ICS 07.040
CCS A 76

Social Organization Standard

T/GBA 011—2023

Specification for land use data fusion

土地利用数据融合规范

(English Translation)

Issue date:2023-12-25 Implementation date:2023-12-30

Issued by Guangdong-Hong Kong-Macao Greater Bay Area Standards Innovation Alliance

Contents

Foreword

This standard is drafted in accordance with the rules set forth in the GB/T 1.1-2020 *Directives for Standardization -- Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This standard was proposed by Shenzhen Institute of Hong Kong Polytechnic University.

This standard was prepared by Guangdong-Hong Kong-Macao Greater Bay Area Standard Innovation Alliance.

This standard is authorized for use by organizational partners and all members of the Guangdong-Hong Kong-Macao Greater Bay Area Standards Innovation Alliance, who are required to adopt the same transformation into their own group standards, and publicize the standard basic information on the National Group Standards Information Platform.

Please note that some of the contents of this document may involve patent rights. The issuing body of this document shall not be held responsible for identifying any or all such patent rights.

This is the first release.

Introduction

The publisher of this document draws attention to the fact that the declaration of conformity with this document may involve the use of patents related to 5、 6、7 and 8.2 related to China 's invention patent application ' A POI-based land classification method, device, storage medium and terminal equipment ' (CN202210012976) .

The publisher of this document has no position as to the authenticity, validity and scope of the patent.

The patent holder has committed to the publisher of this document that he is willing to negotiate a patent license with any applicant on reasonable and non-discriminatory terms and conditions. The statement of the patent holder has been filed in the issuing agency of this document. Information can be obtained by contacting :

Name of holder of patent right : Hong Kong Polytechnic University Shenzhen Research Institute

Address : No.18, Yuexing Avenue, High-tech Industrial Park, Nanshan District, Shenzhen

Attention is drawn to the possibility that in addition to the above patents, some of the features of this document may be the subject of patent rights. The issuing body of this document shall not be held responsible for identifying any or all such patent rights.

Specification for land use data fusion

1 Scope

This standard specifies the basic principles, technical processes, preprocessing, conversion methods, result collation, and quality evaluation of two-dimensional land use data fusion between different land use classification systems in Guangdong, Hong Kong, and Macao.

This standard is applicable to the fusion and transformation of two-dimensional land use data between different land use classification systems in Guangdong, Hong Kong, and Macao, as well as decision-making and services related to land use data, such as national geographical state monitoring, regional and urban planning, and natural resources survey and monitoring.

2 Normative references

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

GB/T 14911-2008 *Basic Terms of Surveying and Mapping*
GB/T 17694-2009 *Geographic information-Terminology*
GB/T 19231-2003 *Basic Terminology of Land*
DB43/T 1761-2020 *Specification for Multi-source Basic Geospatial Vector Data Fusion*

3 Terms and Definitions

The following terms and definitions and those defined in GB/T 14911-2008, GB/T 17694-2009, and GB/T 19231-2003 apply to this file.

3.1 Original Land Use Classification System

The land use classification system used in the source land use data in the data fusion task.

3.2 Targeted Land Use Classification System

The land use classification system that should be adopted for the land use data after the data fusion and conversion in the data fusion task.

4 Abbreviation

The following abbreviation apply to this file:
POI: Point of Interest

5 Basic Principles

According to the basic principles of data fusion specified in DB43/T 1761-2020, and its expansion, land use data fusion should follow the following principles:
a) Authority principle. When selecting the source data for the data fusion task, priority should be given to the data published by state-level authorities;

b) Higher-precision principle. When the geometrical expression precisions of different data sources are inconsistent, the data with high precision should prevail. The spatial precision of other data used for assisting land use classification should not be lower than that of the source land use data. The precision for geometrical representation of each source land use dataset must be clearly indicated in the metadata of the fused land use dataset;
c) Currentness principle. When the currentness of different data sources is inconsistent, the data that is more up-to-date shall prevail;
d) Continuity principle. The data fusion results should maintain the continuity of information in space and time. When there is a conflict between the boundary of features and the administrative boundary, the boundary of features should comply with the administrative boundary, and the lower-level administrative boundary should comply with the higher-level administrative boundary;
e) Reality principle. During the feature segmentation, priority should be given to the polygon data in which the dimension of polygons better agrees with the dimension of the geographic entities corresponding to the targeted land use classes.

