Board Meeting| 23 July 2019
Agenda item no.10.2
Closed Session

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Transport Design Manual

Recommendations

That the Board:

i. Note the further development of the draft Transport Design Manual (TDM) to improve development of place and movement context-sensitive design solutions with a more balanced approach to healthy streets principals, including greater emphasis on place, public transport, active modes and micromobility, alongside road productivity and private vehicles;

ii. Note the improvements to the previously endorsed version of the 24th October 2017 include Vision Zero guidance and appropriate engineering updates to support a Vision Zero outcome;

iii. Note the wider risks associated with a change in approach to design of transport infrastructure; and

iv. Note that the TDM is proposed to be published by early August subject to final discussions with Auckland Council.

Executive summary

1. The TDM will be used as AT's requirements for new and upgraded transport assets through consenting and regulatory approvals by Auckland Council, including the vesting of such assets.
2. The TDM will replace over three phases between August 2019 and 2020/21 the existing AT Code of Practice (ATCOP) for transport assets.
3. The TDM is not a statutory document or legally binding requirement other than where used to inform resource consent decisions and therefore vesting decisions of new and upgraded assets with AT. As such, the revised asset design standards are not required to be applied retrospectively across the network to existing assets.
4. The scale and pace of growth in Auckland combined with increasing intensification and the development of greenfields is placing increased pressure on an already constrained strategic transport network and limited road space to deliver multi-modal transport objectives. There is the expectation that Auckland's roads and streets need to provide for a wider range of benefits, including liveability, sustainability and economic growth whilst providing for efficient and safe movement.
5. In response, the draft TDM has been developed as a complementary document to the existing Roads and Streets Framework (RASF). The TDM is informed by the RASF in providing the design guidance, engineering design codes and technical specifications to enable new and upgraded transport assets to deliver successful outcomes that meet the objectives of Auckland Transport (AT). The TDM provides guidance to

internal (e.g. project teams) and external parties (e.g. consultants and developers etc.) about AT's requirements for the design, construction and vesting of assets that will be managed by AT.

6. The TDM reflects a greater balance for streets and roads design and resultant space utilisation, between place making and liveability compared with movement for transport purposes. It places greater emphasis than the current ATCOP on healthy streets principals including greater space utilisation for public transport and active modes and contribution towards place making that the transport corridors can make.
7. The TDM also provides a new focus on balancing private vehicle road use with multi-modal use across private vehicles, public transport and active modes including healthy street principles. Vision Zero is also accommodated for the first time.
8. While these areas of refocus are in line with AT strategy, there is a two-fold risk of negative response from parts of industry and communities to a perceived over-empahsis on these topics. Stakeholders that do not wish to see a greater balance and perhaps renewed focus on private vehicles may respond negatively, which may be fuelled by positive feedback from stakeholders that support the approach proposed by the TDM.
9. The TDM is structured to provide a design-led approach through design guides, in addition to the detailed engineering requirements contained in the codes and specifications. This is a change in emphasis from the current ATCOP that provides a more black-and-white minimum standard approach to asset design. The intention is for third parties, and AT's own project designers, to take a design-led approach to maximise place and movement outcomes relative to different project and local environmental considerations, rather than take a minimum one-solution fits all approach as at present. This is likely to require AT to be more actively involved with asset and infrastructure designers earlier in the design and consenting process, rather than wait for a tick-box review of resource consent applications (currently managed and approved by Auckland Council). This will require AT to work more closely with Council to adopt improved resource consenting engagement processes and take a medium to long-term view of industry engagement change.
10. The change in structure of the TDM and a design-led approach with third parties may also attract negative response from parts of the industry and stakeholders. Auckland Council is already seeking to defer the TDM launch until a minimum standards check-sheet guidance can be developed for use by the consenting team. This conversation with Council has already delayed the launch of the TDM. It is continuing and has the potential to delay further the launch of the TDM. AT is resisting this and seeking therefore to undertake a soft-launch with a 6-month bedding-in period for stakeholder and industry feedback.

Previous deliberations

11. The Board supported the broad approach and key timings for completion of the TDM at its November 2016 Board Meeting.
12. The draft TDM was endorsed at the 24 October 2017 Board meeting along with the 2017 version of the Roads and Streets Framework which was subsequently published in November 2017. There were no outstanding matters raised at the Board meeting that required incorporating in to the TDM at that time.

