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# DRAFT TECHNICAL MEMORANDUM

**Baseline Data Collection Memo**

Bend Safety Implementation Plan

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Date: August 25, 2014 Project #: 17437.0
To: Robin Wilcox, ASLA, PLA
From: Casey Bergh, PE and Ashleigh Griffin
cc: Scott Beaird, PE

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The Bend Safety Implementation Plan will develop four corridor crossing plans for the City of Bend. Kittelson and Associates, Inc. (KAI) collected data along each corridor to record the existing traffic characteristics for comparison to conditions after treatments are implemented. This memorandum describes the data collection locations, the measures of effectiveness, and field observations collected prior to developing the corridor crossing plans.

## LOCATIONS

The Corridor Crossing Plans are intended to identify locations where enhanced pedestrian crossing treatments could provide the most benefit along four study corridors in Bend, including:

- Colorado Avenue: Bond Street to US 97 Ramps
- 3rd Street: Greenwood Avenue to Murphy Road
- Greenwood Avenue (East): NE 3rd Street to NE 12th Street
- Greenwood Avenue (West): Awbrey Road to NE 3rd Street

Data was collected at eight unsignalized pedestrian crossing locations. Given the variation in the length of each study corridor, the number of data collection locations varied per corridor to allow for data to be collected at locations with differing characteristics (e.g., cross-section, land use, vehicular volume, and pedestrian crossing volume). The data collection locations selected do not necessarily indicate that a crossing with enhanced treatments is appropriate at that location. Instead the data collection locations were identified to be representative of portions of a corridor. The actual crossing locations will be identified through the Corridor Crossing Plans.

Within each corridor, data collection locations were selected based on several factors, including:

- History of pedestrian or bicycle crashes
- Distance to nearest signalized or enhanced unsignalized pedestrian crossing
- Proximity to pedestrian attractors and generators
- Locations with potential for crossing enhancements

Specific data collection locations are defined below with a description of why each location was selected for study.

## MEASURES OF EFFECTIVENESS

The following data were collected and summarized at each unsignalized pedestrian crossing location:

- Pedestrian or bicycle crash history
  - Based on the most-recent crash reports available from the Oregon Department of Transportation (ODOT) Crash Analysis and Reporting Unit
- Motorist yielding rates
  - To identify how likely motorists are to yield to a pedestrian
  - Based on observed and staged crossings conducted in accordance with the data collection methodology described in TCRP Report 112/NCHRP Report 562: *Improving Pedestrian Safety at Unsignalized Crossings*

Vehicular volumes and speed influence pedestrian safety and crossing behavior, but data for these metrics was not available at the time of this study.

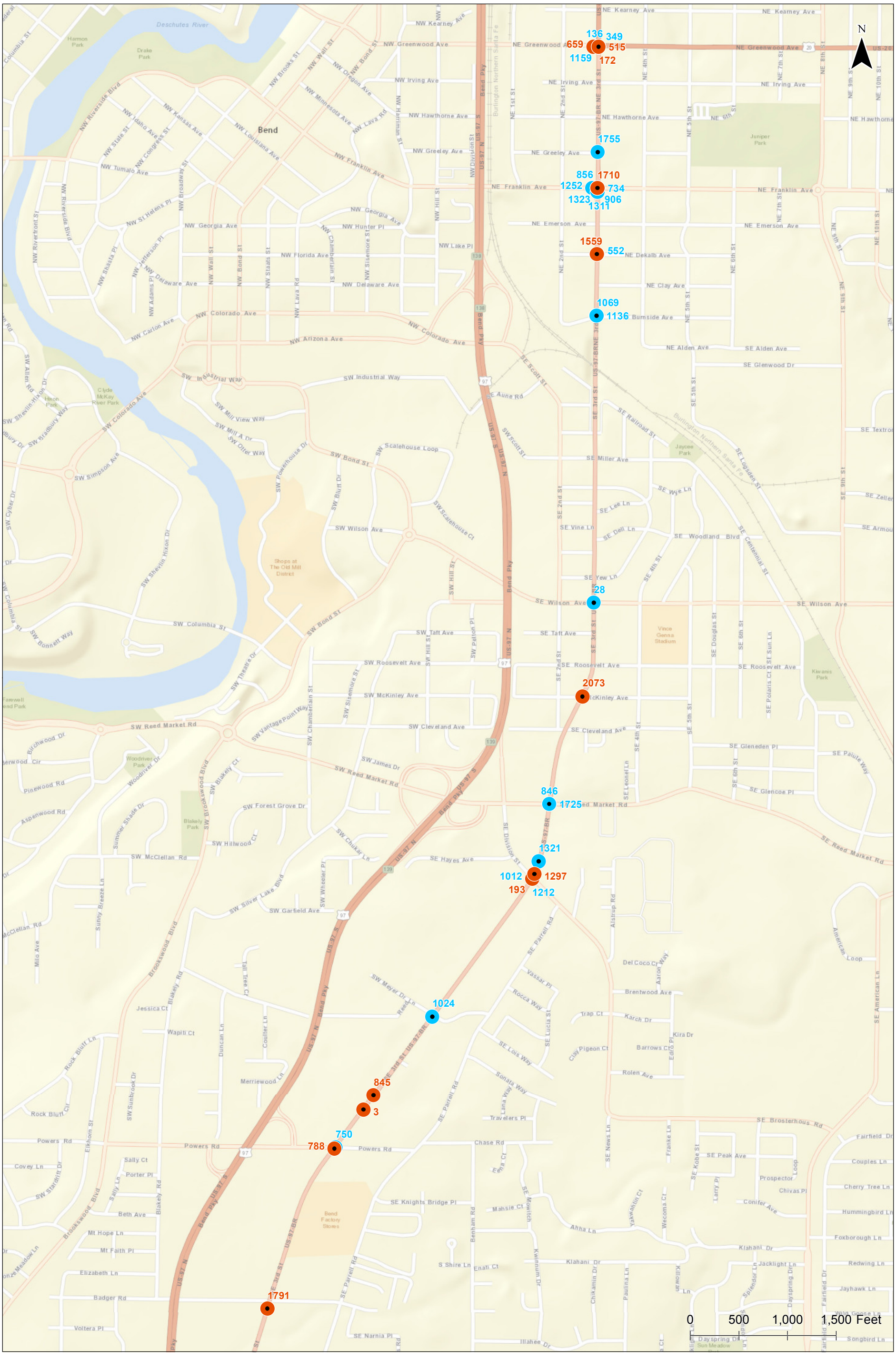
## PEDESTRIAN AND BICYCLE CRASH HISTORY

KAI obtained seven years of crash data for all reported crashes in the City of Bend from the Oregon Department of Transportation (ODOT) Crash Analysis and Reporting Unit. Frequency and severity of pedestrian and bicycle crashes reported from January 1, 2007 through December 31, 2013 are summarized in Table 1 by Crossing Corridor. No pedestrian or bicycle crashes were reported on Colorado Avenue during this study period.

**Table 1. Summary of Reported Pedestrian and Bicycle Crashes by Crossing Corridor (2007-2013)**

| Crossing Corridor | Pedestrian Crashes | | | Bicycle Crashes | | | Total |
|---|---|---|---|---|---|---|---|
| | Fatal | Injury | PDO | Fatal | Injury | PDO | |
| Colorado Avenue: Bond Street to US 97 Ramps | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3rd Street: Greenwood Avenue to Murphy Road | 1 | 11 | 0 | 1 | 17 | 3 | 33 |
| Greenwood Avenue (East): NE 3rd Street to NE 12th Street | 0 | 2 | 0 | 0 | 5 | 0 | 7 |
| Greenwood Avenue (West): Awbrey Road to NE 3rd Street | 0 | 4 | 0 | 0 | 8 | 0 | 12 |

The locations of pedestrian and bicycle crashes are illustrated, by crossing corridor, in Figures 1 through 3. Tables A-1 through A-3 in Appendix A provide additional information about each crash shown in the figures.




