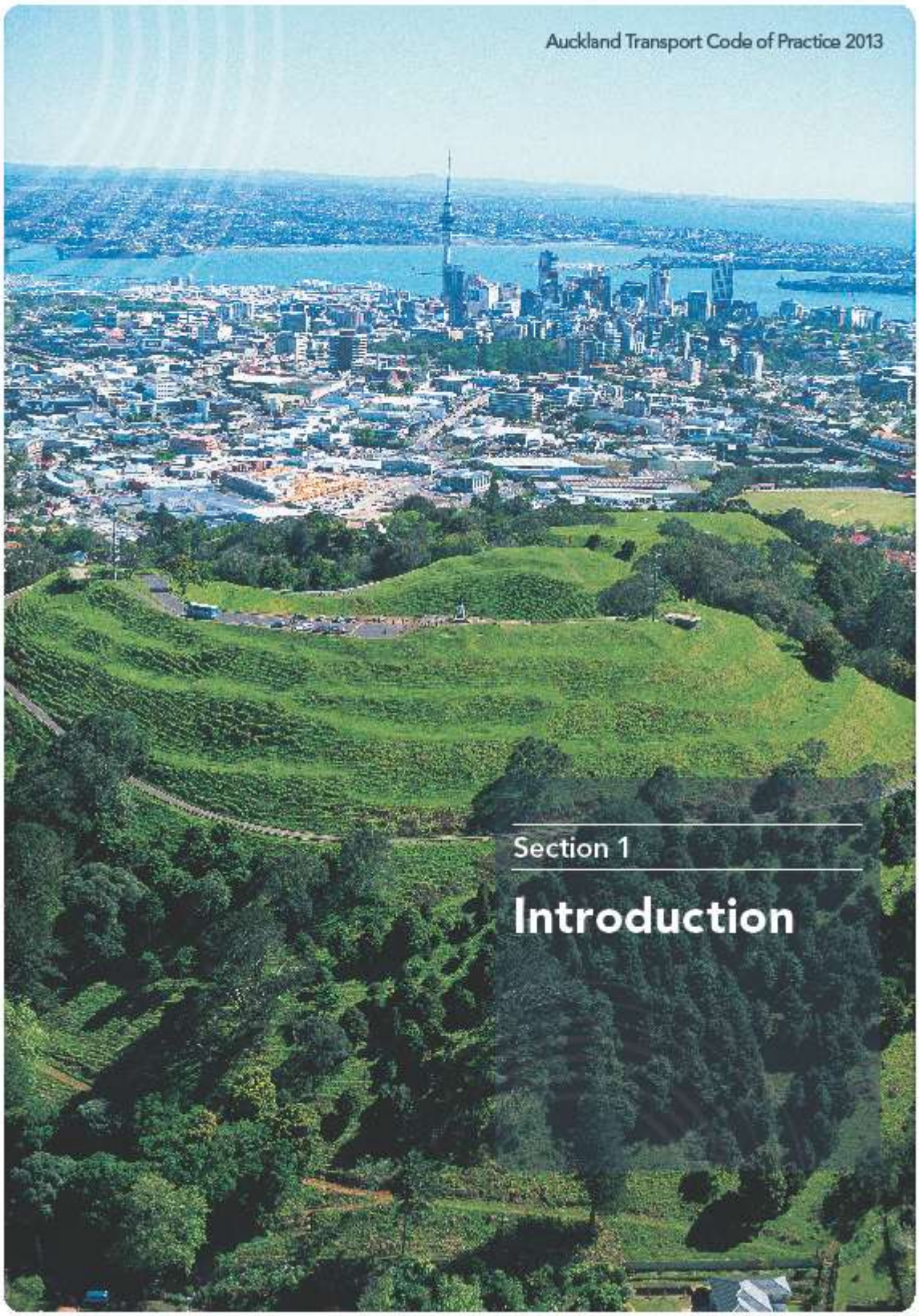

Section 1

Introduction

1 Introduction

1.1 What is ATCOP?

The Auckland Transport Code of Practice (ATCOP) for design and construction of transport infrastructure is intended for use by developers, contractors, consultants, service/utility operators, design engineers, planners, project managers and others who design and install transport facilities and services in Auckland.

ATCOP provides quality standards to ensure that the function, condition and useful service life of transport assets is consistently achieved across the region. The processes, standards and details articulated in ATCOP reflect the importance of a considered approach to the development, construction and care of the region's transport system, with robust engineering details, quality standards, defined layouts, whole-of-life design, value for money and robust construction across the entire network.

