USE OF DESIGNATED CROSSING LOCATIONS

DATA COLLECTION METHOD

Introduction

Marked crossings, in the appropriate roadway context, enhance safety by providing a dedicated area for people walking or biking to cross the street, thereby reducing the likelihood of serious injuries and fatalities. This metric will help Active Transportation Program (ATP) grantees evaluate pedestrian behavior before and after the installation of crossings and measure the effectiveness of crosswalk design and its influence on pedestrian or cyclist behavior.

This document provides guidance on how to record and report data on the number of pedestrians or cyclists using marked and designated crossings. Details for projects may vary, and individual judgment and discretion may apply for each project.

This recording method can be used to measure either pedestrian or cyclist behavior at a crossing, but we recommend choosing only one group to observe per observation session as cyclists and pedestrians often behave differently and are challenging to record at the same time.

Overview

The data collector will need to gather pedestrian or cyclist counts two times –before and after the installation of the crossing improvement. The data collector may conduct counts in the field themselves or use video recording devices to track pedestrian or cyclist movement.

Staffing Requirements

- One to two trained staff will be required if installing video recording devices in the crossing location.
- One or two staff are required to conduct counts in the field.

Materials and Scheduling

This section outlines the data collection methods for conducting counts at crossing locations and provides guidance on what materials are needed. You can choose one of the methods to conduct counts – in-person counts or video recording devices.

Materials

In-Person Counts

- Team members should wear ordinary, weather appropriate clothing and comfortable shoes.
- Each member should have the 'Pre-Installation' or 'Post-Installation' sheet and a pen and clipboard to record counts and notes.
- A measuring wheel will be used to measure the length and width of the crossing area.

Video Recording Devices

- One or two trained staff will install video recording devices. Devices should be installed in inconspicuous areas to not affect pedestrian or cyclist behavior. However, police enforcement or other related agencies should be informed of the devices.
- A measuring wheel will be used to measure the length and width of the crossing area.

Scheduling

Select a day and time with clear weather conditions (i.e., not during rain or wet surface conditions) and during daylight hours (i.e., not during dawn, dusk, or dark conditions). Data collection should occur between the hours of 9:00 AM and 7:00 PM. If the crossing location is near a school, consider including school arrival or dismissal times within the coding session time frame. Be sure to receive proper approval from supervisors before entering the field. Post-data should be collected at least 180 days after the completion of the project to ensure a more accurate measure of success.

MATERIALS NEEDED

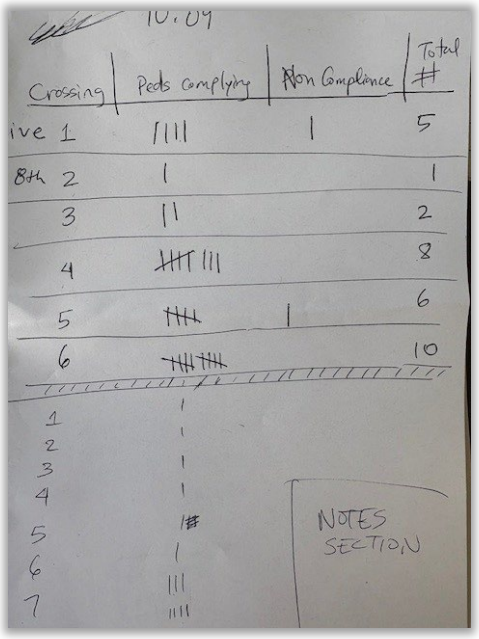
- ❖ Pens
- ❖ Clipboards
- ❖ Measuring Wheel
- ❖ Designated Crossing Excel Template

Data Collection

Method 1: In-Person Counts

This section provides instructions on how to record pedestrian or cyclist counts while you are in the field. Counts will be conducted

two times, one time before the installation of crossings and one time after the installation of crossings.

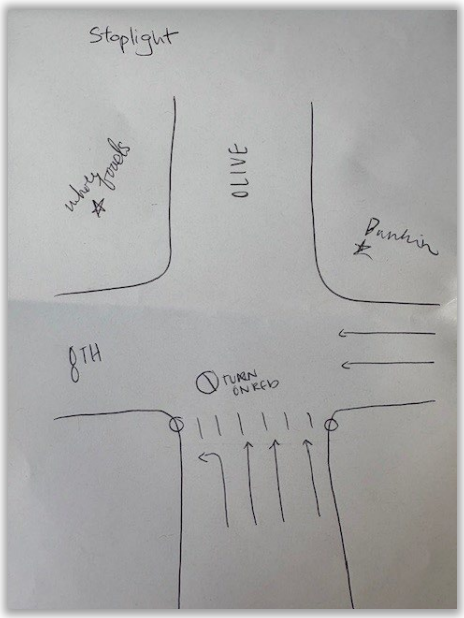


Preparation before Conducting Counts

1. Print 'Pre-Installation' or 'Post-Installation' sheet in the Designated Crossing Excel template. Each crossing should have its own pair of pre- and post-collection sheets. Pages should be in portrait orientation when printing. The first page will be used for recording counts pre-installation of the crossing, and the second page will be used for recording counts post-installation of the crossing.

