

## 7. INFRASTRUCTURE DESIGN STANDARD



<b>General Manager responsible:</b>	General Manager City Environment, DDI 941-8656
<b>Officer responsible:</b>	Transport & Greenspace Manager
<b>Author:</b>	Mike Gillooly, Consultant Project Manager

### PURPOSE OF REPORT

1. This report introduces the Infrastructure Design Standard (the “IDS”) prior to consultation with external stakeholders. It gives a brief history of the project, sets out the processes for external consultation with stakeholders, and also addresses the issues arising out of the new chapter on quality assurance.
2. The IDS has been prepared as to replace the existing “Subdivision Code” used by the Council which is inadequate and obsolete.
3. The IDS creates common standards for Council funded works (ie the Capital Programme) and for works that the Council will acquire from subdivisions (ie vested assets).

### EXECUTIVE SUMMARY

4. The IDS affects anybody 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 asset created through subdivision which will pass to Council ownership as a consequence of subdividing.
5. The IDS is a revision of the Christchurch Metropolitan Code of Urban Subdivision (the “Code”), which was written in 1987. Since then the Resource Management Act 1991 has been introduced which moved the control of subdivision from the Local Government Act to the RMA. Importantly, local government in Christchurch underwent major change in 1989 with local government amalgamation. Internal restructuring of the Council in 2000 also had a major impact on how assets were designed, constructed and approved internally as part of the capital works programme. This change gave rise to the concept of the “Total Solutions” model of programme delivery, whereby the Council’s project management and engineering design capability was located in one unit and shared across all the asset units of the Council. This revision of the subdivision code builds on that model to the extent that the Standard is equally applicable to assets created through the subdivision process as well as the capital works process. 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.
7. In April 2005 the terms of reference for the IDS project were rewritten to include provision for a chapter on quality assurance. It had become obvious to the project team that there was a significant gap in the Council’s processes as they relate to managing for quality across both the subdivision and capital works programme. 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. It will challenge not only the industry but also our own internal managers and staff at the coal face of capital works programme delivery. However the benefits of adopting a systems based approach 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 the Council accepts assets and to update the technical engineering aspects of the Standard to current practice. The opportunity has also been seized to incorporate the application of quality assurance to ensure that Council assets are well designed and constructed and to align the Standard with the 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 City Solutions and asset managers from the asset groups, wrote each part of the Standard. Each of the 13 parts can therefore be aligned with the relevant asset group but is particularly related to the type of infrastructure. The parts are summarised below:
  - (a) **Part 1:** Introduction introduces the major changes and includes those definitions specific to the Standard.
  - (b) **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.
  - (c) **Part 3:** Urban Design is a new section setting out urban design guidelines and is a **non-mandatory** section.
  - (d) **Part 4:** 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.
  - (e) **Part 5:** 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.
  - (f) **Part 6:** 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.
  - (g) **Part 7:** 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.
  - (h) **Part 8:** 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.

- (i) **Part 9:** 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.
  - (j) **Part 10:** Utilities covers the 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.
  - (k) **Part 11:** 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.
  - (l) **Part 12:** Lighting sets the Council's 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*.
  - (m) **Part 13:** 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 quality assurance elements of the Standard. Internal stakeholders were identified as follows:
- (a) Asset Managers (including business unit managers, asset planners).
  - (b) Subdivision Officers and associated staff reporting to their process.
  - (c) City Solutions design staff.
  - (d) City Solutions contract supervision staff.
  - (e) Legal Services Manager.
12. The IDS creates minimum standards for works that the Council will take over 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 Timetable

13. Project completion is scheduled for 1 October 2007. Key milestones for delivery of the remainder of the project are as follows:
- (a) Commence external consultation: 20 July 2007
  - (b) Consultation finishes: 20 September 2007
  - (c) Final report and adoption by Council: Late November 2007

## **External Consultation Process**

14. It is proposed to actively engage with the industry. In that vein the launch of the standard will be used as a vehicle to communicate recent changes in the organisation to key stakeholders, particularly as it relates to our new design standards, our front end contract documentation, the recent updates to the Contract Standard Specification, the appointment of a new Capital Programme General Manager and the LTCCP as it relates to capital programme delivery.
15. The focus for external consultation will be similar to that carried out internally with the aim being to gain industry feedback on the technical elements of the standard and explain the hierarchy of documents in place to deliver the capital programme. Consultation will also be used to “spread the word” on the Council’s new approach to quality assurance. External stakeholders have been grouped in line with needs and demands. Broadly the groups are as follows:
  - (a) Consultant Surveyors and Engineers.
  - (b) Contractors.
  - (c) Professional Bodies (IPENZ, MNZIS etc.).
  - (d) Adjoining local authorities and Environment Canterbury
  - (e) Central Government Agencies (Ministry for the Environment, Ministry of Police).
16. The launch will also be used to outline the consultation process. Over the six weeks of consultation it is proposed to present to various professional bodies, (IPENZ, ACENZ, MNZIS, Contractors Federation and Rooding New Zealand) and invite stakeholders to a series of small focus group workshops. The standard will also be available on the internet with the ability to make on-line submissions.

## **FINANCIAL IMPLICATIONS**

17. 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.

### **Do the Recommendations of this Report Align with 2006-16 LTCCP budgets?**

18. There is no change in expenditure therefore this project aligns with 2006 -16 LTCCP budgets.

## **LEGAL CONSIDERATIONS**

19. The IDS has been reviewed by an external provider and approved for consultation. 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.

### **Have you considered the legal implications of the issue under consideration?**

20. The review concluded 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 essential 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**

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

### **Do the recommendations of this report support a level of service or project in the 2006-16 LTCCP?**

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

#### **ALIGNMENT WITH STRATEGIES**

23. The IDS creates and adopts as standard practice a best practice regime which will contribute to performance excellence.

#### **CONSULTATION FULFILMENT**

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

#### **STAFF RECOMMENDATION**

It is recommended:

- (a) That the Council approve the IDS for consultation with the targeted stakeholders identified in Appendix I (attached).
- (b) That the results and an analysis of consultation outcomes be reported back to the Council by late November 2007.