



EAU GALLIE  
BEACHSIDE

# CORRIDOR ALTERNATIVES AND STRATEGIES REPORT



MARCH 2016





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## SUMMARY

The Eau Gallie Beachside Corridor Planning Study was undertaken as a project to identify multimodal improvements that will provide safe and efficient operations for all modes of transportation on SR 518 (Eau Gallie Boulevard).

Representatives from the local governments, the local transit agency, residents, and businesses from the beachside communities along SR 518 joined together to form the Project Visioning Team: a stakeholder group with the goal of revitalizing and improving all aspects of the Eau Gallie Beachside corridor.

Through collaboration with the public and with the Project Visioning Team, the following Purpose Statement was developed: To provide better pedestrian and bicycle connectivity, reduce vehicular conflicts, and improve operations along Eau Gallie Boulevard (SR 518).

The goal of this Corridor Planning Study was to identify improvements that are consistent with the stated purpose. After planning and analysis efforts, several improvements were identified, evaluated, and recommended to move forward into the next analysis step. The improvements were separated into priority groups based on the relative amount of local support and sense of urgency. The improvements are summarized in **Table 1**. The next step for most of the recommendations is Concept Development, where feasibility, cost, and schedule will be determined with more accuracy.

**Table 1:** Summary of Improvement Potential Improvements

Priority Group	#	Description	Location	Agency Lead	Potential Phases Needed
I	1.a	Sidewalks - North Side	South Patrick Drive to SR A1A	To Be Determined	Concept Development / Design / Construction
	1.b	Crosswalk with audible beacon	Winn-Dixie intersection, east side	To Be Determined	Design / Construction (after sidewalk is in place)
	2	Bike Lanes	Relief Bridge to SR A1A	To Be Determined	Implement during resurfacing
	3	SR A1A Intersection - remove continuous right turn lanes, extend median	Eau Gallie Boulevard at SR A1A. Median changes along Eau Gallie	To Be Determined	Concept Development / Design / Construction



**Table 1:** Summary of Improvement Potential Improvements (continued)

Priority Group	#	Description	Location	Agency Lead	Potential Phases Needed
II	4a	Bridge sidewalk and connection of bike lanes	Relief Bridge to SR 513 / South Patrick Drive	To Be Determined	Concept Development / Design / Right-of-way / Construction
	4b	SR 513 / South Patrick Drive Intersection - repurpose westbound lanes (1 left, 2 through, 1 right)	Intersection of Eau Gallie Boulevard and SR 513 / South Patrick Drive	To Be Determined	Concept Development / Design / Right-of-way / Construction
	5	Driveway and median modifications	Publix / Bealls Shopping Center driveways on Eau Gallie	To Be Determined	Concept Development / Design / Construction
III	6	Roundabouts and median	Burns Boulevard to Winn-Dixie driveway	To Be Determined	Gain support then Concept Development / Design / Right-of-way / Construction

## I .O INTRODUCTION AND PURPOSE

SR 518 is an important community resource both in terms of the roadway’s mobility and its function as the main east/west corridor traveling between the Indian River Lagoon and the Atlantic Ocean. The limits for this project are from the Indian River Bridge to SR A1A, as shown in **Exhibit 1**. The Roadway ID is 70120000. The study area includes three municipalities: Brevard County, the City of Melbourne, and the City of Indian Harbour Beach. The corridor is a hurricane evacuation route, as the road becomes a bridge to the mainland just west of the study area. Once on the mainland, SR 518 continues west to an interchange with I-95. South and north of the corridor, the nearest adjacent bridges are approximately 3.7 and 5.1 miles away, respectively. As such, SR 518 serves as the critical connection point for area businesses, tourists, and residents.

SR 518 is locally known as Eau Gallie Boulevard and is rarely called SR 518. Through a branding effort, this project and study area goes by the name “Eau Gallie Beachside”.

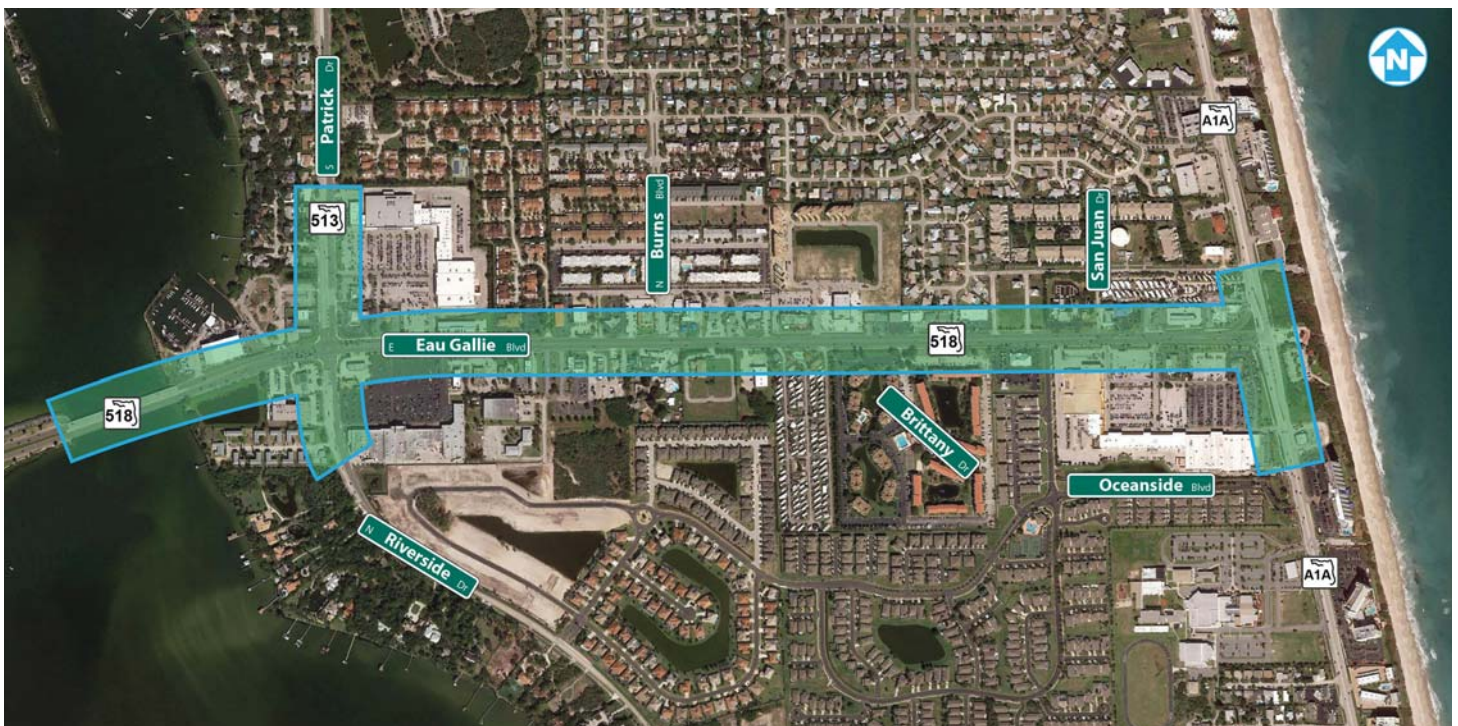
Land use fronting the corridor is primarily commercial, with single family and multi-family residential representing the majority of the land uses in the overall area.



The Eau Gallie Beachside Corridor Planning Study began as an effort to develop and evaluate potential solutions that provide safe and efficient operations for all modes of transportation, while promoting a more walkable urban environment utilizing a context-sensitive approach. This study has involved a community-based evaluation to determine how best to meet the needs of current and future users, and to establish a long-term plan to guide the evolution of the corridor that appropriately correlates the balance between land use and transportation planning. The results include potential improvement strategies that can be implemented by a variety of groups and agencies.

The purpose of this Report is to summarize the purpose and needs, corridor planning process, public involvement, corridor issues, potential alternatives and their evaluation, and a preliminary implementation plan.

## *Exhibit 1: Study Area*



## 2.0 PURPOSE AND NEEDS REPORT

A Purpose and Needs Report for this project was finalized in July of 2015. The report, documented separately, includes a Purpose Statement, several Needs Statements, and a table of guiding principles and measures of success.

The potential improvement strategies for this project are consistent with the Purpose and Needs, and have been evaluated based on the guiding principles and measures of success.

### **Purpose Statement:**

To provide better pedestrian and bicycle connectivity, reduce vehicular conflicts, and improve operations along Eau Gallie Boulevard (SR 518).





## Needs Statement:

Connectivity improvements are needed based on the mix of uses and current bicycle/pedestrian demand. This corridor provides retail and service uses adjacent to residential areas. The resulting high demand is currently traveling with unfriendly conditions in many areas, which lack sidewalk, bike lanes, access to transit, and other features. The following elements contribute to this statement:

- » Operational inefficiencies were observed and analyzed for the main intersections on the corridor. Stakeholder and public involvement input has indicated issues at the intersections.
- » There are no bike lanes along the corridor, but several bicyclists are observed during site visits and during traffic counts conducted for the study. Shoulders are sometimes used as bike lanes but are often blocked by trucks.
- » The north side of SR 518 lacks continuous sidewalks and lacks connectivity between adjacent properties.
- » Crash data indicate that crashes occur throughout the corridor, likely due in part to the lack of access management. Crashes involving pedestrians occur primarily at mid-block locations (not at the signalized intersections).
- » Most transit stops lack ADA compliant features, such as a concrete slab and access via a sidewalk.

