

REGIONAL FREIGHT TRANSPORTATION PLAN

LAND USE ANALYSIS



MARCH 24, 2023

Regional Freight Transportation Plan

Land Use Analysis

Prepared for



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1 INTRODUCTION

Transportation has a strong relationship with the current land use and development patterns in the Savannah area. Additional roadway and transit capacity may be necessary to support an influx of new homes and businesses, while greater turning radii may be necessary to accommodate trucks maneuvering intersections to access a nearby distribution center. Likewise, these transportation investments spur new development and redevelopment as companies and communities take advantage of improved accessibility and new capacity. This report describes the current land uses within the Coastal Region (CORE) MPO study area and examines potential future land uses. It also discusses the implications of current and future land use decisions on the region's transportation system, highlighting instances where conflicts may arise between freight-intensive and non-freight-intensive land uses so that they may be addressed through future infrastructure, policy, and programmatic solutions.

1.1 Overview of the CORE MPO Region Population and Character

Population

The CORE MPO region is comprised of Bryan, Effingham, and Chatham Counties. Chatham County is the fifth-largest county in the state of Georgia and is home to the City of Savannah, the fifth-largest city in the state. In 2021, the Savannah MSA's population totaled 410,008. The population increased by 16.5 percent from 2010 to 2020. This growth rate was higher than that of the state of Georgia (10.6 percent)¹ and higher than the growth rate of the United States (7.4 percent)² during the same period. According to the 2020 Census, Bryan County is the fastest-growing county in Georgia (48 percent growth since 2010) and the sixth-fastest-growing County in the United States. Over the same period, Effingham County grew by 24 percent and Chatham County grew by 11 percent.

The CORE MPO region's population growth between 2020 and 2040 (22 percent)³ is anticipated to be higher than that for the state of Georgia (18 percent) and higher than the growth rate for the United States (12.3 percent)⁴. Effingham County is projected to see the largest percentage increase in population (38 percent) of the three counties within the Savannah MSA. Over the same period, Bryan County is projected to grow by 37 percent and Chatham County is projected to grow by 17 percent. This future population growth will have significant implications for land use in the three-county region, as new residents will require housing, services, schools, and other amenities, ideally with easy access to employment opportunities within the region.

¹ U.S. Census Bureau, 2010 Census Redistricting Data (Public Law 94-171) Summary File; 2020 Census Redistricting Data (Public Law 94-171) Summary File; 2020 county and Core Based Statistical Area (CBSA) gazetteer files; Office of Management and Budget, March 2020, Metropolitan and Micropolitan Statistical Area delineations.

² US Census Bureau. Decennial Census of Population and Housing by Decades. <https://www.census.gov/programs-surveys/decennial-census/decade.2020.html>

³ Georgia Governor's Office of Planning and Budget. 2021 Population Projections. <https://opb.georgia.gov/census-data/population-projections>

⁴ US Census Bureau. Demographic Turning Points for the United States: Population Projections for 2020 to 2060. <https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1144.pdf>

Local Character

Despite being the 10th largest overall and 4th largest waterborne Foreign Trade Freight Gateway by value⁵, the region's population is relatively small compared to other major Foreign Trade Gateways including the Los Angeles metropolitan statistical area (MSA) (13 million people), Houston MSA (7.2 million people), and New York City MSA (19.7 million people). The majority of the imported freight entering the Port of Savannah has a destination outside the CORE MPO region. Nonetheless, this cargo will be unloaded and transported through the region via road or rail to regional distribution centers or auxiliary facilities (e.g., intermodal facilities) in the CORE MPO region before heading to its final destination, defining the region as a hub for imported and exported goods for much of the southeastern United States. At the same time, manufacturers are relocating across Georgia's major rail and roadway corridors to capitalize on the shortened transit times and reduced costs that come with immediate access to this interstate and international transportation network. What's more, the region's local economy is made up of a diverse assortment of freight-intensive industry that is generating additional growth in freight transportation throughout the region.

1.2 Overview of CORE MPO Region Industries

The CORE MPO region is characterized by a diverse mix of industries, including tourism and hospitality, manufacturing, and logistics and distribution. In 2020 alone, over 14.9 million tourists visited Savannah, of which 8 million had overnight stays.⁶ As show in Table 1.1, the ten largest employers cover a healthy range of industries. The recent arrival of Hyundai's Electric vehicle and battery plant in Bryan County will soon move them onto this list.

TABLE 1.1 TEN LARGEST EMPLOYERS IN THE CORE MPO REGION

Employer	Industry
At Work	Administrative/Support/Waste Management/Remediation
Candler Hospital, Inc.	Health Care and Social Assistance
Gateway Terminals, LLC	Transportation and Warehousing
Gulfstream Aerospace Corporation	Manufacturing
Gulfstream Services Corporation	Manufacturing
Publix Super Markets, Inc.	Retail Trade
Savannah College of Art and Design	Education Services
Savannah Health Services, LLC	Health Care and Social Assistance
The Kroger Company	Retail Trade
Walmart	Retail Trade

Source: Georgia Department of Labor.⁷

As depicted in Table 1.2, the accommodation and food services industry had the second-largest number of establishments (1,321) and was the leading employer in the region in the second quarter of 2022 (24,265

⁵ Bureau of Transportation Statistics (BTS). Top U.S. Foreign Trade Freight Gateways by Value of Shipments-2020. <https://www.bts.gov/content/top-us-foreign-trade-freight-gateways-value-shipments-current-billions>

⁶ Savannah Area Chamber of Commerce. New Data Shows Increases in Visitor Spending and Overnight Visitation in 2021 as Savannah's Tourism Continues its Rebound. May 16, 2022. <https://www.savannahchamber.com/news-and-events/news/visit-savannah-news/new-data-shows-increases-in-visitor-spending-and-overnight-visitation-in-2021-as-savannahs-tourism-continues-its-rebound/>

⁷ Workforce Statistics & Economic Research, Georgia Department of Labor. Savannah, GA Metropolitan Statistical Area: Area Labor Profile. November 2022. <https://explorer.gdol.ga.gov/vosnet/mis/Profiles/msa/savannah.pdf>

employees)⁸. While logistics and warehouse facilities are often seen as the largest contributors of freight trip generation (FTG), retail trade and accommodation and food services – also known as service-inclined industries – represent close to half of the FTG in urban areas.⁹

TABLE 1.2 TEN LARGEST INDUSTRIES AND PROJECTED EMPLOYMENT GROWTH, 2018-2028

Industry	Firms	Employees	Growth Rate
Accommodation and Food Services	1,321	24,265	12.2%
Government	193	22,728	3.2%
Retail Trade	1,571	22,312	9.9%
Health Care and Social Assistance	1,121	21,273	25.0%
Manufacturing	312	19,012	5.8%
Administrative & Support/Waste Management & Remediation Services	756	17,463	10.1%
Transportation and Warehousing	638	17,137	18.7%
Construction	902	8,423	5.4%
Wholesale Trade	463	6,316	12.3%
Professional, Scientific, and Technical Services	1,095	6,269	18.1%

Source: Georgia Department of Labor. Projected Employment Growth Rate – Coastal Georgia Region (2018-2028)¹⁰

⁸ Georgia Dept. of Labor, Workforce Statistics & Economic Research, Quarterly Census of Employment and Wages Program. Industry Employment Distribution. <https://explorer.gdol.ga.gov>

⁹ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 19.

¹⁰ Georgia Department of Labor. Industry Employment Projections – Long Term. <https://explorer.gdol.ga.gov/vosnet/analyzer/resultsNew.aspx?session=indproj>

2 ASSESSMENT AND ANALYSIS OF FREIGHT LAND USES

2.1 Existing Land Uses

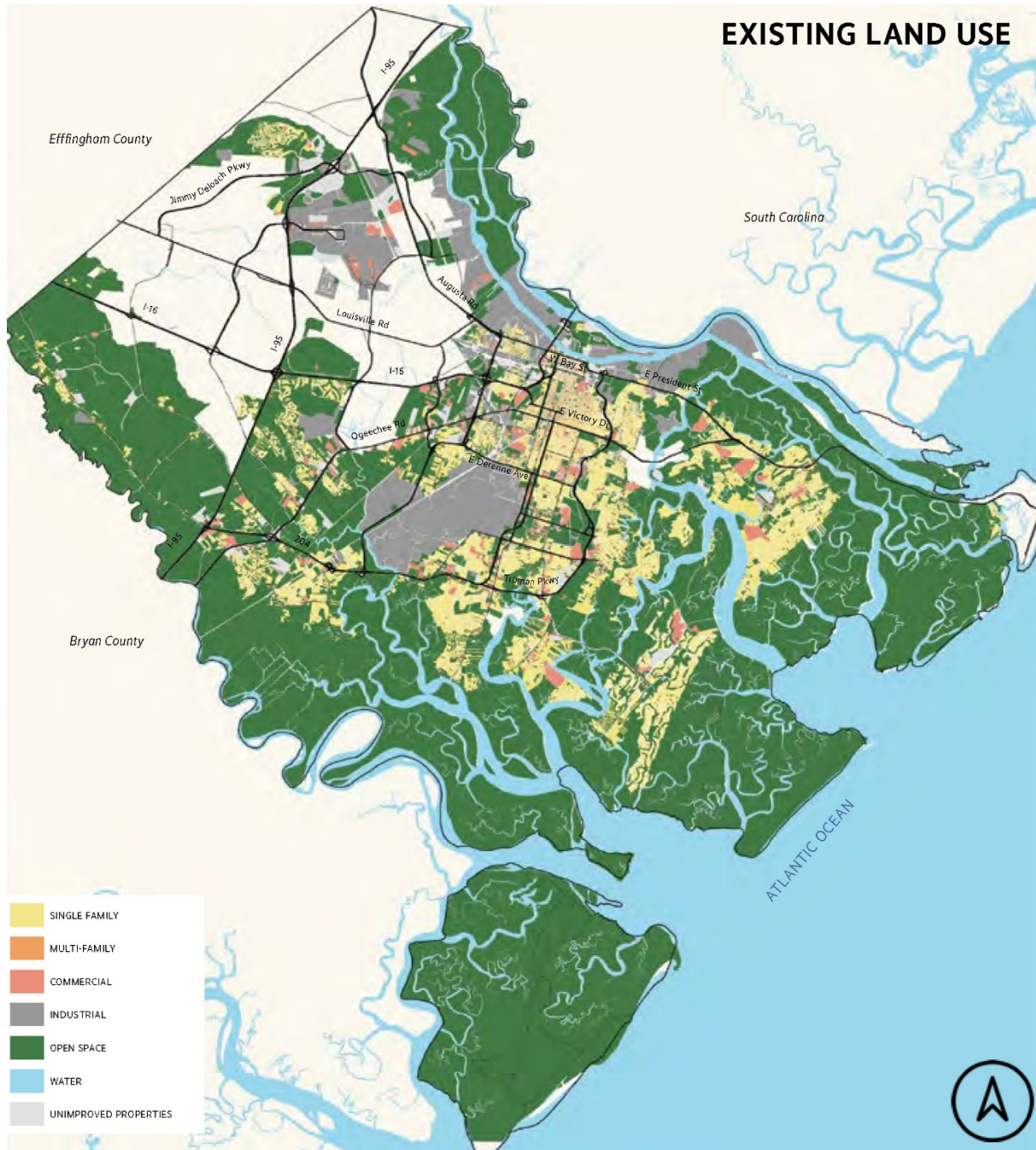
All available land use documents and geospatial data for Bryan, Chatham, and Effingham Counties, as well as their associated municipalities, were gathered to understand the predominant land use categories and zoning classes in the region. Documentation and data sources consulted for this section include:

- Plan 2040, the Chatham County-Savannah Comprehensive Plan;
- 2020-2040 Effingham County and the cities of Guyton, Rincon, and Springfield Joint Comprehensive Plan;
- 2018 Bryan County Comprehensive Plan Update;
- Savannah Area GIS (SAGIS) OpenData Portal;
- QPublic and GIS web apps for all applicable jurisdictions; and
- Land use maps, zoning maps, and zoning ordinances for all applicable jurisdictions.

It is important to note that throughout this section of the report, data on zoning was used to make inferences about land use. This is because none of the counties or municipalities within the CORE MPO study area have developed detailed classification for freight-intensive land uses in their land use codes. Though the actual use of a parcel of land may sometimes differ from what its zoning implies, zoning is the best indicator of freight-intensive land uses when detailed data is unavailable.

Existing Land Use Overview

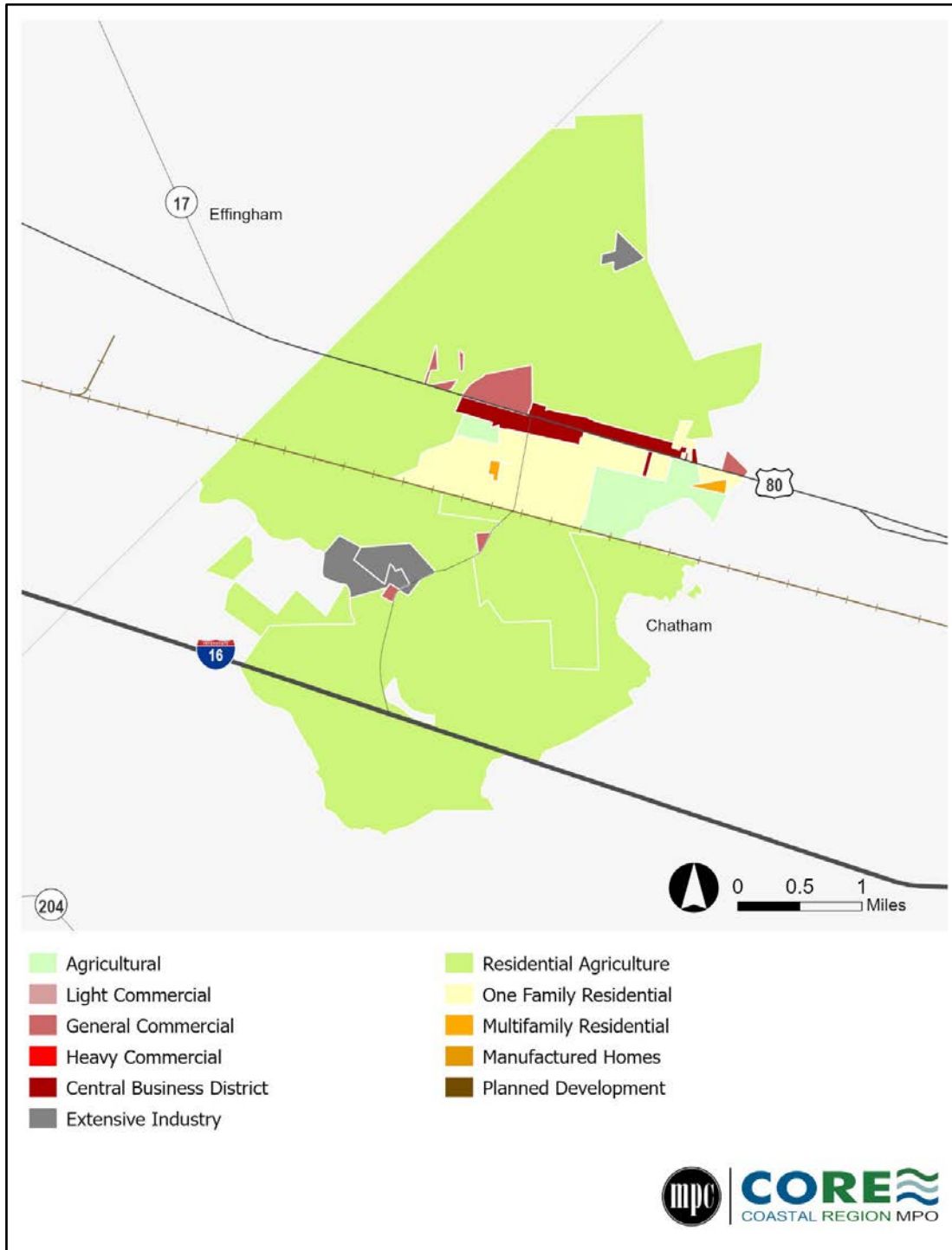
Of the region's local governments, unincorporated Chatham County and the City of Savannah have the most comprehensive zoning and land use plans. In terms of acreage, the predominant land use category and zoning class in Chatham County is open space and the conservation of marsh land, accounting for around 40 percent of the county's total land followed by single family residential (7 percent) and industrial (4 percent) as shown in Figure 2.1. In the context of Chatham County's land use classifications, industrial and commercial land uses are those that typically generate freight traffic. These land uses are generally concentrated along the Savannah River and I-95 north of Louisville Road. However, more recent freight-generating developments are occurring in Chatham County along the I-16 corridor to the west and along the I-95 corridor south near the border with Bryan County.

FIGURE 2.1: CHATHAM COUNTY EXISTING LAND USE

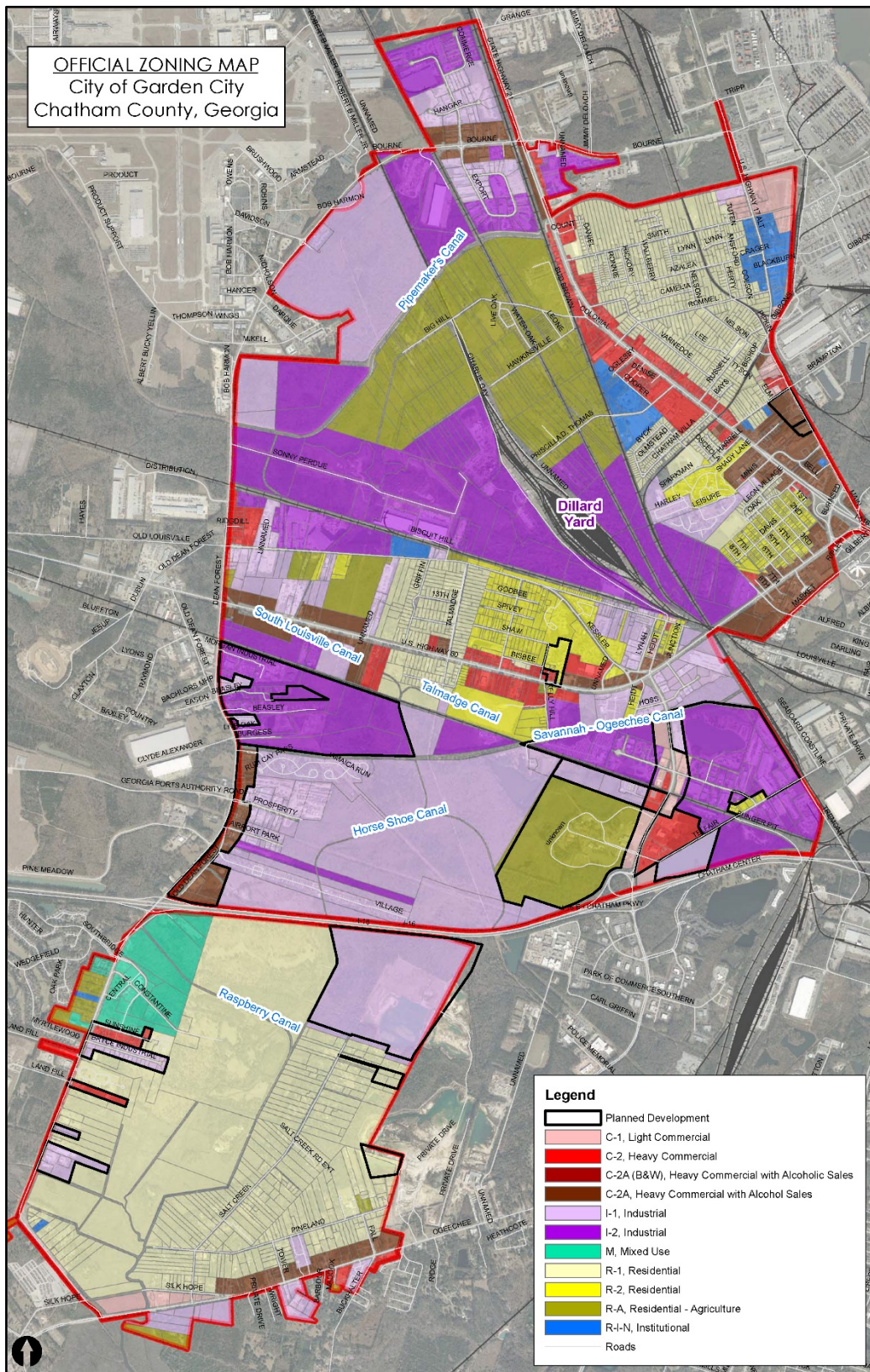
Source: Chatham County-Savannah Plan 2040, 2020.

Several of the region's municipalities have their own zoning classifications which range in degree of consistency with their respective counties. Larger cities in Chatham County including Savannah, Pooler, and Garden City benefited from participation in Chatham County's 2040 Plan as they all have similar land use classifications and comprehensive plans. Figure 2.2 through Figure 2.5 depict existing land uses in the Cities of Bloomingdale, Pooler, Garden City, and Port Wentworth. In the City of Bloomingdale, freight-generating land uses are primarily concentrated along US 80 and Jimmy Deloach Pkwy.

FIGURE 2.2 BLOOMINGDALE ZONING

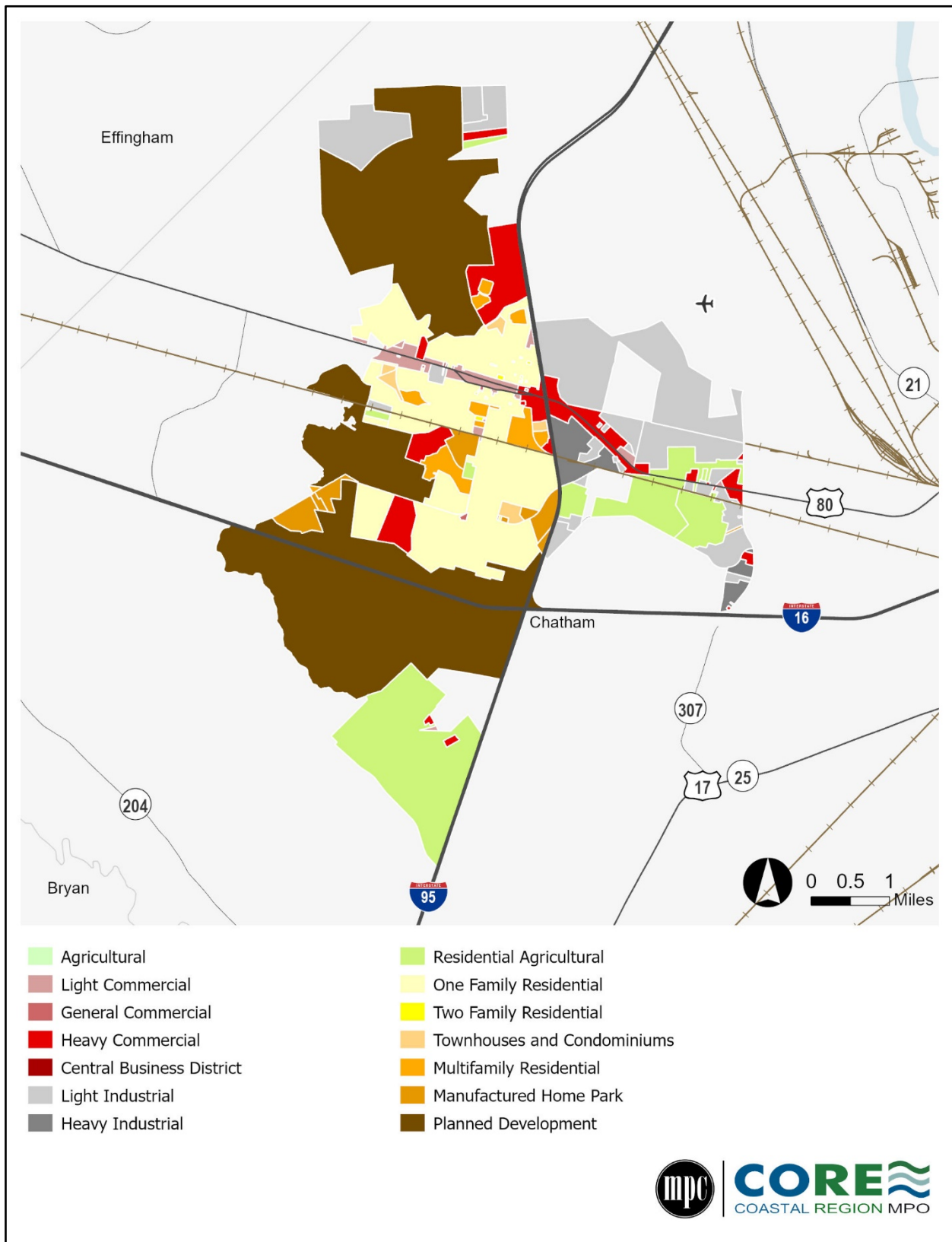


Source: Bloomingdale Planning and Zoning.

