APPENDIX A:
Stakeholder Involvement Log

Mobility Plan. Stakeholder coordination included two primary components:

- Interviews with stakeholder representatives at the outset of the project to help identify issues and needs
- Ongoing briefings of relevant MPO committees and other groups.

Stakeholder Interviews: Based on discussions with members of the City and MPO Project Management Team, the following stakeholder interviews were conducted in September and October 2010:

- Tampa Homeowners and Association of Neighborhoods (THAN): September 13, 2010
- University of South Florida: September 17, 2010
- Tampa's Downtown Partnership: September 21, 2010
- City of Tampa Economic Development: September 23, 2010
- FDOT District 7: September 23, 2010
- Central Tampa Greenspace Initiative (Tampa's Green Artery): October 13, 2010
- Westshore Alliance: October 14, 2010

<u>THAN—Randy Baron, Chair; September 13, 2010 via teleconference</u>

- Also present:
  - Michelle Ogilvie, Hillsborough MPO
  - Chris Keller, TOA
- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed implementation process, looking at existing programs, working with FDOT for sidewalks and safety projects. Mr. Baron noted frustration with the Neighborhood Traffic Calming program's reliance on 85% speed as a sole measure of need.
- Discussed project needs:
  - Mr. Baron mentioned two-way of Tampa St/Florida Ave, explained that project would identify multiple projects on State Highways and then decide on highest priorities. Potential reduction of the number of lanes in the one-way section of Florida Ave is currently being included as a preliminary candidate project.
  - Mr. Baron mentioned that Alan Snell had helped to compile a walk-bike plan for Seminole Heights and would provide a copy.
  - Discussed the merits of the Tampa St resurfacing project and the Nebraska Avenue road diet, noted problematic treatment of the lane drop/right turn lane at Columbus Drive.
- Generally discussed comprehensive plan issues, including the challenge of protecting neighborhoods give the relatively shallow frontage of most commercial corridors.
- Meeting resulted in development of a simple "Project Summary" flyer and questionnaire (Figure A-1), which was distributed by Mr. Baron to THAN membership and via the MPO website.

<u>USF—Barbara Donerly, Assistant Director Planning and Programming for Facilities Planning and Construction; September 17, 2010 at USF</u>

- Also present:
  - Ben Money, City of Tampa
  - Frank Granada, USF Parking & Transportation
  - Antonio Lourenco, USF Facilities Planning & Construction
  - Sara Hendricks, USF/CUTR
  - Ed Hillsman, USF/CUTR
- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed USF connectivity relative to Tampa study area:
  - Address connections to planned Bull Runner route along Bougainville—Mr. Money will provide routing info.
  - Address connections from Temple Terrace along Serena Dr/Whiteway Dr over to 50th St/46th St and then onto campus.
  - Consider connection from neighborhoods along Riverhills to bike lanes on 40th St project.
  - Recommended to follow-up with Julie Bond and Jason Jackman of CUTR, especially for area west of 30th St.
  - Generally discussed strategy of designating local/minor-collector streets as bikeways and accommodating safe crossing of major arterials as necessary.
  - Will provide dot-density map of students/employees to ID connectivity needs.
  - Other non-City of Tampa connectivity issues:
    - Discussed lack of sidewalk along east frontage of BBD Blvd/30th St (County/USF jurisdiction).
    - Discussed 50th St at length:
      - Traffic issues – Need SB right turn lane/storage at Fowler Ave (possible City/FDOT project)
      - Controlled crossings from east frontage to USF
      - Lighting
      - Improvements to intersection of 50th St/Fletcher Ave
    - 56th St – Difficult to cross during walking interval, large intersection/multiple conflicts

<u>Tampa's Downtown Partnership—Karen Kress; September 21, 2010 at TOA Offices</u>

- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan. Discussed that plan would not deal much with mobility within the downtown area.
- Discussed development activities adjacent to downtown which may impact Walk-Bike project needs.

Figure A-1: Walk-Bike Plan Flyer/Questionnaire

City of Tampa Walk-Bike Project Plan: Overview

In 2009, the City updated its Comprehensive Plan to encourage growth within the city's three core "Business Centers" (Downtown, Westshore, and USF), along major transit corridors, and within designated "Mixed-Use Corridors and Villages." To serve the mobility needs of existing and future residents and businesses, it is necessary to narrow down past transportation studies and planning efforts to identify and prioritize feasible bicycle and pedestrian projects and put a business plan in place to get those projects completed.

Projects identified and prioritized by this effort will generally fall into two groups:

1. "Complete Streets" projects, which reconfigure an existing roadway facility to more fully incorporate bicycle, pedestrian, and transit modes. (e.g., converting a four-lane undivided roadway to a two-lane divided roadway with pedestrian refuge islands and bicycle lanes).

2. Stand-alone projects that do not require re-allocation of available automobile travel lanes (e.g., constructing sidewalks along a roadway from point A to point B or modifying lane widths to accommodate marked bicycle lanes).

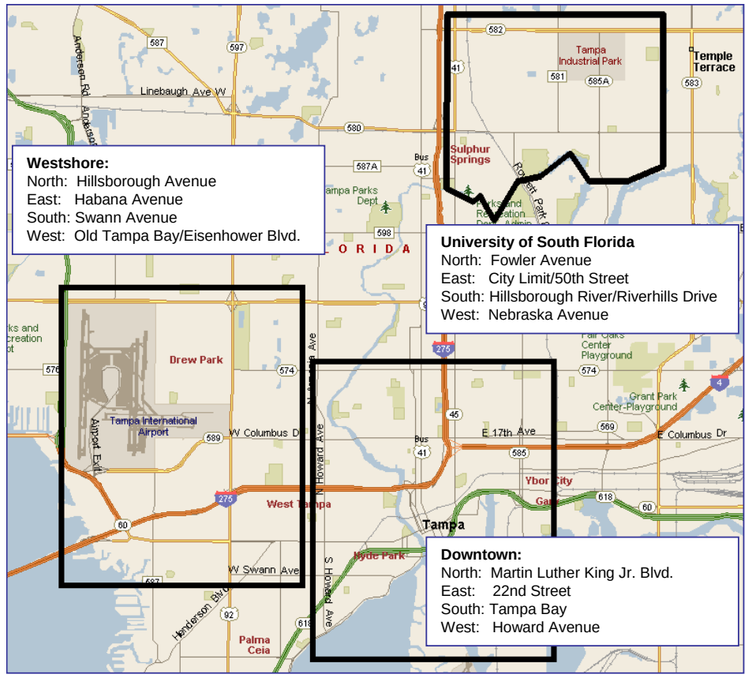
The goal of the project is to identify and vet about 6 feasible "Complete Streets" projects and approximately 20 bike lane or sidewalk projects.

Projects identified/prioritized by this effort will be used to:

- allocate City tax revenues (i.e. local option gas tax, capital infrastructure sales tax),
- identify ROW needs and opportunities within City, County, and FDOT resurfacing projects and other public works projects, and
- identify projects along the major road network eligible for Federal "Enhancement" funds or Federal Highway Safety Program funds.

Development of a concrete list of bicycle and pedestrian projects will also help determine whether the City requires the additional flexibility of a multimodal mobility fee to further fund non-roadway capacity projects.

The project kick-off meeting was held September 3, 2010, and presentation of preliminary findings to the Hillsborough MPO Bicycle & Pedestrian Advisory Committee, Livable Roadways Committee and MPO Board are planned for November/December with project completion by March of 2011.



Within the sub-areas shown on the map above, please identify the following:

1. Key non-motorized connectivity needs (e.g., connect St. Joseph's Hospital and Hillsborough County Community College; connect Tampa Heights to Ybor City)

   _____

   _____

   _____

2. Major barriers to walking and biking (e.g., cannot ride bike from Channel District to Downtown East without riding along Kennedy Blvd or Twiggs St; cannot walk along south side of Hillsborough Ave to bus stops in Drew Park area)

   _____

   _____

   _____

Downtown CRA—Bob McDonough; September 23, 2010 at City Hall

- Also present:
  - Ben Money, City of Tampa
- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed issues related to the Channel District CRA, notably attempts to coordinate with FDOT over mid-block crossings on SR 60.
- Discussed issues related to development near downtown, specifically expansion of Tampa General Offices into the Hyde Park Ave/Kennedy Blvd area.

FDOT District 7—Linda Stachewicz, September 23, 2010 at FDOT District 7

- Also present:
  - Michelle Ogilvie, Hillsborough MPO
  - Beth Alden, Hillsborough MPO
  - Lori Snively, FDOT
  - Ping Hsu, FDOT
  - Ronald Chin, FDOT
  - Ben Money, City of Tampa
  - Nina Mabilleau, City of Tampa
- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed implementation process, looking at existing programs, working with FDOT for sidewalks and safety projects.
- Discussed the following specific FDOT project issues:
  - SR 574 (MLK Blvd) From W of Armenia Ave to W of Nebraska Ave – Resurfacing
    - Is a marked crosswalk along the east quadrant of the intersection of MLK and Florida Ave contemplated?
    - Are marked crosswalks contemplated across MLK at the I-275 interchange (Marguerite/Taliaferro)?
  - SR 574 (MLK Blvd) From E of Nebraska Ave to N 42nd St – Resurfacing
    - Will the mid-block crosswalk at N. 19th St be retained? If so, what sort of signing/control is contemplated at this location (e.g. actuated flashers, RRFB, HAWK)
  - US 41 (SR 685/Florida Ave) From Kennedy Blvd To E of Violet St – Resurfacing
    - Discussed the importance of confirming whether bike lanes will be included for the full project length or only in the Downtown area.
  - SR 585 (22nd St) From 23rd Ave E to Lake Ave E – Safety Project (sidewalks, curbs, turn lanes and lighting). Verify whether project will include a sidepath for cyclists.
  - I-275 Trail – Discussed extent and construction timeframe.
  - Hillsborough Ave Sidewalks – Discussed the importance of installing a sidewalk along the south side of Hillsborough Ave from Cargo Rd to Himes Ave. Need to overcome constructability issues.

Central Tampa Greenspace Initiative (Tampa's Green Artery) —Myron Griffin & Lena Young; October 13, 2010 at the Heights Trolley Barn

- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed mission of this group: focus on linking greenspaces and implementing the Tampa Greenways and Trails Master Plan to accomplish this by building consensus around top priority linkages and then lobbying for implementation of projects.
- Discussed group's desire for the Walk-Bike plan areas to extend further into Seminole Heights, but understood need to keep focused to get solid projects developed; concerned about becoming a "citywide" initiative as well.
- Discussed upcoming public involvement opportunities (e.g., BPAC, Livable Roads).

Westshore Alliance—Chris Weber; October 14, 2010 at the Westshore Alliance Office

- Also present: Chris Keller, TOA
- Discussed project scope, specifically noting that viable mobility projects are a critical component of implementing the comprehensive plan.
- Discussed project needs relative to the Westshore Study Area:
  - Hillsborough Ave is the top priority of the Westshore Alliance, specifically building sidewalks along the south side, filling in sidewalk gaps along the north side, and intersection crossing improvements at the signalized intersections.
    - Noted that this is a major commercial corridor and major transit corridor that has obvious deficiencies.
    - Mr. Weber stated that businesses along Hillsborough Ave have expressed to him the need for improvements along Hillsborough Ave.
  - Alliance's next priority is for intersection improvements along Spruce/Boy Scout/Columbus:
    - Boy Scout Blvd/Spruce St at Westshore Blvd: Mr. Weber stated that members of the Alliance have expressed concern about this intersection.
    - Boy Scout Blvd at Lois Ave: There are plans to install a crosswalk and pedestrian countdown signals along the south-side of Boy Scout Blvd across Lois Ave (E/W).
  - Plans to install textured pattern pavement crosswalks along Himes Ave at Hillsborough Ave, MLK Blvd, and Columbus Dr.
  - Discussed long-term plans involving the reconstruction/realignment of the SR 60/I-275 interchange and mentioned that the plans call for the potential to extend Reo St, Occident St, and Trask St under the interstate.
  - Discussed the need for eventual improvements along Spruce St (between Lois Ave and Dale Mabry Hwy), especially if/when the Metropolitan-West site is built-out.
  - General discussion about future transit alignments (particularly light rail and BRT) and the potential for enhancements related to expanded transit in the area.

Public Meetings/Briefings: As of the end of March, members of the Project Management Team made presentations or otherwise provided updates/briefings at 11 public meetings, as described in Table A-1. Pending finalization of the Tampa Walk-Bike Plan/Mobility Plan, follow-up presentations are planned for the following groups:

- Tampa City Council
- Hillsborough MPO Bicycle and Pedestrian Advisory Committee
- Hillsborough MPO Livable Roads Committee
- Hillsborough MPO Board

Table A-1: Tampa Walk-Bike Plan Public Meeting Log

Meeting Date	Public Meeting Type
October 13, 2010	Hillsborough MPO Bicycle and Pedestrian Advisory Committee
November 10, 2010	Hillsborough MPO Citizen's Advisory Committee*
November 15, 2010	Hillsborough MPO Technical Advisory Committee
December 8, 2010	Hillsborough MPO Bicycle and Pedestrian Advisory Committee
January 4, 2011	Hillsborough MPO Board
January 14, 2011	Tampa Downtown Partnership
January 26, 2011	Hillsborough MPO Livable Roads Committee
January 27, 2011	Tampa City Council
February 22, 2011	Tampa Greenways and Trails
March 9, 2011	Hillsborough MPO Bicycle and Pedestrian Advisory Committee
March 31, 2011	Tampa's Green Artery

* Briefing presented by Michelle Ogilivie, MPO Staff

Additional Stakeholder Meetings: At least one additional meeting with FDOT District 7 staff is contemplated to review the elements discussed in Appendix D of this Draft Technical Memorandum.

APPENDIX B:
Summary of Planned Projects

Table B-1: FY 2011 – FY 2015 Capital Improvement Program (CIP) Planned/Programmed Projects

Project ID	Project Title	Location	Description	Construction Year
TR-11-012	Major Intersection Improvements	50th St at Fowler Ave MacDill Ave at M L King Blvd	Major Intersection Improvements	FY11-15
TR-11-029	Minor Intersection Improvements	M L King Blvd at Dale Mabry Hwy	Minor Intersection Improvements	FY11-15
TR-11-055	Boyscout Blvd at Westshore Blvd	Boyscout Blvd at Westshore Blvd	additional northbound left turn lanes.	FY11
TR-11-050	Dale Mabry Hwy at Columbus Dr Turn Lane	Dale Mabry Hwy at Columbus Dr	dual north and south left turn lanes	FY11
TR-11-051	Dale Mabry Hwy at Spruce St Intersection	Dale Mabry Hwy at Spruce St	Roadway widening at the intersection. The project also includes sidewalk…	FY11
TR-11-048	Dr. Martin Luther King Jr. Boulevard Widening	M L King Blvd: Lois Ave to Dale Mabry Hwy	Roadway widening (2U to 4D) and sidewalk construction	FY11
TR-11-025	Lois Ave Widening	Lois Ave at M L King Blvd	additional east/westbound auxillary right turn lanes at intersection.	FY12
TR-11-054	MacDill Ave and Kennedy Blvd Intersection	MacDill Ave at Kennedy Blvd	Provide turn lanes on MacDill Ave at intersection.	FY11
TR-11-023	West Cypress Street Improvements	Cypress St: Dale Mabry Hwy to Himes Ave	Roadway widening from 2 lanes to a 5 lane section. Sidewalks included	FY15
TR-11-024	West Spruce Street Widening	Spruce St: Lois Ave to Himes Ave	Roadway widening from 2U to 4D. Sidewalks will be provided on both sides	FY15
TR-11-007	West Tampa Bay Boulevard Widening	Tampa Bay Blvd: Armenia Ave to Himes Ave	Roadway widening from 2U to 3 lanes (2E). Bike/pedestrian improvements are included in this project.	NA

Table B-2: 2010/11 – 2014/15 Transportation Improvement Program (TIP) Planned/Programmed Projects

Item No.	Facility	From	To	Description
FPN: 4245591	US 41 (SR 685/Florida Ave)	Kennedy Blvd	E of Violet St	Resurfacing
FPN: 4186851	US 41 (SR 585/21st/22nd St)	SR 60/Adamo Dr	E 13th Ave	Urban Corridor Improvements 3 lane to 2 lane w/ bike lanes
FPN: 4167461	SR 585 (22nd St)	23rd Ave E	Lake Ave E	Safety Project (Sidewalks, Curbs, Turn Lanes and Lighting) LRTP Project: H20

Table B-3: 2035 Long Range Transportation Plan (LRTP) Planned/Programmed Projects – Cost Affordable Highway Projects and Unfunded Needs

Project ID	Facility	From	To	Project Description	Time Period	Section
H1060	Lois Ave	Tampa Bay Blvd	Hillsborough Ave	2 Lanes Undivided to 4 Lanes Divided	N/A	Highway
H1070	Lois Ave	Kennedy Blvd	Boy Scout Blvd	4 Lanes Divided to 4 Lanes Enhanced	Construction Planned During 2021-2025	Highway
H1164	MacDill Ave	Bay to Bay Blvd	Columbus Dr	4 Lanes Undivided to 4 Lanes Enhanced	Construction Planned During 2026-2030	Highway
H1167	MacDill Ave	Columbus Dr	M L King Blvd	2 Lanes Undivided to 2 Lanes Enhanced	N/A	Highway
H1330	North Blvd	Kennedy Blvd	M L King Blvd	4 Lanes Undivided to 2 Lanes Enhanced	N/A	Highway
H1490	South Boulevard	Swann Ave	Kennedy Blvd	2 Lanes Divided to 4 Lanes Divided	N/A	Highway
H1650	Spruce St	Lois Ave	Himes Ave	2 Lanes Undivided to 4 Lanes Divided	N/A	Highway
H1770	Swann Ave	Howard Ave	Bayshore Blvd	2 Lanes Undivided to 2 Lanes Enhanced	Construction Planned During 2021-2025	Highway
H1790	Tampa Bay Blvd	N/S Cargo Rd	Lois Ave	2 Lanes Unidivided to 4 Lanes Divided	N/A	Highway
H1800	Tampa Bay Blvd	Himes Ave	Armenia Ave	2 Lanes Undivided to 4 Lanes Enhanced	Construction Expected After 2035	Highway
H2020	Westshore Blvd	Gray St	Boy Scout Blvd	4 Lanes Divided to 6 Lanes Divided	Construction Planned During 2031-2035	Highway
H270	Bougainvillea Ave	30th St	McKinley Dr	2 Lanes Undivided to 4 Lanes Divided	N/A	Highway

Table B-4: 2035 Long Range Transportation Plan (LRTP) Planned/Programmed Projects – Cost Affordable Bicycle and Trails Projects and Unfunded Needs

Project ID	Facility	From	To	Project Description	Time Period	Section
ORB120	Florida Ave	Ice Palace Dr	Hillsborough Ave	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB160	30th St	Yukon St	Fowler Ave	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB250	Westshore Blvd (Alt Rte Trask)	Kennedy Blvd	Boy Scout Blvd	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB30	Dale Mabry Hwy (Alt Rte Himes/Lois)	MacDill AFB	Waters Ave	Add Bicycle Lanes	N/A	Bicycle
ORB330	M L King Blvd (Alt Rte Lake)	Tampa St	Nebraska Ave	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB340	M L King Blvd (Alt Rte Virginia/Orient)	Westshore Blvd	Tampa St	Marked Route	N/A	Bicycle
ORB370	SR 60/Adamo Dr	Channelside Dr	39th St	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB380	Channelside Dr (Alt Rte Meridian)	Florida Ave	4th Ave	Re-Stripe for Bicycle Lane	N/A	Bicycle
ORB430	M L King Blvd	Nebraska Ave	40th St	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB460	Columbus Dr (Alt Rte St Joseph)	Dale Mabry Hwy	Nebraska Ave	Marked Route	N/A	Bicycle
ORB490	Columbus Dr	Nebraska Ave	Broadway Ave	Citywide On-Road Bike Lanes	N/A	Bicycle
ORB920	50th St	Druid Hills	Fowler Ave	Paved Shoulders	N/A	Bicycle
ORT300	West Tampa Grnwy/Boy Scout Rd	M L King Blvd	Memorial Hwy	Multi-Use Trail	N/A	Bicycle

Table B-4: 2035 Long Range Transportation Plan (LRTP) Planned/Programmed Projects – Cost Affordable Pedestrian Projects and Unfunded Needs

Project ID	Facility	From	To	Project Description	Time Period	Section
PEC180	7th Ave	Nebraska Ave	22nd St	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC20	Dale Mabry Hwy	Bay to Bay Blvd	Columbus Dr	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC260	Cleveland St	Willow Ave	Plant Ave	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC30	Florida Ave	Harrison St	Lake Ave S	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC300	Florida Ave	Ice Palace Dr	Harrison St	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC330	Habana Ave	Main St	M L King Blvd	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC40	Fowler Ave	I-275	56th St	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC480	Nebraska Ave	Washington St	Kennedy Blvd	Pedestrian Corridor Enhancements	N/A	Pedestrian
PEC490	Palm Ave	Florida Ave	22nd St	Pedestrian Enhancement	N/A	Pedestrian
PEC570	Rome Ave	Kennedy Blvd	Columbus Dr	Pedestrian Enhancement	N/A	Pedestrian
PEC60	Hillsborough Ave	Westshore Blvd	Himes Ave	Pedestrian Corridor Enhancements	N/A	Pedestrian

Appendix C:
Walk-Bike Project Technical Recommendations

DOWNTOWN STUDY AREA

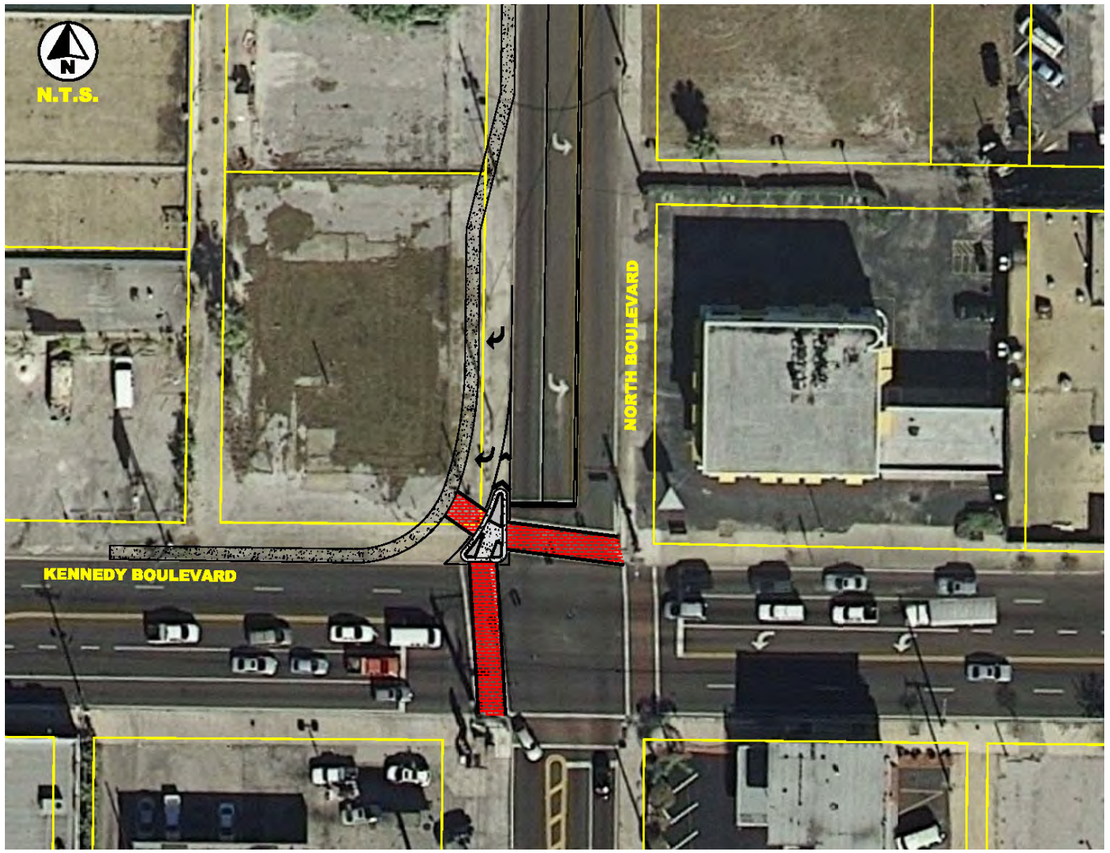
Project Candidate – North Blvd from Kennedy Blvd to Martin Luther King Jr. Blvd

North Blvd from Kennedy Blvd to Cass St

This segment of North Blvd splits the University of Tampa with academic and athletic facilities on the east and parking and other uses on the west. There are two mid-block crossings that are marked and signed ("Vehicles Must STOP for Pedestrians"), and three signalized intersections (Kennedy Blvd, Cass St, and North B St). At the midblock crossings along North Blvd, consider installing raised refuge islands with ramps or cut through access.

There are sidewalks along both sides of North Blvd, and all of the signalized intersections provide signalized pedestrian crossings.

North Blvd at Kennedy Blvd has a heavy southbound right-turn volume, and these drivers often neglect to yield to pedestrians crossing Kennedy Blvd. In the short term, enhancing pedestrian signage at this location may improve driver yield compliance.



A longer-term project to provide a dedicated southbound right-turn lane is contemplated as part of the City's overall Mobility Plan. If constructed, one option to mitigate pedestrian impacts is the installation of a raised pedestrian island to separate/simplify vehicle-pedestrian conflicts. With this improvement, the pedestrian features (signal head and button) should be placed on the raised island.

Care should be given to design of the right-turn island to be consistent with FHWA guidance that incorporates a 2:1 length to width ratio and 55–60 degree angle between traffic flows. This design improves drivers' views of pedestrians and oncoming traffic. It may also be necessary and desirable to extend the intersection signal control to the channelized movement if sign and marking enhancements alone do not provide adequate yield performance.

From Kennedy Blvd to Cass St, North Blvd is a two-lane divided roadway with a painted median and left-turn lanes at several intersections. The posted speed limit along North Blvd is 30 MPH. Along portions of the west side of North Blvd, the sidewalk is over 10ft wide. However, given the high volume of pedestrian traffic in this area, cyclists should be encouraged to ride in the roadway.

To facilitate this, the existing 4ft pavement width could be reallocated to accommodate bike lanes in a 5/10/10/10/5 configuration. In the event this section is not desirable, shared lane arrows, at a minimum, are recommended.

To the extent possible, efforts should be undertaken to reduce the crown of the roadway that creates cross slopes as high as 8% along this segment of North Blvd.

North Blvd from Cass St to Columbus Dr

This segment of roadway is currently being resurfaced and bike lanes are being installed.

North Blvd from Columbus Dr to Osborne Ave

This segment of roadway is currently being resurfaced and converted from a four-lane undivided section to a two-lane divided section with bike lanes from Main St to Columbus Dr and shared lane arrows from Columbus Dr to Martin Luther King Jr. Blvd. The resurfacing project extends to Osborne Ave where the two-lane undivided section is being marked with shared lane arrows.

Recommendations:

- Enhance pedestrian signage at the Kennedy Blvd/North Blvd Intersection.
- Restripe 2,000ft of North Blvd to accommodate bike lanes.
- Concurrent with potential capacity improvements to the intersection of North Blvd and Kennedy Blvd, provide a raised southbound right-turn island to reduce pedestrian conflicts.
- Install raised islands at the two midblock crossing locations.

Project Candidate – Tampa St/Florida Ave Corridor

Tampa St from Scott St to Martin Luther King Jr. Blvd

The City should request that FDOT consider installing high-emphasis crosswalk markings at side street crossings along Tampa St.

Florida Ave from Scott St to Martin Luther King Jr. Blvd

The installation of marked bike lanes along this segment of Florida Ave is planned as part of a pending FDOT resurfacing project (FM# 4245591).