Pedestrian

Bicyclist

No crashes reported between Badger and Murphy Road

## Reported Pedestrian and Bicycle Crashes (2007-2013)
## NE 3rd St: Greenwood Ave to Murphy Rd
## Bend, Oregon

Figure **1**

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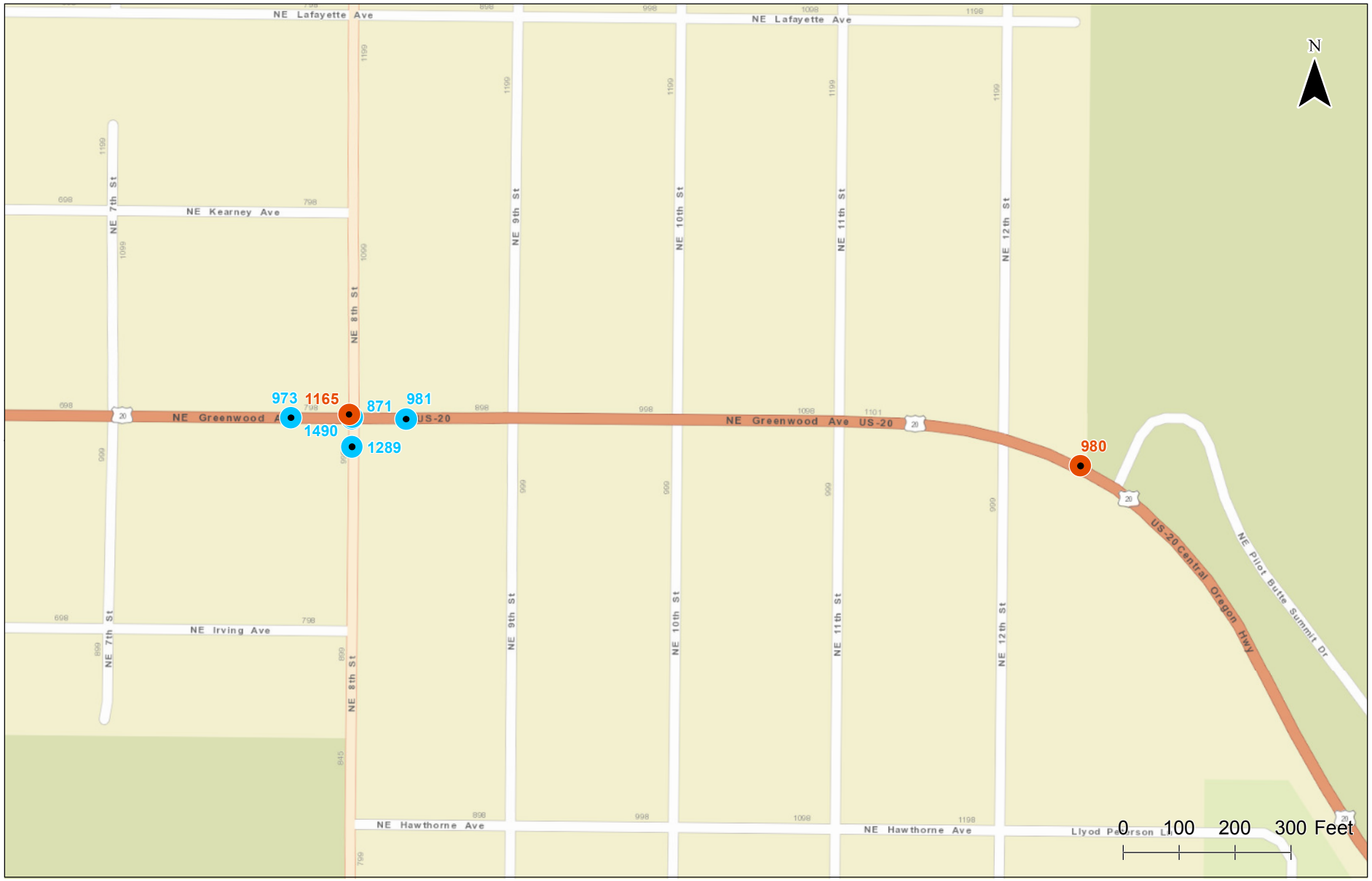
*Service Layer Credits: Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom*
*Coordinate System: NAD 1983 Oregon Statewide Lambert Feet Intl*




Pedestrian Crash Locations

Bicyclist Crash Locations

**Reported Pedestrian and Bicycle Crashes (2007-2013)**
**Greenwood Ave (East): NE 3rd to NE 12th**
**Bend, Oregon**

Figure **2**

*H:\projfile\17437 - Bend Pedestrian Crossing Studies\gis\GreenwoodEast.mxd - jsommerville - 3:58 PM 8/19/2014*

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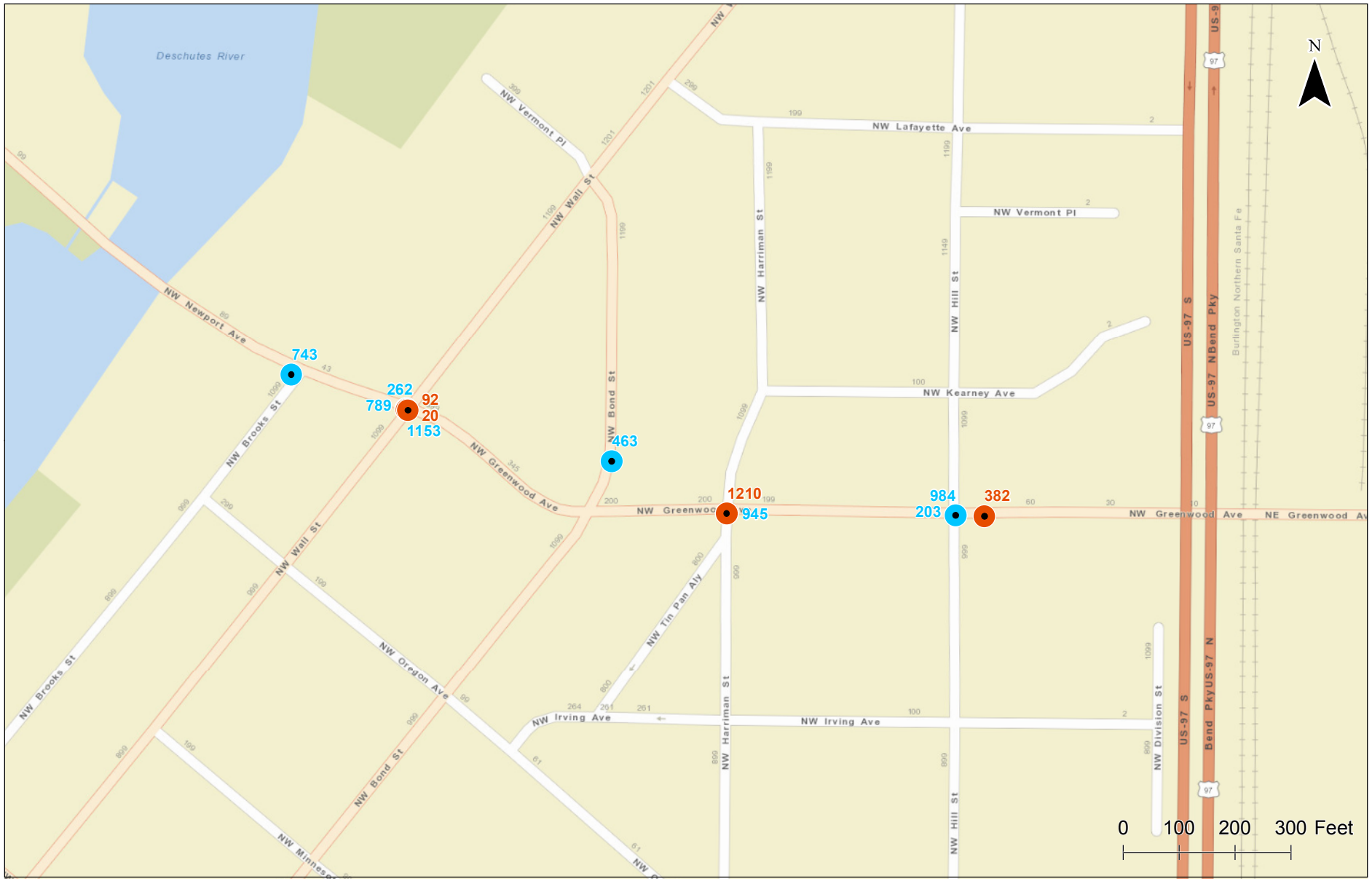
*Coordinate System: NAD 1983 Oregon Statewide Lambert Feet Intl*




Pedestrian Crash Locations

Bicyclist Crash Locations

# Reported Pedestrian and Bicycle Crashes (2007-2013)
# Greenwood Ave (West): Awbrey to NE 3rd St
# Bend, Oregon

Figure **3**

*H:\projfile\17437 - Bend Pedestrian Crossing Studies\gis\GreenwoodWest.mxd - jsommerville - 3:57 PM 8/19/2014*

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*Service Layer Credits: Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom*
*Coordinate System: NAD 1983 Oregon Statewide Lambert Feet Intl*

## MOTORIST YIELDING DATA COLLECTION METHODOLOGY

Motorist compliance (i.e., yielding or stopping where required) was recorded along each crossing study corridor and will serve as the primary performance measure before and after implementation of corridor crossing enhancements at unsignalized roadway crossings. In addition to recording motorist yielding behavior for general population pedestrians, KAI staff staged street crossings to ensure consistency among all sites and to increase sample sizes. Motorist yielding observations were conducted for one hour per crossing location.

TCRP Report 112/NCHRP Report 562: *Improving Pedestrian Safety at Unsignalized Crossings* provides an objective methodology for observing yielding rates at pedestrian crossings. This methodology was generally applied at the study crossing locations. The following protocols were used in conducting the staged crossings:

- Staged pedestrians were dressed in street clothes, not wearing safety vests.
- The staged pedestrian approached the crossing and stood within one foot of the curb and faced oncoming traffic, looking for a crossing opportunity. Where on-street parking was present, the staged pedestrian stood in the middle of the parking lane, to increase sight lines to oncoming vehicles.
- In compliance with Oregon State Laws, the staged crosser placed one foot into the street[1] and waited until motorists in the curb lane stopped or yielded right-of-way. The pedestrian moved halfway into the lane with the stopped motorist, and waited to cross additional lanes until vehicles in adjacent lanes stopped or yielded the right-of-way.
- Motorists that approached the staged crossing from at least the minimum stopping sight distance (per AASHTO) and did not yield were counted as non-complying.
- If motorists did not yield and no acceptable crossing gap was found within a two-minute window, the crossing attempt was aborted and recorded.
- If an acceptable gap in traffic was observed, the staged pedestrian crossed and was recorded as a gap crossing.

