

Final Status Report:

Update and Development of Wind Speed Line Maps for the Florida Building Code, 7th Edition (2020)

July 20, 2020

The State of Florida Department of Business and Professional Regulation

Florida Building Commission

and

University of Florida, GeoPlan Center

Project Leader: Katherine Norris, Univ. of Florida

1. Introduction

In this project, the University of Florida (UF) GeoPlan Center is providing Geographic Information System (GIS) technical assistance for preparation of local wind speed line maps. Maps will be created for each building code jurisdiction dissected by the wind speed contours, as depicted in the draft Florida Building Code, 7th Edition (2020) Figure 1609.3(3) Risk Category IV Buildings and Structures.

This final report addresses details the project progress to date on each task listed in the scope of work. In summary, Task A is complete, Task B is complete, and Task C is complete.

2. Tasks

The following tasks were outlined in the Scope of Work:

- a. The Contractor shall create local wind speed line maps for impacted jurisdictions utilizing GIS maps and relevant data (datasets in shapefile format from the Florida Geographic Data Library for major roads, canals, rivers, and lakes) for use in determining the exact location of the local wind speed lines.
- b. The Contractor shall work with jurisdictions which require more detailed support including those that make changes or updates to their local wind speed line maps.
- c. The Contractor shall provide digital copies of the local wind speed line maps (suitable for E size plot) to the Department of Business and Professional Regulation in the following format: (1) Raster: .png file (2) Raw: ArcGIS file, and (3) Vector: Adobe Illustrator file. In addition, the Contractor shall provide at least one copy of the wind speed line map(s) to the impacted local jurisdiction upon request.

3. Status for each Task (A-C)

Detailed below is the progress completed for each task outlined in the Scope of Work:

Task A (Completed)

The following work was completed on Task A:

- a. The UF GeoPlan Center worked with Peter Vickery to obtain the GIS data (line work) for the 3,000 Year (Risk Cat IV) Map in ASCE 7-16.
- b. Using the GIS data obtained above, UF GeoPlan created 67 Countywide Risk Category IV wind speed line maps. These maps are currently referred to as “preliminary” and can be found at the following web address:
https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/preliminary_county_pdfs_updated_20200602/
- c. UF GeoPlan emailed all 67 County Building Code Officials to notify them of the preliminary maps and to offer free assistance to update/modify existing line work and maps to better align with on the ground landmarks.
- d. Mo Madani, Technical Director, provided a mailing list of building officials licensed in the State of Florida. The UF GeoPlan Center used that list to notify 995 municipal building officials with the information in c above.
- e. The UF GeoPlan Center created an ArcGIS Online (AGOL) web map to facilitate the creation of updated local wind speed maps based off local landmarks. Additionally, the AGOL web map is being used to track the status of each county’s wind speed map adoption. The web map is pictured on the following page and can be accessed at following URL: <https://arcg.is/y1ayK>

Task B (Complete)

Task B is Complete. As of July 20th, 2020 the UF GeoPlan Center has contacted all 67 Counties by both email and phone. To date, 64 Counties (96%) are complete at this time. Task B’s progress is detailed below. Please see table at end of report for individual county responses.

- a. 35 Counties are adopting the preliminary map “As Is”
- b. 19 Counties have been assisted by GeoPlan and are adopting local landmarks maps.

The modified maps can be found at the following URL:

https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/landmark_county_pdfs_updated_20200602/

- c. 1 Counties are currently being assisted by GeoPlan to develop local landmark maps.
- d. 10 Counties have developed their own local landmark maps.
- e. 0 Counties are currently working to develop their own local landmark maps.
- f. 2 Counties are still determining how they would like to move forward with their map.

