



"Plangineering" Complete Streets on the Gulf Coast

Presented by
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District 10 / FSITE Annual Meeting 2018
October 30, 2018



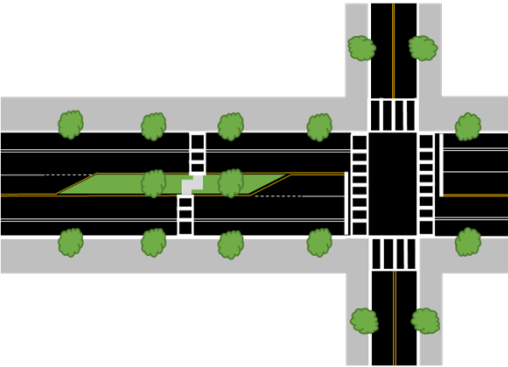


Telephone

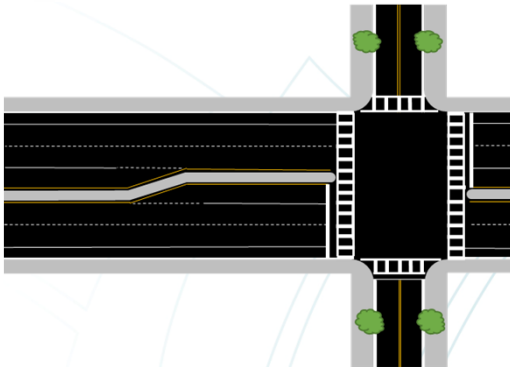
Transportation Telephone

The Traditional Project Delivery Approach

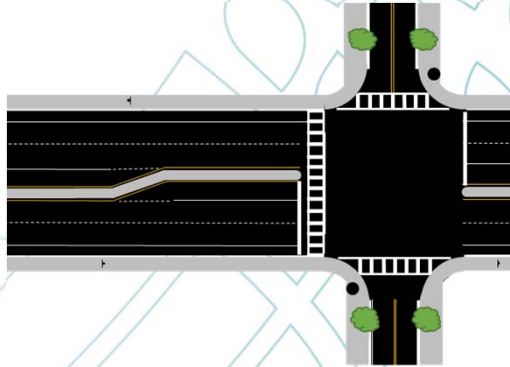
Planning



PD&E



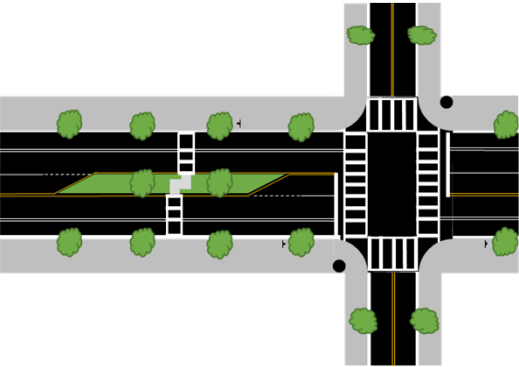
Design



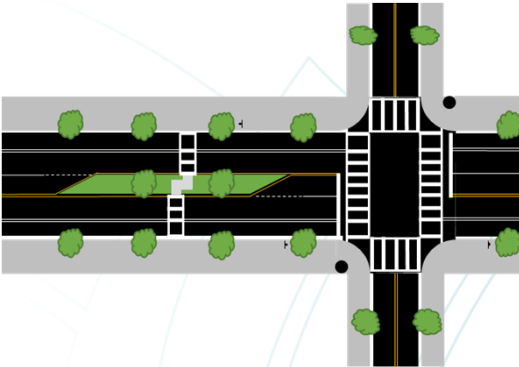
Plangineering

The New Project Delivery Approach

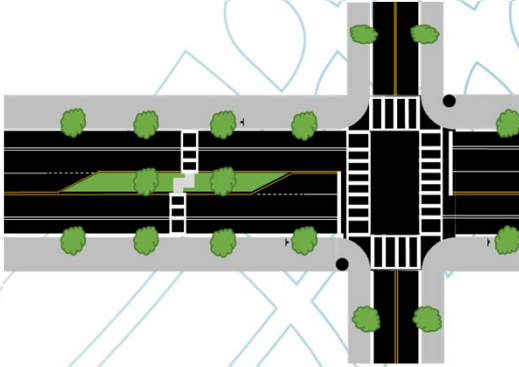
Planning



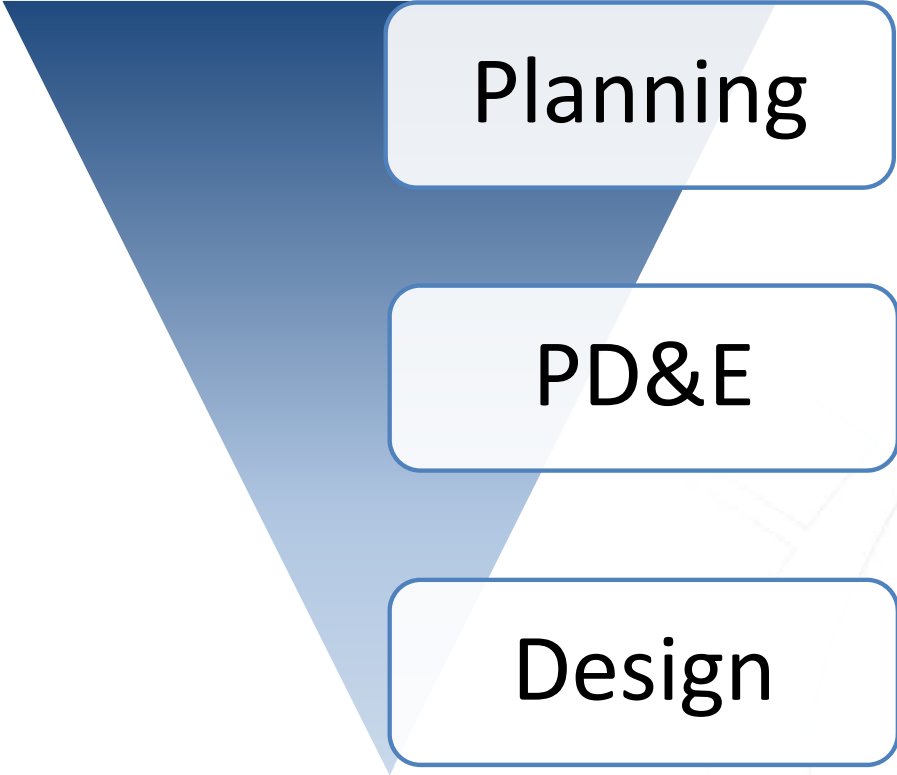
PD&E



Design



Example Project



Planning

PD&E

Design



Downtown Naples Mobility & Connectivity Study

Downtown Naples Mobility & Connectivity Study



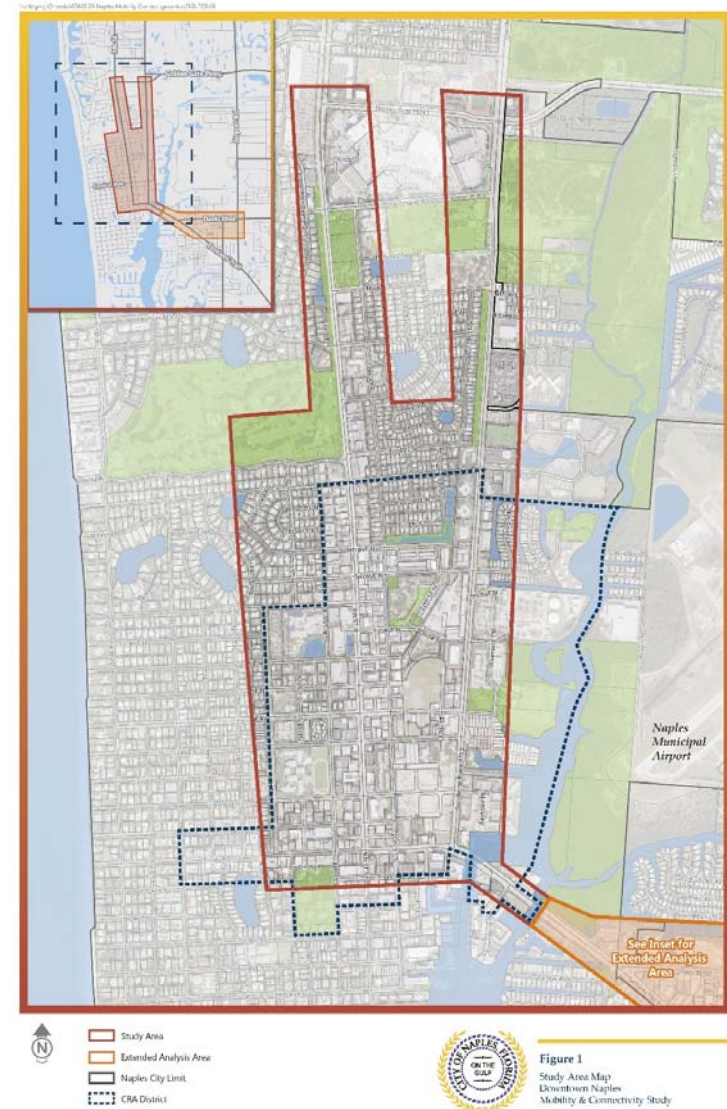
Project Overview

Challenges and Opportunities:

