APPENDIX A

PRESENTATIONS
Local Action Team for Safer People, Safer Streets
Study Goals

- Develop multi-disciplinary strategies to reduce traffic crashes involving pedestrians and bicyclists.
- Develop an on-going process for continuing safety monitoring, analysis and improvement.
Miami-Dade’s Traffic Safety Problem

- Florida’s pedestrian and bicycle fatality rates are among the highest in the US.
- Miami-Dade County has the highest number of pedestrian and bicycle crashes in Florida.

Pedestrian Crashes
Pedestrian Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1,307</td>
</tr>
<tr>
<td>2009</td>
<td>1,301</td>
</tr>
<tr>
<td>2010</td>
<td>1,207</td>
</tr>
<tr>
<td>2011</td>
<td>962</td>
</tr>
<tr>
<td>2012</td>
<td>1,089</td>
</tr>
<tr>
<td>2013</td>
<td>1,162</td>
</tr>
<tr>
<td>Total</td>
<td>7,028</td>
</tr>
</tbody>
</table>

- Pedestrian crashes declined each year between 2008 and 2011 but have increased in 2012 and 2013.

Pedestrian Crash Density
High Pedestrian Crash Locations

Example: Miami

Pedestrian Injury Age Distribution
2008-2013

Juvenile pedestrians (18%)

Source: DHSMV
Fatal Pedestrian Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>64</td>
</tr>
<tr>
<td>2009</td>
<td>65</td>
</tr>
<tr>
<td>2010</td>
<td>75</td>
</tr>
<tr>
<td>2011</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>47</td>
</tr>
<tr>
<td>2013</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>388</td>
</tr>
</tbody>
</table>

On average, 1 in 18 crashes involving a pedestrian resulted in a fatality.
Elderly pedestrians (33%)

Pedestrian Fatality Age Distribution
2008-2013

Source: DTVSMV

Lighting Condition

Pedestrian Fatalities 2008-2013

- Dark-Lighted: 206 (54%)
- Dusk/Dawn: 23 (6%)
- Dark-Not Lighted: 48 (12%)
- Daytime: 108 (28%)

Labels: Number of Crashes (Percentage)
The risk of a pedestrian crash being a fatal crash is three times greater on 45 mph roads in comparison to 30 mph roads.
Bicycle Crashes

<table>
<thead>
<tr>
<th>Year</th>
<th>Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>492</td>
</tr>
<tr>
<td>2009</td>
<td>528</td>
</tr>
<tr>
<td>2010</td>
<td>583</td>
</tr>
<tr>
<td>2011</td>
<td>667</td>
</tr>
<tr>
<td>2012</td>
<td>727</td>
</tr>
<tr>
<td>2013</td>
<td>857</td>
</tr>
<tr>
<td>Total</td>
<td>3,854</td>
</tr>
</tbody>
</table>

- 74% increase in bicycle crashes between 2008 and 2013.
Bicyclist Crash Density

Bicycle Crashes and Commuting

Mode share: American Community Survey
Teen-Young Adult cyclists (21%)

In general, fatal bicycle crashes are scattered. On average, 1 in 82 crashes involving a bicyclist resulted in a fatality.
Bicyclist Fatality Age Distribution 2008-2013

Middle-aged cyclist (38%)

Source: DHS/NV
n=48

Lighting Condition

Bicyclist Fatalities 2008-2013

Daytime 12 (27%)
Dark-Lighted 19 (42%)
Dark/Dawn 4 (9%)
Dark-Not Lighted 10 (22%)

Labels: Number of Crashes (Percentage)
Impairment

Bicyclist Fatalities 2008-2013

- Impaired Bicyclist 10 (21%)
- Impaired Driver 4 (9%)
- No Reported Impairment 33 (70%)

Labels: Number of Crashes (Percentage)

Speed Limit vs. Bicycle Injury Severity

General increase of injury severity with speed limit; correlation not as discernable as pedestrian crashes.
Next Steps

- Coordinate with stakeholder agencies.
  - FDOT
  - Miami-Dade County
  - Municipalities
  - WalkSafe, Alliance on Aging, Miami-Dade Public Schools, and outreach groups
  - Enforcement agencies
  - Miami-Dade Transit

- Conduct field reviews and develop countermeasures
  - Engineering
  - Education, and
  - Enforcement strategies.
Study Advisory Committee #1
Study Goals

- Identify high pedestrian and bicycle crash locations.
- Work with stakeholder agencies to develop multi-disciplinary strategies to reduce traffic crashes involving pedestrians and bicyclists.
- Develop an on-going process for continuing safety monitoring, analysis and improvement.
Role of Study Advisory Committee

- Review preliminary analysis results.
- Assist to refine the preliminary results based on safety efforts already completed by stakeholder agencies.
- Identify engineering and non-engineering countermeasures to reduce the risk for bike/pedestrian crashes.
- Explore opportunities to incorporate high crash locations into stakeholder agencies’ safety efforts.

Miami-Dade’s Traffic Safety Problem

Source: DHSMV
Crash Data

- Analysis period: 2008-2013
- Data source: FDOT’s Unified Basemap Repository
- This data was taken from a GIS database, and hence may not be consistent with DHSMV statistics.

