



FME  
WORLD TOUR  
2019

# FME and Banana Shire Council Roads Re-segmentation Project

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# PRESENTATION AGENDA

- |   |                            |  |
|---|----------------------------|--|
| 1 | Project background         |  |
| 2 | Road Assets Review process |  |
| 3 | Data processing            |  |
| 4 | Final steps                |  |
|   |                            |  |
|   |                            |  |
|   |                            |  |
|   |                            |  |

START



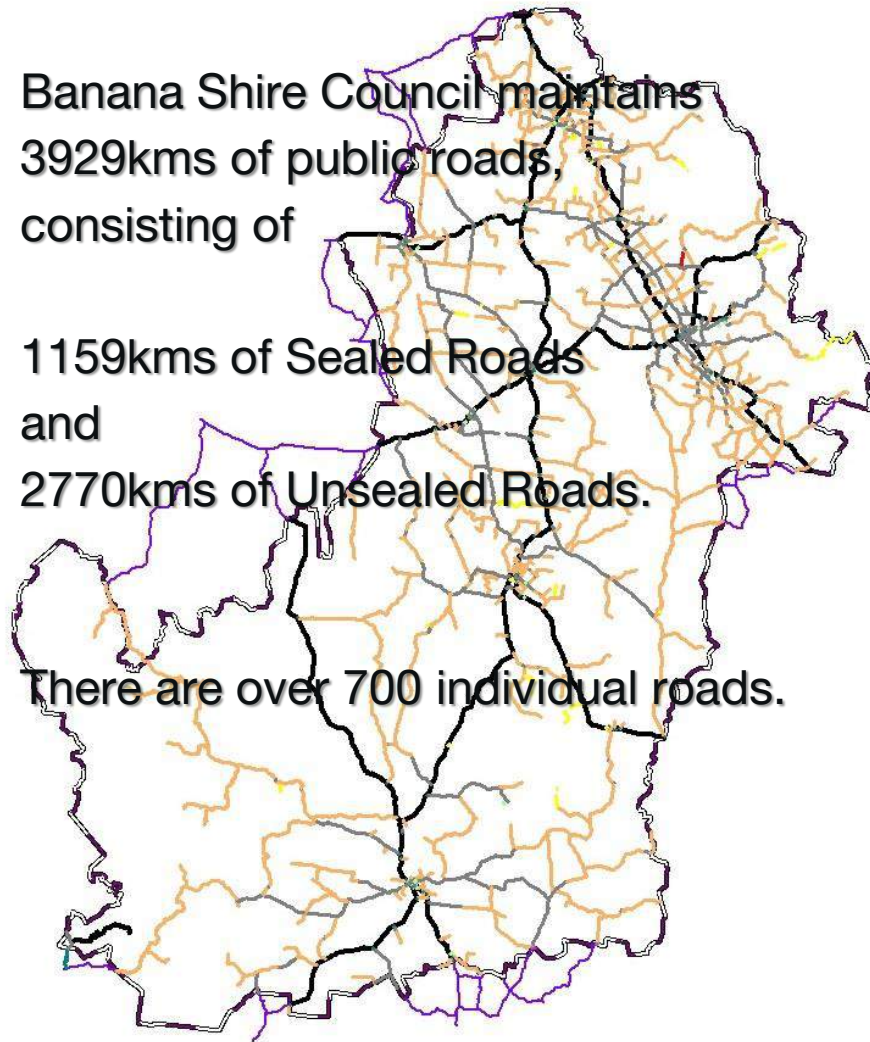
Project background



Banana Shire Council maintains  
3929kms of public roads,  
consisting of

1159kms of Sealed Roads  
and  
2770kms of Unsealed Roads.

There are over 700 individual roads.





Council is currently undertaking a revaluation of its road assets and as part of this process, the Asset Team has determined that the previous method of road segmentation was not a practical and sustainable method.

Each asset has a unique ID that is identical in Councils asset management system;  
Assetic MyData  
and  
in the GIS MapInfo table.



Assetic myData - Roads

File Edit Reports Tools Data Integration Asset Register Strategic Maintenance Planning Help

Template

Assetic

Asset Register

Search

Roads

Asset ID Asset Name

Asset ID: RD-11\_1 Zone: Copy Asset URL

Timeline: Current Create Archive

Summary Inventory Attributes Traffic Count Condition Fair Value Documents Photos Risk Management Associated Assets Maintenance Planning Treatments Contacts Assessments

Inventory

Asset Class	Transport
Asset ID	RD-11_1
Asset Name	Annamaroo Road - 0 - 2680
Asset Sub Class	Rural
Asset Sub Type	Rural Access Road
Asset Type	Unsealed Road
Financial Class	Roads and Drainage
Financial Sub Class	Roads
Locality	Taroom
Segment/Group Name	RD-11 - Annamaroo Road
Suburb	
Zone	

Map

Legend

- Sealed
- Unsealed
- Unformed
- Current Segment
- Other

Asset ID: RD-11\_1

Road Name: Annamaroo Road

Locality: Taroom

Length: 2680m

Width: 3m

Date: 1/1/1/00

Start Point: 1 - 30

Banana Shire Council - Road Segments

Asset Name	Asset ID	Asset Category
ANNAMAROO ROAD	RD-11	Roads
Annamaroo Road - 1354	RD-11_0532-CUL	Culverts
Annamaroo Road - 0 - 2680	RD-11_1	Roads
Annamaroo Road Sign-124	RD-11_P-0012R-SH	Signs

Advanced Settings

Show Depressed Assets

Customise View Reset View

Refresh



Assetic Database Road example



Urban roads are currently reasonably well segmented, generally from intersection to intersection,

However,

Rural roads are currently segmented where there is a change in surface, eg. from sealed to unsealed.

Therefore current road segments can range from a length of 5ms up to 42kms.





