SATURN UGM – EPSOM NOVEMBER 2019

SATURN 11.5
HAM Production Version 4
ULEZ Application

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EVERY JOURNEY MATTERS

HAM Models

A Short History and Overview

HAM Development History

The London Highway Assignment models were first conceived in 2007 / 2008 when it was considered necessary to have a consistent set of models covering London and surrounding areas inside the M25:

- HAM P1 Developed as 5 Sub-HAMS and completed in 2011
- HAM P2 Developed as 5 Sub-HAMS and completed in 2014
- HAM P3 Developed as 5 Sub-HAMS + LoHAM and completed in 2016

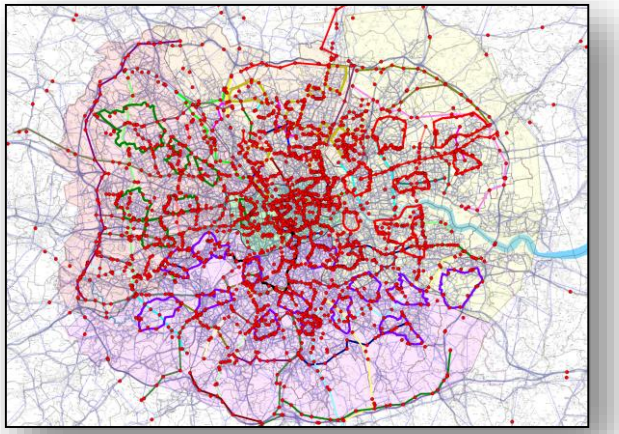
- This presentation focuses on the imminent release of
- ***HAM Version 4.1*** and the implementation of ULEZ and CCZ in SATURN 11.5.

Current Version - HAM Production 4.0

Modelling year	Time Period	User class
Base year Nov 2016	**AM (8:00-9:00)**	**Car (In Work Time)**
2021	**IP (10:00-16:00)**	**Car (Out of Work Time)**
2026	**PM (17:00-18:00)**	**Taxi**
2031		**PHV**
2041		**Light Goods Vehicles (LGV)**
Possible Future 2051		**Other Goods Vehicles (OGV)**

Calibration / Validation	Number
Screenlines	**318**
Mini screen-lines	**2414**
Counts	**4085**
Journey time Routes	**340**

Category	Number
Priority Junctions	**15612**
Roundabouts	**1494**
Traffic Signals	**5116**
External Nodes	**3368**
Simulation Nodes	**25590**
Buffer Nodes	**4746**
Zones	**5411**
Links	**71816**



HAM P4

Enhancements and New Features

HAM P4 Enhancements and New Features (1)

- Adopting Mobile Network Data (MND) from project Edmond with higher sample rates than traditional RSI
- Incorporating the latest SATURN software with all recently added features
- Adopting an area based charging mechanism for CCZ and in the future years ULEZ
- Incorporation of Cycle Preloads from Cynemon
- Median TrafficMaster Journey Times for motorways
- JTAT adapted to include a mechanism for excluding roadworks
- Including PHV as a new user class
- 2018 Data collection from TRACIS using machine learning technology – vivacity counts
- Additional SLs included from project Edmond
- Methodology developed to expand the model to 8UC from 6UC including Car OWT High, Medium and Low income segmentation

HAM P4 Enhancements and New Features (2)

- Model rebased to 2016
- HGV PCU factor updated to 2.3
- LCY and other global parameters updated
- Model PPM and PPK based from WebTAG July 2019 Databook
- Enclosures removed, selectively replaced with half enclosure screenlines
- 2016 scheme information included
- Dijkstra algorithm adopted
- GIS Improvements including migration to ArcGIS
- CHAMP process updated for 6UC and incorporates LTS 7-2
- Matching to ITN for GIS and network accuracy