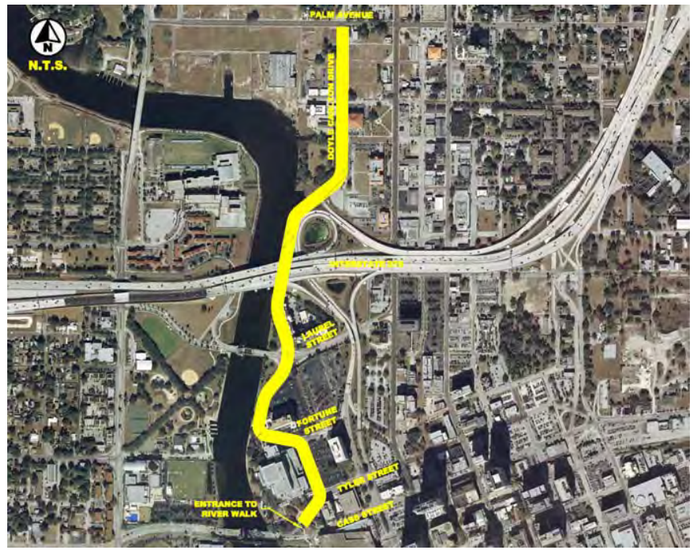
Recommendations

- Request that FDOT incorporate Tampa St from Scott St to Martin Luther King Jr. Blvd into the High-Emphasis Crosswalk program.

Project Candidate – Doyle Carlton Dr Corridor

Doyle Carlton Dr from Laurel St to Palm Ave

Until such time as the Riverwalk is completed, north-south bicycle mobility along the east side of the Hillsborough River can use Doyle Carlton Dr. It is recommended that shared lane markings be provided along Doyle Carlton Dr, Fortune St, and MacInnes Pl from Cass St to Palm Ave.



Recommendations:

- Provide 4,500ft of shared lane markings for north-south bicycle connectivity from Palm Ave to the current Riverwalk segment south of Cass St.

Project Candidate – Nebraska Ave from Jackson St to Martin Luther King Jr. Blvd

Nebraska Ave from Jackson St to Twiggs St

Within this segment of Nebraska Ave, there is continuous sidewalk along the west side of the roadway. Except for a small segment of sidewalk under the Crosstown Expressway, there is no sidewalk along the east side of the roadway. Completion of the sidewalk along the east side would significantly impact the utility poles and require modifications to a drainage inlet at the Crosstown entrance.

There are signalized crossings at both Jackson St and Twiggs St that allow pedestrians to cross to the west side of Nebraska Ave to traverse this segment. Completion of sidewalk connections and provision of a crosswalk across the west leg of the intersection of Meridian St and Twiggs St would also help to mitigate the mobility impacts of the missing sidewalk segment along Nebraska Ave.

There are continuous bike lanes along Nebraska Ave within this segment; however, bike lane designation pavement markings are not currently provided.

1.d.3 Nebraska Ave from Twiggs St to Martin Luther King Jr. Blvd

This segment of Nebraska Ave recently was converted from a four-lane undivided roadway to a two-lane divided roadway with center turn lanes, marked bike lanes, and bus bays. A Bicycle Safety Audit is being completed by the Hillsborough MPO to identify additional safety improvements as bicycle crashes persist despite an overall crash reduction in the corridor.

Recommendations:

- Consider completing sidewalk and crosswalk facilities at the intersection of Twiggs St and Meridian St.
- Consider providing bike lane designation markings and signage for 1,200ft (each side of the roadway) from Jackson St to Twiggs St.

Project Candidate – Columbus Dr

Columbus Dr from Rome Ave to North Blvd

There is continuous sidewalk along this segment of Columbus Dr; however, the northeast quadrant of the Hillsborough River Bridge access does not have adequate ADA ramps. The vertical crest curve of the Columbus Dr bridge, as well as elements of the bridge structure, create sight obstruction issues at the intersection of Riverside Dr, creating safety concerns for motorists, cyclists, and pedestrians. Consideration should be given to prohibition of left turns (for all movements) at Riverside Dr. Closing the intersection completely is also an option, as the neighborhood grid can provide for traffic at this intersection to access Columbus Dr at the adjacent signalized access point at Ridgewood Ave.

Columbus Dr from Rome Ave to North Blvd has a 40ft pavement section and a posted speed limit of 40 MPH. An analysis was undertaken to determine the feasibility of converting Columbus Dr in this area to a two-lane divided roadway with bike lanes. Counts collected in March 2011 indicate that Columbus Dr between Rome Ave and North Blvd carries approximately 21,000 vehicles per day, with a PM peak-hour two-way volume of 2,100 vph and an AM peak hour two-way volume of 1,661 vph.

Based on the volume data above and FDOT generalized capacity values, a two-lane divided roadway with 21,000 AADT operates at LOS "F." However, because few cars enter/exit Columbus Dr at the intersection of Ridgewood Ave, and because Columbus Dr becomes a two-lane divided section west of the next collector road intersection at North Blvd, extending the two-lane divided section may not significantly impact level of service for the facility as a whole.

In addition to the generalized capacity analysis, a peak-hour analysis of the signalized intersection of Columbus Dr and Ridgewood Ave was also conducted. Turning movement counts were collected at Ridgewood Dr, and Synchro was used to analyze this intersection to determine if it would function adequately if Columbus Dr were reconfigured as a two-lane divided section. Irrespective of the generalized capacity analysis, if it can be shown that the Ridgewood Dr intersection will function within acceptable standards, then a reduction in thru lanes may be possible.

As indicated in the PM peak-hour Synchro/HCM reports, in the existing condition, this intersection operates at LOS "B," with the eastbound and westbound through movements operating at LOS "A." This indicates that excess capacity is available. By reducing the number of thru lanes and providing for eastbound and westbound left-turn lanes, the intersection is expected to operate at LOS "C" overall, with the eastbound and westbound approaches operating at LOS "C" and "B," respectively.

Based on the traffic counts conducted in March 2011, it appears that the lane use is already unbalanced during the PM peak hour, with a 60/40 outside/inside eastbound use and a 70/30 outside/inside westbound use. This is likely due to the change in cross section from a four-lane undivided section to a two-lane divided section between Ridgewood Dr and North Blvd. Because of this existing condition, degradation in acceptable gaps would not be impacted as extensively as if more balanced lane use were observed in the existing condition. Also, the relatively close proximity of signals at Ridgewood Dr and North Blvd will help to create gaps in traffic and also provide for signal-controlled access on and off of Columbus Dr.

Conversion from a four-lane undivided facility to a two-laned divided roadway generally reduces rear-end, sideswipe, and head-on collisions and also may reduce left-turn and angle crashes from side-street movements. At Rome Ave, a northbound left-turn versus westbound through-crash pattern exists, which could be mitigated by providing sufficient median refuge to accommodate a two-stage left turn. Numerous fixed-object crashes have occurred in the vicinity of the bridge. Reducing the number of thru lanes and providing a bike lane between the travel lane and the bridge infrastructure should help to mitigate this crash problem.

Recommendations:

- Based on the analysis evaluated as part of this study, extending the two-lane divided section from west of North Blvd to Rome Ave appears to be feasible.
- A formal design traffic analysis should be conducted prior to programming this project to:
  - verify the conclusions of this "planning-level" analysis,
  - determine specific treatments at Rome Ave and Ridgewood Ave,
  - provide a detailed benefit cost analysis of the safety benefits of the proposed project, and
  - determine whether the proposed two-lane divided section should be extended to east of Howard Ave or should be terminated at Rome Ave.
- In addition to intersection capacity/operations, another consideration is whether saturation of the single remaining travel lane in the proposed two-lane divided cross section will reduce the ability of drivers to exit/enter the intersection.

If a road diet is determined to be infeasible, installation of shared lane arrows along the outside travel lanes should be considered. Because the existing 40 MPH speed limit contra-indicates shared lane arrows based on MUTCD criteria, as part of the design traffic study recommended above, a detailed speed study should be conducted. As part of this study, factors such as crash history and driveway density should be considered along with the observed 85^{th} and 50^{th} percentile speeds to determine if the 40 MPH posted speed is appropriate.

HCM Signalized Intersection Capacity Analysis
3: W Columbus Dr & N Ridgewood Ave 4/20/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	1038	112	0	906	6	193	24	2	0	12	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			1.00			0.91	
Flt Protected		1.00			1.00			0.96			1.00	
Satd. Flow (prot)		3490			3536			1810			1721	
Flt Permitted		0.92			1.00			0.72			1.00	
Satd. Flow (perm)		3205			3536			1362			1721	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	1116	120	0	974	6	208	26	2	0	13	30
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	1255	0	0	980	0	0	236	0	0	19	0
Heavy Vehicles (%)	4%	2%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		69.2			69.2			21.3			21.3	
Effective Green, g (s)		69.2			69.2			21.3			21.3	
Actuated g/C Ratio		0.69			0.69			0.21			0.21	
Clearance Time (s)		5.0			5.0			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2218			2447			290			367	
v/s Ratio Prot					0.28						0.01	
v/s Ratio Perm		c0.39						c0.17				
v/c Ratio		0.57			0.40			0.81			0.05	
Uniform Delay, d1		7.8			6.6			37.5			31.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			0.5			15.9			0.1	
Delay (s)		8.8			7.1			53.3			31.4	
Level of Service		A			A			D			C	
Approach Delay (s)		8.8			7.1			53.3			31.4	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: W Columbus Dr & N Ridgewood Ave 4/20/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	1038	112	0	906	6	193	24	2	0	12	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0			4.5			4.5	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	0.99			1.00			1.00			0.91	
Flt Protected	0.95	1.00			1.00			0.96			1.00	
Satd. Flow (prot)	1736	1839			1861			1810			1721	
Flt Permitted	0.17	1.00			1.00			0.72			1.00	
Satd. Flow (perm)	303	1839			1861			1362			1721	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	26	1116	120	0	974	6	208	26	2	0	13	30
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	26	1233	0	0	980	0	0	236	0	0	19	0
Heavy Vehicles (%)	4%	2%	0%	0%	2%	0%	0%	4%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	69.2	69.2			69.2			21.3			21.3	
Effective Green, g (s)	69.2	69.2			69.2			21.3			21.3	
Actuated g/C Ratio	0.69	0.69			0.69			0.21			0.21	
Clearance Time (s)	5.0	5.0			5.0			4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	210	1273			1288			290			367	
v/s Ratio Prot		c0.67			0.53						0.01	
v/s Ratio Perm	0.09							c0.17				
v/c Ratio	0.12	0.97			0.76			0.81			0.05	
Uniform Delay, d1	5.2	14.4			10.0			37.5			31.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.2	18.7			4.3			15.9			0.1	
Delay (s)	6.4	33.1			14.3			53.3			31.4	
Level of Service	A	C			B			D			C	
Approach Delay (s)		32.5			14.3			53.3			31.4	
Approach LOS		C			B			D			C	

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Columbus Dr from North Blvd to Florida Ave

There is continuous sidewalk from North Blvd to Florida Ave on both sides of the roadway. Many of the sidewalks pass through driveway and parking areas. Several side-street crosswalks are worn from age and weather.

There are also a number of bus stop locations, a school, a church, and other uses that would lean towards high volume of pedestrians crossing Columbus Dr, and there is an existing school crosswalk east of Massachusetts Ave. Installation of Rectangular Rapid Flashing Beacons to enhance the conspicuity of this crosswalk (especially outside of school hours) should be considered.

From North Blvd to Florida Ave, the speed limit is not posted. East of Nebraska Ave, the posted speed is 30 MPH, and relevant geometric and crash data indicate that a speed limit of 30–35 MPH is appropriate for this segment. Because the typical cross section is only 25ft, this pavement section is not adequate to accommodate dedicated bike lanes. However, the calculated speed is within the MUTCD recommended range for the use of shared lane markings.

It also is recommended that the appropriate speed limit, not greater than 35 MPH, be posted in this corridor.

Columbus Dr from Florida to Nebraska Ave

The typical section along this corridor is 28ft wide from curb to curb. Although the speed limit is not posted, the assumed speed limit for this segment is 30–35 MPH. At this speed limit, there are two options: the lanes could be reduced to 10ft lanes with a 4ft striped shoulder (undesignated bike lane), or shared lane arrows may be applied to the existing 14ft lanes through this segment of Columbus Dr.

Consideration also should be given to application of high-emphasis crosswalk markings to the side-street intersections along Columbus Dr and at any mid-block or signalized intersections.

Columbus Dr from Nebraska Ave to 14th St

From Nebraska Ave to 14th St, Columbus Dr is a two-lane undivided roadway with a posted speed of 30 MPH. Within the 44ft pavement section, there are two travel lanes, and on-street parking is permitted along both sides of the roadway.

With this pavement width, two 8ft parking lanes and the required 5ft bike lanes cannot be accommodated. If parking cannot be restricted along this segment of Columbus Dr, a 9/13/13/9 section with shared lane arrows and marked parking lanes is recommended.

An inspection of aerial imagery suggests that narrow lot widths along the south side of Columbus Dr necessitate the provision of on-street parking for these residences. Along the north side of the roadway, standard lot widths appear to prevail, although it has not been determined if all residences have adequate onsite parking facilities. If parking were limited to striped parking only on the south side of the roadway, a section of 10/5/12/12/5 could be provided, as shown.

Columbus Dr from 14th St to 21st/22nd St

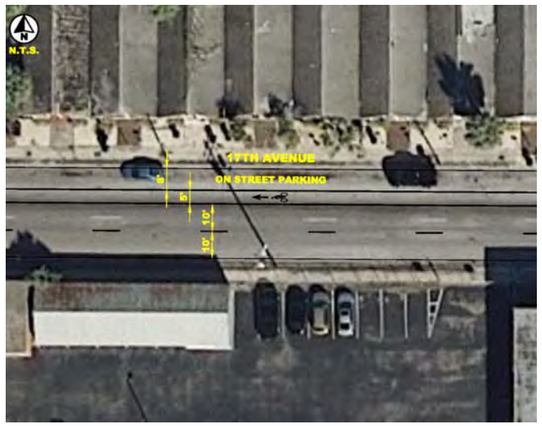
East of 14th St, Columbus Dr turns into a one-way pair with Columbus Dr carrying eastbound traffic and 17th Ave carrying westbound traffic.

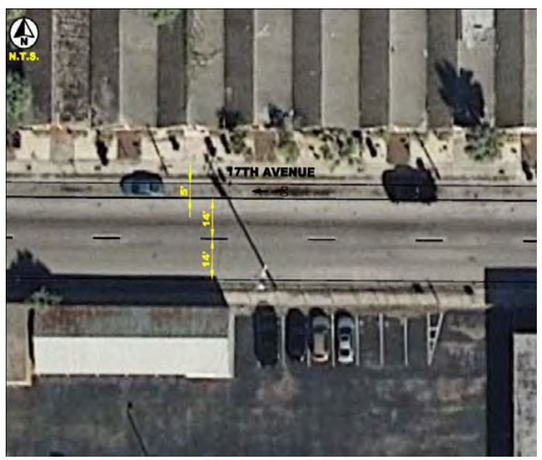
Columbus Dr is a two-lane, one-way roadway with a pavement section of approximately 28ft from 14th St to 22nd St. This roadway could accommodate an eastbound bicycle lane with a section of 11/12/5. "No Parking" signs also should be installed.

Consideration should be given to extending the limits of this project beyond the current study area by providing bike lanes or shared lane arrows with on-street parking. East of the railroad tracks (30th St), the section expands to 36ft, which could accommodate two travel lanes, parking, and a bike lane in an 8/11/12/5 configuration, with the bike lane and parking lane on opposite sides, preferably parking on the north side. In this configuration, the zone of conflict between bikes, vehicles, and the parked vehicles doors (driver side) are minimized.

17th Ave is a westbound two-lane one-way roadway. 17th Ave has a pavement section of approximately 33ft from 21st St to 14th St. This width can accommodate two 12ft – 14ft travel lanes and a marked bicycle lane. Although no on-street parking was observed during a field review, aerial imagery suggests on-street parking occurs along this segment, so installation of "No Parking" signs should be considered if bike lanes are installed without substantial reduction of the travel lane width. Alternatively, thru lanes may be reduced to 10ft, and a bike lane and marked "Parking Lane" may be provided using an 8/10/10/5 section with the 8ft parking on the south side.

As with Columbus Dr, consideration should be given to extending the limits of this project beyond the current study area. The section to the east of the study limits varies from 23ft to 33ft, so it would require a combination of shared lane markings, bike lanes, and parking restrictions.





Recommendations:

- From Rome Ave to North Blvd:
  - Undertake a detailed speed study to determine if the 40 MPH posted speed is appropriate between Howard Ave and North Blvd.
  - Undertake a detailed traffic analysis to confirm the feasibility of converting Columbus Dr from a four-lane undivided section to a two-lane divided section from west of North Blvd to either Rome Ave or Howard Ave.
- Post the appropriate speed limits east of North Blvd.
- From North Blvd to Florida Ave:
  - Install 3,000ft of shared lane markings.
- From Florida Ave to Nebraska Ave:
  - Stripe shared lane markings with a 14/14 section.
- From Nebraska Ave to 14th St:
  - Stripe 2,200ft of bike lanes and a parking lane with a 10/5/12/12/5 section, OR
  - Stripe shared lane markings with a 9/13/13/9 section.
- From 14th St to 22nd St:
  - Restripe approximately 6,000f, (3,000ft on Columbus Dr and 3,000ft on 17th Ave) of the roadway for bicycle lanes; and restrict on-street parking along the south side of the street.

Project Candidate –Floribraska Ave from Florida Ave to 21st/22nd St

Floribraska from Florida Ave to 21st/22nd St

This segment of roadway was reviewed as a potential road diet candidate. In the existing condition, Floribraska Ave is an east-west road that terminates at Tampa St and is served by a southbound off-ramp and northbound on ramp from/to I-275. East of Nebraska Ave, Floribraska Ave becomes 21st Ave.

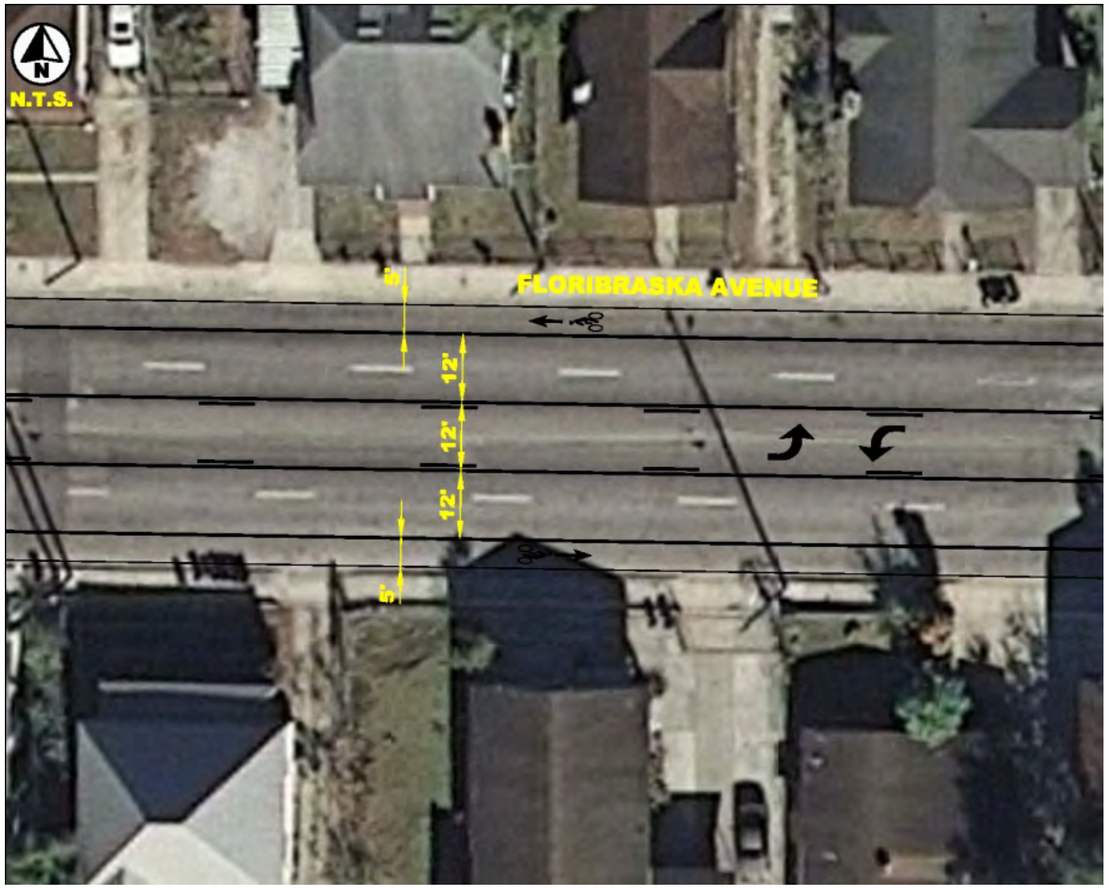
Traffic counts collected on Floribraska Ave indicate it has an ADT of 7,000-10,000 vehicles per day. Using a generalized (tables) analysis, this is an LOS "B" condition for a four-lane undivided roadway and on the cusp of LOS "B"/"C" for a two-lane divided roadway.

East of Nebraska, Floribraska Ave (21st Ave) becomes a two-lane divided roadway. Conversion of this corridor from a four-lane undivided to two-lane divided section will allow for the provision of a left-turn lane and a single thru lane in both directions at the intersection of Nebraska Ave. The intersection at Tampa St still could provide dual westbound left-turns, if desired.

Since 2005, there have been 16 southbound versus westbound left-turn and angle crashes at the I-275 southbound off-ramp. Reduction in the number of thru lanes and installation of bicycle lanes should reduce conflicts and sight obstruction hazards at this location.

Recommendations:

- Floribraska Ave should be converted to a two-lane divided roadway with marked bicycle lanes from Florida Ave to Nebraska Ave (3,000ft).
- With consideration for residential and commercial driveway access, provision of raised pedestrian refuge islands within the proposed two-way left-turn median should be considered between Florida Ave and I-275.
- Unsignalized crosswalk markings at Jefferson St should be enhanced and supplemented with RRFB or other flashing beacon device.



Project Candidate – Palm Ave Corridor

Palm Ave is a four-lane undivided roadway from North Blvd to Nebraska Ave and a four-lane divided roadway from Nebraska Ave to 22nd St. Bicycle lanes are provided from just east of Nebraska Ave to just east of 15th St. The bicycle lanes are striped, but do not include the bike lane designation symbols.

Palm Ave is not a heavily-used corridor for vehicular traffic from the Ybor City area to Downtown, particularly west of Nebraska Ave, and realignment of Palm Ave and thru-lane reduction already has been contemplated as part of the Heights CRA west of Tampa St. As such, Palm Ave is a prime candidate for conversion to a two-lane divided roadway with 5ftt bike lanes, 10ft thru lanes, and an 11ft center turn lane from North Blvd to Nebraska Ave (with a slightly wider median between Florida Ave and Jefferson St).

Although daily volumes indicate a road diet is feasible, an analysis of the signalized intersections at Tampa St and Florida Ave was undertaken to ensure that acceptable operating parameters could be maintained with only one thru lane in each direction. Based on recent count data, it is estimated that Palm Ave at Tampa St/Florida Ave carries approximately 10,000 vehicles per day (1,000 in the PM peak hour).

The major intersections of Tampa St and Florida Ave were analyzed to identify if reducing the four-lane section to a two-lane divided section (with left-turn lanes) would have significant operational impacts. Based on this analysis, Palm Ave is not estimated to deteriorate beyond LOS "D" if converted to a two-lane divided section while maintaining existing capacity on Florida Ave and Tampa St. Synchro/HCM analysis for the intersections of Tampa St and Florida Ave are presented below. Note that the eastbound left turn at Florida Ave has an LOS "F" grade in the proposed configuration; however, the v/c ratio is 0.89, and there are only 83 vehicles in the peak hour. This condition can be offset with minor modifications to the coordinated timings.

Recommendations:

- Convert Palm Ave to a two-lane divided roadway with bike lanes and left-turn lanes from North Blvd to Nebraska Ave.
- Installation of raised pedestrian refuge islands is recommended at Franklin St (YMCA) and at intermittent locations between Florida Ave and Central Ave to help facilitate pedestrian access across this corridor.