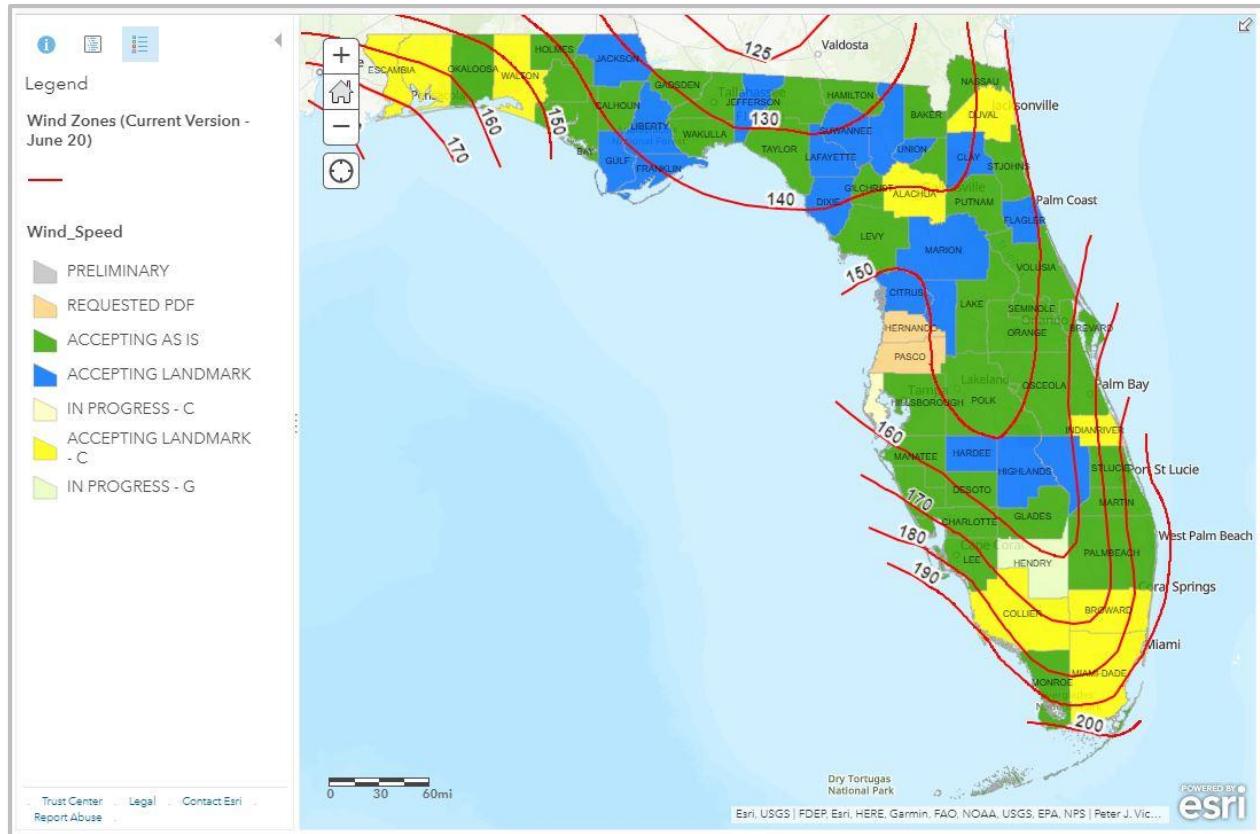


Figure 1. FBC 2020: Preliminary - Ultimate Design Wind Speeds Vult For Risk Category IV Buildings and Other Structures [Figure 1609.3(3)] ArcGIS Webmap Viewer Image Captured 7/20/2020. Not pictured - Hernando County, ACCEPTING LANDMARK - C.

Task C (Complete)

Task C is complete. The final product (PDF Files) are being provided to the state in the following three zip file packages:

- Final Product Location:
 - https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/final/
 - All Original County-wide Risk Category IV Maps
 - https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/final/RiskCatIV_All_Original_20200720.zip
 - Statewide GIS Data for Risk Category I-IV Maps
 - https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/fbc2020_windzones_cat1_to_cat4_20200602.zip
 - Counties who are adopting the Risk Category IV Map "As Is."
 - https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/final/RiskCatIV_AsIs_20200720.zip
 - Counties who are adopting the Local Landmark based Risk Category IV Map.
 - https://adhoc.geoplan.ufl.edu/downloads/kate/windspeed_2020/final/RiskCatIV_Landmark_20200720.zip

