Safe Routes PARTNERSHIP

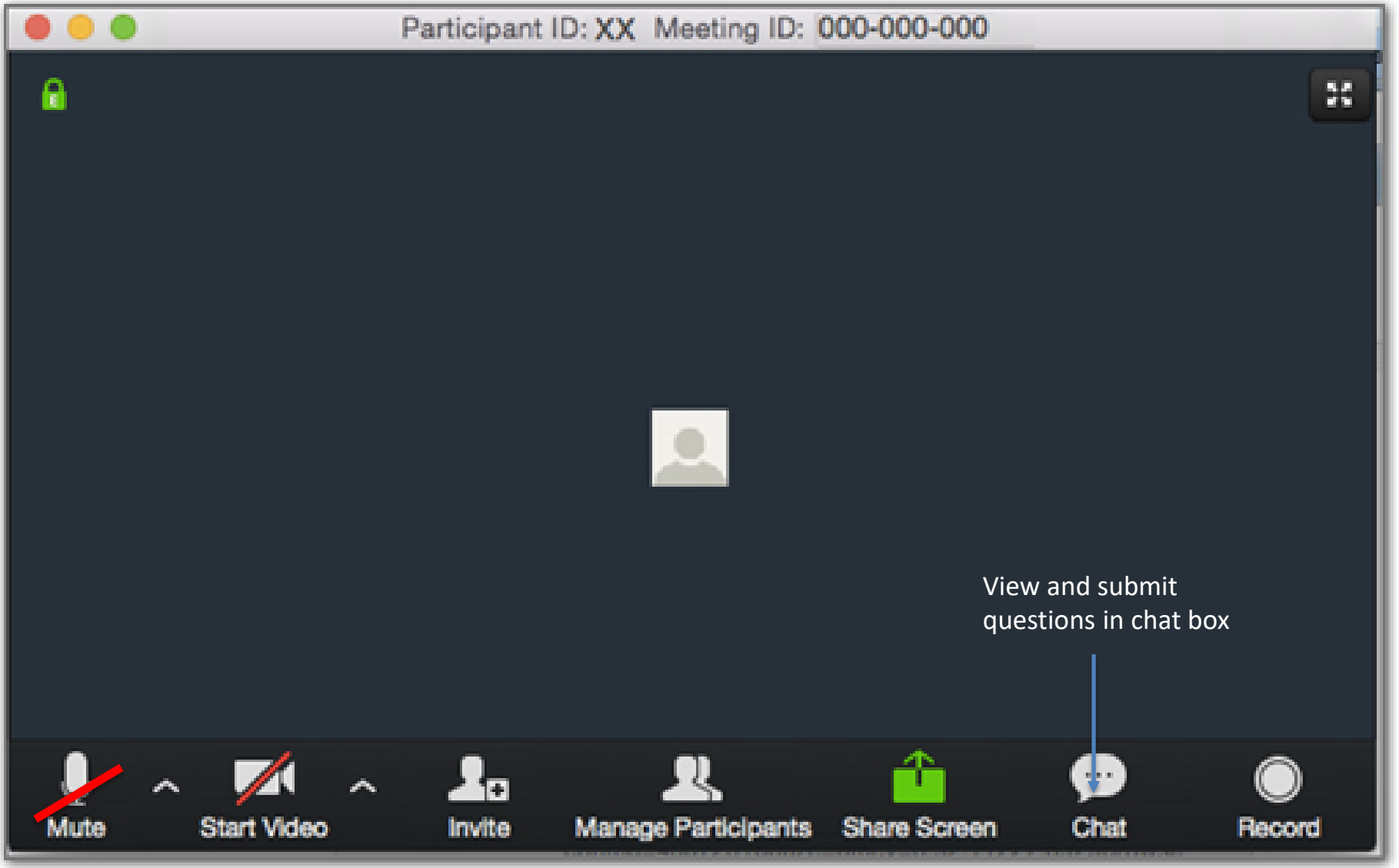
Engineering Strategies for Safe Routes to School

Kori Johnson, Safe Routes Partnership

January 27, 2022

MISSION

The mission of the Safe Routes Partnership is to advance safe walking and rolling to and from schools and in everyday life, improving the health and well-being of people of all races, income levels, and abilities, and building healthy, thriving communities for everyone.



SESSION IS BEING RECORDED

PLEASE PARTICIPATE IN THE CHAT!

TODAY'S PRESENTERS

Kori Johnson
Safe Routes Partnership, Washington, DC

Audience: Introduce yourselves in the chat!

- ***Name***
- ***Organization, agency, or connection to Safe Routes to School***
- ***What are some street features that make you feel safe and comfortable while walking and/or biking (ex. Protected bike lanes, not too many cars, clearly painted crosswalks)?***

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Agenda

- Welcome and Introductions
- Engineering Solutions for Safe Routes to School
  - High level engineering strategies, nothing too technical
  - General ideas based on practices from cities and counties across the county
- EST Audit Tool Presentation – Aimee Schultze, Harris County Public Health
  - GIS Mapping and Data Collection
- Q & A
- Reminders & Next Steps

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Why focus on ENGINEERING?