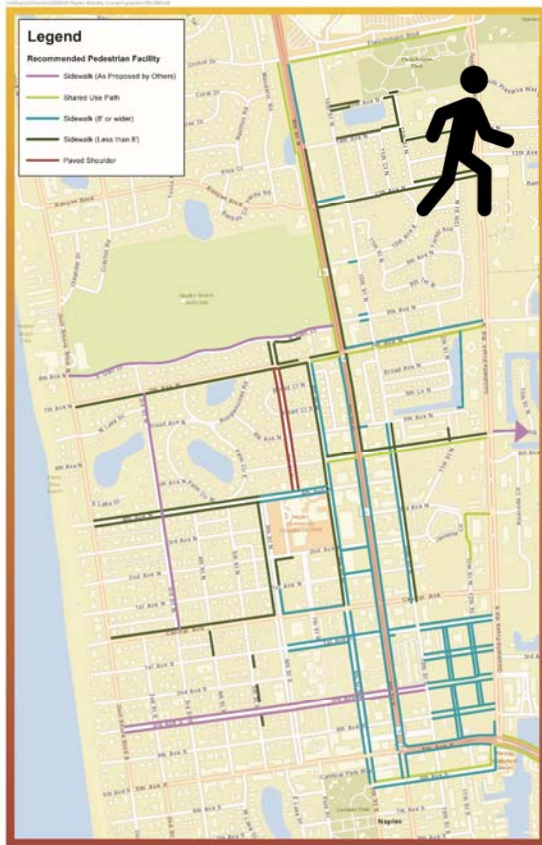
- 6-Lane Highway (US 41/9th Street) Divides the Downtown
- Pedestrian & Bicycle Activity Increasing Along with Crashes
- Strong Local Desire for Multimodal Transportation System

Goals and Objectives:

- Provide a Safe Bicycle and Pedestrian Network
- Expand Transportation Mode Connectivity
- Promote Economic Development
- Enhance Community Quality of Life
- Promote Non-Motorized Modes of Transportation
- Promote Facilities in an Equitable and Cost-Effective Manner



Typical Planning Study Outputs



 **Figure 3**
Enhanced Build Pedestrian Facilities
Downtown Naples
Mobility & Connectivity Study



 **Figure 5**
Enhanced Build Bicycle Facilities
Downtown Naples
Mobility & Connectivity Study



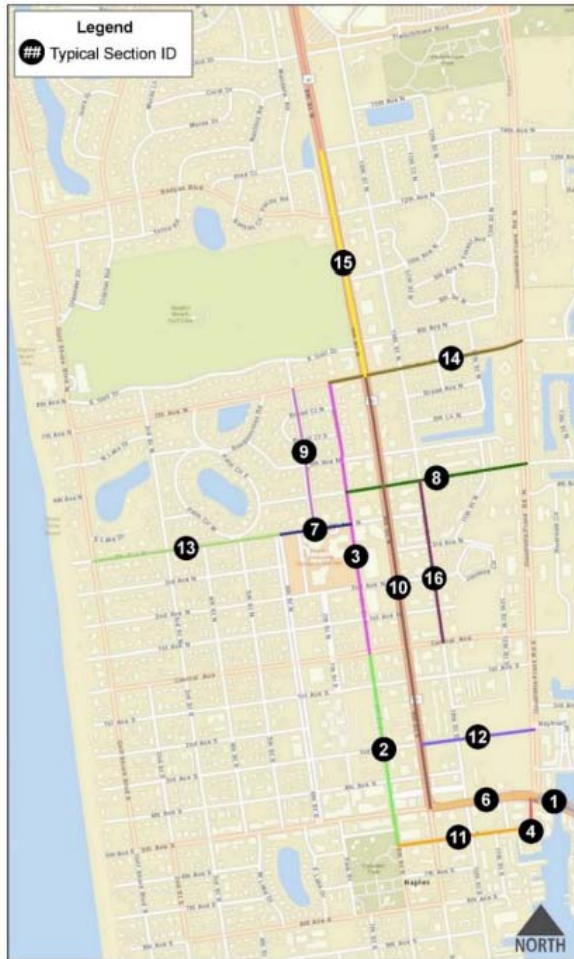
 **Figure 7**
Enhanced Build Roadway Network Improvements
Downtown Naples
Mobility & Connectivity Study

