
FLORIDA ATLANTIC UNIVERSITY
CENTER FOR URBAN AND ENVIRONMENTAL SOLUTIONS (CUES)

IMPROVING SOUTHEAST FLORIDA'S
TRANSIT ECOSYSTEM FOR STUDENTS

Project Inception and Development in Year One



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1. Introduction

Florida Atlantic University's Center for Urban and Environmental Solutions (CUES) received a two-year grant from [The Kresge Foundation](#) to identify, address, and evaluate transportation solutions for students. The following narrative describes the project's inception and development during its first year.

1.1 Goals

The overall goal of the project is to provide an evidence basis for the use of a comprehensive Mobility-as-a-Service (MaaS) ecosystem for commuting to colleges and universities in South Florida. This approach offers students a user-friendly approach to affordable and environmentally friendly transportation alternatives to car ownership. Creating a rich MaaS ecosystem with a variety of connected transportation choices available in real time is a long-term endeavor. However, during the Kresge project's lifespan, the initial steps for this long-term goal can be accomplished, including:

- 1) Creating a mobility partnership across transit agencies and college campuses
- 2) Designing, implementing, supporting and evaluating a customized MaaS app for the college communities
- 3) Implementing a first-mile, last-mile service between major transit hubs and campuses.

A related research goal is to understand the relative importance of information, marketing, and incentives as they influence the uptake of transportation alternatives. The MaaS ecosystem can help students become more informed about the range of transportation alternatives available to facilitate travel to achieve success.

1.2 Project Timeline

Two phases define the project as follows. During Phase 1 of the project, a Transit Partnership was formed, a MaaS mobile app is under development, and the research study is in the pilot phase. For the study, students will be assigned randomly to intervention and control groups, and students in both groups will be surveyed throughout year one. The intervention group will receive access to the customized MaaS app, and the control group will not. In Phase 2, new transportation services, as yet unspecified, will be added to encourage taking alternative modes to campus. The app will be functional for both phases of the project, and each phase will last approximately one year. In spite of the onset of the COVID-19 pandemic, at the time of this writing, the project is proceeding with minimal adjustment to the originally proposed timeline.

2. Creating a Partnership for Mobility—The Transit Partnership

We convened a group of public and private-sector stakeholders active in transportation and from Broward College, Florida Atlantic University (FAU), and Palm Beach State College to support the project. This group is referred to as the “Transit Partnership” and serves two purposes. First, it informs the research team about the needs, constraints, and aspirations for the student transit ecosystem. Second, it will help coordinate the implementation of a new first-mile, last-mile service to provide better options for student commuters. Four key public education and transportation partners from FAU, Broward College, Palm Beach State College and the South Florida Regional Transportation Authority, attended a conference on education and transportation in December 2019 at The Kresge Foundation headquarters in Detroit, Michigan.

The FAU team identified contacts within each of the partner academic institutions above and within local transit partners, Broward County Transit, Palm Tran, and the South Florida Regional Transportation Authority (operating Tri-Rail), to serve as part of the Partnership for the length the project.

In addition to the aforementioned core group of partner organizations, the FAU team recruited representatives from the Broward Metropolitan Planning Organization and the Palm Beach Transportation Planning Agency for a total of 19 participants attending the Transit Partnership Kick-off meeting on December 18, 2019 on the FAU campus. After introductions and a grant overview, attendees at The Kresge Foundation meeting in Detroit reported to the group. Participants enjoyed a presentation on Mobility as a Service (MaaS). The education partners and transit partners identified goals for the project, and the group discussed next steps.

2.1 Identification of Opportunities and Goals

During an interactive exercise at the December 2019 Transit Partnership Kickoff meeting, the academic partners and transit partners identified goals for the project.

