FME WORLD TOUR 2019

SAFE SOFTWARE

Logan City Council's Development Projection Model
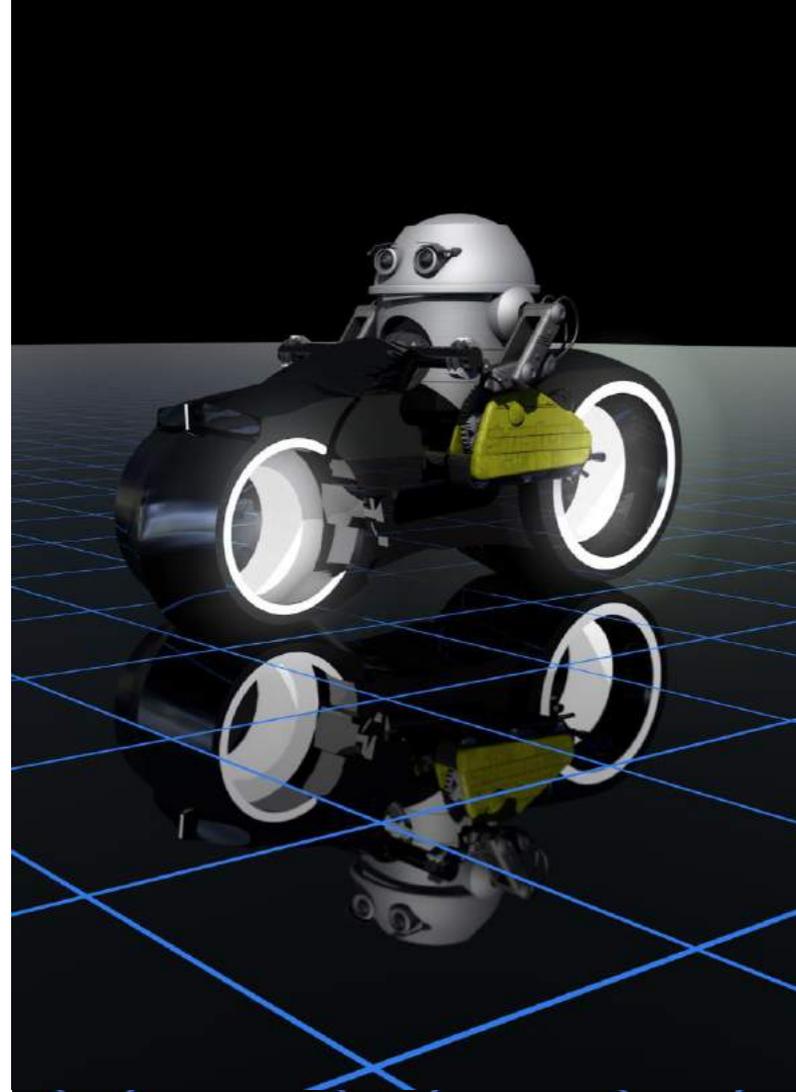
Christopher Maddox

PRESENTATION AGENDA

START

Where is the City of Logan?

- Area - 957 km²

- Ideally situated between Brisbane and the Gold Coast

- Well serviced by Road and Rail Infrastructure

The City of Logan – Population

- Population > 320,000
  (6.5% of Qld)

- One of the fastest growing cities
  in Queensland → 1.9% per year

- 8th largest population in
  Australia

- 217 different cultures

- 50% aged 30 or younger

The City of Logan - Economy

- $13.5 billion Gross Regional Product (GRP)

