US 41 at Gulfstream Roundabout

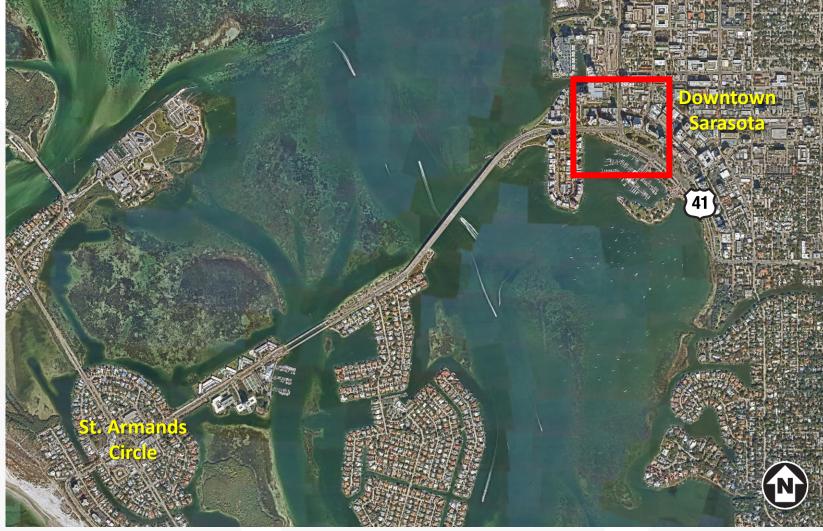
Kimley **»Horn**

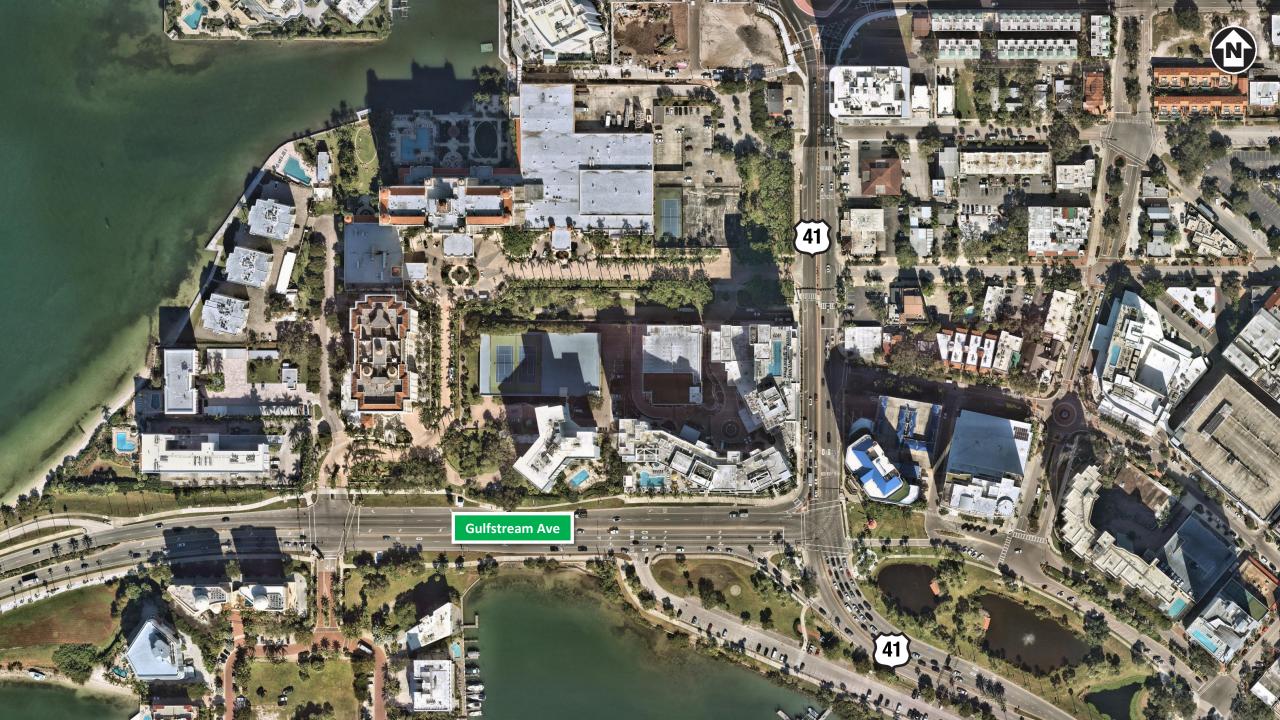


Agenda

- 1. How did it all start
- 2. Overlapping PD&E and Design
- 3. Community Engagement
- 4. Design Challenges
- 5. MOT Challenges
- 6. Final Completion

