



# Sidewalk Equity And Atlanta School Children

Elizabeth Faulk, Fizzy Huiying Fan, Nakeia Jackson,  
Sarah Al-Khayyal, Siddharth Sivakumar • 14.12.2021

Georgia Institute of Technology  
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## Motivation

How do we approach  
the construction of  
new sidewalks in the  
City of Atlanta?



### The Problem

Pedestrian Child Safety  
Atlanta's Missing Sidewalks  
Inequitable Resource Distribution

### Research

Assessing Socio-Economic Metrics  
Assessing Sidewalk Network

### Recommendations

Funding Strategies  
School Zone Priority Index  
For Further Research

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## Living in the era of 'Safe Routes to School'



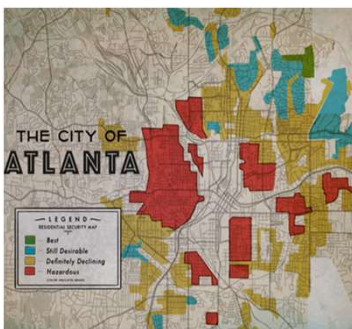
- Children vulnerable population; deserve to get to and from school safely
- Low income children 2x as likely to walk to school as high income children (Safe Routes to School 2015)
- Low income children experience higher risk of injury or death as pedestrians (Safe Routes to School 2015)

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## Atlanta's Sidewalk Dilemma



Legacy of racial segregation endures in Atlanta, evident in NW - SE dividing line



Atlanta's \$1b backlog in sidewalk projects further entrenched by funding structure (property owner's responsibility)



APS one mile "No Bus Zone" requires residing students to walk/bike to school or be dropped off

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Can we achieve sidewalk equity & network by prioritizing creation adjacent to schools in low-income neighborhoods?

# Equity and Absent Sidewalks

Where do we build them?  
Which do we prioritize?  
How do we fund and build them?



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## Research Questions



*Can't Get  
There  
From Here*  
*the struggle with where  
the sidewalks won't go*

What is the relationship between **absent sidewalk** infrastructure and neighborhood **socioeconomic character** within one mile "**No Bus Zones**"?

Is there a correlation between the cost to build **missing sidewalks** and the abutting land's **property values**? How does this relate to equity?

**How far** apart are the **MARTA bus stops** in a school zone and **how long** does it take to access them? How **fast do vehicles** travel along sidewalks and across crosswalks?

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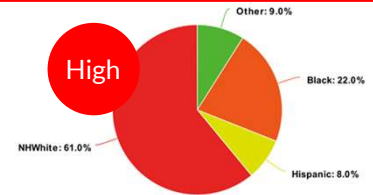


## School Selection

Three Schools  
Varied Socioeconomic profiles  
Similar % Absent Sidewalks

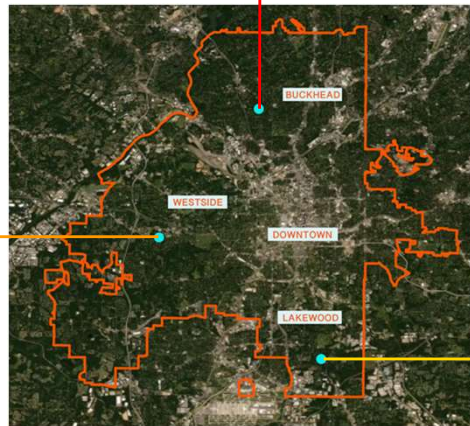
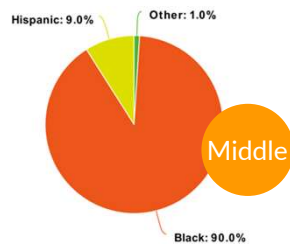
### Morris Brandon

819 students  
Average HH income:  
\$200,000-\$340,000  
Free lunch: <5%



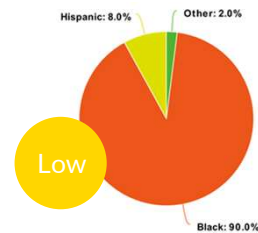
### Peyton Forest

411 students  
Avg. HH income:  
\$50,000 - \$80,000  
Free lunch: > 95%



### Joseph Humphries

211 students  
Avg. HH income:  
\$0-\$50,000  
Free lunch: >95%



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## Sidewalk Network Metrics

### GIS

Cost of absent sidewalks,  
Sidewalk costs as  
ratio of parcel values.



