LOTIS
Land Overlaid on Transportation Information System
PJ Smith, AICP | pjsmith@ecfrpc.org
The LOTIS database is usable by any municipality, transportation planning organization or planning entity.
Population: 2.16 Million (37)
10.2% of FL population
0.7% of US Population
Urbanism Inspiration x Smart Cities
LOTIS
What is it?

A GIS database that compiles street feature and proximity data for roadway segments and parcels.

Part 1: Street Centerline File with Roadway Characteristics and Proximity to Community Features (70+ attributes)

Part 2: Land Use Parcel Files depicting food types, retail establishments, parks and recreation, transit, and other points of interest (more than 30 land use types)

= Customized, Dynamic Land Use & Transportation Mapping/Analysis Apps
# LOTIS Street Polyline File

## Street Segment Attributes

<table>
<thead>
<tr>
<th>Category</th>
<th>Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDOT ID # (link)</td>
<td>Speed Limit, Thru Lanes, Turn Lanes, Bus Lanes, On &amp; Off-Ramp Lanes, Total # Lanes ***</td>
</tr>
<tr>
<td>County</td>
<td>Surface Width (+/- 1 ft), Median Width (+/- 1 ft), Median Type, Average Lane Width (QA), Total Width ***</td>
</tr>
<tr>
<td>Road Name</td>
<td>Sidewalk Coverage, Flush Sidewalks, Bike Lanes (Types), Paved Shoulders (#), Bike Slots</td>
</tr>
<tr>
<td>Road Type</td>
<td>AADT (FDOT), Truck AADT (FDOT), AADT Per Lane (FDOT)</td>
</tr>
<tr>
<td>Length</td>
<td>Signalized within 1/8 Mile, Construction (Y/N), Flood Zone, Functional Class (FDOT)</td>
</tr>
<tr>
<td></td>
<td>Surface Type (FDOT, Osceola), Pavement Cond. (FDOT, Osc.), Maintaining Agcy. (FDOT, Osc.), # Bike-Ped Crashes 2014-18, Evac. Routes</td>
</tr>
<tr>
<td></td>
<td>Unmarked Parking, Off-Street Paths (under Q/A)</td>
</tr>
<tr>
<td></td>
<td>Bike-Ped crash rates, Cross-referenced with all attributes to assign risk profiles</td>
</tr>
<tr>
<td></td>
<td>+ PROXIMITY FIELDS (30+)</td>
</tr>
<tr>
<td></td>
<td>Future, Parallel Parking, Median Trees, Road Curvature, Next Pave Date, Lighting, Sidewalk Width, Lake Prox.</td>
</tr>
</tbody>
</table>

* *** indicates attributes that are not yet available in LOTIS.
GIS Attribute Table

<table>
<thead>
<tr>
<th>ROADTYPE</th>
<th>COUNTY</th>
<th>SPEED</th>
<th>THRU_LANES</th>
<th>TURN_LANES</th>
<th>OFFRAM_LN</th>
<th>BUS_LANE</th>
<th>TOT_LANES</th>
<th>SURF_WIDTH</th>
<th>MEDIAN_WIDTH</th>
<th>MEDIAN_TP2</th>
<th>TOT_WIDTH</th>
<th>AVG_LN_WID</th>
<th>AADT</th>
<th>TRK_AADT</th>
<th>AADTPRLANE</th>
<th>SIDEWALK</th>
<th>SW_FLUSH</th>
<th>PAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>45</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Grass</td>
<td>11</td>
<td>19300</td>
<td>1351</td>
<td>4825</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>55</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>None</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>14</td>
<td>Paved</td>
<td>11</td>
<td>8792</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>None</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>21</td>
<td>Paved</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>22</td>
<td>Paved</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>24</td>
<td>Paved</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>24</td>
<td>Paved</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FDOT</td>
<td>Seminole</td>
<td>35</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>24</td>
<td>Paved</td>
<td>11</td>
<td>12952</td>
<td>1308</td>
<td>6476</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

128,969 roadway segments; 76 attributes
99.94% - 99.98% projected matrix accuracy
Sidewalk Gaps by Speed Limit & Traffic Signals

Powered by LOTIS 1.00

Map Legend

One Line = One Sidewalk Gap
Two Lines = Two Sidewalk Gaps

- Less than 30 mph
- 30 mph
- 35 mph
- 40 mph
- 45 mph / 50 mph
- Off-Street Multi-Use Path
Median Types & Traffic Signals

Map Legend

- Traffic Signals
- Paved
- Grass
- Brick
- Under Construction
Median Types
Signalized within 1/8 Mile.
Sidewalk Coverage and AADT > 6,000
**LOTIS**

Land Use Polygon File (Points of Interest)

<table>
<thead>
<tr>
<th>Food</th>
<th>Retail &amp; Entertainment</th>
<th>Parks &amp; Rec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery Stores</td>
<td>Malls</td>
<td>Public Parks</td>
</tr>
<tr>
<td>Markets/Convenience</td>
<td>Theme Parks</td>
<td>Private HOA Parks</td>
</tr>
<tr>
<td>Small Markets</td>
<td>Entertainment Venues</td>
<td>Golf Courses</td>
</tr>
<tr>
<td>Restaurants</td>
<td>Bars</td>
<td>Campgrounds</td>
</tr>
<tr>
<td>Fast Food</td>
<td>Gyms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coffee Shops</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Libraries</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liquor/Tobacco Stores (Non-Grocery)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Department Stores</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stores (Retail &amp; Leisure Services)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Money Loan Centers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Automotive Stores/Shops</td>
<td></td>
</tr>
</tbody>
</table>

