

# Roads Asset Management Plan to 2024



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## Foreword

The Roads Asset Management Plan (RAMP) sets out the Council's plans for the management of the Council's roads asset up to 2024. It has been produced in accordance with national guidance and recommended good practice developed through the Society of Chief Officers of Transportation in Scotland (SCOTS) Roads Asset Management Project.

The RAMP has been written to provide an overview of the policy drivers and investment decisions that affect the provision and maintenance of the network. The intention of a good plan is to consider and then determine options and report on status and outcome on a regular basis.

It has been projected that the population of Angus will have increased by the end of the plan period creating even greater demands on the road network and associated infrastructure. Funding levels continue to be constrained yet the customer expectations of the levels of service continue to increase.

For the Council it is vitally important that the road infrastructure is maintained efficiently and that the best value possible is obtained from budgets.

It is anticipated that asset management will be used to inform the budget setting process, target spending and help predict the impact that funding levels may have on the on-going condition of the asset

## Document Control & Council Approval

Version Number/Date	Approved by Council
v1 / 28 May 2019	Approved by Communities Committee
<b>Next Update Due</b>	

## Responsibility for the Plan

The responsibility for the delivery of and updating of this plan are shown below

Council Officer	Responsible for
Service Leader	Roads & Transportation
Manager	Roads Asset Management
Team Leader	Roads Operation (Maintenance)

# 1 Introduction

## Overview

This plan is the result of the council's planning for how best to manage the local road network. It is based upon an assessment of service users' expectations and the anticipated demands on the asset including projected traffic levels. The plan is designed to ensure that all the roads funding is used in the most efficient and cost effective way. This plan is based upon the choices made by the council in terms of the level of investment in the road asset, what that investment is to be directed at and the standards that the users can expect as a result of the works undertaken to achieve those standards.



This document sets out the council's plans for the council's road assets for the period up to 2024. The Road Asset Management Plan (RAMP) records the council's plans for the maintenance of the road asset. The “road asset” comprises of carriageways, footways, structures, street lighting, traffic management and street furniture.

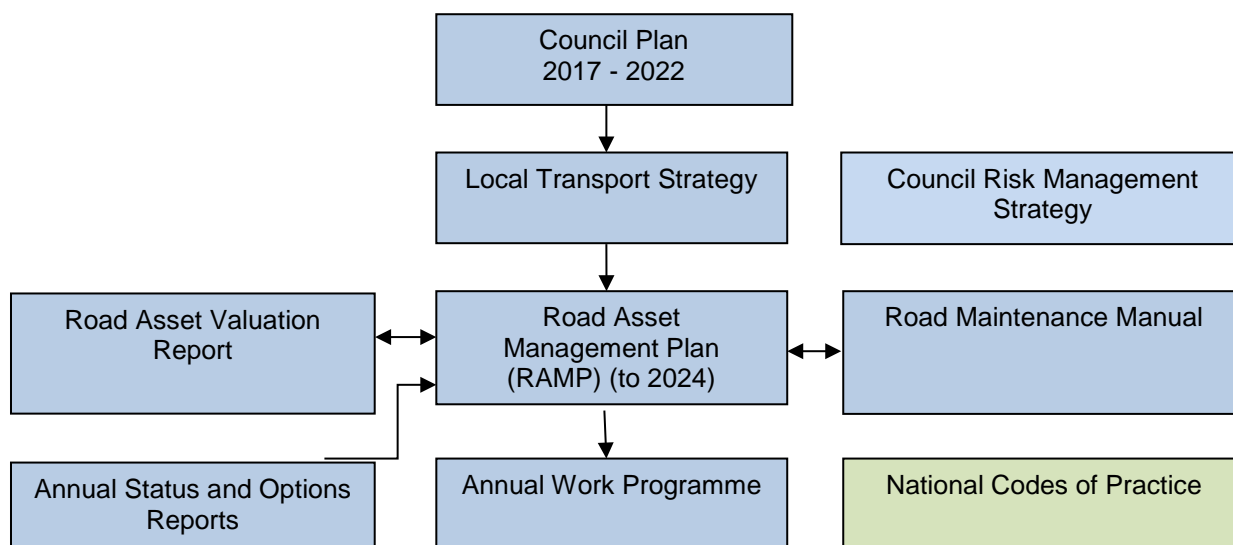
## Purpose

The purpose of the RAMP is to:

