

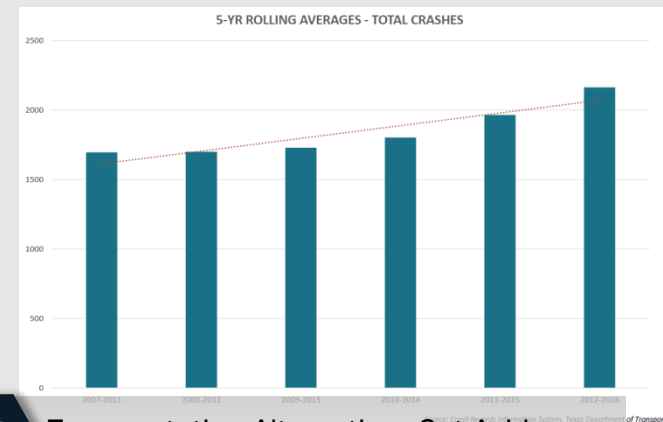
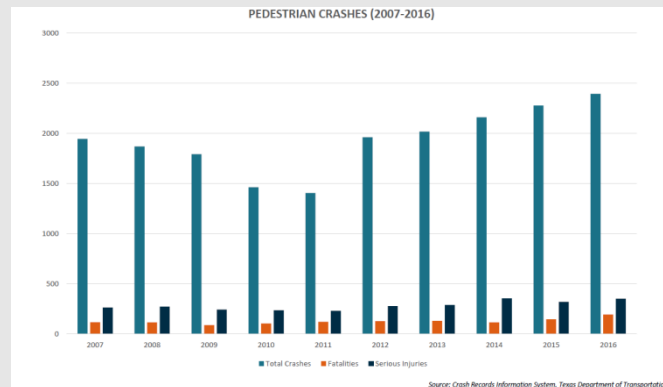


# DESIGNING FOR PEDESTRIANS

Houston District

# Regional Funding Investment Priorities

- Pedestrian Safety Treatments
  - Dutch Intersection
  
- Eliminate Gaps
  - Barrier Elimination: Bridge
  - Discontinuities in the ped/bike network
  - Transit: First Mile/Last Mile



## H-GAC's 2017 Draft Investment Priority Matrix

Ped / Bike	<ul style="list-style-type: none"> <li>• [PRG] "First Mile/Last Mile" (access to fixed route transit, bike share, employment)</li> <li>• [PRG] Pedestrian Safety Treatments (Midblock crossing, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• [PRG] ADA compliance of pedestrian network</li> <li>• Eliminate gaps between existing facilities within the regional bikeway system</li> </ul>
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## Funding Sources for Pedestrian Improvements

Transportation Enhancement Program (TE)

2015

Transportation Alternatives Program (TAP)

2017

Transportation Alternatives Set-Aside Program (TA Set-Aside /TASA)



### ECD-Designed "Dutch Junction" Intersections Project Set to Begin on IH-10, a First for TxDOT

Safer pedestrian/cyclist crossings project conceived as a future benchmark for major intersections

Constellation Home. SAVE UP TO \$2,500 on select high-efficiency cooling and heating systems.

