Introduction

GPS data collection, processing, and output is a basic skill in GIS. In this exercise you will use a Trimble Juno ST and a ProXT receiver to collect data for three surveyed points and three new points. You will use Trimble Pathfinder Office software to download, process, and export the data. You will use ArcGIS to manipulate these data so that they are combined in a single coverage, and modify the attributes and metadata to identify the origin and characteristics of these data. **You may work in pairs on this exercise.**

You are required to collect data for only three of the four following NGS points – All are located along Larpenteur Avenue on the edge of campus.

Base Point B Base Point C Base Point D Base Point E

In addition, each person should collect GPS coordinates for three more points that are at photo-identifiable features, e.g., sidewalk intersections, large junction boxes, street corners. The points must be separated by at least 100 meters. NOTE IF YOU WORK IN PAIRS – EACH PERSON MUST COLLECT 3 ADDITIONAL POINTS.

IMPORTANT NOTE: You should collect at least 300 position fixes into a point feature for each point. Use the generic data dictionary.

You are required to turn in a plotted map of the points by Friday, Sept. 25th, along with a data layer of the points. The points should be plotted and labeled on top of the campus aerial photograph named ortho_stpaul.img. All data must be in the UTM Zone 15, NAD83 coordinate system.

Suggested Activities

Review the materials on the TerraSync and Trimble Pathfinder Office software (on class server).

Pick up a ProXT receiver from the lock box and familiarize yourself with the operation – collect a test point or two, download the data, and make sure it falls where you think it should.

Download NGS point descriptions for your base points, find the points in the field, and collect at least 300 position fixes at each point. Remember to use the generic data dictionary, and save each point to a file – note which point is in which file while in the field.

Identify three new points on the aerial photograph, find them in the field, and collect GPS data .

Download the data to Trimble Pathfinder Office software, export the uncorrected data, and combine the data into a single points data layer with attributes indicating the point name, point origin (NGS or new), and point type (these will all be uncorrected).

Differentially correct the point data, and export these. Attribute them with the same items as the uncorrected data, above, but with appropriate values (these will all be of the type corrected).

Combine the two data sets into one layer, and create metadata – the data set name, general location, methods of location, attributes, features, who collected these data and when.

Create a labeled plot using point name as the label, with north arrow, scale bar, name, etc., with the photo as a backdrop. Turn in the plot and printed metadata, and email the point data layer to Paul Bolstad, pbolstad@umn.edu by Friday September 25th.