Loddon-Mallee Housing Action Plan: Newbridge Water and Sewerage Infrastructure Preliminary Business Case

Swan Hill Rural City Council

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Executive summary

This document is one of four reports on projects which could unlock additional housing supply in the Loddon-Mallee region. The projects were identified during preparation of the Loddon-Mallee Housing Action Plan. While each report relates to a particular project or issue, the responses and lessons from each provide recommendations that are mostly replicable and scalable to similar issues elsewhere in the region, if not indeed across regional Victoria.

This document presents a preliminary business case for the Newbridge Water and Sewerage Infrastructure extension proposal with the aim of facilitating new housing development. Newbridge is located within the Loddon Shire LGA between Bendigo and Dunolly in north-central Victoria It considers the financing and funding issues relating to providing water and sewerage infrastructure within a small town context. It is a *preliminary* business case because while the included quantitative analysis suggests the project would deliver a net community benefit, further questions and issues requiring resolution to support the project are identified.

Context

A workshop in the style of an Investment Logic Mapping session was used to outline and understand the barriers to water and sewerage infrastructure provision in Newbridge, as a way of facilitating additional housing development, and identify the potential benefits of addressing the problem. Coliban Water and Loddon Shire Council representatives were involved in the workshop.

Options

Two options for water and sewerage infrastructure focussed on facilitating town expansions were identified and chosen by Coliban Water (from a long list, see Appendix A).

The realistic extent and merits of town growth were not considered in detail. More analysis of future and realistic demand prospects is necessary to support and scale the infrastructure investment proposal.

The project cases are based on the preferred delivery method for water and sewerage infrastructure produced by the options analysis undertaken by Coliban Water and the Newbridge stakeholders. The costs of the two project options considered in this report are scaled using the number of lots that would be serviced by the infrastructure.

- Base case: no water and sewerage infrastructure is built. This means Newbridge continues to rely on rainwater tanks, private water pumps for potable and non-potable water and septic tanks systems for sewerage. Under this option the town does not grow due to the constrained water and sewerage infrastructure. Continued use of septic tank systems in the long term will cause a build-up of nutrient and salt in soils and groundwater, suggesting that on site treatment and disposal is not a long term solution.

The two project options considered against the base case are

- Option 1: water and sewerage infrastructure is provided for the 40 lots in the township zone, west of the Loddon River. The infrastructure will give opportunity for densification within the township zone as larger lots can be sub-divided, increasing the property values of those lots. Businesses are able to expand with the increased water and sewerage capacity. However, further expansion of the town is limited as the water and sewerage infrastructure under this option is only designed to service the township area.
- Option 2: water and sewerage infrastructure is constructed to service the 40 lots in the township zone plus 290 lots within the available land close to the township zone. This means an increased population for the town, more opportunities to attract businesses into the Newbridge as there is a secure supply of potable water and sewerage infrastructure. The increased population and business expansion is larger than Option 1, as the water and sewerage infrastructure goes beyond the boundaries of the existing township.

Cost-benefit analysis

The CBA assessed whether there is a case for government intervention and financial support for this project. The CBA empirically address the question:

- Do the benefits generated by the proposed water and sewerage infrastructure generate an uplift in community welfare? That is, will net benefits, as expressed through measures such as Benefit Cost Ratio (BCR) and Net Present Value (NPV), be generated for the Victorian community?

The cost-benefit analysis was undertaken using an incremental approach which compares project options against the base (or do nothing) case (outlined above).

The cost-benefit assessment shows project Option 2 will provide a net benefit to Victoria with a return of $2.40 for every dollar invested and Option 1 will provide a dollar return for each dollar invested.

The analysis suggests that 90% of the benefit will be capitalised into property values. The remaining 10% of benefits would accrue more broadly through reduced public health risks and uplift in the local economy.

The preliminary economic evaluation provides a prima facie case for applying for external financing and seeking the involvement of a state agency guarantor to enable the infrastructure project, given the net benefits to Victoria.

Findings

Coliban Water can borrow to finance capital investments but only if financial analysis shows the benefitting residents can contribute sufficient revenue to service the debt. This would not be the case in Newbridge. A third-party financier would therefore be needed for investment in water and sewerage infrastructure in Newbridge.

Give the apportionment of benefits from the investment a combination of loan and grant appears to be the appropriate financing approach.

NHFIC would be an appropriate financing source. An indicative financing structure is a low interest loan for 90% of the capital investment (reflecting the share of benefits associated with land value uplift) and a grant equivalent to 10% of the capital cost (reflecting benefits accruing more broadly).

Establishing a sustainable and realistic funding source for the loan component, linked to the land-owner beneficiaries, is the main challenge.

Recurrent charges against the land are the obvious, notional source of funding.

Assuming a NHFIC or other sourced loan is secured and underwritten by for example DJPR, Council could use a special charge scheme levied on the private landowners that will receive upgraded water and sewerage infrastructure, with the income 'passed through' to the financier. However, such a scheme would be likely onerous in Newbridge unless the loan terms are generous. For example, based on a 10-year loan at 3.1% (current cash rate) interest each landowner will need to pay between $800 and $1,900 per month per property (Option 2 and Option 1 respectively). In other contexts (not in Newbridge) where the number of benefitting lots is higher special charge schemes might be more attractive.

There is a high likelihood more generous loan terms would not significantly push down the annual charge to a level comfortable for all private landowners.

