

Climate Change Adaptation Finavia's study on Increased Rainfall and Drainage Systems

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Mikko Viinikainen

VP, Sustainability & Environment
Finavia Corporation

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Master of Science Thesis: Impacts of climate change on stormwater drainage systems of airports and de-icing of runways and adaptation to the impacts (2015)

Laura Viitanen, Sito, Tampere University of Technology
– Laura.viitanen@sito.fi

Link to the Thesis:

<https://dspace.cc.tut.fi/dpub/bitstream/handle/123456789/23465/Viitanen.pdf?sequence=4&isAllowed=y>

Objectives

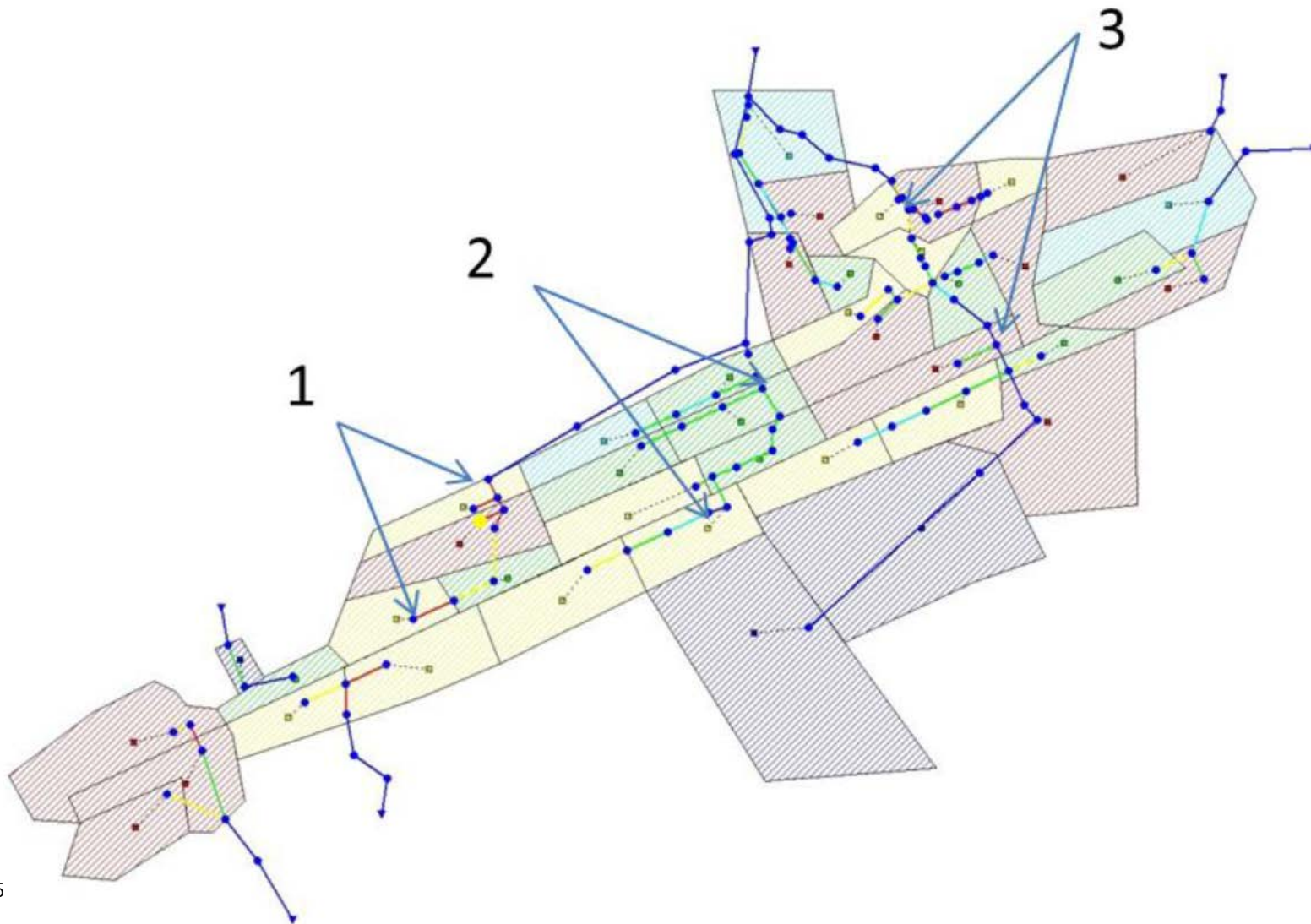
To assess the capacity of drainage systems at regional airports