Atypical Planning Study Activities



- Typical Sections
- Design Traffic
- Detailed Traffic Operations Assessment
- Concept Plan
- Stand-alone Project Sheets

Typical Sections



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Source: VHB

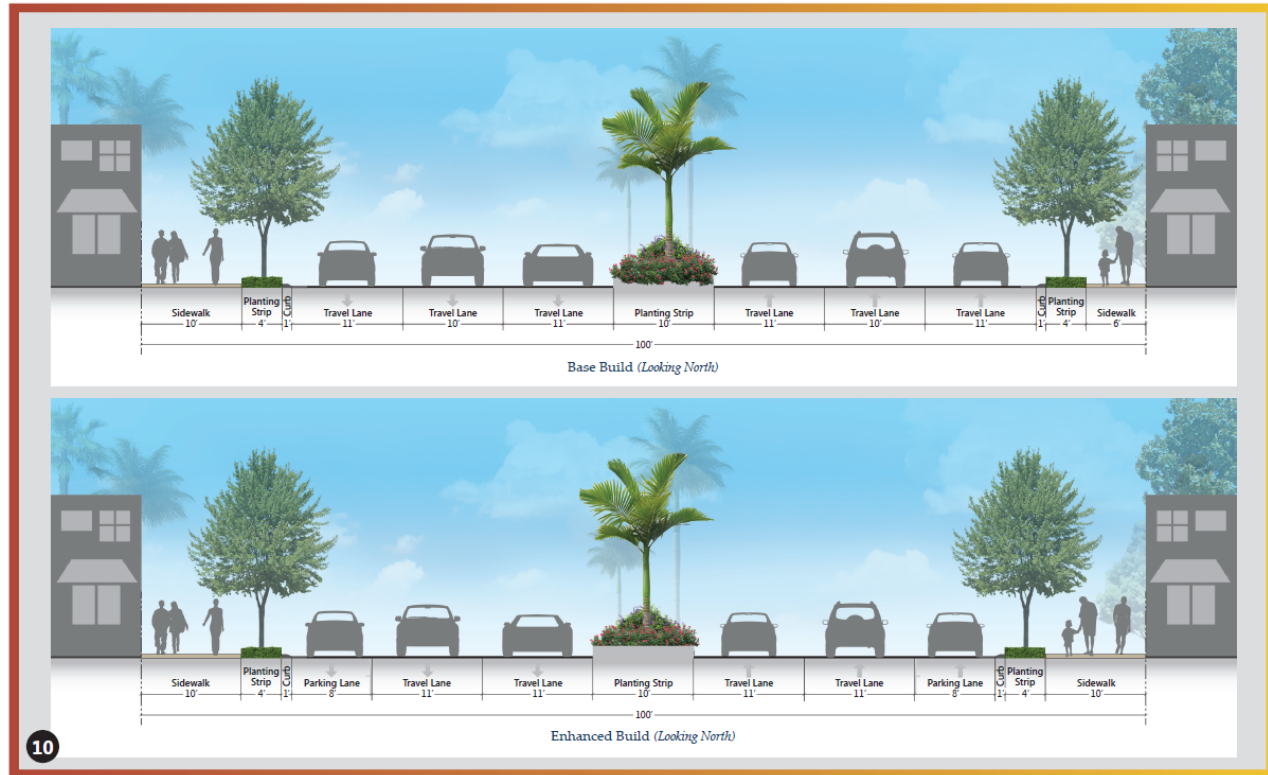
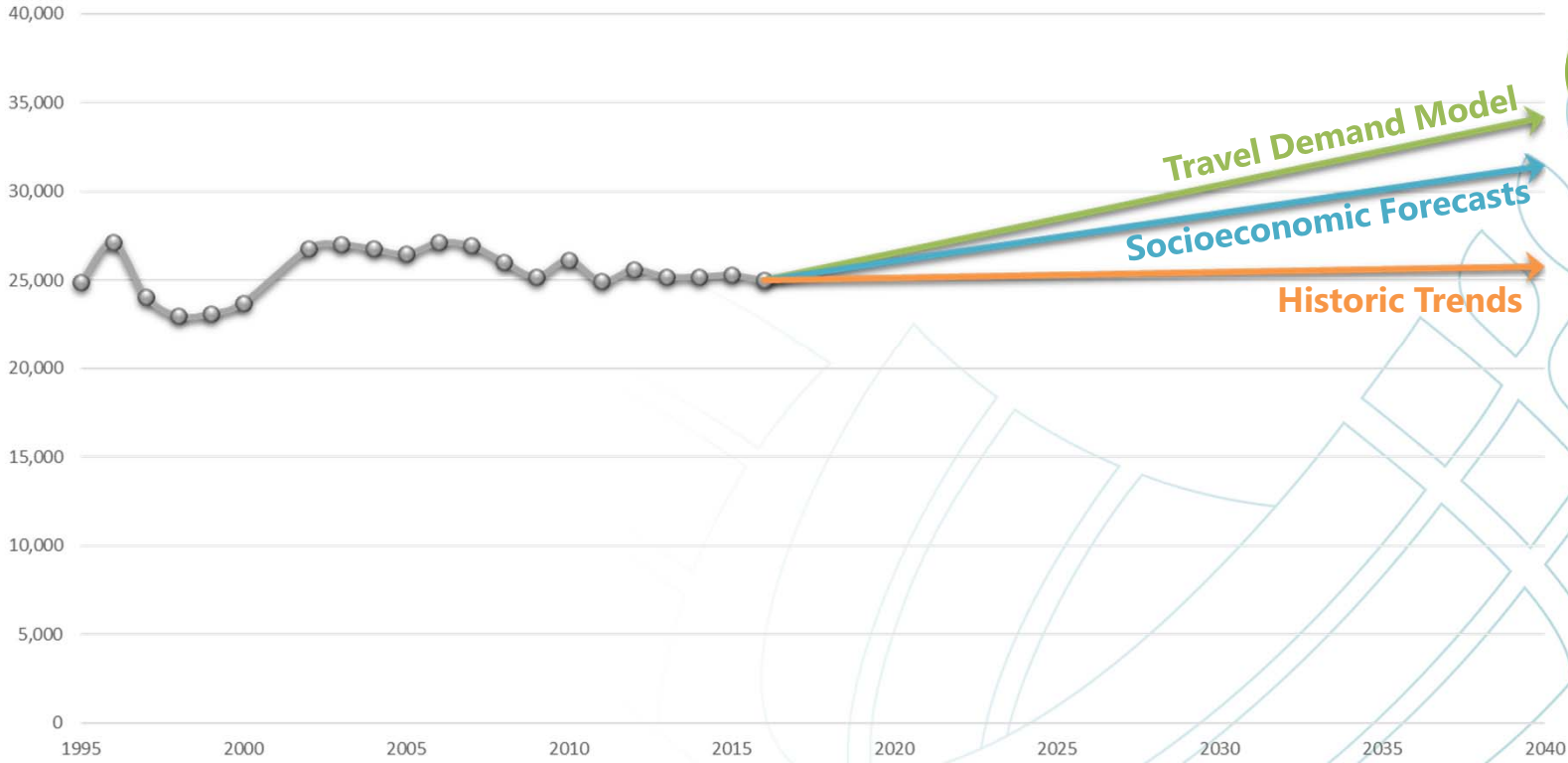
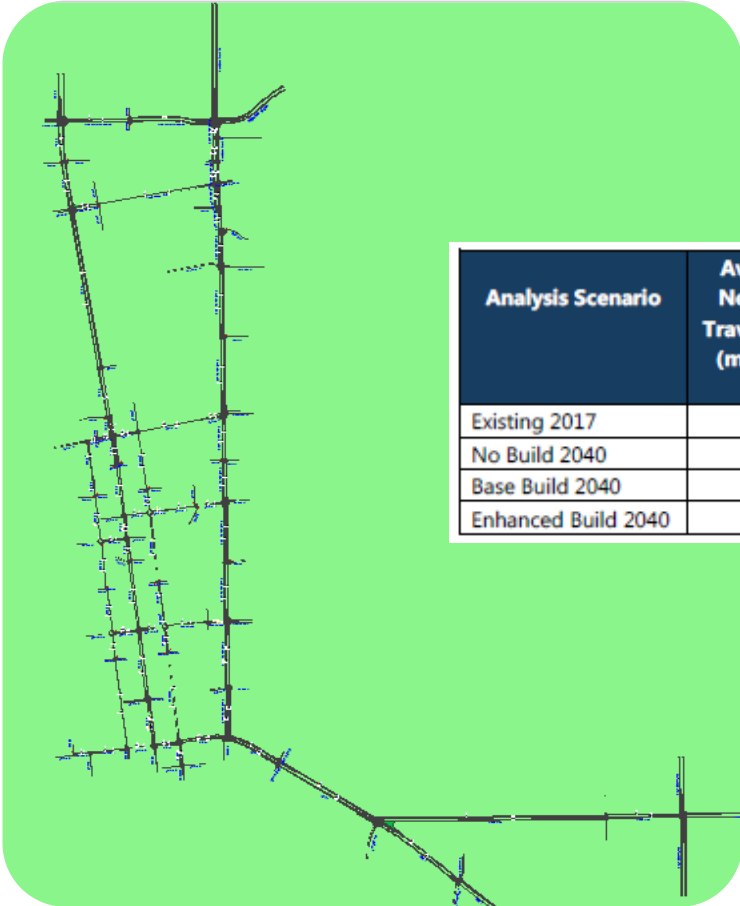