Where is it located at? City of Sarasota



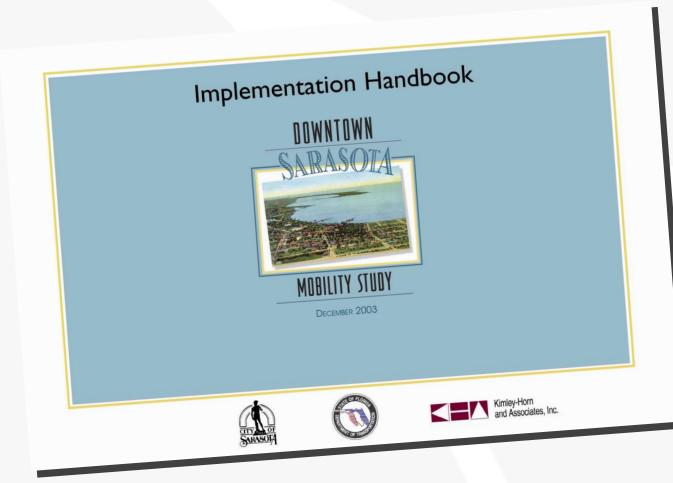


Early Planning How did it all begin

• 2003 Downtown Mobility Plan

Background

• We defined this intersection improvement project in 2003



Background

Sarasota Downtown Master Plan 2020 Project Mobility Evaluation Matrix * Slower vehicle speeds improve bicycle/pedestrian safety. * US 41/Guifstream roundabout operatos sufficiently provided a three-leg approach. A four-leg approach s operation failure. © Signal control at Main Street intersection and Ringling Boulevard Intersections would in (+) Signa control at transformation parking supply is difficult and may contribute Reference to Downtown Parking Master Plan is suggested. Barrier Islands likely to still use Bayfront to/from south Sarasota. Bayfront Proposal D2 Roundabout at Ringling Boulevard and * Existing wide intersection is not pedestrian friendly. * Current signalized intersection operates sufficiently for anticipated traffic volumes. * Proposed roundabout improves current aesthetics. (+) ineapple Avenue The proposed right angle intersection reduces the amount of existing pavement that pedestrians need to cross. tersection of Pineapple Avenue and * 4-way intersection improves continuous through traffic movement * Reference to Downtown Parking Master Plan is suggested. D3 (+) emon Avenue D4 w City Ha (+ / -) (Not Applicable * Retail shopping located closer to residential neighborhoods decreases the need for long automobile trip lengths Florida DOT and City facilities, therefore helping reduce congestion. D5 Downtown Market (+) Padestrian crossing would be improved by removal of triangular intersection. * Parling efficiency could be maximized by coursage from Seley Library and Opera Hos * Recommendation dependent upon assumed relocation of Bijou action * Ultimate determination is to be addressed in the Downtown Parling Master Plan. D6 ixed-Use Municipal Parking Facility (+) Wider sidewalks would create improved pedestrian facilities from current three-foot wide sidewalk. Two-lane traffic on Lemon Avenue would be sufficient for anticipated traffic volumes. • International states on sensor Avenue would be summer for anticipated trainic volumes. • Parking loss would be negligible. • Pedestrian access would be improved between existing bus transfer facility and Main Street. Reference to Bus D7 emon Avenue Mall (+) Transfer Plan suggested. ent intersection geometry along Main Street improves alignment and improves sight distance to redu Main Street Between Bayfront and Five D8 (+) driver, bicycle and pedestrian confusi * Consistent Intersection acometry along Main Street improves alignment and improves sight distance to reduce iver, bicycle and pede r, bicycle and pedestrian confusion. ne recommended aspects have already been incorporated along Main Screet such as angled lock pedestrain crossings. D9 Main Street East of Five Points (+1-) ⁸ The corridor should also be recognized for the continuous east-west traffic to/from the barrier islands. ⁶ Due to commercial traffic on Fruitville Road, intersection curb radii should conform to WB-50 turning scandars for longer truck vehicles. * Pedestrian crosswalks and enforcement should be improved at the following intersection D10 Fruitville Road (+ / -) * Central Avenue * Orange Avenue * Osprey Avenue Intersections with left-turn lanes and median on Cocoanut Avenue create large and confusing intersection crossing motoring traffic. Removal of turn lanes is recommended due to low volumes of left turning vehicle Intersections with lef-turm hanes and median on Geconnut Avenue create larg rossing motoring traffic. Removal of turn hanes in recommended due to low va consideration of 4-way stop controlled intersections suggested. Wider interactions with increased crossing distances not podestrian friendly. Straightened median would increase vehicle speeds. DII Cocoanut Avenue (-) * Existing parking configuration maximizes space efficiency, but more emphasis should be placed on crosswalk and median sidewalk to ensure pedestrian safety Continuous north-south traffic expected to be dispersed onto Orange Avenue, Shade Avenue and Tuttle Avenue * Continuous east-west traffic expected to be dispersed onto 10th Street, Fruitville Road, as well as pe Street and Ringling Boulevard TI US 41 at Bayfront Barrier (+1.) ⁵ Analysis assumes 17th Street connection between US 41 and Orange Avenue as a four-lane divided facility. * Refer to "Alternative Projects from the Downtown Master Plan" matrix for alte T2 * Proposed configuration requires additional right-of-way; modification to originally proposed configuratio suggested. * Traffic operations for three-leg configuration (combine Guilfstream and Bayfront approaches) de * US 41 and Gulfstream Avenue (+1-) substantial improvement Pedestrians crossing could be negatively affected due to uninterrupted vehicle flow * Proposed configuration improves auto operation from existing configuration Proposed configuration requires major right-of-way purchase for acceptable roundabout operation. • Existing configuration provides more efficient traffic operation than conceptual roundabous within existing right-o * Fruitville Road and US 301 (-) way. * Refer to "Alternative Projects from the Downtown Master Plan" matrix for alternate sugges * Refer to comments provided for project D2. * Pineapple Avenue and Ringling (+) * Proposed roundabout improves existing aesthetics. Also, existing intersection demonstrates exce oulevard for crossing pedestrians. * Roadway roclassification is recommended. Plassbargs reclassification in recommended. The provided four calonications improve potentian network however, truck access will be hindered. "Refer to section regarding recommended molifications to Transportation Concurrency Exception Area (TCEA) Vecorporation of multi-modal level-description analysis recommended. "Recommender Thoroughters types have been adopted in the City's Engineering Design Criteria Manual (ECEA) No continuous The movements" of "paced movement," previous theoregistric Stockie House Planse No continuous The movements" of "paced movement," previous theoregistric Stockie House Planse Movements and the stockies and the stockies and the stockies the stockies the stockies and the No continuous The movements" of "paced movement," previous theoregistric Stockies and the stockies and stockies and the No continuous The movements" of "paced movement," previous theoregistric Stockies and the stock T3 Thoroughfare Definitions (+) Bicycle network should be continuous. * Bicycle network should connect to transit stop locations. * Connection of First Scree between US 41 and Cocoanut Avenue recommended. * Reference to Parks and Connectivity Plan suggested. T4 Bicycle Network (+) * Existing location considered acceptable due to high concentration of land uses within walking distance. * Lemon Avenue pedestrian mail also recommended to connect transfer station with Main Street. Reference to T5 Bus Transfer Station (-) Bus Transfer Plan recommended Dependent upon status of Civic Reservation structures. Main Street angle parking east of Orange Avenue currently under construction Coordination with current Downtown Parking Master Plan recommended. T6 Parking (+)