Pedestrian Crashes
Pedestrian Crash Data (2008-2013)

- Total crashes: 7,028
- Fatal crashes: 388
- Incapacitating injury crashes: 1,188

*On average, one in 18 crashes involving a pedestrian resulted in a fatality.*

Pedestrian Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1,307</td>
</tr>
<tr>
<td>2009</td>
<td>1,301</td>
</tr>
<tr>
<td>2010</td>
<td>1,207</td>
</tr>
<tr>
<td>2011</td>
<td>962</td>
</tr>
<tr>
<td>2012</td>
<td>1,089</td>
</tr>
<tr>
<td>2013</td>
<td>1,162</td>
</tr>
<tr>
<td>Total</td>
<td>7,028</td>
</tr>
</tbody>
</table>

- Pedestrian crashes declined each year between 2008 and 2011 but have increased in 2012 and 2013.
Fatal Pedestrian Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>64</td>
</tr>
<tr>
<td>2009</td>
<td>65</td>
</tr>
<tr>
<td>2010</td>
<td>75</td>
</tr>
<tr>
<td>2011</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>47</td>
</tr>
<tr>
<td>2013</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>388</td>
</tr>
</tbody>
</table>

High Pedestrian Crash Locations and Segments
At-Risk Pedestrian Groups

Pedestrian Injury Age Distribution 2008-2013

Juvenile pedestrians (18%)

Source: DHSMV
Elderly pedestrians (33%)

Miami-Dade County Juvenile Pedestrians Injuries 2000-2013

Pedestrian Fatality Age Distribution 2008-2013

Elderly pedestrians (33%)
Lighting Conditions

- One third of total pedestrian crashes and two thirds of fatal pedestrian crashes occurred under dark conditions.
- The risk of a pedestrian crash being a fatal crash is five times greater under dark conditions in comparison to daylight conditions.
Impairment
Impairment

- 20% fatality ratio when the driver or pedestrian is impaired vs. 5% fatality ratio when no impaired road users.
- Impaired pedestrians – 80% vs. impaired drivers – 20% (Note: hit and run impaired drivers may not be accurately reflected)

Speed Limit
The risk of a pedestrian crash being a fatal crash is three times greater on 45 mph roads in comparison to 30 mph roads.

Other Findings – Pedestrian Crashes

Municipalities with the highest crashes
- Miami, Miami Beach and Hialeah – total crashes.
- Miami, Hialeah and Miami Gardens – fatal crashes.

Crashes on State vs. local (non-State) roads
- Total crashes on state and local roads are approximately equal.
- State roads had twice as many fatal crashes as local roads.

Intersection and mid-block crashes
- 46% of total crashes and 30% of fatal crashes occurred at intersections.
- 44% of total crashes and 61% of fatal crashes occurred at mid-block locations.
Bicycle Crashes

Bicycle Crash Data (2008-2013)

- Total crashes: 3,854
- Fatal crashes: 47
- Incapacitating injury crashes: 422

On average, one in 82 crashes involving a bicyclist resulted in a fatality.
### Bicycle Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>492</td>
</tr>
<tr>
<td>2009</td>
<td>528</td>
</tr>
<tr>
<td>2010</td>
<td>583</td>
</tr>
<tr>
<td>2011</td>
<td>667</td>
</tr>
<tr>
<td>2012</td>
<td>727</td>
</tr>
<tr>
<td>2013</td>
<td>857</td>
</tr>
<tr>
<td>Total</td>
<td>3,854</td>
</tr>
</tbody>
</table>

- 74% increase in bicycle crashes between 2008 and 2013.

### Bicycle Crashes and Commuting

- Mode share: American Community Survey

![Bicycle Crashes and Commuting Chart](chart.png)
Fatal Bicycle Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>6</td>
</tr>
<tr>
<td>2009</td>
<td>12</td>
</tr>
<tr>
<td>2010</td>
<td>7</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
</tr>
<tr>
<td>2013</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
</tr>
</tbody>
</table>

- In general, fatal bicycle crashes are scattered.

High Bicycle Crash Locations and Segments
Bicycle Crashes with Parked Vehicles

County Overview

51 reported bicycle crashes with parked vehicles in Miami County

Legend
- Crash with Parked Vehicle
- Impact Area
- Other Results

Miami Beach

26 reported bicycle crashes with parked vehicles in Miami Beach

Legend
- Crash with Parked Vehicle
- Impact Area
- Other Results
At-Risk Bicyclist Groups

Bicyclist Injury Age Distribution
2008-2013

Source: DHSMV
n=3492

Teen-Young Adult cyclists (21%)
Middle-aged cyclist (38%)

Lighting Conditions
One fourth of total bike crashes and three fourths of fatal bike crashes occurred under dark conditions.
Impairment

**All Bicycle Crashes**
- Impaired Cyclist: 96 (2%)
- Impaired Driver: 24 (1%)
- No Reported Impairment: 3732 (97%)

**Fatal Bicycle Crashes**
- Impaired Bicyclist: 10 (21%)
- Impaired Driver: 4 (9%)
- No Reported Impairment: 35 (70%)

- 11% fatality ratio when the driver or cyclist is impaired vs. 1% fatality ratio when no impaired road users. (Note: hit and run impaired drivers may not be accurately reflected)

---

**Speed Limit**
**Speed Limit vs. Bicycle Injury Severity**

General increase of injury severity with speed limit; correlation not as discernable as pedestrian crashes.

**Other Findings – Bicycle Crashes**

- Municipalities with the highest crashes
  - Miami, Miami Beach and Hialeah

- Crashes on State vs. local (non-State) roads
  - 55% of bicycle crashes occurred on non-State roads.
  - 65% of fatal bicycle crashes occurred on non-State roads.

