Seattle's High Point Project

Stormwater Management using Natural Drainage Systems

Asma Syed
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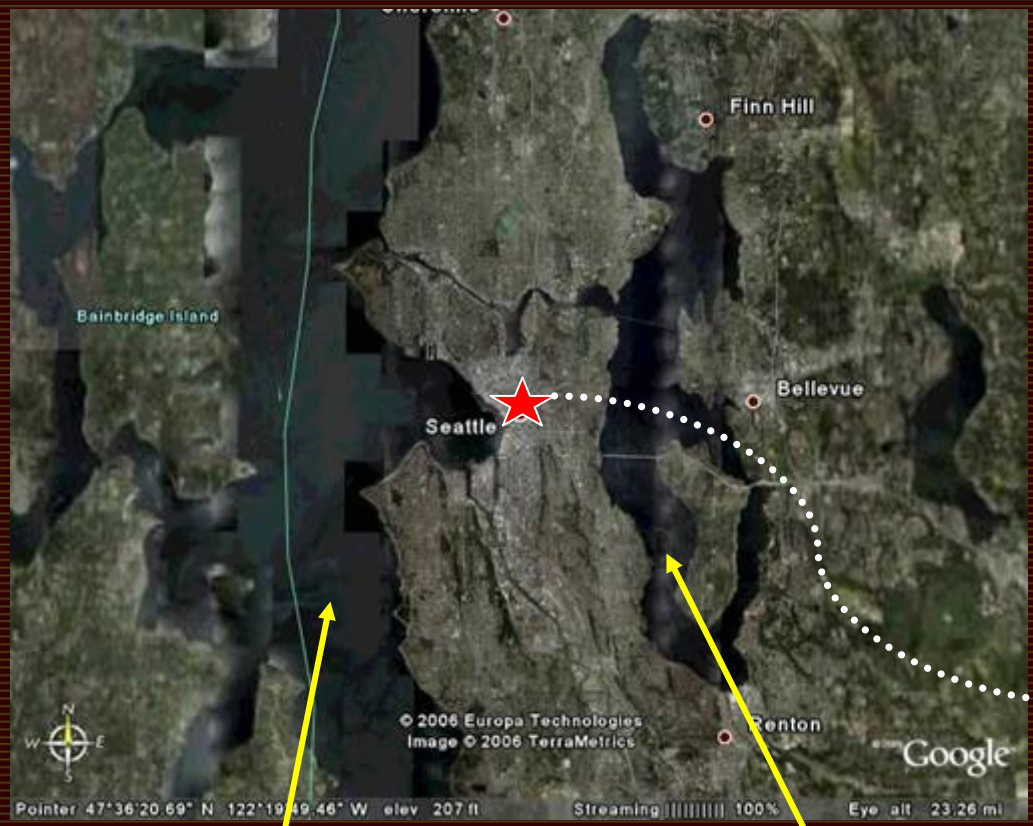
Presentation

- Seattle
  - location, background
- Seattle Public Utilities
- Natural Drainage Systems
  - What is it?
  - How does it work?
  - Why do it?
  - How do you pay for it?
  - Examples of SPU projects
- High Point Project

Seattle: location



a city surrounded by water

Puget Sound

Lake Washington

Seattle: background

- Medium-sized city of 563,374 people
- Rainy, cloudy climate
- Surrounded by water
- Typical urban environment with lots of impervious surfaces

Seattle Public Utilities

- In 1999, began a pilot project for “natural drainage systems” to deal with stormwater runoff
- Natural drainage systems deal with stormwater runoff by mimicking nature
- Five completed natural drainage system projects of varying scale
  - Street Edge Alternatives (“SEA Streets”) Program
  - 110th Cascade Program
  - Broadview Green Grid Project
  - High Point Project
  - Pinehurst Green Grid Project

Natural Drainage System (NDS)

- What is it?
- How does it work?
- Why do it?
- How do you pay for it?
- Examples of SPU projects

NDS: What is it?