Urban Roads example

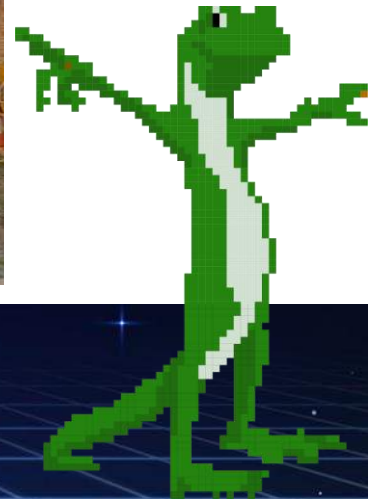






Over many years of capital renewal and upgrade work, the initial road segments had become fragmented, with the new segments being the exact size of the length of renewal activity applied, for example, a 5km single road segment could now have had numerous sections of re-sheeting , resealing or rehabilitation applied and these could be ranging in length from 50m to the length of whatever was done, all requiring a new Asset ID.





Rural Roads maintenance examples



It has been determined that Council needs to develop a new process of planning, delivering and recording its Capital renewal and upgrade program in a realistic and sustainable way.

Therefore, the decision has been made to re-segment all roads to a specific length, and only plan, deliver and record work in multiples of these segments.





The segments need to be of a size that is financially manageable to deliver, for example, if a 380m section of a rural road has been identified as requiring a reseal, it is financially manageable to allocate funds for the 500m to be sealed, or if a 2.7km length of road is requiring a re-sheeting, then funds for 3km can be allocated.





The new segmentation rules adopted by the Asset Team are as follows:

In Urban areas, all road segments are to be 250m in length, or from intersection to intersection, and

In Rural areas, all road segments are to be 500m in length

These length rules are not hard and fast, especially in regards to roads segments that, due to processing, might be as small as 2m. These smaller segments are combined with the adjoining full length segment.

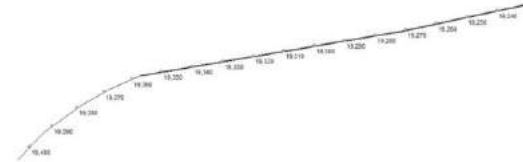




As well as the new segments, new road centre lines and new road chainage files, consisting of points at 10m and 100m intervals, were generated from the new segments.

Depending on the road location, for example, when intersecting with Highways and Roads maintained by State, a centre line can be longer than a road segment.





d example



Three FME workbenches are used to:

- First step: Generate the new road segments, at the required lengths, depending on whether an Urban or Rural road, and ensuring the sections of sealed/unsealed road along are road are maintained, and generate the new road centre lines
- Second step: Generate the two new chainage files from the new road centre lines
- Third step: Populate the road segment file start and end chainage attributes from the new 10m chainage file





All roads were processed individually, and reviewed at each step, as the original data contained issues, due to segment line mis-joins and vector line orientations, that impacted on the output.

Some roads could be overly complex with numerous sections of a Sealed road interspersed along an Unsealed road. A simple road would take as little as 15 minutes to apply all 3 steps, but complex roads with many different segments and various data issues could take up to 4 hours to complete.





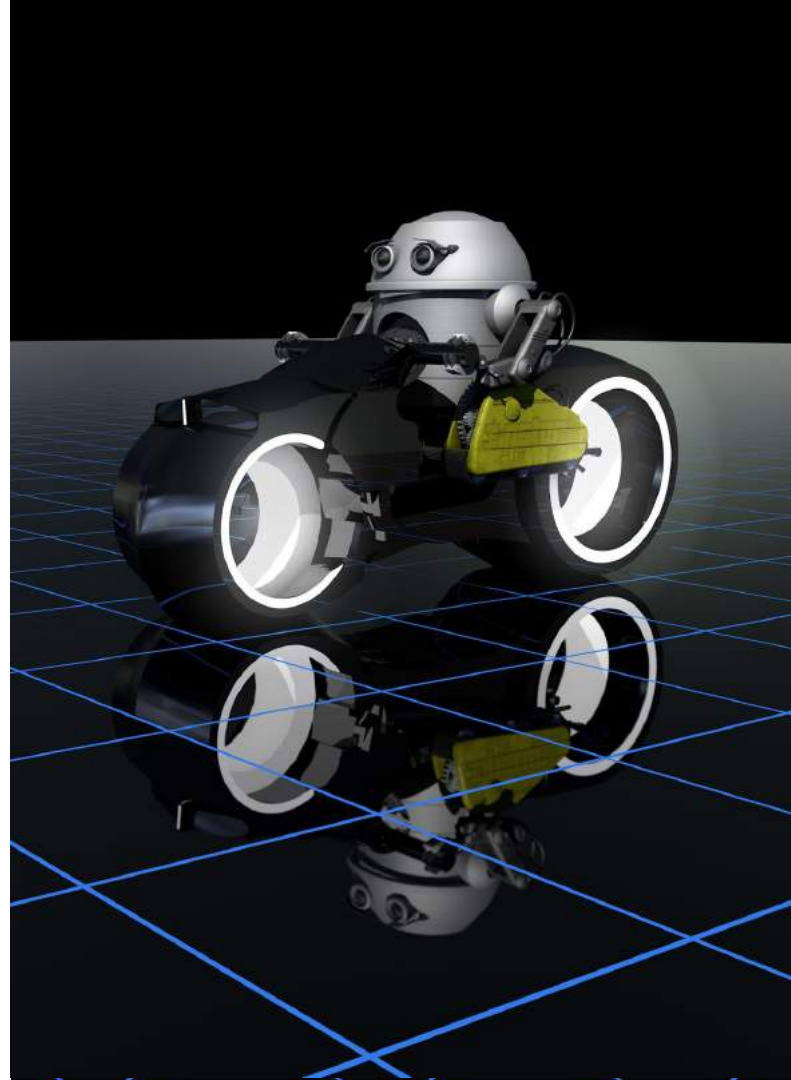
# Road assets review

# Spreadsheet input

Contains comments on each road from all the Works Coordinators responsible for the roads within their individual areas of maintenance,