- Intersection crashes
  - 49% of total crashes and 34% of fatal crashes occurred at intersections.
Next Steps

- Stakeholder agencies to provide input by November 6th.
- Refine high crash locations based on stakeholder input.
- Develop multidisciplinary strategies to address crash patterns.
Study Advisory Committee #2
Study Goals

- Identify high pedestrian and bicycle crash locations.
- Develop strategies to reduce traffic crashes involving pedestrians and bicyclists.
- Develop a process for continuing safety monitoring, analysis and improvement.
Study Progress

- Detailed crash data analysis completed
  - Presented results to the Committee in October 2015
- Conducted high crash location field reviews
- Developed a process for future evaluation of bike/pedestrian safety data and stakeholder coordination

High Crash Location Assessment
### Study Locations
#### Pedestrian Crashes

<table>
<thead>
<tr>
<th>Segment</th>
<th>Roadway Type</th>
<th>Pedestrian Crashes (2008 – 2013)</th>
<th>Fatal Pedestrian Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 27 Avenue at SW 6/7/8 Street</td>
<td>State</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>NE 6 Avenue between NE 149 Street and NE 150 Street</td>
<td>State</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>NW 22 Avenue at NW 36 Street</td>
<td>State</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>NW 62 Street from NW 13 Court to NW 12 Avenue</td>
<td>Local</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Kendall Drive at SW 157 Avenue</td>
<td>State</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>SW 137 Avenue at SW 152 Street</td>
<td>Local</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>SW 137 Avenue at SW 268 Street/Moody Drive</td>
<td>Local</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>W 24 Avenue at W 60 Street (Hialeah)</td>
<td>Local</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>W 12 Avenue at W 37 Street (Hialeah)</td>
<td>Local</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>W 16 Avenue at W 44 Place (Hialeah)</td>
<td>Local</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

**NE 6 Avenue bet. NE 149 St and NE 150 St**

- 14 out of 17 crashes during daylight conditions
- Speed limit 40 mph
- Five-lane undivided road with center left turn lanes

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>At signalized intersection – through vehicle</td>
<td>2</td>
</tr>
<tr>
<td>At signalized intersection – turning vehicle</td>
<td>1</td>
</tr>
<tr>
<td>At unsignalized intersection</td>
<td>4</td>
</tr>
<tr>
<td>At driveway</td>
<td>5</td>
</tr>
<tr>
<td>At mid-block/outside of crosswalk</td>
<td>5</td>
</tr>
</tbody>
</table>
Key Recommendations

- Evaluate the feasibility of installing a mid-block crosswalk on NE 6 Avenue north of NE 150 Street.
- Evaluate the feasibility of reconfiguring NE 6 Avenue (add a raised median)

Crash Type Count

- At signalized intersection – through vehicle: 4
- At signalized intersection – turning vehicle: 1
- At unsignalized intersection: 1
- At mid-block/outside of crosswalk: 5

- 6 crashes during daylight conditions
- 5 crashes during dark conditions
- Four lane divided road; 30 mph
- Staggered street lighting along NW 62 St
NW 62 Street bet. NW 13 Ct and NW 12 Av

Key Recommendations

- Review overall crash data to determine if there is a high incidence of nighttime crashes; if so, conduct a lighting assessment.
- Review pedestrian clearance times at NW 12 Ave and make adjustments, if needed.
- Consider an educational campaign to encourage pedestrians to use the crosswalks. Target populations are transit users and local residents.

Kendall Drive at SW 157 Avenue

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>At signalized intersection - through vehicle</td>
<td>1</td>
</tr>
<tr>
<td>At signalized intersection - turning vehicle</td>
<td>5</td>
</tr>
<tr>
<td>At mid-block/outside of crosswalk</td>
<td>3</td>
</tr>
</tbody>
</table>

- 5 crashes during daylight conditions
- 4 crashes during dark conditions
- Street lighting only on the south side of Kendall Drive; no lighting along SW 157 Avenue
- No crossing on the west leg
Kendall Drive at SW 157 Avenue

Key Recommendations
- Review overall crash data to determine if there is a high incidence of nighttime crashes; if so, conduct a lighting assessment.
- Evaluate the feasibility of installing a signalized crossing on the west leg of the intersection.

SW 137 Avenue at SW 268 Street/Moody Dr

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>At signalized intersection – turning vehicle</td>
<td>2</td>
</tr>
<tr>
<td>At driveway</td>
<td>1</td>
</tr>
<tr>
<td>At mid-block/outside of crosswalk</td>
<td>5</td>
</tr>
</tbody>
</table>

- 2 crashes during daylight conditions
- 6 crashes during dark conditions
- 2 crashes were fatal
- Street lighting is not provided at the intersection
Key Recommendations

- Review overall crash data to determine if there is a high incidence of nighttime crashes; if so, conduct a lighting assessment.
- Review pedestrian clearance times and make adjustments, if needed.
- Consider an educational campaign to encourage pedestrians to use the crosswalks.

Summary of Recommendations

<table>
<thead>
<tr>
<th>Location/Segment</th>
<th>Pedestrian signal feature upgrades</th>
<th>Pedestrian signal timings</th>
<th>Street lighting</th>
<th>Mid-block crosswalks</th>
<th>Complete street concepts</th>
<th>ADA facility upgrades</th>
<th>Sign and markings</th>
<th>Bus stop relocation</th>
<th>Drainage improvements</th>
<th>Education/awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 27 Avenue at SW 6/7/8 Street</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE 6 Avenue between NE 149 Street and NE 150 Street</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW 22 Avenue at NW 36 Street</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW 62 Street from NW 13 Court to NW 12 Avenue</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kendall Drive at SW 157 Avenue</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 137 Avenue at SW 152 Street</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 137 Avenue at SW 268 Street/Moody Drive</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 24 Avenue at W 60 Street (Hialeah)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 12 Avenue at W 37 Street (Hialeah)</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 16 Avenue at W 44 Place (Hialeah)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Study Locations
Bicycle Crashes