Figure 16
9th St (5th Ave S - 7th Ave N)
Downtown Naples
Mobility & Connectivity Study

Design Traffic



Detailed Traffic Operations Analysis



Analysis Scenario	Average Network Travel Time (min:sec)	Average Network Delay (min:sec)	Average # of Stops (each)	Average Network Speed (mph)	Travel Time (min:sec) 9 th St/US 41		Travel Time (min:sec) Goodlette-Frank Rd	
					5 th Ave S/US 41 to Golden Gate Pkwy		5 th Ave S/US 41 to Golden Gate Pkwy	
					NB	SB	NB	SB
Existing 2017	5:21	2:42	2.57	17.18	5:15	5:34	5:30	6:23
No Build 2040	5:32	3:06	2.74	15.31	7:34	7:54	6:04	9:07
Base Build 2040	5:39	3:01	2.73	16.17	7:34	7:57	5:40	6:55
Enhanced Build 2040	5:28	2:48	2.80	16.85	6:34	6:48	5:00	7:21

Alternatives Evaluation



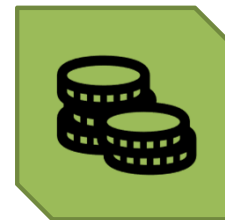
Pedestrian LOS



Bicycle LOS



Traffic Operations



Economic Analysis

Goals	Base Build	Enhanced Build
Provide a Safe Bicycle and Pedestrian Network	●	●
Expand Transportation Mode Connectivity	●	●
Promote Economic Development	◐	●
Enhance Community Quality of Life	◐	●
Promote Non-Motorized Modes of Transportation	◐	●
Provide Facilities in an Equitable and Cost-Efficient Manner	●	●

Key



Fully meets



Partially meets



Does not meet

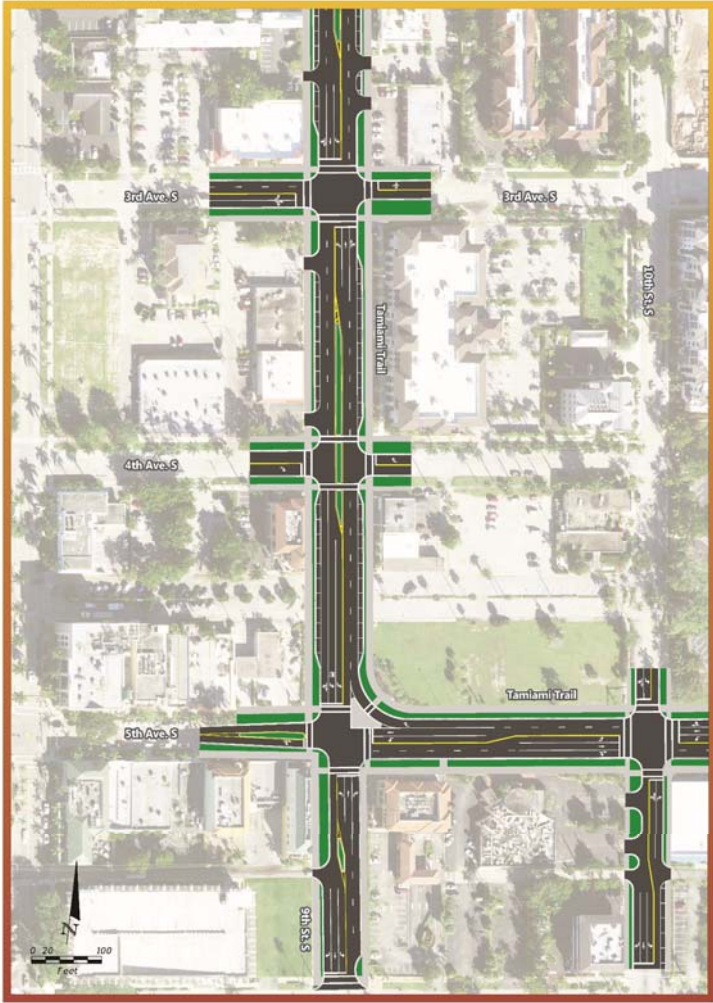


Figure 26
Enhanced Build Concept Plan - US 41 West
Signalized Intersection
Downtown Naples
Mobility & Connectivity Study



