



WORLD TOUR
2019

STORIES FROM AROUND THE WORLD





LEVEL LEADERBOARD

- | | |
|---|-------------------------|
| 1 | Discover FME Innovation |
| 2 | Explore New Ideas |
| 3 | Take Inspiration Home |
| | |
| | |
| | |
| | |
| | |
| | |

START



Suncor Energy Inc.

Alonzo de la Cruz, Canada



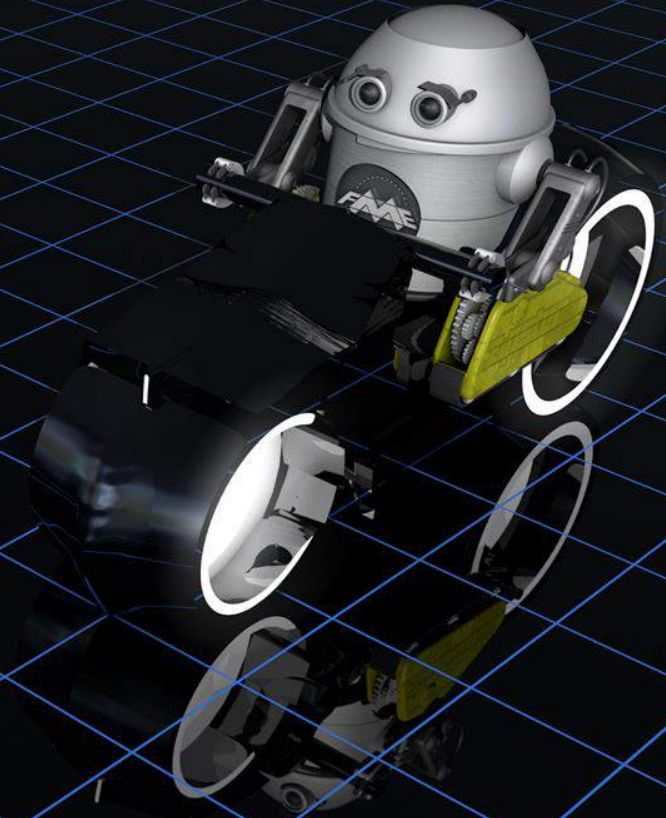
Objectives

Performing geospatial data integration for subsurface engineers.

- Reduce time spent on straightforward but time-consuming data integration tasks.
- Reduce human error.

Challenges

- Existing processes involved manual steps across several applications.
- Large data volumes needed cleaning and formatting.



Solution

START

Source Data
from many systems

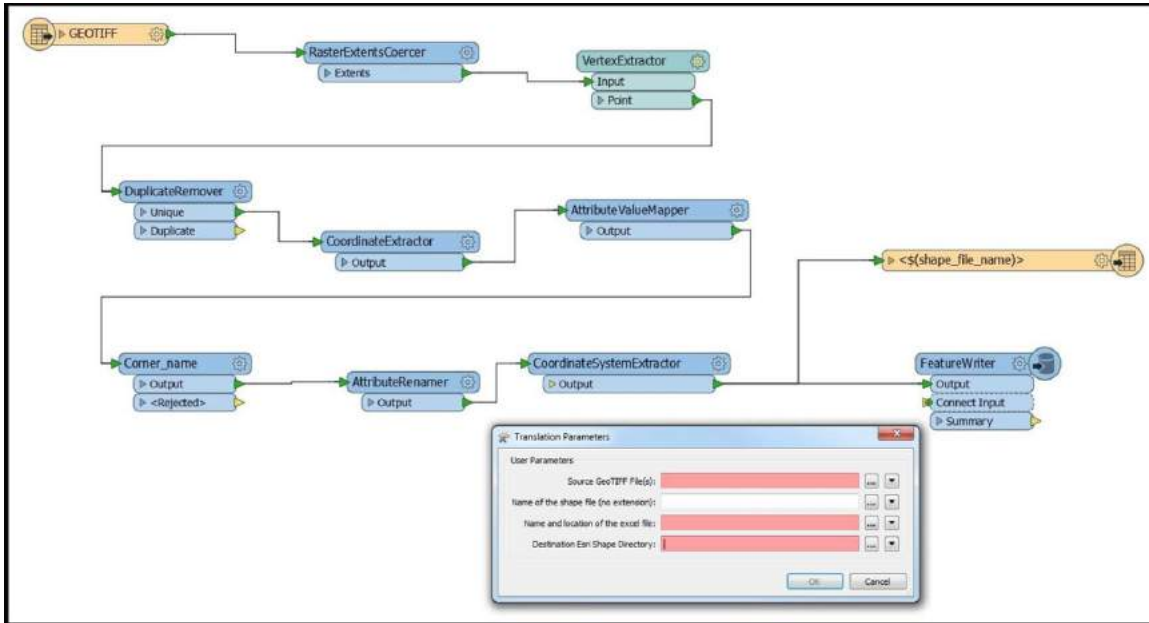


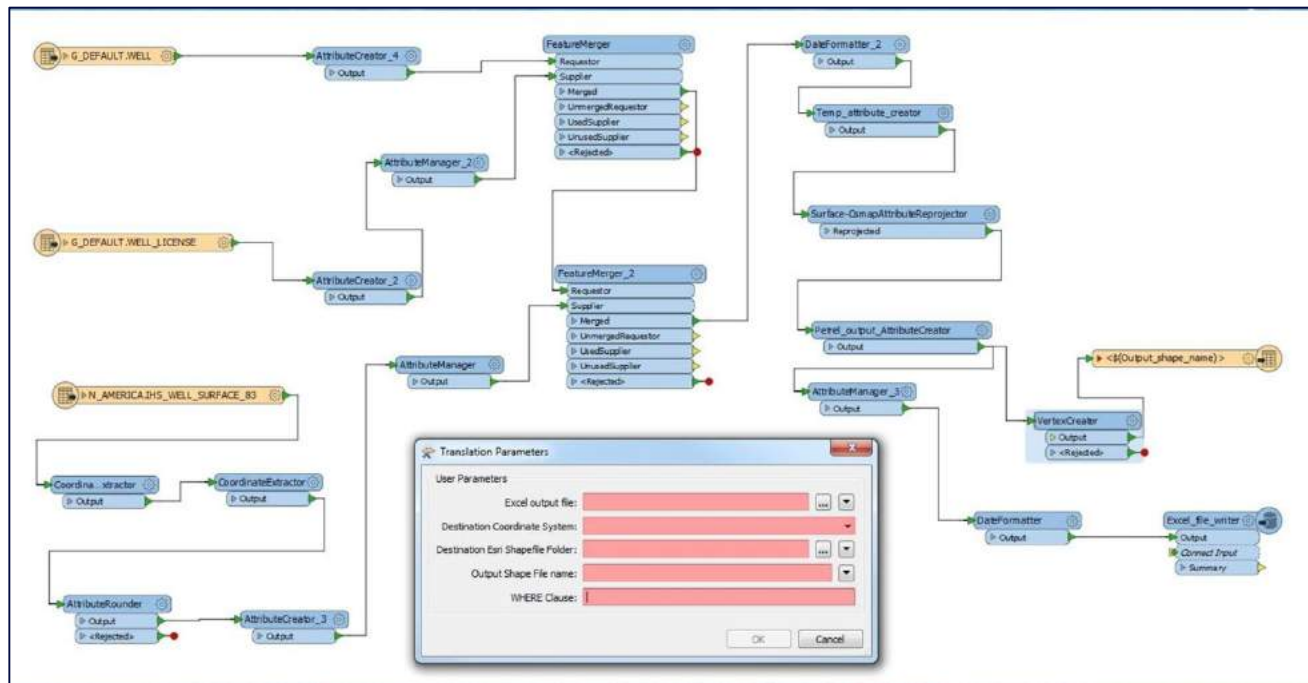
Solution
Convert, Manipulate, Clean

FINISH

Usable Data
for engineers

FME Workspace: Get corners of GeoTIFFs

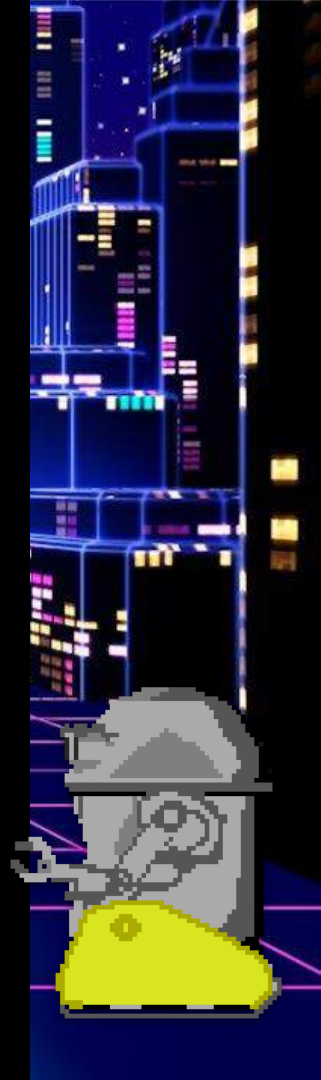




FME Workspace: Transform data from 3 database tables

Results

- Subsurface teams (geologists & geotechs) access data within minutes of their requests.
- Geospatial data tasks are reduced from hours of manual work to minutes of automated work.





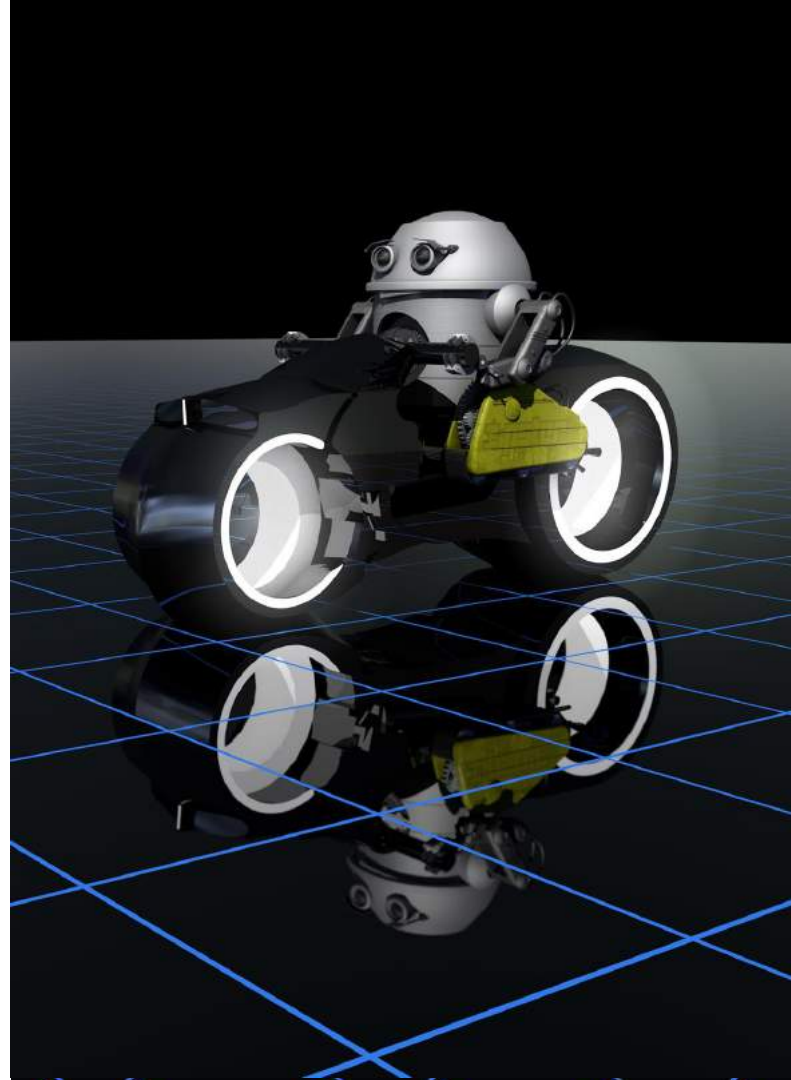
Benefits

Alonzo is the hero at work.

- Data integration reduced from hours to minutes.
- Removed manual work to create an automated process.
- Reduced risk of human error.

Tips

- FME is great for data cleaning and reformatting.
- A simple FME Workspace can be your most powerful tool.





“By automating mundane tasks with FME,
you can massively improve the quality of
your work, and your work life.”

- Alonzo de la Cruz, Suncor Energy Inc.



Buccleuch Estates

Christine Brown, Edinburgh, Scotland



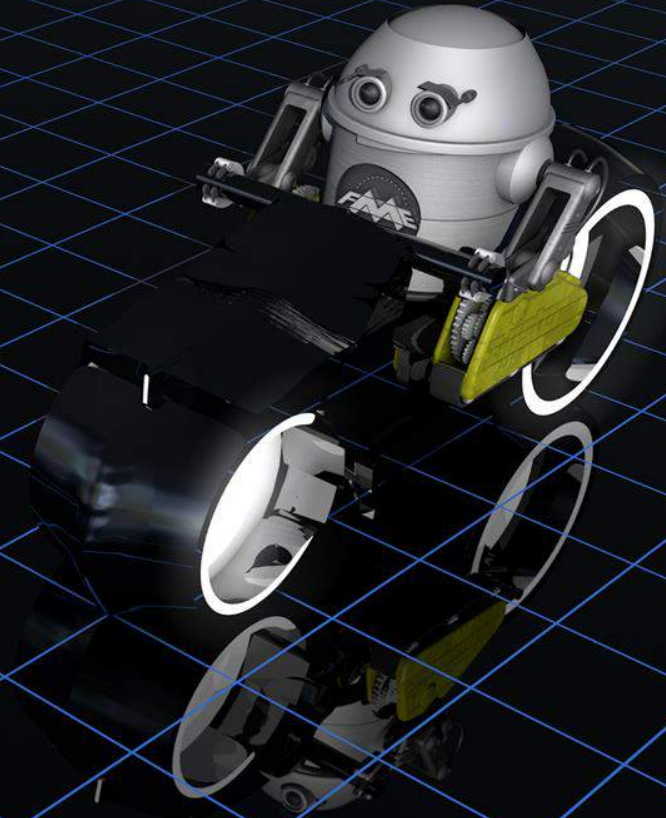
Objectives

Increase efficiency of farm maintenance inspections (fences, gates, troughs).

- Automate compiling and delivering farm condition inspection reports.

Challenges

- Existing processes involved manually compiling photos and notes into a Word doc.
- Images and text needed to be converted into a report automatically.



