South Campus Neighborhood Project

Transportation

REPORT

Prepared By

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Geography 425: Planning for Sustainable Communities & Regions | Fall 2016

Department of Geography & Planning, College of Behavioral & Social Sciences

California State University, Chico

Resilient Cities Initiative

Institute for Sustainable Development

California State University, Chico

The South Campus Neighborhood Project

The South Campus Neighborhood Project is an award-winning neighborhood improvement planning effort coordinated by the Resilient Cities Initiative at California State University, Chico and the Public Works-Engineering Division at the City of Chico, CA. The project is focused on the public rights-of-way in Chico, California's South Campus Neighborhood, a six by seven square-block area bound by 2nd Street to the North, 9th Street to the South, Orange Street to the West and Salem Street to the East. Immediately adjacent to both downtown Chico and the University, it is Chico's oldest residential neighborhood and was laid out by the town's founder, John Bidwell, in the 1860's.

The neighborhood today is densely populated with university students and is also home to a number of small businesses, restaurants, bars, churches, community organizations, a school, a fire station, a police station, a railway station and transit center. Given its location, population and mixed uses, the neighborhood faces a unique set of circumstances and challenges. This three-year project aims to assess existing conditions and to develop and refine neighborhood improvement concepts to address a range of identified issues. The neighborhood improvement planning process is focused on concepts for complete streets and public works that will enhance public health and safety, quality of life, sense of place and environmental sustainability.

☛ *More information can be found online at http://scnpchico.com/*

City of Chico Public Works-Engineering

The overall Mission, Vision and Goal of the City of Chico Public Works Department is to provide the best possible Quality of Life through our abilities to protect, plan, construct and maintain the physical assets of the City. This is achieved through teamwork, integrity, professionalism, innovation, respectful customer service, value to the citizens of Chico, accountability and stewardship of the City's infrastructure and public resources. We serve the public in a manner that supports the rich heritage of Chico, as well as progressing into future improvements desired by the community in a sustainable manner. We continue to look for new technology that assists in meeting these goals so that we can operate at the most efficient level and continue to be at the leading edge of modern standards.

Our Mission, Vision and Goals include ensuring public safety through detail oriented and strategic improvements to mitigate unsafe operation and use of our Public property; Providing safe, sustainable, integrated and efficient transportation systems to enhance the City of Chico's economy and livability for all modes of transportation; Efficiently and effectively providing a reliable, sustainable and cost effective sanitary sewer and storm water collection system for our residents and businesses in-line with our overall Mission and Vision. We are stewards of the natural environment and through responsible practices, we construct and maintain our natural environment to the highest of standards. We will continue to make the City of Chico a leader in sustainable and clean practices so that our residents can experience the quality of life that is desired for an infinite length of time.

The Resilient Cities Initiative

The Resilient Cities Initiative (RCI) is an interdisciplinary university-community partnership program established by the Institute for Sustainable Development at California State University, Chico in 2016. The RCI connects real-world community sustainability projects – identified and funded by partner agencies – with faculty expertise and student innovation from departments and disciplines across the University's academic colleges. The RCI recruits partner agencies through a competitive selection process and matches projects with existing courses across the university's curricula. Partner agencies are able to harness incredible momentum for their projects in large part because the partnership is realized on a bigger scale than more typical one-off university-community projects. Faculty are able to opt-in and augment their existing curriculum with real-world projects that have been identified, funded and supported by the leadership and staff of the partner agency – ultimately delivering their students' work for consideration and implementation.

The RCI is a member of the Educational Partnerships for Innovation in Communities (EPIC) Network, a nationwide network of over 25 universities that have replicated the highly successful Sustainable City Year Model that was established at the University of Oregon in 2009. The model is based on university-community partnerships with a defined geographic and temporal scope, focused on advancing sustainability and the social good, leveraging the multidisciplinary knowledge and capacity of the university to 'move the needle' on pressing community issues. The RCI directly engages hundreds of CSU, Chico students each academic year, providing impactful opportunities for them to put theory to practice in their own community and region, connecting them with decision-makers in practitioners in their fields of study, and helping develop the next generation of workforce professionals and leaders.

Course Participants

Geography 425: Planning Sustainable Communities & Regions | Spring 2016 | Dr. LaDona Knigge

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Introduction

The City of Chico has focused its efforts to dramatically reduce carbon emissions by creating a more sustainable and resilient community. In order to accomplish this, the city enlisted the help of California State University of Chico (CSUC or Chico State) students to conduct a study. The study was conducted as part of the Sustainable Cities Initiative, led by the school's Institute for Sustainable Development. The study has three phases aiming to examine the demographics of the South Campus Neighborhood (SCN) demographics: public safety, quality of street lighting, and environmental quality. This study is a portion of phase 1, which examines the existing conditions of pedestrian and bicycle traffic.

The South Campus Neighborhood in Chico, which spans from West 2nd to West 9th Streets and from Salem to Orange Streets, plays an integral part in the city's metropolitan core. This eight-by-seven block area sits among one of the most historic, diversely-used, and densely populated neighborhoods in the city. The South Campus Neighborhood lies south of the California State University of Chico and east of Chico's Downtown District. West 8th and West 9th Streets, along the south boundary of the South Campus Neighborhood, are one-way arterial streets that are segments of State Highway 32. They have heavy vehicle traffic and share jurisdiction with the State of California. The South Campus Neighborhood has unique attributes which can support planning for enhanced infrastructure, safety, sustainability, and various services and institutions. This area experiences heavy usage of various forms of transportation, particularly from university students.

The South Campus Neighborhood has a highly walkable grid of short blocks with wide streets built more than a century ago. This area has the potential to improve pedestrian and cyclist experiences, safety, and convenience in its connections with the surrounding areas. High automobile usage associated with the proximity to Chico downtown and Chico State campus currently demands ample car parking spaces, lots, and structures. Wide streets provide sufficient space to allow for the creation of a multimodal infrastructure network that safely and conveniently meets the needs of all users and modes of transportation. The plan suggests this can be achieved by designing "Complete Streets" where deemed

appropriate. The Circulation element of the Chico 2030 General Plan introduces goals and policies prioritizing the construction of Complete Streets, defined as "roadways designed and operated to enable all users safe and convenient travel through all modes of transportation" (4-2 Chico General Plan). This element requires new streets to be designed as Complete Streets and existing streets be retrofitted in order to achieve the goals to "expand and maintain a comprehensive, safe and integrated bicycle system throughout the city that encourages bicycling" (Goal CIRC-3), design a safe, convenient, and integrated pedestrian system that promotes walking (Goal CIRC-4), and reduce the use of single-occupant motor vehicles (Goal CIRC-9) as well as addressing connectivity, public transit, sufficient parking, rail and air service and other related transportation goals. This neighborhood is adjacent to the south boundary of the Chico State campus and adjacent to Downtown Chico and is home to a vibrant mixture of amenities such as a Catholic school, the transit center, markets, restaurants, university offices, and a variety of student housing, including fraternity and sorority houses, as well as private rentals. These amenities help create a bustling street scene and a community atmosphere.

The South Campus Neighborhood provides housing to approximately 5,259 people according to the 2013 American Community Survey from American Fact Finder. Of those living in the area, 42.9 percent are between the ages of 20 and 24, suggesting most residents in the neighborhood are students of California State University of Chico. Most individuals live within ten minutes from work and, of the 2,604 people working within the area, approximately 1,903 used some form of vehicle transportation. The large number of vehicle usage is likely due to a reported lack of perceived safety including a lack of crosswalks, poor lighting, few traffic control devices or stop signs, and the speed of automobile traffic.

Over 14,000 cars travel along West 2nd Street per day making it one of the highest volume streets in the South Campus Neighborhood. State Highway 32 is made up of 8th Street, which travels one-way towards the west, and 9th Street, which travels one-way towards the east. Approximately 11,500 vehicles travel along 8th Street and 9,000 vehicles travel along 9th Street, daily.

Description of Study

This element of the South Campus Existing Conditions Report focuses on pedestrian and bicycle activity within the study area. For this report, the study area shall be defined as the seven north-south streets located between Salem and Orange Streets (Salem, Normal, Chestnut, Hazel, Ivy, Cherry and Orange), limited to the block between West 2nd Street and West 3rd Street, and for West 2nd Street between Chestnut and Hazel Streets. The study was conducted during the fall 2016 semester as a service learning project by Dr. LaDona Knigge's Planning for Sustainable Communities and Regions class. Eleven students in the class participated in the study.

The study collected data about the number of pedestrians and bicyclists on each street within the study area. By using survey equipment, 24/7 contiguous data about pedestrian and bicyclist traffic was collected for seven day periods for each of the north-south streets as well as a second set of data for West 2nd Street for two weeks to compare pedestrian and bicycle traffic during Thanksgiving week, when the Chico State campus is closed to a typical week during the semester.

Within the study area, only West 2nd, Salem, and Ivy Streets include designated bicycle lanes. West 2nd Street and Ivy Street are both classified as collector streets[1] by the Chico 2030 General Plan (Figure CIRC-1 Roadway System). The bicycle lanes on West 2nd Street are painted green to enhance visibility. West 7th Street contains signage indicating a bike route. On the streets of Normal, Orange, Ivy, and Cherry there is no designated bicycle infrastructure.

[1] According to the Chico 2030 General Plan Collector streets provide a link between local streets and arterials. Collectors provide two travel lanes. On-street parking is generally permitted. Driveway access is allowed, but should be minimized. Bike lanes, park strips, sidewalks, and transit facilities are also typically accommodated within the right-of-way.

Methodology

The pedestrian and bicycle study was conducted on the single block between West 2nd and West 3rd Streets on each street in the study area from Orange to Salem Streets. This facilitated directional counting for pedestrians and bicyclists as they traveled north (towards campus) and south (away from campus). The study began on Orange Street and moved east by one street each week, ending at Salem Street. East-west travel was counted along West 2nd Street for two weeks: during Thanksgiving Break, when Chico State students are on break, and during the week after Thanksgiving, when classes resumed. North-south travel was measured at the blocks directly south of campus between West 2nd and West 3rd Streets in order to get the most accurate count of pedestrians and bicyclists in the vicinity of the Chico State campus.

Figure 1: *Bike lanes on (Left) Salem Street and (Right) 2nd Street.*

If the study area was further from the university, data collection may be skewed if pedestrians and bicyclists change direction. The study area spanned across the entire width of the southern part of campus and captured the majority of non-vehicular student and other university-related traffic. It is important to note that the area south of campus is a popular place to park a vehicle with on-street metered and unmetered parking and a university parking structure between Normal Avenue and Chestnut Street. The

City of Chico Transit Center is also located between Salem Street and Normal Avenue. Every trip, whether by transit or vehicle, ultimately requires pedestrian travel to access the university.

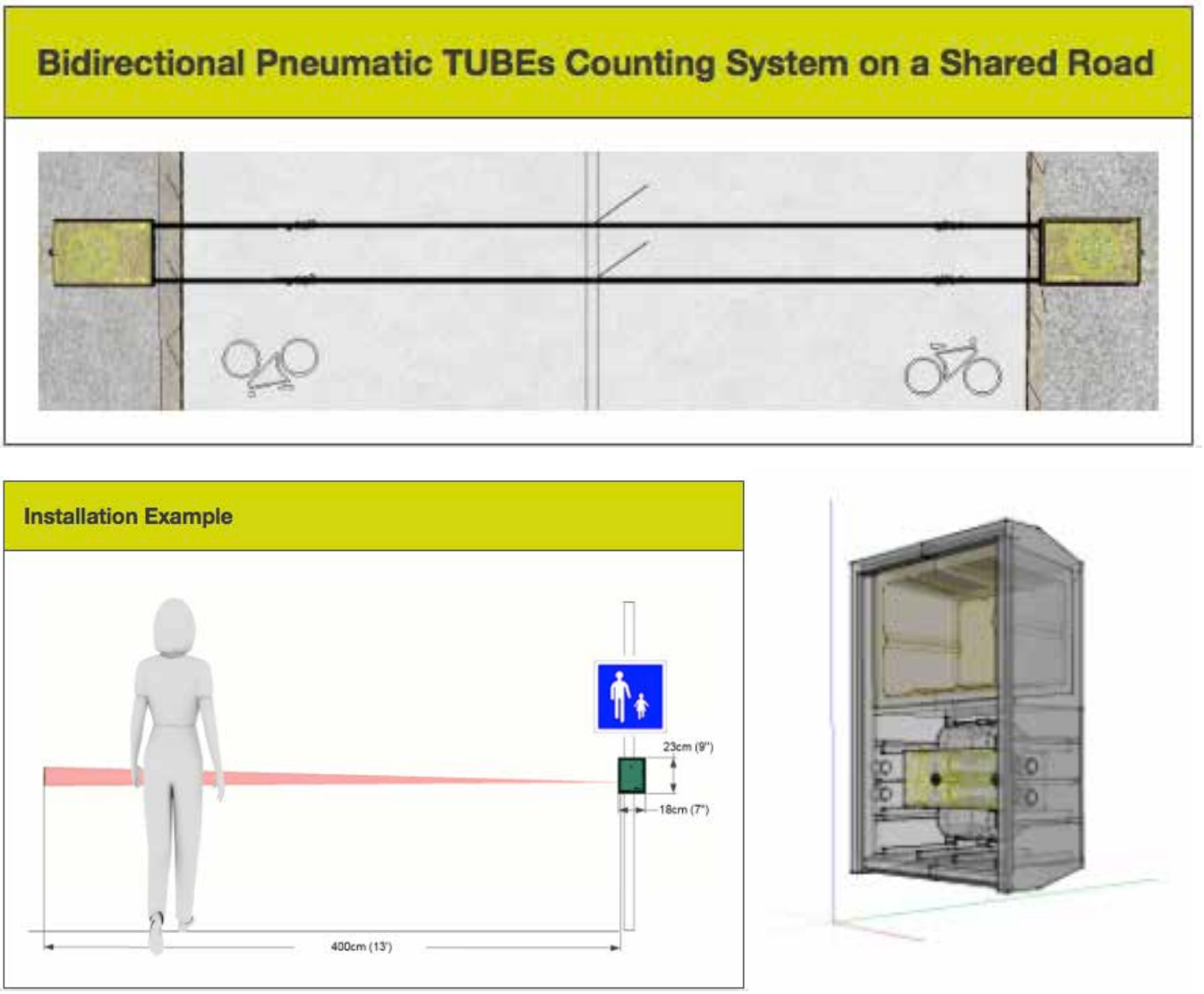


Figure 2: *(Top) Illustration of TUBEs layout. (Lower Left) Illustration of PYRO-Box setup. (Lower Right) 3D illustration of PYRO-Box. (Source: ecovisio)*

The study utilized two counting systems in order to gather data on the trends of pedestrian and bicyclist flow (see Figure 2). The equipment was rented for eleven weeks from the Canadian company ECO-VISIO (http://www.eco-compteur.com/en/products/eco-visio-range/eco-visio). The first counter used was the PYRO-Box (http://www.eco-compteur.com/en/products/pyro-range/pyro-box). The PYRO-Box utilizes passive-infrared and pyroelectric technologies and high-precision lenses in order to collect information on

pedestrian movement. Two PYRO-Box counters (Alpha and Beta) were used for the study, with one being placed on each side of the street. Each box was consistently placed on the same side of the street. This enabled the data recorders to determine skewed data in order to minimize error in the equipment. The boxes were attached to a pole or tree using a metal tie-strap. Finding a suitable location to attach the PYRO-Box counters was challenging.

The second type of counter used in this study is the pneumatic TUBE counter (http://www.eco-compteur.com/en/products/tubes-range). The TUBE counter is a set of two independent, hollow rubber tubes that stretch across a lane of traffic to measure bicycle traffic which is recorded whenever a pressure difference occurs. The TUBE can determine which direction a bicycle is traveling based on pressure changes. The counting sensors are located in a box which is securely chained to either a tree or another non-movable object. In order for the tubes to function properly they needed to be stretched approximately 15 percent of the desired length across the lane of traffic. The ends of the stretch tubes are anchored with figure eight wire ties and large concrete nails (Figure 4). This process proved to be somewhat difficult. The tubes are then taped down using bright, yellow duct tape. Vehicular traffic caused some issues with data collection. There was an incident where a street sweeper destroyed one of the tubes causing a delay in data collection. Occasionally, vehicles would park their tires directly on top of the tubes. This had an unknown effect on the data recorded.

Both counters used a magnetic Bluetooth activation key. This key enabled a smartphone device with the Eco-Counter application to download and wipe clean the data from the counters each week. Specific hardware challenges can be seen in Figure 3. Over the course of the study, the figure-eight ties warped and frayed with continued use. If the pre-drilled hole was not deep enough, the concrete nail could bend and break. Responsibility for moving the equipment twice a week was shared; due to a few scheduling mix-ups there were a couple of minor inconsistencies with the duration of data collection across three locations - Cherry, Chestnut and West 2nd Streets.