comments on correct road start and end points, and

any issues around road names/road signs/chainage direction/rural addressing



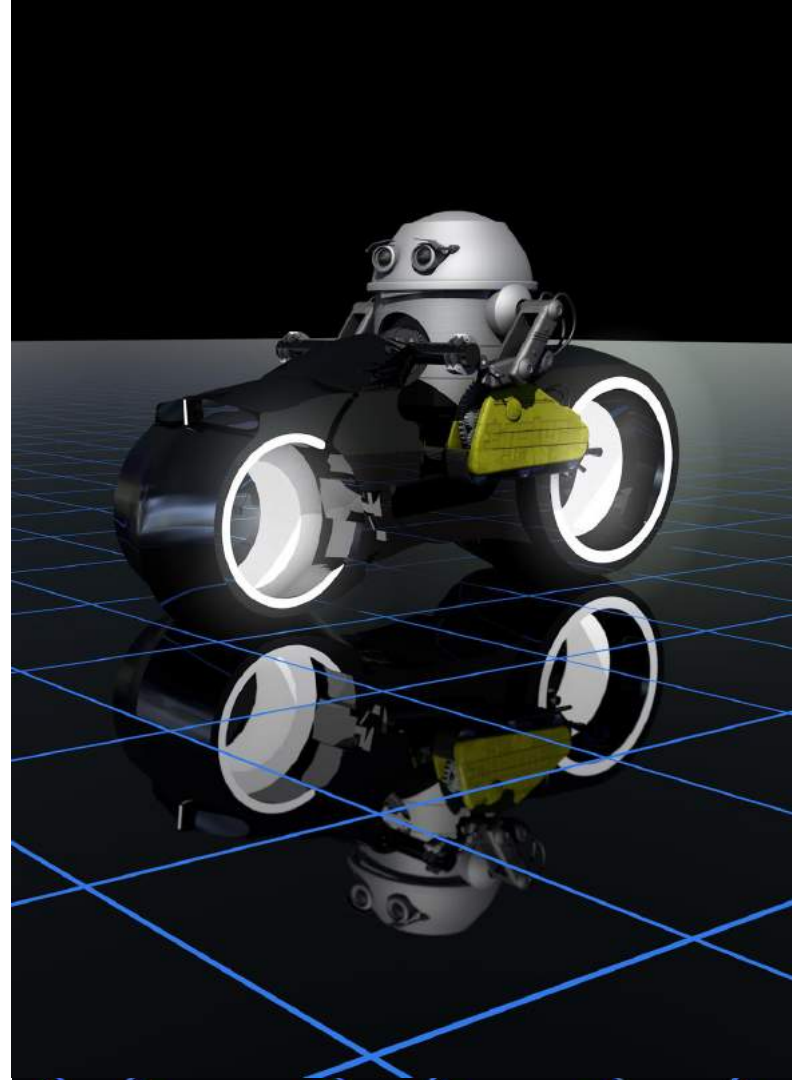
A pixelated green dinosaur, resembling a T-Rex, stands on a blue grid floor. It is holding a green stick with a red dot in its right hand. The dinosaur has a white belly and a small black eye. The background is a solid blue color.

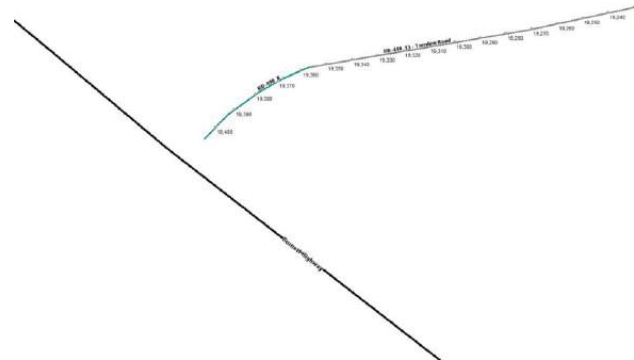
## Spreadsheet Asset review comments example

# Roads Vector data input

Reviewed by Asset Management Coordinator.

The working roads MapInfo Table data set edited to identify all road segments impacted by the demarcation rules adopted for Council controlled roads intersections with Transport and Main Roads (TMR) State controlled roads. This rule impacts where the chainages start and the different location for the start, and end in some cases, of the road centre lines and segments. In Urban areas, all roads were broken at each intersection as per the new rule





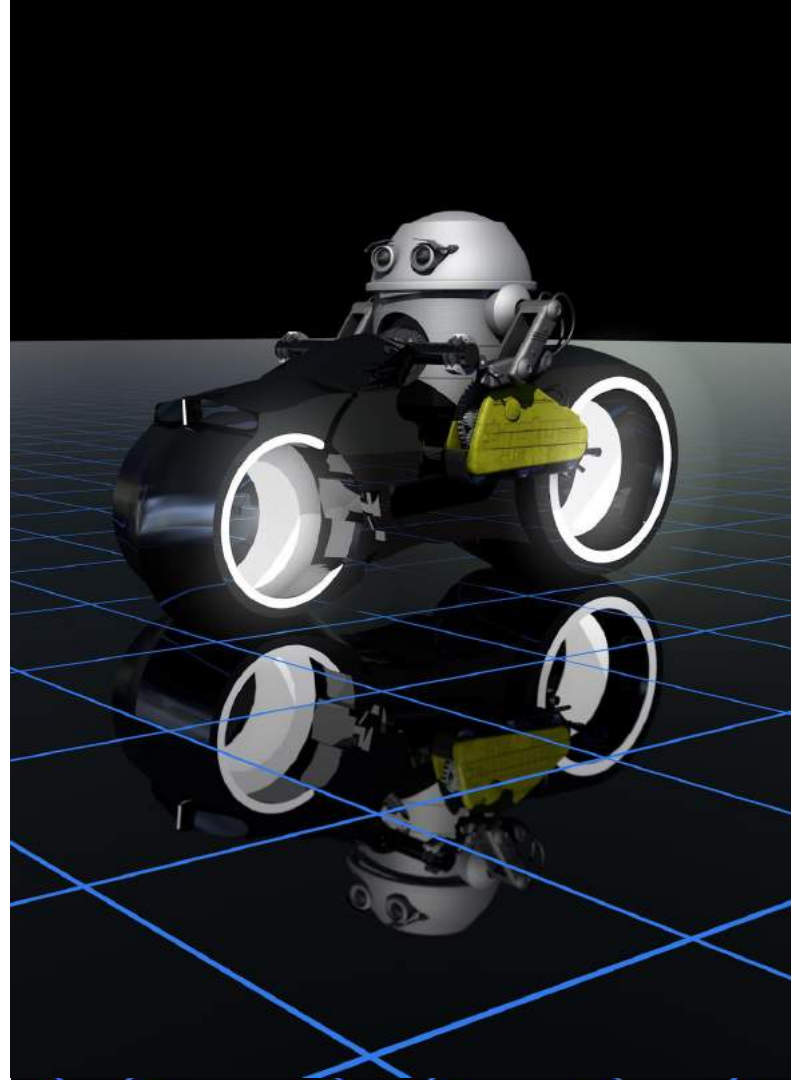
## Single road and road that continues through State Road

