Bicycle & Pedestrian Subcommittee
Of The Transportation Safety & Advisory Commission
City of Harrisonburg, Virginia

TO: Bicycle & Pedestrian Subcommittee Members

FROM: Erin Yancey, Public Works Planning Manager

DATE: September 13, 2017

RE: Bicycle & Pedestrian Subcommittee Summary for Monday July 24, 2017

The Bicycle & Pedestrian Subcommittee met on Monday July 24, 2017 at 6:00pm in City Hall, Room 011 (lower level); 409 South Main St. Meetings are open to the public.

Subcommittee members: Elise Barrella, Alleyn Harned, Dastan Khaleel, Stefanie Warlick
Staff: Tom Hartman, Ian Pike, Erin Yancey
Guests: Michael Dalmolin, Marci Frederick, John Marr, Patrick Wade

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Welcome

Business

1. **Presentation – Bike Safety on Campus**

Michael Dalmolin from JMU presented research he conducted in comparing bicycle and pedestrian crashes at JMU, the University of Virginia, and Virginia Tech. The presentation is attached. Major conclusions of the study included failure to yield as largest contributing factor to campus crashes; most crashes occurred late at night; and cash are underreported.

The committee asked if the campus culture at each university contributed to crash rates. Mr. Dalmolin said it would be hard to tell just from the data. Non-motorized crashes are severely underreported, though some campuses track them better than others.

In comparing the different education programs that have been done on the campuses, it was noted that JMU took a similar approach to Virginia Tech with the “Heads up Dukes” painted at various intersections. JMU is also looking into using more passive detection of pedestrians at intersections, instead of solely using the push buttons.

The committee expressed an interest in seeing this research done across the city, specifically along corridors that are known to have high bicycle and pedestrian traffic and/or crashes. The committee was also interested in learning more about how Virginia Tech reports their crashes since they had a higher rate of reportable crashes than the other two universities.

2. Presentation Bicycle parking in downtown

Patrick Wade, a summer intern with Public Works, presented research he conducted on bicycle parking in downtown Harrisonburg. The presentation is attached.

In the presentation, the use of public and private indicates both ownership of the rack, and who the rack is intended to serve. Private racks are owned by a business or residential owner, and are specifically to serve businesses or living spaces. Public racks are there to serve everyone, regardless of destination (similar to city-provided vehicle parking). Public racks are often located near to a street/sidewalk, or parking deck, while private racks are often located nearer to the business's front door, at the building. Sometimes these are difficult to distinguish, and it is somewhat inconsequential, so long as parking is located where it is needed.

The group observed that there was no bicycle parking available at the transit transfer center in the Rose's lot, and that would be a logical places in need of a bicycle rack. The group suggested adding one or two small racks to start and monitor their usage. It was also observed that there was no bicycle parking in the Elizabeth Street parking deck, and that it would be appropriate to add it there.

Based on this presentation, Public Works wanted to know if there was enough bicycle parking downtown, in the right places. The group suggested revisiting this study again in the fall after students have returned, as that often has an impact on all modes of traffic. While this study wasn't performed during peak use, it was noted that there are some spots that do not have enough capacity for existing demand, and that Public Works may look to increase bicycle parking in these areas. There are procurement rules that make it difficult for Public Works to supply bicycle racks directly to private entities, but the group and Public Works were supportive of Harrisonburg Downtown Renaissance leading such an effort.

It was also noted that the amount of non-rack parking (bikes locked to street poles or against buildings) may not necessarily be indicative of lack of capacity but lack of convenience. The group asked if there were any requirements for new businesses downtown to provide bike parking. Businesses in the downtown district are not required to provide any parking, bicycle, or otherwise. Both are required outside of downtown.

The group suggested organizing a bike parking survey in the fall during peak hours, such as the evening and weekends. This will be discussed more at the September meeting.

3. 2017 Grant applications

The City is applying for grants for several different projects this fall.

The Grace Street Extension would connect Grace St to Bluestone Dr on campus and include a shared use path. The improvements at Grace St and Mason St this summer are a part of this project. The street

would be gated during normal hours, providing improved access across campus for transit and providing benefit for the city as well.

Federal St between E Market St and E Elizabeth St will be redesigned from a two-way street with substandard bicycle/pedestrian facilities to a one-way street with a shared use path on one side and sidewalk on the other. A private developer is redeveloping a property on Federal St which requires frontage improvements, and will provide the cost of engineering to the project. If funded, the expected timeline will be to start designing next year and possibly start construction in 2020. This project is included in the Bicycle and Pedestrian Plan and Downtown Streetscape Plan. This project demonstrates the value of planning for the long term vision of the City, which has enabled this partnership with a developer to initiate the project.