The guiding principles and measures of success are listed in **Table 2**:

**Table 2:** *Guiding Principles and Measures of Success*

Guiding Principle	Measures of Success
Provide improved mobility along the north side of Eau Gallie	Percentage of road with sidewalk
	Percentage of side streets with sidewalk connections
Improve safety for pedestrians and bicycles that cross Eau Gallie Boulevard	Number of marked crosswalks
	Number of mid-block crossings
	Number of pedestrian refuges
Reduce conflicts for vehicles while maintaining access to local destinations	Number of driveways modified
	Number of conflicts removed
Improve operating conditions at intersections	Reduction in delay (seconds)
	Reduction in queue length (feet)
Enhance connectivity to Parks and to the Causeway Relief Bridge	Number of modes with access to attractions
	Number of new connections



## 3.0 PROJECT PROCESS

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### Corridor Planning Purpose

The purpose of a Corridor Planning Study includes the development of an implementation plan that identifies a range of multi-modal solutions to address the mobility needs within a context that reflects the goals and objectives of the long term vision for the study corridor. The details of the plan were developed in an environment that encouraged input and collaboration from stakeholders, as well as from various departments within FDOT, including project development, traffic operations, design, and maintenance. The implementation plan includes long-term strategies that guide future development within the corridor, as well as specific improvements that can potentially be advanced in the near term through local agency participation and/or by FDOT as Resurfacing, Restoration, Rehabilitation (3-R) projects, safety enhancements or push-button projects, such as traffic operations signal re-timing projects.

### Corridor Planning Process

A flow chart showing the project process is provided in *Exhibit 2*.

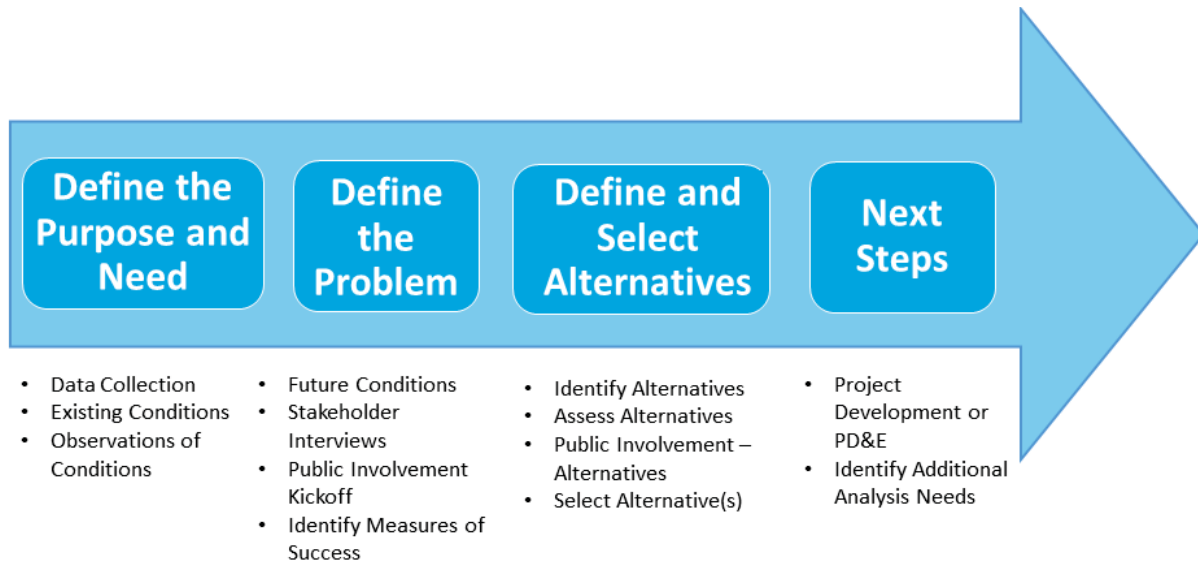
Beginning with a visioning process, key project stakeholders were identified and engaged during a series of meetings to establish the goals and objectives for the study. This effort was supported by a context-sensitive examination of the existing conditions, and identification of constraints and opportunities. Based on the visioning process and supporting evaluations, a Purpose and Needs Report was developed to summarize the issues to be addressed with the planning effort, and identify a range of safety and multimodal improvements to be evaluated.

The next step in the planning process was the corridor assessment, which involved documenting the future vision for the corridor to include specific policy goals and objectives, as well as the range of potential alternatives identified during the visioning process. A due diligence evaluation of improvement alternatives was developed to support discussions amongst the Department and Project Visioning Team as viable alternatives to be advanced into the next phase were identified. This phase of the study included a Public Information Workshop to review the corridor planning process and study objectives, as well as to present the improvement strategies identified for consideration. At this stage in the process, input received from the public was given serious consideration and incorporated into the more in-depth alternatives assessment and evaluation.

With input received from the public, the Department, and the Project Visioning Team, the ensuing step was to develop evaluation criteria for the comparison of alternatives and identify the range of viable alternatives and improvement strategies at the planning level. These alternatives and strategies have been considered, but still need to be evaluated in greater detail in a future project development phase. The end result of this study is therefore a list of recommended projects to evaluate further. Project Development for each improvement is likely needed prior to initiating design or other implementation steps.



**Exhibit 2: Planning Study Process**



## Next Steps

This Corridor Alternatives and Strategies Report serves as the final report for the planning study. It includes viable improvements that are recommended for further consideration.

The likely next steps include Concept Development, Design, ROW, PD&E, and construction phases. The immediate next step of Concept Development will focus on a more accurate assessment of project impacts, costs, and schedules. The subsequent steps are less known at this point in time and will be better understood at the conclusion of the concept development phase. Once projects are determined to be ready for design, a local government can apply to have the projects added to the Space Coast Transportation Planning Organization’s prioritized project list. Once funded, the design, right-of-way acquisition (if needed), and construction phases can occur.

## 4.0 PUBLIC INVOLVEMENT

Several Public Involvement steps have been taken to obtain input on the vision for the corridor. The major steps include stakeholder interviews, a public kickoff workshop, Project Visioning Team (PVT) meetings, and the Alternatives Public Workshop. These events are summarized below in chronological order.

### Stakeholder Interviews

Stakeholder interviews were conducted on February 24, 2015. Three separate interviews were held:

- » City of Indian Harbour Beach
- » City of Melbourne
- » Brevard County

Meeting documentation and minutes are documented in the Comments and Coordination Report, to be finalized upon completion of the corridor study.





In summary, the following topics were discussed:

- » Due to the large number of driveways and the lack of a median, there are several areas with concerns of the number of conflicts, particularly between the two shopping centers on the west end of the corridor.
- » Sidewalks need to be provided throughout the corridor.
- » Crosswalks are needed though there are not locations with concentrated demand.
- » Connectivity to bike trails is important.
- » School bus stops are a safety concern.
- » Long term vision – 4 lane divided with curb and gutter.
- » Alternative routes – there are no viable alternatives to Eau Gallie Boulevard.
- » Driveway spacing – While the driveways are close together, there are few redevelopment possibilities. The Cities support realigning driveways when feasible.
- » Burns Boulevard – Several stakeholders expressed a desire to signalize this location and provide crosswalks. The concern is with difficulty for southbound left turns and the delay they experience.
- » Intersection of Eau Gallie Boulevard and South Patrick Drive – There was a question of whether the second westbound left turn lane is needed.
- » Intersection of Eau Gallie Boulevard and SR A1A – The free right turn lanes were recommended to be removed, crosswalks should be added, and the eastbound left turn lane is not long enough. There is poor lane utilization in the shared through/left turn lane, which could be improved through signage.
- » Parking concerns
  - » There are safety concerns associated with people parking at the Walmart then walking across SR A1A to Lou's Blues (a bar across SR A1A from Wal-Mart and/or use the beach access). Many of the crossings occur at night and there have been crashes.
  - » Parking lots for many businesses are inadequate, with some of the circulation occurring on SR 518 right of way. Some parked cars affect sight distance for vehicles leaving side streets.

Notable topics that did not appear to be major concerns are:

- » Transit – Despite poor access to stops, this was not mentioned as a primary concern.
- » Speed – There wasn't much concern with the speed of traffic in the through lanes, but there is a concern with vehicles speeding in the two-way left-turn lanes.
- » Drainage was not mentioned as a problem, other than for some private developments with poor parking lot drainage.
- » Cross access – Cities do not seem enthusiastic about requiring cross access.



## First PVT Meeting

A Project Visioning Team (PVT) meeting was held on April 1, 2015. The sign in sheet is attached in **Appendix A**. All of the project stakeholders were invited. The PVT started with a presentation, then moved to an open discussion.

- » During the meeting, one issue regarding lighting on the Causeway Relief Bridge using LED lighting was addressed.
  - » After the meeting, we were informed that the City of Melbourne has plans to replace the existing lighting with LED lighting.
- » Another major area of concern was the Publix shopping center and the conflicts that occur when leaving the center.
  - » When leaving the center and turning northbound onto South Patrick Drive, it is difficult to U-turn to travel southbound.
- » Next was the issue of trail continuity expressed by Herb Hiller of the East Coast Greenway Alliance.
  - » The Trail, with all beach cities' approval, is being realigned to SR A1A with a minimum width designated to be 10 feet.
  - » He also expressed the need for improved bike and pedestrian facilities.
- » In addition, concerns were expressed over drivers continuously riding in the center turn lane.
  - » Raised medians were suggested as a potential solution.
  - » Potential locations for these raised medians were discussed and it was stated that areas for potential mid-block crossings should be priorities.
  - » Also additional signage for lane utilization was suggested for the eastbound left turn at SR 513 / South Patrick Drive and eastbound left turn at SR A1A.
  - » Signage to show lane geometry was also suggested for turn lanes eastbound on Eau Gallie to northbound South Patrick Drive.
- » Another pressing concern was discussed regarding Bob's Bicycle Shop.
  - » When cars are in the parking lot, drivers cannot see around the parked vehicles when approaching SR 518 from Burns Boulevard causing drivers to pull out too far and almost going into SR 518 traffic.
  - » Representatives from the shop stated that they receive frequent phone calls from concerned residents/drivers.
- » It was also expressed that a signal at Burns Boulevard is desired.
- » In regards to SR A1A, sight distance issues for the north side are a concern. In addition, restricting the free right turn onto SR A1A was discussed.
  - » A suggestion was made that as a compromise to taking away the free eastbound right turn, traffic would only stop for pedestrian activity.
  - » It was mentioned that if turn lanes were taken out, there would be an opportunity for beautification.
  - » Also, the northbound left-turn lane needs additional time and an overlap phase should be considered.
  - » There is a concern that there is no southbound left turn signal.



