## 7. INFRASTRUCTURE DESIGN STANDARD

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| **General Manager responsible:** | General Managers of City Environment, Capital Programme, and Regulation and Democracy Services, DDI: 941-8608, 941-8235, 941-8462 |
| **Officer responsible:** | Resource Manager Capital Delivery |
| **Author:** | Mike Gillooly, Consultant Project Manager |

### PURPOSE OF REPORT

1. This report recommends the adoption of the Infrastructure Design Standard 2009 (separately circulated) as the core document to be used for the design of all Council infrastructure.

### EXECUTIVE SUMMARY

2. The report gives a brief history of the project, including the results of internal and external consultation with stakeholders.

3. The IDS replaces the existing "Subdivision Code" used by the Council which is inadequate and obsolete. The IDS creates common standards for Council funded works (i.e. the Capital Programme) and for works that the Council will acquire from subdivisions (i.e. vested assets). (The IDS document is separately circulated).

(**Note**: This issue was deferred from the 4 February 2010 Regulatory and Planning Committee meeting, to be considered following a Committee workshop. This workshop has now taken place.)

### BACKGROUND

4. The IDS affects those involved in the creation or enhancement of infrastructural assets. For Council staff that means our own internal designers, asset managers, and contract auditors. It will also apply to developers and their advisers designing and constructing assets created through subdivision which will pass to Council ownership as a consequence of subdividing. The IDS creates minimum standards for works that the Council will takeover through the subdivision process. The imposition of a compliance regime through conditions of consent on all subdivisions will ensure high quality assets are taken over by Council. The IDS creates a legal framework whereby the Council can insist on a certification from a professional adviser that the assets transferring have been designed, built and will operate in compliance with the IDS and approved standards, (flow rates, gradients, etc). The Council has experience of poor quality assets being transferred to Council ownership through subdivisions with the cost of remedial work being borne by the ratepayer. The IDS process will reduce these problems and create an enforceable obligation on the developer and its professional advisers.

5. The IDS is a revision of the Christchurch Metropolitan Code of Urban Subdivision (the "Code"), which was written in 1987 and approved by the Council under a separate resolution at that time. It is aligned to our organisational structure and other key Council documents. The development of a specific set of design standards is a common approach to asset management for large metropolitan Councils that tend to have the resources to develop a set of standards suited to their particular needs. Smaller local authorities tend to adopt, either wholly or with amendments, the New Zealand Standard for Land Development and Subdivision Engineering (NZS 4404). Further to that this revision is intended to apply to the former Banks Peninsula District which to now has been using NZS 4404:1981 as their Code of Urban Subdivision.

6. Consultation with the surveying profession in 2001 showed that the code of practice was still the principal document used in the design of subdivisional works. However, a large number of uncoordinated and informal amendments had started to erode the document's integrity. The code was also seen by many as failing to recognise technological advances in the construction industry. It did not relate to the many Council publications, both planning and engineering related, which were intended to directly impact on land and asset developments. It was due for revision.

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7. In April 2005 the terms of reference for the IDS project were rewritten to include provision for a chapter on quality assurance. The chapter on quality assurance with its emphasis on a systems based approach to quality management is perhaps the most significant change to come out of this review. The benefits of adopting a systems based approach to managing for quality will result in fewer costs to the organisation by reducing the amount of rework and repair of built assets and will drive certainty and consistency into the contract management process by clarifying procedures and responsibilities, standardising documentation and more clearly defined processes for correcting non-conformances.

8 The purpose of the update is therefore to incorporate those structural changes in the way that Council accepts assets and to update the technical engineering aspects of the standard to current practice. The opportunity has also been taken to incorporate the application of quality assurance to ensure that Council assets are well designed and constructed and to align the Standard with Council's various planning and engineering related publications, including the Construction Standard Specifications (CSS).

9. The Standard will fulfil two functions. It details the Council's minimum requirements or expands on requirements laid out in the City Plan, which a development must meet to achieve compliance with a subdivision consent or a Capital Works project brief. It also sets out processes for designing assets to aid the designer in achieving and demonstrating compliance with those requirements.

