

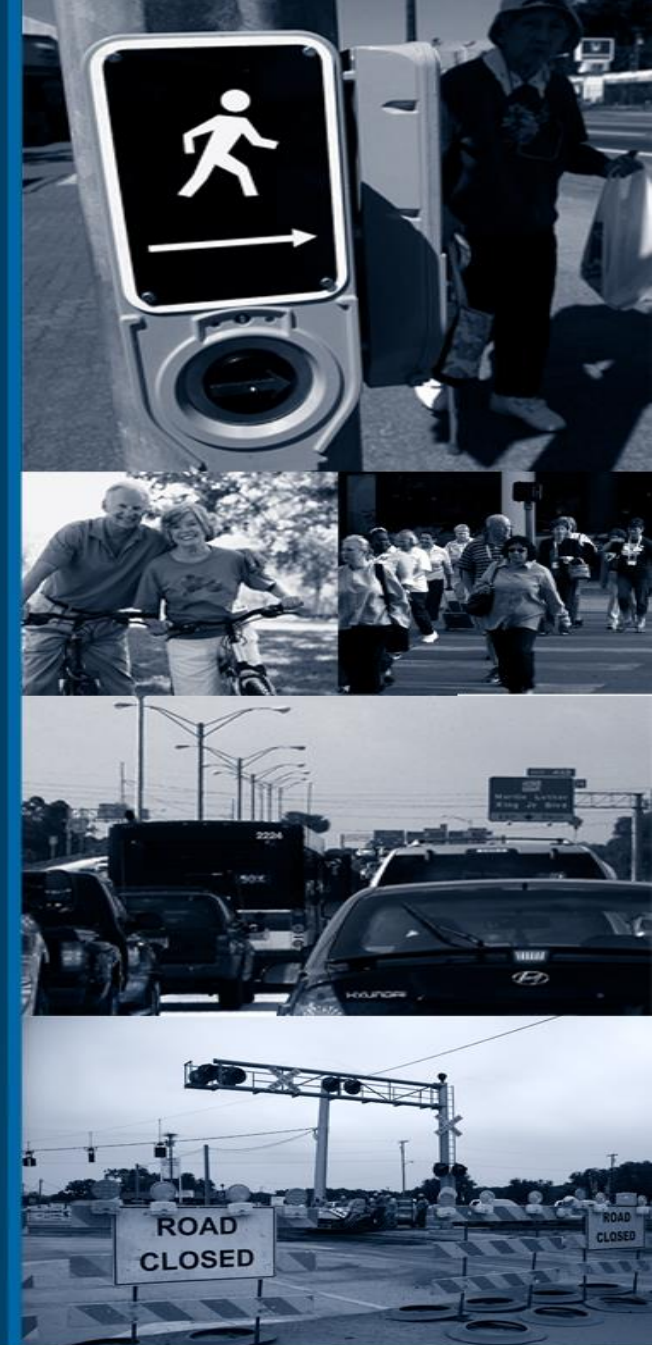


# City of Tampa Roundabouts along 40<sup>th</sup> Street

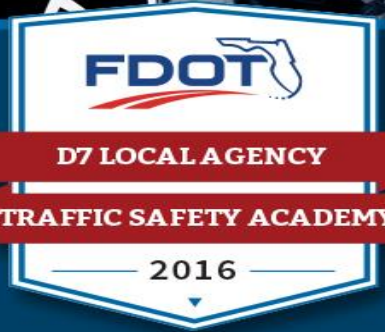
By City of Tampa

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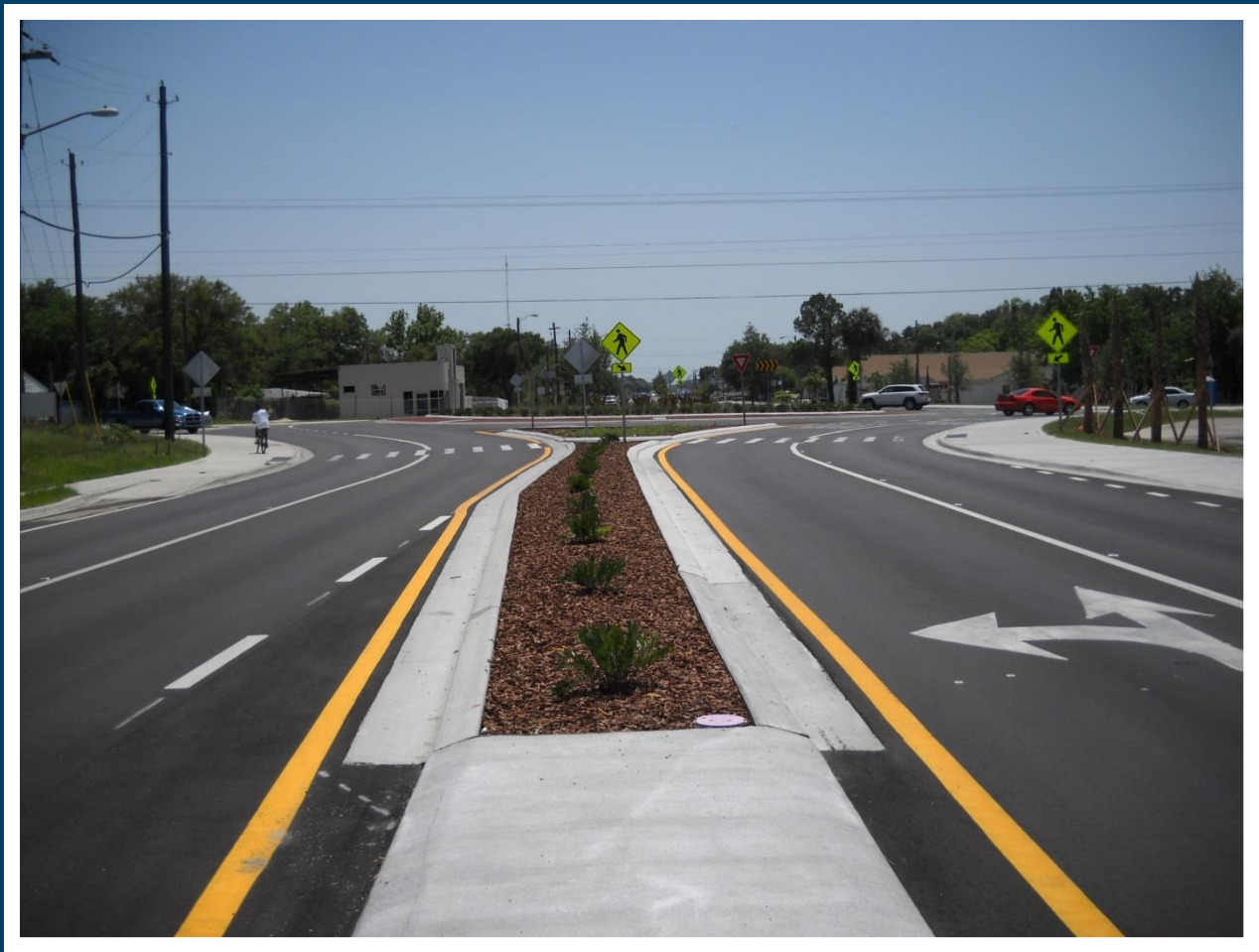


*“Driving Down Fatalities Through Knowledge Sharing”*



# Overview

- Planning
- Public Engagement
- Design
- Construction
- Post-Construction Benefits