## Public Involvement Kickoff Workshop

The Public Involvement Kickoff Workshop was held on April 29, 2015. This meeting was conducted as an open house format with a formal presentation given by Heather Garcia and Todd Davis from the Florida Department of Transportation. Two hundred and twenty-eight (228) invitations were mailed out to property owners along the corridor based on a 300-foot buffer from the road centerline. Twenty-four property owners attended, as well as one elected official.

During the meeting, an aerial overview of the study corridor was presented. The public's questions, comments and concerns were recorded on the aerial exhibit.

- » It was noted that a signal is desired at Burns Boulevard or Parkside Place. If a signal is placed at Burns Boulevard, it needs to be aligned with Unity Drive. However, Bob's Bicycle Shop is worried about a signal being placed at Burns Boulevard.
- » Additional lighting along the corridor was also desired.
- » The safety of the two way left turn lane was also a concern.
- » Another request brought to attention was the restriping and additional signage for the bike lane to ensure that riders know it is, in fact, a bike lane.
- » An additional concern was expressed in regards to services at Coastline Church. There are three services of over 1,000 people on Sunday morning with police to direct traffic flow. With the church letting out along SR 518, backups along this segment are created.
  - » It was also noted that a church expansion was being developed south of Bealls Outlet.
- » During the meeting, the pedestrian crossing at SR 518 and SR A1A was also deemed dangerous due to failure to yield.
- » Additional sidewalk is also needed along the east side of SR A1A from Lou's Blues to Beach Parking.
- » The overall impacts at SR 518 and SR A1A were also a concern to an unincorporated area north of SR 518 along the beach side.

## Second PVT Meeting

On October 15, 2015 a meeting was held at the Indian Harbour Beach Commission Chambers to discuss the Eau Gallie Beachside (SR 518) Corridor Planning Study. The meeting was with stakeholders and started with a presentation given by Todd Davis and Mike Woodward. During and after the presentation, the following items were discussed:

- » A question was raised whether the result of this study would be a series of project applications to be submitted to the Space Coast TPO. It was explained that this study does not include project development, so the results will not be vetted with a level of detail sufficient for a project application. The results of the study will likely be a series of concepts that are recommended for further analysis.
- » Regarding the Burns Boulevard intersection, Todd Scaldo, Indian Harbour Beach Director of Public Works, stated that the signal is desired due to safety concerns, rather than due to capacity concerns.
- » An additional fatality recently occurred near the Publix entrance on South Patrick Drive between a vehicle exiting the shopping center and motorcycle that was traveling northbound.
- » Stakeholders understand that there are no locations to add a median along the corridor without blocking access to and from businesses, unless there is a place where U-turns can occur.





- » Jenni Lamb, City Engineer for the City of Melbourne, said that sidewalk easements may be available for properties on the north side that have sidewalks within private property. She will check the City's records and coordinate with the project team.
- » South Patrick Drive / SR 518 is a concern since there is not a good location for traffic to U-turn from northbound to southbound. Drivers often use the neighborhood west of South Patrick Drive to turn around.
- » A question was asked whether the team considered adding a crosswalk somewhere in between the two roundabouts for Tier 2. While it was considered, there does not appear to be a distinct location with concentrated pedestrian traffic. Future steps should consider collecting pedestrian counts if areas are identified with high demand.
- » Stakeholders recommend adding roundabout safety data to the presentation.
- » Other roundabout concerns and questions:
  - › Can trucks make the turn?
  - › Can trucks drive over the median?
  - › The fire department will send over their largest vehicle specifications to ensure that the emergency vehicles will be able to safely use the roundabouts.
- » After the presentation of Tier 3, Leigh Holt, Multi Modal Program Manager, Space Coast TPO, suggested that at the Public Meeting the Tiers should be presented starting with Tier 3. She also suggested changing the name from "Tiers" to something else to emphasize the "a la carte" style.
- » Shauna Hume, Secretary to the City Manager, City of Indian Harbour Beach, brought up concerns about the traffic counts being low at Burns Boulevard because people avoid it and use other roads whenever possible.
- » In general, stakeholders offered the following comments:
  - › There is support for Tier 2 (roundabouts and median) with some aspects of Tier 1 included, such as the median and access modifications, sidewalks and bike lanes.
  - › The Publix exit onto South Patrick Drive is a big area of concern for safety, particularly if there is more traffic there if turns are restricted from the shopping center to Eau Gallie Boulevard.
  - › Recommendations for a roundabout should include a public education campaign.
- » In response to concerns about traffic on South Patrick Drive, the project team agreed to take another look at potential modifications.

## Alternatives Public Workshop

On Thursday, November 19, 2015, an Alternatives Public Meeting was held to discuss potential improvements for the Eau Gallie Beachside (SR 518) Corridor Planning Study. Two-hundred thirty-four (234) invitations were mailed out to property owners along the corridor based on a 300-foot buffer from the road centerline (**see Appendix B**). In addition, an article was placed on the front page of the Harbour Highlights Community Newsletter. Ninety-four (94) property owners/interested parties attended, as well as four (4) elected officials. It is estimated (by show of hands) that approximately 20 percent of attendees received a post card in the mail and 80 percent of attendees were notified by the community newsletter or by word of mouth. The sign in sheets are included in **Appendix C**.

The meeting was conducted as an open house format from 5:30 p.m. until 7:30 p.m. Several graphics were



on display and project team members were available to answer questions. A formal presentation was given at 6:00 p.m. by Amy Sirmans and Todd Davis from the Florida Department of Transportation (**Appendix D**). Mike Woodward from Kimley-Horn presented the alternatives being considered.

Meeting participants were asked to hold their questions and comments until the end of the presentation, though several discussions occurred during the presentation. The following questions/comments were discussed:

- » A signal is desired at Burns Boulevard by many residents, with most citing safety concerns.
  - › The project team described the lack of engineering justification and the disadvantages of installing a traffic signal.
- » Is northbound/southbound crossing over SR 518 at South Patrick Drive being addressed?
  - › Project team responded that this has been considered, with changes included in the potential improvements.
- » Concern about traffic backing up into the Winn-Dixie parking lot.
  - › Project team noted the anticipated operating conditions, which are acceptable.
- » Tier 1 (at SR A1A) will cause backup into A1A due to people waiting to turn into Walmart.
  - › Project team stated that this will not occur often, based on analysis.
- » Concerns that the eastbound left turns will conflict with westbound right turns at SR 518 and South Patrick Drive.
  - › Project team noted that this concern is alleviated in the potential improvements.
- » Roundabout Discussions:
  - › FDOT provided a handout on roundabouts.
  - › Roundabouts will provide a positive impact and many benefits.
  - › Roundabouts will increase safety due to raised median/pedestrian refuge.
  - › Many questions were raised regarding the operation of roundabouts and how they work. Their operation was then described at both potential locations.
  - › Bicyclists raised concerns over sharing the road with motorists in the roundabouts. Would like to see bike lanes added to roundabouts.
    - Project team responded that the design is consistent with state and federal standards. There are two options for bicyclists: they can either merge with vehicles prior to entering and operate as a vehicle or they can use a ramp to enter the sidewalk and cross like a pedestrian.
  - › Roundabouts can provide beautification with landscaping (if funded and maintained by City).
  - › Concern that people do not understand how roundabouts function; concern that businesses will suffer due to people taking alternate routes to avoid roundabouts; concern with access changes due to removal of the two-way left-turn lane.
  - › Signage and pavement markings are essential for roundabout safety/effective operation.
  - › Concerns that proposed roundabouts will be like the roundabout in Viera at the intersection of Wickham Road and Lake Andrew Drive. It was suggested that this roundabout causes many crashes and judges disregard citations written. The project team noted some differences between the roundabouts, primarily the size, number of circulating lanes, and the amount of side street traffic.



- › Concern with people leaving bars that will be confused by roundabouts.
- › Concern that the elderly population will be confused by roundabouts.
- › Concern that traffic will back up where reduced to one lane at Burns Boulevard. The project team noted that the delay and queue are anticipated to be significantly reduced
- › A concern was raised regarding broken glass being in the bike lane on the Causeway Bridge and the resident inquired who to contact at FDOT maintenance to report such issues. The project team provided contact information.
- › Community needs to be better educated on cyclists and motorists sharing the road.
- › Request for aesthetics/beautification was voiced. Would like to match US 192 to beautify the medians. The project team noted the need for the City to fund landscaping.
- › A question was raised regarding the timeframe of completing the improvements.
  - › Project team replied that 5-10 years is likely.
- › Concern was raised regarding loss of access to businesses.
- › In the Winn-Dixie area, there is no safe way to cross the street to get to the beach. Would like to see a safe way for pedestrians to cross. Supported the idea for crosswalk at SR A1A. Project team noted that the potential improvements include crosswalks in that area.
- › Everyone but one resident agreed (by show of hands) that the Group 2 intersection improvements proposed at SR A1A is supported.
- › Suggestion for raised pedestrian bridge from Publix shopping center to Ross shopping center.
  - › Project team indicated that it will not likely be used frequently as there is a crosswalk nearby at grade, and other pedestrian generators and attractors are located throughout the corridor. Due to the low amount of anticipated use, it will not likely be possible to justify the investment.
  - › Project team indicated that this will likely require right-of-way acquisition for ADA compliant ramps.
  - › Project team indicated that this will have a large cost and would need to compete for limited funding with other projects that likely provide a more significant benefit.
  - › Justification for the pedestrian bridge would need to be provided in a separate study prior to moving forward.
- › Suggestion to reduce speed limit along the corridor. More benefit would come from reducing speed limit to 35 mph than installing roundabouts.
  - › Project team described process to change speed limit, stated that based on current rules, drivers will need to slow down before we can change the posted speed.
- › Suggestion for audible crosswalks by a person with a vision disability.
- › Suggestion for crosswalk at the Winn-Dixie signal.
- › Question was raised as to who makes the final decision if all of the proposed improvements will be implemented.
  - › Project team indicated need for support from local governments and described TPO process.
- › Concern about residents in mobile home park having to relocate if access to SR 518 is restricted. Project team pointed other potential access points and stated that the potential impact to properties will be considered in future analyses if the alternative moves forward.





