BYU | CIVIL & ENVIRONMENTAL ENGINEERING
IRA A. FULTON COLLEGE
CAPSTONE

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LID Research Project for Bluffdale City

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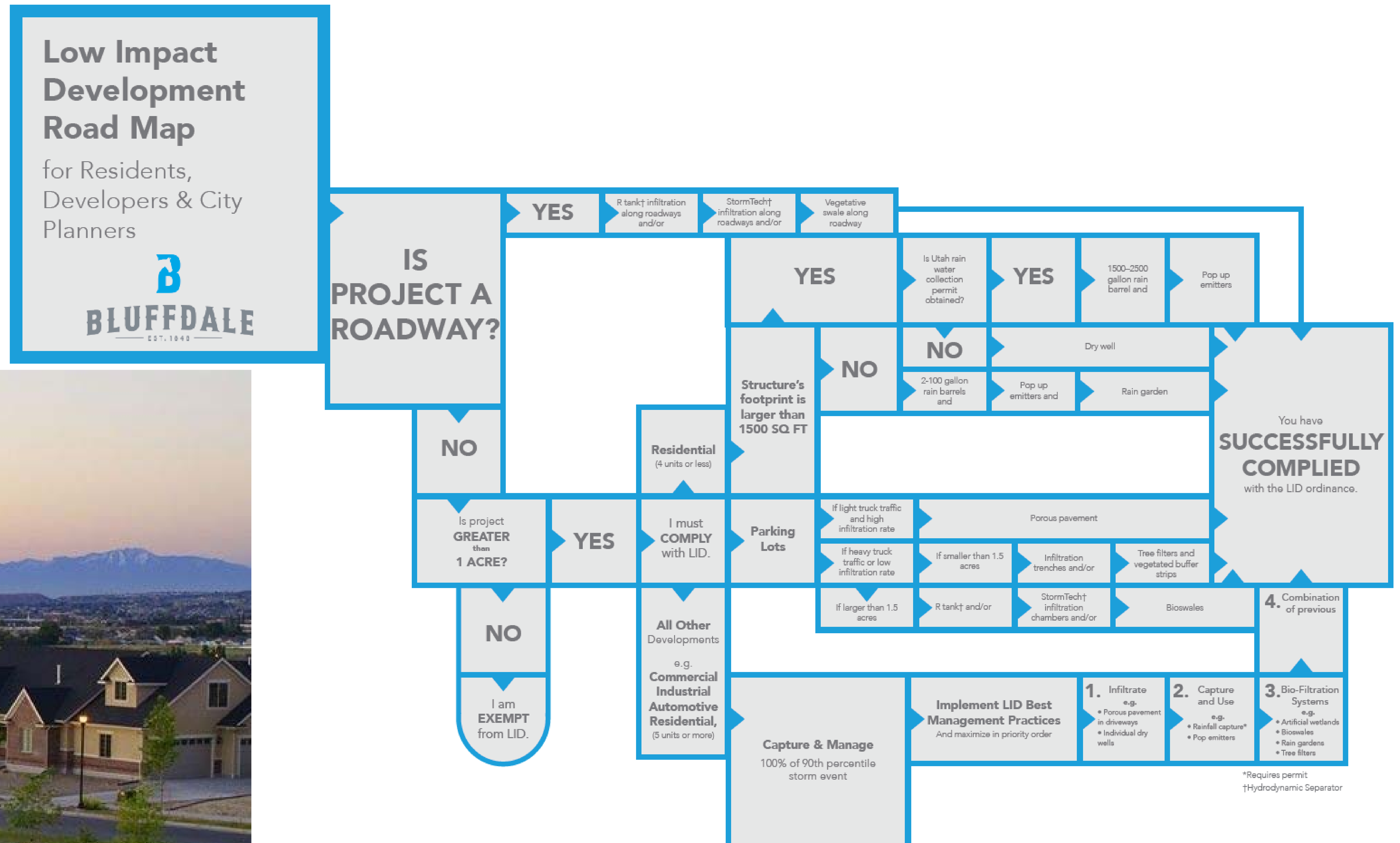
Overview

