



Permeable Pavement Advancements

City of Tacoma | Environmental Services

Infrastructure, Planning, and Sustainability Committee

February 13, 2019

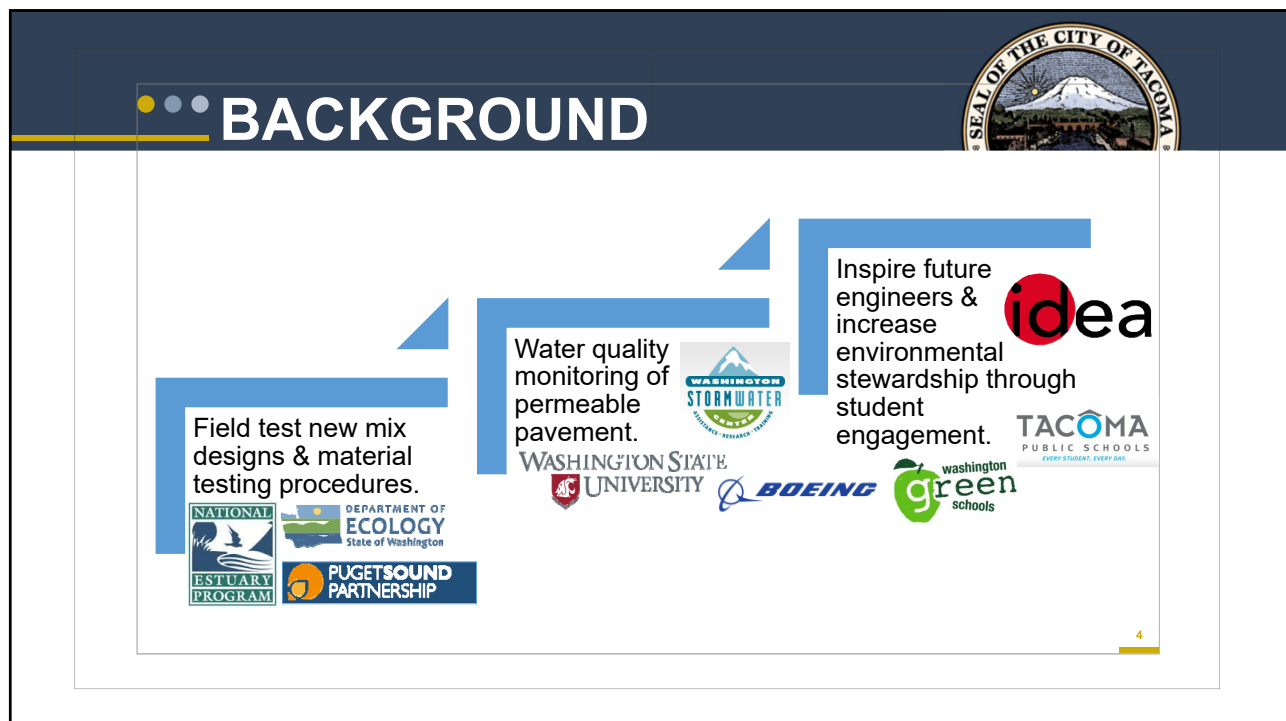
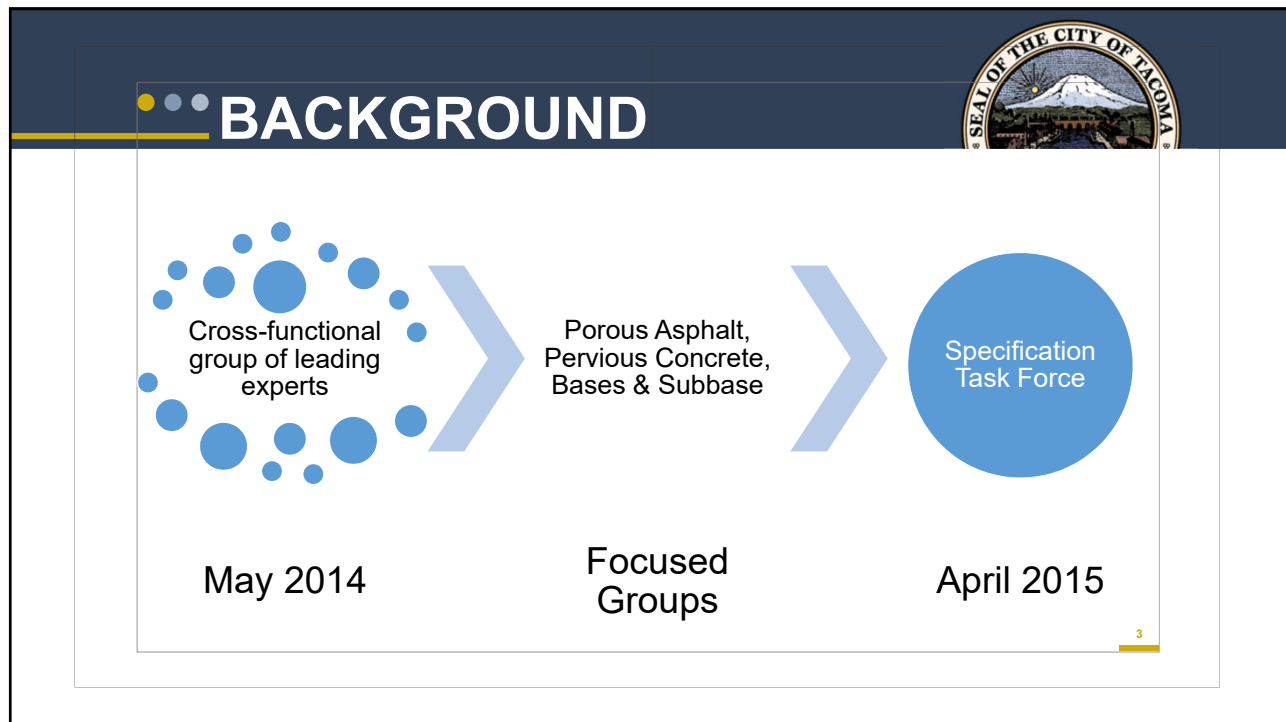
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OVERVIEW