Solution

START

**Source data from
Trimble device**

GPS coordinates
and photos



FME Workflow

Buffer, read, clip
features and
attributes

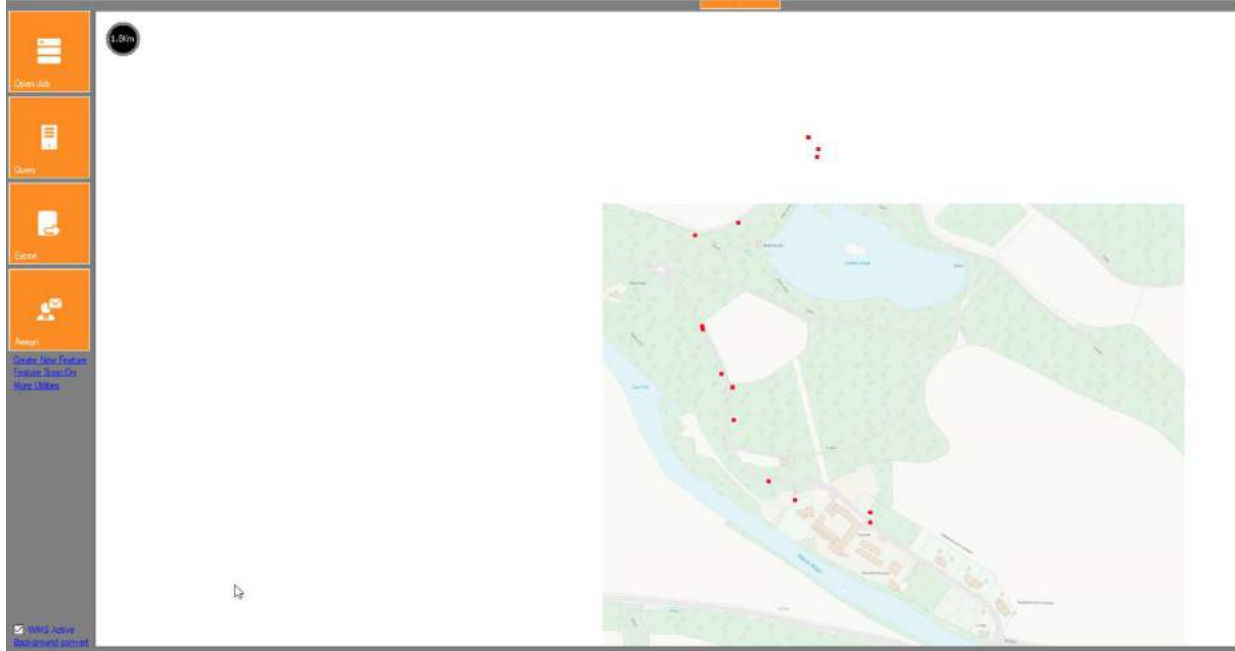
FINISH

Output to PDF

Farm condition
inspection report
with photos

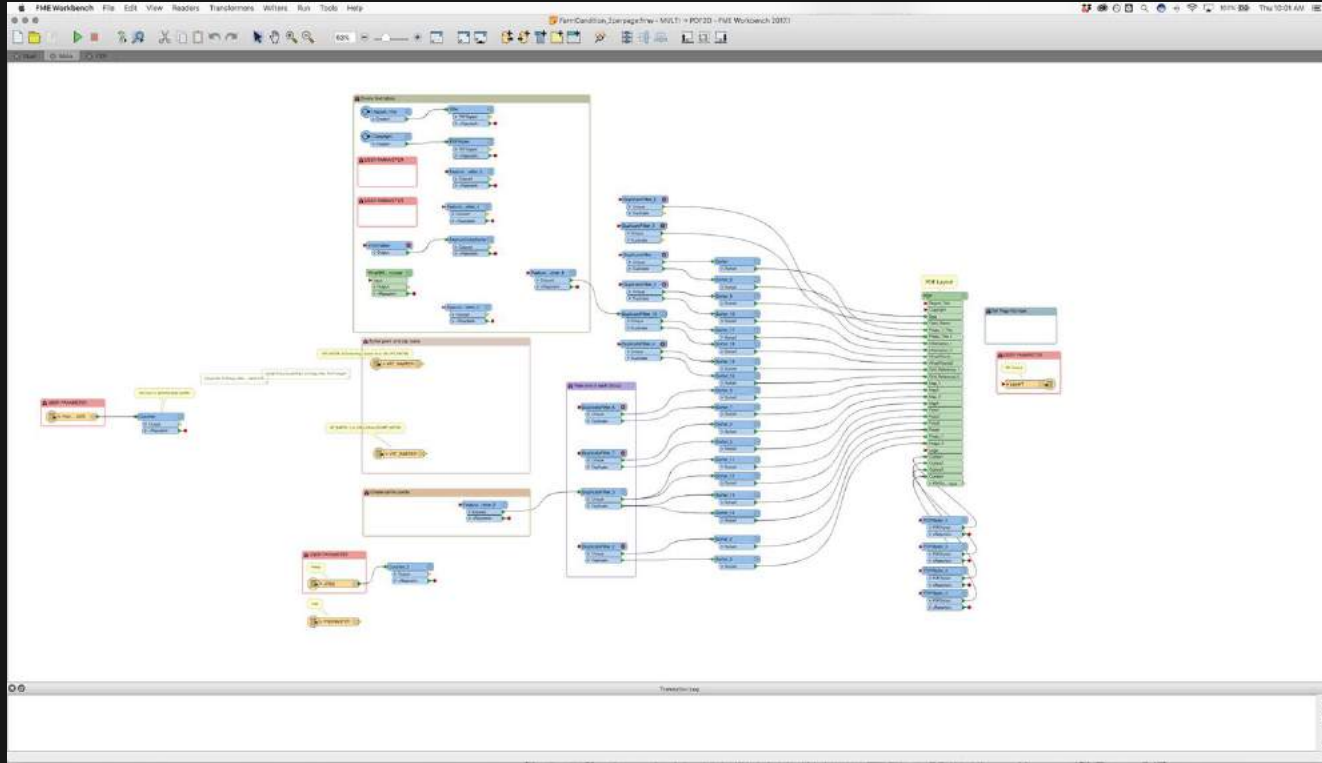
BuccleuchEstates Desktop Console

C:\Users\cbrown\Documents\K-matic\Desktop\Data\jnb\ot\farm_coad_FL



Input:
Shapefiles and
photos online





FME Workspace:
Generate farm
condition report





Record Of Condition

Around Estate Office

11th December 2018

Contains OS data © Crown copyright and database rights 2018

LOCATION 13



Photo Name: 13
Subject: Wooden Gate
Condition: Good condition
Remarks: 2.4 megapixel



Grid Reference 342,765, 627,335

What3Words: boxing.happen.community

LOCATION 14



Photo Name: 14
Subject: Wire Fence
Condition: Needs attention
Remarks: Sagging wire.



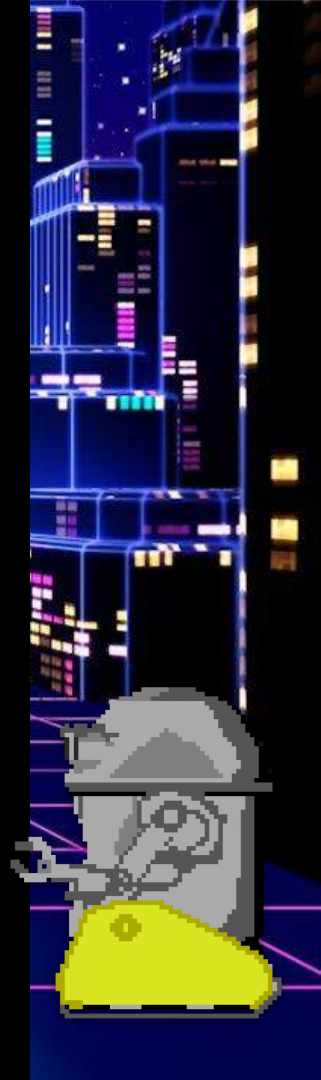
Grid Reference 342,846, 628,852

What3Words: ditching.arioe.bangle

Output: PDF report

Results

- Multi-page PDF showing two features per page.
- This method is now being tested throughout Buccleuch Estates.



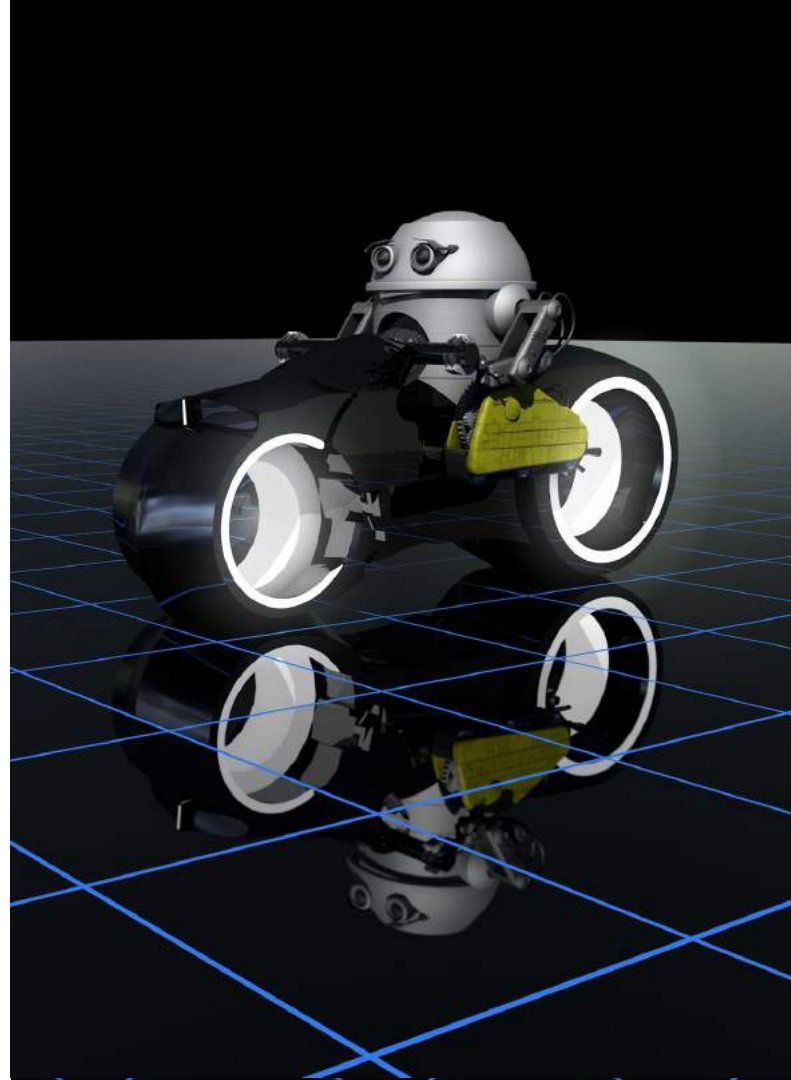
Benefits

Farm condition reports are created:

- Faster
- More easily
- In a standardized format

Tips

- PDFFormatter and PDFStyler are helpful and easy to use.
- Use Counter and Grouper to 'pass' features in order.



Future Plans

- Expand the attribution data following user feedback.
- Include the option to produce reports in a Word format.



“Using FME with Trimble is a huge time saver for compiling Farm Condition reports.”

- Christine Brown, Buccleuch Estates



Valeron Enviro Consulting

Jaroslav Hruskovic, Slovakia



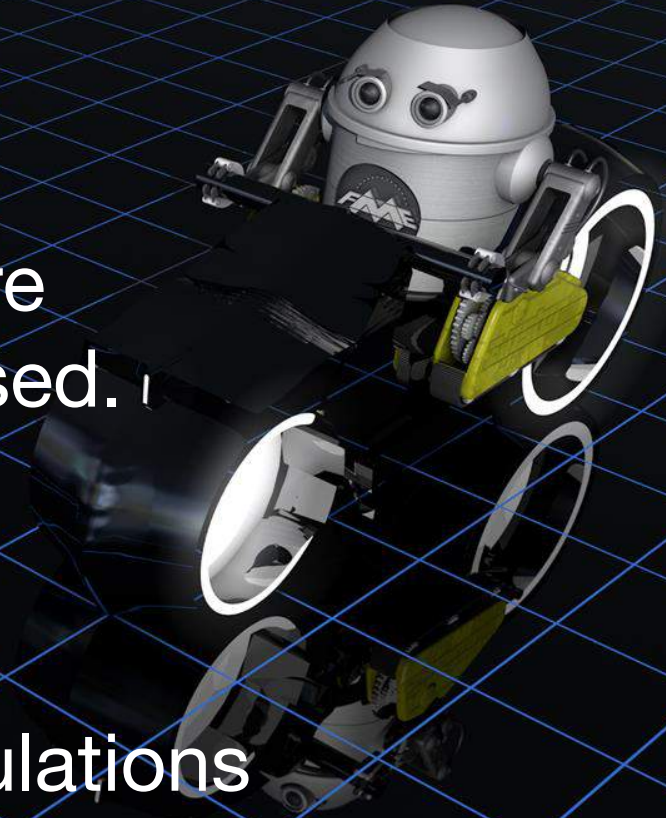
Objectives

Visualize windfields
for urban architects.

- Convert and analyze
windfield data
models.

Challenges

- Windfield data models were previously discarded, unused.
- Generate windfield maps.
- Perform analysis and calculations on the data.



