# Record of amendments

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<th>Description of change</th>
<th>Effective date</th>
<th>Updated by</th>
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<tr>
<td>Version 01</td>
<td>Initial Release</td>
<td>July 2012</td>
<td>Damien Grant</td>
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Foreword

Document Status

This document has the status of a reference document as defined in the NZ Transport Agency’s (NZTA) Process manual for network standards & guidelines.

The content is based on the Highways Group’s current practices and those developed in the past as Transit New Zealand from experience in managing the State highway network.
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Management System

Introduction

Certification

Quality and customer satisfaction are intrinsic to the success of any business.

The Highways & Network Operations (Highways) business group of the NZTA has required its suppliers to be quality assured since July 1997 and itself achieved certification, as Transit New Zealand, to ISO 9001 in December 1999 for project management of the State highway network. Certification to the ISO 9001:2008 version of the standard was achieved in December 2003.

Our policies and procedures are structured so that there is a high degree of confidence that quality will be delivered to our customers.

This manual, Highways & Network Operations Management System Manual (MSM), is a key document in maintaining the Highways ISO 9001 certification.
Management System

The culture of Highways is to regularly monitor and review the way we do our business to ensure that we do the right things right every time, and to help achieve our purpose for being here “Creating transport solutions for a thriving New Zealand”.

Our MSM is a high level manual that provides focus to and links our various procedures and processes into the system to deliver a quality service. The MSM is underpinned by the various technical manuals and procedures that set the quality standards and guidelines.

Thus the Highways quality system is described by the standards, guidelines, and reference documents with State Highway status listed in the NZTA’s register of network standards and guidelines held on the NZTA’s website, and the decision making frameworks detailed in Figure 1:

Figure 1: Highways quality system
Quality Policy

Quality Statement

Quality is central to the Highways operation as a successful manager of New Zealand’s State highways, with the principles of quality management embodied in all aspects of our business process, our goals, our mission, and vision.

We regard quality management and ISO 9001 as an essential approach to ensuring there are the right people, doing the right thing, at the right time. Highways provides the commitment, leadership, and support for quality, which enables a strong culture for quality and for innovation to develop.

In that regard the Highways quality principles are:

- Continual improvement
- Customer focus
- Process approach
- Systems approach
- Factual approach
- Supplier relationships
- Involvement with people
- Leadership

Highways interacts with a diverse range of suppliers and customers nationwide. Central to our relationships with them, is applying a consistent approach to how we communicate our requirements to suppliers and manage the expectations of our customers.

Through this commitment to ISO 9001, staff are able to engineer ‘best practices’ to meet the changing needs of our customers, which then become the new benchmarks upon which innovations can be made.

Colin Crampton
Group Manager
Highways & Network Operations
Quality Objectives

- Be able to demonstrate high levels of integrity in all our actions;
- Become trusted partner with key stakeholders;
- Be able to demonstrate that we have sound decision making and review processes.
- Be able to demonstrate that our people, processes, and structures consistently deliver on our strategy and demonstrate good value for money to the users of the road network; and
- Gain investor confidence that Highways runs a high performing business.
Exclusions Justifications

What is excluded

This manual provides information on the business operations of the Highways Group. It excludes the NZTA business operational processes that are owned by other parts of the organisation.

Control of monitoring and measuring equipment’ is not applicable to the company’s operations.
Highways & Network Operations Business Group

Summary of the NZ Transport Agency’s Role

The NZ Transport Agency (NZTA) was formed on 1 August 2008 from an amalgamation of two Crown entities, Land Transport New Zealand, and Transit New Zealand.

The NZTA’s statutory functions and objectives are defined in the:

- Land Transport Management Act 2003, as amended 2008;
- Government Roading Powers Act 1989 (formally known as the Transit New Zealand Act 1989); and

The NZTA’s obligations to its primary stakeholders are defined in:

- The NZTA’s Statement of Intent; and
- The NZTA’s Performance Agreement with the Minister of Transport.

The NZTA’s vision, mission, goals, and objectives are defined in the NZTA’s Strategic Plan.
Summary of the Highways Business Group Role

Highways & Network Operations (Highways) is responsible for the State highway network. Its job is to contribute to optimising the wider transport network by planning, operating, protecting, maintaining, and improving the State highway network.

