Knox City Council

Road Management Plan

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ATTACHMENTS

CHAPTER 1

DEVELOPING THE PLAN

1.1 INTRODUCTION

This document refers to the Road Management Act 2004 incorporating amendments as at 1 November 2010.

Having originally developed its Road Management Plan in 2004, Knox City Council reviewed the plan in September 2006 following a 12 month operational period. This latest revision of the plan reflects the outcomes of further reviews conducted in 2009 and 2013 in accordance with Section 54 of the Road Management Act 2004 and Regulation 301 of the Road Management (General) Regulations 2005.

On 1 July 2004, the Victorian State Government passed the Road Management Act. The Act facilitates the making of Road Management Plans, which in effect provide opportunity for Road Authorities to establish a policy defence against civil liability claims associated with their management of the road network.

The Knox road network consists of approximately 700km of constructed roads. These roads service local traffic demands and provide access to residential homes, local businesses, community services and amenities. They also distribute traffic onto the 95 km of arterial and non-arterial state (VicRoads) roads located within the municipality.

In making a Road Management Plan, Knox City Council can define infrastructure that falls under its jurisdiction, setting out areas of road network responsibility and defining management and maintenance practices necessary to discharge its duty as a road authority. In defining Council's Road Management Practices, account is taken of competing priorities which may impact on deliverable outcomes. These priorities may include, but not be limited to, prevailing budgetary context, the current economic environment, social context, service delivery priorities and the prevailing political climate.

1.2 FUNCTIONS OF A ROAD AUTHORITY

The Act establishes a new statutory framework to facilitate the various combinations of intended use on the road network. In doing so, it sets out roles and responsibilities that Council (as a Road Authority) must adhere to in order to adequately exercise its duty. Section 34.1 of the Road Management Act identifies that a Road Authority must have the general functions as outlined in Table 1.

	General Functions of a Road Authority
i	To provide and maintain roads for use by the community served by the road authority.
ii	To manage use of a road effectively to meet its primary purpose of being a public road without having adverse effect on the safe and efficient operation of the road and on the environment.
iii	To manage traffic in a manner that enhances the safe and efficient operation of roads.
iv	To design, construct, inspect, repair and maintain roads and road infrastructure.
v	To coordinate installation of infrastructure on roads and the conduct of other works in such a way as to minimise, as far as is reasonable, adverse impacts on the provision of utility and public transport services.
vi	To undertake works and activities which promote the functions referred to in paragraphs i, ii, iii and iv and to undertake activities which promote the function in paragraph v.

Table 1 – General Functions of a Road Authority
(Modified extract from Road Management Act, 2004 – Section 34.1)

Under the Act, road authorities can have responsibility both as a coordinating road authority and a responsible road authority. These functions are defined in Section 36 and 37 of the Act.

1.3 OBLIGATIONS OF ROAD USERS

Section 17A of the Road Safety Act 1986 notes the obligations of road users. These obligations recognise that whilst Council has a responsibility to manage its road network, there is also an onus upon road users to take due care when using the network. Table 2 below clarifies these obligations.

	Obligations of Road Users
i	A person who drives a motor vehicle on a highway must drive in a safe manner having regard to all the relevant factors, including (without limiting the generality) the — (a) physical characteristics of the road; (b) prevailing weather conditions; (c) level of visibility; (d) condition of the motor vehicle; (e) prevailing traffic conditions; (f) relevant road laws and advisory signs; (g) physical and mental condition of the driver.
ii	A road user other than a person driving a motor vehicle must use a highway in a safe manner having regard to all the relevant factors.

iii	A road user must— (a) have regard to the rights of other road users and take reasonable care to avoid any conduct that may endanger the safety or welfare of other road users; (b) have regard to the rights of the community and infrastructure managers in relation to road infrastructure and non-road infrastructure on the road reserve and take reasonable care to avoid any conduct that may damage road infrastructure and non-road infrastructure on the road reserve; (c) have regard to the rights of the community in relation to the road reserve and take reasonable care to avoid conduct that may harm the environment of the road reserve.

Table 2 - Obligations of Road Users
(Extract from Road Safety Act, 1986 – Section 17A)

Whilst Council, as a responsible road authority, has a statutory duty to inspect, maintain and repair a public road, it should be noted that section 40 (2) of the Act provides that a road authority's duty to inspect, maintain and repair a public road does not include a duty to upgrade a road or to maintain it to a higher standard than the standard to which the road is constructed.

1.4 LEGISLATIVE AND STATUTORY REQUIREMENTS

Whilst not an explicit requirement of the Road Management Act (2004), the legislative driver for the establishment of Road Management Plans has arisen following a decision by the High Court of Australia with regard to road management in Australia. The High Court's decision in the Brodie vs Singleton Shire Council (NSW) case was handed down on 31 May 2001. Prior to that decision, it had been understood that, for the purposes of common law liability, road authorities were responsible for negligent actions ('Misfeasance'), but not for a mere failure to act to inspect or repair a road ('Nonfeasance'). This was known as the 'highway rule'.

The Brodie decision held that the 'highway rule' does not form part of the common law of Australia and that road authorities have a positive duty, for the purposes of civil liability, to exercise their road management powers. Specifically, Clause 150 of the finding states "where the state of the roadway, whether from design, construction, works or non-repair poses a risk to that class of persons, then to discharge its duty of care, an authority with power to remedy the risk is obliged to take reasonable steps by the exercise of its powers within a reasonable time to address the risk. If the risk be unknown to the authority or latent and only discoverable by inspection, then to discharge its duty of care, an authority having power to inspect is obliged to take reasonable steps to ascertain the existence of latent danger which might reasonably be expected to exist."

This High Court decision led to extensive consultation by the Victorian State Government with key stakeholders following which, legislation was passed to reinstate the 'highway rule' until 1 January 2005. In the intervening period, the State Government undertook a review of the State's existing road management legislation and consulted with stakeholders to develop and refine the Road Management Bill, which became an Act of Parliament in the 2004 Autumn sitting.

The Road Management Act 2004, has been developed to govern alongside the principles and objectives of other Acts such as the Transport Act 1983, the Road

Safety Act 1986 and the Local Government Act 1989, all of which set out principles and applicability to the management of the road network. The Road Management Act 2004 identifies relevant amendments where it is deemed to supersede these other Acts.

1.5 RELATED COUNCIL STRATEGIES

Council has four key strategy documents developed to drive the strategic direction of Council over a ten-year period. They are:

- Knox Long Term Financial Forecast
- Knox Sustainable Environment Strategy 2008-18
- Knox Community Health & Wellbeing Strategy 2013-17
- Knox Economic Development Strategy 2008-18

The implementation of these strategies is aligned with and facilitated by the City Plan (incorporating the Council Plan), which is reviewed on a yearly basis and sets Council's future direction over a four year period. This Plan seeks to inform the community of Council's themes for the Knox Vision:

- Healthy, Connected Communities
- Culturally Rich and Active Communities
- Vibrant and Sustainable Built and Natural Environment
- Prosperous, Advancing Economy
- Democratic and Engaged Communities

A number of these objectives can be directly correlated with management of the road network and the principles of asset management.

In addition to aligning its Road Management responsibilities with Council's 4 year and annual planning document, this plan attempts to align with the objectives of other strategic Council documents such as the Integrated Transport Plan, the Pedestrian Plan and the Bicycle Plan. In 2003, Knox City Council also developed its Strategic Asset Management Plan which incorporates an assessment of lifecycle responsibilities when managing assets across their life. This Road Management Plan should be read in conjunction with Council's Road Asset Management Plan and Footpath & Shared Path Asset Management Plan, which further define roles and responsibilities and assess the long term financial implications of managing the road network.

Since the creation of the Knox Road Management Plan in 2005, a number of supporting operational documents have been developed. These provide Council staff with practical guidance for the implementation of the adopted management system and policy directives contained within this Plan. Relevant reference documents are listed in this Plan (refer **References**). These internal documents are reviewed and updated as required.

