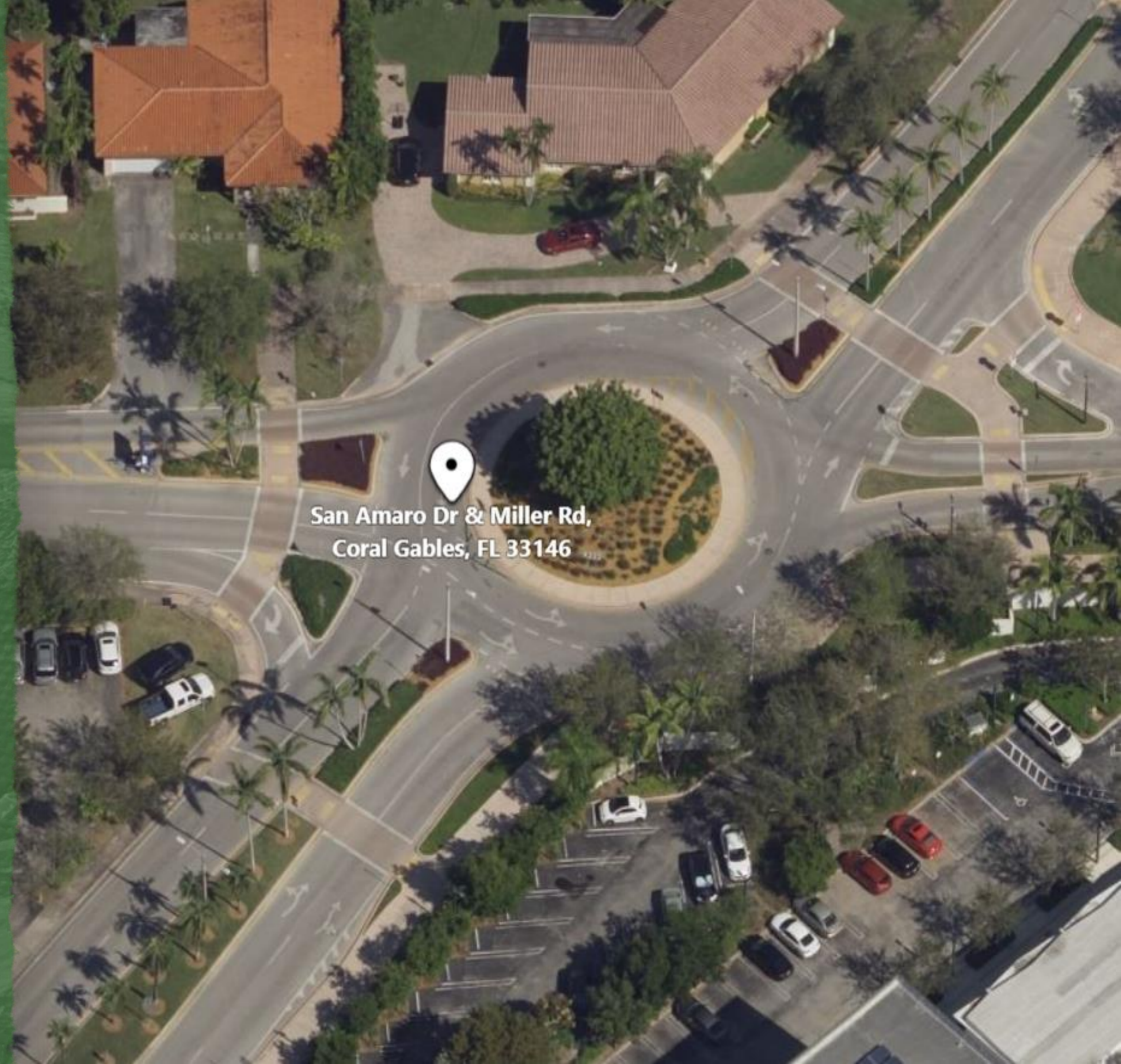


San Amaro at Miller Roundabout Analysis



City of Coral Gables
Commission Meeting

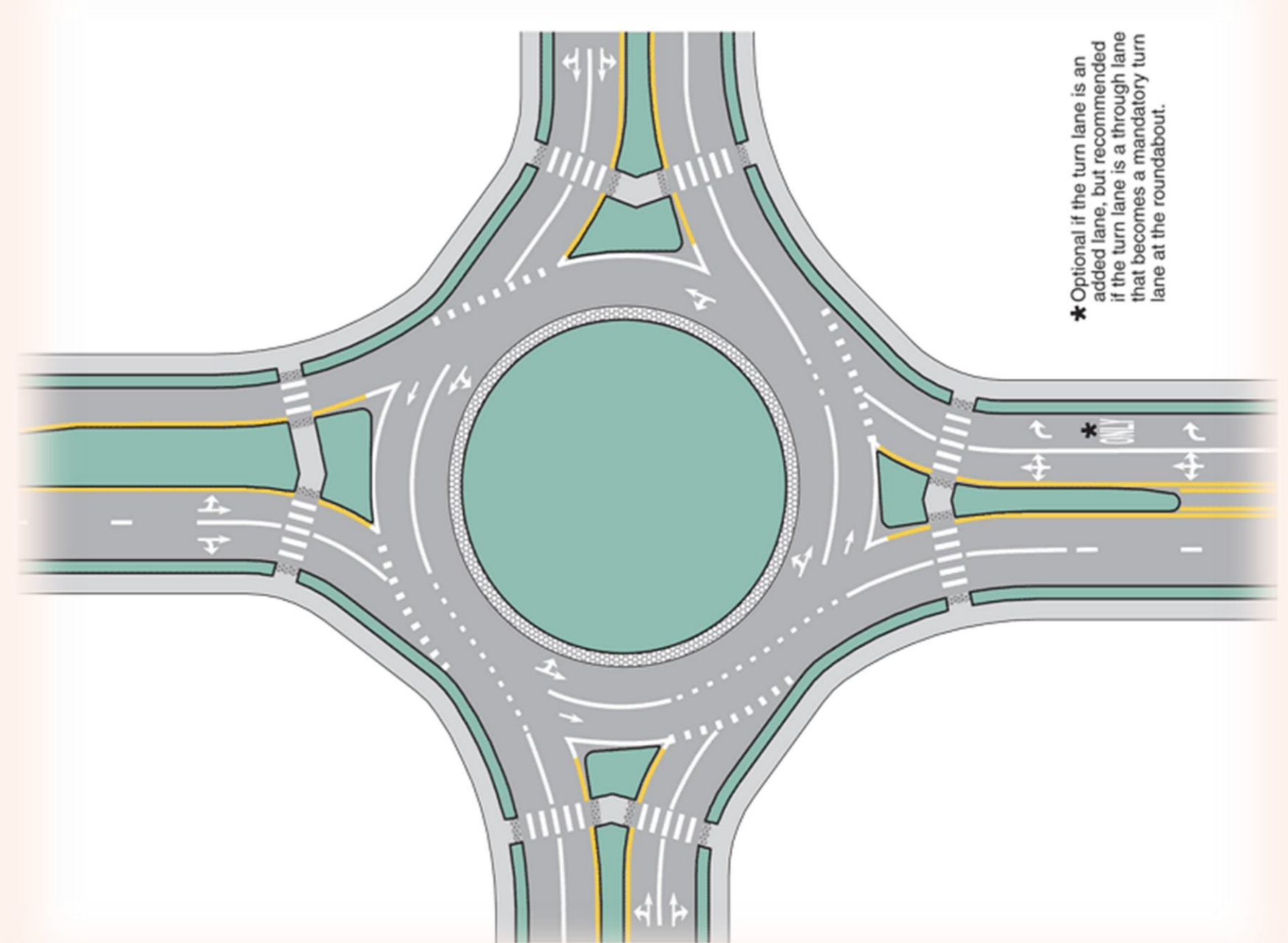
January 26, 2021



Roundabouts Overview

Benefits of Roundabouts

1. Safety (i.e. reduces the severity and number of crashes by up to 80% and reduces conflict points)
2. Less Impact on Environment (i.e. less pavement, less emissions, etc.)
3. Efficiency (i.e., vehicles do not have to stop if no vehicle is circulating)



FHWA: Manual on Uniform Traffic Control Devices

Roundabouts Overview (cont.)

