



COASTAL COMMUNITY GRANTS: Coastal Habitat Restoration

Town of Cape Elizabeth Culvert and Habitat Assessment Study

"I think what we learned from this exercise is that we need to budget for these infrastructure replacements. I think we were addressing things on a sort of short window notice. Something was failing and we had to pursue it and replace it on a much shorter notice than we normally would. What this does is give us a plan to move forward and assist the council on how we are going to fund these, and to plan for those in the future."

Robert Malley, Public Works Director
April 8, 2019 Town Council meeting.



Willow Brook Culvert -
Highest priority for replacement in study

PARTNERS

Wells National Estuarine Research Reserve (WNERR), The Nature Conservancy, Casco Bay Estuary Partnership, U.S. Fish and Wildlife Service, Town of Scarborough

PROJECT DESCRIPTION (completed March 2019)

The Culvert and Habitat Study is the first town infrastructure evaluation concentrating on culvert infrastructure. Incorporating habitat impacts into the study modernized the town's more traditional approach to infrastructure planning and broadened the perspective for managing stormwater. The study evaluated 16 culverts with field visits, uniform collection of data using a custom designed form, evaluation of habitat elements, priority setting and cost estimates/implementation.

APPROACH

The town does not have an ongoing culvert monitoring program. Also, culvert replacement is not a specific focus in the capital improvement budget and repair/replacement has occurred as part of road work or to address a failure. Incorporating habitat impacts into culvert replacements is not routine, and the town is just beginning to incorporate resiliency into infrastructure improvements.

The approach was to pull together a group with skills in municipal infrastructure management, design, capital planning, and habitat impact assessment. The group selected 16 high priority culverts for inclusion in the study. Field visits of each culvert and evaluation for habitat and condition were completed. Data was collected in a standardized form for each culvert. A subset of 6 culverts were then selected for concept level hydraulic analysis, conceptual design level improvements and cost estimates.



RESULTS

Two culverts were identified for high priority replacement in the next 1-4 years. The Town has approved funding for design of the highest priority, to be available July 1, 2019. A second outcome of the study is the partnerships built by the group members which is expected to continue as the process for culvert replacement moves forward.

The culvert study was presented to the Town Council, Planning Board and Conservation Committee and posted to the town website. This increased visibility and support for culvert infrastructure investment.

NEXT STEPS AND OPPORTUNITIES

The town is continuing its partnerships with a second study focusing on the culvert in Sawyer Road. That study should be completed by December, 2019. The town and its environmental partners are also strategizing on funding opportunities for the culverts with the greatest potential habitat impacts.

LESSONS LEARNED

- (1) It was valuable for all members of the group to meet jointly and evaluate a culvert from multiple perspectives and share expertise.
- (2) The culvert with the highest priority for replacement due to both poor condition and proximity to a high value wildlife habitat is not located under a road and, therefore, easily overlooked.
- (3) It is important to maintain an inventory of all infrastructure and periodically evaluate conditions, even when funding for replacement is not immediately available.

APPLICABILITY FOR OTHER MUNICIPALITIES

Aging culvert infrastructure is endemic in Maine municipalities. Coupled with climate change, where sea level rise is challenging coastal infrastructure and more prolonged and severe storm events are surcharging inland infrastructure, this study can be a blueprint for other communities to evaluate and plan for culvert upgrades. The culvert evaluation form is applicable to other communities. The framework for incorporating habitat data by mining state resources is a structured approach other communities can use. The "at a glance" table is a base for evaluating data collected and is also adaptable to the specific needs of a municipality.

For additional information

Cape Elizabeth Culvert and Habitat Assessment Study: https://www.capeelizabeth.com/council_packets/2019/04-08-2019/Culvert%20and%20Habitat%20Assessment%20Study%20Dated%20March%2022,%202019.pdf

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