1.6 BALANCING COUNCIL'S FUNDING PRIORITIES

Knox City Council's Long-Term Financial Forecast uses current financial information, economic factors, foreshadowed service deliveries and long-term infrastructure planning and maintenance needs to guide Council in its financial decision-making. The strategy clearly identifies recurrent (operating) and capital (infrastructure) expenditure necessary to ensure that the needs of Council are met into the future. Ongoing review of the Long-Term Financial Forecast is incorporated into Council's budgeting cycle with mid-year and annual reviews to ensure that the strategy continues to reflect changing circumstances. The annual budget is then framed to align with the Long-Term Financial Forecast.

Council's Capital Works program is set up to closely align with the asset categories used in the annual financial reporting of Council's infrastructure assets. As part of its Strategic Asset Management Plan, Council identified five key asset management categories in addition to a general maintenance category against which works should be recognised. As it delivers its annual budget program, works on road and road related assets will be allocated to one of the following categories:

- Maintenance
- Capital Renewal
- Capital New
- Capital Expansion
- Capital Upgrade, and
- Capital Disposal

Capital renewal spending varies over time depending on asset condition and age. Discretionary spending on new assets, disposals, expansions and upgrades create a future capital renewal and maintenance liability. Capital renewal funding is therefore not discretionary and underpins Council's ability to manage asset integrity and public safety risks associated with ageing assets.

Council's annual operating budget provides the framework for assigning maintenance funding for road management. The allocation of funding for road management related activities is made on an annual basis, taking account of the global range of services delivered by Council including aged care, youth, leisure and cultural services, family and children's services, community wellbeing, city and strategic planning and environmental sustainability. The allocation of funding within the operational budget recognises that Council needs to provide a balanced level of service delivery across all competing service areas. This often results in competition for limited financial resources, creating a divide between the desired level of service and the actual level of service.

In documenting road maintenance service levels within this plan, Council has attempted to more accurately define when works will be carried out and timeframes for delivery of these tasks. However, as articulated in the Brodie vs Singleton Shire Council decision, Council is now obliged to incorporate a proactive, whole of network approach when managing its road infrastructure, rather than the reactive approach employed previously. This has created a considerable financial impost on Council and resulted in a detailed review of services required to provide an appropriate balance between road management services and continuing service delivery in other areas of Council. Council has also endorsed its *Untied Funding Allocation Policy* to

provide some guidance in the timing of decision making and allocation of funding within both operational and capital works programs.

1.7 DEVELOPMENT OF THE ROAD MANAGEMENT PLAN

The Knox City Council Road Management Plan incorporates the following data as listed in Table 3.

	Inclusions within the Road Management Plan
i	A road register for all 'public roads' within the municipality for which Council is deemed to be the Coordinating Road Authority;
ii	Identification of responsibilities for roads managed by others but for which Council acts as a Responsible Road Authority;
iii	Identification of asset categories that are maintained in accordance with the maintenance service levels set out in this plan but not listed on Council's Public Road Register as they are not 'public roads' as defined by the Act.
iv	Road and footpath hierarchy classifications and associated desirable functional descriptions for all roads on the public road register;
v	Maintenance standards, inspection regimes, maintenance recording and risk-based prioritisation processes which take into account budget constraints and address Council's duties with respect to public roads and other assets maintained in accordance with this plan;
vi	A service level review and implementation process.

Table 3 – Road Management Plan Inclusions

1.8 ROAD MANAGEMENT PLAN ADOPTION AND REVIEW

Knox City Council was required by legislation to undertake a community consultation process to seek input on its initial Draft Road Management Plan. The process required:

i. Giving public notice of the Draft Road Management Plan and its intended use;

ii. providing opportunity for receiving public submissions on the plan;

iii. making the plan available once adopted and identifying where a copy of the plan can be obtained.

The Plan went on public display for the month of September 2004 for a period of 28 days. Notice of the Plan was made in the Government Gazette as well as in public daily newspapers which generally circulate in the area.

Subsequent reviews of the Road Management Plan occurred in 2006, 2009 and 2013. The most recent review process was conducted in 2013 in accordance with Regulations 301 and 302 of the Road Management (General) Regulations 2005. The review evaluated the appropriateness of Council's Road Management Plan. The objective was to ensure that the standards in relation to, and the priorities, to be given to, the inspection, maintenance and repair of the roads and classes of roads to which the plan relates are reasonable.

The recent review considered the following:

- Amendments to relevant Acts and regulations since the introduction of the Road Management Plan
- Staff feedback regarding implementation of the existing policy directives
- Historic service delivery performance (inspection, repair and maintenance)
- Road Management Plans of neighbouring municipalities
- Public feedback
- Recommendations from relevant internal/external audits
- Recommendations from relevant Council plans and strategies
- Community satisfaction data
- Road and path hierarchies
- Maintenance demarcation responsibilities
- All road management policies and procedures were reviewed including Council's approach to:
  - responding to reported incidents
  - monitoring hazards and asset condition
  - setting standards for inspection repair and maintenance
  - establishing maintenance priorities
  - allocating resources
  - delivering and auditing maintenance and inspection programs
  - recording asset performance

It is intended that future reviews will be conducted in a similar manner at the intervals as prescribed by the regulations.

CHAPTER 2

PUBLIC ROAD REGISTER

2.1 PUBLIC ROAD REGISTER DETAILS

The Knox Public Road Register meets the requirements set out in Schedule 1 of the Road Management Act, which identifies matters that must be included in the register. These items include:

i. The name of the public road, or if a road is unnamed, a description which enables the particular road to be easily identified;

ii. the date on which a road becomes a public road if the road becomes a public road after 1 July 2004;

iii. the date on which a road ceases to be a public road;

iv. the classification, if any, of the public road;

v. the reference of any plan or instrument made on or after 1 July 2004 that fixes or varies the boundaries of a public road;

vi. any ancillary areas; and

vii. a reference to any arrangement under which road management function in respect of any part of a public road or ancillary area is transferred from one authority to another.

Whilst not a requirement of the Road Management Act, the Knox City Council Public Road Register also includes a Geographical Information System (GIS) reference key to link Public Road Register entries to Council's Asset Management System.

Additional Asset Details

Council possesses additional data pertaining to many of its road register inclusions. Stored in Council's Asset Register, this data may relate to construction standards used for existing public roads, infrastructure in, on, over or under a public road and already established reference plans that fix boundaries of a road reserve.

Whilst relevant to the ongoing management of the road, the decision to exclude this additional data from the Public Road Register has been made by Council based on an assessment of the likely accuracy of available information. In addition, this decision has taken account of the magnitude of the task necessary to provide an up to date and accurate reflection of these elements within the Public Road Register.

2.2 PUBLIC ROAD REGISTER INCLUSIONS

The Public Road Register (**Attachment 2**) is presented in five tables, identifying Council's management responsibilities under the Road Management Act. The register includes:

Table 1 A listing of Public Roads for which Knox City Council is both the Coordinating and Responsible Road Authority as defined under the Act. This excludes road reserves with no constructed vehicular or pedestrian access. The table includes roads for which Knox has entered into a Boundary Agreement with another road authority as defined in **Attachment 6**.

Table 2 Public Roads for which Knox City Council is the Responsible Road Authority under agreement with another Coordinating Road Authority. This includes service roads adjacent to VicRoads roads.

Table 3 Parking areas along urban and non-urban arterial roads for which VicRoads is deemed to be the Coordinating Road Authority but which are not available for through traffic as defined under Section 10.3 of the Road Management Act (2004) Code of Practice 1 – Operational Responsibility for Public Roads.

Table 4 Footpaths/ Shared Paths within road reserves along urban and non-urban arterial roads for which VicRoads is deemed to be the Coordinating Road Authority.