- Formalise strategies for investment in road asset groups
- Define service standards
- Improve how the road asset is managed
- Enable a better value for money Road service to be delivered

## RAMP and Other Plans

The RAMP relates to other council plans as illustrated below:



The RAMP is informed directly by the Local Transport Strategy, the Annual Status and Options Report and the Road Maintenance Manual. Targets and strategies contained in the RAMP are used to develop annual works programmes once the council's annual budget for roads has been agreed.

## 2 Road Assets

### Road Assets

The council's Road assets covered by this plan are:

- Carriageways 1,814 km
- Footways 1,489 km
- Structures 379 Bridges, culverts and subways, 359 retaining walls
- Street Lighting 21,855 Lighting Columns and 22,252 Luminaires
- Traffic Management Systems 13 Signalised Junctions and 44 Pedestrian Crossings
- Road Drainage Infrastructure (extends not individually catalogued)
- Associated Street Furniture such as traffic signs, bollards, grit bins

## **Assets Not Covered**

Some related assets that the Road department maintain are the responsibility of other council departments. The council owned Road assets not covered in this RAMP are:

- Pay and display car parks
- Footpaths managed by Housing Associations/ Unadopted footways/paths
- Bus shelters
- Seats
- Private Land
- Public Rights of Way

## **Inventory Data**

This RAMP is based upon currently available inventory data for Road assets, i.e. carriageway, footway, structures, street lighting, traffic signals and street furniture. For some minor road assets inventory data is not currently held, however an attempt has been made to incorporate these assets within this plan using local estimates and sample surveys. An action to improve asset data forms part of the council's road asset data management plan.

### 3 Customer Expectations

#### Customer Preferences

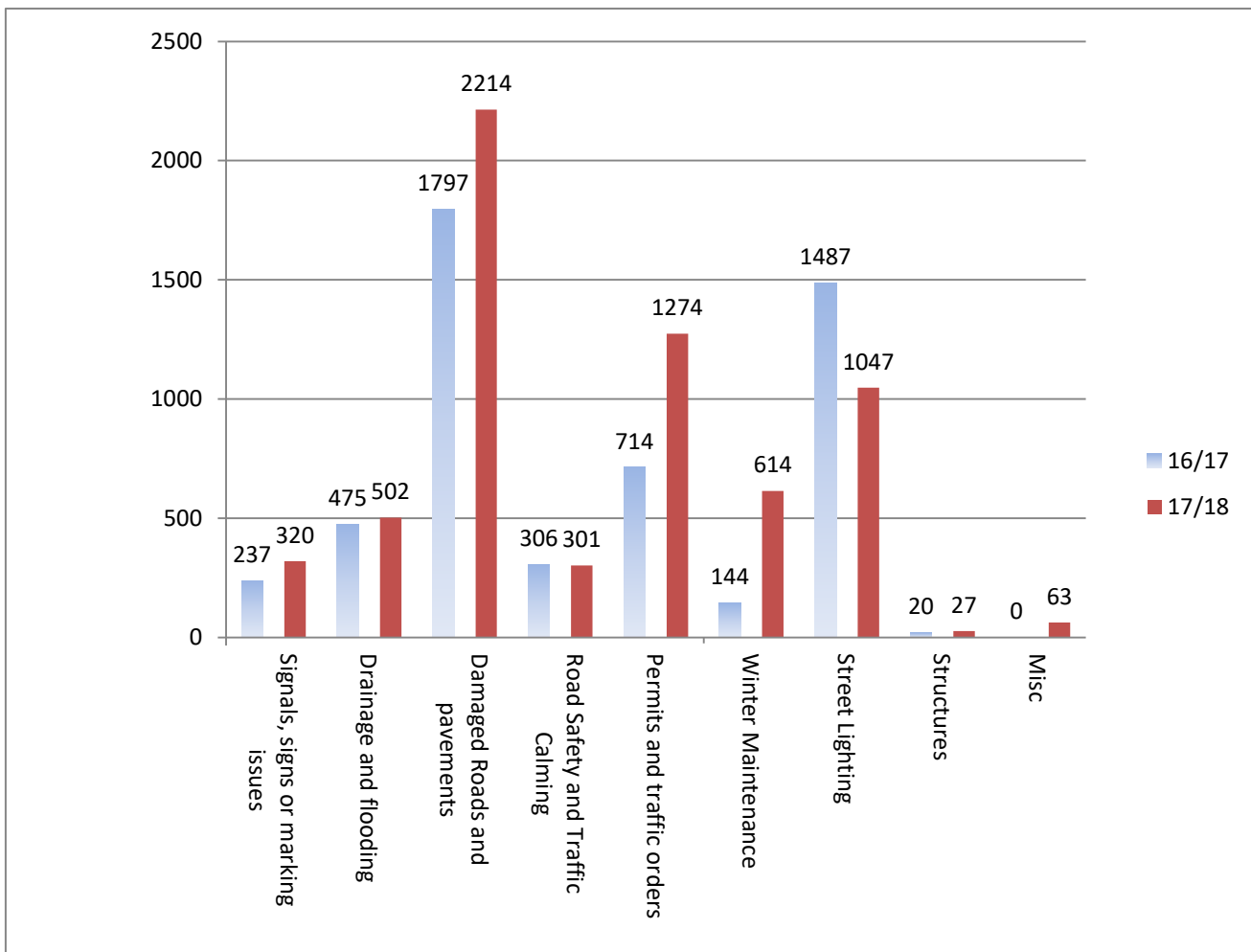
The council receive a number of enquiries via both online enquiries and from direct calls. These enquiries provide the view and preferences of a number of residents. The results of these enquiries have been reviewed as part of the preparation of this plan. This plan has been informed by the following key findings:



The results for 2017/2018 indicate that repair of both carriageway and footway defects remain a high priority in for many of our residents, with street lighting issues ranking in second place followed by issues over permits and traffic orders.

#### Customer Contacts

Customer contacts regarding Roads are recorded in the council's customer relationship management system (CRM)





### Total Calls Received

	2012-13	2013-14	2015-16	2016-17	2017-18
Total	6608	6235	7117	5180	6362

Average per year = 6300 contacts.

## 4 Demands

### Asset Growth

The asset grows each year due to the adoption of new roads and construction of new road links. Over the last 3 years the following additional assets have been adopted by the council:

- Carriageways, 1.7 km
- Footways, 2.0 km
- Structures, 10 nr
- Street Lighting, 333 columns
- Pedestrian Crossings, 3nr.

New assets create the need for maintenance, management and associated funding in future years as these additional assets age.

### Traffic Growth and Composition



Traffic growth over the last 10 years has placed increasing pressure on the road network due to an increase in the general volume of traffic and in particular, large commercial vehicles.

Many of the council's roads were not designed to accommodate this level of traffic. This created a growing need for investment in maintenance.

### Environmental Conditions

Pressure is also being placed upon the asset as a result of environmental conditions including:

- Harsh winters: unseasonably harsh winters cause significant damage to road surfaces in the form of increased defects resulting from freeze/thaw action.
- Flooding: Angus has experienced intense periods of rain and associated flooding most recently over the Christmas and New Year period of 2015/16. This is potential to continue with forecast climate change of warmer and wetter winter conditions.

These pressures have previously created a need for additional funding to both deal with the reactive element of the event (snow clearance; flooding response) and the longer term impact on the road

assets to repair carriageway damage and drainage challenges. If such events occur during the plan it may be necessary to revise the standards that are affordable unless additional funding is provide from central government, as occurred during recent harsh winter conditions.

## 5 Service Standards

This plan is based upon delivering the service standards below. The standards reflect the funding levels in section 6. They are the standards that Service users can expect from the counties Road assets during the plan period. This plan targets delivery of service standards shown below. Details of how the specific measures shown below are calculated are included in the Road Maintenance Manual.