Sidewalk presence & absence,  
parcel land and total value,  
average sidewalk width,  
number of ramps

### Sidewalk Sim

Total no. of MARTA bus stops,  
Travel time and distance to bus  
stops,  
% vehicle speeds > 25mph.



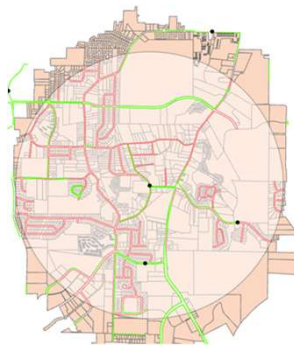
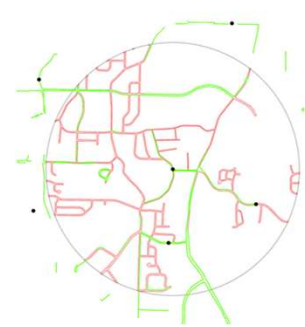
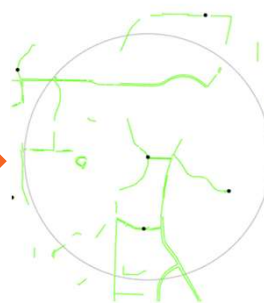
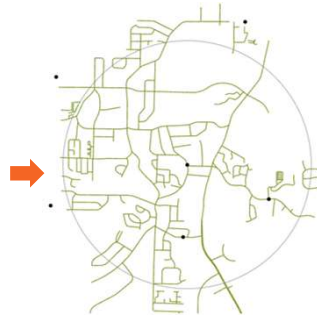
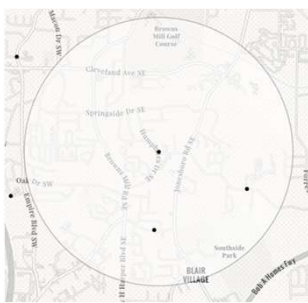
Sidewalk network,  
ABM network,  
MARTA bus stops location



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## GIS Analysis

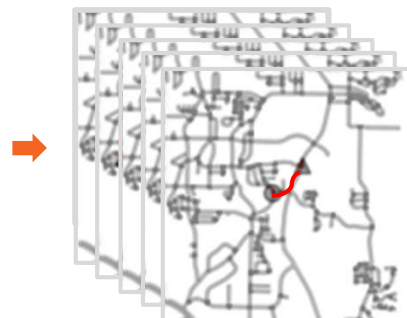


**Network Analysis**  
of Humphries school zone  
buffer - methodology for  
**appraisal of tax parcels**  
**abutting missing sidewalks**  
**in relation to sidewalk cost.**  
(~ 10\$/Sq.Ft)

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## TransitSim Analysis



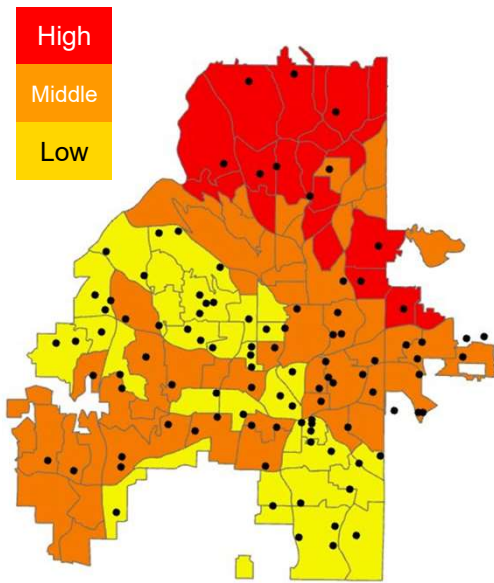
**Travel Time**  
**Distance**  
**Trip Paths**  
**Vehicle Speed**  
.....

**TransitSim Analysis**  
of Humphries school zone  
buffer - methodology for  
**assessing accessibility &**  
**walking conditions**

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## Analysis for Atlanta Public Schools



Profile of all the school zones across APS :

No. of Schools		
10	46	44
Total Value Ratio		
0.45	1.80	2.71
Land Value Ratio		
1.29	5.89	7.79

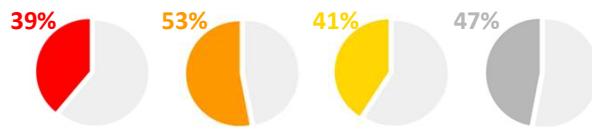
Therefore, the **proportionate costs of creating new sidewalk** infrastructure (as compared to value of tax parcels) and completing the network in low-income school zones is **6 times** that of high-income school zones.