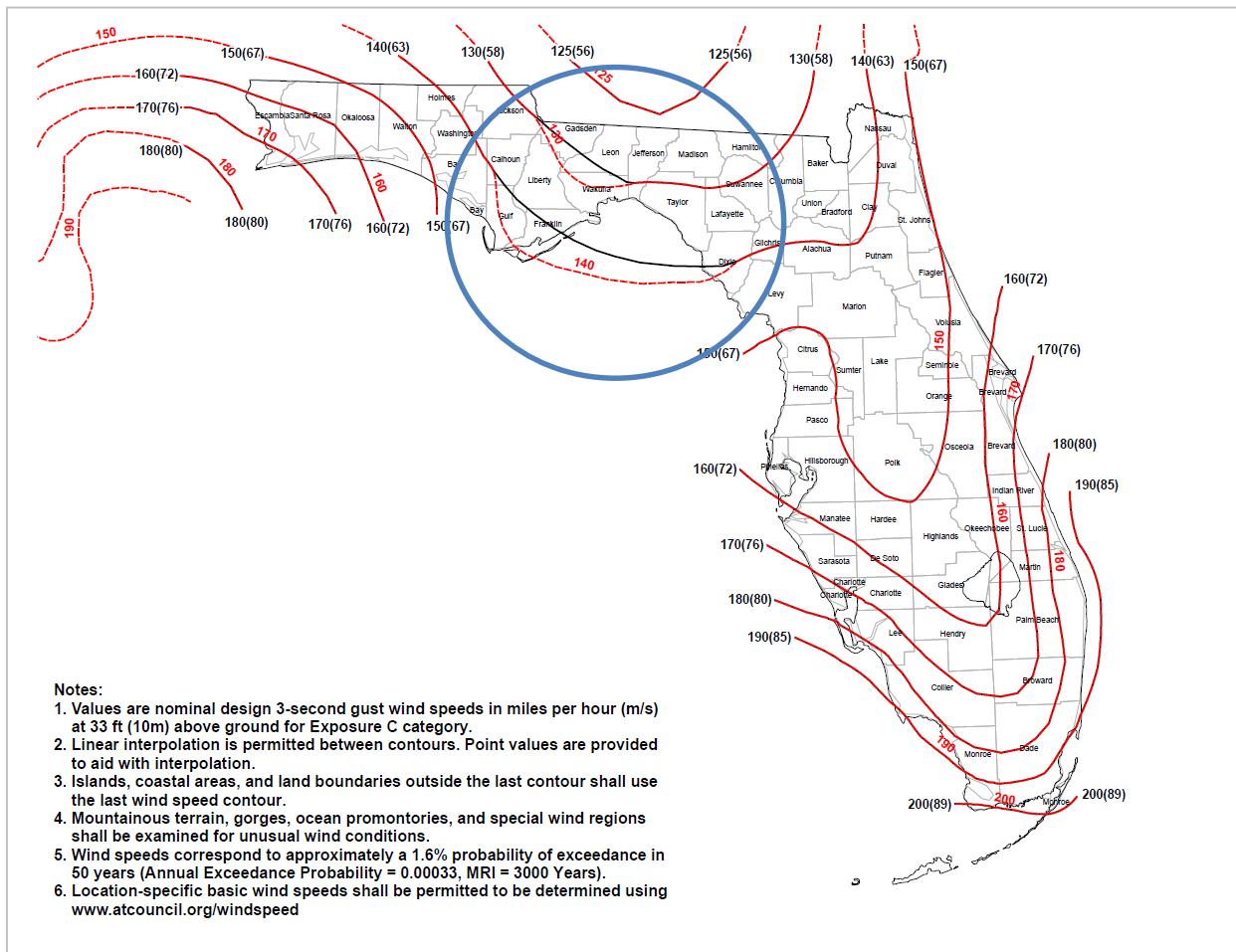
4. Unforeseen Project Impacts to: Task B and Task C.

The Project's Task progress and completion had been severely hindered by the COVID-19 pandemic. Over the past few months, many local governments have been temporarily closed or have limited the in-office number of personnel. During this time, many employees have been working from home, increasing the inter-office communication time, which has also increased communication lag time with project staff. Similarly, many County Governing Boards have decreased their number of meetings, which has slowed project progress.

Another unforeseen delay resulted from changes to the wind speed map, per Figure 1609.3(3) in the current draft of the 7th Edition (2020) Florida Building Code. An error in the Big Bend Region of the state was discovered and changes were made to address the issues. The adopted changes are displayed in the image below; with the impacted area (Big Bend Region) circled in blue. The dashed red lines display the incorrect wind speed line locations and the solid black lines display the newly adopted wind speed line locations.

For the affected counties in the Big Bend Region, all county level maps must be recreated using the newly adopted wind speed lines. Some counties decided to adopt the original map's wind speed line work "As Is" and others opted to move the wind speed lines to local landmarks. All counties in this region need to be notified of the changes and how those changes impact their local jurisdiction. Those counties that had previously moved their wind speed line work to local landmarks may need further assistance in updating their maps. Outside the Big Bend region, an update of the statewide inset maps in all previously created maps is required to reflect the changes. Each county must then be notified of the updated inset map in their local level map.

