CAPE CORAL INTERACTIVE GROWTH MODEL® (IGM)

Results and Recommendations

DECEMBER 2023

METRO FORECASTING MODELS

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Introduction

In 2023, the City of Cape Coral engaged Metro Forecasting Models, LLC to update the Cape Coral Interactive Growth Model (CCIGM). The IGM has been used to spatially model the City's growth since 2002 and the model was last updated in 2016. The purpose of updating the CCIGM is to have the most up to date Baseline and Buildout estimates to accurately forecast the area's realistic growth potential and provide data for prioritizing capital improvements and conducting long-range planning.

The IGM is a land use model which demonstrates when and where growth is most likely to occur over time. The model uses a non-linear approach which considers the study area's Buildout potential. The forecast considers decades of historic census data and the Buildout potential to produce a unique growth curve for the study area. The forecast results are produced in five-year increments through Buildout. The IGM then uses a series of algorithms to anticipate residential development and distribute it to where it is most likely to occur over time. The forecast is organized into 436 spatial Traffic Analysis Zones (TAZs/zones).

The results of the study are available in Excel reports by TAZ and GIS layers for the City's use. Housing and population forecasts can be used at the zone-level. Demand for non-residential space and facilities should be considered for large areas or groups of zones. If the zone data is used for any custom analyses, Metro Forecasting Models is available to help interpret the data and make sure it is communicated clearly.

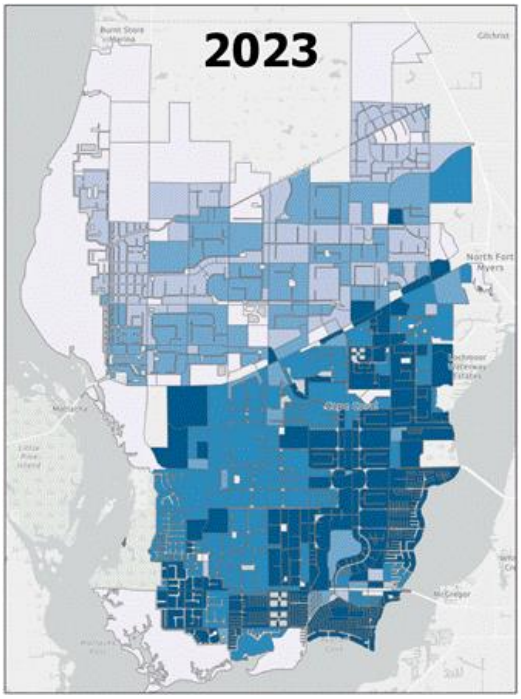
Key Findings

- Cape Coral added over 16,800 homes since 2016 and about 7,000 homes since the 2020 Census.
- The City of Cape Coral could realistically host approximately 375,000 people at Buildout.
- The city has the potential to add 67,000 housing units by Buildout within city limits.
- Approximately 800,000 square feet of commercial building space has been added since 2016.
- At Buildout, approximately 1,200 more acres of commercial land may be necessary to meet the needs of the residents at that time.
- Nearly 75% of the growth forecasted for Cape Coral by 2040 will be north of Pine Island Road. By 2040 this area will add over 17,000 housing units and 46,000 permanent residents.
- To secure a high quality of life for future residents, planners and policymakers should ensure there is enough land strategically allocated for non-residential services and government facilities, including parks, fire stations and law enforcement.
- Considerable growth, 100,000 more people by 2050, is forecasted over the next several decades. It is crucial that any growth management and planning measures consider this timeline and are designed to be sustainable long-term.

Growth Forecast

The forecast data for the city is based on the existing boundaries and does not include growth from annexations. Forecasting growth requires accurate parcel data so existing developed land can be correctly inventoried by land use and vacant parcels can be assessed for future development potential. In 2023, MFM developed a Compatibility Analysis Tool using AI to assess the potential for future development based on the existing land uses.

