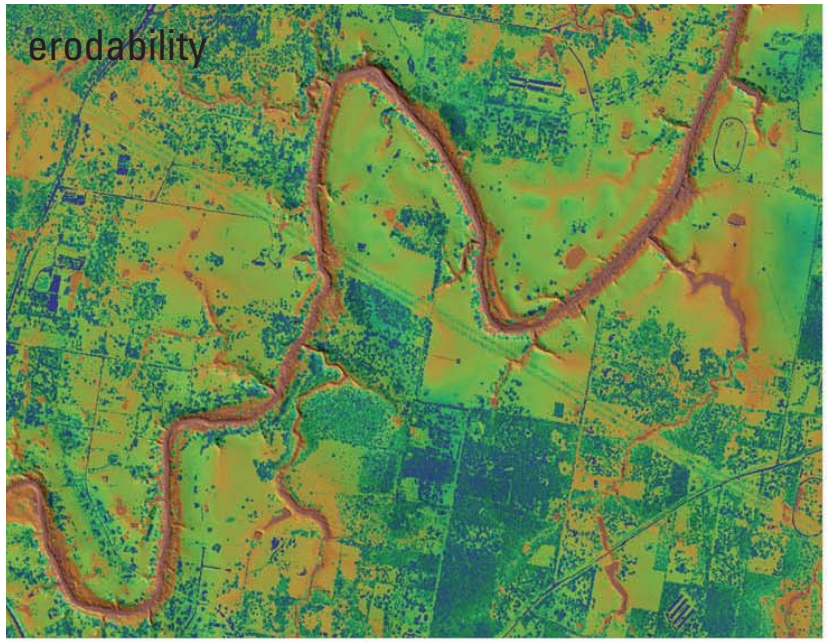
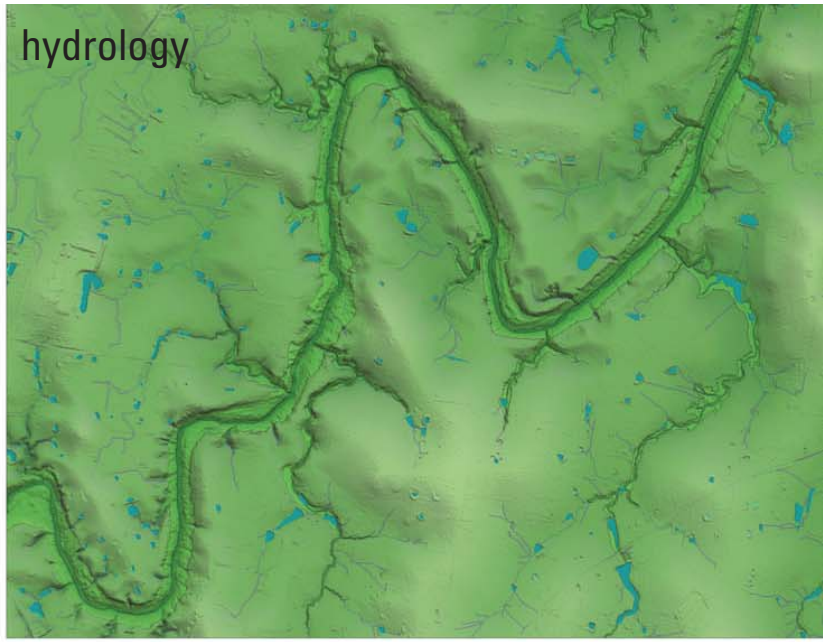
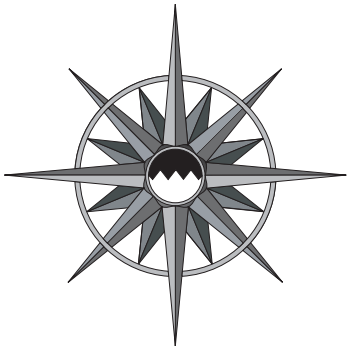
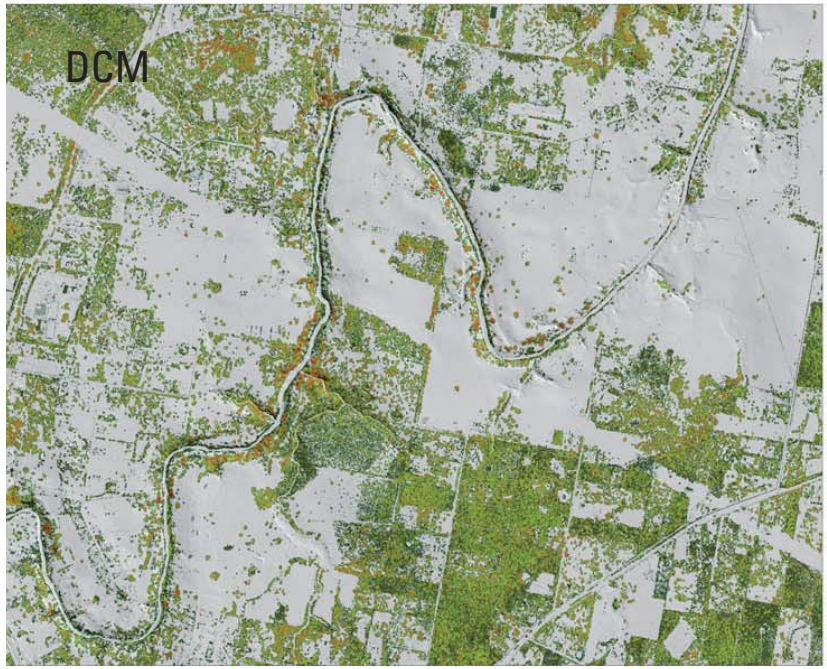
LOGAN CITY SPATIAL DATA







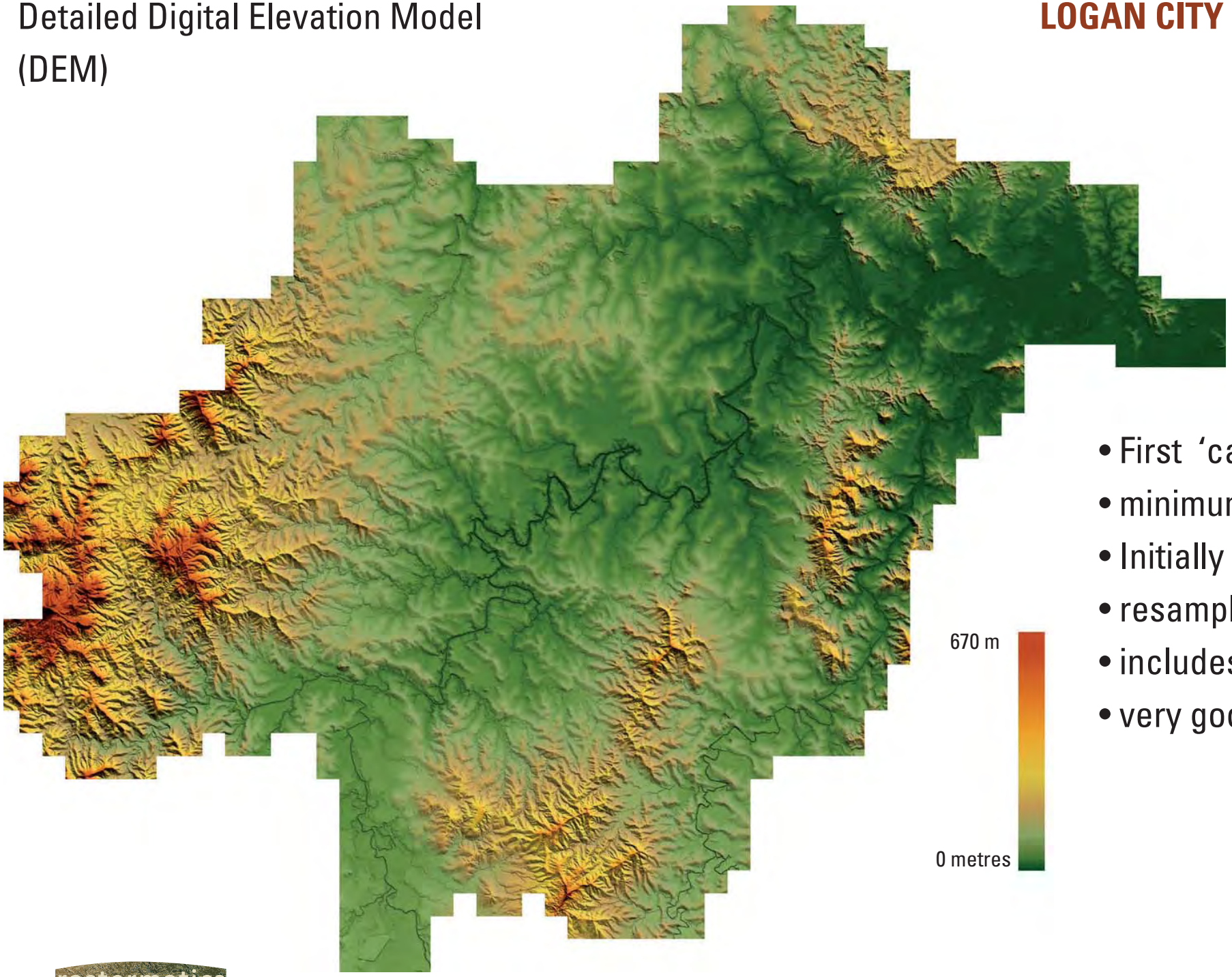


- Bushfire Hazard
- Waterways
- Centrelines
- Catchments
- DCM
- MGC
- Erodability
- Initial Absorption

rastermatics

Detailed Digital Elevation Model (DEM)

LOGAN CITY SPATIAL DATA

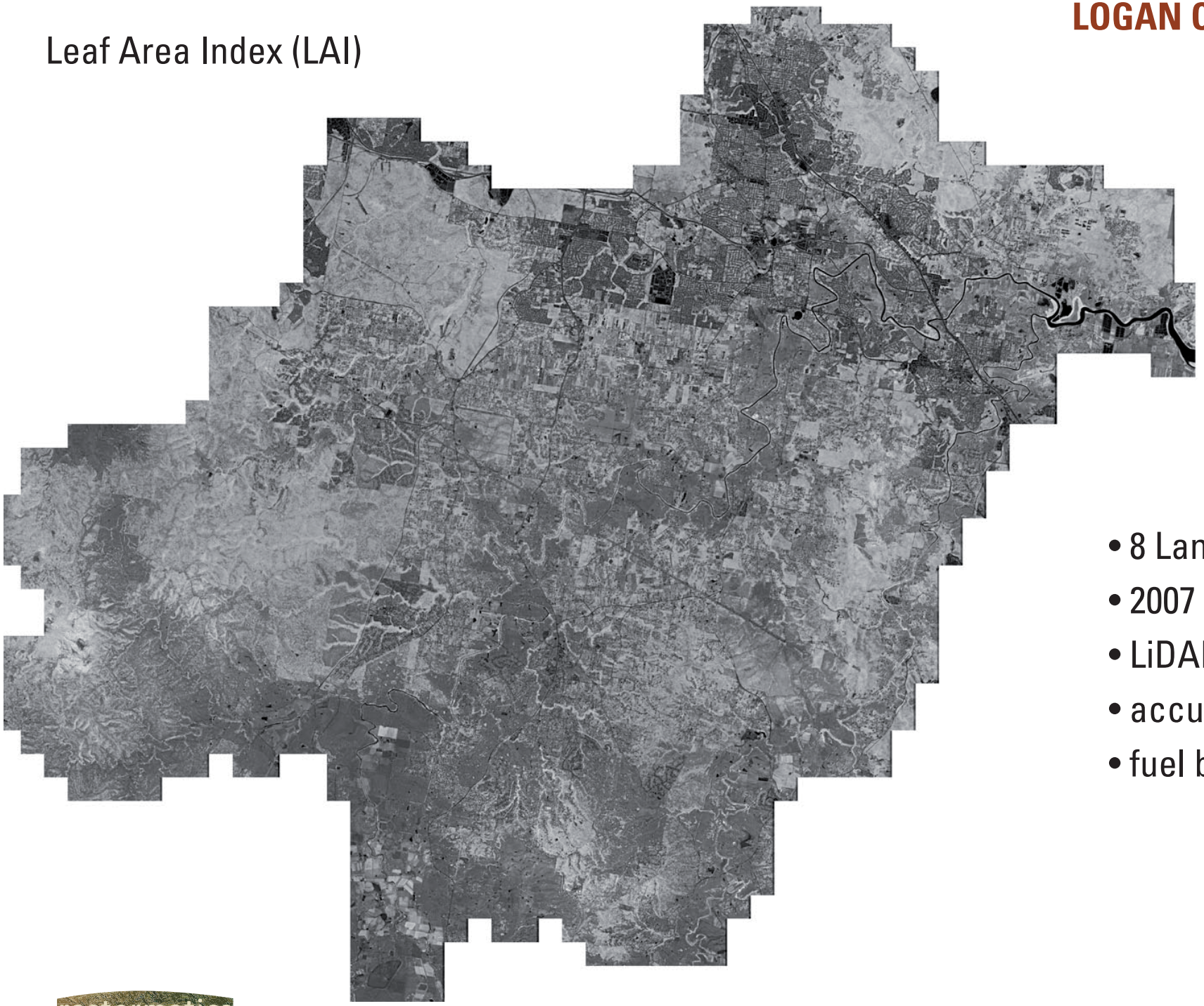


- First ‘cab off the rank’
- minimum curvature
- Initially 0.999m
- resampled to 2 metres
- includes relief shading
- very good detail

rastermatics

LOGAN CITY SPATIAL DATA

Leaf Area Index (LAI)

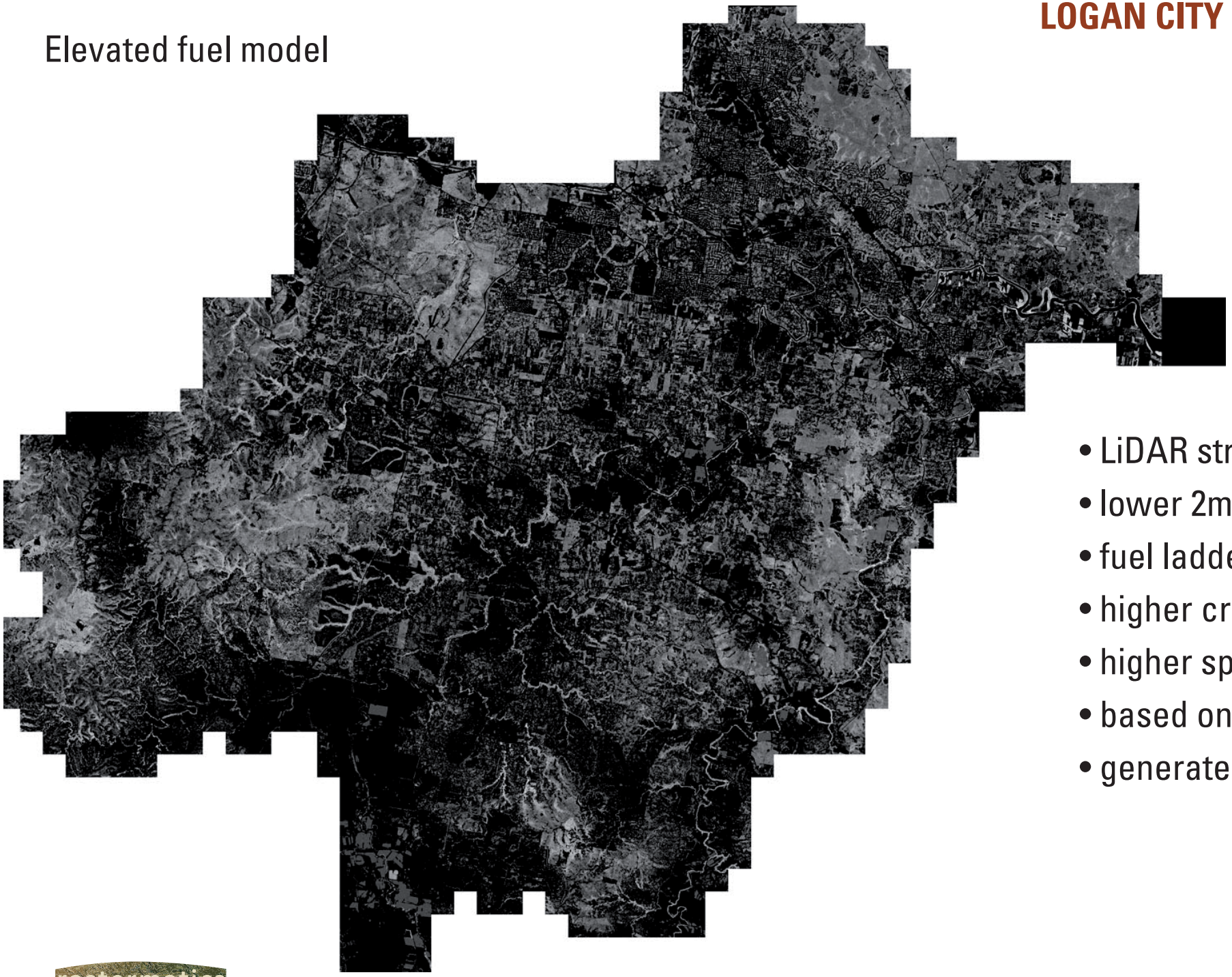


- 8 Landsat scenes
- 2007 - 2010
- LiDAR based partition
- accumulated fuel model
- fuel bed continuity

rastermatics

LOGAN CITY SPATIAL DATA

Elevated fuel model

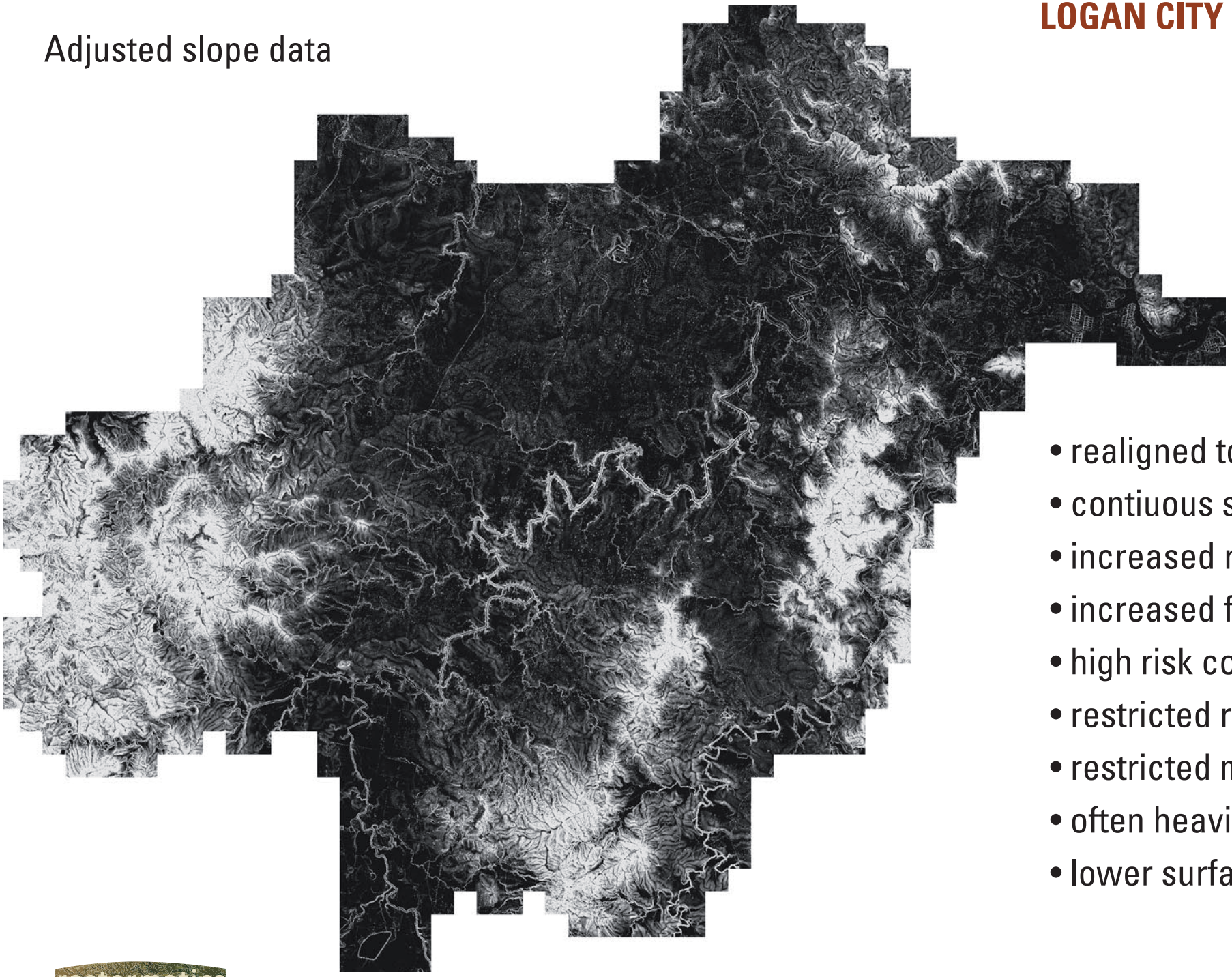


- LiDAR strikes to 4m
- lower 2m (higher weight)
- fuel ladders
- higher crown fire risk
- higher spot fire risk
- based on veg structure
- generated from MGC

rastermatics

LOGAN CITY SPATIAL DATA

Adjusted slope data

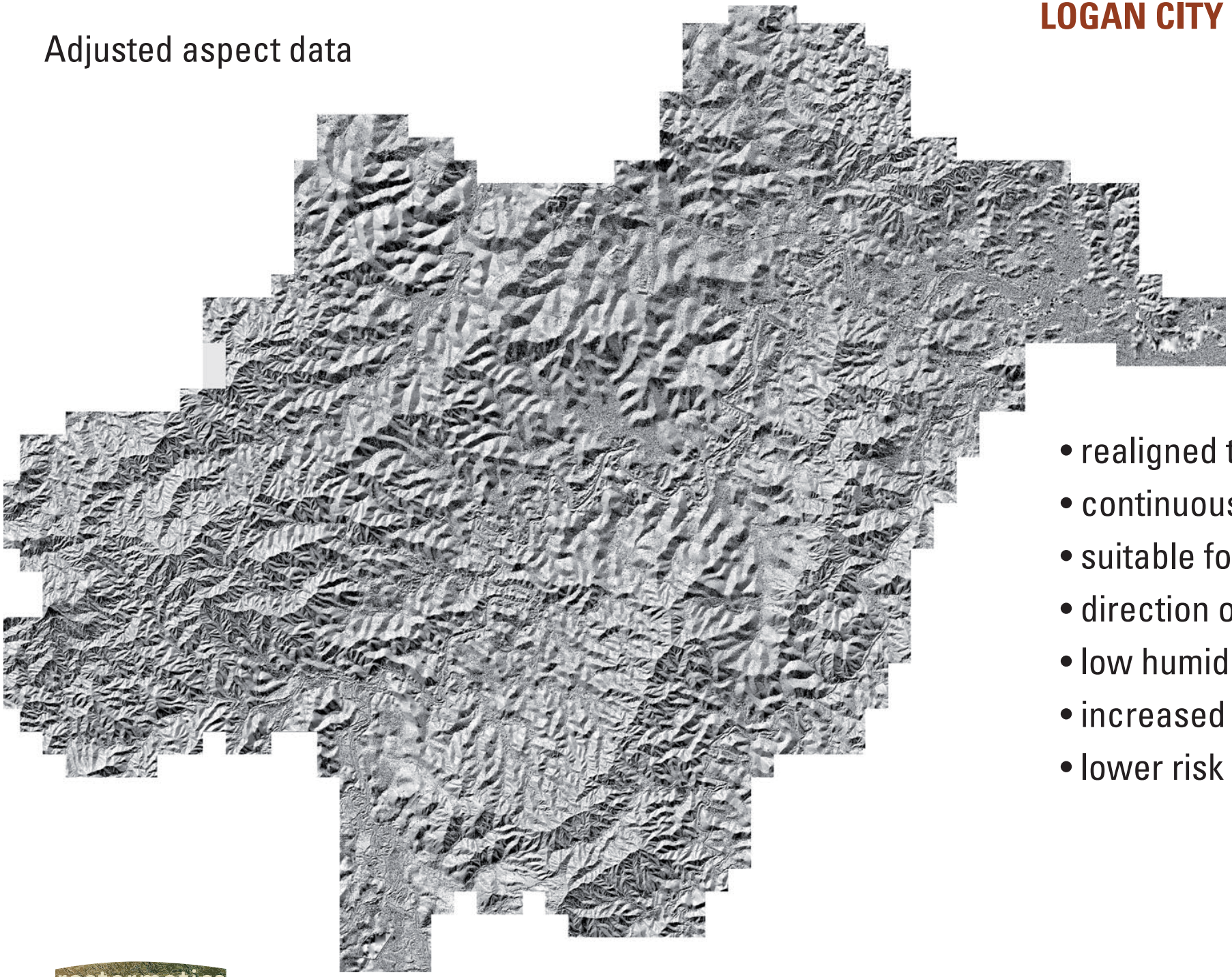


- realigned to SPP values
- contiuous scale
- increased rate of spread
- increased flame height
- high risk convection columns
- restricted response options
- restricted mittigation options
- often heavily vegetated
- lower surface moisture

