BAHAMAS BUREAU OF STANDARDS AND QUALITY

QUALITY IS OUR STANDARD

FINAL DRAFT BAHAMAS NATIONAL STANDARD

Geographic information — Land Administration Domain Model (LADM) —Part 5: Spatial plan information

FDBNS ISO 19152-5; 2025

Bahamas Bureau of Standards & Quality (BBSQ)
Verizon Business Park, 1000 Bacardi Road
P.O. Box N- 4843, Nassau, New Providence, Bahamas
Tel: (242) 362-1748 thru 56
Fax: (242) 362-9172
Email: standards@bbsq.bs
Website: www.bbsq.bs

Website: www.bbsq.bs

ISBN

Notice

Standards are subjected to periodic review.

The next amendment will be sent without charge if you return the self-addressed label. If we do not receive this label we have no record that you wish to be kept up-to-date. Please note amendments are not exclusive of a revision of the document.

Our address:
Bahamas Bureau of Standards and Quality (BBSQ)
Verizon Business Park
1000 Bacardi Road
P.O. Box N-4843
Nassau, New Providence
Bahamas

---------- (cut along the perforated line) ----------

FDBNS ISO 19152-5:2025

Name: _____

_____

_____

Company/Designation:

_____

_____

Address:

_____

_____

AMENDMENTS ISSUED SINCE PUBLICATION

AMENDMENT NO.	DATE OF ISSUE	TYPE OF AMENDMENT	NO. OF TEXT AFFECTED	TEXT OF AMENDMENT

BBSQ Foreword

This draft national standard is identical to the International Organization for Standardization Geographic information — Land Administration Domain Model (LADM) — Part 5: Spatial Plan Information . The national committee responsible for reviewing this standard is Technical Committee 17 Geographic Information System. The standard contains the requirements relevant for The Bahamas.

BBSQ Committee Representation

This Bahamas National Standard was adopted under the supervision of the National Technical Committee for Geographic Information Systems (TC 17) hosted by The Bahamas Bureau of Standards and Quality which at the time comprised of the following members:

Member	**Representing**
Director Duane Miller **(Chairman)**	Bahamas National GIS Center
Ms. Mona Nixon **(Vice-Chairwoman)**	Bahamas Agricultural Industrial Corporation
Ms. Chandra Mackey **(Technical Secretary)**	Ministry of Health and Wellness
Mrs. Virginia McKinney **(Technical Secretary)**	Green Systems Waste Not
Dr. David Burggraf **(Consultant)**	Location International
Dr. Vanessa Lawrence CB **(Consultant)**	Location International
Prof. Richard Gibb **(Consultant)**	Location International
Dr. Roger Brackin **(Consultant)**	Location International
Ms. Carolann Albury	Bahamas National GIS Center
Mr. Brian Bynoe	Lands and Survey Department
Dr. Ancilleno Davis	Science and Perspective
Ms. Giselle Deane	Bahamas National Trust
Ms. Georgina Delancy	Ministry of Tourism
Ms. Sheri Fountain	The Bahamas Agriculture Marine Science Institute
Ms. Gabrielle Hudson	Bahamas National GIS Center

Mr. Javon Nixon	Department of Physical Planning
Mrs. Antonique Strachan	Bahamas TeleCommunications Company Ltd.
Ms. Kimberley Stuart	Department of Physical Planning

SCOPE

Introduces the Spatial Plan Information Package that deals with spatial planning information and includes the planned land use (zoning).

International Standard

ISO 19152-5

First edition
2025-08

Geographic information — Land Administration Domain Model (LADM) —

Part 5: Spatial plan information

Information géographique — Modèle du domaine de l'administration des terres (LADM) —

Partie 5: Informations sur le plan d'aménagement du territoire

Reference number
ISO 19152-5:2025(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This edition of ISO 19152-5, together with all other parts of the ISO 19152 series, cancels and replaces the first edition (ISO 19152:2012), which has been technically revised. This document is a new part to the ISO 19152 series.

A list of all parts in the ISO 19152 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Spatial planning plays an essential role in land management. Integration of physical and sectoral planning at the local level usually produces some degree of permissions, authorizations, restrictions, responsibilities, obligations and sanctions. Essentially, jurisdictions reserve the power to control activities over certain areas of land. They exert this power by providing agencies with powers that either restrict or sanction the rights of landowners or create positive obligations (responsibilities or obligations) on landowners. The same agencies can potentially have the power to empower landowners with rights that would otherwise be restricted or waive positive obligations. Where this occurs, a time-limited permit or authorization is commonly used. However, it is typical in many countries to establish land administration and spatial plan processes through different regulations, authorities and processes. Cities establish and maintain land administration systems (LAS) to manage information about the land and urban space. Information about land rights recorded in a land administration system (under its applicable legislation) can be required to inform spatial planning decisions. Legally binding planning conditions that create rights, responsibilities and restrictions under local or national planning legislation, which are not recorded in a land registration system, can be required for a full understanding of the permitted uses of a specific land parcel. Outputs of the planning system can anticipate changes in land rights that will be recorded in the land registration system in the future. The land administration domain model (LADM) offers guidelines to support interoperability in the representation of rights, restrictions and responsibilities (RRRs). The LADM is also capable of standardizing multi-dimensional representation, including the temporal aspects in documenting and visualizing all legal aspects of land use or space.

The purpose of this document is to provide the general reference model as an extension of core LADM (i.e. ISO 19152-1 and ISO 19152-2) for all objects of spatial planning covering land/water and below/on/above surfaces. This document supports a 4D (3D + time) representation of the spatial plans, including marine spatial plans.

The first goal of this document is to enable involved parties, both within one country and between different countries, to communicate based on the shared vocabulary implied by the model. It is not intended to replace existing systems but rather to provide a formal language for describing them so that their similarities and differences can be better understood.

The second goal is to provide an extensible basis for the development and refinement of efficient and effective LAS based on a model-driven architecture (MDA). This document is relevant for creating standardized information services in a national or international context, where land administration domain semantics have to be shared between organizations, regions, or countries in order to enable necessary translations. Three considerations during the design of the model were:

— that it will cover the common aspects shared by objects created by spatial plans;

— that it will be based on the conceptual framework of "Cadastre 2014" of the International Federation of Surveyors (FIG)[13], Plan4all[4][15] and Land Use/Cover data themes of INSPIRE[11];

— it will be as simple as possible in order to be useful in practice.

Conformance in relation to this document is given in Clause 4, and a conformance test is specified in Annex A. Clause 5 provides the notation. Clause 6 introduces the classes, attributes and associations of this document in detail. Clause 7 presents the relationships between the core LADM and this document. Annex B presents studies related to spatial plan interoperability. A set of country profiles is presented in Annex C. Annex D presents code lists as a basis to describe a flexible enumeration. The relationships between this document and INSPIRE are presented in Annex E. Examples of 3D spatial planning information and regulation are given in Annex F.

Geographic information — Land Administration Domain Model (LADM) —

Part 5: Spatial plan information

1 Scope

This document:

— specifies a reference land administration domain model (LADM) covering basic information-related components of spatial plan information on land/water and elements below/on/above the surface of the Earth with 2D/3D/4D (3D + time) geometric representation;

— provides an abstract, conceptual model with packages related to:

  — plan unit, i.e. the smallest homogenous area/space (2D/3D/4D) with assigned function/purpose, e.g. office, education, retail;

  — plan block, i.e. a set of neighbouring plan units decided on by planning authorities, e.g. high-density residential area, nature area, heavy industry area;

  — plan group unit, i.e. areas corresponding to the higher planning levels;

  — plan group, i.e. hierarchy in spatial plans consisting of multiple plan blocks, e.g.:

    — continent/regional-wide (e.g. European regions),

    — country-wide (e.g. Indonesia, the Netherlands),

    — island,

    — state or region province,

    — municipality or city, and

    — urban or rural;

  — permit, i.e. something that is granted to a party which gives the party permission to undertake an activity which would otherwise be restricted;

— defines terminology for spatial plan information as part of land administration, based on various national and international systems, that is as simple as possible in order to be useful in practice. The terminology allows a shared description of different formal or informal practices and procedures in various jurisdictions;

— provides a platform for comparison and monitoring of spatial planning information based on Sustainable Development Goal (SDG) indicators;

— provides an approach to modelling the integration of spatial plan information (outputs of spatial plans) into land administration;

— provides a basis for national and regional profiles;

— enables the combining of land-use planning and land development planning in land administration information from different sources in a coherent manner;

— allows for the relationship to multiple parties and groups to be expressed together with a referencing structure so that the sourcing of all information systems can be maintained. It reuses core LADM classes so that sourcing of all information systems can be maintained;

— establishes the common elements and basic schema for spatial plan information upon which a more detailed schema can be established.

NOTE This document does not interfere with (national) and sub-national spatial planning laws.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19105, *Geographic information — Conformance and testing*

ISO 19107, *Geographic information — Spatial schema*

ISO 19152-1, *Geographic information — Land Administration Domain Model (LADM) — Part 1: Generic conceptual model*

ISO 19152-2, *Geographic information — Land Administration Domain Model (LADM) — Part 2: Land registration*

3 Terms, definitions, and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19152-1, ISO 19152-2 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1.1
permit
<LADM> explicit proof of a right (to perform a task) granted by authorities and granted to parties fitting within the relevant plan unit, i.e. the object specified in the permit request has the correct function for the requested location

Note 1 to entry: A permit can be considered as an authorization granted by the authorities to the parties in accordance with the plan unit. The use of plan unit identifiers within a permit document can enable a closely coupled integration.

3.1.2
plan block
<LADM> set of adjacent and non-overlapping plan units that are defined collectively by the *spatial planning authorities* (3.1.8), which represents the intended use of the area

Note 1 to entry: A plan block represents planned land use (PLU) that corresponds to spatial plans defined by spatial planning authorities, depicting the possible utilization or development, or both, of the land. A plan block contains the plan units to express the PLU defined by the spatial planning authority.

Note 2 to entry: PLU is regulated by *spatial planning* (3.1.7) documents elaborated at various levels of administration. Land use regulation over a geographical area is, in general, composed of an overall strategic orientation, a textual regulation, and a cartographic representation. Spatial planning documents result from the spatial planning process. Once adopted, all parties are required to conform to the document. A spatial planning document corresponds to the plan block.

Note 3 to entry: A plan block contains an area/volume (2D/3D) characterized by a (set of) boundary(ies) of the PLU policy. Typical representations are residential, commercial, retail and industry.

Note 4 to entry: The geometric representation of the plan block is equal to the union of constituent plan units.

3.1.3
plan group
<LADM> *spatial plan* (3.1.6) that can be used to derive more detailed plans

Note 1 to entry: The hierarchy can be as follows: national level (national plans), regional level (regional plans), city-level *spatial planning* (3.1.7) (urban/rural plans), and finally sub-city level (zoning plans).

Note 2 to entry: A spatial plan group has specific attributes, and the level of the administrative hierarchy is accommodated in the plan group. It can include administrative information (which is expressed by an association to LA_AdministrativeSource from ISO 19152-2), such as legislation reference or date and reference to a legal act according to which it entered into force.

3.1.4
plan group unit
<LADM> areas corresponding to the higher planning levels with corresponding boundaries and spatial functions delineated by the higher plan level authorities

EXAMPLE In a national plan, the northwest of a country is designated to the energy plan group unit, the middle of the country is the national park plan group unit, and the south is the designated area for the industry plan group unit (these areas are of national scale).

Note 1 to entry: A higher-level plan [*plan group* (3.1.3)] consists of a collection of plan group units.

Note 2 to entry: The functions of the plan unit are aligned with the function of the plan group unit in which they are located.

3.1.5
plan unit
zoning unit
<LADM> homogenous area/space (2D/3D) with an assigned function or purpose that represents the potential land use development according to the *spatial planning authorities* (3.1.8) at the highest detail (largest scale)

Note 1 to entry: Plan units are usually prepared at the municipality/neighbourhood level.

Note 2 to entry: A plan unit, which is part of *plan block* (3.1.2), is a feature type that consists of area/volumes (2D/3D). It represents a zoning arrangement with regulation regarding the potential land use development. Plan units have several specific attributes to accommodate rights, restrictions and responsibilities (RRR), such as the nature of a regulation, indications on dimension rules that apply to the use of land, and reference to the applicable regulation.

Note 3 to entry: A plan unit consists of area/volume (2D/3D) characterized by a (set of) boundary(ies). Typical representations are high-density residential area, banking area, and heavy industry area.