## Energy Corridor District-designed 'Dutch Junction' intersections project set for IH-10, a first for TxDOT

Staff report Published 10:41 am, Monday, October 24, 2016

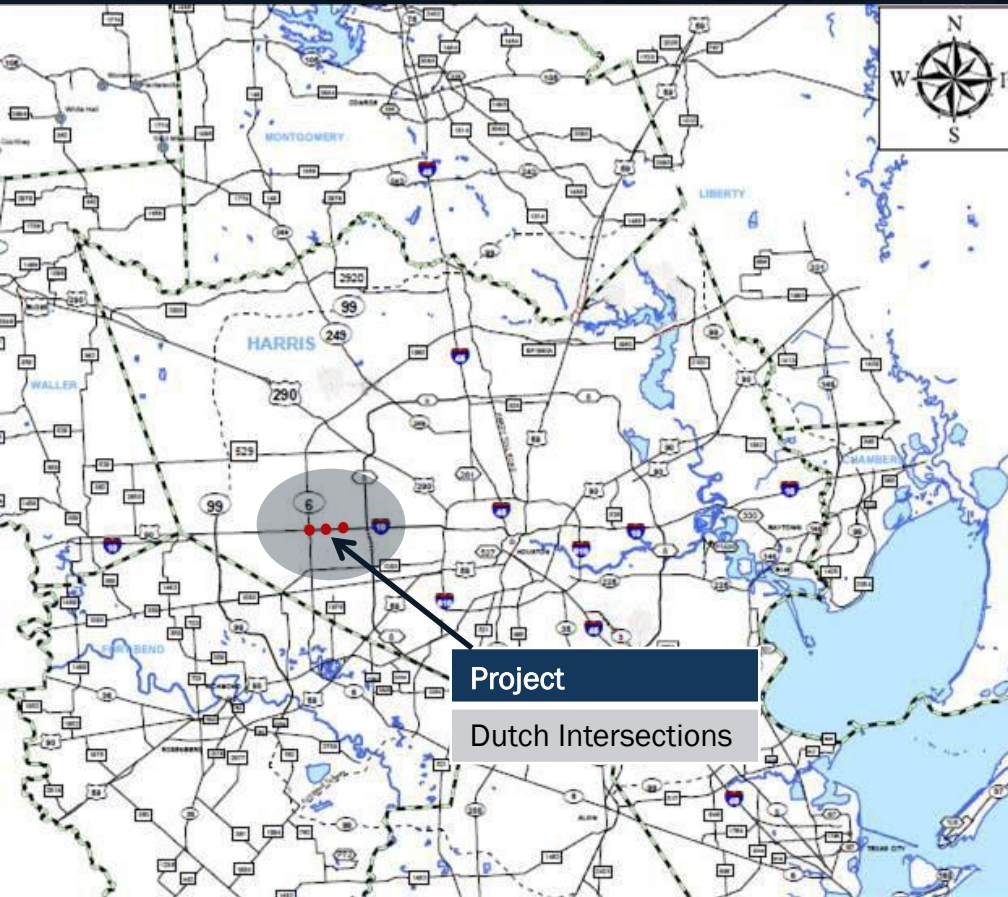
TRAFFIC

# TxDOT planning protected intersections for pedestrians and cyclists

## West Houston Cyclists Are Getting Some 'Dutch Junctions'

With its busy feeder roads and crowded thoroughfares, Houston's Energy Corridor doesn't seem like the place where you'd ride a bike to work. But a lot of people do, and officials hope a new design project will make the experience safer.

## Dutch Intersections





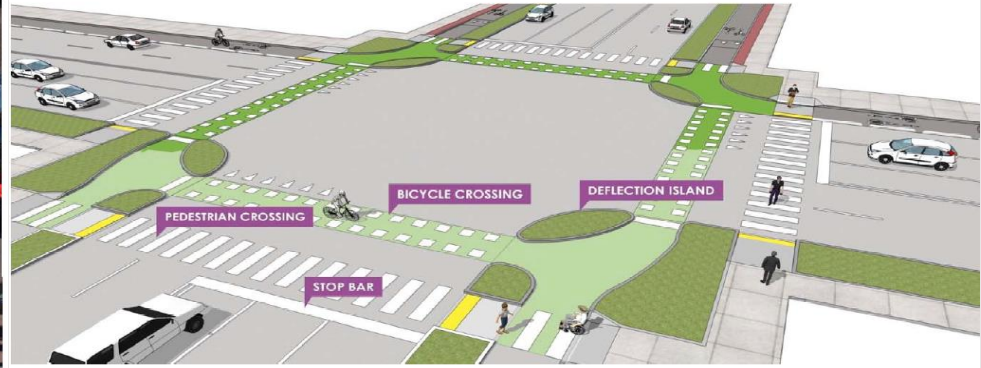
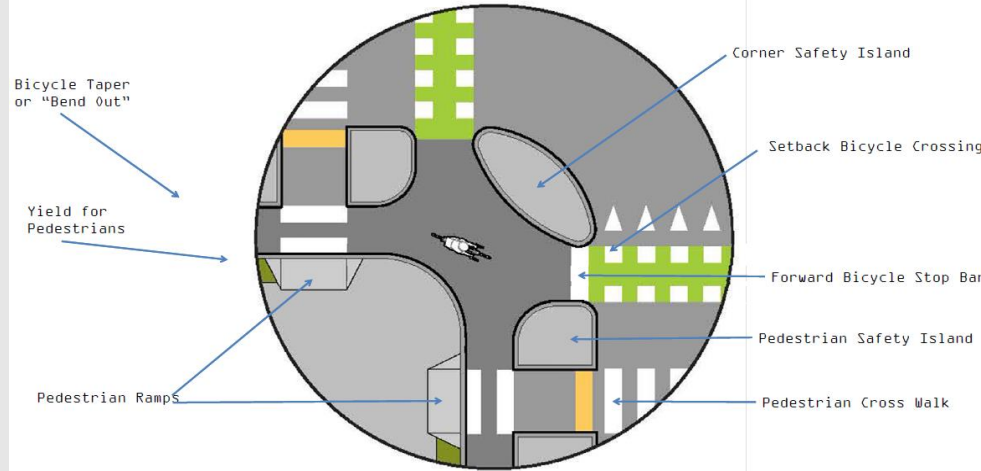
# Elements/Context of Dutch Intersections

