**FHWA Bicycle and Pedestrian Transportation University Course**

**Module: 10 – Intersections**

**Assignment: Observations and Design Recommendations**

**PURPOSE**

Fieldwork and observation are some of the most important components of understanding the pedestrian and bicycle environment. This understanding is necessary to effectively plan and design for these modes. Professionals such as engineers, planners, transportation researchers, and others use field observation to assess how all modes interact on a street segment or at an intersection. These interactions are guided by pavement markings, signage, signals, and roadway geometry. They are influenced by surrounding land uses and streetscape elements, and by the volumes of each mode at the given location.

Assessment and analysis of these observations lead professionals to make design recommendations that minimize conflicts among modes and provide the most comfortable and convenient traffic patterns for all users. Normally, these observations are combined with other traffic data for the given location such as daily and/or peak hour volumes, turning movement counts, queue lengths, and design vehicle assessment, among others. This assignment asks you to consider only your observations and recommend ideal design solutions, understanding that in a project context, you will have access to additional information that would inform your choice of treatment.

**PROCESS**

1. **Form groups** of 3 students. **Select an intersection** to study from the list below. Your study area should encompass the intersection itself as well as approximately 250’ of the approaching legs.

**INSTRUCTORS SHOULD INCLUDE LIST OF POSSIBLE INTERSECTIONS HERE**

* **Intersections should be in a mixed-use or commercial area**
* **Intersections should be signalized**
* **Intersections should have at least some pedestrian and bicycle infrastructure, but currently present challenges to safe/comfortable travel for either or both modes**

1. **Study your site before visiting.** Use an online mapping tool to look at an aerial photo and map of your intersection and the approaching legs of streets. Consider destinations located at and near the intersection that would attract people walking or bicycling. Decide with your group members what seem like the best places to observe the intersection based on this analysis and select three separate locations. These locations may change once you are in the field.
2. **Observe your site twice for at least 30 minutes each time.** Visit your site during two different times of day on a weekday selecting from the morning or afternoon rush hours (7:30-9:30am; 4:30-6:30pm) or lunch hour (11:30am-1:00pm).
3. **Document intersection observations in the following two categories such as:**

* Infrastructure
  + Overall alignment of intersection: Square? Angles? Complex? Curb radii large or small?
  + Number and type of lanes on intersection legs: Turn lanes present?
  + Type of signalization: Any turn phases? Pedestrian signals present?
  + Presence/absence of pedestrian signals, time allowed for crossing, time needed to wait
  + Presence/absence of crosswalks and their design/materials
  + Presence/absence of median islands
  + Type of bicycle facility on legs and whether facility changes on intersection approach
* Behaviors
  + Pedestrian crossings against traffic signal
  + Pedestrian crossings outside of designated crosswalks
  + Bicyclist proceeding through intersection against traffic signal
  + Location of bicyclists in lane(s) when stopped for red signal
  + Bicyclist turning movements through intersection
  + Driver yielding behavior interacting with pedestrians and bicyclists

1. **Record your findings.** Use whatever methods suit your team best to record observations. Some suggested methods are listed below, or you may create a method of your own devising.

* Take photos to document infrastructure and behavior.
* Print a zoomed in aerial and/or map of your intersection. Sketch pedestrian, bicycle and automobile movements on it.

**DELIVERABLE**

1. Create a sketch diagram of your site that highlights key elements from your observations. You should use symbols to indicate elements such as conflict points between modes, pedestrian and bicycle infrastructure, intersection geometry, and others.
2. Create a sketch diagram of your site with **two** proposed intersection or segment infrastructure changes that would improve the pedestrian and/or bicyclist experience. Draw upon the examples of infrastructure provided in the lecture to make recommendations.
3. Prepare a 10-slide PowerPoint presentation that summarizes the following:

* Key pedestrian and bicycle infrastructure elements of the site
* Observed pedestrian, bicyclist, and driver behavior
* Locations of potential conflicts between roadway users
* Explanation of the two proposed infrastructure improvements.

Students should also deliver copies of notes taken in the field. This can be a scan of sketches and handwritten notes, typed up notes and/or additional photographs that are not included in the PowerPoint presentation.

**GROUND RULES FOR CONDUCTING FIELD WORK**

1. Safety first. Do not put yourself in harm’s way to collect data. Online map imagery may be substituted for photographs from the field as needed to ensure student safety.
2. Travel and collect data in groups of two or more students. Team members must work together to find data collection times that ensure no team member has to collect data alone. Conducting fieldwork alone is not permitted, for reasons of safety, accountability, and accuracy of data.
3. Do not conduct field work after dark. When visibility is poor, you jeopardize your safety and the quality of the data you are collecting.
4. If members of the public are curious about what students are doing, students should inform them they are university students working on a class project. They may engage with neighbors wanting share their thoughts and ideas about mobility in the study area, but not initiate such conversations.
5. Do not block or otherwise interfere with traffic (motorized or not).
6. Students may take photos but must do so respectfully and carefully. Do NOT take photos of people, their homes, or their vehicles without their permission.