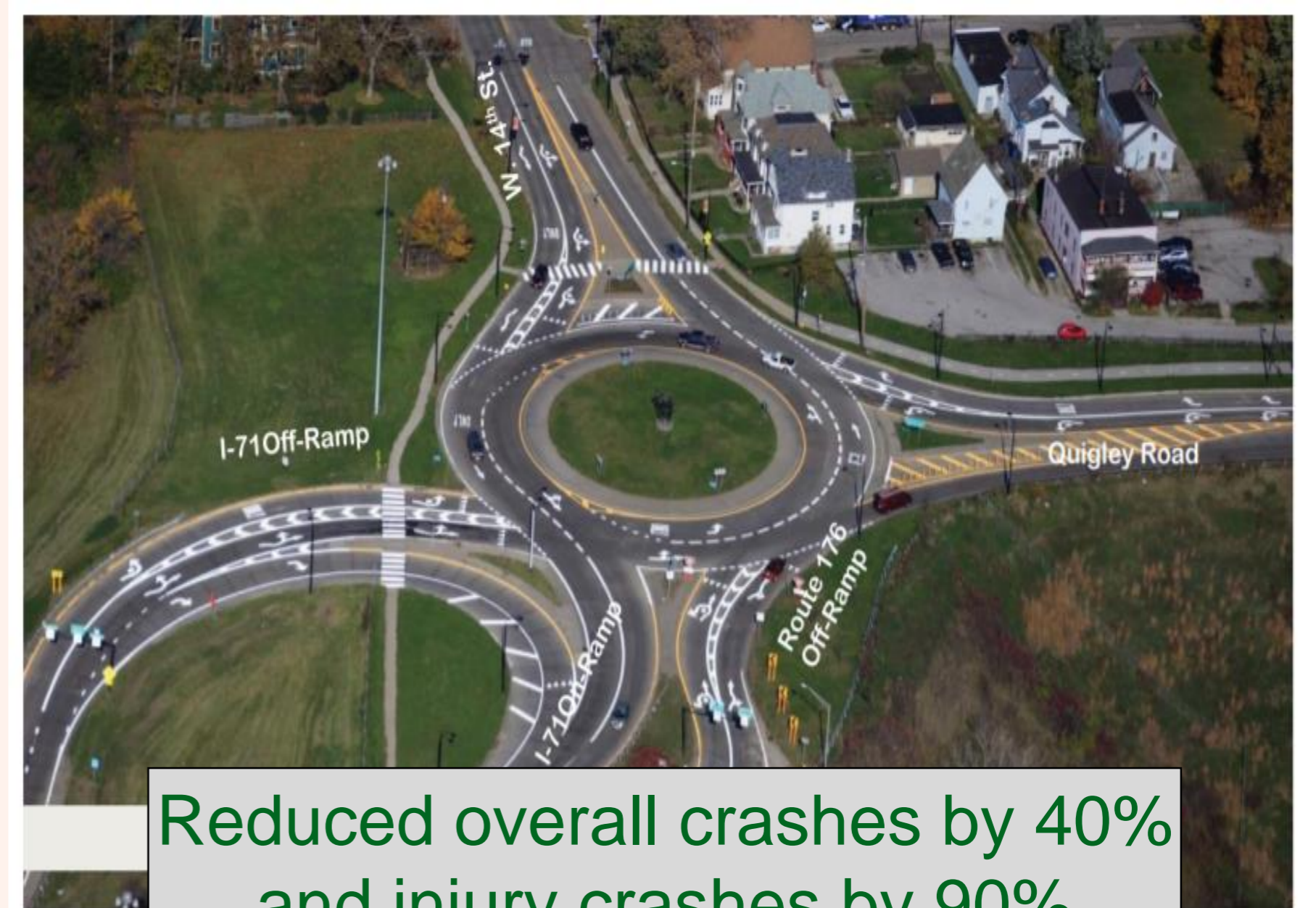
Typical Roundabout Issues

- Difficult to Understand
- Compliance issues
- Yielding Behavior
- Lane Changing (2-lane design)

Potential Solutions

- Updating the striping and signage
- Downgrading to 1-lane roundabout

**Note: Downgrading would limit the capacity of the intersection and be more costly than striping. It would NOT eliminate all human factor errors.



Reduced overall crashes by 40%
and injury crashes by 90%

<https://kutc.ku.edu/sites/kutc.ku.edu/files/docs/LTAP%20Crashes%20at%20Multilane%20Roundabouts%20and%20How%20to%20Reduce%20Them.pdf>

Roundabouts Overview (cont.)



- In 2019, IIHS conducted a study to determine the safety differences between 1-lane and 2-lane roundabouts from 2009 to 2015.
- Study found the following:
 - # of crashes at 2-lane roundabouts decreased on average 9% per year
 - # of crashes at 1-lane roundabouts on average increased 7% percent



<https://www.iihs.org/news/detail/safety-at-two-lane-roundabouts-improves-over-time-new-study-shows>

San Amaro at Miller Existing Conditions

Two-lane roundabout

- Alternating circulating roundabout (i.e., two circulating lanes across three approaches and one circulating lane across one approach)
- Recently updated with signage and pavement marking changes as a result of DPA study.



Google Maps

History of Roundabout

In 2012, the intersection was redesigned from signal control to a two-lane roundabout.