# New Asset ID format and Rules

- Adoption of new simpler Asset ID format
  - change from RD-2\_1 to RD2.1 and
- adoption of new road segment length sizes:

Rural roads - 500 metre segment lengths

Urban roads – Road intersection to intersection or 250 metre lengths



Info

Asset\_ID: RD-136\_2

Road\_Number: 136

Segment\_No: 2

Street\_Road: Doonays Road

Locality: GOODVIGENDOXALEA

Ownership: BSC

Description:

Assettype:

Rural\_Urban: R

Chge\_From: 8,339

Chge\_To: 10,065

Length: 1,776

Origin:

Sealed\_Unsealed: Unsealed

Sealttype: n/a

Sealwidth: 0.0

Sealdepth: 0.006

Sealdate:

Pavewidth: 5.0

PavedePTH: 0.100

Pavedate: 01/07/2003

Formwidth: 8.0

Formdate: 01/06/1988

Gravelpct: 1. > 80

Gravelpctd: 01/03/2014

Hierarchy: Rural Access Road

Subhierarchy: Access 3

Grantsclass: r1

Datasource: RACAS

Jobno:

LRRS:

AADT: 22

Speedeav: 0

Schoolbus:

Comments:

Glalink: Rd\_Segs - 867

Road\_No\_2:

<< >> List

rd\_segs\_WORKING\_2018OCT03

Info

Asset\_ID: RD136.19

Road\_Number: 136

Segment\_No: 19

Street\_Road: Doonays Road

Locality: DIXALEA

Ownership: BSC

Description:

Assettype:

Rural\_Urban: R

Chge\_From: 8,340

Chge\_To: 8,840

Length: 500.0

Origin:

Sealed\_Unsealed: Unsealed

Sealttype:

Sealwidth: 6.0

Sealdepth: -9.999.000

Sealdate:

Pavewidth: -9.999.0

PavedePTH: -9.999.000

Pavedate:

Formwidth: -9.999.0

Formdate:

Gravelpct:

Gravelpctd:

Hierarchy: Rural Access Road

Subhierarchy:

Grantsclass:

Datasource:

Jobno:

LRRS:

AADT: 0

Speedeav: 0

Schoolbus:

Comments:

Glalink:

Road\_No\_2:

UPDATED\_BY\_MR: Y

<< >> List

RD\_136\_UPDATE\_NEW\_RD\_SEG\_WITH\_



Old Asset ID format and New Asset ID format examples



Data processing



# Step 1

New segments  
and new centre  
lines

FME workbench generates new road segments, with relevant segment lengths as per the new rules, and

generates the new road centre line as per the corrected alignment from the review vector data