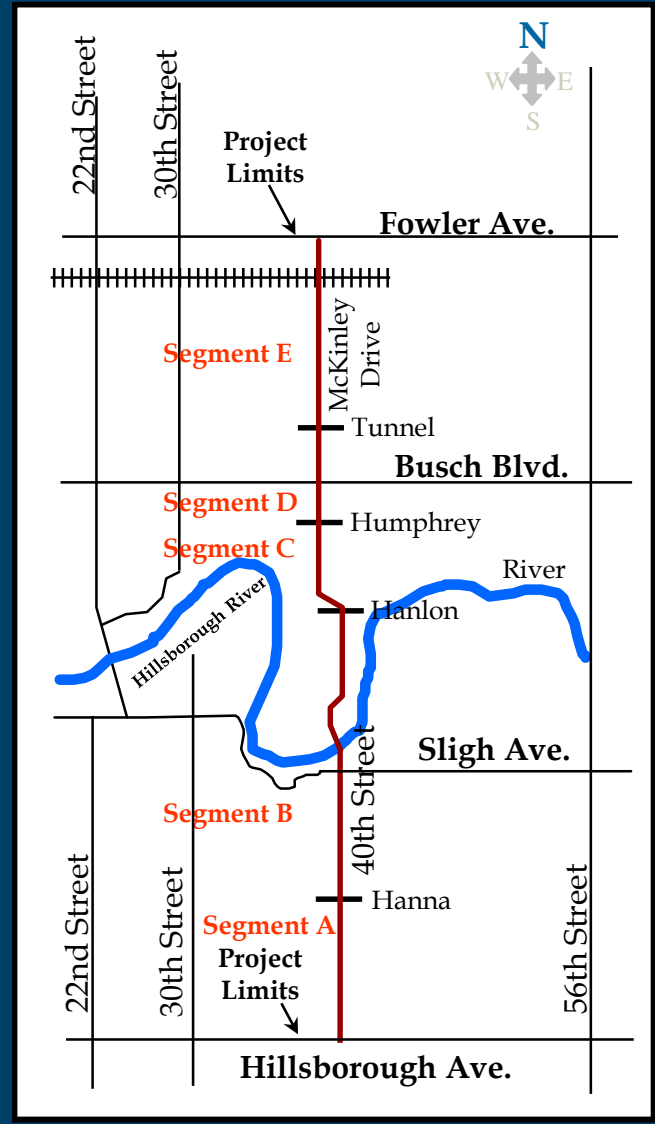
*“Driving Down Fatalities Through Knowledge Sharing”*

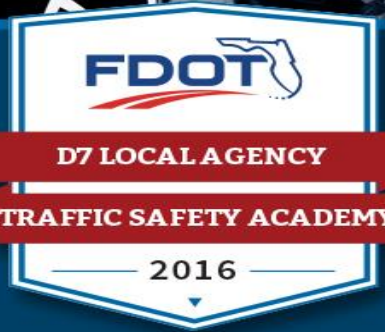


# Planning Stage

- PD&E Study began in 1995
- Project length 4.1 miles
  - Hillsborough Ave to Fowler Ave

Project Partners:

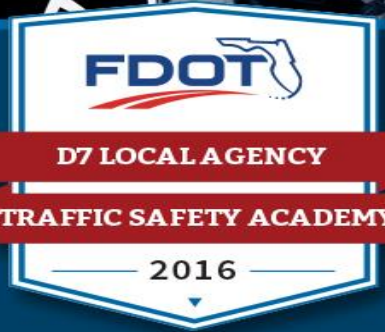




# Planning Stage Operational Conditions

- Rural two-lane roadway
- Connected to I-4 and Leroy Selmon Expressway
- Bridge was obsolete

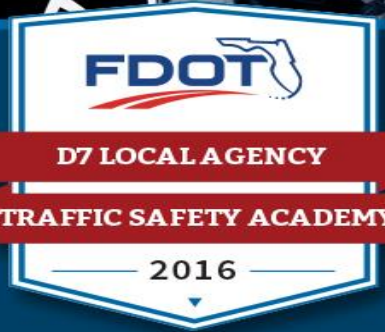




# Planning Stage Operational Conditions

- Provides access to:
  - Businesses
  - Multi-family units
  - Residential divisions
  - Community facilities





# Planning Stage Operational Conditions

- **Transit**

- 49 Bus stops  
(636 passengers/day)
- Main school bus route





# Planning Stage Capacity

## 1995 Directional Level of Service

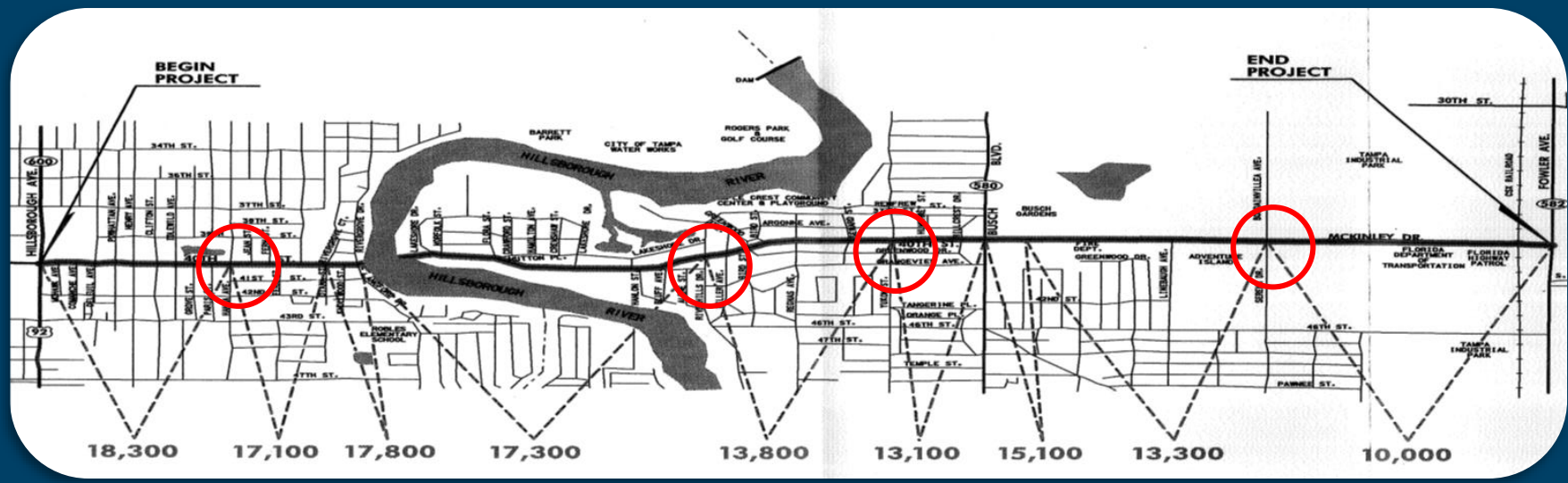
- Capacity analysis
  - Multiple segments operating below city standard LOS D

Location	AM Peak Hour LOS Northbound	PM Peak Hour LOS Northbound	AM Peak Hour LOS Southbound	PM Peak Hour LOS Southbound
Between Hillsborough Avenue and Hanna Avenue	B	E	D	D
Between Hanna Avenue and Yukon Street	B	D	C	E
Between Yukon Street and Busch Boulevard	E	F	C	C
Between Busch Boulevard and Busch Gardens Entrance	E	F	F	F
Between Busch Gardens Entrance and Bougainvillea Avenue	B	B	C	B
Between Bougainvillea Ave and Fowler Avenue	C	C	B	B