Additional Points of Interest and Analytics for Segments Include

- SunRail Stations
- Traffic Signals
- LYNX Bus Stops
- Schools
- Hotels
- School Crossing Guards
- Job Density (TAZ)
- Government (city halls, libraries, post offices, courts/DMV, comm. ctrs)
- Healthcare Services (hospitals, pharmacies, clinics) – DOH QA soon
- Population Density (TAZ)
- ...and more, including Census demographic overlays.

*Linked to County Property Appraiser data using Parcel ID's (UPDATE PROCEDURES CRITICAL)*
LOTIS

Point of Interest Granularity

The Retail and Entertainment Proximity Application shows gaps in retail and entertainment coverage juxtaposed with retail establishments and theme parks. Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate retail and entertainment gaps.
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
Second-Level Metrics Developed Using the Baseline Data

- **Roadway Safety Scores**
  - An algorithm that looks at all roadway characteristics, some codependent on one another, and creates a score that correlates with bike/ped crash locations.
## LOTIS Safety Score Variables

<table>
<thead>
<tr>
<th>Road Design Characteristic</th>
<th>Total # Bike-Ped Crashes</th>
<th>Total Miles of Roadway</th>
<th>Annual Bike-Ped Crashes Per Mile</th>
<th>Deduction (Most Severe Converted to 2.50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Lanes (Local)</td>
<td>826</td>
<td>7645.7</td>
<td>0.022</td>
<td>0.028</td>
</tr>
<tr>
<td>1-2 Lanes (Non-Local)</td>
<td>586</td>
<td>1090</td>
<td>0.108</td>
<td>0.141</td>
</tr>
<tr>
<td>3-4 Lanes</td>
<td>1052</td>
<td>731.6</td>
<td>0.288</td>
<td>0.377</td>
</tr>
<tr>
<td>5-6 Lanes</td>
<td>1981</td>
<td>444.8</td>
<td>0.891</td>
<td>1.168</td>
</tr>
<tr>
<td>7+ Lanes</td>
<td>1681</td>
<td>176.3</td>
<td>1.907</td>
<td>2.500</td>
</tr>
<tr>
<td>No Turn Lanes (Local)</td>
<td>841</td>
<td>7666.8</td>
<td>0.022</td>
<td>0.057</td>
</tr>
<tr>
<td>No Turn Lanes (Non-Local)</td>
<td>1120</td>
<td>1479.5</td>
<td>0.151</td>
<td>0.395</td>
</tr>
<tr>
<td>Turn Lane Present</td>
<td>4072</td>
<td>850.7</td>
<td>0.957</td>
<td>2.500</td>
</tr>
<tr>
<td>1-3 Lanes (All Roads &amp; Median Coverage)</td>
<td>1952</td>
<td>9069</td>
<td>0.043</td>
<td>0.069</td>
</tr>
<tr>
<td>Grass Median and 4+ Lanes</td>
<td>1448</td>
<td>636</td>
<td>0.455</td>
<td>0.735</td>
</tr>
<tr>
<td>No Median Present and 4+ Lanes</td>
<td>1051</td>
<td>165.3</td>
<td>1.272</td>
<td>2.052</td>
</tr>
<tr>
<td>Non-Grass Median Present and 4+ Lanes</td>
<td>1675</td>
<td>216.2</td>
<td>1.549</td>
<td>2.500</td>
</tr>
<tr>
<td>AADT &lt; 10,000 (Local)</td>
<td>934</td>
<td>7758</td>
<td>0.024</td>
<td>0.031</td>
</tr>
<tr>
<td>AADT &lt; 10,000 (Non-Local)</td>
<td>999</td>
<td>1409.6</td>
<td>0.142</td>
<td>0.180</td>
</tr>
<tr>
<td>AADT 10,001 - 20,000</td>
<td>871</td>
<td>435.3</td>
<td>0.400</td>
<td>0.508</td>
</tr>
<tr>
<td>AADT 20,001 - 30,000</td>
<td>963</td>
<td>272.6</td>
<td>0.707</td>
<td>0.896</td>
</tr>
<tr>
<td>AADT 30,001 - 40,000</td>
<td>988</td>
<td>166.8</td>
<td>1.185</td>
<td>1.503</td>
</tr>
<tr>
<td>AADT 40,001 - 50,000</td>
<td>486</td>
<td>74.1</td>
<td>1.312</td>
<td>1.664</td>
</tr>
<tr>
<td>AADT More than 50,000</td>
<td>883</td>
<td>89.6</td>
<td>1.971</td>
<td>2.500</td>
</tr>
</tbody>
</table>

Source(s): Signal Four Analytics (Crashes); LOTIS 2.0 (Roadway Features)
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
  - Each roadway given a score of 1-10
Safety Score + Bike/Ped Crash Rate Correlation

Annual Bike/Ped Crashes Per Mile

Safety Score

- 0.001 - 1.000: 2.758
- 1.001 - 2.000: 1.682
- 2.001 - 3.000: 1.559
- 3.001 - 4.000: 1.053
- 4.001 - 5.000: 0.706
- 5.001 - 6.000: 0.424
- 6.001 - 7.000: 0.359
- 7.001 - 8.000: 0.168
- 8.001 - 9.000: 0.155
- 9.001 - 10.000: 0.03
LOTIS

Bike-Ped Crash Incidence & Safety Score

The LOTIS database “scores” each roadway on a (low) to (high) scale for bicycle and pedestrian safety based on roadway characteristics and corresponding collision analytics.