[1] Staged crossings conducted on Colorado Avenue, 3rd Street at Burnside, and Greenwood at Hill Street reflect a pedestrian waiting within 1 foot of the curb, without placing a foot into the street, consistent with the NCHRP data collection methodology. To be consistent with other data collected by the City, the methodology changed for studies of the additional intersections.

## MOTORIST YIELDING OBSERVATIONS

Motorist yielding studies were conducted at eight locations on corridors with 2-lane, 4-lane, and 5-lane cross-sections. Motorist yielding rates summarized in this report reflect the availability of acceptable gaps when a pedestrian can cross without requiring a motorist to yield. Therefore, driver compliance rates and number of crossings that occurred with an acceptable gap should be considered together to develop an understanding of the level of difficulty (or ease) of crossing safely.

Key findings from the weekday p.m. peak hour yielding data collection include:

- The highest average wait times and the lowest average motorist compliance rates were experienced crossing NE 3rd Street at Burnside Avenue.
- Of the five-lane crossing locations studied, drivers were most compliant to pedestrians crossing NE 3rd Street at Roosevelt Avenue.
- Crossing five-lane roads often occurred in two stages, requiring a pedestrian to wait in the median to cross the last two lanes. Drivers were up to eight times more likely to yield to a pedestrian in the median than to a pedestrian on the sidewalk.
- 156 crossings were observed and staged at five-lane crossing locations. 115 crossings (74 percent) were completed when the pedestrian accepted a gap in the conflicting traffic prior to a motorist yielding.
- Pedestrian visibility and/or stopping sight distance (a factor of on-street parking or other obstructions) appeared to influence motorist compliance.

The following descriptive statistics are provided for each study crossing in **Table 2**. Each study crossing is described in the following sections. Detailed field observations and individual crossing yielding rates are summarized in Appendix B.

**Staged and Observed Crossings –** Number of crossings observed or staged within the study period

**Observed Crossings –** Number of observed pedestrians (not staged) crossing during the study period.

**Aborted Crossings –** Number of pedestrian crossings that were aborted after a pedestrian waited more than 2 minutes for a yield or gap to cross.

**Number of Total Crossings with Yield –** Number of crossings that occurred when a vehicle yielded to the pedestrian.

**Number of Total Crossings with Acceptable Gap –** Number of crossings that occurred when a gap in traffic was adequate and pedestrian crossed without vehicles yielding.

**Percent Crossings - Driver Yield to Pedestrian –** The percentage of crossings in the study period when pedestrians crossed after a driver yielded.

**Percent Crossings – Pedestrians Crossed in Gap –** The percentage of crossings in the study period when pedestrians crossed with a gap.

**Percent Crossings – Aborted Crossings –** The percentage of crossings in the study period when pedestrians aborted crossing due to a wait time over 2 minutes.

**Average Number of Non-compliant Vehicles –** Average number of vehicles per crossing event that did not yield to the pedestrian and had sufficient stopping sight distance.

**Maximum Number of Non-compliant Vehicles –** The maximum number of vehicles during a single crossing event that did not yield to the pedestrian and had sufficient stopping sight distance.

**Average Number of Non-compliant Vehicles before Yield –** Average number of vehicles that did not yield to the pedestrian and had sufficient stopping sight distance per crossing events that occurred with a vehicle yield.

**Average Wait Time before Crossing –** The average amount of time a pedestrian waited before crossing on a gap or yield.

**Average Compliance Rate –** Average compliance rate for all crossings that occurred on a yield (calculated by dividing the number of motorists that yielded by the number of motorists that should have yielded).

**Table 2. Motorist Compliance Summary Statistics by Study Corridor**

| Descriptive Statistic | 3rd Street | | | | Colorado Avenue | | Greenwood Avenue | |
|---|---|---|---|---|---|---|---|---|
| | Hawthorne Avenue | Burnside Avenue | Roosevelt Avenue | North of Powers Road | Lava Road | Staats Street | Hill Street | NE 6th Street |
| **Overview** | | | | | | | | |
| Number of Lanes Crossed by Pedestrian | 5 | 5 | 5 | 5 | 2 | 2 | 4 | 5 |
| Staged and Observed Crossings | 34 | 30 | 30 | 30 | 32 | 24 | 35 | 32 |
| Observed Crossings | 4 | 0 | 1 | 1 | 0 | 0 | 2 | 1 |
| **Type of Crossing** | | | | | | | | |
| Number of Aborted Crossings | 0 | 9 | 0 | 3 | 0 | 0 | 0 | 0 |
| **Number of Total Crossings with Yield** | **9** | **6** | **7** | **2** | **13** | **18** | **23** | **5** |
| **Number of Total Crossings with Acceptable Gap** | **25** | **15** | **23** | **25** | **19** | **6** | **12** | **27** |
| Percent Crossings – Aborted Crossings | 0% | 30% | 0% | 10% | 0% | 0% | 0% | 0% |
| Percent Crossings – Driver Yield to Pedestrian | 26% | 20% | 23% | 7% | 41% | 75% | 66% | 16% |
| Percent Crossings – Pedestrians Crossed in Gap | 74% | 50% | 77% | 83% | 59% | 25% | 34% | 84% |
| **Compliance** | | | | | | | | |
| Average Number of Non-compliant Vehicles | 3.3 | 16.8 | 6.1 | 4.3 | 2.1 | 2.0 | 3.2 | 3.6 |
| Maximum Number of Non-compliant Vehicles | 15 | >20 | >20 | 18 | 11 | 10 | >20 | >20 |
| Average Number of Non-compliant Vehicles before Yield | 5 | 18 | 6 | 2 | 2 | 2 | 4 | 6 |
| Average Wait Time Before Crossing | 15 | N/A | 24 | N/A | N/A | N/A | N/A | 16 |
| **Average Compliance Rate** | **40.1%** | **10.0%** | **55.9%** | **N/A[1]** | **68.2%** | **65.3%** | **52.2%** | **40.4%** |

[1] Only two crossings were observed or staged where a driver yielded to the pedestrian.

## Colorado Avenue: Bond Street to US 97 Ramps

Staged crossings were conducted on Colorado Avenue at NW Lava Road and NW Staats Street on Wednesday, July 16, 2014 from 4 to 5 p.m. These locations were selected because they provide north-south unsignalized crossing connections between the residential area north of Colorado Avenue and the Old Mill commercial area to the south.

- On-street parking on the south side of Colorado Avenue influenced yielding rates for northbound staged crossings from the SE corner to the NE corner of the intersection.
- Curb bulb outs on the south side of Colorado Avenue at Staats Street increase pedestrian visibility and influenced yield rates.
- When the downstream signal at Bond Street displayed a red indication for Colorado Avenue traffic, drivers were more likely to yield to the staged pedestrian crossing between the NW and SW corners of the Staats Street intersection.

## Greenwood Avenue (West): Awbrey Road to NE 3rd Street

The crossing of Greenwood Avenue at Hill Street was observed on Friday, July 18, 2014 from 4 to 5 p.m. This crossing location was identified as a priority during the development of the City of Bend Safety Management Plan due to vehicular crashes. At Hill Street, Greenwood Avenue has a four-lane cross-section with on-street parking that limits pedestrian sight distance.

## Greenwood Avenue (East): NE 3rd Street to 12th Street

Crossings were staged and observed between the SW and NW corners of Greenwood Avenue at NE 6th Street on Friday, August 15th, 2014 from 4 to 5 p.m. This crossing location was selected to accommodate crossings between the Juniper Swim and Fitness Center and local residential areas and schools north of Greenwood Avenue. At NE 6th Street, Greenwood Avenue has a five-lane cross-section, including four travel lanes and a center turn lane.

Crossing gaps reflect vehicle platooning resulting from upstream and downstream signals. Statistics in **Table 2** reflect the number of vehicles in the two lanes closest to the pedestrian. Drivers were approximately 2.5 times more likely to yield to a pedestrian waiting in the median than a pedestrian on the sidewalk.

## 3rd Street: Greenwood Avenue to Murphy Road

Four crossing locations were studied on the 3rd Street crossing corridor, including Hawthorne Avenue, Burnside Avenue, Roosevelt Avenue, and north of Powers Road. Within this study section, 3rd Street has a five-lane cross-section, including four travel lanes and a center turn lane.

### *Hawthorne Avenue Crossing*

The crossing of 3rd Street at Hawthorne Avenue was observed on Friday, August 15th, 2014 from 5 to 6 p.m. This crossing location was selected to accommodate crossings from the Hawthorne transit station and Juniper Swim and Fitness Center to the commercial attractors to the west of NE 3rd Street.

