

# PENMAN ROAD CONCEPT REVIEW



**peters yaffee**  
TRANSPORTATION & TRAFFIC ENGINEERING



**JUNE 8, 2023**



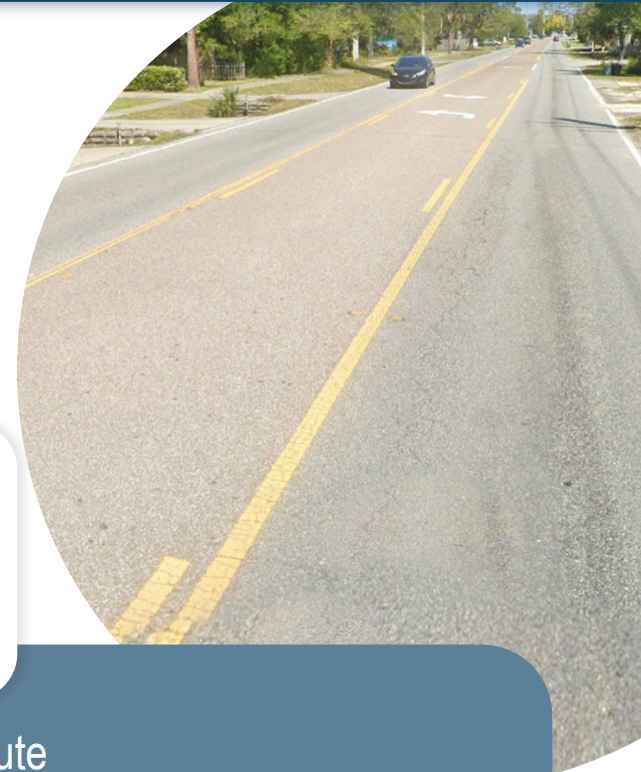


# Penman Road Corridor Existing Conditions

- 3 beach communities connected by north-south corridor
- 2.5 miles long
- 1 lane in each direction with a continuous center left turn lane
- 35 mph posted speed limit
- 3 existing signalized intersections
  - Florida Boulevard
  - Seagate Avenue
  - Arden Way
- Numerous side street connections and direct connections to residential driveways
  - Pedestrians and bicyclists
  - Multi-use path along Florida Boulevard
- Important alternate route to Third Street (SR A1A)
  - Mix of residential and commercial land uses

**Penman Road  
combines important  
multi-modal needs**

- ✓ An alternate vehicle route
- ✓ Pedestrians from schools and homes
- ✓ Bicycle use
- ✓ Access to restaurants and small businesses at the center of the corridor





# Stakeholders



DUNCAN U.  
FLETCHER  
MIDDLE SCHOOL







# Complete Streets



**Goal: Promote safe access for all users including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities**

- Determines key design features based on the anticipated users and the regional/local travel demands of the roadway
- It is an approach to planning, designing and building streets with all users in mind
  - It is not a “one size fits all” approach
  - All corridors are unique
- Elements include lane reconfigurations, traffic circles, sidewalks, bicycle lanes, multi-use paths, crossing opportunities, medians, streetscape, landscape treatments and lighting





# Complete Streets



## Context Classifications



# Complete Streets

- This is a complete streets project meant to enhance the ability of non-motorized individuals to traverse the corridor
- Why is Penman Road a good candidate for Complete Streets?
  - Multiple different users
  - Varied land uses
- Our goal is to increase multi-modal safety through a balanced combination of Complete Streets improvements

