



# Low Impact Development Design Competition

## Green Roadway Design Challenge

### Independence Parkway, a Harris County/Precinct 2 Roadway

#### Program

An approximately one mile stretch of the existing Independence Parkway (formerly known as Battleground Road) within Harris County Precinct Two will be expanded from a traditional two lane roadway with drainage ditches on either side to a four lane thoroughfare. The challenge is to design a new 'green' roadway section that incorporates Low Impact Development techniques, reduces impervious cover, promotes infiltration, reduces stormwater pollution through biofiltration or other means, and reduces long term maintenance costs.

- Assume minimum concrete pavement thickness shall be 10 inches.
- Assume the Right of Way is 120 feet wide, unless otherwise specified.
- Submissions should define proposed maintenance requirements and identify techniques utilized to ultimately reduce maintenance costs.
- Project limits are approximately 1 mile of Independence Parkway from Tidal Road to approximately 1400 feet South of Park Road 1836.

#### Criteria

All project submittals should be designed in accordance with the following guidelines.

##### General

- Design in accordance with the City's development regulations ([Chapter 42](#)) and the County's [development regulations](#) in mind except for Storm Water Quality, Detention, and LID criteria.

##### 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. Note: the pre-development hydrograph will be given in the specific project details.
- Designs incorporating mechanically "pumped" outfall discharges are highly discouraged.

- Submissions and presentations should include a discussion on the percentage of reduced 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 perform at least 80% TSS removal as documented by research. In addition, discuss the bacteria removal efficiencies, if any. Include references as appropriate.
- Treatment of the 1" storm water quality volume from the site.

### **LID Design**

- All projects must incorporate elements of LID.
- 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.
  - San Diego
  - City of Portland
  - Seattle
  - Bay Area Agencies Association
  - South Florida Water Management District
- Discuss maintainability, marketability, and acceptance by the public.
- Present the economic evaluation between the project's LID versus conventional development.

### **Supporting Documents**

- [Aerial View](#)
- [LIDAR Contours](#)
- [Soils](#)
- Old Zingery maps ([1](#)) ([2](#))
- [Current Harris County standard roadway details](#)
- [Predevelopment Hydrograph](#) and related assumptions
- [Project Stars Overview](#)