Exploring the transformative impact of substantial funding and strategic collaborations on Safe Routes infrastructure in Austin, Texas

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UTHealth Houston School of Public Health in Austin: Deanna Hoelscher, PhD, RDN, LN, CNS, FISBNPA; Sarah Bentley, MPH

CITY OF AUSTIN SAFE ROUTES TO SCHOOL

UTHealth Houston School of Public Health | MICHAEL & SUSAN DELL CENTER for HEALTHY LIVING

Learning Objectives:

1. Learn about the allocation, prioritization, and implementation processes for a comprehensive SRTS infrastructure project
2. Learn how the rigorous evaluation of SRTS infrastructure changes can be applied to public health and equity;
3. Learn strategies for developing a successful partnership for evaluation of SRTS.

CITY OF AUSTIN SAFE ROUTES TO SCHOOL

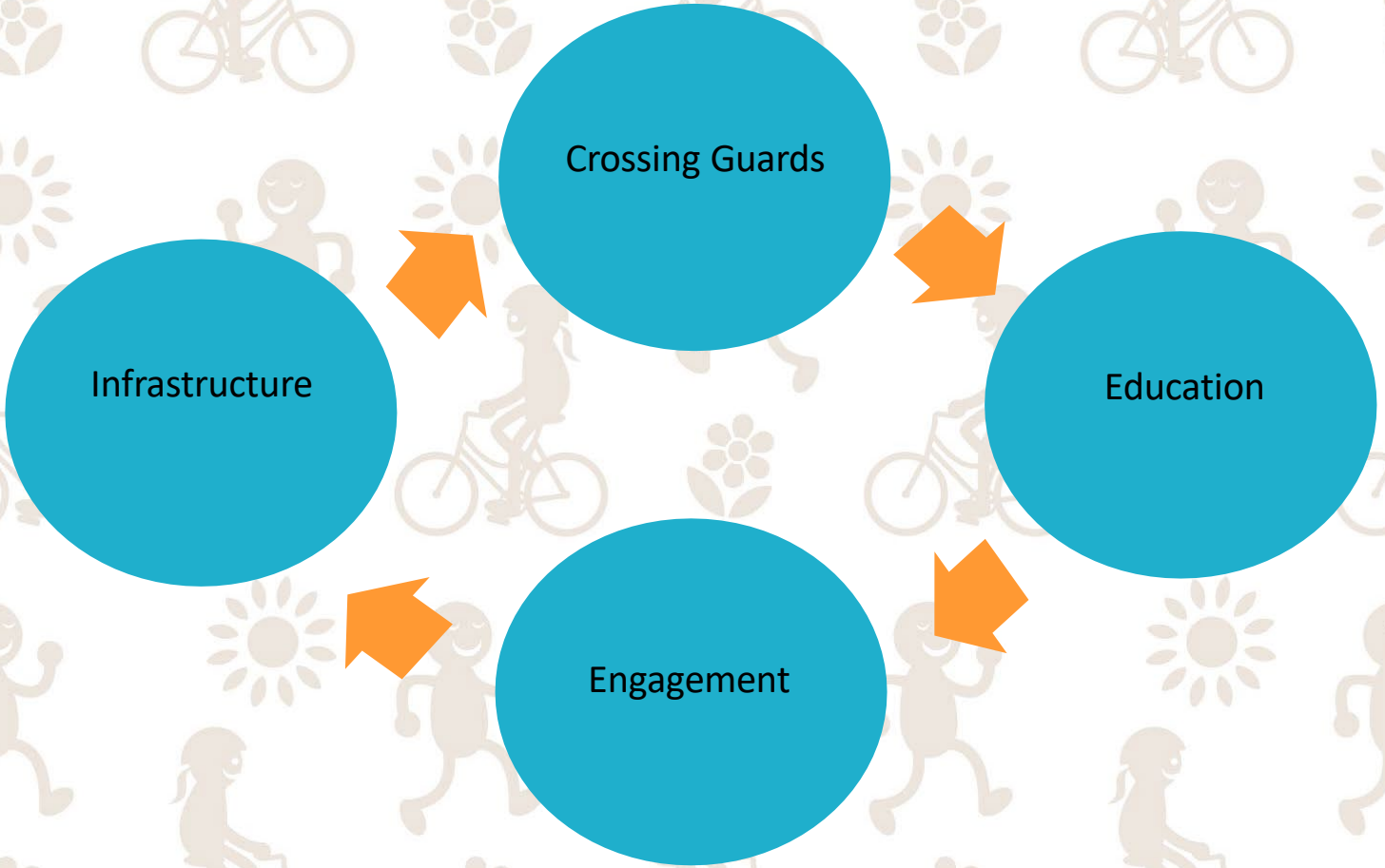
UTHealth The University of Texas Health Science Center at Houston School of Public Health

MICHAEL & SUSAN DELL CENTER *for* HEALTHY LIVING

Mission: To increase the number of students walking and biking to school by creating a safer, healthier and more equitable environment that fosters human-powered transportation

Vision: Engage with the community to create a safer, healthier and more equitable environment that fosters human powered transportation as the first choice for City of Austin students.

SRTS Program Overview



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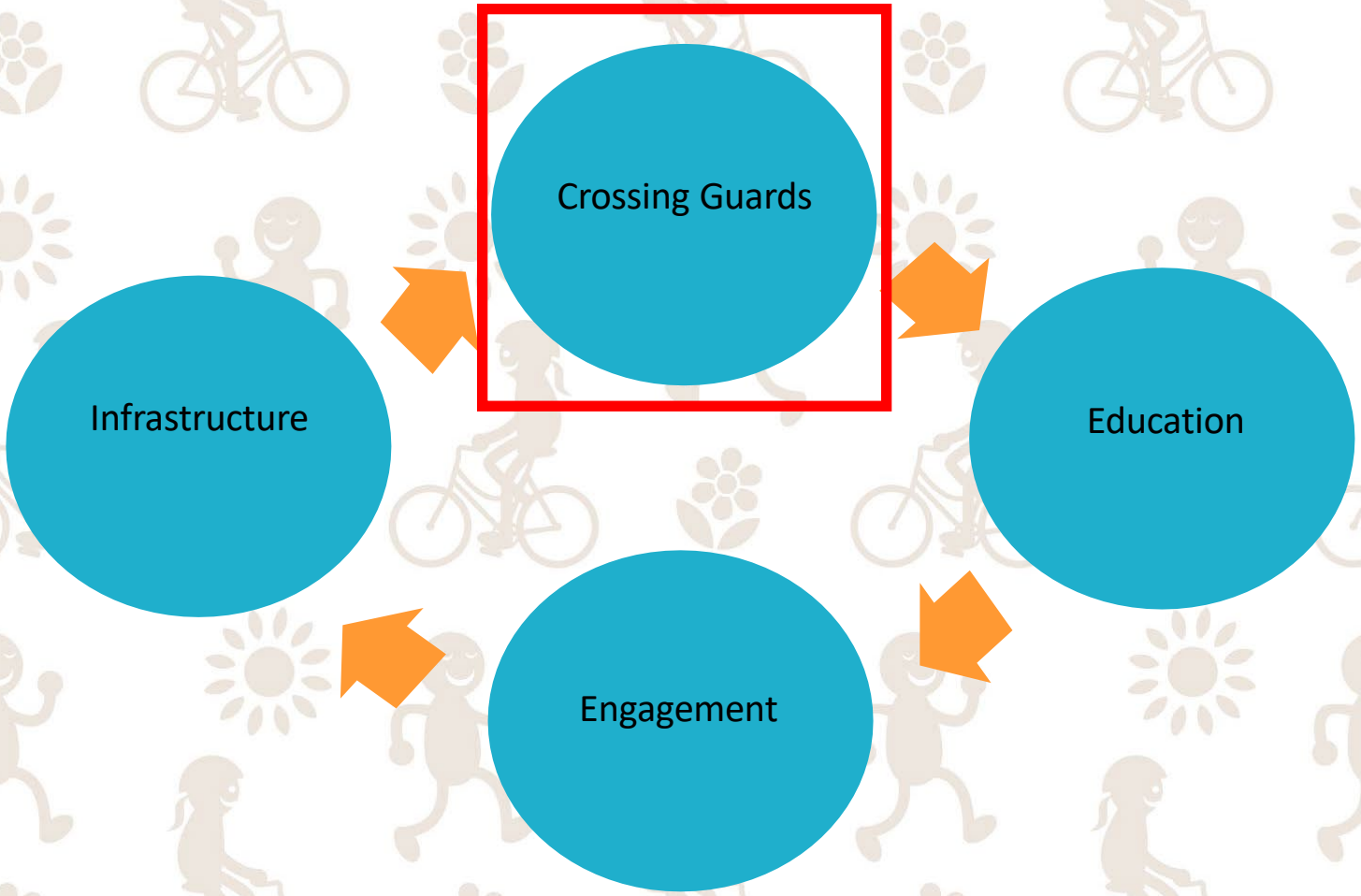


WHO DO WE SERVE?

Seven Public School Districts:

- AUSTIN Independent School District
- ROUND ROCK INDEPENDENT SCHOOL DISTRICT
- LEANDER ISD LEADING TO A BRIGHT FUTURE
- Del Valle ISD
- MANOR ISD
- AUSTIN TX EANES WESTLAKE INNOVATIVE SCHOOL DISTRICT
- PfISD | Pflugerville Independent School District

Charter Schools:

- IDEA MONTOPOLIS AN AUSTIN ICON
- HARMONY Science Academy Austin

Montessori School:

- MAGNOLIA MONTESSORI FOR ALL

WHAT DOES THE PROGRAM LOOK LIKE?

- Seven Crossing Guard Supervisors
  - North Central West Area
  - North Central Area
  - Southeast Area
  - Northwest Area
  - Southwest Area
  - South Central Area
  - Northeast Area
- 14 Supervisor Assistants
- 200 Crossing Guards

- Fall Training
- Spring Training
- Team Building
- New Employee Orientation
- Crossing Guards Rewards and Recognition Celebration

OTHER INITIATIVES

- Deferred Disposition Program
- Partner with other school districts to train volunteer Crossing Guards.
- Provide Pedestrian Counts
- Assist with Bike Rodeos and Education Training.

