Georgia Tech

Walking School Bus

Smartphone application

Showcase

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Waddle

Today's Agenda

- Introduction of panelists and project team
- Georgia Smart Communities Challenge Program
- Introduction of the study area

- Research overview

- Project details
- Unveiling the app

- Features and demo
- Next steps
- Q & A

Type in your questions.
We have reserved time for answering questions at the end.

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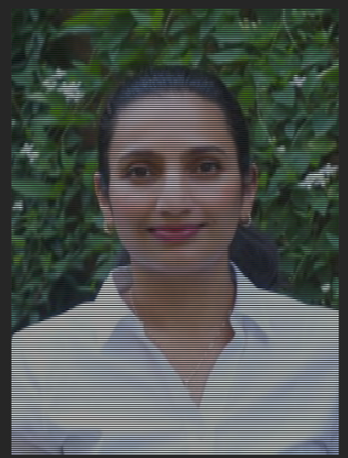
Introduction of Panelists

Michele McIntosh-Ross
Principal Planner at City of Milton

Dr. Angshuman Guin
Ga-Tech, Transportation Engineering



Shubhangi Jangam
Senior Planner at City of Milton

Dr. Kari Watkins
Ga-Tech, Transportation Engineering

+ Project Team

Parag Agrawal
Director of Community Development at City of Milton

Reid Passmore
Ga-Tech PhD student

Duo-Wei Yang
Ga-Tech student intern

Elizabeth Sandlin
Atlanta Regional Commission

AppZoro
Software Developer

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Milton's Project Partners

City of Milton

- Parag Agrawal
- Michele McIntosh-Ross
- Shubhangi Jangam

GA-Tech

- Dr. Kari Watkins
- Dr. Angshuman Guin
- Reid Passmore

Fulton County schools

- Kibbey Crumbley (NW Superintendent)
- Tresa Cheatham
- Joel Peterson
- Brian Jones

Project Supporters

Atlanta Regional Commission

Fulton County NW Area Superintendent

School Principals and Staff

PTO members

Community Volunteers

Crabapple Residents

AppZoro (IT)

Traffic Data Services

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Milton's Proposal

To use technology to assist the coordination of groups of kids led by parent volunteers to walk to school.

This is also known as a **walking school bus** where groups of 4 to 6 kids walk to school with a lead adult walker as the chaperone/ driver of the group.

Study and develop an interactive app for smartphones that will provide real-time group communication for parents of kids who want to walk to school in groups.

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Welcome to Milton GA

Milton's Highlights

- 39 square miles
- Approximately 39,000 residents
- Family oriented, highly educated and young
- 20% of population is 14 years or younger

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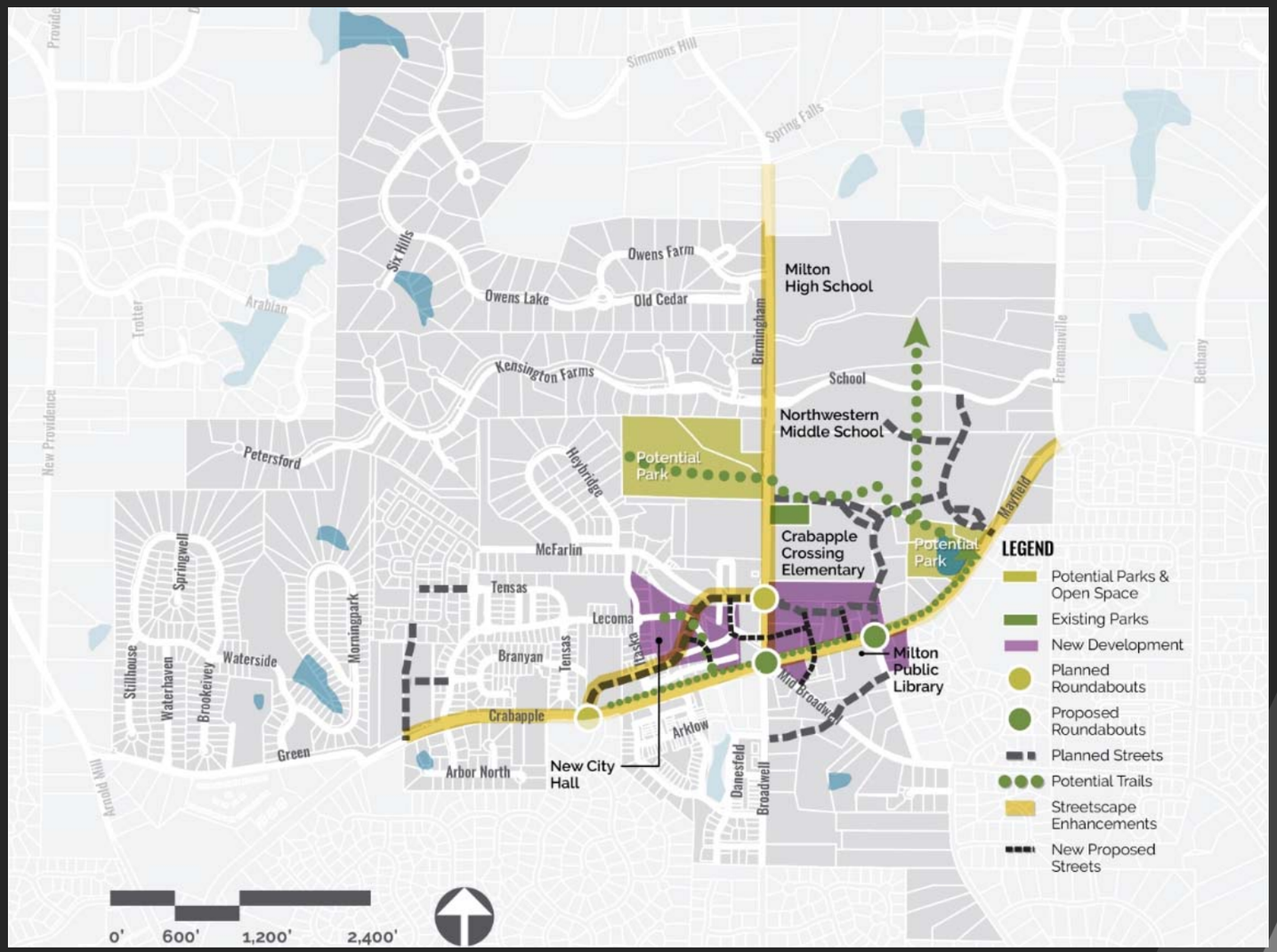
Introduction to Study Area
Downtown Crabapple



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Walk to School Research

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Motivation

Nationally, only 9.6% of kids aged 5-18 walk to school in 2017.