* Podestrian signalization alternatives may be necessary on state facilities.

* Proposed routes should improve headway at most traveled locations along Main Street

ided due to expected upstream delays at Fruitville Road

Modification to 1st Street Pedestrian Sleeve records

and Gulfermann Box

(+)

(+)

T7

Pedestrian Sleeve

T8 Trolley System

The Downtown Master Plan recommended projects within the study area related to the existing transportation infrastructure. The primary transportation emphasis of the adopted Downtown Master Plan was to improve the infrastructure to better accommodate all modes of travel. Many of the recommendations related to improving

Downtown Master Plan Project Recommendations

accessibility to the Waterfront from Downtown. Currently, the existing four-lane section on Tamiami Trail (otherwise referred to as Bayfront Drive between Gulfstream Avenue and Orange Avenue) is a barrier for pedestrians to traverse between the Waterfront and Downtown destinations. The recommendation from the Downtown Master Plan was to modify the existing cross section to a two-lane divided collector facility with on-street parking.

Another significant component of the Downtown Master Plan recommendations was several roundabouts located at Downtown intersections.

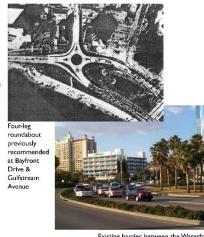
- Bayfront Drive & Gulfstream Avenue
- Tamiami Trail & Fruitville Road
- US 301 & Fruitville Road
- Ringling Boulevard & Palm Avenue
- Ringling Boulevard & Pineapple Avenue



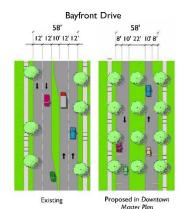
the existing route of US 41 along Bayfront Drive was recommended redesignated along Fruitville

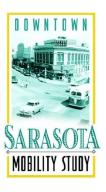
Road and US 301. These measures, combined with special features like pedestrian sleeves, which provide a safer and more protected pedestrian and bicyclist environment at crosswalks, are some of the recommendations to improve pedestrian accessibility to the Waterfront while improving the availability of alternative modes of travel.