- » Concerns over distracted drivers using cell phones. Request to initiate billboards or signs that read “don’t text and drive; it’s the law.”
- » Request for a mid-block crossing pedestrian signal. No location was noted.
  - › Project team described the lack of concentration of pedestrian crossings and corresponding lack of an appropriate location.

Several comment forms were received after the meeting, through email and through traditional mail. The comments and responses are included separately, in the Comments and Coordination Summary. In general, many of the comments were from people who are opposed to roundabouts, with other comments supporting roundabouts and supporting other potential improvements.

## Third PVT Meeting

After the Public Workshop, a third meeting was held with the Project Visioning Team, on December 3, 2015. The purpose of the meeting was to select alternatives and discuss the next steps. The PVT was asked to provide guidance on potential next steps, recommendations, and agency support.

On Thursday, December 3, 2015, the third Project Visioning Team Meeting was held to discuss potential improvements for the Eau Gallie Beachside (SR 518) Corridor Planning Study. Mike Woodward from Kimley-Horn and Todd Davis from the Florida Department of Transportation opened the meeting by reviewing recommendations presented at the Alternatives Public Meeting on November 19th, 2015 and asking for feedback from the attendees. The sign in sheets are included in Attachment A.

The following questions/comments were discussed in response to recommended alternatives:

- » Sidewalk on North Side of Eau Gallie Boulevard
  - › This recommendation would need to go through Concept Development and Preliminary Engineering to determine how to address existing drainage, utilities, driveways, and other miscellaneous features.
  - › As stated previously, sidewalks will be added along SR A1A (Atlantic Avenue) from N of SR 500/ US 192 to S of SR 404 as part of a resurfacing project (FPID: 428753-1) that is currently under design. This project includes a new crosswalk along the west side of SR A1A at the Eau Gallie Boulevard intersection.
- » SR A1A – Intersection Modifications
  - › Remove continuous eastbound and southbound right turns.
    - May require major utility relocation.
    - This project should move forward.
  - › Limits of the median extension (west of SR A1A) was recommended by the PVT to be consistent with the modifications shown for this intersection in the “Group 1” concept.
- » Crosswalk at Winn-Dixie signal
  - › The addition of crosswalks would need to be constructed concurrently with the northern sidewalk along SR 518. There needs to be a place for people to walk on the north side of the crossing.
  - › The crosswalk should be on the east side of the intersection, due to the western offset of San Juan to the north.
- » Publix/Bealls/Panera driveways, median extension and movement restrictions:



- › Restricting the southbound left turn out of the Publix parking lot will require drivers to use the west driveway. This will reassign volumes and impact operations along South Patrick Drive at the driveway. Construction of a signal at this location, in conjunction with the movement restrictions along SR 518, may positively affect operations, and should therefore be evaluated.
    - If a signal is constructed at the Publix entrance along South Patrick Drive, a median should also be considered between the new signal and the SR 518 intersection.
    - The existing adjacent signal is approximately 1/8 of a mile away from the subject location, which is much closer than the standard spacing for a full median opening.
    - Additional analysis, including a signal warrant analysis, study should be conducted to confirm that a signal is justified and appropriate. In addition, due to the close proximity to the intersection of South Patrick at Eau Gallie Boulevard, the Department will need to approval the location.
  - › This improvement should be considered with additional data collection to quantify and evaluate the impact to the intersection on South Patrick Drive.
- » Roundabouts and Median
- › Many residents within this community are afraid of roundabouts, potentially due to a lack of understanding of how to navigate or yield.
  - › A benefit to the construction of roundabouts is that drivers will slow down at the roundabouts which may reduce the travel speed along SR 518.
  - › A raised median will cause longer drive lengths for those trying to make a left turn in or out of the existing developments.
  - › There are similar roundabouts in operation Tampa, Florida along North 40th Street at the intersections with East Yukon Street, East River Hills Drive, and East Hanna Avenue.
  - › There were questions of whether other locations are feasible to add a roundabout instead of at Burns Boulevard.

Additional miscellaneous questions/comments were discussed:

- » The owner of Bob's Bicycle Shop was in attendance and voiced concerns regarding impacts to the parking and circulation that would result in the roundabout alternative.
- » Elected officials from the City of Indian Harbour Beach are meeting on Tuesday, December 8th, to discuss the alternatives.
- » Each City should submit their own prioritized list of projects to the TPO, based on the final Corridor Alternatives and Strategies report.

Next steps for the Corridor Study:

- » Compile a recommended list of project priorities to the agencies.
- » Submit the prioritized list to the Stakeholders for review and comment.
- » Submit the final Corridor Alternatives and Strategies report.
- » Present the results to the SCTPO.
- » The PVT recommends initiating the next phase (Concept Development) of analysis for the recommended list that will precede design.



## 5.0 CORRIDOR ISSUES

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### Pedestrian Concerns

The north side of SR 518 has intermittent sidewalk, with most of it apparently located within private property. There are barriers in connectivity for pedestrians traveling along the north side of the road due to ditches, landscaping, retaining walls, and other features of the parking lots and existing retail sites.

The corridor has few locations where pedestrians can use a marked crosswalk to cross SR 518. There are no locations between SR 513 / South Patrick Drive and SR A1A, though there are pedestrians, pedestrian generators (such as apartment buildings) and attractors (retail developments) located throughout the corridor. Pedestrians are currently crossing the road at high volumes but with no noticeable concentration. Since SR 518 is a 5-lane road, there is no refuge location. Further, due to the closely spaced intersections and driveways, there are no locations along the two-way left turn lane where vehicles are prevented from entering/exiting.

### Conflict Points

The location of driveways, lack of a grid network, lack of cross access, and lack of a median results in numerous vehicular and pedestrian conflict points throughout the corridor. It is often difficult to predict where vehicles are turning, and when they should or should not enter the two-way left turn lane.

A high volume location with several driveway conflicts is located on the west end of the corridor, at the driveways to the large retail sites on each side of SR 518. The intersections are offset and also located close to the intersection with SR 513 / South Patrick Drive.

### Roadway and Intersection Operations

Development of future volumes is documented within the Future Conditions Summary, which also documents existing and projected segment operating conditions. An annual growth rate of 0.61% was selected based on a comparison of historic growth, population growth forecasts, and travel demand model growth.

Anticipated roadway volumes along the corridor indicate that it should continue to be a 4-lane roadway, which will operate at LOS C. This indicates that it is not appropriate to consider widening the road. Initial consideration was given to the possibility of a lane reduction, which was determined to not be feasible due to the existing and anticipated future volumes served by the corridor, the lack of parallel routes, lack of other options, and the designation as an evacuation route. For year 2035, Average Annual Daily Traffic (AADT) along SR 518 is anticipated to vary from 30,500 in the west to 25,000 in the east. SR A1A is anticipated to have approximately 33,000 AADT, and SR 513 is anticipated to have approximately 26,000 AADT.

Intersection volumes were calculated by applying the annual growth rate to existing volumes. Resulting intersection operating conditions for years 2020 and 2035 are shown in **Tables 3 and 4**.





**Table 3: Future 2020 Intersection Operation Conditions**

INTERSECTION	Intersection Control	AM Peak Hour (7-9)			PM Peak Hour (4-6)		
		Overall		Max	Overall		Max
		Delay	LOS	V/C	Delay	LOS	V/C
SR 518 & SR 513 / South Patrick Drive	Signalized	51.7	D	0.85	66.7	E	0.98
SR 518 & Burns Blvd	Unsignalized	1.3	A	0.19	1.5	A	0.27
SR 518 & Brittany Dr	Unsignalized	0.7	A	0.09	0.5	A	0.08
SR 518 & WalMart / Winn-Dixie Entrance	Signalized	4.5	A	0.30	12.5	B	0.70
SR 518 & SR A1A	Signalized	26.2	C	0.81	37.2	D	0.97
SR A1A & Walmart / Winn-Dixie Entrance	Unsignalized	1.3	A	0.15	4	A	0.65
SR A1A & Oceanside Blvd	Unsignalized	1	A	0.1	3.4	A	0.97
SR 513 / South Patrick Drive & Garden Apartments	Unsignalized, Near Ped. Signal	0.3	A	0.02	0.5	A	0.07
SR 513 / South Patrick Drive & Shopping Center	Unsignalized	1.1	A	0.12	4.4	A	0.68

**Table 4: Future 2035 Intersection Operation Conditions**

INTERSECTION	Intersection Control	AM Peak Hour (7-9)			PM Peak Hour (4-6)		
		Overall		Max	Overall		Max
		Delay	LOS	V/C	Delay	LOS	V/C
SR 518 & SR 513 / South Patrick Drive	Signalized	57.6	E	0.91	8.1	<b>F</b>	1.10
SR 518 & Burns Blvd	Unsignalized	1.4	A	0.86	1.7	A	0.35
SR 518 & Brittany Dr	Unsignalized	0.7	A	0.35	0.6	A	0.10
SR 518 & Walmart / Winn-Dixie Entrance	Signalized	4.5	A	0.32	13.8	B	0.74
SR 518 & SR A1A	Signalized	30.2	C	0.86	43.7	E	0.99
SR A1A & Walmart / Winn-Dixie Entrance	Unsignalized	1.7	A	0.33	6.6	A	1.2*
SR A1A & Oceanside Blvd	Unsignalized	1.2	A	0.16	7.4	A	1.82*
SR 513 / South Patrick Drive & Garden Apartments	Unsignalized, Near Ped. Signal	0.3	A	0.08	0.5	A	0.09
SR 513 / South Patrick Drive & Shopping Center	Unsignalized	0.09	A	0.14	6.4	A	0.88

\* Note that adverse results are due to limitations in the HCM calculations for stop control on a multi-lane road. Other methods of calculating and simulating conditions indicate that the movement will operate acceptably.