## ■ Elements

- Separate well-marked Ped/Bike crossing
- Safety Deflection island
- Advanced Stop Bar: increases visibility
- Smaller turn radius slows down turning traffic

Mixture of a significant number of pedestrians, high volumes of traffic and intermediate or high travel speeds.

Allow pedestrians and cyclists to cross **one direction of traffic at a time**. Reducing complexity of intersection.



Source: Energy Corridor Renderings

# Dutch Intersections @ Energy Corridor

- Deflector Island & Signal/Timing (signal delay)
- Crosswalk Enhancement
  - High visibility crosswalk
  - Separate crossing ped/bike
  - Pedestrian Signal
- Advanced Stop Bar



Source: Energy Corridor Renderings



- 3 intersections (\$3M)
  - Dairy Ashford
  - Eldridge Parkway
  - Highway 6

- Signal delay
- Safety Deflector Island
- 10' Wide Crosswalks
- Stop bar



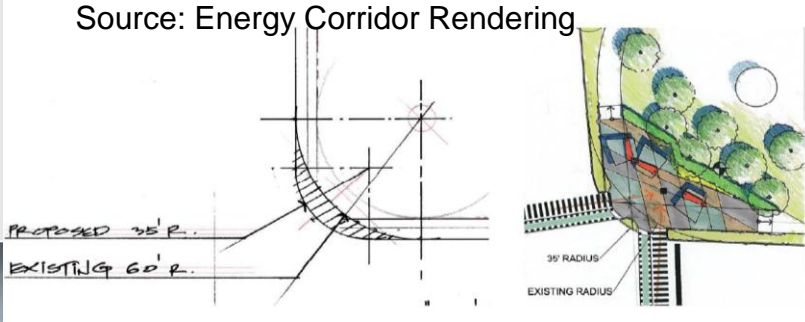
Pedestrian Crosswalk      Bicycle Crosswalk

**Movements more predictable: Reduces conflict**



# Turning Radius

Source: Energy Corridor Rendering



- Reduce Turning Radius
  - From 60' to 35' Radius
  - Tighter curves slows down cars
    - Seconds Delay
- Expand Pedestrian Area
  - Accommodations at complex interchanges
  - Improved lighting at pedestrian crossings.



Turning radius

# ADA Ramps



## ■ Wider ADA Ramp

- Location of push button
- Curb ramps (5' to 10')
- Continental crosswalk - pedestrian
- Elephant feet markings- bicyclists
- Detectable warning strips (ADA compliant)

Curve Ramp Type 1  
10' wide



# Lessons Learned / Questions / Further Evaluation

- Single Crosswalk
- Best to incorporate during new road reconstruction
- Mobilization & Traffic Control
  - Communication w/Neighbors