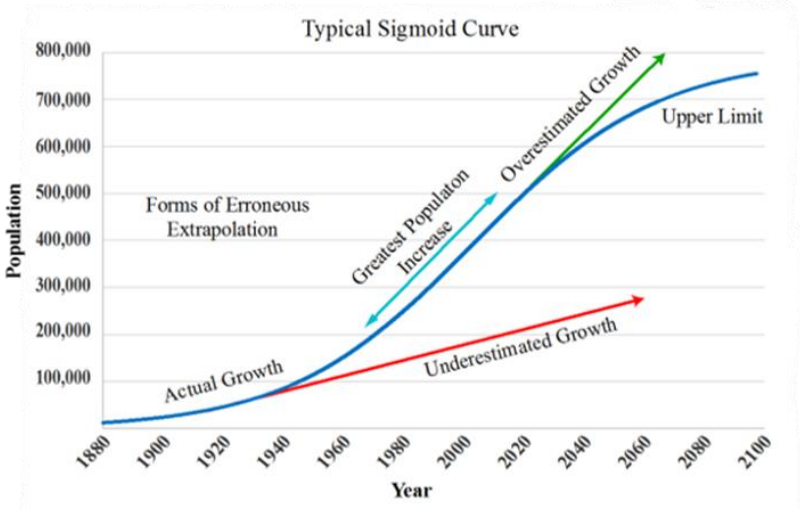
Regular updating of the CCIGM Baseline and Buildout data helps to identify micro and macro development trends that are taking place in the city. This provides planners and policymakers opportunities to fine tune policies and make necessary adjustments to continue positive trends and curtail trends that do not benefit the city.



City of Cape Coral, Florida

<u>Housing</u>

Growth and development are complex. There are a multitude of variables that can influence growth, such as socioeconomic factors, demographics, and land use policies/ regulations. Recent historic growth is only a minor indicator of how the population will increase in the future. Cities do not grow consistently through time. In places where growth is just beginning, linear projections (in red) would miss the mark- underestimating growth and failing to plan for the community's needs. In more developed communities, linear projections overestimate growth (in green) and can cause millions of dollars in ambitious, yet unnecessary infrastructure development. The IGM uses non-linear regression to connect the Baseline and Buildout conditions and determine the future growth potential based on the study area's unique development characteristics.



Example Population Growth Curve: Linear Projections vs. Non-Linear Regression

For the Baseline analysis, the number of housing units were verified by comparing the Property Appraiser parcel datasets to other known sources of information, including: the 2020 Census, GIS address points, permit data, aerial photography and parcel-specific research. The property appraiser data was organized to produce a 2023 Baseline inventory of housing by type: single family and multifamily.

The City of Cape Coral has just over 100,000 housing units as of June 2023. The existing housing inventory is 80% single family and 20% multifamily. The table below shows how the baseline inventory of housing units and developed acres has changed since 2016. Note the ratio of multifamily to single family has increased by 1% over the past 7 years. The trend toward more multifamily is likely to continue based on observations from other municipalities in Florida. MFM estimates Cape Coral will reach a peak of ratio of 24%-30% multifamily at buildout.

City of Cape Coral Baseline Housing Data Analysis								
Baseline	Single Family		Observed	SF%	Multifamily		Observed	MF%
Year	Units	Acres	SF Density		Units	Acres	MF Density	
2023	79,543	20,148	3.9	79.4%	20,646	1,233	16.7	20.6%
2020	74,912	19,221	3.9	79.8%	18,988	1,153	16.5	20.2%
2016	67,178	17,238	3.9	80.6%	16,124	925	17.4	19.4%

Parcels which could realistically host future housing units were considered in the residential analysis. The aforementioned Compatibility Analysis Tool was also used to identify parcels that are more likely to develop as multifamily versus single family. The average/most realistic outcome was applied for residential density based on Zoning and Future Land Use Policy. The analysis used the average achieved densities for each land use and only applied maximum density where it will realistically occur. Staff's guidance on where densities are likely to be much higher than historic averages, such as the Bimini Basin area was helpful.

Geospatial layers were applied to account for the actual drivers of growth such as vacant land, zoning, housing demand, environmental factors, and proximity to arterial roadways and public utilities. Interviews and discussions were conducted with city planning staff to learn of significant proposed projects and gather input on how larger vacant tracts may develop over time.

Then, data from a variety of sources, including future land use, zoning, proximity to existing development, proximity to utility and road infrastructure, wetland characteristics, and historic growth is used to forecast the amount, location, and timing of future residential development.