Data was interpreted by looking at collection periods as “IN’s” or “OUT’s”. The “IN” is always in the north direction and the “OUT” is always in the south direction. The only exception is when the equipment was placed on West 2nd Street. The west direction is the “IN” and the east direction is the “OUT”. The data for West 2nd Street had to be altered to fit our normal schedule of alternation because the TUBEs were not moved for the first three cycles. The time frame of this study started on September 24, 2016 and ended December 9, 2016. The data collected during the week of November 8-November 12 was omitted due to data collection interference caused by damage to the equipment by a street sweeper.

Figure 3: *(Left) PYRO-BOX (Right) Pneumatic*

Figure 4: *(Left) Unbroken and Broken Figure 8 loop tie (Right) Concrete Nail*

The Infrastructure Audit, created by Professor LaDona Knigge's Transportation Class in 2015, has been combined with this report to add supplemental data. The study was conducted using the ArcGIS collector map to collect data about existing conditions with the study area. Qualitative data was collected with a series of three walking audits, which included individuals from the community, city council, CSUC faculty, and CSUC fraternities. ArcGIS data was mapped, while qualitative data was summarized into a report.

Street Profiles

Salem Street

Intersection of 3rd and Salem

Salem Street is a main arterial in the South Campus Neighborhood. It is one of only two streets in the study area with painted bike lanes, the other being West 2nd Street. (Editor's Note: in the Spring Semester of 2017 the City of Chico Public Works Department undertook to stripe buffered bike lanes along both sides of Ivy Street, from West 2nd Street across Little Chico Creek, south of West 9th Street). The transit center is located on West 2nd Street and Salem Street; there is frequent bus traffic along here. This area has heavy traffic flow as it is part of Downtown Chico. Parking along this street is parallel and metered. The intersection along West 2nd Street has a stop light system; the intersection along West 3rd Street has 4-way stop signs. All ramps are ADA compliant. Sidewalks in this area are in good condition. There are painted crosswalks at both intersections.

Data for the West side of Salem Street was collected in five days, from December 2nd to the 7th 2016 while data for the East side of Salem was collected in two days from December 7th to the 9th 2016.

Normal Street

Figure 2: *Intersection of 3rd and Normal*

Figure 2: *Intersection of 2nd and Normal*

Normal Avenue is on the other side of the transit center and sees some bus use. This street has no separate bike lanes. The intersection along West 2nd Street has a protected stop light system. This system is the only one in the neighborhood that uses audio cues. On the north side of West 2nd Street, at Normal Ave, there is a roundabout that allows vehicles to drop students off on campus. At the West 3rd Street intersection there are no stop signs or lights. Parking along Normal Ave is parallel. Both intersections have ADA compliant ramps and painted crosswalks. Sidewalks are of good quality.

Data for the west side of Normal Avenue was collected in four days from November 12th to the 16th while data for the east side was collected in two days from November 16th to the 18th. Data taken from November 8th up to the 12th was removed from the study since the equipment was damaged during that time.

Chestnut Street

Figure 5: *Chestnut Street*

Figure 5 *Intersection of 3rd and Chestnut*

Figure 5: *Intersection of 2nd and Chestnut.*

Chestnut Street is considered a Class III bike route and has signage for this (though there is no infrastructure for bicycles). The intersection at West 2nd Street has a protected stop light system. Chestnut Street is a gateway to campus for pedestrians and bicyclists, with no vehicle access to campus at this intersection. The West 3rd Street intersection has no stop signs or lights. Both intersections have ADA compliant ramps. Only the West 2nd Street intersection has painted crosswalks. Parking along Chestnut Street is parallel and unmetered. Sidewalks are of good quality.

Data for Chestnut Street was taken on October 28th to November 4th and again from November 4th to the 8th. Distinctions between the west and east side were not made clear.

Hazel Street

Hazel Street

Intersection of 2nd and Hazel

Intersection of 3rd and Hazel

Hazel Street has no bicycle infrastructure in place. Traffic along this street is heavy. The campus side of Hazel Street is not used for public access. The intersection at West 2nd Street has a stop sign on Hazel Street, but no stop signs or lights on West 2nd Street. Crosswalks along West 2nd Street are striped; the crosswalk at the Hazel Street stop sign is painted. The ramps are ADA compliant. The intersection at West 3rd Street has stop signs along Hazel Street only. There are no crosswalks at this intersection and the ramps are not ADA compliant. Parking along Hazel Street is parallel and unmetered. The sidewalk on the east side of Hazel Street is of good quality; however, the west-side sidewalks are of poor quality.

Data was collected in seven days from October 14th to the 21st. The tubes changed locations and data was again collected from October 19th to the 21st.

Ivy Street

Intersection of 2nd and Ivy

Intersection of 3rd and Ivy

Ivy Street

Ivy Street is another arterial and has high vehicle, bicycle, and pedestrian traffic. This street is a Class III Bike Route. The intersection at West 2nd Street has a protected stop light system. The ramps are ADA compliant and the crosswalks are painted. The intersection at West 3rd Street has stop signs along West 3rd Street, but not along Ivy Street. There are no crosswalks and the ramps are not ADA compliant. Parking is unmetered and parallel. The west side of Ivy Street has good quality sidewalks; however, along the east side the sidewalks are of poor quality.

Data was collected in five days from October 7th to the 12th and then the tube locations changed. Data was collected again from October 12th to the 14th.

Cherry Street

Intersection of 3rd and Cherry

Intersection of 2nd and Cherry

Intersection of 2nd and Cherry

Cherry Street has low vehicle and pedestrian traffic. The intersection at West 2nd Street has stop signs along Cherry Street only. There are painted crosswalks along Cherry Street and striped crosswalks along West 2nd Street. All ramps are ADA compliant. The intersection at West 3rd Street has stop signs along West 3rd Street only. Painted crosswalks exist along Cherry Street only. None of the ramps meet ADA compliance. Parking along Cherry Street is unmetered and parallel. The west sidewalk is of good quality and the east sidewalk is of medium quality.

Data collection was taken from September 30th to October 7th.

Orange Street

Intersection of 3rd and Orange

Intersection of 2nd and Orange

Orange Street

Orange Street is another low-traffic street. At the intersection of West 2nd Street, there is a stop sign along Orange Street only. The ramps are ADA compliant. The north West 2nd Street crosswalk is striped; the south side of West 2nd Street has no crosswalk at the intersection. The Orange Street crosswalk is painted, not striped. At the West 3rd Street intersection there are stop signs along West 3rd Street only, and painted crosswalks along Orange Street. The ramps are ADA compliant. The west side of Orange Street has parallel parking and sidewalks of good quality. The east side has diagonal, back-in parking and medium quality sidewalks.

Data was collected between September 24th to the 30th.

Qualitative data concerning the integrity of pedestrian and bicycle infrastructure in the South Campus Neighborhood has been summarized below. This data was collected during the Infrastructure Audit. These summaries highlight the general concerns of the existing infrastructure, to provide a starting point for future research.

INTERSECTIONS

Intersections in the South Campus Neighborhood are a major safety issue. The largest concern with intersections is poor visibility. Impacted parking and overgrown foliage greatly reduce visibility at intersection. This reduced visibility is dangerous for any form of transportation. A number of accidents and deaths have occurred in the past at intersections in this neighborhood. The inconsistent location of stop and yield signs adds additional problems to intersections.

CROSSWALKS

Designated crosswalks are absent in many of the residential sections of the neighborhood. Pedestrians are not provided with right-of-way infrastructure in these areas, which would normally caution vehicles. This issue is especially problematic along Highway 32. The only streets with crosswalks along Highway 32 are Salem and Ivy Streets. Crossing Highway 32 along the other streets is riskier.

CURB RAMPS

The majority of curbs are ramped; however, less than 25 percent are ADA compliant. Many of the compliant ramps are located along West 2nd Street.

STREET LIGHTING

A lack of lighting in much of the neighborhood can contribute to a negative perception of safety. The majority of street lights in the study area are not at the pedestrian level, causing many of the lights to be

blocked by tree foliage. The only pedestrian-level lighting in the area is located near the economic center around West 5th Street and Ivy Street.

PARKING

Parking spaces in the South Campus Neighborhood are primarily horizontal. These spaces are a mix of metered and unmetered, with most of the unmetered spaces located near housing. Parking is impacted during school hours, but often declines during off-hours.

WAYFINDING

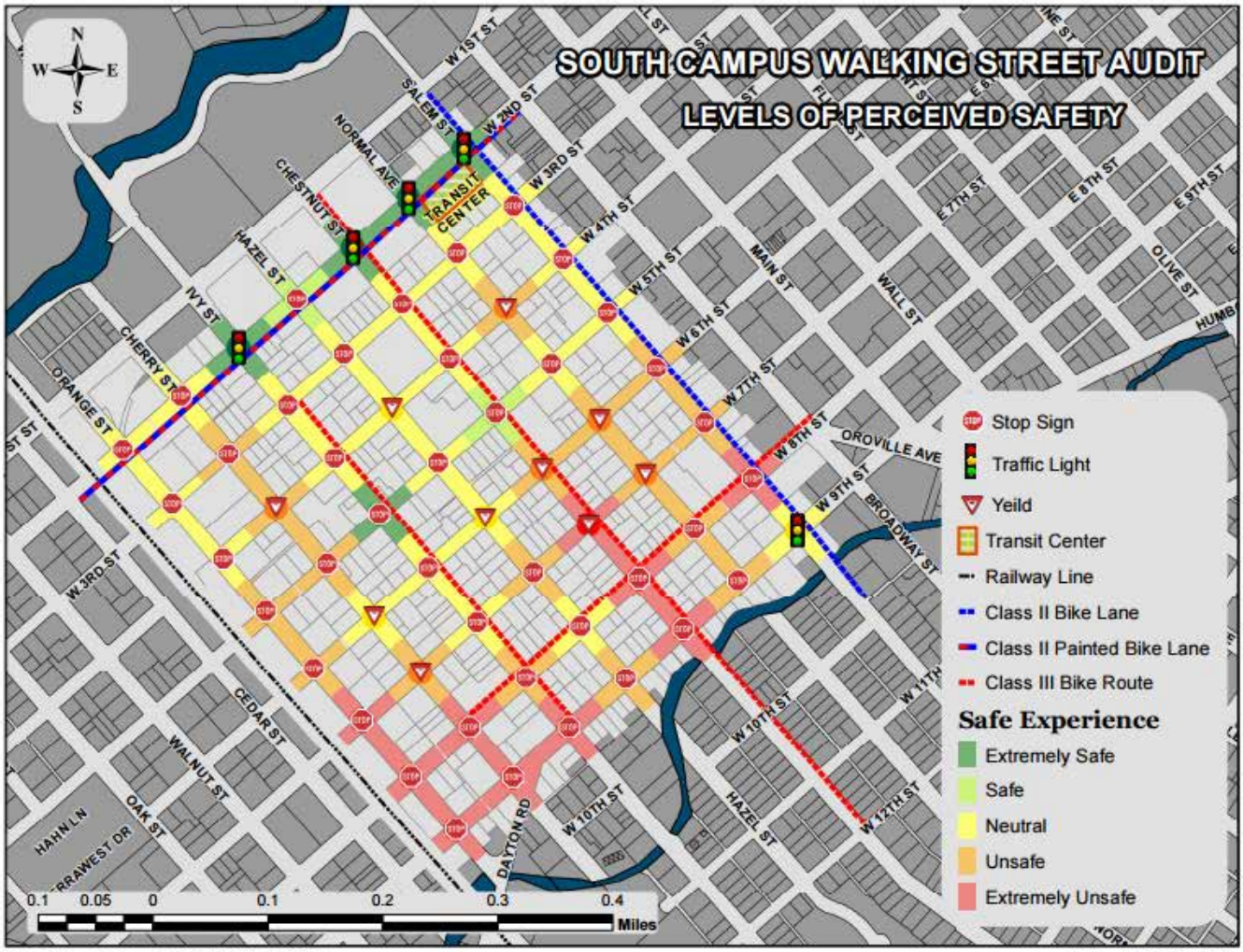
Currently, the South Campus Neighborhood has limited wayfinding infrastructure. Bike routes in this area are minimally designated. Stop and yield signs are placed inconsistently, which may confuse those navigating through the neighborhood. Navigating safely through the neighborhood can be difficult on any transportation mode.

Between the years of 2005 and 2013, 27.6 percent of traffic collisions involved bicycles within the South Campus Neighborhood, making this the most common type of traffic collision. Conversely, 18.5 percent of collisions involved pedestrians. The streets with the highest number of collisions during this time period are Ivy, West 2nd, and West 8th Streets. Both Ivy and Salem Streets are the preferred north-south routes through the South Campus Neighborhood. Ivy Street averages 6,800 vehicles per day while 5,200 vehicles travel along Salem Street. Conversely, smaller streets such as Hazel Streets saw much less vehicle traffic with an average of 1,240 per day.

South Campus Neighborhood Collision Data

Intersection	Bicycle Intersection Collisions							Pedestrian Intersection Collisions						
	Street							*Street*						
	Orange	Cherry	Ivy	Hazel	Chestnut	Normal	Salem	Orange	Cherry	Ivy	Hazel	Chestnut	Normal	Salem
2nd		1	1		1		1			1			1	1
3rd							1		1		1			1
4th			1	1						1				
5th				1			3			1	1			
6th														
7th			1							1				
8th	1		2	1			1			1	1			
9th				1	1					1				
Total(s)	1	1	5	4	2	0	6	0	1	6	3	0	1	2

Figure 5: *Data on collisions between vehicles/bicycles, and vehicles/pedestrians.*

