

# Mode Share and Origin / Destination Study Fall 2016

Parking & Transportation Services



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# Executive Summary

## Background

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In the fall of 2016, the University of Minnesota's Parking & Transportation Services (PTS) department commissioned the Mode Share and Origin / Destination Study. When this study was conducted in 2014, the purpose was to collect data in order to establish benchmarks and inform communication campaigns and planning efforts regarding new bus routes, bicycle infrastructure, pedestrian amenities, and parking facilities. This year's survey was administered to compare the results to the 2014 benchmarks and identify the changes in transportation modes at the University. The research was conducted on behalf of PTS by the Office of Measurement Services (OMS), University of Minnesota.

The online survey was administered to employed (full-time and part-time) faculty and staff and enrolled students (undergraduate and graduate) within the University of Minnesota, Twin Cities campus. Data collection occurred from November 10<sup>th</sup> to December 29<sup>th</sup>, 2016. A total of 2210 surveys were included in the final dataset, after incomplete and duplicate records were removed. The number of participants represents approximately 3% of the 78,079 total population. The study included questionnaire design, sample planning, data collection, data cleaning and weighting, and analysis. This report documents this process and the statistical results and findings for mode share and origin and destination.

## Methodology

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### Population and Sampling Plan

The participant list for this study was supplied by the Office of Institution Research, who also provided demographic information such as subpopulation (student, faculty or staff), Age, Gender, Academic Level, Full-Time or Part-Time status, and Job Code.

The sample plan intended to collect responses that were proportionally representative of each of these subpopulations. See Table 1 below for the distribution of population and responses.

**Table 1**

Group	% of Population	Resp. Freq.	Resp. %
Faculty	5%	77	3%
Staff	25%	480	22%
All Students	70%	1653	75%
TOTAL	100%	2210	100%

Additionally, the student sample was further stratified by the campus where students spend most of their scheduled class time. This is referred to as a student's main campus. This method was utilized to ensure the study accounted for students who traveled on all three locations within the Twin Cities campus (East Bank, West Bank, and St. Paul). More specifically,

- Classroom schedules were used to determine a student's main campus.
- A coin flip was used to determine a student's main campus in the instance where their time was equally distributed across more than one campus location.
- In the absence of classroom schedule data, students without a main campus were grouped separately. A random sample of these students was drawn for inclusion in the study. Respondents were included in the student subpopulation for analysis.

Students were also asked to self-report the campus where they spend most of their time. This item was designed to allow students to include time spent outside of class, and for students who had no meeting patterns (i.e., classes) to select a campus. The frequencies for this self-reported item were consistent with the population percentages calculated with classroom data. Therefore, reports by campus for all students are based on the self-reported survey item. See Table 2 for the distribution of student population and responses by main campus assignment.

**Table 2**

Student Main Campus	% of Population	Resp. Freq.	Resp. %
St. Paul Students	10%	193	12%
West Bank Students	24%	386	23%
East Bank Students	67%	1074	65%
<b>TOTAL</b>	<b>100%</b>	<b>1653</b>	<b>100%</b>

### Response Rates

The survey was sent to 16,600 faculty students and staff. There were 64 email address failures. The total sample was 16,536. Of the total sample, 3167 complete and partial responses were submitted. After applying the Data Cleaning Protocol (Appendix C), 2210 surveys were included in the final dataset. Thirty percent or 957 (out of 3167) survey responses were removed from the dataset. The total number of responses represents approximately 3% of the total student, faculty and staff population of 78,079 employed by or enrolled at the University of Minnesota.

The overall response rate for the study was 13%. This obtained a confidence interval of 99% and an error range of +/- 2.7%. See Table 1.3 for response rate by subpopulation.

**Table 3**

By Subpopulation	Population Size	Sample Size	Responses	Response Rate
Faculty	3804	298	77	26%
Staff	19,460	1236	480	39%
Students	54,815	15,002	1653	11%

### Questionnaire Design

The Mode Choice and Origin and Destination survey was created by the Office of Measurement Services, University of Minnesota in consultation with Parking & Transportation Services (Appendix A). Minor revisions were made to the survey from the 2014 version and included adding a mode option and response validation to reduce data cleaning. The survey consisted of three main sections, which included travel mode and origin/destination to campus, from campus, and around campus. Respondents were asked to locate their origin and destination zones (or zip code) on a map embedded in the survey and were also given the option to open a web page to access a dynamic map of campus. Respondents also reported trip information such as time of day and percentage of mode use. Respondents were able to report up to fifteen unique trips around campus.

### Data Collection

The online survey was administered by the Office of Measurement Services. A general invitation was on November 10<sup>th</sup>, 2016 with follow-up reminders on November 14<sup>th</sup>, November 22<sup>nd</sup>, November 29<sup>th</sup>, and December 7<sup>th</sup>. Response goals were met for faculty and staff at this time. A final reminder was sent to students on Dec. 18<sup>th</sup> notifying them of an extension of the survey to December 29<sup>th</sup>.

Due to low response from students, a second stratified, random sample was pulled on December 17<sup>th</sup>. This panel of students was sent an email invitation on December 18<sup>th</sup> and a reminder on December 22<sup>nd</sup>. The survey was closed on December 29, 2016.

### **Data Privacy and Security**

Identifying information was collected in order to remove survey respondents from the reminder email lists and to collect demographic data. Respondents used their University of Minnesota email credentials to log in to the survey and verify they were included in the participant list. Throughout data collection, respondents' identity was confidential and accessible only to OMS staff. No one outside of OMS, including PTS, has had or ever will have access to information that would link respondents to their responses.

# Mode Share Summary

## Demographic Terms

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**Group** – Subpopulations within the University of Minnesota population. Includes active faculty, students, and staff employed or enrolled on the Twin Cities campus.

**Academic Level** – Determined by the total number of credits a student has completed at the beginning of the term.

**Undergraduate Student** - A student enrolled in a 4- or 5-year bachelor's degree program, an associate's degree program, or a vocational or technical program below the baccalaureate. For the purposes of this study undergraduate students include Freshmen, Sophomores, Juniors, and Seniors based on total credits obtained at the beginning of the term.

**Graduate Student** - A student who holds a bachelor's degree or above and is taking courses at the post baccalaureate level. These students may or may not be enrolled in graduate programs.

**Professional Student** – A student enrolled in a college that is offering a graduate program and has obtained their undergraduate degree. For the purposes of this study, Professional students include Year One (Professionals), Year Two (Professionals), Year Three (Professionals), Year Four (Professionals) and Fellows (a graduate student who receives grants-in-aid and trainee stipends).

## Mode Share Terms and Methodology

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**Trip** – a survey response that includes an origin and a destination (OD) of a journey. One respondent may report several trips. In this report, number of trips per typical week is naturalized by campus visits frequency and group (student, faculty and staff).

**Mode** – a means of transport. This study focused on the following modes (U of MN campus shuttle bus, Public Transit, walk, bicycle, drive alone, carpool, moped, motorcycle and other). A respondent may report percentage of multiple modes in a single trip. Mode shares in this report means the percentage of modes within a certain group.

**Trip-Based Mode Share** – Mode shares in this reports are based on trips instead of person. For example, 20% bicycle mode share for a certain group means 20% of trips traveled by this group, instead of 20% of the population of this group are using bicycle. Mode percentages by each trip were calculated by multiplying the number of trips by the reported mode percentages. The mode frequencies were subtotaled by mode and divided by the total number of trips in order to get obtain trip-based mode share overall and by group.

**To and From Campus Mode Share** – Respondents were asked to report the percentage of mode share for **all** trips during a typical week to and from campus in a single mode share item.

**Around Campus Mode Share** – Respondents reported percentage of mode for **each** trip starting and ending on campus.

# Findings

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## Overall

- Once travelers reach campus, driving alone mode share decreases while U of MN campus shuttle bus and walk mode shares increase.
- 72% of trips to or from campus use the following modes: drive alone, public transit or walking.
- Once on campus, 67% of trips are made by walking (51%) or taking the U of MN campus shuttle bus (16%).
- Students and staff decrease their use of public transit substantially in favor of the U of MN campus shuttle bus or walking once they reach campus.

## To and From Campus

- Faculty and staff have a higher drive alone mode share than students.
- Student mode shares are more evenly dispersed among the various modes compared to faculty and staff.
- Faculty are less likely to ride a bicycle compared to staff and students and more likely to take public transit.
- The mode share of walking decreases and public transit increases after students' freshman year.
- Freshman have a higher bicycle mode share than any other academic level.
- Seniors were more than twice as likely as freshman to share a ride.
- Seniors, graduate students, and professional students were the most likely to drive alone.
- There were no significant differences in mode choice by gender.
- Full-time students were more likely to walk or take the campus shuttle bus compared to part-time students.
- Part-time students were more likely to drive alone (33%) than full-time students (24%).
- Those that are under 30 have the highest U of M campus shuttle bus and walk mode shares.
- Over a third of individuals age 46 and up use public transportation.
- Individuals age 46-60 are the most likely to drive alone (33%).
- Travelers who start and end in a campus zone were more likely to walk or take the campus shuttle compared to travelers who start or end off campus.
- Travelers who start or end off campus were more likely to take public transportation or drive alone compared to travelers who start and end on campus.

## Around

- The primary mode for all trips around campus is walking (51%). This is a consistent finding across all demographic variables, except stated below.
- Faculty are more likely to walk around campus (58%) than students (50%) or staff (52%).
- Students have a higher mode share of bicycling (9%) than faculty (6%) or staff (6%).
- Professional students were less likely to walk around campus (32%) and more likely to drive alone (25%) compared to all other academic levels.
- Females were more likely to take the campus shuttle (18%) than males (13%). Males were more likely to walk (54%) than females (49%).
- Part-time employees were less likely to take public transportation and more likely to walk compared to full-time employees.
- Trips made by travelers in the over 60 age range have the lowest mode share of walking.
- Travelers age 46-60 had the highest mode share of walking (61%).
- As travelers get older, they are more likely to drive around campus alone.

# Mode Share Results

## Travel by Mode - To and From Campus Only

The following set of tables is based on the reported percent of mode use among people making either a trip to or from campus. The percentages are based off a total of 19,247 reported trips.

Chart 1: Overall Mode – To and From Campus

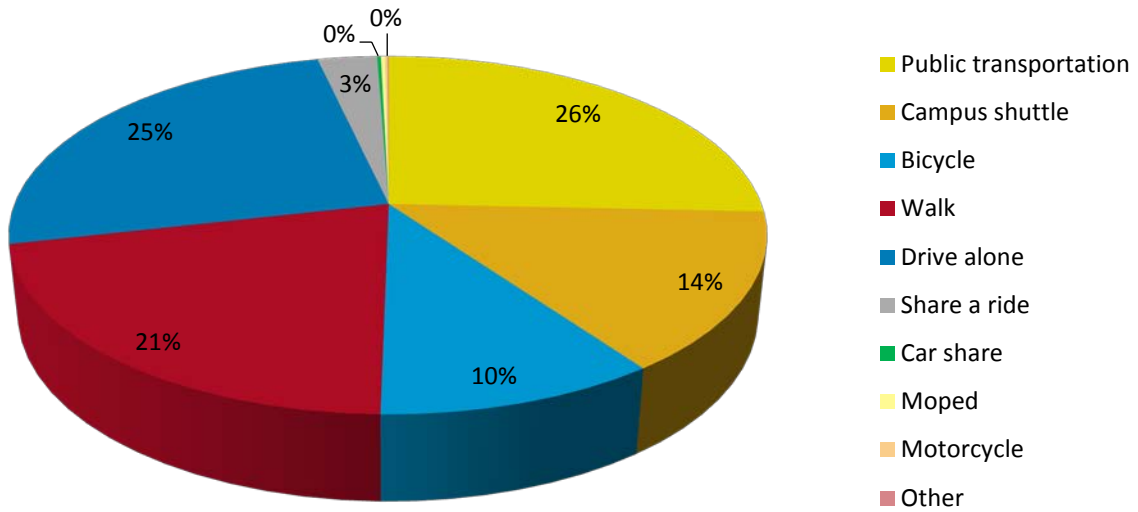
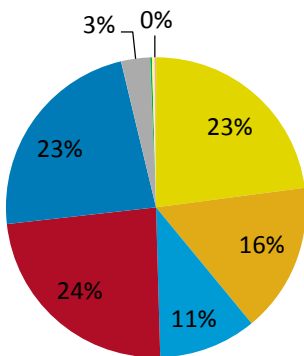
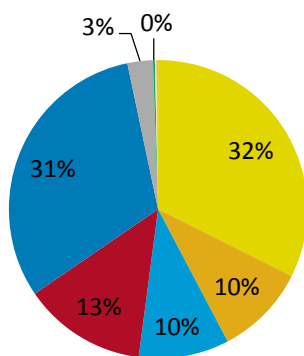


Chart 2: Mode by Group – To and From Campus

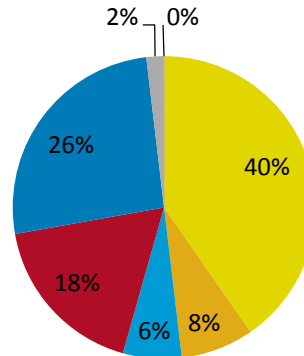
### Student



### Staff

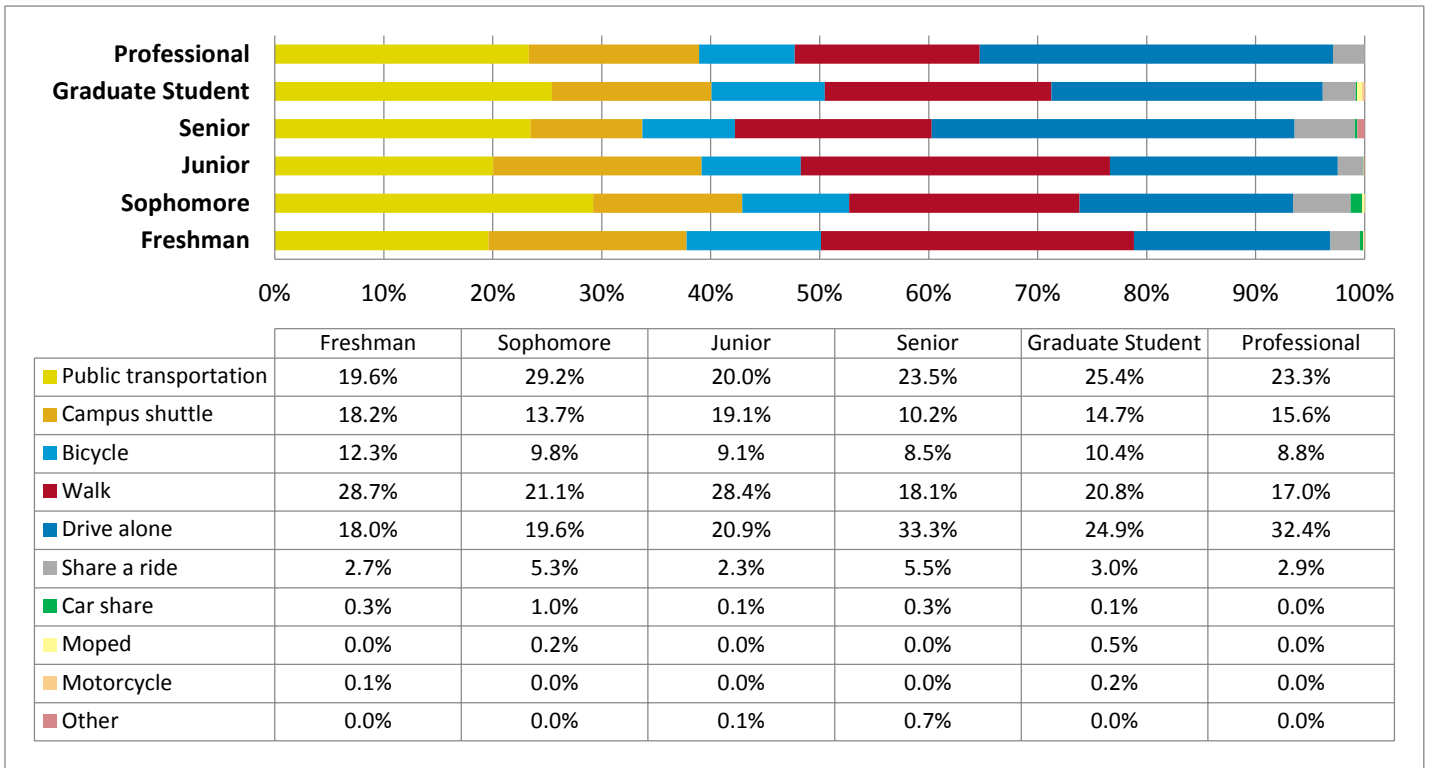


### Faculty

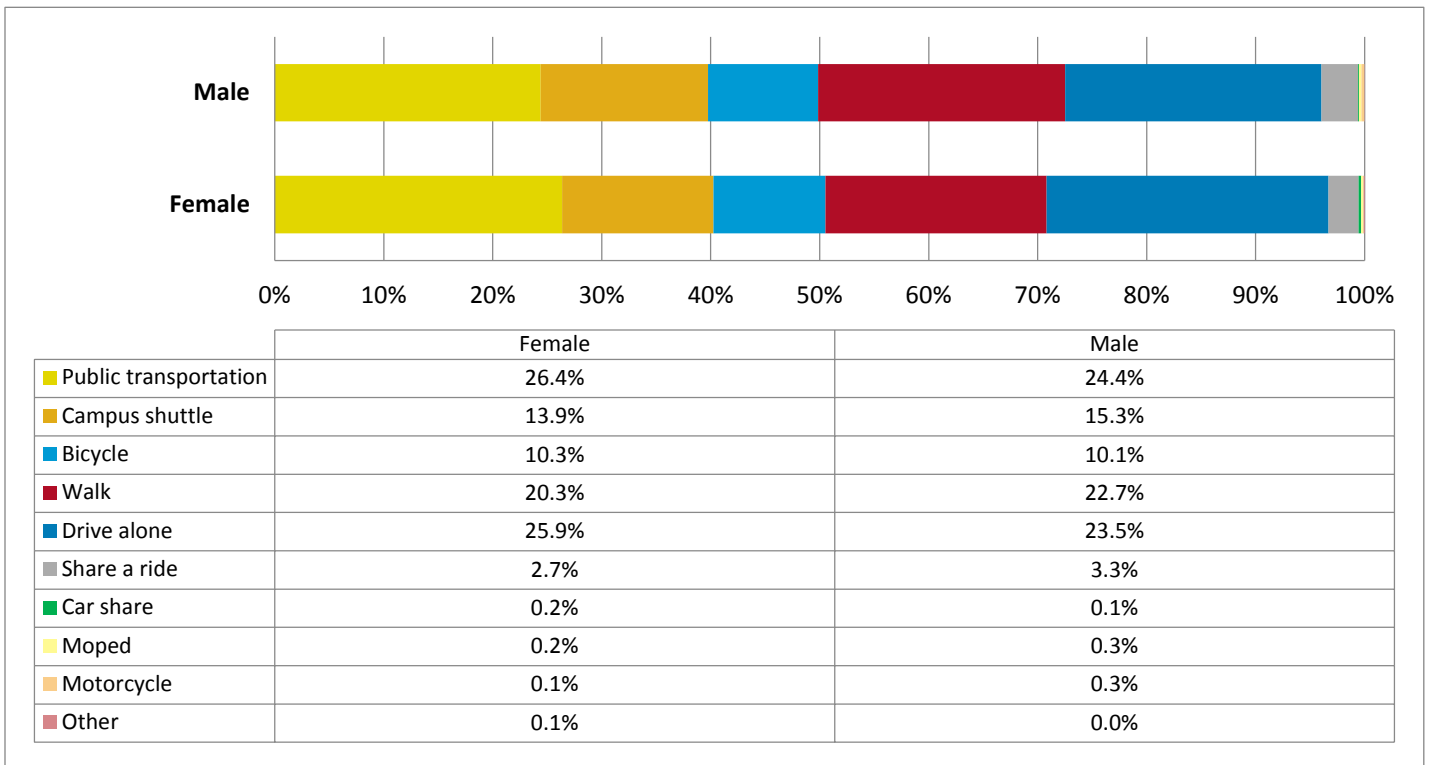




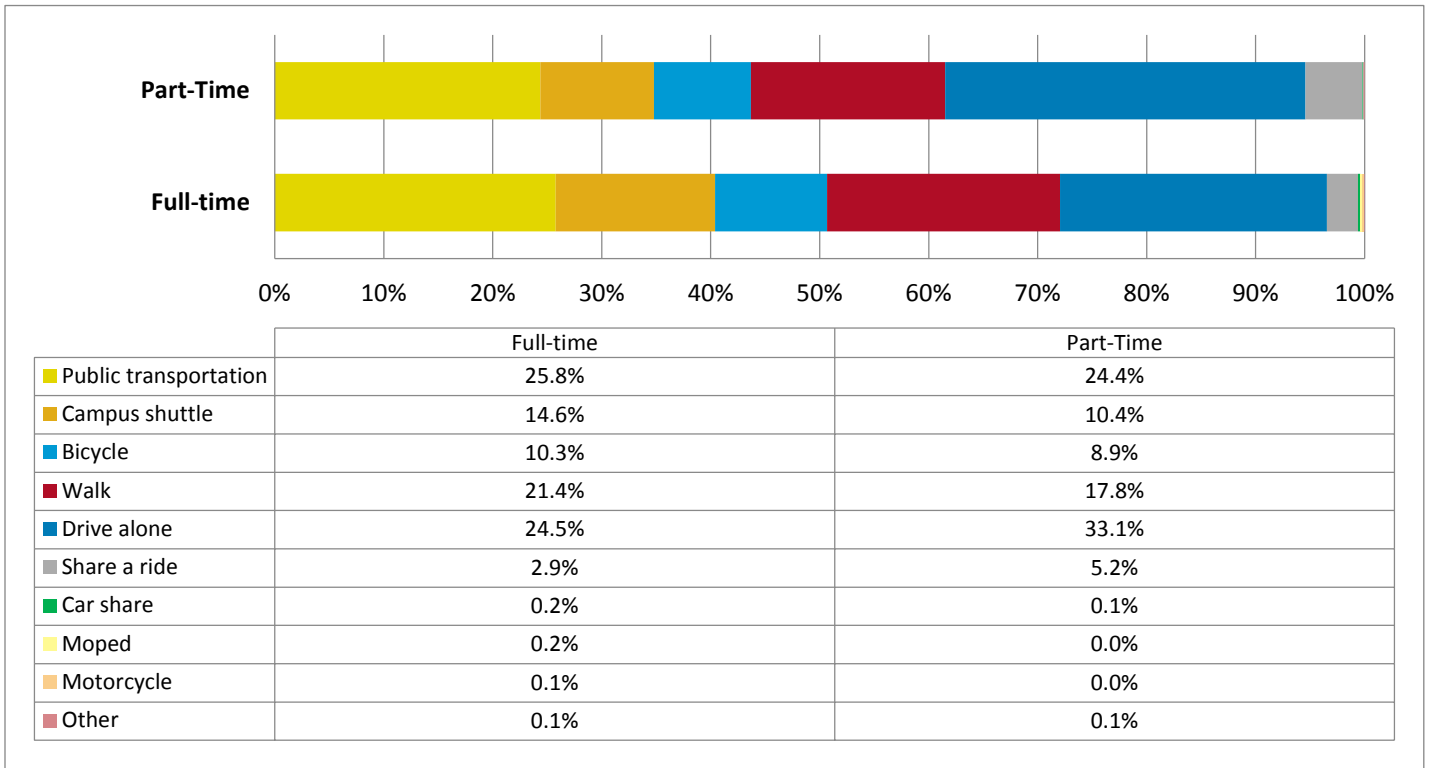
**Table 4.0: Mode by Academic Level – To and From Campus**