State highways perform a vital national, inter-regional, and regional role in the transport network. State highways carry buses, trucks, cars, motorcyclists, walkers, and cyclists and connect cities, towns, ports, and tourist destinations. Our customer base is extensive and we operate adjacent to communities and traverse through sensitive and important parts of New Zealand.

Currently approximately $1.5Bn dollars is invested on the State Highway network annually, made up of $1Bn in improvements, $200m in renewals, and $300m in maintenance and operations.

Highways plan, managed and monitor our suppliers who develop and deliver services and products to operate, maintain and improve the State Highway network.

It is Highways accountability to ensure that the $1.5Bn invested annually is targeted to the right places, effectively and efficiently for the good of all New Zealanders.

It therefore makes sense that our strategy is about putting ‘Customers First’. For us it is about providing people with a State highway network that ensures efficient, enjoyable, and safe journeys.

For further information on our commitment to Customers please refer to Section 2 of the State Highway Asset Management Plan (SHAMP) located on OnRamp.

Strategy Map

Our ‘Customer First’ strategy is demonstrated in Figure 2.

Figure 2 Strategy Map
How Highways Operates

The NZTA’s Planning and Investment Group (P&I) purchases outcomes and outputs from Highways for the State highway network. Operational requirements are set out in the NZTA’s Planning, Programme & Funding Manual (PPFM). The PPFM requires Highways, as a road controlling authority, to administer the three year State highway programme, which in turn is managed by professional services consultants.

Highways procure the best consultants and contractors to undertake work on our behalf to operate, maintain and improve the State Highway network. Highways’ retains the client/owner role.

Highways has in place well developed and robust procedures for monitoring the performance of our suppliers and for rectifying areas of low performance.

These quality assurance processes are supported by significant pre-planning of our client capability, procurement methods, good supplier engagement and relationship meetings at a range of levels, and a firm display of integrity in everything we do.

Figure 3 illustrates how the Highways group operates.

Figure 3 Highways operations

Note that RPP Group has been renamed P&I Group in the NZTA business structure.
State Highway Asset Management Plan (SHAMP)

The State Highway Asset Management Plan (SHAMP):

- Describes the services offered to customers on the State Highway network
- Describes the programme of activities Highways will implement to deliver the impact sought by government on these services
- Provides a business case for the activities required to deliver those services

The SHAMP has a 10 year horizon, with a focus on the 2012/15 period. The SHAMP document can be found on NZTA’s internet.

State Highway Plan

The key purpose of the State Highway Plan is to communicate the NZTA’s state highway annual work programme.

It forms the detailed 1 year deliver plan that compliments the SHAMP.

The State Highway Plan can be found on NZTA’s internet.

The Planning Cycle

The State Highway Plan (SHP) defines the activities and projects intended to be delivered in the forth-coming year. Typically, it is a one-year snapshot of the 10-year programme and is accompanied by justification and information to support the financial request for annual funding.

The Annual Plan Instruction Manual (SM018) defines the process and procedures for compiling the NZTA’s annual SHP.

The planning cycle begins in September with the preparation and/or review of a draft 10 year State highway forecast, three year programme, and annual plan.

The Highways group presents the State Highway Plan to the Senior Leadership Team (SLT). The SLT then provides direction before the State Highway Plan is considered by the Investment and Operations Committee of the NZTA Board. Once the Committee makes its decisions then these are ratified by the Board.

This list of proposed activities is then released to Regional Land Transport Committees for inclusion in their Regional Land Transport Programme (RLTP). They then prioritise activities in their region, consult and develop RLTP’s which they need to submit to the NZTA for inclusion in the National Land Transport Programme.

This final programme may differ from the Highway’s proposed programme since the NZTA Board has the statutory authority to vary or amend the programme. This allows the Board to accommodate other aspects of the NLTP that fit with its need to take a whole of Transport Investment view. The approved programme is published as part of the NLTP and provides the formal basis for all State highway work undertaken during the following three years.
Management of the network

The approved State Highway Plan incorporates all aspects of Highways management of the State highway network including construction, maintenance, safety improvements, planning and design, property purchase and administration. Highways closely monitors all projects included in the approved plan and formally review progress each month.

As a road management agency Highways does not directly undertake physical works. Physical works are a professional consultancy services for State highways and are contracted out on a competitive basis. For some State highways some management functions are delegated to local authorities.

Highways assesses programme quality, which includes safety, quality, budget, programme and customer interface throughout construction. Our suppliers are required to have quality management systems, through which they deliver work to our required standards; they also provide regular monitoring reports to us.