Some recommendations from the Downtown Master Plan were carried through the Mobility Study, some were modified and, in a few cases, new recommendations were developed to replace or supplement the Downtown Master Plan recommendations.



Existing barrier between the Waterfront and Downtown



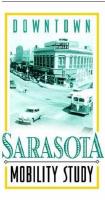


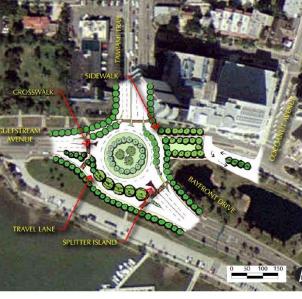


2

Top Priority Project

#2 Bayfront Drive & Gulfstream Avenue Three-leg multi-lane roundabout





Project Location

The Roundabout project should be accomplished in phases:

Proposed Roundabout Intersection LOS With Slip Ramps = LOS B Comparable Three-leg Signalized Intersection LOS = LOS C

- I. Close east leg of Gulfstream Avenue.
- 2. Provide left-turn lanes from US 41 onto Main Street and Marina Jacks.
- Enhance southbound right-turn lane.
- 4. Construct ultimate roundabout configuration.

DESCRIPTION:

- Construct a three-leg multi-lane roundabout at the intersection of Bayfront Drive & Gulfstream Avenue.
 Close the east leg of Gulfstream Avenue from Bayfront Drive to alley between Bayfront Drive and
- Cocoanut Avenue.
 Construct splitter islands
 between each approach and
- departure. Pedestrian crosswalks are provided to cross each approach and departure.
- Design splitter islands as median refuge for crossing pedestrians.
- Construct a dedicated slip ramp for each approach and immediate departure.
- Install inpavement flashers at crosswalks.
- Transition Bayfront Drive to two lanes south of intersection.

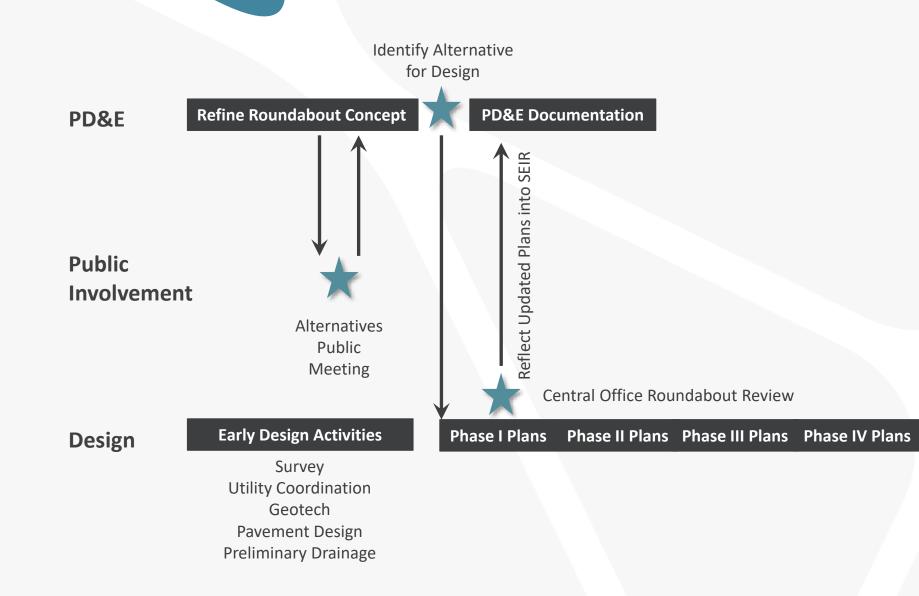


PRIORITY: HIGH MEDIUM LOW **OPINION OF PROBABLE COST:** Cost (2003 Dollars) Description -Roadway and Pavement 1,600,000 \$ 240,000 -Landscaping -Right-of-Way * 0 -Design Services 160,000 -Contingencies 600,000 -\$ Total \$ 2,600,000 **RESPONSIBLE AGENCY:** Florida Department of Transportation **TIMEFRAME:** Tier I Phases I-3 Phase 4 0-5 YEARS 6-10 YEARS 11-20 YEARS

> * Right-of-Way cost is \$0 due to anticipated developer agreements in the northwest quadrant.