HCM Signalized Intersection Capacity Analysis
2: Palm Ave & Florida Ave

PM Proposed Conditions
4/28/2011

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NEL	NER
Lane Configurations									
Volume (vph)	83	372	427	172	57	1265	77	58	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			5.5		6.0	6.0
Lane Util. Factor	1.00	1.00	1.00			0.91		1.00	1.00
Frt	1.00	1.00	0.96			0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00			1.00		0.95	1.00
Satd. Flow (prot)	1736	1863	1803			5065		1770	1583
Flt Permitted	0.14	1.00	1.00			1.00		0.95	1.00
Satd. Flow (perm)	247	1863	1803			5065		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	413	474	191	63	1406	86	64	12
RTOR Reduction (vph)	0	0	15	0	0	6	0	0	0
Lane Group Flow (vph)	92	413	650	0	0	1549	0	64	12
Heavy Vehicles (%)	4%	2%	1%	2%	0%	1%	8%	2%	2%
Turn Type	Perm				Perm				Perm
Protected Phases		4	4			6		5	
Permitted Phases	4				6				5
Actuated Green, G (s)	41.8	41.8	41.8			35.9		4.8	4.8
Effective Green, g (s)	41.8	41.8	41.8			35.9		4.8	4.8
Actuated g/C Ratio	0.42	0.42	0.42			0.36		0.05	0.05
Clearance Time (s)	6.0	6.0	6.0			5.5		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)	103	779	754			1818		85	76
v/s Ratio Prot		0.22	0.36					c0.04	
v/s Ratio Perm	c0.37					0.31			0.01
v/c Ratio	0.89	0.53	0.86			0.85		0.75	0.16
Uniform Delay, d1	27.0	21.8	26.5			29.6		47.0	45.7
Progression Factor	1.62	1.69	1.00			1.00		1.00	1.00
Incremental Delay, d2	60.2	2.4	12.5			5.3		30.8	1.0
Delay (s)	104.0	39.2	39.0			34.9		77.8	46.6
Level of Service	F	D	D			C		E	D
Approach Delay (s)		51.0	39.0			34.9		72.9	
Approach LOS		D	D			C		E	

Intersection Summary			
HCM Average Control Delay	39.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Synchro 7 - Report

HCM Signalized Intersection Capacity Analysis
2: Palm Ave & Florida Ave

PM Existing Conditions
4/28/2011

Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NEL	NER
Lane Configurations									
Volume (vph)	83	372	427	172	57	1265	77	58	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0			5.5		6.0	6.0
Lane Util. Factor		0.95	0.95			0.91		1.00	1.00
Frt		1.00	0.96			0.99		1.00	0.85
Flt Protected		0.99	1.00			1.00		0.95	1.00
Satd. Flow (prot)		3495	3411			5065		1770	1583
Flt Permitted		0.62	1.00			1.00		0.95	1.00
Satd. Flow (perm)		2197	3411			5065		1770	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	92	413	474	191	63	1406	86	64	12
RTOR Reduction (vph)	0	0	28	0	0	6	0	0	0
Lane Group Flow (vph)	0	505	637	0	0	1549	0	64	12
Heavy Vehicles (%)	4%	2%	1%	2%	0%	1%	8%	2%	2%
Turn Type	Perm				Perm				Perm
Protected Phases		4	4			6		5	
Permitted Phases	4				6				5
Actuated Green, G (s)		34.8	34.8			42.9		4.8	4.8
Effective Green, g (s)		34.8	34.8			42.9		4.8	4.8
Actuated g/C Ratio		0.35	0.35			0.43		0.05	0.05
Clearance Time (s)		6.0	6.0			5.5		6.0	6.0
Vehicle Extension (s)		3.0	3.0			3.0		3.0	3.0
Lane Grp Cap (vph)		765	1187			2173		85	76
v/s Ratio Prot			0.19					c0.04	
v/s Ratio Perm		c0.23				0.31			0.01
v/c Ratio		0.66	0.54			0.71		0.75	0.16
Uniform Delay, d1		27.6	26.1			23.5		47.0	45.7
Progression Factor		1.52	1.00			1.00		1.00	1.00
Incremental Delay, d2		4.4	1.7			2.0		30.8	1.0
Delay (s)		46.2	27.9			25.5		77.8	46.6
Level of Service		D	C			C		E	D
Approach Delay (s)		46.2	27.9			25.5		72.9	
Approach LOS		D	C			C		E	

Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Synchro 7 - Report

HCM Signalized Intersection Capacity Analysis
1: Palm Ave & Tampa St

PM Existing Conditions
4/28/2011

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	SBL2	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	393	11	38	2	193	294	101	22	323	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5					4.5			5.0	
Lane Util. Factor	0.95					0.95			0.91	
Frt	0.98					1.00			0.99	
Flt Protected	1.00					0.98			0.99	
Satd. Flow (prot)	3517					3511			4976	
Flt Permitted	1.00					0.65			0.99	
Satd. Flow (perm)	3517					2311			4976	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	409	11	40	2	201	306	105	23	336	34
RTOR Reduction (vph)	7	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	453	0	0	0	0	509	0	0	490	0
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	2%	2%	0%
Turn Type				Perm	Perm		Perm	Perm		
Protected Phases	8					4			2	
Permitted Phases				4	4		2	2		
Actuated Green, G (s)	55.5					55.5			35.0	
Effective Green, g (s)	55.5					55.5			35.0	
Actuated g/C Ratio	0.56					0.56			0.35	
Clearance Time (s)	4.5					4.5			5.0	
Vehicle Extension (s)	3.0					3.0			3.0	
Lane Grp Cap (vph)	1952					1283			1742	
v/s Ratio Prot	0.13									
v/s Ratio Perm						c0.22			0.10	
v/c Ratio	0.23					0.40			0.28	
Uniform Delay, d1	11.4					12.7			23.4	
Progression Factor	1.00					1.04			1.00	
Incremental Delay, d2	0.1					0.8			0.4	
Delay (s)	11.4					13.9			23.8	
Level of Service	B					B			C	
Approach Delay (s)	11.4					13.9			23.8	
Approach LOS	B					B			C	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Synchro 7 - Report

HCM Signalized Intersection Capacity Analysis
1: Palm Ave & Tampa St

PM Proposed Conditions
4/28/2011

Movement	EBT	EBR	EBR2	WBL2	WBL	WBT	SBL2	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	393	38	11	2	193	294	101	22	323	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5				4.5	4.5			5.0	
Lane Util. Factor	1.00				1.00	1.00			0.91	
Frt	0.99				1.00	1.00			0.99	
Flt Protected	1.00				0.95	1.00			0.99	
Satd. Flow (prot)	1852				1770	1900			4976	
Flt Permitted	1.00				0.40	1.00			0.99	
Satd. Flow (perm)	1852				748	1900			4976	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	409	40	11	2	201	306	105	23	336	34
RTOR Reduction (vph)	1	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	459	0	0	0	203	306	0	0	490	0
Heavy Vehicles (%)	1%	2%	0%	2%	2%	0%	2%	2%	2%	0%
Turn Type				Perm	Perm		Perm	Perm		
Protected Phases	8					4			2	
Permitted Phases				4	4		2	2		
Actuated Green, G (s)	55.5				55.5	55.5			35.0	
Effective Green, g (s)	55.5				55.5	55.5			35.0	
Actuated g/C Ratio	0.56				0.56	0.56			0.35	
Clearance Time (s)	4.5				4.5	4.5			5.0	
Vehicle Extension (s)	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)	1028				415	1055			1742	
v/s Ratio Prot	0.25					0.16				
v/s Ratio Perm					c0.27				0.10	
v/c Ratio	0.45				0.49	0.29			0.28	
Uniform Delay, d1	13.2				13.6	11.8			23.4	
Progression Factor	1.00				1.11	0.89			1.00	
Incremental Delay, d2	0.3				2.1	0.4			0.4	
Delay (s)	13.5				17.2	10.9			23.8	
Level of Service	B				B	B			C	
Approach Delay (s)	13.5					13.4			23.8	
Approach LOS	B					B			C	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Synchro 7 - Report

Project Candidate – Davis Islands Bridge Access/Safety

The Davis Islands Bridge provides connectivity between Davis Islands and Downtown Tampa and Hyde Park. It also provides access to Tampa General Hospital. Because of the number of weave maneuvers occurring on the bridge, most cyclists are likely to use the sidewalk facilities included in the northbound (Plant Ave) bridge span. (Note: Some people use the 2ft "curb" on the southbound (Hyde Park Ave Bridge), and this behavior explicitly should be prohibited.

Currently, pedestrian access from South of Davis Blvd to the existing sidewalk facilities is provided by marked crosswalk in the vicinity of where the main bridge spans touch down. Pedestrians and bicyclists that choose to use the sidewalk along the north bridge to Davis Islands end up at a midblock crossing at the foot of the Davis Islands Bridge. For pedestrians and cyclists approaching from Columbia Blvd, the access to the bridge sidewalk facilities is circuitous. Additionally, there are several shortcomings of the existing pathway:

- The sidewalks are approximately 8ft wide. This is narrower than the preferred 10ft minimum width for a shared use pathway.
- Individuals were observed fishing from the bridge, which is a conflict for bicycle traffic.
- The existing crosswalk location does not appear to provide adequate sight distance as discussed below.

Vehicles traveling onto Davis Islands are given only one warning sign, prior to entering vertical and horizontal curves, that they are entering a pedestrian area. Also, the tree canopy casts shadows onto the crosswalk area, reducing driver ability to see pedestrians crossing or attempting to cross. Potential options to improve access to and use of the existing sidewalk facilities include:

- Relocate the mid-block crossing further south along Davis Blvd. This may require a decorative wall or vegetation to discourage crossings at the foot of the bridge.
    - Construct a raised median extending from the existing Davis Blvd "gore" area of at least 12ft in width to the USF Clinic entrance.
    - Extend the existing sidewalk along the west side of the northbound Davis Islands Bridge as a 10ft shared path to the end of the median.
    - At this location, provide an unsignalized pedestrian crossing across Davis Blvd with high-emphasis crosswalks and RRFB devices.
    - Remove the existing southbound bridge crossing.
    - Consider the addition of a small wall or other barricade to discourage crossing anywhere north of the relocated crosswalk.

  This concept will require removal of approximately four on-street parking spaces and converting the northwest connection of Adalia Ave and Davis Blvd to a right-in/right-out intersection. Vehicles currently accessing the northbound Davis Islands Bridge via Adalia Ave still would have access to Davis Blvd at the southern Adalia Ave connection.
- Introduce way-finding guidance for bicyclists and pedestrians to help guide users through to the existing bridge sidewalk facilities.
- Evaluate impacts of the proposed median revision to the adjacent USF Clinic.
- Prohibit fishing from the bridge.
- Install directional arrows for cyclists along the existing bridge sidewalk facilities.
- Provide shared lane arrows along Columbia Blvd from the vicinity of Arbor Place to the northernmost Tampa General Hospital access point.
- Enhance/modify pedestrian facilities in the vicinity of the northernmost Tampa General Hospital access point/Plant Ave bridge span.

Recommendations:

- Short term:
    - Conduct a detailed bicycle, pedestrian, and vehicle circulation and interaction study from the west side of the Davis Islands Bridge to the vicinity of Arbor Place to evaluate the conceptual recommendations identified herein.
- Longer term:
    - Consider the potential application of roundabouts or other solutions to enhance automobile, bicycle, and pedestrian access at the northernmost Tampa General Hospital access point.
    - Consider coordination with Tampa General Hospital to construct a separate bicycle and pedestrian crossing parallel and to the north of the northbound Davis Islands Bridge.
    - Ensure that adequate side-path or bicycle lane facilities are included in reconstruction/rehabilitation of the Davis Islands Bridge system.

Conceptual exhibits are shown below; however, a detailed circulation analysis is recommended with a future study.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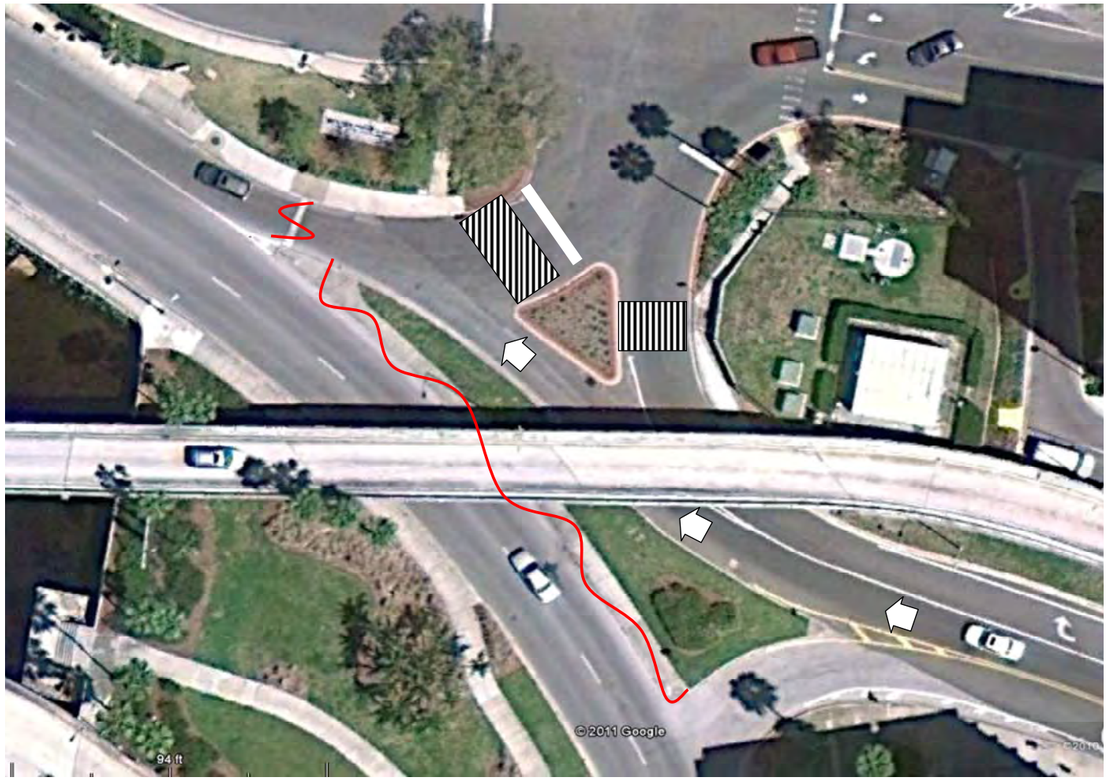

© 2011 Google
94 ft

Project Candidate – Swann Ave from Howard Ave to Bayshore Blvd

Between Howard Ave and Bayshore Blvd, Swann Ave can provide for east-west pedestrian and bicycle connectivity.

Swann Ave from Howard Ave to Crosstown Expressway Overpass

Along this segment of roadway, Swann Ave generally has a 36ft pavement section, with one thru lane in each direction and a center two-way-left-turn lane throughout. This cross section is not adequate to provide for marked bicycle lanes. The posted speed limit is 30 MPH. With this speed limit and pavement section, shared lane arrows are recommended for this 1,700ft segment.

There is continuous sidewalk throughout this segment on both sides of the roadway. There is a mid-block crossing with a flashing beacon at the Hyde Park Art Studio. Consider marking the side-street crosswalks with high-emphasis crosswalk markings.

Swann Ave from Crosstown Expressway Overpass to Willow Ave

This part of Swann Ave is heavily traveled by pedestrians and bicyclists. Along this segment of roadway, Swann Ave generally has a 48ft pavement section, with one thru lane in each direction and a center two-way-left-turn lane throughout. The posted speed limit is 30 MPH. With the wide outside lanes, this roadway is an immediate candidate for shared lane markings; however, with any resurfacing project, this 1,700ft section should be striped with marked bike lanes, as a 6/12/12/12/6 section could be accommodated with the continued prohibition of on-street parking. If on-street parking were permitted along one side of the roadway, a 8/5/10/10/10/5 cross section or a hybrid section with on-street parking, a wide outside lane with shared lane arrows, and a bike lane in the opposing travel direction could be accommodated (i.e., 8/13/11/11/5).

There is continuous sidewalk throughout this segment on both sides of the roadway. There is signage throughout to draw attention to the pedestrian traffic. High-emphasis crosswalks are in place at the signalized intersections. There is also a high-emphasis crosswalk at the unsignalized intersection at Oregon Ave. Consider upgrading this location to using RRFBs and provide high-emphasis side-street crossings at named cross-streets.

Swann Ave from Willow Ave to North Blvd

This segment of roadway has a 48ft section as well. The posted speed limit is 30 MPH. However, the majority of this segment does allow for on-street parking, with relatively high observed use. With the 48ft section along this 1,500ft segment, shared lane arrows could be provided in the existing travel lanes, or if on-street parking were prohibited along one side of the street, the section could be modified to 8/5/10/10/10/5 to accommodate bike lanes or the 8/13/11/11/5 hybrid section discussed above could be applied.

There is continuous sidewalk throughout this segment on both sides of the roadway. There is signage throughout to draw attention to the pedestrian traffic. A high-emphasis, signalized crossing is in place at Wilson Middle School. Consider installation of a marked mid-block crosswalk at Willow Ave using RRFB devices.

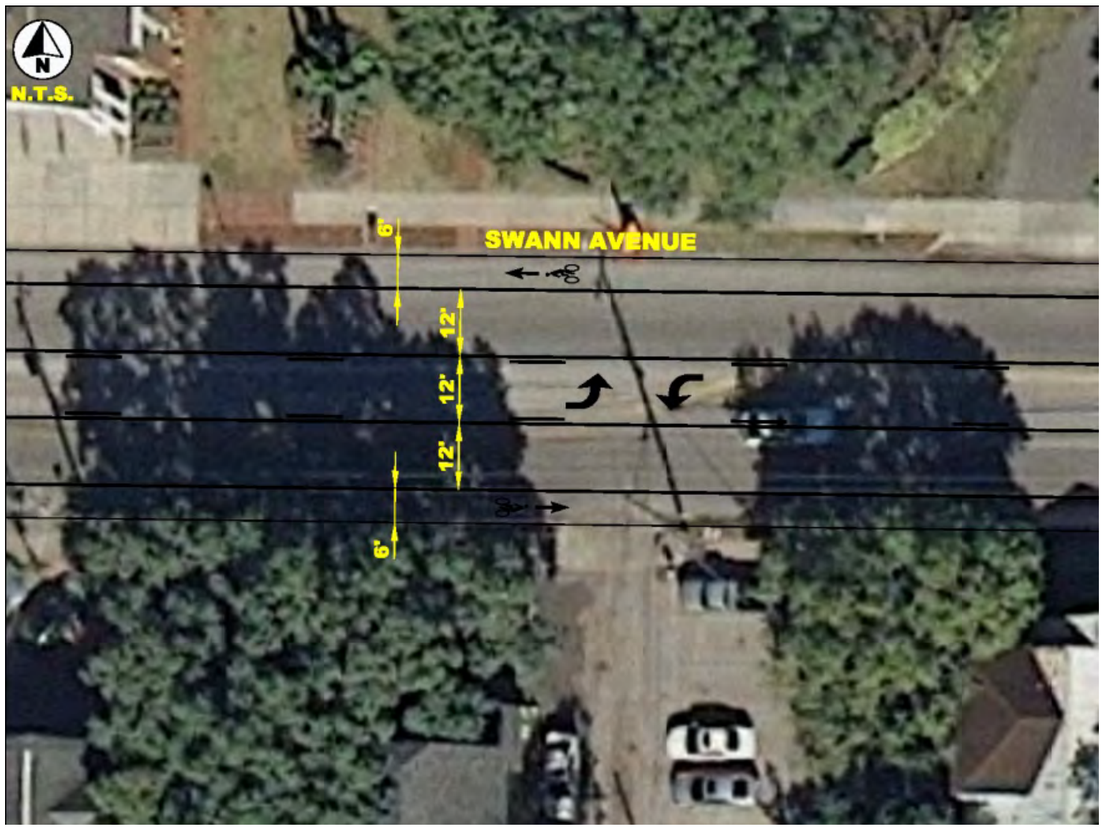
Swann Ave from North Blvd to Bayshore Blvd

This segment of roadway has a 32ft section, and on-street parking is generally prohibited. As this provides a major connection to Davis Islands and Bayshore Blvd, bike lanes are recommended. The roadway should be re-striped to a 5/11/11/5 section with appropriate bike lane designations and signage.

There is continuous sidewalk throughout this segment on both sides of the roadway. Necessary improvements to the major intersection of Swann Ave, Bayshore Blvd, and Magnolia Ave are being undertaken as part of the Bayshore Blvd enhancement project.

Recommendations:

- Install a combination of shared lane markings and bike lanes for 6,000ft.
- Consider installing an unsignalized crosswalk at Willow Ave and enhancing this crosswalk and other existing unsignalized crosswalks using RRFB devices.



Project Candidate 5a – Rome Ave Corridor

Rome Ave from Kennedy Blvd to Main St

From Kennedy Blvd to Main St, Rome Ave generally has a 40ft pavement section; however, in some locations, the cross-section narrows to as little as 33ft, and in others (under I-275) it expands to 60ft. The speed limit along this section of Rome Ave is assumed to be 30 MPH.

There were no obvious parking restrictions along Rome in this area; however, during the field review, few, if any, vehicles were observed parking along the roadside.

To provide bicycle mobility, specifically prohibiting on-street parking on at least one side of the road and striping dedicated bike lanes or install shared lane arrows is recommended.

As shown to the right, there are significant sidewalk gaps along Rome Ave. Between Kennedy Blvd and Cass St, there is a 1,300ft segment of roadway where no sidewalk exists on either side of the road. There are locations along both sides of Rome Ave where the proximity of buildings may complicate the provision of sidewalks.

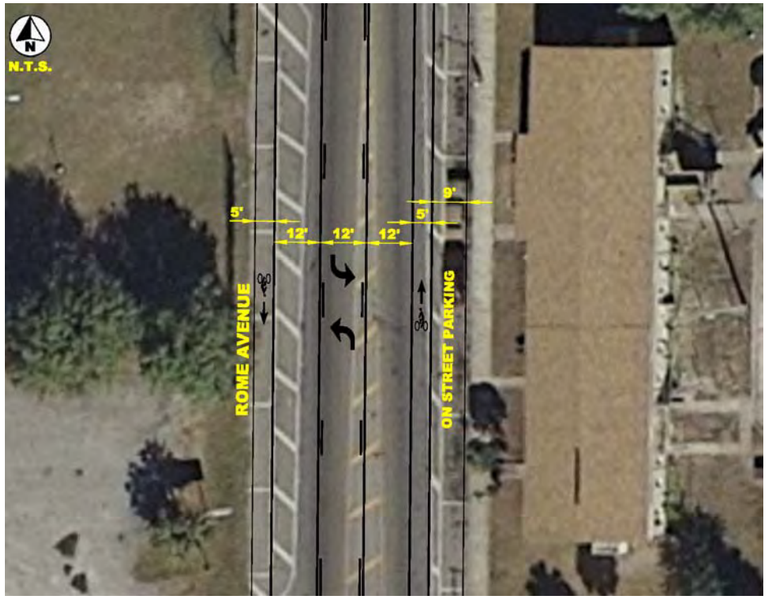
Rome Ave from Main St to Spruce St

The pavement width along this segment of Rome Ave is between 55ft and 60ft and is currently used to provide one travel lane in each direction, a center turn lane, and 8ft parking lanes (principally) along the east side of the road. The posted speed limit is 25 MPH.

By restriping the road using an 5/12/12/12/5/9 typical section and tapering the center turn lane south of Spruce St consistent with the existing condition, existing on-street parking can be preserved while adding a bicycle lane.

There is continuous sidewalk on the east side of Rome through this corridor; however, there are gaps on the west side. Construction of a sidewalk would require the roadway curb to be brought toward the centerline along the west side of Rome Ave between Union St and Chestnut St and/or resolution of possible ROW encroachment issues by businesses along the roadway. A second option, which has been applied in Pinellas County, would be to provide striped/textured sidewalk along the west side of the roadway.

Installation of curb bulb-outs at the northeast corner of Rome Ave and Main St, the northeast and southeast quadrants of Rome Ave and Union St and Rome Ave and Chestnut St, and the southeast quadrant of Rome Ave and Spruce St should be considered to improve pedestrian mobility along the corridor.



Rome Ave from Spruce St to Columbus Dr

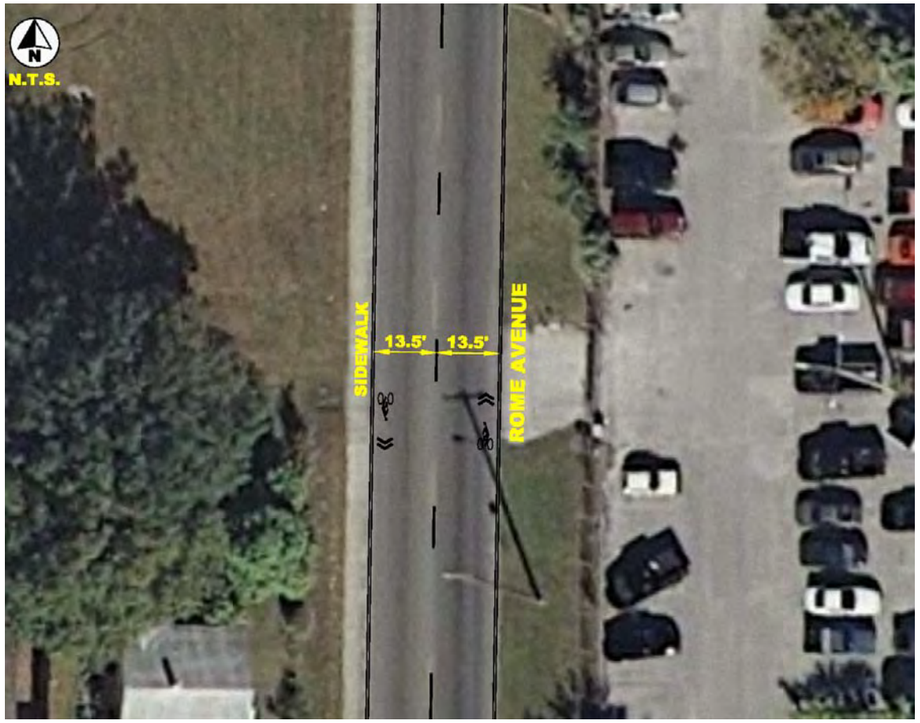
This segment of Rome Ave is a two-lane undivided roadway with a 27ft pavement section. The posted speed in this area is 25 MPH. On-street parking is prohibited at all times.

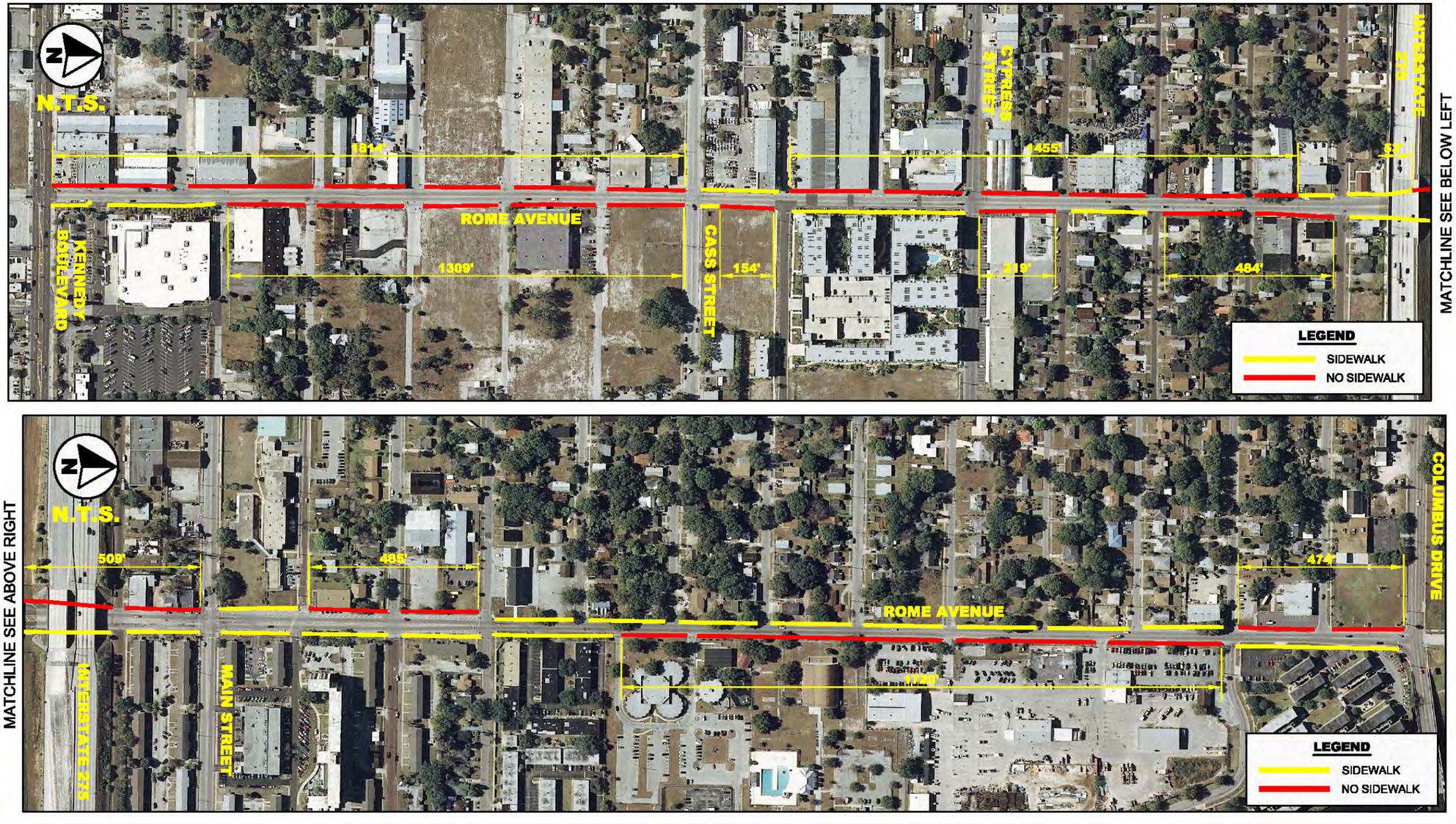
The 27ft section is not wide enough to allow for dedicated bike lanes. However, given the low speeds and volumes, installation of shared lane arrows is appropriate.

From Spruce St to Columbus Dr, there is sidewalk on the east side of Rome Ave from Oregon Ave to Columbus Dr and along the west side from Spruce St to Oregon Ave. In the short term, installation of an unsignalized crosswalk with RRFB is recommended at this location. In an intermediate timeframe, the sidewalk along the west side of Rome Ave should be completed, with a longer term goal to construct a 10ft side path along the east side of Rome Ave from Spruce St to Columbus Dr.

Recommendations:

- From Kennedy Blvd to Main St:
  - Complete approximately 1,300ft of sidewalk gaps along Rome Ave. At transitions from east to west, provide marked and signed midblock crossings.
  - Restrict parking on one side of Rome Ave and provide dedicated bike lanes.
- From Main St to Spruce St:
  - Reconfigure the roadway section to provide bike lanes.
  - Consider installation of curb bulb-outs to enhance pedestrian mobility.
- From Spruce St to Columbus Dr:
  - Complete 475 feet of sidewalk on the west side of Rome Ave.
  - Consider installation of a shared use path along the east side of Rome Ave.
  - Install an unsignalized crosswalk at Oregon Ave.
  - Install shared lane arrow markings.