The next phase of the Downtown Streetscape plan will be on Main St from Elizabeth St to Wolfe St, which is also being repaved this summer. The design and funding were in place to do the project this year, but the bids came in higher than expected, so this will be a reapplication to obtain additional funds to construct the project. This project will include new brick sidewalks, audible pedestrian signals at both intersections, streetprint crosswalks, and decorative signal poles. The expected timeline would be to start construction in Spring 2019.

Additional funds are also being applied for to go towards Phase II of the Garbers Church Rd shared use path project.

The City also plans to apply for funds to make safety improvements on Park Rd through EMU's campus in response to a recent pedestrian crash. This project will include flashing beacons on the existing school zone signs approaching campus, create more consistent crosswalks along Park Rd (some are streetprint like downtown, others are the high visibility type), rebuild the ADA curb ramps to include the tactile bumps, add retroreflective panels to sign posts for increased visibility, adding another crosswalk at Park Rd and Dogwood Dr to connect the parking lot to the ball fields, and realigning the University Commons crosswalk to create more separation from the parking lot entrance.

4. Project Updates

Project updates were included as an addendum to the agenda. One additional update was that the Northend Greenway interim agreement went to council on July 25 and was approved.

5. Review new member applications

One position was open for the committee and there were four applicants.

The applicants present at the meeting stepped out while the committee members discussed all the applicants. Their recommendation was recorded to be shared with the Transportation Safety & Advisory Commission, who is responsible for appointing members.

Announcements

Adjourn

Next Meeting: September 25th, 2017 6pm – City Hall, Room 011 (lower level), 409 South Main St

Bicycle and Pedestrian Crashes at JMU, UVA, and VT

Michael Dalmolin

James Madison University

Facilities Engineering

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Other University Studies on Crashes

University of Clemson: Of 30 police-reported crashes, 23% were attributed to driver inattention and 33% to not failing to yield

UCLA, UCB, and CSUS: Of self-reported crashes, 20% of bicycle and 45% of pedestrian collisions were attributed to failure to yield

UCLA: Of 6,500 vehicles observed at 3 crosswalks with stop-sign control, half did not stop and only a quarter came to a complete stop

University of California: Within .02 miles of UCB campus boundary, 25% of automobile-pedestrian crashes and 20% of automobile-bicycle crashes

Data Sources

Crash Data: Reportable crashes in City/County found in TREDS between 2011-2016

University Crash Data: All crashes provided by University Police Departments between 2011-2016. VT PD only able to provide crashes from 2016

Study Boundary: Campus/Grounds plus adjacent arterial streets due to high number observed on other campuses

Crashes in Study: 66 out of 154 for JMU, 83 out of 253 at UVA, 89 out of 116 at VT

University Crashes in TREDS

University Crashes: Not generally found in TREDS when searching by City/County; only later when searching statewide. Crashes found statewide in TREDS had unknown route listed

Route Coding: To VDOT, Route Number is the key to mapping crash locations within TREDS

Roadways on Campus: Mix of jurisdictional control over roadways between VDOT, City, and University

Route Number: VT is SR 314, JMU is SR 331, and UVA is SR 302

Methodology

1. **General Crash Trends at each University:** lighting, bicycle/skateboarder/pedestrian crashes, type of intersection, time of day

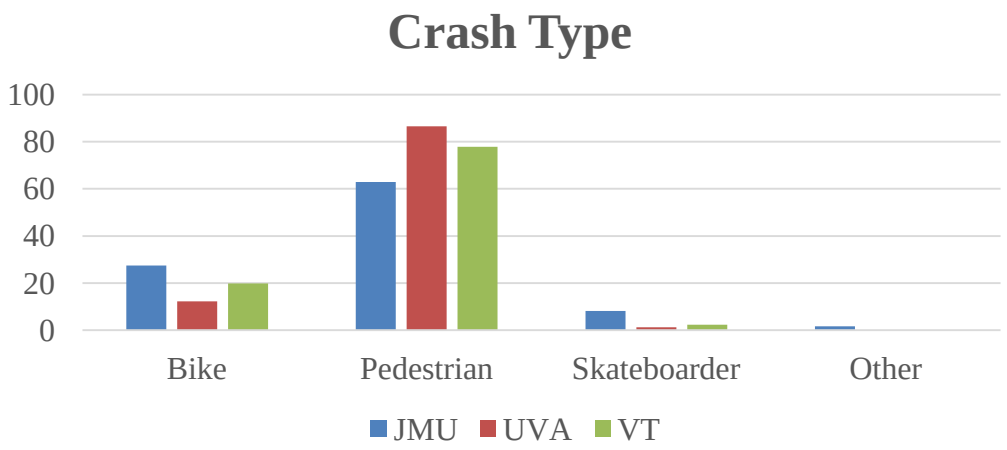
2. **Hotspot Analysis:** Top 2 Intersection and Segment Crash Locations at each University. Sliding Window of .2 miles used on segments. No pedestrian/bicycle volume data available

