



Vision Zero For University of Illinois Campus

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Outline



Initiatives towards road safety



Vision Zero for UI campus



Tasks in Vision Zero for UI campus



Survey Data Collection and Results



Crash Data from IDOT



Focus Group Meeting Summary



Conclusions



Recommendations

Initiatives towards Road Safety

Road To Zero

- Launched in 2016

Towards Zero Deaths

- Launched in 2009

Vision Zero

- Started in Sweden in 1990

The common idea to all the initiatives is to bring traffic deaths to 0

Vision Zero for UI campus



To foster the safety culture at the UI campus



Data-driven analysis while reaching out to UI community members



Identify critical safety points on campus and proposes reasonable solution



Safety initiatives would decrease crash risk



Initial effort to start a comprehensive plan on improving the safety of campus members

Tasks in Vision Zero for UI campus

- Collect and analyze survey data to identify locations that are
 - Problematic
 - Experienced a near miss
 - Experienced a collision
- Analysis of crash data from 2014-2018 (from IDOT)
- Focus group meetings

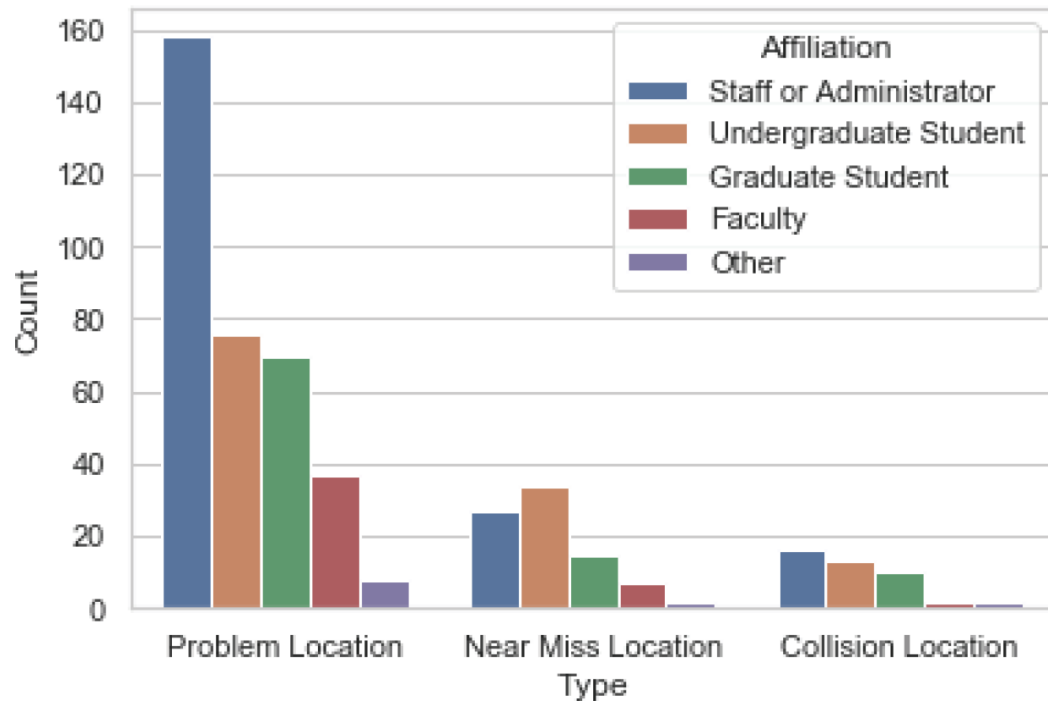


Vision Zero Study: Survey Design

- Online questionnaire was designed
 - Short 10 minute long
 - Respondent can make multiple entries
 - Respondents remain anonymous
 - Affiliation to university
 - Duration of time they have spent at the university
- Input from 4 groups of people sought
 - Faculty staff and administrators (via EWeek)
 - Graduate students (via GradLinks)
 - Undergraduate students (via iNews)
 - Community members that deal directly with transportation issues (via direct email)

Survey Data Collection

- 518 responses were received
 - 477 valid responses (some responses were outside the campus area)
- Received lower than expected number of responses due to COVID-19 pandemic



Type of location reported	Number of Survey Results
Problematic Locations	349
Near Miss Locations	85
Crash Locations	43