Table 5 Roadside areas including outer separators along urban arterial roads for which VicRoads is deemed to be the Coordinating Road Authority (Refer **Attachment 7** – VicRoads Demarcation and Operational Agreement and **Attachment 8** – Road Management Act (2004) Code of Practice 1 – Operational Responsibility for Public Roads)

Table 1, as defined by the Road Management Act includes all public roads, which are:

i. Declared as roads under Sections 204(1) and 205 of the Local Government Act 1989.

ii. Registered by a coordinating road authority (Knox City Council) as being reasonably required for public use.

iii. Declared by VicRoads as Municipal roads through notice within a Government Gazette.

Where Council is deemed to be a coordinating road authority, the road reserve shall be taken to encompass all road and road related assets located from property line to property line as defined by the Road Management Act 2004. **Attachment 1** - Glossary of Terms & Listing of Road Assets and Figure 1 below identifies assets for which Council provide services within the road reserve.

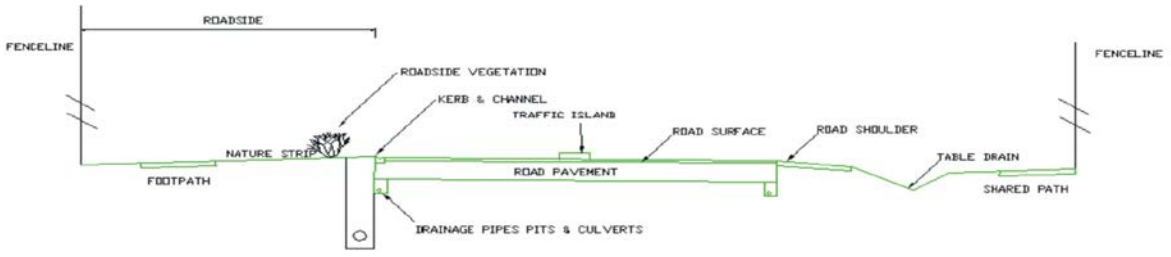

Figure 1 – Assets within the Road Reserve

Tables 2 to 5 of the Public Road Register designate areas that are identified as ancillary under the Road Management Act and recorded as such. For each grouping identified, Council is deemed to be the Responsible Road Authority under agreement with a coordinating road authority, e.g. at locations along VicRoads roads, at municipal boundaries or within land of other road authorities. The identification of ancillary areas recognises that Council are often partners in road management with another authority.

2.3 DEMARCATION OF ROAD AUTHORITY RESPONSIBILITIES

For all ancillary areas, reference is made to agreements in place between coordinating and responsible road authorities. These agreements are set in place to allow road authorities to manage each other's assets in a financially beneficial manner. The agreements are included, as outlined below, in **Attachments 6** and **7**. It is intended that the appropriateness of agreements entered into with other road authorities are reviewed whenever the Road Management Plan is reviewed.

Municipal Boundary Agreements

The Road Management Act makes provision for Council to enter into an arrangement with another road authority to transfer road maintenance responsibilities. In these agreements, Knox may take on either a coordinating and/or responsible road authority function. If acting as a Coordinating Road Authority, these roads will be identified and recorded in Table 1 of the Public Road Register with reference to any agreement in place. If acting as a Responsible Road Authority, reference is made to these ancillary areas and recorded as appropriate in the Public Road Register.

In developing this Road Management Plan, Knox City Council held discussions with numerous other road authorities to develop road management agreements. Knox has formalised agreements with Monash City Council, Whitehorse City Council, Yarra Ranges Shire Council, Maroondah City Council and City of Casey and is in discussion with Parks Victoria/Department of Sustainability & Environment. The City of Knox shares no boundary roads with the City of Greater Dandenong hence no agreement is required.

Copies of all current municipal boundary agreements are included in **Attachment 6**. In these agreements, the road authority designated as the responsible road authority will dictate the maintenance service level for the relevant boundary roads.

Rail Authority Agreement

Recent changes to the Rail Safety Act have placed increased obligations on both road and rail authorities to manage public safety risks at road-rail interfaces. Road and rail authorities are now required to enter into Safety Interface Agreements which identify the roles and responsibilities of each party at the road-rail interface.

At the time of writing this Plan, a draft document *Demarcation of Responsibility Guidelines at Road-Rail Interfaces* ("guidelines") had been developed by the Victorian Railway Crossing Safety Steering Committee. The intention of these guidelines is to ensure responsibilities at the interface are understood and applied consistently across the State. Council is also in the process of negotiating with Metro Trains Melbourne to finalise the Knox specific Safety Interface Agreement. It is Council's intention to operate in accordance with the guidelines until such time the

Safety Interface Agreement is agreed and signed. At that point in time, the Safety Interface Agreement will be included as part this Road Management Plan.

Agreement with VicRoads

Council's responsibilities for ancillary areas associated with VicRoads arterials are outlined in the Road Management Act (2004) Code of Practice 1 – Operational Responsibility for Public Roads. (Refer to **Attachment 8**). This Code has been prepared to provide guidance to both VicRoads and Councils on maintenance and operational responsibilities within the road reserve of declared freeways and arterial roads. It identifies physical limits of responsibility for Council in relation to management of ancillary areas on arterial roads. These fall under the following categories:

- Urban Areas – Intersections
- Urban Areas – Between Intersections
- Rural Areas – Intersections
- Rural Areas – Between Intersections

Definitions for urban and rural areas can be found within the Road Management Act 2004 Code of Practice 1 – Operational Responsibility for Public Roads (included as **Attachment 8**). VicRoads has responsibility under agreement with Council (refer to **Attachment 7**) to be a Coordinating Road Authority for the following roads:

- Boronia Road
- Brenock Park Dve
- Burwood Hwy
- Croydon - Scoresby Road (Bayswater & Scoresby Roads)
- Dorset Road
- Ferntree Gully Road
- Forest Road (Boronia Road to Mountain Hwy)
- High Street Road
- Kelletts Road
- Lysterfield Road
- Napoleon Road (Lysterfield Road to Kelletts Road)
- Stud Road
- Wantirna Road
- Wantirna-Sassafras Road (Mountain Highway)
- Wellington Road

Under the Code of Practice, VicRoads retains the Coordinating Road Authority responsibility for the above listed roads, whilst Knox will take on maintenance responsibilities within specified areas of designated urban roads as agreed with VicRoads (through interpretation of the Code of Practice). The Public Road Register (**Attachment 2**) identifies Council's responsibilities along these roads which are specifically referenced in Tables 2 - Service Roads, 3 - Non-Arterial Parking Areas, 4 – Footpaths/Shared Paths and 5 - Roadsides.

2.4 MAINTAINING THE PUBLIC ROAD REGISTER

Managing the Public Road Register

Due to ongoing works on Council assets at any point in time, it is necessary that the Public Road Register, as far as practicable, adequately reflects the changing road environment. To assist with this management process, Council will publish an updated copy of its Public Road Register on an annual basis. At times where a review of Council's Road Management Plan is undertaken, gazettal of Council's Public Road Register will be incorporated into this process. The updated register will be uploaded onto Council's website on an annual basis to adequately communicate the changing nature of the register. This web link will therefore provide the most accurate record of the Public Road Register for the general public. In addition, Council will follow processes outlined in the Section 12 of the Road Management Act, 2004 for management and notification of road discontinuances.

Interim amendments to Council's Public Road Register will be made within Council's Asset Management System and linked to Council's Geographical Information System (GIS) - Intramaps to provide a reflection of Council's assets at any given time throughout the year. However these records, unless gazetted as part of another process, will not become formally available to the public for review until such a time that the register is displayed on Council's website.

Updating the Public Road Register

Each inclusion on the Public Road Register includes a unique identifier that links the road asset graphically and electronically to Council's GIS and Asset Management Systems. These systems possess the capacity to record individual histories of road register inclusions, allowing each asset to be recorded, updated and reviewed at any given time. When complete, this process will ensure that a snapshot of the managed road system is available at any instant in time following the commencement date of the register.