- >21,000 businesses employing >89,000 people

- 132,000 employed residents

- $26 billion Gross revenue generated by Logan businesses

The City of Logan – Zoning

- 20% is developed

- 70% is rural, semi-rural or land for conservation

- 10% is State designated Priority Development Area
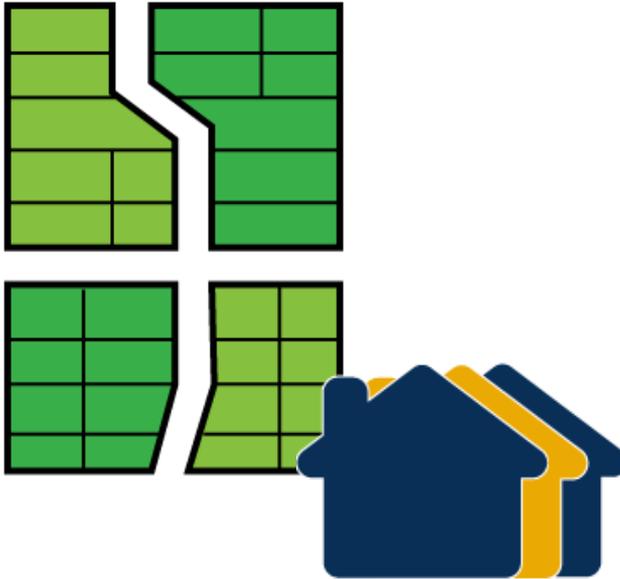
City of Logan
MAJOR PROJECTS

PACIFIC MOTORWAY - GATEWAY MOTORWAY MERGE UPGRADE
$168m
700 JOBS
$1.2b in economic benefits including travel time savings, vehicle operating costs and accident reduction

LOGAN HOSPITAL REDEVELOPMENT
$280m
Expansion project includes new emergency department, children's inpatient ward and rehabilitation unit

LOGAN MOTORWAY ENHANCEMENT PROJECT
$450m
1,300 JOBS
$1.2b in economic benefits to Queensland

SOUTH WEST 2
192 hectares of mixed industry and business precinct a prime opportunity for commercial and industrial use
1,000 JOBS

WEMBLEY ROAD INTERCHANGE UPGRADE
35% reduction in travel time peak from Logan Motorway eastbound (AM)
85% reduction in travel time peak from Logan Motorway eastbound (PM)

SOUTH WEST 1
40 hectares of multi-award winning master-planned enterprise precinct
2,000 JOBS

Centres
- Springwood
- Logan Central
- Meadowbrook
- Beenleigh

MARSDEN PARK SHOPPING CENTRE REDEVELOPMENT
$60m
250 JOBS
Centre to increase in size from 8217sqm to in excess of 23,000sqm

JETA GARDENS
$600m
2,000 RESIDENTS
Retirement and aged care resort featuring the first intergenerational facility of its kind in Australia

FLAGSTONE DEVELOPMENT
$6.7b
10,000 JOBS
Ideally located in an investment hotspot in the rapidly growing southern corridor, the vision for Flagstone includes six villages, supported by transport and infrastructure

FLINDERS PROJECT
4000 ha
50,000 RESIDENTS
Potential to accommodate residential neighbourhoods, hamlets, knowledge-based industry and services and unique tourist destinations
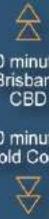
YARRABILBA
13,000 JOBS
45,000 RESIDENTS
100+ hectares of Mixed Industry Business Area (MIBA) that will accommodate a range of businesses

30 minutes Brisbane CBD

30 minutes Gold Coast

Lots of Activity

- Better connections through infrastructure
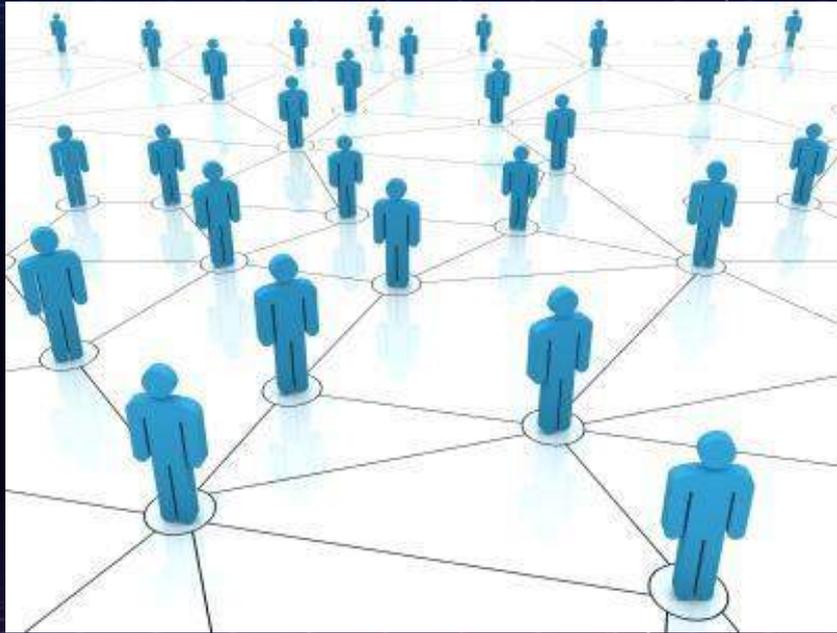
- More residents

