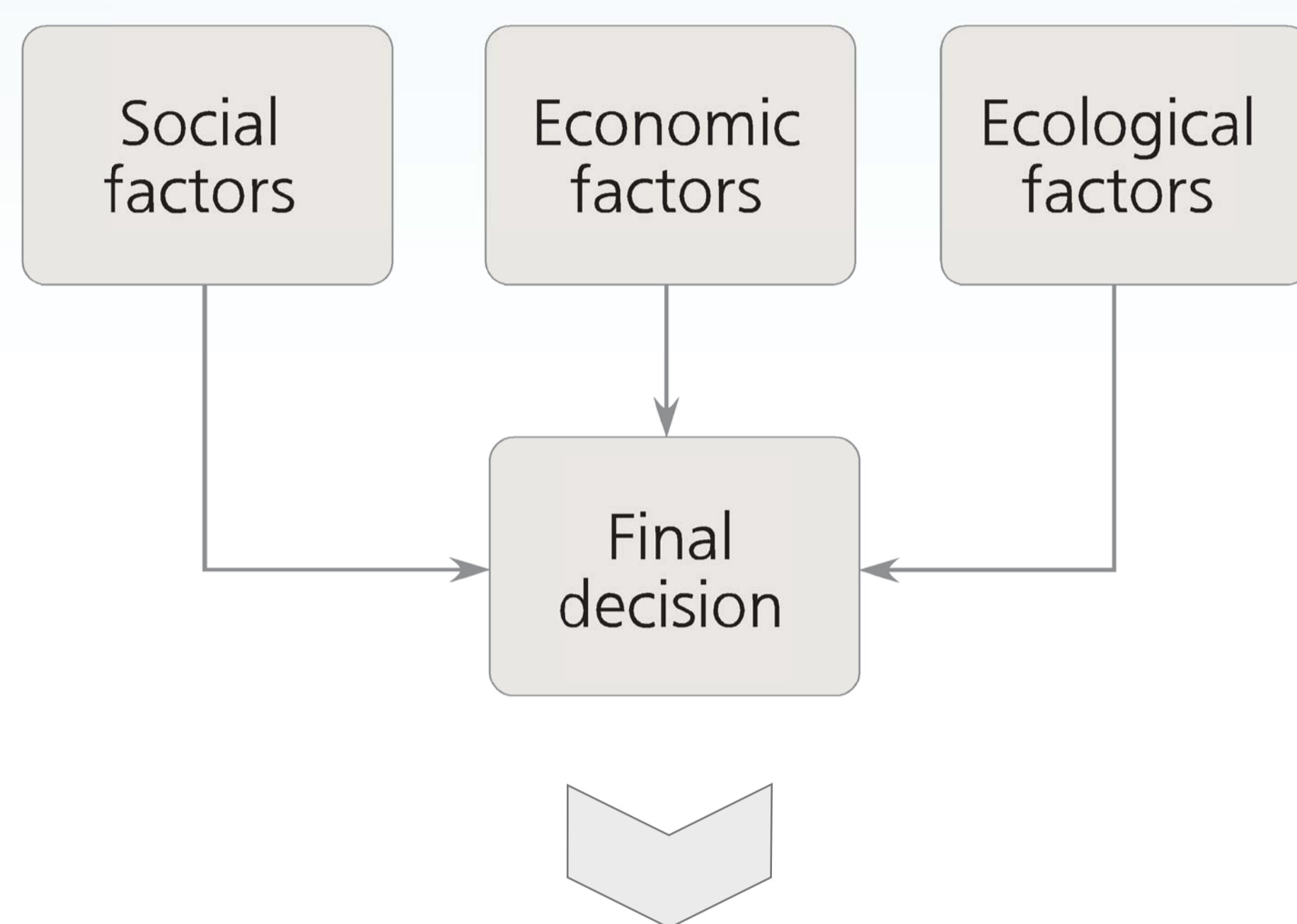


Wetland restoration in road projects: A sustainability framework for site selection

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Proposed decision scheme

- Integrate the three pillars of sustainability into the decision-making.
- Take a final decision weighted between the multiple factors of those pillars.
- Aim for the best compensation solutions by incorporating the different actors at play and their stake within the factors.