Crash Statistics: Type and Time Of Day

Crash Type:

JMU: More Bike/Skateboard Crashes

UVA: Majority are pedestrian crashes

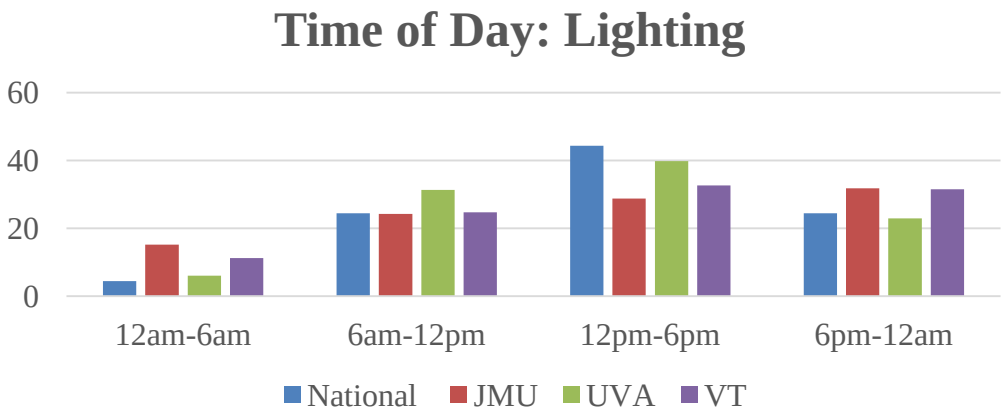


Time of Day:

All: More crashes in evening/night than average

JMU: Pronounced trend of crashes in evening/at night

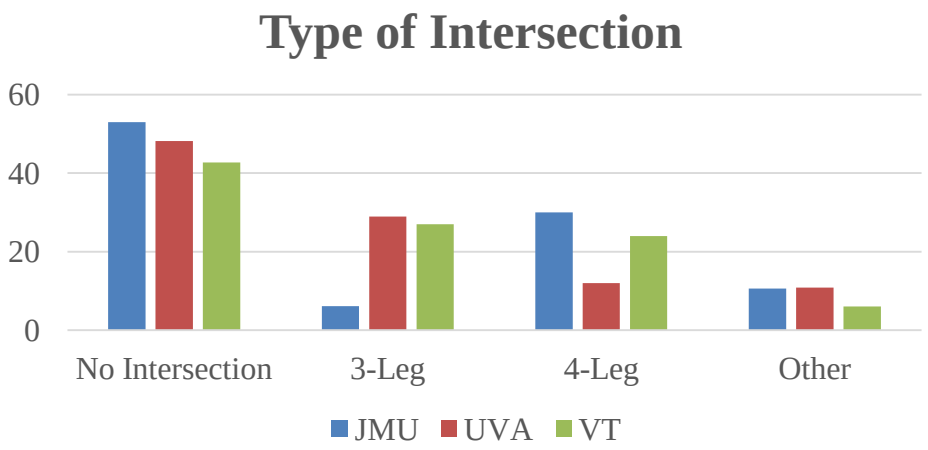
UVA: More crashes during day than at JMU/VT



Crash Statistics: Intersection/Signals

Type of Intersection:

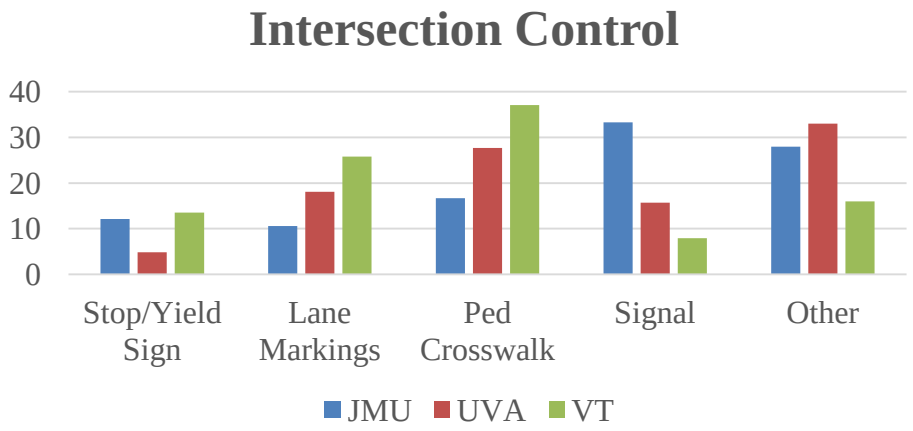
NHTSA (2014): 48.2% pedestrian crashes are at intersection



