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|  | | | | **Infrastructure Plan** |
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Contents

1 Section 1: Executive Summary 5

2 Section 2: Introduction 6

2.1 Background 6

2.2 Goals and Objectives of Infrastructure Ownership 6

2.3 Plan Framework 7

2.4 Planning Approach and Methodology 7

3 Section 3: Level of Service 7

4 Section 4 Demand or Need determination 8

4.1 Demand Forecast 8

5 Section 5: Existing infrastructure 9

5.1 Physical Parameters 9

5.2 Capacity / Performance 9

5.3 Condition 9

5.4 Valuations 10

5.5 Historical Data 10

6 Section 6 Asset Management - Infrastructure 10

6.1 Routine Maintenance Plan 10

6.1.1 Maintenance Plan 10

6.1.2 Standards and Specifications 10

6.1.3 Summary of Future Costs 11

6.2 Renewal / Replacement Plan 11

6.2.1 Renewal Plan 11

6.2.2 Renewal Standards 11

6.2.3 Summary of Future Costs 11

6.3 Creation / Acquisition Plan 11

6.3.1 Selection Criteria 12

6.3.2 Standards and Specifications 12

6.3.3 Summary of Future Costs 12

6.3.4 Disposal Plan 12

6.3.5 Construction and maintenance plan 12

7 Section 7: Financial Summary 13

7.1 Financial Statements and Projections 13

7.2 Funding Strategy 13

7.3 Valuation Forecasts 13

7.4 What Are the Key Assumption Made in Financial Forecasts? 13

8 Section 8: Organisational and Support Plan Structure 14

8.1 Human Resources 14

8.2 Organisational 14

8.3 Financial 14

8.4 Systems and Processes 14

8.4.1 Accounting / Financial Systems 14

8.4.2 Infrastructure Management Systems 15

8.4.3 Data 15

8.4.4 Information Flow Requirements and Processes 15

8.4.5 Standards and Guidelines 15

9 Section 9: Plan Improvement and Monitoring 15

9.1 Performance Measures 15

9.2 Improvement Programme 16

9.3 Monitoring and Review Procedures 16

10 Section 10: References and Appendices 16

10.1 References 16

10.2 Appendices 16

Steps in Preparing the Plan

There are typically five steps involved in preparing and updating the infrastructure and Organisational and Support plans.

* **Step 1: Identify the Objectives**
* Before commencing the preparation of the plans, it is necessary to determine who will read the plans, what they already know about the department, what they want to know, and how they intend to use the information considered in the plans.
* The needs of the target audience should be combined with the communication objectives – e.g. the extent of information to which the reader should have access. Having identified and resolved any conflicts between what the target audience want the target audience wants to know and what they need to know, a start can be made.
* With regard to infrastructure plans dealing with roads the Departments of Transport and Public Works, as well as National Treasury are key target audiences at the national government level.
* **Step 2: Outline the Plan Structure and Content**
* The outline can be as general or detailed as required. Review the toolkit to identify areas that should be more detailed, based on the audience and the objectives.
* **Step 3: Write the Plan**

In preparing the plans consider the following:

* The order of plan preparation will depend on the data and information available, the sophistication of the processes and the experience available for preparing plans.
* It might be necessary to research many areas before there is enough information to write about. At this initial stage, use most readily available information such as hard copy records, historical reports, and staff knowledge.
* Further investigation may be required, but do not get over-involved in extensive research and analysis, nor waiting to collect additional data. Once the plan is completed there will be a clearer picture of the most important data to collect.
* If information is unavailable, make the best assumptions, based on current information. Write the plan on this basis, and state these assumptions clearly (keep notes on assumptions during the plan preparation). The plan is a living document and will be updated.
* Make use of tables and graphs to present information and data to enhance the presentation, readability and understanding of infrastructure plan.
* Prepare initial drafts of prospective financial statements and cash flow projections after preparing the rest of the main body of the document.

The last element of the plan to be prepared is the Executive Summary. Plan to make this a stand-alone document that summarises clearly the main elements of the plan if possible.