- More jobs

Project Brief

Develop an in-house Population and Employment Forecasting Model
(50 year horizon)

Why

- Improved forecasting model → More accurate, more **defendable** by Council

- Reduce time and cost → Long and expensive turn around times to run the model

- Migrate to ESRI/FME software

Who uses it

- **Transport network** → Integrated Local Transport Plan

- **Water and sewer networks** → Network planning

- **Other networks** → Same projections for infrastructure forecasting

What it does

- Forms the basis for the review of **Local Government Infrastructure Plan**

- Enables **scenario analysis** on policy levers

Key Inputs

Residential Targets	Supplied by Queensland Government Statistician's Office
Non-Residential Targets	Adopted from the MacroPlan Employment and Activity Centres Strategy
Residential Occupancy Rates	Based on the 2016 Census
Non-Residential Conversion Rates	Derived from previous model parameters and updated to align with targets
Development Approvals	Derived from the Development Activity Monitoring Project
Planned Density	Realistic development yield on the site provided by Strategic Planners

Key Parameters

- Evaluate each parcel's development potential (>101,000 across the City)

- Rank possible developments by **Priority Level**
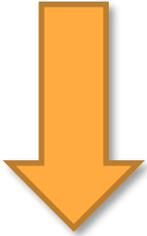
Highest Priority

- Development Applications (Partially Completed) by year
- Development Applications (Not Started) by year
- Vacant parcels inside the Priority Infrastructure Area with Yield Factor >= 2
- Parcels within Local Plan/Meadowbrook Masterplan Area with Yield Factor >= 2
- Parcels within Proposed Development Area with Yield Factor >= 2
- Remaining Citywide parcels with Yield Factor >= 2
- Remaining Citywide parcels with Yield Factor >= 1.1

Lowest Priority

Key Parameters (Continued)

- Rank possible developments by **Feasibility Index**

Feasibility Index =
Total Profitability x **Opportunity Ratio**

Total Profitability =
Estimated Sale Value – (Land Acquisition Cost
+ Subdivision Cost + Infrastructure Charges + Construction Cost)

Opportunity Ratio =
Ultimate Development Yield / Transport Accessibility Index

Scope Recap

- Generate an automated model using FME to compare every parcel within the City against the other

- Forecast growth for each parcel every 5 years up to 2066
  - Dwellings
  - Population
  - Gross Floor Area
  - Employees

Let's Run the Model

Existing Development Dataset ➡️ **Identify Ultimate Development based on Planning Policy and Developable Area** ➡️ **Repla**
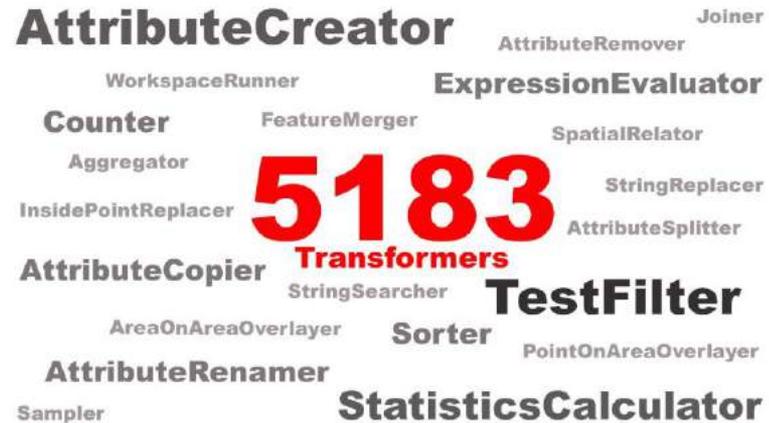
Generation and Processing