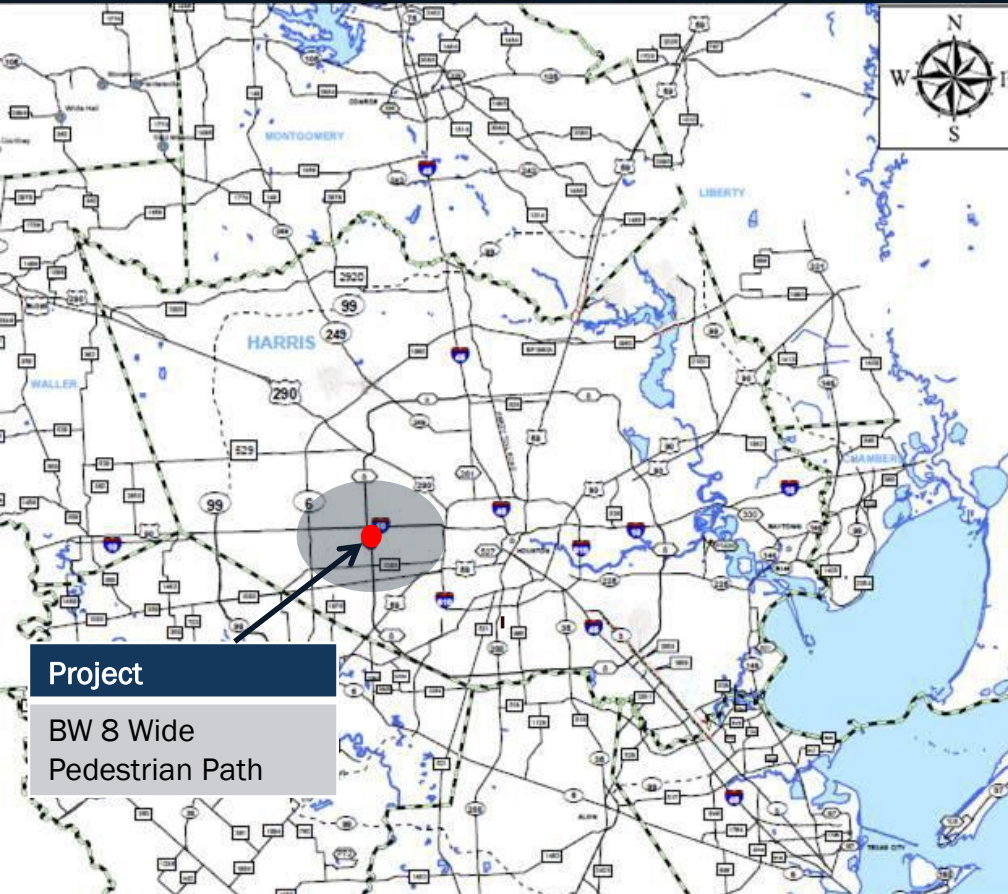
Pedestrian  
Crosswalk

Bicycle  
Crosswalk

- Freight Turning movements
- Pedestrians with disabilities
- Mixing zone: pedestrians & cyclists
- Location of crosswalk

# Location Map

## BW 8 Wide Pedestrian Path



**Project**

BW 8 Wide  
Pedestrian Path

# BW 8 Wide Pedestrian Path

- Scope of Work (8 ft wide sidewalk)
- Length
  - 0.8 miles
- Barrier Elimination
  - Crossing BW 8
- Funding \$582,000
  - 2015 Transportation Alternative Program Grant

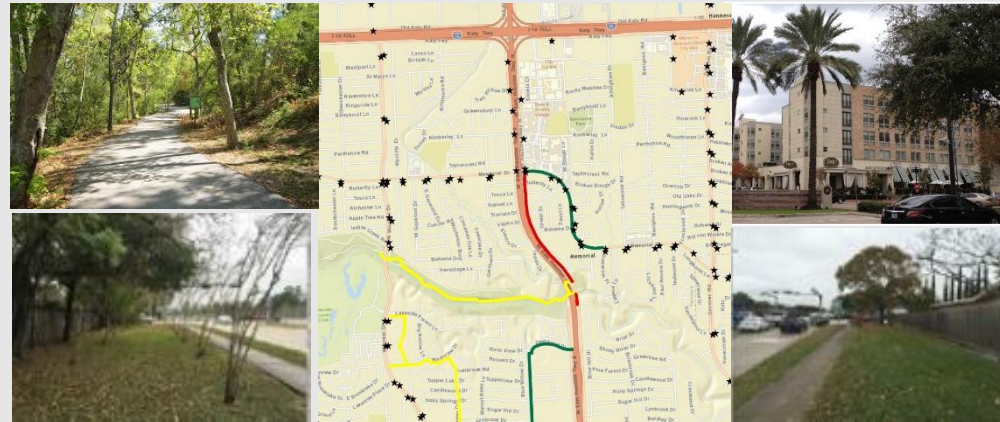


- Pedestrian Accessibility Improvements
  - Terry Hershey Hike & Bike Trail
  - CityCentre, Town & Country
  - Memorial Bend & Briar Grove Park
- Estimated Quantities
  - 3,456 sy of sidewalk (6")
  - 14 Curb Ramps
  - 1,030 LF Crosswalk pav. markings

- Milestones
  - Letting Nov. 2017
  - Est. End of Const. Aug. 2018

- Support
  - TxDOT, City of Houston, Memorial Mgt District, Superneighborhood, H-GAC

**NO BUILD  
ALTERNATIVE**  
4-foot sidewalk  
Non ADA compliant





# BW 8 Wide Pedestrian Path



## CURRENT PROJECT STATUS

Pedestrian crossings	3
Vehicular turning movements	5
Crossing Distance	341 Ft.