13. The draft TDM was discussed at the 18 June 2019 Customer & Innovation Committee.

Strategic context

14. The TDM is a hierarchal system that focuses on a first principle approach to safe transport design. Its purpose is to respond to the direction set in the RASF, provide transport designers with guidance around the principles of designing safe transport outcomes and transport user requirements, the detailed engineering requirements to design the transport facilities and the construction specifications to ensure that the facility meets ATs asset needs. The TDM went through a lengthy industry engagement and has been adopted by numerous AT projects as the design system to use.
15. There are no legal requirements to comply with any engineering standards or design approach within New Zealand and it is up to the local Road Controlling Authority to determine what guidance and standards they shall follow; the only exception to this is when a standard is defined in a statutory planning document such as the Auckland Unitary Plan.
16. Auckland Transport developed the ATCOP as the initial means of design approach and compliance following the creation of Auckland Council in 2010. Following extensive feedback from use, it was decided that a new approach should be developed; one that provides an overarching view as well as the details to achieve the outcomes sought by AT.
17. The TDM was developed from this basis and on the view that the currently used guidance, Austroads, was not sufficiently suitable for urban roads and streets in Auckland and that the existing ATCOP required an update to align with a new guiding approach.
18. For AT derived work, the TDM can be mandated through the Project Management Framework (PMF) and other supporting approaches such as a Design Framework. For externally developed improvements within existing roads, the applicant will require asset owner approval through which AT can again mandate the use of the TDM.
19. For land development however, AT is not the approving authority; this is the responsibility of Auckland Council. The Chief Engineer is working with Auckland Council Engineering & Infrastructure Technical Services to ensure that the new requirements from the TDM are embedded into the Auckland Council Integrated Code of Practice that will ensure regulatory compliance for assets consented and vested for management by AT.
20. The draft TDM is based on best practice approaches that is being applied in other leading Countries, such as the United States (National Association of City Transportation Officials), United Kingdom (Manual for Streets), Ireland (Design Manual for Urban Roads and Streets), as well as globally using the Global Street Design Guide developed by the Designing Global Streets initiative. The TDM has been developed to fill an identified gap in AT's current design documents as well updating the engineering codes to bring them to a modern standard.
21. The identified gap was determined to be that there was a lack of clear design guidance that linked the strategic planning system through to the details developed at the engineering design code level.

22. Attachment 1 shows how the TDM aligns with Auckland's plans and policies, providing the delivery pathway to ensure that all projects or private developments will meet the agreed objectives of AT.
23. The Manual has been developed internally and governed by various technical working group reporting to a Steering Group. The TDM has been subject to internal consultation and feedback from the Council, Mana Whenua, New Zealand Transport Agency (NZTA) and other key stakeholders and has been further refined as a result.

Background

24. The TDM contains three sections:
    a. Design guidance, which includes the design guides, such as the Urban Street & Road Design Guide, Waitakere Ranges Design Guide, Local Paths Design Guide with a further 4 identified for future development. The purpose of the design guides is to lay out the design principles, approach to safe design, user requirements and speed / vehicle controls that may be required. The guides act as the overarching principles that direct the Engineering Design Code.
    b. Engineering Design Code contains the detailed technical and engineering requirements, such as minimum standards, considerations and drawings required to undertake accurate and detailed designs based on a component approach for facilities. This section will direct the engineers in refining the details and ensuring a minimum level of consistency in the design outcome.
    c. Detailed specifications for the supply and construction of materials and products whose purpose is to ensure that the construction of the new or upgraded assets are going to achieve the longevity and performance defined by the Asset Management Plans. The specifications will also aid ATs construction partners in pricing and reduce the variability in tenders.
25. The existing ATCOP will be replaced by the TDM's Engineering Design Code after a period of 6 months during which the Engineering Design Code will be considered as a working draft for industry engagement and use.
26. Included in Attachment 2 is the Urban Street and Road Design Guide contents page which is part of Section 1 of the Transport Design Manual. Section 2 and 3 are very detailed technical documents including drawings and specifications.
27. Attachment 3 describes the overall document structure, a defined purpose for each document within the TDM and their expected development year.