- Literature study on future rain volumes
- Two case studies analyzed with water flow simulation models
 - Tampere-Pirkkala airport
 - Oulu airport
- Results, conclusions and recommendations

Tampere-Pirkkala, drainage system

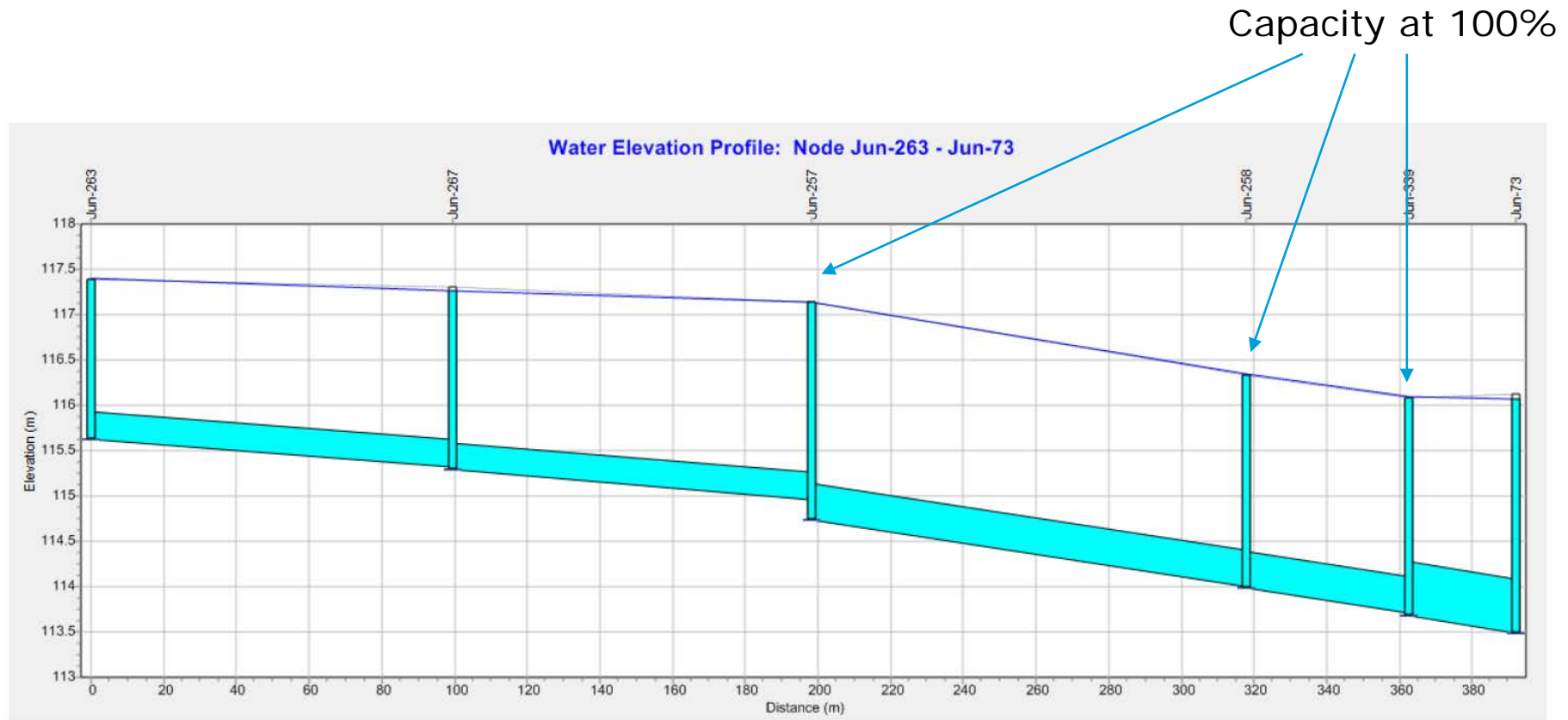


Tampere-Pirkkala, modelled drainage network



Results of a flow model

Rain intensity 1/5years, 30 mins



Conclusions

Drainage systems

- If rainfall increases, capacity is insufficient at Tampere-Pirkkala and Oulu airports
- The same applies to other regional airports, as unified planning principles have been used
- Capacity should be enhanced once other renovation work is undertaken
- The flooding water would unlikely occupy the runway so no imminent danger is expected

Recommendation

- Capacity planning should concentrate on the full drainage system, not only on single pipelines
- Finavia could learn from studies made in Sweden and Norway (!)