

PARKING AT BUTLER: ACHIEVING THE TRIPLE BOTTOM LINE

Prepared for:
The Butler University
Parking Committee

Prepared by:
The Students of ST 390
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I. Project Overview

This report was prepared by the students of the Fall 2009 ST 390, Environmental Policy Seminar, course. Our class participants include the following eight students: Ryan Danley, Julie Elmore, Kaitlin Haskins, Rich Hofstetter, Terri Lee, Andrew Matters, Kari Maxwell and Sara McDermid. This report is a summary of our five week investigation of parking policy and its related issues at Butler University. This project was conducted to provide the newly established parking committee with more insight into the parking issues at Butler.

Parking is an issue that all students, staff, faculty and visitors must contend with at Butler University. As part of our Environmental Policy course, we looked at the parking policy at Butler in order to gain real world experience in reading, evaluating, and recommending policy. Parking at Butler was chosen as our topic because it is currently being discussed among campus policy makers and is something that affects us and our peers. It also was a topic we could evaluate utilizing the triple bottom line, or the “People, Planet, Profit” model. The course was Environmental Policy so the ecological issues related to parking practices could not be ignored.

We followed a basic inventory, analysis and synthesis process and were allotted five weeks to complete the project. We recognize some areas for further improvement, including our survey and cost investigations. Given more time, the survey design could be improved upon and expanded to capture more information and include a larger percentage of the campus community. More time would also allow for an in depth analysis of our survey responses. Our cost investigations could be more refined and perhaps include a cost estimate for alternative designs and sites on campus. Lastly, we feel further feasibility studies of our recommendations would improve the overall product.

II. Introduction

PROBLEM STATEMENT

There is a perception of a lack of parking on campus. In reality there are enough parking spaces to accommodate the current car user on campus. The perception of a lack of space is more a function of people not always being able to park in front of their destination. Furthermore, the current number of parking spaces at Butler is not sufficient to sustain a growing population of student, staff and faculty car users. Additionally, the historic solution to campus parking pressure has been the use of conventional parking, or surface parking lots constructed of asphalt. This solution is cost effective in the short term, but provides no ecological sensitivity to the surrounding infrastructure and native systems.

Due to our urban-suburban context and limited space, dealing with increased parking demands and locating new parking lots is a challenge. As a result, new parking spaces and lots have invaded pedestrian areas and the core of campus. As a residential campus, parking should be viewed as a privilege for students. Additionally, the focus of campus planning and circulation should be to the pedestrian first, automobile second.

The best way to deal with this issue is through policy and design. Our project seeks to make recommendations that enhance the current parking policy and achieve a triple bottom line, that is a policy that addresses social, environmental and economic concerns. We feel the policy should provide social responsibility to stakeholders, economic viability, and be sensitive to the land. The goal is to make our parking system ecologically sustainable while improving use for stakeholders.

BACKGROUND

The perceived lack of parking spaces is causing a multitude of problems for users on campus. The main problems include the issuance of an average of 5,922 tickets per academic year over the last three years, complaints by residents and commuters, tardiness by all parties, and tension toward parking officials as well as BUPD. Parking tickets are often issued due to people parking in lots for which their parking pass is not designated. If just one person parks out of place, it causes a domino effect because when they park out of their designated area, a person who has a pass assigned to that area also has to park out of place.

This year alone, 3,848 parking decals were sold while the total number of parking spaces on campus is only 3,150. This discrepancy in decals sold is reflective of the rotating amount of vehicles on campus at any given time, with the peak time period being approximately 8:00 a.m. to 3:00 p.m. This time period is also the time period that parking lot restrictions are enforced. According to Andy Ryan, assistant chief of the Butler University Police Department, there is no current limit on the number of parking decals sold.

Lack of additional space for expansion of parking lots is causing a delay in the progression of solutions to the parking issue, so a comprehensive plan is required to work with the limited space on campus. We suggest that prior to expansion of parking, all options are considered to reduce the number of vehicles on campus, and promote walking and bicycling as well as the use of other environmentally friendly methods of travel. Butler University is primarily a

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residential campus, so any policy must take into account pedestrian usage of the infrastructure and make the campus easily accessible.

For the purposes of our project we have defined stakeholders as ‘an individual, group, or company that can affect or be affected by parking policies established at Butler University’. We have identified several stakeholders (Table 1) with an interest in the parking policies at Butler.

Table 1. Parking Stakeholders

STAKEHOLDER	RELEVANCE	ESTIMATED USAGE*
Students	resident and commuter students who bring a car to campus	Daily
Faculty	faculty members who bring a car to campus	Daily
Staff	staff members who bring a car to campus	Daily
Visitors	any non-registered visitors who bring a car to campus	Daily
Pedestrians	anyone who walks to, from and on campus (may be a student, staff, faculty or visitors)	Daily
Bike Riders	anyone who bikes to, from and on campus (may be a student, staff, faculty or visitor)	Daily
Butler-Tarkington Residents	surrounding neighbors within eight blocks of campus	N.D.
Delivery/ Pick Up Services	any delivery or pick up service that must access campus (Ray’s trash, USPS, FedEx, UPS, Aramark, etc.)	Daily
Indianapolis Metro Police Dept.	Patrol traffic, issue citations outside of campus	Weekly
CSG Security	event and parking control company	Weekly
Public Transit	any public transit in the area (IndyGo, taxis, campus shuttle)	N/A
Local Bike Companies	(Bike Line, Bicycle Hospital, BGI)	N/A
Public Works	Maintain public infrastructure (DPW, Veolia, United Water)	N/A
Utilities Companies	Maintain and supply energy (IPL, Duke energy, citizens gas)	N/A
Donors	provide support and guidance to Butler University	N.D.
Ecosystem	flora and fauna found on or around campus, this resource is impacted by campus activity	Daily
Canal/ White River	water resources adjacent to campus, resources impacted by campus activity	Daily

*N.D. = not determined, unable to estimate the number and frequency for this stakeholder

*N/A = not applicable, these stakeholders may not access campus, but have an interest in the issue

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HISTORICAL DATA

In more recent years parking on campus has drastically changed and become an important issue. As enrollment increases and the university grows there are more students, visitors, faculty, and staff regularly traveling to campus by car. This amounts to a growing demand for space to store these cars on a daily basis.

We have seen many differences in the past 14 years, from the 1995 Master Plan to the current (2009) Master Plan being produced. When comparing information one noticeable change that is a great reflection of today's society is that people appear to have slowed down in the past fourteen years. In 1995 it took approximately four minutes to walk from the center of campus (Norris Plaza) to the curve of Sunset and 48th Street. The current master plan states that it takes approximately five minutes to get from the center of campus to the beginning of the pond in front of the bell tower (approximately halfway up Lake Rd). This slowing down in approximate walking pace may be partially due to changes in the layout of the campus and increased traffic in the center of campus.

There is a discrepancy between the circulation maps in the two master plans. A major issue is that Hinkle, the HRC, and Apartment Village are no longer included on the 2009 master plan circulation map, which is contrary to the increase in traffic, both vehicular and pedestrian, in that area of campus in recent years. With the increase in traffic in that area it should not be left out of current and future planning endeavours. This same map also excludes Lake Road as a pedestrian conflict. There are many bicycle users that have to share the road with vehicles, and due to the narrow sidewalk pedestrians, on occasion, must also share the road with both vehicles and bicyclists. The Hinkle Parking lot is not listed as a pedestrian route, though it is very common for Village residents to cut through the parking lot on the way to and from the Apartment Village.

CONTEXT

Butler University is best classified as an urban-suburban campus. It is located approximately six miles from the heart of downtown Indianapolis and is surrounded by the Butler-Tarkington residential neighborhood to the north and east, the town of Rocky Ripple to the north and west, the central canal and White River to the west, and more residential neighborhoods and the Crown Hill Cemetery to the South.

Additionally, Butler is classified as a residential campus, with most freshman, sophomores and juniors being required to live on campus. The urban context of the campus translates into a multitude of amenities for campus residents. Butler is located approximately three miles from the Broad Ripple cultural district which offers local eateries, night clubs, music venues and boutique shopping. Several cultural and entertainment amenities are also located within a few miles of campus including the Indianapolis Museum of Art and the Indianapolis Arts Center. Table 2 outlines a list of more regularly visited and common daily destinations and their proximity to campus.

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Table 2. Distance to frequently used destinations

DESTINATION	DESCRIPTION	LOCATION	DISTANCE (MILES)
IndyGo	Public Transportation	two routes: 38th & Clarendon, and 46th and Illinois	approx. 1
Walgreens	Pharmacy	711 E. 38th Street	2.4
		3003 Kessler Blvd.	4
		1530 N Meridian St.	4
		5675 N. Michigan St.	4
CVS	Pharmacy	1545 N. Meridian St.	4
		2975 Lafayette Rd.	5
		119 W. 56th Street	1.1
		6290 N. College Ave.	2.1
Whole Foods	Grocery Store	1300 E. 86th Street	6.6
Kroger	Grocery Store	524 E. 16th Street	2.5
		2630 W. Michigan St.	3.4
		6220 Guilford Ave.	3.9
		5718 Crawfordsville Rd.	4.9
Fresh Market	Grocery Store	5415 N. College Ave	2.1
Safeway	Grocery Store	5602 N. Illinois St.	1.1
Walmart	Retail/ Dept. Store	4545 Lafayette Rd.	4.2
		7325 N. Keystone Ave.	5.3
		3221 W. 86th St.	6.7
Target	Retail/ Dept. Store	6101 N. Keystone Ave.	4
		6925 W. 38th Street	7
		1300 E. 86th Street	7
Marion County Library	Library	4180 N. College Ave.	1.8
		40 E. St. Claire Street	11
		5420 E. 38th Street	6
		6101 N. Keystone Ave.	4

CURRENT CONDITIONS

Currently, all Butler students, regardless of commuter or residential status, are offered the option to purchase a parking pass. All students, faculty and staff that will bring a vehicle to campus are required to register their vehicle with BUPD. The current decal fee is \$50.00 per academic year. Violation fees are \$25.00, and must be paid in order to register for classes or renew your parking decal.