The Safety-Proximity Disparity Score overlays the roadway safety score with the cumulative proximity score, identifying the least-safe roadways in the areas with the highest degrees of residential density, parks, transit, food and retail.

Other roadway characteristics and analytics can be toggled on and off as part of this application.
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7 Specialized)
Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- **Proximity Scores (7 Specialized)**
  - Scored for all parcels and roadway segments
  - A measure of “accessibility” to points of interest for any given location
- Transit
- Parks
- Retail & Entertainment
- People (Population Density)
- Food
- Health Services
- Job Density

- **Cumulative Proximity Score** (Average of 5/7 Above)
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- **Proximity Scores (7 Specialized)**
  - Transit
  - Parks
  - Retail & Entertainment
  - People (Population Density)
  - Food
  - Health Services
  - Job Density

- Decay curves populate weighted algorithmic values based on distance and the associated probability of walking/biking trips

Source: Walking Distance by Trip Purpose and Population Subgroups
Yong Yang, University of Memphis
LOTIS

Features – Food Establishments

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
LOTIS

Features – Food Proximity Score

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants. Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
LOTIS

Features – Bars/Proximity to Bars

Proximity analysis done for all 30+ points of interest types
LOTIS
Features – Park & Trail Mapping

Park Proximity Application

The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
LOTIS

Features – Economic P.O.I & Trails

Locate business within certain proximity parameters.

Park Proximity Application

The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
LOTIS

Features – Economic P.O.I & Trails

The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
LOTIS

Features – Economic P.O.I & Trails

Park Proximity Application

The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- **Roadway Safety-Proximity Disparity Scores**
  - Normalizes the roadway safety score for proximity to points of interest that generate high bicyclist and pedestrian volumes
# Bike-Ped Crash Analytics

Proximity to Points of Interest

<table>
<thead>
<tr>
<th>Establishment Type</th>
<th>% with Bike/Ped Crash Occurring within 1/8 Mile</th>
<th>Average # Bike/Ped Crashes per Establishment (within 1/8 mile)</th>
<th>% of All Bike/Ped Crashes that Occurred within 1/8 Mile of Est.</th>
<th>Average # Bike/Ped Crashes per Est. 10PM - 3AM (within 1/8 mile)</th>
<th>Normalized Crash Rate Per Mile (within 1/8 mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grocery Stores</td>
<td>88.5%</td>
<td>4.42</td>
<td>16.1%</td>
<td>0.36</td>
<td>5.12</td>
</tr>
<tr>
<td>Markets</td>
<td>87.5%</td>
<td>2.71</td>
<td>43.0%</td>
<td>0.31</td>
<td>5.12</td>
</tr>
<tr>
<td>Small Markets</td>
<td>85.7%</td>
<td>3.48</td>
<td>6.5%</td>
<td>0.35</td>
<td>3.98</td>
</tr>
<tr>
<td>Restaurants</td>
<td>86.3%</td>
<td>1.57</td>
<td>50.0%</td>
<td>0.18</td>
<td>4.15</td>
</tr>
<tr>
<td>Fast Food</td>
<td>90.6%</td>
<td>2.87</td>
<td>27.3%</td>
<td>0.31</td>
<td>6.04</td>
</tr>
<tr>
<td>Bars</td>
<td>92.0%</td>
<td>2.54</td>
<td>12.5%</td>
<td>0.47</td>
<td>4.87</td>
</tr>
<tr>
<td>Coffee Shops</td>
<td>85.9%</td>
<td>3.23</td>
<td>15.4%</td>
<td>0.35</td>
<td>4.67</td>
</tr>
<tr>
<td>Entertainment Venues</td>
<td>74.7%</td>
<td>2.16</td>
<td>4.6%</td>
<td>0.49</td>
<td>3.81</td>
</tr>
<tr>
<td>Gyms</td>
<td>75.4%</td>
<td>2.93</td>
<td>5.5%</td>
<td>0.31</td>
<td>3.44</td>
</tr>
<tr>
<td>Libraries</td>
<td>60.5%</td>
<td>2.08</td>
<td>1.1%</td>
<td>0.24</td>
<td>2.44</td>
</tr>
<tr>
<td>Liquor/Tobacco Stores</td>
<td>89.1%</td>
<td>4.63</td>
<td>6.5%</td>
<td>0.44</td>
<td>5.24</td>
</tr>
<tr>
<td>LYNX Bus Stops</td>
<td>70.1%</td>
<td>0.94</td>
<td>62.5%</td>
<td>0.11</td>
<td>3.62</td>
</tr>
<tr>
<td>Malls</td>
<td>45.5%</td>
<td>1.18</td>
<td>0.2%</td>
<td>0.09</td>
<td>1.80</td>
</tr>
<tr>
<td>Schools (Public)</td>
<td>28.0%</td>
<td>0.42</td>
<td>1.8%</td>
<td>0.02</td>
<td>N/A</td>
</tr>
<tr>
<td>Stores (Services/Retail)</td>
<td>86.1%</td>
<td>1.27</td>
<td>49.7%</td>
<td>0.14</td>
<td>3.87</td>
</tr>
<tr>
<td>Stores (Automotive)</td>
<td>82.9%</td>
<td>1.62</td>
<td>31.4%</td>
<td>0.17</td>
<td>4.13</td>
</tr>
<tr>
<td>Stores (Department)</td>
<td>69.9%</td>
<td>2.26</td>
<td>4.9%</td>
<td>0.10</td>
<td>4.21</td>
</tr>
<tr>
<td>Stores (Money Loan)</td>
<td>98.0%</td>
<td>8.96</td>
<td>6.3%</td>
<td>0.90</td>
<td>11.22</td>
</tr>
</tbody>
</table>