**We believe there are two significant ways to improve non-motorized traffic along the corridor:**

**1 Enhance non-motorized facilities**

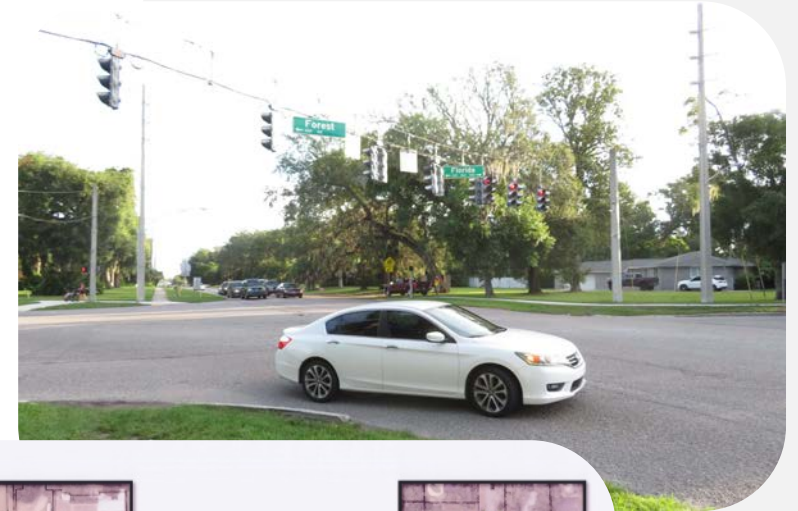
**2 Slow vehicular traffic**





# Prior Knowledge and Engagement

- Prior Study focused on options for the Florida Boulevard intersection
  - Roundabout Feasibility Study was completed in February 2019. The study examined replacing the signal with a roundabout. Two different roundabouts were analyzed – single lane roundabout and two-lane roundabout (in the NE quadrant). Both were found feasible.
- Prior Penman Road Vision Plan proposed several mini roundabouts
- We held a community meeting at COJB City Hall on December 15, 2021, where both written and verbal comments were received





# Traffic Analysis and Conclusions

- We performed a preliminary traffic analysis along Penman Road under existing conditions
  - Penman Road at Florida Boulevard
    - Excessive Delays (10+ minutes)
    - Observed 41 second exclusive pedestrian phase - outside of school times, few people use the all-red phase and when they do, they only need a few seconds
  - Vehicles exiting side streets onto Penman Road
    - Turning left out of side-streets is difficult during the peak hours
  - Speeding
    - Speed Study indicated an 85<sup>th</sup> percentile speed of 41 mph
  - Crashes (5 Year period from 2016-2021)
    - 307 total crashes - 41% Rear End, 27% Left-Turn/Angle, 13% Off Road and 8% Bike/Ped

1: Penman Rd & Beach Blvd  
Signalized Intersection

2021 Existing Traffic Conditions  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		←	←		←	←	←	←	←	←	←	←
Traffic Volume (vph)	490	966	177	4	23	975	218	248	138	15	215	147
Future Volume (vph)	490	966	177	4	23	975	218	248	138	15	215	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	595		205		315		190	200		0	210	
Storage Lanes	1		0		1		0	1		0	1	
Taper Length (ft)	50				50						50	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00
Frt		0.977				0.973			0.985			
Flt Protected	0.950				0.950			0.950		0.950		
Satd. Flow (prot)	1770	4968	0	0	1770	4948	0	1770	1835	0	1770	1863
Flt Permitted	0.950				0.950			0.950		0.950		
Satd. Flow (perm)	1770	4968	0	0	1770	4948	0	1770	1835	0	1770	1863
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			34			31			3			
Link Speed (mph)			35			35			35			35
Link Distance (ft)			576			542			400			601
Travel Time (s)			11.2			10.6			7.8			11.7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	490	966	177	4	23	975	218	248	138	15	215	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	490	1143	0	0	27	1193	0	248	153	0	215	147
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	R NA	Left	Left	Right	Left	Right	Left	Left	Left
Median Width(ft)	16				16			12			12	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9		15		9		15		9	15
Number of Detectors	1	2	1		1	2		1	2		1	2
Detector Template	Left	Thru	Left		Left	Thru		Left	Thru		Left	Thru
Leading Detector (ft)	20	100	20		20	100		20	100		20	100
Trailing Detector (ft)	0	0	0		0	0		0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0		0	0		0	0
Detector 1 Size(ft)	20	6	20		20	6		20	6		20	6
Detector 1 Type	Ci+Ex	Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)												
Detector 2 Size(ft)												
Detector 2 Type		Ci+Ex				Ci+Ex			Ci+Ex			Ci+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Prot	NA			Prot	Prot		Split	NA		Split	NA
Protected Phases	1	6			5	5		2	4		4	8