ATCOP applies to all new transport infrastructure and upgrades to existing infrastructure, including new subdivision development.

ATCOP was compiled from a comparative review of previous regional engineering standards, together with relevant national and international standards, current best practice and innovative improvements. ATCOP replaces the previous legacy councils' Engineering Infrastructure Design Standards and covers the entire Auckland region spanning all areas of transport including but not limited to: transport planning, road classifications, road elements and layouts, signs, road marking, parking, public transport, pedestrian and cycling facilities, earthworks, landscaping, structures, street amenity, lighting, access, maintenance, traffic management, vesting of assets.

Public transport facility, rail, bus and taxi, with safe vehicle and pedestrian links, stormwater management, signs, markings and other infrastructure shown at the major destination of Henderson

To ensure that ATCOP remains relevant, it will be formally reviewed and updated at intervals.

1.2 Who ATCOP is for

ATCOP is directed to those who plan, design, construct, operate and maintain infrastructure in the transport corridors and transport facilities across Auckland. It may also be of interest to users of these environments.

ATCOP covers a wide range of related issues and it is recommended that all sections be read together to understand the story of how Auckland Transport expects transport infrastructure to be developed in future. A good design will represent a balanced approach resolving safety, efficiency, amenity, sustainability and land-use issues through creative and innovative solutions.

1.3 ATCOP's Integrated Transport Planning Approach

The development of ATCOP has provided an exciting opportunity to create strong links between transport, land-use and sustainability. The safe movement of people through our streets is a crucial function that requires considered provision for all road users and travel modes.

New Lynn Station, an example of a multi-modal transport interchange catering for rail, bus, car, cycle and walking modes

In some areas such as town centres, a higher level of consideration, priority and provision of space will be given to pedestrians, while in other situations this will not apply to the same extent.

ATCOP considers both the ‘place’ and the ‘movement’ function of streets and recognises that walking at the beginning and the end of journeys are integral parts of any trip to and from destinations.

Shared zones in the city centre prioritise the ‘place’ function and pedestrian movement over vehicular movement, while catering for all movements and place use.

ATCOP recognises that a street’s nature can change as it traverses the landscape from the rural landscapes to suburban homes to urban commercial areas of shops and services. The concept of ‘place and movement’ discussed in Chapter 2, explains how the nature of streets can vary along their length.

Linking the place functions and destinations with the movement function of a road is an objective for new public transport routes through the region. The Regional Public Transport Plan provides Auckland with an exciting way to link public transport modes together to increase their efficiency and patronage while creating safe and uncongested dedicated corridors for the movement of people. Public Transport will play an increasingly important role as Auckland grows and intensifies, and will provide resilience to oil price increases by creating an alternative system by which people can move efficiently about the city.

Integration is key to the successful creation of a more compact Auckland and ATCOP seeks to provide a wider range of sustainable transportation solutions that are seamlessly linked, safe, convenient and economically competitive.

Public transport infrastructure placed to support a major destination e.g. Auckland University, Symonds Street

Achieving better transport outcomes must include a strong commitment to sustainability. This commitment will include a holistic understanding of how we will deliver a truly integrated multi-modal transportation system. Strong delivery criteria will be implemented to ensure that design, construction and maintenance processes enhance potential positive impacts of transport projects, especially for vulnerable road users and enhance the built & natural environment as part of good practice.

The modal considerations for Auckland will reflect this shift in thinking and Auckland's transportation network, especially in the more intensified areas will be one which:

- Relies increasingly on 'people' power and not just 'motor' power;
- Provides a network of streets which recognises that all streets have both 'place' and 'movement' functions which may vary along their lengths;
- Provides excellent levels of public transport and connectivity between services;
- Offers choices between many different modes of transportation; and
- Delivers an accessible, affordable, integrated, safe, responsive and sustainable transport network for all people.

The following 'modal hierarchy considerations diagram' reflects the status of walking as an integral and extremely important component of the transport network. This does not mean that the needs and wants of pedestrians are always prioritised above other road users, but they should be the default priority if in doubt.

Figure 1: Modal Hierarchy Considerations Diagram

There will be situations where the needs of other modes should prevail over the needs of pedestrians, but the new hierarchy will ensure that the needs of pedestrians will always be considered in all of our transport projects irrespective of their size and/or importance within the overall network.

1.4 Road Safety

Auckland has adopted the national Safe System approach to improving road safety through Safe Roads & Roadsides, Safe Speeds, Safe Vehicles and Safe Road Users. This also reflects an integrated approach where road system designers (planners, engineers, urban designers, policy makers, educators, enforcement officers, vehicle importers, suppliers, utility providers, insurers) and road users (drivers, passengers, motorcyclists, pedestrians, cyclists) all share responsibility for managing crash forces to a level that does not result in death or serious injury.

