

# FINNISH TRANSPORT AGENCY'S DIGIROAD-SERVICE



# WHAT IS DIGIROAD?



Digiroad is a national database which contains precise and accurate data on the location of all roads and streets in Finland as well as their most important physical features.

The operation of Digiroad is based on the Road and Street Network Information System Act and its purpose is to provide opportunities for developing services that support transport and logistics in Finland.

The Ministry of Transport and Communications has appointed the Finnish Transport Agency as the organization responsible for Digiroad.

Providers of Digiroad data are National Land Survey of Finland, municipalities and the Finnish Transport Agency. Digiroad customers can have the data for extraction cost.

Karttakeskus Oy is the operator of Digiroad. The company maintains the data and acts as the system administrator. The application provider is Tieto and the operating service provider is Logica.



# HISTORY

## Preliminary Assessment Phase:

- Assessments by the Ministry of Transport and Communications
- In 2000, decision of the Parliament to launch a project. The Ministry of Transport and Communications appointed the Finnish Road Administration (today the Finnish Transport Agency) as the host organization responsible for developing and maintaining the system.
- **Project Phase, 2001–2004, Digiroad Project**
- System development
- Gathering and entering initial data
- Designing a management and operational model
- Legislative work
- **Digiroad Maintenance and Information Services, 2005–**
- Processing Digiroad maintenance data
- Delivering Digiroad data to customers

# LEGISLATION

1302/2009 Act on the Amendment of the Road and Street Network Information System Act

991/2003 Road and Street Network Information System Act

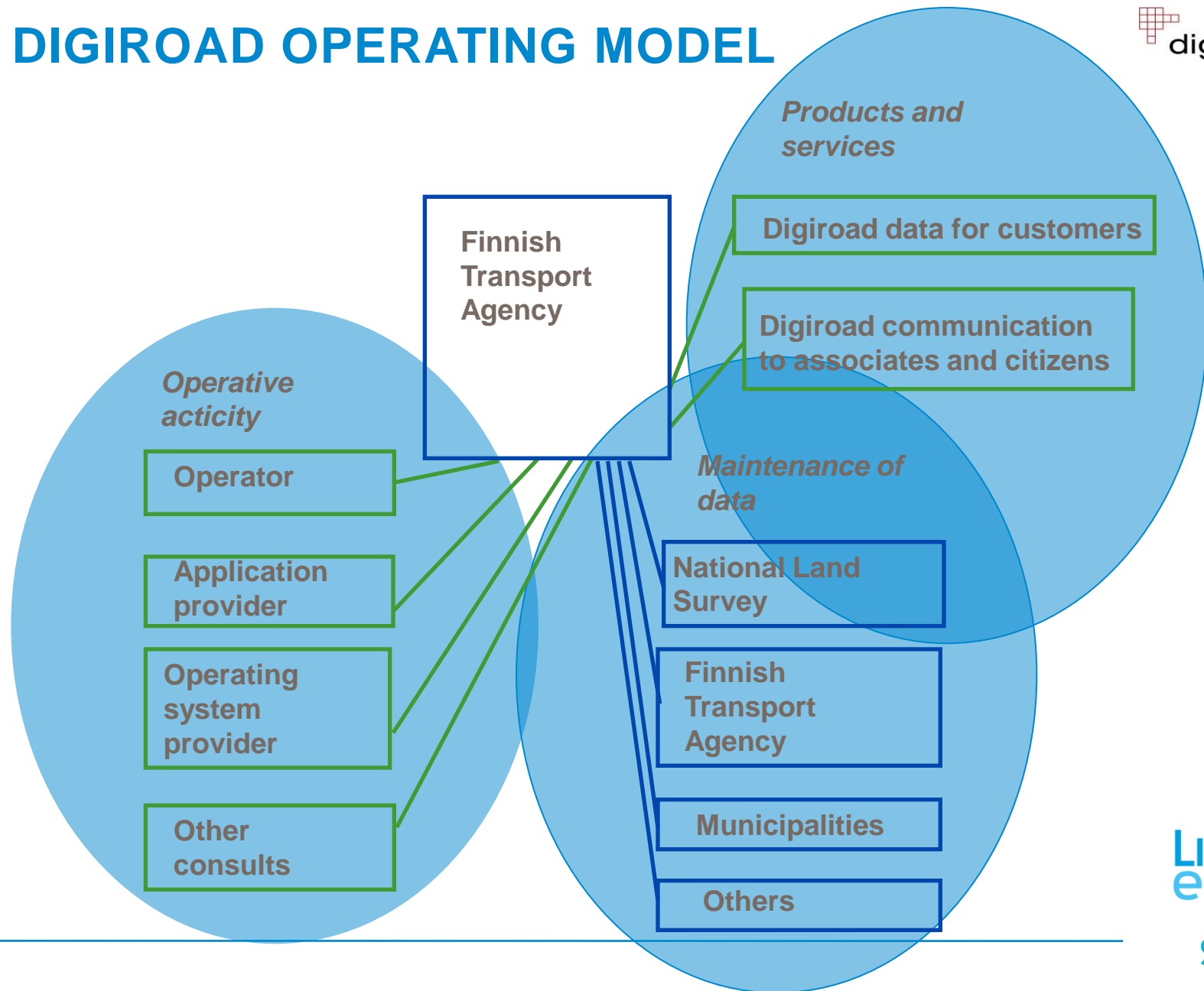
- Content of the Information System
- the Finnish Transport Agency have administrative responsibility
- Responsibility for the maintenance of Digiroad data: The National Land Survey of Finland, The Finnish Transport Agency, municipalities
- Principles on fees
- Responsibility for possible errors

997/2003 Government Decree on Attribute Data to Be Stored in the Road and Street Network Information System

1158/2010 Decree of the Ministry of Transport and Communications on the Chargeable Services of the Finnish Transport Agency;  
Section 4: Fees for output and information services related to the Road and Street Network Information System

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# DIGIROAD OPERATING MODEL



# OPERATING MODEL



Finnish Transport Agency's responsibilities:

- Operating system
- Content
- Financing
- Licence agreements

Digiroad - information system's:

- |                                     |                 |
|-------------------------------------|-----------------|
| • Operator and system administrator | Karttakeskus Oy |
| • Application provider              | Tieto           |
| • Operating service provider        | Logica          |

The Finnish Transport Agency puts out to tender the consult contracts for Digiroad operative activities periodically.