rastermatics

LOGAN CITY SPATIAL DATA

Adjusted aspect data

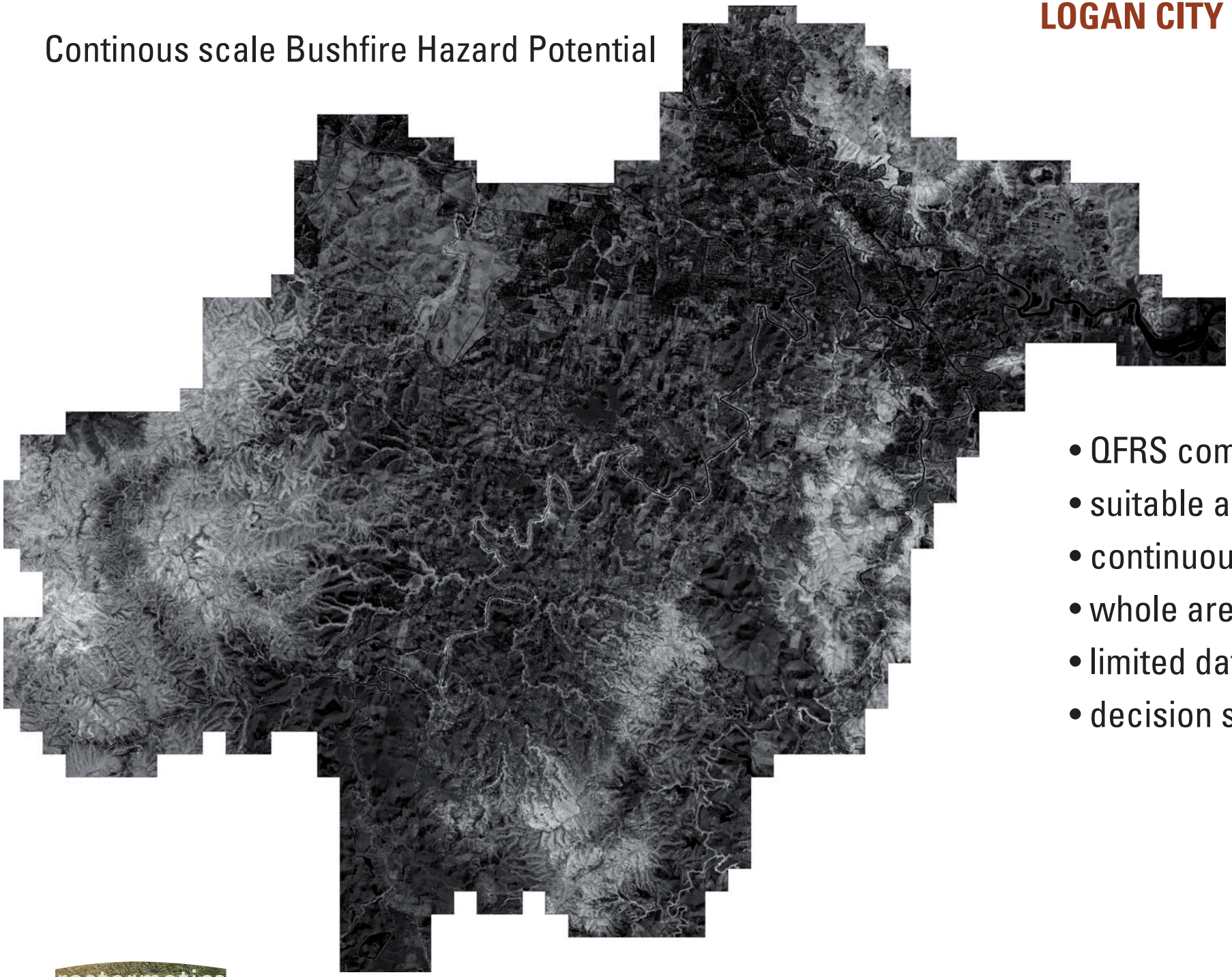


- realigned to SPP values
- continuous scale
- suitable for SEQ
- direction of hot dry winds
- low humidity
- increased fuel curing
- lower risk in SE trade winds

rastermatics

LOGAN CITY SPATIAL DATA

Continous scale Bushfire Hazard Potential

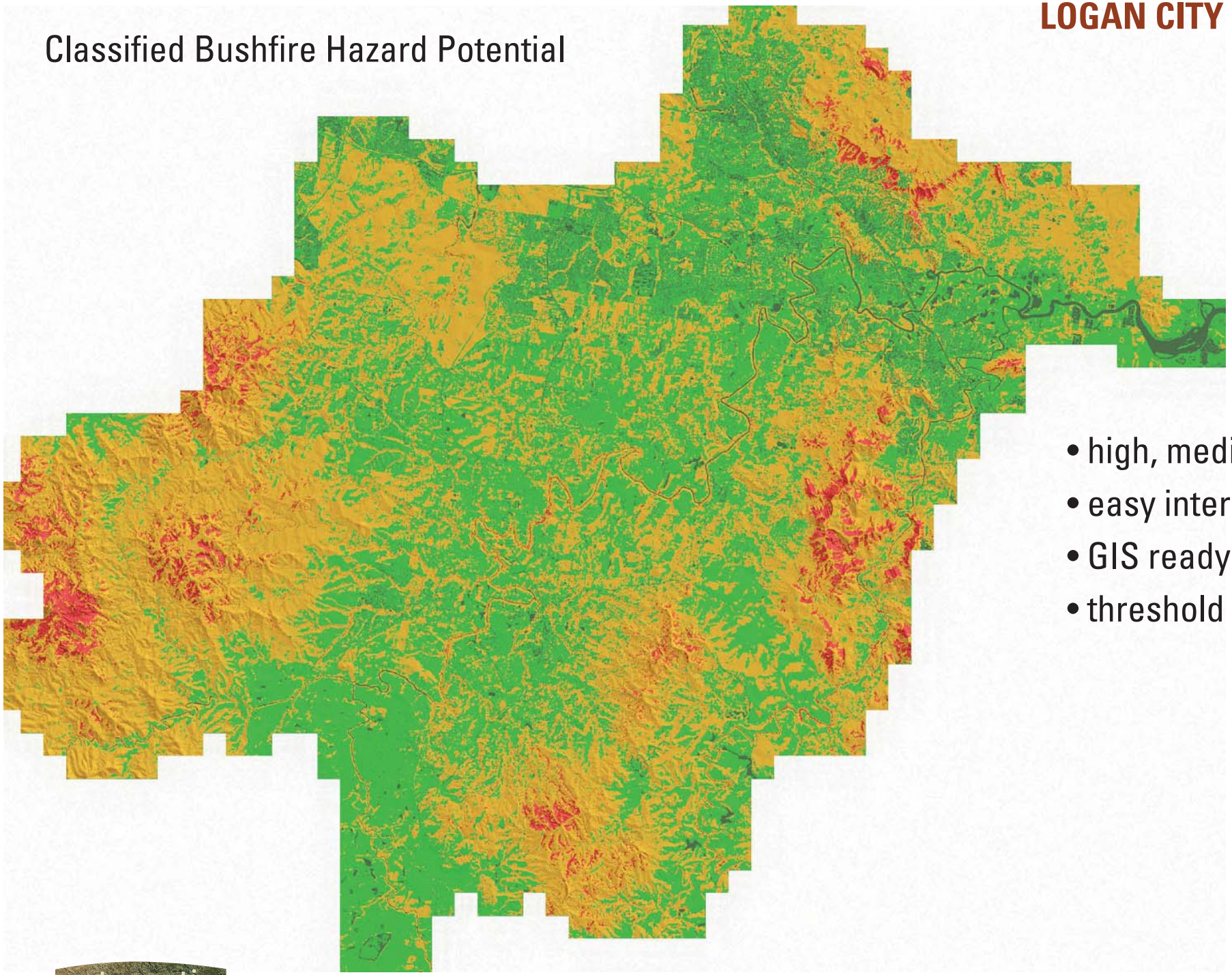


- QFRS compliant
- suitable alternative
- continuous scale
- whole area coverage
- limited data dependency
- decision support based