**Table 4.1: Mode by Gender – To and From Campus**



**Table 4.2: Mode by Status – To and From Campus**



**Table 4.3: Mode by Age Range – To and From Campus**

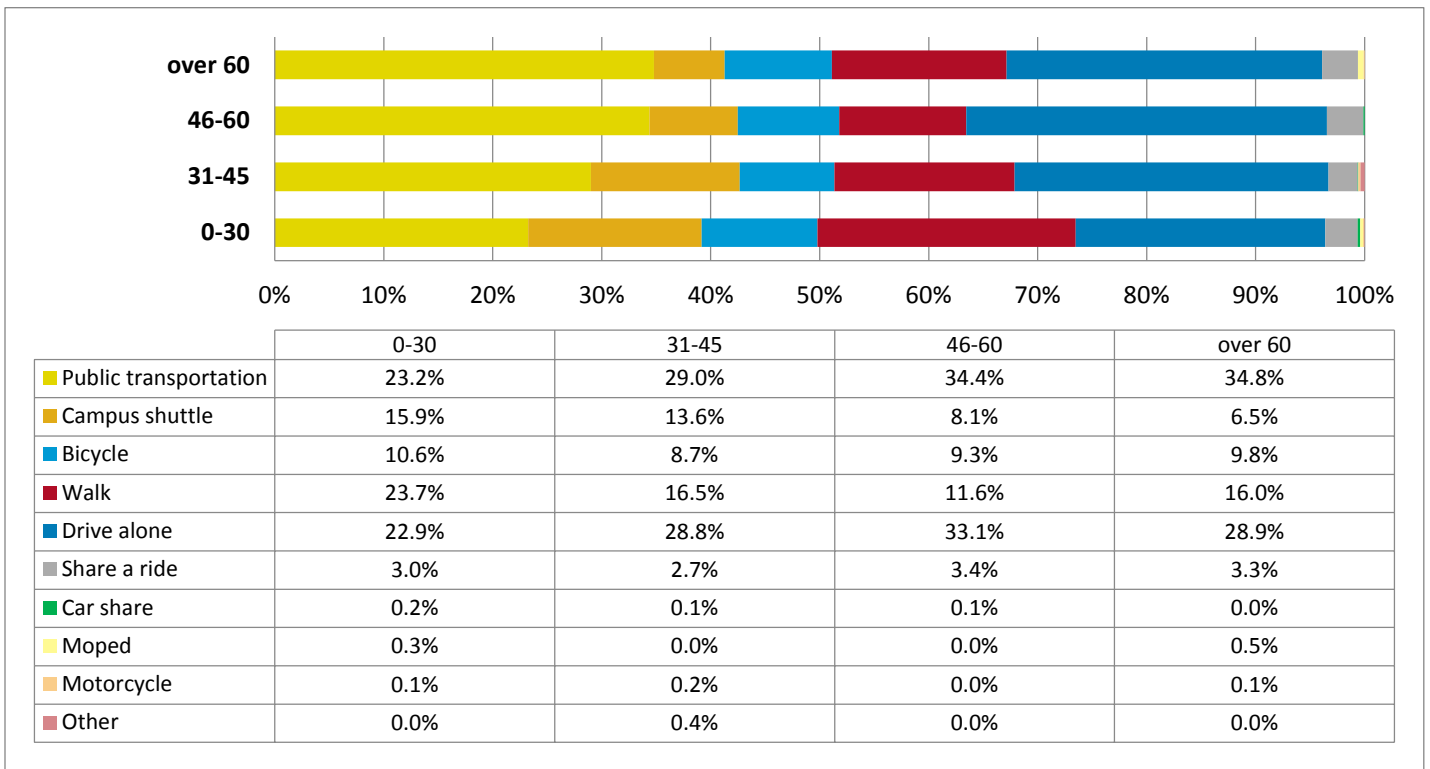
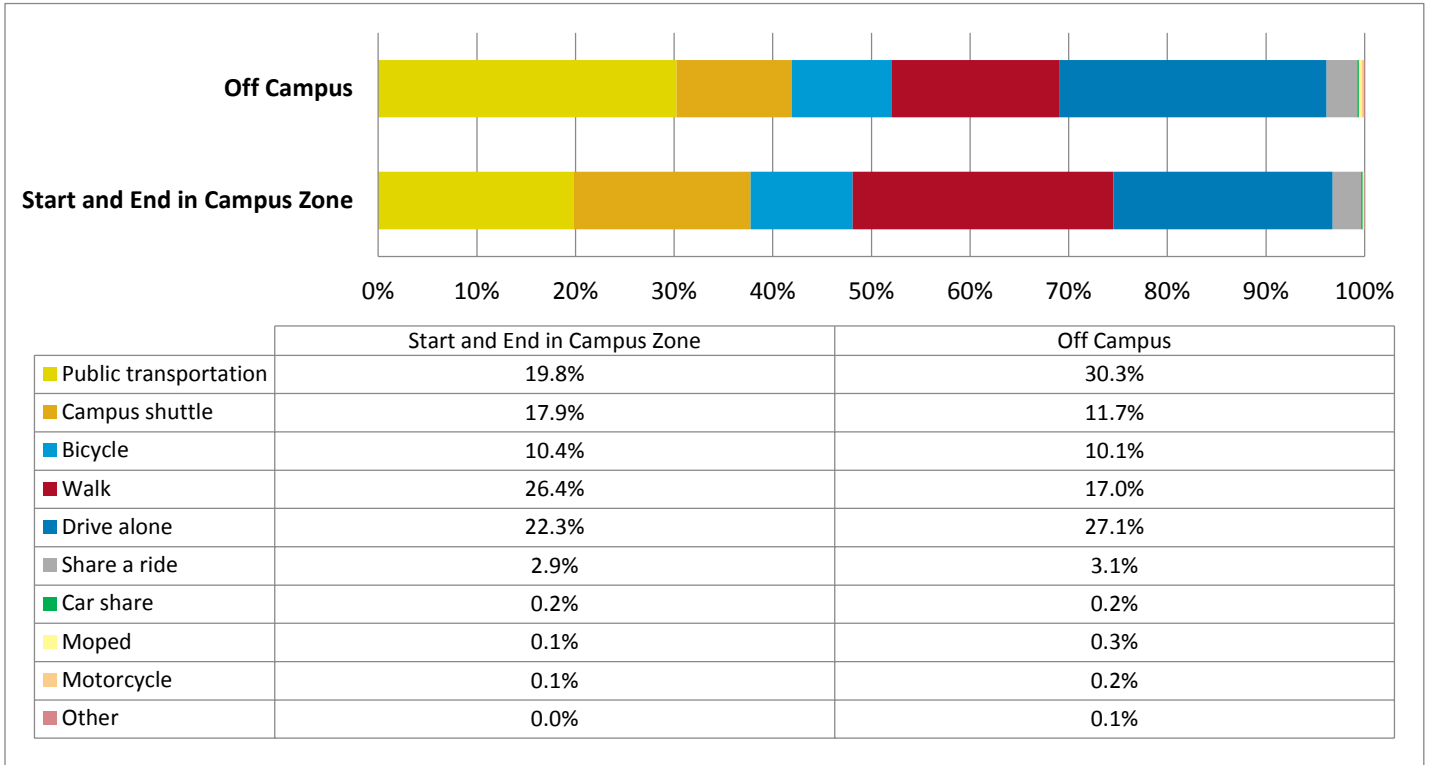


Table 4.4: Mode by On and Off Campus – To and From Campus



## Travel by Mode - Around Campus Only

The following set of tables is based on the reported percent of mode use among people making either a trip to or from campus. The percentages are based a total of 6,368 reported trips.

Chart 3: Overall Mode – Around Campus

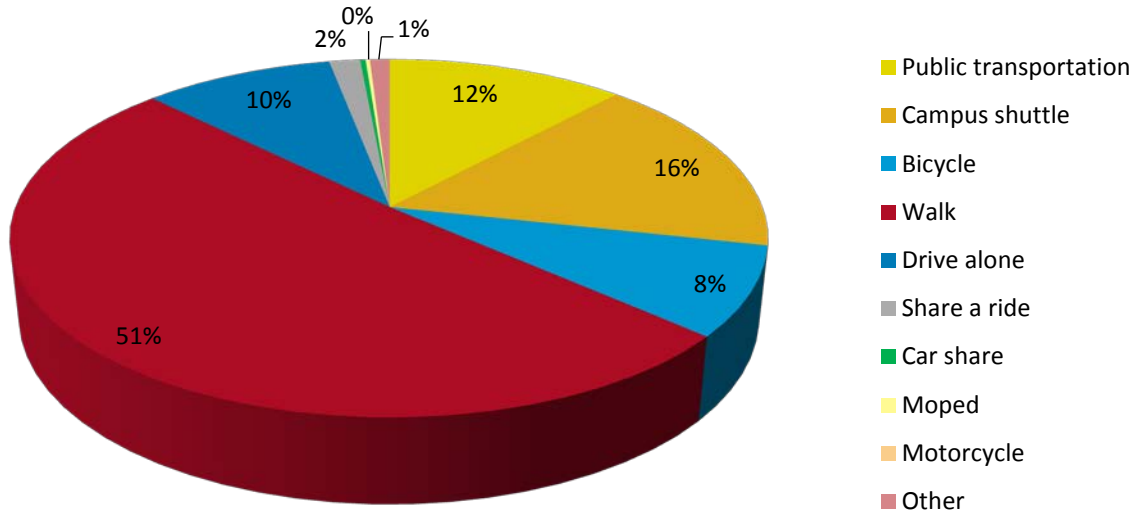
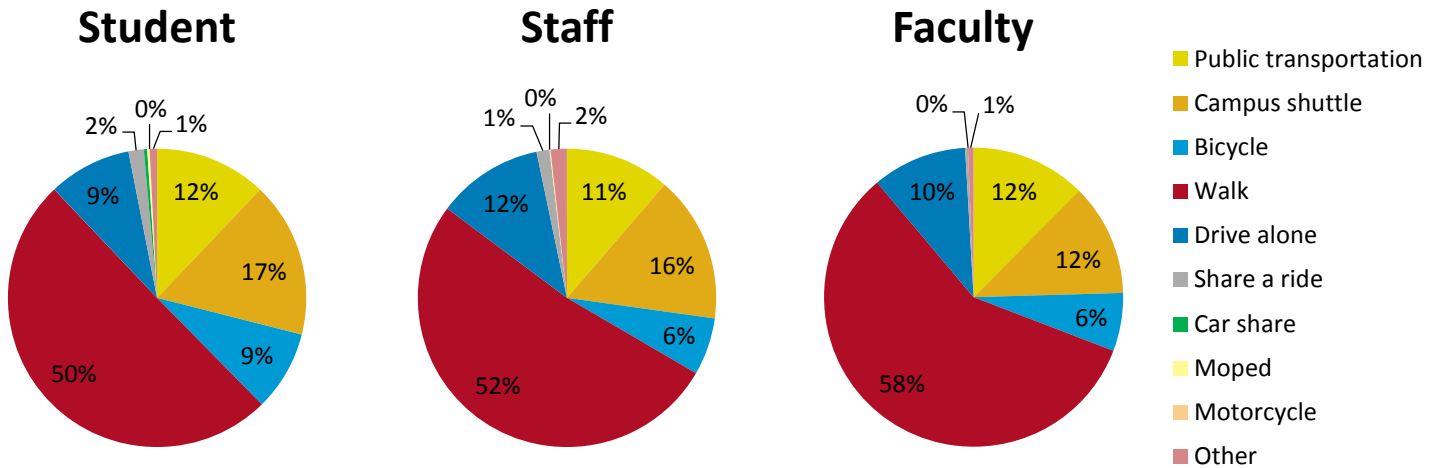
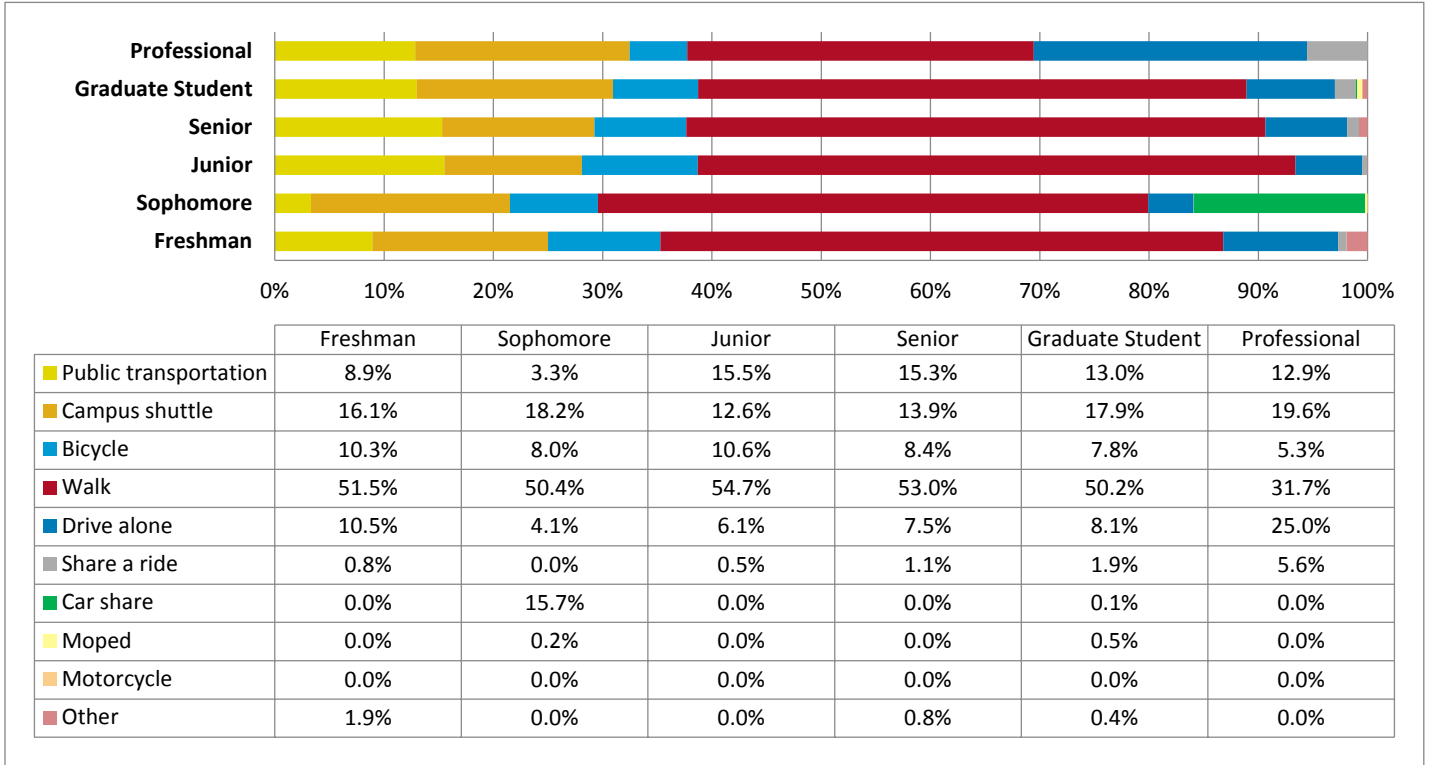


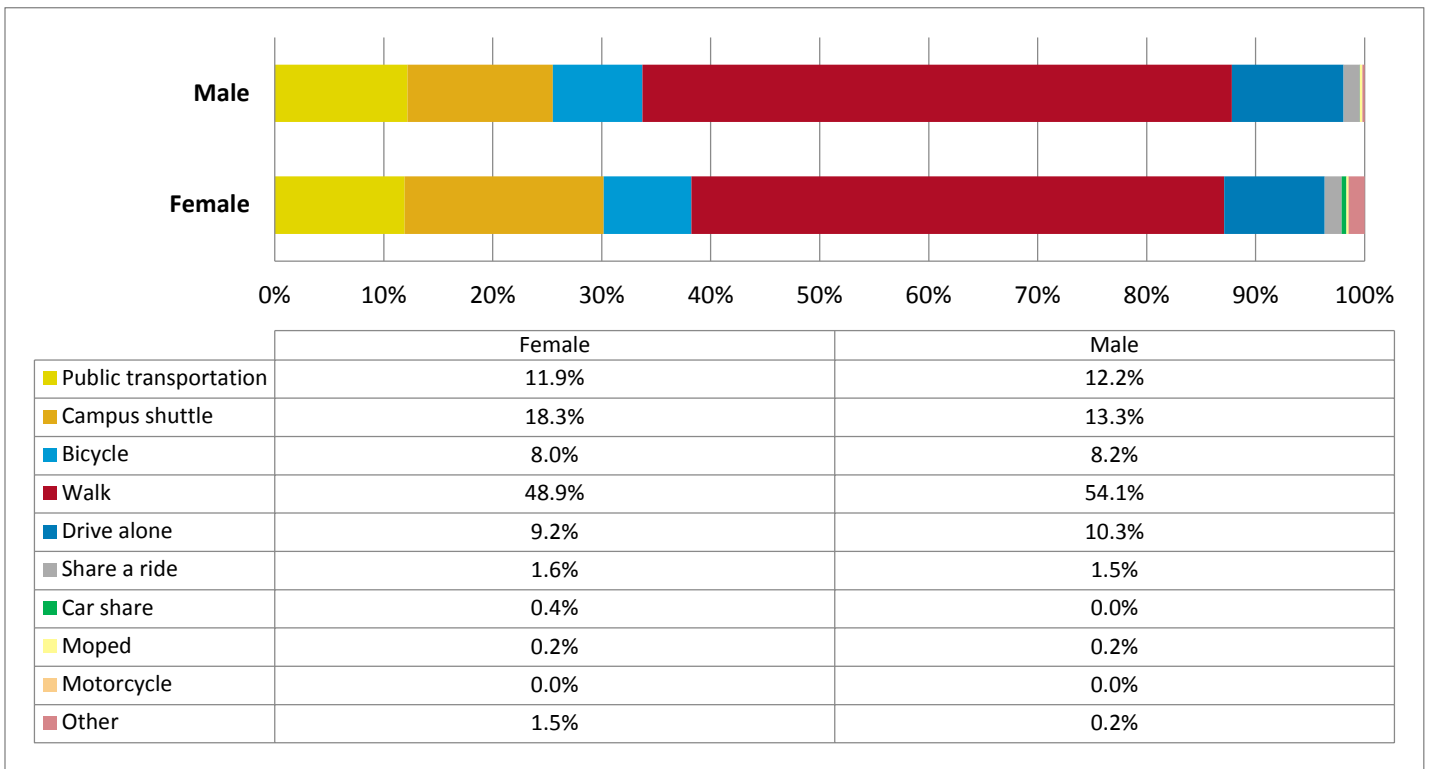
Chart 4: Mode by Group – Around Campus



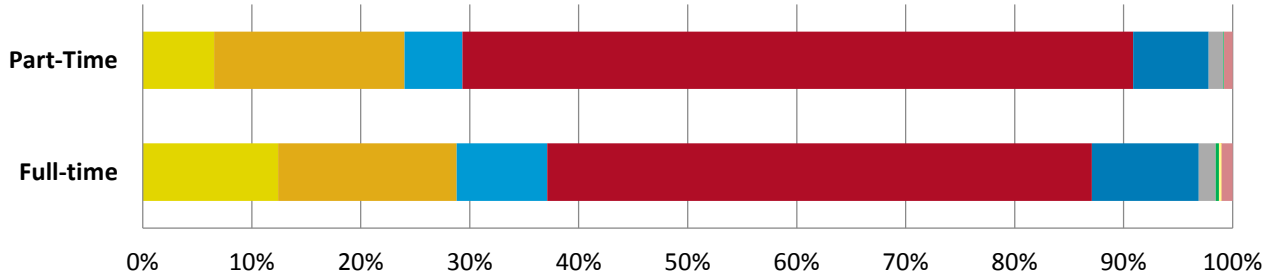
**Table 5.0: Mode by Academic Level – Around Campus**



**Table 5.1: Mode by Gender – Around Campus**

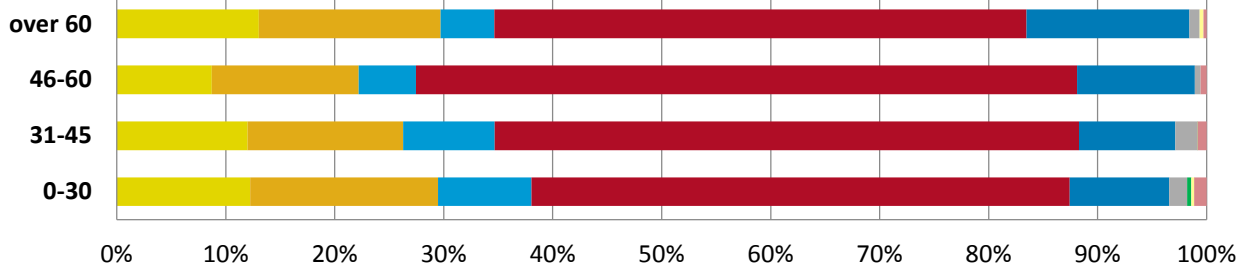


**Table 5.2: Mode by Status – Around Campus**



	Full-time	Part-Time
Public transportation	12.4%	6.5%
Campus shuttle	16.4%	17.5%
Bicycle	8.3%	5.3%
Walk	50.0%	61.5%
Drive alone	9.8%	6.9%
Share a ride	1.6%	1.4%
Car share	0.3%	0.0%
Moped	0.2%	0.0%
Motorcycle	0.0%	0.0%
Other	1.0%	0.8%

**Table 5.3: Mode by Age Range – Around Campus**



	0-30	31-45	46-60	over 60
Public transportation	12.2%	12.0%	8.7%	13.0%
Campus shuttle	17.2%	14.3%	13.5%	16.7%
Bicycle	8.6%	8.4%	5.3%	4.9%
Walk	49.4%	53.6%	60.7%	48.8%
Drive alone	9.1%	8.8%	10.8%	15.0%
Share a ride	1.6%	2.0%	0.5%	0.9%
Car share	0.4%	0.0%	0.0%	0.0%
Moped	0.3%	0.0%	0.0%	0.4%
Motorcycle	0.0%	0.0%	0.0%	0.0%
Other	1.1%	0.8%	0.6%	0.3%

# Origin / Destination Study Results

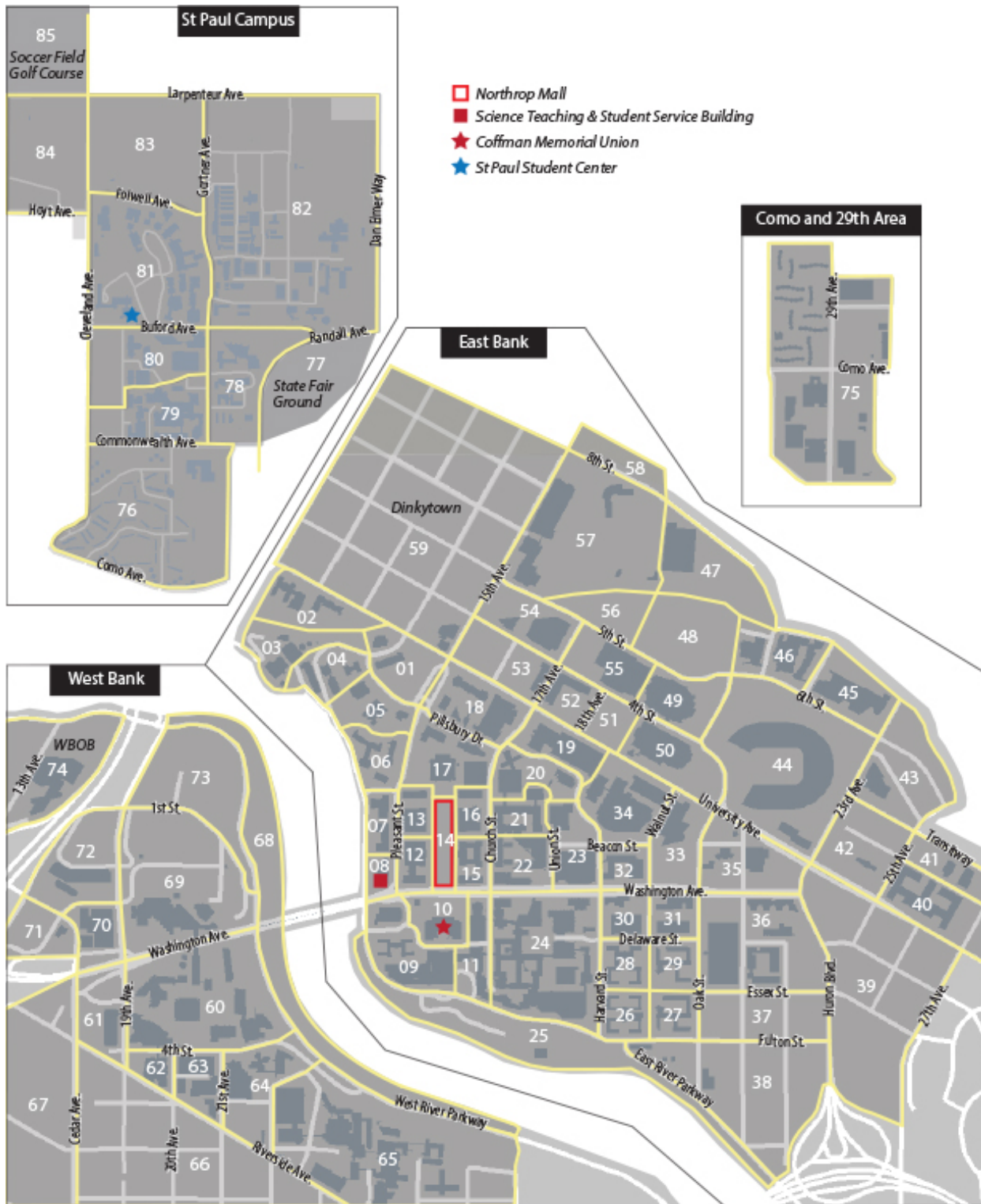


FIGURE 1 CAMPUS ZONES IN 2016 OD SURVEY

In the 2016 OD survey, the total campus area is defined as areas with University buildings and their immediately adjacent neighborhoods with densely populated student housing such as Dinkytown, Seven Corners, University Village, or Prospect Park. The campus zones are shown in Figure 1. Usually a zone delineates buildings or area of similar function. However, building(s) with less attraction were combined with adjacent building(s) with more attractions to form a zone; or sometimes buildings of similar functions were broken down to several zones because of their (high) level of attraction. The boundary of a zone is usually, if not always, coincides with a street or walkway centerline.