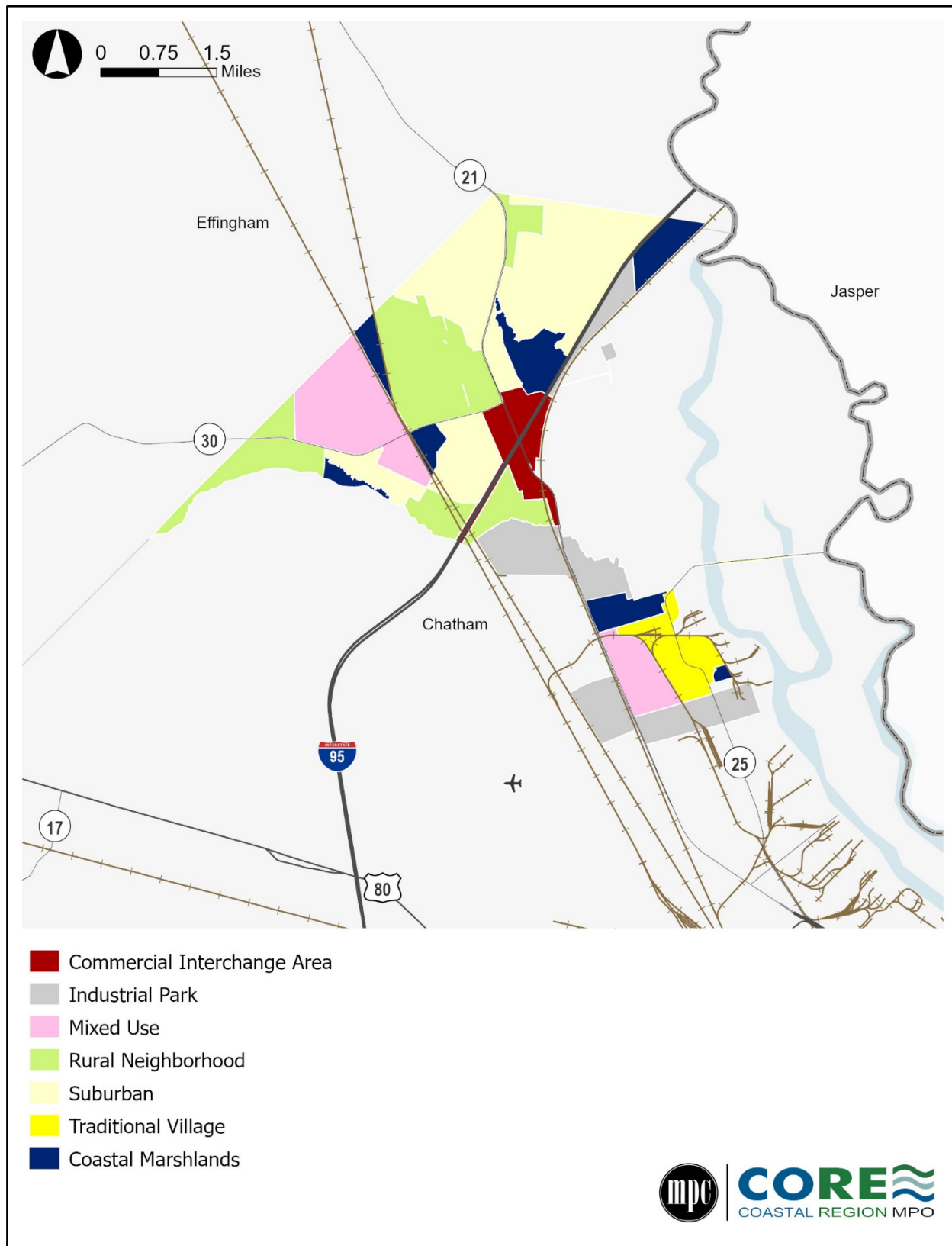
FIGURE 2.3 GARDEN CITY ZONING

Source: Garden City Planning and Economic Development.

FIGURE 2.4 POOLER ZONING



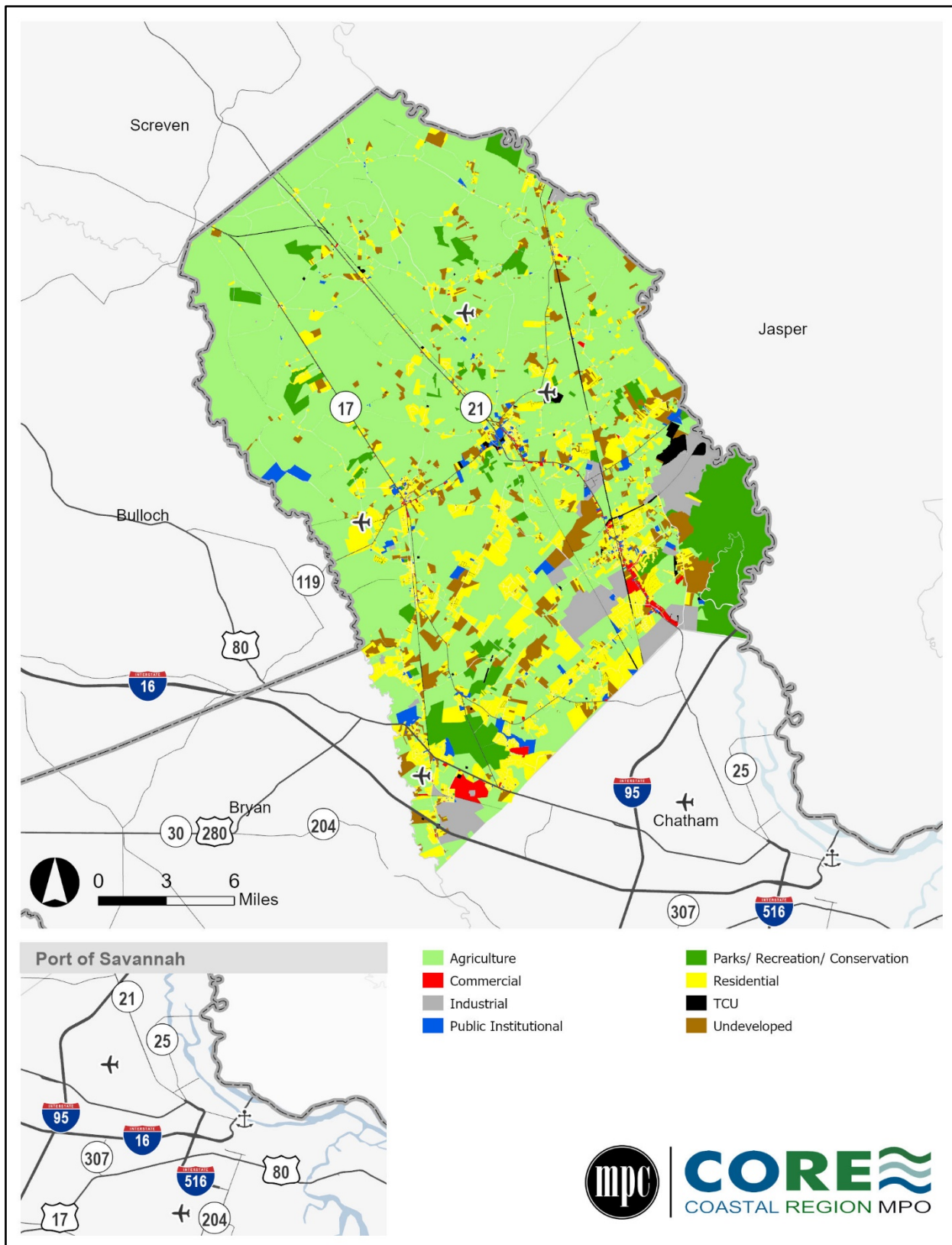
Source: Pooler Planning and Zoning.

FIGURE 2.5 PORT WENTWORTH ZONING

Source: Port Wentworth Planning and Development.

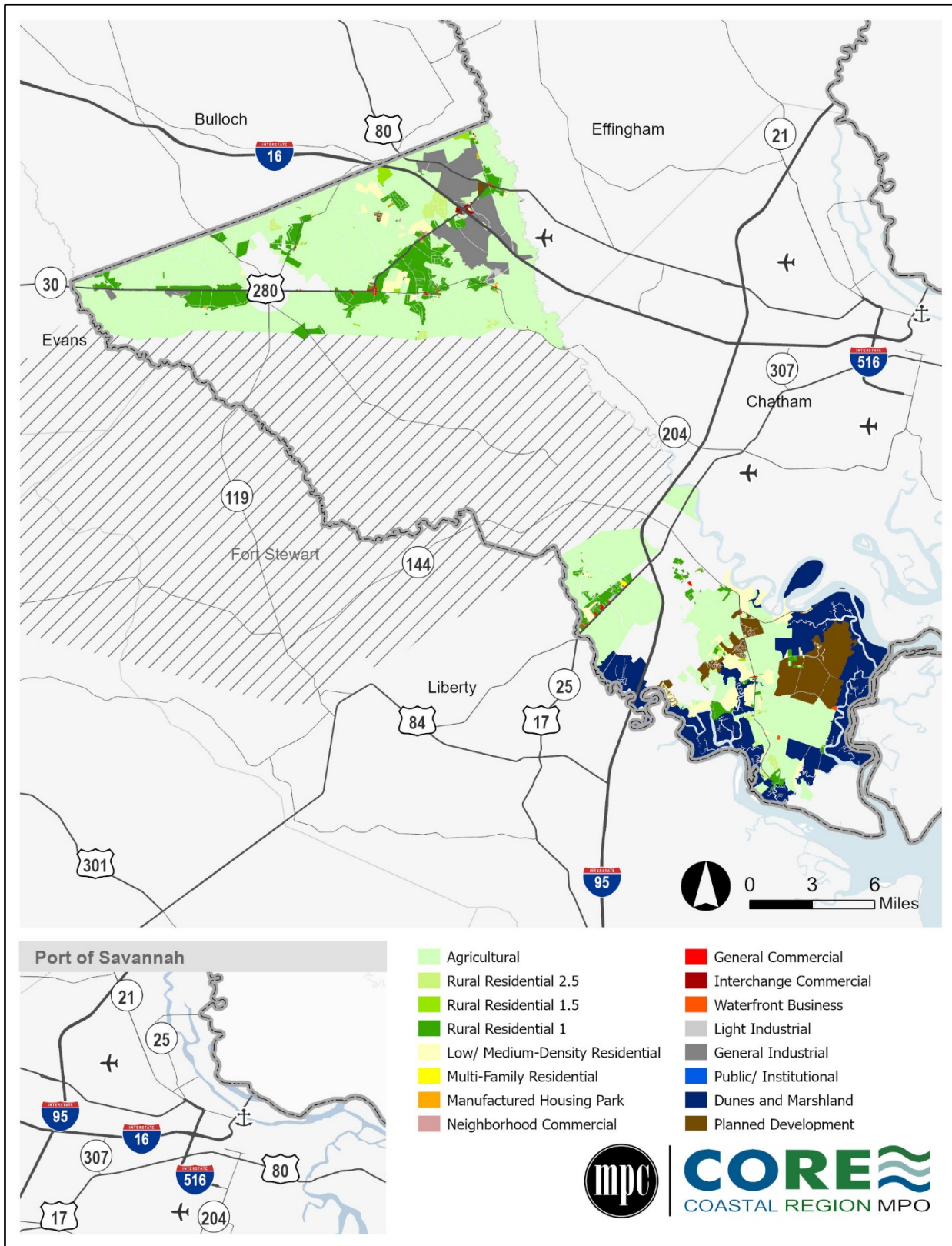
The more rural nature of Bryan and Effingham Counties means the zoning is less diverse, with larger areas of land classified under broader descriptors. Agricultural or agricultural residential uses account for over 60 percent of Bryan County's total land and over 80 percent of Effingham County's total land. Figure 2.6 through Figure 2.9 depict existing land uses in Effingham County, Bryan County, the City of Pembroke, and the City of Richmond Hill. In general, the interconnected nature of the multimodal freight network across the three counties in the CORE MPO region will require greater collaboration in freight-related land use planning while still allowing each community to embrace their unique local characters.

FIGURE 2.6 EFFINGHAM COUNTY EXISTING LAND USE



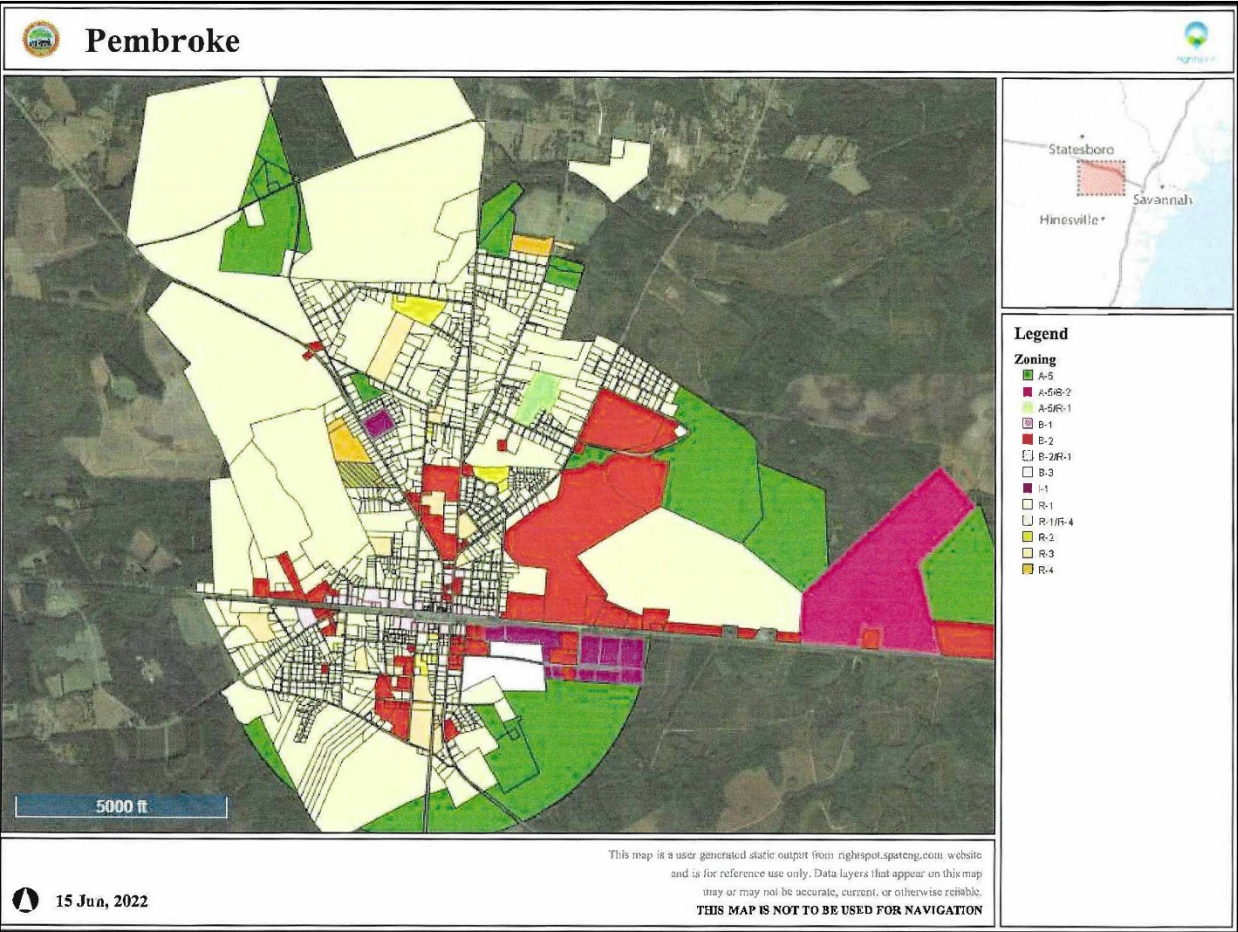
Source: Effingham County Planning and Zoning, 2019.

FIGURE 2.7 BRYAN COUNTY ZONING



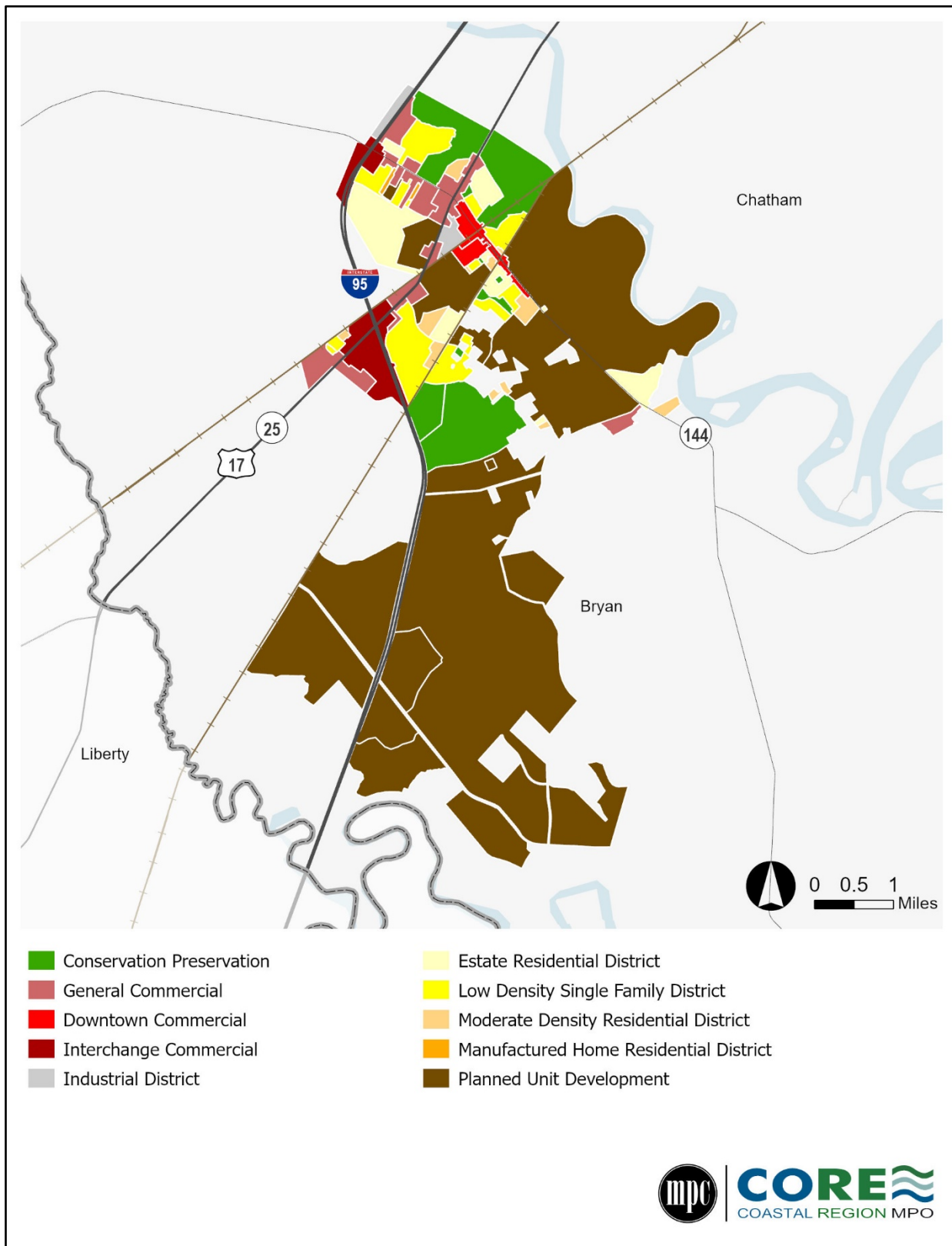
Source: Bryan County Planning and Zoning, 2021.

FIGURE 2.8 PEMBROKE ZONING



Source: Pembroke Planning and Zoning.

FIGURE 2.9 RICHMOND HILL ZONING



Source: Richmond Hill Planning and Zoning.

Freight-Generating Land Uses

National Cooperative Highway Research Program (NCHRP) Report 998 defines freight activity as, “*all manifestations of production and supply chain systems – the flows of freight (the supplies) and freight trips (the vehicles), and the associated pickups and deliveries – at the urban, suburban, and rural levels*”.¹¹

Freight-generating land uses include producers such as agriculture or manufacturing facilities (typically found in agricultural and industrial zoning districts), suppliers such as wholesalers or manufacturers (typically found in industrial, commercial, and mixed-use zoning districts), freight carriers such as shipping and trucking companies (typically found in industrial and commercial zoning districts), and end receivers including individual consumers, retailers, and food services (typically found in commercial, residential, and mixed-use zoning districts). Table 2.1 identifies all the North American Industry Classification System (NAICS) Codes, examples of the associated land uses, and typical zoning categories.

TABLE 2.1 FREIGHT-GENERATING SECTORS BY ZONING CATEGORY AND INDUSTRY CLASSIFICATION

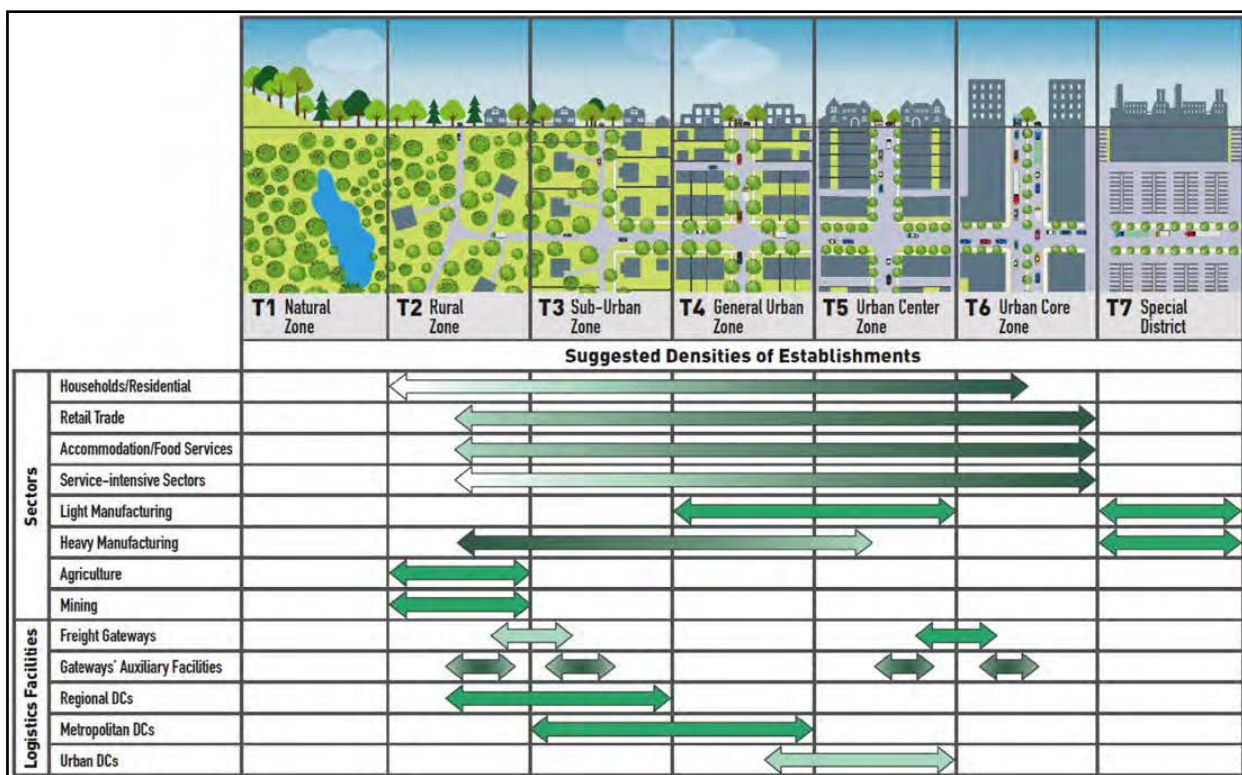
NAICS Code	Freight-Generating Sector	Use Examples	Typical Zoning Category
11	Agriculture, Forestry, Fishing and Hunting	Crop producers, animal producers, logging	Agricultural
21	Mining	Metal ore mines, mineral mines	Industrial
22	Utilities	Electric power generators, natural gas distributors, water, and sewer systems	Industrial
23	Construction	Residential and non-residential building construction, road and bridge construction	All
31-33	Manufacturing	Food and beverage manufacturers, textile mills, automotive manufacturers, ship builders, chemical refiners	Industrial, Manufacturing
42	Wholesale Trade	Motor vehicle parts distributors, farm raw material vendors	Industrial, Commercial
44-45	Retail Trade	Automotive dealers, food and beverage stores, gasoline stations, general merchandise stores, health and personal care stores	Commercial, Mixed-use
48-49	Transportation and Warehousing	E-commerce and other distribution centers, ports, airports, rail yards, trucking facilities	Industrial, Commercial, Public/Institutional
72	Accommodation and Food Services	Hotels, motels, restaurants, bars	Commercial, Mixed-use
Terms: NAICS = North American Industry Classification System			

¹¹ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 5.

When evaluating land use and zoning, it is critical to understand that freight-generating land use is not limited to light/heavy industrial and manufacturing. Within larger population centers such as Savannah and Richmond Hill, retail businesses, hospitals, hotels, restaurants, and other freight receivers can generate a large percentage of urban freight trip generation (FTG). The receiver end of the supply chain has its' own set of challenges and inefficiencies, such as lack of loading and unloading areas or insufficient off-street delivery parking that result in similar negative externalities on the surrounding community (e.g., increased traffic congestion, accidents, or pollution).

