The Real Property Register – authoritative location data for geocoding within the NSDI

For decades, the Swedish National Real Property Register has been used by Statistics Sweden and other public institutions to geocode statistical and administrative information. The register has deep historical roots and has evolved gradually over the years. As of today, it comprises a comprehensive repository of authoritative location data available within the NSDI, enabling flexible geocoding of information to the level of cadastral parcels, buildings and addresses. The information in the Real Property Register is national location masterdata and feeds into a number of other public institutions such as Statistics Sweden, Tax Administration etc. Figure 1 below illustrates the flow of address information (which is part of the Real Property Register).

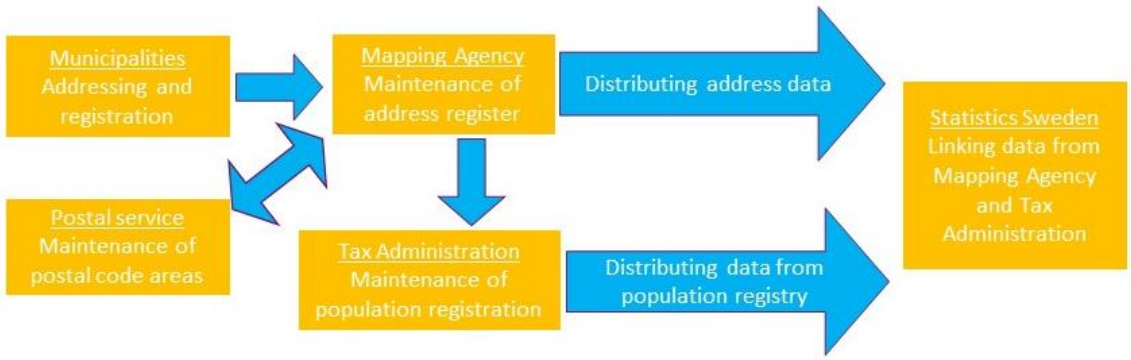

Figure 1. Illustration of data flow for address information

A compound data repository

To most users, the Real Property Register appears as one single data repository concerning all real properties of the country. Despite a homogenous and concise presentation of the textual information, the register is a compound of five parts maintained by different authorities:

(1) The general part (cadastre) including the cadastral index map

In Sweden, the word ‘cadastre’ is rarely used. However, the general part of the Real Property Register corresponds well to the international meaning of that term, as it is the official register of the country’s division into property units or cadastral parcels. For all such units, it contains information about property designation, estimated acreage and location (by a pair of coordinates representing the centre of the parcel).

The cadastral index map is a geographical representation of all current properties, showing their unique designations and approximate boundaries at an original scale of 1:10,000 or 1:2,000 (rural and urban areas respectively). Besides the basic “cadastral parcel layer”, other topographic details, buildings and land use features are also included in the map.

The general part of the Real Property Register, as well as the cadastral index map, is maintained by the National Geospatial Agency (Lantmäteriet).

(2) The land register part

Land registration is mainly focusing on real property ownership and other kinds of rights created outside cadastral matters, e.g. leases and mortgages. After property conveyances or other transactions, the titles are registered and thereby secured against the third party.

(3) The address part

Properties are recorded with physical addresses in the Real Property Register. Addressing is under the responsibility of the municipalities. However, address data are registered by the municipalities directly into the central repository. The address part of the Real Property Register is the one and only authoritative address register in Sweden, updated on a daily basis.

(4) The building part

The building part contains basic data concerning buildings on each property, e.g. type of building (residential, non-residential premises, industries etc.). Each building has a unique identity (PID) and can be located geographically through its centre coordinates. Each building is also represented as a polygon feature in the cadastral index map with a PID corresponding to the identity found in the register. The building data is mainly maintained by the municipalities and registered directly into the central repository.

(5) The property tax assessment part

The National Tax Authority is responsible for estimating a general tax assessment value for most properties. In order to do so, they use assessment models for mass valuation, including land value maps, provided by Lantmäteriet. Data on property sales, registered in the land registry part of the Real Property Register, form the basis for these models. The tax assessment part of the register is updated annually based on data collected from property owners.

(6) Dwellings

After a legislation in 2006 on establishment of a dwelling register, it was incorporated as a part of the Real Property Register and implemented in 2010. The dwelling register is a correspondence table linking addresses and buildings together with additional information about individual dwellings (dwelling ID). The dwelling register is used by the Tax Administration for population registration. The dwelling register does not have a spatial representation of its own, but can be linked to both buildings and addresses.

Integrated location data objects

The geospatial objects of the Real Property Register (cadastral parcels, buildings and addresses) are consistent and hierarchically linked to each other, both conceptually and topologically, which enables inclusion of all three object-types in the geocoding infrastructure.

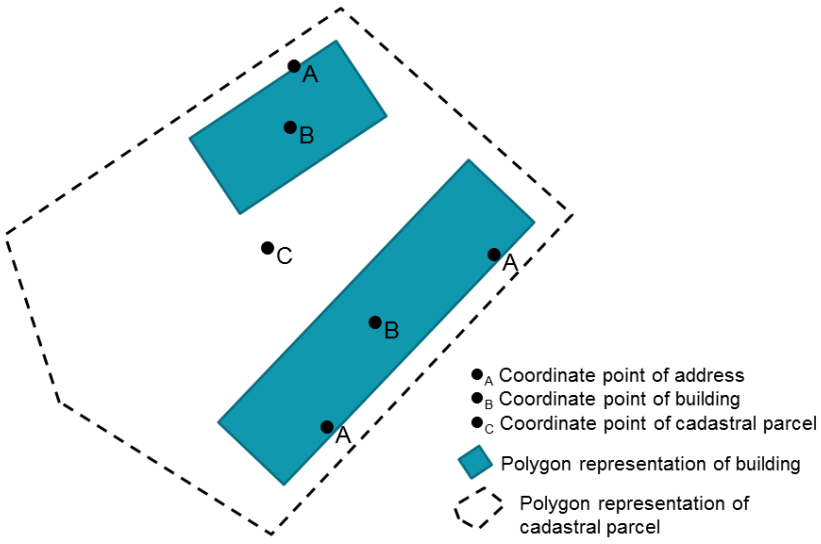

Figure 2. Conceptual illustration of the integrated and hierarchical location data framework of the Real Property Register.

As shown in the figure above, coordinates of buildings (B) and addresses (A) are linked to the cadastral parcel in which they are located. The cadastral parcel can be spatially represented by its centroid coordinate (C) or by a polygon feature from the Cadastral index map representing its extent. The coordinate of an address (A) is linked to the building (B) to which it belongs (typically entrance point). A dwelling does not have a spatial representation of its own, but can be linked to building and/or address location.

More information

https://www.lantmateriet.se/en/real-property/Fastighetsinformation/Fastighetsregistret/

http://www.theboundary.no/ep_tmp/files/204504289849f0e16a0ccaf.pdf

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