rastermatics

LOGAN CITY SPATIAL DATA

Classified Bushfire Hazard Potential

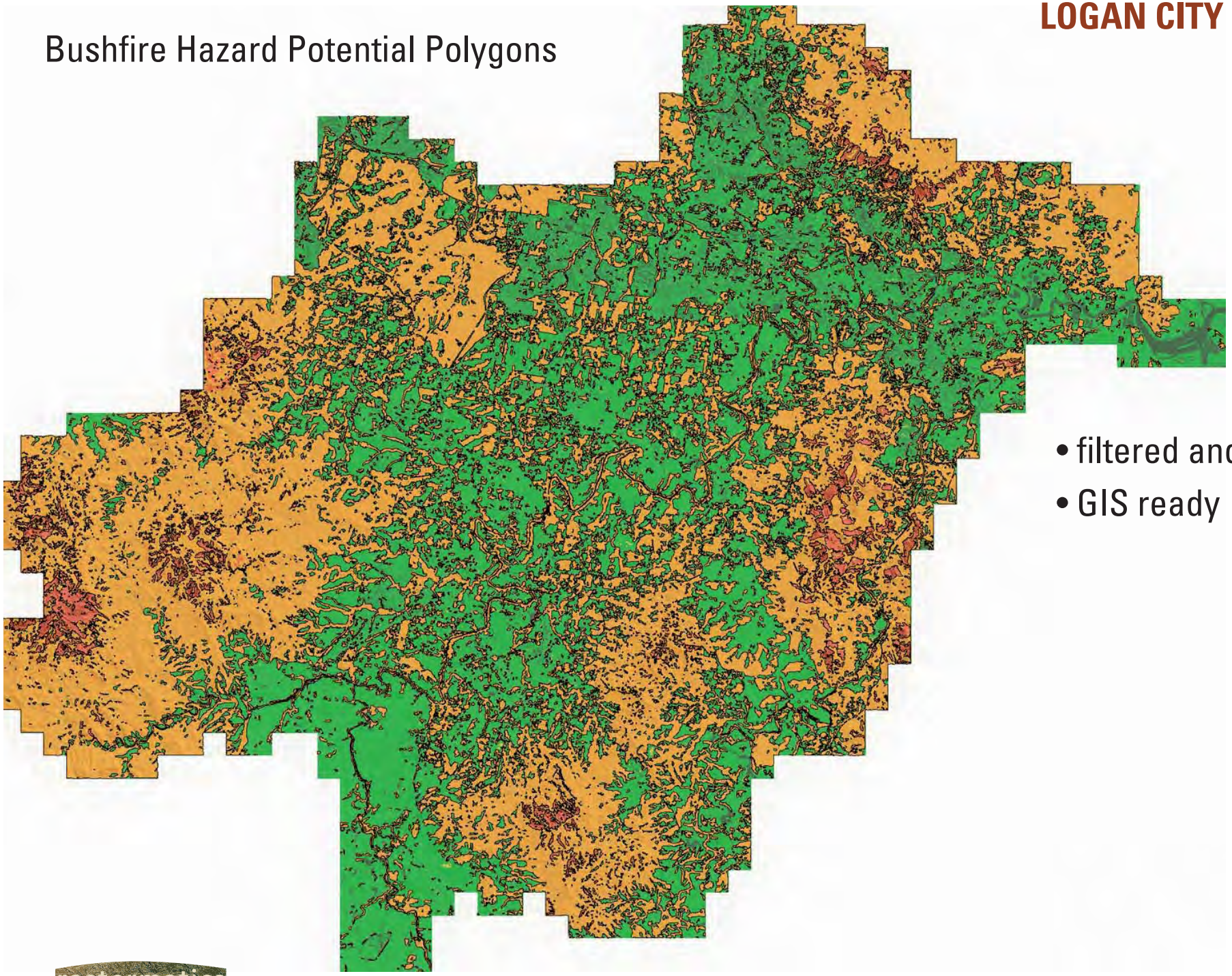


- high, medium, low
- easy interpretation
- GIS ready
- threshold classification

rastermatics

LOGAN CITY SPATIAL DATA

Bushfire Hazard Potential Polygons

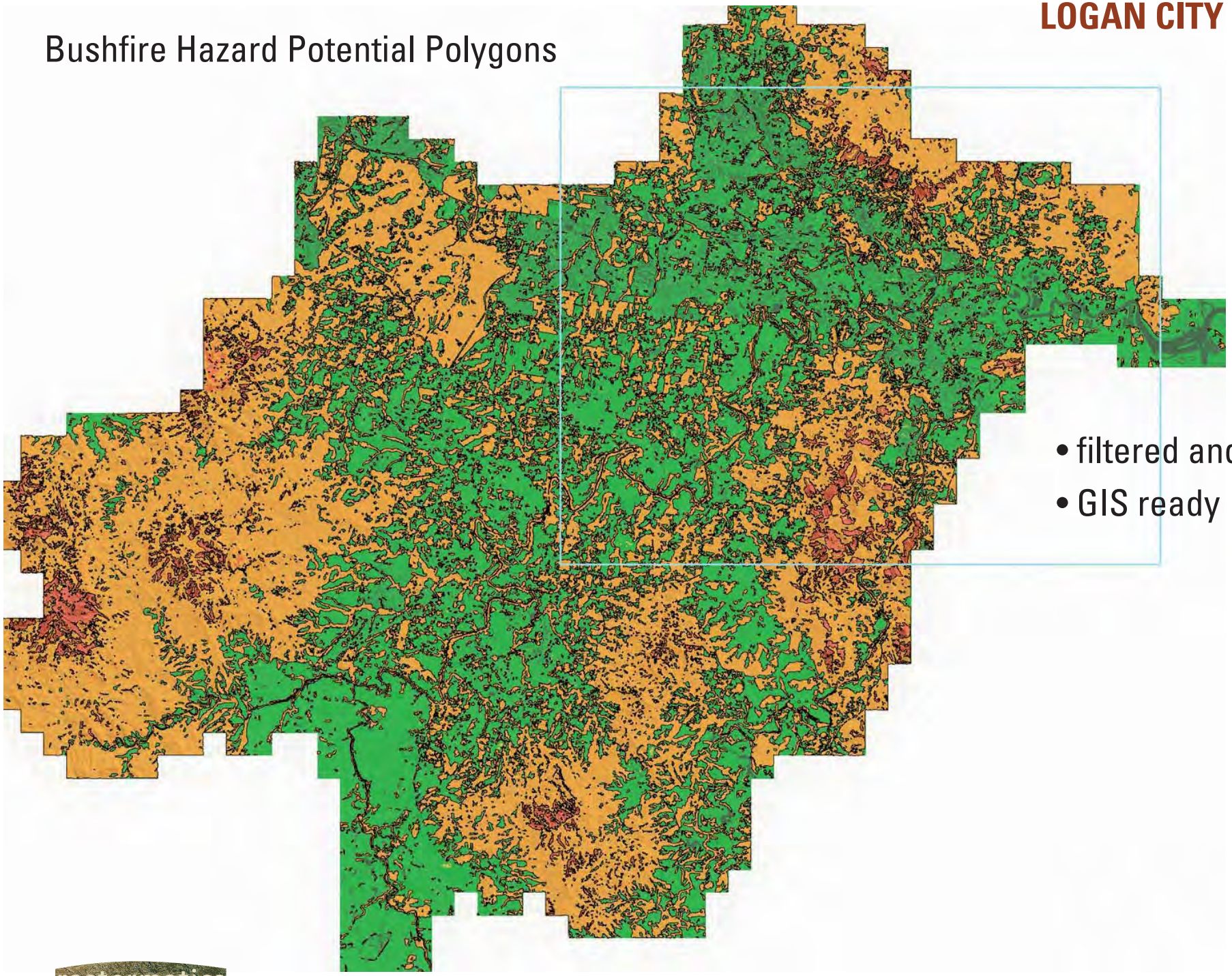


- filtered and optimised
- GIS ready

rastermatics

LOGAN CITY SPATIAL DATA

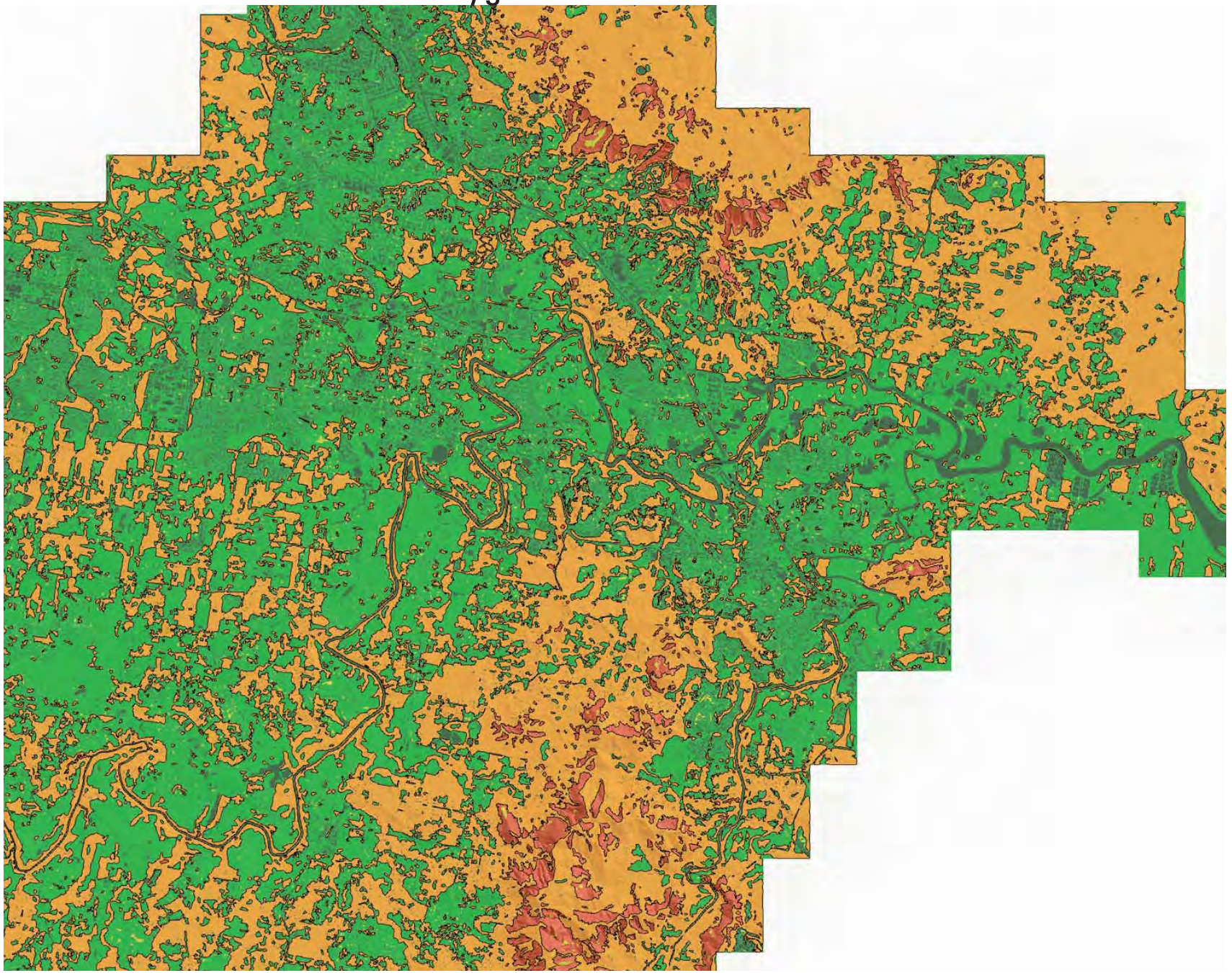
Bushfire Hazard Potential Polygons



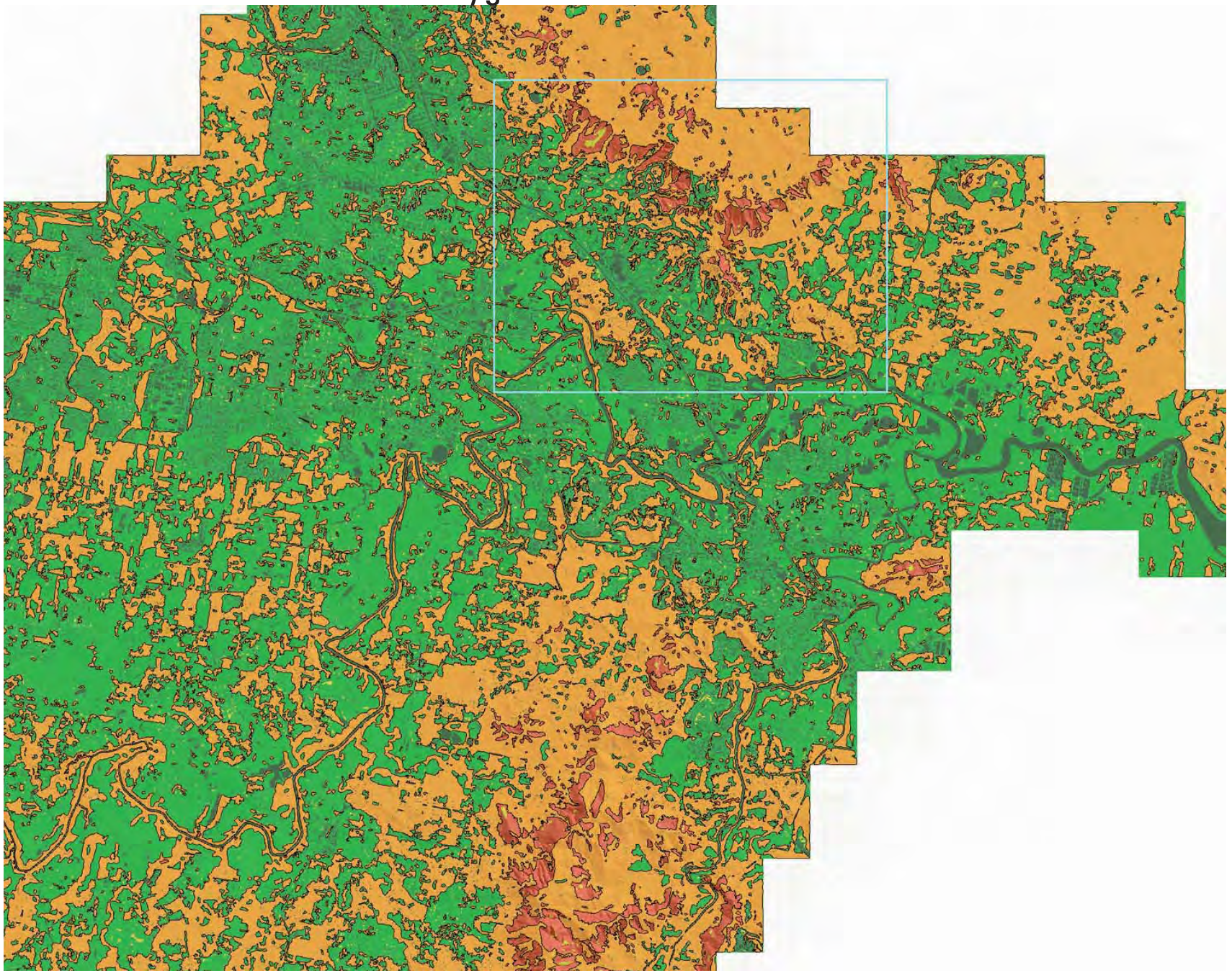
- filtered and optimised
- GIS ready

rastermatics

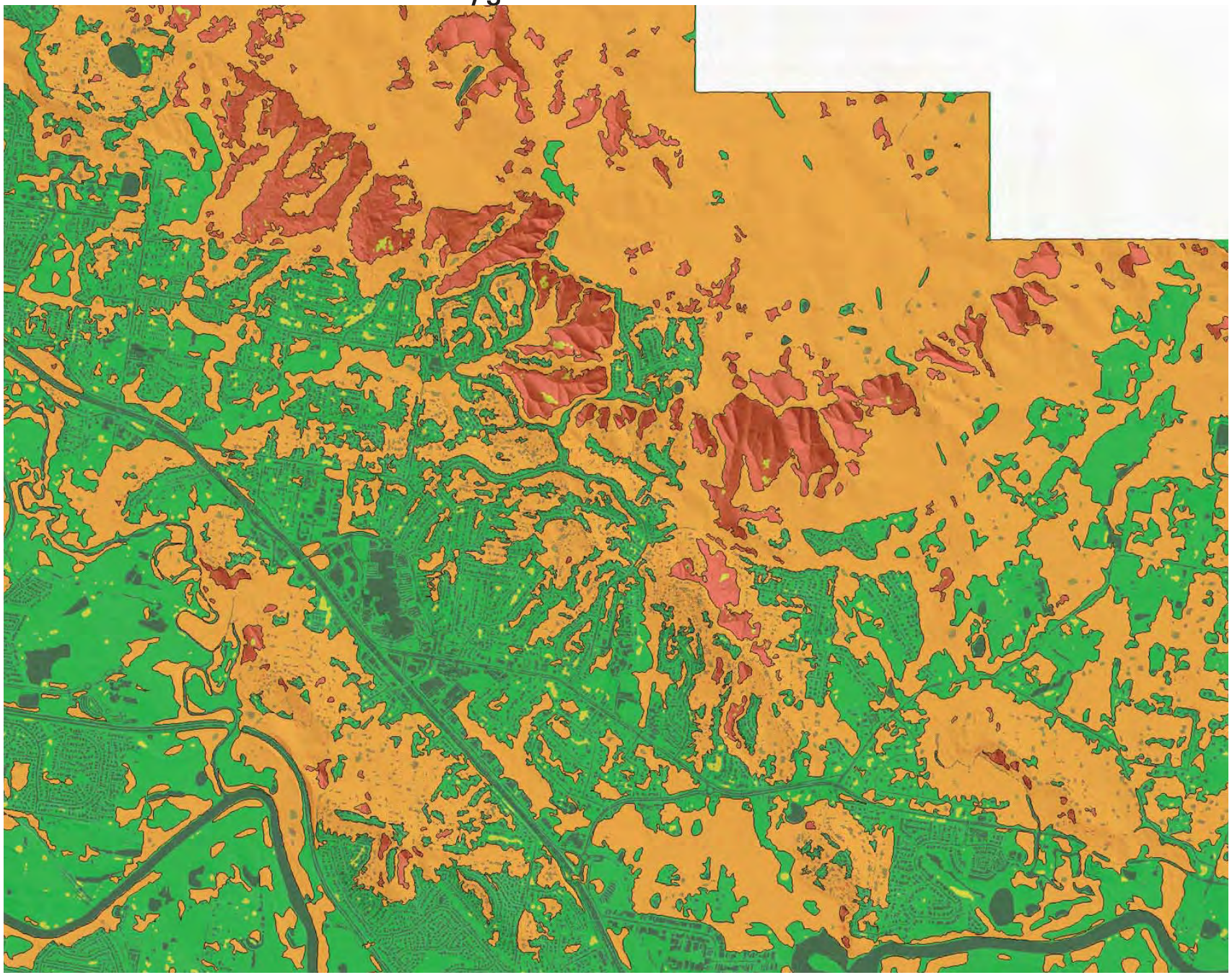
Bushfire Hazard Potential Polygons



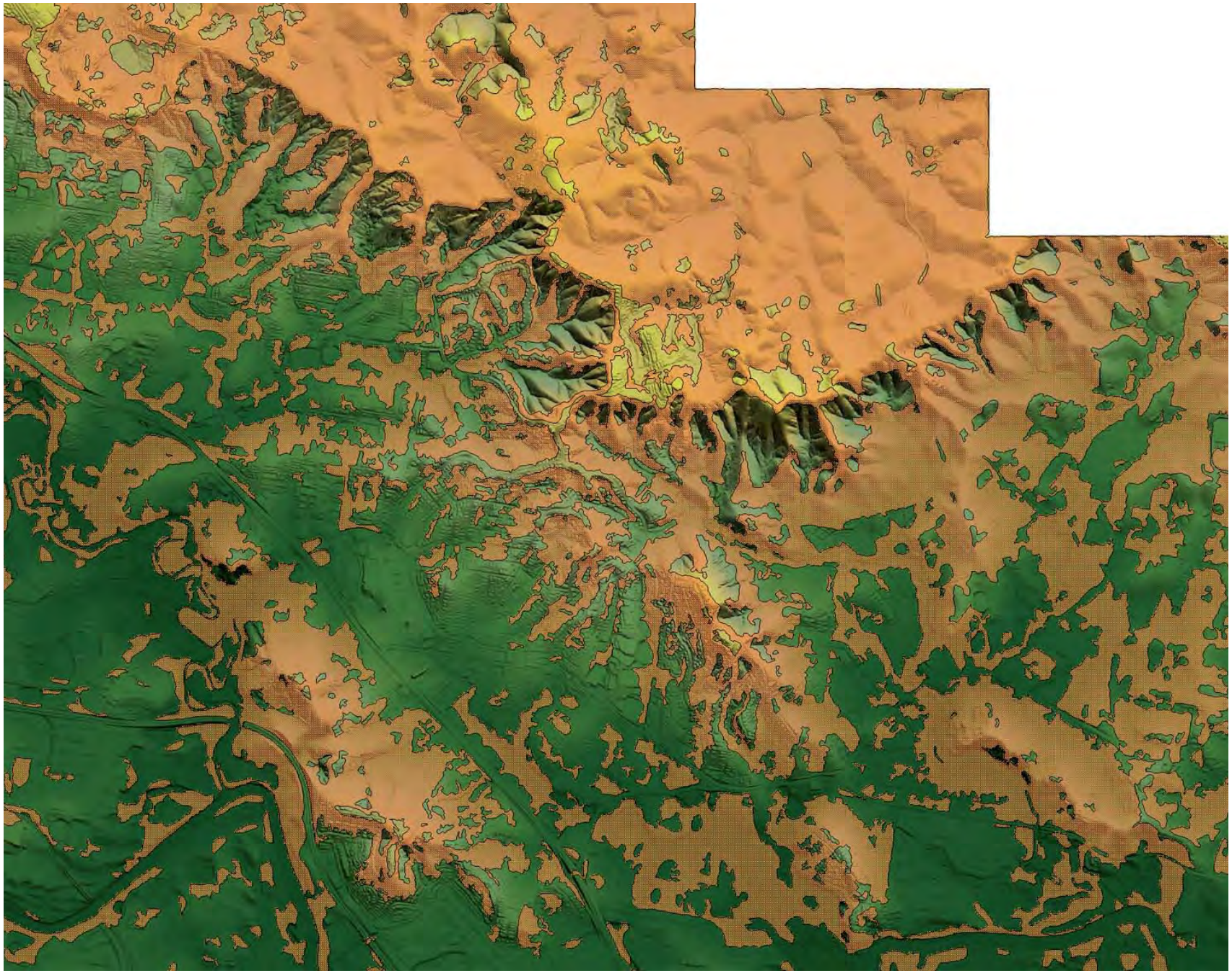
Bushfire Hazard Potential Polygons



Bushfire Hazard Potential Polygons

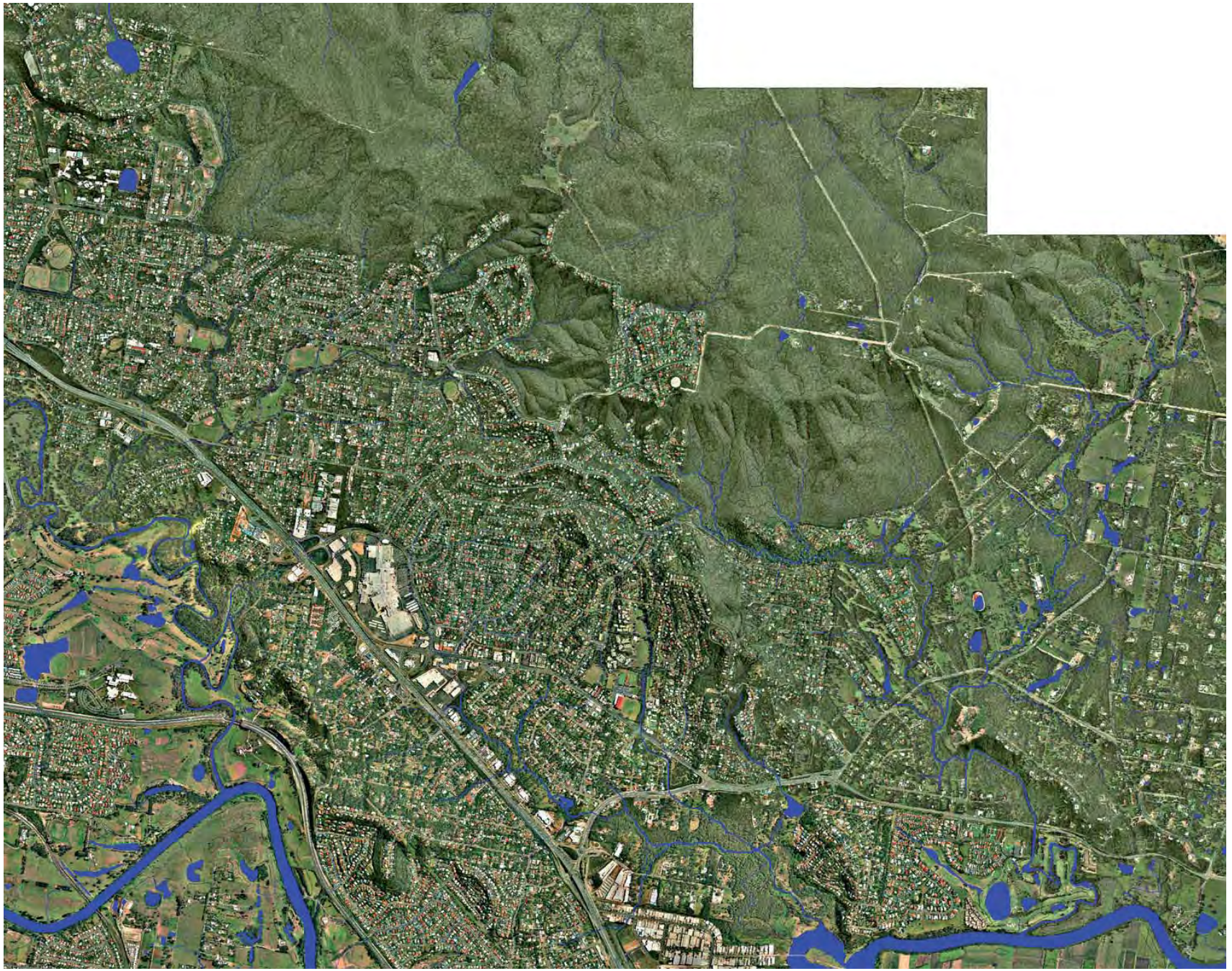


LOGAN CITY SPATIAL DATA



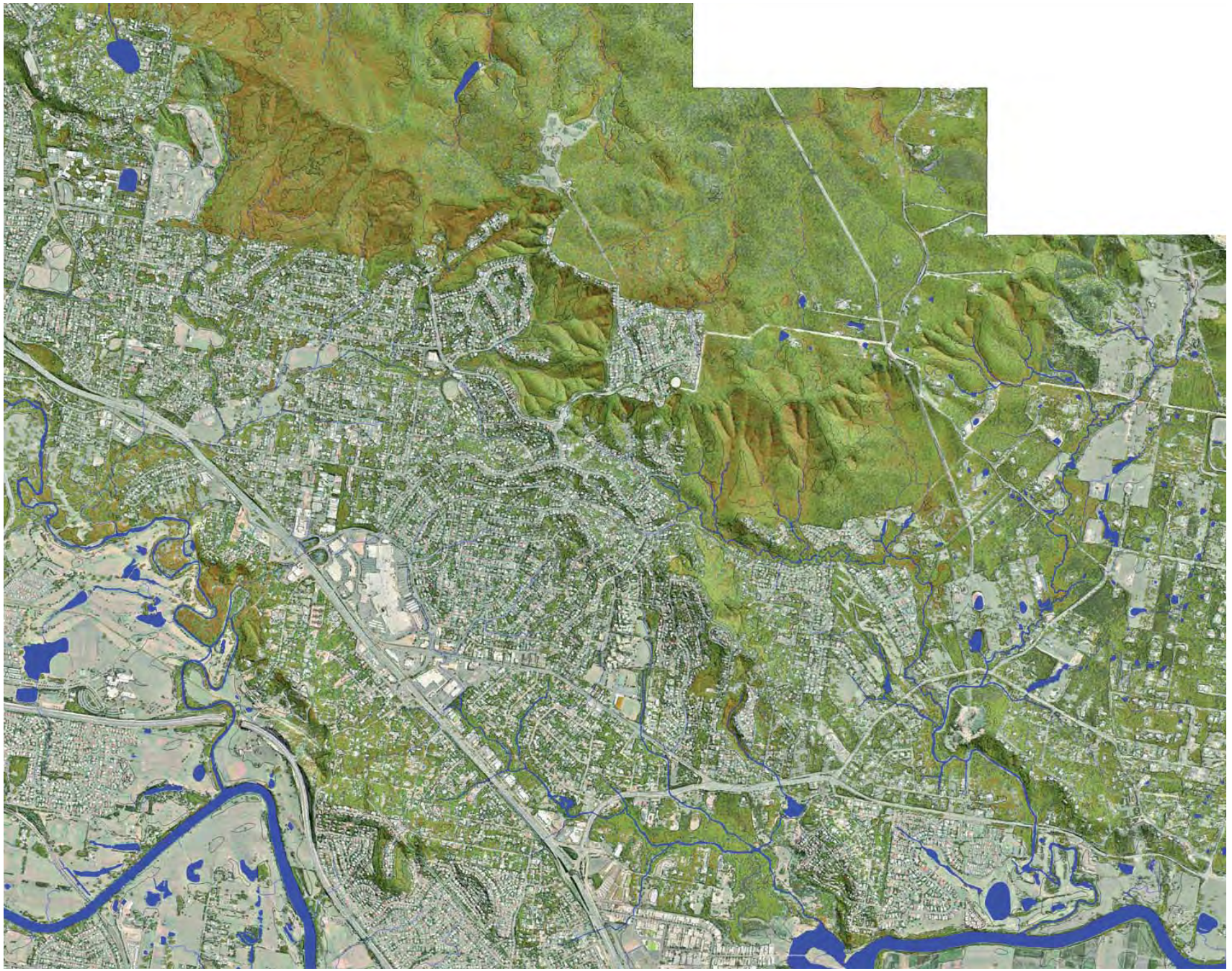
rastermatics

LOGAN CITY SPATIAL DATA



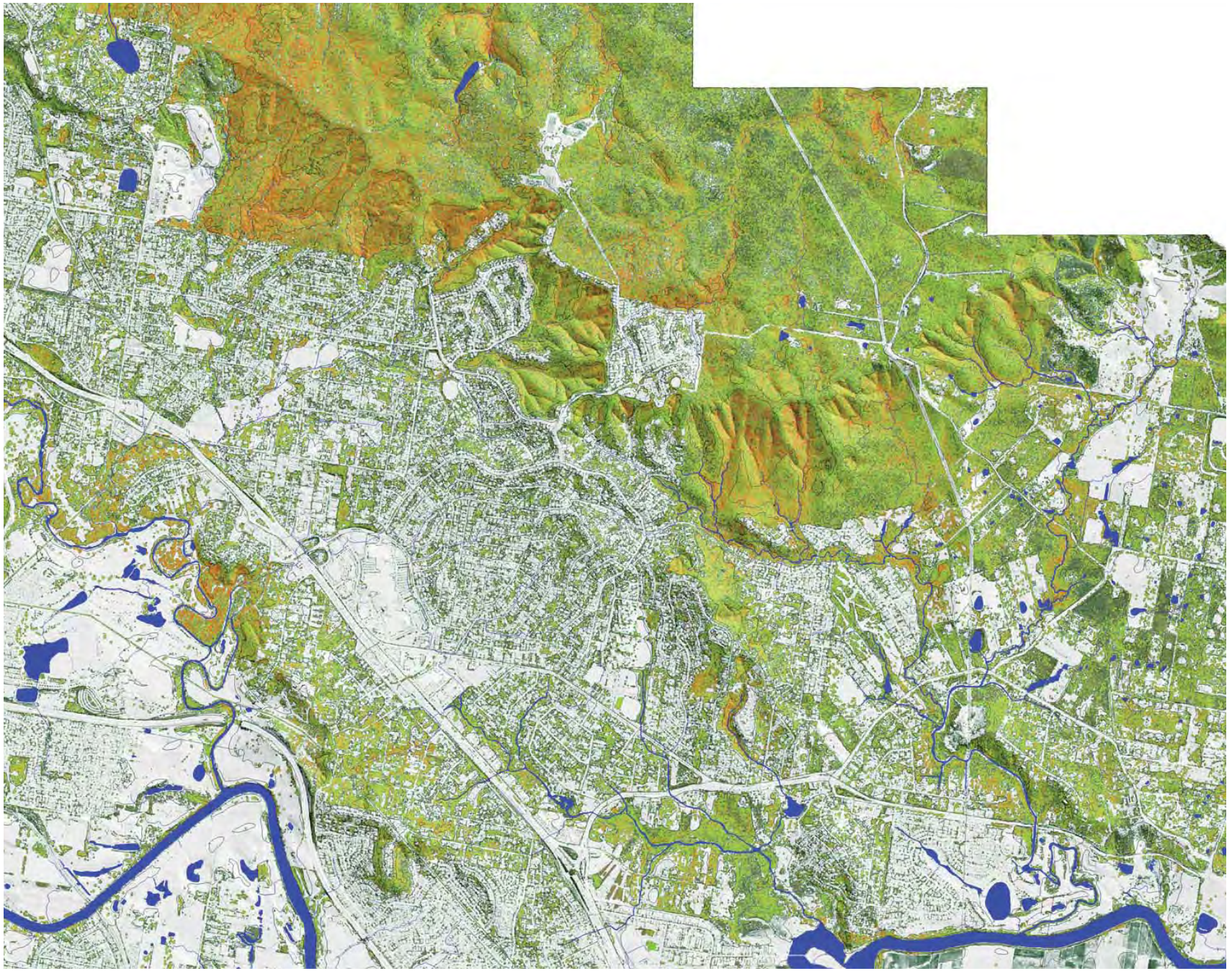