2015 MDC Recommendation

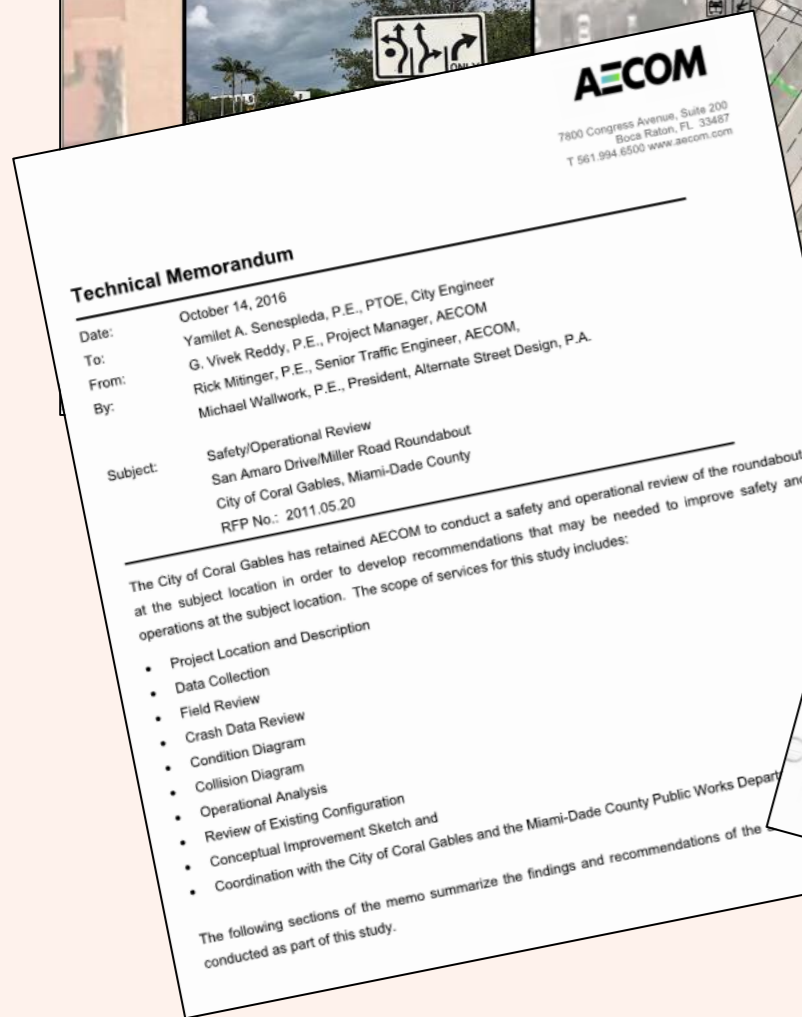