Figure 2.10 depicts the ideal density of freight intensive land use sectors and logistical facilities along a traditional rural-to-urban transect. The preferred zoning for larger regional distribution centers, like many of the large logistical facilities that support the Port of Savannah, should be located out in suburban to rural areas with access to freight gateways such as rail and highway. Regional distribution centers are recommended to be located closer between suburban and general urban areas while urban distribution centers should be located within the urban core near freight receivers.

FIGURE 2.10 FREIGHT EFFICIENT LAND USE RURAL-TO-URBAN TRANSECT



Source: NCHRP Report 998, 2022.

The definition of freight-generating land use and zoning outlined in NCHRP Report 998 was used to categorize each county's (see Table 2.2) and municipality's (Table 2.3) land use/zoning. These categories were the basis for identifying the existing and future freight-generating land uses (see Figure 2.11 and Figure 2.24, respectively). The categories of land use identified as "freight intensive" have been expanded beyond the typical industrial and manufacturing land uses to capture the full spectrum of freight-intensive land use, including retail trade, accommodations, and food service. Furthermore, the information in Table 2.2 highlights

the importance of the region adopting a uniform system of land use types across the region to facilitate identification and management of freight-generating land uses.

TABLE 2.2 REGIONAL FREIGHT-GENERATING LAND USE AND ZONING

Freight Land Use/Character Area	Freight-Generating County Zoning
Effingham County¹²	
Commercial	Neighborhood Commercial; General Commercial
Industrial	Light Industrial; General Industrial
Mixed Use	Mixed Use
Transportation/Utilities	Light Industrial; General Industrial
Bryan County¹³	
Mixed Use	Commercial Districts; Interchange Commercial Districts; Light Industrial Districts; General Industrial Districts; Mixed Use; Neighborhood Business Districts; Neighborhood Commercial Districts; Office Districts; Planned Use Development
Low Density Suburban	Mixed Use; Neighborhood Business; Planned Unit Developments
Chatham County¹⁴	
Urban Downtown	Residential-Business; Neighborhood-Business; Community Business; Planned Shopping Center; Office – Institutional; Waterfront Industry
Urban Core	Residential-Business; Neighborhood-Business; Community Business; Planned Shopping Center; Office – Institutional; Planned Shopping Center; Planned Unit Development-Commercial Center
Urban Transitional	Residential-Business; Neighborhood-Business; Community Business; Planned Shopping Center; Office – Institutional; Waterfront Industry; Planned-Light-Industrial-Transition; Planned Shopping Center; Planned Unit Development-Commercial Center
Urban Industrial	Heavy Industrial; Light Industrial; Manufacturing; Waterfront Industry; Planned-Light-Industrial-Transition; Business General
Suburban Industrial	Light Industrial; Manufacturing; Planned Development-Reclamation-Industrial Landfill; Planned Development-Reclamation-Sanitary Landfill
Suburban Commercial	Business General; Business Limited; Community Business; Neighborhood-Business; Residential Business; Tourist-Business; Office – Institutional; Planned Shopping Center; Planned Unit Development-Commercial Center
Rural Corridor	Light Industrial; Manufacturing; Tourist-Business; Business General

¹² Effingham County. 2020-2040 Joint Comprehensive Plan.

¹³ Bryan County 2018 Comprehensive Plan. Future Land Use Element Update. March 20, 2020.

¹⁴ Chatham County – Savannah Metropolitan Planning Commission. Chatham County Zoning Regulations. <https://www.thempc.org/Ordinance/Chatham>

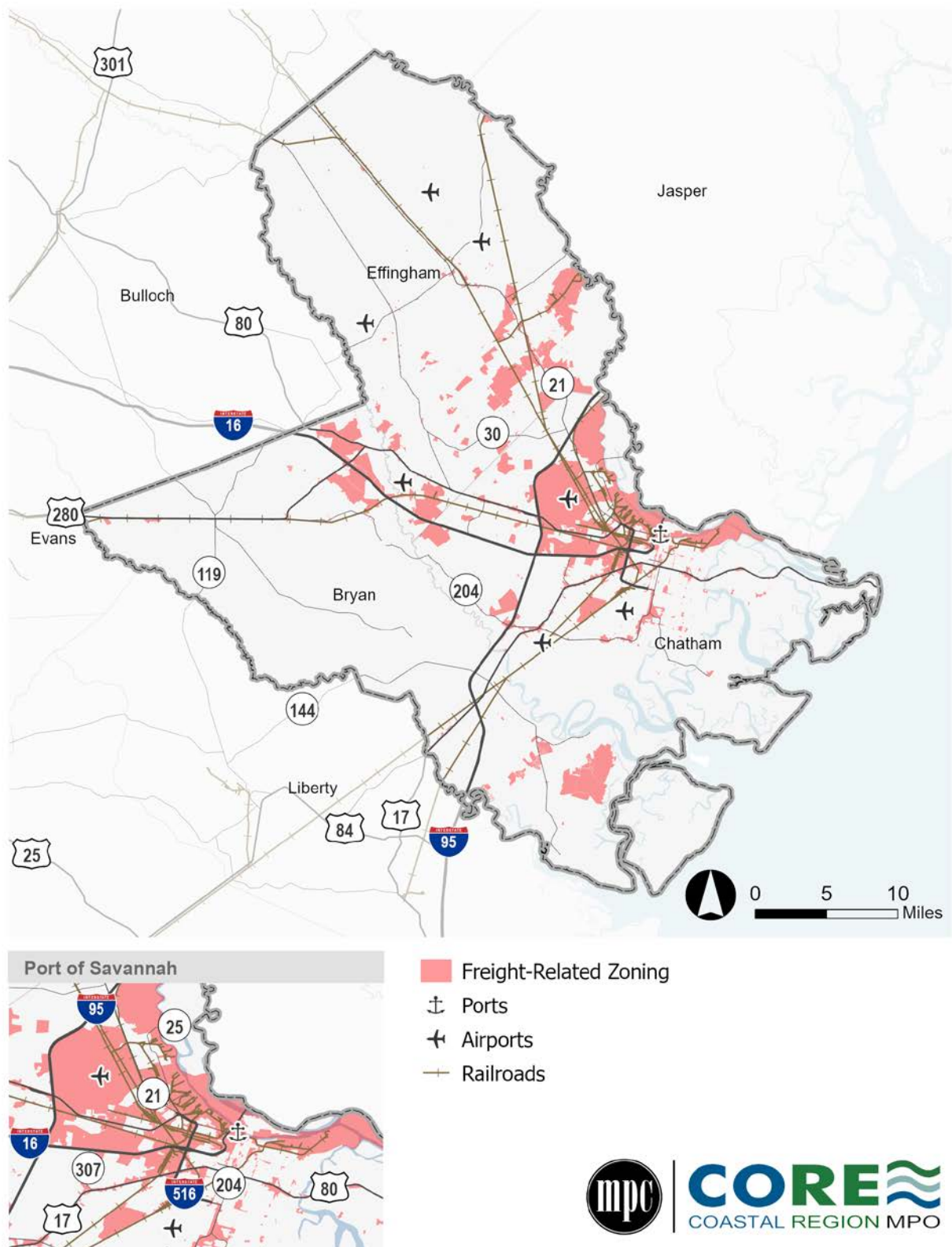
TABLE 2.3 LOCAL FREIGHT-RELATED LAND USE AND ZONING

Use/Character Area	Freight Generating Zoning – Major Municipalities
Chatham County	
City of Savannah	
Industrial	Light Industrial; Heavy Industrial; Light-Industrial-Business; Planned Light Industrial Transition;
Commercial	Limited Business; Neighborhood Business; Community Business; Maritime Business; Downtown Commercial; Downtown Waterfront; Office and Institutional-Transition; Office and Institutional; Office and Institutional-Expanded;
Mixed-use Districts	Traditional Commercial; Planned Residential Transition; Downtown Expansion; Downtown Central Business District; Downtown Commercial; Downtown Neighborhood
Special Purpose	Planned Development District; Military Installation
Garden City	
Industrial	Light Industrial; Heavy Industrial; Planned Industrial
Commercial	Light Commercial; Heavy Commercial; Planned Commercial;
Mixed Use	Mixed Use
Port Wentworth	
Industrial	Light Industrial; Heavy Industrial; Manufacturing
Commercial	Neighborhood-Business; Community-Business; General Business
Special Purpose	Planned Unit Development; Economic Development Zone
Pooler	
Industrial	Industrial, light district; Industrial, heavy district
Commercial	Commercial, light district; Commercial, heavy district; Commercial–professional district
Special Purpose	Planned Use Development
Tybee Island	
Industrial	Maritime
Commercial	Conditional; Beach Business; Highway Business; Neighborhood Store; transitional business-residential; neighborhood marina
Bryan County	
Bloomingdale	
Industrial	Light Industrial; Intensive Industrial; Heavy Industrial
Commercial	Office – Commercial; Central Business District; General Commercial
Special Purpose	Planned Unit Development
Richmond Hill	
Commercial	General Commercial; Downtown Commercial; Interchange Commercial
Industrial	Industrial
Mixed Used	Planned Use Development; Neighborhood Mixed Use, Community Mixed Use
Pembroke	
Industrial	Industrial
Commercial	Village Commercial; General Commercial; Neighborhood Commercial
Special Use	Planned Use Development
Effingham County	
Rincon	
Industrial	Limited Industrial; General Industrial; General Industrial

Commercial	Office and Commercial; Limited Commercial; General Commercial
Springfield	
Commercial	General Commercial District, Downtown District; Residential Office
Special Purpose	Planned Use Development

Within the study area, over half of the land zoned for freight-generating uses are located in Chatham County, which contains major freight generators like the Port of Savannah, freight rail terminals, and the Savannah/Hilton Head International Airport. Using county-level zoning and land use data and the regional freight-generating class definitions in Table 2.2, the total area of freight-generating uses was calculated for each county. Over 47,000 acres of land is zoned for freight-generating uses in Chatham County, which is about 14 percent of the total land in the county. In Effingham County, over 22,000 acres of land is zoned for freight-generating uses, a total of 7 percent of the county's land. Bryan County contains over 15,000 acres zoned for freight-related use, or about 11 percent of the county's land. Figure 2.11 depicts the distribution of freight-related county zoning in the CORE MPO region.

FIGURE 2.11 REGIONAL FREIGHT-GENERATING LAND USES



Source: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

CORE MPO Region – A Freight-Inclined Economy

The CORE MPO region can be described as a freight-inclined, rather than a service-inclined, economy.¹⁵ In freight-inclined economies, a larger percentage of the workforce is employed in industries such as manufacturing and transportation and logistics where the production, distribution, and consumption of freight is the leading economic driver. It also includes industries such as retail trade and accommodation and food service where although freight is not the leading economic driver, businesses in those industries generate substantial volumes of freight. This stands in contrast to service-inclined economies, which are defined by those economies in which a majority of employees hold jobs in service-oriented industries such as professional services, educational services, government, and healthcare.

During the second quarter of 2022, 54 percent (101,033 workers) of the total workforce (187,266 workers) in the three-county region was employed in freight-generating industries.¹⁶ Major employers within the freight-generating sector include manufacturers like Gulfstream Aerospace Corporation and Savannah Acid, retailers such as Publix and Kroger, and logistics facilities such as distribution centers for Target and Walmart. Additional information on the largest freight-intensive sector employers in the three-county region is available in Table 2.4.

TABLE 2.4 LARGEST FREIGHT-GENERATING SECTOR EMPLOYERS IN THE CORE MPO REGION

Corporation/Organization	NAICS	Employees
Gulfstream Aerospace Corporation	Manufacturing	10,000
Walmart	Retail Trade	2,910-4,999
Colonial Group	Utilities/Manufacturing/Retail Trade/Transportation and Warehousing	1,950
Georgia Ports Authority	Transportation and Warehousing/Government	1,400
McDonald's	Accommodation and Food Services	1,030-4,999
Publix	Retail Trade	866-4,999
Kroger	Retail Trade	716-4,999
Target Distribution Center	Transportation and Warehousing	1,400
Georgia-Pacific Savannah River Mill	Manufacturing	1,300
Walmart Distribution Center	Transportation and Warehousing	1,200
JCB	Manufacturing	800
Dollar Tree Distribution Center	Transportation and Warehousing	600
Savannah Acid	Manufacturing	500-999
Spirit Construction Services	Construction	500-999
International Paper	Manufacturing	500-750
Daniel Defense	Manufacturing	338
Atlantic Wood Industries	Manufacturing	250-499
Brasseler USA	Manufacturing	250-499

¹⁵ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 29-30.

¹⁶ Georgia Department of Labor, Local Area Profile- Savannah Metropolitan Statistical Area. November 2022 <https://explorer.gdol.ga.gov/vosnet/mis/Profiles/msa/savannah.pdf> Downloaded 11/27/2022.

Imperial Sugar	Manufacturing	250-499
Chatham Steel Corporation	Manufacturing	250-499
Ceasarstone Technologies USA	Manufacturing	195
Mitsubishi-Hitachi Power Systems America	Manufacturing	187
Orafol, USA	Manufacturing	156
Terms: NAICS = North American Industry Classification System		

Source: Savannah Area Chamber of Commerce.

Spatially, there are significant differences in how employers in freight-generating sectors are organized and distributed across the region. Some employers have one or a small number of facilities that are concentrated on one site or at nearby locations. Examples of these employers include Gulfstream Aerospace Corporation, which operates an aerospace manufacturing center across several buildings surrounding Savannah-Hilton Head International Airport, as well as International Paper, which operates a large paper mill on the Savannah River southeast of the Georgia Ports Authority's Garden City Terminal. Other major freight-generating employers have a larger number of facilities that are more distributed throughout the region. Examples of these employers include Walmart, which operates seven retail stores and one distribution center within the three-county region, Publix (nine stores), and McDonald's (21 restaurants). The distribution of freight-generating sector employers throughout the region and across different types of zoning districts means freight trips – including trips happening with varying frequency and using different sizes and types of vehicles – take place on a regular basis not only in industrial and commercial zones, but also in residential zones, mixed-use districts, and other less freight-oriented areas as well.

The following sections provide additional details about the freight-generating sectors that most impact the three-county region.

Transportation and Warehousing

Transportation and warehousing uses represent a large and fast-growing segment of the freight-generating land uses in Bryan, Chatham, and Effingham Counties. Included within this category is a range of logistics facilities¹⁷ that play key roles in the global supply chain and act as an essential component of the regional economy driven by the Port of Savannah. Logistics facilities can be divided into the following categories based on their size, location, and function in the larger logistics network:

- Gateways** – Freight gateways are points at which freight enters or exits a study area. Gateways can be located within urban cores or on the outskirts of a metropolitan region. In the case of the CORE MPO region, gateways include the Georgia Ports Authority's (GPA) Garden City Terminal (GCT) and Ocean Terminal (OT), private marine terminals berths, private major logistical facilities like Savannah Gateway Industrial Hub (road-rail), major rail yards including CSX's Southover Yard and Norfolk Southern's Savannah Rail Yard, airports including Savannah/Hilton Head International Airport, and interstate highways. While the volume of freight entering freight gateways is large, the number of

¹⁷ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 20.

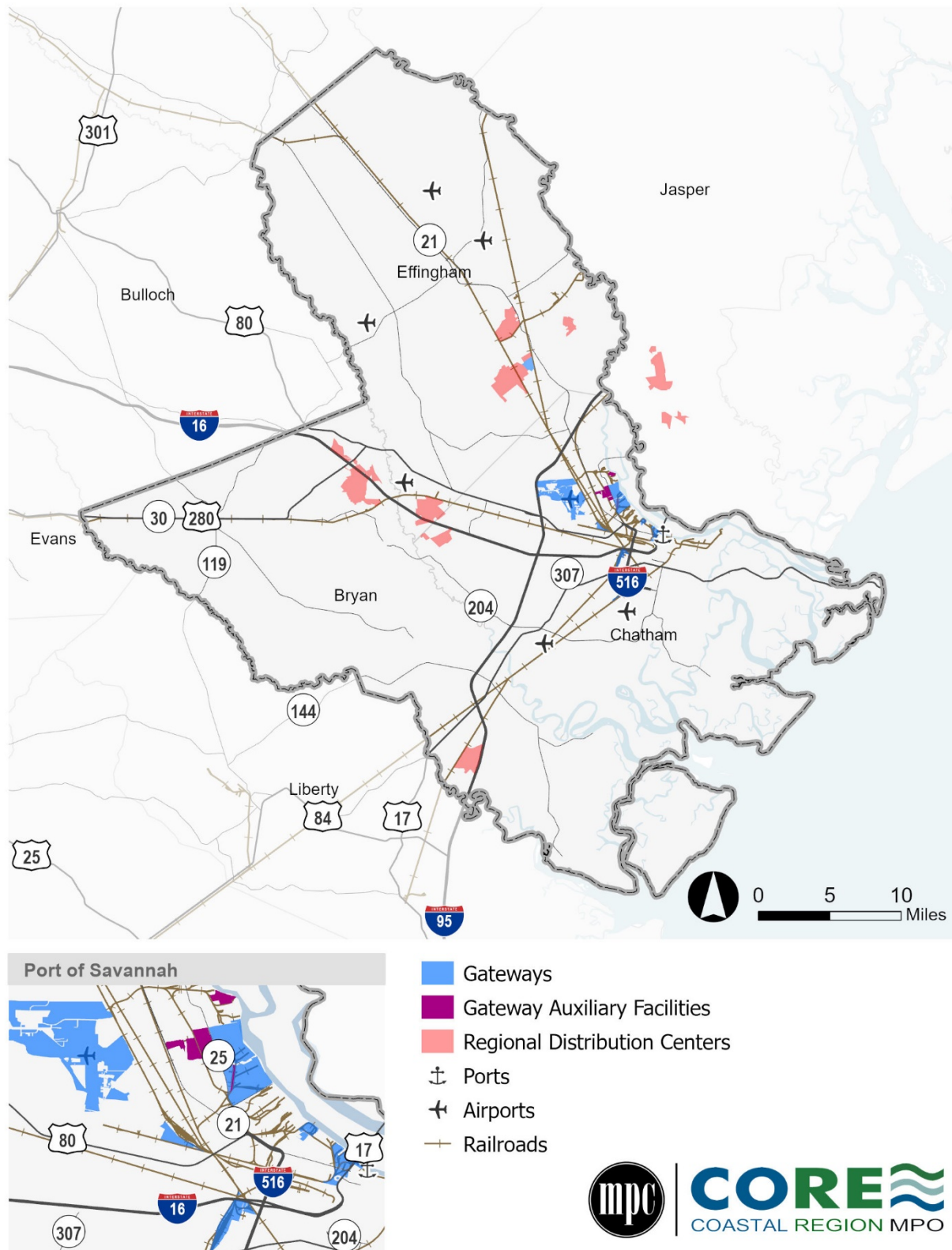
freight trips generated at gateways is relatively small due to the size of the shipments in large vessels such as container ships or freight trains.¹⁸

- **Gateway Auxiliary Facilities** – Gateway auxiliary facilities are areas that are necessary for the overall operation of freight gateways, including container yards, reefer racks/cold storage, and drayage chassis yards. They also include intermodal facilities such as the Mason Mega Rail Terminal (ship-rail) and related repair/maintenance and fuel depots/facilities that support the Port of Savannah.
- **Regional Distribution Centers** – Regional distribution centers distribute supplies between the CORE MPO and larger regional corridors. Ideally, these facilities are sited on the fringe of suburban areas with access to major transportation corridors (interstate/mainline rail) and an available workforce. Examples of these facilities in the region include the Ikea Distribution Center in Port Wentworth and the Amazon Fulfillment Center in Pooler.
- **Metropolitan Distribution Centers** – Metropolitan distribution centers support the distribution of supplies within the CORE MPO's urban and suburban areas. Examples of such facilities in the three-county region include the Dollar Tree Distribution Center in Savannah.
- **Urban Distribution Centers** – Urban distribution centers are smaller facilities located within the urban core that are focused on short delivery windows to local consumers. Examples of such facilities in the study area include the Garden State Tile Warehouse and the Bravo Food Services facility, both located in Savannah.

Figure 2.12 shows the distribution of freight gateways, gateway auxiliary facilities, and regional distribution centers logistical facilities in the CORE MPO region.

¹⁸ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 20.

FIGURE 2.12 REGIONAL LOGISTICAL FACILITIES

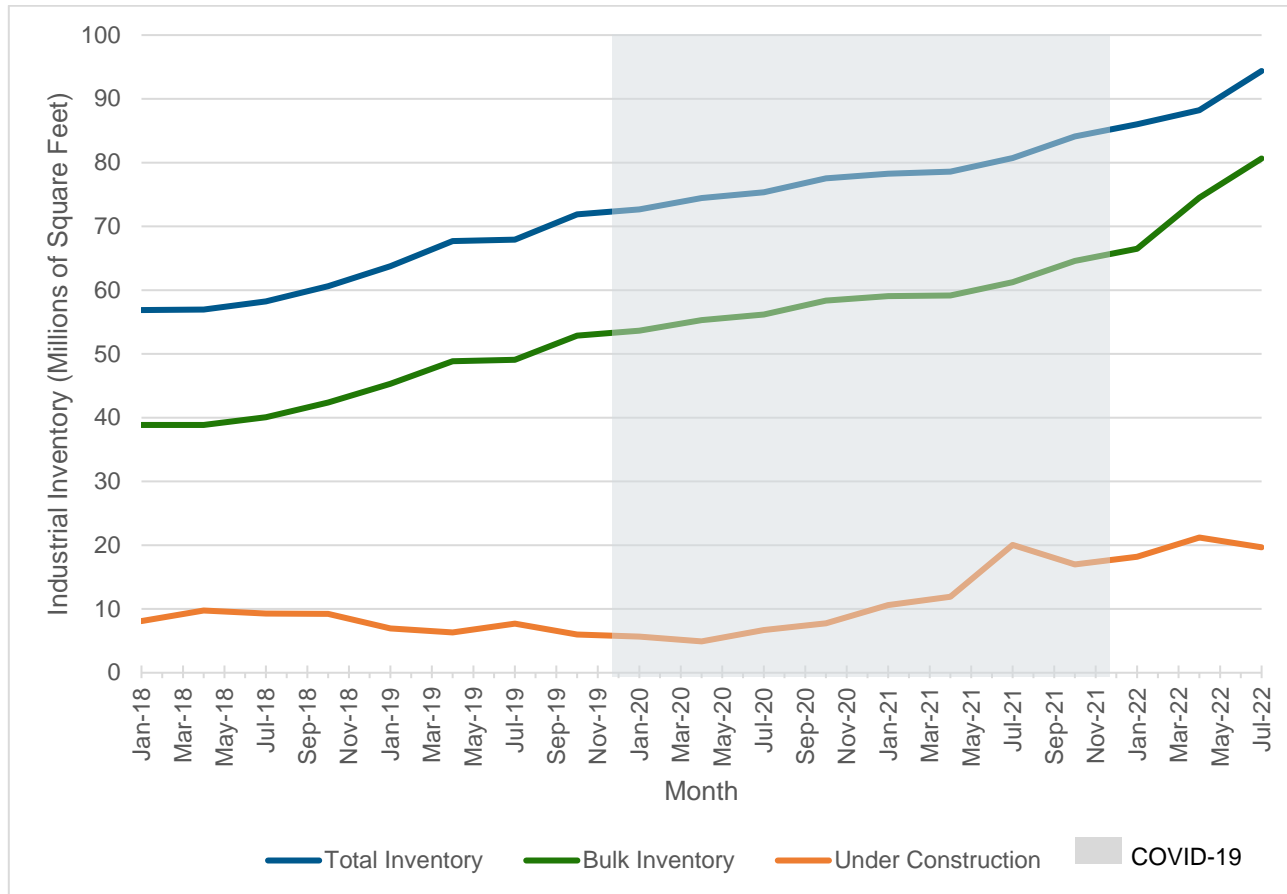


Source: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

Existing Warehouse Inventory

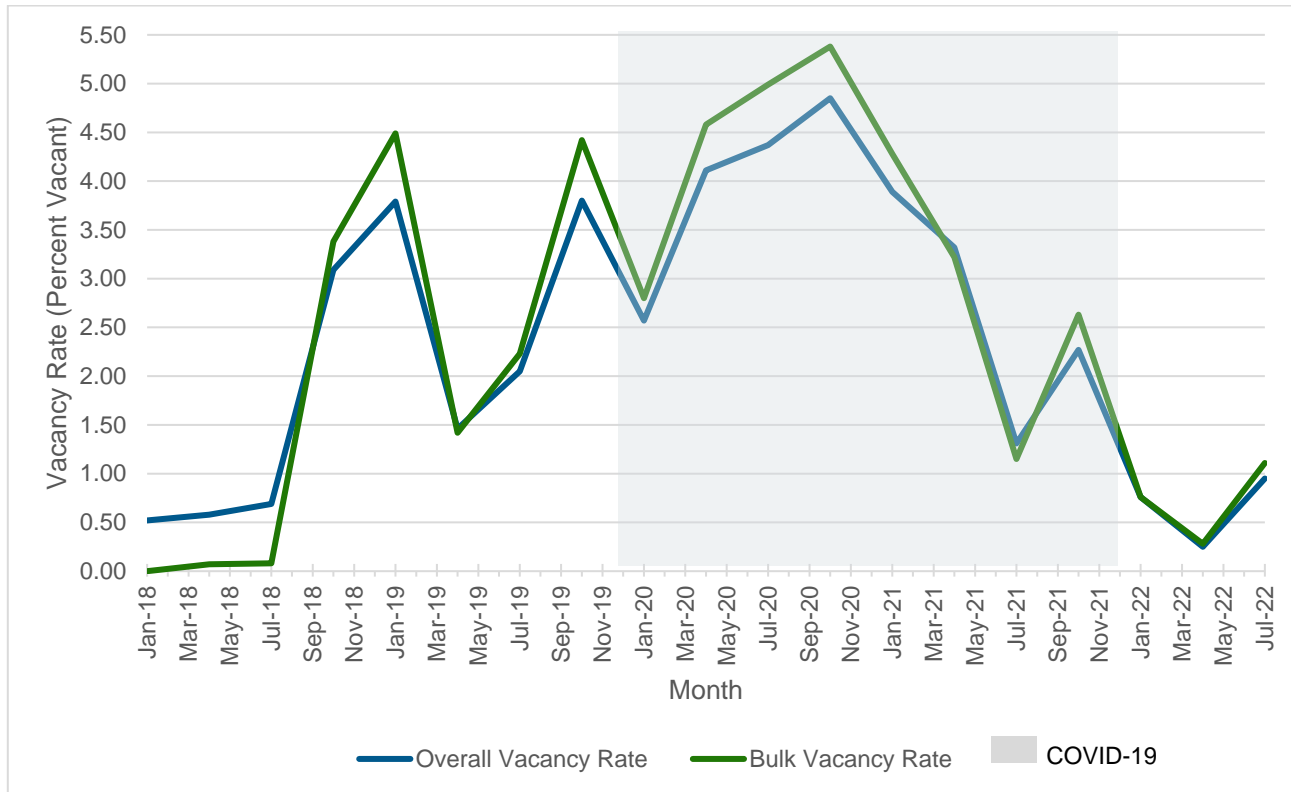
As shown in Figure 2.13, between July of 2018 and July of 2022, warehouse inventory across the region increased from 57 million square feet to 94 million square feet, an average increase of 9.3 million square feet annually. Bulk inventory, defined as facilities that are 100,000 square feet or larger, increased from 39 million square feet to 81 million square feet over this same time period, an average annual increase of 10.5 million square feet. This represents a significant acceleration in the construction of bulk inventory since 2018, as the prior five-year period (2013-2018) saw a total increase in bulk inventory of 13.8 million square feet across the region, or 2.8 million square feet per year.