HAM P4 Development for Next Quarter

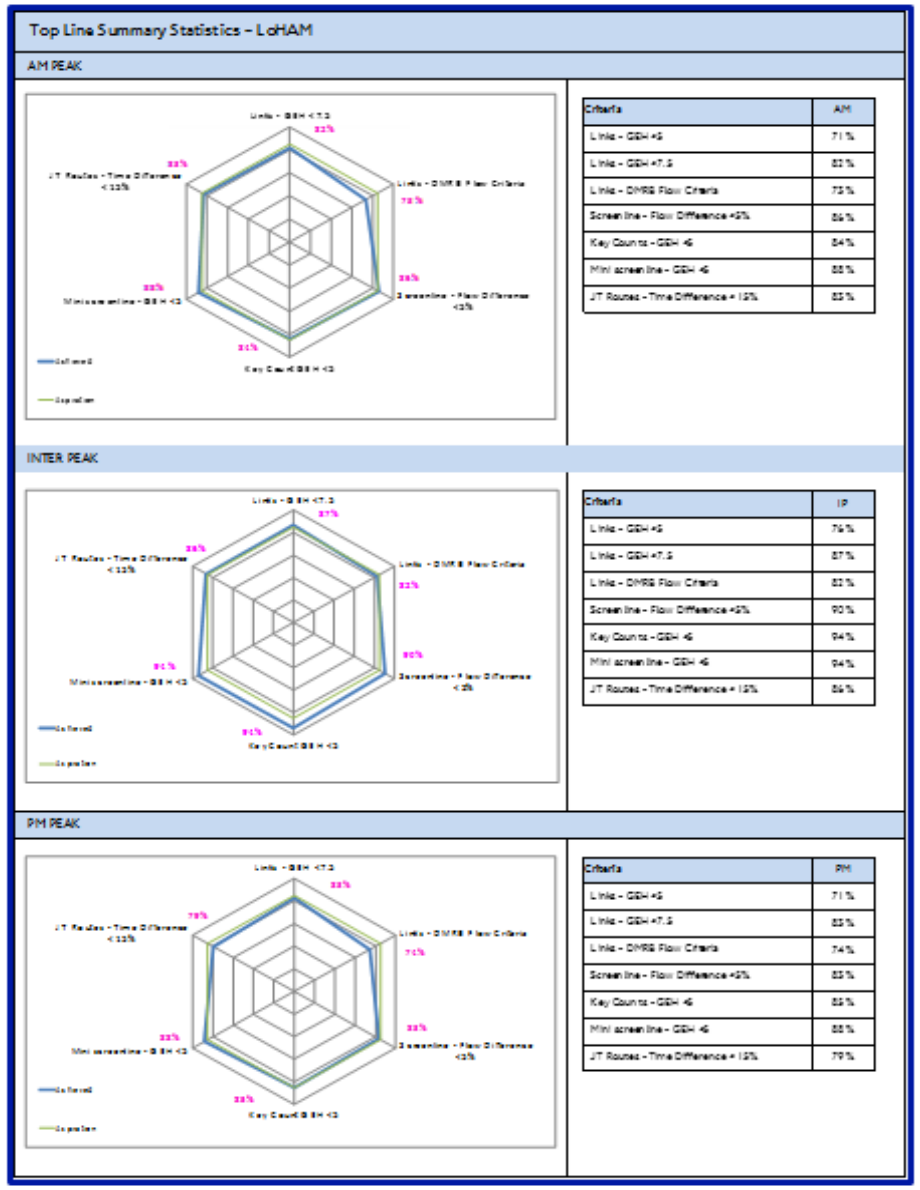
- Continue with development of the reference case models
- Reference case fully modelled years, 2021, 2026, 2031 and 2041
- Continue working with Atkins to ensure a full launch of SATURN 11.5 this autumn to supplement the launch of the HAM P4 Models
- Finalise the SQL Azure Server Count Database with Excel and ArcGIS interface
- Complete documentation, factsheets, model packs and relevant guidance
- Develop GIS Templates for model reporting
- Intensive period of model stress testing and preparation for launch
- Launch Full HAM P4 Suite of Models
- Integration with MoTiON

HAM P4 Current Base Year

Calibration and Validation Summary

Calibration / Validation

- Screenlines: AM 87% IP 92% and PM 83%
- Journey Times: AM 78% IP 88% and PM 79%
- Individual Links: AM 74% IP 83% and PM 75%

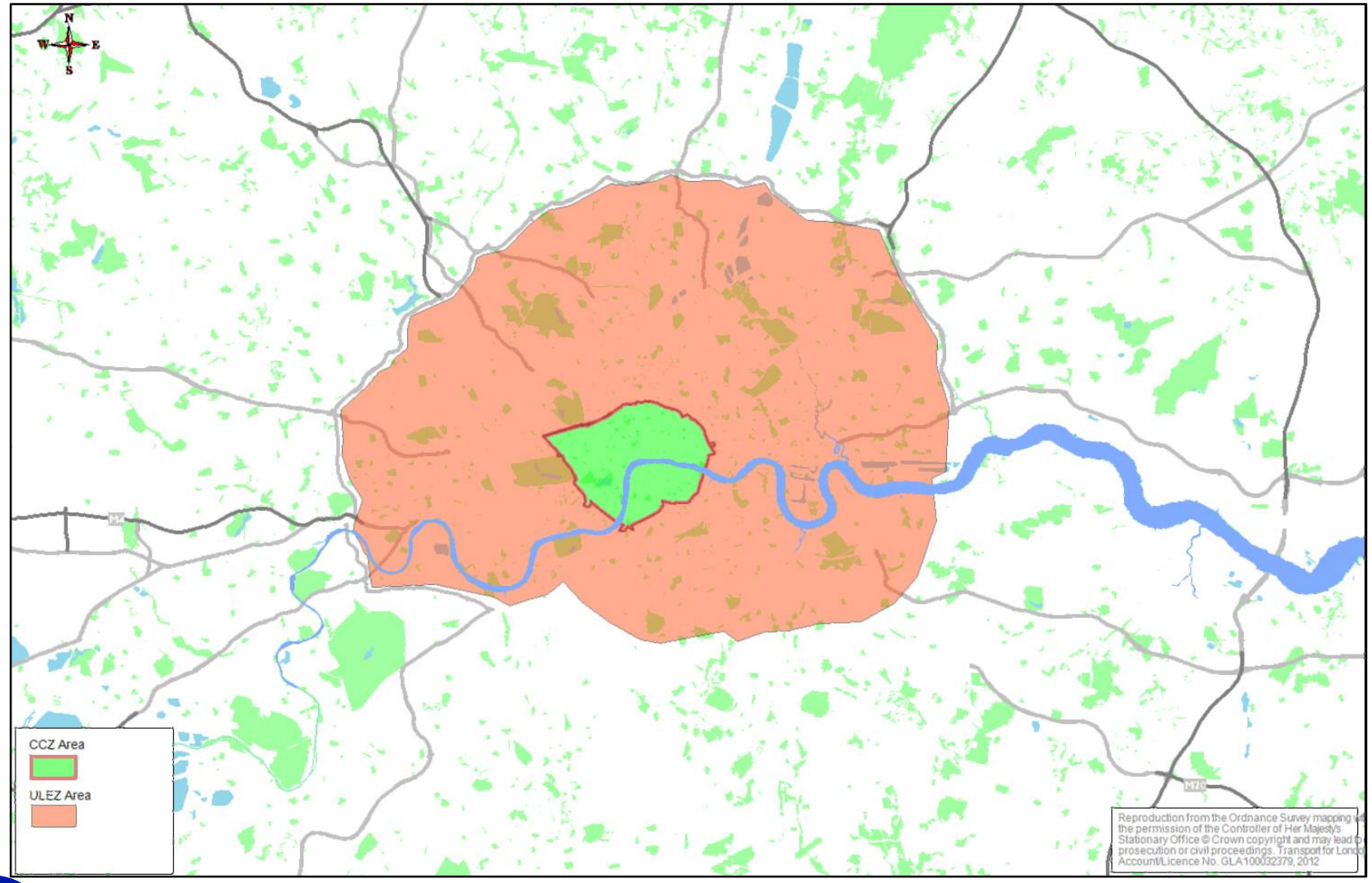


Area Charging

Congestion Charge (CCZ)