# Traffic Analysis and Conclusions

- Penman at Florida Boulevard
  - Recommend a single-lane roundabout which will reduce delays on Penman to one minute while slowing traffic significantly to allow safer pedestrian movements
  - We would still have crossing guards assist students in crossing the road safely
- Vehicles exiting side streets onto Penman Road
  - Recommend installing a median to not allow direct lefts out of many locations and mini roundabouts to allow relatively convenient U-turning locations
  - Reduces the number of conflict points for motorists and non-motorists on the corridor, reduces delay on the side-street, and is expected to result in acceptable level of service
- Speeding/Crashes
  - The landscaped median and mini roundabouts should reduce speeding
  - Crashes should be significantly reduced, through the elimination of angle conflicts, the removal of traffic signals, enhanced pedestrian and bicycle facilities, mid-block crossings and lighting





# Proposed Conceptual Design Elements

## Continuous landscaped median

*Right in/right outs*

- ✓ Improves safety with elimination of continuous left turn lane
- ✓ Slows traffic
- ✓ Provides pedestrian refuge
- ✓ Reduces conflict points
- ✓ Reduces delays on side streets



Mayport Road







# Proposed Conceptual Design Elements

## Mini-roundabouts

*Inscribed Diameter of 90'*

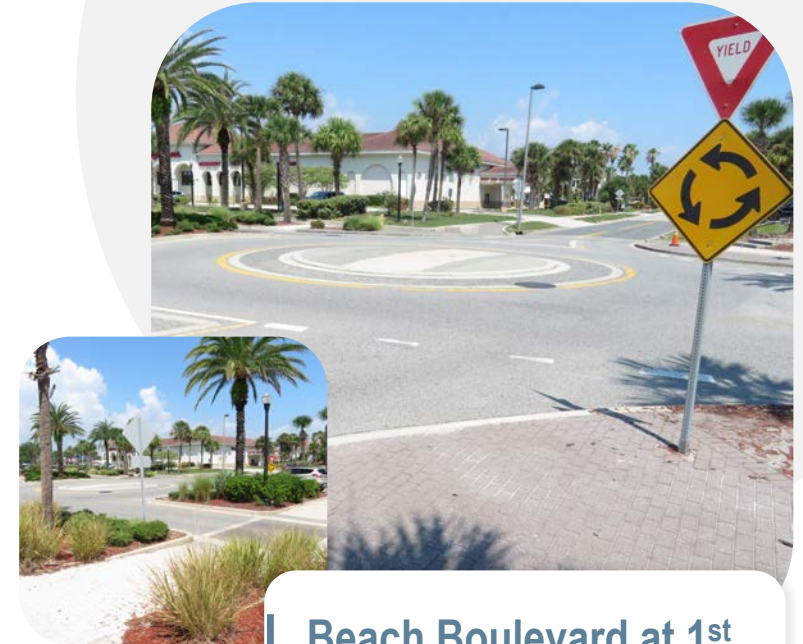
*Design vehicles include delivery truck, car with boat trailer, school bus (S-Bus-40) and a WB-40 (utilizes the traversable island for U-turning movements).*

*Additionally, we designed a WB-62 for through movements only.*

- ✔ Provides traffic calming effect
- ✔ Provides u-turning locations
- ✔ Provides landscaping opportunities