Alternatively, State government could **charge a fee when land with upgraded water and sewerage infrastructure is sold or sub-divided**. Essentially the fee would act as a targeted value uplift charge. There is no obvious legal power currently available to establish this value capture charge against the land. The feasibility of developing and administrating such a scheme would need to be considered by State government.

Ultimately a combination of a special charge scheme and charge on land sale/sub-division might strike the right balance for private landowners, but more investigation is required to identify an appropriate and available funding mechanism, ultimately reflecting the beneficiary pays principle.

Further analysis needs to be undertaken to support this project. Additional questions that need to be addressed are:

- Is there a wider case for growing the township? What are the strategic merits and community infrastructure cost implications of growth in Newbridge compared to equivalent or substitute growth in an existing well-serviced location?
- What is the latent demand for housing in Newbridge? Does that demand justify the level of investment proposed for water and sewerage infrastructure?
- What share of the capital cost could ultimately be apportioned to private beneficiaries compared to that which accrues to the wider public?
- What is the appropriate financing source? This report suggests using NHFIC, however a combination of sources, inclusive of NHFIC, might be appropriate.
- What are the appropriate funding mechanisms that consider the stakeholder benefits accrued (i.e. that reflect the beneficiary pays principle), stakeholder financial capacity and feasibility of implementation?

1. Introduction

1.1 Housing Action Plan and four associated projects

This document is one of four reports on projects which could unlock additional housing supply in the Loddon-Mallee region. The projects were identified during preparation of the Loddon-Mallee Housing Action Plan.

While each report relates to a particular project or issue, the strategic responses and lessons from each provide recommendations that are mostly replicable and scalable to similar issues elsewhere in the region. There are two 'business cases' and two 'strategic policy guides' covering the projects. The business cases are quantitative and focus on the economic case for the housing proposal. The strategic guides address good practice processes and steps.

The projects are:

- Mildura worker housing project – expansion of an existing seasonal worker accommodation facility in regional Victoria (quantitative business case report)
- Etty Street housing site opportunity – a potential social and affordable housing development site with multiple titles, including state-owned and Crown land with associated Aboriginal lands rights implications (strategic policy guide report)
- Buloke worker housing project – understanding the strategic need for key worker housing to support the local community and considering options for key worker housing in Donald, in the Buloke Shire (strategic policy guide report)
- Newbridge Water and Sewerage Infrastructure extension – strategic approach to investing in infrastructure supporting new housing development in a small-town context (quantitative business case report).

All documents draw out and summarises replicable and scalable steps. The reports and especially their included "How to guides", are intended to provide housing practitioners with a toolkit to actively address typical barriers to new housing supply found in regional Victoria.

1.2 This report

This document presents a preliminary business case for the Newbridge Water and Sewerage Infrastructure extension proposal having the aim of facilitating new housing development. It considers the financing and funding issues relating to providing water and sewerage infrastructure within a small town context. It is a *preliminary* business case because while the included quantitative analysis suggests the project would deliver a net community benefit, further questions and issues requiring resolution to support the project are identified.

2. Context and Issues

2.1 Local context

The regional town of Newbridge is located within the Loddon Shire LGA between Bendigo and Dunolly in north-central Victoria, merely 20 kilometres from the planned Bendigo Regional Employment Precinct at Marong. Its proximity to Bendigo and access to the Wimmera Highway and Calder Freeway mean the town is well suited to absorb future population growth and businesses.

The residential population of Newbridge is fairly static with approximately 70 houses, around 40 of which are in the township zone[1]. While there is vacant residential land available, the lack of growth is at least partly attributed to the lack of water and sewerage infrastructure to enable residential development.

2.2 Scale of need

There is substantial residential demand in Bendigo and the surrounding region, and this is resulting in low vacancy rates, deteriorating housing affordability and lack of access to housing for workers. The infrastructure constraints in Newbridge appear to impede further residential development. Also, the lack of infrastructure poses public health risks to the existing population of Newbridge.

The lack of water and sewerage infrastructure impacts on Newbridge's growth and liveability. As smaller lots are deemed not suitable for onsite containment of wastewater, there are limited development opportunities, and newly built dwellings typically face septic treatment system costs of over $20,000, compared to the average sewerage connection fee of less than $1,500[2].

Newbridge experiences challenges in tackling both water quality and water security. Residents and businesses often rely on rainwater, which is at risk of contamination from the Loddon River during floods (for some households), as well as from animal droppings on roofs, leaking septic tanks and wastewater drainage (for underground tanks), posing health risks to residents and tourists. Furthermore, treatment of water from the Loddon River is not feasible due to its variability in quality and elevated organics, neither is the treatment of groundwater feasible due to high salinity.

Over 90% of septic tanks in Newbridge are over 25 years old and possibly no longer working properly, and a large number of these are located within the flood zone of the River thereby posing environmental risks. Any pollution of the river system impacts upon public health both within Newbridge and further downstream. Those who use the river for recreational purposes could get exposed to contaminated water if effluent from the septic tank systems leeches into the river, and residents who get their private water supply from the river face increased exposure. [3].

[1] Grantus 2021, *Newbridge Water Supply and Sewerage Scheme – Business Case*.
[2] IBID
[3] Grantus 2021.

2.3 Project history

A state-wide review of septic tank use conducted in 2006 prioritised Newbridge as one of the locations considered to be at high risk and in need of a proper sewerage management system. The Loddon Shire Council's Domestic Wastewater Management Plan completed in 2006 also highlighted several key issues relating to water and sewerage supply in Newbridge, including improper maintenance of septic tanks, discharge of greywater to the gutter, and poor septic tank placement (for example, being located in floodplains)[4].