Bike Rodeo at Campbell Elementary

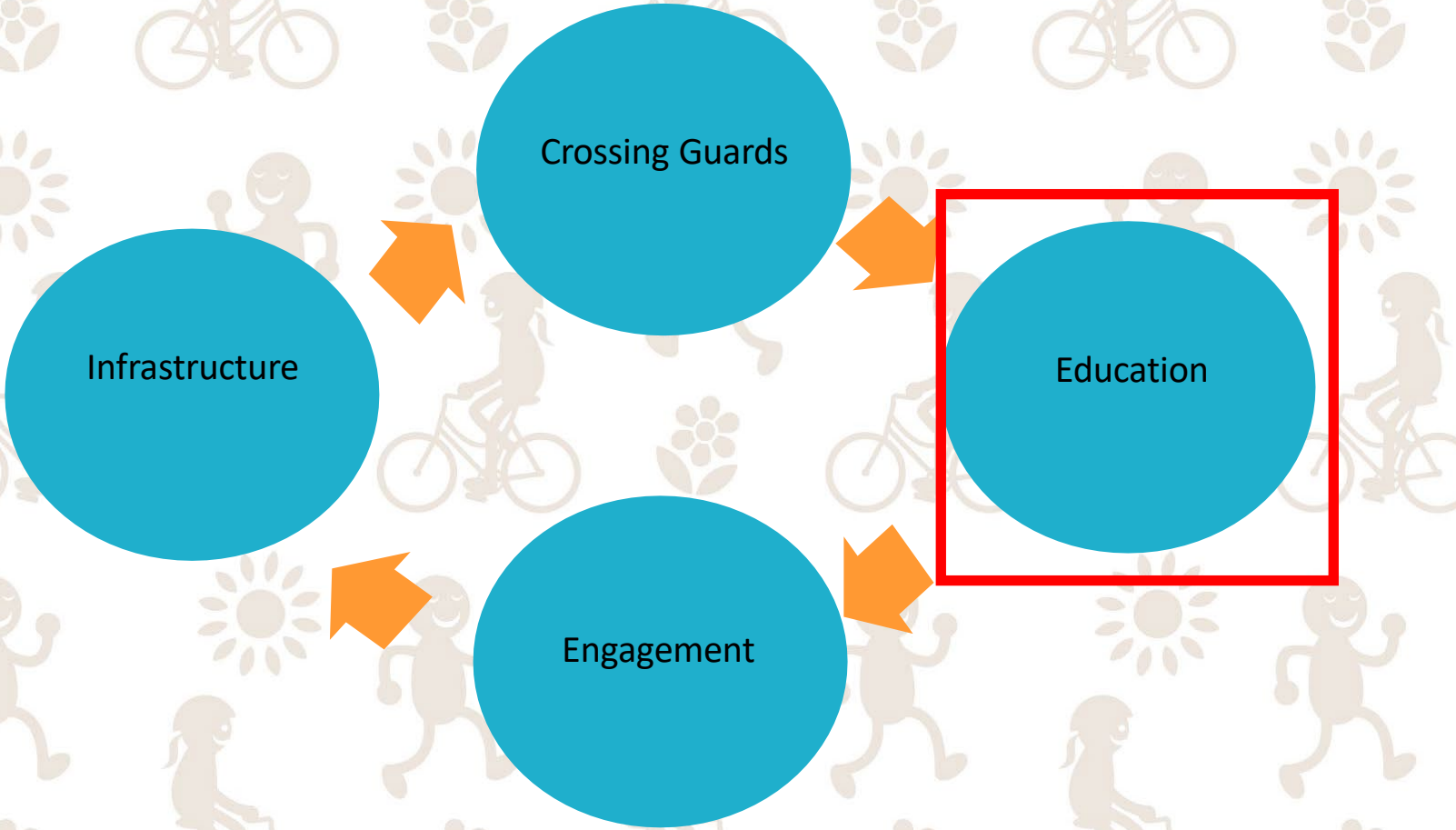
Deferred Disposition at Davis Elementary

SRTS “Walking School Buses”

Hart Elementary School

Guerrero-Thompson Elementary School

SRTS Program Overview



Services Offered

- Elementary School Education
- School Fitness Nights
- Community Fairs
- Adult Education Outside of Schools
- Safety Patrol Training
- Bike Rodeos
- Walk to School Day
- Bike to School Day

Imelda, Priscilla, Alex and Rosie
First Day of School August 2024

Pk – 2nd grade

Safety treasure (Anna Dolph)
Teaching Sally Safety (Anna Dolph)
Zoo (Imelda)
Mack (Alex)

3rd – 5th grade

Football (Rosie)
Run (Alex)
Soccer (Priscilla)
First to Finish (Alex)

- Different lesson taught each year
- Schedule with PE teachers
- 4 training staff at 2 schools everyday
- Exercise opportunities throughout lesson
- Travel counts taken in every class

Lesson content

- Pedestrian Safety
  - Cross at corners, crosswalks or traffic lights
  - Younger than 10 be outside with an adult
  - Older than 10 be outside with a group of friends
  - Don’t jaywalk
  - Look in all directions for cars (Left, in front, right, over your shoulder than back to the Left again)
  - Take a walk to cross the street / inside if bad weather
- Bike Safety
  - Wear a bike helmet (law for anyone under 18 years in Austin)
  - One seat one person
  - Under 10 ride on the sidewalk
  - 10 and older ride in the street but follow the rules of the road
    - Obey traffic signs
    - Use hand signals
    - Ride on the right side of the road

2023-2024
Achievements

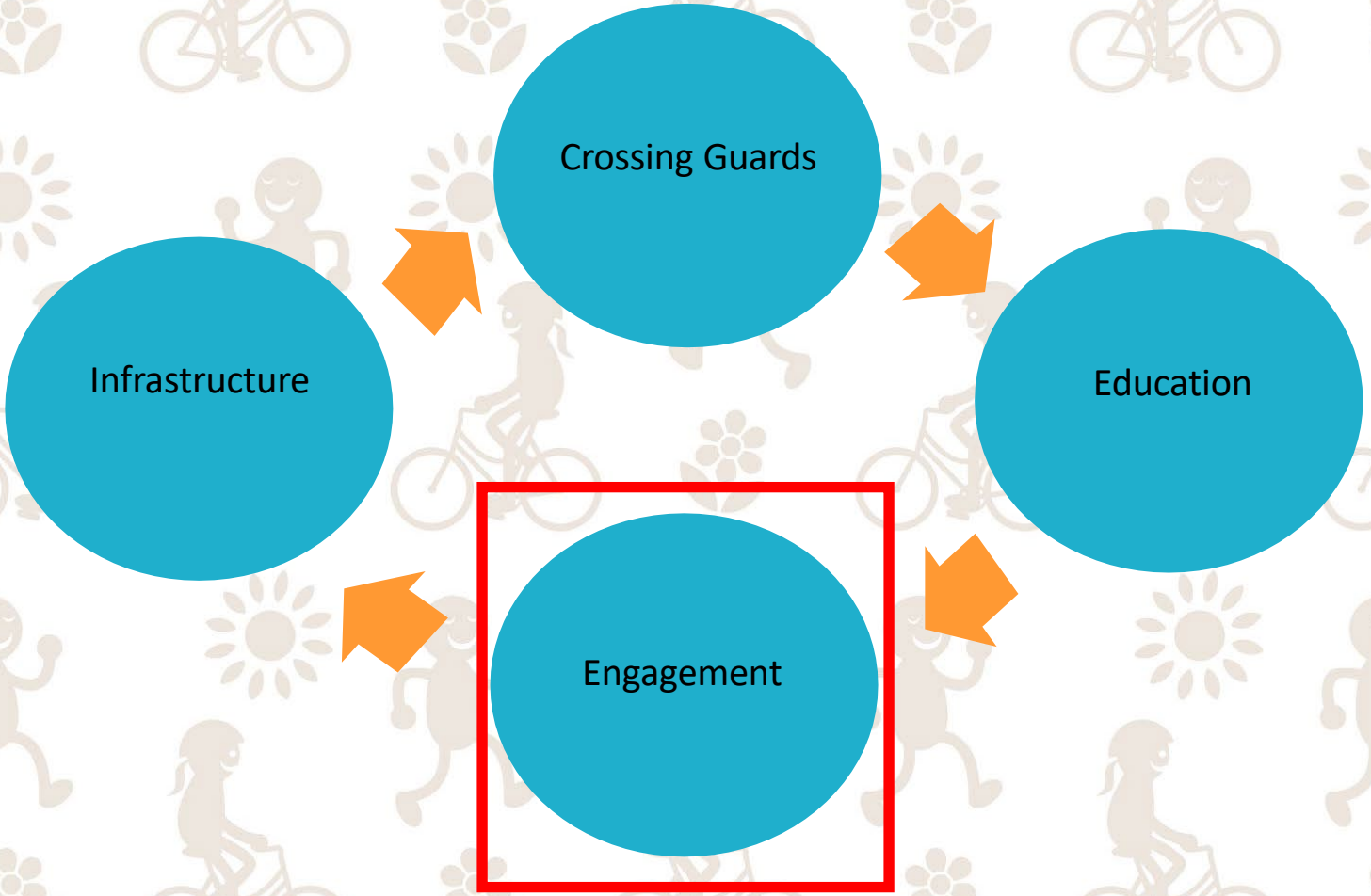
Serviced 91 schools

Trained over 36,044 students

Participated in 1 bike rodeo

Worked 9 community and school fairs

SRTS Program Overview



Engagement

- Back to School/driver safety

- Walk to School Day

- Halloween safety

- Turkey Trot/health benefits of walking and biking

- Back to School/Stay Safe Austin driver safety

- Heart Healthy Valentines Day pedestrian safety tips

- Pedestrian safety tips for time change

- Earth Day, environmental benefits of walking and biking

- Bike to School Day

STAY SAFE AUSTIN!

Let's keep our school zones safe for kids and families,
paving the way for a safer, more harmonious community for all!

Stop & yield for pedestrians and bicyclists

Yield the right of way to pedestrians and bicyclists when turning

Follow the posted speed limits in school zones

Park 20 feet away from a crosswalk

Eyes up. Phones down.