# MAINTENANCE OF THE DIGIROAD DATA



Sources used in the project phase (2001–2004)

- NLS Topographic Database
- Road register of the Finnish Transport Agency
- Municipal databases, Helsinki Metropolitan Area Council (Helsinki Regional Transport Authority)
- Data collection projects for the Digiroad -project

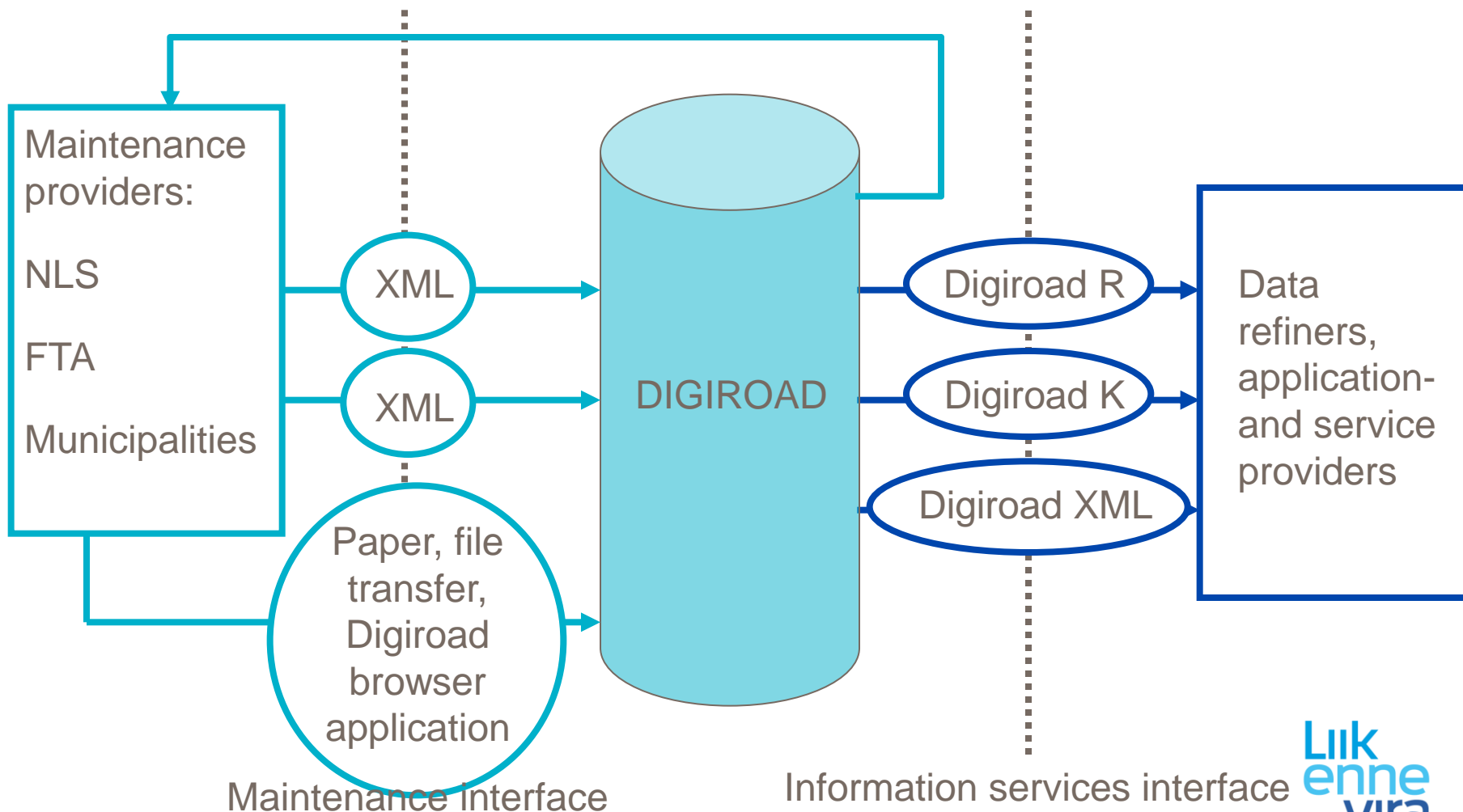
Maintenance of the Digiroad data

- National Land Survey of Finland: road networks geometry, attribute data of private roads
- Finnish Transport Agency: Attribute data of public roads
- Municipalities: Attribute data on streets, private roads maintained by municipalities, as well as pedestrian and cycle paths owned by municipalities

The Finnish Transport Agency is responsible for the content of Digiroad and promotes cooperation between the maintenance organizations