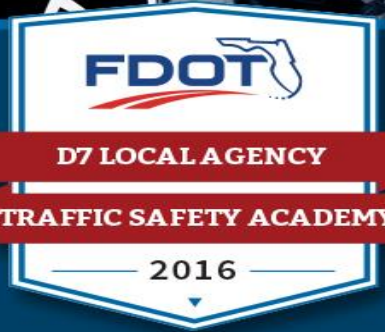
**FDOT**  
D7 LOCAL AGENCY  
TRAFFIC SAFETY ACADEMY  
2016

# Planning Stage Capacity



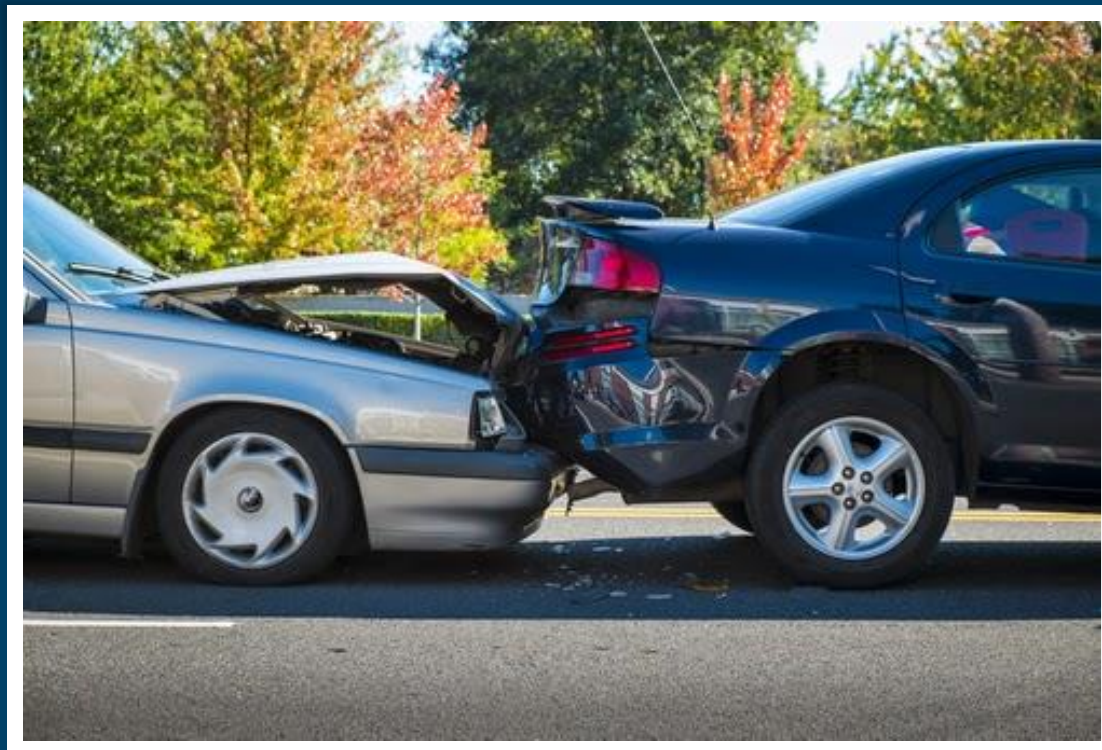
- Bougainvillea Ave and Fowler Ave- 10,000 vehicles per day
- Hillsborough Ave. and Hanna Ave- 18,300 vehicles per day

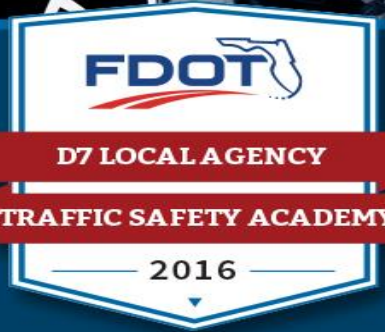




# Planning Stage Safety

- 826 crashes (1992-1994)
  - Eight fatalities
  - Rear end crashes
  - Careless driving
  - Lack of bike-ped facilities





# Planning Stage Future Growth

- No Action Alternative
  - Most segments expected to operate at or below LOS D by 2020

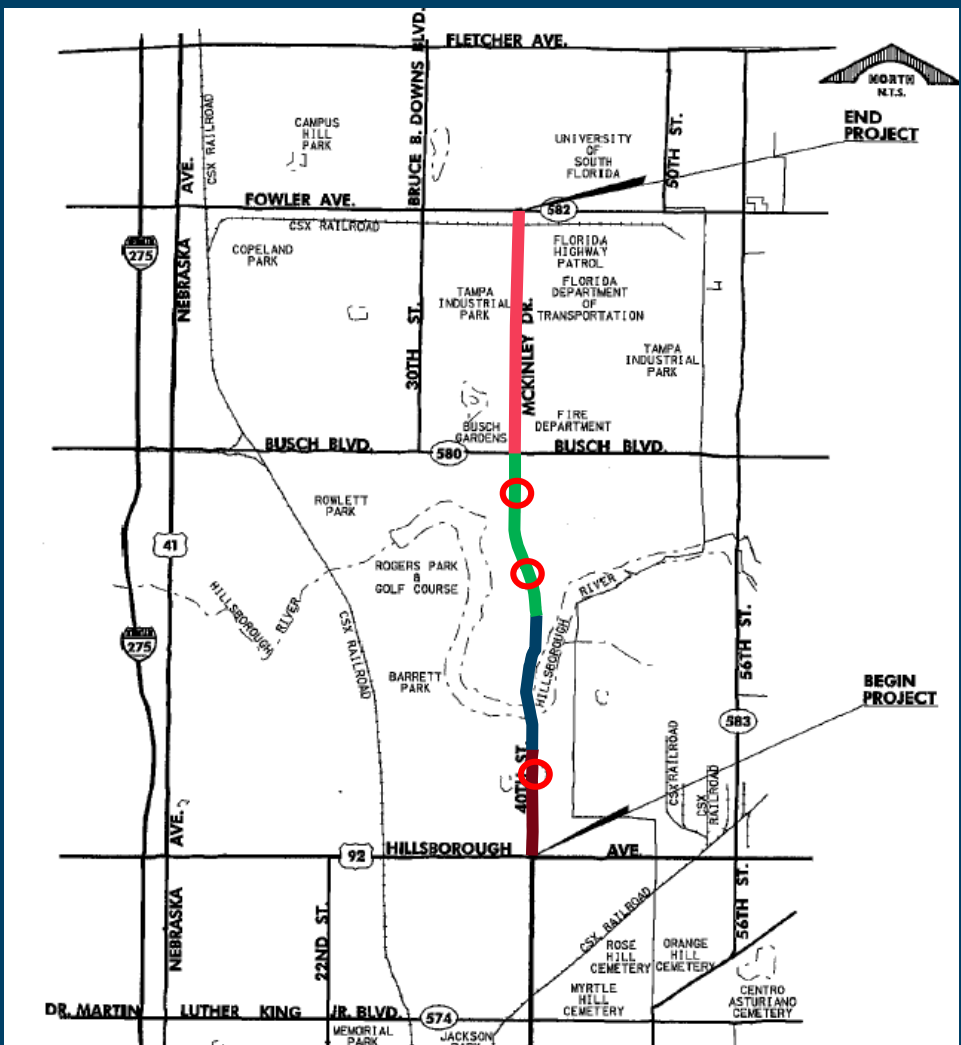
**2020 Directional Segment Level of Service  
(No-Action Alternative)**

