



Code-A-Node

TfL West London Highway Assignment Model

Structure

- Introductions
- Why develop a network coding tool?
- Demonstration
- Q & A

Why develop a network coding tool?

- Network/zoning consistency needed across HAMs
- Build on coding spreadsheet developed by Mott MacDonald
 - Improved interface with coder
 - Reduce potential for inconsistency e.g. link lengths by direction
 - Increased checking by eliminating NAFFs and serious errors at source
 - Reduce scope for error
 - Increase transparency – ‘visible coding’
 - Improve coding speed and accuracy
 - More visible audit trail/change control

Preparation

- Prepare node-link network structure before coding junctions
 - **Full** node structure and numbering
 - Expanded junctions e.g. signalised roundabouts
 - Reliable Link Orientation
- Pre-definition of:
 - One way links
 - Banned turns
 - Junction types
 - Link lengths
 - Bus lane locations

Additional Features of Interface

- Automatic link to aerial photograph/mapping
- Intelligent choice sets for coder
 - Road type/ speed limit/ flares/ lane choice/ downstream restrictions etc
 - Easy node name conversion from LTS MTE
- Easy transfer of data between modelled periods
- Coding still requires user interpretation of junction layouts e.g. shared turns

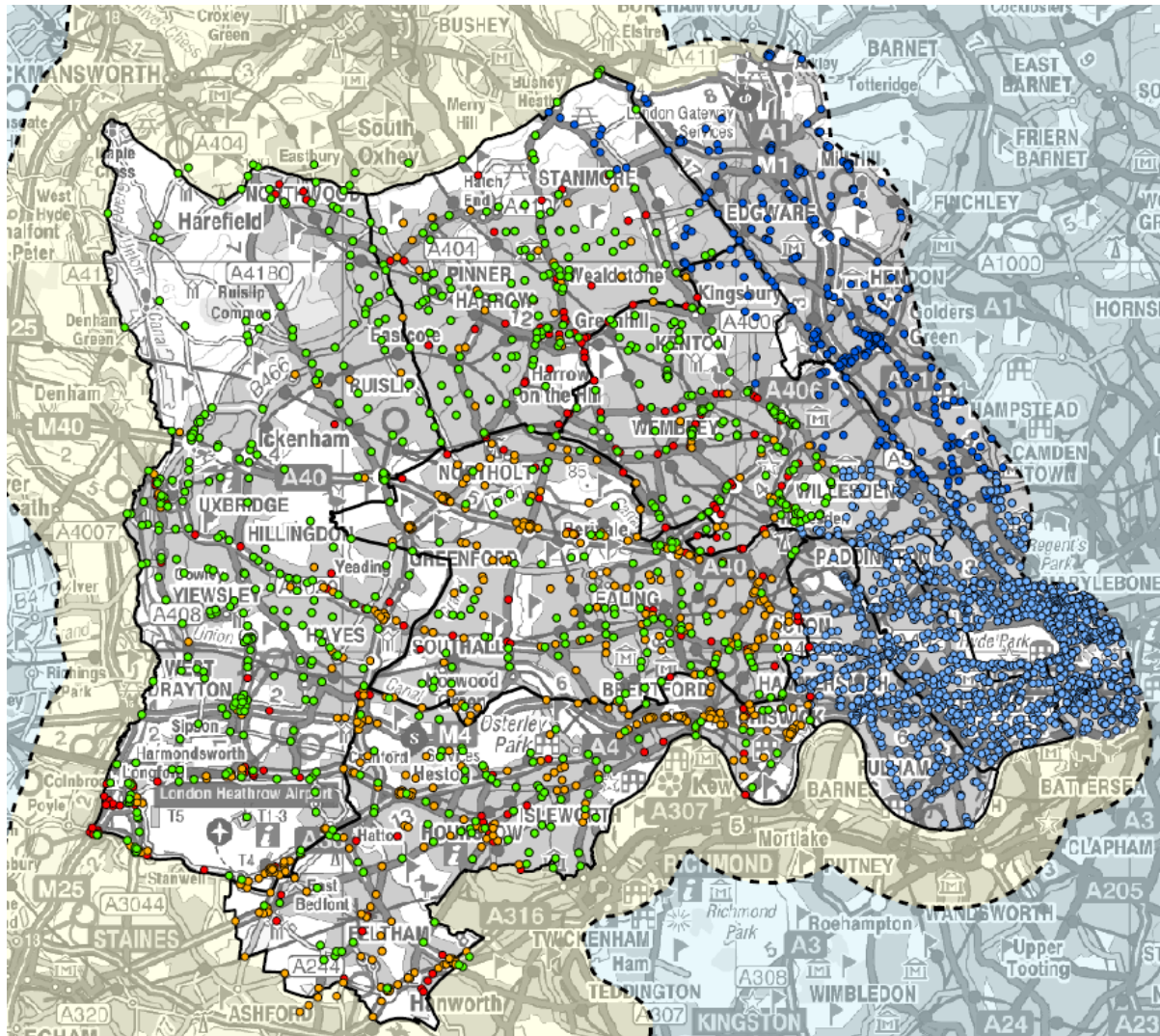
Safety Nets

- SATNET check undertaken on each node as it is coded
- P1X display checks
- Corrections, if required, undertaken at the point of coding
- Quality control/ cross-check by Coding Team Leader post-SATNET
- SATURN 11111 node deck built on-screen as coding progresses
- SATURN coding stored in the node coding spreadsheet

Preliminary Network Calibration (pre-prior matrix)

- '5 Borough' Assignment being undertaken to test network connectivity (unused links, unreachable nodes etc) using 'M25' model demand
- Broad network capacity checks
- Plausibility of routes