The OD results will serve as the foundation for PTS to plan for future bus routes, bicycle infrastructure, pedestrian amenities and parking facilities.

Refer to the Appendix D for high definition (PDF) versions of maps mentioned in this OD results section.



# Campus Origin and Destination for Transit Planning

For campus transit system planning purpose, trips within 5 minutes walking distance (or 1,050 ft in length assuming 3.5 ft/sec walking speed) have been excluded.

In order for a meaningful illustration of the OD's, only OD's that are highly or moderately demanded are shown on the maps below. "Highly demanded" OD's are defined as those demanded with 2 plus standard deviation higher than the average demand of all OD; while the "moderately demanded" OD's are 1-2 standard deviation higher than the average. The demand for a specific trip is indicated by the number of trips for this OD in a typical week in fall 2016. The number of trips is based on the 2210 valid survey responses that is 2.83% of the total population of 78,079.

The colors in the two maps below denote the level of demand (number of trips) for specific OD's.

## Highly Demanded Origin and Destination

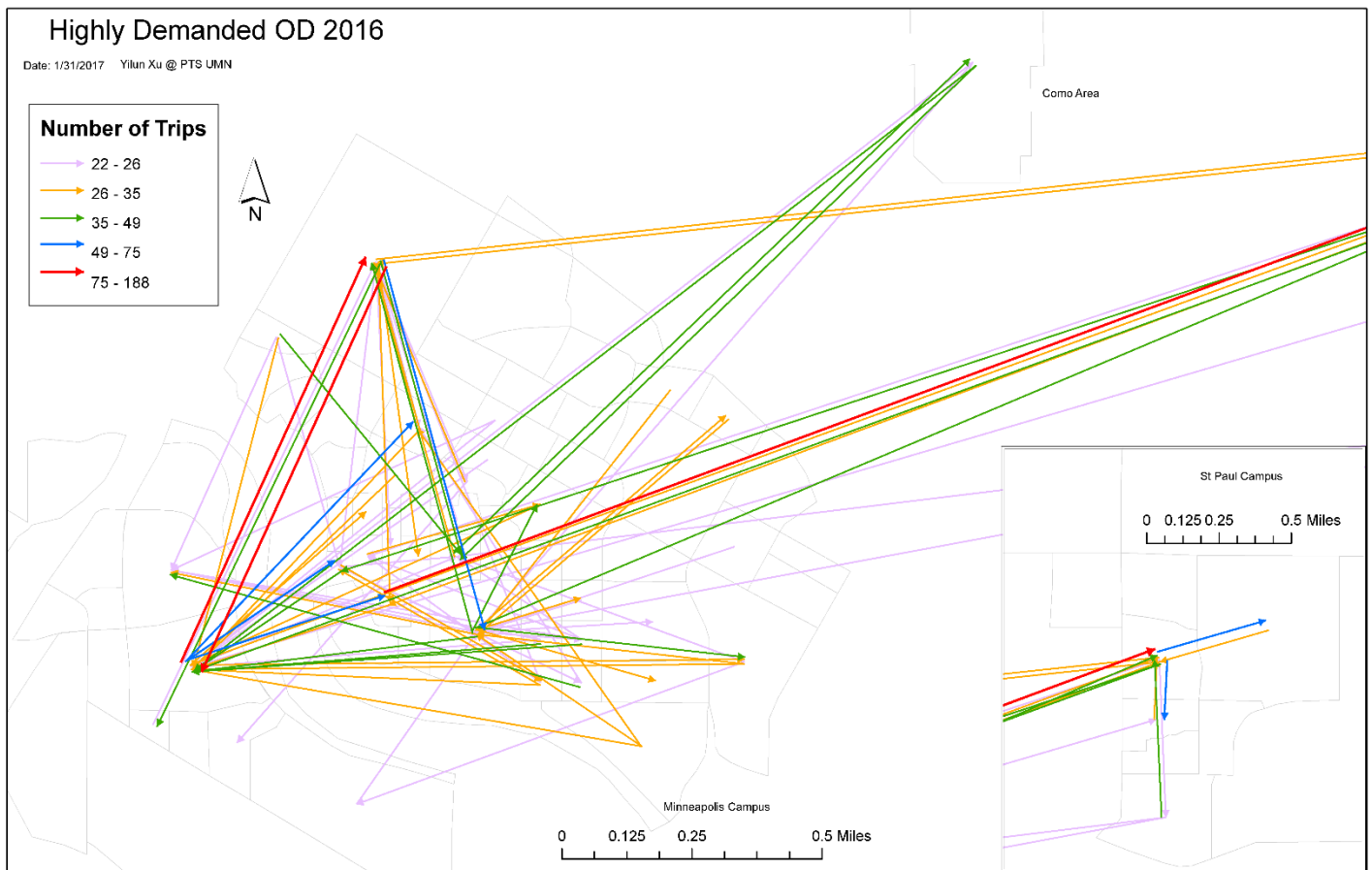
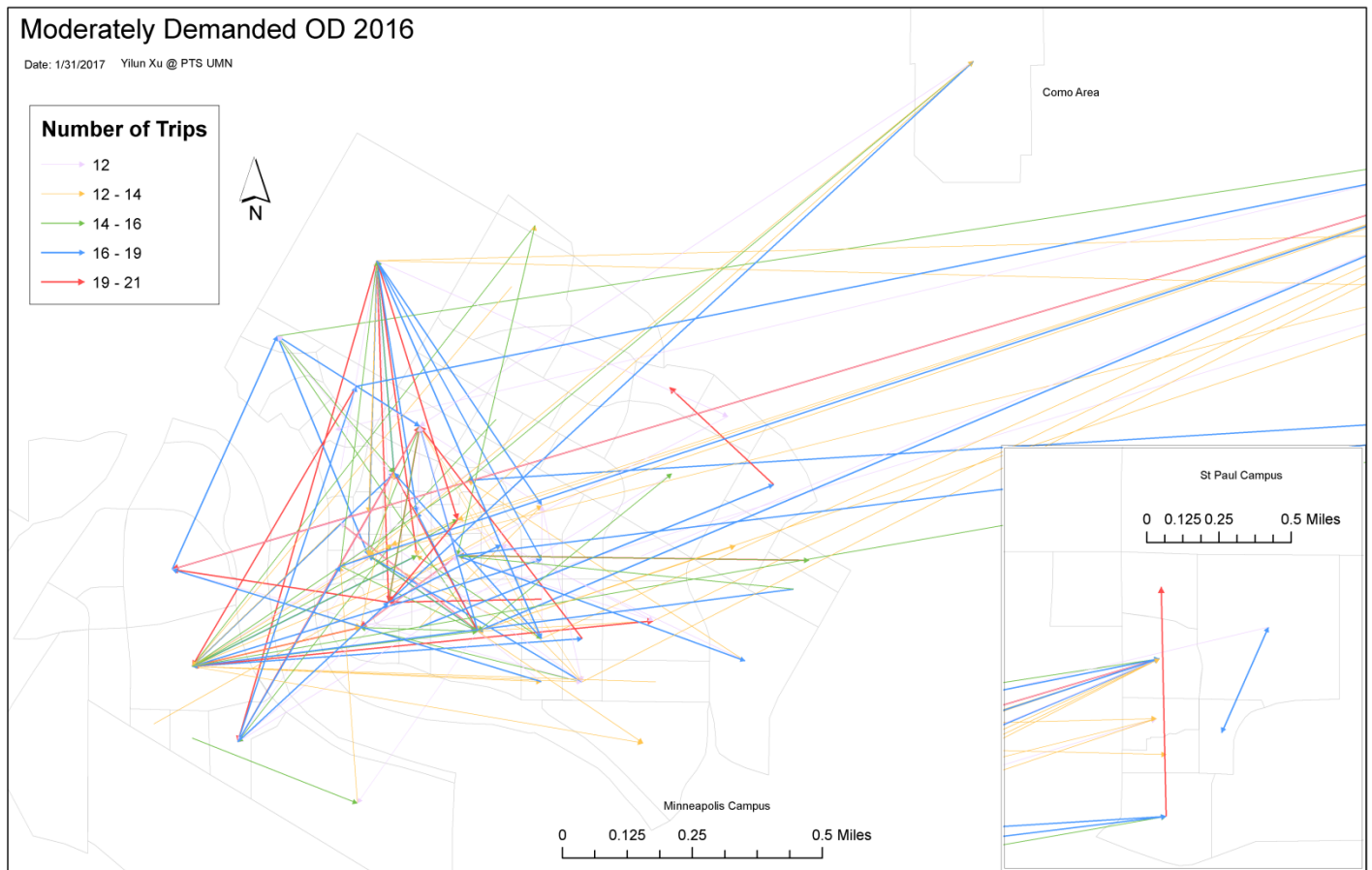


FIGURE 2 HIGHLY DEMANDED OD'S

According to the highly demanded OD map above, Below is a list of most highly ranked origin and destination "areas." Refer to the campus map for detailed areas (<http://www1.umn.edu/pts/>).

1. Coffman area (East Bank) from/to St Paul Student Center Area;
2. Coffman area (East Bank) from/to West Bank plaza area (south of Washington);
3. Dinkytown from/to St Paul Student Center Area;
4. East Bank (Health/Medical area, Knoll area) from/to Dinkytown;
5. West Bank from/to Dinkytown;
6. BDD area from/to Health/Medical area;
7. Como area from/to East/West Bank and Dinkytown

### Moderately Demanded Origin and Destination

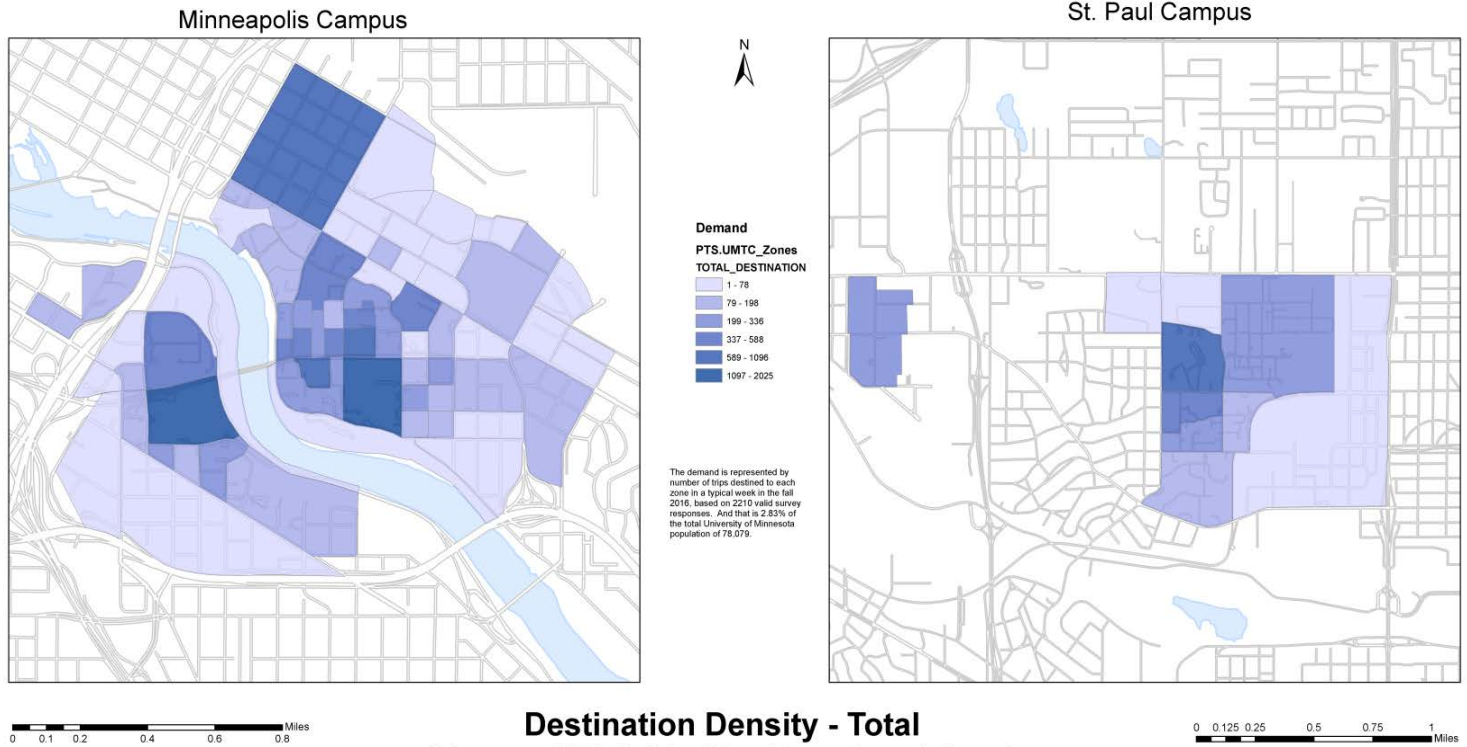


**FIGURE 3 MODERATELY DEMANDED OD'S**

Further review of the moderately demanded OD map reveals that there are additional demands especially between East Bank zones to St Paul zones, between Dinkytown and East Bank zones, and to/from the Como area. This map also shows busy short internal trips among the East Bank, Dinkytown and West Bank areas.

# Campus Destination Demand

## Destination Demand - Total



## Destination Density - Total (Demand Weighted by Zone Land Area)

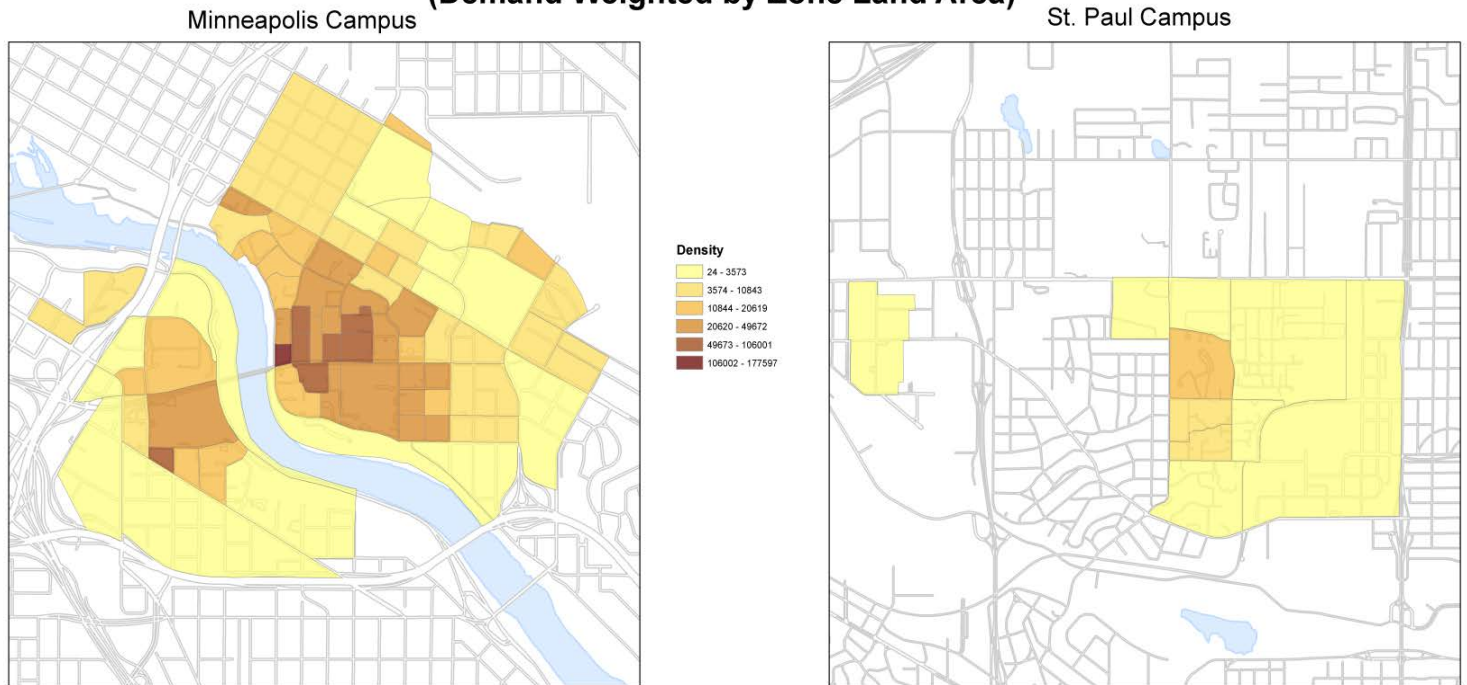
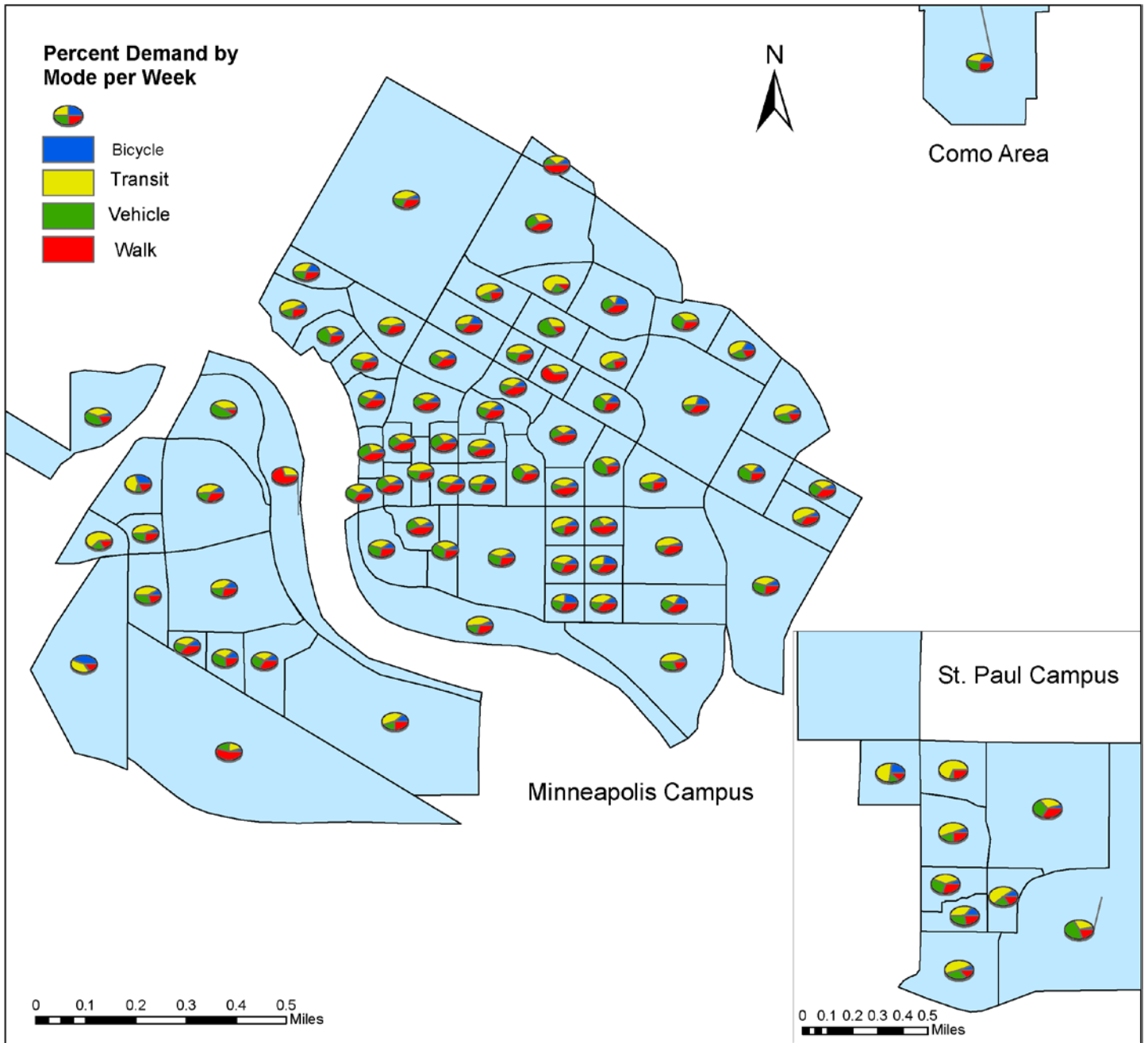


FIGURE 4 CAMPUS DESTINATION DEMAND AND DENSITY OF ALL MODES

The upper two maps in Figure 4 plot the number of trips (based on the survey responses) with all modes destined to each zone. The darker colors indicate higher destination demand. The lower two maps plot the density of trips with all modes destined to each zone. Density is calculated by dividing the number of trips destined a specific zone by the physical land area of the zone. The darker colors indicate higher destination density. Refer to the Appendix D for campus destination demands and density by vehicle, transit, bicycle or walk. These maps in Figure 4 and Appendix D indicate the level of land use in each zone, which is essential to transportation service and facility planning.

# Mode Share by Campus Destination



**FIGURE 5 DESTINATION MODE SHARES**

Figure 5 shows mode share (of bicycle, transit, vehicle, and walk) of all trips going to specific zones. For example, the transit mode share is higher for trips destined to the Northrop Mall than the stadium.

# Appendix A: Survey

# PTS Mode Share and Origin and Destination Survey

Q1 Please be sure to read the instructions to each question or set of questions. Answer each question based on your experience during a typical week, this fall semester.

Answer If GRP Is Equal to STU

Q2 Please select the part of Twin Cities campus where you spend the majority of your time.

- East Bank (1)
- West Bank (2)
- St. Paul Campus (3)
- I do not physically go to campus (4)

Q3 In a typical week, this fall semester, which days do you travel TO a destination on campus? (Select all that apply)

- Monday (1)
- Tuesday (2)
- Wednesday (3)
- Thursday (4)
- Friday (5)
- Saturday (6)
- Sunday (7)

Q3a Approximately how many weeks per year do you travel to campus?

Dropdown, 1-52

Q4 Instructions: In the next series of questions, you will be presented with a map of the Twin Cities campus that is divided into Zones. Each Zone has been assigned a number. Please select the Zone number where you are traveling from (origin) and where you are traveling to (destination). Origin and Destinations include buildings such as classrooms, offices, restaurants, athletic/rec facilities, etc. Do NOT include parking facilities, bus stops or train stations.

Carry Forward Selected Choices from "In a typical week, this fall semester, which days do you travel TO a destination on campus? <br> (Select all that apply)"

Q5 Please use the map to report your trip information TO your first campus destination each day you travel to campus. Fill in your Zip Code, ONLY if your origin zone is not listed.

[MAP]



Q6 Click here to view the interactive map for building details.

Origin Zone	Origin Zip Code	Destination Zone	Time of Day
-------------	-----------------	------------------	-------------

[Day(s) of the week selected in Q3]

Origin Zone: Not listed, 1-85

Origin Zip Code: Open-ended

Destination Zone: Not listed, 1-85

Time of Day: 5AM – 1PM, 1PM – 8PM, 8PM – 5AM

Carry Forward Selected Choices from "In a typical week, this fall semester, which days do you travel <u>TO</u> a destination on campus? <br> (Select all that apply)"

Q7 Please use the map to report your trip information FROM your last campus destination.

Q8 Click here to view the interactive map for building details.

Origin Zone	Origin Zip Code	Destination Zone	Time of Day
-------------	-----------------	------------------	-------------

[Day(s) of the week selected in Q3]

Origin Zone: Not listed, 1-85

Destination Zone: Not listed, 1-85

Destination Zip Code: Open-ended

Time of Day: 5AM – 1PM, 1PM – 8PM, 8PM – 5AM

Q9 Please use the slider scale to indicate the percentage use of the following modes of transportation to and from campus during a typical week in the fall. Do not include a mode if it does not contribute to a significant portion of that trip. Must total 100%. \*Public Transit includes Metro Transit Buses, Light Rail Transit, and other regular route transit (Southwest, MVTA, Jefferson Buses, Commuter Train, etc.)