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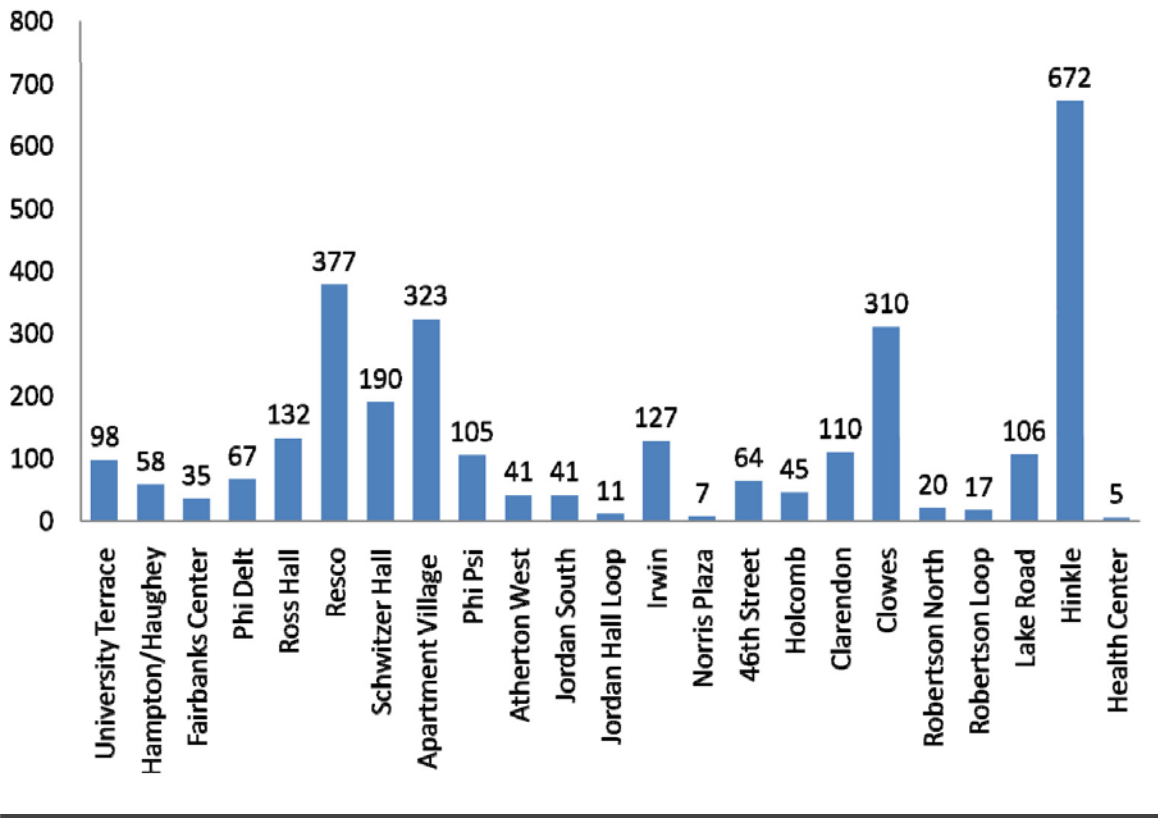


Figure 1: Distribution of campus parking spaces by parking lot

Vehicle users are issued a decal based on their classification (resident, commuter, greek, faculty/staff). These designations determine which lots a vehicle may park in. There are a total of 3,150 parking spaces on campus. Figure 1 details the distribution of these spaces on campus.

There are three types of parking spaces encountered on campus: perpendicular parking, parallel parking and 45 degree angled parking. During our inventory of campus we noted that there is no uniformity in the dimensions of these spots on campus (Table 3).

Table 3. Parking space dimensions across campus

LOCATION	TYPE	LENGTH	WIDTH
Lake Road	Parallel	20'	9' 6"
Pharmacy Bldg.	Parallel	22' 2"	9'
	Perpendicular	17' 11"	8' 7"
	Angled	17'	9' 6"
Lilly Hall	Parallel	19' 9"	9' 4"
	Angled	26' 6"	12'
Hinkle	Perpendicular	17' 8"	8' 8"
Schwitzer	Perpendicular	18' 5"	8' 2"
Clowes	Angled	19' 4"	7' 9"
ResCo	Perpendicular	18' 2"	8' 2"
	Angled	25' 4"	8' 7"

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INTERVIEW

Andy Ryan, the assistant chief of police and BUPD, was interviewed (Appendix A) about several different aspects of parking around Butler. There are 3,150 parking spots on campus, and 3,848 parking decals were sold this year. See Figure 2 for a distribution of decal types sold and the corresponding number of spots available.

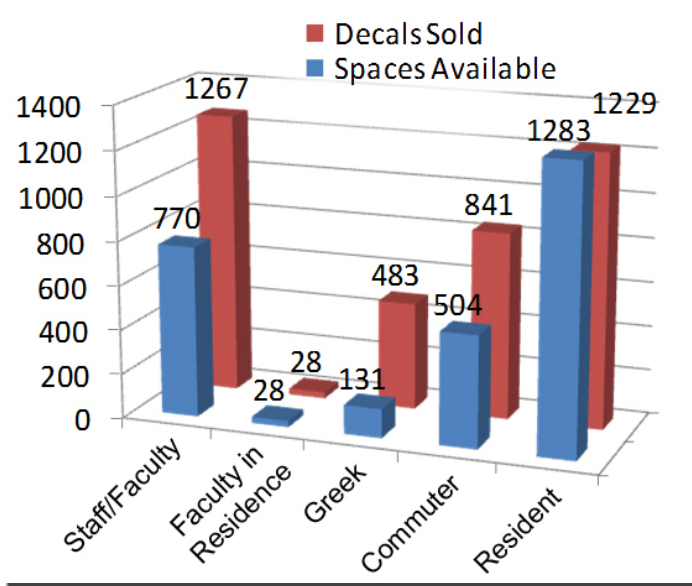


Figure 2: Decals Sold in 2009 Versus Spaces Available

There is currently no limit on the number of decals sold. There have been 3,166 parking tickets given out so far this semester, with a yearly average of approximately 6,000. The most ticketed lot is at Clowes Hall, followed by the Resco parking lot.

There have only been 300 appeals to parking tickets this semester. So far, this academic year has generated \$216,955.00 from tickets and decals, and \$7,751.54 has been generated from the metered parking spots. This helps fund the BUPD operating budget and helps pay for lot maintenance and painting. Any additional money goes to the university general operating budget.

There have been additional bike racks placed around campus due to the increase of students riding bikes to and from campus. Three years ago IndyGo had a formal stop on campus, but because of the lack of use from people on campus it was cancelled. The closest stops are now at 38th and Clarendon, and at Illinois and 46th. When Dr. Fong first became president at Butler, the issue of restricting freshman from bringing cars to campus was discussed. However, due to a lack of available public transportation and the fact that some students attend off campus internships, it was never acted upon.

SURVEY

As part of our inventory we conducted a survey of the Butler community utilizing SurveyMonkey.com. The use of SurveyMonkey had some limitations, specifically being limited to ten survey questions and 100 respondents. In an attempt to increase the number of respondents we established four surveys based on the following classifications: residential student, commuter student, faculty or staff. However, each survey presented identical questions to participants (Appendix C).

We designed our survey in a way that we felt addressed why stakeholders used their cars. However, due to our student user bias, we feel in retrospect that the survey focused on student usage more so than the usage of faculty and staff. This caused some confusion regarding our answers

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as did the way we chose to classify answer groups for questions 6 and 7. Future survey design about parking issues should take these things into consideration.

Overall we found that students, when walking from their cars to their primary destinations, were evenly distributed. For each of the following responses; less than three minutes, three to five minutes, six to 10 minutes, or 10+ minutes; the distribution of student responses was even across all of the choices, at approximately 25% each. Comparatively, approximately 87% of faculty and staff walk less than five (5) minutes to their primary destinations. We also found that students utilize more alternative transportation (walking, biking, etc.) than faculty and staff. The survey responses indicated that faculty were more open to carpools than students were. We feel this is most likely linked to Butler's status as a residential campus, thus many students do not need to carpool to commute to campus.

In regards to the cost of a parking decal we found that about 58% of respondents felt the price was high or too high, while the remaining 42% felt the price was low or cheap. We also feel it is important to note that 3% of faculty respondents would be willing to pay a higher amount for parking decals.

The last question of the survey was open ended to allow for more detailed responses. We noticed several recurring themes in response to the question *'What are your concerns on parking on Butler's campus. What would you do to improve those concerns?'* It seems as though a major complaint of the student population is the parking situation at Ross and Schwitzer Hall. In Ross the main complaint is the lack of parking spots and the fact that Sigma Chi reserves many of the parking spaces and does not use them. For Schwitzer the complaints state the parking for the students (residents) is limited and there is too much parking for faculty and staff in the area. Respondents also felt there are a great number of unregistered vehicles parking in the lot that aren't ticketed.

"I am upset about the Sigma Chi reserved spots in Ross's parking lot. There is never anyone parked there and it seems like a waste of space to let none of the Ross residents part there. Sigma Chi has their own parking lot. Why do they need to invade on Ross's too? It upsets me because I then have to park over in ResCo and often times it is at night and dark. Then I have to walk all the way to Ross by myself and it is a little sketchy. To improve my concerns I would say open up all of Ross parking lot to Ross residents."
Thu, Nov 19, 2009 9:55 AM

A second theme we noticed in our survey responses is related to parallel parking. Respondents expressed that there needs to be improved parallel parking spaces and clarification (via signage) of which areas are not parking spaces, such as the parallel parking zones around Ross and the Greek houses. Respondents reported that the designated zones are not marked adequately. Respondents also expressed a desire for clearly delineated parallel spaces through striping.