As noted, the unsignalized intersections shown to operate adversely should not be a concern since the adverse results are due to flaws in the equation from the industry standard manual. Contrary to stated concerns with delay, the intersection of SR 518 and Burns Boulevard is anticipated to operate with relatively small amounts of delay and acceptable conditions.



An Intersection Delay Study was conducted to determine existing delay at the intersection of SR 518 at Burns Boulevard. The study took place on June 9, 2015 from 4:15 pm to 5:15 pm. The total number of vehicles stopped in the approach were recorded throughout the hour in 15 second intervals. The total delay for the hour was 0.23 vehicle-hours. For context, it is noted that the signal warrant delay threshold is 4 vehicle-hours of delay. The peak-hour delay is only 5% of the amount of delay that is needed to warrant consideration of a traffic signal.

Two intersections are anticipated to have congestion, SR 518 at SR 513 / South Patrick Drive and SR 518 at SR A1A. The intersection with SR 513 / South Patrick Drive is anticipated to operate with demand that exceeds the capacity during the PM peak-hour for the eastbound left turn, westbound through, and southbound left turn movements.

The SR A1A intersection is anticipated to operate with several movements near capacity during the PM peak-hour. The movements are anticipated to be within the capacity, but near the limits, indicating that some cycle failures are anticipated.

## **Connectivity to Causeway Relief Bridge**

There is limited access to the causeway relief bridge, with no bike lane and no sidewalk between the relief bridge and SR 513 / South Patrick Drive.

Along the north side of the relief bridge, there is a wide bike lane that also functions as a shoulder. There are no pedestrian accommodations, and fishing along the bridge is not allowed, as posted along SR 518.

The south side of the bridge has a bike lane then a concrete separator between the road and a sidewalk.

## **Land Use Policies**

The Land Development Code of each City was reviewed to inventory and assess the requirements for parking, access, street design, pedestrian facilities, and bicycle facilities. The review focused on potential barriers to mobility and opportunities to enhance travel options. A table documenting the code requirements is attached to this memorandum.

As such, the City of Indian Harbour Beach could revise their Land Development Code to include more provisions that are intended to increase safety and mobility for pedestrians, bicyclists, and transit users. Outside of residential subdivisions and mixed-use districts, there are no requirements for pedestrian facilities. As such, there is nothing in the code to facilitate pedestrian travel along Eau Gallie Boulevard or adjacent on-residential subdivisions.

The City of Melbourne code includes requirements for sidewalks and crosswalks, as well as some provision for bicycle facilities. However, the requirements do not include standards on design elements or location criteria.

Neither code includes provisions for cross access connections that would allow the access management standard spacing requirements to be met for driveways.

While there are several access, parking, and street requirements within the Melbourne code that would be helpful to the corridor, much of it is already developed and nonconforming. The nonconforming uses will likely not be improved until they are redeveloped in a way that is significantly different than the existing use. Similarly, Indian Harbour Beach has a requirement that parking movements are not performed within public right-of-way, but several nonconforming uses are located along the corridor.



In summary, much of the development along the corridor predates code components. The developments which have the most concerning issues (i.e., direct parking/pull out onto Eau Gallie Boulevard) were likely built long ago and have not experienced a significant change in use.

## Environmental Analysis

Several GIS databases were collected to better understand socioeconomic indicators, environmental concerns, and land use data. The Efficient Transportation Decision Making (ETDM) process was used to collect various data near the corridor, including demographics, basin areas, and environmentally sensitive areas. The ETDM screening indicates that the potential transportation improvements will not likely impact environmentally sensitive areas.

## Design Criteria

Several sources were used to determine the appropriate design criteria. The primary reference material and standards are shown in the table below.

**Table 5:** Primary Standards for Improvement Concepts

Topic	Standard
Bike Lanes	FDOT's Plans Preparation Manual, Volume 1, Chapter 21.5.3 and Chapter 8, FDOT Index 17347
Crosswalk Criteria - Unsignalized Locations	Traffic Engineering Manual, Section 3.8
Lane Width	FDOT's Plans Preparation Manual, Volume 1, Chapter 21.5.3
Median Width	FDOT's Plans Preparation Manual, Volume 1, Chapter 2.2.1
Roundabout Standards	FDOT's Florida Roundabout Guide, MUTCD Chapters 2B and 3C, FHWA's Roundabouts: An Informational Guide (Pub # FHWA-RD-00-067)
Sidewalk Width	FDOT's Plans Preparation Manual, Volume 1 Chapter 8.3.1
Signal Warrant Criteria	Manual on Uniform Traffic Control Devices (MUTCD) Chapter 4C
Turn lane length	FDOT Index #301





## 6.0 POTENTIAL IMPROVEMENT STRATEGIES

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Potential strategies were considered that address intersection improvements, medians or traffic separators, driveway consolidation, sidewalks, transit improvements, bridge improvements, implementation of roundabouts, and parallel facilities.

The improvements were divided into three groups based on their relative level of difficulty to implement. Note that this grouping is separate from the eventual grouping of improvements that is described in the “Implementation Vision” section of this report.

- » Ideal transportation facility – This group of improvements would serve all users and provide all of the desired improvements. This concept was identified in order to communicate the magnitude of the resulting impacts to the community and to each property along the corridor.
- » Group 1 – This group of improvements includes options that are the least difficult to implement, with the fewest impacts to the community (compared to the other groups). This group also generally has fewer benefits than the other groups.
- » Group 2 – This group of improvements includes some property acquisition at specific locations in order to provide additional benefits and mobility. The improvements in this group are relatively more complex than the Group 1 improvements, yet still much less complex to implement than the ideal facility.

The purpose of the groupings is to communicate the relative levels of complexity of various improvements. Note that several of the concepts within Group 1 and Group 2 could be interchangeable or implemented in phases. Other portions of Group 1 and Group 2 represent alternative configurations at specific locations that would be inefficient to implement in phases. For example, if the Group 2 improvements at the SR A1A intersection are desired, it would be inefficient to first implement the Group 1 improvements. On the contrary, Group 1 improvements at the SR 513 / South Patrick Drive intersection could be implemented without affecting the cost or design of Group 2 improvements at that location.

### 6.1 Ideal Transportation Facility

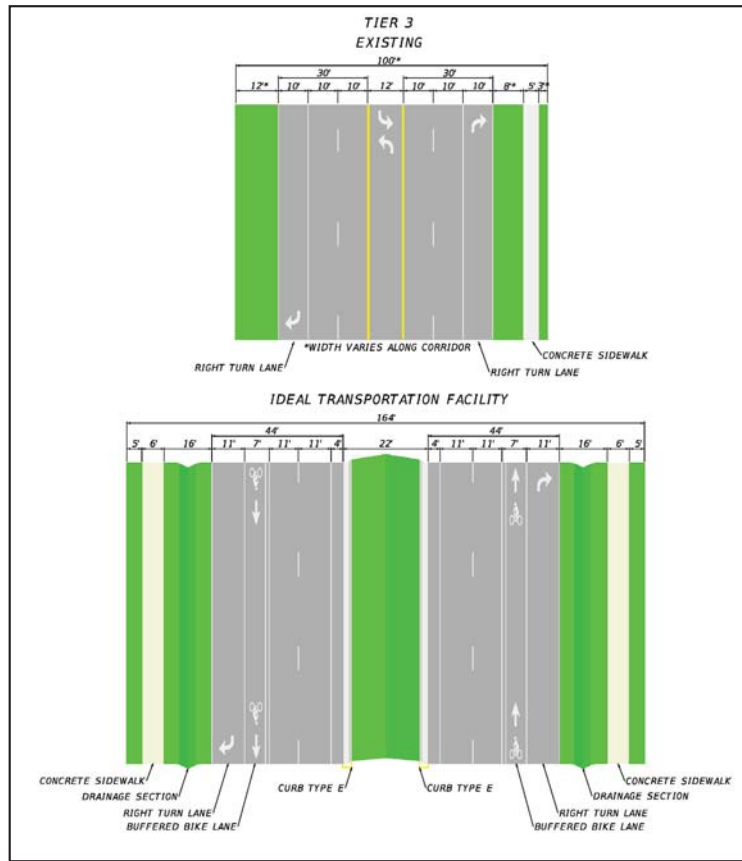
#### Description

In order to provide an ideal transportation facility that has space for all users, Eau Gallie Beachside would require major reconstruction and property acquisition from each property along the corridor. A significantly wider typical section would be needed in order to construct a standard width roadway median, standard width travel lanes, standard width bike lanes, and standard width sidewalks. Further, roadway drainage would need to be accommodated either through roadway swales or ponds. Alternative methods for accommodating drainage and utilities were not explored within this analysis since each method has benefits and drawbacks and would require significant property acquisition. It is not appropriate to determine preferences for specific details of the configuration until after it is determined that the community, agencies and elected officials, the TPO, and the FDOT are supportive of the overall concept. The existing and ideal typical sections are shown in **Exhibit 3**. A plan view of the concept is available separately for the entire corridor, as a scroll plot. An excerpt is shown in **Exhibit 4**. Note the location of the yellow lines, which represent the approximate location for the boundary of property acquisition.