## PROPOSED PROJECT STATUS

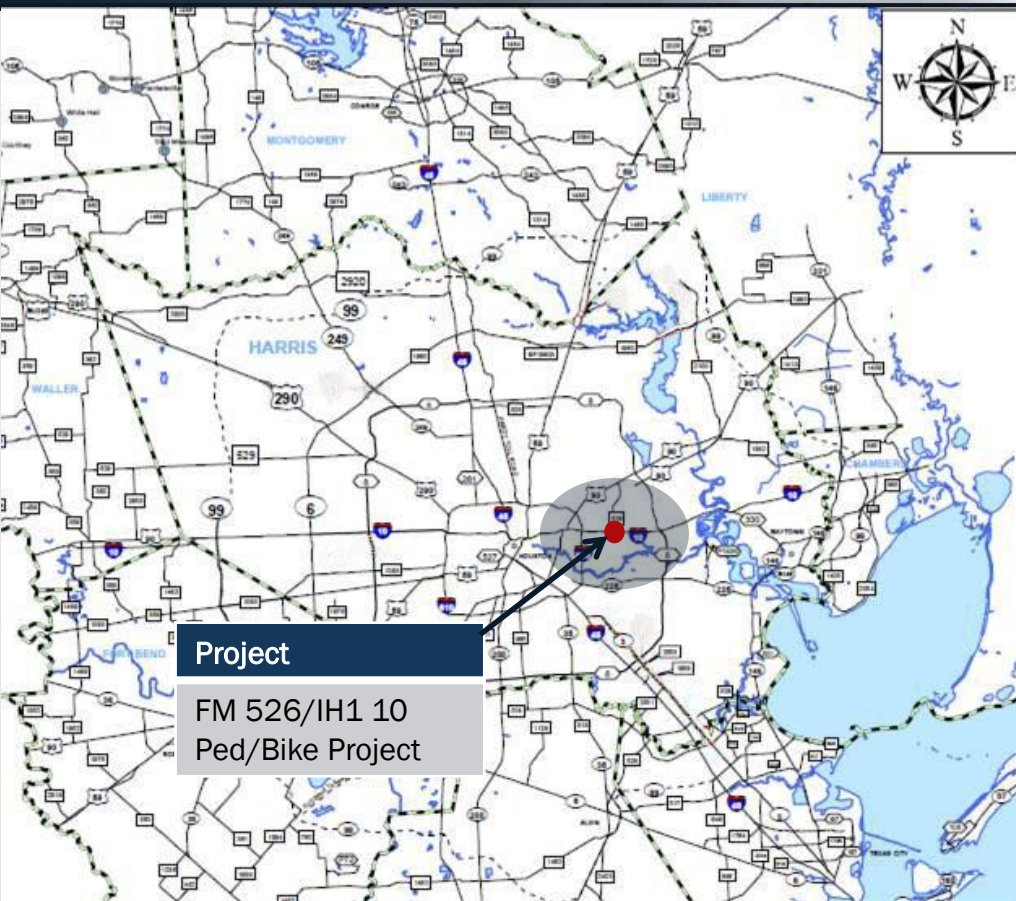
Pedestrian crossings	1
Vehicular turning movements	2
Crossing Distance	54 Ft.

SOURCE: TxDOT



# Location Map

## FM 526/IH10 Ped/Bike Project



# FM 526/IH 10 Ped/Bike Project

## ■ Scope

10 ft shared use path &  
Sidewalk connecting:

- Church
- Maxey Rd Park & Ride
- Bus Stops along IH-10
- Post Office
- Herman Brown Park
- Maxey Park
- Residential Community
- Bicycle Facilities



**NO BUILD  
ALTERNATIVE**

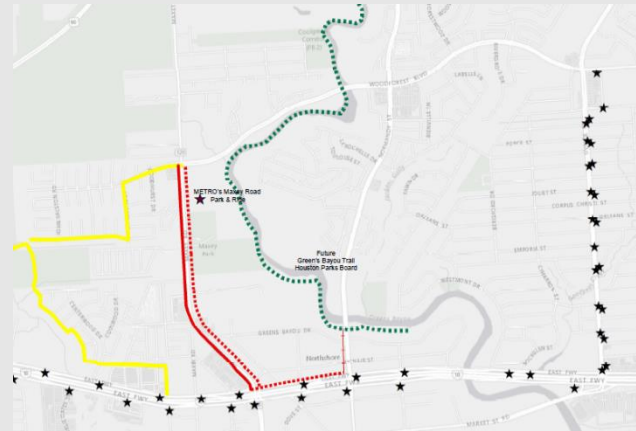
4-foot sidewalk  
Missing Sidewalks &  
Gaps in existing  
sidewalks