ROME AVENUE
(KENNEDY BOULEVARD TO COLUMBUS DRIVE)

Project Candidate – Willow Ave Corridor

Willow Ave from Swann to Platt St

This residential street has a posted speed of 25 MPH. There is parking permitted on both sides, and the pavement section is approximately 28ft. It is recommended that wayfinding signage be used to guide bicyclists to use this corridor, but low volumes and travel speeds do not require installation of additional bicycle facilities.

There is continuous sidewalk on both sides of Willow Ave in this segment. The intersection of Willow Ave and Platt St has three legs with pedestrian markings and pedestrian signals. Consider marking the side street crossings at Horatio St and DeLeon St and installing a marked midblock crossing at DeLeon St.

Consider a mid-block crossing with RRFB along Willow Ave across Swann Ave, as this corridor is heavily traveled for residents going to/from Bayshore Blvd.

Willow Ave from Platt St to Cleveland St

Between Platt St and Cleveland St, Willow Ave passes under the Crosstown Expressway, and there is a third northbound thru lane that terminates underneath the expressway overpass. This segment of roadway can be re-configured to provide for bicycle lanes as well as dual southbound left-turn lanes. The southbound left turn is a major movement at this location, particularly during the PM peak hour when southbound left-turning vehicles are observed stacking into Cleveland St. Restriping Willow Ave along this segment would provide for bicycle connectivity under the Crosstown Expressway as well as a significant capacity improvement.

A summary operational review of the intersection of Willow Ave and Platt St during the PM peak hour revealed that 60-80% of the southbound left-turning vehicles continue onto the eastbound Crosstown Expressway. Therefore, modifications to the markings must include proper guide signage and in-lane markings to ensure that the inside lane is marked for the expressway and Platt St and the outside left-turn lane is signed and marked for Platt St access only. A longer-term improvement (not pictured) could include a second on-ramp receiving lane tapering into a single lane ramp to allow better use of the proposed dual southbound left-turn lanes.

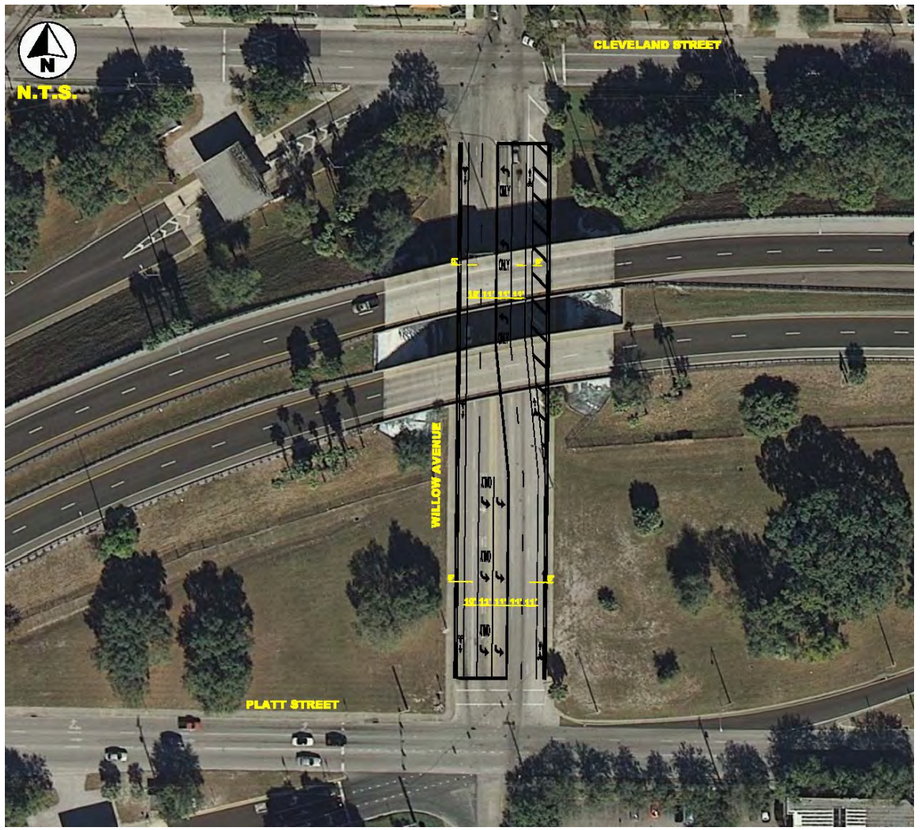
Willow Ave from Cleveland St to Kennedy Blvd

From Cleveland St to Kennedy Blvd, Willow Ave has a 30ft two-lane undivided section. This segment could be a candidate for either shared lane arrows or marked bike lanes. The posted speed limit is 30 MPH. In this segment, shared lane arrows are recommended consistent with the segment to the north.

There is continuous sidewalk on both sides of Willow Ave. There are pedestrian signal heads and high-emphasis crossings at Cleveland St. There are pedestrian heads and marked, textured crosswalks at Kennedy Blvd.

Willow Ave from Kennedy Blvd to Cass St

Between Kennedy Blvd and Cass St, Willow Ave is a brick street with an approximately 40ft-wide two-lane undivided section. On-street parking prohibition is not indicated, and several cars were observed parked on the side of the road. Given the speed and relatively low volume of this segment, it is recommended to maintain on-street parking and guide bicyclists with shared lane arrows. There is continuous sidewalk on both sides of Willow Ave. However, along the corridor, a lack of ADA ramps for accessing the sidewalks was observed. Two example locations are Carmen Ave and Gray St.



Willow Ave from Cass St to Cypress St

From Cass St to Cypress St, Willow Ave has a 30 MPH posted speed limit and continues as a 40ft brick street section. On-street parking is not prohibited by sign, and in this corridor several cars were observed parked along the roadside. Given the speed and relatively low volume of this segment, it is recommended to maintain on-street parking and guide bicyclists with shared lane arrows. There is a 670ft sidewalk gap on the east side of Willow between Cass St and Cypress St. Based on the locations of utility poles, it is unclear whether adequate ROW is available to complete the sidewalk here.

Crosswalks at Cass St and Cypress St should be upgraded with high-emphasis markings and pedestrian signals/push-buttons consistent with the City's ongoing pedestrian signal program. If it is determined a sidewalk cannot be constructed along this segment of Willow Ave, pedestrians crossing at the traffic signal at Cypress St should be directed to the east side of the roadway.

Willow Ave from Cypress St to Main St

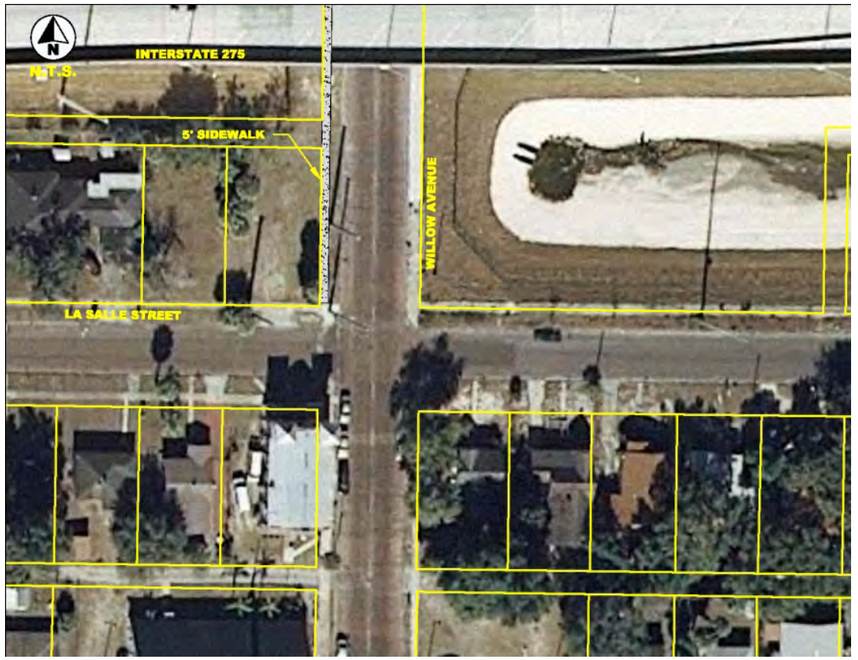
From Cypress St to Main St, Willow Ave has a 30 MPH posted speed limit and continues as a 40ft wide brick street. On-street parking is not prohibited by sign, and in this corridor several cars were observed parked along the roadside. Given the speed and relatively low volume of this segment, it is recommended to preserve on-street parking and guide bicyclists with shared lane arrows.

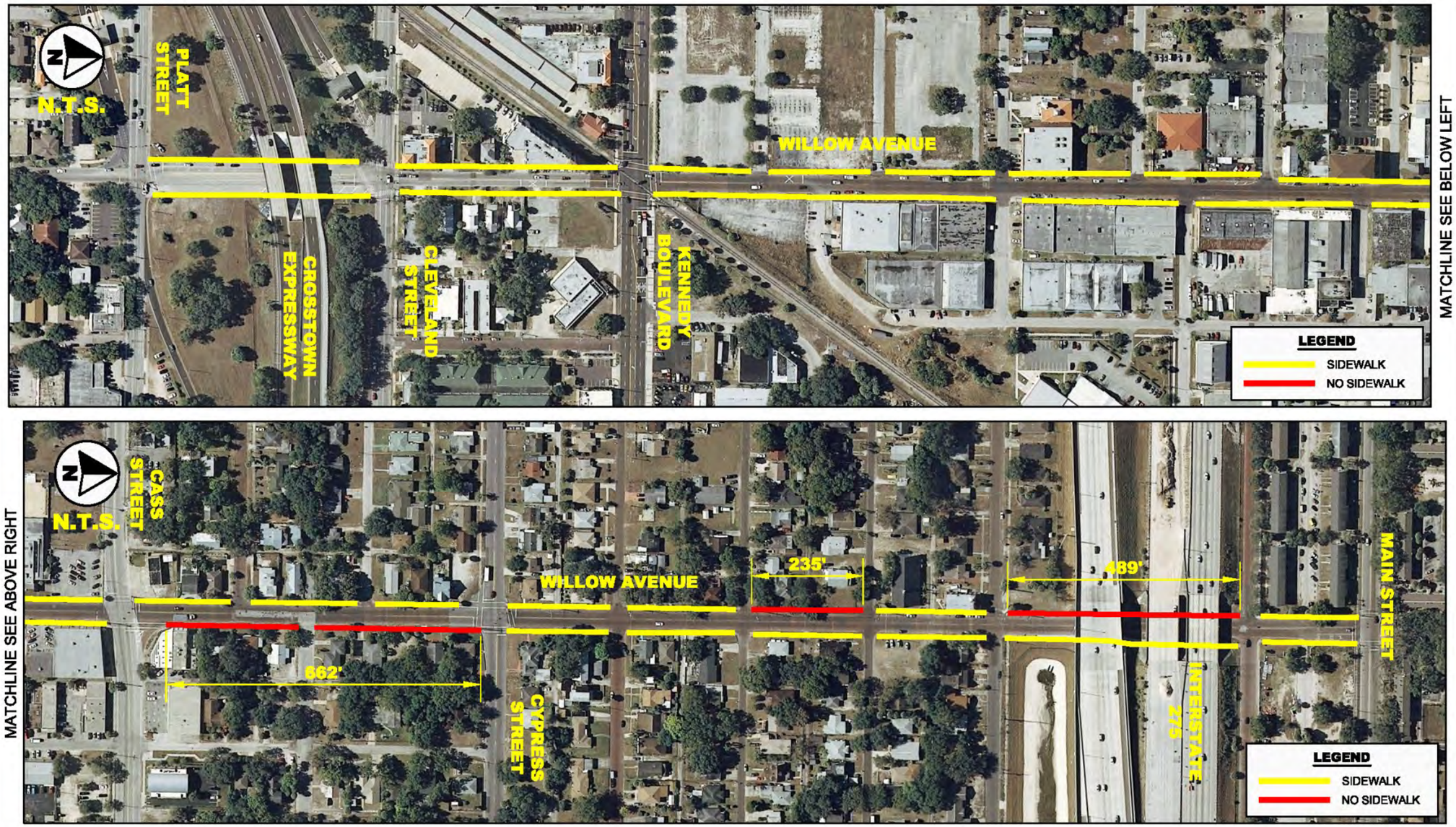
On the west side of Willow Ave, there is a sidewalk gap under I-275. Based on the location of the bridge support columns, there is adequate room to complete this sidewalk. There is also a sidewalk gap from Nassau St to Arch St. It is recommended that these sidewalk gaps be completed. Based on the County's Parcel Layer, there is adequate ROW to complete these gaps. For the segment from Nassau St to Arch St, there appears to be sufficient right-of-way for a sidewalk to be installed behind the existing utility poles.

There is continuous sidewalk on both sides of Willow Ave from north of I-275 to Main St. At Main St, there are pedestrian signals to cross Main St, but these also should be installed to cross Willow Ave.

Recommendations:

- Upgrade the midblock crossing and signage at Arch St.
- Construct 450ft of sidewalk on the west side of Willow from LaSalle St to north of I-275.
- Construct 300ft of sidewalk on the west side of Willow Ave from Nassau St to Arch St.
- Install pedestrian signal heads and buttons to cross Willow Ave at Main St.
- Upgrade the intersections of Cass St and Cypress St to have pedestrian signal heads and buttons instead of "Push Button for Green Light."
- Conduct a corridor ADA review in conjunction with a sidewalk project.
- Install approximately one mile of shared lane arrows from Cleveland St to Main St.
- Restripe the 500ft segment of Willow under the Crosstown Expressway to provide bike lanes and dual southbound left-turn lanes—modify the traffic signal as necessary.





WILLOW AVENUE
(PLATT STREET TO MAIN STREET)

Project Candidate – Cypress St/Cass St Corridor

Cass St from Howard Ave to Riverwalk

As of the writing of this report, Cass St is in the process of being resurfaced with turn lane modifications and the addition of bicycle lanes, which extend from Willow Ave to the west end of the Hillsborough River Bridge.

The bridge is not wide enough to accommodate bike lanes and maintain the four existing travel lanes; in the future, this segment should be considered as a candidate for a road diet from North Blvd to the Riverwalk. Modifications to this segment of roadway would require a redesign of the lanes at the intersection of Cass St and the Straz Center to ensure that adequate room and guidance are provided for both bike and vehicular circulation.

Cypress St from MacDill Ave to North Blvd

Cypress St, along with Azeele St, is one of a handful of roadways that has the potential to create a multimodal connection between Downtown/Hyde Park and the Westshore Business District. Cypress St is a two-lane undivided roadway with parking permitted along the shoulder. The posted speed limit is 30 MPH, and the typical pavement width is 40ft. This 40ft section can be reallocated to provide for parking along one side of the street, one travel lane in each direction, and marked bicycle lanes using a 5/11/11/5/8 section.

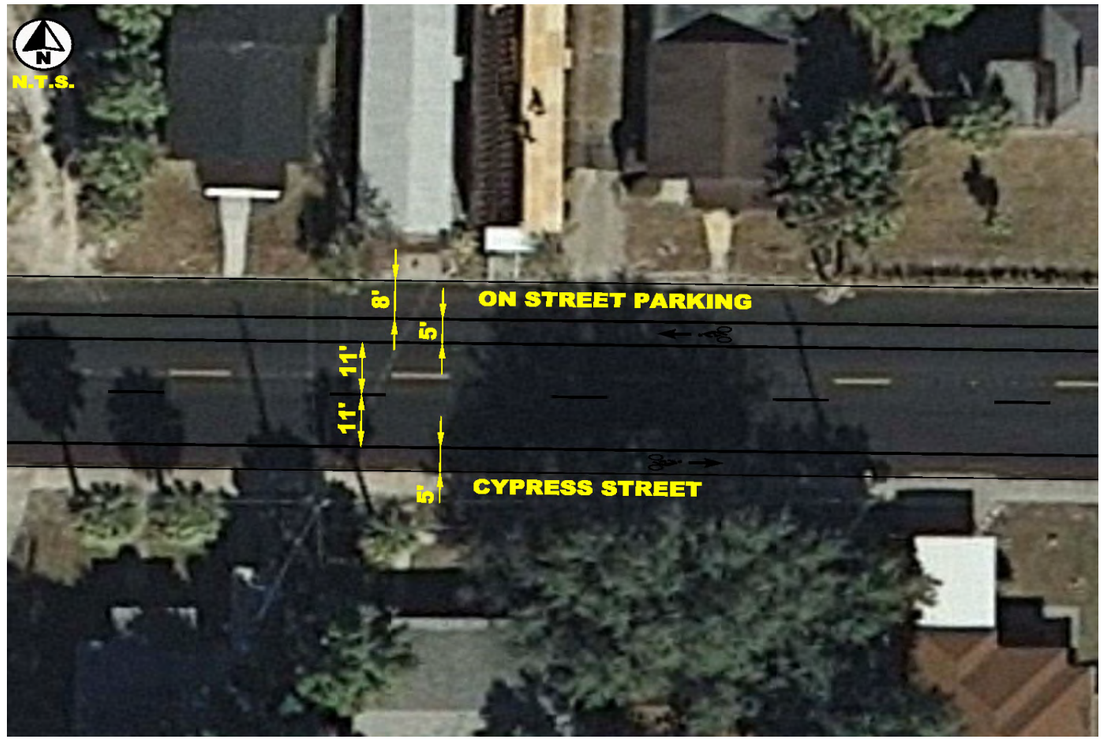
West of Howard Ave, the pavement section narrows to approximately 28ft, and shared lane arrows should be considered. At the westbound approach at the intersection of Cypress St and MacDill Ave, the raised median island should be narrowed/shifted south to provide adequate space for a westbound bike lane "key hole."

Laurel St from Hillsborough River to Tampa St

Laurel St is a lightly-traversed river configured to accept the half-diamond interchange once contemplated to provide ramps onto southbound I-275 and off of northbound I-275. Since these ramps are not planned within the current adopted 2035 LRTP, there is an opportunity to reallocate surplus capacity/cross-section along Laurel St (and Green St) to provide a multimodal connection between West Tampa and Downtown.

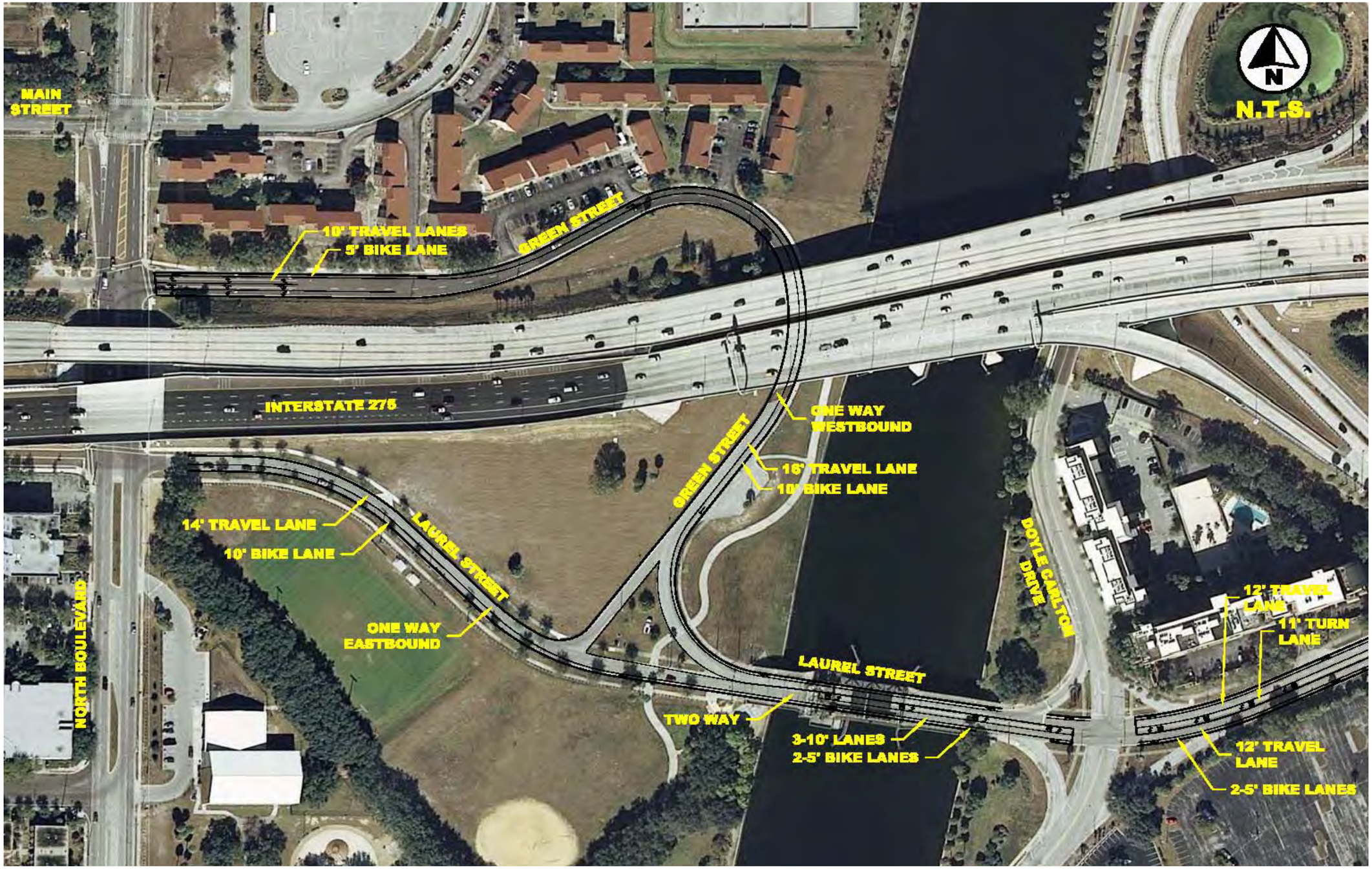
The Laurel St Bridge and the section of Laurel St from the Hillsborough River to Tampa St is a four-lane undivided section. This segment of Laurel St can be reconfigured as a two-lane divided roadway with a 5/12/11/12/5 section. West of the river, Laurel St splits into a one-way pair (with Green St) with two lanes in each direction. This segment of the corridor can be converted to one-lane one-way sections, with 12ft travel lanes and wide bicycle lanes with the outer area hashed to ensure they are not mistaken for automobile travel lanes.

Two alternatives to converting the one-way pair section to one-lane, one-way sections are 1) to provide way finding signage to direct cyclists through Riverfront Park (provided park hours and facilities allow for the park to be used as a nighttime thoroughfare) and 2) construct a side path along Laurel St from North Blvd to the Laurel St Bridge.



Recommendations:

- Monitor Cass St for a road diet project with a future resurfacing.
- Along Cass St, install shared lane arrows from Willow Ave to Howard Ave.
- Restripe Cypress for parking and bike lanes for 5,000ft from Howard Ave to North Blvd and provide shared lane arrows from MacDill Ave to Howard Ave.
- Convert Laurel St from west of the Hillsborough River Bridge to Tampa St to a two-lane divided section.
- Coordinate with the Parks and Recreation Department to provide for use of Riverfront Park for bicycle traffic from Cypress St/North Blvd to Laurel St. Provide an eastbound left-turn lane at the intersection or Laurel St and Green St. Preserve Green St as a two-lane one-way section and provide shared lane arrows on Laurel St and Green St west of this intersection.


MAIN STREET
N.T.S.
10' TRAVEL LANES
5' BIKE LANE
GREEN STREET
INTERSTATE 275
ONE WAY WESTBOUND
GREEN STREET
16' TRAVEL LANE
10' BIKE LANE
14' TRAVEL LANE
10' BIKE LANE
LAUREL STREET
DOYLE CARLTON DRIVE
12' TRAVEL LANE
11' TURN LANE
NORTH BOULEVARD
ONE WAY EASTBOUND
LAUREL STREET
TWO WAY
3-10' LANES
2-5' BIKE LANES
12' TRAVEL LANE
2-5' BIKE LANES

USF STUDY AREA

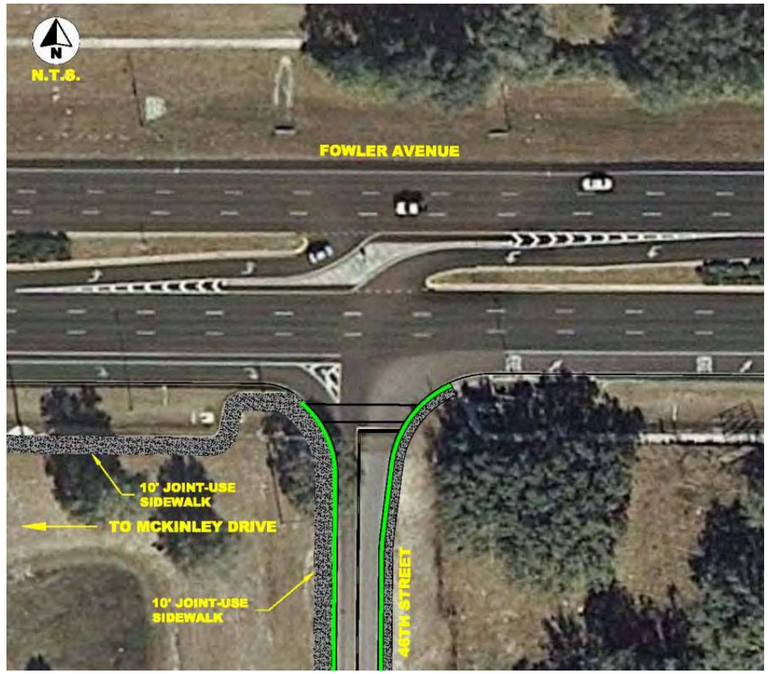
Project Candidate – Temple Terrace to USF Connections

46th St from Busch Blvd to Fowler Ave

A detailed field review was undertaken for 46th Ave. Based on this review, there is not adequate pavement width to accommodate marked bicycle lanes. Additionally, there is a swale at varying points along 46th St and at varying locations from the edge of pavement. To install bicycle lanes, roadway widening would be required, which would require modifications to the open drainage system. Because 46th St is fronted by commercial/industrial uses to the north of Serena Dr, widening to a three-lane section with marked bike lanes may ultimately be desirable. This roadway section would need to be between 38ft and 46ft to accommodate these uses and provide for truck access to the commercial/industrial uses. In the interim, the use of shared lane markings south of Serena Dr and a shared-use path north of Serena Dr is recommended.

South of Serena Drive, the posted speed limit is 35 MPH, which is consistent with MUTCD guidance for the installation of shared lane arrows. North of Serena Drive, the posted speed limit increases to 40 MPH. This falls outside of the MUTCD guidance for shared lane arrows. From Serena Dr to north of Whiteway drive, there is an existing sidewalk on the west side. This sidewalk is offset from 46th St by approximately 20ft, and there appears to be adequate space to widen the sidewalk to provide for a shared-use path without significantly impacting the drainage system. From the current sidewalk termini north of Whiteway Dr, approximately 2,000ft of shared-use path should be constructed to Fowler Ave.

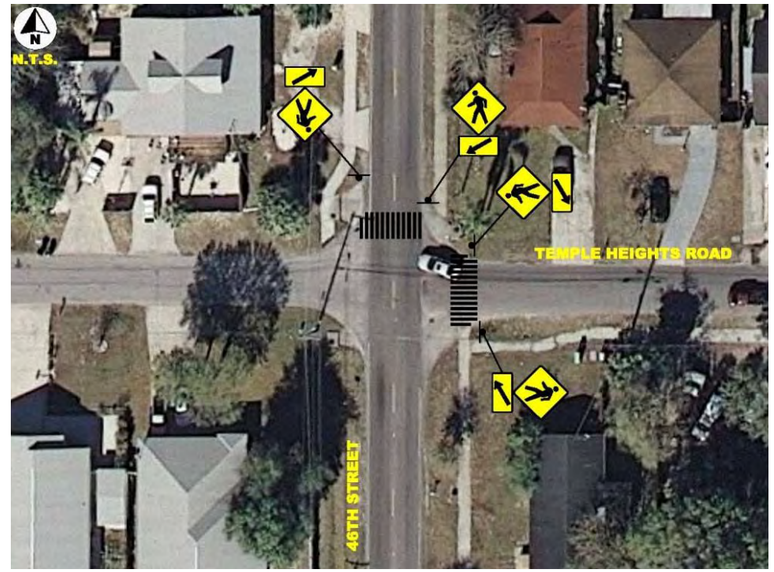
To promote bicycle mobility to USF, it is also recommended that the existing sidewalk on the south side of Fowler Ave, which connects to the main entrance of USF, be widened to a 10ft (minimum) shared-use path, as shown. This project would promote proper bicycle behavior and facilitate a major connection between USF to the Temple Terrace area via Whiteway Dr and Serena Dr.