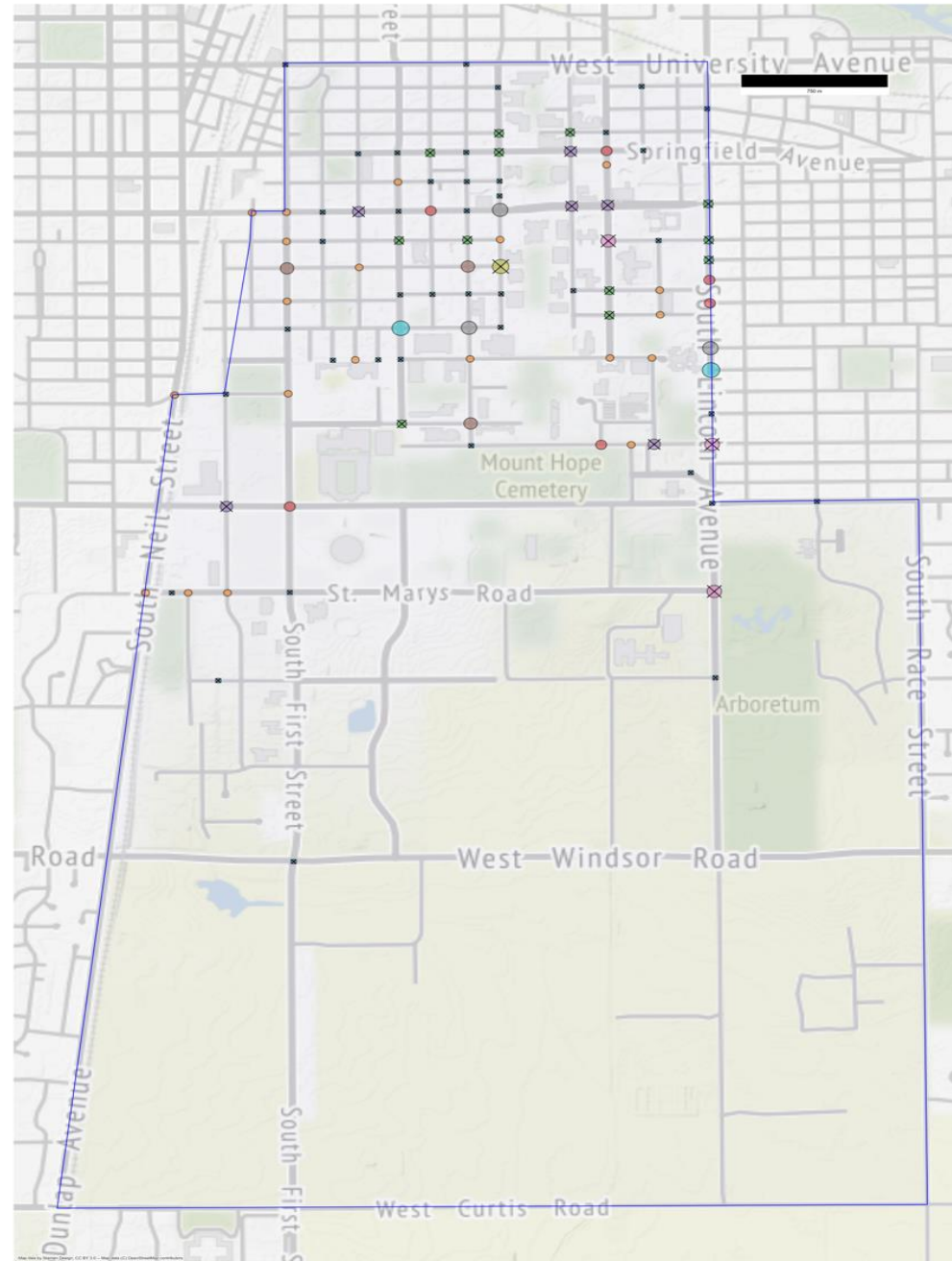
Survey Data: Problem Locations

- Problem locations were divided into
 - Locations at intersection
 - Locations that are within 250 feet of an intersection
 - Locations along a corridor
 - Locations that are within 45 feet from the centerline of a corridor
 - Other (midblock) locations



Survey Results: Problem Locations (Intersections)

Problem Locations within Campus (from Survey)



Survey Results: Problem Locations (Intersections)

Number of times intersection was reported	Number of Intersections
1	40
2	20
3	12
4	6
5	6
6	3
7	3
8	3
9	1
10	2

- Locations which were reported 8 times
 - 6th and Armory
 - Lincoln and Iowa
 - Wright and Green
- Locations which were reported 9 times
 - Wright and Daniel

