

Kensington Estates

Pierce County, WA (2003)

Background:

Pierce County performed a case study that focused on the application of LID technologies to Kensington Estates, a conventional 103-lot single-family development built in 2003 on 24 acres in unincorporated Pierce County. The site was characterized by poor Class C and D soils, typical of those throughout south Pierce County. The goal of the study was to redesign the conventional project utilizing the new Western Washington Storm Hydrology Model (WWHM) and illustrate the full range of LID technologies in the redesign.



Monitoring:

Overall, the redesigned LID site was modeled to have:

- Resulted in construction cost savings of over 20%;
- Preserved 62% of the site in open space;
- Maintained the project density of 103 lots;
- Reduced the size of storm pond structures and eliminated catchments and piped storm conveyances; and
- Achieved “zero” effective impervious surfaces.

Conclusions:

The redesigned LID project achieved all of the design objectives outlined. Utilizing the new WWHM, which is a continuous simulation model, rather than the Pierce County “single” event model, the conventional project design required about 270,000 cubic feet (2 acres at a depth of 3 feet) of stormwater storage on site. The LID design reduced the storm pond storage requirement to less than 55,000 cubic feet (about .5-acre at a depth of 3 feet) — a reduction of more than 75 percent.

A cost evaluation of the redesign also illustrated the potential benefits of LID. Overall, the LID project resulted in construction cost savings of over 20 percent versus the conventional project. The majority of savings would have been achieved through the reduced size of the storm pond structures and the elimination of catchments and piped storm conveyance. Excavation and erosion control costs were also significantly reduced.

Costs associated with roadway and utility construction were roughly the same or slightly higher due to the proposed use of porous paving and the “looped” cul-de-sac clusters designed for emergency vehicle access. This was the case even though a roadway width of 20 feet was proposed in the LID design.

It is unfortunate that this low impact design was **not** used to construct this development.