- Down from almost 50% of kids K-8 in 1969

Yet walking to schools offers multiple benefits:

- Less greenhouse gas emissions and congestion
- Increases physical fitness
- Better academic performance

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Motivation

Literature says many reasons why children might not walk to school:

- Too far away
- Driving is convenient for the parent
- Not a lot of other children walking
- No available sidewalks or crossings
- Aggressive drivers
- Stranger danger, lack of supervision

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Motivation

- Walking School Buses (WSBs) as a solution:
  - Volunteer parent leads group of children to school on foot
- WSB Results
  - Create a habit of walking in later grades
  - Bolsters communities and stimulates social interaction
- WSBs can have long-term sustainability issues
  - A couple parents doing most the logistics and leading
  - The designated routes not being safe
  - No incentive programs
  - Students 'graduate' from WSB and walk to school on their own, but are not replaced

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Research Methodology

- Goals
  - Create draft routes and a walking network for WSB group creation and planning.
  - Find key influencing factors that can help determine the likelihood for a parent participating in a WSB.
  - To ensure the WSB app is responsive to the specific needs of Milton.
- Internet Survey
  - Distributed through school newsletter.
  - 134 parent responses representing 168 elementary and middle school students (7.9% response rate).
- Video Counts

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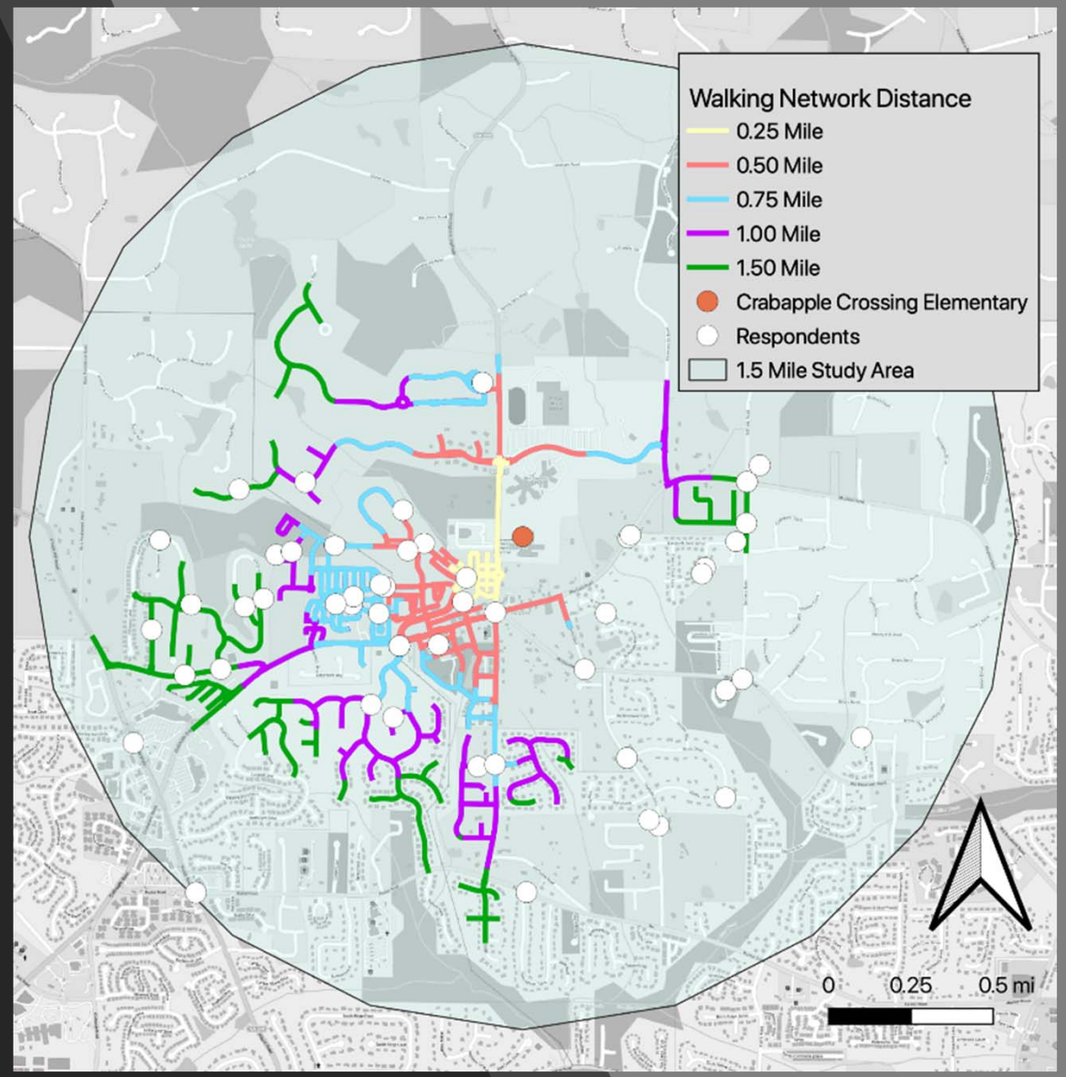
Mapping Respondents and Routes

- Identify a walking network for Milton for routing WSBs
  - Sidewalk Presence
  - Crossing (e.g. crosswalks, PHBs, walk signals)
  - Speed Limit
- 66% of elementary students and 30% of middle school students within 1.5 miles of school
- Geocoded respondents to draft initial routes