"I think for the greek houses, the street needs to be lined. Parallel parking is hard to do for some and if there were lines, there would be less accidents." Thu, Nov 19, 2009 10:15

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TRENDS

When reviewing parking policy and parking lots at Butler many trends can be seen. The first notable trend is that parking spaces on the university's campus come in many different shapes and sizes. This shows a lack of uniformity and may be limiting the number of spots that could possibly fit in an area. There is also a notable lack of sensitivity towards non-motorists. One great concern is the absence of the Health and Recreation Complex (HRC), Hinkle, and the Apartment Village in the updated 2009 Master Plan pedestrian map. This ignores the recent increase in traffic from Apartment Village residents, commuters parking in the Hinkle lot, and the numerous students visiting the HRC on a daily basis. Being that this is a residential campus and students are expected to walk to class each day it is important to put pedestrians in high priority. By catering to our transportation needs first we have created a campus that has ripe with conflict zones where pedestrians and cars meet.

The campus has also continued to use conventional solutions and should research and consider investing in other possible solutions such as pervious surfaces or parking structures. There has been some mention of structures, but it seems to be difficult to finance currently due to current parking decal fees. Another trend, or lack of trend, is no shift towards other green practices which may include pervious surfaces or incentives for alternate modes of transportation. There currently seems to be a disconnect between to 'intent' for a residential, pedestrian campus that encourages safety and convenience for pedestrians and bicyclists rather than the convenience for motorists who want to park immediately outside their intended destination.

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CONFLICTS

Butler University's campus has several areas of conflict that need to be examined and considered for revision. There are areas of circulation of traffic that cause a conflict between pedestrians and vehicles on a daily basis. Lake Road, for example, is currently a two way street that is not friendly to people biking or walking. The sidewalk is very narrow and it contains light poles in several locations. Bikers are not able to safely ride their bike on the road because the amount of cars coming from both directions. They are forced to either dodge traffic, or ride on the sidewalk and interfere with the traffic of the walkers.

The physical space on Butler's campus is limited due to surrounding neighborhoods and neighboring land. If Butler needs to expand its campus, this could be a problem in the future because of the lack of space available for expansion.

The planning and design around Butler's campus has improved over the last few years, but there is still room for improvement. Pedestrian walkways are often difficult to differentiate from the actual road. Pedestrians often do not use the walkways because of this, and this can be a safety hazard. Butler is a residential campus and considered pedestrian friendly, and the roads and walkways should be designed to promote this aspect of campus.

SUCSESSES

As Butler has developed and grown over the years, there are several areas around campus that we considered areas of success. Along Hampton Drive there are several crosswalks that are clearly marked with bold striping. These crossings are used on a daily basis, instead of pedestrians walking across an unmarked area along Hampton Drive. If more of the crosswalks around campus had this bold striping, we feel they would be taken advantage of by pedestrians.

The number of people using bikes to travel to and from campus has increased over the years and Butler has adapted to this increase. To accommodate bicyclists there have been several bike racks added around campus. If Butler continues to provide more bike racks around campus, we feel the number of students who bring bikes to campus will increase.

There is parking available within a reasonable walking distance from almost every destination around campus. Butler has provided designated parking areas for all residences, Greek, faculty and staff, and commuter vehicle users. In addition to having designated parking areas for all groups, there are currently no limitations set on registering cars to bring to campus. All students, faculty and staff are afforded the right to register and use their vehicle on campus.

CASE STUDIES

An important factor to consider in resolving the parking issues on Butler's campus is the parking policies of other comparable universities. Examples from four universities will follow and summaries of all case studies can be found in Appendix D.

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Based on our research, many Universities require students and faculty to pay a higher cost for the privilege of parking than is required of students and faculty at Butler. The trend has continued even after the price increase of parking decals for the 2009-2010 school year with three out of four of the highlighted schools continuing the pattern.

The ticketing practice of each of the universities was a main aspect that we analyzed. One university whose ticketing practice stood out was Valparaiso University. In their system, there is a base price for infractions, but there is also an additional fee that is added to the final ticket price contingent upon the violator's number of infractions. At Valparaiso, six total infractions in one academic year results in a loss of the privilege of having a car on campus.

Valparaiso University Violation Fee Structure:		
Violation fees		
First violation in an academic year		\$10.00
Second violation in an academic year		\$15.00
Third violation in an academic year		\$25.00
Forth violation in an academic year		\$35.00
Fifth and each succeeding violation in an academic year		\$45.00
Fines		
Driving or parking on grass	violation +	\$25.00
Unregistered vehicle	violation +	\$50.00 + \$105.00
<i>*\$50 fine will be waived if registration is paid within 7 business days</i>		
Falsification on registration form	violation +	\$25.00 + \$105.00
Unauthorized transfer of registration	violation +	\$25.00
Parking in zone restricted to disabled	violation +	\$50.00
Parking in fire lane/zone	violation +	\$50.00
Reckless driving or driving left of center	violation +	\$50.00
Disregarding stop sign	violation +	\$25.00
Seat Belt violation	violation +	\$15.00
A sixth violation in an academic year may result in revocation of campus vehicle registration, impoundment of the vehicle and loss of campus driving privileges		

Two other universities that stood out in our research were Emerson College in Boston, Massachusetts and Notre Dame University in South Bend, Indiana for both having car-free, pedestrian campuses. Emerson's car-less policy is due to the availability of public transportation. Notre Dame's pedestrian friendly campus is due to the limitation of vehicular traffic in the center of campus. On Notre Dame's campus, both students and faculty are required to park at the periphery of campus. Parking inside the main part of campus is limited to one (1) hour and requires a special permit obtained upon entering of campus.

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Summary of Notre Dame Parking Policy

Parking Permits Policy- Registered vehicles are given decals with designated lots, lots are given letter names. Certain lettered decals are valid in other lettered lots. *Passes into the heart of campus are an hour in length* and can be obtained from gate officers.

*Preferred Parking program for Low Emitting Vehicles; a total of 23 spots are available in five lots. University motor pool has five hybrid vehicles in its fleet. TRANSP0 bus is free with student ID. Staff/Faculty shuttle. Web conferencing available in campus for all faculty, staff, and students, to discourage unnecessary car trips.

Ohio Wesleyan became of interest due to its lottery based decal system. Upperclassmen gain priority in receiving parking decals and the remaining spots are allotted to the sophomores and freshmen via a lottery system.

Summary of Ohio Wesleyan University Parking Policy:

Parking Stats:

Student Lot: Yes

Freshman allowed to park: Yes-*Limited*

Parking Permit Cost: \$65

Parking Permit Policy:

Juniors and seniors can purchase permits in the first two weeks of each semester. The process is quick and easy, as long as you have your car registration information. For freshmen and sophomores, the process is a bit trickier, as there is a lottery determined by how many spaces are still available. There is still a chance for first- or second-year students to get a permit, and even if they don't, it is simple to park on the street in close vicinity to all the dorms.

Many of these Universities have clear parking policies that are easy to find and available to students on the University's website. In contrast to Butler's two sentence vague policy that does not clearly define the role of parking on campus nor the intention of the university regarding parking. It also fails to mention that parking is a privilege and not a right.

WALKABILITY

Walkability refers to the ability for pedestrians to move between destinations. There are two major factors that influence the walkability of a city or town: institutional precedence and pre-auto urban design. In general, people are willing to walk one-quarter to one-half mile on foot to arrive at a destination. Any distance longer than that and people want to use a method of transportation. The shortest distance to a grocery store is the Safeway at 56th and Illinois, approximately one mile. This means that, in general, all of the routine destinations close to Butler's campus are out of the comfortable walking distance for campus residents. However,

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given the size of campus, it is reasonable to encourage students, faculty and staff alike to travel in and around campus by foot. Additionally, as a residential campus, every effort to improve pedestrian conditions on campus should be made and maintained to improve the walkability of campus.

BIKABILITY

Now with the recent developments with the Student Government Association sponsored shuttle service, Butler students without access to a car are may be further confined to the campus. There are some IndyGo stops within approximately one mile of campus, however the IndyGo system is not as reliable or well developed as other city's mass transit options. Additionally, traveling by foot to bus stops and the stops themselves are perceived by many as unsafe. Traveling by bicycle is a reliable, affordable and healthy option for students, staff and faculty. Given our proximity to the Tow Path, bicyclists can access shopping and entertainment destinations easily, safely and without having to travel on busy roads.

The downside is a marked lack of bicycling infrastructure on campus. Riding a bike on sidewalks is dangerous and illegal. Butler bicyclists must share the sidewalk with pedestrians or share access drives with automobiles on campus. Additionally it is difficult for residential students to store bikes safely and easily while still having year round access. If biking infrastructure were expanded and improved, it would likely encourage more students to use bikes on and around campus.

PARKING

The parking lot is the first and the last part of a building or campus to be viewed by the user. It is the gateway through which many students, visitors, and employees pass. This first impression is very important to the overall feeling and atmosphere conveyed to the user. Developers and property owners want their facilities to be attractive, well designed, and functional. Though many hours are spent on producing aesthetically pleasing building designs, the same design consideration for the parking area is often overlooked. Parking areas that are poorly designed can experience excessive maintenance problems and a shortened service life. In addition, selecting the right materials for a parking area can assure a pleasing and attractive surface. When properly designed and constructed, parking areas can be an attractive part of a campus or building that is also safe, and usable. Parking areas should be designed for low maintenance costs and easy modification for changes in use patterns.

Landscaping should also be considered when designing parking lots. Effective landscaping can reduce the 'heat island' effect experienced in parking lots. Landscape materials create screens that block views to large, open parking areas, and create an illusion of green space. Landscape islands create pockets of pervious surface within the parking lot as well.