- Locations which were reported 10 times
 - Lincoln and Ohio
 - 4th and Armory

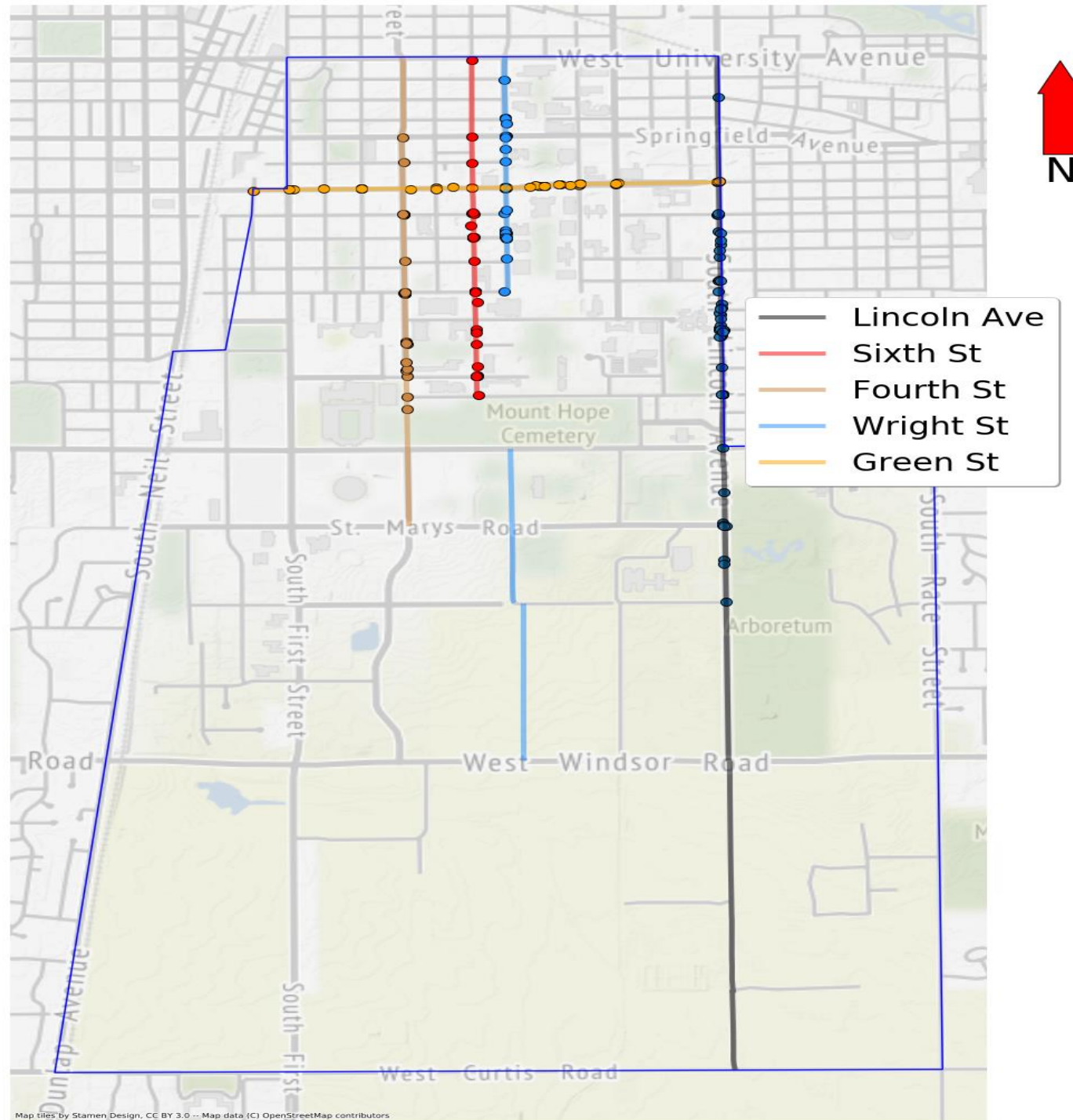
Survey Results: Problem Locations (Corridors)

- There are several intersections along corridors that are reported frequently
- To identify locations between intersections that have been reported frequently.

Top 5 corridors with the highest number of problematic locations (from survey)

Corridor Name	Number of reported points
Lincoln Ave.	30
S 6th St	27
S 4th St	19
S Wright St	18
W Green St	17

Reported
problem
locations at
top 5
corridors




Survey Results: Problem Locations (Mid Block Locations)

- Two locations not at intersection were reported 4 times
 - W. Green St. in front of Illini Union
 - Location has a huge foot traffic
 - pedestrians do not use the pedestrian crossing
 - Pedestrian crossing on W. Springfield Ave. near Grainger
 - Vehicles and bicycles often fail to yield to other bicycles and pedestrians
 - Pedestrians and vehicles tend to be impatient while crossing the location
 - Vehicles regularly back up as the pedestrian traffic can be significant

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Frequently
mentioned
reasons
include

- Vehicles not yielding to peds and bikes
 - Bicycles not yielding to peds
 - Pedestrians not using the marked crossing (crossing at mid block locations)
 - Lack of adequate lighting
 - Vehicles and bikes not stopping at stop signs
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Survey Data: Near-miss locations

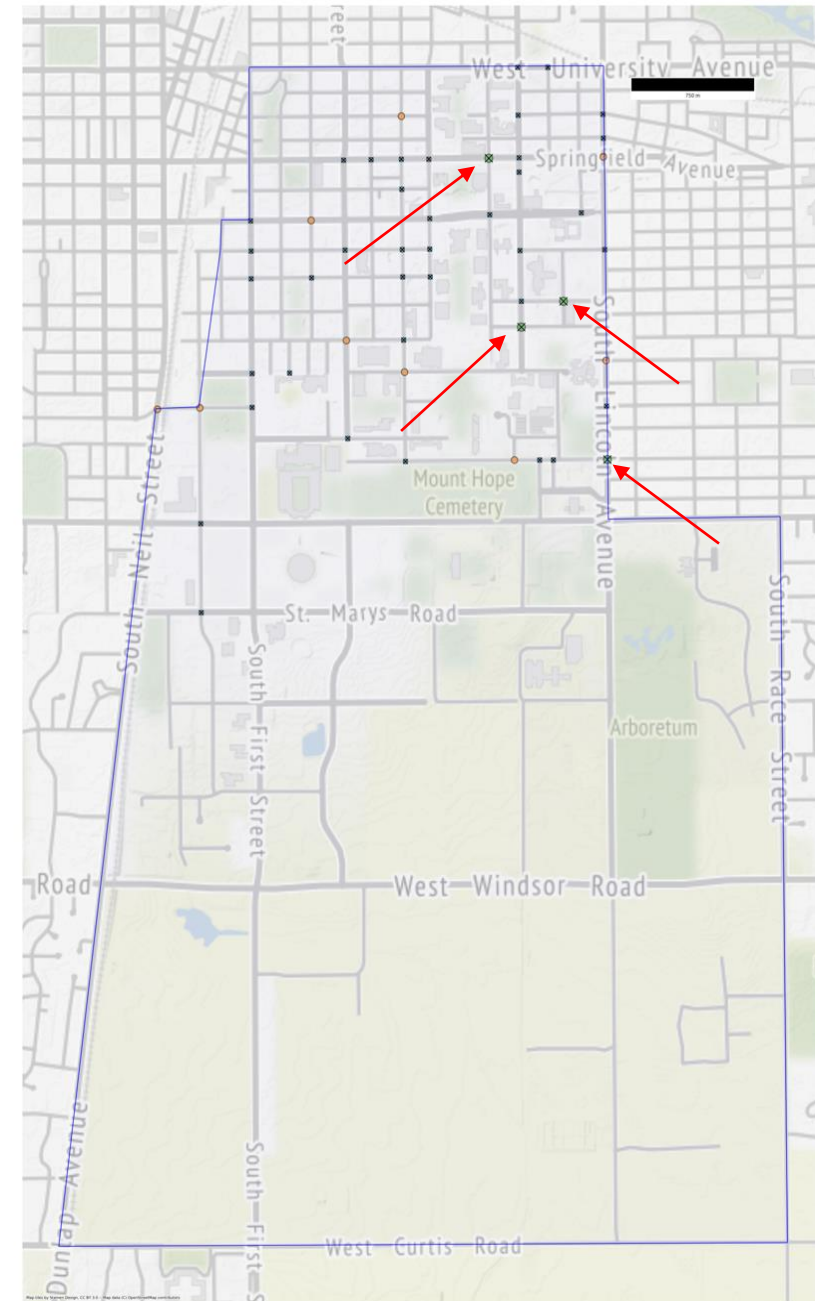
- 85 near miss locations were collected from survey
- Most common near miss involve pedestrian and motor vehicle