The 6 E's of Safe Routes to School

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ENGAGEMENT

All Safe Routes to School initiatives should begin by listening to students, families, teachers, and school leaders and working with existing community organizations, and build intentional, ongoing engagement opportunities into the program structure.

EQUITY

Ensuring that Safe Routes to School initiatives are benefiting all demographic groups, with particular attention to ensuring safe, healthy, and fair outcomes for low-income students, students of color, students of all genders, students with disabilities, and others

ENCOURAGEMENT

Generating enthusiasm and increased walking and bicycling for students through events, activities, & programs

ENGINEERING

Creating physical improvements to streets and neighborhoods that make walking and bicycling safer, more comfortable, and more convenient.

EDUCATION

Providing students and the community with the skills to walk and bicycle safely, educating them about the benefits of walking and bicycling, and teaching them about the broad range of transportation choices

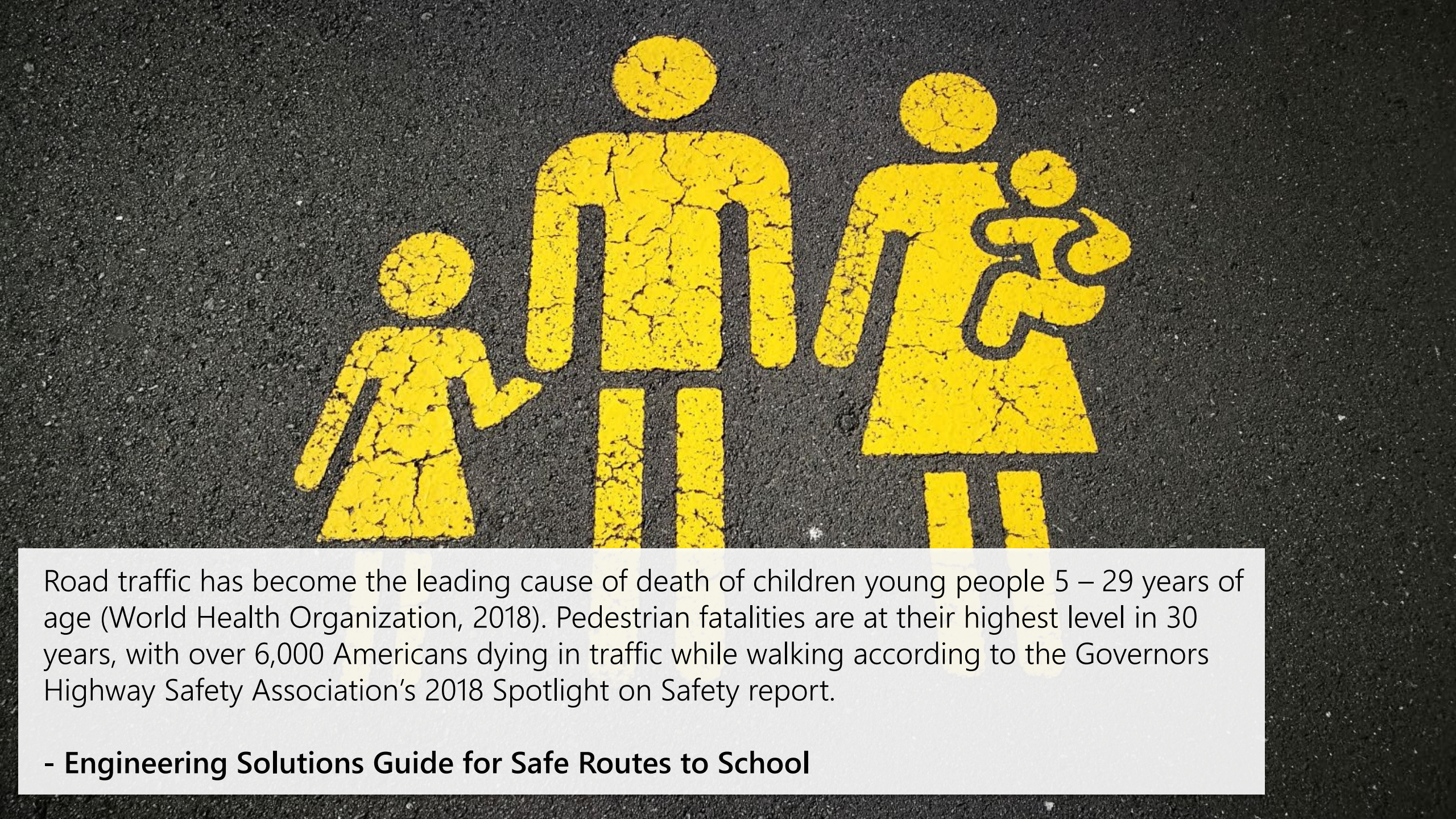
EVALUATION

Assessing which approaches are more or less successful, ensuring that programs and initiatives are supporting equitable outcomes, and identifying unintended consequences or opportunities to improve the effectiveness of each approach

The 6 E's of Safe Routes to School

ENGINEERING

Creating physical improvements to streets and neighborhoods that make walking and bicycling safer, more comfortable, and more convenient.