Auckland Transport uses a combination of crash risk-rating and infrastructure star-rating methods to determine the locations and routes where fatal and serious injury crashes are

more likely to occur for different road user groups. Through Safety Impact Assessments, Road Safety Audits and Road User Audits improvements are recommended.

A considered, integrated approach to the design of pedestrian and cycling facilities is required to address safety concerns related to these sustainable transport modes and to encourage their increased use. Speed management is a critical component within this integrated design approach and can produce a variety of health and safety relief benefits.

1.5 Design Standards and Policies

ATCOP is a best practice / guidance document to aid developers, AT project managers and members of the public when designing and building transport infrastructure in the Auckland region. It is a collection of rules, requirements, design guidelines, standards and specifications to complement existing design practices.

ATCOP is designed to deliver the expectations of the Auckland Plan for transport infrastructure. The Auckland Plan sets the direction for Auckland for the next 30 years

ATCOP has been designed to work alongside Auckland Council's 'Auckland Design Manual' (ADM). The ADM is an urban design based approach that provides design guidance to support the delivery of the Auckland Plan and the Auckland Unitary Plan.

ATCOP and the ADM view all road areas within the region as having place and movement function, with the lower category roads and nodes of high pedestrian use focusing more on the place function. ATCOP and the ADM cover specific areas of design guidance which overlap at the private/public realm boundaries and if followed when working in the road corridor or private areas, ensure that a fully considered design approach occurs.

ATCOP draws technical information and guidance from a number of existing design standards.

The following standards are referred to in ATCOP and are considered acceptable for use when designing transport assets in Auckland:

- AASHTO – Roadside Design Guide, 4th Edition 2011
- AS/NZS 1158: Lighting for roads and public spaces
- AS/NZS 1428.4.1: (or latest edition) – Design for Access and Mobility – means to assist the orientation of people with vision impairment – Tactile Ground Surface Indicators
- AS/NZS 3845:1999 Road Safety Barrier Systems
- AS/NZS 4586: (or latest edition) – Slip resistance classification of new pedestrian surface materials
- Austroads – Guide to Bridge Technology
- Austroads – Guide to Pavement Technology
- Austroads – Guide to Road Design
- Austroads – Guide to Road Safety
- Austroads – Guide to Traffic Management
- Austroads – Cycling aspects of Austroads guide and NZ supplement to Austroads guide to Traffic Engineering Practice Part 14: Bicycles

- Compliance Document for New Zealand Building Code, Clause F4, Safety from Falling – Third Edition, Prepared by the Department of Building and Housing
- NCHRP Report 350 - Recommended Procedures for the Safety Performance Evaluation of Highway Features, National Cooperative Highway Research Program, Transportation Research Board National Research Council, 1993
- New Zealand Urban Design Protocol, Ministry of Environment
- NZS 3116: Concrete Segmental Paving
- NZS 4121, Design for Access and Mobility, particularly, Footpaths, Ramps and Landings, Accessible Outdoor Public Areas
- NZS 4404:2010 – Land Development and Subdivision Infrastructure
- NZS 6806:2010 "Acoustics - Road traffic noise - New and altered roads
- NZTA - Geometric Design Manual, Section 17- Roadside Features
- NZTA - Bridge Design Manual, Section B – Bridge Side Protection
- NZTA - M23 – Specifications for Road Barrier Systems
- NZTA - M23 - Notes on Specifications
- NZTA - M23A - Approved Road Safety Barrier Systems
- NZTA - Maintenance Specification 17: Barrier Repairs
- NZTA - RTS 11 - Urban Roadside Barriers and Alternative Treatments
- NZTA - TCD Rule, TCD Manual and Guidelines
- NZTA - Pedestrian Planning and Design Guide
- NZTA – RTS 14 – Guidelines for facilities for blind and vision-impaired pedestrians 2nd edition 2007 (or subsequent latest edition)
- NZTA - Manual of Traffic Signs and Markings (MOTSAM) or applicable TCD Manual replacement parts/sections thereof [Signs for Shared Paths in particular]
- NZTA - Specification – P/3 First Coat Sealing
- NZTA - Draft Specification – M/10 Draft Specification for Dense-Graded, Stone Mastic and Fine Graded Asphalt Paving Materials
- NZTA - Specification – P/11 Open Graded Porous Asphalt
- NZTA / RNZ – Chip sealing in New Zealand
- NZTA – New Zealand Supplement to Austroads
- NZTA – Economic Evaluation Manual
- Roading New Zealand – RNZ 9806 Specification for Slurry Surfacing's

In the event of a conflict between any recognised reference document and ATCOP

ATCOP takes precedence.