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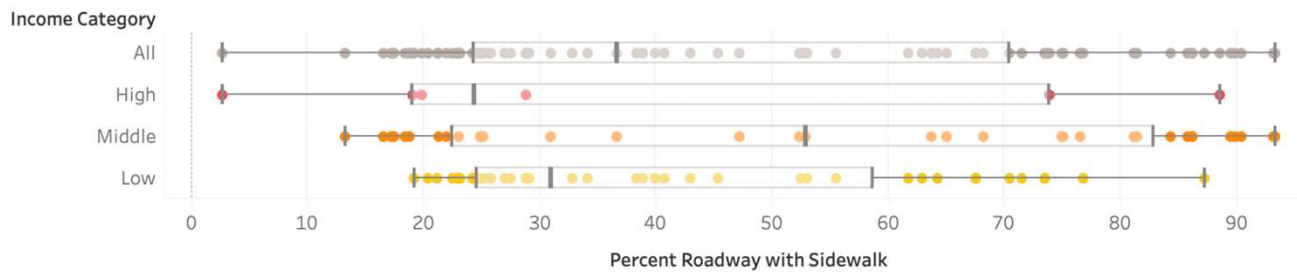
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## Analysis for APS



Middle Income school zones have higher sidewalk coverage than low or high income school zones.  
Mean sidewalk presence is at **47%**



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## Accessibility



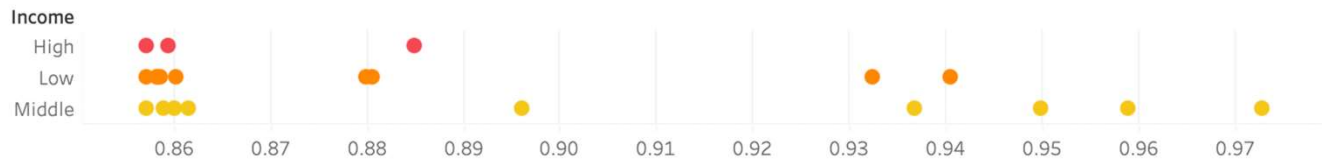
High

Middle

Low

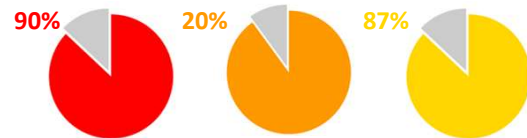
### School Accessibility

Percent of drop-off points or MARTA stations reachable within 30 minutes



### Accessible Schools

Schools with at least 3 drop-off points or MARTA station in 1 mile radius reachable within 30 minutes



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## Walking Conditions



High

Middle

Low

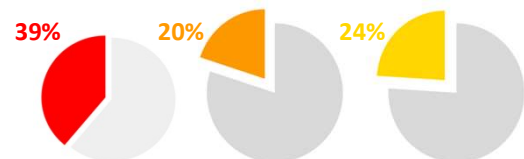
### Safe Walking Conditions

Percent of bus stops reachable by walking on at least 80% of paths with vehicle traffic <25 mph



### Walkable Schools

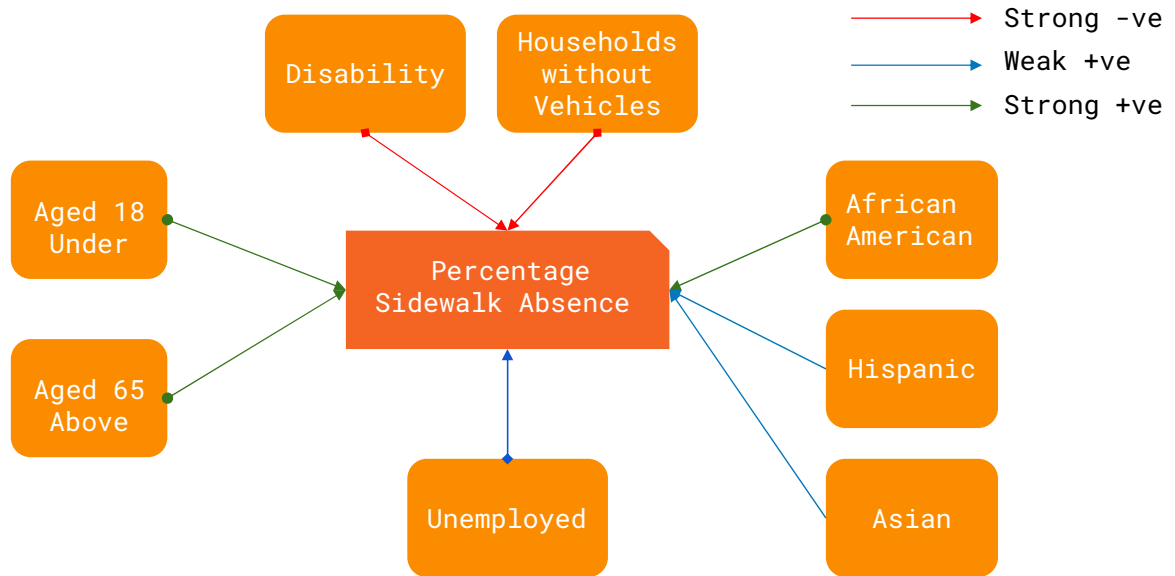
Schools with at least 3 walking paths with over 80% of sidewalk coverage