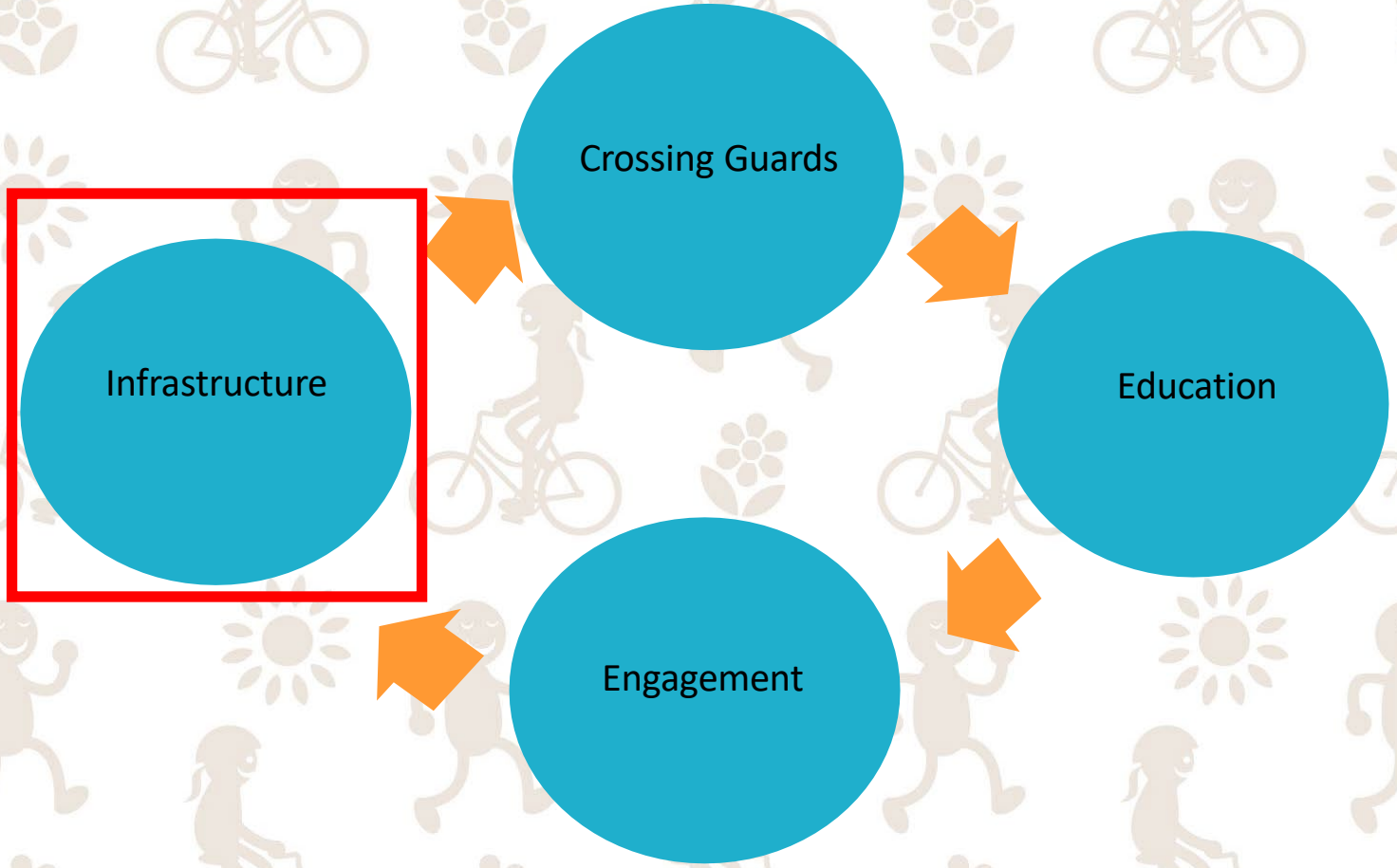
Stop for crossing guards in crosswalks

Be respectful to the crossing guard. They are there for everyone's safety

It's the law!

Learn more:
AustinTexas.gov/SafeRoutes

SRTS Program Overview



Infrastructure Program

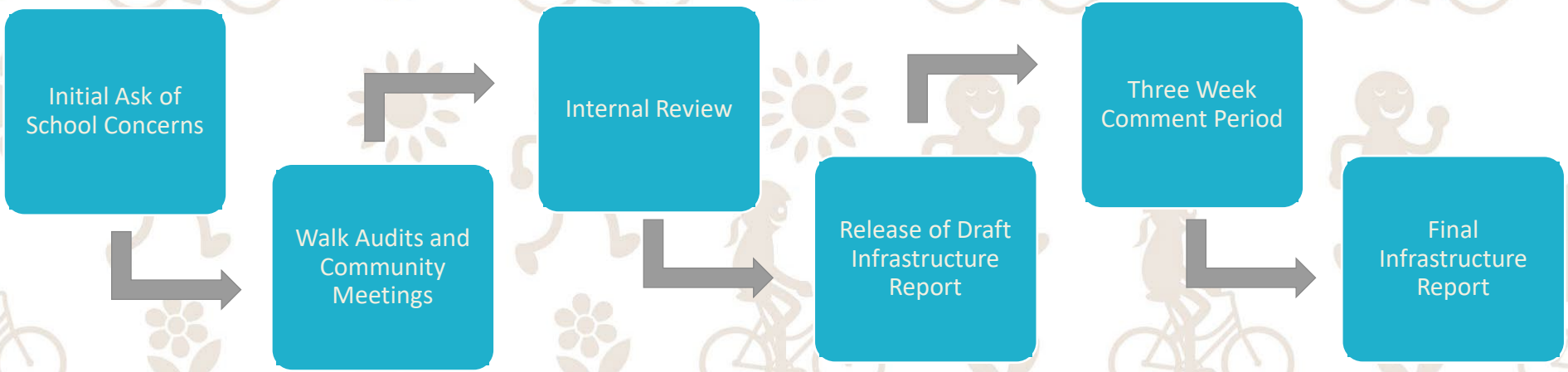
2016 Bond

Language voted on by Austin Voters: $27,500,000 divided evenly among the ten City Council Districts to allow the City to address Safe Routes to School. The Safe Routes to School Program is a partnership with local school districts to address safety concerns of routes to school and encourage children and families to bike or walk to school. Improvements may include infrastructure options that create a safer environment such as sidewalks, traffic calming devices, protected bicycle facilities, and urban trails.

2020 Bond

$20M was allocated to address barriers identified in the SRTS Infrastructure Reports with a focus on Very High and High Benefit and/or Cost Benefit Projects. To help address equity concerns, SRTS is allocating at least $1M of the 2020 Bond to improvements near charter schools which have historically been built in Low SES areas around Austin.

Approach:

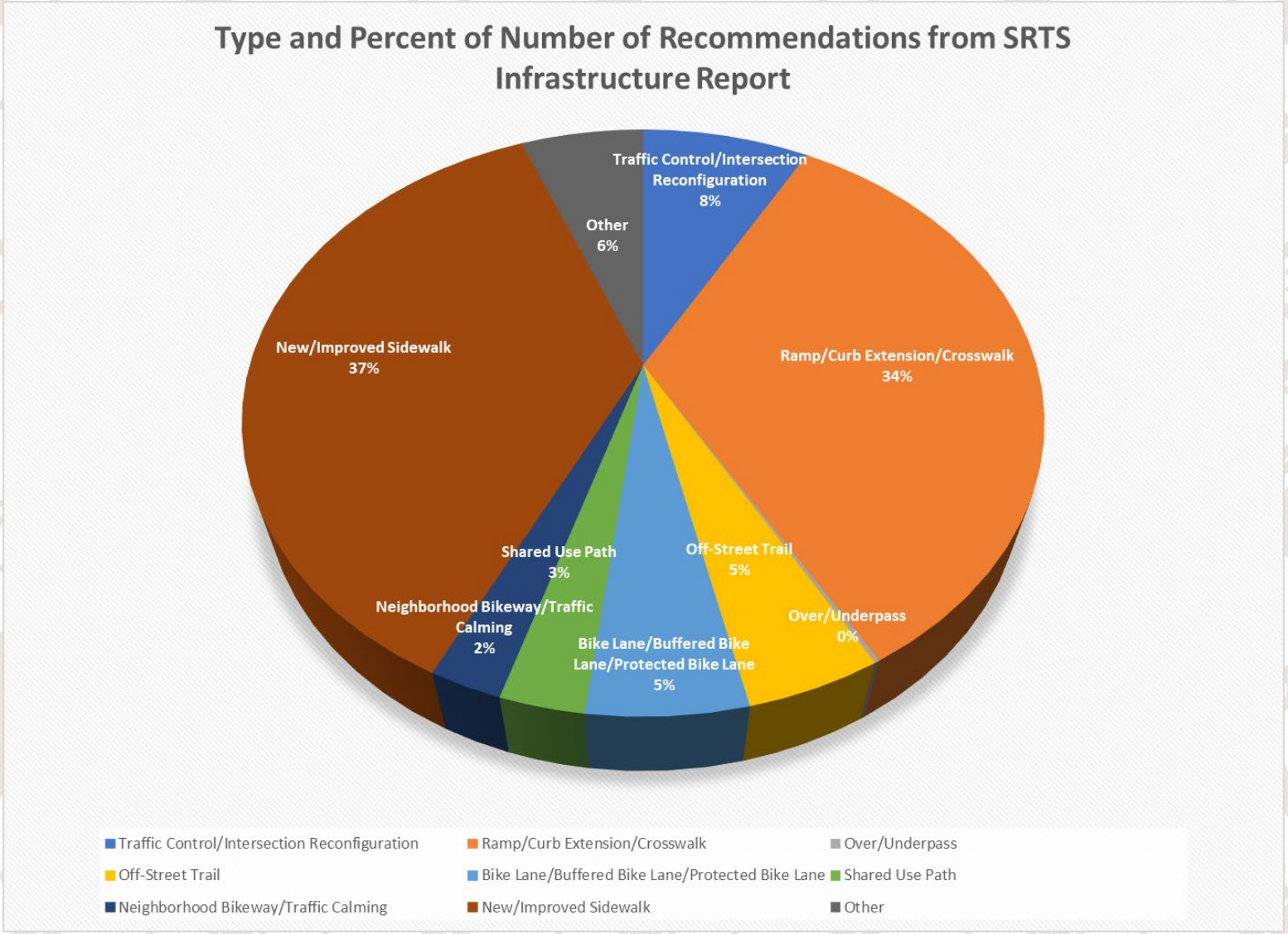


Project Recommendations From Infrastructure Report

Type	# of Projects	Estimated Cost
New/Improved Sidewalk	1,714	$ 256,819,000
Ramp/Curb Extension/Crosswalk	1,567	$ 42,017,000
Traffic Control/Intersection Reconfiguration	378	$ 47,523,000
Other	278	$ 17,757,000
Bike Lane/Buffered Bike Lane/Protected Bike Lane	253	$ 89,898,000
Off-Street Trail	214	$ 89,912,000
Shared Use Path	134	$ 259,551,000
Neighborhood Bikeway/Traffic Calming	116	$ 5,969,000
Over/Underpass	8	$ 15,607,000
Total:	**4,662**	**$ 825,053,000**