External Consultation/Engagement

28. Consultation on the TDM was undertaken alongside the Roads and Streets Framework consultation from September 2016 to August 2017.

29. The Council, mana whenua and key stakeholders have provided a strong level of overall support for the TDM. The broad themes emerging from their feedback are presented below:

    a. The Council and wider Council family were pleased that the TDM reflected people and place aspirations better and would enable a cultural shift in how AT would design and deliver transport projects to support these aspirations.

    b. Cycling, walking and disability advocates supported the elevation of people / place considerations, better guidance for developers and that the integrated strategic approach clarified place and modal priorities better.

    c. NZTA supports the documents in that they clearly provide guidance around the requirements for transport users and the engineering requirements to achieve those outcomes. NZTA are looking at adopting elements of the TDM to support their own delivery objectives.

    d. Mana whenua support the inclusion of Te Aranga principles / core Maori values and the focus on local solutions. Better management of storm water quality is a particular focus for Mana Whenua.

    e. The Freight / Heavy haulage support the improved engineering requirements to achieve their movement requirements without damaging their or the assets that are managed by AT.

    f. Civil engineering, planning / design contractors believe that the TDM will provide more project certainty upfront, strengthen links to Council / Local Board plans, and potentially support developers to improve project time / certainty. They suggested an industry user group to test / improve application of these documents over time.

    g. Emergency services support the improved clarity around when to apply various engineering requirements to support their movement, with the Police in particular appreciating the speed control elements to improve the transport corridor environment as a whole.

Issues and options

30. AT has adopted several different changes to the prevailing standards for the design of transport infrastructure in New Zealand when compared to previous district standards as well as the current ATCOP.

Design-led focus versus minimum prescriptive standards for asset design

31. The TDM has been based around international best practice approaches aligned to New Zealand rules. This introduces the Design Guide approach above the specific Engineering Design Codes and Specifications. The Design Guides introduce design concepts and principles to support designers and engineers to achieve improved outcomes rather than focus on a minimum standard requirements approach and the use of specifications in isolation.

32. The TDM is structured to provide a design-led approach through design guides, in addition to the detailed engineering requirements contained in the codes and specifications. This is a change in emphasis from the current ATCOP that provides a more black-and-white minimum

prescribed standard approach to asset design. The intention is for third parties, and AT's own project designers, to take a design-led approach to maximise place and movement outcomes relative to different project and local environmental considerations, rather than take a minimum one-solution fits all approach as at present. This is likely to require AT to be more actively involved with asset and infrastructure designers earlier in the design and consenting process, rather than wait for a tick-box review of resource consent applications (currently managed and approved by Auckland Council). This will require AT to work more closely with Council to adopt improved resource consenting engagement processes and take a medium to long-term view of industry engagement change.

33. The change in structure of the TDM and a design-led approach with third parties may attract negative response from parts of the industry and stakeholders. Auckland Council is seeking a separation of the Design Guides from the Engineering Design Code with a focus on absolute minimum requirements for compliance under the consenting and regulatory frameworks for developments. AT does not support a minimum standard approach without design context but is committed to supporting Council with training and regulations.
34. This conversation with Council has already delayed the launch of the TDM. It is continuing and has the potential to delay further the launch of the TDM. AT is recommending a 6-month soft launch of the TDM to facilitate resolution of this issue and seek feedback from stakeholders and industry.
35. AT has already commenced with Auckland Council a review of the transport asset consenting processes between the two organisations. It is expected that publication of the TDM will create a greater urgency for this review.
36. Consenting resources in AT are already stretched and greater resource is likely to be required to support existing processes and enhance the quality through the new TDM design-led philosophy for consenting.
37. As part of the transport asset consenting review, it may be appropriate for the transfer of responsibility from Council to AT for transport asset consent approvals.
38. Due to the evolution of standards and the design led approach, infrastructure design solutions can vary. For example, the design-led solution with the community of the Franklin road cycleway will be different to the base standards in the Engineering Design Code and specifications.
39. This is acceptable and a normal approach in a design-led environment, reflecting greater use of permitted exceptions and departures from the standards. This reflects a design-led balance across transport, place, local environment and community objectives.
40. As there is no legally binding approach to enforcing asset infrastructure design standards, other than through resource consenting, TDM will apply to new and upgraded assets and does not need to applied retrospectively to existing assets.