Primary Highway User involved in Near Miss	Second Highway User involved in Near Miss	Number of Near Misses
Motor Vehicle	Motor Vehicle	14
	Bicycle	7
	Pedestrian	7
	Other	2
Pedestrian	Motor Vehicle	39
	Bicycle	2
Bicycle	Motor Vehicle	11
	other	1
	Pedestrian	1
other	Motor Vehicle	1
Total		85

Survey Results: Near Miss Locations (Intersections)

Number of Near Miss at intersection	Number of intersections
1	38
2	9
3	4

- S Gregory St and W Oregon St
- W. Springfield Ave and N Mathews Ave
- S Goodwin Ave and W Nevada St
- S. Lincoln Ave and W Pennsylvania Ave



Survey
Results: Near
Miss
Locations
(Corridors)

Top 3 corridors with the highest number of
near miss locations (from survey)

CORRIDOR NAME	NUMBER OF NEAR MISSES REPORTED
Lincoln Ave	7
S 4th St	6
S 6th St	6

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Survey Results: Near Miss Locations (Mid block locations)

- S. Fourth St. near Flagg Hall
 - Reasons for near miss include
 - speeding (by vehicle and bicycle)
 - motor vehicle ignoring crosswalk
 - Visibility issues due to lack of lighting and obstruction of view



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Frequently
mentioned
reasons
include

- Motor vehicle didn't stop at stop sign/red light
 - Lack of adequate lighting
 - Speeding motor vehicle
 - Turning motor vehicle violating the "WALK/DON'T WALK" sign
 - Obstruction of visibility due to fixed object on road
- 
- A series of yellow dashed lines in the bottom right corner, forming a curved shape.

Survey Data: Crash locations

- 43 crash locations were collected from survey
- Most common crashes involve multiple motor vehicles
- Motor vehicle and bike crashes are the second common incident reported from survey