# MAINTENANCE AND INFORMATION SERVICES INTERFACE



# PRODUCTS AND SERVICES



## Digiroad data for utilizers

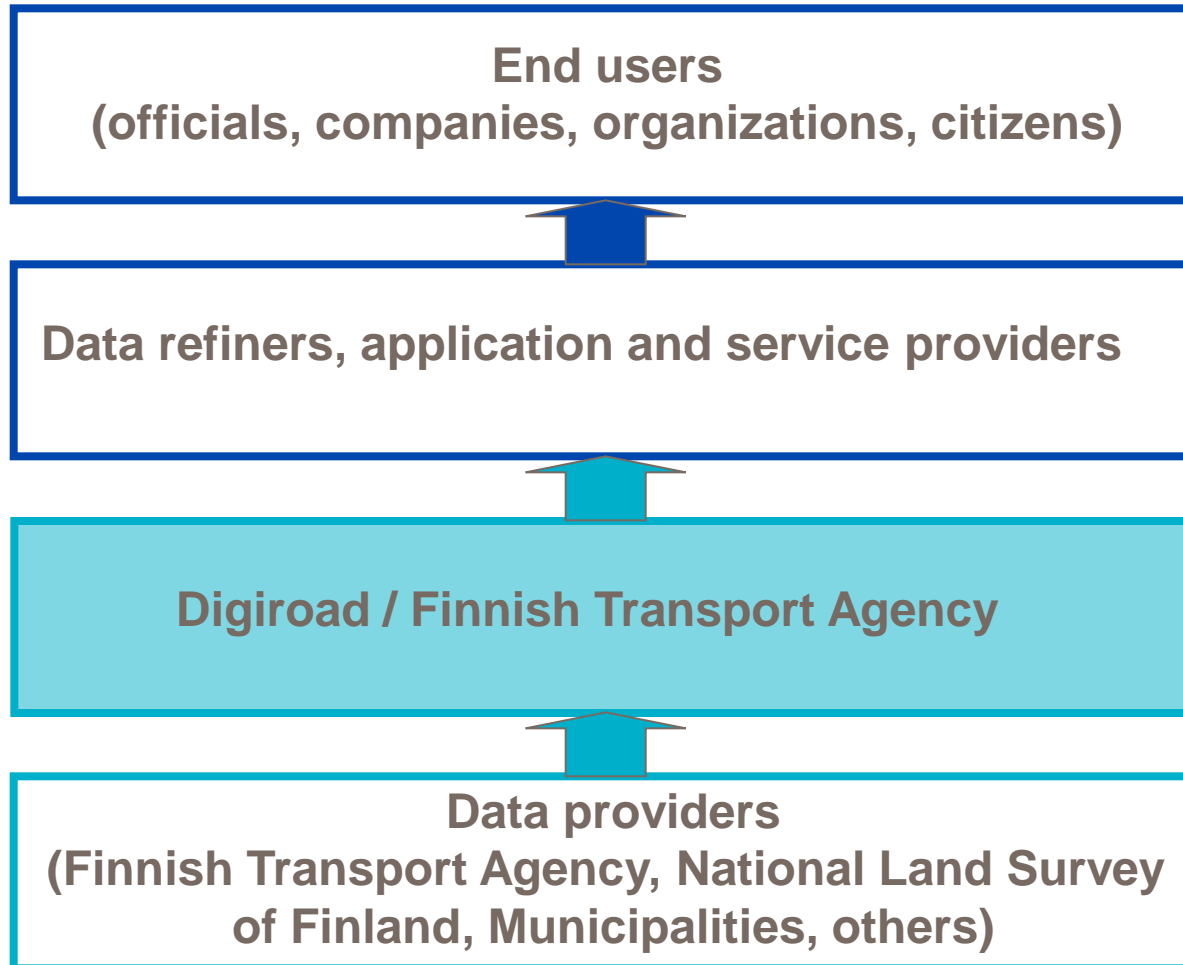
- Data delivery in Digiroad R, Digiroad K and Digiroad XML R -formats
- Digiroad-documentation

## Digiroad -communication to all partners and citizens

- Digiroad's Internet-site [www.digiroad.fi](http://www.digiroad.fi)
- Sample data is downloadable from Digiroad's Internet-site
- Articles in magazines, exhibitions

Objective: Digiroad provides comprehensive and standardized data for the development of new services for both the authorities and commercial service providers.

# DIGIROAD CHAIN OF SERVICE

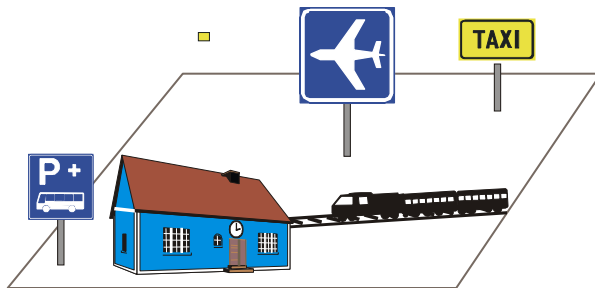


# DATA IN DIGIROAD

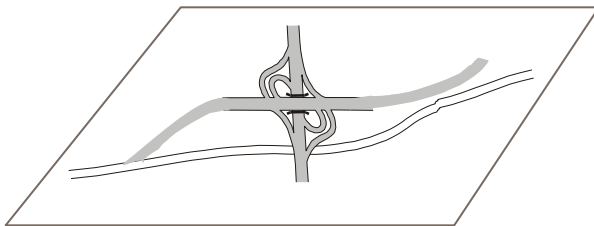
# DATA OF STREET- AND ROAD NETWORK

*functional class,  
address numbers, speed  
restrictions, restrictions of  
passage etc.*

Attribute data which affects to route planning and navigation



Other objects on traffic network



Street- and road networks geometry

# GEOMETRY OF STREET- AND ROAD NETWORK

Centre line geometry of roads, altogether ca. 483 000 km

- Roads 81 000 km
- Streets 25 000 km
- Private roads 360 000 km



## Road network

- Roads drivable by passenger car
- Ferries
- Pedestrian or cycle paths which have own centre line geometry (17 000 km)

Centre lines approximate location accuracy is ca. 3 m

Target accuracy of attribute data +\ - 5 meters

# CONTENT

Centreline geometry of streets and roads (traffic elements)

Official name and number of road  
Address numbers  
Functional class  
Validity direction

Restrictions of passage on the road and street network

Blocked passage  
Maximum allowed weight, height, length and width of the vehicle  
Vehicle allowed or not allowed  
Prohibited manoeuvres

Attribute data of road and street network

Number of lanes  
Width  
Speed restrictions  
Public transport stop  
Bridge, underpass or tunnel  
Paved road  
Level crossing of a railway

Services

Public transport- and Taxi station  
Parking area or -building  
Hospital/polyclinic and First aid post  
Car shipping terminal  
Cargo centre

Some data is only on most important functional classes.

