Grattix Project

Project Based Learning in Stormwater Mitigation

By Josh Jones

Partners in Careers developed and coordinated this hands-on project for students at iTech Prep to learn how local agencies like the Port of Vancouver work to mitigate stormwater runoff, and how this work impacts our local economy.

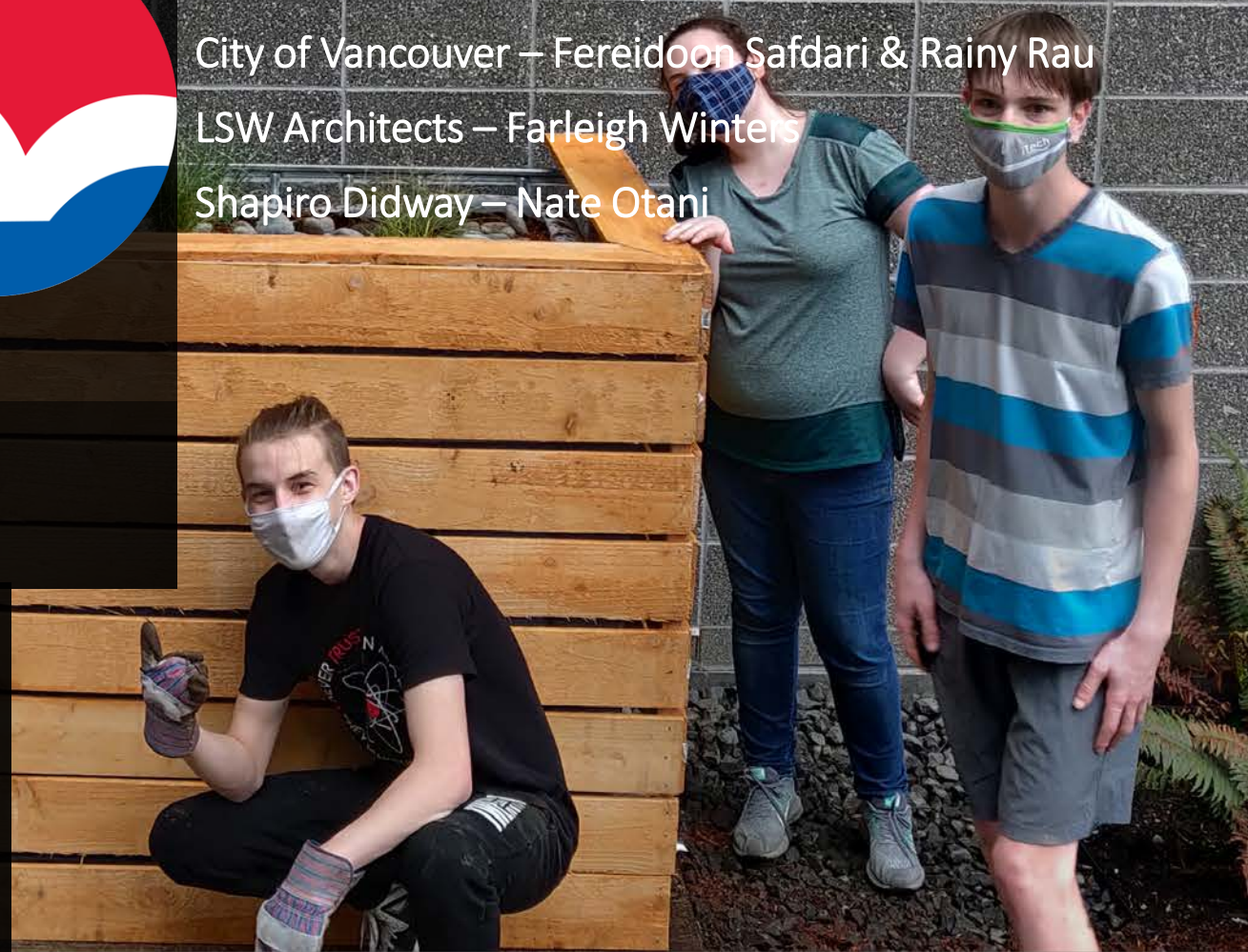
This project was made possible with support from:

Port of Vancouver – Mary Mattix, Matt Graves, & Julie Raw

City of Vancouver – Fereidoon Safdari & Rainy Rau

LSW Architects – Farleigh Winters

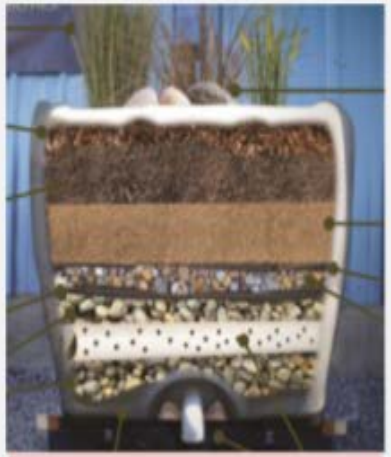
Shapiro Didway – Nate Otani



Lesson Plans & Curriculum

Overview - Josh @ PIC

Date	Topic	Assignment
April 13th	Introduction & Overview	None
April 20th	How & Why did the Port invent the Grattix units?	Research what methods are used to treat stormwater runoff
April 23rd	How does the City treat Stormwater?	Research architectural solutions
April 27th	How does stormwater impact architecture?	Research how stormwater runoff impacts watersheds
April 30th	Group A Builds a Grattix	None
May 4th	Group B Builds a Grattix	None
May 7th	What are the Ecological Impacts of Stormwater Runoff?	Prepare Reports for Group Presentations
May 11th	Group Presentations	None