FIGURE 2.13 SAVANNAH INDUSTRIAL REAL ESTATE INVENTORY



Source: Colliers Quarterly Industrial Market Reports, 2018-2022.

The increase in inventory has coincided with a decrease in vacancy rates. As shown in Figure 2.14, aside from an uptick during the Covid-19 pandemic (2019-2020), industrial vacancy rates in the region have been in steady decline. Vacancy rates fell from over 11 percent in 2012 to a low of 0.28 percent in April 2022.

FIGURE 2.14 SAVANNAH INDUSTRIAL REAL ESTATE VACANCY RATE

Source: Colliers Quarterly Industrial Market Reports, 2018-2022.

Retail Trade

Despite being primarily a receiver of freight, retail trade is the single-largest generator of freight traffic in metropolitan areas.¹⁹ Within the CORE MPO region, the largest concentration of retailers is found within its urban areas including the Cities of Savannah and Pooler followed by Rincon and Richmond Hill. This is important because it impacts the condition and performance of roadways that often were not originally designed to accommodate modern freight vehicles. Furthermore, it requires municipalities to consider how best to manage limited roadway and curb space for non-freight and freight activities (e.g., loading and unloading).

Accommodation and Food Service

While accommodations (e.g., hotels and motels) and food services (e.g., restaurants and bars) are often described as being part of the service industry, in urban areas they are the second-largest generators of freight traffic behind retail trade.²⁰ Savannah's Historic District is the primary driver for the 15.2 million annual visitors to region as of 2021.²¹ Tybee Island, Midtown Savannah, and areas abutting Savannah/Hilton Head

¹⁹ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 6.

²⁰ Ibid.

²¹ Savannah Area Chamber of Commerce. Tourism. <https://www.savannahchamber.com/economic-development/tourism/#:~:text=In%202022%2C%20Savannah%20was%20included%20in%20Travel%20%26,8.3%20million%20overnight%20visitors%20and%206.9%20million%20day-visitors.>

International Airport also host a large number of accommodations and restaurants. These establishments generate freight in the form of food, linens, furniture, sundries, and other supplies that are needed in their daily operations. Similar to the challenges associated with accommodating freight vehicles serving retail establishments, freight generated by this sector often competes with other roadway users for limited roadway and curb space for pick-ups and deliveries.

Construction

In 2021 and 2022, available residential housing inventory within the CORE MPO region was at a record low level, driving up the cost of for-sale homes and rental housing.²² Nationwide construction worker shortages and global supply chain shortages of timber and other building materials have limited the amount of new residential construction taking place in the region in recent years. Given the high demand for new or expanded non-residential uses such as logistics facilities and manufacturing centers, there continues to be significant competition for the same limited pool of construction workers and materials between residential and non-residential builders. From a freight transportation perspective, growth in the construction sector translates to greater freight volumes and also increased volumes of oversize/overweight trucks. This is due to construction equipment and materials often being overweight and/or over-dimensioned.

2.2 Future Land Uses

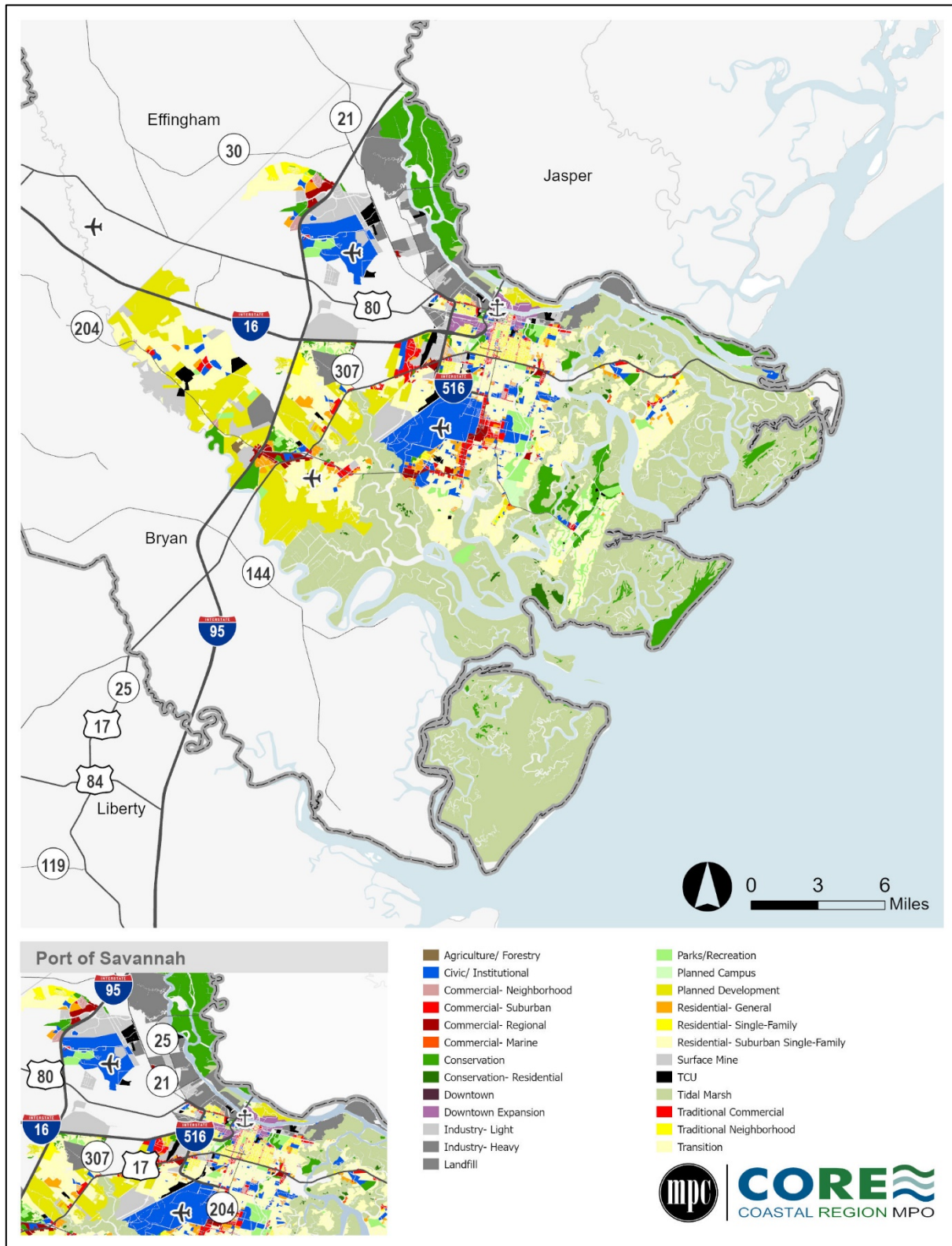
The region's various comprehensive plans were also examined to understand how land uses may evolve over time. In addition to the comprehensive plans, information was also collected from the region's various economic development agencies on major freight-related developments that are either in process or upcoming in the near future. The comprehensive plans along with the data from the economic development agencies provide insight into the types of developments that may characterize future land use in the region and have an impact on freight mobility. The remainder of this section details how anticipated future freight and non-freight land uses are expected to change within the region.

Future Land Use Overview

As shown in Figure 2.15 through Figure 2.23, the long-term vision for the region is consistent with current development patterns. The portions of the region that are shown with industrial land uses (which includes logistics, manufacturing, and other economic activities that generate freight) in the base year are generally the same in the future year. However, there are expected changes in land use that impact freight, notably in and near the Cities of Bloomingdale and Port Wentworth.

²² Federal Reserve Bank of St. Louis. Housing Inventory: Active Listing Count in Savannah, GA. <https://fred.stlouisfed.org/series/ACTLISCOU42340>

FIGURE 2.15 CHATHAM COUNTY-SAVANNAH FUTURE LAND USE



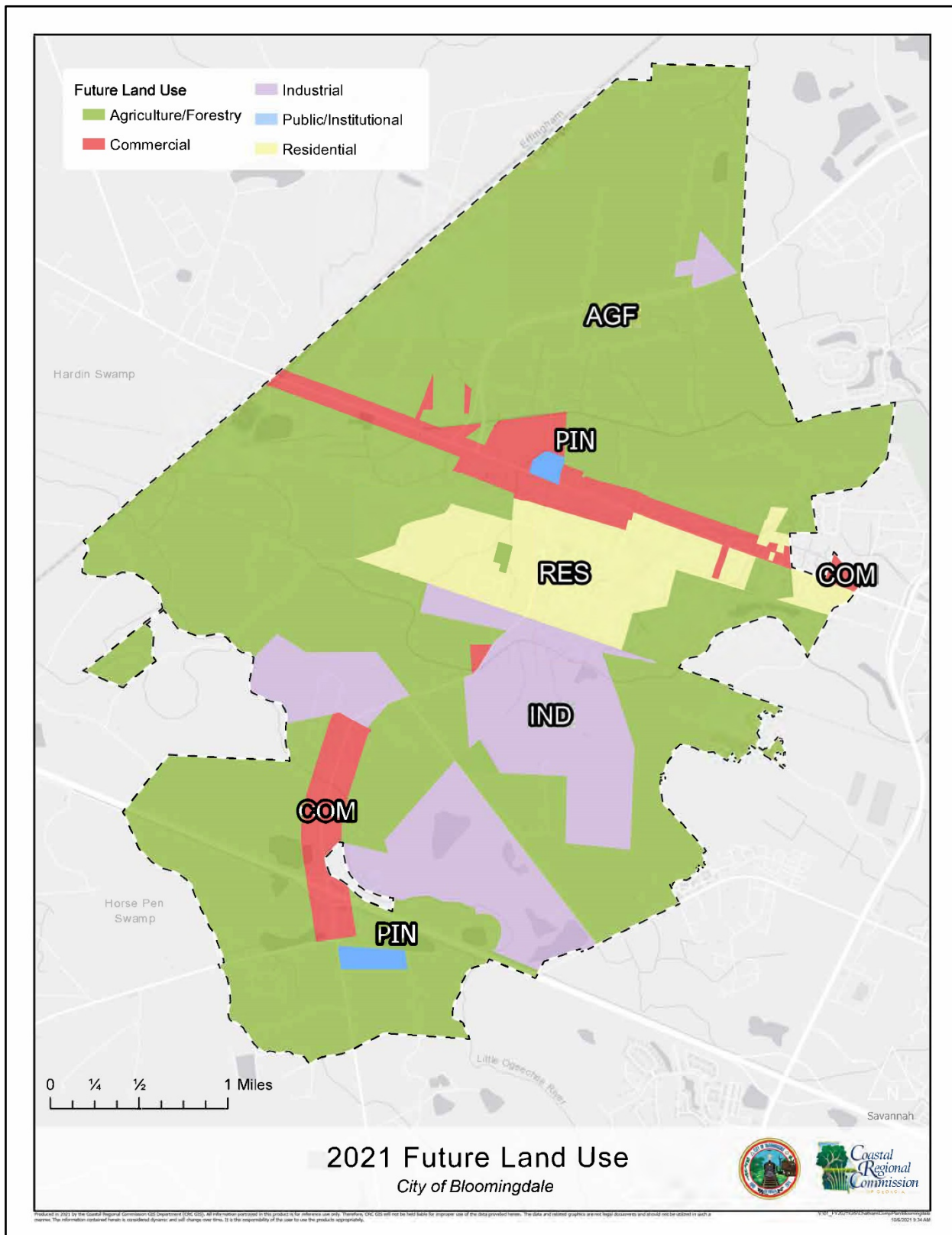
Source: Chatham County-Savannah Metropolitan Planning Commission, 2020.

Though much of the existing land use for the City of Bloomingdale is shown as agricultural, there are multiple Savannah Harbor-Interstate 16 Corridor Joint Development Authority sites in the area south of US 80. As a result, the future land use for Bloomingdale shows much of this area as industrial (see Figure 2.16). For example, the Ottawa Farms Tracts project will bring a 4.5 million square foot warehouse development to a formerly agricultural site between US 80 and I-16.²³ Other JDA sites in the City of Bloomingdale total over 1,300 acres. The planned Savannah Chatham Manufacturing Center is just outside the incorporated limits of the city. This indicates that over the long term these areas are likely to be converted to freight-generating land uses.

Changes in existing versus future land use are also apparent in the City of Port Wentworth. For example, areas north of SR 30 and west of SR 21 are largely wooded areas and were classified as having rural neighborhood existing land uses. In the city's comprehensive plan, the future land use for a large portion of area is shown as industrial (see Figure 2.19). Also, the area north of Bonnybridge Road is shown as having a coastal marshland existing land use but a future industrial land use. The land south of Bonnybridge Road between SR 21 and Jimmy Deloach Pkwy. also transitions from a mixed-use existing land use to an industrial future use. These changes demonstrate the ongoing and anticipated future land use changes in Port Wentworth to accommodate an increase in freight-generating industries.

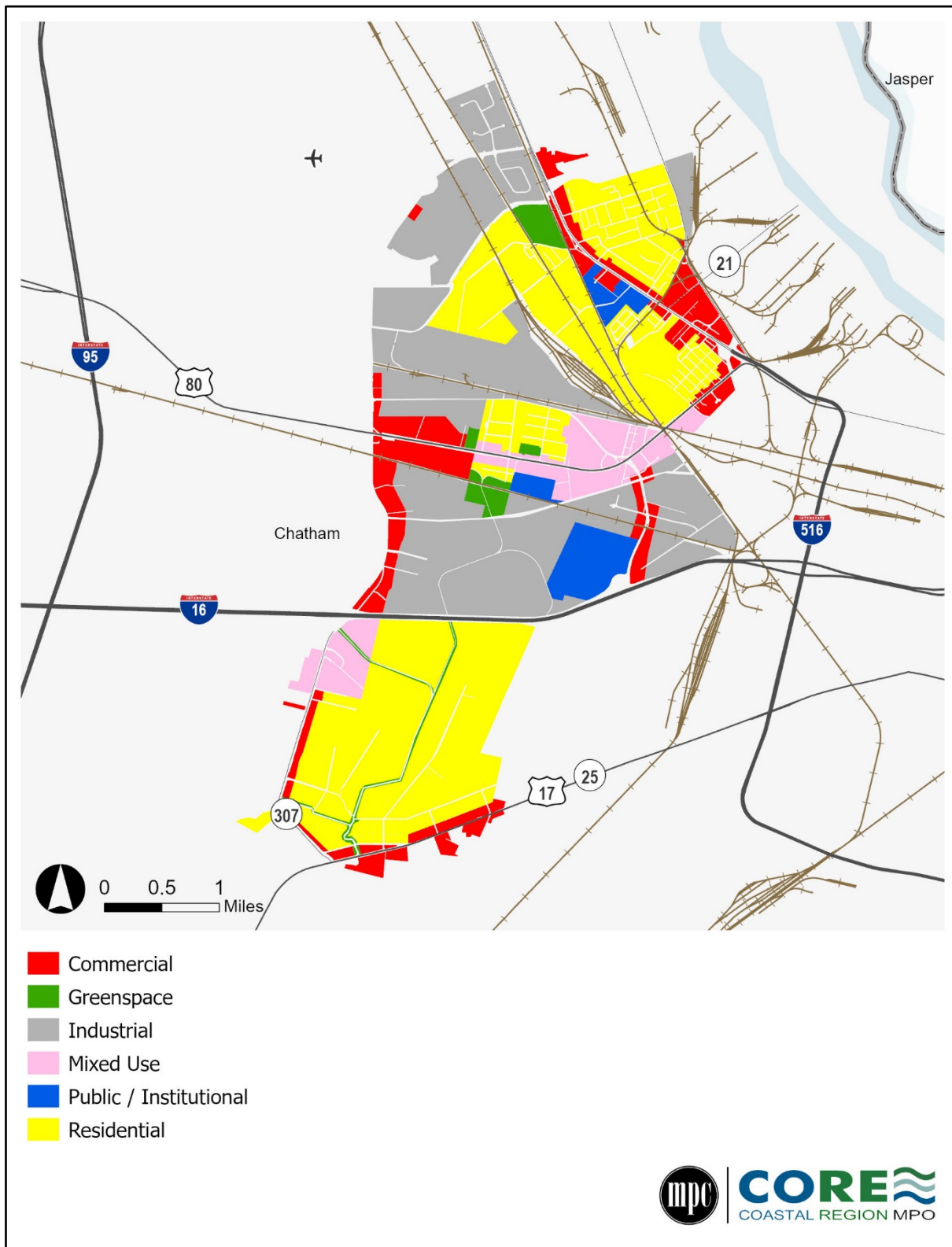
²³ Guan, N. "Warehouse project coming soon to Bloomingdale's Ottawa Farms," Savannah Morning News, <https://www.savannahnow.com/story/news/local/2022/05/10/first-phase-industrial-park-ottawa-farms-mccrany-property-company-warehouse/9675076002/>

FIGURE 2.16 BLOOMINGDALE FUTURE LAND USE



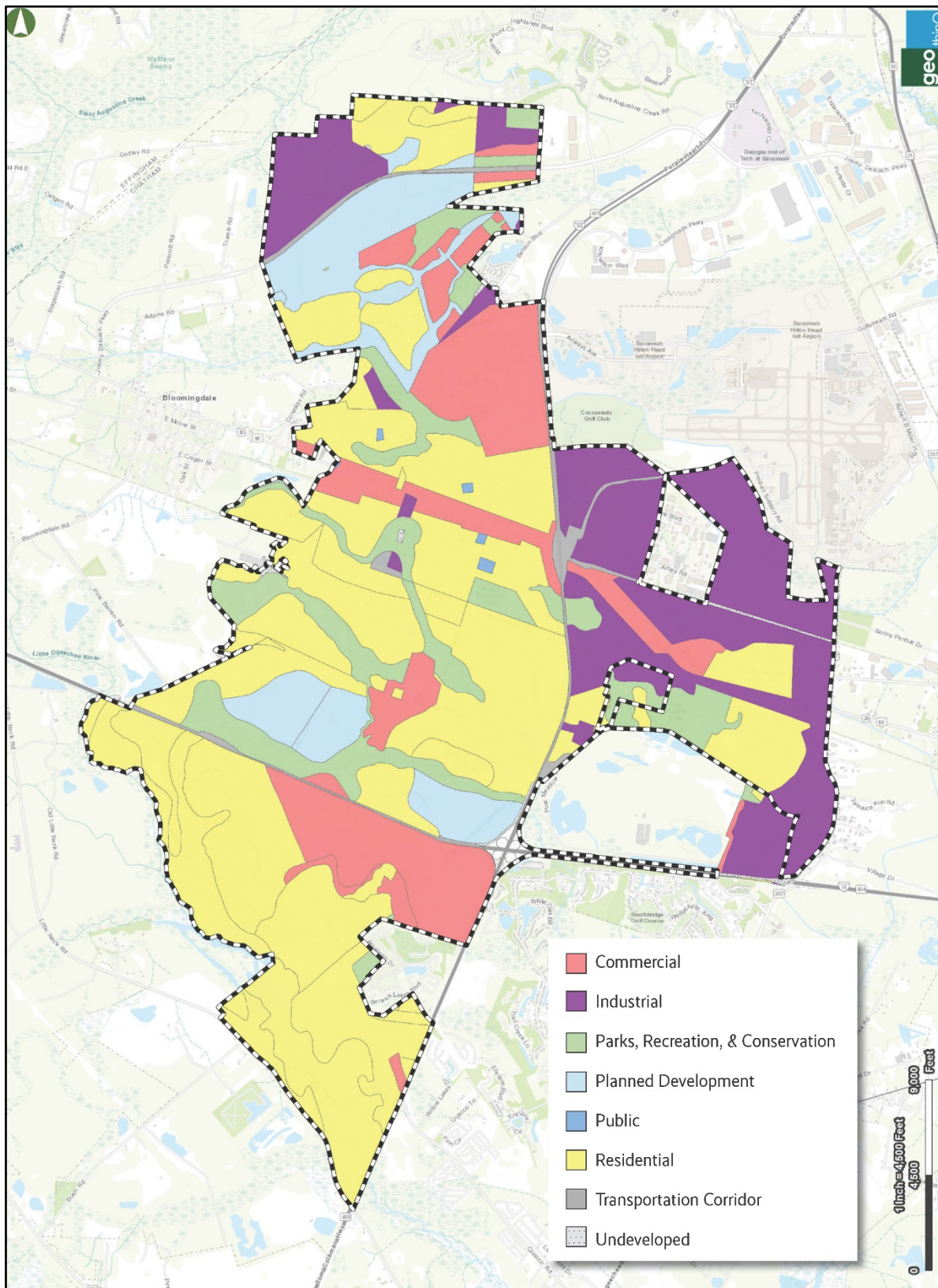
Source: Bloomingdale 2021-2041 Comprehensive Plan, 2021.

