

Subject: Analyzing the Effectiveness of Dubuque's Green Alley Reconstruction
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EXECUTIVE SUMMARY

This policy analysis introduces a comprehensive evaluation framework consisting of four key metrics: sustainability, economy, equity, and fiscal responsibility, to assess the effectiveness of the Green Alley Reconstruction Project in Dubuque City. Upon evaluating the project using these criteria, the analysis recommends expanding the initiative, contingent upon the implementation of a proper maintenance plan.

BACKGROUND

The city of Dubuque initiated the Green Alley Reconstruction Project in 2009 to mitigate flood and stormwater issues. The project identified 240 downtown alleys to be transformed into green alleys, which are alleys with pervious surfaces. Although the primary objective of this policy was to mitigate flood and stormwater capture, the impacts of the green alley project extend far beyond flood mitigation and stormwater management, encompassing a diverse range of advantages that surpass mere infrastructure development. Its impact and benefits are multifaceted, significantly influencing socio-economic growth, equity, and more. As of 2024, one third of the project (over 80 green alleys) has been constructed. This stage presents a suitable moment to evaluate the policy and identify areas for improvement.

This policy analysis aims to achieve three primary objectives by utilizing publicly available data and employing both quantitative and qualitative approaches: firstly, by conducting a program evaluation; secondly, by providing evaluation metrics for the project to the client; and thirdly, by offering policy recommendations.

EVALUATION METRICS

This policy analysis utilizes a comprehensive framework to evaluate the Green Alley Project, considering its impact across various dimensions. Four key metrics form the foundation of this assessment:

- **Sustainability:** This metric focuses on the project's environmental impact. Specific areas of study within this metric include water quality and stormwater capture capabilities.
- **Economy:** This metric assesses the project's economic influence on the community. Property value changes and wage creation through construction activities fall under this category.
- **Fiscal Responsibility:** This metric evaluates the project's manageability from a financial perspective. It focuses on maintenance plans and construction costs, ensuring the project remains financially sustainable in the long run.
- **Equity:** This metric ensures fairness in the distribution of project benefits and costs. The analysis within this metric examines the impact on renters through changes in rent growth rate and median gross rent, alongside special assessments for property owners.

POLICY ANALYSIS

Sustainability

The project's contribution to environmental sustainability is relatively low, primarily due to its maintenance falling short of meeting the required standard. Consequently, across all observed categories—such as improving water quality and stormwater capture—performance varies but tends to be low. While stormwater capture during high-frequency 0-5-year events shows a moderate level of effectiveness in both the current and full implementation, capturing stormwater during low-frequency +5-year storm events is rated as low for both stages. Additionally, the project's performance in flood mitigation, particularly in total stormwater capture, is rated as low for both the current and full implementation.

Economy

In the current implementation in 2023, property values adjacent to green alleys experience a cumulative increase of \$3.7 million. When fully implementing the project, with the current growth rate held constant, this increase is projected to rise to an additional \$11.5 million. Total wages created through construction are projected to triple from \$5 million in the current implementation to \$15 million in full implementation by 2023.

Fiscal Responsibility

Current maintenance costs are significantly lower than recommended, with the current plan incurring an annual cost of \$21,221 compared to a recommended cost of \$743,844. Full implementation under the current maintenance plan is estimated at \$61,363 annually, while recommended maintenance costs for full implementation reach \$2,656,870 annually. This highlights the urgent need to improve maintenance practices. Additionally, expenditure escalates significantly for full implementation, rising from \$10 million in the current implementation to \$57 million. These costs represent only direct expenditures in hiring construction companies, without accounting for the time and compensation of local government staff.

Equity

Equity remains relatively stable across both the current and full implementation stages concerning racial composition and the income poverty line of those residing in the green alley project area.

RECOMMENDATIONS

Effective public policy requires a well-balanced consideration of costs and benefits. After analyzing the project based on the above evaluation metrics, the Green Alley Project presents significant potential for Dubuque, contingent upon the implementation of a well-funded maintenance plan. Therefore, this policy analysis suggests proceeding with the project on the condition that a suitable maintenance plan is established. Additionally, continuously monitoring and evaluating the project using these evaluation metrics is essential to track progress and assess impact over time. This framework measures not only the primary goal of the project but also its holistic impacts, ensuring that the project remains impactful and sustainable. Overall, implementing these recommendations can maximize the project's impact, foster resilience, and contribute to sustainable urban development in Dubuque.

Figure 1. Impact Assessment and Performance Metrics

Goals/Metrics	Impact Categories	Before implementation	Current Implementation	With Recommended Maintenance	Full implementation	With Recommended Maintenance
Sustainability	Water Quality	Low, there is no permeable paver best management practice in place to improve water quality.	Low considering current degree of maintenance management	High ability to reduce the concentration of solid sediments; Medium ability to reduce total phosphorus and particulates; Low ability to filter dissolved fractions	Low considering current degree of maintenance management	High ability to reduce the concentration of solid sediments; Medium ability to reduce total phosphorus and particulates ; Low ability to filter dissolved fractions
	Stormwater Capture (low frequency +5-year storm events)	Low (barring other Best Management Practices)	Low	Low	Low	Medium
	Stormwater Capture (high frequency 0-5-year events)	Low (barring other Best Management Practices)	Medium	Medium	Medium	Medium
	Flood Mitigation	0% additional stormwater capture	Low	1% total stormwater capture	Low	3.6% total stormwater capture
Economy	Property Value Increase	\$0	\$ 3.7 million		\$11.5 million	
	Total Wages Created Through Construction	\$0	\$ 5 million		\$ 15 million	
Fiscal Responsibility	Maintenance Plan	\$0	\$21,221	\$743,844	\$61,363	\$2,656,870
	Construction Costs	\$0	\$10 million	\$10 million	\$57 million	\$57 million