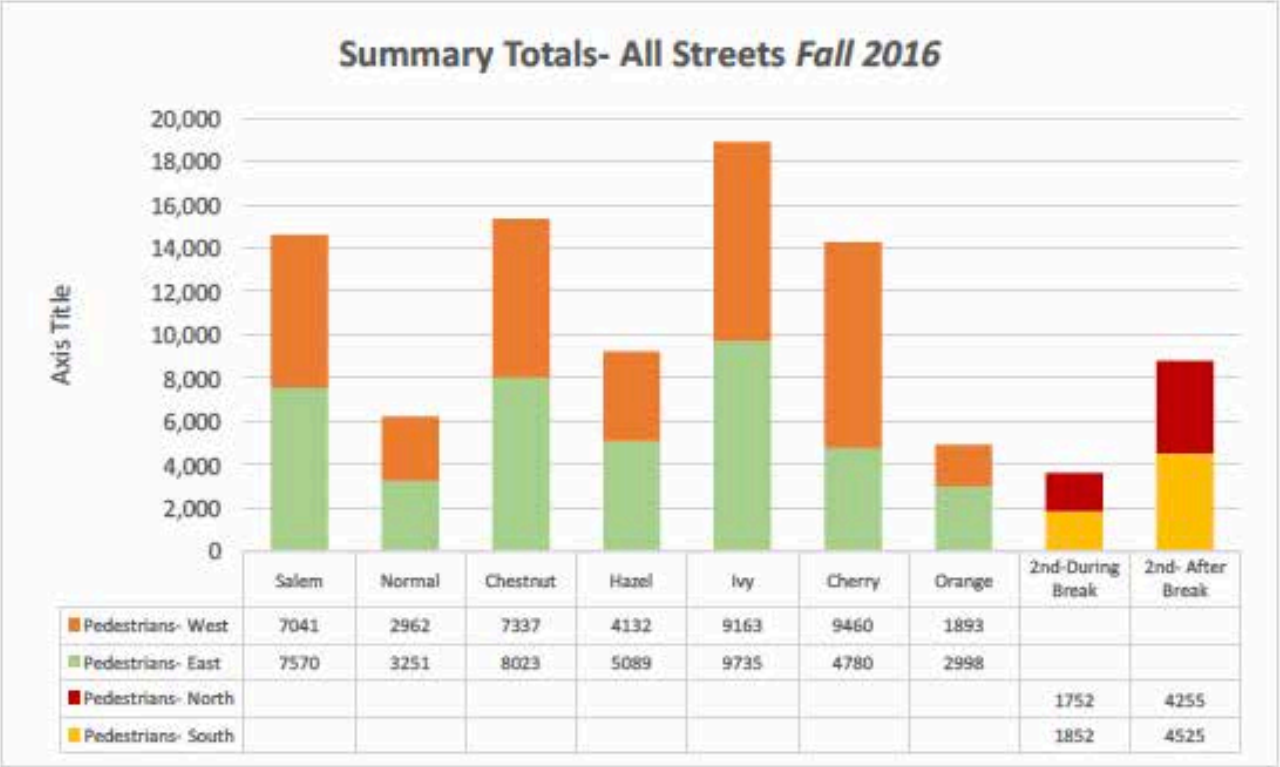


Dr. LaDona Knigge GEOG 436 Fall 2015

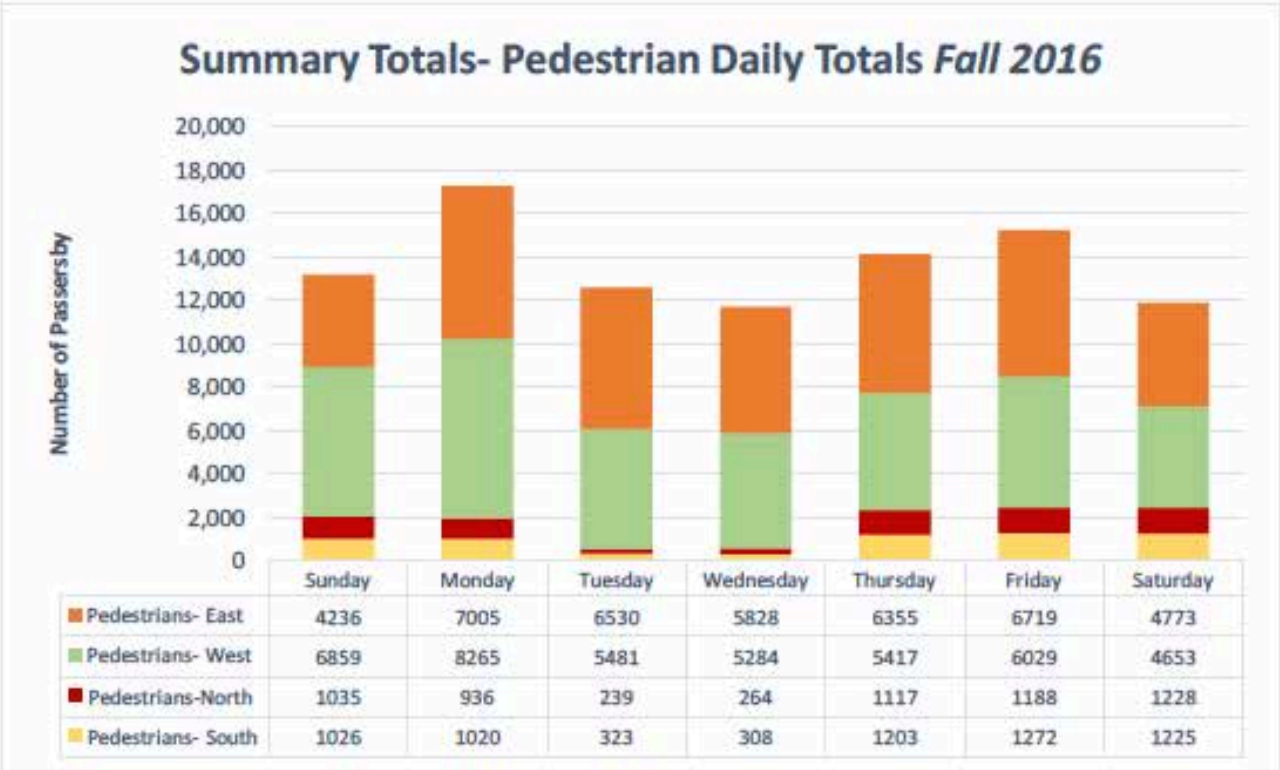
Christine Rosin March 2016

Figure 6: *South Campus Neighborhood map (Source: Ryan Edwards and Tiffany Lightle)*

Results

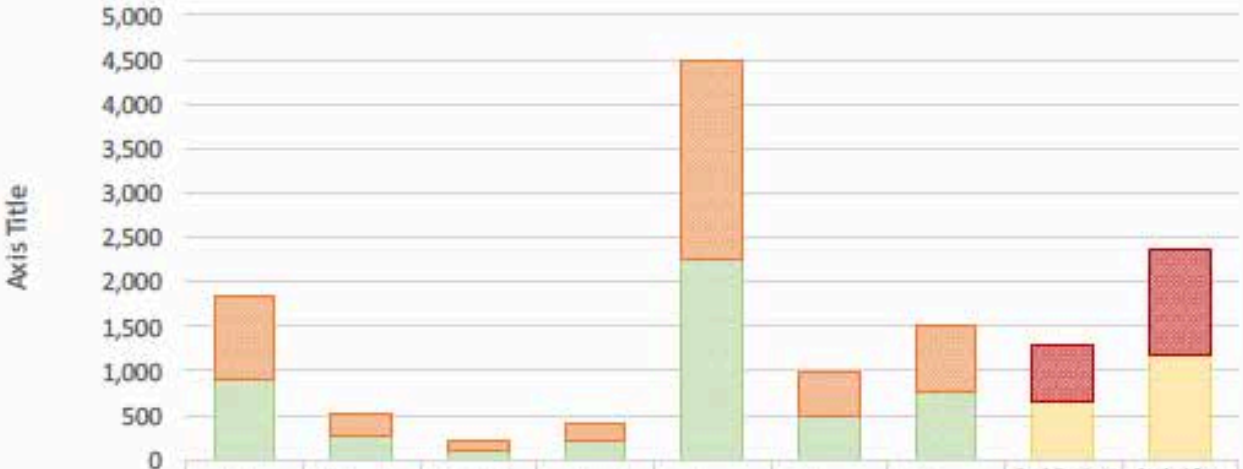


	Salem	Normal	Chestnut	Hazel	Ivy	Cherry	Orange	2nd-During Break	2nd- After Break
Pedestrians- West	7041	2962	7337	4132	9163	9460	1893		
Pedestrians- East	7570	3251	8023	5089	9735	4780	2998		
Pedestrians- North								1752	4255
Pedestrians- South								1852	4525



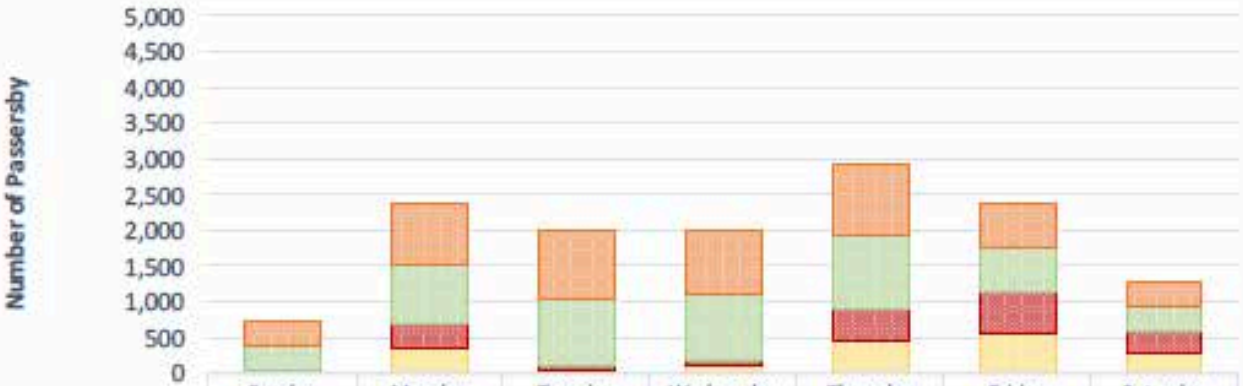
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- East	4236	7005	6530	5828	6355	6719	4773
Pedestrians- West	6859	8265	5481	5284	5417	6029	4653
Pedestrians-North	1035	936	239	264	1117	1188	1228
Pedestrians- South	1026	1020	323	308	1203	1272	1225

Summary Totals- All Streets *Fall 2016*



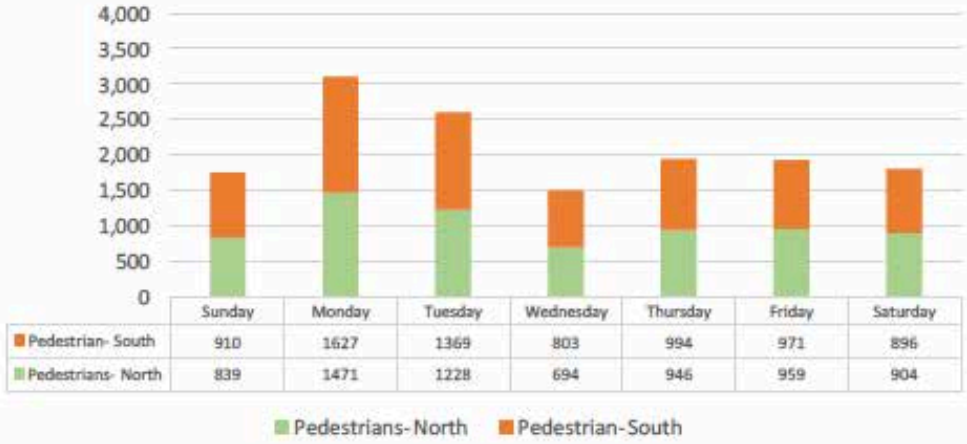
	Salem	Normal	Chestnut	Hazel	Ivy	Cherry	Orange	2nd-During Break	2nd- After Break
Bicyclists- West	913	256	107	202	2247	491	761		
Bicyclists- East	913	256	107	202	2247	491	761		
Bicyclists- North								650	1184
Bicyclists- South								650	1184

Summary Totals- Bicyclists Daily Totals *Fall 2016*



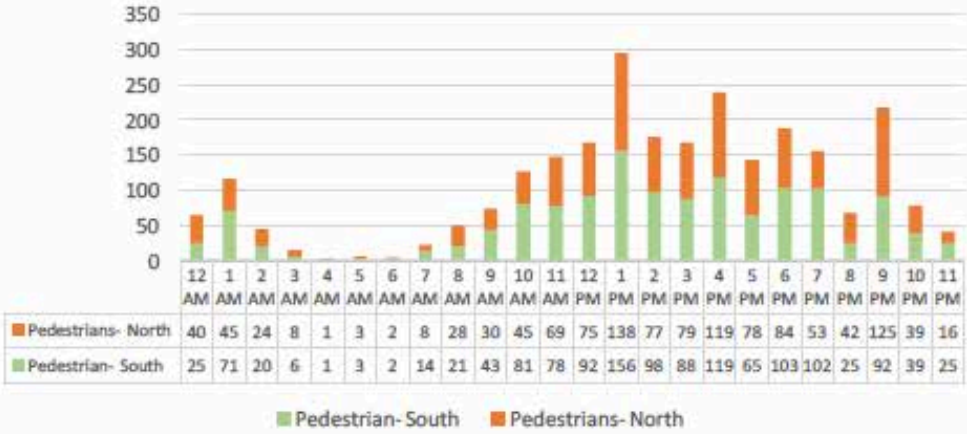
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicyclists- West	329	838	951	901	1000	624	334
Bicyclists- East	329	838	951	901	1000	624	334
Bicyclists- North	28	344	47	94	459	567	295
Bicyclists- South	28	344	47	94	459	567	295

Salem Street- Pedestrian Daily Traffic Counts *Fall 2016*



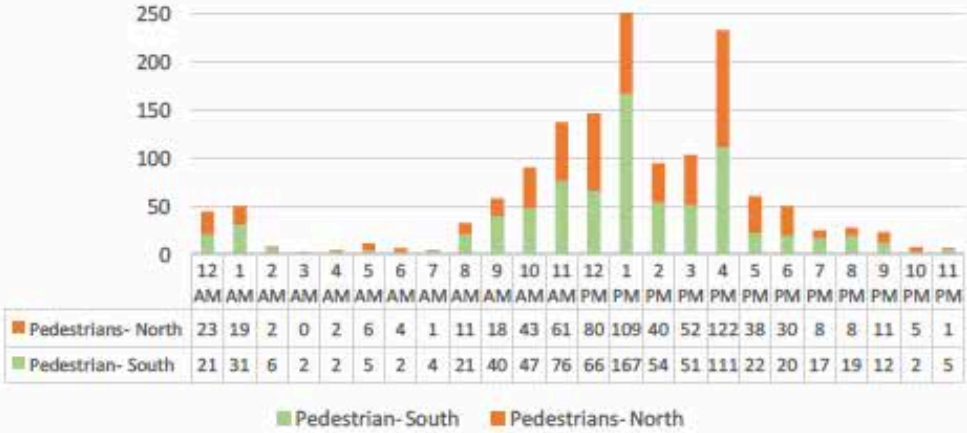
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrian- South	910	1627	1369	803	994	971	896
Pedestrians- North	839	1471	1228	694	946	959	904

Salem Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*

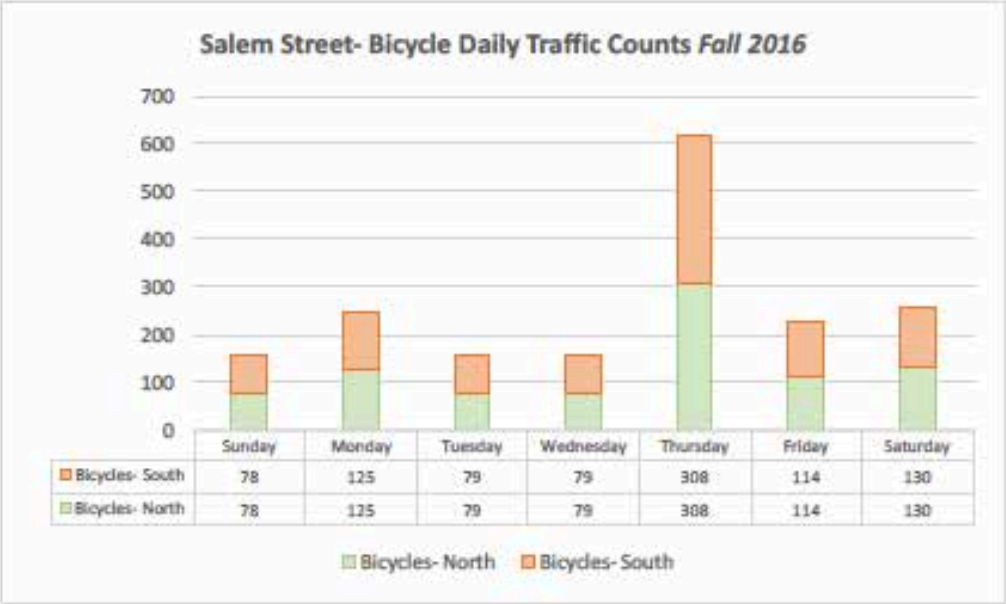


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	40	45	24	8	1	3	2	8	28	30	45	69	75	138	77	79	119	78	84	53	42	125	39	16
Pedestrian- South	25	71	20	6	1	3	2	14	21	43	81	78	92	156	98	88	119	65	103	102	25	92	39	25

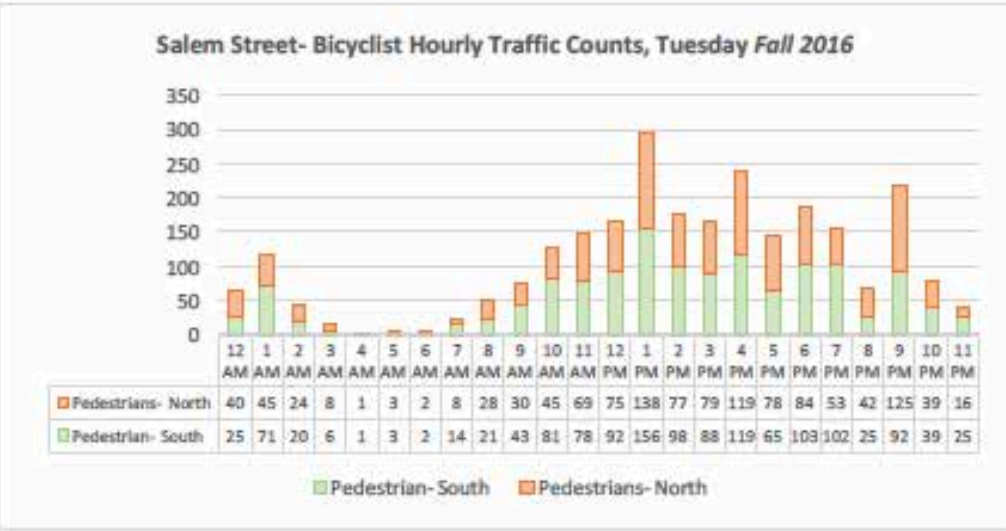
Salem Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*