## ■ Benefits

- Increased safety for low-income population that walks and bikes as a means for transportation given low automobile ownership
- Multi-modal traffic to the area

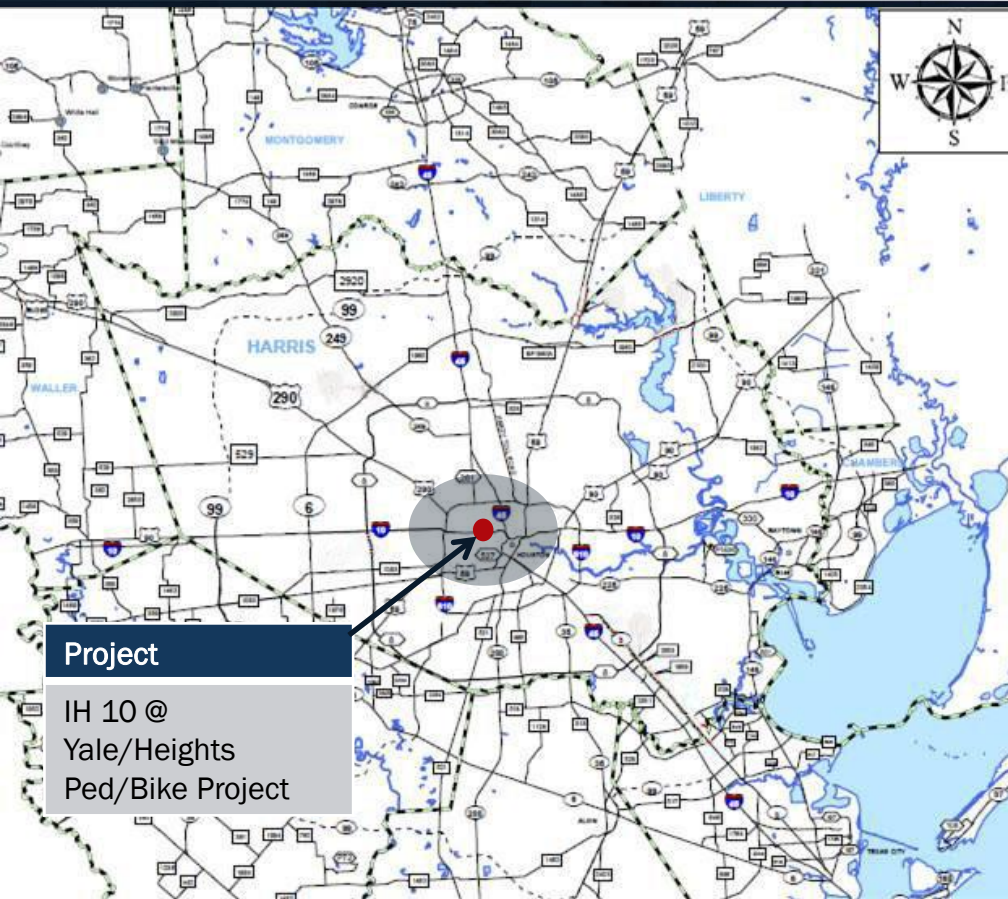
## ■ Funds (TAP 2015)

- Total: \$2,459,000
- Federal: \$ 1,967,200
- Fiscal Year 2019





# Location Map



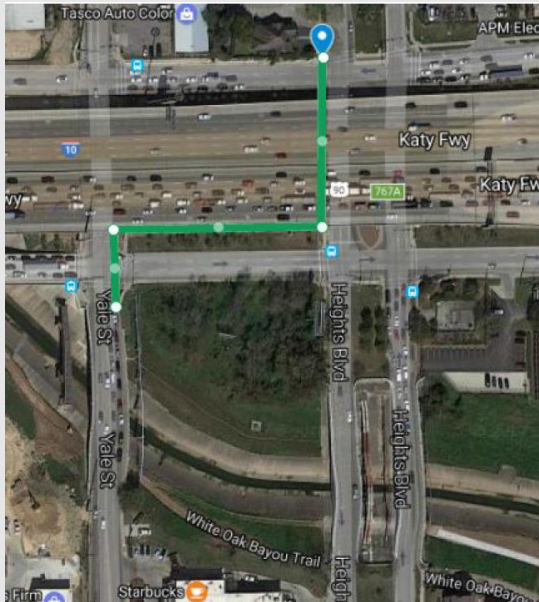
## IH 10 @ Yale/Heights Ped/Bike Connection