Road traffic has become the leading cause of death of children young people 5 – 29 years of age (World Health Organization, 2018). Pedestrian fatalities are at their highest level in 30 years, with over 6,000 Americans dying in traffic while walking according to the Governors Highway Safety Association's 2018 Spotlight on Safety report.

- Engineering Solutions Guide for Safe Routes to School

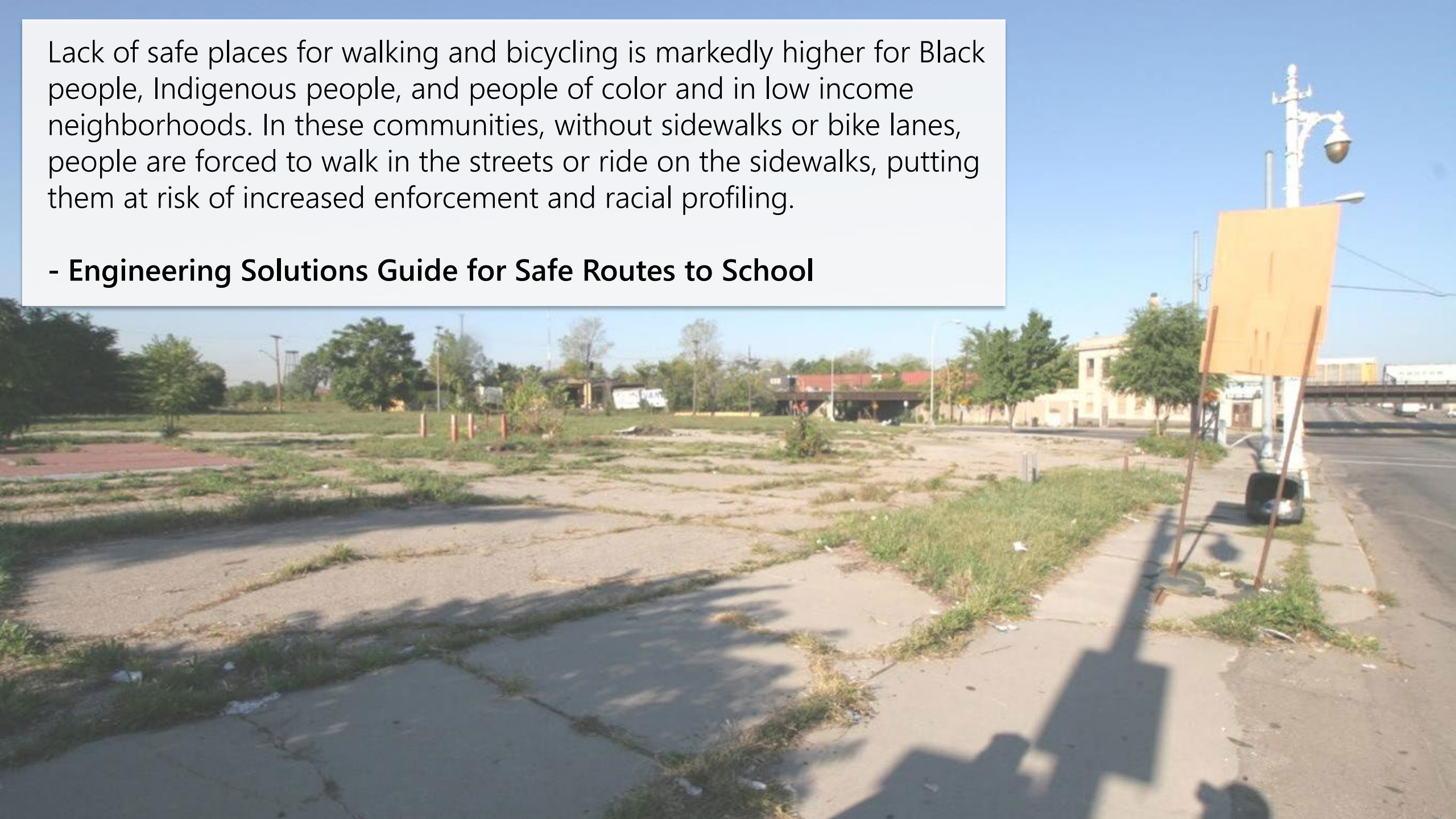
The Problem: Children's Health and Safety Troubling Trends

Lack of access to safe places to walk, bike, and play over the past four decades has led to:

- Less that one quarter of 6-17 year olds participating in 60 minutes of physical activity per day (2016 National Survey of Children's Health)
- Air pollution illnesses and deaths
- Increased social isolation and mental health challenges

Lack of safe places for walking and bicycling is markedly higher for Black people, Indigenous people, and people of color and in low income neighborhoods. In these communities, without sidewalks or bike lanes, people are forced to walk in the streets or ride on the sidewalks, putting them at risk of increased enforcement and racial profiling.

