CGN-6933: Sustainable Transportation  Spring 2019
South MacDill Avenue
From Bay to Bay Blvd to W. Morrison Ave.
April 18th, 2019

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A. Goals and Objectives

1. Improved safety performance
   - Reduce crash along corridor by 20% - 30%.
   - Eliminate crash fatalities and serious injuries.
   - Reducing Driving speed of Vehicles by 10 MPH leading to a 15% reduction in crashes.

2. Increased alternative mode share
   - Increase the number of bicycle commuters and transit user by 100%.
   - Bicycle and walking accounts for more than 10% of all trips.

3. Reduced CO2 emission and Improved life quality:
   - Reduce the level of VMT for automobiles on the corridor by 3% per year by encouraging other modes.
B. Existing Condition

- S. MacDill Ave from W. Bay Blvd to West Morrison Ave
- Posted speed limit: 35 mph
- Length: 1 mile
- No bike lane.
- Narrow sidewalk (3.5ft - 5ft).
- Poor condition of Pedestrian facilities (blur or no crosswalk at some intersections, obstacles on sidewalk).
- HARTFlex Route.
Segment Type 1

- Location: W Morrison Ave to W Angeles St, W San Miguel to W Barcelona St.
- Sidewalk: 4.5ft - 5ft.
- Vehicle lane: 11ft.
Segment Type 2

- Location: W Angeles St to W San Miguel St.
- Sidewalk: 3.5ft - 6ft.
- Vehicle lane: 11ft.
Segment Type 3A

- Location: W Barcelona St to W Empedrado St.
- Sidewalk: 6ft - 4ft.
- Vehicle lane: 14ft - 14ft.
- On street parking: 18ft.
**Segment Type 3B**

- **Location:** W Empedrado St to Bay to Bay Blvd
- **Sidewalk:** 6ft - 4ft.
- **Vehicle lane:** 10ft - 14ft.
- **On street parking:** 8ft - 8ft.
Pedestrian crosswalk locations:

- W San Miguel St
- W Palmira Ave
- W Barcelona St
- W San Carlos St
- W San Jose St
Bus stop locations:
Crashes

- Angle: 52%
- Front - Front: 26%
- Front - Rear: 11%
- Sideswipe (same direction): 6%
- Other: 5%

<table>
<thead>
<tr>
<th>Crash Severity</th>
<th>Count (%)</th>
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<tbody>
<tr>
<td>Fatal</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Injury</td>
<td>43 (43%)</td>
</tr>
<tr>
<td>PDO</td>
<td>58 (57%)</td>
</tr>
<tr>
<td>Total</td>
<td>101 (100%)</td>
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C. 2025 Design Concept

- Improve pedestrian facilities and safety:
  - Sidewalk width.
  - Crosswalk.
- Improve bicyclist facilities:
  - Bike lane.
- Improve safety performance:
  - Discourage speeding.
  - Provided turning lane.
- Feasibility of roundabout.
Seg.1: W Morrison Ave to W San Miguel St

S MacDill Ave: W Morrison Ave to W San Miguel...

Sidewalk: 6ft  Bike lane: 5ft  Drive lane: 10ft  Median: 12ft
Seg.1: W Morrison Ave to W San Miguel St

from W Bay to Bay Blvd
Seg. 2: W San Miguel St to W Barcelona St

S MacDill Ave: W San Miguel to W Barcelona St

Sidewalk: 6ft   Bike lane: 6ft   Drive lane: 10ft   TWLTLS: 10ft
Seg.2: W San Miguel St to W Barcelona St

W San Miguel St

5' Bike lane

10' Drive lane

W San Jose St

TWLTLs

Raised Crosswalk

W Palmira Ave

W Barcelona St
Seg.3: W Barcelona St to W Bay to Bay Blvd

S MacDill Ave: W Barcelona St to Bay to Bay Blvd...