3.1.6
spatial plan
zoning plan
<LADM> set of documents that establish the strategic direction for the development of a given geographic area

Note 1 to entry: A spatial plan states the policies, priorities, programmes and land allocations that will implement the strategic direction and influence the distribution of people and activities in spaces of various scales.

Note 2 to entry: Spatial plans can be developed for urban planning, regional planning, environmental planning, landscape planning, national spatial plans, or *spatial planning* (3.1.7) at a federal or multinational level.

3.1.7
spatial planning
<LADM> method typically used by the public sector to influence the future distribution of activities in a space

3.1.8
spatial planning authority
<LADM> entity mandated by the government to design, develop and implement *spatial plans* (3.1.6)

Note 1 to entry: Plans can be implemented after acceptance by relevant authorities.

3.2 Abbreviations

FIG	International Federation of Surveyors
INSPIRE	infrastructure for spatial information in Europe
LADM	land administration domain model
LAS	land administration system
MDA	model driven architecture
PLU	planned land use
RRR	right, restriction, responsibility
SDG	Sustainable Development Goal
UML	unified modelling language

4 Conformance

4.1 Conformance requirements and testing

Conformance to this document consists of alignment with the requirements established in Clause 6. The abstract test suite given in Annex A specifies the methodology which shall be used for testing conformance to these requirements. The conformance class, requirement class, requirements, and abstract test suites are constructed according to ISO 19105.

4.2 Conformance class

4.2.1 General

In this document, one conformance class is defined. The related tests are provided in the abstract test suite in Annex A. Requirements are explicitly marked, and a requirement identifier is assigned. The name and contact information of the maintenance agency for this document can be found at https://www.iso.org/maintenance_agencies.

The contents of the conformance class, as specified in this document, are presented in Table 1.

Table 1 — Content conformance class

Conformance class	https://standards.isotc211.org/19152/-5/1/conf/spatialplan
Standardization target type	Spatial plan registration and dissemination system
Dependency	https://standards.isotc211.org/19152/-1/1/ (Generic conceptual model)
Dependency	https://standards.isotc211.org/19152/-2/1/ (Land registration)
Dependency	https://standards.isotc211.org/19103/-/1/ (Conceptual schema language)
Dependency	https://standards.isotc211.org/19105/-/2/ (Conformance and testing)
Dependency	https://standards.isotc211.org/19107/-/2/ (Spatial schema)
Dependency	https://standards.isotc211.org/19109/-/2/ (Rules for application schema)
Requirement class	https://standards.isotc211.org/19152/-5/1/req/spatialplan (see 6.1)
Test	All tests in Clause A.2.

4.2.2 Dependencies

The dependency to ISO 19152-1 and ISO 19152-2 means that an effective land administration system for spatial plan information shall be based on the core LADM concepts, namely Party, RRR, BAUnit, SpatialUnit, 2D/3D representations (in accordance with ISO 19107), VersionedObject (in accordance with ISO 19152-1), and associated source documents (from ISO 19152-1).

UML models are designed according to ISO 19103 and ISO 19109.

5 Notation

The conceptual schema specified in this document is described using the Unified Modelling Language (UML), following the guidance of ISO 19103 and ISO 19109.

Several model elements used in this schema are defined in other ISO geographic information International Standards. By convention, within some ISO/TC 211 documents, names of UML classes, with the exception of basic data type classes, include a two-letter prefix that identifies the document and the UML package in which the class is defined. This provides a global unique name for the class. UML classes defined in this document have the two-letter prefix of SP. Table 2 lists the prefixes as used for some of the other parts of the ISO 19152 series.

Table 2 — Sources of internally defined UML classes

Prefix	Standard	Part
LA	19152-1	Generic conceptual model
LA	19152-2	Land registration
MG	19152-3	Marine georegulation
VM	19152-4	Valuation information
SP	19152-5	Spatial plan information

6 LADM spatial plan information package

6.1 General requirements of the conceptual LADM spatial plan information

Table 3 lists the requirements defined in this document.

Table 3 — List of requirements

Requirement class	https://standards.isotc211.org/19152/-5/1/req/spatialplan
Standardization target type	Spatial plan registration and dissemination system
Dependency	https://standards.isotc211.org/19152/-1/1/ (Generic conceptual model)
Dependency	https://standards.isotc211.org/19152/-2/1/ (Land registration)
Dependency	https://standards.isotc211.org/19103/-/1/ (Conceptual schema language)
Dependency	https://standards.isotc211.org/19105/-/2/ (Conformance and testing)
Dependency	https://standards.isotc211.org/19107/-/2/ (Spatial schema)
Dependency	https://standards.isotc211.org/19109/-/2/ (Rules for application schema)
Requirement 1	https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationdissemination
Requirement 2	https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationmonitoring
Requirement 3	https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationrelationship
Requirement 4	https://standards.isotc211.org/19152/-5/1/req/spatialplan/spatialsubfunction
Requirement 5	https://standards.isotc211.org/19152/-5/1/req/spatialplan/plangrouphierarchy
Requirement 6	https://standards.isotc211.org/19152/-5/1/req/spatialplan/permitregistration

The relationship between the core LADM content (ISO 19152-1 and ISO 19152-2) and spatial plan information (this document) is organized into a set of packages; see Figure 1. A subpackage is a group of classes with a certain degree of cohesion. Each subpackage has its own namespace. Subpackages facilitate the maintenance of different data sets by different organizations. The complete model can, therefore, be implemented through a distributed set of (geo-)information systems, each supporting data maintenance activities and the provision of elements of the model. The model can also be implemented by one or more responsible organizations operating at a national, regional or local level. This underlines the relevance of the model: different organizations have their own responsibilities in data maintenance and supply but can communicate on the basis of standardized administrative and technical update processes.

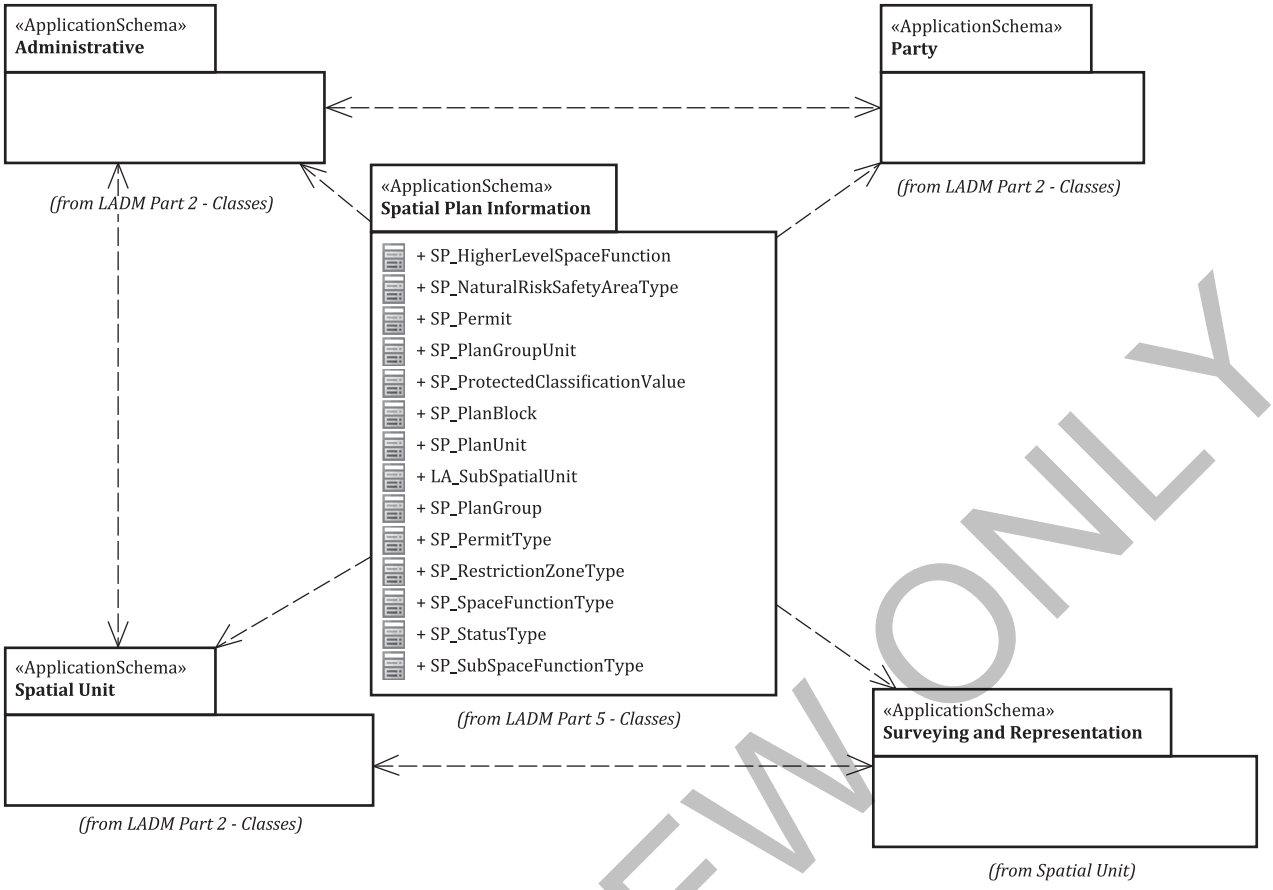

Figure 1 — Relationships between spatial plan information package (in this document) and packages of the core LADM (ISO 19152-1 and ISO 19152-2)

6.2 VersionedObject and spatial plan information package

The abstract class VersionedObject (see ISO 19152-1) is introduced in the core LADM to manage and maintain historical data in the database. Versioning requires that inserted and superseded data be given a timestamp. All LADM spatial plan information package classes inherit from VersionedObject, see Figure 2. There are begin life span version attributes and end life span version attributes for recording system time and real-world time in the class VersionedObject. In this way, the contents of the database can be reconstructed as they were at any historical moment. Objects begin, change and end due to events, which are represented in the source objects LA_SpatialSource and LA_AdministrativeSource; see Figure 8. VersionedObject has a second set of optional temporal attributes (beginLifespanVersion, endLifespanVersion) that relate to the corresponding real-world time, which can be in the future or planned.

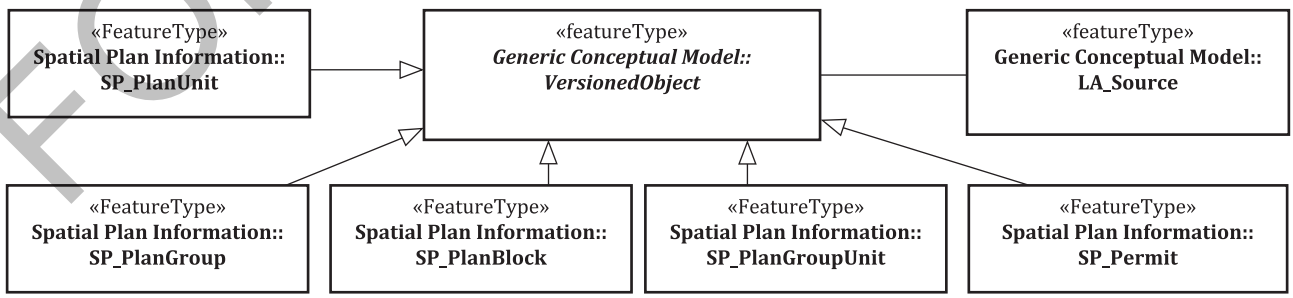

Figure 2 — VersionedObject and spatial plan information package

6.3 Spatial plan information classes

6.3.1 General

1) **PlanInformationDissemination**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationdissemination

Requirement 1: Spatial plan information systems shall allow open dissemination and clear visualization (2D/3D) of plan information (see 6.3.2).

2) **PlanInformationMonitoring**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationmonitoring

Requirement 2: Spatial plan information systems shall support participatory plan monitoring to detect challenges and evaluate alternative scenarios for making interventions (see 6.3.2).

6.3.2 Overview

In order to support participatory plan monitoring, the dissemination of plan information at all levels is crucial for interested parties. This document advocates that all spatial plans be publicly shared and monitored in a participatory way.

The spatial plan (SP) information package includes planned land use (zoning) to be converted into RRRs. This package has five classes:

1) SP_PlanUnit,

2) SP_PlanBlock,

3) SP_PlanGroup,

4) SP_PlanGroupUnit,

5) SP_Permit, see Figure 3.

The package accommodates hierarchy (e.g. national/federal, regional/state, municipality/city, neighborhood) in spatial planning in SP_PlanGroup.

Complete contents or parts of the spatial plan information package are available for plan information dissemination or plan information monitoring, or both.