6 Technical Process

After preprocessing the source datasets needed for land use data fusion, the source land use data adopting the original land use classification system is fused and converted into the data adopting the target land use classification system. The following three methods can be used:
a) the data belonging to a land use class in the original land use classification system that semantically coincides with another class in the target land use classification system, the data fusion method based on semantic mapping and attributes is used.
b) For the data belonging to complex urban built-up land use classes that cannot be fused through semantic mapping, the land use subcategorization method based on polygon and POI data is used.
c) For the data belonging to complex land use classes other than urban built-up land that cannot be fused through semantic mapping, the land use subcategorization method based on remote sensing images and polygon data is used.

By using the above methods, the fusion among land use datasets adopting the land utilization classification in Hong Kong established by the Hong Kong Planning Department, the Macao Administrative Regulation No. 6/2022 "Land Classification and Use", and "Guidelines for the land use and sea use classification for territorial space survey, planning, and use regulation (Trial)" by the Ministry of Natural Resources of the People's Republic of China can be achieved. Examples of the fusion and conversion relationship between the subcategories under the above three land use classification systems are shown in Appendices A-C.

After the land use data is fused by the above methods, the field investigation and verification, attribute item processing, and quality evaluation are carried out on the fused data.

The technical process of land use data fusion is shown in Fig.1.

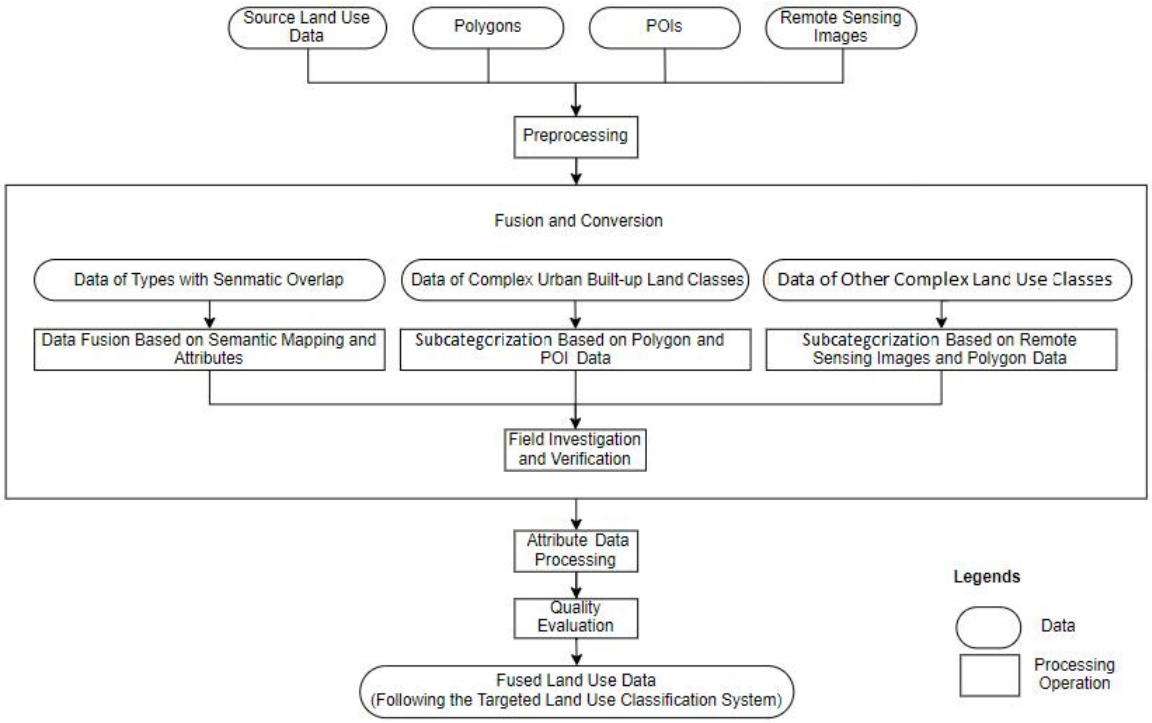

Fig.1 Technical process of land use data fusion

7 Preprocessing

7.1 Classification of Polygons and POIs

Each polygon and POI in the corresponding datasets are classified according to the targeted land use classification system, and attributes for the corresponding land use class of each polygon and POI are added to these datasets.