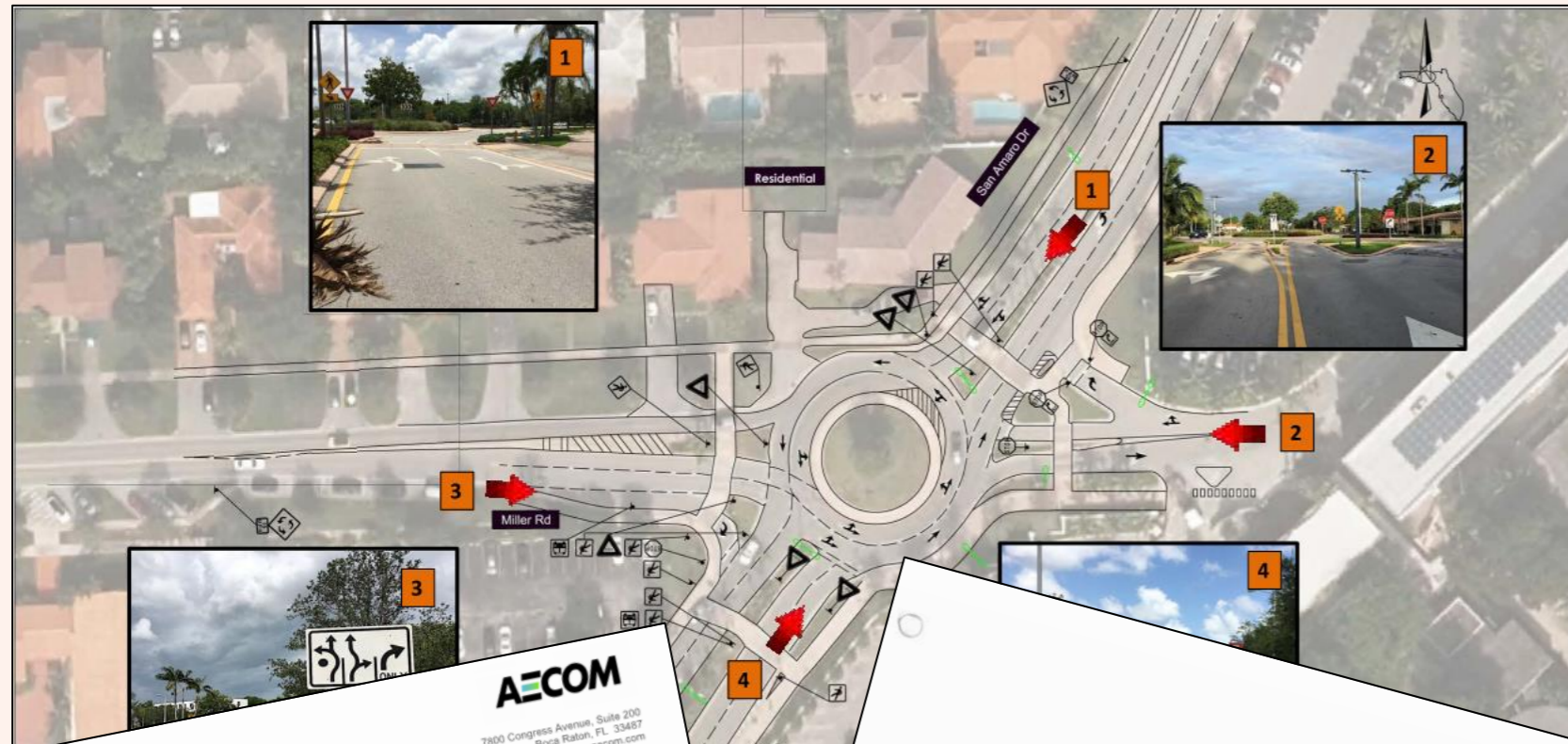
- Maintain 2-lane roundabout but change the geometry

