

Co-creating decision-making tools with and for smaller cities

Nick Cohn



Who we are

Teralytics provides a transformative view of human mobility to empower decisions that reflect the needs of everyone in the society.



What we do

Teralytics provides a transformative view of human mobility to empower decisions that reflect the needs of everyone in the society.

We apply sophisticated data science and domain expertise to shed light on people's trip patterns and factors impacting their choices:

Where are they coming from and going to?

What Mode of Transport are they taking?

Why are they choosing a specific route?





Teralytics for Transportation

We tackle some of the crucial mobility challenges of our time:

- How do we reduce congestion and shorten journey times?
- How do we account for everyone's needs in planning decisions?
- How do we reduce environmental impact through traffic interventions?
- How do we adjust operations in extraordinary circumstances?



Cities of all sizes need current, real-world data

- Nearly every city is working to create effective sustainability and climate change plans.
- In order to reduce the levels of CO2 pollution from transportation, it is critical to equip small to medium-sized cities with tools to tackle their emissions.
- A comprehensive view of mobility must be accessible to all transportation planning departments in order to affect change.
- Increasingly complex challenges aren't met with tools to match.
- Tools are often out of reach except for the largest cities.

Teralytics Streets

The (so far) unsolvable problem: traffic planning

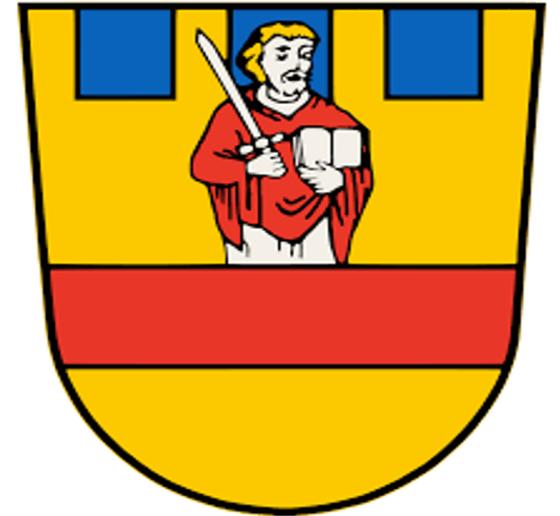
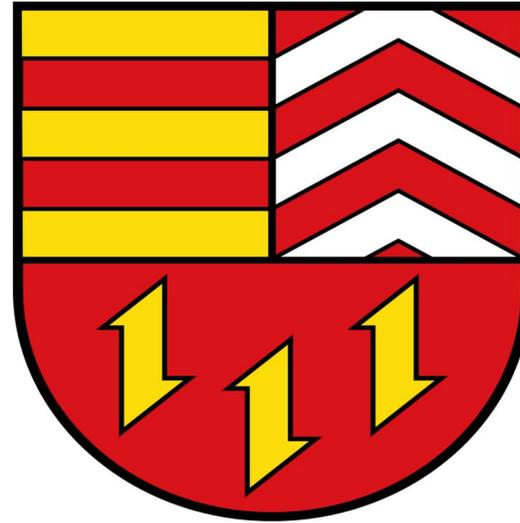
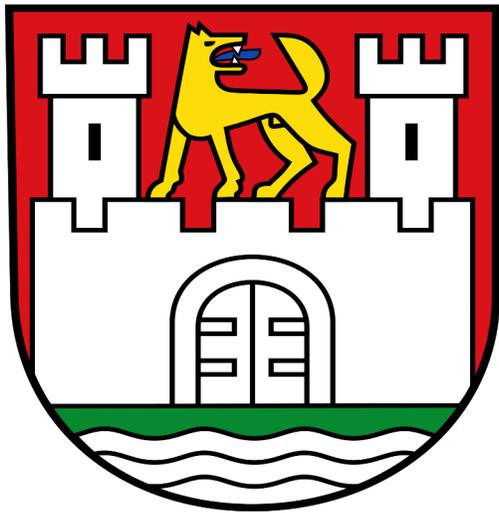
- In order to create successful traffic interventions and measure their impact, cities need a comprehensive understanding of traffic volumes across their road networks.
- Hardware and manual counts cannot provide comprehensive, ongoing insights.
- The essential piece of the puzzle, up-to-date total traffic volumes, has, so far, been elusive.