Vision Zero

41. Vision Zero has been reflected as a guiding approach within the Urban Street and Road Design Guide and is key to the design of safe outcomes throughout the entire TDM. Vision Zero takes a design and systems led approach, making black and white regulatory compliance also difficult.
42. There is a risk of negative response from some stakeholders on AT's emphasis in the TDM on a Vision Zero approach.

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Transport corridor balance between use for place and movement

43. The TDM has been developed as a complementary document to the existing RASF. The TDM is informed by the RASF in providing the design guidance, engineering design codes and technical specifications to enable new and upgraded transport assets to deliver successful outcomes that meet the objectives of AT.
44. The TDM reflects a greater balance for streets and roads design and resultant space utilisation, between place making and liveability compared with movement for transport purposes. It places greater emphasis than the current ATCOP on healthy streets principals including greater space utilisation for public transport and active modes and contribution towards place making that the transport corridors can make.
45. The TDM also provides a new focus on balancing private vehicle road use with multi-modal use across private vehicles, public transport, micro-mobility and active modes.
46. Enhanced focus on the development of neighbourhoods through the use of healthy street approaches, change of approach to design to enhance and protect active modes and their inclusion in the design process and increased emphasis that corridors can be multi-modal and should protect the most vulnerable users at points of conflict, and reduced roadway widths to manage speed and impermeable area.
47. While these areas of refocus are in line with AT strategy, there is a two-fold risk of negative response from parts of industry and communities to a perceived over-empahsis on these topics. Stakeholders that do not wish to see a greater balance and perhaps renewed focus on private vehicles may respond negatively, which may be fuelled by positive feedback from stakeholders that support the approach proposed by the TDM.
48. Some of the risks above are considered to be perceived risks by external users, politicians and stakeholders. For example, the next guide to be developed, Rural Roads and Streets Design Guide, will emphasise rural road safety outcomes in a more traditional road design way and focus less on active modes and multimodal corridors.

Next steps

49. At the time of writing, a presentation to the Auckland Council Planning Committee is being sought to provide an update since the last attendance midway through 2017.
50. Following noting by the Board, documents will be made available on the AT website towards the end of July 2019.
51. The TDM including Design Guides, Engineering Design Code and technical specifications developed will remain as working drafts for a period of 6 months after which industry feedback shall be incorporated and then the specific technical document released as final. During this period, ATCoP will remain in place.
52. Training will be rolled out for practitioners, focussing initially on internal AT staff, the Council family and NZPI / ENZ consultants who do work for developers via Communities of Practice and other forums.

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Attachments

Attachment Number	Description
1	Auckland strategic context for the Transport Design Manual (TDM)
2	TDM Urban Street and Road Design Guide Contents pages
3	TDM Structure, documents and proposed delivery dates
4	The Design Guides to be published in July are available in **Boardbooks** under the **Resource Centre**.

Document ownership

Submitted by	Chris Beasley **Design Strategy and Standards Lead**	
Recommended by	Michael O'Halloran **Acting Chief Engineer**	
Recommended by	Mark Lambert **Executive General Manager Integrated Networks**	
Approved for submission	Shane Ellison **Chief Executive**	

Glossary

Acronym	Description
AT	Auckland Transport
ENZ	Engineering New Zealand
NACTO	National Association of City Transportation Officials
NZTA	New Zealand Transport Agency

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NZPI	New Zealand Planning Institute
TDM	Transport Design Manual