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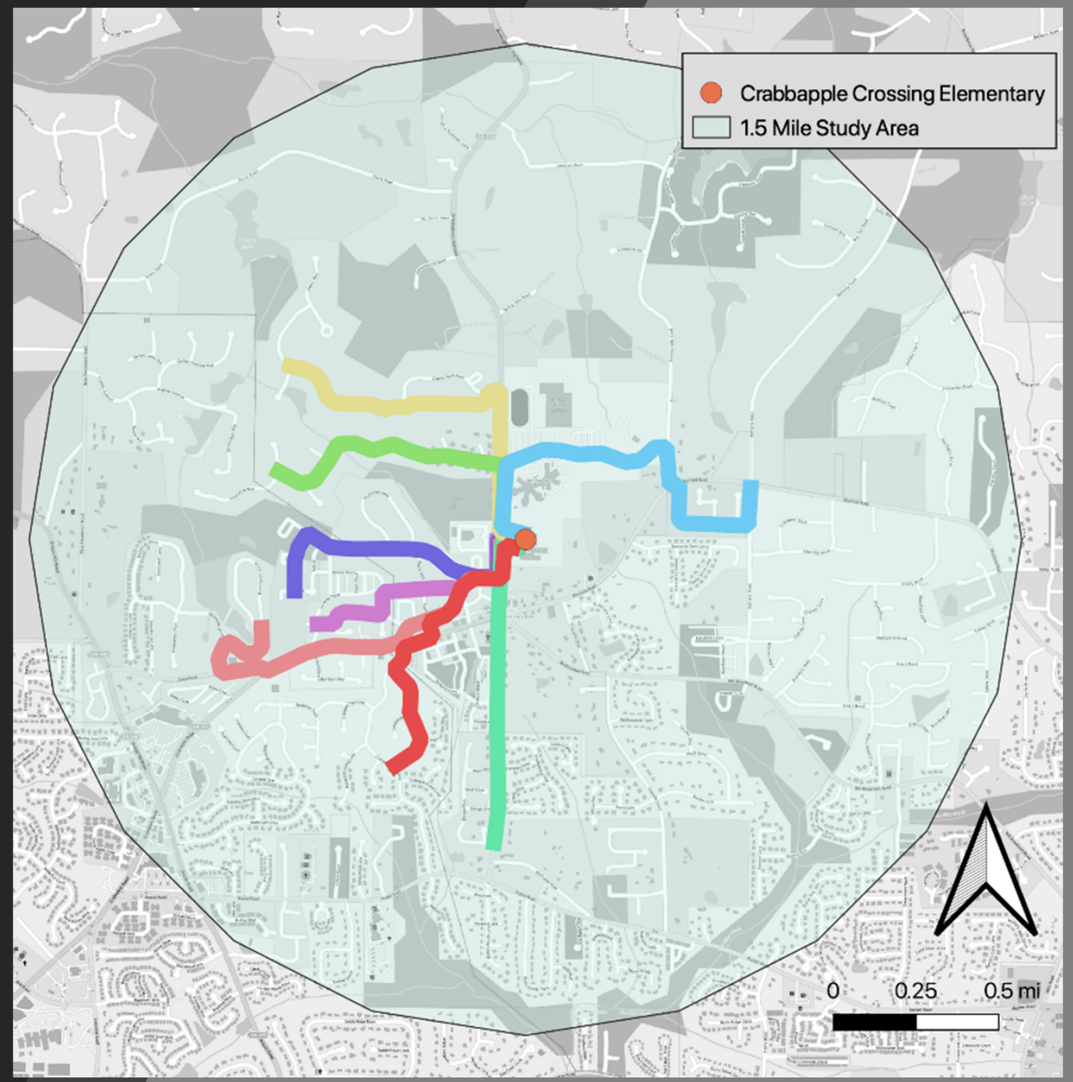
Mapping Respondents and Routes

- Respondents were concentrated towards denser southwestern section that is well serviced by sidewalks.