# STRUCTURE OF DATA

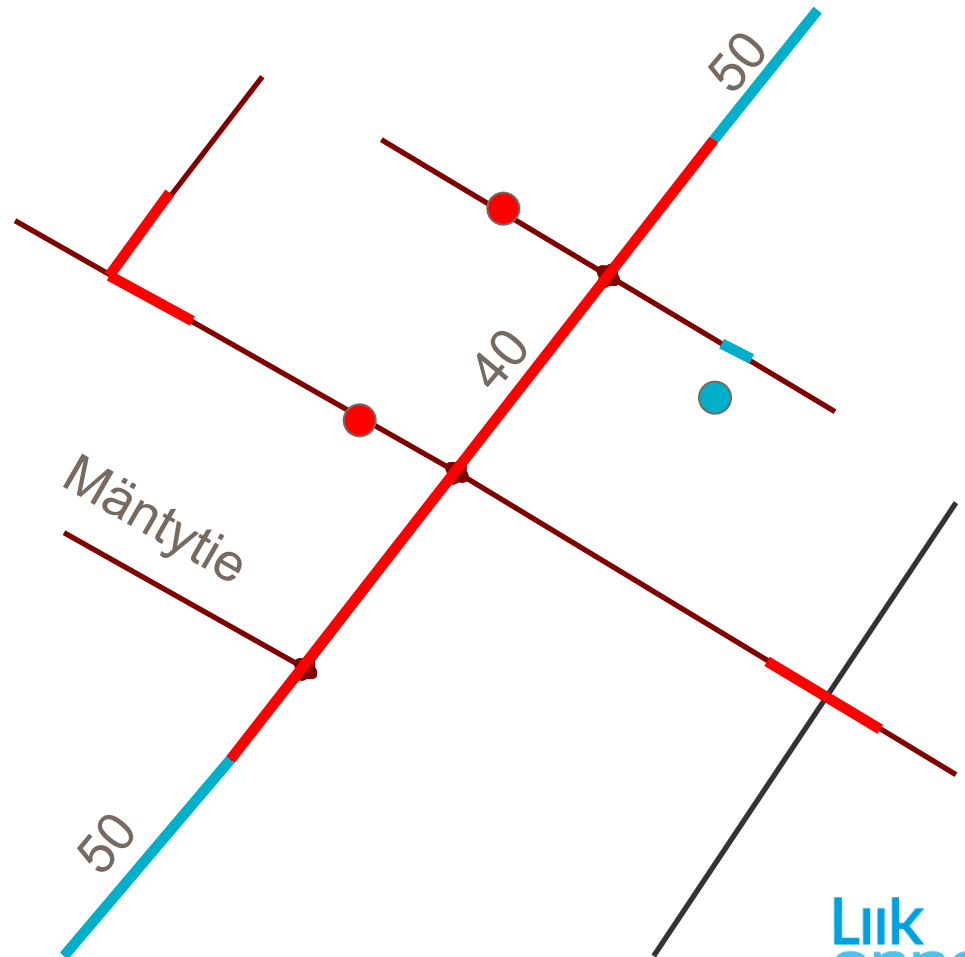
Traffic elements

Reference chains

Attribute data




- Line segment
- Point segment