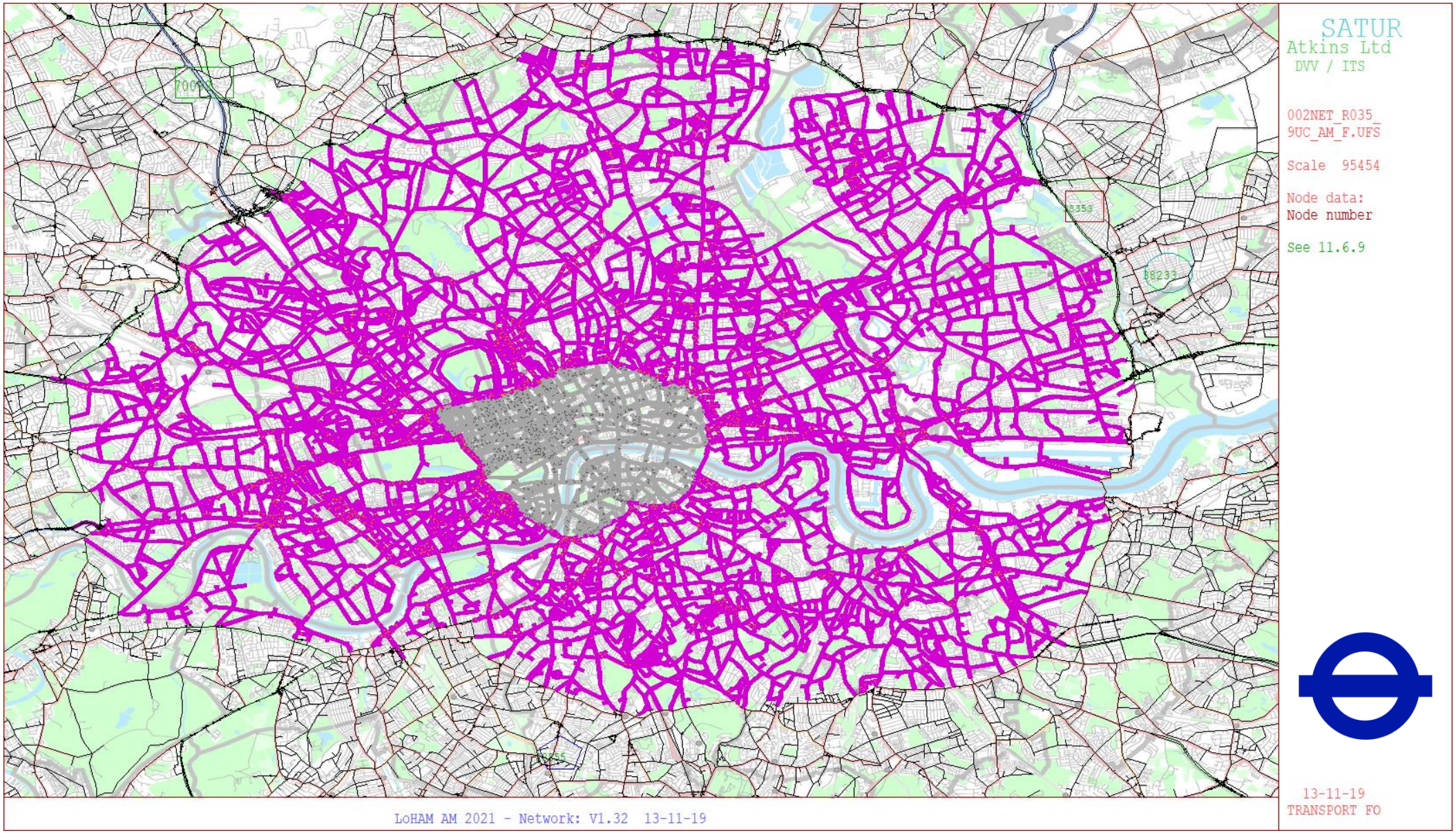
Ultra Low Emission Zone (ULEZ)