Intersection Control:

UVA: Less Night Crashes

JMU: Nearly half of crashes at night



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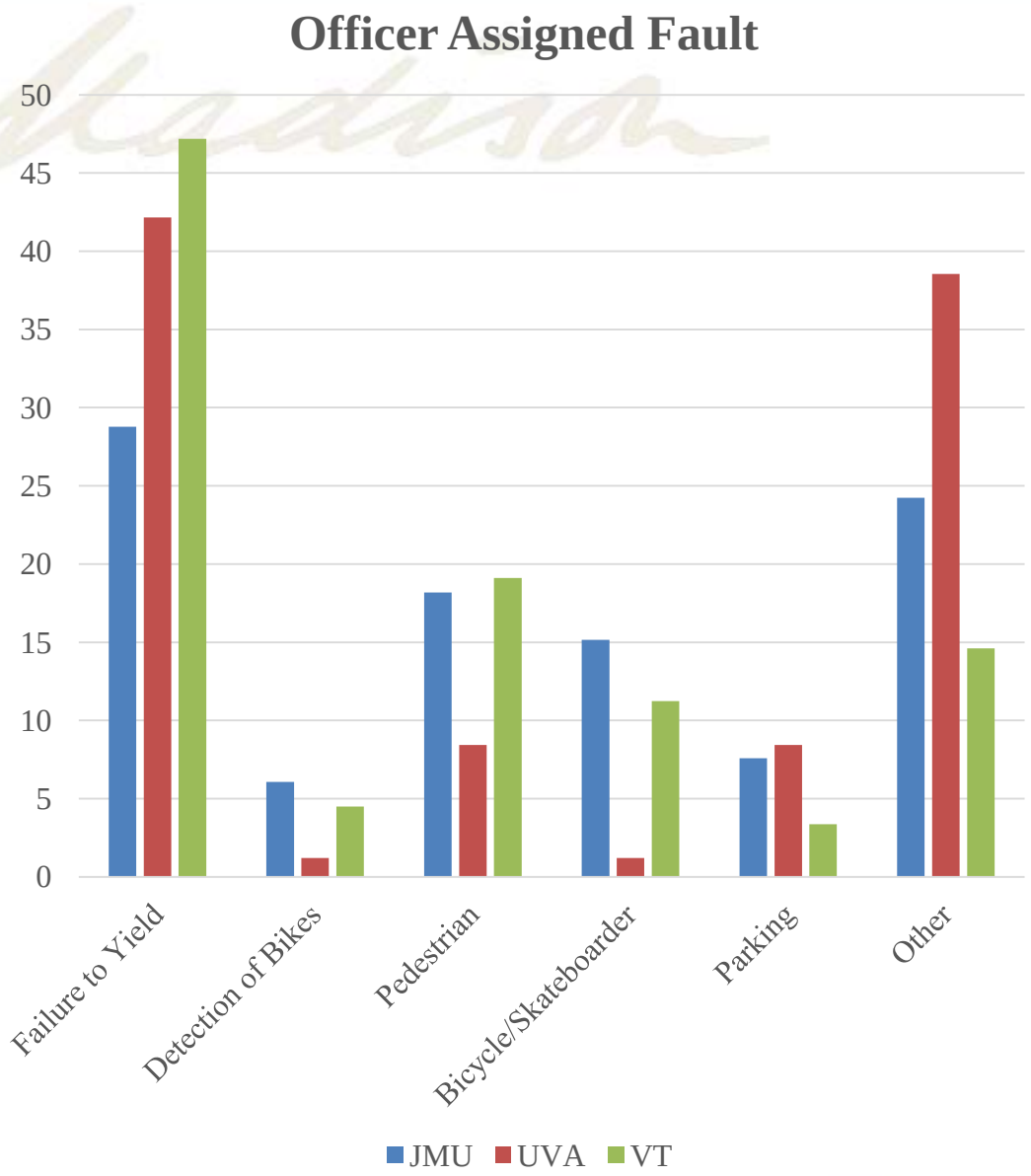
Failure to Yield: A high percentage of crashes were at crosswalks (mid-block, signal, or stop-sign)

Drivers Fleeing Scene: At JMU and VT, a significant percentage of drivers fled scene after crash or did not stay around to have crash report

JMU and VT: Versus UVA, higher percentage of crashes were attributed to actions of pedestrians, bicyclists, and skateboarders

Other Factors: Crash descriptions were blank or not enough information was present to attribute to a specific factor



