

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Braintree

Project Title: Smith's Beach Stormwater BMP Design

Award Year (FY): 2022

Grant Award: \$ 47,500

Match: \$ \$16,340

Match Source: Cash and In-Kind

One or Two Year Project: One

Municipal Department Leading Project: Public Works/Stormwater and Engineering

Project Website URL: <https://braintreema.gov/1177/Stormwater-Grants>

Community Overview:

Braintree is a community with a population of 39,143, located south of Boston near the southern terminus of Interstate 93. The Town has a total area of 14.56 miles and is bordered by Quincy, Randolph, Holbrook, and Weymouth. Braintree has several Environmental Justice communities, typically due to minority population, income, or a combination of both. Braintree is also at risk of flooding in East Braintree, particularly the Landing area, due to the impacts of climate change.

Approximately 58.1% of the town's land is developed. The largest industries by employment in Braintree are Health Care and Social Assistance; Retail; Professional, Scientific, and Technical Services; Government (including teachers); and Finance and Insurance. Braintree is most famously associated with being the historical home of John Adams, the second President of the United States.

Project Description and Goals:

The project was located at the Smith's Beach parking lot in East Braintree, at the intersections of Vinedale Road and Beechwood Road. The parking lot supports use of the bathing beach and the nearby Watson Park. This project sits directly next to the confluence of the Monatiquot River into the Weymouth Fore River.

The project's main goal was to address flooding of the upland neighborhood, ongoing impacts of polluted stormwater flows from this watershed, and heat island effects at the lot. Specifically, we sought to prepare for this flooding and address the stormwater and heat island issues by designing a new green infrastructure-based parking lot with permeable pavement, increased tree canopy, and vegetated islands.

Our project employs nature-based solutions by using infiltration as the primary strategy to reduce flooding, erosion, and untreated stormwater flows; as well as using increased planting and vegetation to reduce heat island effects. By improving a recreational area in East Braintree,

we are supporting nearby EJ communities. We also focused on accessibility during our redesign to make sure that anyone who wishes to use the parking lot can access it safely.

We spent significant time and effort engaging the community in the project. We held a public meeting in July of 2021 to show the Smith's Beach project, in addition to other potential sites for green infrastructure retrofitting in town. We met with the public again in February 2022 to present 75% designs and walk the project site. Following the presentation of the 75% designs, the project was presented to the Conservation Commission in March and approved in April, allowing us to complete 100% designs by June according to the project timeline.

Results and Deliverables:

The Town now holds final designs for a new Smith's Beach parking lot, which uses nature-based solutions. We also have a robust budget estimate for the work, should we wish to pursue construction in the near future.

Project deliverables included 75% designs, a Notice of Intent to the Braintree Conservation Commission, an Order of Conditions from the Conservation Commission, final 100% designs, and template presentations for public engagement.

Lessons Learned:

Our primary lesson learned was the importance of continual and repeated public engagement. While there were parties engaged with the process from start to finish, every time we met or spoke about the project, we met someone new who was learning about it for the first time. We learned that we should repeat ourselves frequently and involve other local officials where appropriate. Further, we had introduced this project prior to an election cycle. The project came up for discussion over the course of normal business, but it would have been beneficial to contact the newly elected councilor directly so they were aware of the project and our ongoing work.

On the technical side, we were disappointed to find during the 75% design review that the proposed infiltration system on the sandy beach area part of Smith's Beach would not be feasible. Previously, a soil test pit was only conducted on the parking area. We recommend future projects conduct soil testing during the conceptual stage to avoid designing work that would not be feasible.

Partners and Other Support:

Our two main partners were the Town of Braintree Engineering Division and Nitsch Engineering. The Engineering Division assisted in performing necessary survey work, preparing and presenting the project for approval by the Conservation Commission, and performing review of the engineering designs. We would like to thank Chris Trudel, Jason Kearns, and Alan Haggan.

Nitsch prepared the final engineering designs and plan sets, assisted in presenting the project to the Conservation Commission, and provided support at our public outreach meetings. We are thankful to Jennifer Johnson, Jessica Wala, and Kelsey Kern of Nitsch for their work.

Finally, we would also like to thank Kelly Phelan, Conservation Agent, for her assistance on the project and permitting process.

Project Photos:



FIGURE 1. STAFF OF BRAINTREE AND NITSCH MEET ON SITE TO WALK THROUGH THE PROJECT AREA, FEBRUARY 5, 2022.



FIGURE 2. JESSICA WALA OF NITSCH ENGINEERING PRESENTS PROPOSED DESIGNS TO THE PUBLIC, FEBRUARY 2, 2022.

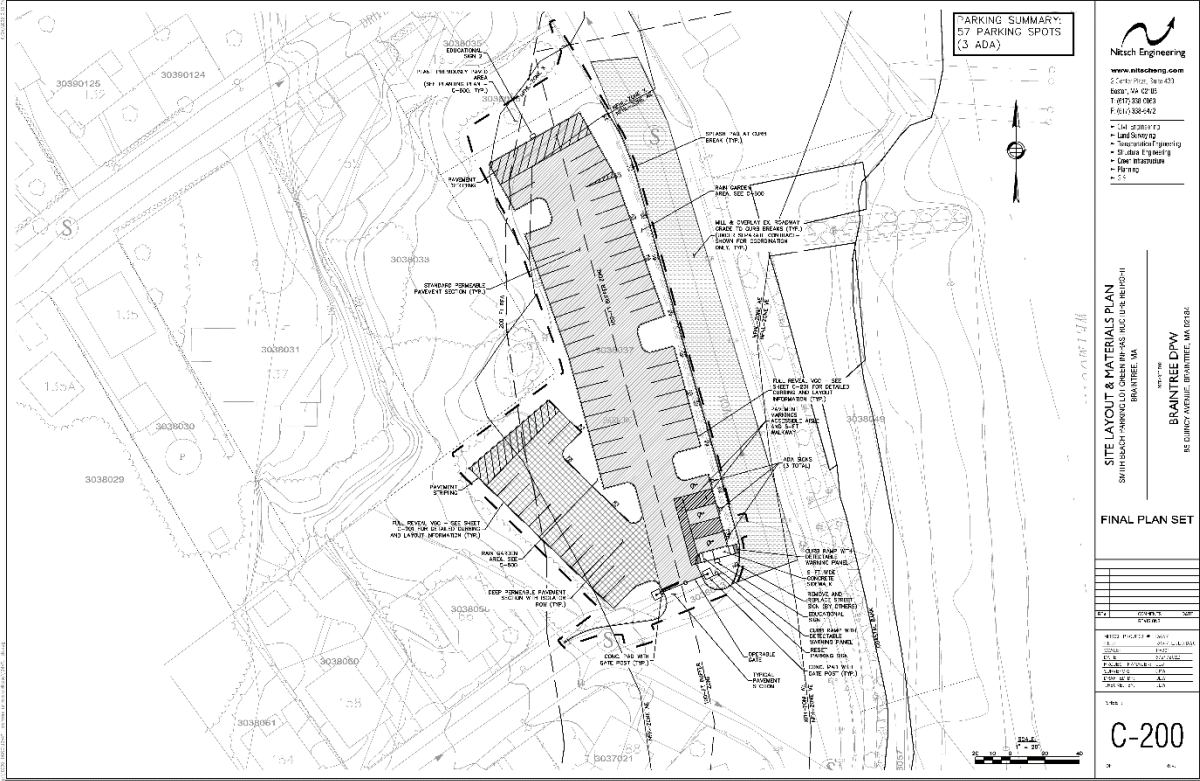


FIGURE 3. FINAL SITE LAYOUT PLAN.