Proposed decision methods

- Collect different actors views and weigh the factors according to those (fig. 3).
- Select best restoration sites for each actor through a **Multiple Criteria Decision Analysis** (MCDA) of the given factors (fig. 4).
- Compare different results for each actor, i.e. engineers at Vegagerðin, locals and environmental experts.
- Identify areas of overlap to maximize consensus among actors.

GIS implementation

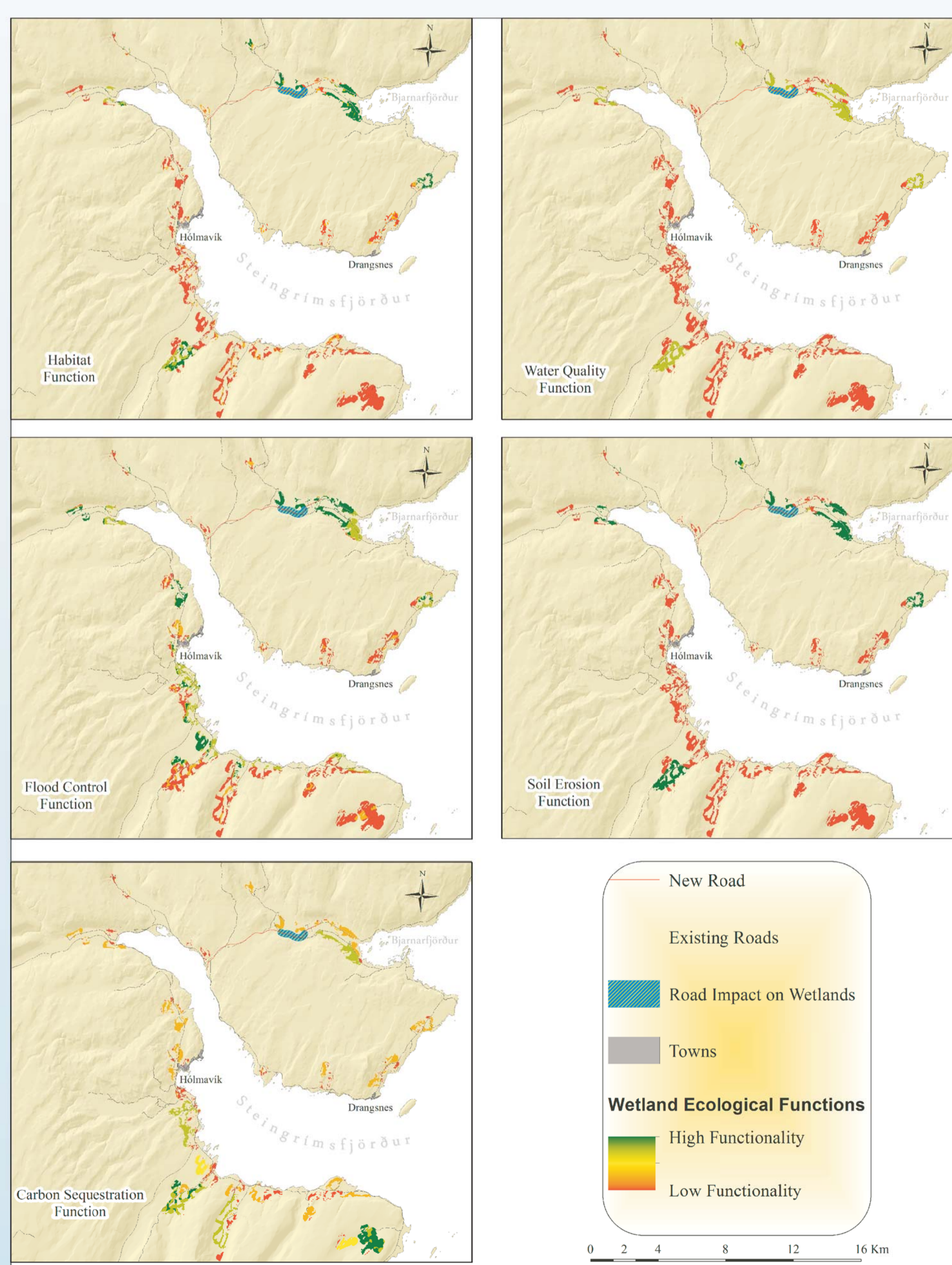


Fig. 3: Ecological factors included in the final decision

Sustainability in wetland restoration?

This project aims to improve the **sustainability** and **effectiveness** of Vegagerðin's wetland restoration. The factors that determine the current decision scheme are compared to those which must be present in sustainable wetland restoration, **generating guidelines for further improvement** of procedures for site selection.