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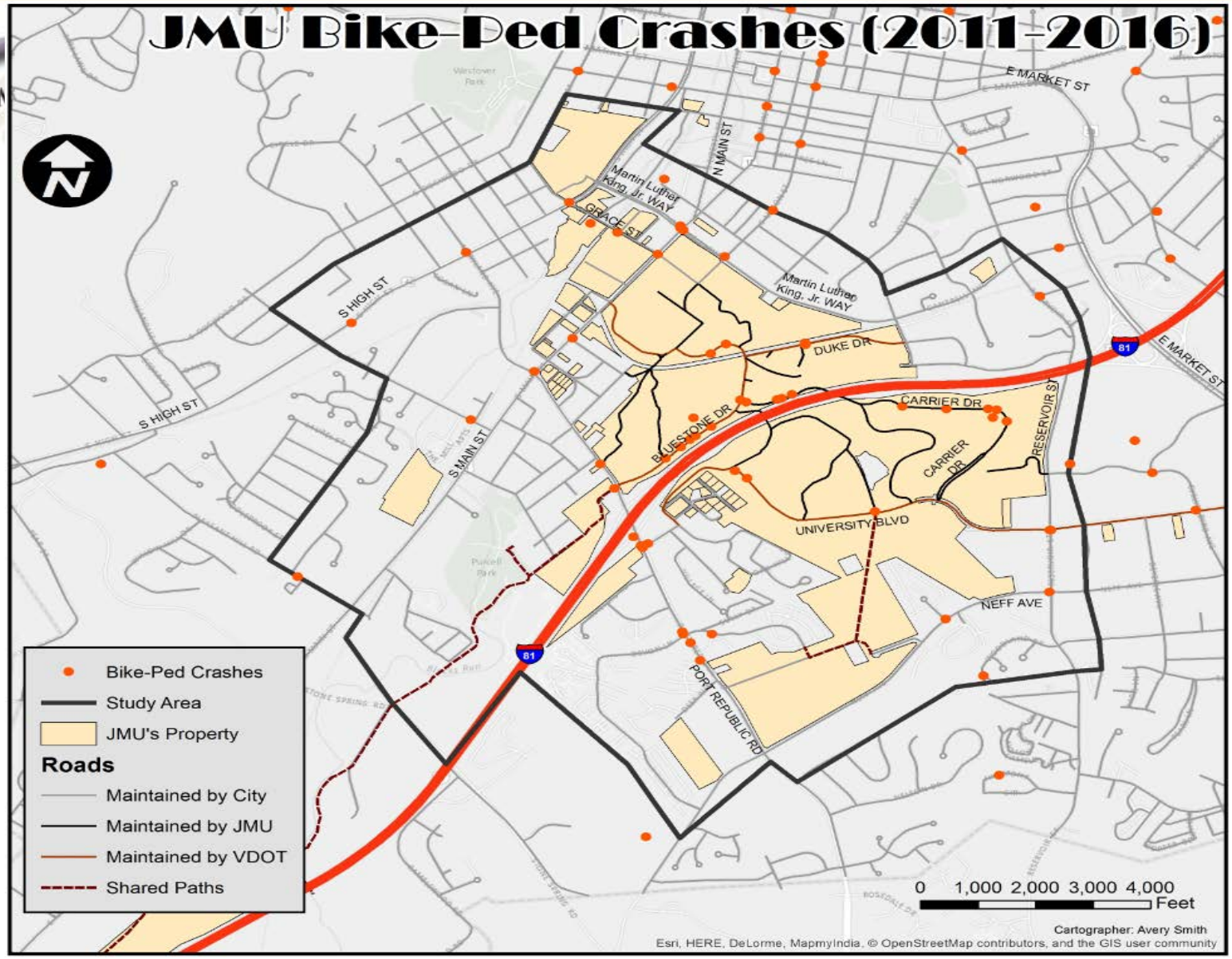
JMU Bike-Ped Crashes (2011-2016)



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JMU Crash Hotspots: 1st Ranked

Segment: Bluestone Drive

Bluestone Drive:

Crash Data: 6 crashes

Attributes: 4 day, 2 night

Crash Factors: 1 Failure to Yield, 2 Parking Lot, 1 Skateboarder/Bicyclist, 1 Pedestrian

Context: High pedestrian volume

Intersection: Forest Hills & Port Republic Road

Forest Hills and Port Republic Road:

Crash Data: 4 crashes (all pedestrian)

Attributes: 1 day, 3 night. 1 Saturday night.

Factors: 2 Pedestrians, 2 Failure to Yield

Context: Near I-81 bridge and close to apartment complexes.