### SCOTS Core Performance Indicators

Service	Measured By	Target Standard
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Carriageways		
Safety	Percentage of all categories of defects made safe within response times (reference Roads Inspection Strategy)	100%
	Percentage of safety inspections completed on time	100%
Condition	Percentage of principal Roads network where structural maintenance should be considered (SCANNER)	30%
	Percentage of "B" Class Roads to be considered for maintenance treatment	30%
	Percentage of "C" Class Roads to be considered for maintenance treatment	30%
	Percentage of unclassified, non-principal Roads network where maintenance should be considered (SCANNER / SCOTS Visual Condition Assessment type surveys)	30%
	Percentage of carriageway length treated including surface dressing	4%

Footways		
Safety	Percentage of Cat 1 defects made safe within response times.	100%
	Percentage of safety inspections completed on time	100%
Condition	Percentage of footway area to be considered for maintenance treatment	30%

	Percentage of footway area treated	1%
Safety	Percentage of repairs within 7 days	100%
	Percentage of street lights not working as planned on any one evening	4%

In 2016 Angus Council within existing budgets replaced 1350 complete lanterns of various types with LED units along with 3300 lanterns refurbished with LED replacement gear trays. This project reduced our energy by 1097771 kWh which represents a 16.5% reduction in our overall energy consumption. Yearly Carbon footprint has been reduced by 815 tonnes of CO<sup>2</sup>.

Structures		
Condition	Percentage of Principal inspections carried out on time	100%
	Percentage of general inspections carried out on time	100%
	Bridge Stock Condition Indicator (BCIav)	85
	Bridge Stock Condition Index (BCIcrit)	85

## 6 Financial Summary

### Asset Valuation

As at Aug 2018 the Road asset is valued as follows: (£000's)

Asset Type	Gross Replacement Cost (GRC)	Depreciated Replacement Cost (DRC)	Annualised Depreciation Cost (ADC)	Comments
Carriageways	£1,415,765	£1,163,894	£23,007	
Footways & Cycleways	£159,623	£99,161	£1,494	
Structures	£83,831	£80,131	£713	
Street Lighting	£62,771	£29,604	£2,094	
Traffic Management	£2,576	£1,656	£96	
Other (land)	£122,571	£0	0	
<b>Total</b>	<b>£1,866,543</b>	<b>£1,384,138</b>	<b>£28,357</b>	

The valuation figures above illustrate the financial value of the Road asset. The **gross replacement cost (GRC)** represents how much it would cost to replace the existing asset.



The **depreciated replacement cost (DRC)** illustrates the extent to which the asset has been consumed (used up).

The **annualised depreciation cost (ADC)** represents the average annual investment required in planned maintenance (renewal of the asset) required to maintain the asset. Comparing the annual capital investment against this figure provides an indication of whether long term funding needs are being met (or not).

## Historical Expenditure

Historical expenditure invested in works on the Road asset is shown below:

Asset	Works	Historical Expenditure £ 000				
		14/15	15/16	16/17	17/18	18/19
Carriageways	Revenue	2,342	1,916	1,826	1,901	1,884
	Capital	6,818	7,518	7,603	7,089	5,796
Footways	Revenue	Included in c/way	Included in c/way	Included in c/way	Included in c/way	Included in c/way
	Capital	Included in c/way	Included in c/way	Included in c/way	Included in c/way	Included in c/way
Structures	Routine & Reactive	Included below	Included below	Included Below	Included below	Included Below
	Planned	479	653	419	344	225
Street Lighting	Energy Costs	1,266	977	845	638	615
	Routine & Reactive	637	714	348	342	275
	Planned	1,137	1,293	877	863	740
Traffic Signals	Energy/Communication Costs	Energy Costs included in Street Lighting				
	Routine, Planned & Reactive	101	157	100	135	100
<b>Total</b>		<b>12,780</b>	<b>13,228</b>	<b>12,018</b>	<b>11,312</b>	<b>9,635</b>

The above funding does not include for capital drainage or flood schemes.

Overall the level of investment made over the last 5 years equates to approximately **41%** of the estimated annualised depreciation

## Planned Funding

The service standard targets shown in section 5 are based upon previous funding levels. The funding for previous and current financial year is shown below. With reduced budgets it is unlikely that the percentages treated will or can be achieved.