7.2 Unification of Coordinates

The coordinates of polygon data, POI data, and remote sensing images are unified to the targeted coordinate system to be adopted by the fused land use data.

7.3 Preprocessing of Remote Sensing Images

Image mosaic, radiation correction, geometric correction and other operations are performed.

8 Fusion and Conversion

8.1 Data Fusion Based on Semantic Mapping and Attributes

Semantic analysis is performed on the definition of each land use class in the original and targeted land use classification systems, and according to the semantic similarity, the correspondence relationship between the original and targeted land use classes is established. Then, the feature instances (i.e., land parcels) of the source land use data in the semantic coinciding classes can be converted into the targeted land use classes as needed. For feature instances in the source land use data that have semantic overlap with but cannot be directed fused into the targeted land use class, other data can be collected to assist the classification.

8.2 Land Use Subcategorization Based on Polygon and POI Data

8.2.1 Technical Process

After the preprocessing, the number of types (i.e., the corresponding land use classes) of the POIs contained in each feature instance of the source land use data is calculated. Then, the feature instances that contain multiple types of POIs and intersect with any polygons are segmented. For the segmented feature instances and other unsegmented feature instances of the source land use data, three methods can be used to subcategorize them into the classes in the targeted land use classification system: direct class assignment, classification by POIs, and nearest neighbor classification, supplemented by manual judgment. Finally, the attribute data in the fused land use dataset is processed.

The process of subcategorization based on polygon and POI data is shown in Fig.2.

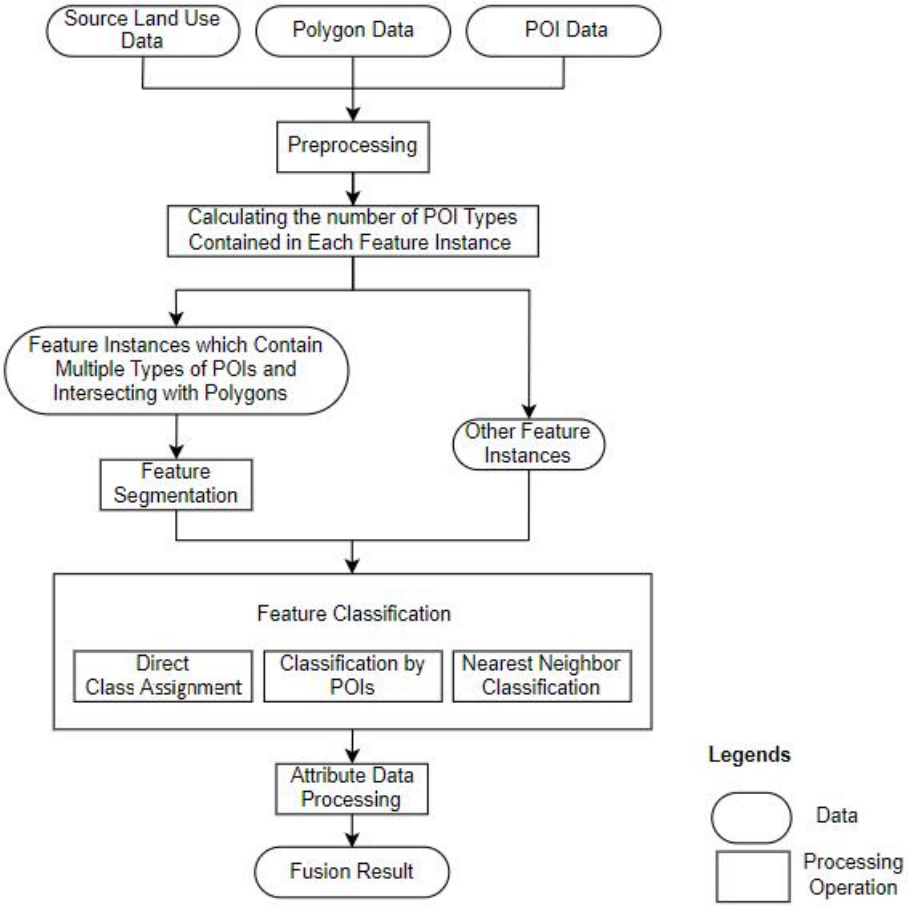

Fig.2 Process of subcategorization method based on polygon and POI data

8.2.2 Characterizing Feature Instances by the Number of Types of POIs Contained

According to the number of types of POIs contained in each feature instance of the source land use data, the feature instances are divided into: feature instances containing multiple types of POIs, feature instances containing only one type of POIs, and feature instances containing no POIs.