Since then, various agencies have suggested alternate approaches to water and sewerage management in Newbridge. From 2010, Coliban Water and Loddon Shire Council began engaging the local community to develop and understand the costs of a sewerage scheme. The South West Loddon Pipeline announced in 2016, although primarily aimed at supplying rural farmers, was proposed to run past Newbridge and provided a possible alternate source of water supply for the residential community. Renewed community interest was piqued in 2018 when DELWP facilitated an Integrated Water management (IWM) planning exercise to engage with stakeholders from various aspects of the water cycle, with one of the aims to 'grow Newbridge sustainably'. In 2019, Coliban Water worked with the Loddon Shire Council and community representatives to reassess its water and sewerage treatment and supply options and developed a business case[5].

The Coliban business case identified the preferred options for providing potable water and sewerage. Appendix A outlines the options considered. The business case did not provide a direction regarding government funding sources for construction of water and sewerage infrastructure. However, the report noted consultation with Coliban Water, Loddon Council, Newbridge residents and the DELWP is required to determine the appropriate funding arrangement for this project.

2.4 Access to finance

The key barrier to the project of the 2019 business case moving ahead is sourcing external funding and a third-party financing guarantor. The business case states, "Whilst the community and Coliban Water could contribute to the overall cost, without State Government involvement, the project can't proceed ," (Grantus, 2021, p. 24). Newbridge customers are not able to finance the full capital costs of constructing the new water and sewerage services. Coliban Water is regulated by obligations to function in a financially sustainable manner and maintain pricing that is affordable for its customer base. Coliban Water can borrow to finance capital investments but only if financial analysis shows the benefitting residents can contribute sufficient revenue to service the debt. Coliban Water is constrained legislatively not to borrow and fund capital projects whose cost can not be recovered through customer charges.

Loddon Council understandably does not have the capacity and the appetite to take on debt given its obligations and financial position.

[4] Coliban Water n.d., *Newbridge Water & Sewerage Supply Business Case.*

[5] Grantus 2021.

Any costs incurred to provide the proposed services at Newbridge not fully recovered by Newbridge customers would mean higher bills for other customers.

In its recent Pricing Submission Coliban Water set out its priorities for investment, in line with the objectives of the state government and the Essential Services Commission:

- To reduce its charges to customers: To keep prices as low as possible, we will invest only where and when we need to over the next regulatory period … Prices for all existing tariffs will be set to follow a price path averaging CPI minus 1%, with the business capping inflation at an assumed 2.3% for the first year. This presents a real decrease in prices amounting to 10% by 2027-28.
- To control future capital expenditure: We propose to invest $142 million over the next regulatory period on capital works. Our proposed average annual capital spend will be $342 per customer. This compares to $519 in the previous regulatory period and $1,286 in the second regulatory period. This demonstrates our commitment to prudent and efficient capital investment for our customers and a focus on long term affordability.

Faced with greater scrutiny by the regulator and pressure to contain price increases for existing customers, Coliban Water's pricing submission did not include Newbridge as there were other perceived higher priorities for capital investment.

Water charging policy has to strike a balance between two conflicting objectives:

- To send strong price signals to customers to drive efficient behaviour. This argues for zonal cost-reflective pricing at a local level.
- Postage stamp pricing. This recognises that many of the corporation's costs are fixed and shared between locations and that disaggregated zonal pricing is expensive and complex to calculate and/or explain to customers.

Coliban Water has progressively moved from a disaggregated to a postage-stamp basis for pricing. It used to have different prices for multiple different locations. These reflected the history of investment in the 25 different water supply systems across its region. However, over time the corporation has moved towards a single unified pricing standard that reflects the level of service delivered rather than the history of investment in the past.

All connected properties would, in the future, be liable for annual charges from Coliban Water, representing a source of additional revenue that could be used to off-set the costs incurred. However, any such revenue would only be sufficient to cover the on-going annual operating costs of the new plant and would not generate funds to cover any capital costs.

However, if external funding and a third-party guarantor were to take on the financing obligations, the water authority would be able to build and operate the infrastructure (provided the investment is justifiable from a net community benefit perspective). As part of the Loddon-Mallee Housing Action Plan SGS identified NHFIC funding might be a suitable source of finance. The NHFIC facility is described

in Figure 1 below. A third party – potentially a State government agency such as DJPR - would need to take on the role of financial guarantor[6].

[6] From NHFIC data, the following entities, Evolve, Housing First, SA Housing Trust and the Victorian Public Housing Renewal Program received a combination of loan and grant funding for site works, including water and sewerage infrastructure. For the loan component, it was not apparent who has underwritten the loan.

FIGURE 1: NHFIC FACILITY

What is the National Housing Infrastructure Facility (NHIF)?

The National Housing Infrastructure Facility (NHIF) is an Australian Government initiative, which provides finance for eligible infrastructure projects that will unlock new housing supply, particularly affordable housing. The NHIF offers concessional loans, grants and equity finance to help support critical housing-enabling infrastructure and comprising:

- up to $175 million for NHIF grants ($1.5 million of which may be used to provide support to registered community housing providers in the form of capacity building activities); and
- up to $825 million for concessional loans and equity finance which will form part of a revolving permanent fund (with returns on loans and equity investments to be reinvested).

To be eligible an applicant must demonstrate that without NHFIC financing its project would be unlikely to proceed, or likely to proceed only at a much later date or with a lesser impact on new affordable housing.

