FINAL PRESENTATION
MacDill Avenue Segment 1
From W El Prado to W Knights Avenue.
City of Tampa, Florida.

CGN 6933 Sustainable Transportation Spring 2019
University of South Florida
Department of Civil and Environmental Engineering
April 18 2019
SOUTH MACDILL AVENUE
OVERVIEW

From El Prado Blvd to West Knight Avenue
GOALS AND OBJECTIVES

- **Goal 1: Enhance safety for all modes of travel**
  - Reduce collisions at intersections up to 80% by 2040.
  - Eliminate traffic fatalities and serious injuries to achieve vision zero.
  - Implement traffic calming to induce slower speeds and increase driver awareness by 30% by 2025.

- **Goal 2: Improve accessibility and mobility for all modes**
  - Improve pedestrian and bicycle facilities to achieve a 100% walkable and bikeable segment by 2040.
  - Promote modes of transportation other than the automobile.
  - Promote usage of the bike share and ride share service up to 40% by 2040.

- **Goal 3: Increase environmental quality and livability of the corridor**
  - Provide street furniture and increase green cover up to 40% by 2040.
  - Apply green infrastructure and energy harvesting treatments such as solar powered street lights to improve environmental quality and reduce energy consumption up to 70% by 2040.
MacDill Ave Segment 1

- Mac Dill Avenue from Between Knights Ave and El Prado
- Length of Road: 0.5 miles.
- Right of way is not less than 37 ft.
Safety
- Years taken – 2014 to 2018.
- Number of PDO – 28.
- Number of possible injuries – 11.

Mobility
- Pedestrian: Sidewalk on one side of the road.
- Bicycle: No bike lane.
- Transit: No bus stop.*Except one emergency shelter bus stop.
ACTIVITY CENTERS- (From W Euclid to W Knight avenue)

1. China Wok.
2. Spa Jardin.
3. Mad dogs and Englishmen.
5. Flourish Tampa.
6. Potting Shed.
7. PUSH fitness and performance.
8. Majesty Title Services.
10. Edsons barber shop.
11. Marathon Gas station.
12. Corner Shoppe Tpa.
15. Bayshore United Methodist Church.
16. Lifeline Chiropractic clinic.
Annual Average Daily Traffic Counts (Hillsborough County)

- County count station: 329210
- Road Name: MacDill Ave.
- Location description: Bay to Bay Blvd to Gandy Blvd.
- Counts: 2014: 14,242
  2018: 16,217
Annual Average Daily Traffic Counts (FDOT)

- Road Name: S MacDill Ave.
- From: MacDill AFB Ent/Ext. To: W Kennedy Blvd
- AADT: 3100
- Roadway: 10000030
- County: Hillsborough.
PARKING AND SIDEWALKS

SIDEWALKS
PARKING FACILITIES
ZONING

CG - Commercial General.
RO – Residential Office.
RM – Residential Multi Family.
RS – Residential Single Family.
CI – Commercial Intensive.
CN – Commercial Neighborhood.
PD - Planned development.
## CRASH DATA – CRASH TYPE

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>17</td>
</tr>
<tr>
<td>Bike</td>
<td>2</td>
</tr>
<tr>
<td>Head On</td>
<td>2</td>
</tr>
<tr>
<td>Hit Fixed Object</td>
<td>6</td>
</tr>
<tr>
<td>Left Turn</td>
<td>5</td>
</tr>
<tr>
<td>Rear End</td>
<td>18</td>
</tr>
</tbody>
</table>

### Pie Chart

- **Angle**: 36% (17 out of 47)
- **Bike**: 4% (2 out of 47)
- **Head On**: 4% (2 out of 47)
- **Hit Fixed Object**: 12% (6 out of 47)
- **Left Turn**: 10% (5 out of 47)
- **Rear End**: 34% (18 out of 47)
### CRASH TYPE – BEHAVIORAL CAUSE OF CRASHES