Due to the community impacts, this group of improvements is referred to as the Ideal Transpiration Facility, recognizing that what is ideal for transportation is likely not ideal for the community.



**Exhibit 3:** Existing (Top) and Ideal Transportation Facility (Bottom)



**Exhibit 4:** Example Plan View of Ideal Transportation Facility





## Consistency with Purpose and Need

This improvement strategy is consistent with all aspects of the purpose statement, in that it would improve pedestrian and bicycle connectivity, reduce vehicular conflicts, and improve operations. The improvement includes a median throughout the corridor that would substantially reduce conflicts and the resulting crashes when compared with the existing two-way left turn lane. The median can also serve as a pedestrian refuge for pedestrians that cross the street at locations that are not marked.

A Guiding Principle of this Study is to “Reduce conflicts for vehicles while maintaining access to local destinations”. While this improvement would drastically reduce the vehicular conflicts, it would fail in maintaining access to local destinations. Most of the properties along the corridor would lose significant portions of their parking lots, to the extent that many of the sites would likely not be viable. Similarly, while pedestrians would have a better experience while walking, they would no longer have places to walk to. Even if the community determined that they would like to obtain the properties and build the facility, the amount of space left would render many of the properties largely unusable.

In summary, it is likely that this concept has far too large of an impact on the community to be feasible. It was not supported by the public, stakeholders, or local municipalities.

## Barriers to Implementation

This concept likely carries a right-of-way acquisition cost that makes it not feasible. The need for so much right-of-way is also likely not acceptable to the community. This concept was not supported by anyone during the public meeting or in the stakeholder meetings..

There are engineering concerns that would need to be addressed prior to developing an accurate cost estimate and schedule. Complexities exist such as utility conflicts, drainage needs, and the need to harmonize the border with adjacent properties. These complexities could likely be solved, but would add time to the schedule and costs to the project.

## 6.2 Group 1 Improvements

### Description

A variety of improvements could be implemented along the corridor without requiring right-of-way acquisition or significant reconstruction. Most of the improvements within this group are interchangeable with each other and some are interchangeable with Group 2 improvements.

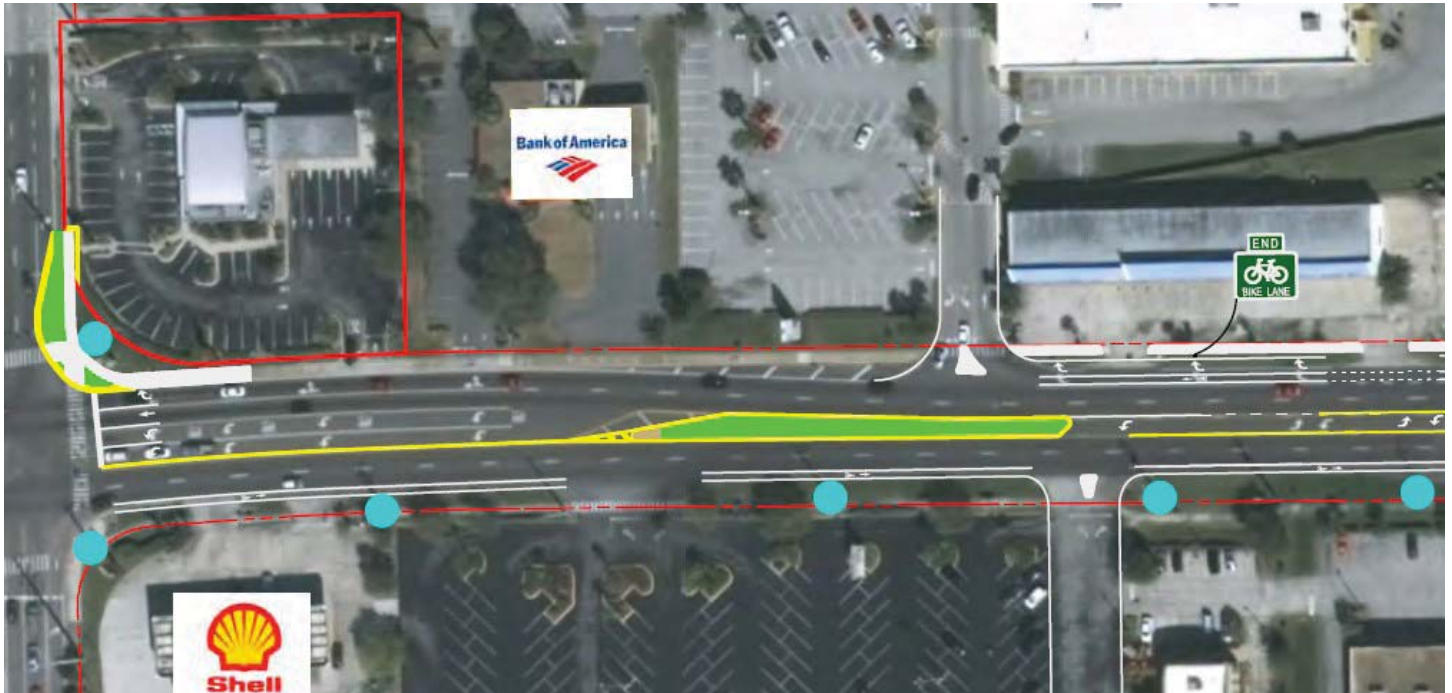
The improvements are described in general from west to east:

- » Sidewalks along the north side of Eau Gallie Boulevard.
- » Bike Lanes – both sides of Eau Gallie Boulevard.
- » Bulb-out, northeast quadrant of the intersection of Eau Gallie Boulevard and SR 513 / South Patrick Drive. This concept is shown in **Exhibit 5**.
- » Access modifications at the Publix/Bealls/Panera Shopping Center (add a raised median in the area that currently uses pavement markings to indicate that vehicles are not to use it, extending it east to prevent northbound left turns and prevent southbound left turns). This concept is shown in **Exhibit 5**.
- » Crosswalk on the east side of the Winn-Dixie traffic signal. This concept is shown in **Exhibit 6**.
- » Modifications to the SR A1A intersection (crosswalks, sidewalks, and extending the median on the western leg). This concept is shown in **Exhibit 6**.

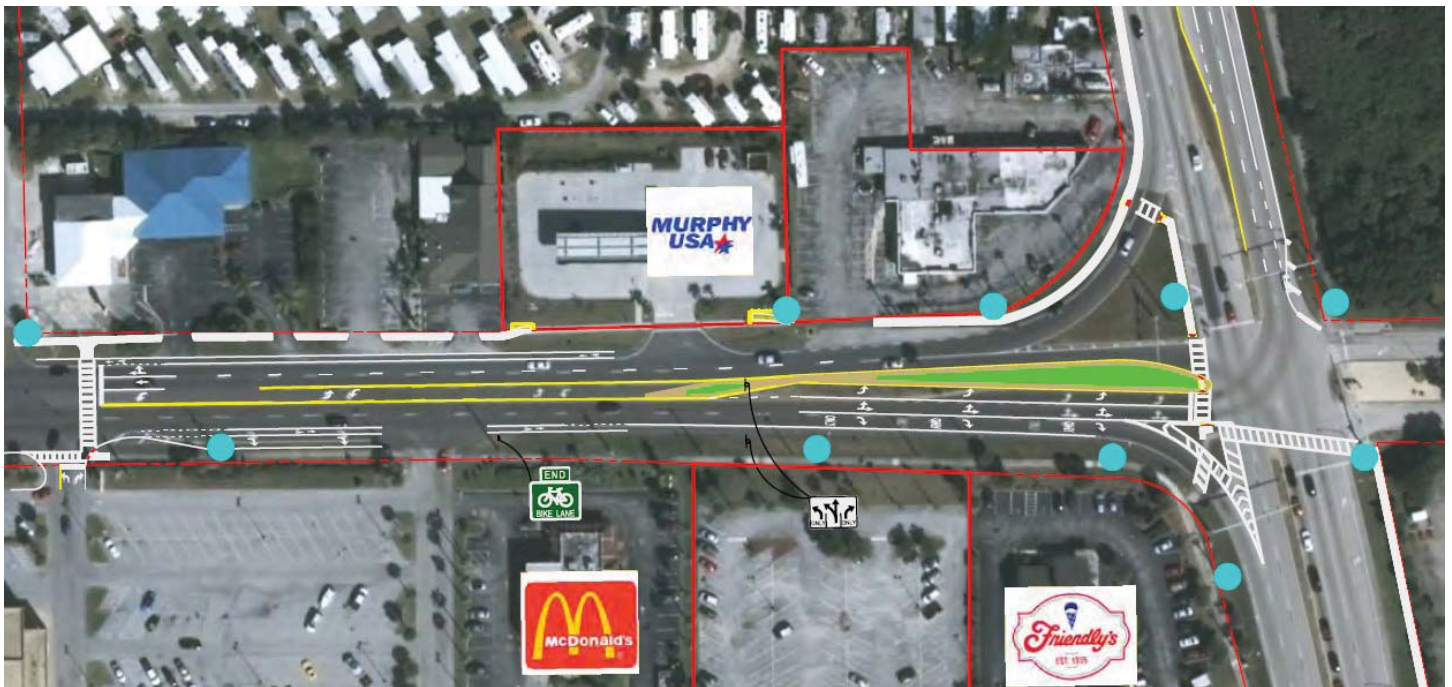




**Exhibit 5:** Plan View of Group 1 Improvements – Bulb out at South Patrick Drive and Shopping Center Access Modifications



**Exhibit 6:** Plan View of Group 1 Improvements – Crosswalk at Winn-Dixie Signal and SR A1A Changes. Note that the crosswalk in the northwest quadrant will be constructed in an upcoming resurfacing project





## Consistency with Purpose and Need

The improvements considered in Group 1 are consistent with the purpose statement and address some of the needs and guiding principles, such as providing improved mobility along the north side of the corridor and reducing conflicts for vehicles. The crosswalk at the Winn-Dixie intersection improves safety for pedestrians and bicycles that will cross Eau Gallie at that location. However, it is noted that this will be of limited use since there is an existing crosswalk approximately 1000' east (at SR A1A), with no additional crosswalks to the west until the South Patrick Drive intersection, which is approximately 4,600' to the west. Extension of the eastbound left turn lane at SR A1A will improve operating conditions at that intersection.