8.2.3 Feature Segmentation

8.2.3.1 Segmentation by Polygons

For feature instances in the source land use data that contain multiple types of POIs and intersect with any polygons, they should be segmented along the polygons before being classified according to the targeted land use system.

8.2.3.2 Characterizing the Polygon Data by Geographic Entities Represented

According to the geographical entities they represent, the polygons can be divided into: polygons representing a single venue and polygons representing a combination of multiple venues.

Example : In a school, polygons representing a single teaching building, canteen, square, athletic field, basketball court, and any other geographical entity in the school are examples of a "polygon representing a single venue ". The polygon representing the whole school is an example of a 'polygon representing a combination of multiple venues '.

8.2.3.3 Determining the Priority of Data Used for Segmentation

For each feature instance of the source land use data, the proportion of its area taken by all polygons within the feature instance is computed. By using the computed proportion as a supplementary basis, whether the polygons within it can represent the land use of each feature instance is determined.

When the polygons are used to segment a feature instance, polygons representing a combination of multiple venues that can also represent the land use of the feature instance are used first, and then the polygons representing a single venue that can also represent the land use of the feature instance are used. If the feature instance cannot be represented by only one type of polygons, both types of polygons are used for the segmentation.

8.2.4 Feature Classification

8.2.4.1 Direct Class Assignment

For a feature instance of the source land use data containing only one type of POIs, or a feature instance that is segmented according to 8.2.3 and overlaps with polygons, the corresponding targeted land use class of the POIs or polygons may be considered as the class of the feature instance. For feature instances containing only one type of POIs, it is advisable to use manual judgment or field investigation to verify the class of the feature instances.

8.2.4.2 Classification by POI

For feature instances of the source land use data that contain multiple types of POIs and do not intersect with any polygons, POIs are used as the basis of their classification. According to the number, scale, and uniqueness of POIs of each type contained by each feature instance, the main land use class of the feature instance in the targeted land use system is determined and considered as the class of the feature instance. When judging the main land use class of the feature instance, the land use class with more corresponding POIs has priority over the class with fewer corresponding POIs; the land use class corresponding to larger-sized POIs has priority over the class corresponding to smaller-sized POIs; and the land use class corresponding to a more unique POI type has priority over the class corresponding to a less unique POI type. A more unique POI type is usually with a smaller total number of POIs in the study area. For land use classes that are more likely to be confused, manual judgment should be conducted; for particularly complex situations, field investigation and verification are advised.

8.2.4.3 Nearest Neighbor Classification

For a feature instance of the source land use data that does not overlap with any polygon after the segmentation and with the dimension smaller than a single building, the land use class of another feature instance that is nearest to it can be considered as the class of the feature instance.

8.3 Subcategorization Based on Remote Sensing Images and Polygon Data

8.3.1 Subcategorization Based on Remote Sensing Images

The feature instances of the source land use data in natural land use classes, such as woodland, grassland, marshland, and farmland, are subcategorized by using object-based remote sensing image classification according to the spectral features, texture features, shape features, and topological relations of the remote sensing images. The classes of the feature instances in the source land use classification system are used as prior knowledge during the image classification.

8.3.2 Subcategorization Based on Polygon Data

For some land use classes that cannot be classified by using remote sensing images, polygon data and other data can be collected to assist the subcategorization of the feature instances belonging to these classes.

8.4 Field Investigation and Verification

For the feature instances of the source land use data that cannot be classified by the methods described in Sections 8.1, 8.2, and 8.3, field investigation and verification are conducted to classify these feature instances according to the targeted land use classification system.

9 Attribute Data Processing

9.1 Adding Attributes

Based on the attribute schema of the targeted land use classification system, the proprietary attributes in the fused data are retained, and the new attributes are redefined. It is advisable to retain the attributes in the source data as a reference.

9.2 Deleting Attributes

The attributes that should not be involved in the fused land use data are deleted.