Highways sets national standards for delivery and performance inclusive of scope and management that must be contractually complied with. We have a series of manuals that specify project management best practice, contractual requirements and detailed requirements for asset management, improvement, renewals, operations and maintenance.

Highways carry out Post-Implementation and Lessons Learnt Reviews that provide feedback once a project is completed. These allow us to feedback continuous improvement into other projects. We also regularly engage parallel peer reviewers and independent authorities to help us judge risks, issues and claims against contracts.

Procurement

Tender process

Our approach to procurement and contract award includes a number of quality assurance steps at critical points in the process. These have been designed, and refined over the years, to provide confidence that the procurement process followed is robust. These processes ensure the expertise of suitably qualified internal and external personnel is incorporated at key points, and includes documentation requirements to ensure good record keeping is maintained.

We require the suppliers to carry Professional Indemnity and Public Liability Insurance, or opt in to the NZTA’s Principal Arranged Insurance scheme which covers any defects or rework required to be completed.

The standard terms and conditions of the contracts have been developed between the NZTA and the various industry representative organisations which ensures general acceptance and consistency across the types of services we require.

Prequalification

Prequalification of physical works contractors is a joint NZTA / industry initiative aimed at streamlining the tendering process and reducing tendering costs. The Prequalification process consists of Contractors non-price attributes being evaluated over a range of quality criteria and then being registered to compete for specific types and sizes of work.

Contractors are monitored for compliance against their Prequalification level. The Contractor must perform to retain their existing Prequalification level. Any poor performance means they are moved to a lower level. Contractors can apply for a higher level at any stage.
Organisation and Structure

NZ Transport Agency

In order to achieve its objectives the NZ Transport Agency (NZTA) operates as a national organisation with a Wellington based National Office, six regional offices, and a number of sub-offices.

Business Groups

The NZTA’s National Office comprises of the following Business Groups:

- Strategy & Performance
- Planning & Investment
- Highway & Network Operations
- Access & Use
- Organisational Support
- People & Culture

Highways

The Highways business group operates with two business units located in National Office, and four regional business units located in:

- Auckland (including Whangarei)
- Hamilton
- Wellington
- Christchurch

And a further five sub-regional offices located in:

- Tauranga
- Napier
- Palmerston North
- Blenheim (Marlborough Roads)
- Dunedin

The Network Performance business unit tasked with getting the most out of our existing infrastructure and to ensure Highways operate a national business.

The Professional Services business unit providing a centralised pool of technical expertise tasked with ensuring Highways deliver products and services to the right quality whilst keeping an eye on the future.

Four regional business units plus a further five offices tasked with the following in their area:

- advising & supporting the Regional Director,
- managing stakeholder relationships delivery on the NLTP.

These offices are responsible for the implementation of State highway polices and day-to-day management of the State highway network and projects. In addition Marlborough Roads is also responsible for the day-to-day management of the local roading network and projects in the Marlborough District.
**Organisation charts**

Detailed organisation charts for Highways are available via the People & Careers section of ‘OnRamp’, the NZTA’s intranet.
Delegations and Responsibilities

Delegations

The NZTA has three levels of delegation: from the Board to the Board committees and the Chief Executive; from the Chief Executive to the Group Managers; and from the Group Managers to staff.

The principles of delegation applicable to Highways employees are set out under ‘Policies and guides’ in the ‘Key Documents’ section of ‘OnRamp’, the NZTA’s intranet.

Responsibilities

These delegations are complemented by individual Job Descriptions which detail the responsibilities applicable to each role.
Management Structure

Senior Leadership Team

The New Zealand Transport Agency’s Senior Leadership Team (SLT) comprises the Chief Executive, the six Group Managers and the six Regional Directors.

SLT’s role is to work in the collective interest of the organisation to:

- shape the vision for NZTA and the desired culture for a successful organisation
- frame and decide on the organisation’s strategy, priorities and resourcing
- determine the strategy to build the NZTA’s capability and organisational development
- integrate and connect the work of the different Groups within the Agency to strengthen overall performance.

Further details are available under ‘Senior Leadership Team’ in the ‘Key Documents’ section of ‘OnRamp’, the NZTA’s intranet.

Senior Management Team

The Highways Senior Management Team (SMT) comprises the Group Manager Highways & Network Operations, and the six Business Unit Managers.