To facilitate pedestrian cross-access along 46th St, high-emphasis crosswalks with appropriate signage/beacon devices should be installed at the following unsignalized intersections as illustrated:

- Temple Heights Road (north and east sides)
- Linebaugh Ave (all four approaches)
- Whiteway Dr (all four approaches)

Once the shared-use trail is completed, a continuous sidewalk connection will exist from Temple Heights Road to Fowler Ave along the west side of 46th St. The next priority should be completion of sidewalk gaps from Temple Heights Rd to Wilma St to provide complete sidewalk along the west side of 46th St from Busch Blvd to Fowler Ave.



Recommendations:

- Install shared lane markings south of Serena Dr.
- Widen the existing sidewalk/provide a 10ft shared-use path along the west side of 46th St from Serena Dr to Fowler Ave.
- Widen the existing sidewalk on the south side of Fowler Ave from 46th St to McKinley Drive to a 10ft (minimum) mixed-use path.
- At the intersection of 46th St and Serena Drive, install proper signage to direct users to the shared use path.
- At the intersection of 46th and Whiteway Dr, Serena Dr (signalized), Linebaugh Ave, and Temple Heights Rd, install high emphasis crossing treatments.
- Install sidewalks where gaps exist along 46th St between Busch Blvd and Fowler Ave (as shown at the end of this section).

In the long term, consider widening 46th St to a two-lane divided roadway with bicycle lanes from Serena Dr to Fowler Ave.

46TH STREET
(BUSCH BOULEVARD TO FOWLER AVENUE)

50th St from Serena Dr to Fowler Ave

50th St is a north/south roadway which connects residential uses in Temple Terrace to USF via Whiteway Dr and Serena Dr. Also, the Bull Runner extension travels along 50th St, providing a direct multimodal connection into the heart of the USF campus.

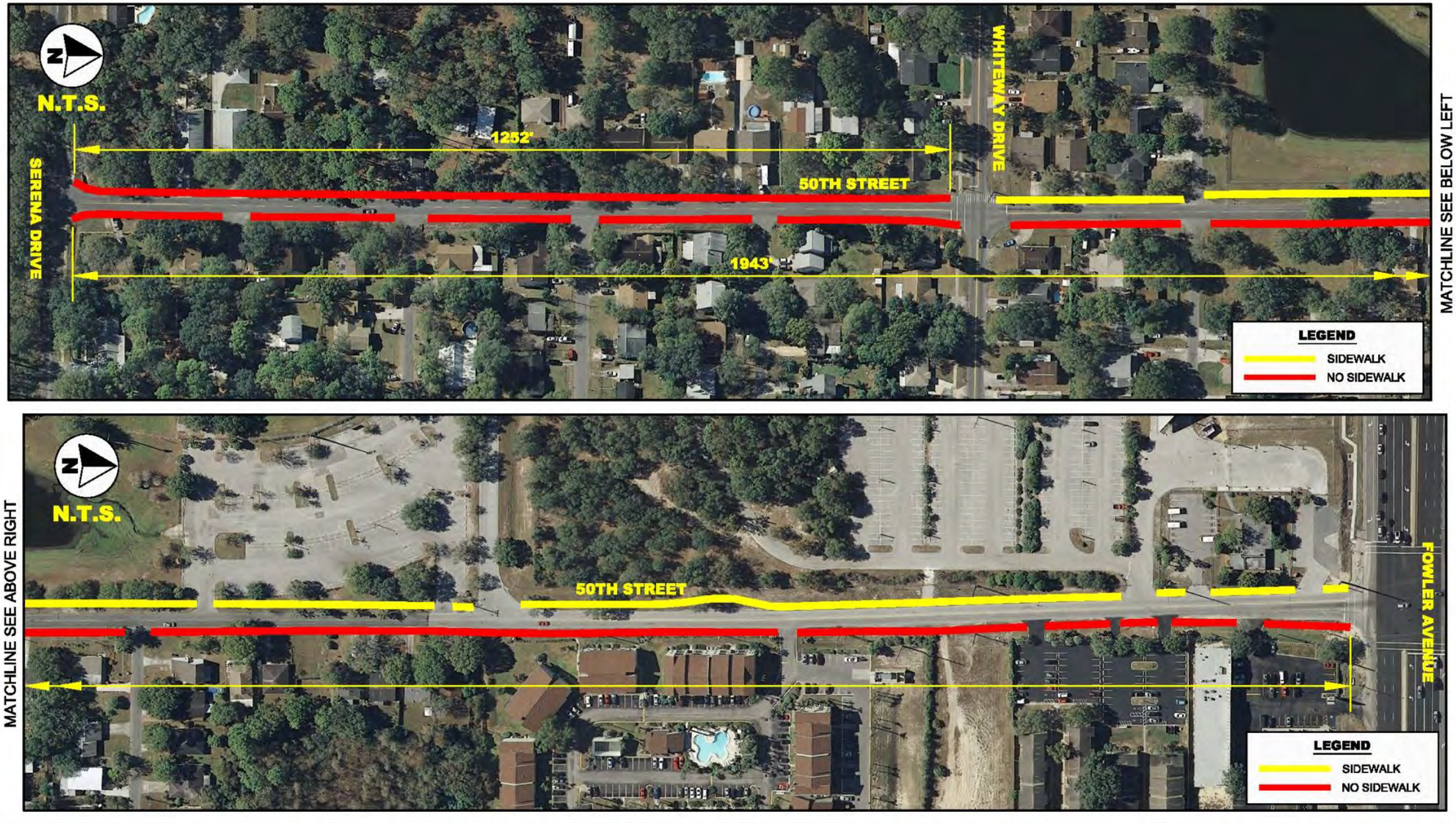
50th St has open drainage, with a pavement width from 20ft to 24ft. In the vicinity of Serena Dr, there is a large swale on the west side of 50th St that is set back a few feet from the edge of pavement. This swale extends north to Chilkoot Ave.

Based on this review, there is not adequate pavement width to accommodate marked bicycle lanes along 50th St. Since the speed limit along 50th St is only 30 MPH, and the roadway is a lower-volume collector without obvious freight uses, installation of shared lane arrows is recommended to facilitate bicycle mobility between Serena Dr and Fowler Ave.

As shown, from Whiteway Dr to Fowler Ave, sidewalks are provided along the west side of 50th St; however, there are no sidewalks between Serena Dr and Whiteway Dr nor are sidewalks provided along the east side of 50th St from Whiteway Dr to Fowler Ave. Field review suggests that installation of sidewalks along the east side of 50th St is less likely to impact the drainage swale. At the intersection of 50th St and Whiteway Dr, it is recommended that the pedestrian features be upgraded to high-emphasis crossings on the south leg and that pedestrian signage/beacons be installed.

Recommendations:

- Install shared lane markings along 50th St.
- Install sidewalk on the east side of 50th St from Serena Dr to Fowler Ave.
- Upgrade the pedestrian crossing at 50th St and Whiteway Dr.



50TH STREET

(SERENA DRIVE TO FOWLER AVENUE)

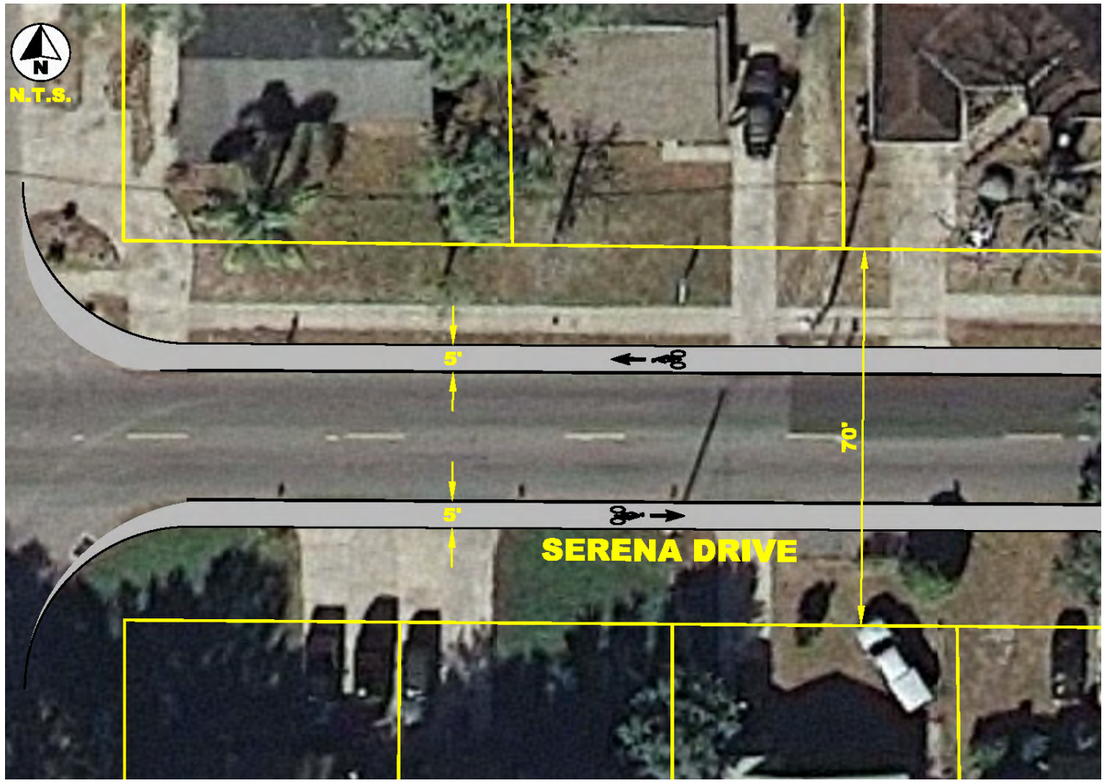
Serena Dr from 46th St to 52nd St

Serena Dr is an east/west roadway that serves to connect the Temple Terrace area and USF via 50th St and 46th St. West of 46th St, Serena Dr becomes Bougainvillea Ave and continues through industrial and commercial areas to 30th St, where it once again becomes a residential collector roadway.

This segment of Serena Dr has open drainage swales and a typical pavement width of 24ft. There is a 5ft sidewalk along the north side, and the posted speed limit is 25 MPH. The ROW is approximately 70ft wide (based on Hillsborough County Property Appraiser GIS files) and appears to be centered on the roadway. During the field review for this corridor, many bicyclists were observed traveling east and west along Serena Dr.

Given the low relatively low vehicular volume traveling along this segment of Serena Dr, as well as the posted speed of 25 MPH, the short-term recommendation is to guide bicyclists along this segment through the use of shared lane markings and wayfinding signs.

In the longer term, to allow Serena Dr to serve as a primary bicycle corridor between USF and Temple Terrace and to coordinate with recommendations for Bougainvillea Ave elsewhere in this memorandum, it is recommended to consider adding paved shoulder to Serena Dr within the existing ROW to accommodate marked bicycle lanes. Although this would impact numerous residential driveways, the drainage impacts appear to be minimal. A conceptual section is shown below.

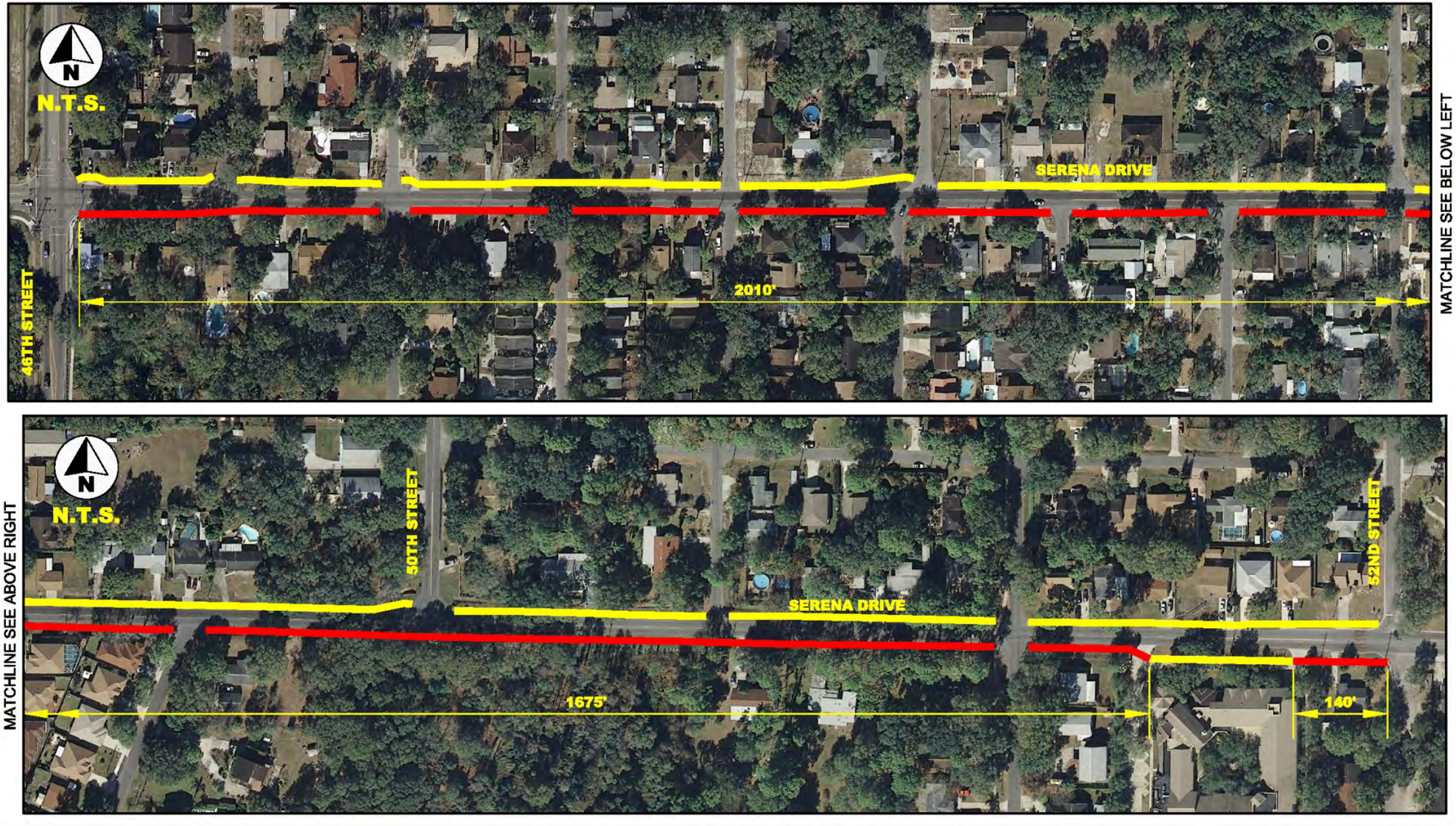


The sidewalk on the north side ends at 52nd St, and sidewalk begins on the south side from 52nd St to 56th St. High-emphasis crosswalks and appropriate signage/beacons should be installed at this location and at the following other locations:

- 52nd St (north and east sides)
- Myrtle St (north and west sides)
- 50th St (north side)

Recommendations:

- Install shared lane markings along Serena Dr.
- Install pedestrian crossings at major side streets.
- Upgrade the pedestrian crossing at 52nd St.
- Consider establishing a primary east/west bike route with marked bike lanes along Serena Dr/Bougainvillea Ave.



SERENA DRIVE
(46TH STREET TO 52ND STREET)

Whiteway Dr from 46th St to 52nd St

This segment of Whiteway Dr is a two-lane undivided roadway with a pavement width of 22ft. The posted speed limit is 25 MPH, and there are speed tables throughout the study area. Although adequate ROW is available to widen the pavement to provide marked bike lanes, the lower-speed, lower-volume characteristics of this roadway indicate that the installation of shared lane arrows is sufficient to facilitate bicycle mobility along this roadway.

As shown in the figure at the end of this section, there is continuous sidewalk along the north and south sides of Whiteway Dr from 46th St to Connechussett Rd. At this point, the sidewalk along the north side ends, and only the sidewalk along the south side continues through to 52nd St. The sidewalk along the north side should be completed to 52nd St, and consideration should be given to providing an unsignalized crosswalk at 47th St to help facilitate access to the park. At the intersection of Whiteway Dr and 50th St, there is a four-way stop condition, and it is recommended that all crossings to high-emphasis crosswalks with installation of pedestrian warning signage.

Recommendations:

- Install shared lane markings along Whiteway Dr.
- Complete the sidewalk along the North Side of 46th St from Connechussett Rd to 52nd St (with possible interim phases to 47th St and then to 50th St).
- Install pedestrian crossings at 47th St, 50th St (consistent with the recommendations for the 50th St segment, and at 52nd St.

Linebaugh Ave from 40th St to 52nd St

This segment of Linebaugh Ave is a two-lane undivided roadway with a pavement width of 20ft–22ft and an assumed speed limit of 25 MPH. Although ROW is available to widen the pavement to provide marked bike lanes, the lower-speed, lower-volume characteristics of this roadway indicate that the installation of shared lane arrows is sufficient to facilitate bicycle mobility along this roadway.

There is continuous sidewalk along the south sides of Linebaugh Ave from 40th St to 46th St and along the north side from 46th St to 52nd St, with a small section along the south side from 50th St to west of Myrtle Ave. High-emphasis crosswalks with appropriate signage/beacons should be provided along the corridor as follows:

- 46th St (north, west, and east sides)
- Takomah Tr (east side)
- 50th St (west side, enhance existing)
- Myrtle St (west and north sides, enhance existing)

Recommendations:

- Install shared lane markings along Linebaugh Ave.
- Install enhanced pedestrian crosswalks as described above.

Project Candidate – Connections to Bull Runner Extension

Bougainvillea Ave from Nebraska Ave to 30th St

This segment of Bougainvillea Ave is a two-lane undivided residential collector roadway with approximately 22ft–25ft of pavement width and sidewalks on both the north and south sides. The posted speed limit along this section of Bougainvillea is not apparent; however, the speed limit is assumed to be 30-35 MPH.

As the only contiguous east-west road between Fowler Ave and Busch Blvd from the Hillsborough River to I-275, as noted above, Bougainvillea Ave is a logical continuation of the Serena Dr "bikeway" recommended above. In the short term, the speed limit in this section should be clearly posted (potentially using speed feedback signs) at 30 MPH (or 35 MPH, if warranted), and shared lane arrows should be installed. In the longer-term, consideration should be given to adding paved shoulders to this roadway and providing marked bike lanes.

As shown at the end of this section, there are continuous sidewalks on both the north and south sides of Bougainvillea Ave from Nebraska Ave to 30th St. Consideration should be given to installing high-emphasis unsignalized crosswalks with appropriate signage/beacons at the following locations:

- Lantana Ave (east side)
- 18th St (either side)
- 26th St (east side)

Additionally, the four-way stop controlled intersection at 15th St should be enhanced with high-emphasis crosswalks, and pedestrian push-buttons and signal heads should be installed at the signalized intersection at 22nd St. Lighting should be evaluated and enhanced as necessary at both locations.

Bougainvillea Ave from 30th St to McKinley Dr

From 30th St to McKinley Dr, the typical section is approximately 25ft, and the posted speed limit is 40 MPH. Land uses along this section are predominately industrial/commercial. Because the 40 MPH speed limit is greater than the MUTCD guidance for the installation of shared lane arrows, they are not a good option unless, following a detailed speed study, it can be shown that a lower posted speed is appropriate.

Roadway widening to provide for marked bicycle lanes will require modifications to the existing closed drainage system on the south side, which includes relocation of drainage inlets. Also, the intersection of Bougainvillea Ave and McKinley Dr is not wide enough, as presently constructed, to accommodate bicycle lanes within the current curb line, and reconstruction would be required here as well. Because of the limited number of driveways along this segment, construction of a 10ft (minimum) shared use path along the south side of the roadway may be the most expedient option to provide for bicycle mobility along this segment of Bougainvillea Ave.

East of 30th St, there are no sidewalks on the north or south side until University Center Dr. At University Center Dr, the sidewalk begins on the north side of the roadway and continues to McKinley Dr. It is recommended approximately 1,200 feet of sidewalk be constructed from University Center Dr to 30th St to provide continuous sidewalk along the north side of this segment.

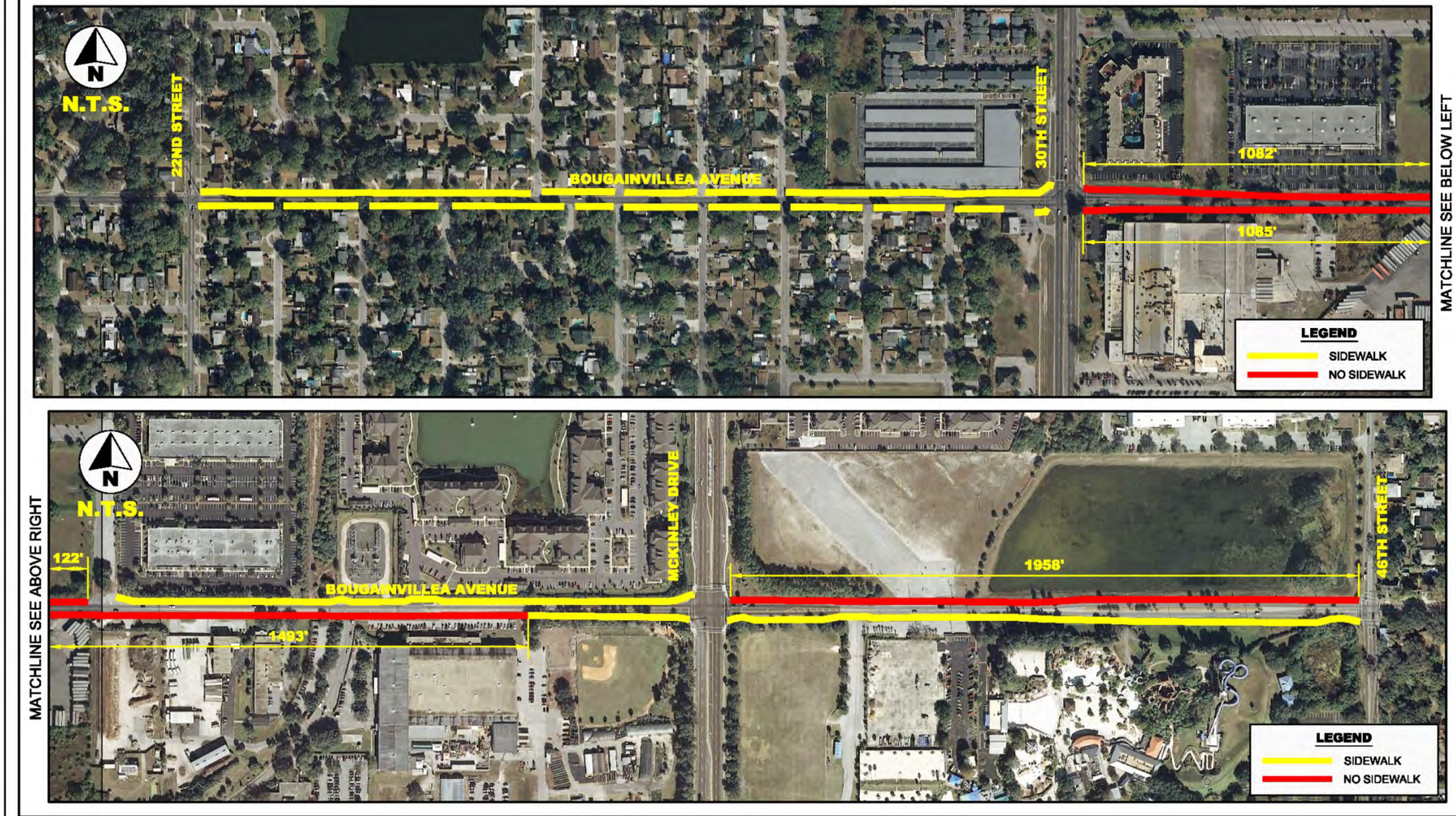
Bougainvillea Ave from McKinley Dr to 46th St

The speed limit on this section of road is 40 mph, which is greater than the MUTCD guidance for installation of shared lane arrows. The typical pavement width for the two-lane undivided segment of this roadway is approximately 25ft, with a landscaped median extending approximately 750ft west of 46th St, with two 12ft travel lanes on either side. Because this segment of Bougainvillea Ave is a rural section, bicycle lanes could be accommodated by adding paved shoulders to the roadway. Alternatively, the existing sidewalk along the south side of the roadway could be widened to provide a shared-use path consistent with the segment from 30th St to McKinley Dr.

Because there are no businesses or residences along the north side of this segment, providing a sidewalk along the north side of this segment of Bougainvillea Ave should be considered a low priority.

Recommendations:

- Provide shared lane arrows from 22nd St to 30th St.
- Install high-emphasis crosswalk markings at 26th St, 30th St, and McKinley Dr.
- Provide a 10ft-wide shared-use path along the south side of Bougainvillea Ave from 30th St to 46th St.
- Complete the sidewalk along the north side of Bougainvillea Ave from 30th St to University Center Dr.



BOUGAINVILLEA AVENUE
(22ND STREET TO 46TH STREET)

Project Candidate –30th St/McKinley Dr Corridor

30th St from Busch Blvd to Fowler Ave

As noted above, 30th St is a four-lane divided arterial with a center two-way left-turn lane and a posted speed of 45 MPH. Several transit shelters/stops are located along 30th St. Continuous sidewalks are provided along both sides of 30th St, but no bicycle facilities are provided within this urban section. The typical cross section of 30th St is 66ft, and this can be reallocated to provide marked bike lanes while preserving 11ft travel lanes and an 11ft center turn lane. The following graphics demonstrate the reallocation of the lane width along 30th St and at the approaches to Fowler Ave and Busch Blvd.

In addition to the signals at Fowler Ave and Busch Blvd, there are signalized intersections at Bougainvillea Ave (at the approximate midpoint of this 1.5-mile segment) and Annie St approximately 0.25 miles north of Busch Blvd. These locations should be enhanced with high-emphasis crosswalks, and lighting levels should be evaluated to ensure that the crosswalk areas are adequately illuminated.

Although there are no neighborhood serving uses along the east side of 30th St, transit users from the neighborhoods to the west of 30th St are likely to access northbound stops at Linebaugh Ave and 109th St. As such, consideration should be given to providing pedestrian crossings at these locations using either pedestrian signals or High-Intensity Activated crossWalK (HAWK) beacons if warrants for either are met. Regardless, raised median islands to provide refuge for pedestrians crossing to/from transit stops should be provided at regular intervals along the corridor.