- Indicates that creating routes based on neighborhoods is best approach.
- Walking network can be used to plan routes as needed.



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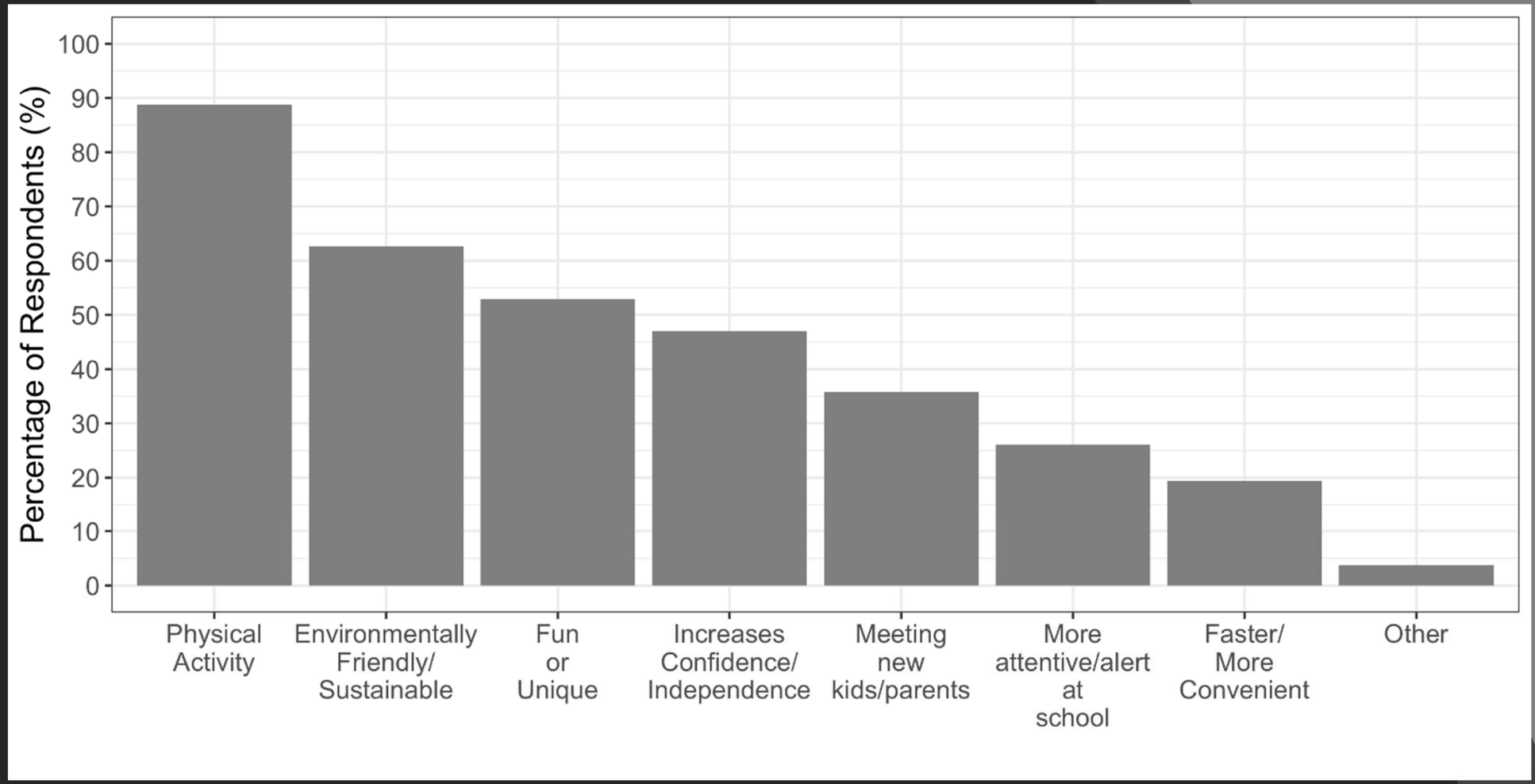
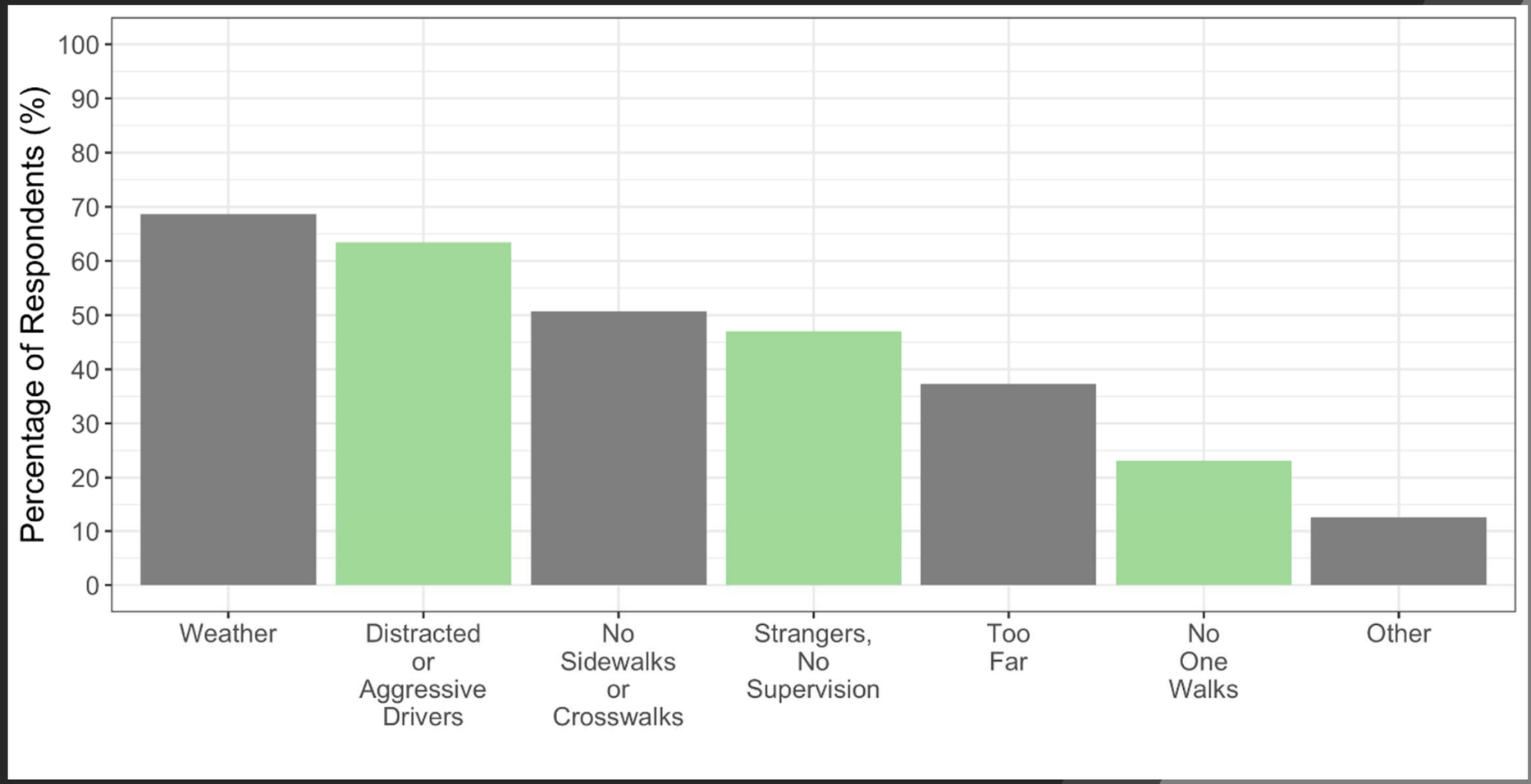
Benefits & Barriers