PD&E and Design Phase







Innovative Community Engagement

- During the PD&E study, 450 people attended the first public meeting introducing the roundabout concept to local stakeholders
- This custom-made rug was a highly effective prop and tool
- Attendees were invited to follow the markings around the rug to get a feel for how traffic would flow
- Tabletop exhibits and matchbox trucks showed that even 18-wheelers could easily maneuver through the roundabout

"I [envisioned] the standard PowerPoint presentation with a Q&A at the end. To my surprise and delight I walked into an open house forum. The models, videos, and graphics were outstanding, and the project team members were so professional and knowledgeable. Talk about engaging! Great job to all!" — Public Meeting Attendee

ONLY

What's influencing Design? Design Constraints

- Constrained right-of-way
- Low pavement elevations
- Building thresholds at street level
- High traffic volumes
- Vocal and engaged community

Constrained right-of-way

100 ft. R/W

CHASE

GULF STREAM



Existing Seawall

Gulfstream Intersection

165

Seawall

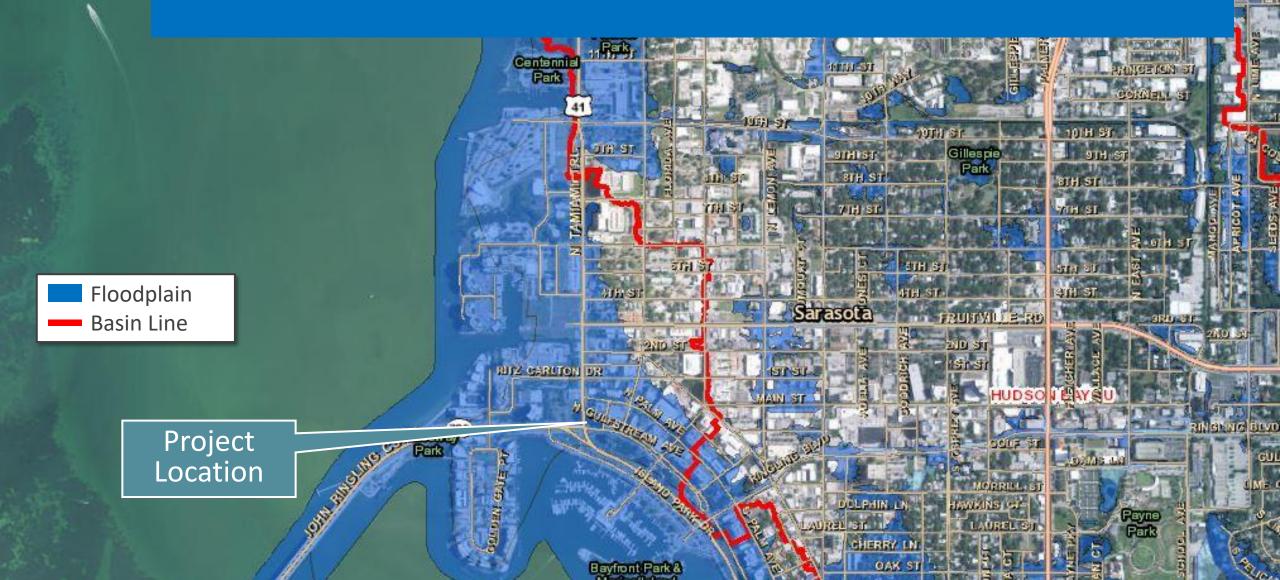
Approx. US 41 Corridor

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Coastal Surge and Floodplain

WIH HT B

URAU



King Tide Event

• Water standing in existing structures to pavement edge.





Summertime storm event

- Routine roadway flooding along US41 during daily summer storms.
- US41 outside lanes are impassable.







Existing Brick Drainage Structures

Many existing structures were built of brick and mortar.If modified it will require complete replacement

Utility upgrades

- Upgrade City of Sarasota's 6 in. Asbestos Concrete Water Main
- Mitigated impact to City of Sarasota's 10 VCP Sewer