Solution

START

Windfield Matrices



FME Workspace

Calculate, analyze,
visualize

FINISH

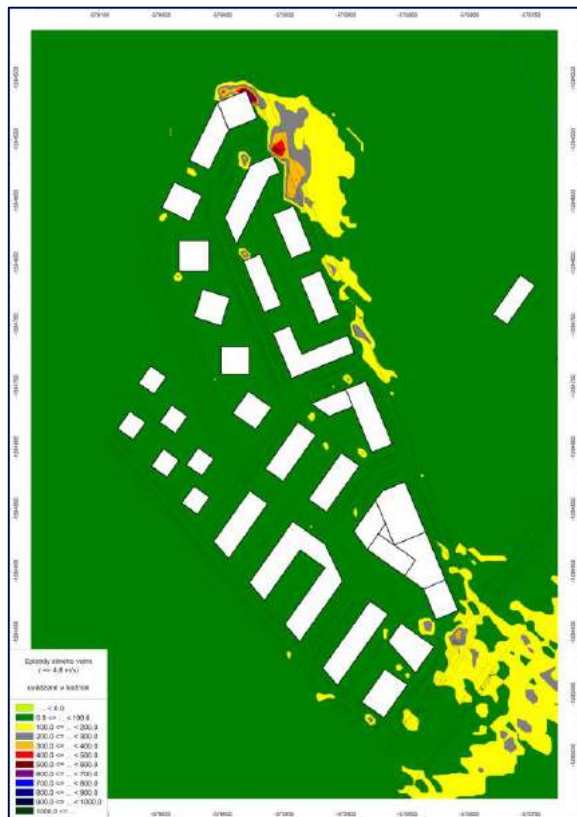
Result

Multi-page PDF
with results

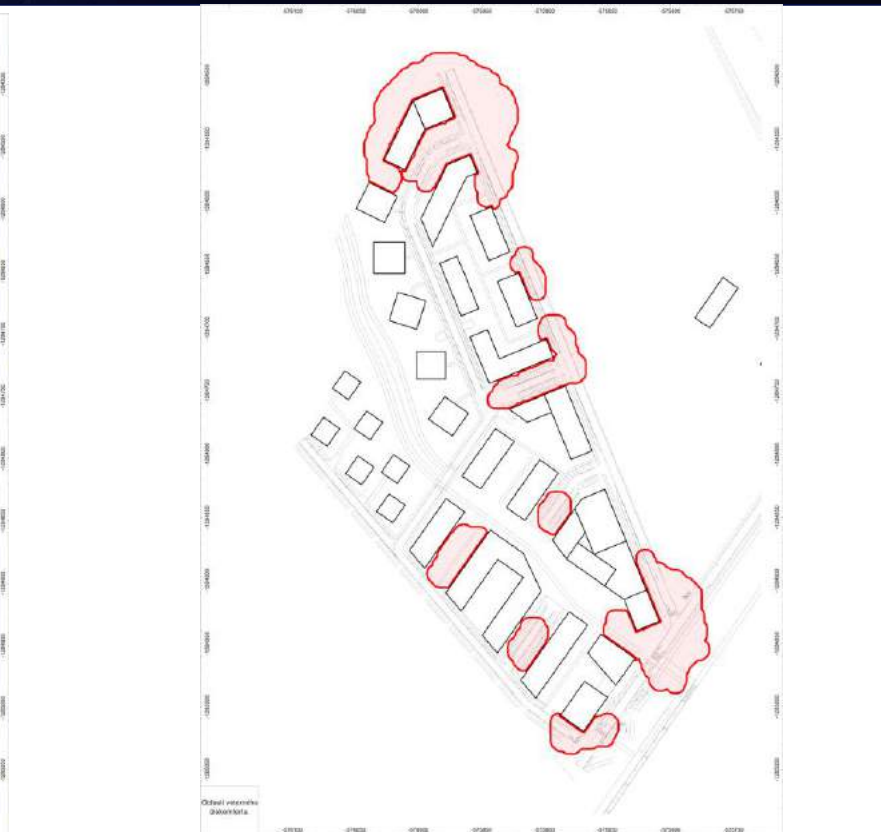
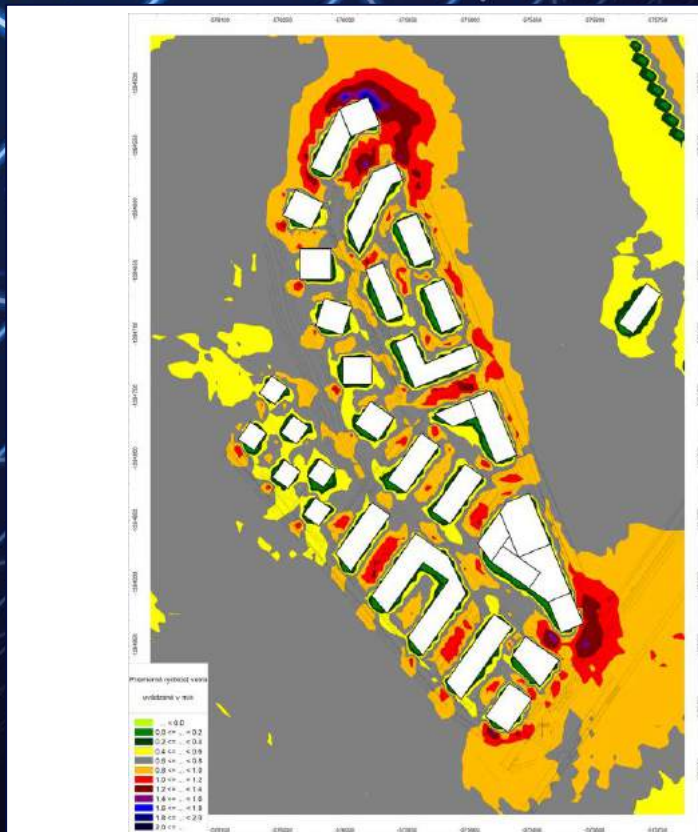
```
konvertovany_vystup.txt
1 x y uref dref vx vy v
2 0 0 20 10 0 0 0
3 0 6 20 10 -0.0561478 0 0.0561478
4 0 12 20 10 -0.0561471 0 0.0561471
5 0 18 20 10 -0.0561465 0 0.0561465
6 0 24 20 10 -0.0561459 0 0.0561459
7 0 30 20 10 -0.0561453 0 0.0561453
8 0 36 20 10 -0.0561446 0 0.0561446
9 0 42 20 10 -0.056144 0 0.056144
10 0 48 20 10 -0.0561433 0 0.0561433
11 0 54 20 10 -0.0561427 0 0.0561427
12 0 60 20 10 -0.0561419 0 0.0561419
13 0 66 20 10 -0.0561413 0 0.0561413
14 0 72 20 10 -0.0561404 0 0.0561404
15 0 78 20 10 -0.0561398 0 0.0561398
16 0 84 20 10 -0.0561389 0 0.0561389
17 0 90 20 10 -0.0561383 0 0.0561383
18 0 96 20 10 -0.0561373 0 0.0561373
19 0 102 20 10 -0.0561366 0 0.0561366
20 0 108 20 10 -0.0561355 0 0.0561355
21 0 114 20 10 -0.0561349 0 0.0561349
22 0 120 20 10 -0.0561337 0 0.0561337
23 0 126 20 10 -0.056133 0 0.056133
24 0 132 20 10 -0.0561317 0 0.0561317
25 0 138 20 10 -0.0561309 0 0.0561309
26 0 144 20 10 -0.0561295 0 0.0561295
27 0 150 20 10 -0.0561287 0 0.0561287
28 0 156 20 10 -0.0561272 0 0.0561272
29 0 162 20 10 -0.0561264 0 0.0561264
30 0 168 20 10 -0.0561247 0 0.0561247
31 0 174 20 10 -0.0561238 0 0.0561238
32 0 180 20 10 -0.056122 0 0.056122
33 0 186 20 10 -0.0561211 0 0.0561211
34 0 192 20 10 -0.0561191 0 0.0561191
35 0 198 20 10 -0.0561181 0 0.0561181
36 0 204 20 10 -0.056116 0 0.056116
37 0 210 20 10 -0.0561149 0 0.0561149
38 0 216 20 10 -0.0561126 0 0.0561126
39 0 222 20 10 -0.0561115 0 0.0561115
40 0 228 20 10 -0.056109 0 0.056109
41 0 234 20 10 -0.0561078 0 0.0561078
42 0 240 20 10 -0.0561051 0 0.0561051
43 0 246 20 10 -0.0561038 0 0.0561038
44 0 252 20 10 -0.056101 0 0.056101
45 0 258 20 10 -0.0560996 0 0.0560996
```

Input





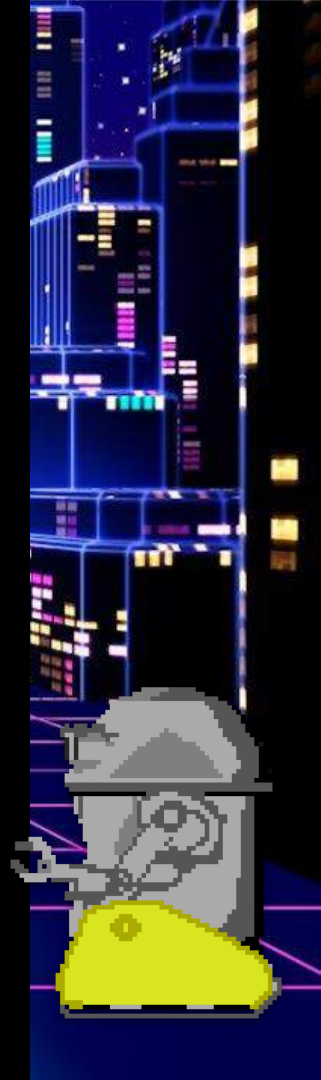
Output



Output

Results

- A fully developed product offering wind analysis.
- In demand by architects, especially for designing outdoor activity spaces.



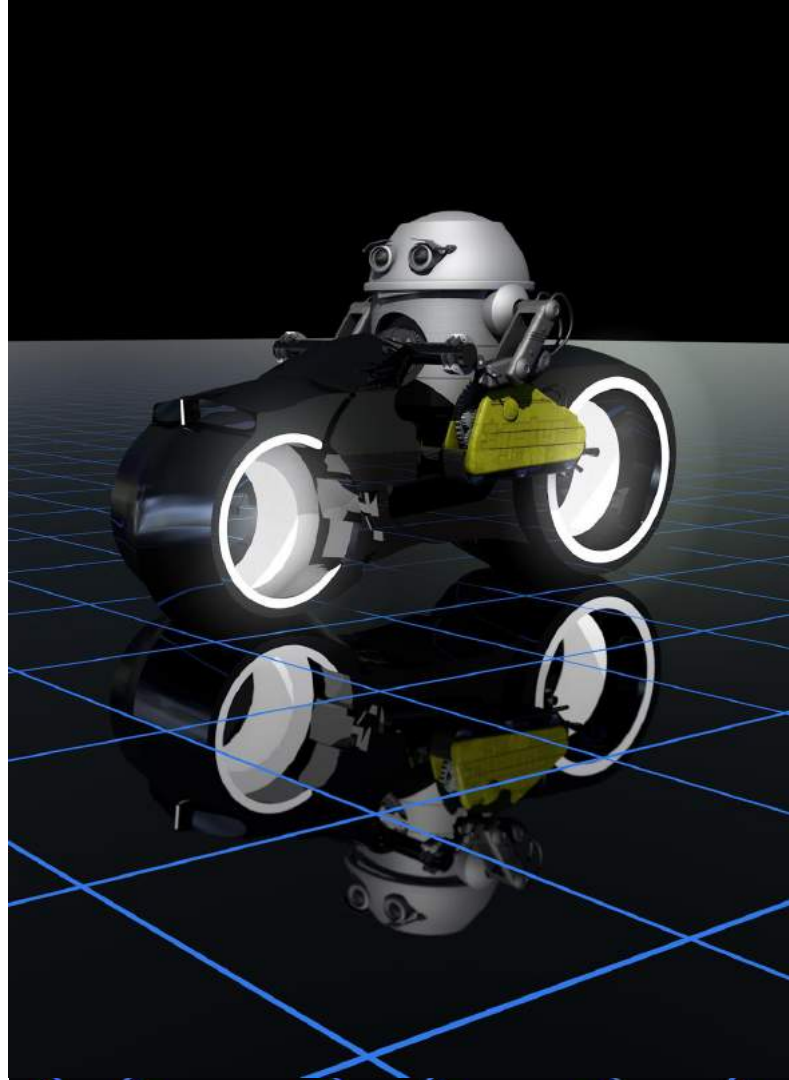


Benefits

- Reduced the number of applications to create an automated workflow from many to just one.
- Shortens calculations from days to hours.

Tips

- Complex challenges can be simple to solve.
- **Group-by** makes processing simple.





“With FME this project can be easily modified and the outputs can be updated with ease.”

- Jaroslav Hruskovic, Valeron Environ Consulting

Future Plans

Extend workflows to identify:

- Typical snow deposition locations.
- Pollen spread for allergen prediction map.



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START



Tesera Systems

Michael Kieser, Canada



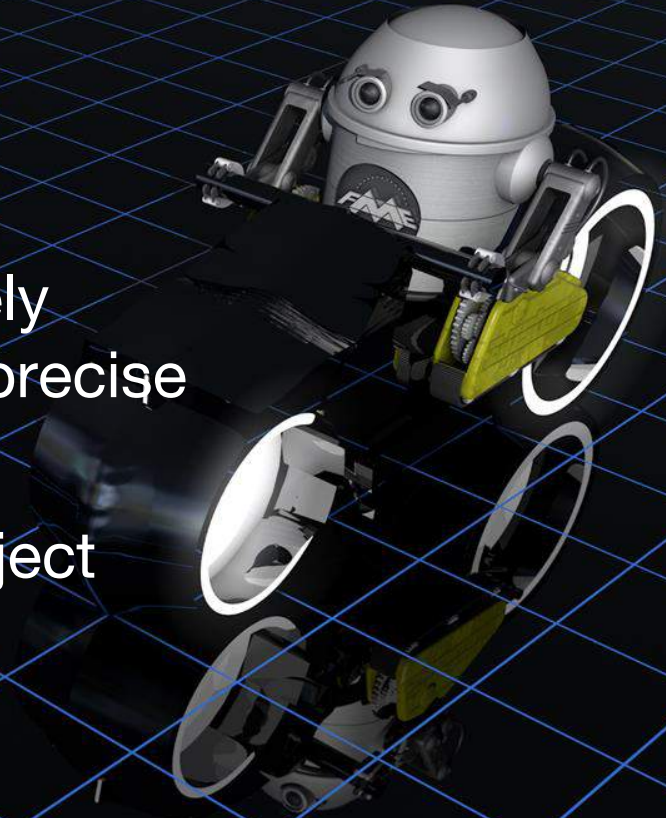
Objectives

Create high-resolution forest inventories.

- Integrate high-resolution raster and precise vector data.

Challenges

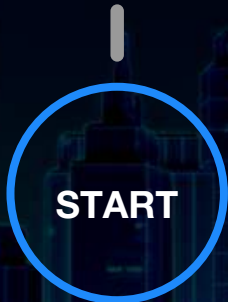
- Integrating high-resolution remotely sensed imagery and LiDAR, with precise ground measured plots
- Managing this data over large project areas 10,000-150,000 km².



Solution

Tiling Scheme

Standard across all projects



FME Workspaces

Generic across projects



Tiled Project Data

Universal data storage & access

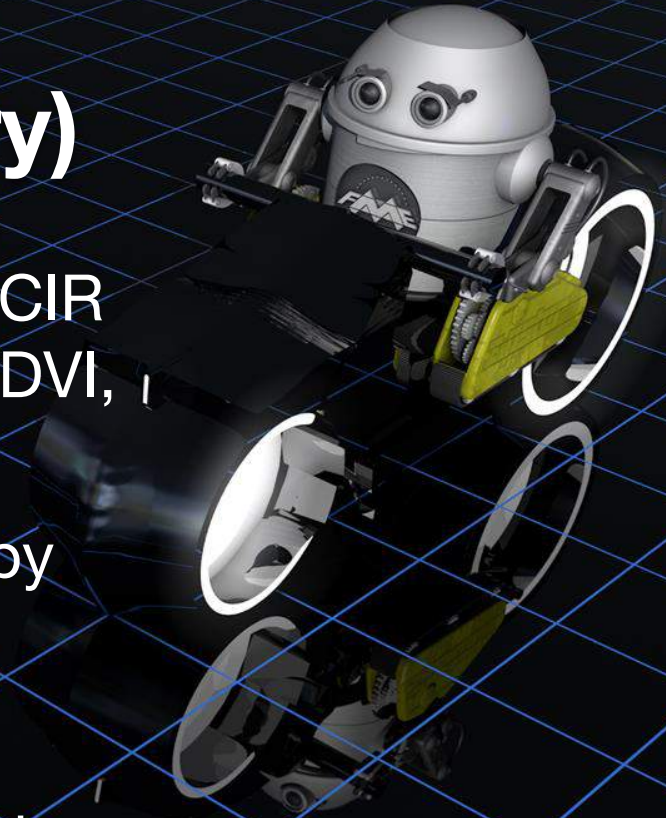


Disparate Source Data

LiDAR, CIR, LCC, plot

Example (re-tile imagery)

- Tiled imagery layers derived from CIR and LiDAR (colour, false colour, NDVI, hillshade, CHM)
- Generate Google Compatible slippy map tiled imagery layers
- Tile layers stored on AWS S3
- Deliver layers in desktop GIS & web viewer (Leaflet, Mapbox)



