**Flooding in Houston**

- **$85,000,000,000**
  - Projected cost of Harvey’s Damage
- **3**
  - 500-year floods in the past 3 years
- **63**
  - Deaths due to Harvey

**What is a Bioswale?**

A bioswale is a type of rain garden specifically designed and engineered with layers of soil, sand, gravel, and rocks to optimize their absorbency and water holding capacity.

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**Solution**

- Bioswales in sidewalks and parking lots
- Combining bioswales with permeable concrete
- Parking lanes and spaces next to bioswales paved with permeable concrete

**Implementation**

- Combination of public and private effort
- Tax breaks to incent bioswale creation
- Target colleges and shopping malls

**Model Creation**

- The finished model represents a cross section of our modified street-side bioswale design. The model is also designed for functional demonstration.
- A cross-section of ‘street’ with permeable and impermeable concrete.
- The first layer of soil and lava rocks for the bioswale.
- We made and tested permeable concrete.
- Our group researched mix designs for permeable and impermeable concrete.

**Results and Conclusions**

Despite having a few minor fabrication flaws due to limited resources, the model created is a sufficient proof of concept for the proposed bioswale system design.

**References**