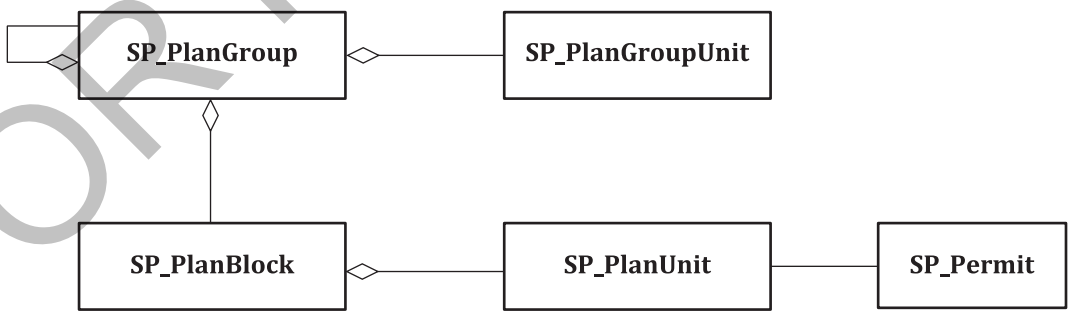

Figure 3 — Basic classes of the LADM spatial plan information package

The spatial plan information package reuses LA classes (ISO 19152-1 and ISO 19152-2) to represent spatial planning from the party package and the administrative package. This package models parties involved in providing legal aspects (RRR) from spatial planning processes using the class LA_Party. The spatial

representation (geometry and topology) of the classes SP_PlanUnit, SP_PlanBlock, and SP_PlanGroup is provided by associating to the LA classes LA_BoundaryFace and LA_BoundaryFaceString; see Figure 6.

3) **PlanUnit–PlanBlockAndPlanGroupUnit–PlanGroupRelationships**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/planinformationrelationship

Requirement 3: Spatial plan information conformant with this document shall organize plan units (plan zones) in plan blocks and plan group units in plan groups, as accepted plans by the relevant authorities for a specified time interval (see 6.3.3, 6.3.4, 6.3.6 and 6.3.7).

4) **SpatialSubfunction**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/spatialsubfunction

Requirement 4: Effective land administration systems for spatial plan information conformant with this document shall provide an extensible code list for the spatial (sub)functions of plan units and plan blocks according to national/local regulations (see 6.3.3 and 6.3.4).

6.3.3 SP_PlanUnit

SP_PlanUnit represents homogenous smallest areas/spaces of zoning plans and their characteristics in zoning plan activities, see Figure 4. The example code list values of the spatial plan information package are shown in Figure 5. Each unit of a zone in SP_PlanUnit has specific RRRs derived from spatial planning processes. Instances of class SP_PlanUnit describe rights that have an effect over a spatial extent. Powers to create and manage these rights are based on an administrative source, as instances from class LA_AdministrativeSource, see Figure 8. The rights described in each instance of class SP_PlanUnit result in encumbrances that introduce restrictions or responsibilities for landowners (and some other right holders).

Where an encumbrance exists, the land owner (or other relevant right holder) can apply for a permit that provides express permission for the encumbrance to be waived (see Figure 4 and 6.3.6).

A SP_PlanUnit is the smallest homogenous unit with respect to land use (development). This can cover multiple LA_SpatialUnit or their parts. LA_SubSpatialUnit (homogenous with respect to land use, see ISO 19152-1:2024, 5.6, and ISO 19152-2:2025, Figure D.21, for LA_SubSpatialUnit details) is used as an interface object between LA_SpatialUnit and SP_PlanUnit.

In addition to VersionedObject (from ISO 19152-1), the lineage relationship can also be used to model successor and predecessor; see the updated relationship in Figure 4.

An instance of class SP_PlanUnit is a spatial planning zoning unit. SP_PlanUnit is aggregated to one [1] instance of SP_PlanBlock and has one or more [1..*] instances of LA_AdministrativeSource (see ISO 19152-2). A spatial plan unit is associated with zero or more [0..*] instances of LA_SubSpatialUnit, see Figure 8.

The attributes of SP_PlanUnit are as shown in Table 4.

Table 4 — Attributes of SP_PlanUnit

Attribute name	Value type	Multiplicity	Description
puID	Oid (see ISO 19152-1)	1	Identifier of the plan unit.
subFunctionName	CharacterString	0..1	Label of the plan unit.
subFunctionType	SP_SubSpaceFunction	1..*	Type of plan unit (see Note).
maxVolumeIndications	LA_VolumeValue (see ISO 19152-2)	0..1	Indication of maximum permitted volume per building unit.
maxAreaIndications	LA_AreaValue (see ISO 19152-2)	0..1	Indication of maximum permitted area per building unit.
NOTE Planned land use characteristics of the plan unit can be expressed through the classification given in ISO/TS 19144-3 or the Hierarchical INSPIRE Land Use Classification System (HILUCS)[12] or other classification schemas.			

Table 4 *(continued)*

Attribute name	Value type	Multiplicity	Description
maxHeightIndications	LA_LengthValue (to be added to ISO 19152-2)	0..1	Indication of maximum permitted height.
unitIndications	Integer	0..1	Indication of maximum number of permitted units.
otherIndications	CharacterString	0..*	Indication of maximum allowable other criteria.
typeOfBuildingIndications	CharacterString	0..*	Type of allowed building indications.
typeOfShapeIndications	CharacterString	0..*	Description of shape constraint of allowed space use.
otherConstructionIndications	CharacterString	0..*	Specification of other permitted indications about construction.
referencePoint	Point (see ISO 19107)	0..1	Point inside the plan unit for linking purposes.
surfaceRelation	LA_SurfaceRelationType (see ISO 19152-2)	0..1	Type of surface relation (Plans can be described in 3D and the spaces can be above or below the surface).
currentArea	LA_AreaValue (see ISO 19152-2)	0..*	Current area of building units.
currentVolume	LA_VolumeValue (see ISO 19152-2)	0..*	Current volume of building units.
featureProtected	CharacterString	0..*	Protected feature(s), e.g. historic buildings.
statusType	SP_StatusType	1	Type of status.
NOTE Planned land use characteristics of the plan unit can be expressed through the classification given in ISO/TS 19144-3 or the Hierarchical INSPIRE Land Use Classification System (HILUCS)[12] or other classification schemas.			

6.3.4 SP_PlanBlock

SP_PlanBlock contains a recommendation or an expected land use with deontic expressions (i.e. permissible-impermissible, obligatory-omissible, optional and ought) for an activity or use or physical development imposed on a spatial unit accommodated in SP_PlanUnit. The SP_PlanUnit contains detailed prescriptions or specifications of activity and physical development at the spatial unit level specified by the spatial planning authority. SP_PlanBlock is the aggregation of one to many [1..*] instances of SP_PlanUnit; see Figure 4. The example code list values of the spatial plan information package are shown in Figure 5.

In addition to VersionedObject (from ISO 19152-1), the lineage relationship can also be used to model successor and predecessor; see the update relationship in Figure 4.

An instance of class SP_PlanBlock represents any spatial planning zoning block of an area. A spatial planning zoning block is associated with zero or one [0..1] instances of SP_PlanGroup.

The attributes of SP_PlanBlock are as shown in Table 5.

Table 5 — Attributes of SP_PlanBlock

Attribute name	Value type	Multiplicity	Description
pbID	Oid (see ISO 19152-1)	1	Identifier of the planning block.
blockName	CharacterString	0..1	Label of the planning block.
functionType	SP_SpaceFunction	1..*	Main type of planned function (see Note 1).
protectedSite	SP_ProtectedClassificationValue	0..*	Type of protected zone.
naturalRiskSafetyArea	SP_NaturalRiskSafetyAreaType	0..*	Type of natural risk and safety area.
restrictionZone	SP_RestrictionZoneType	0..*	Type of restricted zone.
constraintName	CharacterString	0..*	Label of constraint.
constraintDescription	CharacterString	0..*	Description of constraint.
technologicalRiskSafetyArea	CharacterString	0..*	Type of technological risk safety area.
miningRisksSafetyArea	CharacterString	0..*	Type of mining risks safety area.

NOTE 1 Planned land use characteristics of the plan unit can be expressed through the classification given in ISO/TS 19144-3 or the Hierarchical INSPIRE Land Use Classification System (HILUCS)[12] or other classification schemas.

NOTE 2 The constraint name and constraint description form a pair, and the constraint name appears first. In the attribute value arrays, they appear in the same sequence.

NOTE 3 Risk-related attributes are now in SP_PlanBlock, but in country profiles, details about the geometry of the risk-related zones, and also other zone types, can be added or associated to SP_PlanBlock.

Studies related to the interoperability of spatial plans are presented in Annex B. Annex C presents a set of country profiles. Annex D presents code lists as a basis for flexible enumeration.

