DRAFT Final Status Report:

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

June 3, 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 draft 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 in progress, and Task C is awaiting the completion of Task B.

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_2020/

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 (In progress)

Task B is in progress. As of June 2nd, 2020 the UF GeoPlan Center has contacted all 67 Counties by both email and phone. To date, 34 Counties (50%) are complete at this time. GeoPlan is still waiting to hear back from 14 Counties (21%). Task B's progress is detailed below.

a. 18 Counties are adopting the preliminary map "As Is"

b. 11 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_2020/

c. 6 Counties are currently being assisted by GeoPlan to develop local landmark maps.

d. 5 Counties have developed their own local landmark maps.

e. 6 Counties are currently working to develop their own local landmark maps.

f. 7 Counties are still determining how they would like to move forward with their map.

A table containing each county's adoption decision will be included in the final version of this report.

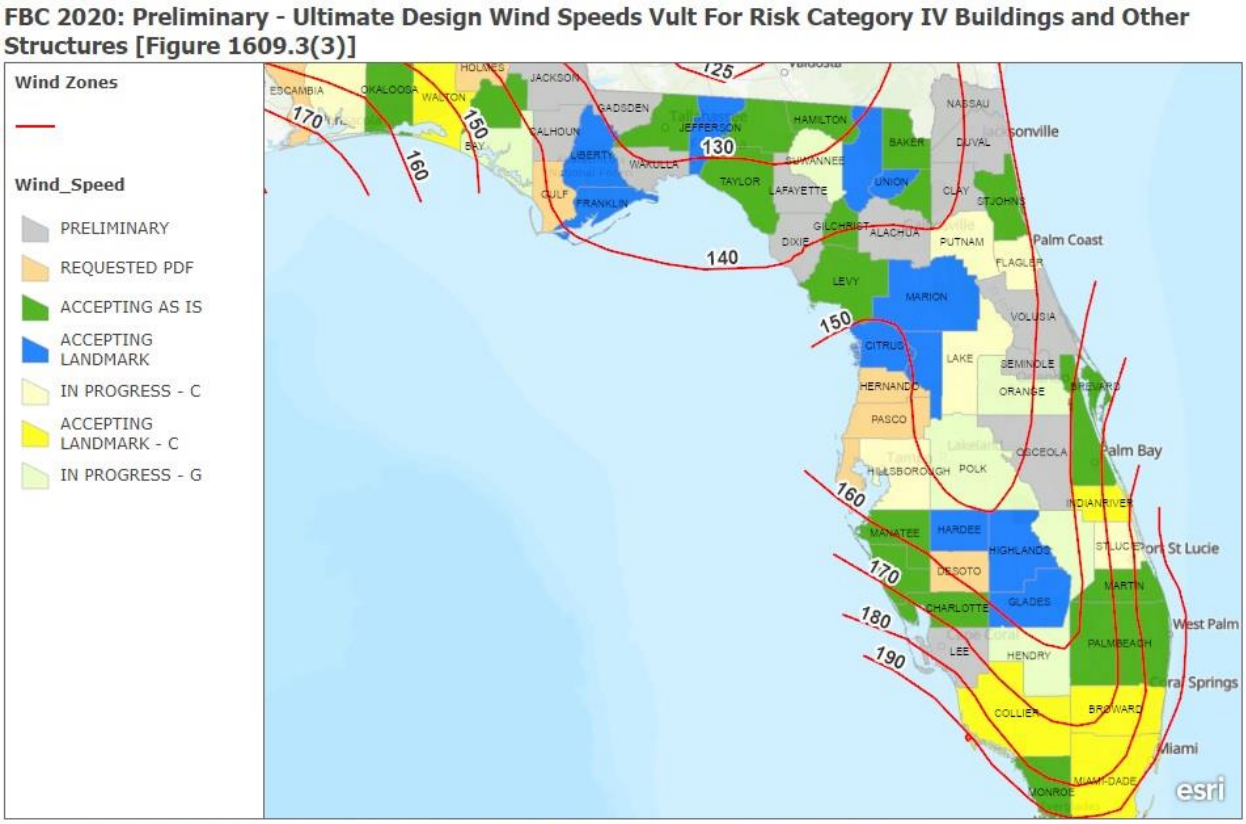


Figure 1. FBC 2020: Preliminary - Ultimate Design Wind Speeds Vult For Risk Category IV Buildings and Other Structures [Figure 1609.3(3)] ArcGIS Webmap Viewer Image Captured 6/2/2020