Figure 27
Enhanced Build Concept Plan - US 41 East
Signalized Intersection
Downtown Naples
Mobility & Connectivity Study

Concept Plan



Project Sheets - Implementation

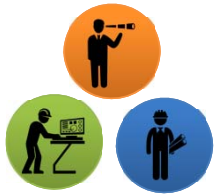
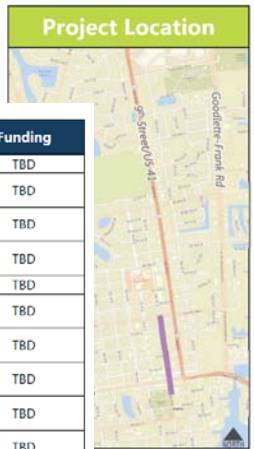


Table 5: Project Summary Table

#	Project	Length	Term	Cost Estimate	Implementing Agency	Funding
1	Gordon River Bridge	0.32 miles	Short-term	\$2,567,000	FDOT	TBD
2	8 th St S: 6 th Ave S - Central Ave	0.42 miles	Short-term	\$7,396,000	City of Naples	TBD
3	8 th St N: Central Ave - 7 th Ave N	0.62 miles	Short-term	\$9,422,000	City of Naples	TBD
4	12 th St S: 6 th Ave S - 5 th Ave S/US 41	0.06 miles	Short-term	\$822,000	City of Naples	TBD
5	Fill the Gaps	7.70 miles	Short-term	\$1,689,000	City of Naples	TBD
6	5 th Ave S/US 41: Four Corners - Goodlette-Frank Rd	0.23 miles	Mid-term	\$5,666,000	FDOT	TBD
7	4 th Ave N: 6 th St N - 8 th St N	0.17 miles	Mid-term	\$3,732,000	City of Naples	TBD
8	5 th Ave N: 8 th St N - Goodlette-Frank Rd	0.39 miles	Mid-term	\$6,821,000	City of Naples	TBD
9	7 th St N: 4 th Ave N - 7 th Ave N	0.32 miles	Mid-term*	\$954,000	City of Naples	TBD
10	9 th St/US 41: Four Corners - 7 th Ave N	1.00 miles	Mid-term	\$25,511,000	FDOT	TBD
11	6 th Ave S: 8 th St S - 12 th St S	0.30 miles	Long-term	\$5,110,000	FDOT/City of Naples	TBD
12	3 rd Ave S: 9 th St S - Goodlette-Frank Rd	0.23 miles	Long-term	\$3,664,000	City of Naples	TBD
13	4 th Ave N: Gulf Shore Blvd - 6 th St N	0.43 miles	Long-term	\$6,013,000	City of Naples	TBD
14	7 th Ave N: 8 th St N - Goodlette-Frank Rd	0.42 miles	Long-term	\$6,427,000	City of Naples	TBD
15	9 th St/US 41: 7 th Ave N - 14 th Ave N	0.52 miles	Long-term	\$12,101,000	FDOT	TBD
16	10 th St: Central Ave - 6 th Ave N	0.46 miles	Long-term	\$7,079,000*	City of Naples	TBD

2 8th St S (6th Ave S - Central Ave)



Project Description

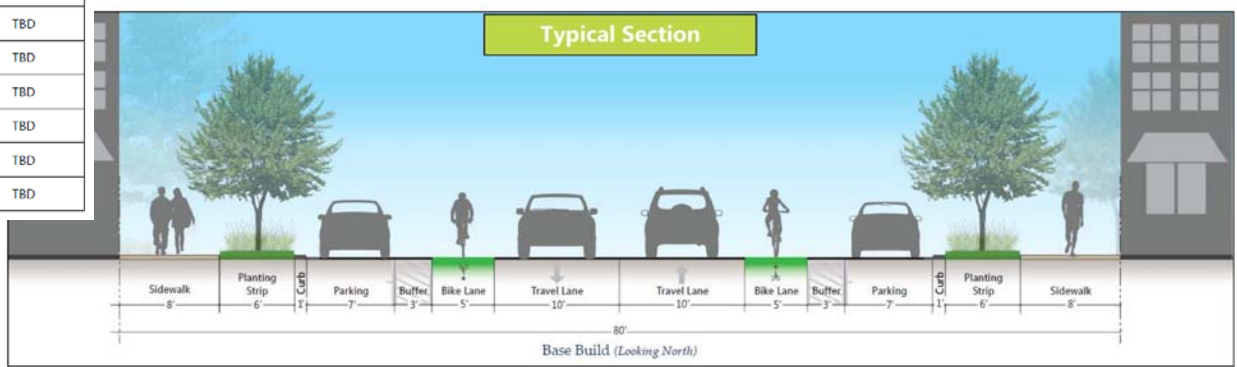
This corridor was designed with two key goals in mind: enhance the economic vitality of businesses along the corridor and provide a premium north-south spine in the study area for travel by bicycle. The selected design includes buffered bike lanes and 8' sidewalks as well as on-street parking along the eastern edge of the roadway to serve the patrons of businesses along this corridor.

Modal Emphasis

Pedestrian	●
Bicycle	●
Auto	◐

Key Project Details

Cost Estimate	\$7,396,000
Project Length	0.46 miles
Timeframe	Short-term
Implementing Agency	City of Naples
Funding	TBD