CCZ and ULEZ Definition

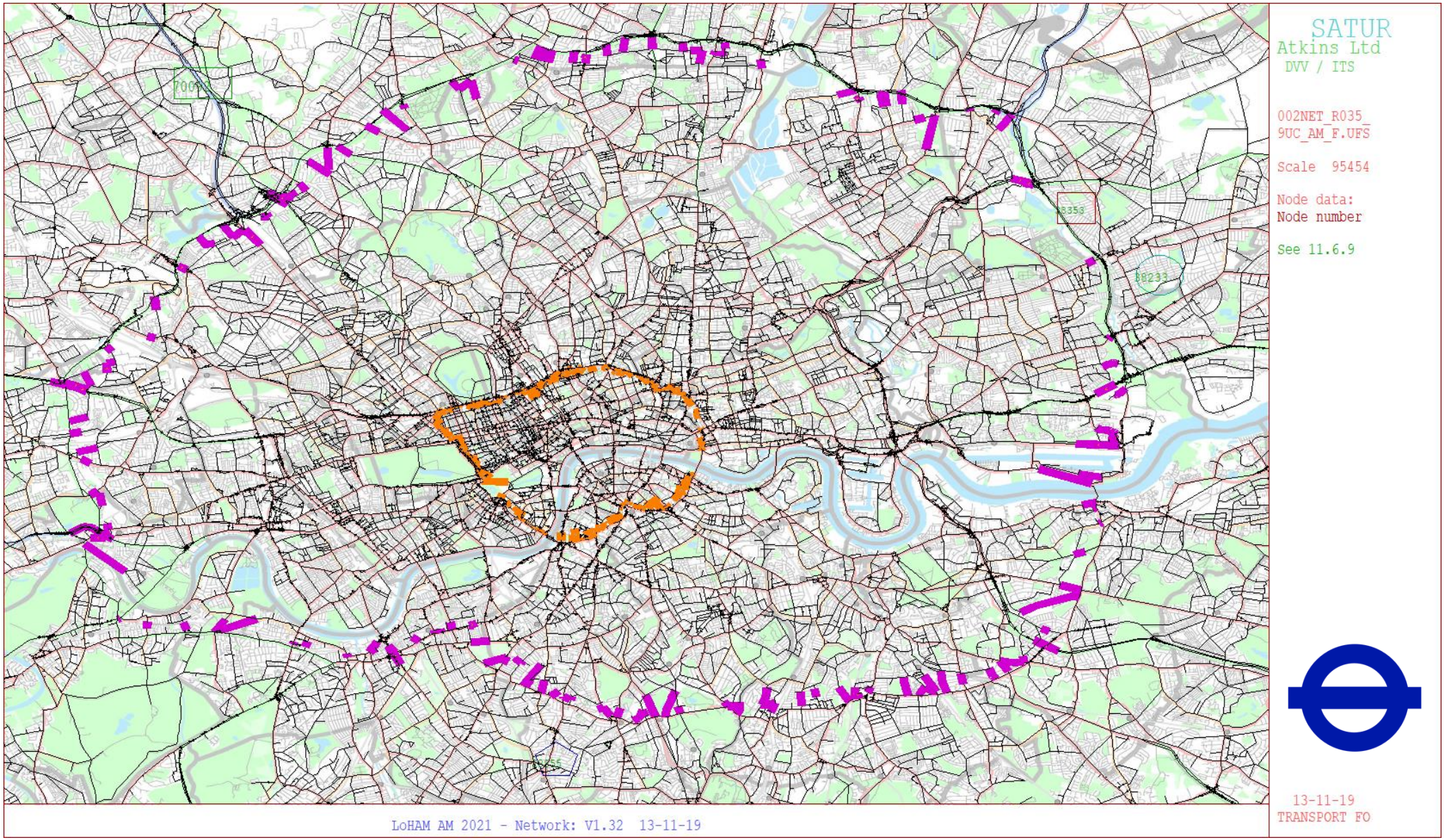


- CCZ Modelled using new methodology shown in Green.
- No restriction on crossing boundary multiple times.
- CCZ only in Base Year
- ULEZ for forecast years.
- Models both area and compliance
- Fundamental new function in HAM P4.0 P4.1

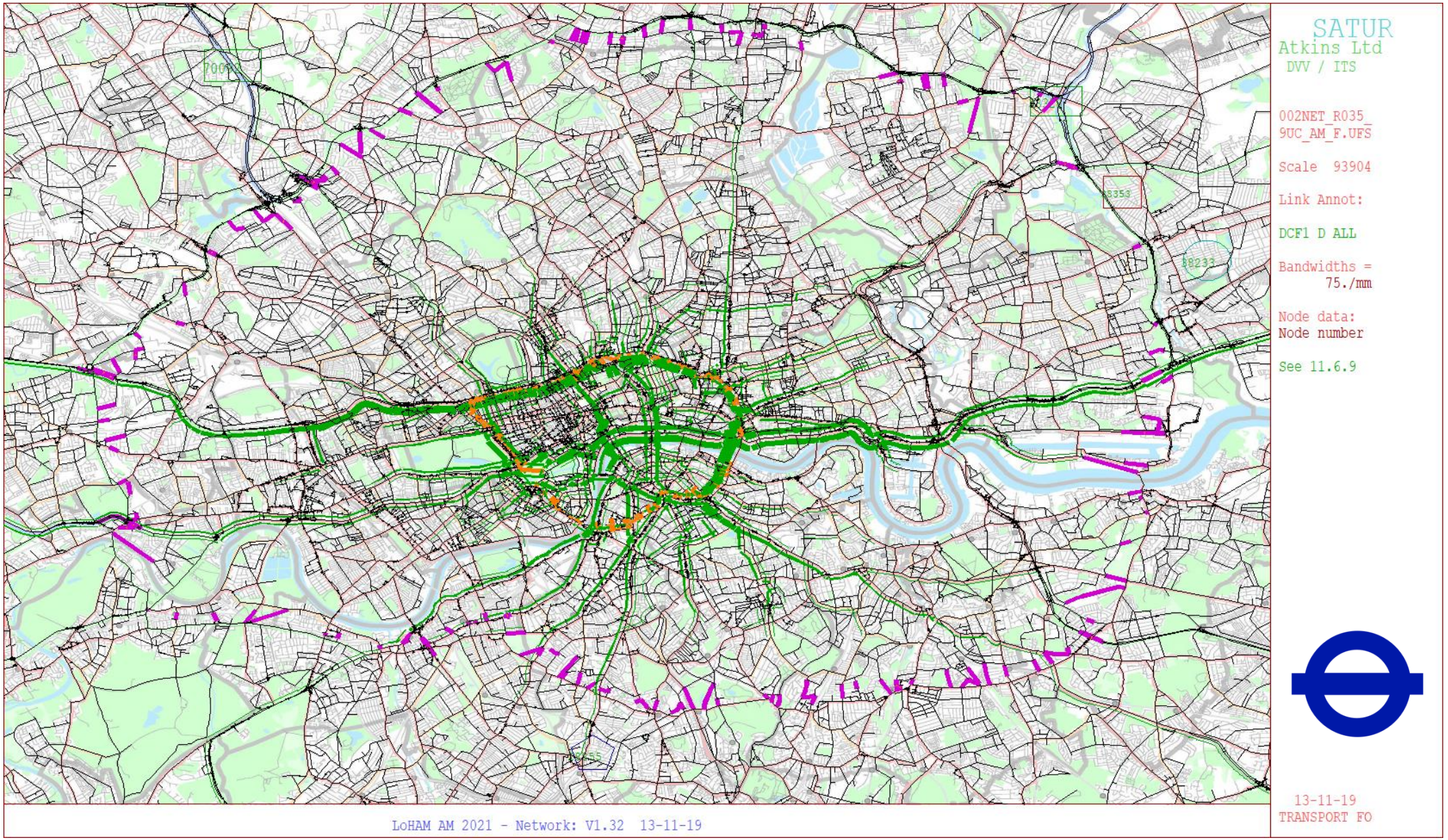
CCZ Central ULEZ and Inner ULEZ Area Definition