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## Socio-Economic Comparison

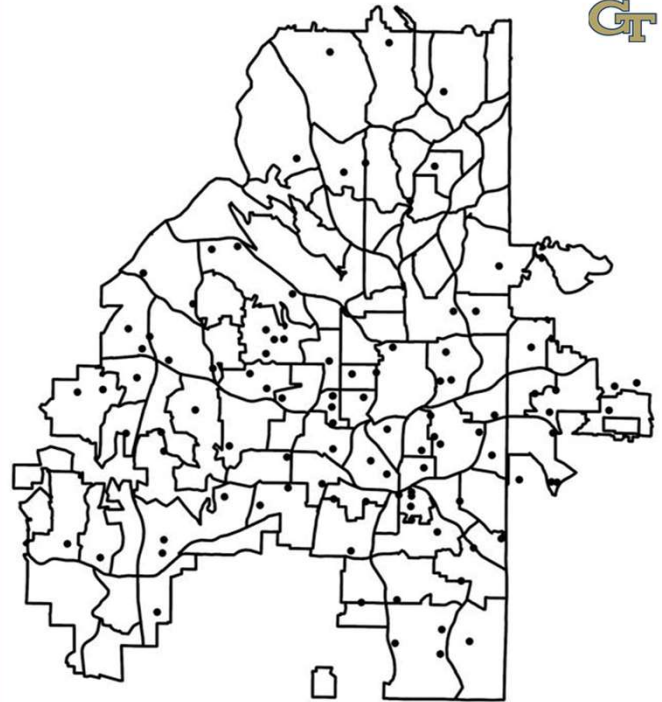


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Develop a School Zone  
**Sidewalk Development Priority Index**  
 based on the following metrics:-

socioeconomic,  
 sidewalk network,  
 accessibility and safety.



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20 States divert **Gas Tax** funds to non- roadway transportation projects including Louisiana, Florida, the Carolinas.

Texas and Michigan divert 25.9% and 24.6% respectively to **fund state education**.

Georgia state law preempts the use of gas tax dollars for non-roadway projects– we recommend the City lobby the state to end this preemption.

**\$621,007,000**  
**out of \$854,230,000**

**70% of Atlanta Public Schools Budget** is derived from local property taxes. By placing responsibility of sidewalk development on schools, models of financing need to be revised to increase capacity.

Additionally, APS is committed to tax-abatement districts.



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### Safe Routes to School Program

In this program, eligible schools apply for federal funds to improve the ability of primary and middle school children to **safely walk and bicycle to school**.

If the projects are within one mile of a primary or middle school, applicants must have an SRTS plan in place.



#### Successful programs

- GDOT administered a \$500,000 SRTS project with DeKalb County Transportation in 2015 for 5 school
  - Increased kids that walk from 5% to 8.3% over four years

