



Low Impact Development Design Competition

Suburban Residential Design Challenge

Ventana Lakes, a Mischer Investments project

Program

Mischer Investments' concept for this site is to develop a residential neighborhood with the look and feel of a master planned community in a market area where no other community of that type currently exists. The original site purchase was a block of 640 acres. Of that approximately 162 acres has been deeded to Katy ISD. Katy ISD has developed a plan for an Elementary, Middle and High School to be built on the site.

Site Plan A represents an overview of the development based on a traditional development program. Site Plan B offers an essentially clean slate for your layout. For purposes of this competition, virtually all elements of this site plan may be ignored, except for:

- that portion of the street layout still indicated on Site Plan B,
- the channel which represents offline drainage for the planned expansion of Clay Road,
- the drainage ditch/swale running north-south from the larger channel to the Katy ISD tract,
- the roadway surrounding the Katy ISD tract, and the 75'x75' lift station site that will sit just to the NW of the Katy ISD "option" tract,
- the two drill sites, and the water and sewer plant locations
- the two pipeline easements which bisect the property from east to west.

Number, density and expected single family lot yields are as follows.

- 209 70' x 125' TYP (3.2/Acre)
- 664 60' x 115' TYP (3.8/Acre)
- 315 50' x 115' TYP (4.2/Acre)

As you can see in Site Plan A, in the traditional design there are a number of "amenity" lots, in this case "waterfront" lots. The LID design should also allow for a percentage of higher value

lots with amenity characteristics. A five (5) acre recreation area must be placed not too far distant from the main entrance on Clay Road, and a water feature at that main entry is desired.

You are required to plot the schematic for the entire subdivision, but are only required to provide detailed designs for a single 'pod' of homes in each of the three lot size categories. You may use the data from each representative pod to extrapolate storm water values for the entire site, based on their percentage of the site.

Criteria

In addition to meeting the basic Design Goals indicated in the main Design Competition Program document located on the website, all project submittals should be designed in accordance with the following guidelines.

General

- Design in accordance with the City of Houston development regulations ([Chapter 42](#)), and the Harris County [development regulations](#) in mind except for Storm Water Quality, Detention, and LID criteria.
- Assume that green roofs and green walls count as green space.
- Assume that stormwater runoff from the properties bounding the Promenade will have ultimate outfall at the channel which bisects the property. The representative detail provided may be used as a constant.

Storm Water Detention & Storm Water Quality

- The post development hydrograph must indicate the peak flows are **below** the pre-development hydrographs for the 5yr, 10 yr, and 100yr storm events. The pre-development hydrograph and associated assumptions are included in the project specific details.
- Designs incorporating mechanically "pumped" outfall discharges are highly discouraged.
- Submissions and presentations should include a discussion on the percentage reduction of storm water runoff volume, if any.
- Submissions should include a discussion of the Hydrologic Model used and why.
- Selected storm water quality and LID best management practices should provide at least 80% TSS removal for the first 1" of storm water volume as documented by available research. In addition, discuss the bacteria removal efficiencies, if any. Include references as appropriate.

LID Design

- All projects must utilize LID features as the predominant storm water infrastructure system.
- Acceptable design criteria may be used from any of the following sources. The design must incorporate applicability for the Houston area, and references should be noted in both the project submittals and presentations.

- City of San Diego
 - City of Portland
 - City of Seattle
 - Bay Area Agencies Association
 - South Florida Water Management District
- Discuss maintainability, marketability, and acceptance by the public of the design submitted.
 - Present an economic evaluation contrasting the projects' LID-focused design versus a conventional design for this development.

Supporting Documents

- [Schematic – Traditional Design](#)
- [Schematic – Intended LID Design](#)
- Survey 1 ([DWG](#)) ([PDF](#))
- Survey 2 ([DWG](#)) ([PDF](#))
- Representative [topographical map](#) (covers approximately half of the site, but is representative of the entire site)
- Representative channel detail ([DWG](#)) ([PDF](#))
- [Katy ISD site](#)
- [Geotechnical Report](#)
- [Predevelopment hydrograph](#) and associated assumptions