**Touchton Road**



**Beach Boulevard at 1<sup>st</sup>  
and 2<sup>nd</sup> Street**



# Proposed Conceptual Design Elements

## Roundabout at Florida Boulevard

*Inscribed Diameter is 140'*

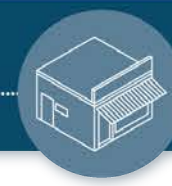
*Design vehicles include delivery truck, car with boat trailer, school bus (S-Bus-40), a WB-40 and a WB-62*

- ✓ Traffic calming effect
- ✓ Reduce delays
- ✓ Slower traffic allows for safer pedestrian movements
- ✓ Provides landscaping opportunities



Existing and proposed configuration at Florida Boulevard





# Proposed Conceptual Design Elements

## Shared Use Path on west side and sidewalk on east side

- ✓ Provides safe pedestrian and bicycle usage on the corridor
- ✓ Contributes to “sense of place” and community feel



**Kernan Boulevard multi-use path**

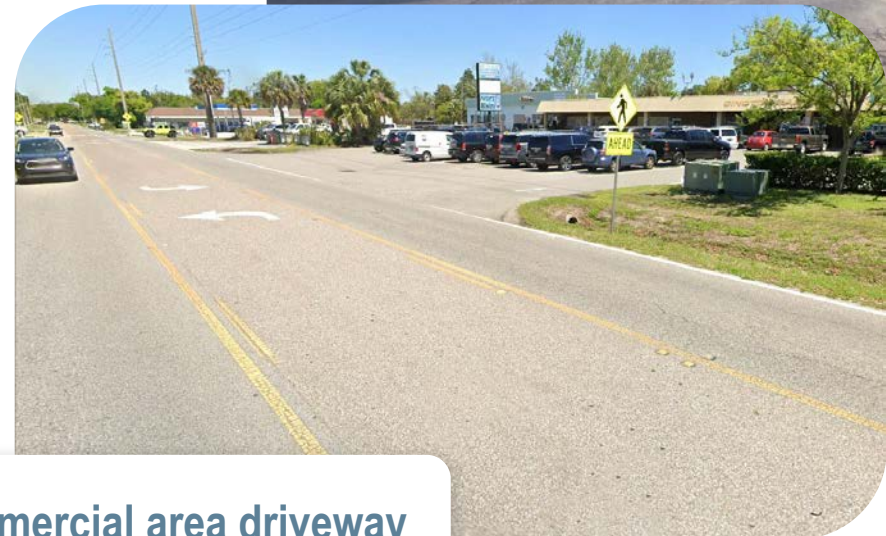


# Proposed Conceptual Design Elements

## Improved driveway control in the commercial area

*Addition of curb and gutter proposed*

- ✓ Eliminates the 'free-for-all' condition of entering and exiting Penman Road within the commercial area
- ✓ Slower traffic allows for safer pedestrian movements
- ✓ Contributes to "sense of place" and community feel



