

Apr 11th, 9:45 AM - 11:45 AM

## Cleaner Drain

Jonah Paivarinta  
*Jefferson High School*

Daniel Ortiz-Rojo  
*Jefferson High School*

Masson Klepp  
*Jefferson High School*

Rebekah Likestoskat  
*Jefferson High School*

Macy Chadney  
*Jefferson High School*

*See next page for additional authors*

Follow this and additional works at: [https://pdxscholar.library.pdx.edu/innovation\\_challenge](https://pdxscholar.library.pdx.edu/innovation_challenge)



Part of the [Civil Engineering Commons](#), [Engineering Education Commons](#), and the [Environmental Engineering Commons](#)

**Let us know how access to this document benefits you.**

---

Paivarinta, Jonah; Ortiz-Rojo, Daniel; Klepp, Masson; Likestoskat, Rebekah; Chadney, Macy; and Ferrando, Jeremy, "Cleaner Drain" (2015). *PSU High School Innovation Challenge*. 5.  
[https://pdxscholar.library.pdx.edu/innovation\\_challenge/2015/Posters/5](https://pdxscholar.library.pdx.edu/innovation_challenge/2015/Posters/5)

This Event is brought to you for free and open access. It has been accepted for inclusion in PSU High School Innovation Challenge by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: [pdxscholar@pdx.edu](mailto:pdxscholar@pdx.edu).

---

**Presenter Information**

Jonah Paivarinta, Daniel Ortiz-Rojo, Masson Klepp, Rebekah Likestoskat, Macy Chadney, and Jeremy Ferrando

# Cleaner Drain

Jonah Paivarinta<sup>2</sup>, Daniel Ortiz-Rojo<sup>3</sup>, Masson Klepp<sup>1</sup>, Rebekah Likestoskat<sup>3</sup>, Macy Chadney<sup>1</sup>, Jeremy Ferrando<sup>3</sup>

1. Freshman 2. Sophomore 3. Junior



Maseeh College of Engineering and Computer Science

PORTLAND STATE UNIVERSITY

## PROBLEMS WITH THE CURRENT SYSTEMS

Water in streets causes several issues, both to our infrastructure and our emotions. The water can harm property by rotting wooden structures. If the water is high enough, it can even stall cars and flood into buildings.

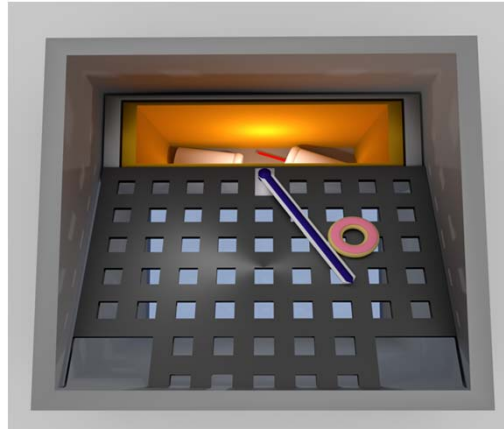
Being forced to walk through or around a puddle can hurt someone's emotional state, which reduces productivity and this affect people around them.

It costs about 30 dollars to clean a drain, and there are about 15 thousand drains, which totals to to around\$450,000 and if you add in other costs such as employees and street sweeping for a cleaning company it costs around 3.8 million a year.

Figure 1: DRAINS



Figure 2: VIRTUAL EXAMPLE



## THE CLEANER DRAIN

The cleaner drain is made up of 3 parts. The opening is in the side of the curb. all other parts are under the side walk. There is a grate there, but the bars are spread wide to let everything in. The water then falls into the first chamber where it passes through a sloped filter. A mechanical arm sweeps the trash into a second chamber where it remains in a removable box. The water continues on to the drain system. The mechanical arm would function like a window-wiper, and would be powered off the main power grid. If their would be a huge flood then all of the flood would be trapped in the trash container or on the surface. Also there are no ugly iron grates, only steel on the curb.

## RESULTS

The Cleaner Drain, would keep the streets safer, while saving money for companies. It would remove the stormwater tax from most people, and it would clean streams and keep waste from clogging drains. Cleaner streets would also improve productivity and people's emotions.

## CONCLUSIONS

These results heavily outweigh the cost for electricity and for removing trash. They also improve on the old inlet systems. This new system will save millions of dollars, and thousands of hours spent cleaning. The best thing is that it improves the life of people affected, because emotions are priceless.

Figure 3: DESIGNS