McKinley Dr from Busch Blvd to Fowler Ave

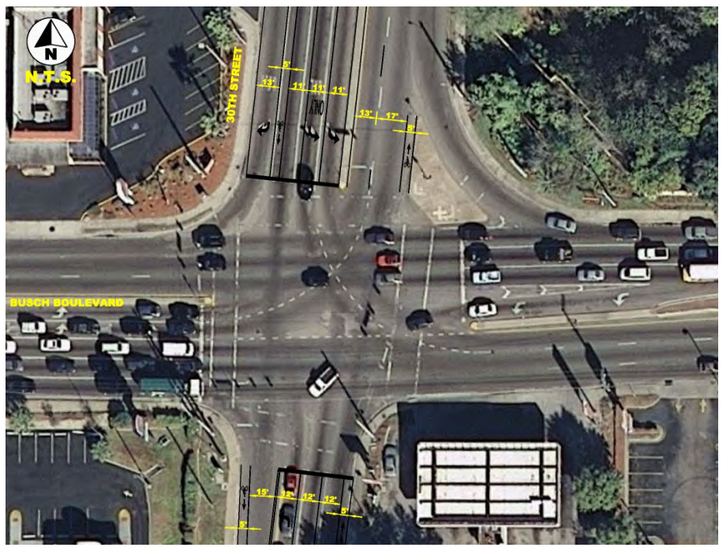
McKinley Dr is a major four-lane arterial providing a north/south connection between Fowler Ave and Busch Blvd. USF's Bull Runner extension and regular HART buses provide transit service along this corridor at three sets of paired bus shelters located:

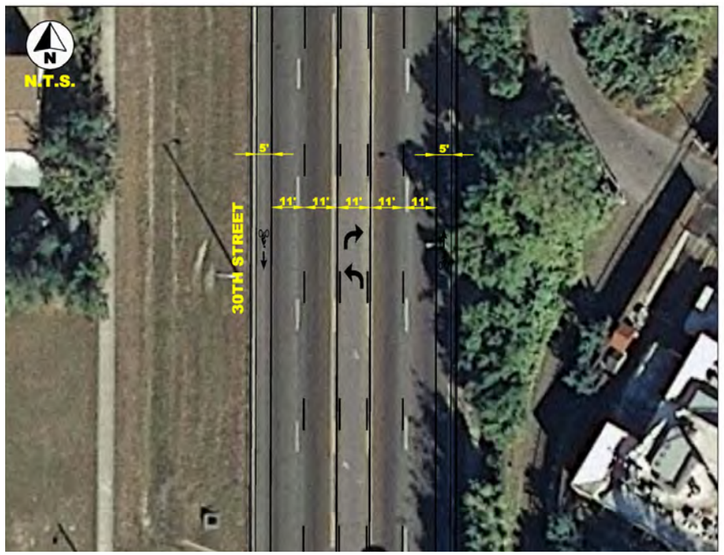
- approximately 1,200 feet south of Fowler Ave
- Bougainvillea Ave (north side, signalized)
- Linebaugh Ave (south side, unsignalized)

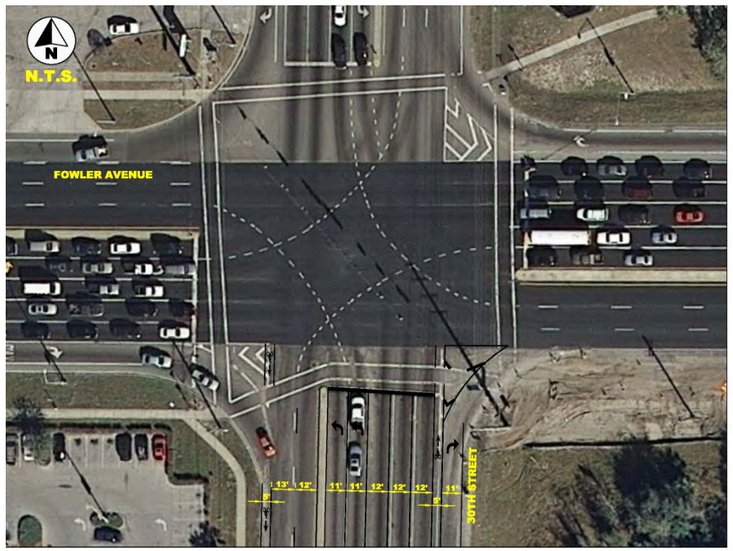
As the land uses along this corridor continue to (re)develop, volumes at these stop pairs should be monitored to determine whether marked crosswalks across McKinley Dr are necessary at the stop pairs south of Fowler Ave and at Linebaugh Ave. Given the travel speeds along this segment of McKinley Dr, either pedestrian signals or HAWK beacons are appropriate if warrants for either are met.

Recommendations:

- Reduce lane widths to provide marked bicycle lanes from Busch Blvd to Fowler Ave.
- Provide regularly-spaced mid-block pedestrian refuge island.
- Consider providing marked unsignalized crosswalks with appropriate traffic control/warning devices at Linebaugh Ave and 109th Ave.
- Monitor bus stop volumes and pedestrian activity in the vicinity of the Lodge apartments (approximately 750ft north of Bougainvillea Ave) and install mid-block crosswalks with pedestrian signals or HAWK beacons if warranted.







Project Candidate – Linebaugh Ave/109th Ave Corridors

Linebaugh Ave from Nebraska Ave to 30th St

Linebaugh Ave provides an alternative east-west route running parallel and between Busch Blvd and Bougainvillea Ave. This two-lane undivided lower-speed, lower-volume neighborhood collector roadway has approximately 22ft–24ft of pavement width and is appropriate for installation of shared lane arrows with a posted speed of 30 MPH.

Sidewalks are provided along both sides of Linebaugh Ave from Nebraska Ave through Club Ct and along the north side of Linebaugh Ave from Club Ct to 30th St. The four-way stop-controlled intersection at 15th St should be enhanced with high-emphasis crosswalks, and pedestrian push-buttons and signal heads should be installed at the signalized intersection at 22nd St. Lighting should be evaluated and enhanced as necessary at both locations. A crosswalk across Linebaugh Ave with appropriate signage/beacons at 26th St (east side) also should be considered.

109th Ave from Nebraska Ave to 30th St

109th Ave provides an alternative east-west route running parallel and between Bougainvillea Ave and Fowler Ave. This two-lane undivided lower-speed, lower-volume neighborhood collector roadway has approximately 22ft–24ft of pavement width and is appropriate for installation of shared lane arrows with a posted speed of 25–30 MPH. From 15th St to 30th St, speed tables are installed at regular intervals.

Sidewalks are provided along the south side of 109th Ave from Nebraska Ave to 15th St, along both sides from 15th St to 30th St. High-emphasis crosswalks are provided at the four-way stop-controlled intersection at 15th St and at the signalized intersection at 22nd St. Pedestrian push-buttons and signal heads should be installed at 22nd St, and lighting should be evaluated and enhanced as necessary at both locations.

There is an existing school crossing crosswalk at 26th St, which could be enhanced with warning beacons and spot lighting. Along this corridor, many of the speed tables are marked as crosswalks but do not have paved connections to the sidewalk facilities.

Recommendations:

- Install shared lane arrows along these corridors and enhance pedestrian facilities at the intersections of 15th St, 22nd St, and 26th St, as noted.

WESTSHORE STUDY AREA

Project Candidate – Lois Ave from Kennedy Blvd to Boy Scout Blvd.

Lois Ave from Kennedy Blvd to I-275

This segment of Lois Ave is a four-lane undivided roadway with a 48ft pavement width with curb and gutter and a 40 MPH posted speed. This portion of Lois Ave is on the City of Tampa's Truck Route system and, due to the high posted speed, is not a candidate for shared lane arrows. Sidewalks are provided along both sides of the roadway.

Two options to improve bicycle mobility along this segment include:

- Reduce the travel lane width to 10ft and provide 4ft bike lanes (+ gutter width).
- Reallocate the lane widths to accommodate a 13/11/11/13 cross section.

Lois Ave from I-275 to Cypress St

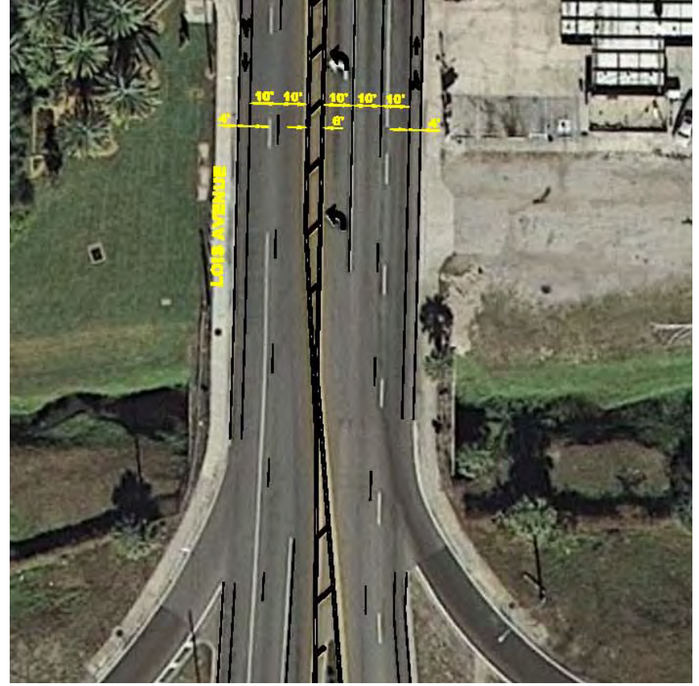
This portion of Lois Ave is, generally, a five-lane divided section with a 65ft pavement section. It is on the Truck Route system and has a posted speed limit of 40 MPH.

Marked bike lanes could be accommodated within this by reducing thru-lane width to 10ft, as shown to the right.

As with the previous section, a secondary option could be to stripe the section for a wide outside lane and incorporate bike signage. A conceptual section would be 13/11/11/6/11/13.

In either scenario, elimination of the striped/raised median treatments could provide additional space for bicycle lanes.

Along this section of Lois Ave, there is continuous sidewalk on both sides of the roadway. No pedestrian improvements are recommended.



Lois Ave from Cypress St to Spruce St

This portion of Lois Ave is a four-lane divided section, with 4ft of pavement and a 6ft striped median. It is on the Truck Route system and has a posted speed limit of 35 MPH.

Given the cross-section, bike lanes could be accommodated with 10ft thru lanes. This could be accomplished through removal of the 6ft–8ft existing painted median. A second option is to provide shared lane markings, as the posted speed is within the MUTCD guidance. In conjunction with shared lane markings, this section could be restriped to provide a wide outside lane (13/11/11/13).

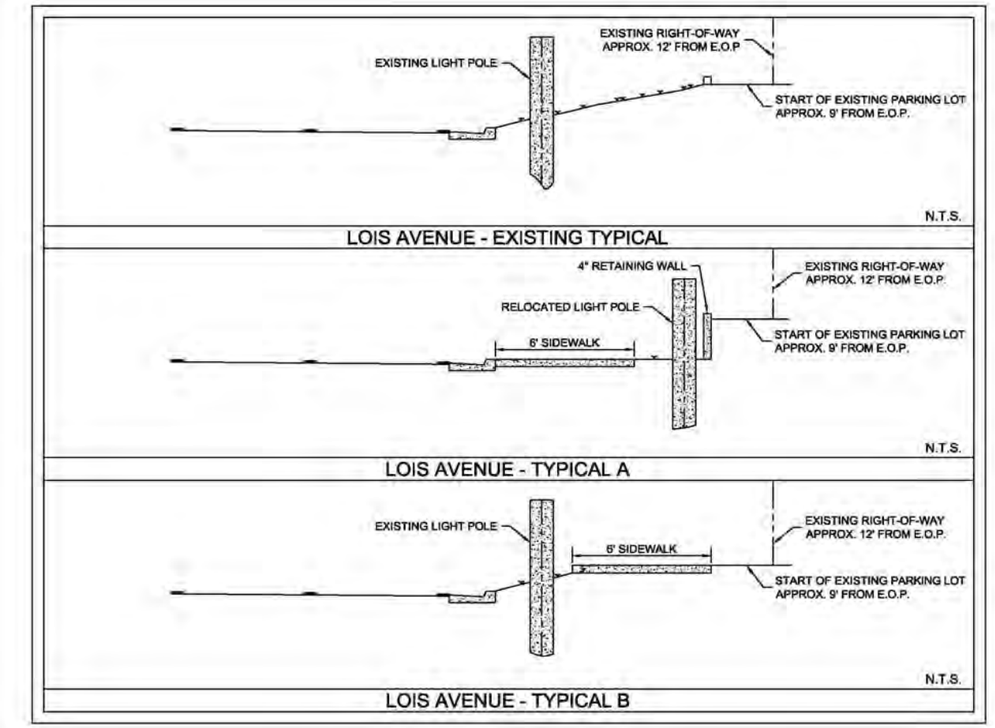
Along this section of Lois Ave, there is continuous sidewalk on both sides of the roadway. No pedestrian improvements are recommended at this time.

Lois Ave from Spruce St to Boy Scout Blvd

From Spruce St to Boy Scout Blvd, there is an existing 61ft typical section that accommodates four travel lanes and a painted median/two-way left-turn lane. Bike lanes could be accommodated by reallocating the section to 4/11/10/11/10/11/4

As shown in the exhibit at the end of this section (and pictured here), there is a sidewalk gap on the east side of the Lois Ave between Spruce St and International Dr. The sidewalk terminates into the parking lot of an office building and resumes north of the office building at International Dr.

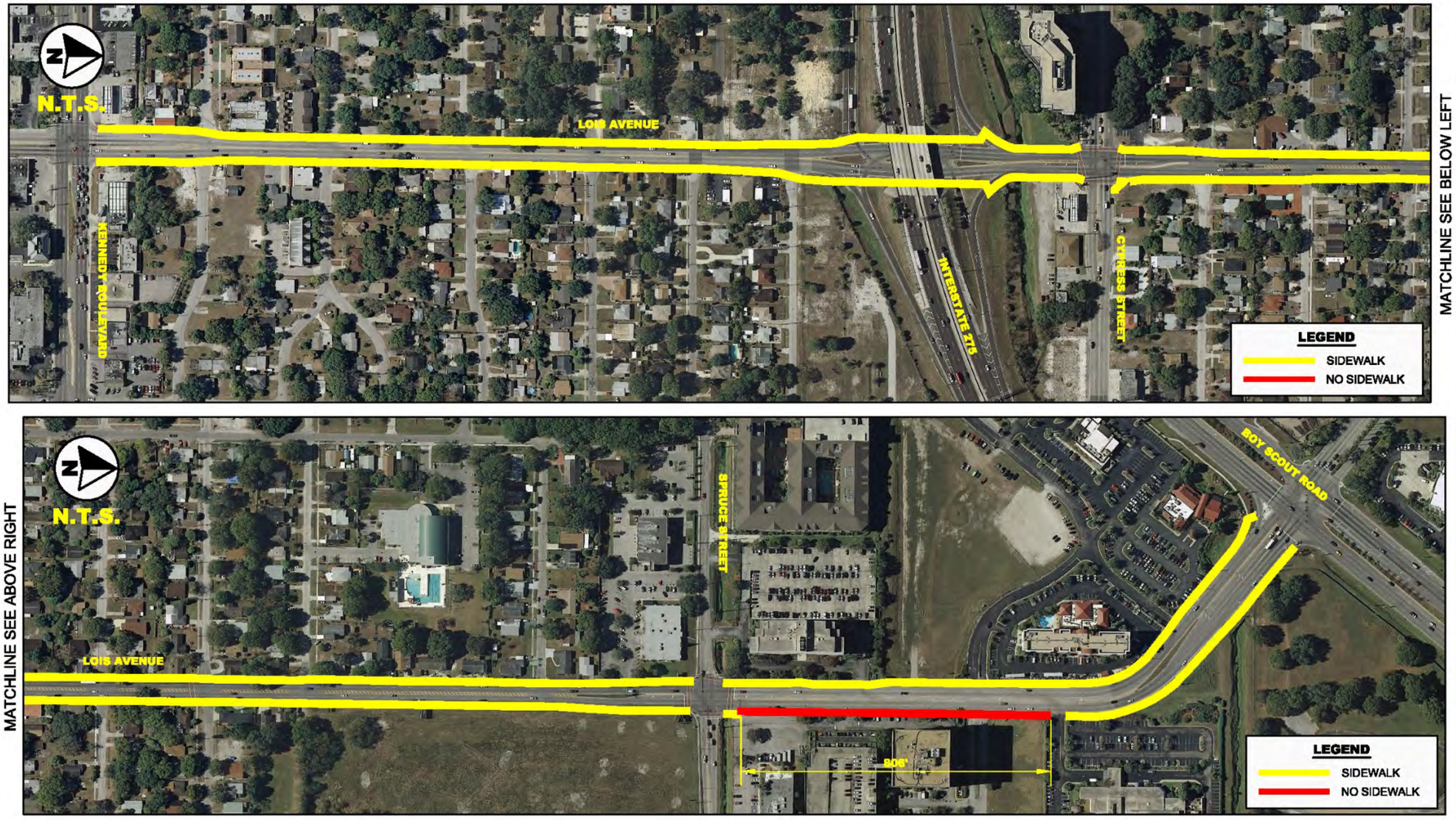
As shown, a review of the Hillsborough County parcel layer indicates that there may be enough ROW to install the proposed sidewalk without any takings of private property; however, construction of a sidewalk along the east side of Lois Ave would need to consider the cross-slope of the shoulder as well as potential relocation of existing street lighting to accommodate ADA clearance requirements.



Recommendations:

- From Kennedy Blvd to I-275:
  - Restripe approximately 2,500ft to accommodate bike lanes, OR
  - Restripe approximately 2,500ft to provide a wide outside lane and incorporate share-the-road signage.
- From Cypress St to I-275:
  - Restripe approximately 500ft to accommodate bike lanes, OR
  - Restripe approximately 500ft to reallocate the lane usage to provide a wide outside lane and incorporate share-the-road signage.
- From Cypress St to Spruce St:
  - Restripe approximately 2,700ft to accommodate bike lanes, OR
  - Restripe approximately 2,700ft to accommodate wide outside lanes and shared lane markings.
- From Spruce St to Boy Scout Blvd:

o Undertake an engineering/design analysis to determine the feasibility of installing 700ft of sidewalk on the east side of Lois Ave from Spruce St to International Dr.



LOIS AVENUE
(KENNEDY BOULEVARD TO BOY SCOUT BOULEVARD

Project Candidates – Cypress St Corridor

As part of the Airport Interchange project, a utility access way (U-Path) was constructed from Cypress Point Park to the Courtney Campbell Access Rd. This pathway currently provides recreational access to cyclists and pedestrians and, ultimately, will connect to a shared-use trail extending along the Courtney Campbell Cswy to Pinellas County. The concept of the "Cypress St Corridor" is to provide for bicycle connectivity from the U-Path into the Westshore Business District and to connect the Westshore area with Downtown. Because of constraints along Cypress St, a combination of facilities is proposed to create an east-west route as shown in the exhibit at the end of this section.

Cypress St Corridor from Cypress Point Park to Reo St

From the Cypress Point Park (La Salle St) to Reo St, the existing two-lane undivided cross section is not wide enough to accommodate marked bike lanes. In addition to traffic from office uses along this segment, La Salle St provides access to the Airport Interchange, resulting in steady automobile traffic along this segment of Cypress St. Because of the heavy traffic volume, the application of shared lane arrows is not recommended.

In the short term, bicycle traffic may travel along existing paths within Cypress Point Park to travel from the U-Path to Reo St. These paths could be upgraded with lighting to facilitate bicycle use at night.

Longer-term options include providing paved shoulders along Cypress St to provide for marked bike lanes or widening of the existing sidewalk along the south side of Cypress St to provide a 10ft-wide shared-use path. Widening of the sidewalk would require adjustments to existing utilities adjacent to the existing sidewalk. Of the two longer-term solutions, widening the existing sidewalk appears to have fewer drainage impacts.

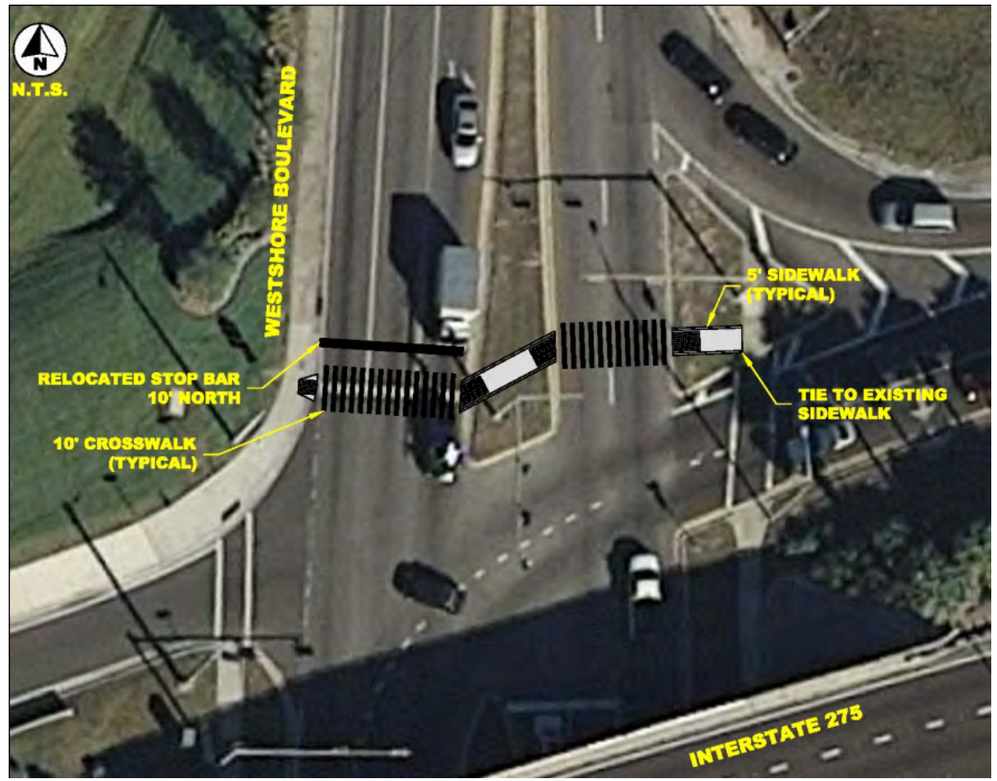
Cypress St from Reo St to Frontage Rd

From Reo St under Memorial Hwy, Cypress St is a four-lane roadway with a raised median and left-turn lanes. The cross section along this segment is not sufficiently wide to provide marked bike lanes, and traffic volumes and turning movements contra-indicate the installation of shared lane arrows. While not ideal, the most expedient solution to facilitate bicycle mobility along this segment is to widen the sidewalk on the south side of Cypress St to better accommodate bicycle travel. Since westbound cyclists will travel against traffic, conflicts at the signalized intersection at Reo St should be managed carefully, including consideration of protected-only westbound left-turn phasing and northbound prohibition of right-turn-on red.

Connection from Frontage Rd to MacDill Ave

For the connection from Frontage Rd to MacDill Ave, bicyclists will be routed as follows:

- Frontage Rd, Cypress St to Lemon St:
  - Install wayfinding signage and shared lane arrows.
  - Complete the sidewalk from north of Lemon St to Cypress St.
- Lemon St, Frontage Rd to Westshore Blvd:
  - Install wayfinding signage and shared lane arrows (from Frontage Rd to Occident St).
  - Widen the existing sidewalk along the one-way (westbound) section of Lemon St from Westshore Blvd to Occident St and consider installing westbound shared lane arrows.
- Westshore Blvd, Lemon St to Gray St:
  - Evaluate the feasibility of providing a shared-use path along the west side of Westshore Blvd from Lemon St to the signalized intersection at Gray St.
  - Provide a marked and signalized crossing at Westshore and I-275 as shown.
  - Provide wayfinding signage.
  - In order to facilitate pedestrian and bicycle mobility, consider modifying the area under the I-275 overpass to provide a 10' shared use path along Westshore Blvd inside the bridge pilings. This would require modifying the walls adjacent to the roadway and providing a retaining wall.



- Gray St, Westshore Blvd to MacDill Ave:
  - Install shared lane arrows and way-finding signage.
  - Provide unsignalized crosswalks at the intersections of Gray St and Lois Ave, Himes Ave, and MacDill Ave using RRFB or other suitable warning device. Ensure that lighting at these locations is adequate.
  - Consider providing unsignalized crosswalks and intersection lighting enhancements at the intersections of Gray St and Armenia Ave and Howard Ave using RRFB or other suitable warning device to provide for an east-west bicycle corridor to Willow Ave.

Cypress St from Dale Mabry Hwy to Himes Ave

From Dale Mabry Hwy to Himes Ave, Cypress St is a two-lane section with a center turn lane and approximately 39ft of pavement width. The posted speed limit on this segment is 30 MPH, making it a candidate for shared lane arrows. Should shared lane arrows be applied, the center turn lane should be narrowed to 11ft, providing 14ft-wide travel lanes. Alternatively, marked bike lanes can be provided by restriping the roadway with 10ft-wide travel lanes, a center turn lane, and 4ft bike lanes.

Sidewalks are provided along the south side of Cypress St; however, with the exception of a small segment of sidewalk to the west of Himes Ave, no sidewalk is provided along the north side. Sidewalk should be completed along this segment of Cypress St. If insufficient ROW is available, provision of sidewalk facilities should be a condition of future development orders.

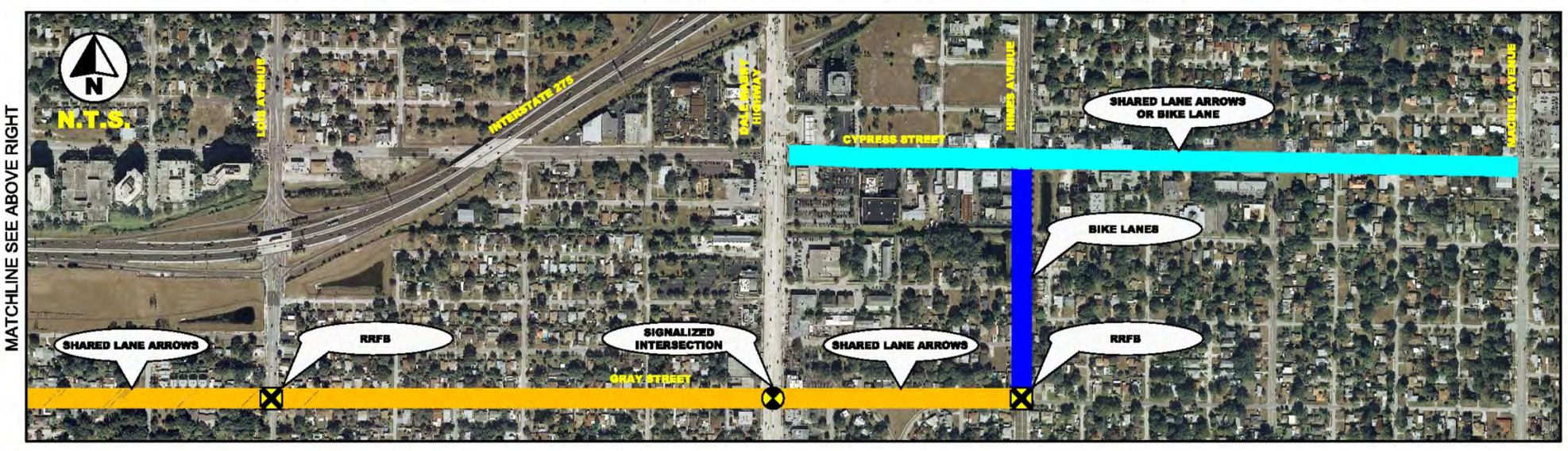
Cypress St from Himes Ave to MacDill Ave

Along this two-lane undivided segment, pavement width varies from 24ft–30ft with a posted speed of 30 MPH. Because marked bicycle lanes cannot be provided throughout, installation of shared lane arrows is recommended to provide for bicycle mobility.

A continuous sidewalk is provided along the south side of the roadway, but less than 300ft of sidewalk is provided along the north side of this 0.50-mile segment. In addition to completing the sidewalk along the north side of the roadway, installation of an unsignalized high-emphasis crosswalk at the intersection of Lincoln Ave should be considered.