The education partners expressed interest in:

- Promoting student retention and degree completion
- Facilitating financial accessibility to college by allowing students to access campus without having to own a personal vehicle
- Allowing students to make more efficient use of their time by riding transit, walking, biking or using a scooter (i.e., studying, communicating, exercising or relaxing while commuting)
- Collaborating on transportation and education policy agenda
- Promoting a culture shift toward using transit, biking, and walking
- Increasing access to higher education and to on-campus programs and services
- Furthering environmental goals and sustainability

The transit partners identified these goals:

- Enhancing origin-destination trip data
- Developing a regional payment system
- Promoting a U-Pass program, i.e., a program where students can buy transit passes at discounted rates and where transit is promoted as an option to students
- Increasing transit ridership in general and among students in particular
- Increasing transit revenue
- Increasing access and convenience to transit
- Better understanding of transit demand
- Expanding MaaS program accessibility to university faculty and staff
- Identifying policy barriers to MaaS implementation

2.2 Further Activities of the Transit Partnership

FAU held a second meeting with the Transit Partnership on May 19, 2020. In addition to the core Transit Partnership members, representatives from Brightline, Uber, and local micro-mobility providers attended. FAU expanded the group of partners for the purpose of better developing the MaaS app and for brainstorming potential first-mile, last-mile transportation options. Daruma Tech, the mobile app design firm, presented an outline of their work. The research team shared the goals of the student travel behavior survey, the data management strategy, and solicited input on proposed survey incentives. This meeting clarified how the research and implementation goals relate to implementing a first-mile, last-mile service between major transit hubs and campuses. Finally, the partners were encouraged to complete a survey related to their goals for the project and their views toward Mobility-as-a-Service solutions.

The third Transit Partnership meeting convened via Zoom on October 23, 2020. Daruma provided an update of app development and asked all transit providers to allow access to real-time data feeds. The FAU team presented preliminary results of a partnership survey and sought to recruit more survey participants. The team explained research activities, including the development of a pilot survey and the intention to submit the RCT research protocol to a peer-reviewed journal. Finally, each member of the Transit Partnership, first colleges and then transit agencies, explained how their operations have been impacted to date by the COVID crisis, and described anticipated changes to their operations into early 2021.

The June 2020 Transit Partnership survey revealed top obstacles and changes needed. The survey asked transit and education partners “What obstacles do you face in implementing a MaaS approach in your organization?” Several responses cited technology limitations: insufficient expertise, integration with legacy systems, and rider access to technology. Funding, timing, inter-agency coordination, sustainability among students and politics were also mentioned as limiting factors. The survey asked, “What change(s) would be the most important for your organization if

it were to focus on a more MaaS-oriented approach?” Respondents listed desired improvements in technology, resources, communications, and coordination among partners.

3. Designing, implementing, supporting and evaluating a customized MaaS app for the college communities

Florida Atlantic University conducted a national search for a technology partner to develop a MaaS App to assist students in planning their trips to and from campus.

3.1 App Specifications

The following specifications constituted the original request for proposal.

Using the app, students should be able to find real-time information about public transit and receive real-time routing services. This information should include the location of nearby stops, the expected travel time based on current travel information, and the details of the recommended routes including boarding locations, routes to be used, necessary transfers, wait times, alighting locations, and walk route to the final destination. Students should be able to save preferred locations and routes for faster use of app functionality. The app should be able to track University buses, which are often not included on similar transit apps. In addition, it would be desirable if the app can provide information on alternative transportation options including ride-hailing (Uber and Lyft), bike share rental, electric scooter rental, using a personal bicycle, or walking as alternative modes to reach desired destinations.

Furthermore, in order to continue to promote transportation alternatives to students, the app must enable push notifications. An additional desired feature is to promote gamification to encourage the use of alternative modes.

The optimal way to provide evidence of the app’s utility is the randomized controlled trial (RCT). As part of the RCT, the app must be available only to students who are randomized to the “intervention” group. Therefore, access to the app must be restricted to a list of identified students. After the conclusion of the trial, our intention is to permit all students, faculty and staff to download the app to assist them in their campus commute.

