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(Updated in December 2025)

DEVELOPMENT BUREAU
GENERAL CIRCULAR NO. 1/2021

Common Spatial Data Infrastructure for Digital Hong Kong

(Note: This Circular should be read by the Directors of Bureau, Permanent Secretaries, Heads of Department and officers dealing with relevant matters.*)*

Purpose

This Circular sets out the policy and related measures for the development and implementation of the Common Spatial Data Infrastructure (CSDI) for building a Digital Hong Kong.

Effective Date

2. This Circular shall take immediate effect.

Background

3. Enhancing the use and sharing of spatial data (i.e. data with a location component such as geographical coordinates[1]) is recognised worldwide as a crucial step supporting robust policy-making and driving innovation and value creation of society. Bureaux/Departments (B/Ds) have been keeping a

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[1] A definition of spatial data can be found at the "Resources" webpage of the CSDI Resources Centre mentioned in paragraph 26 (https://geoportal.landsd.ccgo.hksarg/csdi/main/index.html?p=definitionsd).

wide range of spatial data created with Geographic Information System (GIS) technology in support of their business and operational needs. Yet in the absence of common standards and guidelines as well as a one-stop portal for collation and dissemination, such spatial data held by different B/Ds cannot be shared effectively amongst themselves and with non-government organisations, making it difficult for the community to fully exploit the potential of spatial data for the wider good.

4. With location as the common language, the CSDI seeks to provide a map-based digital infrastructure where spatial data from B/Ds arranged according to agreed standards can be stored, shared and assimilated in a composite manner, and where B/Ds, businesses, academia and the public can explore, search, view and download such spatial data through a portal of CSDI accessible from the internet.

5. The importance of developing CSDI is acknowledged in the Smart City Blueprint, which envisions the development of a Digital Hong Kong that enables the deployment of smart technology for the planning, design, development, management and operation of the city. Moreover, establishing the CSDI is the policy objective enshrined in the 2018 Policy Address to tie in with the development of smart city alongside the implementation of the Open Data Policy.

6. In June 2019, the Steering Committee of Innovation and Technology (SCIT) chaired by the Chief Executive endorsed the policy mandate with a strategic framework to drive the development and implementation of CSDI.

7. Since 2020, the Government has been working on three digital infrastructure projects to realise the benefits of CSDI and Digital Hong Kong, namely CSDI portal development, upgrading of existing 2D digital map into a full-fledged 3D Digital Map, and developing a Building Information Modelling (BIM)-GIS data repository. The CSDI portal as a single, centralised sharing platform will make sharing of B/Ds' spatial data easier, more accessible and effective. 3D Digital Map, which can be used for visualisation, unit-based indoor applications and city modelling, can support CSDI and enable various government services and business applications to be developed with smart technology. BIM-GIS data repository can help leverage the BIM-GIS data

created in capital works projects for the development of the 3D Digital Map and the design of new works projects.

Benefits

8. Sharing spatial data on the CSDI portal can minimise duplication of efforts and resources in maintaining, processing and updating data amongst B/Ds. More importantly, on a strategic level, the CSDI and 3D Digital Map are core components of the digital infrastructure underpinning Hong Kong's smart city development. With the ability to integrate different datasets (such as the locational information of population data, public amenities and facilities, boundaries of planning data, etc.), CSDI can analyse a large volume of data and present the data analysis in innovative and informative formats. It can spur innovation and develop the digital economy, and open up a wide range of possibilities for application development.

9. For example, B/Ds, public and private sectors can develop many new advanced 3D applications, from realistic visualisations to better city management, disaster management, as well as utilities and assets management. In this era of autonomous applications, the capability of 3D Digital Map can be extended to support a wide range of applications and foster the creation of a digital Hong Kong by leveraging the Internet of Things, BIM technology and big data analytics. The improved access to high-quality and up-to-date spatial data and services through the CSDI portal can also increase the Government's capacity to perform more sophisticated data analysis, understand social needs and trends, enhance the government intelligence to support better data-driven decision-making and deliver more responsive services to the public.

Policy on Release of Spatial Data

10. Under the CSDI strategic framework endorsed by the SCIT, and in line with the Open Data Policy, all B/Ds are required to progressively release spatial data in compliance with the CSDI standards stipulated in paragraph 12 under their purview free of charge and without any unnecessary restrictions on their use to the public through the CSDI portal, unless there are security, privacy,

sensitivity, confidentiality, legislative and other policy concerns and/or operational reasons for not doing so.

Leadership and Governance

11. The leadership and governance structure (please see **Appendix**) overseeing the development and implementation of CSDI includes the following:

(a) SCIT as the overseeing body - the SCIT serves as an overseeing body to steer the CSDI strategic framework as well as the key policy issues arising from the development and implementation of CSDI.