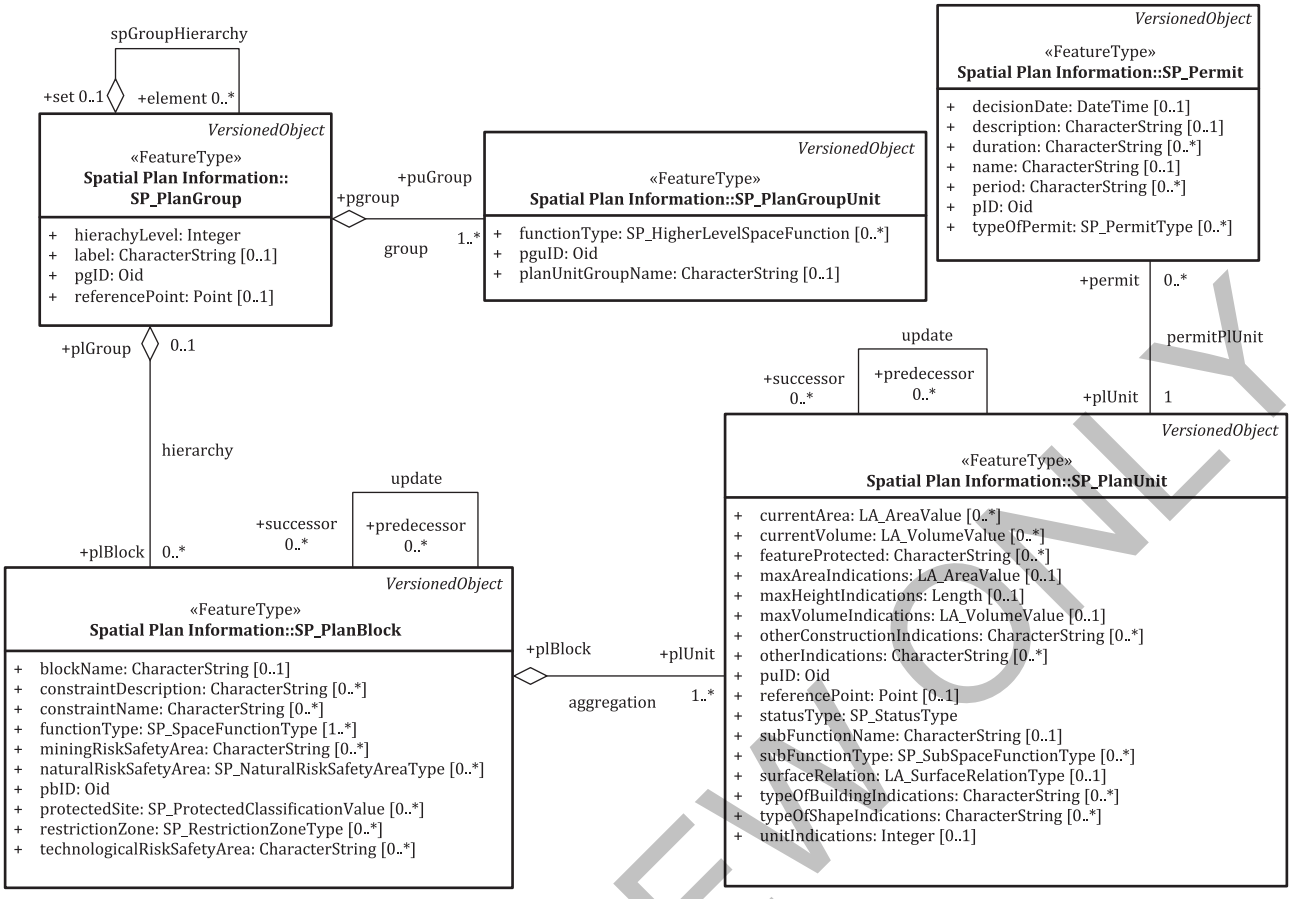

Figure 4 — Content of LADM spatial plan information package

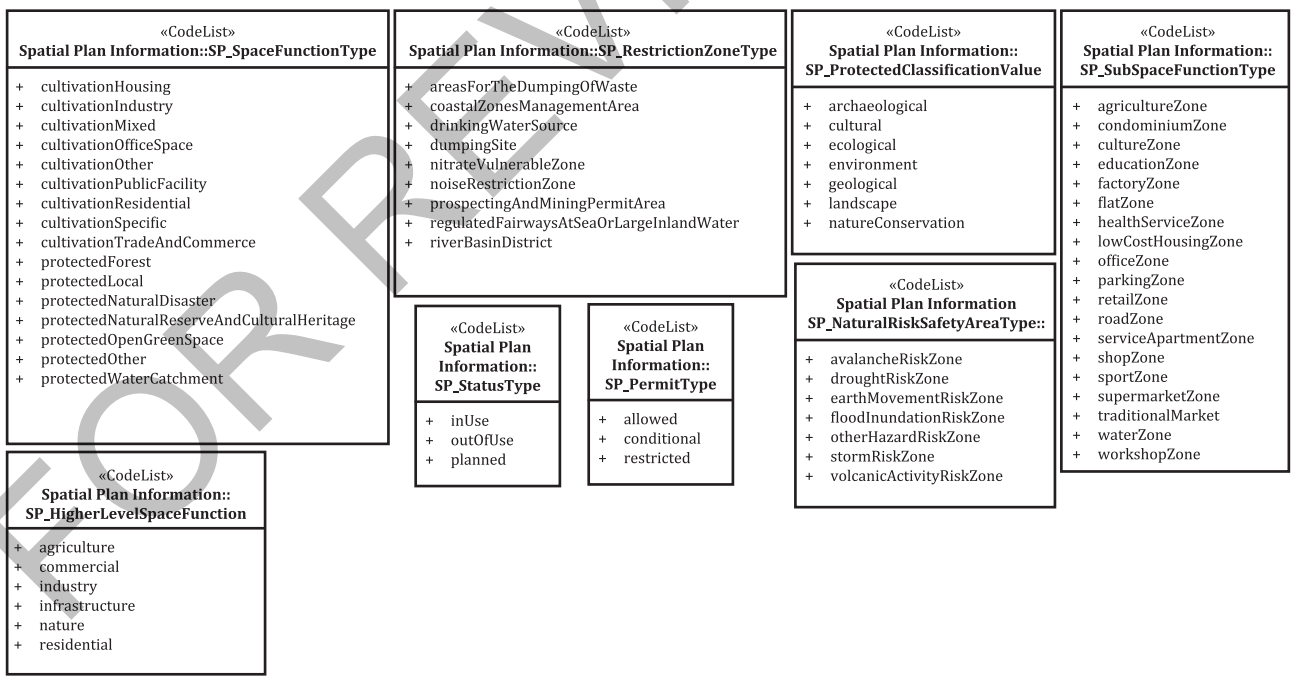

Figure 5 — Example code lists of LADM spatial plan information package

5) **PlanGroupHierarchy**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/plangrouphierarchy

Requirement 5: Spatial plan information shall support the planning hierarchy (from national to local) via hierarchical plan groups (see 6.3.5).

6.3.5 SP_PlanGroup

Class SP_PlanGroup is used to accommodate hierarchy specified by spatial planning authority in spatial planning, such as:

a) continent/supra-national-wide (e.g. European regions);

b) country-wide (e.g. Indonesia, the Netherlands);

c) island;

d) state or regional;

e) municipality or city; and

f) urban or rural.

An instance of class SP_PlanGroup is a group of spatial planning zoning blocks. A SP_PlanGroup is associated to any number [0..*] of instances of SP_PlanBlock; see Figure 4. The example code list values of the spatial plan information package are shown in Figure 5.

The attributes of SP_PlanGroup are as shown in Table 6.

Table 6 — Attributes of SP_PlanGroup

Attribute name	Value type	Multiplicity	Description
pgID	Oid (see ISO 19152-1)	1	Identifier of the plan group.
hierarchyLevel	Integer	1	Level of hierarchy in spatial planning.
label	CharacterString	0..1	Name of hierarchy in spatial planning.
referencePoint	Point (see ISO 19107)	0..1	Reference of geometry point.

6) **PermitRegistration**

https://standards.isotc211.org/19152/-5/1/req/spatialplan/permitregistration

Requirement 6: Effective spatial plan information management systems conforming to this document shall support permit registration and relate this to the relevant plan unit (see 6.3.6).

6.3.6 SP_Permit

Class SP_Permit contains permit-related information fitting within the plan.

An instance of class SP_Permit is associated to one instance of SP_PlanUnit; see Figure 4. An SP_PlanUnit is associated to any number [0..*] of instances of SP_Permit. The example code list values of the spatial plan information package are shown in Figure 5. A permit can be a part of an SP_PlanUnit.

Two association relationships are specified between the classes SP_Permit and LA_Party: grantedBy (also referred to as granter) and grantedTo (also referred to as grantee); see Figure 9. SP_Permit is also associated to one or more [1..*] instances of LA_Source; see Figure 9.

The attributes of SP_Permit are as shown in Table 7.

Table 7 — Attributes of SP_Permit

Attribute name	Value type	Multiplicity	Description
pID	Oid (see ISO 19152-1)	1	Identifier of the permit.
typeOfPermit	SP_PermitType	0..*	Type of permit.
name	CharacterString	0..1	Name of the permit.
description	CharacterString	0..1	Description of the permit.
decisionDate	DateTime	0..1	Date of the permit decision.
duration	CharacterString	0..*	Duration of permit. Multiple durations can apply.
period	CharacterString	0..*	Period of permit. Multiple periods can apply, e.g. permit to fish but not during the spawning season.

6.3.7 SP_PlanGroupUnit

Class SP_PlanGroupUnit are the areas corresponding to the higher planning levels with corresponding boundaries and space functions delineated by the higher plan level authorities; see Figure 4. The example code list values of the spatial plan information package are shown in Figure 5.

The attributes of SP_PlanGroupUnit are as shown in Table 8.

Table 8 — Attributes of SP_PlanGroupUnit

Attribute name	Value type	Multiplicity	Description
pguID	Oid (see ISO 19152-1)	1	Identifier for plan group unit.
planGroupUnitName	CharacterString	0..1	Name of the plan group unit.
functionType	SP_HigherLevelSpaceFunction	0..1	Space function type of a plan group unit; ISO/TS 19144-3 classification can also be used (see Note).
NOTE Planned land use characteristics of the plan unit can be expressed through the classification given in ISO/TS 19144-3 or the Hierarchical INSPIRE Land Use Classification System (HILUCS)[12] or other classification schemas.			

The relationship between this document and INSPIRE is presented in Annex E. Examples of planning and regulating 3D spatial information are presented in Annex F.

7 Relationship with LADM objects

7.1 Spatial plan information and LADM geometry

The SP classes adhere to the ISO 19103 stereotype class featureType (a feature type is a class of features, i.e. abstractions of phenomena that have common properties). For geometric and topological description, the SP classes are associated with LA_BoundaryFace and LA_BoundaryFaceString core classes of the LADM (ISO 19152-2); see Figure 6. For further details on 2D and 3D representations and further explanations, see ISO 19152-2:2025, Annex C. Boundaries of plan units do not need to be shared with spatial units; the geometric instances of ISO 19152-2 and ISO 19152-5 do not represent the same thing. However, the models of ISO 19152-2 and ISO 19152-5 share the same geometries as they are abstract and generic models, allowing 2D/3D representations using ISO 19107. The geometric and topological model is common for ISO 19152-2, ISO 19152-4, and ISO 19152-5; however, the instances of these documents do not need to be shared.

This LADM spatial plan information package allows user-defined elements to be added. It is likely that additional attributes, operators, associations, or perhaps new classes will be needed for a specific region or country. It is possible that parts of the SP classes are not used. These are the so-called "LADM SP profiles".

Figures 6 and 7 also shows the relationship between value (ISO 19152-4) and spatial plans. One instance of plan unit is associated with zero or more [0..*] valuation units.

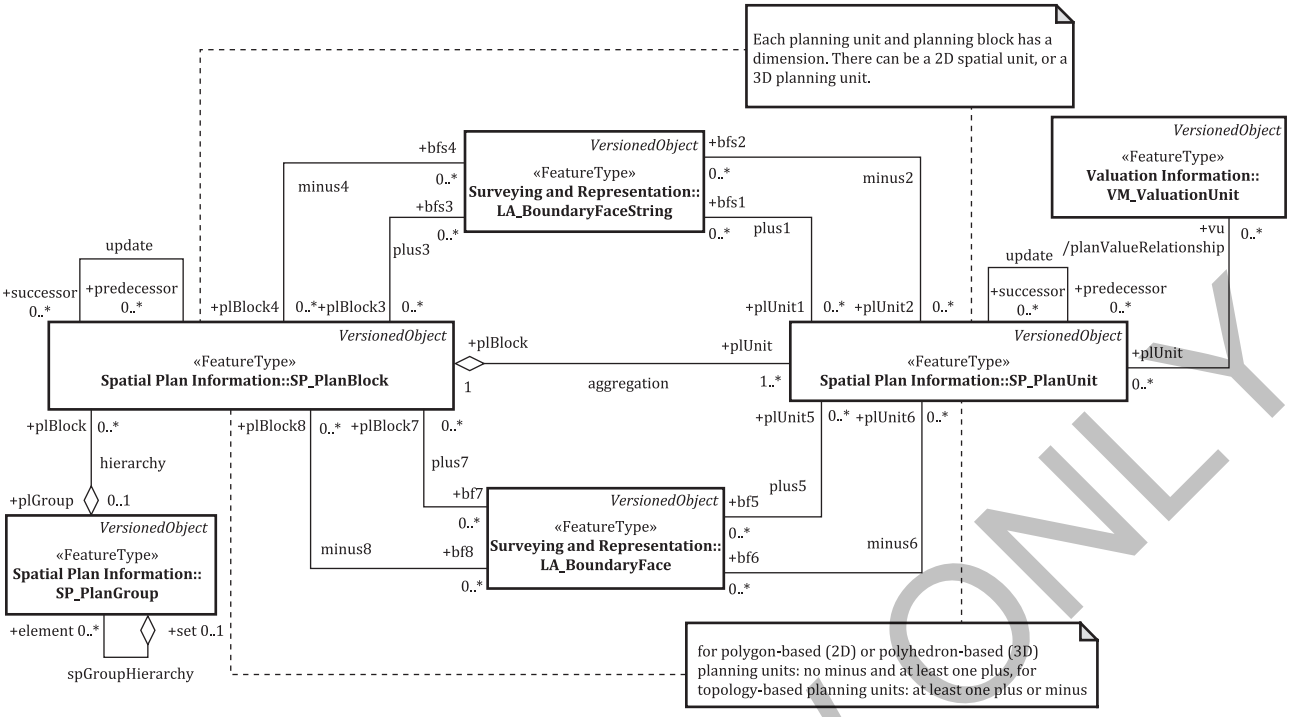

Figure 6 — Type of geometry of plan unit and plan block

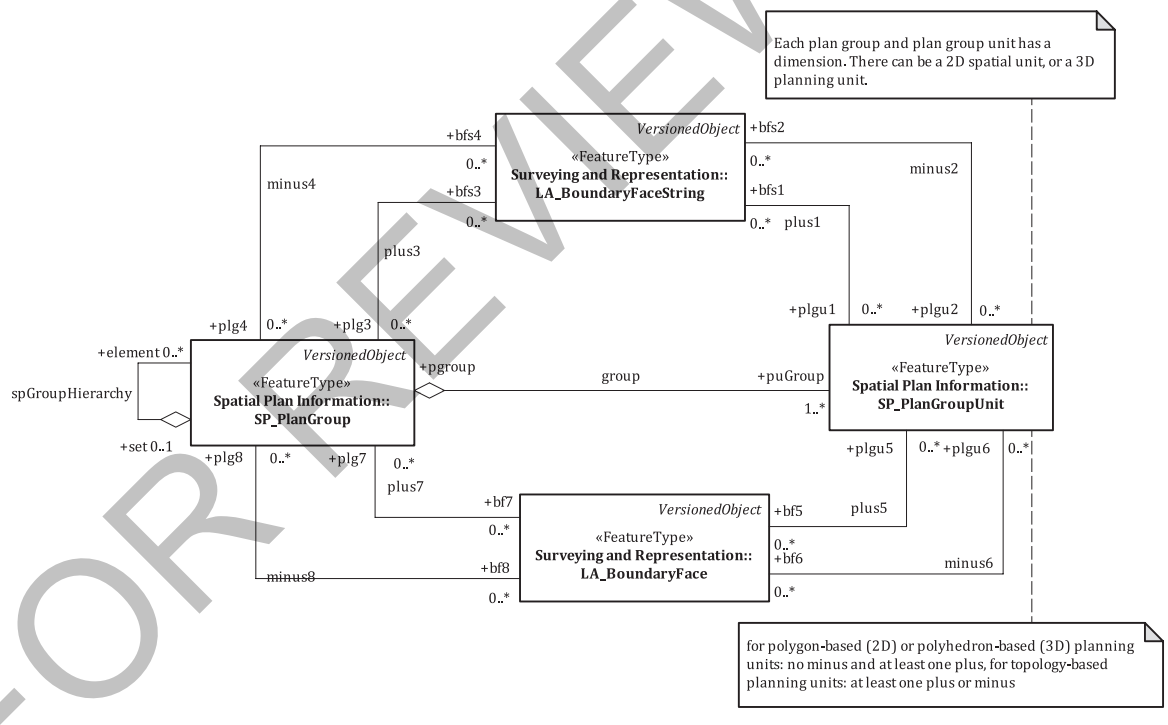

Figure 7 — Type of geometry of plan group unit and plan group

7.2 Spatial plan information and basic classes of LADM

Figure 8 illustrates the LA_SubSpatialUnit (see ISO 19152-2) as an intermediate class in order to accommodate sub-parcel division of RRRs from land administration and spatial planning processes. Spatial units can be subdivided into smaller parts, and they are called subspatial units (subparcels). This is realized by an aggregation relationship of LA_SpatialUnit onto itself. LA_SubSpatialUnit is an interface object that can

be used to represent a spatial unit with multiple functions according to the plan units. If there is a hierarchy between subspatial units, then the term spatial unit can be used interchangeably.