<table>
<thead>
<tr>
<th>Segment</th>
<th>Roadway Type</th>
<th>Bicycle Crashes (2008 – 2013)</th>
<th>Fatal Bicycle Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crandon Blvd between Crandon Park Tennis Center and Seaview Drive</td>
<td>Local</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>SR A1A/Collins Avenue between Bayview Drive and 174 Street</td>
<td>State</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>W 29 Street between Palm Avenue and W 16 Avenue/Milam Diary Road</td>
<td>Local</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>SR 976/SW 40 Street/ Bird Road at SR 973/SW 87 Avenue</td>
<td>State</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>SW 112 Avenue between Old Cutler Road and US 1</td>
<td>Local</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>SW 312 Street/Campbell Drive between SW 177 Avenue and NE 1 Road*</td>
<td>Local</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

* SW 312 Street/Campbell Drive was evaluated for pedestrian and bicycle crashes. There were 18 pedestrian crashes.

Crandon Blvd bet. Harbor Dr. and Seaview Dr.

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorist right turn onto driveway</td>
<td>15</td>
</tr>
<tr>
<td>Motorist right turn at signalized intersection</td>
<td>8</td>
</tr>
<tr>
<td>Motorist right turn at unsignalized intersection</td>
<td>6</td>
</tr>
<tr>
<td>Motorist exiting driveway</td>
<td>6</td>
</tr>
<tr>
<td>Motorist turning left</td>
<td>2</td>
</tr>
<tr>
<td>Parked vehicle next to bike lane - dooring</td>
<td>2</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>7</td>
</tr>
</tbody>
</table>

- 42 out of 46 crashes during daylight conditions
- 29 crashes associated with right turn vehicles
- Bike lanes exist
- 30 mph speed limit
- County’s green colored bike lane pilot project – north of city limits
Crandon Blvd bet. Harbor Dr. and Seaview Dr.

Key Recommendations
- Green bike lanes along Crandon Boulevard at intersections and areas of conflict to increase the emphasis of bike lanes.
- Install Bicycle/Pedestrian warning signs (W11-2) with “Ahead” or “LOOK” plaque on (unsignalized) streets connecting to Crandon Boulevard.

W 29 St bet. Palm Ave and W 16 Ave/ Milam Diary Rd

- 10 crashes during daylight conditions
- 7 crashes during dark conditions
- Four-lane undivided road; 30 mph
- Street lighting is provided on the north side

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorist right turn at signalized intersection</td>
<td>4</td>
</tr>
<tr>
<td>Bike crossing mid-block</td>
<td>3</td>
</tr>
<tr>
<td>Motorist exiting driveway/parking lot</td>
<td>2</td>
</tr>
<tr>
<td>Motorist turning left</td>
<td>2</td>
</tr>
<tr>
<td>Motorist (through) failed to yield at intersection</td>
<td>2</td>
</tr>
<tr>
<td>Bicyclist failed to yield at intersection</td>
<td>1</td>
</tr>
<tr>
<td>Motorist right turn at unsignalized intersection</td>
<td>1</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>2</td>
</tr>
</tbody>
</table>
Key Recommendations
- Evaluate the feasibility of reconfiguring W 29 Street to provide bike lanes, a raised median, and reduce conflicts between parking and bikes/pedestrians.
- Enforce parking violations
- Install "Maintain a minimum 3-foot clearance when passing a bicyclist" signs along W 29 Street

Campbell Drive bet. SW 177 Avenue and NE 1 Road

<table>
<thead>
<tr>
<th>Pedestrian Crash Types</th>
<th>Count</th>
<th>Bike Crash Types</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>At signalized intersection - through vehicle</td>
<td>2</td>
<td>At signalized intersection - through vehicle</td>
<td>5</td>
</tr>
<tr>
<td>At signalized intersection - turning vehicle</td>
<td>4</td>
<td>Motorist right turn at signalized intersection</td>
<td>1</td>
</tr>
<tr>
<td>At unsignalized intersection</td>
<td>2</td>
<td>Motorist turning left</td>
<td>1</td>
</tr>
<tr>
<td>At driveway</td>
<td>2</td>
<td>Bike mid-block crossing</td>
<td>1</td>
</tr>
<tr>
<td>At mid-block</td>
<td>8</td>
<td>Motorist right turn at unsignalized intersection</td>
<td>1</td>
</tr>
</tbody>
</table>

- 20 crashes - daylight conditions
- 10 crashes – dark conditions
- 4-lane divided; 30 mph
Key Recommendations

- Evaluate the need for enhancing corridor street lighting.
- Evaluate the feasibility of providing a crosswalk on the east leg of Campbell Drive at NE 2 Avenue.
- Consider a pedestrian safety awareness program to reduce mid-block crossing in the vicinity of NE 2 Avenue.