The NHIF can provide finance to help support critical housing-enabling infrastructure. For example,

- electricity and gas, transportation including roads, telecommunications, and water, sewerage and stormwater.
- site remediation works including the removal of hazardous waste or contamination

Eligible applicants include registered community housing providers, local governments, state or territory governments, and government-owned development corporations or utility providers.

The provision of NHIF Loans, NHIF Grants and NHIF Equity Investments is subject to sufficient funds being available each financial year.

To apply for a NHIF Loan and/ or NHIF Grant (once an EOI Form has been submitted), Applicants must:

- complete the Application Form provided by the NHFIC relationship manager;
- provide all the information requested in the Application Form and the guidelines;
- address all the Assessment Criteria and (for NHIF Loans) provide evidence of the Applicant's ability to repay the loan; and
- submit their application to the NHFIC through an NHFIC relationship manager, along with all required supporting documentation.

Source: NHFIC

Where projects can be shown to benefit the state as a whole, the State Government would be best placed as guarantor. Benefits include the following:

- Given the current housing shortfall, residential growth resulting from the infrastructure investment will enable workers to relocate to the region for work and unlock latent economic potential, in turn generating an uplift in Victoria's GSP.
- The provision of the appropriate water and sewerage infrastructure would provide the opportunity for larger business to enter the town and for existing businesses to scale as they do not need to rely on rainwater tanks. More businesses and scaling of businesses will create more job opportunities within Newbridge.
- Access to modern water and sewerage infrastructure will improve public health in the area. Access to clean water and safe sewerage systems reduces health risks to existing and future residents alike.

2.5 Benefits of addressing the problem

The current lack of water and sewerage infrastructure acts as a deterrent to social and economic growth:

- Development of new properties within the township is constrained as the lot sizes are generally too small to allow full retention of the treated wastewater effluent on site. This inhibits the growth of the township which could become a commuter hub for Bendigo, just 30 minutes away, and lift the value of the existing properties.
- Where development is allowed the scale of the housing is severely constrained with a strict limit on the number of bedrooms, which limits accommodation options for families.
- Where dwellings have been built in recent years on larger plots their septic treatment systems cost in excess of $20,000. This adds an up-front cost impost which is a deterrent to development.
- The existing commercial ventures in the town, such as the general store, hotel, micro-brewery and recreation reserve, are all constrained from further development due to the constraints imposed by the absence of a public water and sewerage system particularly in periods when there are high water needs.
- Tourist opportunities cannot be exploited. For example, the Newbridge Food and Wine Festival saw 450-500 attendees, with another 120 people at the dinner inside the pavilion. It is difficult to repeat or expand this due to the limits on toilet facilities, the water supply being reliant on rainwater tanks in the town and the restricted level of accommodation available for visitors.
- Currently, residents are exposed to public health risks due to reliance on septic systems while being located in a flood risk area.

The provision of a public sewerage and water supply service would remove these constraints and promote economic development in the township[7]:

- More vacant lots would be developed, increasing the size of the town and bringing in new people and activity. A wider range of lot sizes and dwelling types cold be developed, catering for families as well as downsizers and smaller households.
- Existing properties would increase in value as serviced properties are a more attractive proposition and command a higher market valuation. A study as part of the business case for the South West Loddon rural pipeline estimated a 30% increase in value due to the provision of a piped water supply for rural properties. Discussions with local Estate Agents confirms this uplift as a reasonable basis for extrapolation to Newbridge.
- Existing businesses would be encouraged to expand their business activities. This is supported by the existing interest from:
  - The general store wanting to establish bed and breakfast units
  - The micro-brewery wanting to expand its business
  - The hotel wanting to expand its offerings
  - The recreational reserve which has demonstrated the potential for further expansion with the success of the Newbridge Food and Wine Festival.
- Existing and future residents have a reduced exposure to public health risks associated with access to fresh water.

2.6 The project

The initial proposal focused on servicing 40 lots within the township zone. However, with a broader understanding of the strategic placement of Newbridge within the regional context and the availability of developable land, Newbridge could accommodate an additional 290 lots[8], with appropriate water and sewerage infrastructure.

[7] Grantus 2021, Newbridge Water Supply and Sewerage Scheme – Business Case.

[8] The estimation is based on an indicative housing capacity assessment of a broad area of land near the township identified by Loddon Council to indicate a potential yield of housing that could be unlocked from providing water and sewerage infrastructure. A precise calculation of yield and the associated land requirement was beyond the scope of this report.

Further considerations

For the development proposal to be robust, some additional key contextual questions needed to be answered:

- What is the latent demand for housing in Newbridge? Where would the demand come from and over what time might an additional 330 lots be occupied?
- Does the level of realistic projected demand justify the size of the development proposal?
- Does Council have the capacity to support increased demand on community infrastructure?

Justifiable projected demand might be lower (or higher) than anecdotal expectations. Scrutinising demand prospects relative to the development proposal will be important in threshold justifications for investment and thereafter to guide the scope of the project and investment size.

3. Cost Benefit Analysis

3.1 Cost benefit framework

As per convention, the CBA is undertaken at the State level and assesses the costs and benefits to Victoria as a whole.

CBA is an appraisal method that compares the costs and benefits of a project (the project case) to a situation without the project (Business as Usual case, or base case).

An options analysis was undertaken by Coliban Water in consultation with stakeholders to determine the appropriate type of water and sewerage infrastructure (a list of the options considered is in Appendix A). The option chosen for water was a gravity-fed piped supply from the neighbouring town of Tarnagulla, part of the Laanecoorie system. For sewerage, a standard gravity-fed system to a central collection sump with the sewage pumped to a new small-scale local treatment plant was selected. The use of onsite treatment and disposal is not sustainable in the long-run due to the build-up of nutrients and salts in the soil and groundwater that is occurring[9].