**Common "other" recommendations include maintenance of vegetation and existing infrastructure, parking and circulation studies on school campuses, informational signage, and bike parking.*

Project Recommendations From Infrastructure Report



Benefit Analysis

Demand (35%):

- Schools within .5 miles
- Students Served (Network Analysis)

Safety (30%):

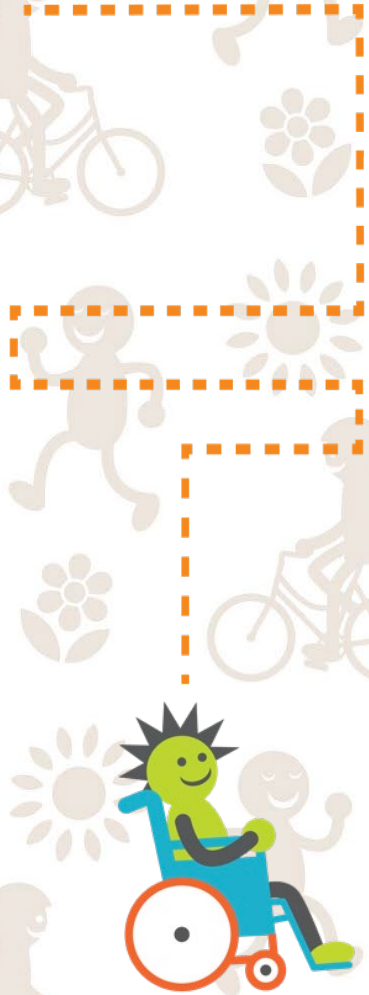
- Bike/Ped Crashes
- Functional Class Score
- Engineering Judgement

Equity (20%):

- Free and reduced eligibility rate
- Poverty Rate

Stakeholder Input (15%):

- WikiMap Comments
- Public Comment



Infrastructure Report Breakdown

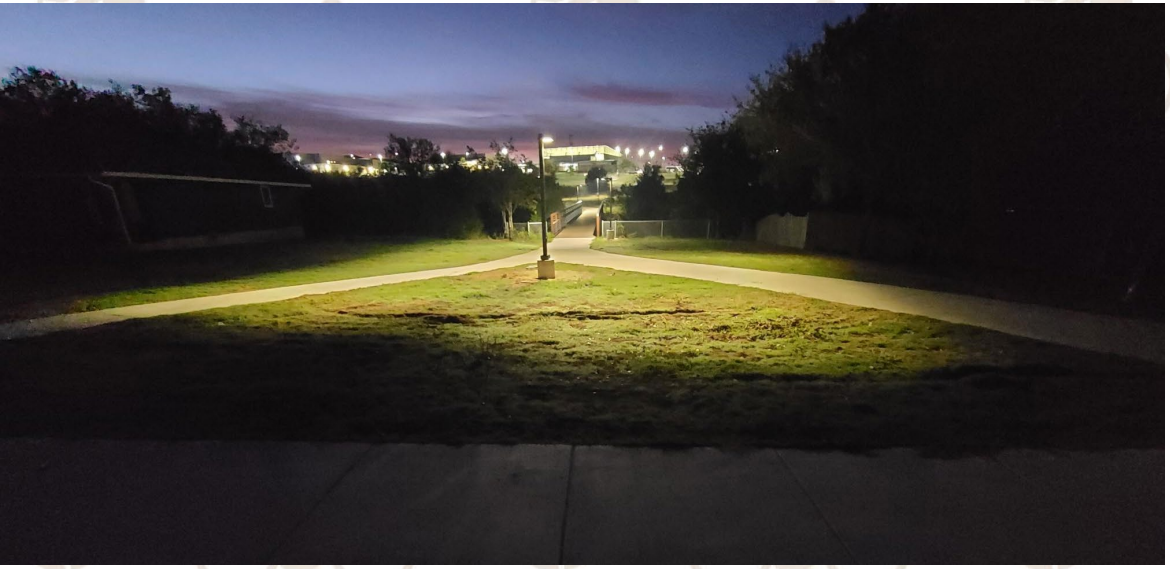
- Background
- Process
- Overall Benefit and Estimated Cost:Benefit Chart
- Recommendations by School

Project ID	Project w/in 1/2 mi (ped) or 2 mi (bike) and attendance boundary of:	Location	Issue	Recommendation + = parking removal required ~ = private property acquisition required	Overall Benefit Category	Estimated Cost:Benefit Category
4B - 001	BLANTON, BERTHA SADLER MEANS	WELLINGTON DR	Desired bike route, No bike facility	Add neighborhood bikeway - WELLINGTON DR from GASTON PLACE DR to PECAN SPRINGS RD	1 - Very High	1 - Very High
4B - 002	BLANTON, BERTHA SADLER MEANS	BROADMOOR DR	Desired bike route, No bike facility, Wide ROW	Add neighborhood bikeway - BROADMOOR DR from BERKMAN DR to CAMERON RD	3 - Medium	3 - Medium
4B - 004	BLANTON, BERTHA SADLER MEANS	ROGGE LN	No bike facility	Add protected bike lane - ROGGE LN from WELLINGTON DR to BERKMAN DR	1 - Very High	3 - Medium
4B - 007	BLANTON	BLANTON DR	Excessive vehicle speeds	Add chicanes - BLANTON DR from GREENBROOK PKWY to ROGGE LN	3 - Medium	2 - High
4B - 008	BLANTON	WESTMINSTER DR	Excessive vehicle speeds	Add speed cushions - WESTMINSTER DR from MANOR RD to ROGGE LN	1 - Very High	1 - Very High
4B - 012	BLANTON	ROGGE LN	Excessive vehicle speeds	Study school zone extension east of Westminster - ROGGE LN from WELLINGTON DR to WESTMINSTER DR	4 - Low	3 - Medium

Leveraging of Funds (Partnerships)

- Urban Trails
- Neighborhood Partnering Program
- Sidewalks
- Street and Bridge Operations
- Bikeways
- Signals
- Speed Management
- Vision Zero
- Pedestrian Crossing Program
- Corridor Program
- Independent School Districts (Austin, Round Rock, Pflugerville, Leander, Manor, Eanes, Del Valle)
- Capital Metro
- Quarter-Cent Funding

Overton Elementary School – Colony Loop District Park Trail

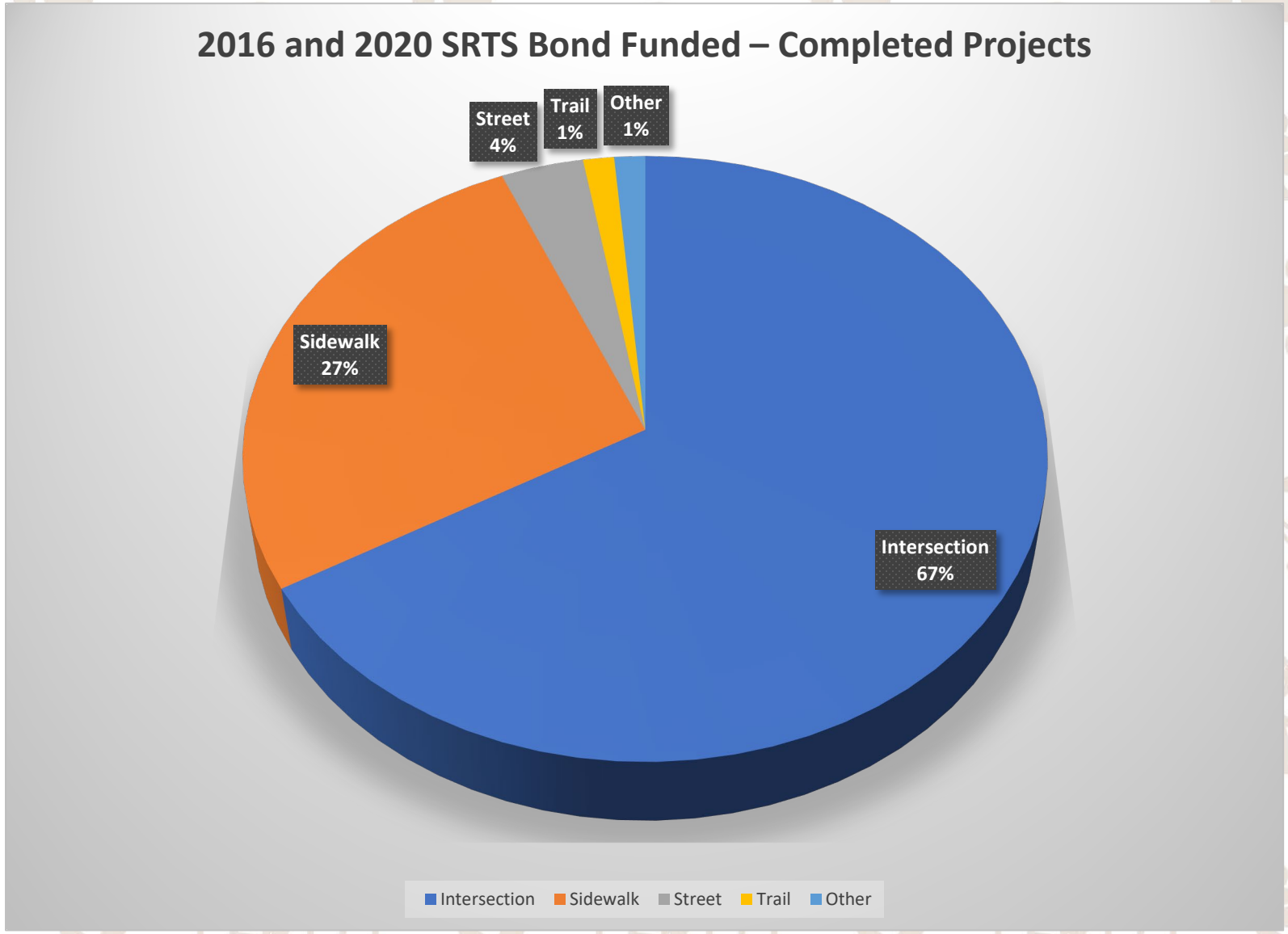


Schools and Projects Totals

- Over 125 schools have received some type of improvement as of June 30, 2024
- Over 519 barriers addressed as of June 30, 2024
- Over 440 SRTS Bond projects completed as of June 30, 2024
- Plan to have projects completed or in construction at all 137 Walk Audit Schools by the end of 2024

Types of SRTS Completed Projects

- Intersection – Curb ramps, curb extensions, traffic control or reconfiguration, crosswalks, signal modifications, and more.
- Sidewalk – Shared Use Paths, and new or repaired sidewalks.
- Street – Bike lanes (buffered or protected), neighborhood bikeways, traffic calming, shared streets, and more.
- Trail – Paved urban trails, trail connections, repaired trails, and more.
- Other – Mid-block crossings, school zone signage, Pedestrian Hybrid Beacons, and more.