The updating process collates and records information from subdivision developments, planning permits and developer/building requirements. In addition, Council is moving towards incorporating its infrastructure maintenance and capital works program data into its asset register to ensure that additions or alterations to assets are recorded.

A complete copy of the current Public Road Register is shown in **Attachment 2**. An extract showing how the register meets the requirements of the Road Management Act is provided below in Figure 2. Any amendment by instrument as recorded in the Public Road Register will take account of the date at which a handover certificate or declaration was issued for that asset.

KNOX CITY COUNCIL PUBLIC ROAD REGISTER					*Responsible Road Authority: Knox CC*		
TABLE 1 – Public Roads					*Coordinating Road Authority: Knox CC*		
GIS Key	***Road Name***	***Suburb***	***From:***	***To:***	***Hierarchy:***	***Date of Creation/ Declaration/ Cessation:***	***Instrument/ Plan Reference***
10015/1	ABBEY CT	WANTIRNA	QUIXLEY GR	END	ACCESS ROAD		
*25340/4	LIVERPOOL RD	THE BASIN	PAVITT LANE	MUNICIPAL BOUNDARY	LINK ROAD		
60001/1	ABBIN RD	ROWVILLE	TIRHATUAN DR	END	ACCESS ROAD		

Figure 2 – Sample Copy of the Knox City Council Public Road Register

Notes

*** Refer Attachment 6 for the Demarcation and Operational Agreements regarding Road Authority responsibilities for these roads.**

2.5 PUBLIC ROAD REGISTER EXCLUSIONS

Council maintains an Asset Register to record road and road related assets for which Knox is deemed to have a responsibility to inspect, maintain and repair under the Road Management Act, 2004 and its associated Codes of Practice. This Asset Register contains relevant details to make the asset identifiable and ensure that maintenance activities can be linked to a unique GIS record. The Asset Register also contains non road-related assets.

Non road-related assets may be managed in accordance with the service levels and inspection frequencies outlined in the plan, and some are included in the plan to provide an indicator of services provided by Council. However, the management of these non road-related assets does not form part of Council's policy defence under the Road Management Act.

The following assets have been excluded from Council's Public Road Register based on interpretation of the Road Management Act, 2004. However, they are recorded on Council's Asset Register and where applicable, these assets are managed in accordance with relevant policies.

i) Road reserves with no constructed vehicular or pedestrian access.

These parcels of land, identified in Council's asset database as 'paper roads' have been deemed to not be reasonably required for public use, as defined by the Road Management Act 2004. They will therefore remain excluded from the Public Road Register until a time when they are constructed by Council for the purposes of carrying pedestrian or vehicular traffic.

ii) Common property access ways within the Municipality.

Some access ways within the municipality are not within the road reserve boundary and are effectively private driveways not intended to be used by the general public even though they may service numerous properties. The management of this land is therefore the responsibility of the relevant body

corporate or landowner.

iii) Private roads within the Municipality.

These are roads deemed to be private roads and are generally associated with retirement villages within the municipality and the Caribbean Gardens estate. Council may perform some maintenance function on these roads under agreement with the relevant property owner.

iv) Council off-street car parks

Council owned car parks and access roads located within and/or connecting to recreational reserves, Maternal and Community Health Centres, Senior Citizen Centres and/or other Council owned facilities which are not titled as “road reserve”.

CHAPTER 3

CLASSIFICATION

3.1 REASONS FOR DEVELOPING A ROAD HIERARCHY

The Road Management Act, 2004 requires that Council's Public Road Register include a classification for each public road. Through the development of a road hierarchy and subsequent classification of roads, Council recognises that different roads within Knox perform differing functions. The establishment of a hierarchy will encourage efficient management practices, providing for variation of standards across each classification.

The adopted road hierarchy classifications inform inspection, maintenance, renewal, upgrade, disposal and capital expenditure programs. They also inform Council's traffic management strategies, land use planning activities, design and construction standards, and assist the co-ordination process across Council to enhance the community's understanding of Council's approach to road management.

3.2 FUNCTION/ FEATURES OF A ROAD HIERARCHY

Knox City Council has adopted the following five classification and functional standards for roads listed in its Public Road Register:

Road Hierarchy Classification	Current Function / Features
Link Roads	o Efficiently channel traffic through the Municipality o Carry traffic between major commercial, industrial and residential areas o Link VicRoads arterial roads o Provide for through traffic movements and heavy vehicle use
Collector Roads	o Provide connectivity to commercial and residential areas from Link Roads or directly from the VicRoads arterial network o Concentrate locally generated traffic to an outlet o Provide direct access to the local road network without acting as a through traffic route o Carry local traffic to shops, schools, commercial districts, hospitals, sporting and other local facilities
Industrial Roads	o Service local light industries concentrated in small areas that tend to be adjacent to VicRoads arterial roads o Channel traffic through an Industrial Zone o Provide for heavy vehicle use
Access Roads	o Provide access to abutting residential properties and/ or fire truck access o Public amenity, safety and aesthetic aspects of these constructed roads take priority over speed and ease of movement of vehicles
Unsealed Roads	o Generally have a gravel/crushed rock surface o May function as Link, Collector or Access roads

Table 4 – Road Hierarchy Functional Features

The adopted road hierarchy classifications are consistent with the Municipal Association of Victoria's (MAV) suggested road hierarchy and will readily allow for future comparison and benchmarking of services across Victorian councils.

Desirable Road Hierarchy Criteria

The classification of each road incorporated a review of existing traffic survey data and knowledge of the current physical features of each road, including:

- Traffic volumes;
  - Two way - 24hr Average Annual Daily Traffic (AADT),
  - % Commercial Vehicles (%CV);
- posted speed limits;
- kerb type;
- pavement width;
- zoning; and
- current pavement surface.

In developing its Road Hierarchy, Council's assessment took into consideration staff and local knowledge, functional features of the road, intended traffic management function and adjacent land use. This information was collated and reviewed prior to establishing desirable road hierarchy features for each category. These desirable criteria will be used to develop consistency in approach for development and modifications to the road network.

The classification of public roads has been incorporated into the Public Road Register (**Attachment 2**) and linked with Council's GIS system. This will enable staff, Councillors and customers to have ready access to Council's adopted hierarchy and ensure that operational and management decisions are informed by the adopted hierarchy.

Maps showing the adopted road hierarchy and desirable functional features are included in **Attachment 3**.

3.3 PATH HIERARCHY

Knox Council has developed a hierarchy for managing its shared paths and footpaths within road reserves to improve management processes across the path network. This path hierarchy aims to identify high use pedestrian areas that may require enhanced management practices compared with lesser used paths. As with the road hierarchy, the path hierarchy has been linked to Council's GIS system with relevant details listed in Council's Asset Register.

Knox City Council has adopted the following categories and functional features for the path hierarchy.

Path Hierarchy	Current Function / Features
Commercial Access Routes	Provide service for commercial areas with high volumes of pedestrian traffic.
Key Access Routes	Provide a supporting network service to commercial access routes and other areas with medium volume pedestrian traffic.
Local Access Routes	Provide for low volume pedestrian access to service residential and other areas.
Shared Paths	Provide designated regional connectivity for both pedestrians, cyclists and mobility scooters
Reserve Access Routes	Provides frontage and direct access to reserves within Knox
Industrial Access Routes	Provide network capable of withstanding additional vehicle loading within industrial precincts

Table 5 – Path Hierarchy Functional Features

Desirable Path Hierarchy Criteria

The classification of paths is based on Council's understanding of the current function of each path and a review of existing data relating to:

- locality;
- expected usage;
- pavement width;
- surface material; and
- Disability Discrimination Act (DDA) compliance.

Due to the often informal/unstructured approach applied to the development of paths within the municipality, many footpaths are unlikely to conform to identified desirable criteria. Assessment of the footpath network has been used to set desirable physical and functional features for each hierarchy category.