- 1,176 hours to build (147 full work days)

- 23 linked (daisy-chained) workbenches

- 17 hours to run

- 5,183 Transformers within the model (only 21/499 Transformers from the FME library are utilised)

- $846 in the swear jar

AttributeCreator
Joiner
AttributeRemover
WorkspaceRunner
ExpressionEvaluator
Counter
FeatureMerger
SpatialRelator
Aggregator
5183
StringReplacer
InsidePointReplacer
Transformers
AttributeSplitter
AttributeCopier
StringSearcher
TestFilter
AreaOnAreaOverlayer
Sorter
PointOnAreaOverlayer
AttributeRenamer
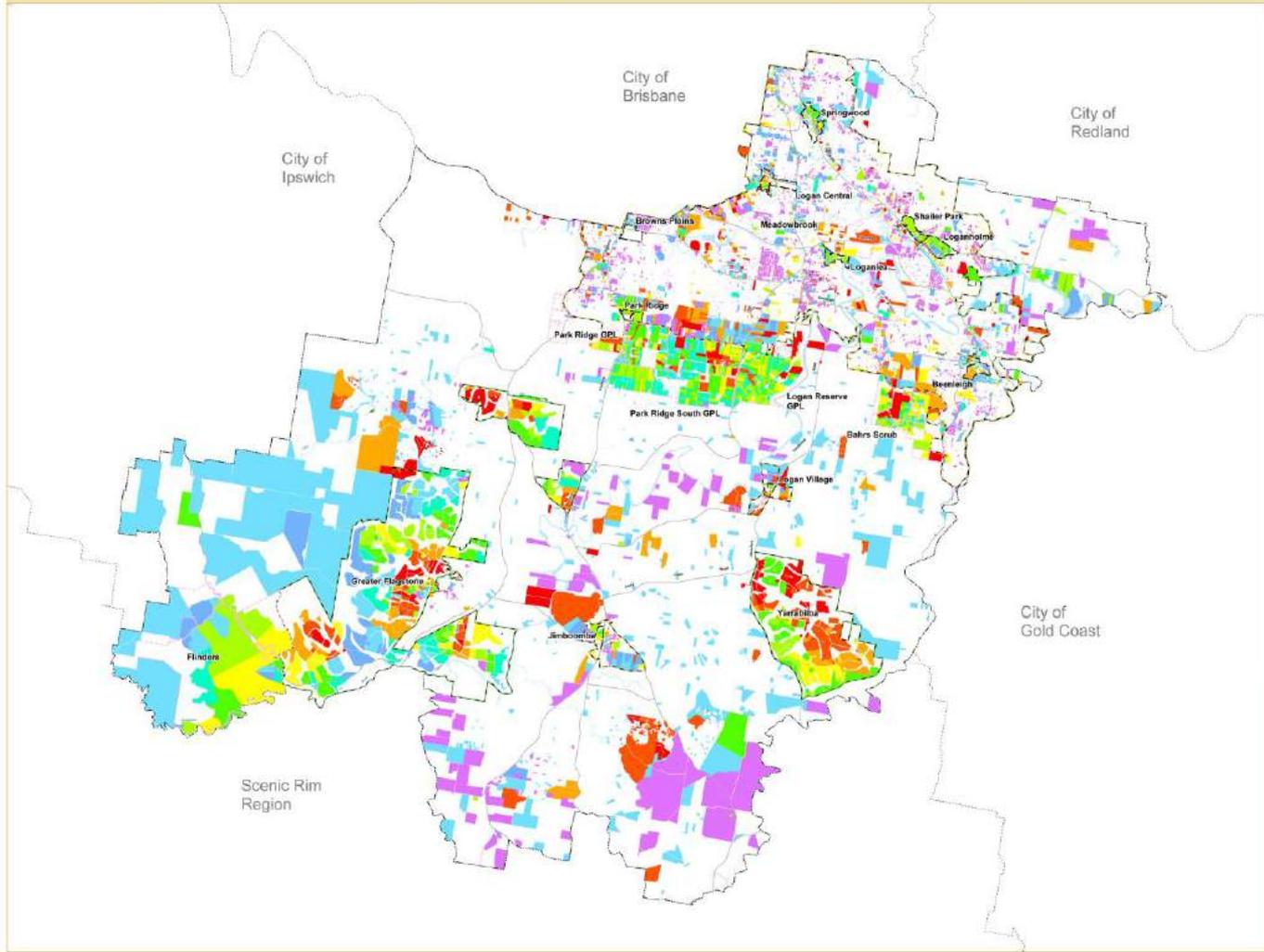Sampler
StatisticsCalculator