- A stormwater management system that allows water to infiltrate into soil, which will absorb, retain, & clean water

- Examples:
  - open, vegetated swales
  - stormwater cascades
  - small wetland ponds

Planted swale!

Photo Source: Seattle Public Utilities www.seattle.gov/util/

NDS: How does it work?

Photo Source: Seattle Public Utilities www.seattle.gov/util/

- Soil & vegetation filters and bio-remediates pollutants
- Reduces impervious surfaces
- Increases vegetation
- Improves the pedestrian experience

Another planted swale!

NDS: Why do it?

- Traditional stormwater management uses pipes, drains, culverts that affect water quality, wildlife, & human life because:
  - Nonpoint source pollution from contaminants on roads, rooftops, & sidewalks end up in water
  - Causes channel erosion from volume & speed of water leaving pipes and entering streams

NDS: How do you pay for it?

- Funded through drainage fees paid by property owners based on impervious surface coverage
- Drainage fee supports many different drainage projects at SPU
- NDS projects are created at a LOWER cost than traditional systems

NDS: Examples of SPU projects

Photo Source: Seattle Public Utilities
www.seattle.gov/util/

Broadview Green Grid cascades

Photo Source: Seattle Public Utilities
www.seattle.gov/util/

SEA Streets curvy street

High Point Project

- Partnership between Seattle Public Utilities (SPU) and Seattle Housing Authority (SHA)
- Mixed-income community redevelopment project
- Neighborhood-scale NDS
- First large-scale project for City
- Firsts urban NDS in the country

Goals for High Point

- Affordable housing
- New Urbanist feeling
- Stormwater system that manages & treats water closer to source
- Development that blends into adjacent neighborhoods
- High Point will process water like a “forest meadow”

Photo Source: Seattle Housing Authority www.seattlehousing.org/

A home in the High Point community w/ swales

High Point NDS

- Vegetated swales
- Conveyance swales
- Stormwater detention pond
- Traditional stormwater detention basins for large storm events

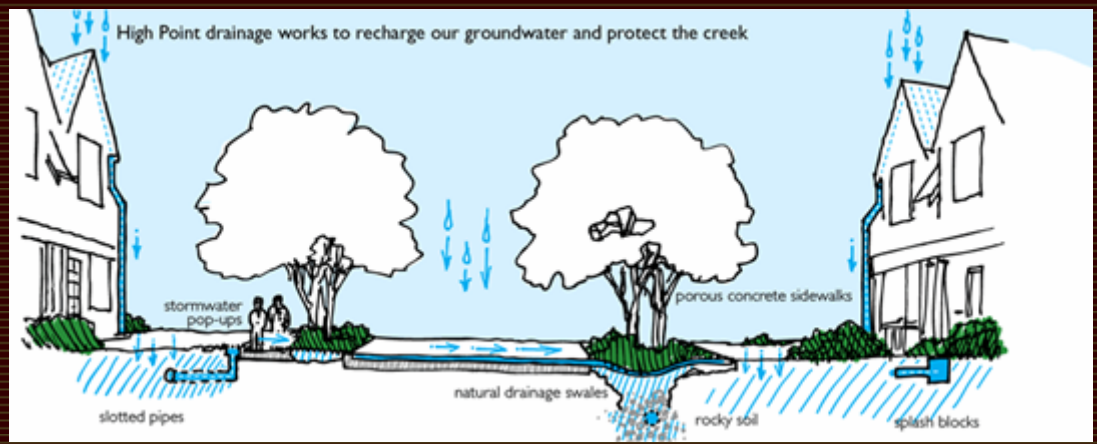


Photo Source: Seattle Public Utilities www.seattle.gov/util/

Conclusion

- Affordable housing
- Green Design neighborhood (New Urbanist)
- “Built Green” rating for homes (similar to LEED)
- Challenges beliefs that dense urban design & ecological performance are mutually exclusive
- NDS projects are LOWER in cost than traditional stormwater projects!!!

This bald eagle takes a drink from the stormwater detention pond.

Photo Source: Seattle Public Utilities www.seattle.gov/util/

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Lecture:

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