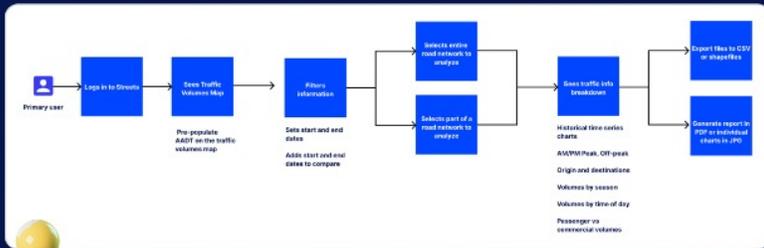
> TERALYTICS STREETS

Partnering with Cities

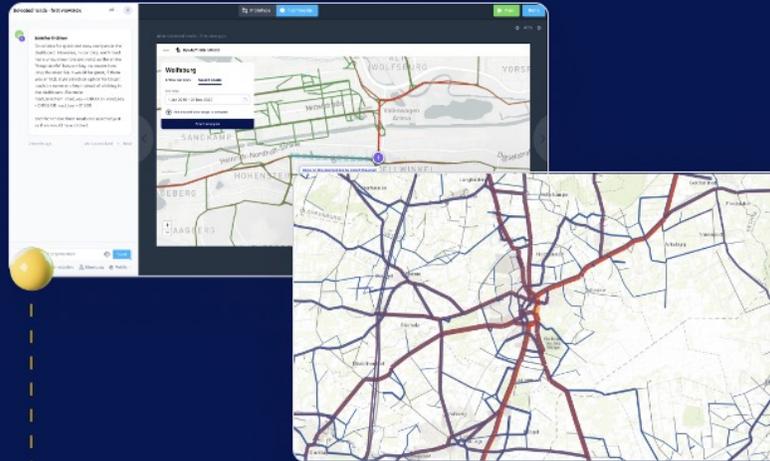
Teralytics partnered with four cities and counties in Germany to understand their traffic management challenges and build a solution that is accessible, complete and always-on.



Round 1: prototype & test



High-level user flow based on customer use cases



Prototyped the user interface and sent to customers for feedback

Synthesis from First Prototype Review

Will use Jakob Nielsen's severity ratings from usability problems

- 0 = I don't agree that this is a usability problem at all
- 1 = Cosmetic problem only: need not be fixed unless extra time is available on project
- 2 = Minor usability problem: fixing this should be given low priority
- 3 = Major usability problem: important to fix, so should be given high priority
- 4 = Usability catastrophe: imperative to fix this before product can be released

Feedback	Category	Observed from	Usability Severity Level
Is it possible to search for the main streets like on Google Maps? Is it possible to query streets like in SCL?	Street search function	Copperburg, Wolfsburg	4
"each road has a unique key time per road, so the entire '16:00-18:00' has one key, no matter how long the street is, it would be great, if there was an SCL-style selection option for target roads by name and key: instead of clicking in the dashboard. Example: road_selection: road_key = 01100 OR road_key = 01100 OR road_key = 01300"	Map interact		
Is it possible to select parallel streets?			
Want to be able to compare volumes on multiple selected corridors side by side			
I want a more flexible way to pick the calendar line in	Calendar / cu		

Useful to have these export options. However, we would like to have an API to extract raw data with a script. With these raw data stored in our Data Warehouse, we would be able to join them to our road network shapes in GIS in order to produce our custom maps. In the future, we would like to have a feature to allow users to export data out (and thus to get value out of the data), so there is neither an API nor any SCL-style selection possibility.

Feedback	User freedom and control	Observed from	Usability Severity Level
We want to see traffic volumes by hour	User freedom and control	Copperburg	3
should be able to activate/hide on/off traffic data later	User freedom and control	Copperburg	2
should be able to activate/hide on/off city borders on the map, similar to Marble	User freedom and control	Copperburg	2
should be able to activate/hide on/off street names on map	User freedom and control	Copperburg	2