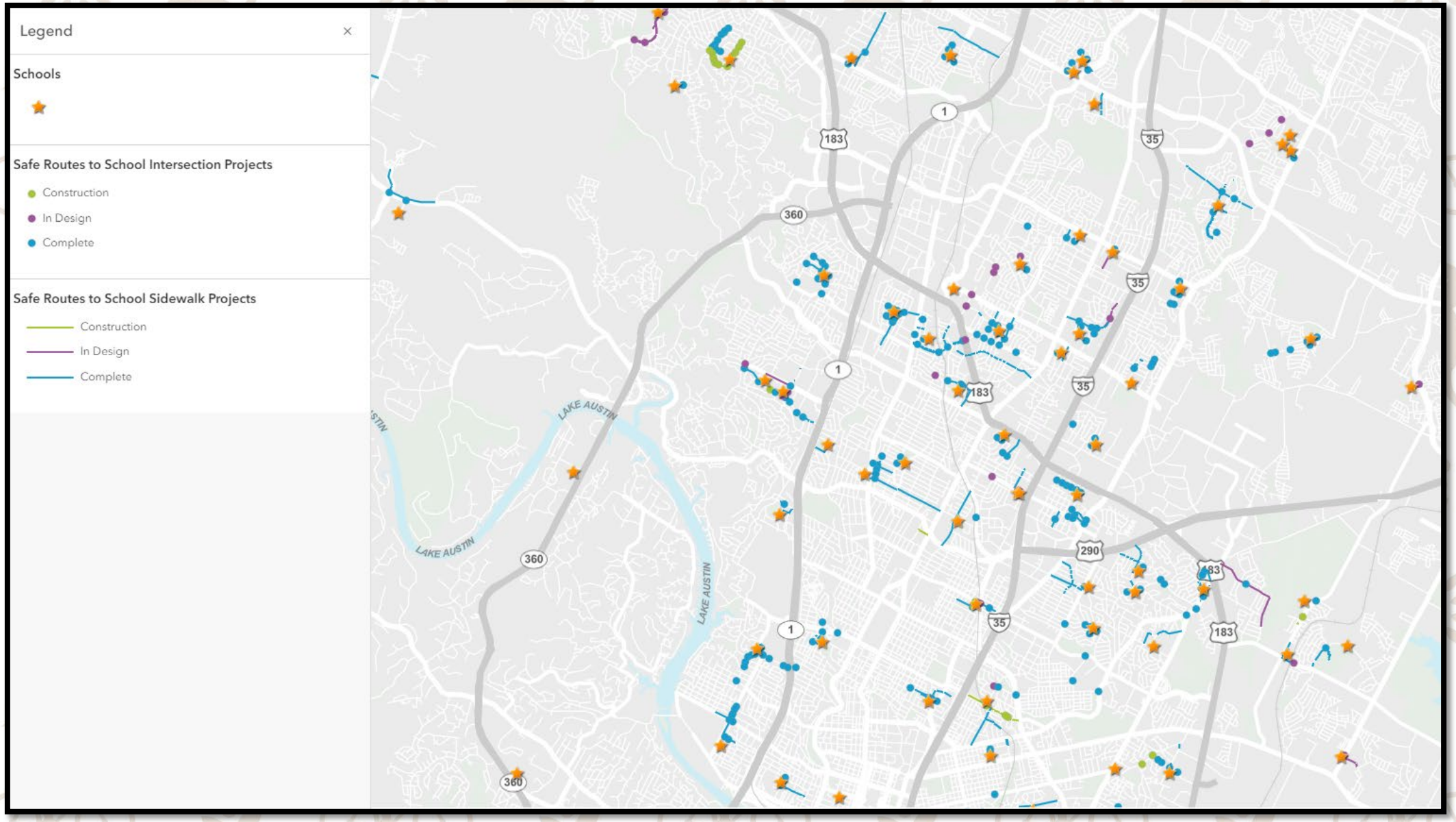
COA-AISD Inter-Local Agreement (ILA)

- In November 2022, Austin voters approved $2.44 Billion in bond funds for improvements across the district. Since then, the district has been designing projects, ordering materials and gathering community input.

- SRTS has an existing ILA that is now expanding to $5 Million worth of construction improvements in partnership with the entire COA.

- SRTS staff, in partnership with colleagues from the Active Transportation and Street Design team, Sidewalks and Urban Trails Division, and Area Engineers, are reviewing preliminary site plans of over 30 AISD elementary, middle, and high schools prior to their submittal.

What's Next? Safe Routes to School Program Projects Web Application



Evaluation of SRTS Infrastructure Changes

1. STREETS Study Overview
2. Qualitative Assessment of Health Equity
3. Strengths, Challenges, & Lessons Learned

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STREETS Study Aims

To evaluate the effects of $27.5 million USD allocated to Safe Routes to School infrastructure in Austin, Texas.

Aim 1

Determine effects of SRTS infrastructure changes on **child physical activity**.

Aim 2

Determine effects of SRTS infrastructure changes on **active commuting to school**.

Aim 3

Examine the **cost effectiveness** of SRTS infrastructure changes on child physical activity levels.

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Overview of quasi-experimental study design

Serial cross-sectional study

Sample (proposed)

70 Austin schools with SRTS improvements
30 comparison schools

Measurements

✓ Active commuting to school (ACS) tally
✓ School policy survey
✓ School demographics
✓ GIS measures of built environment

Cohort study

Sample

Subset of 30 Austin schools (3 schools per city council district)
Subset of 15 comparison schools

Measurements

✓ Accelerometer and GPS
✓ Child survey
✓ Parent survey
✓ MAPS-SRTS environmental audit

Overview of quasi-experimental study design

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Qualitative Assessment of Health Equity

Qualitative Study Aims

To describe the City of Austin Safe Routes to School project prioritization process.

To describe community equity measures of identified SRTS infrastructure projects by council fund distribution.

To provide community perspectives on barriers and facilitators for implementation

Methods

Data source: City of Austin reports combined with school-level demographic data to determine equity of need distribution

Measures: Interviews were conducted with community partners

Austin SRTS Infrastructure Plan

Walk Audits → Public engagement → Prioritization

Lagerwey, P.A., Hintze, M.J., Elliott, J.B., Toole, J.L., Schneider, R.J. 2015. Pedestrian And Bicycle Transportation Along Existing Roads—Activetrans Priority Tool Guidebook, National Cooperative Highway Research Program.
City of Austin. 2021a. City Of Austin Capital Projects Explorer [Online]. Available: Https://Capitalprojects.Austintexas.Gov/Projects [Accessed October 21 2021].

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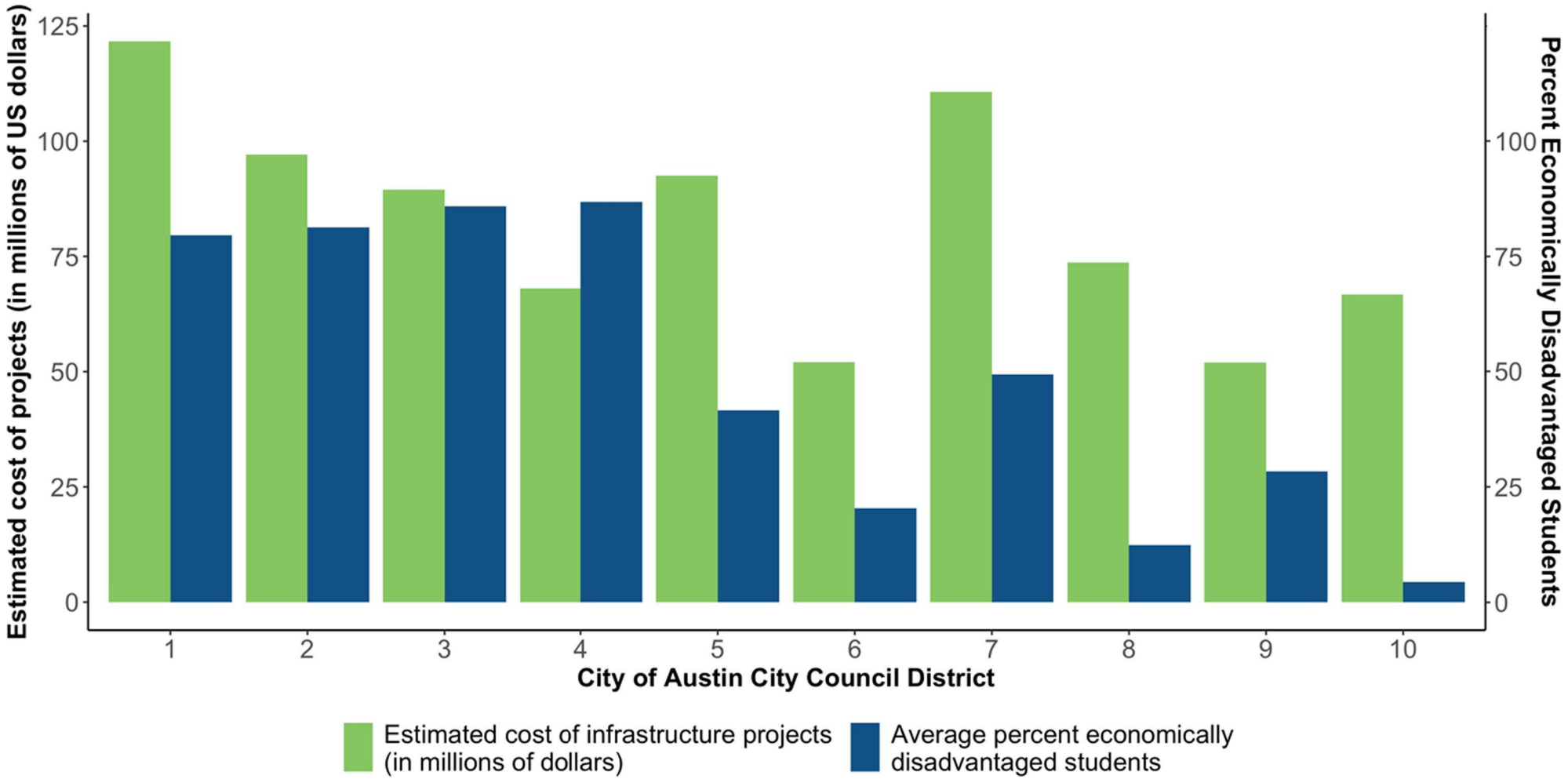
City of Austin infrastructure projects



Texas Education Agency 2019. Student Enrollment Reports.