Location	Northbound	Southbound
Between Hillsborough Avenue and Hanna Avenue	E	C
Between Hanna Avenue and Yukon Street	C	F
Between Yukon Street and Busch Boulevard	F	C
Between Busch Boulevard and Busch Gardens Entrance	F	F
Between Busch Gardens Entrance and Bougainvillea Avenue	D	D
Between Bougainvillea Ave and Fowler Avenue	D	D

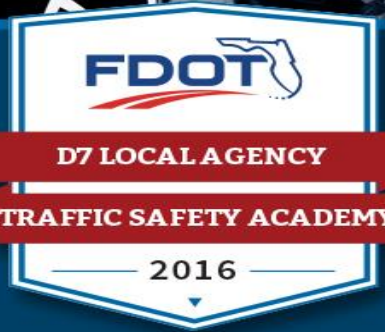


# Planning Stage Evaluation of Alternatives

- Alternatives:
  - Four lane expansion
  - Five lane expansion
  - Four lane expansion with multi use path
- Preferred alternative
  - Four lane divided
  - Roundabouts
  - Bike/Ped features



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# Planning Stage

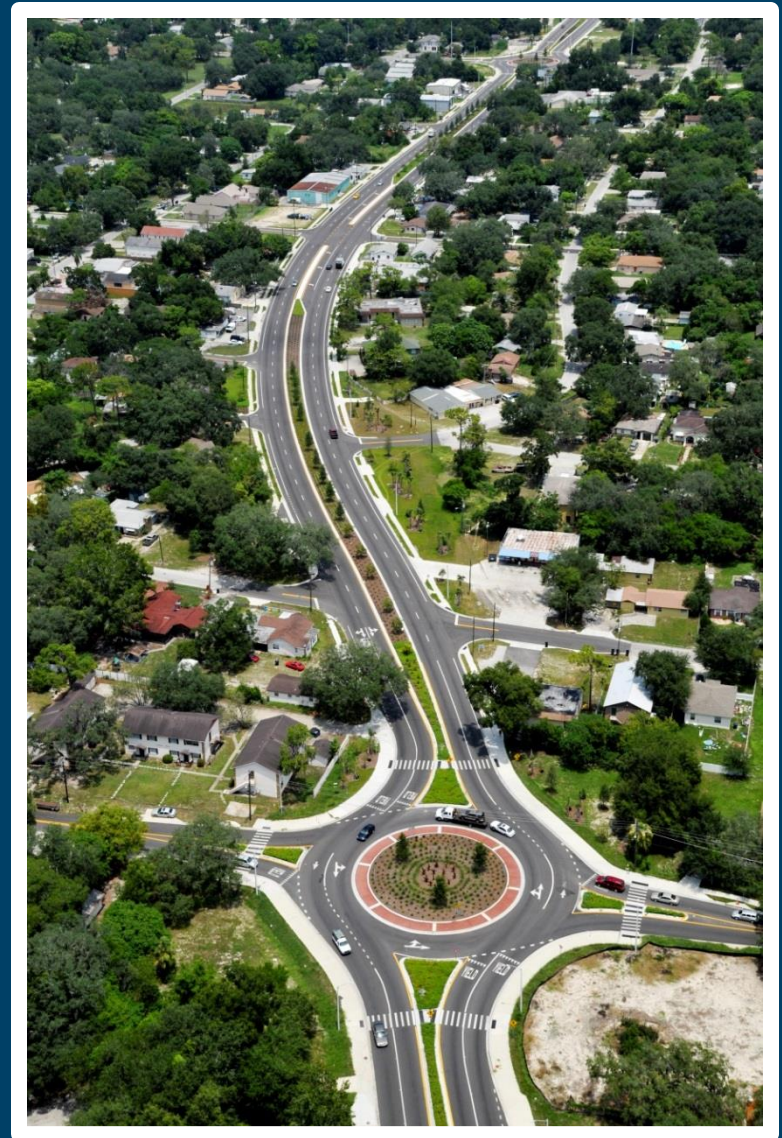
## The Preferred Alternative

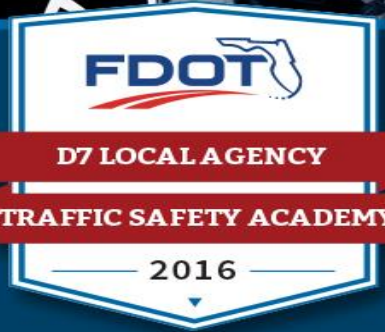
### Reduces

- Noise impacts
- Number of parcels impacted
- Contaminated site involvement
- Vehicle speed
- Conflict points

### Enhances

- Traffic calming effects
- Modal opportunities
- Aesthetic values
- Access opportunities
- Economic opportunities

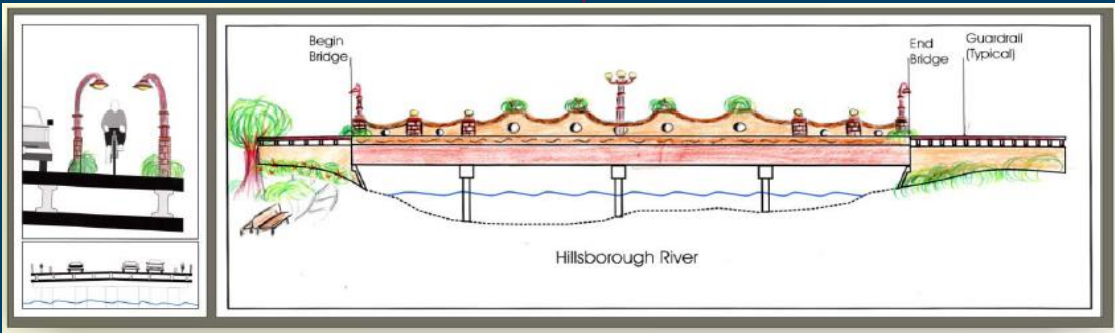




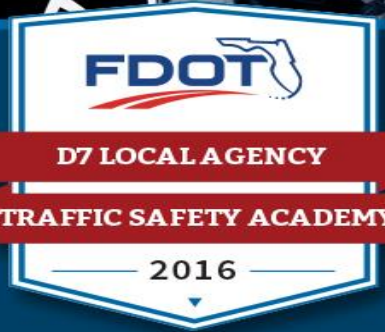
# Public Engagement

- Workshops
  - Monthly meetings
  - Design contest
  - Public hearing (May 1997)

40<sup>th</sup> Street



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# Public Engagement

## Concerns and responses

Concern	Response
People will not know how to use roundabouts	73% of public responses positive after roundabout construction
Roundabouts will increase accidents	Roundabouts can reduce crashes 30-50%
Roundabout will not slow traffic	Roundabouts encourage speed reduction and consistency
Roundabouts do not provide traffic breaks	Roundabouts give all movements equal priority.



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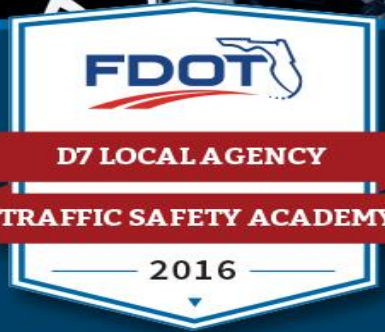


# Public Engagement Input

- Access
  - Median openings
- Beautification
  - Vegetative buffers
  - Landscaped medians
- Street lighting
  - Safety improvement
  - Crime reduction



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# Public Engagement Roundabouts and EMS

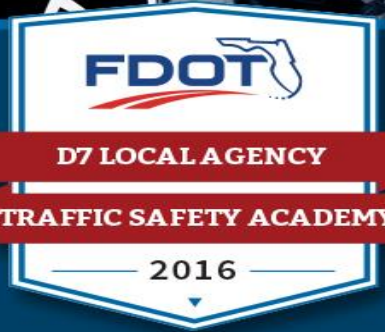
- Improved EMS response time
- Did not affect EMS maneuverability

“... response from the field states that the roundabout locations are of appropriate size to accommodate the fire apparatus utilized by Tampa Fire Rescue...”