Code-A-Node – West London Highway Assignment Model



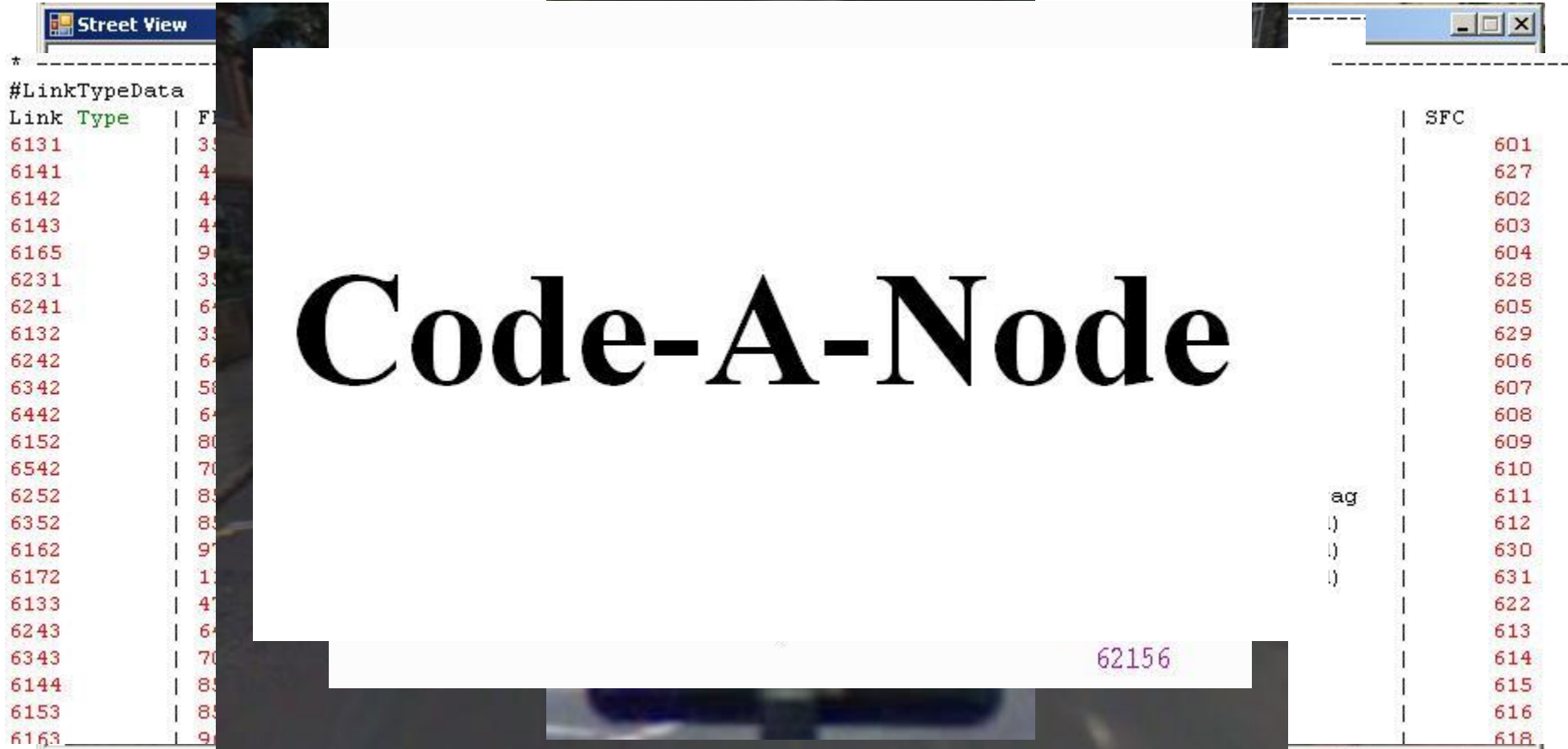
Our Philosophy

- The coding tool is not a panacea for creating 'perfect' networks
- The intention is restrict the potential for errors and minimise their occurrence
- The coding tool ensures consistency of approach to coding a wide range of junctions
- The coding tool ensures consistency of checking of the data entered
- The intention is to reduce the amount of time spent during model calibration fixing network coding errors
- **There will be a need to adjust network coding parameters (for justifiable reasons) during model calibration – these are NOT network coding errors but a recognition that universal coding cannot address all local circumstances**

Demonstration of Code-A-Node

Mohammed Uddin

Code-A-Node



The screenshot shows a web application interface. On the left, a window titled "Street View" is visible. Below it, a table displays "#LinkTypeData" with columns for "Link", "Type", and "F". The table contains 20 rows of data. On the right, a window titled "SFC" is visible, showing a list of numbers from 601 to 618. A "Code-A-Node" label is positioned in the center of the page, overlapping the table and the SFC window. The number "62156" is visible in the bottom right corner of the SFC window.

Link	Type	F
6131	3	3
6141	4	4
6142	4	4
6143	4	4
6165	9	9
6231	3	3