Benefits of walking to school well known no matter the current behavior.

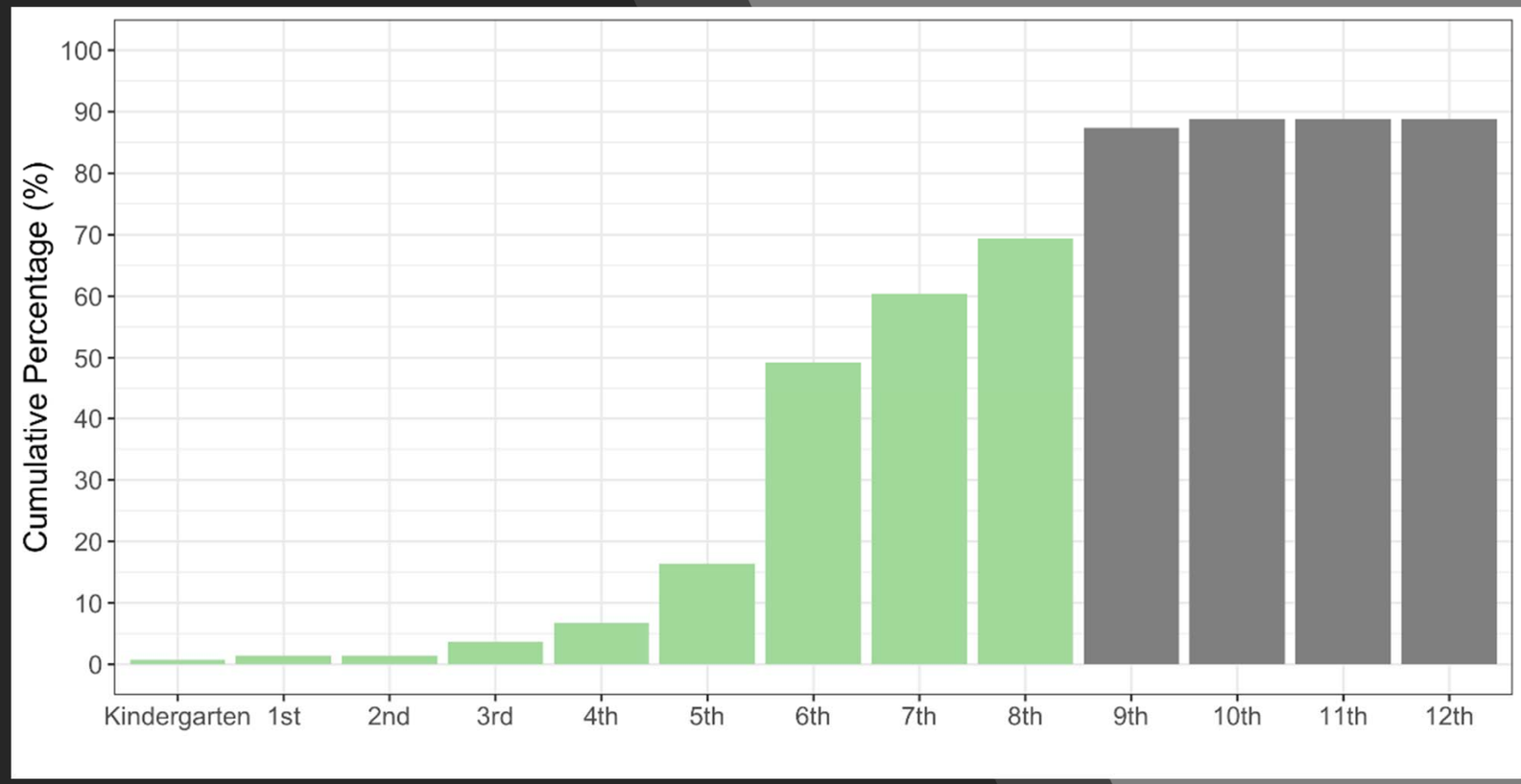
Benefits & Barriers



Barriers brought up by respondents directly addressable by a WSB.

Walk Alone Age

- Major spike in 6th grade, then 9th grade.
- Around 10% did not think children could ever walk to school.
- Demonstrates why elementary should be the focus for the app.



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Conclusions

- A walking network and routes were generated for use in app planning and advertising.
- Walk to School day participants are the best pool of volunteers for the WSB App.
- Milton's Walk to School day program puts it in a unique position to make a regular WSB program work compared to other schools.
- Recognition of benefits / barriers not significant, meaning convenience of current behaviors is a driving factor.
- When app is released, follow-up survey and counts will be done.

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Project Details of Milton's Smart and Safe Routes to School Project

Project Timeline

- Kick off
- Research
- Listing Business requirements
- Public meeting

- Digital survey
- RFP
- Video data collection

App Design with Software Developer

App Coding

Public engagement
December 5, 2019
July 13, 2020

On-site visit to walking school day
January 17, 2020

Meeting with Fulton County School district leader
November 2019

Meeting with legal advisors

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Public Engagement and Collaborations

- 2 public meetings with community in December and June
- Site visit at Walk to School day
- Digital Survey: 178 responses
- Weekly project team meetings
- Monthly project progress reports
- Mid-year review
- 2 Internship opportunities provided

BlueJeans

Microsoft Teams

SurveyMonkey

zoom

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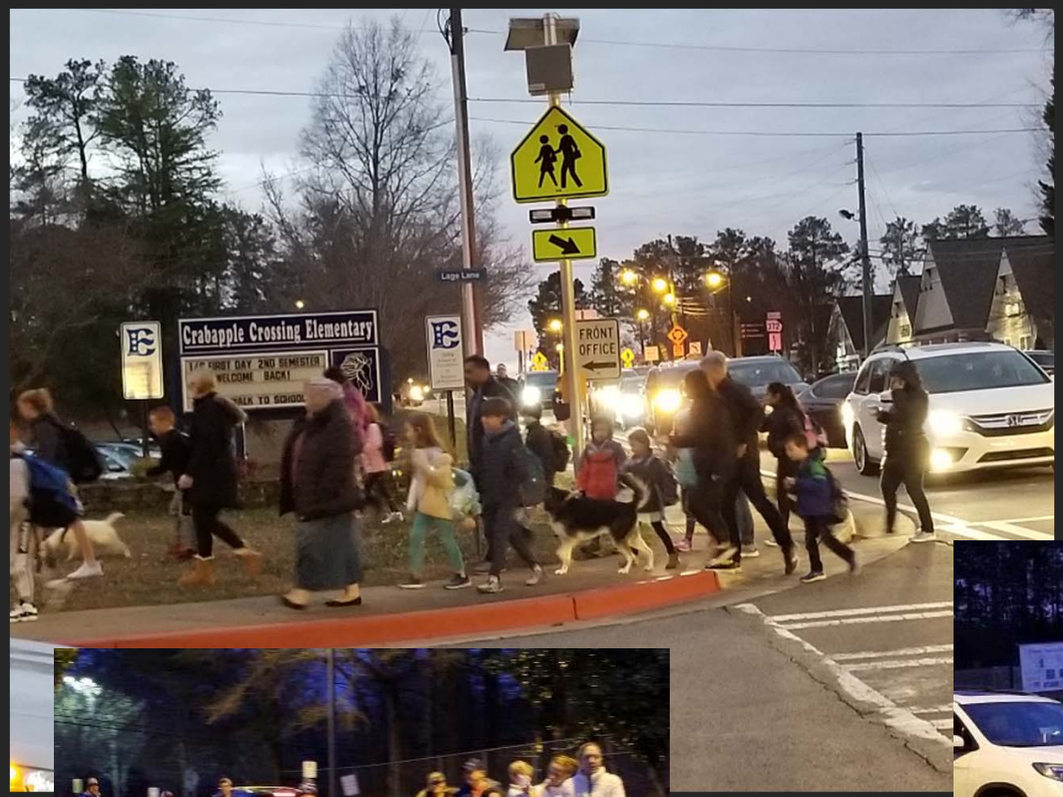
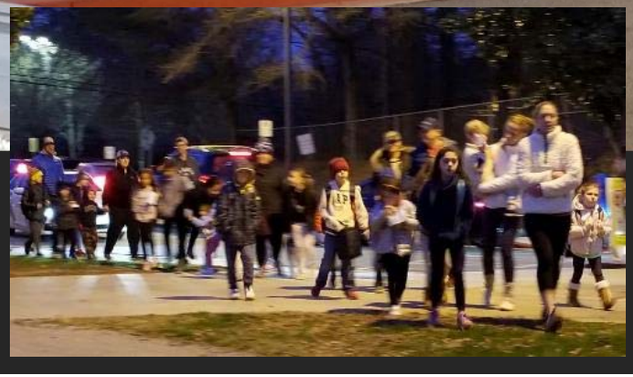
Monthly Walk to School Day
at
Crabapple Crossing Elementary School





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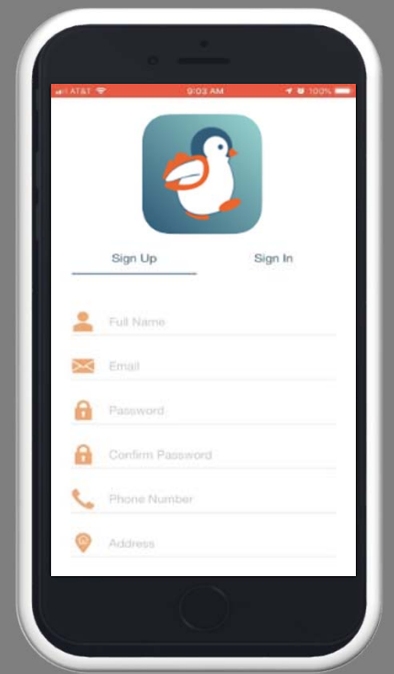
Why Walking School Bus App?