The project cases described in this report are scaled versions of these preferred water and sewerage infrastructure delivery options. The base case and the project case are described below.

Business-as-usual

Newbridge residents keep using rainwater tanks and private water pumps drawing water from the Loddon River. Sewerage continues to be serviced through septic tanks. Under this case, Newbridge does not expand as a town and business growth opportunities are constrained.

Option 1

Water and sewerage infrastructure is only provided to 40 township lots. This option addresses the core issues of health risks posed by the current water and waste water system. Future town growth is not secured under this option. Further financing and construction will be needed to enable expansion.

Option 2

The water and sewerage infrastructure services the existing 40 lots, and also allows developments of a further 290 lots conditional on private developer converting the available rural land into residential land. A connection point is constructed and water and sewerage infrastructure is built to accommodate a further 290 lots. This proposal sets up the town to expand based on attracting the right investor and market interest. The aim is to kick start developer led housing provision by shifting the development feasibility equation in a way that improves the Residual Land Value.

[9] Coliban Water, Newbridge Water & Sewerage Supply Business Case

Table 1 lists the costs and benefits that are considered in the cost benefit analysis and the quantification method.

TABLE 1: COST BENEFIT FRAMEWORK

Incremental costs	Incremental benefits
Capital costs – these are the costs to providing the water and sewerage infrastructure. These costs were provided by Coliban Water	Increase in property values – having appropriate water and sewerage infrastructure make development of land in Newbridge more attractive. Existing properties would see an uplift due to the potential to sub-divide lots. Housing development would be more feasible with any subsidised infrastructure funding that draws in private developers. Quantification based on number of lots * uplift estimate provided in the Grantus (2021) business case.
Operating and maintenance costs – are the ongoing costs to maintain the operation of the water and sewerage facilities. Costs provided by Coliban Water	Increase in economic profitability - enabling further housing development attracts more workers to the region, not otherwise available to regional producers. Quantification based on number of workers per dwelling and profits generated per worker using ABS Industry data. Profits are weighted by the industry structure of Loddon.
Loss of rural farming land – switching the land use from rural farming land to housing would include a loss from the agricultural productive potential. This is quantified using the market price for farmland in North-West which is $3278 per hectare, CPI adjusted, from the Australian Farmland Values report 2020[10]	Avoided public health risks – The provision of appropriate water and sewerage infrastructure will reduce the health risks posed by the current system that leaves the river vulnerable to contamination by ageing septic systems and rainwater tanks at higher risk of exposure to contaminants. This benefit is quantified using the NSW SSWP Guidelines for avoided costs of water borne diseases. The parameter estimates an avoided cost of $352 per household, CPI adjusted. A typical household size is 2.2 according to ABS Census 2021 for Loddon LGA. The avoided cost is applied to the 40 lots already using septic tanks and either rainwater tanks or water pumps.

Source: SGS Economics and Planning

Incremental costs

The incremental costs are the capital costs, operating costs and loss of rural land shown in Table 2. Under Option 1 there is no loss of rural land as water and sewerage infrastructure is only developed to meet the needs of the 40 lots within the township zone of Newbridge.

TABLE 2: INCREMENTAL COSTS

	Total	FY23	FY24	FY25	FY26	FY27 and onwards

10 https://www.ruralbank.com.au/siteassets/knowledgeandinsights/publications/farmlandvalues/victoria/afv-vic-2020.pdf

Option 1						
Capital costs ($000s)	8780.0	8780.0				
Operating costs ($000s)	1760.2		88.0	88.0	88.0	88.0
Loss of rural land ($000)	-	-				
Option 2						
Capital costs ($000s)	27,000	27,000				
Operating costs ($000s)	8,600		430	430	430	430
Loss of rural land ($000)	184	184				

Source: SGS Economics and Planning; Coliban Water

Incremental benefits

Property value uplift and increased economic output will be the most significant benefits generated by providing water and sewerage infrastructure in Newbridge across the 2 project options. Avoided public health costs from water borne diseases, though small are still a substantive benefit that will result from the infrastructure. Table 3 shows the dollar values for each of the benefits.

TABLE 3: INCREMENTAL BENEFITS

	Total	FY23	FY24	FY25	FY26	FY27 and onwards
Option 1						
Increase in property values ($000s)	16,000	-	800.0	800.0	800.0	800.0
Increase in profitability ($000s)	1428	-	71.4	71.4	71.4	71.4
Avoided public health costs ($000s)	281.6	-	14.1	14.1	14.1	14.1
Option 2						
Increase in property values ($000s)	132,000	-	$6600.0	$6600.0	$6600.0	$6600.0
Increase in profitability ($000s)	11781.0	-	589.1	589.1	589.1	589.1
Avoided public health costs ($000s)	281.6	-	14.1	14.1	14.1	14.1

Source: SGS Economics and Planning-

3.2 Preliminary Cost Benefit Assessment

Overarching assumptions

Overarching assumptions for the discounted cashflow analysis are as follows:

- Values 2022, real (i.e. no escalation)
- Timeframe 20 years (2022 to 2042)
- Discount rate 7% real.