Synthesized customer feedback and usability issues

Round 2: Workshops with intermediate results

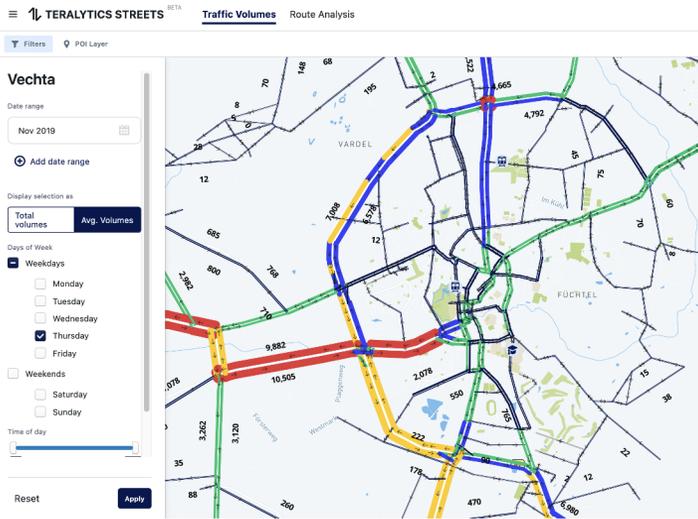
The image shows a Zoom meeting interface with eight participants in a grid view. A chat window on the right shows a message from Nicole Bramlage, LK Vechta: "just impressed :-)", a link to "http://www.menti.com", and the ID "54241403". A yellow arrow points from the chat to the poll. The poll, titled "Vote for 3 of these items for improvement: which is most important?", is displayed in a white box. The poll results are as follows:

Item	Count
move filter options/views	0
less clumsy routing analysis	0
export functions	3
better legend	0
more legible charts	1
overlays of postal zones, cell phone areas	1
select specific date for analysis	1
select start and end locations and display routes used	3
disaggregate street segments	0

In the background, a map of Wolfsburg shows a highlighted street segment. A table titled "Wolfsburg" lists areas and volumes:

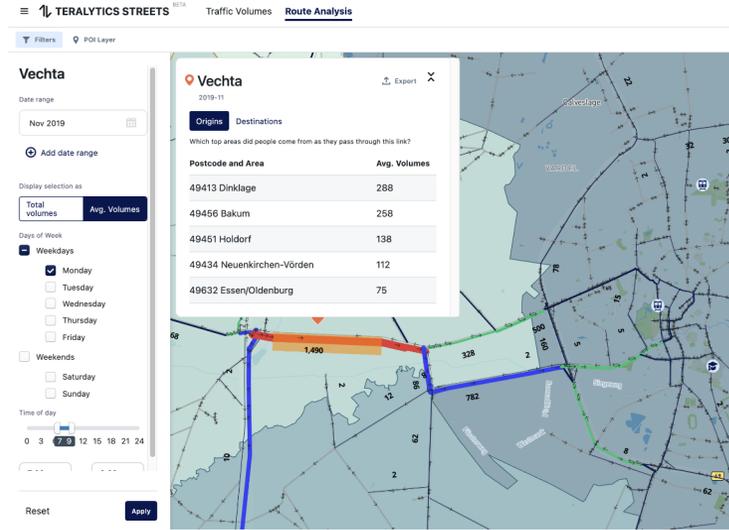
Bereiche	Volumen
1. 38449 Wolfsburg	9900
2. 38554 Weyhausen	4700
3. 38471 Jernbeuren	4000
4. 38549 Garnelegen	2800
5. 38524 Sassenburg	2310
6. 38471 Bühren	1600
7. 38486 Apenburg-Wirnefeld	1610
8. 38549 Garnelegen	1510
9. 38465 Borne	1300
10. 38557 Osdorf	1090

TERALYTICS STREETS USE CASES



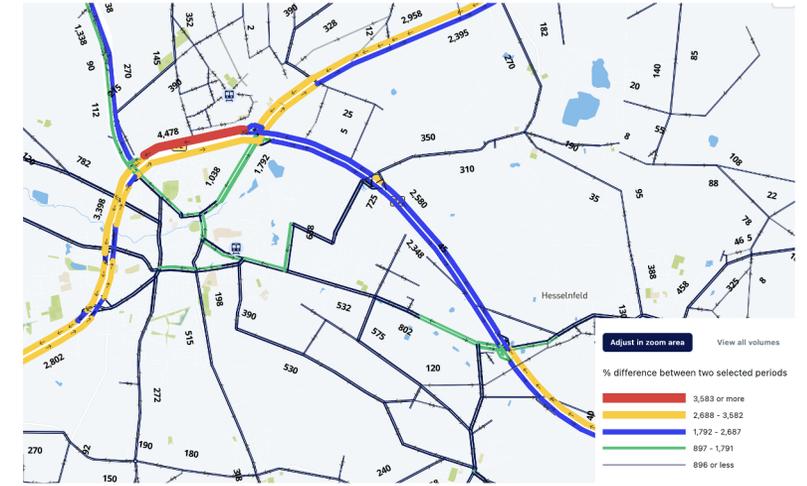
Create Climate & Sustainability Plans

Reduce emissions from specific passenger vehicle flows by adapted routing, signaling, speed limits or alternative mode offering