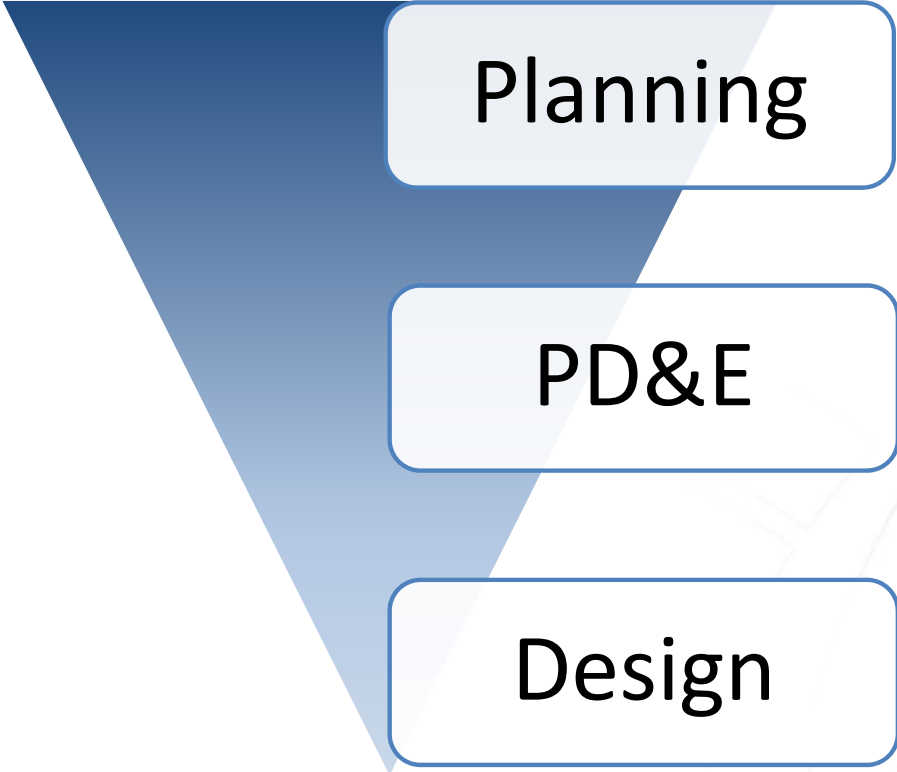


Key Outcomes/Strengths of the Approach

- Thoughtfully created connected modal networks
- Feasible typical sections that fit within existing rights-of-way
- Concept plans that explicitly show what should be designed
- Lane elimination on US 41/9th Street through core of downtown
- Considered alternate routes, excess capacity in grid
- Technically demonstrated that the preferred alternative provided acceptable traffic operations
- Common-sense intersection and phasing improvements
- Give and take process between planners and engineers
 - Plan that is grounded in reality and based upon the vision of community



Example Projects



Planning

PD&E

Design



District 7 Complete Streets ERC Review

District 7 Complete Streets ERC Review



Program Overview

- FDOT District 7
- Review design plans and PD&E studies at various stages of submittal
- Focus on Complete Streets, most pointedly on pedestrian and bicycle safety



Electronic
Review
Comments

Example Considerations

- PD&E Studies
 - Growth forecasts, future year volumes
 - Evaluation considers non-motorized users
 - Context-driven allocation of space for all modes
- Design Plans
 - Sidewalk obstructions (ADA)
 - Curb radius (pedestrian crossing distance)
 - Transitions for bicycle facilities
 - Frequency/location of pedestrian crossings

Plangineering: General Takeaways

- This approach can be used at any stage of project development
- Don't be afraid to involve others who think differently
- Easiest and most cost-effective to use this approach early on
 - Changing things last-minute is more costly

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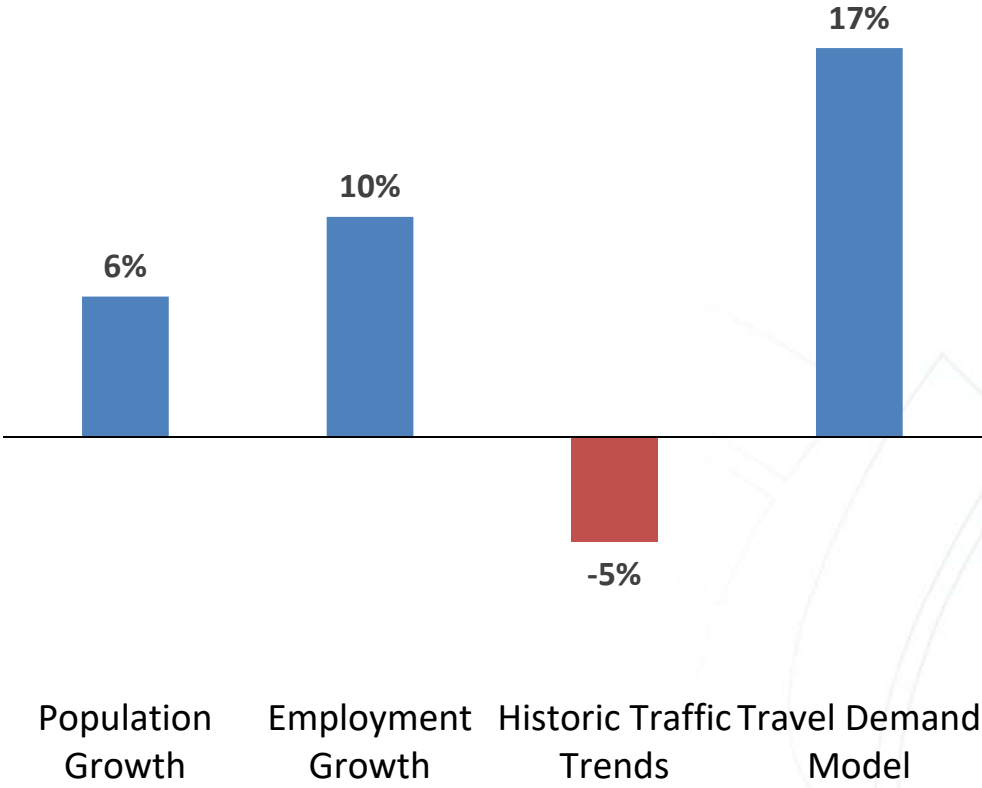


