



Assessment of non-market benefits of implementing large-scale WSUD: Greening the Pipeline case study

The CRCWSC assessed community attitudes and values associated with restoration options for the Main Outfall Sewer (MOS) reserve in Melbourne. The results indicate people's preferences for more parkland for community use. The dollar values obtained can be included in benefit-cost analysis.

Introduction

Many councils and water utilities around Australia are undertaking liveability improvement projects to tackle population growth and land use changes. However, making decisions about investing in these water sensitive urban design (WSUD) projects requires considering all benefits, including social benefits.

The CRCWSC, in close consultation with Melbourne Water and case study partners, assessed community attitudes and values to understand the non-market benefits associated with improving the Main Outfall Sewer (MOS) reserve in Melbourne (a [Greening the Pipeline](#) initiative). Greening the Pipeline is a partnership between Melbourne Water, Wyndham City Council, VicRoads and City West Water, and is supported by Greening the West.



Figure 1: Location of the case study site area

Case study area

Greening the Pipeline aims to transform the heritage listed MOS pipeline reserve, along the Federation Trail bike path, into a parkland to service a growing population in Melbourne's west. The vision is for a vibrant space that connects communities, enhances active transport options, manages water sensitively and provides a unique space to meet, play and relax. The MOS reserve runs between Millers Road in Brooklyn and the Western Treatment Plant in Werribee. It is about 25 km long and 40 m wide. The hedonic price analysis study used the Brooklyn Park improvement project, a four hectare public open space created by landscaping and planting trees and shrubs located in the Brooklyn Federation Trail Park (Figure 1).

Methodology

This [case study](#) applied two distinct non-market valuation techniques:

- *Hedonic price analysis*: establishing Brooklyn Park improved the amenity value, particularly for those residents living immediately adjacent to the park (within 50 m). Using property sales data from 1990 - 2019 provided by a commercial provider, we conducted a hedonic price analysis to examine the influence of the park improvement project.
- *Discrete choice experiment*: we surveyed 868 residents with a diverse range of socio-economic backgrounds who live within 5 km of the MOS. We analysed people's responses to a series of hypothetical parkland development scenarios to understand their preferences for features such as vegetation, general park facilities, paths and tracks, exercise facilities, rainwater management and a local crossing over the pipeline.

Results

- The hedonic analysis showed about 5% uplift in house prices (0.66% to 10.30%) within 50 m of Brooklyn Park after its construction. The combined uplift in the house prices is about \$5 million.
- Respondents were willing to pay significantly more for the highest level of park facilities ("seats + drink fountain + BBQs + toilets") than for other levels of park facilities (see Figure 2).
- Respondents had a negative value of -\$588 associated with maintaining the status quo, which indicated their strong willingness to avoid the current derelict condition.
- The **aggregate** non-market value of potential restoration projects could be between \$29 million and \$152 million, depending on the level of investment.

Conclusion

This study shows restoring the MOS reserve will create significant non-market benefits for the local community. These benefits have been quantified by measuring increases in house value and in terms of people's willingness to pay for improvements in amenity. This information helps to prioritise which activities might be undertaken in MOS restoration projects.

Features	Average willingness to pay
Park facilities	
Seats	\$84
Seats + Drink fountain	\$89
Seats + Drink fountain + BBQs	\$136
Seats + Drink fountain + BBQs + Toilets	\$221 ^{^^}
Exercise facilities	
Exercise equipment	\$64
Playground	\$87
Exercise equipment + Playground	\$121
Exercise equipment + Playground + Skate park	\$128
Rainwater management	
Pollutant removal	\$114
Pollutant removal and water re-use	\$135
Vegetation	
Grass only	\$35 ^{^^}
Grass and some trees	\$146
Grass and many trees	\$179
Crossing	
Footbridge	\$90
Narrow crossing	\$75
Wide crossing	\$76
Path	
Renovated shared path	\$78
Renovated separate path	\$78
Status quo	-\$588

^{^^}Indicates the willingness to pay reported for this attribute level is significantly different from the willingness to pay for other improvement levels. All willingness to pay figures reported are significantly different from \$0.

Figure 2: Willingness to pay (\$/household)

Further information

Greening the Pipeline website: www.greeningthepipeline.com.au

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