#### Behavioral cause of crashes

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>2</td>
</tr>
<tr>
<td>Swerved or avoided</td>
<td>1</td>
</tr>
<tr>
<td>Ran stop sign</td>
<td>1</td>
</tr>
<tr>
<td>Ran red light</td>
<td></td>
</tr>
<tr>
<td>Other contributing actions</td>
<td>4</td>
</tr>
<tr>
<td>No contributing action</td>
<td>2</td>
</tr>
<tr>
<td>Operated MV in erratic, reckless or aggravated manner</td>
<td>1</td>
</tr>
<tr>
<td>Operated MV in careless or negligent manner</td>
<td>2</td>
</tr>
<tr>
<td>Improper turn</td>
<td>9</td>
</tr>
<tr>
<td>Improper passing</td>
<td>1</td>
</tr>
<tr>
<td>Improper backing</td>
<td>1</td>
</tr>
<tr>
<td>Followed too closely</td>
<td>10</td>
</tr>
<tr>
<td>Failed to yield right of way</td>
<td>7</td>
</tr>
<tr>
<td>Failed to keep in proper lane</td>
<td>1</td>
</tr>
<tr>
<td>Drove too fast for conditions</td>
<td>1</td>
</tr>
</tbody>
</table>
CRASHES BY INTERSECTION
City of Tampa: Functional Classification of Roadway Map
Bus Route Map
1. MacDill Av @ El Prado Blvd.
2. Euclid Ave @ Waverly Cir
EXISTING CONDITIONS – TACTILE PAVING
EXISTING CONDITIONS – TACTILE PAVING

WORN OUT TACTILE PAVING @ W EUCLID AND S MACDILL INTERSECTION

IMPROPER DOWN RAMP (Needs good tactile paving)
EXISTING CONDITIONS - SIDEWALKS

- SIDEWALK BLOCKED BY OVERGROWN BUSHES
- VEHICLE COVERING THE SIDEWALK
- SIDEWALK BLOCKED BY NEWSPAPER STANDS
EXISTING CONDITIONS - SIDEWALKS

NO SEPARATION BETWEEN ROAD, SIDEWALK AND PARKING

RAISED SIDEWALKS
EXISTING CONDITIONS - SIDEWALKS
Existing Design
Community Opinion

- Underprivileged community
- Bicyclists and pedestrians are less in number.
- Minimal usage of gas station
- Poor infrastructure

Food Store Located Next To Marathon Gas Station
Proposal for 2025

- Proper placement of cross walks and stop bars to enhance safety.
- Placing Flashing beacons near school zone.
- Provide Solar powered lights for crossing.
- Provide separate lane for automobile and bicycles.
- Dynamic speed limit indication signs to check aggressive drivers.
Proposal for 2025

- Storm water drains should be increased.
- Push buttons used to cross roads should be accessible to disabled.
- Provide speed bumps for traffic calming near school and church.
Proposed plan for 2025

- ROW of 37ft
- No acquiring private properties.
- Sufficient width for bicyclists and the pedestrians.
- Solar lighting can be provided.
- 10’ for drive lane to accommodate buses.
- Green markings for bike lanes.
Proposed Plan For 2025

- ROW of 45ft
- 115ft x 3ft of Land (grass cover) can be used to provide access to the pedestrians.
- Bicycle lanes and side walks can be provided.
Proposed Plan For 2025

<-Existing

Proposed ->
Proposed Plan For 2025

<-Existing

Proposed ->
Proposed Plan For 2025

<-Existing

Proposed ->
Proposed Plan For 2025

<-Existing

Proposed ->
Proposed Plan For 2040

Prime Location for Installing green facilities

- Located near church and school.
- Minimal distance to Bayshore Blvd.
- Installation of facilities such as electric vehicle charging station, bike share center, bike racks can be provided.
- Pickup point for ride shares.
Proposed Plan For 2040 – Futuristic Gas Station
Proposed Plan For 2040

Solar Powered Bus Stop

- Pollution free
- Low maintenance
- Decrease usage of fossil fuels
- Excessive power can be sold back.
- Facilities such as lighting and power sockets can be provided.
- Safer than electric current
Proposed Plan For 2040

Smart Pedestrian Crosswalk

- Increased visibility during night time.
- Low energy consumption
- Auto detection of pedestrians
- Reduce in number of fatalities
- Eco-friendly
Proposed Plan For 2040

Solar Trees

- Provides sufficient shade for the pedestrians
- Generated energy can be used for lighting purposes
- Increases the aesthetic value while decreasing usage of electricity.
Proposed Plan For 2040

**Autonomous Shuttle**

- Providing Autonomous shuttle of small seating capacity in the segment till ballast point park.
- Reduces dependence on personal vehicles.
- Increased frequency during weekends and weekday peak hours.
Proposal for 2040

1. Raise the intersections to create a safe, slow-speed intersection.

2. Add curb extensions to increase the pedestrian space.

3. Use bollards or street furniture to prevent vehicles from invading the pedestrian space.

4. Design corners with the smallest constructible radius, approximately 0.6 m.
Proposal for 2040
Thank You!

Questions?

agowda@mail.usf.edu
kumargouda@mail.usf.edu
kumakantha@mail.usf.edu
suchindrakum@mail.usf.edu
vijithsudhir@mail.usf.edu