3.2 Selection of a Technology Provider

The research team evaluated proposals from four technology providers: Moovit, IBI, Daruma and Transit. Among the criteria for evaluating the proposals were trip app development experience, ability to support real-time trip planning, ability to develop a customized brand app (i.e., “white label”), ability to add modes in addition to public transit, reporting capabilities, and more. See Appendix: Transit App Developers Evaluation for details. After weighing the

applicants' responses to the scope, their flexibility and ability to work with the requirements, the FAU team chose Daruma, a company that, coincidentally, occupies space on the FAU campus in Boca Raton.

In August 2020, Daruma updated their proposal based on FAU's refinement of app requirements. The proposal update included security testing as part of the app development process. FAU completed the contracting process with Daruma in November 2020.

3.3 App Development

Daruma confirmed the ability to collect aggregate travel behavior on the intervention group that installs the app, including:

- Number of times the app has been opened
- Number of trips taken by mode while app location tracking is turned on (ideally car, transit, bike, and walk modes)
- Number of trips to campus taken by mode
- Transit lines most frequently used by app users
- Transit stops most frequently used by app users.

At this time, the app is under development. Live and static transit feeds have been integrated into the app for testing purposes and branded app concepts are under development. In the next phase, the app development team plans to test the app with about a dozen home-to-campus transit-using commuters, conduct a user focus group, and complete development and testing in preparation for release to study participants in the intervention group by Summer 2021. In Phase 2, the app will be ready for release to all students, faculty and staff. Ongoing technical support will be available.

4. The Randomized Controlled Trial

The Cluster Randomized Controlled Trial (cRCT) portion of the study will focus on evaluating the use of information, marketing, and incentives to shape student travel behavior to campus through the attitudes, subjective norms, and perceived behavioral controls, per Ajzen's theory of planned behavior. The study is considered a clustered RCT because randomization will be conducted at the level of the students' residential address. If multiple students live at the same address, they will all be assigned to either the intervention or control group collectively.

Information and marketing for those assigned to the intervention group will consist of a map for each campus showing favorable residential locations for alternative modes, a MaaS app that facilitates the use of alternative modes, and marketing messages pushed to students through the MaaS app. The control group will receive none of the above. Both the intervention and control groups will receive incentives.

We will evaluate whether this combination of information and marketing shifts student travel behavior to campus over one year, and in turn, if these shifts in travel behavior result in improved academic performance and health related quality of life.

Specific objectives of the cRCT include evaluating relative to the control group, whether the intervention results in:

1. Greater utilization of alternative modes (transit, biking, walking, bike-sharing, electric scooters, and carpooling)
2. Lower rates of car ownership
3. Enhanced college performance (higher GPAs)
4. More credit hours completed
5. Higher retention rates
6. Greater health related quality of life

4.1 Study Population

This study is designed as an unblinded cluster randomized controlled trial (cRCT) in which a cluster of students who live in a particular residence off-campus will be randomly assigned to either the MaaS app (a behavioral intervention) or no app; students assigned to the MaaS group will also receive information concerning housing options. Cluster randomization will be stratified by campus and whether the student is full or part-time; these stratification factors were chosen because of their influence on student travel modes and school performance. Cluster randomization will use a 1:1 ratio (See Section **Error! Reference source not found.** for full detail). The trial will be conducted over one year. A pilot study of 200 students providing Informed Consent, will test the randomization process (note: neither group will receive MaaS); results of the sequence of surveys will be used to determine response rates to the various surveys and to identify issues with the survey rollout. Please see Appendix: Pilot Protocol for full details.

The study population will be students who live off-campus and attend any of these academic institutions: Florida Atlantic University (FAU), Broward College (BC), or Palm Beach State College (PBSC). To qualify for the study, students must plan to be at the same institution for the next year. The sample will be derived from a population of almost 51,000 students living off-campus (see Table 1 below). Students will be enrolled currently from one of four campuses: the Boca Raton campus—the main campus for FAU and a satellite campus for PBSC; the Fort Lauderdale campus—a satellite campus for FAU and BC; the Davie campus—the main campus for BC and a satellite campus for FAU; and the Lake Worth campus, the main campus for PBSC. The distribution of full-time and part-time off-campus students for each college and campus are provided in Table 1 below.