On May 18th, GeoPlan was notified of the possible change and then on June 2nd, the official change to the Draft Figure 1609.3(3) was adopted by FBC. The newly adopted wind speed lines in GIS format was obtained by GeoPlan on May 27th 2020 from Peter Vickery. GeoPlan has completed the updates mentioned above. In addition, GeoPlan is continued to contact the remaining counties by phone to determine how best to assist them through July 17th, 2020. GeoPlan made every effort to complete Task B; however, the success of this effort was partially determined by the willingness of the local jurisdictions to prioritize this effort.



5. Recommendations and Future Project Suggestions

For future updates to the Categories I-IV Wind Speed Maps, we suggest FBC consider the following points to facilitate a more efficient update process:

- Introductory Email from FBC to announce map update: To facilitate better communication between the GIS Mapping Team and each Local Jurisdiction's Chief Building Official, we recommend that FBC send an introductory email via the State's email list serve announcing the map update and introducing the contact who will conduct the mapping services. Many local building officials indicated to us that they ignored initial emails because they thought it was spam or a solicitation. This occurred despite indication in our initial email that FBC was providing the funding for free mapping services.
- Update all County Level Category I-IV Maps at the same time. During the project, we discovered that all the old county-level maps (Categories I-III) created by the state in 2011 have outdated Wind-Borne Debris Region language and Figure information. This may cause confusion to have two sets of maps, with conflicting information. Additionally, based on web searches and discussions with building officials, it was

discovered that some counties are still using the old state provided map to display their Category III wind speeds. This is problematic because those maps combine Cat III and Cat IV. To alleviate these issues, we suggest that all County Level Category I-IV Maps be updated at the same time.

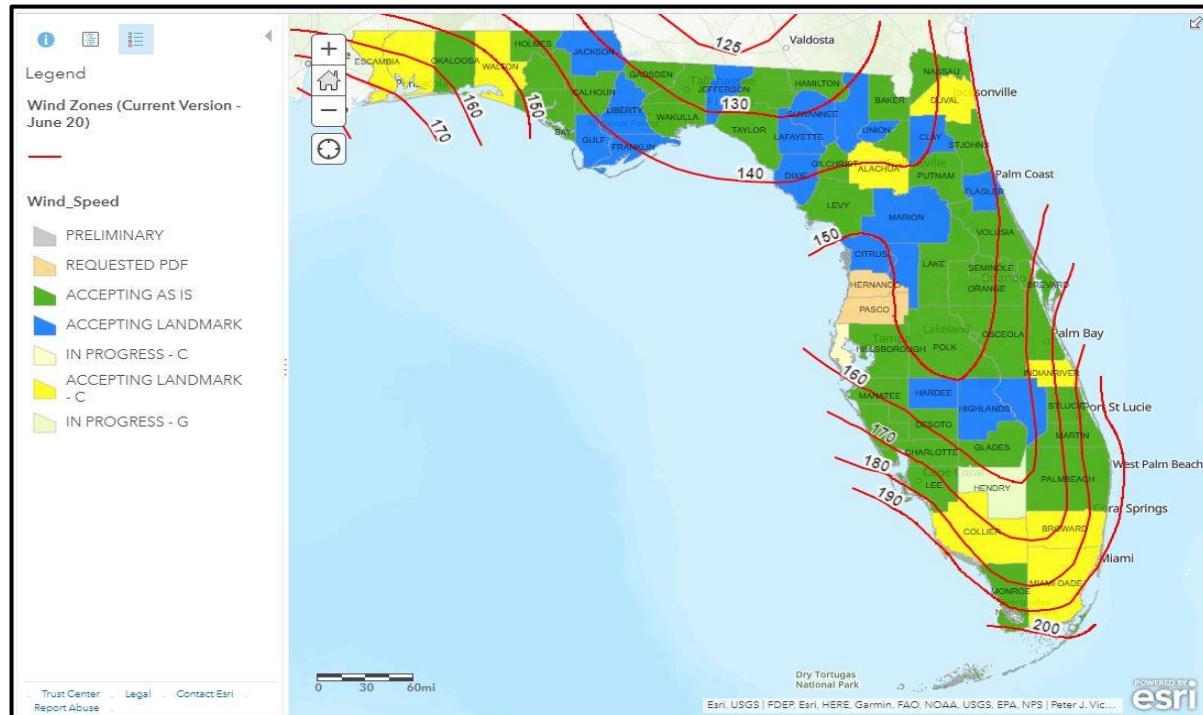
- We suggest that FBC develop a state level web-map viewer to display the four Risk Category I-IV Wind Speed Lines and statewide parcels. This online map viewer could also include datasets such as the FEMA Flood Hazard Zones of the Digital Flood Insurance Rate Map. Both the statewide parcels and FEMA flood hazards datasets are updated yearly and publicly available from Florida Geographic Data Library, which is housed at the GeoPlan Center. Through this project, we discovered that counties with larger operating budgets were simply ingesting the state provided GIS files into their web mapping systems to provide the wind speed lines “As Is” to the general public. This allowed them to more accurately follow the FBC wind speed mapping figures by providing results on a parcel by parcel basis. A state level map viewer could assist smaller counties wanting to follow a similar process.