Surface Parking

A typical parking space is 8-10 feet (2.4-3.0 meters) wide and 18-20 feet (5.5-6.0 meters) deep, totaling 144-200 square feet (13-19 sq. meters). To construct one off street parking lot that will

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accommodate 100-150 spaces requires approximately one acres of land, depending on design. This figure is based on 300-350 square feet per space. Of the 300-350 square feet, approximately 200 is allotted for actual parking and the remainder allows for access lanes and landscaping.

Operation and maintenance costs include cleaning, lighting, maintenance, repairs, security, landscaping, snow removal, access control (e.g., entrance gates), fee collection (for priced parking), enforcement, insurance, labor and administration. Parking facilities require resurfacing and repaving every 5-10 years, and parking structures require major reconstruction or replacement after 20-40 years, with higher maintenance costs in areas with harsh climates, particularly with frequent salt exposure. Parking structures may require elevators, fire control and mechanical ventilation.

The parking standard at Butler University is a surface parking lot constructed of asphalt. There are multiple problems with the use of asphalt, the primary being that it is not environmentally friendly. Asphalt is impervious which means stormwater and any other type of precipitation cannot be absorbed into the ground. This inhibits groundwater recharge and further taxes the stormwater and sewer systems. Impervious surfaces also increase erosion to areas adjacent to parking lots. Asphalt and other impervious surfaces increases the albedo, or surface heat, of the parking lot. This heat can reflect to buildings, increasing it's cooling needs and stress trees and landscaping material. While it is understandable that asphalt is used because it is the cheapest solution, there are alternatives that will pay for themselves in other areas and are environmentally friendly.

Parking Structures

Basic parking structures cost about \$1,500 per space from one source, and \$3,000 to \$4,000 per space according to another. This variation is dependent on the amount of infrastructure needed, i.e. storm sewers, asphalt, lighting, and striping. An above ground parking structure that would accommodate Butler would cost around \$12,000 to \$15,000 per space. Again, there is a range in the price per space depending on the type of construction, number of special features added, and location of the garage.

<p><i>Costs: \$1,500- 4,000 per space (\$7.50 - 20.00 per square foot based on 200 sq.ft. space). Variation is the result of necessary infrastructure, design, and local market costs.</i></p>
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Traditional Pavement

The formula for traditional pavement is made of a 95% aggregate of stone, sand, or gravel and 5% asphalt cement as a binder. This binder is the product of oil refining and is used to glue the aggregates together. Asphalt is a fossil fuel product that retains heat and temperature around buildings and prevents water penetration.

IV. Analysis

Costs: \$3.25- 4.25 per square foot. This cost includes the excavation and installation along with the materials and labors.

Porous Pavement

Porous pavements can provide a cost-effective pavement with a life span of more than 20 years. The porous pavement can at the same time provide storm water management systems through the permeable pavement. The porous pavement is successful because it provides storm water and runoff a place to go in the form of an underlying open-graded stone bed. The water drains through the porous asphalt, then into the stone bed and then slowly infiltrates the soil. The stone bed size us usually 18 to 36 inches in depth. The stone bed is more expensive than conventional construction, but the cost is more than offset by the elimination of many of the standard elements of standard-storm water management systems. The porous pavement also has been seen to have a high removal rate for total suspended solids, metals, oils, and greases in the water. It is also a “cooler” choice due to the open structure of the pavement.

Example: The Walden Pond State Reservation in Massachussetts contains a porous pavement lot constructed in 1977 that is still maintained and drains effectively today. This porous lot has never been repaved throughout its existence.

Costs: \$9.50 per square foot for excavation, installation, and materials and labor cost.

Grass Pave & Gravel Pave

Another possible alternative is Grass Pave or Gravel Pave which are systems that are strong enough to accommodate vehicles, just as a standard parking lot would. The system uses strong plastic cells that provide structure and are covered with grass or turf. Grass pave parking lots could also double as recreation areas when not in use for parking.

The benefits to Grass Pave systems are that they reduce surface temperatures around buildings, permit surface water filtration and drainage, and eliminate need for a catch basis system. The grass pave system is made of reinforced plastic cells that hold the grass roots, there is a second type is an area with open spacers that allow gaps between pavers, in these gaps gravel of grass is placed in to allow the replenishment of groundwater. Installation takes 2 to 3 months to develop the root system from seed. Installation can occur immediately if turf is used.

Costs: \$9.00-12.00 per square foot based on the product quality (heavy vs. light)

Parking Cost Summary

When asphalt is the only material being used, there is little concern for environment. However, as we have found, an alternative parking garage or structure presents a higher initial cost. The current parking decal fee at Butler is low when compared to other institutions. These fees could

IV. Analysis

be raised in order to fund the installation and maintenance of alternative parking systems, such as multi level garages, or the use of alternative materials as future needs arise. A new parking garage can make many more parking spaces than a traditional parking lot and could be placed on an existing parking lot and would be more beneficial in the long run.

V. Applications

As a result of our inventory and analysis we have identified multiple issues that affect the stakeholders identified earlier in this report. All of these issues, we feel, are related in some way to the Butler University parking policy. These issues are related to the triple bottom line, that is the social, ecological and economic influences of the current policy. We have outlined our identified issues below and offer our recommendations to resolve the issues.

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Parking Policy Language: Current parking policy language is short and does not clearly speak to all aspects of parking on campus. It currently restricts where cars are parked but not who is allowed to park on campus. The language regarding parking in the neighborhood areas is vague and unclear.</p>	<ul style="list-style-type: none"> • Include language that parking is a privilege not a right • The University has the right to determine who parks on campus as well as where the vehicles are parked on campus • Clarify neighborhood parking policy • Improve signage • To administer parking in an ecological and environmentally friendly way including • Recognize that the land parking spaces require is valuable and limited • Parking decal fees and violation fees should reflect the valuation of land and space

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Design Standards: No consistent design standard exists for parking spaces on campus. There are a variety of sizes for every type of parking space (perpendicular, parallel, etc.). Only one paving material is used (asphalt) and not all available measures are taken to reduce environmental and ecological impacts.</p>	<ul style="list-style-type: none"> • Conduct site review and determine if re-striping for smaller spots or a different type of spot would create more spots overall • Determine a uniform dimension for each type of spot (angle: parallel, perpendicular, diagonal) • Designate a certain number of spots in each lot for compact cars • Designate a certain number of spots in each lot for hybrid or Low-Emission Vehicles (LEV) • Invest in pervious surfaces • Increase shade trees near lots, sidewalks, and roads to decrease heat in hotter temperatures

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Walking Time and Distance: Many people have concerns about the time it takes them to walk from their cars to their offices or classes. It seems that any walk over approximately four minutes is perceived as a hardship.</p>	<ul style="list-style-type: none"> • Ignore them and move parking further towards the periphery of campus. This is more pedestrian friendly and consistent with a residential campus intent.

V. Applications

ISSUE	RECOMMENDATION
<p>Bikability: There is a marked lack of bicycling infrastructure on campus. Biking on sidewalks is dangerous and illegal, however Butler bicyclists must share the sidewalk with pedestrians or share access drives with automobiles on campus. Additionally it is difficult for residential students to store bikes safely, easily while still having access. If biking infrastructure were improved, we feel more people would turn to bicycling as an alternative mode of transportation.</p>	<ul style="list-style-type: none"> • Creation of Bike Lanes, specifically on Lake Road • Provide students with usable bike map for the surrounding area highlighting safest routes to destination • Create a Spring and Fall bike safety seminar series • Improvements to current bike storage policy • Increase the number of bike racks and create more user friendly bike rack/storage areas (i.e. covered, well lit, etc.) • Creation of a bike share or co-op open to all students, faculty and staff. A co-op could also be used as an incentive to encourage residential students to leave their cars at home.

ISSUE	RECOMMENDATION
<p>Walkability: Butler is a residential campus first, surrounded by urban-suburban neighborhoods. There is a lack of mass transit options for Butler students to travel to destinations off campus. These factors mean it is imperative to improve the walkability of the campus to encourage safe pedestrian travel to and from campus, and on campus. The lack of attention to pedestrian needs is highlighted by ‘<i>conflict zones</i>’ at Norris Plaza and on Lake Road at the intersection between the Observatory and the Pharmacy Addition.</p>	<ul style="list-style-type: none"> • Highlight the pedestrian nature of campus <ul style="list-style-type: none"> • Improve crosswalks with bolder striping • Signage at major entrances notifying vehicles that this is a pedestrian campus • Adding rumble strips to slow down cars at the core of campus • Remove cars from the core of campus • Put in a crosswalk at the intersection of 46th Street and Sunset Avenue • Improved cleaning of sidewalks during winter months • Provide students with maps pinpointing busier intersections on campus • Improve the drainage of rainwater from campus sidewalks

V. Applications

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Violation Fees: Butler’s current violation structure has a simple flat rate well below that of the IMPD. Increasing penalty fees offers the opportunity to financially support future parking policy needs and discourage unwanted parking patterns.</p>	<ul style="list-style-type: none"> • Restructuring the violation fees to: <ol style="list-style-type: none"> (1) create harsher penalties for certain violations such as parking in an ADA space; (2) create harsher penalties for repeat offenders. These harsher penalties should include the loss of parking privileges for those who exceed a set number of tickets in a single academic year. (See Valparaiso University fee structure for examples)

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Nighttime Safety: Some students have raised issues with the state of nighttime safety on campus. For instance, some feel that the mall area between Atherton Union, Irwin Library, and Residential College is poorly lit. This lack of adequate lighting creates an atmosphere that is uninviting and perceived as dangerous.</p>	<ul style="list-style-type: none"> • Increased foot/bike patrol by BUPD • Well developed escort service, increased awareness and advertisement • Increased awareness of the Code Blue Program and emergency phone locations

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Lake Road: This main access route is currently a major area of conflict between pedestrians and vehicles. The road consists of two vehicle lanes, and bicyclists are forced to ride on the sidewalk to avoid cars. It is difficult for bicyclists and pedestrians to travel on the three foot sidewalk provided. This causes a further problem between the walkers and the bikers.</p>	<ul style="list-style-type: none"> • Make 46th street the only entrance on the East side of campus • Change Lake Rd. to one way street exiting on Sunset Ave. • Add a bike lane to Lake Rd. adjacent to the sidewalk • Maintain Butler Way as a one way street in it’s current direction • Reverse the one way access roads in front of Lilly Hall and the Pharmacy Addition (See figure/ photo...)