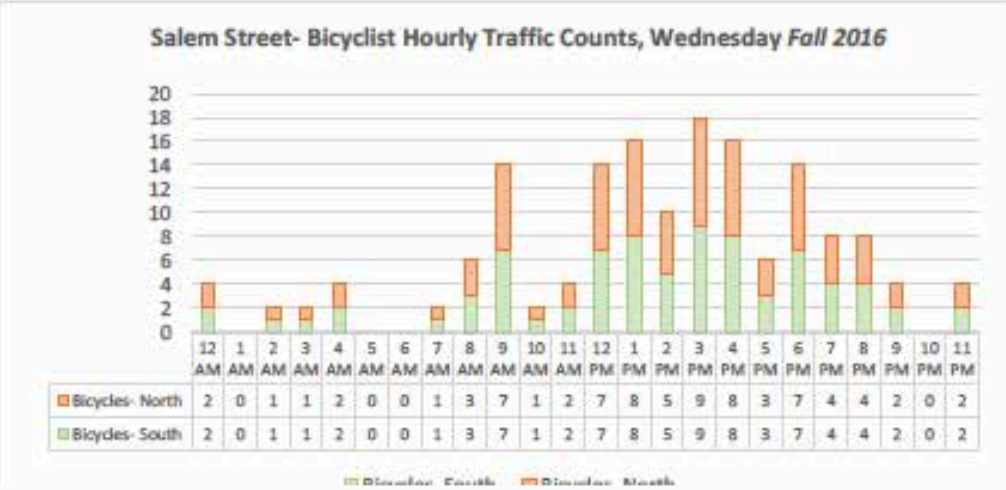
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	23	19	2	0	2	6	4	1	11	18	43	61	80	109	40	52	122	38	30	8	8	11	5	1
Pedestrian- South	21	31	6	2	2	5	2	4	21	40	47	76	66	167	54	51	111	22	20	17	19	12	2	5



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicycles- South	78	125	79	79	308	114	130
Bicycles- North	78	125	79	79	308	114	130

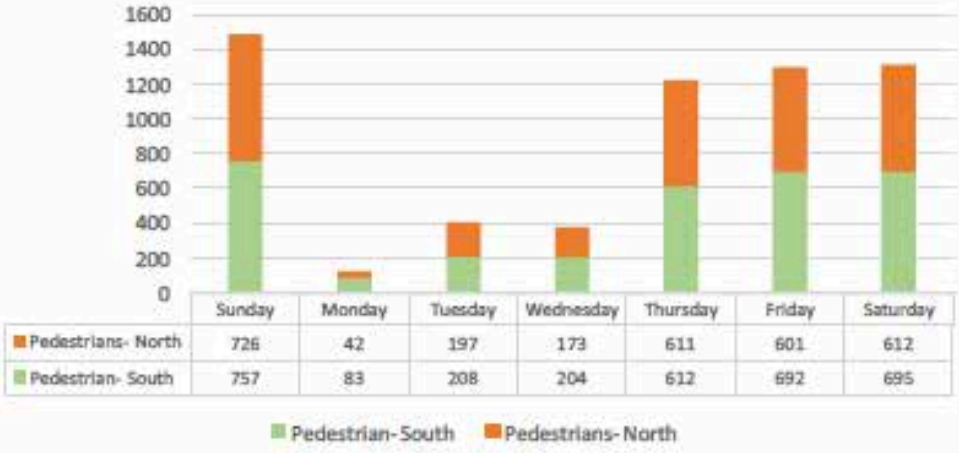


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	40	45	24	8	1	3	2	8	28	30	45	69	75	138	77	79	119	78	84	53	42	125	39	16
Pedestrian- South	25	71	20	6	1	3	2	14	21	43	81	78	92	156	98	88	119	65	103	102	25	92	39	25



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles- North	2	0	1	1	2	0	0	1	3	7	1	2	7	8	5	9	8	3	7	4	4	2	0	2
Bicycles- South	2	0	1	1	2	0	0	1	3	7	1	2	7	8	5	9	8	3	7	4	4	2	0	2

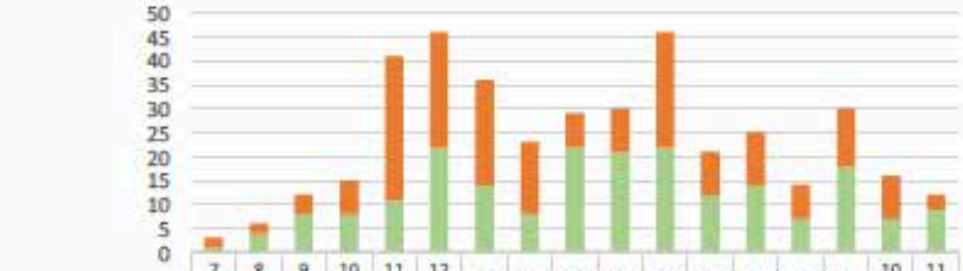
Normal Street- Pedestrian Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	726	42	197	173	611	601	612
Pedestrian- South	757	83	208	204	612	692	695

Pedestrian- South Pedestrians- North

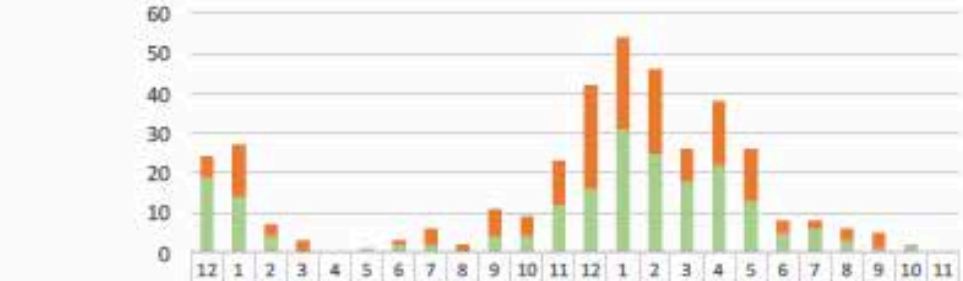
Normal Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*



	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	2	2	4	7	30	24	22	15	7	9	24	9	11	7	12	9	3
Pedestrian- South	1	4	8	8	11	22	14	8	22	21	22	12	14	7	18	7	9

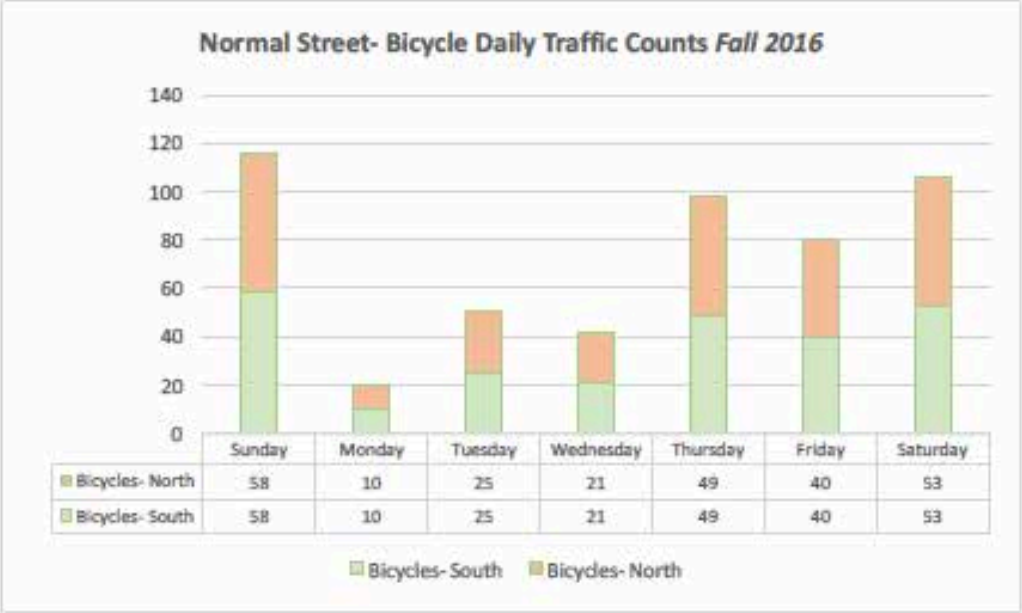
Pedestrian- South Pedestrians- North

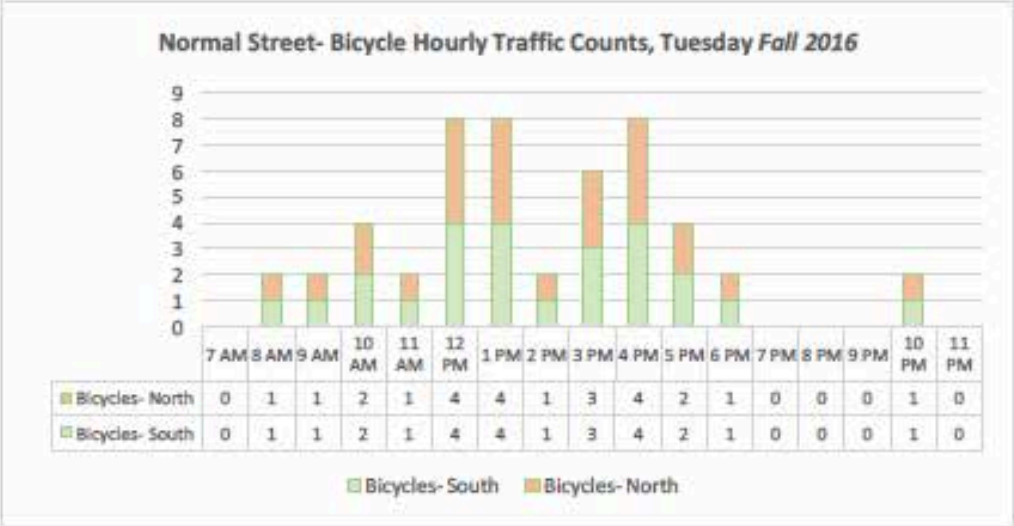
Normal Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*

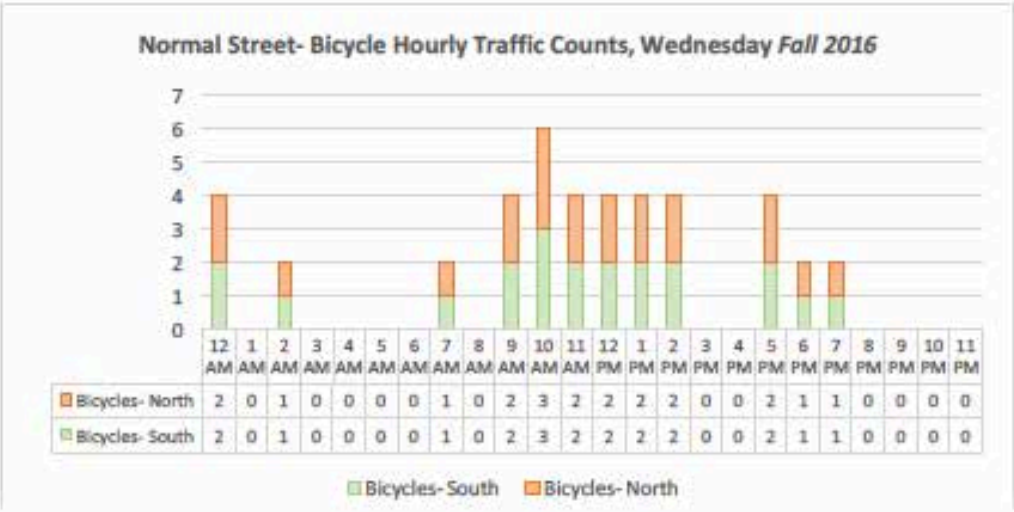


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	5	13	3	3	0	0	1	4	2	7	5	11	26	23	21	8	16	13	3	2	3	4	0	0
Pedestrian- South	19	14	4	0	0	1	2	2	0	4	4	12	16	31	25	18	22	13	5	6	3	1	2	0

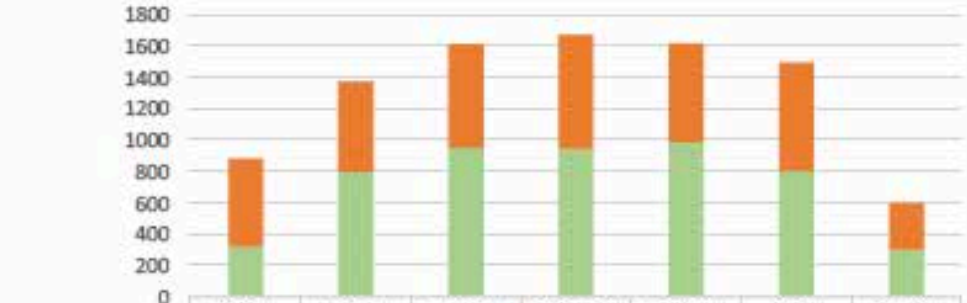
Pedestrian- South Pedestrians- North


Normal Street- Bicycle Daily Traffic Counts *Fall 2016*
140
120
100
80
60
40
20
0
Sunday Monday Tuesday Wednesday Thursday Friday Saturday
Bicycles- North 58 10 25 21 49 40 53
Bicycles- South 58 10 25 21 49 40 53
Bicycles- South
Bicycles- North


Normal Street- Bicycle Hourly Traffic Counts, Tuesday *Fall 2016*
9
8
7
6
5
4
3
2
1
0
7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 0 1 1 2 1 4 4 1 3 4 2 1 0 0 0 1 0
Bicycles- South 0 1 1 2 1 4 4 1 3 4 2 1 0 0 0 1 0
Bicycles- South
Bicycles- North


Normal Street- Bicycle Hourly Traffic Counts, Wednesday *Fall 2016*
7
6
5
4
3
2
1
0
12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 2 0 1 0 0 0 0 1 0 2 3 2 2 2 2 0 0 2 1 1 0 0 0 0
Bicycles- South 2 0 1 0 0 0 0 1 0 2 3 2 2 2 2 0 0 2 1 1 0 0 0 0
Bicycles- South
Bicycles- North

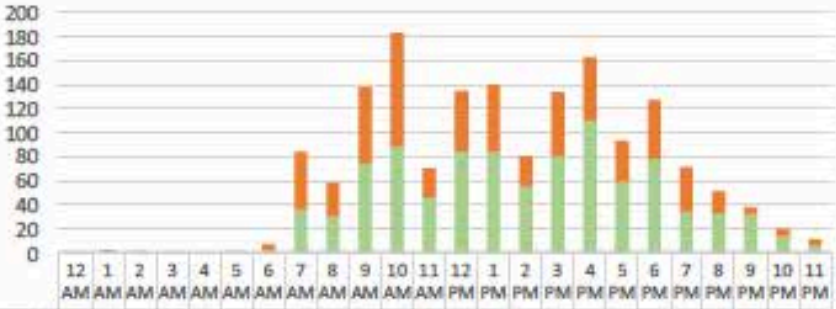
Hazel Street- Pedestrian Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	558	573	660	725	629	691	296
Pedestrian- South	321	797	947	940	982	800	302

Pedestrian- South Pedestrians- North

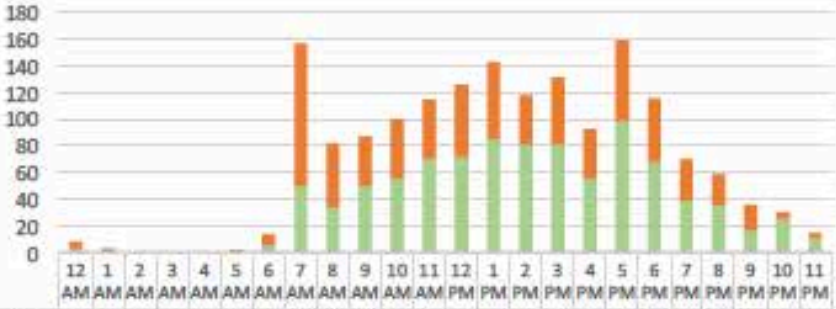
Hazel Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	0	1	1	0	0	1	5	48	28	64	95	24	50	56	25	54	53	34	49	37	18	6	6	5
Pedestrian- South	0	1	0	0	0	0	2	36	30	74	88	46	85	84	55	80	110	59	78	34	33	32	14	6