LA_AdministrativeSource (ISO 19152-1) and LA_SpatialSource (ISO 19152-2) classes from the core LADM are utilized to represent instances of sources related to spatial plan processes; see Figure 8.

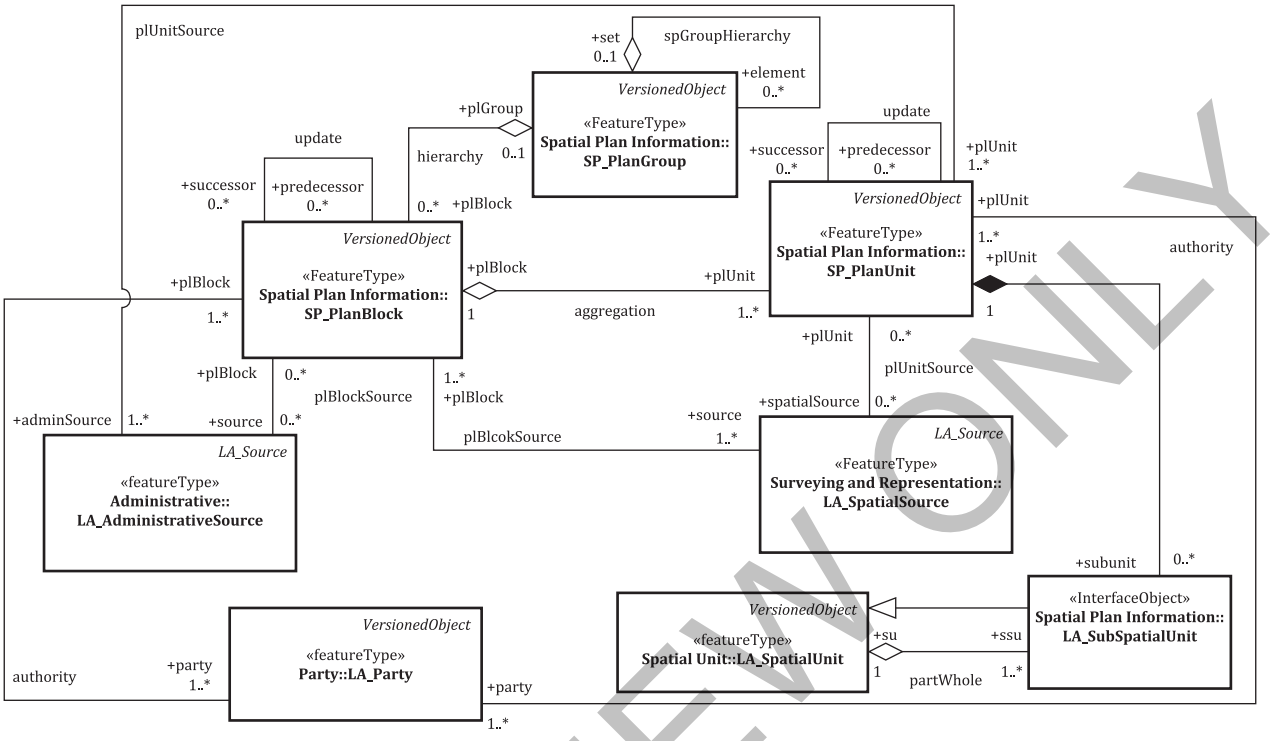

Figure 8 — LADM spatial plan information package classes and the core LADM (ISO 19152-1 and ISO 19152-2)

Figure 9 shows the relationships between parties and permits. Two association relationships are specified between the classes SP_Permit and LA_Party: grantedBy and grantedTo. SP_Permit is also associated to one or more [1..*] instances of LA_Source; see Figure 9.

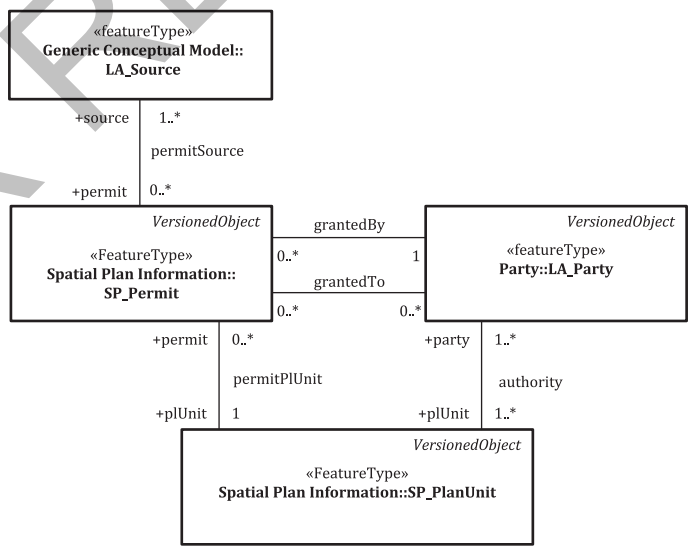

Figure 9 — SP_Permit and its relationships

Annex A
(normative)

Abstract test suite

A.1 Introduction

A.1.1 Use of the abstract test suite described in this annex shall conform to ISO 19105. The LADM spatial plan information package specifies a conceptual schema. Actual use of the LADM spatial plan information package requires that an application schema, such as a country profile, be developed. This annex specifies how to test that a specific application schema is conformant with the LADM spatial plan information package in terms of package and level. Testing whether a specific data set is conformant means checking the data set content against the corresponding conformant LADM spatial plan information package application schema.

A.1.2 This test suite specifies the requirements to be met by the implementation under test in order to be conformant to this document. For each test, the metadata conformity element takes one of the following values:

a) Conformant (conformant). The resource is fully conformant with the cited specification;

b) Not Conformant (notConformant). The resource does not conform to the cited specification;

c) Not evaluated (notEvaluated). Conformance has not been evaluated.

A.1.3 The test method in this annex is used in all test cases to examine the application schema of the implementation under test, including class, attribute(s) and association definitions. The positive results of the test method can be documented in different ways:

a) show the inheritance (or realization) structure between the LADM spatial plan information package and the tested model (elements); or

b) show mapping of elements (or realization) between the LADM spatial plan information package and the tested model.

The test shall be documented in accordance with Clause A.2.

In order to realize this conformance test explicitly and completely, knowledge and understanding are required of both the LADM and any specific profile used. The profile should not include different structures or solutions where the LADM has standard provisions.

A.2 Abstract test suite

Table A.1 describes the content of the spatial plan information test.

Table A.1 — Spatial plan information test

Conformance test	https://standards.isotc211.org/19152/-5/1/conf/spatialplan/allContent
Reference	All normative statements in requirements class https://standards.isotc211.org/19152/-5/1/req/spatialplan (see 6.1)
Test purpose	Verify that effective land administration systems for spatial plan information conform to the UML model and additional requirements related to the elements in the UML model.
Test method	Examine the application schema of the implementation under test, including class, attribute(s) and associations. Identify the individual class and their attributes and associations to other classes. Verify that each such element is in conformance with multiplicity and data type as expressed in the UML model. For each individual class, check for additional requirements beyond the semantics in the model. Verify that each such element meets specified criteria.
Test type	Basic.

Annex B
(informative)

The spatial planning interoperability

Planning can be defined as the public's deliberate effort to set objectives that serve the public interest, aiming to bring about positive changes. It involves efforts to enhance communities and natural environments by balancing social, economic and environmental outcomes.[18] Decision-making by local government on land utilizes maps to impose a spatial plan regarding rights (permission), restrictions and responsibilities for utilizing land. Urban planning is defined as a subclass of planning that consists of managing, monitoring and controlling the urban system.[6] Spatial (and urban) planning can be affected by official state plans, guidance on planning and coordination, criteria for local planning, provision for regional coordination, ensuring consistency between plans, and guidance for conflict resolution. Urban planning can be considered as a continuous process to improve ways of controlling the urban system with a spatial component. The urban plan aims to provide spatial structures for land use activities to improve the spatial pattern. The analysis of (existing) conditions can guide necessary remedial actions and enable construction of the zoning map.

In order to ensure the effectiveness of spatial planning documents, interoperability can be considered within the planning and land administration processes. Spatial planning and related information are important not only for development but have also a boundary dimension. These boundaries are often “overlapping” in the cities where the “continuum” of policy spaces influences legal spaces, and vice versa. Furthermore, spatial planning can be located in areas with cross-boundary or international character. Therefore, there is a strong need for harmonized information produced from spatial planning and for ensuring information sharing processes, understandability and reusability. This can also be influential in land transactions, mainly in developing regions, which require harmony between investment and sustainable development goals. Land administration-related information, such as land registry map, land value map, and land use map, can be considered as key registers or framework datasets in the spatial information infrastructure and need to have a proper definition of the contents to avoid overlap and to enable reuse of information. An innovative approach in e-government requires interoperability to achieve all planning objectives by integrating RRRs derived from spatial planning processes in the LADM.

There is a higher risk of information asymmetry when land management functions are delegated to separate authorities. When a lack of interoperability leads to the creation of information silos, LAS can experience information asymmetry, which can impede stakeholders from integrating land information. Information interoperability plays a crucial role in overcoming these asymmetries within data ecosystems and facilitating the optimal reuse of land-use plans. Information interoperability is beneficial for stakeholders for understanding and representing legal objects (RRRs) and physical objects (i.e. building, pipeline, cable network, urban furniture) and non-physical objects. The land-use plan needs to be interoperable for further integration with other data, such as 3D cadastre and 3D land-use plans. Lack of interoperability of the land-use plans can also create unwanted information asymmetry.

The core LADM standards (ISO 19152-1 and ISO 19152-2) offer a foundation for establishing information interoperability in land management that is crucial in modelling the relationship between people and land (and space), the geometrical components, and documented RRRs. Standardization in the LA domain plays a crucial role in promoting interoperability between LASs[19] and the exchange of information between the domains of land administration and spatial planning. This document can be considered as the first basic step in promoting interoperability through the integration of outputs of spatial planning processes with land registry and cadastre.

NOTE This document has been influenced by the Plan4all project.[4][15] The project Plan4all was initiated to focus on the harmonization of spatial planning data based on the best practices in EU member countries for seven themes (land cover; land use; utility and government services; production and industrial facilities; agricultural and aquaculture facilities; area management/restriction/regulation zones, and reporting units; natural risk zones). The project performed a thorough identification and description of the current spatial planning data and their standards to produce both conceptual data models[10][11] and application schemas according to the INSPIRE requirements.

Annex C
(informative)

Country profiles

This annex provides information on three country profiles of the LADM spatial plan. In addition to the country profiles presented here, Indonesia[7][8] has also developed country profiles based on a preliminarily version of LADM_SP.

Figure C.1 presents the Estonia country profile of the LADM spatial plan information package developed in Reference [3].