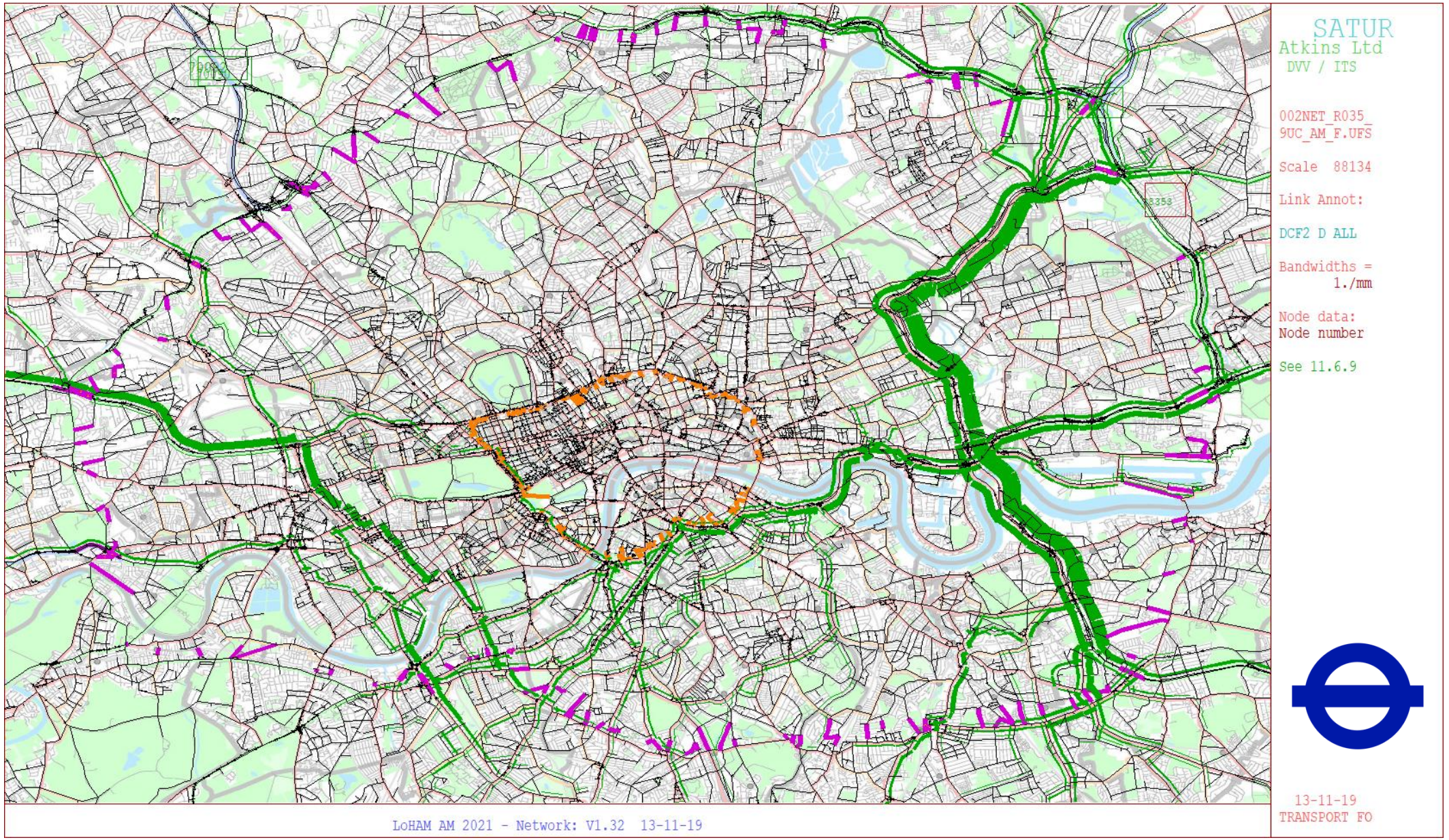
CCZ Central ULEZ and Inner ULEZ Area Boundary