1.6 Governing Principle Guidelines behind engineering infrastructure design standards

Engineering standards and design details require local policies and principles to be in place and adopted that define the extent of choices that a Code of Practice can define. The Asset Management Department within Auckland Transport has developed a series of 'Guidelines' that are to be used in conjunction with the technical standards presented in ATCOP. To ensure consistency and to reinforce this, each chapter, where applicable, has been set up in to three distinct sections: Governing Principle Guidelines (or 'Policies') that are applicable to

that chapter, the Technical Guidance itself and thirdly any relevant Standard Drawings / Specifications.

The Auckland Transport Governing Principle Guidelines define the reasonable extents that Auckland Transport will accept for infrastructure assets designed by Auckland Transport departments or to be vested to Auckland Transport from private bodies. These guidelines may be updated from time to time to reflect current industry practices and movement in technology.

1.7 Maintenance and whole life costs

The consequence of design choice extends far beyond the initial capital outlay of the design and construction of the asset to the maintenance and replacement of the asset at the end of its usable life.

When a project has been completed it needs to be handed over to the local asset manager with real narrative about why the asset was created in its built form, the reason for the design choices and materials selected.

It is important that Asset Handover documentation is included with any completed asset both private and publicly funded to ensure that the local asset manager has a complete picture of the requirements for future maintenance and renewal, or how to dispose of the asset should this be necessary. Asset Handover documentation could consist of the following series of reports:

- Design Philosophy Statement;
- Design Report;
- Stormwater Report;
- Asset Owner's Manual.
- Maintenance Schedule.
- Renewal Schedule.
- Material report with indicative associated future purchase costs (inflation tracked).
- Quality Control Statement.
- Environmental Statement.
- As-Built Drawings.

The list is not exhaustive and other management plans or reports may be required for more complex assets.

When considering the whole life of the asset, it is important to consider the whole of life cost.

Sometimes what can be seen as a reasonable capital outlay could have considerable operational costs that are not visible to the designers until the asset has been in operation for some time. This is why asset owners need representation throughout the design process. It is imperative that an Asset Management Report is submitted for all new assets, as indicated above, that describes the function of the asset, design philosophy statements, urban design statements and the expected costs of the asset over its operational life. This allows the asset manager to programme maintenance and renewals of the asset more accurately and monitor levels of degradation compared to design.

ATCOP Chapter 24 Vesting of Assets and Asset Data has further information on the transfer of assets to Auckland Transport.

1.8 Noise Management

Auckland Council is developing noise rules for the Unitary Plan. Auckland Transport will integrate with these rules where applicable when a draft is ready and these rules will be included in ATCOP. In the interim, the rules in the current District Plans will prevail.

1.9 Design Process and Design requirements for documents submitted and departures from standards

Design Process

Table 1 describes (at a high level) the optimal seven stage process for designing and altering existing infrastructure in the Auckland Region. Depending on the complexity of the scheme, the process may need to be tailored to suit.

Consultation with the Public is not a single discrete stage. Consultation should take place at appropriate points in the process taking into account any requirements from Auckland Transport, Auckland Council and the NZTA.

Table 1: Design Process

Key Stages	Key Activity	Responsibility	Large Subdivision	Small Subdivision	Alteration to Existing Roads
1. Policy Review	Review relevant regional and local policy context	*Design Team*	✓	✓	✓
	Review AT Integrated Transport Programme	*Design Team*	✓		✓
	Review Auckland Design Manual for Urban Design Strategy	*Design Team*	✓	✓	✓
	Review any other Street Design guidance additional to that contained in the Auckland Plan and the Auckland Unitary Plan	*Design Team*	✓	✓	✓
2. Objective Brief	Prepare Development Brief / Scope of Works	*Design Team / Auckland Council / Auckland Transport*	✓		✓
	Agree objectives and desired outcomes	*Project Control Group*	✓	✓	✓
3. Design	Carry out a context appraisal	*Design Team*	✓	✓	✓
	Undertake initial design studies	*Design Team*	✓	✓	✓
	Prepare outline masterplan or scheme assessment, including safety impact assessment	*Design Team*	✓	✓	✓
	Develop preliminary design	*Design Team*	✓	✓	✓
	Produce detailed masterplan or design and seek technical approval	*Design Team*	✓	✓	✓
4.Design Audits	Review e.g. CPTED, IPTED and relevant	*Prepared by Design Team and reviewed /*	✓	✓	✓