The comparison is based on the ongoing road improvement project at Bjarnarfjörður, Strandir (fig. 1).

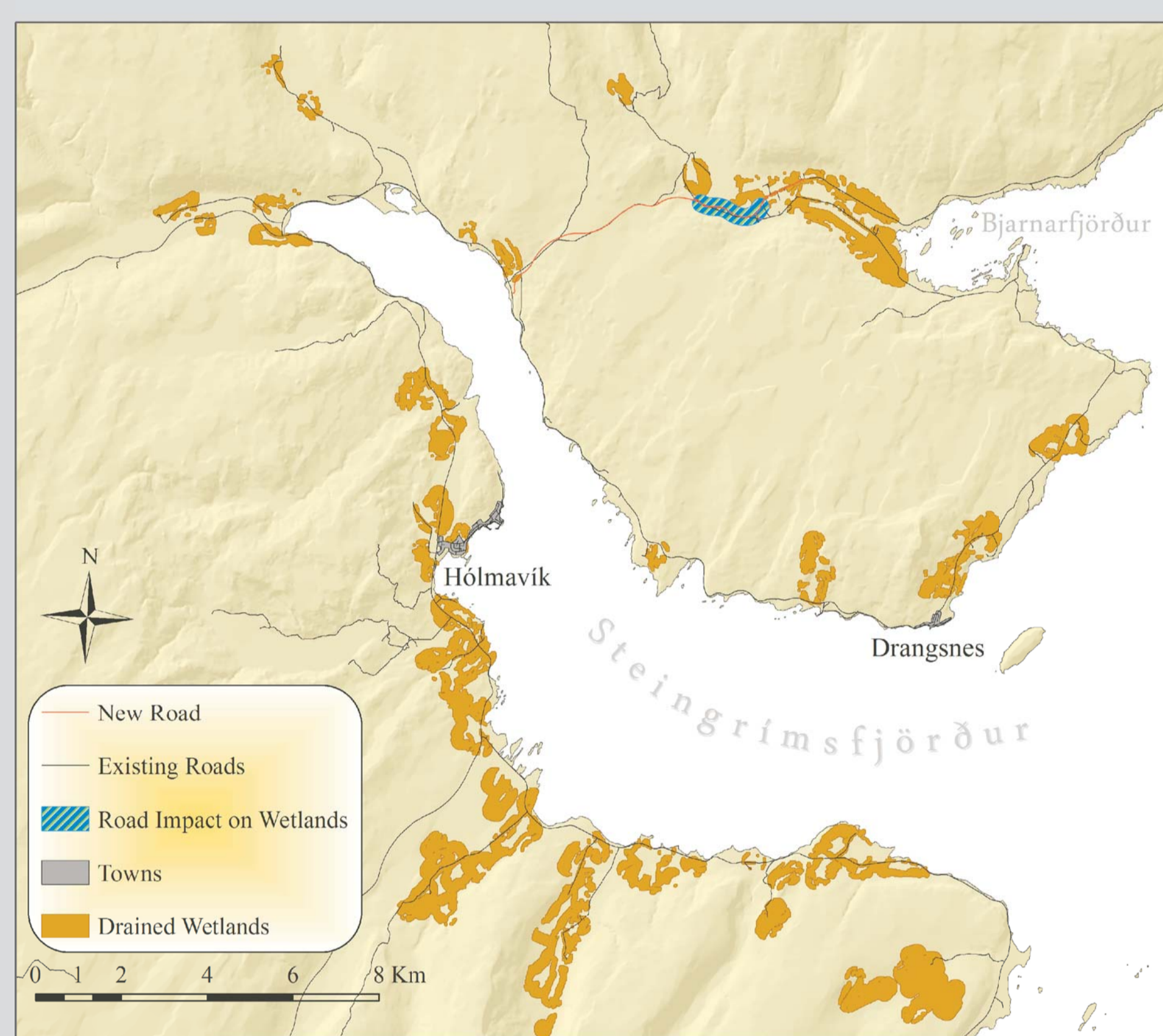


Fig. 1: The study area

Final results of the proposed approach

- The implementation of ecological factors has been completed already.
- The inclusion of social and economic factors is still not fully completed.