Challenges with Organizing WSBs

- Finding other parents willing to participate and volunteer
- Need flexibility in scheduling / cannot commit to walking daily
- Trust but verify: ability to check the real-time location of the child while on the road provides peace of mind



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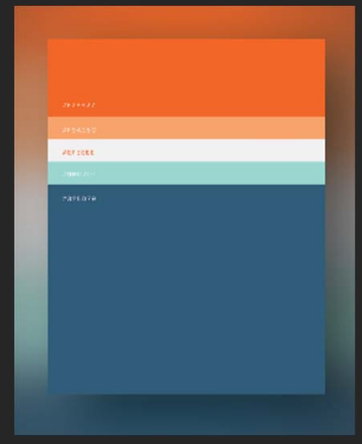
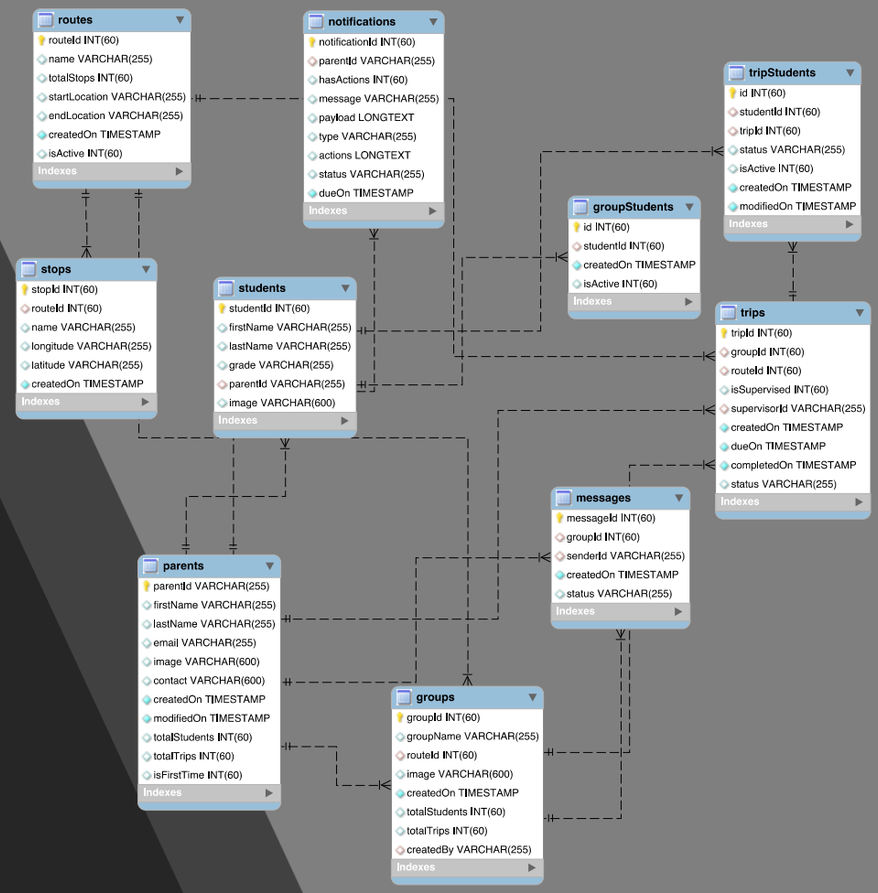
Design and Development of App

Stages of Development

- Business requirements
- Designing app wireframe
- App database design
- Functional design and flow in the app
- Designing maps and routes and grouping structure
- Selecting a color scheme and other style elements
- User interface improvements
- Testing of the app
- Developing terms and privacy policy
- Administration policy and structure





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WSB App: Framework Development

- Identification of challenges for WSBs that can be addressed with technology
- Functional requirements for App
- Data security, privacy needs and challenges
- App Performance
  - Scalability
  - Maintenance

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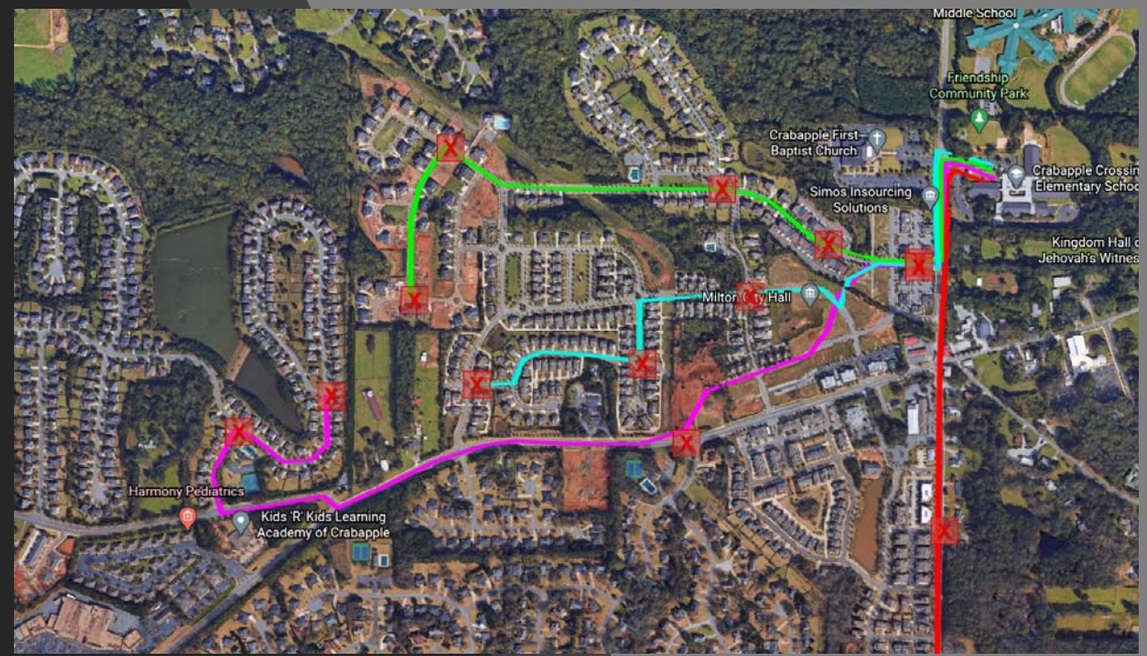
WSB App: Core Functionalities