Key Stages	Key Activity	Responsibility	Large Subdivision	Small Subdivision	Alteration to Existing Roads
	Safety Audits completed at the various stages	*accepted by Auckland Council / Auckland Transport*			
5. Resource Consent	Prepare resource consent application	*Prepared by the Design Team for approval by Auckland Council in consultation with Auckland Transport*	✓	✓	✓
	Lodge Resource Consents		✓	✓	✓
6. Implementation	Outstanding detailed design and technical approvals	*Prepared by Design Team and reviewed / accepted by Auckland Transport*	✓	✓	✓
	Construction	*Promoter*	✓	✓	
7. Monitoring	Vesting of Asset	*Auckland Council / Auckland Transport*	✓		
	Travel Plans	*Promoter*			✓

New designs and alterations to the existing road network should generally be consistent with regional and local policies created and enacted by Auckland Council / Auckland Transport.

A Process Manual outlining relevant details regarding applications/submissions to Auckland Transport and its department(s) and/or units responsible for the relevant processing and decision-making will be compiled and made available in the future.

Standard design requirements

Proposals and designs must be in accordance with the requirements of ATCOP.

All drawings must be in accordance with AT's CAD Drawing Guidelines (PDF 193KB). The purpose of these guidelines is to ensure that all drawings received by Auckland Transport for review and comment are consistent with drawings and designs developed internally.

The Auckland Transport Standard CAD Template will be made available on the Auckland Transport Website in due course.

Road Safety Audits

Prior to submitting Engineering Plans the designers / Project Management Team must have undertaken at least a Stage 3 'Detailed Design' Safety Audit completed in accordance with the current version of the NZTA's Road Safety Audit Procedures for Projects. The audit must be completed by an approved auditor.

Any issues rated as 'Serious' must be rectified prior to submitting Engineering Plans unless it can be demonstrated that suitable mitigation is in place. Items rated important will be evaluated and considered for inclusion with consent conditions. The final decision rests with

Auckland Transport for any safety issues raised that lie within, or impact upon, the road reserve.

A Stage 4 'Post Construction' audit must also be completed by an approved auditor prior to new infrastructure being vested to and accepted by Auckland Transport. Any issues rated as 'Serious' must be rectified. The final decision will lie with Auckland Transport for any safety issues raised that lie within, or impact upon, the road reserve.

Approval of the submitted design

When Auckland Transport is satisfied that a submitted design is of suitable quality, or in the case of any alternative designs or methodologies – that these meet the requirements laid out in ATCOP, Auckland Transport will notify the applicant that the design is approved and will endorse any plans, specifications and any other submitted documents. For the purpose of this approval, Auckland Transport may require the applicant to make changes to any submitted plan, specification or other documents and to submit further information as requested.

Departures from design standards

Refer the *ATCOP Chapter 3 Innovation and to Section 3.5 Case specific departures from design standards* for further information on departures from the normal region wide design standards.

Auckland Transport management documents:

The following documents have been developed by Auckland Transport to manage the network of infrastructure owned by Auckland Council. While these documents are not related to design guidance, they are important reference documents that must be used when progressing through the design process. They can be accessed via their embedded hyperlinks, as follows:

- Integrated Transport Programme (ITP) (PDF 8.9MB) - refer to *ATCOP Chapter 2 section 2.3 Transport response to Auckland Plan* for more details on the ITP
- Regional Public Transport Plan (RPTP) - this will be made available on the AT Website when finalised
- Corridor Management Plans (CMPs) – refer to *ATCOP Chapter 2 section 2.5.2* for more details on CMPs
- Asset Management Framework (PDF 1.8MB)
- Levels of Service Framework (PDF 301KB)
- Strategic Context (PDF 1MB)
- Overview (PDF 3MB)
- Road Network (PDF 12MB)
- Public Transport Network (PDF 8MB)
- Regional Road Safety Plan

1.10 The Way Forward

The following chapters/sections of this document describe how AT intends to embrace the previously mentioned approaches and apply these learnings across the organisation. It is recognised that the launching of ATCOP marks the beginning of a journey and future

refinements of this document will include review of the sections against the results areas, particularly the sustainability key results areas and principles outlined in in section *ATCOP Chapter 2.7*.3. Feedback is welcomed towards further future refinements of ATCOP as lessons are learned. If we succeed, Auckland will move forward as a strong, sustainable, safe, people-friendly city that will be admired world-wide as an example of a city that successfully integrates land-use planning, transportation and sustainability to create a great place to live, work and play.