6241	6	6
6132	3	3
6242	6	6
6342	5	5
6442	6	6
6152	8	8
6542	7	7
6252	8	8
6352	8	8
6162	9	9
6172	1	1
6133	4	4
6243	6	6
6343	7	7
6144	8	8
6153	8	8
6163	9	9

SFC
601
627
602
603
604
628
605
629
606
607
608
609
610
ag
611
612
630
631
622
613
614
615
616
618

Demonstration (Video)

1. [Priority Junction](#)
2. [Roundabout](#)
3. [Traffic Signal and Network building](#)

1. Network structure error
2. Junction identification error
3. Interpretation of Junction Layout
4. Representation of Junction operation
5. Inconsistency in junction parameters (e.g. Saturation flows)
6. Error in Signal timing – Different Network Structure
7. Flare effect
8. Bus lane operation
9. Non Geometric operation of Junction (e.g. One lane operates as 2 lanes)
10. Link type, speed flow curve and speed limit definition
11. Defining junction detail in SATURN (orders of nodes and arms)
12. Data formatting
13. Roundabout approach Vs stop-line
14. Network structure change after simulation junctions coded

Reference Coding Speed



Junction type	Experienced Modeller (3 + years experience)	Junior Modeller (0-2 yrs experience)	Note
Priority	25-30 per day	20-25 per day	Depends number of arms and aerial photographs quality
Roundabout	35-40 per day	20-25 per day	Depends on aerial photograph quality
Signal	15-20 per day	7-12 per day	Depends on signal data quality
Checking	35-40 per day		

Question and Answer