rastermatics

LOGAN CITY SPATIAL DATA



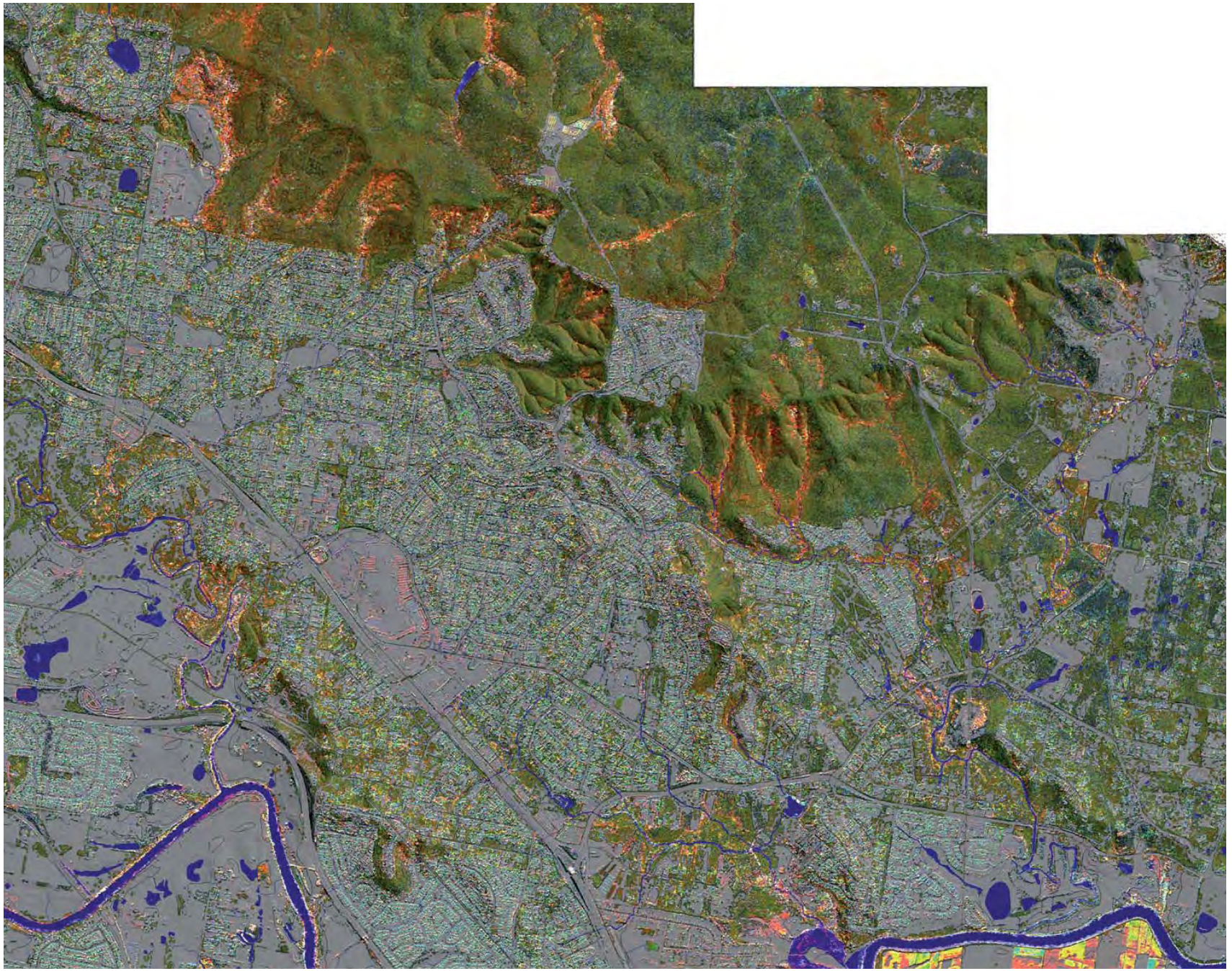
rastermatics

LOGAN CITY SPATIAL DATA



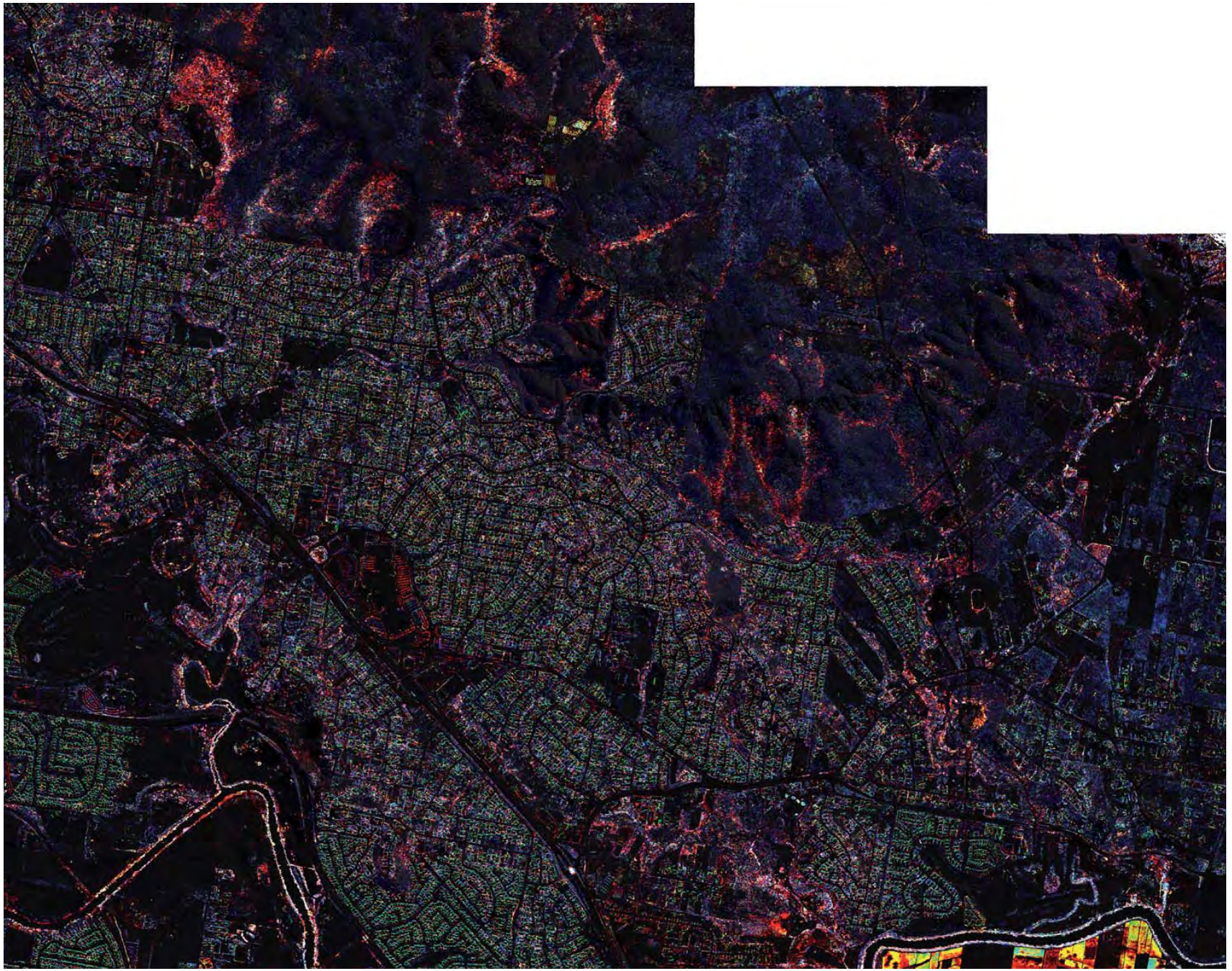
rastermatics

LOGAN CITY SPATIAL DATA



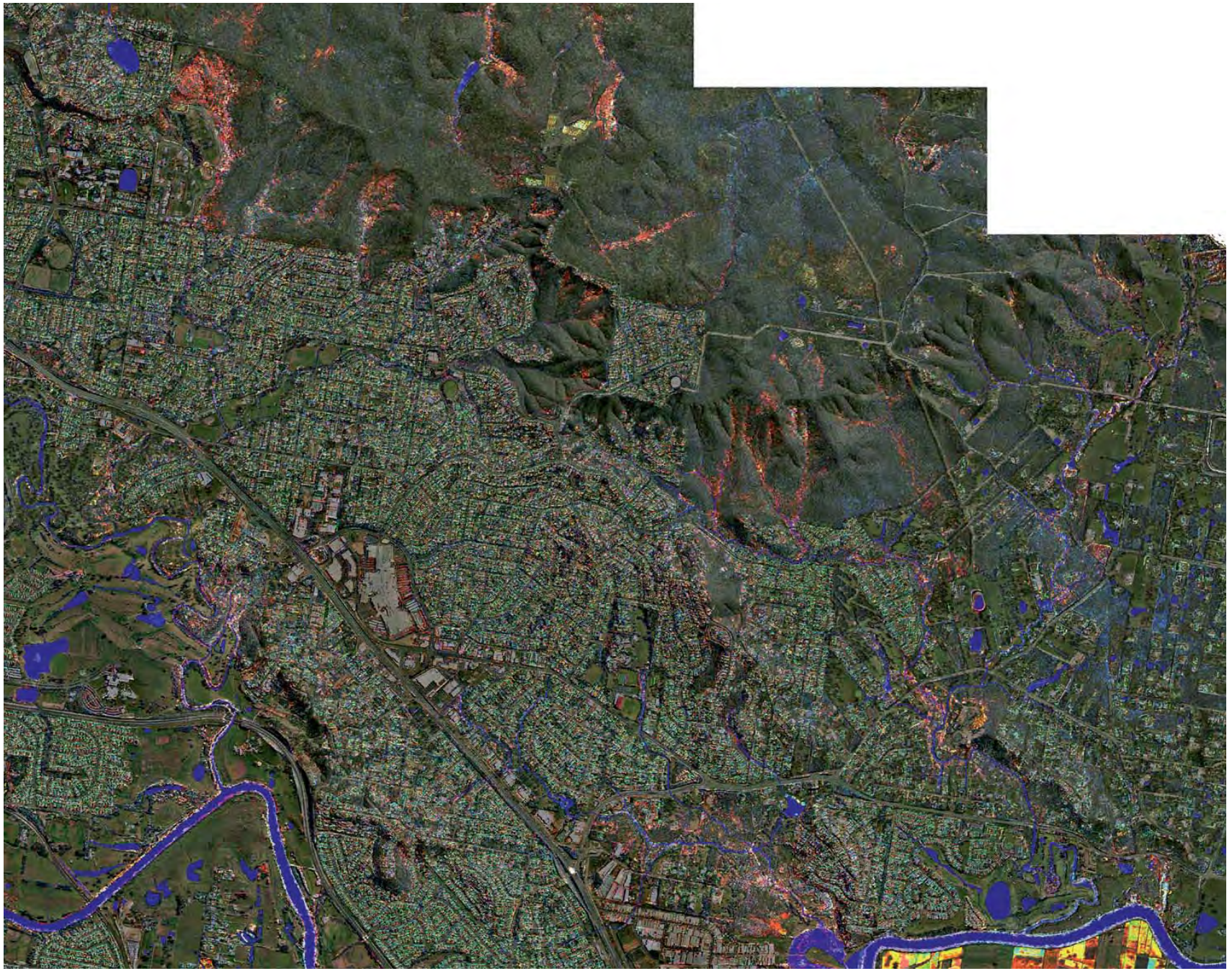
rastermatics

LOGAN CITY SPATIAL DATA



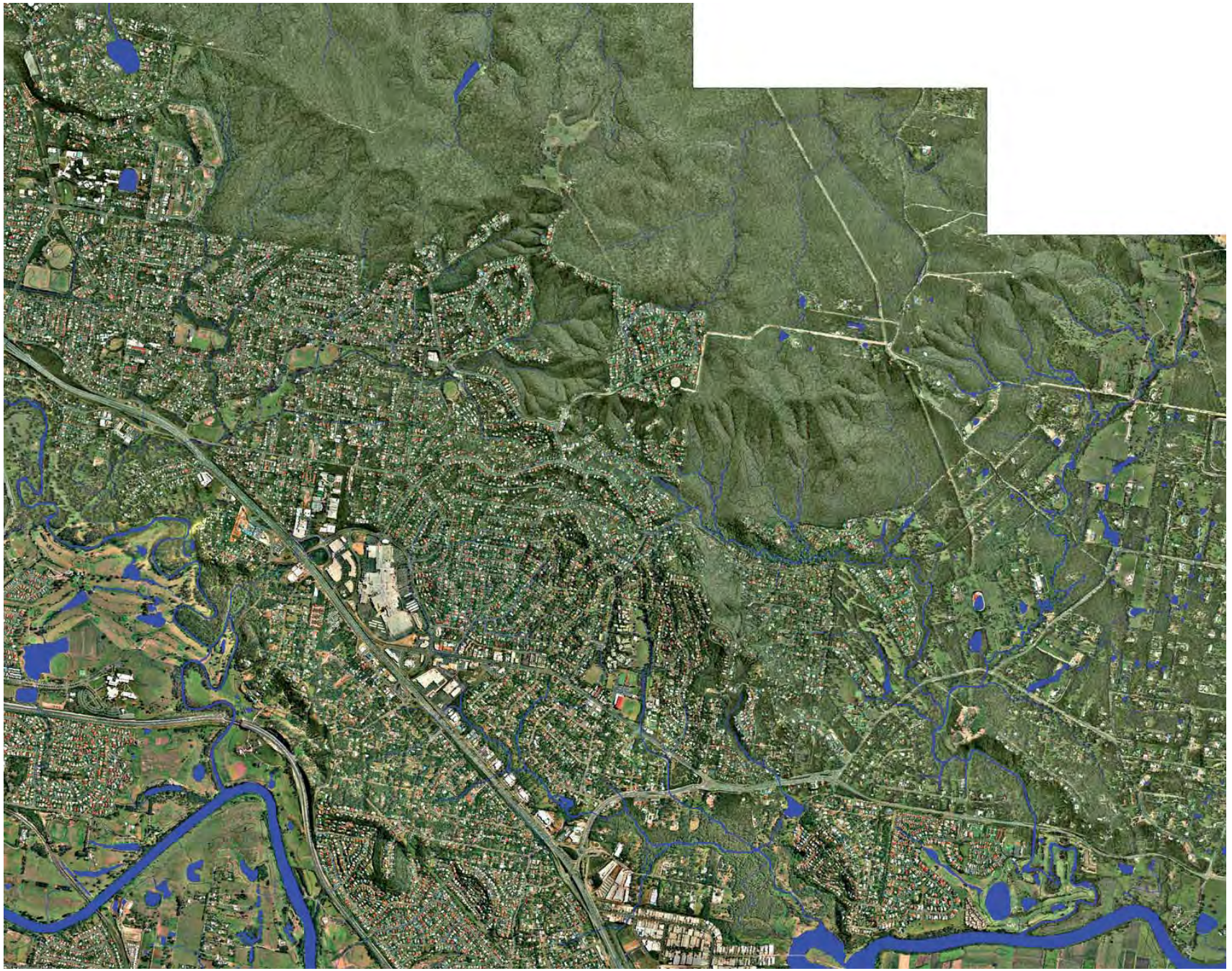
rastermatics

LOGAN CITY SPATIAL DATA



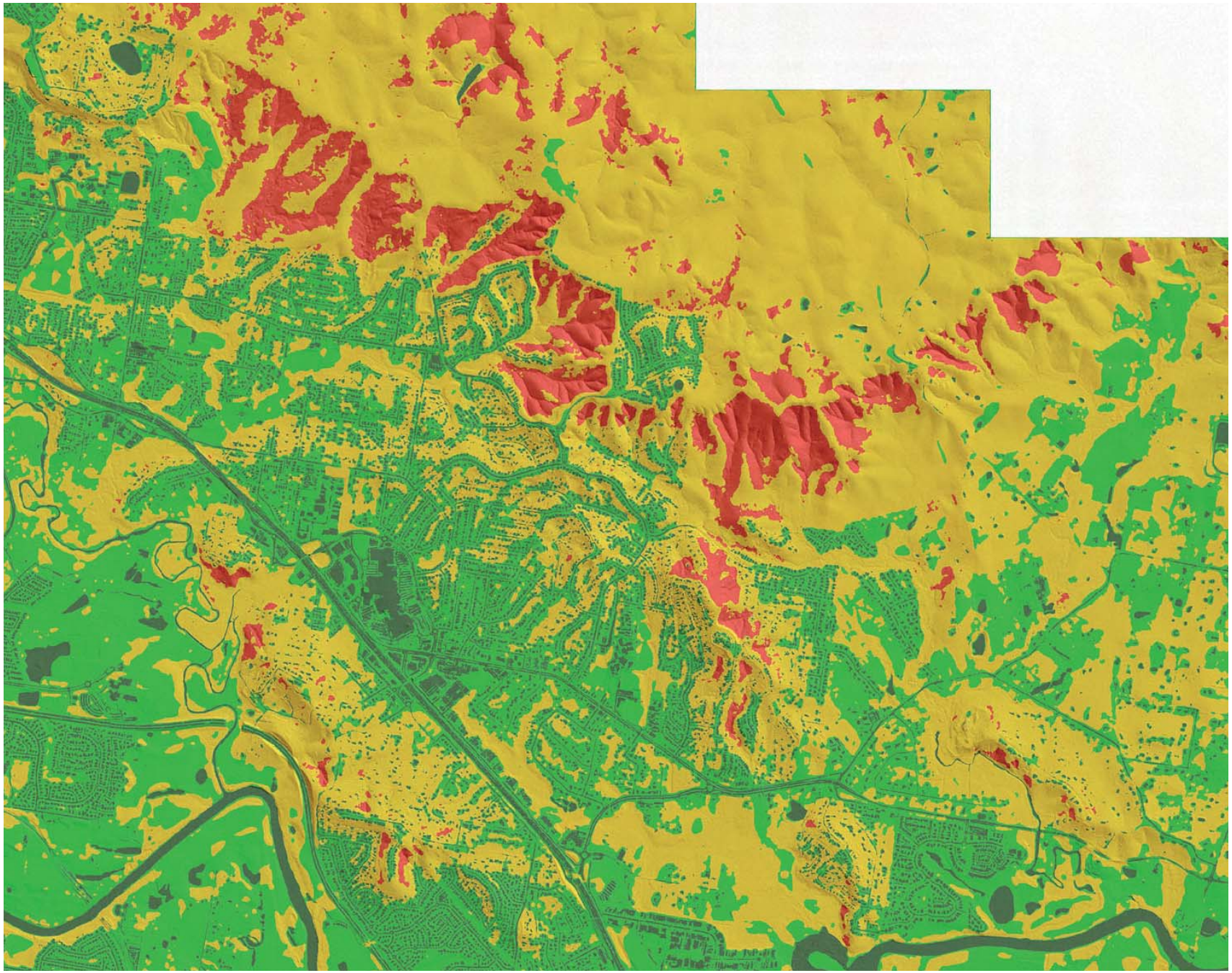
rastermatics

LOGAN CITY SPATIAL DATA



rastermatics

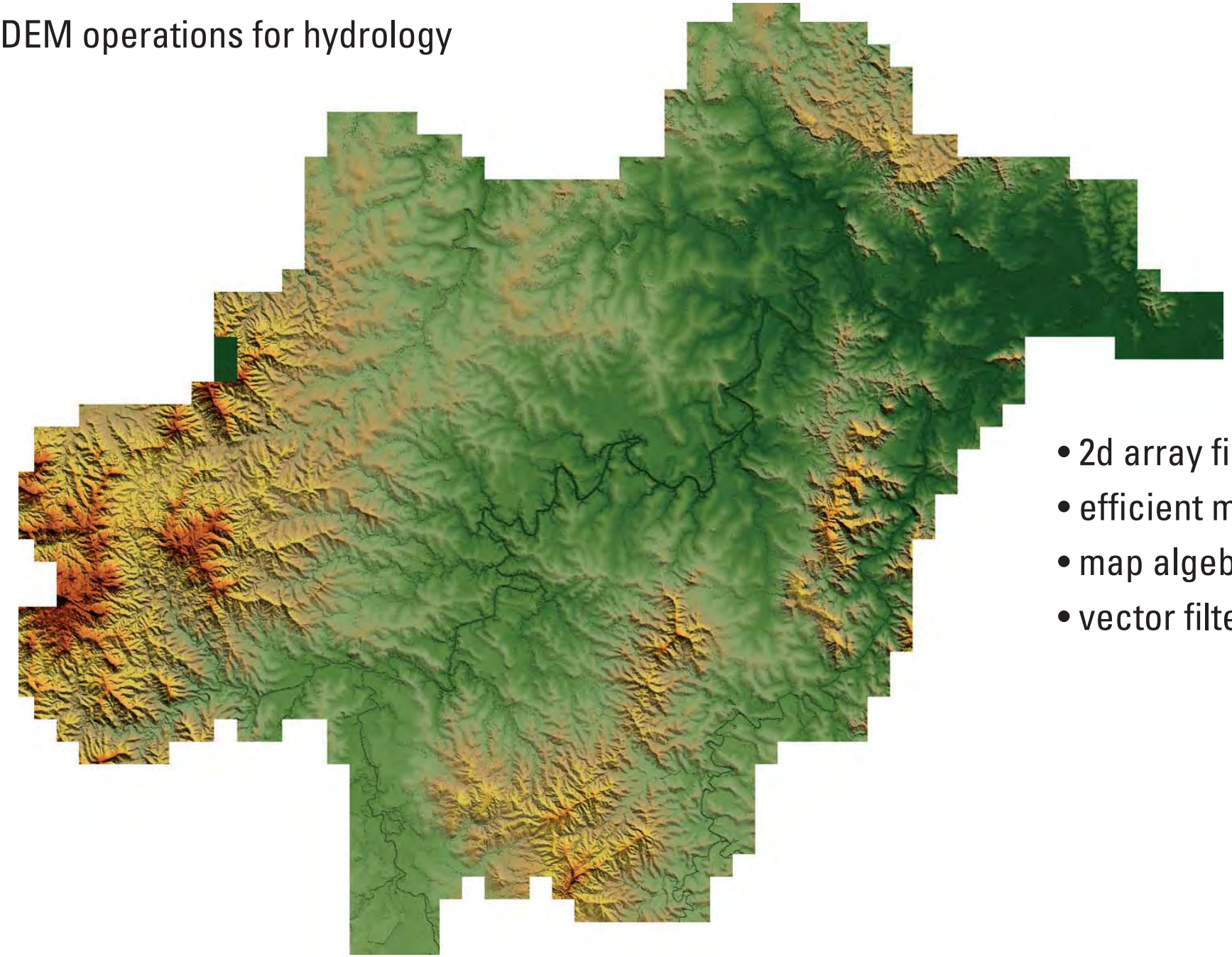
LOGAN CITY SPATIAL DATA



rastermatics

LOGAN CITY SPATIAL DATA

DEM operations for hydrology

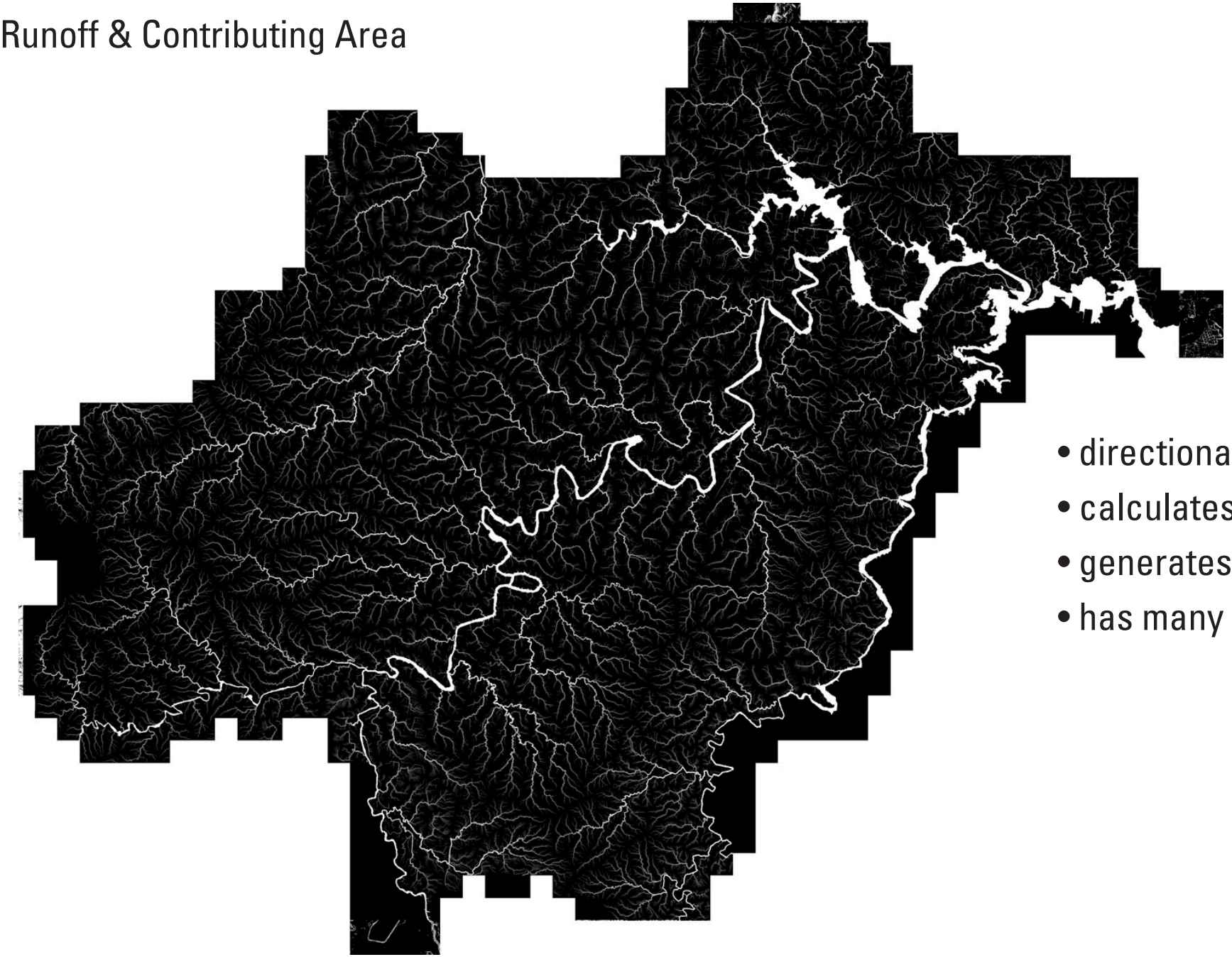


- 2d array filters & algorithms
- efficient modelling
- map algebra
- vector filtering

rastermatics

LOGAN CITY SPATIAL DATA

Runoff & Contributing Area

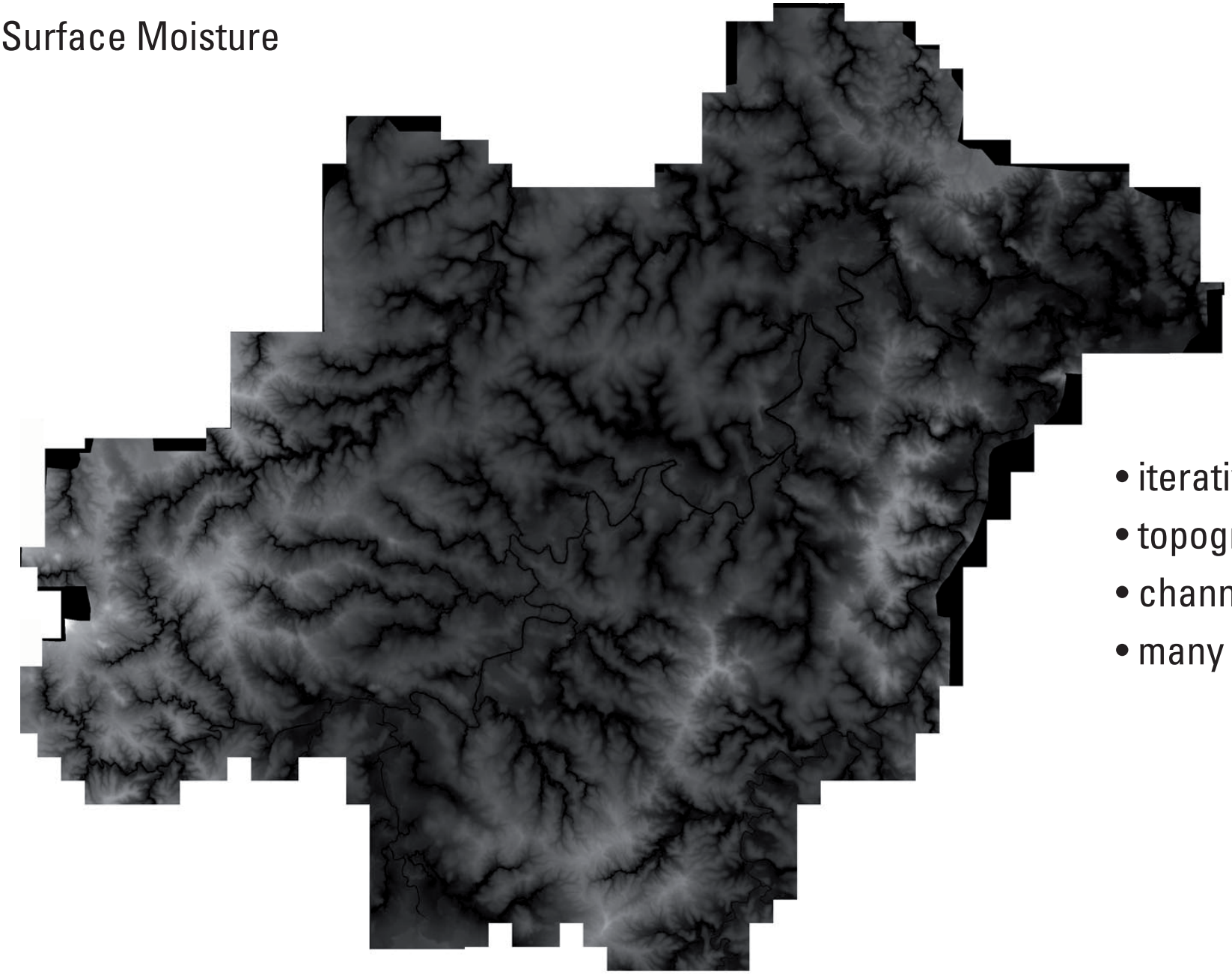


- directional flow filter
- calculates flow potential
- generates flow network
- has many additional uses