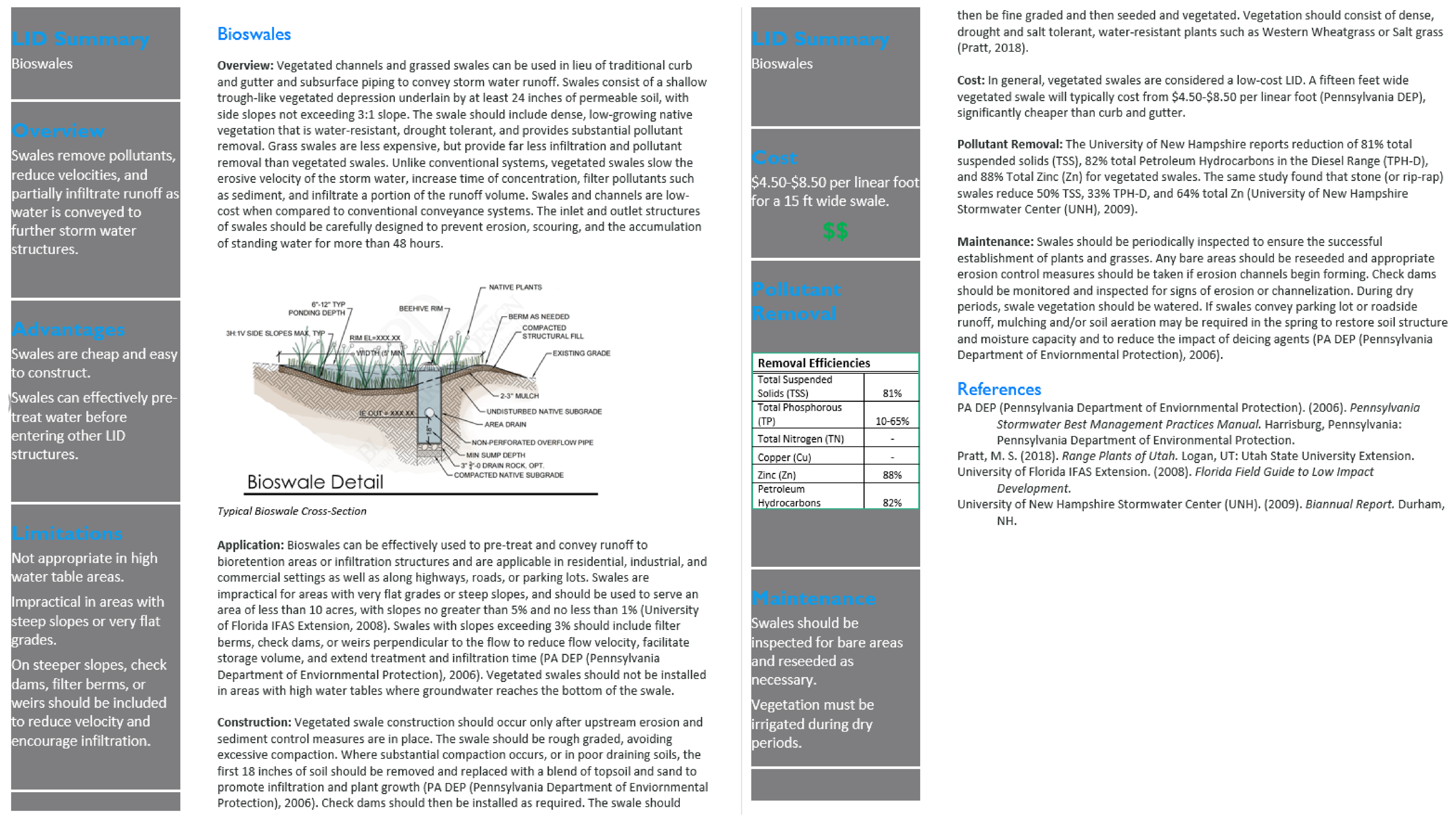
In 2018, the Utah Department of Environmental Quality and the US Environmental Protection Agency will produce new stormwater management regulations called Low – Impact Development (LID). Bluffdale City wanted to prepare ahead of time for the new regulations affecting their stormwater permit. LID is a stormwater management practice that attempts to reduce runoff by using stormwater management techniques that better mimic nature.



Challenges

Creating a manual of research for new Best Management Practices has its own unique set of difficulties. The first obstacle is the US Environmental Protection Agency and the Utah Department of Environmental Quality have not produced specific regulations on Low – Impact Development (LID). Working with Bluffdale City engineers and researching states that have already implemented LID, we were able to determine reasonable criteria. Another complication is that LID projects are not particularly common in Utah, so identifying working examples to research took time and creativity. . Perhaps the largest dilemma is that the climate in Utah is not ideal for LID because of the low frequency of storm events, the small volume of precipitation, and the excessive amount of dust. Extensive analysis of scholarly publications on LID and satellite imagery of Daybreak Community, just west of South Jordan, helped us to understand what options were available to Bluffdale City.