- Engineering Solutions Guide for Safe Routes to School



Why Engineering Matters for Schools, Students, and Families

- Increases safety and comfort with walking and biking
- Encourages parents and caregivers to let kids walk and bike to school
- Gives road users different travel options
- Reduces school traffic congestion
- Lowers transportation costs
- Helps kids get ready to learn
- Improves social connectedness
- It's an equity issue

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The Solution: Improved Street Design

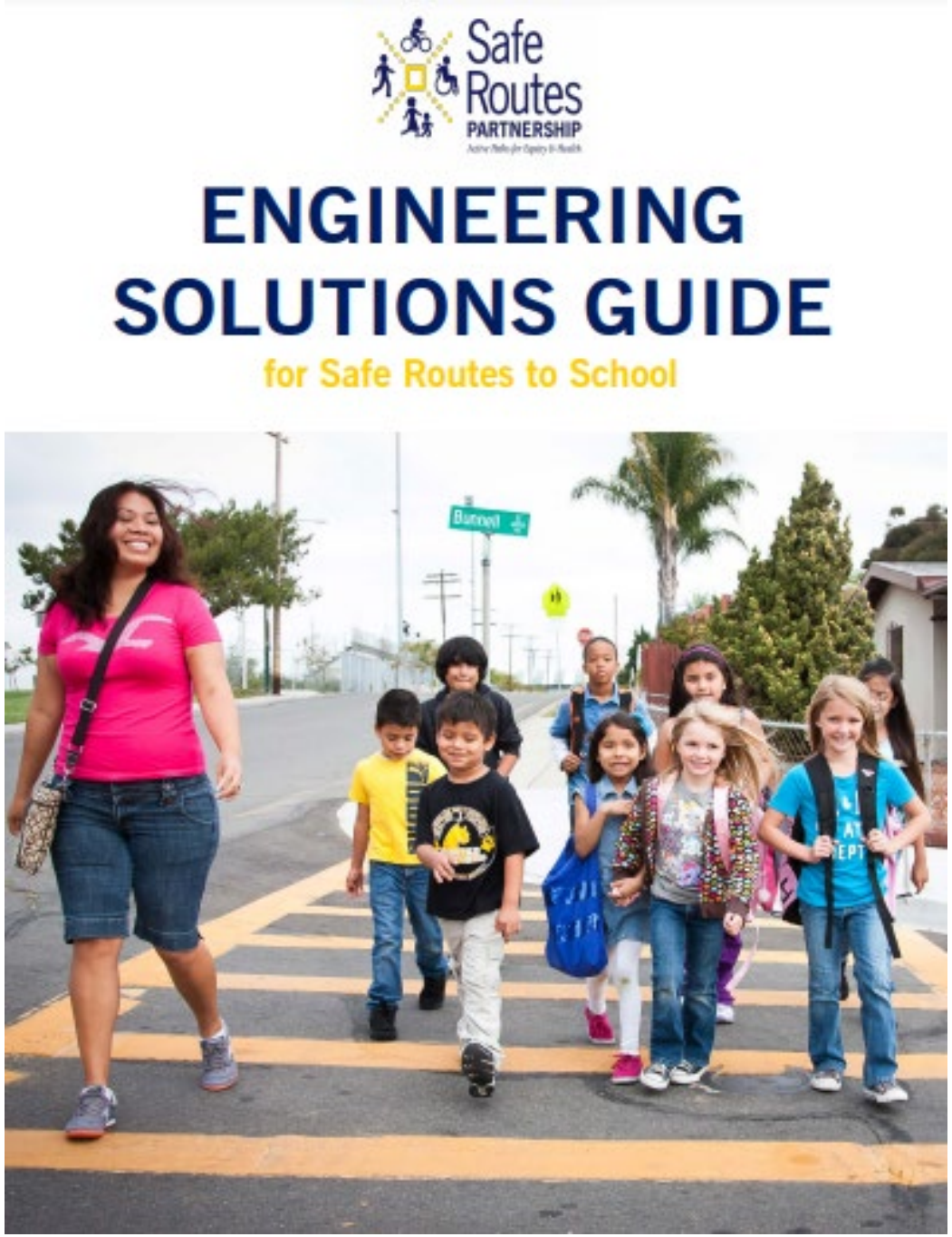
- Reduce vehicle speeds
- Pedestrian crossings
- Bike connectivity
- Intersection Safety

Toolkit: Engineering Solutions Guide for Safe Routes to School

- Engineering strategies that work to keep kids safe
  - Reduce vehicle speeds
  - Pedestrian crossings
  - Bike connectivity
  - Intersection Safety

- 17 fact sheets on engineering solutions
  - Estimated costs
  - Safety considerations
  - Safety outcomes
  - Public art opportunities

- Safe Routes to School engineering case studies



PROTECTED BICYCLE LANES

Description: An exclusive bike lane separated from vehicle travel lanes, parking lanes, and sidewalks. The bike lane is typically adjacent to the curb and is physically separated from adjacent parking and travel lanes. They can be one-way, two-way, at street level, at sidewalk level, or at an intermediate level.