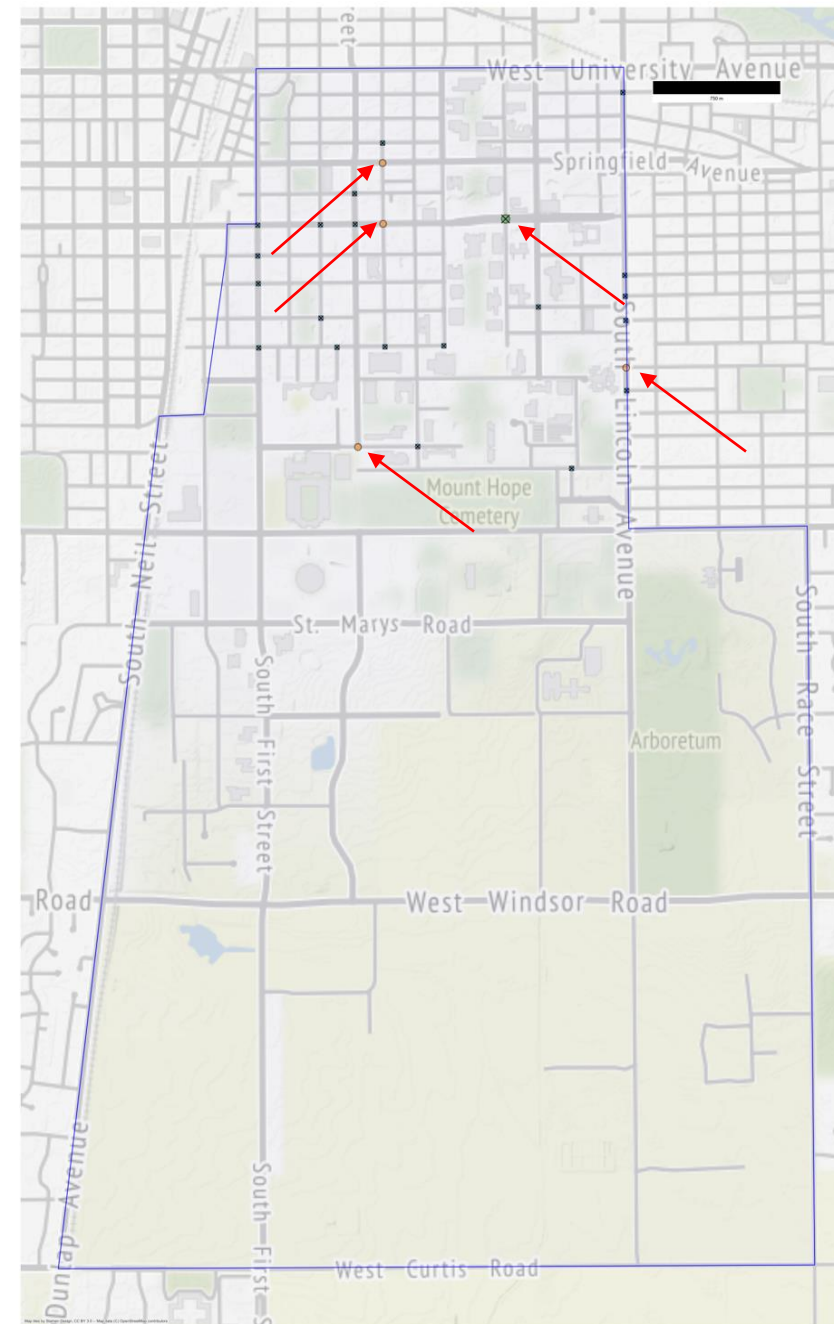
Primary Highway User involved in Crash	Second Highway User involved in Crash	Number of Crashes
Motor Vehicle	Motor Vehicle	13
	Bicycle	3
	Motorcycle	1
Pedestrian	Motor Vehicle	6
	Bicycle	1
Bicycle	Motor Vehicle	11
	Bicycle	5
	Single Bicycle	1
	Pedestrian	1
other	other	1
Total		43

Survey Results: Crash Locations (Intersections)

Number of Crashes at Intersection	Number of Intersections
1	20
2	4
3	1

Intersection with 3 reported crash is
Green and Mathews

Intersection with 2 reported crash is
Lincoln and Iowa
5th and Springfield
5th and Green
4th and Peabody




Survey Results: Crash Locations (Corridors)

Top 3 corridors with the highest number of
crash locations (from survey)

CORRIDOR NAME	NUMBER OF CRASHES REPORTED
Lincoln Ave	7
S 5th St	4
S 4th St	5

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Frequently mentioned reasons include

- Location not well lit