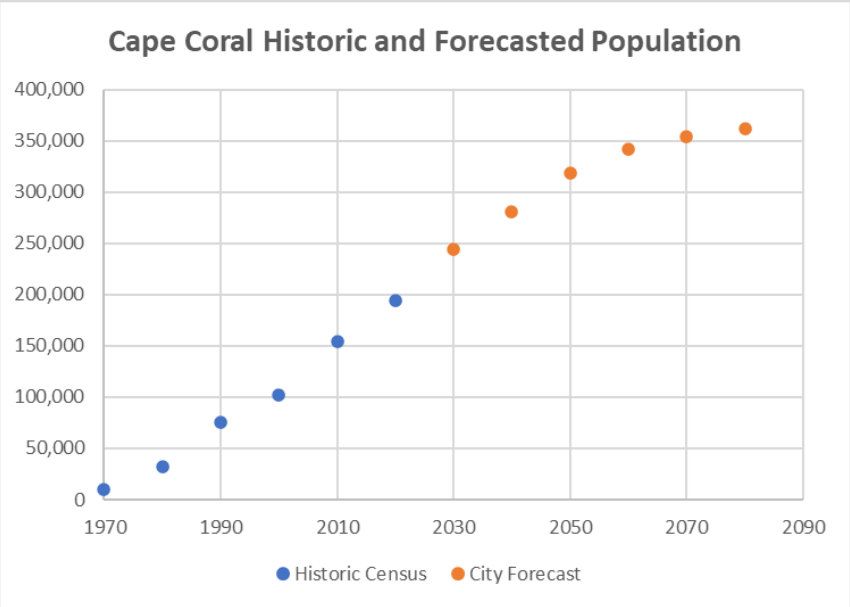
Housing Forecast								
	2023	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**9995**
Cape Coral	100,189	103,809	112,135	119,828	127,214	135,107	142,645	167,141

Cape Coral Housing Forecast

The table above presents the forecast for Cape Coral in five-year increments. The year 9995 represents Buildout. At Buildout, the study area has the potential for 167,141 housing units, nearly double the number of housing units in the 2020 Census. Between 2023 and 2030, there is a forecasted increase of approximately 12,000 housing units. Analysis of the housing unit forecast through 2030 indicates 79% will be new single family homes and 21% will be multifamily units. Spatial analysis of the forecast shows approximately 64% of new housing units between 2023 and 2030 will be north of Pine Island Road.

Population

To determine population, the IGM uses the Housing Unit Method, which applies household demographics to the number of housing units. The demographics used in the Cape Coral IGM are derived from the 2020 Census block group data.



Year	Historic Census	City Forecast
1970	10,193	
1980	32,103	
1990	74,991	
2000	102,286	
2010	154,309	
2020	194,016	
2030		243,932
2040		280,625
2050		318,503
2060		342,186
2070		354,564
2080		362,045
Buildout		376,817

Cape Coral Historic and Forecasted Population

The graph above shows the historic and forecasted population of the City of Cape Coral. The gray points demonstrate the population according to the decennial US census from 1970-2020. Over the last three censuses, Cape Coral has grown between 25-50% every ten years. In the 2010 census, Cape Coral had a population of 154,309 people. By 2020, the population increased to 194,016. According to the IGM, the current population is estimated to be 215,000. The Buildout population is projected to be nearly 377,000 based on existing land use policies.

The orange points show the City's forecasted population growth according to the IGM. By 2030, the IGM forecasts an additional 28,500 people for a population of approximately 244,000 people within city limits. As the city nears Buildout, the rate of growth decreases over time.

Population Forecast								
	2023	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**9995**
Cape Coral	215,484	224,039	243,932	262,495	280,625	300,079	318,503	376,817

Cape Coral Population Forecast

The population forecast for Cape Coral is presented in five-year increments. The population is based on verified housing units and the most recent census demographics. The Buildout potential is labelled as Year 9995.

Commercial

First, the Baseline data was reviewed to identify non-residential land uses by parcel. Non-residential uses were organized by type including commercial retail, office, industrial, government and institutional. Then, a commercial Buildout analysis was developed using vacant land with the potential to develop as commercial. Vacant commercial land was identified based on zoning, future land use, proposed projects, parcel-specific research, and interviews. The analysis also incorporated data on wetlands, parcel geometry, and aerial photography. Developed parcels were assessed for their average Floor Area Ratio (FAR), or square feet of building area per acre. On average, excluding outliers, retail uses achieved an average FAR of 8,305 square feet per acre. Parcels with office uses had an average FAR of 8,359 square feet per acre. To estimate the Buildout of future uses, these FAR factors were applied to commercial land to produce the Buildout commercial building areas.