Pedestrian crossings were staged and observed between the SE and SW corners of the intersection. Crossing gaps reflect vehicle platooning resulting from upstream and downstream signals. Pedestrians generally crossed in two stages, using the two-way center turn lane as a refuge. Therefore, statistics in **Table 2** reflect the number of vehicles passing in the two lanes nearest to the pedestrian before beginning the crossing. Drivers were approximately 49-percent more likely to yield to a pedestrian waiting in the median than a pedestrian on the sidewalk.

## Burnside Avenue Crossing

Five-lane crossings were staged and observed between the NW and NE corners of the NE 3rd Street/Burnside Avenue intersection on Friday, July 18, 2014 from 4 to 5 p.m. This crossing location was selected to accommodate crossings from east of NE 3rd Street (residential land use and Bend High School) to/from the commercial attractors to the west of NE 3rd Street. Immediately south of the intersection NE 3rd Street is reduced to a two-lane cross-section through the railroad undercrossing.

- Due to heavy traffic volumes and travel speeds, nine crossing attempts were aborted after waiting more than two minutes.
- This intersection had the highest average number of non-compliant vehicles of the five-lane crossings studied.

## Roosevelt Avenue Crossing

The crossing of SE 3rd Street at Roosevelt Avenue was observed on Thursday, August 14th, 2014 from 4 to 5 p.m. During this time, the weather in the area included light rain. This crossing location was selected to accommodate crossings between the commercial and residential areas on both sides of 3rd Street, including the Grocery Outlet, Rite Aid, and Bend Elks stadium. There are no bike lanes or shoulders on this section of SE 3rd Street.

Pedestrian crossings were staged and observed between the SE and SW corners of the intersection. Crossing gaps reflect vehicle platooning resulting from upstream and downstream signals. Many crossings occurred in two stages, using the two-way center turn lane as a refuge. Therefore, the summary statistics reflect the number of vehicles passing in the two lanes nearest to the pedestrian before beginning the crossing. Drivers were 1.8 times more likely to yield to a pedestrian waiting in the median than a pedestrian on the sidewalk.

Southbound queues from the SE 3rd Street/Reed Market Road signal extended through this intersection. When the queue extended through this intersection, motorists were more likely to yield to a pedestrian.

## Powers Road Crossing

The crossing of SE 3rd Street north of Powers Road was observed on Wednesday, August 13th, 2014 from 4 to 5 p.m. This crossing location was selected to accommodate crossings between the transit stop at the gas station on the east side of SE 3rd Street and the commercial uses (including Wendy's) on the west side of SE 3rd Street. At the crossing location north of Powers Road, SE 3rd Street has a five-lane cross-section, including four travel lanes and a center turn lane.

Five lane crossings were staged and observed between the northern entrance to the gas station on the east side of SE 3rd Street and the entrance to the Scandia RV Park on the west side of SE 3rd Street. Crossing gaps reflect vehicle platooning resulting from upstream and downstream signals.

Southbound vehicles were slowing for the Powers Road signal as they passed the crossing area. Pedestrians generally were required to cross in two-stages, using the two-way center turn lane as a refuge. Therefore, the summary statistics reflect the number of vehicles passing on the two lanes closest to the pedestrian. Drivers were eight times more likely to yield to a pedestrian waiting in the median than a pedestrian on the sidewalk.

# Appendix A Pedestrian and Bicycle Crash Data Table Summaries

TABLE A-1: Reported Pedestrian and Bicycle Crashes (2007-2009) on 3rd Street: Greenwood Ave to Murphy Rd

| Serial Number | Date | Time of Crash | Crash Type | Crash Severity | Traffic Control Device | Reported Cause |
|---|---|---|---|---|---|---|
| 3 | 1/8/2007 | 9:00 PM | Pedestrian | Fatal crash | Unknown or not defined | Non-Motorist illegally in roadway |
| 28 | 1/14/2009 | 2:00 PM | Pedalcyclist_Misc | Property damage only crash (PDO) | Traffic signals | Did not yield right-of-way |
| 136 | 1/25/2012 | 12:00 PM | Pedalcyclist_Rear-End | Property damage only crash (PDO) | Traffic signals | Followed too closely |
| 172 | 1/9/2007 | 2:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 193 | 1/26/2007 | 7:00 AM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 349 | 2/12/2007 | 12:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Disregarded R-A-G traffic signal |
| 515 | 4/13/2009 | 2:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 552 | 5/2/2011 | 3:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Stop sign | Wrong way on one-way roadway |
| 659 | 4/18/2007 | 11:00 PM | Pedestrian | Non-fatal injury crash | No control | Non-Motorist illegally in roadway |
| 734 | 6/8/2011 | 8:00 AM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 750 | 4/17/2007 | 2:00 AM | Pedalcyclist_Rear-End | Fatal crash | Traffic signals | Other improper driving |
| 788 | 6/29/2009 | 3:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 845 | 7/23/2010 | 2:00 PM | Pedestrian | Non-fatal injury crash | Unknown or not defined | Did not yield right-of-way |
| 846 | 6/25/2009 | 9:00 AM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 856 | 7/4/2011 | 7:00 PM | Pedalcyclist_Rear-End | Property damage only crash (PDO) | Traffic signals | Followed too closely |
| 906 | 7/18/2012 | 12:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1012 | 7/22/2009 | 12:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1024 | 8/5/2010 | 11:00 AM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1069 | 8/24/2009 | 1:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Stop sign | Did not yield right-of-way |
| 1136 | 8/12/2011 | 1:00 PM | Pedalcyclist_Rear-End | Non-fatal injury crash | No control | Improper change of traffic lanes |
| 1159 | 7/17/2008 | 12:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1212 | 9/6/2013 | 6:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1252 | 9/22/2012 | 5:00 PM | Pedalcyclist_Rear-End | Non-fatal injury crash | Unknown or not defined | Followed too closely |
| 1297 | 7/27/2007 | 2:00 AM | Pedestrian | Non-fatal injury crash | No control | Did not yield right-of-way |
| 1311 | 8/9/2008 | 1:00 PM | Pedalcyclist_Angle | Non-fatal injury crash | Unknown or not defined | Non-Motorist illegally in roadway |
| 1321 | 9/25/2013 | 4:00 PM | Pedalcyclist_Angle | Non-fatal injury crash | Unknown or not defined | Did not yield right-of-way |
| 1323 | 8/8/2008 | 10:00 AM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1559 | 8/16/2007 | 6:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1710 | 12/5/2013 | 8:00 AM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1725 | 9/3/2007 | 8:00 AM | Pedalcyclist_Angle | Non-fatal injury crash | Traffic signals | Disregarded R-A-G traffic signal |
| 1755 | 10/30/2008 | 5:00 PM | Pedalcyclist_TurningMovement | Non-fatal injury crash | Stop sign | Non-Motorist illegally in roadway |
| 1791 | 12/11/2013 | 7:00 PM | Pedestrian | Non-fatal injury crash | No control | Other (not improper driving) |
| 2073 | 11/16/2007 | 9:00 PM | Pedestrian | Non-fatal injury crash | Left turn refuge | Non-Motorist illegally in roadway |

TABLE A-2: Reported Pedestrian and Bicycle Crashes (2007-2009) on Greenwood Avenue – NE 3rd to NE 12th

| Serial Number | Date | Time of Crash | Crash Type | Crash Severity | Traffic Control Device | Reported Cause |
|---|---|---|---|---|---|---|
| 871 | 7/26/2010 | 11:00 AM | Pedalcyclist_Miscellaneous | Non-fatal injury crash | Stop sign | Did not yield right-of-way |
| 973 | 7/26/2013 | 12:00 PM | Pedalcyclist_Turning | Non-fatal injury crash | No control | Did not yield right-of-way |
| 980 | 7/26/2011 | 3:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 981 | 6/15/2007 | 7:00 AM | Pedalcyclist_Turning | Non-fatal injury crash | No control | Did not yield right-of-way |
| 1165 | 8/16/2013 | 9:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Non-Motorist clothing not visible |
| 1289 | 8/24/2008 | 5:00 PM | Pedalcyclist_Turning | Non-fatal injury crash | Unknown | Did not yield right-of-way |
| 1490 | 9/2/2008 | 5:00 PM | Pedalcyclist_Turning | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |

TABLE A-3: Reported Pedestrian and Bicycle Crashes (2007-2009) on Greenwood Avenue – Aubrey to NE 3rd

| Serial Number | Date | Time of Crash | Crash Type | Crash Severity | Traffic Control Device | Reported Cause |
|---|---|---|---|---|---|---|
| 20 | 1/11/2007 | 6:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 92 | 1/7/2011 | 10:00 PM | Pedestrian | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 203 | 1/29/2007 | 3:00 PM | Pedalcylist_Turning | Non-fatal injury crash | No control | Other improper driving |
| 262 | 2/20/2009 | 11:00 AM | Pedalcyclist_Turning | Non-fatal injury crash | No control | Did not yield right-of-way |
| 382 | 3/6/2009 | 8:00 PM | Pedestrian | Non-fatal injury crash | Unknown or not defined | Did not yield right-of-way |
| 463 | 3/29/2012 | 11:00 AM | Pedalcyclist_Parking | Non-fatal injury crash | Unknown or not defined | Improper overtaking |
| 743 | 4/24/2007 | 6:00 PM | Pedalcylist_Turning | Non-fatal injury crash | No control | Did not yield right-of-way |
| 789 | 6/20/2011 | 7:00 PM | Pedalcyclist_Angle | Non-fatal injury crash | Traffic signals | Wrong way on one-way roadway |
| 945 | 7/26/2012 | 7:00 AM | Pedalcyclist_Turning | Non-fatal injury crash | No control | Did not yield right-of-way |
| 984 | 8/1/2012 | 4:00 PM | Pedalcyclist_Turning | Non-fatal injury crash | Stop sign | Did not yield right-of-way |
| 1153 | 8/25/2011 | 4:00 PM | Pedalcyclist_Angle | Non-fatal injury crash | Traffic signals | Did not yield right-of-way |
| 1210 | 9/13/2012 | 6:00 PM | Pedestrian | Non-fatal injury crash | Stop sign | Did not yield right-of-way |

# Appendix B Colorado Avenue Field Observations

# COLORADO AVENUE/LAVA ROAD

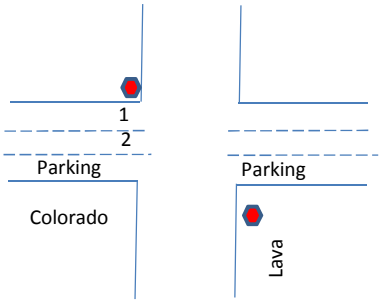
Corridor Crossing Plan: Colorado Avenue
Intersection Name: Lava Road
Date/Time: July 16, 2014 from 4 p.m. to 5 p.m.
Observer: Tyler Rausch

| Crossing | Direction | # of Vehicles that Pass | Yield/Gap (Y/G) | Observed Pedestrian Crossing? Y/N | Ped Characteristics/Notes |
|---|---|---|---|---|---|
| 1 | | 3 | G | | |
| 2 | | 2 | Y | | |
| 3 | | 1 | Y | | |
| 4 | | 5 | Y | | |
| 5 | | 1 | Y | | |
| 6 | | 1 | G | | |
| 7 | | 2 | G | | |
| 8 | | 2 | G | | |
| 9 | | 3 | G | | |
| 10 | | 1 | G | | |
| 11 | | 2 | G | | |
| 12 | | 2 | G | | |
| 13 | | 7 | G | | |
| 14 | | 5 | G | | |
| 15 | | 0 | G | | |
| 16 | | 6 | Y | | |
| 17 | | 2 | G | | Switch to west side of Lave |
| 18 | | 0 | Y | | |
| 19 | | 0 | Y | | |
| 20 | | 1 | G | | |
| 21 | | 1 | G | | |
| 22 | | 11 | G | | |
| 23 | | 1 | Y | | |
| 24 | | 1 | G | | |
| 25 | | 2 | G | | |
| 26 | | 0 | G | | |
| 27 | | 2 | Y | | |
| 28 | | 1 | G | | |
| 29 | | 0 | Y | | Right turning veh. Slowed traffic and allowed me to cross |
| 30 | | 0 | Y | | |
| 31 | | 1 | Y | | |
| 32 | | 1 | Y | | |

| Summary S | Column1 | Column3 | Total | East | West |
|---|---|---|---|---|---|
| Total Records | | | 32 | 16 | 16 |
| Staged Total | | | 0 | 0 | 0 |
| Sum Yield | | | 13 | 5 | 8 |
| Percent crossing yield | | | 41% | 31% | 50% |
| Sum Gap | | | 19 | 11 | 8 |
| Average # non-compliant veh before crossing | | | 2.1 | 2.7 | -0.6 |
| Min # non-compliant veh before crossing | | | 11 | 7 | 4 |
| Max # non-compliant veh before crossing | | | 0 | 0 | 0 |
| Average # non-compliant veh before yield | | | 2 | 2 | 0 |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way stop control |
| Speed Limit? | |
| Parked Cars? | Yes |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 40 ft |
| Sight Distance? | |
| Other | One-way traffic(West) |

Intersection Layout




Instructions:

- Walk to curb edge, making intention to cross without stepping into street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield.
- If crossing was due to a yielding vehicle mark Y in column 3, otherwise mark G.
- For observed pedestrian crossings, mark all columns.

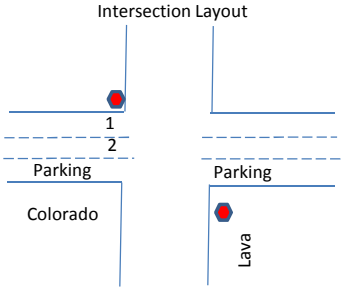
# COLORADO AVENUE/STAATS STREET

Corridor Crossing Plan: Colorado Avenue
Intersection Name: Staats Street
Date/Time: July 16, 2014 from 4 p.m. to 5 p.m.
Observer: Casey Bergh

| Crossing | Direction | # of Vehicles that Pass | Yield/Gap (Y/G) | Observed Pedestrian Crossing? Y/N | Compliance Rate | ıracteristic |
|---|---|---|---|---|---|---|
| 1 | N | 0 | Y | | 1 | EAST |
| 2 | S | 3 | Y | | 0.4 | EAST |
| 3 | N | 0 | Y | | 1 | EAST |
| 4 | S | 3 | Y | | 0.4 | EAST |
| 5 | N | 0 | Y | | 1 | EAST |
| 6 | S | 2 | Y | | 0.5 | EAST |
| 7 | N | 0 | Y | | 1 | EAST |
| 8 | S | 0 | G | | N/A | EAST |
| 9 | N | 0 | Y | | 1 | EAST |
| 10 | S | 10 | Y | | 0.166666667 | EAST |
| 11 | N | 0 | G | | N/A | EAST |
| 12 | S | 6 | Y | | 0.25 | EAST |
| 13 | N | 0 | Y | | 1 | EAST |
| 14 | S | 4 | Y | | 0.333333333 | EAST |
| 15 | N | 5 | Y | | 0.285714286 | WEST |
| 16 | S | 0 | G | | N/A | WEST |
| 17 | N | 6 | Y | | 0.25 | WEST |
| 18 | S | 0 | G | | N/A | WEST |
| 19 | N | 0 | Y | | 1 | WEST |
| 20 | S | 6 | G | | N/A | WEST |
| 21 | N | 0 | Y | | 1 | WEST |
| 22 | S | 0 | G | | N/A | WEST |
| 23 | N | 2 | Y | | 0.5 | WEST |
| 24 | S | 1 | Y | | 0.666666667 | WEST |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way stop control |
| Speed Limit? | |
| Parked Cars? | Yes |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 40 ft |
| Sight Distance? | |
| Other | One-way traffic(West) |

Intersection Layout




Instructions:

- Walk to curb edge, making intention to cross without stepping into street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield.
- If crossing was due to a yielding vehicle mark Y in column 3, otherwise mark G.
- For observed pedestrian crossings,

| Summary Statistic | Column1 | Column2 | Total | East | West |
|---|---|---|---|---|---|
| Total Records | | | 24 | 14 | 10 |
| Observed Crossings | | | 0 | 0 | 0 |
| Sum Yield | | | 18 | 12 | 6 |
| Percent crossing yield | | | 75% | 86% | 60% |
| Sum Gap | | | 6 | 2 | 4 |
| Percent crossing gap | | | 25% | | 0.25 |
| Average # non-compliant veh before crossing | | | 2.0 | 2.4 | -0.4 |
| Max # non-compliant veh before crossing | | | 10 | 10 | 0 |
| Min # non-compliant veh before crossing | | | 0 | 0 | 0 |
| Average # non-compliant veh before yield | | | 2 | 2 | 0 |
| Average compliance rate | | | 65.3% | | |