Key Recommendations

- Install Shared Lane Markings (Sharrows) along Campbell Drive.
- Evaluate potential countermeasures to improve safety of Mavericks High students who cross N Flagler Avenue south of Campbell Drive:
  - A pedestrian safety awareness program to encourage the use of existing crosswalk at Campbell Drive and N Flagler Avenue
  - Evaluate the feasibility of installing a crosswalk across N Flagler Avenue south of Campbell Drive with RRFB.
- Install pedestrian signal heads at Campbell Drive and NE 1 Road.
- Trim overgrown median landscaping along Campbell Drive.
### Summary of Recommendations

<table>
<thead>
<tr>
<th>Location/Segment</th>
<th>Screen Bike lanes/contact screen</th>
<th>Complete street concepts</th>
<th>Shoulder/sidewalk/dedicated bike lanes</th>
<th>Bicycles share the road signs (including bike/pedestrian warning signs)</th>
<th>Speed reduction signs</th>
<th>New bike lanes</th>
<th>Bike/pedestrian warning signs on driveways</th>
<th>Other signs</th>
<th>Street lighting</th>
<th>Education/Enforcement</th>
<th>Landscape maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crandon Blvd between Crandon Park Tennis Center and Seawiew Drive</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR A1A/Collins Avenue between Bayview Drive and 174 Street</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W 29 Street between Palm Avenue and W 16 Avenue/Milam Diary Road</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR 976/SW 40 Street/Bird Road at SR 973/SW 87 Avenue</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 112 Avenue between Old Cutler Road and US 1</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW 312 Street/Campbell Drive between SW 177 Avenue and NE 1 Road*</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Crash Data Analysis
Crash Data

- Analysis period: 2008-2013
- Data source: FDOT’s Unified Basemap Repository (UBR)
- UBR data
  - GIS databases
  - Event, Vehicle and Occupant data as separate shapefiles
  - State and non-State road crashes

Safety Data Comparison

Source: DHSMV
Safety Data Comparison

Source: DHSMV

Pedestrian Crash Data
(Summary of Key Results)
Pedestrian Crash Data (2008-2013)

- Total crashes: 7,028
- Fatal crashes: 388
- Incapacitating injury crashes: 1,188

*On average, one in 18 crashes involving a pedestrian resulted in a fatality.*
Fatal Pedestrian Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>64</td>
</tr>
<tr>
<td>2009</td>
<td>65</td>
</tr>
<tr>
<td>2010</td>
<td>75</td>
</tr>
<tr>
<td>2011</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>47</td>
</tr>
<tr>
<td>2013</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>388</td>
</tr>
</tbody>
</table>

38% of total pedestrian crashes and 72% of fatal pedestrian crashes occurred under dark conditions.

The risk of a pedestrian crash being a fatal crash is five times greater under dark conditions in comparison to daylight conditions.
Nighttime Crashes

2802 Washington Av & 13 St
2554 NW 7 Av & NW 55 St
4488 NW 27 Av & NW 70 Ad & Avg
2010 NE 30 St & US 1
2015 NW 30 St & NE 4 Av
1908 NW 30 St & NW 27 Av
1312 NW 7 Av & NW 81 St
8401 Collins Av & 17 St
7223 NW 16 Av & NW 49 St
4818 NW 12 Av & NW 79 St
1769 Collins Av & 14 St
6418 Cienaga Dr & SW 7 Av
1218 SW 3 St & SW 27 Av
2035 NW 30 St & NW 7 Av
8025 SE Flagler Blvd & NE 13 Av & NE 139 St
8469 SW 27 Av & NW 8 St
8405 Collins Av & 75 St
2264 W Anderson & NE 8th St
4866 Collins Av & 18 St
3827 NW 5 St & NW 220 St
12913 NW Cordon Dr & NE 10 Av
4907 NW 24 Av & NW 45 St
4121 NW 16 Av & SW 117 Av
6451 SW 8 St & SW 13 Av & SW 13 Ct
1086 NE 16 St & NE 10 St
21983 SW 14 W & SW 13 St
4227 NE 14th St & NW 54 St
2245 SW 1 Av & SW 9 St
2056 NW 27 Av & NW 26 St
2249 SW 17 Av & SW 9 St
2057 NW 12 Av & NW 11 St
2956 NW 22 Av & NW 28 St
9070 NW 7 Av & NW 79 St
Elderly Pedestrians

- One third of fatal pedestrian crashes; but only 16% of total crashes
- 1 in 9 crashes was fatal (overall fatal pedestrian crash ratio is 1 in 18)
- No reduction in the number of crashes between 2008 and 2013.
- 73% of crashes occurred during daytime
- Slightly higher percentage of crashes at intersections compared to the overall data

Note: Juvenile pedestrian crashes have reduced over the study years.
Elderly Pedestrians

- **Engineering**
  - Larger signs
  - Countdown signals (audible features where warranted)
  - Pedestrian clearance interval adjustments as needed
  - Bus stop relocation

- **Education**
  - Safe Steps (Pasos Seguros) Program
    - Alliance for Aging, Inc.
    - Bilingual
    - Community level meetings
    - TV campaign
  - Outreach through Golden Passport program
**State vs. Non-State Roads**

- Two thirds of fatal pedestrian crashes occurred on state roads.
- The proportion of fatal pedestrian crashes on state roads twice greater than on non-state roads.
- SR 968/Flagler Street – highest crashes per mile
- SR 934 – highest fatal crashes per mile
- Washington Ave – highest crashes; NW 7 Street – highest fatal crashes

**Right Turn Crashes**

- 10 percent of total pedestrian crashes (714 crashes in 6 years).