Layers

- projectBoundary
- projectTilingScheme
- tmsZooms_8-9 Tiles:1
- tmsZooms_10-11 Tiles:2
- tmsZooms_12-13 Tiles:6
- tmsZooms_14-15 Tiles:40
- tmsZooms_16-17 Tiles:442

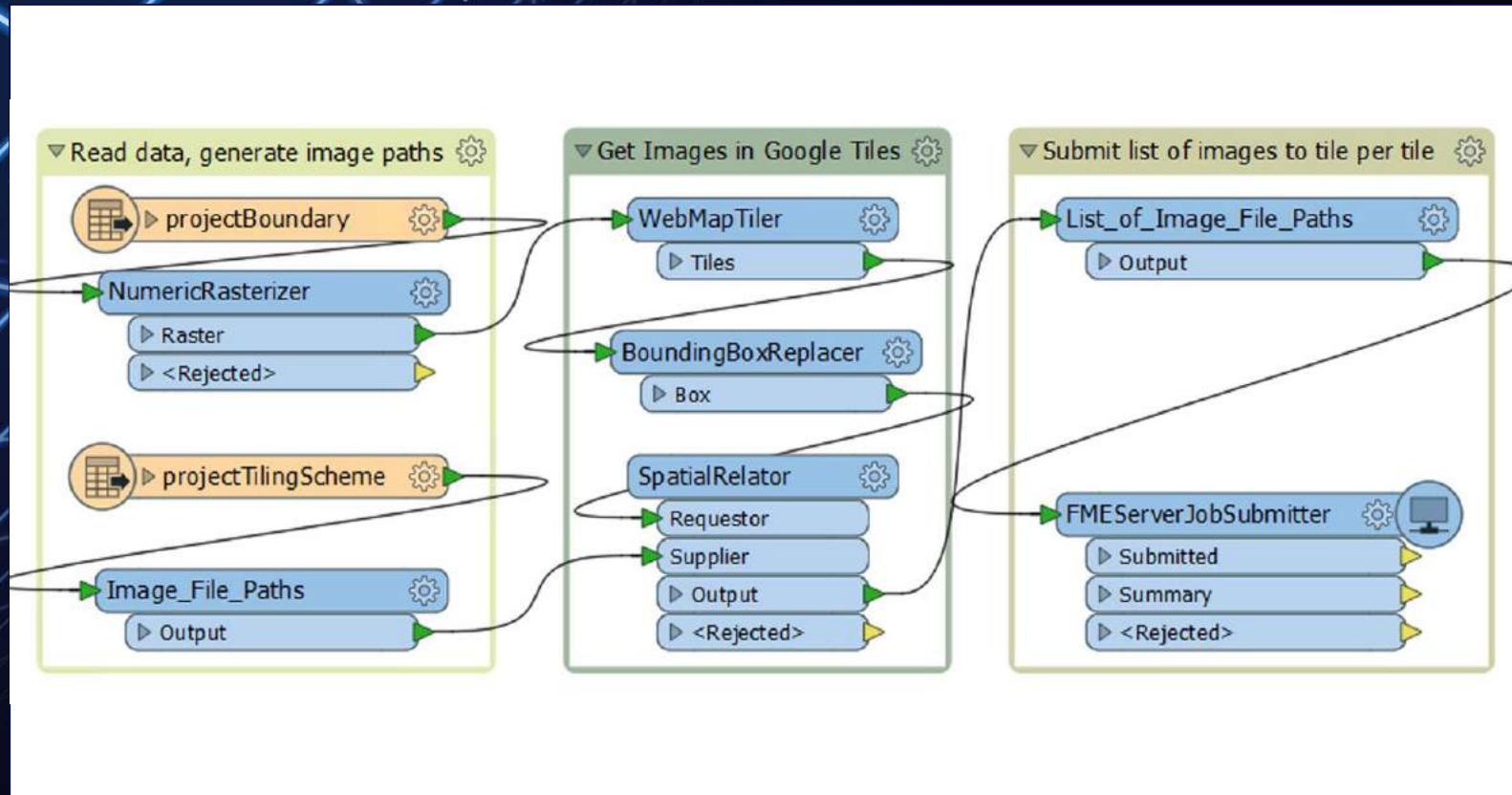
Browser

- projectTiling
 - 1
 - 10
 - 11
 - 1.zip
 - 10.zip
 - 11.zip
 - 2.zip
 - 3.zip
 - 4.zip
 - 5.zip
 - 6.zip
 - 7.zip
 - 8.zip
 - 9.zip
 - 12
 - 13
 - 14
 - 2

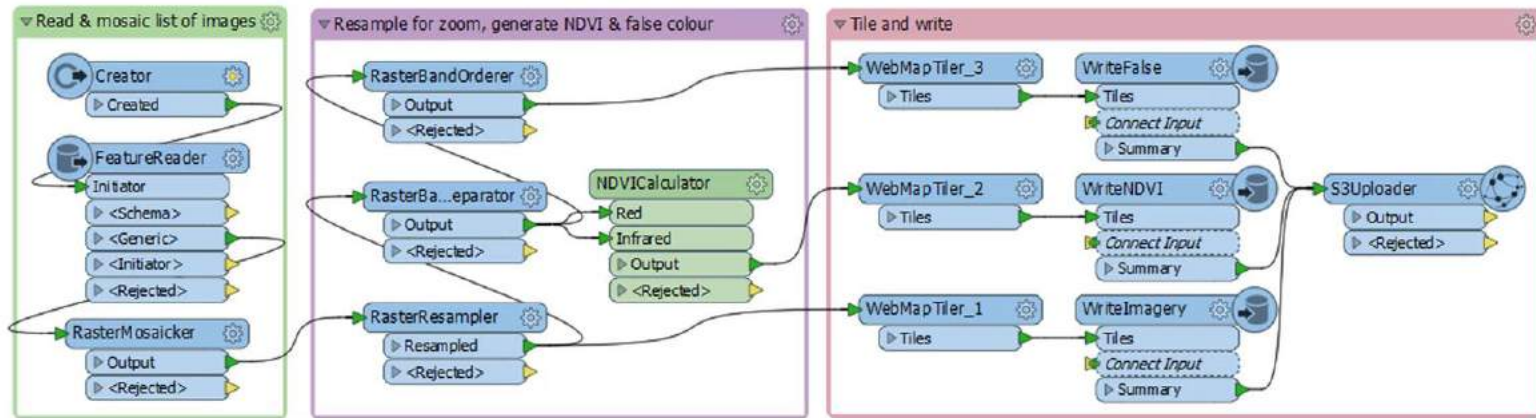
c1/r1	c2/r1	c3/r1	c4/r1	c5/r1	c6/r1	c7/r1	c8/r1	c9/r1	c10/r1	c11/r1	c12/r1	c13/r1	c14/r1
c1/r2	c2/r2	c3/r2	c4/r2	c5/r2	c6/r2	c7/r2	c8/r2	c9/r2	c10/r2	c11/r2	c12/r2	c13/r2	c14/r2
c1/r3	c2/r3	c3/r3	c4/r3	c5/r3	c6/r3	c7/r3	c8/r3	c9/r3	c10/r3	c11/r3	c12/r3	c13/r3	c14/r3
c1/r4	c2/r4	c3/r4	c4/r4	c5/r4	c6/r4	c7/r4	c8/r4	c9/r4	c10/r4	c11/r4	c12/r4	c13/r4	c14/r4
c1/r5	c2/r5	c3/r5	c4/r5	c5/r5	c6/r5	c7/r5	c8/r5	c9/r5	c10/r5	c11/r5	c12/r5	c13/r5	c14/r5
c1/r6	c2/r6	c3/r6	c4/r6	c5/r6	c6/r6	c7/r6	c8/r6	c9/r6	c10/r6	c11/r6	c12/r6	c13/r6	c14/r6
c1/r7	c2/r7	c3/r7	c4/r7	c5/r7	c6/r7	c7/r7	c8/r7	c9/r7	c10/r7	c11/r7	c12/r7	c13/r7	c14/r7
c1/r8	c2/r8	c3/r8	c4/r8	c5/r8	c6/r8	c7/r8	c8/r8	c9/r8	c10/r8	c11/r8	c12/r8	c13/r8	c14/r8
c1/r9	c2/r9	c3/r9	c4/r9	c5/r9	c6/r9	c7/r9	c8/r9	c9/r9	c10/r9	c11/r9	c12/r9	c13/r9	c14/r9
c1/r10	c2/r10	c3/r10	c4/r10	c5/r10	c6/r10	c7/r10	c8/r10	c9/r10	c10/r10	c11/r10	c12/r10	c13/r10	c14/r10
c1/r11	c2/r11	c3/r11	c4/r11	c5/r11	c6/r11	c7/r11	c8/r11	c9/r11	c10/r11	c11/r11	c12/r11	c13/r11	c14/r11

Input





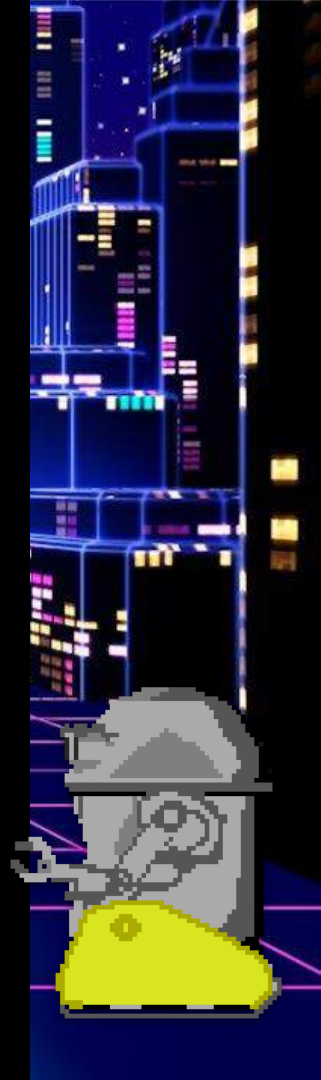
FMECloud - 1 kick-off job



FMECloud - 491 server jobs

Results

viewer.hris.tesera.com

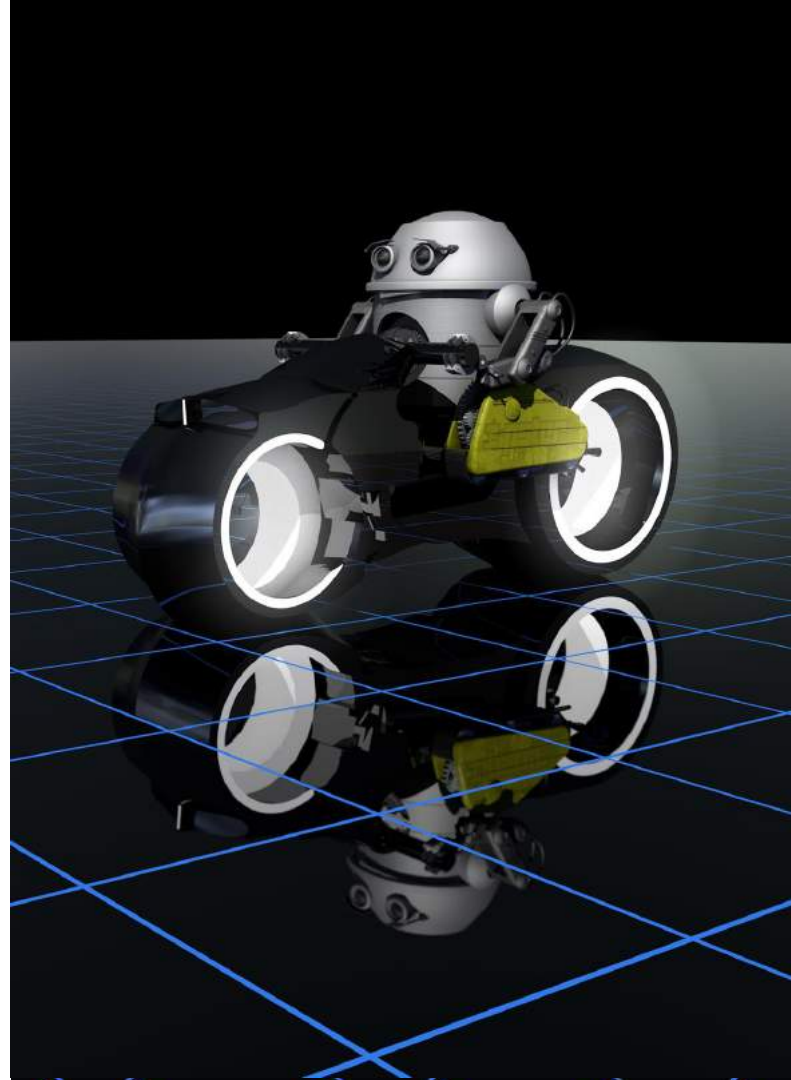


Benefits

- Tiling data is fundamental to automation
- FME Workspaces require only a few parameter adjustments for each client
- FMECloud provides scalability

Tip

- BoundingBoxReplacer: 3rd party data
- SpatialRelator: project tile with 3rd party BB
- Process by project tile
- WebMapTiler: static raster tiles
- AWS S3: storing & serving static raster tiles
- Can't wait for vector tiles in FME





“FME Cloud is a critical tool for orchestrating and running our integration processes.”

- Michael Kieser, Tesera Systems



Objectives

Visualize properties for the design & feasibility phase of railway construction.

- Create geospatial representations of land access agreements.

Challenges

- Integrate an Excel register of land access agreements with GIS land parcel data.
- Agreements may contain multiple land parcels.
- Program covers three states with unique cadastral identifiers.