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Qualitative Interviews

"If you just look at the number of schools in different districts one has five another

"Are you achieving the goals of safe routes by spending money on something that didn't really need to happen?"

"At some schools were looking at putting in protected bike lanes and others we're like, 'Can we just get some sidewalks going up to the school?'."

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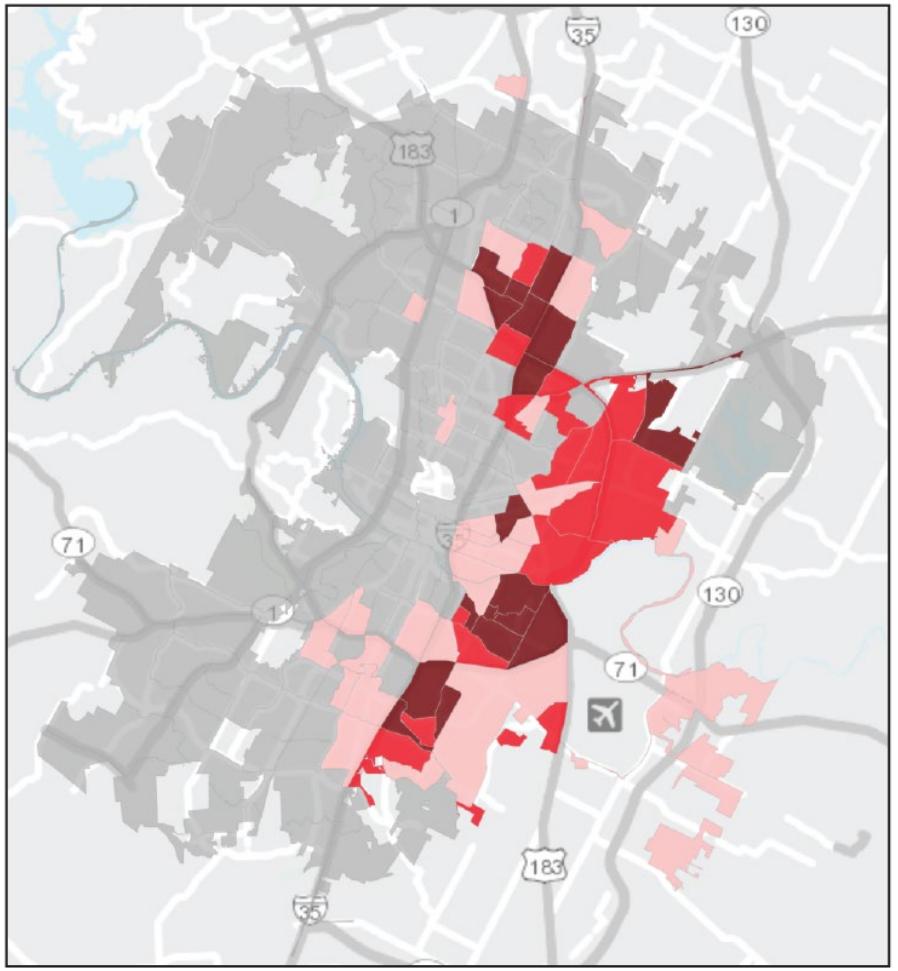
Discussion



Building “A City Of Upper-Middle-Class Citizens” Labor Markets, Segregation, And Growth In Austin, Texas, 1950–1973
J. Urban History, 39 (2013), pp. 975-996 C. Hedman, D. Elliott, T. Srini, S. Kooragayala, Austin And The State Of Low-And Middle-Income Housing Urban Institute. (2017)
X. Zhu, C. Lee. Walkability and safety around elementary schools: economic and ethnic disparities. Am. J. Prev. Med., 34 (2008), pp. 282-290
Handy, S. 2009. Walking, Bicycling, And Health. In: MALEKAFZALI, S. (Ed.) Healthy, Equitable Transportation Policy: Recommendations And Research.
A. Ryan, C. Barchers, E. Christofa, M. Knodler. Equitable resource allocation for municipal safety: a data envelopment analysis. Transport. Res. Part D: Transport Environ., 97 (2021), Article 102926
Dupuis, N., Stahl, E. & Rainwater, B. 2017. The Future Of Equity In Cities. Washington, DC United States.
U.S. Census Bureau 2020. Release Number CB20-78: Southern And Western Regions Experienced Rapid Growth This Decade.

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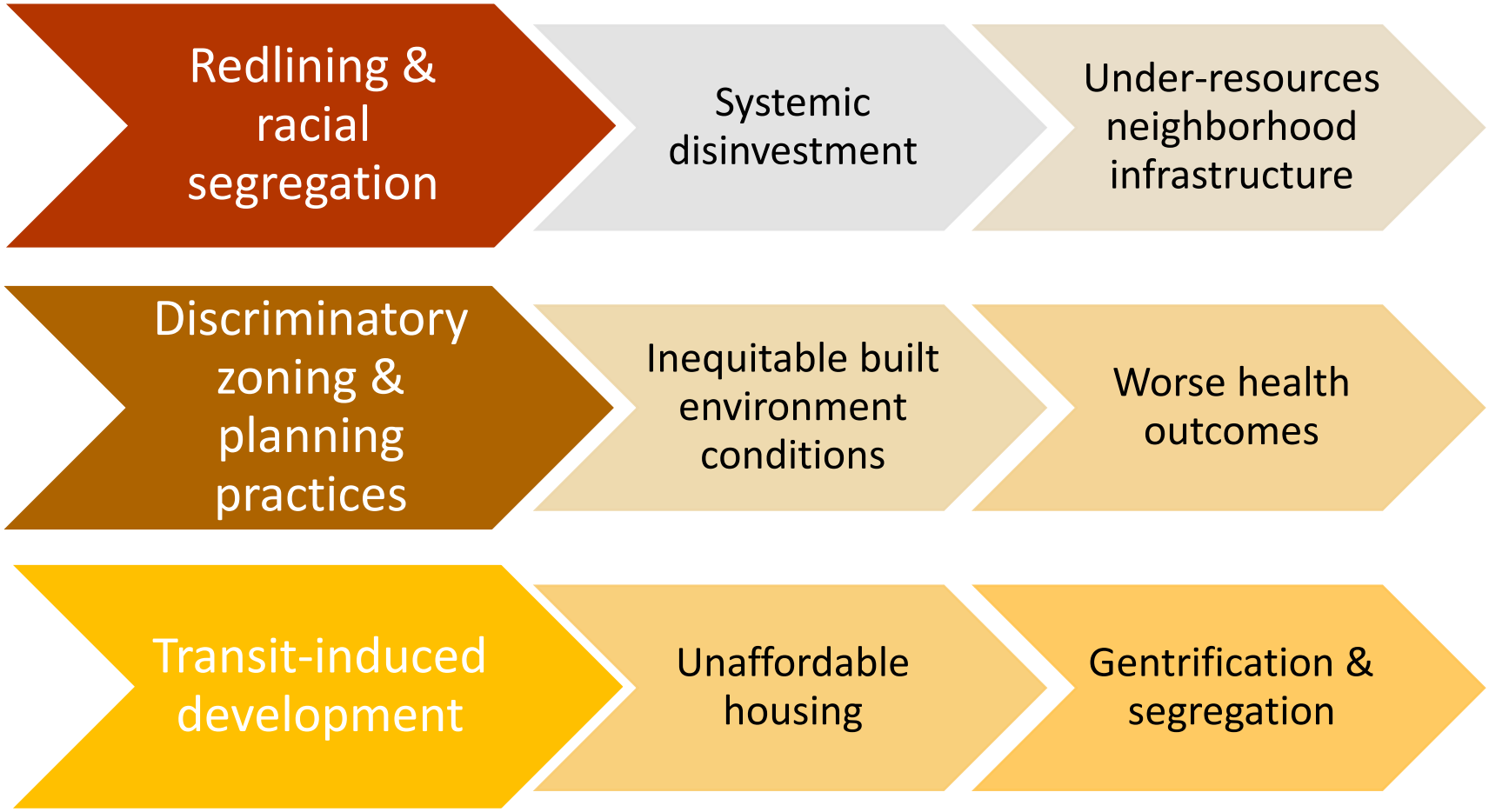
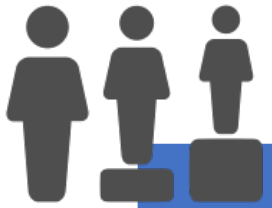
Discussion



E.E. Lynch, L.H. Malcoe, S.E. Laurent, J. Richardson, B.C. Mitchell, H.C.S. Meier. The legacy of structural racism: associations between historic redlining, current mortgage lending, and health. SSM - Population Health, 14 (2021)
Williams, D.R., Collins, C. 2001. Racial Residential Segregation: A Fundamental Cause Of Racial Disparities. In: Health. Public Health Reports (Washington, D.C. : 1974), 116, 404-416.
G. Lipsitz. How Racism Takes Place. Temple University Press (2011)
S. Wilson, M. Hutson, M. Mujahid. How planning and zoning contribute to inequitable development, neighborhood health, and environmental injustice. Environ. Justice, 1 (2008), pp. 211-216
M. Padeiro, A. Louro, N.M. Da Costa. Transit-Oriented Development And Gentrification: A Systematic Review. Transport Reviews, 39 (2019), pp. 733-754

Implications for practice and policy



MOVING TOWARDS EQUITY

- 2020 Mobility Bond $20M for high and very high priority SRTS projects
- Equitable Transit-Oriented Development Policy Plan
- IIJA - 7x more TAP funding in Texas than before
- Reconnecting Communities & Neighborhoods - Neighborhood Access and Equity (NAE) Program

CALL TO ACTION

- Emphasize spatial and social equity principles
- More financial and infrastructural support in lower-income communities
- Engage underrepresented communities
- Need systematic approach to address equity
- Increase diversity in leadership roles

City of Austin 2021b. Equitable Transit Resolution. Austin, Texas.
Biden Jr, J. 2021. Executive order on advancing racial equity and support for underserved communities through the federal government. In: AMERICAN, U. S. O. (Ed.). Washington, DC: White House Press Office.
R.J. Lee, I.N. Sener, S.N. Jones. Understanding the role of equity in active transportation planning in the United States. Transport Rev., 37 (2017), pp. 211-226
L.M. Braun, D.A. Rodriguez, P. Gordon-Larsen. Social (In) equity in access to cycling infrastructure: cross-sectional associations between bike lanes and area-level sociodemographic characteristics In 22 large US cities. J. Transp. Geogr., 80 (2019), Article 102544
M. Solis. Racial equity in planning organizations. J. Am. Plann. Associat., 86 (2020), pp. 297-303