* **Step 4: Have the Plan Reviewed**
* After completing and reviewing the draft of the plan, have someone with expertise in infrastructure planning review the plan’s strengths and weaknesses, and its ability to meet any disclosure or other criteria.
* **Step 5: Update the Plan**
* Infrastructure plans are dynamic documents and must be updated periodically to maintain relevance. As the objectives or community expectations change, or systems improve, update the plan to reflect those changes. Infrastructure activities that will be incorporated into future plans should be ongoing between updates.

A recommended structure for an infrastructure plan is outlined below. It is noted that there is no ideal structure.

# Section 1: Executive Summary

The Executive Summary should emphasise the key issues contained in the body of the plan and provide readers with a succinct overview of the entire plan. Some readers who are not concerned with the finer details of the plan may only read the Executive Summary.

* The Purpose of the Plan
* To demonstrate responsible management
* To communicate and justify funding requirements
* To comply with regulatory requirements (Both financial (PFMA, DORA) and non-financial (RIFSA, EPWP))
* Description
* Summary of infrastructure covered by the plan
* Levels of Service
* Summarise levels of service and performance measures and how they were set
* Community Need
* Factors influencing future demand
* Impact of changing demand on infrastructures
* Lifecycle Management Plan
* Summary of lifecycle management strategies (operations, maintenance, disposal, etc)
* Financial Summary
* Long-term income and expenditure (cash flow), projections for each significant infrastructure group
* Sources of funding
* Organisational and Support Plan
* Summary of human resources required
* Summary of the organisational structure required
* Summary of financial commitment required
* Summary of data, information systems, processes (decision-making) and implementation programmes
* Monitoring and Improved Programme
* Summary of how performance of the plan will be monitored
* Summary of actions required to improve accuracy and confidence in the plan
* Timetable for review of the plan

# Section 2: Introduction

The Introduction must provide an overview of all the elements of the infrastructure within the plan. It should provide readers with a sound justification for owning and operating the infrastructures covered, and the reasons for preparing the plan.

## Background

* Purpose of the plan
* Strategic and Departmental Goals
* Departmental strategic goals and impacts on plan
* Links to department vision, mission, goals and objectives
* Relationship with other planning documents

## Goals and Objectives of Infrastructure Ownership

* Reasons and justification for infrastructure ownership
* Legislative Requirements
* Background legislation or regulations which affect infrastructure operation or require certain levels of service
* Infrastructure included in the plan
* Key stakeholders in the plan (NDOT, DPW, NT)
* Organisation structure

## Plan Framework

* Key elements of the plan (Describing the structure of the suite of documents comprising the plan)

## Planning Approach and Methodology

Discussion based on technological sophistication and basis of planning process:

* Modelling skills/software brought to bear on the planning
* Accuracy, completeness and validity of data that served as input to planning

# Section 3: Level of Service

This section should define clearly the levels of service relevant to the sector concerned, to confirm the basis of the levels of service to be provided (e.g. learner/educator ratios, hospital beds per capita)

* Departmental norms and standards
* Current Level of Service
* Desired Level of Service
* Provide details on the level of service desired if different from what is being provided
* Provide details of differences between current and desired levels of service and how these gaps will be progressively closed.

# Section 4 Demand or Need determination

## Demand Forecast

This Section should provide details of growth forecasts which affect the management and utilisation of infrastructures.

* Community Need
* Background and research undertaken in respect of determining the needs for the provision of service in the relevant communities to be served. [[1]](#footnote-1)
* Factors influencing demand
* Details of projected growth or decline of demands on services
* Community expectations (in terms of levels of service etc.)
* Anticipated changes in community expectations
* Details of how research translates into levels of service
* Impact of changes in demand on infrastructure utilisation
* Changes in Technology
* Use of new technology and effects on future infrastructure provision
* Obsolescence

4.2 Demand Management Plan

* Describe non-infrastructure solutions available as alternatives to infrastructure-based solutions (i.e. demand management, insurance, managed failures)
* Summarise new works programmes, and costs

# Section 5: Existing infrastructure

This Section of the plan should outline exactly what is planned in order to manage and operate the infrastructures at the agreed levels of service (defined in the plan) while optimising lifecycle costs.