<table>
<thead>
<tr>
<th>INTERSECTION</th>
<th>Right-Turn Crashes (2008-2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4549 Collins Av &amp; 178 St</td>
<td>5</td>
</tr>
<tr>
<td>3501 Collins Av &amp; 172 St</td>
<td>5</td>
</tr>
<tr>
<td>2553 SW 27 Ave &amp; SW 8 St</td>
<td>4</td>
</tr>
<tr>
<td>4663 Ludlam Rd &amp; W 37 St</td>
<td>4</td>
</tr>
<tr>
<td>3881 Collins Av &amp; 174 St</td>
<td>3</td>
</tr>
<tr>
<td>2543 N Miami Blvd &amp; NE 8 Av</td>
<td>3</td>
</tr>
<tr>
<td>2771 Art Godfrey Rd &amp; Pine Tree Dr</td>
<td>3</td>
</tr>
<tr>
<td>2056 NW 27 Ave &amp; NW 36 St</td>
<td>3</td>
</tr>
<tr>
<td>3447 SW 27 Ave &amp; SW 7 St</td>
<td>3</td>
</tr>
<tr>
<td>2537 N Miami Blvd &amp; US 1</td>
<td>3</td>
</tr>
</tbody>
</table>

- Potential Countermeasures:
  - "Turning Vehicles Yield to (Stop for) Pedestrians" signs
  - Leading pedestrian interval
  - Maintain clear sight lines
  - Prohibit right-turn-on-red.
  - Education/enforcement
Left Turn Crashes

• 14 percent of total pedestrian crashes (1,005 crashes in 6 years).

• Potential Countermeasures:
  • Flashing yellow arrow signal (if current operation has permissive green)
  • “Turning Vehicles Yield to (Stop for) Pedestrians” signs
  • Education/enforcement

Mid-Block Pedestrian Crashes

• Crashes by location
  – Intersections - 46% of total crashes and 30% of fatal crashes
  – Mid-block (no crosswalk) - 44% of total crashes and 61% of fatal crashes
  – Driveways – 5% of total crashes and 1% of fatal crashes

• Possible countermeasures – mid-block crashes
  – Mid-block crosswalks (FDOT guidelines)
  – Raised median for staged crossing
  – Median landscaping
  – Relocate bus stops closer to intersections
  – Signage to direct to the nearest crossing
  – Driveway location
  – Education/enforcement
Other Findings – Pedestrian Crashes

- Juvenile pedestrian crashes
  - Decreasing trend of injuries
- Impairment
  - 20% of impairment related crashes were fatal (5% fatality ratio when no impairment)
- Municipalities with the highest crashes
  - Total Crashes - Miami (30%), Miami Beach (10%), Hialeah (8%); unincorporated areas (30%)
  - Fatal Crashes – Miami (27%), Hialeah (8%), Miami Beach (5%), Miami Gardens (5%); unincorporated areas (40%)

Bicycle Crash Data
(Summary of Key Results)
Bicycle Crash Data (2008-2013)

- Total crashes: 3,854
- Fatal crashes: 47
- Incapacitating injury crashes: 422

*On average, one in 82 crashes involving a bicyclist resulted in a fatality.*

Bicycle Crashes and Commuting

![Bicycle Crashes and Commuting Chart]

*Mode share: American Community Survey*
Fatal Bicycle Crashes (2008-2013)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatal Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>6</td>
</tr>
<tr>
<td>2009</td>
<td>12</td>
</tr>
<tr>
<td>2010</td>
<td>7</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
</tr>
<tr>
<td>2013</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
</tr>
</tbody>
</table>

In general, fatal bicycle crashes are scattered.

Lighting Condition

- One fourth of total bicycle crashes and three fourths of fatal bicycle crashes occurred under dark conditions.
- The risk of a bicycle crash being a fatal crash is eight times greater under dark conditions in comparison to daylight conditions.
Speed Limit vs. Bicycle Injury Severity

General increase of injury severity with speed limit

Bicyclist Fatality Age Distribution
2008-2013

Source: NHSTA
n=48

40-54 age group (38%)
**State vs. Non-State Roads**

- 55% of bicycle crashes occurred on non-State roads.
- 66% of fatal bicycle crashes occurred on non-State roads.
- SR 907/Alton Road and SR A1A – highest crashes per mile
- Crandon Boulevard and Washington Ave – highest crashes

**Right Turn Crashes**

- 23 percent of total bicycle crashes (899 crashes in 6 years)

<table>
<thead>
<tr>
<th>INTERSECTION</th>
<th>Right Turn Crashes (2008-2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3545 Crandon Blvd &amp; Harbor Dr &amp; Ocean Lane Dr</td>
<td>10</td>
</tr>
<tr>
<td>2958 Miami Gardens Dr &amp; NW 27 Av</td>
<td>3</td>
</tr>
<tr>
<td>2645 Alton Rd &amp; 16 St</td>
<td>3</td>
</tr>
<tr>
<td>2808 Washington Av &amp; 17 St</td>
<td>3</td>
</tr>
<tr>
<td>2623 Granada Blvd &amp; US-1</td>
<td>3</td>
</tr>
<tr>
<td>3723 W 16 Av &amp; W 49 St</td>
<td>3</td>
</tr>
<tr>
<td>2488 NW 22 Av &amp; NW 82 St</td>
<td>3</td>
</tr>
<tr>
<td>2794 Washington Av &amp; 5 St</td>
<td>3</td>
</tr>
<tr>
<td>2670 Collins Av &amp; 23 St</td>
<td>3</td>
</tr>
<tr>
<td>3667 Alhambra Dr &amp; US-1</td>
<td>3</td>
</tr>
<tr>
<td>3753 Red Bl &amp; W 48 St</td>
<td>3</td>
</tr>
<tr>
<td>3325 Bird Rd &amp; SW 72 Av</td>
<td>3</td>
</tr>
<tr>
<td>3834 Crandon Blvd &amp; Gould Dr &amp; W Mcclintock St</td>
<td>3</td>
</tr>
<tr>
<td>4209 Coral Way &amp; SW 127 Av</td>
<td>3</td>
</tr>
<tr>
<td>4655 SR-856 &amp; US-1</td>
<td>3</td>
</tr>
<tr>
<td>6354 Crandon Blvd &amp; Sonesta Dr</td>
<td>3</td>
</tr>
</tbody>
</table>

**Potential Countermeasures:**

- Green color bike lanes within conflict zones
- Signs
- Maintain clear sight lines
Parking Related Crashes

Other Findings – Bicycle Crashes

- Crash Location
  - Fatal bicycle crash ratio at mid-block locations was twice greater than at intersections.