Strengths, Challenges, and Lessons Learned

Based on four basic design elements of research studies.[1]

- Intervention
- Observations/measurements
- Groups
- Time

1. Trochim, W., & Land, D. (1982). Designing designs for research. The Researcher, 1, 1–6.

Intervention

Strengths

Close partnership with the City of Austin Safe Routes to School

- Advisory
- Communication
- Access to data important to the study:
  - Walk audits
  - Cost
  - Project dates and details

Challenges

Assessing exposure

- Variation in SRTS infrastructure projects
- Range of costs per school = [$4,123 - $2,765,412]
- Implementation score

Multiple interventions occurring at the same time

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Intervention

Strengths

Close partnership with the City of Austin Safe Routes to School

- Communication
- Access to intervention data
  - Walk audits
  - Cost
  - Project dates and details

Challenges

Natural experiment

Assessing exposure

- Variation in SRTS infrastructure projects
- Range of costs per school = [$4,123 - $2,765,412]
- Implementation score

Multiple interventions occurring at the same time

UTHealth Houston School of Public Health | Michael & Susan Dell Center for Healthy Living

Observations/measurements

Strengths

Working with schools allowed for measurement of all children at school

Multiple pre/post measures to control for secular changes

Measurement of multiple potential confounders and combinations of methods to address different sources of bias

Observations/measurements

Challenges

Working with schools required district and principal approval

COVID school closures impacted measurement methods and timeline

Construction timeline impacted measurements

Limiting sample to those living within one-mile decreased sample size

Proposed measurements

	Year 1 (2018 – 2019)		Year 2 (2019 – 2020)		Year 3 (2020 – 2021)		Year 4 (2021 – 2022)		Year 5 (2022 – 2023)	
Serial cross-sectional study	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9	Wave 10
Cohort study	3rd Grade		4th grade		5th grade	5th grade				

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Actual measurements

	Year 1 (2018 – 2019)	Year 2 (2019 – 2020)	Year 3 (2020 – 2021)	Year 4 (2021 – 2022)	Year 5 (2022 – 2023)	Year 6 (2023 – 2024)
Serial cross-sectional study	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9	Wave 10	Wave 11
				Missed due to COVID							
Cohort study											
Schools in council districts 1 & 10	3rd Grade		4th grade		Biased by COVID: 5th grade	Biased by COVID: 5th grade					
Schools in council districts 2 – 9 and comparison		3rd Grade		4th grade		5th grade	5th grade				
Re-recruit and schools missed due to COVID					3rd Grade			4th grade		5th grade	5th grade

Groups

Challenges

Original proposal had San Antonio schools as a **comparison group**

- Recruitment challenges required that we use Austin-area schools

Ongoing recruitment of schools

Attrition over time of schools

Time

Strengths

Flexibility in funding

- 6 years of data with 2 no-cost extensions

Challenges

Generational effects of built environment intervention

Construction delays and timelines

Time

Strengths

Flexibility in funding

- 6 years of data with a no-cost extension

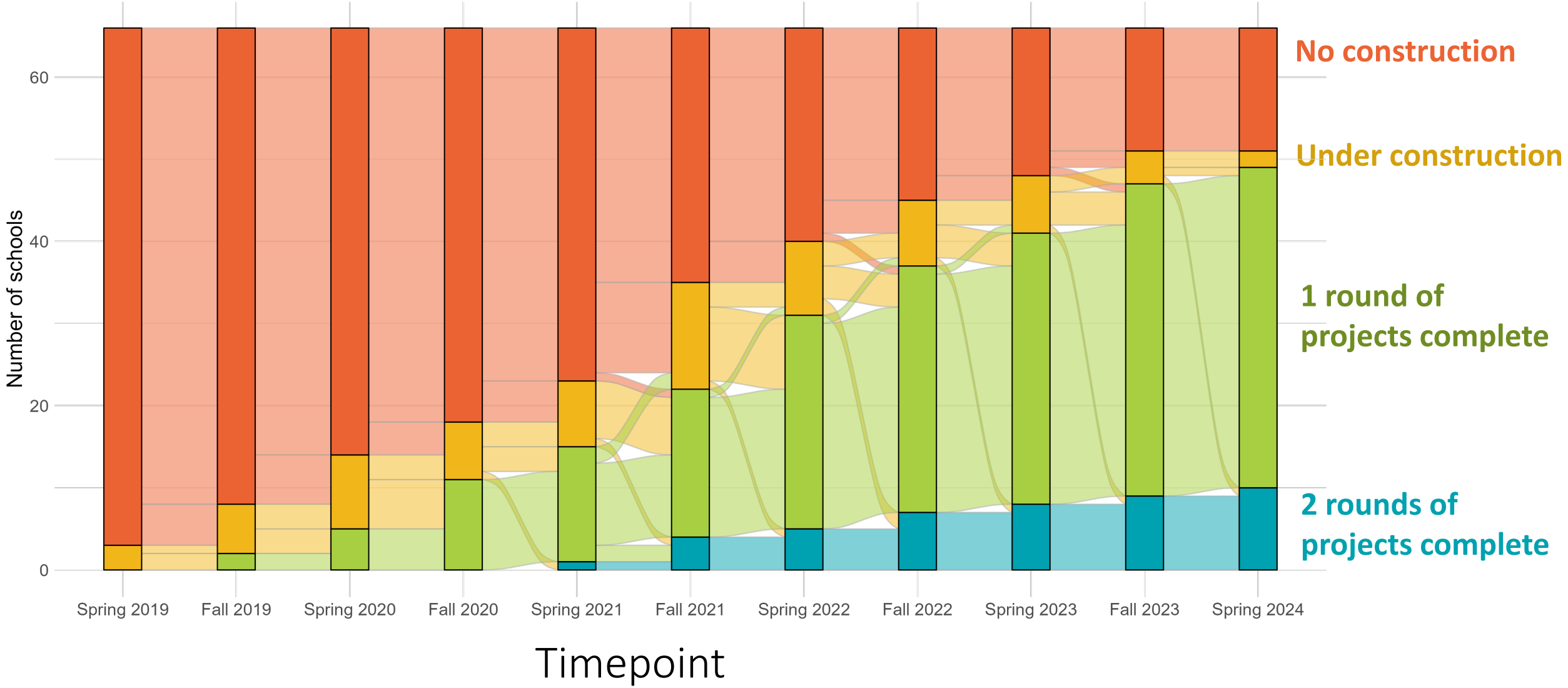
Challenges

Generational effects of built environment intervention

- School year schedules

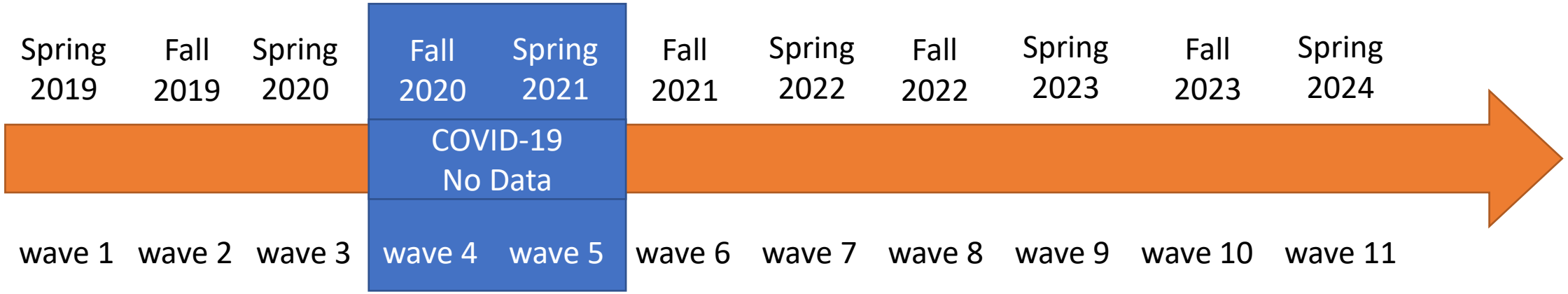
Construction delays and timelines

Austin SRTS infrastructure school status



Preliminary Results:
Effect of *Safe Routes to School* Infrastructure changes on Active Travel to School Participation