Recommendations:

- From U-Path to Reo St:
  - Upgrade 3,000ft–4,000ft of the path within Cypress Point Park to provide shared use paths through the park to Reo St and Cypress St, OR
  - Widen approximately 2,000ft of existing sidewalk along the south side of Cypress St to a provide a shared use path.
- From Reo St to Frontage Rd (east of Memorial Hwy):
  - Widen the existing sidewalk to provide a shared use path between Reo St and Frontage Rd.
- Along Frontage Road from Cypress St to Lemon St:
  - Provide shared lane markings for approximately 800ft.
- Along Lemon St from Frontage Road to Occident St:
  - Provide approximately 2,200ft of shared lane markings and proper wayfinding signage.
- From Occident St to Westshore Blvd (along one-way access road):
  - Provide approximately 600ft of westbound shared lane arrows and signage.
  - Widen 600ft of existing sidewalk to provide a shared use path.
  - At the southbound I-275 ramps, incorporate an east-west crosswalk into the existing signalized intersection.
- Along Westshore Blvd from Lemon St to Gray St:
  - Provide 800ft of shared use path on both sides of Westshore Blvd.
  - Evaluate the feasibility/provide a shared-use path along the west side of Westshore Blvd.
  - Provide 10,000ft of shared lane arrows and appropriate signage.
  - Install RRFB and high-emphasis crossings at Lois Ave, Himes Ave, and MacDill Ave.
- Cypress St from Dale Mabry Hwy to Himes Ave:
  - Restripe approximately 1,500f to wide travel lanes and shared lane arrows.
  - Complete sidewalk along the north side of the road (within available ROW).
- Cypress St from Himes Ave to Howard Ave:
  - Restripe approximately 6,000ft to with shared lane arrows. This project will tie in with the Cypress St project recommended for Downtown.
  - Complete sidewalk along the north side of the road



CYPRESS CORRIDOR
(MEMORIAL HIGHWAY TO MACDILL AVENUE)

Project Candidate – Azeele St Corridor

Azeele St from Westshore Blvd to Lois Ave

Along this segment of two-lane undivided roadway, the posted speed limit is 25 MPH, and there are no marked bicycle facilities. Given the low speed, lower-volume nature of this roadway, shared lane markings are an acceptable bicycle mobility enhancement along Azeele St from Westshore Blvd to Lois Ave.

As shown in the exhibit at the end of this section, the sidewalk on the south side of Azeele St is continuous to South Hubert Ave, where there is a gap of approximately 400ft. Installation of sidewalk here would require coordination with the residents and would impact landscaping features within the roadway ROW. No potential impacts to oak trees were observed in the field, and It is recommended that the sidewalk be completed in this gap on the south side to facilitate a continuous sidewalk from Westshore Blvd to Lois Ave. Construction of sidewalk along the north side of Azeele St is not recommended at this time.

High-emphasis crosswalks and pedestrian features should be provide at the five-leg intersection of Azeele St, Lois Ave, and Woodmere Rd, and intersection lighting should be enhanced as necessary.

Azeele St from Lois Ave to Dale Mabry Hwy

East of Lois Ave, Azeele St continues as a traffic-calmed two-lane undivided section, and shared lane arrows are the appropriate bicycle mobility treatment.

Continuous sidewalk is provided along the north side of Azeele St to a point approximately 150ft west of Dale Mabry Hwy. There is a vacant lot on the northwest quadrant of Azeele St and Dale Mabry Hwy, and sidewalk should be completed to close this 150ft sidewalk gap.

Along the south side of Azeele St, there is continuous sidewalk from Lois Ave to Hale Ave. East of Hale Ave, there is no sidewalk along the south side of Azeele St. Installation of sidewalk along the south side would require coordination and cooperation from the homeowners on the south side of Azeele St. Therefore, in the near term, it is recommended that the crossing at Hale Ave be marked with high-emphasis crossings and signage to facilitate a continuous pathway along this segment of Azeele St.

Azeele St from Dale Mabry to Himes Ave

From Dale Mabry Hwy to Himes Ave, Azeele St is a four-lane undivided roadway. The most recently-available count data indicate that this roadway has an ADT of approximately 10,000-11,000 vehicles per day (based on a peak-hour count of 1,100 PM peak hour vehicles). The typical cross sections along this segment of roadway are at least 40ft. Given the relatively low traffic volume and available pavement section, this roadway is a candidate for reconfiguration as a two-lane divided roadway with a center turn lane and marked bicycle lanes using a 4/11/10/11/4 section.

There are continuous sidewalks throughout this section of roadway. Consider marked high-emphasis side street crossings along Azeele St at Sterling Ave.

Azeele St from Himes Ave to MacDill Ave

There are no dedicated bicycle facilities along this section of roadway. Based on recent count data, the ADT in this section is approximately 13,000-15,000. The typical cross sections along this segment of roadway is approximately 42ft. Given the relatively low traffic volume and available pavement section, this roadway is a candidate for reconfiguration as a two-lane divided roadway with a center turn lane and marked bicycle lanes using a 4/11/10/11/4 section as shown

An analysis was undertaken of the intersection of Azeele St and MacDill Ave for the PM peak hour. The eastbound thru-right movement carries approximately 900 vehicles in the peak hour. The LOS would fall to "F" and the v/c ratio would exceed 1.0 if only one eastbound thru lane were provided. Therefore, west of MacDill Ave, it is recommended the bike lane transition to outer lane shared lane arrows and the existing approach configuration be preserved. The capacity analysis is included at the end of this section.

From Himes Ave to MacDill Ave, there is continuous sidewalk along the north side of Azeele St. On the south side, there is a sidewalk gap from Himes Ave to just east of Henderson Blvd. Installation of sidewalk on the south side may impact commercial and residential parking along the roadway. To facilitate crossing of Azeele St, enhancements should be made at the signalized intersection of Henderson Blvd and an unsignalized crosswalk, with appropriate signage/beacon devices should be considered at Matanzas Ave.

Recommendations:

- Westshore Blvd to Lois Ave:
  - Install 3,500ft of shared lane arrows.
  - Install 400ft of sidewalk west of Hubert Ave.
- Lois Ave to Dale Mabry Hwy:
  - Construct 150ft of sidewalk west of Dale Mabry Hwy on the north side.
  - Install a high-emphasis crosswalk at Hale Ave with appropriate signage.
  - Install 2,700ft of shared lane arrows.
- Dale Mabry Hwy to Himes Ave:
  - Restripe Azelle St for 1,500ft from a four-lane undivided to a two-lane divided section with bike lanes.
- Himes Ave to MacDill Ave:
  - Restripe Azeele St for 2,700ft from a four-lane undivided to a two-lane divided section with bike lanes. Transition to the existing geometry at MacDill Ave.
  - Install pedestrian crossings and signals at Henderson Blvd.
  - Consider providing an unsignalized crosswalk at Matanzas Ave.

HCM Signalized Intersection Capacity Analysis — Modified Geometry (reduced lanes)

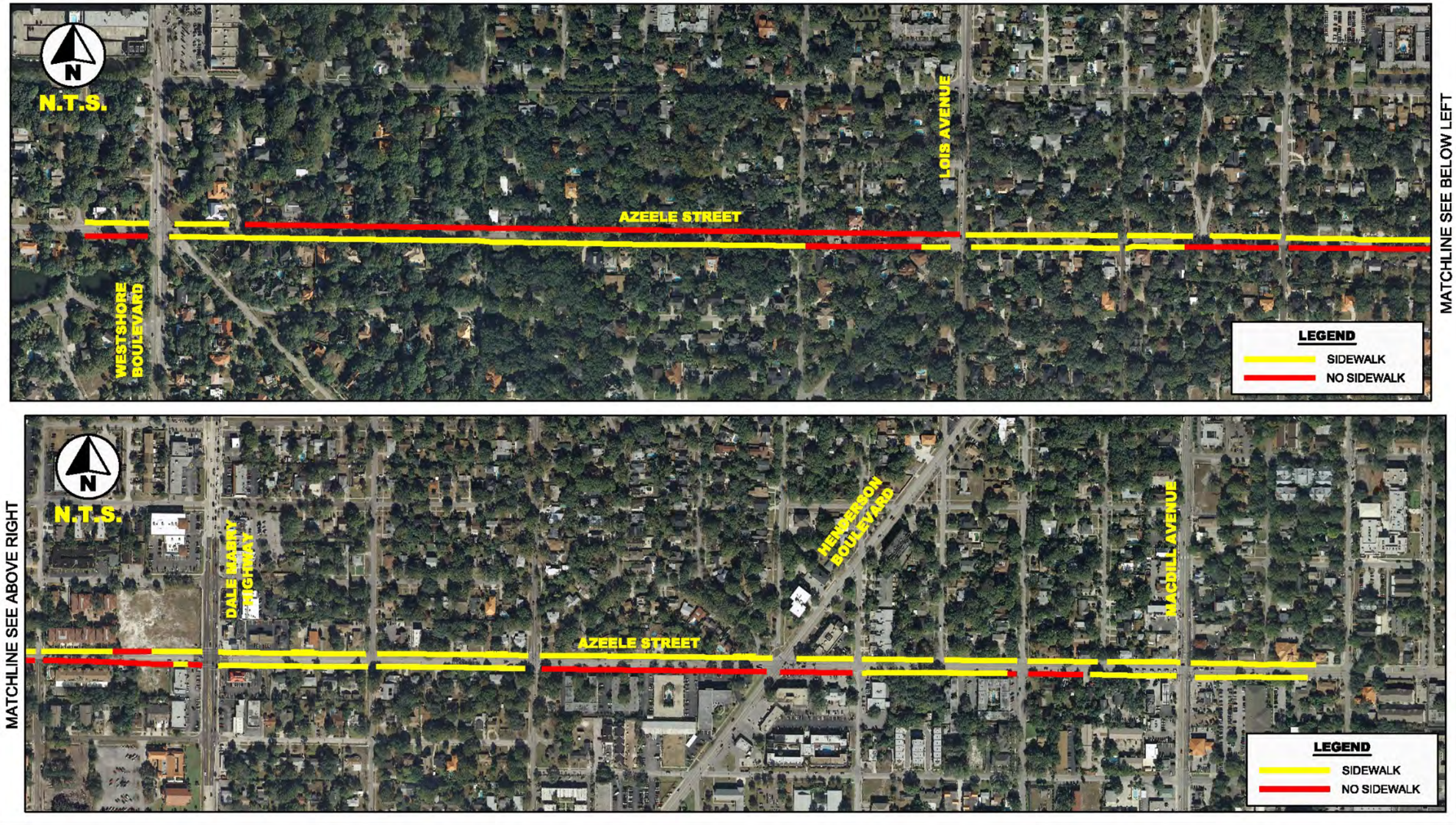
3: W Azeele St & S Mac Dill Ave — 4/12/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	767	133	208	575	23	77	700	113	40	553	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1858		1787	1886		1805	3500		1805	3542	
Flt Permitted	0.20	1.00		0.16	1.00		0.36	1.00		0.25	1.00	
Satd. Flow (perm)	373	1858		301	1886		693	3500		477	3542	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	54	816	141	221	612	24	82	745	120	43	588	41
RTOR Reduction (vph)	0	8	0	0	2	0	0	16	0	0	7	0
Lane Group Flow (vph)	54	950	0	221	634	0	82	849	0	43	622	0
Heavy Vehicles (%)	2%	0%	0%	1%	0%	5%	0%	1%	1%	0%	1%	0%
Turn Type	Perm			pm+pt			Perm			Perm		
Protected Phases		8		7	4			6			2	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	20.0	20.0		31.0	31.0		39.5	39.5		39.5	39.5	
Effective Green, g (s)	20.0	20.0		31.0	31.0		39.5	39.5		39.5	39.5	
Actuated g/C Ratio	0.25	0.25		0.39	0.39		0.49	0.49		0.49	0.49	
Clearance Time (s)	5.0	5.0		5.0	5.0		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		2.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	93	465		228	731		342	1728		236	1749	
v/s Ratio Prot		c0.51		0.07	c0.34			c0.24			0.18	
v/s Ratio Perm	0.14			0.30			0.12			0.09		
v/c Ratio	0.58	2.04		0.97	0.87		0.24	0.49		0.18	0.36	
Uniform Delay, d1	26.3	30.0		39.1	22.6		11.6	13.5		11.3	12.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.9	476.3		50.0	10.6		1.7	1.0		1.7	0.6	
Delay (s)	35.2	506.3		89.1	33.2		13.3	14.5		13.0	13.0	
Level of Service	D	F		F	C		B	B		B	B	
Approach Delay (s)		481.2			47.6			14.4			13.0	
Approach LOS		F			D			B			B	

Intersection Summary			
HCM Average Control Delay	157.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	111.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Synchro 7 - Report



AZEELE STREET

(WESTSHORE BOULEVARD TO MACDILL AVENUE)

Project Candidate – Himes Ave Corridor

Himes Ave from Kennedy Blvd to Columbus Dr

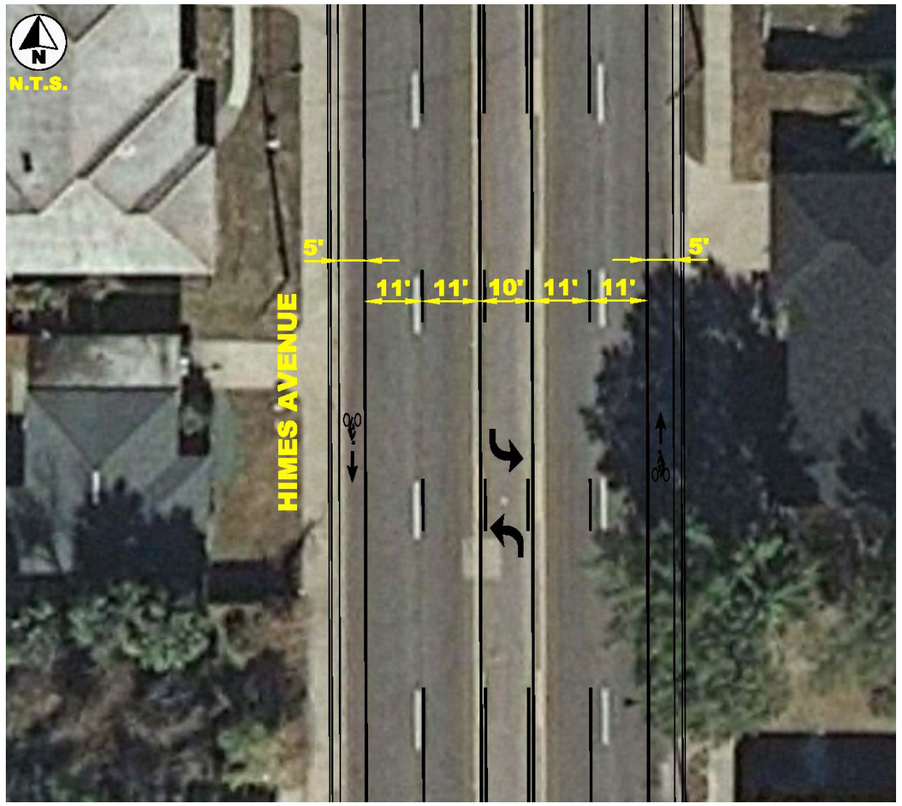
This segment of Himes Ave is a four-lane divided roadway with a center two-way left-turn lane. The posted speed limit is 40 MPH, which is above the MUTCD recommended speed for shared lane arrows. The typical pavement section is 64ft. Bike lanes could be accommodated with a reduction in lane width to a new typical section of 5/11/11/10/11/11/5, as shown here.

Continuous sidewalks are provided along this segment, however, regularly-spaced median islands should be considered to help facilitate pedestrian crossings between the signals at Kennedy Blvd, Cypress St, I -275, Spruce St, and Tampa Bay Blvd. A marked, unsignalized crosswalk (with beacons and lighting enhancements) should be provided consistent with the Cypress St/Gray St recommendations.

Shared lane arrows should be provided from Kennedy Blvd south to Azeele St. North of Columbus Dr, the introduction of raised medians precludes the recommended cross section, and coordination with the Tampa Sports Authority and Parks Department is recommended to provide a 10ft–15ft side-path along the west side of Himes Ave.

Recommendations:

- Kennedy Blvd to Columbus Dr:
  - Restripe 8,000ft of Himes Ave to reallocate lane widths to accommodate bike lanes.
  - Provide periodic raised median islands.
- Columbus Dr to Hillsborough Ave:
  - Coordinate a shared use path along the west of Himes Ave with Tampa Sports Authority and the Parks Department.



MacDill Ave from Kennedy Blvd to Hillsborough Ave

MacDill Ave from Kennedy Blvd to north of Cypress St

This segment of MacDill Ave is a four-lane undivided roadway with approximately 48ft (plus curb and gutter) of cross section. This cross section can accommodate bike lanes if the travel lanes are converted to 10ft lanes. The posted speed limit on this section is 40 MPH, which is above the MUTCD-recommended speed for shared lane arrows. A secondary recommendation is to provide a 13/11/11/13 lane configuration and share-the-road signage, which would provide a wider outside lane for vehicle/bicycle interaction. Complete sidewalks are provided along both sides of MacDill Ave, and no pedestrian improvements are recommended at this time beyond the recommended unsignalized crossing at Gray St consistent with the Cypress St/Gray St recommendations.

MacDill Ave from north of Cypress St to north of Columbus Dr

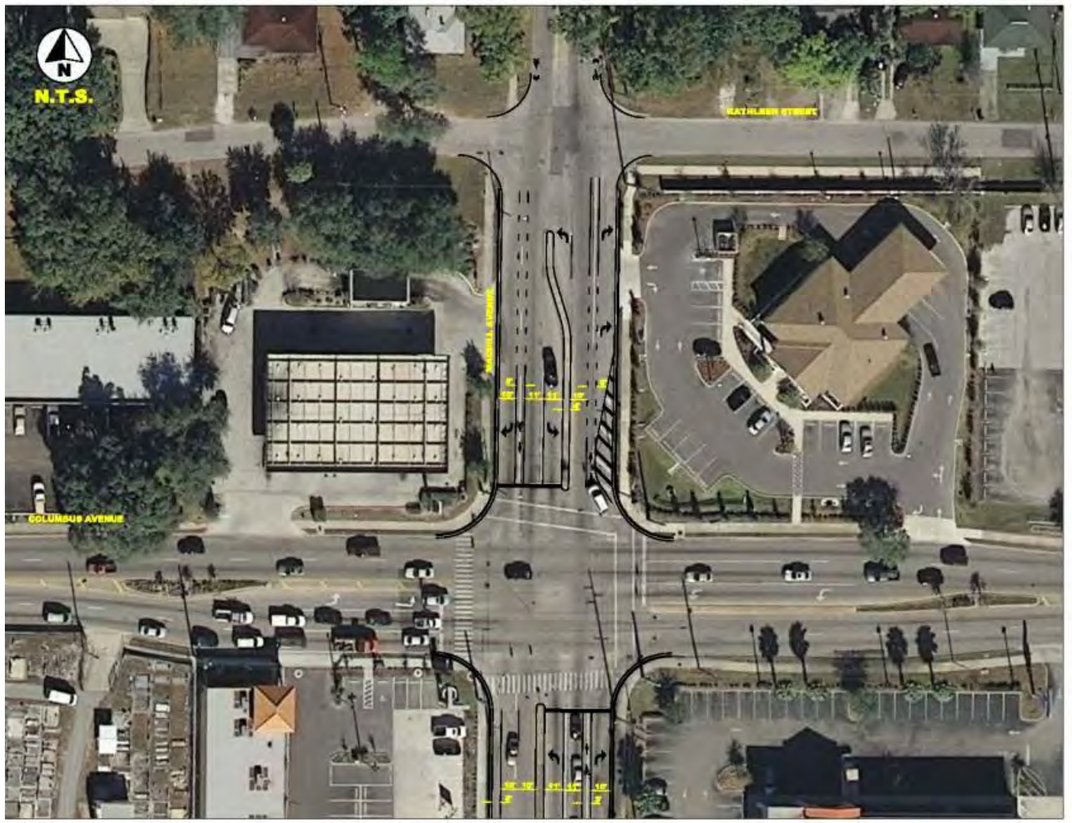
As with the prior segment, this segment of MacDill Ave is a four-lane undivided roadway with approximately 48ft (plus curb and gutter) of cross section. This cross section can accommodate bike lanes if the travel lanes are converted to 10ft lanes. The posted speed limit on this section is 40 MPH, which is above the MUTCD-recommended speed for shared lane arrows.

North of I-275, the recent volume data indicate that a conversion from a four-lane undivided to a two-lane divided section may be possible. At Columbus Dr, there are two southbound receiving lanes with 24ft of pavement and three northbound lanes (left, thru right) with 37ft of pavement. Geometric modifications to the southbound receiving lanes to change to 10ft lanes would provide the 4ft of pavement width necessary to provide a southbound bike lane. Configuring the northbound approach to an 11/11/5/10 foot section would allow for a northbound bike lane through the intersection. Bike lane "key-holes" also can be provided through the north leg of this intersection, as shown in the figure to the right. A more detailed analysis at the signalized intersections of Cypress St and Spruce St should be conducted to determine the operational and geometric impacts of a road diet along this segment of MacDill Ave.

Complete sidewalks are provided along both sides of MacDill Ave, and no pedestrian improvements are recommended at this time. If this section of MacDill Ave is converted from a four-lane undivided roadway to a two-lane divided roadway, raised median islands should be installed at regular intervals to provide pedestrian refuge.

MacDill Ave from north of Columbus Dr to Martin Luther King Blvd

This section of MacDill Ave is a two-lane undivided neighborhood collector with approximately 20ft of pavement, a posted speed limit of 35 MPH, and an open drainage system. Bike lanes cannot be accommodated within the existing section. In the short term, bicycle mobility should be enhanced using shared lane arrows with consideration of the addition of paved shoulder and marked bicycle lanes in the future. A continuous sidewalk is provided along the west side of this segment, and a sidewalk is provided along the east side of MacDill Ave from Saint Isabel St to Martin Luther King Blvd. In the short term, an unsignalized crosswalk should be provided along the north side of Saint Isabel St with appropriate signage/beacons and enhanced lighting. Over the longer term, completion of the sidewalk from St. Isabel St to Kathleen St should be considered.



Recommendations:

- From Kennedy Blvd to north of Cypress St:
  - Narrow the four thru lane widths to 10ft and provide 4ft bike lanes.
  - Provide an enhanced crosswalk at Gray St.
- From north of Cypress St to north of Columbus Dr:
  - Convert the four-lane undivided cross section to a two-lane divided section with a center turn lane, intermittent median islands, and bicycle lanes, OR
  - Narrow the four thru lane widths to 10ft and provide 4ft bike lanes.
- From north of Columbus Dr to Martin Luther King Blvd:
  - Install shared lane arrows for 5,300ft.
  - Provide an enhanced crosswalk at Saint Isabel St.
  - Consider providing sidewalks along the east side of the roadway.

Habana Ave from Main St to Hillsborough Ave

Habana Ave from Main to St to Columbus Dr

Habana Ave from Main St to South of Columbus Dr is a two-lane undivided brick residential roadway with a 30ft cross section and an assumed speed limit of 25 MPH. Habana terminates at I-275 (Green St), so this segment carries limited through traffic. Given the lower-speed, lower volume nature of this segment, no bike treatments are recommended at this time.

This segment of roadway has a continuous sidewalk from Main St to Columbus Dr on the east side. There is signage for school crossings at Walnut St and Cherry St approximately 0.40 miles south of Columbus Dr. Re-marking of the high emphasis crossings with appropriate signage at these locations is recommended.

High-emphasis crosswalk markings, pedestrian signals, and crosswalk area lighting should be installed at Columbus Dr.

Habana Ave from Columbus Dr to Martin Luther King Blvd

This two-lane undivided section of collector roadway is within a residential neighborhood, and the posted speed limit is 30 MPH. Generally, this segment of Habana Ave has a 20ft pavement width, which is not adequate for installation of marked bike lanes. Shared lane arrows should be installed to promote bicycle mobility.

As shown in the exhibit at the end of this section, there are sidewalks on both the east and west sides from Columbus Dr to Kathleen St, but only small, disconnected sections along the west side of the roadway from Kathleen St to Martin Luther King Blvd. From Kathleen St to Martin Luther King Blvd, a sidewalk recently has been constructed along the east side of the roadway. Based on the location of the residential fence lines, there appears to be ample ROW to install a sidewalk along the west side of the roadway if desired in the future.

At the signalized intersection at Tampa Bay Blvd, high-emphasis crosswalk markings, pedestrian signals, and crosswalk area lighting should be installed. High-emphasis crosswalk markings also should be installed at the signalized intersection at Martin Luther King Blvd.

Habana Ave from ML King Blvd to Hillsborough Ave

North of Martin Luther King Blvd, Habana Ave is a four-lane divided roadway with a center two-way left-turn lane and striped shoulders. The pavement cross-section is approximately 62ft, and the posted speed limit is 40 MPH.

The striped shoulder should be modified to include bike lane markings, and the following improvements to the right-turn treatments at Martin Luther King Blvd (southbound) and Hillsborough Ave (northbound) are recommended:

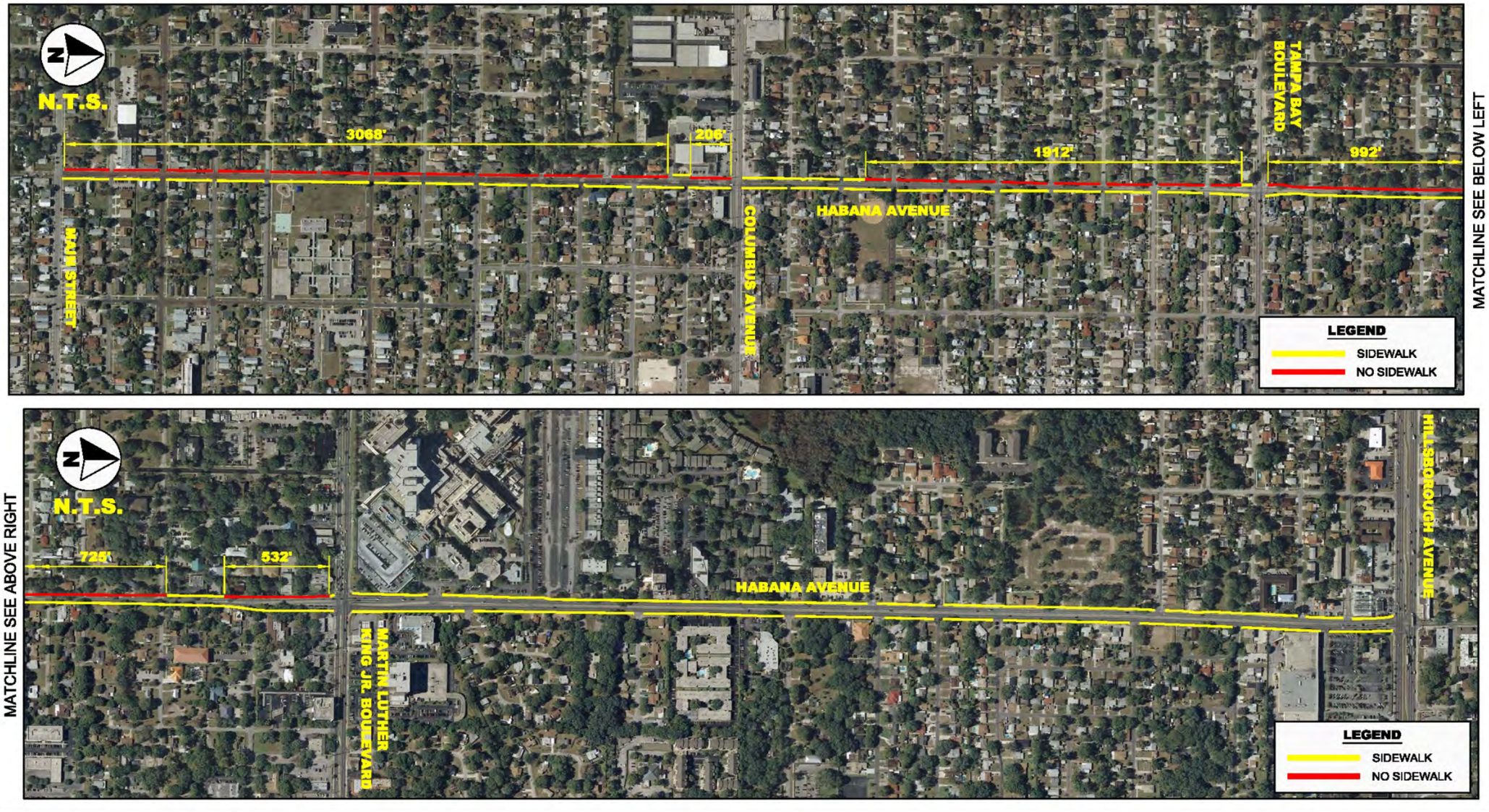
- Martin Luther King Blvd (southbound) – The apparent cross section from the median separator to the curb is 44ft. In the interim, reduce the auxiliary and thru lane widths to 10ft each and provide a 4ft bike lane "keyhole." In the future, consider reconstructing the median separator to provide additional cross section to allow for a 5ft bike lane "keyhole" and 11 – 12ft thru lane.
- Hillsborough Ave (northbound) – Transition the bike lane from the right shoulder to run between the thru lane and the right-turn drop lane north of Hillsborough Plaza.

