

Integrated Highway Planning Ontology (IHP-Onto)

Background:

State highway agencies (SHAs) have multiple functional groups responsible for safety, maintenance and rehabilitation (M&R), and mobility planning. This can lead to a siloed approach to planning. This problem is reinforced by functional groups employing incompatible legacy systems. This can result in redundant planning efforts and potential spatial-temporal conflicts in the projects proposed by the different groups over a planning period. Accordingly, there is a need for an integrated approach towards the cross-functional planning of highway projects.

Purpose:

The aim of this ontology is to provide a shared link between information silos of different functional groups in highway agencies to support efficient planning of highway projects. Integrated Highway Planning Ontology (IHP-Onto) is a formal knowledge representation of highway assets, M&R planning, and inter-project coordination information.

Potential Applications:

- This ontology can enable the use of a common vocabulary among functional groups working on the same asset network but sharing common information requirements of such networks.
- It can also support an iterative approach to synchronizing changes in asset information, planning decisions and constraints, and inter-project coordination information.
- IHP-Onto can also be used to characterize and document a structured approach to resolving spatial-temporal conflicts in a proposed highway projects program.
- For highway agencies transitioning to the development of interconnected systems, relevant information items to be collected by the agency can also be extracted from this ontology.

Related Ontologies:

Ontologies that can be used in conjunction with IHP-Onto are listed below:

[Merged life-cycle highway ontology](#) - Tuyen Le, H. David Jeong (2016)

[TransXML](#) – Transportation Research Board (2007)



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