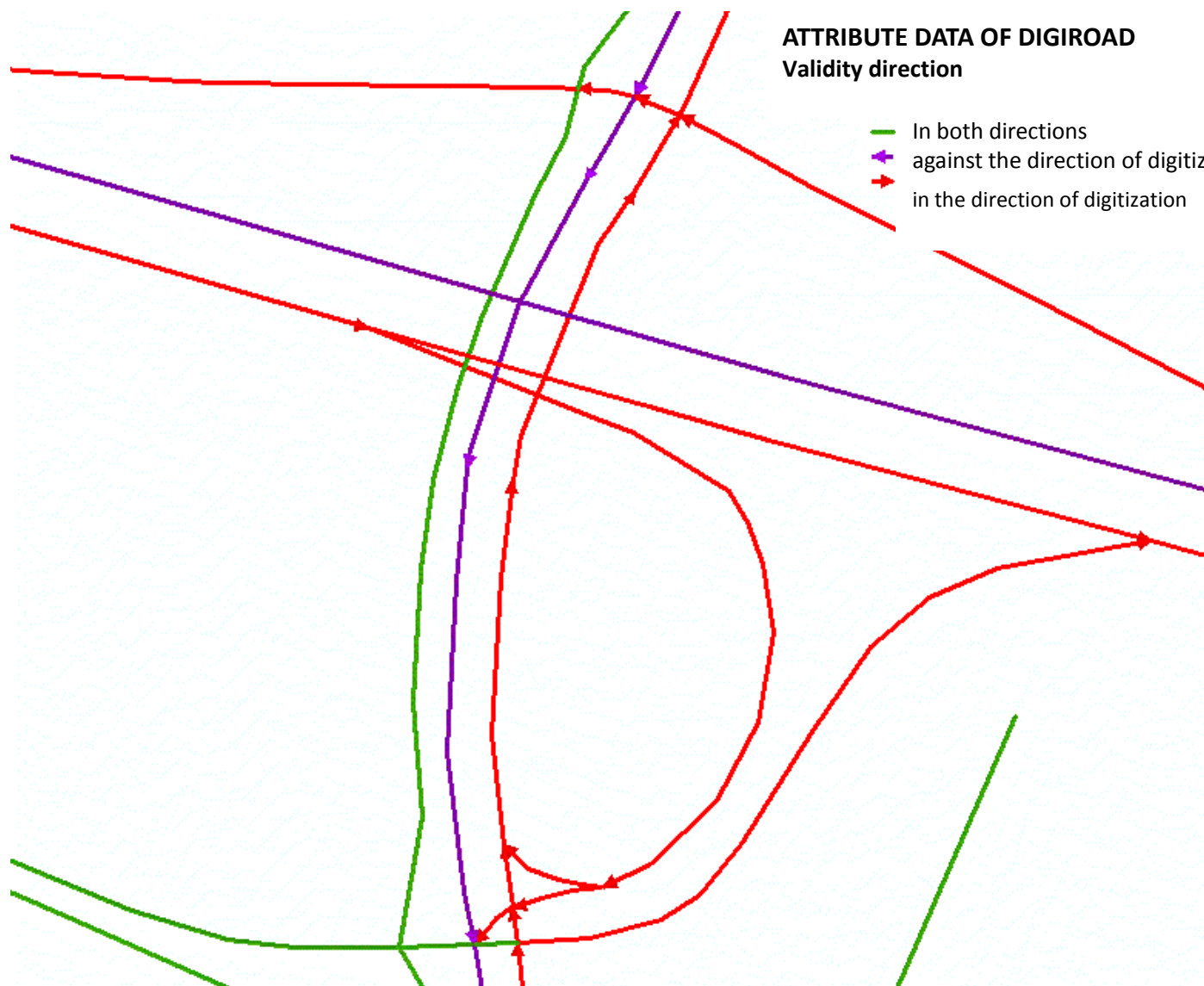
Services

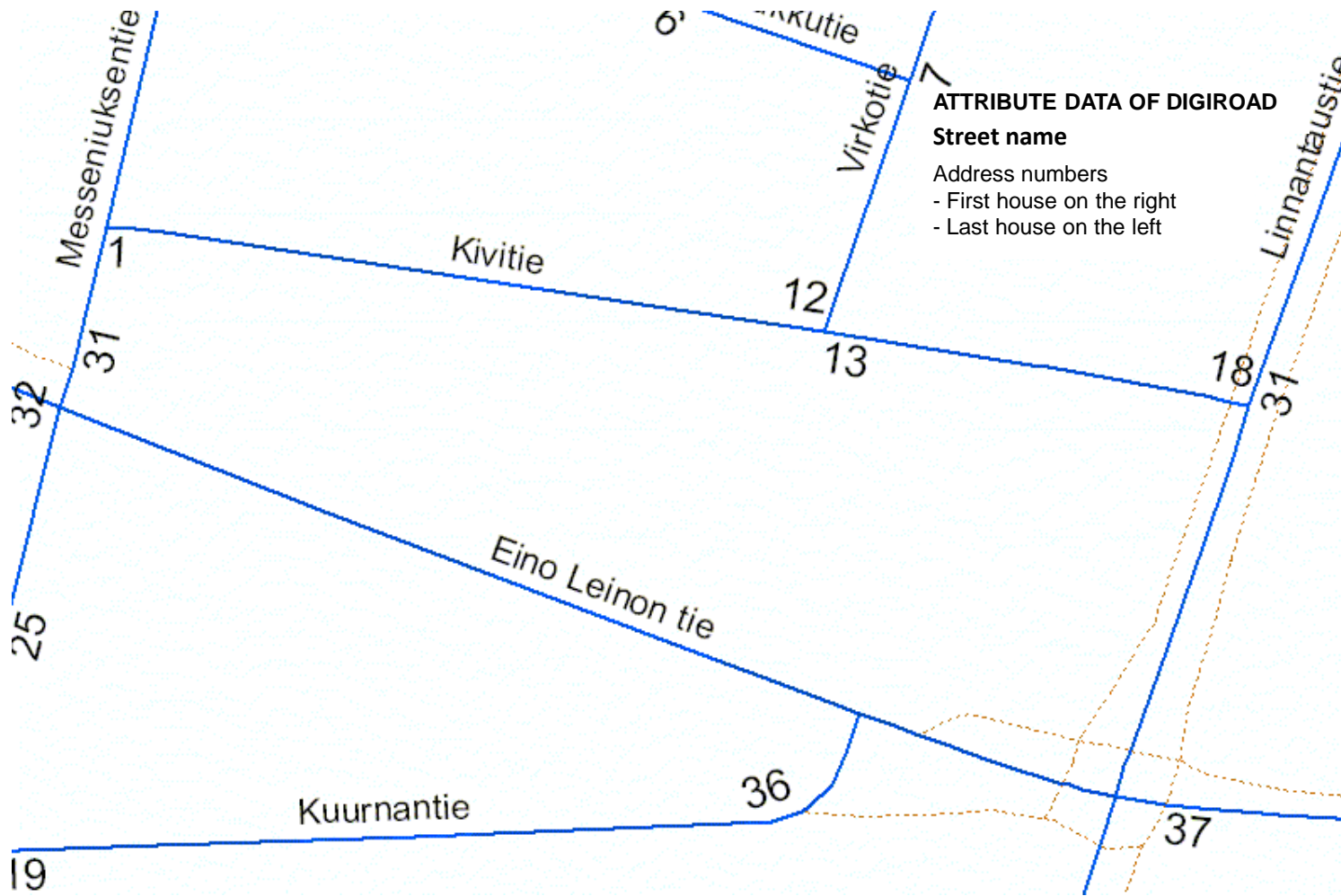


### ATTRIBUTE DATA OF DIGIROAD

Validity direction