It may be necessary to divide the infrastructure network into separate geographic service areas (i.e. separate road network) and then focus on each significant group. A one page summary of each subsection in Section 5 should be considered, to add clarity.

## Physical Parameters

* General comments on infrastructure mix, age, size, material, location and current issues
* Summary of total infrastructure parameters in table of graph formats, i.e. age distribution, size, etc.
* Include an overall plan of infrastructure system or network
* How to obtain part-by-part infrastructure information (i.e. database)

## Capacity / Performance

* Design capacity, actual measured capacity and current utilisation of infrastructures. Summary of details and statistics (i.e. percentage and distribution of infrastructures under- capacity if known) related to the target level of service
* Refer to location of detailed information (i.e. computer models, calculations and analyses)
* Infrastructure capacity deterioration graphs and failure modes

## Condition

* Summary of current infrastructure condition based on best information currently available
* Brief details on how condition is monitored
* Age and condition profile graphs

## Valuations

* Infrastructure replacement valuation summary
* Depreciated infrastructure replacement valuation summary
* Description of valuation method
* Basis for determining effective lives used for valuation
* Key assumptions made in preparing valuation
* Details of historical valuations

## Historical Data

* Summary of type of historical data available and location
* Relevant financial information (historical expenditure)

# Section 6 Asset Management - Infrastructure

## Routine Maintenance Plan

Routine maintenance is the regular ongoing day-to-day work that is necessary to keep infrastructures operating, including instances where the portions of the infrastructure fail and need immediate repair to make the infrastructure operational again.

### Maintenance Plan

* Trends (i.e. spending, complaints) and issues
* Current and past levels of service
* Maintenance decision-making process (planned and unplanned)

### Standards and Specifications

* Define materials, methods, service standards to meet required levels of service
* Risks associated with alternative standards

### Summary of Future Costs

* Forecast of planned and unplanned maintenance work and costs
* Note any maintenance deferred and associated risk
* Outline how maintenance will be funded

## Renewal / Replacement Plan

Renewal expenditure is major work which does not increase the infrastructure’s design capacity but restores, rehabilitates, replaces or renews an existing infrastructure to its original capacity. Work over and above restoring an infrastructure to original capacity is new works expenditure.

### Renewal Plan

* Show how replacements / renewals are identified and to what standards they are replaced (i.e. modes of failure, options for treatment, risk)
* End of life projections
* Renewal decision-making process

### Renewal Standards

* Define materials, methods, service standards to meet required levels of service
* Risks associated with alternative standards

### Summary of Future Costs

* Forecast programme of replacement and costs
* Cash flow forecast of costs
* Note any renewals that are deferred
* Risk analysis (i.e. risks and long-term effect of deferral)
* Identify how replacements will be funded

## Creation / Acquisition Plan

New works are those works that create a new infrastructure that did not previously exist, or works which upgrade or improve an existing infrastructure beyond its existing capacity. They may result from growth, social or environmental needs. Infrastructures may be required at no direct cost to the department (i.e. sub divisional development for local authorities).

### Selection Criteria

* Formal procedure to rank infrastructure creation / acquisition projects

### Standards and Specifications

* Define materials, methods, design standards to meet levels of service
* Risks associated with alternatives

### Summary of Future Costs

* Future needs for acquisition and / or purchase of infrastructures based on demand forecasts
* Resulting cash flow forecast
* Identify how new infrastructures will be funded

### Disposal Plan

* Disposal is any of the activities associated with disposal of a decommissioned infrastructure, including sale, demolition or relocation.
* Forecast future disposal of infrastructures including timing and costs
* Cash flow forecast of income / expenditure from infrastructure disposal

### Construction and maintenance plan

* Overview of the planned portfolio of projects in terms of project sizes in terms of CIDB classification/ Contractors to be used/ Growth strategy for contractors
* Overview of planned portfolio of projects in terms of EPWP projects and non EPWP projects and activities
* Type of projects where labour intensive construction methods will be used for construction and maintenance/ possible geographical areas where LIC will be used
* Plans for LIC programmes being run by the department to grow the use if LIC methods, including capacity building and training initiatives

# Section 7: Financial Summary

This section should contain the financial requirements resulting from all the information presented in previous sections. As plans become more advanced, various levels of service / cost scenarios may be included.