Solution

START

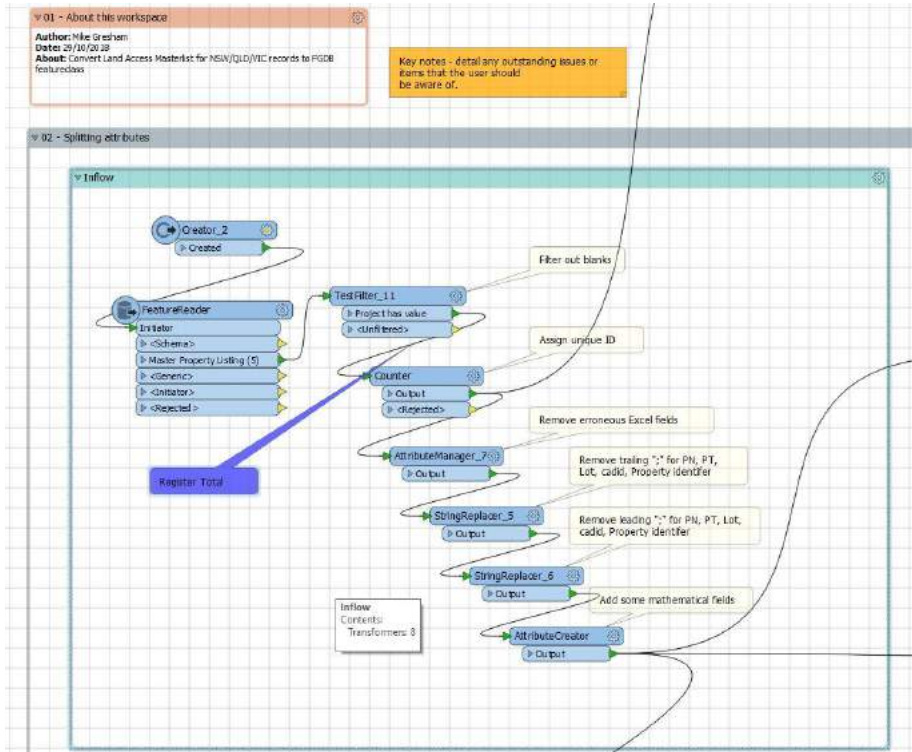
Excel Land Agreements
+
GIS Land Parcels



FME Workspace
Split, join, cache,
and validate land
agreement data

FINISH

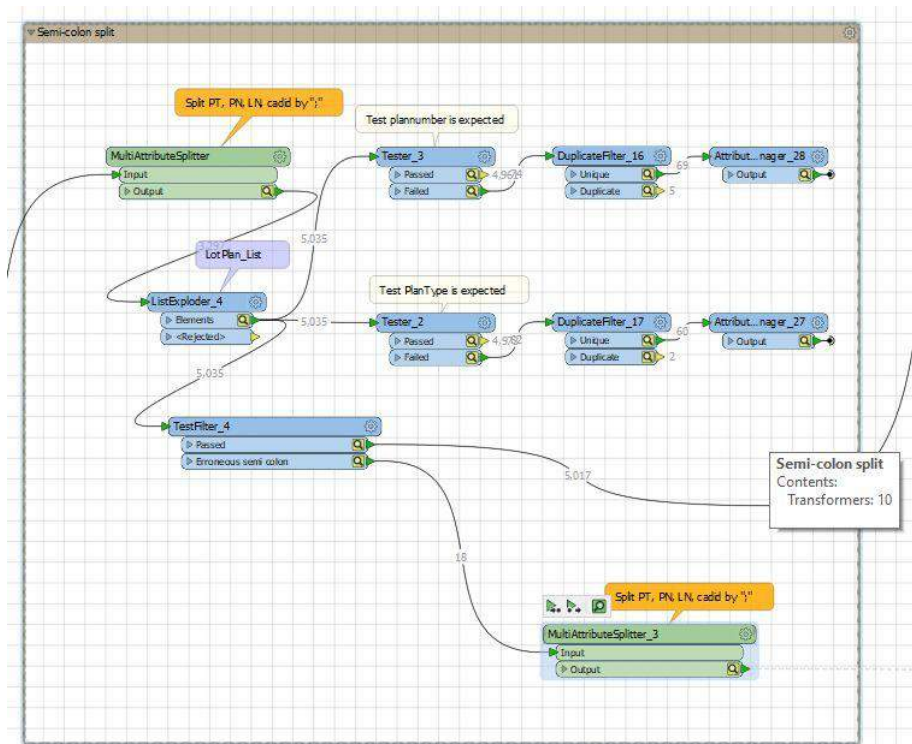
Comprehensive
GIS Layer

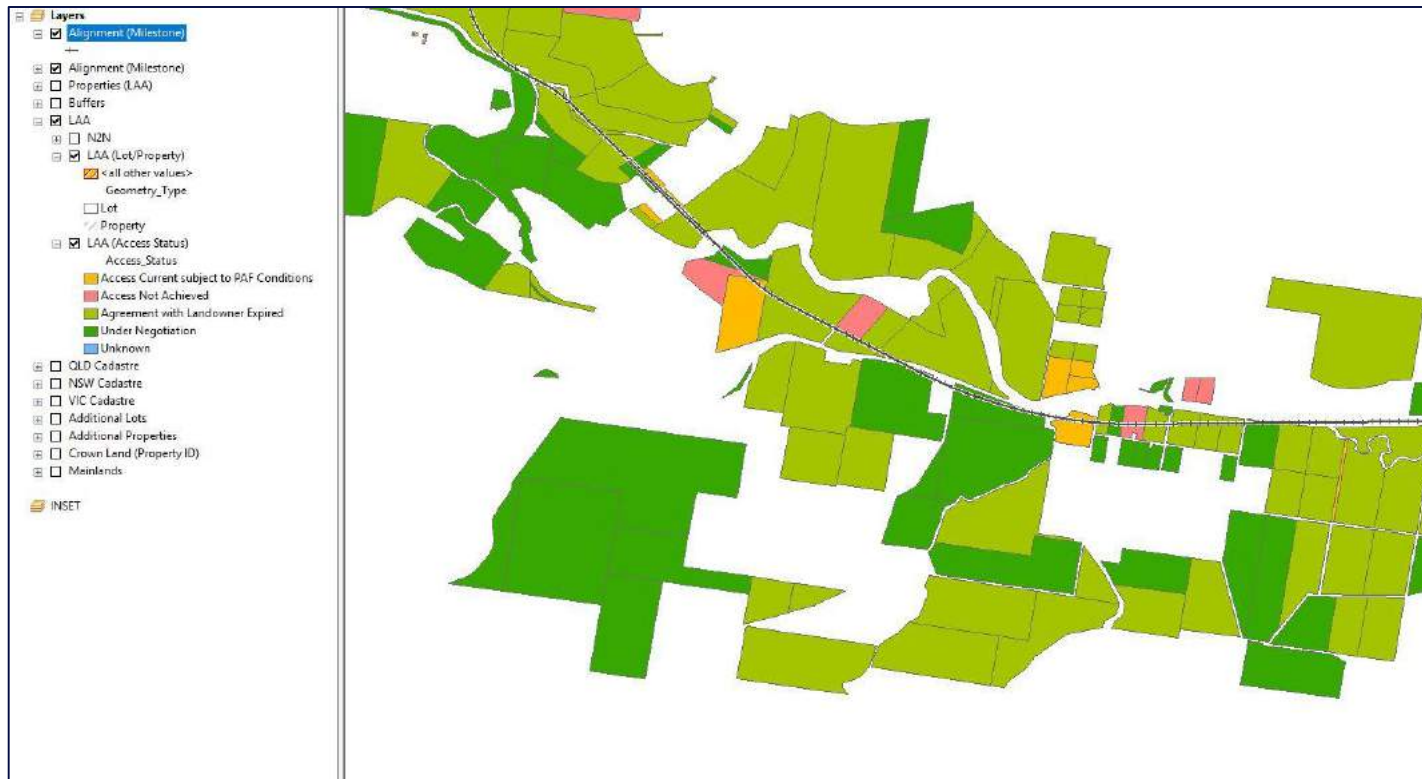


FME Workspace



FME Workspace

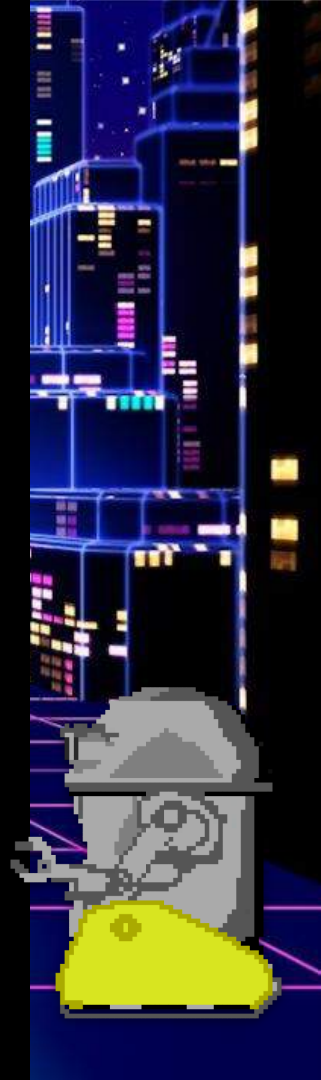




Output Data

Results

- Visualization of properties and related access agreements.
- Lowers risk of trespassing.
- Ensures amicable relationships with land owners.



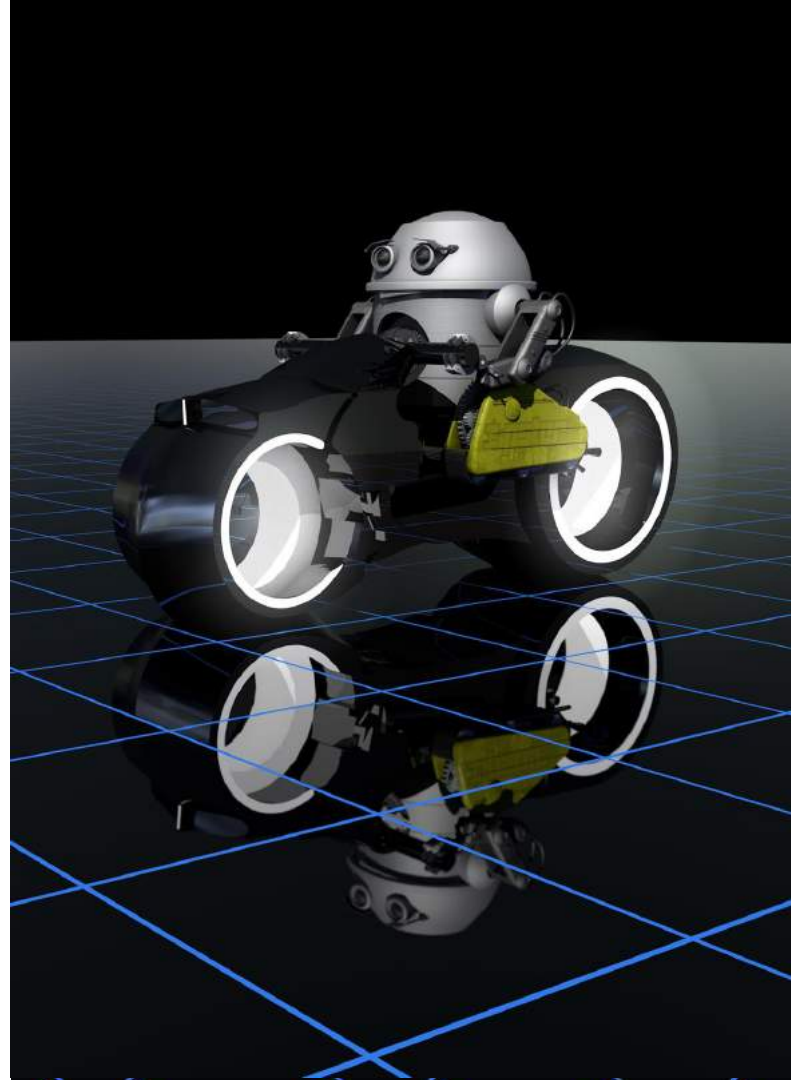


Benefits

- Ordinary GIS software would not have been able to accomplish this process.
- Automated daily updates.

Tip

- Take time to understand FME's unique capabilities, how they work, and how they contribute to the end result.



A stylized, wireframe cityscape at night. The buildings are rendered as glowing blue and purple outlines against a dark blue sky with a few stars. The foreground is a grid of glowing purple lines on a dark blue surface, creating a perspective effect. The overall aesthetic is futuristic and digital.

“FME produced a result where mainstream GIS software couldn’t without the use of scripting.”

- **Mike Gresham, ARTC**



Plains Midstream Canada

Patrick Cheng, Canada



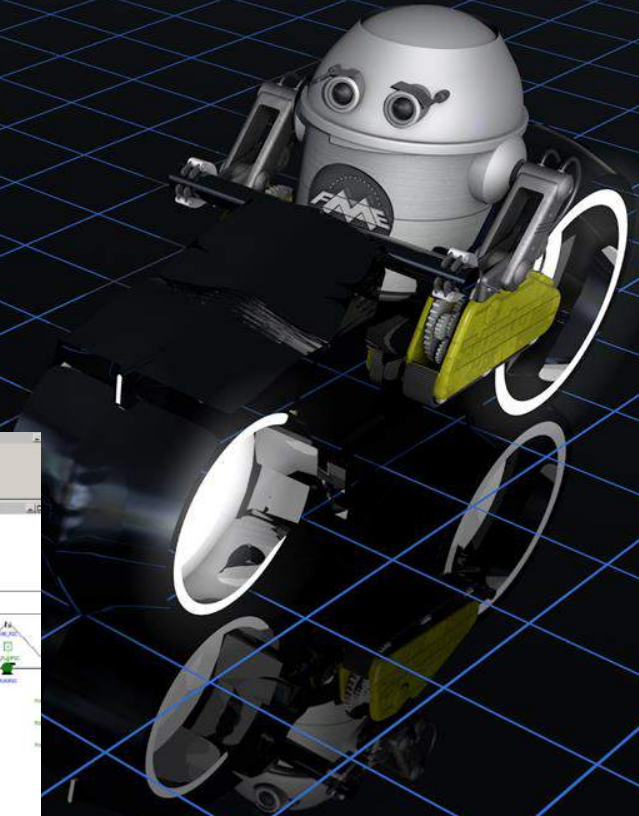
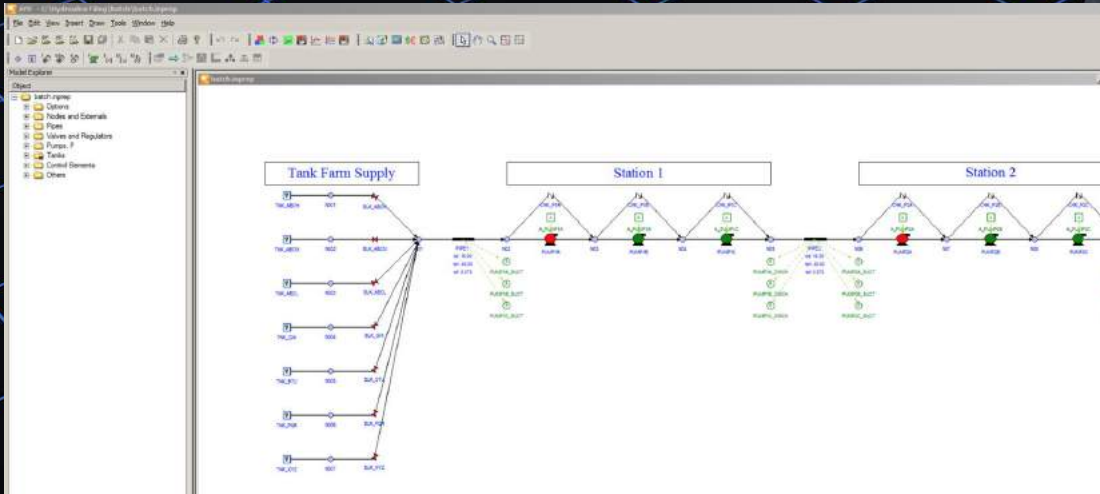
Objectives

Create models for simulating fluid in pipelines.

- Automate data integration for pipeline design, optimization, and leak detection.
- Keep up-to-date with business demands of using hydraulic profiling/pressure models.

Challenge

Automate a previously month-long model creation process.



