

SCHEDULE D

Form of Progress Report

Project information

GMF number: 15168

Name of funding recipient: City of Edmonton

Project title: Low Impact Development (LID) Location Study

Date of Project Progress Report: July 24, 2017

Project status

The project has completed Phase 1 Develop Evaluation Framework including background information collection and review, review of policies and programs, and definition of scope and methods of LID location study.

A draft summary report on LID location study and implementation recommendations was completed in January 2017 and has been reviewed by City of Edmonton project team. The consultant is currently finalizing the report. The following tasks of Phases 2, 3, and 5 were primarily finished by December, 2016 and are included in the draft report (Phase 4):

- Alberta Avenue subwatershed draining to a combined sewer system was modelled (Phase 2, task A)
- Assessment and prioritization of LID on City sites was completed, which included the identification of types of LID features and their locations, triple bottom line assessment, and the implementation staging to meet environmental objectives (Task 2B, 2E, 2F, 2G, 3A, 3B)
- Concepts of five LID retrofit opportunities through other City capital projects were identified and cost-benefit was assessed (Task 2C, 2D)
- LID application on private properties was focused on review of policies and programs and recommendations to update and develop new programs to support LID implementation on private properties. One of the stakeholder workshops (Task 5C) was facilitated to gather input on policy improvements for LID retrofit implementation. The recommendations were supported by cost benefit analysis, and implementation staging was provided (Task 2B, 2E, 2H, 3C).
- Another stakeholder workshop engaged City staff in planning and siting LID retrofits in redevelopment settings typically occurring in Edmonton (Task 5C).

The project is currently developing a return on investment analysis for LID sites on private properties and then on city sites per Task 2I. A LID implementation plan on Mill Creek subwatershed and a computer model to assess LID implementation are being developed per Task 2J and 3E.

There is delay on the tasks planned in 2017 due to a combination of grant review and contract establishment. However, the project is still expected to be completed by October 9, 2017.

Lessons learned to date

Cost benefit analysis has limitations to account all of the benefits of LID implementation even though it has its merits. This project is currently applying the return on investment tool (Autocase) to gain a better understanding on the worthiness of investing in LID implementation.

1. Have you begun to implement any new technology or new approach (e.g. full-cost accounting)? Are there any benefits or drawbacks in using this new technology or approach that you have identified to date?

- a. Existing water quality and quantity tools and simple models are limited for use in an urban retrofit situation, especially in their limited representation of volume reduction benefits. A new tool was developed in this project to automate siting and sizing of LID features in retrofit settings and is able to process large numbers of sites via GIS and the tool.
 - b. Road data layers posed some challenges to incorporate into GIS analysis for public lands. Estimating road ROW from road feature line work was used for this planning level analysis.
 - c. Conversion of an existing MIKE URBAN model to a PCSWMM model format requires post processing to address some hydraulics details (some conduit cross sections, sanitary loadings and control rules) and hydrology details (subcatchment parameters). Allowing time for the conversion process is needed.
 - d. Providing CSO reductions via modelling for a subarea can be representative of potential benefits, but given the unique nature of each situation (e.g., hydraulics of overflows), the results are only approximate when extrapolated.
2. What barriers have you encountered so far and what solutions have you implemented to address them?
 - a. Ensuring past water quality analysis and study results can be comparable to new studies using more detailed tools can be challenging, but taking into consideration the inputs and assumptions and their influences can prevent erroneous comparisons.
 - b. Impervious cover estimations, which are key in stormwater analysis, come from GIS data layers and are prone to inaccuracies. Understanding the quality of the data going in is helpful in adapting the analysis to fit the data available and for context for the results.
3. What advice would you give to someone in another community undertaking a similar project?
 - a. Understand your data layer accuracies going in by running smaller test areas first to evaluate the quality of the input data. Once understood, the analysis can be adapted to the situation.

Photos and materials

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1. Workshop presentation
2. Workshop exercise with a member showing their team's LID design solution at the easel
3. Alley redevelopment – typical existing alley photo from the area discussed at the workshop
4. Alley redevelopment – existing alley photo showing pavement disrepair and disorganized use of space
5. Alley redevelopment – re-imagined alley photo (example site) showing pedestrian-friendly setting
6. Alley redevelopment idea – re-imagined alley photo showing future uses such as dining space and public art