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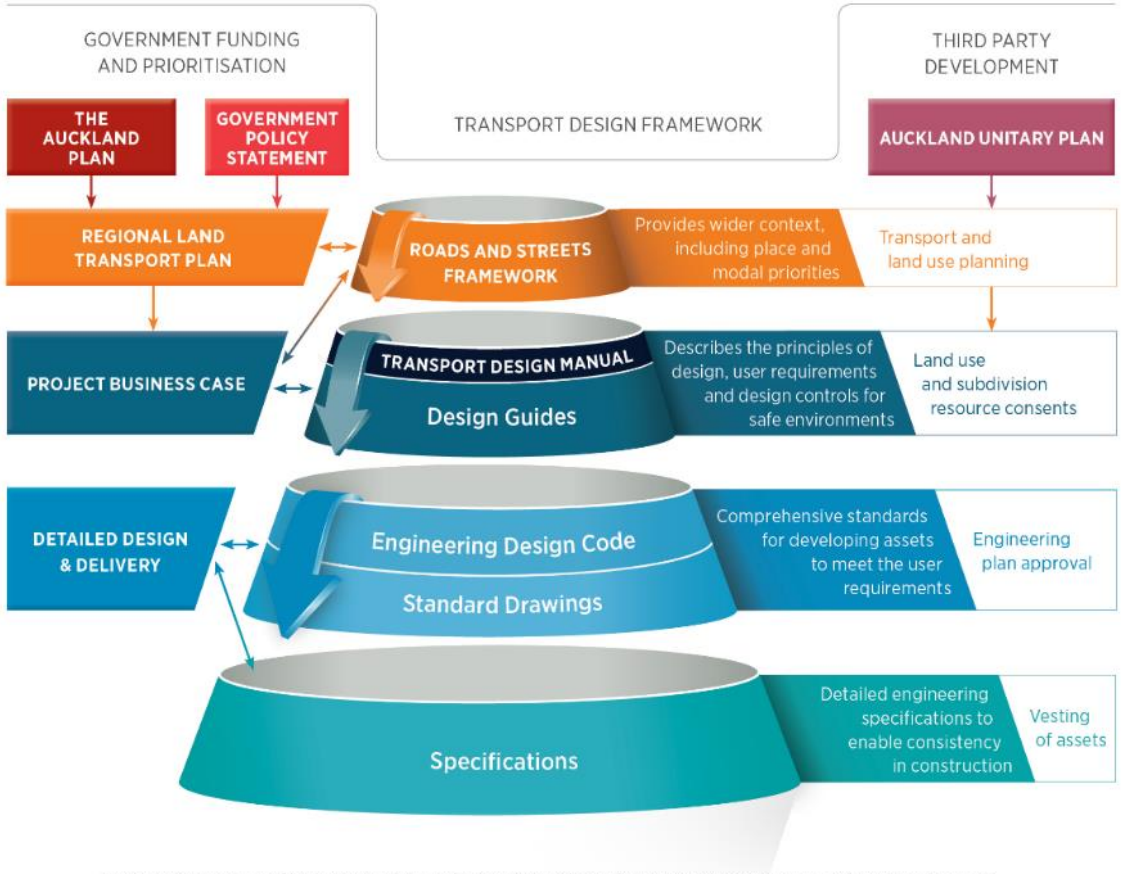
Attachment 1

Auckland strategic context for the Transport Design Manual (TDM)



Better incorporation of high-level policy and strategic guidance from central government and Auckland Council, applied through the RASF, enables greater realisation of the vision for the city as set out in the Auckland Plan.