- *Dynamic walk group* formation with predefined routes– reduced administration effort
- *Flexible scheduling* – no long term commitment
- *Tracking* of WSB
  - Check-in of individual students
  - Track supervisor/students while WSB is on the road
  - Notification when WSB reaches school (Check-out)
- *Security*
  - Invitation only sign-up with email validation (OTP)



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WSB App: Core Functionalities

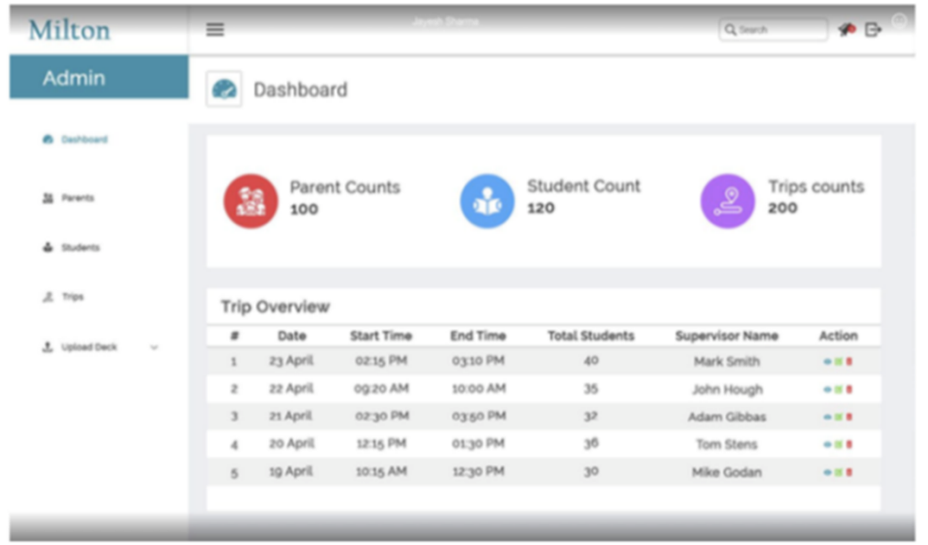
- *Communication* – Convenient call and message links to parents' phone number

- *Admin Panel*
  - Update of routes and email lists by community volunteers
  - Ability to generate performance metrics

- *Cloud based hosting* – eliminate dependence on cross-organization hardware, software and IT personnel capabilities

- Dual environment development – iOS ™ and Android™ apps mirror functionality, look, and feel

Dashboard:-



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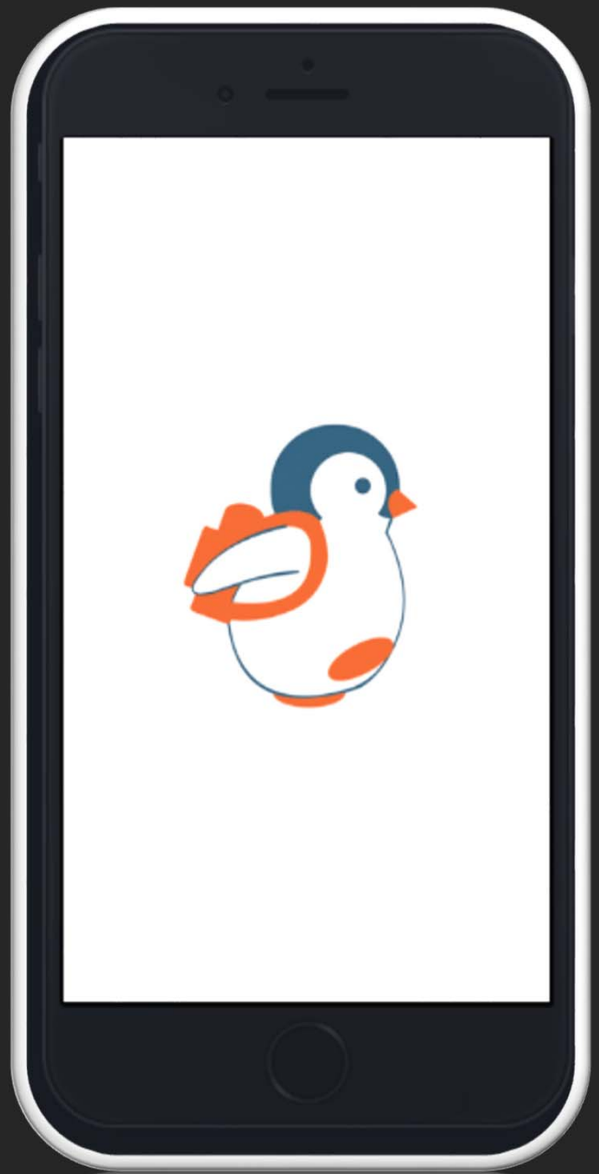

Waddle

Walking School Bus App

Main Features

- Grouping
- Scheduling
- Supervising
- Tracking
- Messaging
- Notification

Proposed
Release Date
October 1, 2020

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Security Measures

- Only parents with valid email can register in the app
- All passwords are encrypted
- Anonymity to database

Privacy Measures

- Only volunteering supervisors are being tracked when walking the kids to school
- Tracking is only available to participating kids' parents

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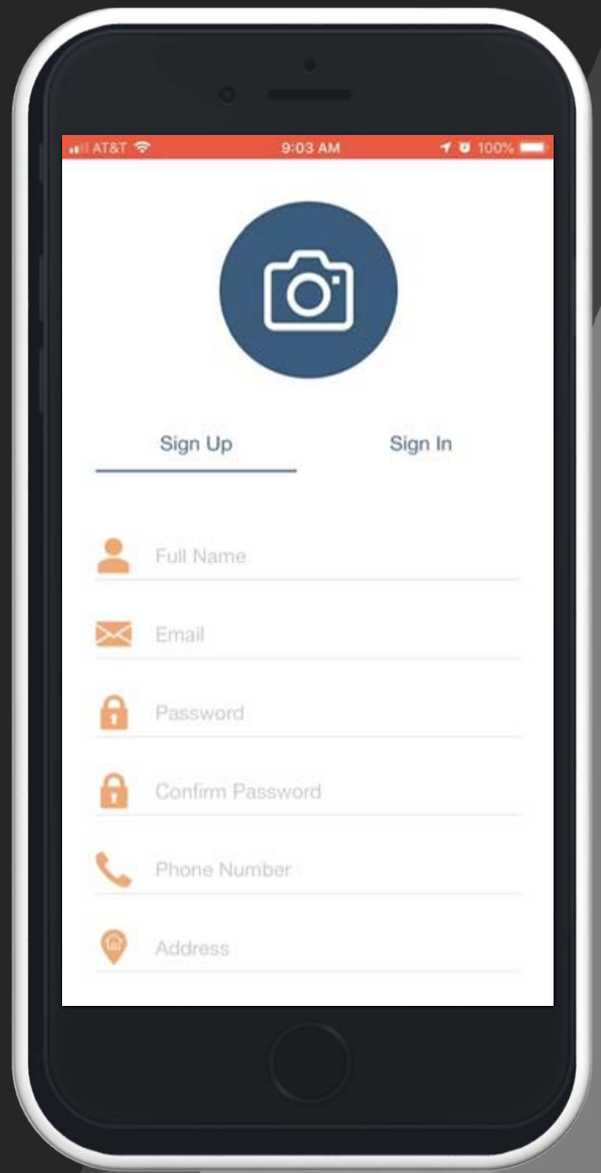
Registration