Solution

START

GIS spatial data
+
PODS attribute data



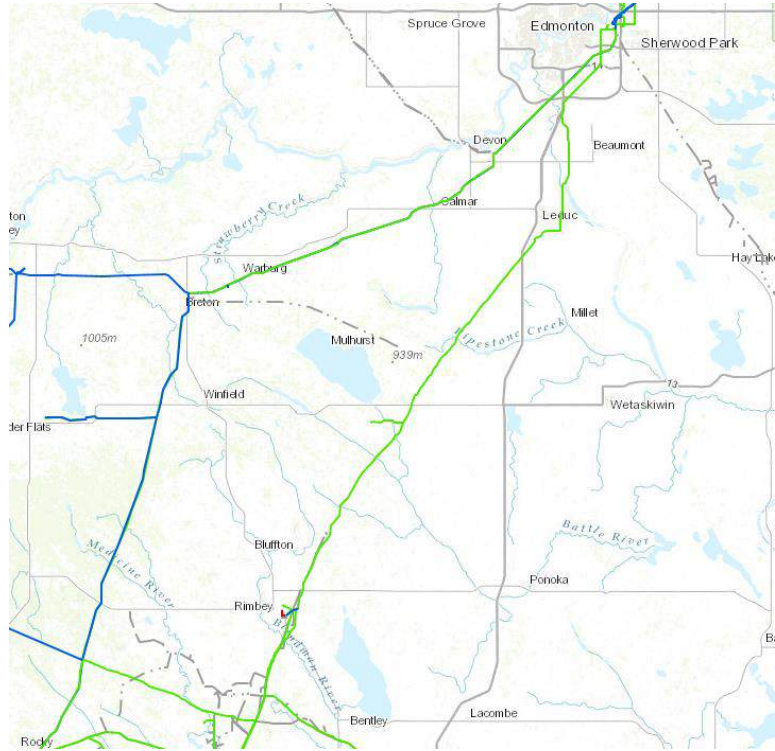
FME Workflow

Integrate data and
convert into a text-
based format

FINISH

SPS

Fully functioning system



Input

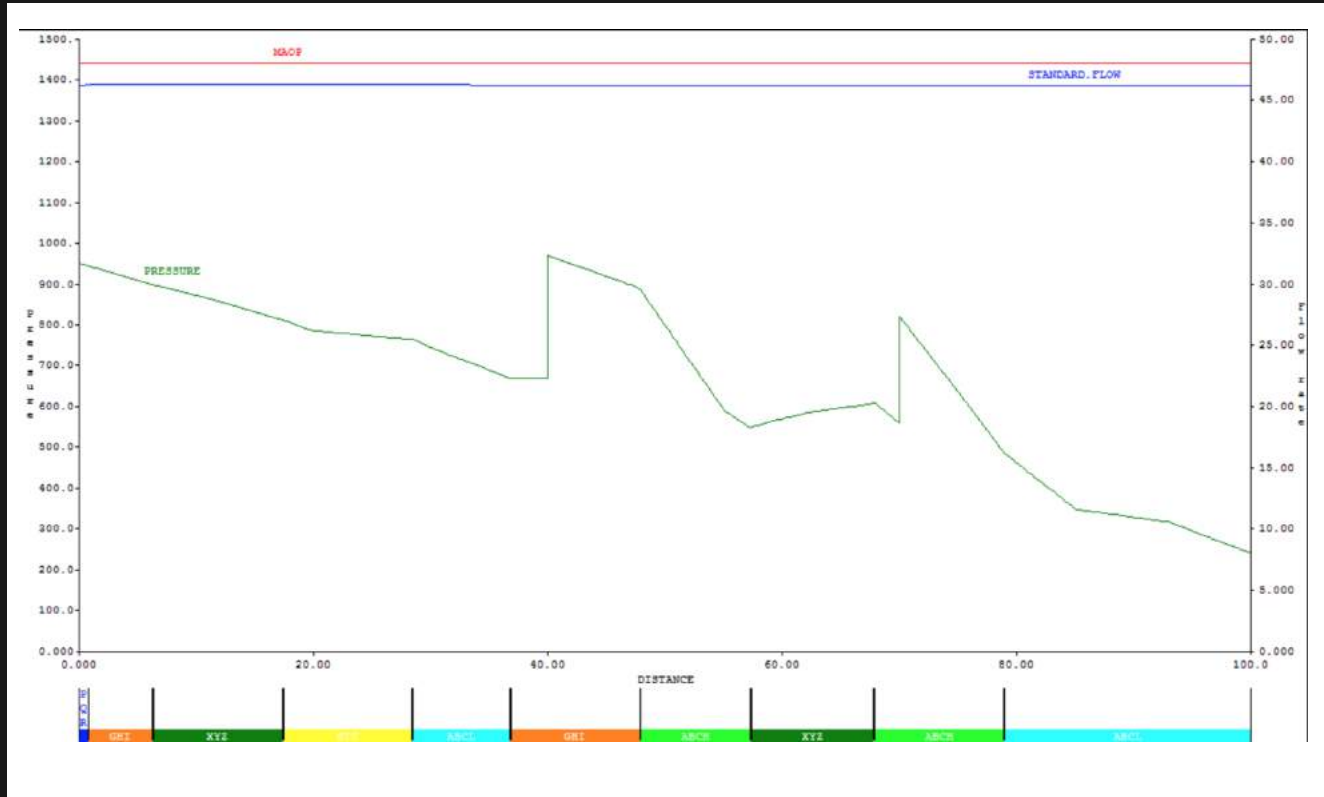



```
=LIQUID
=TRANSTHERMAL

DEFUNITS MICROM = IN / 3.93701e-05
DEFUNITS GPM-PSI.5 = MB/D-PSI.5 / 0.0342857
DEFUNITS USG/MIN-PSI.5 = MB/D-PSI.5 / 0.03428634
DEFUNITS MPAA = PSIA / 6894.735
DEFUNITS MM3/H = MB/D / 6624.469
DEFUNITS MPAA_ = PSIA / 0.0001450382
DEFUNITS MM3/H_ = MB/D / 0.0001509555
DEFUNITS MPA = PSIA / 145.0382
DEFUNITS DTYW = HP / 1.341093
DEFUNITS HCD = BTU/HR-FT-DF / 577.8213
DEFUNITS HTSF = PSI-FT/SEC-DF / 0.2643652
DEFUNITS KCAL/M3 = BTU/FT3 / 0.1123275
DEFUNITS GALLON = MB / 42000
DEFUNITS #/HR = MB/D / 0.0002777778
DEFUNITS MPH = FT/S / 5280
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DEFUNITS YARD = IN / 36
DEFUNITS YRD = IN / 36
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DEFUNITS GPH = MB/D / 0.0005714286
DEFUNITS GPD = MB/D / 2.380952e-05
DEFUNITS GAL = MB / 2.380952e-05
DEFUNITS MCF = MB / 0.1781077
DEFUNITS NN = MB/D / 1509.55
DEFUNITS NN1 = MAB/D / 1509.55
DEFUNITS T/D = LBM/S / 0.0255165
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DEFUNITS W/M2-DC = PSI-FT/SEC-DF / 0.0002643652
DEFUNITS -KW = HP / 1.341093
DEFUNITS CMPS = MB/D / 0.001840136
DEFUNITS MM3/D = MB/D / 62.89811
DEFUNITS MPAG = ( PSIA - 14.696 ) / 145.0383
DEFUNITS MM3/H = MB/D / 150.9555
DEFUNITS MW = HP / 1341.022
DEFUNITS YIM3/YEAR = MB/D / 1797.087
DEFUNITS NN_ = MB/D / 62.89811
DEFUNITS NN1_ = MAB/D / 62.89811
DEFUNITS MPA_ = ( PSIA - 14.696 ) / 145.0383
DEFUNITS WF/D = MB/D / 62.89811
DEFUNITS YF/A = MB/D / 1723.408
DEFUNITS MPAA_ = PSIA / 145.0382
DEFUNITS MM3/H = MB/D / 1509.555
DEFUNITS LI = IN / 19685.04
DEFUNITS LBM/H = LBM/S / 0.0002777778
DEFUNITS MPAA__ = PSIA / 6894.735
DEFUNITS MPAA___ = PSIA / 0.0001450382
DEFUNITS MPA___ = PSIA / 145.0382
```

Output



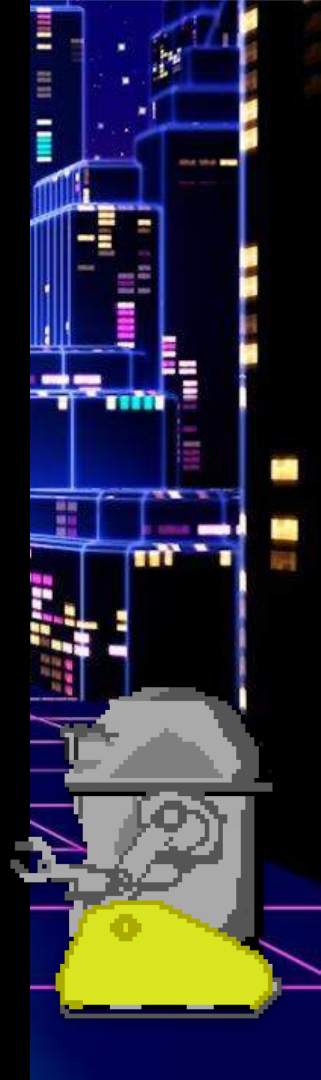


Output



Results

- A fully functioning system replaces models.
- 1 month of effort has been reduced to 1-2 hours.



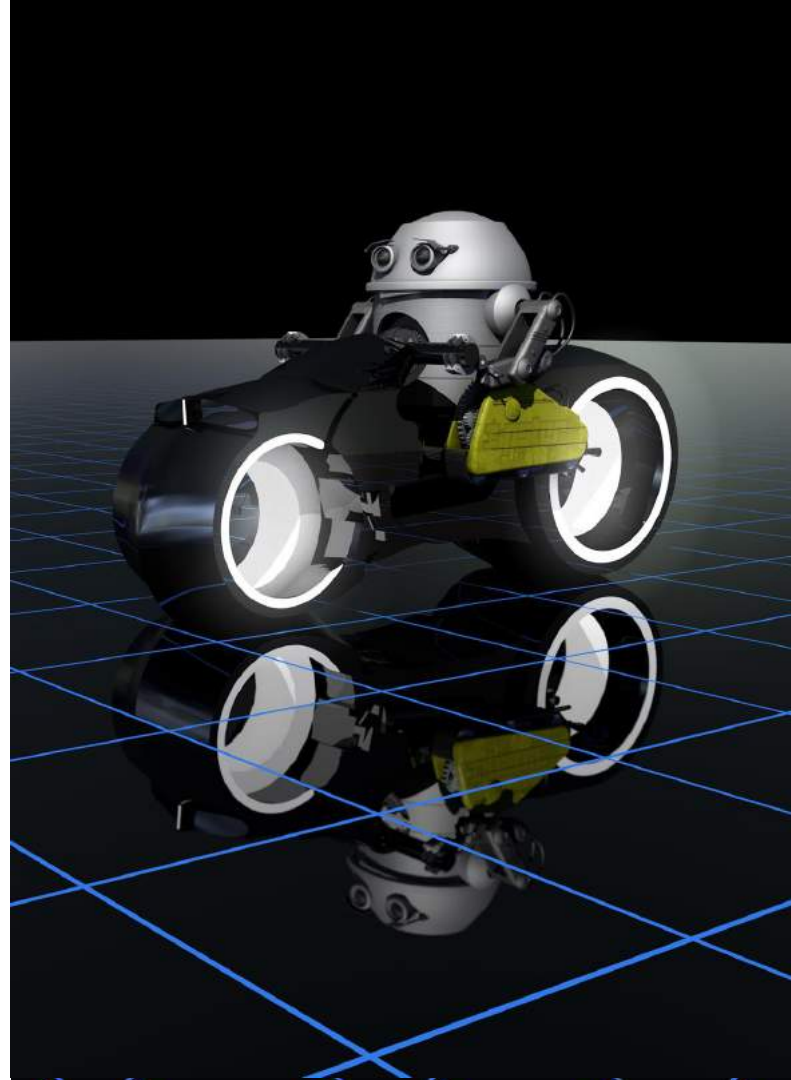


Benefits

- Increased standardization and accuracy of pipeline attributes.
- Automation of model creation.
- Time is saved to free up resources and staff workload.

Tips

- ListBuilder, Sorter, and Concatenator are helpful for creating multiline attributes.
- ExpressionEvaluator is helpful for creating scaling factors.
- StringConcatenator is helpful for generating script syntax.





“I have definitely seen a much greater scope of functionality for FME that is not limited to just GIS data.”

- Patrick Cheng, Plains Midstream Canada



GHD

Steven Cyphers, California, USA



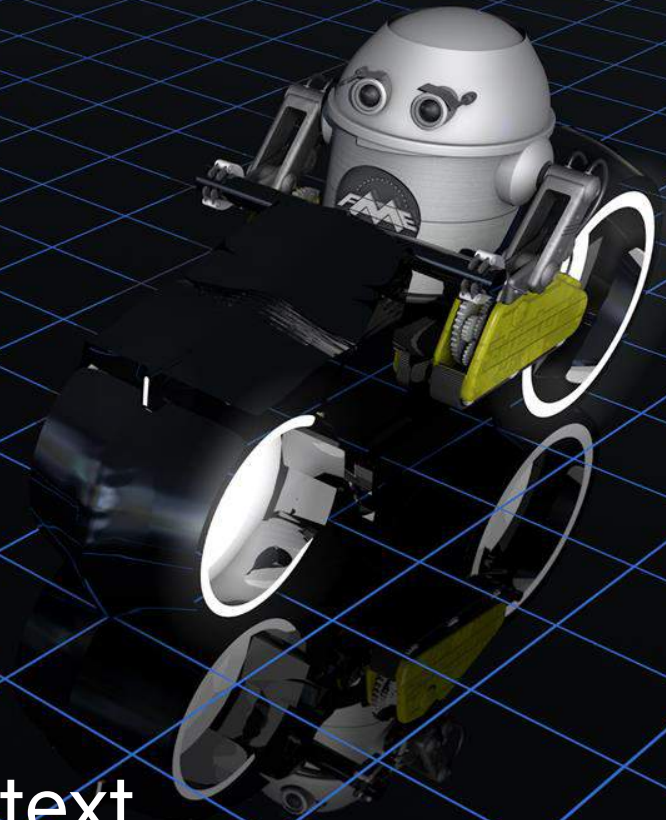
Objectives

Gather business intelligence from monetary data.

- Analyze company spending for abnormalities.
- Find investment diversification opportunities.

Challenges

- Large data volumes. Must extract relevant data from 21 million filings (450 GB).
- Cleaning, formatting, and categorizing unstructured text.



Solution

START

EDGAR Files

Pull filings from the web via API.



FME Workspace

Pull, retrieve, aggregate, & apply machine learning.

FINISH

Data Collation

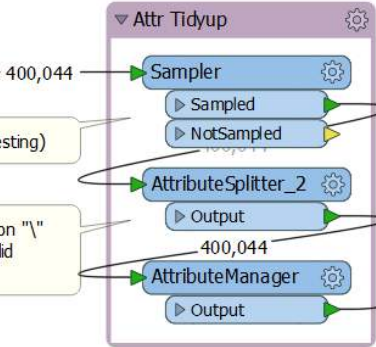
Put into SAP HANA for further BI tasks.