FIGURE 2.17 GARDEN CITY FUTURE LAND USE



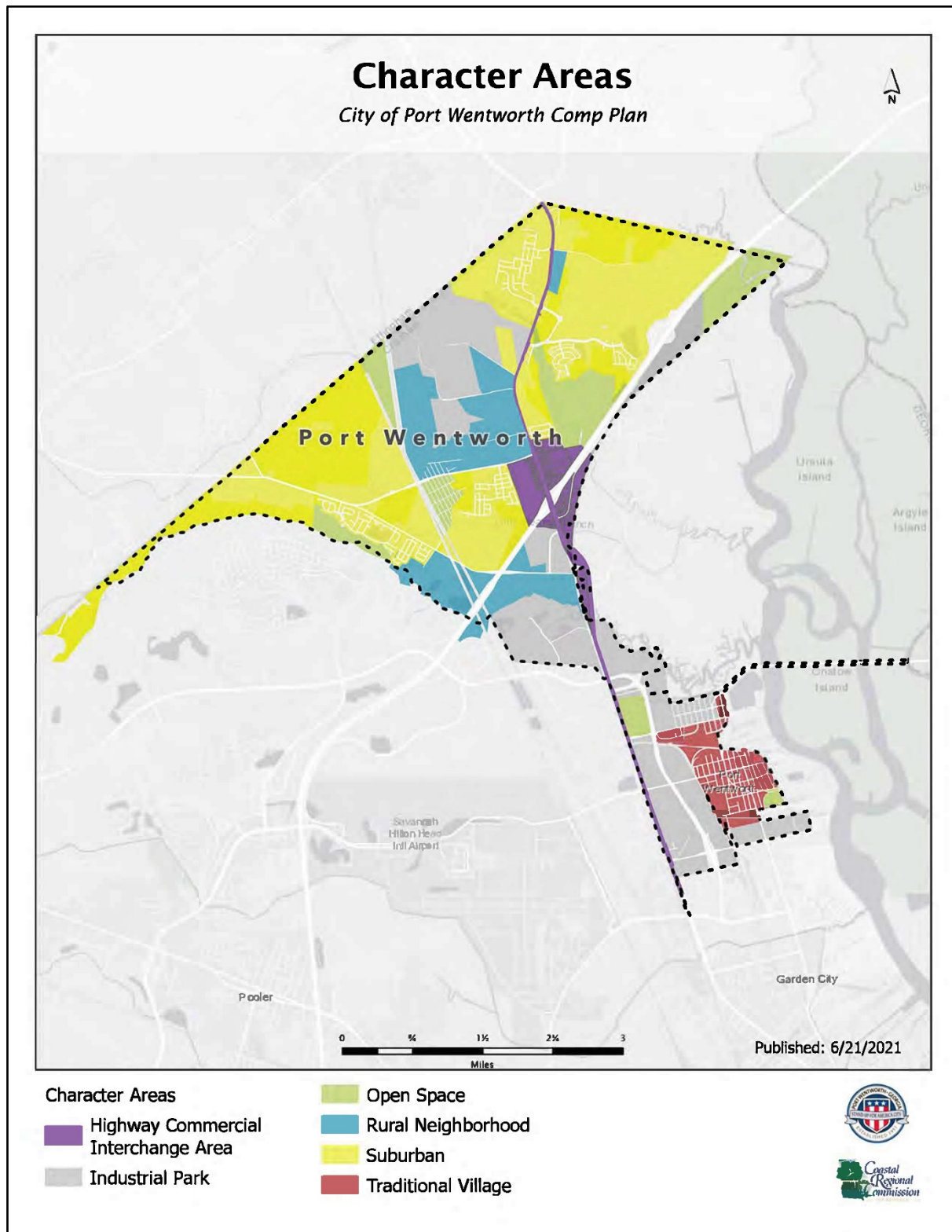
Source: Chatham County-Savannah Metropolitan Planning Commission, 2020.

FIGURE 2.18 POOLER FUTURE LAND USE



Source: Pooler Planning and Zoning.

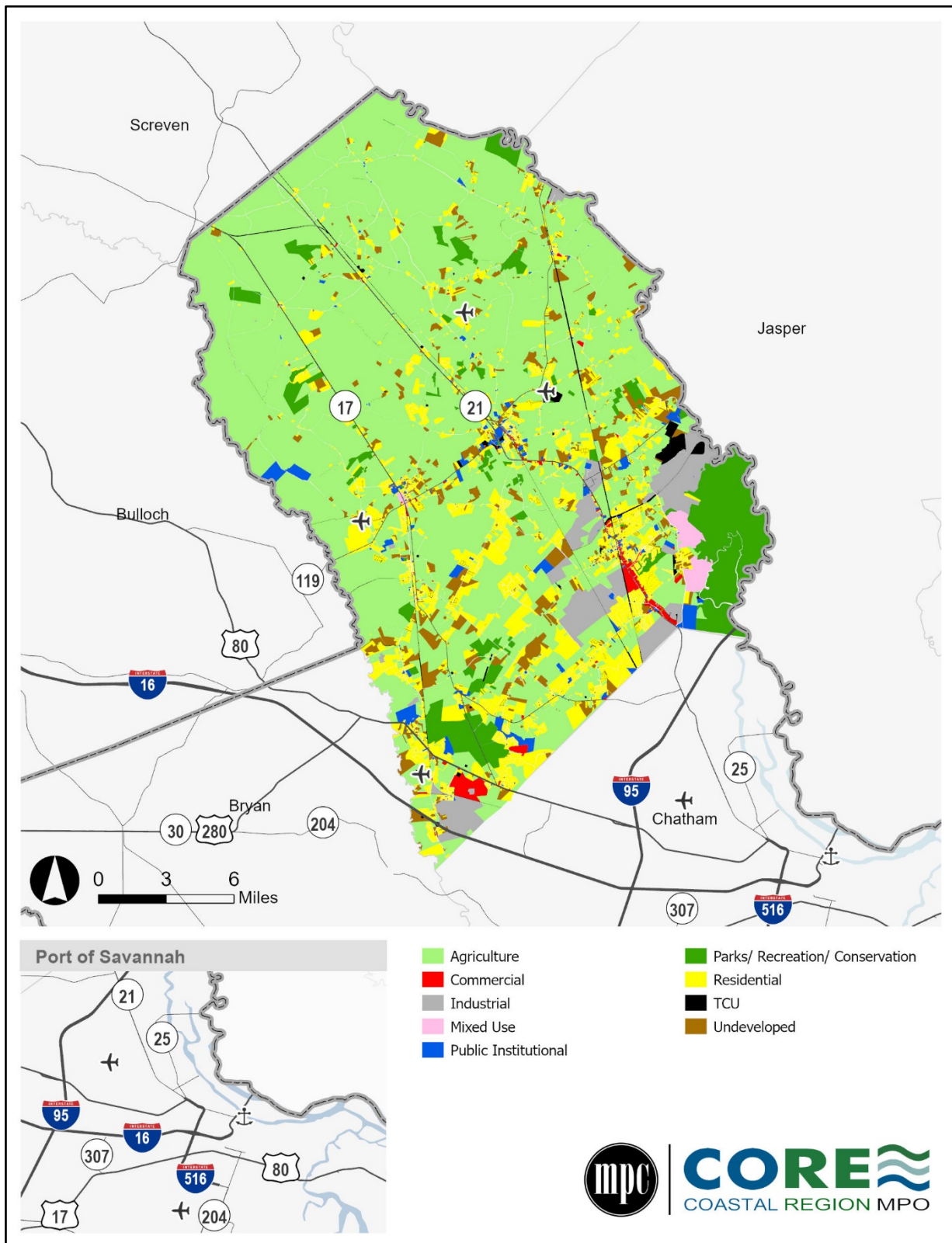
FIGURE 2.19 PORT WENTWORTH CHARACTER AREAS



Source: Port Wentworth 2021-2041 Comprehensive Plan, 2021.

In Effingham County, the portions of the county that are shown with industrial land uses in the base year are generally the same in the future year. However, in the eastern portion of the county along Old Augusta Road, some parcels that are shown as having an undeveloped existing land use are planned as mixed use in the future. Notably, Old Augusta Road is one of the county's designated freight corridors and has experienced the development of freight-generating land uses along its route. Other parcels with undeveloped existing land uses are shown as industrial in the future. For example, some parcels north of Blandford Road and west of SR 21 were designated to transition from undeveloped to industrial. Overall, Effingham County has experienced substantial development of freight-generating land uses in recent years. The future land uses identified in the comprehensive plan are reflective of these continuing changes.

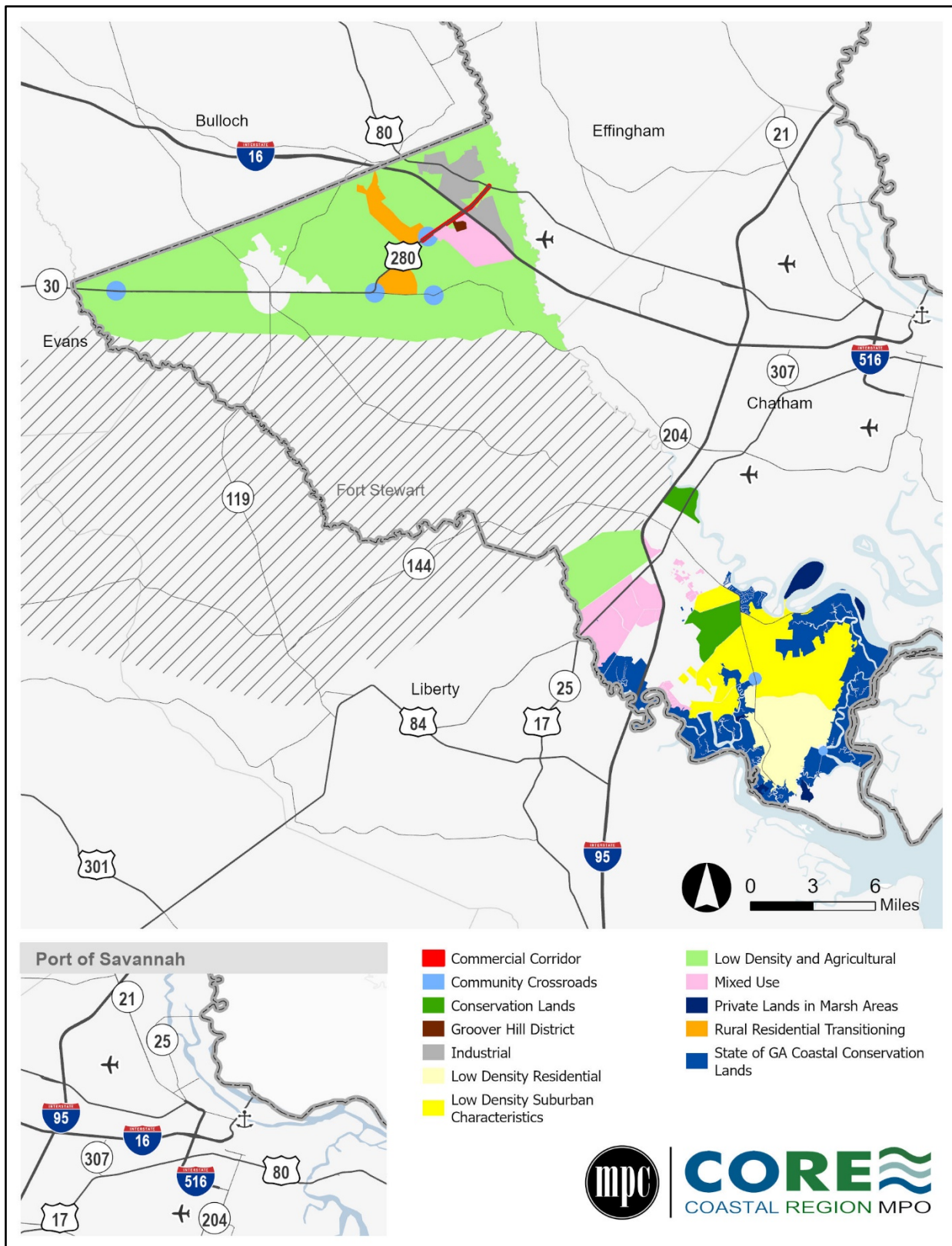
FIGURE 2.20 EFFINGHAM COUNTY FUTURE LAND USE



Source: Effingham County Planning and Zoning, 2019.

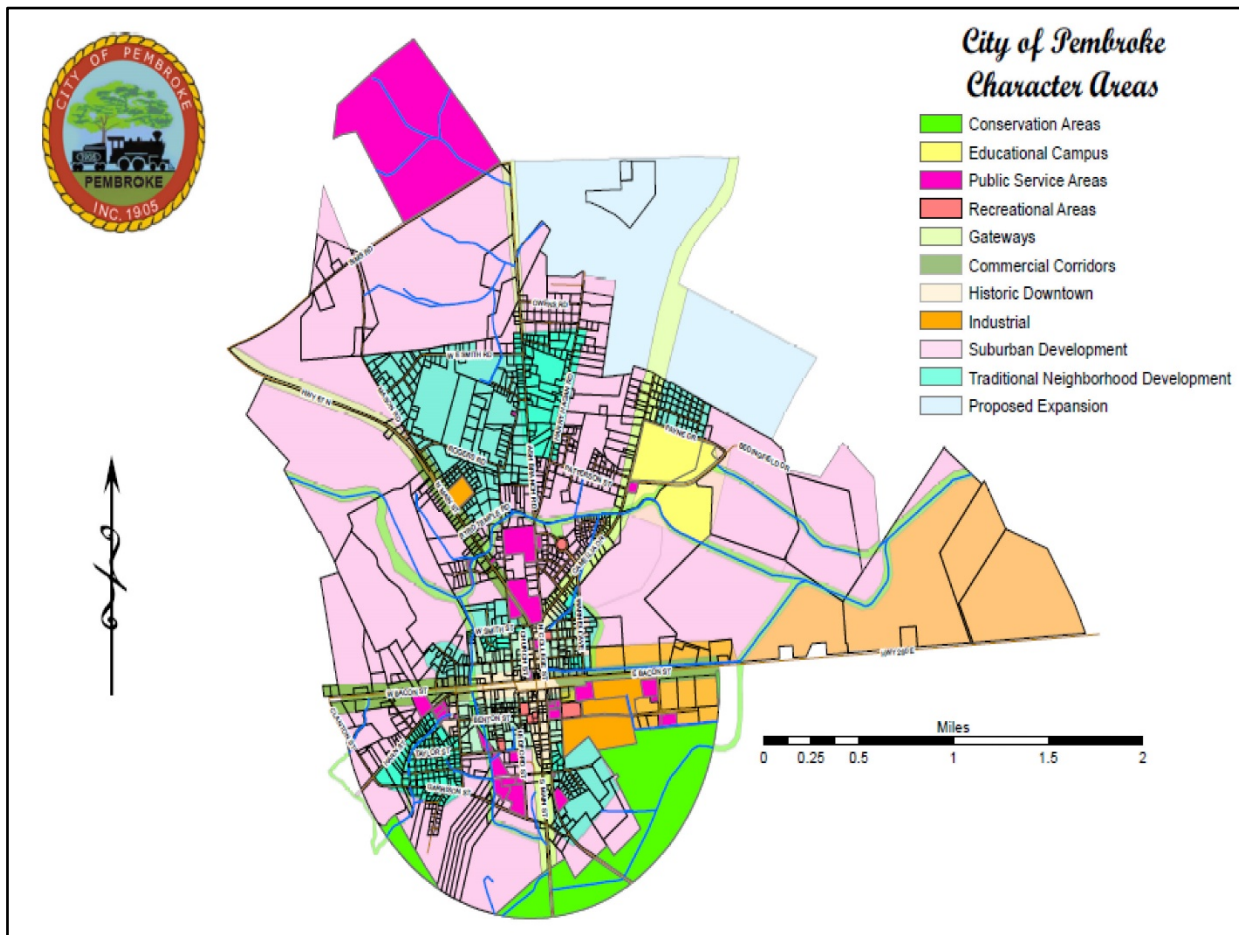
The most significant change in northern Bryan County is the planned Hyundai assembly plant near the interchange of I-16 with US 280. Though the future land uses indicate low density, agricultural, and mixed uses, this area has already begun to transition to industrial (see Figure 2.21). In southern Bryan County, the area between US 17 and I-95 primarily has an agricultural existing land use. However, the comprehensive plan indicates that this area will transition to mixed use. Along the Belfast Keller Road corridor, this area has already begun to develop to include industrial and commercial uses (see Figure 2.23).

FIGURE 2.21 BRYAN COUNTY FUTURE LAND USE



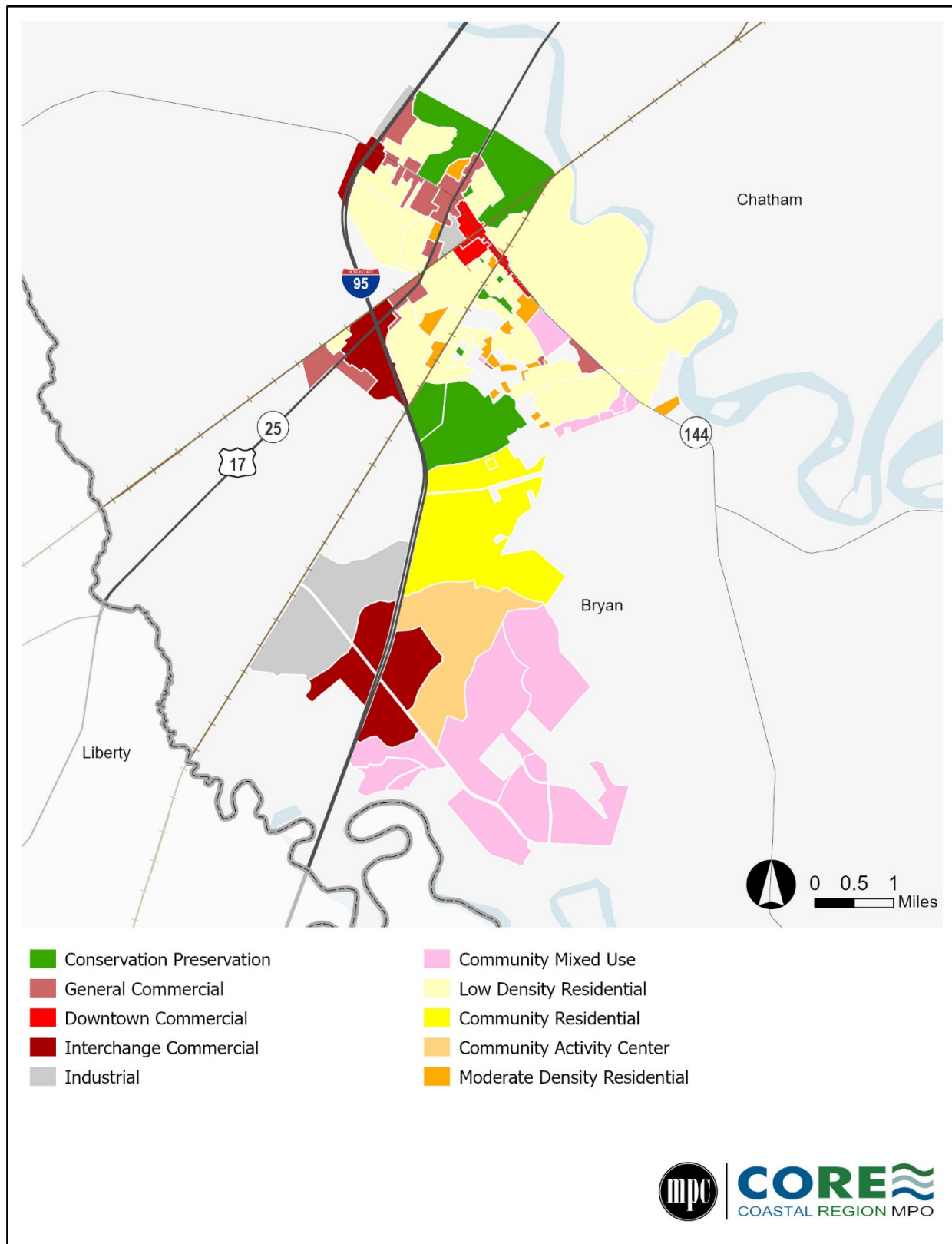
Source: Bryan County Planning and Zoning, 2020.

FIGURE 2.22 PEMBROKE CHARACTER AREAS



Source: Pembroke Planning and Zoning.

FIGURE 2.23 RICHMOND HILL FUTURE LAND USE

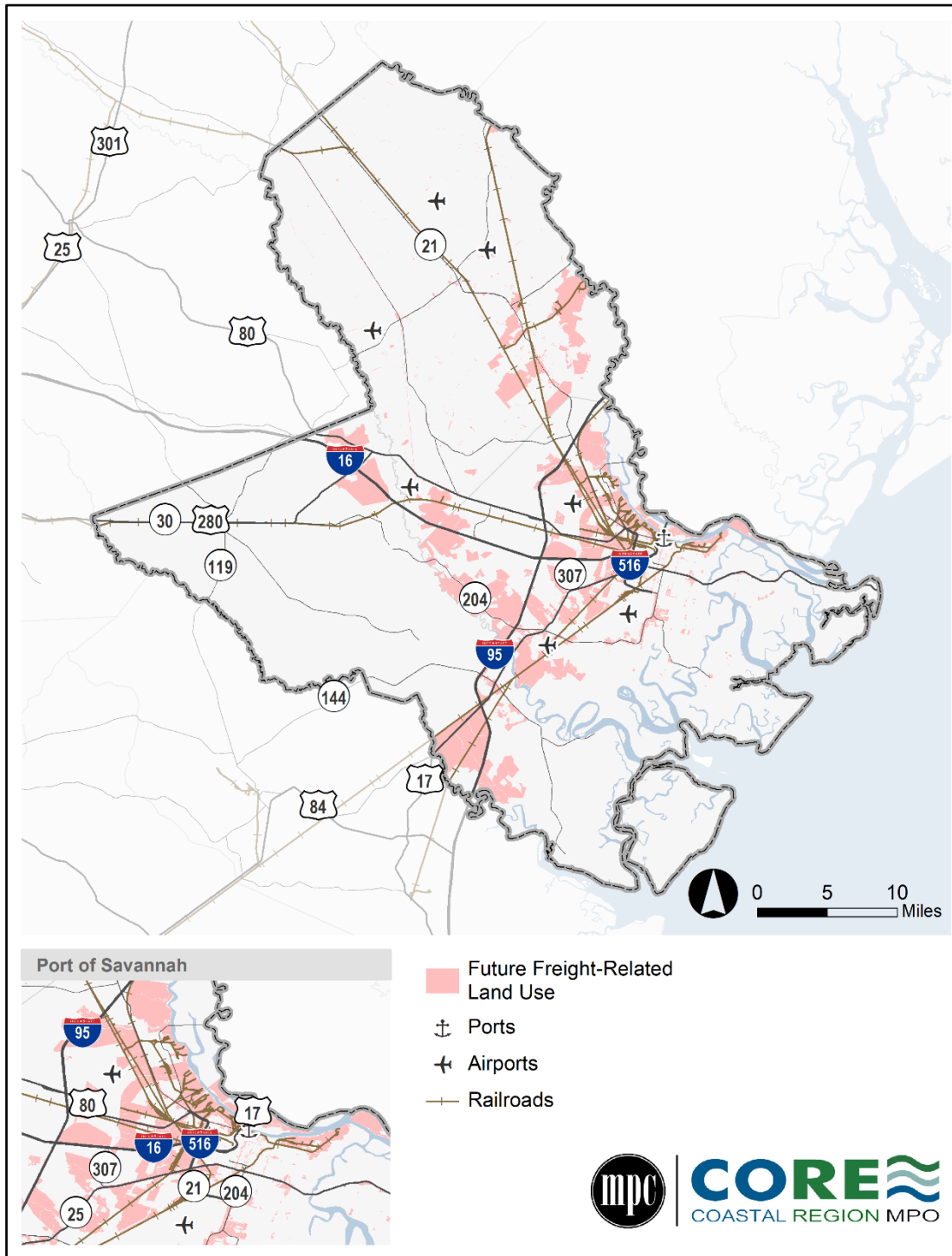


Source: Richmond Hill Planning and Zoning.

Freight-Generating Future Land Uses

The majority of the freight entering the Port of Savannah has a destination other than the CORE MPO region. Nonetheless, the cargo must be unloaded and transported via road or rail to regional distribution centers or auxiliary facilities (e.g., intermodal facilities) in the region before heading to its final destination. Additionally, manufacturers are relocating across Georgia's principal rail and roadway corridors to capitalize on the shortened transit times and reduced costs that come with immediate access to the transportation network that serves both interstate and international markets. As a result, the CORE MPO's regional economy is comprised of a diverse assortment of freight-generating industries that contribute to growth in freight activity throughout the region.

Using information from the region's various comprehensive plans, Figure 2.24 depicts the distribution of anticipated freight-generating land uses throughout the region. The two primary sources for these new freight-generating land uses throughout the region include – vacant/undeveloped land transitioning to freight uses and economic development authority sites for planned new warehouse/logistics developments. These sources are discussed in greater detail below.

FIGURE 2.24 REGIONAL FUTURE FREIGHT-GENERATING LAND USES

Sources: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

Vacant/Undeveloped Land for Future Freight Use

Historically, vacant/undeveloped land has been one of the primary sources of land for freight-generating land uses. The 2040 Chatham County-Savannah Comprehensive Plan observed that upland areas of the region have forested and vegetated isolated wetlands that are frequently targeted for development spurred by population and economic growth. Between 1996-2016, Chatham County was estimated to have lost 5.5 square miles of wetlands.²⁴ Though the transition of undeveloped land to freight-intensive land uses is not believed to be the primary driver of the region's loss of wetlands, they are a factor.

Given the region's historical growth patterns and reliance on vacant/undeveloped land, limited area remains formally undeveloped that may be used to accommodate continued freight-related growth or growth for commercial and residential uses. According to the Chatham County-Savannah Plan 2040, roughly 11,000 acres of land (or approximately 4.7 percent of the land area in the County) remains unimproved.²⁵ Based on a spatial analysis of Effingham County's existing land use, a similar percentage of land is undeveloped within this county.²⁶ Bryan County and its municipalities do not formally categorize land as undeveloped, meaning their land areas fall within other zoning categories like residential, commercial, industrial, agricultural, or conservation/open space. This means that any future growth in industrial uses beyond existing zoning boundaries – including warehousing, transportation, manufacturing, and other similar uses – may require the rezoning of other land uses.

Planned New Warehouse/Logistics Development

Properties owned by one of the region's economic development authorities are another source for the development of freight-generating land uses. These sites tend to be large in acreage and are advertised by local and county economic development authorities as desirable locations for new or expanded manufacturing, warehouse, and logistics operations in the region. Table 2.5 highlights several of these hubs throughout the study area.