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JMU Crash Hotspots: 2nd ranked

Carrier Drive (near I-81 bridge):

Crash Data: 5 Crashes

Type: 3 Bicyclist, 1 Skateboarder, 1 Pedestrian

Attributes: 3 day, 2 night (1 Saturday)
Crash Factors: 3 Detection of Bicyclist. 1 Skateboarder Lost Control, 1 Turn

Context: All crashes were before pedestrian signal was installed.

Segment: Carrier Drive (near I-81 bridge)

Main Street & MLK Jr Way

Crash Data: 3 crashes

Type: 3 Pedestrian

Attributes: 1 day, 2 night

Factors: 2 Failure to Yield on Turn, 1 walking against crosswalk signal

Left Scene: One driver left scene after checking on pedestrian.

Intersection: Main Street & MLK Jr Way

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Crash Trends

Failure to Yield: Like in other campus studies examining crash data, failure to yield represents the biggest contributing factor to crashes

Crash Hotspots: Sites tend to be along major arterial roadways, particularly adjacent to restaurants and bars.

Late Night Crashes: Compared nationally, more crashes happen in the evening and overnight hours – alcohol potentially a factor.

Bicyclists and Skateboarders: Crashes vary significantly across each campus.

General Findings

Crash Data: Gathering crash data on college campuses is not easy. Further investigation is necessary to find a solution – adding a specific route number for all campus crashes may be answer.

Education and Enforcement: College and Universities have invested a lot of funding into engineering solutions; education and enforcement are necessary too.

Campus Culture: A lot of similarities exist within crash trends observed but differences do exist – in the number of bicyclist/skateboarder crashes and the diurnal pattern of crashes.

Limitations and Future Studies

Crash Exposure: Unlike motor vehicles, no pedestrian/bicyclist data can be used to calculate risks.

Unreported Crashes: Students at 3 California Universities self-reported more crashes types (single bike, ped-bicycle), crashes with no injuries, and larger percentage of crashes at campus boundary.

Other Crashes: In the case of UVA and JMU, a significant percentage of crashes occurred outside of campus boundaries and within the City.

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Acknowledgements

University Police Departments: Patti Layman of JMU, Officer David Tribble of VT PD, and Ben Rexrode of UVA PD

VDOT: Professor Michael Fontaine

James Madison University: Elise Barrella

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2017

Downtown Bicycle Parking Inventory

July
24th *2017*

Presenter:
Patrick Wade

BIKE WALK HARRISONBURG

Spatial Analysis of Harrisonburg's Bike Infrastructure

This presentation is intended to provide graphic analysis pertaining to various aspects of bike parking within the downtown area.

The goal is to assist in planning efforts that will make Harrisonburg a more bike-friendly city.

If you have any questions about the material, please feel free to ask at any time.

The following information is provided by the City of Harrisonburg Public Works Department.

Current Bike Rack Locations

City of Harrisonburg

N W E S

0 150 300 600 900 Feet

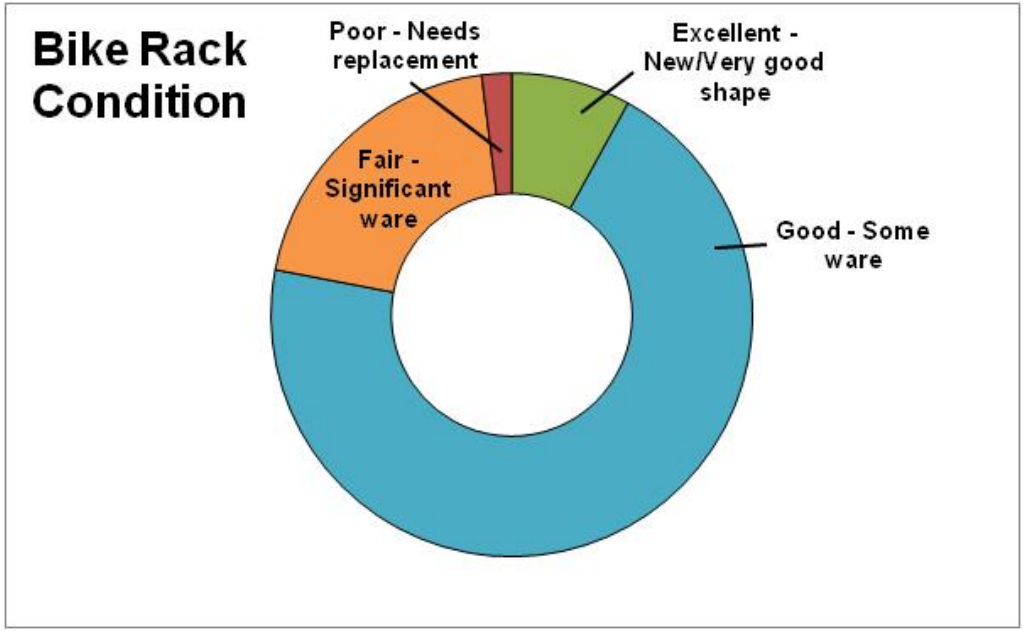
1 inch = 500 feet

Bike Racks Locations & Condition

Racks Within Downtown Zones	# of Racks	%
Downtown "Core" Area	44	88%
Transitional Zone	6	12%
Total:	***50***	