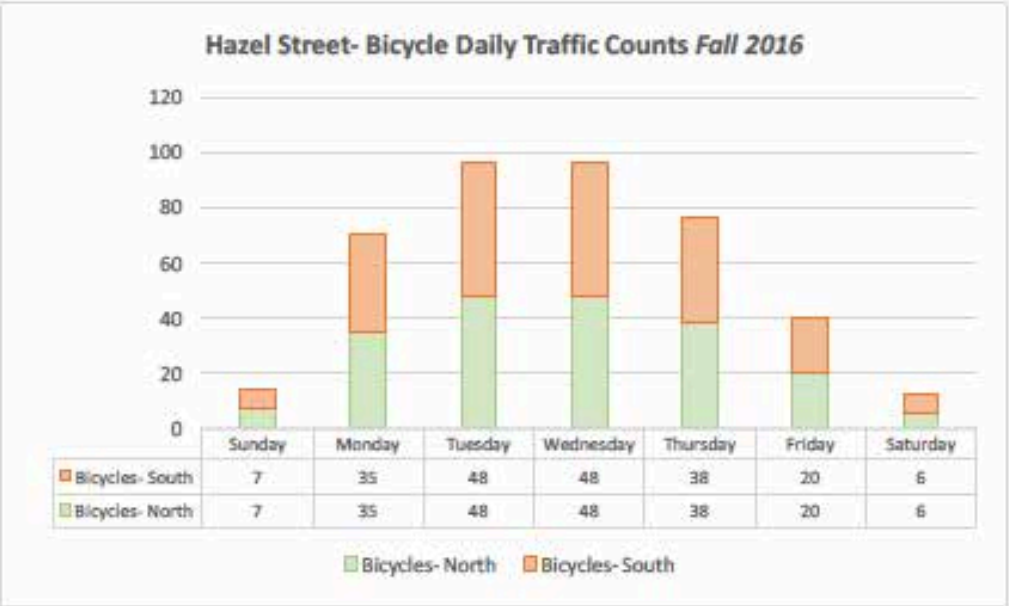
Pedestrian- South Pedestrians- North

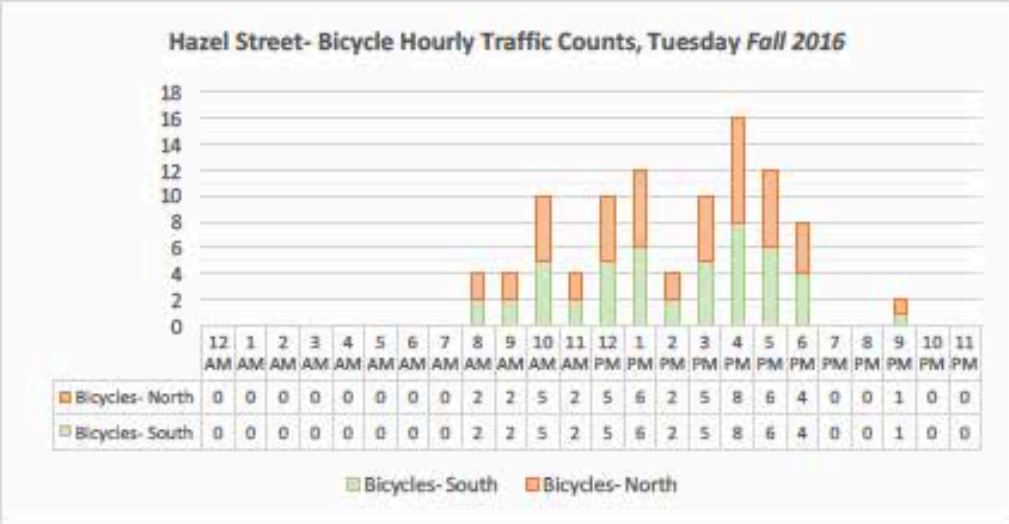
Hazel Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*

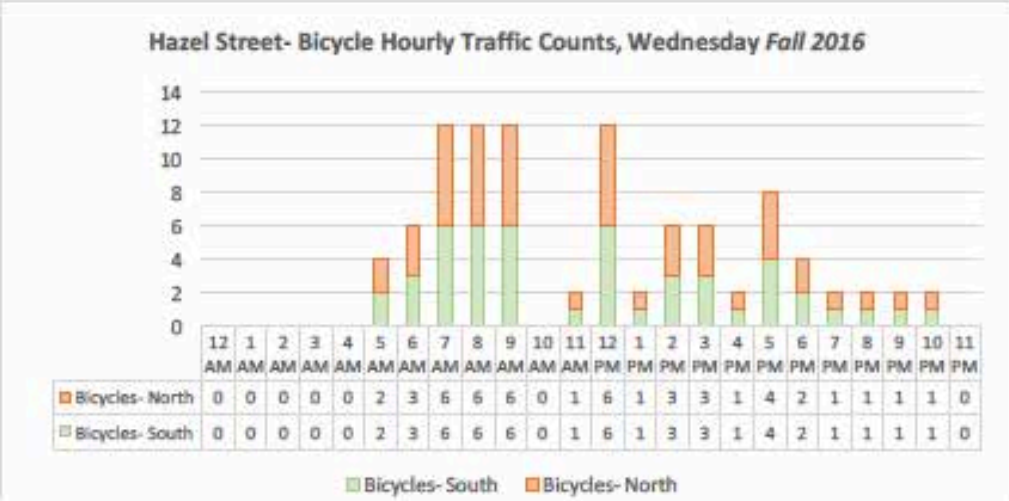


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	5	3	0	0	0	1	8	107	48	37	44	45	55	58	37	50	37	60	48	31	23	19	5	4
Pedestrian- South	3	0	1	0	0	1	6	50	34	50	56	70	71	85	81	81	56	99	68	39	36	17	25	11

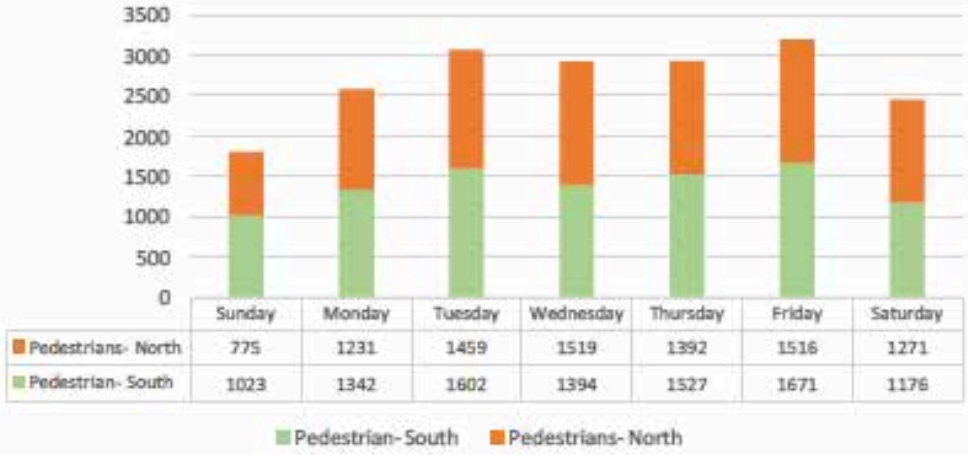
Pedestrian- South Pedestrians- North


Hazel Street- Bicycle Daily Traffic Counts *Fall 2016*
120
100
80
60
40
20
0
Sunday Monday Tuesday Wednesday Thursday Friday Saturday
Bicycles- South 7 35 48 48 38 20 6
Bicycles- North 7 35 48 48 38 20 6
Bicycles- North
Bicycles- South


Hazel Street- Bicycle Hourly Traffic Counts, Tuesday *Fall 2016*
18
16
14
12
10
8
6
4
2
0
12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 0 0 0 0 0 0 0 0 2 2 5 2 5 6 2 5 8 6 4 0 0 1 0 0
Bicycles- South 0 0 0 0 0 0 0 0 2 2 5 2 5 6 2 5 8 6 4 0 0 1 0 0
Bicycles- South
Bicycles- North


Hazel Street- Bicycle Hourly Traffic Counts, Wednesday *Fall 2016*
14
12
10
8
6
4
2
0
12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 0 0 0 0 0 2 3 6 6 6 0 1 6 1 3 3 1 4 2 1 1 1 1 0
Bicycles- South 0 0 0 0 0 2 3 6 6 6 0 1 6 1 3 3 1 4 2 1 1 1 1 0
Bicycles- South
Bicycles- North

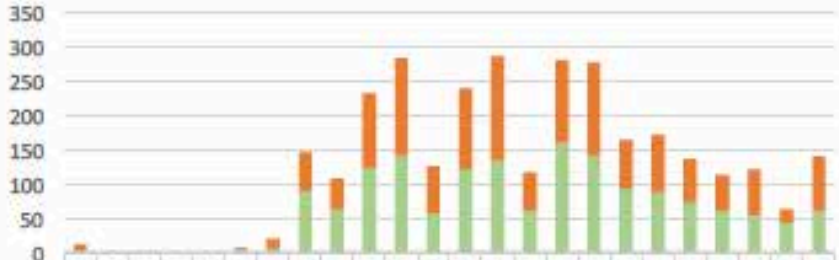
Ivy Street- Pedestrian Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	775	1231	1459	1519	1392	1516	1271
Pedestrian- South	1023	1342	1602	1394	1527	1671	1176

Pedestrian- South Pedestrians- North

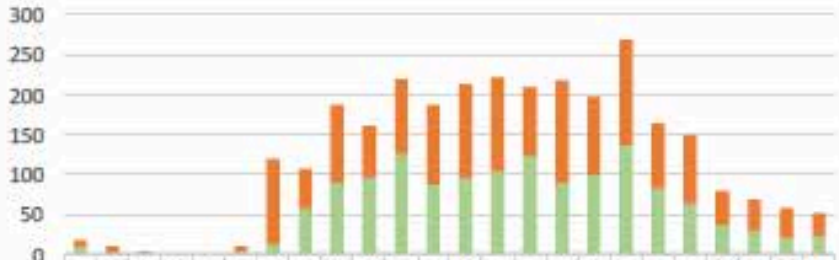
Ivy Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	8	0	0	0	0	2	14	57	45	109	141	68	118	152	55	120	135	71	84	63	52	67	19	79
Pedestrian- South	4	2	2	0	1	6	6	90	64	124	143	58	122	135	62	161	143	94	88	74	62	55	45	61

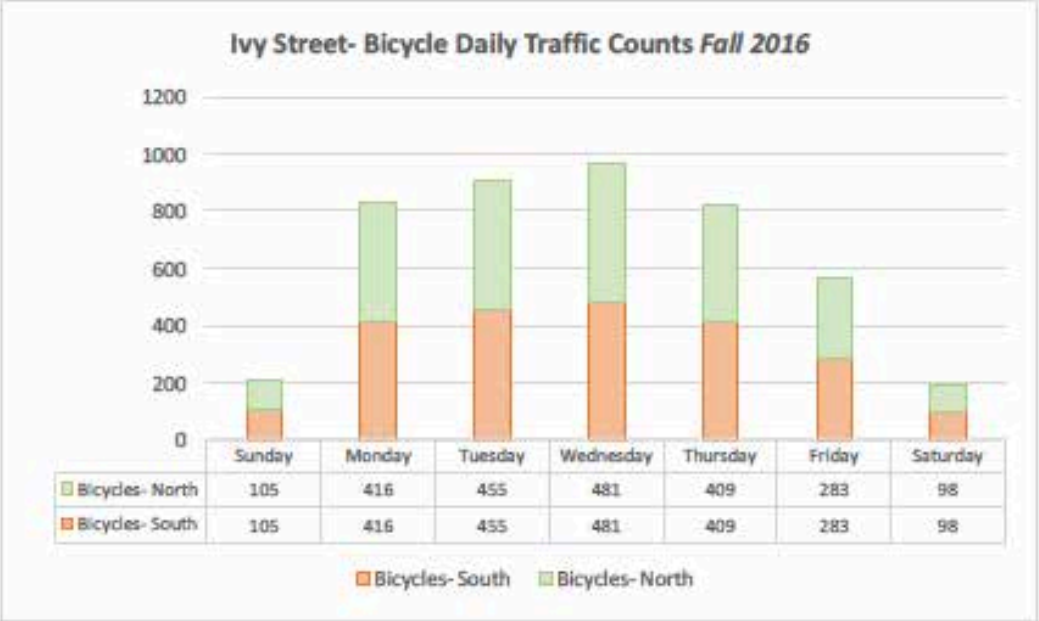
Pedestrian- South Pedestrians- North

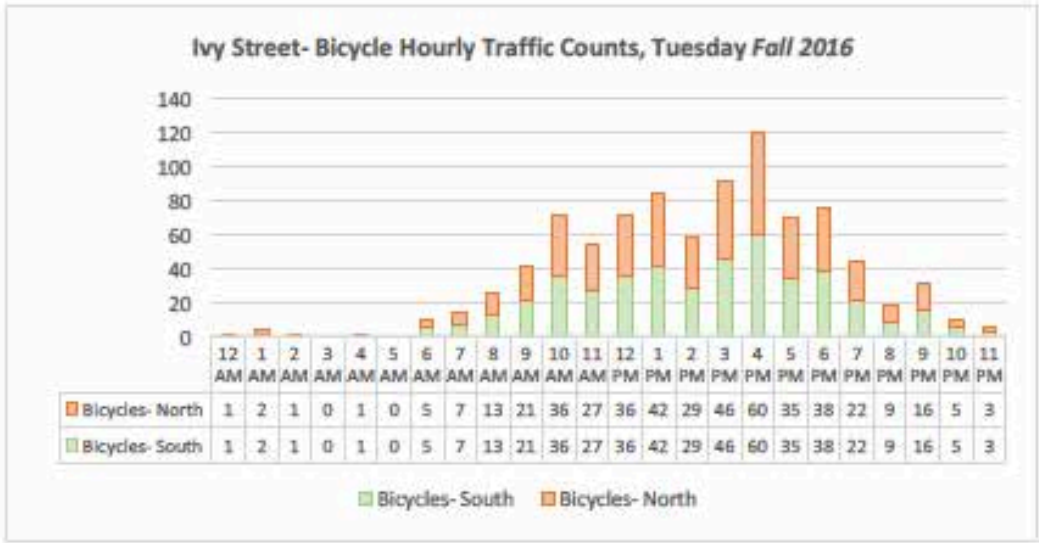
Ivy Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*

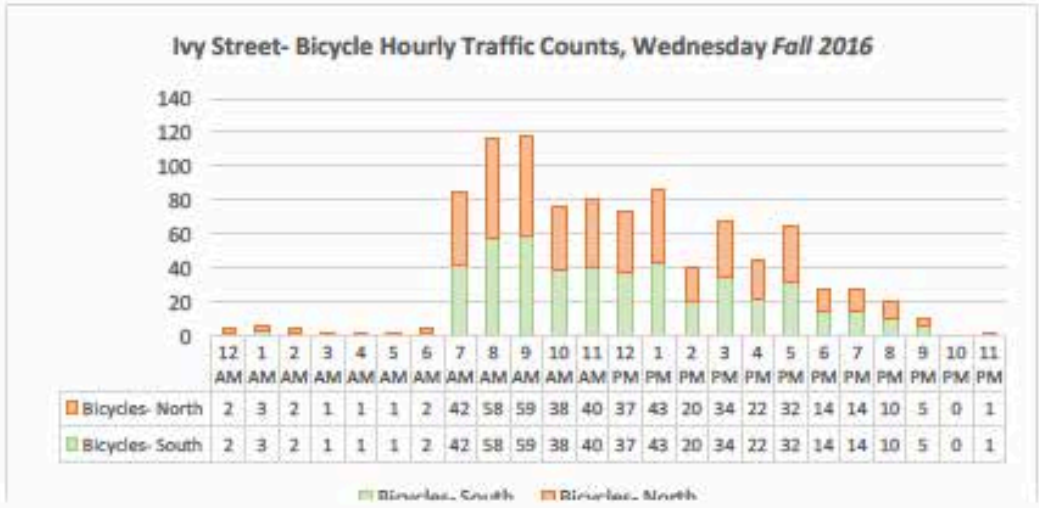


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	7	10	2	0	0	6	106	49	96	65	92	98	117	118	86	127	97	131	82	85	42	38	37	28
Pedestrian- South	10	0	1	0	0	4	13	58	90	96	127	88	96	104	123	90	100	137	82	64	37	30	21	23