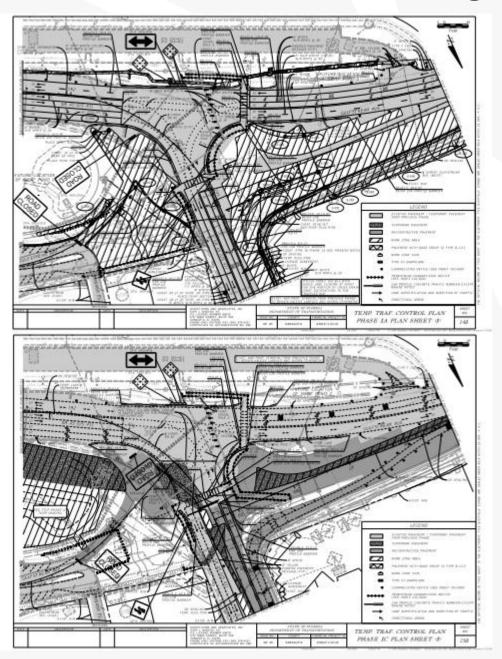
Existing Pavement Thickness

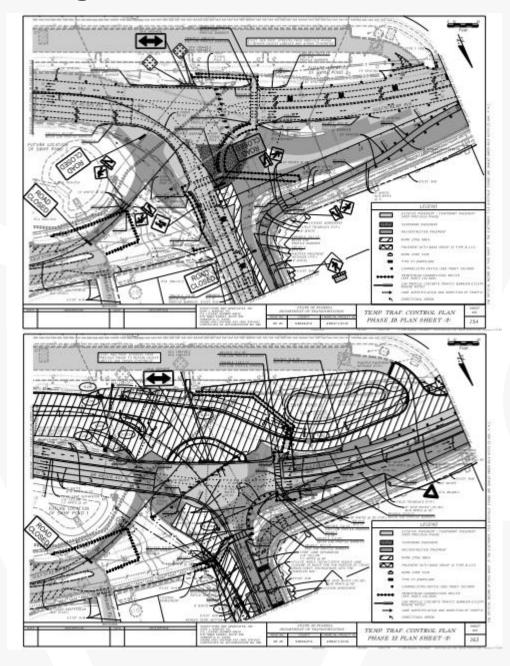


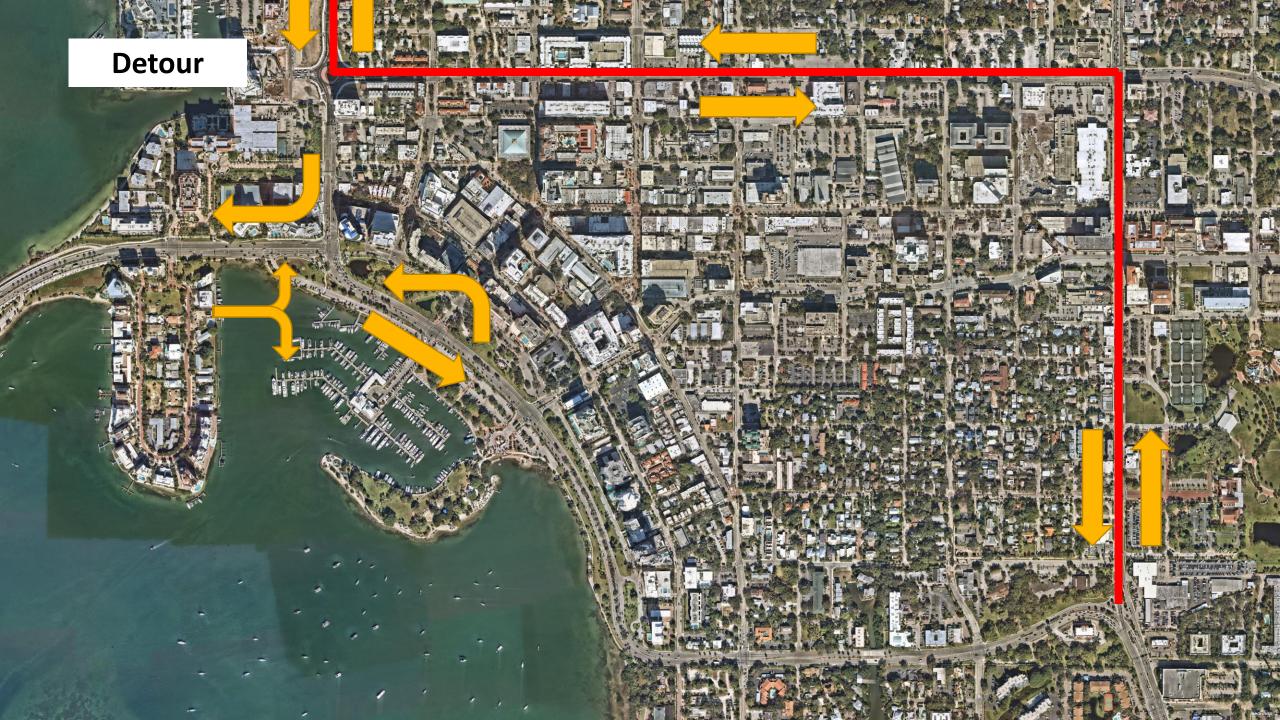
What's so difficult MOT Considerations

- How are we going to construct it?
- Should we shut down US41 North and South?
- How do we maximize construction zone, and reduce construction duration?
- Implement a Crossover A.K.A the Startle!