Offices located throughout the east coast

PD&E Projects



PD&E Design Traffic

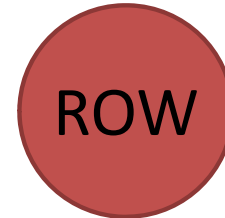


PD&E Evaluation



Alternatives Evaluation Matrix

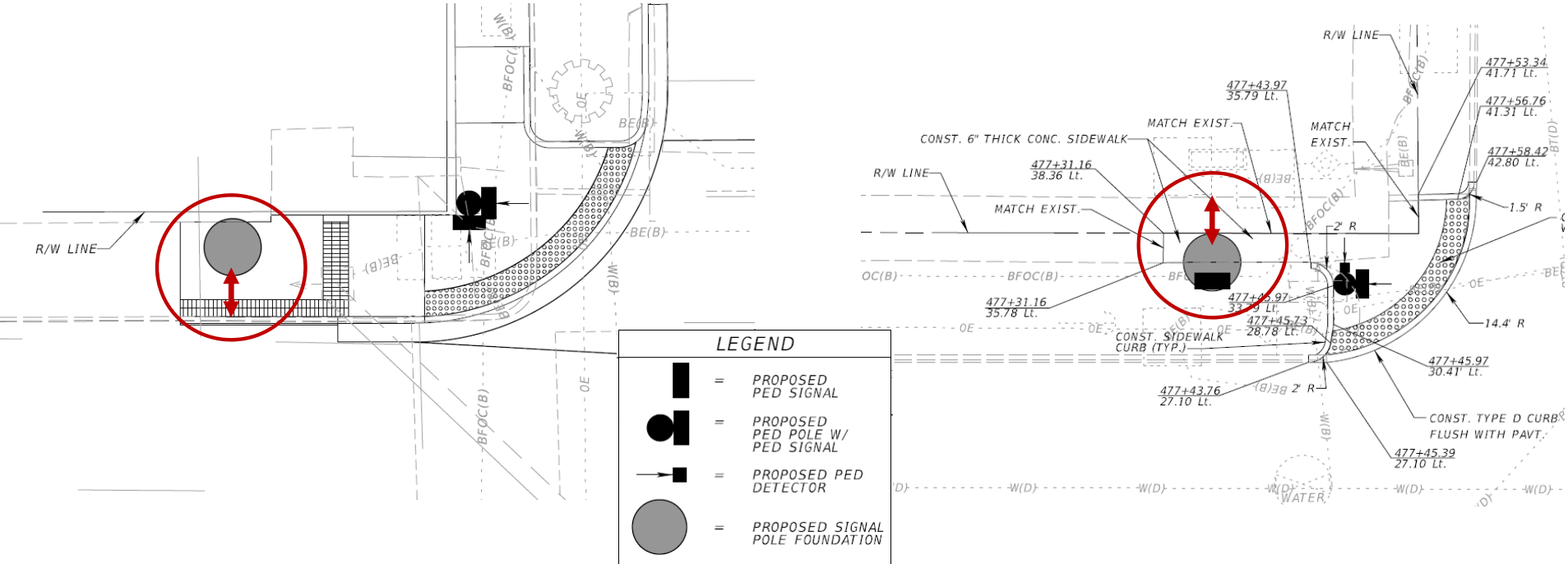
Evaluation Criteria	No-Build Alternative	Alternative 1	Alternative 2	Alternative 3
Traffic Operations				
Network Capacity (vehicles/hour)				
AM Peak Hour	7,559	8,675	9,172	8,312
PM Peak Hour	7,484	8,813	9,062	7,931
Travel Time (minutes/vehicle)				
AM Peak Hour	29.12	15.17	14.01	15.62
PM Peak Hour	42.60	15.67	15.16	16.84
Improvement over No-Build (minutes/vehicle)				
AM Peak Hour	---	13.9	15.1	13.5
PM Peak Hour	---	26.9	27.4	25.8
ROW Impacts				
Parcels Impacted	0	49	45	44
Business Relocations	0	16	23	16
Residential Relocations	0	5	13	5
Estimated Construction and Engineering Costs				
Engineering Design (10% of Construction Cost)	\$0	\$8,840,000	\$12,000,000	\$3,000,000
Construction	\$0	\$88,400,000	\$120,000,000	\$30,000,000
Construction Engineering and Inspection (15% of Construction Cost)	\$0	\$13,260,000	\$18,000,000	\$4,500,000
Preliminary Estimate of Construction Cost	\$0	\$110,500,000	\$133,000,000	\$37,500,000