10. A team, comprising designers from the Capital Programme Group (CPG) and asset managers from the asset groups, wrote each part of the Standard. Each of the twelve parts can therefore be aligned with the relevant asset group but is particularly related to the type of infrastructure. The parts are summarised below:

- Part 1: Introduction introduces the major changes and includes those definitions specific to the Standard.

- Part 2: General Requirements covers a number of regulatory details and sets out the process from design to acceptance by the Council of land developments. It also sets requirements for documentation.

- Part 3: Quality Assurance is another new part, which sets out the requirements for the application of quality assurance to the construction of all assets. This has incorporated two major shifts: each project will require the implementation of a project quality system, with documentation and certification presented to the Council at both the design and construction stages. The traditional Council role of Clerk of Work-type inspections will be replaced with a structured audit based system.

- Part 4: Geotechnical Requirements sets out the requirement for geotechnical input in land development and what must be considered by the geotechnical engineer. It emphasises the Council's desire to work with the landforms and preserve natural features. It also details issues to be considered under erosion, sediment and dust control.

- Part 5: Stormwater and Land Drainage builds on the Waterways and Wetlands Drainage Guide, which sits behind the Standard as a supporting document. This part provides more prescriptive design and compliance criteria than is found in the WWDG but reinforces the change of emphasis to include water quality and ecological protection. It also discusses resource consents.

- Part 6: Wastewater incorporates both an explanation of Christchurch's reticulation system and how the Council's philosophy has changed. It provides the design and compliance criteria for wastewater systems and has been modified to include modern materials. The requirements for private drains have been tied to the New Zealand Building Code and the private pump station specifications have been included as an appendix, recognising that these particular assets fall outside the general subdivision and capital works process.

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- Part 7: Water Supply covers the design and compliance criteria of the water reticulation. It references the Water Supply Wells, Pumping Station and Reservoir Design Specification for larger infrastructure and has been updated for modern materials.
- Part 8: Roading sets out both the design and compliance criteria for the street layouts eg classification and the streets themselves eg footpaths, construction depths. It incorporates the fundamental changes due to the National Roads Board specifications for the design and construction of roads being replaced with Austroads specifications.
- Part 9: Utilities covers Council's compliance requirements for telephone, electricity and gas. It excludes the utility design itself, as this must be to the network operator's requirements.
- Part 10: Parks Streets and Open Spaces is a new section on landscaping and reserves, based on NZS 4404: 2004 Land development and subdivision engineering, modified to suit the Christchurch context. It sets criteria for reserves, including layout, facilities, structures and furniture. It also applies to landscaping in legal roads. It includes the establishment of landscape areas.
- Part 11: Lighting sets the Council requirements in an environment in which private companies can carry out street lighting design and construction. It builds on AS/NZS 1158: 2005 Lighting for roads and public spaces.
- Part 12: As-Builts sets the Council's requirements for as-built information on completion of the development.

11. The first draft was published in August 2006. Internal consultation was carried out over a six week period to gain feedback on the technical elements of the Standard.

    Internal stakeholders were identified as follows:

    - Asset Managers (including business unit managers, asset planners).
    - Subdivision Officers and associated staff reporting to their process.
    - City Solutions (now CPG) design staff.
    - City Solutions contract supervision staff.
    - Legal Services Manager.

12. A Council seminar was held on the IDS in March 2007 followed by a report to the Council on 7 June 2007. The resolution from that meeting was:

    (a) (i) That the Council approve the IDS for consultation with the targeted stakeholders identified in Appendix I.

    (ii) That the results and an analysis of consultation outcomes be reported back to the Council by late November 2007.

    (b) That a further report be submitted on a recommended method of addressing the issue of urban design guidelines.

13. The second draft for external consultation was published in August 2007. Responses from industry stakeholders was slow despite a high profile launch and direct engagement with industry groups and professional institutes at branch level. Ultimately feedback was obtained from early to mid 2008 through a series of targeted workshops on each chapter. This resulted in 968 submissions across the standard on a clause by clause basis.

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14. In late 2007 and early 2008 individual community boards were given a presentation on the IDS and invited to make submissions. Particular attention was given to advising the boards on those matters over which they exercise some delegation. This related to the design of reserves, streetscapes and open spaces. No submissions were received from community boards.