Operations Committee

The Operations Committee meets quarterly to discuss performance. It comprises the SMT, and sub-regional State Highway Managers. The meetings are routinely attended by subject matter expertises from within the Highways group.
Decision Making Structure

The NZTA Board

Overall business strategy is determined by the Board of the NZTA. The Board is an independent body appointed by the Government. It operates in much the same way as a board of directors of a private company.

The NZ Transport Agency Board meets six weekly from February to December. It is responsible for making independent decisions on allocating and investing funds from the National Land Transport Fund.

Further details are available under ‘NZTA Board’ in the ‘Key Documents’ section of ‘OnRamp’, the NZTA’s intranet.

Decision making for issues of significance only. Policy available on OnRamp.

Board Committees

The main committee responsible for Highways is the Investment and Operations Committee.

Further details are available under ‘NZTA Board’ in the ‘Key Documents’ section of ‘OnRamp’, the NZTA’s intranet.

Value Assurance Committee

The Value Assurance Committee (VAC) provides assurance on efficiency and effectiveness of Highways projects and assets.

The VAC represents the highest decision making group within Highways. For decisions above its delegation it acts as ‘Value Assurance’ review for papers that go to the Board.

Business Unit Decision Making Teams

Each Business Unit has a Business Unit Decision Making Team (BUDMT) which provides governance and direction to working teams.

Regional Management Teams

Regional Management Teams are established in each sub region (ie. Tauranga, Napier, Palmerston North, Dunedin). They provide governance and direction to working teams.
Highways Decision Making Process

Figure 4 illustrates how the Highways decision making process operates.

**Figure 4** Highways decision making process
Guidance Process

Professional Services Business Unit Decision Making Team

The Professional Services BUDMT provides assurance on substantial technical decisions and representation from all key technical aspects to provide 'Big Picture' perspective and to resolve outstanding issues. Scope and standards issues to be cleared directly through relevant Professional Services team.

Value Adding Teams

Value Adding Teams (VAT) are established within Highways to focus on the core aspects of the business, to receive, review, and initiate implementation of improvement suggests, and to regularly overview the effectiveness and efficiency of relevant systems affecting each area.

There are seven Value Adding Teams (VAT):

- Project Management Services,
- Customer Services,
- Asset Management,
- Safety,
- Transport Outcomes,
- Health and Safety, and
- Value for Money.

The VATs provide guidance and technical consistency on issues of national importance.


Provide a forum for the sharing of best practise.
Management Procedures

Management Review

Purpose

The management review is the assurance process Highways uses to demonstrate that we are running a high performance business.

Definitions

**Internal Audit**
A systematic and independent examination undertaken by suitably trained NZTA personnel to determine if the management system is being complied with.

**External Audit**
A systematic and independent examination undertaken by an independent organisation, to determine if the management system is being complied with.

**Risk Management**
The cultures, processes, and structures that are directed towards the effective management of potential opportunities and threats.

**Project Life Cycle Reviews**
These include:

- Post Approval Review – ensure ongoing confidence in, and consistency of, approvals for delegated projects in the National Land Transport Programme.
- Post Implementation Reviews – mechanism to demonstrate whether its investment has been effective in delivering the expected benefits.
- Contract Management Reviews (CMR) – to provide confidence that supplier management systems and practices are appropriate and are delivering on contractual and legislative requirements.
- Lessons Learnt Reviews (LLR) – learning from experience and identifying the successes and the areas for improvement and how these can translate into improved contract delivery in the future. These are normally conducted post completion.

**Non-Conformance**
For the purposes of this section we refer to the contracts as specified in the Project Management and Asset Management manuals respectively.

**Corrective Action**
We deal with corrective action through the development and management of a business improvement programme.

The below diagram illustrates the management review process and how themes are incorporated into an improvement programme.
Business Process Management

**Figure 5** Business Process Management

Responsible

The Network Performance BUDMT and Operations Committee receive reports on the outcomes of the audits/review undertaken within the quarter.

Procedure

Management reviews are conducted in a distributed manner within the group but with specific focus provided by the Network Performance BUDMT. This broadly includes consideration of:

- Audit/Review outcomes;
- Decision making process;
- Follow up actions from previous Management System review;
- Changes that could affect the Management System.
Risk Management

The Risk Management Process, described in the NZTA’s Risk Management Policy, Strategy, and Framework, and the Risk Management Manual and consistent with AS/NZS4360, is the primary driver for Management Review within the business group. The processes detailed in those documents are concerned with the proactive identification and management of threats and opportunities associated with achieving the Highways group and NZTA’s goals and objectives.