Table 1: Distribution of Off-Campus Students by College, Campus, and Enrollment Status

COLLEGE	FAU	PBSC	FAU	BC	FAU	BC	PBSC	TOTAL
CAMPUS	Boca Raton	Boca Raton	Fort Lauderdale	Fort Lauderdale	Davie	Davie	Lake Worth	
ENROLLMENT STATUS								
Part-Time	9,417	3,734	100	330	1,613	5,990	8,273	29,457
Full-Time	13,115	1,537	109	114	1,713	3,608	3,108	23,304
TOTAL	20,647	5,271	245	444	3,326	9,598	11,381	50,912

Each college will invite students who meet the following inclusion criteria to participate in the study:

- Enrolled as of September 1, 2020
- The student lives off-campus
- The student is affiliated with either the Boca Raton, Fort Lauderdale, Davie or Lake Worth campus

The invitation to participate in the study will ask the student to provide informed consent and to address the following:

- Do you live off-campus?
- Do you own a smartphone?
- Please indicate your smartphone number (for study communication purposes)
- Do you expect to be at your current institution until December 2022?

If the student answers ‘yes’ to the above questions, provides their phone number, address of residence and informed consent, then they will be enrolled in the cRCT and randomized.

4.1 RCT Advisory Group

The FAU team secured three academic experts to serve as a Research Advisory Group. The RCT Advisory Group performed the following tasks:

- Reviewed our Randomized Controlled Trial (RCT) methodology
- Reviewed our Institutional Research Board (IRB) packet
- Participated in a conference call to review their findings in the above

The members of the Research Advisory Group were recruited in collaboration with the Kresge Foundation and included Dr. Lindsay Page, Dr. Jim Sullivan, and Dr. Michael Gottfried. Dr. Lindsay Page is an associate professor of research methodology at the University of Pittsburgh School of Education, a research scientist at Pitt's Learning Research and Development Center, and a faculty research fellow of the National Bureau of Economic Research. Dr. Jim Sullivan is a Gilbert F. Schaefer College Professor of Economics and co-founder of the Wilson Sheehan Lab for Economic Opportunities at the University of Notre Dame. Dr. Michael Gottfried is a professor in the Gevirtz Graduate School of Education at the University of California Santa Barbara.

The research team submitted a draft research plan to the advisory members, who then supplied written feedback on the protocol with a focus on the RCT methodology. The FAU research team reviewed and responded to all comments in table form and provided responses to all comments to the Research Advisory Group. Then, the research team and the advisory group also met by teleconference on March 20, 2020 to discuss and clarify the suggestions and observations.

Major changes made as a result of consultations with the Research Advisory Group included:

- Redesign of the study as a clustered RCT, with clustering occurring at the address level
- A more robust plan for piloting all phases of the project, including the MaaS app and the travel behavior survey
- Increased focus on sample size and response rates to be refined once data are available from the survey pilot
- Clarified the sources of data for various aspects of the study
- Expanded the set of background questions asked about study participants in the survey, i.e., household structure
- Use of the National Student Clearinghouse to determine degree completion for transfer students

4.2 IRB Approvals

The initial research protocol was approved by FAU's Institutional Research Board (IRB) on May 12, 2020. The data management protocol was updated to improve data safety measures and approved on August 25, 2020. Refinements to the survey instrument were submitted and approved on October 19, 2020.

4.3 Data Requirements

Three sources will provide quantitative data: 1) student surveys will provide information on student travel behavior; 2) official academic records will provide data on student academic performance; and 3) student app usage will be derived directly from the app.

Student travel behavior for both intervention and control groups will be collected through surveys conducted at baseline and every semester thereafter. Surveys on travel behavior will collect information regarding vehicle ownership, frequency of mode use for travel to and from campus, time of day of travel to and from campus, and related information. We will issue a baseline travel behavior survey at the beginning of the project and then issue regular surveys during fall and spring semesters for the one-year observation period.