Investigate & Solve Local Traffic Issues

Understand and influence route choice patterns leading to congestion



Fine-Tune Public Transport Services

Determine the routing and stop locations which will capture the most riders

Wolfsburg

Date range

11 Nov 2019, 4 Nov 2019...

+ Add date range

Display selection as

Total volumes Avg. Volumes

Time of day

0 3 6 9 12 15 18 21 24

0:00 — 24:00

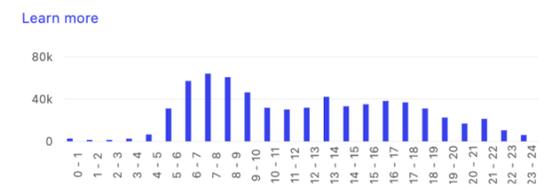
Wolfsburg

11 Nov 2019, 4 Nov 2019...

Export

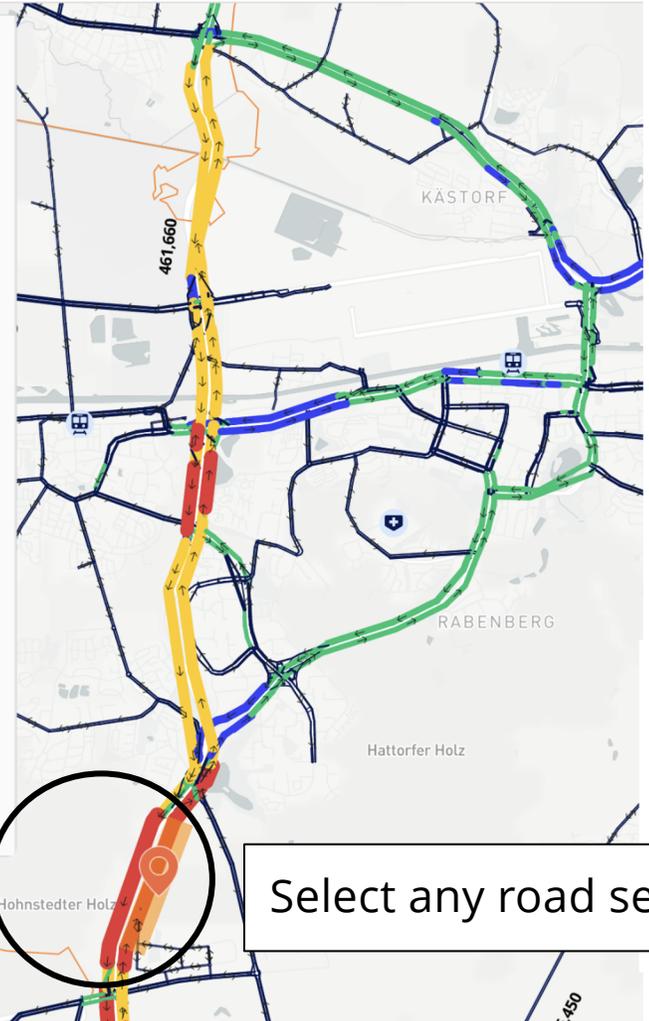
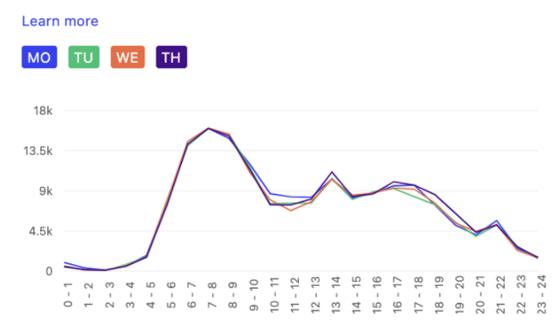
Total hourly traffic volume for selected period

The total number of trips passed through the selected road segment per hour across the entire selection



Total hourly traffic volume by day of the week in the selected period

The number of motor vehicles passed through a selected road segment in one driving direction per a specified days of week and hour