This is established at strategic, tactical, and operational levels and provides detailed guidance, tools and templates (eg risk treatment plan template) to NZTA staff, line managers, project managers and contractors to assist them to implement effective and efficient risk management consistently across the organisation.

Risk profiles are regularly reviewed and significant risks and management thereof reported by the Highways Senior Risk Advisor to the Highways SMT. The status of audit and risk profile action is regularly monitored and followed by the Highways Senior Risk Advisor.

Records

Highways records all its high level risks in the Impac system.

Project specific risks are captured as detailed in the Project Management Manual.

Outputs

Outputs include decisions and actions on:

- Improvement of effectiveness of quality management and processes;
- Improvement regarding customer requirements; and
- Review of resource needs.
Audit Outcomes

Purpose

This process reports the outcomes of the audits/reviews undertaken on the Highways Business, and that the key themes are highlighted, with significant items assessed for Business Improvement opportunities. It also reports the success or otherwise of compliance with accepted Highways Business Processes, and that any non-compliances are identified and corrective or improvement action is taken.

This procedure covers all aspects of Highway’s management systems.

Definitions

- Internal Audits
- ISO audits
- Project Lifecycle Reviews including:
  - Post Implementation Reviews (with P&I)
  - Post Approval Reviews
  - Contract Management Reviews
  - Lessons Learnt Reviews

Responsible

- Internal Auditors/Reviewers
- Business Services Manager
- Network Performance BUDMT

Procedure

The Highways Business Services team is responsible for the development of the Highways Audit/Review programme and ensuring that it is delivered.

There are several Audits/Reviews (listed above) that touch on various aspects of the Highways Business during any one year. Each audit/review type has different owners. The Business Services team is responsible for compiling a consolidated view of these.

The Audit/Programme owners prepare a programme of audits/reviews each year.

The audit teams could comprise of any of the following, not mutually exclusive, expertise areas:

- Lead Auditor (would normally have expertise in at least one of the following areas)
  - Contract Management and Administration
  - Project and/or Asset Management
  - Other areas as necessary and decided in consultation with the Business Services Manager

Aside from the lead auditor, remaining members of the team need not necessarily be trained auditors but this is preferred.
Auditors/Reviewers may be drawn from other Highways offices (but not the auditee office) including National Office.

The audits will be business/risk focused.

**Records**

- Notification of review
- Terms of Reference of review
- Evidence of review
- Review of report
Customer Feedback

Purpose

The NZTA serve two customer groups:

- **Individuals** - We help ordinary people make the best use of New Zealand’s transport system – whether they are drivers, passengers, people getting their WoF, licence or registering their vehicle, or businesses that need permits or commercial operator licences.

- **New Zealand communities** - We help plan cities that are easier to get around; build new highways; invest in roads, public transport, walking and cycling in regions and towns; and make the roads safer. We do this by working with our stakeholders.

This process ensures we respond to customer queries in an appropriate and timely manner.

Responsible

- Official Correspondence Unit (S&P)
- Regional Administration staff (as co-ordinators)
- Highways Staff
- Customer VAT (for improvements)

Procedure

Customer complaints/queries are managed in a distributed manner within the group. There are a number of different processes in place for responding to customer queries:

- Official correspondence – refer to the Official Correspondence Unit page on the intranet for process guidance and the NZTA’s legal obligations.

- Web queries – are emails to the info@nzta.govt.nz address which are distributed by the Transport Registry Centre to key contacts throughout the business who arrange for an appropriate response to be provided.

- Queries concerning Network Management are forwarded either to the Asset Manager is each region or directly to the Consultant for auctioning. The Asset Manager will handle queries regarding insurance claims resulting in damage from potholes etc.

- Customer Relationship Management (CRM) (being developed).
Process Performance

Purpose

The procedure is to ensure that appropriate processes and systems are used in providing the Highways business group with performance data.

Responsible

- Business Services Manager
- Programming Team

Procedure

Highways is required to report on several levels:

- External reporting (SOI, Annual Report) KPIs
- Internal management reporting

External reporting

Highways provides KPI reporting to S&P for external audiences. These KPIs need to be calculated using approved methodology. The Highways VAC approves the KPIs, prior to being forwarded to S&P.