10 Quality Evaluation

In each land use class in the fused land use data, at least 200 feature instances or at least 10% of all feature instances in this class, whichever have a larger number, are randomly selected. Based on field survey results, the selected features are manually classified according to the targeted land use classification system to form the reference data. For the land use classes with fewer than 200 feature instances, all feature instances are selected to form the reference data. The quality of the data fusion results generated by the methods specified in this document is evaluated by comparing them with the reference data.

Annex A

(Informative)

Conversion Relationship for Land Use Data Fusion Based on Semantic Mapping and Attributes

During the use of data fusion method based on semantic mapping and attributes, the conversion relationship for the feature instances of industrial land uses is shown in Table A.1, the conversion relationship for the feature instances of public management and public utility facilities is shown in Table A.2, the conversion relationship for the transportation feature instances is shown in Table A.3, the conversion relationship for the feature features of other land is shown in Table A.4, the conversion relationship for the commercial service and residential feature instances is shown in Table A.5, and the conversion relationship for natural resource feature instances is shown in Table A.6.

Table A.1 Conversion Relationship for Industrial Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
21	Industrial Land	●	1001	Industrial Land
22	Industrial Estates/Science and Technology Parks	●		
Note: "●" means that the subcategorization based on polygon and POI data should be used during the conversion to Industrial land uses (see Table B.1).				

Table A.2 Conversion Relationship for Feature Instances of Public Management and Public Utility Facilities

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
●	●	Cultural Facilities	0803	Cultural Land
●	●	Healthcare Facilities	0806	Healthcare Land
Note: "●" means that the subcategorization based on polygon and POI data should be used during the conversion to Public Management and Public Utility Facilities (see Table B.2).				

Table A.3 Conversion Relationship of Transportation Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
42	Railways	●	1206	Urban Rail Transit Land
43	Airport	●	1203	Airport Land
44	Port Facilities	●	1204	Port Land
Note: "●" means that the subcategorization based on polygon and POI data should be used during the conversion to Transportation land uses (see Table B.3).				

Table A.4 Conversion Relationship for Other Land Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
51	Cemeteries/Funeral Facilities	Religious Facilities	1506	Funeral Facilities and Cemeteries
81	Badland	-	2307	Bare Rock Gravel Land
83	Rocky Shore	-		
●	●	Religious Facilities	1503	Religious Land

Note 1: "●" means that the subcategorization based on polygon and POI data should be used during the conversion to Other Land (see Table B.4).
Note 2: "-" means that there are no or very few feature instances of this class in the region.

Table A.5 Conversion Relationship for Commercial Service and Residential Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
1	Private Residential	H1 Residential	0701	Urban Residential Land
2	Public Residential	H2 Residential		
3	Rural Settlement	H1 Residential	0703	Rural Homestead
●	●	TD1 Tourism and Entertainment	0901	Commercial Land
22	Industrial Estates/Science and Technology Parks	C2 Commercial	0902	Financial and Business Office
●	●	TD2 Tourism and Entertainment	0903	Entertainment, Recreation and Sports Land

Note: "●" means that the subcategorization based on polygon and POI data should be used during the conversion to Commercial Service and Residential Land (see Table B.5).

Table A.6 Conversion Relationship for Natural Resource Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
72	Shrubland	●	0303	Shrubland
73	Grassland	●	0403	Other Grassland
62	Fish Ponds/Gei Wais	Ecological Land	1704	Ponds
-	-		1702	Lakes
91	Reservoirs		1703	Reservoir Surface[a]
			1704	Pond[b]
92	Streams and Nullahs		1701	River Surface[c]
			1705	Ditches[d]

Note 1: "●" means that the subcategorization based on remote sensing images and polygons should be used during the conversion to Natural Resources (see Table C.2).
Note 2: "-" means that there are no or very few feature instances of this class in the region.
Note 3: a The feature instances for reservoirs/ponds with a storage capacity of more than or equal to 100,000 m3 are converted into Reservoir Surface.
Note 4: b The feature instances for reservoirs/ponds with a storage capacity of less than 100,000 m3 are covered into Pond.
Note 5: ° The feature instances for naturally formed rivers are converted into River Surface.

Table A.6 Conversion Relationship for Natural Resource Feature Instances (Continue)

Secondary Land Use Class of Hong Kong	Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area
Note 6: [d] The feature instances for man-made ditches are converted into Ditches.		