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Asphalt Parking: Asphalt is a cheap material and may be the most economical solution up front. However, it comes with many negative side effects.</p>	<ul style="list-style-type: none"> • Investigate stacked parking options • For surface parking, adopt a policy of using semi-pervious or porous materials • Consider Grass-Pave for ‘overflow’ parking sites to maintain green space

V. Applications

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>University Terrace (UT): UT is located on the very edge of campus, residents are rather isolated from the main campus and are given commuter parking passes, which enables residents to drive from the UT parking lot to the commuter parking lots on campus. Many residents feel uncomfortable walking from their apartment to the main campus because there is not a well lit, frequently traveled route</p>	<ul style="list-style-type: none"> • Stop issuing commuter parking passes to UT residents • Discourage UT residents from driving the to the main campus by issuing resident passes • Address concerns of a safe walking route, including streetlights on 52nd Street between the Maintenance Facility and UT. • Increase BUPD presendce along the route from UT to campus • Additionally, BUPD is encouraged to patrol Holcomb Gardens and the Canal Towpath on a regular basis since UT residents also use these routes to access campus

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Phi Psi Parking Lot: This lot is unsafe and unfriendly to both pedestrians and bicyclists. There are no distinct areas to walk within the lot, forcing pedestrians to maneuver around parked or moving vehicles. Both access drives in the lot are two way despite the minimal width. This is a high traffic area that contains Faculty, Greek, and Resident parking, along with a heavy flow of pedestrians at most times of the day.</p>	<ul style="list-style-type: none"> • Change the access drives in the lot to one way, the Eastern drive going North and the Western drive going South • Visible walkways should be painted on the drives to delineate where pedestrians are to safely walk to and from campus • These walkways should be on one side of the access drive, providing a clear indication of where it is safe to walk and cross roads in this lot

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Drop off access: We feel that many drivers would not mind a longer walk if there were a process in place to unload heavy items prior to parking their cars.</p>	<ul style="list-style-type: none"> • provide 15 minute drop off spaces (as seen at Gallahue Hall) at several key locations around campus

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Parking Designation: Many complaints regarding parking on campus are due to commuters (faculty, staff and students) having to walk longer distances to their destination while residential students have their cars park closer to campus and outside of their dorms. Through re-designation of parking areas and policy changes, some of this tension may be alleviated.</p>	<ul style="list-style-type: none"> • Raise parking decal fees to encourage not bringing a car to campus • Eliminate freshmen cars on campus <ul style="list-style-type: none"> • or restrict some freshmen cars based on distance to home, have an application process for freshmen who need cars for internships • Implement a tiered parking decal system • Implement semester based parking decal system

V. Applications

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Decal System: Butler university’s parking decals are significantly less expensive than other universities. If the price is increased, we could increase revenue and perhaps deter people from bringing their cars</p>	<ul style="list-style-type: none"> • maintain the current color-coded decals to correspond with the lot in which the person lives. • Resident parking passes should be limited and freshman should be given parking passes either based on lottery or highest GPA. Provide documentation if they have a job. • Increase price of passes to \$100 or greater • Non- restricted increase price by \$100 •Set a limit on number of passes sold, first come, first serve. <p><i>Revise decal types as follows:</i></p> <ul style="list-style-type: none"> • Faculty/ Staff •Upperclassman Resident (junior-senior) •Freshman Resident •Commuter •Greek •“Non-restricted” <ul style="list-style-type: none"> -Can’t park in faculty and staff - higher price • Seasonal Pass - one semester only

<i>ISSUE</i>	<i>RECOMMENDATION</i>
<p>Incentives for Alternatives: The current parking system lacks incentives that encourage alternative methods. An incentive system could help with the parking problem by decreasing the number of cars on campus, which would make the campus greener, decrease the amount of parking needed, and improve the campus by encouraging more healthy alternatives.</p>	<ul style="list-style-type: none"> • Car pool passes: one discounted pass given to a group of 2 to 4 people who choose to car-pool, the groups shares a parking hanger •If a person chooses to bring a bike instead of a car, a discount is given on their books for each semester that they do not have their car • High decal fee for a non-restricted pass • 4-year lump sum decal fee at a discount offered to students, staff, faculty saves some money and provides increased revenue up front • We could also help the community by encouraging/ pursuing improved public transportation options in the area. If instituted, an incentive system could set an example for other universities

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VII. Appendices

Appendix A: Transcript of interview with BUPD

1. Can you verify the number of spaces compared to the number of decals sold? 3150 spots and 4,000 decals sold?

841 - Commuter Students
516 - Faculty
483 - Greek Students
28 - Faculty In Residence
828 - Resident Students
751 - Staff
401 - Village Students
3848 total

2. Is there a cutoff on the number of permits sold?

There is no cutoff

3. Would it be possible to raise the parking ticket and permit prices?

Raised from \$35 to \$50 this year. Parking Committee will look at fee structure for fines and permits.

4. Which parking lot gets the most tickets?

The most ticketed lot is the Clowes lot. The ResCo lot is second.

5. Who determines how many parking spots are needed per section and how often are these updated/revised?

Historical usage policy – close to residence halls are residence hall parking. Made changes based on policy. Vice Pres Mike Gardner makes decisions. Have stayed pretty consistent since he has been here. New lot or expand – decision is based on what is best suited. There are issues around Robertson, changed from Faculty/Staff to visitor.

6. Do you think that it would be feasible to prohibit freshmen from having cars?

When Dr Fong became President they brought it up at dept meeting. Issue – no mass transit, more soph and freshman need internships, enrollment issue

7. How often is the BUPD escort service used?

Hours are darkness dusk to dawn, medical need can use it

8. Have any mass transit partnerships been researched? With IndyGo? Campus taxi? Shuttle? Pay with flex dollars or cash (\$2 flat rate)..

3 years ago IndyGo had bus stop – was not utilized 38Th and Clarendon closest
SGA pays for Thursday Friday Saturday night shuttle (cancelled now)

9. What responsibilities are given to IMPD on campus compared to BUPD? Do they work at events?

BUPD has primary jurisdiction but IMPD can make arrest no parking tickets

Appendix A: Transcript of interview with BUPD

10. Does Butler have any incentives for non-automobile commuting around campus?

Bike Racks have increased to meet demands - no incentives

11. How many tickets have been given out compared to past years?

So far we have issued 3166 tickets this academic semester

In 08-09 we issued 5924

In 07-08 we issued 5458

In 06-07 we issued 6384

12. How many people appeal tickets?

I have received 300 parking appeals this academic semester

13. How many complaints around neighborhood?

1 or 2 that are vocal and others accept fact there are students in neighborhood

14. How has parking system been working in your words?

Works well – 1 person to park where they are not supposed to – policy says to register your car – more parking spaces – we have green space – would like to see incentives to not have cars – gated lots to restrict people to get in to lots (resident lots) – all boils down to how much money you would like to spend.

So far this academic year we have generated \$216,955 for decals and tickets. The revenue for the tickets and decals helps fund the BUPD operating budget and helps pay for lot maintenance and painting. Any additional money goes to the university general operating budget.

Meter income for this academic semester is \$7751.54 This money also goes back to the university operating budget. I cannot give you an accurate estimate on the number of visitors on campus daily.

Appendix B: IRB survey permission

INSTITUTIONAL REVIEW BOARD

DATE: November 18, 2009

TO: Marjorie Hennessy
CUE

FROM: Robert Holm, Director
Institute for Research and Scholarship

RE: IRB Protocol

TITLE: Parking at Butler: Achieving the Triple Bottom Line

SUBMISSION TYPE: New Study

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: November 18, 2009

On behalf of the Institutional Review Board (IRB), I am pleased to announce that your application for research involving human subjects has been approved as exempt. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol.

As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record. Although your study is exempt from a continuing review, you and your research team are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.

The duration of the IRB approval is from November 18, 2009 to November 30, 2009. Any modifications to your protocol or any extension to the approval period must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project

I offer my congratulations on your approval and wish you success on your research. Should you desire additional assistance or clarification, please call me at 9845.

Appendix C: Survey questions

1. Which of the following best applies to you?
Faculty, Staff, Residential Student, Commuter Student, Campus Visitor
2. On average, how long does it take you to walk from your car to your primary destination on campus?
Under 3 minutes
3-5 minutes
6-10 minutes
Over 10 minutes
I don't bring a car to campus
3. Do you use any other types of transportation? Check all that apply.
Walking, Biking, Public Transport, Car Pool, I only use my car
4. Would you participate in a car pool?
yes or no
5. On average, how many days a week is your car on campus?
1, 2, 3, 4, 5, 6, or 7 days
6. How often do you make multiple OFF campus car trips per day? (Example- Come for classes, go to lunch in Broad Ripple and come back for afternoon classes)
1, 2, 3, 4, 5 days or more
7. How often do you make multiple ON campus car trips per day? (Example- Drive from Schwitzer to the HRC)
1, 2, 3, 4, 5 days or more
8. What are your reasons for traveling off campus by car? Check all that apply.
to go to: work, home, grocery, social events, meals, shopping, cultural events, off campus courses
9. Compared to other academic institutions parking fees how would you rate the cost of Butler's parking pass?
It's cheap, It's low enough I'll pay, It's a bit high but doable, It's too high!, I'd pay more
10. What are your concerns on parking on Butler's campus. What would you do to improve those concerns?