Source(s): Signal Four Analytics, University of Florida (Crashes, 2014-2018); LOTIS (Points of Interest, January 2020)
Safety-Proximity Disparity Score
+ Bike/Ped Crash Rate Correlation

Annual Crashes Per Mile

<table>
<thead>
<tr>
<th>Safety-Proximity Disparity Score</th>
<th>Annual Crashes Per Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.01 - 10.00</td>
<td>3.205</td>
</tr>
<tr>
<td>6.01 - 8.00</td>
<td>2.472</td>
</tr>
<tr>
<td>4.01 - 6.00</td>
<td>1.482</td>
</tr>
<tr>
<td>2.01 - 4.00</td>
<td>0.801</td>
</tr>
<tr>
<td>0.00 - 2.00</td>
<td>0.417</td>
</tr>
<tr>
<td>-2.00</td>
<td>0.093</td>
</tr>
<tr>
<td>-4.01</td>
<td>0.046</td>
</tr>
<tr>
<td>-6.01</td>
<td>0.024</td>
</tr>
<tr>
<td>-8.01</td>
<td>0.013</td>
</tr>
<tr>
<td>-10.00</td>
<td>0.005</td>
</tr>
</tbody>
</table>
LOTIS

Safety Normalized for Proximity

The LOTIS database "scores" roadway segments on their overall safety based on the unique roadway characteristics present per segment (including speed limits, widths, and other variables).

The Safety Score can be viewed two ways: including:
1) nominally, or 2) weighted for location importance, as depicted in the Safety-Proximity Disparity Score.

This tool also depicts bike/ped crash hot spots, which can be juxtaposed with roadway characteristics, the safety scores, or community features such as markets, convenience stores and transit stops.

Layer List:
- [-] SunRail Stations
- [-] LYNX Bus Stops
- [-] Roadway Safety-Proximity Disparity Score
- [x] Roadway Safety Score (Less than 8.00)
- [-] Retrofitability (in feet)
  - Zoom to
- [-] Retrofitability Greater than 10
  - Transparency
- [-] Retrofitability Counter
  - Set visibility range
LOTIS

Safety Normalized for Proximity

The LOTIS database “scores” roadway segments on their overall safety based on the unique roadway characteristics present per segment (including speed limits, widths, and other variables).

The Safety Score can be viewed two ways, including: 1) nominally or, 2) weighted for location importance, as depicted in the Safety-Proximity Disparity Score.

This tool also depicts bike/ped crash hot spots, which can be juxtaposed with roadway characteristics, the safety scores, or community features such as markets, convenience stores and transit stops.
LOTIS
Safety Normalized for Proximity

The LOTIS database "scores" roadway segments on their overall safety based on the unique roadway characteristics present per segment (including speed limits, widths, and other variables).

The Safety Score can be viewed two ways, including:
1) nominally or;
2) weighted for location importance, as depicted in the Safety-Proximity Disparity Score.

This tool also depicts bike/ped crash hot spots, which can be juxtaposed with roadway characteristics, the safety scores, or community features such as markets, convenience stores and transit stops.
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Land Use Gaps)
Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Land Use Gaps)
  - Transit
  - Food
  - Population Density
  - Retail + Entertainment
  - Parks
Second-Level Metrics Developed Using the Baseline Data

- **Proximity Disparity Scores (Land Use Gaps)**
  - Transit Proximity Score = \( P(T) \); measuring \( D(T) \) – Relative Disparity
  - Food Proximity Score = \( P(F) \)
  - Population Density Score = \( P(K) \)
  - Retail + Entertainment Proximity Score = \( P(R) \)
  - Park Proximity Score = \( P(A) \)
  - Jobs Proximity Score = \( P(J) \)

- **Algorithm:** \[ D(T) = \left( \frac{(P(F) + P(K) + P(R) + P(A) + P(J))}{5} \right) - P(T) \]
  
  Coefficients under review (currently uses even weighting)
  Database “recalculates” with upgraded baseline algorithm
Second-Level Metrics Developed Using the Baseline Data