Results

The preliminary economic evaluation provides a prima facie case for applying for external funding and seeking the involvement of a state agency guarantor to enable the infrastructure project, given the net benefits to Victoria. Table 4 shows Option 2 will provide a net benefit to Victoria with a return of $2.40 for every dollar invested and Option 1 will provide a dollar return for each dollar invested. Table 5 provides descriptions of the CBA performance measures. Even when the benefits are varied according to Table 6, Table 7 shows the project Option 2 will still generate a net benefit to Victorians with the BCR above 1. Whilst Option 1 will generate a net dis-benefit if the estimated benefits varied.

The analysis suggests that 90% of the benefit will be capitalised into property values. The remaining 10% of benefits would accrue more broadly through reduced public health risks and uplift in the local economy.

TABLE 4: COST-BENEFIT RESULTS

	Option 1 (Net Present Value)	Option 2 (Net Present Value)
Capital costs	$8,780,000	$27,000,000
Operating costs	$1,279,200	$5,500,800
Loss of rural land	$0	$184,000
Total incremental costs	**$10,059,200**	**$32,684,800**
Increase in property values ($000s)	$8,528,000	$70,352,000
Increase in profitability ($000s)	$844,000	$6,962,000
Avoided public health costs ($000s)	$90,000	$68,000
Total incremental benefits	**$9,743,000**	**$77,382,000**
Net benefits	**($316,200)**	**$44,697,200**
BCR	**1.0**	**2.4**

Source: SGS Economics and Planning

TABLE 5: CBA PERFORMANCE MEASURES

Performance measure	Estimation method	Decision rule
Net Present Value (NPV)	A number is generated by deducting the present value of the stream of costs from the present value of the stream of benefits (with the present value of costs and benefits determined by using an appropriate discount rate). Reject options with a negative NPV	- Accept options with a positive NPV - Reject options with a negative NPV - The greater the NPV, the better.-
Benefit Cost Ratio (BCR)	Ratio of discounted present-day benefits over discounted present-day costs.	- Accept options with a BCR > 1 - Reject options with a BCR < 1 - The greater the BCR, the better.

Source: SGS Economics and Planning

TABLE 6: SENSITIVITY TEST ASSUMPTIONS

	Base assumption	Pessimistic	Optimistic
T1: Discount rate	7%	10%	4%
T2: Benefits	As per model	-5%	+5%

Source: SGS Economics and Planning

TABLE 7: SENSITIVITY RESULTS

	Pessimistic (BCR)	Optimistic (BCR)	Pessimistic (NPV)	Optimistic (NPV)
Option 1				
T1: Discount rate	0.7	1.1	($2,492,200)	$1,255,200
T2: Benefits	0.9	0.9	($987,800)	($925,800)
Option 2				
T1: Discount rate	1.9	2.8	$28,176,800	$61,189,200
T2: Benefits	2.3	2.3	$41,484,000	$41,927,000

Source: SGS Economics and Planning

Potential financing and funding mechanisms

When it comes to infrastructure investment, financing and funding are two separate concepts. Financing is defined as the act of obtaining or providing money or capital for an investment or purchase or business activity. Funding is defined as the money provided, especially by an organization or government, for a particular purpose, often to 'repay' or provide a return on the capital financing. A government grant to an organisation, for which no return is expected, could be considered both finance and funding (though ultimately the taxpayer is the source of the funding).

Give the apportionment of benefits from the investment a combination of loan and grant appears to be the appropriate financing approach.

NHFIC would be an appropriate financing source. An indicative financing structure is a low interest loan for 90% of the capital investment (reflecting the share of benefits associated with land value uplift) and a grant equivalent to 10% of the capital cost (reflecting benefits accruing more broadly).

Establishing a sustainable and realistic funding source for the loan component, linked to the land-owner beneficiaries is the main challenge.

Recurrent charges against the land are the obvious, notional source of funding. Coliban Water is constrained in the place specific or 'zonal' pricing approaches they can impose and the limits to spikes in costs being shared across the wider customer base under a 'postage stamp' pricing approach.

Assuming a NHFIC or other sourced loan is secured and underwritten by for example DJPR, Council could use a special charge scheme levied on the private landowners that will receive upgraded water and sewerage infrastructure, with the income 'passed through' to the financier. However, such a scheme would be likely onerous unless the loan terms are generous. For example, based on a 10-year loan at 3.1% interest (current cash rate) each landowner will need to pay $1,900 per month per property under Option 1 (40 lots) and $800 per month per property under Option 2 (330 lots). Indicatively, a survey of private landowners showed a rate of $750 per annum would be not feasible for some landowners[11]. In other contexts (not in Newbridge) where the number of benefitting lots may be higher special charge schemes might be more attractive.

NHFIC does provide generous loan terms such as a longer loan periods, extended periods of capitalisation, deferral of loan payments and options for debt restructuring. There is a high likelihood more generous loan terms would not significantly push down the annual charge to a level comfortable for all private landowners.

Alternatively, State government could **charge a fee when land with upgraded water and sewerage infrastructure is sold or sub-divided**. Essentially the fee would act as a targeted value uplift charge. There is no obvious legal power currently available to establish this value capture charge against the land. The feasibility of developing and administrating such a scheme would need to be considered by State government.

Ultimately a combination of a special charge scheme and charge on land sale/sub-division might strike the right balance for private landowners.

[11] Grantus 2021, Newbridge Water Supply and Sewerage Scheme – Business Case.