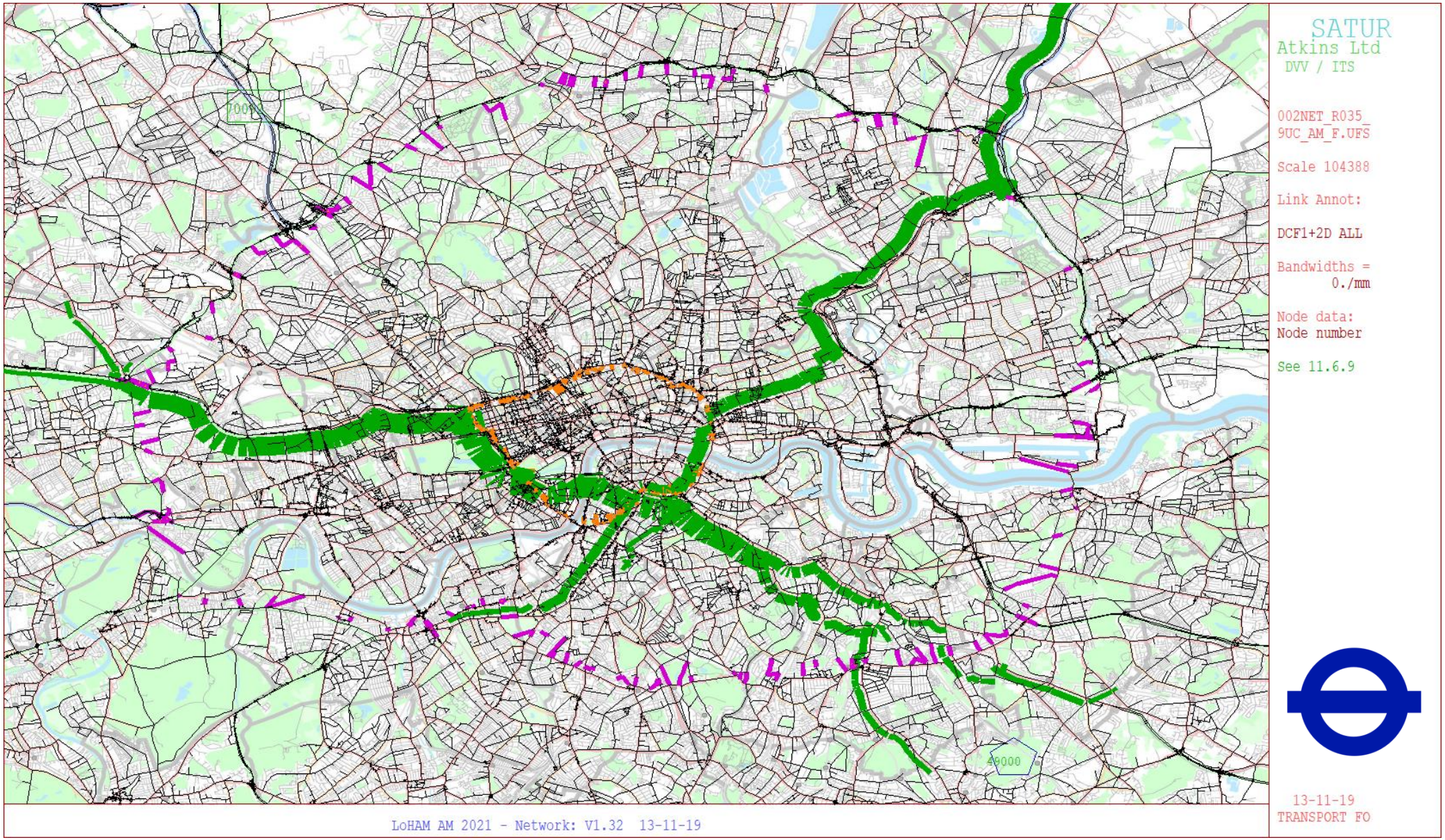
DCF – Discretionary Trips – Demand Flow Area 1



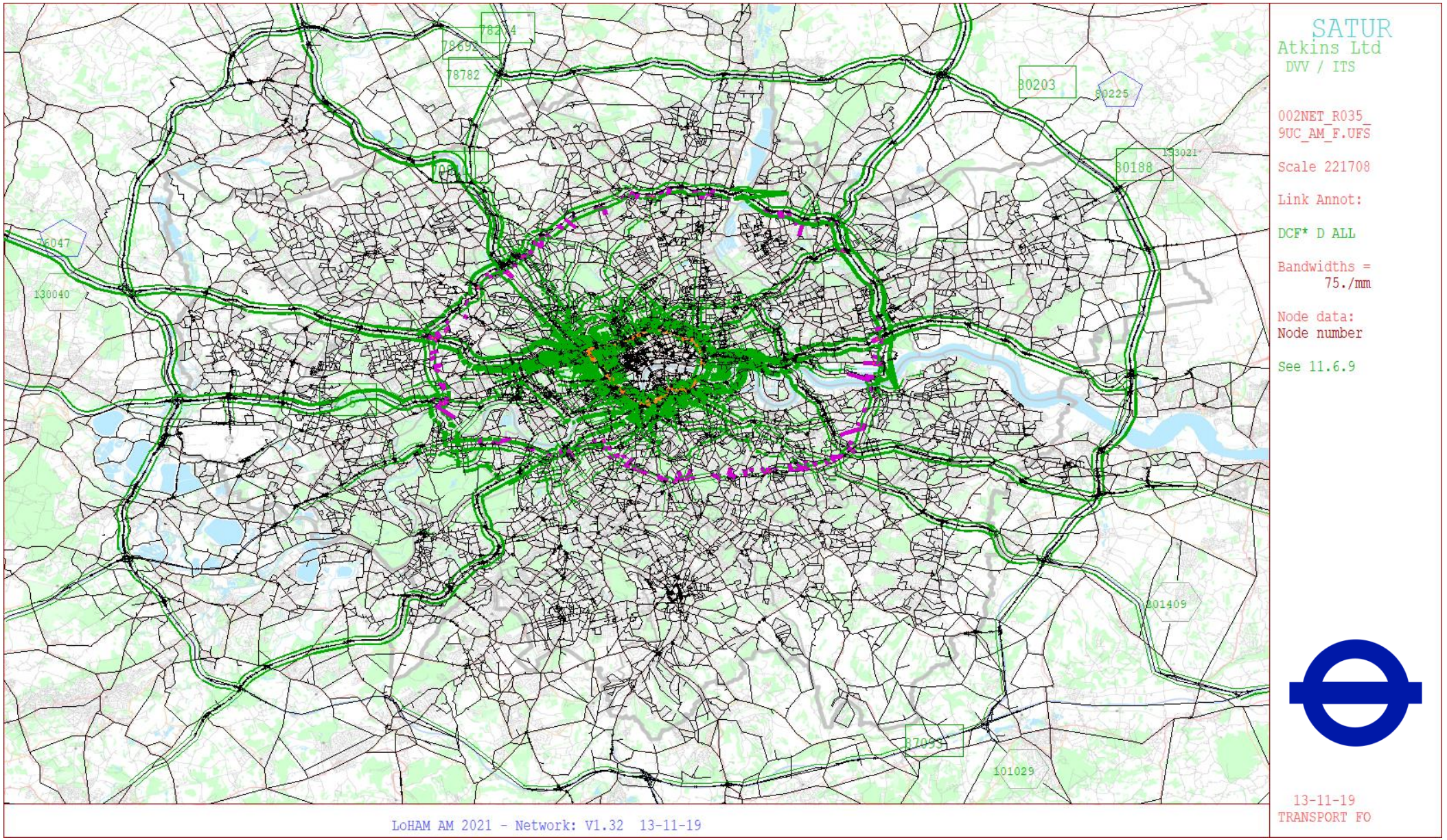
DCF – Discretionary Trips – Demand Flow Area 2