## Barriers to Implementation

The improvement concepts in Group 1 are feasible. They do not have right-of-way impacts. Barriers are not anticipated during permitting since the concepts are not adding vehicular capacity.

The sidewalk concepts will be relatively complex to implement due to the location, slope, and configuration of the adjacent drainage ditches. There isn't enough space within the right-of-way to add sidewalks without impacting the existing drainage ditches and structures. Mitigating impacts to drainage facilities will add to the cost of sidewalk improvements and must be accounted for in the engineering phase. Property owner coordination will be critical when connecting to properties that already have a sidewalk since they are located within private property.

Bike lanes can be implemented in most locations by signing and marking the existing shoulder during a resurfacing project. Note that space is limited and the existing shoulder is not wide enough to implement buffered bike lanes. In most locations, the resulting bike lane will only be 4' wide. There are some locations along the corridor that have no shoulder alongside the right turn lanes. In these locations, it will be necessary to widen the existing shoulder in order to implement a keyhole and bike lane. A bike lane is not included west of South Patrick Drive in the Group 1 improvements due to the anticipated level of difficulty to widen the existing typical section.

No barriers are anticipated for the bulb-out in the northeast quadrant of the intersection of Eau Gallie Boulevard and South Patrick Drive.

Access modifications to the two shopping centers on the western portion of the corridor will significantly reduce conflicts at that location, but will require drivers to use other routes. There are concerns stated by stakeholders that restricting the southbound left turn will cause vehicles to change their route by turning westbound left from the shopping center to South Patrick Drive, then turning southbound left at the intersection of Eau Gallie Boulevard and South Patrick Drive. Additional data should be collected to better understand the turning volumes that would be re-routed and the resulting operating conditions. Further, the re-routed traffic may justify a traffic signal on South Patrick Drive, though the location is at a distance that is not consistent with access management criteria. Close coordination with the shopping center should be included in the next step, including discussions of the funding responsibility of access changes. Re-routed traffic from the shopping center to the south will turn westbound right onto North Riverside Drive then northbound left at the signalized intersection. Since right turns are not typically difficult and there is less traffic on Riverside Drive, this change is not anticipated to be a concern.

There are no anticipated barriers to implementing a crosswalk on the eastern leg of the intersection of Eau Gallie Boulevard and the Winn-Dixie shopping center driveway. It is noted that a vision-impaired person at the Public Workshop asked whether there will be audible signals for pedestrians. This should be considered in the design stage.





The primary barrier to implementing the Group 1 changes to the SR A1A intersection is the preference for the Group 2 changes at that location. The Group 2 improvements have several additional benefits and are supported by the public and by stakeholders. If any improvements move forward at this location, it will most likely be the Group 2 improvements, rendering the Group 1 improvements unnecessary.

## 6.3 Group 2 Improvements

### Description

A variety of improvements could be implemented along the corridor that are more complex and have greater impacts than the Group 1 improvements. Most of the improvements within this group are interchangeable with each other and some are interchangeable with Group 1 improvements. Though they have more impacts than the Group 1 improvements, they have more benefits and address more of the corridor needs.

The improvements are described in general from west to east:

- » Modifications to the bridge and intersection of Eau Gallie Boulevard and South Patrick Drive, including the segment between them. This concept is shown in **Exhibit 7**.
  - › Provide bike lanes.
  - › Provide sidewalks (on the bridge the sidewalk is separated from vehicular traffic using a concrete barrier).
  - › Modify the westbound approach laneage to include a single westbound left turn lane (rather than dual westbound left turn lanes), two dedicated westbound through lanes, and a dedicated right turn lane.
  - › This can be accomplished by reducing the width of the median on the bridge to maintain the existing bike lane width and avoid widening the bridge.
  - › Travel lanes are realigned to match the revised median location and modified approach laneage.
  - › Addition of the bike lane and the lane realignment necessitate repurposing of the existing eastbound right turn lane.
  - › This improvement is compatible with the Group 1 bulb out in the northeast quadrant of the intersection and with the Group 1 access modifications at the shopping centers.
  - › Right-of-way acquisition will likely be necessary on the north side of Eau Gallie Boulevard west of South Patrick Drive in order to provide sidewalks and bike lanes.
- » Roundabouts and Medians: add a roundabout at the Burns Boulevard intersection, convert the traffic signal at the Winn-Dixie driveway to a roundabout, and construct a raised median between them. This concept is shown in **Exhibits 8 - 10**.
  - › Addition of roundabouts is the only way to provide access to sites if a median is added. Without the roundabouts, there is not enough width for a median, and not enough space between driveways to add a median.
  - › The roundabouts have a 2-lane by 1-lane configuration, where there are either 2 circulating lanes or 1 circulating lane.
  - › Right-of-way acquisition is needed from parcels near the potential roundabouts due to impacts to parking lots and access.
  - › San Juan Drive does not have access to the roundabout at the Winn-Dixie entrance due to the offset alignment.





- › The raised median serves as a pedestrian refuge for approximately ½ mile.
- › Auto-turn analysis was performed to demonstrate turning path of fire trucks.
- › Bicycles have the option of traveling through the roundabout as a vehicle or as a pedestrian. As per state guidelines for roundabout design, note the ramp at the points where the bike lanes end in advance of the roundabout.
- › Pedestrian crosswalks are included in all quadrants of the roundabouts.
- » Modifications to the SR A1A intersection. This concept is shown in **Exhibit 11**.
  - › Removal of the continuous right turn lanes
  - › Addition of crosswalks and sidewalks on the eastbound and southbound approaches.
  - › Extend the median on the western leg, potentially to the roundabout. If the roundabout is not implemented, the median should reflect the modifications shown in Group 1 at this location.

**Exhibit 7:** Plan View of Group 2 Improvements – Bulb out at South Patrick Drive, addition of separated sidewalk on bridge, lane realignment, sidewalks, bike lanes, and revised laneage







*Exhibit 8: Plan View of Group 2 Improvements – Roundabouts and Median*



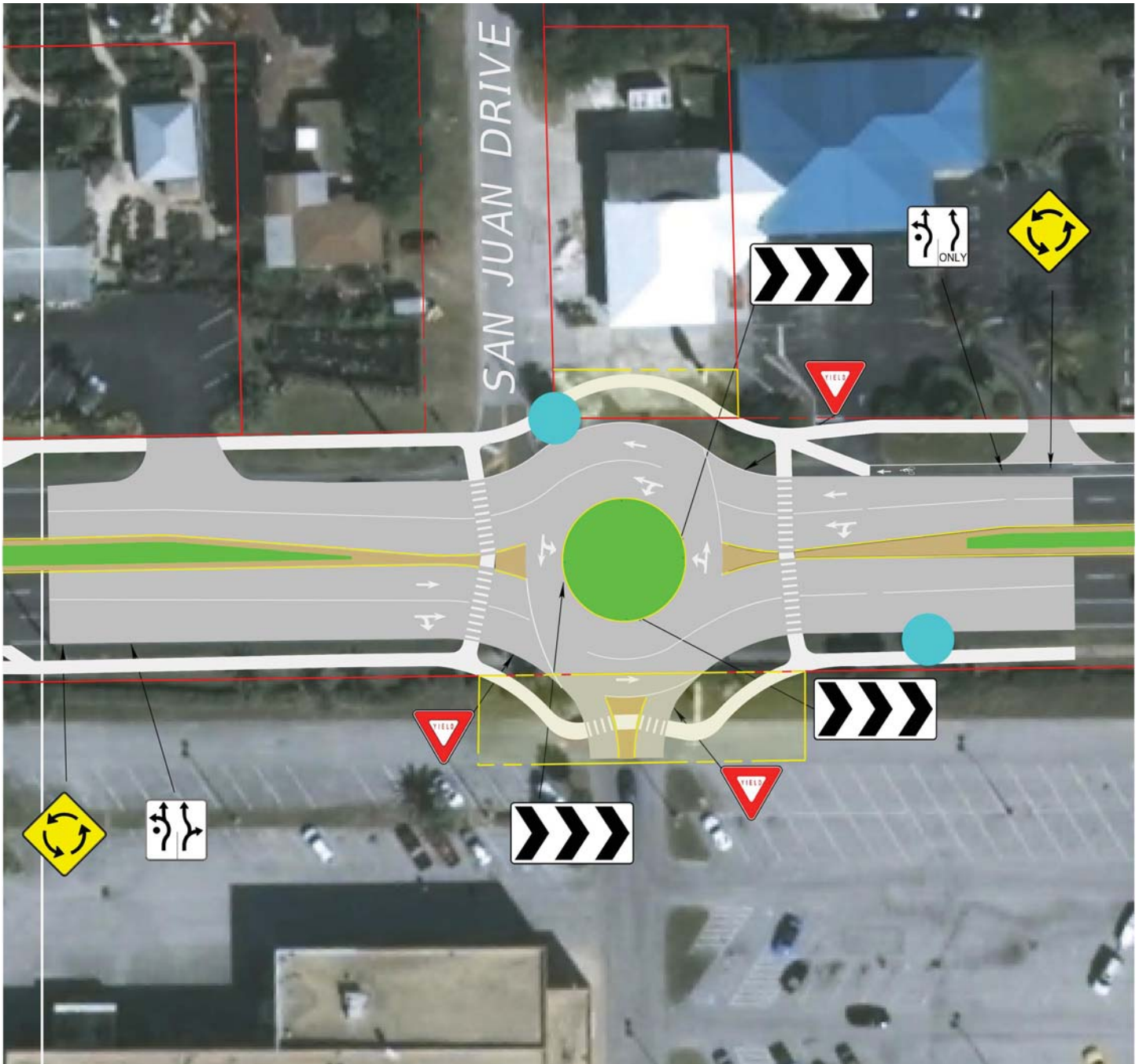
*Exhibit 9: Plan View of Group 2 Improvements – Roundabout at Burns Boulevard*