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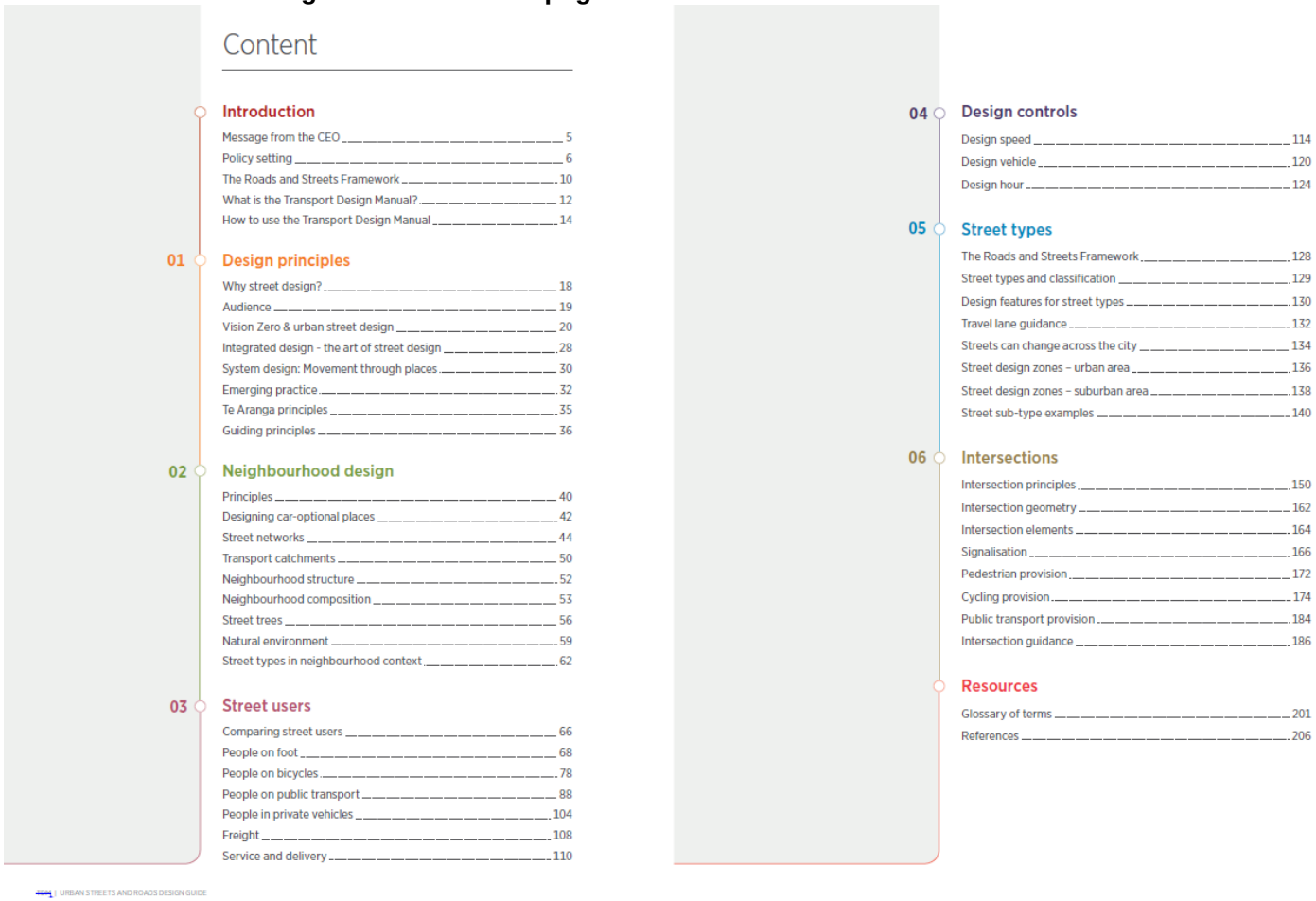
Attachment 2
TDM Urban Street and Road Design Guide Contents pages



Content

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Attachment 3
TDM Structure, documents and proposed delivery dates

Title	Purpose	Release July 2019	2019/20	2020/21
Section 1: Design Guidance – bridging the gap between strategy and implementation				
Urban Street & Road Design Guide	Guide the development of urban roads and streets and the facilities for the 6 user types. Base urban document.	✓		
Rural Road & Street Design Guide	Describes how to blend rural and peri-urban environments as urban expansion occurs, safe high-speed road guidance, detail what users should be catered for in design and what is needed for them. Base rural document		✓	
Local Path Design Guide	Supplements the main Street Design Guide with guidance around greenway design and local street management	✓		
Waitakere Ranges Design Guide	Document to provide local and specific material and look/feel to the ranges area in order to comply with the ranges heritage act. Acts as an overlay document	✓		
Wayfinding and Signs Design Guide	Guiding requirements for look and feel for signs and wayfinding systems installed by AT	✓		
Hauraki Gulf Islands Design Guide	Document to provide local and specific material design to the gulf islands. Acts as an overlay to the two base documents		✓	
PT interchange Design Guide	Ergonomic design of PT interchanges based around user experience and retail integration.			✓

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Attachment 3
TDM Structure, documents and proposed delivery dates