 - Motor vehicle didn't stop at stop sign or ran red light
 - Vehicles were following too close to each other
 - Turning motor vehicle didn't yield to bike
 - Speeding vehicle
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- A series of four yellow dashed line segments are arranged in a curved, upward-sloping pattern in the bottom right corner of the slide.

Crash Data from IDOT

2174 crashes that were reported in campus during the years 2014-2018



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graph TD; A[2174 crashes that were reported in campus during the years 2014-2018] --> B[1926 (88.59%) crashes occurred at intersections.]; B --> C[About 28% of the intersection crashes occurred at 6% of intersections (11 intersections)]; C --> D[Forty eight percent of the intersections had more than five crashes];
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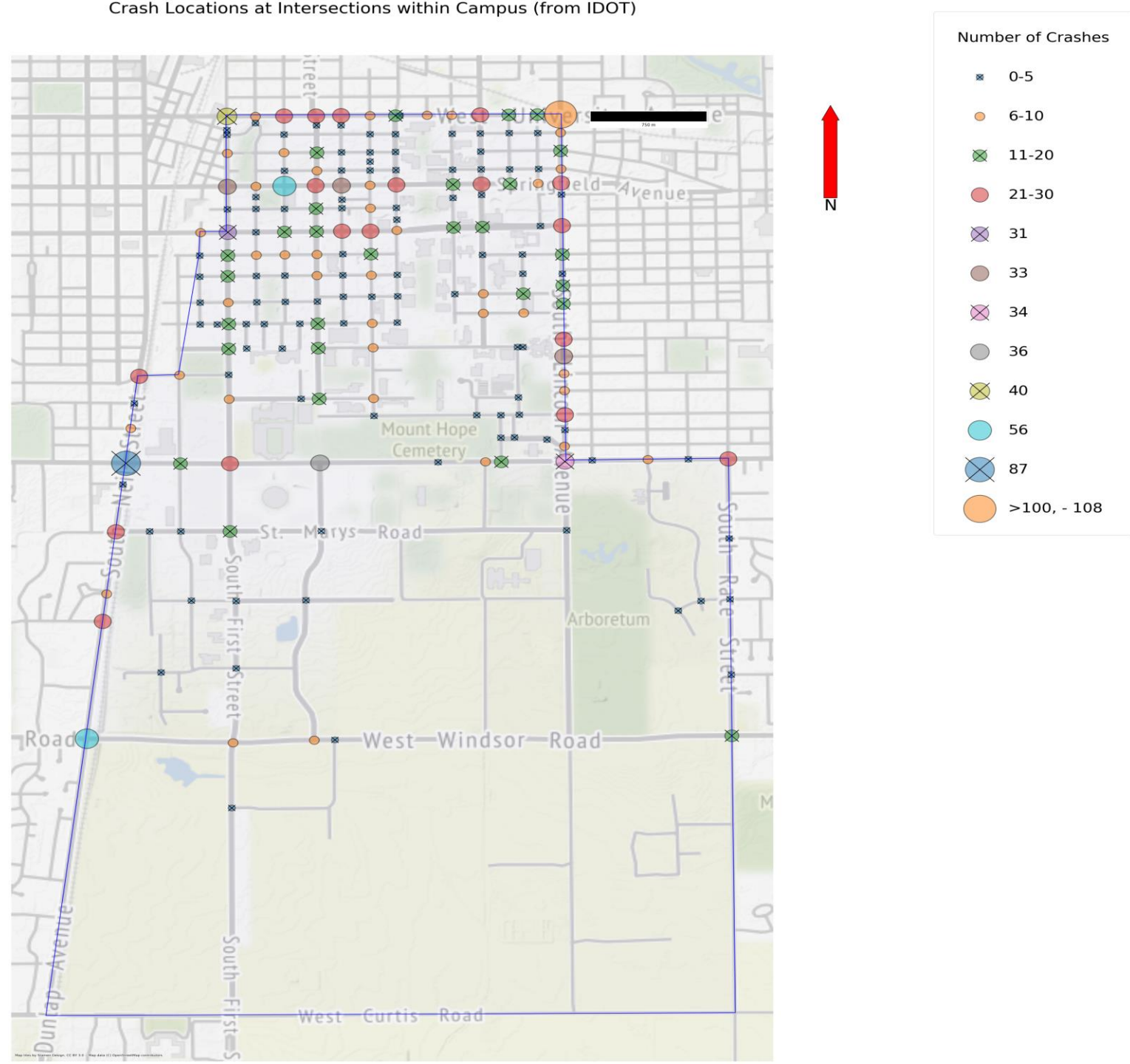
1926 (88.59%) crashes occurred at intersections.