Annex B

(Informative)

Conversion Relationship for Land Use Subcategorization Based on Polygon and POI Data

During the use of the land use subcategorization method based on polygon and POI data, the conversion relationship for industrial feature instances is shown in Table B.1, the conversion relationship for feature instances of public management and public utility facilities is shown in Table B.2, the conversion relationship for transportation feature instances is shown in Table B.3, the conversion relationship for other land feature features is shown in Table B.4, and the conversion relationship for commercial service and residential feature instances is shown in Table B.5.

Table B.1 Conversion Relationship for Industrial Feature Instances

<table>
<tr><th colspan="2">Secondary Land Use Class of Hong Kong</th><th>Secondary Land Use Class of Macao</th><th colspan="2">Secondary Land Use Class of the Greater Bay Area</th></tr>
<tr><th>Code</th><th>Name</th><th>Name</th><th>Code</th><th>Name</th></tr>
<tr><td>●</td><td>●</td><td rowspan="2">Industrial Land</td><td>1001</td><td>Industrial Land</td></tr>
<tr><td rowspan="2">23</td><td rowspan="2">Warehouse and Open Storage</td><td rowspan="2">1101</td><td rowspan="2">Logistics and Warehousing Land</td></tr>
<tr><td>Transportation Facilities [a]</td></tr>
<tr><td>52</td><td>Utilities</td><td rowspan="3">Infrastructures</td><td rowspan="2">1102</td><td rowspan="3">Reserve Storage Land</td></tr>
<tr><td>53</td><td>Vacant Land/Construction in Progress</td></tr>
<tr><td>54</td><td>Others</td><td>1002</td><td>Mining Land</td></tr>
<tr><td colspan="5">Note 1: “●” means that data fusion based on semantic mapping and attributes should be used during conversion to Industrial Land (see Table A.1).
Note 2: “–” means that there are no or very few feature instances of this class in the region.
[a] The feature instances for logistics transit facilities into Logistics and Warehousing Land.</td></tr>
</table>

Table B.2 Conversion Relationship for Feature Instances of Public Management and Public Utility Facilities

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
31	Government, Institutional and Community Facilities	●	0806	Healthcare Land
		Infrastructures	1309	Sanitation Land
			13015	Supply and Drainage Land
			1307	Postal Land
		Educational Facilities	0802	Research Land
			0804	Educational Land
		Recreation and Sports Facilities	0805	Sports Land
		Greenland or Public Open Space	1401	Park and Greenland
			1403	Squares
		Social Facilities	0702	Urban Community Service Facilities
			0704	Rural Community Service Facilities
			0807	Social Welfare Land
		Municipal Facilities	1310	Fire Service Land
		Government Facilities	0801	Government Agencies and Organizations
32	Open Space and Recreation	Recreation and Sports Facilities	0805	Sports Land
		Greenland or Public Open Space	1401	Park and Greenland
			1403	Squares
		Municipal Facilities	0801	Government Agencies and Organizations
52	Utilities	–	1313	Other Public Facilities
		Infrastructures	13015	Supply and Drainage Land
			1306	Communication Land
			1307	Postal Land
			1308	Radio and Television Facilities
		Greenland or Public Open Space	1401	Park and Greenland
			1403	Squares
		Ecological Land	1312	Hydraulic Facilities
		Municipal Facilities	1309	Sanitation Land
			1310	Fire Service Land
53	Vacant Land/Construction in Progress	Infrastructures	13015	Supply and Drainage Land
		Greenland or Public Open Space	1403	Squares
		Municipal Facilities	0803	Cultural Land
		Cultural Facilities	0803	Cultural Land
54	Others	Municipal Facilities	1309	Sanitation Land
–	–	Greenland or Public Open Space	1402	Green Buffer

Note 1: "●" means that the data fusion based on semantic mapping and attributes should be used during the conversion to Public Management and Public Utility Facilities (see Table A.2).

Table B.2 Conversion Relationship for Feature Instances of Public Management and Public Utility Facilities (Continue)

Secondary Land Use Class of Hong Kong	Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area
Note 2: "–" means that there are no or very few feature instances of this class in the region.		