Internal reporting

The Network Performance business unit provides monthly performance reports to Highways management. The reports are fit-for-purpose and are reviewed by the business based on the business priorities. They are generated using accepted data sources.

Records

- Quarterly and annual reports and methodology
- Monthly dashboard reports
Business Improvement Programme

Purpose

This procedure outlines the process for taking action on deficiencies, preventing potential problems, and improving work practices.

It covers:

- Immediate actions arising from audits/reviews;
- action to prevent occurrences or recurrence of problems; and
- action on suggestions for improvement from within the business.

Responsible

Network Performance BUDMT

Procedure

Various forums throughout the Highways business will raise ideas which may be included in the business improvement programme.

These ideas or audit/review recommendations will be reviewed and moderated by the Network Performance BUDMT and those deemed significant will be assigned to the relevant part of the business for further development and implementation.

Records

- Network Performance BUDMT minutes.
- Business Improvement Register.
Control of Documents

Purpose

Highways conforms with the NZTA process outlined within the Register process manual for standards and guidelines (available on the NZTA internet site).

The prime purpose of this process manual is to provide a fit-for-purpose process for managing inclusion of new documents and changes and variations to existing documents in the Register of network standards and guidelines.

Definitions

- State Highway Standard
- State Highway Guideline
- Other Reference Document

As defined in the Register of network standards and guidelines.

Responsible

- All Highways staff
- Standards and Guidelines Ratification Committee

Procedure

All Highways standards and guidelines must follow the procedures outlined in the Register process manual for standards and guidelines and be ratified for inclusion on the register before they can be promulgated for use on the State Highway network.
Control of Records

Purpose

Highways adheres to the NZTA’s ‘Safeguarding our information’ policy which is available on the intranet.
As a public organisation, it is imperative we safeguard our information for public and national interests. The information we create and collect is widespread and significant, and needs to be preserved and secured, easily retrieved.

Responsible

All Highways staff

Principles

At the NZTA, to safeguard our information, we:

- value information as an asset
- have information that is safe and secure
- protect confidential information
- preserve our electronic tools
- secure our electronic systems.

References

New Zealand Public Information Act.
Control of Non-conforming Product

Purpose

The NZ Transport Agency (NZTA) addresses the control of non-conforming product through the management, surveillance and quality assurance of physical works (MSQA) process for all work performed on the State Highway network, through the Highways Project/Asset Manager roles, and the process of handover from physical works into operations.

Definitions

- Physical Works
- Regular sample
- Contract documents
- Practical completion

Responsible

- Consultant to contract
- Highways Project Managers
- Highways Asset Managers
- Regional Safety Engineer

Procedure

Management, surveillance and quality assurance of physical works (MSQA)

During the life of the contract the NZTA engages a Consultant, who manages and monitors the performance of the Physical Works by observing, verifying, and checking "regular samples" of all aspects of the Physical Works for compliance with the contract documents. The Consultant is also responsible for ensuring that the completed works conform to the drawings, specifications, and supplier instructions issues, subject to approved amendments.

Highways Project/Asset Managers

Highways Project/Asset Managers are responsible for ensuring our suppliers perform and provide quality work. The following are carried out during the life of the Physical Works:

- Supplier/Consultant/Relationship meetings
- Onsite inspections
- Complete interim and final PACE assessments
- Adhere to the State Highway Construction/Maintenance Manuals
- Identify Lessons Learnt
- Organise Road Safety audit
- Pre opening fit for purpose inspection
**Handover from physical works to operations**

Before the Physical Works site is opened to traffic, the Project/Asset Manager and Regional Safety Engineer carry out a ‘Pre-opening fit-for-purpose inspection’. The purpose of this is to ensure the new construction is not opened or operated prior to addressing any serious or significant road safety hazards.

Physical Works generally contain a Defects Liability period which is nominally 12 months following practical completion. This period effectively acts as warranty where the contractors are responsible for rectifying any errors or omissions resulting from the use of the asset, at the contractors cost.

As part of most contracts, there are financial incentives for the suppliers to provide quality work. We have the ability to withhold monies (retentions) until works are satisfactorily completed. In some cases we ask the contractors to pay a bond, which is then returned upon satisfactory completion.

**References**

State Highway Construction/Maintenance Manuals