rastermatics

LOGAN CITY SPATIAL DATA

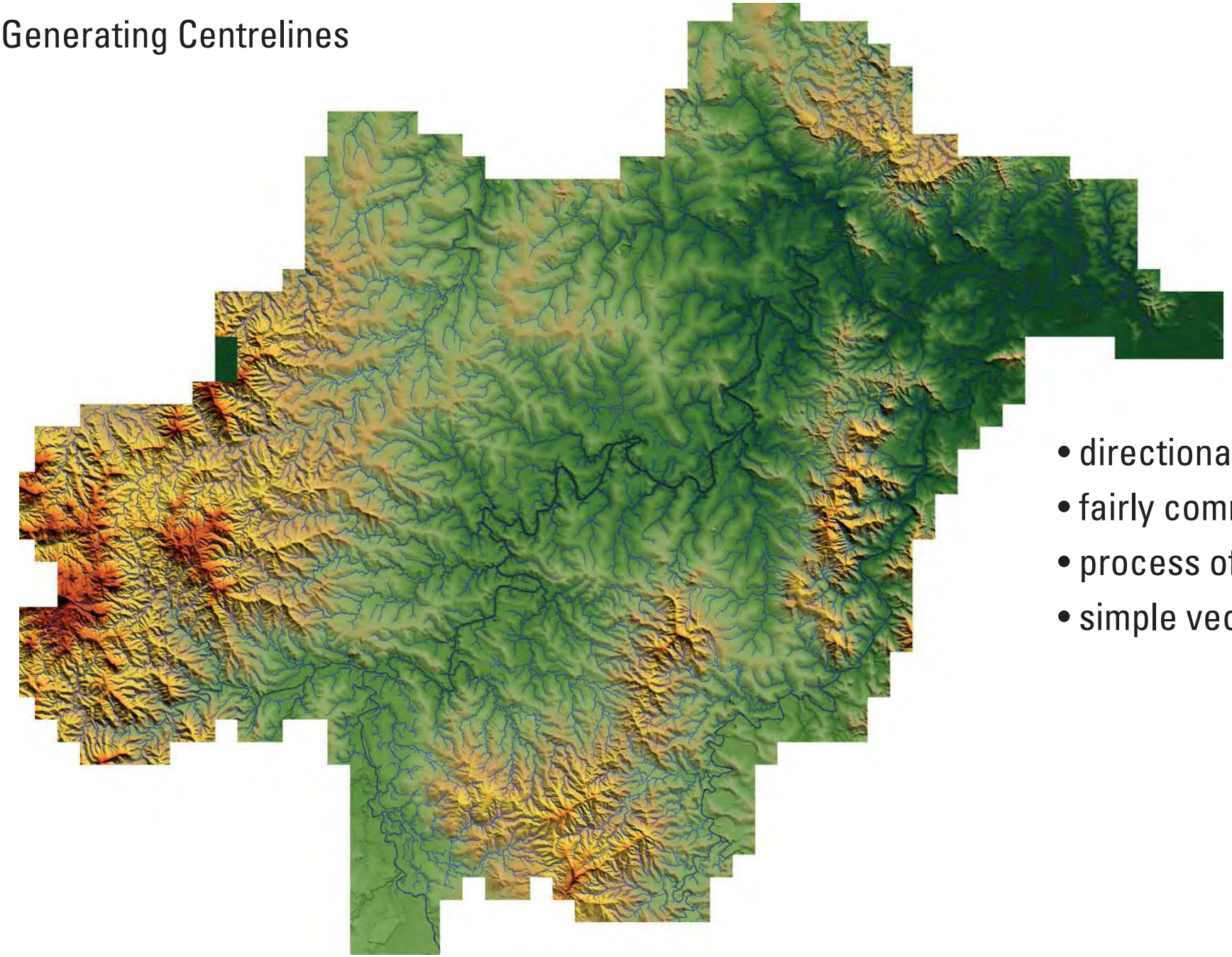
Surface Moisture



- iterative growth functions
- topographic multipliers
- channelisation and flow
- many applications

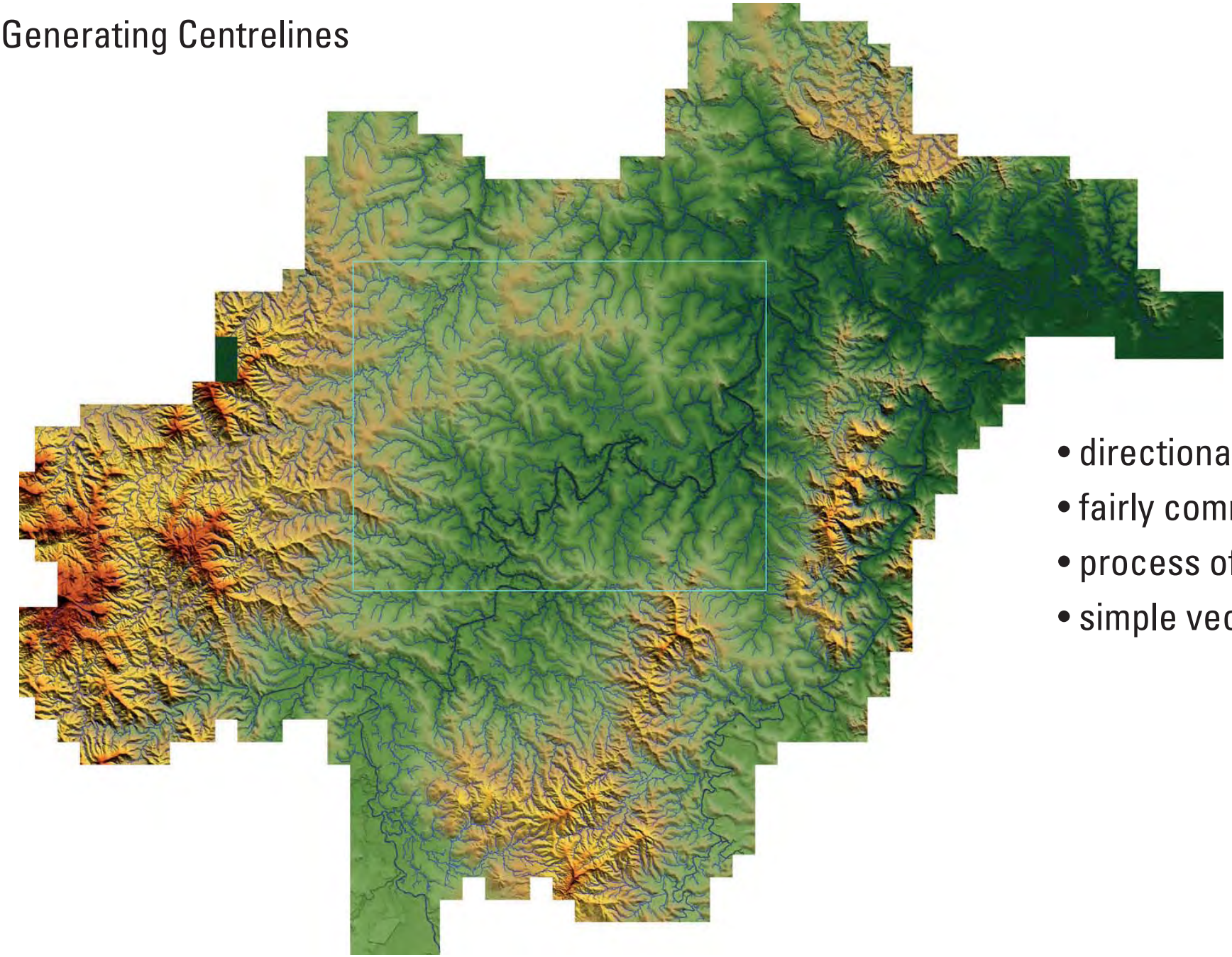
rastermatics

Generating Centrelines



- directional flow filter
- fairly common application
- process of vectorisation
- simple vector filters

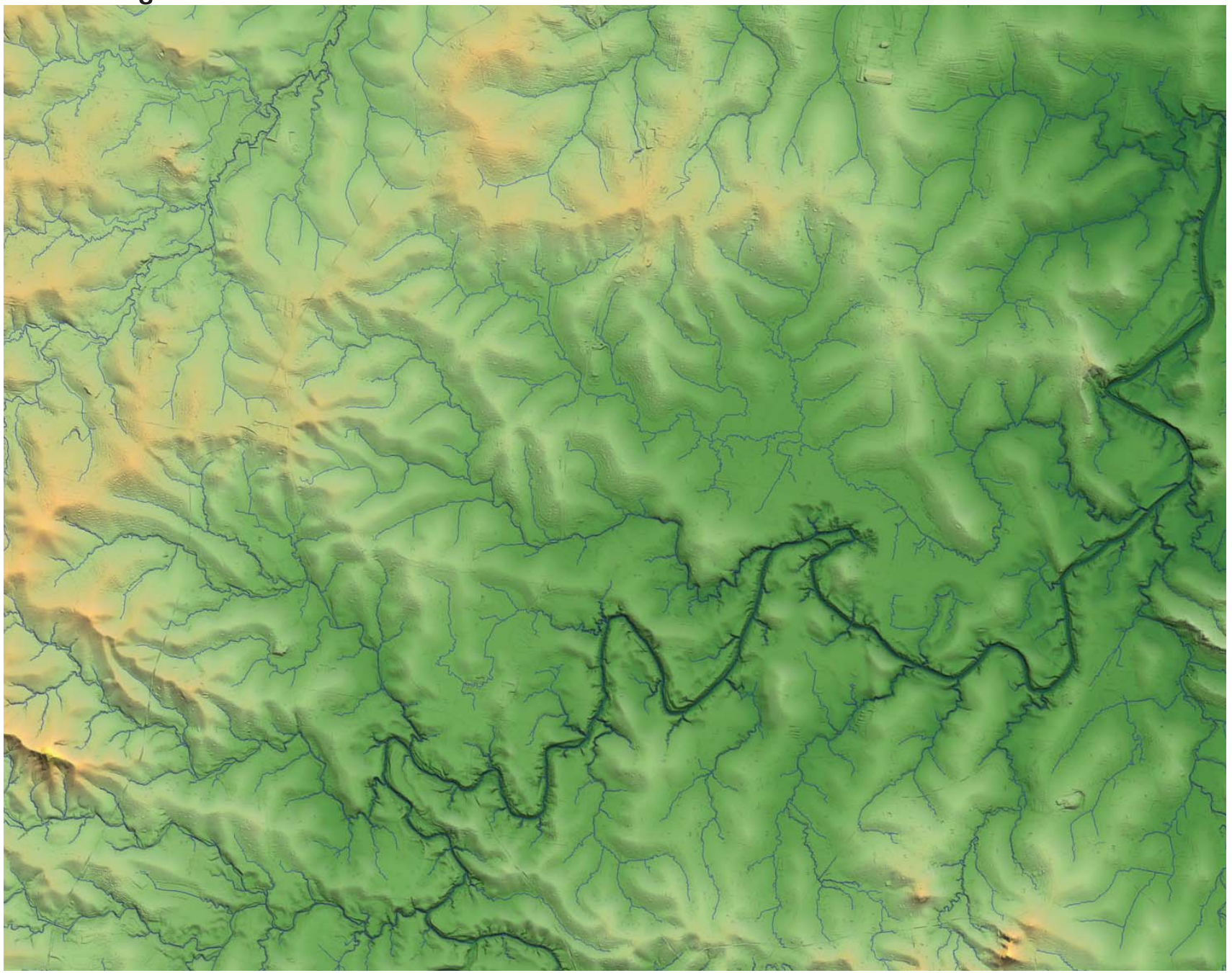
Generating Centrelines



- directional flow filter
- fairly common application
- process of vectorisation
- simple vector filters

Generating Centrelines

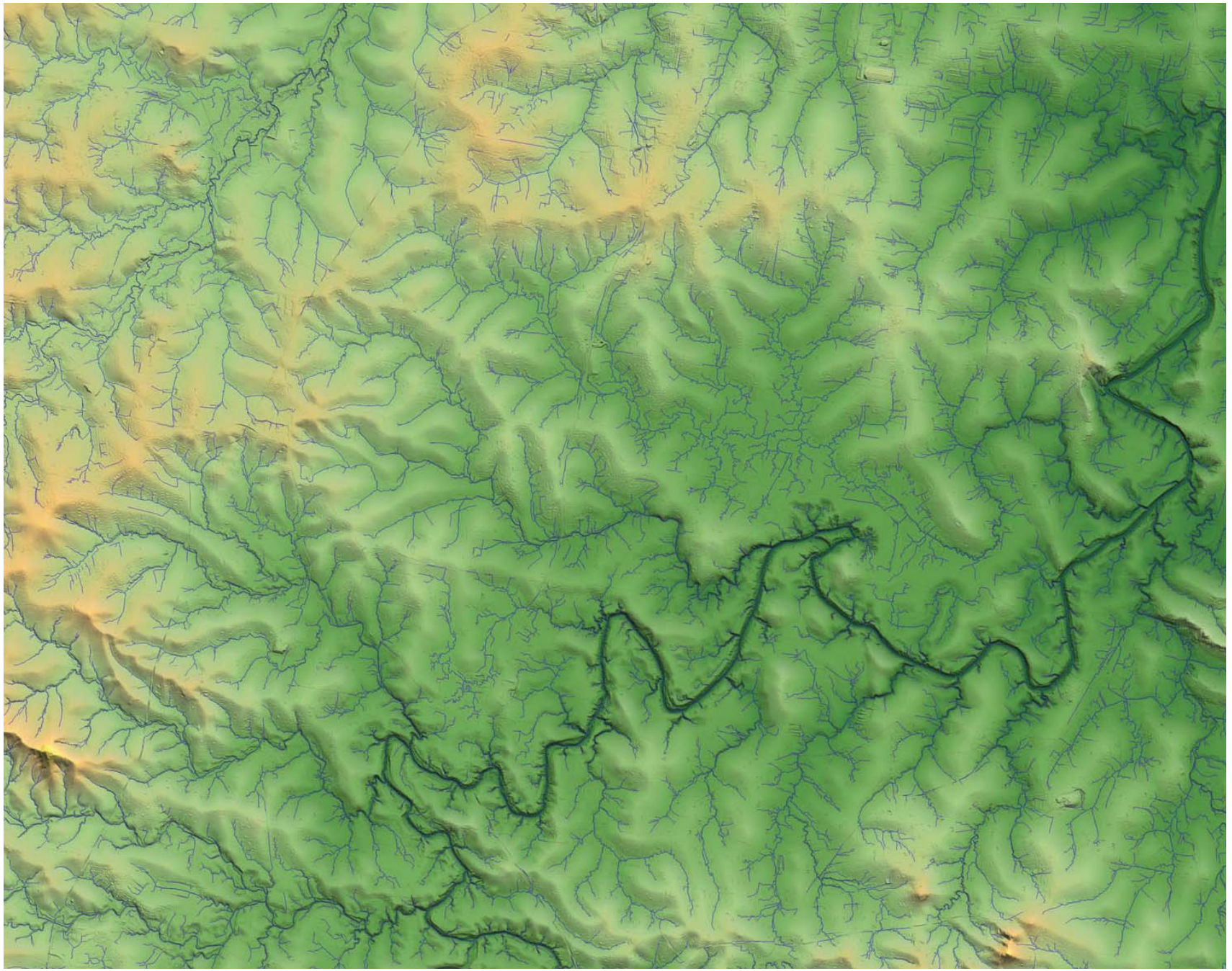
LOGAN CITY SPATIAL DATA



- >= 30 ha CA
- includes SO
- adaptive LD
- splines

rastermatics

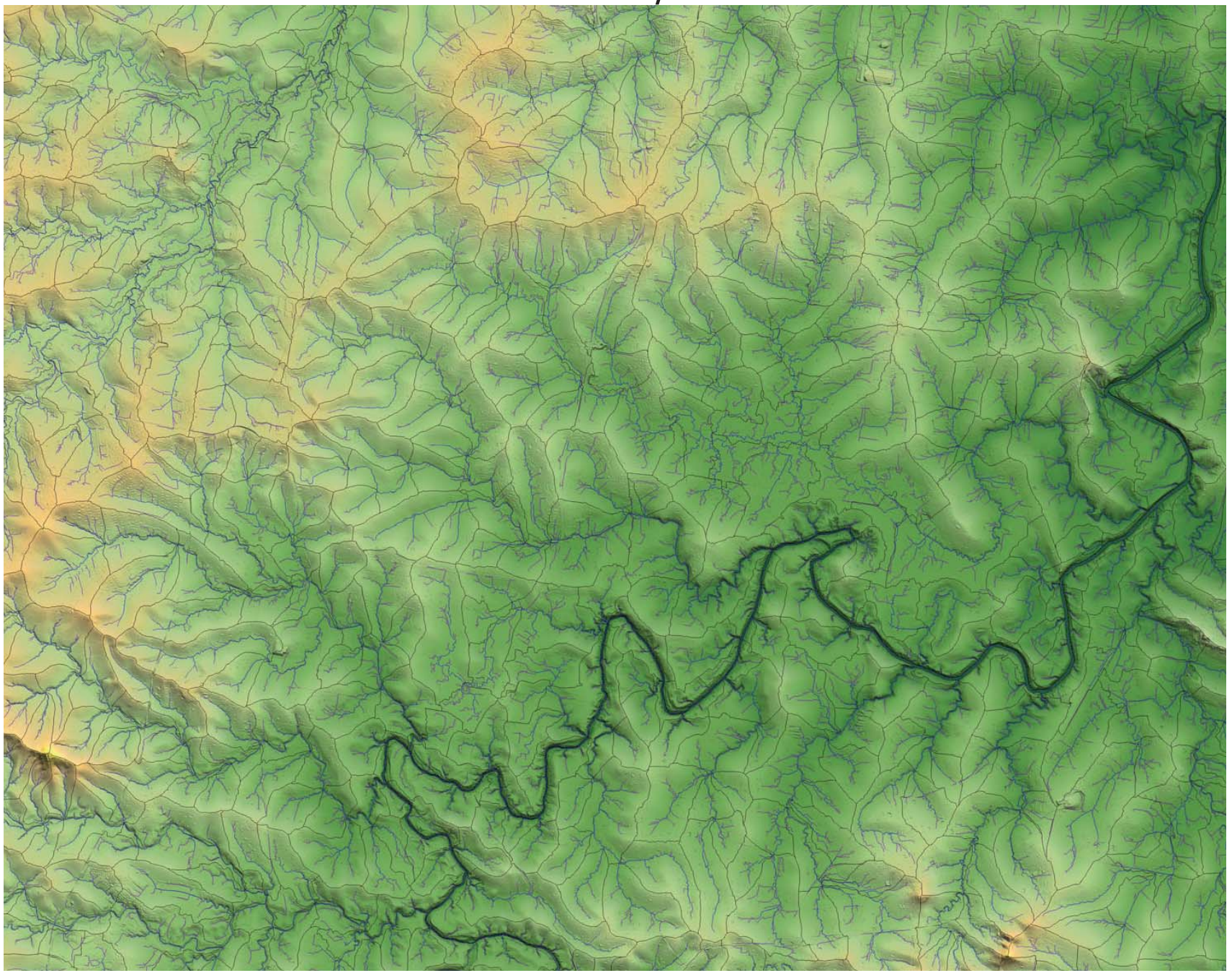
Centrelines + Overland Flow Paths



- >= 5 ha CA
- < 30 ha CA
- fit to SW network
- adaptive LD
- splines

Centrelines + Overland Flow Paths + Primary Basins

LOGAN CITY SPATIAL DATA



- Initially 30 ha max
- combined to PB

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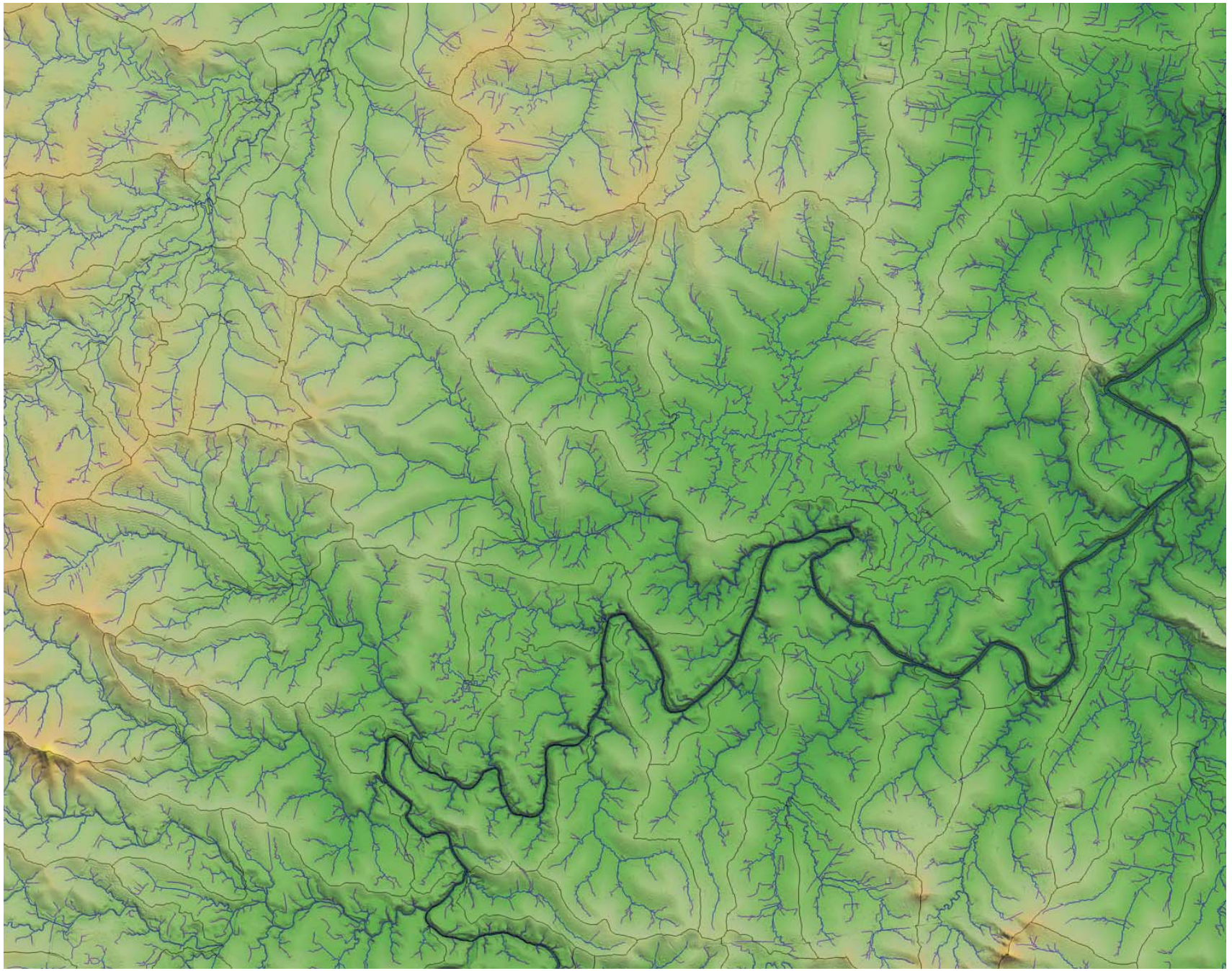
Centrelines + Overland Flow Paths + Sub-Catchments