Asset	Works	Funding Required* £k				Long Term Funding Assumed £k
		Year 1 19-20	Year 2 20-21	Year 3 21-22	Year 4 22-23	Y5-Y23-24 p.a. up to 39- 40
Carriageways	Revenue (to tie in with historical)	1,884	1,884	1,884	1,884	1,884
	Capital (to tie in with historical)	3,162	3,188	3,187	3,213	3,213
Footways	Revenue (to tie in with historical)	Incl in c/way	Incl in c/way	Incl in c/way	Incl in c/way	Incl in c/way
	Capital (to tie in with historical)	Incl in c/way	Incl in c/way	Incl in c/way	Incl in c/way	Incl in c/way
Structures	Reactive	Included below	Included below	Included below	Included below	Included below
	Planned	370	200	200	275	300
Street Lighting	Energy Costs	490	395	395	395	395
	Reactive	269	269	269	269	269
	Planned	350	350	350	250	350
Traffic Signals	Energy/Comms Costs	<i>Included in Street Lighting Energy Costs</i>				
	Routine, Planned and Reactive	75	100	100	100	150
<b>Totals</b>		6,647	6,496	6,495	6,496	6,671

\* Based on Financial Plan 2018/2023

The above funding does not include for capital drainage or flood schemes.

## 7 Asset Investment Strategies

The strategies in this section have been determined using predictions of future condition over a 20 year period. The predictions enable strategies to be created to look at the whole life cost of maintaining the asset. Using long term predictions means that decisions about funding levels can be taken with due consideration of the future maintenance funding liabilities that are being created. Investment strategies for the major asset types are summarised below. These strategies are designed to enable the service standards in section 5 to be delivered.

### Investment between Asset Types

In comparison to historical investment, future investment is planned to be:

- Carriageways and Footways: Currently budget levels are reducing.
  - o Increases in funding are required to not only increase the current condition of the roads in Angus but also address an increasing backlog created by insufficient funding. Current backlog value for carriageways is approx. £49.7 Million. To achieve a steady condition of roads year on year carriageway and footway funding of £6.5 Million is required.
- Structures: level of investment maintained at similar levels. Given high number of historic bridges and increasing needs for repair and refurbishment, the ability to maintain targeted service standards will be more difficult. This will lead to increased risk of needing to close bridges as well as one off failures.
- Street lighting; level of investment maintained at similar levels. Spend to save in terms of LED is seeing energy reductions. Other funding is required to replace life expired columns.
- Traffic signals; level of investment maintained at similar levels.

## Carriageways Investment Strategy

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of various work gangs on emergency repairs (via customer interfaces and supervisor inspections) and on other non-emergency repairs such as patching.
Planned Maintenance Preventative	A programme of preventative treatment or Roads in the initial stages of deterioration.	The strategy is predicted to require: Approximately, Surface dressing and surface treatments on around 30-70km of the total network, of all class types, urban and rural – target 2.5%. - Currently this is fluctuating between 1.75-3.1% of the network as budgets allow in the last 5 years.
Planned Maintenance Corrective	Programme of resurfacing where a preventative treatment cannot be applied	The strategy is predicted to require: Approximately, Structural works/patching/reconstruction/resurfacing(inlay and overlay) on around 0 to 25km of the network as budgets allow of all class types - Approximately 0 to 25km of the network as budgets allow over the last 5 years.

The Road Maintenance Strategy, approved by Committee in May 2016 (Report No.221/16 refers), details the strategy for investment which enables the service standards in Section 5 to be delivered. Annually the carriageways are subject to a mechanical survey. In Angus over the last 4 years the roads in total have seen a general decline in condition. “A” class roads have seen a straight decline; “B” a slight decline, “C” a slight improvement and unclassified an undulation but overall decline. Funding has decreased over the last 3 years and changing condition has been related to weather, traffic, poor construction and poor drainage.