Group Presentations:

Students will split into groups and create short videos that could be shared on various social media platforms meant to market the Grattix unit, and demonstrate their knowledge of stormwater mitigation, treatment, and ecological effects.

Overview | Port of Van | City of Van | LSW | WREC | Present | Notes

Student engagement and retention was a large concern for PIC, considering the difficulties and challenges that Remote Learning has presented.

One method used to address these concern was developing lesson plans specifically to help prepare students for the next step of the project. For example, the students were assigned research topics to be completed prior to the next guest speaker, that were relevant to that speaker's area of expertise, so that students would have a better understanding of the subject matter and be better prepared to ask questions.

Another method used was the encouragement of the use of cell phones and social media platforms throughout the project, which fed directly into the students' final presentation.

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Port of Vancouver USA

The Port of Vancouver USA is the furthest-inland deep-water port along the Columbia River, located in Vancouver, Washington and founded in 1912.The port contains five terminals along with the largest mobile harbor crane in North America which is typically used to unload wind energy equipment.The port is a government agency governed by three locally elected commissioners.

The Port of Vancouver

The article on the Grattix
A Rain Garden in a Box

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Port of Vancouver Lesson Plan

Learning the backstory of the Grattix and preparing students to meet the City of Vancouver's Surface Water Management Civil Engineer.

Overview
Port of Van

Questions to Answer

What is Stormwater Runoff?

How does Stormwater Runoff impact the Port of Vancouver?

Why did Mary and Matt design the Grattix unit?

What are other environmental protection techniques used at the Port of Vancouver?

Overview
Port of Van

Assignment before next class

Resources:

Water & Wastes Digest Stormwater Treatment Methods

Environmental Protection Agency Stormwater Management Practices

Washington DOT Stormwater Best Management Practices

Research what other methods are used to treat Stormwater Runoff, include information on materials needed, how much space they require, and which pollutants each method are good or bad at filtering out. Please include at least 5 different methods:

Research Topics

Treatment Methods

Water & Wastes Digest Treatment Methods

EPA Stormwater Management Practices

WADOT Best Management Practices

Sustainable Design

ASG Architects' Stormwater Management Design

Stormwater Magazine's Green Roofs and Living Walls

Watershed Impact

City of Lacey's Pollutants in Stormwater

King County's The Science of Stormwater

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Time to get to work!