Survey questions will ask about the students’ demographics, attitudes towards alternative modes, self-reported BMI, health-related quality of life, and suggestions for potential improvements for travel to campus.

These data will be complemented with academic performance and achievement data derived from official university/college administrative records. Student academic performance data will include grade point average for each semester, credit hours completed for each semester, and related academic outcomes, i.e., degree attainment, persistence in their program, and/or dropping out of their program.

Table 2 shows the major sources of research data and their sources.

Table 2 Research data and sources

	STUDENT SURVEYS	COLLEGE ADMINISTRATIVE DATA	APP
Unique Identifiers (i.e., name, email)	X	X	
Individual Travel Behavior to Campus	X		
Aggregate Travel Behavior to Campus	X		X
Personal Demographics	X	X	
Household Demographics	X		
Academic Performance		X	

A complex process is required to first solicit consent, then distribute surveys to students, and then integrate this survey information with college administrative information. This process is detailed in the data flow diagram in Figure 1. See full-sized version in Appendix: Data Flow Diagram.

Proposed Data Flow Diagram, August 13, 2020



Figure 1 Data management

4.4. Survey Development and Pilot

During the summer of 2020, the FAU team met several times to review each survey question in detail with the following goals. The language should be as plain as possible while also being precise. Dividing the survey into three shorter surveys should promote ongoing student engagement and allow each survey to be completed more quickly. The three surveys are structured around the themes of background information, travel to campus, and health. Sending the surveys to a small group of students for feedback identified a handful of additional issues. The design of the pilot survey was as similar to the final survey instrument as possible, because every major modification creates an opportunity for a mistake to be introduced, and the team seeks to identify potential issues in survey distribution and completion.

As recommended by the RCT advisory board, the research team plans multiple pilot test runs. The first pilot test intends to field test survey response rates and the survey delivery platform Qualtrics, including automated email and mobile messaging reminders, and participant’s

expected versus actual responses. One innovation adopted in the survey is the integration of Google Places API into survey questions on home and work addresses. Incorporating the standardized addresses will help to ensure clean address data and accurate mileage calculations.

The pilot population consisted of 150 off-campus graduate students from FAU and 150 upper-level students from PBSC in order to preserve the target population of undergraduate students. Three short surveys (demographic data, travel behavior, health: see Appendix: Student Travel Behavior Survey) were disseminated one per week in consecutive weeks in October-November 2020.

5. Potential for Lasting Impact

As stated above, the overall goal of the project is to provide a comprehensive Mobility-as-a-Service (MaaS) ecosystem for accessing colleges and universities in South Florida in order to offer students affordable, environmentally friendly transportation alternatives to car ownership. In addition, the project aims to understand whether better MaaS options lead to improved academic outcomes.

This project presents the opportunity to create lasting change in several ways. First, by bringing together the universities and colleges in partnership with the transit agencies for the first time, the project can spur a collaborative approach to solving mobility problems for students based on the holistic MaaS ecosystem approach. All of the educational partners have massive parking problems on their campuses; however, they have yet to embrace transit and alternative modes as a solution to their problems. FAU, Palm Beach State College and Broward College all operate shuttles, which currently fail to provide lasting mobility solutions. The excitement generated by applying for and winning this grant indicates their willingness to think creatively about the mobility problems facing students. Now is the time for a paradigm shift away from expanding parking on campuses and toward a MaaS ecosystem approach that draws upon all types of transportation resources. Shared mobility alternatives have never been as affordable and as available as they are today.

The partnering transit agencies bring significant resources in terms vehicles, technical expertise and the desire to work collaboratively to better serve students attending colleges in universities in Broward and Palm Beach Counties, which include over 140,000 students. A partnership among FAU, Broward College, Palm Beach State College, and the three transit agencies can create lasting change in how these entities communicate and collaborate to create policies, plans, and service that better serve college students for many decades to come in South Florida.