- \_\_\_\_\_ U of MN campus shuttle bus (7)
- \_\_\_\_\_ \*public transit (1)
- \_\_\_\_\_ bicycle (2)
- \_\_\_\_\_ walk (8)
- \_\_\_\_\_ drive alone (6)
- \_\_\_\_\_ share a ride (e.g., Uber, Lyft, carpool) (3)
- \_\_\_\_\_ car share (e.g., Car2Go, HOURCAR, Zipcar) (13)
- \_\_\_\_\_ moped (5)
- \_\_\_\_\_ motorcycle (10)
- \_\_\_\_\_ other, please specify: (9)

Q10 After you reach your first campus destination, do you travel AROUND campus to other destinations (i.e., building to building)?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Q11 Instructions: In the next series of questions, select Zone numbers based on where you are traveling from (origin) and where you are traveling to (destination) while traveling AROUND campus. Please report ALL Trips that you take around campus in a typical week, this fall semester. Please ONLY include Trips from building to building (i.e., residence, classroom, office, restaurant, athletic/recreation facilities). Do NOT include parking facilities, bus stops or train stations.

Q12 Please use the map to report your travel information for this trip around campus.

Q13 Click here to view the interactive map for building details.

Origin Zone	Origin Zip Code	Destination Zone	Time of Day
-------------	-----------------	------------------	-------------

Origin Zone: Not listed, 1-85

Destination Zone: Not listed, 1-85

# of Trips: Open-ended

Time of Day: 5AM – 1PM, 1PM – 8PM, 8PM – 5AM

Q14 Please use the slider scale to indicate the percentage use of the following modes of transportation to and from campus during a typical week in the fall. Do not include a mode if it does not contribute to a significant portion of that trip. Must total 100%. \*Public Transit includes Metro Transit Buses, Light Rail Transit, and other regular route transit (Southwest, MVTA, Jefferson Buses, Commuter Train, etc.)

- \_\_\_\_\_ U of MN campus shuttle bus (7)
- \_\_\_\_\_ \*public transit (1)
- \_\_\_\_\_ bicycle (2)
- \_\_\_\_\_ walk (8)
- \_\_\_\_\_ drive alone (6)



- \_\_\_\_\_ share a ride (e.g., Uber, Lyft, carpool) (3)
- \_\_\_\_\_ car share (e.g., Car2Go, HOURCAR, Zipcar) (14)
- \_\_\_\_\_ moped (5)
- \_\_\_\_\_ motorcycle (10)
- \_\_\_\_\_ other (9)

Q15 Would you like report another trip?

- Yes (1)
- No (2)

If No Is Selected, Then Skip To End of Survey

Repeat Questions 11-15 up to 15 times.

# Appendix B: Reminders

# Wave 1: General Invitation

**Subject:** Help us Plan for Transportation at the U  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

You are one of a select few who have been invited to participate in a survey that will help plan campus shuttle services, bicycle infrastructure, pedestrian amenities, and parking facilities. Your participation to this study is critical to the future planning of Parking & Transportation Services.

You will be asked to report information regarding your travel behavior to, from and around the Twin Cities campus. The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th, 2015.

To thank you for your time, all respondents will qualify for a chance to win \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey. Identifiable information will only be used for reminder purposes and incentive selection. All responses will be reported in aggregate.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #1 - General

**Subject:** Help us Plan for Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

**Parking & Transportation Services can't plan for campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities without YOUR help.**

**Surveys are due Monday, December 15th.**

The survey will take approximately 20 minutes depending on your travel experience.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #2 – Targeted to Faculty

**Subject:** Help Plan for Campus Travel  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

We know that you are busy, but your participation in this study is critical to the future planning of Parking & Transportation Services at the University of Minnesota, Twin Cities,

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on faculty routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input.

You will be asked to report information regarding your travel behavior to, from, and around the Twin Cities campus. The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th, 2015.

All responses are confidential. Identifiable information will only be used for reminder purposes and incentive selection. All responses will be reported in aggregate.

**Follow this link to the Survey:**

[\\${://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${://SurveyURL}](#)

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #2 – Targeted to Staff

**Subject:** Help Plan for Campus Travel  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

We know that you are busy, but your participation in this study is critical to the future planning of Parking & Transportation Services at the University of Minnesota, Twin Cities,

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on staff routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input!

You will be asked to report information regarding your travel behavior to, from, and around the Twin Cities campus. The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th, 2015.

**Follow this link to the Survey:**

[\\${://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${://SurveyURL}](#)

Thank you for your time.

Parking & Transportation Services



# Wave 1: Reminder Email #2 – Targeted to Students

**Subject:** Help Plan for Transportation at the U  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

Wouldn't it be nice to say:

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on student routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input.

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Faculty

**Subject:** Final Reminder: Campus Traveler Study from PTS  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

We only need a few more responses from faculty, like you, to reach our total response goal and ensure that faculty are adequately represented in our study. Your input will inform the PTS plan for campus shuttle services, bicycle infrastructure, pedestrian amenities, and parking facilities.

We know this study requires a lot of thought; we are very appreciative of your time.

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th.

Follow this link to the Survey:  
\${!//SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!//SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Staff

**Subject:** Help Plan for Campus Travel  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

We only need a few more staff members to complete the Parking & Transportation study to ensure we are addressing your needs! Your input is critical to the planning efforts of PTS.

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on staff routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input!

You will be asked to report information regarding your travel behavior to, from, and around the Twin Cities campus. The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15, 2015.

**Follow this link to the Survey:**

[\\${://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${://SurveyURL}](#)

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Students by Campus (East Campus)

**Subject:** Due Dec. 15<sup>th</sup>: Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

Students who are traveling on the St. Paul and West Bank campuses are responding. **We need students, like YOU, who travel on the East Bank campus, to participate in this study so that your travel needs are represented.**

Help us prioritize plans for improving our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Wouldn't it be nice to say,

**"I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities."**

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by the end of the day Monday, December 15<sup>th</sup>.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Students by Campus (No Campus Designation)

**Subject:** Help Plan for Transportation at the U  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

Let us know if you are traveling to campus so we can include your input in our study to improve campus shuttle services, bicycle infrastructure, pedestrian amenities, and parking facilities.

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on student routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input.

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by December 15th.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Students by Campus (Saint Paul)

**Subject:** Due Dec. 15<sup>th</sup>: Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

**We only need 60 more responses from students who travel on the St. Paul campus to meet our goal!**

We need YOU to help us with our study. Without participation from students like you, the needs of St. Paul travelers may be under represented.

We would greatly appreciate you taking the time to think about your travel patterns. Wouldn't it be nice to say,

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

Leave your mark on the U by helping to prioritize the planning for improvements to our transportation facilities and services.

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by the end of the day Monday, December 15<sup>th</sup>.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #3 – Targeted to Students by Campus (West Bank)

**Subject:** Due Dec. 15<sup>th</sup>: Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

**We only need 150 more responses from students who travel on the West Bank campus to meet our goal!**

Leave your mark on the U by helping to prioritize the planning for improvements to our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Without participating from students like YOU, the needs of West Bank travelers may be under represented. Wouldn't it be nice to say,

**"I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities."**

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by the end of the day Monday, December 15<sup>th</sup>.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${!//SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!//SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 1: Reminder Email #4 – Faculty

**Subject:** Final Reminder: Campus Travelor Study from PTS  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

Students and staff have already provided feedback to improve their parking and transportation needs. **We now need faculty members like you to participate in this study so that your travel needs are also represented.**

Your feedback will help us improve our campus shuttle service, pedestrian amenities, bicycle infrastructure, and parking facilities so they meet the needs of faculty on campus.

We know this study requires a lot of thought; we are very appreciative of your time.

If you have any questions about the survey, please reply to this email and we will be happy to assist you.

Follow this link to the Survey:

[\\${://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${://SurveyURL}](#)

Thank you for your time.

Parking & Transportation Services



# Wave 1: Targeted Email to In-Progress Participants

**Subject:** You are almost done! PTS Transportation Study  
**From:** Parking & Transportation Services (PTS)

Hello,

**Our records show that you started the PTS Mode Share and Transportation Study, but have not yet finished.** The University will be adjusting the campus shuttle service, pedestrian amenities, bicycle infrastructure, and parking facilities based on the results of the survey. For this reason, we urge you to complete the survey so you can be represented when we make our transportation improvements.

**You will receive an email reminder requesting that you finish the survey momentarily.** Please take a few minutes to complete this important survey even if you do not use campus travel amenities frequently. Your feedback is vital and helps us better understand the variety of different travel routes being used to, from, and around campus.

We understand this survey requires a lot of thought. We are very appreciative of your time and are happy to assist you with any questions you may have.

Sincerely,

Parking & Transportation Services

# Wave 1: Reminder Email #4 – Targeted to Students by Formatted by Campus

**Subject:** We still need you help planning campus travel  
**From:** Parking & Transportation Services

Dear [First Name],

Students from the [St. Paul/East Bank/West Bank] and [St. Paul/East Bank/West Bank] campuses have already provided feedback to improve their parking and transportation needs. **We now need students like YOU, who travel on the [St. Paul/East Bank/West Bank] campus, to participate in this study so that your travel needs are represented.**

Your feedback will help us improve our campus shuttle service, pedestrian amenities, bicycle infrastructure, and parking facilities so they meet the needs of students on the [St. Paul/East Bank/West Bank].

We know this study requires a lot of thought; we are very appreciative of your time. If you have any questions about the survey, please reply to this email and we will be happy to assist you.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

## Wave 2: Invite – Targeted to Students

**Subject:** Student Traveling To and Around the U  
**From:** Parking & Transportation Services (PTS)

Dear [First Name],

Help us prioritize plans for improving our transportation facilities and services at the University of Minnesota, Twin Cities campus. We have heard from faculty and staff, but we need to hear from students like you!

In 2014, results from this survey helped determine the campus shuttle routes that exist today and informed economic and parking studies that relied on student routing and mode of transit information. In an effort to constantly monitor the effectiveness of our plans, we need your input.

The survey will take approximately 20 minutes depending on your travel experience.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 2: Reminder Email #1 – Targeted to Students by Campus (East Bank)

**Subject:** Important: Study of Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

Students who are traveling on the St. Paul and West Bank campuses are responding. **We need students, like YOU, who travel on the East Bank campus, to participate in this study so that your travel needs are represented.**

Help us prioritize plans for improving our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Wouldn't it be nice to say,

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

The survey will take approximately 20 minutes depending on your travel experience.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 2: Reminder Email #1 – Targeted to Students by Campus (Saint Paul)

**Subject:** Important: Study of Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

Students who are traveling on the West Bank and East Bank campuses are responding. **We need students, like YOU, who travel on the St. Paul campus, to participate in this study so that your travel needs are represented.**

Help us prioritize plans for improving our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Wouldn't it be nice to say,

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

The survey will take approximately 20 minutes depending on your travel experience.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 2: Reminder Email #1 – Targeted to Students by Campus (West Bank)

**Subject:** Important: Study of Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

Students who are traveling on the St. Paul and East Bank campuses are responding. **We need students, like YOU, who travel on the West Bank campus, to participate in this study so that your travel needs are represented.**

Help us prioritize plans for improving our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Wouldn't it be nice to say,

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

The survey will take approximately 20 minutes depending on your travel experience.

Follow this link to the Survey:  
\${://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 2: Reminder Email #2 – Targeted to Students by Campus (East Bank)

**Subject:** Due Dec. 15<sup>th</sup>: Transportation at the U  
**From:** Parking & Transportation Services

Dear \${e://Field/FIRST\_NAME},

**We only need 150 more responses from students who travel on the East Bank campus to meet our goal!**

Leave your mark on the U by helping to prioritize the planning for improvements to our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Without participation from students like YOU, the needs of East Bank travelers may be under represented. Wouldn't it be nice to say,

**"I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities."**

The survey will take approximately 20 minutes depending on your travel experience.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${l://SurveyURL}

Thank you for your time.

Parking & Transportation Services

# Wave 2: Reminder Email #2 – Targeted to Students by Campus (West Bank)

**Subject:** Due Dec. 15<sup>th</sup>: Transportation at the U  
**From:** Parking & Transportation Services

Dear [First Name],

**We only need 150 more responses from students who travel on the West Bank campus to meet our goal!**

Leave your mark on the U by helping to prioritize the planning for improvements to our transportation facilities and services. We would greatly appreciate you taking the time to think about your travel patterns.

Without participating from students like YOU, the needs of West Bank travelers may be under represented. Wouldn't it be nice to say,

**“I helped the University plan the....campus shuttle services, bicycle infrastructure, pedestrian amenities and parking facilities.”**

The survey will take approximately 20 minutes depending on your travel experience. Responses are due by the end of the day Monday, December 15<sup>th</sup>.

To thank you for your time, all respondents will qualify for a chance to win a \$20 PTS gift certificate. The drawing will be held upon conclusion of the survey.

Follow this link to the Survey:  
\${!://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser:  
\${!://SurveyURL}

Thank you for your time.

Parking & Transportation Services



# Appendix C: Data Cleaning

# Data Cleaning Protocol and Summary

## Protocol: To Campus, From Campus, and Around Campus

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### Instructions

- Remove test responses (usually OMS staff or client)
  - Remove from Qualtrics prior to export
- Check for duplicates
  - Keep the most complete response. If they have the same number of responses, keep the earliest response
  - Remove the partial if they have a complete

### Main Data Set

- Rule 1: Remove partial responses that also have a complete, duplicate responses (keeping the most complete response or earliest if there is a tie), and those who did not respond past Q3.
- Rule 2: Remove responses with omitted Origin or Destination will be excluded from analysis
- Add columns for Total Weekday Trips, Total Weekend Trips and Total Trips. Highlight in pink.
- Highlight columns for trips TO campus based on Day so they can be grouped accordingly
- Highlight columns for trips FROM campus based on same day groupings, but make text green so you can tell the difference.
- If the number of trips per week is omitted, enter a 1 and include in the data set
- If the respondent entered 100 in the mode share section, but did not include zeros in the other columns, add the zeros and include in the data set
- If zip code is 9 digits, fix it so it is only 5 digits
- If decimals were entered in number of trips per week, leave as is.
- If a respondent is excluded in all three sections, remove them from the original data set and all sections.
- The following should be applied when cleaning the text entry for the Mode items. If recoding, the percentage indicated in other should be moved to the appropriate mode:
  - Car 2 Go = Drive Alone
  - Comments indicating that they are dropped off by someone = Drive alone
  - Comments indicating they drive alone, but were entered as 'other' = Drive alone
  - Green Line Train = Public transit
  - Handicap Transit = Public transit
  - Light Rail = Public transit
  - Run = Walk
  - Washington Ave. Bridge Circulator = U of M shuttle
  - Metro = Public transportation \*
  - Drive with faculty member = Share a ride
  - Other comments should be analyzed each year and added to the protocol
  - CAR= drive alone
  - Nice Ride = biking
  - MU Car = drive alone
  - Rollerblading = other
  - Receive a ride from a friend = share a ride
  - Ride from friend = share a ride
  - Campus circulator= U of MN Shuttle
  - drive part way then walk 1.2mi = Split so 50% is drive alone and 50% is walk
  - Rollerblade & run = split so 50% is other and 50% is walk
  - personal car= drive alone
  - Fairview shuttle = Share a ride
  - drive with husband on his way to /from work= Share a ride

- personal vehicle= drive alone

- bike & public transit= split so 50% is bike and 50% is public transportation
- drive with spouse = Share a ride
- roller blades, skateboarding, skate= other

## To Campus

- If they don't have both an O & D, remove them unless they have a Zip Code and D
- If zip code is 9 digits, fix it so it is only 5 digits
- If no origin or zip code is provided. Mark blue \*
- Responses with an O and D, but omit time of day or zip code will be included in analysis (if they do not have both O and D, mark blue on TO sheet)
- Responses with an Origin of zero, but omitted zip code will be included in analysis
- If 1 was selected for the zone origin (FOR the TO CAMPUS), but a zip code was entered, change the zone to 0
- If the zip code contains a destination zone #, move the destination zone number to the zone column and put a space in the zip code column
- If the zip code was entered incorrectly, update the zip code. The zip code may be found in a correct entry by the same respondent or in the demographic information for students only.
- If text or an erroneous number was entered into the zip code field, remove and leave blank

## From Campus

- If they don't have both an O & D, remove them unless they have a Zip Code and O
- If zip code is 9 digits, fix it so it is only 5 digits
- If the zip code contains a destination zone #, move the destination zone number to the zone column and put a space in the zip code column
- If the zip code was entered incorrectly, update the zip code. The zip code may be found in a correct entry by the same respondent or in the demographic information for students only.
- If text or an erroneous number was entered into the zip code field, remove and leave blank

## Around Campus

- Responses with mode data, but omitted O,D data will be included in analysis
- Response in the around campus section will be included if they have **either** complete mode **OR** OD data.
- If the respondent entered 100 in the mode share section, but did not include zeros in the other columns, add the zeros and include in the data set
- If total trips per week has any fractions they should be rounded up to the nearest whole number.

## Data Cleaning of Partial Responses

---

There was a total of 3167 partial and completed responses.

The following were removed from the dataset

- Partials with a complete or duplicate response
  - 169 removed
- Responses with no Origin or Destination
  - 788 removed

Total records remaining: 2210

- Finished: 1927
- Partials: 283

### **To Campus**

- 10,578 reported trips
- .008% of the records were removed (85)
  - 85 are missing either the Origin or Destination and have been removed
- 10,493 records remaining

### **From Campus**

- 8,897 reported trips
- 1.6% of the records were removed (142)
  - 86 are missing either the Origin or Destination or Zip Code
  - 56 records were cleaned based on the protocol
- 8,755 records remaining

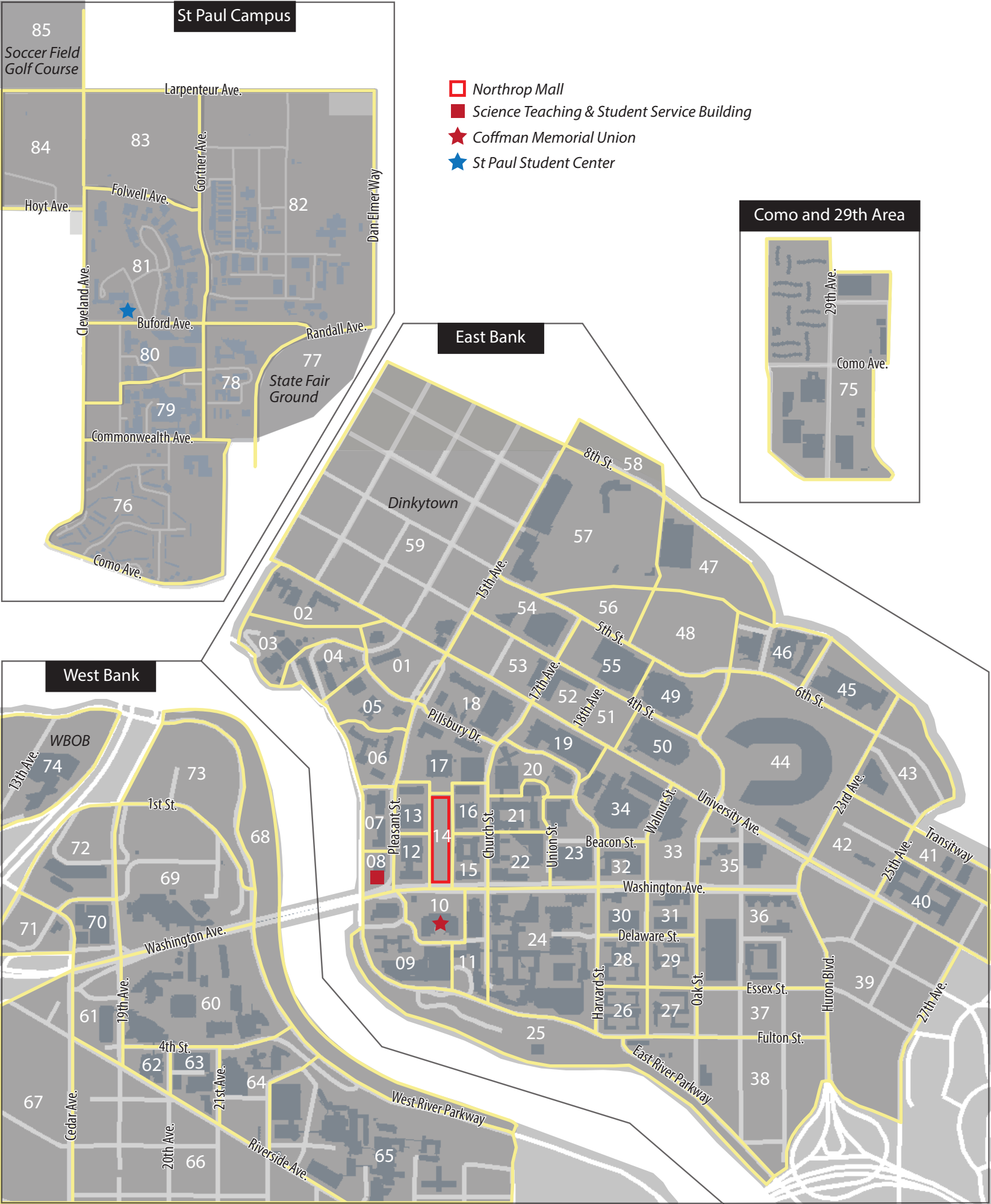
### **Around Campus**

- 2291 reported trips totaling 6366 trips per week
- 3.2% of the records were removed (74)
  - 74 are missing OD and Mode information and were removed from the OD and Mode dataset
  - 2217 records remain, totaling 6368 trips per week

# Appendix D: Maps

## Origin and Destination Maps

1. Campus Zones for 2016 OD Survey
2. Highly demanded OD's for Transit Planning
3. Moderately demanded OD's for Transit Planning
4. Campus destination demands by modes
5. Destination mode shares



**St Paul Campus**

85  
Soccer Field  
Golf Course

- Northrop Mall
- Science Teaching & Student Service Building
- ★ Coffman Memorial Union
- ★ St Paul Student Center