- **Proximity Disparity Scores (Land Use Gaps)**
  - Transit Proximity Score = $P(T)$; measuring $D(T)$ – Relative Disparity
  - Food Proximity Score = $P(F)$
  - Population Density Score = $P(K)$
  - Retail + Entertainment Proximity Score = $P(R)$
  - Park Proximity Score = $P(A)$
  - Jobs Proximity Score = $P(J)$

- Before: $D(T) = \left[ \frac{(P(F) + P(K) + P(R) + P(A) + P(J))}{5} \right] - P(T)$
- After: $D(T) = \left[ \sum (A(T)\cdot P(F) + B(T)\cdot P(K) + C(T)\cdot P(R) + D(T)\cdot P(A) + E(T)\cdot P(J)) \right] - 5P(T)$

Coefficients relative to gap types to be dependent on trip variance; under review
Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- **Proximity Disparity Scores (Land Use Gaps)**
  - Transit
  - Food
  - Population Density
  - Retail + Entertainment
  - Parks
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• **Proximity Disparity Scores (Land Use Gaps)**
  • Transit
  • Food
  • Population Density
  • Retail + Entertainment
  • Parks
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- **Proximity Disparity Scores (Land Use Gaps)**
  - Transit
  - Food
  - Population Density
  - Retail + Entertainment
  - Parks
Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- **Proximity Disparity Scores (Land Use Gaps)**
  - Transit
  - Food
  - Population Density
  - Retail + Entertainment
  - Parks
The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Transit Proximity Application

The Transit Proximity Application shows potential opportunity areas for transit services juxtaposed with existing LYNX bus stop and SunRail station locations.

High-opportunity areas typically have high population, food, retail and park densities.
Retail & Entertainment Proximity Application

The Retail and Entertainment Proximity Application shows gaps in retail and entertainment coverage juxtaposed with retail establishments and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate retail and entertainment gaps.
LOTIS

Features – Park Gaps & Low Income

The Parks Proximity Application shows gaps in park coverage juxtaposed with existing parks, golf courses, camp grounds and theme parks.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential future park spaces.
Food Gaps Analysis

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Food Gaps Analysis

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Food Gaps Analysis

Food Proximity Application

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Food Gaps Analysis

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Food Gaps | Vacant Parcels to Fill Gap

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
Food Gaps | Vacant Parcels to Fill Gap

The Food Proximity Application shows gaps in food coverage juxtaposed with existing grocery stores, markets, convenience stores and restaurants.

Vacant parcels, viewable at the neighborhood scale, show opportunities for potential development to eliminate food gaps. Future Land Uses are also viewable.
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- **Retrofittability & Countermeasures**
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• Proximity Disparity Scores (Gaps)
• **Retrofittability & Countermeasures**
  • Uses **# of lanes** and **roadway surface width**
  • Algorithm normalizes for an 11’ lane width standard (or less, per City), and compares that value to the existing roadway width
  • Protect bike lanes, “paint” new bike Lanes, use extra space for bioswales, parallel parking, scooter Lanes, etc.
    • Casselberry roads use a 10’ minimum width standard *(DATABASE FLEXIBILITY)*
Before

Retrofittability = 48 - 4(11) = 4

After
3.5 Retrofittability Screening Score

The retrofittability score calculates the number of lateral feet that can be reduced from the current width of a roadway using updated FDOT 2017 PPM Manual design guidelines (Table 2.1.1 Lane Widths, Page 12). These guidelines allow for 11-foot-wide lanes along state roads. In certain jurisdictions, 10-foot-wide lanes are allowed, and thus a 10-foot-standard can also be used to calculate retrofittability.

The following jurisdictions have informed the LOTIS development team to utilize a 10-foot lane width standard as of December 18th, 2019:
- The City of Casselberry - 10.0' standard. Populated within the "JURIS" field on 12/23/2019.

Using the retrofittability score, measured in feet, redesign options and countermeasures can be identified including the addition of bicycle lanes, the protection of existing bicycle lanes with 1.5-foot-plus buffers, speed limit reductions where existing bike lanes are present, and others as described in this section. All outputs are subject to engineer review. The algorithmic process to calculate this score is summarized below:

Variable Definitions:
- $L_x$: Total Number of Lanes present along Roadway Segment "x"
- $W_x$: Current Roadway Surface Width of Roadway Segment "x"
- $R_x$: Retrofittable Space of Roadway Segment "x"
- $n$: Custom minimum lane width criteria (completed on a jurisdiction-by-jurisdiction basis)

Retrofit Score Calculation: State (FDOT) Roads with 11-Foot Minimum Width Standard

\[
R_x = W_x - (11)nL_x
\]

LOTIS Data Query: Where "JURIS" = "X"
Scored for Roadway Segments "x"

Retrofit Score Calculation: Local Roads with a Custom Jurisdictional Minimum Width Standard

\[
R_x = W_x - (n)L_x
\]

LOTIS Data Query: Where "JURIS" = [Applicable Jurisdiction]
Scored for Roadway Segments "x"

Using the output of the two algorithms above, the project team developed specific "retrofittability countermeasures" by cross-referencing the retrofittability value (in feet) with the roadway characteristics present on a segment-by-segment basis. For example, roadways with more than 10 feet of retrofittable space \textit{and zero bike lanes present} were given a countermeasure of "Paint 2 New 4.5-foot-plus Bike Lanes". Additionally, roadways with unmarked parking have been removed from the retrofittability output. The following countermeasures are included in the RETRO_CM field within the roadway polyline file given the parameters specified below.