- Nick LoCicero, EFO  
Assistant Chief-Operations  
City of Tampa Fire Rescue

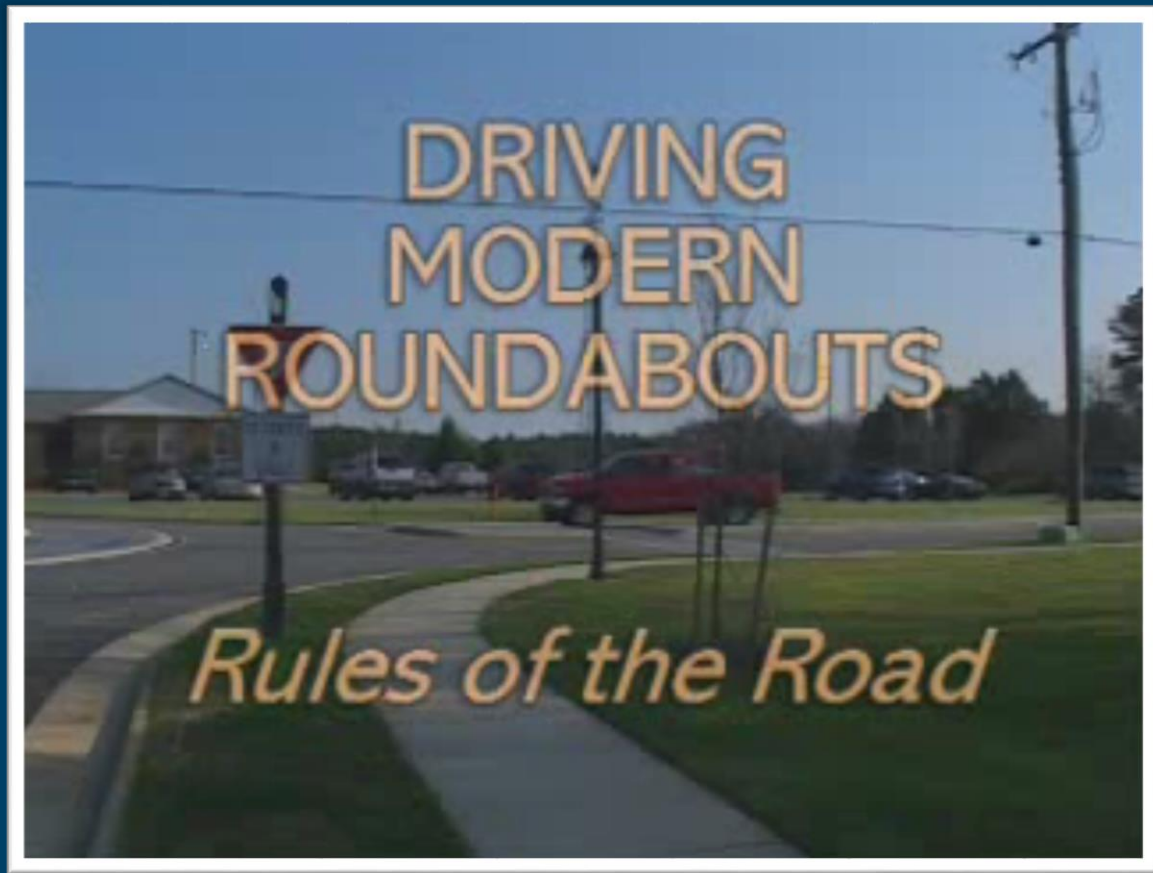


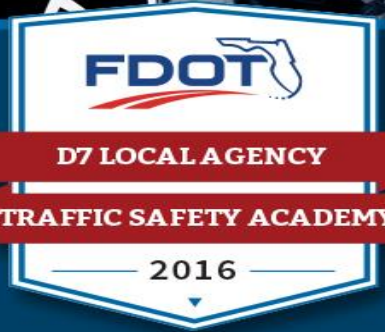




# Public Engagement

- Education
  - Virginia State Police video on roundabouts
  - Helped to educate residents
- Enforcement
  - Minimal number of fines issued
  - Purpose to provide feedback





# Public Interaction

## Lessons Learned

- Early public involvement
- More frequent public meetings



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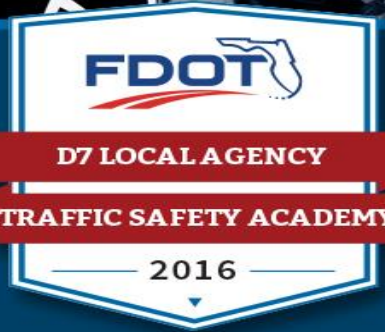


# Design Stage

## Roundabout Analysis & Design Vehicle

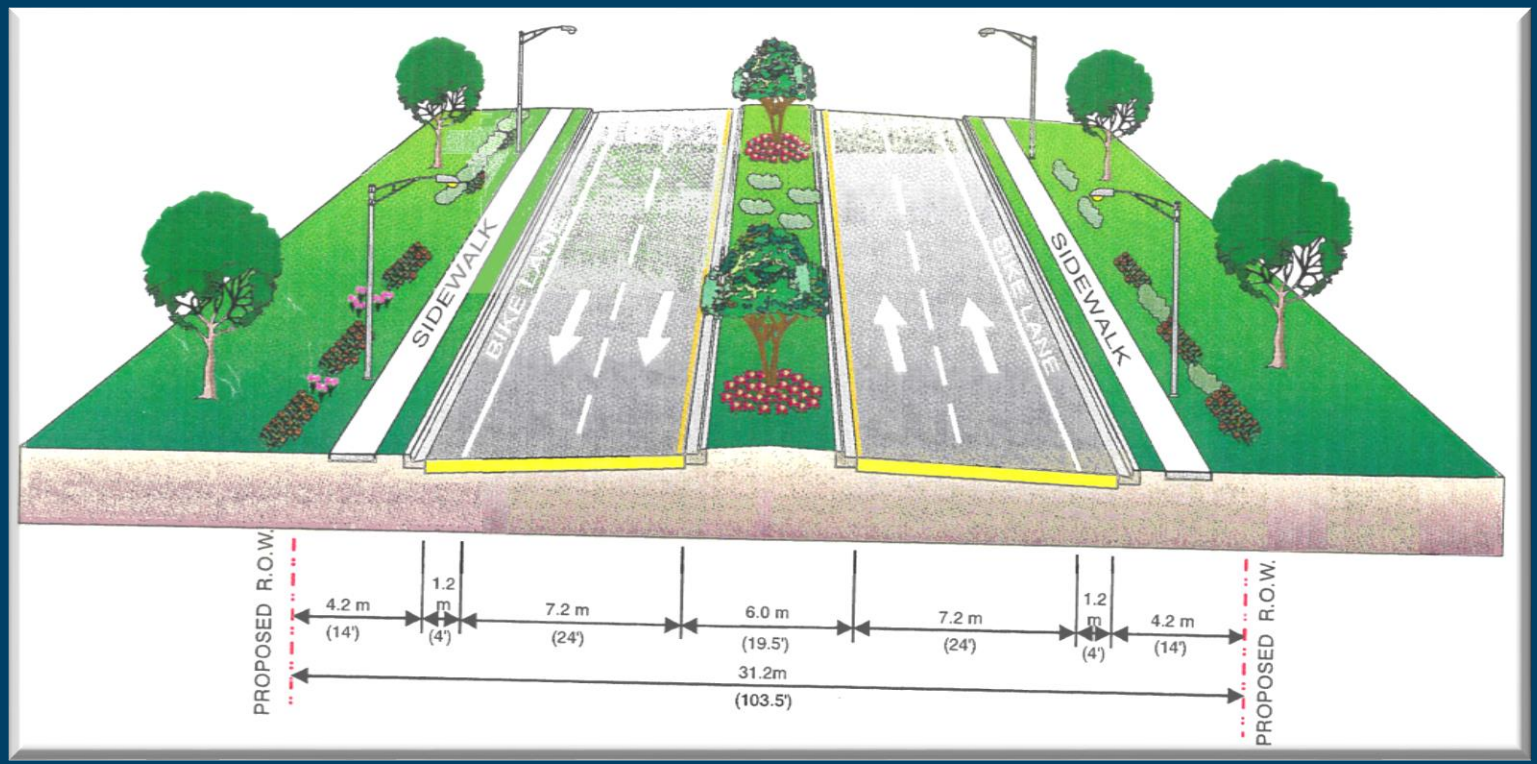
- The Florida Roundabout Guide
- Minimal data available for multi-lane roundabouts
- Design vehicles