3.4 APPLICATION OF HIERARCHIES

The desirable criteria specified in **Attachment 3** set minimum standards that Council will aim to provide for each road and path classification. As such, the development of road and path hierarchies will impact on a number of Council's road management activities. In particular, they will inform:

- inspection programs;
- capital expenditures programs for the expansion, renewal and upgrade of the road and path network;
- traffic management strategies;
- land use planning activities; and
- design and construction standards.

Inspection Programs

For the purposes of the Road Management Act, inspection programs need to be implemented to proactively manage risks. Three types of inspections have been

identified as necessary for Council to manage its network of road and road related assets:

- Hazard Inspections – to be undertaken between scheduled condition audits and specifically directed at identifying potential public safety risks.
- Condition Audits - used to determine the structural condition of the asset and enable non-urgent maintenance needs to be assessed and prioritised. Subject to budget approval, Council will undertake regular condition audits of its assets.
- Serviceability Audits – used to assess the appropriateness of design, construction, capacity and other operational aspects of each asset in terms of its ability to fulfil its intended function. Council does not currently carry out designated serviceability audits.

Hazard inspection frequencies, identified within the Road Maintenance Management Plan (**Attachment 4**) have been developed for each asset category by evaluating the highest risk associated with that category. A base hazard inspection frequency, set out in Table 6, has been established for identified risk levels using the Risk Management Process outlined in **Attachment 5**.

Risk Level	Hazard Inspection Frequency
Extreme	6 month cycle
High	1 year cycle
Medium	2 year cycle
Low	Nil

Table 6 – Base inspection frequencies for identified risk levels

These frequencies have been modified, where required for selected asset categories, using Council officer's local knowledge of the current condition of the asset and its expected rate of deterioration once a defect has been identified and repaired.

The process of assigning risk to the various asset categories takes account of the proposed hierarchy of roads and footpaths. In recognising that different classes of roads and footpaths may perform different functions, they may also be deemed to represent a different risk to the community. For example, the likelihood of a casualty accident on a Link road, which carries in excess of 6000 vehicles per day, is greater than that on an Access road, which may only carry 100 vehicles per day. Such a risk assessment approach has assisted in the development of inspection frequencies across established classifications.

Similar principles can be applied to the management of road and road related assets throughout the lifecycle of these assets. This will ensure future works take account of the road and path hierarchies and are guided by design principles which are consistent with a whole of network approach.

3.5 REVIEW PROCESS

The values adopted in setting desirable hierarchy criteria have been chosen to represent a 'best available fit' for the Knox road and path networks. Despite this, numerous assets within the municipality do not meet the desirable design and traffic

criteria as set out in **Attachment 3**. This is to be expected given the history of asset development within Knox and the changing nature of design and construction techniques, making it difficult to demonstrate uniformity of characteristics across the networks.

It is not the intention to modify all assets within Knox to ensure that they fit specified criteria within hierarchies. In situations where the desirable criteria of road and path assets do not meet classification requirements, one of four options is available to Council:

- review classification criteria;
- review asset classification;
- modify asset function; or
- do nothing.

Review classification criteria

Given the amount of data collated already by Council, a review of classification data is only likely to occur where evidence overwhelmingly supports an across the board review of desirable criteria. This may occur at times when industry led standard reviews have been undertaken.

Review asset classification

Opportunity exists to re-classify road and path assets at any time however such an assessment will generally be undertaken following serviceability audits. These audits determine whether roads and paths are fulfilling their intended function. When they are not, the serviceability assessment may recommend that classification be reviewed. Amendments may also be made where major changes take place on road or path networks. This may occur when developments take place, a new road is built or possibly when an existing road is closed or altered.

Modify asset function

Where assets do not meet desirable criteria however it remains apparent that their current classification should remain, based on a weighted balance of all criteria, it is possible to re-engineer an asset to enable it to better serve its intended function. Such a physical alteration to the asset would most commonly occur when the asset is due for renewal but may be identified through other areas of Council's Capital Works Program.

Do nothing

Following review of asset function, there will likely still be remaining assets which sit outside of the desirable classification criteria, but yet do not require reclassification. In such situations, it is expected that these assets be accepted for the anomaly that they are. Engineering experience and Council knowledge will be used to guide such decisions.

Once the Road Management Plan has been formally adopted, the opportunity for the community to suggest amendments to the road or path hierarchies will be available whenever the Road Management Plan is formally reviewed. The timing of these reviews will be in accordance with the Road Management Act. Should a particular asset be deemed suitable for reclassification, it will be necessary for Council to formally adopt amendments to the Road Management Plan.

CHAPTER 4

SERVICE LEVELS

4.1 WHAT ARE SERVICE LEVELS?

Knox City Council is responsible for the management of all road assets that make up its municipal road network. This includes approximately 700 km of constructed roads which service local traffic demands; providing access to homes, businesses and community facilities. Other road assets for which Council is responsible are defined in **Attachment 1**.

Strategic management of these road assets requires a holistic approach to decision making throughout all stages of the asset life cycle illustrated in Figure 3.

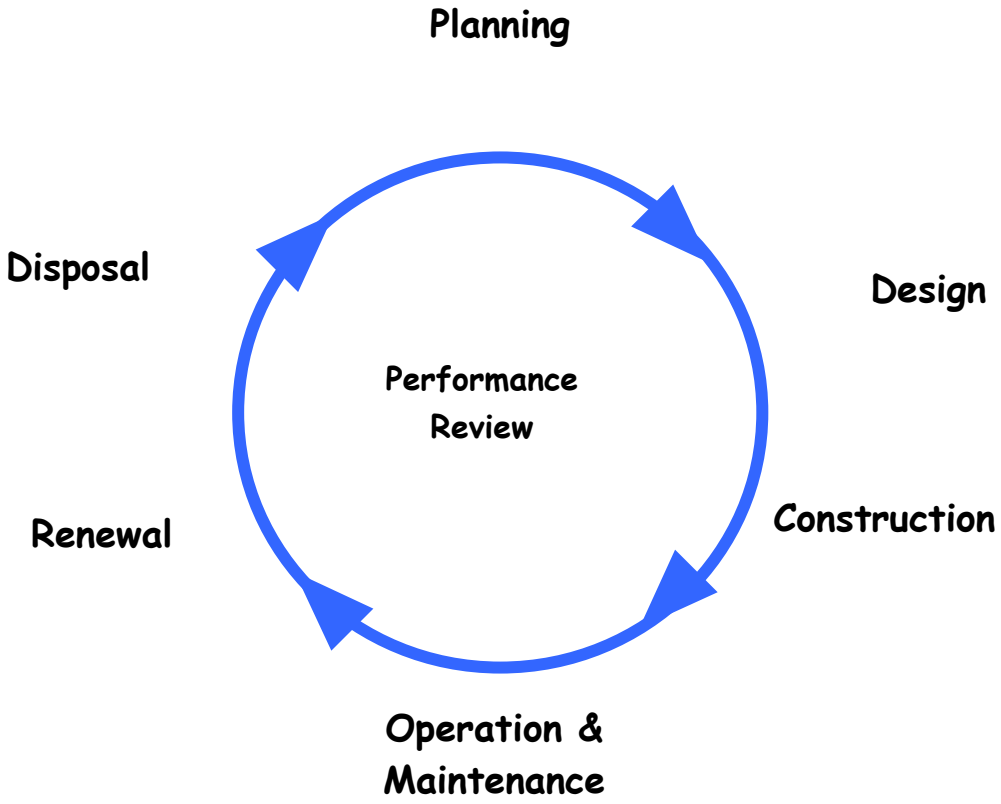

Figure 3 – Asset Lifecycle

Service levels act as management targets that facilitate decision making at each stage of the lifecycle. They define performance expectations and are formulated through an assessment of legislative requirements, organisational objectives, customer expectations and financial constraints.