Pictured Above: A pop-up protected bicycle lane in Minneapolis, MN | Kristina Perkins

Treatment Types

High-End Treatments: Narrowing lanes (see page 21) to accommodate one-way or two-way bicycle lanes, thermoplastic paint, wayfinding signs with estimated miles and/or calories burned to destination, wayfinding signs with nearby bikeshare or scooter stations, exclusive bicycle traffic signal, lane barriers made of concrete and/or native plants in rain gardens and bioswales to manage stormwater and drought.

Medium Treatments: Oil or water based paint and/or reflective inlay tape after narrowing lanes (see page 21), wayfinding signs with estimated miles to destination and with nearby bikeshare or scooter stations, rubber or concrete lane barriers.

Low-Cost Treatments: Oil or water based paint and/or reflective inlay tape within an existing shoulder of traffic, flexible delineator posts (flexiposts) as lane barriers.

Temporary Solutions: Paint made of chalk, tempera, acrylic or cornstarch, coroplast or homemade wayfinding signs, traffic cones, drums, planter boxes, rock quarry slabs, or other lane barriers.

Safety Considerations

MUTCD Status: Not a traffic control device, so no MUTCD restriction on its use

28% injury reduction compared with alternative bicycle routes in Montréal, Quebec. (FHWA, 2014)

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Opportunities for art

$$$ **Medium to high cost range**

PROHIBITING RIGHT TURNS ON RED

Description: Mounted sign eliminates the right of drivers to make a right turn at a red light. Can be used full-time or under restricted time intervals.

Pictured Above: No Right Turn on Red sign and traffic signal arrow in Jacksonville, FL | News4Jax

Treatment Types

High-End Treatments: No right turn on red electronic and metal signs at all intersections

Medium to Low-Cost Treatments: No right turn on red metal signs at all intersections

Temporary Solutions: Coroplast or homemade no right turn on red signs

Safety Considerations

Together with a leading pedestrian interval, a clearly visible no right turn on red signal change can benefit pedestrians with minimal impacts on traffic.

Locations where children cross and that have substantial pedestrian volumes should have the no right turn on red signal.

44% of fatalities from right turns on red were pedestrians and 10% were bicyclists over an 11 year period in Indiana, Maryland, and Missouri. **Injuries occurred at 100 times the rate of fatalities** in those states between 1989 and 1992. (NHTSA, 1995)

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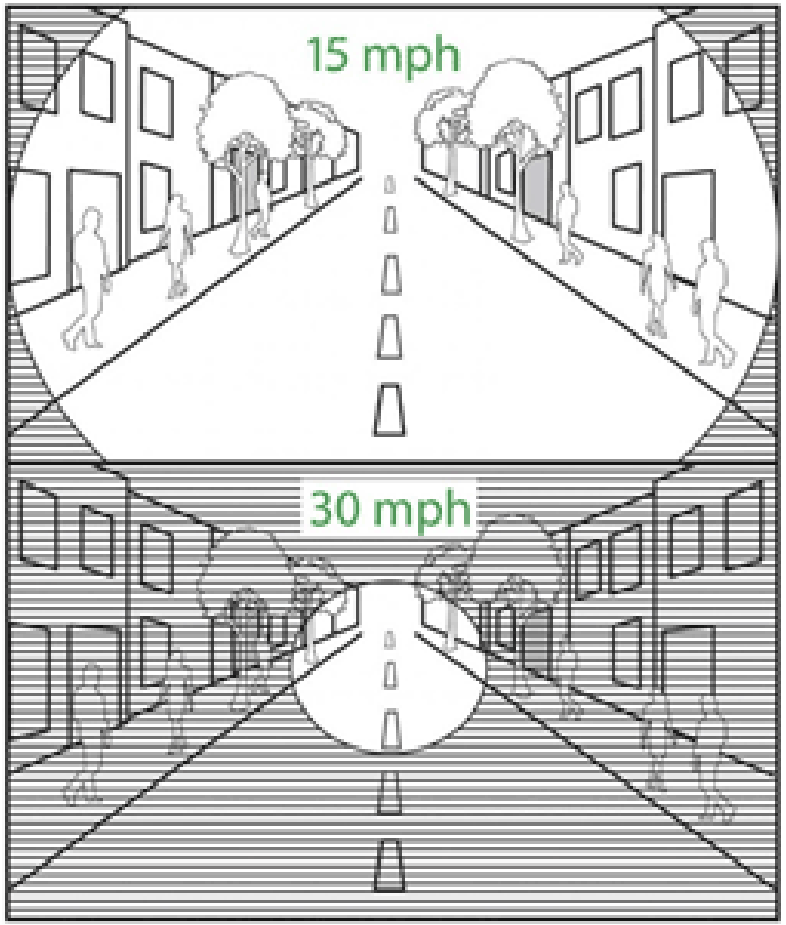
$ **Low cost range**