Select any road segment to display traffic volumes

Wolfsburg

11 Nov 2019, 4 Nov 2019...

Add date range

Total volumes Avg. Volumes

0 3 6 9 12 15 18 21 24

0:00 - 24:00

Apply

Wolfsburg

Total hourly traffic volume

The total number of trips passed across the entire selection

Total hourly traffic volume

The number of motor vehicles per one orving direction per a spec

Wolfsburg

1 Dec 2019

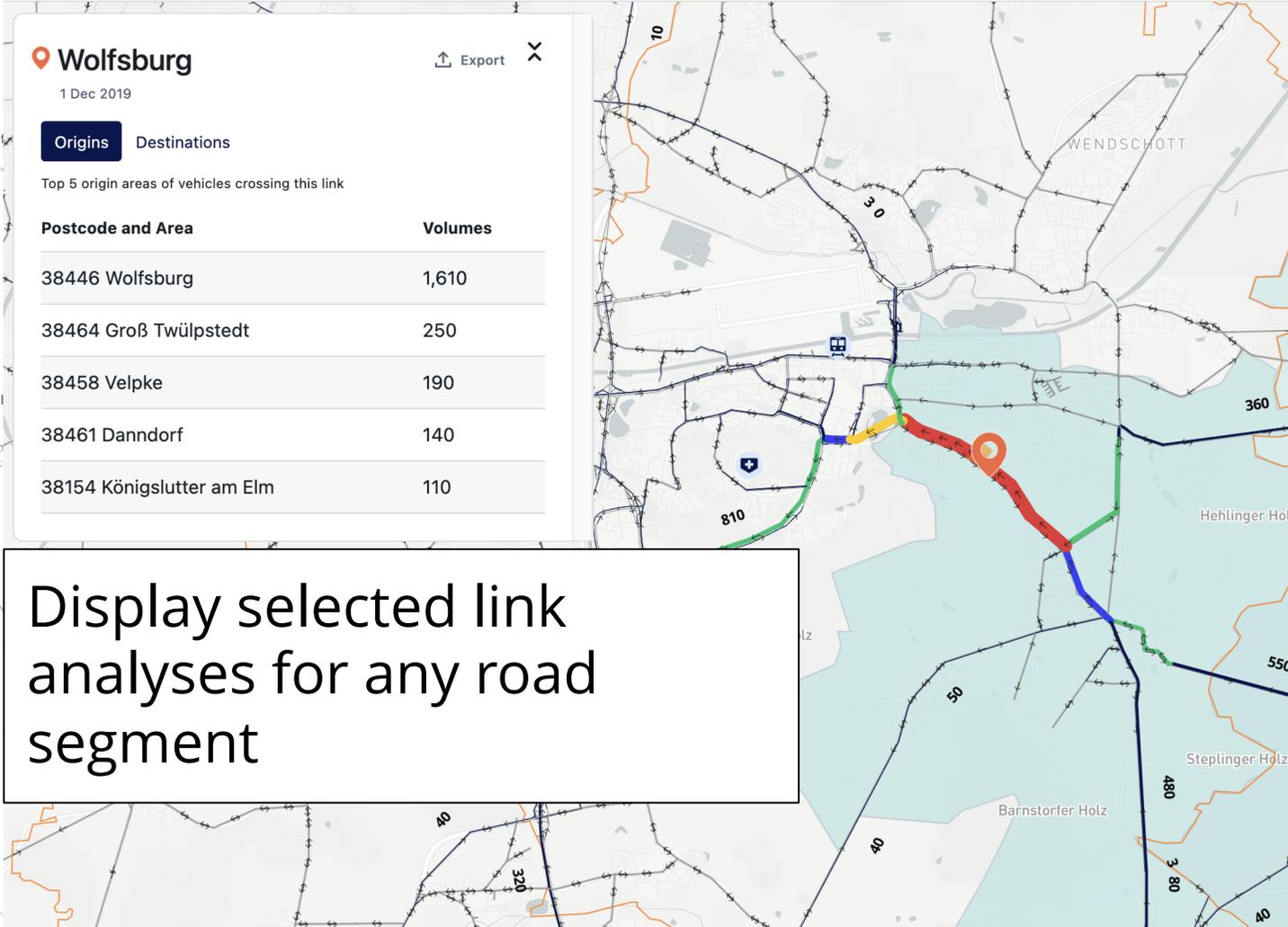
Export

Origins Destinations

Top 5 origin areas of vehicles crossing this link

Postcode and Area	Volumes
38446 Wolfsburg	1,610
38464 Groß Twülpstedt	250
38458 Velpke	190
38461 Dannendorf	140
38154 Königslutter am Elm	110