TABLE 2.5 REGIONAL INDUSTRIAL DEVELOPMENT HUBS

#	County	Site	Total Area (Acres)	Available Area for Industrial Development (Acres)	Square Feet Built or Planned (Millions)	Vacancy Rate for Built or Planned Buildings (Percent)	Rail-CSX (Y/N)	Rail-Norfolk Southern (Y/N)	Rail-Other (Y/N)	Interstate 16 (Miles)	Interstate 95 (Miles)	Distance to POS (Road)	Distance to POS (Rail)
1	Bryan	Belfast Commerce Park	1,065	826	N/A	N/A	Y	N	Y	16	0	28	22
2	Bryan	Bryan County Mega-Site	2,284	0	N/A	N/A	N	N	Y	0	15	23	21
3	Bryan	Interstate Centre	1,100	737	N/A	N/A	N	N	N	0	15	23	N/A

²⁴ Plan 2040: Chatham County-Savannah Comprehensive Plan.

²⁵ Chatham County – Savannah Metropolitan Planning Commission. Plan 2040. Pg. 150.

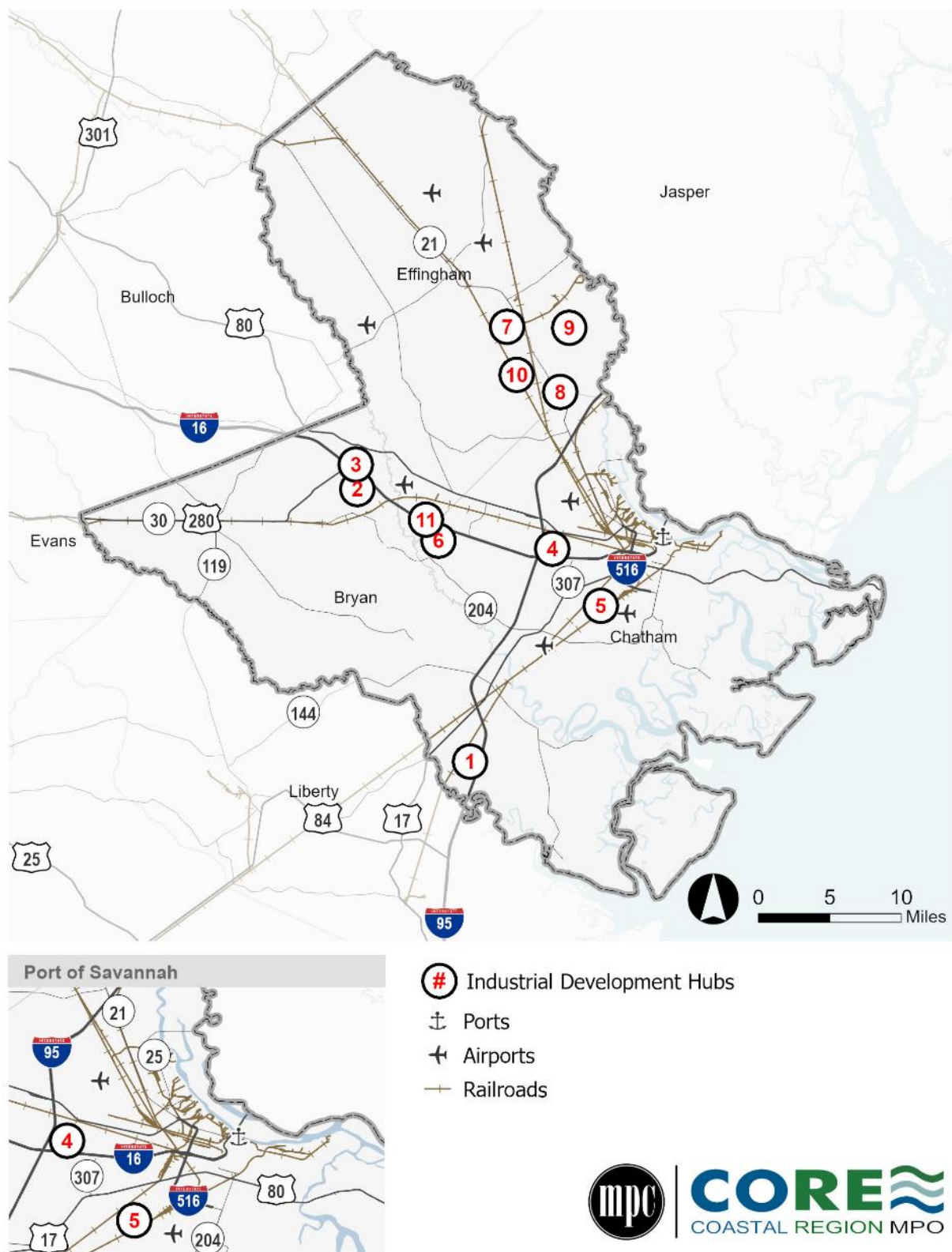
²⁶ Effingham County. 2020-2040 Joint Comprehensive Plan. Pg. 30.

4	Chatham	Chatham County Economic Development Site	1,557	383	N/A	N/A	N	N	Y	0	0	8	9
5	Chatham	Rockingham Farms Industrial Park	1,125	N/A	10.4	N/A	Y	N	N	5	8	8	6
6	Chatham	Savannah Chatham Manufacturing Center	744	428	2.6	N/A	N	N	N	2	9	19	N/A
7	Effingham	Georgia International Rail Park	1,500	1,500	1.3	N/A	Y	Y	Y	16	7	14	14
8	Effingham	Georgia International Trade Center	1,150	0	7.2	37	Y	N	N	13	4	10	9
9	Effingham	Grande View	448	350	0	N/A	N	N	N	16	7	13	N/A
10	Effingham	Savannah Gateway Industrial Hub	2,640	2,375	22	90	Y	Y	N	17	7	13	11
11	Effingham	Savannah Portside International Park	1,550	1,390	2.3	53	N	N	Y	0	9	19	15
N/A = Not Applicable or Not Available.													

Source: Development Authority of Bryan County, Effingham County Industrial Development Authority, Savannah Economic Development Authority, Savannah Harbor-Interstate 16 Joint Development Authority.

In the third quarter of 2022, 26 industrial facilities totaling 19,658,971 SF of space were under construction, of which 41 percent is build-to-suit, meaning the facility already has a designated tenant in place prior to construction being completed. Many of these facilities were under construction at one of the region's designated industrial development hubs. As shown in Figure 2.25, these regional industrial development hubs tend to be concentrated near major transportation arteries – including interstate highways, state highways, and Class I rail lines. Access to these transportation corridors makes these sites appealing for companies seeking real estate in the region, as the accessibility of these locations make for faster – and cheaper – connections to the Port of Savannah and to destinations outside of the state and region.

FIGURE 2.25 REGIONAL INDUSTRIAL DEVELOPMENT HUBS



Source: : Development Authority of Bryan County, Effingham County Industrial Development Authority, Savannah Economic Development Authority, Savannah Harbor-Interstate 16 Joint Development Authority.

Several of the region's major new freight-related development projects have been in or near one of these sites. Examples including the following:

- Bryan County Mega-Site** – In May of 2022, Hyundai announced plans to develop an electric vehicle and battery manufacturing facility in Bryan County. Anticipated to generate over 8,100 jobs in the area, this facility chose the Savannah MSA in major part due to the short timelines for speed-to-market.²⁷ Touted as one of the largest economic development projects in state history, state officials anticipate this project will lead to further investment in the region by complementary users, including vehicle parts manufacturers, battery recyclers, and other similar companies. These follow-on developments have the potential to significantly impact the land use patterns in the region going forward.
- Hyundai Mobis** – As a follow-on investment to the Hyundai Mega-Site development, Hyundai Mobis announced in November 2022 a \$926 million investment in a future 1.2 million square foot electric vehicle power systems manufacturing facility. This operation will directly supply the larger Hyundai plant as it becomes operational, with production expected to start at the Hyundai Mobis facility in 2024. This plant will employ at least 1,500 people at Belfast Commerce Park in Bryan County, approximately 32 miles from the larger Hyundai Mega-Site development.²⁸
- Komar Brands** – In November of 2022, Komar Brands, a global apparel company, announced plans for a new manufacturing and distribution facility in Bryan County.²⁹ This \$87 million investment is anticipated to create 294 jobs in the region and will be located at Interstate Centre in Bryan County, a regional industrial development hub.
- Seoyon E-HWA** – In February 2023, Seoyon E-HWA announced a \$76 million investment in Chatham County. A supplier to Hyundai, Seoyon E-HWA manufactures components for automotive interiors and exteriors, including elements like door trim, seats, bumpers, and other essential parts. This investment is another direct response to the May 2022 investment in the region made by Hyundai and is expected to result in the creation of 740 direct and indirect jobs. The new facility will be located in the Savannah Chatham Manufacturing Center approximately nine miles east of the Hyundai Mega-Site along Interstate 16.³⁰
- Sewon America** – In February 2023, Sewon America announced an investment of more than \$300 million in a new manufacturing facility at Grande View in Effingham County. This investment will support

²⁷ Office of the Governor. Gov. Kemp: Hyundai Motor Group to Invest \$5.54 Billion in Georgia at First Fully Dedicated Electric Vehicle and Battery Manufacturing Facility. <https://gov.georgia.gov/press-releases/2022-05-20/gov-kemp-hyundai-motor-group-invest-554-billion-georgia-first-fully>

²⁸ State of Georgia. Second Global Automotive Supplier for Hyundai Metaplant to Create 1,500 Jobs. <https://www.georgia.org/press-release/second-global-automotive-supplier-hyundai-metaplant-create-1500-jobs>

²⁹ State of Georgia. Global Apparel Company to Build Manufacturing, Distribution Facility in Bryan Co. <https://www.georgia.org/press-release/global-apparel-company-build-manufacturing-distribution-facility-bryan-co#:~:text=ATLANTA%20%E2%80%93%20November%2014%2C%202022%20%E2%80%93,distribution%20facility%20in%20Bryan%20County>

³⁰ Savannah Economic Development Authority. Seoyon E-HWA, a Hyundai Supplier, to Locate in Savannah Chatham Manufacturing Center. <https://seda.org/2023/02/seoyon-e-hwa-a-hyundai-supplier-to-locate-in-savannah-chatham-manufacturing-center/>

the creation of 740 new jobs in Rincon, with the factory producing electric vehicle parts, including parts that will be used by Hyundai at the Bryan County Mega-Site.³¹

- **PHA** – In March 2023, Korea-based PHA announced that it would invest more than \$67 million in a new manufacturing facility in Chatham County. PHA will act as a key parts supplier for Hyundai’s Mega-Site electric vehicle plan, producing doors, tailgate latches, and hood latches for use in by Hyundai. PHA anticipates employing 402 people and beginning operations in 2024. The new facility will be located at the Savannah Chatham Manufacturing Center.³²
- **Norma Precision Ammunition** – In April of 2022, Norma Precision Ammunition relocated its U.S. headquarters and manufacturing center to the region.³³ This facility is located in Garden City between I-16 and US 80, providing the manufacturer with ready access to the Port of Savannah and the regional transportation network.

Trends Driving Future Freight-Generating Land Uses

Within the CORE MPO region, there are multiple trends that are the primary drivers of growth for freight-generating land uses. These include:

1. Increased domestic and international trade, driven by growth at the Port of Savannah, will result in increases in freight-generating land uses for expanding existing and constructing new freight gateways, auxiliary facilities, and regional distribution centers.
2. Anticipated regional population and economic growth will drive multiple freight-generating land uses, including retail trade and accommodation/food service industry, as well as demand for more metropolitan and urban distribution centers to support those local industries.
3. Economic growth incentives offered at the state and regional level make the development of new industrial facilities or the expansion of existing facilities or businesses more financially viable, thus encouraging private companies and other freight stakeholders to invest additional resources in their respective operations.

Below, these drivers of demand are discussed in greater detail.

Increased Domestic and International Trade

Increased domestic and international trade is one of the key driving factors leading to more freight-generating land uses in the region. Overall, in 2019 nearly 163 million tons of freight worth \$367 billion were

³¹ Office of the Governor. Gov. Kemp: Sewon America Announces 740 New Jobs in Effingham County. <https://gov.georgia.gov/press-releases/2023-02-21/gov-kemp-sewon-america-announces-740-new-jobs-effingham-county>

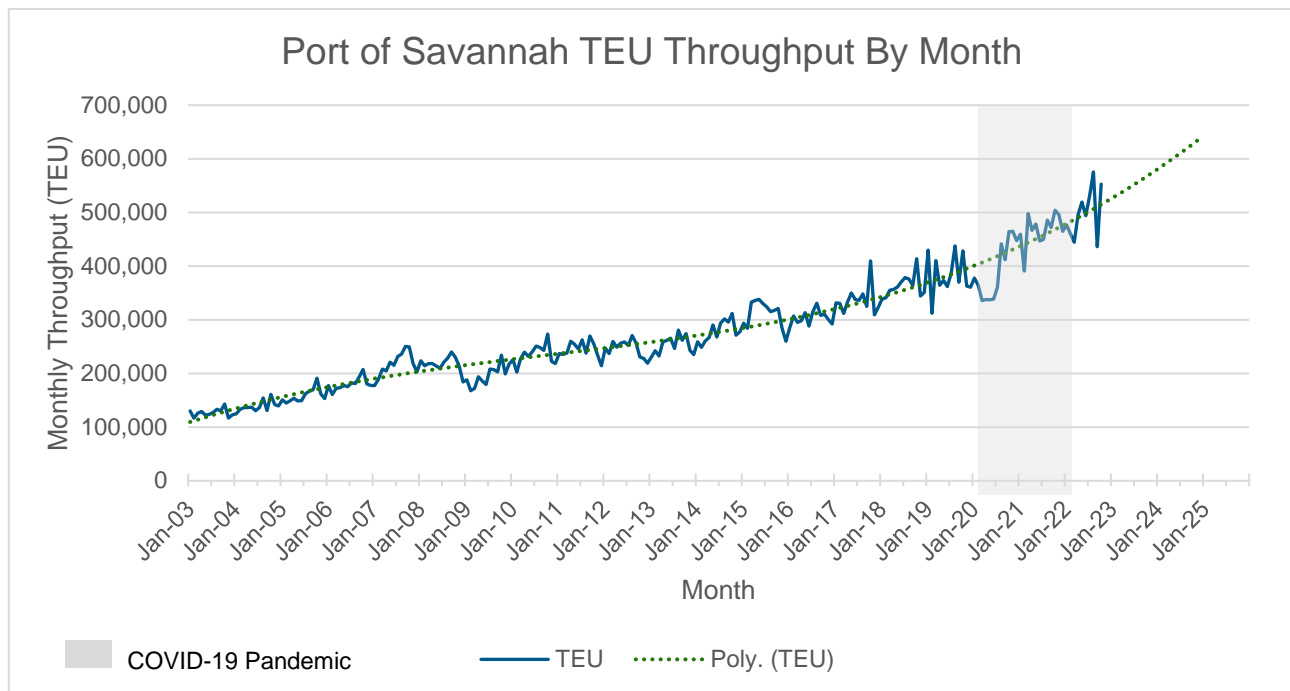
³² Office of the Governor. Gov Kemp: Hyundai Supplier PHA to Create over 400 Jobs in Chatham County. <https://gov.georgia.gov/press-releases/2023-03-06/gov-kemp-hyundai-supplier-pha-create-over-400-jobs-chatham-county>

³³ Savannah Economic Development Authority. Norma Precision Ammunition Relocates its US Headquarters, Manufacturing, Distribution Operations to Chatham County. <https://seda.org/2022/04/norma-precision-ammunition-relocates-its-u-s-headquarters-manufacturing-distribution-operations-to-chatham-county/>

transported to, from, within, or through (i.e., truck and rail only) the CORE MPO region.³⁴ This is projected to more than double in 2050 and grow to over 392 million tons worth \$895 billion.

The Port of Savannah's annual containerized throughput is forecast to grow from 5.5 million TEU in 2021 to 9 million TEU in 2025 as shown in Figure 2.26. A 39 percent increase in throughput will require continued growth in freight-generating land uses including gateways, auxiliary facilities, and regional distribution. In addition to facilities to serve cargo demands at the Port of Savannah, growth at the port will also attract large manufacturers and other industries looking to relocate or construct new facilities proximate to the port in order to access shorter transit times and increase efficiency in their supply chains.

FIGURE 2.26 TREND OF PORT SAVANNAH THROUGHPUT, 2003 - 2025



Source: Georgia Ports Authority.

Anticipated Population and Freight-Generating Industry Employment Growth

Anticipated regional population and economic growth is another trend driving the development of freight-generating land uses as the region is projected to continue to add to its population and employment base over the long term. Based on population projections from Georgia's Governor's Office of Planning and Budget, between 2020 and 2030, the region's population will continue to outperform the overall state population, increasing by 12 percent between 2020 and 2030 and by 22 percent between 2020 and 2040. Over these same time periods, Georgia's statewide population is projected to grow by 10 percent and 18 percent, respectively.³⁵

³⁴ TRANSEARCH; USA Trade Online; Cambridge Systematics, Inc. analysis.

³⁵ Governor's Office of Planning and Budget. Population Projections. <https://opb.georgia.gov/census-data/population-projections>

As the region grows, there will be increased demand for freight transportation services to serve new businesses and residents. Table 2.6 outlines the major freight-generating industries in the region and the projected growth in employment through 2028. Further discussion is included below on expected growth in the retail trade, manufacturing, accommodation and food service, construction, and transportation and warehousing sectors.

TABLE 2.6 PROJECTED EMPLOYMENT GROWTH IN FREIGHT-GENERATING INDUSTRIES, 2018-2028

NAICS Code	Industry	2018 Base	2028 Projected	Total Change	Average Annual Growth
110000	Agriculture, Forestry, Fishing and Hunting*	4,300	6,240	1,940	4.5%
210000	Mining*	50	40	-10	-2.0%
221000	Utilities	950	1,080	130	1.3%
230000	Construction	11,700	12,330	630	0.5%
310000	Manufacturing	26,350	27,870	1,520	0.6%
420000	Wholesale Trade	8,150	9,150	1,000	1.2%
440000	Retail Trade	35,470	38,990	3,520	1.0%
480000	Transportation and Warehousing	18,430	21,860	3,430	1.8%
720000	Accommodation and Food Services	40,110	44,990	4,880	1.2%
Total Freight-Intensive Sector		145,510	162,550	17,040	1.2%
Terms: NAICS = North American Industry Classification System; FIS = Freight-Intensive Sector					
*Georgia incomplete state data					

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Retail Trade

Retail trade is projected to add 3,520 jobs in the Coastal Georgia Local Workforce Development Area (LWDA) between 2018 and 2028 with a projected annual growth rate of 0.9 percent (see Table 2.7). Given that Chatham County already has substantial retail developments, the majority of new retail establishments will likely be concentrated in less developed portions of Bryan and Effingham Counties. Bryan County's comprehensive plan indicates that future retail developments will be concentrated in areas designated as mixed use and commercial corridor. Effingham County's comprehensive plan similarly indicates that retail establishments will be concentrated in mixed use and commercial use areas.

TABLE 2.7 RETAIL TRADE INDUSTRY GROWTH PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
446000	Health and Personal Care Stores	420	17.0%	1.6%
445000	Food and Beverage Stores	820	13.0%	1.2%
442000	Furniture and Home Furnishings Stores	80	7.2%	0.7%
441000	Motor Vehicle and Parts Dealers	280	5.8%	0.6%
440000	Retail Trade Overall	3,520	9.9%	0.9%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Manufacturing

Manufacturing is projected to add 1,520 jobs in the Coastal Georgia LWDA between 2018 and 2028, with a projected annual growth rate of 0.9 percent (see Table 2.8).³⁶ However, as announced in 2022, Hyundai's new electrical vehicle and battery manufacturing plant is alone projected to bring over 8,100 jobs to Bryan County, far surpassing original growth projections for manufacturing jobs in the region over this time period.³⁷ The recent growth in the region of large manufacturers is increasing the demand and spurring the development of industrial space – particularly portions of the region with easy access to the port, the Interstate highway system, and on-site rail service.

TABLE 2.8 MANUFACTURING INDUSTRY GROWTH PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
332000	Fabricated Metal Product Manufacturing	280	16.2%	1.5%
326000	Plastics and Rubber Products Manufacturing	40	14.0%	1.3%
325000	Chemical Manufacturing	180	8.3%	0.8%
314000	Textile Product Mills	20	7.1%	0.7%
327000	Non-metallic Mineral Product Manufacturing	110	6.9%	0.7%
312000	Beverage and Tobacco Product Manufacturing	10	6.3%	0.6%
321000	Wood Product Manufacturing	40	4.5%	0.4%
311000	Food Manufacturing	20	1.7%	0.2%
310000	Manufacturing	1,520	5.8%	0.6%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Accommodation and Food Service

The Savannah region is a major tourist destination. The city has also made major investments in promoting business conventions and meetings which is driving the development of new hotels downtown. The Savannah Civic Center expansion, projected to be complete in 2024, will double the convention space in the region – including 100,000 square feet of additional exhibit space, 40,000 square feet more ballroom space, and 13 additional meeting rooms. In line with this expansion, the accommodation and food service sector is projected to add 4,880 jobs in the Coastal Georgia LWDA between 2018 and 2028, with a projected annual growth rate of 1.2 percent.³⁸ Table 2.9 shows projected growth in the accommodation and food service industry through 2028.

³⁶ Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

³⁷ Office of the Governor. Gov. Kemp: Hyundai Motor Group to Invest \$5.54 Billion in Georgia at First Fully Dedicated Electric Vehicle and Battery Manufacturing Facility. <https://gov.georgia.gov/press-releases/2022-05-20/gov-kemp-hyundai-motor-group-invest-554-billion-georgia-first-fully>

³⁸ Ibid.

TABLE 2.9 ACCOMMODATION AND FOOD SERVICE INDUSTRY GROWTH PROJECTIONS, 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
722000	Food Services and Drinking Places	4,750	14.8%	1.4%
721000	Accommodation, including Hotels and Motels	130	1.7%	0.2%
720000	Accommodation and Food Services	4,880	12.2%	1.2%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Construction

Construction is projected to add 630 jobs in the Coastal Georgia LWDA between 2018 and 2028, with a projected annual growth rate of 0.5 percent. Table 2.10 shows projected growth in the construction industry through 2028.

TABLE 2.10 CONSTRUCTION INDUSTRY GROWTH PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
236000	Construction of Buildings	480	15.8%	1.5%
238000	Specialty Trade Contractors	210	3.0%	0.3%
230000	Construction	630	5.4%	0.5%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Transportation and Warehousing

The transportation and warehouse industry is projected to continue grow in response to continued increases in container volumes at the Port of Savannah.³⁹ Table 2.11 shows projected growth in this industry sector through 2028. Overall, the transportation and warehouse industry is projected to add 3,430 jobs in the Coastal Georgia LWDA between 2018 and 2028, with a projected annual growth rate of 1.7 percent.

TABLE 2.11 TRANSPORTATION AND WAREHOUSE INDUSTRY GROWTH PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
486000	Pipeline Transportation	120	78.5%	6.0%
485000	Transit and Ground Passenger Transportation	160	39.8%	3.4%
493000	Warehousing and Storage	1,190	26.2%	2.4%
484000	Truck Transportation	640	20.7%	1.9%
488000	Support Activities for Transportation	1,240	19.4%	1.8%
487000	Scenic and Sightseeing Transportation	40	12.4%	1.2%
492000	Couriers and Messengers	150	11.6%	1.1%
480000	Transportation and Warehousing	3,430	18.7%	1.7%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

³⁹ Ibid.

Economic Growth Incentives

In addition to increased trade and population and commercial growth throughout the region, another trend driving the development of freight-generating land uses is the provision of economic growth incentives by the federal, state, and local governments. These incentives come in various forms (e.g., tax abatements, tax credits, job training, grants) and are intended to recruit new and expanding industries to the region. The purpose of incentive programs is to make the development of new, or the expansion of existing businesses, more financially viable, thus encouraging private companies to invest additional resources in their respective operations. Examples of incentives are summarized below. These include those that have already been used to spur growth in freight-related industries in the region as well as other incentives that may be used in the future.