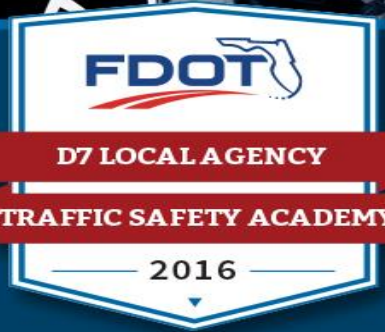




# Design Stage Right-of-Way (ROW)

- Existing ROW footprint: 50ft – 150ft
- ROW was insufficient to accommodate a 4-lane arterial without purchasing additional ROW





# Construction Stage

- Five Segments
  - Roundabouts in A and C
- Total project cost: \$103M
  - Two lane to divided four lane
  - New Aesthetic Bridge
  - ROW acquisition
  - 60" waterline under river
  - One traffic signal added
  - Six traffic signals reconstructed
- Three roundabouts constructed

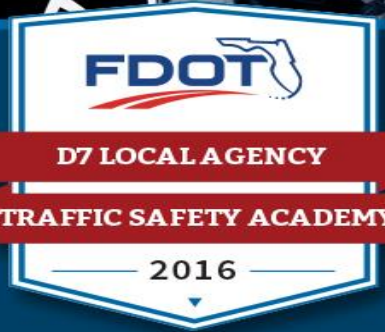
**SEGMENT E**  
Fowler Ave to Tunnel Entrance

**SEGMENT D**  
Tunnel Entrance to Humphrey St

**SEGMENT C**  
Humphrey St to Hanlon St

**SEGMENT B**  
Hanlon St to Hanna Ave

**SEGMENT A**  
Hanna Ave to Hillsborough Ave



# Construction Stage

## Segment A: Hillsborough Ave to Hanna Ave

- Construction started in January 2010 and was completed in June 2011
- Roundabout at Hanna Ave
  - New School Construction
  - Bus, vehicle, bike, and pedestrian circulation