AMAZON COM INC	10-Q	1018724	2018-10-26	edgar/data/1018724/0001018724-18-000159.txt
AMAZON COM INC	4	1018724	2018-10-31	edgar/data/1018724/0001018724-18-000165.txt
AMAZON COM INC	4	1018724	2018-10-31	edgar/data/1018724/0001018724-18-000166.txt
AMAZON COM INC	4	1018724	2018-10-31	edgar/data/1018724/0001018724-18-000167.txt
AMAZON COM INC	4	1018724	2018-11-06	edgar/data/1018724/0001018724-18-000169.txt
AMAZON COM INC	4	1018724	2018-11-16	edgar/data/1018724/0001018724-18-000171.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000183.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000184.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000185.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000186.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000187.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000188.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000189.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000190.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000191.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000192.txt
AMAZON COM INC	4	1018724	2018-11-19	edgar/data/1018724/0001018724-18-000193.txt
AMAZON COM INC	4	1018724	2018-11-21	edgar/data/1018724/0001018724-18-000196.txt
AMAZON COM INC	4	1018724	2018-11-21	edgar/data/1018724/0001018724-18-000197.txt
AMAZON COM INC	4	1018724	2018-11-30	edgar/data/1018724/0001018724-18-000200.txt
AMAZON COM INC	8-K	1018724	2018-10-25	edgar/data/1018724/0001018724-18-000157.txt
AMAZON COM INC	CORRESP	1018724	2018-10-12	edgar/data/1018724/0001018724-18-000155.txt
AMAZON COM INC	IRANNOIICE	1018724	2018-10-26	edgar/data/1018724/0001018724-18-000161.txt
AMAZON COM INC	UPLOAD	1018724	2018-10-01	edgar/data/1018724/0000000000-18-030959.txt
AMAZON COM INC	UPLOAD	1018724	2018-10-24	edgar/data/1018724/0000000000-18-033312.txt

Input



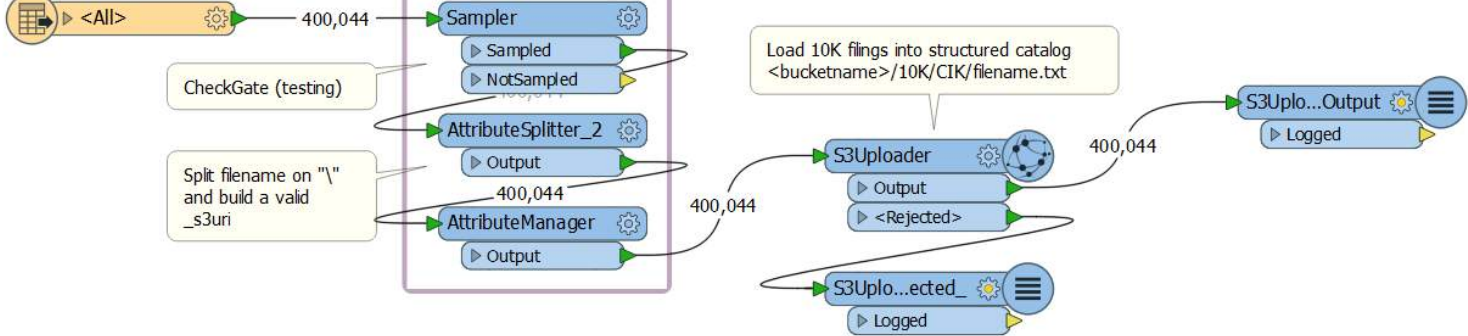
FilePath Reader,
file properties = Yes
subfolders = Yes
type = file , *.txt



CheckGate (testing)

Split filename on "\"
and build a valid
_s3uri

Load 10K flings into structured catalog
<bucketname>/10K/CIK/filename.txt

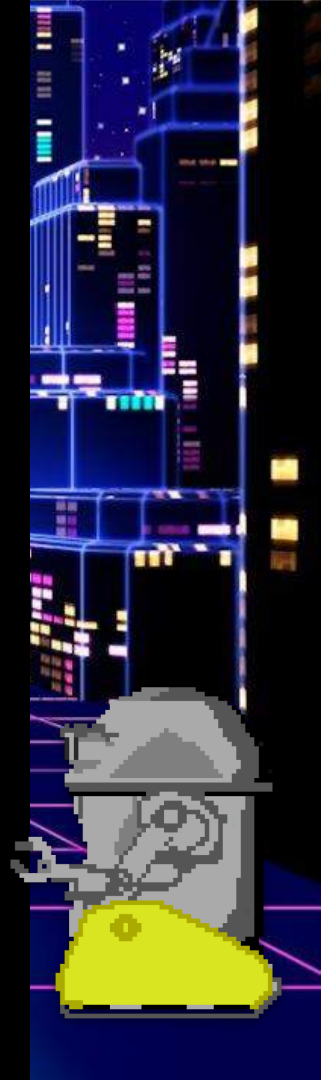


FME Workspace

Results

Data is in SAP HANA for business intelligence:

- Financial data collation.
- Keywords are flagged for further exploration.





Benefits

- Gathered publicly available data and derived business intelligence for a competitive edge.

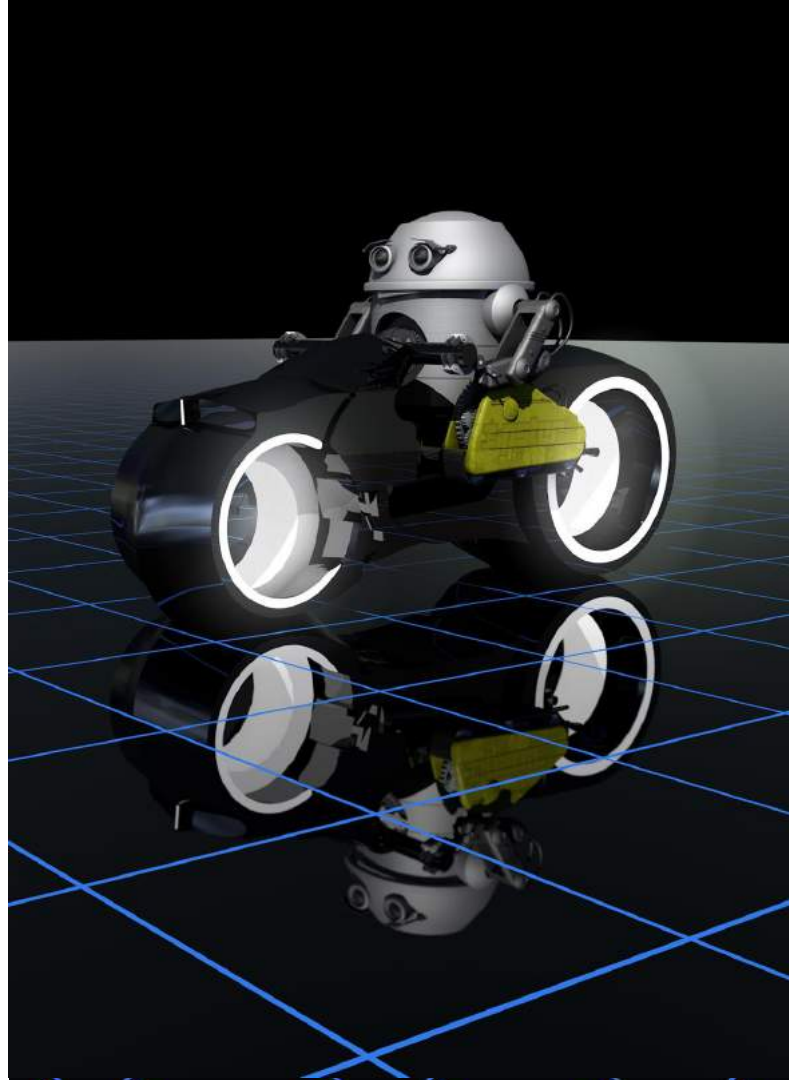


“I would never want to tackle this with just Python, Spark or AWS Glue. I use FME for everything.”

- Steven Cyphers, GHD

Tip

AttributeManager + HTTPCaller
are your BFFs for building APIs.





Santa Clara County

Steven Hong, California, USA

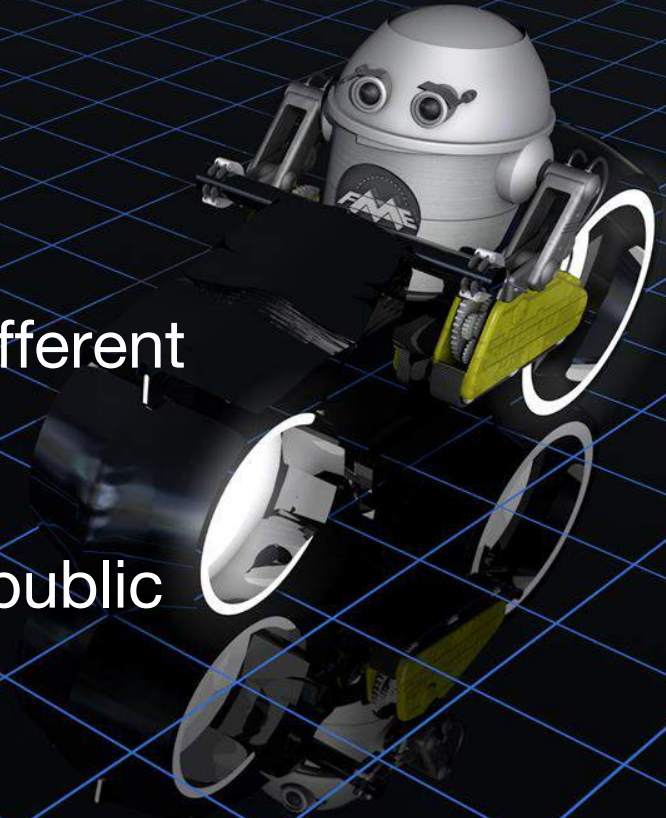


Objectives

- Improve the call location accuracy and response time for 911 dispatch system.
- Empower cities to become data stewards and contribute addresses on a regular basis.

Challenges

- Aggregate and standardize 15 different city data schemas.
- Supplement data schemas with public safety layers.



Solution

START

15 unique
city datasets



FME Workflow

Transform the data into
standardized schemas

FINISH

Aggregated
address datasets:
RAM + RAMPS

Assessor Address Points



PRE- RAMPS



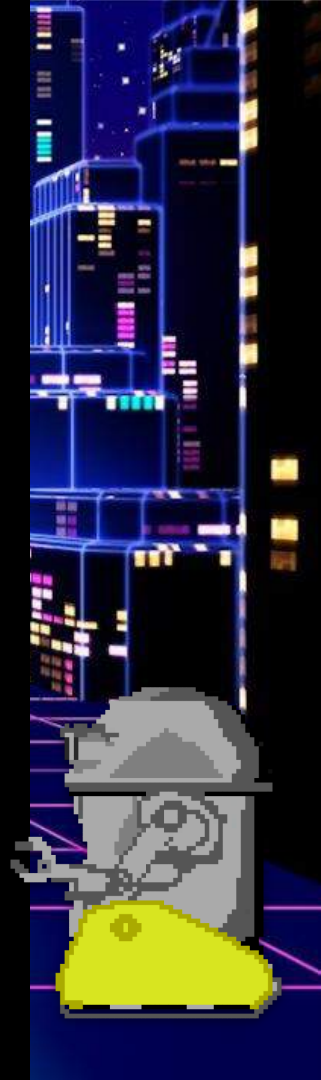
City-sourced Address Points



RAM/RAMPS

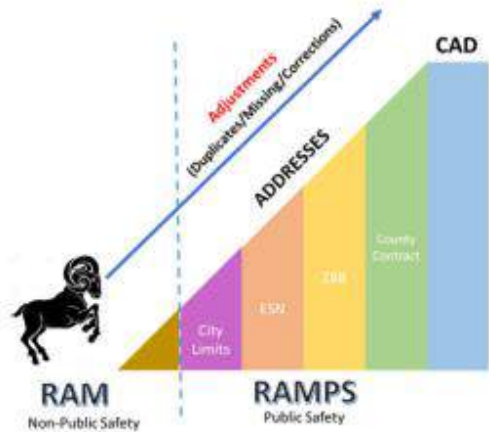
Results

- Cities are empowered to contribute accurate addresses to a county-wide aggregation.
- Project completed on time.



Results

50% increase in number of addresses available to 911 operators



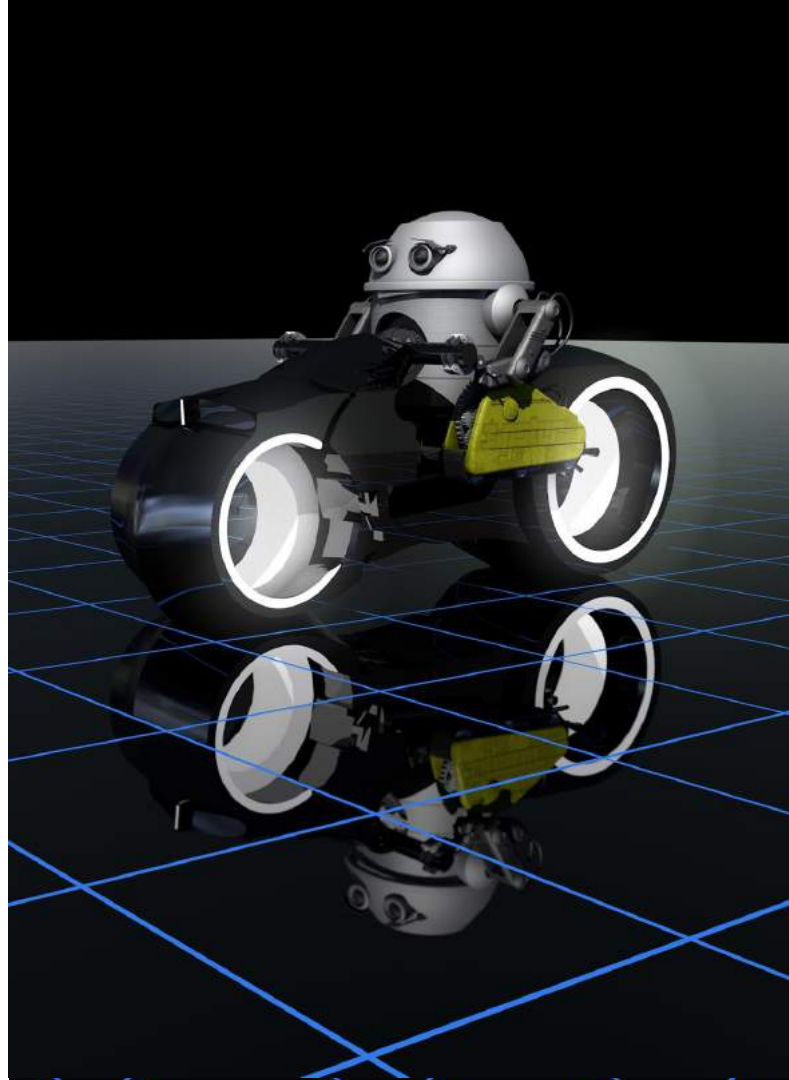


Benefits

- Allowed for fast, iterative changes to workflows as new data was discovered.
- Flexibility means being prepared for future changes.

Tip

- DuplicateFilter helps identify duplicate data points (a great help for a 911 dispatcher working with addresses)





“FME’s ability to generate multiple formats within the same workflow is a huge timesaver.”