Bike Rack Condition	Count	%
Excellent - New/Very good shape	4	8%
Good - Some ware	35	70%
Fair - Significant ware	10	20%
Poor - Needs replacement	1	2%
Total:	***50***	

Facitlity Type	Count	%
Business	31	62%
Church	4	8%
Government	8	16%
Library	1	2%
Park	1	2%
Public Use	2	4%
Residential	3	6%
Total:	***50***	



Conclusion:

Most bike racks are located in the central downtown "core" area and are in fairly good condition.

*This category corresponds to locations where a bike rack was not observed, but a bicycle had been parked.

Observed Bike Parking Locations

City of Harrisonburg

0 150 300 600 900 Feet

1 inch = 500 feet

Occurrences of Non-Rack* Bike Parking

Observed Bike Parking	# of Racks	%
Bike Rack Parking	50	85%
Non-Rack Parking	9	15%
Total:	***59***	

**Non-bike parking is classified as any bikes not parked in a bike rack parking facility.*

These occurrences are significant because they may correlate to the necessity for added parking.

This was <u>not</u> the result of an intended traffic study and should only be used as a suggestion for future data collection.

<u>Conclusion</u>:

Further observation should be conducted to identify more of these locations.

Heatmap of Known Parking

- Most Dense
- More Dense
- Less Dense
- No Data
- Non-Bike Rack Parking*
- Bike Rack Parking
- Downtown Core Area
- Downtown Transition Area

*This category corresponds to locations where a bike rack was not observed, but a bicycle had been parked.

Density of Bike Parking

City of Harrisonburg

0 150 300 600 900 Feet

1 inch = 500 feet

Density of Bike Parking

The greatest concentration of parking is located within the **South Main St. corridor** - below Court Square and around the **Ice House complex**.

The heat map includes non-bike parking, since it is still parking and may be indicative of where more is needed.