Penman Road commercial area driveway

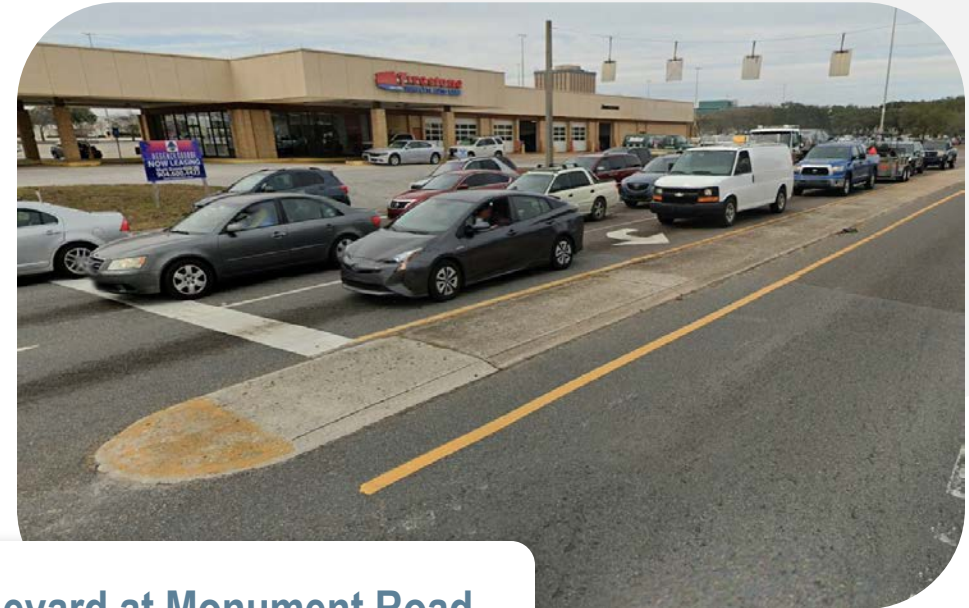




# Proposed Conceptual Design Elements

## Separator and dedicated right-turn lane at Atlantic Blvd connection

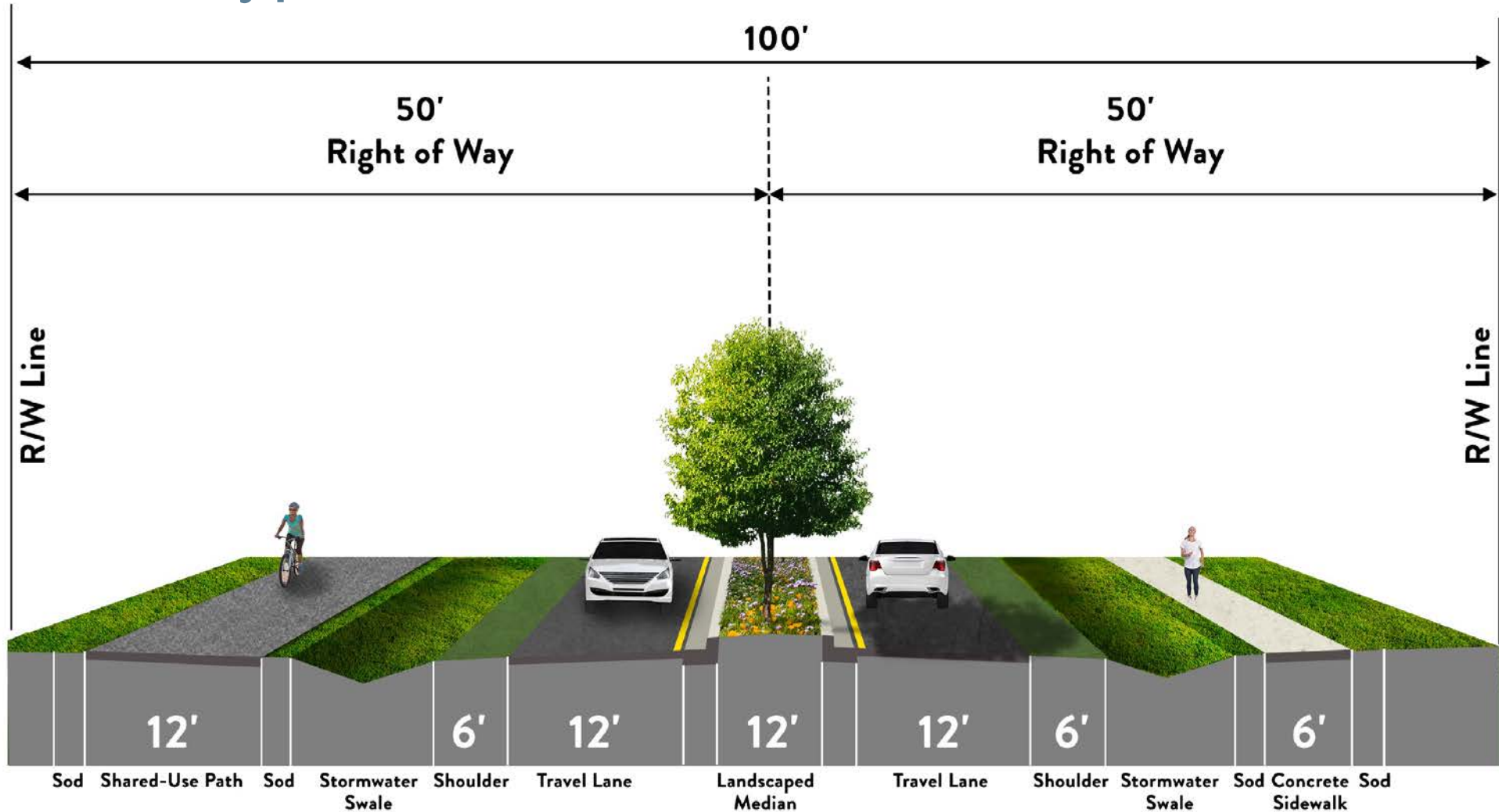
- ✓ Eliminates “good Samaritan” crashes
- ✓ Optimizes signal operations