Results

- 2,385 Attribute columns

- Every parcel compared against the other

- Spatial distribution and timing of development every 5 years up to 2066

  - Dwellings

  - Population

  - Gross Floor Area

  - Employees
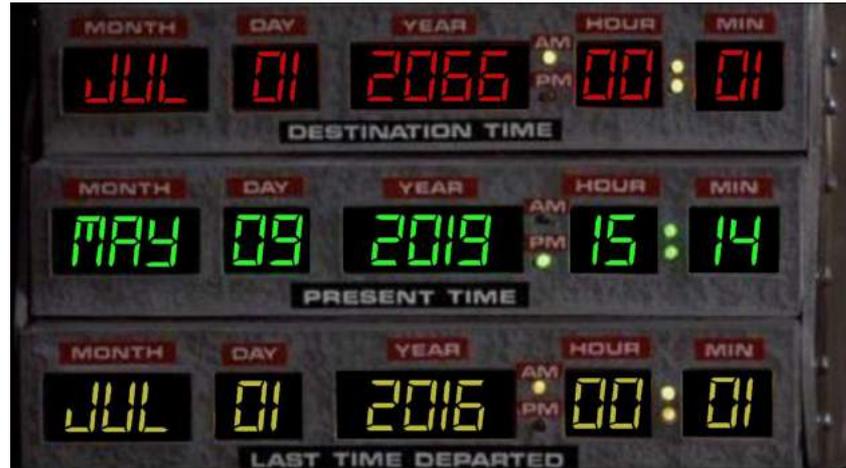
Results

2021

+ 2026

+ 2031

+ 2036

+ 2041

+ 2046

+ 2051

+ 2056

+ 2061

+ 2066

CITY OF LOGAN: Innovative, Dynamic, City of the Future

Projected Residential and Non-Residential Development

LOGAN CITY COUNCIL

Summary

✓ Logan now has a sustainable Development Projections Model

✓ Delivers reliable forecasting of growth across the City in 5 year epochs

✓ **Free and quick to run**
(no need to engage consultants)

What's next for Logan

3D + FME + DA

➤ Interactive 3D Development Assessment Tool

➤ Links directly to the Development Projection Model to provide live development forecasting across the City
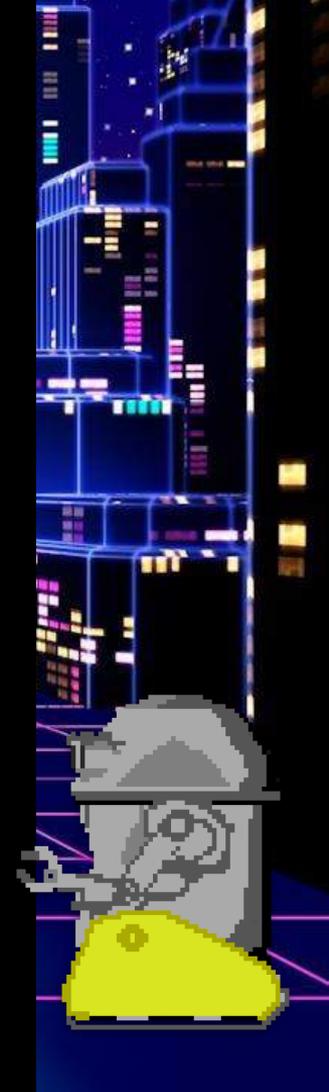
THANK YOU!

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