Appendix D: Case study summaries

Name of Institution: University of Indianapolis

Type of Campus: Private, Residential

Location: Indianapolis, IN; suburban

Size: 4700 students (1100 graduate),

Demographic: resident and commuter, in state and out of state students

Quick Stats:

- Student lots- Yes
- Freshman allowed to park- yes
- Price for pass- \$0
- Common Parking Tickets- not found

Parking Permits Policy- Parking is a privilege allotted to all students, faculty, and staff free of charge.

Name of Institution: University of Notre Dame

Type of Campus: Residential, Private

Location: Notre Dame, IN; suburban

Size: 8,363 undergraduate, 1,250 acres

Demographic: 80% of undergraduates live on campus;

Quick Stats:

- Student lots- Yes
- Freshman allowed to park- yes; those in good standing at the end of their first semester may apply for a parking permit for their second semester on campus.
- Price for pass- \$75 (average)
- Common Parking Tickets- \$50 for parking on campus without a decal

Parking Permits Policy- Registered vehicles are given decals with designated lots, lots are given letter names. Certain lettered decals are valid in other lettered lots. Passes into the heart of campus are an hour in length and can be gotten from gate officers.

*Preferred Parking program for Low Emitting Vehicles; a total of 23 spots are available in five lots. University motor pool has five hybrid vehicles in its fleet. TRANSPO bus is free with student ID. Staff/Faculty shuttle. Web conferencing available in campus for all faculty, staff, and students, to discourage unnecessary car trips.

Name of Institution: Harvard University

Type of Campus: residential, private

Location: Cambridge, MA; urban

Size: 6,678 Undergraduate (13,600 Graduate & Professional), 4,979 acres

Demographic: undetermined

Quick Stats:

- Student lots- Yes as well as parking structures.
- **Freshman allowed to park- no**
- **Price for pass- annually \$965 - \$1920**
- Common Parking Tickets- no parking zone and expired meter -\$18

Appendix D: Case study summaries

Harvard con't:

Parking Permits Policy- Students parking permits assigned on a space-available basis. Permits are: tenant, commuter, evening commuter, and summer (for students); reserved, unreserved, morning, afternoon, 3day, evening commuter, metered, tenant, and carpool (for f/s). Carpool incentive for faculty and staff.

web: <http://www.uos.harvard.edu/transportation/>

Name of Institution: Denison University

Size of Student Body: 2,211

Control: Private(Semesters)

Location: Granville, Ohio

Setting: Suburban

Parking Stats:

Student Lot: Yes

Freshman allowed to park: Yes

Parking Permit Cost: \$60

Common Parking Tickets:

Fire lane - \$100

Handicapped zone - \$100

No parking zone - \$40

Parking Permit Policy:

Parking is a bit of a problem on campus. It isn't that there aren't enough parking spaces, but parking spaces can be inconveniently located. Getting a parking permit at Denison is easy; it's just a matter of paying the money to register your car. And unlike a lot of college campuses, freshmen are allowed to have a car on campus. So, incoming freshmen can consider themselves lucky that they can have a car on campus, but they shouldn't get too excited, because there is a catch.

Once you have a car on campus, you have to park it. It's not really very difficult to park at Denison, but it can be inconvenient at times. As a freshman, you will only be able to park down the hill by the far end of North Quad. As you progress through the years, parking gets easier and closer to the buildings in which you'll live. There are a few places where it is difficult to find a spot, such as behind Curtis East, but the campus has built several new parking lots in the past few years beginning in 2001, and so are attempting to accommodate students and their vehicles.

web: <http://www.denison.edu/offices/controller/studentaccounts/traffic.html>

Name of Institution: Earlham College

Size of Student Body: 1,168

Control: Private(Semesters)

Location: Richmond, Indiana

Setting: Rural

Parking Stats:

Student Lot: Yes

Appendix D: Case study summaries

Freshman allowed to park: Yes

Parking Permit Cost: \$40

Common Parking Tickets:

Handicapped Zone - \$100

Non-registration - \$75

Other violations - \$10 (increasing incrementally by \$10 for each additional violation)

Parking Permit Policy:

Students must apply for a permit from Campus Safety and Security within two days of the beginning of classes or within two days of the vehicle's presence on campus. Permits cost \$40, and replacement tags cost \$25.

Faculty Parking:

All Earlham employees are required to obtain and display parking tags for their vehicles in order to park in campus lots. There is no charge for the parking tags. Except for medical personnel and area directors, there are no reserved parking spaces on campus. Employees are not permitted to use spaces on campus that are designated for short-term visitor parking during normal working hours. There are fines imposed for illegal and/or improper parking. Contact the Security Office for parking tags and additional information.

web: <http://www.earlham.edu/policies/safety/vehicle.html>

Name of Institution: Emerson College

Size of Student Body: 3,346

Control: Private(Semesters)

Location: Boston, MA

Setting: Urban

Parking Stats:

Student Lot: No

Freshman allowed to park: No

Parking Permit Cost: None Given

Common Parking Tickets:

Fire hydrant - \$100

Fire lane - \$100

Parking in residential area without a permit - \$20

Parking Permit Policy:

Off-campus students may be able to secure a resident parking permit for their neighborhood. Keep in mind that Massachusetts registration and proof of residency will be required. These permits only assure you are parking near your home, and they often have year-long wait-lists.

web: http://www.emerson.edu/student_life/orientation/Directions.cfm

Name of Institution: Hofstra University

Size of Student Body: 7,570

Appendix D: Case study summaries

Hofstra con't :

Control: Private (Semesters)

Location: Hempstead, NY

Setting: Suburban

Parking Stats:

Student Lot: Yes

Freshman allowed to park: Yes

Parking Permit Cost: Free

Common Parking Tickets:

Faculty lot - \$50

Fire lane - \$50

Handicapped spot - \$100

No parking zone - \$20

Parking Permit Policy:

There is no fee for student parking permits. However, every student must have their vehicle registered with the Department of Public Safety. Once registered, students receive a permit sticker that must be displayed somewhere on the vehicle at all times. This permit allows parking in all lots except for those specifically designated for faculty and staff. Disabled students with vehicles can obtain special parking permits with authorization from the Hofstra Health and Wellness Center.

web: http://www.hofstra.edu/studentaffairs/PublicSafety/pubsaf_parking.html

Name of Institution: Ohio Wesleyan University

Size of Student Body: 1,956

Control: Private(Semesters)

Location: Delaware, Ohio

Setting: Suburban

Parking Stats:

Student Lot: Yes

Freshman allowed to park: Yes-Limited

Parking Permit Cost: \$65

Common Parking Tickets:

No parking zone - \$20

Parking in a fire lane - \$20

Parking in a handicapped area - \$40

Parking with no permit - \$20

Parking Permit Policy:

Juniors and seniors can purchase permits in the first two weeks of each semester. The process is quick and easy, as long as you have your car registration information. For freshmen and sophomores, the process is a bit trickier, as there is a lottery determined by how many spaces are still available. There is still a chance for first- or second-year students to get a permit, and even if they don't, it is simple to park on the street in close vicinity to all the dorms.

web: <http://publicsafety.owu.edu/parkingInformation.html>

Appendix D: Case study summaries

Name of Institution: Valparaiso University

Type of Campus: mainly residential, private

Location: Valparaiso, IN, suburban

Size: 2,917 undergrads, 957 postgrads, 310 acres

Demographic: appears to be a residential campus, but there are commuter students, unable to find information on percentages of each. Students from all states and 40 countries

Quick Stats:

- Student lots- Yes, lots
- Freshman allowed to park- Yes, in freshman designated areas
- Price for pass- \$105
- **Common Parking Tickets: Violation fee + fine = total charge**

Violation fees

First violation in an academic year	\$10.00
Second violation in an academic year	\$15.00
Third violation in an academic year	\$25.00
Fourth violation in an academic year	\$35.00
Fifth and each succeeding violation in an academic year	\$45.00

Fines

Driving or parking on grass	violation +	\$25.00
Unregistered vehicle	violation +	\$50.00 + \$105.00
<i>*\$50 fine will be waived if registration is paid within 7 business days</i>		
Falsification on registration form	violation +	\$25.00 + \$105.00
Unauthorized transfer of registration	violation +	\$25.00
Parking in zone restricted to disabled	violation +	\$50.00
Parking in fire lane/zone	violation +	\$50.00
Reckless driving or driving left of center	violation +	\$50.00
Disregarding stop sign	violation +	\$25.00
Seat Belt violation	violation +	\$15.00

A sixth violation in an academic year may result in revocation of campus vehicle registration, impoundment of the vehicle and loss of campus driving privileges

Parking Permits Policy:

- a. Special parking areas are provided as a privilege for VU students and employees. Operators of registered vehicles have the privilege of parking in specified areas, but having a registered vehicle does not ensure the availability of a parking space. The responsibility of finding a legal parking space rests with the vehicle operator. Vehicle registration may be revoked for persons who are repeated violators of traffic and parking regulations.
- b. A legal parking space is defined as an area specifically designated for parking and typically defined by parking blocks and/or painted surface lines and indicated with appropriate signage. Areas not identified as parking areas should be construed as “no parking” zones. Parking on campus is prohibited on grass and in areas where it would mar landscaping, create a safety hazard, and interfere with the use of University facilities. Such areas include, but are not limited to: posted no parking zones, yellow zones, fire access areas, crosswalks, sidewalks, areas designated for special vehicles or other special uses, and roadways serving parking lots and buildings. Parking in spaces marked for the disabled are restricted to vehicles identified with appropriate tags or license plates or a special indicator issued by VUPD.