The second way in which this project will bring lasting change is to the students themselves. As students are exposed to the benefits of transportation alternatives, they may then be more likely to carry these habits forward in life. Not only do we expect to improve student success outcomes,

but we also expect that they may be more likely to use transit and alternative modes as they move into their careers.

6. Next Steps

At this time, live and static data feeds are being tested in the MaaS app and design elements are in development. The Transit Partners have been asked for their input in naming the app. The app design elements will focus on maximum scalability; that is, with students from the entire region in mind and with the ability to grow the app. Partner brand elements will appear on static pages within the app and on the app's internet landing page. Additional pilot testing will be scheduled during the upcoming months. In the coming months, the team will:

- Finalize and beta test MaaS app (January – May 2021)
In addition to testing app functionality, a student focus group will assess issues of accessibility and usefulness. Data collected at this time may result in changes in the app design. Changes to the research protocol will be submitted for approval by the FAU Institutional Research Board (IRB).
- Finalize the student engagement plan with the academic partners.
Marketing messages, design, and channels across the campuses will be aligned.
- Launch the MaaS app and randomized controlled trial (RCT) study (Summer/Fall 2021)
- Complete Phase 1 Research – June 2022
At the end of Phase 1, data resulting from the surveys and MaaS app usage may inform first mile, last mile solutions for students. The Transit Partnership may recognize a greater capacity to align transit options for students. Data from Phase 1 will inform the process to launch Phase 2.
- Launch Phase 2 – Summer/Fall 2022
In Phase 2, the Transit Partnership may recognize that investment in transportation options can increase ridership while providing better alternatives for students. The team intends to market and distribute the MaaS app to all students, faculty, and staff across the college campuses. Additional transit or academic partners may be involved at this time.

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Proposed Data Flow Diagram, August 13, 2020



Transit App Developers Evaluation

	Moovit	IBI	Daruma	Transit
Trip App Experience	Very High	High	Moderate	Very High
Flexibility	Moderate	Moderate	High	Low
White Label	FAU specific options. Ability to limit app access unclear.	Yes, customized	Yes, customized	No, standard Transit app only
Communication with Students	In-app and push notifications	Push notifications and messages	In-app and push notifications	In-app and push notifications
Ability to Add New Modes	Possibly	Possibly	Yes.	Possibly
Platforms	IOS and Android	IOS and Android	IOS and Android	IOS and Android
Personalization	Yes	Saved routes		Yes
Current Modes	Transit, ride-hailing, bike share, scooter share, walking	Transit, ride-hailing, bike share, scooter share, walking	Transit, biking, walking. Unclear if can link to micromobility and ridehailing.	Transit, ride-hailing, bike share, scooter share, walking
Real-Time Route Planning	Yes	Yes	Unclear	Yes
Reporting	Aggregate transit analytics: Users, active users, trips, line analysis, stops. NOT INCLUDED.	Aggregate analytics: active users, new users, time in use	Aggregated data on app usage	Aggregated data on app usage and trip planning
Questions	Could we create our own gamification process? Are TNCs included in white label? How exactly would we send messages?	Not much in the proposal about support and maintenance		
Other	Ability to add or fix transit data.	Least time spent on proposal development. Likely monthly support costs.	Ability to add in-app advertising. Least detailed proposal shows the least familiarity with this domain.	Monthly cost. Ability to add gamification but not worth the cost.
Price	\$100,000	\$100,000	\$100,000	\$100,000

Kresge Pilot Testing Protocol

updated 11/10/2020

As recommended by the RCT advisory board, the research team plans multiple pilot test runs. The first pilot test intends to field test survey response rates and survey delivery platform, including automated email and mobile messaging reminders, and participant's expected versus actual responses. The results of the pilot will help refine the study protocol. One innovation adopted in the survey is the integration of Google Places API into survey questions on home and work addresses. Incorporating the standardized addresses will help to ensure clean address data and accurate mileage calculations.