LOGAN CITY SPATIAL DATA

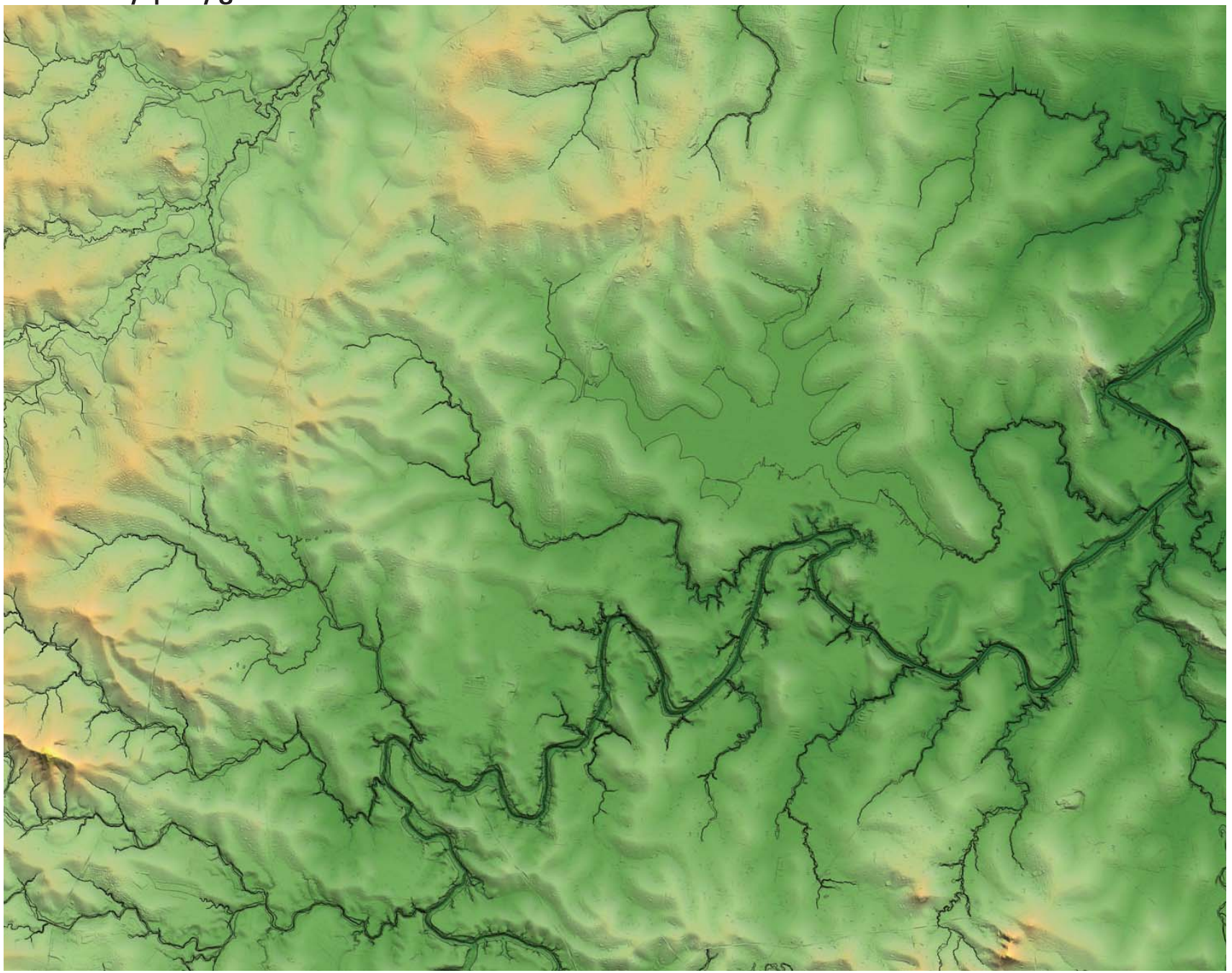


- Initially 30 ha max
- primary basins
- sub-catchments
- creek catchments

rastermatics

Waterway polygons

LOGAN CITY SPATIAL DATA

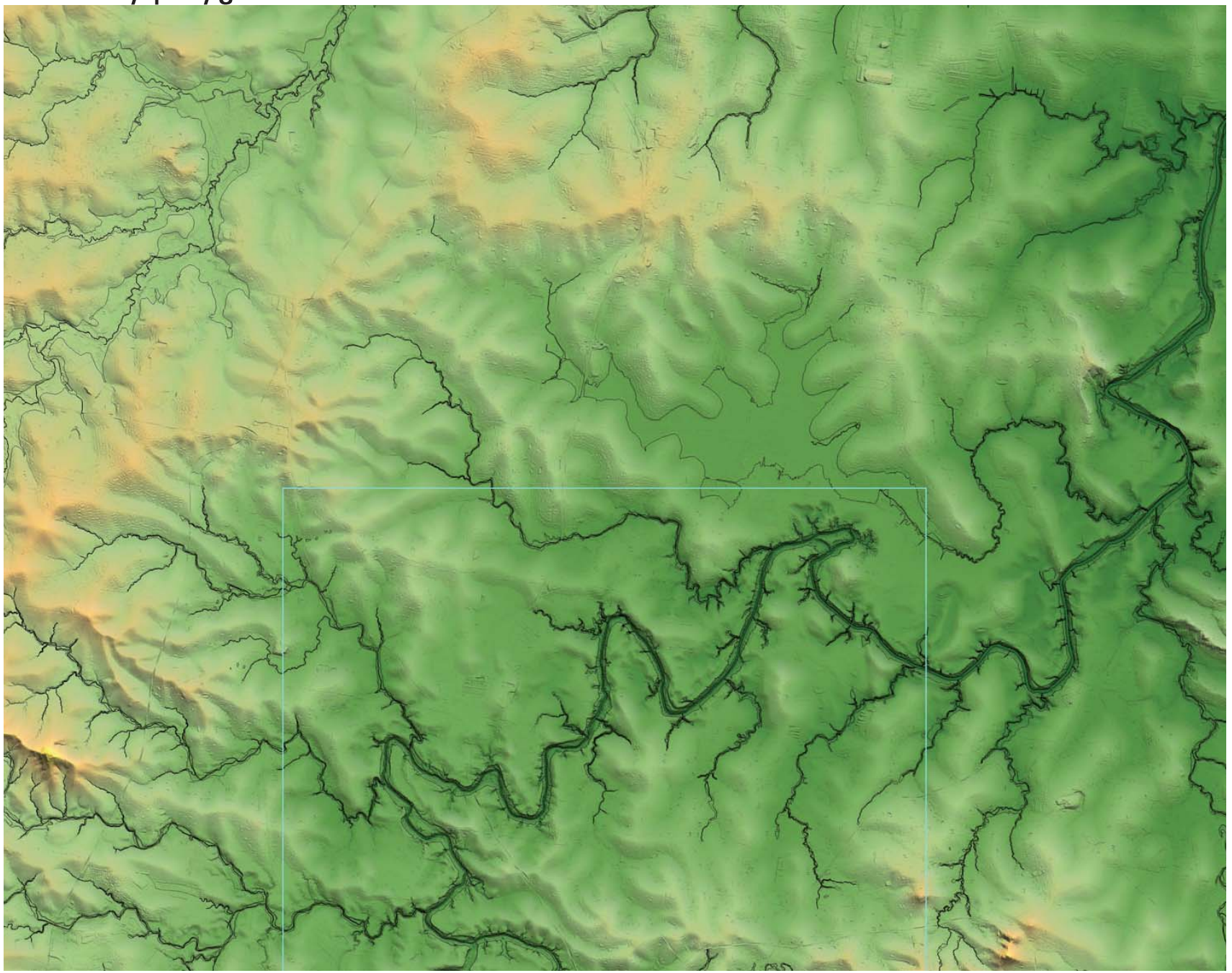


- RM models
- low bank
- high bank
- channelisation
- slope
- varience

rastermatics

Waterway polygons

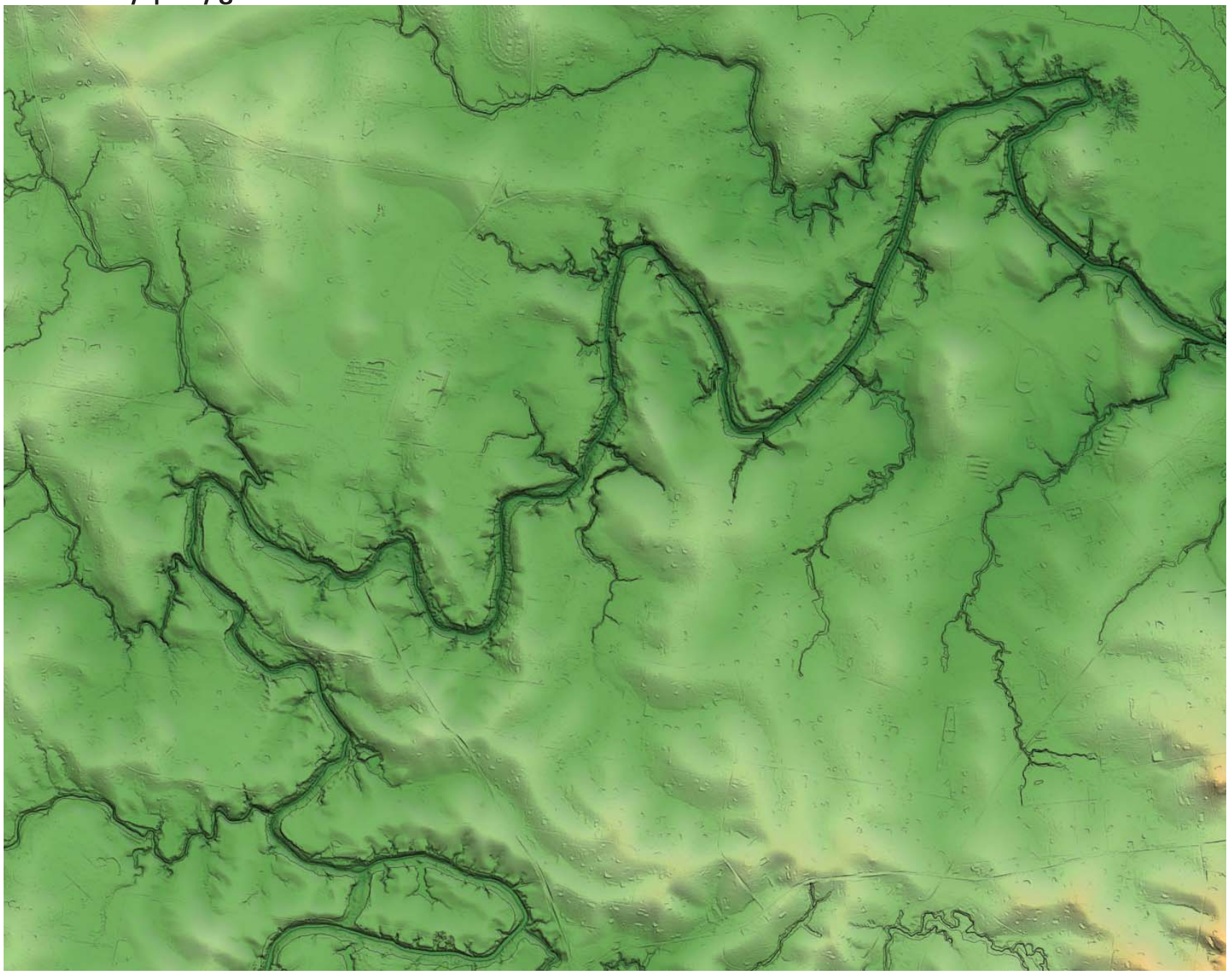
LOGAN CITY SPATIAL DATA



- RM models
- low bank
- high bank
- channelisation
- slope
- varience

rastermatics

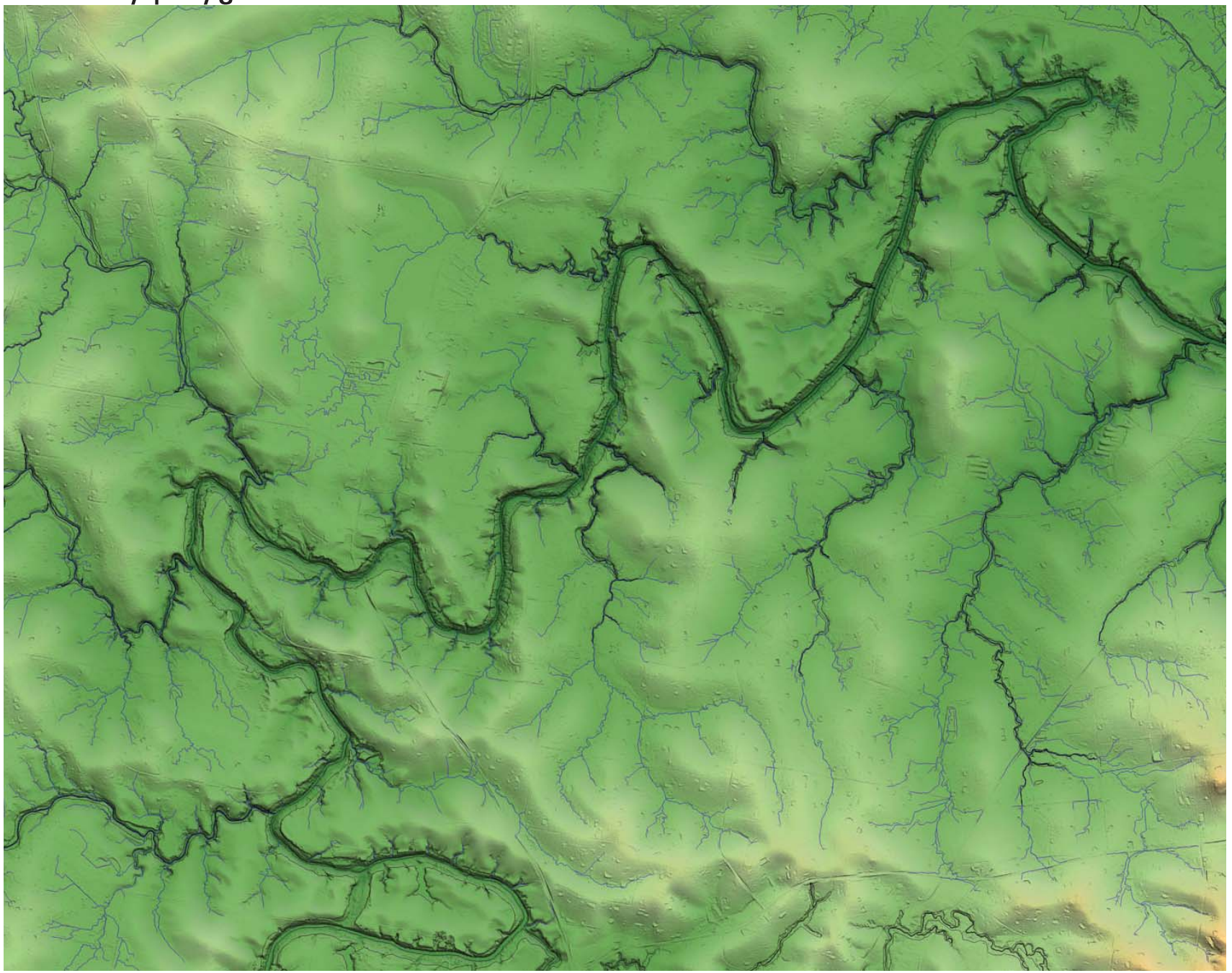
Waterway polygons



- RM models
- low bank
- high bank
- channelisation
- slope
- varience

Waterway polygons + Centrelines + OFP

LOGAN CITY SPATIAL DATA

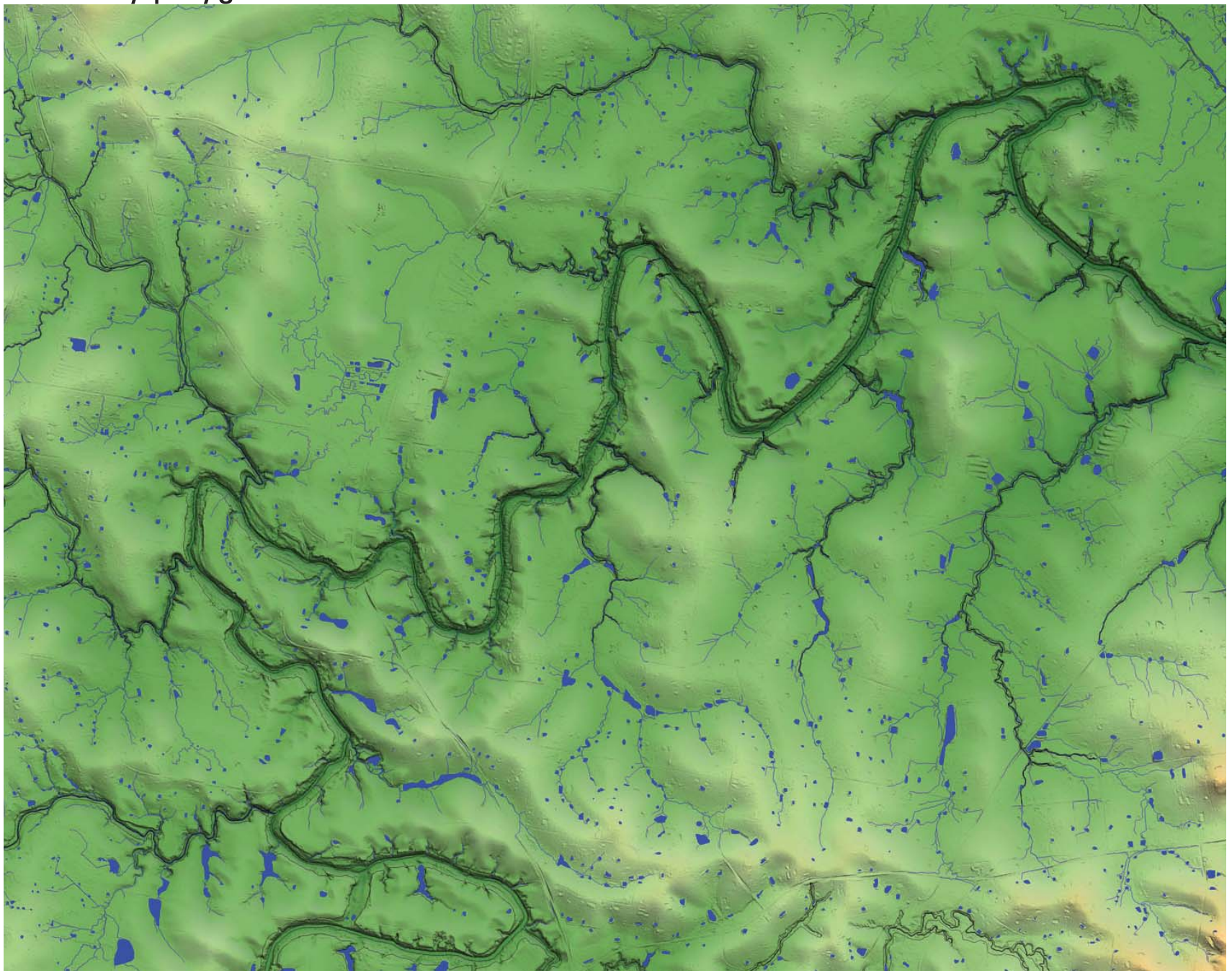


- RM models
- low bank
- high bank
- centrelines
- OFP

rastermatics

Waterway polygons + Centrelines + OFP + Waterbodies

LOGAN CITY SPATIAL DATA

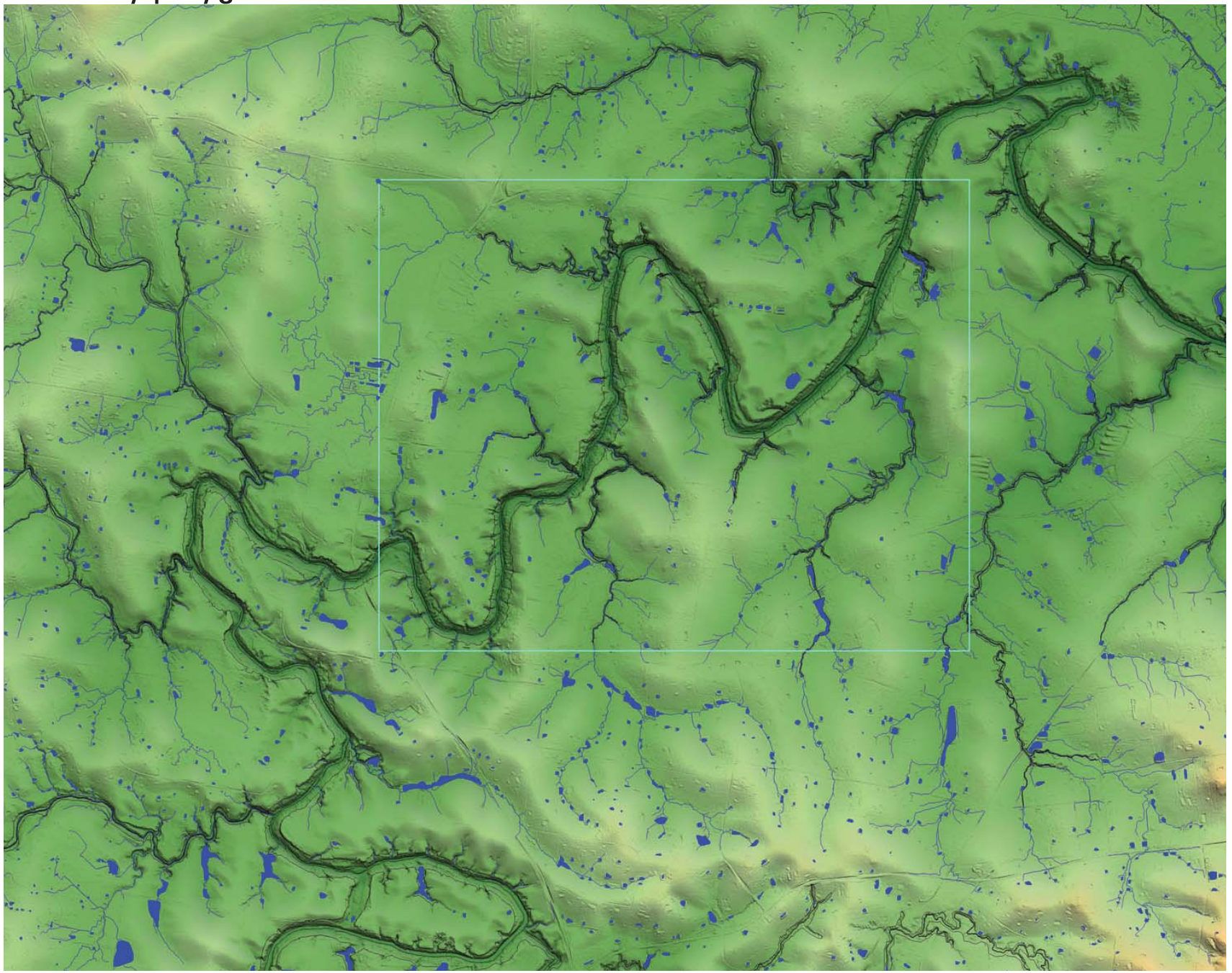


- RM models
- low bank
- high bank
- centrelines
- OFP
- waterbodies

rastermatics

Waterway polygons + Centrelines + OFP + Waterbodies

LOGAN CITY SPATIAL DATA

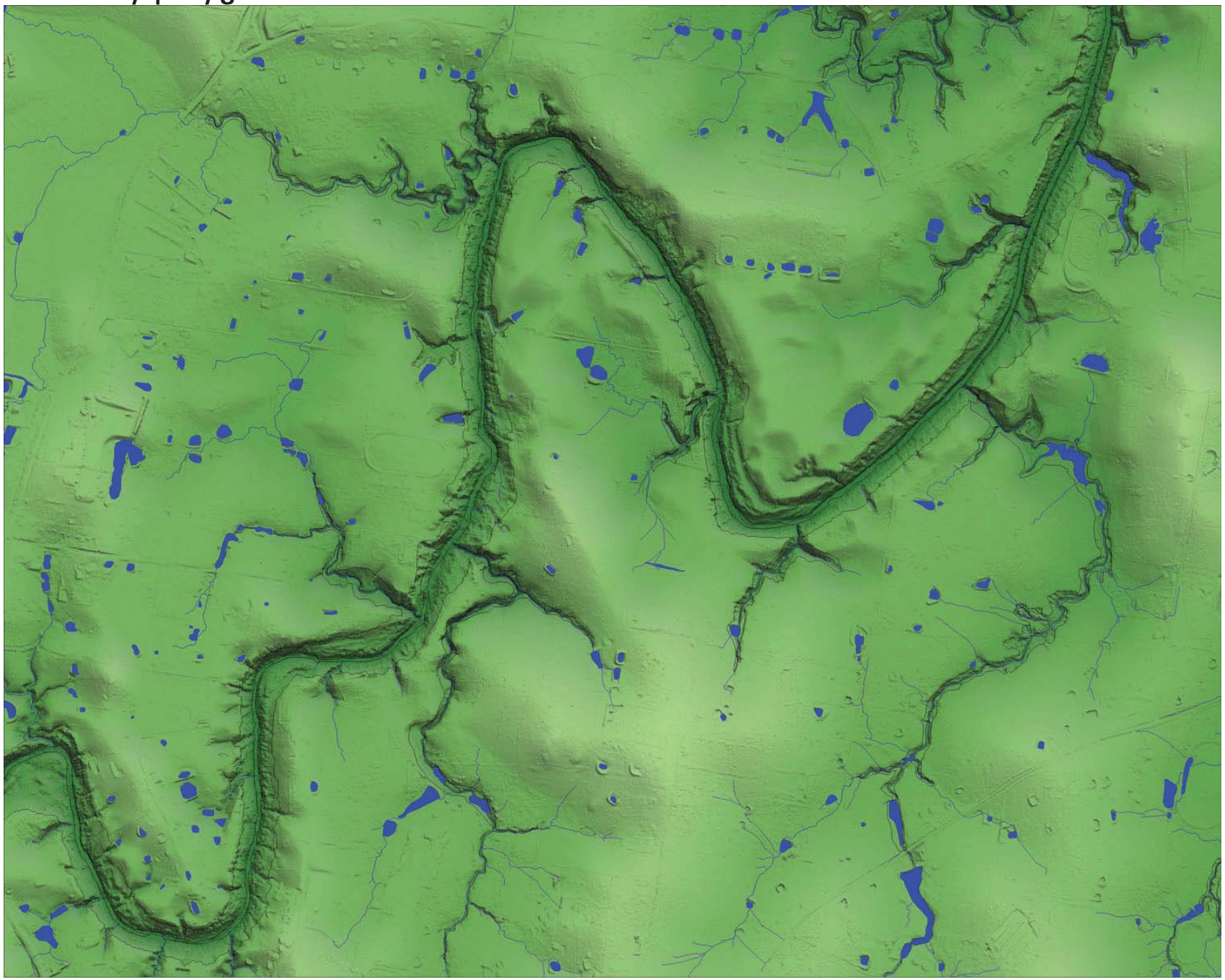


- RM models
- low bank
- high bank
- centrelines
- OFP
- waterbodies

rastermatics

Waterway polygons + Centrelines + OFP + Waterbodies

LOGAN CITY SPATIAL DATA

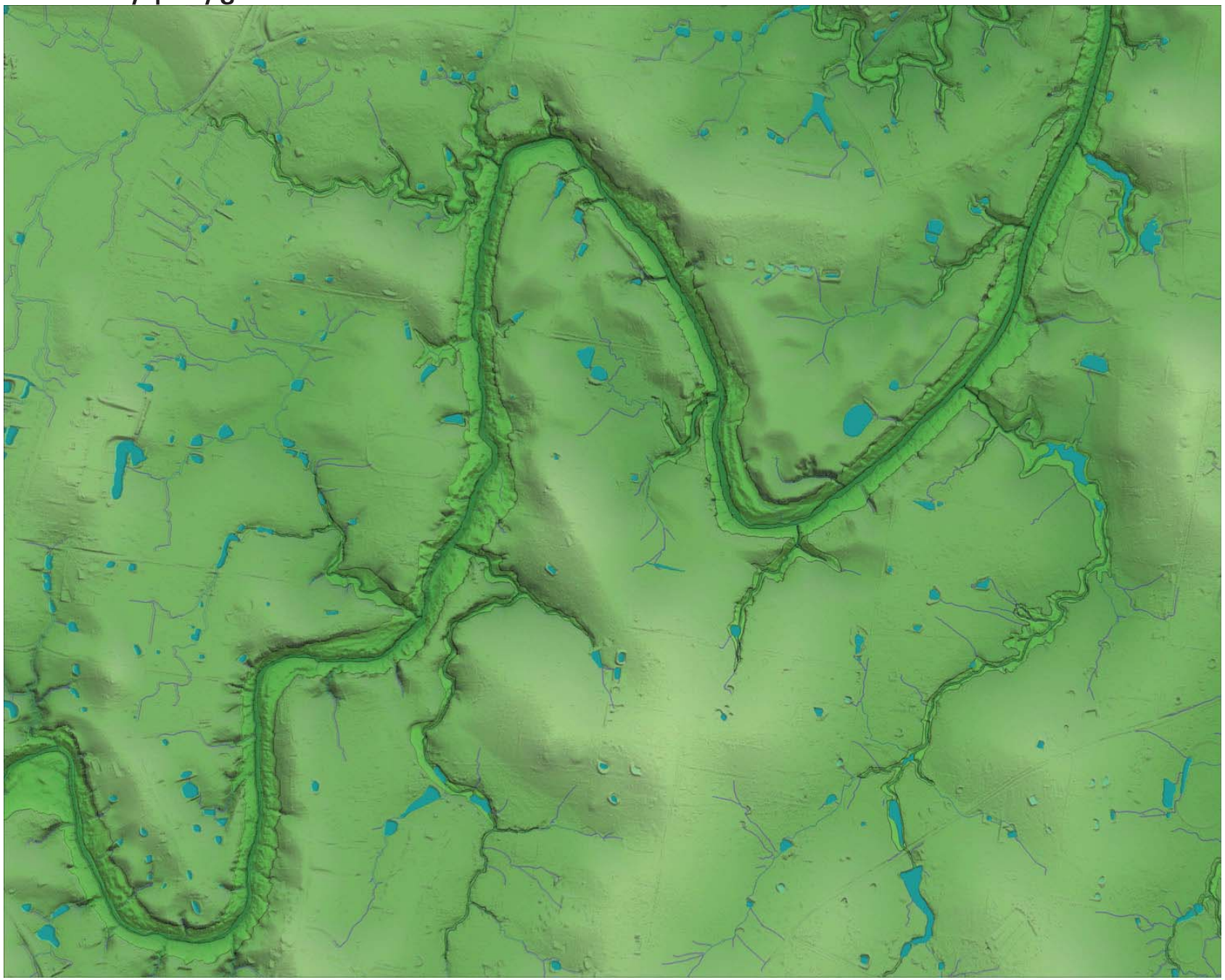


- RM models
- low bank