# Appendix C Greenwood Avenue (West) Field Observations

# GREENWOOD AVENUE/HILL STREET

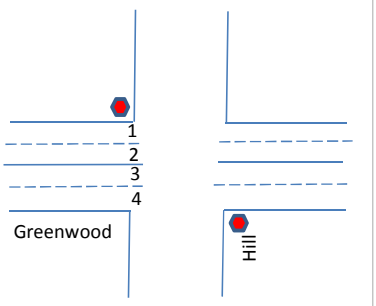
Corridor Crossing Plan: Greenwood Avenue (West)
Intersection Name: Hill Street
Date/Time: July 18, 2014 from 4 p.m. to 5 p.m.
Observer: Tyler Rausch

| Crossing | Direction | # of Vehicles that Pass | Yield/Gap (Y/G) | Observed Pedestrian Crossing? Y/N | Ped Characteristics/Notes |
|---|---|---|---|---|---|
| 1 | N | 16 | Y | | |
| 2 | | N/A | G | Y | Ran across intersection |
| 3 | S | 4 | Y | | |
| 4 | N | 2 | Y | | |
| 5 | S | 5 | G | | |
| 6 | N | 1 | G | | |
| 7 | S | 3 | Y | | Veh behind yield veh. changed lane to pass |
| 8 | N | 1 | G | | |
| 9 | S | 2 | G | | |
| 10 | N | 2 | Y | | |
| 11 | S | 0 | G | | |
| 12 | N | 0 | G | | |
| 13 | S | 0 | Y | | Veh behind yield veh. changed lane to pass |
| 14 | N | 5 | Y | | |
| 15 | S | 3 | Y | | |
| 16 | N | 1 | Y | | |
| 17 | S | 0 | Y | | |
| 18 | N | 0 | G | | |
| 19 | S | 1 | G | | Switch to west side of Hill |
| 20 | N | 2 | Y | | |
| 21 | S | 2 | G | | |
| 22 | N | 2 | Y | | |
| 23 | S | 28 | Y | | Last car in platoon yielded |
| 24 | N | 1 | Y | | |
| 25 | S | 3 | Y | | |
| 26 | N | 0 | Y | | |
| 27 | S | 0 | Y | | All four lanes yield |
| 28 | N | 1 | Y | | |
| 29 | S | 10 | Y | | L1&2 Yield, all passing cars from L3&4 |
| 30 | N | 5 | G | Y | 4 peds cross, 2 from between parked car |
| 31 | N | 5 | Y | | |
| 32 | S | 2 | G | | |
| 33 | N | 3 | Y | | |
| 34 | S | 1 | Y | | |
| 35 | N | 2 | Y | | Left turn veh from hill to greenwood, Conflict with ROW |

| Summary Statistic | Column1 | Column2 | Total | East | West |
|---|---|---|---|---|---|
| Total Records | | | 35 | 16 | 19 |
| Staged Total | | | 2 | 1 | 1 |
| Sum Yield | | | 23 | 9 | 14 |
| Percent crossing yield | | | 66% | 56% | 74% |
| Sum Gap | | | 12 | 7 | 5 |
| Average # non-compliant veh before crossing | | | 3.2 | 2.8 | 0.4 |
| Min # non-compliant veh before crossing | | | 28 | 16 | 12 |
| Max # non-compliant veh before crossing | | | 0 | 0 | 0 |
| Average # non-compliant veh before yield | | | 4 | 4 | 0 |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way stop control |
| Speed Limit? | from east: 20 mph |
| Parked Cars? | Yes |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 56 feet |
| Sight Distance? | N/A |
| Other | |

Intersection Layout

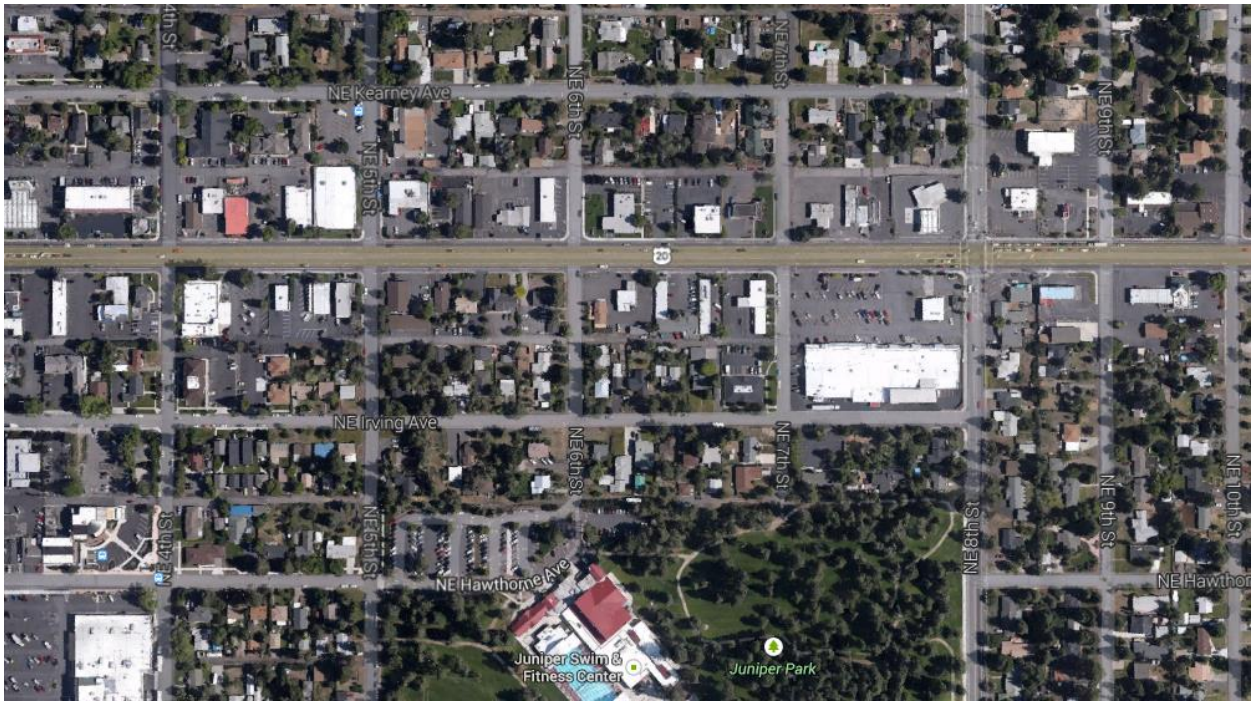



Instructions:

- Walk to curb edge, making intention to cross without stepping into street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield.
- If crossing was due to a yielding vehicle mark Y in column 3, otherwise mark G.
- For observed pedestrian crossings, mark all columns.

# Appendix D Greenwood Avenue (East) Field Observations

# GREENWOOD AVENUE/6TH STREET

Corridor Crossing Plan: Greenwood East
Intersection Name: Greenwood at 6th
Date/Time: 4:05 8/15/14
Staff: AJG (recorder first), CRB (crossing first)

| Crossing | Direction | # of Vehicles That Pass (1st Stage) | # of Vehicles That Pass (2nd Stage) | Crossing Time | Crossing Type (1st Stage) | Crossing Type (2nd Stage) | Total Yield | Observed Pedestrian Crossing? Y/N | Ped Characteristics/ Notes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | N | 3 | | 13 | G | | | N | |
| 2 | S | 21 | 5 | 75 | G | G | | N | |
| 3 | N | 0 | | 0 | G | | | N | |
| 4 | S | 3 | 0 | 20 | G | Y | | N | |
| 5 | N | 1 | | 5 | G | | | N | |
| 6 | S | 28 | | 50 | G | | | N | |
| 7 | N | 0 | | 0 | G | | | N | |
| 8 | S | 2 | ? | 25 | G | G | | N | |
| 9 | N | 0 | 0 | 20 | G | G | | N | Bike didn't yield |
| 10 | S | 15 | 1 | 30 | Y | Y | | N | |
| 11 | N | 10 | | 26 | Y | | | N | |
| 12 | S | 1 | 0 | 12 | Y | Y | | N | |
| 13 | N | 0 | 0 | 8 | G | Y | | N | |
| 14 | S | 0 | 2 | 0 | G | Y | | N | |
| 15 | N | 0 | 0 | 5 | G | Y | | N | |
| 16 | S | 2 | 0 | 5 | G | G | | Y | Ran across |
| 17 | N | 0 | | 7 | G | | | N | |
| 18 | S | 10 | 2 | 40 | G | G | | N | 2 bikes didn't yield |
| 19 | N | 1 | 1 | 16 | G | G | | N | |
| 20 | S | 0 | 1 | 5 | G | Y | | N | |
| 21 | N | 1 | | | Y | Y | | N | |
| 22 | S | 3 | 1 | | Y | Y | | N | |
| 23 | N | 8 | 0 | | G | Y | | N | |
| 24 | S | 0 | | 15 | G | Y | | N | |
| 25 | N | 2 | 1 | 10 | G | G | | N | |
| 26 | S | 0 | 9 | 20 | G | Y | | N | |
| 27 | N | 0 | 5 | 10 | G | Y | | N | |
| 28 | S | 0 | 0 | 5 | G | G | | N | |
| 29 | N | 0 | 0 | 10 | G | Y | | N | |
| 30 | S | 0 | 2 | 10 | G | G | | N | |
| 31 | N | 2 | 0 | 5 | G | G | | N | |
| 32 | S | 2 | 0 | 10 | G | G | | N | |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-Way Stop Contro |
| Speed Limit? | |
| Parked Cars? | No |
| Curb Extension? | No |
| Bike Lane? | Yes |
| Crossing Distance? | 70' |
| Sight Distance? | |
| Other | nearest vehicles only |

Instructions:

- Place/identify marker upstream of crossing at limit of AASHTO stopping sight distance.
- Walk to curb edge, making intention to cross by placing one foot onto street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield. If two-stage crossing, record vehicles by first or second stage crossing.
- If no safe crossing in 2 minutes, abort crossing and record.