Bike Parking Spaces

City of Harrisonburg

N
W E
S

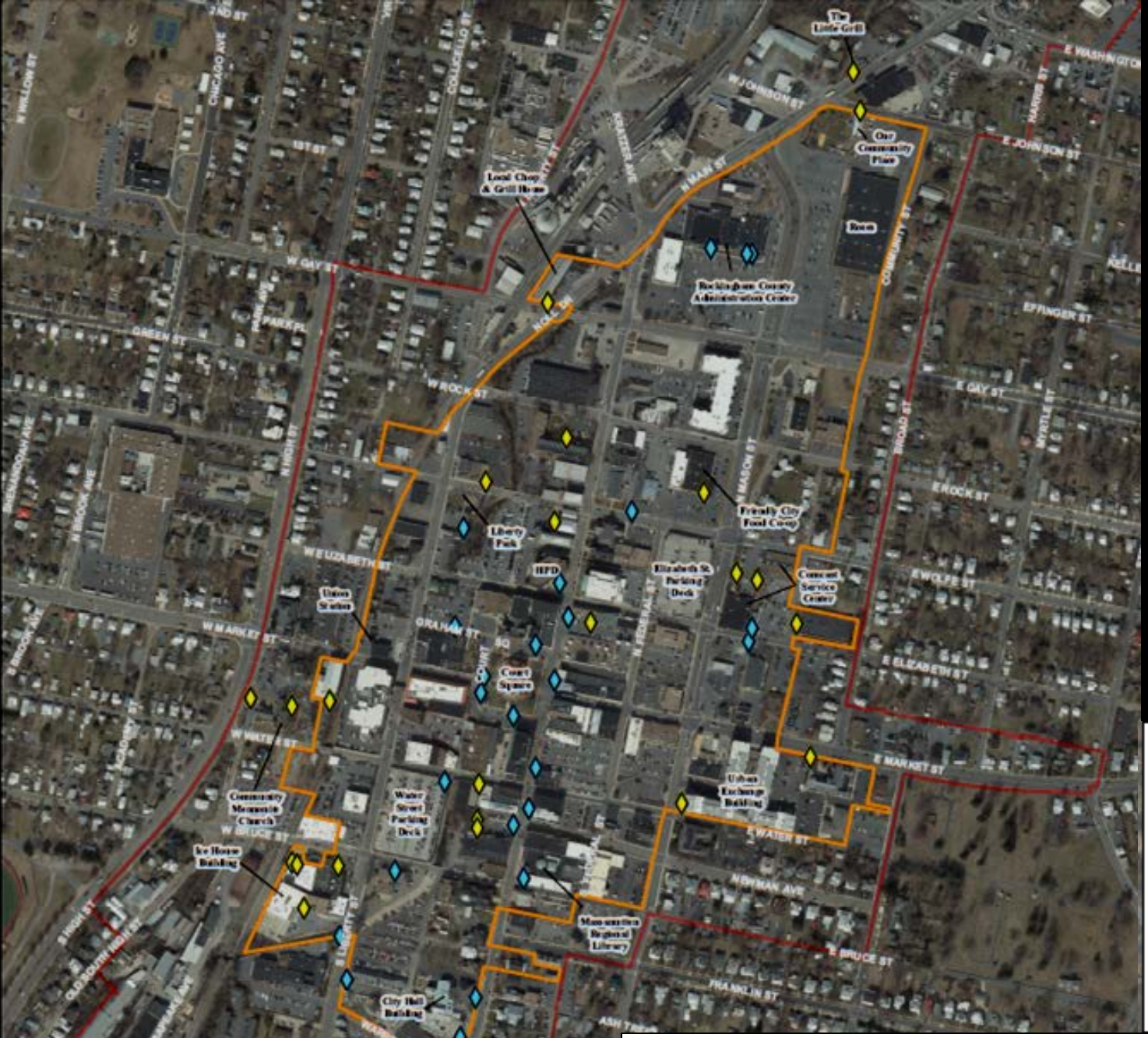
0 150 300 600 900 Feet

1 inch = 500 feet

Number of Bike Parking Spaces

There appear to be intermediate to low-capacity bike racks located within the “core” zone, since the heatmap was not normalized by rack capacity its hotzones can be deceiving.

Parking Spaces			
# Spaces	*Count*	*Total Spaces*	*%*
2	5	10	2%
3	1	3	1%
4	3	12	3%
5	2	10	2%
6	7	42	9%
7	4	28	6%
8	15	120	26%
9	2	18	4%
10	2	20	4%
12	1	12	3%
15	1	15	3%
16	1	16	3%
17	1	17	4%
18	2	36	8%
24	1	24	5%
30	1	30	6%
50	1	50	11%
Total:	***463***		



Public/Private Bike Racks

City of Harrisonburg

0 150 300 600 900 Feet

1 inch = 500 feet

Public/Private Bike Racks

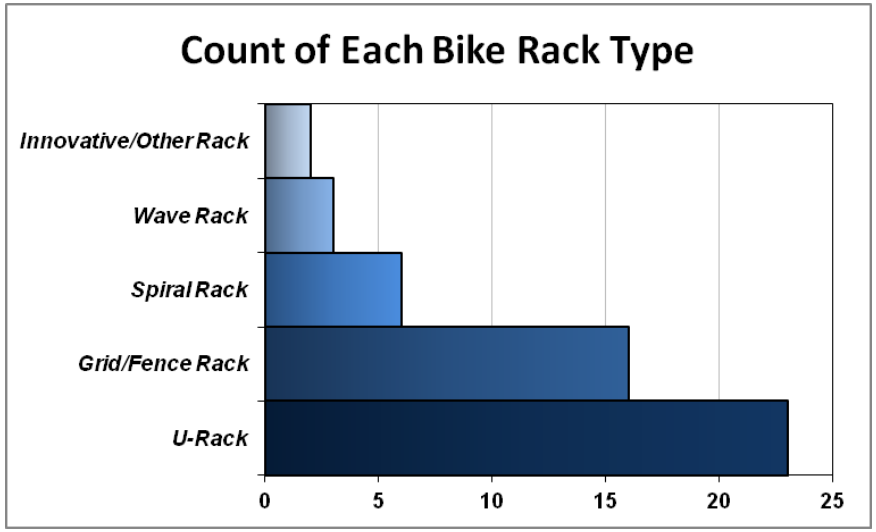
The number of public bike racks was found to be the same as the number of private racks.

Public/Private Property	Count	%
Public Racks:	25	*50%*
Private Private:	25	*50%*

The public racks are focused mostly towards the central core, while the private are located around the outer core.

Types of Parking Racks

Rack Type	Count	%
U-Rack	23	*46%*
Grid/Fence Rack	16	*32%*
Spiral Rack	6	*12%*
Wave Rack	3	*6%*
Innovative/Other Rack	2	*4%*
Total:	***50***	



Any Questions?