The pilot population consists of graduate students from FAU and upper-level students from PBSC. From each institution, 150 students were selected to participate: FAU off-campus graduate students at Boca Raton, Fort Lauderdale, or Davie campuses and PBSC students with 60+ credits at Boca Raton or Lake Worth campuses. All but one student had an alternate email address provided for a total list of 599 email addresses. The goal is 100 completed surveys from each institution.

Three short surveys (demographic data, travel behavior, health) are scheduled as follows in October-November 2020.

Email survey #1	Tuesday, Oct. 27 to 599 institutional and alternative email addresses
Reminder #1.1	Friday, Oct. 30 to unfinished respondents as determined by Qualtrics
Reminder #1.2	Monday, Nov. 2 to unfinished respondents as determined by Qualtrics

10 people responded. 3 provided cell phone numbers.

Q: If they do not have a smart phone, should that exclude them from joining the control group?
attempt to determine SMS method

Email survey #2	Tuesday, Nov. 10 to all who completed survey #1
Reminder #2.1	Thursday, Nov. 12 to unfinished respondents as determined by Qualtrics
Reminder #2.2	Friday, Nov. 13 to unfinished respondents as determined by Qualtrics
Email survey #3	Tuesday, Nov. 17 to all who completed survey #1
Reminder #3.1	Thursday, Nov. 19 to unfinished respondents as determined by Qualtrics
Reminder #3.2	Friday, Nov. 20 to unfinished respondents as determined by Qualtrics

Appendix 4 – Student Travel Behavior Survey

The survey will be piloted to 100 graduate students at FAU and 100 students at Broward or Palm Beach State College with at least 60 credit hours earned (soon to graduate). The pilot will be used to determine a likely response rate to the survey and to identify issues with the survey rollout.

Personal characteristics

1. At which institution are you currently enrolled as a student?
 - a. Broward College
 - b. Florida Atlantic University
 - c. Palm Beach State College
 - d. None of the Above
2. At which campus do you currently take most of your courses?
 - a. Boca Raton
 - b. Davie
 - c. Ft. Lauderdale
 - d. Lake Worth
 - e. Other
3. Do you own and use a smartphone, that is, a phone that can download and use apps?

Please provide your 10-digit phone number to enable text reminders to complete additional surveys related to this study. (Additional charges from your cell phone service provider may apply).

If you'd like to follow our study on Social Media, please click this link and follow us. This way you will be informed about future surveys and other happenings related to the study.

How did you hear about this study?

Please provide an alternate email address (other than your official campus address) to enable email reminders to complete additional surveys related to this study.

Please CHECK ALL that apply.
4. What type of operating system does your smartphone have?
 - a. iOS
 - b. Android
 - c. Other
5. Are you a licensed driver?
6. Do you own a car?
7. Do you work?
 - a. Full time (30+ hours a week)
 - b. Part-time (< 30 hours a week)
8. Do you work on-campus?
 - a. Yes
 - b. No
9. Work address?
10. Do you have children aged 17 or younger at home?
 - a. Yes
 - b. No

11. Are you responsible for the care and/or needs for an adult? (For example, helping an adult with health care, shopping, errands, or other routine activities.)
 - a. Yes
 - b. No
12. Do you live in a residence with your parent or guardian?

Travel to school

For this section, a MOTOR VEHICLE refers to a car, SUV, truck, motorcycle, or similar vehicle.
 On most days, do you have access to a motor vehicle you can use to get to campus? yes, no
 Do you cover the costs of a motor vehicle? yes, no