In this plan, Council has focused on the development of detailed service levels for the 'Operation & Maintenance' phase of the asset lifecycle. Processes for managing road asset inspections and maintenance service levels are set out in the Road Maintenance Management Plan (RMMP) (**Attachment 4**) for the following asset categories:

- Bridges /Structures
- Bus Shelters
- Drainage
- Footpaths
- Kerb and Channel
- Local Area Traffic Management Devices (LATM's)
- Road Furniture
- Road Pavement
- Road Surface
- Roadside Vegetation
- Shared Paths
- Signs
- Unsealed Roads

Maintenance service levels set out in the RMMP describe intervention levels/ trigger points which determine whether and when repair or risk remediation works are to be carried out. Council's focus on the development of service levels for the operation and maintenance phase has occurred for a number of reasons:

- The Road Management Act focuses on the road authority's obligations with respect to road asset inspection, maintenance and recording;
- The service levels attempt to address risk associated with road and road related assets. The operations and maintenance phase within the lifecycle represents the stage where Council is most exposed to such risk.
- As a well established municipality with only a small proportion of new assets being planned, designed and constructed each year, Knox Council has an obligation to better manage its built environment.

It is expected that over time, detailed service levels will be prepared for other stages of the asset lifecycle. The identification and management of these service levels are outlined in the Knox Footpath & Shared Path Asset Management Plan and Road Asset Management Plan. Asset management plans will also be developed for other specific asset categories. It should be noted however, that desirable physical and functional features and traffic condition criteria attributed to the various road and footpath hierarchy categories, discussed in Chapter 3 of this Plan, serve as a starting point for the development of service levels applicable to the planning, design, construction, disposal and renewal phases of the asset lifecycle.

4.2 WHY DO WE NEED SERVICE LEVELS?

Setting road management service levels has many applications for Council. Specifically, service levels can be used to:

- ensure legislative compliance;
- communicate Council's road management methodologies;
- measure performance of Council's maintenance practices;
- identify costs and benefits of the services offered; and
- strategically plan the asset management process.

Ensure legislative compliance

Section 52 of the Act states that a Road Management Plan must include any matters that a relevant Code of Practice specifies should be included in a Road Management Plan. The Code of Practice for Road Management Plans made on 13 September 2004, provides guidance to road authorities in:

a) the making of road management plans; and
b) the exercise of road management functions by a road authority to provide a safe and efficient road network for use by all members of the public; and
c) good road asset management practices focussed on delivering optimal outcomes having regard to affordability, available resources, and the policies, priorities and strategies of governments and road authorities.

In developing this Road Management Plan, Council has established a method for documenting maintenance, inspection and administration practices to carry out effective road management. The Knox Work Order System outlined in **Attachment 9** assists Council's Operations Centre to record and process inspections and maintenance works undertaken on Council's assets. The Work Order System facilitates a management approach that is consistent with the diagram set out in Schedule 1 of the Code of Practice and illustrated below.

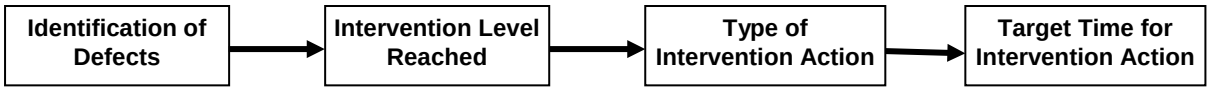

Figure 4 – Management System for Inspection, Maintenance and Repair

(Extract from Code of Practice for Road Management Plans made on the 13 September 2004)

Communicate Methodologies

Through effective communication both within the organisation and externally with relevant stakeholders, Council is in a position to gain an understanding of community expectations as they apply to road assets. The community can similarly evaluate Council's road management principles and gain insight into service levels and timeframes as they apply to asset categories.

Council's draft Road Maintenance Management Plan (RMMP) was made available for public review as part of the initial development of the Road Management Plan. The RMMP outlines tasks that Council undertakes when managing roads, identifying maintenance service levels for each asset category. As budgets and community expectations change over time, it is expected that the Road Maintenance

Management Plan will adapt to reflect such changes.

Measure Performance

By documenting applicable service levels to maintain its assets, Council can monitor its own performance, assessing capacity to deliver timely maintenance outcomes. Council's Works Order System provides the tool for measuring and monitoring this process. Over time, Council may modify its performance expectations, as it develops a better understanding of maintenance activities associated with road management, effectively providing opportunity for continuous improvement.

Identification of Costs and Benefits

By linking service levels to individual assets and managing the maintenance process through its Works Order System (**Attachment 9**), Council can effectively record its operational and maintenance activities. This will enable examination of costs for plant, labour and materials, delays and provide a basis to explore possible efficiency gains within its maintenance process. This data in turn can be linked with the Capital Works process to identify the optimum time to implement maintenance or renewal practices.

Strategic Planning

The setting of service levels enables Council's strategic planning vision to be realised through the incorporation of Council and Community values into all aspects of the asset management lifecycle. These higher order principles, as set out in the Knox corporate planning documents, identify that Knox's assets are to be strategically managed to meet present day and future needs in addition to long term financial sustainability objectives. These principles flow on directly to guide decision making undertaken by Council staff.

4.3 HOW SERVICE LEVELS WERE DETERMINED

The development of service levels is an iterative process that is dependant on finding an appropriate balance between a range of competing priorities, as demonstrated in Figure 5. Their development requires an assessment of both functional characteristics and high order values as defined by the Community and Council Plan. These values are then contrasted with the technical, outcome based measures, which specifically relate to the service supported by the asset.

The manner in which service levels can be defined, quantified, measured and assessed is subject to interpretation and has developed over time as Council processes have been refined.