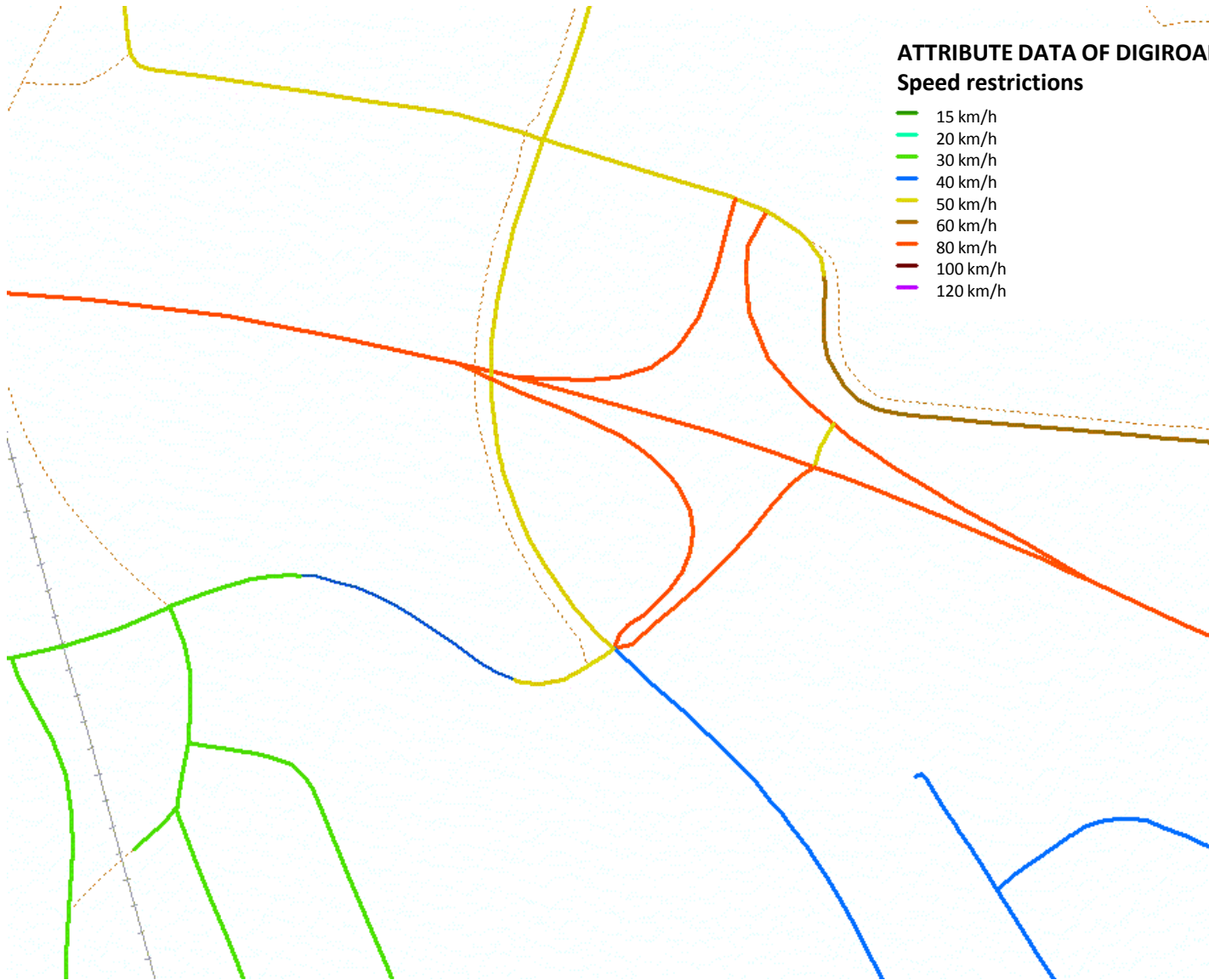
-  In both directions
-  against the direction of digitization
-  in the direction of digitization