Further considerations

In considering an appropriate financing and funding structure where support or subsidies are being sought for a public infrastructure investment which could yield a net community benefit questions to be addressed include:

- Can the beneficiaries of the capital investment or costs be split between private interests and the wider public?
- What is the appropriate financing structure for example, combination of loan and grant conditional on the respective split between private landowners or beneficiaries relative to the public?
- What is an appropriate and justifiable funding mechanism that could apply to private landowners or entities, recognising the share of benefits accruing to these interests and based on the 'beneficiary pays' principle.

The proposed Loddon-Mallee Housing Support Officer would be pivotal in investigating these questions and options.

4. Guidance for similar contexts

The table below provides guidance for councils facing similar 'up-front' infrastructure impediments to growth. The guidance is high-level and specific to water and sewerage infrastructure in a small local government area. As part of the guidance, the role for a Housing Support Officer (or similar) in similar projects is shown in the table.

The CBA components are also transferable to areas with similar issues. The CBA results for this preliminary business case demonstrate a wider community benefit to support the infrastructure provision (albeit a share of value is capitalised as private property value). It provides a justification for Council or other levels of government to collaborate, advocate for funding and potentially contribute funding to enable the project to proceed, particularly where a funding or revenue source can be established. While the exact results of the CBA may vary from site to site, there will be common components of the CBA across areas with similar issues.

TABLE 8: GUIDANCE MATERIAL SECURING FUNDING FOR INFRASTRUCTURE

Key stages	Role of Housing Officer
Development of infrastructure and housing supply proposal	**Strategic and Needs Assessment:** Assist council in developing a proposal that details the housing supply unlocked by the infrastructure and estimates of the cost of the required infrastructure. A clear 'project' case needs to be based on a sound development scenario justified by a realistic projection of housing demand. Questions to consider are: ▪ What is the latent demand for housing in Newbridge? Where would the demand come from and over what time might an additional 330 lots be occupied? ▪ Does the level of realistic projected demand justify the size of the development proposal? Scrutinising demand prospects relative to the development proposal will be important in threshold justifications for investment and thereafter to guide the scope of the project and investment size.
Development of business case	**Building the investment case:** undertake the economic and financial analysis (with consultant if necessary) to support the project case (including identifying appropriate financial and economic indicators consistent with State Government guidelines). A clear statement of costs and benefits, and the quantification methodology, will need to be included.
Secure a financial guarantor	**Secure financial partner:** assist council with identifying and securing a State agency to be a financial guarantor for the required capital, as warranted and justified by the business case.
Identify funding mechanism	**Investigate funding options** – in line with the financial capability of the stakeholders. Questions to consider are: ▪ Can the beneficiaries of the capital investment or costs be split between private interests and the wider public?

	▪ What is the appropriate financing structure for example, combination of loan and grant conditional on the respective split between private landowners or beneficiaries relative to the public? ▪ What is an appropriate and justifiable funding mechanism that could apply to private landowners or entities, recognising the share of benefits accruing to these interests and based on the 'beneficiary pays' principle. identify the appropriate funding solutions
Seek financing	**Support NHFIC application:** provide council with assistance to obtain capital for infrastructure including with applications.

Source: SGS Economics and Planning

Appendix A: Water and Sewerage Infrastructure Options Considered

Below are the water and sewerage options considered for Newbridge. These are direct excerpts from the Coliban Water report

Sewerage

Option 2 – Conventional Gravity System with Lagoon Plant
The use of Modified Conventional Sewerage is consistent with sewerage systems installed in other small towns across the Coliban Water region. Sewer mains are laid from every allotment that is to be serviced and run to a central pump station which pumps waste to be treated at a new Water Reclamation Plant. Sewers will be from 1m to 5 m deep. The pump station requires extensive works and the WRP requires land to be purchased.
This option requires 2400 m of gravity main, 25 manholes, one pump station and 3500 m of rising main to a WRP that is to be located outside the flood plain. The WRP is to be a lagoon based plant located on 64 ha of land. Reclaimed water is expected to be irrigated onto land using a centre pivot irrigator.

Each owner is required to run a new drain to their connection point

Option 3a – Pressure sewer system, truck to an existing system
While not used extensively in Coliban's systems, the pumps and small diameter pressure mains are a technology that is not uncommon and quite manageable from an operations and maintenance viewpoint. Pump stations are now purchased as off the shelf units and are relatively simple to install. The pump unit will be owned and maintained by Coliban Water. Future development of the area would require the use of similar methodology and is not as customer friendly as a conventional gravity system.
Pressure pipes of 50 mm and 63 mm diameter will be installed at about 1 m deep and run to a central collection point. A pump will be installed on every property. The pump will be connected to the owner's household power supply. The owner will connect their property drains to the pump station. Waste will be pumped to the central collection point from which it will be trucked away to an existing system on a regular basis.

Option 3b Pressure sewer system, truck to an existing system for 10 years and then construct a WRP.
This option is the same as Option 3a except that it is proposed to construct a WRP after 10 years. There is a risk that trucking waste to an existing system may be unsustainable if growth in Newbridge increases beyond Coliban Water's prediction. This option includes trucking for the first 10 years life of the scheme and then the construction of a lagoon based treatment plant with agricultural reuse within a 3.5 km to the west of Newbridge.

Option 4 Pressure sewer system, treatment at the recreation reserve and reuse on the recreation reserve.
The collection system is similar to option 3 but the waste is pumped to a mechanical treatment plant for treatment prior to reuse on the recreation reserve on the east side of the Loddon River and largely in the

flood plain. A package treatment plant will be established together with a small winter storage. Subsurface irrigation is proposed as a means of reducing the risk of human contact with the treated waste at the Recreation Reserve.