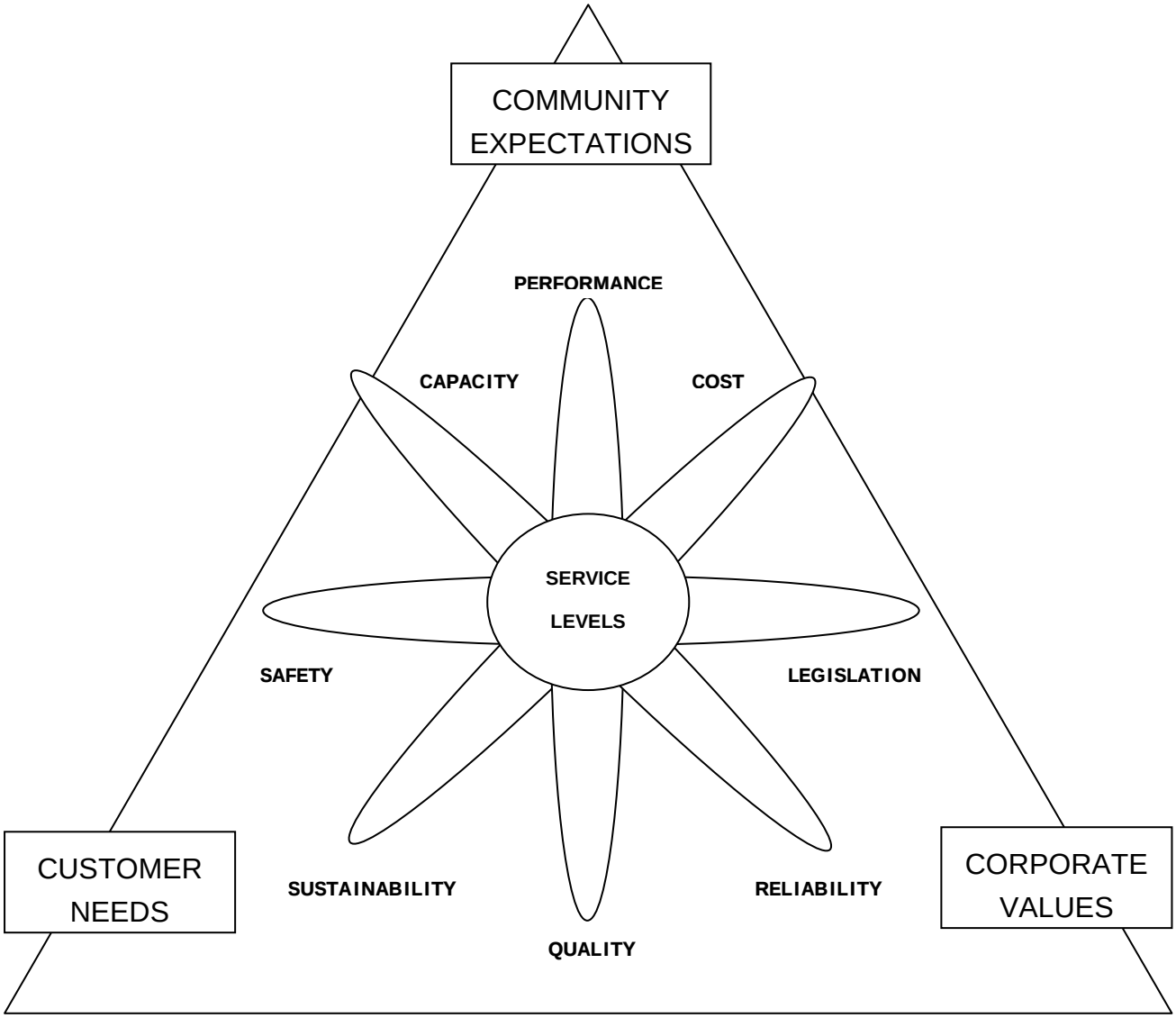

Figure 5 – Competing Priorities Determine the Adopted Service Levels

Selection of Appropriate Maintenance Activities

The first step in determining maintenance service levels involved an examination of risk associated with Council's assets. Each asset class was assessed based on its intended function and the likely risks which may be encountered throughout the life of the asset. A risk level was then calculated based on an assessment of likelihood and consequence, using the Risk Management Process highlighted in **Attachment 5**

An assessment of current Council practices relating to the road network was then undertaken to determine the impact of these activities on the identified risk level. This assessment incorporated an examination of hierarchies, current reactive and routine maintenance services carried out by Council, including response times for all works, frequency of activities and programming of renewal works. The impact of these current activities on identified risk levels was then evaluated. These residual risk levels were also evaluated for currently non-funded maintenance activities.

Prior to development of this Road Management Plan, maintenance services were not clearly documented, having been developed by Council staff utilising local knowledge, past experience and adopted industry standards. The service levels were heavily influenced by the needs of the public, as determined through enquiries and/or direct requests to Council. Such a reactionary process, however, led to the situation where resources were often expended on an 'as requested' basis rather than a more strategic and efficient 'as needed' basis.

By adopting a risk management approach, Council has devised a method of identifying risks associated with various maintenance activities and evaluating existing work practises in light of this knowledge. The process of calculating and comparing the residual risk levels associated with currently funded and non-funded activities allows Council to prioritise its maintenance and capital renewal funding to ensure works are undertaken to an extent that Council is only exposed to an acceptable level of risk. The maintenance activities and service levels adopted as a result of this risk-based process define the level to which Council will administer its activities on the road network.

4.4 HOW SERVICE LEVELS ARE USED

Maintenance service levels defined for each asset class in the Road Maintenance Management Plan (RMMP) (refer **Attachment 4**) are used to guide Council's Operations Centre in managing maintenance activities on road assets. In addition, they communicate to customers what, if any, maintenance work will be done to address risk issues and timeframes for undertaking such works.

Maintenance service levels for each asset category incorporate intervention levels, i.e. triggers points at which repair works are deemed to be necessary. They also identify a frequency at which particular routine activities will be undertaken, or in the case for reactive works, target times for Council's maintenance response. The target response times range between 3 and 10 days and have been developed to be consistent with the risk level determined using the desktop risk assessment process detailed in **Attachment 5**. They also allow sufficient time for Council to undertake a public safety risk assessment for all defects raised through customer requests.

This process recognises that an issue brought to the attention of Council via a customer, or any means other than a routine hazard inspection, often requires inspection in order to determine whether the intervention levels set out in the RMMP have been exceeded, and whether a public safety risk exists. Council's maintenance responses can then be prioritised, based on risk.

Prioritising Maintenance Works

Council has implemented a Work Order System to manage its maintenance works. The system records customer requests for road asset maintenance, in addition to hazards identified through routine and ad-hoc hazard inspections. It also tracks routine maintenance activities and manages maintenance works on a day-to-day basis, taking account an assessment of public safety risk and timelines for the completion of works. Details of the Works Order System are presented in **Attachment 9**.

The assessment of public safety risk (**Attachment 5**) requires Council Officers to examine both likelihood and consequences of a given risk event. The resultant risk level then guides the timing of temporary and/or rectification works necessary to

reduce the identified public safety risk, either through repair or temporary measures.

4.5 IMPLEMENTATION PHILOSOPHY

Meeting Maintenance Service Level Standards

The risk management approach summarised in **Attachment 5** governs Council's approach to defects on road and road-related assets within the Municipality. It aims to provide funding for activities that reduce extreme and high risks in preference to activities which reduce lower risks. It also uses an assessment of public safety risk to designate priorities when managing day-to-day maintenance activities.

As asset defects are identified by routine hazard inspections and customer requests, an assessment will be made to determine whether intervention levels have been exceeded. The assessment will evaluate the public safety risk present should no repair works be undertaken. Temporary protection works will only be undertaken to minimise risks identified as extreme or high. Examples of temporary protection works are described in **Attachment 4**. Defects deemed to have lower risk levels will be programmed for rectification within designated time frames.

Recognising that complying to the target timeframes as set out in the RMMP (refer **Attachment 4**), is an ambitious and difficult goal, a 10% margin has therefore been allowed. That is, Council will aim to address 90% of issues within the target timeframe specified for the relevant activity. In addition, Council will aim to address all issues raised against a particular activity within 10% of the target time frame. That is, for an activity with a target timeframe of 100 days, Council will aim to address all issues within 110 days.

Dealing with Funding Shortages

The services listed in the RMMP are based on activities of Council's Operations Centre that are expected to reduce extreme and high risks. There exist, however, numerous activities that Council will not undertake as part of this Road Management Plan due to insufficient funding. These tasks have not been identified in this document and will be reassessed annually as part of the budget review process for maintenance activities.

In the event that defects are found for which Council does not have a funding allocation, a risk assessment will be undertaken. Temporary protection works will only be undertaken to address extreme and high risks, with no rectification undertaken. Similarly, where a Council budget allocation has been exceeded for a particular service and no additional funding is available, Council will only provide works of a temporary nature to provide immediate protection for the community from extreme and high risks. All risks will be monitored in an ongoing manner by Council's maintenance teams to ensure risk is managed to maintain a risk level no greater than medium. In both cases, supporting information will be collected and presented to Council for future funding consideration.

In developing a risk-based management approach for unfunded and under-funded operational activities, Council's aim is to progressively close funding gaps identified. This may necessitate reallocation of funds within Council budgets to provide for operational and maintenance activities. Such a reallocation would take into account expenditure across all operational activities as well as the proportion of capital funding delivered by Council.

Linkage between maintenance and renewal activities

Hazards identified and risk assessed as a result of a response to customer request, routine or ad-hoc inspection may be of a nature such that significant works are necessary to restore the intended functionality of the asset. In practice, these works may be deemed to fall outside the limits of typically accepted maintenance practices, aligning more closely with renewal/rectification works which:

- require significant consultation with the community prior to completing the job;
- require significant design input from technical professionals to deliver a workable solution; or
- have significant deterioration to the extent whereby maintenance of the asset will not restore its intended function

Where a rectification task is deemed to be significant and therefore of a nature which cannot reasonably be managed within a program of maintenance works, it is proposed that the following process will be employed:

1. All extreme and high risks for significant works will be actioned to mitigate the risk within the temporary works timeframes set out in Council's Road Maintenance Management Plan (Attachment 4)
2. Residual risk associated with the identified hazard (as a result of either temporary works or the hazard itself) will be monitored in an ongoing manner by Council's maintenance department to ensure risk is managed to maintain a risk level no greater than *medium* until such a time when the issue can be rectified.
3. Significant works meeting pre-defined renewal criteria (as outlined in Part 4 – Road Maintenance Management Plan) will be referred to Council's Capital Works program for asset renewal within the relevant budget allocation appropriately.
4. Rectification of referred works will be undertaken in line with renewal timeframes established for that particular activity. This process will be managed by the appropriate Capital Works Program Coordinator/Project Manager. This referral process is illustrated in **Attachment 9**.