For the interim years (2025-2085), the IGM forecasts Commercial Demand in square feet and acres. Commercial demand is forecasted based on spatial factors for square feet of building area per person. The Cape Coral IGM uses a commercial base factor derived from existing commercial uses in the Baseline data.

In 2023, the City of Cape Coral had approximately 52 square feet of commercial space per person. Whereas in 2016 there were approximately 57 square feet of commercial space per person. Even though Cape Coral added nearly 800,000 square feet of commercial space from 2016-2023, the increase in population of nearly 37,000 residents was more rapid than the increase in commercial building area, resulting in the decline of square feet per resident. Due to the lack of commercial development since 2016, the IGM data suggests 3.6 million square feet of commercial building area are needed between 2023 and 2030 to meet unmet demand. Overall commercial demand is comprised of shopping centers and miscellaneous retail/office uses.

The Buildout analysis indicates the available vacant commercial lands in 2023 will not be enough to support the Buildout population. The IGM data shows most vacant commercial land will be developed by 2050. At Buildout, the study area's population will grow enough to support an additional 1,200 acres of commercial development than exists today. It is worth noting that this analysis did not assume existing commercial lands would be developed via the "live local act."

To plan for a high quality of life for future residents, it is important to evaluate trip lengths and plan for minimal traffic congestion. Land use planning is a critical tool in this process. Even if there is an adequate supply of vacant land, there needs to be enough to support major services, such as shopping centers. If there is not enough contiguous land to develop shopping centers, it can result in strip commercial and longer trip lengths. Strip commercial meets some of residents' needs but may result in excess trips to the urban area, resulting in more transportation congestion on major corridors. This is why it is essential to plan for future shopping centers by location as well as commercial needs in general.

Demand for Facilities by Type

Shopping centers are classified by type: Neighborhood, Community, and Regional. The characteristics of these shopping centers vary by location. For instance, neighborhood shopping centers in Florida tend to be large, suburban style grocery stores with a combination of commercial retail, office/ services, and drive-thru out-parcels (gas, fast food, banks). Neighborhood shopping centers in North Carolina tend to be smaller, with only a grocery store and a few adjacent services. For this reason, the IGM uses a study area's unique commercial factors to forecast future demand. The Baseline data has been used to identify the shopping centers in the study area and determine their average size and persons per shopping center. The shopping center types and their general character are described below.

Neighborhood: Neighborhood shopping centers range in size from 60,000-150,000 square feet and 6-20 acres, with the average being 14 acres. These centers usually serve clusters of neighborhoods and their daily needs. The city has 12 neighborhood shopping centers. The most common commercial anchors are grocery stores such as Publix, Winn-Dixie, and ALDI. Neighborhood shopping centers also include retail and office which serves residents daily/weekly needs, such as nail salons, gas stations, fast food/takeout, and gyms. The study area has a population of 215,000 people, implying each neighborhood shopping center serves a population of approximately 16,800 people. This level of service is consistent with many places across South and Central Florida.

Community: Community shopping centers range from 151,000-400,000 square feet and 20-40 acres, with the average being 24 acres. There are 6 community shopping center in Cape Coral. Typical shopping center anchors include major department stores, such as Walmart or Target, or other destination retail locations. A destination retail location is a hub which attracts trips from residents looking for something specific, outside of their regular shopping habits (groceries, etc.) In Cape Coral, community shopping centers serve a population of approximately 35,000 people.

Regional: Regional shopping centers range in size from 401,000-1,000,000 square feet and 60-200 acres, with the average being 75 acres. Some super-regional shopping centers exceed this size range and require a larger service population to be successful. Regional shopping centers may present as indoor shopping malls, large outlet malls, or a combination of community shopping centers which act as a regional hub. Modern regional shopping centers are typically master-planned walkable outlet malls or oversized community shopping centers with a combination of uses. Regional shopping centers typically serve a population of approximately 150,000 people.