Getting started

- Sign up
- Email validation
- One-time password
- Registration complete
- Sign in
- Complete profile
- Add student information



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Home Screen

Quick access to

- Profile
- Shortcuts
- Upcoming walk-trip reminder
- Access to trip tracking
- Indicates new message and notification
- Counts accomplishments

For first time users, the app will provide guidance

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Groups

Finding the right group to walk with

- Groups are listed for each subdivision
- Parent can locate the nearest stop on the map

In the Database

- Pre-defined routes per subdivision
- Pre-defined stops on those routes that parent can select for pickup
- Groups formed with a subset of stops within a route based on proximity of students

Group ratio
1 supervisor : 5-6 kids

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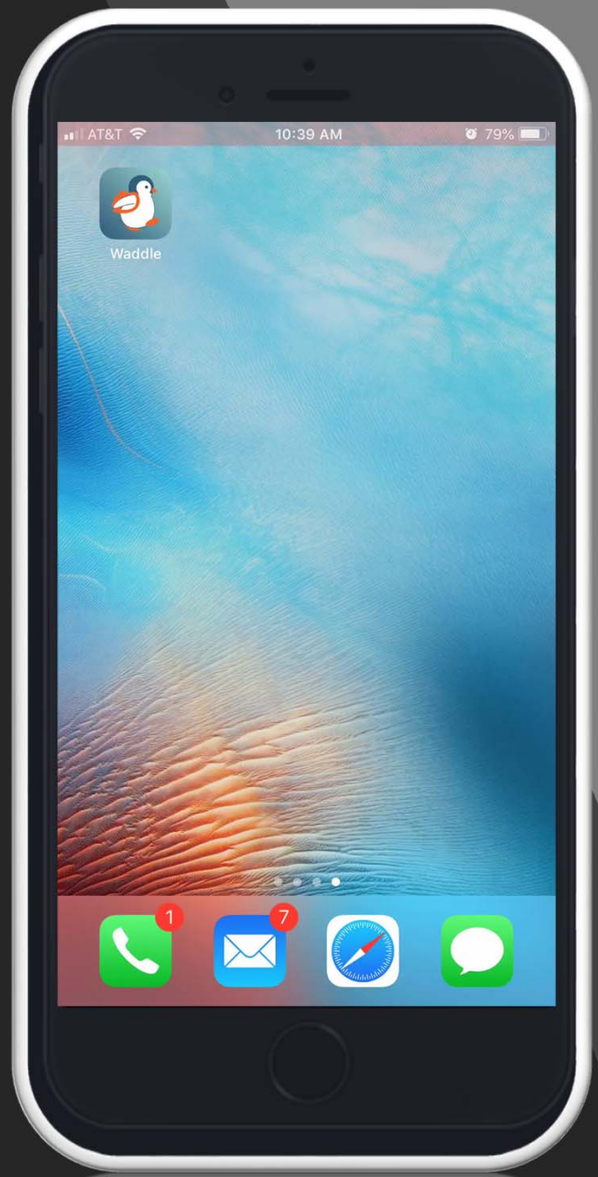
Schedule

To schedule a walk trip

- On home screen click on schedule shortcut
- Select a date
- Preview schedule for your kids and you as supervisor
- To create a new trip press **+**
- Complete selections
- Review list of all trips in menu



Schedule for kids to walk

Schedule for supervisor

Repeats

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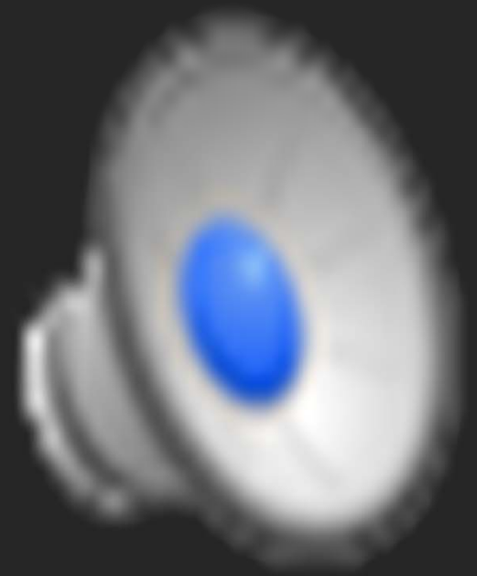
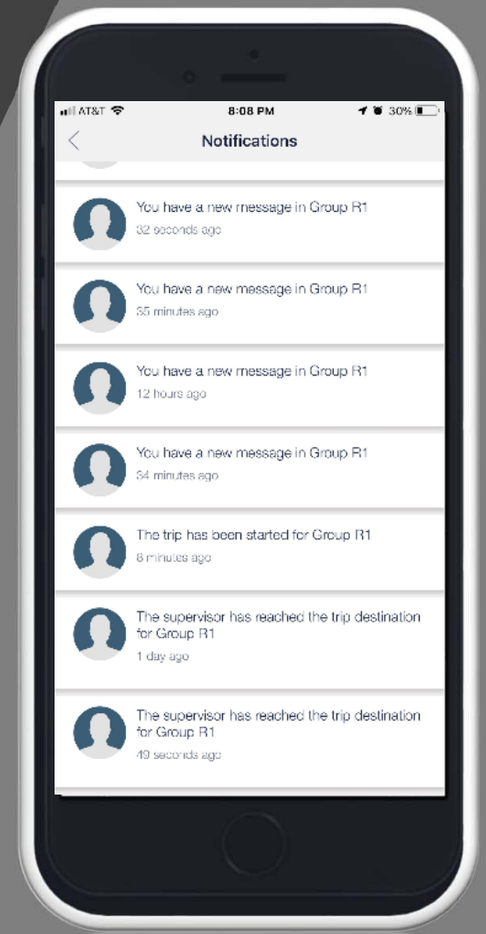
Video



Notifications



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Next Steps

- We need engagement support and resources
- We ask that you join us
- Pilot this in other communities
- Contact us: walkingschoolbus@cityofmiltonga.us

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Q&A

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