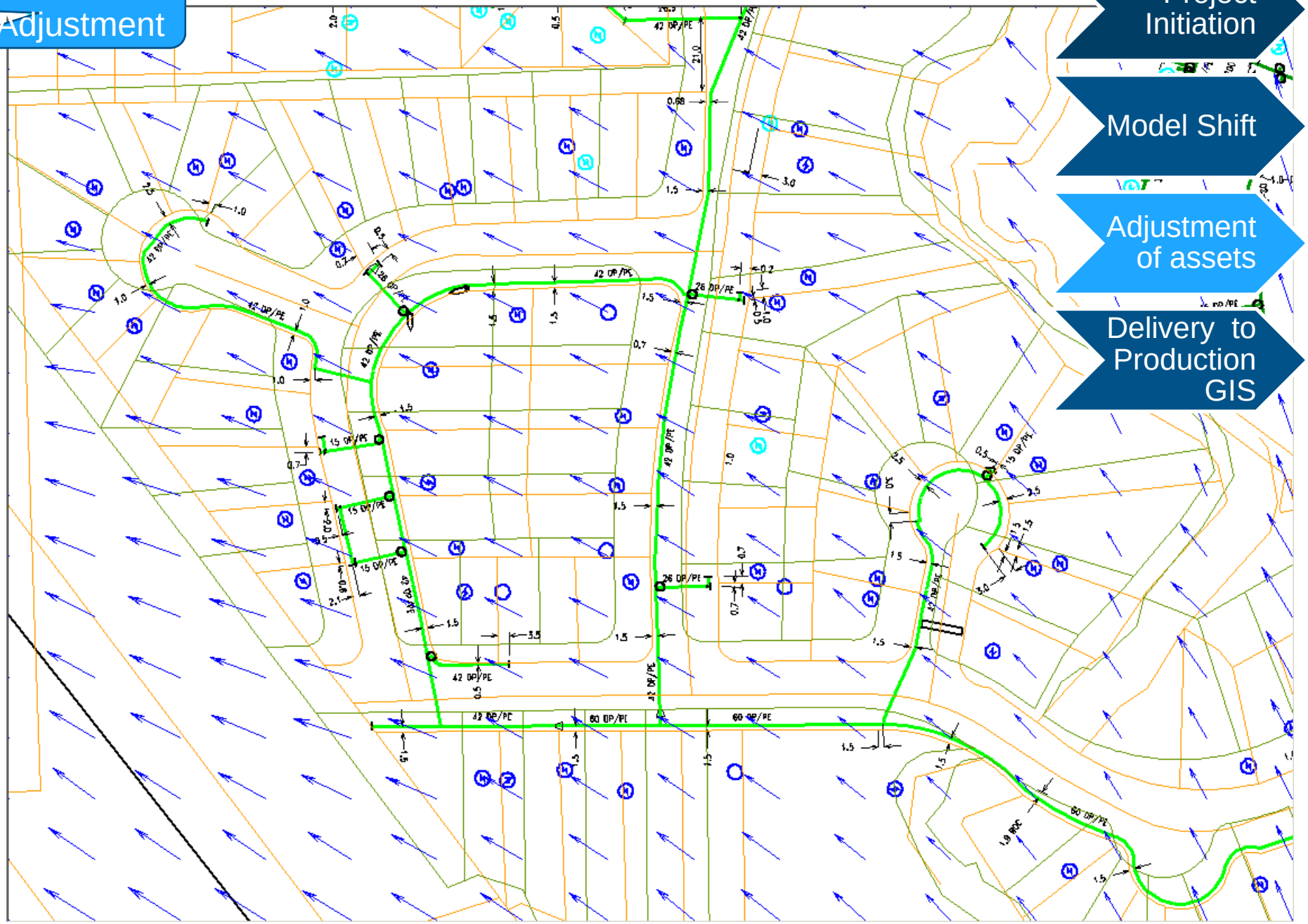
Model Shift

Adjustment of assets

Delivery to Production GIS


Vancouver Island Jobs grouped into 5 deliveries
1.0
2.0
3.0
4.0
5.0
Map
Satellite
Vancouver Island
Salish Sea
Courtenay
Comox
Cumberland
Powell River
Sechelt
Gibsons
Port Alberni
Qualicum Beach
Parksville
Nanaimo
Ladysmith
Chemainus
Duncan
Sidney
Victoria
Sooke
North Vancouver
Vancouver
Burnaby
Richmond
Delta
Surrey
Haro Strait