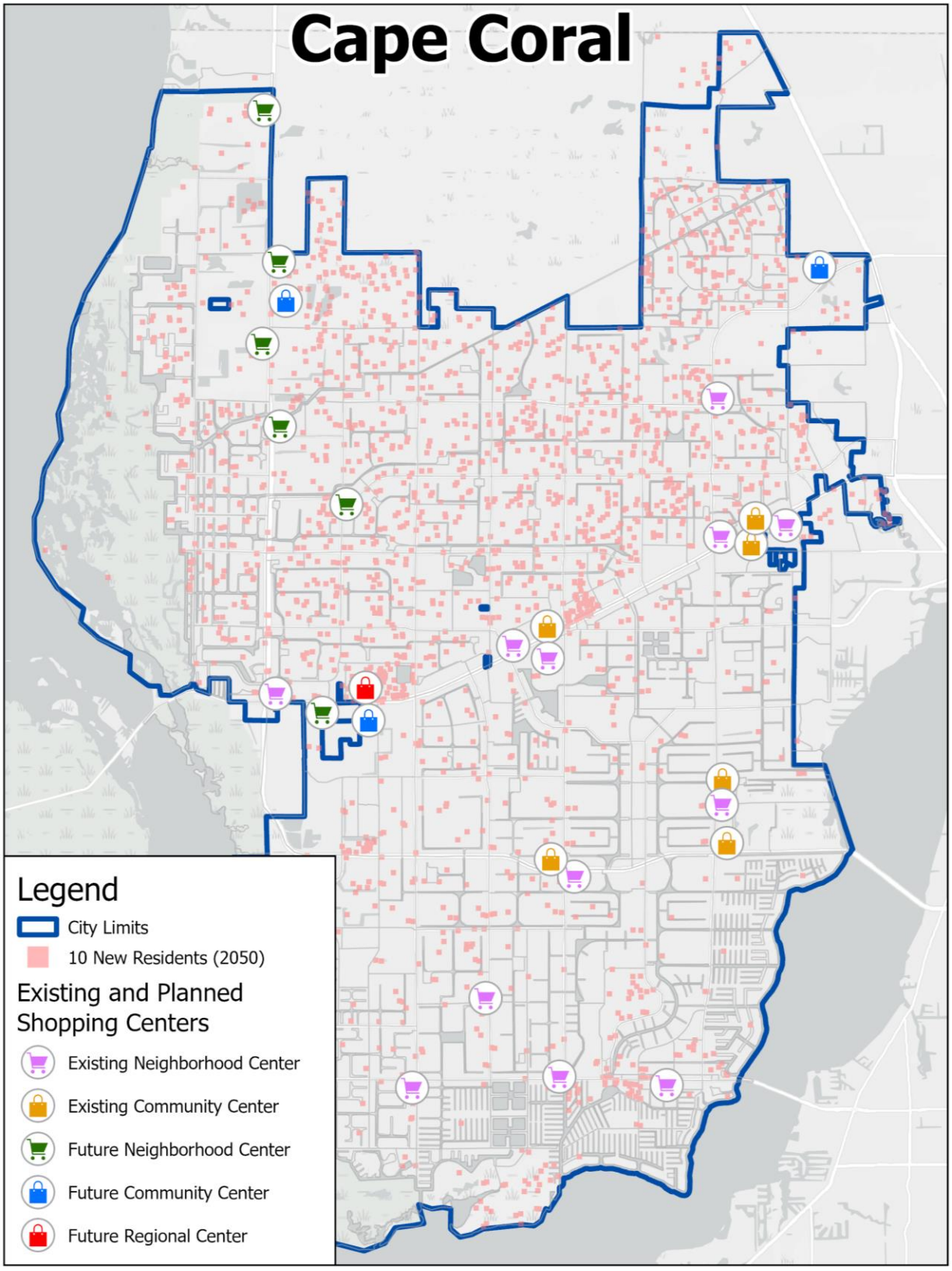
The table below demonstrates the demand for shopping centers by type in five-year increments. The table shows the percentage of the demand for one new shopping center. This analysis is meant to provide a general metric for gauging if there is enough commercial land in each area to meet local demands. Consider the average size of each shopping center and the amount of contiguous, zoned land available to support these services in each area.

New Shopping Center Demand								
		2025	2030	2035	2040	2045	2050	9995
Cape Coral	Neighborhood	53%	167%	271%	382%	496%	610%	956%
	Community	20%	74%	119%	178%	235%	291%	455%
	Regional	82%	90%	100%	108%	122%	133%	170%
Sum Neighborhood		**1**	**2**	**3**	**4**	**5**	**6**	**10**
Sum Community		**0**	**1**	**1**	**2**	**2**	**3**	**5**
Sum Regional		**1**	**1**	**1**	**1**	**1**	**1**	**2**

Cape Coral Shopping Center Demand Forecast

At Buildout, the study area will have enough population to support 10 new neighborhood shopping centers. These shopping centers would ideally be located near residents, to reduce trip lengths and trips to Pine Island Road wherever possible. Since neighborhood shopping centers are 14 acres on average, there should be approximately 10 sites with 10-20 acres each for future neighborhood shopping centers in the city (20 1-acre parcels are not the equivalent of 1 20-acre parcel). The study area also has demand for 5 additional community shopping centers at Buildout. The study area has the population to support one regional shopping center today and another one by 2060.