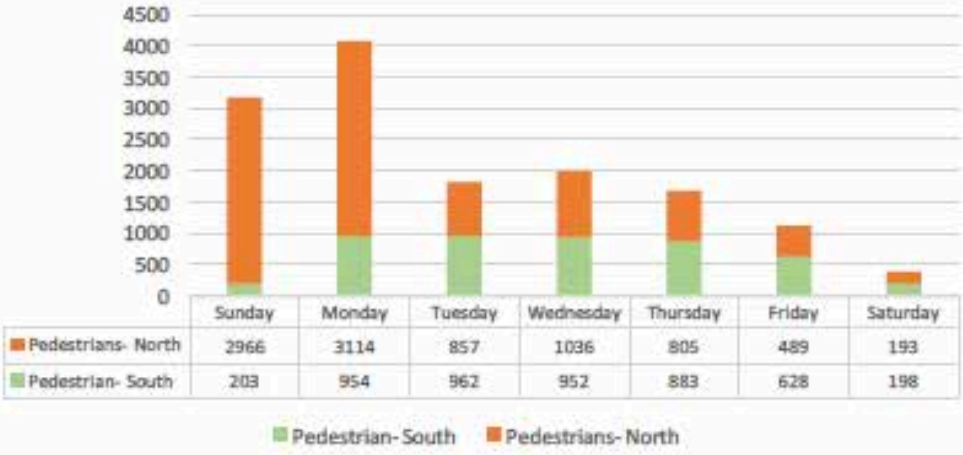
Pedestrian- South Pedestrians- North


Ivy Street- Bicycle Daily Traffic Counts *Fall 2016*
1200
1000
800
600
400
200
0
Sunday Monday Tuesday Wednesday Thursday Friday Saturday
Bicycles- North 105 416 455 481 409 283 98
Bicycles- South 105 416 455 481 409 283 98
Bicycles- South
Bicycles- North


Ivy Street- Bicycle Hourly Traffic Counts, Tuesday *Fall 2016*
140
120
100
80
60
40
20
0
12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 1 2 1 0 1 0 5 7 13 21 36 27 36 42 29 46 60 35 38 22 9 16 5 3
Bicycles- South 1 2 1 0 1 0 5 7 13 21 36 27 36 42 29 46 60 35 38 22 9 16 5 3
Bicycles- South
Bicycles- North


Ivy Street- Bicycle Hourly Traffic Counts, Wednesday *Fall 2016*
140
120
100
80
60
40
20
0
12 AM 1 AM 2 AM 3 AM 4 AM 5 AM 6 AM 7 AM 8 AM 9 AM 10 AM 11 AM 12 PM 1 PM 2 PM 3 PM 4 PM 5 PM 6 PM 7 PM 8 PM 9 PM 10 PM 11 PM
Bicycles- North 2 3 2 1 1 1 2 42 58 59 38 40 37 43 20 34 22 32 14 14 10 5 0 1
Bicycles- South 2 3 2 1 1 1 2 42 58 59 38 40 37 43 20 34 22 32 14 14 10 5 0 1

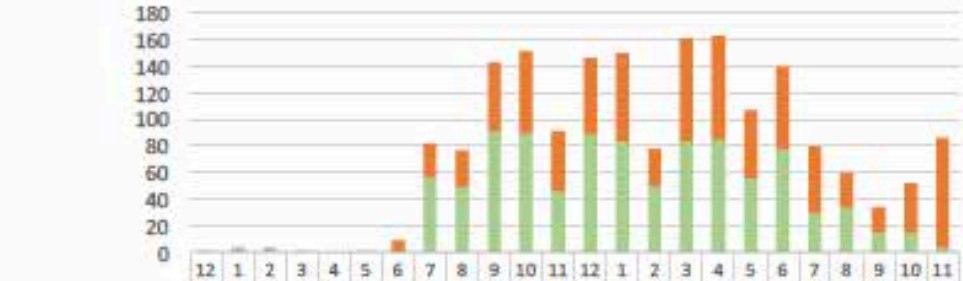
Cherry Street- Pedestrian Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	2966	3114	857	1036	805	489	193
Pedestrian- South	203	954	962	952	883	628	198

Pedestrian- South Pedestrians- North

Cherry Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*



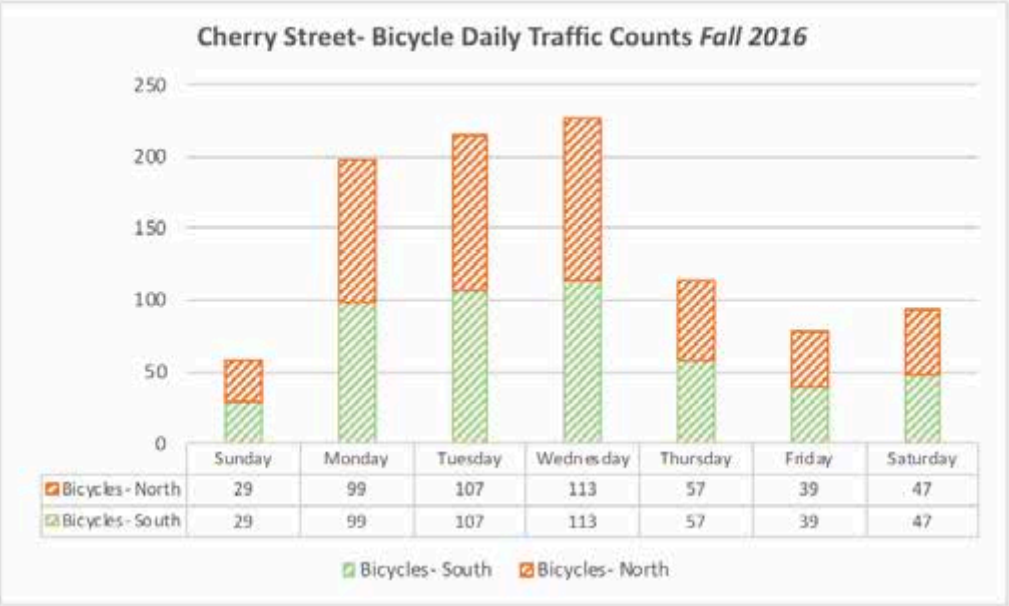
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	1	1	1	1	0	1	8	25	28	52	61	45	57	66	28	77	78	51	62	50	26	19	37	82
Pedestrian- South	0	2	2	0	0	0	1	57	49	91	90	46	89	84	50	84	85	56	78	30	34	15	15	4

Pedestrian- South Pedestrians- North

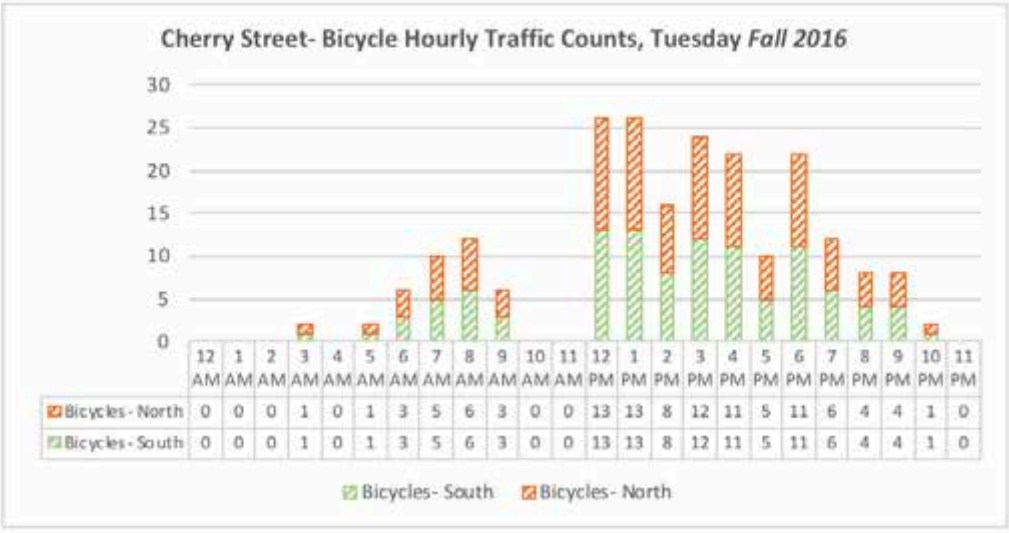
Cherry Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	34	30	37	1	30	40	15	61	77	60	53	48	51	60	45	64	73	49	49	25	44	42	29	19
Pedestrian- South	3	0	0	1	0	2	9	63	78	77	64	65	70	67	83	65	75	73	64	23	26	28	11	5

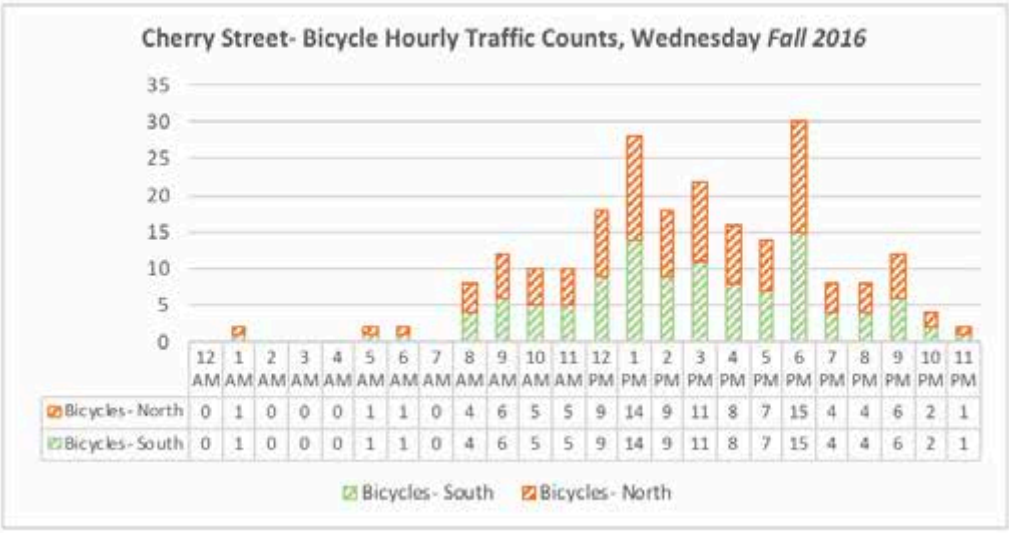
Pedestrian- South Pedestrians- North



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicycles - North	29	99	107	113	57	39	47
Bicycles - South	29	99	107	113	57	39	47

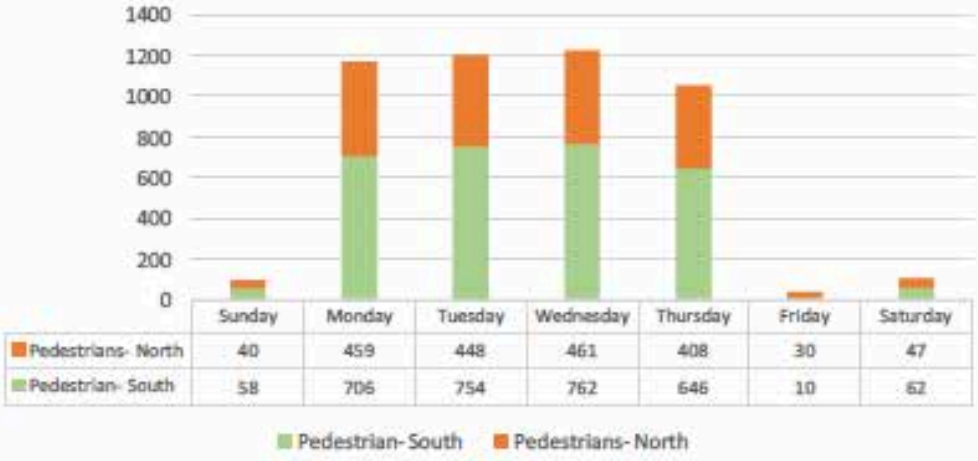


	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles - North	0	0	0	1	0	1	3	5	6	3	0	0	13	13	8	12	11	5	11	6	4	4	1	0
Bicycles - South	0	0	0	1	0	1	3	5	6	3	0	0	13	13	8	12	11	5	11	6	4	4	1	0



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles - North	0	1	0	0	0	1	1	0	4	6	5	5	9	14	9	11	8	7	15	4	4	6	2	1
Bicycles - South	0	1	0	0	0	1	1	0	4	6	5	5	9	14	9	11	8	7	15	4	4	6	2	1

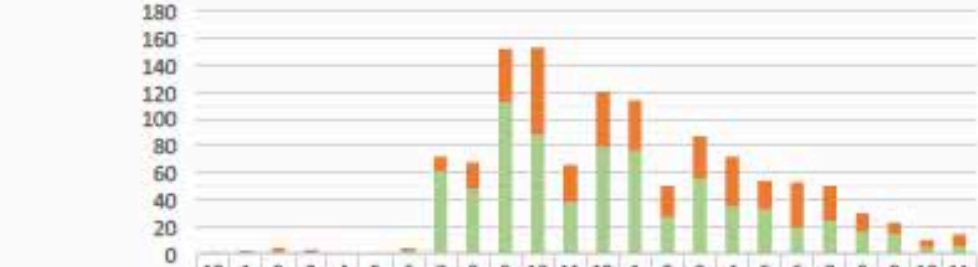
Orange Street- Pedestrian Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	40	459	448	461	408	30	47
Pedestrian- South	58	706	754	762	646	10	62

Pedestrian- South Pedestrians- North

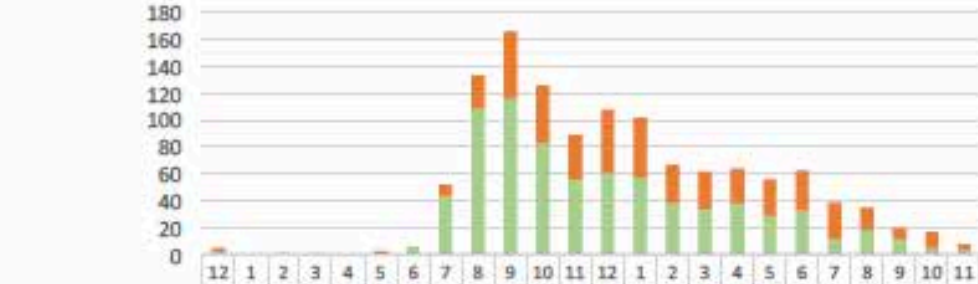
Orange Street- Pedestrian Hourly Traffic Counts, Tuesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	0	1	2	3	0	0	1	10	19	39	64	27	41	37	23	31	37	21	33	25	13	8	5	8
Pedestrian- South	1	1	2	0	0	0	3	62	49	113	89	39	79	77	27	56	35	33	20	25	17	15	5	6

Pedestrian- South Pedestrians- North

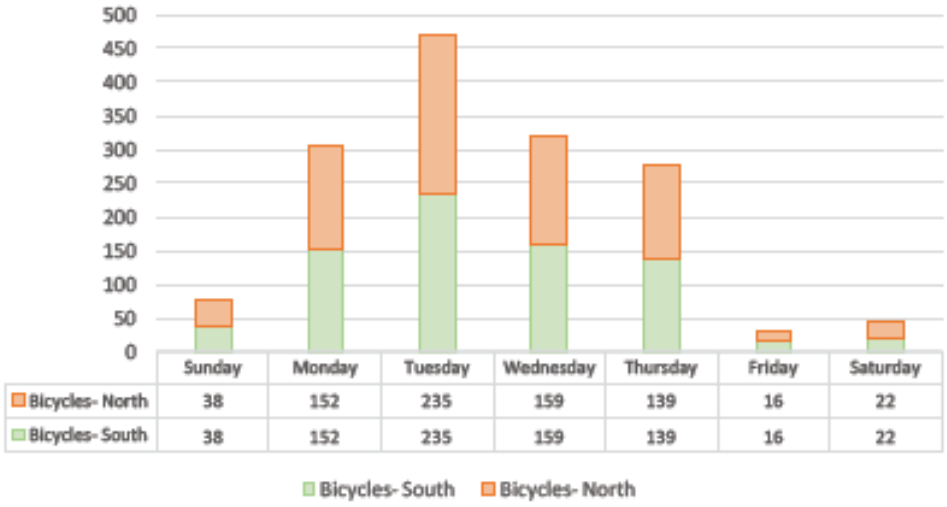
Orange Street- Pedestrian Hourly Traffic Counts, Wednesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	2	0	1	0	0	2	0	8	24	50	43	33	47	45	28	28	26	27	30	27	16	8	12	4
Pedestrian- South	3	0	0	1	0	1	6	44	109	116	83	56	61	57	39	34	38	29	33	12	19	12	5	4

Pedestrian- South Pedestrians- North

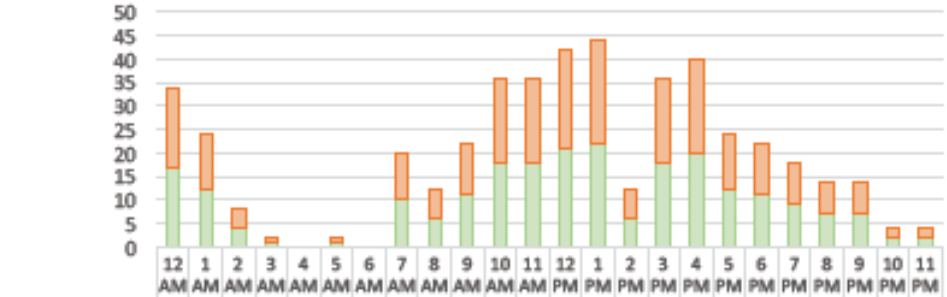
Orange Street- Bicycle Daily Traffic Counts *Fall 2016*