**Como and 29th Area**



**East Bank**

**West Bank**

Dinkytown

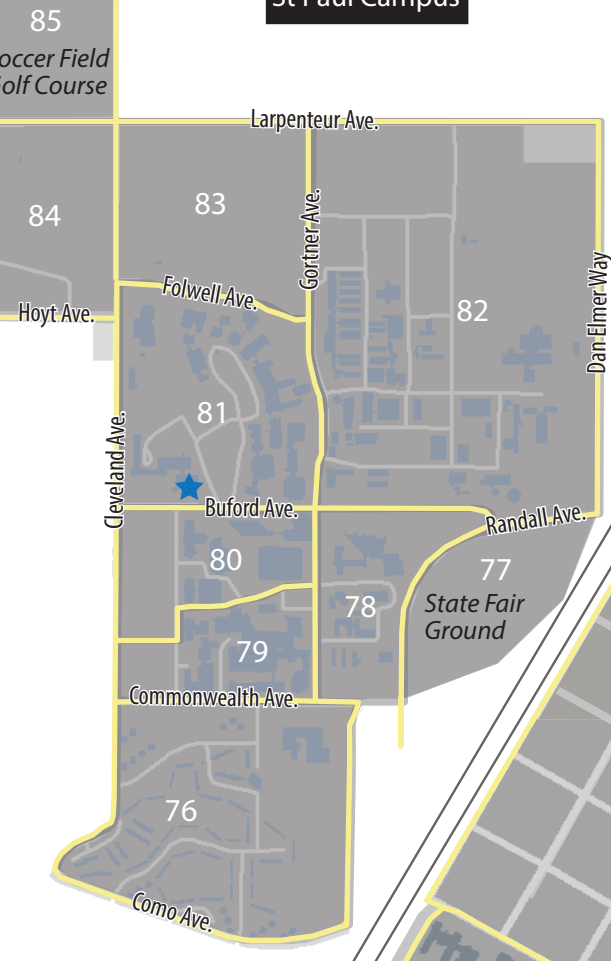
77  
State Fair  
Ground

WBOB

West River Parkway

East River Parkway

Transitway

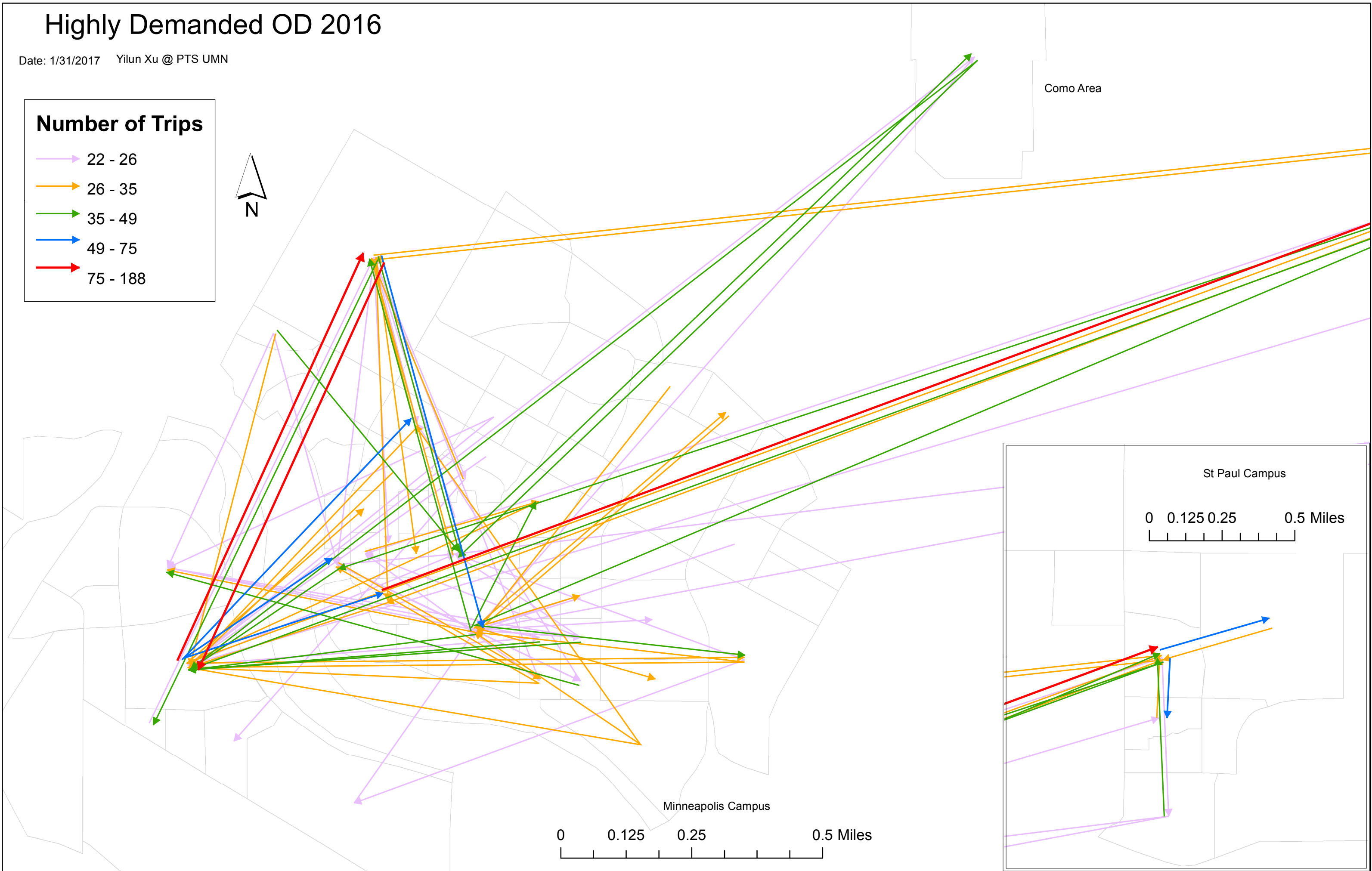


# Highly Demanded OD 2016

Date: 1/31/2017 Yilun Xu @ PTS UMN

## Number of Trips

- 22 - 26
- 26 - 35
- 35 - 49
- 49 - 75
- 75 - 188



Como Area

St Paul Campus

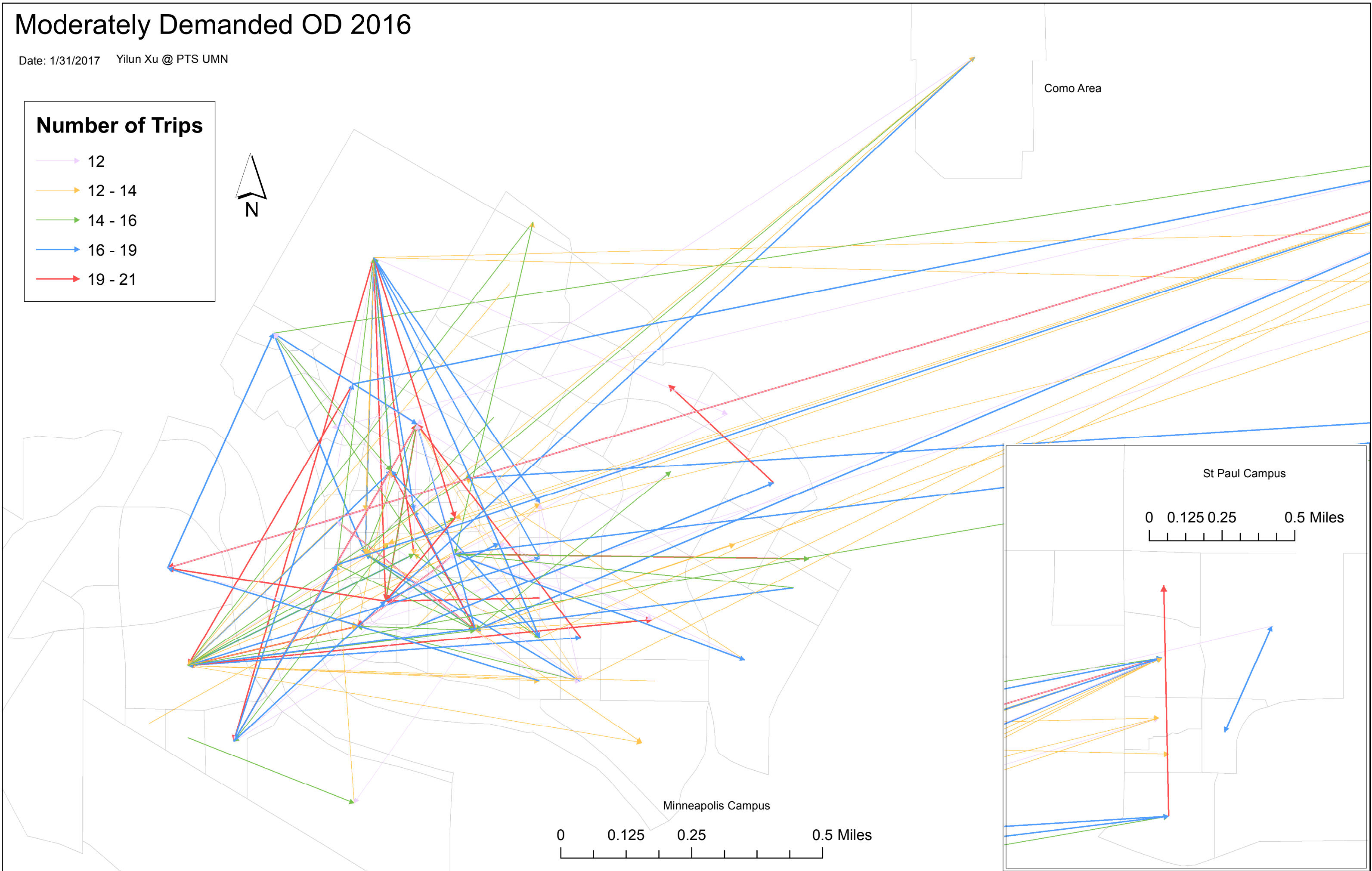
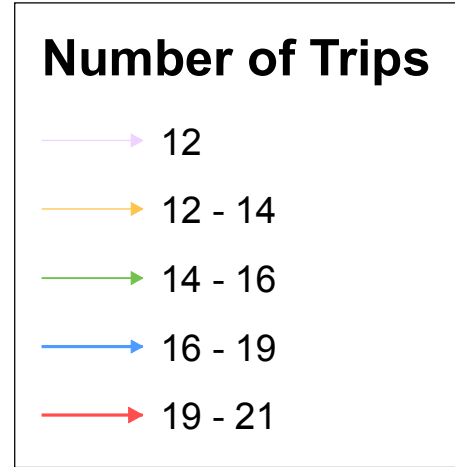
0 0.125 0.25 0.5 Miles

Minneapolis Campus

0 0.125 0.25 0.5 Miles

# Moderately Demanded OD 2016

Date: 1/31/2017 Yilun Xu @ PTS UMN



Como Area

St Paul Campus

0 0.125 0.25 0.5 Miles

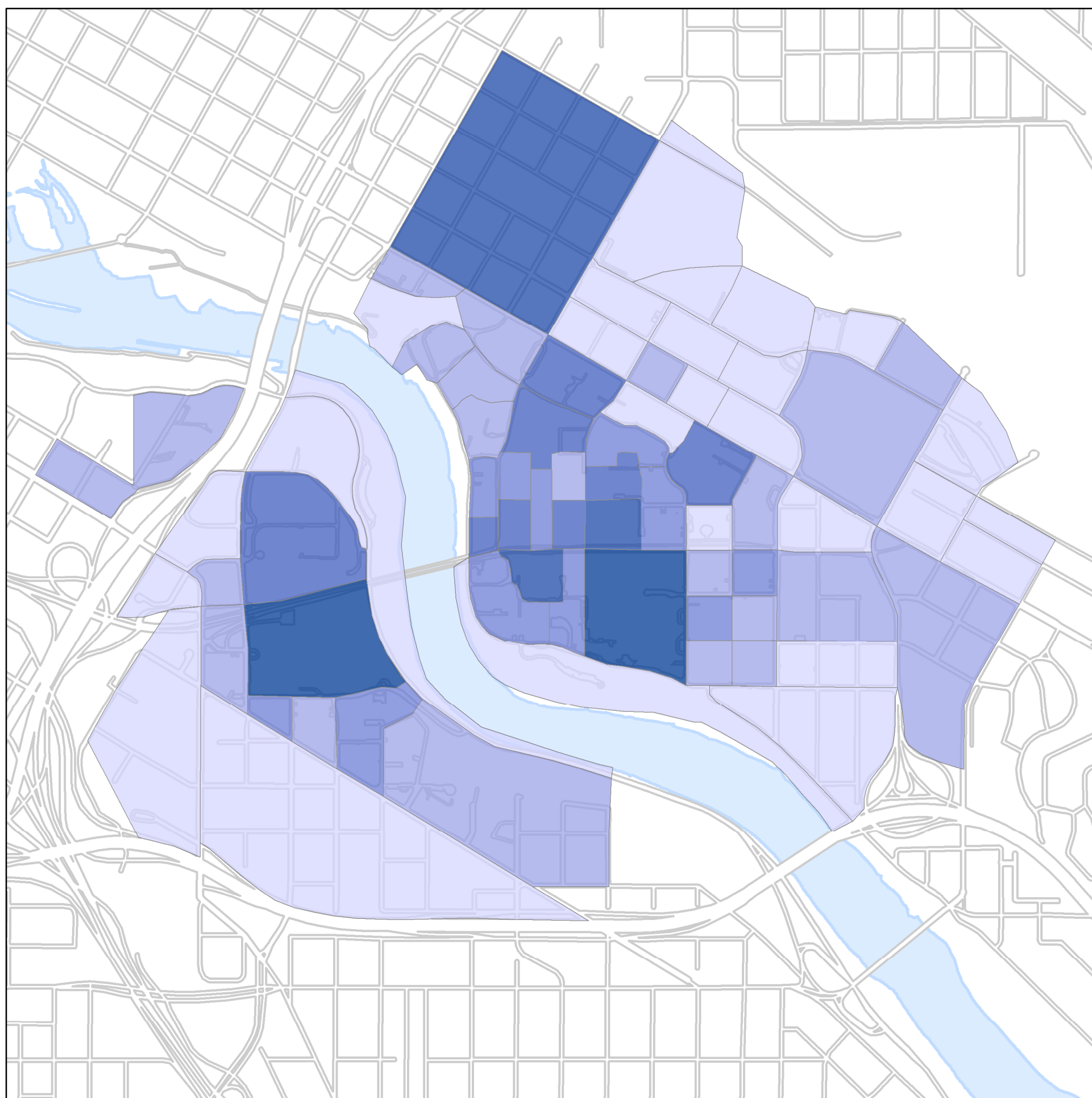
Minneapolis Campus

0 0.125 0.25 0.5 Miles

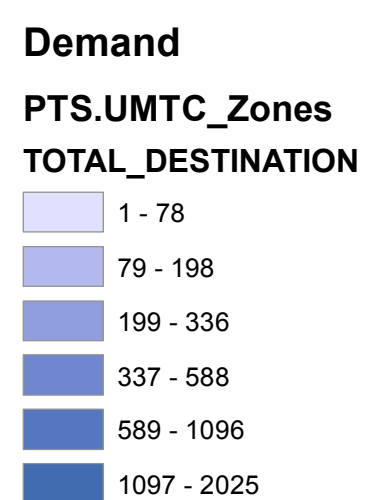
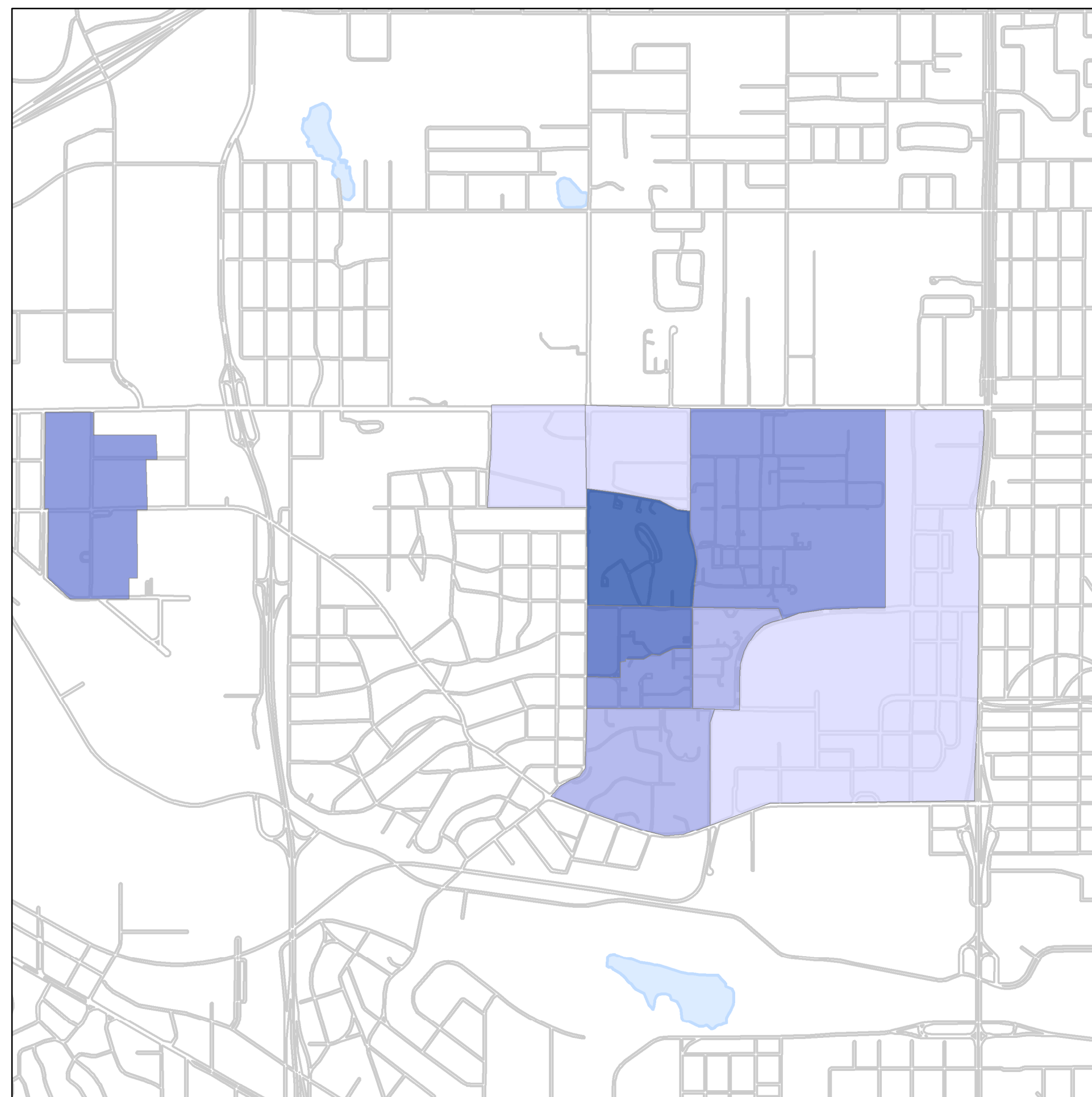


# Destination Demand - Total

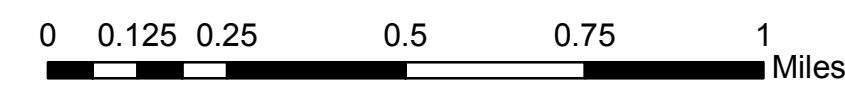
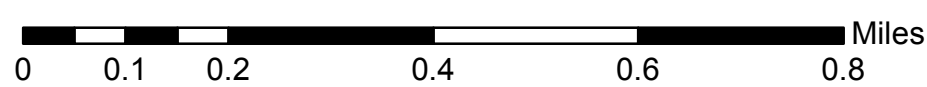
Minneapolis Campus



St. Paul Campus

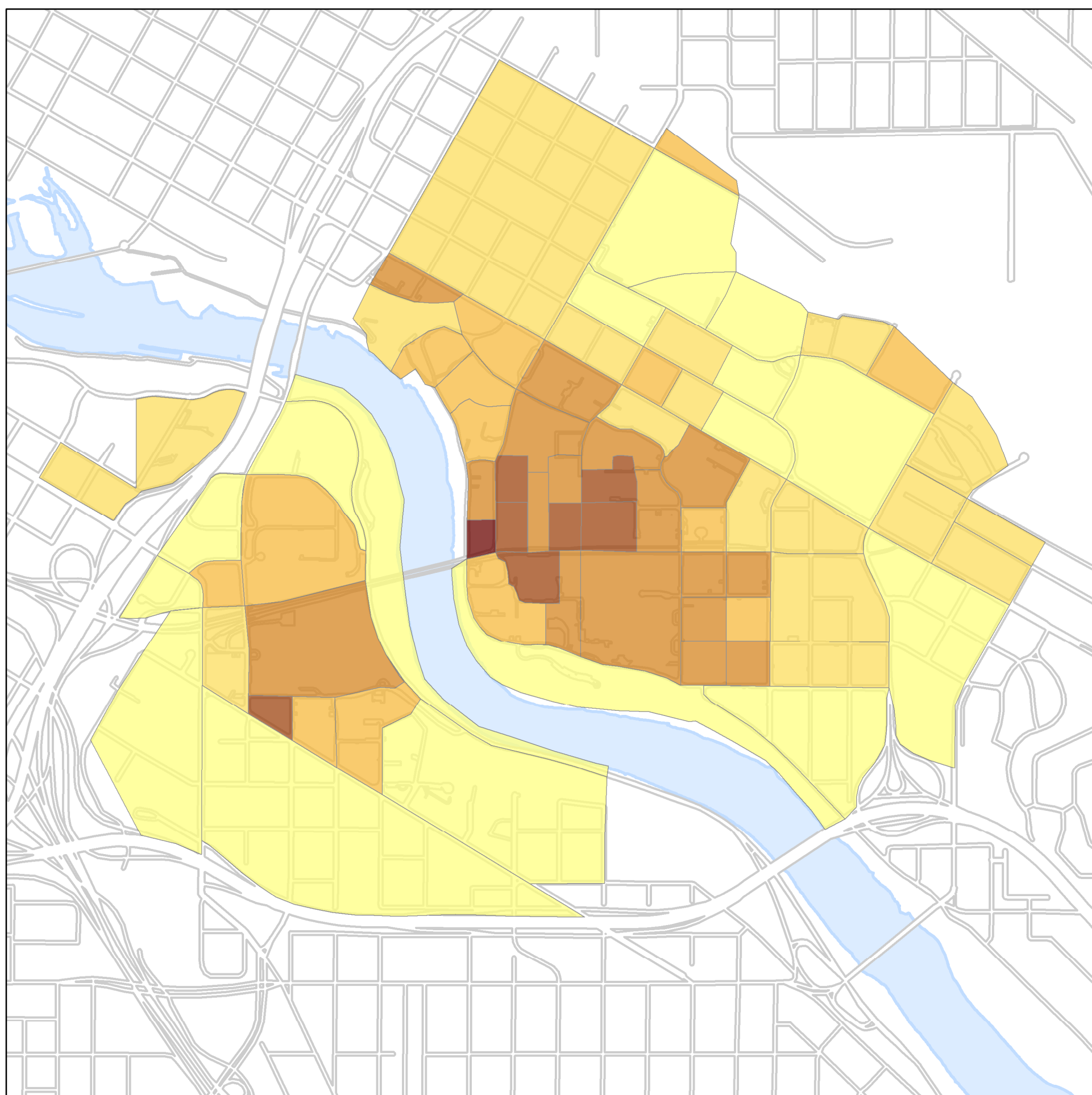


The demand is represented by number of trips destined to each zone in a typical week in the fall 2016, based on 2210 valid survey responses. And that is 2.83% of the total University of Minnesota population of 78,079.

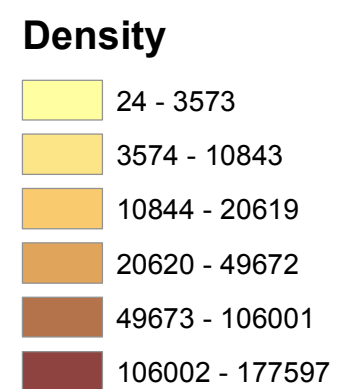
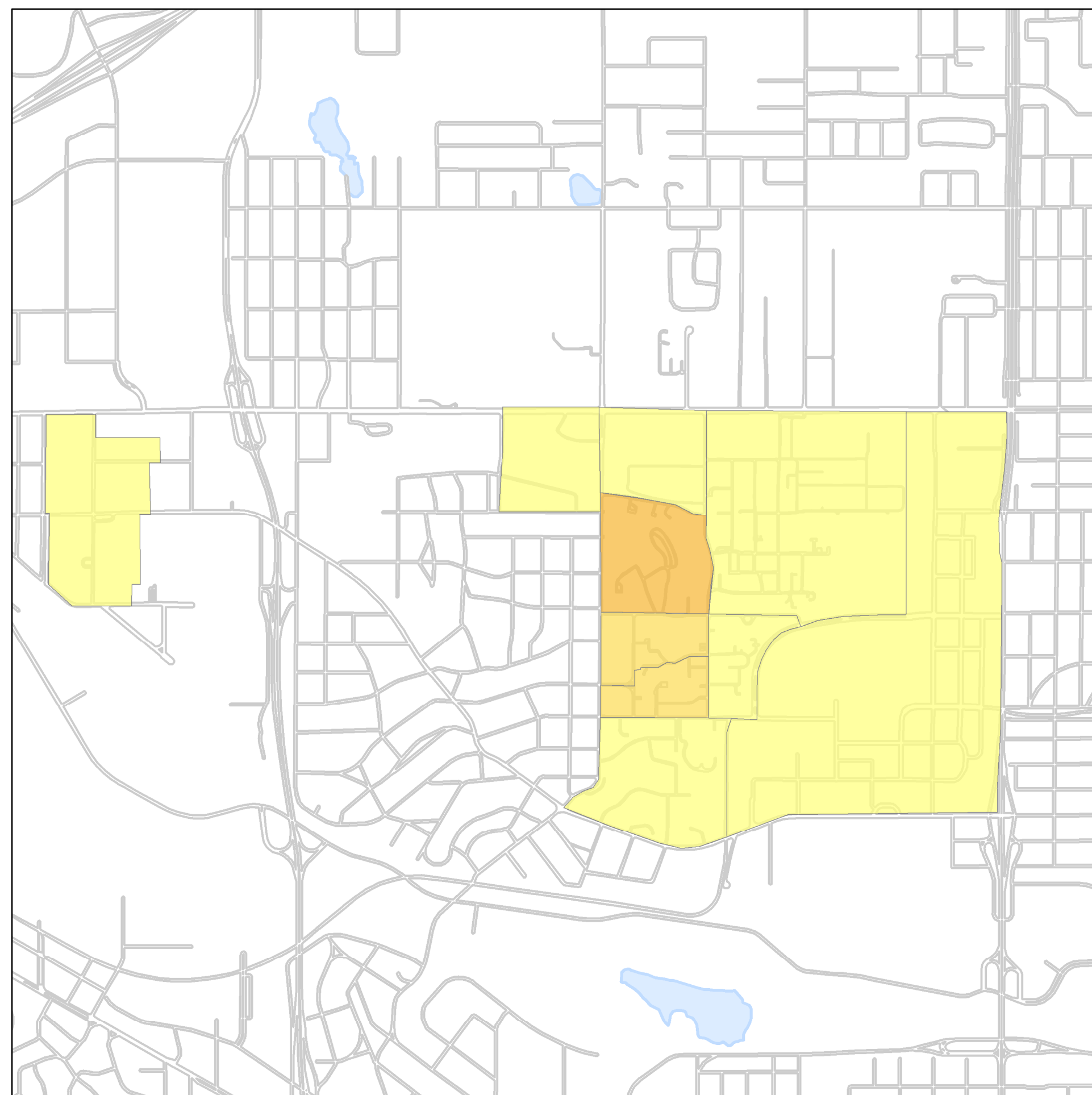