(b) Intra-governmental collaboration - the Common Spatial Data Steering Committee (CSDSC) co-chaired by Deputy Secretary for Development (Planning and Lands) and Deputy Secretary for Innovation and Technology and attended by B/Ds as key spatial-data holders has been set up to provide strategic directions for CSDI development, steer the policy formulation and developments, build an active data sharing and collaboration landscape within Government, oversee the progress of CSDI development, etc.

(c) Working group~~s~~ under CSDSC - ~~three working groups, namely Data and Application Working Group (DAWG), Portal Working Group (PWG) and Capacity Building and Promotion~~ Common Spatial Data Working Group (~~CBPWG~~CSDWG) is ~~are~~ established to assist CSDSC to support the development and implementation of CSDI. Working groups on other CSDI-related tasks, programmes and initiatives will be formed when the need arises.

(d) Day-to-day execution - the Spatial Data Office (SDO) staffed by a multi-disciplinary team in DEVB serves as CSDSC's executive arm. It is mainly responsible for formulating CSDI-related strategies, overseeing the building and management of the CSDI portal, identifying and prioritising spatial data to support the phased development of CSDI, resolving intra-governmental matters affecting the effective sharing and re-use of spatial data, monitoring the execution of capacity building, outreach and partnership initiatives.

(e) Stakeholders' engagement - a Common Spatial Data Advisory Committee (CSDAC) chaired by the Director of Lands has been formed to engage the non-government and business sectors and professional bodies. It will tap experts and stakeholders' advice on how best to develop the CSDI that can suit the needs of society and economy. B/Ds shall be invited to join the CSDAC as and when required to work on projects of common interest.

(f) Survey and Mapping Office (SMO) of the Lands Department (LandsD) as GIS technical agency and authority - the SMO has been commissioned to extend its scope of services in providing technical support to SDO in the development of CSDI, including implementing and enhancing the CSDI portal and providing technical advice to B/Ds on survey, mapping and geospatial technology and GIS deployment in making spatial data available for CSDI. SMO maintains and continuous updates the 2D and 3D digital maps for geospatial applications ~~and will upgrade the existing 2D Digital Map into a full-fledged 3D Digital Map~~. SMO is also enhancing the positioning infrastructure to support a wider range of applications which require precise positioning both indoor and outdoor.

The terms of reference and the membership of the CSDSC (and its ~~three~~ working group~~s~~) and CSDAC, as well as the roles and responsibilities of the SDO and SMO can be found at the CSDI Resources Centre, a dedicated information portal on CSDI (see paragraph 26 below).

CSDI Standards

12. Under the CSDI, spatial data categorised as either framework spatial data or common sharable spatial data should be in full compliance with CSDI standards, which can be found at the CSDI Resources Centre.

Roles and Responsibilities of B/Ds

13. The roles and responsibilities of B/Ds in the development and

implementation of the CSDI are set out in paragraphs 14 to 24.

Opening Up Spatial Data

14. Under the CSDI, B/Ds usually act as spatial data owners, agents and/or users to support and promote various CSDI initiatives. B/Ds should support the CSDI development by identifying spatial data to be released[2] following the CSDI policy; producing spatial data according to the CSDI standards; maintaining spatial data including metadata up-to-date; making the spatial data discoverable and sharable through the CSDI portal; and supporting capacity building and promotion efforts, etc.

15. Justifications for not sharing or opening up specific spatial dataset should be provided by B/Ds to CSDSC for review. When necessary, CSDSC shall seek the steer from SCIT.

16. In particular, the 3D spatial data, BIM, GIS data and digital design and as-built spatial data[3] held by B/Ds and shared to SMO can avoid duplicating efforts on the collection of spatial data and thereby facilitating the updating of the territory-wide BIM-GIS data repository and 3D Digital Map for a Digital Hong Kong.

Free Data

17. B/Ds shall make their spatial data available through the CSDI portal free of charge unless there are legitimate policy and/or operational reasons for not doing so. If necessary, B/Ds should seek policy approval for waiving the charges[4].

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[2] B/Ds should include geospatially-enabled datasets and data not digitized at present but has the potential for geospatial enablement. When the datasets are owned by third parties, consent from the data owners should be sought before releasing such data for CSDI.

[3] Design and as-built spatial data refer to design/as-built plans and spatial data in digital form including (i) BIM native data formats; (ii) GIS native data formats; (iii) design plans and as-built plans prepared with formats stipulated in Computer-Aided-Drafting Standard for Works Projects; (iv) 3D photorealistic models in native data format, (v) digital aerial photos collected by unmanned aerial vehicles(UAV); (vi) digital terrestrial photos captured by land-based mobile mapping system(MMS); and or (vii) other available digital format. For projects with different phases of completion, Works Departments would be encouraged to provide design/as-built spatial data to SMO at phased commencement/completion stages respectively.

