

Title of Project: A Pilot Study for Gathering Smart Data on Pedestrians' Travel in the Region of Waterloo

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To help you make an informed decision regarding your participation, this letter will explain what the study is about, the possible risks and benefits, and your rights as a research participant. If you do not understand something in the letter, please ask one of the investigators prior to consenting to the study. You will be provided with a copy of the information and consent form if you choose to participate in the study.

What is the study about?

You are invited to participate in a pilot research study conducted by Ming Xu, under the supervision of Dr. Jeffrey Casello with the School of Planning and Department of Civil Engineering of the University of Waterloo. This study is a component of a pilot study. Knowledge gained from this pilot study may be used to develop future studies to inform the ways in which transportation facilities are planned and designed, although there is no guarantee that they will be conducted. The objectives of this pilot study are to facilitate and inform the design of subsequent studies intended to understand pedestrian travel behavior within urban and suburban areas. This study is done to find out whether enough participants will join a larger subsequent study and accept the study procedure. The findings of this pilot study will help identify recruitment issues and determine the feasibility of conducting a larger study.

I. Your responsibilities as a participant

What does participation involve?

Participation in the study will consist of smartphone-based data collection and survey-based online data collection. If you choose to volunteer, you will be asked to install an app on your smartphone (iOS only) and complete an online survey. You will need a valid email address in order to sign up for the study. Please use same email address when sign up for the smartphone app and the online survey if you decide to participate both parts of the study. This study involves two different electronic consent forms. Please read the consent forms before you start the online survey and smartphone data collection. Before you consent to participate, please ask any questions to be sure you understand what your participation will involve.



From your smartphone, when running the app, we will gather your locations and times of day. When you turn the app off, there is no data being gathered. You are always in control of what you are sharing and uploading. The smartphone application will passively collect GPS data from your phone to record your movement. If you running the app for entire day, the app will generate 24 hours of consecutive data. If you turn the app on, leave it running for few hours, then turn it off, the app will generate non-consecutive hours of data. Once you have the app, you can pick any 2 days of weekdays and 2 days of weekends during the data collection period June 14 2021 to July 14, 2021 to record your travel. A minimum of 6 hours for each travel day are required for your data to be incorporated into the study. To complete the smartphone data collection, a minimum 24 hours of data (4 days of 6 non-consecutive hours) should be successfully uploaded to the server. A full data will be 96 consecutive hours (4 consecutive days).

The collected travel data will help us better understand how pedestrians travel to and within study areas (Central Transit Corridor, around the new ION line), so that future travel planning can predict how pedestrians travel in different areas, and how best to support this travel. The app will be available for download on Apple Store for free. It will require you to enable location sharing and send notifications in your phone. The application has to be turned on each time you wish to generate travel information. If you do not want to gather data, do not turn it on. We encourage four days of data collection, which should include weekdays and weekends. The data will be automatically uploaded to the server when Wi-Fi is connected. This app uses minimal cellular data when Wi-Fi is not connected (one-hour recording data is about only 1 Kilobyte). Following data collection, the first and last 2 minutes of each collection period will be aggregated to postal code level to prevent identification of your home or work address. Locational information collected from iPhone will be stored securely on servers hosted in Canada and administered by our app developer.

From the online survey, we will learn about the attributes of your household. We will never ask for your name or specific respondent information. The one-time online survey will help us to understand general characteristics of the people who are traveling, such as age range and gender. The online survey will take 3-5 minutes to complete. You may decline to answer any questions that you do not wish to complete.

Who may participate in the study?

In order to participate in the study, you must be a traveler who is at least 18 years of age and lives within or near to the Central Transit Corridor, or who travels there regularly (at least once every week). The app is only available for iOS phone/iPhone users.

II. Your rights as a participant

Is participation in the study voluntary?

Participation is voluntary for any part of the study. If you decide to participate both parts of the study, your smartphone data and your online survey data will be linked by the email that you provided. By contacting one of the researchers above, you can request your data be



removed from the study up until three months after the data are collected. You can still use the app after requesting your data be removed. More generally, you can withdraw your participation at any time by uninstalling the application like any other app.

Knowledge gained from this pilot study may be used to develop future studies that may benefit others. The findings of this pilot study may be used as a guide for larger studies, although there is no guarantee that they will be conducted. Participation in a pilot study does not mean that you will be eligible to participate in a future larger study.

Will I receive anything for participating in the study?

