TELENAV

TELENAV'S TRAFFIC LOCATIONS (TTL)

An enabling technology for putting traffic data on OSM

SOTM Tokyo 2012
9/7/12

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THE NEED FOR TRAFFIC ON OSM

Commercial industry needs OSM traffic information solutions to enable mainstream consumer navigation applications based on OSM.

The more commercial users of OSM raises investment in OSM and improves the map for everyone!

A rising tide raises all boats.

HOW THINGS ARE TODAY (COMMERCIALLY…)

- **TMC** Location Codes are the **industry standard** for commercial maps
  - Table of unique TMC defined locations common to multiple map vendors unique road segment IDs (requiring a consortium from commercial map providers)
  - License fees in the US and elsewhere
  - Technical problems strangling its effectiveness!
  - http://www.tisa.org/technologies/tmc

DESIGN OF TELENAV TRAFFIC LOCATIONS (TTL)

- Telenav creating a new and complete location references to describe traffic flows for OSM

- Telenav TTL to initially cover United States

- Will include important roads including all OSM Motorway, Trunk, Primary and many Secondary roads

- Follow road topology guidelines—break first at major then minor decision points (junctions), "number of lane" changes for freeways

- Maximum road section lengths:

	Urban	Rural
Motorway	~0.5 km	~1 km
Others	~1 km	~4 km

SAMPLE COVERAGE OF TTL, INCLUDING RAMPS IN REDMOND, WA, USA

TELENAV TTL MAPPING TO OSM WAYS

- The design philosophy is table-based for ease of incorporation of traffic into OSM-based systems to fit into existing commercial system's architectures (otherwise no adoption).

- Many-to-many relationship between OSM ways and Telenav TTL
  - Some ways are covered by multiple Telenav TTL, including full and some partial locations. Some ways are combined with parts of others to make up a location.

Telenav Traffic Link ID	OSM Ways
#104765456122139101	6493900, 47338562, 47338561

MAP UPDATE PROCESS

- Need to keep static Telenav TTL identifiers across OSM map releases where possible

- Minor layout changes or attribute changes should not drive new Telenav TTL identifiers

- Only new roads, removed roads, upgraded road classifications, or major changes in road layout should result in Telenav TTL identifier updates

- Open source location referencing technology to generate map independent location identifiers to match between map releases

- Output is a table of TTL to OSM ways with descriptive meta data

- *Would like to see these road sections adopted and maintained as a de facto community standard*

TELENAV CONTRIBUTIONS TO OSM

- ***Table*** of Telenav Traffic Locations for US by year end
  - Initial - a posted side table (e.g. on stevecoast.com) with frequent updates
  - Goal - integrated into OSM as a new attribute for easy maintenance

- ***Traffic feed*** for US by year end
  - Limited to non-commercial use and daily download cap
  - Commercial use under negotiated license with GPS probe contribution
  - Historical model available for license

FOR MORE INFO & THANK YOU!

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- This presentation with more technical detail is available on the Wiki

- **State of Map US in Portland, OR**

  – Presentations on Telenav's use, tools, enhancements to OSM

- Special thanks to ***Martijn Van Exel*** and ***Steve Coast***!

MORE DETAILS

OPEN SOURCE LOCATION REFERENCING

- Enables description of locations independently of a specific base map layer

- Encodes locations using important attributes and lat/lon locations that describe them

- Encodings stored in a variety of formats (binary, XML, others)

- Decoding an identifier matches to a similar set of features on a similar but not identical new map

- Enables lower churn of road section identifiers over time

DETAILED EXAMPLE (1/3)

- Traffic Locations are built from OSM ways. These Locations consist of combined and then split contiguous roads of the same highway type ("motorway", "trunk", …)

- Example below, focusing on SE Holgate Blvd, a Portland, OR Secondary road around 1.3km long

- This road is composed of 6 OSM ways (listed west to east): 123385384, 120860705, 96758002, 31527818, 31527817, 96758006

- Example maximum length of a Traffic Location is 1.0km. Here, the combined SE Holgate Blvd is too long at 1.3km so the combined road is then split up

- This road is first split at the junction with the most important junction road: SE Milwaukie Av, a Secondary road

- After this split the east portion is still around 1.1km long, so it is split again at the next most important junction road: Southeast 17th Av, a Tertiary road

- Now all three Traffic Locations are under 1.0km. There are two per direction for any two way street, so there are 6 total Traffic Locations (listed west to east): 104549034122654151, 104549033122651163, 104549033122651161, 104549032122648352, 104549032122648351, 104549030122637611

- The first 4 Traffic Locations are composed from of 2 portions of OSM way 123385384. The last 2 Traffic Locations are composed of several OSM ways (including all the other ones listed above).

- Table and illustration for this example on the next 2 slides…

DETAILED EXAMPLE (2/3)

- Example table of Traffic Locations and their underlying OSM Ways, for SE Holgate Blvd area, Portland, OR:

Traffic Location	Description	Length	OSM Way IDs
104549034122654151	Eastbound, McLoughlin Blvd to Milwaukie Av	0.233km	123385384 (First 52% of way)
104549033122651163	Westbound, McLoughlin Blvd to Milwaukie Av	0.233km	123385384 (First 52% of way)
104549033122651161	Eastbound, Milwaukie Av to 17th Av	0.219km	123385384 (Last 48% of way)
104549032122648352	Westbound, Milwaukie Av to 17th Av	0.219km	123385384 (Last 48% of way)
104549032122648351	Eastbound, 17th Av to 28th Av	0.837km	120860705, 96758002, 31527818, 31527817, 96758006
104549030122637611	Westbound, 17th Av to 28th Av	0.233km	120860705, 96758002, 31527818, 31527817, 96758006

DETAILED EXAMPLE (3/3)

- Map of SE Holgate Blvd area, with details for Traffic Location #6 of 6