Federal

- **Federal Qualified Opportunity Zones** – Federal Opportunity Zones were created by the Tax Cuts and Jobs Act of 2017 to support economic development in low-income communities throughout the United States. Through this program, investors are eligible to receive tax benefits when investing within 260 designated census tracts within the State of Georgia. Within the three-county study area, there are nine census tracts eligible for investment-related tax benefits, all of which are located within Chatham County. These tracts are located in downtown Savannah, along industrial portions of the Savannah River east of the Port of Savannah, and south of Hunter Army Airfield along the Little Ogeechee River. Tax benefits available to Federal Qualified Opportunity Zone investments – such as in real estate and business equipment within these zones – include reduced capital gains taxes on investments within Opportunity Zones and deferred taxes on prior capital gains that are reinvested within Opportunity Zones.⁴⁰
- **Foreign-Trade Zone 104** – Chatham, Effingham, and Bryan Counties are all located within Foreign Trade Zone 104, which also includes 14 additional counties in eastern Georgia surrounding the study area and the Port of Savannah. Foreign-Trade Zones were established by the Foreign-Trade Zones Act of 1934, which authorized the establishment of designated areas throughout the United States that feature policies geared towards lowering costs for US-based companies conducting international trade. The goal of the program is to support economic development and job creation in the United States, especially in critical sectors like manufacturing, by allowing companies to purchase products from the global market at competitive prices. World Trade Center Savannah administers Foreign-Trade Zone 104 on behalf of the 17-county region, allowing companies within the region to take advantage of benefits such as customs duty deferrals or elimination, lower tariffs, inventory tax savings, reduced merchandise processing fees, and relaxed inventory storage and transfer regulations.⁴¹

State

- **Job Tax Credits** – Job tax credits are available statewide for businesses that create new jobs in freight-intensive industries such as manufacturing, warehousing, distribution, and processing. These new jobs must be positions that provide health insurance to employees, allow employees to work at

⁴⁰ Georgia Department of Community Affairs. Federal Opportunity Zones. <https://www.dca.ga.gov/community-economic-development/incentive-programs/federal-opportunity-zones>

⁴¹ World Trade Center Savannah. Foreign-Trade Zone. <https://www.wtcsavannah.org/services/foreign-trade-zone-104/>

least 35 hours per week, and meet other wage requirements. Tax credits are scaled based on the level of existing economic development within a county, with all counties statewide ranked from Tier 1 to Tier 4 based on their unemployment rates, per capita income, and percentage of residents below the poverty level. Within the study area, Chatham County is categorized as Tier 3 and Effingham and Bryan Counties are categorized as Tier 4, meaning these counties qualify for job tax credits of \$1,250 annually and \$750 annually, respectively. The maximum job tax credit, which is available for the least-developed Tier 1 counties statewide, is \$3,500 annually. The Job Tax Credits program is jointly administered by the Georgia Department of Community Affairs and the Georgia Department of Revenue.⁴²

For companies in all industries that create high-paying jobs, defined as jobs that pay at least 10 percent more than the average wage of the county in which the new jobs are located, additional incentives are available through the Quality Jobs Tax Credit. By creating at least 50 qualifying jobs within 24 months, companies can increase the maximum Jobs Tax Credit they qualify for from \$3,500 per job per year to \$5,000 per job per year, with the credit amount scaled based on how much the new job pays relative to the average wage in the county. Companies can claim the Quality Jobs Tax Credit for up to seven years.⁴³

- **State Opportunity Zones** – Georgia’s State Opportunity Zones predated the Federal Qualified Opportunity Zone program and are one of several types of special economic development zones designated by the Georgia Department of Community Affairs. This program aims to spur redevelopment in underperforming commercial and industrial areas by allowing new jobs created within these zones to qualify for Georgia’s maximum job tax credit of \$3,500 for each job resulting from revitalization efforts. One State Opportunity Zone currently exists within the study area; this zone is located along the riverfront in downtown Savannah, just east of the Route 17 bridge over the Savannah River.⁴⁴
- **Military Zones** – Like State Opportunity Zones, Military Zones are another geographic designation that allows less developed areas of the state to qualify for Georgia’s maximum job tax credit, even if these areas are within counties that are not qualified as Tier 1 counties. The Military Zone designation allows census tracts adjacent to military bases that have poverty rates of at least 15 percent to qualify for up to \$3,500 in job tax credits for new jobs created in any industry, as long as two or more new jobs are created. Within the study area, eligible Military Zones exist in the southern and northern portions of Bryan County surrounding Fort Stewart and across much of the western portion of Chatham County.⁴⁵
- **Less Developed Census Tracts** – Similar to State Opportunity Zones and Military Zones, Less Developed Census Tracts are areas designated by the Georgia Department of Community Affairs that allow census tracts within non-Tier 1 counties the same job tax credit benefits of Tier 1 counties because these tracts feature similarly high levels of poverty and unemployment and similarly low wages. To qualify for credits, businesses within any industry must create at least five new jobs while

⁴² Georgia Department of Community Affairs. Job Tax Credits. <https://www.dca.ga.gov/community-economic-development/incentive-programs/job-tax-credits>

⁴³ State of Georgia. Tax Credits. <https://www.georgia.org/competitive-advantages/incentives/tax-credits>

⁴⁴ Georgia Department of Community Affairs. State Opportunity Zones. <https://www.dca.ga.gov/community-economic-development/incentive-programs/state-opportunity-zones>

⁴⁵ Georgia Department of Community Affairs. Military Zones. <https://www.dca.ga.gov/community-economic-development/incentive-programs/military-zones>

meeting the same health insurance and wage requirements outlined for the broader Job Tax Credits program. Within the three-county study area, Less Developed Census Tracts exist in the northern portion of Bryan County throughout Pembroke and Ellabell and throughout much of Savannah, including the industrial eastern Savannah riverfront and much of the area surrounding the Port of Savannah.⁴⁶

- Enterprise Zones** – In 1997, the Georgia Assembly passed the Enterprise Zone Employment Act to promote investment in areas of the state that have faced economic decline or underdevelopment. This program allows for incentives including local property tax exemptions and reductions in local occupation taxes, regulatory fees, building inspection costs, and other similar charges on businesses. To qualify, jurisdictions must meet three of five Enterprise Zone criteria, including high poverty rates, high unemployment rates, below-average levels of development, general distress, and blight.⁴⁷ Within the study area, four Enterprise Zones have been designated, three of which are within Savannah and one of which is within Garden City. In Garden City, the designated Enterprise Zone is located in the town center along Dean Forest Road south of Interstate 16. This mixed-use area features local municipal uses like the city hall, police department, and library, as well as a range of retail, residential, and light industrial uses. Development of new medium-density apartment buildings is ongoing within this zone.⁴⁸ The existing zones within Savannah – including along Martin Luther King, Jr. Boulevard, Waters Avenue, and Pennsylvania Avenue – are located along neighborhood-scale commercial corridors, but the potential exists for other zones within the region to be designated that may support the development of freight-oriented land uses going forward.⁴⁹
- Investment Tax Credit** – For existing manufacturers within the state, Georgia offers tax credits to businesses that expand existing facilities or create new facilities, with a minimum investment requirement of \$100,000. These tax credits are scaled based on the tier of the county in which the business is expanding and can be used to offset investments in land acquisition, land and facility improvements, buildings, and machinery for manufacturing.⁵⁰ This tax credit is applicable to many of the freight-intensive businesses within the three-county study area, including the manufacturing businesses located along the Savannah River and in other industrial hubs throughout the region.
- Port Tax Credit Bonus** – The Port Tax Credit Bonus can be combined with either the Job Tax Credit or Investment Tax Credit as an additional economic incentive for companies that expand their operations to increase imports or exports through one of Georgia’s deep-water ports, including through the Port of Savannah. To qualify for the Port Tax Credit Bonus, a company must increase its imports or exports by at least 10 percent over the prior calendar year and meet minimum port traffic volumes of 75 net tons, 5 containers, or 10 twenty-foot equivalent units. When combined with the Jobs Tax Credit, the Port Tax Credit Bonus is worth an additional \$1,250 per job per year for up to five years. When combined with the Investment Tax Credit, the Port Bonus can elevate the

⁴⁶ Georgia Department of Community Affairs. Less Developed Census Tracts. <https://www.dca.ga.gov/community-economic-development/incentive-programs/less-developed-census-tracts>

⁴⁷ Georgia Department of Community Affairs. Enterprise Zones. https://www.dca.ga.gov/sites/default/files/enterprise_zones_flyer.pdf

⁴⁸ City of Garden City. Ordinance 2017-4: An Ordinance to Provide for the Creation and Regulation of Enterprise Zones. <https://www.gardencity-ga.gov/home/showpublisheddocument/2569/636688872738570000>

⁴⁹ Savannah Office of Business Opportunity. Enterprise Zones. <https://www.savannahga.gov/DocumentCenter/View/3081/EZ-brochure?bidId=>

⁵⁰ State of Georgia. Business Incentives 2022. <https://79590748.flowpaper.com/BusinessIncentivesBrochure/#page=8>

Investment Tax Credit to the equivalent of that of a Tier 1 county, regardless of the tier of the county of investment.⁵¹

County/Local

- **Bryan County** – The Development Authority of Bryan County considers the awarding of economic development incentives on a case-by-case basis. Available incentives include ad valorem tax reductions on land, buildings, machinery, and other business equipment and an exemption from local property taxes on both finished and unfinished goods, known as a freeport exemption.⁵² Bryan County, along with the cities of Richmond Hill and Pembroke, also offers a 100 percent freeport exemption on e-commerce businesses in line with Georgia’s state exemption for the same businesses. This exemption means that goods stored for up to 12 months in an e-commerce fulfillment center within Bryan County are exempt from county and local property taxes.⁵³ The Development Authority of Bryan County also offers a mentoring program for businesses to encourage and support local business growth across industries.
- **Chatham County** – As in Bryan County, Chatham County offers a 100 percent freeport exemption for finished and unfinished goods, as well as for inventory temporarily held by e-commerce distribution operations. These exemptions apply at both the county (Chatham) and city (Savannah) level. Chatham County also offers a tax exemption for foreign merchandise in transit, which reduces the property tax burden for goods temporarily held within Chatham County and intended for shipment through the Port of Savannah.⁵⁴ Within Chatham County, Garden City also offers local-level incentives in the form of property tax abatement and development fee waivers, among other supports for economic development.⁵⁵
- **Effingham County** – Like Bryan County, the Industrial Development Authority of Effingham County offers county-level economic development incentives on a case-by-case basis, aiming to customize incentives packages to the needs of each business. Tax-related incentives offered by Effingham County include a 100 percent freeport tax exemption on finished and unfinished goods and abatement options for real and personal property taxes. The Industrial Development Authority also offers access to development project financing through industrial revenue bonds, expedited project permitting, and access to discounted county-owned land for development.⁵⁶
- **City of Savannah** – In addition to federal, state, and county incentives, the City of Savannah offers multiple economic development incentives at the local level. Through the Alternate New Employer Economic Development Rates program, large employers that have 200 or more full-time employees

⁵¹ Ibid.

⁵² Development Authority of Bryan County. Incentives.

http://bryancountyga.com/site_selection/incentives#:~:text=Local%20Incentives%3A%20Ad%20Valorem%20tax%20reductions%2A%20Land%20%26,Development%20Authority%20of%20Bryan%20County%20and%20local%20governments.

⁵³ Development Authority of Bryan County. Bryan County Freeport Advantage.

https://bryancountyga.com/images/uploads/GA-Bryan_County-Freeport_Advantage.pdf

⁵⁴ Savannah Economic Development Authority. Incentives Database. <https://seda.org/resources-and-data/incentives-database/>

⁵⁵ City of Garden City. Economic Development – A Growing City. <https://www.gardencity-ga.gov/planning-economic-development>

⁵⁶ Effingham County Industrial Development Board. Incentives Database. <https://effinghamindustry.com/resources-and-data/incentives-database/>

and offer medical and retirement benefits can qualify for a waiver for fees resulting from new connections to water and sewer infrastructure. This program also offers new industrial employers the opportunity to qualify for fixed industrial water rates for up to three years.⁵⁷ These incentives are particularly relevant for freight-intensive operations such as large industrial and manufacturing businesses, as these businesses may have particularly water and sewer costs relative to businesses in other industries. The City of Savannah also offers an Economic Development Tax Credit in the form of a reduction in fees for business tax certificate renewals. This credit is available to businesses within specified economic development zones within the city that create at least two new full-time jobs. These zones include the state-designated Enterprise Zones and Opportunity Zones outlined above, as well as along Wheaton Street, Ogeechee Road, Augusta Avenue, and West Bay Street, the latter two of which are located just south of the industrial Savannah waterfront near the Georgia Ports Authority's Ocean Terminal.⁵⁸

Other City of Savannah economic development incentives are available through the Savannah Economic Development Authority (SEDA). These include property tax abatements for new or expanding businesses and infrastructure grants for relocating or expanding businesses. SEDA may also provide new or growing businesses offering high-wage, high-quality jobs additional support through rent subsidies, environmental studies, temporary office space, subsidies for LEED certification, tax allocation district financing, and access to capital through tax-exempt industrial revenue bonds, among other programs. While many incentives are available to new businesses or to existing businesses making new investments in Savannah, SEDA also prioritizes retaining existing businesses by providing ongoing training opportunities, supporting local workforce development efforts, and cultivating business relationships through annual site visits by SEDA staff where information is shared on the resources available to support business development and growth.⁵⁹

While many of the above economic development incentives are not tailored specifically to promoting freight-generating industries, businesses in those industries have taken advantage of these programs to expand their operations in the region. Going forward, economic development authorities at both the state and local level must ensure that these incentives are supporting the creation and growth of businesses that advance the region's goals while avoiding the creation of conflicts with other non-freight land uses.

Anticipated Growth – Non-Freight Land Uses

While the focus of this technical memorandum is on freight-related land uses, there are anticipated changes in other land uses that are important to consider. As the region grows, there will be increased demand for services and housing to serve new businesses and residents. Though these uses may not be considered as freight-generating land uses, they can have an impact on the freight transportation network. This includes competition for limited developable land, conflicts with neighboring freight-generating land uses, and transportation network conflicts as freight and non-freight users must share the same roadway network. Below, this section of the report discusses anticipated changes to service industries and residential land uses that potentially impact freight.

⁵⁷ City of Savannah. Alternate New Employer Economic Development Rates for Water and Sewer Services. <https://savannahga.gov/1603/Alternate-New-Employer-Economic-Developm>

⁵⁸ City of Savannah. Economic Development Tax Credit. <https://savannahga.gov/1604/Economic-Development-Tax-Credit>

⁵⁹ Savannah Economic Development Authority. Incentives Database. <https://seda.org/resources-and-data/incentives-database/>

Anticipated Service-Inclined Industry

The service-inclined industries considered in this analysis are those that do not produce freight activity at the same magnitude as those deemed freight-generating industries, but still generate some freight activity. These include firms in the health care and social assistance, education, and professional, scientific, and technical service fields. Examples of the freight impacts of these industries include medical supply distribution to hospitals and medical centers and food deliveries to schools and universities. Anticipated growth in service-inclined industries in the region are detailed by sector below.

Health Care and Social Assistance

Based on Georgia's residential population projections,⁶⁰ between 2020 and 2030 the population of the CORE MPO region will continue to outperform the overall state population, increasing by 12 percent between 2020 and 2030 and by 22 percent between 2020 and 2040 (see Table 2.12). With an increased population comes increased demand for health care and social services.

For the last ten years, the healthcare and social assistance sector has supported large number of workers in the region. Based on the 2021 forecast, between 2018 and 2028, healthcare and social services are projected to add 8,370 jobs in the Coastal Georgia LWDA with a projected annual growth rate of 2.3 percent. In 2024, St. Joseph's/Candler is planning to build a 27-acre medical complex on Belfast Commerce Road. The facility is located just 1.2 miles southeast of Belfast Commerce Park. The preliminary phase of this project, including a primary and urgent care facility, is intended to open in 2024.⁶¹

TABLE 2.12 HEALTHCARE AND SOCIAL SERVICE INDUSTRY PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
621000	Ambulatory Healthcare Services	3,880	32.7%	2.9%
622000	Hospitals	2,460	19.3%	1.8%
623000	Social Assistance	1,130	23.7%	2.1%
623000	Nursing and Residential Care Facilities	900	22.4%	2.0%
620000	Health Care and Social Services	8,370	25.0%	2.3%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Educational Services

The region is home to multiple colleges and universities, including Georgia Southern University- Armstrong Campus, Savannah College of Art and Design, Savannah State University, Savannah Technical College, and South University-Savannah Online. Residential population growth in Bryan and Effingham Counties is driving K-12 enrollment. Additionally, Effingham County public schools grew by 600 students in 2021.⁶²

⁶⁰ Georgia Governor's Office of Planning and Budget. 2021 Population Projections. <https://opb.georgia.gov/census-data/population-projections>

⁶¹ Nicholson, Zoe. St. Joseph's/Candler announces plans for new regional medical facility near Bryan County megasite. Savannah Morning News. September 2021. <https://www.savannahnow.com/story/news/2021/09/23/st-josephs-candler-hospital-medical-facility-bryan-county-ga-megasite/5803544001/>

⁶² Major upgrades coming to Effingham Co. schools. Sam Bauman. July 2022. <https://www.wtoc.com/2022/07/13/major-upgrades-coming-effingham-co-schools/>

Based on the 2021 forecast, between 2018 and 2028, the educational services sector is projected to add 4,820 jobs in the Coastal Georgia LWDA, with a projected annual growth rate of 1.7 percent.

TABLE 2.13 EDUCATION SERVICE INDUSTRY PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
611300	Colleges, Universities, and Professional Schools	1,860	29.1%	2.6%
611600	Other Schools and Instruction	80	24.4%	2.2%
611100	Elementary and Secondary Schools	2,720	15.4%	1.4%
611200	Junior Colleges	20	2.4%	0.2%
611000	Educational Services	4,820	18.30%	1.70%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Professional, Scientific, and Technical Services

The region hosts a variety of professional, scientific, and technical services firms, ranging from diagnostic labs to engineering and geotechnical service providers. Based on the 2021 forecast, between 2018 and 2028, the professional and technical services sector is projected to add 1,540 jobs in the Coastal Georgia LWDA, with a projected annual growth rate of 1.7 percent.

TABLE 2.14 PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICE INDUSTRY PROJECTIONS 2018-2028

NAICS Code	Industry	Total Change	% Change	Average Annual Growth
541900	Other Professional, Scientific, and Technical Services	320	34.0%	3.0%
541200	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	480	32.4%	2.8%
541600	Management, Scientific, and Technical Consulting Services	220	28.4%	2.5%
541300	Architectural, Engineering, and Related Services	280	14.7%	1.4%
541000	Professional, Scientific, and Technical Services	1,540	18.1%	1.7%

Source: Georgia Department of Labor. Long-Term Industry Projections (2018-2028) for Coastal Georgia Local Workforce Development Area. July 2021.

Anticipated Residential Land Use

Anticipated population growth throughout the region will significantly impact land use throughout its counties. New residents will require housing, services, schools, and other amenities, ideally with easy access to employment opportunities within the region. Less-developed areas, including much of Bryan and Effingham Counties, will require new housing construction to meet projected population demand. In Chatham County, residential development may be mostly limited to redevelopment of existing residential and mixed-use areas. The density (rural versus urban), location, and type (single-family versus multi-family) of this new residential construction will directly impact freight flows as trucking is the region's predominant freight mode and must share the network with other roadway users.

Another impact that may begin to emerge is the potential for housing demand to place pressure for redevelopment in traditionally industrial areas. In particular, demand for housing downtown is placing pressure on traditionally industrial areas to accommodate more residential development as Savannah's downtown has expanded west into the Riverside District and east into the Eastern Wharf. Freight-efficient land use strategies enable the preservation and protection of these existing industrial land use areas from non-industrial land uses in order to maintain logistical facilities and manufacturing within the urban core.

3 IMPACTS OF FREIGHT-INTENSIVE LAND USES

As established in the prior section, freight-intensive land uses are currently found throughout the three-county region and are projected to continue to grow in prominence in the coming decades. Expansion at the Port of Savannah, increased investment in logistics and manufacturing hubs, and continued growth in the accommodations, food services, and retail trade sectors will all further the trend of freight-intensive uses becoming increasingly present within the regional landscape. While this growth in many ways symbolizes the thriving economy and healthy population expansion in the CORE MPO region, growth in freight-intensive land uses also has the potential to create conflicts with other land uses, the traveling public, and the surrounding environment. The following sections identify types of freight-intensive land use impacts and begins to outline some prospective approaches to addressing the resulting challenges.

3.1 Community/Quality of Life Impacts

Communities located anywhere along the supply chain may experience negative externalities from the transport of freight. Negative externalities are costs from industrial or commercial activities that effect a neutral third-party. Freight-intensive land use can affect communities located near freight generators (gateways, distributions centers, manufacturers), communities along freight transit corridors, and communities around end receivers (e.g., commercial facilities or manufacturers). Negative externalities include, but are not limited to, congestion, pollution, noise, increased accidents, and aesthetic degradation.

FIGURE 3.1 COMMUNITY-FREIGHT CONFLICTS



Source: Savannah Morning News and Effingham Herald.

Communities Near Freight Gateways and Auxiliary Facilities

With the record growth in imports and exports through the Port of Savannah in recent years, communities near principal freight gateways such as Garden City and Port Wentworth have experienced increased traffic congestion, increased noise, long delays at train crossings, increased land costs – including property taxes – and the loss of grocery stores. Conflicts between freight gateways and surrounding communities are particularly challenging. Locating gateway auxiliary facilities close to freight gateways reduces externalities to surrounding communities while increasing them in communities immediately adjacent to these large logistical facilities. Where feasible, steps need to be made to reduce externalities to these communities (e.g., removing at-grade rail crossings or imposing impact fees on freight-intensive development to fund community improvement projects). Where there are no real practical means to mitigate or reduce negative externalities, potential land swaps or voluntary condemnation may be an option. Most importantly, to avoid future conflicts, it may be worth considering a moratorium on new residential development in and around freight gateways and auxiliary facilities until appropriate planning can be done to limit freight externalities on these residential uses.

Communities Near Regional Distribution Centers

Similar to gateways and auxiliary facilities, communities located around regional distribution centers can experience a spectrum of negative externalities from freight activity. The distinction between these facilities and gateway or auxiliary facilities is that there is more flexibility in where they are located. The FELU's preferred urban-to-rural transect supports the location of regional freight distribution centers in rural and suburban areas, offering more flexibility and avoiding direct conflict with incompatible land uses.

Fortunately, as depicted in Figure 3.2, the bulk of new larger regional logistical centers are already located further from the city center along freight gateways such as freeways and in less developed areas. This gives time to update zoning to impose buffers or intersperse other types of zoning such as mixed use to buffer these areas. It is important to note that given predicted ongoing demand, consideration should be given to preserving or banking additional areas adjacent to these sites to both ensure long-term capacity while reducing encroachment by inconsistent land uses.

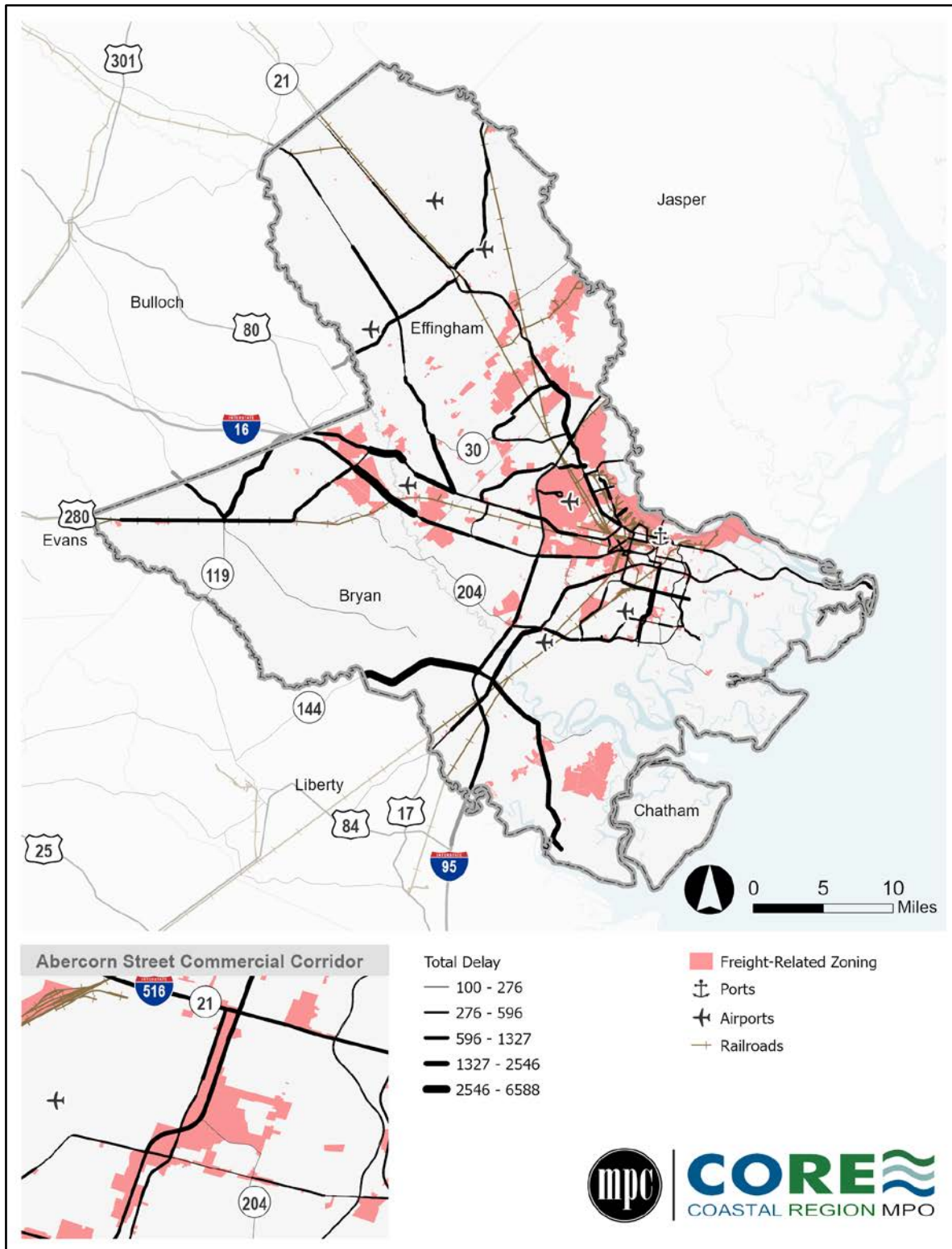
Communities Along Freight Corridors

Communities along corridors between freight gateways, auxiliary facilities, distribution centers, or manufacturers also face their own set of negative externalities produced by freight vehicle traffic. Communities along SR 21 have experienced growing truck traffic volume and congestion. For these types of impacts, roadway reconstruction projects can help alleviate these effects when these projects seek to accommodate freight vehicles while also enhancing safety and traffic flow for other users. For example, completion of the Jimmy Deloach extension as well as Effingham Parkway are expected to help alleviate overall congestion on SR 21.