Gift Card Draws and Incentives

All participants who sign-up for the smartphone data collection will be given (for free) a portable phone charger to ensure you are able to keep your phone charged and engage in the study. The phone charger, valued at \$8.99 (+tax) is yours to keep.

In appreciation of the time you have given to this study, your sign-up email will be entered into a draw for 1 of 2 \$50 gift cards. We will provide you with your choice of either a \$50 EasyGo fare card or a \$50 Amazon gift card.

Your odds of winning one of the prizes are based on the number of individuals who participate in the study and the amount of time tracked by each participant. We expect 18-20 individuals will take part in the study over a four week period. Once you download the app and sign up with email within the app, you will receive 1 electronic ballot into the draw for the gift cards. Once you submit the online survey, you will receive an additional electronic ballot into the draw. For every 12 hours of study data you provide via the app, you will receive 1 electronic ballot into the draw for the gift cards. Since a minimum 24 hours of data (4 days of 6 non-consecutive hours) are required, you can receive at least 2 electronic ballots when your data are uploaded. A participant providing full data (sign-up for both parts of the study and 96 consecutive hours) will receive 10 electronic ballots (8 ballots from uploading the travel data, 2 from signing-up for both parts of the study).

The winners of the gift draws will be notified until July 28, 2021, two weeks after the data collection is closed. Should you win one of the prizes, your sign-up email will be used to contact you. This email will not be provided to any third parties, and will be de-identified once the winners are notified. Any amount received is taxable. It is your responsibility to report this amount for income tax purposes.

III. Privacy and Security

What are the risks associated with the study? Will my information be kept confidential?

The iOS app is developed by researchers from the Waterloo Public Transportation Initiative, University of Waterloo. It is important for you to know that your identity will be confidential.



All of the data will be summarized, and no individual will be identified from these summarized results. Furthermore, the application is programmed to collect only GPS coordinates and will not collect any other information that could potentially identify you (such as unique identifiers from your phone). The smartphone data will be stored on a server in Canada and will then be securely sent to the Waterloo researchers through a secure file transfer service provided by the University of Waterloo.

You will be completing this study by an online survey operated by Qualtrics™. Qualtrics™, a survey hosting company used under a licence held by the University of Waterloo, hosts the online survey. When information is transmitted or stored on the internet privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g., government agencies, hackers). Qualtrics™ temporarily collects your computer IP address to avoid duplicate responses in the dataset but will not collect information that could identify you personally. If you prefer not to submit your survey responses through this host, please contact one of the researchers so you can participate using an alternative method such as through an e-mail or paper-based questionnaire. The alternate method may decrease anonymity but confidentiality will be maintained. No question in the online survey requires an answer, however, providing more information will improve the results and accuracy of the study. The online survey data will be downloaded immediately from Qualtrics™ once the data collection is closed and securely stored on a password-protected computer database in a restricted access area of the University of Waterloo.

This study does not require your name. After we notify the winner of the gift draws, all of the collected data will be de-identified. To keep the confidentiality of identities, we will replace your email address with unique user ID (UUID) with no personal identifiers. The transition list of email addresses and UUIDs will be stored in a password-protected computer in a restricted access area of the University, and will not be shared with any other parties. The list will be destroyed once all emails are replaced with UUIDs. After we replace the email addresses with unique user IDs, the summarized travel data will be shared with app developer to help them adjust the app features and functions. Also, we will work collaboratively on further data analysis, such as programming and coding to infer travel mode. However, the collected background information from online survey will not be shared with app developer or any other parties.

Only those associated with this study will have access to response records, which are secured and maintained with no personal identifiers on a password-protected computer database in a restricted access area of the University of Waterloo. We will keep our study records for a minimum of 7 years. When information is transmitted over the internet, privacy cannot be guaranteed. There is always a risk your responses may be intercepted by a third party (e.g. government agencies, hackers).



If you wish to participate please visit our research webpage at <https://uwaterloo.ca/waterloo-public-transportation-initiative/research-0/understanding-pedestrian-travel-behavior-using-smartphone/pilot-study-gathering-smart-data-pedestrians-travel-region>

III. Questions, comments, or concerns

Has the study received ethics clearance?

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#41368). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca.

Who should I contact if I have questions regarding my participation in the study?

For all other questions about the study, please contact either Ming Xu at xiaomeng.xu@uwaterloo.ca or by phone at 519-888-4567 ext. 32878, or Dr. Jeffrey Casello at jcasello@uwaterloo.ca or by phone at 519-888-4567 ext. 37538. Further, if you would like to receive a copy of the results of this study, please contact an investigator.

Thank you for considering participation in this study!