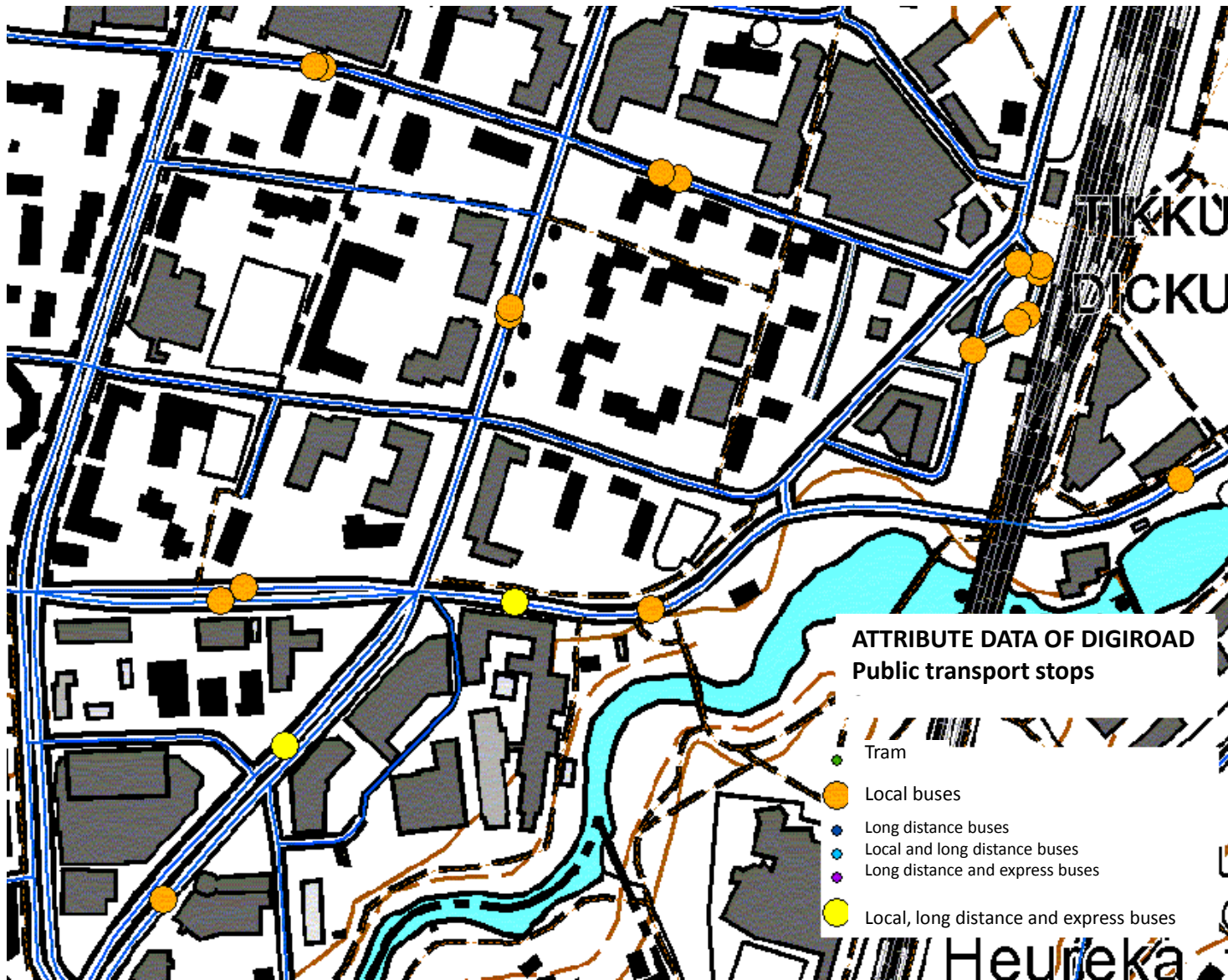






















**ATTRIBUTE DATA OF DIGIROAD**  
**Speed restrictions**

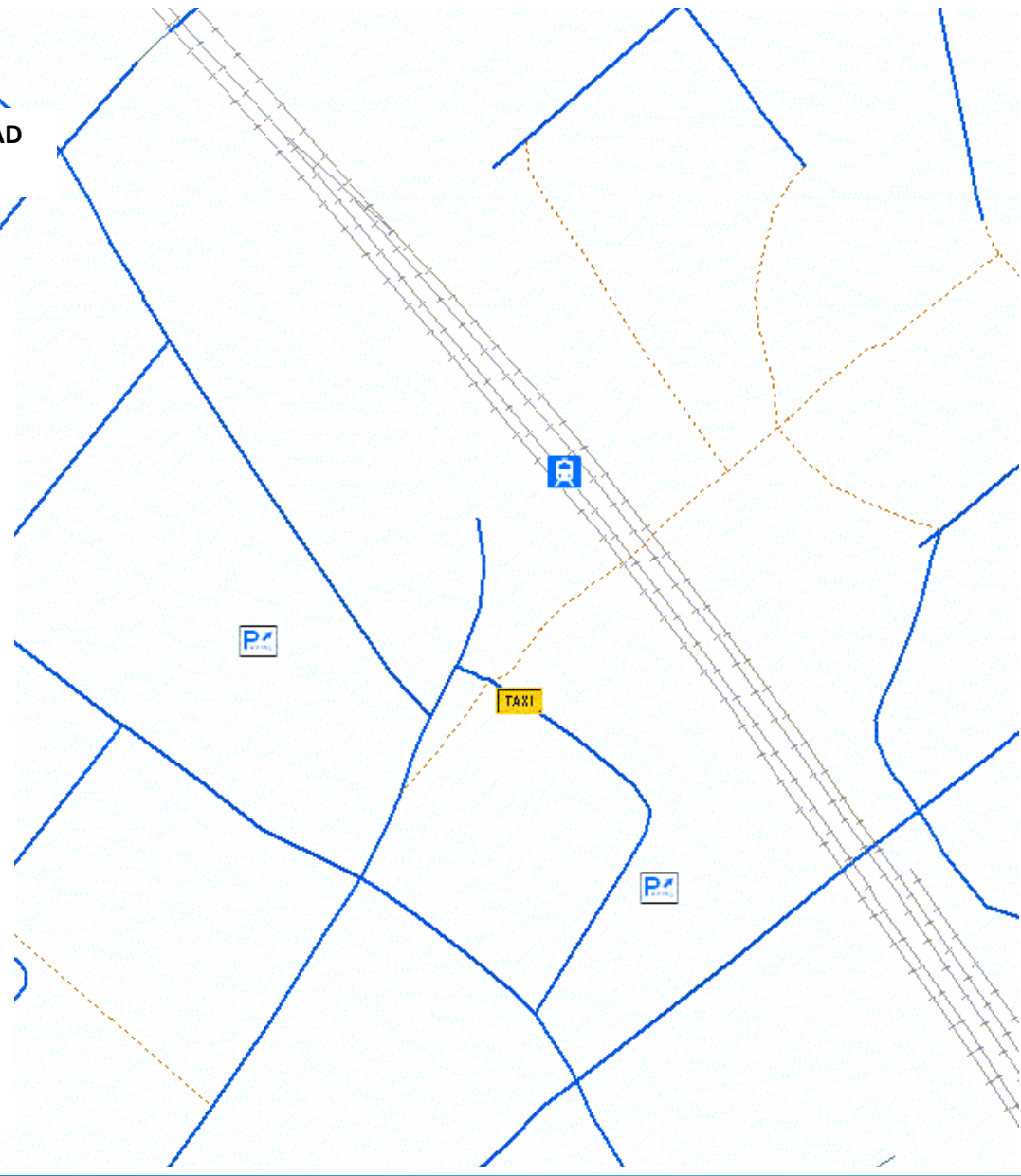
- 15 km/h
- 20 km/h
- 30 km/h
- 40 km/h
- 50 km/h
- 60 km/h
- 80 km/h
- 100 km/h
- 120 km/h





### ATTRIBUTE DATA OF DIGIROAD Services

-  Bus
-  Hospital/polyclinic
-  First aid post
-  Cargo centre
-  Customs
-  Frontier crossing
-  Rest area
-  City centre
-  Airport
-  Ferry Terminal
-  Taxi stand
-  Railway station
-  Parking area
-  Car shipping terminal
-  Coach and lorry parking
-  Parking building
-  Bus station
-  Landmark



# INFORMATION SERVICE

# FOR CUSTOMERS: ORDERING OF THE DIGIROAD-DATA

Customer submits an agreement proposal using the Digiroad browser application [www.digiroad.fi](http://www.digiroad.fi) > Order (tilaus)

Operator manages the agreement process between the Finnish transport Agency and the customer