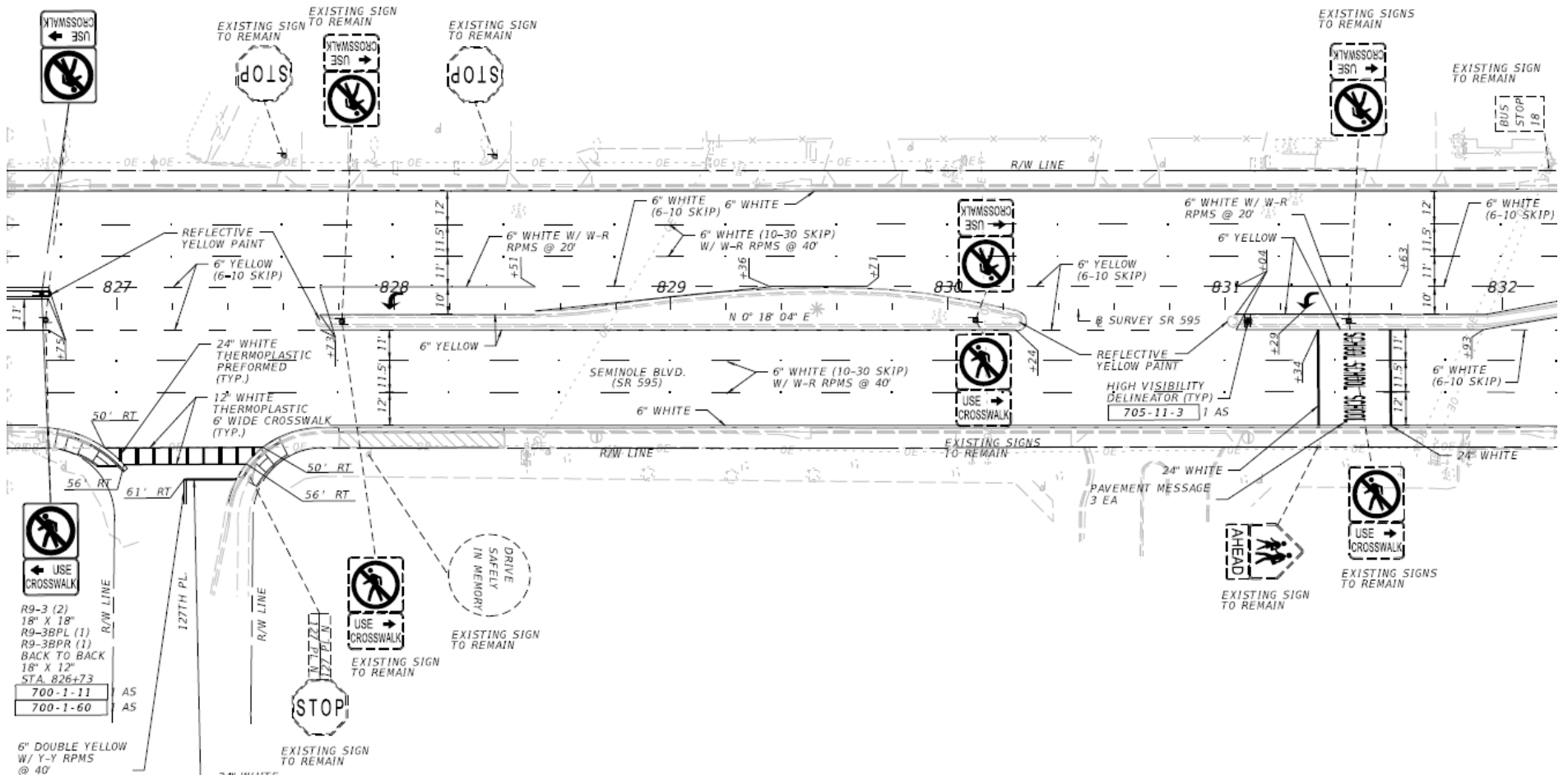
Design Projects



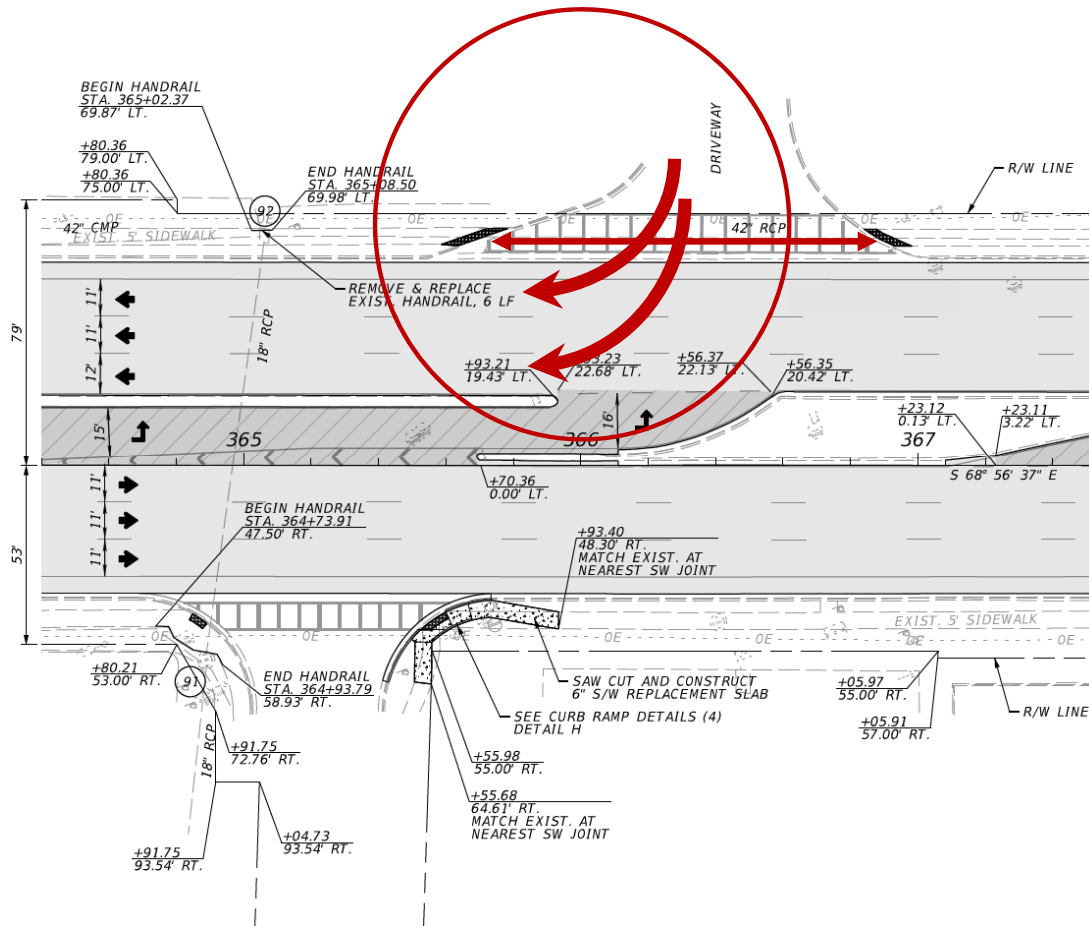
Sidewalk Obstructions



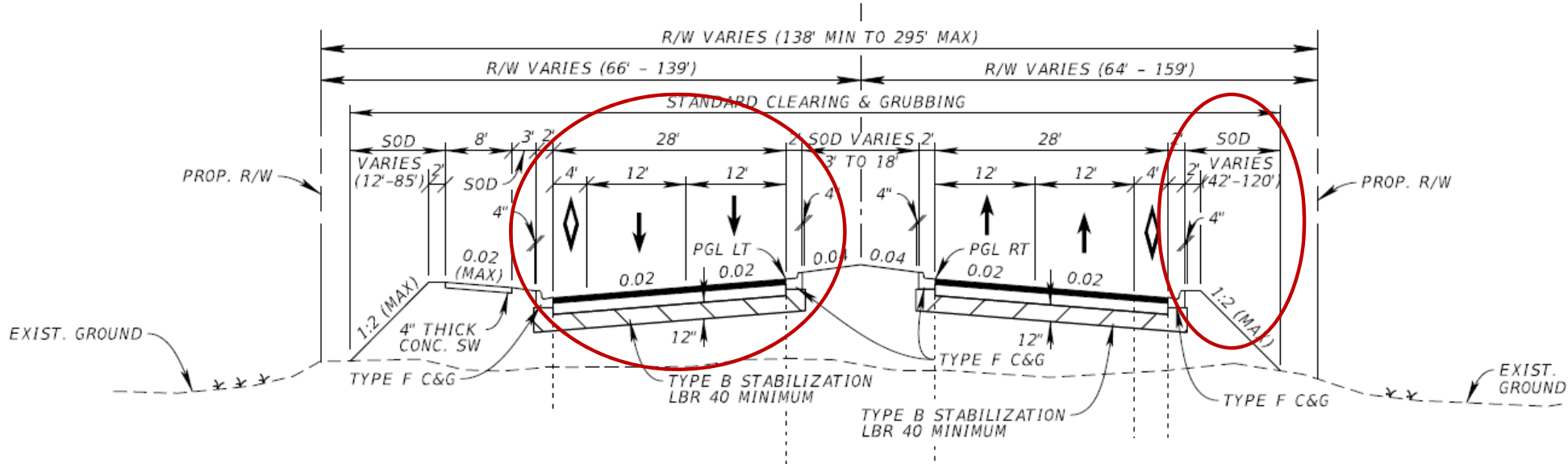
Frequency/Location of Pedestrian Crossings



Pedestrian Crossing Distance – Curb Radius



Allocation of Road Space – Traffic Stress



CURRENT YEAR = 2017 AADT = 0
 ESTIMATED OPENING YEAR = 2020 AADT = 21600
 ESTIMATED DESIGN YEAR = 2040 AADT = 29600
 K = % D = % T = 3.00% (24 HOUR)
 DESIGN SPEED = 45 MPH