- Steven Hong, County of Santa Clara



Abley

Todd Davis, New Zealand



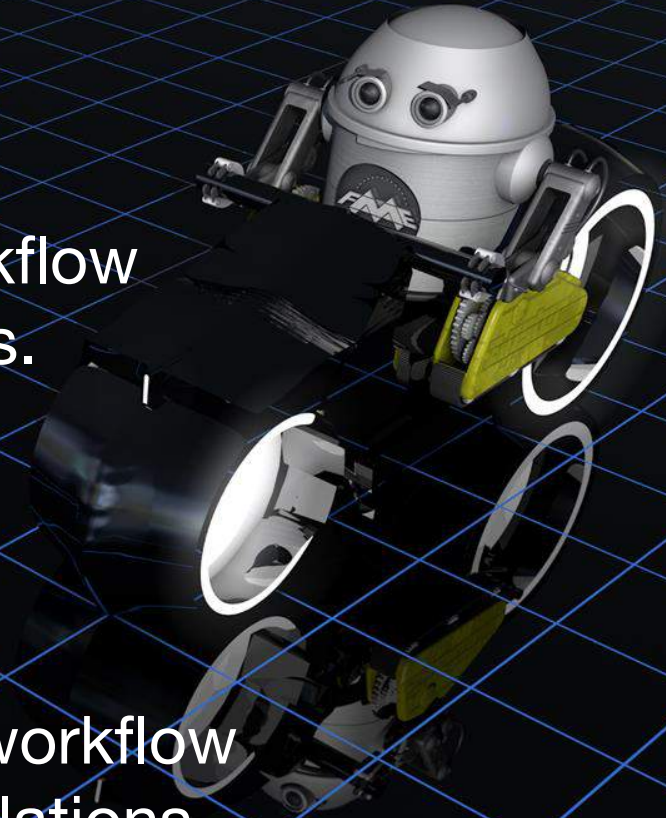
Objectives

Improve road safety with a new *Safe View* product.

- Analyze roads and calculate overtaking visibility and limitations.
- Scalable, automated process.

Challenges

- Developing a methodology. Workflow allows for varying input/scenarios.
- Handling large data volumes of high-accuracy LiDAR.
- Building an optimised, scalable workflow that can perform billions of calculations quickly and accurately.



Solution

START

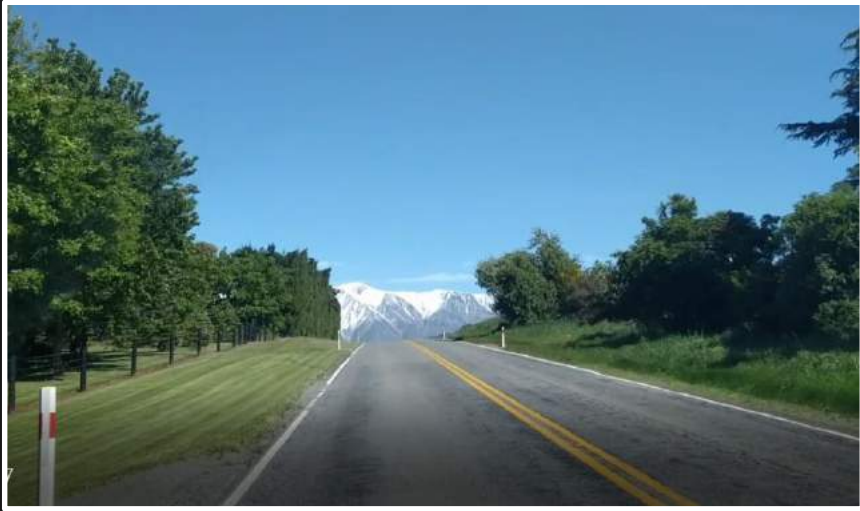
Road Centerline
Digital Surface Model/
LiDAR



FME Workspace
Integrate datasets,
calculate visibility

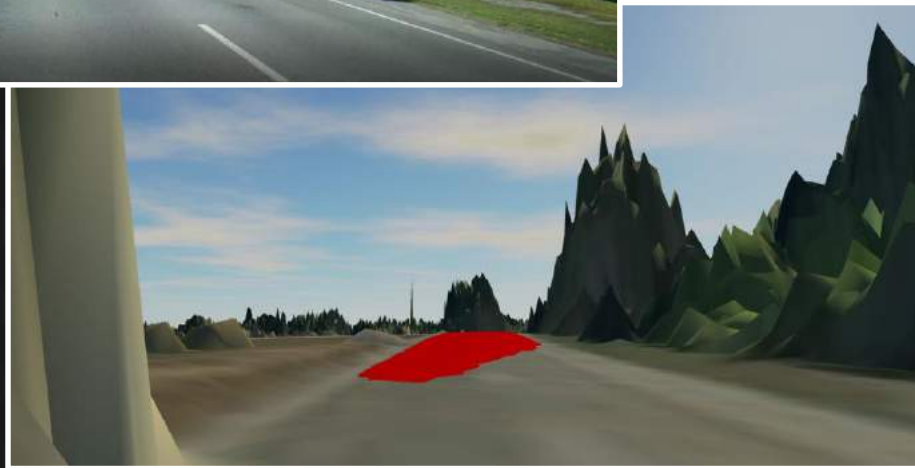
FINISH

Visibility
Obstruction
Dataset



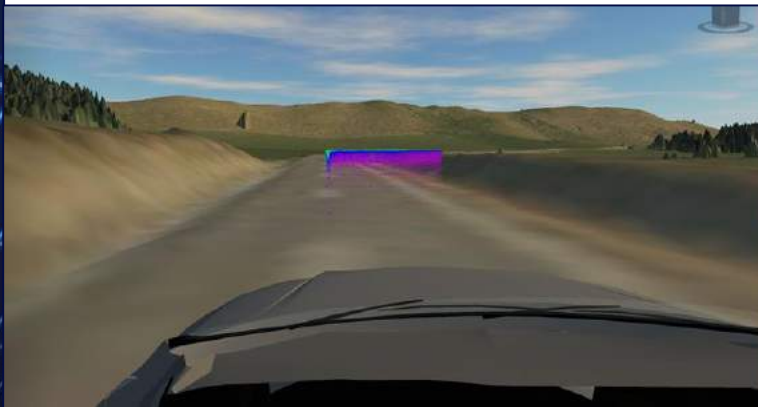
Output



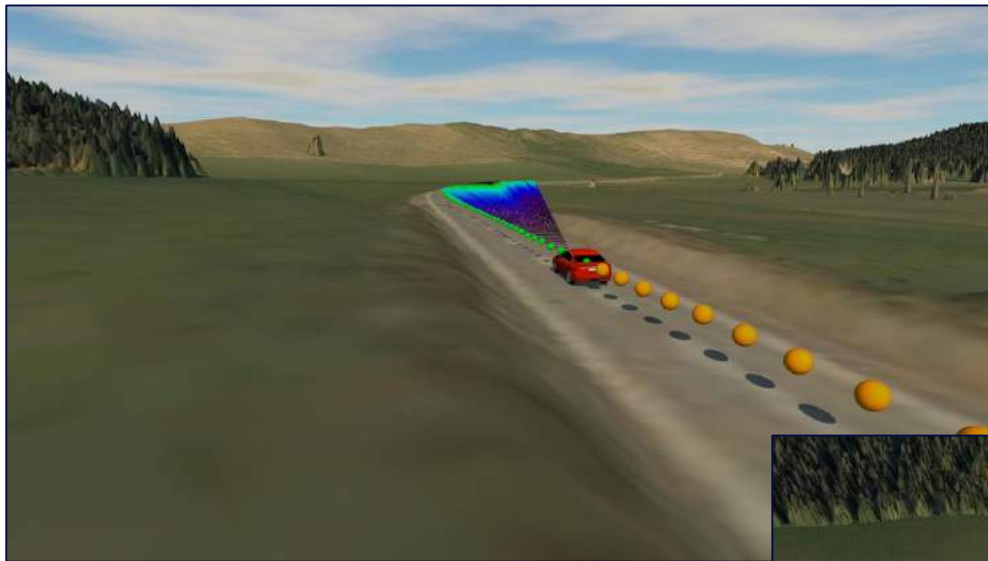


Output

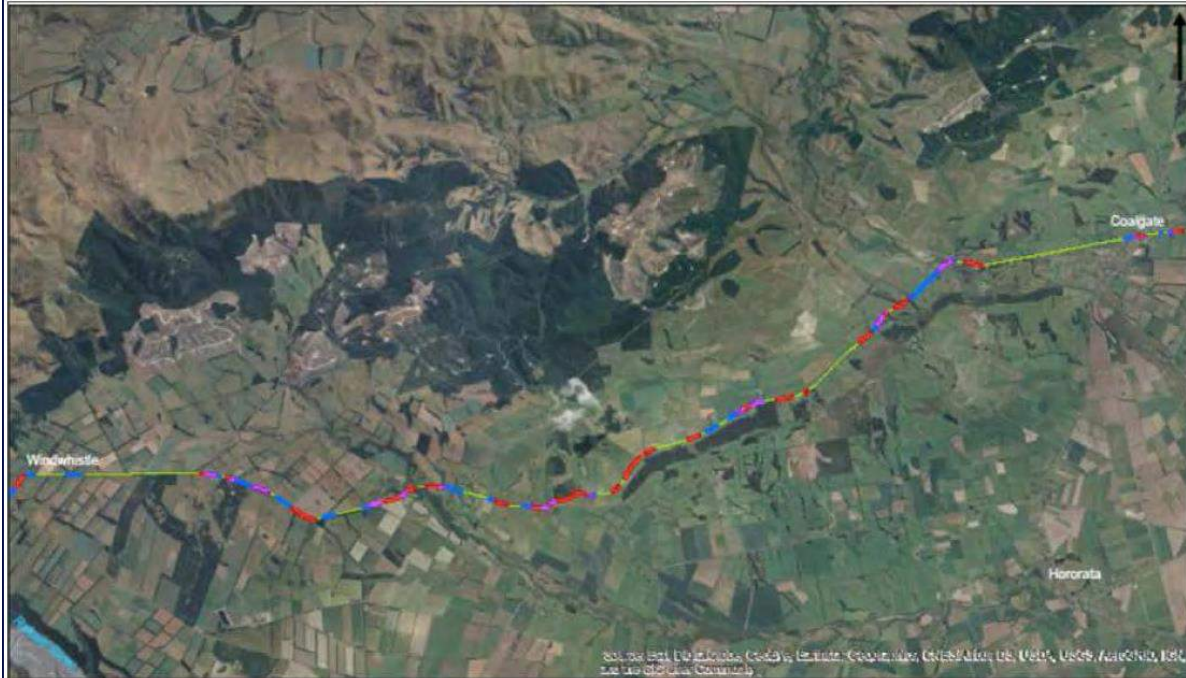




Output



Output



Reverse Direction

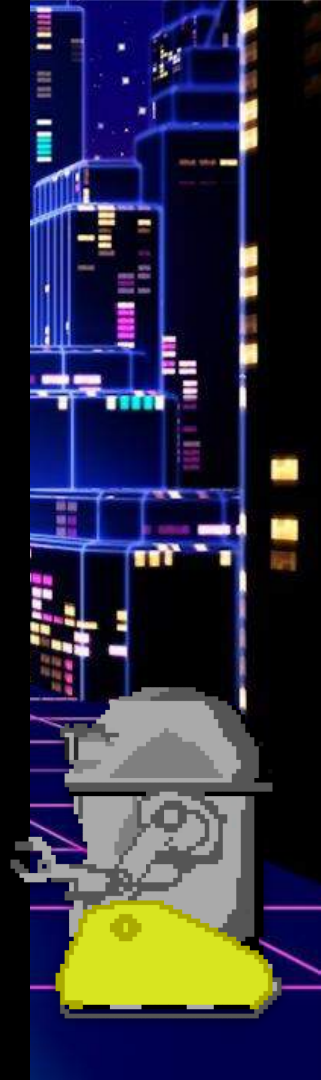
- Vertical Curves
- Surroundings
- Both
- 330 m line of sight achieved



Output

Results

- Safe View was field validated and accepted as accurate by the New Zealand Transport Agency.
- Scalable road safety product that can be utilised anywhere within the world.
- Enhanced existing road safety processes.

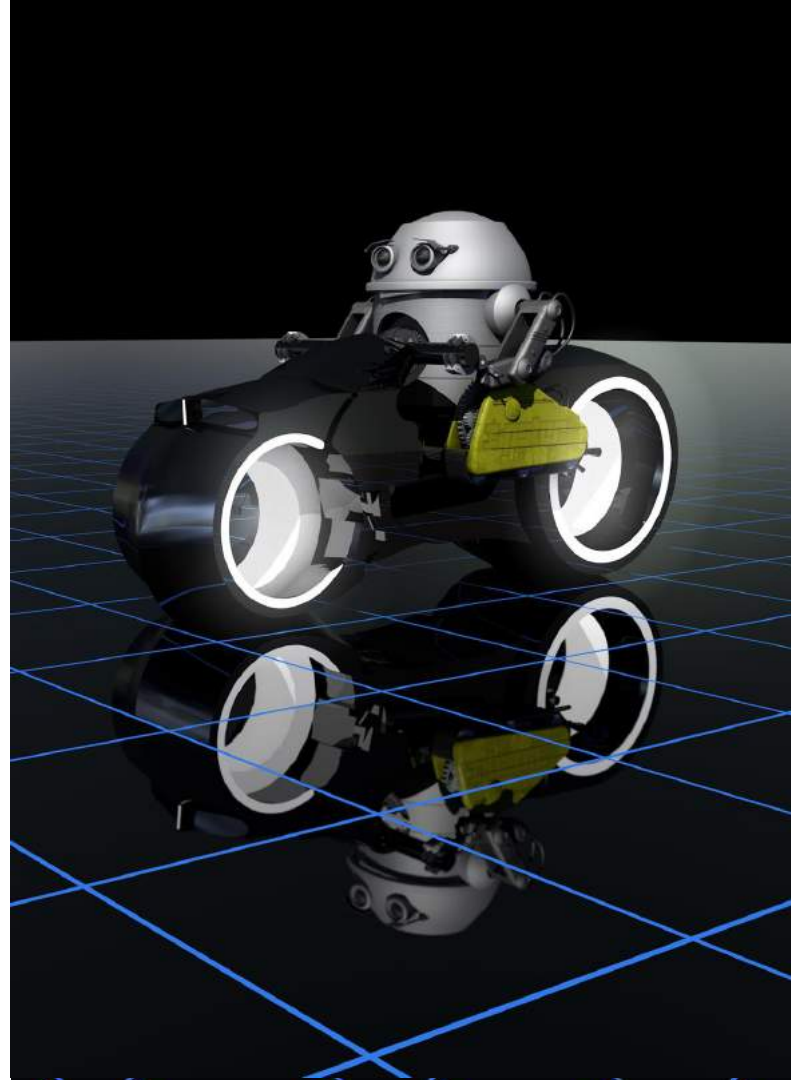


Benefits

- Allows roading authorities to have confidence in their placement of yellow “no overtaking” lines.
- Highlights area that can be considered for minor realignment, regrading, or vegetation management to create or extend overtaking opportunities.

Tip

- Point Cloud processing in FME is very fast.
- Point Clouds don't need to have geometry.
- Getting rid of attributes/components that aren't used will make your process run quicker.





“FME enabled us to add value to existing datasets, re-purposing and leveraging data that was already captured.”

- Todd Davis, Abley