- History of Permeable Pavements
- Background of Developing Standard Specifications
- Permeable Pavement Advancements
 - Mix Designs
 - Material Testing
- Key Partnerships



BACKGROUND



School of
Industrial Design
Engineering & Art



ISSUES



PROJECT GOALS

- Further permeable pavement durability, enhance design standards, and increase confidence in permeable pavements.
- Material testing not consistent with traditional pavement
- Permeable pavement not approved for water quality in WA
- Pavement surface raveling



SURVEY



- Permeable Pavement Use
 - Sidewalks
 - Parking Areas
 - Roadways
 - Porous Asphalt 44%
 - Pervious Concrete 33%
- Design and Construction Details
- Standard Specifications
- Material Testing Procedures



PERMEABLE PAVEMENT



Pervious Concrete

- Composite Section
- Jointing
- Synthetic Fibers



Porous Asphalt

- Kevlar Fibers
- Carbon Composite Fibers
- Recycled Asphalt Shingles

PERMEABLE PAVEMENT



Material Testing

- Density
- Infiltration Rate
- Strength & Durability

Pavement Monitoring

- Infiltration & Clogging
- Wear & Tear (Raveling)
- Cracking
- Ride & Performance

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WATER QUALITY



- Water Quality Monitoring
 - Standard Pervious Mix
 - Carbon Composite Fibers
- Measure effluent for metals, hydrocarbons, and nutrient concentrations
- Determine effluent toxicity to organisms

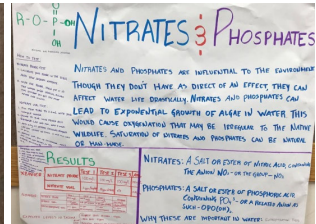
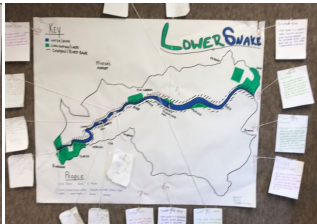
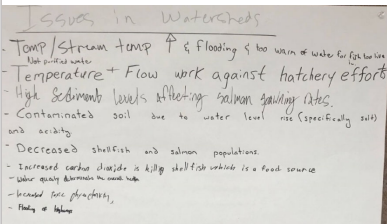


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IDEA CLASS



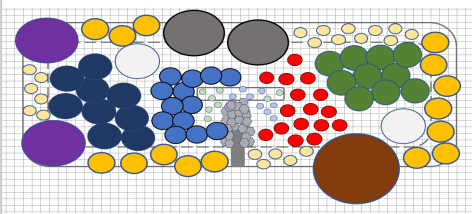
Learn from community experts



Study local water quality and watershed issues & student's place.

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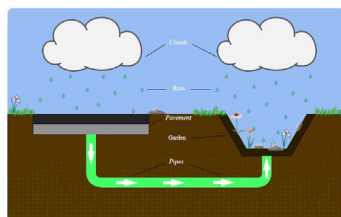
IDEA CLASS



Student Solutions

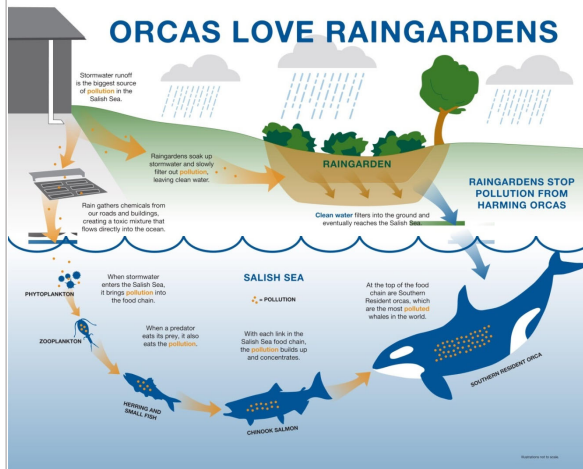
- Landscape Designs
- Interpretative Signage
- Testing of Materials

Rain Gardens : How They Work



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RAINGARDENS



Protect orcas by accelerating the rate of raingarden installation and assisting with raingarden maintenance to filter polluted stormwater runoff before it reaches Puget Sound.

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RAINGARDENS



- Orcas Love Raingardens is a collaborative partnership between local government, public services and NGOs.
- We Provide:
 - Field Trips
 - Classroom Visits
 - Curriculum
 - Resources for Raingarden Construction & Maintenance

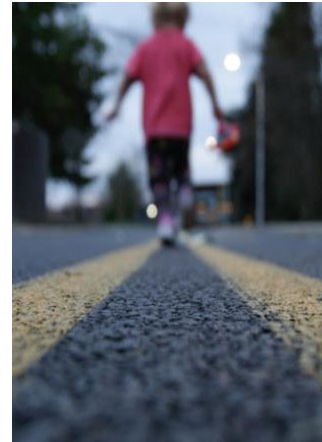


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NEXT STEPS



- Ribbon Cutting around Earth Day
- Monitoring
 - Pavement
 - Water Quality
- Publish Survey
- Publish Material Testing Report
- Revise Standard Specifications



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PROJECT PARTNERS



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