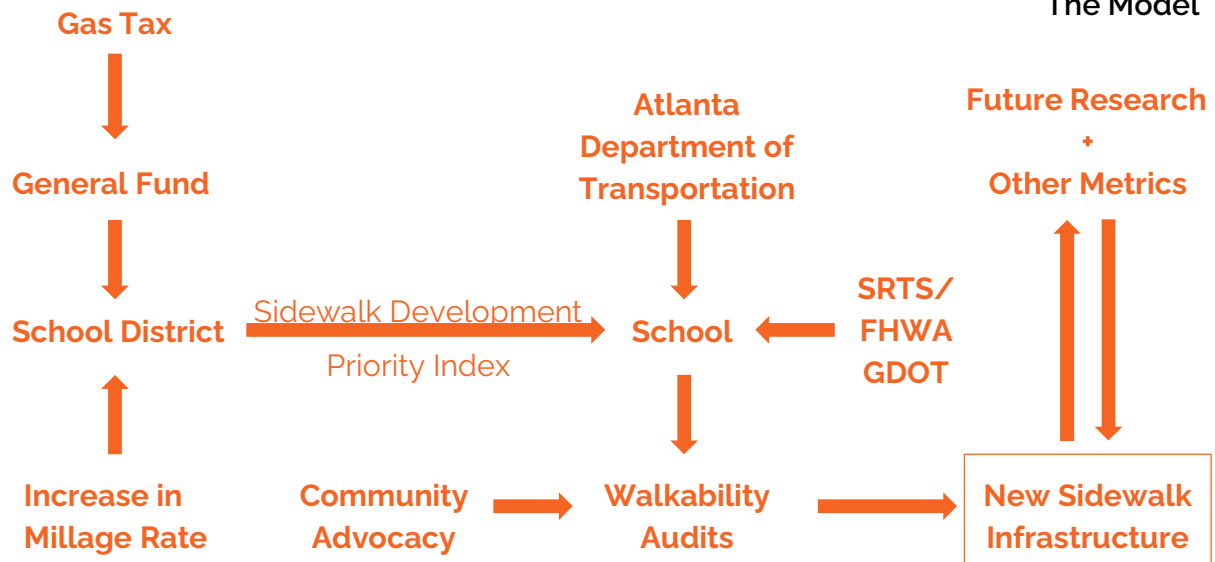


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### The Model



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### Conclusions:

Establishes **analytical methodology** for appraising absent sidewalk network.

Compares results for different-income zones in the Atlanta Public Schools District.

Future research should be designed to uncover **equity-oriented impacts**.

Recommends the **prioritization of school zones** for sidewalk additions and a **priority index**.

Recommends pursuing a mix of strategies and sources for **funding and identification** of new sidewalks for development.

Recommends further research on a **comprehensive assessment system** that includes condition, compliance, and walkability studies.

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Further Research must integrate quantity with quality compliance and walkability assessment.

## Network



## Quality

ADA Compliance  
Condition  
Obstructions

## Walkability

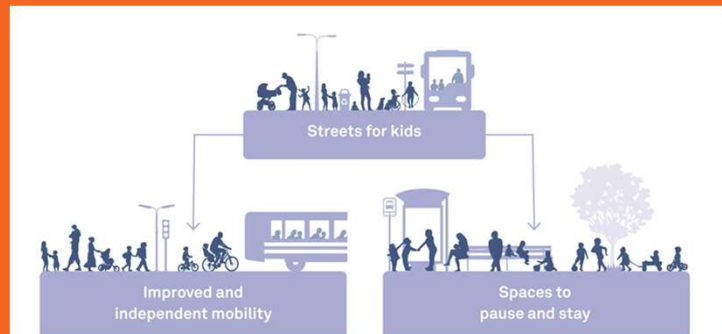
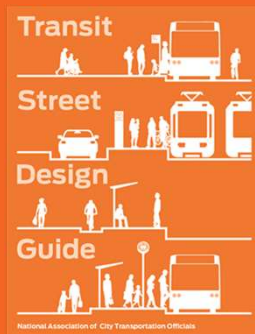
Safety  
Tree Cover  
Amenities  
Lighting

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Ensure that sidewalk construction is integrated with zoning, complete streets and transit oriented development.



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For more information please **Contact:**

Elizabeth Faulk: [efaulk6@gatech.edu](mailto:efaulk6@gatech.edu)

Fizzy Fan Huiying: [fizzyfan@gatech.edu](mailto:fizzyfan@gatech.edu)

Nakeia Jackson: [njackson73@gatech.edu](mailto:njackson73@gatech.edu)

Sarah Al-Khayyal: [sarahk@gatech.edu](mailto:sarahk@gatech.edu)

Siddharth Sivakumar: [ssivakumar60@gatech.edu](mailto:ssivakumar60@gatech.edu)

Faculty:

Catherine Ross: [catherine.ross@design.gatech.edu](mailto:catherine.ross@design.gatech.edu)

Randall Guensler: [randall.guensler@ce.gatech.edu](mailto:randall.guensler@ce.gatech.edu)

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