- Municipalities with the highest crashes
  - Total Crashes - Miami (22%), Miami Beach (14%), Hialeah (6%); unincorporated areas (32%)
  - Fatal Crashes – Miami (17%); unincorporated areas (57%)

- US 1 between Granada Blvd and Red Road (near UM)
  - 16 out of 28 crashes involved bicyclists in the 18-24 year age range.

- US 1 between SW 216 Street and SW 264 Street
  - 10 bicycle crashes, 3 were fatal crashes
  - Fatal crashes occurred at nighttime (11pm – 3am)
Process Development

Summary of Proposed Process

- Crash Data Analysis
  - Full 5-year data analysis once in 3 years
  - Interim years
    - Limited to the latest year of data
    - Focused on sub areas or specific safety issues of interest

- Agency Coordination Mechanism
  - Form a Bicycle - Pedestrian Community Traffic Safety Team
  - Serve as advisory committee to future MPO safety studies
  - Facilitate agency coordination for implementation
  - Facilitate information sharing on safety initiatives
Next Steps

- Incorporate committee input
- Finalize documents
- Agency coordination on recommendations
APPENDIX B

PEDESTRIAN CRASH DATA ANALYSIS MAPS
PEDESTRIAN CRASH ANALYSIS
PEDESTRIAN FATAL CRASHES (2008 - 2013)

Legend

- Fatal Crash
- Major Roads
- Other Roads
- Municipalities
- Unincorporated Miami-Dade County
Legend
Crashes per 100 Residents By Census Tract

- < 0.25
- 0.25 - 1
- 1 - 2.5
- 1 - 2.5
- > 2.5

Census Tracts with < 100 Residents were excluded from analysis
MIAMI-DADE MPO
BICYCLE AND PEDESTRIAN SAFETY STUDY
PEDESTRIAN CRASH ANALYSIS
NIGHTTIME PEDESTRIAN CRASHES (2008 - 2013)

Legend
- Nighttime - Unlit Roadway
- Major Roads
- Other Roads
- Municipalities
- Unincorporated Miami-Dade County

Map showing nighttime pedestrian crashes in Miami-Dade County from 2008 to 2013.
PEDESTRIAN CRASH ANALYSIS
JUVENILE PEDESTRIAN CRASHES (2008 - 2013)

Legend
- Juvenile Pedestrians (Age 5-18)

Major Roads
Other Roads
Municipalities
Unincorporated Miami-Dade County
ELDERLY PEDESTRIAN CRASHES (2008 - 2013)

Legend
- Elderly Pedestrians (65+)
- Major Roads
- Other Roads
- Municipalities
- Unincorporated Miami-Dade County
PEDESTRIAN CRASH ANALYSIS
PEDESTRIAN FATALITIES (2010 - 2013)

Legend
- Motorist under the influence
- Pedestrian under the influence

Major Roads
Other Roads
Municipalities
Unincorporated Miami-Dade County

0 0.75 1.5 3 4.5 6 Miles
APPENDIX C

BICYCLE CRASH DATA ANALYSIS MAPS
BICYCLE CRASH ANALYSIS (2008-2013)

FATAL CRASHES

Legend
- Fatal Crashes

Major Roads
Other Roads
Municipalities
Unincorporated
Miami-Dade County
BICYCLE CRASH ANALYSIS (2008-2013)
CRASHES BY CENSUS TRACT

Legend
Crashes per 100 Residents
By Census Tract

- < 0.25
- 0.25 - 1
- 1 - 2.5
- > 2.5

Census Tracts with < 100 Residents were excluded from analysis

Major Roads

Other Roads

0 0.75 1.5 3 4.5 6 Miles
MIAMI-DADE MPO
BICYCLE AND PEDESTRIAN SAFETY STUDY

BICYCLE CRASH ANALYSIS (2008-2013)

NIGHTTIME CRASHES

Legend
- Nighttime Crash - Lit Roadway
- Nighttime Crash - Unlit Roadway

Major Roads
Other Roads
Municipalities
Unincorporated Miami-Dade County
MIAMI-DADE MPO
BICYCLE AND PEDESTRIAN SAFETY STUDY

BICYCLE CRASH ANALYSIS (2008-2013)
IMPAIRED CYCLIST CRASHES

Legend
- Impaired Cyclist
- Impaired Cyclist (Fatal)
- Major Roads
- Other Roads
- Municipalities
- Unincorporated
  Miami-Dade County

0 0.75 1.5 3 4.5 6 Miles
APPENDIX D

PRELIMINARY LIST OF HIGH CRASH LOCATIONS
## High Pedestrian Crash Locations Selected for Field Reviews