Option 5, Household treatment, Pressure sewer system and irrigation of agricultural land

This option proposes that waste from every house be treated on site and the treated effluent pumped to a WRP. Small household treatment plants are commonly used on larger allotments with the treated waste being reused sustainably on site. Under this option for the smaller lot sizes in Newbridge, treatment plants and a pump would be constructed on each lot and the treated effluent pumped to a winter storage and reuse area. It is planned that the reuse area would be within 1 km of the town.

Option 6a Pressure sewer system, package treatment plant and agricultural reuse

The Pressure sewer system to be installed is the same as for option 3b. However, rather than initially trucking the waste to another WRP for treatment, the WRP is to be constructed up front. The sewage is to be treated in a package treatment plant, stored in a winter storage and then reused on agricultural land.

Option 6b Pressure sewer system, lagoon based treatment and agricultural reuse

This option is similar to Option 6a but utilises lagoons for the treatment of the waste. Lagoons require a larger buffer zone so this option requires a larger area of land than that needed for a package treatment plant. It is the same as Option 3b except that the WRP, winter storage and reuse area is constructed up front.

Option 7 Conventional Gravity Sewer with pipeline to Bridgewater WRP

This option is similar to Option 2, but instead of constructing a new lagoon based water reclamation plant near Newbridge township, utilises a rising main to pump effluent to the existing WRP in Bridgewater.

This involves a 16.3km rising main from Newbridge to the Bridgewater WRP.

Septic Tank Effluent Drainage

The Elmore and Lockington Systems are STED systems. A Septic Tank Effluent Drainage system would involve the installation of a similar length of pipe as the gravity system but pipes can be smaller and at a flatter grade as they carry liquid only. The assessment determined that this type of system would not provide any cost advantage over the gravity system. It has not been considered any further.

Septic Tank Effluent Pump

This is similar to the STED option except that pumps are installed after the septic tank and waste is pumped through a pressure system to the WRP. Coliban operates a STEP system for two houses in Kangaroo Flat and Chelsworth Park in Echuca with about 160 houses. The whole of life costs are not expected to be significantly less than a Pressure sewer system. This option does not provide an advantage over the Pressure sewer system. It has not been considered further.

Vacuum System

While a vacuum sewerage system is technically feasible, the options assessed above present outcomes with lesser risk. It has not been considered further

Recycling

Wastewater trucked to another sewerage system, will be reused in accordance with the established reuse system in that town. Should a WRP be established at Newbridge, the community will be consulted about opportunities for reuse in and around the town.

Water

Option 2 – Pipeline from Bridgewater/Inglewood system

Connection of Newbridge via a new pipeline from the Bridgewater WTP.
Scope of works:

- New transfer pipeline from Bridgewater WTP to a new tank in Newbridge. 18 km of DN100 pipework and dedicated pump station at Bridgwater WTP site. As well as 2 km of DN100 pipework transferring water from the storage reservoir to the reticulated system.
- 100 kL tank at Newbridge (180 kL tank to service both side of Loddon River). Located adjacent to the Wimmera Hwy to the west of Newbridge at an elevation to allow gravity supply to the town. Sized to provide 16 hours capacity on a peak day.
- Allowance for a booster chlorinator at the Newbridge tank to maintain chlorine residual at the customer tap.
- Reticulation of town based on the East Loddon Water Supply Stage 1 Feasibility Study (W3Plus) on the Western side of Loddon is proposed to service 50 lots. An allowance has been included for the addition of a reticulation system and bridge crossing to service the properties within the township zone on the Eastern side of Loddon River

Option 3 – Pipeline from Tarnagulla (Laanecoorie system)

Connection of Newbridge via a new pipeline from the Bridgewater WTP.
Scope of works:

- New transfer pipeline from Laanecoorie WTP to a new tank in Newbridge, with the interface being at Tarnagulla. 6.2 km of DN100 pipework gravitates to the water supply tank, with 2 km transferring water from the water supply tank to reticulation system.
- 100 kL tank at Newbridge (180 kL tank to service both side of Loddon River). Located adjacent to the Wimmera Hwy to the west of Newbridge at an elevation to allow gravity supply to the town. Sized to provide 16 hours capacity on a peak day.
- Allowance for a booster chlorinator at the Newbridge tank to maintain chlorine residual at the customer tap.
- Reticulation of town based on the East Loddon Water Supply Stage 1 Feasibility Study (W3Plus) on the Western side of Loddon is proposed to service 50 lots. An allowance has been included for the addition of a reticulation system and bridge crossing to service the properties within the township zone on the Eastern side of Loddon River

Option 4 - New Water Treatment Plant (South West Loddon Pipeline)

Connection of Newbridge via a new pipeline connecting to the Southwest Loddon Pipeline. Water supply will be transferred to a new WTP at Newbridge via a pump station.
Scope of works:

- New 2 km transfer pipeline from Southwest Loddon Pipeline to a new WTP at Newbridge, including pipeline from water supply tank to reticulation system.
- New WTP to treat the Southwest Loddon Pipeline influent.
- 100 kL tank at Newbridge (180 kL tank to service both side of Loddon River). Located adjacent to the Wimmera Hwy to the west of Newbridge at an elevation to allow gravity supply to the town. Sized to provide 16 hours capacity on a peak day.
- Reticulation of town based on the East Loddon Water Supply Stage 1 Feasibility Study (W3Plus) on the Western side of Loddon is proposed to service 50 lots. An allowance has been included for the addition of a reticulation system and bridge crossing to service the properties within the township zone on the Eastern side of Loddon River

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