# Destination Density - Total (Demand Weighted by Zone Land Area)

Minneapolis Campus

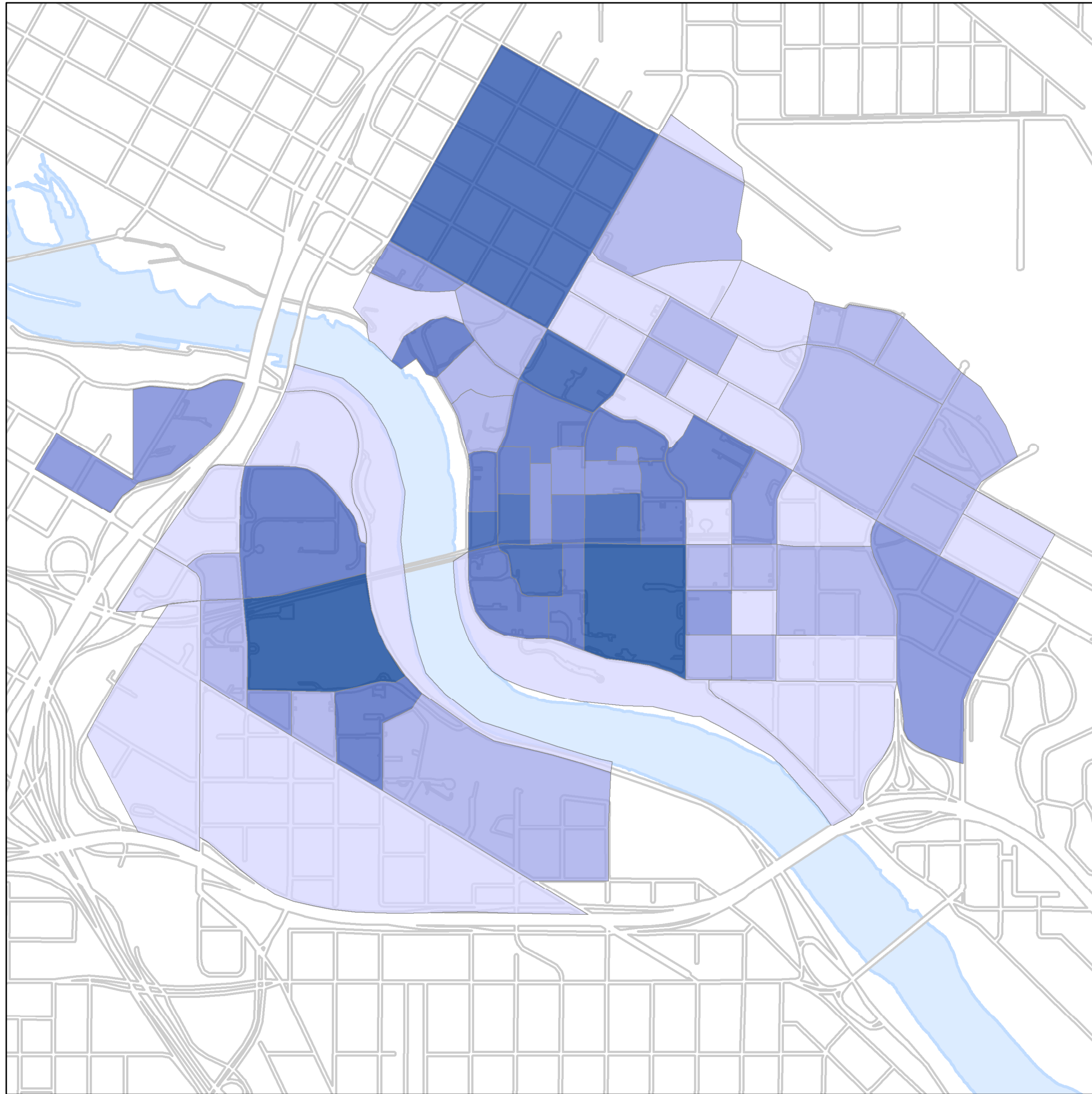


St. Paul Campus

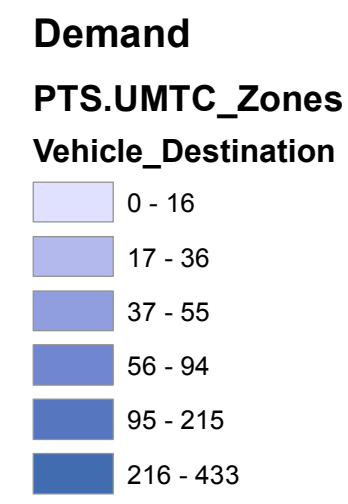
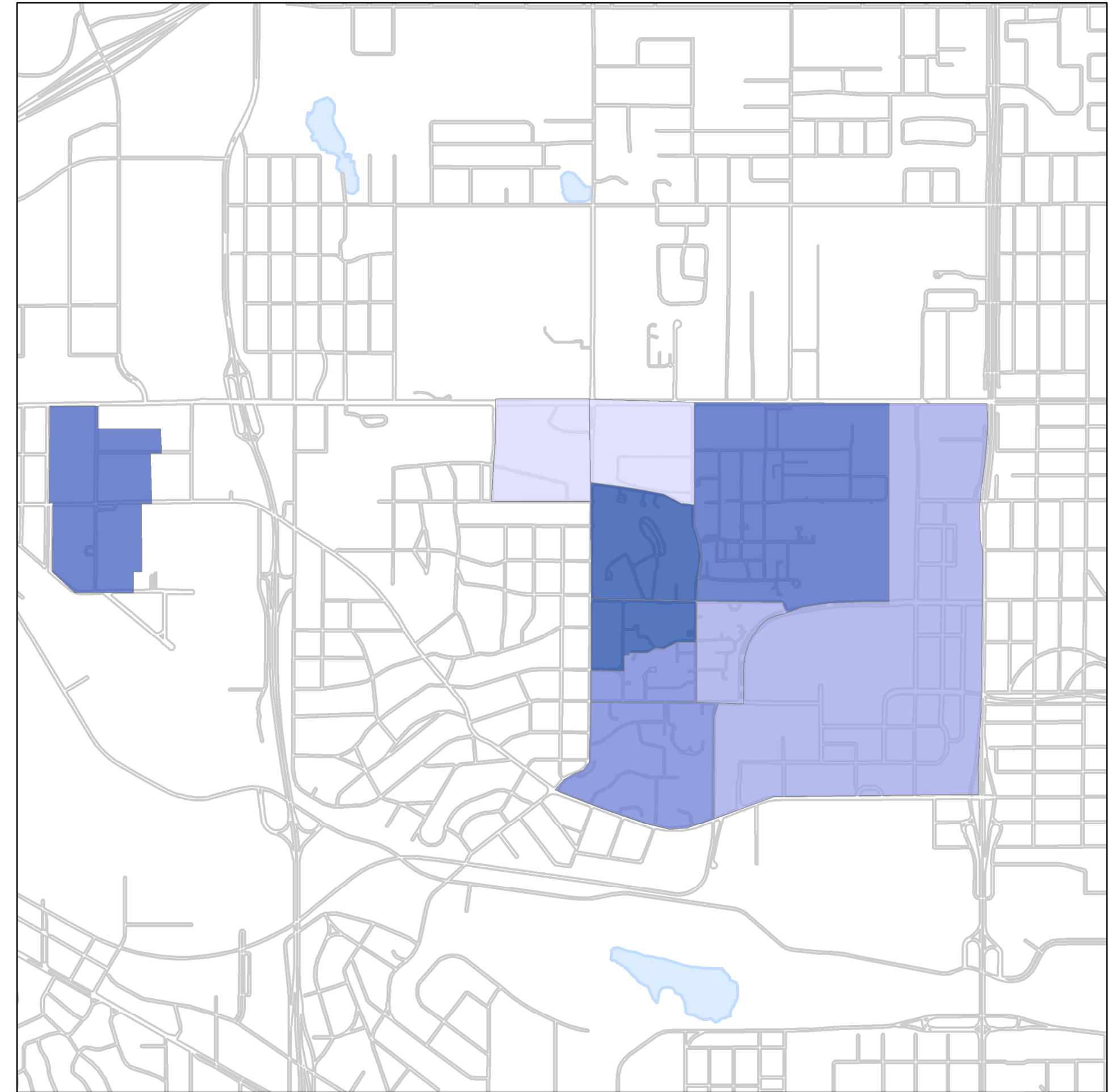


# Destination Demand by Vehicle

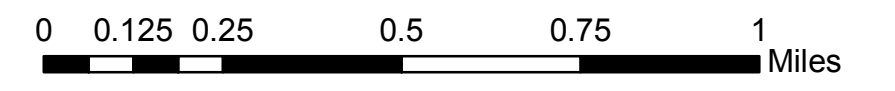
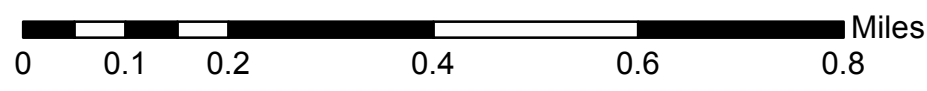
Minneapolis Campus



St. Paul Campus

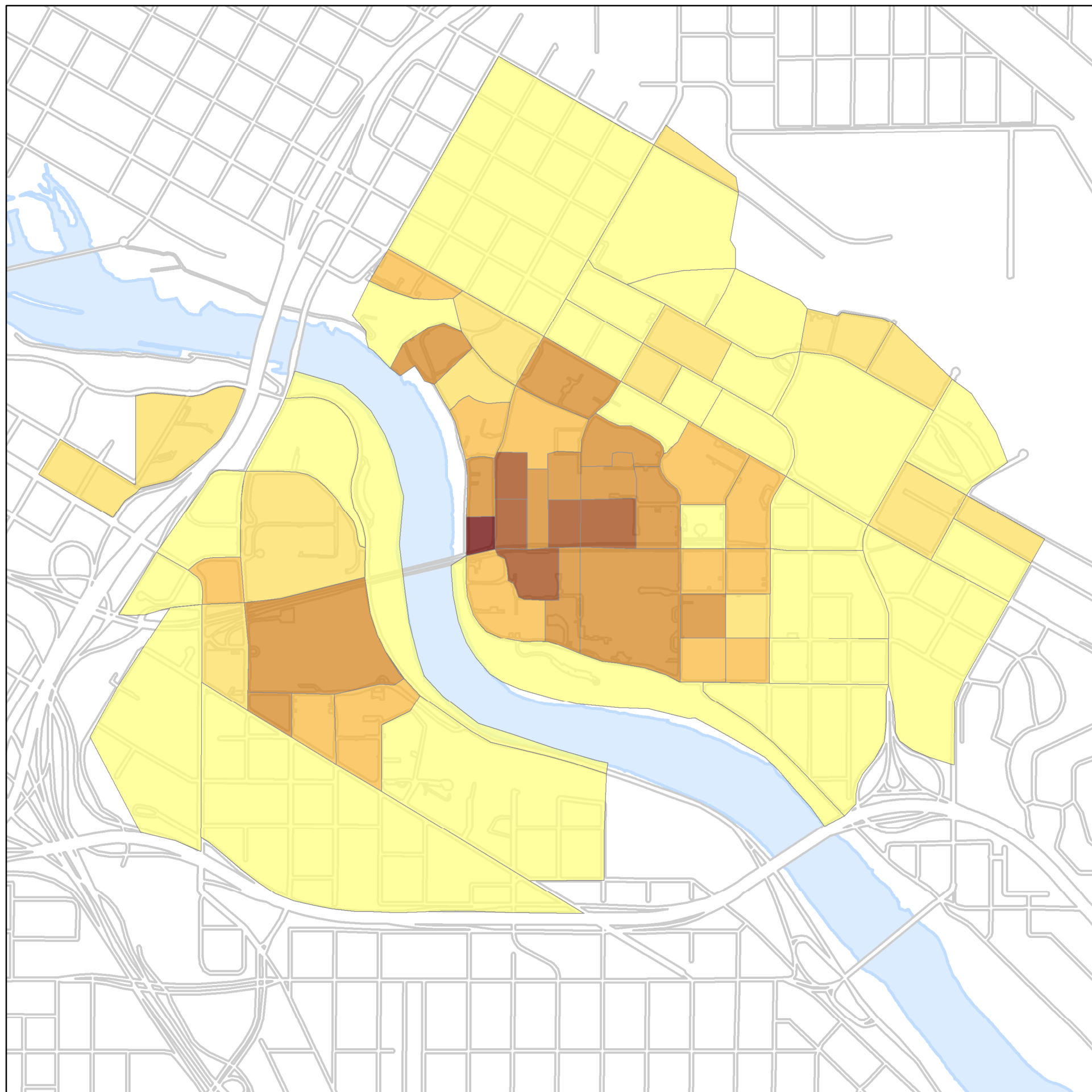


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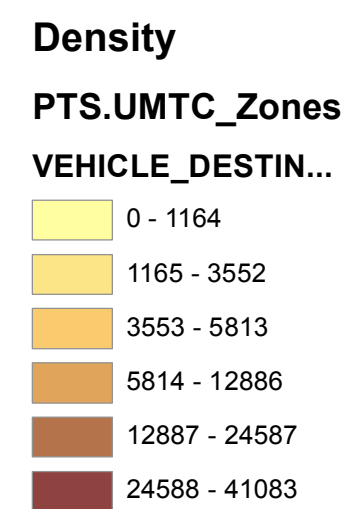
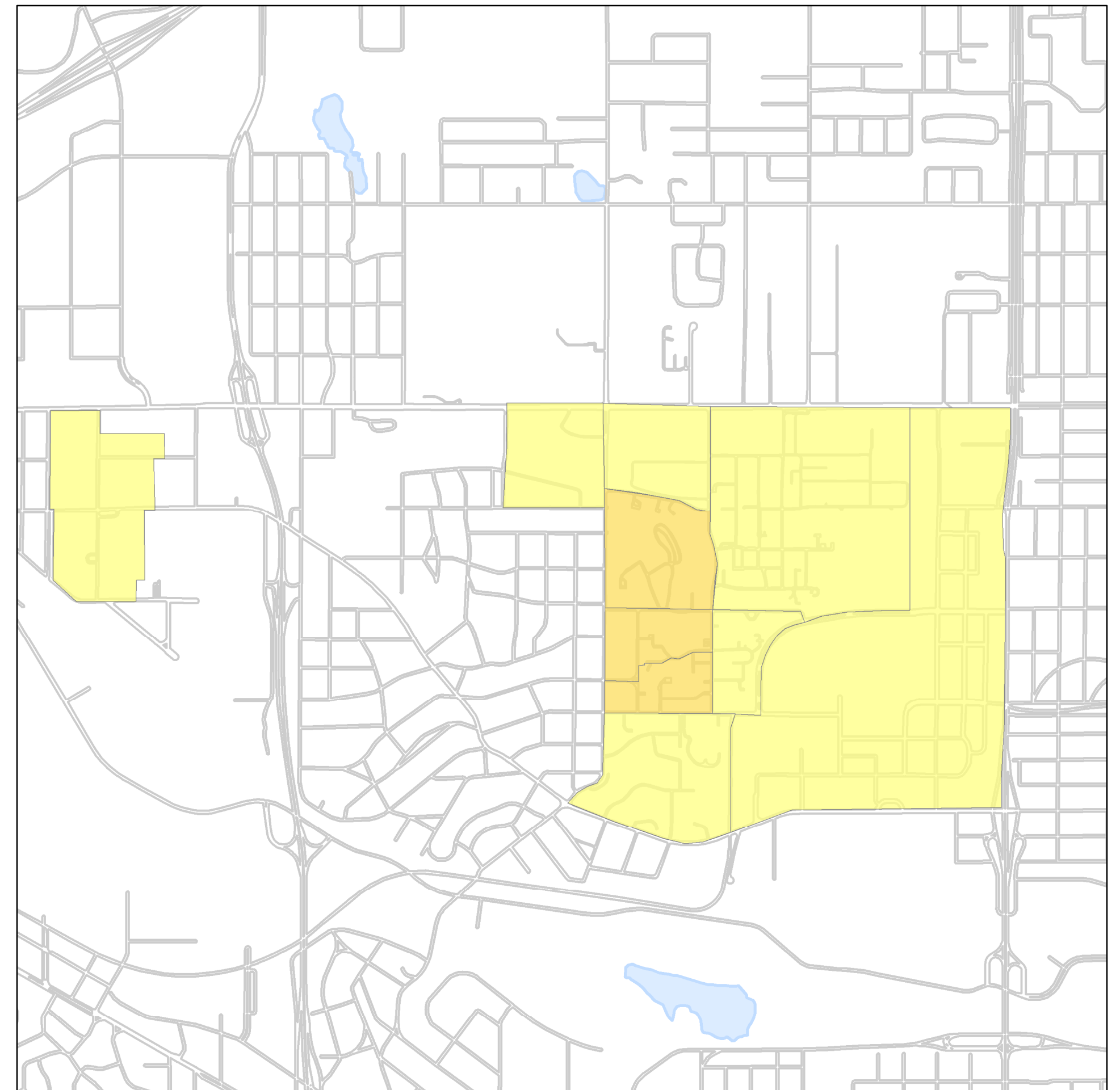


# Destination Density by Vehicle (Demand Weighted by Zone Land Area)

Minneapolis Campus

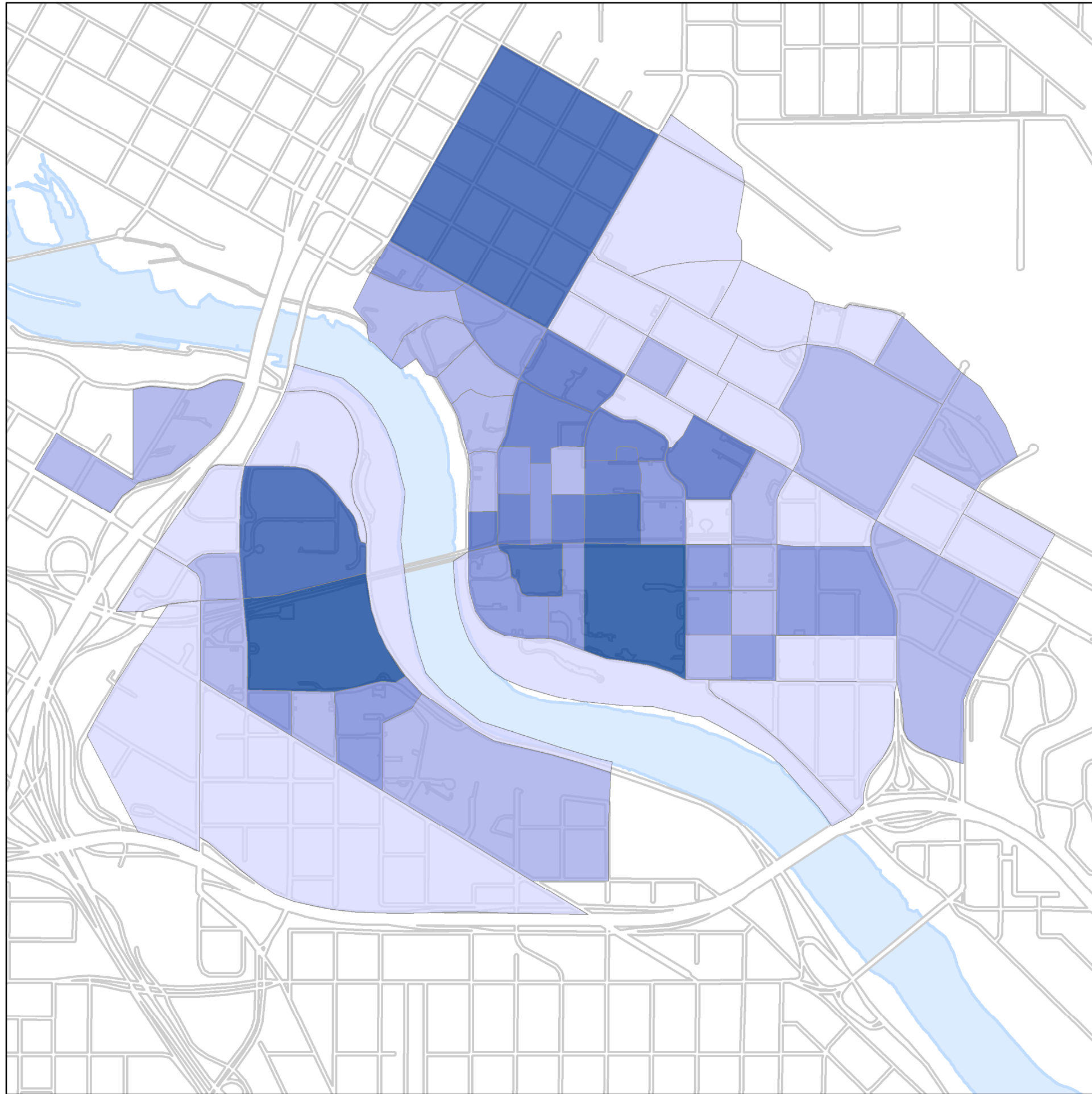


St. Paul Campus

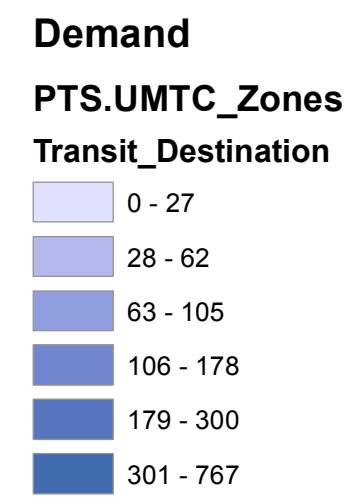
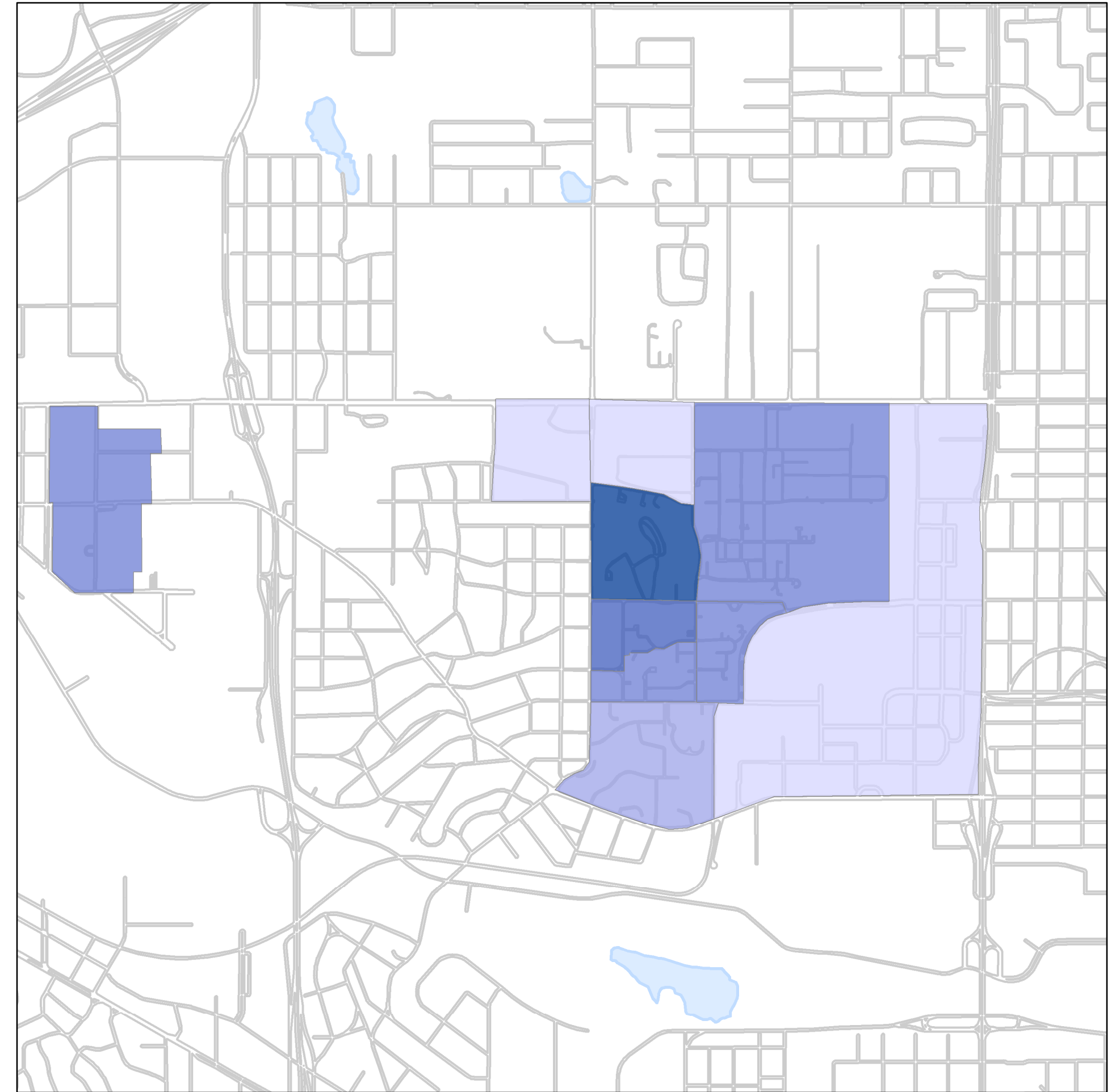