## Financial Statements and Projections

These should be prepared for at least 10 years and include:

* Cash flow forecasts by year
* Breakdown of expenditure by service groups
* Breakdown of expenditure into routine maintenance, renewal and new works expenditure
* Trends from the previous 2-3 years

## Funding Strategy

* Provide details of how expenditure will be funded
* Determine whether any planning is needed to smooth out variations in cash flow

## Valuation Forecasts

* Forecast of future value of infrastructure and valuation methodology
* Forecast of depreciation

## What Are the Key Assumption Made in Financial Forecasts?

* This Section is very important.
* Readers should understand the accuracy of the information presented as well as providing an insight as to how the accuracy of future financial forecasts would be improved.
* Include a sensitivity analysis quantifying variations in the forecasts resulting from possible scenarios relating to key assumptions.

# Section 8: Organisational and Support Plan Structure

This section outlines the supportive Organisational and Support Plan.

## Human Resources

* What human resources are required to support the delivery of the infrastructure plan
* Number of human resources
* Skills required

## Organisational

* The type of organisational structure that is needed to support the implementation of the infrastructure plan
* Organogram
* Roles and responsibilities
* Reporting structure
* Delegation of authorities

## Financial

These should be prepared for at least 10 years and include:

* Cash flow forecasts by year
* Breakdown of expenditure by service groups
* Trends from the previous 2-3 years
* Provide details of how expenditure will be funded
* Determine whether any planning is needed to smooth out variations in cash flow

## Systems and Processes

### Accounting / Financial Systems

* Provide details of accounting standards / guidelines that must be complied with
* Details of changes in accounting system as a consequence of the plan

### Infrastructure Management Systems

* Is any software used to store and analyse infrastructure data?
* If so, describe software

### Data

* What types of data are available on infrastructures to help decision-making?
* What is the quality / reliability / adequacy of the data?
* Where is the information stored?
* How often is the information collected?

### Information Flow Requirements and Processes

* What is the key information flows to and from the plan?
* What processes are used to make decisions and replacements / renewals and acquisitions?
* Is there a formal project ranking system?
* How is the best decision made?
* Does it take into account risk cost, lifecycle costs, performance prediction, optimized decision-making?

### Standards and Guidelines

* What are the key standards and guidelines which influence attributes?

# Section 9: Plan Improvement and Monitoring

This Section should provide details on planning for monitoring the performance of the plan and any improvements to systems that will improve the level of confidence in the plan. Also, a three-year programme should be included for implementing the improvements identified in this Section.

## Performance Measures

* Outline of performance measures for the system
* Describe how the effectiveness of the plan will be measured

## Improvement Programme

* Details of actions proposed and timetables for improving accuracy and confidence in the plan, indicating responsibility for each action
* Details of resources required to implement the improvement programme

## Monitoring and Review Procedures

* Procedures and timetable for performance reporting (3-yearly review of plan)
* Timetable for external audit and review (of process, data integrity, level of service)

# Section 10: References and Appendices

## References

References should be recorded in sufficient detail so that users in the future will be able to access the information without difficulty.

## Appendices

As a rule, reports focus on descriptive text encompassing logical argument and conclusions drawn. The detail on which the arguments are based is typically contained in appendices. Appendices may include:

* Levels of service reviews / research
* Capital expenditure programmes
* Infrastructure data (condition, valuation, etc.)
* Relevant programme plans
* Demand management strategies
* Operating procedures
* Emergency response plans
* Contract information
* Project sheet for improvement tasks.

1. Communities here are defined in its broadest sense and could refer to rural and or urban communities – meaning the community to be served by the collection of infrastructure components dealt with by the plan. [↑](#footnote-ref-1)