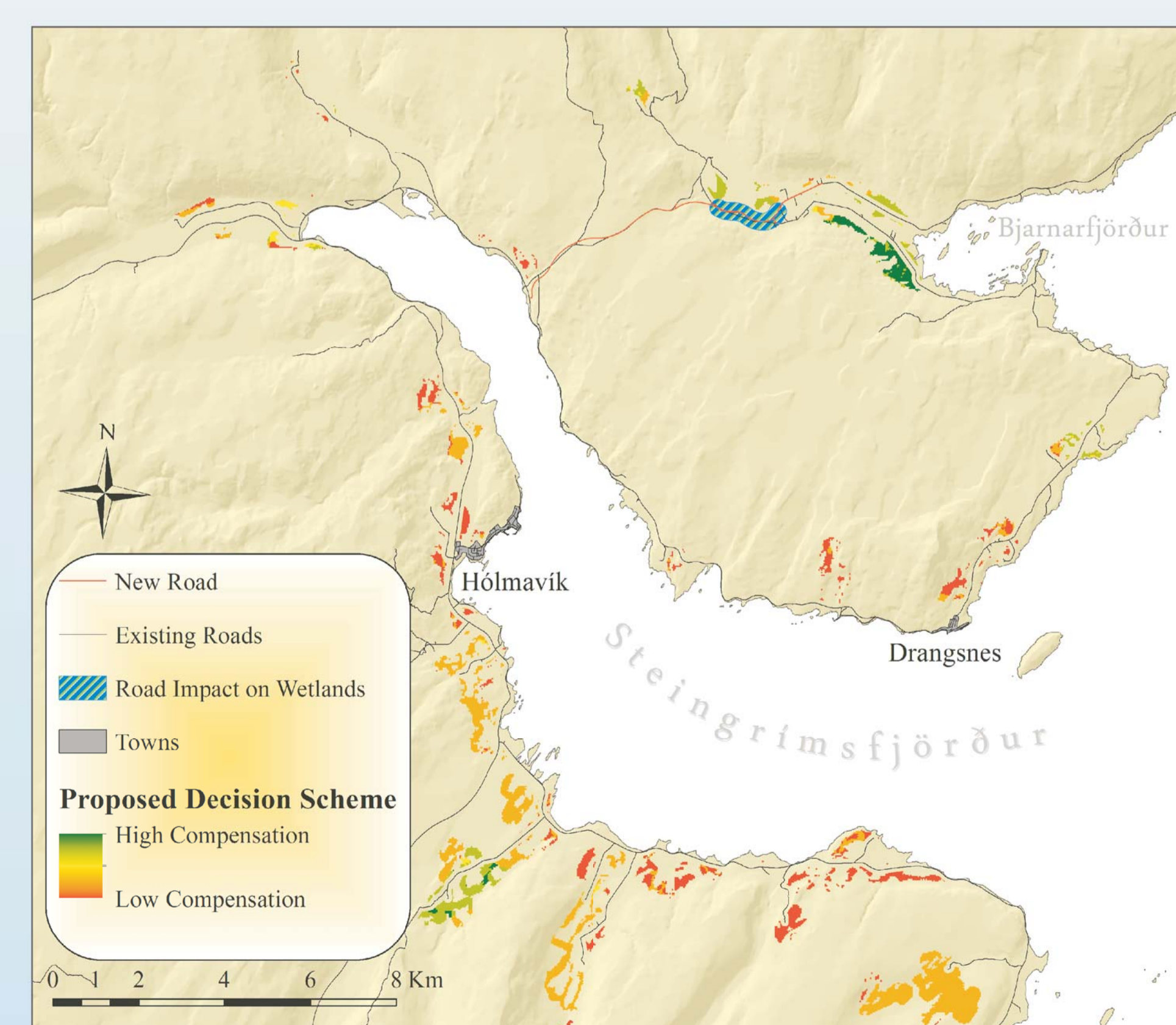


Fig. 4: Best restoration areas based on the ecological factors of the proposed scheme

Current decision scheme

- Required by Umhverfisstofnun and implemented by Vegagerðin.
- The site to be restored is chosen on a single-factor basis, i.e. the type of wetland by area disturbed (fig. 2).

Current decision methods

- Expert-based decision following current guidelines.

GIS implementation

- The type of wetland and its extent can be processed in a GIS as a habitat function.
- This is not currently used by Vegagerðin. The map (fig. 2) has been created for comparison with the proposed decision scheme.

