Your Home Team for the Long Haul

35 years with an office in Broward County

40 years serving FDOT

15 years average tenure of KH staff

55 full-time staff in Plantation

100% Commitment to the County

#10 in 2018 Fortune Magazine’s Best Places to Work

85 offices worldwide

51 continual years in business

55 offices worldwide
Marwan Mufleh, P.E. Project Manager

30 years of Experience in Broward County

- Wiles Rd Widening (Phases 1, 2, 3)
- Hiatus Rd (Phases 1, 2)
- Riverside Drive Design-Build
- Riverside Drive Widening
- FDOT On-Call Minor Design
- P.B. County On-Call Intersection Improvements
- Municipal On-Call General Engineering
Our History of Innovative Design

Diverging Diamond Interchange at Coral Ridge Drive/Sawgrass Expressway
Under design now.
History of Innovative Design

Customized Traffic Control App for Bicyclists
ITS Design Services in Broward County:
FDOT TSM&O Contract; South US 1 Bus
Rapid Transit Lane Design
South US 1 Bus Rapid Transit (BRT) Improvements, Broward County
Your Sample Project
Condition Assessment

- Multi-disciplined approach
- Office review
- Field review
- Traffic volume counts
- Speed study
- Drone video
Condition Assessment

- Safety
- Operating conditions
- Complete Streets
- Design criteria
  - FDOT - New Context Classification
  - Broward County
  - Pembroke Pines
  - City of Miramar
Existing Traffic Patterns

Miramar Pkwy

Pembroke Rd
Safety Analysis and Recommendations

- Intersection dark crashes = 30%
- Pembroke Road dark crashes = 40%

Solution

💡 Improve low lighting levels on Pembroke Road
💡 Improve signal visibility

Results of Kimley-Horn’s lighting analysis at Pembroke/Flamingo intersection
Safety Analysis

- Rear-end crashes = 60%
- Rear-end PM peak crashes = 25%
- Average speed 55 MPH
Rear-End Crashes

Safety Recommendations

- Reduce congestion/queues
- Improve signal head visibility
- Speed feedback sign
- Century Village gate backup
Our Traffic Counts

Conducted new counts in April 2018

- Included all 3 intersections in study limits
Level of Service Analysis Results

- Existing LOS E
  - Capacity acceptable
  - Long delay due to cycle length

- Potential Improvements
  - Reduce cycle length
  - Add through lanes (traditional)
  - New FDOT ICE method
Operational Analysis Option 1

- Add through lanes
- Reduced queue length
- LOS E
Operational Analysis Option 2

- Add through lanes
- Reduced queue length
- LOS E
Operational Analysis Option 3

*Intersection Control Evaluation (ICE)*

- FDOT method for analyzing intersection improvements
- Reduce or eliminate left-turns from intersections
Intersection Control Evaluation (ICE)

Median U-Turn (MUT)
No left turns allowed at main signalized intersection
Operational Analysis Option 3

LOS C
Intersection Median U-Turn

- LOS C

- Flamingo Rd

- Pembroke Rd
Complete Streets Principles

- Stewart Robertson, P.E.
- Expert advisor on Complete Streets
- Broward MPO Complete Streets Master Plan
- Frequent presenter at statewide and national conferences
- Member of national MUTCD Committee
- Based in our Broward County Office
Greenways Master Plan

- Flamingo Road Trail Greenway (Corridor #9)
- Add shared use path along canal
- Central Trail FPL crosses Red Road at Hiatus
Green Color Bike Lanes

- Use throughout traffic conflict zones on the State Highway System
  - Per FDM (Chapter 223) and local FDOT District Four directive
Context Classification

- New process for State Highway System
- Influences design criteria
- C-4 Urban General
Red Road
Kimley-Horn’s Proposed Safe Bike Crossing

Proposed shared-use path
Broward County Transit (BCT)

- BCT Routes 5 and 28
  - No planned service improvements per the Transit Development Plan (TDP)

- Miramar Town Center
  - Existing bus terminal inside parking garage serves Routes 5 and 28

- Route 28 uses Red Road between Miramar Town Center and Miramar Parkway
  - Currently no bus stops, but may be stop(s) if development occurs

- 95 Express Bus uses Red Road between Hiatus and the Turnpike but does not stop
ADA Deficiencies and Solutions

1. **Trip Hazard**
2. **ADA Access**
3. **Cross slope > 4%**
4. **Cross slope > 3%**
5. **Drop-off Hazard**
6. **Missing S/W landing**
Clear Zone Deficiencies and Solutions

- Pole & guardrail hazard
- Trees in clear zone
- Tree in clear zone
Signalization Deficiencies and Solutions

- Push button more than 10’ from curb
- 2 push buttons on same post
- Missing back plates
- One camera for 4+ lanes
- Wrong crossing sign
Signing/Marking Deficiencies and Solutions

- Broken sign post
- Missing curve warning signs
- Wrong direction
- Faded crosswalk markings
Geometric Deficiencies and Solutions

- Add advance signal signage
- Proposed shared-use path
- Substandard median width
- Horizontal and vertical geometry deficiencies
- Remove island and relocate signal pole
- Add aux. signal
Geometric Deficiencies and Solutions

- Remove island and relocate signal pole
- Add pedestrian crossing
Other Geometric Deficiencies and Solutions

- 4-foot paved shoulder vs. buffered bike lane on Red Road
- Substandard signal spacing for access class
- Turn-lane taper
- Missing high-emphasis crosswalk
- Guardrail height
Our Recommendations

**Immediate/Short-Term**
- Revisit traffic counts after I-75 ramp opens
- Correct ADA ramps
- Relocate/add pedestrian push buttons
- Signing and marking improvements
- Analyze signal cycle length

**Interim/Mid-Term**
- Additional lanes
- Remove free-flow right turn at Red Road
- Bike lane improvements/add bike signal
- Shared-use path

**Long-Term (ICE)**
- Intersection reconfiguration at Flamingo/Red Road and Flamingo/Pembroke
Reasons to Select Kimley-Horn

Successful track record in Broward County ➔ We will exceed your expectations
Quick response to every request ➔ We’re less than a mile away
Low turnover & long-term stability ➔ We’re here for the long haul

A true partner with the County
CONTINUING Engineering Services FOR Transportation AND General Civil ENGINEERING PROJECTS; DID PNC2114364P1