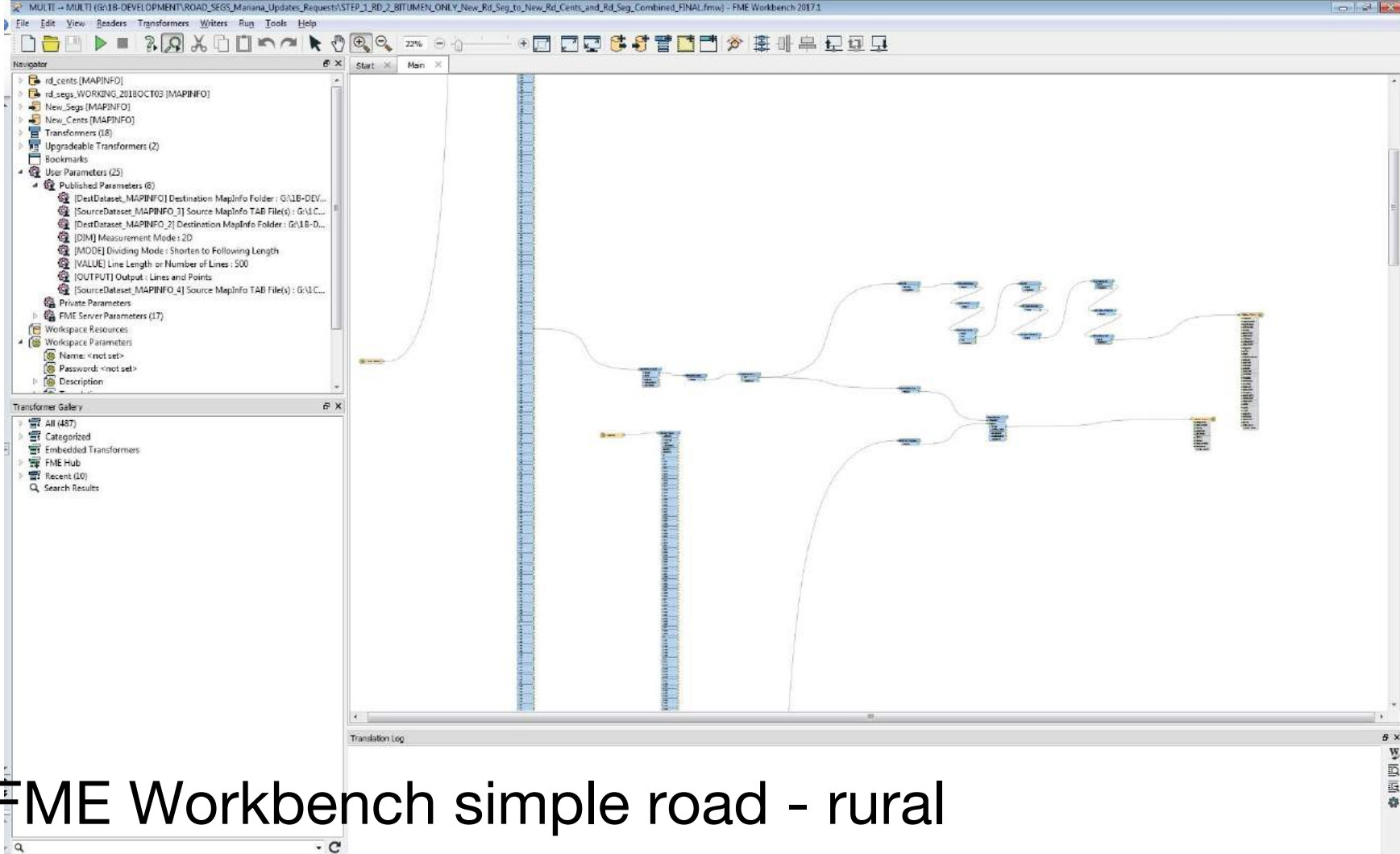


Step 1

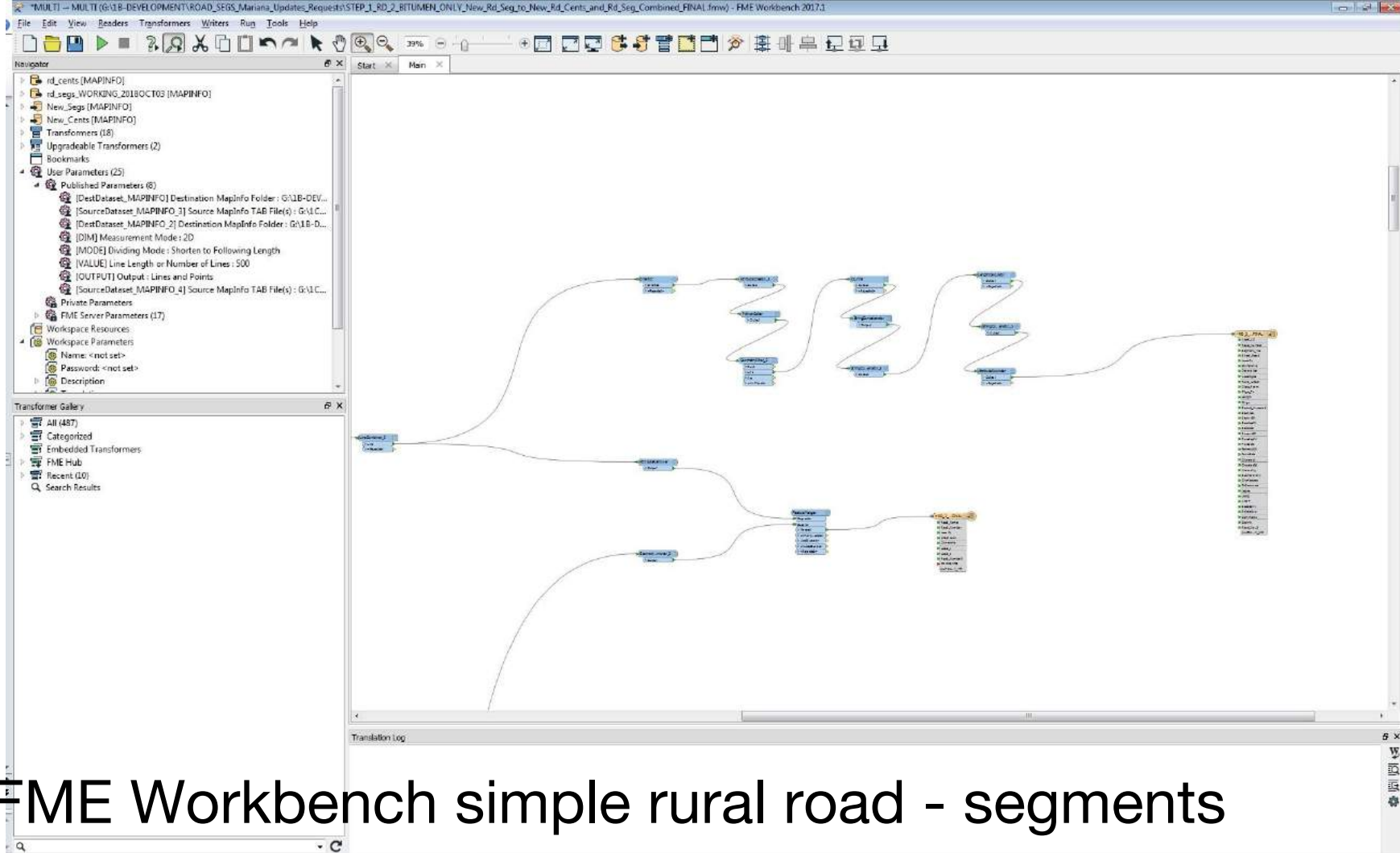
New segments  
and new centre  
lines

Uses two data sets for this process;

- the Road segments MapInfo Table with review additions as noted above, for the generation of the new road segments and the new road centre line, and
- the original Road centre lines MapInfo Table – source of attributes for the new centre line