Florida Building Code 2020 Update

Risk Category IV Wind Speed Map: County Results

County Name	Results - 2020	Local Landmark - 2020
Alachua	Accepting Their Updated	County Provided Roadways
Baker	Accepting Our Updated	Added Wind Speed Number to Map
Bay	Accepting As Is	
Bradford	Accepting As Is	
Brevard	Accepting As Is	
Broward	Accepting Their Updated	County Provided 185 for Entire County
Calhoun	Accepting As Is	
Charlotte	Accepting As Is	
Citrus	Accepting Our Shifted	Withlacoochee River
Clay	Accepting Our Shifted	SR-21
Collier	Accepting Their Updated	County Provided Linear Interpolation Lines
Columbia	Accepting Our Shifted	Suwannee River
Miami-Dade	Accepting Their Updated	County Provided 195 for Entire County
De Soto	Accepting As Is	
Dixie	Accepting Our Shifted	Steinhatchee and Suwannee Rivers
Duval	Accepting Their Shifted	I-95 and St Johns River
Escambia	Accepting Their Shifted	I-10 and Canoe Creek
Flagler	Accepting Our Shifted	US HWY 1
Franklin	Accepting Our Shifted	New River
Gadsden	Accepting As Is	
Gilchrist	Accepting As Is	
Glades	Accepting As Is	
Gulf	Accepting Our Shifted	Apalachicola River
Hamilton	Accepting As Is	
Hardee	Accepting Our Shifted	County Boundary - WSL Barely Intersected
Hendry	Accepting Our Shifted	Lake Okeechobee and County Boundary
Hernando	Accepting Their Shifted	US HWY 301
Highlands	Accepting Our Shifted	County Boundary - WSL Barely Intersected
Hillsborough	Accepting As Is	
Holmes	Accepting As Is	
Indian River	Accepting Their Shifted	County Provided Roadways
Jackson	Accepting Our Shifted	Chattahoochee River
Jefferson	Accepting Our Shifted	HWY 98
Lafayette	Accepting Our Shifted	Suwannee River
Lake	Accepting As Is	
Lee	Accepting As Is	
Leon	Accepting As Is	
Levy	Accepting As Is	
Liberty	Accepting Our Shifted	Apalachicola River
Madison	Accepting As Is	
Manatee	Accepting As Is	
Marion	Accepting Our Shifted	Withlacoochee River
Martin	Accepting As Is	

Monroe	Accepting As Is	
Nassau	Accepting As Is	
Okaloosa	Accepting As Is	
Okeechobee	Accepting Our Shifted	County Provided 160 for Entire County
Orange	Accepting As Is	
Osceola	Accepting As Is	
Palm Beach	Accepting As Is	
Pasco	Accepting As Is	Historically As Is
Pinellas	Accepting As Is	Usually Adopt Tech Amend for Entire County
Polk	Accepting As Is	
Putnam	Accepting As Is	
St. Johns	Accepting As Is	
St. Lucie	Accepting As Is	
Santa Rosa	Accepting Their Shifted	County Provided Roadways
Sarasota	Accepting As Is	
Seminole	Accepting As Is	
Sumter	Accepting Our Shifted	Withlacoochee River
Suwannee	Accepting Our Shifted	Suwannee River
Taylor	Accepting As Is	
Union	Accepting Our Updated	Made WSL Visible in Map
Volusia	Accepting As Is	
Wakulla	Accepting As Is	
Walton	Accepting Their Shifted	County Provided Roadways
Washington	Accepting As Is	



Not pictured - Hernando County, ACCEPTING LANDMARK – C.

Please Note: Red text displays information for incomplete counties.