- high bank
- centrelines
- OFP
- waterbodies

rastermatics

Waterway polygons + Centrelines + OFP + Waterbodies

LOGAN CITY SPATIAL DATA



- RM models
- low bank
- high bank
- centrelines
- OFP
- waterbodies

rastermatics

Logan City 2009 Aerial

LOGAN CITY SPATIAL DATA

- Reference image
- rural residential

rastermatics

Logan City 2009 Aerial + Digital Canopy Model

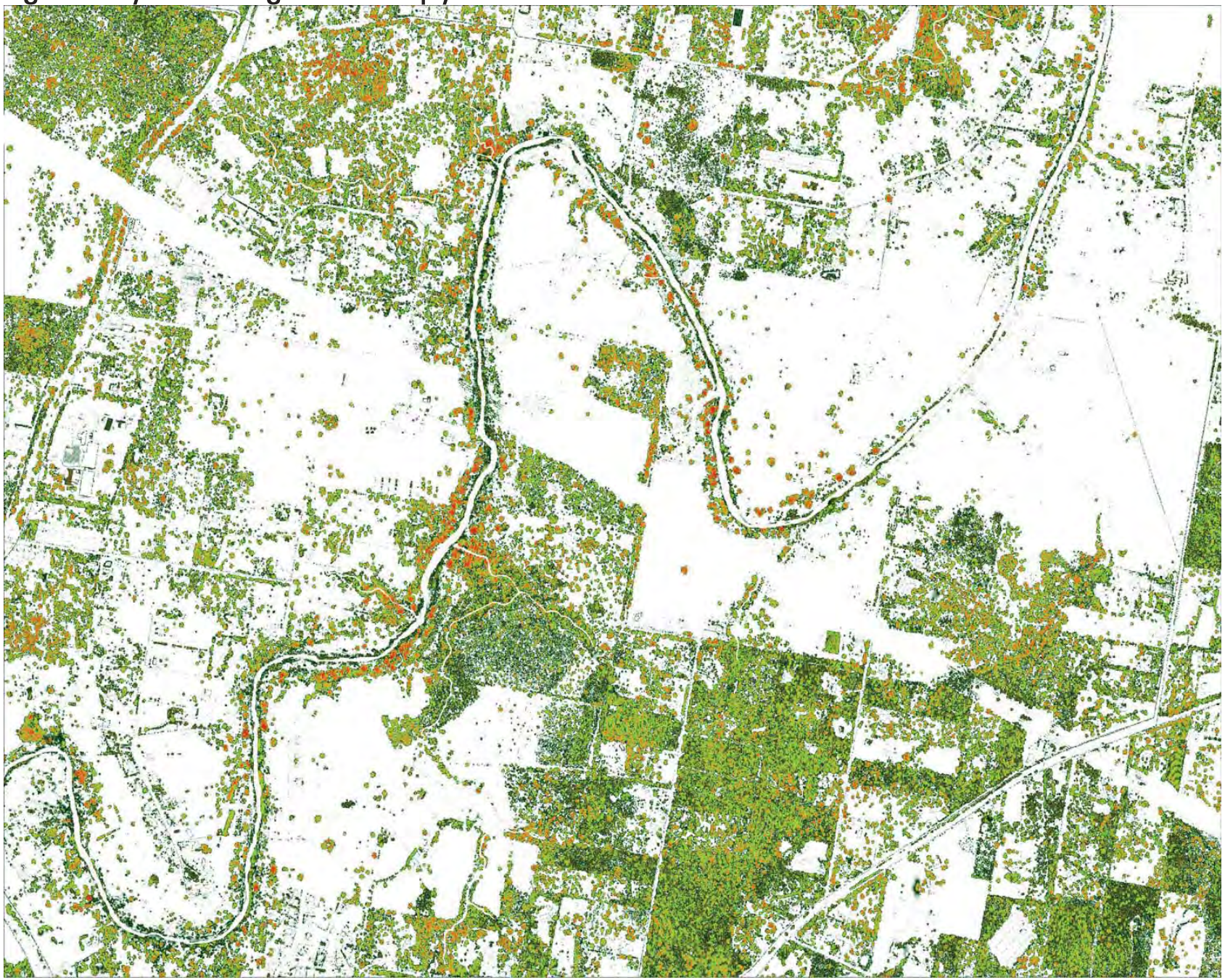
LOGAN CITY SPATIAL DATA

- Reference image
- LiDAR DCM

rastermatics

Logan City 2009 Digital Canopy Model

LOGAN CITY SPATIAL DATA

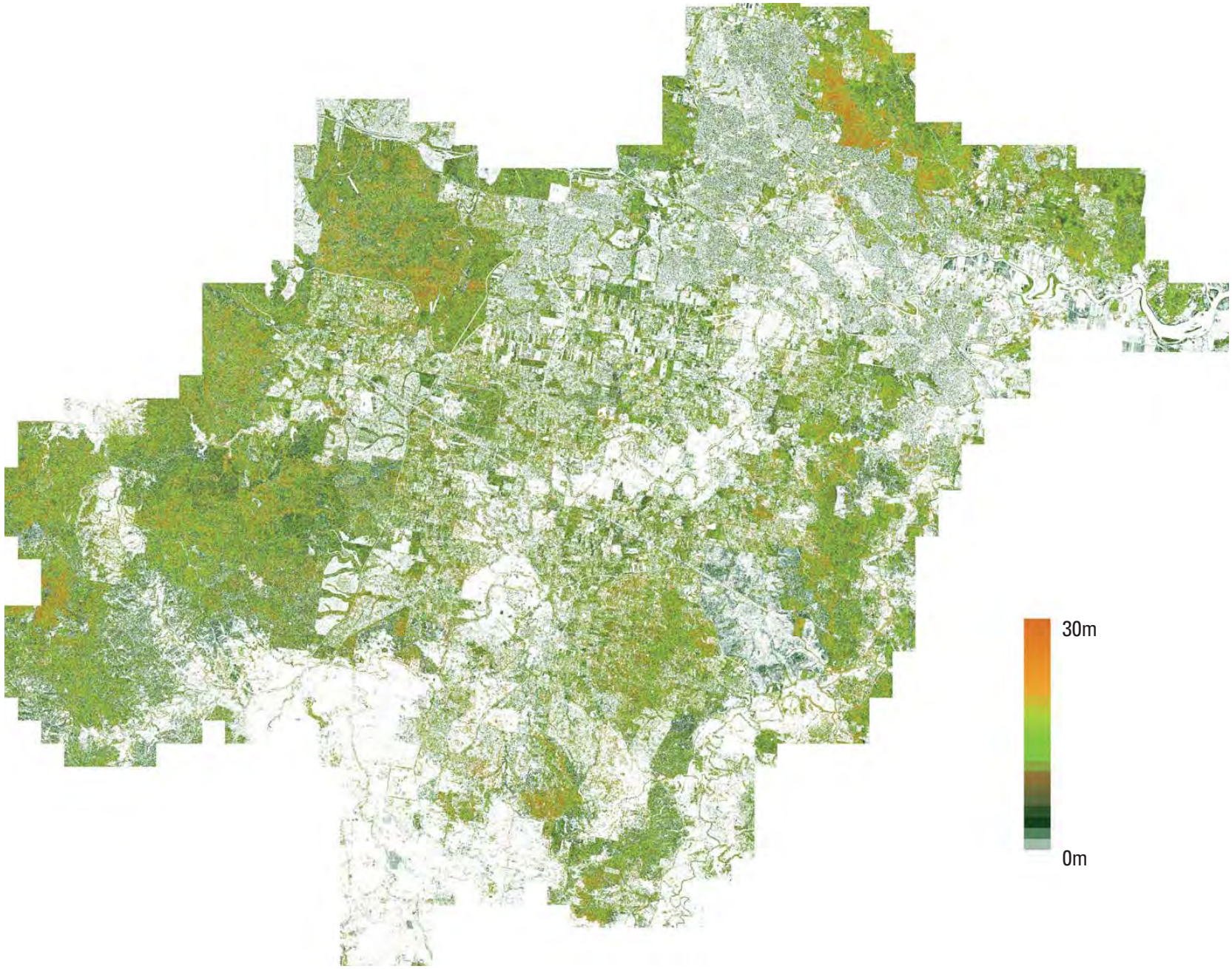


- LiDAR DCM
- Tree heights
- Tree coverage

rastermatics

Logan City 2009 Digital Canopy Model

LOGAN CITY SPATIAL DATA

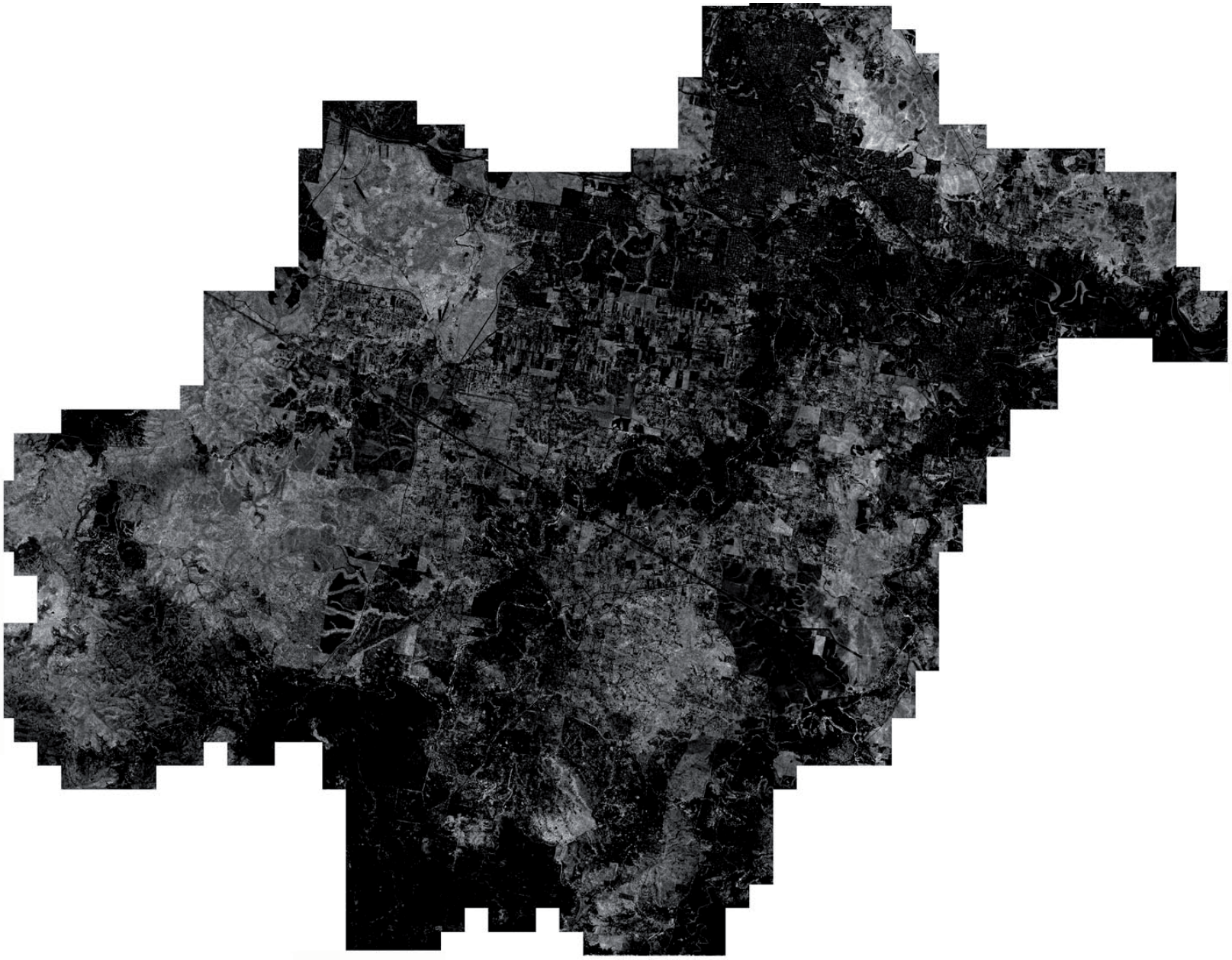


- LiDAR DCM
- Tree heights
- Tree coverage
- City wide cover

rastermatics

Logan City 2009 Digital Canopy Model (grey scale)

LOGAN CITY SPATIAL DATA

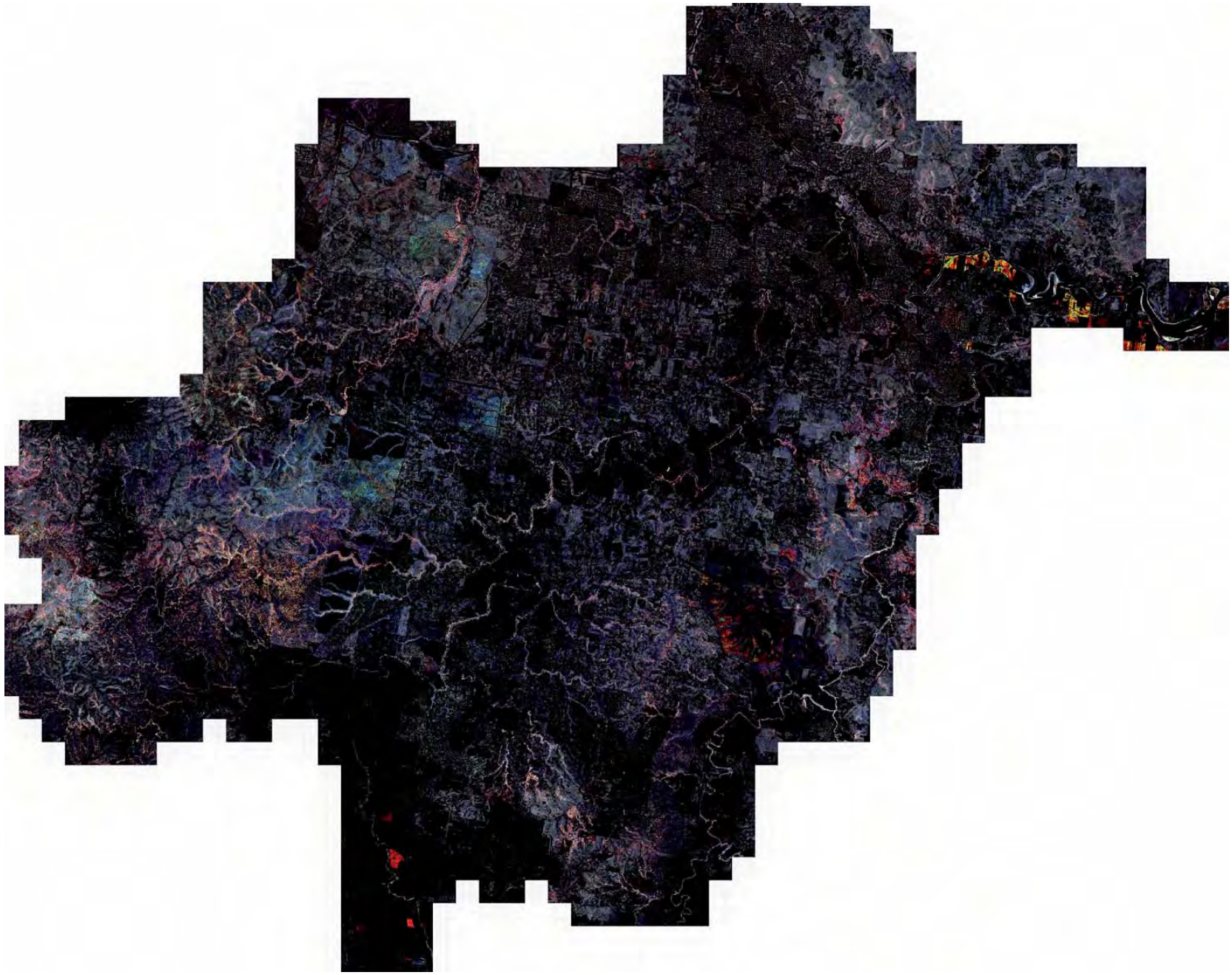


- LiDAR DCM
- tree heights
- tree coverage
- city wide cover
- many applications

rastermatics

Logan City 2009 Muti-Grid Composite (MGC)

LOGAN CITY SPATIAL DATA

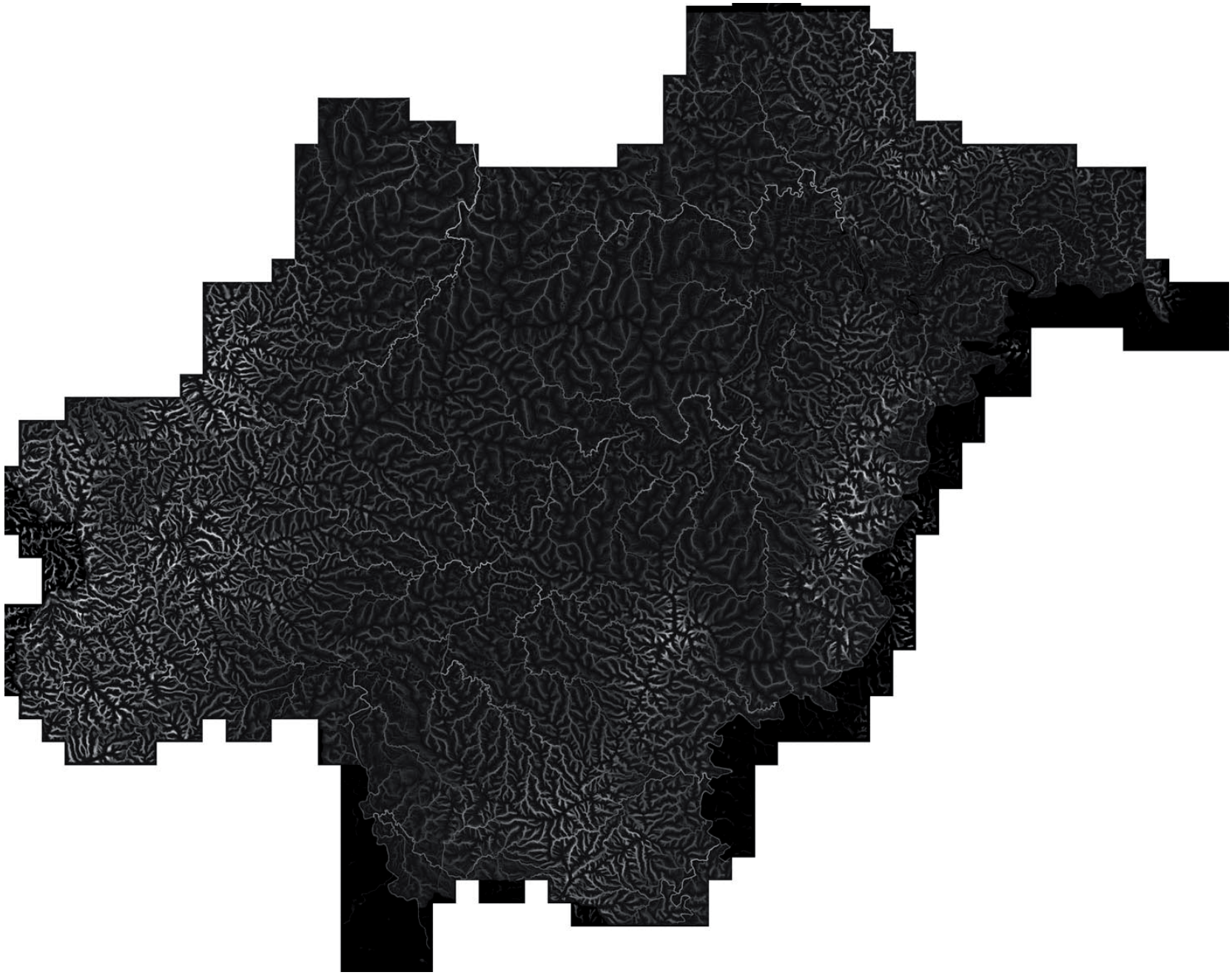


- LiDAR MGC
- veg to 4m in RGB
- 0.6 - 2m = red
- 2 - 3m = green
- 3 - 4m = blue
- structural analysis
- understorey complexity
- tool for monitoring

rastermatics

Kinetic Energy Surrogate (excluding riverine)

