CE 365K **Homework 3: Street Flow (Revised)** **Spring 2014**
Hydraulic Engineering Design

1. Consider the storm drain inlet at the corner of Dean Keaton St and San Jacinto Blvd. How large is this? Assuming the same drainage area you worked with in Problem 1 of Homework 2, determine the design discharge and the top width of the spread of the water across the street at this location. The best estimate that I can make of the elevations on the road from the airborne LIDAR data at this location is 533.6 ft above datum at the curb and 534.5 ft above datum at the center of the road off the median strip, which is 45 ft from the curb. Will the spread of the water across the road satisfy the City of Austin's Design Criteria in a 2 year storm? In a 25 year storm? What proportion of the flow bypasses the inlet during these events?

(a) Inlet at San Jacinto

(b) High Point at Student Services Building

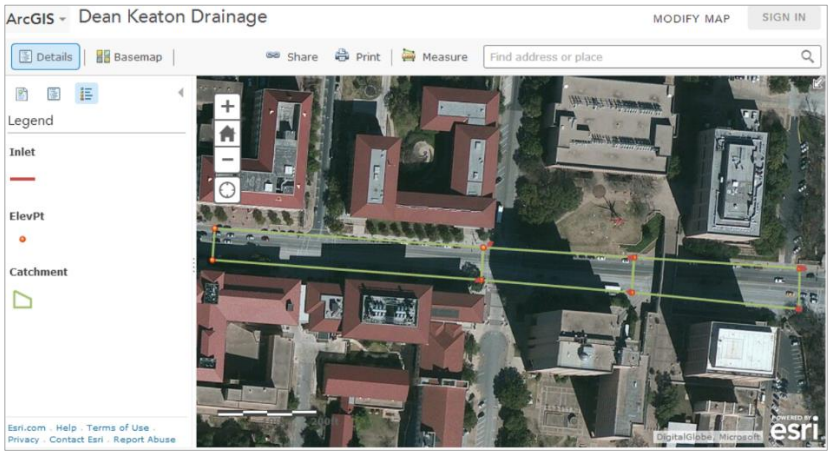
(c) View down Dean Keaton St

Figure 1. Drainage on Dean Keaton St

2. Continue this study of the storm drainage on Dean Keaton upstream to the drainage divide near the Student Services Building (Figure 1(b)). How many storm inlets are there? How large are they? What is the distance between them? Will this portion of Dean Keaton St satisfy the City of Austin's Drainage Criteria for spread of water on the street considering a 2 year storm? A 25 year storm? What proportion of the street flow bypasses the inlets during these events? If you conclude that the street drainage capacity is not adequate, what could you do to alter it? A web map is presented at http://bit.ly/1jhywhz
and more information on the corresponding elevations is shown on the next page.

3. Prepare a 1-page typed summary of the lecture by Scott Edelman

Map in ArcGIS Online http://bit.ly/1jhywhz



Map in ArcGIS with airborne LIDAR data shown

Cross-Sections drawn on the airborne LIDAR data