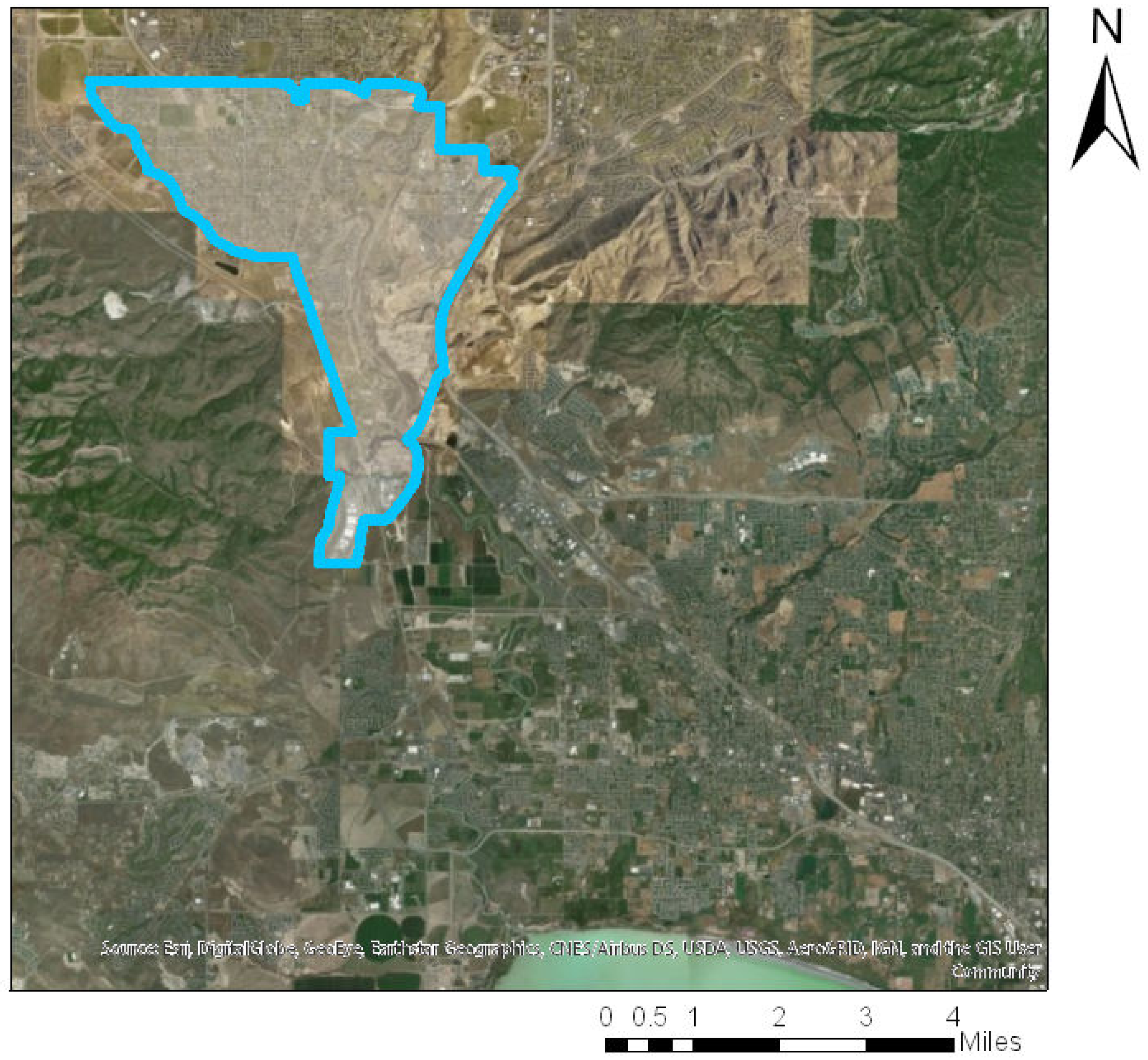
Example from Manual



Analysis

Our process started with identifying Low – Impact Development techniques, and determining which ones are suitable for the climate of Utah. We used criteria such as durability in freeze/thaw cycles, high levels of infiltration, and low cost. Once specific LID treatments were decided upon, we researched the construction, limitations, benefits, and applicable circumstances of each.

Bluffdale City Limits



Product

For our final product, we created an easy to follow “road map” for residents, developers, and city planners of Bluffdale, UT. We also created an in depth manual to reference while using the road map, which emphasizes application, construction, cost, pollutant removal, and maintenance. This will help engineers and developers make the right decision for their situation while employing low impact development practices.