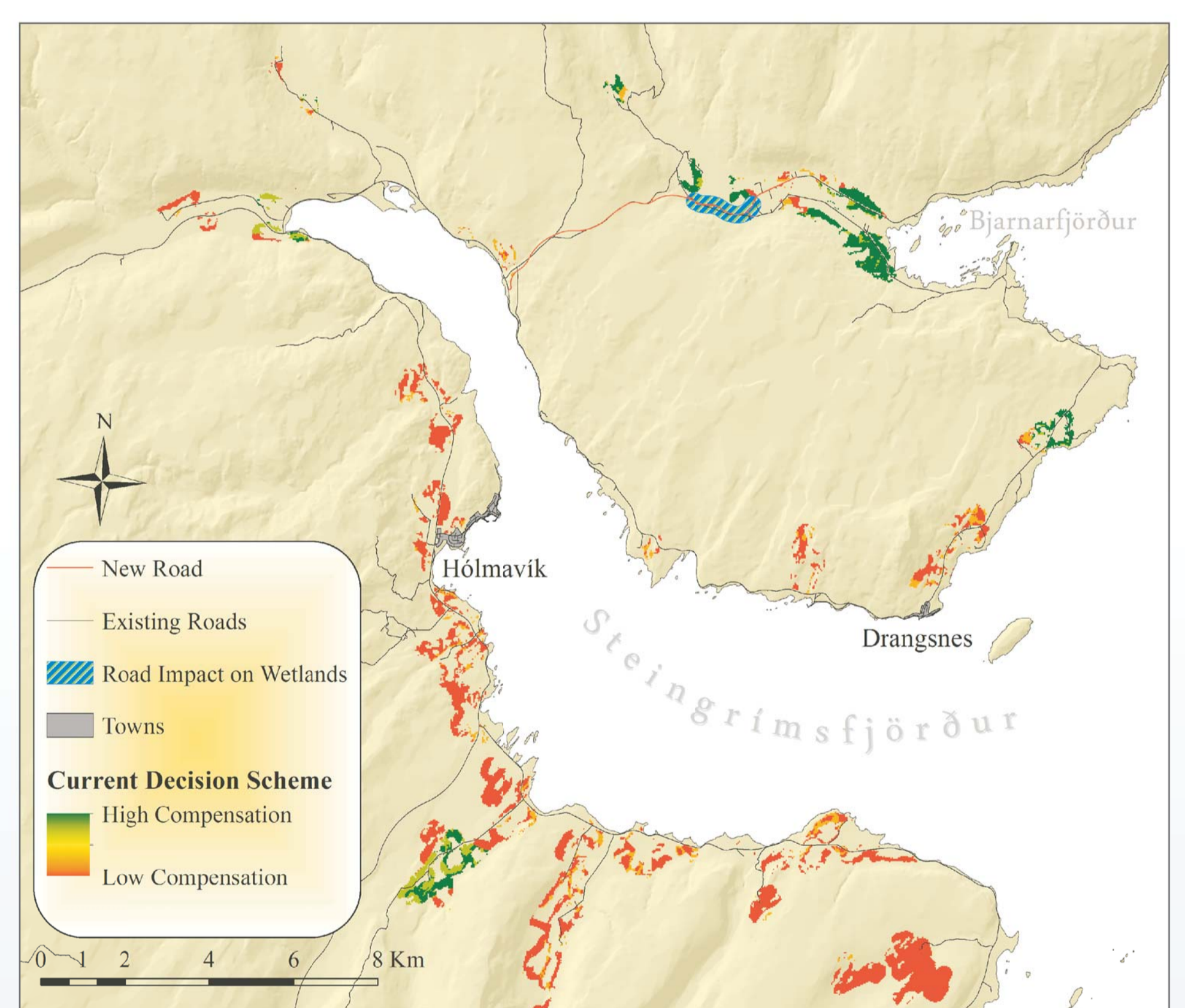


Fig. 2: Restoration areas selected on the basis of the current approach

Conclusions and suggestions for further development

- The proposed scheme addresses sustainability more comprehensively than the current one.
- Good compensation areas are similar between current and proposed approaches (figs. 2 & 4), but the latter is more informative.
- Final conclusions about the difference between both approaches must be reserved until the social and economic factors have been fully included and mapped.
- Within the social factors, local knowledge could be crucial when other factors fail to find an agreement.