# Destination Demand by Transit

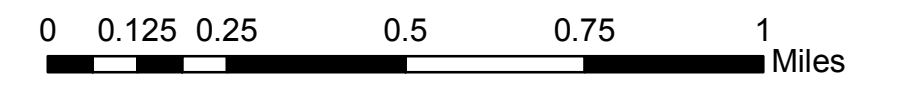
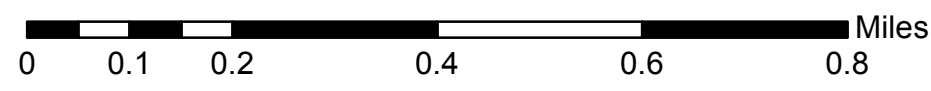
Minneapolis Campus



St. Paul Campus

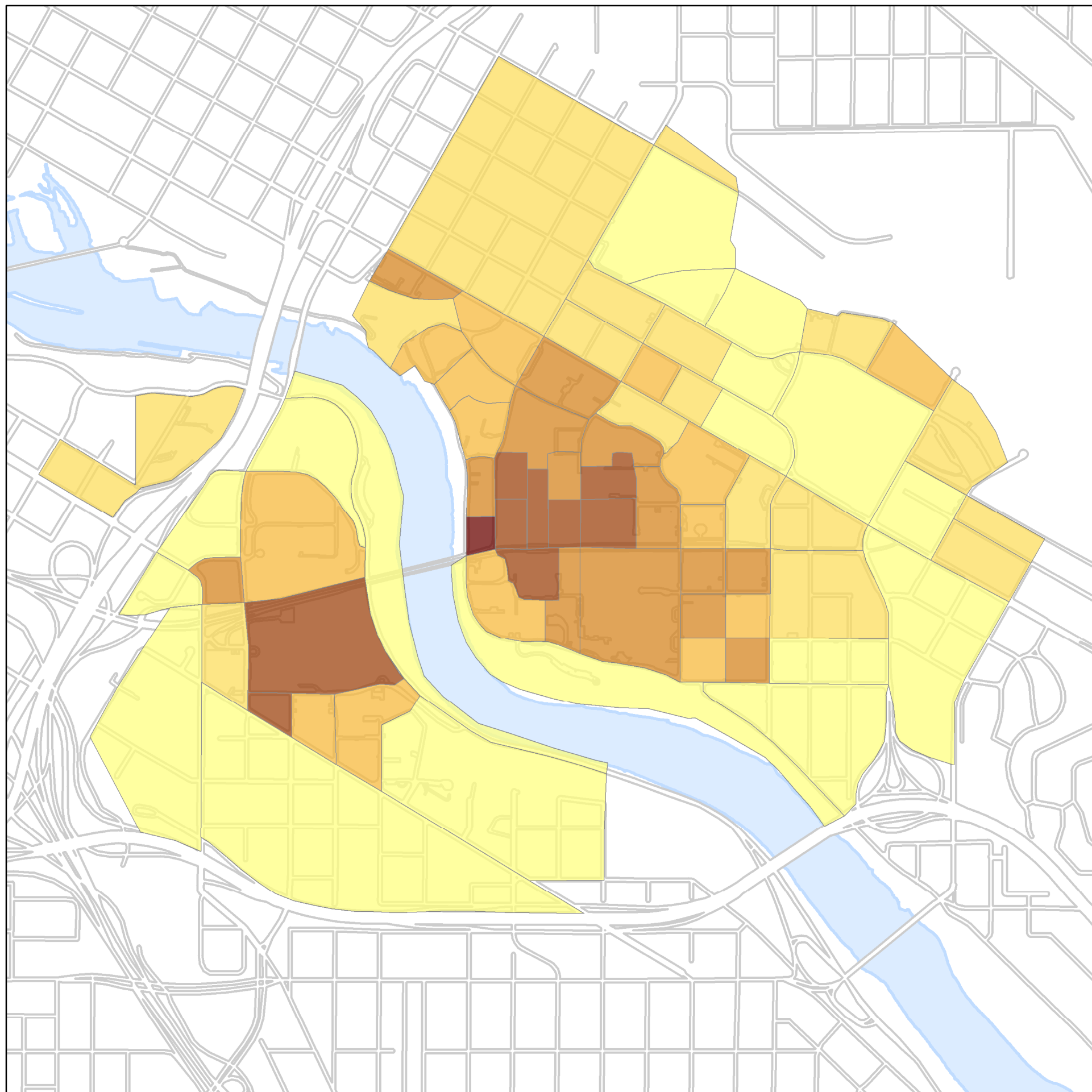


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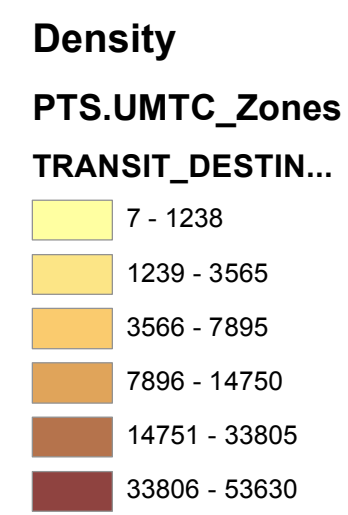
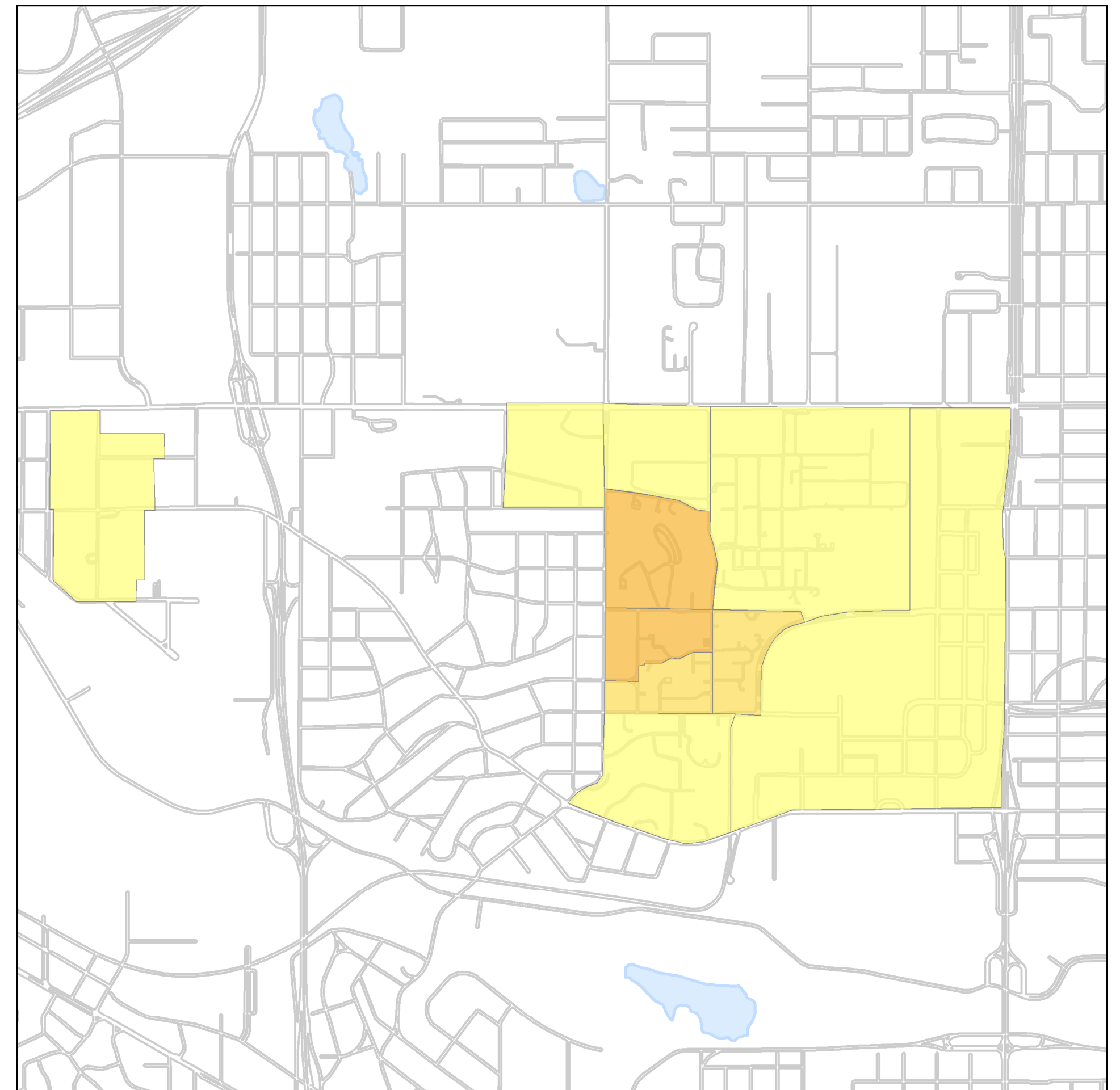


# Destination Density by Transit (Demand Weighted by Zone Land Area)

Minneapolis Campus

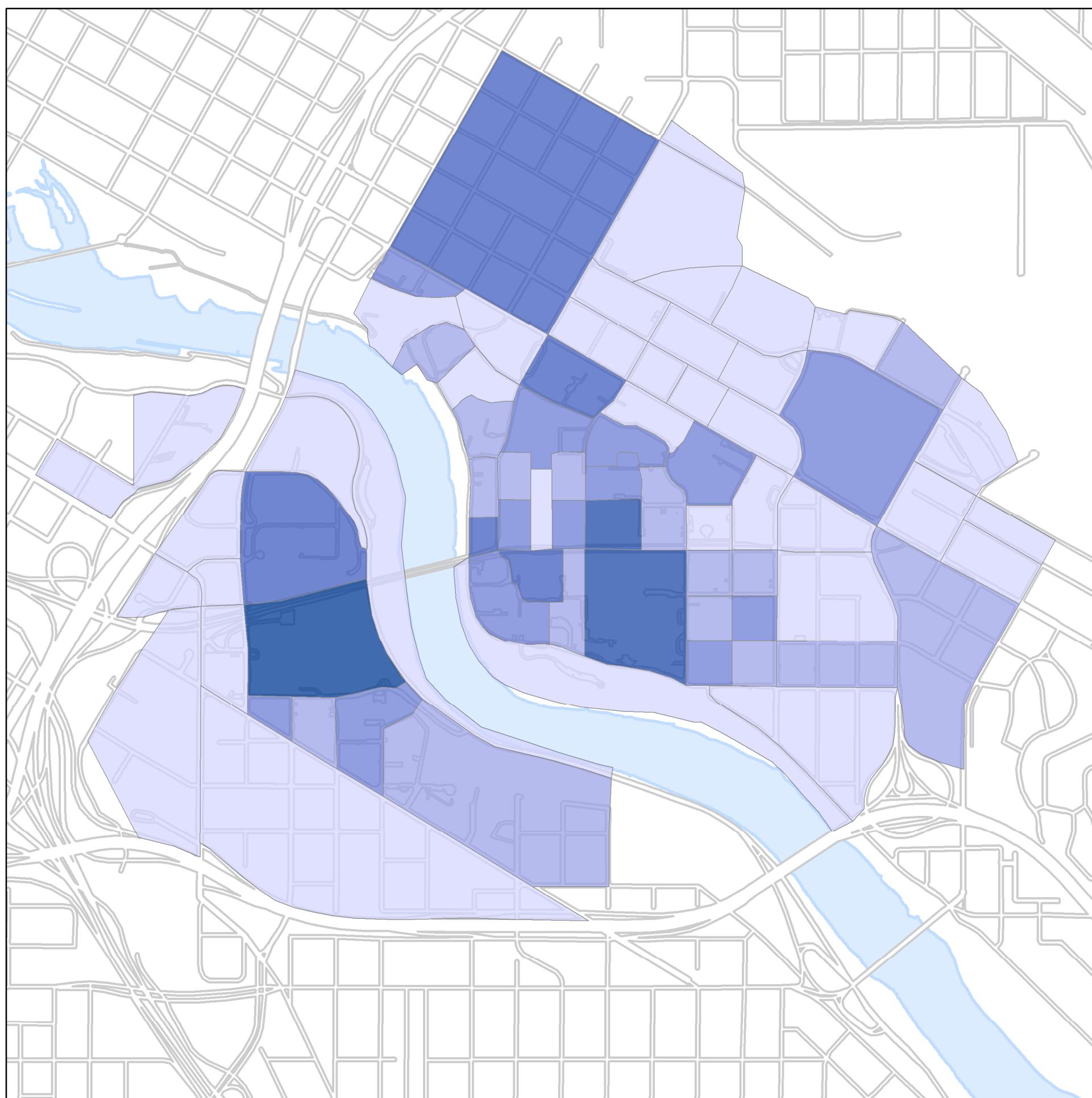


St. Paul Campus

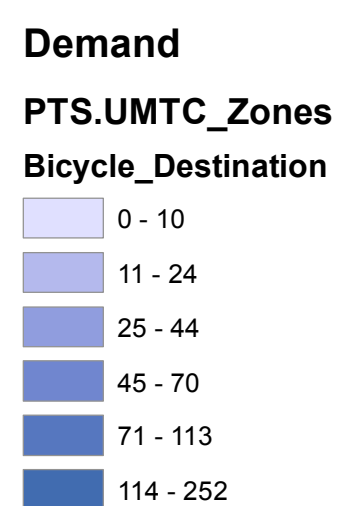
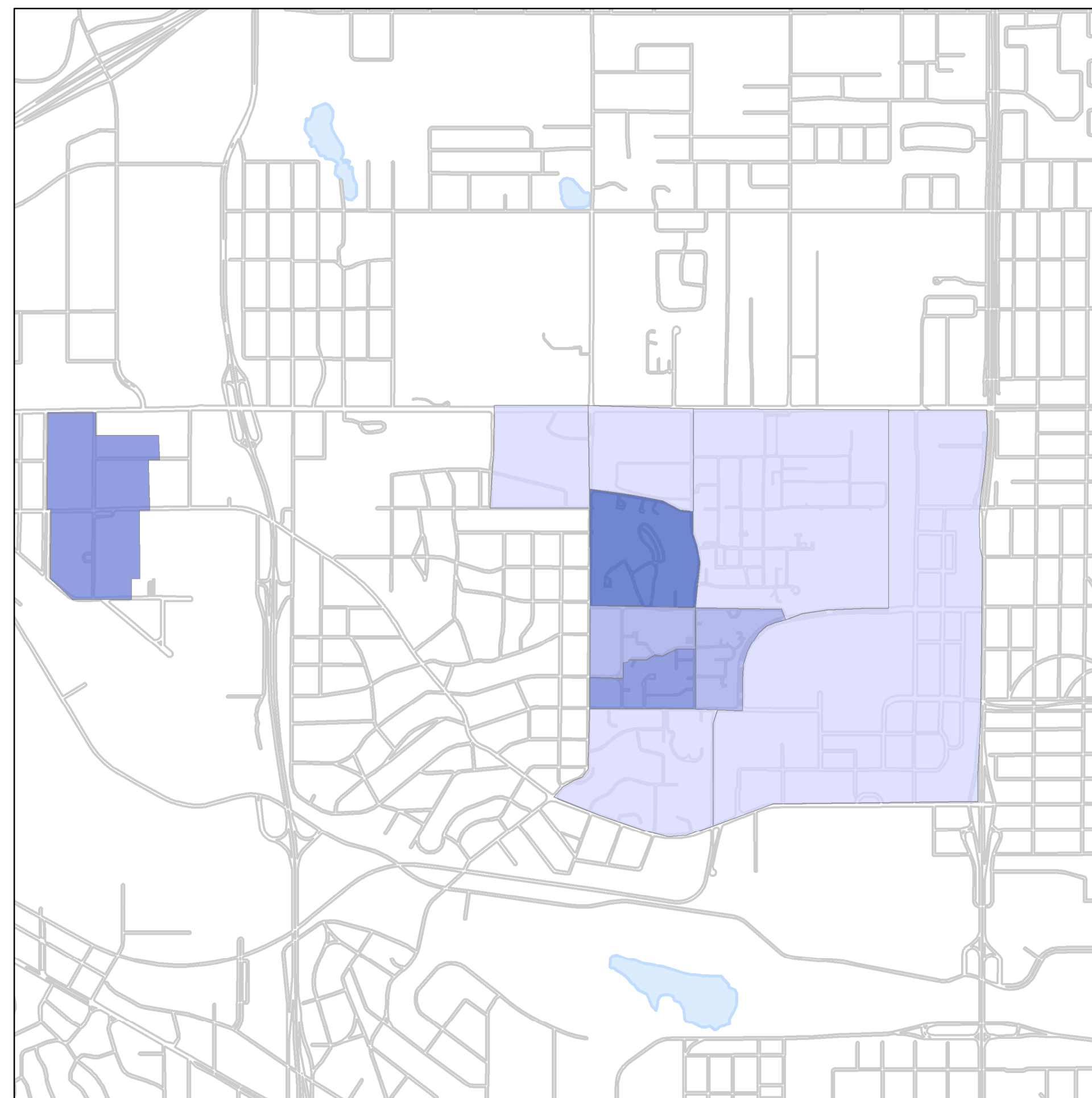


# Destination Demand by Bicycle

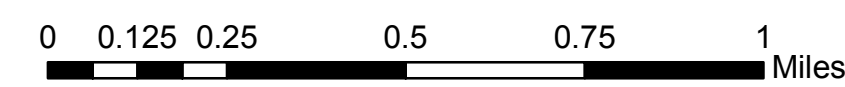
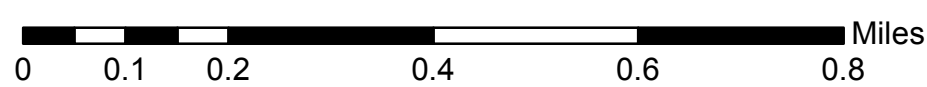
Minneapolis Campus



St. Paul Campus

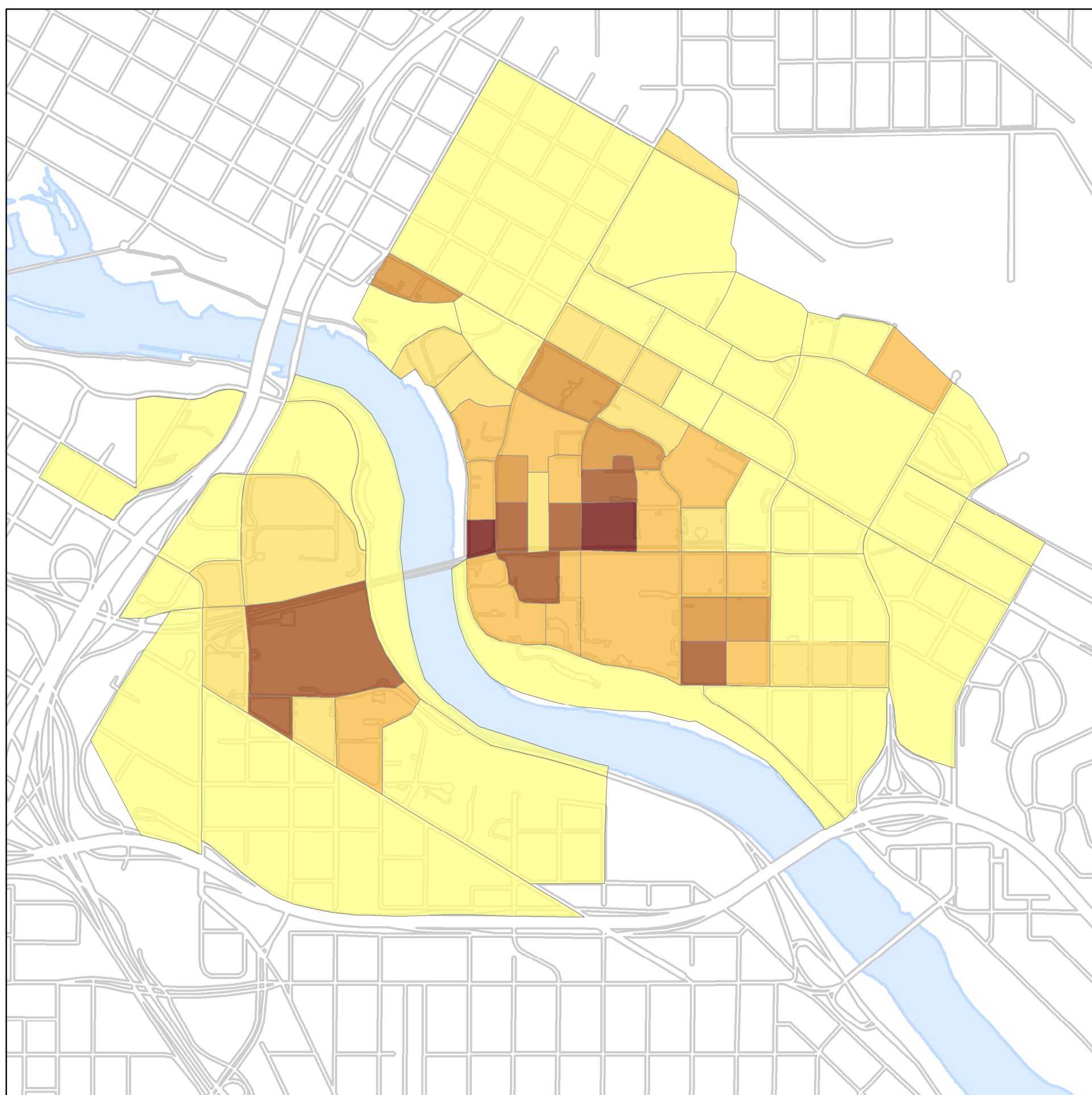


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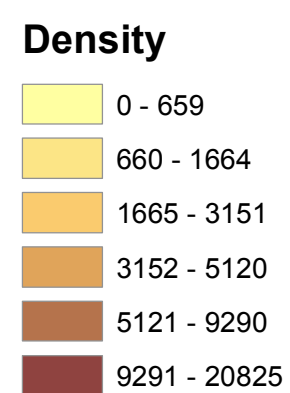
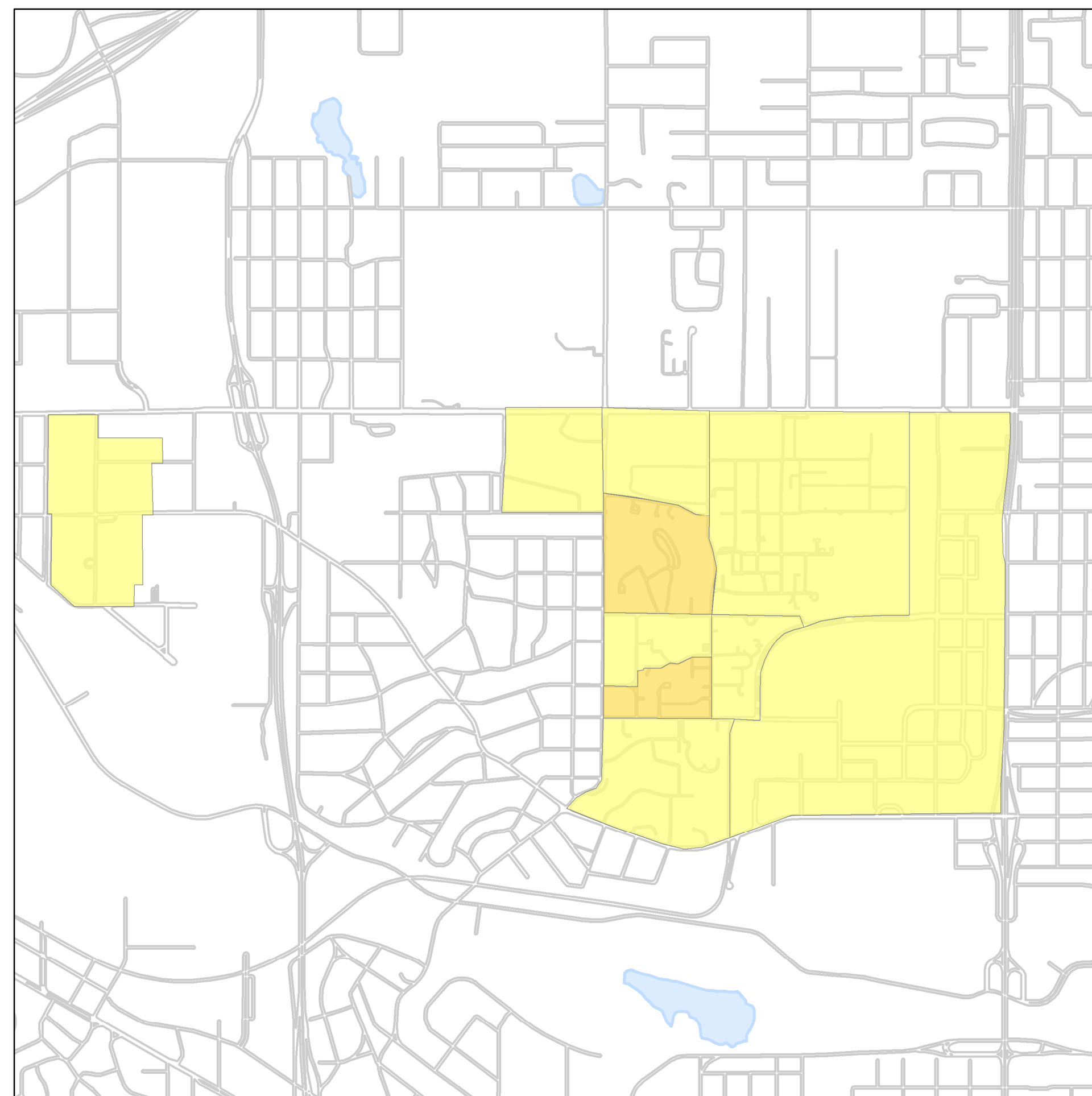


