
This note provides guidance for development of sewage treatment options and for preparation of the options report.

Sewage treatment options assessment

The provision of a new or upgraded sewage treatment system in regional NSW can be typically characterised by the following:

- Periods between major upgrades of greater than 20 years.
- Lead time for planning and delivery of 5 years or more.
- Investment can be large and often relies on external funding sources.
- A range of stakeholders are involved including the local water utility (LWU), community, regulatory and funding organisations.

It is essential for any project that sufficient investigation and planning is undertaken to allow the identification of the best possible upgrade that meets the long-term needs of the community and all stakeholder requirements as efficiently as possible.

Aims of options assessment

Options assessment is the first step in planning for a sewerage system upgrade. The assessment report will form the basis for the project and subsequent stages. It must also be suitable for communication with the community, regulators and other stakeholders.

Options assessment should be tailored for each individual project depending on the context and complexity of the sewage treatment requirements and **must** satisfactorily address the following questions:

- **Problem definition** - Are the reasons for augmentation or new works clearly indicated and justified? This may be asset condition, capacity, improved environmental performance or a combination of reasons.
- **Based on data** – Has sufficient information/data been provided? This may include items such as flow records, sampling programs, environmental performance and other operational information.
- **Consistency with IWCM** – Are the options being assessed consistent with the broader integrated objectives of the LWU?
- **Options** - Have enough options been generated to meet the community's apparent needs? Are there any alternative options which may be considered (e.g. non-build, operational modification and source control)?
- **Comparison** – Can the options be compared on an equal basis (e.g. NPV)? Do they all address the defined problem and adequately meet project objectives?
- **Investment** - Does the project have a reasonable design horizon (economic life of the asset)?
- **Hazard identification** – Are there hazards associated with options? Can they be managed? Is further work required?
- **Converge to a conclusion** – Has enough work been done to develop a conclusion?

The options assessment report must clearly display all assumptions, reasons and findings. This will allow the report to be used in community consultation as well as inform discussions with regulators and other stakeholders.

Information to be included

The level, detail of information required for an options assessment report will vary according to size, location and complexity. Some options may require additional investigation and data collection before the assessment can be completed.

A **check list** and **draft table of contents** has been included at the end of this information sheet to assist LWUs in scoping an options assessment.

Approvals

LWUs are reminded that approval by the Minister is required under Section 60 of the *Local Government Act 1993*. Early engagement with the Department at the options assessment stage will be a benefit for both the approvals process and in the identification of suitable options or reference projects.

Note that Section 60 approval does not apply to SPSs unless they form part of the sewage treatment plant.

Checklist

A checklist is provided to assist with development and review of options, their assessment and the options report.

No.	Issue	
1	Have all issues that require capital upgrade/ new sewage treatment plant been assessed and confirmed?	
2	Have all stakeholders been identified?	
3	Have all regulators been consulted to identify expected regulatory requirements?	
4	Have intrinsic deficiencies of the existing plant been identified including WHS?	
5	Have the root cause(s) of poor plant performance been identified?	
6	Is comprehensive effluent quality and plant performance information available?	
7	Is comprehensive sewage flow (both dry and wet weather conditions) and biological load information available?	
8	Have trade waste discharges (eg septage receipt) been considered?	
9	Is the design horizon for the works confirmed?	
10	Is information available for right sizing of treatment plant?	
11	Have all suitable effluent and biosolids management options been considered?	
12	Have delivery of sewage to the STP sites been considered including septicity?	
13	Are alternative STP site(s) warranted and been considered	
14	Are further investigations (eg. geotech) warranted?	
15	Have non-built solution(s) been rigorously evaluated?	
16	Have optimisation of existing plant been considered?	
17	Have all suitable upgrade options been considered?	
18	Can the issues be mitigated by addition/modification to the existing treatment processes?	
19	Have all suitable upgrade and new plant build options been considered?	
20	Are options fit for purpose?	
21	Are options cost effective?	
22	Do options use appropriate technologies?	
23	Do options meet the long-term needs of the community?	
24	Do options meet economic, social and environmental outcomes?	
25	Has staging of the works been considered?	
26	Are the options affordable?	

Options assessment draft table of contents

Section	What is required (not a complete list)
Executive summary	<ul style="list-style-type: none"> •
Introduction/ background	<ul style="list-style-type: none"> • Define the problem (what is being addressed – e.g. capacity, condition, performance, complaints) • Previous studies • Consultation/Approval requirements (EPA/Water NSW/NSW Health/DPIE)
Existing STP	<ul style="list-style-type: none"> • Description of the existing system • Description of existing effluent and biosolids management • Site layout • Plant schematic • Operational data/licence/environmental performance
Design basis	<ul style="list-style-type: none"> • Current population/loads including non-residential connections (trade waste/ septage) • Flows (measured) – ADWF, PDWF, PWWF • Growth • EP design allowances for growth • Design horizon • Future flows PWWF PDWF ADWF
Effluent and biosolids management options	<ul style="list-style-type: none"> • Environmental discharge/Reuse • Licence limits • Reuse quality requirements • Biosolids stabilisation requirements • Residuals management (grit/rag)
Collection and transport system options (if applicable)	<ul style="list-style-type: none"> • Gravity/LPS/Vacuum/CED • SPSs – locations, catchments and duties • Rising mains – size, routes
Treatment plant site	<ul style="list-style-type: none"> • Siting alternatives - existing and/or new site? • Flood security • Buffer zone issues (noise, odour, visual amenity) • Geotech information - preliminary/existing (e.g. ponds) • Site survey – preliminary/existing • Land acquisition • Available power/water
Option definition	<ul style="list-style-type: none"> • Process train • Broad unit sizing • Significant operational requirements (refurbishment, mechanical equipment, proprietary equipment/specialist servicing, WHS) • Expected performance
Cost estimate	<ul style="list-style-type: none"> • Capex • Opex • NPV
Conclusions and recommendations	<ul style="list-style-type: none"> • Option outcomes • Preferred option • Residual investigations required

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