REDUCE VEHICLE SPEEDS

- Narrowing Lanes
- On-Street Parking
- Speed Humps + Speed Tables
- Curb Extensions, Chicanes + Chokepoints
- Mini Traffic Circles



Narrowing Streets + On-street Parking

Chicanes

Choker/neckdown

Speed Table

Speed Hump

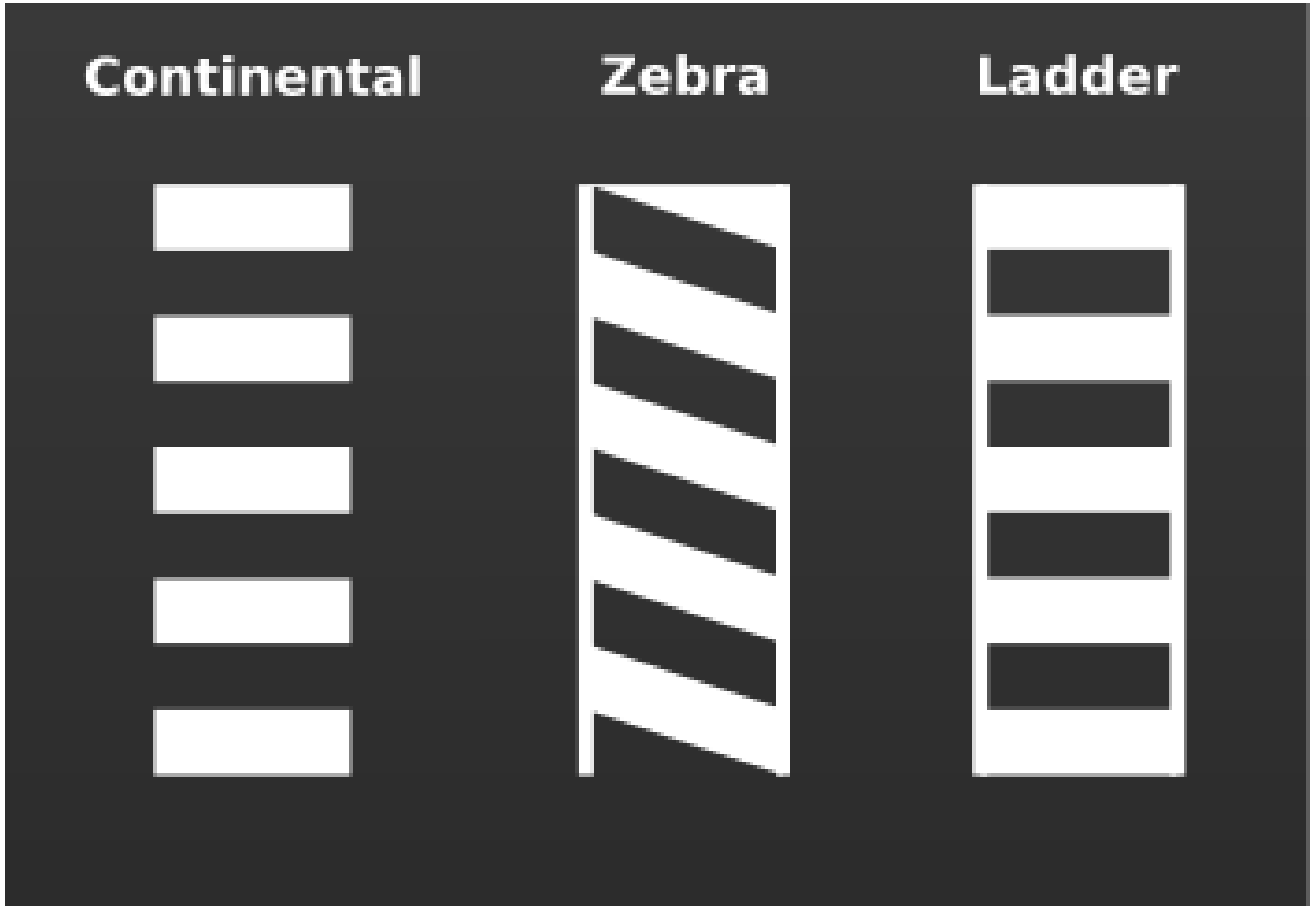
Speed Lump

Mini Traffic Circle

PEDESTRIAN CROSSINGS

- Raised Crosswalks + Intersections
- Ladder Crosswalks
- Raised Medians + Crossing Islands
- Flashing Beacons + Hawk Signals

High Visibility Crosswalks



Raised Median + Crossing Island

Pedestrian Activated Signals

Photo Credit: TAMU

Rectangular Rapid Flashing Beacon (RRFB)

Photo Credit: Helen L. Montoya/San Antonio Express News

Pedestrian Hybrid Beacon (HAWK Signal)

BICYCLE CONNECTIVITY

- Bicycle Lanes
- Bicycle Boxes
- Bicycle Boulevards
- Protected Bicycle Lanes
- Shared-use Pathways