15. All submissions were reviewed by a cross council panel of asset managers and capital program group designers and the decisions, with reasons for accepting or rejecting have been recorded.

16. While consideration was given to including urban design guidelines in the draft IDS it was felt that this was not the most appropriate place to give effect to the guidelines, and that the Council might be perceived negatively by approving subdivision consents and subsequently imposing further conditions on the design of new subdivisions through the IDS. The Council requested further advice on a recommended method of addressing the issue of urban design guidelines.

17. Subsequent to the June 2007 resolution a number of further actions have been taken addressing the issue of urban design guidelines including:

    - Identifying the application of good urban design principles as a priority action in the Greater Christchurch Urban Development Strategy.
    - Including urban design guidance in both the South-West and Belfast Area Plans.
    - Adopting an urban design plan change for the Living 3 and 4 Zones.
    - Completing an Issues and Options paper for urban design controls in the Central City and Business 2 Zones.
    - Establishing an Urban Design Panel to provide urban design advice for significant resource consent applications.
    - Including urban design criteria in the subdivision assessment matters for the draft Awatea and Wigram Plan Changes.
    - Completing the *Public Space Public Life Study* for central Christchurch with Gehl Architects with an associated draft Action Plan for Council approval.
    - Developing a draft Central City Streetscape Plan and Central City Street Trees and Gardens Master Plan.

18. The IDS creates minimum standards for works that the Council will takeover through the subdivision process. The imposition of a compliance regime on all subdivisions will ensure high quality assets are taken over by Council. The challenge is to create a legal framework whereby the Council can insist on a certification from a professional adviser that the assets transferring have been designed, built and will operate in compliance with the IDS and approved standards, (flow rates, gradients, etc). The Council has experience of poor quality assets being transferred to Council ownership through subdivisions with the cost of remedial work being borne by the ratepayer. The IDS process will reduce these problems and create an enforceable obligation on the developer and its professional advisers.

**Communication and Implementation**

19. The project is now complete. The IDS is now ready for publication subject to Council resolving to adopt the document. Communication will be similar to the preceding project phases for internal and external stakeholders.

**FINANCIAL IMPLICATIONS**

20. There is no new expenditure required. This project will continue to be funded out of existing operational budgets. Implementation of the IDS is already accounted for as this replaces existing standards that are part of our standard operating procedures.

21. There is no change in expenditure therefore this project aligns with 2009-19 LTCCP budgets.

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**LEGAL CONSIDERATIONS**

22. The IDS has been reviewed by an external provider and approved. The review confirmed that the standard is not a document identified under the Local Government Act 2002 as requiring consultation and accordingly there is no need to adopt the special consultative procedure under that Act.

23. However the review stated that consultation is desirable to reduce the risk of subsequent formal challenge and to produce a more robust document. The review also confirmed that formal Council approval is desirable to ensure that the document is in fact a document having formal status appropriate to be incorporated in conditions of a subdivision consent.

**ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS**

24. The document is consistent with Activity Management Plans and LTCCP objectives and will assist with achieving the same by providing a holistic expression of Council design standards

**Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?**

25. This project will enable delivery of LTCCP projects in a consistent and transparent manner.

**ALIGNMENT WITH STRATEGIES**

26. The IDS creates and adopts as standard practice a best practice regime.

**CONSULTATION FULFILMENT**

27. Consultation is not formally required under the LGA 2002 but targeted consultation with external stakeholders was carried out to achieve acceptance and recognition by providers of the Council's own capital works program and those involved in the construction of assets to be vested through subdivision.

**STAFF RECOMMENDATION**

That the Committee recommends to the Council that it:

(a) Adopt the Infrastructure Design Standard 2009 as the Council's design standards for both Council funded assets and assets that will be vested on subdivision.

(b) Replace the existing 1987 Metropolitan Code of Urban Subdivision with Infrastructure Design Standard.

(c) Replace the use of New Zealand Standard NZS 4404:2004 "*Code of Practice for Subdivision and Land Development Engineering"* (in use for the former Banks Peninsula District Council) with the Infrastructure Design Standard 2009.

(d) Resolve that the use of the standard is effective immediately.