# IH 10 @ Yale/Heights Ped/Bike Connection

## ■ Scope

10 ft shared use path:

- Heights Neighborhood
- Commercial Local Destination
- White Oak Bayou Trail
- Bicycle Facilities



Before

After

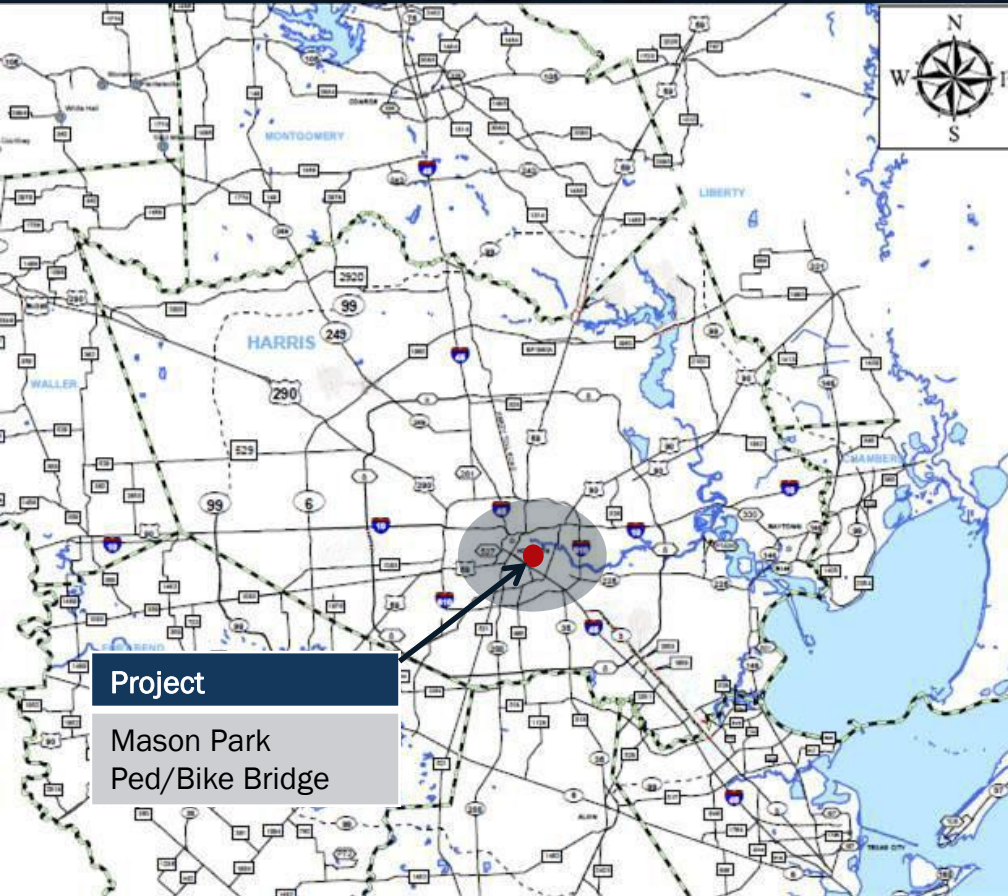
## ■ Benefits

- Enhance safety/comfort for pedestrians
- Multi-modal traffic to the area
- Eliminates gaps between existing facilities

