

Arvo Vitikainen Assessment Method for Highway Project Impacts on Real Estates

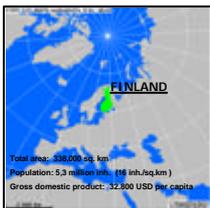
Finland in Figures

Total Area

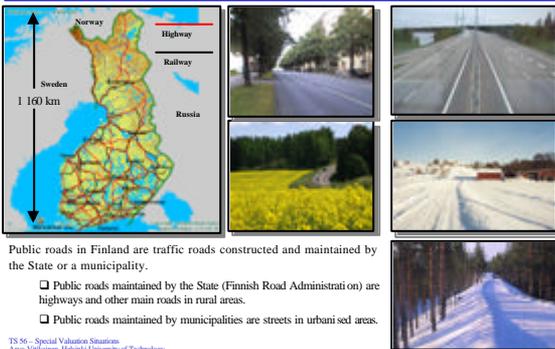
338,000 square kilometers, of which 10% is water and 69% forest;
187,888 lakes, 5,100 rapids and 179,584 islands;
Europe's largest archipelago, including the semi-autonomous province of Åland

Population

5.3 million, 15.5 inhabitants per square kilometer
62% live in towns or urban areas, 38% in rural areas
About one million people live in the Helsinki metropolitan area.



The total length of the public roads is 78 197 km
(approximately 15 metres of public roads for each resident in Finland)



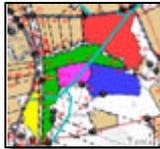
Public roads in Finland are traffic roads constructed and maintained by the State or a municipality.

- Public roads maintained by the State (Finnish Road Administration) are highways and other main roads in rural areas.
- Public roads maintained by municipalities are streets in urbanised areas.

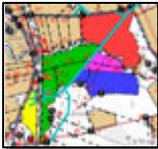
ASSESSMENT METHOD FOR HIGHWAY PROJECT IMPACTS ON REAL ESTATES

- Developed in co-operation between the Finnish Road Administration, National Land Survey of Finland and the Department of Surveying, Helsinki University of Technology
- It is an essential part of the preliminary and final engineering stages of the highway project.
- It is possible to find out and describe the detrimental impacts of a highway project on land division and use of real estates, and study the options for reducing such impacts.

A new road splits real estates so that a part of the real estate on the other side of the road is difficult to use



Land consolidation (Land-for-land exchange) is used for altering and improving land locations between individual register units



Land consolidation in connection with legal road survey does not require the consent of the owner of the real estate or the holder of a lien or a special right thereon.

Planning of new highways is divided into preliminary and final engineering stages.

Preliminary engineering plan



Final engineering plan



Building project

PRELIMINARY ENGINEERING PLAN

- Approximate location of the road
- Estimated impacts of the road e.g. on the road and traffic conditions, traffic safety, land use, land division, and the environment
- Transportational and technical fundamentals
- Impacts on human health, living conditions and habitability
- Options for eliminating or reducing detrimental impacts and
- Preliminary cost estimate

FINAL ENGINEERING PLAN

- Exact location of the highway and the areas required for it,
- Junctions of public and private roads and other road readjustments,
- Measures, which are necessary for eliminating or reducing the detrimental impacts caused by the road and
- Cost estimates

IMPACT ASSESSMENT AT THE PRELIMINARY ENGINEERING STAGE

In practice the Finnish Road Administration orders a report on the impacts of the road on the land division from the National Land Survey of Finland or some other specialist in the field.

- The report will be prepared as map surveys availing e.g. the data in the Land Data Bank System, base maps, the IACS dataset for field parcels of the EU, and data of the various routing options prepared by the Finnish Road Administration for the highway project.



The report will present the impacts of the highway on the areal land use and land division. The report will include, e.g.:

- Overall presentation of the impacts of the highway on the areal land use and land division;
- Required measures for diminishing the inconveniences caused to the land division (e.g. suggestions for constructing new service roads or road readjustments);
- Recommendation for a possible land consolidation related to the particular project;
- Map presentation overall describing the required measures;
- Preliminary estimate on the benefits and costs of the required measures.

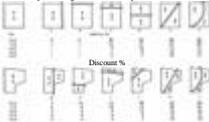
IMPACT ASSESSMENT AT THE FINAL ENGINEERING STAGE

If the impact assessment report prepared at the preliminary engineering stage give any cause the analysis of the impacts on the land division and use of the real estates shall be further specified at the final engineering stage.

The data collected at the preliminary engineering stage will be updated up to the level of real estate units. The analysis of the impacts is an interactive process

- the landowners and authorities will hear by interviews
- informative meetings will arrange in the impacted area

The impact of fragmentation on the price of arable land



The final report will present in detail the impacts of the highway project on the land division and the recommended measures of implementation.

The final report include a cost-benefit estimation

The benefits in money:

- improved traffic safety caused by the discontinuation of junctions (data obtained from the studies of the Finnish Road Administration);
- construction costs of the junctions, overhead bridges and underpasses thus becoming unnecessary due to road readjustments and land consolidation (cost data obtained from the studies of the Finnish Road Administration);
- benefits to agriculture caused from the growth of parcels and decrease of travel and transport costs (benefit data obtained from the studies of the Finnish Road Administration).

The implementation costs of the project, which the benefits are compared to:

- land consolidation costs (obtained from the studies of the National Land Survey of Finland) and
- constructions costs of the service roads, junctions, etc. required for the implementation of road readjustments and land consolidation (cost data obtained from the studies of the Finnish Road Administration).

CONCLUSIONS:

It is possible to find out and describe the detrimental impacts of a highway project on land division and use of real estates, and study the options for reducing such impacts

It is appropriate to consider the needs for land consolidation at highway projects already at the preliminary engineering stage. Thus the options arising may be considered when preparing the detailed final engineering plan and the detrimental impacts may be eliminated or remarkably reduced by the solutions presented.

It is noteworthy that the method is based on the existing map and register material. By means of modern land data bank systems these materials easily offer all the necessary data for assessing the impacts of a highway project on real estates and how these impacts can be eliminated or reduced by land consolidation and road readjustments

PRELIMINARY ENGINEERING PLAN



FINAL ENGINEERING PLAN



Thank you for your attention