<table>
<thead>
<tr>
<th>Location</th>
<th>Jurisdiction</th>
<th>Number of Pedestrian Crashes (2008 – 2013)</th>
<th>Number of Fatal Pedestrian Crashes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SW 27 Avenue at SW 6/7/8 Street</td>
<td>State</td>
<td>22</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2. NE 6 Avenue at NE 149 Street/NE 150 Street</td>
<td>State</td>
<td>17</td>
<td></td>
<td>3R project completed – possible candidate for a raised median</td>
</tr>
<tr>
<td>3. NW 22 Avenue at NW 36 Street</td>
<td>State</td>
<td>11</td>
<td></td>
<td>NE corner has supermarket; raised median on the east leg?</td>
</tr>
<tr>
<td>4. NW 62 Street from NW 13 Court to NW 12 Avenue</td>
<td>Local</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Kendall Drive at SW 157 Avenue</td>
<td>State</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SW 137 Ave at SW 152 St</td>
<td>Local</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. SW 137 Avenue at SW 268 Street/Moody Drive</td>
<td>Local</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8. W 24 Avenue at W 60 Street (Hialeah)</td>
<td>Local</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. W 12 Avenue at W 37 Street (Hialeah)</td>
<td>Local</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. W 16 Avenue at W 44 Place (Hialeah)</td>
<td>Local</td>
<td>6</td>
<td>1</td>
<td>Elderly pedestrian related crashes? Opportunities for educational effort?</td>
</tr>
</tbody>
</table>

### Other locations considered but not selected:

- Flagler Street at W 12 Avenue
- Flagler Street at W 17 Avenue
- Flagler Street at W 27 Avenue
- Alton Road at 17 Street – FDOT project
- Alton Road at Dade Boulevard - FDOT project
- Arthur Godfrey Road/W 41 Street at Pine Tree Drive
- Arthur Godfrey Road/W 41 Street at Indian Creek Drive
- Normandy Drive/71 Street at Bay Drive E
- NE 6 Avenue at W Dixie Hwy and NE 125 Street – FDOT project
- NE 79 Street at N Miami Avenue
- NE 167 Street at NE 6 Avenue
- NE 199 Street at NE 29 Place – City of Aventura studied this location
- NW 199 Street/Ives Dairy Road at US 441/NW 2 Avenue – FDOT project
- NW 2 Avenue at Miami Gardens Drive
- NW 7 Avenue at NW 62 Street
- NW 7 Avenue at NW 79/81 Street
- NW 12 Avenue at NW 14 Street
- NW 27 Avenue at NW 36 Street – FDOT safety project
- NW 27 Avenue at NW 79 Street
- NW 27 Avenue at Miami Gardens Drive – *FDOT studied this location in the past; flex poles installed on NW 27 Ave*
- NW 37 Avenue at Miami Gardens Drive
- NW 47 Avenue at Miami Gardens Drive
- NW 57 Avenue at Miami Gardens Drive
- NW 103 Street/W 49 Street at W 16 Avenue
- NW 103 Street/W 49 Street at NW 67 Avenue/W 12 Avenue
- SW 1 Street at W 12 Avenue
- SW 7/8 Street at SW 12 Avenue
- SW 7/8 Street at SW 17 Avenue
- SW 22 Street/Coral Way between SW 37 Avenue and SW 42 Avenue
- SW 88 Street/Kendall Drive at SW 107 Avenue
- SW 117 Avenue at Quail Roost Drive
- US 1 at NE 15 Street
- US 1 at NE 79 Street
- US 1 at NE 36 Street
- US 1 at SW 72 Street
- US at SW 136 Street
- US at SW 152 Street
- US 1 at NE 163 Street – FDOT project
- US at SW 184 Street
- US 1 at SW 200 Street/Caribbean Blvd
- US 1 at SW 220 Street
## High Bicycle Crash Locations for Field Reviews

<table>
<thead>
<tr>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Crashes (2008 – 2013)</th>
<th>Fatal Crashes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Crandon Blvd between Crandon Park Tennis Center and Seaview Drive</td>
<td>Local</td>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SR A1A/Collins Avenue between Bayview Drive (south of NE 163rd Street) and 174th Street</td>
<td>State</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. W 29th Street between Palm Avenue and W 16th Avenue/Milam Diary Road</td>
<td>Local</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SW 40th Street/Bird Road at SW 87th Avenue</td>
<td>State</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. SW 112th Avenue between Old Cutler Road and US 1</td>
<td>State</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SW 312 Street/Campbell Drive between SW 177 Avenue and US 1</td>
<td>Local</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## High Bicycle Crash Locations Identified for Data Review

<table>
<thead>
<tr>
<th>Segment</th>
<th>Jurisdiction</th>
<th>Crashes (2008 – 2013)</th>
<th>Fatal Crashes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. US 1 between Granada Blvd and Red Road (near University of Miami)</td>
<td>State</td>
<td>38</td>
<td></td>
<td>Bicyclists in 18-24 age range were involved → 14 out of 38</td>
</tr>
<tr>
<td>8. US 1 between SW 216th Street and SW 264th Street</td>
<td>State</td>
<td>10</td>
<td>3</td>
<td>All three fatalities occurred during nighttime. None of the bicyclists were wearing protective gear.</td>
</tr>
<tr>
<td>9. NW 27th Avenue between NW 54th Street and NW 71st Street</td>
<td>State</td>
<td>19</td>
<td></td>
<td>None of the crashes directly linked with the MetroRail Station. Two Main types of crashes Bicyclist failed to yield: Vehicle traveling along NW 27 Ave, and cyclist approaching from side-street failed to yield to vehicles. Vehicle failed to yield: Vehicle on private driveway or approaching side-street failed to yield to bicyclist on the sidewalk.</td>
</tr>
</tbody>
</table>
APPENDIX E

LIST OF REFERENCED DOCUMENTS
5. Improving the Safety of Older Pedestrians: From Understanding of the Problem to Generating Strategies. Jeanette Montufar and Jocelyn Mamchur (University of Manitoba), and Luis Escobar (City of Winnipeg).
7. Pedestrian Safety at Signalized Intersections – A Balancing Act. Miguel Nunez (Fehr & Peers) and Joaquin Siques (City of Pasadena).