Sidewalk: 6ft  Bike lane: 6ft  Drive lane: 10ft  Median: 10ft
Seg.3: W Barcelona St to W Bay to Bay Blvd

S MacDill Ave from W Bay to Bay Blvd to W Morrison Ave
Intersection Design

- Tight Curb Radius
- Painted Crosswalk

S Macdill Ave @ W Morrison Ave
Radar Speed Limit Sign

- Speeders will slow down up to 80% of the time when alerted by a radar sign.
- Typical speed reductions are 10-20%.
- Overall compliance with the posted speed limit will go up by 30-60%.
Roundabout at Bay to Bay Blvd

Single-lane Roundabout:

- Inscribed Circle Diameter = 100 ft.
- Circulatory Lane Width = 15 ft.
- Central Island Diameter = 85 ft.
- Maximum Entry Design Speed = 20 mph.
- Daily Service Volume: 20,000 veh/day
- Bay to Bay Blvd volume: 18,625 veh/day
Map of Activities

- Residential Area
- Commercial Area
- Golf Club
- Pedestrian Path
- Bicycle Path
- Transit Path
D. 2040 Design Concept

- Land-use.
- Public Transportation.
- Cars.
- Stormwater design concept.

S MacDill Ave from W Bay to Bay Blvd to W Morrison Ave
2040 Form-based Codes at Bay to Bay Blvd
Benefits of form-based codes

They help to achieve desires urban forms, such as

- Increased density in center and along corridors
- Vital centers supportive of business.
- Neighborhoods and streets that are safe and attractive for walking and bicycling.
- Protection of the environment.
- Preservation of community history.
Mixed-use Building:

- Swimming pool at the rooftop
- 3rd Floor – Fitness center, Sport clubs
- 2nd Floor – Movie theater
- Ground Floor - shopping stores, Bar & Grill.
Full Automated Parking Garage

- Reduce vehicle emissions.
- Integrated charging station.
- Saving space.
- Bicycle share station at ground floor

https://www.youtube.com/watch?v=_Oru1T09fvA
Innovative traffic signal for cycling

- Bicycle-friendly by signal control
- Bi-directional
- Smoothly bicycling traffic

Den Bosch (Netherlands)
2040 Public Transit

- New route along the corridor.
- Directly connected to Tampa Downtown.
- Transit mode share is uniform in desired area.
- Serve 20% - 30% of all trips in 2040.

- 1 square mile.
- Population: 4,670 (CCD)
- 3.4 trip/per/day (NHTSA)
- 15,878 trip/day
2040 Bus Stop

2040 Cross Section at Bus Stop

 Raised Crosswalk

Bike Racks

Bus Shelter
2040 Smart Bus Shelter

- Touch screen: planning trip, checking bus routes, schedule.
- Remote fare collection.
- Reducing dwell time.
- Listening to news or advertisement.
- Advertising revenue.
2040 Stormwater Design Concept

Permeable Pavement

- Pervious Asphalt (PA) for Bike lanes
- Pervious Concrete (PC) for Parking Lots
Permeable Pavement

**Benefits:**
- Reducing stormwater runoff
- Restoring groundwater supplies
- Improving water runoff quality

**Limitations:**
- Designed for lower traffic volumes and limited heavy vehicles
- Potential clogging with dirt and organic debris
TDM measures to reduce VMT

- Rideshare and Ride Matching
- Transit
- Bicycle Facilities
- Parking Management
- Shuttles
- Pedestrian Facilities
- Telecommuting
- Car-sharing
- Pass Programs
TDM measures to reduce VMT

- Enhanced bicycle and pedestrian facilities: bike lane, cycle tracks, secure bicycle storage, good sidewalks, lighting.
- Telecommuting: working at home or a non-office location one or more days a week.
- Ridesharing & ridematching.
- Travel subsidy: transit pass, vanpool vehicles, etc.
- Parking Management: parking tax, parking cash-out, priority program, etc.
Thank You!

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