PLAN DEVELOPMENT TIME LINE:
Kick-Off: August 2016
Stake Holders Workshop: March, 2017
Final LRSP: February 2019

Palm Beach Transportation Planning Agency,
Technical Advisory Committee Meeting
April 3, 2019

Motasem Al-Turk, Ph.D., P.E.
Director, Palm Beach County Traffic Division
Palm Beach County Local Road Safety Plan (PBC - LRSP)

**LRSP VISION**
A fatality free roadway system in Palm Beach County.

**MISSION**
To reduce the number of traffic fatalities and severe injuries occurring on the Palm Beach County roadway system.

**STRATEGIC GOAL**
Provide a comprehensive, data-driven, systemic approach to reduce fatalities and severe injuries by implementing safety strategies targeted towards addressing ongoing and emerging roadway safety issues in Palm Beach County.
Palm Beach County Local Road Safety Plan (PBC-LRSP)

• Draws from **best practices in safety planning** from documents prepared by the FHWA

• **Supports statewide goals** and priorities established in the **Florida Strategic Highway Safety Plan (SHSP)**

*Florida’s SHSP is aimed at all public roads. Federal Highway Administration safety funding can be used for state and local safety projects.*
1. Palm Beach County Engineering and Public Works Department to lead the development and implementation of the LRSP

2. 4 years of fatality and severe injury crashes were analyzed (2011-2014)

3. Palm Beach County and FHWA held a Stakeholder Workshop in March 2017
   • 30 County Stakeholders
   • Stakeholders identified 6 priority Emphasis Areas for the County that align with the SHSP
PBC-LRSP Development Process

4. Identified safety strategies and countermeasures from FHWA’s CMF Clearinghouse and other national publications

5. Identified risk factors based on crash data and roadway infrastructure characteristics

6. Ranked intersections based on risk factors

7. Project Development Decision Trees were created for 4 categories of the roadway system based on the risk factors
   - Complex projects may have multiple countermeasures

**Emphasis Areas**
1. Lane Departure Crashes
2. Impaired Driving Crashes
3. Pedestrian and Bicyclists
4. Intersection Crashes
5. Unrestrained Occupants
6. Aging Drivers
Roadway Study Network

- 3,345 Paved Lane Miles
- 1,100 Signalized Intersection
- 550 Miles Fiber Optic Signal Network
Severe Crashes: PBC Roadway System
FHWA’s recommended process for developing LRSPs requires a complete set of crash data and roadway inventory

- Crash data
- Complete roadway inventory
  - Needed to determine risk factors, identify projects, and prioritize candidate locations

**A modified systemic safety process** was applied to the County system.
Crash Data Disaggregation Summary

• More than 200,000 total crashes occurred in FDOT District 4 between 2011-2014
• Approximately 10,800 were severe crashes
• 28% of all crashes (55,691) and 31% of severe crashes (3,354) happened in PBC
• 17% of all crashes (9,260 crashes) and 19% of the severe crashes (631 crashes) in Palm Beach County occurred on the County road network
• 50% of all crashes (4,640 crashes) and 48% of the severe crashes (300 crashes) that happened on the County network occurred at intersections
  o 50% of all crashes (4,600) and 52% (330) severe were non intersection crashes
Palm Beach County LRSP Crash Tree
Intersection and Non-Intersection Disaggregation

Legend:
Total Crashes
Severe Crashes

Intersection

Signalized
2,637 57%
154 51%

Stop Controlled
798 17%
47 16%

Uncontrolled
692 15%
51 17%

Other/Unknown
510 11%
50 17%

Non-Intersection

Divided
2,954 64%
198 60%

Undivided
1,342 29%
114 35%

Non-Intersection

Other/Unknown
327 7%
17 5%
Palm Beach County LRSP Crash Tree
Signalized Intersection and Divided Non-Intersection Disaggregation

Legend:
Total Crashes
Severe Crashes

These crashes account for Left Turn and Right Angle crash types

These crashes account for primarily Fixed Object crash type
# Risk Factors for Multivehicle and Pedestrians/Bicyclists Crashes at Signalized Intersections

1. Signal Indications  
2. Road Functional Class  
3. Number of Approaches  
4. Roadway Division  
5. Dual Left Turn Lanes  
6. Major Approach Cross Section  
7. Adjacent Land-Use  
8. Total Entering Vehicles  
9. Adjacent Bus Stop  
10. Speed Limit Cross Product  
11. Max Lanes to Cross  
12. Right Turn On Red (ped/bike risk factor only)
The LRSP developed “Project Development Decision Trees” for each facility type based on the selected strategies and countermeasures:

1. urban/suburban intersections
2. urban/suburban segments
3. rural intersections
4. rural segments
Decision Tree Example

Urban/Suburban Signalized Intersections

1. Does the intersection have 5 or more legs?
   - Yes: Upgrade Intersection Design*
   - No: Grade Separated T-Intersection or Continuous Green T

   2. Does the intersection have Bus Stops, Sidewalks, Crosswalks, Land Use Suburban Commercial; Pedestrian Crashes?
      - Yes: Pedestrian Strategies**
      - No: Bike Features/Lanes, Bike Crashes

   3. Signal Phasing and Turn Facilities Strategies

   4. Signal Timing/Geometric Improvements*

   5. Access Management Strategies*

   6. Hardware Improvement Strategies*

   7. Severe Right Angle Crashes or Red Light Running?
      - Yes: Driver Awareness/Compliance Strategies
      - No: No

   8. Severe Left Turn Crashes or CWP Selection Complaints?
      - Yes: Signal Phasing and Turn Facilities Strategies
      - No: No

   9. Signal Timing/Geometric is Outdated or General Address Demand?
      - Yes: Signal Timing/Geometric Improvements*
      - No: No

   10. Undivided and/or Access-Related Crashes?
       - Yes: Access Management Strategies*
       - No: No

---

* Conduct Analysis/Evaluation, e.g., reference CAP-X, NHI Alternative Intersections and Interchanges Cours (FHWA-NHI-980100) to Identify Appropriate Design, (Median U-Turn, Displaced Left, Roundabout, Bowtie, Quadrant, Jug Handle, Echelon, etc.)

** Refer to Strategy Considerations/Prompt Sheets for Guidance on Selecting Strategies
Next Steps: PBC-LRSP Action Plan

The LRSP Action Plan is a specific set of activities with defined objectives, targets, time frames, and status updates.

Activities:
- Conduct “Project Development Tree” analysis
- Engage additional LRSP stakeholders
- Develop and enhance roadway inventory database
- Conduct an evaluation of the LRSP and update
Lessons Learned

Need a thorough and up to date Road Characteristics Inventory

- Palm Beach County didn’t have this data. Had to work around utilizing data subset for randomly selected sample of signalized intersections.

Crash Data Reporting Limitations

- It is recommended that the state standard accident form be updated to provide for information on other prevailing crashed, such as left turn crashes.
Questions?

Motasem Al-Turk, Ph.D., P.E.
Director, Palm Beach County Traffic Division, Engineering & Public Works Department
2300 N Jog Rd
West Palm Beach, FL 33411
(561) 684-4030
malturk@pbcgov.org