Countermeasure #1: Protect 2 Bike Lanes with 1.5-foot Buffers
- Constraint(s):
  - Where $R_x > 1$; and PAVED_SHLD = 1; and INT_BIKELN = 0; and UNMARKPK = No
  - Roadway Polyline Data Symbol within RETRO_CM field: PRL1.2

Countermeasure #2: Protect 1 Bike Lane with 1.5-foot Buffer
- Constraint(s):
  - Where RETRO_CM <> PRL1.2; and UNMARKPK = No
    - And, Option 1: $R_x > 1$; and PAVED_SHLD = 1; and INT_BIKELN = 0
    - Or, Option 2: $R_x > 1$; and PAVED_SHLD = 2; and INT_BIKELN <> 2
  - Roadway Polyline Data Symbol within RETRO_CM field: PRL1 or PRL1.06a

Countermeasure #3: Paint 2 New 4.5-foot-plus Bike Lanes
- Constraint(s):
  - Where SPEED $\leq$ 35; and UNMARKPK = No
    - And, Where $R_x > 9$; and PAVED_SHLD = 1; and INT_BIKELN = 0
  - Roadway Polyline Data Symbol within RETRO_CM field: NBL1.2

Countermeasure #4: Paint 1 New 5-foot-plus Bike Lane
- Constraint(s):
  - Where RETRO_CM <> NBL1.2; and SPEED $\leq$ 35; and UNMARKPK = No
    - And, Option 1: $R_x > 5$; and PAVED_SHLD = 1; and INT_BIKELN = 0
    - Or, Option 2: $R_x > 5$; and PAVED_SHLD = 2; and INT_BIKELN <> 2
  - Roadway Polyline Data Symbol within RETRO_CM field: NBL1

Countermeasure #5: Consider Speed Limit Reduction Where Bike Lanes are Present
- Constraint(s):
  - Where PAVED_SHLD $<> 0$; and INT_BIKELN $<> 0$; and SPEED $\geq$ 40
    - and UNMARKPK = No
  - Roadway Polyline Data Symbol within RETRO_CM field: SPD

*Future countermeasure not utilized in the 2019 LOTIS release.

*Analytics associated with the implementation of the protection of bicycle lanes, and corresponding modeled reductions in overall bicycle fatality rates within the Orlando Metro Area, will be analyzed by the project team at a later date.
Existing Bike Lanes & Potential Retrofittability Countermeasures

Map Legend

- 2 Bike Lanes Present
- 1 Bike Lane Present
- 2 Bike Lanes Protectable w/ Buffer
- 1 of 2 Bike Lanes Protectable w/ Buff.
- 1 of 1 Bike Lanes Protectable
- Potential for 2 New Bike Lanes
- Potential for 1 New Bike Lane

Powered by LOTIS 1.00
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- **Public Works Asset Management System (Workflow Integration)**
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• Proximity Disparity Scores (Gaps)
• Retrofittability
• **Public Works Asset Management System (Workflow Integration)**
  • Repave and restripe timelines & retrofittability tool
    • Absorb bike/ped costs into the natural cost framework
    • Links transportation, land use planning & public works
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• Proximity Disparity Scores (Gaps)
• Retrofittability
• Public Works Asset Management
• **Vacant Parcel Analysis**
Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores *(Gaps)*
- Retrofittability
- Public Works Asset Management
- **Vacant Parcel Analysis**
  - High redevelopment/development potential for specific uses
  - *Future population scenario planning*
  - Vacant public parcels for potential trailheads & parks
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management
- Vacant Parcel Analysis
- **Gabby’s Law Interpretation**
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management
- Vacant Parcel Analysis
- **Gabby’s Law Interpretation**
  - Future Hazardous Conditions Screening
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• Proximity Disparity Scores (Gaps)
• Retrofittability
• Public Works Asset Management
• Vacant Parcel Analysis
• Gabby’s Law Interpretation

• **Corridor Scores, City Scores & Neighborhood Scores**
  • For: Transportation Safety, Parks, Food, Retail & Ent., Transit
  • LOTIS can be applied to any specific project area
LOTIS
Corridor & Neighborhood Scores

Variable Definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Score of Segment</td>
</tr>
<tr>
<td>X</td>
<td>Length of Segment</td>
</tr>
<tr>
<td>Z</td>
<td>Total Length of Corridor</td>
</tr>
<tr>
<td>V</td>
<td>Corridor Score</td>
</tr>
<tr>
<td>N</td>
<td>Neighborhood Score</td>
</tr>
<tr>
<td>R</td>
<td>Total Length of Neighborhood Roadway Network</td>
</tr>
<tr>
<td>A</td>
<td>Segment 1 of 4</td>
</tr>
<tr>
<td>B</td>
<td>Segment 2 of 4</td>
</tr>
<tr>
<td>C</td>
<td>Segment 3 of 4</td>
</tr>
<tr>
<td>D</td>
<td>Segment 4 of 4</td>
</tr>
</tbody>
</table>

*This example is limited to 4 variables as a stand-alone example

Corridor Score

\[ V = [S_A (X_A / Z)] + [S_B (X_B / Z)] + [S_C (X_C / Z)] + [S_D (X_D / Z)] \]

Scored for Roadway Segments “A”, “B”, “C” and “D” which constitute an entire corridor
Calculated for Safety or Proximity Scores

This equation will calculate either the Corridor Safety Score and the Corridor Proximity Score. Once this has been completed, the Corridor Disparity Score can be calculated by subtracting the Corridor Safety Score from the Corridor Proximity Score. TIP projects can be overlayed with this score, as needed.