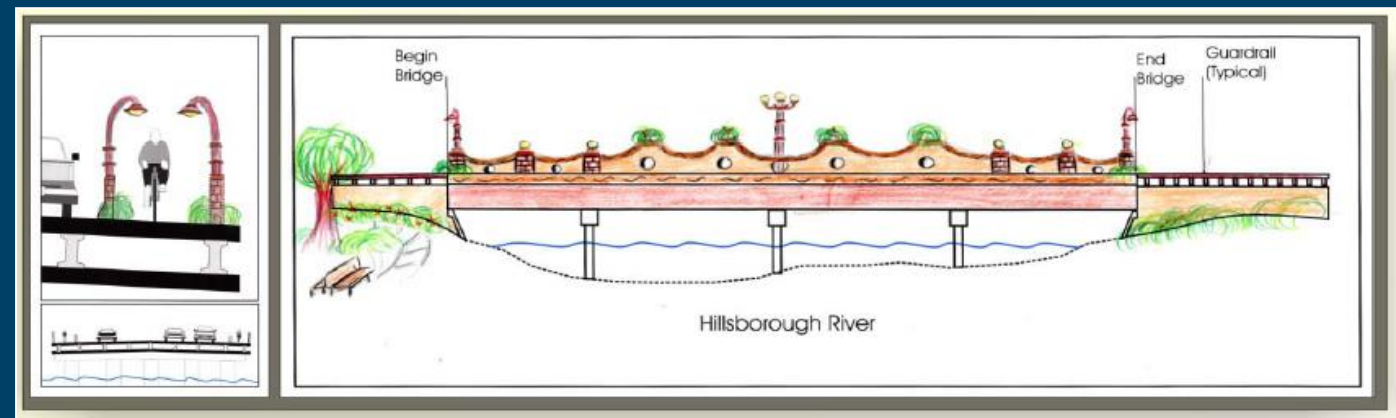




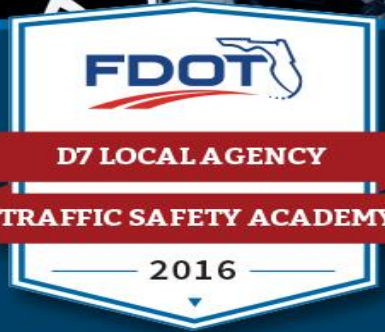
# Construction Stage

## Segment B: Hanna Ave to Hanlon St

- Bridge Reconstruction
  - Design contest
  - Completed in 2011



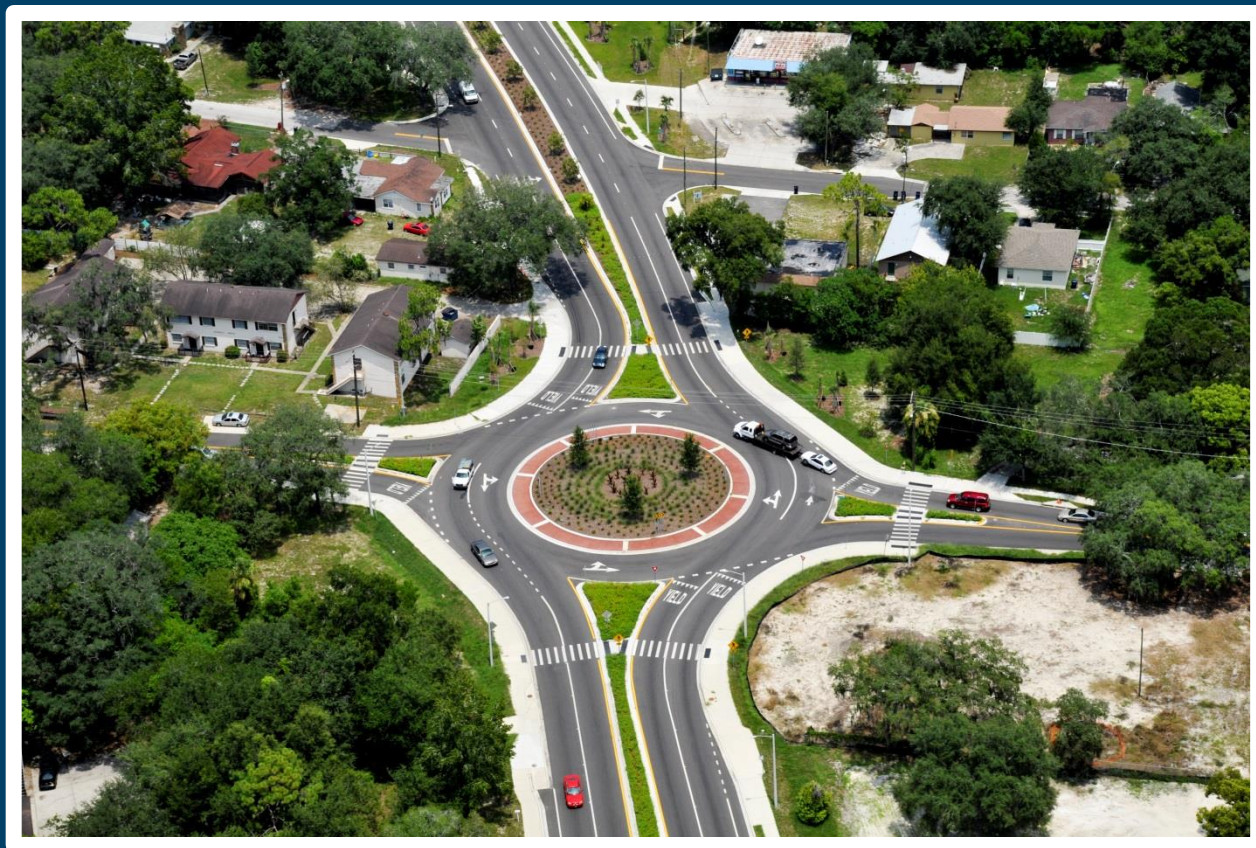
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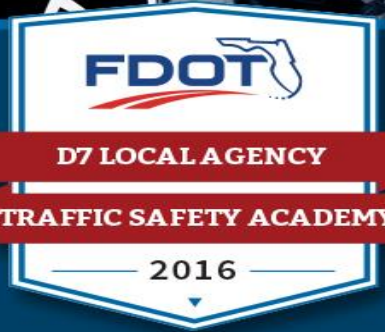
# Construction Stage

## Segment C: Hanlon St to Humphrey St

- Construction started in January 2009 and was completed in May 2011
- Roundabouts at Yukon Ave and Riverhills Dr
  - Skewed intersection at Riverhills Dr
  - Midblock crosswalk



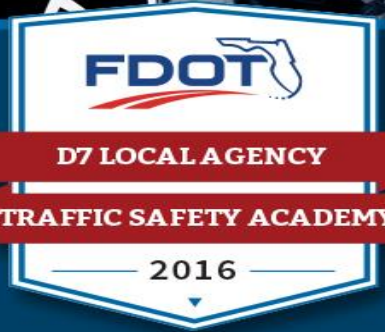




# Construction Stage Segment D&E: Humphrey St to Fowler Ave

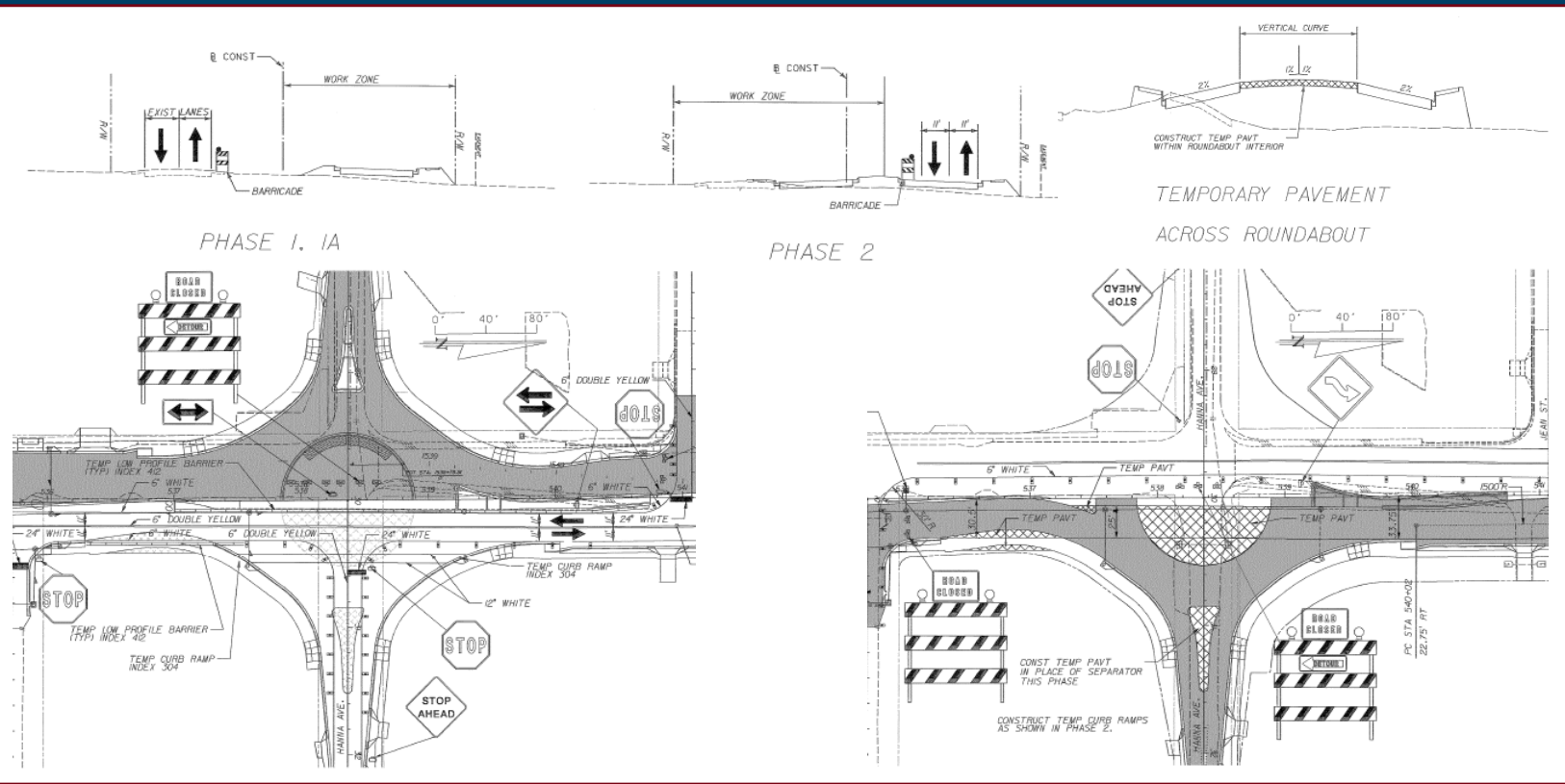
- Roundabout considered at Bougainvillea Ave