Task C (Upcoming)
Task C is waiting completion of Task B

4. Plans for Continuation of Task B and Product Creation of Task C.

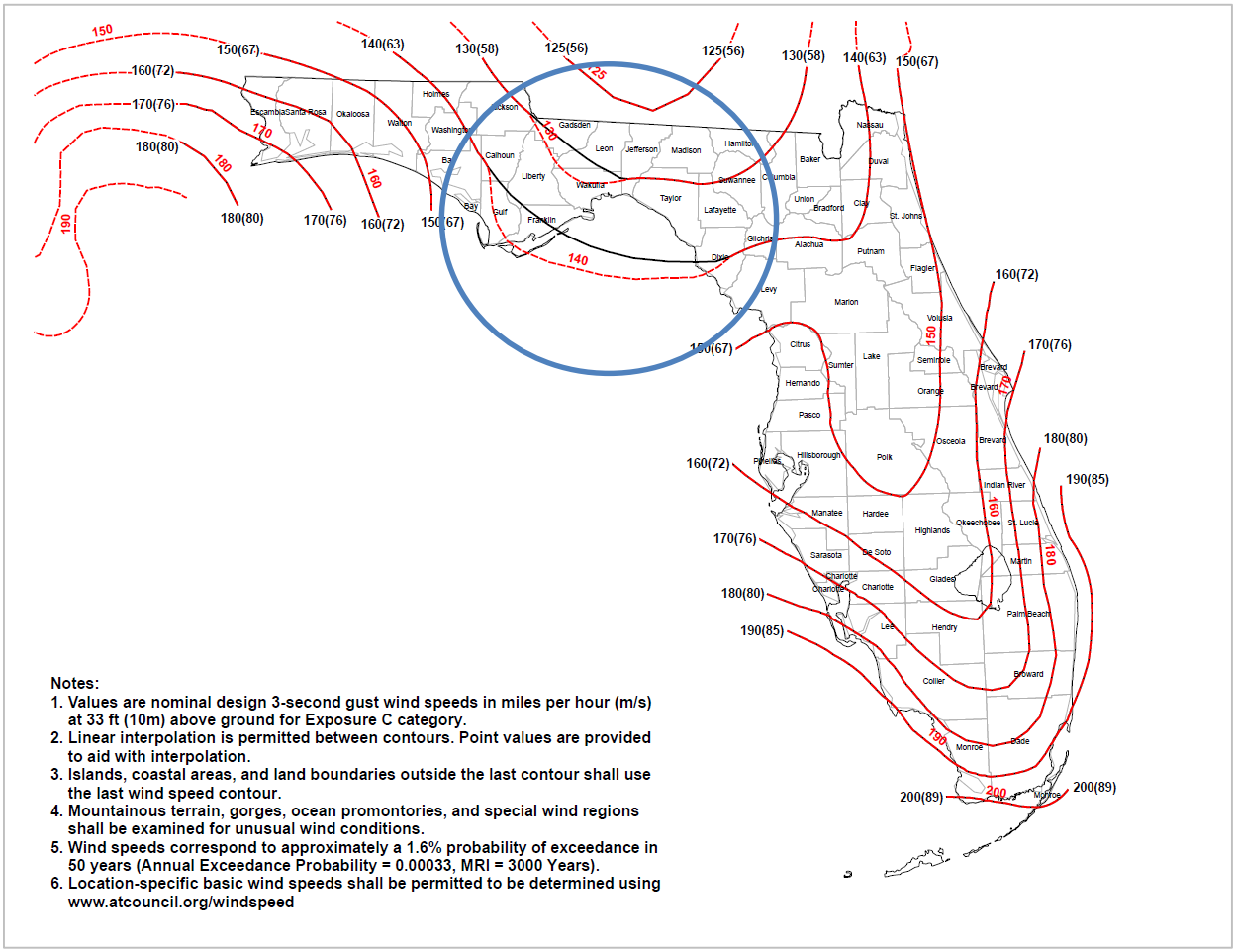
The Project's Task progress and completion have been severely hindered by the COVID-19 pandemic. Over the past few months, many local governments have been temporarily closed or have limited the in-office number of personnel. During this time, many employees have been working from home, increasing the 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 is in the process of completing the updates mentioned above. In addition, GeoPlan is continuing to contact the remaining counties by phone to determine how best to assist them. GeoPlan will make every effort to complete Task B; however, the successful of this will be partially determined by the willingness of the local jurisdictions to prioritize this effort.

Once Task B is completed, the UF GeoPlan Center will move forward with Task C and work with Mo Madani to provide the final product to the State of Florida.



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 commination 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.