Communities Near Freight Receivers

Urban communities around the receivers of freight, including retailers, accommodations, and food service businesses, and manufacturers can experience some similar externalities as well as other unique challenges. Congestion in urban areas goes beyond travel time. Residential communities adjacent to freight-receiving establishments can experience reductions in available street parking and amplified noise from delivery truck activity, as well as challenges related to pedestrian and bicycle safety, as these vulnerable road users tend to be more prevalent in denser urban areas.

FIGURE 3.2 REGIONAL FREIGHT-RELATED ZONING AND FREIGHT DELAY



Source: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

3.2 Environmental Impacts

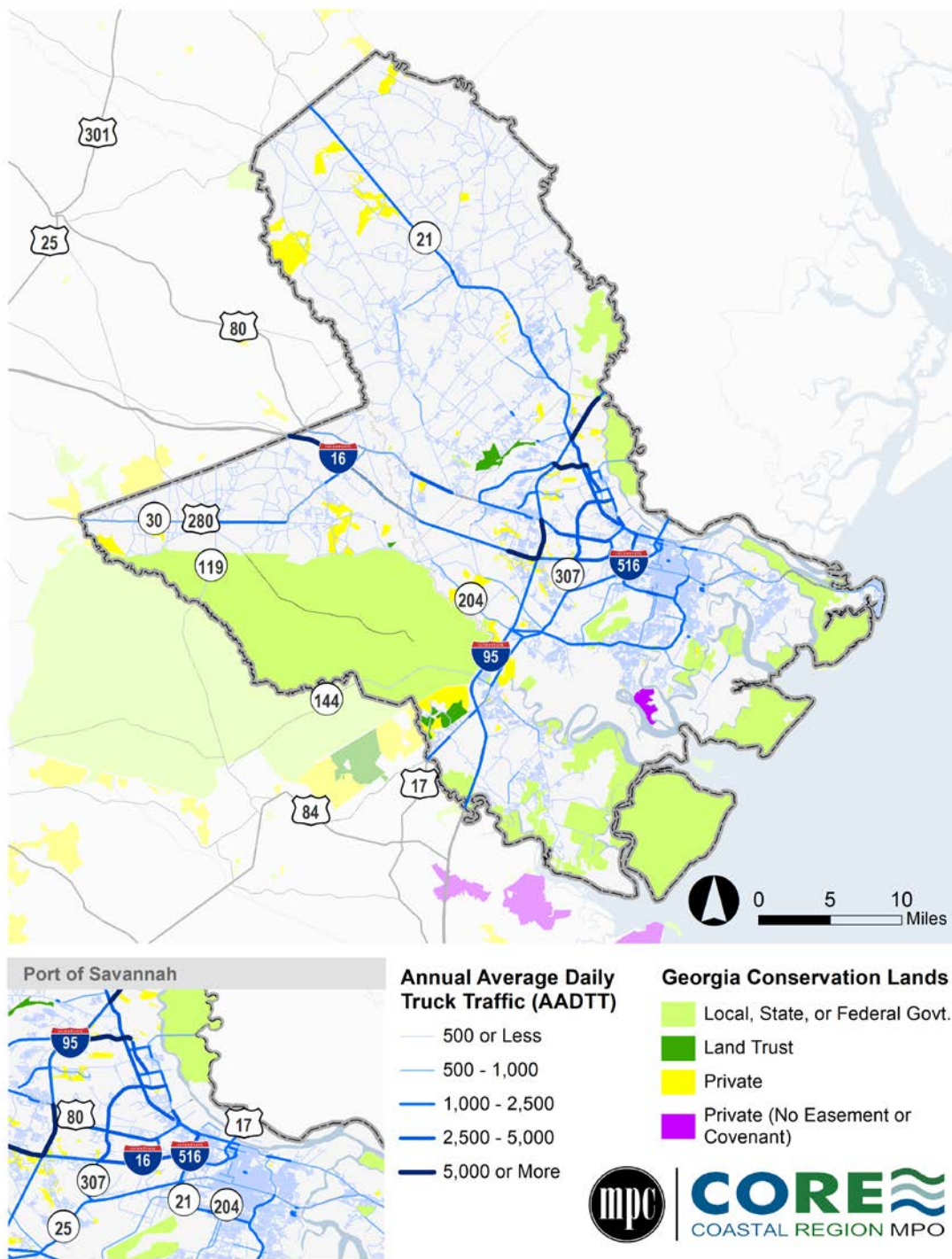
Freight intensive land use can result in a variety of impacts on the surrounding environment. This section outlines potential freight-intensive land use impacts on natural areas and wildlife, stormwater management, air quality, and noise pollution.

Natural Areas and Wildlife

Transportation networks intertwine with wildlife habitats and can have adverse effects such as loss of habitat, degradation of habitat quality, crashes that can reduce animal populations, and population fragmentation and isolation. Consideration of the effects of transportation on wildlife and mitigation projects that facilitate movement of animals across transportation infrastructure help support the natural patterns of wildlife. The CORE MPO region is home to multiple state parks, national parks, land trusts, and that serve as wildlife habitats. In addition, the CORE MPO region contains privately held conservation lands. In Georgia, conservation lands may have restrictive covenants that limit development and other activities for a period of 10 years in order to preserve wildlife habitats and environmentally sensitive areas in its natural state or under management.

There is some overlap between freight activity and freight-generating land uses with these areas. In many cases, wildlife habitats are adjacent or proximate to freight-generating land uses. Figure 3.4 depicts the overlap between wildlife habitats and highway corridors that carry substantial volumes of freight as measured by annual average daily truck traffic (AADTT). Several of the region's highest truck volume corridors are proximate to sensitive areas for wildlife.

FIGURE 3.3 WILDLIFE HABITATS AND TRUCK TRAFFIC



Source: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

Stormwater Runoff

Logistical facilities such as Freight Gateways (e.g., container berths, rail yards, airport facilities/runways, and interstate freeways), Auxiliary Facilities (e.g., container yards, drayage yards, and reefer racks) and distribution centers (e.g., warehouses buildings, loading/unloading bays, and employee parking) all require stable surfaces constructed on engineered substrate capable of supporting the large weights. As a result, all of these logistical facilities can result in large areas of impervious surface. Poorly designed grading and drainage runoff can result in flooding to adjacent properties and waterways. Untreated runoff can impair nearby waters. Zoning for larger scale logistical facilities should adopt and incorporate stormwater management regulations tailored to address these type of freight facilities.

Emissions and Air Quality

Emissions from the operation of fossil-fuel-powered equipment and vehicles contributes directly to surrounding air pollution. Transportation contributes to over 50 percent of nitrogen oxides (NO_x), over 30 percent of volatile organic compounds (VOC), and over 20 percent of particulate matter (PM)⁶³. EPA projects that by 2040, air pollution emissions from freight will exceed all other types of transportation emissions, including passenger transportation.⁶⁴ Currently, the CORE MPO region is in an attainment zone for all major air pollutants (i.e., air quality meets or exceeds National Ambient Air Quality Standards). However, with an increasing focus on greenhouse gas emissions, many levels of government are looking for reductions in overall emissions even in areas of attainment for more traditionally regulated air pollutants. Additionally, on a local scale, air pollutants can impact adjacent land users without changing the overall attainment rating of an area and thus can be a negative externality.

In recent years, transportation agencies have recognized the focus has shifted to the large size (>100 acres) and stability (unlikely to move to another location) of freight gateways, making them strong candidates for investment in electrification to reduce emissions and meet zero-emission goals. Zero-emission technology is focused on reducing air pollution emissions including greenhouse gases. EPA and USDOT are investing billions in the installation of electrical infrastructure at large gateways like ports to allow ships to plug into the electrical grid while loading and unloading cargo (e.g., container ship shore power or electric refrigerated container racks) or use battery-powered equipment. Currently, GPA is installing nine electric rubber tire gantry (RTG) cranes at their new Cross-Dock Waterhouse located just north of GCT. These plug-in electric cranes will reduce site emissions by 63 percent compared to traditional diesel RTGs. The large building surface areas at distribution centers also offer opportunities for the installation of solar panels which can help offset the costs of electricity during peak energy hours. Electric or hybrid vehicles may also be practical for transport of smaller, more frequent freight deliveries over shorter distances (e.g., urban distribution centers to restaurants and retailers) reducing emissions to surrounding communities.

Noise

Logistical facilities and freight transportation can generate significant noise, with loading and unloading equipment and 24-hour operations contributing to noise pollution in areas surrounding freight-intensive uses. Similar to emissions, conversion of vehicles and equipment associated with freight-intensive land use can

⁶³ EPA. Why Freight Matters. <https://www.epa.gov/smartway/why-freight-matters-supply-chain-sustainability> Accessed on February 08, 2023.

⁶⁴ EPA. Why Freight Matters. <https://www.epa.gov/smartway/why-freight-matters-supply-chain-sustainability> Accessed on February 08, 2023.

also reduce noise. Providing buffers and transition zones between freight-intensive land uses and other noncompatible activity can help buffer noise. Additionally, restricting the development on noncompatible land uses near freight-intensive areas can help ensure noise buffering.

3.3 Existing Freight Land Use Regulations

All the county comprehensive plans touch on some discussion regarding the need to buffer residential and neighborhood areas from industrial. Chatham County's 2040 Plan recommends integrating commercial and office land uses as infill to buffer residential areas from industrial areas. Currently, none of the counties (Bryan, Chatham, and Effingham Counties) nor their municipalities have developed or implemented Freight Efficient Land Use (FELU) plans or programs. FELU plans encourage land-use patterns that “minimize the social costs (private plus external costs) associated with both the supply chains and the economic activities that consume and produce goods, at all stages of production and consumption, including reverse and waste logistics.”⁶⁵ Nonetheless, Bryan County and Richmond Hill have adopted some freight focused local ordinances including the following:

Richmond Hill – Unified Development Ordinance – Truck Stops

The City of Richmond Hill's official code specifies development standards for truck stops, which are distinct from service stations, in its Unified Development Ordinance. Among other requirements, Section 13.7 H of its Unified Development Ordinance requires a minimum lot size of 2 acres, a minimum width of 200 feet on an arterial street, and that no driveway be closer than 600 feet from an interchange on- or off-ramp. The Unified Development Ordinance also sets truck parking minimums for cartage, express, parcel delivery facility, and freight and intermodal terminal developments. These facilities must provide two truck spaces per truck berth or loading dock (Section 14.3 Table 14-3). The Unified Development Ordinance also prohibits the overnight parking of trucks in parking lots that have not been specifically approved for that purpose (Section 14.4 E).

Bryan County – Official Code – Truck Stops

In Bryan County, Section 114-747 of its official code establishes development and operating standards for truck stops. It requires a minimum parcel area for new truck stops or travel plazas of ten acres with at least 200 feet of direct road frontage on a collector or arterial road. The parcel on which the truck stop/travel plaza is located must be within 2,000 feet of the centerline of the nearest interstate highway exit/entry ramp. If the parcel on which the truck stop or travel plaza is located is within 1,320 feet of a residential zoning district, then a noise impact study must be prepared and include mitigation measures to ensure that noise levels at the boundary of the residential zoning district will not exceed 60 A-weighted decibels (dBA) between the hours of 10:00 p.m. and 7:00 a.m. The study must also propose idling time restrictions and a plan for compliance. Overnight parking is not allowed at newly developed truck stops/travel plazas unless it is electrified. The code requires that electrified parking spaces be installed for each overnight space to allow truck drivers to provide power to necessary systems (e.g., heating, air conditioning) without idling the engine.

3.4 Strategies for Mitigating Freight Impacts

Given the potential conflicts between freight-intensive land uses and other aspects of the regional built and natural environments outlined above, it's essential that future planning efforts for these freight-intensive uses

⁶⁵ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 9.

seek to minimize the externalities they impose on the surrounding community. To that end, the Transportation Research Board's (TRB) National Cooperative Highway Research Program (NCHRP) published a guide in 2022 for land-use policy and planners to make land-use decisions to improve the efficiency of freight transport, loading and unloading, and the overall supply chain. This guide details Freight-Efficient Land Use (FELU) policies that could build upon the existing freight-related regulations discussed in section 3.3 above.

FELUs are governed by five principles:

1. Minimize the private and external costs of supply chains and their stages.
2. Reduce the distance traveled at supply chain stages, upstream and downstream.
3. Mitigate or eliminate the externalities at supply chain nodes and Large Traffic Generators (LTGs).
4. Recognize and account for local conditions.
5. Engage all stakeholders.

In order to foster more Freight-Efficient Land Uses, the NCHRP identified 43 land-use initiatives that could better foster well-organized and planned freight activity. Table 3.1 outlines these initiatives and gives examples of what each initiative could look like if implemented in the CORE MPO region. A broader discussion of land-use recommendations for accommodating the region's projected growth in freight-intensive land uses is included in later sections of this Regional Freight Transportation Plan.

TABLE 3.1 INITIATIVES TO SUPPORT FREIGHT-EFFICIENT LAND USES

No.	Freight-Efficient Land Use Initiatives	Example Tactics for the CORE MPO Region
1	Develop a FELU Plan	Develop a regional land use plan for the CORE MPO area utilizing the FELU principles
2	Implement a FELU Program	Implement specific recommendations from the regional FELU plan, emphasizing the importance of creating consistency in approaches to zoning and planning for freight land uses across the three-county region
3	Densify Logistics Activities toward the Urban Core	Locate gateways, auxiliary facilities, and urban distribution centers near/in the cities of Savannah, Richmond Hill, Pooler, and Rincon, which could generate efficiency through reductions in freight VMT ⁶⁶
4	Preserve Existing Logistics Land Uses	Preserve existing freight-intensive areas west of Downtown Savannah, Garden City, and Port Wentworth to ensure these existing users retain easy access to the Port of Savannah
5	Logistics Land Reserves	Reserve land near existing logistics facilities, such as near the industrial development hubs outlined in Table 2.5, to accommodate future expansion and limit logistics sprawl
6	Co-Location of Auxiliary Facilities near Major Gateways	Continue to strategically locate auxiliary facilities, such as truck parking and intermodal yards, as close as possible to major gateways such as the Port of Savannah and Savannah/Hilton Head International Airport
7	Foster Logistics Mixed Use	Foster the mixture of traditional (e.g., residential, commercial) and logistics land uses in population centers including Pooler, Savannah, Richmond Hill, and other cities to reduce truck VMT and resulting emissions
8	Relocate Large Traffic Generators, If Warranted	Consider whether large traffic generators, such as major commercial or industrial centers, create undue burdens on the surrounding community and whether these uses warrant relocation, diversification, or other interventions to reduce the intensity of freight uses
9	Create Logistics-Focused Land Banking	Preserve vacant, abandoned, or tax-delinquent properties in the more heavily urbanized areas within the three-county region to strategically deploy for future freight-intensive uses as regional needs evolve. All three major Economic development authorities (SEDA, DABC, and Effingham IDA) have started to purchase and hold vacant land for strategic development of industrial land.
10	Use Overlay Zoning	Create zoning overlays adjacent to existing or planned industrial development hubs to limit the growth of uses on those surrounding parcels (e.g., residential uses) that may create conflicts with existing or planned freight-intensive uses
11	Use of Form-Based Zoning	Develop a form-based zoning code that regulates the appearance of freight-intensive uses – including structural massing, building design, driveway access, parking, and other elements – to ensure that freight-intensive uses like retail stores are congruent with the character of the surrounding neighborhood. This would be particularly valuable in the historical districts such as Savannah and Springfield.
12	Use Hybrid Zoning	Create a zoning code that uses both traditional and form-based elements, with form-based regulations on warehouse and light industrial uses within broader mixed-use zoning districts
13	Create Special Purpose Districts	Foster special purpose districts designed for freight-intensive uses, such as districts surrounding industrial development hubs in the CORE MPO region, that mandate minimum road widths, required vertical clearances,

⁶⁶ National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools. Pg. 64.

		and necessary stormwater interventions specifically geared towards supporting concentrations of large-scale manufacturing and industrial uses
14	Use Planned Unit Developments (PUD)	Establish planned unit developments to ease regulatory and zoning hurdles for freight-intensive uses in exchange for certain conditions that limit the impact of freight-intensive development on surrounding communities such as setbacks, improved landscaping, etc.
15	Enhance Subdivision Regulations	Consider freight when designing subdivision regulations for new residential areas in Bryan and Effingham Counties, including considerations for e-commerce deliveries.
16	Foster Context-Sensitive Planning and Design	Engage community stakeholders early in the planning process for making updates to municipal and county zoning codes to ensure buy in from residents and reduce potential future conflicts between freight-intensive uses and other important community assets
17	Use Conditional Use Requirements	When granting conditional use exceptions to the existing zoning code, require freight-intensive uses to implement FELU principles, such as by requiring the creation of a freight traffic management plan or by mandating site designs that limit the impact of freight on nearby uses
18	Require Provision of Buffers	Mandate that new freight-intensive developments or redevelopments implement buffers in their site designs to limit the impact of freight operations on surrounding properties, such as through the designation of setback, tree planting, or other similar requirements
19	Redevelop Underutilized Facilities	Encourage redevelopment of existing properties for freight-intensive uses, such as underutilized properties within existing Enterprise Zones, Opportunity Zones, or abandoned retail centers before encouraging greenfield development of new sites
20	Require Provision of Logistics Areas	Update requirements for the development of new or redevelopment/refurbishment of existing freight-intensive buildings, such as office buildings and large residential buildings that receive significant e-commerce and similar deliveries, to include space for freight unloading, sorting, and storage
21	Require Provision of Off-Street Loading and Parking Areas	Require that new freight-intensive developments, including non-traditional freight users such as hotels, restaurants, and large residential buildings, include off-street parking and loading areas for freight vehicles
22	Enhance Building Codes and Design Guidelines	Review city and county building codes to ensure that freight needs are accommodated for all freight-intensive uses, such as through requiring driveways with appropriate turning radii in new commercial and residential developments
23	Multimodal Logistics Developments	Co-locate future industrial hub development with intermodal facilities that allow for the on-site transfer of goods between truck and rail
24	Freight Cluster Development	Cluster freight users together that may have frequent deliveries between facilities, such as clustering auto parts suppliers near the forthcoming Hyundai development at the Bryan County Mega-Site
25	Multistory Logistics Developments	Support the development of multistory facilities for warehousing and storage in more densely populated or high-demand areas, such as in Garden City near the Port of Savannah, to limit the sprawl of these facilities away from major freight gateways
26	Urban Consolidation Centers	Incentivize the creation of terminals that allow for the consolidation of freight deliveries into fewer vehicles to limit VMT generated by partially full trucks driving common routes or delivering to common facilities

27	Urban Distribution Centers	Allow for the development of small-scale delivery warehouses on underutilized parcels in or near urban centers to limit VMT resulting from last-mile delivery stemming from e-commerce activity and other similar uses
28	Upgrade Off-Street Parking Areas and Loading Docks	Require improvements to loading docks for larger businesses in high-traffic areas, such as major retail stores in denser neighborhoods, to limit the impact of truck deliveries on other non-freight users
29	Truck Stops and Long-Term Parking	Expand truck parking and staging areas near the Port of Savannah to limit queuing on public roads and provide plug-in capability to reduce emissions.
30	Staging Areas	Incentivize clusters of freight-intensive businesses to create shared off-street truck delivery staging areas or loading zones to limit the impacts of concentrated freight activity on surrounding neighbors
31	Use Impact Fees or Proffers	Charge new development of freight-intensive businesses a one-time fee to create a municipal or county fund to mitigate the impacts of this development, such as through investments in road safety improvements
32	Use Tax Incentives	Leverage existing tax incentive programs, such as those currently provided by Bryan, Chatham, and Effingham Counties and the Savannah Economic Development Authority, to encourage economic development aligned with FELU principles
33	Provide Land Subsidies or Grants	Offer city- and county-owned land to freight-intensive users at a discounted price in return for the creation of new or expanded businesses that align with FELU principles
34	Provide Performance-Based Incentives	Align existing fee reduction programs, such as those offered by the City of Savannah for new water connections or business tax certificates, with changes to business practices that reduce externalities from freight, such as the provision of off-street loading zones and the consolidation of deliveries to reduce total trips and freight VMT
35	Enhance Existing Certification Programs	Create an FELU certification program and offer public recognition or awards to businesses that comply with FELU principles
36	Use Tax Increment Financing	Designate regional industrial development hubs as tax increment financing districts and use the resulting tax revenue generated to fund improvements that reduce freight externalities, such as roadway safety improvements or restoration of nearby wildlife habitat
37	Educate Elected Officials on the Importance of FELUs	Build relationships with city councilmembers and area state and federal representatives to communicate the importance of FELU planning and identify resources for future infrastructure investments to support FELU goals
38	Educate Practitioners on FELU Principles	Disseminate resources to local and regional planners and policymakers to help these practitioners advance FELU initiatives through their daily work
39	Foster Public-Private Collaboration	Expand upon existing public-private initiatives such as the Savannah Area Chamber of Commerce, Savannah Economic Development Authority, and World Trade Center Savannah to identify and advance shared priorities at the intersection of freight and land use
40	Create and Engage Joint Freight Land-Use and Transportation Committees	Utilize the CORE MPO's Economic Development and Freight Advisory Committee (EDFAC) as a forum for advancing FELU planning efforts

41	Create and Engage Regional Land-Use and Freight Forums	Through the CORE MPO's EDFAC, organize working groups of key stakeholders, including neighborhood leaders, chambers of commerce, and others, to advise FELU planning efforts
42	Implement Community Engagement Programs	Leverage the guidelines established in the CORE MPO's Participation Plan, including bodies like the Citizens Advisory Committee, to create an ongoing dialogue with the public about the intersection of freight and land use in the region and solicit feedback on future policy and planning efforts within these areas
43	Foster Business Improvement Districts	Support the creation of business improvement districts in parts of the region with particularly intensive freight land uses, such as in Downtown Savannah or along the Savannah River in Garden City, to identify and carry out small-scale infrastructure improvements that improve freight vehicle access while supporting safety for other users

Source: National Academies of Sciences, Engineering, and Medicine 2022. Planning Freight-Efficient Land Uses: Methodology, Strategies, and Tools.

4 SUMMARY

Despite being the tenth-largest overall and fourth-largest waterborne port by value, the Savannah region's population is relatively small compared to other major foreign trade gateways. While the majority of the imported freight entering the Port of Savannah has a final destination outside the region, much of this cargo will be unloaded and transported through the region via road or rail to distribution centers or auxiliary facilities) within the CORE MPO boundaries. The continued growth in logistics traffic and operations, along with the relocation and expansion of manufacturing in the region serving both interstate and international markets – as exemplified by the forthcoming Hyundai plant at the Bryan County Mega-Site and the follow-on economic development wins in the surrounding area – will only serve to put additional pressure on the three-county area to further accommodate and plan for freight-related impacts.

Keeping this future growth in mind, this land use analysis reveals the challenges inherent in planning for freight when Bryan, Chatham, and Effingham Counties – and their associated municipalities – each take their own approach to zoning and planning for these uses. As suggested throughout this analysis, freight-generating land uses extend beyond traditionally acknowledged categories such as warehousing, transportation, and manufacturing to include critical and growing regional industries such as retail trade and accommodations and food services. Given the pervasiveness of these uses throughout much of the three-county area, it's imperative that all the counties and municipalities in the CORE MPO region incorporate more freight-intensive land use classifications into local zoning and land-use codes. The interconnected nature of the region also requires more consistent classification and categorization of land use activity and publication of related geospatial data for all counties and municipalities to allow for better assessment and monitoring of impacts of freight activity on other land uses.

As noted in the final section of this analysis, the development and implementation of a unified Freight-Efficient Land Use plan is critical to minimize the negative externalities of freight activity in the CORE MPO region. Multiple FELU initiatives call for the preservation or banking of land use to minimize encroachment by incompatible land uses while at the same time ensuring sufficient space to grow. Other FELU initiatives emphasize the importance of regional collaboration in planning for and carrying out updated land-use and zoning codes. Regardless of the chosen strategies, these FELU principles provide a path forward for the region to successfully accommodate and support the continued economic benefits of being a major logistics hub while ensuring the safety, health, and wellbeing of those who live, work, and play in the region.