## Footways Investment Strategy

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of various work gangs on emergency repairs (via customer interfaces and supervisor inspections) and on other non-emergency repairs such as patching.
Planned Maintenance Preventative	A programme of preventative treatment of bituminous footways in the initial stages of deterioration.	As budgets allow and as identified by Area Supervisors. Footway inventory require updating/improving.
Planned Maintenance Corrective	Programme of resurfacing/renewal of footways.	As budgets allow and as identified by Area Supervisors. Footway inventory require updating/improving.

## Street Lighting Investment Strategy

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of various work gangs on emergency repairs (via customer interfaces and technical officer inspections) and on other non-emergency repairs
Planned Maintenance Preventative	A programme of preventative painting of steel lighting columns	As identified by cyclic inspection and as budgets allow
Planned Maintenance Corrective	Programme of structural renewal	As identified by cyclic inspection and as budgets allow
Invest to save		An Invest to Save initiative for energy efficiency is ongoing and reducing energy costs are already evident. This is continuing.

Angus Council Street Lighting developed a 10 year programme back in 2011 to provide the necessary savings in CO2 emissions and energy reductions to assist the Council to meet their Carbon Reduction Commitment targets by 2020.

## Structures Investment Strategy

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of various work gangs on emergency repairs (via customer interfaces and technical officer inspections) and on other non-emergency repairs such as patching.
Strengthening (council structures)	Strengthening of bridges currently assessed as being weak.	The strategy involves: <ul style="list-style-type: none"> <li>- Strengthening of bridges as identified by routine inspection with priority to high priority routes.</li> </ul>
Refurbishment	Refurbishment of structures that have deteriorated into a poor or very poor condition	The strategy involves: routine inspection and assessment of : <ul style="list-style-type: none"> <li>- Road bridges</li> <li>- Footbridges</li> <li>- Culverts</li> <li>- Retaining walls</li> </ul>
Parapet works	Strengthening or replacement of weak parapets	The strategy involves: routine inspection and assessment of all parapets – any works assessed as being required are programmed from within available budgets.
Scour Protection	Scour protection works on structures susceptible to scour	As appropriate from surveys

The structures strategy will predominantly be inspection and assessment with minimal maintenance to maintain service standards. This will increase the risk of needing to close bridges and introduce diversion. Major investment within the allocated budgets will target the strengthening of those structures which are on high priority routes.

## Traffic Signals

Category	Description	Basis of Strategy
Routine and Reactive Repair	Repair of defect to current intervention standards and response times.	The strategy requires the deployment of works gangs/other specialist agencies on emergency repairs and on other non-emergency repairs.
Refurbishment of signalised junctions	Refurbishment of junction that have deteriorated or the equipment has become obsolete/unreliable	The strategy allows renewal of existing infrastructure as allocated budgets allow.
Refurbishment of signalised crossings	Refurbishment of junction that have deteriorated or the equipment has become obsolete/unreliable	The strategy allows renewal of existing infrastructure as allocated budgets allow.

## 8 Risks to the RAMP

The risks that could prevent achievement of the standards specified in this plan (section 6) are:

Plan Assumption	Risk	Risk Management Action
The plan is based upon winters being average	Adverse weather will create higher levels of defects and deterioration than have been allowed for.	Budgets and predictions will be revised and this plan updated if abnormally harsh winters occur.
Available budgets have been assumed as shown in section 6	External pressures mean that government reduce the funding available for Roads	Target service standards will be revised to affordable levels
Construction inflation will remain at level similar to the last 5 years.	Construction inflation will increase the cost of works (particularly oil costs as they affect the cost of Road surfacing materials)	Target service standards will be revised to affordable levels.
Levels of defect and deterioration are based on current data which is limited for some assets (e.g. footways)	Assets deteriorate more rapidly than predicted and the investment required to meet targets is insufficient.	Split between planned and reactive maintenance budgets will be revised.
Resources are available to deliver the improvement actions	Pressures on resources mean that staff are not allocated to service improvement tasks such that the predicted benefits cannot be fully achieved	Target dates will be revised and reported.

The risk has been evaluated in accordance with the council's corporate risk management strategy. In addition to the risks above a Road asset risk register is maintained recording the risks associated with each asset type. A review of this register is used when programmes of works are developed.