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicycles- North	38	152	235	159	139	16	22
Bicycles- South	38	152	235	159	139	16	22

Bicycles- South Bicycles- North

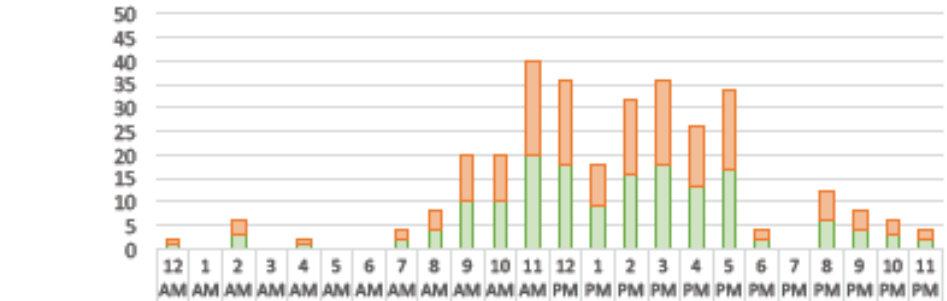
Orange Street- Bicycle Hourly Traffic Counts, Tuesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles- North	17	12	4	1	0	1	0	10	6	11	18	18	21	22	6	18	20	12	11	9	7	7	2	2
Bicycles- South	17	12	4	1	0	1	0	10	6	11	18	18	21	22	6	18	20	12	11	9	7	7	2	2

Bicycles- South Bicycles- North

Orange Street- Bicycle Hourly Traffic Counts, Wednesday *Fall 2016*



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles- North	1	0	3	0	1	0	0	2	4	10	10	20	18	9	16	18	13	17	2	0	6	4	3	2
Bicycles- South	1	0	3	0	1	0	0	2	4	10	10	20	18	9	16	18	13	17	2	0	6	4	3	2

Bicycles- South Bicycles- North

Pedestrian Data

The PYRO-Boxes collected directional data on pedestrian traffic flow. This data has helped determine which streets have the highest traffic use. Ivy Street has the highest count (18,898) with Chestnut Street having the second highest (15,360). Salem Street (14,611) and Cherry Street (14,240) closely tied for third. Identifying the streets with the highest pedestrian and bicycle traffic will be useful in determining which street(s) would be the best locations for Complete Street multimodal street design and other infrastructure redevelopment.

Ivy Street experienced the highest pedestrian traffic count (18,898). Ivy Street is designated as a collector street by the Chico 2030 General Plan. Collectors typically have a higher volume of traffic as they serve as the link between arterials and local streets. Additionally, Ivy Street is the only north-south street in the area that allows vehicle traffic to pass through campus which helps to explain its high traffic volume. Ivy Street is named Warner Street north of Big Chico Creek when runs in an east-west direction through campus. Ivy/Warner Street has many student services located on it, such as the WREC, library, and health clinic. These services and its status as the only passage for vehicles through campus contribute to the high traffic volume. Data shows that the counts for INs/north (9,163) and OUTs/south (9,735) were nearly the same, suggesting that as many pedestrians travel towards campus as travel away from campus, and perhaps many are the same people at different times of day.

Chestnut Street experienced the second highest pedestrian traffic (15,360), which is surprising as it had the lowest bicycle traffic. The number of pedestrians traveling north to campus (INs at 7,337) and south from campus (OUTs at 8,023) was fairly close. The popularity of this street may be due to its position as a pedestrian gateway to the center of campus. In addition, Chestnut Street is near the campus police station located at the intersection of West 2nd and Chestnut Streets. It is noteworthy to disclose that at the south boundary of the South Campus Neighborhood, Chestnut Street has a bridge which goes over Little Chico Creek; the two neighboring streets do not, and pedestrians may be relying on Chestnut Street to travel to campus.

Data for Cherry Street does not follow the pattern of the two previous streets. Total pedestrian traffic was counted at 14,240. The north-bound traffic to campus (INs at 9,460) and south-bound traffic from campus (OUTs at 4,780) are very different. Only one other street experienced a large difference between the northbound (INs) and southbound (OUTs) pedestrian traffic. This was Orange Street; both Cherry and Orange Streets are located west of Ivy Street and east of the railroad tracks.

Bicyclist Data

BICYCLIST DATA CHART, WAITING ON CHESTNUT STREET DATA

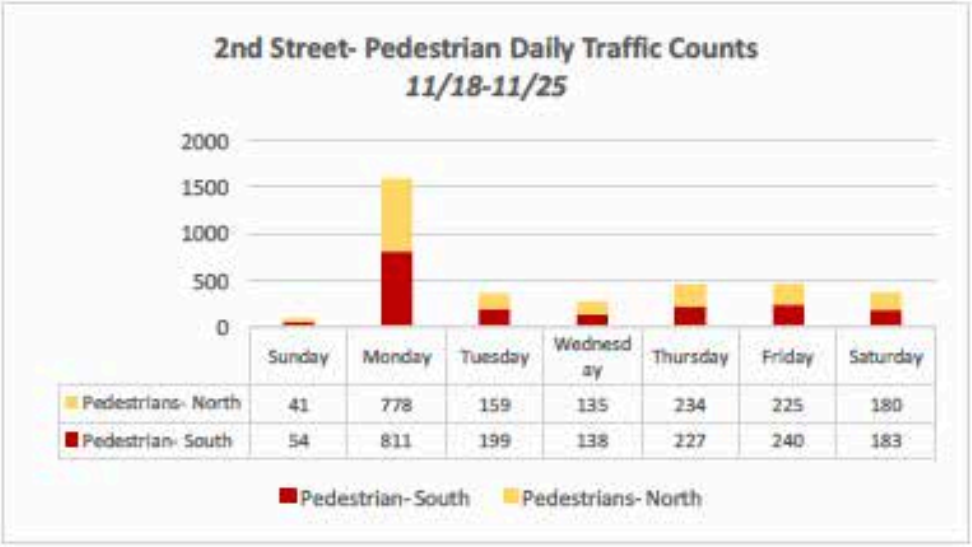
The pneumatic TUBEs were used to count bicyclist traffic. The TUBEs reached across the entire span of Orange Street, but only reached across half of the remaining streets. For the remaining streets the TUBEs were installed on the west side of the street from Friday to Tuesday and on Tuesday morning were moved to the east side of the street. As the TUBEs were unable to collect data on half the street for any given time, every bicyclist count added a count to the opposite direction. For example, a counted IN would miss the TUBEs when travelling back in the opposite direction, so the OUT was given a count as well.

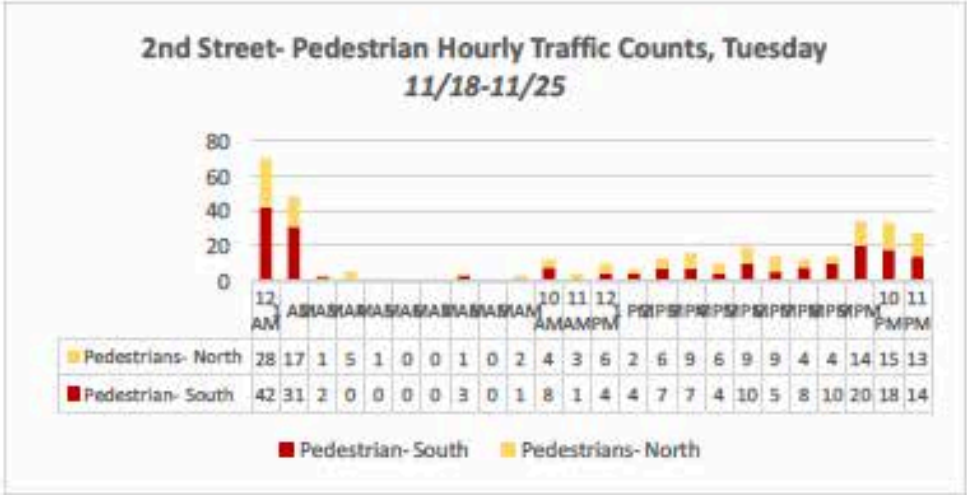
Data from the TUBEs varied much more than the PYRO-Boxes' pedestrian data. Ivy Street had the highest traffic count (2,247) with Salem Street coming in second (913) and Orange Street in third (761). Chestnut Street had the lowest traffic count (107), which was unexpected considering it had the second highest pedestrian traffic count.

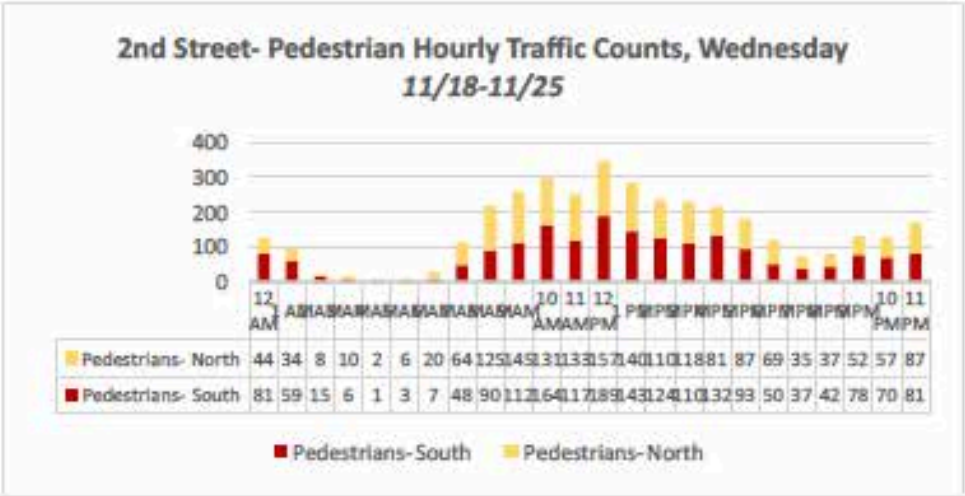
South of West 2nd Street, Ivy Street does not have any bicycle infrastructure (Editor's Note: buffered bike lanes were added to both sides of Ivy Street from West 2nd Street to 10th Street in the Spring of 2017), has few stop signs, but has a pedestrian crosswalk at Highway 32 (8th and 9th Streets) as well as a bridge across Little Chico Creek to the south of the SCN. However, there is bicycle infrastructure on Ivy to the north of West 2nd Street and north of Big Chico Creek where Ivy changes to Warner Street. The bike lane runs on both sides of Ivy/Warner Street from West 2nd Street to West 4th Avenue to the north. Ivy Street (and by extension, Warner Street) connects many of the surrounding areas. Salem Street does have bicycle

infrastructure running along it, from West 2nd Street to Little Chico Creek, just south of West 9th Street. Orange Street does not have any bicycle infrastructure on it; the higher bicyclist traffic may be due to its proximity to Walnut Street and Highway 32.

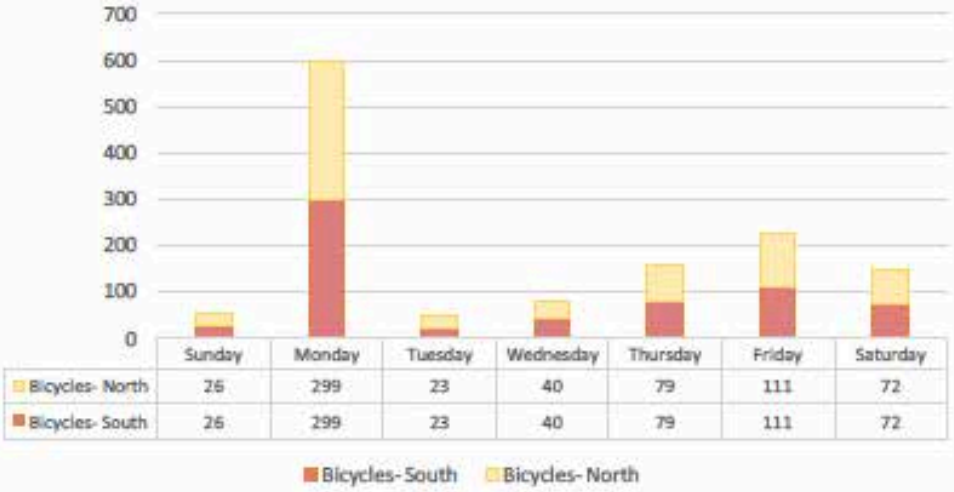
2nd Street Data





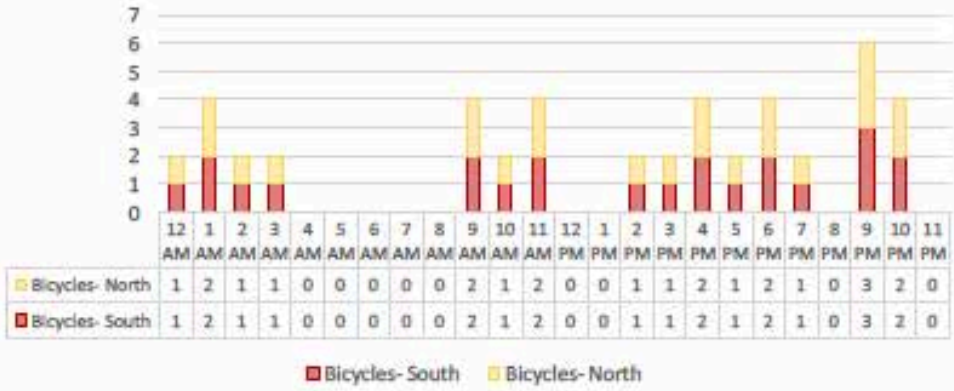


2nd Street- Bicycle Daily Traffic Counts
11/18-11/25



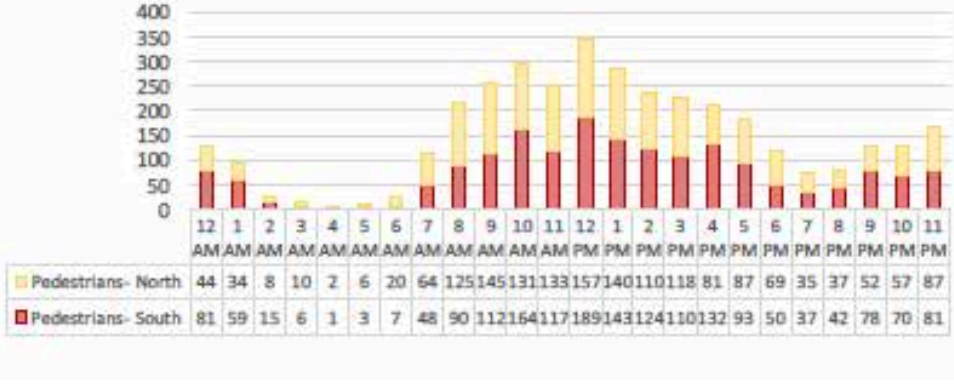
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicycles- North	26	299	23	40	79	111	72
Bicycles- South	26	299	23	40	79	111	72

2nd Street- Bicycle Hourly Traffic Counts, Tuesday
11/18-11/25



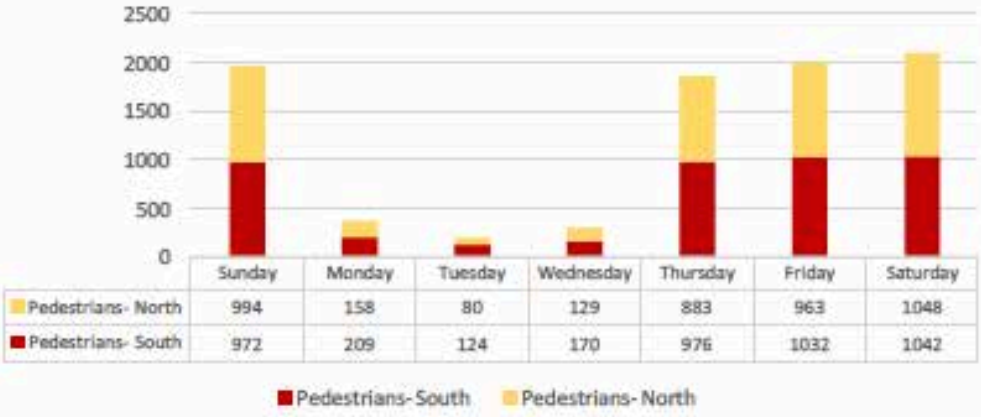
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicycles- North	1	2	1	1	0	0	0	0	0	2	1	2	0	0	1	1	2	1	2	1	0	3	2	0
Bicycles- South	1	2	1	1	0	0	0	0	0	2	1	2	0	0	1	1	2	1	2	1	0	3	2	0