LOGAN CITY SPATIAL DATA

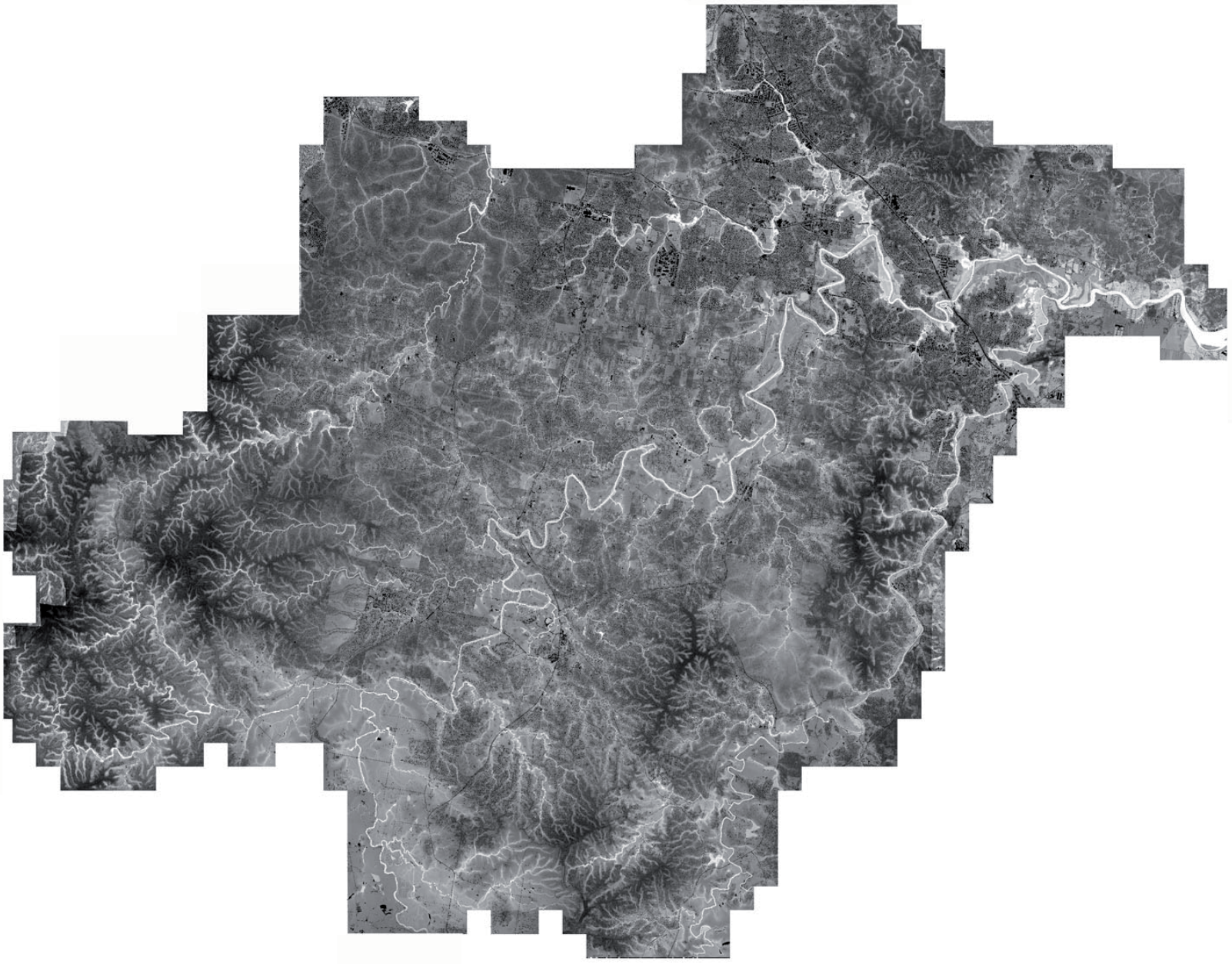


- Topographic Index
- input for erosion potential
- River energy not shown

rastermatics

Logan City Erodability Index

LOGAN CITY SPATIAL DATA

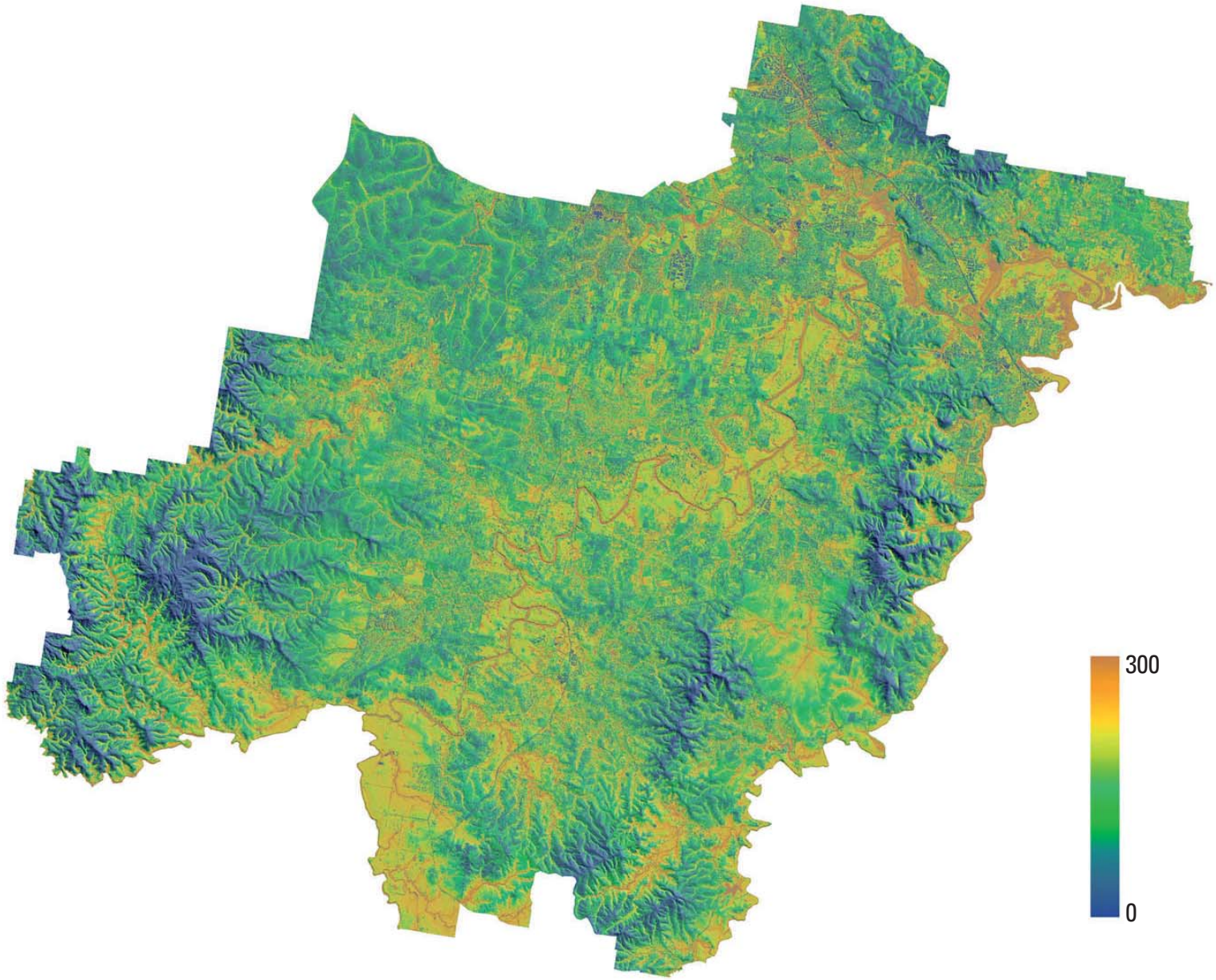


- kinetic energy
- Soils
- Land classification
- Slope & CA
- Landcover
- Based on RUSLE
- Erodabilty score
- 0 - 300

rastermatics

Logan City Erodability Index

LOGAN CITY SPATIAL DATA

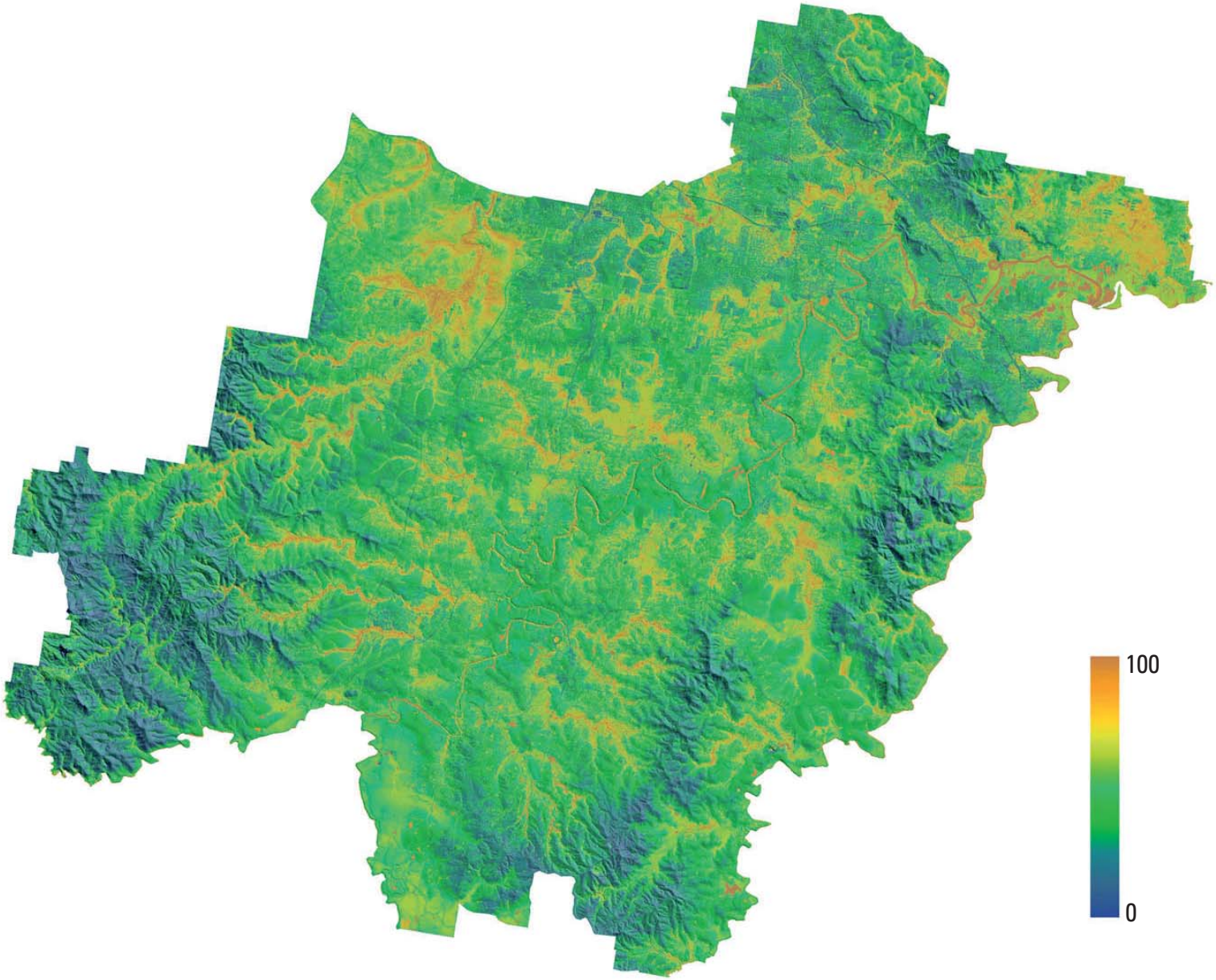


- kinetic energy
- Soils
- Land classification
- Slope & CA
- Landcover
- Based on RUSLE
- Erodabilty score
- 0 - 300

rastermatics

Logan City Initial Absorption Factor

LOGAN CITY SPATIAL DATA

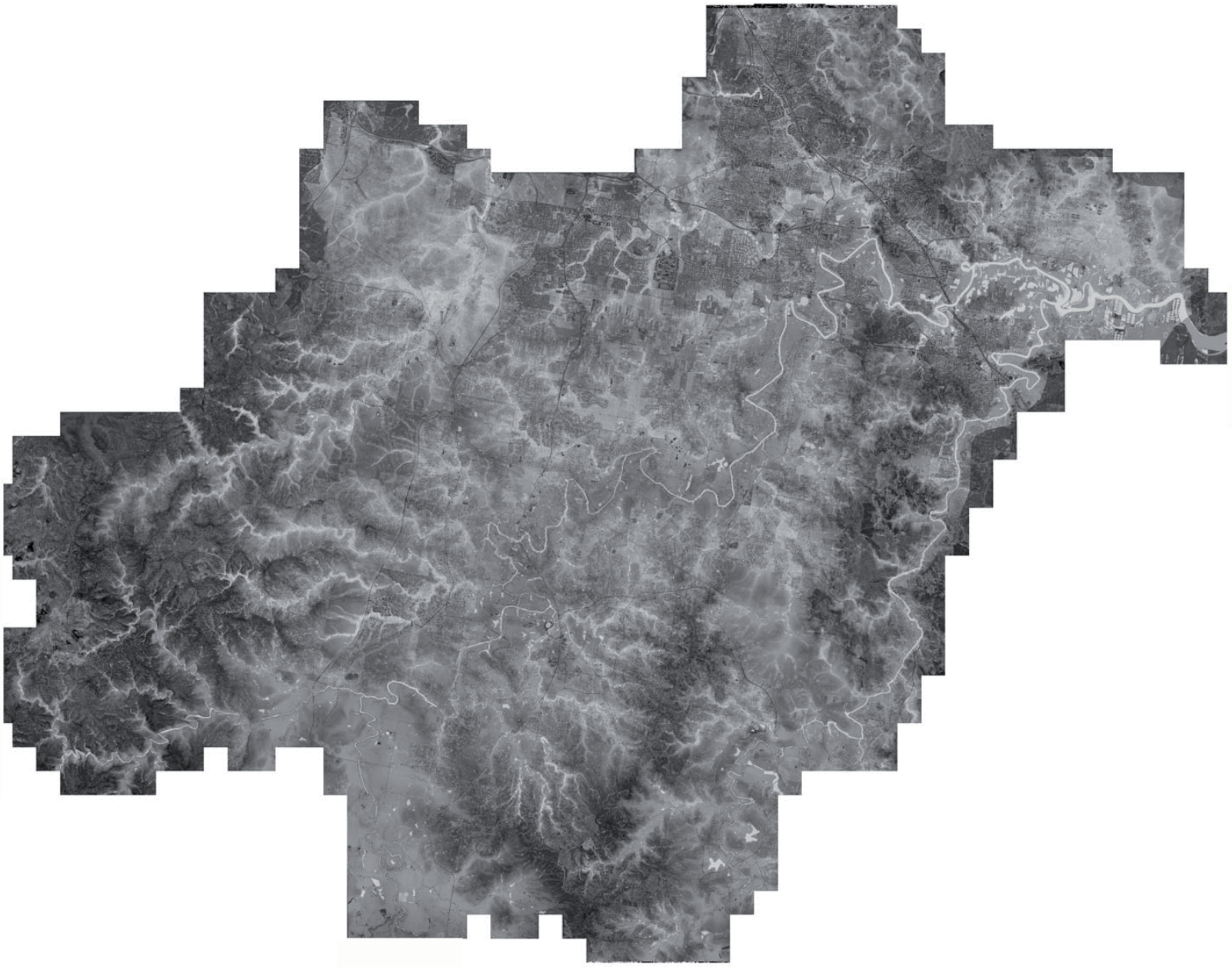


- topography
- surface moisture
- landcover
- tool for runoff calc
- flood modelling
- 0 - 100

rastermatics

Logan City Initial Absorption Factor (grey scale)

LOGAN CITY SPATIAL DATA

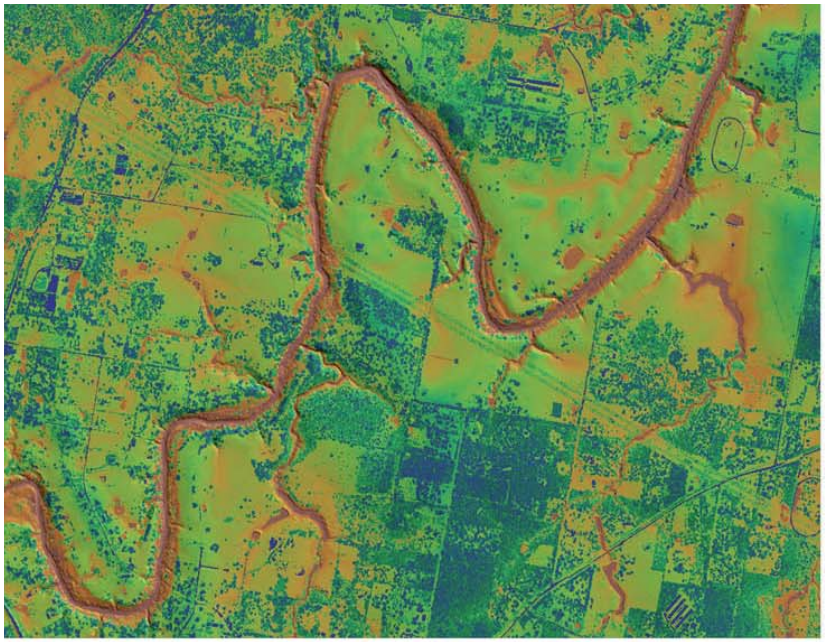


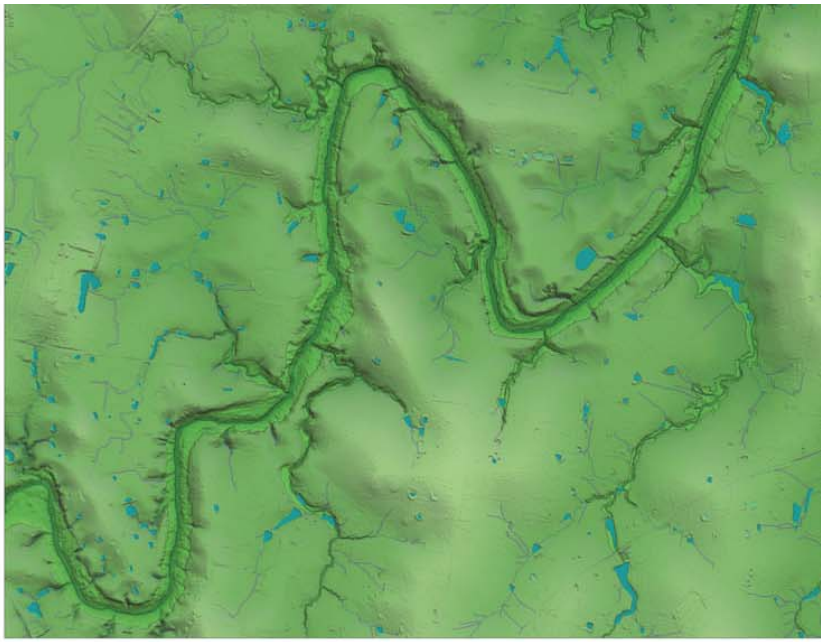
- topography
- surface moisture
- contributing area
- landcover
- tool for runoff calc
- flood modelling
- 0 - 100

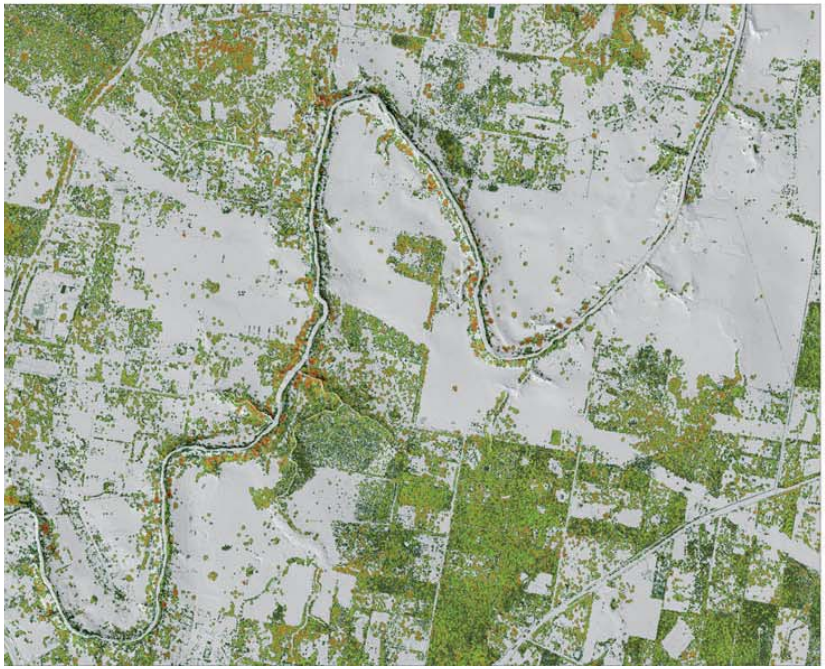
rastermatics

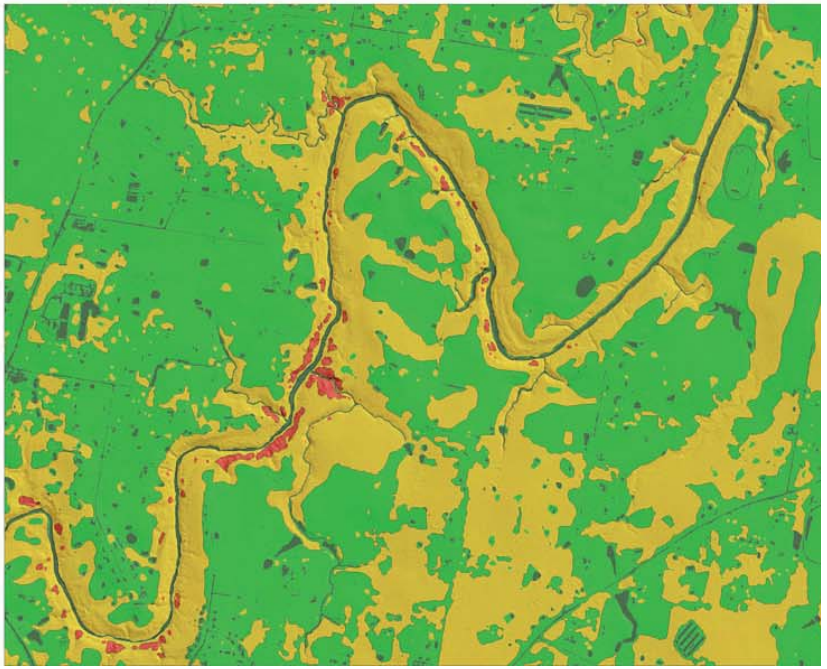
Questions?

LOGAN CITY SPATIAL DATA









- Bushfire Hazard
- Waterways
- Centrelines
- Catchments
- DCM
- MGC
- Erodability
- Initial Absorption

rastermatics