There is continuous sidewalk on both the east and west sides of Habana Ave from Martin Luther King Blvd to Hillsborough Ave; however, no signalized or un-signalized crossings are provided along this one-mile segment. To more safely facilitate pedestrian crossings, median refuge islands should be constructed at regular intervals along the segment. Marked mid-block crossing using either HAWK or RRFB devices should be considered to service paired transit stops, multi-family residential uses, and connecting through streets in the vicinity of the following intersections:

- Habana Way/Eddy Dr (approximately 0.25 miles north of Martin Luther King Blvd)
- Osborne Ave (half-way between Martin Luther King Blvd and Hillsborough Ave)
- Wilder Ave (approximately 0.25 miles south of Hillsborough Ave)

Recommendations:

- Re-mark the school crossings at Walnut St and Cherry St approximately 0.40 miles south of Columbus Dr.
- From Columbus Dr to Martin Luther King Blvd, install shared lane arrows for 5,300ft .
- Provide high-emphasis crosswalk markings and crosswalk area lighting at the intersections of Martin Luther King Blvd, Tampa Bay Blvd, and Columbus Dr and provide pedestrian features at Tampa Bay Blvd and Columbus Dr.
- Consider installation of mid-block crossings at three locations between Martin Luther King Blvd and Hillsborough Ave and provide regularly-spaced pedestrian refuge islands.
- Provide bicycle lane "key-holes" at the approaches to Martin Luther King Blvd (southbound) and Hillsborough Ave (northbound).



HABANA AVENUE
(MAIN STREET TO HILLSBOROUGH AVENUE)

Appendix D:
Elements for FDOT Consideration

Although the Tampa Walk-Bike Plan focuses primarily on the collector roadway grid maintained by the City of Tampa (as well as improvements to elements to the County road network within the City limits), potential improvements to the State Highway System (SHS) can help meet the Mobility Objectives identified in the City's Comprehensive Plan and the Hillsborough MPO Long Range Transportation Plan. This memorandum identifies potential improvements to the SHS not currently contemplated within the District 7 work program as well as key components of planned projects that are critical to enhancing mobility within the City.

Attention is directed to the fact that these items have not been vetted with a full engineering study and are conceptual only.

Key elements for FDOT consideration include:

- Fowler Avenue (SR 582) intersection improvements
- Spruce/Boyscout/Columbus (SR 589) Improvements
- Hillsborough Avenue (SR 580/SR 600) Improvements
- Other Key Elements for FDOT Consideration

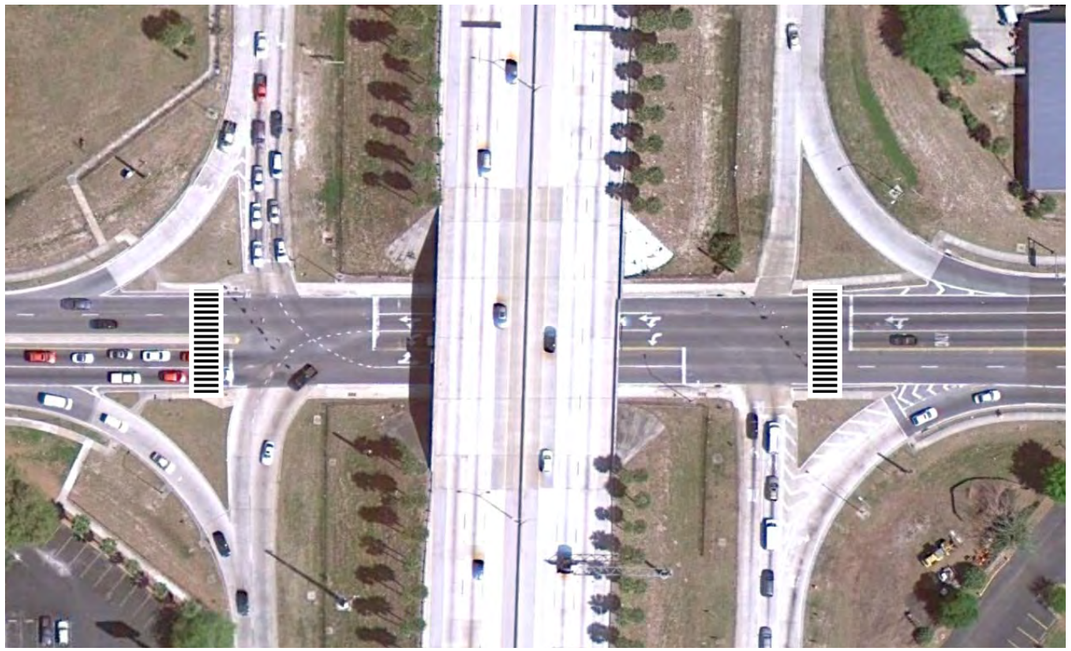
Fowler Ave (SR 582) Intersection Improvements (I - 275 to 50th St)

Corridor-Wide

- Provide high-emphasis crosswalks across intersecting (side-streets) and commercial driveways that do not have a raised concrete apron (i.e., driveways that do not look like driveways).
- Consider installing median barriers (fencing and/or landscaping) the length of the left-turn lane separators at signalized intersections to discourage mid-block crossing within the intersection influence area.
- Ensure crosswalk areas are adequately illuminated.

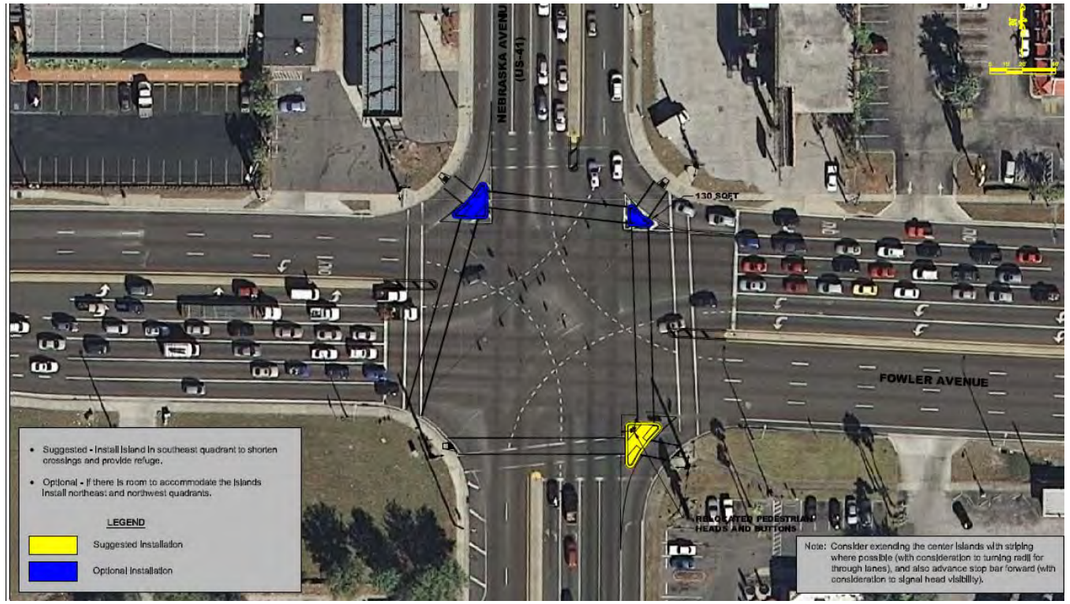
Fowler Ave at I-275

- Consider installation of marked crosswalks across Fowler Ave as part of existing signalized intersections.
- Evaluate crosswalk area lighting and enhance as necessary.



Fowler Ave at Nebraska Ave

- Consider installation of raised right-turn islands.
- Evaluate crosswalk area lighting and enhance as necessary.



Fowler Ave at 15th St

- Evaluate crosswalk area lighting and enhance as necessary.

Fowler Ave at 22nd St

- Install high-emphasis crosswalks.
- Evaluate crosswalk area lighting and enhance as necessary.

Fowler Ave at University Mall Entrance (27th St)

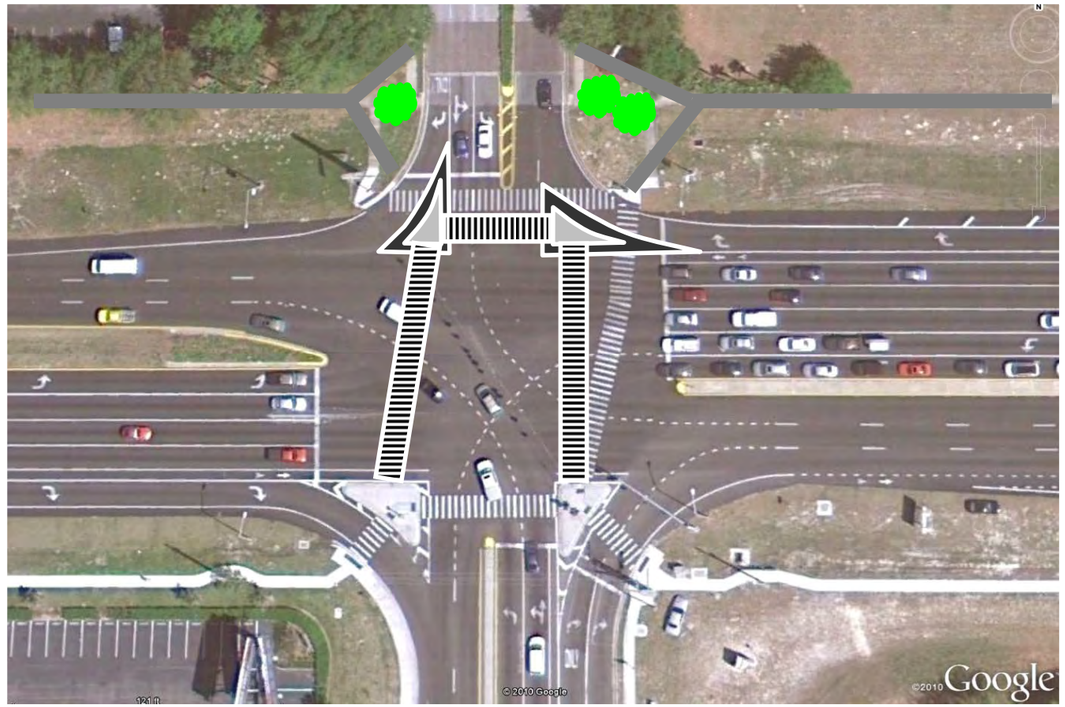
- Consider installing marked crosswalk on east side of the intersection.
- Install high-emphasis crosswalks.
- Evaluate crosswalk area lighting, enhance as necessary.

Fowler Ave at 30th St

- Evaluate crosswalk area lighting, enhance as necessary.

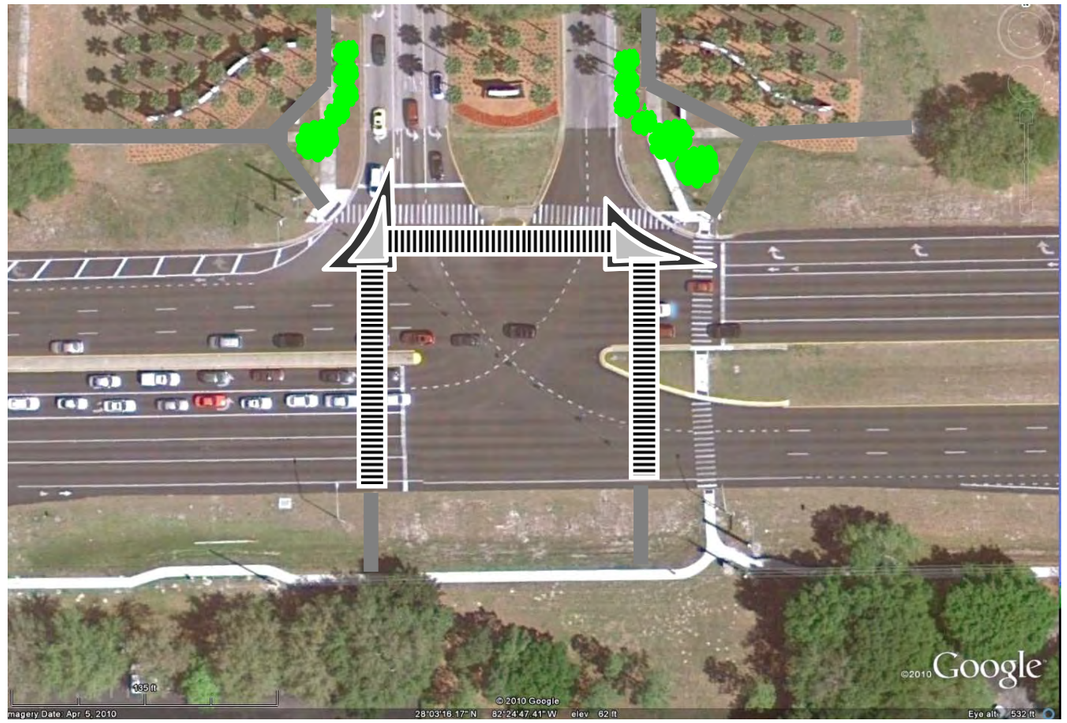
Fowler Ave at 40th St/McKinley Dr

- Evaluate crosswalk area lighting and enhance as necessary.
- Consider installing raised islands in northwest and northeast quadrants.
- Consider installing a marked crosswalk across the west side of the intersection (may be contraindicated by heavy NBLT volume).
- Redirect sidewalk and install landscaping along the north side of the intersection to discourage crossing outside of the crosswalk.



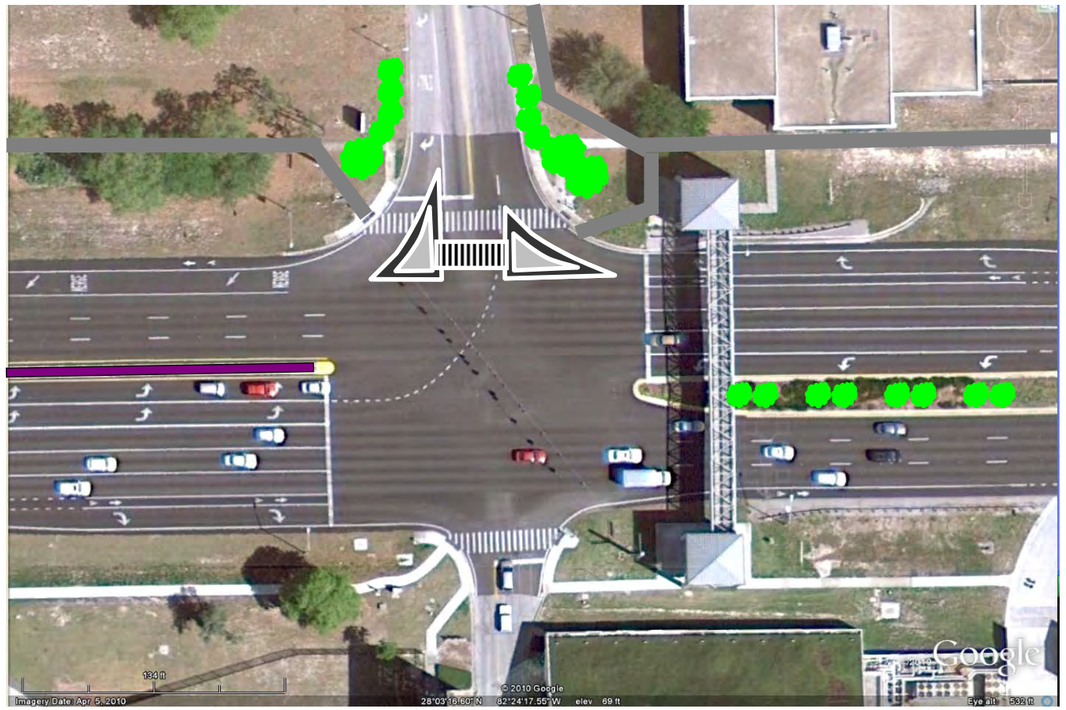
Fowler Ave at Lee-Roy Collins Blvd

- Evaluate crosswalk area lighting and enhance as necessary.
- Consider installing raised islands in northwest and northeast quadrants.
- Consider installing a marked crosswalk across the west side of the intersection (may be contraindicated by heavy NBLT volume).
- Redirect sidewalk and install landscaping along the north side of the intersection to discourage crossing outside of the crosswalk area.



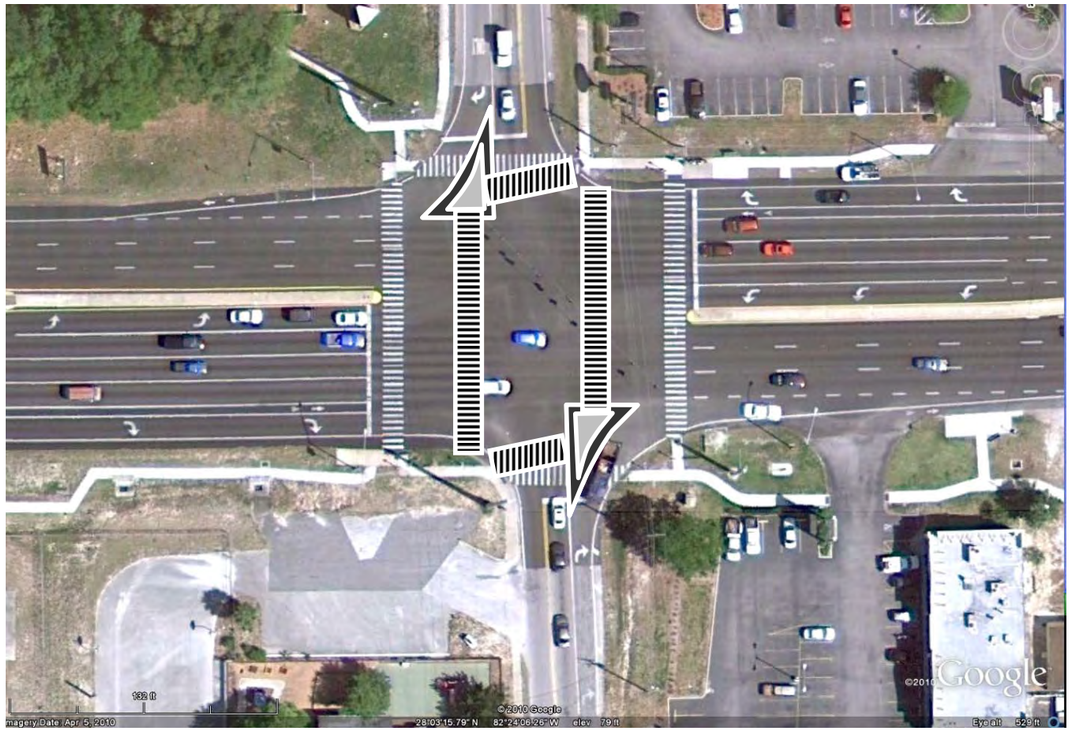
Fowler Ave at Bull Run/MOSI

- Evaluate crosswalk area lighting and enhance as necessary.
- Consider installing raised islands in northwest and northeast quadrants of the intersection.
- Redirect sidewalk and install landscaping along the north side of the intersection to discourage crossing outside of the crosswalk.
- Consider installing a physical barrier (fence) along the raised median west of the intersection to discourage at-grade crossing (provide sufficient attenuation at nose of median to reduce severity of potential fixed-object crashes).
- Augment landscaping along the median east of the intersection as necessary to discourage at-grade crossing. Consider installing a fence surrounded by shrubbery if needed.



Fowler Ave at 50th St

- Evaluate crosswalk area lighting and enhance as necessary.
- Consider installing raised islands in northwest and southeast quadrants



Spruce St/Boy Scout Blvd/Columbus Dr (SR 589) Improvements (O'Brien St to Dale Mabry Hwy)

Corridor-Wide:

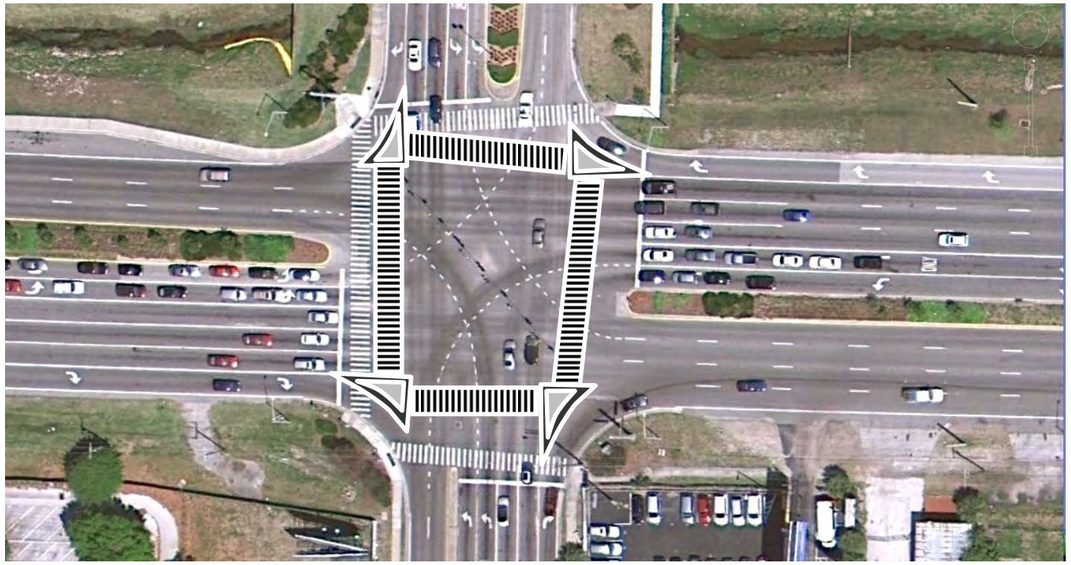
- Mark crosswalks across intersecting (side-streets) and commercial driveways that do not have a raised concrete apron.
- Construct sidewalk along south side of road; construct 10ft shared-use trail along north side of road consistent with the Tampa Greenways and Trails Master Plan.

Spruce St at O'Brien St

- Construct sidewalk along frontage road to O'Brien St and complete sidewalk along west side of O'Brien St to existing developer-constructed sidewalk.
- Evaluate crosswalk area lighting and enhance as necessary.

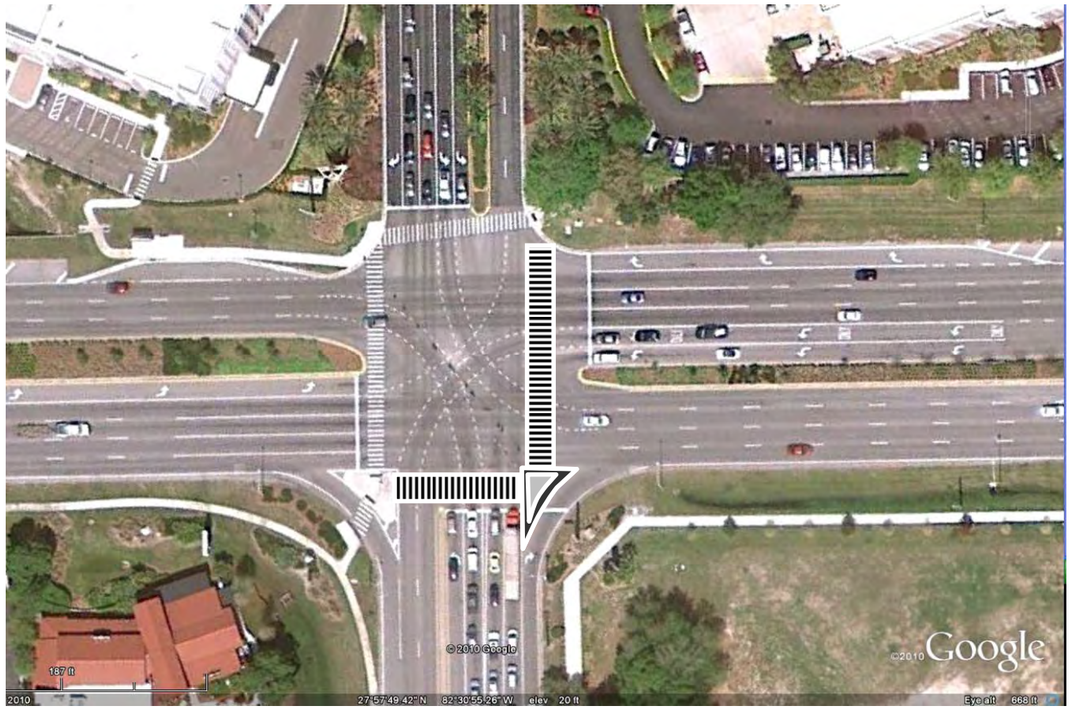
Spruce St at Westshore Blvd

- Evaluate the potential of adding raised right-turn islands at all quadrants.
- Install a marked crosswalk along the east side of the intersection.
- Evaluate crosswalk area lighting and enhance as necessary.



Boy Scout Blvd at Lois Ave:

- Evaluate the potential of adding raised right-turn islands at southeast quadrant.
- Install a marked crosswalk along the south side and east side of the intersection; connect existing sidewalk to intersection.
- Evaluate crosswalk area lighting and enhance as necessary.
- Coordinate with International Plaza to encourage a pedestrian connection from the intersection to the existing crosswalk north of the intersection of Lois Ave and Plaza perimeter road.



Hillsborough Avenue (SR 580/SR 600) Improvements (Cargo Rd to Himes Ave)

Corridor-Wide:

- Mark crosswalks across intersecting (side-streets) and commercial driveways that do not have a raised concrete apron.
- Construct sidewalk along south side of road; complete sidewalk gaps along north side of road.

Hillsborough Ave at Hesperides St:

- Install high-emphasis crosswalks on all sides of intersection.
- Consider installation of raised right-turn islands at northwest and northeast quadrants.
- Evaluate crosswalk area lighting and enhance as necessary.

Hillsborough Ave at Lois Ave:

- Install high-emphasis crosswalks on all sides of intersection.
- Evaluate crosswalk area lighting and enhance as necessary.
- Consider opportunities to reduce curb radii.

Hillsborough Ave at Dale Mabry Hwy Interchange:

- Install high-emphasis crosswalks adjacent to the northbound and southbound off ramps and enhance the existing signal with pedestrian signal infrastructure.
- Evaluate crosswalk area lighting and enhance as necessary.

Hillsborough Ave at Himes Ave:

- Install high-emphasis crosswalks.
- Evaluate crosswalk area lighting and enhance as necessary.

Other Key Elements for FDOT Consideration:

In addition to the conceptual/potential mobility enhancements described above, key items for FDOT coordination include:

- Provision of a marked bicycle lane along Florida Ave from Scott St to Violet St as part of the planned resurfacing project
- Provision of high-emphasis crosswalks at the intersection of Walk-Bike project corridors and SHS facilities.
- Assistance coordinating the application of Highway Safety Improvement Program Funds to assist in implementing Walk-Bike projects as appropriate.