Neighborhood Score

\[ N = [S_A (X_A / R)] + [S_B (X_B / R)] + [S_C (X_C / R)] + [S_D (X_D / R)] \]

Scored for Roadway Segments “A”, “B”, “C” and “D” which constitute an entire neighborhood
Calculated for Safety or Proximity Scores
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management
- Vacant Parcel Analysis
- Gabby’s Law Interpretation
- Corridor Scores & Neighborhood Scores
- **Bike Walk Central Florida (Best Foot Forward) Program Mapping**
LOTIS

Best Foot Forward Program

Best Foot Forward is a program of Bike/Walk Central Florida that aims to reduce the number of bicycle and pedestrian injuries and deaths in Central Florida.

As part of the program, law enforcement focuses their efforts toward prioritized intersections with high bicycle and pedestrian crash incidence. Automobile yield rates are analyzed before and after the law enforcement phase has completed.
LOTIS Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management**
- Vacant Parcel Analysis
- Gabby’s Law Interpretation
- Corridor Scores & Neighborhood Scores
- Bike Walk Central Florida (Best Foot Forward) Program Mapping
- **Roadway Safety Countermeasures**

**
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management**
- Vacant Parcel Analysis
- Gabby’s Law Interpretation
- Corridor Scores & Neighborhood Scores
- Bike Walk Central Florida (Best Foot Forward) Program Mapping
- **Roadway Safety Countermeasures**
  - “Absorb costs” for safety improvements as well
3.8 Roadway Safety Countermeasures

The LOTIS roadway safety countermeasures are intended to specify roadways that could benefit from roadway safety enhancements due to their roadway characteristics and proximity to different community features.

The equations (queries) used to identify roadway segments that would potentially benefit from safety countermeasures generally use a combination of low roadway safety scores, higher than average cumulative proximity scores, close proximity to features such as markets and schools, and specific queries utilizing roadway characteristics such as sidewalk gaps. Countermeasures are intended to decrease bike/ped crash rates by specifying the “most needed” safety enhancements within the Metro Area.

Countermeasure #1: Consider Building Two New Sidewalks
- Constraint(s):
  - Option 1, where: “SIDEWALK” = 0 and “SAFETY_SCR < 7 and “PXSC_ALL” ≥ 7.5
  - or, Option 2, where: “SIDEWALK” = 0 and “SAFETY_SCR < 7 and “FX_SCHOOLS” = “Within 1/4 Mile”
  - or, Option 3, where: “SIDEWALK” = 0 and “SAFETY_SCR < 7 and “PX_MARKET” = “Within 1/4 Mile”
  - or, Option 4, where: “SIDEWALK” = 0 and “SAFETY_SCR < 7 and “PX_GROCERY” = “Within 1/4 Mile”
  - Roadway Polyline Data Symbol within SAFCM_NSS field: ‘Consider Building 2 New Sidewalks’

Countermeasure #2: Consider Building One New Sidewalk
- Constraint(s):
  - Option 1, where: “SIDEWALK” = 1 and “SAFETY_SCR < 7 and “PXSC_ALL” ≥ 7.5
  - or, Option 2, where: “SIDEWALK” = 1 and “SAFETY_SCR < 7 and “PX_SCHOOLS” = “Within 1/4 Mile”
  - or, Option 3, where: “SIDEWALK” = 1 and “SAFETY_SCR < 7 and “PX_MARKET” = “Within 1/4 Mile”
  - or, Option 4, where: “SIDEWALK” = 1 and “SAFETY_SCR < 7 and “PX_GROCERY” = “Within 1/4 Mile”
  - Roadway Polyline Data Symbol within SAFCM_NSS field: ‘Consider Building 1 New Sidewalk’

Countermeasure #3: Assess Pedestrian Signal Timing (Intervals Between Crossing Signal)
- Constraint(s):
  - Option 1, where: “SAFETY_SCR < 7 and “PX_MARKET” = “Within 1/8 Mile” and “PXSC_ALL” > 8 and “TRAFF_SIG” Within 1/8 Mile
  - or, Option 2, where: “SAFETY_SCR < 7 and “PX_GROCERY” = “Within 1/8 Mile” and “PXSC_ALL” > 8 and “TRAFF_SIG” Within 1/8 Mile
  - or, Option 3, where: “SAFETY_SCR < 7 and “PX_SCHOOLS” = “Within 1/8 Mile” and “PXSC_ALL” > 8 and “TRAFF_SIG” Within 1/8 Mile
  - Roadway Polyline Data Symbol within SAFCM_PST field: ‘Assess Pedestrian Signal Timing’