## ■ Estimated Quantities

- 333 sy of sidewalk

## Mason Park Ped/Bike Bridge



**Project**

Mason Park  
Ped/Bike Bridge



# Mason Park Ped/Bike Bridge

From Tipps St at Evergreen Dr to 75<sup>th</sup> St

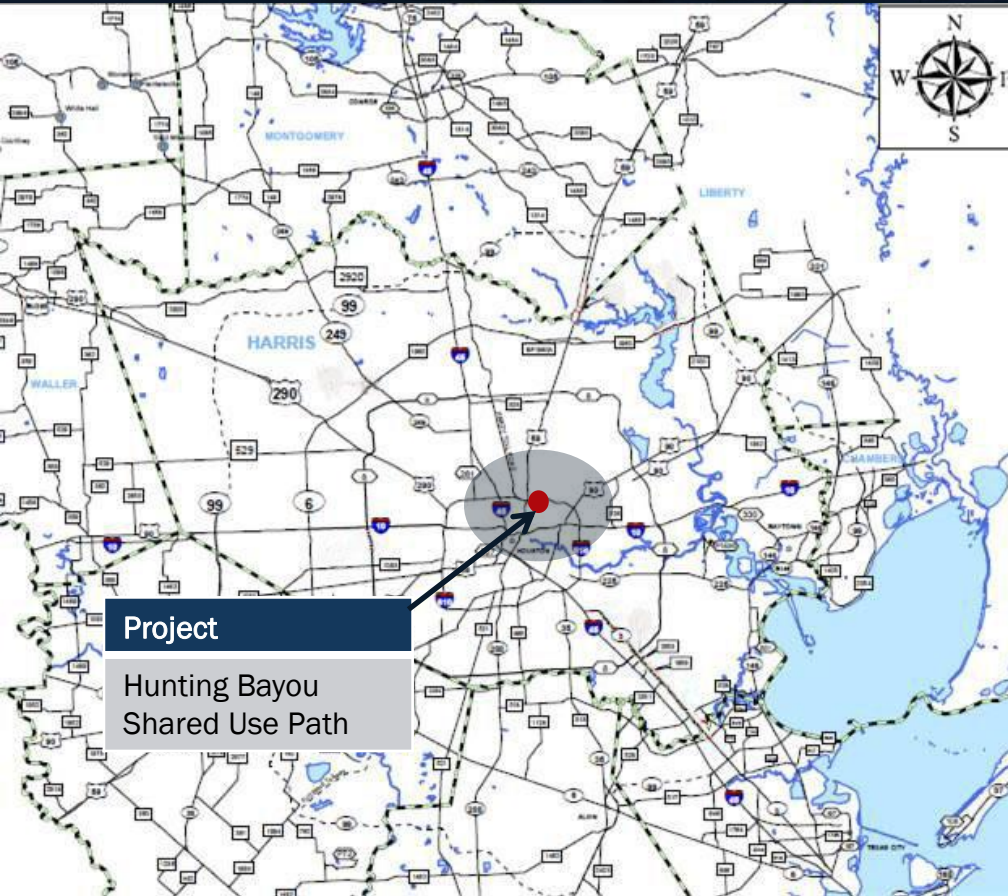
- Scope of Work (Ped & Bike Bridge)
- Length
  - 485 feet length
  - 16 feet wide
- Barrier Elimination
  - Brays Bayou
  - No Ped/bike bridge in 5 mi radius
- Funding \$5.7 M
  - 2012 Transportation Enhancement Grant
- Milestones
  - Letting June 2016
  - Est. End of Const. Aug. 2018
- Support
  - City of Houston, Houston Parks Board, H-GAC, TxDOT

- Pedestrian Accessibility Improvements
  - East side access trails
  - Connect North & South Trails
  - Lawndale/Wayside community
- Estimated Quantities
  - 772 sy of sidewalk (6")
  - 1,090 LF Pedestrian Rail
  - 7,275 SF Bridge Slab



MasonPark Ped/Bike Bridge Rendering

## Hunting Bayou Shared Use Path



# Hunting Bayou Trail

From Lockwood Dr to Sayers St

- Scope of Work (10 ft shared use path)
- Length
  - 4,500 Feet
- Barrier Elimination
  - Gap in off-road shared use path
- Funding \$1.3 M
  - 2012 Transportation Enhancement Grant
- Milestones
  - Letting April 2016
  - Est. End of Const. July 2018
- Support
  - City of Houston, Houston Parks Board, H-GAC, TxDOT

- Pedestrian Accessibility Improvements
  - Hutcheson Park
  - Mickey Leeland Park
- Estimated Quantities
  - 5,193 sy of shared use path (6")
  - 500 LF Pedestrian Rail (TY PR1)
  - 17 Curb Ramps





- 17 Houston District Facilities
  - ADA Checklist
  - Readily Achievable Barrier Removal
- 236 Barriers Identified
  - 181 “Quick Fixes”
  - 33 “Major Barriers”
    - Require additional funding
- Compliance Issues Examples
  - Cross Slopes
  - Heaves
  - Obstructions
  - Run Slope or Grade
  - Bus stop pads
  - Bus stop sidewalk Connectivity
  - Missing ramps
  - Non-Compliant ramps
  - Detectable Warning Surfaces
  - Landing issues
  - Ramp transitions

# **Ana Ramirez**

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