13. To get TO CAMPUS in a typical week, I: (travel mode) (number) time(s).
 - a. Drive alone
 - b. Carpool
 - c. Use Ride-hailing (Uber or Lyft)
 - d. Use Transit, including walking, biking, driving, or other means to the transit station
 - e. Walk or bike only (not in combination with transit)
 - f. Use Bike share or electric scooter share only (not in combination with transit) i. 1 ii. 2 iii. 3 iv. 4 v. 5 or more
14. [Only if noted in Q12 that respondent uses transit] If you use transit on a typical week to get to campus, what is your most used access mode?
 - a. Driving
 - b. Ride-hailing (Uber or Lyft)
 - c. Walk
 - d. Bike
 - e. Bike share or electric scooter share alone
 - f. Auto/drop off
 - g. Not applicable
15. What time of day do you most often come to campus?
 - a. Direct entry field – time of day
16. What time of day do you most often leave campus?
 - a. Direct entry field – time of day
17. How long does your trip to campus usually take?
 - a. Direct entry field - minutes
 - b. Maximum of 2 hours
18. Do you work? full time. part time, no, on-campus, off-campus
 Please rank the following reasons that you currently hold a job (#1=most important reason)
 To pay for health care
 To pay for housing
 To pay for recreation and entertainment
 To pay for necessities, food, etc.
 To pay for a car
 To pay for school

If you have a primary, fixed work location, what is your work address?

19. When you come to campus, what previous activity are you most frequently coming from? a. Home
b. Work
c. Equally Home and Work
d. Other
20. When you leave campus, what activity are you most frequently headed to?
a. Home
b. Work
c. Equally Home and Work
d. Other

Attitudes towards Alternative Transportation

1. How often do you take transit, such as a bus or train?
a. At least 4 times per week
b. At least once per week
c. At least once per month
d. Less than once per month
e. Never
2. [Randomize order of choices below] What do you see as the greatest benefit of using transit to get to campus?
a. Less environmental impact
b. Time to study, relax, etc. while traveling
c. Avoid hassles of owning and maintaining a car
d. Save money
3. What do you see as key obstacles to using transit to get to campus? [Please choose all that apply & RANDOMIZE below]
a. My peers don't use transit/I prefer driving
b. Takes too long
c. The service does not go where I need it to go
d. Not available at the times I need to travel to and from campus
e. Unreliable/Lack of certainty
f. Lack of privacy
g. Not used to taking transit/ not sure what transit to take
h. Too expensive
i. Not sure where to buy a transit pass
j. Safety concerns
4. If you take transit, what activities do you usually engage in while on transit?
a. Communicating: email, phone, social media, etc.
b. Entertainment/recreation: Reading, videos, etc.
c. Information search: Shopping, journey information, employment information, etc.
d. Socializing: Talking in person
e. Studying/working: Reading, research, note-taking, etc.

5. What are the key obstacles in walking to campus? [Please choose all that apply]
 - a. Too far
 - b. Weather: Too hot or too rainy
 - c. Need to carry materials
 - d. Not safe to walk near campus because of traffic
 - e. Not safe to walk near campus because of personal safety
 - f. Other (explain)
6. What are the key obstacles in bicycling to campus? [Please choose all that apply]
 - a. Too far
 - b. Weather: Too hot or too rainy
 - c. Need to carry materials
 - d. Not safe to bike near campus because of traffic
 - e. Not safe to walk near campus because of personal safety
 - f. No convenient/safe locations to lock up a bike
 - g. Other (explain)

Residential Location

7. What is your address?

Improvements to campus transportation

8. What improvements to bus services would you most like to see? [Please choose all that apply & RANDOMIZE below]
 - a. Real-time bus arrival information signs
 - b. Improved bus stops and waiting areas
 - c. Shuttles to more useful **off-campus** destinations
 - d. Shuttles to more useful **on-campus** destinations
 - e. Shuttles between campuses
 - f. More frequent buses
 - g. Later and/or earlier buses
 - h. More buses during the weekends
 - i. Discounted monthly transit passes
 - j. Other (explain) – [check in Qualtrics if this needs to be a separate question]
9. What new transportation services would you most likely find useful? [Please choose all that apply]
 - a. Carpooling/ride-matching
 - b. Scooter share
 - c. Bike share
 - d. Uber/Lyft discounts
 - e. Electric shuttles that provide service on demand (i.e. Freebie/golfcarts)
 - f. Other (explain) – [check in Qualtrics if this needs to be a separate question]