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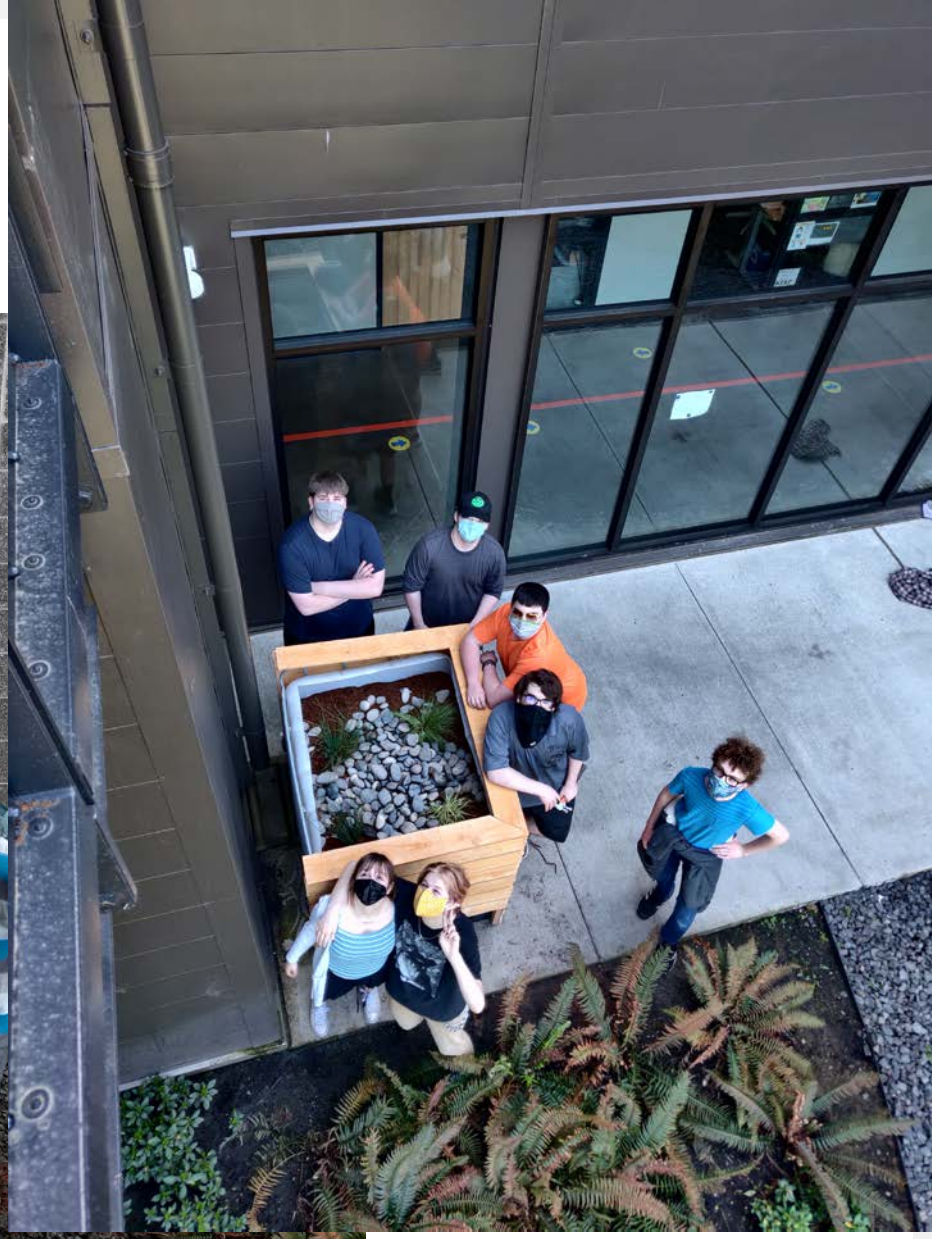
Complete!



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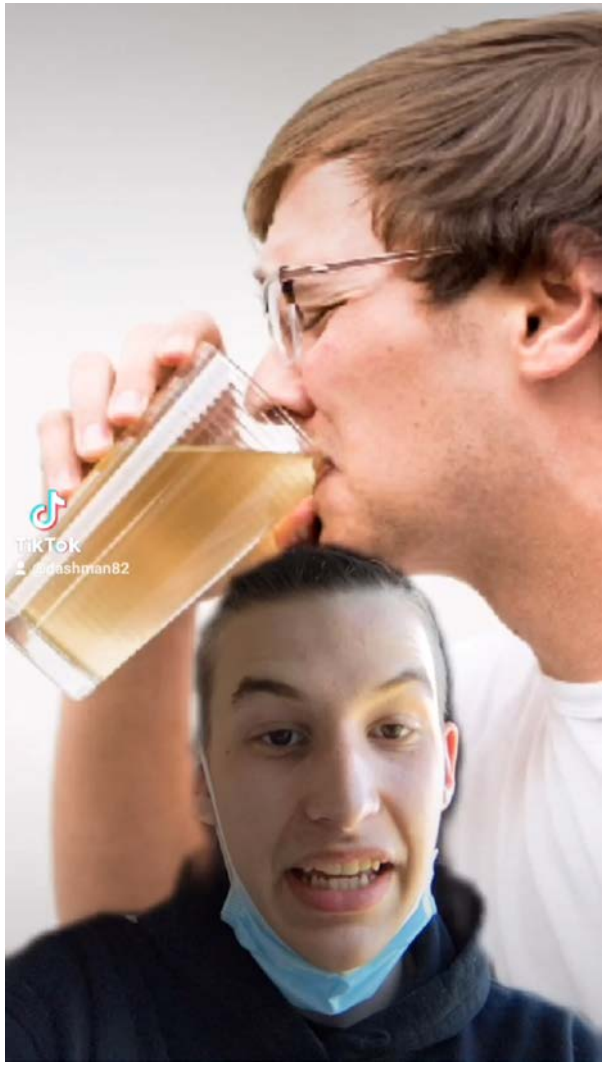
Students' Final Presentations:



Summary & Next Steps

- 24 upperclassmen at iTech Prep gained a comprehensive understand of stormwater runoff's impact on local infrastructure, watersheds, and jobs.
- Students participated in 12 hours of project-based learning, through both hands-on Grattix construction and virtual meetings with Engineers, Architects, and Environmental Managers, who donated nearly 20 hours of their time to support the project.
- Two Grattix units were constructed on-site at iTech Prep, and installed under exterior downspouts from the roof.
- Next Step 1: Continue to test output from the Grattix unit, and compare to the untreated water collected previously from the downspouts.
- Next Step 2: Working in partnership with LSW Architects to identify off-campus installation locations for future iterations of this project.
- Next Step 3: Resume full in-person activities, to include site tours of treatment facilities and new sustainable buildings.

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Thank You

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