About 28% of the intersection crashes occurred at 6% of intersections (11 intersections)

Forty eight percent of the intersections had more than five crashes

Crashes at Intersections

Lincoln and University had the highest number of crashes (108)



Crashes at Intersections

28% of the crashes happened at the top 11 intersections

About half the intersections that reported crashes had >5 crashes

Number of crashes reported at an intersection	Number of such intersections	Number of Crashes	Cumulative Number of Crashes	Cumulative Percentage of Crashes
0 to 5	101	246	246	13%
6 to 10	38	291	537	28%
11 to 20	28	393	930	48%
20 to 30	18	449	1379	72%
31	1	31	1410	73%
33	3	99	1509	78%
34	1	34	1543	80%
36	1	36	1579	82%
40	1	40	1619	84%
56	2	112	1731	90%
87	1	87	1818	94%
108	1	108	1926	100%
	196	1926		

Crashes Severity Recorded

- About 22% of all crashes recorded involved an injury
- One fatal accident happened in the 5 years analyzed

Crash Severity	Number of Crashes	Percentage
Property Damage Only	1503	78.03%
Injury Crashes	422	21.91%
Fatal Crashes	1	0.00%
Total	1926	100%

Crash Type Recorded

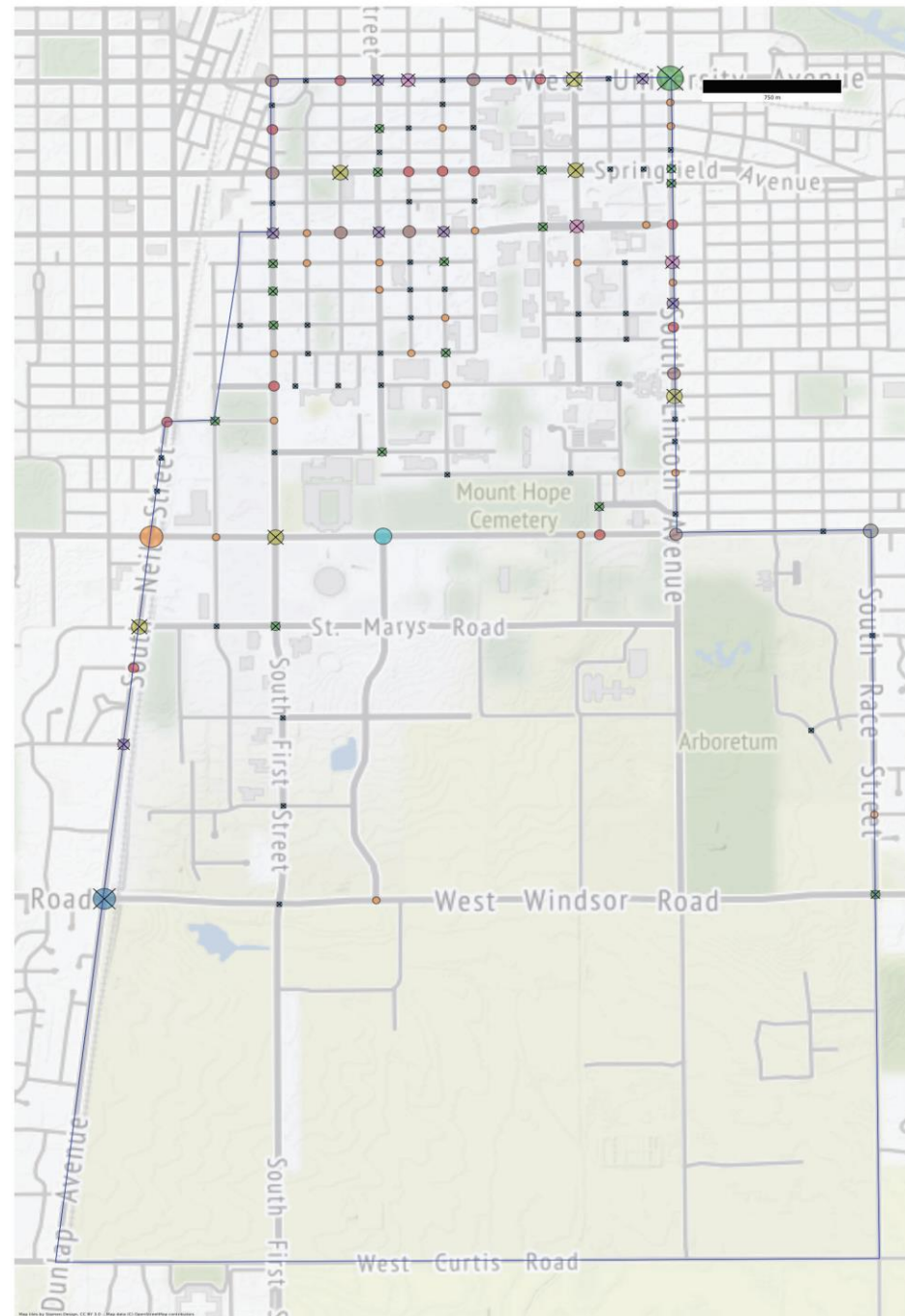
- Rear end crashes and angle crashes account for half of all crashes
- Parked motor vehicle crashes account for ~9% of all crashes and is the fourth most frequent crash type within campus.
- Top 5 crash types account for 90% of all crashes

Collision Type	Number of Collisions	Percentage
Rear-end	599	31.10%
Angle	396	20.56%
Turning	377	19.57%
Parked Motor vehicle	171	8.88%
Sideswipe-same direction	122	6.33%
Fixed Object	88	4.57%
Pedalcyclist	61	3.17%
Pedestrian	55	2.86%
Sideswipe-opposite direction	15	0.78%
Other Object	12	0.62%
Head-on	10	0.52%
Animal	7	0.36%
Overtaken	7	0.36%
Other non-collision	6	0.31%
Train	0	0.00%

Non-PDO Crashes

Lincoln and University had the highest number of non PDO crashes

Non-PDO Crash Locations at Intersections within Campus (from IDOT)



Number of Non-PDO Crashes

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 11
- 18
- 19
- 25

Non-PDO Crashes

Number of non-PDO Crashes at Intersections	Number of intersections	Number of non-PDO Crashes	Cumulative Percentage of non-PDO Crashes
1	46	46	11%
2	22	44	21%
3	16	48	33%
4	13	52	45%
5	7	35	53%
6	7	42	63%
7	3	21	68%
9	6	54	81%
8	1	8	83%
11	1	11	85%
18	1	18	90%
19	1	19	94%
25	1	25	100%

Locations with 9 or more non-PDO crashes are

Intersection	Number of crashes
Lincoln Ave and W University Ave	25
Kirby Ave and S Neil St	19
Windsor Rd and Neil St (N Dunlap St)	18
Kirby Ave and S 4th St	11
N Goodwin Ave and W University Ave	9
Kirby Ave and S 1st St	9
Lincoln Ave and W Ohio St	9
S Neil St and St Marys Rd	9
Springfield Ave and N Goodwin Ave	9
Springfield Ave and S 3rd St	9

Non PDO Crash Types

- The five most common types of collisions that resulted in injury are
 - rear-end,
 - angle,
 - turning,
 - pedalcyclist, and
 - pedestrian collisions
- They account for 90% of all injury crashes
- pedestrian collisions and pedalcyclist (bicycle) collisions constitute more than a quarter of injury crashes within campus

Collision Type	Number of Collisions	Percentage
Rear-end	115	27.19%
Angle	84	19.86%
Turning	67	15.84%
Pedalcyclist	58	13.71%
Pedestrian	55	13.00%
Fixed Object	13	3.07%
Parked Motor vehicle	10	2.36%
Overtuned	6	1.42%
Sideswipe-same direction	5	1.18%
Other non-collision	4	0.95%
Head-on	3	0.71%
Sideswipe-opposite direction	2	0.47%
Other Object	1	0.24%

Focus Group Meetings

- Two focus group meetings were conducted online (via zoom)
 - 1st Focus group - 5 participants
 - 2nd Focus group - 13 participants
- Each focus group lasted around one hour
- Free flow format allowing participants to talk about various issues on campus



Focus Group Meeting Summary

Pedestrians

- Problems at several locations due to high volume of peds
- Eg. Lincoln and Iowa & Lincoln and Ohio
- Lack of ped crosswalk- therefore peds cross at mid-block locations

Lighting

- Focus group raised issue due to lack of lighting in Lincoln
- Highway style overhead lighting was not conducive to seeing peds
- Excessive lighting makes campus feel like “Walmart parking location”
- Over lighting makes cars go faster, can cause glare: making it riskier