Bike Lane

Bike Box

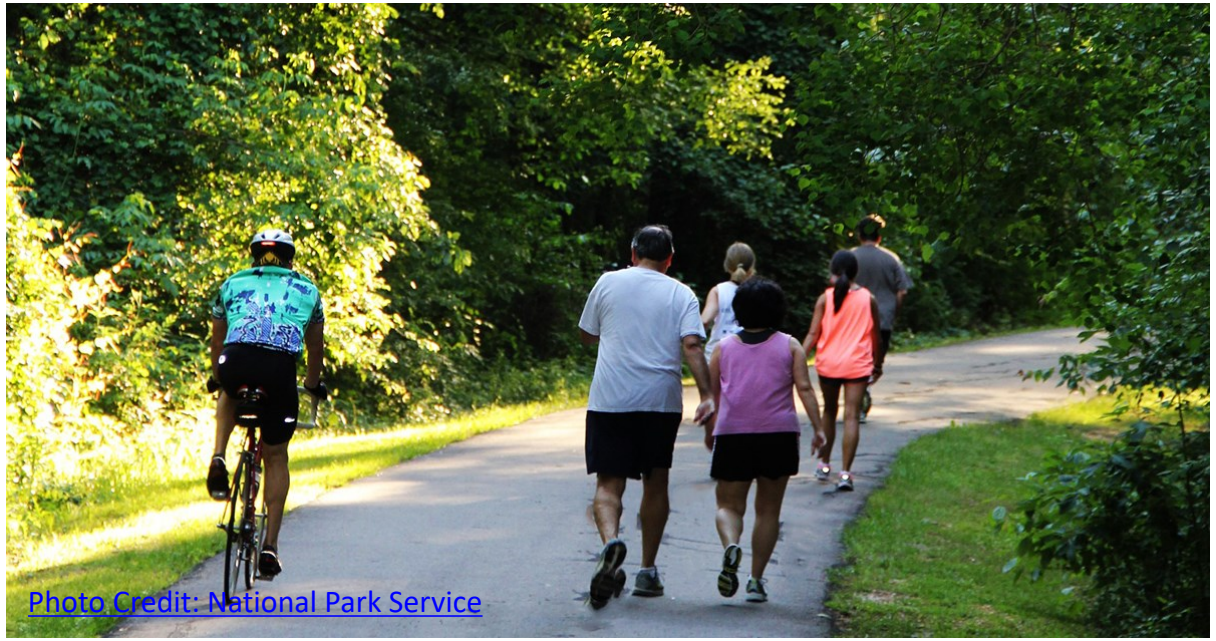
Bike Boulevard

Protected Bike Lanes

Separated Bike Lane

Buffered Bike Lane

Bike Parking



Shared-use Path

INTERSECTION SAFETY

- Prohibiting Right Turns on Red
- Signal Timing Modifications

No Right Turns on Red Lights

Signal Timing and Countdown Clocks

COMMUNITY ENGAGEMENT

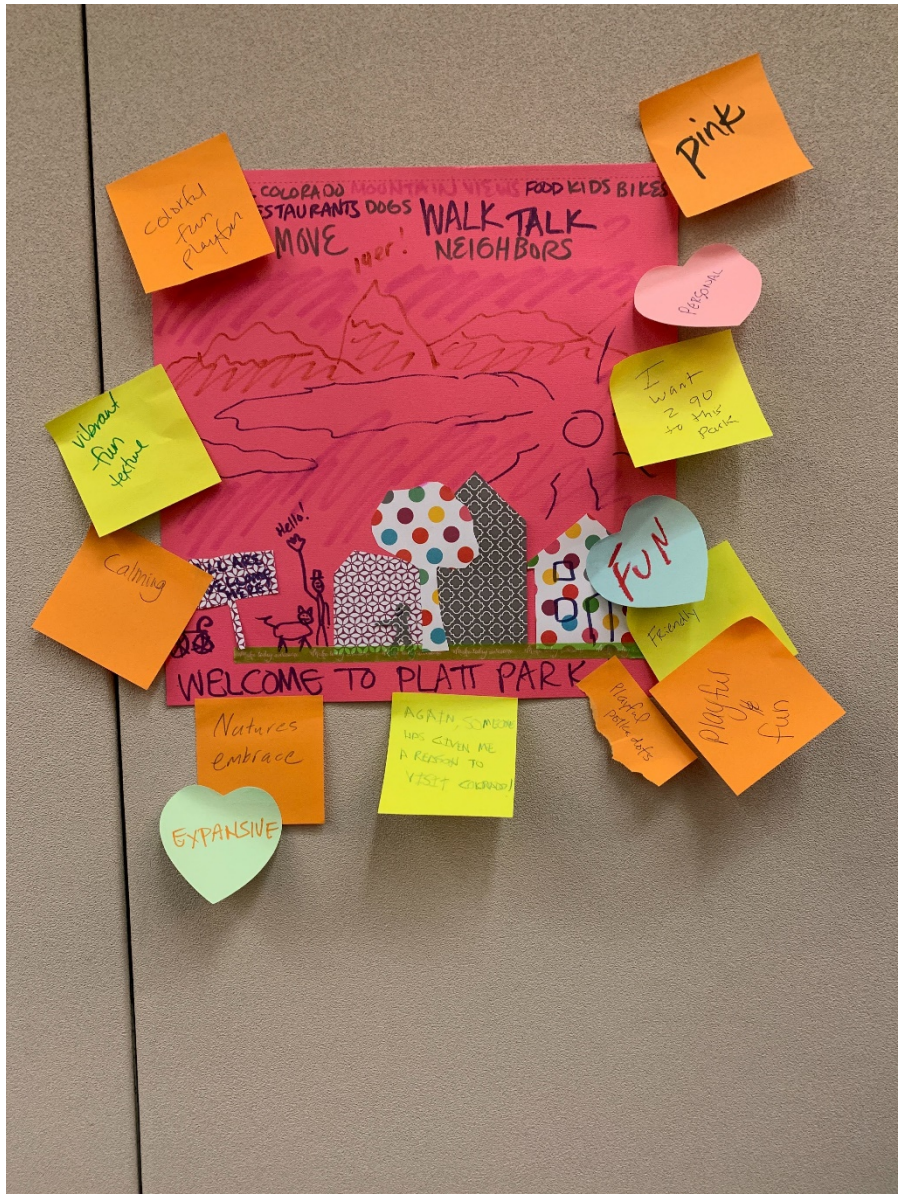
- Talk to Community Members
- Arts-based Activities
- Visualize Needs and Assets
- Walk Audits