[4] For example, some previously chargeable datasets, such as digital maps of LandsD and LiDAR data

Annual Spatial Data Plan

18. B/Ds shall prepare an Annual Spatial Data Plan announcing their spatial datasets to be opened up to other B/Ds and/or the public on an annual basis. B/Ds will promulgate their Annual Spatial Data Plan[5] through their websites. The CSDI portal or CSDI Resources Centre will show the Annual Spatial Data Plan of all B/Ds.

Data Collection and Creation Means

19. Generally, B/Ds shall adopt geospatial technologies to enhance efficiency in collecting and creating spatial data, whenever applicable, in their business processes and spatial data applications and services. B/Ds may seek advice from SDO on initiatives requiring the use of spatial data and from SMO on survey, mapping and geospatial technologies in supporting the development and implementation of the CSDI. The list of activities that may need SMO's advice can be found at the CSDI Resources Centre.

20. B/Ds, in particular the Works Departments (WDs) of DEVB, may through implementation of works and other projects (including in-house survey/data collection projects, spatially related applications/systems/projects, service contracts/consultancy studies, capital works projects[6], and other works projects[7]) create substantial amount of spatial data. B/Ds are requested to submit the spatial data so created in compliance with the CSDI standards.

Use of CSDI Datasets

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of Civil Engineering and Development Department, have been approved by the Financial Services and the Treasury Bureau to be provided to the public free of charge.

[5] The Annual Spatial Data Plan and Annual Open Data Plan are consolidated as "Consolidated Annual Open Data Plans (Spatial Data included)".

[6] WDs should refer to the Engineering and Associated Consultants Selection Board (EACSB) Handbook, Architectural and Associated Consultants Selection Board (AACSB) Handbook, the Project Administration Handbook (PAH) for Civil Engineering Works, the PAH for Electrical and Mechanical Services Department or the Operational Instruction of Architectural Services Department for requesting their contractors/consultants in collation of survey, mapping and geospatial data, and ~~the DEVB(Works) Technical Circular No. 16/2000 "Provision and Collation of Land Survey and Mapping Data" and~~ DEVB(Works) Technical Circular No. 12/2020 (or its latest version) for provision of their design and as-built ~~survey data and~~ BIM models to SMO to facilitate the development of BIM-GIS data repository and 3D Digital Map.

[7] Including but not limited to (i) work entrustment to organisations outside Government (Airport Authority, MTR Corporation Limited, private developer, etc.), (ii) subvented capital works projects and (iii) works that are undertaken by private parties but will be handed over to the Government.

21. B/Ds shall make use of the datasets available in the CSDI portal for their spatially related applications/systems/projects to avoid duplication of data preparation effort, enable efficient and effective data retrieval, ensure data integrity, and reduce application/system/project costs in creating and maintaining the datasets.

Support for Funding Applications

22. B/Ds shall seek SDO's support on their funding applications of spatially related applications/systems/projects including the Capital Works Reserve Fund (CWRF) Head 710 Computerisation and TechConnect.

Capacity Building and Promotion

23. SDO is responsible for strengthening the capacity of B/Ds in making gainful use of the CSDI. To support the development and implementation of CSDI, B/Ds should endeavour to arrange their staff to attend training and workshops arranged by SDO so as to raise the awareness on the CSDI and build up their capacity to support the CSDI.

Spatial Information Manager

24. B/Ds shall each appoint a Spatial Information Manager (SIM) at senior professional rank or equivalent to put in place departmental procedures and guidelines to promote interoperability among various GIS and BIM systems; coordinate submissions of design and as-built spatial data/BIM models to SMO; and consolidate the return of the Annual Spatial Data Plan to SDO.

Address Sharing Mechanism

25. The Address Data Infrastructure (ADI) established by the ~~Office of the Government Chief Information Officer (OGCIO)~~ Digital Policy Office (DPO) for the exchange and sharing of address information would be incorporated into the CSDI under the steer of CSDSC with due consultation with participating B/Ds concerned in due course.

CSDI Resources Centre

26. In order to facilitate B/Ds to discharge their roles and responsibilities in the implementation of the CSDI, a dedicated information portal, managed by SDO with support from SMO, has been set up. It contains the latest procedures and guidelines promulgated by SDO and other relevant reference materials for the CSDI which can be accessed through individual B/Ds' Departmental Portal (https://geoportal.landsd.ccgo.hksarg/csdi/main/).

Enquiries

27. Enquiries on this Circular should be addressed to Senior Land Surveyor (Spatial Data Infrastructure), SDO of DEVB at 3509 7874.

(Ms Bernadette LINN)
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(Planning and Lands)

Appendix

Leadership and Governance Structure