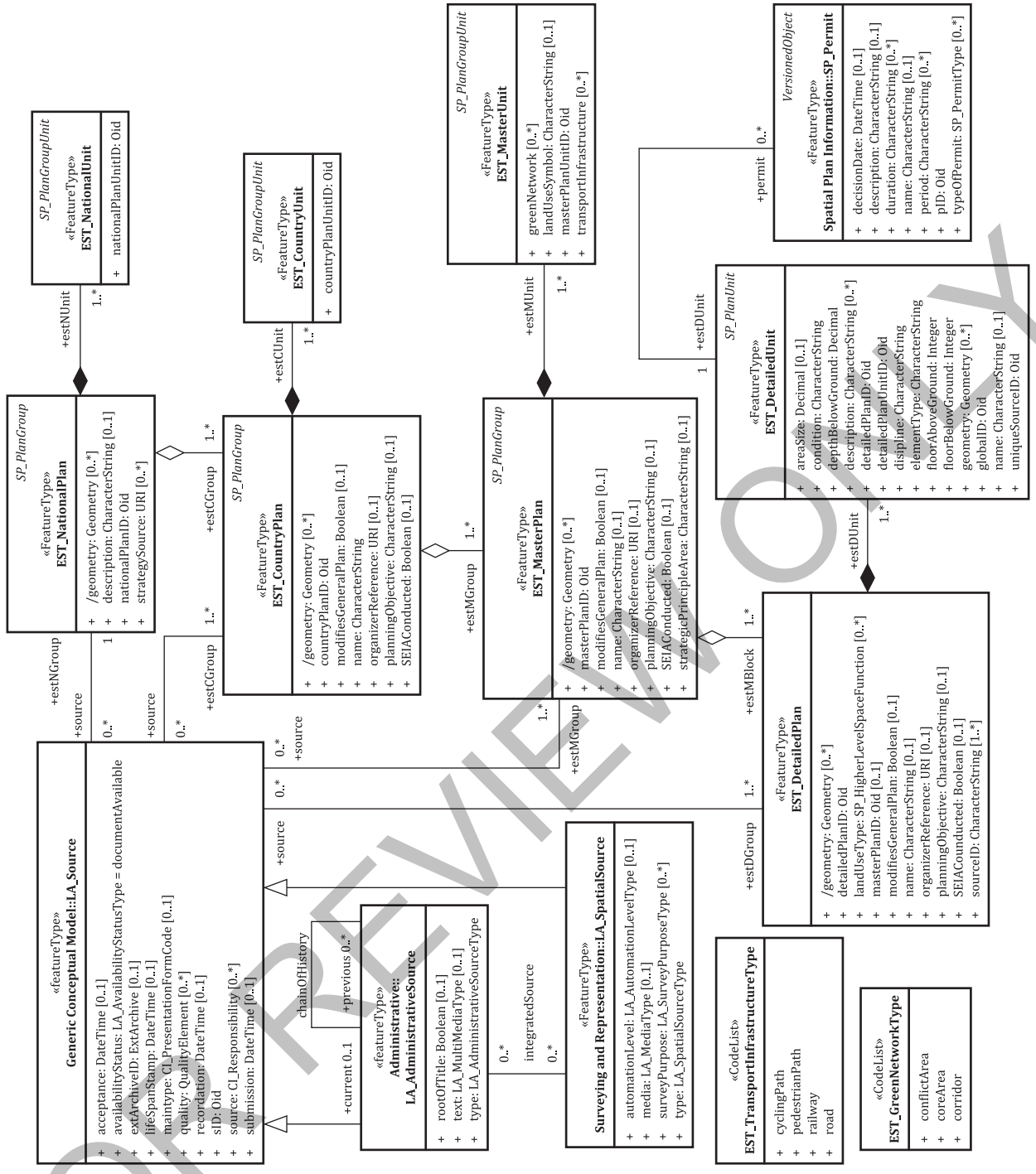

Figure C.1 — LADM_SP country profile for Estonia

Figure C.2 presents the Greece country profile of the LADM spatial plan information package developed in Reference [17].

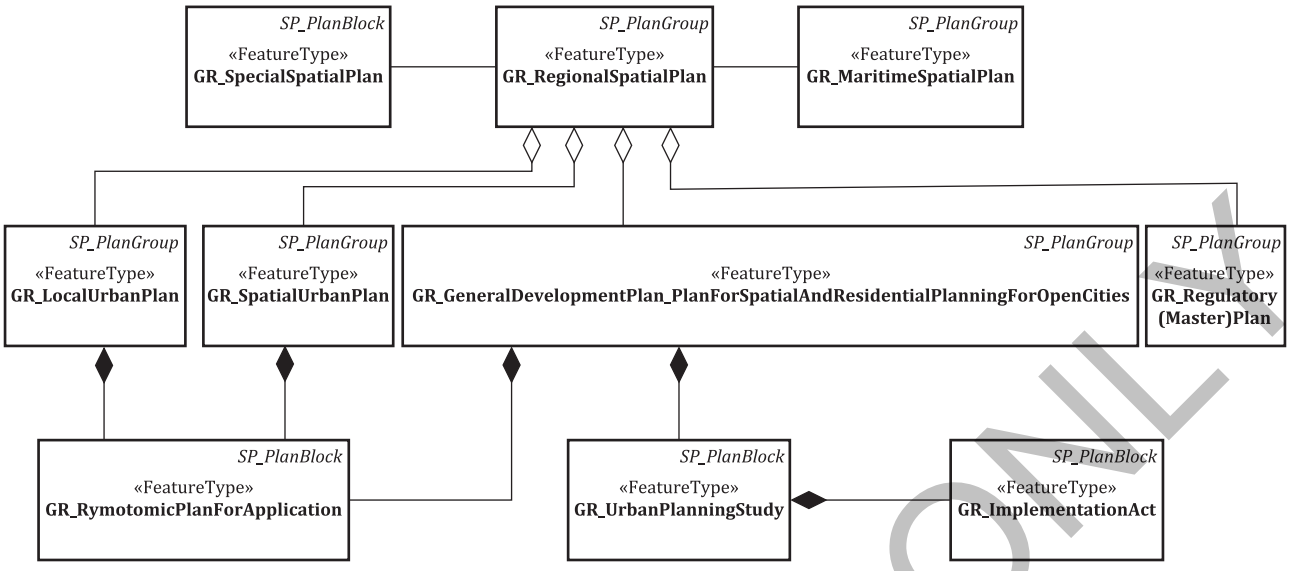

Figure C.2 — LADM_SP country profile for Greece

Figure C.3 presents the Netherlands country profile of the LADM spatial plan information package developed in Reference [14].

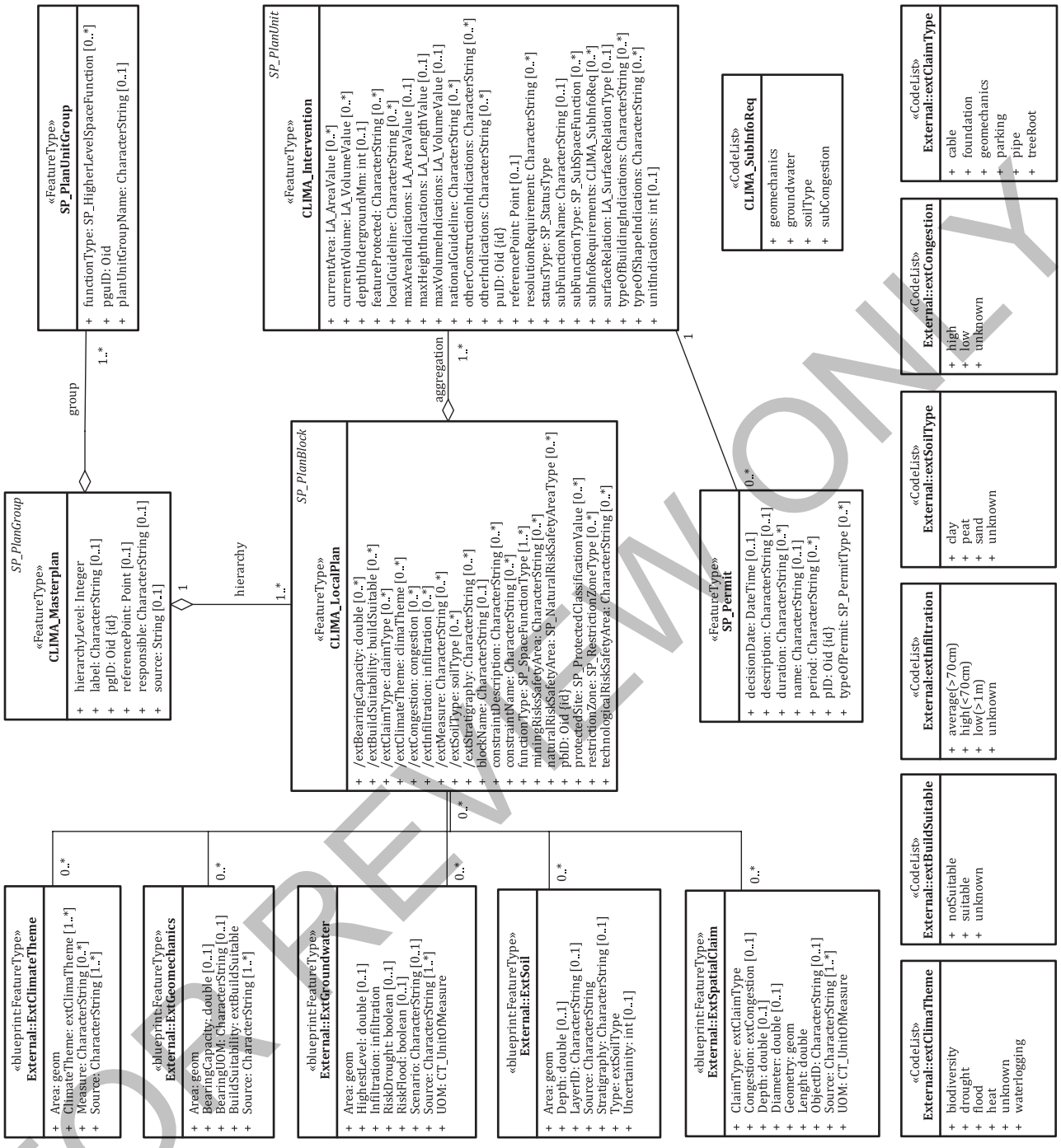

Figure C.3 — LADM_SP country profile for the Netherlands

Annex D
(informative)

Code lists

Code lists are used to describe a more open and flexible enumeration. Code lists are useful for expressing a long list of potential values. The code lists included in the LADM spatial plan information package aim to allow the use of local, regional or national terminology. It can be necessary for user communities to define and manage additional values when implementing this document. Other code list value structures are possible (e.g. country-specific).

A detailed taxonomy of land use can be described in accordance with ISO/TS 19144-3.

Figure D.1 shows possible examples of values for these code lists.

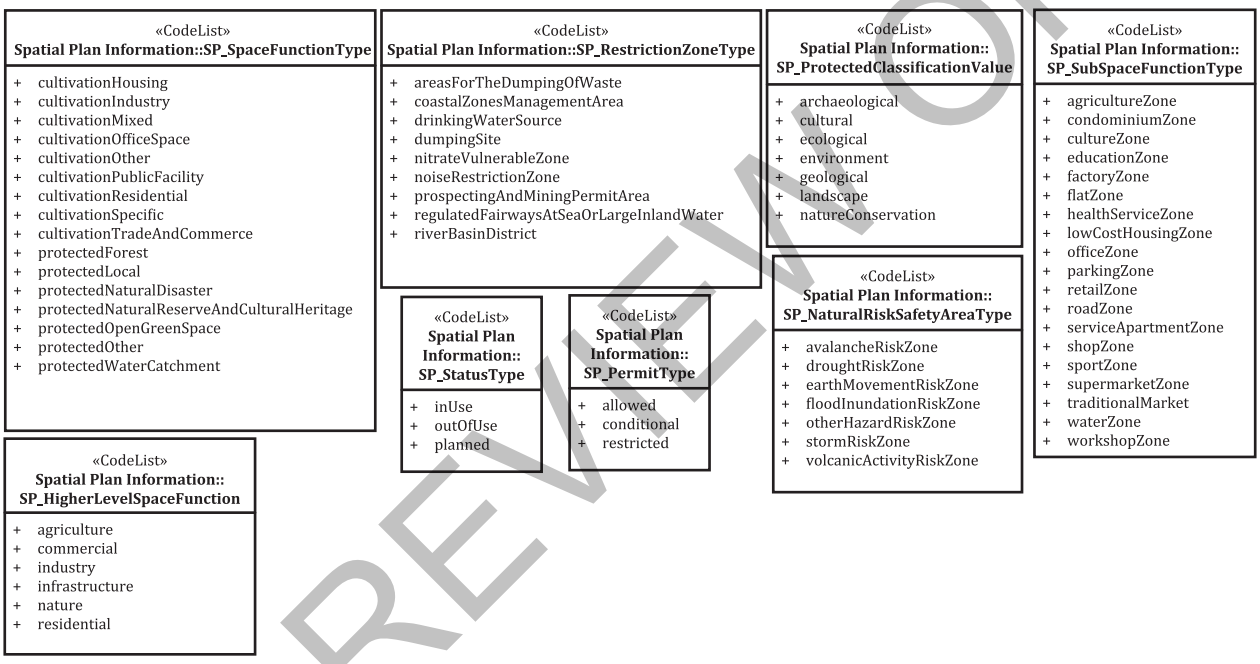

Figure D.1 — Code lists for LADM spatial plan information

Table D.1 presents the code list value-related information of the LADM spatial plan information package. These code lists are examples of code values. Code lists and code list values are required to be defined in a specific context of spatial planning. Publication of the corresponding results is mandatory.