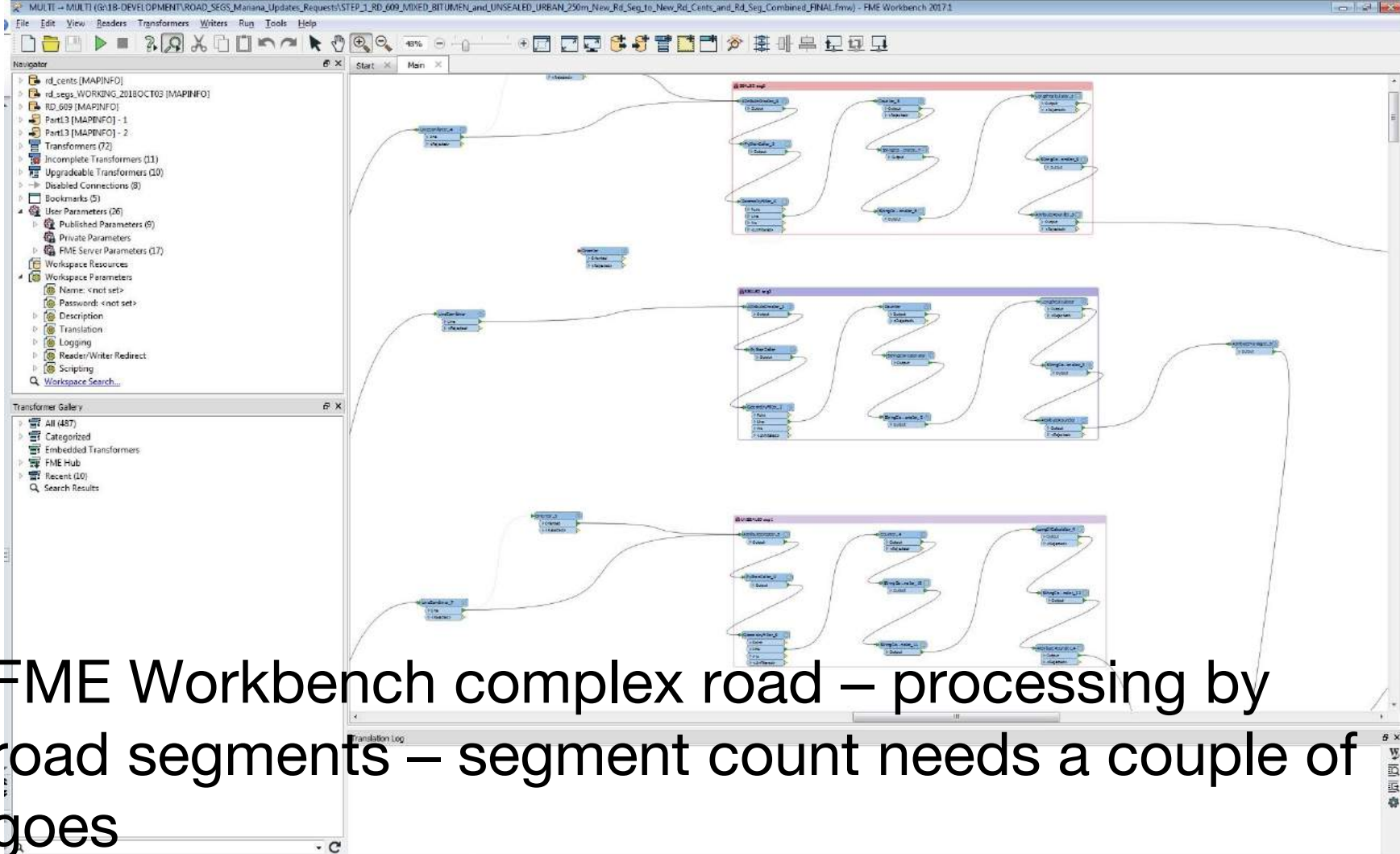
FME Workbench simple road - rural



FME Workbench simple rural road - segments







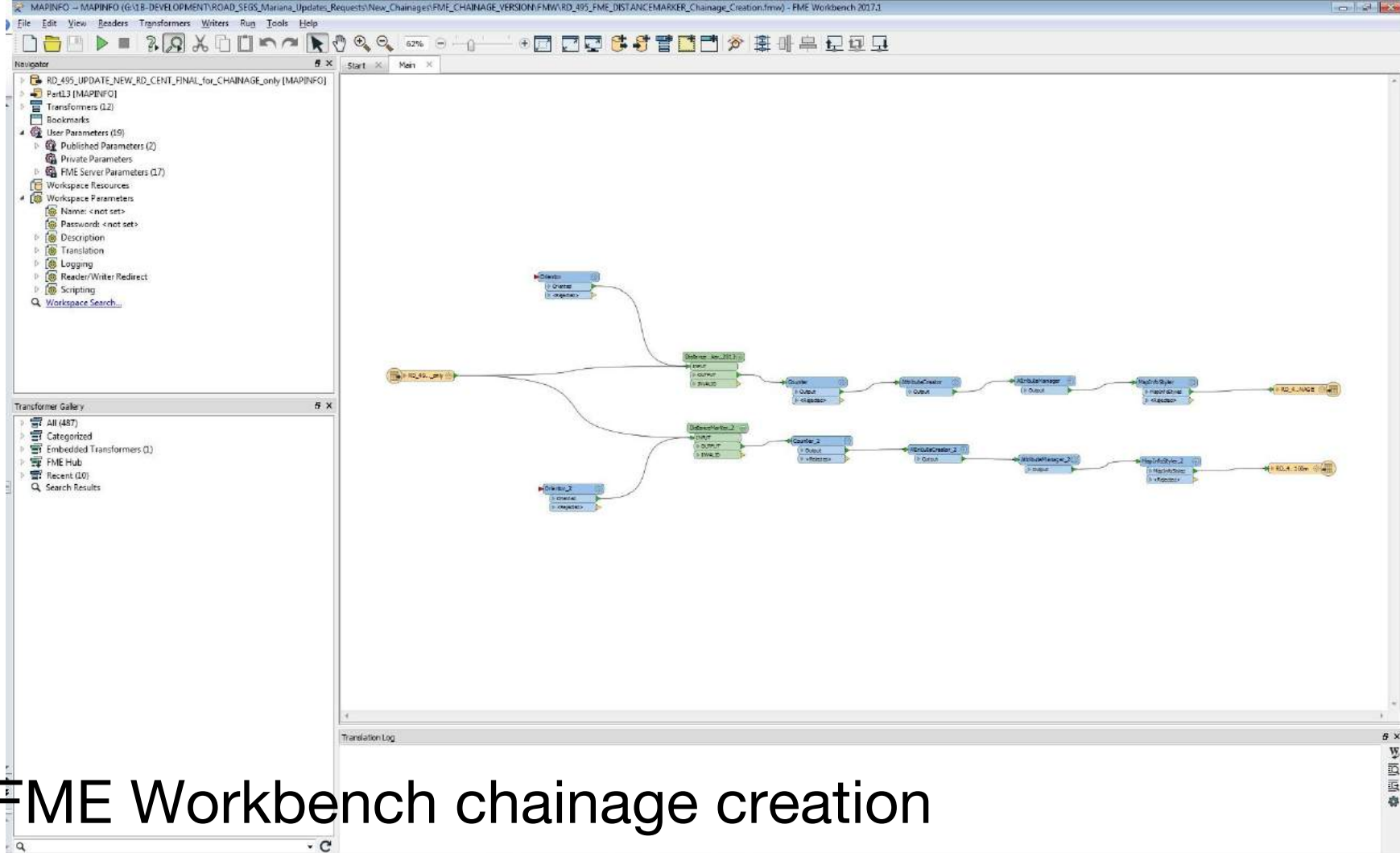
FME Workbench complex road – processing by road segments – segment count needs a couple of goes