Existing and Future Shopping Center Map



Industrial

Industrial is considered differently than commercial retail and office. Commercial retail and office are influenced by personal demand from residents. Industrial is influenced by policy, or how much land is designated for industrial uses. Some industrial uses are necessary to support local needs, particularly for construction uses and employment opportunities. Other industrial uses do not need to be near residents but should still be planned near adequate transportation corridors which can support freight traffic. This analysis demonstrates the amount of vacant industrial lands if the city were to maintain its existing ratio of industrial building area per resident.

First, an analysis was conducted to determine the existing industrial development at Baseline. In 2023, Cape Coral had 5.1 million square feet of industrial uses. The Baseline supply of building area represents supply of 24 square feet of building area per resident. The parcel data was queried by the Department of Revenue code to determine likely industrial uses, then reviewed using parcel data and aerial photography. On average, industrial development in the City of Cape Coral has an average floor area ratio of 9,452 square feet per acre, excluding outliers.

The Buildout analysis measures the potential for industrial land based on available vacant land and land use policies. This analysis indicates the amount of vacant industrial land is insufficient at Buildout to maintain the current per capita industrial supply in the Baseline. The IGM data shows the tipping point of running out of industrial land is between 2045 and 2050. To maintain the 2023 per capita ratio of industrial development through Buildout, an additional 200 acres of vacant lands will need to be designated in the near future. The average FAR of developed industrial parcels was analyzed to forecast the amount of industrial building area per acre.

Industrial demand is forecasted based on the increase in population. The table below shows the incremental increase of industrial building and land area if the city were to maintain its existing ratio of industrial.

Industrial Demand								
		2025	**2030**	**2035**	**2040**	**2045**	**2050**	**9995**
Cape Coral	Sqft Building	204,314	679,353	1,122,637	1,555,594	2,020,157	2,460,142	3,852,707
	Ac Land	22	72	119	165	214	260	408

Cape Coral Industrial Demand Forecast

The Industrial Demand table presents the forecasted demand based on the city's existing ratio of industrial. Acreage is calculated using the average achieved FAR. At Buildout, the city will have approximately 408 additional acres of industrial, based on population growth. By 2030, the city could support an additional 680,000 square feet or 72 acres of industrial.

Conclusion & Recommendations

The Interactive Growth Model (IGM) study evaluated the potential for growth in the City of Cape Coral. The overall purpose of the study was to forecast growth in the study area and provide data for mobility planning, to prioritize capital improvements, and conduct long-range planning.

Key recommendations resulting from the study include:

- Recognize the growth potential of the city due to existing platted lots and how future uses of vacant parcels it will impact the city's transportation network.
- Considerable growth, 100,000 more people by 2050, is forecasted over the next several decades. It is crucial that any growth management and planning measures should consider this timeline and are designed to be sustainable long-term.
- Nearly 75% of the growth forecasted for Cape Coral by 2040 will be north of Pine Island Road. By 2040 this area will add over 17,000 housing units and 46,000 permanent residents.
- At Buildout, approximately 1,200 more acres of commercial land may be necessary to meet the needs of the residents at that time.
- Vacant industrial lands will be depleted by 2050 and approximately 200 additional acres should be identified for future industrial development.
- Promote mixed-use projects to develop commercial node land uses to encourage economic growth and reduce unnecessary trips.
- Encourage redevelopment of older commercial projects that may be beyond their useful life to add residential units to enhance local demand, remove unneeded non-residential building area, and increase property tax revenue/
- Actively monitor the aggregate and spatial availability of commercial and industrial land use allocation, particularly north of Pine Island Road to shorten trip lengths and reduce greenhouse gas.
- To secure a high quality of life for future residents, planners and policymakers should ensure there are parcels large enough and strategically allocated for non-residential services and government facilities, including parks, fire stations and law enforcement.
- Consider establishing a "Legacy Plan" to ensure future city staff and policymakers have a defined approach to decision-making based on the best available data and research.