Display selected link analyses for any road segment



Wolfsburg

Wolfsburg

Wolfsburg

11 Nov 2019, 4 Nov 2019...

Total hourly traffic volume 1 period

Total hourly traffic volume 1 period

Total volumes Avg. Volumes

0 3 6 9 12 15 18 21 24

0:00 - 24:00

Apply

Wolfsburg

Origins and Destinations

Click to start zone selection on the map

Origins

Grasleben and 2 others

Destinations

Wolfsburg

Date range

1 Dec 2019

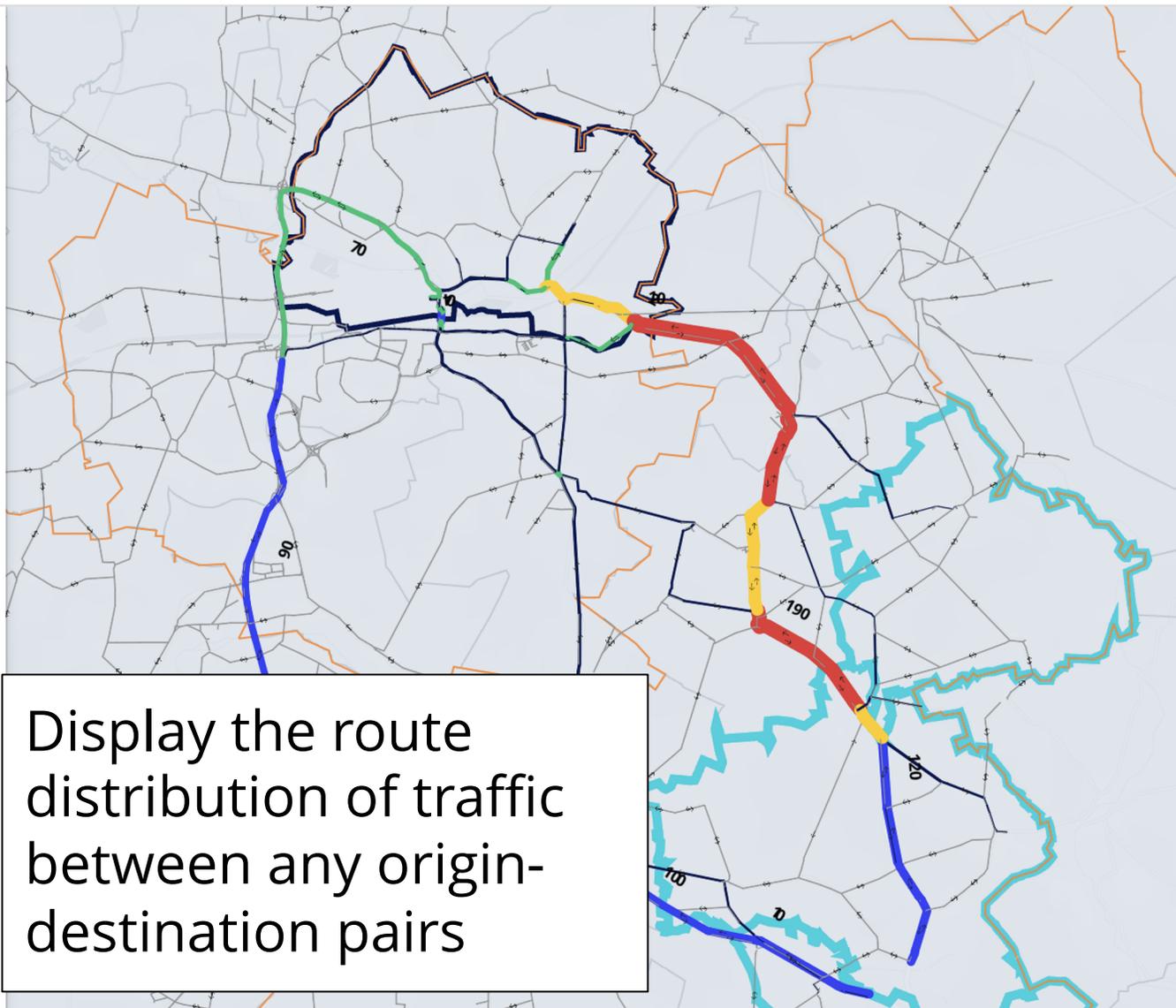
Add date range

Display selection as

Total volumes Avg. Volumes

Time of day

0 3 6 9 12 15 18 21 24



Display the route distribution of traffic between any origin-destination pairs



Nick Cohn
Senior Product Manager

Email: nick.cohn@teralytics.ch
Mobile: +31 6158 29 451

Website: Teralytics.net