

**Summary of 2024 Significant Updates  
To the Geospatial Small-Area Population  
Forecasting Models for the  
Southwest Florida Water Management District**

***Prepared For***



**Southwest Florida Water Management District  
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## I. INTRODUCTION

The purpose of this document is to describe significant updates made by GIS Associates, Inc. (GISA), to its Geospatial Small-Area Population Forecasting Model utilized by the Southwest Florida Water Management District (SWFWMD). Specifically, these updates were made in support of the 2024 Small-Area Population Projection Models from the data and methods used in the 2023 Small-Area Population Projection Models. Once the updates were made, the county models were updated and rerun for each of the 17 SWFWMD counties. (Note that there are only 16 counties located partly or entirely within SWFWMD, but forecasts were also made for two utility service areas in the northern part of Lee County that have water use permits with SWFWMD.) Results were provided to SWFWMD in tabular (Microsoft Excel) and GIS (Esri file geodatabase) formats. The Excel summaries were provided at the utility service area level, and reflect the total population served within their boundaries. In some cases, total population served may include those unserved populations on private wells since no delineation has been made by the utility. The GIS data is in Esri's file-based geodatabase format at both the property parcel level and service area level.

This document is a supplement to the 2024 methodology document deliverable for this project entitled *The Geospatial Small-Area Population Forecasting Model Methodology Used by the Southwest Florida Water Management District*.

## II. ADJUSTMENTS TO THE MODEL

The following is a list of changes made to the countywide Small-Area Population Projection Models from the last set utilized by SWFWMD in 2023:

- A. Updated county and municipality future land use data
- B. Updated parcel data with data from county property appraisers
- C. Updated data on residential development plans
- D. Revised unit and/or population estimates for some non-platted mobile home parks
- E. Updated public supply water service area information using SWFWMD data
- F. Calibrated 2023 estimated population in each County Build-out Model (for BEBR/Census population cohort) to the 2023 BEBR estimates.
- G. Controlled projections of BEBR/Census population cohort to the population from the latest version of BEBR's medium projections (January 2024)
- H. Updated Growth Driver Submodel
- I. Updated historical growth trend calculations
- J. Revised the SWFWMD tourist/lodging room projections using updated data from SWFWMD

A. Future Land Use

SWFWMD and GISA staff coordinated to update the District-wide future land use unit density data used by GISA Models. This involved contacting all the county and municipal planning entities within the district and requesting digital representations (GIS) of their future land use maps, along with descriptions of their future land use categories.

B. Property Appraiser Parcel Data

Parcels were updated with latest available data from individual county property appraisers and the Florida Department of Revenue.

C. Updated Development Data

Residential development plan data were updated for one or more of the following reasons:

- 1) Add new planned developments,
- 2) Expanded existing planned developments, or
- 3) Update planned residential units at build-out.

D. Mobile Home Park Data

The numbers of housing units estimated for some mobile home parks that are not individually platted were updated. Unit estimates based on property appraiser data are not always accurate. GISA updated many of these in prior years, but additional QA/QC using newly available data from some counties, mobile home park websites, and/or recent aerial imagery to estimate the correct number of housing units resulted in some further adjustments. In some cases, GISA also removed recreational vehicles from estimates of residential units associated with the BEBR/Census population cohort. In other cases, block-level data from the 2020 Census was used as a guide to determine how many residents lived in mobile home parks – including in recreational vehicles. These data sources and additional QA/QC tasks sometimes resulted in large percentage changes for some very small service areas.

E. Public Supply Water Service Area Data

The Public Supply Service Area (PSSA) GIS data maintained by SWFWMD was updated from the version used in the 2023 deliverable. Those changes were transferred to each of the countywide models.

F. Calibration of 2023 Estimated Population in Each County's Build-Out Model (for BEBR/Census Population Cohort) To 2023 BEBR estimates

GISA used 2023 BEBR estimates as a control at the city and county levels for the 2023 estimates in the County Build-out Models for the BEBR/Census population cohort. The launch year of the model was updated to the year 2023 to coincide with these updated counts.

G. Calibration of Projections of BEBR/Census Population Cohort to 2024 BEBR Medium Forecasted Population

GISA used the forecasted population from the latest available BEBR medium population projections as the control at the county level for our projections of BEBR/Census population cohort. The source of this data is the BEBR publication *Projections of Florida Population by County, 2025-2050, with Estimates for 2023. (Florida Population Studies, Volume 57, Bulletin 198, January 2024)*. This population cohort is often referred to as “resident” population, but because it includes some seasonal population (who completed the census in Florida), SWFWMD refers to this as the “BEBR/Census” population cohort.

H. Updated Growth Driver Submodel

The Growth Drivers Submodel, which prioritizes parcels for residential growth, was updated using the latest input data: roads and interchanges, developments, selected commercial land uses, and coastal and inland waters. Also, residential land use was replaced with water utility service area boundaries.

In addition to updating the model, some adjustments were made to the default driver values. First, any parcels with vacant land uses that were developed during or after the launch year (2023) were assigned a driver value of 100 to ensure they would be built by 2025. Second, the driver values for any vacant platted residential parcels within a development were averaged with a higher value to boost their development potential. (This value varied by county but was typically between 93 and 99.) Third, the driver values for vacant non-platted parcels within developments were averaged with a higher value to boost their development potential. (This value varied by county but was typically between 85 and 93.)

I. Updated Historical Growth Trend Calculations

GISA used tract-level data from the 1990, 2000, 2010, and 2020 Censuses and 2023 parcel-based estimates to produce twelve tract level projections using five different demographic extrapolation methods using multiple base periods. The length of the base was adjusted to roughly match the length of the projection horizon, so for a 22-year horizon (2023-2045), 23 years of historical data (2000-2023) were used to establish the growth trends. The number of trend calculations varied based on the length of the base period used, and the highest and lowest calculations were discarded to moderate the effects of extreme projections. The remaining projections were then averaged. The formulas for these calculations are provided in our methodology document for this project, entitled *The Geospatial Small-Area Population Forecasting Model Methodology Used by the Southwest Florida Water Management District*.

J. Tourist/Lodging Room Projection Data

SWFWMD staff provided updated extrapolations of tourist/lodging rooms by county and with the latest available data. The data on the number of rooms from the Florida Department of Business and Professional Regulation was updated through 2023. This data was used to update the tourist projections.

### III. REFERENCES

Bureau of Economic and Business Research (2023). "Florida Estimates of Population 2023". Bureau of Economic and Business Research, University of Florida, Gainesville, Florida. URL: [https://www.bebr.ufl.edu/wp-content/uploads/2023/12/estimates\\_2023.pdf](https://www.bebr.ufl.edu/wp-content/uploads/2023/12/estimates_2023.pdf).

Doty, Richard L., Suzanne L. Roulston-Doty, and Jason K. Teisinger (2024). "The Geospatial Small-Area Population Forecasting Model Methodology Used by the Southwest Florida Water Management District". GIS Associates, Inc. Gainesville, Florida.

Rayer, Stefan, and Conor Comfort (2024). "Projections of Florida Population by County, 2025-2050, with Estimates for 2023." Florida Population Studies, Volume 57, Bulletin 198, January 2024. Bureau of Economic and Business Research, University of Florida. Gainesville, Florida. URL: [https://bebr.ufl.edu/wp-content/uploads/2024/01/projections\\_2024.pdf](https://bebr.ufl.edu/wp-content/uploads/2024/01/projections_2024.pdf).