| Summary Stat | Column1 | Column2 | Total | Column3 |
|---|---|---|---|---|
| Total Records - All Crossings | | | 32 | |
| Total Records - 2-Stage Crossings | | | 25 | |
| | | | | |
| Observed Crossings | | | 1 | |
| | | | | |
| Sum Yield - 1st Stage | | | 5 | |
| Sum Yield - 2nd Stage | | | 14 | |
| | | | | |
| Percent crossing yield - 1st stage | | | 16% | |
| Percent crossing yield - 2nd stage | | | 56% | 258% |
| | | | | |
| Sum Gap - 1st stage | | | 27 | |
| Sum Abort - 1st stage | | | 0 | |
| | | | | |
| **Summary Statistics: 1st Stage** | | | | |
| Average # non-compliant veh before crossing | | | 3.6 | |
| Max # non-compliant veh before crossing | | | 28 | |
| Min # non-compliant veh before crossing | | | 0 | |
| Average # non-compliant veh before yield | | | 6 | |
| Average crossing time before crossing | | | 16 | |
| Average crossing time before yield | | | 23 | |
| | | | | |
| **Summary Statistics: 2nd Stage** | | | | |
| Average # non-compliant veh before crossing | | | 1.2 | |
| Max # non-compliant veh before crossing | | | 9 | |
| Min # non-compliant veh before crossing | | | 0 | |
| Average # non-compliant veh before yield | | | 1 | |
| | | | | |
| | | | | |

# APPENDIX E 3rd Street Field Observations

# 3RD STREET/HAWTHORNE AVENUE

Corridor Crossing Plan: 3rd Street
Intersection Name: Hawthorne
Date/Time: 5:05, 8/15/14
Staff: CRB (recorder 1st half), AJG (pedestrian, 1st half)

| Crossing | Direction | # of Vehicles That Pass (1st Stage) | # of Vehicles That Pass (2nd Stage) | Crossing Time | Crossing Type (1st Stage) | Crossing Type (2nd Stage) | Total Yield | Observed Pedestrian Crossing? Y/N | Ped Characteristics/ Notes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | E | 6 | 5 | | G | Y | | N | |
| 2 | W | 15 | 0 | 40 | G | G | | N | |
| 3 | E | 1 | 0 | 25 | G | Y | | N | |
| 4 | W | 9 | 0 | 38 | Y | G | | N | |
| 5 | E | 0 | 0 | 5 | G | G | | N | |
| 6 | W | 3 | 0 | 10 | Y | G | | N | |
| 7 | E | 0 | 0 | 5 | G | G | | N | |
| 8 | W | 0 | 0 | 5 | Y | G | | N | |
| 9 | W | 2 | 0 | 10 | G | G | | Y | 2 males |
| 10 | E | 0 | 0 | <5 | G | G | | N | |
| 11 | W | 0 | 1 | 5 | G | Y | | N | |
| 12 | E | 0 | 5 | | G | Y | | N | |
| 13 | E | 2 | 0 | | G | Y | | Y | male |
| 14 | W | 4 | 0 | | Y | Y | | N | |
| 15 | E | 8 | 0 | | G | Y | | N | |
| 16 | W | 0 | 0 | | G | G | | N | |
| 17 | E | 2 | 0 | 10 | G | Y | | N | |
| 18 | W | 0 | 0 | 0 | G | Y | | N | |
| 19 | E | 0 | 0 | 5 | G | G | | N | |
| 20 | W | 4 | 0 | 25 | Y | Y | | N | |
| 21 | E | 5 | 0 | 18 | G | G | | N | |
| 22 | W | 4 | 0 | 25 | Y | Y | | N | police officer yielded |
| 23 | W | 0 | 0 | | G | G | | Y | bicyclist crossing |
| 24 | E | 12 | 0 | 34 | G | G | | N | |
| 25 | W | 3 | 0 | 14 | Y | G | | N | |
| 26 | E | 0 | 0 | 0 | G | G | | N | |
| 27 | W | 2 | 5 | 10 | Y | Y | | N | |
| 28 | E | 0 | 4 | 0 | G | Y | | N | 1st lane yield, 4 cars in 2nd passed |
| 29 | W | 14 | 0 | 34 | Y | G | | N | |
| 30 | E | 3 | 0 | 12 | G | G | | N | |
| 31 | W | 0 | 4 | 0 | G | G | | N | |
| 32 | E | 7 | 0 | 16 | G | G | | N | |
| 33 | W | 5 | 0 | 21 | G | G | | N | |
| 34 | W | | | | G | | | Y | ran across road |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-Way Stop Contro |
| Speed Limit? | |
| Parked Cars? | No |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 65' |
| Sight Distance? | |
| Other | random arrivals |

Instructions:

- Place/identify marker upstream of crossing at limit of AASHTO stopping sight distance.
- Walk to curb edge, making intention to cross by placing one foot onto street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield. If two-stage crossing, record vehicles by first or second stage crossing.
- If no safe crossing in 2 minutes, abort crossing and record.

| Summary Stat | Column1 | Column2 | Total |
|---|---|---|---|
| Total Records - All Crossings | | | 34 |
| Total Records - 2-Stage Crossings | | | 33 |
| | | | |
| Observed Crossings | | | 4 |
| | | | |
| Sum Yield - 1st Stage | | | 9 |
| Sum Yield - 2nd Stage | | | 13 |
| | | | |
| Percent crossing yield - 1st stage | | | 26% |
| Percent crossing yield - 2nd stage | | | 39% |
| | | | |
| Sum Gap - 1st stage | | | 25 |
| Sum Abort - 1st stage | | | 0 |
| | | | |
| **Summary Statistics: 1st Stage** | | | |
| Average # non-compliant veh before crossing | | | 3.3 |
| Max # non-compliant veh before crossing | | | 15 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 5 |
| Average crossing time before crossing | | | 15 |
| Average crossing time before yield | | | 20 |
| | | | |
| **Summary Statistics: 2nd Stage** | | | |
| Average # non-compliant veh before crossing | | | 0.7 |
| Max # non-compliant veh before crossing | | | 5 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 2 |
| | | | |
| | | | |

49%

# 3RD STREET/BURNSIDE AVENUE


Corridor Crossing Plan: 3rd Street
Intersection Name: Burnside Avenue
Date/Time: July 16, 2014 from 4 p.m. to 5 p.m.
Observer: Casey Bergh

| Crossing | Direction | # of Vehicles that Pass | Yield/Gap (Y/G) | Observed Pedestrian Crossing? Y/N | Compliance Rate | Ped Characteristics/ Notes |
|---|---|---|---|---|---|---|
| 1 | E | 20 | G | y | N/A | 2 peds |
| 2 | W | 20 | A | | N/A | |
| 3 | W | 20 | A | | N/A | |
| 4 | W | 20 | A | | N/A | |
| 5 | W | 10 | G | y | N/A | 1 + dog |
| 6 | W | 20 | A | | N/A | |
| 6 | W | 20 | A | | N/A | |
| 7 | W | 20 | G | | N/A | |
| 8 | E | N/A | G | y | N/A | 1 + dog |
| 9 | E | 20 | A | | N/A | |
| 9 | E | 20 | A | | N/A | |
| 10 | E | 20 | Y | | 0.090909091 | |
| 11 | W | 20 | G | | N/A | |
| 12 | E | 20 | Y | | 0.090909091 | |
| 13 | W | N/A | G | y | N/A | bike w/trailer |
| 14 | W | N/A | G | y | N/A | 2 males, 2-stage gap |
| 15 | W | 20 | Y | | 0.090909091 | |
| 16 | E | 20 | A | | N/A | |
| 16 | E | 20 | A | | N/A | |
| 17 | E | 20 | Y | | 0.090909091 | |
| 18 | E | 20 | G | | N/A | 4:35 PM |
| 19 | W | 20 | G | | N/A | |
| 20 | E | 5 | G | | N/A | |
| 21 | W | 20 | G | | N/A | |
| 22 | E | 20 | G | | N/A | |
| 23 | W | 20 | G | | N/A | |
| 24 | E | 20 | G | | N/A | |
| 25 | W | 15 | Y | | 0.117647059 | |
| 26 | E | 15 | Y | | 0.117647059 | |
| 27 | W | 20 | G | | N/A | |

| Summary Statistic | Column1 | Column2 | Total |
|---|---|---|---|
| Total Records | | | 30 |
| Observed Crossings | | | 5 |
| Sum Yield | | | 6 |
| Percent crossing yield | | | 20% |
| Sum Gap | | | 15 |
| Percent crossing gap | | | 50% |
| Sum Abort | | | 9 |
| Percent crossing - abort | | | 30% |
| Average # non-compliant veh before crossing | | | 16.8 |
| Max # non-compliant veh before crossing | | | 20 |
| Min # non-compliant veh before crossing | | | 5 |
| Average # non-compliant veh before yield | | | 18 |
| Average compliance rate | | | 10.0% |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way stop control |
| Speed Limit? | |
| Parked Cars? | Yes |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 40 ft |
| Sight Distance? | |
| Other | One-way traffic(West) |

Instructions:

- Walk to curb edge, making intention to cross without stepping into street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield.
- If crossing was due to a yielding vehicle mark Y in column 3, otherwise mark G.
- For observed pedestrian crossings,