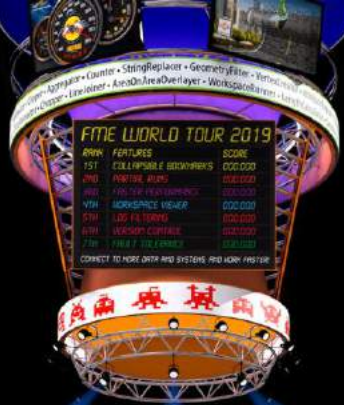
# Step 2

## New chainage files

Uses the newly generated road centre line file to create 2 new sets of chainages; chainage points with intervals of 10m, and 100m, with start point of 0m but no chainage point for the end point of the complete road segment, and with the correct symbology and attributes.



FME Workbench chainage creation



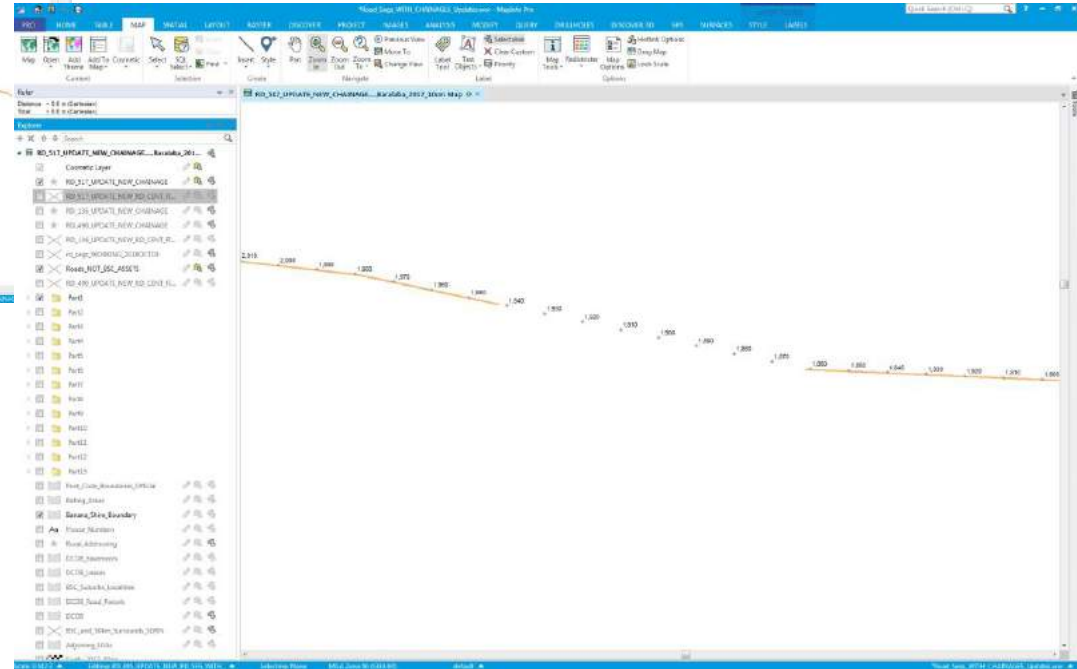
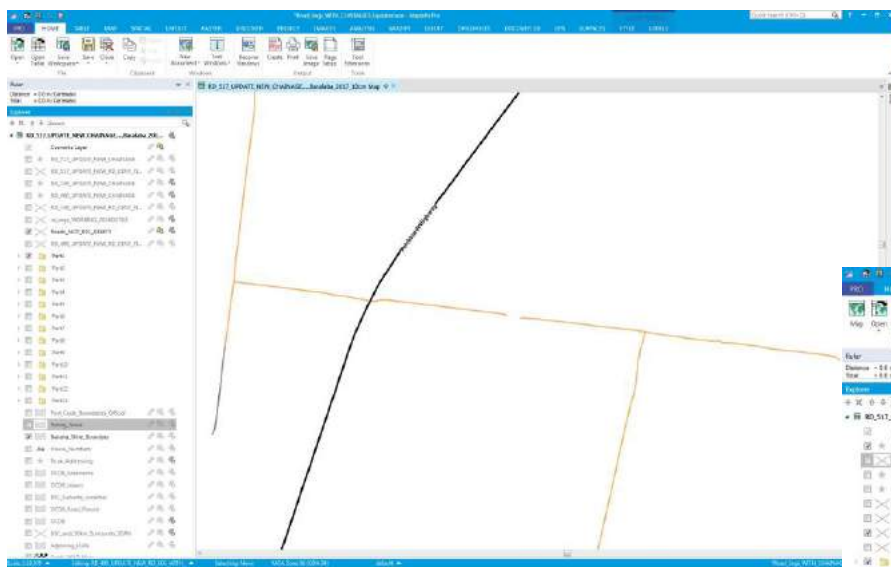
# Step 2