DCF – Discretionary Trips – Demand Flow Area 1 & 2



DCF – Discretionary Trips – Demand Flow - Area 0

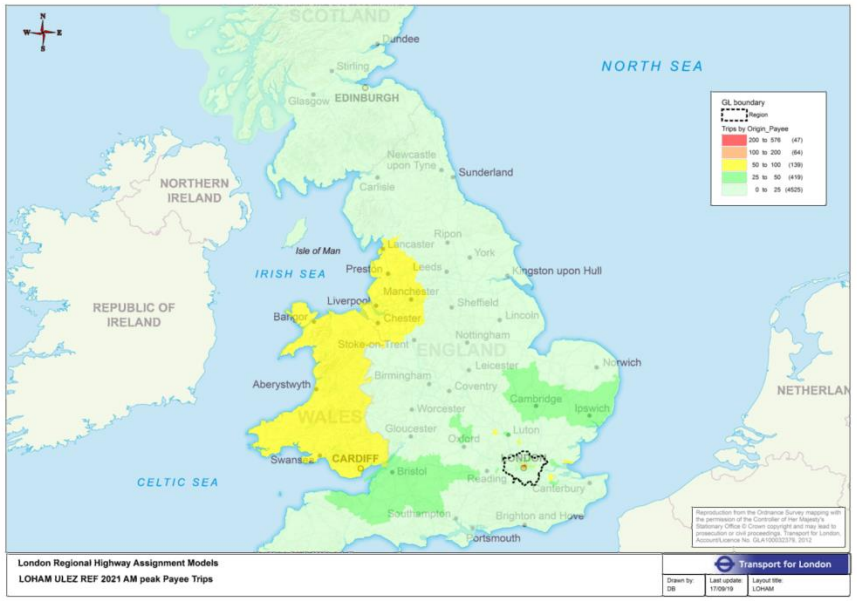


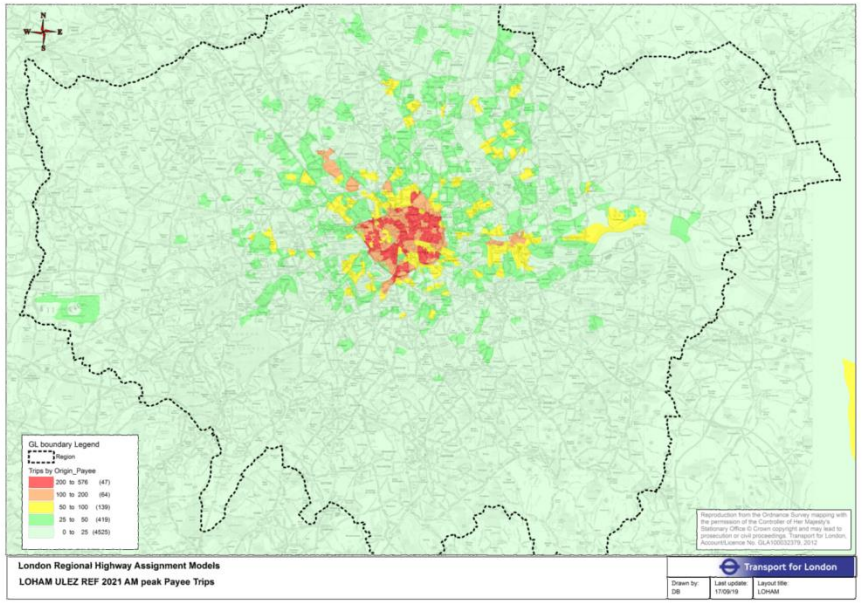
Congestion Charge

Analysis (CCZ)