## Destination Density by Bicycle (Demand Weighted by Zone Land Area)

Minneapolis Campus

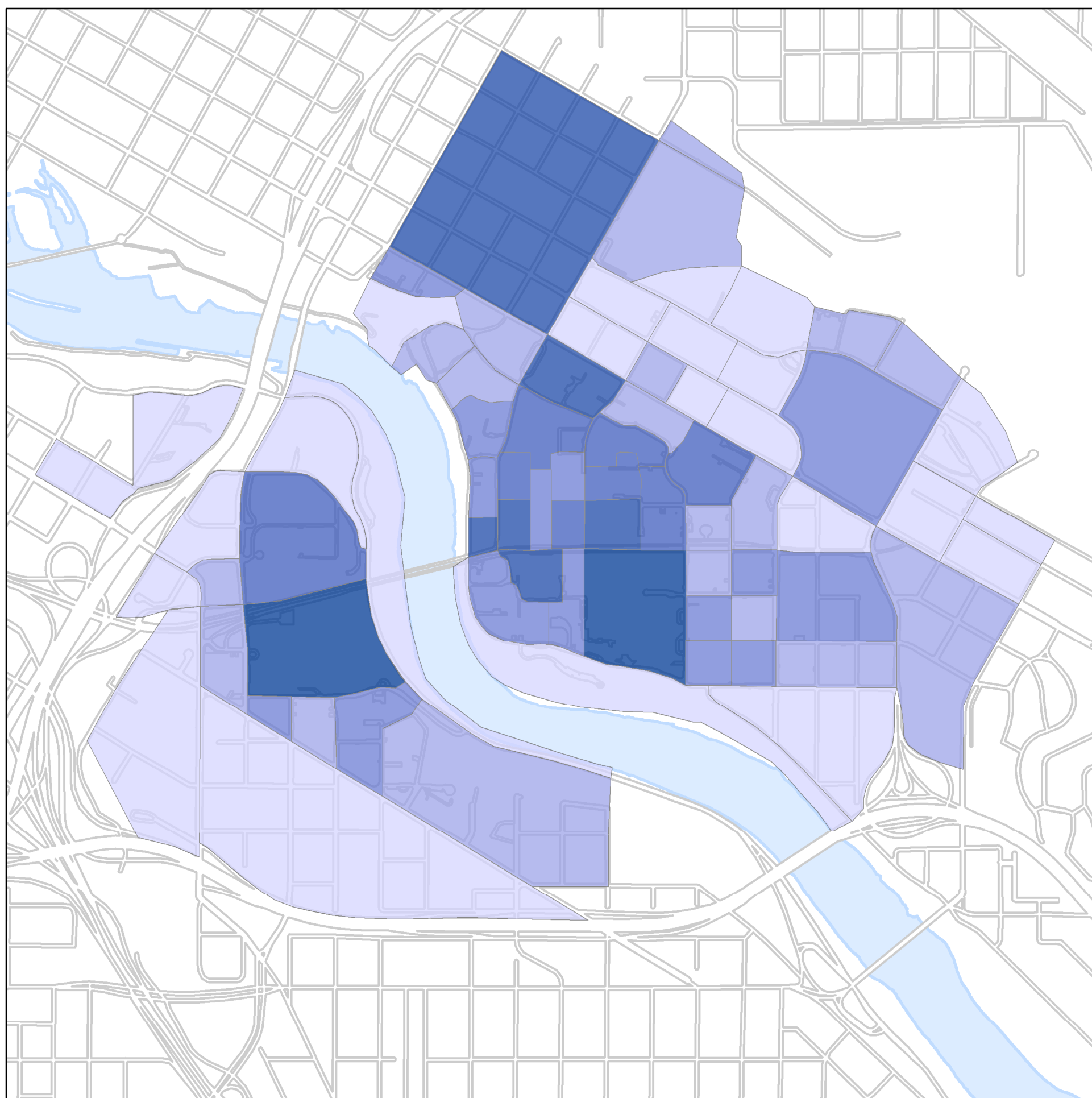


St. Paul Campus

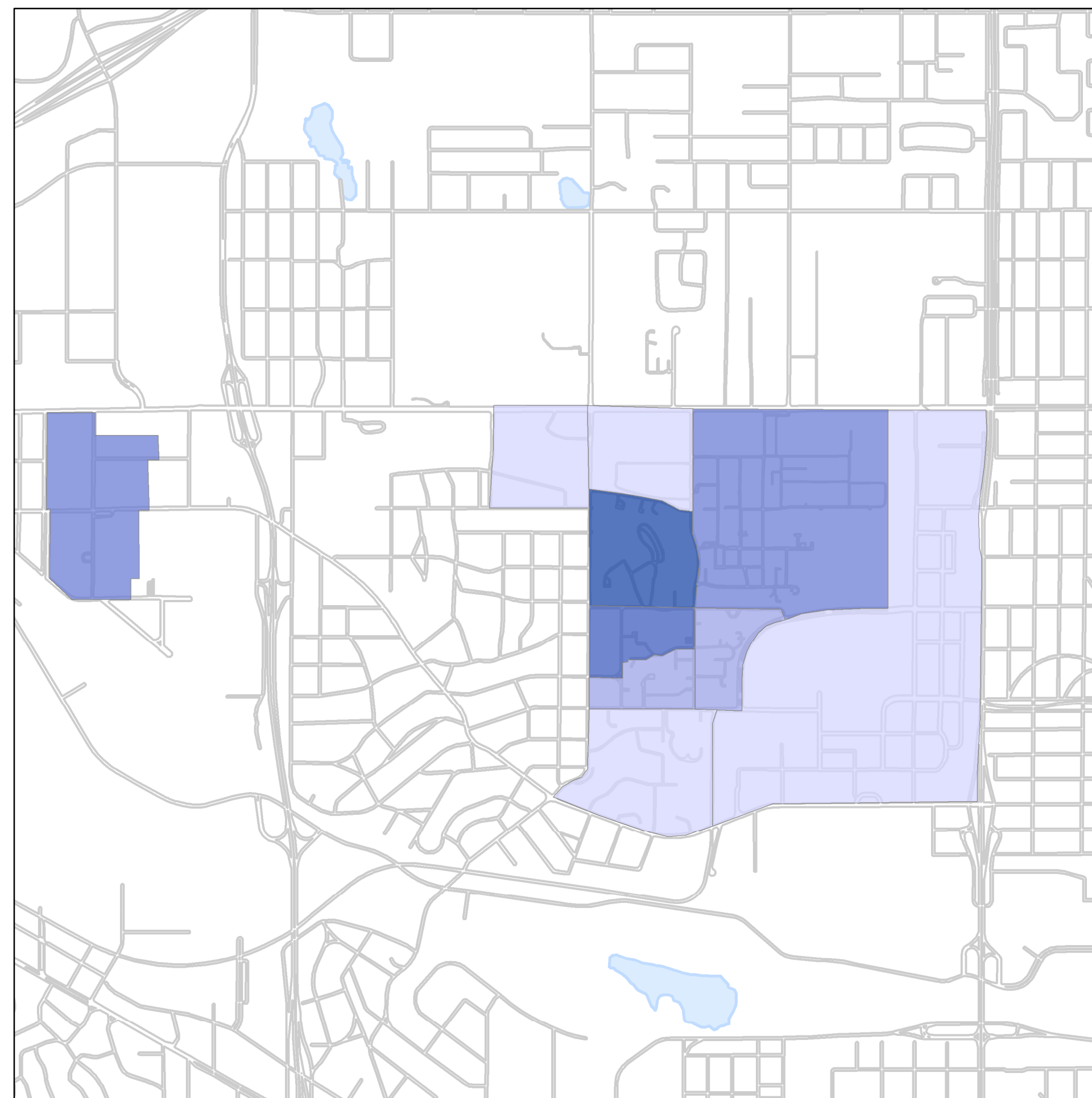


# Destination Demand by Walk

Minneapolis Campus



St. Paul Campus



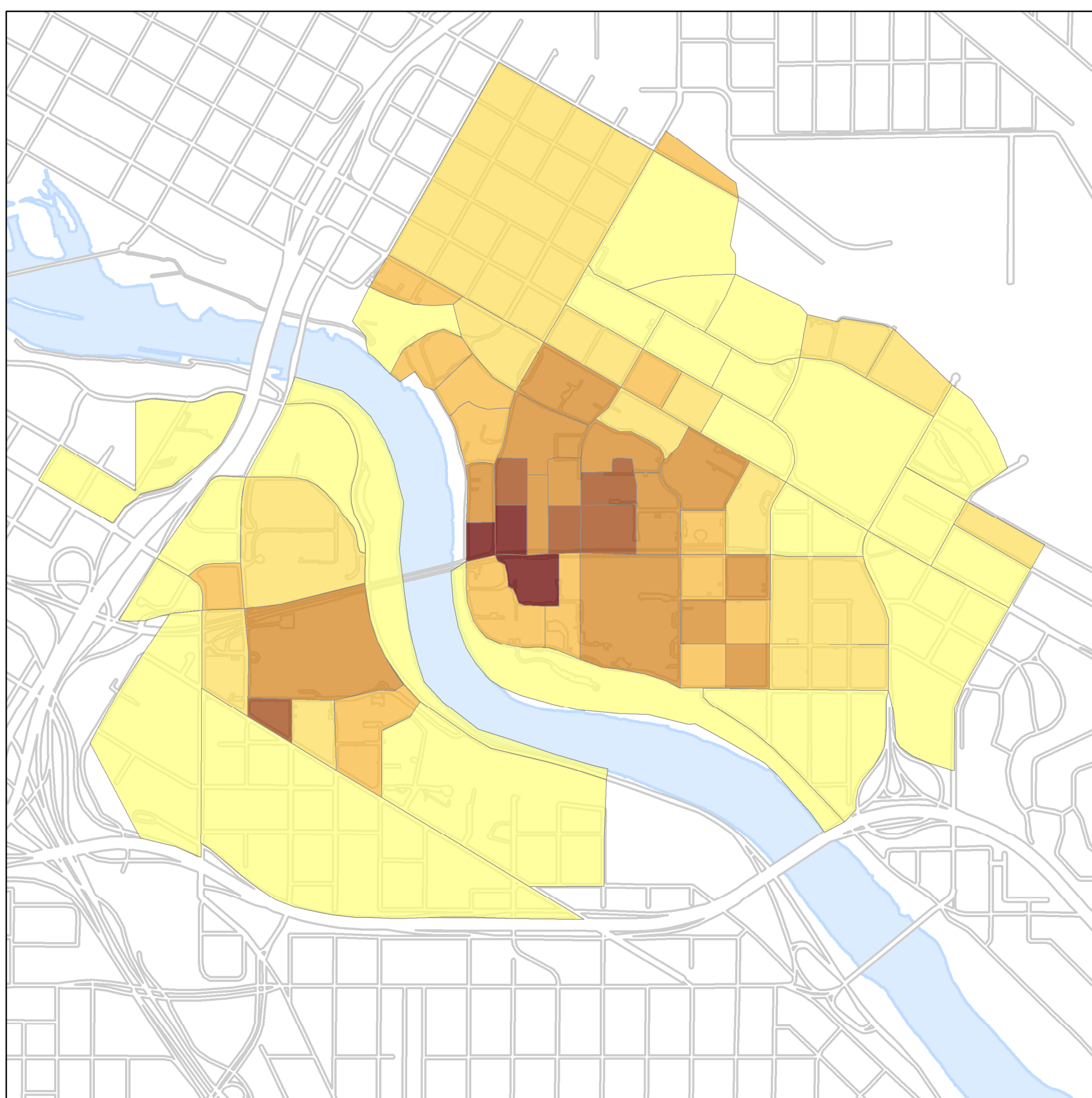
**Demand**  
**PTS.UMTC\_Zones**  
**Walk\_Destination**

- 1 - 21
- 22 - 52
- 53 - 102
- 103 - 178
- 179 - 337
- 338 - 563

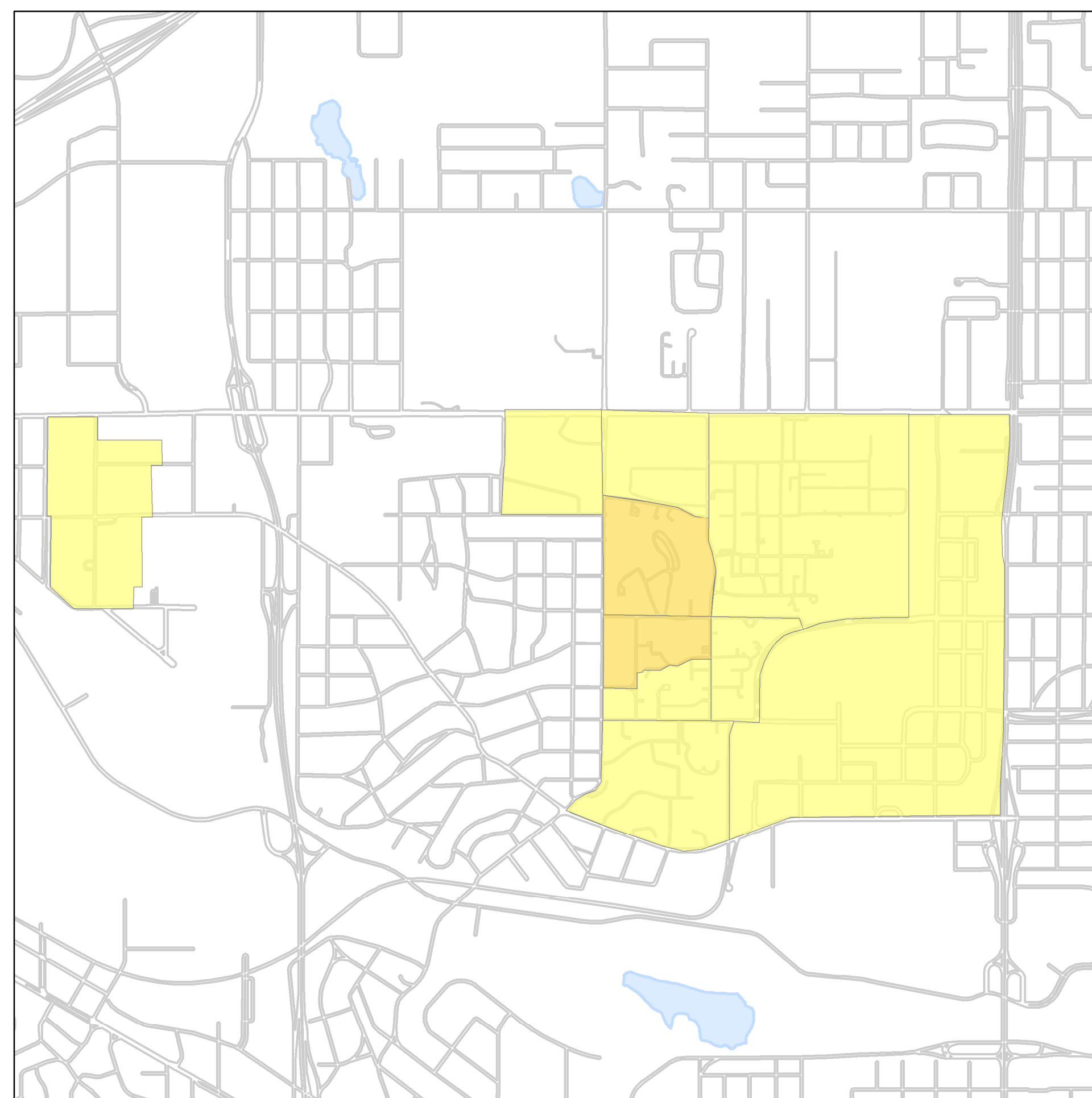
The demand is represented by number of trips destined to each zone in a typical week in the fall 2016, based on 2210 valid survey responses. And that is 2.83% of the total University of Minnesota population of 78,079.

# Destination Density by Walk (Demand Weighted by Zone Land Area)

Minneapolis Campus



St. Paul Campus

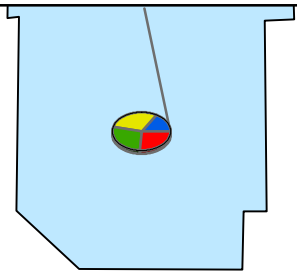
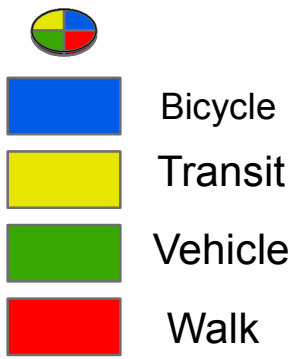


**Density**  
**PTS.UMTC\_Zones**  
**WALK\_DESTINATI...**

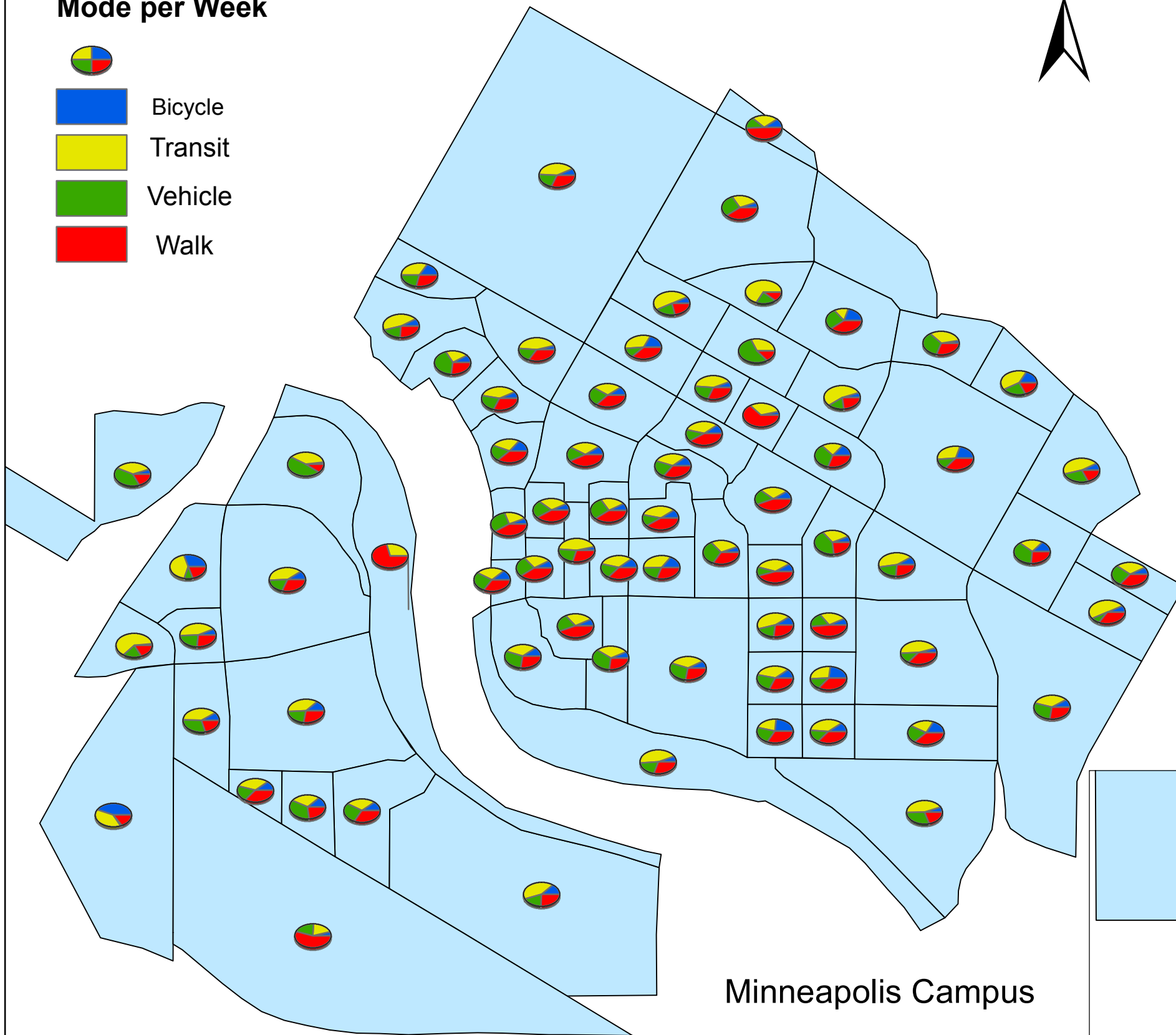
- 17 - 1514
- 1515 - 4023
- 4024 - 9678
- 9679 - 18484
- 18485 - 31819
- 31820 - 61803

# Destination Mode Share

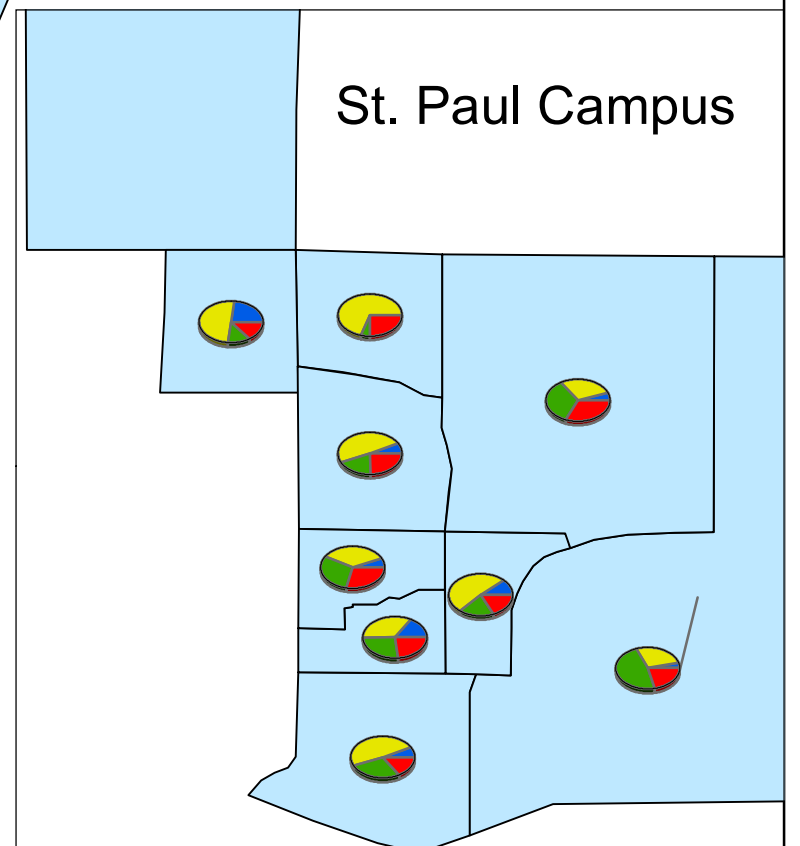
## Percent Demand by Mode per Week



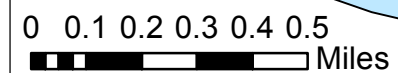
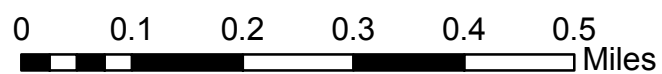
Como Area



Minneapolis Campus



St. Paul Campus



Made by John Galt and Yilun Xu

Date: 1/31/2017

These maps were produced using the North American Datum coordinate system with the Universal Transverse Mercator projection for Zone 15N.