Countermeasure #4: Consider Adding Flashing Beacon of Other Traffic Calming Device
- Constraint(s):
  - Option 1, where: “SAFETY_SCR < 7 and “PX_MARKET” = “Within 1/8 Mile” and “PXSC_ALL” > 8 and “TRAFF_SIG” Within 1/8 Mile
  - or, Option 2, where: “SAFETY_SCR < 7 and “PX_SCHOOLS” = “Within 1/8 Mile” and “PXSC_ALL” > 8 and “TRAFF_SIG” Within 1/8 Mile
  - Roadway Polyline Data Symbol within SAFCM_PBL field: ‘Consider Adding Flashing Beacon’

Countermeasure #5: Consider Reducing Lane Widths to 11 Feet
- Constraint(s):
  - Where: “RETRO” > 2 and “PXSC_ALL” > 7.5
  - Roadway Polyline Data Symbol within SAFCM_RWL field: ‘Consider Narrowing Lane Widths’

Countermeasure #6: Consider Reducing Speed Limits where Marked Bike Lane(s) Present
- Constraint(s):
  - Where: “PAVED_SIDL” <> 0 and “BIKELN_TYPE” <> “Unmarked” and “BIKELN_TYP” <> “Unmarked” and “SPEED” > 35
  - Roadway Polyline Data Symbol within SAFCM_IWS field: ‘Reduce Speed (Bike Lane Present)’

Countermeasure #7: Consider Filling Sidewalk Gaps within 1/8 Mile of Transit Stops
- Constraint(s):
  - Where: “SIDEWALK” <> 2 and “PX_TRANSIT” = “Within 1/8 Mile” and “SAFETY_SCR < 7”
  - Roadway Polyline Data Symbol within SAFCM_SWGT field: ‘Consider Filling SW Gap within 1/8 Mile of Transit’
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

• Roadway Safety Scores
• Proximity Scores (7)
• Roadway Safety-Proximity Disparity Scores
• Proximity Disparity Scores (Gaps)
• Retrofittability
• Public Works Asset Management
• Vacant Parcel Analysis
• Gabby’s Law Interpretation
• Corridor Scores & Neighborhood Scores
• Bike Walk Central Florida (Best Foot Forward) Program Mapping
• Roadway Safety Countermeasures
• **Project Streamlining**
LOTIS

Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management
- Vacant Parcel Analysis
- Gabby’s Law Interpretation
- Corridor Scores & Neighborhood Scores
- Bike Walk Central Florida (Best Foot Forward) Program Mapping
- Roadway Safety Countermeasures
- **Project Streamlining**
  - 140 MetroPlan Master Transportation Plan Maps/Analysis
  - 10 days of work, all data pre-loaded (*future: 10 seconds*)
LOTIS
Features

Second-Level Metrics Developed Using the Baseline Data

- Roadway Safety Scores
- Proximity Scores (7)
- Roadway Safety-Proximity Disparity Scores
- Proximity Disparity Scores (Gaps)
- Retrofittability
- Public Works Asset Management
- Vacant Parcel Analysis
- Gabby’s Law Interpretation
- Corridor Scores & Neighborhood Scores
- Bike Walk Central Florida (Best Foot Forward) Program Mapping
- Roadway Safety Countermeasures
- Project Streamlining
- **Artificial Intelligence**
LOTIS

Uses for Municipalities/ Agencies

- **Baseline Mapping & Analysis Report**
  - For cities, districts, corridors, study areas, CRA’s, etc.

- **Bike Ped Master Plans**

- **Parks & Trail System Master Plans**
  - Publicly-Owned Vacant Parcel Analysis

- **Retrofittability Master Plans**
  - Public works data cross-reference, pavement conditions, micro-mobility options

- **Gap Analysis for All Proximity Types**
  - Within gaps, identify vacant and underperforming parcels
    - Potential redevelopment
    - Land use changes or flexibility; FLU updates
  - Overlay with low income areas, other demographics

- **Health Impact Analyses**

- **Safe Routes to School Studies**
  - Safety, connectivity, bus stop safety analyses
LOTIS

Uses for Municipalities/ Agencies

• Safe Routes to Transit/SunRail Studies
  • Secondary transit analysis, micro-mobility comfort, connectivity

• Future Population Scenario Analysis
  • Compare TAZ population projections with simulated projections using proximity scores, vacant parcel analysis
  • Analysis of current land use codes in high proximity areas
  • Urban design master plans for identified areas (& large parcels)
  • Municipality-driven criteria

• Median Tree Shading Opportunity Identification

• Trail Economic Development & Signage Studies

• Roadway Safety Screening Studies
  • Scores and potential countermeasures inform engineers and planners where to “zoom in” for a more refined safety analysis

• Online Mapping Applications (10)

• Raw Data Use on ArcGIS Desktop
LOTIS

Future Uses for Municipalities/Agencies

- Transit Proximity & Frequency Analysis
- Custom Queries on Online Maps
- Modeling Cost Effectiveness of Decisions
  - Transportation Safety Countermeasures, etc.
- Pricing and Proximity
LOTIS
Land Overlayed on Transportation Information System
www.ecfrpc.org/lotis

PJ Smith
pjsmith@ecfrpc.org
East Central Florida Regional Planning Council