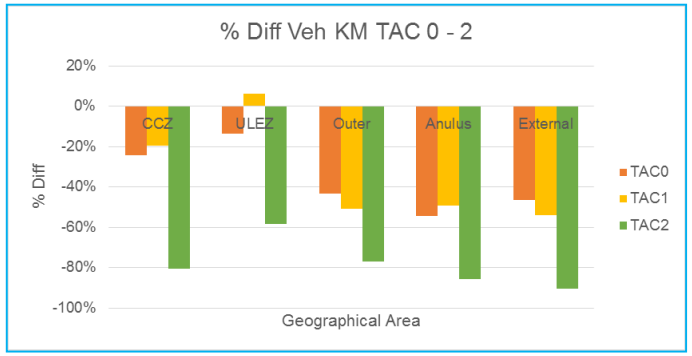
Origin Trips

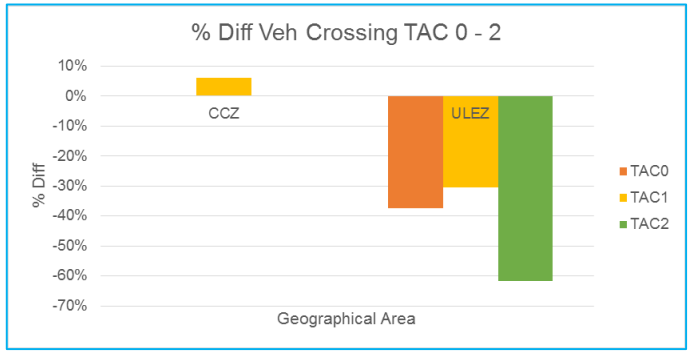
ULEZ Analysis





- **SKIMTAC ALL – produces Tij blocked matrices of payees for both TAC1 and TAC2**
- **P1X can be used to extract:**
  - **Discretionary flows for the cordon area movements by TAC 0,1,2**
  - **Discretionary vehicle kilometers in the different TAC regions**
- **These are analyzed in a dashboard to assess different charge, demand or network supply scenarios**

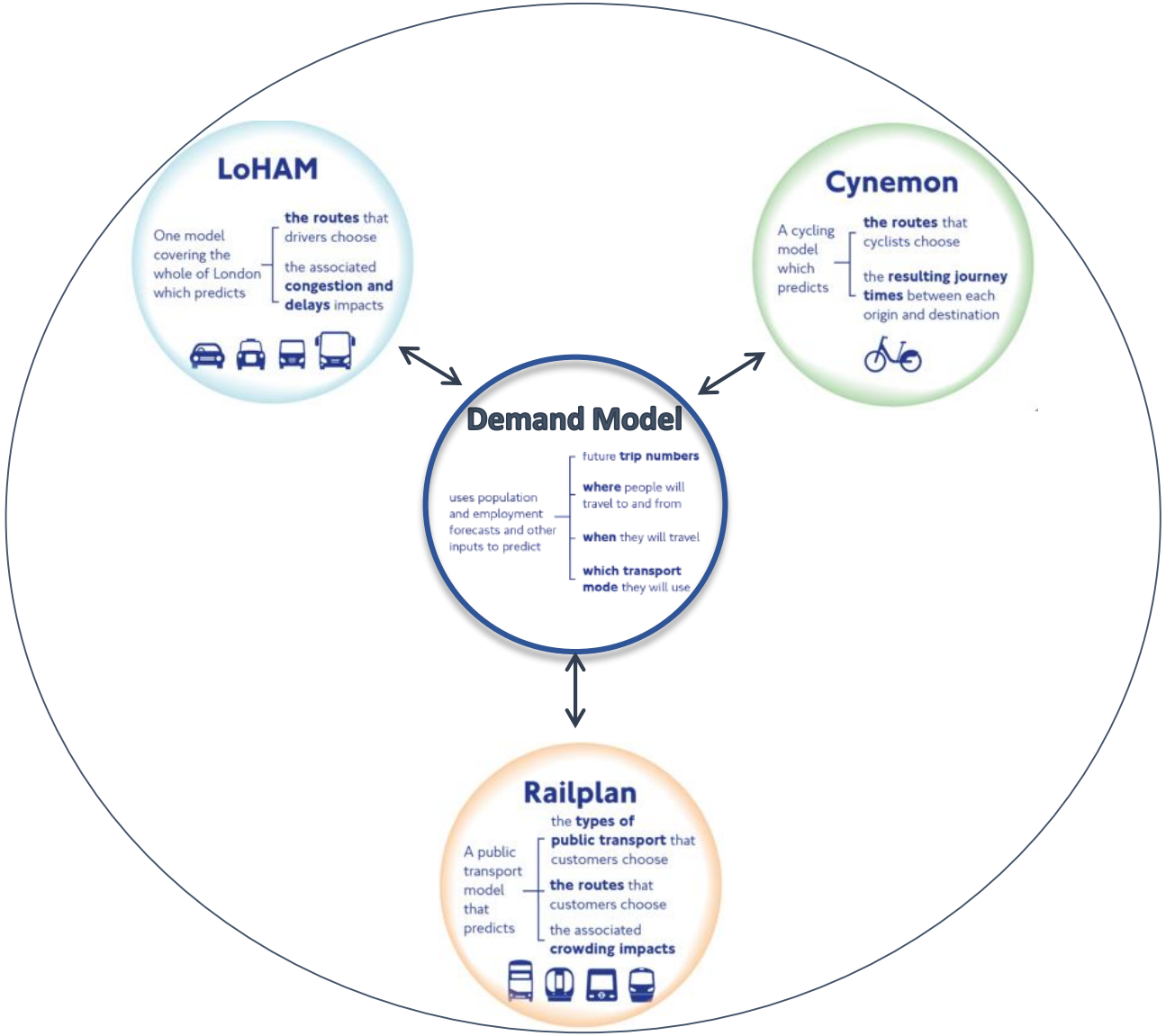




Model of Travel in LondON

MoTiON

Model of Travel in LondON



HAM Forum 35

A Christmas Present

HAM Production Version 4.1

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