Before Adjustment



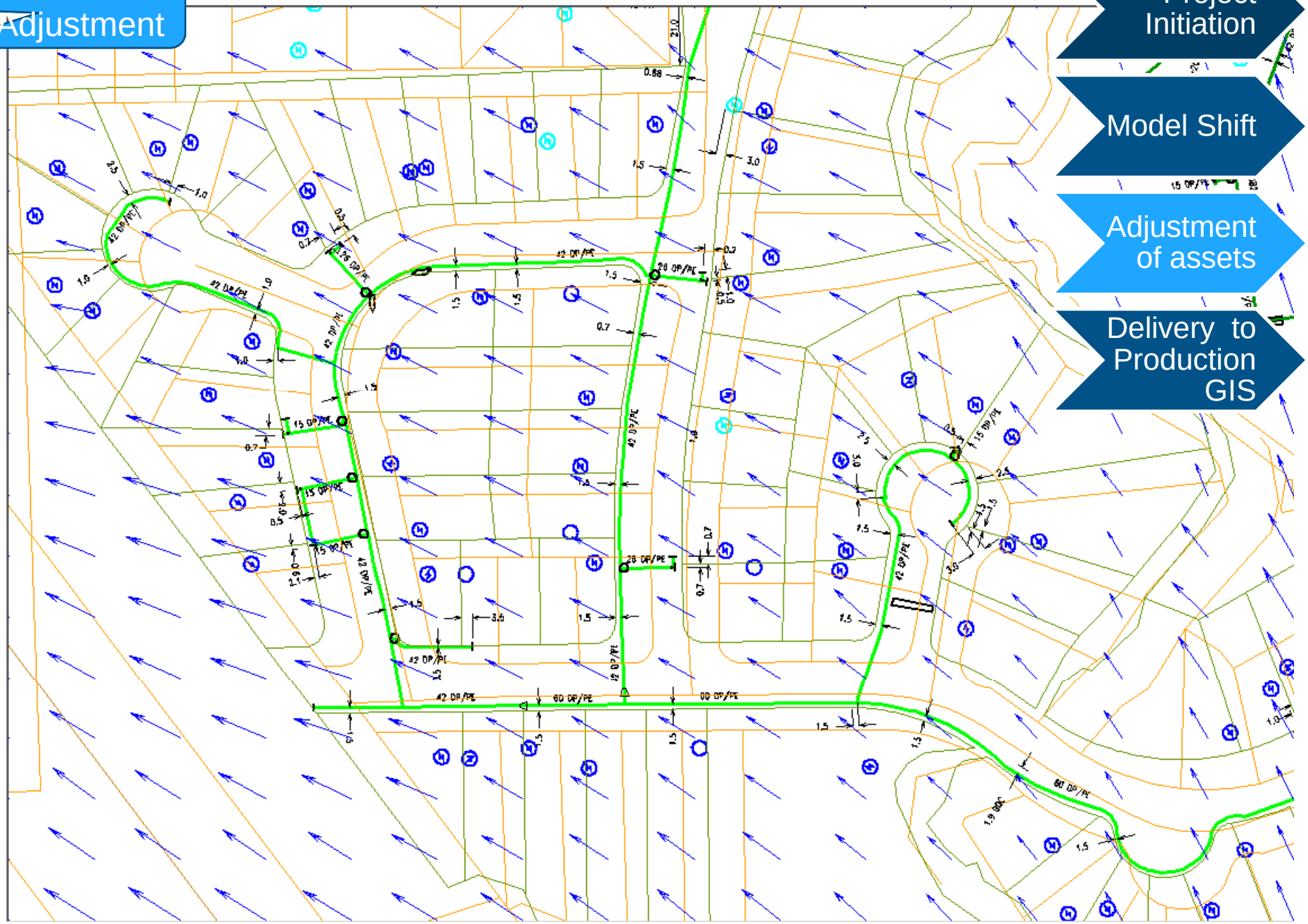
Project Initiation

Model Shift

Adjustment of assets

Delivery to Production GIS

After Adjustment



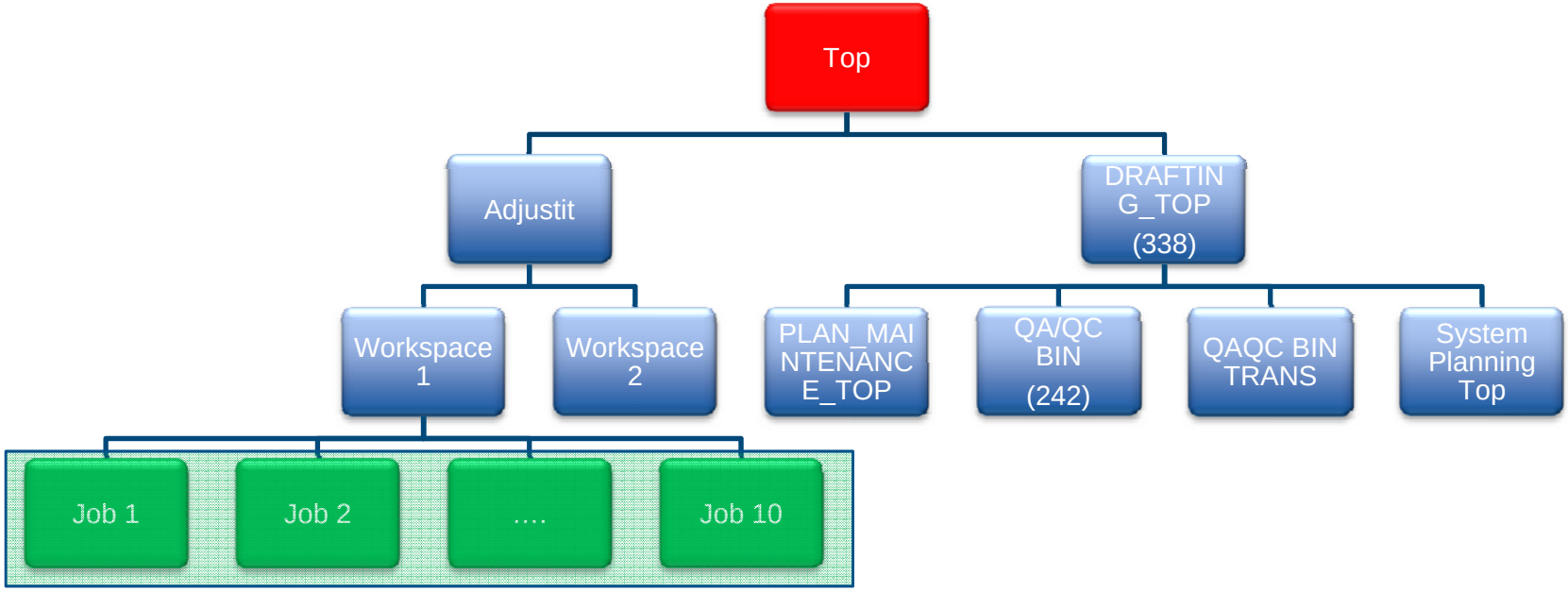
Project Initiation

Model Shift

Adjustment of assets

Delivery to Production GIS

Delivery to Production GIS



- Jobs have completed QA/QC
- Grouped together for rollout
- Database read-only for other users

- Shifts applied to Top and all user alternatives
- Changes made by users are also shifted
- No conflicts generated

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The Final Result

Fly over in Google Earth

Post Conflation

- **Landbase** - Removing old landbase: Parcels and Roads
- **Pipelines, Mains and Services** –
  - Fixing conflation issues due to old/new landbase inconsistencies
  - Sending out packages for field verification (“presentation landbase issues”)
- **Communication** –
  - Providing weekly/monthly updates to the users
  - Putting out fires – responding to conflation errors that may impact the business

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Lessons Learned

- **Lessons Learned Project** -
  - Landbase quality old and new drives a good or bad conflation
  - Know your data – develop tools to fix data errors prior to conflation
  - Plan rollout of areas well in advance, roll out in weekends, impact other projects
  - Adequate resources – for preparation, QA and post conflation corrections
  - Manage user expectations
- **Lessons Learned Software and IT-**
  - IT Infrastructure Management – be part of the scheduling of outages, backups, (citrix, servers, lan)
  - Data model changes – plan in advance

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Schedule

- **Vancouver Island and Sunshine Coast**
  - Completed in 2011
- **Interior**
  - 2012
- **Lower Mainland**
  - 2012/2013

Questions

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