# Construction Stage Maintenance of Traffic

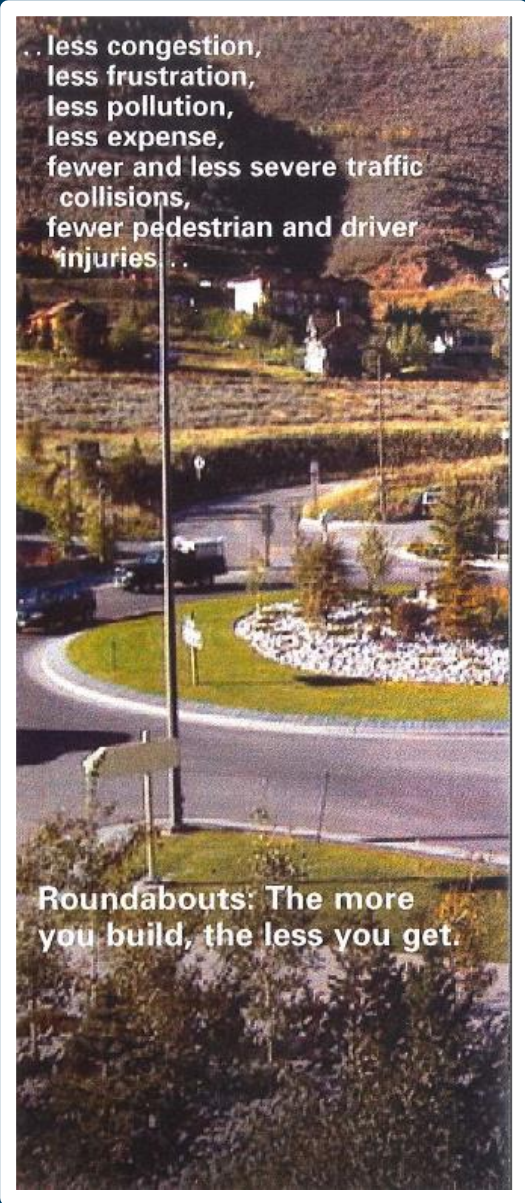
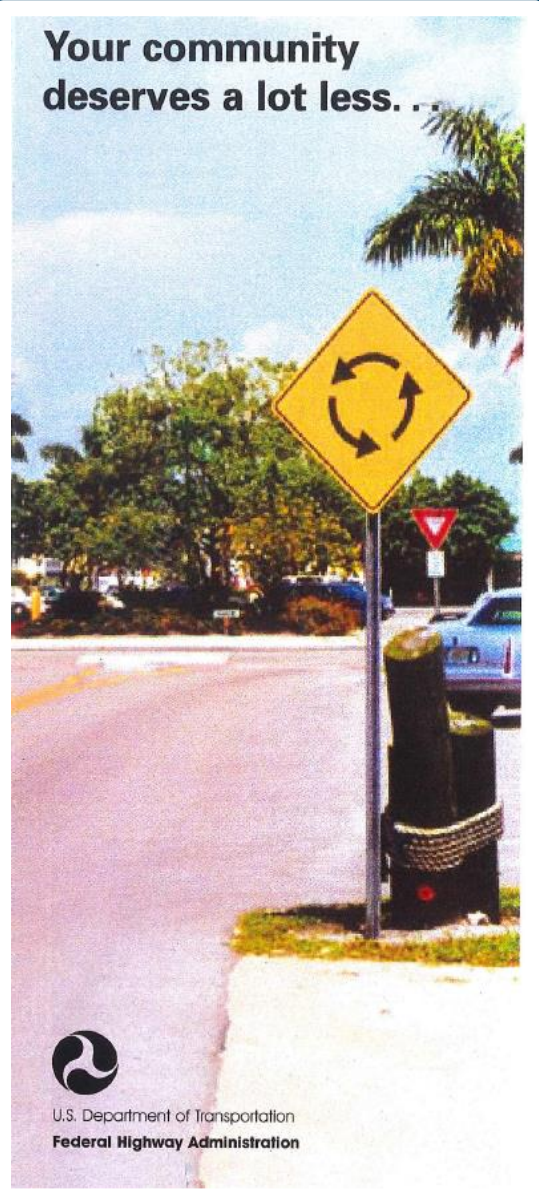
- Traffic Control Plan
  - Corridor to remain functional during construction
- Roundabouts
  - One half of facility built at a time
  - Two way traffic on completed lanes

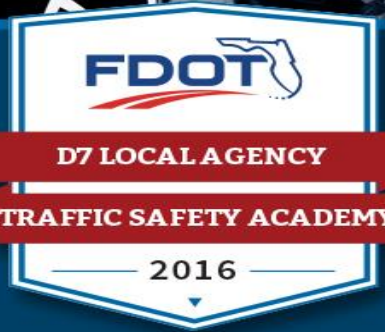




# Post-Construction User Benefits

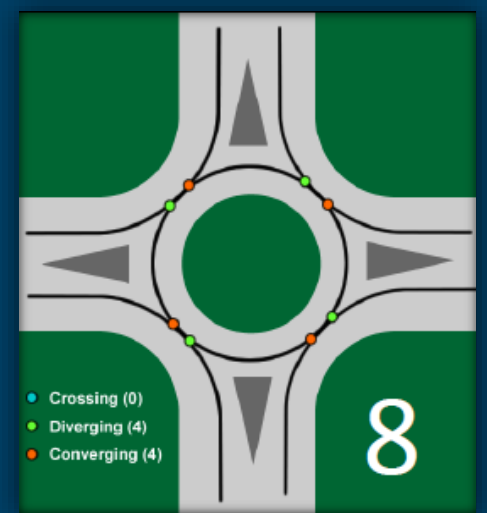
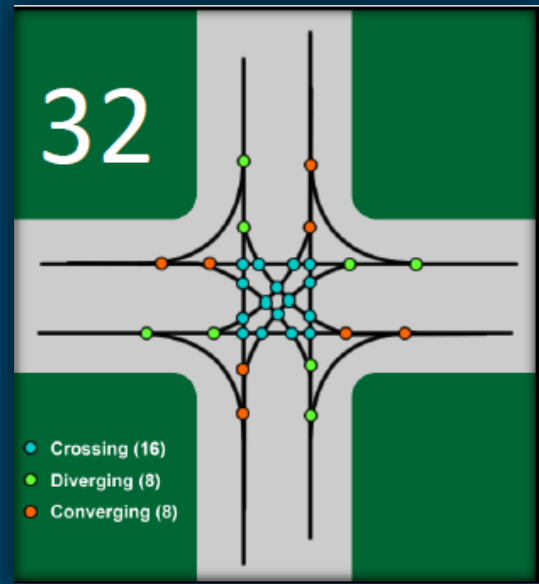
- Savings in travel time
- Cost reduction
  - Annual signal maintenance cost: \$4,500
  - Annual signal power supply cost: \$750
- Crash reduction
- Bicycle and pedestrian friendly corridor
- Community enhancement corridor
- Business economic growth





# Post-Construction Safety

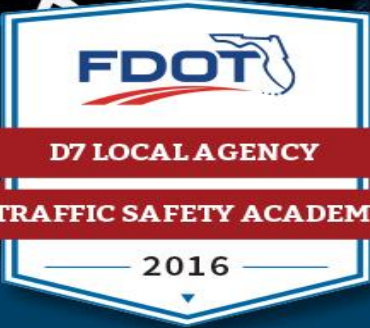
- Crashes have been reduced by 59%
- Significant reduction of rear end and angle crashes
- Fewer conflict points at intersections



Location	Before Construction Crashes	After Construction Crashes	Yearly Crash Reduction
	Yearly Average (2005-2009)	Yearly Average (2012-2014)	
40th St at Hanna Ave	26.6	11.3	57%
40th St at Yukon St	6.2	3.3	47%
40th St at E. River Hills Dr	12.2	3.3	73%
Total	15	6	59%



# QUESTIONS



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