Original MOT Design















South Leg Crossover



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Looking NW on US 41

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Looking NW on US 41

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Looking North on US 41

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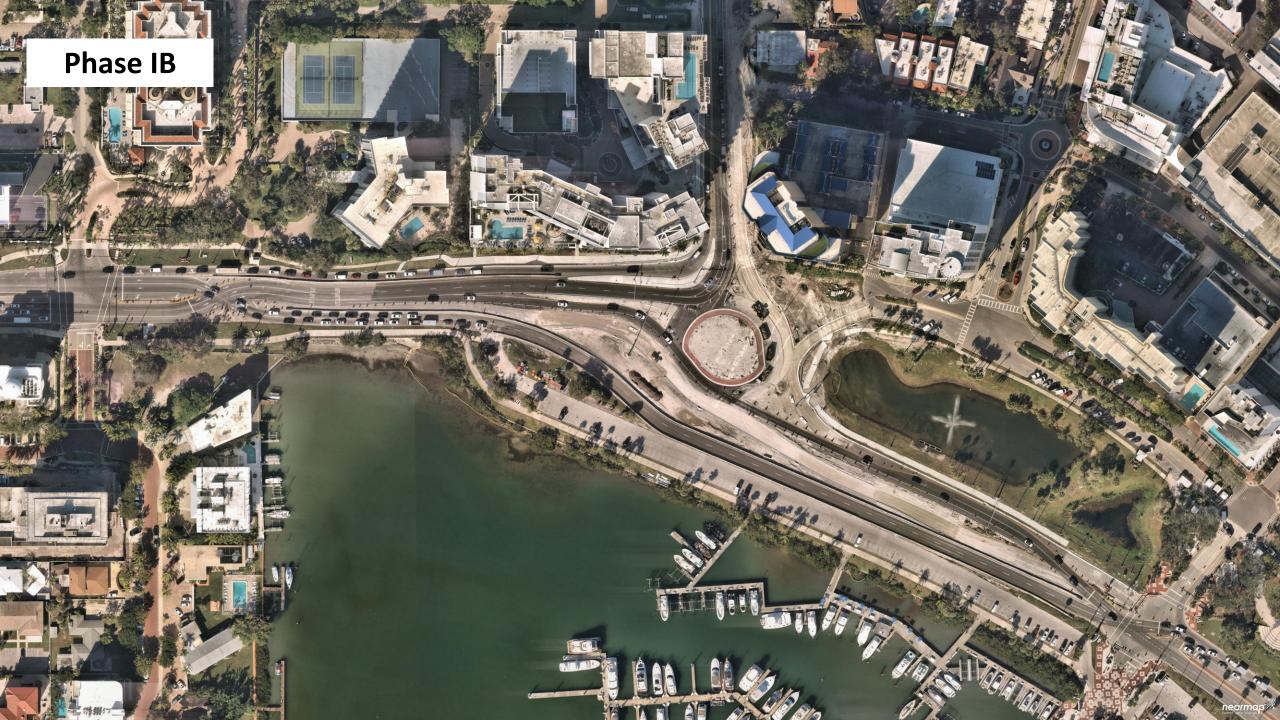
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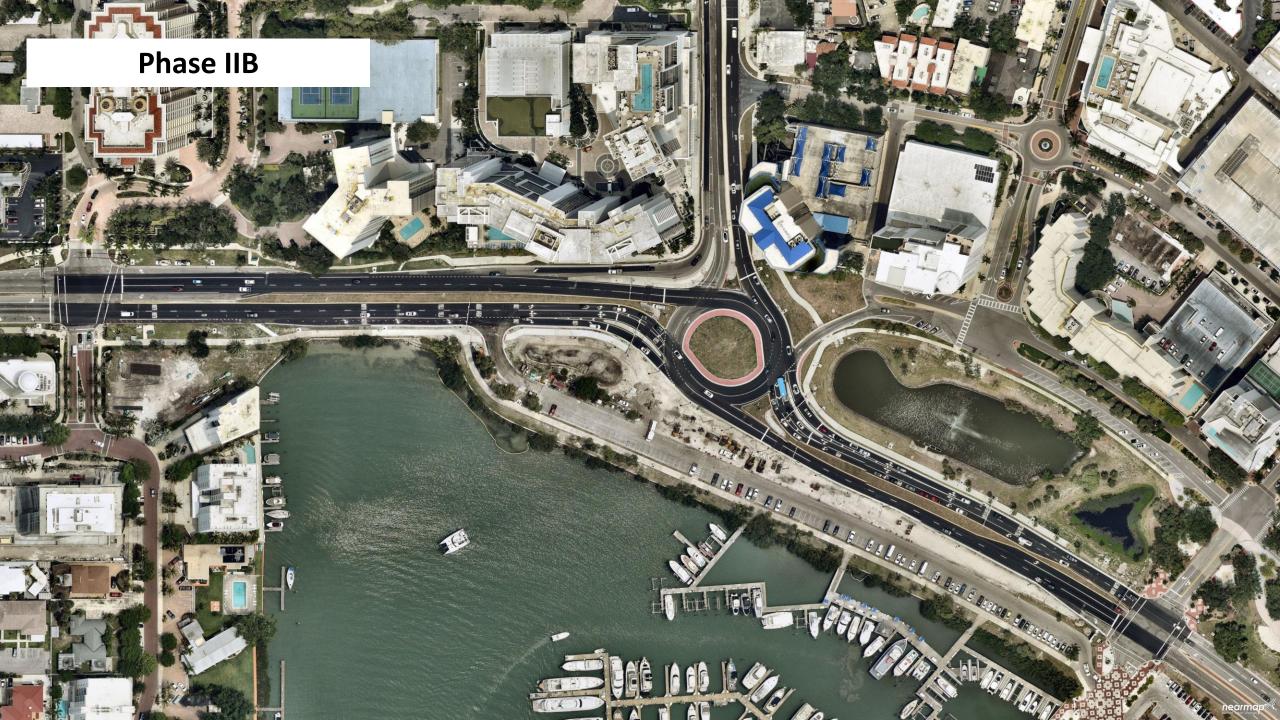
8