Appendix D: Case study summaries

c. Parking lots on campus are designated for special uses and are identified by color-coding. Holders of vehicle registration permits are restricted to parking in areas identified by a color that matches the color on the registration decal. Such areas may be identified by more than one color. Designated parking areas are marked by signage and color coding.

Name of Institution: DePauw University

Type of Campus: private residential

Location: Greencastle IN- suburban- population = 9,880

Size: 2,350 undergrad, 655 acres

Demographic: Information found puts all students as resident (from both the DePauw Website and www.stateuniversity.com)- From dwpauw.edu/univ/profile.asp- 23.8% multicultural Enrollment, students originate from 42 states and 41 countries

Quick Stats:

- Student lots- Yes, 7 student lot
- Freshman allowed to park- Yes, in only designated 1st year spots
- Price for pass- student passes= \$40

Common Parking Tickets-

Failure to Register/No Valid Permit \$25

Yellow Curb/Hashed Area Violation \$25

Parked in a Restricted Area \$25

Improper Parking Violations \$25

Handicapped Violation (Street or Lot) \$50

Fraudulent Use of a Ticket \$50

Parking Permits Policy:

a. "Any student having a vehicle in Greencastle is required to obtain and properly display a parking permit for his/her vehicle. Additionally, all students are required to understand and abide by the DePauw student parking regulations. Beginning with the 1998-99 academic year, the University administration has charged the Department of Public Safety with enforcing the permit requirement on University as well as non University property."

b. "Any student having a vehicle in Greencastle is required to obtain and properly display a parking permit for his/her vehicle. Additionally, all students are required to understand and abide by the DePauw student parking regulations. Beginning with the 1998-99 academic year, the University administration has charged the Department of Public Safety with enforcing the permit requirement on University as well as non University property."

Name of Institution: Marian University

Type of Campus: mainly residential with some commuters, private

Location: Indianapolis, IN

Size: 1800 students, 114 acres

Demographic: no information found on percent residential vs. commuter nor about in state vs. out of state students

Quick Stats:

- Student lots- Lots,
- 38• Freshman allowed to park- Yes

Appendix D: Case study summaries

- Price for pass- \$100 for students and faculty (separated by resident, commuter, faculty/ staff)

Common Parking Tickets- \$50 flat rate

Parking Permits Policy:

- a. “all students, faculty, and staff are required to register all vehicles that are operated and parked on campus.

Appendix E: Survey results summary

STUDENT RESPONSES		Resident (Fresh. & Soph.)	Resident (Jr+)	Commuter	average student
# of Responses		54	35	62	50.33
Question 2	<3 min	55.56%	14.29%	6.45%	25.43%
	3-5 min	42.59%	20.00%	12.90%	25.17%
	6-10 min	16.67%	25.71%	43.55%	28.64%
	10+	3.70%	37.14%	24.19%	21.68%
	no car	0.00%	2.86%	12.90%	5.25%
Question 3	walking	85.19%	88.57%	50.00%	74.59%
	biking	14.81%	11.43%	9.68%	11.97%
	pub. Trans	1.85%	8.57%	0.00%	3.47%
	car pool	42.59%	14.29%	11.29%	22.72%
	only car	14.81%	8.57%	53.23%	25.54%
Question 4	Yes	72.22%	51.43%	32.26%	51.97%
	No	27.78%	48.57%	66.13%	47.49%
Question 5	1 day	0.00%	2.86%	12.90%	5.25%
	2 days	3.70%	0.00%	4.84%	2.85%
	3 days	0.00%	2.86%	9.68%	4.18%
	4 days	0.00%	0.00%	9.68%	3.23%
	5 days	7.41%	5.71%	37.10%	16.74%
	6 days	11.11%	8.57%	8.06%	9.25%
	7 days	77.78%	77.14%	12.90%	55.94%
Question 6	1 day	29.63%	17.14%	41.94%	29.57%
	2 days	29.63%	22.86%	19.35%	23.95%
	3days	29.63%	14.29%	12.90%	18.94%
	4 days	7.41%	14.29%	4.84%	8.84%
	5+ days	3.70%	25.71%	12.90%	14.11%
Question 7	1 day	48.15%	25.71%	54.84%	42.90%
	2 days	16.67%	17.14%	11.29%	15.03%
	3days	12.96%	20.00%	12.90%	15.29%
	4 days	3.70%	8.57%	4.84%	5.70%
	5+ days	3.70%	22.86%	1.61%	9.39%
Question 8	work	33.33%	60.00%	62.90%	52.08%
	home	79.63%	65.71%	77.42%	74.25%
	grocery's	87.04%	97.14%	54.84%	79.67%
	social trip	53.70%	65.71%	53.23%	57.55%
	dinner /meal	92.59%	77.14%	54.84%	74.86%
	mall	61.11%	51.43%	40.32%	50.95%
	cultural event	29.63%	28.57%	12.90%	23.70%
	course	3.70%	22.86%	4.84%	10.47%
Question 9	cheap	16.67%	11.43%	9.68%	12.59%
	low	33.33%	14.29%	24.19%	23.94%
	high	27.78%	37.14%	32.26%	32.39%
	too high	22.22%	37.14%	33.87%	31.08%
	I'd pay more	0.00%	0.00%	0.00%	0.00%