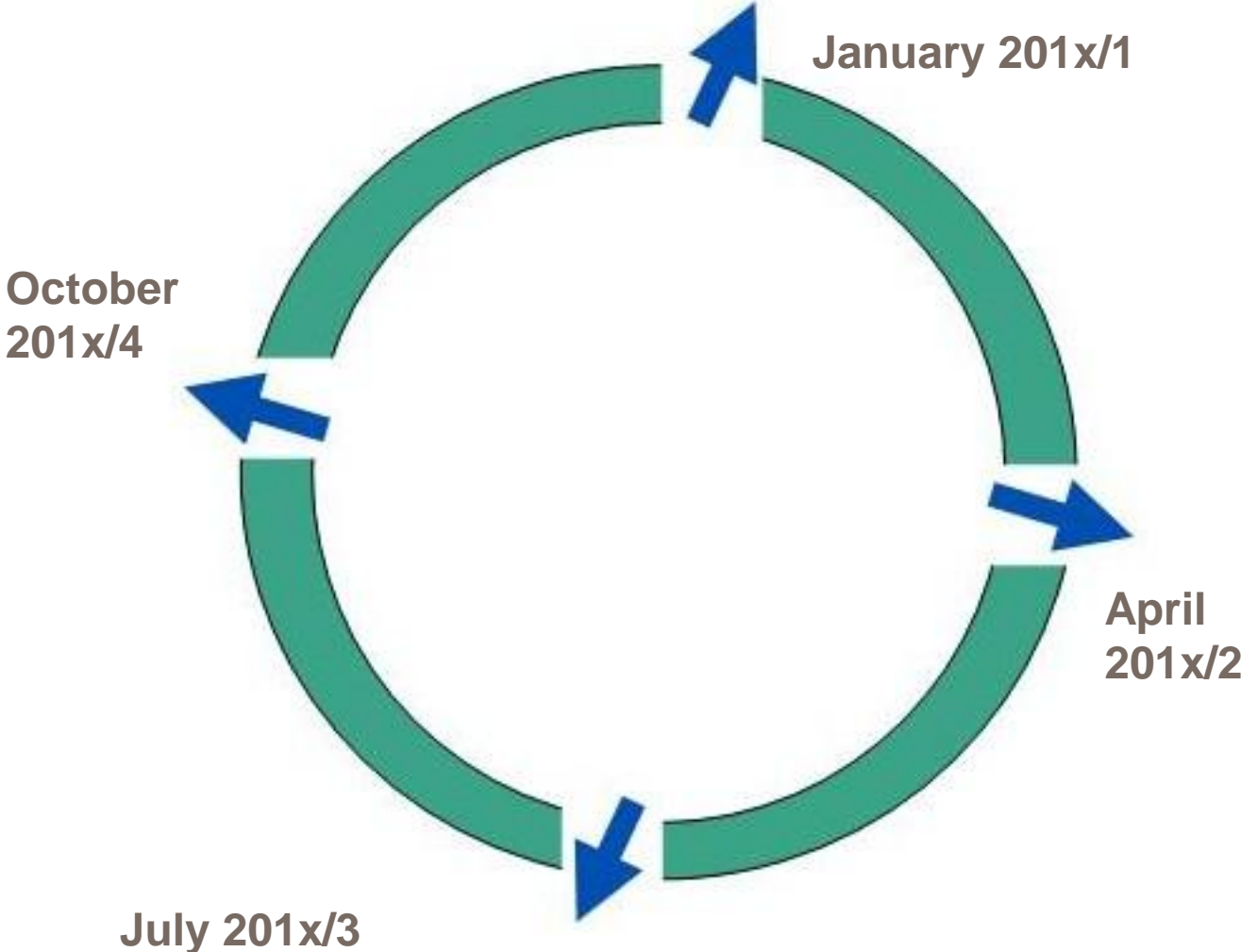
The Finnish transport Agency and the customer sign the licence agreement

New data can be ordered via e-mail [tuki@digiroad.fi](mailto:tuki@digiroad.fi)

Orders/agreements must include the following information :

- Areal coverage
- Delivery format and means of delivery
- Update schedule
- Terms of use
- Extraction cost

# DIGIROAD RELEASE SCHEDULE



# CONTENT OF DIGIROAD RELEASE



Digiroad data is delivered in the following formats:

- Basic delivery (includes all data) Digiroad R and Digiroad K
- Update delivery (includes only the data which has changed since last release)  
Digiroad R and Digiroad XML R

Under the Digiroad release schedule, new data is published four times a year. Each Digiroad release contains the following:

- Basic delivery Digiroad R and Digiroad K, Euref-FIN coordinate system, files by region
- Basic delivery Digiroad R and Digiroad K, Euref-FIN and YKJ- coordinate system, files by municipality
- Update delivery Digiroad R (Euref-FIN coordinate system, files by region) and Update delivery Digiroad XML R (Euref-FIN coordinate system, files by municipality)

# PRICING

Digiroad customers are only charged extraction costs.

The pricing is based on the Decree of the Ministry of Transport and Communications on the Chargeable Services of the Finnish Transport Agency (1158/2010); Section 4: Fees for output and information services related to the Road and Street Network Information System. The Decree is in force until the end of 2011.

According to the Decree, the following fees shall be charged for data delivery and information service extraction:

- Extraction work: EUR 70 per hour worked
- Transfer files: EUR 20 per extraction
- Service fee: EUR 10 per extraction

Data extraction price:

$3 \text{ h} \times 70 \text{ €/h} + 20 \text{ €} + 10 \text{ €} = \mathbf{240 \text{ €} + \text{VAT} / \text{delivery format} / \text{delivery}}$

The Finnish Transport Agency reserves the right to change the prices.

# DIGIROAD FORMATS AND CONTENT



## Digiroad R

- Dynamically segmented attribute data on reference chains. It is delivered in *ESRI shape* format.

## Digiroad K

- Delivery format in which traffic elements have been cut into parts containing uniform attribute data. Delivered in *ESRI shape* format, Digiroad K is suited for use with, for example, MapInfo products.
- Digiroad XML R
- File transfer format based on XML messages. It contains centre line geometry position data as well as attribute data dynamically segmented on reference chains.
- Sample data can be downloaded from Digiroads Internet- site [www.digiroad.fi](http://www.digiroad.fi)