Conducting Counts

1. **Prepare the recording sheet.** Record the Project Name, Coder Name(s), Start and Stop times, Location, Crosswalk Area Length and Width, and Crosswalk Square Footage. You can use a measuring wheel to measure the crosswalk area.
2. **Measure out the crossing area and crossing zone.** Measure the area (length x width) of the crossing and record the dimensions on the printed 'Counts' sheet. To ensure the counter captures the crossing behavior within a certain distance of the crossing area, data collection is limited to the area measuring 100' in either direction from the marked crossing. People who use the crosswalk or crossing area are observed as 'compliant' and people who are outside of the crosswalk are non-compliant.



3. **Sketch the crossing configuration.** Be as specific as possible in your sketch, labeling the names of the roads, providing context of the surroundings such as points of interest, areas with heavy foot traffic, parking availability, number of travel lanes, and any other notable elements of the crossing zone.
4. **Code pedestrian or cyclist groups.** Each 'platoon' of pedestrians will be counted as a single observation, with the total number of pedestrians in the platoon tallied as

non-compliant" or "compliant." For example, if a group of three people cross the street together within the intersection bounds and at the designated time, that will be counted as a single observation with three 'compliant' pedestrians or cyclists. Pedestrians or cyclists are measured by platoon to account for group influence of crossing behavior. The coder will tally pedestrian or cyclists counts at the bottom of the sheet. In the Observations section, note pedestrian, cyclist, and motorist behaviors such as locations of where pedestrians are crossings, vehicular speeds, etc.

5. **Repeat steps 1 through 4** when conducting post-installation counts.
6. **Collect at least 50 observations for a statistically significant sample size** both for before and after counts.

WHAT IS A COMPLIANT VS. A NON-COMPLIANT CROSSING?

Within 100' in either direction of the crossing area, pedestrians or cyclists are marked as compliant or non-compliant to measure the efficacy of a new crossing improvement.

Compliant crossings are when a cyclist or pedestrian crosses within the crossing area at the proper crossing time.

Non-compliant crossings are when a cyclist or pedestrian crosses outside of the crossing area, crosses without adhering to signal timing, or exhibits other unsafe crossing behaviors.

Method 2: Video Recording Devices

This section provides instructions on how to record pedestrian counts using video recording devices. Videos allow staff to record counts that cannot be conducted in-person. Counts will be conducted two times – one time before the installation of crossings and one time after the installation of crossings.

Installation of Video Recording Devices

1. **One or two trained staff will install video recording devices.** Devices should be installed in inconspicuous areas to avoid tampering and affecting pedestrian behavior. Inform police department or other related agencies of the devices.
2. **Print 'Pre-Installation' and 'Post-Installation' sheet in the Designated Crossing Excel template.** Each crossing should have its own pair of pre- and post-collection sheets. Pages should be in portrait orientation when printing. The first page will be used for recording counts pre-installation of the crossing, and the second page will be used for recording counts post-installation of the crossing.
3. **Record the Project Name, Location, Crosswalk Area Length and Width, and Crosswalk Square Footage.** You can use a measuring wheel to measure the crosswalk area.
4. **Sketch the crossing configuration.**
5. Once the recording is done, **one or two trained staff will remove the video recording devices.**

Conducting Counts while Watching Recording

1. **Record Coder Name(s) and Start and Stop Times when watching the video.**
2. **Code pedestrian or cyclist groups.** Each 'platoon' of pedestrians will be counted as a single observation, with the total number of pedestrians in the platoon tallied as non-compliant" or "compliant." For example, if a group of three people cross the street together within the intersection bounds and at the designated time, that will be counted as a single observation with three 'compliant' pedestrians or cyclists. Pedestrians or cyclists are measured by platoon to account for group influence of crossing behavior. The coder will tally pedestrian or cyclists counts at the bottom of the sheet. In the Observations section, note pedestrian, cyclist, and motorist behaviors such as locations of where pedestrians are crossings, vehicular speeds, etc.
3. **Collect at least 50 observations for a statistically significant sample size** both for before and after counts.
4. **Repeat steps 1 through 7** when conducting post-installation counts.

Data Entry

Complete the Designated Crossings Excel Workbook after Counts

Complete the 'Pre-Installation' and 'Post-Installation' sheets according to the following instructions.

1. Type in information to any cells highlighted in light yellow.
2. Record the total pedestrian or cyclist counts in the behavior section starting on row 20 of the 'Pre-Installation' and 'Post-Installation' sheets.
3. Paste in an image or drawing of the crossing configuration in the 'Cover Sheet.' This image or drawing can be as detailed as the data recorder would like, and can include things like pedestrian obstructions, specific behaviors noted at certain parts of the intersection, and points of interest.
4. In the 'Data Summary' sheet, record Agency/Organization and City. No additional inputs are required in the 'Data Summary' sheet, which provides a high-level summary of crossing counts and calculates percentage change of pedestrians or cyclists using the crossing.
5. The 'Data Summary' sheet will provide a "Percent Change in Compliant Crossing Behavior" to show the positive change in compliant behavior.
6. Copy and create an entirely new Designated Crossings Excel Workbook to collect data for a new crossing. This excel workbook is designed to measure the change in crossing behavior for only one crossing location.

7. When completed, submit the completed Excel file via Smartsheets.

References

Park, H., Li, S., Yu, W., Yang, W., Alhajyaseen W., Iryo-Asano, M. (n.d.) *Pedestrian Crossing Behavior and Compliance at Signalized Intersections.*

Federal Highway Administration Research and Technology, *Pedestrian and Bicyclist Traffic Control Device Evaluation Methods.* May, 2011.