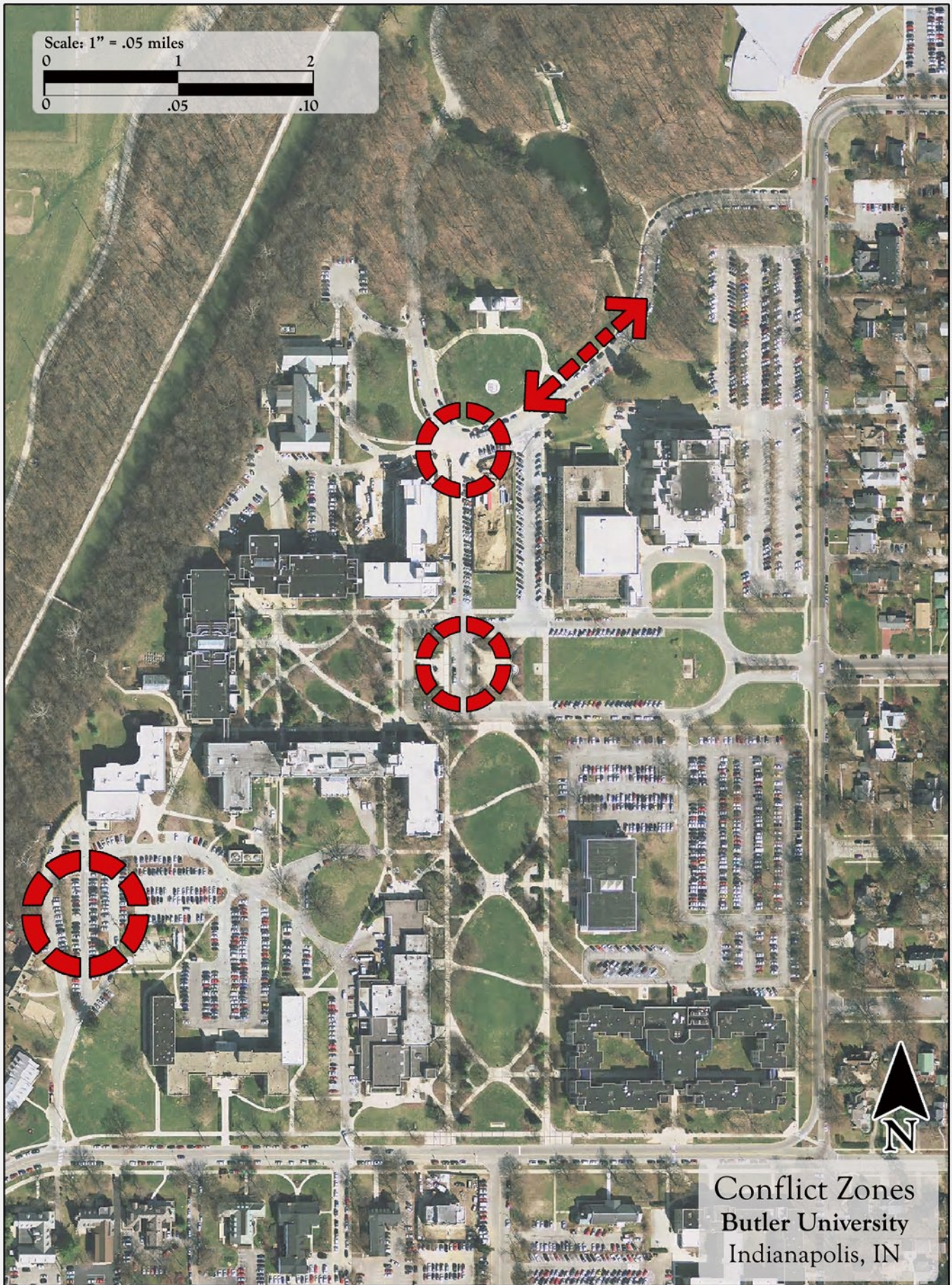
Appendix E: Survey results summary

FACULTY & STAFF RESPONSES		Faculty	Staff	average staff/faculty	Total Averages
# of Responses		31	86	58.5	53.6
Question 2	<3 min	41.94%	52.33%	47.13%	34.11%
	3-5 min	48.39%	32.56%	40.47%	31.29%
	6-10 min	9.68%	13.95%	11.82%	21.91%
	10+	3.23%	0.00%	1.61%	13.65%
	no car	0.00%	0.00%	0.00%	3.15%
Question 3	walking	3.23%	12.79%	8.01%	47.95%
	biking	9.68%	2.33%	6.00%	9.58%
	pub. Trans	0.00%	0.00%	0.00%	2.08%
	car pool	9.68%	4.65%	7.16%	16.50%
	only car	83.87%	84.88%	84.38%	49.07%
Question 4	Yes	25.81%	26.74%	26.28%	41.69%
	No	77.42%	72.09%	74.76%	58.40%
Question 5	1 day	0.00%	0.00%	0.00%	3.15%
	2 days	12.90%	2.33%	7.61%	4.75%
	3 days	9.68%	4.65%	7.16%	5.37%
	4 days	22.58%	2.33%	12.45%	6.92%
	5 days	41.94%	79.07%	60.50%	34.24%
	6 days	12.90%	10.47%	11.68%	10.22%
	7 days	3.23%	1.16%	2.19%	34.44%
Question 6	1 day	45.16%	36.05%	40.60%	33.98%
	2 days	9.68%	13.95%	11.82%	19.09%
	3days	3.23%	10.47%	6.85%	14.10%
	4 days	3.23%	5.81%	4.52%	7.11%
	5+ days	12.90%	15.12%	14.01%	14.07%
Question 7	1 day	48.39%	34.88%	41.64%	42.39%
	2 days	0.00%	2.33%	1.16%	9.49%
	3days	0.00%	2.33%	1.16%	9.64%
	4 days	0.00%	1.16%	0.58%	3.66%
	5+ days	0.00%	0.00%	0.00%	5.63%
Question 8	work	29.03%	8.14%	18.59%	38.68%
	home	80.65%	68.60%	74.62%	74.40%
	grocery's	16.13%	13.95%	15.04%	53.82%
	social trip	3.23%	12.79%	8.01%	37.73%
	dinner /meal	19.35%	16.28%	17.82%	52.04%
	mall	6.45%	6.98%	6.71%	33.26%
	cultural event course	16.13%	6.98%	11.55%	18.84%
Question 9	cheap	16.13%	27.91%	22.02%	16.36%
	low	25.81%	27.91%	26.86%	25.11%
	high	32.26%	25.58%	28.92%	31.00%
	too high	25.81%	18.60%	22.21%	27.53%
	I'd pay more	3.23%	0.00%	1.61%	0.65%

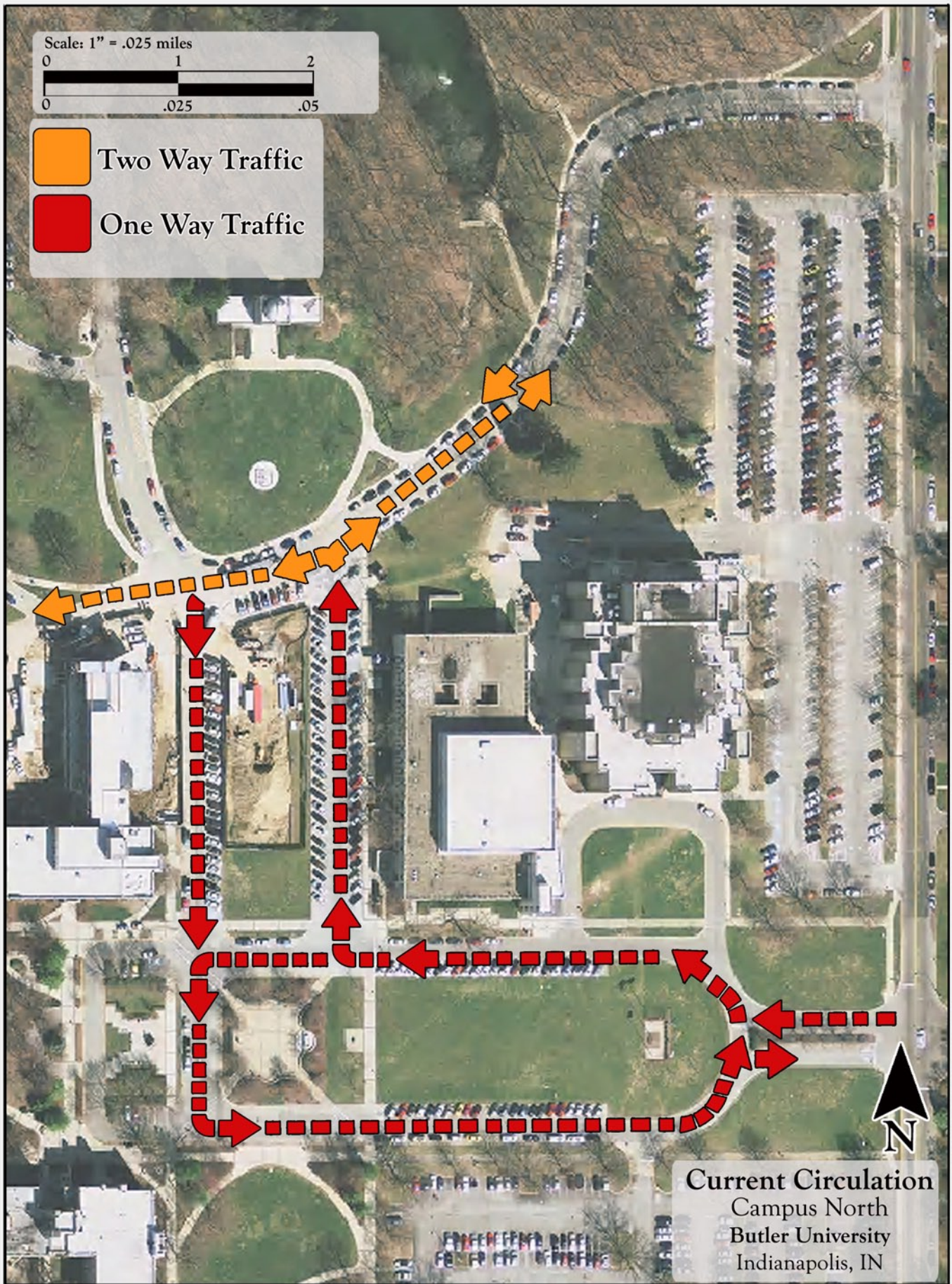
Appendix F: Maps



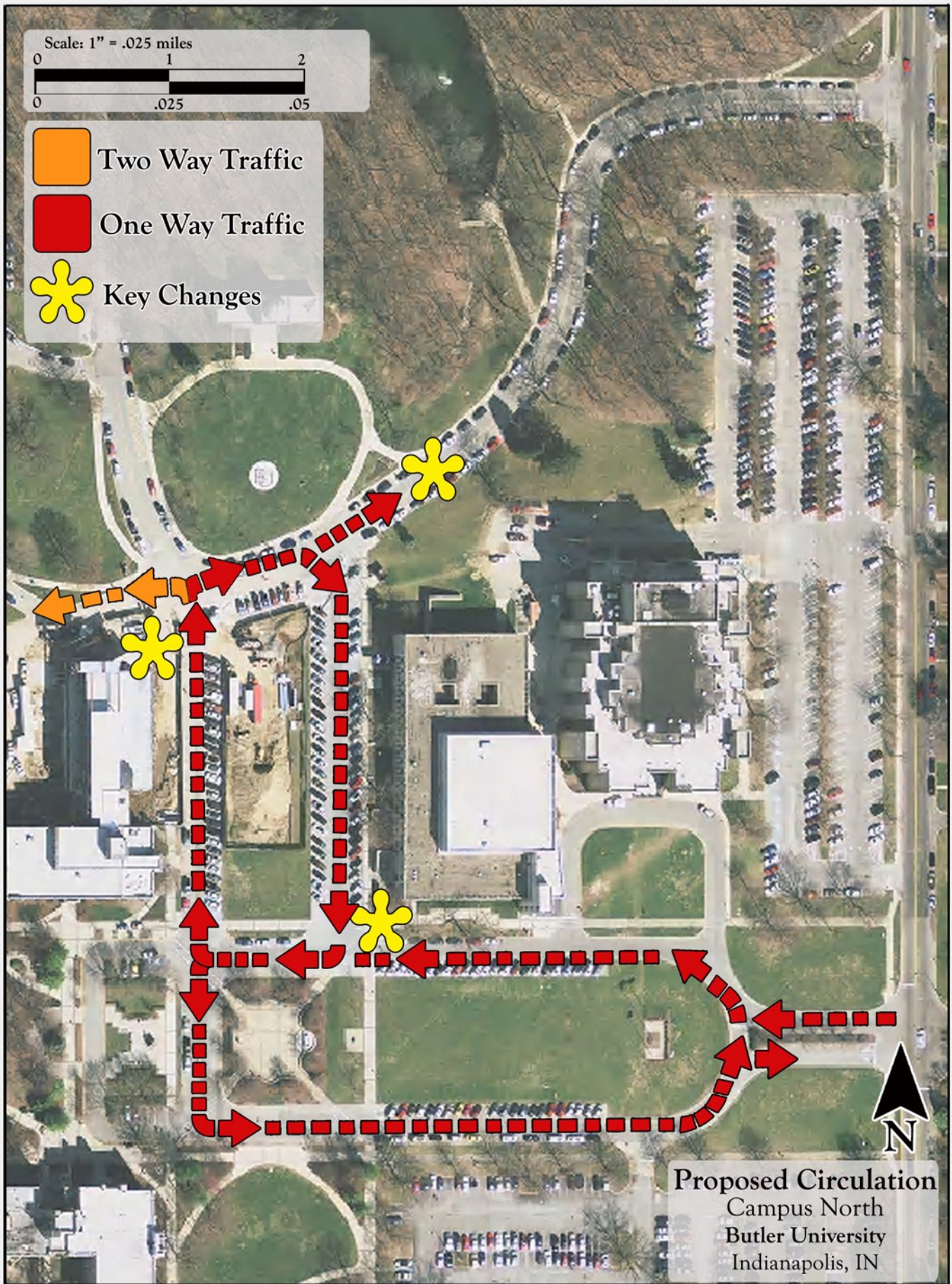
Appendix F: Maps



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