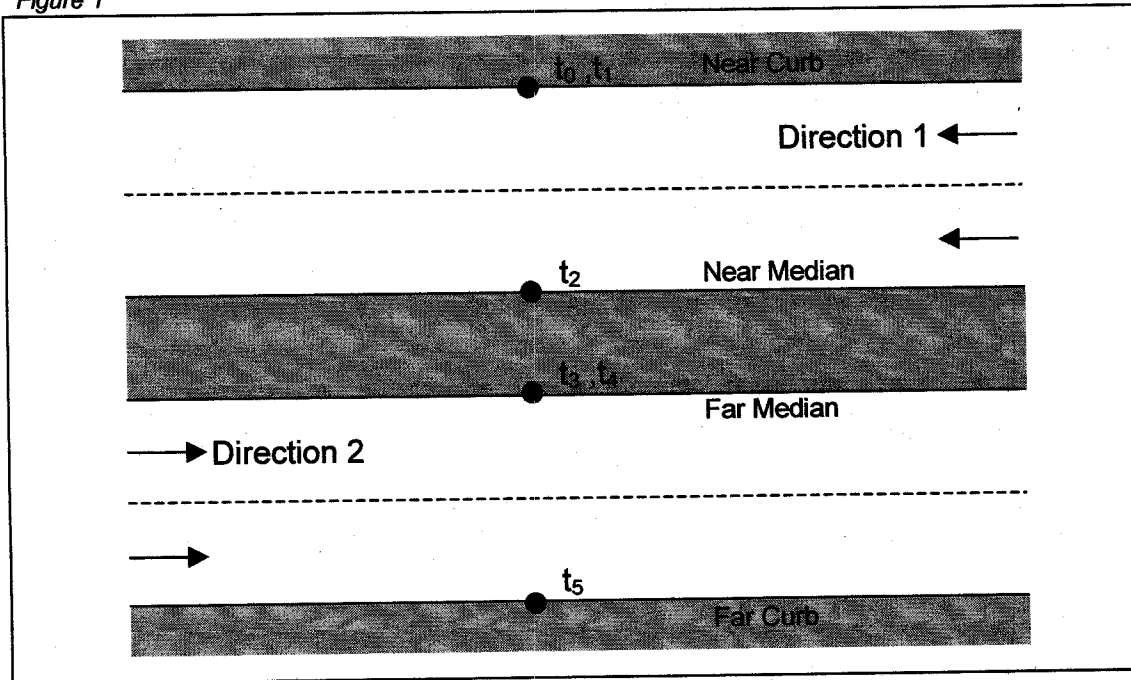


GUIDE FOR DATA EXTRACTION

The following documentation is to be used as a guide for extracting data from video recordings of pedestrian and vehicular activity along Northwestern Avenue. Two separate methods can be used in the analysis: Option 1 is utilized by manually adjusting the numeric time set on a videotape player that displays minutes and seconds to coincide with the numeric time displayed by the camera recording. Option 1 is adequate when event times to the nearest second is acceptable precision. Option 2 uses a stopwatch to record times.

Figure 1



Record waiting times for pedestrians to cross traffic traveling in Direction 1

Option 1:

1. Record the time when the pedestrian reaches the edge of curb. Begin recording the time only when the pedestrian appears to have the intention to cross. In one instance, two pedestrians arrived at the edge of the curb and stopped to talk to each other before departing. In this case, it was never evident that the pedestrians had the intention to cross until their conversation was finished. Because they crossed immediately thereafter, their waiting time was assumed to be zero seconds. However, if the pedestrians appeared to have the intention to cross but had to wait for an acceptable gap in traffic, the instant in which the pedestrians appeared to have the intention to cross would be recorded. (t_0)

2. Record the time when the pedestrian departs from the edge of curb. (t_1)

Waiting time = $t_{w(1)} = t_1 - t_0$, where the "1" in parenthesis indicates Direction 1, the direction of traffic on the near side of the median.

Option 2:

1. Start stopwatch when the pedestrian reaches the edge of curb. (t_0)
2. Stop stopwatch when the pedestrian departs from the edge of curb. (t_1)

Waiting time = $t_{w(1)} = t_1 - t_0$

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Record crossing times for pedestrians to cross both lanes of traffic traveling in Direction 1

Option 1:

1. Record time when the pedestrian departs from edge of curb. (t_1)
2. Record time when the pedestrian reaches near side of median, which occurs when the pedestrian's foot touches the median. "Near" is defined with respect to pedestrian direction and not the view from the video camera. (t_2)

$$\text{Crossing time} = t_{C(1)} = t_2 - t_1$$

Option 2:

1. Start stopwatch when the pedestrian departs from edge of curb. (t_1)
2. Stop stopwatch when the pedestrian reaches near side of median, which occurs when the pedestrian's foot touches the median. "Near" is defined with respect to pedestrian direction and not the view from the video camera. (t_2)

$$\text{Crossing time} = t_{C(1)} = t_2 - t_1$$

Record waiting times for pedestrians to cross traffic traveling in Direction 2

Option 1:

1. Record time when the pedestrian reaches far side of median. "Far" is defined with respect to pedestrian direction and not view from the video camera. (t_3) Begin recording the time only when the pedestrian appears to have the intention to cross. Waiting times for pedestrians who walk to the far side of the median and proceed to walk along the edge of the median are assumed to be zero. Waiting times for pedestrians who walk to the far side of the median, stop to wait for traffic, and then become impatient and proceed to walk along the edge of the median begin when the pedestrian first reaches the far side of the median.
2. Record time when the pedestrian departs from far side of median. (t_4)

$$\text{Waiting time} = t_{W(2)} = t_4 - t_3$$

Option 2:

1. Start stopwatch when the pedestrian reaches the far side of the median. "Far" is defined with respect to pedestrian direction and not view from the video camera. (t_3)
2. Stop stopwatch when the pedestrian departs from the far side of the median. (t_4)

$$\text{Waiting time} = t_{W(2)} = t_4 - t_3$$

Record crossing times for pedestrians to cross both lanes of traffic traveling in Direction 2

Option 1:

1. Record time when the pedestrian departs from the far side of the median. (t_4)
2. Record time when the pedestrian reaches the far curb. (t_5)

$$\text{Crossing time} = t_{C(2)} = t_5 - t_4$$

Option 2:

1. Start stopwatch when the pedestrian departs from the far side of the median. (t_4)
2. Stop stopwatch when the pedestrian reaches the far curb. (t_5)

$$\text{Crossing time} = t_{C(2)} = t_5 - t_4$$

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Record lag accepted by pedestrian

Note: A lag is a type of gap that measures the time until the next vehicle arrival, rather than the time between vehicles. For purposes of this guide, lags are defined as a type of gap that begins when the pedestrian arrives at the edge of curb and end when the first vehicle arrives in the pedestrian's path.

Option 2:

1. Start stopwatch when the pedestrian departs from the edge of curb. ($d_{C(1)}$)
2. Use the "split" feature of stopwatch to record:
 - when the pedestrian departs from the far side of the median. ($d_{C(2)}$)
 - when the vehicle in Direction 1, as indicated by Figure 1, arrives in either lane and crosses the pedestrian's walking path. ($a_{V(1)}$)
 - when the vehicle in Direction 2, as indicated by Figure 1, arrives in either lane and crosses the pedestrian's walking path. ($a_{V(2)}$)

These three occurrences will not necessarily occur in the order listed above.

~~Vehicles exiting the Northwestern Avenue parking garage into the stream of traffic on Northwestern Avenue were not included in the analysis.~~

Accepted gap (Direction 1) = $a_{V(1)}$

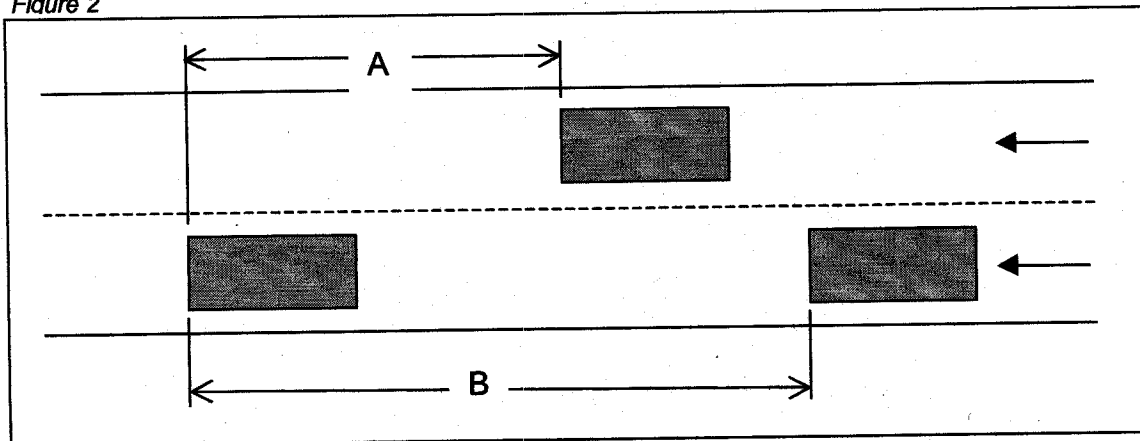
Accepted gap (Direction 2) = $a_{V(2)} - d_{C(2)}$

Record maximum gap rejected by pedestrian

Option 2:

A pedestrian may reject several types of gaps when crossing traffic. It should be observable whether a pedestrian is rejecting a gap due to Method A or B, as shown on the following diagram. A pedestrian may reject two gaps, one in each lane, in some instances where traffic is flowing steadily in both lanes.

Figure 2



Method A:

1. Start stopwatch when the front bumper of a vehicle arrives in the pedestrian's path. Imagine a line beginning at the pedestrian and drawn perpendicular to the median.
2. Stop stopwatch when the front bumper of the next vehicle in the other lane arrives in the pedestrian's path.

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Method B:

1. Start stopwatch when the front bumper of a vehicle arrives in the pedestrian's path. Imagine a line beginning at the pedestrian and drawn perpendicular to the median.
2. Stop stopwatch when the front bumper of the next vehicle in the same lane arrives in the pedestrian's path.

Note:

While observing the videotapes, any unusual behavior by a pedestrian or motorist should be noted for conflict analysis. For example, a pedestrian who accepts a very small gap due to impatience or some other factor may decide to run across the street to avoid being hit by a vehicle, or a motorist may have to slow his speed to avoid hitting a pedestrian. The intentions of the pedestrian or motorist should be considered in the analysis. In the previous analysis, several pedestrians ran across the street, but it was apparent that their cause for running was because they were in a hurry and not because they were at a risk of being hit by a vehicle.