Atlantic Boulevard at Monument Road



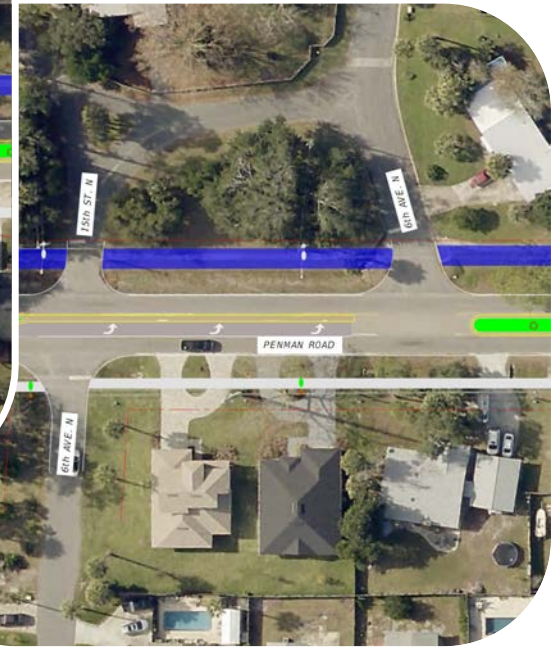
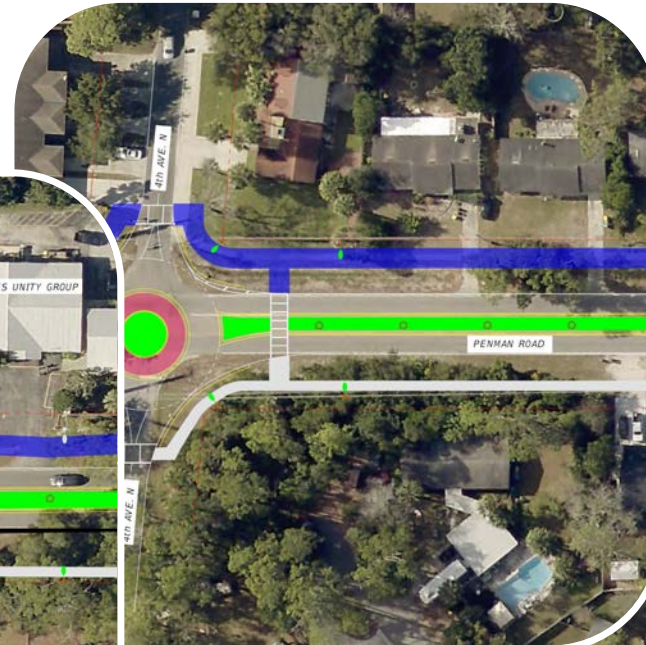
# Proposed Typical Section







## Concept Plans



# PENMAN ROAD COMPLETE STREETS