Focus Group Meeting Summary

Due to Construction

- During the time of construction, road users are confused as to which section of the road was open
- Rerouting of traffic was not effectively communicated
- This resulted in road users “improvising in an unwise way”

Lack of familiarity with the area and rules

- Some cars going south on Wright turn right on Green (not allowed)
- Motor vehicles do not understand that cyclists are allowed to go through walk signs

Focus Group Meeting Summary

Issues due to car

- Concern that cars are allowed in campus at the current speed
- “Cars are guests on campus and secondary to pedestrians”

Parking

- People park on Green st. along the center lane
- Facilities and services park in the middle of the lanes and on bike lanes

Focus Group Meeting Summary

About intersections

- Intersection at 5th and Green is “terrifying” as there is a campus bar leading to a high number of pedestrian traffic
- Intersection at Lincoln and Illinois where bikes ride on the sidewalks, and motor vehicles do not expect them
- Intersection at Stadium and Neil is a “challenging intersection” due to the limited visibility when moving towards Neil St.
 - Parking spots on Stadium also limit the visibility of bikers

Traffic Signals

- Problematic for bikes as they do not pick up. Bikers have to wait for car or get off their bike to push the button
- Examples include 4th and White, Race and Windsor

Signing and Marking Issues

- Lack of lane markings or lane markings becoming difficult to spot over time
- Green markings for bike lanes should be extended to other location

Focus Group Suggestions

Add vegetation along Lincoln Ave to discourage peds from crossing mid-block

Add a bump out at pedestrian crossing to reduce ped exposure to vehicles

Infrastructure improvement should focus on ped as “all users have to walk at some point during their day”

Blocking cars on Green St., Springfield Ave. between Wright and Lincoln

Creating tools to help new users plan their trip within campus

Conduct light the night event on semi annual basis/sell bike lights at discounted rate

Lane markings to be regularly repainted

Conclusions



Vision Zero for UI campus was an initial effort to start a comprehensive plan on improving traffic safety



Perception of risk by campus members as well as understanding of the types of crashes that happen in campus were gathered

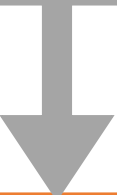


This study was carried out in three tasks

1. Collection and analysis of survey data
2. Analysis of crash data available from IDOT for 2014-2018
3. Focus group meetings

Conclusions

Analyzing
problem
locations from
survey:



24 intersections were mentioned over 4 times

Two locations (4th and Armory and Lincoln and Ohio) were mentioned over 10 times

5 most
frequently
reported
reasons for
include

Vehicles not yielding to peds and bikes

Bicycles not yielding to peds


Pedestrians not using the marked crossing (crossing at mid block locations)

Lack of adequate lighting

Vehicles and bikes not stopping at stop signs

Conclusions

Analyzing near miss locations from survey:




- 13 locations which had 2 or more near misses
- 4 locations were reported to have 3 near misses
 - Gregory and Oregon
 - Springfield and Mathews
 - Goodwin and Nevada
 - Lincoln and Pennsylvania

5 most reported reasons for near misses include

- Motor vehicle didn't stop at stop sign/red light
- Lack of adequate lighting
- Speeding motor vehicle
- Turning motor vehicle violating the "WALK/DON'T WALK" sign
- Obstruction of visibility due to fixed object on road

Conclusions

Analyzing crash
locations from
survey:



5 intersections had more than one reported crash

5 most reported
reasons for
crashes include

Location not well lit
Motor vehicle didn't stop at stop sign or ran red light
Vehicles were following too close to each other
Turning motor vehicle didn't yield to bike
Speeding vehicle

Conclusions



The locations were analyzed at a corridor level as well

Several intersections along corridors are reported frequently

Identify locations between intersections that have been reported frequently



Lincoln Avenue had the highest number of responses in all categories



Other highly reported corridors include:

6th Street

4th Street

Wright Street

Green Street

Pennsylvania Avenue

Conclusions

- IDOT reported crash data from 2014-2018 was analyzed
- 88% of all crashes happened at intersections
 - 95 intersections within campus account for 87% of all intersection crashes
- Lincoln and University had the highest number of IDOT reported crashes
- Lincoln and University had the one fatal crash reported in the 5 years

Conclusions

- 5 crashes types resulted in 90% of all injury crashes
 - Rear end
 - Angle
 - Turning
 - Bicyclist
 - Pedestrian
- Pedestrian and bicyclist collisions constitute more than a quarter of injury crashes

Conclusions

- IDOT data at corridor level:
 - Rear end crashes are common in Lincoln Ave
 - Turning crashes were the most frequently reported in University Ave
 - Angle crashes are the most frequently reported on Springfield Ave and on 3rd St



Conclusions

- Focus group discussed:
 - Pedestrian issues
 - Lighting issues
 - Issues due to construction (MCORE)
 - Issues due to lack of familiarity of the area
 - Issues due to car parking
 - Issues at Intersection
 - Traffic signal issues
 - Signage and marking issues
- Suggestions from focus group were also collected

Recommendations

Coordination between U of I, city of Champaign and Urbana for improving safety

Promotion of safety via education

- Bike quizzes

Conducting campus safety studies in shorter intervals

Conversion of some locations as pedestrian only areas

Use of reporting app to continuously collect information

Thank You

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