Table D.1 — Code list value descriptions

Code list name	Value	Description	Source of description
SP_StatusType (from SP_PlanUnit)	inUse	The plan unit is currently in use.	
	outOfUse	The plan unit is not currently in use.	
	planned	The plan unit is not currently in use but is planned to be in use.	

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
SP_SubSpaceFunctionType (from SP_PlanUnit)	agricultureZone	Area designated for food production, e.g. livestock farms, arable farms (open cultivation) and greenhouse farms.	
	condominiumZone	Area for an apartment building or group of houses in which each apartment/house is individually owned or used by one or more parties and where the common areas are owned by the parties owning the apartments or houses.	
	cultureZone	Building (or part of a building) or a group of buildings furnished and equipped for the performance of music, art or dance, or for the expression of cultural identity (e.g. historic buildings, museums, libraries, concert halls, sport stadiums) as a plan unit function.	
	educationZone	Building (or part of a building) or group of buildings furnished and equipped for learning skills such as reading, writing and language and for knowledge development of (young) persons, (e.g. primary schools, high schools, universities, course facilities) as a plan unit subfunction.	
	factoryZone	Building (or part of a building) or group of buildings where goods are made, mainly by machine, as a plan unit subfunction.	Reference [20] (modified)
	flatZone	A set of rooms for living in, usually on one floor of a building as a plan unit function.	Reference [20] (modified)
	healthServiceZone	Building (or part of a building) or group of buildings furnished and equipped for healthcare and improvement of health via diagnosis, treatment or cure of disease, illness and injury (e.g. hospitals, dispensary, nursing homes) as a plan unit function.	
	low-costHousingZone	A group of houses with ancillary facilities such as parks and utilities founded for the purpose of providing shelter and housing to low-income citizens	
	officeZone	A room, set of rooms or building where people work, usually sitting at desks, as a plan unit function.	Reference [20] (modified)
	parkingZone	Piece of ground, or floor in a building to place cars in an organized way, as a plan unit function.	Reference [21] (modified)

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
	retailZone	The selling of goods to the public, usually through shops, as a plan unit function.	Reference [20] (modified)
	roadZone	Area designated for traffic and vehicle use, e.g. highway, regional road, local road, railroad, tramroad.	
	serviceApartmentZone	Building (or part of a building) or group of buildings accommodation with hotel-like amenities and services, with more space and privacy than a traditional apartment.	
	shopZone	A building or part of a building where you can buy goods or services as a plan unit function.	Reference [20] (modified)
	sportZone	An area for activities for competitive action or for pleasure that requires physical efforts or skills, usually done in a special area (e.g. hall, field, stadium) and according to fixed rules.	Reference [20] (modified)
	supermarketZone	A large shop that sells food, drinks and goods used in the home. People choose what they want from the shelves and pay for it as they leave as a plan unit function.	Reference [20] (modified)
	traditionalMarketZone	A (covered) area set up for the purchase and sale of food, goods and clothing, textiles, kitchenware, flowers, etc., by (individual and groups of) vendors to (individual and groups of) buyers, e.g. a bazaar.	
	waterZone	Designated protected area around a river, lake or other body of water in support of the extraction and production of drinking water.	
	workshopZone	A room or building in which things are made or repaired using tools or machines as a plan unit function.	Reference [20] (modified)
SP_SpaceFunctionType (from SP_PlanBlock)	cultivationHousing	A designated area with dwellings and ancillary facilities, such as parks and utilities.	Reference [21] (modified)
	cultivationIndustry	A designated area for buildings for the production of goods from raw materials, especially in factories for cultivation purposes as a plan block function type.	Reference [20] (modified)
	cultivationMixed	A designated area where two or more cultivations (as defined in the same code list) can be applicable.	
	cultivationOfficeSpace	Designated room, set of rooms or building where people work, usually sitting at desks.	Reference [20] (modified)
	cultivationOther	Other type of cultivation, not defined with a value in the same code list.	

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
	cultivationPublicFacility	Designated (part of a) building, area and/or infrastructure, publicly accessible (within time limits) for public use.	
	cultivationResidential	Designated area within a town or village suitable for living in, consisting of available housing rather than factories or offices for cultivation purposes as a plan block function type.	Reference [20] (modified)
	cultivationSpecific	Specific type of cultivation, with values highly specific to the planning area.	
	cultivationTradeAndCommerce	Area designated for trade function or commerce function, or both, e.g. vegetable auction, logistics centres for distribution, trade centres, shipment to other infrastructure.	
	protectedForest	Large area of land that is thickly covered with trees and designated as a protected area. The function type of plan block is determined as protected forest.	Reference [20] (modified)
	protectedLocal	Area characterized by or relating to a position in space, having a definite spatial form or location and designated as a protected area. The function type of plan block is determined as protected local area.	Reference [21] (modified)
	protectedNaturalDisaster	Protected area reserved for impact of natural disaster.	
	protectedNaturalReserveAndCulturalHeritage	Area of land, designated as a protected area, where the animals and plants are protected, and/or area containing the history, traditions, buildings and objects that a country or society has had for many years and that are considered an important part of its character. The function type of plan block is determined as protected natural reserve and cultural heritage area.	Reference [20] (modified)
	protectedOpenGreenSpace	Community space consisting of land (such as parks) rather than buildings designated as a protected area. The function type of plan block is determined as protected open green space.	Reference [21] (modified)
	protectedOther	Other type of protected area function, not included in the code list.	
	protectedWaterCatchment	Designated protected area (plan block) of land around a river, lake or other body of water in support of the extraction and production of drinking water.	

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
SP_RestrictionZoneType (from SP_PlanBlock)	areasForTheDumpingOfWaste	Designated area (plan block) for dumping (possibly pre-processed) waste. This area can have facilities for disposal of contaminated water and prevention of soil contamination.	
	coastalZonesManagementAreas	Area in which integrated coastal zone management takes place. The restriction zone type of a plan block is determined as coastal zones management area.	Reference [11]
	drinkingWaterSource	Area in which wastewater leakage, use of fertilizer or pesticides, or establishment of waste disposal sites are prohibited.	Reference [11]
	dumpingSites	Restricted place where something that is not wanted is dumped.	Reference [20] (modified)
	nitrateVulnerableZones	Areas of land which drain into polluted or threatened waters and which contribute to nitrate pollution.	Reference [11]
	noiseRestrictionZones	Area delimited by a competent authority to manage and mitigate noise pollution.	Reference [11]
	prospectingAndMiningPermitAreas	Area on which the prospection or extraction of any mineral has been authorized and for which that right or permit is granted.	Reference [11]
	regulatedFairwaysAtSeaOrLargeInlandWaters	Regulated navigation areas port-to-port established to organize traffic, prevent accident and pollution and to support management and planning.	Reference [11]
	riverBasinDistricts	Area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters.	Reference [11]
SP_ProtectedClassificationValue (from SP_PlanBlock)	archaeological	Protected archaeological area connected with the study of cultures of the past and of periods of history by examining the parts of buildings and objects found in the ground designated as a protected planning area.	Reference [20] (modified)
	cultural	Protected cultural area connected with the culture of a particular society or group, its customs, beliefs, etc., designated as a protected planning area.	Reference [20] (modified)
	ecological	Area connected with the relation of plants and living creatures to each other and to their environment, designated as a protected planning area. The plan block is a protected ecological area.	Reference [20] (modified)

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
	environment	Area connected with the natural world in which people, animals and plants live, designated as a protected planning area.	Reference [20] (modified)
	geological	Area connected with the scientific study of the physical structure of the Earth, including the origin and history of the rocks and soil of which the Earth is made, designated as a protected planning area.	Reference [20] (modified)
	landscape	Area connected with a portion of territory that can be viewed at one time from one place, designated as a protected planning area.	Reference [21] (modified)
	natureConservation	Area (plan block) designated to the protection of biodiversity of species and habitats, designated as a protected planning area.	
SP_NaturalRiskSafetyAreaType (from SP_PlanBlock)	avalancheRiskZone	Area (plan block) designated as a (natural) risk safety area, specifically an avalanche risk zone. An area reached by frequent or powerful avalanches, designated as a natural risk safety planning area.	
	droughtRiskZone	Area designated (plan block) as a (natural) risk safety area, specifically a drought risk zone.	
	earthMovementRiskZone	Area associated with earthquakes, designated as a natural risk safety planning area.	
	floodInundationRiskZone	Area associated with flood inundation as a natural risk safety planning area.	
	otherHazardRiskZones	Any area designated as a natural hazard safety planning area.	
	stormRiskZone	Area associated with storm risk as a natural risk safety planning area.	
	volcanicActivityRiskZone	Area reached by volcanic activity, designated as a natural risk safety planning area.	
SP_PermitType (from SP_Permit)	conditional	Expression of something that will happen or be true if another thing is to happen or be true. An example of a condition is that the contaminated soil needs to be cleaned before a building is constructed.	Reference [20] (modified)
	restricted	A rule or law that limits what can be done or what can happen. An example of a restriction is that the building height can only be 7 m. A permit is granted with a restriction.	Reference [20] (modified)
	allowed	A permit is granted without any condition or restriction.	

Table D.1 *(continued)*

Code list name	Value	Description	Source of description
SP_HigherLevelSpaceFunction (from SP_PlanGroupUnit)	residential	Area in higher level plans, designated as industry, such as single-family housing, multi-family residential, or mobile homes in cities, towns and rural districts, if they are not linked to primary production.	Reference [11] (modified)
	nature	Area in higher level plans, designated as nature areas, namely the areas associated with all the plants, animals and things that exist in the universe that are not made by people.	Reference [20] (modified)
	infrastructure	Area in higher level plans, designated as areas associated with the grouped infrastructure plan units, namely the basic systems and services that are necessary for a country or an organization to run smoothly, for example buildings, transport and water and power supplies.	Reference [20] (modified)
	agriculture	Area in higher level plans, designated as a farm area.	
	industry	Area in higher level plans, designated as industry, such as raw industry, heavy end product industry, light end product industry and energy production.	
	commercial	Area in higher level plans, associated with the grouped commercial plan units, namely the buying and selling of goods and services.	Reference [20] (modified)

Annex E
(informative)

LADM Spatial plan information and INSPIRE

INSPIRE is a directive for EU member states, defining many themes, including planned land use.[10] INSPIRE is also followed and implemented (in part) by other countries. This annex demonstrates the consistency between the INSPIRE planned land use[11] and this document.

INSPIRE planned land use specification, which corresponds to spatial plans defined by spatial planning authorities, depicts the possible utilization of the land in the future.[11] Planned land use is regulated by spatial planning documents elaborated at various levels of administration.[11] The planned land use application schema of INSPIRE is mainly based on ZoningElement, which depicts the zoning defined by spatial planners, and SupplementaryRegulation, which enables information provision on regulations that superimpose on the zoning.[11] This structure is similar to that found in this document.

In order to demonstrate the compatibility between the INSPIRE planned land use data theme[11] and this document, Figure E.1 shows the LADM-based version of INSPIRE planned land use,[11] explicitly indicating how the INSPIRE data theme fits within the LADM, and showing that there are no inconsistencies. In selecting relevant classes from the LADM, using inheritance, and adding attributes and constraints, it has been possible to express the INSPIRE planned land use data set in the LADM. Figure E.1 presents this by inheriting LADM classes, but not the SupplementaryRegulation class.