Title	Purpose	Release July 2019	2019/20	2020/21
Section 2: Engineering Design Code – Engineering design requirements for the components identified by the design guides				
Urban & Rural Roadways	Engineering requirements for designing roadways (carriageways) in rural and urban environments. Covers AT design vehicles, tracking, and basic intersection design	✓		
Pedestrian Facilities & Public Realm	Designing footpaths in both urban and rural areas, minimum widths based on ped flow, facilities to cross the roadway and amenity objects placed in the pedestrian realm	✓		
Cycle Infrastructure	Design of small number of approved cycle facilities and the engineering parameters such as differential speeds, overtaking, visibility. Includes the cycle parking facilities	✓		
Traffic Calming	Implementation of speed and volume management devices such as speed humps, tables, horizontal chicanes etc. Covers speed and volume requirements to ensure speed design is achieved.	✓		
Parking	Covers the parking requirements for various modes. Currently covers vehicle parking, bike parking and P&R's	✓		
Road & Street Lighting	Design and engineering requirements for street light provision in accordance with NZS1158	✓		
Pavements & Surfacing's	Acceptable surface materials and pavements for use on the network. Minimum parameters for design and includes a base set of pavement designs developed from the RASF typologies.	✓		
Roadway Drainage & Surface Water Control	Appropriate drainage design for roads and streets based on Councils storm water code. Contains an approved approach to water sensitive design	✓		
Public Transport - Bus Infrastructure	Design of facilities required for bus services to operate on the network. Based on the need to get customers on and off the buses.	✓		
Public Transport - Rail Infrastructure	Design of rail stations and facilities in the stations.	✓		
Public Transport - Ferry Infrastructure	Design of facilities for ferry services to occur. Does not cover pier or wharf design or structural elements.	✓		
Structural Engineering	Sets the minimum requirements for structural design and document hierarchy. Covers small structures, to large structures and marine structures.		✓	
Intersections	Detailed requirements for approved all ages and abilities intersections. Intended to contain design parameters for comprehensive roundabout design and signal design.		✓	

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Attachment 3
TDM Structure, documents and proposed delivery dates

Title	Purpose	Release July 2019	2019/20	2020/21
Section 3: Infrastructure Specifications				
Series 100: Supply and Construction of Temporary Works	Detailed material and construction specifications for temporary works such as scaffolding, site huts etc.	✓		
Series 0200 – Temporary Traffic Management	Not yet started			
Series 0300 – Environmental Controls	Not yet started			
Series 0400 – Site Investigation	Not yet started			
Series 0500 – Site Clearance & Demolition	Not yet started			
Series 0600 – Geotechnical & Other Specialist Processes	Not yet started			
Series 0700 – Excavation & Filling	Not yet started			
Series 0800 – Tunnels & Shafts	Not yet started			
Series 0900 – Dredging	Not yet started			
Series 1000 – Piling	Not yet started			
Series 1100 – Retaining Walls	Not yet started			
Series 1200 – Drainage & Service Ducts	Not yet started			
Series 1300 – Water Services	Not yet started			
Series 1350 – Sewer & Watermain Renovation & Ancillary Works	Not yet started			
Series 1400 – Kerbs & Channel	Not yet started			
Series 1500 – Pavements	Supply and the construction of aggregates used in road pavement construction. Comprehensive environment and performance parameters are detailed including synthetic and recycled products.	✓		

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Attachment 3
TDM Structure, documents and proposed delivery dates

Title	Purpose	Release July 2019	2019/20	2020/21
Series 1600 – Footpaths and Paved Areas	Not yet started			
Series 1700 – Structural Concrete	Not yet started			
Series 1800 – Structural Steelwork	Not yet started			
Series 1900 – Protection of Steelwork against Corrosion	Not yet started			
Series 2000 – Brickwork, Blockwork and Stonework	Not yet started			
Series 2100 – Timber	Not yet started			
Series 2200 – Ancillary Bridge Works	Not yet started			
Series 2300 – Rail	Not yet started			
Series 2400 – Special Structures	Not yet started			
Series 2500 – Waterproofing to Structures	Not yet started			
Series 2600 – Traffic Signs & Road Markings	Not yet started			
Series 2700 – Traffic Signals	Not yet started			
Series 2800 – Communications	Not yet started			
Series 2900 – Lighting, CCTV & Electrical Works	Not yet started			
Series 3000 – Safety Barriers	Not yet started			
Series 3100 – Fencing	Not yet started			
Series 3200 – Landscape & Ecology	Not yet started			
Series 3300 – Painting	Not yet started			
Series 3400 – Miscellaneous Works	Not yet started			
Series 3500 – Minor Building Works	Not yet started			
Series 3600 – Accommodation Works	Not yet started			