Collect ACS Data



Total schools = 92

Austin schools = 69

Comparison schools = 23

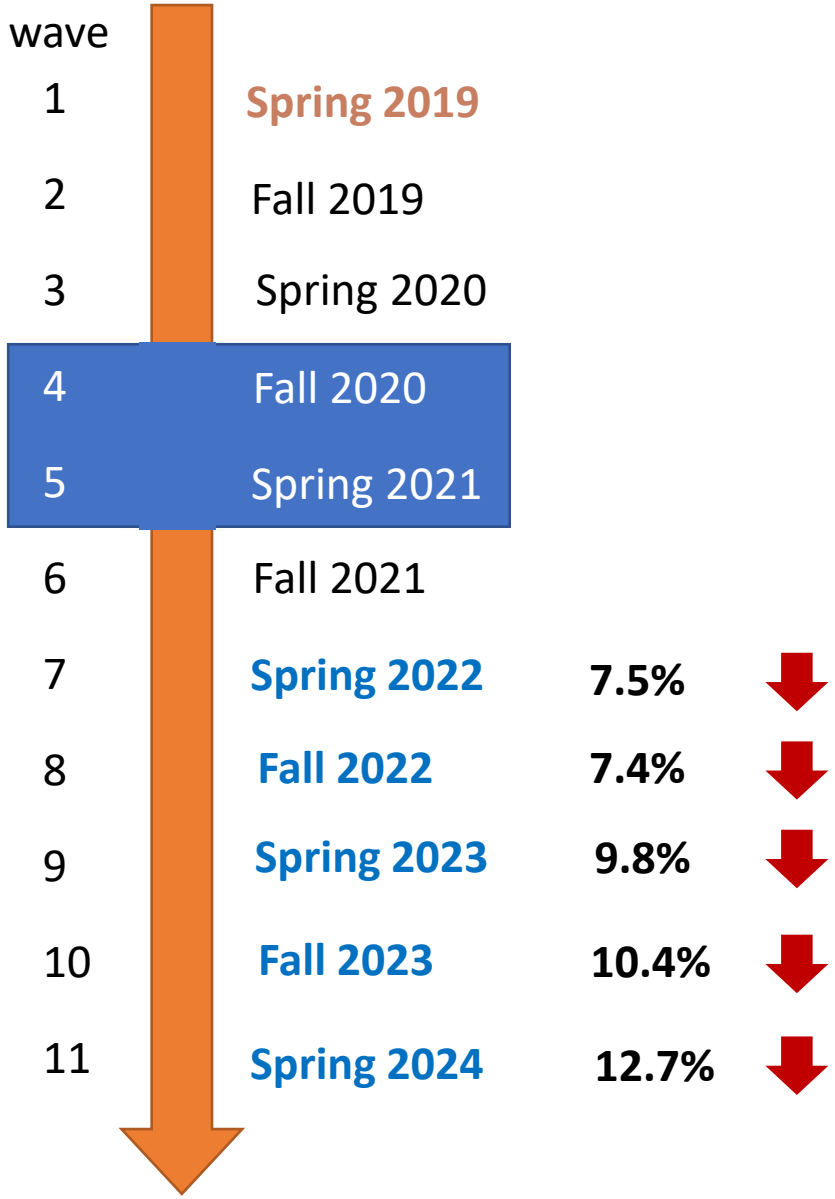
School Characteristics

Austin schools = 69

Comparison schools = 23

	Austin Schools	Comparison Schools
School enrollment (N)	552	647
Girls (N)	268	316
Racial/Ethnic distribution (%)		
Hispanic	65%	54%
White/Other, non-Hispanic	30%	42%
African American	4%	4%
Community Type		
Major urban	87%	17%
Urban	13%	83%
Economically Disadvantaged Students	58%	38%
Limited English Proficiency Students	37%	17%

Preliminary Results: *Active Travel to School* rates during construction



During construction, Austin schools' active travel to school participation was lower, as compared to before construction in the Spring 2019.

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Preliminary Results: *Active Travel to School* rates shortly after construction is completed

- ✓ During construction: Austin schools had a **7.4%** decrease in %ACS
- ✓ Construction complete: Austin schools had a **7.1%** decrease in %ACS

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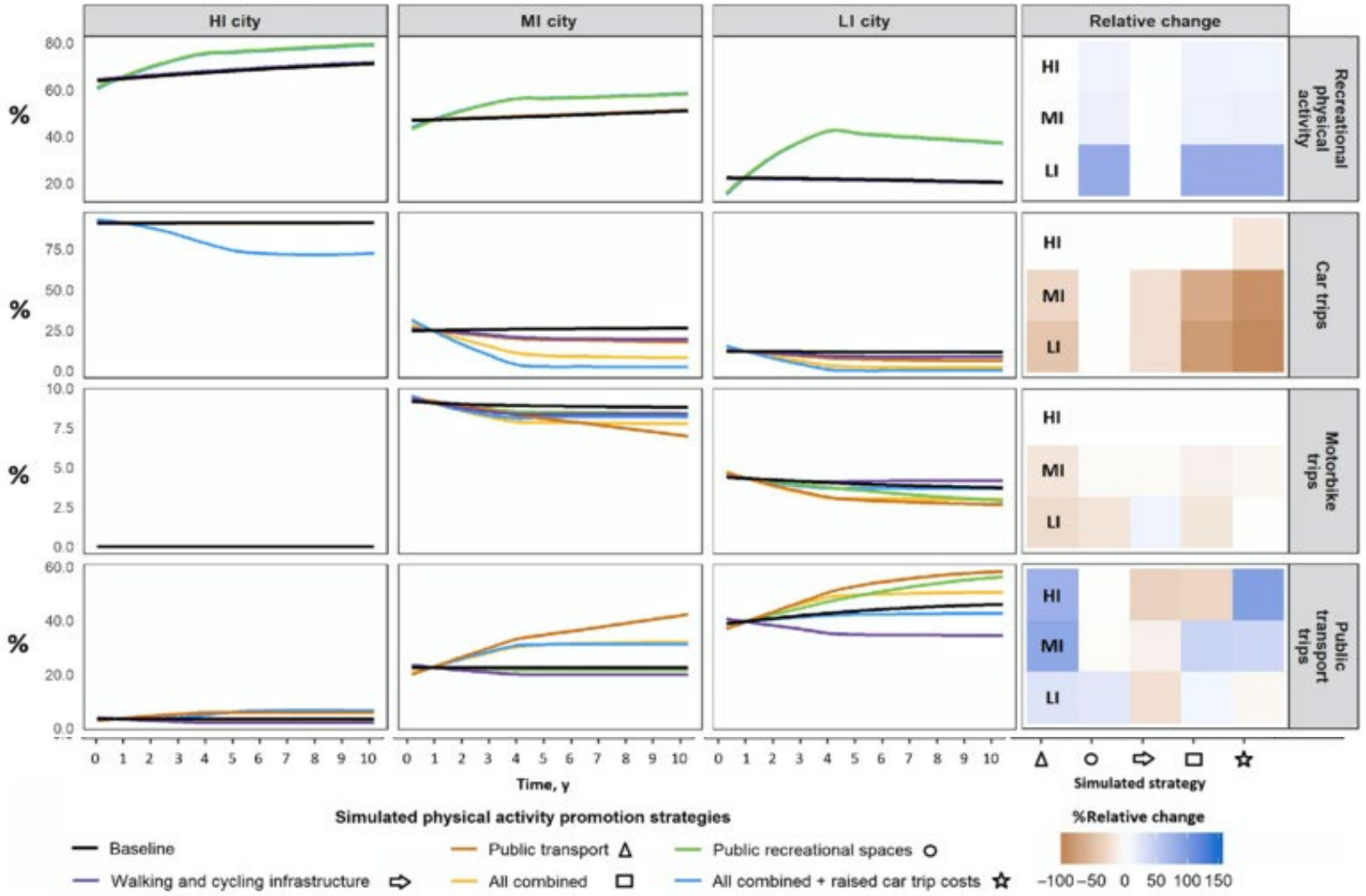
Simulation Study



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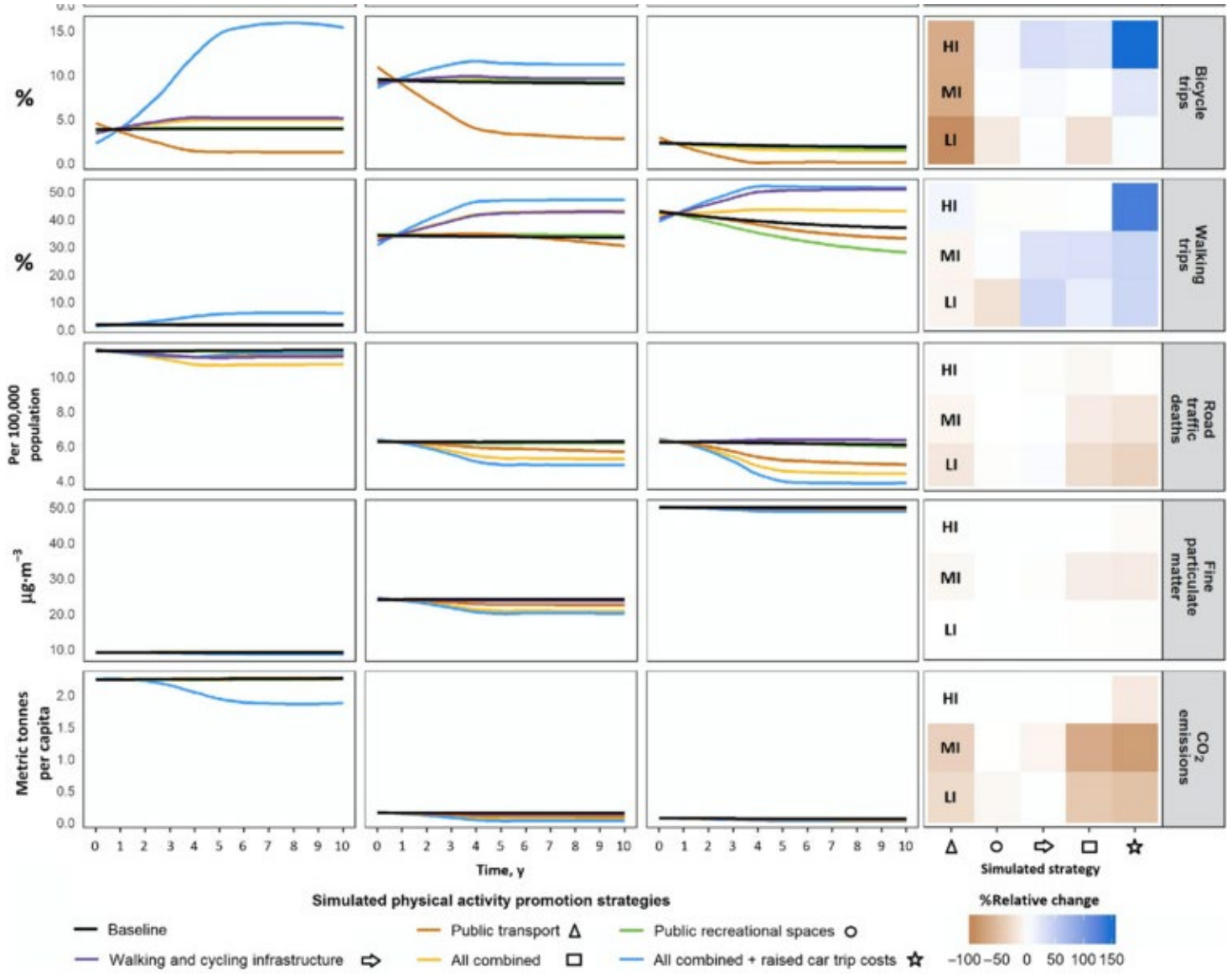
Simulation Study



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Conclusions

Summary of lessons learned

Importance of partners (COA, school districts)

- Importance of shared data with partners

Flexibility in study design

Flexibility in research design, funding, and timeline

- COVID

Measuring dose

- Implementation score

Preparing for intervention timing issues

- Construction delays
- Delayed effects of the intervention

Strategic Collaboration

Developing and Maintaining Collaborations:

- Access to GIS sidewalk data
- Qualitative interviews with city stakeholders
- Communication with city and schools and ability to adjust project timelines/priorities based on measurement needs
- Advice on measurements and design
- Coordination among city departments and external stakeholders.

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Other team members

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- Dr. Deb Salvo, UT Austin

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Discussion and Q&A

Thank you!

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Incorporating equity into active commuting to school infrastructure projects: A case study

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- City of Austin SRTS department and study participants
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