Table B.3 Conversion Relationship for Transportation Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
●	●	Roads	1206	Urban Rail Transit Land
41	Roads and Transport Facilities		0601	Rural Roads
			1207	Urban Roads
53	Vacant Land/Construction in Progress	Transportation Facilities	1208	Traffic Station Land
			1203	Airport Land
54	Others		1208	Traffic Station Land
			1208	Traffic Station Land
			1209	Other Transportation Facilities
Note : "●" means that data fusion based on semantic mapping and attributes should be used during conversion to Transportation (see Table A.3).				

Table B.4 Conversion Relationship for Other Land Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
31	Government, Institutional and Community Facilities	●	1503	Religious Land
		Transportation Facilities	1507	Other Special Land
		Ecological Land	1504	Cultural Relics
			1506	Other Special Land
		Government Facilities	1501	Military Facilities
			1502	Embassies and Consulates
			1505	Prison and Correctional Facilities
		Municipal Facilities	1507	Funeral Facilities and Cemeteries
32	Open Space and Recreation	●	1503	Religious Land
		Government Facilities	1502	Embassies and Consulates
53	Vacant Land/Construction in Progress	–	2301	Vacant Land
		Ecological Land	1504	Cultural Relics
54	Others	–	2301	Vacant Land
		Government Facilities	1501	Military Facilities
Note 1: "●" means that data fusion based on semantic mapping and attributes should be used during conversion to Other Land (see Table A.4).				
Note 2: "–" means that there is no or very few feature instances of this type in the region.				

Table B.5 Conversion Relationship of
Commercial Service and Residential Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
11	Commercial/Business and Office	●	09012	Commercial Land Mixed with Financial and Business Office [a]
		●	0902	Financial and Business Office
		C1 Commercial	0903	Entertainment, Recreation and Sports Land
			0904	Other Commercial Service Land
		Infrastructures	0901	Commercial Land
31	Government, Institutional and Community Facilities	C2 Commercial	0903	Entertainment,Recreation and Sports Land
		Educational Facilities	0901	Commercial Land
		Municipal Facilities	0901	Commercial Land
32	Open Space and Recreation	C1 Commercial	0901	Commercial Land
		Recreation and Sports Facilities	0903	Entertainment,Recreation and Sports Land
54	Others	Recreation and Sports Facilities	0903	Entertainment,Recreation and Sports Land

Note 1: "●" means that data fusion based on semantic mapping and attributes should be used during conversion to Commercial Service and Residential (see Table A.5).

[a] Due to the high density of construction land in Hong Kong and Macao, it is common for commercial and financial/business office are both the main usage of a building. For the need for land use data fusion and conversion, this land use class was added in this file.

Annex C

(Informative)

Conversion Relationship for Land Use Subcategorization Based on Remote Sensing Images and Polygon Data

During the use of the land use subcategorization method based on remote sensing images and polygon data, the conversion relationship for agricultural feature instances is shown in Table C.1, and the conversion relationship for natural resource feature instances is shown in Table C.2.

Table C.1 Conversion Relationship for Agricultural Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
61	Agricultural Land	–	0101	Paddy Field
			0102	Irrigated Land
			0201	Orchard
			0202	Tea Garden
			0204	Other Gardens
			0401	Natural Grassland
Note: "–" means that there is no or very few feature instances of this type in the region.				

Table C.2 Conversion Relationship for Natural Resource Feature Instances

Secondary Land Use Class of Hong Kong		Secondary Land Use Class of Macao	Secondary Land Use Class of the Greater Bay Area	
Code	Name	Name	Code	Name
71	Woodland	Ecological Land	0301	Arbor Land
			0302	Bamboo Land
			0304	Other Woodland
●	●		0303	Shrubland
●	●		0403	Other Grassland
74	Mangrove/Swamp		0504	Other Swamp
			0507	Mangrove
61	Agricultural Land	●	1704	Ponds
Note: "●" means that the data fusion based on semantic mapping and attributes should be used during the conversion to Natural Resources (see Table A.6).				

Bibliography

[1] Ministry of Natural Resources of the People's Republic of China. Guidelines for the land use and sea use classification for territorial space survey, planning, and use regulation (Trial).2020

[2] Planning Department, Hong Kong Special Administrative Region Government of the People's Republic of China. Land Utilization in Hong Kong 2021. 2022

[3] Land Works and Transportation Bureau, Macao Special Administrative Region of the People's Republic of China. Administrative Regulation No.6/2022: Land Classification and Land Use. 2022