North is oriented at the top

VIN

Stat.

1+A









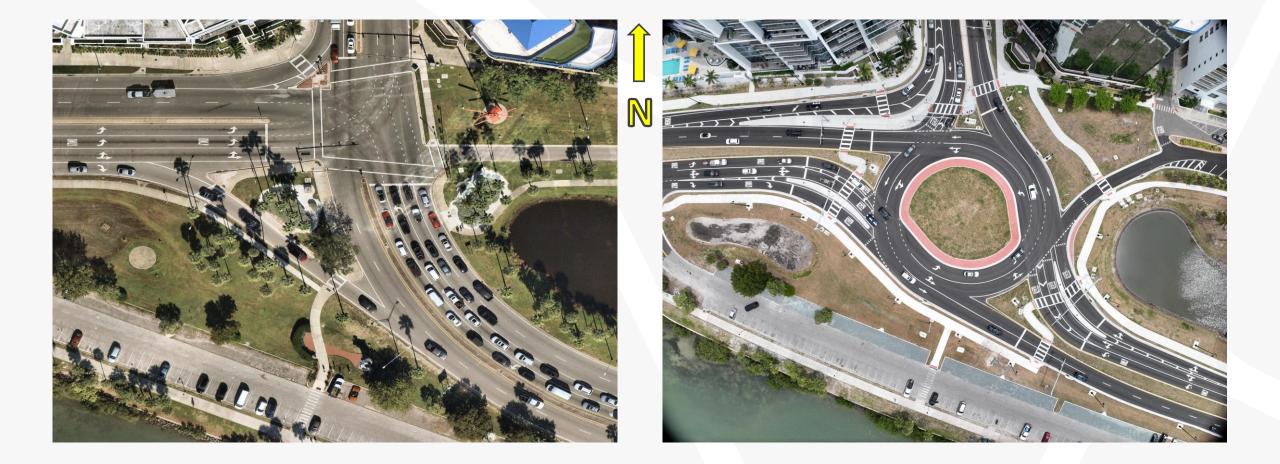




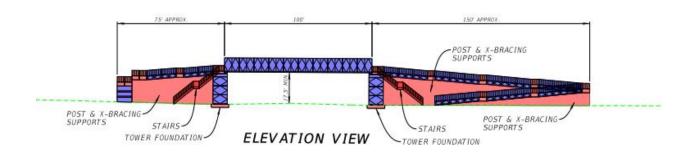




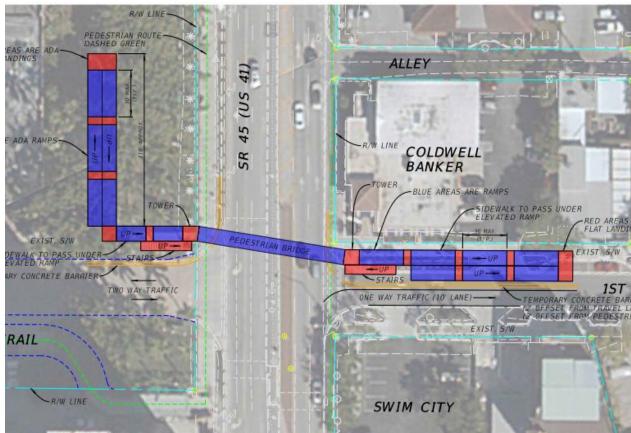
Before & After



Proposed Temporary Bridge







Other Challenges COVID

- Material availability and shortages.
- Lack of available construction staff.
- Online progress meetings only.

Lessons learned

- Getting Google to update their maps can be a lengthy process.
- Public outreach may not be effective enough
- Public relies more on their phones than traffic control signs and VMS
- Pedestrians will walk where they want to walk (Ped detours are not always followed)
- Driver confusion

Possible Solutions

- Geo data upload tool to upload kml file with a new traffic pattern
- Waze platform user edit map
- Targeted social media adds
- Flyers and VMS placed earlier
- Larger public outreach
- RAB test for all driver license renewals

Kimley»Horn

Expect More. Experience Better.

The End