## New chainage files

Different road aspects affect the start points of the chainages

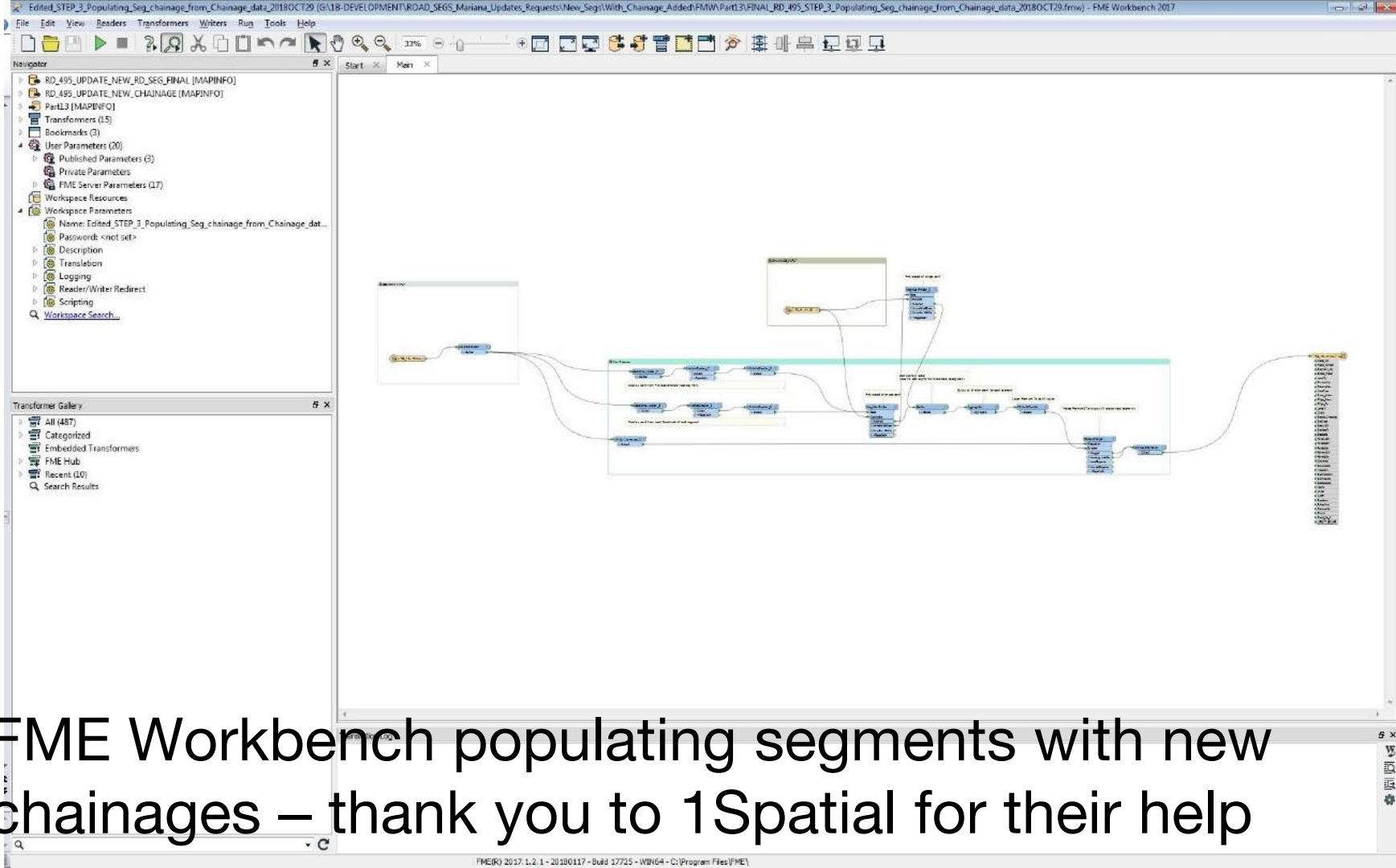
- due to intersection with State controlled roads, and
- some fragmented roads have chainages the whole length but the final segments and centre line do not exist where there is no road.

And requires a separate centre line for these chainage creations compared to the centre line for the segments



No road exists but centre line and chainage does





FME Workbench populating segments with new chainages – thank you to 1Spatial for their help



## Step 3

# Populating Road segments attributes from chainages

The final road segment  
Chainage To field is a manual  
input  
with the exact distance as  
measured along the segment from  
the last valid 10m chainage point  
to the end of the road segment.

In addition, fragmented roads also  
have a manual measurement  
added to the Chainage From/To  
field – example Theodore road

# Populating Chainage To field with manual measurement



Data processing final  
steps



Currently, this project is still going.

I have completed approx. 475 roads out of over 700 shire public roads.

Upon completion of the processing of all the Roads, and

after review by all parties, and acceptance of the new segments , centre lines and chainages,

all the separate files will be combined as follows





1. Road Segment files will be combined into a single Production Road Segments file

using an FME workbench to sort by Road Number and Asset ID





2. Road Centre Line files will be combined into a single Production Road Centre Lines file

using an FME workbench to sort by Road Number





3. The 10m and 100m Road Chainage files will be combined into a single Production 10m Chainage file and a single Production 100m Chainage file using an FME workbench to sort by Road Number and Chainage (0m value is the chainage start point)





**THANK YOU!**

<https://www.banana.qld.gov.au/>

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