2016 AECOM Study

- Study included crash data from 2013 to 2015 and did not allow for driver familiarity to develop and proposal should have included short-term low-cost solutions (e.g., signing and striping updates)
- Recommended one-lane roundabout

2019 DPA Study

- Based on 2017-2019 crash data
- Update pavement markings and signage
- Modify to a one-lane roundabout as follow up if no improvement
- With 1-lane, queues exceed queue storage ratio in PM peak on SB lane and extends up to Trillo Avenue, versus with 2-lane the queue would be in only one lane and would not extend up to Trillo Avenue.



Safety Analysis

- Evaluated conditions from January 2017 to December 2019 (i.e., did not include 2020 crashes due to COVID-19 conditions)
- Approximately 26% (9/34) of the recorded crashes were the result of a two-lane roundabout design vs. one-lane roundabout design; however, these types of crashes have not occurred in over a year as drivers have become more familiar with the two-lane design.
- Majority of crashes (85% over 3 years, 91% over 2 years, and 91% over 1 year) were low severity (i.e., no injury and only property damage)
- Since the installation of improvements recommended by DPA, only one crash has occurred. They were not the result of a two-lane roundabout design.

Safety Analysis (cont.)

- Roundabouts generally have issues with driver behavior. Drivers have a difficult time understanding how to navigate when entering, circulating, and exiting a roundabout. This does not discriminate between one-lane and two-lane roundabout designs.
- The crash rate table shown below has this intersection currently ranking #2 (i.e., tied with Coral Way at Segovia which is a one-lane roundabout) over the most recent 3 years, #3 over the most recent 2 years, and #3 over the most recent 1 year).

Intersection	3-Year Crash Frequency (2017-2019)	Crash Rate (3-Year)	Priority	2-Year Crash Frequency (2018-2019)	Crash Rate (2-Year)	Priority	1-Year Crash Frequency (2019)	Crash Rate (1-Year)	Priority
Miller Road and San Amaro Drive (2-lane RA)	34	1.50	2	22	1.47	4	11	1.38	3
Coral Way and Segovia Street (1-lane RA)	35	1.50	2	25	1.66	2	14	1.85	2
Biltmore Way and Segovia Street (2-lane RA)	35	2.27	1	20	1.95	1	11	2.14	1
Cartagena Circle (2-lane RA)	36	1.13	5	29	1.42	5	12	1.16	4
Miller Road at Alhambra Circle (1-lane RA)	15	1.36	4	11	1.59	3	2	0.56	5

- Furthermore, the crash rate is lower than other intersections throughout the City including but not limited to Ponce at Granada, Ponce at Alhambra, Granada at Obispo.

Recommendations

- According to studies performed by AECOM and DPA, and the Public Work's evaluation, the intersection's crash rate has decreased each year since 2017 and has minimal injury severity presence. Due to these two factors, this intersection is not the highest priority in terms of safety issues as it has not been identified as having the highest intersection crash rate within the City.
- **Staff recommendation is to have the City continue to monitor this intersection, following the signing and pavement marking improvements implemented in early 2020. Should the crash rates within the intersection increase or the overall intersection not improve, the City can look at the option of reconstructing the roundabout to a one-lane roundabout pending direction from commission and availability of funds.**

THANK YOU



CORAL
GABLES
THE CITY BEAUTIFUL