In the INSPIRE context, the following classes are relevant:

a) SP_PlanUnit (with SP_ZoningUnit as alias) and SP_PlanGroupUnit as the basis for ZoningElement (low and higher);

b) SP_PlanBlock and SP_PlanGroup as the basis for SpatialPlan (low and higher);

c) LA_Source as the basis for OfficialDocumentation;

d) LA_AdminstrativeSource as the basis for SupplementaryRegulation.

Key points for consideration when comparing the INSPIRE model to the LADM model are as follows.

— The INSPIRE spatial plan forms a 2D partition, while the LADM model supports full 3D.

— The INSPIRE spatial plan has an attribute levelOfSpatialPlan, but it does not have the explicit hierarchy modelled (lower levels referring to the parent levels).

— The INSPIRE spatial plans do not differentiate between lowest-level (typically legally binding) and higher-level (typically visionary) plans as supported in LADM. Therefore, if "levelOfSpatialPlan=lowest", then INSPIRE classes SpatialPlan and ZoningElement map to SP_PlanBlock and SP_PlanUnit (legally binding), and if "levelOfSpatialPlan>lowest", then INSPIRE classes SpatialPlan and ZoningElement map to SP_PlanGroup and SP_PlanGroupUnit (enforced by constraints in the model).

— The INSPIRE model does not support the association to permitting, while LADM does.

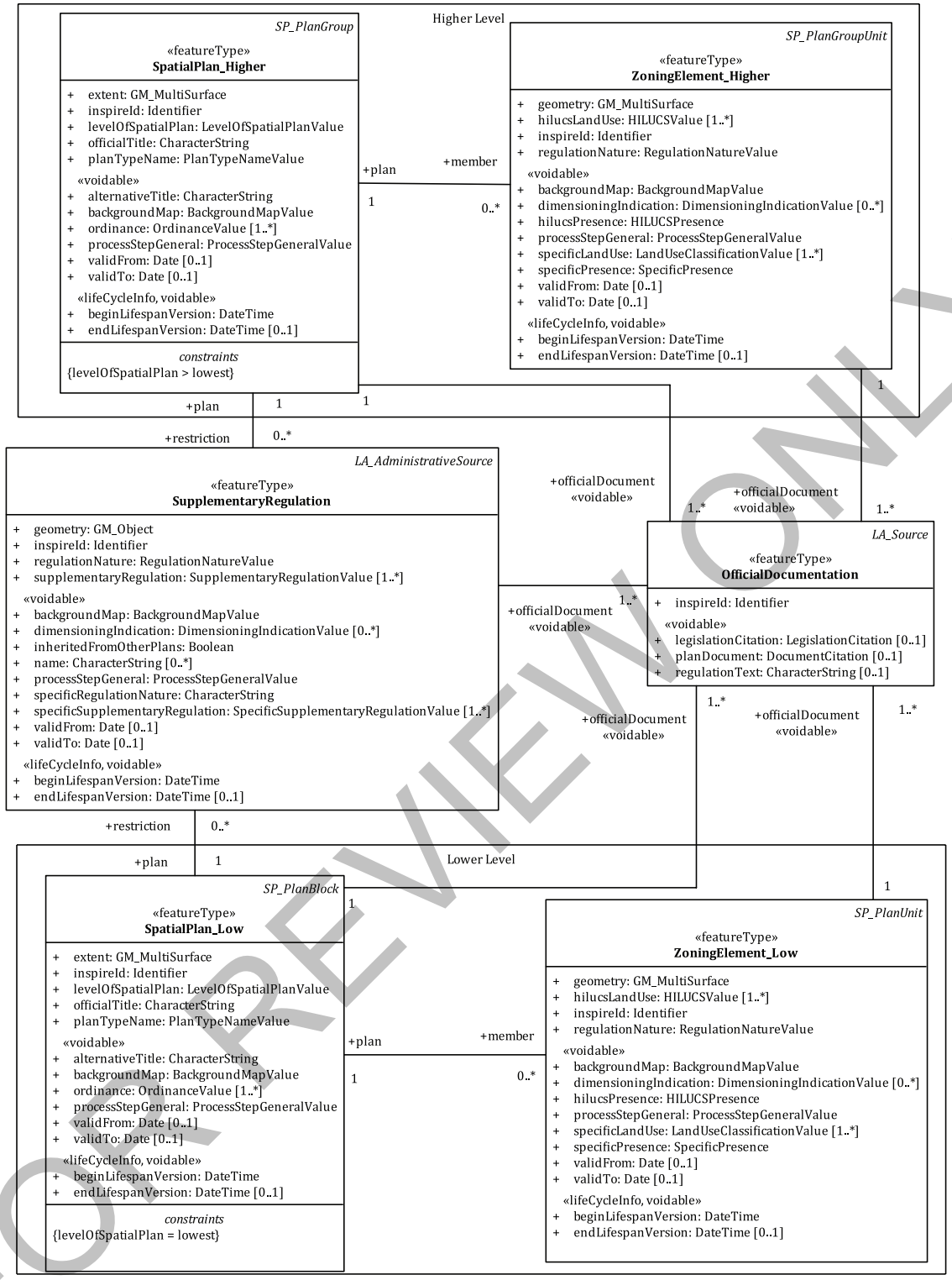

Figure E.1 — The INSPIRE planned land use model and this document (ISO 19152-5)

Annex F
(informative)

Examples of 3D spatial information planning and regulation

Examples of 3D aspects that can be considered in spatial planning and regulation are listed in Table F.1.[5][7]

Table F.1 — Examples of 3D aspects

3D aspect in spatial planning	Description
Height limits	Consideration of the vertical distance between the ground level and the top of the proposed development.
Side and rear setbacks	Proposed buildings should not be set back from side or rear boundaries by less than the distance specified in the planning scheme or schedule.
Street setbacks	Proposed buildings should not be set back from side or front boundaries adjacent with streets by less than the distance specified in the planning scheme or schedule.
Noise impacts	Residential buildings and dwellings close to busy roads, railway lines, or industry should be designed in a way that limits noise levels in habitable rooms.
Flooding limits	Openings including doors and windows and entrance levels should be designed in an accordance with flooding limits.
Daylight to Existing Windows	Proposed buildings should provide a light court (or outdoor space) to the existing (adjoining) habitable room windows with a minimum area of 3 m^2 and a minimum dimension of 1 m clear to the sky.
North-facing Windows	If a north-facing habitable room window of an existing building is within 3 m of a boundary on a proposed building's boundary, the proposed building should be set back from its boundary.
Daylight to New Windows	Habitable room windows of proposed buildings should provide a light court (or outdoor space) with a minimum area of 3 m^2 and a minimum dimension of 1 m clear to the sky.
Energy efficiency protection	Consideration of the effects of overshadowing on an existing rooftop solar energy system on an adjoining lot.
Solar Access to Open Space	The southern boundary of secluded private open spaces of proposed buildings should be set back from all walls on the north, with a wall height of at least (2 + 0,9) m.
Overshadowing open space	Overshadowing on existing secluded private open spaces will be checked.
Overlooking	A habitable room window, balcony, terrace, deck, or patio of a proposed building is not permitted to provide a direct line of sight into the secluded private open space and habitable room windows of existing buildings.

Bibliography

[1] ISO 19152-4:2025, *Geographic information — Land Administration Domain Model — Part 4: Valuation information.*

[2] ISO/TS 19144-3, *Geographic information — Classification systems — Part 3: Land Use Meta Language (LUML)*

[3] BATUM. S., KALOGIANNI, E., BROEKHUIZEN, M., RAITVIIR, C., MÄGI, K. & VAN OOSTEROM, P. Leveraging BIM/IFC for the Registration of Spatial Plans and Compliance Checks and Permitting in Estonia based on LADM Part 5-Spatial Plan Information. In 12th International FIG Land Administration Domain Model & 3D Land Administration Workshop 24-26 September 2024, Kuching, Malaysia. Available at: https://gdmc.nl/3DCadastres/workshop2024/programme/3DLA2024_paper_J.pdf

[4] ČERBA. O. Conceptual Data Models for Selected Themes. D4.2. Plan4all. ECP-2008-GEO318007. 2010. Available at: https://otik.uk.zcu.cz/bitstream/11025/6217/1/d4-2conceptualdatamodelsforselectedthemes-101201033602-phpapp01.pdf

[5] EMAMGHOLIAN. S., POULIOT, J., & SHOJAEI, D. 3D Zoning: A Missing Piece to Link Planning Regulations with 3D Cadastre. 7th International FIG 3D Cadastre Workshop, 11-13 October 2021, New York, USA. Available at: https://doi.org/10.4233/uuid:ec641882-0040-456d-a101-f641aa5c70d9

[6] HALL. P., & TEWDWR-JONES, M. Urban and regional planning. Routledge. 2010. Available at: https://doi.org/10.4324/9780203861424

[7] INDRAJIT. A. 4D open spatial information infrastructure: Participatory urban plan monitoring in Indonesian cities. 2021. Dissertation (TU Delft), Delft University of Technology]. A+BE| Architecture and the Built Environment. Available at: https://research.tudelft.nl/files/93901745/Dissertation_Agung_Indrajit.pdf

[8] INDRAJIT. A., ERESTA JAYA, V., VAN LOENEN, B., SNAIDMAN, A., PLOEGER, H. D., & VAN OOSTEROM, P. J. M. Implementation of Spatial Planning Package for Construction of an LADM Country Profile: Reducing Asymmetric Access to Information of RRRs in Indonesia. 8th Land Administration Domain Model Workshop. 1-3 October 2019, Kuala Lumpur, Malaysia. Available at

[9] INDRAJIT, A., VAN LOENEN, B., PLOEGER, H., & VAN OOSTEROM, P. J. M. Developing a spatial planning information package in ISO 19152 land administration domain model. Land Use Policy. 2021, 98, 104111. Available at: https://doi.org/10.1016/j.landusepol.2021.105338

[10] INSPIRE. Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). 2007. Available at: https://inspire.jrc.ec.europa.eu/

[11] INSPIRE. Data Specification on Land Use – Draft Guidelines. D2.8.III.4. INSPIRE Thematic Working Group Land Use. Available at: https://inspire.ec.europa.eu/documents/Data_Specifications/INSPIRE_DataSpecification_LU_v3.0rc2.pdf

[12] INSPIRE. D2.8.III.4 Data Specification on Land Use – Technical Guidelines, Hierarchical INSPIRE Land Use Classification System (HILUCS) https://inspire.ec.europa.eu/codelist/HILUCSValue

[13] KAUFMANN. J. & STEUDLER, D. Cadastre 2014. A vision for a future cadastral system, FIG-Commission 7, July, 1998, Brighton, U.K. Available at http://www.fig.net/cadastre2014/translation/c2014-english.pdf

[14] KAWASAKI. M. L. T., VAN DER KROGT, R., VISSER, W., HACKAUF, U., WANDL, A., & VAN OOSTEROM, P. Bringing Subsurface Information Models and Climate Adaptation Design into LADM Part 5 Spatial Plan Information. In 12th International FIG Land Administration Domain Model & 3D Land Administration Workshop 24-26 September 2024, Kuching, Malaysia.

[15] MURGANTE. B., DI DONATO, P., BERARDI, L., SALVEMINI, M., & VICO, F. Plan4all: European Network of Best Practices for Interoperability of Spatial Planning Information. International Conference

on Computational Science and Its Applications. 2011. Available at: https://ieeexplore.ieee.org/document/5959589

[16] NYERGES, T. L., & JANKOWSKI, P. Regional and urban GIS: a decision support approach. Guilford Press. 2019

[17] POULAKI. M., XAGORARIS, N., KALOGIANNI, E., KYRIAKIDIS, C., KARA, A., & DIMOPOULOU, E. Developing a LADM Part 5–Spatial Plan Information country profile for Greece. In 12th International FIG Land Administration Domain Model & 3D Land Administration Workshop 24-26 September 2024, Kuching, Malaysia.

[18] RIDELL, R. Sustainable Urban Planning: Tipping the Balance. UK: Blackwell Publishing Ltd. 2004

[19] UN-GGIM. Expert Group on Land Administration and Management United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), Framework for Effective Land Administration: A reference for developing, reforming, renewing, strengthening or modernizing land administration and management systems, July 2019, Available at: https://ggim.un.org/meetings/GGIM-committee/9th-Session/documents/E_C.20_2020_10_Add_1_LAM_background.pdf

[20] Oxford dictionary, https://www.oxfordlearnersdictionaries.com/

[21] Merriam-Webster dictionary, https://www.merriam-webster.com/

[22] ISO 19103, *Geographic information — Conceptual schema language*

[23] ISO 19109, *Geographic information — Rules for application schema*

ICS 35.240.70

Price based on 35 pages

iso.org