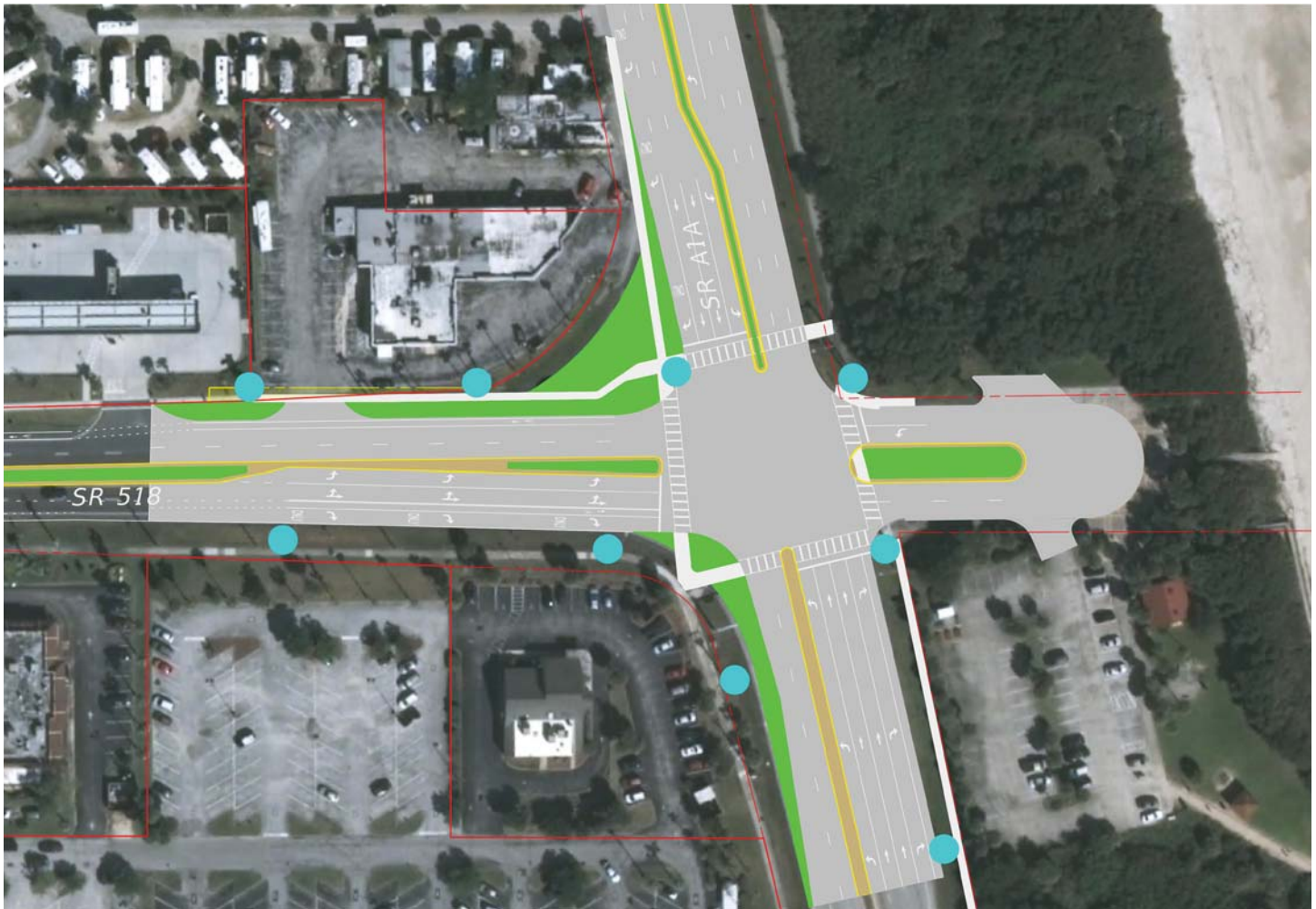
**Exhibit 10:** Plan View of Group 2 Improvements – Roundabout at Winn-Dixie Driveway







**Exhibit 11:** Plan View of Group 2 Improvements – SR A1A Intersection



### Consistency with Purpose and Need

The improvements considered in Group 2 are consistent with the purpose statement and address several of the needs and guiding principles, including a significant reduction in vehicular conflicts between the roundabouts and a pedestrian refuge for the distance of approximately ½ mile. Left turn and angle crashes will be reduced significantly if a median is provided. Note that the median is only possible if there are roundabouts on either end that allow vehicles to perform U-turns, thereby maintaining reasonable access.

The bike lane and sidewalk changes on the western portion of the corridor enhance connectivity to the Causeway Relief Bridge.

The intersection improvements at SR A1A are primarily for the explicit purpose of improving conditions for pedestrians.



## Barriers to Implementation

The improvement concepts in Group 2 are more complex than the improvements in Group 1, though they can likely be implemented if they are supported by local stakeholders.

Modifications to the median on the bridge will require a design variation since the resulting median will be narrower than the standard width. Since there are no median openings along the bridge, this does not appear to be a significant concern – the median width standards are for a median that is wide enough to have median openings where cars will turn across. Since there are no openings on the bridge, it doesn't need to be wide enough to store waiting vehicles.

Between the bridge and the intersection with SR 513 / South Patrick Drive, there are right-of-way impacts to properties on the north side of Eau Gallie. In addition to the horizontal space needed for the sidewalk and bike lane, right-of-way acquisition may be needed to harmonize the elevation difference since the properties are lower than the adjacent road. Design will also need to consider impacts to the existing guard rail that is located in advance of the bridge. These factors impact the complexity of the improvement and add costs.

The roundabouts require property acquisition. Four properties are impacted at the Burns Boulevard location, and two properties are impacted in the Winn-Dixie location. The Winn-Dixie location includes modifying San Juan Drive to no longer access Eau Gallie Boulevard, which affects adjacent properties. However, there are other feasible options for accessing Eau Gallie Boulevard, including Plano Court, San Pedro Drive, while Wallace Avenue will still have access to SR A1A. The right-of-way needs result in significant impacts to several of the properties, affecting their parking (which is already limited), access, and circulation. The right-of-way impacts correspond to high right-of-way costs and impacts to the community. The cost and property impacts are significant barriers to implementation that can likely only be overcome if the alternative is supported by the local governments.

Modifications to the intersection of Eau Gallie Boulevard and SR A1A all fit within the existing right-of-way. Utility coordination will be needed, including potential relocation of a large power pole.

With the exception of the concept that includes roundabouts and a median, concepts have community support.

## 7.0 IMPLEMENTATION VISION

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Potential strategies were presented to the public and to the stakeholders. As a result of their input, a draft plan was developed to outline the improvements that are recommended to move into the next step in the project cycle, Concept Development. Improvements in the draft plan were separated into priority groups based on the relative amount of local support and sense of urgency. Note that this priority grouping is separate and independent from the grouping of improvements that was used during the identification and evaluation of improvements (as described in the previous section of this report). The previous grouping was a practical step in the process based on the level of difficulty, whereas the grouping of recommendations is based on the urgency of improvements that are recommended to be considered further.

The Concept Development step will determine the feasibility of the improvements with a higher degree of confidence. Cost estimates and schedule estimates for subsequent steps will be determined with a greater level of detail as well. The draft Implementation Vision is shown in **Table 6**. Though they represent a final step for this study, the implementation vision should be considered as a draft since it will be modified as more information becomes available in subsequent steps.



The primary funding mechanism for improvements will be through the standard prioritization process at the Space Coast Transportation Planning Organization. Most of the projects are complex and large enough that they cannot be included as part of a push-button project. As described previously, the crosswalk at the Winn-Dixie traffic signal is a relatively small project that could be implemented through a push-button contract, but it should not be implemented until after a sidewalk is in place on the north side of the road. Bike lane additions could be implemented as part of a RRR project along SR 518.

**Table 6:** Draft Implementation Vision

Priority Group	#	Description	Location	Agency Lead	Potential Phases Needed
I	1.a	Sidewalks - North Side	South Patrick to SR A1A	To Be Determined	Concept Development / Design / Construction
	1.b	Crosswalk with audible beacon	Winn-Dixie intersection, east side	To Be Determined	Design / Construction (after sidewalk is in place)
	2	Bike Lanes	Relief Bridge to SR A1A	To Be Determined	Implement during resurfacing
	3	SR A1A Intersection - remove continuous right turn lanes, extend median	Eau Gallie Boulevard at SR A1A. Median changes along Eau Gallie	To Be Determined	Concept Development / Design / Construction
II	4a	Bridge sidewalk and connection of bike lanes	Relief Bridge to SR 513 / South Patrick Drive	To Be Determined	Concept Development / Design / Right-of-way / Construction
	4b	SR 513 / South Patrick Drive Intersection - repurpose westbound lanes (1 left, 2 through, 1 right)	Intersection of Eau Gallie Boulevard and SR 513 / South Patrick Drive	To Be Determined	Concept Development / Design / Right-of-way / Construction
	5	Driveway and median modifications	Publix / Bealls Shopping Center driveways on Eau Gallie	To Be Determined	Concept Development / Design / Construction
III	6	Roundabouts and median	Burns Boulevard to Winn-Dixie driveway	To Be Determined	Gain support then Concept Development / Design / Right-of-way / Construction