Management during Emergency Situations

On occasion throughout the year, natural events or emergency situations such as major storms, traffic accidents and other random events may result in increased impost on the resources of Council's Operations Centre. On such occasions, whilst attending to issues considered to be high or extreme risks and implementing temporary protection works, the ability to meet the timeframes and service levels designated by the RMMP may be impaired. A return to delivery of service levels as defined in the RMMP will occur as soon as practicable.

Council's policy for the management of the road network during an emergency event is summarised in Part 4 of the RMMP (refer **Attachment 4**).

Managing New Assets

Knox City Council has an obligation to provide and maintain assets now and into the future. To achieve this, an accurate assessment and inclusion of all ongoing maintenance costs will be required in Council's Maintenance Operating Budget every financial year. This will require that financial assessment is made of both Capital Works projects delivered by Council and developer contributed assets to determine their maintenance requirements throughout their lifecycle.

The continuing provision of new assets for the community without adequate consideration for maintenance of existing assets is unsustainable. To alleviate this issue, future maintenance budgets will require indexation equivalent to the proportion of assets added to Council's asset portfolio or management responsility. This will enable current service levels adopted by Council to be improved and refined to meet community expectations into the future.

Reducing the Backlog

The introduction of regular hazard inspections in addition to condition audits for all asset categories will enable Council to make a true assessment of the current condition of its assets. There is a strong likelihood however that with these inspections, Council may be confronted with a significant backlog of works, many of which may represent a significant risk to the community.

As additional information on assets becomes available Council may also be confronted with a significant funding gap as it attempts to repair assets to meet identified service levels. The extent of the funding gap will be estimated using asset information collected through hazard inspections and condition audits, and presented within individual asset management plans. It is expected that the first years of implementation of this Road Management Plan will require considerable resources to address immediate hazards, minimise risks to the community and identify long-term financial requirements.

The provision of additional funding to meet the funding gap will have long-term benefits as Council moves away from a reactive approach to best practice asset management and towards the implementation of routine programmed works. Early identification and treatment of asset deterioration and defects through adoption of routine activities will eventually enable Council to implement lower cost solutions which ensure that assets fulfil their intended life and function.

4.6 PERFORMANCE REVIEW

As the setting of service levels is an iterative process, it follows that those levels adopted by Council will evolve over time to meet the changing needs of the community, taking into account the level of risk, industry service standards and financial constraints of Council. A review process will be undertaken to ensure that Council is continually working towards providing the best road management service with its limited resources. It is expected that the review process will utilise a variety of information and formats including:

- formal and informal feedback received from the community via public opinion surveys and customer requests;

- external audits undertaken by the Municipal Association of Victoria as part of the STEP Asset Management process;
- an annual review of current services through delivery of Council's budget;
- asset performance monitoring, assessed in conjunction with the delivery of individual asset management plans;
- independent audits of Council's performance relative to the Road Management Plan;
- service reviews based on an assessment of Council's Works Order System, taking into account issues such as response times, inspection frequencies, intervention levels and costs to deliver services; and
- review of Council's Risk Assessment processes.

Through use of the Works Order System, Council has established a process of recording all maintenance works undertaken against each road asset. This process will enable Council to identify the true costs of managing assets over their respective lifecycles and provide a means to monitor asset performance.

The principles for reviewing service levels represent a continuous improvement cycle as shown in Figure 6. Council will endeavour, through this Road Management Plan, to adopt these principles and refine the road management process to meet the changing needs of Council.

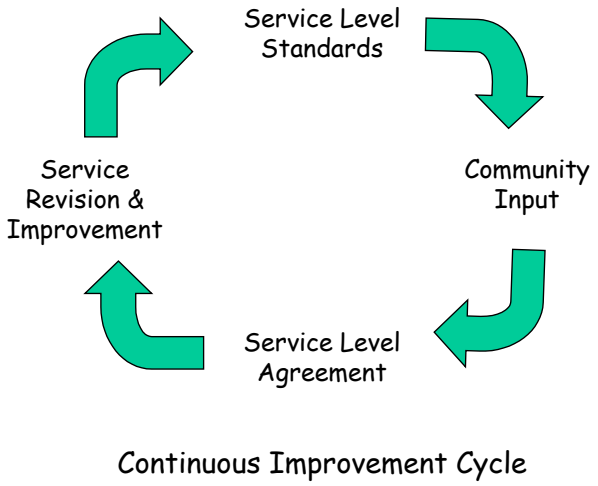

Figure 6 – Continuous Improvement Cycle

REFERENCES

All documents referenced for all versions of this Road Management Plan are listed here.

- AS1158-1997 Public Lighting Code
- Austroads Guidelines - Part 5 Intersections at Grade
- Civic Mutual Plus Road and Path Maintenance Manual 2001
- International Infrastructure Management Manual Version 1.0 (Australia/ New Zealand Edition)
- International Infrastructure Management Manual (International Edition 2011)
- Knox Access and Inclusion Plan, 2003-2008
- Knox Bicycle Plan Review 2001
- Knox City Plan 2013-17
- Knox Community Health & Wellbeing Strategy
- Knox Community Road Safety Strategic Plan, 2000
- Knox Council Plan
- Knox Footpath & Shared Path Asset Management Plan 2005
- Knox Integrated Risk Management Process
- Knox Integrated Transport Plan
- Knox Long Term Financial Forecast
- Knox Pedestrian Plan
- Knox Road Asset Management Plan 2007
- Knox Road Management Plan Review (2009)
- Knox Road Management Plan Review (2013)
- Knox Rowville – Lysterfield Integrated Local Plan
- Knox Standard Drawings (S200.1 to 200.2, S201.1 to 201.3, S202.1 to 202.3 and S203.1)
- Knox Strategic Asset Management Plan, 2003-2013
- Knox Strategic Asset Management Plan 2014
- Knox Liveable Streets Plan (formerly Knox Streetscape Policy)
- Knox Sustainable City Strategy, 2001-2010
- Knox Worksite Traffic Management Handbook
- Legal Advice – Road Management Plan Review 2009 (Maddocks) Dataworks 2209324 & 2509737
- Local Government Act, 1989
- Ministerial Codes of Practice:
  - Code of Practice for Clearways on Declared Arterial Roads (Sep. 2004).
  - Code of Practice for Management of Infrastructure in Road Reserves (Oct. 2008);

- Code of Practice for Operational Responsibility for Public Roads (Dec. 2004);
- Code of Practice for Road Management Plans (Sep. 2004);
- Code of Practice for Worksite Safety – Traffic Management (Dec. 2004).

- Municipal Association of Victoria (MAV) Plan Review – Knox City Council 2004
- Municipal Association of Victoria (MAV), Road Management Plan Checklist (A Guide to Road Management Bill Compliance)
- Municipal Association of Victoria (MAV), Step Road Asset Management Plan Framework
- Rescode, Department of Sustainability.
- Road Management Act, 2004
- Road Safety Act, 1986
- Table 750.A031 VicRoads Routine Maintenance Intervention and Rectification Standards, VicRoads, July 2000
- Transport Act, 1983
- UK Code "Delivering Best Value in Highway Maintenance- Code of Practice for Maintenance Management, 2001." UK Institution of Highways and Transportation