School & Community Meetings

Student Design Charrettes

Place It! For Safe Routes to School

A set of simple model-building exercises, whereby participants use an array of found objects to build both memories of place and places they would love to see in the future.



Community Asset Mapping

Walk Audits

A **walk audit** is an assessment of community infrastructure and actions along a planned route, documenting barriers, benefits, behaviors and perceptions to the walking environment.

Pictures courtesy of Kate Moening

A walk audit can..

- Assess the walkability of a community.
- Identify walking and biking barriers/benefits in a community.
- Bring community members of all backgrounds together and gathers public input directly from users.
- Identify infrastructure and non infrastructure improvements to address in plans, projects
- Document the current walking environment for future evaluation

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Questions?

HOW TO GET INVOLVED IN YOUR AREA

Houston Public Works
School Zone Coordination

- Part of Transportation and Drainage Operations

- Responsible for maintenance of all school zones in Houston City limits
  - 12 school districts
  - Private schools
  - Over 500 schools and 1400 school zones

- Installs, maintains, and removes school zones
  - Crosswalk markings
  - School related parking restrictions
  - School related traffic devices

- Report an issue, request a school zone or other school related concerns through City of Houston 311 or contacting Janice Lakey, Community Outreach Coordinator – Janice.lakey@houstontx.gov

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Houston Public Works Sidewalk Program

- Constructs new sidewalks and ramps along streets leading to schools
  - Students currently use the street to walk to school with no sidewalks.
  - Located within four blocks of a school.
  - Does not include sidewalks around the perimeter of the school.

- Must submit application to apply – available online

- School representatives and administration may use this form to apply for Sidewalk Program

HOUSTON PUBLIC WORKS

TRANSPORTATION & DRAINAGE OPERATIONS
SIDEWALK PROGRAM APPLICATION

APPLICANT INFORMATION

Name of Applicant: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Email: _____

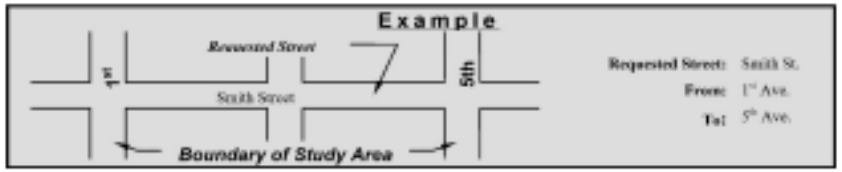
SIDEWALK INFORMATION

Proposed Location (Street Name): _____

From (Street Name): _____

To (Street Name): _____

School Name (if applicable): _____



Please provide comments below to HPW - Sidewalk Program stating why new sidewalk improvements are needed at this location:

In approximately 6 to 8 weeks of the date of your application, Houston Public Works will mail to you a letter in response to your application. To check status of your application, visit:
http://services.publicworks.houstontx.gov/safe-sidewalk-tracking-status.htm

HOUSTONPUBLICWORKS.ORG 2 of 2. Revised: APRIL 2021

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Let's Talk Houston!

- Part of City of Houston Planning & Development Department

- Located on department's webpage:
  - Promotes corridor studies
  - Provides details on planning projects
  - Provides agency staff contact information

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Contact Information

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Have an idea for a Safe Routes to School webinar topic?
Email Kori or share in the chat!