2nd Street- Bicycle Hourly Traffic Counts, Wednesday
11/18-11/25



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	44	34	8	10	2	6	20	64	125	145	131	133	157	140	110	118	81	87	69	35	37	52	57	87
Pedestrians- South	81	59	15	6	1	3	7	48	90	112	164	117	189	143	124	110	132	93	50	37	42	78	70	81

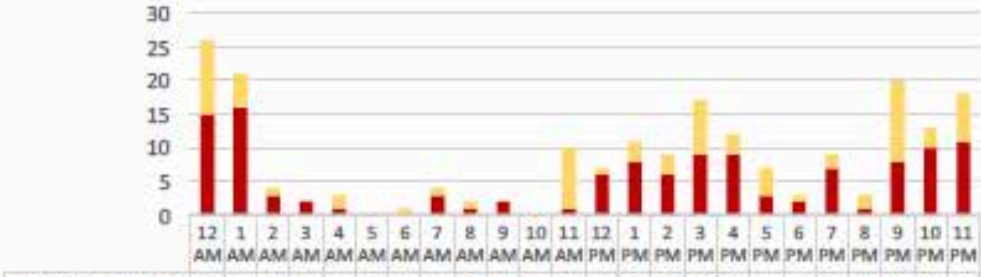
2nd Street- Pedestrian Daily Traffic Counts
11/25 - 12/2



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pedestrians- North	994	158	80	129	883	963	1048
Pedestrians- South	972	209	124	170	976	1032	1042

Pedestrians- South Pedestrians- North

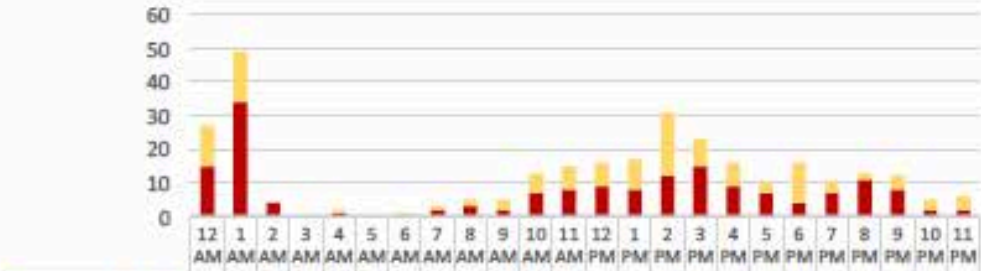
2nd Street- Pedestrian Hourly Traffic Counts, Tuesday
11/25-12/2



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	11	5	1	0	2	0	1	1	1	0	0	9	1	3	3	8	3	4	1	2	2	12	3	7
Pedestrians- South	15	16	3	2	1	0	0	3	1	2	0	1	6	8	6	9	9	3	2	7	1	8	10	11

Pedestrians- South Pedestrians- North

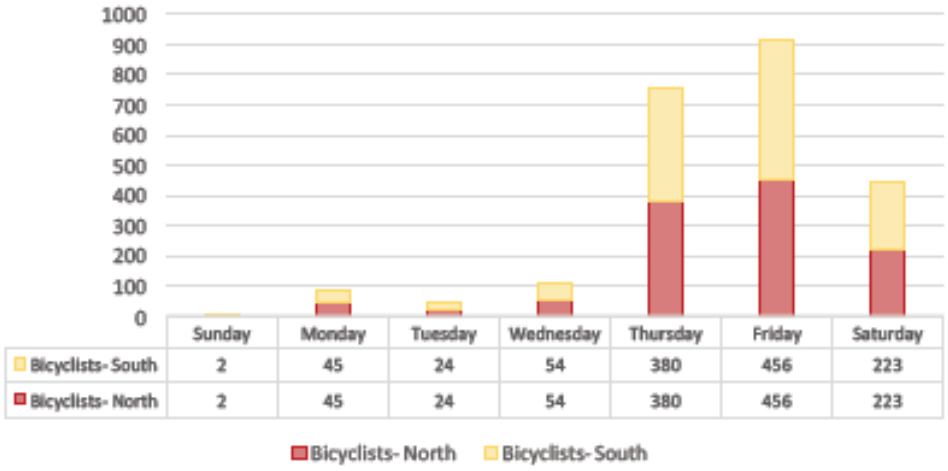
2nd Street- Pedestrian Hourly Traffic Counts, Wednesday
11/25-12/2



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Pedestrians- North	12	15	0	0	1	0	1	1	2	3	6	7	7	9	19	8	7	3	12	3	2	4	3	4
Pedestrians- South	15	34	4	0	1	0	0	2	3	2	7	8	9	8	12	15	9	7	4	7	11	8	2	2

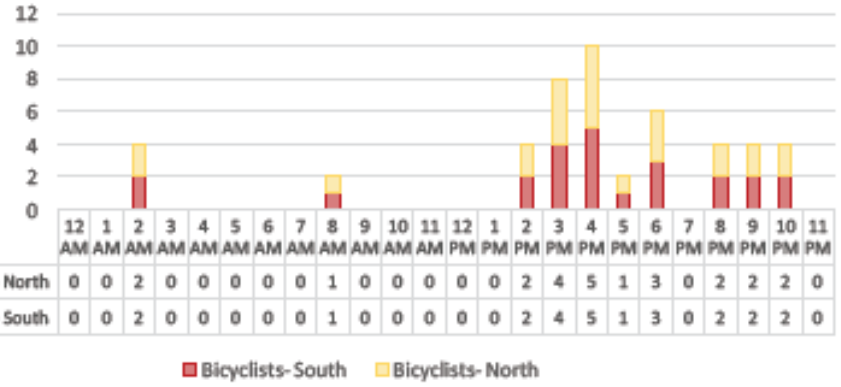
Pedestrians- South Pedestrians- North

2nd Street- Bicycle Daily Traffic Counts
11/25 - 12/2



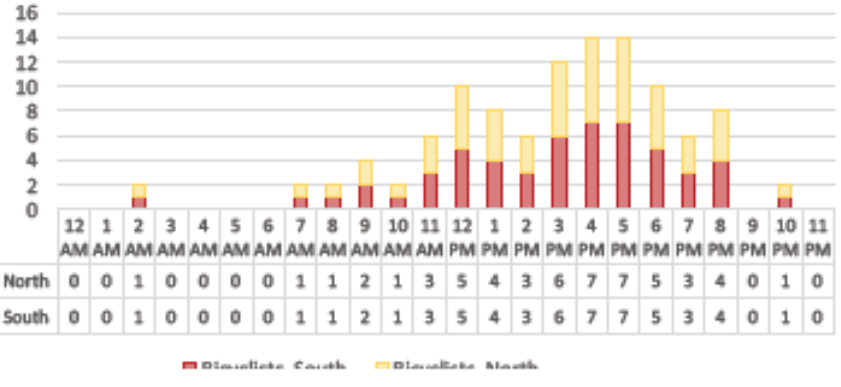
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Bicyclists- South	2	45	24	54	380	456	223
Bicyclists- North	2	45	24	54	380	456	223

2nd Street- Bicycle Hourly Traffic Counts, Tuesday
11/25-12/2



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicyclists- North	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	4	5	1	3	0	2	2	2	0
Bicyclists- South	0	0	2	0	0	0	0	0	1	0	0	0	0	0	2	4	5	1	3	0	2	2	2	0

2nd Street- Bicycle Hourly Traffic Counts, Wednesday
11/25-12/2



	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM
Bicyclists- North	0	0	1	0	0	0	0	1	1	2	1	3	5	4	3	6	7	7	5	3	4	0	1	0
Bicyclists- South	0	0	1	0	0	0	0	1	1	2	1	3	5	4	3	6	7	7	5	3	4	0	1	0

Pedestrian Data					
Street	**Dates**	**INs**	**OUTs**	**Total**	**Busiest Day(s)**
West 2nd (Thanksgiving Break)	11/18 - 11/25	1,752	1,852	3,604	Friday
West 2nd (School Week)	11/25 - 12/2	4,255	4,525	8,780	Wednesday

Bicycle Data					
Street	**Dates**	**INs**	**OUTs**	**Total**	**Busiest Day(s)**
West 2nd (Thanksgiving Break)	11/18 - 11/25	650	650	1,300	Friday
West 2nd (School Week)	11/25 - 12/2	1,184	1,184	2,368	Tuesday

Data for West 2nd Street was collected for a two-week period. The first week was during Chico State's Thanksgiving Break. The second week was the following week when classes at Chico State resumed. This was done to compare traffic data between a typical school week and a vacation week on an arterial street near campus. West 2nd Street data will only be compared against itself and will not be compared to the other seven streets in this study.

Discussion

Recommendations for Continued Analysis

The data gathered from this study provides a week-long snapshot of directional data about pedestrian and bicycle traffic flow in the South Campus Neighborhood for each of the seven streets. Additionally, it provides week-long directional, comparative data about the east-west flow of pedestrians and bicyclists during the semester and break along West 2nd Street. The high number of pedestrians and steady flow of bicyclists to and from campus indicate that the neighborhood would benefit for a Complete Streets approach to developing multimodal transportation options that improve bicycle and pedestrian infrastructure in this neighborhood. This element, in connection with the other data that has been collected for the South Campus Neighborhood Project will provide valuable information to guide the planning process in a way that will benefit the greatest number of people, foster the goals of the Circulation Element of the 2030 Chico General Plan and create a safer, more livable neighborhood. Redeveloping infrastructure in the popular streets would provide the benefit to the highest number of people. Additionally, longer studies may be necessary before making a decision on future infrastructure improvements. Particular streets are recommended for further study for planning and design, based on various factors. Pedestrian and bicycle data will have their own recommendations. During this study vehicular traffic was not counted; this data, if available, may play an important role in the decision-making process.

Pedestrian data shows that the three streets with the most pedestrian traffic were Ivy, Chestnut, and Salem Streets. Salem Street, however, has fairly good pedestrian infrastructure. In its place, Cherry Street is recommended to be examined. These three streets (Ivy, Chestnut, and Cherry Streets) are a place to target for the public planning process. The current quality of pedestrian infrastructure is important to keep in mind, as some streets are better preserved than others. Some major examples of infrastructure to

note are sidewalk quality, street light location, sidewalk ramp quality, presence of crosswalks, and location of stop and/or yield signs.

The three streets with highest bicycle traffic are Ivy, Salem, and Orange Streets. Salem Street currently has bike lanes; however, Ivy and Orange Streets do not (Editor's Note: Ivy Street does have proper bicycle infrastructure as of the Spring of 2017 as noted previously in this element). These streets should be further researched for bike lane compatibility and feasibility. Chestnut Street has been recommended as a potential bike lane, due to it having bridge access at West 9th Street. Data from this study shows that Chestnut Street experienced the least amount of bicycle traffic among all of the streets. This may be due to the lack of stop or yield signs to control vehicular traffic which tends to travel at a high rate of speed from east to west. Further research into this street is strongly recommended. Why do so few bicyclists use this street? Currently, the streets adjacent to Chestnut Street (Hazel Street and Normal Ave) do not have bridge access over Little Chico Creek. To travel from West 10th Street to West 9th Street, bicyclists must use Chestnut, Salem, or Ivy Streets. This may cause bicyclists to travel along Salem Street and Ivy Street, as they have better bicycle infrastructure than Chestnut Street.

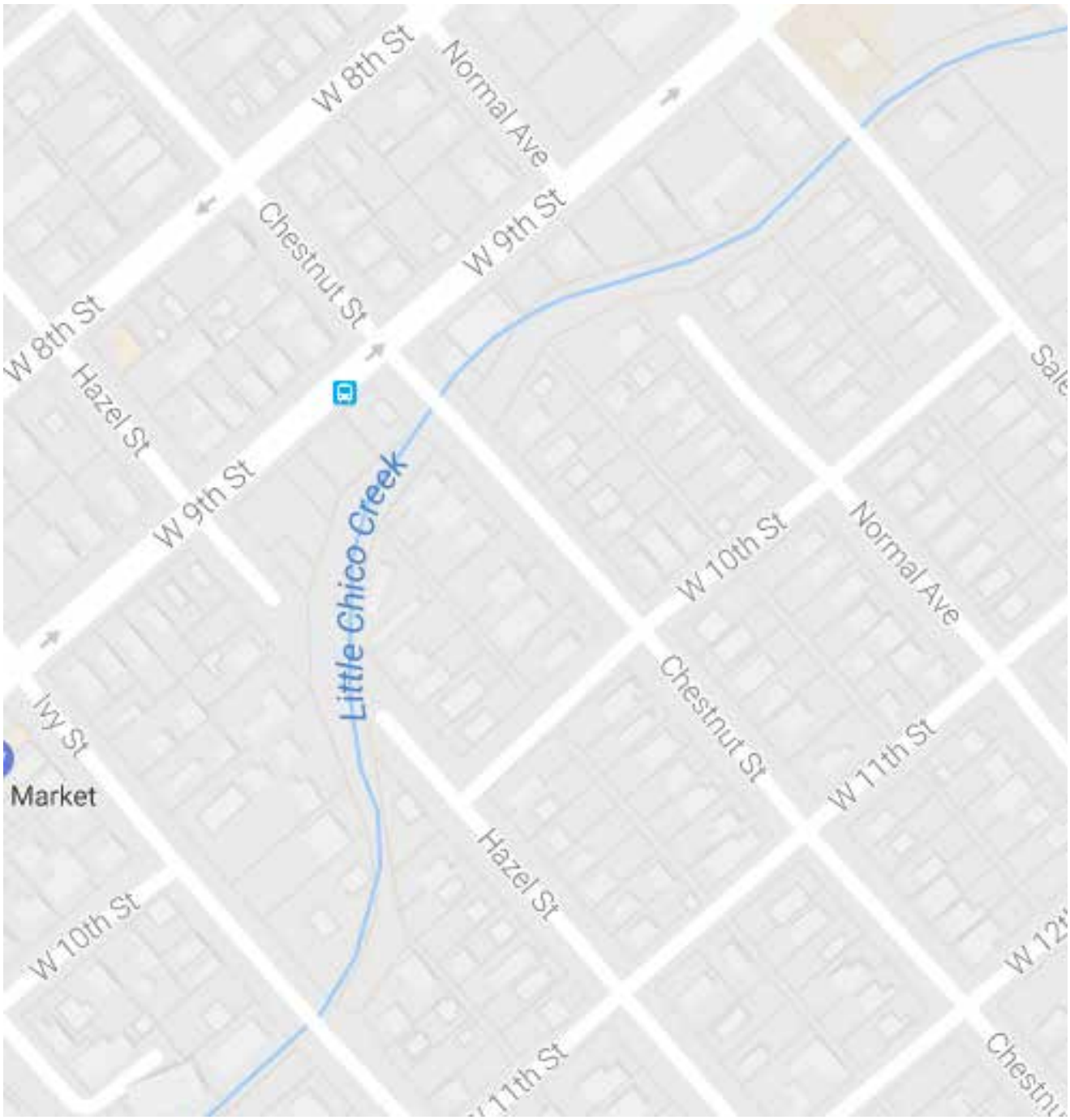


Figure 6: *Lack of bridge access on Hazel Street and Normal Street diverts traffic to adjacent streets.*

Recommendations for Potential Actions

The Circulation Element of Chico's General Plan supports infrastructure improvement in areas like the South Campus Neighborhood. Policy CIRC-2.1 reinforces the development of Complete Streets. The Chico General Plan defines Complete Streets as "an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the roles of the street as a public space that unites the city." Under this policy, Action CIRC-2.1.2 prioritizes retrofitting existing streets to Complete Streets "in locations that will improve the overall connectivity of the city's network of bicycle and pedestrian facilities or result in increased safety." Action CIRC-2.1.3 helps provide bicycles and pedestrians with connections between and within existing neighborhoods. To add to this, Policy CIRC-3.2 encourages CSUC to implement safe bicycle access in areas around the main campus area. This element contains other policies and actions that support redevelopment in the project area, such as Action CIRC-2.2.3 (Traffic-Calming Measures), Action CIRC-2.2.4 (Safe Routes to Schools), and Policy CIRC-3.1 (Bikeway Master Plan). The language in the Circulation Element does not require any redevelopment to be taken; all mandatory policies and actions apply to new development and redevelopment. However, the Circulation Element does support increasing pedestrian and bicyclist safety if the necessary funding is available.

Institute for Sustainable Development

California State University, Chico