# 3RD STREET/ROOSEVELT AVENUE

Corridor Crossing Plan: 3rd Street
Intersection Name: Roosevelt
Date/Time: 8/14/14
Staff: CRB (recorder), AJG (crossing)

| Crossing | Direction | # of Vehicles That Pass (1st Stage) | # of Vehicles That Pass (2nd Stage) | Crossing Time | Crossing Type (1st Stage) | Crossing Type (2nd Stage) | Total Yield | Observed Pedestrian Crossing? Y/N | Ped Characteristics/ Notes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | W | 0 | 0 | - | G | | G | N | |
| 2 | E | 26 | 0 | - | G | | G | N | |
| 3 | W | 0 | 0 | - | Y | | Y | N | |
| 4 | E | 2 | 0 | - | G | | G | N | |
| 5 | W | 4 | 0 | - | G | | G | N | |
| 6 | E | 16 | 0 | - | Y | | Y | N | |
| 7 | W | 10 | 0 | 65 | G | | G | N | |
| 8 | E | 26 | 0 | 65 | G | | G | N | |
| 9 | W | 3 | 0 | 30 | G | Y | Y | N | |
| 10 | E | 2 | 0 | 10 | G | | G | N | |
| 11 | W | 6 | 0 | 30 | G | | G | N | |
| 12 | E | 6 | 2 | 35 | G | Y | Y | N | |
| 13 | W | 13 | 0 | 39 | G | | G | N | |
| 14 | E | 6 | 0 | 30 | G | | G | N | |
| 15 | W | 0 | 0 | 2 | G | | G | N | |
| 16 | E | 0 | 0 | 15 | G | | G | N | |
| 17 | W | 20 | 0 | 50 | G | | G | N | |
| 18 | E | 18 | 0 | 50 | Y | Y | Y | N | |
| 19 | W | 2 | 0 | 10 | G | | G | Y | 2 males, 100 south of intersection |
| 20 | W | 0 | 0 | 15 | G | | G | N | |
| 21 | E | 4 | 0 | 30 | G | Y | Y | N | |
| 22 | W | 2 | 0 | 10 | G | | G | N | |
| 23 | E | 7 | 0 | 28 | G | Y | Y | N | |
| 24 | W | 0 | 0 | 5 | Y | G | Y | N | |
| 25 | E | 0 | 0 | 10 | G | Y | Y | N | |
| 26 | W | 0 | 3 | 5 | Y | G | Y | N | |
| 27 | E | 0 | 1 | 5 | G | Y | Y | N | |
| 28 | W | 8 | 0 | 15 | Y | G | Y | N | |
| 29 | E | 0 | 0 | 5 | G | Y | Y | N | |
| 30 | W | 2 | 0 | 5 | Y | G | Y | N | |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way Stop Control |
| Speed Limit? | |
| Parked Cars? | No |
| Curb Extension? | No |
| Bike Lane? | No |
| Crossing Distance? | 65' |
| Sight Distance? | |
| Other | Weather: rain |

Instructions:

- Place/identify marker upstream of crossing at limit of AASHTO stopping sight distance.
- Walk to curb edge, making intention to cross by placing one foot onto street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield. If two-stage crossing, record vehicles by first or second stage crossing.
- If no safe crossing in 2 minutes, abort crossing and record.

| Summary Stat | Column1 | Column2 | Total |
|---|---|---|---|
| Total Records - All Crossings | | | 30 |
| Total Records - 2-Stage Crossings | | | 12 |
| | | | |
| Observed Crossings | | | 1 |
| | | | |
| Sum Yield - 1st Stage | | | 7 |
| Sum Yield - 2nd Stage | | | 8 |
| | | | |
| Percent crossing yield - 1st stage | | | 23% |
| Percent crossing yield - 2nd stage | | | 67% |
| | | | |
| Sum Gap - 1st stage | | | 23 |
| Sum Abort - 1st stage | | | 0 |
| | | | |
| **Summary Statistics: 1st Stage** | | | |
| Average # non-compliant veh before crossing | | | 6.1 |
| Max # non-compliant veh before crossing | | | 26 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 6 |
| Average crossing time before crossing | | | 24 |
| Average crossing time before yield | | | 16 |
| | | | |
| **Summary Statistics: 2nd Stage** | | | |
| Average # non-compliant veh before crossing | | | 0.5 |
| Max # non-compliant veh before crossing | | | 3 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 0 |

186%

# 3RD STREET/300’ NORTH OF POWERS

Corridor Crossing Plan: Powers Road
Intersection Name:3rd Street, North of Powers Road
Date/Time: 4:10, 8/13/14
Staff: Observer: AJG (Pedestrian: CRB)

| Crossing | Direction | # of Vehicles That Pass (1st Stage) | # of Vehicles That Pass (2nd Stage) | Crossing Time | Crossing Type (1st Stage) | Crossing Type (2nd Stage) | Total Yield | Observed Pedestrian Crossing? Y/N | Compliance Rate | Ped Characteristics/ Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | W | 4 | | 5 | G | | | N | N/A | |
| 2 | E | 9 | | 33 | G | | | N | N/A | |
| 3 | W | 4 | | | G | | | N | N/A | |
| 4 | E | 4 | | | G | | | N | N/A | |
| 5 | W | 2 | | | G | | | N | N/A | |
| 6 | E | 9 | | | G | | | N | N/A | |
| 7 | W | 6 | | | A | | | N | N/A | aborted due to SB traffic |
| 8 | W | 4 | | | G | | | N | N/A | |
| 9 | E | 18 | 0 | | G | Y | | N | N/A | |
| 10 | W | 0 | | | G | | | N | N/A | |
| 11 | E | 0 | 0 | | G | G | | N | N/A | |
| 12 | W | 7 | 0 | | G | Y | | N | N/A | |
| 13 | E | 17 | | | A | | | N | N/A | SB queued for signal |
| 14 | W | 1 | 0 | | G | Y | | N | N/A | |
| 15 | E | 2 | ? | | G | G | | N | N/A | |
| 16 | W | 5 | | | G | | | N | N/A | |
| 17 | E | 3 | | | Y | | | N | 0.4 | |
| 18 | E | 1 | | | G | | | N | N/A | |
| 19 | W | 0 | 2 | | G | G | | N | N/A | |
| 20 | E | 1 | 1 | | G | Y | | N | N/A | |
| 21 | W | 4 | | | G | | | N | N/A | ran across; storm-reduce visibility |
| 22 | E | 7 | | | A | | | N | N/A | |
| 23 | E | 1 | | | G | | | N | N/A | |
| 24 | W | 6 | 4 | 36 | G | G | | N | N/A | |
| 25 | E | 3 | | | G | | | N | N/A | |
| 26 | W | 0 | 0 | | G | Y | | N | N/A | |
| 27 | E | 1 | | | Y | | | N | 0.666666667 | |
| 28 | W | 1 | | | G | | | Y | N/A | Truck swerved to avoid ped (TWLT) |
| 29 | W | 0 | 1 | | G | Y | | N | N/A | |
| 30 | E | 10 | | | G | | | N | N/A | |

| Intersection Characteristics | |
|---|---|
| Traffic Control? | Two-way stop control |
| Speed Limit? | |
| Parked Cars? | No |
| Curb Extension? | No |
| Bike Lane? | Yes |
| Crossing Distance? | 74' |
| Sight Distance? | |
| Other | SB was slowing for signal; # vehicles includes near-side; tried to cross when traffic was approaching |

Instructions:

- Place/identify marker upstream of crossing at limit of AASHTO stopping sight distance.
- Walk to curb edge, making intention to cross by placing one foot onto street (unless sight distance restrictions due to on-street parking).
- Count the number of vehicles that had sufficient stopping distance but did not yield. If two-stage crossing, record vehicles by first or second stage crossing.
- If no safe crossing in 2 minutes, abort

| Summary Sta | Column1 | Column2 | Total |
|---|---|---|---|
| Total Records - All Crossings | | | 30 |
| Total Records - 2-Stage Crossings | | | 10 |
| | | | |
| Observed Crossings | | | 1 |
| | | | |
| Sum Yield - 1st Stage | | | 2 |
| Sum Yield - 2nd Stage | | | 6 |
| | | | |
| Percent crossing yield - 1st stage | | | 7% |
| Percent crossing yield - 2nd stage | | | 60% |
| | | | |
| Sum Gap - 1st stage | | | 25 |
| Percent crossing - gap | | | 83% |
| Sum Abort - 1st stage | | | 3 |
| Percent crossing - abort | | | 10% |
| | | | |
| **Summary Statistics: 1st Stage** | | | |
| Average # non-compliant veh before crossing | | | 4.3 |
| Max # non-compliant veh before crossing | | | 18 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 2 |
| Average crossing time before crossing | | | N/A |
| Average crossing time before yield | | | N/A |
| Average compliance rate | | | 53.3% |
| | | | |
| **Summary Statistics: 2nd Stage** | | | |
| Average # non-compliant veh before crossing | | | 0.8 |
| Max # non-compliant veh before crossing | | | 4 |
| Min # non-compliant veh before crossing | | | 0 |
| Average # non-compliant veh before yield | | | 0 |

800%